History and Future of Telecommunications in Kansas - 2007

Reference materials and update to a 1990 presentation to the Kansas Telecommunications Consortium requested by Jim Morrison, Chairman of the House Committee on Government Efficiency and Technology by Nelson Krueger, former Director of the Kansas Telecommunications Consortium

THE ARRIVAL OF THE INFORMATION AGE

A Background Paper

Presented to

The Kansas Telecommunications Consortium

Nelson L. Krueger, MS

Director of
KTEC
Kansas Telecommunications Consortium

January 1990

Original publications in State Library of Kansas on shelves: Call numbers **The Arrival of the Information Age** – Author: Krueger, Nelson L. CB 51.602:T 267 and CB 51.602:A 777 - 1990

Nelson Krueger

4308 Wimbledon Drive Lawrence, KS. 66047 nkrueger@sunflower.com

President & CEO of The Leading Edge, Ltd. – 1984, Founded a Kansas Corporation to provide intergovernmental liaison and public relations services in the areas of entertainment, telecommunications, energy and health care representing clients before government entities at the local, state and federal levels.

International Pilot & Flight Engineer flying the Boeing 747, 727 and Lockheed L-1011 for Trans World Airlines 1968 - 1999. Hold current Airline Transport Pilot Certificate (ATP), and continue to give primary and instrument flight instruction in "glass cockpit" Global Positioning System (GPS) aircraft. Selected as a member of the crew and flew "**Shepherd One**," the aircraft which transported Pope John Paul II on his first six-day tour of the United States. Manager of Flight Operations Communications. Legislative Liaison for TWA and the Air Line Pilots Association; received the Flight Crew of the Year and **Award of Excellence**; recognition from the United States Air Force for service in the Civil Reserve Air Fleet during Desert Shield/ Desert Storm; test pilot for post overhaul flight tests, flight deck instrumentation layout, and "heads-up", display. Chairman of the TWA **Employee Committee** representing 38,000 employees. During several TWA approved leaves of absence, served in the following capacities:

Director – Kansas Telecommunications Consortium (1989 – 1990). Develop a state wide, state of the art telecommunications system in Kansas. Oversight of market analysis, cost analysis and technology analysis currently underway and be instrumental in developing a strategic plan for the Consortium. Chairman of a strategic planning group formed by the State of Kansas to assess the status, needs and deployment of fiber-optic telecommunications infrastructure for education, business, medicine, government, libraries and economic development.

Secretary's Representative, U. S. Department of Labor (1981-1986). White House appointment providing liaison for the Secretary of Labor to governors in ten states, congressional offices, state and local agencies, community based organizations and state and local government. Elected Vice Chairman of the Federal Regional Council (Region VII) comprised of more than 100 Federal Agencies.

Kansas Administrative Assistant for Senator Bob Dole (1973 – 1976). Established and supervised four U.S. Senate field offices providing constituent services on issues including telecommunications, transportation, energy, education, oil and gas, energy, aviation, and agriculture. Served as surrogate speaker and presenter for the Senator. Current member of the Senate Office Boys Association – **SOB's**

Federal Fuel Allocation Officer (1972 – 1974). Responsible for adjusting base period volumes for fuel outlets during the Arab Oil Embargo, assuring fuel allocations for harvest and critical businesses. Provided liaison to the governor on fuel related activities.

Education

B.S.- Business Administration: Fort Hays State University.
M.S.- Business Administration and Physics: Fort Hays State University

Related activities include flight test of triple spool turbo-jet engines (RB-211 and Trent) for the Lockheed L-1011 auto-land aircraft; glass cockpit and heads-up flight instrument display; physiological aspects of flight operations – toward understanding human behavior and motivation.

Affiliations

Phi Kappa Phi - National Scholastic Honor Society
Sigma Pi Sigma - National Physics Honor Society
American Institute of Aeronautics and Astronautics - Senior Member
Distinguished Alumni – Fort Hays State University

TELECOMMUNICATIONS AND INFORMATION SCIENCES LABORATORY
The University of Kansas
Nichols Hall - West Campus
2291 Irving Hill Road
Lawrence, Kansas 66045-6929
(913) 864-4832

January 3, 1990

Nelson L. Krueger
Kansas Technology Enterprise Corporation
4308 Wimbledon Drive
Lawrence, Kansas 66046

Dear Nelson,

We have received a positive response regarding the proposal abstract (attached) describing research in high speed networking. This means that we are in the process of writing a full proposal to DARPA. The full proposal is due January 31, 1990. My discussions with DARPA staff clearly indicated that state support through KTEC along with industry support through United Telecommunications/U.S. Sprint will enhance the attractiveness of the effort to DARPA. Note this project will have significant benefits for the state. This project will thrust Kansas to the forefront of telecommunication technology. The project will make Kansas a national center for developing high speed networking technology, a key to the information age. Further, we anticipate that the project will extend beyond the proposed three years.

A major long term effort will follow from this initial project. A small investment by KTEC is an essential component to the leveraging of this project. Only about a 17% contribution is needed for the first year. The technology developed through this project will be of benefit to United Telecommunications/U.S. Sprint. We have been in contact with U. S. Sprint and are optimistic about their participation in this project.

We would appreciate any help you could be toward making this project a reality.

Sincerely yours,

Victor S. Frost, Director
Telecommunications and Information Sciences Laboratory
Associate Professor
Electrical and Computer Engineering

VSF/ss
Attachment

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Director's Report -- FY 2005

Fiscal Year 2005 was marked by strong growth and development for the Center as ITTC affirmed its **affinity for excellence**, the theme of this year's Annual Report. We significantly expanded our core base, building upon a stable and substantial foundation. Our breadth of research activity and the development of innovative technologies serve as the underpinnings for a bright future for ITTC.

The addition of seven faculty investigators fills the Center with enthusiasm and energy. In fact, we have added 10 new investigators in the last three years. From radar systems to wireless communications, including three researchers in bioinformatics, we have secured top-notch additions to our distinguished list of investigators. Their research will serve as a catalyst for even greater advancements in our thrust areas.

Studying relationships and interactions in biological systems is an incredibly compute- and data-intensive challenge. Our new bioinformatics computer cluster, with its increased storage and faster processing facilities, is turning data into useful knowledge of biological systems. A greater understanding of these systems could lead to improved medical diagnoses, treatments, pharmaceuticals, and a host of other benefits.

We continue building relationships with Kansas companies and transferring technology to the private sector. ITTC, the Lenexa-based Rush Tracking Systems, and the RFID Journal formed the RFID Alliance Lab this fall. The Lab has published two objective benchmarking reports on RFID technologies, examining how RFID tags perform when placed in numerous realistic scenarios. For more information, please go online to www.rfidalliancelab.org/index.html.

The ITTC Annual Report Fiscal Year 2005 highlights our accomplishments in FY2005. Please view or download a copy of our 2005 Annual Report to take a look at the exciting R&D activites occurring within ITTC.

Victor S. Frost
Director of ITTC
Dan F. Servey Distinguished Professor
Electrical Engineering and Computer Science

Contact Us
Information and Telecommunication Technology Center (ITTC)
The University of Kansas
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Lawrence, KS 66045
785-864-4776

Information and Telecommunication Technology Center (ITTC)

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The ITTC Vision

To be a global leader and strategic partner in the creation and commercialization of innovative technologies in telecommunications, information systems, bioinformatics, and radar.

ITTC Mission Statement

- To advance knowledge and create innovative technologies in telecommunications, information systems, bioinformatics, and radar;
- To educate and train students for technology leadership;
- To transfer knowledge and innovative technologies to Kansas companies and national industries—by providing an excellent interdisciplinary research and development environment.

Who We Are

The Information and Telecommunication Technology Center contains six laboratories on the University of Kansas campus. Five laboratories are located in Nichols Hall on West Campus, with the sixth, the e-Learning Design Laboratory, housed in the Dole Human Development Center. The e-Learning Design Lab is a joint creation between ITTC and KU's Center for Research on Learning, which is also in Dole. ITTC has more than 45 faculty and staff researchers and 135 students who develop technologies and advance knowledge in the areas of ***bioinformatics, information technology, telecommunications, radar systems and remote sensing***

We excel in basic research, technology development, andtechnology transfer through the support of the Kansas Technology Enterprise Corporation (KTEC), private industry, and federal and state programs. Federal grants provide 82 percent of ITTC's funding, while the state invests 10 percent. Industry furnishes an additional 5 percen and a variety of sponsors make up the final category entitled "other" that provides 3 percent of the more than $6.6 million annual budget.

While we are growing in scope and capacity, our project selection continues to focus on quality projects. We want to work on projects that offer the greatest opportunity to advance knowledge and to develop and transfer technologies. On average, we collaborate with 20 companies a year. To learn more about working with ITTC, please click here.

Existing companies collaborate with ITTC for research and development, realizing that targeted research reduces costs and improves service to consumers. Fledgling companies, seeking to develop new technologies, draw on the faculty and staff. Technologies developed by ITTC foster industry growth and often provide the core for new companies.

"We're looking to collaborate with companies that have a good business plan and a good idea and that can use our technical skills and expertise," says Tim Johnson, ITTC's Executive Director.

What We Do

ITTC technologies have diverse applications in the business, biomedical, educational, agricultural, and financial areas. And while this list is not all-inclusive, it does provide a sense of how information technology is altering the way we live, work, communicate, and learn.

Research in the Bioinformatics and Computational Life Sciences Laboratory (BCLSL) ranges from analysis of genome sequence data to gene expression analysis using methods in artificial intelligence. Life-sciences researcl is dependent on information technology to process, analyze, and present biological data in new, meaningful and efficient ways. This research, such asmicroarray data analysis leads to improvements in people's health, longevity, and productivity. Research in the Communications and Networking Systems Laboratory increases the speed and improves the quality of communication systems interconnected via photonics, radio, and/or other

technologies. The National Networking Testbed project is finding more available space on the radio frequency (RF) spectrum, using that space more efficiently, and evaluating new wireless technologies. The Computer Systems Design Laboratory (CSDL) focuses on the design, implementation and verification of systems whose primary components include computers. Designers of complex electronic systems, such as computers, must develop individual pieces while making sure they are complementary to the other parts of the system. Different vocabulary and engineering processes make communication between them difficult. The system-level design language, Rosetta, allows these different parts of the whole to interact with one another. This interaction allows a greater trust in the correctness of the design and fewer errors in the actual design.

Contact us:
Information and Telecommunication Technology Center (ITTC)
The University of Kansas
2335 Irving Hill Road
Lawrence, KS 66045
785-864-4776

ITTC is changing the way teachers teach and students learn by the creation of enhanced learning environments in the e-Learning Design Laboratory (eDL). The Intelligent Systems Laboratory (ISL) is developing systems that explore data for new insights and allow more intelligent information retrieval. For example, ISL's ChatTrack helps curb inappropriate and deceptive usage on the Internet. Researchers in the Radar Systems and Remote Sensing Laboratory (RSL) are developing and evaluating the mathematical theory and algorithms associated with optimal space-time transmit waveforms for multi-static, bistatic, and mono static radar systems. Of particular interest is the development of adaptive (i.e., data-driven) space-time, transmit waveforms.

Our Researchers

Our faculty are able to provide this breadth of research activity because of our diversity and multi-disciplinary approach. We understand that new technologies are not developed within a vacuum or by one lone individual. We bring together a number of experts and give them the facilities to develop their research. ITTC-affiliated investigators from aerospace engineering, medicinal chemistry, computer science, computer engineering, education, electrical engineering, geography, and mathematics conduct research at the Center. While we do not offer any classes, we have a number of graduate students, primarily in the electrical engineering and computer science department, working at the Center and gaining practical experience under the direction of faculty researchers.

"ITTC educates the next generation of technology leaders with hands-on-experience, working in teams with state-of-the-art equipment on significant, practical problems. The technology transfer aspects of the Center provide our students with a window into real-world problems and issues, " says Victor Frost, ITTC's director.

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Overview

ITTC has had excellent results from its technology transfer activities. The Center's Office of Applied Technology works with KU Center for Research (KUCR), companies, faculty, and staff to help transfer technologies developed within ITTC from the University to the commercial sector.

New technologies come from various opportunities:

- industry or federally sponsored research agreements
- direct company assistance
- research and ideas with commercial potential from KU faculty, staff, and students

These opportunities are supported by KUCR, a foundation that manages the University's sponsored research and license agreements. ITTC-developed technologies frequently produce a license agreement with a company. These agreements often include sponsored research support, cost sharing, royalty arrangements, or sometimes equity positions. Each technology is managed to find the best "win-win" solutions for those involved.

Philosophy

ITTC Technology Transfer will:

- Help information and telecommunications industries and Kansas-based companies remain viable in the worldwide market by:
  creating flexible partnerships,
  transfering ITTC technologies to the public sector,
  working to identify the "push-pull" between university research and company needs.
- Attract and create new companies when possible;
- Seek partnerships and licensing opportunities with companies nationwide that enhance reinvestment in ITTC research;
- Promote public relations to advance ITTC's mission and economic development activities;
- Provide exceptional assistance to ITTC faculty, staff and students, and financial incentives for innovative excellence.

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Information and Telecommunication Technology Center (ITTC)

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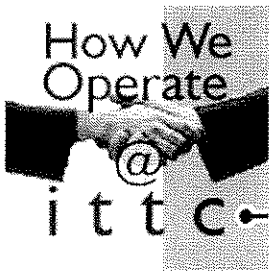

The Information and Telecommunication Technology Center at the University of Kansas has developed several ssistance policies that enhance interactions between the Center and local, Kansas or national companies.

ITTC assistance includes initial free consulting (normally one to five hours). If additional support is needed, ITTC will offer one of the following approaches:

Sponsored Research Agreement

Individuals and organizations can enter into agreements with KUCR/ITTC and provide funds for sponsored research to be performed at ITTC with the assistance of faculty, staff and students.

Licensing and Royalty/Equity Agreement

An ITTC goal is the development of investment-grade technologies for transfer to, and marketing by, local, Kansas and national businesses. To enhance this process, the Center has developed flexible policies that allow for licensing, royalty and equity arrangements to meet both the needs of ITTC and the company.

Commercialization Development

Companies with a technology need that can be satisfied with ITTC's resources can look to us for assistance. We can develop a relationship with interested partners that will provide for the development of a technology suited for commercialization.

ITTC Resource Access

ITTC resources, including computers and software systems, may be made available to Kansas companies in accordance with the Center's mission and applicable Regents and University policies.

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Communications and Networking Systems Laboratory (CNSL)

The Communications and Networking Systems Laboratory investigates all aspects of information processing and transport. Faculty and graduate students in CNSL work on high-capacity networks, optical systems, agile and software defined radios, innovative transmitter and receiver design, and reliable and robust mobile networks. The laboratory integrates leading edge research with practical implementation and applications. The focus of CNSL is to efficiently deliver reliable communications services across a wide range of challenging mediums to user applications. Recent projects involve radio design, Bluetooth and RFID evaluation, optical sensors for biology, and radio spectrum measurement and management.

Lab Director
Gary Minden

Affiliated Faculty, Staff, Students

Affiliated Projects

Affiliated Publications

Related News

Lab Resources

Optical spectrum analyzer
50GHz microwave network analyzer
40GHz digital oscilloscope
Tunable laser sources and optical filters
40Gb/s and 12 Gb/s BERTs
Electro-optic modulators, WDM multiplexers, demultiplexers
High-speed photodetectors
Commercial WDM systems at OC192 and OC48 data rates
High-speed digital T/R rooftop antenna
360 km of fiber installed for systems-level testing
DSP rapid prototyping system
Circuit board fabrication facility
Logic analyzers
Network analyzers
Spectrum analyzers, oscilloscopes and function generators
Prototype PC board fabrication tools
RF signal generators
Variety of DSP platforms and evaluation tools
Extensive wireless LAN (Wi-Fi) networks
RFID performance benchmarking facilities
Bluetooth evaluation facilities
Connection to Sunflower Broadband's cable modem and TV Network

Extensive high-speed networking infrastructure: connected to high-speed, wide-area networks; Sprint testbed connection at 40 GB/s; Internet2, CAIRN testbeds for coast-to-coast experimentation; wide variety of routers, switches, and network interfaces

Hardware and software design experience: developed 622 Mb/s ATM switch hardware, network testing and measurement tools, network simulation and modeling tools, early Web applications and servers, integrated wireless mobile systems with fixed networks

COMPRESSION
LABS, INCORPORATED

2860 Junction Avenue
San Jose, CA 95134
(408) 435-3000
FAX: (408) 922-5429
Telex: 171619

May 11, 1990

Lee Droegemueller
Commissioner of Education
Kansas State Department of Education
120 East 10th Street
Topeka, KS 66612

Nelson L. Krueger
Director, Kansas Telecommunications Consortium
Kansas Technology Enterprise Corporation
112 W. 6th, Suite 400
Topeka, KS 66603

Gentlemen:

I appreciated the recent opportunity to offer a Videoconferencing Proposal for both the Distance Learning and Economic Development applications. But it is apparent that the proposal has some shortcomings, because it fails to address the unique requirements of the instructor and the recognition that the networks may co-exist.

Further, even though certain standards will be available in the future, the need for State-wide compatibilty is not only necessary ot the network, it is the State's most attractive method for economic achievement. Just as obvious is the fact that a canned solution for the State does not now exist. And to suggest that an answer can be easily obtained or that trying to find the solution should be the sole province of the user is frankly, unrealistic.

Therefor, I would like to suggest, and take this opportunity to extend an invitation for you to visit our corporate (plant) facility in San Jose. I believe the demands of these applications when presented to the decsion makers in our company, i.e. our executives, could result in strategizing a solution to both the application and economic requirements.

I am open to dates when your schedules would permit the maximum audience. I am confident that this would not be an exercise, but a working session the results of which would extend to the State of Kansas the answers you seek. I look forward to your response.

Very truly yours,

Russell Liggett
Account Manager

cc. Jim Padalino
Director, Central Region Sales

1989

KANSAS TECHNOLOGY ENTERPRISE CORPORATION

KTEC

Innovator 2

Volume 2, Number 2
March 1990

The Kansas Technology Enterprise Corporation (KTEC) is a non-profit, quasi-public instrument established by the State of Kansas on January 12, 1987. KTEC's mission is to create and maintain employment by fostering innovation, stimulating the commercialization of new technologies and promoting the creation, growth and expansion of Kansas enterprises.

Legislative hearings held by interactive video

Kansas became the first state in the continental United States to hold legislative hearings by two-way interactive video!

The hearings were conducted on February 15 by the Senate and House Education Committees in the Old Supreme Court Room of the State Capitol. Held in conjunction with the Education Technology Fair sponsored by the Kansas State Board of Education and KTEC, the hearings linked legislators to their constituents in Girard and Ulyssess.

The connection was possible through interactive video networks established by school districts. Saving miles of travel and expanding curriculums are two of the goals of school districts banding together for interactive video networking. Districts currently involved, include:

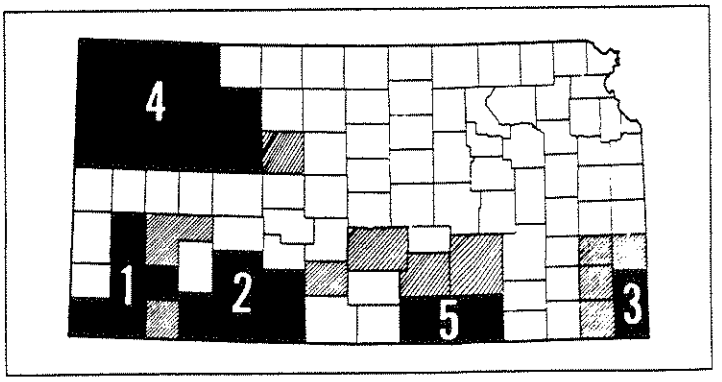
The Southeast Kansas Interactive Television Network (Girard) will serve five school districts when completed with the first hookups occurring in February just prior to the legislative hearings. Two classrooms and a studio are scheduled for completion by the fall of 1990.

The High-Southwest Plains Network (Ulyssess) serves a ten-school network, the largest group uniformly connected in the central United States. One-hundred-sixty miles of fiber-optic cable provide the backbone of the network connecting the first phase installation. An estimated 100,000 miles of travel time annually required by education specialists served by the network can be reduced and direct service to the students increased.

Three additional educational networks are proposed: Northwest Kansas, South Central Kansas, and Southwest Kansas. The Northwest Kansas network will encompass a 21-county area serving 20 school districts. The South Central Network will have nine sites. And the Southwest Kansas network will connect a group of nine, rural schools.

The legislative hearings by interactive video are the second demonstration project coordinated by the Telecommunications Consortium, a special project of KTEC. The first demonstration connected a Lawrence firm, Interactive Concepts, for a videoconference call with the Hong Kong government in November. ■

USD 217 Rolla students demonstrated software in the areas of data base management and word processing for the school newspaper and creative writing courses. In addition, students demonstrated programs used to reinforce math, reading and spelling taught in the classroom.



1. High-Southwest Plains Network
2. A-PLUS Network
3. Southeast Kansas Network
4. Northwest Kansas Network
5. South Central Kansas Network

Interactive Concepts
Incorporated

October 30, 1989

RECEIVED BY
OCT 31 1989
KTEC

Dr. William Brundage
President
Kansas Technology Enterprise Corporation
112 W. 6th Street, Suite 400
Topeka, Kansas 66603

Dear Dr. Brundage:

Interactive Concepts Incorporated wants to thank you for the personal time you and Nelson Kruger spent to be with us Tuesday evening during our teleconference session to Hong Kong. We received very favorable comments from our prospect regarding our product and the individuals who were present.

On Friday, October 27th, we received a fax from our prospect which indicated they are very anxious to purchase one (1) copy of our program immediately. This purchase is outside the Tender they are planning to release mid-November. They are planning to use an Apollo DN 3000 as their workstation platform. Our feeling is that should they acquire this first package, they will be committed to acquiring the remaining packages from ICI. They also indicated that we have satisfied them as regards our commitment to servicing the product and our customer, irrespective of the distance between us.

ICI wants to personally thank you for your foresight and initiative in making this teleconference possible. We feel it was indeed a success.

Sincerely yours,

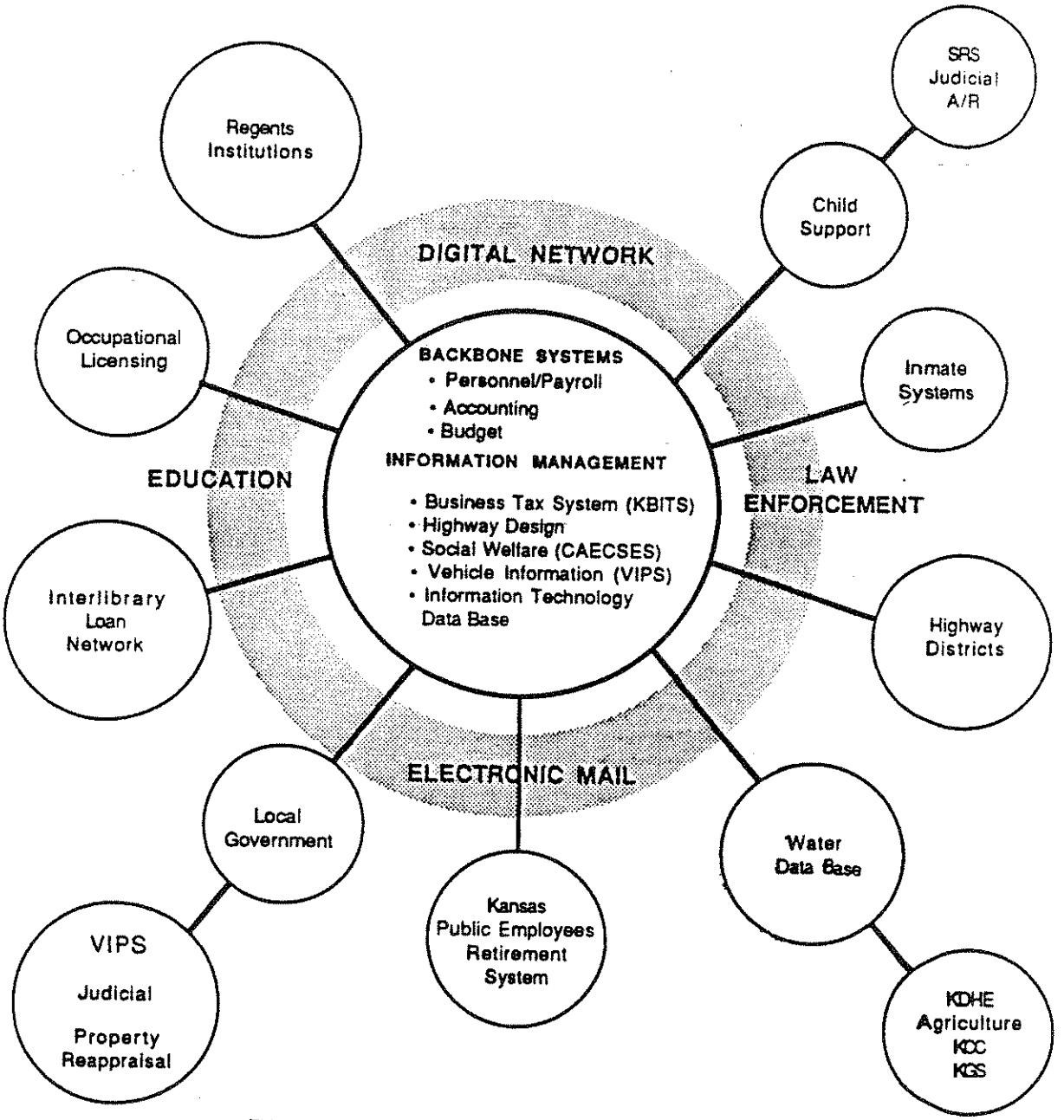
Michael H. Fragale
President

MHF/dko

1321 Wakarusa Drive, Suite 2105 • Lawrence, Kansas 66049 • (913)749-4844

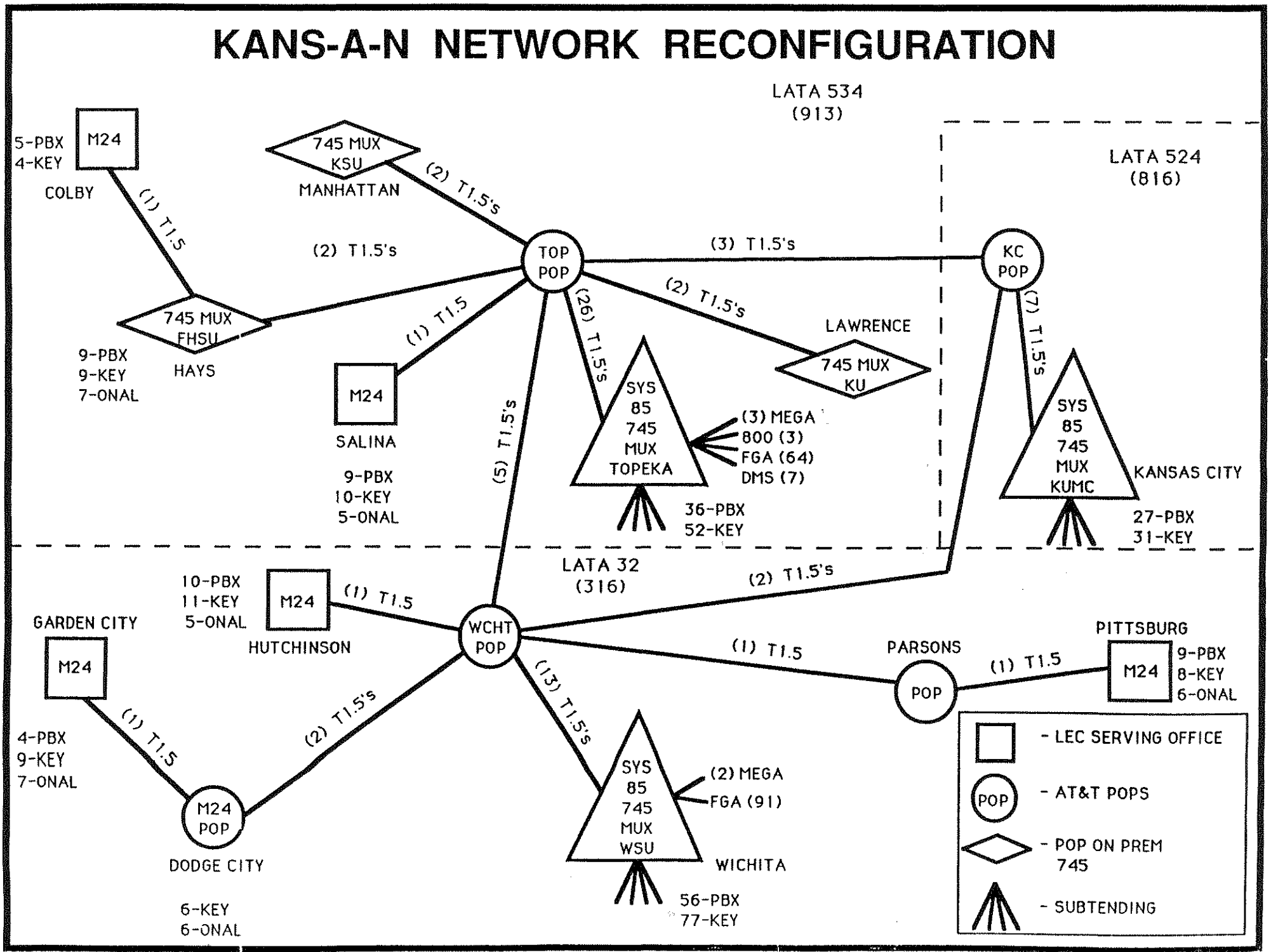
1990

State of Kansas
Information Networking



This figure highlights examples of information networking envisioned by this plan. It does not represent all systems in the state.

KANS-A-N NETWORK RECONFIGURATION



OPT IN America
THE PUBLIC INTEREST ORGANIZATION FOR THE INFORMATION AGE

November 16, 1989

Mr. Nelson L. Krueger
Director
Kansas Telecommunications Consortium
KTEC
112 West 6th St. Suite 400
Topeka, Kansas 66603

Dear Nelson:

It was good to have the opportunity to meet you last week and I can't stress enough how pleased we are that you have agreed to Chair the Kansas Chapter of Opt In America.

As I mentioned in our conversation, we are working with Governors, Mayors and citizen leaders around the country to raise the awareness of, and gain support for, this exciting new technology. It is with this support that we will turn to the United States Congress to bring this issue to the forefront of the national agenda.

Our initial goal is to assemble a list of people from around the country who support Opt In's goal of fiber-to-the-home. We hope that each of our chapters will provide at least a dozen names for our first communication with Congress, which is slated for January 1990.

In addition, we are very excited about the fiber demonstration day on February 15th. I will call you after Thanksgiving to get your input on the role that Opt In should play at this event.

Again, welcome aboard. I look forward to talking with you after the holiday.

With kind regards and best wishes–

Sincerely,

John M. Eger

Enclosures

RURAL TELEPHONE SERVICE CO., INC.

Larry E. Sevier, General Manager

P.O. Box 158
Lenora, Kansas 67645
1-913-567-4281
1-800-432-2773
FAX 1-913-567-4401

March 12, 1990

Mr. Nelson Krueger, Director
Kansas Technology Enterprise Corp.
112 W. 6th, Suite 400
Topeka, KS 66603

Dear Mr. Krueger:

Your staunch support in helping promote an interactive video pilot project for the schools in our service territory is eminently appreciated.

Schools sharing in the pilot project would include Jennings, Lenora, Logan, Palco, Natoma, Victoria, Agra and Kensington.

No doubt, you are aware of the ever increasing requirement to maintain and improve the quality of education within the constraints of a limited budget. Shared interactive video between rural communities and schools, such as the ones mentioned above, can provide the necessary link needed to help enhance education, rural health care, regional library networking, and economic development throughout Northwest Kansas.

Regarding our recent telephone conference with Mrs. Ruggles at the First National Bank of Natoma, I have enclosed information concerning the enhancement of interactive video in Northwest Kansas. Hopefully you will find this information beneficial in writing the letter we discussed recently by telephone.

This letter will be sent, along with our application, to the Rural Electrification Administration requesting a grant, or a zero interest loan in order to help our rural schools and communities maintain the quality of life that their urban cousins enjoy.

Enclosed you will find a self-addressed envelope. Please return the letter to me at your earliest convenience.

Again, I would like to thank you for your support and consideration in helping Rural Telephone Service Co., Inc. enhance the longevity and productivity of our communities and schools in Northwest Kansas.

Sincerely,

Rod Wallgren
Public Relations/Marketing Mgr.

RLW/lkw

Telecommunications Director Employed by KTEC

The Kansas Technology Enterprise Corporation has selected Nelson L. Krueger, Lawrence, as Director of the Kansas Telecommunications Consortium effective September 1, 1989.

In 1988, the Telecommunications Consortium was established to develop a state-wide, state-of-the-art telecommunications system. The feasibility of switched broadband video use by Kansas business, education, government and health care officials would allow Kansans to communicate instantly and effectively any place in the world. Demonstration projects are currently underway.

Providers and users have joined together to develop this plan, including Southwestern Bell Telephone, United Telephone (Midwest Group), A.T. & T., U.S. Sprint, Kansas Consolidated Professional Resources, the Kansas Board of Regents, the Kansas Department of Education, the State Division of Information Systems, and KTEC, representing the private sector.

As Director of the Consortium, Krueger will oversee the market, cost and technology analysis currently underway, and will be instrumental in developing a strategic plan for the Consortium.

A 20-year veteran pilot for TWA, Krueger was named Manager of TWA's Flight

Nelson L. Krueger

Operations Communications in August 1989. He will continue his association with TWA.

His list of contributions to Kansas and the Nation include serving as Kansas Administrative Assistant for Senator Bob Dole from 1974-76, with the areas of transportation, energy, and rural issues as his primary responsibilities.

From 1982-87 Krueger served as the Regional Representative for Region VII to the U.S. Secretary of Labor by appointment of the President. In that role, he served as a direct extension of the office of the Secretary and provided liaison to Governors, State and local officials and members of Congress.

Krueger holds Bachelor of Science and Master of Science degrees in business administration from Fort Hays State University (FHSU). He was selected for membership to both the Sigma Phi Sigma National Physics Honor Society and Phi Kappa Phi Academic Honor Society.■

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National Accounts
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210 West Park Avenue
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Telefax : (405) 272-0534

MCI Mail : DGILCHRIST
MCI ID : 402-8154
INET 1 : 760-1372
INET 2 : 760-1397

David R. Gilchrist
Senior National Account Executive
Government Systems

May 11, 1990

Mr. Nelson L. Krueger
4308 Wimbledon Drive
Lawrence, Kansas 66046

Dear Nelson:

It is gratifying to work with someone dedicated to doing an excellent job. It was a pleasure to see you again at the KTEC meeting last week. If my company or I can serve you in any way, please don't hesitate to call.

Sincerely,
MCI TELECOMMUNICATIONS CORPORATION

David R Gilchrist

David R. Gilchrist
Senior National Account Executive
Government Systems

DG/jmg

STATE OF KANSAS

OFFICE OF THE GOVERNOR
State Capitol
Topeka 66612-1590
(913) 296-3232

Mike Hayden *Governor*

April 27, 1990

Mr. Nelson Krueger, Director
Kansas Telecommunications Consortium
Kansas Technology Enterprise Corporation
112 West 6th Street, Suite 400
Topeka, Kansas 66603

Dear Nelson:

We are pleased to learn of your acceptance as a participant in the conference being sponsored by us on "Competitiveness for the '90s - Kansas Conference on Economic Development." We believe it is a timely subject as we enter the decade of the '90s and will provide us with a means of developing programs which will ensure that Kansas continues to move forward in all areas of business progress and achievement.

Attached you will find information regarding the purpose and objectives of this conference. The Topic Chairman for your session is Mr. Bill Brundage and he should be your point of contact as we move toward the final stages of this conference. If you have any questions or suggestions concerning your participation please don't hesitate to contact Bill at 913-296-5272.

Without participants like you, the conference could not achieve its purpose. We look forward to seeing you in Salina in June.

Sincerely,

MIKE HAYDEN
Governor

BOB DOLE
United States Senator

NANCY KASSEBAUM
United States Senator

PAT ROBERTS
United States Congressman

St. James Court Hotel Limited

Buckingham Gate, Westminster, London SW1E 6AF

Telephone: 01-834 6655 Telex: 928233 TAJJAM G Fax: 01-828 5802

February 9, 1990

Dr. Gary Hulett
Office of Governor Mike Hayden
Capital Building, 2nd Floor
Topeka, Kansas 66612-1590

Dear Gary:

It was good to see you at the Kansas Native Sons and Daughters Banquet. Pursuant to our conversation on video demonstration projects and technology transfer, I would like to meet with you soon.

Perhaps we could discuss a health care demonstration project between Dr. Cox in Hays, and the Wesley Medical Center in Wichita or KU Medical Center in Kansas City.

As you know "The Huck Boyd International Institute for Rural Development" at Kansas State University is already working on Rural Health Care Delivery. I have spoken with Ron Wilson the Director and he has some great ideas.

I just met with Faith Clark with the American Chamber of Commerce here in London about a video conference demonstration between their office and the Mid-American World Trade Center in Wichita. As the European Common Market continues to define itself, this linkage will become even more important. Video conferencing similar to the successful 8,000 mile sales call we sponsored in November between Futurative Concepts, Inc. and the Department of Engineering in Hong Kong, China shows clearly that leadership in telecommunications is the economic edge that will underpin Kansas small business development in domestic and international markets in the future.

It would be helpful to my efforts if Governor Hayden or Secretary Priddle would call Elliott Wimberly of the Mid America World Trade Centre in Wichita (316) 291-8475 to give him a "heads up" on the London project. Perhaps we could demonstrate this network at the Governor's Economic Development Conference to be held in Salina later this year. As we learned in planning the Education Technology Fair scheduled to be held there in the Capitol Building on February 15, it is easier to get vendors to demonstrate equipment when the right people are involved.

JOHN H. GIBBONS
DIRECTOR

Congress of the United States
OFFICE OF TECHNOLOGY ASSESSMENT
WASHINGTON, DC 20510-8025

February 26, 1990

Mr. Nelson L. Krueger
Director
Kansas Telecommunications
Consortium
112 W. 6th, Suite 400
Topeka, Kansas 66603

Dear Mr. Krueger:

Our director, Dr. John H. Gibbons, sent me a copy of your kind letter complimenting our recently released study, Critical Connections: Communication for the Future. Having noted your interest in the topic of rural economic development, I thought you would like to know about our follow-up study, Information Age Technology and Rural Economic Development. Enclosed is a copy of our project proposal for your information. We would welcome any comments on it that you might have.

Between May 14 and 16, I shall be participating in a symposium at the School of Business at the University of Kansas in Lawrence. If possible, I would like to schedule an interview with you, at your convenience, during that time. I can be reached by phone at (202) 228-6774.

I am looking forward to hearing from you.

Sincerely,

Linda Garcia
Project Director/Sr. Analyst

Enclosure:
Project Proposal

St. James Court Hotel Limited

Buckingham Gate, Westminster, London SW1E 6AF

Telephone: 01-834 6655 Telex: 928233 TAJJAM G Fax: 01-828 5802

Dr. William Brundage,
President,
Kansas Technology Enterprise Corp
112 W 6th.
TOPEKA KANSAS 66603

2nd February, 1990

Dear Bill,

The meeting with Dave Nicol went well.

Please thank the C.L.I. folks for their codecs for the Education Technology Fair on the 15th of February. I plan to meet with Faith Clark of the American Chamber of Commerce here in London on February the 5th to lay ground work for a video conference demonstration between the Mid-American World Trade Centre in Wichita and appropriate people here. Please let C.L.I. know that this will follow the 12 state conference in Oklahoma City scheduled for early April. I plan to involve Mike Newman - Internet - London. Mike is a good integrator and next rep for C.L.I. in London. United is very interested in having us use the Sprint Atlantic fiber.

I'll be in touch following the meeting on the 5th - please say 'hello' to the staff and tell Clyde I look forward to having lunch next week. Perhaps he is interested in attending the Technology Fair in the Capitol on the 15th.

Yours cordially,

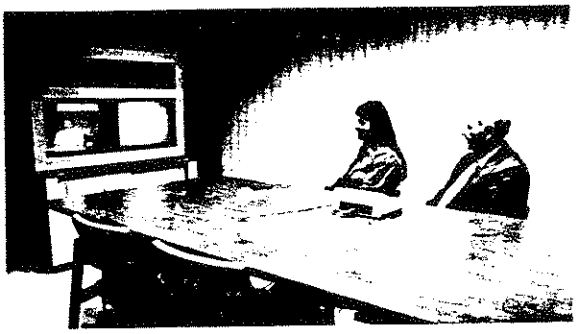
Nelson

Nelson. L. Krueger.
Director
Kansas Telecommunications Consortium.

Registered No. 1535240
Registered Office as above

THE CLI MULTIPOINT CONTROL UNIT ENABLES 3, 4, OR 5-WAY CONFERENCES AMONG THE FIVE BENDIX/KING KANSAS LOCATIONS

OTTAWA



PAOLA

OLATHE

LAWRENCE

INDUSTRIAL AIRPORT

FIGURE 4

KANSAS
TECHNOLOGY
ENTERPRISE
CORPORATION

For Immediate Release
Sept. 6, 1989

For more information contact:
Janie Rutherford, (913) 296-5272

Topeka, KS--The Kansas Technology Enterprise Corporation is pleased to announce that Nelson L. Krueger, Lawrence, has been named Director of the Kansas Telecommunications Consortium effective September 1, 1989.

In 1988, the Consortium was established to develop a state-wide, state-of-the-art telecommunications system. The feasibility of switched broadband video use by Kansas business, education, government and health care officials would allow Kansans to communicate instantly and effectively any place in the world.

Providers and users joined together to develop this plan, including Southwestern Bell Telephone, United Telephone (Midwest Group), A.T. & T., U.S. Sprint, and Kansas Consolidated Professional Resources, the Kansas Board of Regents, the Kansas Department of Education, the State Division of Information Systems, and the Kansas Technology Enterprise Corporation, representing the private sector.

As Director of the Telecommunications Consortium, Krueger will oversee the market analysis, cost analysis and technology analysis currently underway, and will be instrumental in developing a strategic plan for the Consortium.

A 20-year veteran pilot for TWA, Krueger was named Manager of TWA's Flight Operations Communications in August 1989. He will continue his association with TWA.

His list of contributions to Kansas and the Nation include serving as Kansas Administrative Assistant for Senator Bob Dole from 1974-76, with the areas of transportation, energy, and rural issues as his primary responsibilities.

From 1982-87 Krueger served as the Regional Representative for Region VII to the U.S. Secretary of Labor by appointment of the President. In that role, he served as a direct extension of the office of the Secretary and provided liaison to Governors, State and local officials and members of Congress.

Krueger holds Bachelor of Science and Master of Science degrees in business administration from Fort Hays State University (FHSU). He was selected for membership to both the Sigma Phi Sigma National Physics Honor Society and Phi Kappa Phi Academic Honor Society. He has served as a board member of the FHSU Alumni Association and will receive an Alumni Achievement Award at FHSU's Homecoming activities in October.

Krueger and his wife, the former Judy Haigler of Hays, live in Lawrence.

KTEC is a quasi-public, non-profit corporation established by the State of Kansas in 1987. To stimulate innovation and its commercial-ization, KTEC: finances collaborative research and technology transfer between academic institutions and industry; finances Centers of Excellence for basic and applied research and technology transfer; provides seed capital financing for new and emerging technology-based Kansas industry; provides matching grants for the federal SBIR Program, provides technical information and referral services to new, emerging or mature businesses; and works to attract research and development facilities and programs to Kansas.

-30-

112 W. 6th, Suite 400 ▪ Topeka, KS 66603

913/296-5272

KANSAS
TECHNOLOGY
ENTERPRISE
CORPORATION

KANSAS TELECOMMUNICATIONS CONSORTIUM

March, 1990

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Oklahoma City, OK 73102
(405) 236-2233

KANSAS BOARD OF REGENTS
SUITE 609 • CAPITOL TOWER • 400 SW EIGHTH • TOPEKA, KANSAS 66603-3911 • (913) 296-3421

February 20, 1990

Mr. Nelson L. Krueger, Director
Kansas Telecommunications Consortium
112 W. 6th Street, Suite 400
Topeka, Kansas 66603
BUILDING MAIL

Dear Nelson:

I appreciate the opportunity to reflect upon the Kansas Telecommunications Consortium activities to date, for it was less than a year ago that a small group of individuals met for the first time to discuss possible ways to obtain affordable broadband communications services in Kansas.

Through participation in these discussions, Regents institutions are hopeful that vendors of broadband services and equipment will be willing, under the auspices of KTEC, to form research and development partnerships with us. The potential for demonstration projects of this kind continues to be important as a planning tool, for it enables experimentation and learning to occur in a controlled environment before large investments of public and private resources are committed to full-scale implementation. The Kansas Telecommunications Consortium makes these kinds of opportunities possible by bringing together representatives from the vendor community, Regents institutions, and state agencies. The Education Technology Fair and the satellite teleconference between Kansas City and Hong Kong are examples of what can be accomplished when these groups work together.

The Telecommunications Consortium has provided an impetus for the development of preliminary plans for fiber optic systems by Southwestern Bell and by the Kansas Independent Network, Inc. (KINI). While it is still unclear whether KINI will be tariffed to provide video communications services and which vendor or vendors will eventually be selected to provide these services to the state, the proposals are a first step toward statewide rather than piecemeal planning. The vendors are to be commended for the participation and effort.

Focusing on the future, I see a need to:

1. **Involve the Kansas Corporation Commission (KCC) in preliminary planning discussions as much as possible.** The KCC is the only agency with authority to determine which vendors may provide broadband communications services in Kansas and what rates will be established for these services. In this regulatory capacity, the KCC performs an important planning function at the highest level --- planning for the state as a whole. In a state with limited resources, it is prudent for planning to occur at the highest level and in a holistic manner even if implementation occurs incrementally and at lower levels. What is ultimately important is that an integrated system emerge from pockets of opportunity over time. This can occur only if high level long range planning occurs.

2. **Continue to develop, support and implement pilot projects.** Successful pilot projects can provide models for the future; unsuccessful pilot projects can prevent larger, unproductive investments. Since many applications of broadband communications technologies, especially in education, are relatively new, pilot projects permit testing of various applications and develop a base of experience from which appropriate technologies can be chosen to meet particular needs.

3. **Continue to plan.** Communications systems, by their very nature, require an overall architecture in order to perform well. Without planning, the separate pieces that develop may not work together efficiently and large sums of money will have been poorly spent.

I am optimistic that by working together, Kansans can **develop a set of options for the future that anticipate the broadband communications needs of the state, are affordable and beneficial, and apply the various technologies appropriately.**

Broadband communications are becoming part of America's future infrastructure; I appreciate your efforts to help make them part of the future in Kansas.

Sincerely,

Barbara Paschke

Barbara Paschke
Associate Director of Academic Affairs

1990

Kansas
CELLU—LETTER

A periodic news and events update from Kansas Independent Networks, Inc. and Kansas Cellular.

CELLULAR TELEPHONE SERVICE IS COMING TO RURAL KANSAS!!!

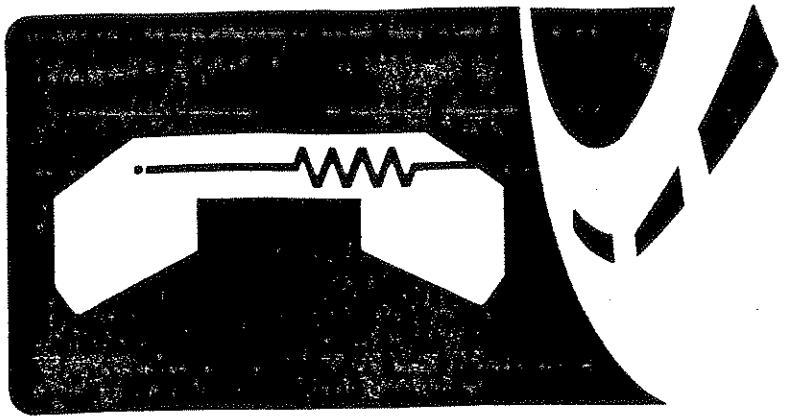
Beginning July 11, 1990, the first of 35 cellular towers will be activated throughout Kansas, allowing residents of cities outside Wichita, Topeka, Kansas City and Lawrence to benefit from cellular telephone coverage.

Cellular telephone service is defined as a radio signal to a tower and into the public telephone system allowing access to and from any phone. A unique benefit of the cellular phone service is the transfer, or "hand-off" of a call from one tower to another without interruption of service. Hand-off is one of the distinguishing features of cellular allowing you to virtually call and receive telephone service wherever you may be.

Kansas Independent Networks, Inc. (KINI), was incorporated in 1986 and is owned by the Independent telephone companies operating within Kansas. The mission of KINI is to provide management, marketing and engineering services to assist those companies in planning and operating cellular telephone service. These companies are **Kansans serving Kansans!** The cellular telephone service will be marketed under the name KANSAS CELLULAR.

The Kansas Cellular service area will encompass 65,000 square miles--over 80% of the state!

The equipment selection Kansas Cellular will have available are NovaTel and NEC brand names. Since Kansas Cellular is primarily a service provider, cellular telephones may be purchased from any cellular telephone distributor, (JC Penney's, Sears, Radio Shack, or possibly your local independent telephone company). Each of these brand names will be operable on the Kansas Cellular system.



Kansas Cellular

The twenty-nine independent telephone companies bringing cellular telephone service to Kansas include:

Assaria Telephone Co.
Assaria, KS

Columbus Telephone Co., Inc.
Columbus, KS

Golden Belt Telephone Assn.
Rush Center, KS

H & B Communications, Inc.
Holyrood, KS

Kanokla Telephone Assn.
Anthony, KS

LaHarpe Telephone Compnay
LaHarpe, KS

Moundridge Telephone Co., Inc.
Moundridge, KS

United Telephone Association
Dodge City, KS

Wilson Telephone Co., Inc.
Wilson, KS

Blue Valley Telephone Co.
Home, KS

Cunningham Telephone Co., Inc.
Glen Elder, KS

Gorham Telephone Company
Gorham, KS

Home Telephone Co., Inc.
Galva, KS

K-M Dial Compnay
Louisburg, KS

Madison Telephone Co., Inc.
Madison, KS

Mutual Telephone Company
Little River, KS

Wamego Telephone Co., Inc.
Wamego, KS

Zenda Telephone Co., Inc.
Zenda, KS

For more information, please contact Chuck Whittington, Manager of Marketing for Kansas Independent Networks, Inc., 119 W. Iron, Salina, KS or call 913-823-5049.

DISC began-1980

Table of Contents

EXECUTIVE SUMMARY

In 1980 the Kansas Legislature re-organized the Department of Administrations' Division of Computer Services and created a new division called the Division of Information Systems and Computing (DISC). This re-organization emphasized coordination, planning, and acquisition of computing resources. As a part of the re-organization, the new division was required to develop a comprehensive plan for state data processing. In 1981, the division initiated its planning responsibilities by sponsoring a statewide training program on how to analyze and plan agency data processing needs. The following year state agencies were asked to prepare agency plans which were analyzed and summarized in a comprehensive plan. This plan discussed mainframe computer usage, central site costs for data processing, and plans for new applications as well as equipment acquisitions for the next three years.

Although the plan provided valuable information about central site data processing activities, it did not provide enough information about statewide objectives, goals, and directions for coordinating the state's use of computing technologies. At that time, planning for telecommunications was also a separate process. In 1984, the Legislature and the Department of Administration examined how the state could improve its management of computing technologies. The effort covered a number of critical issues including planning, equipment capabilities, centralized payroll and personnel computing costs, mainframe computer services, and approaches for approving and coordinating the acquisition of equipment and software. To help in solving the problems identified, the 1984 Legislature reorganized the division into the Division of Information Systems and Communications (DISC). The former Office of Telecommunications was merged into the new organization.

Further internal review by the Department of Administration confirmed statewide planning should consider together communications as well as computing needs. The review emphasized the importance of planning for all information resource needs rather than planning for just data processing. This integration encourages the state to make better use of its investment in telephone lines, cables, and equipment. This integration also allows the state to invest in resources capable of performing multiple activities instead of investing in specialized "single function" technologies. A new Bureau of Information Resource Management was created to coordinate statewide planning and resource acquisitions.

Although state expenditures for information technology are increasing, the relationship to overall state expenditures is still below national averages.

In addition to the rising expenditures for data processing, the costs for telecommunication are also growing. From 1984 to 1987 state telecommunication expenditures increased by $3.6 million or by 22.9 percent. Recent estimates show that future costs for telecommunications could continue to increase by as much as 18 percent per year in the short term.

The difference between national and state expenditure trends is an early indicator that future Kansas expenditures for information technology are likely to grow as the state of Kansas takes advantage of more modern technology. The challenge is to identify opportunities for the wise use of technology early in the planning process.

To manage these investments in information technology, managers need to monitor how agencies acquire and implement information systems. In the past, the state's investment in information technologies costs was under three percent of the state's total operating budget. In the future this portion is likely to increase as the needs become more widespread. For this reason, it is important that state agencies carefully analyze their information technology requirements. It is equally important that Kansas establish an overall direction for how it will acquire and manage information technology resources. Through coordinated planning and management, Kansas can realize the benefits of technology and better manage the overall costs for operating state government. The Kansas State government has attempted to address this objective by proposing that Kansas:

1) Avoid acquiring equipment that is incompatible with standards adopted by the state.

2) Reduce costs by taking advantage of volume purchase discounts.

3) Reduce duplication by developing techniques which allow agencies to access data and software available on other systems in the state.

4) Take advantage of new technologies which conserve resources by integrating data processing and communications systems.

5) Develop standards for backup and security of state information systems.

6) Encourage agencies to develop information processing plans which are consistent with statewide objectives.

Over the next four years, there will be major changes in the technology for communicating and processing information. These changes will make it easier for state employees to use computers and communication systems. As technology becomes easier to use, a greater number of workers in Kansas will want access to computer and communication systems. By granting access, substantial increases in productivity are achievable, provided Kansas properly manages and directs the use of technology.

Components of Information Technology and Planning

(Overview)

1. Improve methods of procuring and contracting for information technology, resources, and services;

2. Implement a statewide integrated telecommunications network for voice, data, video, text and radio, with standards and protocols to permit any terminal to communicate with any other terminal;

3. Establish a policy for distributed network processing;

4. Provide for economical and efficient integration of office information systems technology throughout state government;

5. Determine what constitutes the appropriate focus of governmental concerns for the successful implementation of an information management policy for state government operations.

DISCUSSION OF COMPONENT TWO: **Implement a statewide integrated telecommunications network for voice, data, video, text and radio, with standards and protocols to permit any terminal to communicate with any other terminal** **(see page 4).**

The concept of a fully digital end-to-end telecommunications network has been developing for several years. In 1984 the Consultative Committee on International Telephony and Telegraphy (CCITT) adopted recommendations for integrated service digital networks. The statewide integrated telecommunications network will be a network compatible with internationally recognized standards for an Integrated Services Digital Network (ISDN). This architecture will provide a framework in which network capabilities can evolve into a common goal, serving user communication needs for voice, data, and video services. The CCITT, an international standards body, defines ISDN as: A network, evolved from the telephone network, that provides end-to-end digital connectivity to support a wide range of services, including voice and non-voice services, to which users have access by a limited set of standard multi-purpose customer interfaces.

The primary advantages of ISDN capabilities to the State of Kansas are integration and standardization. Integration provides for the reduction of operating expenses, stimulation of new services and applications and consolidation of similar transmission paths. Integration also results in economies of scale: voice, data, and video services can be handled by the same network personnel, using similar if not identical procedures. The first phase of ISDN implementation, digital service at the local level, began in 1986. It consists of the conversion of local premise distribution services at each major node to a wiring system that will support end-to-end digital connectivity.

Standardization of the network capabilities required to serve existing and future services will permit more effective planning. Such planning will lead to earlier compatibility and uniformity among evolving services and systems. This approach increases longevity and portability of equipment and the ability to establish universal network access procedures. The state's integrated network consists of six major nodes and several additional local nodes that permit termination of long distance digital circuits for access by local users. The attached chart (see attachments) presents statewide integrated network with the location of major nodes and possible future local nodes. The six major nodes will provide the necessary automatic and manual switching capabilities for proper routing of integrated applications. Implementation of the switching capabilities at the major nodes began in 1986 and was finished in 1987. The local nodes may also provide limited switching for further routing of services. Statewide responsibilities will include development, maintenance, and publishing of standards necessary to permit fully integrated, efficient access to the network and maintenance and control of

network facilities to assure efficient and error free operation of network circuits.

Agencies will be able to access network facilities in several configurations, depending on applications, and take advantage of standard interface protocols that permit cost-effective communications to all areas of Kansas. Implementation of a digital network began in 1986, but initially provided only voice service. Migration to a fully integrated digital network that provides voice, data, video and image capabilities occurred in stages over a period from 1986 to 1990.

In the interim period, DISC was developed using a digital high speed backbone data network that operates at 56Kbps (56,000 bits per second) with concentrator nodes in Kansas City, Wichita, Garden City and Hays. The first leg was installed to Wichita in October 1987. From each of the concentrator nodes there are lower speed circuits going to the surrounding counties operating at 4800 to 14,400 bps. This will form a statewide data network reaching every county in the State of Kansas . The plans include dial-up access to this network from approximately 30 locations around the state. Although the standard protocol adopted by the state for the data network is the IBM SNA/SDLC protocol, there is a commitment to explore the possibilities of routing non-SNA traffic over the network. Since SNA is an open network architecture, and since most major vendors either have equipment that is SNA compatible now or have announced plans for such equipment, DISC adopted a short-term stance toward the network while continuing to scan and evaluate the technology environment for cost-effective alternatives, and possible additional, communication protocols.

DISCUSSION OF COMPONENT THREE: Establish a policy for distributed network processing (see page 4).

A shared data communication network is defined as a network shared by, and available to multiple users that permits communications between all users. The users of this network will be major mainframe computer centers, strategically located departmental resource processors and geographically dispersed desk top computers and terminals. This shared network will conform to international non-proprietary standards and associated protocols.

Statewide implementation of distributed network processing requires the establishment of the integrated telecommunications network, as described in Component 2 (see page 4-5). The data transmission portion of the network consists of switching nodes connected by high-speed trunk lines or circuits to at least two other nodes. Each node is responsible for detecting and correcting errors. Users will be able to access these nodes to permit communications with any subscriber hosts or terminals. Access to the network will either be through dial-up lines or dedicated circuits depending on the applications. Users will conform to established standards and protocols to obtain access to the network. Users will also have the option to establish local area networks that conform to accepted protocols, which will ensure their ability to obtain access to other statewide facilities if required. It is anticipated that the statewide backbone data network will include the facilities of the Board of Regents Institutions and other governmental organizations in addition to those of DISC.

In addition to physical characteristics of the network, there are a number of logical relationships which need to be considered. These logical relationships pertain to the way the network should be used. In order to benefit from the network, it will be necessary for Kansas to analyze its information needs. This analysis includes information about where data should reside and how data should be communicated within the system. For example, data which can be isolated from main data bases in major systems or subsystems can initially be distributed easily. However, data which is dependent upon several systems is more difficult to distribute due to complex transmission and collection requirements. Similarly, large data processing applications may have to be processed at a central mainframe site and transmitted back to the user site for further processing.

In summary, distributed network processing should be implemented for the following reasons:

* rapidly changing communication capabilities make it feasible and cost-effective to exhange information;

* users of information are knowledgeable about their needs and better able to determine, within standards, how technologies best serve their needs;

* new processing and storage technologies, such as desk top computers, offer tools which can be tailored to local needs and allow information to be communicated with others across networks;

* distributed network processing offers economic benefits through improvements in productivity and by providing services to citizens more responsively; and

* rapidly evolving technologies will create new capabilities which cannot effectively nor feasibly be acquired from a centralized system.

Several agencies have successfully implemented departmental processors and will be using the integrated digital network for transmission of data.

Advisory Committee Information Technology Guidelines

A. General

1. Be responsive to state goals.
2. Maintain a long range vision for information technology activities.
3. Inform agencies, Regents institutions, and the three branches of government of information technology opportunities.
4. Maintain an awareness of, and, from that knowledge, a position close to the leading edge of the "state of the art" in order to exploit technology for cost-effective solutions.

B. Planning

1. Develop and maintain long-range plans in conjunction with state operating units.
2. Pursue a Data Administration/Data Architecture philosophy.

C. Human Resources

1. Maintain a qualified, trained, and motivated staff.
2. Organize staff in such a manner so as to provide efficient and effective service.
3. Maintain current job descriptions and career paths.
4. Measure staff performance and maintain a formal appraisal system.
5. Maintain an effective educational program.
6. Provide technical tools that increase productivity.

D. Hardware

1. Provide standardized, reliable, available, and secure hardware.
2. Maintain multiple, compatible, central processing units at the central site.
3. Provide connectivity among the various systems through integrated, standardized communications architecture.
4. Maintain device type standards.
5. Control changes to hardware configurations through planning and formal procedures.

E. Software

1. Provide standardized, reliable, available, and secure software.
2. Maintain standards and conventions for control programs and communications monitors, including communications protocols.
3. Control changes to software through planning and formal procedures.
4. Minimize "user added" code in purchased software as well as user-written software.

F. Applications

1. Pursue first those applications that address the greatest information requirements compatible with favorable cost/benefit ratios.
2. Provide effective maintenance for existing systems.
3. Maintain standards and conventions for applicable activities.
4. Purchase applications software when it is available and appropriate.
5. Control changes to applications through planning and formal procedures.

G. Disaster Recovery, Security, Backup

1. Maintain a disaster recovery plan encompassing hardware, software, and data.
2. Maintain appropriate security on access to data.
3. Maintain multiple, compatible central processing units at the central site.

H. End-User Computing

1. Provide support for end-users in the selection, implementation, and use of information technology.
2. Maintain a central library of end-user packages and applications for sharing among the various state units.

I. Procurement

1. Procure within the framework of these guidelines.

PLANNING COUNCIL

AGENCY		
Board of Education	Dale Dennis	Asst. Commissioner Div. Financial & Support Services
	Dick Lindstrom	Mgr., DP Section
Dept. of Agriculture	Don Jacka, Jr.	Asst. Secretary
Dept. of Corrections	Richard Schultz	Deputy Secretary Admin. Mgmt.
	Jerry Oliver	Manager, DP
Dept. of Health and Environment	Janet Marquis	Director, Offc. of Comm. Services
Dept. of Revenue	Gary Russell Tom Foust	Dir. of Operations Chief, DP Bureau
Dept. of Transportation	Roberty Haley	Director of Transportation Admin.
Regents Institutions	Gary Ott	Chairman, Regents Computer Advisory Committee
Human Resources	Gary Adkins Jim Richardson	Special Projects Director, DP
Judicial Department	Howard Schwartz Jerry Sloan	Judicial Admin. Budget & Finance Officer
KBI	Graig Brummer	Admin. Officer
KS. Corporation Comm.	Judy McConnell Dave Larson	Exec. Secretary Mgr. Computer Svcs
KS Highway Patrol	Major David Hornbaker	Telecom and Support Support Division
KPERS	Jack Hawn Ken Waters	Deputy Exec. Secy. Director, DP
SRS	Sandy Duncan Rick Racine	Comm. of Admin. Director, DP

KANSAS

KATHLEEN SEBELIUS, GOVERNOR

DIVISION OF INFORMATION SYSTEMS AND COMMUNICATIONS
DENISE MOORE, DIRECTOR

Regents Participation in Statewide Activities

Board of Regents institutions are active participants in many areas of the state's IT operations. Some of the more significant areas are:

Governance

The Board of Regents is statutorily a participant in the Information Technology Executive Council (ITEC), holding a position on that Council. As a member, they have a significant voice in determining state IT policies and direction.

Four Board of Regents institutions are active members in the Geographical Information Systems (GIS) Policy Board, and a Board of Regents Institution operates the state's GIS Data Access and Support Center (DASC) for the statewide GIS community.

Representatives from several of the Regent's universities as well as a representative of the Board of Regents routinely attend the monthly Information Technology Advisory Board (ITAB) meeting.

As a matter of policy, each of the 14 Domain Groups within the Kansas Information Technology Architecture includes at least one member from a Regents institution. Also as a matter of policy, there is always a Regents institution represented on the Kansas Technical Architecture Review Board (KTARB).

Vendor Management / Strategic Sourcing

Representatives from several of the Regent's universities were key players in the revamping of the state's personal computer contracts, providing both strategic planning information and technical resources.

A Regent's university representative served on the Procurement Negotiating Committee for the recent replacement of the statewide computer maintenance contract and Regents institutions provided the bulk of the non-Revenue equipment inventory configurations that were used in evaluation formulas.

Representatives from two Regent's universities served on the statewide Storage Area Network (SAN) study group.

A Regent's university representative regularly attends and shares in the work of the standing Vendor Management Strategic Sourcing Committee, and there are representatives from several of the Regent's universities on the Vendor Management Steering Committee.

Statewide Contract Development – The Division of Purchases holds a monthly meeting of their staff and agency procurement officials to address statewide contracts. Many of the contracts are IT-focused, and several of the Regent's universities are very active participants in these meetings.

Security

A Regent's institution serves as a Member on the state's Information Technology Security Council and acts as an interface or conduit between that group and the Regents Information Technology Security Workgroup.

Regents institutions are part of the broader security community and frequently provide information or news to state agencies (via the state's Chief Information Security Officer) about security events that they encounter first.

Operations

Regents institutions have supported the Governor's initiative to establish and implement clearer expectations in the acceptable use of the Internet by state agencies and employees.

A Regent's institution is participating in exploratory activities relative to creation of a State IT back-up facility in the Wichita area.

The KanREN/Kan-ed and KANWIN networks are interconnected on a Peer-to-Peer basis. The connection supports shared administrative applications like SHaRP.

Regents institutions are active players in the state's migration of its video conferencing functions to High-Definition (HD). Regents institutions often make their video-conferencing sites available for use by state agencies.

Project Management

Regent's institutions have been active participants in the Project Management Methodology Refresh effort.

Executive Branch Participation in Regents Activities

There are many areas where the Executive Branch participates directly in Regents IT activities. Some of the more significant areas are:

Governance

The Executive Branch CITO attends the Board of Regents Information Technology Council (RITC) meetings to provide a monthly update to the Regents institutions on state's activities and receive an update on active and planned campus IT activities.

Vendor Management / Strategic Sourcing / Procurements

The Regents Procurement Advisory Group (RPAG) is a monthly meeting of Regents institutions procurement staff. Staff from the Division of Purchases almost always joins this group's meetings. Many of the topics are IT-focused.

Most significant procurements in the State are negotiated, including those that occur at Regents institutions. CITO Staff routinely serve on the Procurement Negotiating Committees as the designee of the Secretary of Administration, providing direct involvement in most significant IT activities that occur at Regent's institutions.

Operations

DISC assisted with the initial implementation of the KanREN/Kan-ed network. DISC presently provides network monitoring services for both these networks during the Regents' off-periods.

State staff often appears before and participate in the Council on Higher Education Computing in Kansas (CHECK) Conference. CHECK gathers most of the Regents institutions IT staffs together annually for training and information sharing.

The Board of Regents co-located (moved) its data center into DISC's facility in December, 2006. DISC provides monitoring of the processors, and assists with operations on request. Discussion is occurring about integrating BOR backup and other operations with the broader DISC operations (Tivoli functions for example).

Security

Regents institutions are part of the broader security community and frequently receive information or news from other state agencies (via the state's Chief Information Security Officer) about security events that are encountered first in general government operations.

Project Management

The Executive Branch CITO and the Enterprise Project Management Office provide oversight for all projects occurring within the Regents institutions valued at more than $250,000. This oversight includes project reviews and approvals at the high-level and detailed plan stages, approval of all specifications, monitoring of the projects on an ongoing basis, and receiving the Post Implementation Evaluation Report (PIER).

A BRIEF HISTORY OF THE KANSAS BOARD OF REGENTS SYSTEM

1913 Three-member Board of Administration created by Kansas Legislature to govern the five state schools of higher education now known as the University of Kansas, Kansas State University, Emporia State University, Pittsburg State University and Fort Hays State University, each of which was previously governed by a separate Board of Regents.

1917 Board of Administration took over management of all state institutions, including penal and charitable as well as educational institutions.

1925 Legislature separated control of state educational system from that of other state institutions and placed it under the jurisdiction of a governing body of nine members who served without pay.

1939 Legislature created bi-partisan nine-member Board of Regents, and added to its jurisdiction the State School for the Deaf in Olathe and the State School for the Blind in Kansas City, as well as two black schools--Western University in Kansas City and Kansas Vocational School in Topeka. The two black schools have since been closed and in 1971 responsibility for the other two schools was transferred to the State Department of Education.

1964 Wichita State University came under the jurisdiction of the Board of Regents.

1974 Legislature made provision for a payment of $35 per meeting day for members of all state boards, including the Board of Regents.

1975 State Education Commission abolished and responsibility for administering student assistance and federal programs transferred to the Board of Regents. Student Advisory Committee, consisting of the president of each school's student senate, established to provide student representation at Board meetings and to consult with Regents on policies relating to student affairs.

1976 Kansas Technical Institute at Salina transferred from the jurisdiction of the State Board of Education to the Board of Regents. In 1988, the name was changed to the Kansas College of Technology.

KANSAS

DENISE MOORE, EXECUTIVE CHIEF INFORMATION TECHNOLOGY OFFICER — KATHLEEN SEBELIUS, GOVERNOR

Date: June 27, 2006

To: Senator Huelskamp, Chairman JCIT

From: Denise Moore, Executive CITO

Re: Question regarding greater integration of Regents HR/Payroll systems with SHARP

I have learned that the Committee, through Representative McLeland, inquired at its June 12, 2006 meeting about the feasibility of integrating the Regents' Institutions payroll systems with the State's. In an effort to address this inquiry, I present the following information.

Each university campus operates a central administrative system which includes financial management, human resources, payroll and (in some cases) student administrative functions. Each university's administrative system populates the State's central payroll system (SHARP) which in turn pays all state employees. This model has been stable and provided reliable service to-date. Additionally, individual campuses frequently integrate their central administrative systems and department information systems.

The optimal balance between functionality and cost lies in thoughtful integration of systems that are relatively more distributed with others that are more centralized.

Establishing optimal cost-effectiveness models for very large systems implementations (*e.g.*, state-wide or Regents-wide) is complex and requires significant effort and involvement of subject-matter experts with wide experience in very large enterprise implementations across a range of environments. At present, the resources in the Department of Administration who would assist in such an analysis (subject matter experts, programming staff, and technicians) have very limited availability due to their work on the project to upgrade the SHARP system to release 8.9, scheduled for implementation in June 2007. To seriously evaluate opportunities for greater integration of the Regents' or the State's administrative systems architecture and business processes, the legislature might consider an FY 08 appropriation towards professional consultation with an IT-oriented national consulting firm with a history of experience in administrative system integration in the both the public sector and higher education.

If you have any questions or would like additional information, please do not hesitate to contact me.

cc: Representative McLeland, Member JCIT
George Vega, Director DPS
Duane Goossen, Director Budget/ITEC Chairman

KANSAS

KATHLEEN SEBELIUS, GOVERNOR

KANSAS INFORMATION TECHNOLOGY OFFICE
DENISE MOORE, Executive CITO

CITO Reportable Project Processes

Planned

Planned projects are in the conceptual stage and have estimated costs and timeframes. Projects remain in this phase until the agency decides whether or not to move forward with the project.

Approximately 95% of the projects in this section are identified in the Annual Summary of Agency Three Year IT Management and Budget Plans in accordance with K.S.A 75-7210. The other 5% are disclosed through the Division of Purchases, INK, Specifications, Agency notification, etc.

Approved

Approved projects have received CITO approval of a high-level project plan as outlined in ITEC Policy 2400 Rev. I – Project Approval. Projects are still in the planning phase and vendor selection. Projects are not yet benchmarked for JCIT reporting.

The estimated project cost and timeframes remain as estimates until they begin the Execution Phase.

Specifications

KSA 75-7209 states all specifications for bids or proposals related to an approved information technology project of one or more state agencies shall be *reviewed* by the chief information technology officer of each branch of state government of which the agency or agencies are a part. Requirements for agencies to obtain CITO approval of proposed IT projects were adjusted to be in agreement with suggestions by the JCIT. As a result, all specifications for bids or proposals related to an approved IT project shall now be *approved* by the CITO before release.

If a variance of 10% or more in time or cost to the approved high-level project plan occurs, a revised high-level project plan has to be submitted for CITO approval. The CITO's approval shall be received, *prior* to contract award and/or execution. The CITO notifies JCIT of such events as per their request.

Monitored

Active projects have received CITO approval of a detailed project plan and are in the Execution Phase. Agencies submit quarterly project status reports in accordance with ITEC Policy 2500 Rev. 1 – Project Status Reporting and JCIT Policy #2 until the end of the Execution Phase.

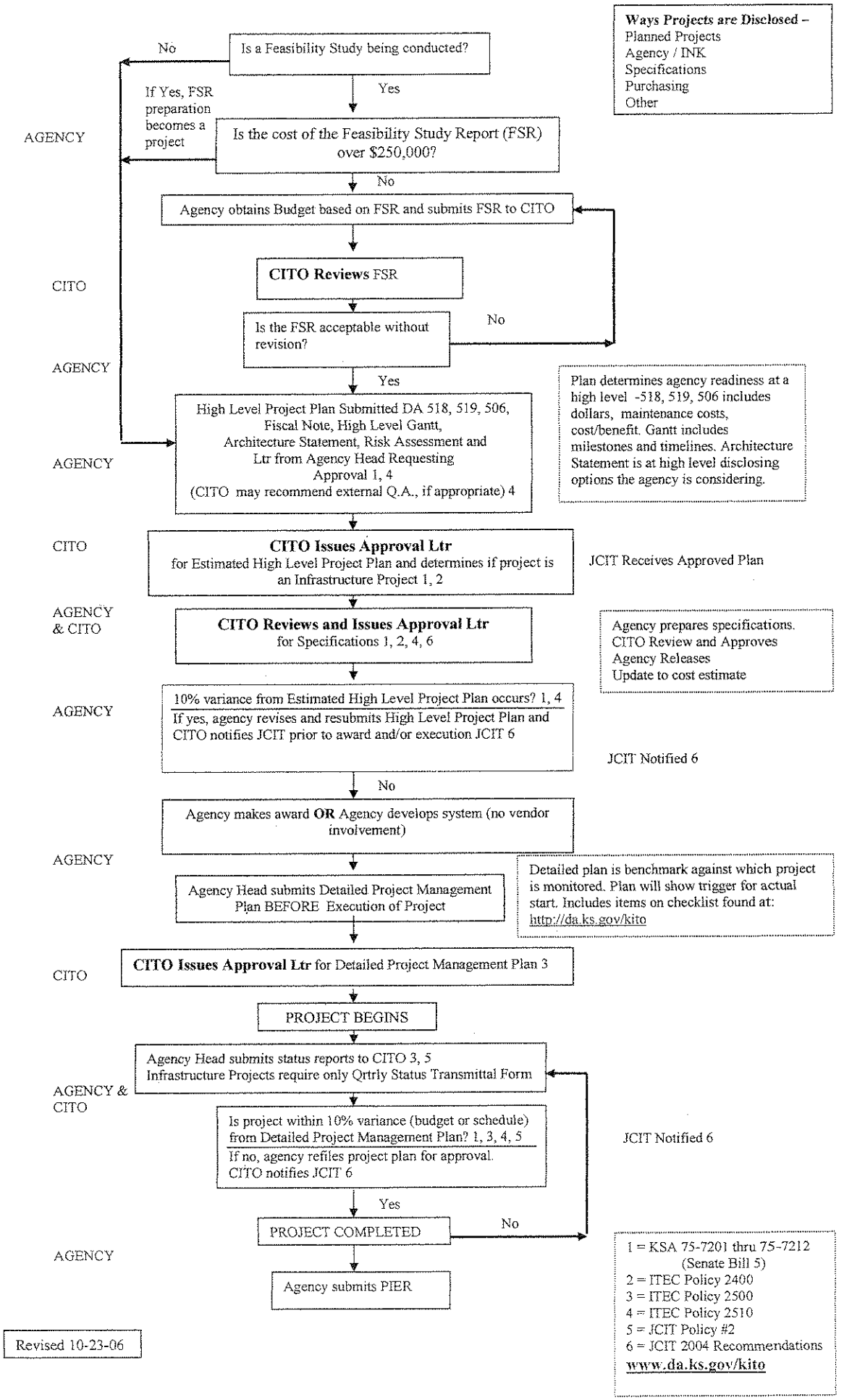
Projects that trip established thresholds are required to fulfill each course of action outlined in JCIT Policy #2 before the project can move forward.

Close-Out

Completed projects have completed the Execution Phase and the quarterly project status reporting requirement.

In accordance with ITEC Policy 2530 Project Management, agencies must maintain procedures for conducting lessons learned on IT projects during the formal closing of a project close-out process and prepare a post implementation evaluation report (PIER).

IT PROJECT PLAN APPROVAL PROCESS FOR PROJECTS OVER $250,000
EXECUTIVE BRANCH



2006 DISC Annual Report

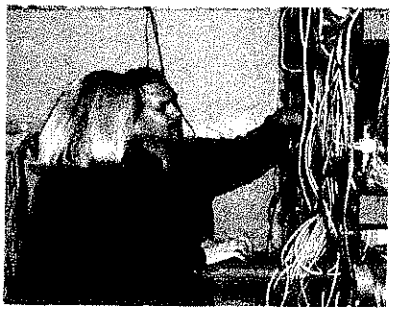
Initiatives

Wireless LAN Initiative: Beginning in the summer of 2005, DISC, The Department of Transportation (KDOT) and the Legislature initiated a project to enable wireless LAN (WLAN) communications in the State Capitol Building. Since then, DISC has installed wireless LAN controllers, Access Points (AP's), and piloted different authentication methods to be used by all state agencies. The system is currently expanding as multiple state agencies demonstrate their interest to examine and install WLAN technology.

Customers can choose from an entirely DISC-managed wireless system to one where DISC provides the basic infrastructure, offering customers greater flexibility in managing their wireless technology. The variable pricing structure is one way in which DISC is changing to meet customer needs.

KanWIN Network Move to KDOT Fiber System: Planning in earnest began in the summer of 2005 to allow the KanWIN network to utilize the KDOT Fiber Network as its backbone transport. KDOT has been installing equipment to transport 800MHz radio traffic for Public Safety applications and Intelligent Transportation Systems (ITS) data on the fiber network since 2003. With the recent clarifying language in place with the fiber provider, DISC is now able to utilize the fiber resources. As of the first of December, the KanWIN backbone began running over the KDOT Fiber Network in production mode. Because of the fiber network capabilities the KanWIN backbone capacity between Topeka, Wichita and Kansas City is significantly increased while saving taxpayers approximately $250,000 per year.

Strategic Sourcing: The reduction of costs by strategic processes is the hallmark of Vendor Management and furthers the efforts of the BEST initiative. Vendor management, overseen by a multi-agency Strategic Sourcing Group with assistance from topic-oriented Stakeholder Teams, uses techniques such as vendor consolidation, product standardization, industry best practices, procurement guidelines, and spending analysis to directly reduce costs, get more for the dollars we spend and reduce risk. Significant to this activity is the involvement and participation of local units of government and a wide variety of state agencies, including the Regents institutions. Working to serve a wider range of customers brings a new focus to many of the activities in this area.



Future Technology Planning: To assist in researching and deploying future technologies, a group of DISC employees was charged with looking into future technologies DISC and the enterprise may want or need. In addition, the group analyzes the maximization of current technology tools.

Initiatives

Security: Without increasing the KanWIN rate or added funding, additional IT security functions were implemented in the KanWIN network in the form of an Enterprise Security Office. The Security Office collaborates with various units within DISC to develop and maintain an enterprise computer intrusion detection and prevention security system. This system provides protection from computer attacks and assists in identifying agency computers that have been compromised, preventing the spread of numerous viruses in the enterprise. An investment in enterprise security is primarily justified by cost avoidance for such things as lost productivity, computer and network downtime, and liability to customers for lost data when systems are compromised.

Statewide Email Directory: A multi-agency effort resulted in the development of a statewide email directory to increase ease of communication between and among state agencies. Efforts included reduction of the number of email systems and creation of a shared services email platform for smaller agencies. The Statewide E-mail Communications Directory is available on-line to all KanWIN customers. This system receives information from the SHaRP Personnel/Payroll system and is refreshed every pay period. The directory currently contains more than 17,000 entries. This statewide email application breaks down information silos within state government and allows the Governor's Office and all state employees to communicate and collaborate via email.

Financial Management System: The administration's philosophy and approach to execution of State administrative functions includes a more decentralized approach while fostering collaborative decision-making, placing an increased focus on analyzing data about the state's operations and pursuing efficiencies on an enterprise basis. As a result, managers have become acutely aware of deficiencies in the state's financial and procurement systems that make it difficult to obtain the information needed to adequately assess the efficiency of many aspects of operations.

The Department of Administration, led by a DISC project manager, engaged in a study to assess agency and central needs for a statewide financial management system (FMS). The goal of the study was to identify and evaluate the cost-benefit of various alternatives for meeting those needs, including the possibility of acquiring a new statewide FMS. The study has been completed and will be addressed by policymakers in coming months.

Redundancy and Disaster Recovery: A major upgrade of the Department's servers was completed, dividing redundant functions between the Capitol Complex and the Offsite Data Center. This enables the Department to maintain operational stability in the event one of the facilities experiences an outage. This configuration effectively improves end to end network reliability by more than 50 percent.

Examples of Agency cross-collaboration on Projects*:

Kansas Emergency Medical Services
Kansas Emergency Medical Information System
The Kansas Department of Health and Environment (KDHE) instituted a computerized Trauma Registry in 2001 as part of the state trauma plan. The Kansas Emergency Medical Information System (KEMIS) would enhance the trauma registry and provide a more complete picture of serious injuries occurring in Kansas. It could also assist them with their injury prevention efforts. The system will provide Board of Emergency Medical Services (BEMS) with information data related to the number of heart attacks, strokes, and trauma related patients and their outcomes. It could help with curriculum development and other related initial course of instruction and continuing education needs and offerings. Additionally, BEMS is part of the Kansas Department of Transportation (KDOT) Traffic Records Coordinating Committee (TRCC), a committee comprised of 15 state agencies and organizations that recently applied for a Federal DOT Section 408 grant to improve traffic safety by sharing data. The KEMIS dataset would be compliant with the National Emergency Medical Services Information System (NEMSIS) v2.2.1 national standard and would report 61 of the 425 data elements to the national EMS databank.

Kansas Department of Transportation
Traffic Records Coordination Committee Program (TRCC)
Currently we have eight different state agencies and over 600 local law enforcement agencies and EMS service providers that collect, process, and disseminate traffic record data. Deficiencies occur in timely and accurate crash, citation, and criminal data between agencies. Multiple agencies using different data systems, agency IT priorities and little communication and exchange of data between agencies are just a small part of the traffic record data issues.

To address these issues, a Traffic Records Coordinating Committee (TRCC) was established to coordinate an effort to identify information systems that needed to be modified or developed to achieve more efficient interoperability and sharing of traffic records. A strategic plan was developed which identified 51 projects that could potentially be developed, depending on available funding, over the next 10 years. A very rough estimate of the cost of these projects is $24,700,000. The strategic plan identified 17 of those 51 projects were already active and funded from other funding sources.

Kansas Highway Patrol
Traffic Record Coordinating Committee(TRCC) and KCJIS – E-Citation Project Lead by KHP
KHP will lead the project, with funding from the Kansas Legislature and participation by local law enforcement agencies, KDOT, and OJA IT staff. The project team will gather requirements for a Uniform Traffic Citation (UTC) from law enforcement agencies and develop a draft UTC. KHP will develop the repository solution and contract for services. After testing and revision, the team will distribute the UTC to law enforcement agencies.

Kansas Highway Patrol
TRCC-Field Based Reporting (FBR) System Project
The new FBR forms application will provide the necessary infrastructure for law enforcement agencies to share information electronically, decreasing the need for paper forms. The utilization of standard forms will also enable law enforcement and other state agencies to acquire data required for state and federal reporting. The application will provide some flexibility for tailoring the system based on the needs of individual local law enforcement and other state agencies however the primary focus will be standardization of electronic forms.

Kansas Highway Patrol

Acquire and Implement Commercial Vehicle Information Exchange Window (CVIEW)

The CVIEW project will be implemented in conjunction with the Kansas Department of Revenue (KDOR) under the Commercial Vehicle Information System Network (CVISN) program. The mission of the CVISN program is to create an information network using advanced technology that will enhance efficiency, safety, compliance and enforcement for commercial vehicle operations. The Commercial Vehicle Information Exchange Window (CVIEW) software application will provide roadside access to, and integration with KDOR's Performance and Registration Information System Management (PRISM) and SAFETYSTAT. It will provide the core CVISN functionality to allow commercial vehicle enforcement personnel access to applicable databases in the field. The system will also provide for uploads and queries to be transmitted directly to SAFER. This project is intended to place CVIEW software and hardware at seven scale facilities throughout Kansas.

Emporia State University

Enterprise Resource Planning System

In the fall of 2001, Emporia State University (ESU) began to investigate the feasibility of replacing its in-house developed and maintained legacy administrative and business information systems with an integrated and commercial solution. Largely due to significant budget challenges, it was not possible to continue with the project, although the need for such system replacement continued. In 2003, Wichita State University (WSU) began the process of reviewing available software to replace its legacy applications. When the RFP was released for the WSU system, ESU was included as a participant. Staff and administrators from ESU participated in the software demonstrations and review processes. Accordingly, after significant review and evaluation, the universities decided to purchase, install, and implement Sungard SCT Banner. This partnership provides a considerable opportunity for efficiency and cost savings in purchase, training, and implementation.

Department of Administration

Statewide Financial Management System

It has been approximately fifteen years since the implementation of the Statewide Accounting and Reporting System (STARS), the financial management system used by the State of Kansas. No significant upgrades to this software have taken place during that time. In addition, a number of state agencies have begun or continued operation of independent financial systems that interface with the system, and developed other forms of "shadow" systems based on databases, spreadsheets or other approaches to address inadequacies in reporting or functionality of that system. By working together to identify current financial system requirements, opportunities for collaboration and increased efficiency, the State has the opportunity to gain greater returns while reducing some costs and risk associated with redundancies in the processes, maintenance, and support of current systems. The goal of the overall project will be to identify an approach for developing and rolling out an integrated statewide financial management system.

Kansas Department of Revenue

Kansas Apportioned International Registration (KAIR) System Replacement (Performance and Registration Information System Management (PRISM) requirements added)

The replacement of KAIR and the addition of the PRISM requirements would be the basis for other projects. The office of the Federal Motor Carrier Safety Administration (FMCSA) is strongly encouraging Kansas to add the PRISM requirements to the existing registration process. The PRISM requirements will benefit Kansas and the driving public by using commercial vehicle registration sanctions as an incentive to improve motor carrier safety. These projects would add the Kansas Corporation Commission's single state registrations, International Fuel Tax Agreement (IFTA) and the quarterly reporting and permit issuance functions used by the Kansas Highway Patrol and the Permit section of KDOT's Kansas Trucking Connection (KTC) to the new system.

Social and Rehabilitation Services

Behavioral Health Care Inpatient Registration and Billing System Replacement

Kansas SRS currently operates five hospitals within the state. These include three hospitals specializing in mental health (Osawatomie State Hospital, Rainbow Mental Health Facility and Larned State Hospital) and two hospitals specializing in developmental disabilities (Kansas Neurological Institute and Parsons State Hospital and Training Center). This project will issue a Request for Proposal (RFP) to acquire and implement a behavioral health inpatient registration and billing application that can meet the current and future needs of SRS state hospitals. The project will be completed as three sub-projects as the hospitals have differing needs in functionality of the software as well as implementation approach.

**** Based on the July-August-September, 2006 Summary of Quarterly IT Project Reports***

The Arrival of the Information Age

In 1934, the United States Congress enacted the Communications Act with the stated purpose of ensuring "that the benefits of new inventions and developments may be made available to the people of the United States."

At that time, it was too early to predict the communication infrastructure that would emerge as a result of technological innovations. Buck Rogers envisioned a scientific world of space travel, Dick Tracy, a wrist radio and Captain Kirk of the Enterprise, transporter rooms and more. Most of that is here today. Our challenge is to encourage our lawmakers to provide a business and regulatory environment that will stimulate innovation and facilitate technology transfer from academic institutions to industry. Currently, many Kansans can connect their home computers to the telephone network with a modem to access local bulletin boards, libraries, news services and business opportunities. Several strategic management groups offer software packages that are user friendly and make a businessman in Natoma, Kansas, as knowledgeable as his Wall Street counterpart because they both have the same information at the same time. In fact, in the early 1980's many corporate communication department knew it would be less expensive for them to bypass the local telephone company and set up their own communication highways. When analysts found that many companies such as Prudential could install their own networks and experience costs eighty percent less than the use of local phone company circuits, the legal system responded with deregulation of the telecommunications industry.

Kansans can be proud of their position in telecommunications because they are on the leading edge of communications satellites; microcomputer technology; fiber optics and laser disc interactive video innovation. The Kansas Telecommunications Consortium has been formed to represent the telecommunications interests of education, government, health services, and private businesses. The mission of the consortium is to establish an accessible, cost effective, state-of-the-art telecommunications system throughout the State of Kansas.

This public/private economic development Consortium shares expertise. Consortium members include Kansas Independent Network, Inc., (KINI) Southwestern Bell, United Telephone, AT&T, US Sprint, Kansas Board of Regents, Kansas Department of Education, State Department of Information Systems, and Kansas Technology Enterprise Corporation representing the private sector. At a recent conference sponsored by the Silicon Prairie Technology Associations, Kansas universities and their telecommunications departments compared notes with counterparts on their advanced research in the communications area. They looked good. However, we may be a little like the rabbit in "Alice in Wonderland' who said, "we have to run as fast as we can to stay where we are."

There is a continuing explosion in telecommunications innovation that has already changed the way we do business. We can connect computers to the telephone net-

work and tap vast libraries of data. Computers can be connected with a local area network and managers can break loose from hierarchical constraints to share information and form teams to solve problems. Connect those local area networks (LAN's) to one another and managers across the regions, across the world, become a true community of professionals - able to share resources, cross traditional boundaries, and function both *independently* and *interdependently*. Knowledge begins to emerge.

Where are we and where are we going? The new buzz words are "fiber optics" and "broadband". Essentially fiber optics are a transmission media, like the common copper wire we have used for over one hundred years. Only the information carrying capacity of optical fibers is currently over 20,000 times that of common telephone copper wire. Further, there is potential for future technology to provide several orders of magnitude more information capacity over existing fiber. This will be achieved by improved electronics and photonics. The economic trends clearly indicate that this media, capable of massive information transport, will be available to the individual.

As far as the end user is concerned, an essential element of broadband networks (in the trade referred to as Broadband-Integrated Services Digital Network (B-ISDN)) will be their ability to provide network capacity on demand. This means that we will no longer be tied to sending information at fixed discrete rates, for example, 56kbps or 1.544Mbps dictated by the network. Rather the network will accept the information at the rate naturally generated by the source. The other essential of B-ISDN will be its ability to provide common access for voice, data and video. Fiber optic technology is making B-ISDN possible.

At the present time, few business sites have broadband. However, the development timetable for broadband advanced by the electronics industry reveals *twenty percent* of business sites in the United States, United Kingdom, France and Germany will have integrated broadband services by the year 2000, just ten years away (see Figure 1).

Telecommunications, in general, and switched broadband video, in particular, will serve as a catalyst for future economic development. In fact, some have referred to it as "Inventing the Future of Western Kansas." We can view centralized databases and other information sources connected with increased bandwidth fiber optic cable offering information technology that has the potential to effect the rural quality of life in the twenty-first century as interstate highways did in the twentieth century as the rail system did in the nineteenth century.

There is no question that the future and prosperity of Kansas is dependent on enhanced information networks because they benefit both rural and urban areas. Information, in essence, is what we as individuals and as a nation will increasingly

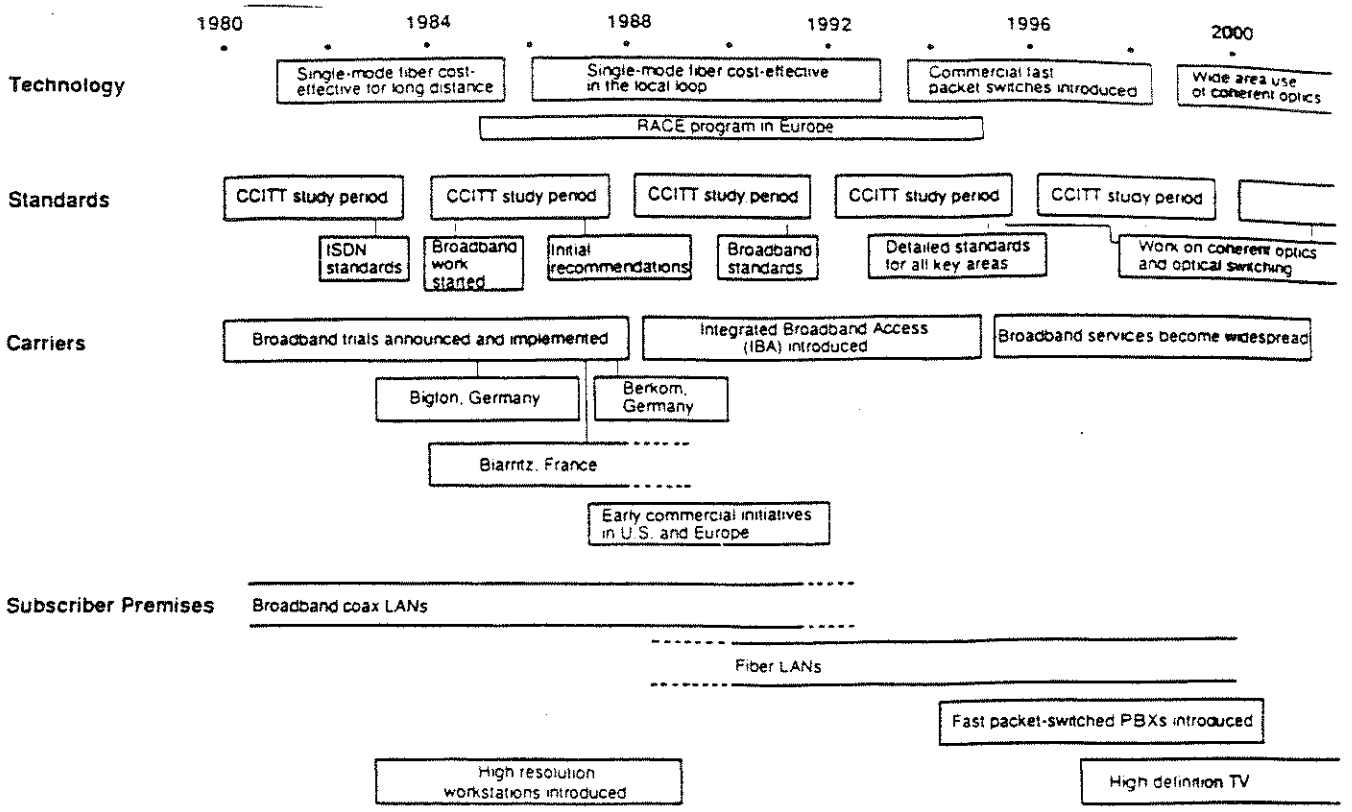


Figure 1a
The Development Timetable for Broadband

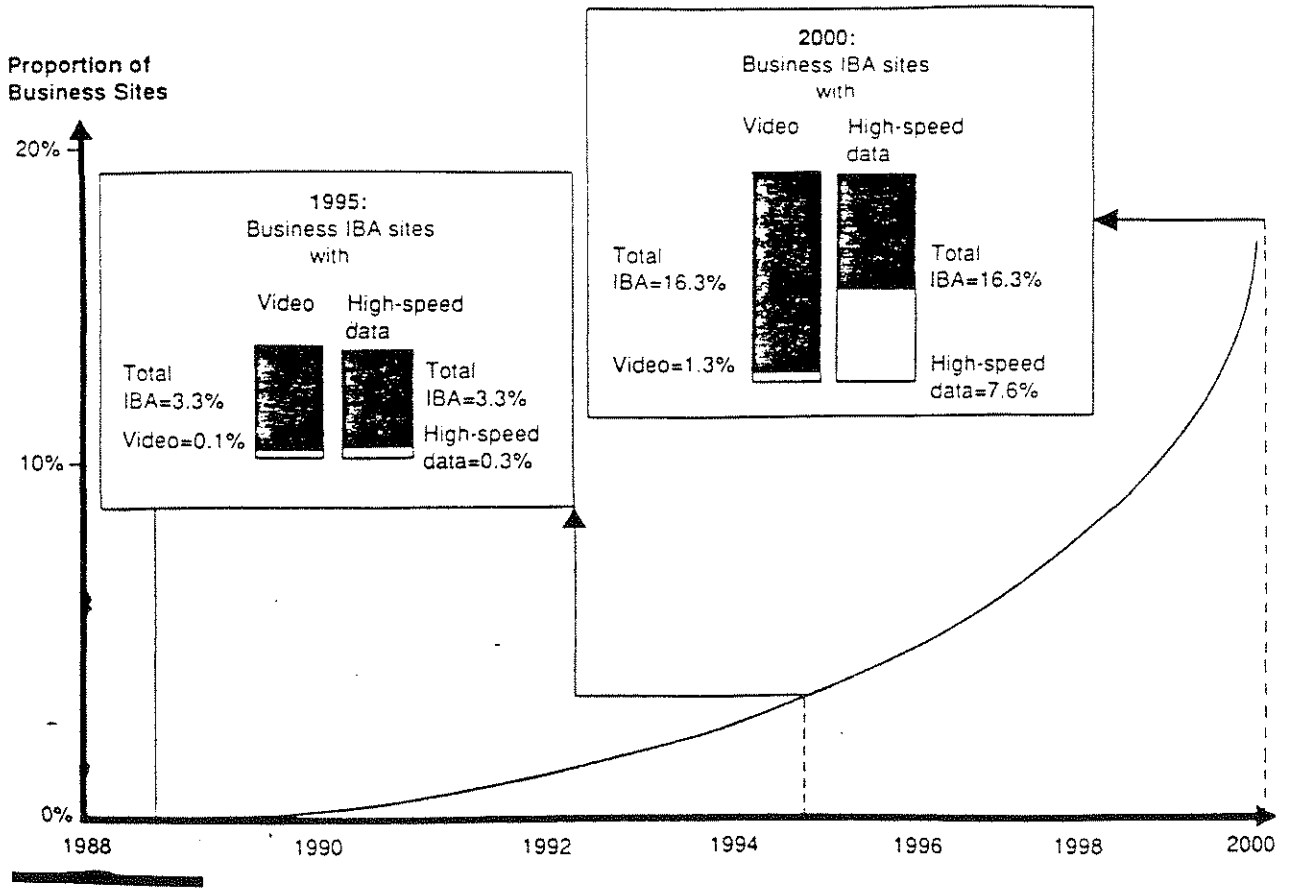
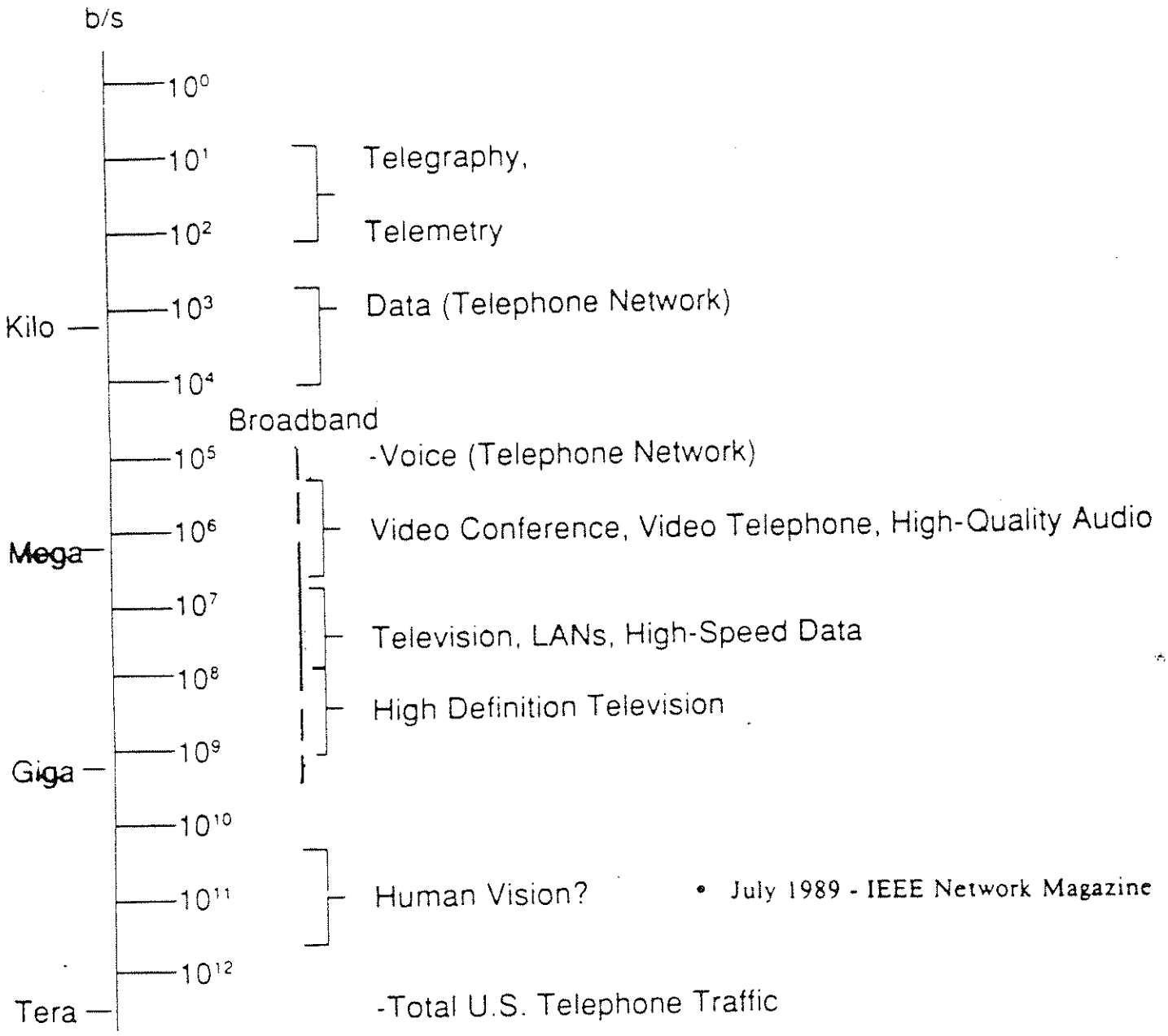


Figure 1b

Proportion of business with IBA and broadband applications (U.S., U.K., France and Germany)


b/s
10^0
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10^5
10^6
10^7
10^8
10^9
10^{10}
10^{11}
10^{12}
Kilo
Mega
Giga
Tera
Broadband
Telegraphy,
Telemetry
Data (Telephone Network)
-Voice (Telephone Network)
Video Conference, Video Telephone, High-Quality Audio
Television, LANs, High-Speed Data
High Definition Television
Human Vision?
-Total U.S. Telephone Traffic
• July 1989 - IEEE Network Magazine

Figure 1c

produce, process, transmit, and receive and export. The following services provide examples of how high speed networks can affect Kansas.

* Educational services - shared library databases and library would be possible through a broadband network access to several or more regional libraries. The regional libraries would have connections with state, national and international library nodes, thereby providing electronic interlibrary loan and access by rural communities to some of the finest bibliographic resources in the world. On-line encyclopedias for at home education, language translations and the ability to conduct scientific research through collaboration technology would be other benefits. In addition, distance learning to unserved and underserved areas would be commonplace.

* Medical services - two-way interactive audiovisual communication between rural Kansas health sites and major medical centers would facilitate immediate medical consultation with specialists at research hospitals. Home-based health care and emergency monitoring services would be possible, along with allowing transmission of complex patient medical information, such as cardiac images, to be read by specialists at hospitals specializing in their particular field.

* Residential Services - home banking, home shopping, home security and at-home use of telecommuting networks would provide access to government databases for employment information, motor vehicle registration, public housing, electronic voting and a host of emergency community bulletin boards.

These are but a few examples of these services that will be available to all of us through the telecommunications networks of the future. It is unbelievable how much of "Buck Rogers" is here today.

The important question for the telecommunications industry, regulators and nation is: will these resources be developed in a way that promotes the greatest social good or will current regulatory policy, more suited to the technology of the past continue to impede the expansion of public networks and the deployment of innovative services?

One significant issue on "the politics of broadband" that needs to be addressed is the regulatory barrier to local exchange carriers deploying fiber optic technology in local loops that is, fiber to the home for narrowband voice and data services. This prohibition was part of the Modification of Final Judgement (MFJ) that broke up AT&T.

The only exception to this prohibition would be a waiver for rural areas with fewer than 2,500 inhabitants. This exception may provide an opportunity for innovative companies to get involved in deployment of fiber in Kansas.

The Kansas Department of Education recognized the possibilities of advanced communication using fiber optics in their instructional process and has established two demonstration projects using interactive video. One pilot project involves a cluster of schools in southwestern Kansas. In this case, ten public school sites were connected with a two-way visually interactive instructional television network. Another project is at Greenbush, a southeastern Kansas Educational Service Center in Girard, Kansas. Specifically, four school districts in Girard, Arma, Columbus, and Cherokee banded together to develop a telecommunications system, connected through fiber optic cable, which permits students and teachers to see, hear, and communicate with each other simultaneously. One interactive classroom will be located in each of the networked districts' high schools and one in the Southeast Kansas Education Service Center at Greenbush. Independent telephone companies are assisting with the network project. However, the network's objective of linking the schools to Pittsburg State University has been impeded because Southwestern Bell owns the lines between Girard and Pittsburg and the company has quoted a rate for the use of its lines that is considered by the network to be unaffordable. In defense of those rates, Southwestern Bell noted that it would have to install fiber optic cable along that route. To do so would be an expensive proposition.

Another proposal for fiber optic network in western Kansas has come from the President of Fort Hays State University. The salient features of a proposed western Kansas fiber optic network which would cost approximately $8 million to $10 million and involve the installation of a 500-mile main trunkline fiber optic network linking Colby, Hays, Great Bend, Dodge City, Garden City, and Liberal. Williams Pipeline Company and its subsidiary, Wittel, have an abandoned pipeline containing fiber optic cable which could be used for these linkages. The four functions of such a network would include: (1) delivery of two-way educational services; (2) improved delivery of rural health care services; (3) library networking; and (4) increased economic development to the extent that economic growth generally follows the expansion of fiber optic network lines.

The TeleKansas is another example that would authorize Southwestern Bell to upgrade over a five-year period 131 switching systems (mostly in sparsely populated areas). This modernization program would cost approximately $160 million and would require changes that would give the Company more flexibility in pricing its products.

These projects are wonderful and are giant leaps forward in applying technology in education. Further such techniques will be essential for bringing quality science, mathematics, and language education to the many small Kansas communities. Communications technology will allow these communities to share the valuable resource of well trained and motivated teachers. Let us look at how far we have to

go.* Ten years ago, there were no computers in our nation's schools. Today, there is at least one in almost every school in America - nearly two million computers being used for instructional purposes. Yet, in spite of the rapid introduction of this new technology into our schools, the educational system remains remarkably unchanged.

In fact, according to the US Congress's Office of Technology Assessment, the classroom of today "differs little from the classroom of fifty years ago. This is in sharp contrast to the business office or government facility of today, which has been sharply altered by technology." The evidence clearly indicates that technology has yet to become an integral part of the everyday educational experience of children. It remains, for the most part, a toy - not a tool.

Is it the teacher's fault that our children are preparing for tomorrow's world with yesterday's technology? According to "The Computer Report Card, a recent nationwide survey that asked teachers to grade the effectiveness of computers in the classroom, they overwhelming endorsed the power of technology to address some of their most intractable problems:

* Three-quarters of the respondents said computers would enable them to spend more individual time with their students.

* Ninety percent said that the lack of access to computers puts students from less-affluent schools at a disadvantage.

* More than ninety percent believe computers can spark their students' interest in math and science.

* The vast majority think computer-based writing and reading programs would reduce the illiteracy rate.

* Ninety percent say they hope to see the increased use of more sophisticated computer teaching systems in the classroom including interactive computers and videodiscs.

What these numbers tell us is that teachers are a receptive audience for advances in technologies. Teachers, as a group, are hungry to apply communications networks, computers, video systems, and software in new, creative an educationally meaningful ways.

But how can they begin to use technology as an innovative learning tool when the current ratio of computers to students is less than one for every twenty pupils (in the good schools - one per hundred in most)? When the technology, more often

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* The following information was based on a speech by Raymond W. Smith at the Conference on the Future of Interactive Communications, November, 1989.

than not, is relegated to a school laboratory rather than integrated in the classroom? When the available software is woefully inadequate for even rudimentary applications, let alone the sophisticated interactive programs that are now available. Telecommunications network throughout the educational system mostly consist of a single telephone line.

The problem, or I should say, the challenge, is to find the way to match the will, to give educators the means to achieve their ends, to integrate technology into the educational lives to this country's children. Can we create the conditions for technology to fulfill its potential as an educational resource?

The potential to achieve this goal is here if all of us are willing to pursue an expansive visions of our future. That vision must go beyond the traditional forms of assistance provided to the public schools.

We need projects like the education technology fair scheduled for February 15, 1990. See Table 1. It is becoming clear that the national concern over education (both K-12

Alfred Sikes of the FCC makes this point in a recent speech on the role of high technology in the American economy; the original intent of the Communications Act of 1934 he says was to ensure "that the benefits of new inventions and developments may be made available to the people of the United States."

In fact the Kansas Independent Network, Inc. (KINI) made up of a group of independent telephone companies won the cellular 'grab-bag' and is in the process of installing the initial fifteen of some thirty cell sites across Kansas. We will be able to have mobile service anywhere in the state. Since the sites will be interconnected with fiber optic cable, we have an opportunity for Kansans to help Kansans. There will be extra fiber capacity on this network and the education community could receive service at an attractive rate. KINI owners are Kansas businessmen whose current network currently serve small rural areas. They are willing to make an investment in education and ensure early delivery of this technology to benefit the state. It is hoped that the Kansas Corporation Commission will aid in the introduction of this new service.

Policies that encourage the widest possible dispersion of the widest possible number of information-age services will do far more to improve the quality of America's educational system than the current uneven and iniquitous distribution of technological resources. It has been demonstrated that communications technology can be put to creative imaginative use by educators from elementary school to graduate school.

It is important to put this new tool in the waiting hands of America's teachers. We need to encourage the widespread use of the interactive video technologies. This is the vision of the future is one to which we should be firmly and passionately committed.

With the enactment of the Communications Act of 1934, it was too early to predict the communications infrastructure that would emerge as a result of technological innovation. Today, it is too late to ignore it, the information age has arrived.

KTEC KANSAS TECHNOLOGY ENTERPRISE CORPORATION

NELSON L. KRUEGER
Director, Kansas Telecommunications Consortium

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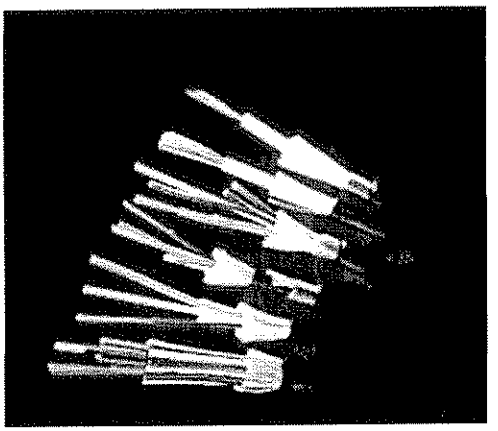
Telecommunications The Economic Edge

SIECOR

Standard Mini Bundle(R) Cable, Double Sheath/Single Armor 2-288 Fibers



Features/Benefits

- Corning fiber for optical and mechanical levels of consistency
- Buffer tubes provide increased kink- and crush-resistance
- Stranded, loose tube design isolates fibers from installation and environmental rigors
- Dielectric strength members have no preferential bend and require no bonding or grounding
- Single-armor construction provides additional crush and rodent protection
- Medium density PE sheath is rugged, durable, and easy to strip

Mechanical Specifications

Maximum Tensile Loading

- Installation: 2700 N(1) (600 lbs.)
- Long Term Installed: 890 N(2) (200 lbs.)

Operating Temperature

- Storage: -40 deg. to +70 deg. C(1) (-40 deg. to +158 deg. F)
- Long Term: -40 deg. to +70 deg. C (-40 deg. to +158 deg. F)

Limited Smoke, Zero Halogen Mini Bundle(R) LSZH(TM) Cable IEEE 383 Flame Test, OFN-LS Listed 2 - 144 Fibers

Applications

- Interbuilding backbones in aerial and duct environments
- Horizontal intrabuilding and tunnel backbones where limited smoke, zero halogen requirements exist

Features / Benefits

- Proven loose tube design
- User friendly
- Compact design
- UL-listed OFN-LS up to 144 fibers (UL 1685)
- Zero halogen (0%)
- Meets new UL 1685 limited smoke requirements
- All-dielectric construction
- Multimode and single-mode fibers available in same cable (hybrid)
- Ideal for industrial applications
- UV-resistant
- Specially formulated black, flame-retardant polyethylene outer jacket
- Resistant to a wide variety of chemicals

Mechanical Specifications

Maximum Tensile Loading

- Installation: 2700 N (600 lbs)
- Long Term Installed: 600 N (135 lbs)

Operating/Storage Temperature

- -40 deg. C to +70 deg. C (-40 deg. F to + 158 deg. F)
- NEC Listing: OFN-LS (UL 1685)

Siecor Corp.
P.O. Box 489
Hickory, NC 28603
(704)327-5000
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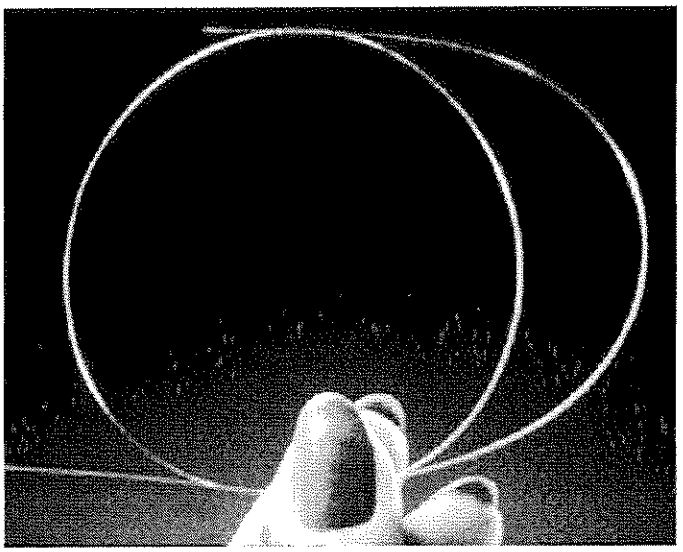
Basic Principles of Fiber Optics

INTRODUCTION



Since its invention in the early 1970s, the use and demand of optical fiber has grown tremendously. The uses of optical fiber today are quite numerous. The most common are telecommunications, medicine, military, automotive, and industrial.

Telecommunications applications are widespread, ranging from global networks to local telephone exchanges to subscribers' homes to desktop computers. These involve the transmission of voice, data, or video over distances of less than a meter to hundreds of kilometers, using one of a few standard fiber designs in one of several cable designs.

Companies such as AT&T, MCI, and U.S. Sprint use optical fiber cable to carry plain old telephone service (POTS) across their nationwide networks. Local telephone service providers use fiber to carry this same service between central office switches at more local levels, and sometimes as far as the neighborhood or individual home.

Optical fiber is also used extensively for transmission of data signals. Private networks are owned by firms such as IBM, Rockwell, Honeywell, banks, universities, Wall Street firms, and more. These firms have a need for secure, reliable systems to transfer computer and monetary information between buildings to the desktop terminal or computer, and around the world. The security inherent in optical fiber systems is a major benefit.

Cable television or community antenna television (CATV) companies also find fiber useful for video services. The high information-carrying capacity, or bandwidth, of fiber makes it the perfect choice for transmitting signals to subscribers.

Finally, one of the fastest growing markets for fiber optics is intelligent transportation systems, smart highways with intelligent traffic lights, automated toll booths, and changeable message signs to give motorists information about delays and emergencies.

These are only a few of the many applications possible with the use of optical fiber. Other telecommunications benefits will be emphasized in more detail throughout this text. website focuses primarily on telecommunications uses of optical fiber. To understand these applications, it is important to define fiber optics.

What Is Fiber Optics?

In its simplest terms, fiber optics is a medium for carrying information from one point to another in the form of light. Unlike the copper form of transmission, fiber optics is not electrical in nature.

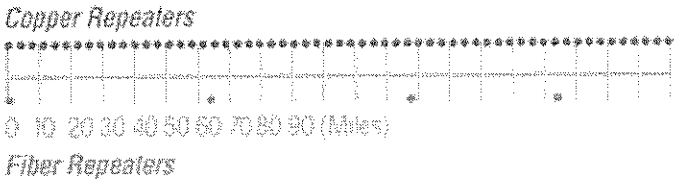
A basic fiber optic system consists of a transmitting device, which generates the light signal; an optical fiber cable, which carries the light; and a receiver, which accepts the light signal transmitted. The fiber itself is passive and does not contain any active, generative properties.

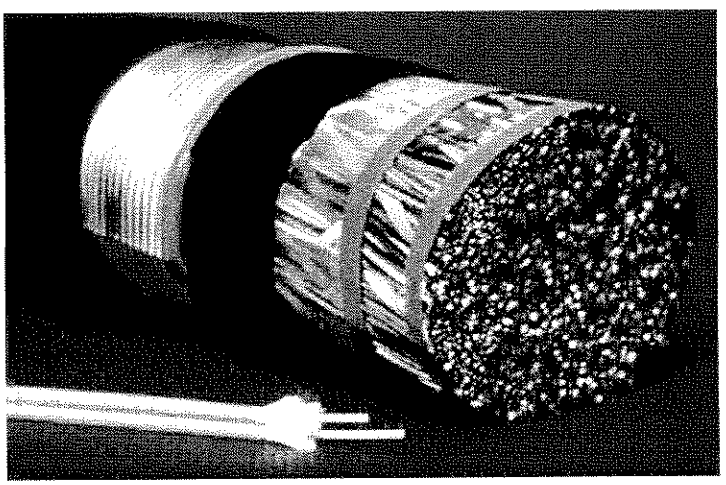
Corning Cable Systems manufactures and sells those components considered to be part of the passive fiber transmission subsystem; i.e., not active electronic components.

Fiber Benefits

Optical fiber systems have many advantages over metallic-based communication systems. These advantages include:

Long Distance Signal Transmission
The low attenuation and superior signal integrity found in optical systems allow much longer intervals of signal transmission than metallic-based systems. While single-line, voice-grade copper systems longer than a couple of kilometers (1.2 miles) require in-line signal repeaters for satisfactory performance, it is not unusual for optical systems to go over 100 kilometers (km), or about 62 miles, with no active or passive processing. Emerging technologies promise even greater distances in the future.





The optical fiber cable in the foreground has the equivalent information-carrying capacity of the copper cable in the background.

Large Bandwidth, Light Weight, and Small Diameter
While today's applications require an ever-increasing amount of bandwidth, it is important to

Designed for Future Applications Needs
Fiber optics is affordable today, as electronics prices fall and optical cable pricing remains low. In many cases, fiber solutions are less costly than copper.

As bandwidth demands increase rapidly with technological advances, fiber will continue to play a vital role in the long-term success of telecommunications.

Key Points in Fiber History

Most people remember Paul Revere's "one if by land, and two if by sea" from early American history. He used lanterns to communicate information. Although not sophisticated, this was an early example of optical communication.

In 1870, British physicist John Tyndal gave us another example. Tyndal set up a tank of water with a pipe that ran out one side. He allowed the water to flow from the pipe, and then shone a bright light from inside the tank into the water stream. As the water fell, an arc of light followed the water down. This demonstrated total internal reflection, a principle that will be discussed in more detail later.

In 1880, Alexander Graham Bell invented the photophone. Bell considered this a greater discovery than his previous invention, the telephone. With the photophone, Bell would speak into a microphone, which would cause a mirror to vibrate. The sun's light would strike the mirror, and the vibration of the mirror would transmit the light across an open distance of about 200 meters (656 feet). The receiver's mirror would receive the light and cause a selenium crystal to vibrate, and the noise would come out on the other end. (See Figure 1 below.) Although the photophone was successful in allowing conversation over open space, it had a few drawbacks: it did not work well at night, in the rain, or if someone walked between the signal and the receiver. Eventually, Bell gave up on this idea.

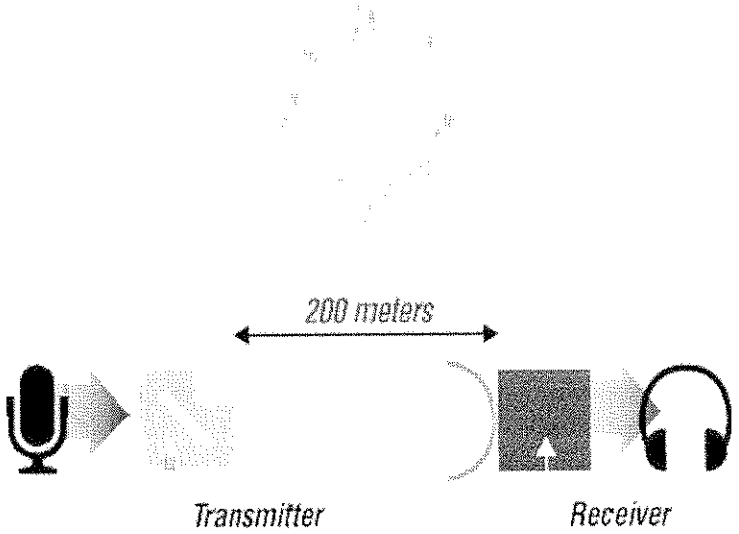


Figure 1

It wasn't until the late 1950s that the laser was invented. This device was a finely-controlled beam of light that could transmit information over long distances. Unfortunately, the same drawbacks experienced by Alexander Graham Bell also plagued the laser. Although it could be used at night, it didn't work during rain, fog, or any time a building was erected between the sender and the receiver.

Dr. Robert Maurer, Peter Schultz, and Donald Keck of Corning Incorporated in Corning, New York, came up with the first low loss optical fiber, with less than 20 dB/km (decibels per kilometer) loss. (Today, single-mode, premium grade fiber is sold with specifications of 0.25 dB/km or better.)

In 1977, Corning joined forces with another technological giant, Siemens Corporation, to form Corning Cable Systems. Corning's extensive work with fiber, coupled with Siemens'

consider the space constraints of many end-users. It is commonplace to install new cabling within existing duct systems. The relatively small diameter and light weight of optical cables makes such installations easy and practical, and saves valuable conduit space in these environments.

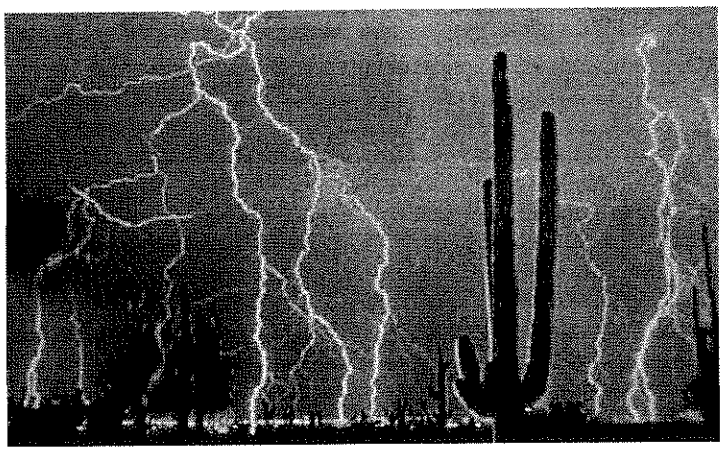
Long Lengths
Long, continuous lengths also provide advantages for installers and end-users. Small diameters make it practical to manufacture and install much longer lengths than for metallic cables: twelve-kilometer (12 km) continuous optical cable lengths are common. Corning Cable Systems manufactures continuous single-mode cable lengths up to 12 km, with a 96-inch reel size being the primary limiting factor.

Multimode cable lengths can be 4 km or more, although most standards require a maximum length of 2 km or less. Multimode cable lengths are based on industry demand. (Single-mode and multimode fibers will be covered in detail later in this text.)

Easy Installation and Upgrades
Long lengths make optical cable installation much easier and less expensive. Optical fiber cables can be installed with the same equipment that is used to install copper and coaxial cables, with some modifications due to the small size and limited pull tension and bend radius of optical cables.

Optical cables can typically be installed in duct systems in spans of 6000 meters or more depending on the duct's condition, layout of the duct system, and installation technique. The longer cables can be coiled at an intermediate point and pulled farther into the duct system as necessary.

System designers typically plan optical systems that will meet growth needs for a 15- to 20-year span. Although sometimes difficult to predict, growth can be accommodated by installing spare fibers for future requirements. Installation of spare fibers today is more economical than installing additional cables later.



The dielectric nature of optical fiber can eliminate the dangers found in areas of high lightning-strike incidence.

Non-Conductivity
Another advantage of optical fibers is their dielectric nature. Since optical fiber has no metallic components, it can be installed in areas with electromagnetic interference (EMI), including radio frequency interference (RFI). Areas with high EMI include utility lines, power-carrying lines, and railroad tracks. All-dielectric cables are also ideal for areas of high lightning-strike incidence.

Security
Unlike metallic-based systems, the dielectric nature of optical fiber makes it impossible to remotely detect the signal being transmitted within the cable. The only way to do so is by actually accessing the optical fiber itself. Accessing the fiber requires intervention that is easily detectable by security surveillance. These circumstances make fiber extremely attractive to governmental bodies, banks, and others with major security concerns.

cabling technology, helped launch a new era in optical fiber cable and associated products. Today, Corning Cable Systems is a world leader in the manufacture of fiber optic cabling system products for voice, data, and video communications applications.

CHECK YOUR UNDERSTANDING

Would you like to see how much you've learned?

1. In what decade did optical fiber communications become commercially viable?

- 1870s
- 1950s
- 1970s
- 1980s

2. Which of the following is a good example of an optical fiber application for telecommunications?

- Local or long-distance telephone communications
- Medical instruments for orthoscopic surgery
- Missile guidance and target tracking

3. Which of the following is not true about optical fiber transmission systems?

- Can be used for voice or data and video
- Are almost always more expensive than copper
- Easy to install and upgrade
- Are virtually immune to electromagnetic and radio-frequency interference

Submit | Start Over

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CONTINUE ⇒

KANSAS

DEPARTMENT OF TRANSPORTATION
DEB MILLER, SECRETARY

KATHLEEN SEBELIUS, GOVERNOR

PRESENTATION TO THE
KAN-ED OVERSIGHT COMMITTEE

Regarding Kansas Department of Transportation
Public-Private Partnership for Fiber Optics

November 20, 2006

Mr. Chairman and Committee Members:

I am Mike Floberg, State Intelligent Transportation Systems (ITS) Engineer with the Kansas Department of Transportation (KDOT). I am here with Leslie Spencer Fowler with KDOT and Dan Davis from LightCore to provide information on the status of the fiber-optics that is adjacent to portions of our Interstate Highways.

Project History

In 1996, KDOT recognized the need to have fiber-optic based communication services for the purpose of implementing ITS across the state and in the greater Kansas City Metropolitan Area. ITS technologies are used to monitor, manage and to provide traveler information to the general public for increased safety and efficiency of the surface transportation system. Attached to this testimony for your reference are: photos of ITS technology, a map of the KDOT fiber optic infrastructure, and a chart of state agencies as defined in the contract with LightCore.

In 1998, KDOT entered into two shared resource construction contracts with Digital Teleport, Inc. (DTI) of St. Louis. Shared resource contracts are a public-private partnership, which in this case involved the use of public right-of-way to install telecommunications infrastructure. Typically, under these contracts private companies install their own optical fiber or wireless facilities in addition to communications infrastructure for a public agency.

The first shared resource contract encompassed 147 miles of right-of-way along interstate and state highways in the Kansas City metropolitan area. Upon completion of the project, the contract included the transfer of limited ownership to KDOT three 1" conduits, four dark fibers located in DTI's conduit, and use of associated infrastructure (space in regeneration buildings, telecommunication racks, power, etc.).

The second contract included 500 miles of right-of-way that spanned state highways from Kansas City to Topeka, I-70 from Topeka to Colorado and I-135 from Salina to Wichita. The

KAN-ED Oversight Comm 11/20/06 Attachment 12

contract included bandwidth services (OC-6) upgradeable to OC-12 on January 1, 2010; and upon completion of the project, the transfer of limited ownership to KDOT two 1.25" conduits, 12 dark fibers located in DTI's conduit and use of associated infrastructure.

DTI subsequently went into bankruptcy and was purchased by CenturyTel, now known as LightCore. The bankruptcy transferred limited ownership of the conduit and fiber mentioned above to KDOT.

The agreement reached between KDOT and LightCore allows KDOT to receive or transmit traffic monitoring and traffic control information on KDOT fiber and bandwidth to and from cities, counties, and other local units of governments in order to carry out its ITS functions. The agreement also allows State of Kansas agencies to use fiber, conduit, facilities and the LightCore bandwidth provided to KDOT for "state governmental purpose." The agreement specifically defines "state governmental purpose" as follows:

> Any function of a state agency allowed by state or federal statute or regulation to carry out non-commercial state governmental functions. Such permitted uses shall include uses by State agencies to create telecommunications connections to a city, county or other local unit of government but only if the primary purpose is to carry out state governmental rather than city, county or other local unit functions.

Use of the Fiber Optic Infrastructure

KDOT's overall plan for a fiber-optic infrastructure includes commercial vehicle operations (CVO), urban traffic management in Kansas City and Wichita, rural traveler information systems, weather information systems, traveler information kiosks in rest areas, changeable message signs along priority corridors, data gathering from remote count stations, and closed circuit television (CCTV) cameras to monitor roadway conditions along priority corridors.

A map depicting the location of the fiber optic infrastructure has been attached for your reference. The fiber is primarily located along major interstate highways as it was originally designed to support ITS deployment. The network is currently operational from Kansas City to Salina and south into Wichita.

The current uses of the fiber-optic network include the following:

- Kansas City Scout: This is a joint project between KDOT and the Missouri Department of Transportation consisting of a Traffic Operations Center managing traffic on 75 miles of continuous freeways in the greater Kansas City metropolitan area. Cameras are used to monitor the freeways, sensors gauge traffic flow, and large electronic message boards send urgent traffic notices to drivers along the affected freeways.

  The real-time data available through Kansas City Scout provides valuable information to KDOT engineers in Topeka concerned with congestion and traffic management. This connection provides data for traffic counts and traffic studies, views of traffic movements in or near work zones and congested areas, and allows for quicker deployment of ITS field devices.

- 800 MHz System: The fiber optic network is installed from Wichita to Salina to provide needed redundancy and future enhancements for the 800 MHz system. These systems provide interoperable voice and data communications to various emergency responders and public safety agencies. New sites are scheduled to be installed.

- KU Connectivity: The University of Kansas is using KDOT provided bandwidth from the Lawrence Regeneration Building to the Lenexa Regeneration Building to provide connectivity to the Edwards Campus. KU provided the fiber optic connection from the Lenexa Regeneration Building to the Edwards Campus and from Ellsworth Hall in Lawrence to the handhole located near 19th and Iowa in Lawrence. KDOT provided the bandwidth to transmit the data between the regeneration buildings. This connection is only for "state governmental purpose."

The fiber-optic network is planned for use in the following projects:

- KANWIN backbone: KDOT and DISC are in the process of utilizing the KDOT bandwidth to provide the KANWIN backbone. KANWIN is the Kansas Wide Area Network used by all state agencies.

- Wichita ITS: Similar to Kansas City Scout, this urban management project is currently being planned for the Wichita metropolitan area; and includes the following four parties: the City of Wichita, Sedgwick County, the Wichita Area Metropolitan Planning Organization (WAMPO), and KDOT. It is a project that will be able to use the same fiber and equipment put in place for the 800 MHz redundancy. The Wichita ITS system will use loop detectors to detect occupancy, CCTV to detect and verify incidents on the road, and other system facilities that allow for better flow of traffic in and around Wichita. Demands for this data and video from entities such as the Kansas Highway Patrol, the media, and surrounding municipalities require significant bandwidth.

Conclusion

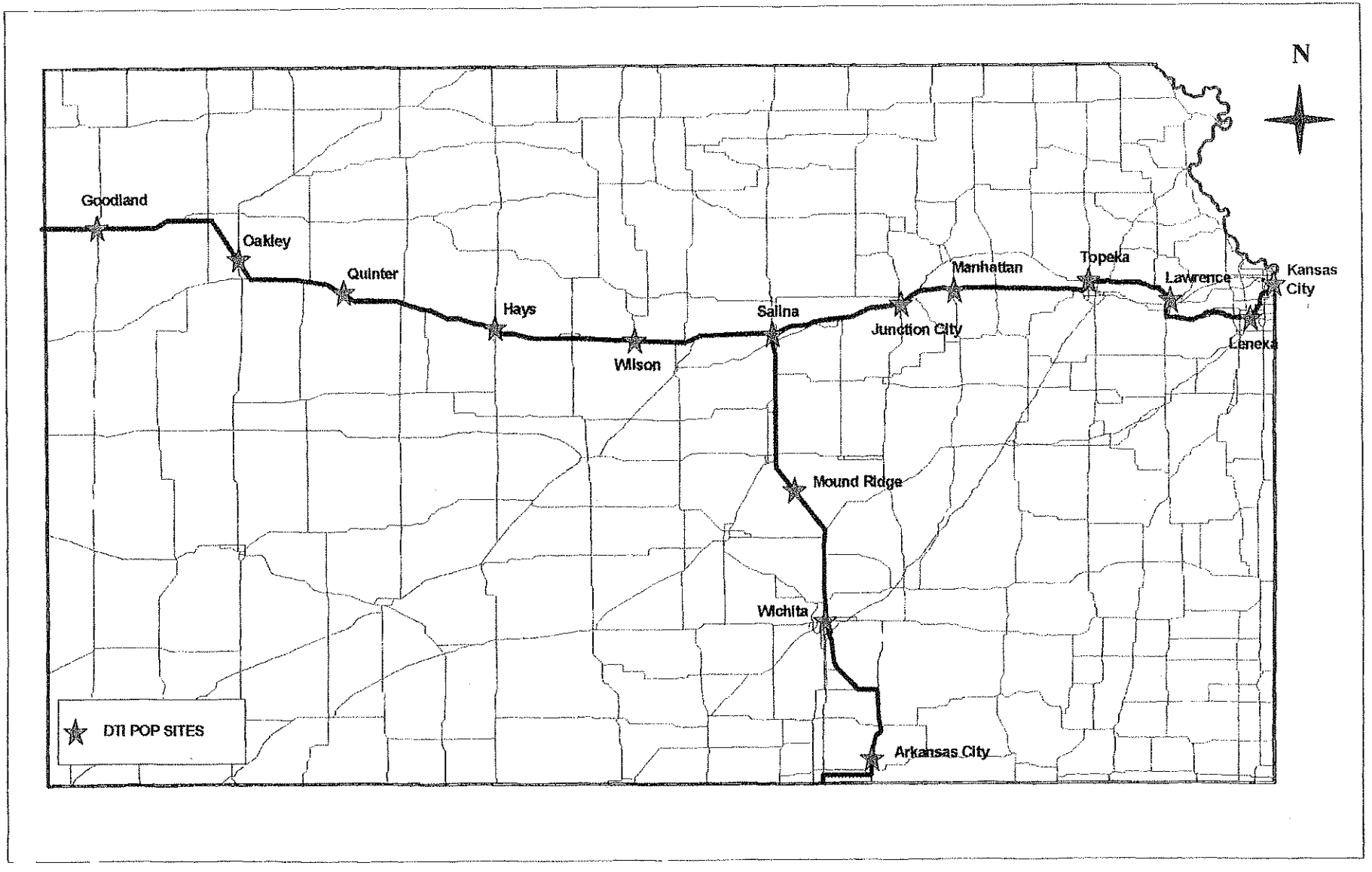
The use and application of ITS technology in Kansas continues to grow, thus increasing the need for fiber-optics. Fiber-optics provides the essential backbone for transmitting transportation data to key locations within the state. This data is used for decision-making to increase the safety and efficiency of the surface transportation system. We have and will continue to work closely with the Chief Information Technology Officer, the Kansas Information Technology Office, and other state agencies in developing policies, standards, and statewide efficiencies as they relate to other opportunities for utilization of the fiber optic infrastructure.

Thank you for your time, we will gladly answer any questions.

Digital
Teleport, Inc.

Kansas Department of Transportation

12-6



Hitting your brakes to read Scout signs is not only unnecessary, it is unsafe!

The Evening Rush
6:50 PM , Sun, Jan 14th, 2007, CST

Press Releases

FOR IMMEDIATE RELEASE
February 25, 2002

For more information, contact:
Dianna Kidwell, (816) 622-0322

KDOT, MoDOT Use "Noodle" with Kansas City Scout Project

LEE'S SUMMIT, Mo. - You've seen them sticking up out of the ground along Interstate 435, crossing the state line and heading into and out of the Triangle - the colorful blue, yellow and black "noodles" that will house the fiber-optics backbone of Kansas City's newest traffic information system, Kansas City Scout.

Scout is the joint effort of the Kansas and Missouri departments of transportation. It uses technology to provide drivers information about the roads they travel -- information about traffic delays such as accidents and lane closures and approximate travel times on metropolitan-area highways.

Kansas and Missouri began installing Scout's infrastructure - including construction of a Traffic Operations Center in Lee's Summit -- last September. Since then, more than half of the project's 90 miles of conduit - those colorful "noodles" - have been placed underground along the highways where Scout will operate. Those left sticking out of ground are now being placed inside protective housing so crews can then blow a fiber-optic network through them.

The fiber-optic network is critical to the system's information gathering that will be managed out of its Lee's Summit operations center. Construction of that center will be complete in March. Crews will then spend the spring and summer months installing equipment and software that will run the Scout system. Testing equipment should begin late this year.

Crews will also begin work this summer installing Scout's video cameras, electronic message boards and roadside vehicle detectors along the highways that are part of Scout's system. Crews will also work overnight during the summer months imbedding highway pavement to install more detectors in the roadway.

When fully installed, Scout will operate on 75 miles of the metropolitan area's most congested highways and is expected to start operating at the end of 2003. Scout will operate on I-435 from I-35 east to Grandview Road near the Triangle, on portions of I-35, US 69 and K-10 in Kansas and on portions of interstates 35, 470, 670, 70, highways 71 and 169, and Route 9 in Missouri. Once operational, Scout will help ease traffic congestion along its routes while providing a safer highway environment and useful traveler information.

Scout is the Kansas City area's first Intelligent Transportation Systems (ITS), and its first-phase coverage is the largest of any system already in place throughout the country. The Federal Highway Administration is funding up to 90 percent of the project with the remaining costs shared between the Kansas and Missouri departments of transportation.

Kansas City Scout—A technology-fueled Highway System Dedicated to *Getting You There*

When it is completed in 2003, a 75-mile, $35 million electronic traffic management system named *KC Scout* will monitor the main highways, help drivers avoid traffic tangles, and speed emergency vehicles to destinations throughout Kansas City.

A Roadmap to the Future

Kansas City is unique among American cities in that it is divided between two states, Missouri and Kansas. What is not unique is its traffic.

In 1996, the Missouri Department of Transportation (MoDOT) and Kansas Department of Transportation (KDOT) joined forces to address traffic incident and congestion problems on the metropolitan highways serving Kansas City. Impetus for the project came from the Federal Highway Commission, which said it was willing to pay a majority of the costs for any city that chose to design an electronic transportation system. In 1997, Kansas and Missouri finalized a long-term partnership agreement to design, construct, operate, and manage an Intelligent Transportation System (ITS) dubbed "KC Scout."

KC Scout is an ITS that uses technology to make traveling safer and quicker by deploying such tools as:

- Closed Circuit Television (CCTV)
- Changeable Message Signs (CMS)
- Vehicle Detection Stations (VDS)
- Highway Advisory Radio (HAR)
- Traffic Operation Centers (TOC)

Great Increase in Efficiency and Safety

Connected by Cisco routers and 90 miles of fiber-optic cable, a pattern of 45-foot tall cameras, 25-foot wide electronic message boards, and roadway sensors will deliver real-time alerts and allow remote users to monitor traffic on the Scout Web site at: http://www.kcscout.net/.

According to KC Scout spokeswoman Dianna Lopez, the system is needed because Kansas City is running out of room for new lanes to accommodate growth. "The capacity of our highway system...is simply not enough for the demand," Lopez reports. "With this system, we are avoiding the exorbitant costs needed to add lanes or build new freeways. You can spend millions adding one lane mile, and that just doesn't get it."

When it is completed by the end of 2003, about 300 cameras will watch traffic patterns, scanning for accidents and traffic jams. Eventually, the network will cover all the main highway systems in the Kansas City area.

A TOC is being built to monitor all the cameras. KC Scout personnel will be able to re-route traffic via messages on the electronic signs based on the video feeds. And as Kim Moore, transportation engineer with Black & Veatch—the project management and consultant for the KC Scout team—points out, when there is a need for police, fire, or ambulance assistance, the operations center will be able to see just how much and what types of assistance are needed.

Benefits of the "Open" Road

KC Scout is benefiting from the advantages of digital networked solutions instead of older, standalone analog solutions. "In Dallas, when we went through and looked at the 23 signs they have up, only 3were operating correctly," says Bob Jewell, senior vice president, Network Integration Services, Inc., the local firm handling installation and data management. "MoDOT and KDOT want to avoid those problems."

Jewell said one thing that will help KC Scout avoid problems is that, although other cities are using custom software systems that cannot communicate to other technologies, Kansas City's system will be based on standard technology that will be accessible from the Web.

"We are going from proprietary custom systems to a standard system," Jewell explains. "That will give the system a longer life, make it more accessible to newer technologies when they become available, and will ensure higher performance."

A Promise to Make "Getting There" Easier

To build public awareness for KC Scout, MoDOT and KDOT are using the tag line: "KC Scout—Getting you there." Although installation is still underway, the intelligent network system is expected to deliver on that promise by enabling:

- Less congestion and fewer delays
- Increased rush hour speeds
- Fewer rush hour accidents
- Quicker emergency response
- Less air pollution

These expectations are based on strong evidence. Cities with similar ITS systems have reported:

- 27 percent reductions in rush hour accidents
- 35 percent increase in rush hour speeds
- 18 to 22 percent increase in highway capacity
- More efficient dispatching and routing of emergency vehicles
- 30 to 50 percent decreases in emergency response times

The conveniences will enable Kansas City to continue to grow without adding frustration to the daily commute, yet the primary benefit is safety.

"The main issue will be incident management," Moore says. "The system will simply be able to clear accidents faster because everyone will have more information right away. This system will be able to save lives because we will be able to help in getting the right equipment out to the scene sooner."

Benefits Today...and Tomorrow

By using a converged network solution designed by Cisco that integrates data, voice, and video onto one platform, KC Scout has been able to:

- Consolidate server management
- Consider IP telephony solutions
- Provide real-time information to other offices and agencies in the state
- Improve emergency response capabilities

The convergence delivered in the Cisco solution has allowed KC Scout to save approximately US$2.2 million in network server maintenance by eliminating the need for multiple networks. This solution also enables KC Scout to migrate to IP telephony solutions in the future utilizing the existing network. Advantages of IP telephony include:

- Ability to use the KC Scout network to also offer IP "road assistance" phones and telephony
- Provide backup communication system in the event of any emergency
- KC Scout real-time updates and notifications to the first responders

Executive Summary

Background

A city that spans two states—Kansas and Missouri—Kansas City faced the inevitable downside of growth—traffic.

Challenge

The capacity of the metropolitan highway system was not keeping up with demand. Adding new lanes was not only cost prohibitive, there was no room to put them.

Solution

The Missouri and Kansas Departments of Transportation (MoDOT and KDOT) teamed up with technology partners to create "KC Scout," an electronic traffic management system that uses Internet-based technology to make traveling safer and quicker by deploying such tools as closed-circuit television cameras, electronic message boards, and road sensors to alleviate traffic problems.

Benefits

When fully operational by the end of 2003, KC Scout is expected to deliver significant benefits including: reductions in rush-hour accidents; an increase in rush-hour speeds; increased highway capacity; more efficient dispatching of emergency vehicles, and decreases in emergency response times.

MINUTES

KAN-ED OVERSIGHT COMMITTEE

November 20, 2006
Room 514-S—Statehouse

Members Present

Senator Pete Brungardt, Chairperson
Representative Joe McLeland, Vice-Chairperson
Senator Karin Brownlee
Senator Tim Huelskamp
Senator Janis Lee
Representative John Faber
Representative Tom Hawk
Representative Ann Mah

Members Absent

Senator Jean Schodorf
Senator Dwayne Umbarger

Staff Present

Mary Galligan, Kansas Legislative Research Department
Audrey Dunkel, Kansas Legislative Research Department
Matt Spurgin, Kansas Legislative Research Department
Art Griggs, Revisor of Statutes Office

Others Present

See attached list.

Morning Session

Chairperson Brungardt called the meeting to order at approximately 9:15 a.m.

The Chairperson noted that the day's agenda consisted primarily of presentations in response to Committee questions posed during the October 27 meeting (Attachment 1). He asked the Committee to be prepared to discuss possible recommendations for the Committee report at the end of the day.

The Chairperson recognized Reginald Robinson, President of the Kansas Board of Regents. Mr. Robinson presented responses to questions previously raised by the Committee (Attachment 2). In addition to information requested previously by the Committee, Mr. Robinson told the Committee that an indication of the Legislature's desire regarding recommendations made in the 2005 study of state networks would be useful. Mr. Robinson also distributed to each Committee member a letter in support of continued funding of the KAN-ED network from the Kansas Universal Service Fund (KUSF) (Attachment 3).

Chairperson Brungardt opened the floor for questions from the Committee. In response to questions, the following information was provided.

- KAN-ED and Kan-REN do not use the same equipment in the same places. They utilize separate infrastructure. The networks are peered in Lawrence.
- KAN-ED leases all the facilities it uses from providers. Kan-REN leases some facilities, but owns core components.
- While KAN-ED and Kan-REN are separate, there are benefits to a system-wide look at benefits to be realized from consolidation. The Board of Regents is willing to proceed with consolidation with a nod from the Legislature.
- Despite differences in organizational structure of the two organizations, functional consolidation could be achieved with sufficient cooperation among the three networks. Functional consolidation does not have to be dismissed simply because of organizational differences.
- The $3 million estimated cost of consolidation emerged from a Kan-REN study of the cost of consolidating the network cores to put the Regents sites together. The price of consolidation would depend on the details of the effort. It is doubtful that consolidation could be achieved without some up-front expenditure. It is unclear what impact consolidation might have on last mile costs for KAN-ED members.
- The 2005 study did not delve into detail necessary to identify one-time or ongoing expenditures or savings. Cost information will be generated if the Legislature recommends that the Board pursue consolidation. This Committee can be provided with a preliminary road map for pursuing consolidation.
- The Board will provide to the Committee recommendations for statutory changes required to facilitate consolidation.

The Chairperson recognized Jerry Huff, KAN-ED, for a discussion of e-rate funding (Attachment 4). He told the Committee that the "unused" amount of e-rate funds might have resulted from a number of causes. The funding years 2004 through 2006 remain open, so expenditures may still be made from those amounts. Mr. Huff also stated that many eligible entities do not apply for e-rate support. However, he stated that the among schools, the percentage of applicants is very high. He stated that many libraries do not apply for e-rate funding. KAN-ED hired an e-rate consultant to help those schools and libraries that do not have in-house expertise to prepare an application for e-rate funding.

In response to Committee questions, Mr. Huff provided the following information.

- Unused amounts are retained by the federal Universal Service Administrative Company (USAC) which administers the federal Universal Service Fund for the Federal Communications Commission.

- Funds available for a year that remains open can be used until the year is closed as long as the use is part of the original application. The e-rate consultant hired by KAN-ED has worked to see to it that the total amount available is used.

- E-rate funding can be used for "last mile" costs up to 65 percent of the cost. Many small libraries are unable to pay for the balance of the last mile cost.

- Discounts for support depend on the level of poverty and the urban/rural status of the population served and range from 20 percent to 90 percent of the costs of eligible services. The primary measure for determining schools' and libraries' support discounts is the percentage of students eligible for free and reduced lunches under the National School Lunch Program (NSLP), calculated by individual school. Library branches or outlets must obtain and use the NSLP data for the public school district in which they are located to calculate the discount. Schools' and libraries' e-rate support also is based on whether they are located in an urban or in a rural area. The amount available to hospitals is based on the location (urban or rural).

- The KAN-ED e-rate consultant responds to questions from any KAN-ED member regarding e-rate, helps with the central KAN-ED e-rate application, and conducts statewide training. The consultant was hired using RFP process. The cost of proposals in response to the RFP ranged from $100,000 to $400,000. The current consultant's contract is $100,000.

The Chairperson recognized Janet Buchanan, Chief of telecommunications for the Kansas Corporation Commission, to provide information about how the Kansas Universal Service Fund (KUSF) assessment is derived and allocated (Attachment 5). After Ms. Buchanan's presentation, the Chairperson opened the floor for questions from the Committee. The following information was provided in response to questions.

- Wireless and cable phone service customers pay a KUSF fee, but customers of voice-over Internet protocol (VoIP) service providers do not.

- Discussions are ongoing at the federal level regarding changing how the federal universal service fund (USF) is calculated and operated. Currently, federal USF funds are used to offset the amount of KUSF allocated to rural carriers.

- Rural carriers are moving toward a local single-line residential rate of $12.60. That is the statewide average rate of all rural carriers. That will be recalculated again. As the rate goes up, the need for KUSF goes down. While the amounts involved in the KUSF may change, unless state law changes, the assessment will continue.

Jennifer Findley, Director of Education for the Kansas Hospital Association, was recognized by the Chairperson to present information regarding use of KAN-ED by hospitals. Ms. Findley discussed three areas in which KAN-ED has been of assistance to hospitals: EMSystem®, telemedicine, and exchange of health information and electronic health records. She noted that the

University of Kansas Medical Center is working to integrate telemedicine services with KAN-ED (Attachment 6).

The Chairperson opened the floor for questions of Ms. Findley. The following information was provided in response to questions.

- Ms. Findley noted that video conferencing services provided via KAN-ED are used frequently by hospitals. She also said that there may be some reimbursement issues that prevent more extensive use of telemedicine.

- The statewide license for EMSystem® is approximately $300,000. It was a new product on the market about the time KAN-ED was established. Without KAN-ED funding, hospitals might not be able to afford the service.

- In regard to telemedicine services, Ms. Findley reported that since the system has moved to KAN-ED, the reliability is higher, the transmissions are more secure and the service is more cost effective.

- The hospitals have not had any conversations with Kan-REN about utilizing that network.

- Staff was asked to provide the Committee with information about the Kansas Health Alert Network at the next meeting.

The Chairperson recognized Jan Middendorf, Assistant Director, Office of Educational Innovation and Evaluation (OEIE), Kansas State University, to respond to questions raised at the previous meeting. Ms. Middendorf discussed the categories of KAN-ED membership and the results from the most recent potential member survey (Attachment 7, last four pages).

After the presentation, the Chairperson opened the floor for questions. The following information was provided.

- Ms. Middendorf explained that OEIE is paid by the Board of Regents for services as they are completed, so the OEIE may not bill for the full budgeted amount in any given year. The amount billed depends on the services provided. She explained that it is common for 10 percent to 12 percent of a project's costs to be attributable to evaluation. KAN-ED budgets 3 percent to 4 percent of its annual budget for evaluation.

- OEIE has not studied possible benefits of KAN-ED membership for state agencies because that is not covered by existing law.

- Ms. Middendorf said she would check on why the juvenile justice facilities have not joined KAN-ED.

The Committee recessed for lunch.

Afternoon Session

The Chairperson called the Committee back to order at approximately 1:40 p.m.

The Chairperson called the Committee's attention to minutes of the previous meeting at the members' desks. Representative McLeland moved and Senator Lee seconded a motion to approve the minutes as presented. The motion was adopted.

The Chairperson recognized Jerry Huff, KAN-ED, to respond to questions about use of KAN-ED funds since inception of the program. Mr. Huff referred to Attachment 7, pages 1-30. Mr. Huff responded to numerous Committee questions.

- In regard to Learning Station, KAN-ED staff will provide to the Committee, at its next meeting, information about which services are being used most.

- Mr. Huff informed the Committee that if individual libraries subscribed to databases currently provided through the KAN-ED statewide license, the cost would be much greater. Genealogy databases are not purchased with KAN-ED support.

- In regard to publicizing the availability of statewide databases, the State Library will provide additional information at the next meeting. The State Library also will provide information comparing expenditures for databases immediately before and since development of KAN-ED.

- KAN-ED's user advisory committee meets every two months.

- KAN-ED live is available over the public Internet and is no longer funded.

- KAN-ED expended more money in FY 2006 than the $10 appropriated because some carry-forward funds were used to finance the hospital and higher education initiatives.

- The KAN-ED e-rate consultant provides more services than are available from the State Department of Education.

- The state fiscal year in which e-rate funds are available for expenditure is determined by a combination of the federal application cycle and the length of time necessary for the application to be submitted and approved. The state 2005 application was denied and is on appeal to the Federal Communications Commission. That denial was based on submission of an out-of-date letter of agency with the application. KAN-ED staff is confident that the appeal will be resolved in the state's favor. If so, the e-rate funding will be available in state fiscal year 2007. The 2005 e-rate application was denied and is on appeal to the FCC, also.

- There is no duplication in the services for which funding is sought in the individual school applications and the KAN-ED e-rate application. Mr. Huff explained that some cost allocation is required in preparation of the state application in order to pull out higher education and hospitals that are not eligible for e-rate support.

- The annual KAN-ED budget is not prepared at a level of detail that identifies anticipated expenditures at the service provider level. KAN-ED has contracts with each of the providers, but the amount expended in a fiscal year may change. The current year expenditure does not show a payment to Kan-REN because KAN-ED has not been billed.

- The use of KAN-ED subsidies has not been audited. Recipients report to KAN-ED the use of the subsidies. A KAN-ED member is eligible for the subsidy program even if the member is not a "connected member." All KAN-ED members would be able to apply subsidy amounts to their local loop costs.

KAN-ED staff will provide committee members and staff with access to the "Empowered Desktop."

The Chairperson recognized Eldon Rightmeier, KAN-ED, to discuss the current and the potential physical KAN-ED network and the concept of connected membership from that perspective. Attachments 8 and 9 illustrate a conceptualization of the general physical KAN-ED network today and where KAN-ED staff would like to be in the future. A connected member of KAN-ED has the ability to get to the KAN-ED services shown on the far right of the diagrams. If a KAN-ED member can only connect to the Internet, but cannot access those other services, the member is not connected. A connected member is connected via an Internet service provider who is connected to KAN-ED. Attachment 10 includes a discussion of the impact of KAN-ED funding on costs of interactive distance learning (IDL) and broadband Internet access to schools, libraries and hospitals. Cost can be viewed from the perspective of the state and local governments who support those institutions or from the perspective of the institutions. KAN-ED has operated under a statutory scheme that focuses on cost to the institution.

The Chairperson opened the floor to questions. The following information was provided in the responses:

- The advantage of a combined network is better functionality, but not much cost savings.

- Some savings may be achieved by joining administration and direct network management functions.

- Any discussion of administration and network operation consolidation should include KanWIN.

- The 2005 network study was focused on development of a solid infrastructure for future needs.

The Chairperson recognized Hal Gardner, KAN-ED, who discussed the programs described on page 5 of Attachment 10. The following information was provided in response to Committee questions.

- Incorporating services like the "Empowered Desktop" in classroom curricula takes some time because the teachers must learn and become comfortable with the technology.

Additional information was provided in response to Committee members' requests for clarification.

- The State Library offers 15 databases for statewide access. Five of those databases are paid for from the KAN-ED budget. Those databases are available through the State Library's website. Any Kansan can access and utilize the databases by using a Kansas library card. Community libraries and schools are publicizing the services. In some states there are earmarked funds to publicize similar library services.

- Financing of the databases' subscription cost through KAN-ED makes them available statewide.

- The State Library will provide information to the Committee regarding expenditures for databases immediately prior to implementation of KAN-ED and for subsequent years.

- Homework Kansas is essentially a subscription with Tutor.com and costs KAN-ED approximately $250,00 per year. Since September 6, approximately 7,000 tutoring sessions have been conducted statewide.

- Technical support and administration for the KAN-ED network is provided through Kan-REN at night and on weekends via a contract with DISC which monitors phone contacts. If there is a problem on Kan-REN, DISC personnel contact the "on call" person at Kan-REN.

KAN-ED staff was asked to present a detailed plan for implementing the 2005 study recommendations and a time line at the December Committee meeting.

During Committee discussion, the following items were suggested for inclusion in the Committee's report and recommendations. The Committee deferred action on final decisions until the December 4 meeting, when the Regents' staff will present additional information about a plan and time line for implementation of recommendations contained in the 2005 network report.

- Removing the VoIP prohibition from the KAN-ED Act.

- Expanding potential KAN-ED membership to additional state agencies, in particular, the Department of Corrections, the Juvenile Justice Authority, and the Department of Health and Environment.

The Committee received letters of support for KAN-ED from the Kansas Hospital Association, the State Department of Education, and the Kansas Library Association (Attachment 13).

The meeting was adjourned by the Chairperson at approximately 4:50 p.m.

Prepared by Mary Galligan

Approved by Committee on:

December 4, 2006
(date)

Kan-ed's Report to 2007 Legislature

introduced by the House Committee on Higher Education and was referred to the House Utilities Committee. The bill was heard but died in Committee at the end of the 2006 Session.

Committee Conclusions Regarding Expansion of KAN-ED Membership

The Committee concluded that making additional state agencies eligible for KAN-ED membership would provide benefits to those agencies. Specifically, the Committee concluded that the Department of Corrections and the Department of Health and Environment would benefit from KAN-ED membership.

Statutory Changes Required to Make KAN-ED a More Viable Program

Board of Regents staff suggested two statutory changes that would facilitate integration of Kansas' networks. One change would permit KAN-ED to utilize state-owned network equipment. The second would make additional state agencies eligible for membership in KAN-ED.

Committee Conclusions Regarding Statutory Changes

The Committee concluded that the Legislature would have an opportunity to consider additional statutory changes necessary to facilitate implementation of KAN-ED's goals during the 2007 Session after the proposed consolidation plan is presented along with suggested statutory changes.

COMMITTEE RECOMMENDATIONS

Based on information presented during its meetings and its conclusions described above, the Committee recommended that:

- The Board of Regents and the Department of Administration should continue the effort that resulted in the *Network Study* prepared pursuant to KSA 2006 Supp. 75-7228 and pursue recommendations made in that report.
- The Board of Regents, KanREN, and DISC conduct a feasibility study of the three consolidation models presented to the Committee and make a specific recommendation no later than March 1, 2007 to the standing committees on Utilities, Education, Health, Commerce, Ways and Means, and Appropriations; and to the Joint Committee on Information Technology.
- The March 1, 2007 report include drafts of any legislation required to implement the recommendations.
- The Legislature enact amendments to the KAN-ED Act that will allow the Department of Corrections and the Department of Health and Environment to become members of KAN-ED.

Joint Committee on Information Technology
KDOT Fiber Usage

Don Heiman, LCITO
September 7, 2006

Mr. Chairman and members of the committee: Since our last meeting, I received a couple of questions from the chair regarding bandwidth using KDOT's fiber. I spoke with KDOT and with DISC regarding the questions.

Question 1: Who is now using the fiber?
The University of Kansas uses bandwidth provided by a KDOT fiber run from 59 Highway to the KDOT hut in Lenexa. The University has arrangements for carrying the signal from the Lenexa Hut to the KU Edwards campus in Johnson County. In addition, the KDOT fiber bandwidth is used to support two KDOT facilities –one in Lawrence and the other in Topeka. Also, the fiber is back up to KDOT's 800 megahertz system.

Question 2: Will the KDOT fiber be incorporated into the DISC backbone?
DISC is working with KDOT to incorporate bandwidth in the KDOT fiber backbone from Topeka, Salina, and Wichita into the Kan-win backbone network. In addition work is under way to use KDOT fiber runs from Wichita to Oklahoma City and back to Kansas City/Topeka. This extended leg is called the "lightcore" project. At the present time, DISC is testing special MLSP routing cards to carry jumbo frames across the fiber. The KDOT fiber bandwidth was originally designed to carry 1,500 byte packets (ethernet packet size), but Kan-Win uses larger packets (jumbo frames). The install and testing of jumbo frames should complete soon and if everything tests out, bandwidth from the KDOT fiber will be incorporated in the Kan-Win backbone --when this happens the fiber will be available to all state agencies who use the Kan-win backbone... I will keep you posted as I learn more...

#18
JCIT 9-8-06

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Testimony before the Kan-ed Oversight Committee
November 20, 2006

Reginald L. Robinson
President and CEO
Kansas Board of Regents

Good Morning, Mr. Chairman and members of the Committee. I understand from Committee staff that Members of the Committee have some specific questions regarding the interrelationship between Kan-ed and the Kansas Research and Education Network (KanREN). I am pleased to try to answer those questions on behalf of the Board of Regents here this morning.

If it suits you, Mr. Chairman, I would propose to walk through the questions as I understand them and our responses. Of course, I would be happy to try to answer other questions that Members of the Committee may have, either as I work my way through these responses, or at the conclusion of that presentation. In the course of responding to questions from the Committee, I may turn to Kan-ed staff that is present today.

1) Are Kan-ed and KanREN competing for the same public dollars?

No. The state universities receive their funding via operating block grants through the Kansas Board of Regents. Each university goes through a state procurement or authorized university procurement process to determine what goods or services that they wish to purchase.

2) Are there, in essence, two KBOR networks, Kan-ed and KanREN?

No. KanREN (Kansas Research and Education network) is an independent 501 (c) 3. It is a consortium of members, the majority of which have no affiliation with higher education or the Kansas Board of Regents. KanREN is a commercial internet provider who runs a network and sells internet bandwidth to the universities and other consortium members. Some of the state universities also use other internet providers to provide redundancy in their networks. The Kansas Board of Regents has no governing, coordinating or other influence over KanREN. KanREN is governed by a Board of Directors that is composed of representatives of the KanREN membership. The state university representatives that sit on the KanREN board represent their institutions in that role.

KAN-ED Oversight Comm. 11/20/06 Attachment 3

Kan-ed is authorized by statute to "provide for a broadband technology-based network to which schools, libraries and hospitals may connect for broadband internet access and intranet access for distance learning. For that purpose, the state board of regents shall contract in accordance with this act for the creation, operation and maintenance of such network, to be known as the KAN-ED network."

Kan-ed has leveraged a robust, private, secure video and data network that hundreds of school districts are using everyday for video conferencing and accessing services. The Board of Regents is authorized by statute to contract for the creation operation and maintenance of such network. Kan-ed is authorized to contract with KanREN or any other state contract providers (such as CYTEK, for example) to create, operate and maintain the network.

3) **The committee wants a clear explanation of the difference between KanREN and Kan-ed.**

a. Internet Access: KanREN provides commercial internet access to customers, and Kan-ed does not.
b. Kan-ed uses Internet 2 addressing and has a certain range of internet addresses that it can use on its network. KanREN uses commercial internet addresses and has a separate range of internet addresses. The two networks are "peered" to share data where applicable, are NOT duplicating each other.
c. Kan-ed provides a dedicated private video network with scheduled videoconferencing and multiple hardware, multiple control units. KanREN provides some video services, but not to the degree that Kan-ed does.
d. Kan-ed provides grants and subsidies to members to help them with their purchases of video and network equipment and internet connectivity. KanREN does not provide such grants.
e. Kan-ed works with the telecom industry to reduce end-user costs to rural and urban constituents. KanREN does not.
f. Kan-ed provides dedicated 1-800 number assistance to schools, libraries and hospitals to assist them with their E-rate applications to maximize federal funding for their local institutions. KanREN does not.
g. Kan-ed is a program that is run by the Kansas Board of Regents, and sits within the Kansas Board of Regents and is responsible to the President and CEO of the Kansas Board of Regents. KanREN is a non-profit 501 (c) 3 that is governed by a Board of Directors.
h. KanREN is contracted by Kan-ed and the universities to provide certain services (internet access, network engineering, help desk support). Kan-ed contracts for such services on a year to year basis.
i. KanREN provides the state universities with direct connectivity (for a cost) to the Internet 2 network. Kan-ed does not.

4) **Are any services provided by Kan-ed also commercially available?**

a. Yes. For example, video help desk services are available from several vendors so Kan-ed is always working to make sure that we are getting the best service for our dollars. We are currently evaluating our help desk and video support solution with KanREN.
b. Kan-ed is a specialized network for educational video services. Although similar video services can be provided commercially, most states engaged in educational video do it on a private network for control, reliability, and quality control.
c. Our video scheduling services are provided by a commercial provider (Renovo) and we pay them for the software licensure to use their product.
d. Kan-ed services are delivered in three categories:
    i. Commercially available services that are made available to members at no cost to them. These services are purchased by Kan-ed with substantial savings to schools, libraries, and hospitals.
    ii. Kansas-produced content created by Kan-ed members sometimes with Kan-ed dollars as leverage for development.
    iii. Content and services that are brokered through Kan-ed, but that are purchased by Kan-ed membership. This can include independently purchased services for one entity, or can be constituted as a "group purchase."

In all three instances, data is collected on utilization by the end-user communities.

e. Kan-ed does no in-house development for any content or services and does very limited technical network engineering. Kan-ed aggregates service requests, reviews them and contracts for such services using State of Kansas procurement guidelines.

In conclusion, Mr. Chairman, I do want to point out that pursuant to a legislative directive in 2005, we did produce the study – the "Study of Private Data Networks in Kansas," which examined many of the issues that I have been describing, and that have been the subject of your questions. That study produced a number of recommendations of which I think this Committee is aware. Among the recommendations outlined in the Study are:

- Integrate network planning efforts between Kan-ed and KanREN.
- Develop a detailed, optimized, plan for a consolidated Kan-ed and KanREN infrastructure.
- Study the benefits and requirements to consolidate the KanWIN infrastructure and its management with the optimized Kan-ed/KanREN network.
- Provide a plan for potential KanWIN consolidation with the optimized Kan-ed/KanREN network.
- To the extent integrated planning and consolidation show realizable cost benefits to Kansas, generate policy in support thereof. Changes in policy, regulatory and contract environments will be necessary to enable complete consolidation and enhanced capabilities. Without these changes significant limitations will degrade or prevent potential benefits.

- Establish a funding mechanism that will reliably support combined network requirements.
- Develop an organizational structure to operate the consolidated network while remaining responsive to individual constituent group requirements.

Our hope was that once we transmitted the Study, we would receive some signal from the various Committees that received the document regarding whether there was some consensus about the recommendations outlined in the Study. We did not receive that kind of response, and perhaps the expectation was that we would proceed with the recommendations without it any Legislative signal. However, it would be useful, I believe, if we had a sense that as we go forward on these issues, there is legislative support for the direction suggested by the study. If that direction comes from this Committee, we would welcome it and proceed to pursue the specific recommendations presented in the Study, outlining more specific steps what must be done to implement those recommendations.

Mr. Chairman, I want to thank you and your Committee for your time and consideration this morning. I would be happy to try to answer and additional questions you have at this point.

KAN-ED Oversight Comm. 11/20/06 Attachment 4

Kansas E-Rate Funding Summary

Year	Total # Applicants	Total Number of Items Applied For	Total Amount Applied For	Total Amount Awarded	Applied for but Not Funded	Total Amount Disbursed	Total Amount Unused
2003	505	2741	$ 22,008,286	$ 15,175,419	$ 6,832,867	$ 10,299,408	$ 4,876,011
2004	482	2802	$ 24,446,132	$ 15,491,531	$ 8,954,601	$ 12,492,722	$ 2,998,809
2005	501	2613	$ 21,083,692	$ 11,560,400	$ 9,523,292	$ 8,321,886	$ 3,238,514
2006	524	2730	$ 21,198,024	$ 11,656,050	$ 9,541,974	$ 466,213	$ 11,189,836
Many 2006 applications are still in review						04, 05 and 06 number are still changing in this column	04, 05 and 06 number are still changing in this column

Overview of the Schools and Libraries Program

The Schools and Libraries Program of the Universal Service Fund, commonly known as "E-Rate," is administered by the Universal Service Administrative Company (USAC) under the direction of the Federal Communications Commission (FCC), and provides discounts to assist most schools and libraries in the United States to obtain affordable telecommunications and Internet access. It is one of four support programs funded through a Universal Service fee charged to companies that provide interstate and/or international telecommunications services.

The Schools and Libraries Program supports connectivity - the conduit or pipeline for communications using telecommunications services and/or the Internet. Funding is requested under four categories of service: telecommunications services, Internet access, internal connections, and basic maintenance of internal connections. Discounts for support depend on the level of poverty and the urban/rural status of the population served and range from 20% to 90% of the costs of eligible services. Eligible schools, school districts and libraries may apply individually or as part of a consortium.

Kan-ed through a contract with the Dietrich Lockard Group, provides free E-rate assistance for all K-12 schools and libraries in the State of Kansas. Their toll free number is: 866-372-8302, or can be accessed through the Kan-ed web site at: www.kan-ed.org
State E-rate Coordinator contacts:
K-12 Schools: Melinda Stanley, Kansas State Department of Education mstanley@ksde.org
Libraries: Jeff Hixon, State Library of Kansas jeffh@kslib.info

Follow-up Questions and Topics for Kan-ed Oversight Committee

Question 3: A list of all potential members (eligible entities) of Kan-ed. A list of all potential members who are not currently members. Clarification of the "categories" of membership (e.g., differences among the categories of members).

Categories of Kan-ed Membership

Eligible Organization: any K-12 organization, Library, Higher education institution or Hospital that meets the eligibility requirements of the Kan-ed statute. As of October 15, there are **898** organizations that are eligible for Kan-ed membership.

Member: any eligible organization that has completed a Kan-ed membership form. Members are able to apply for Kan-ed funding opportunities, utilize Kan-ed resources such as the Empowered Desktop, Educational and Research Databases, E-rate consulting services, etc., and connect to the Kan-ed network (backbone). As of October 15, there are **797** members.

Potential Member: any eligible organization that has not completed a Kan-ed membership form. As of October 15, there are **101** potential members. A list of all potential members is included in the table on the following pages. The potential members are listed alphabetically within constituent group [Higher education organizations (3) are listed first, followed by Hospitals (48), K-12 (22) and Libraries (28)].

Eligible Organizations (**898**) = Members (**797**) + Potential Members (**101**)

Connected Member: a member that is physically connected to the Kan-ed network. There are currently 257 connected members. Connected members are able to utilize the Kan-ed network for videoconferencing including Interactive Distance Learning and access to Internet2 sites.

Potential Member Survey: A potential member phone survey was conducted in Fall 2006 to follow-up with potential members in order to determine if they were aware of their eligibility, if they would like to join Kan-ed, and if they prefer not to join to determine their reasons. Thirty-nine potential members were interviewed during this process. Of the 39 respondents, the majority (59%) were not aware their institution was eligible for Kan-ed membership.

Twenty-nine (29) potential members indicated that they were considering joining Kan-ed. The reasons given for not joining prior to the phone call were lack of information about Kan-ed membership and benefits. Ten (10) potential members indicated that they did not plan to join Kan-ed. The most common response given was they did not see how Kan-ed services could be applied at their site.

Other common reasons for not applying for Kan-ed membership included the organization experiencing recent changes in management or being in the process of exploring or researching Kan-ed membership.

Potential Member Name	City	Region	Constituent Group
Higher Education Organizations			
Central Baptist Theological Seminary	Kansas City	North East	Higher Ed
Haskell Indian Nations University	Lawrence	North East	Higher Ed
North Central Kansas Technical College	Beloit	Central	Higher Ed
Hospitals			
Allen County Hospital	Iola	South East	Hospitals
Anderson County Hospital	Garnett	South East	Hospitals
Cedar Vale Community Hospital	Cedar Vale	South East	Hospitals
Central Kansas Medical Center	Great Bend	Central	Hospitals
Children's Mercy South	Overland Park	North East	Hospitals
Doctors Specialty Hospital LLC	Leawood	North East	Hospitals
Galachia Heart Hospital, LLC	Wichita	South Central	Hospitals
Geary Community Hospital	Junction City	North Central	Hospitals
Hanover Hospital	Hanover	North Central	Hospitals
Heartland Surgical Specialty Hospital, LLC	Overland Park	North East	Hospitals
Holton Community Hospital	Holton	North East	Hospitals
Kansas City Orthopedic Institute, LLC	Leawood	North East	Hospitals
Kansas Heart Hospital	Wichita	South Central	Hospitals
Kansas Neurological Institute	Topeka	North East	Hospitals
Kansas Rehabilitation Hospital	Topeka	North East	Hospitals
Kansas Spine Hospital, LLC	Wichita	South Central	Hospitals
Kansas Surgery and Recovery Center	Wichita	South Central	Hospitals
Manhattan Surgical Hospital, LLC	Manhattan	North Central	Hospitals
Meadowbrook Rehabilitation Hospital	Gardner	North East	Hospitals
Mercy Health Center	Ft. Scott	South East	Hospitals
Mercy Hospital	Moundridge	South Central	Hospitals
Mercy Hospital of KS - Independence	Independence	South East	Hospitals
Miami County Medical Center	Paola	North East	Hospitals
Mid-America Rehabilitation Hospital	Overland Park	North East	Hospitals
Minimally Invasive Surgical Hospital	Lenexa	North East	Hospitals
Olathe Medical Center	Olathe	North East	Hospitals
Osawatomie State Hospital	Osawatomie	North East	Hospitals
Overland Park Regional Medical Center	Overland Park	North East	Hospitals
Parsons State Hospital & Training Center	Parsons	South East	Hospitals
Prairie View Hospital	Newton	South Central	Hospitals
Rainbow Mental Health Facility	Kansas City	North East	Hospitals
Ransom Memorial Hospital	Ottawa	North East	Hospitals
Saint John Hospital	Leavenworth	North East	Hospitals
Saint Luke's South Hospital	Overland Park	North East	Hospitals
Salina Surgical Hospital	Salina	Central	Hospitals
Select Specialty Hospital of Kansas City	Overland Park	North East	Hospitals
Select Specialty Hospital of Topeka	Topeka	North East	Hospitals
Shawnee Mission Medical Center	Shawnee Mission	North East	Hospitals
Specialty Hospital of Mid America	Overland Park	North East	Hospitals
St. Johns Maude Norton Memorial Hospital	Columbus	South East	Hospitals

Potential Member Name	City	Region	Constituent Group
St. Joseph Memorial Hospital, Inc.	Larned	Central	Hospitals
Surgical and Diagnostic Center of Great Bend	Great Bend	Central	Hospitals
Via Christi Rehabilitation Center	Wichita	South Central	Hospitals
Via Christi Riverside Medical Center	Wichita	South Central	Hospitals
Wesley Medical Center	Wichita	South Central	Hospitals
Wesley Rehabilitation Hospital	Wichita	South Central	Hospitals
Western Plains Medical Complex	Dodge City	South West	Hospitals
Wichita Specialty Hospital	Wichita	South Central	Hospitals
K-12			
Accelerated Schools	Overland Park	North East	K-12
ANW Special Ed Cooperative #603	Humboldt	South East	K-12
Atchison Juvenile Correctional Facility: Bert Nash Intermediate	Atchison	North East	K-12
Beloit Juvenile Correctional Facility: North Beloit High	Beloit	Central	K-12
Doniphan County Education Cooperative #616	Bendena	North East	K-12
East Central Kansas Cooperative in Education #614	Baldwin City	North East	K-12
Heartspring	Wichita	South Central	K-12
Horizon Academy Schools	Roeland Park	North East	K-12
Kennedy Academy	Topeka	North East	K-12
Kickapoo Nation Schools	Powhattan	North East	K-12
Kiddie Kollege Primary Grade	Kansas City	North East	K-12
Lakemary Center, Inc.	Paola	North East	K-12
North Central Kansas Special Education Cooperative #636	Glade	Central	K-12
Rainbow Mental Health Facility	Kansas City	North East	K-12
Sedgwick County Area Educational Services Interlocal Coop #618	Goddard	South Central	K-12
South Central Kansas Interactive Distance Learning Network	Clearwater	South Central	K-12
Special Purpose School: Parsons State Hospital & Training Center	Parsons	South East	K-12
Stanton County USD 452	Johnson City	South West	K-12
The Learning Consortium Educational Cooperative #631	Hesston	South Central	K-12
Topeka Juvenile Correctional Facility: Lawrence Gardner HS	Topeka	North East	K-12
Tri County Special Education Cooperative #607	Independence	South East	K-12
Waconda USD 272	Cawker City	Central	K-12
Libraries			
Arlington City Library	Arlington	South Central	Library
Attica City Library	Attica	South Central	Library
Barnes Reading Room (Public Library)	Everest	North East	Library
Brownell Public Library	Brownell	South West	Library
Caldwell Carnegie Library	Caldwell	South Central	Library
Dudley Township Public Library	Satanta	South West	Library
Dwight Public Library	Dwight	North Central	Library
Farmer Township Community Library	Bushton	South Central	Library
Garden Plain Community Library	Garden Plain	South Central	Library
Gaylord Public Library	Gaylord	Central	Library
Geneseo Public Library	Geneseo	South Central	Library
Glasco City Library	Glasco	Central	Library
Havana City Library	Havana	South East	Library
Leon Public Library	Leon	South Central	Library

Potential Member Name	City	Region	Constituent Group
Lillian Tear Library	Sedgwick	South Central	Library
Macksville City Library	Macksville	South Central	Library
Minneapolis Public Library	Minneapolis	Central	Library
Moundridge Public Library	Moundridge	South Central	Library
Nickerson Public Library	Nickerson	South Central	Library
Norwich Public Library	Norwich	South Central	Library
Partridge Public Library	Partridge	South Central	Library
Rae Hobson Memorial Library	Republic	Central	Library
Randolph-Decker Public Library	Clyde	Central	Library
Rossville Community Library	Rossville	North East	Library
South Haven Township Library	South Haven	South Central	Library
Wellington Public Library	Wellington	South Central	Library
Wichita County	Leoti	South West	Library
Wisner Library	Sharon	South Central	Library

Color Change

Regents information Tech

Testimony before the House Committee on

January 29

Jim Bingham, KU I
Ravi Pendse, Wichita
David Schmidt, Fort Ha
Jerry Smith, Pittsburg
Denise Stephens, Univ
Beth Unger, Kansas S
Bruce Vieweg, Emporia

As the Regents Information Technology Council Chair and on behalf of the Regents Universities, it is my pleasure to submit this information to the House Committee on Government Efficiency and Technology in advance of our meeting on January 29th, 2007.

This is not meant to be a comprehensive list, but instead give the committee members a feel for the significant level of collaboration that is occurring between the Universities at many different levels. There are some comments at the end of this list that will provide the Committee some background on further collaborations and the uniqueness of needs placed upon the University computing environment.

- ESU partnered early with WSU on administrative systems implementation. This partnership resulted in substantial savings of time and lowering of risk of project failure for ESU.

- Shared Primary Care Nurse-Practitioner technology-enabled teaching program includes KUMC, Wichita State, Pittsburgh State, and Fort Hays State (online and interactive teleconferencing).

- RLDC (Regents Libraries Database Committee—29 Kansas libraries including Regents Universities, community colleges, private academics, public libraries, vo-techs, and the Kansas State Library) negotiates joint aggregate purchase of electronic databases (FY 2007 covers 24 separate electronic resources) at discounted rates.

- K-INBRE grant (all Regents Universities plus Haskell, Washburn, and Langston University, Oklahoma). *"The purpose of the Kansas INBRE* (K-INBRE) is to strengthen the ability of Kansas researchers to compete effectively for NIH funds by building a "critical mass" of junior and senior investigators as well as undergraduates, graduate students and post-doctoral fellows supported with cutting edge technology within a scientific research theme". K-INBRE collaboration is enabled by videoconferencing; one of its key functions is to assure that researchers have state-of-the-art computational equipment.

- KU and KUMC have worked closely on PeopleSoft Student Administration System (4 campus implementation in Lawrence, Kansas City, Wichita, Overland Park), Voyager Library System (4 campus implementation), extensive shared investments in electronic journals, complementary portal development (shared tools, features, etc.), and have a general history of joint research and planning on a number of IT issues (specifically data warehouses, reporting datastores, directories, groupware, network issues, and others).

- FHSU and other Universities have worked closely with each other and the state on interfaces to state systems (SHARP). FHSU and ESU programmers have worked closely together to collaborate on code. WSU provided ESU additional code support.

- KU and KSU have agreed to shared housing of library materials in KU's new high-tech Library Annex, opened in 2006.

- WSU supported ESU as their "grant support team" with weekly meetings to certify their progress.

- There have been a variety of contracts with vendors -- that have been accessible to other Universities. WSU found a certain vendor/application useful and then shared their experience with RITC. As a result the ImageNow document imaging system was implemented at several universities. In this type of situation, contracts are routinely worded so that other universities can take advantage of better terms and pricing.

- FHSU Avaya system telephone staff work with KU, KSU, and WSU on coordinating upgrades and diagnostic issues. FHSU and PSU also work together on telecommunications issues and jointly develop Nortel service contracts with the Department of Purchasing.

- KU and K-State IT administrative staffs meet 1-2/month. User services and other support staff at KU and K-State also meet regularly to share information.

- KSU has worked closely for Access US course delivery with FHSU, WSU, and ESU on technology and other issues.

- IT Security officers meet as the Regents Information Technology Security Workgroup to discuss security issues and procedures.

- Regents Universities host a yearly "CHECK" conference to share best practices on wireless implementations, data warehouse implementations, ERP implementations, security practices, etc. (CHECK = Conference on Higher Education Computing in Kansas). This conference invites ALL higher education in the state, not just the Regents Universities.

- Regents Universities worked together (with KU in the lead) to establish a software Large Account Reseller (LAR) agreement for ALL state agencies.

- KanREN – In 1993, the Regent Institutions, lead by the University of Kansas, formed the Kansas Research and Education Network (KanREN). KanREN provides a high-speed network and high capacity network backbone connecting its members across our state. It also provides broadband connection to both the commercial Internet and to Internet2 – the research Internet – to all Regent Institutions, as well as member K-12 School Districts, Private Colleges, and Public Libraries. The CIOs from the Regent Universities are permanent members of the Board of Directors of KanREN, which is a 501 (c3) not-for-profit organization. Bruce Vieweg currently serves as Board Chair.

- Regent Security Assessment Methodology – This substantial methodology was developed by the University of Kansas and Kansas State University, with input from all of the other Universities. This assessment methodology is used each year to conduct required security evaluations for each of the Regent Universities. Results are provided to the Board of Regents.

Additional Information:

Over the years a question has been asked by many governance groups: "Why don't the Regents Universities all use the same hardware/software?" The question is normally asked in the context of discussions that are exploring ways to ensure the most efficient use of resources among the Regents IT enterprise. Throughout the years there has been an *assumption* that the utilization of the same software or hardware would result in greater financial efficiency. As frequently discussed in RITC meetings, this is not necessarily the case. Given the complexity of the technology and the needs of the campus, use of the same software may or may not be more efficient.

There are differences in the universities: size, complexity, and the nature of the programs being the most obvious. Hardware and software is most efficiently utilized when it is matched to the specific purpose it serves. Size is an important difference, particularly the size of the student population of each institution. Complexity is also important in the number of academic programs supported and also the nature of those programs. Some professional programs required curriculums that have a great deal more complexity than a typical undergraduate major. In addition, three of the Regent's Universities support a research enterprise that requires its own administration in accordance with federal laws and two institutions support operations for human and veterinary medicine. These differences are particularly important in the provision of administrative systems (financial, human resources and student) and the systems that support the research enterprise. Software complex enough to serve one institution may, in fact, be an "over provision" for another institution that only has needs for a more simple set of capabilities. Therefore a use of the same software could, in fact, increase cost for a smaller institution. In addition, since many information technology problems must be solved in the local environment, implementation of a complex system at a smaller university would require that staff expertise be onsite to support the system.

The IT managers of the Regents Universities have chosen a path of close cooperation to take advantage of those areas where it does make sense to cooperate and to take our own individual paths when that is the most cost efficient option. The following actions are taken to ensure the best cost efficiency:

- We participate in buying consortium activities both within the state and with larger regional organizations. Within the state the Regents Universities utilize extensive the state contracts which are bid and offered by the Division of Purchasing. In fact, members of RITC drafted specifications for the *first* statewide microcomputer contract in 1982, and have drafted subsequent specifications for many statewide contracts for both software and hardware. In addition, we have constantly sought to use the power of consortium buying through joint contracts (utilized extensively for database content) and through the provision in contracts that offers "deals" gained by one institution to be offered to the others. Given the small size of our state it has been wise to participate in regional organizations that can bring the power of consortium buying to our advantage. We participate in many of these organizations the most notable being the Midwestern Higher Education Commission and the Greater Western Library Alliance.

- All universities buy hardware and software that meets national IT standards. This ensures that systems can "talk" to each other and that data can be moved between systems as needed. Programs such as the Board of Regents post secondary database that track students as they move through Kansas higher education institutions are possible because we are careful about standards compliance. "Standards" allow us to gain the advantages of having the same software, but at the same time enable appropriate systems for the individual institution. Regents Universities have, in fact, been the catalyst and the leader in the establishment of several IT standards that have been adopted nationally.

- The Regents Universities share staff expertise and customized programs extensively as we find we have common needs and functions. There is extensive staff consultation and sharing of technical solutions and programs at the lowest staff level as well as the managerial communication that takes place at the monthly RITC meetings.

- Given our role as the educational and research institutions of the state, we have also developed technology that has then proven to be cost effective for the state. Our contributions to the development of Wide Area Networking (WAN) through Internet 1 and Internet2 at KU, K-State and WSU are examples of the contributions that the research and development teams of the Universities have contributed to the state.

- Collaborative activities at Regent's Universities have also been the catalyst for the deployment of new technologies within the state. In the 1980's RITC (formerly RCAC) motivated the creation of a regents-wide computer network based on technology by A.T. & T., following the installation of new campus telecommunications systems. KanREN is another example of this type of collaborative development which was discussed above.

In summary, the Regents Universities have closely cooperated for a number of years and through oversight at the Board of Regents have maintained a cost efficient profile of information technology services for our campus communities. Close cooperation with state agencies on projects such as the state-wide technical architecture as also ensured efficiency in utilization of resources allocated to IT functions.

Technology planning and deployment is a significant challenge at every university whether large or small. In years past, technology (particularly computer hardware) was a very limited and expensive resource, and many business applications were designed around the technology rather than the business objective. Since the development of micro computing, computer hardware has in most cases become a commodity. Today, the planning process at our universities looks at the business and program needs first, and then seeks to identify and deploy the technology required to meet these objectives.

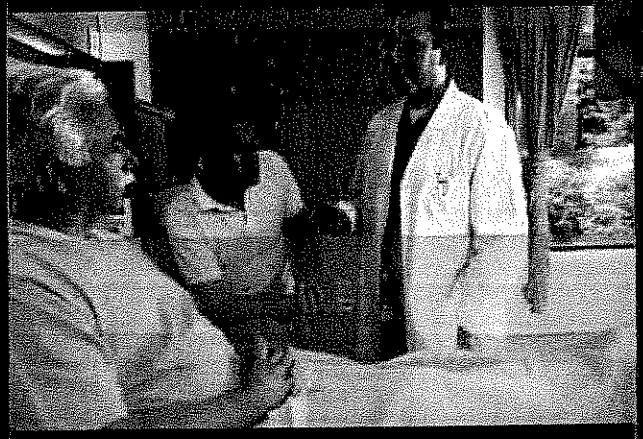
This does not mean that our universities no longer seek to collaborate or jointly develop shared technology infrastructure. But it does mean that in today's environment where computing hardware only has a short lifecycle and makes up a relatively small proportion of a project's total cost, the economies of scale that existed for shared computing centers and systems is much less. Development speed and flexibility is more likely the key to the success in today's environment, and a "just in time" approach for procurement of computer hardware is more likely to deliver the best return on investment.

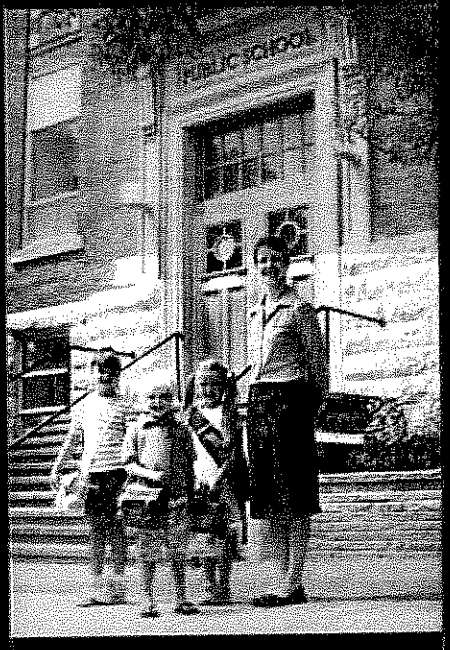
At the current time, large scale collaboration between Regent's Universities is likely to be most productive in the area of shared infrastructure development, especially in wide-area network planning and deployment. For the past 18 months there has been a RITC sub-committee working on a plan for the next generation of wide-area networking. We are currently in the process of integrating these needs through collaborative planning with KanEd, DISC and KanREN.

While the Regent Institutions cooperate in a significant number of areas, we also need to say something about how our institutions compete. We compete for the best Kansas students, the best out-of-state students, the best faculty, the best staff, the best "distance students" and particularly for our Research Universities, for the best grants and contracts. This is a healthy competition that strengthens each of our institutions and also recognizes the unique roles and responsibilities of each of our universities to serve the citizens of Kansas, the United States, and increasingly the World.

We look forward to meeting with the Committee, and hope this information provides some insights to the respected Members.

Jerry Smith, CIO
Pittsburg State University
RITC Chair





Kan·ed

WHERE KANSANS ACCESS THE INFORMATION AGE

ANNUAL REPORT 2006

Kan-ed Vision

Kan-ed will work to enhance human and professional relationships through the utilization and promotion of efficient and appropriate use of network technologies.

Kan-ed Mission

Kan-ed will support Libraries, K-12 Schools, Higher Education and Hospitals by assisting with access to commercial Internet resources, providing access to private network resources for distance learning and applications, and providing access to other Internet technologies and technology services.

Table of Contents

January

Delivered Annual Report and Network Study to Legislature

Provided testimony for the following committees: House Utilities, Senate Commerce, Senate Ways and Means

February

Hospital Initiative funds distributed

March

Submitted E-rate appeal for FY 05 and E-rate application for FY 06

April

User Advisory Council meeting held in Southeast region at Greenbush

Industry participation at User Advisory Council meeting

May

Collected Letters of Agency (LOA) for federal E-rate application from K-12 and library members

Technology & Equipment awards distributed

June

Content & Service awards distributed

User Advisory Council retreat held in Manhattan, KS

Higher Education "Connect" funds distributed

July

Senate Substitute for House Bill 2968 approved, providing $2 million in Kan-ed funding from State General Fund for FY 07

August

Annual Kan-ed Membership and Leadership Conference, "Exploring Kan-ed" held in Wichita, KS

Broadband Subsidies distributed

September

Launched connection project for Kansas libraries

Membership verification of all eligible Kan-ed members completed

October

Held Renovo Scheduler trainings for Kan-ed network users

Demonstration site for "Common Needs" button launched

Finalized format for Empowered Desktop usage reports

November

Joint Committee on Information Technology (JCIT) kick-off of State Capitol Complex connectivity

December

Provided testimony and materials to the Legislative Oversight Committee

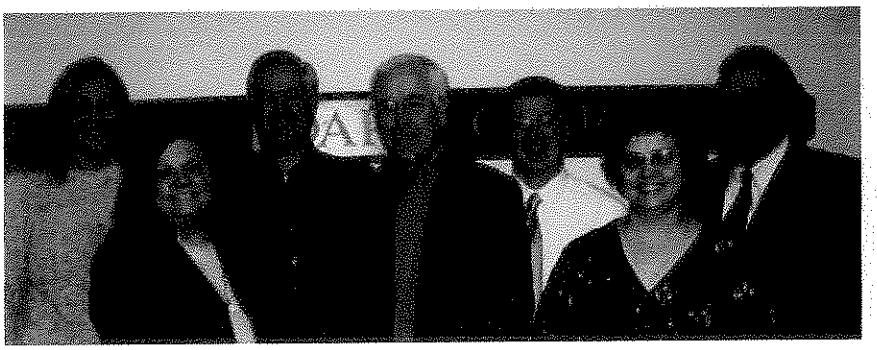
E-rate training provided for K-12 and library members

Year At A Glance

User Advisory Council meeting held in Central region at Great Bend

Completed Annual Report for 2006

Letter from Kan-ed Leadership



Kan-ed Staff
Front Row: Charmine Chambers, Hal Gardner, Leanne Houser
Back Row: Chrisy Madden, Eldon Rightmeier, Jerry Huff, Randy Stout

On behalf of the Kansas Board of Regents and Kan-ed, we are pleased to report about Kan-ed's activities in 2006. Over this past year, Kan-ed has continued its efforts to enhance the quality of how Kansans live and work through the utilization and promotion of efficient and appropriate use of network technologies. It is our pleasure to share some of this year's highlights with you.

As Kan-ed strives to improve connectivity for Kansas schools, libraries, and hospitals, connecting to the core infrastructure has been a major focus of activity producing numerous new connections. At this printing, 257 Kan-ed members, representing K-12 schools, institutions of higher education, hospitals, and libraries, are connected to the Kan-ed network. In addition to Kan-ed members, the Kansas State Department of Education and Kansas Hospital Association are also connected, representing a tremendous milestone in the development of the network, not only increasing the number of connections, but also enhancing the resources that can now be accessed.

While these technical components are critical to the initiative, Kan-ed has also provided many services important to its members. Kan-ed continues to provide access to many statewide educational and research databases, as well as other educational resources on the Empowered Desktop. Kan-ed members have the opportunity to participate in E-rate training to maximize access to this resource for schools and libraries in the state. Further, Kan-ed is currently creating a virtual marketplace for members to identify common needs to pursue aggregate purchasing.

As you review this 2006 annual report, please note that while our accomplishments have been significant, there is still much work required to achieve complete and efficient accessibility among our hospitals, libraries, institutions of higher education, and K-12 schools. Your feedback is critical as we continue to review and revise implementation strategies. As such, we welcome your comments regarding this 2006 annual report and encourage you to continue to share your suggestions as we all move forward in the quest for universal accessibility across the state.

Sincerely,

Reginald L. Robinson
President and Chief Executive Officer
Kansas Board of Regents

Hal Gardner
Executive Director
Kan-ed

User Advisory Council
Christie Brandau, Steve Karlin, Ken Abendshien, Susan Myers, Jennifer Findley, Mel Chastain, Cindi Hickey, Tim Rogers Not Pictured: Jay Jolly, Ben Smith, Jerry Smith, Melinda Stanley

As the current Chair of Kan-ed's User Advisory Council (UAC), it gives me great pleasure to write this letter reflecting on this past year's accomplishments. The UAC is a dedicated and fervent group that brings perspectives and preferences to Kan-ed staff on the operation and direction of Kan-ed. The four constituencies, hospitals, libraries, K-12 schools and higher education, are central to the achievement of the Kan-ed mission and our primary role as UAC members is to ensure that their voices are being heard.

Throughout this past year, Kan-ed has remained determined to deliver a thorough, relevant, and responsive result for their membership. This year's efforts have been focused primarily on connecting members to the Kan-ed backbone. This is a work in progress, and over the coming months you will begin to see the results.

As we hold strong in our advisory capacity to what Kan-ed has historically done well, we also remain focused on the horizon and the new and exciting opportunities it brings. Regional collaboration and community cooperation will continue to gain strength. Kan-ed will continue to be an advocate for these efforts and be an active participant in the collaborative initiatives, such as the Enhanced Library Meeting rooms project and the increased interactive distance learning, and professional development opportunities available across all constituent groups.

All of this leads to a positive anticipation and unprecedented energy that is becoming increasingly evident in every member of the staff and UAC of Kan-ed. As we connect with our constituent members and stakeholders and reiterate our message and mission, the energy will become visible results. In addition, as the Kan-ed website demonstrates each time it is viewed, we are indeed looking forward to 2007.

Sincerely,

Christie Brandau

Christie Brandau
Chair
User Advisory Council

Through the Kan-ed Act, the Kansas Board of Regents (KBOR) was charged with providing a "broadband technology-based network to which schools, libraries, and hospitals may connect for broadband internet access and intranet access for distance learning." The Kan-ed network began operation in August 2004. Circuits have been added since the original design, extending the edge of the network to better serve Kan-ed members across the state. Although network expansion is considered complete at this time, modifications for enhancing fiscal and operational efficiency are expected to continue as initial 36 month contracts come up for review beginning in December 2006.

Kan-ed is governed by Kansas Statutes 75-7221 – 75-7228 which may be accessed at the Kansas Legislature website: www.kslegislature.org/legsrv-statutes. To date, the Kan-ed network has demonstrated compliance with the statutes by:

- Providing broadband intranet connectivity for Interactive Distance Learning (IDL) and other video conferencing formats (telemedicine, etc.).
- Developing a network designed to ensure that schools, libraries, and hospitals have quality, affordable access to distance learning. Prior to Kan-ed, many organizations had to go through multiple providers to obtain a network connection that would allow IDL. The savings to the individual Kan-ed member are a result of increased competition among the telecommunications providers and the ability to connect to the network through a single provider. The approximate average savings as a result of Kan-ed per connected member is $452/month and $5,424/year.
- Avoiding competition with the Kansas telecommunications industry and impairment of contracts, as precluded by statute, by not providing commercial internet access. Instead, Kan-ed subsidizes broadband internet connections offered by local service providers.
- Neither offering circuit switched voice communications nor Voice over Internet Protocol (VoIP) over the Kan-ed network.
- Developing, reviewing, and refining implementation plans and network standards for operation, maintenance, and monitoring of the network. KBOR contracts with the Kansas Research and Education Network (KanREN) for engineering and management services.

State of Kansas requirements, including the filing of a project plan with the Chief Information Technology Officer (CITO) and procurement statutes, have been followed. An evaluation model and system is in place and provided by the Office of Educational Innovation and Evaluation (OEIE), whose offices are located in Manhattan, Kansas.

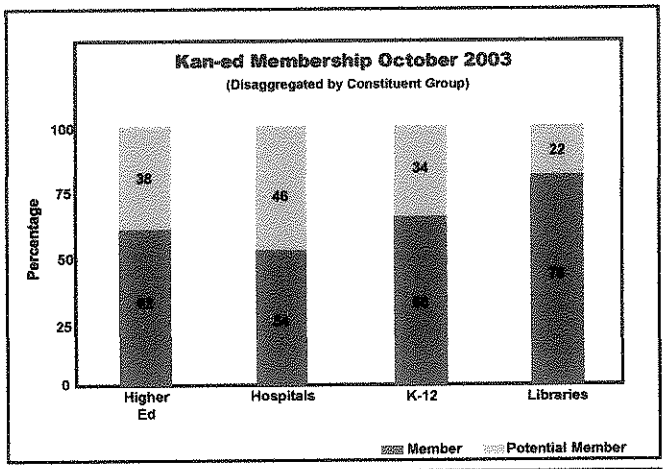
Network deployment and access methods are consistent with concepts outlined in the Report of the Kan-ed User Advisory Council to Dr. Kim Wilcox, President and CEO, Kansas Board of Regents, as authored by Dr. Jerry Niebaum and delivered to Dr. Wilcox in December 2001.

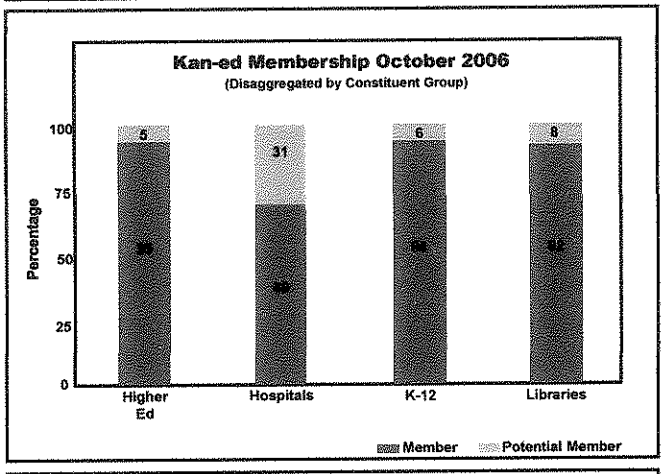
In addition to the intranet and internet subsidies, Kan-ed offers grants in support of constituent access to the network and content programs requested by constituent groups. Grants cover premise routing and video equipment. Resources include Marratech, ducation and research databases, the Empowered Desktop, and the Emergency Management System (EMSystem).

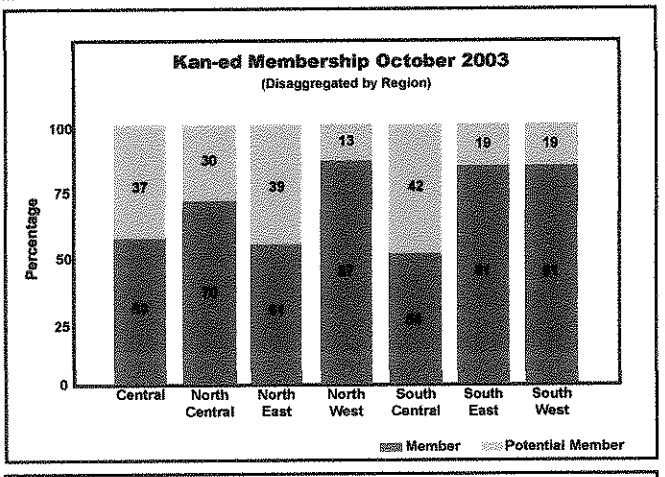
Kan-ed membership is comprised of four constituent groups (Higher Education, Hospitals, K-12, and Libraries) that are located in seven regions across the state. The Kan-ed membership, as of October 15, 2006, consists of 797 from a total of 898 eligible members (89%). The charts to the right display the current Kan-ed membership numbers compared to 2003 membership numbers.

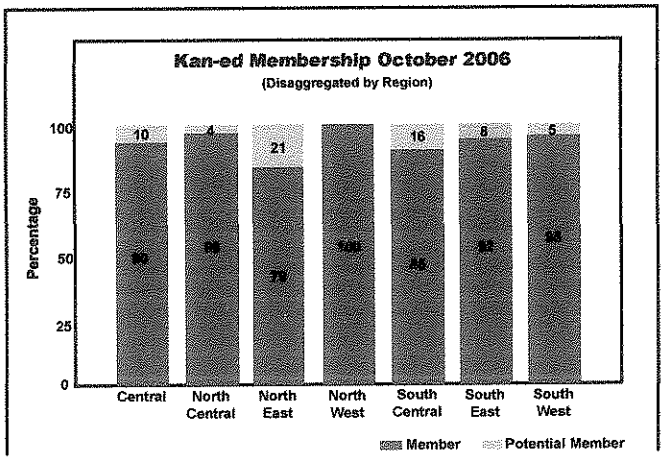
The membership comes together annually for a membership conference and also meets periodically on a regional basis. The Second Annual Membership Conference, Exploring Kan-ed, was held June 7-9, 2006, at the Old Town Convention Center in Wichita, Kansas. The conference was focused on the Kan-ed initiative of improving broadband technology access to higher education, hospitals, libraries, and school districts in Kansas.

Highlights of the conference activities included the delivery of the State of Kan-ed Annual Report, in addition to the Kan-ed Business Meeting, and the keynote address by Harry L. Roesh. Breakout sessions featuring various technology available, round table discussions, and a vendor reception comprised the reminder conference activities, followed by the Closing General Session.



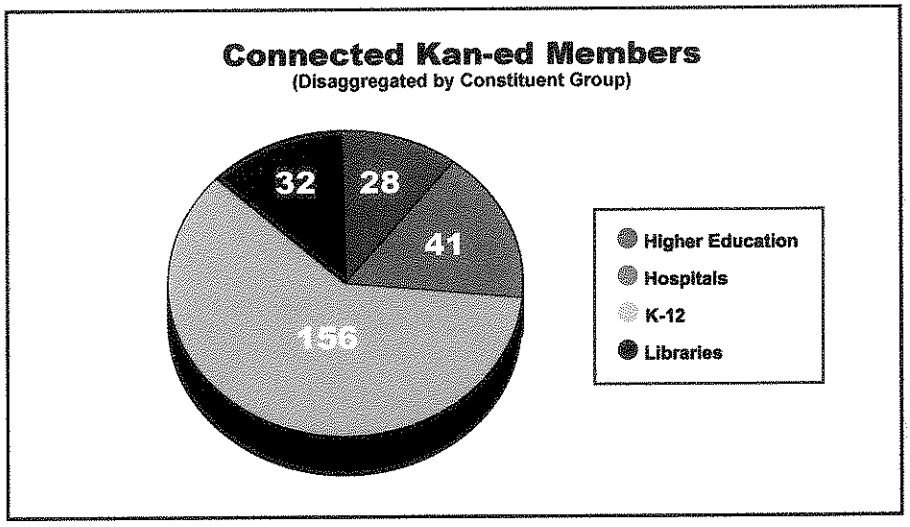






Kan-ed has constructed and operates a high-quality, private network within Kansas. This network consists of a core, or "backbone," connecting 19 Network Access Points (NAPS) via high-speed communications lines, to which approximately 295 sites are connected. The map on the facing page displays the Kan-ed backbone, connections, NAP locations, and direct industry providers as of October 2006. Network components are leased through Kansas' facility and equipment providers, and individual sites contract with Kansas commercial communications providers to be connected to a NAP, so that traffic between connected Kan-ed members can traverse the Kan-ed network instead of the commercial Internet.

As shown on the Network map, there are currently 295 connections to the Kan-ed network. Some members have more than one site connected to the network; therefore, these 295 connections represent 257 "connected" Kan-ed members. The chart below displays the 257 connected members broken down by constituent group.



The connected members utilize the network for many reasons including Interactive Distance Learning (IDL) courses, Telemedicine, Videoconferencing, Professional Development, and Training. Connected members are able to schedule sessions through the Renovo Scheduler. The Scheduler permits a Kan-ed member to schedule a video conference allowing each video site to be brought online automatically, and therefore simplifies the process of implementing a video conference. The Scheduler interface allows the collection of important end user information, such as what types of sessions are being offered and total number of participants. There are several formats available to report this information. The refinement of the interface is on-going as Kan-ed strives to report more accurate and complete data regarding network usage.

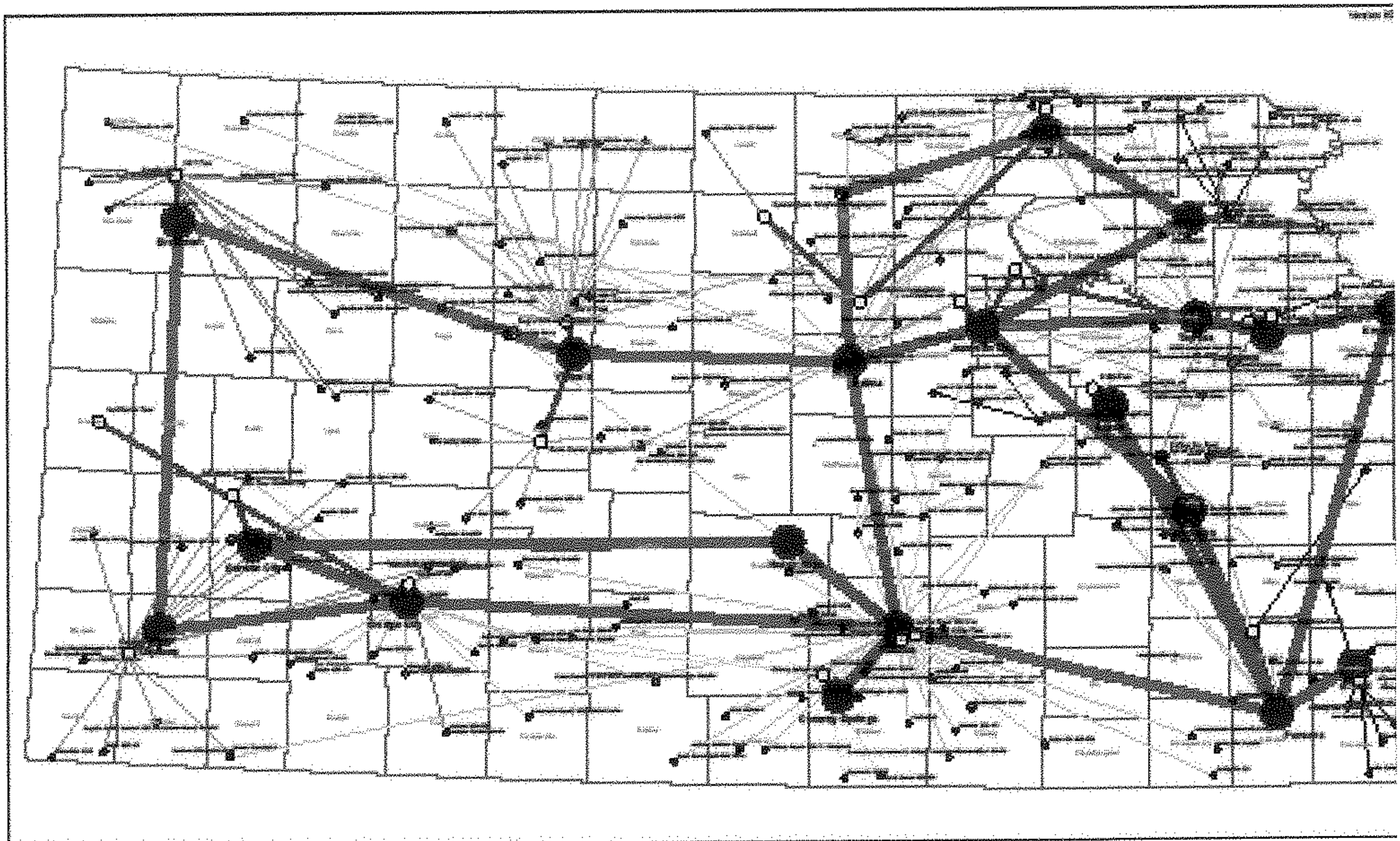
For 2006

- 23,417 sessions have been scheduled
- Totaling 28,668 hours of programming and
- Impacting more than 9,964 participants (please note that participant numbers only reflect data from August – December 2006).

The majority of these sessions are courses covering topics such as Foreign Language, Fine Arts, Mathematics, Science, Social Studies, and Language Arts. Hospitals also utilize the network for educational purposes to cover topics including Communication, Customer Awareness, Hiring, Medicare, Skilled Care, and Cardiac Education.

work Map

Map



CONNECTED MEMBERS

Freedom Calls

In collaboration with the Kansas Regents Educational Communications Center (ECC) and Kansas State University (KSU), Kan-ed provided support for the military serving overseas through the Freedom Calls program. Freedom Calls is a non-profit foundation designed to put soldiers in touch with their loved ones by connecting them through videoconferencing sessions. The foundation has installed satellite links and communications facilities at three locations in Iraq serving the nearly 30,000 - 40,000 soldiers stationed in the area.

During 2006, the ECC hosted three sessions between soldiers in Iraq and their families at Ft. Riley. These sessions were possible because of the video conferencing technology, funded in part by Kan-ed, that is availabl in Bob Dole Hall at KSU. Calls were conducted on July 8th, August 6th, and September 24th, 2006, allowing 16 families each time to see and talk to soldiers from the 82nd Medical Company (Air Ambulance) during a 30 minute video conference. For the majority of these families, it had been almost a year since seeing their loved ones face-to-face.

Higher Education

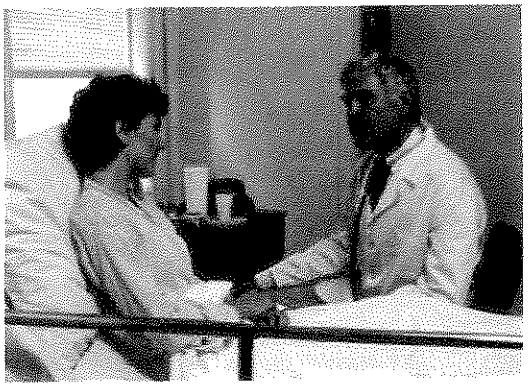
Kan-ed has impacted Interactive Distance Learning (IDL) in Higher Education institutions across the state. Kan-ed funding has allowed many campuses to upgrade their equipment and systems, converting them to a common digital H.323 protocol. These conversions make the IDL systems compatible with other institutions in the state and expand opportunities to receive and deliver a variety of programming.

One outcome of this increased level of compatibility can be seen at Coffeyville Community College (CCC). In 2005, an upgrade to the IDL equipment allowed CCC to offer Emergency Medical Technology (EMT) classes to remote sites, making it possible for students to complete the clinical requirements for Paramedic training in their local communities. As a result of these expanded opportunities, the College has also been able to pursue partnerships with other institutions. For example, Coffeyville is partnering with Barton County Community College (Barton) to offer course that would not otherwise be available in their respective areas. Barton is delivering courses in their Fire Science program over the Kan-ed network to students at CCC. In return, the Coffeyville program offers EMT courses through IDL to the Barton County students.

Hospitals

Kansas Hospitals are taking advantage of the services provided through the Kan-ed initiative. 2006 has seen a substantial increase in the number of hospitals connected to the network, from 13 in January 2006 to 41 as of October 2006. As a result of this increase in connections, more hospitals across the state now have access to professional development and educational programs offered over the network.

The Pioneer Health Network (PHN) is comprised of 16 hospitals throughout Southwest Kansas and offers Interactive Television (ITV) educational programs that are delivered across the Kan-ed network. Educational programs serve a variety of audiences, including physicians, nurses, managers/supervisors, human resource directors, facility managers, financial officers, purchasing agents, environmental services, dietary staff, and a customer relations series designed for all staff members. The programs cover many Continuing Medical Education (CME) topics, including health issues such as Hepatitis C, Overuse Injuries of the Hip and Knee, and Pediatric Oncology, as well as administrative concerns such as working with customers, hiring, and evaluation. Program selection is guided by Education Coordinators from each of PHN's member hospitals who meet on a regular basis to determine the network's training needs. In addition, several hospitals have begun to invite others in their communities to ITV programs in which they might have interest. One such example is the ServeSafe training provided over ITV to PHN facilities, which was a result of a collaboration between K-State Extension, Kansas Department on Aging, Finney County Extension and PHN. The training was provided in both English and Spanish to over 100 participants. Access to these ITV programs allow participants to receive training at their local sites, helping increase the number of participants, while reducing costs from travel and time away from the community.



Future plans for the network connection include telemedicine videoconferencing and recording the ITV programs to be placed on the network for future access, and also be made available for ancillary groups to use in their own meetings. The continued success of the services provided through Kan-ed for PHN is illustrated by the increasing number of individuals participating in the programs. Since the connection of 15 PHN hospitals in April 2006, there have been 30 educational programs and 13 PHN meetings reaching over 1000 participants.

K-12

The implementation of the Kan-ed backbone throughout the state of Kansas, specifically the industry partnerships and standardization of the H.323 protocol, has significantly impacted Interactive Distance Learning (IDL) in Kansas. All consortia can now work together to send and receive classes, enrichment programs, and trainings, greatly expanding the list of possible programming. Kan-ed funding has been available for interactive video systems and equipment upgrades, providing students across the state with a broad range of resources, including those from post-secondary institutions, and places of special interest, such as NASA. In addition to traditional classes, K-12 administrators and teachers benefit from numerous video conferences that "connect" them, via the Kan-ed backbone, to valuable resources of state agencies, the Kansas State Department of Education, in particular, and various staff development opportunities that would otherwise have necessitated considerable expenditure of time and travel.

An example of the expanded course offerings is the opportunity for students across the state to take Mandarin Chinese. There are currently two sections being offered, taught by a Chinese citizen assigned to the Confucius Institute at KU, through a collaboration between High-Southwest Plains Network, the Greenbush IDL Network, ALTEC, the Confucius Institute, and KSDE. Chinese is one of 8 languages listed as critical to the national security of the United States by the Bush Administration. In conjunction, there is a strong push to change the paradigm of foreign language offerings in United States schools, moving away from teaching European languages exclusively. Through its ability to provide Mandarin Chinese to students across the state, Kansas is in the forefront of this initiative.

Libraries

Kan-ed is currently collaborating with the Kansas State Library on the Enhanced Library Meeting Rooms project. This initiative is aimed at equipping meeting rooms in local libraries with state of the art high-definition video conferencing capabilities that run over the Kan-ed network. By enhancing library meeting rooms with this technology, the local communities will have access to resources and programs that may not otherwise be available. Libraries have planned to use the meeting rooms for projects such as legislative town meetings, educational programs, and training events. The Kansas Department of Commerce has inquired about using the rooms for statewide training for the unemployed.

This initiative is a pilot project that will establish 15 technology enhanced library meeting rooms across the state. Five public libraries have already committed to the project and are in the process of ordering and installing the videoconferencing equipment. One of the sites is in Dighton, Kansas, a town located in the western portion of the state. Staff at this location are excited about the Enhanced Meeting Rooms project, stating that as a rural community, their patrons often have to travel long distances to be able to participate in programs that will now be made available locally.

In 2006, Kan-ed continued to implement three annual funding programs designed to facilitate and enhance each member's ability to take advantage of the Kan-ed network, resources, and services. These programs, the Broadband Connectivity Subsidy, Technology and Equipment Grant Program, and Content & Services Initiative, served to upgrade connectivity from member sites to the statewide backbone, develop the necessary local infrastructure in member sites, and seed innovation. In addition to these annual funding opportunities, 2006 saw the culmination of two new programs, the Hospital Initiative and Higher Education "Connect" program, designed to increase the number of members connected to the network. Targeting the same goal, a new program was developed for the library community in August 2006.

Together, these funding opportunities impact Kan-ed members from every constituent group and region. The results of these efforts and contributions set the stage for success in teaching, learning, and leading through transformations in the way Kansans do business in the public sector, as well as in private enterprise.

Higher Education "Connect" Program

The purpose of the "Connect" program was to allow eligible higher education institutions to apply for funding to establish a connection to the Kan-ed network. Forty-three members participated in this program, and as of October 2006, 28 Higher Education members are connected to the Kan-ed backbone. The remaining recipients are in the process of connecting.

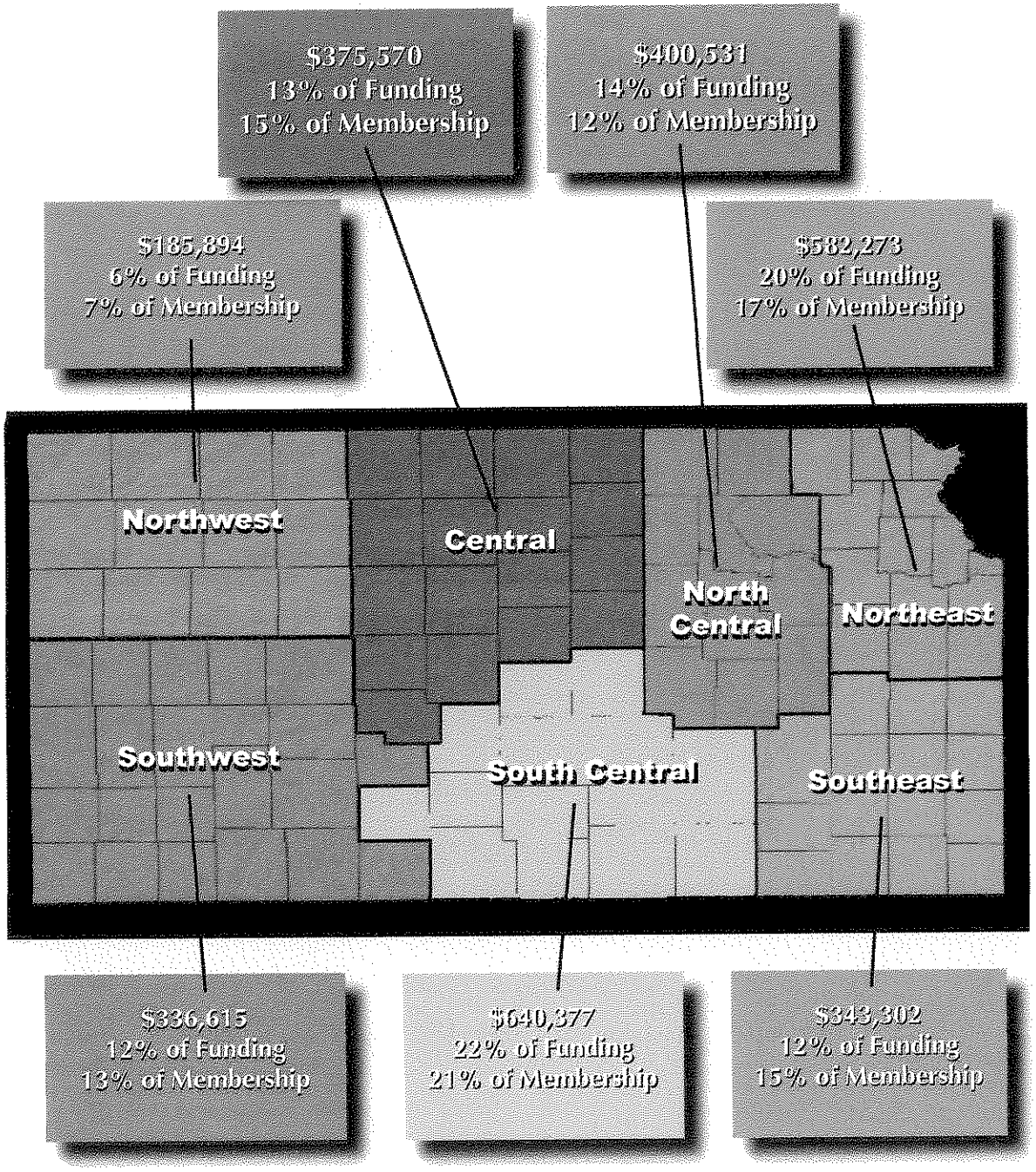
Hospital Initiative

A primary goal of the Hospital Initiative was the integration of commercial internet and access to the secure, high speed Kan-ed backbone in a single connection. Participating hospitals received equipment and a connection to Kan-ed for one year. Thirty-nine hospitals statewide received funding under this initiative. As of October 2006, 41 hospitals are connected.

Enhanced Library Meeting Room Grants

In 2006, Kan-ed allocated $225,000 to the State Library in order to provide grants to 15 libraries for enhanced library meeting rooms with interactive video capabilities. Libraries will be using the rooms to connect their communities to events and meetings across the state. Legislative town meetings, educational programs, and training events have been identified as uses for these meeting rooms. In addition, the Department of Commerce has inquired about using the rooms for statewide training for the unemployed. Grants to all 15 libraries will be complete by May 2007.

The funding programs for 2006 described here have directly impacted 401 Kan-ed members, their students, patrons, and patients. This funding has crossed all constituent groups and regions. The map below displays the amount as well as the percentage of Kan-ed funding received by each region. Please note that funds allocated for the Enhanced Library Meeting Room Project are not included on the map. The percentage of membership each region comprises is also shown and aligns closely with the percentage of funding received. For example, the Northwest region received $185,894 from 2006 Kan-ed funding programs which represents 6% of total funding. The Northwest region also comprises 7% of Kan-ed membership. Therefore, the 7% of Kan-ed members located in the Northwest region received 6% of Kan-ed 2006 funding.



egional Funding Map

Kan-ed facilitates the development of Kansas Developed Content through its funding programs and resources. This content is created for Kansans by Kansans and offers resources that would otherwise not be available to the target population. The following projects, funded under the Kan-ed Content and Services Initiative, are a sample of content developed by Kansans in 2006.

Strings Kansas!

Strings Kansas! uses interactive technologies as a vehicle for sharing orchestral and string chamber music with rural and underserved communities. Throughout the school year various string students from the Wichita State University (WSU) orchestra interact with 4th and 5th grade students via videoconferencing technology. WSU students introduce the elementary students to their stringed instruments and also present the musical pieces that will be played by WSU's Orchestra during a full-length concert the following week via live video. The objective are to help 4th and 5th grade students gain experience with string instruments and address cut backs that have caused music programs to be eliminated in many schools.

Careers in Health Care

Kansas University Medical Center (KUMC) administers two programs that utilize Health Information Technology and the Kan-ed network to provide interactive tele-video (ITV) programming on health careers and health education. These sessions are offered from KUMC across the Kan-ed network to interactive distance learning (IDL) classrooms throughout Kansas. The objective of Careers in Health Care is to help Kansas gain ground in the effort to recruit and retain new healthcare professionals by connecting K-12 students with practicing healthcare professionals to learn about various health care professions. Through the Health Topics of Interest program, K-12 students will learn about a variety of health topic from experts in the field.

Instant Access Project

Neosho County Community College's Instant Access Project provides a streamlined, efficient, and immediate application process for prospective students in addition to providing valuable information to the institution's partners. The goal of the project is to make it possible for students to apply and be accepted online with almost immediate notification. The upgraded information system that is part of the project will enrich collaborative opportunities among Kansas institutions of higher education, K-12 counselors, teachers, and administrators. It will help to create a virtual roadmap for smooth transitions between secondary and postsecondary education programs.

Children's Collaborative

Southeast Kansas Education Service Center's Children Collaborative is working together with Kan-ed in a funding partnership to use distance learning and podcasting to build student scientific inquiry skills. The Greenbush Biotechnology Laboratory and Abernathy Science Center employ new technologies including interactive distance learning (IDL), blogging, and podcasting to immerse students in unique, hands-on laboratory experiences that demonstrate how key biotechnology concepts apply to their lives. The anticipated result is to increase student knowledge about and skills related to the process of scientific inquiry.

Even the best engineered, fastest, most secure network is of limited value without needed and meaningful content and services provided to its members over the system. Driven by that recognition, the Kan-ed Content & Services Standing Committee is developing an online "marketplace" that brings together those members in need of content and services ... and those members, vendors and partnerships that have services to offer. The initiative is based upon the fact (drawn from other well established purchasing cooperatives) that service costs are generally lower when those with the same need negotiate as a group with providers ... and providers generally realize economies when dealing with a single collaborative group rather than repetitive encounters with each member individually.

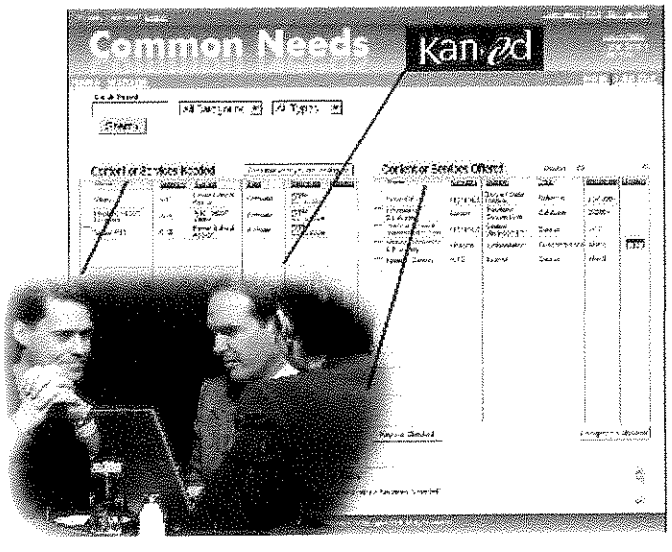
Thus, the "Common Needs Button" has been created (in mock-up form) on the Kan-ed website. Though still in the developmental stage, the mock-up enables members to browse lists of common needs, join "groups" with needs that match their own, start new groups, and engage providers to find the best solutions. If no ready-made solutions are available, those with a common need can decide whether to "build, buy or partner" to acquire or develop their own content solution. An online "forum" linked to the mock-up enabled members to provide comments, suggestions and criticisms to the developers as they navigated through the initial model. Those comments are the basis for the "Alpha" version, soon to be deployed.

Three basic principles guide the Kan-ed online marketplace: no "Common Needs" initiative should compete with an existing successful network or member solution; the "rules of engagement" for each purchasing cooperative are determined by the members who join that particular common needs group, serving as its "Board of Directors"; and the solutions should incorporate distribution or interaction over the Kan-ed network.

Judging from the successes of other purchasing cooperatives, it is reasonable to assume that as the Kan-ed online marketplace matures, aggregated savings accrued from group purchases should enable the marketplace operation to be self-sustaining. Ultimately, margins realized through this mechanism should enable "democratized access grants" to be provided to those Kan-ed members who need specific content or services the most, but are least able to afford them.

The Kan-ed goals for its online marketplace are simple: it should be easy to find and use, responsive to the needs of its membership, vendor-friendly, self-sufficient, and continually improving its performance, based upon continual feedback from its members, vendors and the user community.

Any well conceived marketplace requires a motivated client (member), an attentive provider (vendor) and an environment within which the players can encounter one another (Kan-ed). That's what the Kan-ed online marketplace seeks to provide.



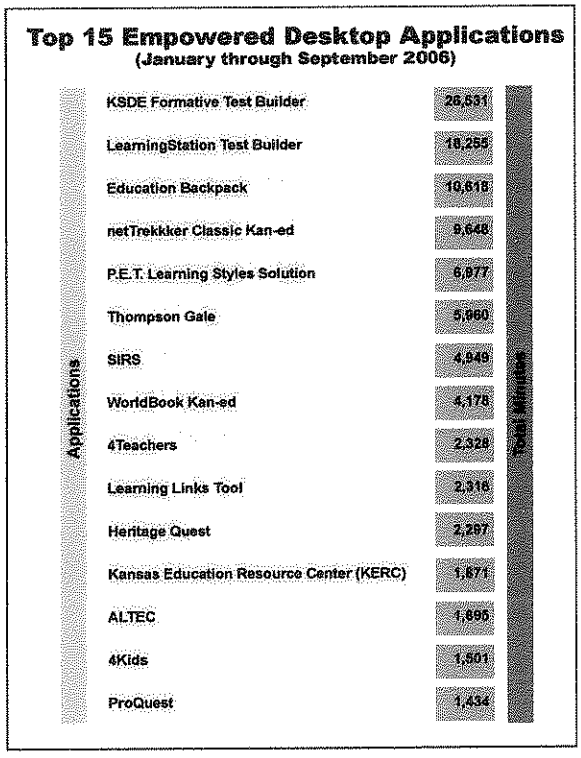
Common Needs Button

Kan-ed Web Presence

The Kan-ed Web Presence (www.kan-ed.org) serves as the central point of contact for general information about Kan-ed, announcements for Kan-ed grant programs, news and events, membership listings, and contact information for Kan-ed staff. In addition, many Kan-ed resources can be accessed such as the Empowered Desktop, Marratech Portal, Connected Kansas Kids website, and Dietrich-Lockhart E-rate consultant services. During 2006, continuous improvements were made to the Kan-ed Web Presence based on feedback provided by constituents and other key stakeholders. Two new links pertaining to legislative information and training and tutorials have been added. The Legislative Info link provides access to all documents that Kan-ed has provided to the Kansas Legislature as well as other resources such as House and Senate maps and rosters. In addition, there is an interactive search form that allows stakeholders to search for Kan-ed members and potential members in a specific county, legislative district, or Kan-ed region. The Training/ Tutorials link includes training videos and tutorials for content on the Empowered Desktop.

Empowered Desktop

The Kan-ed Empowered Desktop, developed by Learning Station and released in 2005, is available free of charge, to all Kan-ed members. The Desktop serves as a portal that consolidates a variety of teaching and learning applications in one location for easy access. Applications provided include the KSDE Formative Text Builder, Kansas Education Resource Center, netTrekker academic search engine, ALTEC tools, national educational databases, Kansas Historical archives, genealogy sources, Grant Wrangler, Kansas Financial Foundation for Kids (K-8), access to tutor.com, and web storage functionality. Additional applications, such as Atomic Learning software tutorials, are available for members at a reduced rate due to Kan-ed's negotiation with vendors for state-wide purchases. Desktop usage is tracked monthly. The top ten applications utilized from January through September 2006 are displayed in the accompanying chart along with the total number of minutes each application was used.



Databases and Research Tools

Kan-ed members also have access to a variety of educational and resource databases. In 2006, Kan-ed directly sponsored five databases: Thompson Gale Literature Resource and Custom Newspapers, ProQuest HeritageQuest and Nursing Journals, and WorldBook Online. Members can also access other Thompson Gale and ProQuest databases. The review and selection of the five Kan-ed sponsored databases is conducted by the Kansas State Library on an annual basis. The availability of these databases allows Kan-ed members and their patrons to access critical research tools with a single login. Kansans may access the Kan-ed sponsored databases through the Empowered Desktop or the Kansas State Library Blue Skyways.

EMSystem

EMSystem is a web-based program that provides real-time information on hospital emergency department status and patient capacity, including availability of staffed beds and specialized treatment capabilities. Kan-ed supports a statewide license for EMSystem, and the communication network currently tracks the daily activities of every community-based hospital in Kansas and offers the ability to send out information to hospitals statewide. EMSystem can support a mass casualty or major trauma event, including bioterrorism-related or weather-related, by offering real-time information to all hospitals and Emergency Medical Services (EMS) in Kansas. Six regional dispatch units or EMSystem Coordination Centers (EMCCs) throughout Kansas coordinate the services offered by EMSystem.

Connected Kansas Kids

Connected Kansas Kids (CKK), housed at the University of Kansas Medical Center, serves to increase the medical knowledge of educators throughout the state and connect teachers, K-12 students, and chronically ill students in learning about chronic diseases. The CKK website (www.connectedkansaskids.com) offers information on chronic illnesses for parents and educators. In addition, CKK offers in-service and staff development opportunities on 45 topics concerning chronic and terminal illnesses in children to educate teachers, paraprofessionals, administrators, school nurses, social workers, school psychologists, PTAs, and other interested parties about their special learning needs. One hour to full day sessions are available by Interactive Televideo (ITV) or on-site formats.

E-rate Consulting Services

Kan-ed contracts with the Dietrich Lockard Group to provide E-rate consulting services for members to maximize the acquisition of federal E-rate funds in Kansas. This service provides access to a Kansas E-rate hotline dedicated to supporting Kansas schools and libraries applying for E-rate, as well as Kansas hospitals interested in applying for Rural Health Funds. The hotline is manned by professionals qualified to answer questions about all aspects of the E-rate and Rural Health programs. In addition, the Dietrich Lockard Group provided four regional training sessions in October 2006 that offered an overview of E-rate and information on specific topics such as the application process, form completion, contract extensions, and service substitutions. These one day workshops were sponsored by Kan-ed, the Kansas State Department of Education, and the Kansas State Library.

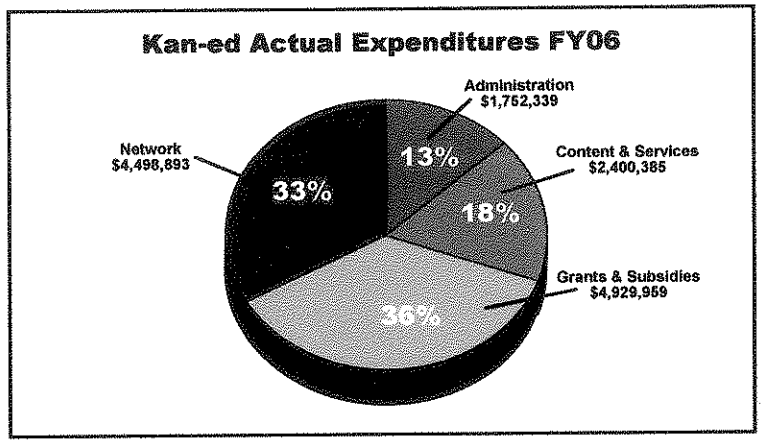
Marratech

Marratech is a "video-enhanced collaboration" service that provides a collection of communications tools, such as text-based chat, shared whiteboards and applications, and simultaneous voice and video. Marratech is used by Kan-ed staff and members to conduct "virtual" meetings over the Internet without the time and expense of travel. The Kan-ed Marratech server provides 4 "auditoria" and multiple virtual "rooms." In addition, individual members may purchase their own "room" for collaborative activities.

KanGuard

KanGuard, funded by Kan-ed, is an Internet content filter for public libraries in Kansas. The service allows libraries to filter public access computers in response to the requirements of the Children's Internet Protection Act (CIPA). It is reliable, low maintenance, easily disabled or reactivated by staff, and has no negative impact on computer performance.

Fiscal Year 2006 (FY06) funding, in the amount of $10 million, was provided through appropriation from the Kansas Universal Service Fund (KUSF). Actual expenditures for FY06 total $13,581,577, which exceeds the $10 million appropriation as a result of carry over funds and the receipt of E-rate funds. Approximately $700,000 in E-rate funds was received in FY06. These funds are a result of E-rate applications for years prior to FY05. As of November 2006, Kan-ed's 2005 E-rate application is on appeal with the Federal Communications Commission and the 2006 application is undergoing review and pending approval. Due to the uncertainty of E-rate distributions, Kan-ed does not budget for the receipt of these funds. The graph below represents actual expenditures for FY06.



Kan-ed has a relatively low amount of administrative overhead (13%) in relation to the services and funding that directly benefit the membership. Administrative fees include items such as Kan-ed staff salaries, telephones, computers, communication, rent, printing, and advertising. The Content and Services portion of the budget includes expenditures for the Empowered Desktop, Educational and Research Databases, EMSystem, and Connected Kansas Kids program discussed in the Resources section (pages 14-15).

The Grants and Subsidies portion includes expenditures for the funding programs described in detail on page 10. It is important to note that the funding program information provided on pages 10-11 is for calendar year 2006 while the expenditures discussed here are for FY06. Kan-ed typically distributes one funding cycle of each funding program to its members each fiscal year. In FY06, there was an exception to this practice and two subsidy distributions, for a total of approximately $1.2 million, were provided to members. The first distribution occurred in July 2005, and the second occurred in May 2006. From a membership perspective; however, one subsidy was received in 2005 and one was received in 2006.

Network expenditures include network connectivity and services, including leased lines, routers, and servers (i.e. Marratech, Renovo, and Oracle). As the use of video for interactive distance learning has increased, Kan-ed spent $168,000 on the Renovo Scheduler to increase its capacity for the scheduling of these video conferences. As described in the Network Update (page 6), the Scheduler simplifies the scheduling process, allowing each video site to be brought online automatically.

Follow-up Questions and Topics for Kan-ed Oversight Committee

Question 1: Subpart – Kan-ed Funding Programs
Regarding Funding Programs: what was the purpose of the funding, who received the funding, and what was the impact of the funding on Kan-ed member organizations.

(Note: All funding programs for 2003 through 2006 are reported based on Calendar Year, i.e. January 1, 2003 – December 31, 2003, etc.)

Kan-ed developed three annual funding programs designed to facilitate and enhance each member's ability to take advantage of the Kan-ed network, resources, and services. These programs, the Broadband Connectivity Subsidy, Technology and Equipment Grant Program, and Content & Services Initiative, served to upgrade connectivity from member sites to the statewide backbone, develop the necessary local infrastructure in member sites, and seed innovation. In addition to these annual funding opportunities, two programs funded in 2006 were designed to increase the number of members connected to the network. These programs are the Hospital Initiative and Higher Education "Connect" program. A description for each program is provided below, as well as, a list of recipients from each year the funding was awarded, and the impact of the funding on the recipients.

Broadband Connectivity Subsidy

The Kan-ed Broadband Connectivity Subsidy was developed in 2003 with the focus of helping member institutions access high-speed Internet connections or purchase the equipment needed to make Internet connections possible. In the 2003 distribution of funds, every Kan-ed member that applied was awarded a subsidy in the amount of $4,135. In 2004, the Governance Committee (a subcommittee of the User Advisory Council) determined that the subsidy program would focus on high-speed Internet connectivity alone, not equipment and developed a subsidy formula that would determine subsidy allocation based on highest need. The formula determined the total subsidy a member would be eligible for based on Annual Fiscal Operating Budget (Higher Ed, K-12, and Libraries) or number of Acute Licensed Beds (Hospitals).

The 2005 and 2006 subsidy programs were once again revised eliminating the subsidy formula and reimbursing members directly for actual connectivity costs up to $3000 per year per member. Higher education institutions were not eligible for the 2005 subsidy due to the creation of the Higher Education "Connect" program. In 2006, hospitals and higher education institutions that participated in the Hospital Initiative and Higher Education "Connect" program were not eligible to receive a subsidy.

The tables on the following pages list the Kan-ed subsidy recipients for 2003, 2004, 2005, and 2006. The total amount awarded for each year is shown at the top of the corresponding table.

Based on the broad focus of the 2003 subsidy, follow-up was conducted with Kan-ed members to report how they used these funds in their organizations. The results of this follow-up are included after the 2003 recipient table. Given the singular focus of the 2004-2006 subsidy programs, follow-up was not conducted during those years.

2003 Subsidy Recipients (all recipients received $4,135 = Total Awarded: $2,141,930)

Abilene	Bucklin Public Library	Colby Public Schools
Abilene Public Library	Buhler	Coldwater-Wilmore Regional Library
Allen County Community College	Burlingame Community Library	Colony City Library
Almena City Library	Burlingame Public School	Columbus Public Library
Altamont Public Library	Burlington	Comanche County
Altoona Public Library	Burnley Memorial Library	Comanche County Hospital
Americus Township Library	Burns Public Library	Community Hospital-Onaga
Andover	Burr Oak City Library	Community Memorial Healthcare
Andover Public Library	Burrton	Concordia
Anthony-Harper	Butler County Community College	Conway Springs
Argonia Public Schools	Caldwell	Copeland
Arkansas City	Caney City Library	Corning City Library
Arkansas City Public Library	Caney Valley	Council Grove Public Library
Arma City Library	Canton-Galva	Cowley County Community College
Ashland	Carbondale City Library	Crest
Ashland City Library	Cedar Vale Memorial Library	De Soto
Atchison County Community Schools	Central	Decatur County Hospital
Atchison Hospital	Central Christian College of Kansas	Deerfield
Atchison Public Library	Central Kansas Library System	Delaware Township Library
Atchison Public Schools	Centralia Community Library	Delphos Public Library
Attica	Chanute Public Library	Derby Public Library
Auburn Washburn	Chapman	Dighton
Augusta Public Library	Chapman Public Library	Diocese of Salina
Axtell	Cheney	District Library No. 4 Linn County (Mary Sommerville Library)
Axtell Public Library	Cherokee	Dodge City
Baker University	Cherryvale Public Library	Dodge City Community College
Baldwin City Public Library	Chetopa	Dodge City Public Library
Barber County North	Chetopa City Library	Dorothy Bramlage Public Library
Barnes	Cheyenne County Hospital	Douglass Public Schools
Barton County Community College	Cimarron City Library, Gray County	Eastern Heights
Basehor Community Library	Circle	ESSDACK
Baxter Springs	Citizens Medical Center	Edwards County Hospital
Beck-Bookman Library	Claflin	Effingham Community Library
Belleville Public Library	Clara Barton Hospital	El Dorado
Beloit	Clay Center Carnegie Library	Ellinwood Community Library
Bern Community Library	Clay County Medical Center	Ellinwood District Hospital
Bethel College	Clearwater Public Library	Ellinwood Public Schools
Bird City Library	Clifton Public Library	Ellis
Bison Community Library	Clifton-Clyde	Ellis Public Library
Blue Rapids Public Library	Cloud County Community College	Ellsworth County Medical Center
Blue Valley – Overland Park	Coffey County Hospital	Elm Creek Township Library
Blue Valley - Randolph	Coffey County Library Headquarters	Elmendaro Township Library
Bonner Springs	Coffeyville Community College	Elwood
Bonner Springs City Library	Coffeyville Public Library	Emporia Public Library
Bronson Public Library	Coffeyville Regional Medical Center	Emporia State University
Bucklin	Colby Community College	Enterprise Public Library

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2003 Subsidy Recipients continued

Erie City Public Library	Greeley County Schools	Ida Long Goodman Memorial Library
Eudora Public Library	Greensburg	Independence
Eureka	Greenwood County Hospital	Independence Public Library
Eureka Carnegie Library	Grenola Public Library	Inman
Fairfield	Grinnell Public Schools	Iola
Fall River Public Library	Grisell Memorial Hospital Dist #1	Iola Free Public Library
Finney County Public Library	Gypsum Community Library	Jay Johnson Public Library
Flint Hills Technical College	Halstead	Jefferson County Memorial Hospital, Inc. and Geriatric Center
Flinthills	Hamilton	Jefferson County North
Florence Public Library	Hamilton City Library	Jefferson County West
Ford City Library	Hamilton County Hospital	Jennings City Library
Fort Scott	Hamilton County Library	Jetmore Public Library
Fort Scott Community College	Hanover Public Library	Jewell County Hospital
Fort Scott Public Library	Hanston City Library	Jewell Public Library
Fowler	Harper Hospital District #5	Johnson County Community College
Fowler Public Library	Haskell Township Library	Johnson County Library
Frankfort City Library	Haven Public Schools	Johnston Public Library
Fredonia Public Library	Hays	Kansas City Catholic Diocese
Fredonia Regional Hospital	Hays Medical Center, Inc.	Kansas City Kansas Public Library
Friends University	Hays Public Library	Kansas State School for the Blind
Frontenac Public Schools	Healy Public Schools	Kansas State University
Ft Larned	Hepler City Library	Kansas Wesleyan University
Galena Public Library	Herington Public Library	Kaw Area Technical School
Galena Unified Schools	Hesston College	Kearny County Hospital
Garden City Community College	Hiawatha	Kingman Carnegie Library
Garden City Public Schools	Hiawatha Community Hospital	Kingman Community Hospital
Gardner Edgerton	Highland	Kingman-Norwich
Garnett Public Library	Highland Community College	Kinsley Public Library
Girard	Hill City	Kiowa County Memorial Hospital
Girard Public Library	Hillsboro Community Medical Center	Kiowa District Hospital
Glen Elder Library	Hillsboro Public Library	Kismet Public Library
Goddard Public Library	Hodgeman County Health Center	Kismet-Plains
Goessel	Holcomb	Labette Community College
Goessel Public Library	Holton	Labette County Medical Center
Golden Plains	Hope Community Library	Lane County Hospital
Goodland	Horton Public Library	Lane County Library
Goodland Public Library	Hospital District #1 of Crawford Co	Lawrence
Goodland Regional Medical Center	Hospital District #1 of Rice County	Lawrence Public Library
Gove City Library	Hospital District #6 of Harper County	Leavenworth City Library
Gove County Medical Center	Howard City Library	Lebanon Community Library
Graham County Hospital	Hoxie Community Schools	Lebo-Waverly
Grainfield City Library	Hugoton Public Schools	Lenora Public Library
Grant County Library	Humboldt	Leonardville City Library
Graves Memorial Library	Humboldt Public Library	Leoti
Greeley County Hospital	Hutchinson Community College	LeRoy-Gridley
Greeley County Library	Hutchinson Public Library	Liberal

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2003 Subsidy Recipients continued

Liberal Memorial Library	Medicine Lodge Memorial Hospital	Oberlin
Library District #1, Doniphan County	Memorial Hospital	Olathe
Library District 1, Lyon Co.	Memorial Hospital (Hospital District #1 Dickinson)	Olathe Public Library
Library District 2 Linn County	Mercy Regional Health Center, Inc.	Onaga-Havensville-Wheaton
Lincoln Carnegie Library	Meriden Community Library	Osage City Public Library
Lincoln County Hospital	Mill Creek Valley	Osawatomie
Lindsborg Community Hospital	Minneola	Osawatomie Public Library
Linn County Library Dist 1, Parker	Minneola City Library	Osborne County
Linn County Lib Dist 3, Bluemound	Minneola District Hospital	Osborne County Memorial Hospital
Linwood Community Library Dist 1	Mission Valley	Osborne Public Library
Little River	Mitchell County Hospital	Oskaloosa Public Library
Logan	Montezuma Township Library	Oswego Public Library
Logan Library	Moore Family Library	Ottawa County Health Center
Logan County Hospital	Moran Public Library	Ottawa Library
Louisburg	Morrill Public Library	Overbrook Public Library
Louisburg/Library District #1, Miami Co	Morris County	Oxford
Lucas Public Library	Morris County Hospital	Palco
Luray City Library	Morton County Public Library	Paola
Lyndon	Mound Valley Public Library	Paola Free Library
Lyndon Carnegie Library	Moundridge	Paradise
Lyons	Mount Hope Public Library	Parsons Public Library
Lyons Public Library	Mt. Carmel Regional Medical Ctr	Peabody Township Library
Madison Public Library	Mullinville	Phillips County Hospital
Madison-Virgil	Nemaha Valley Community Hos	Phillipsburg
Maize	Nemaha Valley Schools	Phillipsburg City Library
Manhattan	Neodesha	Pioneer Memorial Library
Manhattan Area Technical College	Neosho County Community College	Piper-Kansas City
Manhattan Public Library	Neosho Memorial Reg. Medical Ctr	Pittsburg Public Library
Mankato City Library	Ness City	Pittsburg State University
Marais des Cygnes Valley	Ness City Public Library	Plains Community Library
Marion City Library	Ness County Hospital District #2	Plainville
Marion County Special Education Cooperative #617	Newton Public Library	Plainville Memorial Library
Marmaton Valley	Norcatur Public Library	Pleasanton Lincoln Library
Mary Cotton Public Library	North Central KS Library System	Port Library
Marysville	North Jackson	Pottawatomie-Wabaunsee Regional Library
McCracken Public Library	Northeast	Prairie View
McCune City Library	Northeast Kansas Center for Health and Wellness, Inc.	Pratt Community College
McLouth	Northeast Kansas Library System	Pretty Prairie
McLouth Public Library	Northeast Kansas Technical College	Protection Township Library
McPherson	Northern Valley	Quinter Public Schools
McPherson College	Northwest Kansas Library System	Randall Public Library
McPherson Public Library	Norton Community Schools	Ransom Public Library
Meade	Norton County Hospital	Rawlins County
Meade District Hospital	Norton Public Library	Rawlins County Health Center
Meade Public Library	Nortonville Public Library	Renwick
Meadowlark Library	Oakley Public Library	Republic County Hospital

2003 Subsidy Recipients continued

Richmond Public Library	Stafford District Hospital #4	West Franklin
Riley County	Stanton County Library	West Smith County
Rolla	Sterling	Wheatland
Rooks County Health Center	Sterling College	White City Public Library
Rose Hill Public Schools	Stevens County Hospital	Wichita
Rush County Memorial Hospital	Stevens County Library	Wichita Area Technical College
Russell County	Stockton	Wichita County Health Center
Russell Public Library	Stockton Public Library	Wichita Public Library
Sabetha	Summerfield Public Library	Wichita State University
Sabetha Community Hospital	Sumner Regional Medical Center	Winchester Public Library
Salina Public Library	Syracuse	Winfield
Santa Fe Trail	Tabor College	Yates Center Public Library
Satanta	TEEN	
Satanta District Hospital	Thayer Friday Reading Club City Library	
Savonburg Public Library	Tonganoxie	
Scandia City Library	Tonganoxie Public Library	
Scott County	Topeka and Shawnee County Public Library	
Scott County Hospital	Toronto Public Library	
Sedan Public Library	Towanda Public Library	
Sedgwick Public Schools	Trego County Lemke Memorial Hospital	
Selden Public Library	Udall	
Seneca Free Library	Ulysses	
Seward County Community College	Uniontown	
Sharon Springs Public Library	University of Kansas	
Shawnee Mission Public Schools	University of Kansas Hospital	
Sheridan County Library	Valley Falls	
Sheridan County Hospital	Valley Heights	
Silver Lake	Vermillion	
Silver Lake Library	Vermillion Public Library	
Skyline Schools	Victoria	
Smith Center Public Library	W. A. Rankin Memorial Library	
Smith County Memorial Hospital	WaKeeney	
Solomon	WaKeeney City Library	
Solomon Public Library	Wakefield Public Library	
South Barber	Walnut Public Library	
South Central Kansas Library System	Wamego	
South Haven	Wamego Public Library	
Southeast Kansas Library System	Washburn University	
Southwest Kansas Library System	Washington County Hospital	
Southwest Plains Regional Service Center #626	Washington Public Library	
Spearville	Waterville Public Library	
Spearville Township Library	Wathena	
Spring Hill Schools	Weir Public Library	
St Francis Community Schools	Wellsville	
St John-Hudson	Wellsville City Library	
St. Francis Public Library	Weskan	

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Impact of 2003 Subsidy Funds

After the 2003 subsidies were distributed, Kan-ed members were asked to report how they had used those funds, and what impact the subsidies had on their organizations. Given that the focus of the 2003 Kan-ed subsidy was to help member institutions access high-speed Internet connections or purchase the equipment needed to make Internet connections possible through the Kan-ed network, the funds were spent on a variety of items. The following table presents how the funds were used by Kan-ed members in the four constituent groups.

Use of 2003 Kan-ed Subsidy Funds By Constituent Group				
Type of use	**Hospitals**	**Libraries**	**K-12 Schools**	**Higher Education**
Improve/Enhance Network Security	X	X	X	X
Improve/Update Network Infrastructure	X	X	X	X
Increase Bandwidth	X	X	X	X
Maintain Access to Internet/ Pay Internet Access and Service fees		X	X	X
Upgrade or Install Video Teleconferencing Equipment			X	
Upgrade ITV systems			X	
Enhance Library Services				X
Enhance or Install Teleradiology System	X			
Purchase additional PCs for public or student access		X	X	

In general, subsidy recipients reported that they were able to improve their local network infrastructure, which included enhancing network security and increasing bandwidth. K-12 recipients, in particular, reported using the subsidy funds to upgrade or install video conferencing equipment for Interactive Distance Learning (IDL). Hospital and Higher Education members indicated that they used funds for specific applications, such as enhancing teleradiology systems or library services, respectively.

Select quotes from the subsidy recipients are also presented to describe the impact the Kan-ed funds had on member organizations.

> *"[The Kan-ed subsidy] allowed us to upgrade our speed (doubled our previous bandwidth) as well as subsidize the bandwidth cost itself."* – Higher Education Member

> *"[The Kan-ed subsidy program has allowed us to upgrade our information systems]... The additional funds have allowed our facility to increase the efficiency of our current information systems from a standpoint of HIPAA compliance, information security and general work efficiency and effectiveness."* – Hospital Member

> *"These funds will be used to upgrade connectivity. This will allow more secure services and also allow in-service training to be handled on site."* – K-12 Member

2004 Subsidy Recipients (Total Awarded: $764,034.31)

Abilene Public Library	$479.40
Almena City Library	$479.40
Altoona Public Library	$756.00
Americus Township Library	$479.40
Argonia Public Schools	$4,000.00
Ashland	$4,000.00
Ashland City Library	$199.20
Atchison County Community Schools	$3,000.00
Atchison Public Library	$4,000.00
Attica	$1,800.00
Axtell	$4,000.00
Axtell Public Library	$505.44
B&B	$4,000.00
Baker University	$2,000.00
Baldwin City Public Library	$1,000.00
Barber County North	$4,000.00
Barnes	$4,000.00
Barton County Community College	$3,000.00
Basehor Community Library	$1,000.00
Baxter Springs	$4,000.00
Beck-Bookman Library	$1,000.00
Bern Community Library	$3,000.00
Bethel College	$4,000.00
Bird City Library	$594.00
Blue Rapids Public Library	$757.00
Blue Valley - Randolph	$4,000.00
Bonner Springs City Library	$1,000.00
Bronson Public Library	$1,437.60
Bucklin	$4,000.00
Bucklin Public Library	$960.00
Burlingame Community Library	$3,000.00
Burlingame Public School	$4,000.00
Burlington	$3,000.00
Butler County Community College	$1,000.00
Caldwell	$4,000.00
Carbondale City Library	$3,000.00
Cedar Vale	$4,000.00
Central Heights	$4,000.00
Centralia Community Library	$899.40
Centre	$4,000.00
Chanute Public Library	$900.00
Chanute Public Schools	$1,000.00
Chapman	$3,000.00
Chase-Raymond	$1,500.00
Cherokee	$3,000.00
Chetopa	$4,000.00
Chetopa City Library	$1,188.00
Cimarron City Library, Gray County	$2,147.68
Cimarron-Ensign	$1,500.00
Citizens Medical Center	$1,439.40
Clara Barton Hospital	$3,400.00
Clay Center	$4,000.00
Clay Center Carnegie Library	$790.00
Clay County Medical Center	$1,068.00
Clifton-Clyde	$4,000.00
Cloud County Community College	$3,000.00
Coffey County Hospital	$3,000.00
Coffey County Library Headquarters Office	$6,000.00
Coffeyville	$1,000.00
Coffeyville Community College	$2,500.00
Coffeyville Public Library	$900.00
Coffeyville Regional Medical Center	$2,000.00
Colby Community College	$3,000.00
Colby Public Schools	$2,000.00
Colony City Library	$360.00
Columbus Public Library	$2,000.00
Comanche County	$4,000.00
Community Hospital-Onaga	$3,000.00
Concordia	$2,000.00
Conway Springs	$3,588.00
Copeland	$1,500.00
Corning City Library	$4,000.00
Cowley County Community College	$2,000.00
Delaware Township Library	$2,000.00
District Library No. 4 Linn County (Mary Sommerville Library)	$600.00
Dodge City Community College	$4,000.00
Dodge City Public Library	$1,000.00
Durham-Hillsboro-Lehigh	$4,000.00
Edwards County Hospital	$2,500.00
Ellsworth County Medical Center	$3,500.00
Elwood	$4,000.00
Emporia Public Library	$1,000.00
ESSDACK	$3,000.00
Eureka	$4,000.00
Eureka Carnegie Library	$780.00
F. Lee Doctor Library [Agra City Library]	$599.40
Fairfield	$4,000.00
Fall River Public Library	$720.00
Flinthills	$4,000.00
Florence Public Library	$720.00

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2004 Subsidy Recipients continued

Formoso Public Library	$439.45	Holcomb	$3,000.00
Fort Scott Community College	$4,000.00	Holton	$2,000.00
Fort Scott Public Library	$1,000.00	Horton Public Library	$2,000.00
Fowler	$1,200.00	Hospital District #1 of Rice County	$4,000.00
Fowler Public Library	$439.25	Howard City Library	$175.85
Frank Carlson Library	$1,000.00	Hoxie Community Schools	$4,000.00
Frankfort City Library	$719.40	Hugoton Public Schools	$3,000.00
Fredonia	$4,000.00	Humboldt Public Library	$400.00
Frontenac Public Schools	$4,000.00	Hutchinson Community College	$2,000.00
Galena Unified Schools	$3,000.00	Independence	$1,021.44
Garden City Community College	$3,000.00	Independence Public Library	$120.00
Garnett Public Library	$1,000.00	Iola Free Public Library	$227.40
Girard	$2,000.00	Jay Johnson Public Library	$599.40
Girard Public Library	$1,000.00	Jefferson County North	$4,000.00
Golden Plains	$4,000.00	Jetmore	$4,000.00
Goodland	$3,000.00	Jetmore Public Library	$479.40
Goodland Public Library	$240.00	Jewell	$4,000.00
Goodland Regional Medical Center	$2,886.00	Jewell County Hospital	$3,000.00
Gove City Library	$550.00	Johnston Public Library	$1,680.00
Gove County Medical Center	$1,439.40	Kansas Wesleyan University	$1,000.00
Grainfield City Library	$708.00	Kaw Area Technical School	$4,000.00
Greeley County Hospital	$4,000.00	Kearny County Library	$1,779.00
Greeley County Library	$1,199.40	Kingman Community Hospital	$2,459.50
Greensburg	$4,000.00	Kingman-Norwich	$2,000.00
Greenwood County Hospital	$4,000.00	Kiowa County Memorial Hospital	$4,000.00
Grenola Public Library	$539.28	Kirwin City Library	$3,000.00
Grinnell Public Schools	$1,402.18	Kismet Public Library	$720.00
Grisell Memorial Hospital District #1	$3,861.00	Kismet-Plains	$3,000.00
Hamilton City Library	$4,000.00	Labette Community College	$4,000.00
Hamilton County Library	$419.40	Lakin	$3,000.00
Harper Hospital District #5	$4,000.00	Lane County Hospital	$1,739.40
Haskell Township Library	$731.40	Lane County Library	$1,198.80
Haven Public Schools	$2,000.00	Lang Memorial Library	$1,863.74
Haviland	$4,000.00	Leavenworth City Library	$1,000.00
Healy Public Schools	$4,000.00	Lebo-Waverly	$4,000.00
Hepler City Library	$828.96	Lenora Public Library	$530.00
Herington	$4,000.00	Leonardville City Library	$708.00
Hesston College	$4,000.00	LeRoy-Gridley	$4,000.00
Hiawatha	$3,000.00	Liberal Memorial Library	$1,000.00
Hiawatha Community Hospital	$4,000.00	Library District #2 Linn County	$1,000.00
Highland	$4,000.00	Lincoln	$3,072.00
Highland Community College	$4,000.00	Lincoln Library	$588.00
Hill City	$4,000.00	Linn County Library Dist #1, Parker	$479.88
Hillcrest Rural Schools	$1,080.00	Linn County Library Dist #3 , Bluemound	$600.00
Hillsboro Community Medical Center	$1,800.00	Linwood Community Library Dist #1	$1,000.00
Hodgeman County Health Center	$4,000.00	Long Island Community Library	$719.40

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2004 Subsidy Recipients continued

Louisburg	$1,000.00
Louisburg/Library Dis #1, Miami Co	$1,000.00
Lucas Public Library	$785.67
Lyndon Carnegie Library	$2,000.00
Lyons	$3,000.00
Madison-Virgil	$4,000.00
Manhattan Area Technical College	$4,000.00
Manhattan Christian College	$4,000.00
Mankato City Library	$443.40
Marais des Cygnes Valley	$4,000.00
Marion-Florence	$4,000.00
Marmaton Valley	$4,000.00
Marysville	$372.25
McCracken Public Library	$437.24
McCune City Library	$360.00
McLouth	$4,000.00
McLouth Public Library	$4,000.00
McPherson College	$3,000.00
Meade	$4,000.00
Meade Public Library	$583.11
Medicine Lodge Memorial Hospital	$4,000.00
Memorial Hospital (Hospital District #1 Dickinson)	$3,000.00
Meriden Community Library	$3,000.00
Midway Schools	$2,326.80
Mill Creek Valley	$4,000.00
Minneola	$4,000.00
Minneola City Library	$779.40
Minneola District Hospital	$4,000.00
Mission Valley	$2,626.00
Mitchell County Hospital	$1,068.00
Montezuma Township Library	$489.84
Moore Family Library	$479.40
Morrill Public Library	$1,000.00
Morris County	$3,000.00
Morris County Hospital	$3,000.00
Mullinville	$4,000.00
Mulvane	$2,000.00
Nemaha Valley Community Hospital	$4,000.00
Nemaha Valley Schools	$4,000.00
Neodesha	$3,000.00
Neosho County Community College	$4,000.00
Neosho Memorial Regional Med Ctr	$3,000.00
Newton Public Library	$1,000.00
Norcatur Public Library	$167.00
North Jackson	$4,000.00
North Lyon County	$3,000.00
Northeast Kansas Center for Health and Wellness, Inc.	$1,378.80
Northern Valley	$2,000.00
Northwest KS Educational Ser Ctr 602	$4,000.00
Northwest Kansas Library System	$479.40
Norton County Hospital	$2,000.00
Nortonville Public Library	$3,000.00
Oakley Public Library	$1,080.00
Onaga-Havensville-Wheaton	$4,000.00
Osage City Public Library	$1,000.00
Oskaloosa Public Library	$2,000.00
Ottawa County Health Center	$4,000.00
Ottawa Library	$660.00
Overbrook Public Library	$3,000.00
Oxford	$2,195.88
Palco	$4,000.00
Paola	$1,000.00
Paradise	$3,622.56
Parsons Public Library	$1,000.00
Peabody Township Library	$599.40
Peabody-Burns	$4,000.00
Phillips County Hospital	$1,438.20
Piper-Kansas City	$2,000.00
Pittsburg Public Library	$1,000.00
Plains Community Library	$550.00
Plainville	$2,099.40
Pleasanton Lincoln Library	$359.40
Pottawatomie-Wabaunsee Regional Library	$7,410.80
Potwin Public Library	$599.40
Prairie View	$1,000.00
Prescott City Library	$600.00
Pretty Prairie	$4,000.00
Quinter Public Schools	$4,000.00
Randall Public Library	$479.40
Rawlins County	$4,000.00
Rawlins County Health Center	$600.00
Renwick	$1,000.00
Republic County Hospital	$2,436.00
Richmond Public Library	$3,500.00
Riverton	$1,356.00
Rooks County Health Center	$4,000.00
Rose Hill Public Schools	$1,000.00
Royal Valley	$3,000.00
Rush County Memorial Hospital	$1,068.00
Sabetha	$3,000.00
Santa Fe Trail	$2,000.00
Savonburg Public Library	$1,322.35

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2004 Subsidy Recipients continued

Scandia City Library	$468.00	Wallace County Schools	$4,000.00
Scott County	$3,000.00	Walnut Public Library	$828.96
Scott County Hospital	$2,844.00	Wamego	$2,000.00
Sedgwick Public Schools	$4,000.00	Wamego City Hospital	$4,000.00
Selden Public Library	$95.88	Wamego Public Library	$550.80
Seward County Community College	$3,000.00	Washington County Hospital	$1,512.00
Sharon Springs Public Library	$479.40	Washington Schools	$4,000.00
Sheridan County Library	$360.00	Waterville Public Library	$755.40
Sheridan County Hospital	$898.20	Wathena	$4,000.00
Silver Lake	$3,000.00	Wellington	$1,000.00
Silver Lake Library	$743.28	Wellsville	$3,000.00
Skyline Schools	$1,000.00	Wellsville City Library	$2,000.00
South Central Kansas Education Service Center #628	$4,000.00	West Franklin	$3,000.00
South Haven	$4,000.00	Western Plains	$1,700.00
Southwest Kansas Library System	$1,000.00	Whitewater Memorial Library	$1,259.00
Southwest Plains Regional Service Center #626	$720.00	Wichita Area Technical College	$3,000.00
Southwestern College	$3,000.00	Zenda Public Library	$515.40
Spearville Township Library	$259.30		
Spring Hill Schools	$1,000.00		
Stafford District Hospital #4	$2,159.40		
Stanton County Library	$420.00		
Sterling	$4,000.00		
Sterling College	$3,000.00		
Stevens County Library	$419.40		
Sumner County Hospital District #1	$4,000.00		
Sumner Regional Medical Center	$875.40		
Sunshine City Library	$479.40		
Sylvan Grove Public Library	$1,400.00		
Tabor College	$4,000.00		
Thayer Friday Reading Club City Library	$1,289.31		
Tonganoxie Public Library	$1,000.00		
Toronto Public Library	$756.00		
Trego County Lemke Memorial Hospital	$1,320.00		
Troy Public Schools	$2,556.00		
Twin Valley	$4,000.00		
Udall	$3,006.40		
Udall Public Library	$779.35		
Ulysses	$1,000.00		
Valley Falls	$4,000.00		
Valley Heights	$4,000.00		
Vermillion	$4,000.00		
Vermillion Public Library	$799.40		
Victoria	$4,000.00		
Wakefield Public Library	$839.88		

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2005 Subsidy Recipients (Total Awarded: $646,111.70)

Abilene	$3,000.00	Chase-Raymond	$1,200.00
Abilene Public Library	$1,000.00	Cheney	$3,000.00
Altoona-Midway	$3,000.00	Chetopa	$3,000.00
Americus Township Library	$480.00	Cimarron City Library, Gray County	$2,241.84
Andale District Library	$1,100.00	Circle	$3,000.00
Argonia Public Schools	$3,000.00	Clay Center Carnegie Library	$948.00
Arkansas City Public Library	$540.00	Cloud County Health Center	$1,200.00
Ashland	$3,000.00	Coffey County Hospital	$3,000.00
Ashland City Library	$744.00	Coffey County Library Headquarters Office	$3,000.00
Atchison County Community Schools	$3,000.00	Coffeyville	$3,000.00
Atchison Hospital	$3,000.00	Coffeyville Public Library	$779.40
Atchison Public Library	$3,000.00	Coffeyville Regional Medical Center	$3,000.00
Attica	$3,000.00	Colby Public Schools	$3,000.00
Auburn Washburn	$3,000.00	Coldwater-Wilmore Regional Library	$449.64
Augusta	$1,608.00	Comanche County	$3,000.00
Axtell	$3,000.00	Community Memorial Healthcare	$2,220.00
Axtell Public Library	$511.44	Conway Springs	$3,000.00
B&B	$3,000.00	Corning City Library	$3,000.00
Baldwin City Public Library	$3,000.00	Courtland Community Library	$960.00
Barnes	$3,000.00	Crest	$3,000.00
Baschor Community Library	$3,000.00	De Soto	$3,000.00
Baxter Springs	$3,000.00	Decatur County Hospital	$2,399.40
Bern Community Library	$3,000.00	Delaware Township Library	$3,000.00
Bird City Library	$599.40	Dexter	$3,000.00
Blue Rapids Public Library	$757.00	Dighton	$1,000.00
Blue Valley – Overland Park	$3,000.00	Diocese of Salina	$3,000.00
Blue Valley – Randolph	$3,000.00	Dodge City Catholic Diocese	$1,800.00
Bonner Springs	$1,080.00	Dodge City Public Library	$2,400.00
Bronson Public Library	$359.04	Douglass Public Schools	$3,000.00
Bucklin Public Library	$419.40	Durham-Hillsboro-Lehigh	$3,000.00
Buhler	$3,000.00	ESSDACK	$3,000.00
Burlingame Community Library	$3,000.00	Ellinwood Public Schools	$3,000.00
Burlingame Public School	$3,000.00	Elmendaro Township Library	$300.00
Burlington	$3,000.00	Elwood	$3,000.00
Burnley Memorial Library	$780.00	Emporia Public Library	$1,919.40
Burns Public Library	$719.40	Eureka	$3,000.00
Burrton	$3,000.00	Eureka Carnegie Library	$478.00
Caldwell	$3,000.00	Fairfield	$3,000.00
Carbondale City Library	$3,000.00	Florence Public Library	$960.00
Cedar Vale	$3,000.00	Ford City Library	$579.00
Central	$3,000.00	Formoso Public Library	$499.45
Centralia Community Library	$719.40	Fowler Public Library	$439.25
Centre	$3,000.00	Frankfort City Library	$552.00
Chanute Public Library	$900.00	Fredonia	$3,000.00
Chanute Public Schools	$3,000.00	Frontenac Public Schools	$3,000.00
Chapman	$3,000.00	Galena Unified Schools	$3,000.00

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2005 Subsidy Recipients continued

Garden City Public Schools	$3,000.00	Jetmore Public Library	$480.00
Gardner Edgerton	$3,000.00	Johnson County Library	$3,000.00
Garnett Public Library	$1,200.00	Kansas City Catholic Diocese	$3,000.00
Girard	$3,000.00	Kansas State School for the Deaf	$3,000.00
Girard Public Library	$1,678.80	Kaw Valley	$3,000.00
Golden Plains	$3,000.00	Kearny County Library	$1,630.75
Goodland	$3,000.00	Kingman Community Hospital	$2,639.40
Goodland Public Library	$240.00	Kirwin City Library	$1,679.88
Gove City Library	$800.00	Kismet Public Library	$419.40
Grainfield City Library	$479.00	Labette County Medical Center	$3,000.00
Graves Memorial Library	$300.00	Lane County Library	$1,198.80
Greeley County Library	$479.40	Lang Memorial Library	$1,524.60
Greensburg	$3,000.00	Lawrence Public Library	$3,000.00
Greenwood County Hospital	$3,000.00	Leavenworth City Library	$3,000.00
Grenola Public Library	$633.72	Lebo-Waverly	$3,000.00
Grinnell Public Schools	$3,000.00	Leonardville City Library	$708.00
Halstead	$3,000.00	LeRoy-Gridley	$3,000.00
Hamilton	$3,000.00	Liberal Memorial Library	$3,000.00
Hamilton County Library	$419.40	Lincoln Library	$588.00
Hanover Public Library	$719.40	Linn County Library Dist #3 , Bluemound	$600.00
Harper Hospital District #5	$3,000.00	Linwood Community Lib Dist #1	$3,000.00
Haskell Township Library	$740.00	Little River	$3,000.00
Haven Public Schools	$3,000.00	Logan	$1,079.40
Hays Public Library	$3,000.00	Logan County Hospital	$3,000.00
Healy Public Schools	$644.04	Lorraine	$3,000.00
Herington	$3,000.00	Louisburg/Library District #1, Miami Co	$3,000.00
Herington Municipal Hospital	$3,000.00	Lyndon	$3,000.00
Hiawatha	$3,000.00	Lyndon Carnegie Library	$3,000.00
Highland	$3,000.00	Lyons	$3,000.00
Hillcrest Public Library	$934.40	Madison-Virgil	$3,000.00
Hillsboro Community Medical Center	$3,000.00	Manhattan Public Library	$3,000.00
Holcomb	$3,000.00	Marion County Special Education Cooperative #617	$3,000.00
Holton	$3,000.00	Marion-Florence	$3,000.00
Hope Community Library	$342.48	Mary Cotton Public Library	$120.00
Horton Public Library	$2,622.97	McCracken Public Library	$660.00
Hospital District #1 of Crawford Co	$3,000.00	McCune City Library	$359.00
Hospital District #1 of Rice County	$3,000.00	McLouth	$3,000.00
Hugoton Public Schools	$3,000.00	McLouth Public Library	$3,000.00
Hutchinson Hospital Corporation	$3,000.00	McPherson	$3,000.00
Hutchinson Public Library	$3,000.00	Meade Public Library	$930.00
Independence Public Library	$780.00	Memorial Hospital	$3,000.00
Inman	$3,000.00	Memorial Hospital (Hospital District #1 Dickinson)	$3,000.00
Iola Free Public Library	$120.00	Mercy Regional Health Center, Inc.	$3,000.00
Jefferson County West	$3,000.00	Meriden Community Library	$3,000.00
Jennings City Library	$479.40	Minneola	$3,000.00
Jetmore	$3,000.00	Minneola City Library	$439.45

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2005 Subsidy Recipients continued

Mission Valley	$3,000.00
Mitchell County Hospital	$1,860.00
Montezuma	$3,000.00
Montezuma Township Library	$495.96
Moore Family Library	$479.40
Morrill Public Library	$3,000.00
Morris County	$1,004.44
Morris County Hospital	$960.00
Morton County Public Library	$1,068.00
Moundridge	$3,000.00
Mulvane	$3,000.00
Nemaha Valley Community Hospital	$3,000.00
Nemaha Valley Schools	$3,000.00
Ness City Public Library	$540.00
Newton Public Library	$3,000.00
North Jackson	$3,000.00
Northeast Kansas Library System	$3,000.00
Northwest Kansas Library System	$479.40
Nortonville Public Library	$3,000.00
Oakley Public Library	$299.70
Oberlin	$3,000.00
Olathe Public Library	$3,000.00
Onaga-Havensville-Wheaton	$3,000.00
Osage City Public Library	$3,000.00
Osawatomie	$3,000.00
Oskaloosa Public Library	$3,000.00
Otis Community Library	$659.76
Ottawa	$3,000.00
Ottawa Library	$660.00
Overbrook Public Library	$3,000.00
Palco	$3,000.00
Peabody Township Library	$599.40
Peabody-Burns	$3,000.00
Pittsburg Public Library	$1,919.40
Plains Community Library	$550.00
Plainville Memorial Library	$479.40
Pleasanton Lincoln Library	$360.00
Pottawatomie-Wabaunsee Regional Lib	$3,000.00
Potwin Public Library	$671.40
Prairie View	$3,000.00
Pretty Prairie	$3,000.00
Quinter Public Schools	$3,000.00
Randall Public Library	$168.00
Ransom Public Library	$449.52
Rawlins County	$1,980.00
Remington-Whitewater	$3,000.00
Renwick	$3,000.00
Republic County	$3,000.00
Republic County Hospital	$2,435.40
Richmond Public Library	$3,000.00
Riley County	$3,000.00
Sabetha	$3,000.00
Sabetha Community Hospital	$3,000.00
Salina Public Library	$3,000.00
Santa Fe Trail	$3,000.00
Satanta	$3,000.00
Scandia City Library	$504.00
Sedan Public Library	$900.00
Selden Public Library	$479.40
Sharon Springs Public Library	$503.76
Silver Lake	$3,000.00
Skyline Schools	$3,000.00
Smoky Valley	$3,000.00
South Barber	$2,518.00
South Central Kansas Education Service Center #628	$3,000.00
South Central Kansas Library System	$3,000.00
South Haven	$2,400.00
Southeast Kansas Education Service Center #609	$3,000.00
Spearville Township Library	$498.00
St Francis Community Schools	$3,000.00
St John-Hudson	$3,000.00
Stafford	$3,000.00
Stafford District Hospital #4	$3,000.00
Stanton County Library	$390.00
Sterling	$3,000.00
Stevens County Library	$503.40
Summerfield Public Library	$516.00
Sumner Regional Medical Center	$3,000.00
Sunshine City Library	$420.00
Sylvan Grove Public Library	$700.00
Thayer Friday Reading Club City Library	$839.40
Three Lakes Educational Coop #620	$3,000.00
Tonganoxie	$3,000.00
Tonganoxie Public Library	$3,000.00
Topeka Public Schools	$3,000.00
Turner-Kansas City	$3,000.00
Twin Valley	$3,000.00
Ulysses	$3,000.00
Valley Heights	$3,000.00
Vermillion	$3,000.00
Vermillion Public Library	$479.00
Via Christi Regional Medical Center	$3,000.00

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2005 Subsidy Recipients continued

Victoria	$3,000.00	Wellington	$3,000.00
Wakefield Public Library	$649.88	Wellsville	$3,000.00
Wallace County Schools	$3,000.00	Wellsville City Library	$3,000.00
Walnut Public Library	$360.00	West Franklin	$3,000.00
Wamego	$3,000.00	Wetmore Public Library	$575.00
Wamego City Hospital	$3,000.00	Whitewater Memorial Library	$900.00
Wamego Public Library	$551.00	Wichita Public Library	$3,000.00
Washington County Hospital	$1,878.72	Winfield	$3,000.00
Waterville Public Library	$599.40	Zenda Public Library	$515.40
Wathena	$3,000.00		

2006 Subsidy Recipients (Total Awarded: $648,813.50)

Abilene	$3,000.00	Burnley Memorial Library	$675.00
Abilene Public Library	$960.00	Caldwell	$3,000.00
Altoona Public Library	$828.96	Canton-Galva	$3,000.00
Altoona-Midway	$3,000.00	Carbondale City Library	$3,000.00
Andale District Library	$1,600.00	Cawker City Public Library	$480.00
Andover Public Library	$720.00	Central Christian College of Kansas	$3,000.00
Anthony Public Library	$419.40	Central Heights	$3,000.00
Argonia Public Schools	$3,000.00	Central Kansas Library System	$2,400.00
Arkansas City Public Library	$500.00	Centralia Community Library	$752.04
Ashland	$2,004.00	Centre	$3,000.00
Ashland City Library	$590.00	Chanute Public Library	$900.00
Atchison County Community Schools	$3,000.00	Chapman	$3,000.00
Atchison Public Library	$3,000.00	Chase-Raymond	$3,000.00
Attica	$3,000.00	Chetopa	$3,000.00
Auburn Washburn	$3,000.00	Cimarron City Library, Gray County	$2,153.04
Augusta	$1,608.00	Citizens Medical Center	$1,100.00
Axtell Public Library	$557.28	Claflin	$3,000.00
B&B	$3,000.00	Clay Center Carnegie Library	$948.00
Baldwin City Public Library	$3,000.00	Cloud County Health Center	$1,200.00
Barber County North	$3,000.00	Coffey County Hospital	$3,000.00
Barnard Library	$1,680.00	Coffey County Library Headquarters Office	$3,000.00
Barnes	$3,000.00	Coffeyville	$3,000.00
Basehor Community Library	$3,000.00	Coffeyville Public Library	$780.00
Baxter Springs	$3,000.00	Coffeyville Regional Medical Center	$2,500.00
Benedictine College	$3,000.00	Colby Public Schools	$3,000.00
Bern Community Library	$3,000.00	Coldwater-Wilmore Regional Library	$588.00
Bird City Library	$599.40	Columbus Public Library	$660.00
Bison Community Library	$550.00	Comanche County	$3,000.00
Blue Rapids Public Library	$415.00	Community Memorial Healthcare	$2,480.76
Blue Valley – Overland Park	$3,000.00	Corning City Library	$3,000.00
Blue Valley – Randolph	$3,000.00	Courtland Community Library	$960.00
Bonner Springs	$3,000.00	Crest	$1,116.40
Bucklin Public Library	$879.35	Deerfield	$3,000.00
Buhler	$3,000.00	Delaware Township Library	$3,000.00
Burlingame Community Library	$3,000.00	Dexter	$1,282.35
Burlingame Public School	$3,000.00	Dighton	$2,281.00
Burlington	$3,000.00	District Library No. 4 Linn County (Mary Sommerville Library)	$599.88

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2006 Subsidy Recipients continued

Dodge City Catholic Diocese	$1,080.00	Hesston College	$3,000.00
Dodge City Public Library	$2,400.00	Hiawatha	$3,000.00
Donnelly College	$3,000.00	Highland	$3,000.00
Douglass Public Schools	$3,000.00	Hillcrest Public Library	$840.00
Downs Carnegie Library	$527.40	Hillsboro Public Library	$450.00
Durham-Hillsboro-Lehigh	$3,000.00	Holton	$3,000.00
El Dorado	$3,000.00	Horton Public Library	$3,000.00
Ellsworth	$3,000.00	Hospital District #1 of Rice County	$3,000.00
Elmendaro Township Library	$720.00	Hutchinson Hospital Corporation	$3,000.00
Elwood	$3,000.00	Hutchinson Public Library	$3,000.00
Emporia Public Library	$1,919.40	Independence	$3,000.00
Eureka	$3,000.00	Independent Schools	$3,000.00
Eureka Carnegie Library	$368.96	Inman	$3,000.00
Fairfield	$3,000.00	Iola	$3,000.00
Fall River Public Library	$750.00	Iola Free Public Library	$2,471.88
Florence Public Library	$959.40	Jay Johnson Public Library	$479.40
Formoso Public Library	$499.45	Jefferson County North	$3,000.00
Fowler Public Library	$719.88	Jefferson County West	$3,000.00
Frank Carlson Library	$1,068.00	Jennings City Library	$480.00
Fredonia	$3,000.00	Jetmore	$1,669.94
Galena Public Library	$720.00	Jetmore Public Library	$600.00
Galena Unified Schools	$3,000.00	Kanopolis Public Library	$720.00
Garden City Public Schools	$3,000.00	Kansas City Catholic Diocese	$3,000.00
Gardner Edgerton	$3,000.00	Kansas State School for the Deaf	$3,000.00
Garnett Public Library	$1,000.00	Kearny County Library	$1,630.75
Girard	$3,000.00	Kingman-Norwich	$3,000.00
Girard Public Library	$1,678.80	Kiowa County Library	$1,721.64
Goddard	$3,000.00	Kiowa District Hospital	$2,399.40
Golden Plains	$3,000.00	Kirwin City Library	$1,260.00
Goodland	$3,000.00	Kismet Public Library	$419.40
Goodland Public Library	$240.00	Lane County Library	$1,198.80
Gove City Library	$700.00	Lansing Community Library	$1,800.00
Grainfield City Library	$479.40	Lawrence Public Library	$3,000.00
Graves Memorial Library	$300.00	Leavenworth City Library	$3,000.00
Greeley County Library	$839.40	Leavenworth Public Schools	$3,000.00
Greenwood County Hospital	$3,000.00	Lebanon Community Library	$560.00
Grenola Public Library	$627.24	Lebo-Waverly	$3,000.00
Grinnell Public Schools	$599.40	Lenora Public Library	$479.00
Halstead	$3,000.00	LeRoy-Gridley	$3,000.00
Hamilton City Library	$551.40	Liberal Memorial Library	$3,000.00
Hamilton County Library	$420.00	Library District #2 Linn County	$1,190.16
Hanover Public Library	$599.40	Lincoln Carnegie Library	$600.00
Hanston City Library	$495.36	Lincoln Library	$588.00
Haskell Township Library	$740.00	Linn County Library Dist #1, Parker	$239.95
Haven Public Schools	$3,000.00	Linwood Community Library Dist #1	$3,000.00
Herington	$3,000.00	Logan County Hospital	$3,000.00

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2006 Subsidy Recipients continued

Long Island Community Library	$770.64	Oberlin	$3,000.00
Louisburg	$3,000.00	Olathe	$3,000.00
Lucas Public Library	$721.20	Olathe Public Library	$3,000.00
Lyndon	$3,000.00	Onaga-Havensville-Wheaton	$3,000.00
Lyndon Carnegie Library	$3,000.00	Osage City Public Library	$3,000.00
Lyons	$3,000.00	Osawatomie Public Library	$1,800.00
Madison-Virgil	$3,000.00	Oskaloosa Public Library	$3,000.00
Maize	$3,000.00	Ottawa	$3,000.00
Manhattan Public Library	$3,000.00	Ottawa Library	$660.00
Mankato City Library	$483.00	Overbrook Public Library	$3,000.00
Marion County Special Education Cooperative #617	$3,000.00	Palco	$3,000.00
Marion-Florence	$3,000.00	Parsons	$3,000.00
Mary Cotton Public Library	$326.40	Parsons Public Library	$950.00
McCune City Library	$359.40	Pawnee Heights	$3,000.00
McLouth Public Library	$3,000.00	Peabody Township Library	$682.00
McPherson Public Library	$1,080.00	Peabody-Burns	$3,000.00
Meade District Hospital	$3,000.00	Phillipsburg	$3,000.00
Meade Public Library	$930.00	Piper-Kansas City	$3,000.00
Mercy Regional Health Center, Inc	$3,000.00	Pittsburg Public Library	$3,000.00
Meriden Community Library	$3,000.00	Plains Community Library	$550.00
Midway Schools	$900.00	Plainville Memorial Library	$479.40
Mill Creek Valley	$3,000.00	Pleasanton	$3,000.00
Minneola	$3,000.00	Pleasanton Lincoln Library	$359.40
Minneola City Library	$720.00	Pottawatomie-Wabaunsee Regional Library	$2,219.64
Mitchell County Hospital	$588.00	Prairie View	$3,000.00
Montezuma	$3,000.00	Prescott City Library	$360.00
Montezuma Township Library	$493.68	Pretty Prairie	$3,000.00
Moore Family Library	$479.40	Quinter Public Schools	$3,000.00
Morrill Public Library	$3,000.00	Ransom Public Library	$1,079.40
Morris County	$3,000.00	Remington-Whitewater	$3,000.00
Morton County Public Library	$888.00	Renwick	$3,000.00
Moscow Public Schools	$3,000.00	Richmond Public Library	$1,860.00
Moundridge	$3,000.00	Rock Creek	$3,000.00
Nemaha Valley Schools	$3,000.00	Rose Hill Public Schools	$3,000.00
Neodesha	$3,000.00	Royal Valley	$3,000.00
Ness City Public Library	$1,200.00	Salina Public Library	$3,000.00
Ness County Hospital District #2	$750.00	Santa Fe Trail	$3,000.00
Newton Public Library	$3,000.00	Satanta	$3,000.00
Nickerson	$3,000.00	Savonburg Public Library	$780.00
North Jackson	$3,000.00	Scott County	$3,000.00
Northeast Kansas Library System	$3,000.00	Sedan Public Library	$180.00
Northwest Kansas Educational Service Center #602	$600.00	Sedgwick Public Schools	$3,000.00
Northwest Kansas Library System	$479.40	Selden Public Library	$479.40
Norton Community Schools	$3,000.00	Sharon Springs Public Library	$479.40
Nortonville Public Library	$3,000.00	Silver Lake	$3,000.00
Oakley Public Library	$599.88	Skyline Schools	$3,000.00

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2006 Subsidy Recipients continued

Smoky Valley	$3,000.00	Udall Public Library	$599.40
South Barber	$2,500.00	Ulysses	$3,000.00
South Brown County	$3,000.00	Uniontown	$1,247.00
South Central Kansas Library System	$3,000.00	Utica Public Library	$700.00
Southeast Kansas Education Service Center #609	$3,000.00	Valley Center Public Schools	$3,000.00
Southwest Kansas Library System	$3,000.00	Vermillion	$3,000.00
Southwest Kansas Technical School	$3,000.00	Vermillion Public Library	$420.00
Spearville	$1,736.16	Victoria	$3,000.00
Spearville Township Library	$504.00	WaKeeney	$3,000.00
Spring Hill Schools	$3,000.00	Wakefield Public Library	$564.40
St Francis Community Schools	$3,000.00	Wallace County Schools	$3,000.00
St John-Hudson	$3,000.00	Wamego	$3,000.00
Stafford	$3,000.00	Wamego City Hospital	$2,791.44
Stanton County Library	$420.00	Wamego Public Library	$551.00
Sterling	$3,000.00	Waterville Public Library	$599.40
Stevens County Library	$3,000.00	Wathena	$3,000.00
Sumner Regional Medical Center	$3,000.00	Wellington	$3,000.00
Sunshine City Library	$479.40	Wellsville	$3,000.00
Sylvan Grove Public Library	$820.00	Wellsville City Library	$3,000.00
Thayer Friday Reading Club City Library	$989.35	Weskan	$3,000.00
Three Lakes Educational Cooperative #620	$3,000.00	West Franklin	$3,000.00
Tonganoxie Public Library	$3,000.00	Whitewater Memorial Library	$936.00
Toronto Public Library	$719.88	Wichita Public Library	$3,000.00
Triplains	$900.00	Winfield	$3,000.00
Turner-Kansas City	$3,000.00	Zenda Public Library	$479.40

7-21

Technology and Equipment Grant Program

The Technology and Equipment Grant Program (TE), also know as the Enhancing Technology Grant Program (ETGP), was developed in 2004 and assists Kan-ed members in developing network infrastructure by funding the purchase or lease of technology and/or equipment required within the local area network (LAN) to expand access to and uses of the Kan-ed network.

The tables on the following pages list the Kan-ed TE recipients for 2004, 2005, and 2006. The total amount awarded for each year is shown at the top of the corresponding table.

Follow-up was conducted with each year's recipients to report how they used these funds in their organizations. The results of each year's follow-up are included after the corresponding table.

2004 TE Recipients (Total Awarded: $2,951,679.56)

Ashland Health Center	$1,470.59	Comanche County	$11,169.00
Allen County Community College	$24,849.00	Community Hospital-Onaga	$25,000.00
Andover	$25,000.00	Conway Springs	$20,349.00
Anthony-Harper	$25,000.00	Cowley County Community College	$25,000.00
Argonia Public Schools	$33,259.00	Deerfield	$6,752.00
Ashland	$11,562.00	Dodge City	$6,752.00
Attica	$23,699.00	Dodge City Community College	$8,187.00
Augusta	$25,000.00	Durham-Hillsboro-Lehigh	$5,120.00
Barber County North	$16,257.00	Eastern Heights	$25,000.00
Barton County Community College	$55,605.00	Edwards County Hospital	$21,850.00
Basehor-Linwood School Dist	$24,849.00	Elkhart	$6,752.00
Bob Wilson Memorial	$1,470.59	Erie-St Paul	$24,677.00
Bucklin	$23,833.50	Flinthills	$25,000.00
Burlington	$75,000.00	Fort Hays State University	$24,750.00
Butler County Community College	$21,163.50	Fort Scott Community College	$24,849.00
Caldwell	$25,000.00	Fowler	$23,833.50
Cedar Vale	$22,992.00	Friends University	$23,152.00
Central Heights	$24,849.00	Garden City Community College	$6,752.00
Central Kansas Library System	$7,142.86	Garden City Public Schools	$38,353.00
Centre	$5,120.00	Goddard	$24,677.00
Cherryvale	$24,849.00	Goodland Regional Medical Ctr	$14,998.00
Cheyenne County Hospital	$20,212.00	Gove County Medical Center	$23,350.00
Cimarron-Ensign	$6,752.00	Graham County Hospital	$21,850.00
Citizens Medical Center	$23,350.00	Greeley County Hospital	$23,120.69
Clara Barton Hospital	$23,350.00	Greensburg	$23,833.50
Clay Center	$49,354.00	Grisell Memorial Hospital Dist. #1	$21,850.00
Cloud County Community College	$24,849.00	Hamilton County Hospital	$1,470.59
Coffeyville Community College	$24,849.00	Hanston	$6,619.02
Colby Community College	$44,200.00	Haviland	$11,562.00

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2004 TE Recipients continued

Hays Medical Center, Inc.	$21,850.00
Herington	$5,120.00
Hill City	$25,000.00
Hillcrest Rural Schools	$25,000.00
Hodgeman County Health Center	$1,470.59
Holcomb	$6,752.00
Holton	$19,248.00
Hugoton Public Schools	$6,752.00
Ingalls	$6,752.00
Kansas State University	$38,825.03
Kearny County Hospital	$1,470.59
Kiowa County Memorial Hospital	$23,350.00
Kismet-Plains	$11,169.00
Lakin	$6,752.00
Lane County Hospital	$1,470.59
Lebo-Waverly	$50,000.00
LeRoy-Gridley	$25,000.00
Lincoln	$24,677.00
Logan	$25,000.00
Marion-Florence	$5,120.00
Marmaton Valley	$24,677.00
Meade	$23,833.50
Meade District Hospital	$9,856.84
Minneola	$23,833.50
Minneola District Hospital	$24,820.59
Morton County Hospital	$9,856.84
Mullinville	$11,562.00
Neosho County Community College	$25,000.00
North Central	$25,000.00
North Central Kansas Libraries System	$7,142.86
North Lyon County	$24,677.00
Northeast Kansas Center for Health and Wellness, Inc.	$23,353.00
Northeast Kansas Library System	$24,163.86
Northwest Kansas Library System	$7,142.86
Northwest Kansas Technical College	$25,000.00
Norton County Hospital	$21,850.00
Osborne County	$25,000.00
Oxford	$10,485.00
Palco	$25,000.00
Paradise	$25,000.00
Peabody-Burns	$5,120.00
Phillips County Hospital	$21,850.00
Phillipsburg	$25,000.00
Plainville	$25,000.00
Prairie View	$25,000.00
Pratt Community College	$25,000.00
Pratt Regional Medical Center	$20,546.00
Quinter Public Schools	$25,000.00
Rawlins County Health Center	$20,212.00
Republic County	$23,004.00
Rolla	$6,752.00
Rooks County Health Center	$21,850.00
Rose Hill Public Schools	$24,591.00
Rush County Memorial Hospital	$23,350.00
Russell County	$49,626.00
Russell Regional Hospital	$23,350.00
Satanta District Hospital	$1,470.59
Scott County	$8,900.00
Scott County Hospital	$23,350.00
Seward County Community College	$6,752.00
Sheridan County Hospital	$23,350.00
South Barber	$22,167.00
South Central Kansas Education Service Center #628	$25,000.00
South Central Kansas Library System	$7,142.86
South Haven	$25,000.00
Southeast Kansas Education Service Center #609	$24,839.00
Southeast Kansas Library System	$7,142.86
Southwest Kansas Educational Consortium #625	$3,766.70
Southwest Kansas Library System	$7,142.86
Southwest Medical Center	$9,856.84
Southwest Plains Regional Service Center #626	$29,041.00
Spearville	$6,752.00
St. Catherine Hospital	$9,856.84
Stanton County Hospital	$9,856.84
Stevens County Hospital	$1,470.59
TEEN	$25,000.00
Trego County Lemke Memorial Hospital	$23,350.00
Udall	$23,735.50
Ulysses	$6,752.00
University of Kansas Hospital	$25,000.00
Valley Heights	$25,000.00
Vermillion	$50,000.00
Wathena	$25,000.00
Wellington	$47,565.00
West Smith County	$25,000.00
Wheatland	$25,000.00
Wichita County Health Center	$9,856.84
Wichita State University	$27,913.25
Woodson	$24,849.00

7-23

Impact of 2004 Enhancing Technology Grant Program (ETGP)

Kan-ed developed the 2004 ETGP to assist members in upgrading their video conferencing equipment (Priority 1) or developing new video conferencing capabilities (Priority 2) using the H.323 standard. ETGP funds were to be used for "wiring, routers, projectors, screens, control pads, personal computers for video conference use, video conferencing equipment (cameras, codecs, audio) whiteboards, (digital and traditional) and staff training specifically related to H.323 technology." Follow-up with 2004 ETGP recipients was conducted in Spring 2005 and a selection from the follow-up report is included below.

The following table displays how the funding program was used to meet the needs of the grant recipients that responded to the follow-up survey.

Please explain how the ETGP funded project met needs in your organization	
Response	**Number of Responses**
Provides access to staff professional development/continuing education not available locally	23
Allows schools to provide classes to students	13
Provides access to additional resources	7
Facilitates the delivery of clinical and administrative services	5
Improves the quality and level of Internet and video teleconferencing service in the organization	4

Select quotes from the TE recipients are also presented to describe the impact the Kan-ed funds had on member organizations.

> *"This enhancement made an immediate and direct impact on those who we serve by allowing us to provide services and training opportunities that in the past we had very limited capability of providing. Our system members can now attend training sessions and state library related meetings without traveling great distances through the use of video-conferencing. The addition of the CISCO router and a full T1 line has stabilized our network making video-conferencing MUCH more stable than it had been in the past, thus providing our staff and system membership with a much more enjoyable learning / working experience"* - Library Member

> *"Because we are a small rural school, our financial resources are somewhat limited. This project is helping us provide educational opportunities (i.e., Spanish; psychology; sociology; etc.) for our district's students that would not have been possible without our IDL system."* - K-12 Member

> "*We cannot thank KAN-ED enough for making these funds available. Without this funding source we would have never been able to secure the funds to provide the hospitals in the network with this type of equipment. KAN-ED is a key element in keeping rural Kansas connected with the services needed by its people. The quality of life in these rural towns would be diminished without the KAN-ED [program] - plain and simple.*" - Hospital Member

7-24

2005 TE Recipients (Total Awarded: $521,071.06)

Ashland	$10,000.00	Neosho County Community College	$10,000.00
Ashland Health Center	$10,000.00	Ness City	$10,000.00
Barber County North	$9,551.40	Osborne County	$4,500.00
Caldwell	$10,000.00	Otis-Bison	$10,000.00
Central	$10,000.00	Oxford	$5,378.00
Cheney	$7,000.00	Palco	$4,500.00
Citizens Medical Center	$8,415.80	Paradise	$4,500.00
Claflin	$9,970.00	Pawnee Heights	$10,000.00
Cowley County Community College	$10,000.00	Phillipsburg	$4,500.00
Eastern Heights	$4,500.00	Plainville	$4,500.00
Elkhart	$10,000.00	Prairie View	$10,000.00
Elwood	$10,000.00	Pratt Community College	$10,000.00
Grinnell Public Schools	$7,875.00	Quinter Public Schools	$4,500.00
Hamilton County Hospital	$10,000.00	Salina Regional Health Center	$9,990.56
Hill City	$4,500.00	Satanta District Hospital	$10,000.00
Hodgeman County Health Center	$7,450.00	Smith County Memorial Hospital	$10,000.00
Hutchinson Hospital Corporation	$10,000.00	South Central KS Library System	$8,309.00
Ingalls	$10,000.00	Southeast KS Edu. Service Ctr 609	$9,950.00
Kansas State School for the Blind	$5,750.00	Southwest Medical Center	$8,978.00
Kearny County Hospital	$10,000.00	St John-Hudson	$8,410.00
Kingman Community Hospital	$9,523.75	Stafford	$10,000.00
Kiowa County Memorial Hospital	$10,000.00	Stafford District Hospital #4	$9,850.00
LaCrosse	$10,000.00	Stevens County Hospital	$10,000.00
Lane County Hospital	$10,000.00	University of Kansas Hospital	$9,104.00
Lawrence	$10,000.00	WaKeeney	$9,854.35
Logan	$4,500.00	Washington Schools	$10,000.00
Lucas Public Library	$721.20	West Smith County	$4,500.00
Lyndon	$10,000.00	Wheatland	$4,500.00
Maize	$10,000.00	Wichita County Health Center	$8,950.00
Memorial Hospital	$10,000.00	Wichita State University	$10,000.00
Nemaha Valley Community Hospital	$10,000.00	Woodson	$6,540.00

Impact of 2005 Technology and Equipment (TE) Grant Program

The 2005 TE Grants funded projects that included the development of H.323 ITV labs, network upgrades, telemedicine sensors, MPEG recorders, new computers, and computer upgrades. Follow-up with 2005 TE recipients was conducted in Spring 2006. The table below is a selection from the follow-up report and presents the recipient responses regarding the number of individuals impacted by the 2005 TE Grant Program.

Number of Individuals Impacted by the 2005 TE Grant Program	Total
How many total individuals have been impacted by these grant funds?	44,929
How many of these were K-20 students?	32,894
How many of these were K-20 teachers?	1,194
How many of these were health care patients?	8,566
How many of these were health care providers?	670
How many of these were library patrons?	4,154
How many of these were librarians?	64

7-25

2006 TE Recipients (Total Awarded: $311,055.00)

Atchison Public Schools	$9,970.00	Lincoln	$9,990.00
Burr Oak City Library	$6,820.00	Logan	$10,000.00
Centre	$9,994.00	Maize	$10,000.00
Cloud County Health Center	$7,267.00	Marion-Florence	$9,994.00
Dodge City	$10,000.00	Neosho County Community College	$10,000.00
Dodge City Community College	$10,000.00	Newman Regional Health	$10,000.00
Durham-Hillsboro-Lehigh	$9,994.00	Palco	$9,826.00
Eastern Heights	$9,992.00	Paradise	$10,000.00
ESSDACK	$9,560.00	Peabody-Burns	$9,994.00
Ellsworth County Medical Center	$10,000.00	Santa Fe Trail	$10,000.00
Elwood	$10,000.00	Southwest Plains Reg. Serv. Ctr. 626	$9,981.00
Fort Scott Community College	$10,000.00	Wathena	$10,000.00
Healy Public Schools	$10,000.00	Wellington	$10,000.00
Herington	$9,994.00	West Smith County	$10,000.00
Kansas State University	$19,300.00	Wichita State University	$10,000.00
Lawrence Public Library	$8,379.00		

Follow-up for the 2006 TE awardees is currently underway. Results of the follow-up will be available in Spring 2007.

Content and Service Initiative

The purpose of the Kan-ed Content & Services Initiative, developed in 2004, is to further develop a state-of-the-art network by funding the development of content and services that can be utilized across the network. The Content & Services developed by members through this initiative will serve to improve resources for teachers, enhance information services to library patrons, enrich research and collaborative opportunities among Kansas institutions of higher education, improve the condition of patients, and provide better results among students.

The tables on the following pages list the Kan-ed Content and Services Initiative recipients for 2004, 2005, and 2006. The total amount awarded for each year is shown at the top of the corresponding table. Follow-up was conducted with each year's recipients to report how they used these funds in their organizations. The results of each year's follow-up are included after the corresponding table.

2004 C&S Recipients (Total Awarded: $250,000.00)

Dodge City Public Library	$12,650.00
ESSDACK	$30,000.00
KAIDE	$23,000.00
Kansas State University - Physics Department	$28,681.00
Kansas State University - Kansas Regents Educational Communications Center	$29,974.00
Mercy Regional Health Center, Inc.	$30,000.00
Northeast Kansas Library System	$27,300.00
South Central Kansas Library System	$22,264.00
Vermillion	$24,324.00
Wichita State University - Biology Department	$21,807.00

7-26

Impact of 2004 Content & Service (C&S) Initiative

The C&S Initiative was established to encourage and facilitate the development of content and services by Kan-ed members. The 2004 C&S Initiative funded four projects devoted to the development of professional development training materials, three projects focused on providing teacher training for developing skills to provide effective IDL instruction, and three projects that developed a specific product. In the fall of 2005, follow-up of the funded projects was conducted to look at the cumulative impact of the 2004 C&S program. A selection from the follow-up report is included below.

A common theme among all of the 2004 C&S projects was that they provided opportunities for collaboration. This collaboration occurred among hospitals, libraries and schools, across regions and with partners who are not Kan-ed members.

Examples of collaboration among constituent groups and across regions include:

- Higher education and K-12 teachers from all regions jointly creating model-teaching lessons.
- IDL instructors from hospitals, K-12 and higher education institutions across the state learning and sharing instructional strategies to improve IDL instruction.
- Higher education arts and science faculty developing and providing modules for content instruction for secondary science teachers across the state.
- Higher education faculty generating three instructional modules that can be used by K-12 schools to address content standards and meet requirements of *No Child Left Behind.*
- Experienced IDL instructors serving as mentors to new IDL teachers across the state.
- Hospital and higher education personnel developing on-line training modules for use in multiple regions.
- A collaborative tool providing multiple partners to communicate across regions and constituencies.
- Product that provides access to resources at multiple libraries that may be expanded to a statewide level.
- A resource database, that when completed, may serve as a prototype for other regions in the state.

Several of the projects included collaboration with outside partners. Six projects enhanced this collaboration by involving external agencies in the project. Some of these partners included: Kansas Association for Interactive Distance Education, Kansas State Department of Education, Garden City Zoo, Cytech, health agencies, community members and industry partners. As a result of this collaboration, four recipients obtained additional funds to enhance and/or extend their projects.

2005 C&S Recipients (Total Awarded: $300,000.00)

Emporia State University - University Libraries and Archives	$20,714.00
ESSDACK	$39,522.00
Haven Public Schools	$35,843.00
Kansas State University - Kansas Regents Educational Communications Center	$44,229.00
Kansas State University (on behalf of the Kansas Digital Library)	$44,278.00
Southwest Plains Regional Service Center #626	$37,486.00
University of Kansas Medical Center Research Institute, Inc	$35,422.00
Wichita State University - School of Social Work	$42,506.00

Impact of 2005 Content & Service (C&S) Initiative

The 2005 C&S Initiative funded projects impacted teachers, students, health care providers, health care patients, librarians, and library patrons across the state. The table below is a selection from the follow-up report and presents the recipient responses regarding the number of individuals impacted by the 2005 C&S Initiative.

Number of Individuals Impacted by 2005 C&S Initiative	Total
Approximately how many total individuals have been impacted by these grant funds?	7,467
How many of these were K-20 students?	6,275
How many of these were K-20 teachers?	1,054
How many of these were health care patients?	3
How many of these were health care providers?	13
How many of these were library patrons?	7,005
How many of these were librarians?	28

When asked about the impact of the C&S funds on their organization, follow-respondents stated that the funds enriched the research their organization does, helped them reach their organizational goals, and allowed them to deliver professional development in new ways. In addition, respondents indicated that the funds allowed them to deliver training on how to use technology, to use technology in new ways, and to expand the ways their organization was already using technology.

Select quotes from the C&S recipients are also presented to describe the impact the Kan-ed funds had on member organizations.

> *"Social workers have had learning opportunities regarding webcams and their uses in social work education and service delivery. As well, social workers will be able to learn more about their clinical practice through the web portal and online course developed through this grant." – Hospital Member*

> *"Collaborating with participating schools has provided an opportunity for schools to: 1) Create vision of 21st century skills needed by students and how to teach them students. 2) Learn and practice networking among schools using videoconferencing. 3) Develop technological means of sharing of strengths among participants to address needs. 4) Exploration of implementing technology to enhance student learning. 5) Integrating technology into classroom activities to change school culture." – K-12 Member*

2006 C&S Recipients (Total Awarded: $171,993.00)

ESSDACK	$24,930.00
Garden City Community College	$25,000.00
Kansas State University - Kansas Regents Educational Communications Center	$24,825.00
Neosho County Community College	$25,000.00
Southeast Kansas Education Service Center #609	$24,970.00
University of Kansas Medical Center Research Institute	$25,000.00
Wichita State University - Research	$22,268.00

Follow-up for the 2006 C&S awardees is currently underway. Results of the follow-up will be available in Spring 2007.

Hospital Initiative

In April 2005, a connection project for Kansas hospitals was developed. A primary goal of this initiative was the integration of commercial internet and access to the secure, high speed Kan-ed backbone in a single connection. Participating hospitals received equipment and a connection to Kan-ed for one year. Participating hospitals were required to apply for Rural Health Care funding to support continued connections beyond the 12 month period of this project. Kan-ed is working with the Kansas Hospital Association, the Kansas University Medical Center and numerous Regional Hospitals to develop health care applications and appropriate measures to support and/or expand this offering.

2006 Hospital Initiative Recipients (Total Awarded: $452,001.66)

Bob Wilson Memorial	$9,129.40	Minneola District Hospital	$11,940.00
Cheyenne County Hospital	$11,940.00	Newman Regional Health	$16,200.00
Clara Barton Hospital	$22,268.93	Northeast Kansas Center for Health and Wellness, Inc.	$20,825.82
Edwards County Hospital	$13,800.00	Norton County Hospital	$10,260.00
Ellinwood District Hospital	$14,000.00	Ottawa County Health Center	$14,000.00
Ellsworth County Medical Center	$14,000.00	Phillips County Hospital	$10,260.00
Goodland Regional Medical Center	$11,760.00	Pratt Regional Medical Center	$11,480.00
Gove County Medical Center	$10,260.00	Rawlins County Health Center	$13,800.00
Graham County Hospital	$13,260.00	Republic County Hospital	$12,000.00
Grisell Memorial Hospital District #1	$13,400.00	Rooks County Health Center	$11,940.00
Hamilton County Hospital	$419.40	Russell Regional Hospital	$10,260.00
Hays Medical Center, Inc.	$14,000.00	Scott County Hospital	$6,000.00
Herington Municipal Hospital	$12,000.00	Sedan City Hospital	$1,103.67
Hodgeman County Health Center	$14,068.50	Smith County Memorial Hospital	$10,260.00
Hospital District #6 of Harper County	$13,965.00	Southwest Medical Center	$11,940.00
Kansas Hospital Association	$9,300.00	St. Catherine Hospital	$13,200.00
Kearny County Hospital	$2,458.20	St. Luke Hospital and Living Center	$15,723.94
Kiowa County Memorial Hospital	$13,800.00	Stanton County Hospital	$419.40
Lane County Hospital	$11,760.00	Stevens County Hospital	$419.40
Medicine Lodge Memorial Hospital	$11,940.00	Trego County Lemke Memorial Hospital	$12,440.00

7-30

Higher Education "Connect" Program

The Kan-ed "Higher Education Connect" was a $30,000 per institution grant program that provided funding for Higher Education Kan-ed members to establish a connection to the Kan-ed network. Funding priority was given to non-connected institutions who wish to connect to the Kan-ed network. Once connectivity was established (direct or peered), funds could be used for Internet costs, installation fees, connection fees, routers, switches, video equipment (codecs, projectors, monitors, touch panels, cameras, screens, PC for a dedicated video room, etc.), LAN wiring (cat 5/6/fiber) and cabling costs. Membership fees in any consortium or group were not eligible.

2006 Higher Education "Connect" Recipients (Total Awarded: $1,290,000.00)

Allen County Community College	$30,000.00	Kansas Wesleyan University	$30,000.00
Baker University	$30,000.00	Kaw Area Technical School	$30,000.00
Barton County Community College	$30,000.00	Manhattan Area Technical College	$30,000.00
Bethany College	$30,000.00	Manhattan Christian College	$30,000.00
Bethel College	$30,000.00	McPherson College	$30,000.00
Butler County Community College	$30,000.00	MidAmerica Nazarene University	$30,000.00
Cloud County Community College	$30,000.00	Neosho County Community College	$30,000.00
Coffeyville Community College	$30,000.00	Northwest Kansas Technical College	$30,000.00
Colby Community College	$30,000.00	Ottawa University	$30,000.00
Cowley County Community College	$30,000.00	Pittsburg State University	$30,000.00
Dodge City Community College	$30,000.00	Pratt Community College	$30,000.00
Emporia State University	$30,000.00	Seward County Community College	$30,000.00
Flint Hills Technical College	$30,000.00	Southwestern College	$30,000.00
Fort Hays State University	$30,000.00	Sterling College	$30,000.00
Fort Scott Community College	$30,000.00	Tabor College	$30,000.00
Friends University	$30,000.00	University of Kansas	$30,000.00
Garden City Community College	$30,000.00	University of Kansas Medical Center	$30,000.00
Highland Community College	$30,000.00	University of Saint Mary	$30,000.00
Hutchinson Community College	$30,000.00	Washburn University	$30,000.00
Independence Community College	$30,000.00	Wichita Area Technical College	$30,000.00
Johnson County Community College	$30,000.00	Wichita State University	$30,000.00
Kansas State University	$30,000.00		

MINUTES

JOINT COMMITTEE ON INFORMATION TECHNOLOGY

September 7-8, 2006
Room 526-S—Statehouse

Members Present

Senator Tim Huelskamp, Chairperson
Representative John Faber, Vice-Chairperson
Senator Mike Petersen
Senator Vicki Schmidt (September 7 Only)
Representative Harold Lane
Representative Joe McLeland
Representative Jim Morrison

Staff Present

Don Heiman, Legislative Chief Information Technology Officer
Julian Efird, Kansas Legislative Research Department
Matt Spurgin, Kansas Legislative Research Department
Diana Lee, Revisor of Statutes Office
Gary Deeter, Committee Secretary

Conferees

Denise Moore, Executive Chief Information Technology Officer
Bill Roth, Chief Information Technology Architect
George Teagarden, Livestock Commissioner
Dr. Dale Blasi, Department of Animal Science and Industry, Kansas State University
Jim Hollingsworth, Executive Director, Information Network of Kansas
Tracy Smith, Network Director, Kansas Information Consortium
Jesse Huxman, KPTS-TV, Wichita
Judi Stork, Acting State Bank Commissioner
Glen Caspers, Regional Manager-IT, Office of the State Bank Commissioner
Jeff Lewis, Chief Information Officer, Department of Social and Rehabilitation Services
Joan Wagnon, Secretary, Kansas Department of Revenue

Conferees Appearing by Interactive Video Conference:

Hal Gardner, Director of KAN-Ed, Kansas Board of Regents
Elizabeth Unger, Vice Provost for Academic Services and Technology, Kansas State University

David Schmidt, Director, Computing and Telecommunications, Fort Hays State University
Ravi Pendse, Chief Information Officer, Wichita State University
David Alexander, WIN Project Manager, Wichita State University
Bruce Vieweg, Chief Information Officer, Emporia State University

Thursday, September 7
Morning Session

Denise Moore, Executive Chief Information Technology Officer (CITO), noted an upcoming project management course (Attachment 1). Next, she reviewed the agency quarterly project reports for April, May, and June 2006 (Attachment 2). She referenced several projects that have experienced problems or delays.

She said that the Department of Administration's Capitol Complex Fiber-Optic Reinforcement infrastructure project was recast after being delayed because of late deliveries, with the end date changed from June 2006 to September 2006. She also said that the Capitol Complex Wireless LAN infrastructure project end date was extended to September 29, 2006, due to the vendor taking longer than planned to install the fiber cable. Regarding the Kansas Health Policy Authority's modification of the Medicare-Medicaid Information System to accommodate a National Provider Identifier (NPI) number, she said the $8.0 million project was divided into phases, with an extension in the end date. She noted that Phase I, modifying the system to allow an NPI number, has been completed. Phase II, modifying the voice response system, recently received CITO approval. She said the project will meet the federal deadline of May 23, 2007, although Phase III of the project will add further functionality and will not be considered complete until October 2007. She noted a 9.0 percent increase in cost project estimate.

Members asked how pharmacies will access the NPI if the voice-response system is not ready and whether the new federal Health and Human Services guidelines, which will be announced in October 2006, will require changes in the NPI. Ms. Moore responded that the NPI project would meet the federal deadline of May 23, 2007, enabling healthcare entities to process claims, but that the project would continue until October 2007 in order to develop further reporting capability. She did not know how pharmacy providers would obtain an NPI number during the 6-month interim. She said the $1.0 million increase in the project occurred because, until Phase I was completed, accurate cost information could not be developed for Phase II. She indicated that the new federal Health and Human Services guidelines due on September 29, 2006 would not affect the state's IT programs.

Regarding the Department of Labor's Unemployment Insurance Call Center Telephony and Interactive Voice Response upgrade, Ms. Moore said the telephony component had been completed, but because the vendor had not been able to meet project requirements, the Interactive Voice Response and call center integration were behind schedule. Ms. Moore commented that the Kansas Department of Revenue's Computer-Assisted Mass Appraisal replacement project was completed in August 2006, with the new system being implemented in ten counties. She said the system is now ready for deployment statewide but that a separate project will be filed to implement the system in the remaining 95 counties. She noted that subsequent deployment will be done by agency staff. Funding, she said, will come from the VIPS-CAMA Fund.

Ms. Moore said the Department of Social and Rehabilitation Services Server Consolidation project has been placed on hold because of delays, during which time a network assessment is being conducted. She also noted two Kansas Department of Transportation (KDOT) projects. Regarding the Comprehensive Program Management System Replacement, she said a feasibility study had

been completed, an RFP (request for proposal) issued in June, with a closing date of August 2006. Members discussed the relationship between the Kansas Turnpike Authority and KDOT, expressing interest in seeing the two agencies collaborate on IT projects. A member requested information regarding revenue from fiber-optic cable contracts.

Regarding the KDOT Crew Card Reporting project, Ms. Moore reviewed the history of the project, which proposes to integrate maintenance personnel data into one webinterface system. Because of vendor delays and other problems, the project was placed on hold in July 2006. Responding to a question, she said she would provide policy information regarding the writing of vendor contracts, including penalties. Regarding the Statehouse Restoration Voice and Data III Project, she stated that delays would increase the cost about $25,000. Answering another question, she replied that the project to provide laptops to first-year medical students has been completed and that the University of Kansas wireless project has not been completed.

Bill Roth, Chief Information Technology Architect, presented a preliminary document containing the updated Kansas Information Technology Enterprise Architecture (Attachments 3 and 4). Following a business model, he said the architecture integrates data and systems through a common infrastructure, using an enterprise-wide design of interoperable systems and cross-agency alignments. Based on the federal model, the architecture has five layers: Performance Referenced, Business Referenced, Service Component Referenced, Data Referenced, and Technical Referenced. He noted that to date, the following have been implemented by 37 of the largest state agencies: a business model, radar (road map) charts, a communication model, trend forecasts, and listing of all applications. He referenced Attachment 5, which outlines the Kansas Business Model that is divided into Services for Citizens, Support for Delivery of Services, Management of Government Resources, and Mode of Delivery. Members commended Mr. Roth for his work. Answering a question, he said agency response has been favorable. Don Heiman, Legislative CITO, commented that the document was a result of SB 5, passed in 1999. Ms. Moore observed that the document was an excellent tool for policy makers to improve the state-wide IT system.

Afternoon Session

George Teagarden, Livestock Commissioner, reported on Cattle Tag Electronic Tracking Research and Grant Awards (Attachment 6). Commenting on a previous pilot project using Radio Frequency Identification Device (RFID) technology for identification tags to track cattle, he said more research was needed to find the most reliable devices. He said the Livestock Commission obtained a $441,430 grant from the U.S. Department of Agriculture to perform testing of identification devices, and received a $30,000 grant from the Kansas Department of Commerce for an economic study of the cost for tracking livestock through markets in compliance with the National Animal Information System. He stated that Kansas State University (KSU) is directing the study, in which 15 markets are being analyzed, various brand readers being performance tested, and 3,000 RFID tags are being analyzed, with a goal of tracking 1,200 tagged animals. He commented that the federal program ultimately plans to track livestock from birth through all market movements.

Answering questions, he said the project will be completed in May 2007 and that although other countries use electronic tags, there is no reliable information on the effectiveness of various devices. Information from the U.S. Department of Agriculture about the success of the project was provided later by Mr. Teagarden (Attachment 7).

Dr. Dale Blasi, Department of Animal Science, KSU, replied that tag readers can scan 500-600 tags per minute, as long as the animals are in single file. Dr. Blasi concurred that the U.S. Department of Agriculture has backed off the use of electronic tags because newer technologies are becoming available. He noted that worldwide use of electronic tag technologies does not guarantee that such devices are reliable, since testing has not established standards.

Next, Jim Hollingsworth, Executive Director, Information Network of Kansas (INK), provided an update on activities and cited grants awarded (Attachment 8). He traced the history of INK from its 1991 inception, commenting on its mission to make Kansas government more accessible to its citizens through a self-funding model. He indicated INK contracts with the Kansas Information Consortium to manage the Kansas portal, Kansas.gov. He explained that INK provides grants to agency partners for portal development and ancillary projects, providing $1.3 million to various state entities in 2005-2006.

Mr. Hollingsworth introduced Tracy Smith, General Manager of Kansas.gov and CEO of Kansas Information Consortium. Ms. Smith outlined the portal's perspective on accessibility and usability (Attachment 9). She referenced a letter of commendation from the Kansas School for the Blind (Attachment 10) and reviewed the portal's 2006 legislative services (Attachment 11). A member requested that bill search include a key-word search feature. Mr. Heiman said when the legislative IT system is completed, that feature will be included.

Ms. Smith announced that the national Government Solutions Center in Washington, D.C. had awarded Kansas.gov the Pioneer Award for innovative use of technology in developing the Kansas Highway Patrol online crash log system, the on-line log eliminating the need for the dispatcher to verbally report information to media and insurance companies regarding automobile accidents on Kansas highways. She said the system receives 65,000 hits per month (Attachment 12). Mr. Hollingsworth said that INK has extended KIC's contract through July 2009.

Jesse Huxman, Director of Content, KPTS-TV, reviewed the Statehouse Spotlight project and the Emergency Broadcast Initiative (Attachment 13). He said the Statehouse Spotlight project is designed to expand the station's coverage of public affairs, resulting in an hour-long public affairs TV program broadcast statewide, as well as daily legislative updates during session, and an improved statehouse studio with necessary broadcast equipment, all involving partnership with Kansas State University, KAN-Ed, and Smoky Hills Public Television. Mr. Huxman explained that the Emergency Broadcast Initiative, using federal and state emergency preparedness funds, will create a statewide interconnected emergency broadcast system. He said pending are protocols outlining when the system is to be used and who will be authorized to make the decision and open the system for broadcasting; he noted that the system lays the foundation for town hall meetings and access to university lectures.

Judi Stork, Acting State Bank Commissioner, presented information regarding the Kansas Supervised Institution Monitoring System (Attachment 14). She said the Commission charters and regulates banks, and through the Consumer and Mortgage Lending Division, licenses and supervises mortgage companies, payday lenders, title lenders, finance companies, and credit service organizations. She explained that the current system lacks security, offers no accountability, and cannot track or audit data changes; the new system will address these needs and strengthen the agency's presence on the Internet. After receiving CITO approval May 1, 2006, the Commission selected CAVU as vendor. She said the next steps are to negotiate with CAVU for the project and submit project documentation for approval by the CITO. She commented that the estimated $600,000 project is scheduled to be completed in July 2007. Answering a question, Glen Caspers, Project Manager, said one system can accommodate both divisions of the Commission.

Jeff Lewis, Chief Information Officer, Department of Social and Rehabilitation Services (SRS), reviewed the status of three projects. Commenting on the Kansas Payment Center, he said SRS is the contracting agency handling all child support and maintenance payments for SRS and the Office of Judicial Administration (Attachment 15). He said the contract with Tier Technologies has expired and responses to an RFP are due September 11, 2006, after which the agency will negotiate a new four-year contract, which should be less than current costs. He said the 90.0 percent federal funding match has been replaced by a 66.0 percent federal match. The project will be implemented by February 2007. A Committee member suggested the new vendor contract include penalties for possible vendor shortcomings. Answering a question, Mr. Lewis said the $7.0 million cost-avoidance figure represents the federal funds lost if the project does not meet federal guidelines.

Regarding the Server Consolidation project, Mr. Lewis commented that staff turnover, organizational changes, and other delays have caused the project to be placed on hold until a network assessment can be completed to document server topology and telecommunications bandwidth. When the network assessment is completed, a new project plan will be filed (Attachment 16).

Finally, Mr. Lewis reviewed the status of the Enterprise Circle Plan, a project to create a common platform for all agency IT applications with access to customer data (Attachment 17). He said the agency contracted with Forrester Research to provide alternative solutions, the feasability of alternatives, and recommendations. He summarized the Forrester findings:

- A commercial off-the-shelf, fully integrated, common platform (potential vendors Curam, Albion, Lagan). Presently there is no complete system available, but a vendor could phase in an integrated system (cost $98.5 million);
- Renew the current legacy system, which would allow more rapid transition to an integrated service delivery but would limit processes and reporting (cost $21.5 million); and
- A tactical solution by creating from the present system a "spider-like" interface that would simulate an integrated system, but would not actually integrate systems nor allow future expansion (cost $2.5 million).

Mr. Lewis said the agency is evaluating the recommendations and considering an RFP to create a roadmap for the project. Ms. Moore commented that Utah has utilized the vendor Curam to create an integrated three-agency service delivery system. Mr. Lewis said New York also is building an integrated system. Answering questions, Mr. Lewis said one approach might be to employ a vendor for the initial integrated platform and use agency staff for subsequent expansion. He replied that any cost savings would be realized by increased efficiency, not by reducing staff. Mr. Moore replied that the state needs to move toward integrating customer data across multiple agencies.

Friday, September 8
Morning Session

Joan Wagnon, Secretary, Kansas Department of Revenue, presented information on the feasibility study for replacing the Vehicle Information Processing System (VIPS), a mainframe application implemented in 1987 (Attachment 18). She said the present system cannot provide the level of service needed in today's environment and that the feasibility study, substantially funded by a $274,250 INK grant, will provide options to replace the system. She anticipated an RFP to be drafted by mid-October 2006.

Responding to previous questions, Don Heiman provided Attachment 19, saying that the University of Kansas uses KDOT fiber-optic cable and that DISC (Division of Information Services and Communications) is working with KDOT to incorporate KDOT fiber into the Kansas Wide-area Information Network (KAN-WIN) backbone. He said when the work is completed, the fiber will be available to all state agencies and to local units of government.

The minutes for August 7-8 were approved. Motion was made by Representative Morrison and seconded by Senator Petersen.

Don Heiman, Legislative CITO, introduced the next segment of the meeting, which featured a live, interactive video conference connecting eight sites. He noted the principals responsible for setting up the conference, which utilizes the KAN-Ed/KanREN networks, and welcomed [redacted]rdner, Director of KAN-Ed, appearing by video conference, who noted the significance [redacted]active session and introduced members of the KAN-Ed Advisory Council.

Appearing by video conference, Elizabeth Unger, Vice Provost for Academic Services and Technology, KSU, gave an update on the Legacy Application System Enterprise Replacement (LASER) project (Attachment 20). Noting that the project has been recast because of Oracle's purchase of PeopleSoft, she stated that vendor CedarCrestone's assistance in recasting the project plan would be completed by September 30, 2006. She commented that the recast would increase the cost of the project by 6.0 percent and take one year longer to complete. She said two other firms have been hired to help implement the project: Ciber and Employer Management Solutions. Noting that Oracle's software was inadequate for the Student Recruiting System, she stated that a separate CITO-approved project was created using Talisma, but the new project would have no effect on the LASER schedule. Asked if collaboration with other universities for student recruitment was possible, Dr. Unger said each university has a different mission and approach to recruitment.

Appearing by video conference, David Schmidt, Director, Computing and Telecommunications, Fort Hays University, briefed the Committee on the legacy migration to a relational database using IBM's Universal Data Base (Attachments 21 and 22). He said the newly purchased IBM z/890 has been configured and went live on August 5, 2006. He stated that the On-line Registration and Enrollment System will go live on October 24, 2006, and that further system components (Recruitment, Admissions, Degree Audit, Degree Summary, and Academic Advising) are being evaluated for purchase or in-house development.

Appearing by video conference, Ravi Pendse, Chief Information Officer and Associate Vice President of Academic Affairs and Research, Wichita State University, introduced David Alexander, project manager for the Wichita Information Network project. He indicated that the project is on schedule and under budget (Attachment 23). Using the SunGard Banner System, Sun Microsystems hardware, and Oracle database, the Finance System and data warehouse were implemented on September 1, 2005, the University portal on January 20, 2006, and the Student Information System was completed September 4, 2006. The Financial Aid System was begun in February 2006, the Degree Audit System will begin in the fall of 2006, and the Human Resource and Payroll System is

scheduled to begin in CY 2007. The Advancement System is scheduled to go live July 1, 2007, and the Workflow System will be in production by the spring of 2007.

Appearing by video conference, Bruce Vieweg, Associate Vice President for Academic Affairs and Chief Information Officer, Emporia State University, reviewed progress on the Banner Integrated Information System, which is 57.0 percent complete, on time, and under budget (Attachment 24). He said the $8.9 million project will integrate Advancement, Finance, Financial Aid, Human Resources, and Student Information and is scheduled for completion December 1, 2007. He recognized the invaluable assistance of Wichita State University and provided a demonstration of the university portal.

The Chairperson commended Don Heiman for his work in making the video conference an "historic day" for the Committee and the Legislature.

Members discussed the proposed electronic hearing rooms to be created as part of the capitol restoration project. Responding to a question, Mr. Heiman estimated the cost of one electronic hearing room to be $50,000 to $75,000. Dave Larson, Director, Computer Services, Legislative Administrative Services, said three employees would provide service for the hearing rooms when the capitol restoration project is completed. Mr. Heiman said when the legislative information system is completed, the Enterprise Resource Plan might be marketed.

The next meeting is scheduled for November 13-14, 2006, and the final Interim meeting is scheduled for December 5-6, 2006.

Prepared by Gary Deeter
Edited by Julian Efird

Approved by Committee on:

November 14, 2006
(date)

Joint Committee on Information Technology
KDOT Fiber Usage

Don Heiman, LCITO
September 7, 2006

Mr. Chairman and members of the committee: Since our last meeting, I received a couple of questions from the chair regarding bandwidth using KDOT's fiber. I spoke with KDOT and with DISC regarding the questions.

Question 1: Who is now using the fiber?
The University of Kansas uses bandwidth provided by a KDOT fiber run from 59 Highway to the KDOT hut in Lenexa. The University has arrangements for carrying the signal from the Lenexa Hut to the KU Edwards campus in Johnson County. In addition, the KDOT fiber bandwidth is used to support two KDOT facilities –one in Lawrence and the other in Topeka. Also, the fiber is back up to KDOT's 800 megahertz system.

Question 2: Will the KDOT fiber be incorporated into the DISC backbone?
DISC is working with KDOT to incorporate bandwidth in the KDOT fiber backbone from Topeka, Salina, and Wichita into the Kan-win backbone network. In addition work is under way to use KDOT fiber runs from Wichita to Oklahoma City and back to Kansas City/Topeka. This extended leg is called the "lightcore" project. At the present time, DISC is testing special MLSP routing cards to carry jumbo frames across the fiber. The KDOT fiber bandwidth was originally designed to carry 1,500 byte packets (ethernet packet size), but Kan-Win uses larger packets (jumbo frames). The install and testing of jumbo frames should complete soon and if everything tests out, bandwidth from the KDOT fiber will be incorporated in the Kan-Win backbone --when this happens the fiber will be available to all state agencies who use the Kan-win backbone... I will keep you posted as I learn more...

Attachment 18
JCIT 9-8-06

TO: Joint Committee on Information Technology

FROM: Jim Hollingsworth, Executive Director
Information Network of Kansas Inc.

DATE: September 7, 2006

SUBJECT: Update on: INK Strategic Direction and Grants

Mr. Chairman and Members of the
Information Technology Committee:

Thank you very much for the opportunity to appear before you all today.

I would like to begin with a brief history of INK. Established by this body in 1991, the passing of 74-9301 et seq. established the nation's first egov entity. This insightful legislation envisioned INK as an enterprise initiative, whose scope spanned across all three branches of government.

The entity is governed by a ten member board, three of which are appointed by statute and 7 who are appointed by the governor. This volunteer board of private and public executives essentially put together the data providers and the users of the data to derive a mechanism of providing increased access to government information and services.

The current INK Board of Directors consists of;

Dan Yunk	CEO/Executive Director	Kansas Farm Bureau
Roger Winfrey	President	Insurance Planning Center
Ron Thornburgh		Secretary of State
Joan Wagnon		Secretary of Ks Dept of Revenue
Deb Miller		Secretary of the Kansas Dept of Transportation
Stan Ahlerich	President	Kansas Inc.
Cynthia Dunham	Asst County Counselor	Johnson County
Tom Winters	County Commissioner	Sedgwick County
Denise Moore	DISC Director	Dept. of Administration (ex-officio)
OPEN		Kansas Public Libraries

The INK Board has contracted with a private vendor, the Kansas Information Consortium (KIC) as the Network Manager to operate, expand and maintain the Kansas.gov web portal. KIC is a wholly owned subsidiary of NIC Inc., which operates similar organizations in 18 other states and counties. The KIC staff of 18 is dedicated solely to the operation and expansion of the Kansas portal.

Attachment 8
JCIT 9-7-06

The mission of the INK Board is to provide the electronic gateway to Kansas government information and services. It is the vision of the board to transform the way citizens, businesses and governments interact with Kansas government through integrated and efficient applications and services.

INK was designed from the start as a self-funded model.

- INK receives no tax or appropriated dollars
- INK Board approves fees in Service Level Agreements, establishes prioritization and sets direction of portal
- Majority of citizen services are provided for free
- Minimal online transaction fees applied to select services
- Content management and hosting services provided

The current contract with the Network Manager was bid through RFP in 2002 and successfully contracted with KIC with a 3 year term with 2, 2-year extensions available. We are currently in the first of the two year extensions which expires December 2007.

The financial model of the portal provides that gross revenues are collected by INK. 75% of the gross revenues are sent to the agencies for statutory requirements or date use and the remaining net revenue is shared between the INK Board of Directors and KIC. Every application is governed by individual agreements between INK, KIC and the agency.

The funds flow through the INK organization is designed to provide maximum visibility and clarity. Proceeds are collected in separate Network Operating Accounts, the agencies are then paid, shared communication costs are paid and the remaining net revenue is shared between INK and KIC.

The net revenue of the portal, since inception, has grown at a rate of 10.64% per year. In 1996, the first web portal was introduced and since then has grown at an averaged rate of 14%.

Portal projections for net revenue for the next three years were estimated at a 12% growth rate with an anticipated growth rate of 10% in INK expenses. The projected net revenue of INK based upon those assumptions is estimated to be; $388.141, $440,174 and $498,997 for fiscal years 2007, 2008 and 2009 respectfully.

The INK Board maintains bank accounts with UMB, Commerce Bank and Trust and Kaw Valley State Bank and Trust. UMB and Commerce are designed as the Network Operating Accounts and the Kaw Valley State Bank and Trust account is the INK Board's checking account used for INK Board specific expenditures. All accounts are secured by US Treasury instruments above FDIC levels and provided by each of the respective banks.

Mize Houser & Company operates as the INK Board's accounting provider. INK yearly employs Wendling Noe, Nelson and Johnson to perform annual financial audits for all portal revenues and additionally performs a separate audit to test the timely and accurate payment to our agency partners. Finally, INK employs Fishnet Security to perform annual penetration testing to identify any unforeseen weaknesses in configuration or development of the applications and services provided on the Kansas.gov portal.

In order to determine the strategic direction of the portal, INK has utilized a variant of the New Information Economics model to measure the performance of each of the applications against an objective set of measurements. The measurements are based upon INK's statutory requirements and in addition, the INK Board has set out three additional requirements to measure its application inventory.

The INK Board has developed a grouping methodology to segregate like applications and services together to assist with the identification of specific areas of development to concentrate their development effort. This segregation was developed from the Federal architecture and adapted to the Kansas government. Using this segregation and measurement criteria, the INK Board can identify areas of improvement that can be developed into portal themes.

The development targets for the next three years will include concentration in the Kansas Business Center, Education and Environmental portal themes. INK acknowledges that these targets can only be as successful as the entities targeted within those categories are ready for developing online applications and services.

A unique by product of this model is the ability of the INK Board to provide grants to its agency partners to assist with the development in portal theme arenas. All Kansas State Government sponsored entities are eligible to apply for an INK grant.

Grant applications may take three different forms. The regular grant cycles for review are performed in June and December of each year. In addition, there is provision for mini grants which can be brought to the board at any month but may not exceed $5,000. Also, a Special Grant designation is provided for agencies who also request grants from federal and other entities, whose submission timelines may not accommodate the regular grant cycle as typically these types of grants. These types of grants may be brought to the board at any month, without a monetary requirement.

The INK Board has established a Grants Subcommittee designed to perform the review of the spring and fall grant requests and score the grants according to the measurement criteria outlined before. The Grants Subcommittee consists of the

three CITO's from the branches of government and one member from the INK Board of Directors. This committee was designed to provide maximum exposure into projects and initiatives within the respective branches and to provide awareness of the availability of INK grants within them as well. All grant requests, unless otherwise agreed, are for one year. The subcommittee provides to the INK Board a recommendation and score for each grant submission. The INK Board of Directors determines final disposition of all grants.

In 2005-2006, the INK Board granted $1,343,809 to entities across state government. Dispersion and management of the grant funds are managed by the INK Executive Director. The following entities were recipients of grants through the current cycle; KDOR, KPTS, Kansas Association of Counties, KS Board of Tax Appeals, Kansas Center for Entrepreneurship, KS Small Business Development Center, Department of Administration – Division of Purchases, KS State Historical Society, and Kansas Inc. For years 2006 – 2007 no grant requests will be accepted.

This concludes my comments and the first portion of our presentation and I would entertain any questions you may have.

I would like to introduce Tracy Smith the Network Manager and CEO of the Kansas Information Consortium. Tracy will address some additional areas that Mr. Efird had requested, specifically Accessibility and Legislative Support.

Thank you and please do not hesitate to contact me if you have any further questions.

Respectfully,

Jim Hollingsworth
Executive Director
Information Network of Kansas

Report of the Joint Committee on Information Technology to the 2007 Kansas Legislature

CHAIRPERSON: Senator Tim Huelskamp

VICE-CHAIRPERSON: Representative John Faber

OTHER MEMBERS: Senators Janis Lee, Mike Petersen, Vicki Schmidt, and Chris Steineger; and Representatives Nile Dillmore, Harold Lane, Joe McLeland, and Jim Morrison

STUDY TOPICS

The Committee is directed to study computers, telecommunications, and other information technologies used by state government, and to review new acquisitions of information technology.

December 2006

Joint Committee on Information Technology

STATUTORY STUDY

CONCLUSIONS AND RECOMMENDATIONS

The Committee recommends:

- The Legislative Coordinating Council (LCC) and other committees should refer information technology (IT) projects to the Committee for further review when issues arise that require additional study.
- The Department of Administration should establish either a central staff attorney position or contract for an attorney to review IT contracts and to insure that all IT contracts contain liquidated damages provisions.
- The Kansas Lottery, when feasible, should share with other state agencies access to contracted resources, such as its communications network.
- The Board of Regents should encourage cooperative ventures between and among institutions, including universities and community colleges that may share IT resources, including hardware, software, and personnel.
- The House Appropriations Committee and the Senate Ways and Means Committee should review the proposed $98.5 million SRS project which the Committee does not recommend at this time.

Proposed Legislation: The Committee recommends no bills.

BACKGROUND

The Committee is authorized by KSA 46-2101 *et seq.* The Committee may set its own agenda, meet on call of its chairperson at any time and any place within the state, and introduce legislation. The Committee consists of 10 members, including five senators and five representatives. The Committee met May 25, June 12-13, August 7-8, September 7-8, November 14-15, and December 5-6, 2006. Copies of the minutes and attachments are filed with the Division of Legislative Administrative Services.

The duties assigned the Committee by its authorizing legislation in KSA 46-2102 are noted below, and the first three duties also defined its general areas of interim activity:

- Study computers, telecommunications, and other information technologies used by state agencies and institutions. The state governmental entities defined by KSA 75-7201 include executive, judicial, and legislative agencies, and Regents institutions.
- Review proposed new acquisitions, including implementation plans, project budget estimates, and three-year strategic information technology plans of state agencies and institutions. All state governmental entities are required to comply with provisions of KSA 75-7209 *et seq.* in submitting such information for review by the Committee.

- Monitor newly implemented technologies of state agencies and institutions.

- Make recommendations to the Senate Ways and Means and House Appropriations Committees on implementation plans, budget estimates, and three-year plans of state agencies and institutions.

- Report annually to the LCC and make special reports to other legislative committees as deemed appropriate.

In addition to the Committee's statutory duties, the Legislature or its committees, including the LCC, may direct the Committee to undertake special studies and to perform other specific duties. No special study topic was assigned in 2006.

KSA 75-7208(g) provides that the Legislative Chief Information Technology Officer (CITO) is staff to the Joint Committee. The position is appointed by the LCC and the Committee may recommend persons for consideration by the LCC in making the appointment. Among the duties assigned to the Legislative CITO by KSA 75-7211 are those of monitoring state agency execution of information technology projects and reviewing information technology project budget estimates and revisions to the estimates. The Legislative CITO also may perform other functions and duties as directed by the LCC or the Committee, as provided in KSA 75-7208(h).

KSA 75-7210 requires the Legislative, Executive and Judicial CITOs to submit annually to the Committee all information technology project budget estimates and revisions, all three-year plans, and all deviations from the state information technology architecture. The Legislative CITO is directed to review the estimates and revisions, the three-year-plans, and the deviations, then to make recommendations to the Committee regarding the merits and appropriations of the projects. In addition, the Executive and Judicial CITOs are required to report to the Legislative CITO the progress regarding implementation of projects and proposed expenditures, including revisions to such proposed expenditures.

The Committee presents this annual report in compliance with KSA 46-1207 that requires the LCC to receive information about the interim work for submission to the next session of the Legislature.

COMMITTEE ACTIVITIES

The Committee reviewed agency IT projects that received CITO approval. Several proposed projects were reviewed prior to CITO approval. In addition, reports were received from the Legislative, Executive and Judicial CITOs.

The Committee continued to monitor active IT projects, especially those with an estimated cost of greater than $1.0 million. As reported in the November 2006 Summary of Quarterly Information Technology Reports, there are at least 46 active CITO-approved projects which have an aggregate total cost greater than $220.0 million. Other proposed or planned projects could cost an additional $142.2 million. Because of the number of such projects, the Committee generally focused on those costing more than $1.0 million.

The Committee believes that budget reviews during the 2007 Legislature ought to focus on all agencies with active or proposed projects. The Committee provides project information for the Senate Subcommittees and House Budget Committees to use during the 2007 legislative review of the Governor's FY 2008 agency budget recommendations. Some of the projects may be found in the Governor's revised FY 2007 agency budget recommendations.

The following projects should warrant further review by the Legislature, either because of the cost or the CITO project status of hold, caution or alert. On hold indicates that a project is no longer active. Caution refers to projects with changed scope, or missed targeted goals by more than 10 percent. Alert refers to projects with changed scope, or missed targeted goals by more than 20 percent.

Active CITO-Approved Projects

Department of Administration
SHARP upgrade project: $10.7 million.

Department of Administration
Capitol Complex Wireless LAN project: $350,421.
CITO alert status.

Department of Administration
Statewide Financial Management System Needs Assessment/Feasibility Study: $280,160.

Animal Health Department
Impact of Environmental Interferences and Performance Variation on RFID project: $471,430.
CITO caution status.

State Department of Education
Enterprise Data System to Support Decision Making and Reporting project: $3.9 million.

Department of Health and Environment
Electronic Disease Surveillance project: $3.9 million.

Department of Health and Environment
Health Alert Network project: $1.2 million.

Health Policy Authority
MMIS National Provider Identifier project: $8.3 million.

Health Policy Authority
Data Analytic Interface project: $6.3 million.

Judicial Branch
FullCourt Imaging project: $1.0 million.

Kansas Bureau of Investigation
Automated Fingerprint Identification System project: $4.1 million.
CITO caution status.

Kansas Bureau of Investigation
Central Message Switch Client Software project: $1.2 million.

Kansas Bureau of Investigation
Offender/Missing Person Application project: $301,306.
CITO alert status.

Department of Labor
Unemployment Insurance Modernization project: $21.0 million.

Kansas Lottery
Online Gaming System, Communications Network, and Related Services: $36.2 million.

KPERS
Integrated Technology System project: $8.0 million.

KPERS
Platform Consolidation project: $2.6 million.

KPERS
Security Enhancement project: $1.7 million.

KPERS
Disaster Recovery and Hot Site project: $576,500.

Department of Revenue
Computer Assisted Mass Appraisal project II: $5.9 million.

Department of Revenue
Project 2010 Vehicle Information Processing System Replacement Study: $379,991.

Social and Rehabilitation Services
Server Consolidation project: $981,763.
CITO hold status.

Social and Rehabilitation Services
Behavioral Health Care Inpatient Registration and Billing System project: $1.0 million.

Department of Transportation
Communication System Interoperability Program: $63.0 million.

Department of Transportation
Comprehensive Program Management System Replacement Feasibility Study: $242,573.
CITO alert status.

Department of Transportation
Crew Card Reporting III project: $953,797.
CITO hold status.

Department of Transportation
Tape Library System project: $357,375.
CITO alert status.

Emporia State University
Enterprise Resource Planning System project: $9.0 million.

Kansas State University
Food Service System project: $655,130.
CITO caution status.

Kansas State University
Legacy Application System Empowered Replacement II project: $9.8 million.
CITO hold status.

Wichita State University
Information Network project: $10.8 million.

Planned or Proposed Projects

Department of Administration
Financial Management System project: $30.0 million.

State Department of Education
Statewide Individual Education Plan project: $1.5 million.

Department of Health and Environment
Electronic Death Registration project: $1.0 million.

Department of Revenue
Vehicle Information Processing System Replacement project: over $1.0 million.

Social and Rehabilitation Services
Human Services Management project: $98.5 million total, $25.0 million FY 2008.

Department of Transportation
Comprehensive Program Management System project: $8.2 million.

Department of Transportation
Financial Information Management System project: $5.5 million.

Department of Transportation
Advanced Public Transportation Management System project: $1.6 million.

Department of Transportation
Traffic Records Coordination and Enhancement project: $1.9 million.

Interim Review Summary

During the 2006 Interim, the Committee reviewed both active and proposed IT projects. The Executive CITO presented quarterly reports at the September and December meetings, and a Kansas Information Technology Office (KITO) staff member presented the report at the June meeting. Reports are available online at: www.da.ks.gov/kito/projstatusreport.htm

In addition, the Committee reviewed individual projects with presentations by agency staff as well as other topics throughout the Interim. Such items included the following topics:

Capitol Restoration. The Legislative CITO provided periodic updates on the progress of renovation work in the Statehouse and the implementation of

planning for IT enhancements throughout the Capitol. The Capitol Architect also reported to the Committee on the project design and reconstruction involving IT enhancements. Video conference rooms to be located in the Statehouse were highlighted in conjunction with another topic that demonstrated interactive committee sessions using video conferencing in real time.

Lottery Sunset. During review of a proposed project that since has gained Executive CITO approval, the Committee learned that the Kansas Lottery will seek reauthorization during the 2007 Session. Under current law, the agency will sunset on July 1, 2008, unless the 2007 Legislature takes action to renew its statutory authority. The IT project involves the online gaming system, communications network and related services with an estimated cost of $36.2 million.

The Kansas Lottery issued a request for proposals since the current vendor contract will expire prior to the sunset date. The Executive Director explained that lottery games have a prize payout period of either six or 12 months after the conclusion of a particular game which will require legislative action during the 2007 Session if the Kansas Lottery is to continue uninterrupted operations in FY 2008, the fiscal year ending June 30, 2008.

Previously, the Committee recommended sharing of resources among state agencies ought to be examined when the Kansas Lottery contracts for a communications system to link more than 1,500 sales locations throughout the state. With the contract expiring with the Lottery sunset, the opportunity once again presents itself to determine if sharing resources with other state agencies is a viable option.

Video Conferencing. The Committee engaged in one session dedicated to live, interactive video conferencing that connected eight different sites throughout the state. Conferees engaged the Committee from remote locations, reporting on various projects at Regents institutions. The video conferencing was sponsored by KAN-Ed to demonstrate the capability of the network to handle multisite, interactive video sessions. The session demonstrated the utility and feasibility of technology that will be used in the Statehouse after renovation.

Failed SRS Project. Beginning early in the Interim, the Committee heard a report from the Chief Information Officer (CIO) of Social and Rehabilitation Services (SRS) that indicated the Enterprise Circle Plan (ECP) project had been placed on hold and that SRS had contracted with Forrester Research to produce a feasibility study for alternative solutions to integrate the agency's diverse IT applications.

Later, in the Interim, three alternative solutions proposed in the Forrester report were presented to the Committee. Each would supercede the ECP project which attempted to create a common platform for all agency IT applications with access to client data. Costs ranged from $2.5 million to $98.5 million for lowest and highest cost alternatives, with the third one estimated at $21.5 million.

By the conclusion of the Interim, the CIO of SRS told the Committee that the agency would engage a contractor to produce an enterprise application roadmap at a cost of $500,000 in preparing to launch a new initiative described as Human Services Management project, to replace the ECP project. The new project represents the third alternative of the three suggested by the Forrester report, estimated to cost $98.5 million. The FY 2008 budget request for the new project includes $25.0 million to begin after July 1, 2007, when the roadmap is expected to be completed.

The CIO of SRS reported expenditures of $4.0 million had been made on the ECP project that was being abandoned. Committee members expressed concern and

regret that the money had been spent on a failed project when human needs were left unaddressed during the period. Of particular concern to Committee members was the agency contention that it had spent "savings" found within the agency budgets over the fiscal years and that these funds were used for the failed project.

Information Network of Kansas (INK). The Committee heard reports from the Executive Director of INK and the network manager who is under contract to INK for providing services. During the 2005-2006 period, INK awarded $1.3 million in grants to various state entities for portal development projects and ancillary projects.

Livestock Commissioner Projects. During the 2006 Interim, the Committee monitored a number of IT projects undertaken by the Livestock Commissioner without CITO approval. Early during the Interim, the Livestock Commissioner reviewed a pilot project to track livestock by electronic means. A federal grant of $805,000 was used to tag livestock with radio transmitter identification devices and to monitor locations and movements of livestock. The project was considered a failure, according to the Livestock Commissioner's report, and was halted before all funds were expended.

Later during the Interim, the Committee received subsequent information from the Livestock Commissioner and a representative from Kansas State University responsible for the conduct of a second project that previously had not received CITO approval. Their report focused on the Cattle Tag Electronic Tracking Research and Grant Awards project. The project is funded with a $441,000 federal grant, supplemented by a $30,000 state grant. This project involves 15 markets, various brand radio frequency identification devices and readers, with 3,000 tags being analyzed while tracking 1,200 animals.

The Chairperson requested a 200-hour review by the Legislative Division of Post Audit. A performance audit report, Animal Health Department: Reviewing Issues Related to a Recent Tracking Technology Project, was released October 10, 2006, and reviewed by the Committee. The limited-scope audit focused on the first project that failed.

After Committee discussion about the audit, no action was taken regarding that report or this issue.

State Security Measures. The Co-Chairs of the State Security Council briefed the Committee on the increasing need to increase IT security measures to protect state assets. Increasing attacks necessitated creating the Enterprise Security Office in order to manage intrusion prevention, initiate forensic examinations, and conduct vulnerability assessments. Additional planned security enhancements were enumerated. Funding is provided by the agencies that use the services provided by the Division of Information Systems and Communications as part of the indirect charges paid.

Geographic Information Systems (GIS). Representatives of KITO and other state agencies provided an overview of GIS applications being utilized by state agencies. The Data Access and Support Center was described as the single repository for web-based data. The Committee viewed demonstrations of the various GIS applications available to the public users.

State IT Contracting. While reviewing a Department of Revenue project in which the Property Valuation Division contracted with a vendor for replacing the Computer Assisted Mass Appraisal (CAMA) system, the Committee learned that even after delays in the project attributed to the vendor, no punitive action was taken because the contract did not include such provisions. The Director of Purchases, Department of Administration, reviewed state purchasing

and contracting procedures for the Committee.

Members of the Committee discussed the issue of penalties in contracts and heard a report by the Revisor's Office concerning penalty clauses. Legal case law suggests that liquidated damages rather than penalties should be addressed in contracts.

Following Committee discussion, members decided to recommend either establishment of a position within the Department of Administration Legal Division, or contracting for such legal services that would oversee all IT contracts. In addition, the Committee agreed to recommend that liquidated damages clauses should be included in all future IT contracts.

IT Project Oversight. Continuing the Committee's review procedures for detecting IT projects and seeking to identify previously unapproved IT projects was a focus of concern during the Interim. The Committee's activity in identifying the Livestock Commissioner's IT projects demonstrates that concern is valid.

Reports from the Legislative, Judicial, and Executive CITOs recommended some changes in current IT oversight procedures that may be addressed next Interim. The Executive CITO reported that recommendations will be presented during the 2007 Interim as a result of a review of the Kansas Project Management Methodology. The review is focusing on two areas: the project plan approval and quarterly reporting process, and the actual project management methodology.

The Committee continues to recommended that the LCC, the House Appropriations Committee, and the Senate Ways and Means Committee refer any and all IT projects for further review by the Committee whenever additional study is required.

IT Cooperation. The Committee heard a report from a representative of the community colleges who cited cooperative work between Barton County Community College and Wichita State University. The Committee believes that such cooperation between and among postsecondary institutions represents an underutilized opportunity for addressing IT needs in this state.

The Board of Regents, which is charged with governing the Regents institutions and supervising the community colleges, should take affirmative action to encourage such cooperation and sharing of resources among all institutions.

CONCLUSIONS AND RECOMMENDATIONS

One topic that was not reviewed specifically by the Committee during the 2006 Interim was KAN-ED and its relationship to other state networks. Another Interim study focused on that topic during this Interim. The Committee intends to undertake its own study next Interim of the possible overlap and duplication by the state's networks, including KAN-ED.

Regarding other topics reviewed during the 2006 Interim, the Committee makes the following conclusions and recommendations:

- The LCC and other committees should refer IT projects to the Committee for further review when issues arise that require additional study.

- The Department of Administration should establish either a central staff attorney position or contract for an attorney to review IT contracts and to insure that all IT contracts contain liquidated damages provisions.

- The Kansas Lottery, when feasible, should share with other state agencies access to contracted resources, such as its communications network.

- The Board of Regents should encourage cooperative ventures between and among institutions, including universities and community colleges that may share IT resources, including hardware, software, and personnel.

- The House Appropriations Committee and the Senate Ways and Means Committee should review the proposed $98.5 million SRS project which the Committee does not recommend at this time.

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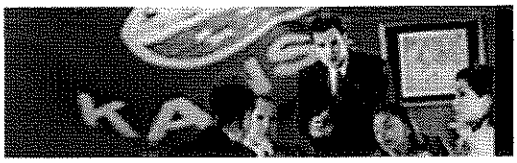

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- Cynthia Dunham, Assistant County Counselor, Johnson County
- David L. King, Topeka & Shawnee County Public

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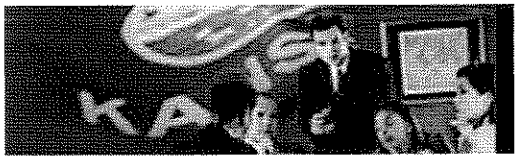

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U-Verse

From Wikipedia, the free encyclopedia

AT&T U-verse is the brand name for AT&T Inc.'s portfolio of Internet protocol (IP)-enabled services, including AT&T U-verse TV, AT&T Yahoo! High Speed Internet, *U-verse Enabled* and, in the future, consumer VoIP. The new services travel over phone lines (or over fiber to a consumer's home), and are enabled by AT&T's initiative to push fiber-optic lines closer to customers' homes. U-Verse itself is a laconic colloquialism for "universe", designed to convey the scope the service will encapsulate.

Unlike traditional offerings from U.S. cable companies, video is delivered over IP from the head end to the consumer's STB (Set Top Box). Broadcast channels are distributed via IP multicast, allowing a single copy of a channel to be propagated down to the consumer. U-Verse uses H.264 (MPEG-4) encoding, which compresses video and yields a bitrate lower than MPEG-2, which is used on traditional media, including DVD. In this model, the STB does not have a traditional "tuner" - it is an IP multicast client which joins the IP multicast group corresponding to the "channel" desired. This also results in a change in the way that the head end (video reception and transmission facility), as capacity is linked to IP network capacity, not frequency, as in traditional cable or satellite systems.

Contents

Project Lightspeed

In June 2004, AT&T announced Project Lightspeed, the company's initiative to drive fiber deeper into its network with a planned investment of approximately $6 billion. AT&T plans to reach nearly 19 million homes by the end of 2008 as part of its initial deployment. Alcatel was named as the Systems Integrator for Project Lightspeed.

AT&T announced the commercial launch of U-verse services in San Antonio, Texas, in June 2006, following a controlled market entry that began in San Antonio in December 2005. AT&T expanded the San Antonio coverage area and launched HD service with 30 channels in November 2006. Houston was added as the second city for U-verse coverage in November 2006. Milwaukee, Indianapolis, San Ramon, Stamford, Muncie, Bloomington, Anderson and New Haven were launched in December 2006. AT&T is targeting the launch of the service in 30+ additional markets by the end of 2007.

AT&T was known as SBC Communications Inc. before closing its acquisition of the "old AT&T" in November 2005, and adopting the AT&T name.

Phone Company Vs. Cable

U-Verse is a good illustration of the increasingly competitive telecom marketplace, in which cable companies are offering voice services and telecom companies are rolling out video offerings. Both cable and telecom companies are striving to offer customers a "triple play" bundle of voice, Internet access and video services. AT&T hopes to gain customers with many advanced features of U-verse, including an innovative, easy-to-use program guide, fast channel-changing, the ability to search for programs using title or actor's name, and picture-in-picture functionality that allows subscribers to "channel surf" without leaving the program they're watching. AT&T also offers other video products, including AT&T Homezone, a new service combining satellite TV programming with AT&T Yahoo! Internet, and satellite service from AT&T | Dish Network. Other phone companies are also developing similar plans in their service areas or have already deployed them. Verizon has already launched its FiOS service in select areas, though its technology is fundamentally different from that of U-verse.

Network Upgrade

AT&T has chosen to bring its next generation of services via both fiber-to-the-node (FTTN), in which it plans to run fiber to within 3,000 feet on average of customers' homes and existing copper lines the remainder of the way; and fiber-to-the-premises (FTTP), in which it runs fiber all the way to the home. This access gear is fed using Ethernet switches and routers running the IP protocol suite over a private IP backbone constructed for Project Lightspeed. Extensive use of VPLS and MPLS have been implemented to provide a resilient network which scales to support the broadcast TV (via IP multicast) and IP unicast applications and functions. After leaving its PIM transport, multiple levels of IGMP snooping and IGMP proxy further make bandwidth conservation possible with IP multicast.

In its more common FTTN version, the network topology of U-verse/Project Lightspeed is similar to DSL; general network traffic travels no further than the FTTN node (analogous to a DSL remote terminal), while only the individual customer's traffic uses the copper wire to the home. FTTP follows a similar implementation where only the traffic destined for users on an FTTP node is forwarded there, then further downstream where only traffic for users on a specific fiber is sent to that fiber.

Verizon, on the other hand, is deploying FiOS as a FTTP network using traditional RF-style video over fiber. Thus, the network topology of FiOS is very similar to cable; all network traffic in the neighborhood travels over the fiber to the "optical network terminal" (ONT) just outside the home. The ONT is functionally similar to a cable modem, but for fiber instead of coax.

Some have suggested AT&T's tactic is not practical due to the increase in HD and Digital channels which use high amounts of bandwidth. AT&T, however, contends that fiber within 3,000 feet of

customers' homes provides more than adequate bandwidth to provide four streams of high-quality video (including one high-definition stream) plus high speed Internet access and, in the future, consumer VoIP services. It should also be noted that AT&T's FTTN topology only requires copper bandwidth for the content actually being used by the customer, while cable must broadcast all neighborhood content to each set-top box or cable modem, and FiOS does the same to each ONT.

Current Services

Internet Access and Digital Television

AT&T U-verse customers can choose from four TV packages and three Internet packages to customize their entertainment experience. Current featured bundles range in speed from 1.5 to 6.0 Mbps, depending on the selected programming and Internet package.

AT&T Yahoo! Internet Access, U-verse Enabled offers three tiers:

- Express: Download speeds up to 1.5 Mbit/s; upload speeds up to 1 Mbit/s
- Pro: Download speeds up to 3 Mbit/s; upload speeds up to 1 Mbit/s
- Elite: Download speeds up to 6 Mbit/s; upload speeds up to 1 Mbit/s.

The service also includes a suite of safety and security tools including anti-spy, anti-virus, pop-up blocker, parental controls, and anti-spam features integrated into one platform, plus free wireless home networking, a customized browser, virtually unlimited e-mail storage (a master account and each of 10 sub accounts with up to 2 GB of storage each), and instant messaging and Web cam capabilities.

Service areas

Texas

Currently available citywide

- Houston, TX
- San Antonio, TX

California

- San Ramon, CA
- San Jose, CA

Connecticut

- Hartford, CT
- New Haven, CT
- Stamford, CT
- Danbury, CT

Wisconsin

AT&T U-verse

AT&T U-verse TV Features

AT&T U-verse℠ TV offers a new entertainment experience with advanced features and leading content that makes television all about *you*.

Television Entertainment.

AT&T offers U-verse customers a variety of compelling programming packages and a robust channel lineup featuring today's most popular networks. No matter what their interests, customers will find content that fits their lifestyle, including movies, sports, music, local programming, premium channels, Spanish-language, religious, and ethnic networks, and more.

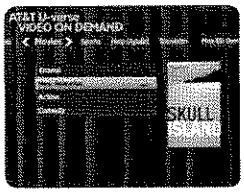
High Definition Programming.

Customers will enjoy a high-quality picture in standard or high definition (HD). U-verse HD technology delivers rich, realistic video and multi-channel, movie theater quality sound. U-verse TV carries a wide selection of HD channels to maximize the home entertainment experience.

Fast Channel Changing.

Fast channel changing reduces the annoying delay experienced with other digital broadcast services, whether a customer is channel surfing or recalling the last channel viewed.

Video-on-Demand.

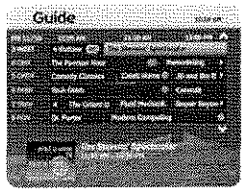


Through a broad video-on-demand (VOD) library, customers have one-touch access to a range of titles, including current and classic movies, live events, anime, music, sports, and premium on-demand services.

Innovative Program Guide.

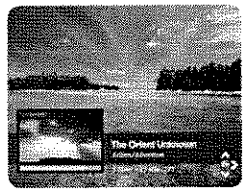
U-verse TV features a crisp and clean user interface and electronic program guide. Its intuitive navigation, menu functionality and information-rich guide enhance the viewing experience.

Digital Video-recording.



U-verse offers advanced digital videorecorder (DVR) capabilties that allow customers to record their favorite programs or pause and rewind live television. Customers can record up to four shows at once – something no other provider offers today.

Picture-in-Picture Channel Surfing.

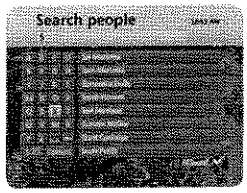


Customers can channel surf without missing a minute of the program they are watching using the picture-in-picture browse feature. The picture-in-picture functionality is tunerless and software-based so customers can enjoy this feature on any television.

Web Remote Access.

AT&T Yahoo! High Speed Internet customers can control their U-verse TV experience from any location by scheduling DVR recordings from any Internet-connected computer using their AT&T Yahoo! broadband portal.

Program Search.



U-verse TV has a unique search capability that allows customers to search programs or the VOD library by title or actor's name.

Parental Controls.

Through easy-to-use parental controls, customers are in charge of what their family watches. Parental controls can be established by ratings or channel.

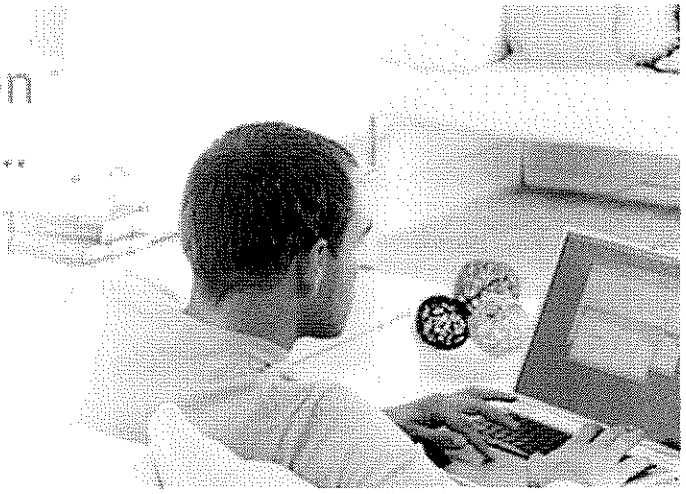
AT&T Yahoo!® High Speed Internet *U-verse Enabled* customers will receive a leading combination of broadband access, services and content that provides a unique high speed Internet experience. Other compelling features include free wireless home networking, unlimited online photo storage, 11 e-mail accounts with 2GB each of storage, and a suite of powerful safety and security tools.

at&t

AT&T U-verse℠ Ask a Question:

Home **Offers** **Support** Registere

A better reason to buy now...



» Order U300 or U400 U-verse TV and get the first 2 months FREE.

SEE ALL PROMOTIONS

MY ACCOU

If you alr have AT& verse ser you're alr registere log in! >

Television

Get an all-digital and ultra sharp picture, the ultimate in channel line-ups, plus...

- Receivers for up to three TVs in your home at no

Internet

Get fast, faster, or the fastest access to the Internet, and...

- Choose from Express, Pro, or Elite speeds
- Get the latest in security and protection

Offers

Better reasons to buy now...

- Get 2 months free TV (U300 and U400)
- Try 2 months free HD
- Professional Installation for just $50

AVAILABIL

Find out i U-verse i available your neighbor >>

AT&T U-verse℠

Ask a Question:

Home Offers Support Registerec

U-verse Service Offers

U200 plus AT&T Yahoo! High Speed Internet Express

PRICES START AT.
$74 per month

Learn More

U300 plus AT&T Yahoo! High Speed Internet Express

PRICES START AT.
$94 per month

Learn More

View Demo

U200 with AT&T Yahoo! High Speed Internet Express

Starting at just $74 per month, our basic package includes over 190 channels of news, sports, and entertainment. This service comes with 3 receivers—one with DVR—at no additional cost. Plus, you get **High Speed Internet Express** with wireless home networking capability. Take advantage of our fast Pro service for only $5 more per month.
Terms of Service

U300 with AT&T Yahoo! High Speed Internet Express

More channels, greater Internet speed. Starting at just $94 per month, this better-than-basic package includes over 240 channels, including the Movie Package with SHOWTIME®, Starz®, Encore®, The Movie Channel (TMC)™, and FLIX®. This service comes with 3 receivers—one with DVR—at no additional cost. Plus, you get **High Speed Internet Express** with wireless home networking capability. Take advantage of our fast Pro service for only $5 more per month.
Terms of Service

U400 plus AT&T Yahoo! High Speed Internet Pro

PRICES START AT.
$119 per month

Learn More

Build Your Own AT&T U-verse

PRICES START AT.
$59 per month

Learn More

U400 with AT&T Yahoo! High Speed Internet Pro

More channels, fastest Internet speed. Starting at just $119 per month, get over 300 channels, including the Movie Package, HBO®, Cinemax®, and Sports. This service comes with 3 receivers one with DVR— at no

Build Your Own AT&T U-verse

Customize your home environment with AT&T U-verse TV and AT&T Yahoo! High Speed Internet. Not sure which bundle is best for you? See how AT&T U-verse will work in your home. Then, contact a customer service representative to set up a bundle

AT&T U-verse TV P

View Channel Lineup

Choose city:

Select

Requires Adobe ® R

- Compare packages
- See this month's to Video on Demand, premium movie pre
- HD Program Spotlig

U400

Your best entertainmer 300 channels including Cinemax® and the Spc

U300

Better than basic—over including the Movie Pac

U200

Basic package—over 1 with sports, entertainm

U100

Basic package—over 1 viewed channels.

U-family

This package includes channels of family focu programming.

U-verse Services

COMPANY OF THE YEAR

Whitacre's Way

AT&T's Ed Whitacre built the runt of the Baby Bells into the largest telecom company in the world. His hunger for takeovers is unsated.

By Dennis Kneale

ON 4,000 SUN-BAKED ACRES OF MESQUITE, BLACKBRUSH AND CACTUS 60 miles south of San Antonio, Tex., AT&T Chairman Edward E. Whitacre Jr. keeps a Texas-size ranch house, five man-made ponds stocked with hungry bass, and a beaten-up bulldozer built in 1955. He pilots the Caterpillar, ancient, ugly and creaky, to clear acres of thorny thicket and scrub brush. "It still gets the job done," he says protectively.

Whitacre takes a similar skinflint's approach as the new AT&T embarks on a digital video revolution. In an audacious bid for new business AT&T aims to sell a panoply of video programming to customers of its phone services. It is building an all-Internet network, encompassing 40,000 miles

PHOTOGRAPH BY PETER YANG FOR FORBES

of newly laid fiber-optic lines—on the cheap.

AT&T's U.S. archrival, Verizon, is spending $18 billion in six years to cover 18 million homes by 2010, digging up trees and tulips to lay fiber to each and every house. AT&T will expend just $4.6 billion to reach 19 million homes by year-end 2008, lacing fiber into neighborhoods and using copper phone lines, already laid, to carry video the last few thousand feet to homes. This means the AT&T network won't be quite as fast or quite as fancy—but it will do. It will get the job done.

A telco gone Hollywood, AT&T has signed distribution deals with more than 300 cable channels. It has won approval to offer video in six states plus ten other markets. It rolled out its new video service in hometown San Antonio in June and, in some neighborhoods, snagged a surprising 30% of homes; it just lit it up in Houston. It hopes to be available to 1.9 million homes in 15 markets as the new year unfolds. Video revenue, now a trickle at AT&T, could in a few years hit $4 billion, including $2 billion in ad sales. "There's not much growth in our business without a new product," Whitacre says. "Video probably is that product."

AT&T's video ambitions will intensify if Whitacre can close the latest in a string of big takeovers: the $80 billion buyout of BellSouth, the last Bell standing. He needs only the blessing of one last holdout, the FCC, which could rule within weeks. "It's a big, big milestone," he says, vowing to push broadband services and digital video "much deeper into the American public."

Since becoming chief executive in 1990, Whitacre has pulled off 13 deals with a combined price tag of $285 billion, including assumed debt (if the BellSouth deal goes through). He started this buying spree as chief executive of the former Southwestern Bell, the unaccountably proud runt of the seven Baby Bells spun off from the old AT&T monopoly that the government busted up in 1984. He has built the regional utility into the renewed and renamed AT&T Inc., the largest telecom company in the world, 28% bigger (in revenue) than second-place Nippon Telegraph & Telephone.

Suddenly Wall Street—harshly negative on telecom stocks since the markets crashed in 2000—is impressed. AT&T's stock is up 44% in the past year. Whitacre says it should be up even more. "Shoot, even now it's way behind. It oughta be up 200%!" he says. "This is a stock that sells way higher at some point."

That surge and other strong metrics—its sales grew 46% and per-share earnings 61% in 12 months; its shares more than doubled the return of Verizon's—combine to make AT&T our Company of the Year for 2006. It is a bit of sweet vindication for Whitacre, who was pilloried in the press for raking in $135 million in a six-year period in which the company's stock price fell 48%.

"You beat up on me a lot. Everyone did," Whitacre says. FORBES gave his board a grade of "D" in 2003, and in mid-2005 we put him on a "hit list": "Why well-paid, underperforming execs should be worried." (Five of the seven chief executives on that list no longer hold their jobs.) He still smarts from a piece in the *New York Times Magazine* that ran five years ago. The writer said Whitacre exemplified a stock-options system "shot through with hypocrisy" and "gradual corruption." "You know him?" Whitacre asks. "You tell him he's a sorry bastard." He grins.

The new AT&T, with BellSouth in hand, will possess a sweep and scale that few imagined when Whitacre began. It will serve 90 million accounts. It will have 68 million phone lines in 22 states, 12 million high-speed Internet access users and 59 million cus-

Video Ingenue

By Tim Doyle

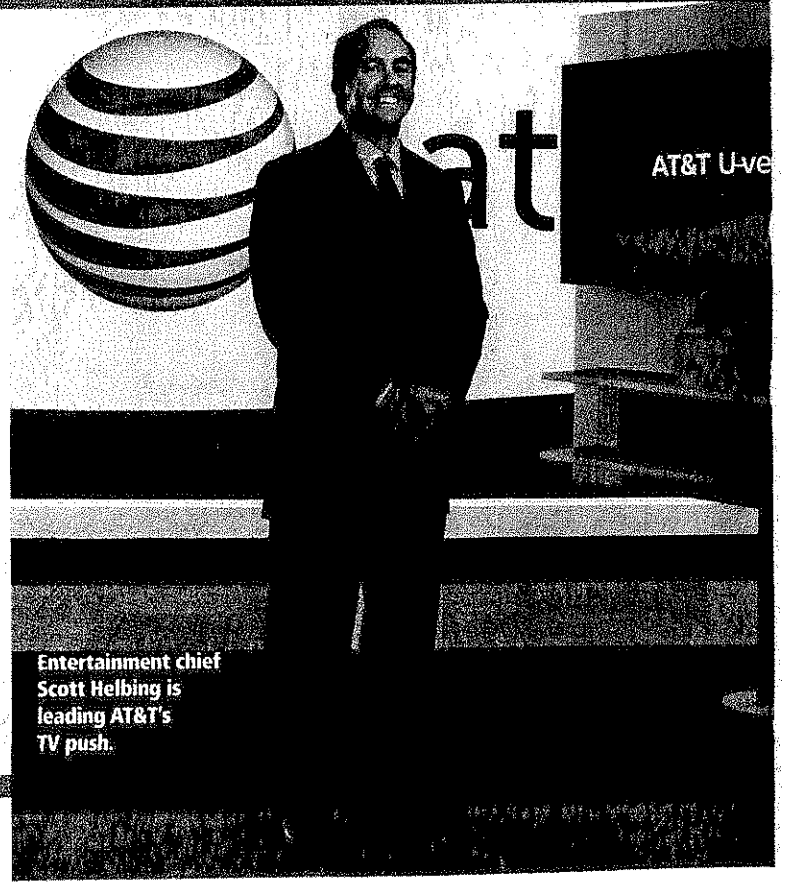
Building a new fiber-optic network was only a starting point for the new AT&T. To deliver on Ed Whitacre's video dreams, the company has gone to Hollywood, Madison Avenue and, in a folksy campaign, house to house.

But it's hard being the New Titan in Tinseltown; studios instantly raised their prices. AT&T has signed deals with 300 channels. "No question they look down at us, and no question they made us pay for the lack of subscribers we have," says AT&T entertainment chief, Scott Helbing.

Cable operators typically pay 30% of subscriber revenue to the channels that feed the shows, satellite broadcasters 40%. Helbing admits AT&T has paid even more and vows that will change. "They see the scale Whitacre has pulled together here. It's hard not to take us seriously," he says.

Much of this video push is retaliatory. Comcast and other cablers are adding phone service to the video they deliver over cable TV lines. "Comcast hasn't cut it loose yet, and when they do it's going to hurt very quickly," says Jeff G. Weber, a strategy vice president at AT&T.

To preempt, AT&T is trying a one-two punch: HomeZone and U-verse. In November it fully launched HomeZone, a stopgap service combining Dish satellite and Net access from AT&T and partner Yahoo, starting at $45 a month and available in 80% of AT&T's 13-state region. Using Akimbo, a video-on-demand firm that has partnered with AT&T,



Entertainment chief Scott Helbing is leading AT&T's TV push.

BRENT HUMPHREYS / REDUX PICTURES FOR FORBES

tomers nationwide for Cingular (soon to be renamed AT&T). It will employ 300,000 people and have 1.8 million shareholders. It will be one of the nation's largest property owners, with 2,300 stores and a fleet of 35,000 trucks, each one a moving billboard. This rebuilt juggernaut will have annual revenue in 2007 near $110 billion and net income of $10 billion.

Wall Street worries that ever more copper-wire customers will quit and switch to cellular, with its expensive transmission towers and subsidized handsets. That may be overblown. This year the new AT&T will generate enough cash flow from operations (net income plus depreciation) to spend $16 billion on gear and capital projects, pay $5 billion in dividends and buy back $7 billion of its own stock. Whitacre vows that earnings per share will grow 10% or better for three years straight.

That will require Whitacre to mine new growth from all he has assembled—even as he mulls pursuing one last big deal *(see box, p. 88)*. He is 65 and has 16 months left on his contract before driving his half-ton pickup truck off into the sunset on his arid, scrubby ranch in southern Texas. His likely heir, Chief Operating Officer Randall Stephenson, 46, is in place *(see box, p. 89)*.

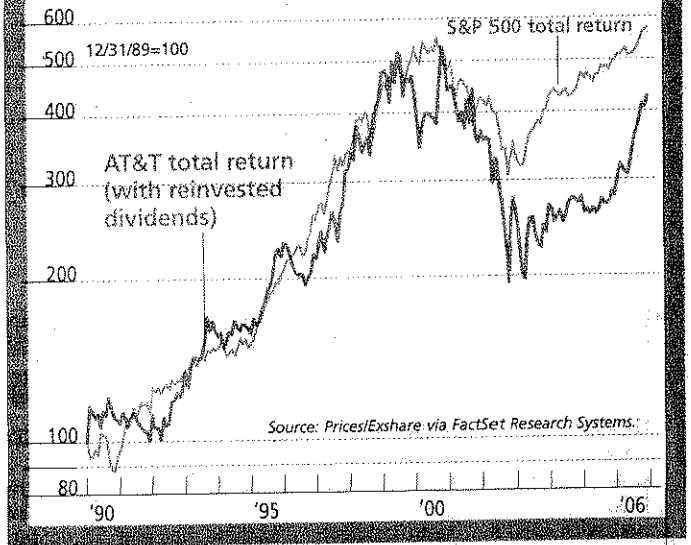
AT&T, Verizon and the cable giants thus finally are delivering on a vision first conjured up in the early 1990s, when cable and telecom were bent on breaking into each other's markets and consumers were wooed with promises of 500 channels. "It was an idea before its time then," says Whitacre.

Now its time has come, aided by the rise of the Internet and wireless tech and the plunging costs of transmission and storage. "We're in transport," Whitacre says simply, "and if you're good enough at it, and ubiquitous enough, you can excel at it."

Maybe, but his path is rutted with a passel of imposing obstacles. In six years AT&T's access lines are down 23% to 47 million (though revenues grow because it owns the largest wireless carrier and the largest broadband-access business). Cable rivals have raided 8.5 million homes for new phone service. And AT&T is in distribution, a commodity business under unrelenting cost pressure; it owns scant content, a higher-margin product that retains value even amidst digital upheaval. Moreover, a fight over network regulation—known by the tag "net neutrality"—has bro-

A Long Comeback

AT&T (née SBC) kept buying rivals even as its stock stumbled after the tech market crashed in 2000. It used steady dividend increases to ease shareholders' pain.



customers can call up 13,000 shows. U-verse, via AT&T's new fiber-optic network, will offer up to 300 channels, plus Net access, for $60 to $130 a month.

"We won't make a bunch of money on HomeZone. That's defense," Weber says. "U-verse is offense." It is planned to be available to 1.9 million homes in 15 markets early this year.

AT&T has skipped a huge media blitz in favor of a soft touch. At a Cingular store in a strip mall in north San Antonio, one-third of the floor space has been turned into a living room with black leather chairs and a 30-inch-wide flat-screen TV showing U-verse programming.

"We need opportunities for people to see and feel it. This is a family decision," says Brooks McCorcle, an AT&T district manager. AT&T hosts neighborhood parties where people can watch U-verse. An ice cream truck, a thin-panel TV implanted in its side, traverses city streets and serves up treats. "It's put a face on an international company," she says.

AT&T's TV service, delivered via its new private network, is based on an Internet design, yielding features cable operators can't yet match. It hopes to let customers start watching, say, *Saturday Night Live* on a tiny cell phone screen on the ride home and finish up on their TV sets or laptops. But some in Hollywood want AT&T to pay for content for each subscriber and for each platform.

Sanford C. Bernstein analyst Jeffrey Halpern estimates that by year-end 2007 AT&T will sign up 76,000 U-verse subscribers versus 259,000 that Verizon will get for its comparable service.

Also, the studios want an 80% cut of the ad dollars coming from cell phones and laptops, something older media would never grant. Helbing says that won't work; his shop is still figuring out ads for cell phones. "It's very, very dangerous," he says. "You don't want to be the first one to cross that line." Ralph de la Vega, chief operating officer at Cingular, predicts: "People are going to watch [a show] in short spurts."

Still, the prospects are tantalizing, for viewers and marketers alike. Later this year AT&T will offer sponsors detailed data on user habits to let them target audiences with a precision that, Helbing hopes, might fetch ad rates four to five times those of prime-time TV.

Advertisers could track shows U-verse customers watch, the Web sites they visit and their cell downloads. A male viewer watching car ads on TV and searching Google for "Volvo S80" one day might welcome an S80 ad on his mobile phone—if he can shake off the creepy feeling that Big Brother is watching him watch.

"The world is going to a place like this," says Manning Field, a senior vice president at JPMorgan Chase, whose credit card unit sponsored an early three-screen deal: U-verse customers will be able to watch on-demand clips on TV of Swampstock, a charity event hosted in October by country crooner Tim McGraw. They'll also have access to downloadable McGraw ringtones for their Cingular cells and see Swampstock snippets on Blue Room, the entertainment Web site created 18 months ago by AT&T.

"This project is about experimentation," Chase's Field says. "If you wait for the solution to be ready, you'll be too late. We need to push and prod the model."

Who's Next?

Ed Whitacre loves a good deal. "He has a unique feel for going after a company whose fundamental assets are strong but [which] is having a bit of a problem—and not always due to its own fault," says James S. Kahan, his chief dealmaker. So who's next?

If the BellSouth deal closes, Whitacre will have done 13 deals in his 16-year reign, spending $285 billion (including assumed debt). "Ain't much missin', as far as I see it," he says of what he has assembled. Then he waffles. How about an international partner? "That would be good." Or maybe a player in content? "That wouldn't be bad, either."

To get a deal done, he relies on the golden rule and golden parachutes, playing on the personal relationships at the table. He also integrates senior assignments and cross-pollinates to give the new guys plenty to do. "We go real hard to make 'em feel like they're part of the same company, not like they're some stepchild," he says. "You treat people the way you want to be treated." He manages to say this without sounding corny.

AT&T has built an efficient takeover machine that can get a deal past regulators in a year or less. The $41 billion AT&T Wireless deal was wrapped up in seven months; to buy AT&T Corp., SBC had 450 lawyers pore over 80 million pages of documents and ship 15 million pages to regulators, getting the okay in less than ten months. "We can integrate that stuff," Whitacre says. "We can make it work, and that's one of the banes of these takeovers—making it work."

That skill is too valuable to abandon. Here are some possibilities.

—*D.K.*

INTERNATIONAL PARTNER		DIRECT-BROADCAST SATELLITE		CONTENT COMPANY		TELECOM
T	TELMEX		ECHOSTAR	YAHOO!	TimeWarner	
DEUTSCHE TELEKOM Owns T-Mobile in U.S., would mesh well with AT&T's Cingular. But Whitacre might be better off with a partner in Asia.	**TELEFONOS DE MEXICO** AT&T could own most calling traffic between Mexico and U.S. But Telmex may be overpriced.	**DIRECTV** National coverage for video. John Malone may end up with News Corp.'s stake. Whitacre says: "I'd be happy to talk to him."	**ECHOSTAR** Likely cheaper than DirecTV, EchoStar partners with AT&T in the new HomeZone. "We like Charlie Ergen," Whitacre says of the EchoStar chief.	**YAHOO** Has 200 million registered users in 20 countries. But AT&T's partner in broadband access and HomeZone is way too expensive.	**TIME WARNER** It has film, TV shows and HBO and has 13.5 million subscriber homes. But antitrust feds might balk, and it has too much debt.	**QWEST** Owns fiber assets and a Bell, U.S West. It is costly to wire rural areas, but WiMax could help. Whitacre tests it at his ranch. "It works great."

ken out. Google and other tech darlings want federal law to guarantee them a free ride on AT&T's new network. With the comeback of the Democrats, AT&T could face new rules intruding on how it prices newfangled services and who gets the bill.

Similar hurdles have hampered this telco in the past. For years Wall Street had been downright hostile to the acquisitive ambitions of Chairman Whitacre. Its shareholders endured six years of disinterest and disdain in the markets, which disliked the industry for myriad maladies—overcapacity, crashing prices, onerous regulation, takeover turmoil, imperiled monopolies and a decline in local phone lines for the first time since phone service began a century ago.

Says he: "I've always felt my back is against the wall."

When he began this journey, Whitacre had no idea he would end up where he has. Once BellSouth is in place—he had coveted it for years—he will have reassembled six big pieces of what the feds broke up 23 years ago: four of the seven regional Bells, and the old AT&T's long-distance business and cellular service. But even this reanimation came more by happenstance. "Never thought about it," the laconic cowboy says.

He was born and bred in Ennis, Tex., 40 miles south of Dallas. Whitacre joined the old AT&T's Texas subsidiary in 1963, graduating from Texas Tech in Lubbock a year later. Southwestern Bell split off from the old American Telephone & Telegraph Co. on Jan. 1, 1984; of the seven Baby Bells it had the fewest phone lines (10.3 million) and ranked sixth in sales ($7.75 billion). The Bell relied on Texas for 60% of business, but the oil patch had gone bust, banks were going under and real estate values were crashing. Six years later, on Jan. 1, 1990, Whitacre, who started in hard labor and rose through 20 jobs, became chief executive.

The digital crowd used to mock telephone company executives as Bellheads. But this Bellhead grabbed first-mover advantage, plotted strategy by gut and acted when the data confirmed his hunch. In late 1990 Southwestern Bell became the first Bell to invest outside the U.S., paying $962 million for a 10% stake in Telmex, the biggest telco in Mexico, controlled by billionaire Carlos Slim Helú. That investment has grown to $10 billion, in the form of an 8.2% stake in Telmex, a 7.9% stake in its wireless spinoff and $2 billion in equity sales—plus 15 years of dividends.

In 1992 Whitacre relocated the Bell from St. Louis, where it had been for most of a century, to San Antonio, infusing it with cowboy swagger and Texas-size ambitions. "The company needed shaking up; it had been there for 100 years," Whitacre says. "You wanna say it's a new day, but if you don't move, there isn't much stimulus to change your ways."

For their first decade the seven Bells held state-granted monopolies on local phone service and were banned, by federal consent decree, from offering data services or long-distance calls. But in 1994 Southwestern Bell joined three siblings to begin a legal effort to vacate the decree. In 1995 the cowboy Bell rechristened itself SBC Communications to underscore its broader ambitions.

Following the Telecommunications Act of 1996, the FCC began to force open the Bells' local monopolies. On Mar. 1, 1996 Whitacre brought together nine senior execs for a now fabled gathering in Ojai, Calif., telling them the telecom world had changed forever. Brace for consolidation, he advised, for at the end a handful of giants will reign over hundreds of small, narrow players. Focus on service, compliance and costs.

To some his intent was clear: It was buy or get bought, and SBC would be a buyer. "There's no doubt in my mind that, from the very beginning, Ed wanted to create the strongest, deepest entity in all of telecom," says his chief dealmaker, James S. Kahan, 59, who was at the Ojai meeting that day and has worked closely with Whitacre for 16 years. Whitacre "is a survivor," Kahan says. "It's out of the question for him to lose, to sell, to fail."

BellSouth, for one, said it would go it alone; it started out with 32% more phone lines than SBC had. "They were big; we weren't," Whitacre says . If SBC hadn't started a buyout binge, he goes on, "we would've been gone, very quickly." He set out knowing he should buy more access lines, invest in wireless and prepare for video. His first deal came a few months after the Ojai pep talk: a $16.2 billion bid for Pacific Telesis in California. Whitacre also flirted with the old AT&T, a dalliance that died instantly when then FCC Chairman Reed Hundt labeled an SBC–AT&T merger "unthinkable."

Then came Southern New England Telephone in 1998; Ameritech, the midwestern Bell, in 1999, for $73 billion in stock; and the cellular merger with BellSouth in 2001 to form Cingular. SBC was the bigger company back then, and it held 60% of the equity. But Whitacre—against the advice of his cabinet—gave BellSouth 50-50 control. One unstated motive: He saw, even then, that one day he might want to buy BellSouth; SBC veterans are sure of this. "If I did know, I wouldn't tell ya," Whitacre says.

BellSouth's chief then was (and still is) Duane Ackerman, and Whitacre took a shine to his Sunbelt counterpart: "He's a good friend and a great operator." Their relationship would be critical to pulling off not one but two later deals for Whitacre's company.

As Cingular formed, SBC was snakebit. Tech stocks lost grace, and telecom imploded. From early 2000, when the slump began, to year-end 2005, SBC stock fell 48% to $25. In this same six-year period Whitacre earned $44 million in salary and bonuses, reaped $26 million exercising options on 1.6 million shares and landed $65 million on other items. Thus the towering Texan stuck out as an easy target for critics of lavish executive pay.

The carping and his moribund stock gnawed at the white-maned Whitacre, thick-skinned though he is. "I suffered every day. You bet I took it personally," he says. "And I blamed the regulators; I blamed the magazines; I blamed Selim [Bingol, his press spokesman]; I blamed my wife. I kicked every dog in town." He

Cloning Ed Whitacre

Tall, smart, driven, seasoned and as sturdy as a telephone pole. That aptly describes AT&T Chief Executive Ed Whitacre—but also it pegs his likely successor, Randall Stephenson.

Stephenson, 46 and a lifer at what is now AT&T, has been chief operating officer since mid-2004 and was named to the board in June 2005. He hasn't been publicly named to succeed Whitacre, who retires in April 2008, but the job is his to lose.

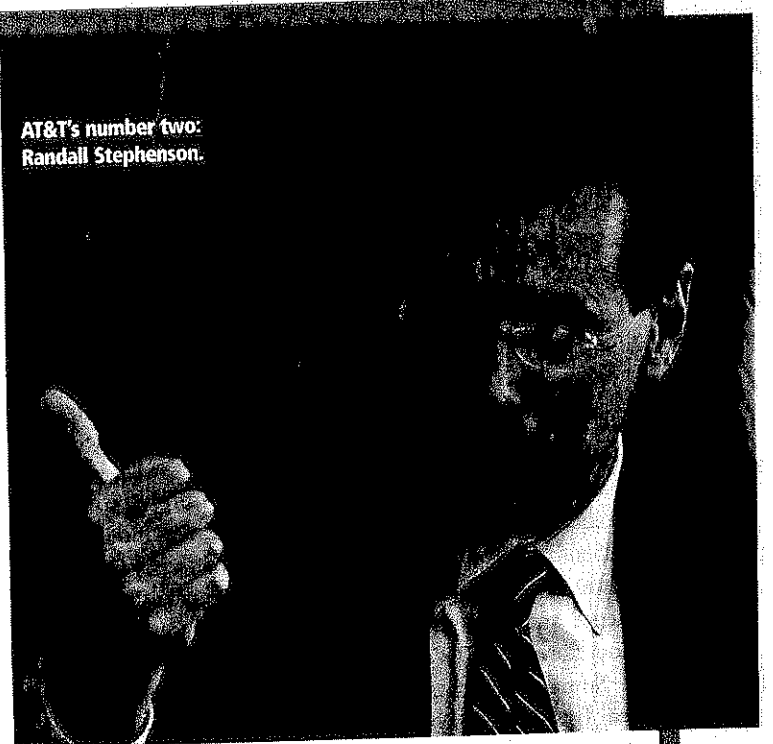
Wall Street can expect one consistent theme: AT&T has more takeovers ahead. Stephenson points to the $300 million deal in September for Web-hosting firm USinternetworking. But he presumably has far bigger targets in mind, probably in wireless and international assets. "A company our size, you're always going to have to append onto your capabilities," he says. "It's better to buy than to build."

Stephenson graduated from Central State University in Edmond, Okla. and got his master's in accounting at the University of Oklahoma. He started at the old AT&T out of school in 1982, just before the government breakup of the company was announced. Whitacre prizes longevity and loyalty: His eight senior execs have been with him an average of 27 years.

Stephenson started as a techie in Oklahoma City, moved into a series of financial jobs and in 1992 became a finance director, helping oversee SBC's $962 million investment in Carlos Slim Helú's Telmex. He moved to Texas in 1996, serving as controller, then consumer marketing chief, then chief financial officer.

In 2005, soon after Stephenson rose to chief operating officer, Whitacre silenced succession talk by promoting five other contenders, including three from just-acquired AT&T Corp. That trio soon quit; the other two—Chief Financial Officer Richard Lindner and Forrest Miller, who runs the corporate accounts unit—seem to have yielded to Stephenson's lead.

AT&T execs now speak of the strategy set by "Randall and the Chairman" (as Whitacre is known) and take matters to both of them. A year or so ago they invoked only Whitacre's name. —T.D.



AT&T's number two: Randall Stephenson.

CHIP EAST / REUTERS

didn't scream at his staff but then, as one adviser says, "you're in more trouble when he kind of lowers his voice."

The tech slump seemed unending, and onerous regulation made it worse. The Telecom Act and the FCC forced the Bells to lease out phone lines to rivals at prices far below cost. At one point SBC was losing 15,000 lines a day to resellers. In Chicago it was forced to sell a line for $5 a month when the real cost (so it figures) was $30; in Michigan it had to hand over lines at $14 a month, half the real cost.

In 2002 Whitacre directed his chief financial officer, Stephenson, to chop the company's $11 billion in capital spending set for the coming year. Cut it to $5 billion, he instructed, and use the savings to shore up the balance sheet because cheap assets will come up for sale. Then they went on a PowerPoint road show, warning state regulators about what the FCC had wrought—and how that would hurt jobs and capital spending in their states.

SBC lawyers had filed a lawsuit challenging some portions of the Telecom Act soon after it became law, and the FCC pricing rules were found to be illegal or flawed four times in three federal courts. The FCC backed down in 2005. By then SBC had lost 7 million phone lines to resellers, but Whitacre's takeover spree had started up again. "He had a conviction that we will work through this," says James Ellis, 63, general counsel and a Whitacre ally for 20 years.

In February 2004 SBC and Cingular partner BellSouth agreed to pay $41 billion for AT&T Wireless, in the largest all-cash deal in history. SBC had socked away so much cash from budget cuts that it borrowed only $8.75 billion of its share. The AT&T net, recently rebuilt, would mesh smoothly with Cingular's. Whitacre consulted frequently with BellSouth's Duane Ackerman, bonding them for the deal to come. "I trusted him; he trusted me," Whitacre says.

"By God, we have faith in this company, and we ought to let shareholders know."

He knew he also wanted to buy AT&T Corp. (the old long-distance business, which had spun off wireless in mid-2001) and BellSouth. "There was never a question" of whether to do the deals; "It was in what order," says Stephenson. Do it in the wrong sequence, and regulators, politicians and consumer activists might shout down AT&T's empire building.

Some of Whitacre's advisers wanted to take on the biggest deal first—the buyout of BellSouth. Whitacre demurred, deciding to begin with AT&T and AT&T Wireless; their smaller scale wouldn't set off as many alarms. SBC and BellSouth closed the AT&T Wireless purchase in October 2004, getting it done in just eight months, and Cingular set plans to absorb it and kill the AT&T brand. In late 2004 and early 2005 bankers for SBC and BellSouth discussed merging, but they got nowhere. On Jan. 30, 2005 SBC agreed to pay $16 billion in stock for AT&T Corp. What an FCC chairman had once dismissed as "unthinkable" now looked more like a rescue: The old AT&T had just abandoned the consumer market, and its revenue was declining 10% or more a year. Had Whitacre succeeded in buying it back in 1996, the price would have been far higher.

But AT&T Corp. had $24 billion a year in sales, a stronghold in corporate accounts and outposts in 127 countries. It will let the old SBC avoid more than $400 million a year in fees it now pays rivals for long-distance calls it can't complete on its own. And then there was the AT&T brand name. "It was a little battered, but it's a powerful worldwide brand. It still had status overseas," Whitacre says.

SBC, by contrast, had been marketing its brand for a decade, but many people didn't know the name, and some thought it was short for Southern Baptist Conference or Seattle's Best Coffee. And so on Nov. 18, 2005 SBC closed the buyout of AT&T Corp., getting it approved in less than ten months, and changed its name to AT&T Inc. On Dec. 1 it revived the renowned "T" stock ticker symbol, 20 months after it had been dropped from the Dow Jones industrial average.

A month later Ed Whitacre began wooing Duane Ackerman and BellSouth. Through an intermediary he offered 15% over BellSouth's recent price; Ackerman said that wouldn't be enough. A day later Whitacre and Ackerman met directly, and Whitacre suggested a premium of 15% to 20%. It would have to be at least 20%, Ackerman told him. By March they had a deal at the 20% premium. The BellSouth chief has sought no role at the combined company and instead will leave with $9.2 million in cash and $37 million in stock.

The BellSouth deal has been cleared by regulators in 18 states and by the U.S. Department of Justice. As Whitacre awaits the final milestone, approval from the FCC, he already is eyeing one last big takeover, some of his associates believe. Blunt and plainspoken to a fault, he equivocates uncharacteristically when asked about it. "For me, I think I've assembled what we need going forward," he says. Yet instantly he invokes the "never say never" cant. "Things happen."

On Wall Street 18 brokerage firms now have a "buy" on AT&T—New! Improved!—and that is up from 10 a year ago. AT&T's stock price is up 39% in two years (Verizon's is down 6.5%), and that makes up for some, but not all, of the ground that Whitacre lost earlier in his tenure *(see chart, p. 87)*. Whitacre insists, quite volubly, that his share price is far short of what it ought to be. AT&T is the only Bell to raise its dividend every year since 1984; since 2000 it has paid out $23 billion. In a lethal market it is surviving and then some.

"By God, we have faith in this company, and we ought to let shareholders know," Whitacre says. "We're in this for the long haul; we're in the right, but it's hard." This comeback is not yet complete, not for himself or for his shareholders, Whitacre allows. "No, but it's damn good. It's a lot better." F

Verizon FiOS

From Wikipedia, the free encyclopedia

FiOS is a fiber to the premises (FTTP) telecommunications service offered in the United States by Verizon. According to Verizon's Trademark (No. 3001081), "Fios" is an Irish word for "knowledge". It is commonly surmised that FiOS is an abbreviation for **F**iber **O**ptic **S**ervice, Verizon claims that this is strictly a coincidence. Verizon has attracted consumer and media attention in the area of broadband Internet access as the first major U.S. carrier to offer such a service. Verizon has also launched a television service with its fiber optic lines and is expected to become a competitor to local cable television companies over the next 10 years. It will compete with current Triple Play offers, where the local cable company offers broadband Internet access, digital cable (see List of Verizon FiOS channels), and VoIP telephone service. FiOS started as a pilot program in Keller, Texas, but availability of the Internet service has expanded to many states (see Verizon FiOS Availability).

Contents

Service offering

Internet Access

There are several tiers of residential Internet service. Availability depends upon the location of the customer; in areas of intense competition, speeds are higher.

Speeds

Available speed tiers, in megabits per second (Mbps):

- 5 Downstream / 2 Upstream
- 5 Downstream / 5 Upstream
- 10 Downstream / 2 Upstream
- 15 Downstream / 2 Upstream
- 15 Downstream / 5 Upstream
- 20 Downstream / 5 Upstream
- 30 Downstream / 5 Upstream
- 50 Downstream / 5 Upstream

Details of the FiOS residential service plans can be found on Verizon's website. [1] (http://www22.verizon.com/content/consumerfios/packages+and+prices/packa Higher speeds tend to be available only in the highly-competitive areas, such as the Tri-State Region, Greater Boston, and Northern Virginia.[1]

In addition to residential offerings, FiOS business service is available in some areas, with higher upload speeds, static IP addresses and no blocked ports (for the static IP option).

Television (FiOS TV)

See List of Verizon FiOS channels for Service info.

Telephone

Verizon also offers analog service , or POTS, over FiOS. The common model optical network terminal has 4 analog phone jacks. Verizon does not do anything that would affect or disable the pre-existing copper lines that carried

phone service or DSL, thus allowing the customer to switch back to the traditional services if they wish. The pricing of POTS over FiOS is identical to POTS over traditional copper. No differences exist as far as billing methods are concerned, as only the delivery system changes. The same packages, rates, deals and telephone taxes exist on FiOS POTS and copper wire POTS. The phone pricing on traditional copper will migrate to FiOS phone when FiOS is installed.

While FiOS phone service offers digital audio quality compared to standard copper phone lines, power outages may affect service availability. Unlike standard phone lines, the FiOS service depends on power at the customer premises. The FiOS backup battery will power the phone lines for 4 to 8 hours of call time (reports vary). This may be an issue for sites that experience extended power outages that depend on analog phone lines for remote monitoring, alarm systems, and/or emergency calls. Verizon claims that the video and Internet streams are disabled during outages to conserve power for emergency dial tone use, but many FiOS users have observed that the Internet stream is still operational when power is removed.

Technology

Verizon is constructing a passive optical network. Optical fiber extends from central offices to unpowered hubs, in which the optical signal is optically split up to 32 ways.

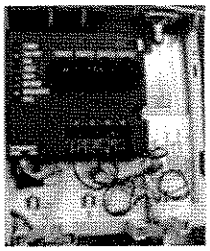
The active components adhere to the ITU-T G.983 standard, also known as APON or BPON, which provides:

- 622 Mbit/s (77.75 MByte/s) downstream @ 1490 nm
- 155 Mbit/s (19.375 MByte/s) upstream @ 1310 nm
- RF video overlay @ 1550 nm

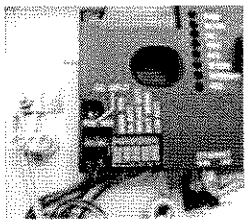
Most of the optical network terminals (ONT) being deployed by Verizon are Tellabs 1600 series ONT (http://www.tellabs.com/products/1000/tellabs1600.shtml). This ONT provides up to four provisionable voice telephone ports, a 10/100 Mb/s

Ethernet interface for data traffic, and one coaxial connector for CATV services. The Motorola ONT1000V (http://www.motorola.com/content.jsp?globalObjectId=5537-8674-8677) is rarely used.

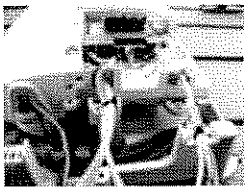
Verizon includes the Actiontec MI424-WR Coax-enabled broadband home wireless-G router now for free with installations. This device is used for both FiOS TV and FiOS internet. Verizon initially used the D-Link DI-624 router but has since switched to the Actiontec for the added CATV capabilties.



FiOS installed in Montclair, New Jersey



Close Up Of **FiOS** Wiring and Interface Box



Underside of **FiOS** External Box

Availability

(*See Verizon FiOS Availability.*)

See also

- Fiber-optic communication - High-speed broadband used by Verizon's FiOS infrastructure.
- Docsis 3.0 - High-speed broadband specifications for use over Cable lines.
- VDSL2 - High-speed broadband specifications for increased speeds over copper telephone lines.
- Dynamic Spectrum Management - Attempt to achieve Fiber-Optic speeds over copper telephone lines.

FAQs

FiOS Internet
Packages & Prices
All About FiOS
About Installation
System Requirements
FAQs
Contact Us

Find answers to your questions.

FiOS Yahoo! MSN

FiOS & Speed | Qualification | Requirements | Equipment & Networking | Installati
Features | Current Verizon Services | Billing | Technical Support

FiOS and Speed

1. What is Verizon FiOS Internet Service?
2. How fast is Verizon FiOS Internet Service?
3. What is connection speed? How is it different than throughput?
4. What affects my connection speed?

Qualification

1. Is Verizon FiOS Internet Service available on my phone line?
2. They laid fiber in front of my house recently. When will I be able to get FiOS Internet Servic
3. Verizon trucks are in my neighborhood digging by the sidewalk. Should I be concerned abc state of my yard or other wires they may be digging near?
4. Can I change my phone number to get a phone number that qualifies for Verizon FiOS Inte Service?

PC Requirements

1. Are there computer requirements for FiOS?
2. What is the difference between the minimum and recommended system requirements?

Equipment and Networking

1. What equipment is needed for Verizon FiOS Internet Service?
2. Can I hook up more than one computer with a single Verizon FiOS Internet Service connec
3. Will the wireless adapters I have already work with Verizon FiOS Internet Service?

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1. What's involved in the Verizon FiOS Internet Service Installation process?
2. How long will it take to install my new Verizon FiOS Internet Service?

3. What is included with the professional installation?
4. How will I know when my Verizon FiOS Internet Service is ready?

Features

1. Can I host a Web page?
2. Can I access the Internet if I'm traveling?
3. How many email accounts come with my Verizon FiOS Internet Service?
4. What happens to my current email account when I switch to FiOS Internet Service?

Current Verizon Services (Phone & DSL)

1. Does Verizon FiOS Internet Service require installing an additional phone line?
2. Can I use my fax machine and the Internet at the same time?
3. Will my current phone features work with Verizon FiOS Internet Service?
4. What if I have multiple accounts that I receive separate bills on? Will both accounts be put
5. What will happen if I have multiple phone lines at my home that are on the same bill today' my voice services be put on fiber?
6. I am already a Verizon Online DSL customer. Can I keep my Verizon.net e-mail address?
7. I'm an existing Verizon Online DSL customer. How can I upgrade to Verizon FiOS Internet Service?
8. I'm an existing Verizon FiOS Internet Service customer and am moving. How can I keep m Verizon FiOS Internet Service and account?
9. Can I use my DSL Modem, Router, or Cable Modem with my Verizon FiOS Internet Servic
10. Is FiOS Internet Service compatible with VoiceWing or other VoIP offerings?

Billing

1. Are Verizon FiOS Internet Service charges in addition to my current monthly phone bill cha
2. Is there a money-back guarantee with Verizon FiOS Internet Service?
3. Where on my Verizon bill will I see the charges for Verizon FiOS?
4. What are the partial charges on my bill?

Technical Support

1. What type of technical support is available?

FiOS and Speed

1. What is Verizon FiOS Internet Service?
Verizon FiOS Internet Service is a broadband service designed to provide Internet access with connection speeds of up to 50 Mbps or 30 Mbps downstream and 5 Mbps upstream, depending you live. FiOS is provided on our state-of-the-art fiber-optic network. The consumer packages ir standard suite of services including access to newsgroups, up to 9 Verizon.net email accounts, services, and 10 MB of personal Web space. Optional services are also available for a fee.

Connection speeds are between your location and the Verizon central office serving your locati
download and upload speeds will vary based on numerous factors, such as the condition of wiri
location, computer configuration, Internet and network congestion, and the speed of website se
access, among other factors. Speed and uninterrupted use of the service are not guaranteed.

2. How fast is Verizon FiOS Internet Service?
Verizon FiOS Internet Service is the fastest and most powerful connection we've ever offered. \
you have the choice of several packages to meet your needs. We offer downstream connection
(the speed that data is transmitted to your computer) ranging from up to 5 Mbps all the way up t
Mbps.

Connection speeds are between your location and the Verizon central office serving your locati
download and upload speeds will vary based on numerous factors, such as the condition of wiri
location, computer configuration, Internet and network congestion, and the speed of website se
access, among other factors. Speed and uninterrupted use of the service are not guaranteed.

3. What is connection speed? How is it different than throughput?
Connection speed is the speed that data is transferred between your computer and the Verizon
Office during your initial connection to Verizon FiOS Internet Service.

Throughput speed refers to the rate that information is transferred to and from your computer. "
or "downstream" refers to the speed at which you receive data from the Internet. Examples of re
downloading are reading a Web page, downloading a program, or receiving email. "Upload" or"
refers to the rate that information is transferred from your computer to the Internet. Examples of
or uploading are sending emailor files.

4. What affects my connection speed?
When you connect to the Internet using Verizon FiOS, the speeds that you will experience will v
on a variety of factors, including the following:

- Configuration of your computer
- Home networking configuration, number of home computers and other networked equipment
  the available bandwidth at the same time
- Network or Internet congestion
- Server and router speeds of the Web sites you access
- Condition of the wiring at your location

Qualification

1. Is Verizon FiOS Internet Service available on my phone line?
Eligibility for Verizon FiOS Internet Service is based on your service address, not your telephon
When checking your phone number, we associate it with your address to verify eligibility. You c
availability for your location here.

2. They laid fiber in front of my house recently. When will I be able to get FiOS Internet S
Laying fiber in your neighborhood is just one step in bringing you the latest in broadband. We a
working to update our serving offices and systems to provide you FiOS. Seeing us in your neigh
is a good sign we will be offering FiOS Internet Service soon, but the exact timeframe varies on
work still being completed. Make sure you are on our future notification list by qualifying your ph
number or address and look for FiOS information in the mail.

**3. Verizon trucks are in my neighborhood digging by the sidewalk. Should I be concerne
the state of my yard or other wires they may be digging near?**
Part of bringing you the fiber-optic technology of FiOS is laying the fiber lines in your community
make every attempt to do this with no harm to your property and do work within the public ease
required. During this build process, damage can sometimes occur, but we will replace any displ

landscape and will work with our customers to remedy any issues to their satisfaction. If you se your neighborhood, you can help us avoid potential problems by marking any underground spri systems, electronic fencing, etc. that may cross the areas we are working in. If you have experi issues, please contact our contractor at the number that was left at your home when we started process. If you don't have this information, you may contact your local business office for appro contact information for your area.

4. Can I change my phone number to get a phone number that qualifies for Verizon FiOS Service?
No. Verizon FiOS Internet Service is based on your service address, not on a telephone numbe is not available in all areas, but we are continuing to build out our network. You can add your in to the Future Notification Form when you check if you qualify and we will let you know when FiC becomes available at your address.

PC Requirements

1. Are there computer requirements for FiOS?
Yes. Depending on the speed package you choose, the requirements do vary. We have both m and recommended system requirements for each speed and compatible operating system.

2. What is the difference between the minimum and recommended system requirements'
The minimum system requirements are the lowest level of requirements needed to operate you speed on your primary computer. The recommended system requirements allow you to optimiz experience with FiOS Internet Service.

Equipment and Networking

1. What equipment is needed for Verizon FiOS Internet Service?
As part of your Verizon FiOS Internet Service, you will receive a wireless router. Existing FiOS customers will use the router provided with their TV service. Your router will enable you to creat network so that multiple computers can be online at the same time. Your router also contains sp diagnostic software that can help us trouble-shoot and correct problems should you experience with your Internet Service. You will need to use the Verizon router with your FiOS Internet servi

In addition, new equipment will be installed at most homes for the Verizon FiOS network. An Op Network Terminal (ONT) will be installed on the outside of your home or inside your apartment, doesn't already exist. The ONT is typically installed near where your current Network Interface I mounted. The ONT power supply will need to be plugged into an indoors electrical outlet, so ple ensure that an outlet is located within 150 feet of where the ONT will be installed. A Battery Bac will also be installed inside your home or garage, and it should be located no more than 50 feet ONT.

Note: In some apartments or condominiums, the ONT and Battery Backup Unit will be installed central location within your building, not inside your home.

2. Can I hook up more than one computer with a single Verizon FiOS Internet Service cor
Yes. Verizon FiOS Internet Service offers you the ability to create a home network so that multi computers can be online at the same time. If this is a new FiOS installation, you will receive a w router with your order and you will need to use the Verizon router with your service.

3. Will the wireless adapters I have already work with Verizon FiOS Internet Service?
Depending on the speed package you ordered, your current adapters may or may not work. We recommend 802.11g adapters for all speeds.

If you do not have adapters, need additional adapters or those you currently have do not meet requirements, Verizon offers both PCMCIA and USB adapters.

Installation

1. What's involved in the Verizon FiOS Internet Service Installation process?
Prior to ordering your new Verizon FiOS Internet Service, please check to make sure that your meets our system requirements. Our system can verify or you can print instructions on how to check all of your computers. When you place your order for FiOS Internet Service, you will sche appointment time for a Verizon technician to come to your home to conduct the installation proc

Depending on your location, we may need to bury the new fiber cabling from our area terminal home. This will typically take place prior to your installation date, and you are not required to be for this portion of the installation.

On the day of installation, in most homes, our technicians will need to install an Optical Network or ONT, typically on the outside of your home if one doesn't already exist. As a safety feature in power outage, the ONT is equipped with a Battery Backup Unit that will be installed inside your home.

In apartments or condominiums, the ONT and Battery Backup Unit may be installed in a central within your building, or it they may be installed inside your home. In addition, in some apartmen condominiums, an additional modem may be installed, and filters may be placed at each phone

If necessary, our technician will also install special data wiring and any required wall jacks, alon installing and configuring your router on your primary computer.

2. How long will it take to install my new Verizon FiOS Internet Service?
Installation time can vary based on a number of factors, but we recommend that you reserve ab six hours for the Verizon Technician to complete the installation of your Verizon FiOS Internet S you have asked for multiple computers to be configured on your order, add an additional 30 mir computer. A person 18 years of age or older must be present for the full installation visit.

3. What is included with the professional installation?
The professional installation for most homes and apartments includes installation of any require equipment such as the Optical Network Terminal (ONT) and Battery Backup Unit. Our technicia evaluate the wiring in your home to determine if any existing coaxial or special data wiring, (CA can be used. If necessary, we will install coaxial or CAT5 from the ONT to your router. The tech also install any required wall jacks. Depending on your home's layout, the technician will install through the basement or attic, or along baseboards. Upon arrival, your Verizon technician will r installation process with you.

In some apartments or condominiums, the ONT and Battery Backup Unit will be installed in a c location within your building, and installation of new data wiring may not be necessary. Your tec will review all details of your installation prior to beginning work on your installation date.

As part of the installation, we will also activate your FiOS Internet service, configure your Verizc provided router and connect and configure one computer. Installation for the primary computer a one-year term and $69.99 with our month-to-month packages. Additional computers can be c for $75 each, which includes the connection and set up, as well as any wiring needed. Please e your computers meet our system requirements for the speed package you've ordered prior to y installation date.

4. How will I know when my Verizon FiOS Internet Service is ready?

Your Verizon FiOS Internet Service will be up and running after you complete the registration pr
the day of your installation. Prior to leaving, the Verizon technician will ensure you are getting th
performance possible by checking your computer settings and updating them if necessary, alon
showing you some of the key benefits of FiOS.

Features

1. Can I host a Web page?
Verizon FiOS Internet Service consumer packages include 10 MB of personal Web space. The
offers do not permit customers to host any type of server, personal or commercial.

2. Can I access the Internet if I'm traveling?
Yes. Verizon offers remote Internet access (mobility), so when you are away from your primary
connection, you can dial-up and access the Internet and your email. Additional charges apply.

3. How many email accounts come with my Verizon FiOS Internet Service?
Verizon FiOS Internet Service includes up to nine Verizon.net email accounts. Multiple email ac
allow other household members to have their own private email accounts or you can have pers
business email accounts.You can set up your additional email boxes with our account manager

4. What happens to my current email account when I switch to FiOS Internet Service?
Your broadband service from Verizon Online includes a free subscription to TrueSwitch softwar
can forward all of your emails from your old account to your new account for up to 30 days. It e
over all your old emails and contacts.*

TrueSwitch lets your friends and family know you've moved by sending out email messages inf
them of your new email address.

* Accounts may be copied from the following ISPs using the TrueSwitch ISP migration services, furnish
Esaya, Inc: AOL, ATT Worlnet, AT&T yahoo, Charter, Comcast, Compuserve, Cox, Earthlink, Gmail, Ju
Mac.com, MSN/Hotmail, Netscape, OptOnline, PeoplePC, Yahoo email accounts; TrueSwitch is subjec
Terms of Service and other conditions. Available to Windows PC users only; see additional service and
restrictions when you sign up.

Current Verizon Services (Phone & DSL)

1. Does Verizon FiOS Internet Service require installing an additional phone line?
No. You will not need an additional phone line. Verizon FiOS does not require a phone line to o

2. Can I use my fax machine and the Internet at the same time?
Yes. Verizon FiOS Internet Service does not affect your other telephone services and features.
telephones, answering machines andother telephone equipment not meeting industry standard
work with service provided on the Verizon FiOS network.

3. Will my current phone features work with Verizon FiOS Internet Service?
Yes. Your current phone features will work just as they do today. Verizon FiOS Internet Service
affect Caller ID, Voice Mail, or features like Call Waiting. Certain telephones, answering machin
other telephone equipment not meeting industry standards may not work with service provided
Verizon FiOS network, however.

**4. What if I have multiple accounts that I receive separate bills for? Will both accounts be
fiber?**

Yes. If you have multiple billing accounts, please call your local business office to place your or inform the representative that you have multiple accounts. Placing your order online will not gua that all accounts will be migrated to fiber.

5. What will happen if I have multiple phone lines at my home that are on the same bill to all my voice services be put on fiber?
Yes. All fiber-compatible voice services will be migrated to the FiOS network as part of your inst We will inform you if any of your services are not compatible. If you receive multiple bills for you at the same location, however, please call your local business office to place your order and inf representative that you have multiple accounts.

6. I am already a Verizon Online DSL customer. Can I keep my Verizon.net email address
Yes. You can keep your same email address when you upgrade to Verizon FiOS Internet Servi Verizon Online DSL. During the registration process for FiOS Internet Service, you will need to that you are an existing Verizon Online customer and already have a Verizon Online User Nam Password. By inputting that information, your current account information will migrate to your ne account.

7. I'm an existing Verizon Online DSL customer. How can I upgrade to Verizon FiOS Inter Service?
Once your home address qualifies for Verizon FiOS Internet Service, you can upgrade your ser take advantage of the most advanced applications on the Web today. You will be able to maint same email address and other great Internet features.

8. I'm an existing Verizon FiOS Internet Service customer and am moving. How can I kee Verizon FiOS Internet Service and account?
To learn if you are able to keep your Verizon FiOS Internet Service when you move to a new lo our Verizon FiOS specialists at the number listed on your Verizon bill for details.

9. Can I use my DSL Modem, Router, or Cable Modem with my Verizon FiOS Internet Ser
No. At this time you need to use the broadband routers provided by Verizon that have been app work specifically with Verizon FiOS Internet Service. These routers contain special diagnostic s that can help us troubleshoot and correct problems should you experience trouble with your Int connection.

10. Is FiOS Internet Service compatible with VoiceWing or other VoIP offerings?
Yes. FiOS is compatible with VoiceWing and other VoIP offerings that just require a broadband connection. Depending on the VoIP service you have, some settings may need to be updated c equipment in order to work the same way it did on your prior broadband connection. Each provi unique and most operate in a "plug & play" environment with FiOS Internet Service.

Billing

1. Are Verizon FiOS Internet Service charges in addition to my current monthly phone bil charges?
Yes. Verizon FiOS Internet Service monthly charges are in addition to your monthly telephone s charges from Verizon.

2. Is there a money-back guarantee with Verizon FiOS Internet Service?
Yes. Our 30-day money-back guarantee provides that if, for any reason, you are not completely with Verizon FiOS Internet Service, you may cancel your FiOS Internet Service within 30 days c installation date and receive a refund for any charges you have paid to Verizon Online. We only you return the router and any other equipment we have given you within 30 days of cancellatior being charged an equipment fee or to ensure accurate credit for equipment you have already p

Please note: Current Verizon Online DSL customers who move to FiOS Internet service will hav Verizon Online DSL permanently disabled after their FiOS conversion.

3. Where on my Verizon bill will I see the charges for Verizon FiOS?
Charges for your voice services will appear in the same place as they appear today. Your Veriz Internet Service charges will appear on the Verizon Online portion of your bill. If you do not hav service with Verizon, your credit card will be billed for your monthly FiOS charges.

Verizon FiOS Internet Service is billed one month in advance, so your first statement will includ charges for the current month, as well as a charge for the following month.

4. What are the partial charges on my bill?
Monthly charges are prorated according to the number of days you are billed for during your 30 cycle. For example, if you changed speed packages during the middle of your billing cycle, your statement should contain a charge for the old package (according to the number of days in your that you were on the old rate plan) and the new package.

Technical Support

1. What type of technical support is available?
The Verizon Fiber Solutions Center (FSC) provides live technical support 24 hours a day, 7 day Online tutorials, user guides, frequently asked questions (FAQs), and our extensive online help also available.

verizon We never stop working for you.

What Is It?

FiOS Internet
Packages & Prices
All About FiOS
What Is It?
Who Wins - FiOS vs. Cable?
How Do I Get It?
About Installation
System Requirements
FAQs
Contact Us

Can I Get FiOS?
Please enter your home phone number below.
GO!
Don't have a Verizon phone number?
Qualify your address

Let Us Tell You All About It!

Beyond super fast surfing

Forget about time spent staring at progress bars or watching the clock. You'll be flying around the Internet in no time with the speed of FiOS.

The Perfect Couple

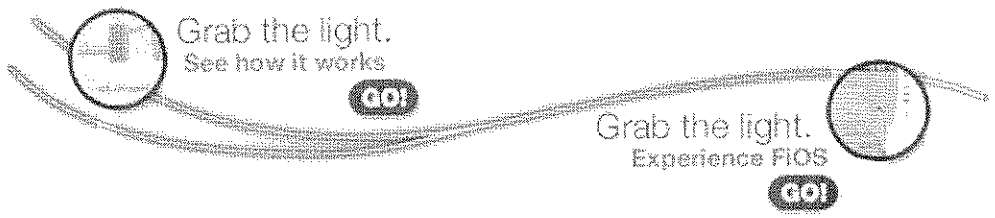
When FiOS meets your computer, you'll have access to blazing fast speeds. Online gaming, video chatting like it's instant messaging, downloading feature films and CD-quality audio... Do it all faster than ever with FiOS.

Cutting Edge

FiOS is the latest in fiber-optic technology. It delivers laser-generated pulses of light, riding on hair-thin strands of glass fiber, all the way to your front door.

Fully Loaded

FiOS Internet gives you everything you need.Essential features, exclusive entertainment, Yahoo! or MSN® services, special member discounts and great extras are all available.



FiOS for Business | FiOS Affiliate Program

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Forget the triple play--wireless ups the ante

by Marguerite Reardon , Staff Writer, CNET News.com | 1/4/07
Tags: Mobile/wireless | Cable | Telephony | Video | Consumer Electronics Show (CES)

Takeaway: This could be the year of the quadruple bundle, as cable and phone companies integrate mobile wireless services into service packages.

If 2006 was the year of the triple play, 2007 may very well be the year of the quadruple bundle as cable operators and phone companies start to integrate mobile wireless services into their service packages.

Even though AT&T will soon own all of Cingular Wireless, and Verizon Communications owns a significant stake in Verizon Wireless, the cable industry seems to be taking an early lead in actually integrating the services and rolling them out to customers.

"Depending on how well mobile services are received by cable customers, it could up the ante in the battle between cable and phone companies," said Jim Penhune, an analyst with Strategy Analytics. "It will force the phone companies to readdress the market and get more serious about integrating their own wireless services into their offering."

Starting this year, all four of the cable operators involved in a joint venture with wireless carrier Sprint Nextel will launch their integrated mobile phone service. Comcast and Time Warner, which have already announced public pilot programs, are expected to expand their service in 2007. And Cox Communications and Advanced Newhouse also are expected to begin offering the service in 2007.

For cable operators, adding wireless to their bundle, which already includes high-speed Internet access, telephony and video services, means more than just providing customers with a single bill and a discount for buying more than one service. These companies see mobility as a way to add more convenience and value to services they already subscribe to.

"There is no question that wireless ties all of our services together," said Tom Nagel, senior vice president and general manager of wireless services at Comcast. "The idea is you can take the services you enjoy at home with you when you're on the go using a mobile device."

In the initial launch Comcast, Advanced Newhouse, Time Warner and Cox will allow customers to access their e-mail, cable TV guide and home voice mail from their cell phones. They'll offer some video content on their phones that would otherwise be available only at home. Eventually, the cable companies want to allow customers to be able to do things like program their DVRs remotely from their handsets.

Still early in development

But the companies admit that they are still in the early stages of developing these services. This past year, they've focused mainly on logistics, such as offering customers a single bill that details charges for all their services, including, broadband, voice, TV and wireless. They've also been training sales and support staff to handle the new wireless service. And they've worked on getting the basics of the service in place, such as simplifying the user interfaces so that customers can easily navigate the services and so that those services feel familiar and comfortable to customers.

This means that when customers access their e-mail or view the cable TV guide on their phone, the interface on the phone will be similar to what they see on the PC screen or on their TV at home. The voice mail service doesn't provide a single mailbox, but it offers the home voice mail mailbox as an option in the menu when checking for wireless voice mail messages.

"We know customers aren't begging for a bundled bill," said John Garcia, president of the Sprint-Cable Joint Venture. "And they don't necessarily want a new service. What they really want is for the services they already have to work together."

While they may not be as far along as the cable operators and Sprint in developing an integrated wireless service, the phone companies made it clear during the past several months that they will add wireless services to their bundles. During the second half of 2006, Verizon began offering a voice-services bundle that allowed people to talk for free between their cell phones and their Verizon home phones. It also provides a single voice mailbox. But the service is limited to certain customers in Texas and Florida. And it doesn't yet integrate any of the broadband or TV services the company is offering.

than it is for phone companies to offer video services," said Jim Penhune, an analyst at Strategy Analytics. "It's also harder for phone companies to offer voice over IP (Internet phone service), because it cannibalizes their existing voice business."

Cablevision, which has about 3 million cable subscribers in the suburban New York City area, said it will offer its triple play bundle for around $90 per month for the next 12 months as part of a promotion to win market share. Under Cablevision's current pricing, these services sold separately would cost about $130 to $135 per month.

Cablevision's offer is one of the most aggressive packages on the market. At $90 a month, customers are virtually getting Cablevision's VoIP calling for free. The bundle should put pressure on Verizon Communications, which sells competing telephone and high-speed Internet services in the region. (Verizon also offers satellite TV through its partner DirecTV in certain markets.)

Other cable companies are also introducing Internet phone service. Time Warner Cable is considering following Cablevision's lead and offering a deeply discounted plan to compete with local phone companies in its region. Cox Communications and Comcast have traditionally not been fans of VoIP, but recently have said they plan to lean more heavily on the technology.

Cablevision's promotion might also prompt the Baby Bells--BellSouth, Verizon, Qwest Communications International and SBC Communications--to abandon plans to untie DSL from local phone service. Last week saw the expiration of regulations that forced Baby Bells in certain regions to share access to their local telephone lines with competitors. The change could allow Verizon and Qwest to retract promises to offer DSL and voice calls separately. BellSouth has already pulled back on its plans.

Paxton said that unbundling is a slippery slope for the Baby Bells, who need to balance between protecting their packages and signing up as many new customers as they can.

"In order to compete with the cable bundle, the Baby Bells will need to be flexible," he said. "If that means selling high-speed data into an account that doesn't use their local phone service, than that's what they will have to do. The cable operators have historically done very well winning customers with one service and then up-selling other services into those accounts."

Cable companies have long used service bundling as part of their strategy to keep customers from defecting to satellite competitors. Now, with VoIP technology, cable operators are adding telephony into the bundle to compete against local and long-distance telephone companies.

CNET NEWS.COM http://www.news.com/

Cable goes for the quadruple play

By Marguerite Reardon
http://news.com.com/Cable+goes+for+the+quadruple+play/2100-1034_3-5933340.html

Story last modified Tue May 30 11:12:55 PDT 2006

The fight between cable operators and phone companies is heating up as attention turns from the triple-play offering to the quadruple play, a service bundle that includes high-speed data, telephony, TV, and now wireless.

On Wednesday, Comcast, Time Warner, Cox Communications and Advance/Newhouse Communications announced that they are forming a joint venture with Sprint Nextel to offer customers wireless telephone service.

Initially, the $200 million joint venture will operate like any other reseller arrangement. The cable providers will resell a co-branded Sprint Nextel wireless service to their customers, which could open new opportunities to market to customers they haven't previously reached. The cable companies will get access to Sprint Nextel's 46 million wireless subscribers, and Sprint Nextel will get access to the 75 million homes that the four cable companies have already passed.

Cable companies also believe that packaging wireless service with existing services such as high-speed Internet access, voice over Internet Protocol (VoIP) and television will make them more attractive to consumers compared to their telephone competitors. Many cable companies, like Time Warner Cable and Cablevision, have done well in their push to sell customers a package of services. In the last year, Time Warner has seen an especially huge increase in the number of VoIP customers it serves.

But experts say the really exciting part of the deal is what is expected to happen down the road, when the cable companies and Sprint integrate their services in ways in which wireline and wireless phone companies have not yet done.

"The problem with bundles is that you have to pay customers to take them by giving them a discount," said Craig Moffett, an equities analyst at Sanford C. Bernstein. "But if there is an opportunity to create unique products that aren't available on their own, there is potential for something interesting."

Some of the new product ideas that Sprint Nextel and the cable companies have talked about include a converged wireline-wireless voice mailbox, access to unique video content and the ability to remotely control digital video recorders, or DVRs. The details of these services haven't yet been worked out. But with services like mobile video, it's easy to see how cable companies such as Time Warner Cable and Comcast, which own some of their own content, could use Sprint Nextel's wireless network as a new sales channel.

At least one analyst wonders if the partnership between the cable companies and Sprint Nextel could actually help accelerate the nascent mobile TV market. In September, only 2.14 million people watched video on their phones, compared to 15.6 million people who downloaded ring tones, according to M:Metrics, a research firm that measures the mobile market. With 181 million wireless subscribers in the United States, mobile TV still has a lot of room for growth.

"It will be very interesting to see if a deal like this will be able to push usage and demand for video services on the phone," said Jim Penhune, an analyst at Strategy Analytics. "If you can get mobile into the bundle, maybe the cell phone will really become the third screen."

Cingular bundles

Cingular Wireless, which is owned by BellSouth Communications and SBC Communications, has dabbled in bundling services from its two parent companies. It has also tried integrating products from its parents with its own wireless service.

A few years ago, it introduced a cradle for Cingular cell phones that enabled customers who placed their cell phone in the cradle at home to accept cell calls on their landline phone. The idea was that people could reduce the number of cell minutes they used at home by having their cell phones ring on their wireline phones. The product never got much traction in the market. But a Cingular spokesman said the company hasn't given up on working with its parent company to develop integrated products. In fact, it is currently testing a dual-mode cellular-to-Wi-Fi service that is designed for business customers.

"We are looking at a number of ways in which we can work with our parent companies," said Clay Owen, a spokesman for Cingular. "We already do some marketing and distribution with them, which has been a big benefit to us. We think that the latest announcement from Sprint Nextel and the cable companies is an attempt by our competitors to catch up to where we are already headed."

"Each set of companies is going into the other's market. The question is, who can get there faster?"
--Jim Penhune, analyst, Strategy Analytics

By contrast, Verizon Wireless, co-owned by Verizon Communications and European wireless carrier Vodafone, has been reluctant to bundle or jointly develop services that span the wireline and wireless businesses.

"We do some bundling with other Verizon services," said Jeffrey Nelson, a spokesman for Verizon Wireless. "But it's not core to our business. We do it where make sense, and it's not heavily promoted. There are some benefits to bundling, but it's not something we are focused on right now."

As for the new integrated services that the cable companies and Sprint Nextel promise, Nelson said he isn't convinced that there is a market for them.

"It's an interesting idea," he said. "But there's no evidence that there is strong demand for those kinds of services. Given the minimal investment that they put into the relationship, it doesn't seem like any kind of serious offer will be ready any time soon."

The cable companies' entrance into the wireless market is another sign that the battle to win consumers' dollars on communications services and entertainment is heating up. For the past couple years, cable operators and telephone companies have collided more and more as they have encroached on each other's businesses.

First, the phone companies got more aggressive in rolling out their broadband DSL service to combat the cable companies' cable modem service, and they have gained market share mainly by competing on price. Then the cable companies fought back by introducing VoIP, whose Internet-based calling system competes directly with the phone companies' traditional telephony business. The cable companies, too, have seen success in winning new voice customers.

The phone companies, namely Verizon and SBC, have answered this challenge by spending billions of dollars to build new networks that will support television service, cable's traditional market. Now cable and telephone companies will go head-to-head in wireless, which, until now, has been dominated by the traditional telephone companies.

As the battle has intensified, so has the emphasis on the service bundle. The hope is that if customers buy more than one service, they will be less likely to cancel any one service in that bundle. The benefit for customers is simplified billing, an overall discount or better value on the total package of services they are buying. And in the future, the bundle will likely mean more integrated services.

Ultimately, cable operators and phone companies will likely offer very similar service packages.

"Each set of companies is going into the other's market," Penhune said. "The question is, who can get there faster? When you get down to it, it's a lot easier to launch a VoIP service to compete against the phone companies than to build a new network to compete against the cable companies on video."

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The mobile Internet: Are we there yet?

By Marguerite Reardon
http://news.com.com/The+mobile+Internet+Are+we+there+yet/2100-1039_3-6110100.html

Story last modified Tue Dec 19 06:15:46 PST 2006

After years of hype, wireless users in the United States are waiting for all the technology pieces to come together to make surfing the Internet from their handsets as easy as it is on their PCs at home.

So how close are we to simple and robust Web surfing from a cell phone?

The answer depends on whom you ask. Some experts say the mobile Internet is already here. Millions of people throughout the world are accessing wireless application protocol, or WAP, Web sites--stripped-down sites specially designed for mobile handsets. But other experts argue that WAP sites are too limited. Some people say an entirely new domain name, called "dot-mobi," should be used for Web sites that are optimized for mobile surfing. Still others propose using intelligent browsers to turn traditional Web sites into something that can be viewed on a small handset.

"I think what people really want is to be able to access the same sites they access on their PCs, but from their phones," said Matt Hatton, a senior analyst with the Yankee Group based in the United Kingdom. "Once we can get the experience to look and feel more like the traditional Internet, more people will be willing to spend the money to pay for the services."

While there is still a lot of disagreement over how subscribers should be accessing mobile Web sites, there's almost complete agreement that when the mobile Internet finally hits mainstream adoption, it's going to be big.

The largest U.S. mobile carriers--Cingular Wireless, Sprint Nextel, T-Mobile and Verizon Wireless--are already seeing huge growth in data usage. Together they generated more than $6.3 billion in wireless data revenues for the first half of 2006, said Chetan Sharma, an independent mobile wireless consultant. Overall, wireless data service revenues, which also include several regional carriers, exceeded $7 billion in the first half of the year. Mobile carriers in the U.S. could generate more than $15 billion in data revenue for all of 2006. This is almost a 75 percent jump from 2005, when data services for the entire year accounted for $8.6 billion.

To date, most of the mobile data growth in the United States has been from consumer messaging services, like short-message service (SMS), and from enterprise data services. But unlike mobile Internet usage by wireless customers in Japan or South Korea, surfing the mobile Web in the U.S. hasn't yet caught on. In a survey conducted by Yankee Group in April, about 18 percent of wireless users in the U.S. said they had at least tried using the mobile Internet, but only 6 percent considered themselves regular mobile Internet users.

Experts say the biggest reason why users aren't using their cell phones to access the Web more often is that compared with the traditional Internet, today's mobile Internet is still fairly rudimentary when it comes to Web site quality and ease of navigation. Part of this experience is determined by the technology used by Web site developers and phone manufacturers providing access to sites. But it's also impacted by the fact that most users don't yet have access to faster 3G networks and affordable 3G handsets, which greatly improve quality.

"We're just waiting for all the pieces to come together," said Linda Barrabee, program manager for Wireless and Mobile at Yankee Group in the U.S. "I think once carriers improve the experience and solve the network and handset penetration issues, the services will become a lot more appealing to consumers."

Specialty services

New mobile virtual network operators, or MVNOs, such as Mobile ESPN and Helio, are trying to improve the mobile Internet and multimedia experience for

consumers. Mobile ESPN is going after sports fanatics with a service that offers video clips, alerts and news that can be downloaded onto phones. And Helio is targeting young hipsters by offering high-end phones for accessing interactive games, high-quality videos and Web content. The company struck a special deal with the MySpace social-networking Web site, so users can read and write MySpace mail from their handsets, send bulletins, read and write blogs, view photos and profiles, and post photos to the MySpace space directly from their phones.

But because Mobile ESPN and Helio lease capacity from Sprint Nextel instead of owning their own networks, their services are dependent on the underlying speed of the network, which means that even though the handsets are capable of doing much more, downloading content or surfing Web pages could still take a long time. Early indications suggest Mobile ESPN and Helio are struggling to sign up customers.

Most mobile Internet users in the U.S. access WAP sites, which provide only basic information on the Internet, like news summaries. When WAP first came out, mobile operators pitched it as the Internet for your phone. But the WAP sites often loaded very slowly and they offered only text content with few, if any, graphics. They were also difficult to navigate, requiring users click through several layers of menus.

"People who first surfed WAP sites were disappointed by the experience," said Eskil Sivertsen, a spokesman for Opera Software, a company that has developed a mini-browser that allows users to access traditional Web pages on their mobile handsets. "And they've never really come back."

Advancing toward full Web browsing

But a newer version of the protocol, WAP 2.0, has been introduced, and some people believe WAP has finally come of age, rendering more robust mobile Web pages that offer one-click access. In fact, the number of WAP Web sites has grown exponentially in the last couple of years. And companies such as Bango, which helps mobile Web site owners monetize their mobile content, say they've seen an explosion in new users accessing WAP-based content from their handsets. Bango sees 400,000 new users each month and the company processes more than 9 million transactions every month.

"Twelve or 24 months ago, I would have said that the WAP browsers weren't particularly rich, but that's really changed," said Adam Kerr, vice president of North America for Bango. "And we're seeing the number of WAP sites growing. The great thing about WAP is that it allows users from any carrier, using any handset, to access a site."

Still, some experts say that WAP is only the beginning of where the mobile Internet is headed. As carriers roll out faster wireless networks based on 3G technology and handset makers sell more-sophisticated handsets with more processing power and memory and larger screens, users will expect a mobile Internet experience that is similar to the one they experience at home on their PCs.

"WAP is really the midway solution to getting around having low bandwidth speeds on a 2 and 2.5G network," Yankee Group's Hatton said. "I think what you really need to make it a good user experience is a full HTML browser."

Typically, full mobile Web browsing has been reserved for devices, such as smart phones, that have powerful processing capabilities and operating systems. But some companies have also developed intelligent mini-browsers for less-sophisticated phones. In January, Opera Software introduced Opera Mini, a free downloadable browser client designed for Java-enabled cell phones that strips down the size of regular Web pages to allow them to transfer to mobile phones more quickly and fit on smaller screens. Sites viewed through the Opera Mini browser are compressed about 70 percent to 80 percent.

Since its launch, the company says its little browser has been downloaded onto more than 5 million handsets worldwide. Some carriers, such as T-Mobile, are also preinstalling the browser into phones it sells.

But new applications and browsers are only two of the many elements needed to improve the user experience. Users also need access to fast 3G wireless networks and 3G handsets, experts say. In the U.S., only about 7 million subscribers use 3G services out of a total of about 207.9 million wireless subscribers, according to data from wireless consultant Sharma. Other analysts agree that more penetration in the market is needed.

"The installed base of 3G phones is still limited," Yankee's Barrabee said. "It's building momentum, but until you have the speed of the 3G network and 3G phones in customers' hands, it's not going to be a great experience."

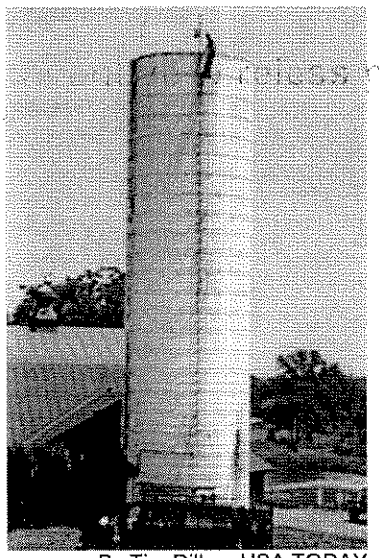
Posted 7/14/2004 10:28 PM Updated 7/14/2004 10:35 PM

Inventive wireless providers go rural

By Paul Davidson, USA TODAY

LEESBURG, Va. — Rising from the rows of grapes on Michael Spak's gently sloping vineyard hard by Route 15 is an embryonic symbol of 21st-century rural America: a glass-encased camera with a wireless high-speed link to the Internet.

Whether he's 200 yards away, in the den of his sumptuous, Southern-style home, or on a business trip halfway around the world, Spak can survey his field on a computer. With the click of a mouse, the security consultant pans the vines for deer, insects or leaves that need pruning.



By Tim Dillon, USA TODAY
David Gerwid adjusts an antenna on a silo in Round Hill, Va.

Until recently, Spak did not have a good high-speed option: Cable does not reach his area, the phone company wanted too much money to bring in DSL, and satellite service was spotty.

But improved wireless technology has allowed several thousand mostly small Internet providers across the USA to cheaply deliver broadband to remote areas via antennas on hilltops, barns and homes. They typically feed off a fixed broadband line to a central antenna site or base station.

A new, versatile technology standard called WiMax is poised to turbocharge the growing business in wireless alternatives. WiMax is expected to expand wireless broadband to most of rural America, challenge cable-modem and DSL broadband in big cities and eventually add roaming features that could threaten the fast-data offerings of cell phone giants.

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WiMax is like Wi-Fi — the wireless technology that brought fast Web service to coffee shops, hotels and airports — on steroids. While Wi-Fi serves about a 300-foot radius, WiMax can transmit data as far as 30 miles.

"It's like taking a (Wi-Fi) hot spot and exploding it to the size of a whole city," says Intel executive Ron Resnick, president of a standards group that certifies WiMax gear.

Within three years, Intel plans to have WiMax chips in most laptops, much as it has done with Wi-Fi chips.

"If Intel places a chip in 100 million computers ... many carriers will put WiMax" technology on antenna sites, says Carlton O'Neal, marketing chief for wireless gear maker Alvarion.

Mobile-phone pioneer Craig McCaw isn't waiting for WiMax. Using a WiMax-like service, he plans to offer wireless broadband in Jacksonville and St. Cloud, Minn., this summer and as many as 40 other cities by next year. "Some people hate the phone company, some hate the cable company, and they feel trapped," McCaw says. "There's a need for at least a third choice."

Even without WiMax, the number of wireless broadband subscribers has jumped fourfold to 200,000 the past two years, says analyst Michael Cai of Parks Associates. WiMax is expected to help drive that to 2.2 million by 2008.

Wireless networks already are helping farmers check weather and crop prices, improving home schooling and rescuing small towns at risk of losing businesses to better-connected communities.

Spak uses his wireless connection from locally based SkyNet Access to order vines, bird repellant and fertilizer, tasks that would be maddeningly slow with dial-up service. "In a matter of days, (the product) just shows up at the front door," he says.

Wireless had a shaky start

Wireless broadband seemed a failed experiment in the late 1990s. Companies such as Teligent, Winstar and MCI tried to serve apartment and office buildings with rooftop antennas. But transmitters, which cost as much as $200,000 each, needed a clear line of sight to the customer and often were blocked by buildings or trees.

Some equipment makers, such as Alvarion, came up with cheaper gear that doesn't need a sightline. Most adopted a technology called OFDM that splits a signal into redundant parts so that if some of the parts don't arrive, a receiver can still discern the message.

Unlike the big players of the 1990s, most of today's providers save millions of dollars in spectrum costs by transmitting over free, unlicensed airwaves. Although that risks interference, smart gear can pluck out the right signals, especially in rural areas.

Loudoun County, Va., where Spak's vineyard is located, boasts a couple of dozen wireless broadband carriers. Some are mom-and-pop shops, such as Potomac Lakes Wireless, which serves a few blocks. Owner Robert Peesel, a stay-at-home dad, launched the service a year ago because he could not get phone or cable broadband at his house and had to pay $500 a month for a special high-speed line.

He linked that wire to a $1,000 antenna on his roof and bought 4-foot-tall, $100 antennas for his customers, along with $5,000 worth of testing equipment. He charges 12 neighbors $50 a month each for data speeds that exceed DSL. Peesel says he's breaking even. His selling point is service. "If my customer has trouble, I'm over at their

house in a matter of minutes," he says.

Marty Dougherty of Bluemont, Va., has a more elaborate setup. He mounted a $70,000 bank of encyclopedia-size antennas on an old horse stable and poles that link to an Internet backbone 18 miles away. He beams the signals to 36 Blue Ridge foothill communities that have a repeater antenna on a home, silo or water tower. He trades free service for sites to mount his repeaters.

Dougherty's residential customers pay $250 for equipment and installation and $59 to $99 a month for service. After a $750,000 outlay, his 2-year-old Roadstar Internet, which he runs with three employees from an old barn behind his house, has 400 customers and turned a profit last year.

Dougherty plans to weave WiMax gear into his network when it's available. But with WiMax attracting larger players, Dougherty, 39, like many wireless entrepreneurs, hopes "to be acquired. That's the name of the game: build the business to be bought."

Roadstar's service has allowed Terry's Body Shop of nearby Purcellville, Va., to do work for insurance companies that want photos of car damage instantly over fast links.

"It's given us eight more jobs a month," says owner Terry Martin.

In Aurora, Ill., Bob Konen, owner of a 600-acre grain farm, uses his wireless broadband from local provider PDQLink to check weather and get up-to-the-minute grain prices so he knows when to sell. "It's improved our ability to keep up with what's going on in the world," says Konen, 68.

In Scottsburg, Ind., population 6,000, O'Neal Chrysler threatened to pull out because not having broadband meant the car dealership didn't have quick access to online service manuals.

"That really scares you," Scottsburg Mayor Bill Graham said. So the town launched a $1 million wireless network that already has 500 customers.

Now, wireless broadband is creeping into cities. In Washington's Capitol Hill area, DC Access serves 50 customers, using personal service to compete with cable and DSL providers.

Jane Osborne, who runs a home-based business, ditched her DSL line for DC Access a year ago.

"Every time I called (the phone company), they would give me some pat answers," she says, noting both services cost about $35 a month. DC Access owner Matt Wade, who lives three blocks away, "is constantly monitoring our network. Last week, e-mails were not going out. He decided I needed a stronger antenna and came over and spent three hours on a Saturday."

Meanwhile, Towerstream has snared 650 business customers in Boston, Providence and Chicago with a service faster than the phone company's at half the price.

WiMax may simplify, cut costs

WiMax, being developed by an industry standards group, uses the same technology, but it's faster. The standard will let carriers mix gear from different vendors. That should drive down prices — and attract long-distance, local and wireless giants who like to deploy on a big scale in big markets.

The first version of WiMax, expected next year, would beam signals to rooftop

antennas. The second phase, slated for 2006, would let customers mount antennas indoors, cutting installation costs. The third phase, in 2007, would put chips in laptops and handhelds, allowing connections anywhere reached by an antenna.

Experts agree WiMax has potential. "WiMax is going to push broadband usage to rural areas and developing countries," says Pyramid Research analyst Anshu Dua.

But they are more cautious about WiMax's likely success in big cities and as a mobile service. In large markets with crowded airwaves, a service would have to use costly licensed spectrum. And Sprint and Nextel Communications, which own much of the airwaves suitable for WiMax, have not disclosed their plans. One reason: Both plan broadband services based on their current mobile networks that could compete with WiMax, says RHK analyst Heidi Goldstein.

But AT&T and MCI, which are losing their discounted access to the Bell networks for local phone service, are eyeing WiMax as a way to offer broadband and Internet-based phone service.

"We're looking at various means, and wireless broadband is certainly one of them," says Jack Dziak, head of corporate strategy for MCI. "It's very much front and center."

Covad Communications, one of the largest broadband services, and No. 3 Net provider EarthLink plan to roll out wireless broadband in as many as a dozen markets in a year. BellSouth and Qwest Communications plan to use WiMax to reach rural customers they can't economically serve with DSL.

Ultimately, WiMax could enable a hybrid fixed and mobile service. Since Net-based phone service can easily be added, WiMax could "undermine the evolution" of cell phone carriers' speedy data services, says Precursor Group analyst David Lytel. WiMax is several times faster.

But Resnick, of the WiMax standards group, doubts it will soon displace ubiquitous cell phone networks, which are better equipped to handle voice traffic.

McCaw says he now can enter both rural areas and larger cities because of his low costs and the airwave licenses he owns.

This year, he bought Clearwire, a service provider with licenses in several dozen cities, and NextNet Wireless, which has technology that sends signals directly to small modems that plug into laptops and a power source. He also snapped up a start-up with Web-based phone technology.

Some analysts are skeptical. "I think it's going to be difficult for him to compete in markets where there's a prevalence of cable or DSL," says Lindsay Schroth of The Yankee Group. "They have huge marketing power and brand names."

But McCaw is aggressive. He plans to beat phone-company prices by charging about $25 a month for broadband and $40 to $50 for a package that includes unlimited Internet-based phone service. By comparison, BellSouth's DSL starts at $34.95, and its bundled voice and Internet service costs $63.90.

McCaw created the first national cellular network. But his record also includes some flameouts, such as Teledesic broadband satellite service. He's low-key about the new venture.

"We're trying to be flexible," he says. "If some parts of the market work and others don't, that's OK."

NEWS.COM http://www.news.com/

Why cable companies, Google are eyeing wireless spectrum

By Marguerite Reardon
http://news.com.com/Why+cable+companies%2C+Google+are+eyeing+wireless+spectrum/2100-1039_3-6071163.html

Story last modified Tue Dec 19 06:14:02 PST 2006

The Federal Communications Commission's upcoming auction for wireless spectrum is attracting interest from several unlikely bidders, including cable companies such as Time Warner and Internet companies such as Google.

But what, exactly, will these companies do with this expensive asset?

The auction, scheduled to begin June 29, will sell off slivers of 90MHz radio spectrum in the 1.7GHz to 2.1GHz bands, which could be used to roll out more third-generation, or 3G, mobile networks or newer, 4G wireless technology that would shuttle voice, data, video and other services at even higher speeds.

"It's ideal spectrum," said Craig Mathias, an analyst with Farpoint Group. "I'd say it's as good as PCS (personal communications services) spectrum. It allows the owners of the spectrum to use any number of technologies, including next-generation cellular technology and Wimax."

On Wednesday, Verizon Wireless filed a Short Form Application with the FCC to participate in the auction, and other mobile operators, such as T-Mobile, are also expected to aggressively bid for spectrum. In addition to the traditional phone companies, other companies, such as Google and Time Warner, may also throw their hats--not to mention their checkbooks--into the ring.

On Wednesday Time Warner CEO Glenn Britt confirmed that Time Warner is

considering bidding, along with Comcast, Cox Communications and Advance/Newhouse Communications. The four cable companies are already linked in a partnership with cellular provider Sprint Nextel that they announced last November.

It's difficult to know how aggressive Time Warner and the other cable companies plan to be. Britt said Time Warner may not even actually bid, but that it wanted to keep its options open.

Other rumored bidders, such as Google, have been mum about their plans. Google co-founder Larry Page said during the company's first-quarter earnings call that Google was looking into new ways to "expand" Internet access possibilities for users. Page didn't confirm the company's plans to bid on new spectrum, but he didn't deny the rumors either. Google CEO Eric Schmidt said at a press event Wednesday that the company would more than likely partner for spectrum. He indicated Google might consider teaming up with a partner to acquire new spectrum, or it might simply partner with a company that already owns spectrum.

"All these companies want to leave their options open right now," said Albert Lin, an analyst with American Technology Research. "Being a partner with a cellular provider is convenient, but it's also expensive. And even though spectrum is expensive, it's generally considered a rare commodity. The opportunity doesn't come along every day to buy it."

An alternative to standard networks?

What would these companies do with these licensed airwaves? Lin believes it's unlikely that they're looking solely to get into the already crowded cell phone business. Instead, it's much more likely they plan to use the spectrum to deliver wireless broadband services.

Time Warner and the other cable operators involved in the Sprint Nextel partnership have already indicated that adding wireless to their product suite means much more to them than simply adding cell phone service to their bundled packages.

These cable operators see wireless as a way to distribute their content to

mobile devices. They also see potential in wireless to let customers interact with existing services in a new way. For example, Comcast and Time Warner have already talked about allowing users to program their DVRs remotely from their cell phones. Owning wireless spectrum would provide cable operators more control over how they distribute content and develop mobile services for their customers, said Lin.

For Google, the licensed spectrum would provide an alternative way to reach its users. Google is already building Wi-Fi networks in cities such as San Francisco and Mountain View, Calif., in an effort to circumvent existing carriers' access networks.

"A lot of the new players looking to get in on these auctions could be motivated by the current legislation and policy coming out of Washington that doesn't seem to favor Net neutrality principals," Lin said, referring to proposals that would prohibit network operators from prioritizing Internet content and services on their systems.

Phone companies such as Verizon and AT&T have said they're considering charging content owners and distributors, such as Google, additional fees to carry high-bandwidth content over their networks. For Google and other Internet companies, this could spell big trouble. Building their own access network to bypass these carriers could alleviate the problem, Lin said.

A pricey asset

But obtaining licensed spectrum won't be cheap. Though spectrum licenses may have sold for hundreds of millions of dollars a few years ago, as bankrupt wireless companies scrambled to deal with the dot-com bust, the spectrum currently up for auction is expected to go for billions. Many analysts are predicting the 1,122 available licenses could generate between $8 billion and $15 billion for the government.

The 1.7GHz and 2.1GHz bands of spectrum are particularly good for wireless technologies because they allow for a wide array to be used, including next-generation cellular, and new IP-based technologies like WiMax, which can support peak data speeds of about 20Mbps, with average user data rates between 1Mbps and 4Mbps. WiMax can also transmit data from a few hundred

feet in densely populated areas to between 1 and 2 miles in suburban areas.

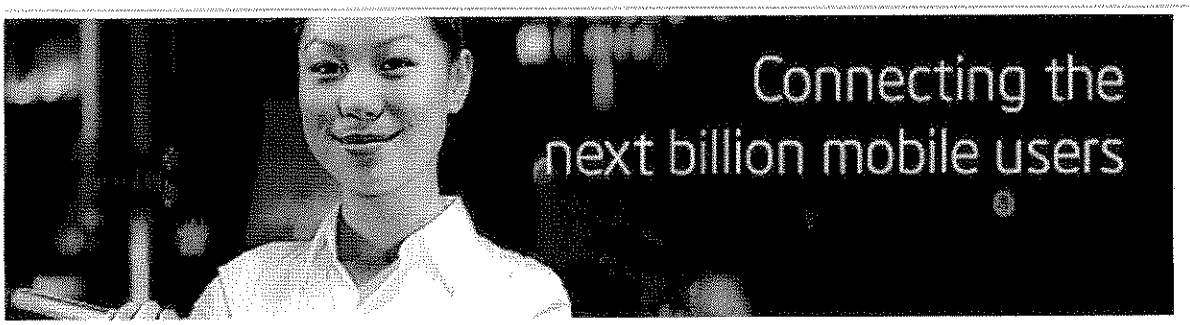
"Because WiMax is able to use more-powerful radios, it can blanket a city and penetrate walls fairly easily," Lin said. "Getting Wi-Fi to work inside as well as outside has been a significant problem for many cities deploying Wi-Fi citywide."

Though WiMax is still in its early days, Intel, along with several corporate sponsors, is working with the wireless industry to drive deployment of WiMax networks. Sprint Nextel is already considering the technology as its top choice for its 4G wireless technology using its 2.5GHz spectrum.

Still, some experts say cable operators or other potential contenders for the new spectrum may not use WiMax, but instead other cellular technologies.

"WiMax technology is still too immature," Mathias said. "I think it's much more likely that the companies bidding for spectrum will use a combination of cellular and Wi-Fi technologies."

CNET News.com's Elinor Mills contributed to this article.



WiMAX Broadband Wireless Technology Access

What is WiMAX

WiMAX (World Interoperability for Microwave Access), based on the IEEE 802.16 standard, is expected to enable true broadband speeds over wireless networks at a cost point to enable mass market adoption. WiMAX is the only wireless standard today that has the ability to deliver true broadband speeds and help make the vision of pervasive connectivity a reality.

There are two main applications of WiMAX today: fixed WiMAX applications are point-to-multipoint enabling broadband access to homes and businesses, whereas mobile WiMAX offers the full mobility of cellular networks at true broadband speeds. Both fixed and mobile applications of WiMAX are engineered to help deliver ubiquitous, high-throughput broadband wireless services at a low cost.

Mobile WiMAX is based on OFDMA (Orthogonal Frequency Division Multiple Access) technology which has inherent advantages in throughput, latency, spectral efficiency, and advanced antennae support; ultimately enabling it to provide higher performance than today's wide area wireless technologies. Furthermore, many next generation 4G wireless technologies may evolve towards OFDMA and all IP-based networks as an ideal for delivering cost-effective wireless data services.

Intel is poised to deliver the key components needed for successful WiMAX networks. It delivered the fixed WiMAX solution, Intel® PRO/Wireless 5116 wireless modem, and is now shipping a fixed/mobile dual-mode solution, Intel® WiMAX Connection 2250. This highly cost-effective solution was designed to support both standards with an easy upgrade path from fixed to mobile and is expected to further accelerate the deployment of WiMAX networks.

Intel launches two new WiMAX Products

Intel® WiMAX Connection 2250 dual-mode baseband SoC for CPEs.

Intel NetStructure® WiMAX Baseband Card for base station solutions.

Webinar: Connecting WiMAX to the World November 30, 2006

Learn more ›

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Watch the WiMAX Overview Demo and find out more about what WiMAX is and how it is revolutionizing broadband wireless delivery.

WiMAX solutions directory

Intel World Ahead Program

Intel's WiMAX Vision

WiMAX is a key component of Intel's broadband wireless strategy to deliver innovative mobile platforms for broadband Internet connectivity anytime, anywhere.

There is a substantial unmet need for very high-speed wireless wide area Internet access to both fixed and mobile devices. WiMAX is an advanced technology solution, based on an open standard, designed to meet this need, and to do so in a low-cost, flexible way. WiMAX networks are optimized for high-speed data and should help spur innovation in services, content and new mobile devices.

Intel currently plans to integrate WiMAX and WiFi into its notebook platforms based on Intel® Centrino® Mobile Technologies. Pairing the two will help bring users the ultimate in high-speed mobile broadband. Intel believes that WiMAX, with its technical and economic advantages, should help enable mainstream adoption of personal broadband.

WiMAX represents a global connectivity opportunity in highly developed mobile market segments and developing countries where this technology may help provide affordable broadband services.

Intel envisions a world of pervasive connectivity for all – WiMAX can help deliver on that vision.

WiMAX deployment through Intel's World Ahead Program.

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News Releases

Sprint Nextel Cites WiMAX Network Progress For 2007

--Initial service set for Chicago and Washington D.C. areas
--Nokia joins expanding WiMAX ecosystem
--Additional WiMAX chip, device commitments received
--Preview available of devices and applications at CES

Media Contact:
John Polivka, 972 405-5139
John.M.Polivka@sprint.com

RESTON, Va. -- 01/08/2007

Sprint Nextel (NYSE: S) announced progress with its plans for a large scale advanced mobile broadband network designed to bring wireless innovation to devices and new multimedia mobile applications to customers.

Sprint Nextel intends to launch Mobile WiMAX broadband services in initial markets by year-end 2007 with a larger roll-out encompassing at least 100 million people by year-end 2008. "We enter 2007, the year of our history-making WiMAX service launch, as the broadband mobility leader," remarked Barry West, president, 4G Mobile Broadband. "Our next generation network plans have catalyzed the industry, and momentum behind our mobility vision grows with increasing technology adoption."

Sprint Nextel last August announced WiMAX IEEE802.16e-2005 as its next generation mobile technology platform and formed an infrastructure development ecosystem with charter partners Intel Corporation, Samsung and Motorola. They plan on using a chipset embedding strategy in new and conventional devices to support rapid market adoption and pervasive access of WiMAX mobility technology. As a result, Sprint Nextel customers will experience a new mobile data network designed to offer faster speeds, lower costs, greater convenience and enhanced multimedia service quality. Indicative of the current momentum behind Sprint Nextel's Mobile WiMAX initiative:

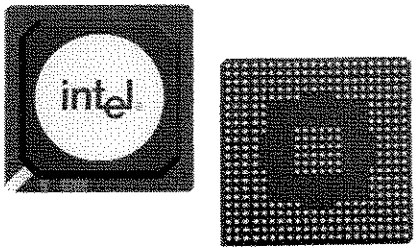
- The Chicago and Washington D.C. areas have been chosen as initial WiMAX service areas with additional markets to be identified based on market-readiness estimates;
- Nokia, the world's largest cell phone manufacturer and leading network supplier, was named a key infrastructure and consumer electronic device supplier;
- Motorola announced a strategic initiative to develop mobile WiMAX chipsets for use in Motorola's next-generation WiMAX devices;
- Samsung has committed to delivering six WiMAX-capable devices (including Ultra mobile PCs and personal media players); Samsung also plans to enter the WiMAX chipset business;
- Intel completed the design of a single-chip, multi-band WiMAX/WiFi chipset that it will sample in card and module forms in late 2007;
- LG Electronics Inc. intends to develop an infotainment device that would work on the Sprint Nextel WiMAX network;
- Sprint Nextel WiMAX Ecosystem partners will preview future network mobility devices and 4G technology applications over 2.3/2.5GHz spectrum during the 2007 International Consumer Electronics Show (CES) in Las Vegas, January 8-11; while Sprint TV service partner MobiTV demonstrates WiMAX mobile TV.

Sprint Nextel will work with WiMAX ecosystem partners and others to incorporate WiMAX technology in a range of computing, portable multi- media, interactive and other consumer electronic devices. The intent is to wirelessly enable the multitude of stand-alone consumer electronic devices that currently lack connectivity or Internet access, thereby facilitating digital life amid a new era of user-generated content. Sprint Nextel has the experience, network infrastructure, spectrum and distribution channels to make 4G broadband mobility services pervasive and indispensable for customers.

About Sprint Nextel
Sprint Nextel offers a comprehensive range of wireless and wireline communications services bringing the freedom of mobility to consumers, businesses and government users. Sprint Nextel is widely recognized for developing, engineering and deploying innovative technologies, including two robust wireless networks serving more than 51 million customers at the end of third quarter 2006; industry-leading mobile data services; instant national and international walkie-talkie capabilities; and an award-winning and global Tier 1 Internet backbone. For more information, visit www.sprint.com.

Intel® PRO/Wireless 5116 Broadband Interface

Innovation for WiMAX fixed wireless broadband platforms



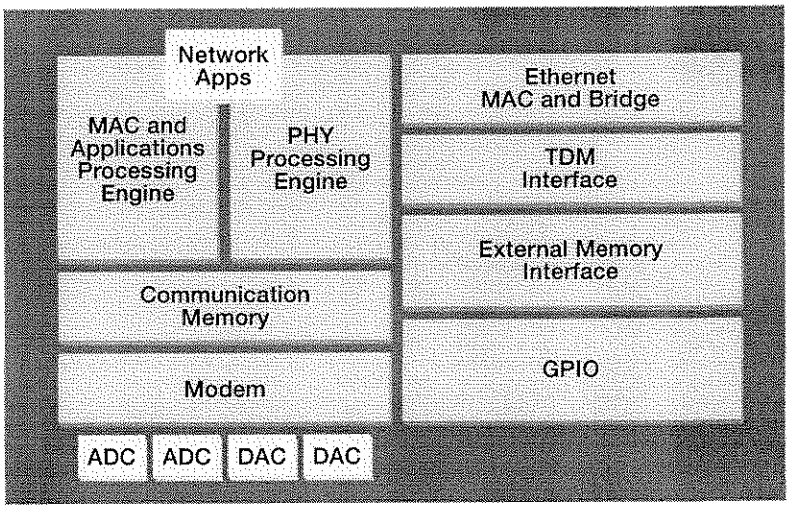
The Intel® PRO/Wireless 5116 is a highly integrated, IEEE 802.16-2004 compliant system on chip (SoC) for both licensed and license-exempt radio frequencies. The unmatched level of integration streamlines the design process and delivers a solid foundation for the development of cost-effective customer premise equipment (CPE).

When combined with third-party RFICs and power amplifiers, manufacturers can create a broad range of outdoor and indoor self-installable WiMAX modems and residential gateways capable of delivering high-rate IP-based data, voice, and real-time video. To further reduce cost and speed hardware product development, Intel PRO/Wireless 5116 hardware implementations will be available through third-party ODMs.

The Intel PRO/Wireless 5116 is built around a high-performance OFDM modem. Channel bandwidths and data rates are programmable and support a wide range of applications and regulatory domains. The dual-core processor architecture provides manufacturers with functional flexibility and programmability for their MAC and software applications. Integration of a 10/100 MAC, inline security processing, and a TDM controller interface enables IP-based applications and legacy voice applications.

Included with the Intel PRO/Wireless 5116 is a software development kit (SDK) that provides developers with the necessary tools to harness the device's programmability. Modem and RF APIs, and reference drivers for radio, Ethernet, and TDM devices allow developers to abstract the complexity of the modem hardware and concentrate on their MAC and application development.

Figure 1: Intel® PRO/Wireless 5116 high-level block diagram



Key Feature Highlights

Modem

- Highly integrated SoC based on IEEE 802.16-2004 standard
- 256 OFDM PHY with support for channel bandwidths up to 10 MHz
- TDD and H/FDD duplexing modes
- Concatenated Reed-Solomon and Convolutional Encoding Forward Error Correction
- Adaptive modulation (BPSK, QPSK, QAM16, QAM64)
- Enhanced link budget support
  - Receive space time coding
  - Uplink sub-channelization
  - SNR, RSSI channel quality measurement
  - ARQ capable

Processing

- Dual-core ARM* 946E-S engines for PHY, MAC, and application protocol processing
- DSP engine with three parallel ALUs allow three simultaneous complex multiply operations per cycle for OFDM processing
- In-line security processing using advanced encryption techniques (3DES, AES, and RC4)

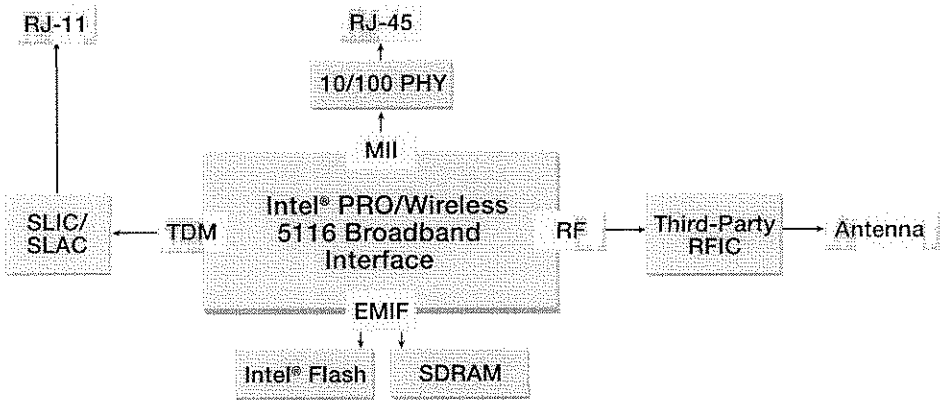
I/O and Interfaces

- Modular RF interface supporting I/F or baseband I/Q radios designed for WiMAX licensed and unlicensed spectrum
- Integrated pair of ADCs and DACs and a high performance PLL to drive converters
- Integrated 10/100 Ethernet MAC with MII interface to external PHY
- TDM interface for legacy analog voice applications or T1/E1 connection
- Additional I/O and system interfaces
  - Extended memory interfaces – SDRAM and flash
  - Test and debug interfaces
  - Programmable GPIOs

Packaging and Thermals

- 360-pin industrial-grade PBGA supporting temperatures ranging from –40° C to 85° C

Figure 2: Intel® PRO/Wireless 5116 CPE system diagram



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Intel® Broadband Wireless Products

- Mobile WiMAX: Intel® WiMAX Connection 2250
- Fixed WiMAX: Intel® PRO/Wireless 5116 broadband interface

Mobile WiMAX: Intel® WiMAX Connection 2250

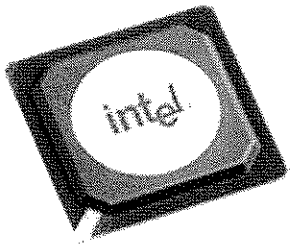
Intel® WiMAX Connection 2250 is a low-cost system-on-chip that supports IEEE 802.16-2004 and IEEE 802.16e-2005, enabling WiMAX modems for use with fixed or mobile networks. Intel® WiMAX Connection 2250 is optimized for cost effective WiMAX modems and benefits from the economics of combined IEEE 802.16d and 802.16e volumes in equipment. The cost effectiveness of Intel® WiMAX Connection 2250 is further enhanced by its modem designs featuring Ofer-R, Intel's single RF System on Chip, Wi-Fi/WiMAX multi-band solution.

Because it is pin compatible with the Intel PRO/Wireless 5116 wireless modem, Intel® WiMAX Connection 2250 offers an easy upgrade path for equipment manufacturers. It enables them to design modems with the capability to evolve from 802.16-2004 to 802.16e-2005 with a software update and supports 802.16-2004 and 802.16e-2005 software stacks for flexibility in equipment design, deployment and applications.

Using Intel® WiMAX Connection 2250-based devices, service providers can choose to immediately deploy a mobile WiMAX network, or in some cases, deploy a fixed WiMAX network now that can be easily and cost-effectively upgraded to a mobile WiMAX network. Intel® WiMAX Connection 2250 also gives service providers a path to a Centrino® Mobile Technologies-ready network by utilizing the profiles that are expected to eventually be integrated into Centrino® Mobile Technology based notebooks.

For a full list of features and benefits, please see Intel® WiMAX Connection 2250 product information.

Fixed WiMAX: Intel® PRO/Wireless 5116



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When combined with third-party RFICs and power amplifiers, manufacturers can create a broad range of outdoor and indoor self-installable WiMAX modems and residential gateways capable of delivering high-rate IP-based data, voice, and real-time video. To further reduce cost and speed hardware product development, Intel PRO/Wireless 5116 hardware implementations will be available through third-party ODMs.

For a full list of features and benefits, please see Intel® PRO/Wireless 5116 product information.

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Switching from cell to Wi-Fi, seamlessly

By Marguerite Reardon
http://news.com.com/Switching+from+cell+to+Wi-Fi%2C+seamlessly/2100-1039_3-6113223.html

Story last modified Tue Dec 19 06:16:56 PST 2006

T-Mobile USA, the fourth-largest mobile phone company in the United States, is preparing to launch a service this month that will allow people talking on their cell phones to seamlessly switch between T-mobile's cellular network and their home Wi-Fi networks.

T-Mobile's new service, which will be the first of its kind in the United States, will be a test case for other operators also looking to deploy similar services. Sprint Nextel, through its joint venture with four major cable companies, is also looking into developing a similar service. And Cingular is testing a service in its labs.

Carriers in Europe, such as Telecom Italia and Orange, have already said they will launch their services later this year, charging between 10 and 15 euros per month for unlimited calling from dual-mode Wi-Fi/cellular phones used in home networks. The business case for consumers in Europe is simple: The dual-mode services are much cheaper than current cell phone and landline rates.

In the United States, where voice minutes are sold in buckets, Wi-Fi/cellular services could be a harder sell. That said, there are some compelling benefits for U.S. consumers. For example, cell phone users will be able to conserve voice minutes while talking on the Wi-Fi network, which could allow them to reduce their usage plans and reduce phone bills. They'll also get access to a higher speed network that allows them to download mobile content, like Web pages, music and games, much faster than they can even from a 3G wireless

network.

But analysts, such as Charles Golvin with Forrester Research, say that these services may not catch on with consumers until users see added functionality that they can't get on their regular cellular phones.

"Just like with the voice over IP movement, people will be interested in converged Wi-Fi/cellular services at first based on price," he said. "But eventually it will become more about features."

Tapping the advantages of IP

Specifically, Wi-Fi-based phone services will allow consumers access to a whole slew of IP-enabled features, such as receiving voice mail from a Web portal, or being able to see whether friends on their buddy lists are available for phone calls.

T-Mobile, which is using a standard technology developed for GSM networks called unlicensed mobile access, or UMA, is keeping details of its new service under wraps.

"T-Mobile is interested in the replacement or displacement of landline minutes," a spokeswoman said in an e-mail. "We believe the future will be about leveraging diverse forms of radio access technology for our customers and Unlicensed Mobile Access, we think, is one of the technologies that will help us continue to deliver on that promise.

But Kineto Wireless, one of the companies developing software to enable the service, said a commercial service is expected to launch this month in at least one major city. T-mobile has been testing the service for about a month in the Pacific Northwest, according to several blogs.

Using equipment supplied by T-Mobile, the initial Wi-Fi/cellular service will be limited to home-based Wi-Fi networks that use standard 802.11 Wi-Fi routers from companies such as D-Link or Linksys. The routers will be used to provide the Wi-Fi signal indoors. And users will be able to call anyone over the Wi-Fi home network for a flat fee. When they're outside the Wi-Fi hotspot, the dual-mode phone, which at launch will likely be the Samsung SGH-T709, will automatically switch over to T-Mobile's cellular network.

Eventually, the T-Mobile dual-mode service could be expanded to T-Mobile's 7,836 hot spots located in airports, cafes and other public areas throughout the country. Once this happens, customers could have even more flexibility in when they get access to the mobile Wi-Fi network.

"I think T-Mobile will migrate to ubiquitous access over time," said Richard Gilbert, CEO of Kineto Wireless. "The service won't work everywhere instantaneously, but this home version is a step in the right direction."

Wi-Fi zealots envision a day when dual-mode cell phones will allow people to talk over a wireless IP network on just about any Wi-Fi network. And with cities such as Philadelphia and San Francisco deploying citywide Wi-Fi networks, there could be some cities in the next few years where Wi-Fi access will be almost ubiquitous.

"The world is going mobile," said Dominic Orr, president and CEO of Aruba Networks, a company that makes Wi-Fi equipment for corporate users. "There are already massive coordinated and uncoordinated efforts to light up Wi-Fi everywhere. And coverage is everything. I am betting that one day Wi-Fi will be almost everywhere."

Limitations to Wi-Fi access

But analysts caution that the dual-mode phone services offered from cell phone operators won't let people access just any Wi-Fi network.

"Anyone who thinks they'll be able to use their dual mode phone from Cingular or T-Mobile at any Wi-Fi hot spot has another thing coming," Forrester's Golvin said. "You have to remember that the operator still programs the software in the phone. So they aren't going to allow people to access Anaheim's or Philadelphia's Wi-Fi network unless they have a special arrangement."

But for a carrier like T-Mobile using Wi-Fi, even on its own Wi-Fi networks, dual-mode service could help it compete against the other big three cell phone operators in the United States. For one thing, dual-mode service will allow the carrier, whose wireless spectrum is relatively constrained, to expand its footprint to include its more than 7,000 hot spots and to increase its in-home coverage.

"It makes sense for T-Mobile to offer this kind of service because their cell phone coverage is so weak," said Golvin.

T-Mobile also doesn't have a lot of spectrum to deliver high-speed 3G data services on phones. That's why the company has put up roughly $4.2 billion so far on bids for new spectrum currently being auctioned off by the Federal Communications Commission. T-Mobile is currently leading the auction, which began about three weeks ago.

For other mobile carriers, the business case for offering Wi-Fi/cellular service is less clear. The three top cell phone carriers--Verizon Wireless, Cingular and Sprint Nextel--each have plenty of spectrum to offer 3G services. They also have strong network coverage throughout the United States. But they could use the Wi-Fi networks to offload some capacity on their 3G networks as more users start downloading bandwidth-intensive applications, such as video.

But most analysts agree that dual-mode services will likely be more appealing to broadband providers than to wireless carriers themselves. Broadband providers could use the dual-mode service to offer their high-speed Internet and voice customers another service that will lock them into a single provider.

For example, Sprint is developing a service through its joint venture with Comcast, Cox Communications, Time Warner Cable and Advance/Newhouse Communications so that users who subscribe to cable voice services can extend that service to their cell phones, giving users a single phone number and single voice mail service. Sprint and its cable partners are still working on underlying technology that will make this service possible.

After it completes its acquisition of BellSouth, AT&T may also want a dual-mode service. AT&T and BellSouth own Cingular. And once the merger is complete, the cell phone company will be controlled by AT&T. Like the cable companies through their arrangement with Sprint, AT&T could add a dual-mode wireless phone service as part of an integrated service package that offers customers a single phone number, voice mail, video programming on mobile devices and other advanced features.

"Broadband carriers would likely sell a converged dual-mode service as an

enhancement to their existing broadband and voice services," Golvin said. "But they'll really have to explain to consumers why it's a compelling and valuable service. And that's not something that the phone companies have traditionally been especially good at."

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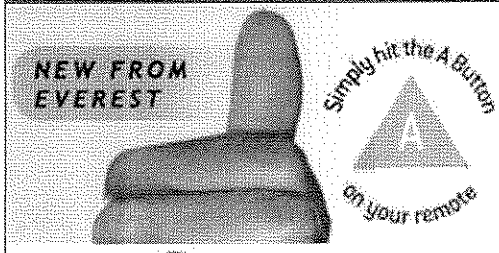

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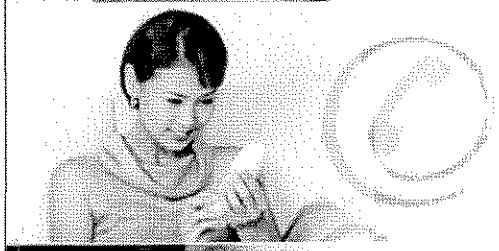

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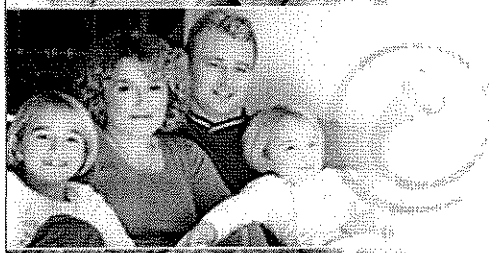

Cable TV

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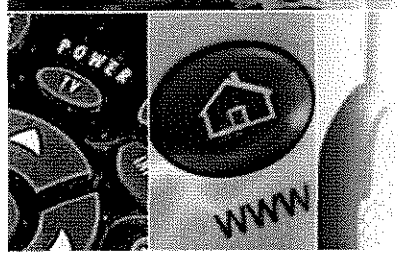
- Everest On Demand
- High-Definition Television
- Digital Video Recorder

High-Speed Internet

- Speed Options
- Anti-Spam - Everest Blocker
- Everest Computer Training
- Minimum Requirements



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Serving Lenexa, Overland Park, Shawnee and South Kansas City

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A Great Value

Enjoy the perfect mix of movies, sports, women's interest and kids' programming with Everest Digital Cable. Up to 300 available channels! Includes an interactive program guide, Everest On Demand, parental controls, digital music, pay-per-view, premium channels and advanced options like Digital Video Recorders and HDTV. And now Everest offers Interactive Television Applications.

- Your favorite channels are available with Everest Digital Cable at an affordable price. No gimmicks. Just great value and exceptional service.
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- Advanced parental controls allow you to restrict viewing of specific programming by rating, channel or time. Manage what your kids watch with your personal PIN number.
- Our picture-in-picture interactive guide allows you to search for programs, by channel, theme or title. Never miss a future show with the auto remind function. It's easy-to-use and gives you complete control.
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- No other company can compete with our 24/7 system monitoring which ensures we deliver the most reliable service.
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High-Speed Internet

Options. It's what Everest gives you that others don't. Everest's Trailblazer High-Speed Internet service connects you to the Internet through an uninterrupted, always-on Cable modem connection at your choice of speed - even during peak usage times.

EVEREST TRAILBLAZER HIGH-SPEED INTERNET

Whether you are a light Internet user just checking email once a day or you are an online gamer maintaining a small network of computers in your home, Everest has a speed for you.

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Enjoy:

- Fast, hassle-free installation via the same cable connection that delivers your Everest® Cable TV and Phone Service.
- High-speed search and instantaneous download of even the most complex audio and video data, with no busy signals or disconnects.
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Email
Three complimentary e-mail addresses are provided with Trailblazer. Your primary address is set up at the time your Internet access is installed; the other two addresses may be set up at the same time, or at a later date.

Everest Blocker
Virtually eliminate spam with Everest Blocker. You decide what email is delivered to your inbox.

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Additional Options:

Web Hosting
Everest® offers 8 unique plans on both the UNIX and Windows platforms. Our Web hosting plans start at $15.95 per month!

Everest Computer Training
Everest has teamed with New Horizons, the leader in computer training, to offer our customers courses that make computers fun and easy to use.

*PCs must meet minimum requirements for service to work.

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Includes Silver and Bronze ...plus HBO, Cinemax, Showtime, The Movie Channel, Starz! and Encore.	Includes Bronze ...plus Sports Pack, Variety Pack, Movie Pack and Discovery Pack.	100% c interact channe control

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Local HD channels included
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What is HDTV?

HDTV stands for High Definition Television and represent levels of digital video and audio broadcasting quality. It is and detailed television image available.

HDTV gives you up to 5 times the picture resolution of re

It'□s the wide-screen experience of being in a movie theat

What do I need to get HDTV?

You need to have an HDTV set top box installed and conn capable television set.

Do I need an HD set top if I already h television set?

Yes. The HD set top is required to receive and decode the regardless of the type of HD television you have. Some HI with a built-in HD receiver, however they are only capable

signals from local broadcasters through a standard televisic

Can I watch HDTV on a regular TV i HDTV set top?

No. HDTV channels will not be displayed in HD without a

What HDTV programming is availab Source?

We have the top US networks in HD including ABC, CBS, FOX.

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We offer the following HDTV channels:

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Cable companies call on Sprint Nextel

By Marguerite Reardon
http://news.com.com/Cable+companies+call+on+Sprint+Nextel/2100-1039_3-5928037.html

Story last modified Wed Nov 02 10:25:53 PST 2005

A consortium of U.S. cable companies announced on Wednesday that they will form a joint venture with Sprint Nextel to offer mobile service to their customers.

Comcast, Time Warner, Cox Communcations and Advance/Newhouse Communications plan to bundle wireless phone service from the new alliance with their existing high-speed data, voice and video packages. Cable companies have used bundles of services effectively to compete against telephone companies like Verizon Communications and SBC Communications, which are each starting to enter the video market.

The deal with the cable companies will likely differ from other reseller deals that Sprint Nextel has struck with companies like Virgin Mobile, ESPN, and soon-to-launch SK-EarthLink. The cable companies will work with Sprint Nextel to develop new devices and services for customers. For example, they might allow people to use their cell phone to program video recorders.

Yet the promise of convenience and savings is more likely to draw consumers to wireless phone and cable TV service bundles, said Mike Paxton, a senior analyst at In-Stat. The marketing blitz that $200 million of combined investment will buy should also help attract customers, he added. Sprint Nextel is footing $100 million for the new joint venture, while the consortium of four cable companies will invest the other $100 million.

"This is something the cable industry...something they've been talking about for close to four years," Paxton said. "The real meat in this announcement is that some industry leaders have committed some serious cash to making this happen."

It has been no secret that the cable companies have wanted to get into the wireless market. This consortium has been looking at the possibility for doing such a deal for about a year. Time Warner has already been testing out a relationship with Sprint in Kansas City.

"We've always said that wireless would be the next element of the bundle to offer the quadruple play," said Mark Harrad, a spokesman for Time Warner Cable. "The bundle has proven to be a big selling point in terms of residential customers. And the phone companies already have wireless, and now they're moving into video."

The new joint venture is expected to launch next year. The cable companies will sell a co-branded wireless service through Sprint's retail stores and Radio Shack stores.

The deal will be mutually exclusive for the next 20 years.

CNET News.com's Alorie Gilbert contributed to this report.

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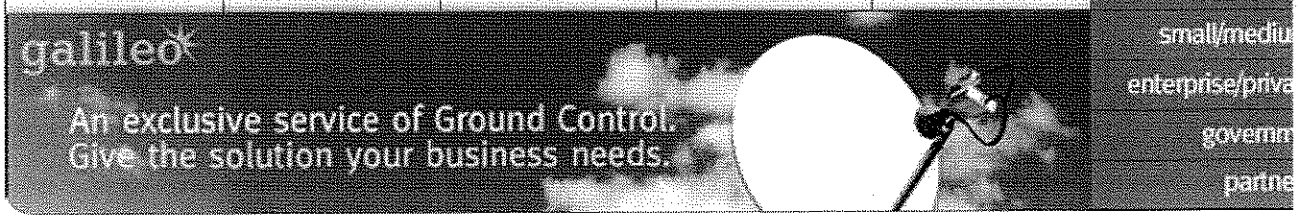

Products & Services : Galileo Advanced Satellite Internet Solutions

VSAT Satellite Internet Technology

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Reliability, that doesn't sacrifice speed.

If you are looking for a satellite technology that is stable and predictable for your various applications, Galileo has a proven track record that will deliver. Proprietary data stabilization technology delivers both speed and reliability. It has near perfect error rates and incredible low overhead to reduce satellite latency to a bare minimum which means Galileo is an excellent platform for numerous VPN, VOIP or other in-house applications that may crash over other satellite networks. Galileo has been online uptime of 99.95% of the time since 2004 in North America. In short, Galileo is the best a satellite network can provide for both application performance requirements and speed.

Pricing - United States & Canada
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Galileo Features:

- Proprietary stabilization technology for diverse application compatibility.
- Nearly error free performance with packet loss near zero, even in changing weather.
- Historic performance... over 99.95% uptime since 2004.
- Full TCP/IP compliance, no spoofing.
- Latency issues reduced to bare minimums, increasing VPN and application performance. An excellent VOIP platform for multiple phone connections.
- Security - Rapid end-to-end transport of encrypted data.
- Traffic Acceleration Technology. The best in the industry.
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- Web configurable gateway/satellite modems.
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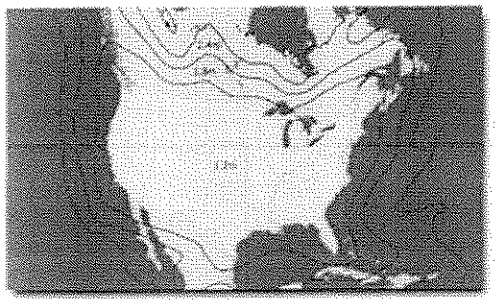


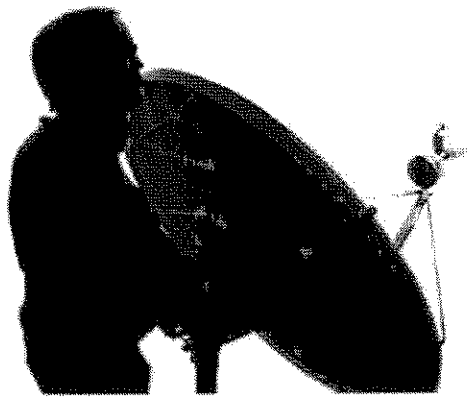
North American Coverage Map
The Galileo Satellite (AMC-4) has a large footprint that covers most all of North America. This KU band satellite is situated at a longitude of 101 degrees. Click for a larger picture.

IRAQ Coverage Now Available - more

VPN Friendly
Galileo's highly optimized network and proprietary encoding software is friendly toward many company VPNs including Citrix.

Terrestrial Like Performance
Galileo is tuned for maximum IP performance over a satellite link. A low BER (Bit Error Rate) of 10 –10 (nearly error free) allows for the fastest performance over a satellite link for TCP/IP traffic.

Historic Network Uptime
The Galileo satellite network has maintained an amazing 99.95% Network uptime since 2004.

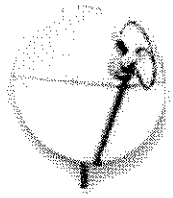


3 Day Demo Packages - $2500
Ground Control will fly a network engineer to your facility with a demonstration satellite system for qualifying the satellite network to work with your organizations requirements. No guesswork, no term commitments. Please allow two weeks to schedule a demonstration. Demo price will be waived for larger multi-unit orders upon success.

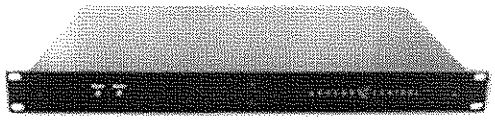
Protocol Proxy Software
Galileo utilizes a highly optimized proxy software that mitigates effects of satellite latency while maintaining complete TCP/IP standard compliance for all varieties of Internet traffic. Web pages simply load faster.

Quick Installation & Re-installation
An installation is normally preformed in one day by a certified Ground Control Galileo satellite installer. You do have the option of training your own in-house installer with Ground Control's certification training program. If you wish to move your satellite dish to a new location, this can be performed on the same day. Data Flexibility.

Customer Support
The most important aspect of any service provider is the level of support they can provide. Ground Control was founded and continues to develop around one simple truth, unsurpassed customer service and support 24-7.



The Galileo Satellite Dish
The Galileo VSAT Technology Satellite Dish is normally a 1.2 meter dish with a 2 watt transmitter mounted on a non-penetrating roof mount (on a flat surface) or pole. Ask for De-Icing systems if you are in a high snow region.



Galileo Gateway
The Galileo Gateway (a 1RU rackmount box) is the only indoor equipment needed for the system. It contains both the satellite modems (send-and-receive) as well as a web based gateway that can connect to your network router.

Product Add-Ons

A Service Level Agreement - SLA (Now included)
For those that purchase the Galileo Service Level Agreement, Ground Control will guarantee your speeds and your service connection from fault or Ground Control will refund a portion of your monthly expenses. - SLAs are now available at no additional cost with all fixed systems more

Public IP
A publicly routable static IP address is available with every Galileo account. Additional IP addresses are available for an additional cost.

VPN's and Private Satellite Networking Solutions
Ground Control will create the kind of network topology you require for any level of security you demand. more

Ground Control's IG-VOIP
For $35 a month, use may use your satellite connection to make inexpensive (or free) telephone calls to anyone in the world. Ground Control's IG-VOIP satellite telephone service doesn't require any expensive hardware and you can start using the service immediately. more

Mobile Solution
Galileo is now available with the Magellan MSS mobile .95 meter satellite system. Create a mobile office. more

De-icing
For an additional cost, your satellite dish may be equipped with a de-icer so that snow will not build up on the dish, degrading your satellite connection.

Other Documents
Galileo Technical Specifications
Galileo Acceptable Use Policy

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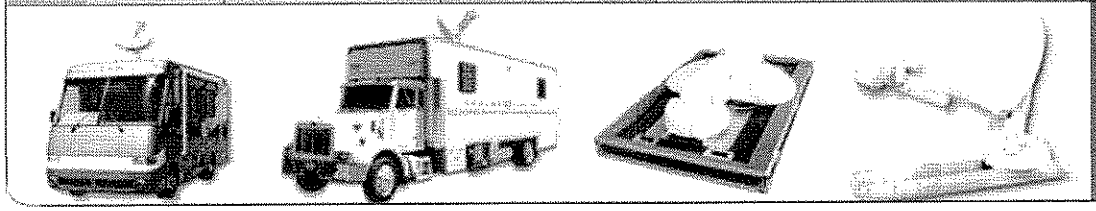
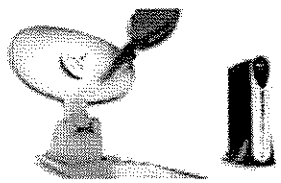


Products & Services : Mobile Internet Products

All of our products are supported 24x7 with our internal staff of mobile satellite specialists - Always free.

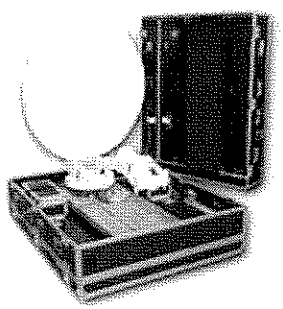
Magellan MSS Mobile Internet Satellite System



Simply touch a button on the Magellan MSS and a satellite dish on the roof will deploy, lock on satellite, and create a local area network that you can connect multiple computers.

CLICK HERE FOR DETAILS

Fly-Away Systems



Purchase a Mobile Satellite Internet System in a sturdy shipping crate and ship to multiple locations with the "flyaway" system. These systems are popular with companies who do not wish to mount the system on a vehicle/truck.

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Monthly Internet Access Services - Mobile

Ground Control is a leader in mobile ISP services because we have our own internal staff of trained technicians who can help you with your mobile issues 24x7.

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Products & Services

All Ground Control products are supported 24x7 with our internal staff of highly trained technicians - Always free

Galileo Satellite Systems - High Performance

Galileo is Ground Control's high-performance satellite system popular with organizations interested in application compatibility, uptime reliability and speed over a satellite system.

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Mobile High-Speed Satellite Internet Systems

Need a mobile office? Ground Control is the North-American leader of mobile Internet services. Simply touch a button on the MSS Mobile Satellite System from Ground Control to create a high-speed network from anywhere.

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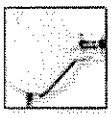
HughesNet Satellite Systems - Business Grade



As a business grade provider of HughesNet service, we can develop the best solution and support your company 24x7.

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Security - VPN and TPN Solutions

Use your existing VPN over satellite, or add create a new VPN or TPN (Total Private Network), Ground Control has several high-security solutions to consider.

- CLICK HERE FOR DETAILS

VOIP - Satellite Telephone

Make normal telephone calls to anyone in the world with Ground Control VOIP satellite software.

- CLICK HERE FOR DETAILS

PHYSORG.COM
SCIENCE : PHYSICS : TECH : NANO : NEWS
Published: 04:54, October 06, 2005

Va. town pioneers new broadban powerline technology

The entire city of Manassas, Va., is now online, thanks to broadband-over-powerline technology, Manassa conference Wednesday morning.

Manassas is the first town with full-scale deployment of BPL technology, a system that works through a local electi simply by plugging their computers into electrical sockets.

"This is a major national technology milestone," said Joseph Fergus, CEO of COMTek Inc., the company that own

"It's no exaggeration to say that Manassas now has the distinction of being plugged into the Internet in a way unlik

Mayor Waldron said the BPL system was cost-effective and non-intrusive, as it uses existing power lines.

He said use of the BPL system would cost approximately $29 per month for residential use.

Fergus said that out of the 12,500 households in Manassas, 700 are already using the BPL system, with 500 more

Among those 700 is Waldron, who said he uses COMTek's BPL at home and Verizon DSL to connect to the Intern

Alan Richardson, president and CEO of the American Public Power Association, said the BPL breakthrough highli

"The electric utility industry is 120 years old," Richardson said. "Electricity has gone from an oddity to a luxury to a

"Today broadband is following that same track," he said, calling broadband "absolutely essential" for businesses.

At the news conference, which took place at a converted candy factory in Manassas, Waldron presented Fergus w of the "chain of strength" of Manassas.

Fergus said that the fiber-optic basis of the infrastructure of Manassas made it better prepared than other cities to

Net neutrality proposal revived in Senate

By Anne Broache
Staff Writer, CNET News.com
Published: January 9, 2007, 2:55 PM PST

A divisive proposal requiring all network operators to abide by strict Net neutrality principles resurfaced on Tuesday in the U.S. Senate.

As expected--albeit perhaps not quite so soon--Maine Republican Sen. Olympia Snowe and North Dakota Democrat Sen. Byron Dorgan teamed up again to introduce what appears to be an identical version of their bill, known as the Internet Freedom Preservation Act, which died in the Senate last year.

The bill's reintroduction "marks another step toward ensuring the fate of the Internet lies in the hands of its users and not the hands of a few gatekeepers," Snowe said in a statement.

Net neutrality is the idea that network operators such as AT&T and Verizon should be prohibited from prioritizing any content or services that travel across their pipes--for instance, charging YouTube extra fees for the privilege of being delivered faster than, say, Revver.com.

The once low-profile issue catapulted to the public sphere after telecommunications executives began warning more than a year ago that they should have the right to charge extra for premium placement on their network to recoup vast investments in their infrastructure.

That drove Internet companies, consumer groups and a number of high-profile backers--ranging from actress Alyssa Milano to Vint Cerf, one of the Net's technical pioneers--to mount grassroots campaigns calling for federal regulations barring such a practice. They contend that any prioritization threatens the freedoms that Internet users have always enjoyed. Opponents of such regulations have argued that there's no evidence of a discrimination problem and that new rules would stifle innovation.

The Snowe-Dorgan legislation would bar network operators from blocking or degrading access to Internet content and services, and from preventing consumers from connecting external devices to the network, with exceptions for security and other consumer protection purposes.

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The measure would allow prioritization of content, applications or services only if it is done for all types of that particular content, application or service--and without a fee. That would likely mean, for instance, that Verizon could choose to set aside a dedicated pipe for all user-generated video content, but it would have to make that pipe available to all user-generated video sites, and for free.

The bill also delves outside Net neutrality and proposes that all broadband companies must offer customers the option of purchasing standalone broadband service. It would be up to the Federal Communications Commission to enforce any complaints derived from the bill's obligations.

The Senate action comes on the heels of an FCC decision to accept Net neutrality conditions offered by AT&T on its merger with BellSouth. AT&T has maintained that it offered the concessions primarily to break partisan deadlock over the deal's approval and continues to resist the idea of legislation mandating Net neutrality. In contrast to their Democratic colleagues on the FCC, the two voting Republicans, Chairman Kevin Martin and Commissioner Deborah Taylor Tate, also said they had no intention of applying Net neutrality conditions more broadly.

The telephone industry, including AT&T and Verizon representatives, was quick to decry the Snowe-Dorgan bill's re-emergence.

"Government regulation would make it against the law for any company to invest in customized Internet service," said Walter McCormick, president of the U.S. Telecom Association, which lobbies for more than 1,200 communications firms. "That would mean all of us losing advances in home health monitoring, greater security of our financial transactions, new entertainment choices and telecommuting opportunities."

Consumer advocacy groups welcomed the renewed effort, which was co-sponsored by six Democrats--Sens. Barbara Boxer, John Kerry, Tom Harkin, Patrick Leahy, Hillary Clinton and Barack Obama--and no Republicans aside from Snowe.

"The legislation is the first step towards a national policy that will ensure that all consumers, not just the most affluent, have affordable access to high-speed Internet services," said Jeannine Kenney, a senior policy analyst with Consumers Union.

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When the pair of senators introduced the same language as an amendment to a massive communications bill last year, it failed by an 11-11 vote that was mostly along party lines, with Democrats voting in favor. With the majority tipped slightly to the Democratic side this year, the bill's chances could improve, but are not assured victory. After all, in the Senate, 60 votes are required to prevent the filibusters that often stall contentious bills.

iTV becomes Apple TV January 9, 2007

NEWS.COM http://www.news.com/

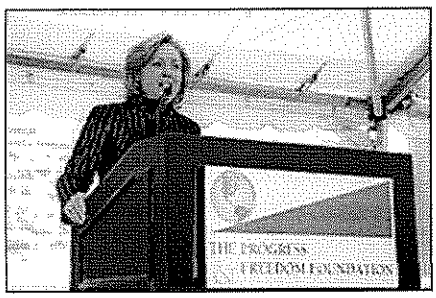
FTC chief critiques Net neutrality

By Declan McCullagh
http://news.com.com/FTC+chief+critiques+Net+neutrality/2100-1028_3-6107913.html

Story last modified Tue Aug 22 04:05:31 PDT 2006

ASPEN, Colo.--The head of the Federal Trade Commission on Monday expressed sharp skepticism toward proposed laws that would levy extensive Net neutrality regulations on broadband providers.

Deborah Platt Majoras, the FTC's Republican chairman, said extensive Net neutrality legislation currently pending in the U.S. Senate is unnecessary because there has been no demonstrated harm to consumers, that normal market forces would likely prevent any problems, and that new laws would cause more problems than they solve.


Deborah Platt Majoras

"I ask myself whether consumers will stand for an Internet that suddenly imposes restrictions on their ability to freely explore the Internet or does not provide for the choices they want," Majoras told a luncheon audience at the Progress and Freedom Foundation's annual conference here.

Majoras' comments come as the Senate is considering a massive legislative proposal to rewrite telecommunications laws. In June, a Senate panel narrowly rejected an amendment that would have slapped strict regulations on broadband providers. Sen. Ron Wyden, an Oregon Democrat, has said he'll try to block a floor vote on the measure unless that amendment is adopted.

The concept of network neutrality, which generally means that all Internet sites must be treated equally, has drawn a list of high-profile backers, from actress Alyssa Milano to Vint Cerf, one of the technical pioneers of the Internet.

It has also led to a political rift between big Internet companies--such as Google and Yahoo that back it--and telecom companies that oppose what they view as onerous new federal regulations. In the last few months, it has become a partisan issue, with Republicans siding with broadband providers. (All the Democrats on the Senate Commerce Committee voted for the unsuccessful amendment in June).

Because the FTC shares enforcement authority with the Federal Communications Commission over certain types of deceptive practices by broadband providers, Majoras' remarks could nudge some senators who have been cautious supporters of Net neutrality to a more laissez-faire position.

Majoras also took a swipe at Google and other Internet companies that support extensive FCC regulation, saying she was surprised "at how quickly so many of our nation's successful firms have jumped in to urge the government to regulate." Business executives, she said, tend to talk a lot about the "free market" but then "turn to government to seek protection" when they're afraid of a marketplace disadvantage.

A new Internet Access Task Force at the FTC will evaluate Net neutrality proposals in detail, Majoras said, and present a report with its conclusions.

Comcast, which has opposed extensive Net neutrality regulations, welcomed Majoras's remarks, calling them "a major constructive contribution to the debate on network neutrality" that "properly places the burden of proof on those who believe government regulation is needed in this area."

The Public Knowledge advocacy group, which often supports additional regulation of large telecommunications companies, took issue with Majoras's comments, saying 98 percent of broadband customers receive their service from either the telephone company or the cable company. "There are no market forces at work here, much as Chairman Majoras wishes there to be," the group said in a statement.

Even if the Senate bill is never enacted (a version has been approved by the House of Representatives), federal agencies appear to have substantial power to punish broadband providers that block Web sites or engage in anticompetitive business practices. One small group of broadband providers, for instance, blocked voice over Internet Protocol (VoIP) calls but then quickly backed down in March 2005 when the FCC became involved.

Feds' existing Net neutrality enforcement

While the FCC subsequently changed how it treats broadband providers, it appears to retain authority to police similar wrongdoing.

In the Brand X case, U.S. Supreme Court Justice Clarence Thomas wrote that the FCC "remains free to impose special regulatory duties on facilities-based ISPs." FCC Commissioner Michael Copps said in May that the FCC has the power to ensure "there's not discrimination against (sites) that are not affiliated with the network owners."

Also, as the FTC told Congress in June, it has the power to regulate "anticompetitive, deceptive, or unfair" practices by practically any kind of broadband provider.

FTC Chairman Majoras said on Monday that her agency would use its existing power to police Net neutrality violations. "We will not hesitate to act," she said.

Written Statement

of

The Honorable Kevin J. Martin
Chairman
Federal Communications Commission

Before the
Committee on Commerce, Science & Transportation
U.S. Senate

February 1, 2007

Good morning Chairman Inouye, Vice Chairman Stevens, Members of the Committee. Thank you for the opportunity to be here with you today to discuss the state of the telecommunications industry. I have a brief opening statement and then I look forward to answering any questions you may have.

I have had the privilege of serving at the Federal Communications Commission for over five years, including almost two years as the agency's Chairman. During this period, my colleagues and I, following guidance from this Committee and Congress, have overseen a telecommunications industry undergoing rapid and unprecedented change.

These changes have seen the telecommunications industry transition from a period of sharp decline to a time of significant growth. Companies and consumers alike have finally found the promised land of convergence, ushered in by the broadband revolution. Telephone calls are now being made using the Internet and cable systems. Television programs are watched when and where we want them, and they are increasingly available on the Internet. Cell phones are mini-computers. They take pictures, play songs and games, send e-mail, and hopefully soon will send and receive emergency messages in times of disaster. Teens talk to one another over IM, SMS and MySpace, not the telephone. They ignore the TV and stereo, downloading songs onto MP3 players and watching and posting videos on YouTube instead. The Internet has become an invaluable tool for educating our children, treating patients, and giving a voice and creative outlet to individuals from all walks of life. As Time Magazine recognized, 2006 was the year of the individual, thanks in large part to how communications technologies and innovations have empowered us all.

Faced with such fast-paced technological change, the Commission has tried to make decisions based on a fundamental belief that a robust, competitive marketplace, not regulation, is ultimately the greatest protector of the public interest. Competition is the best method of delivering the benefits of choice, innovation, and affordability to American consumers. Competition drives prices down and spurs providers to improve service and create new products.

Government, however, still has an important role to play. The Commission has worked to create a regulatory environment that promotes investment and competition, setting the rules of the road so that players can compete on a level playing-field. For instance, shortly after I became Chairman, we removed legacy regulations, like tariffs and price controls which discouraged providers from investing in broadband networks. Since then, broadband penetration has increased while the prices of DSL and cable modem services have decreased.

Government also must act when necessary to achieve broader social goals. Thus, while I support eliminating economic regulations, I recognize that there are issues that the marketplace alone might not fully address. For instance, government should ensure that the communications needs of the public safety community are met and that new and improved services are available to all Americans, including people with disabilities, those living in rural areas and on tribal lands, and schools, libraries, and hospitals. For example, we expanded the ability of the deaf and hard of hearing to communicate with

their family, friends and business associates by requiring Video Relay Services (the preferred method of communication) to be offered 24 hours a day, seven days a week, and by recognizing IP Captioned phone service as a form of Telecommunications Relay Service.

Against this backdrop of unprecedented change, I will give a short overview of the industry and briefly discuss my priorities for the next few years.

State of the Industry

I am pleased to report that the state of the communications industry is strong. As you no doubt remember, in the year 2000, the communications industry began a precipitous and far-reaching decline. Capital spending by companies followed this market decline, innovation disappeared and companies went out of business taking jobs with them.

What a difference six years make. In 2006, the communications industry experienced record growth and, by most measures, almost all sectors have rebounded remarkably. In 2006, the S&P 500 telecommunications sector was the strongest performing sector, up 32% over the previous year. Consumers and businesses – big and small – are reaping the rewards of these positive developments. According to the Telecommunications Industry Association's latest report, U.S. telecom revenue rose to $923 billion in 2006, representing a 9.3% increase since 2005 – the most growth since 2000. TIA attributes the growth to the demand for broadband services, which has spurred providers to invest in fiber, IP technology and wireless infrastructure.

Americans are reaping the rewards of this revolution Markets and companies are investing again, job creation in the industry is high, and in almost all cases, vigorous competition – resulting from free-market deregulatory policies – has provided the consumer with more, better and cheaper services to choose from. Consumers are certainly paying less for more. In 2005, the price for long distance service was two-thirds of what it was in 2000, wireless phone service was half its 2000 level, and the price for placing an international call was a quarter of what it was in 2000.

Telecommunications

Almost all of today's innovation is enabled by broadband deployment. Broadband technology is a key driver of economic growth. The ability to share increasing amounts of information, at greater and greater speeds, increases productivity, facilitates interstate commerce, and helps drive innovation. But perhaps most important, broadband has the potential to affect almost every aspect of our lives. It is changing how we communicate with each other, how and where we work, how we educate our children, and how we entertain ourselves. Broadband deployment has been our top priority at the Commission, and we have begun to see some success as a result of our efforts.

In 2005, the Commission created a deregulatory environment that fueled private sector investment. Since then, companies have begun racing to lay fiber to our homes.

From March of 2005 to the end of last year, the number of homes passed by fiber increased from 1.6 million to 6.1 million.

Just as significant for consumers, the average price of broadband has dropped in the past two years. The Pew Internet and American Life Project (Pew) found that, from February 2004 to December 2005, the average price for home broadband access fell from $39 per month to $36 per month. For DSL, monthly bills fell from $38 to $32 (almost 20%), while cable modem users reported no change from $41 during the same period.

The decline in price was accompanied by an increase in the number of Americans subscribing to high speed connections to the Internet. Such connections have grown by nearly 600% since 2001. And according to the Commission's most recent data, high-speed connections increased by 26% in the first half of 2006 and by 52% for the full year ending June 30, 2006.

The independent Pew confirmed this trend, finding that from March 2005 to March 2006, overall broadband adoption increased by 40% – from 60 to 84 million – twice the growth rate of the year before. The study found that, although overall penetration rates in rural areas still lags behind urban areas, broadband adoption in rural America also grew at approximately the same rate (39%).

Perhaps most importantly, the Pew study found that the significant increase in broadband adoption was widespread and cut across all demographics. According to their independent research:

- broadband adoption grew by almost 70% among middle-income households (those with incomes between $40,000 and $50,000 per year);
- broadband adoption grew by more than 120% among African Americans;
- broadband adoption grew by 70% among those with less than a high school education; and
- broadband adoption grew by 60% among senior citizens.

Wireless service is becoming increasingly important as another platform to compete with cable and DSL as a provider of broadband. The demand for wireless services continues to grow at a rapid rate. In 1986, there were only 500,000 wireless subscribers generating only $670 million in revenue. Today there are 219 million subscribers generating $60 billion. Moreover, wireless rate have continued to decrease, falling 82% since 1996 and 14% from 2005 to 2006.

The Commission is making available as much spectrum as possible to put the next generation of advanced wireless devices into the hands and homes of consumers. In September the FCC closed its largest and most successful spectrum auction, raising almost $14 billion. The spectrum offered was the largest amount of spectrum suitable for deploying wireless broadband ever made available in a single FCC auction. And we are

currently preparing to auction 60 MHz in the 700 MHz band, spectrum that is also well-suited for the provision of wireless broadband.

Moreover, the number of consumers who receive their broadband connection through satellite or wireless will continue to increase, as new satellite services are launched, rural wireless Internet service providers continue to grow, and Wi-Fi hotspots continue to sprout up across the country. Indeed, there are nearly 50,000 Wi-Fi hotspots throughout the United States, more than three times the number of any other country.

Another potentially innovative means of providing high-speed data communications is Broadband over Powerline (BPL), which uses existing electrical infrastructure to provide broadband services. BPL is a potentially significant player due to power lines' ubiquitous reach, allowing it to more easily provide broadband to rural areas. The United Power Council reports that there currently are at least 38 trial deployments and 7 commercial trials.

In sum, the United States is the largest broadband market in the world with over 56 million broadband subscribers according to the Organization for Economic Co-operation and Development (OECD). I am proud of the progress we have made in broadband deployment by creating an environment that better facilitates infrastructure investment. I also, however, hear the voice of my colleague Dr. Copps spurring us on to do better. I agree.

This Committee explicitly asks how the U.S. compares with other industrialized nations. The OECD currently ranks the U.S. as 12th in the world in terms of broadband penetration, behind Korea, the United Kingdom, and even Belgium. It is important to note that the OECD does not adjust for factors including density, which puts a country as large as ours with sizable rural areas at a significant disadvantage. For instance, New Jersey has a similar population density as Korea, ranked 4th, yet has a higher penetration rate (30 subscribers per 100 residents, versus 26 for Korea). Nevertheless, we all agree that our current standing of 12th is not good enough. We must continue to build on our efforts to encourage competition, speed broadband deployment and lower prices for consumers.

Media

As is the case with the telecom sector, consumers and companies are benefiting from technological developments and innovation in media. DVR's, VOD and HD programming offer them more programming to watch at any given time then ever before. Thanks largely to new services like these, cable operators' total revenue grew from $65.7 billion to approximately $73 billion last year.

While consumers have enormous choice among channels, they have little control over how many channels they are able to buy. For those who want to receive 100 channels or more, today's most popular cable packages may be a good value. But according to Nielson, most viewers watch fewer then two dozen channels. For them, the deal isn't as good.

The cost of basic cable services have gone up at a disproportionate rate – 38% between 2000 and 2005 – when compared against other communications sectors. The average price of the expanded basic cable package, the standard cable package, almost doubled between 1995 and 2005, increasing by 93%. The increase in cable prices appears even more dramatic when viewed relative to the prices for a number of other communications services: prices for long distance, international, and wireless telephone service have all decreased dramatically during this same timeframe.

Ten years ago the satellite industry was nascent. Today, Direct Broadcast Satellite (DBS) provides consumers an important competitive choice. And satellite offerings are sometimes the only multi-channel video option for rural Americans. Between 2000 and 2006, DBS subscribership grew 100% and average revenue per user grew 32%. Like DBS, satellite radio also has experienced significant growth. Subscriptions have increased from 1.6 million in 2003 to 13.6 million subscribers in 2006.

The transition from analog to digital technology poses both opportunities and challenges for the broadcast sector. The new and better services that digital technology enables are great for consumers, who will have access to more free news, information and entertainment. With digital technology, television broadcasters can offer high-definition programming, multiple programming streams, data services, and video over mobile devices. Radio broadcasters can offer crystal clear sound (even on the AM band), as well as data such as local traffic and weather, stock updates and news, and artist identification. But many of these business plans are in their infancy, with revenue streams uncertain, while the costs of the transition are large and immediate. And those costs come at a time of increased competition for advertisers from other media – many of which, unlike broadcasters, have a subscription revenue stream in addition to advertising revenue.

Looking Forward

While we have made significant progress in creating an environment that facilitates investment and ensures the American people realize the full benefits of our world-class communications system, there is more to be done. I see four areas that deserve particular attention.

First, we must continue to increase access to communications services.

I will continue to make broadband deployment the Commission's top priority. As I previously touched upon, the ability to share increasing amounts of information – at greater and greater speeds – increases productivity, facilitates interstate commerce, and encourages innovation.

We will continue to encourage deployment of broadband from all providers using a variety of technologies. As wireless technologies become an increasingly important platform for broadband access, it is critical to ensure that there is adequate spectrum available for providing broadband service. Spectrum auctions will continue to be an important part of our strategy for facilitating the build-out of mobile broadband networks.

We are working to ensure that our upcoming auction of the 700 MHz spectrum meets the needs of both large and small rural companies and proceeds in an efficient, effective and timely manner.

The Commission is also considering an order that would classify wireless broadband Internet access service as an information service. This action would eliminate unnecessary regulatory barriers for service providers. This classification also would clarify any regulatory uncertainty and establish a consistent regulatory framework across broadband platforms, as we have already declared high speed internet access service provided via cable modem service, DSL and BPL to be information services. This action is particularly timely in light of the recently auctioned AWS-1 spectrum for wireless broadband and our upcoming 700 MHz auction.

The United States and the Commission have a long history and tradition of making sure that rural areas of the country are connected and have the same opportunities for communications as urban areas. In the 1996 Act, Congress explicitly required that the Commission ensure that consumers in all regions of the nation have access to services that "...are reasonably comparable to those services provided in urban areas." Specifically Congress required the Commission to establish Universal Service Fund mechanisms that are "... specific, predictable and sufficient...to preserve and advance universal service."

It is critical that all Americans stay connected to state-of-the art communications services. The Universal Service Fund is the lifeblood of this goal. Without this source of funding we cannot continue to meet these commitments. But this system is in need of reform. Changes in technology and increases in the number of carriers who are receiving universal service support have placed significant pressure on the stability of the fund. We should improve the way the Commission administers the fund and reform the collection and disbursement systems. We need to move to a contribution system that is technologically neutral and a distribution system that is more efficient.

The Commission will also do its part to ensure that all Americans, including those who live in the most remote areas of the country, receive first-rate medical care. We recently took action, through our adoption of a Rural Healthcare Pilot Program, to support the construction of state and regional networks dedicated to health care. In the first half of 2007, the Commission will be selecting participants for the pilot program, and in 2007 and 2008, the Commission will oversee the program. The deployment of such a network will create numerous opportunities for delivering telehealth services, including telemedicine applications that have the potential to revolutionize the current healthcare system throughout the nation. This is particularly true in rural and underserved areas, where distance often separates patients from the medical care they need. Under the pilot program we adopted, patients anywhere on the network will have greater access to critically needed specialists in a variety of specialties.

Second, we must continue to promote real choice for consumers.

In December of last year, we took steps to implement Section 621 of the Communications Act, which prohibits local authorities from unreasonably refusing to award a competitive franchise. We will continue to take steps to remove regulatory impediments to the entry of new service providers into the video market by, for instance, ensuring that consumers living in apartment buildings are not denied a choice of cable operators.

Competition and choice in the video services market will benefit the consumer by resulting in lower prices, higher quality of services, and generally enhancing the consumers' experience by giving them greater control over the purchased video programming. We need to continue our efforts to create a regulatory environment that encourages entry into this market and more choice for consumers. This includes making sure that competitive providers have access to "must-have" programming that is vertically integrated with a cable operator.

Promoting competition and choice must be our priority in the voice arena, as well. We need to continue to ensure that new entrants are able to compete with incumbents for telecommunications services. For example, new telephone entrants need access to local telephone numbers and the ability to interconnect with incumbents to deliver local calls to them.

We also need to ensure that existing service providers are not standing in the way of the innovations currently occurring in the consumer electronics space. Consumers want to be able to walk into a store, buy a new television set or TiVo, take it home, and plug it in as easily as they do with a telephone.

Third, we must continue to protect consumers.

We must always be on alert for companies intentionally or unintentionally harming consumers. Among the issues the Commission must turn its attention to is the ability of unauthorized users to gain access to callers' phone records, or pretexting. The Commission intends to strengthen its privacy rules by requiring providers to adopt additional safeguards to protect customers' phone record information from unauthorized access and disclosure. Specifically, the Commission would prohibit providers from releasing call detail information to customers except when the customer provides a password. Similarly, we propose to modify our current rules to require providers to obtain customer consent before disclosing any of that customer's phone record information to a provider's joint venture partner or independent contractor for marketing purposes.

Recently, concerns about preserving consumers' access to the content of their choice on the Internet have been voiced at the Commission and Congress. In its Internet Policy Statement, the Commission stated clearly that access to Internet content is critical and the blocking or restricting consumers' access to the content of their choice would not be tolerated. Although we are not aware of current blocking situations, the Commission remains vigilant and stands ready to step in to protect consumers' access to content on the Internet. Moreover, to better assess how the marketplace is functioning and address any

potential harm to consumers, I have proposed the Commission examine this issue more fully in a formal Notice of Inquiry which is presently pending before my colleagues.

Perhaps no other issue before the Commission garners more public interest then our quadrennial review of our media ownership rules. This attention is understandable given that the media touches almost every aspect of our lives. We are dependent upon it for our news, our information and our entertainment. Indeed, the opportunity to express diverse viewpoints lies at the heart of our democracy. We must make sure that consumers have the benefit of a competitive and diverse media marketplace. At our public hearings, the Commission has heard a consistent concern that there are too few local and diverse voices in the community. Certainly, we need to protect localism and diversity in the media. We must balance concerns about too much consolidation and too little choice, however, with appropriate consideration of the changes and innovation that are taking place in the media marketplace.

Critical to our review of our media ownership rules is the collection of objective facts and an open dialog with the public. We have commissioned multiple economic studies and are engaging in hearings across the country in a range of markets. The goal of these hearings is to fully and directly involve the American people in this process. We held our first hearing in Los Angeles, where we focused on the ability of independent television producers to gain access to distribution. We also held a hearing in Nashville, in which we focused on the concerns of the music industry. The Commission's efforts to collect a full public record will continue in the months ahead, with five more hearings, including one specifically focused on localism.

Fourth and finally, we must enhance public safety.

The events of September 11, 2001 and the 2005 hurricane season underscored America's reliance on an effective national telecommunications infrastructure. Thus, public safety has been and will continue to be one of the Commission's and my top priorities. We must make sure that the public has the tools necessary to know when an emergency is coming and to contact first responders. And we must enable first responders to communicate with each other and to rescue the endangered or injured. And the public and private sectors must work together so that our communications system can be repaired quickly in the wake of a disaster so that affected people can reach out to locate or reassure one another. We recently created a Public Safety and Homeland Security Bureau to focus exclusively on this important need.

As Chairman Inouye and co-sponsors Senators Stevens, Kerry, Smith, and Snowe of S. 385 obviously recognize, one of the most pressing public safety problems is the need for interoperability within and among public safety systems. I thank the Chairman for his efforts in this regard, and look forward to any guidance the Congress may provide.

The Commission recently asked for comments on creating a nationwide, interoperable broadband network for public safety officials in the 700 MHz band. In the meantime, technology is available now that could provide a temporary solution to the need for more interoperability. By adding IP-based technologies to existing public safety

network equipment (a so-called "IP patch") and deploying portable IP-based network equipment where necessary, public safety officials would achieve functional, if not full, interoperability. If Congress made sufficient funds available now, such functional interoperability for public safety communications systems could be available in selected areas in the near term and throughout most of the nation within four years.

Conclusion

As you can see, on the whole, the state of the communications industry is strong, and growing stronger. Innovation, in all sectors, is back, and competition has enabled consumers to get newer and more innovative technologies and communications services at ever-declining prices.

Sadly though, one service has gone the way of the dinosaur. 2006 marked the end of an era, when Western Union discontinued its telegram delivery service, which it began in 1856.

Thank you for your time and attention today. I appreciate the opportunity to share with you some of the recent progress the Commission has made. With that, I would be happy to answer any questions you may have.

Nelson Krueger

From: "Roger Pruitt" <phrp@sbcglobal.net>
To: "Nelson Krueger" <nkrueger@sunflower.com>
Sent: Friday, January 05, 2007 11:38 AM
Subject: Re: Electric Energy

Natural gas is mostly methane, propane, butane, ethane, etc. All are molecules made up of carbon and hydrogen atoms. Burning any of these gases produces carbon dioxide and water vapor. The oxygen in both of these molecules comes from the oxygen in the air. The formation of carbon dioxide and water vapor in the combustion process releases energy. Carbon dioxide and water vapor are both green house gases.

Coal is almost entirely carbon with some sulfur (1, 2 or 3 %, if memory serves me right) and traces of heavy metals, some of which are radioactive. Oxygen in the air combines with the carbon in the coal to produce carbon dioxide. In this and the burning of natural gas, nitrogen oxides are produced, which is the combining of the two major gases in the atmosphere because of the high combustion temperatures. These tend to combine with water vapor and form that brown smog you should have often seen as you flew into major airports.

Nuclear has its place in the total picture of energy production. There is, of course, the problem of what to do with the spent nuclear fuel, which can be very radioactive, i.e., produce a lot of emissions of elementary particles, x-rays and gamma rays. However, one needs to keep in mind that the highly radioactive elements that are producing most of those emission are relatively short lived and are of intermediate atomic weight. The heavy elements such as uranium, plutonium, thorium, etc. have much longer half lives but are not so radioactive.

To understand this assume that you have a lump of radioactive material where eventually all of the atoms of that lump will decay to a different stable atom. That lump can be very "hot" and the emissions produced would drive a Geiger counter wild. However, if so many of the radioactive atoms in the lump are decaying so rapidly, then the half live of this radioactive lump must be short. On the other hand suppose you have another lump where the atoms have a very long half life such as hundreds of thousands of years. Then this lump isn't very "hot" and a Geiger counter would record many fewer clicks per second than with the first lump. You can by analogy wolf down M and M's by the handful from a bag of them, and they won't last very long. :-(Or you can eat the M and M's one at a time resulting in the bag of them lasting for a much longer time---maybe all day. :-)

It seems to me that many people just lump everything together. The news media people and others talk about highly radioactive spent nuclear fuel that is made of of different

types of elements. Some of the elements are without exception highly radioactive but of relatively short half life that may be as short as a year or in the few hundred year range. The elements that will last thousands and maybe millions of years are not so radioactive. These later elements make up just about all that is around us, tho' not so concentrated. I'm sitting in my concrete basement made of poured concrete and am being bombarded by the radioactivity in the trace elements in the concrete. The soil is the same way.

Now that I've addressed the spent fuel problems, let me add that the lighter radioactive elements can be separated from the heavy elements so that the heavy elements can be used again. I think in France they vitrify (mix it with other elements and fire the mix into a glass) all of the elements in the spent fuel then seal it in maybe stainless steel and other materials and bury it. We can do the same in this country, but we have to get over the thinking, "not in my backyard."

Coming out of the reactor are some radioactive gases. Now if we assume that we can deal with the spent nuclear fuel and confine it, the hazard of the released radioactive gases during the life of the nuclear reactor is less than the hazard from the radioactive materials that go up in the stack gases of a coal fired plant. (I used to have some figures on this from *Science* magazine, but I didn't save them when I retired.) So if we take all things in consideration coal fired plants, according to this *Science* article, are more of a health hazard than nuclear plants. There were other things considered in the article such as green house gas production, to be sure, but things such as respiratory problems resulting from breathing the particulates and smog gases (resulting from the production of the nitrogen oxides) were also included in the total picture.

My feeling has always been that we must get into using more solar and wind energy, but they are alone not enough. We must include in the mix of energy sources nuclear, and some coal and gas powered electric generation. The coal and gas plants would be in the short term until the plants wear out and other sources assume a greater percent of the total energy production.

The U.S. has passed through a golden era where less than 5% of the world's population has been consuming over 60% of the world's energy production. That has to change and circumstances will force a change. Former third world countries such as China are producing automobiles like crazy. Smog is a major problem in their major cities. They have several times the population of the U.S. and if their people decide that their dependence on the internal combustion engine is as great as ours, where is all of the energy coming from in the future? The whole world can't consume fossil fuels at the rate that the U.S. in the past.

The governor and the legislature must encourage conservation to be sure, but they also must encourage the development of other forms of energy. A few birds being harmed by big wind generators is a far better trade off than the human and animal deaths that have occurred and will continue to do so by the atmospheric pollutants produced by the burning of coal and natural gas, although the latter is much less polluting than the former.

I hope this dissertation has been of some help.

Roger

Nelson Krueger wrote:

> Dr. Pruitt - As Kansas decides how to produce electric energy. It seems to me natural gas is a reasonable way to heat homes and is wasted generating electricity: Coal contributes to global warming so nuclear is a reasonable and controllable answer, I understand the French generate most of their electricity in nuclear units. What do you think? Conservation is the real answer, but we will not do enough to make a real difference (until we run out). Thanks for your thoughts if you chose to offer any. All the Best. Nelson