

Iowa Communications Network

Strategic Plan

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Table of Contents

Vision and Mission Statement	Page 2
Core Functions	Page 2
Guiding Principles	Page 6
Assessment	Page 7
Goals and Strategies	Page 12
Overview of the ICN	Page 15

The Iowa Communications Network (ICN) is a statewide, fiber-optic network connecting all 99 counties in Iowa to the world. The ICN links schools, hospitals, state and federal government agencies, public defense armories, libraries, and higher education institutions using various video, high-speed Internet connections, data, and voice services.

ICN Vision

To improve the quality of life for Iowans through advanced telecommunications services to authorized users in education, government, justice, and medicine by providing at reasonable cost, equal access to digital technology.

ICN Mission Statement

To provide authorized users the highest quality and technologically advanced educational, medical, judicial, and governmental telecommunications services.

ICN Core Functions

The ICN is a telecommunications service provider that supplies voice, transmission, subscription, and video services. To effectively provide these services, which center on serving our direct customers and the end users – the citizens of Iowa, the ICN has five (5) major core functions with a total of over 80 sub-functions as listed:

Finance and administration:

- Legal services support
- Contract administration and management
- Personnel administration management
- Budget development and management
- Accounts payable management/purchasing
- Revenue estimate management
- Expense management and cost allocations
- General ledger management
- Cash management
- Budget report management/financial reporting (to include internal management reports)
- Billing management/accounts receivable
- Billing resolution management
- System and database administration
 - Solomon system
 - NetPlus system
 - Asset management database
 - Contract database
 - POLL CATS database
- Universal Service Fund management
- Special agreement and document management (i.e. memorandum of understanding, memorandum of agreement)

- Asset management
 - Direct asset inventory and delivery management (receiving, shipping, and warehousing)
 - Property accountability management (inventory records, depreciation, fixed assets, etc.)
- Facilities management

Agency-wide shared and policy management (Deputy Director's Office)

- Administrative services management
- ITTC support service management
- Enterprise quality coordinator
- Personal profile system manager
- Policy management
- Media management
- Legislative liaison service management
- Information Services (IT) management
- Software License management
- Agency PC computer support
- State operator management
- 911 service coordination management
- ICN newsletter management (internal and external)
- ICN web site management (internal and external)
- Internal communications
- Internal reports management
- Facility tours
- Trade show and exhibition events
- Customer training for video classroom applications
- Outside of the agency information requests
- Customer survey management
- Internal telephone directory and front desk reception management
- Video scheduling management and service
- Business process management
- Planning
 - Enterprise Standard Operating Procedures development and coordination
 - Enterprise planning coordination
 - Iowa Excellence Program
 - Action plan development
- Systems development and administration
 - Fault and help desk systems
 - Customer database
 - Router database
 - Circuit database
 - Video scheduling system
 - Site access information database
 - LAN and PC management to include software
 - 911 database

Service Delivery:

- Customer service
- Customer database data maintenance
- Authorized user/customer advocacy
- New service planning and coordination
- Service pricing management
- Service delivery project management
- Authorized user Service Level Agreement (SLA) preparation and negotiation
- Estimate preparation, sales request processing, and customer relations management
- ICN services promotion
- Customer circuit/network inventory management
- ICN marketing materials preparation and dissemination
- Market research
- Product development
- 470 USAC (Universal Service Fund) Process
- Meet with service providers
- Represent customers to the commission
- Marketing and branding management
- Request for services system
- Voice conferencing

Network Engineering:

- Engineering design for service delivery management (work order details)
- Circuit management
- Network project management
- Capacity and space management
- Network software and hardware systems design
- Circuit engineering and provisioning
- Network research and development:
 - Technology research/network assessment
 - Seminars and technology conference participation
 - Test bed network design, development and integration
- Provisioning and order processing
- System and database administration
 - DMS system
 - Classroom database
 - Network drawing database

Network Operations:

- Network operations service center management
- Network trouble reception, research and resolution management
- Network operations and maintenance for all existing and future ICN services
- Network element maintenance management (to include all maintenance vendor contracts and services)

- Physical fiber management:
 - Outside plant technical feasibility assessments management
 - Outside plant rearrangement and change management
 - Outside plant drawing and records management
 - Outside plant cost estimate of placing fiber management
 - Outside plant inspection and protecting ICN fiber management
 - Outside plant investigation and assessment of damages for cut fiber management
- Enterprise project management
- Network system support
- Internet management
- Router management
- Voice switches management
- Firewall management
- Customer service and support center
- System and data base administration
 - Network space management database
 - CLI Code database
 - LAN and PC management to include software

ICN Guiding Principles

1. Services and operations meet identified needs of authorized users.
2. Employees are empowered and expected to serve ICN customers by providing quality services and being responsive to their needs.
3. Services are provided at reasonable cost to the Network's authorized users.
4. Customer needs served through long range planning and collaboration.
5. Collaborative decisions should be supported by facts, data, and analysis of risk.
6. Results and goals are driven by effective strategies and assessments.
7. Process improvement is continual.

Assessment

The ICN was constructed as an infrastructure to provide Iowans the opportunity to localize their access to educational and governmental services throughout the State. ICN offers telecommunications capability for voice, data, and various video services. The ICN has accomplished this through equitable, statewide pricing of services. Customers are not penalized financially or by denial of service as a result of their geographical location. By statute, serving educational users is the agency's number one priority.

ICN's direct customers or authorized users as defined in Chapter 8D, *Code of Iowa* include:

- All accredited K-12 school districts and private schools
- All accredited public and private colleges and technical educational institutions
- State agencies
- Federal agencies
- United States Postal Service
- Hospitals and physician clinics (video and data services only)
- Public libraries

The ICN relies heavily on partnering with major suppliers including *Lucent Technologies, Nortel Networks, McLeod USA, AT&T, and INS* to maintain state-of-the art telecommunications capabilities. The ICN has also partnered with the Regent universities for broadband Internet connectivity which has benefited all ICN Internet service customers by dramatically lowering their costs.

The ICN has aggressively pursued the establishment of customer partnerships to improve communications and to receive information on new and improved service opportunities. These groups include an Internet user group, Area Education Agencies (AEAs), Board of Regents, financial managers, community colleges and an information technology managers committee. These partnerships are augmented with established committees such as the Education Technology Committee to align services with the customers' perspectives and objectives.

The ICN's greatest assets are its 3,100 miles of network optical fiber deployed to all 99 counties of the State of Iowa as well as the technical expertise demonstrated by the ICN employees. The fiber-optic network provides the capacity that delivers the newest technologies which can be enhanced by a change-out of equipment. The major limitations hampering the efficient operation of the Network are its dependence upon appropriated funding for capital investments, constraints placed upon the Network operations by statute, and the funding stream needed to implement network strategies. However, ICN's customer base, except for certified users including the AEAs, community colleges, public universities and independent colleges all have the ability to use other vendors without restriction. Certified users may also request a waiver from using ICN services if the ICN is not competitive in its pricing or product offerings.

2007 Assessment and Planning Process

To deploy the agency's long-term strategies, the ICN developed and implemented an ongoing strategic planning process. The process began in late June 2007 and the tactics (projects) were finalized in mid-October. After analyzing trends, understanding the dynamics of the industry and the impact of policy decisions, the agency developed strategies to determine how the agency will adapt and prosper within the future business environment with a consideration of restructuring the business. Following are the assessment components impacting the ICN planning process.

- **Technology Convergence**

The maturing of the Internet has set the expectation that access to the Internet and services delivered via Internet Protocol (IP) applications is a right. Iowans require access to the Internet for the delivering of voice, video, and data, which is accessible anytime and anywhere by anyone in order to ensure a higher quality of life. Video and voice are now available over the Internet and broadband is permitting various applications to provide the choice that drives these markets to exponentially expand. Telecommunications mobility, whether it is through Wi-Fi, Wi-Max or the well-established wireless cell infrastructure, permits the user to avoid being restricted to a location. The ICN will be meeting these challenges by deploying required resources to utilize the robust, efficient Ethernet technologies.

- **Competition and Industry Convergence**

With the dynamic market expansion that is envisioned with the growth of IP, competition will also grow. However, the traditional players that have traditionally provided telecommunications such as *AT&T* or *Verizon* have been aggressively challenged by newcomers in the industry, ranging from software giants such as *Microsoft* to search engine vendors such as *Google* and *Yahoo*. In Iowa, this additional competition is impacting the small telephone companies that have been the customary telecommunications players.

Cable companies, at one time, only provided video content through a specific delivery infrastructure. They have begun offering voice and Internet services to compliment their primary business, television, as well as leveraging the fiber/coaxial cable infrastructure.

- **A Changing Marketplace**

America is on the verge of vast new broadband-driven digital transformation that promises to make life more livable, businesses more productive, jobs more plentiful, and the Internet more accessible. However, at the dawn of this digital age, those who could benefit the most from this economically empowering technology are also those most likely to be left without broadband access because of where they live or how much money they make. Decision makers at the state and federal levels are evaluating the criticality of universal broadband services to competitiveness, educational infrastructures, economic development, innovation and quality of life.

- **Partnering and Collaborations Benefit Iowans**

During the past several years, ICN has been collaborating with authorized users and private entities to enhance affordability of services and optimize ICN funds. The ICN has partnered with the Regent universities to enable provision of Internet services at a lower price for customers. IPTV and ICN collaborate to provide meaningful curriculum enhancements for Iowa's K-12 students either for free or a low rate for school districts. The agency consistently assists with the aggregation of services to ensure stewardship of state resources.

- **Perception of Policy Makers, Customers, and Citizens**

Though the idea of having a state-owned telecommunications provider has been controversial since the ICN's conception over 15 years ago, the ICN has provided opportunities for sharing information envied by states and governments throughout the world, especially in relation to education. To continue to compete in this fiercely competitive industry, the State of Iowa and ICN must determine how much they can afford to directly support this technology frenzy, especially considering that many companies are spending billions. Sprint/Nextel alone has stated they will spend several billion to deploy Wi-Max capability and Intel has joined with Sprint/Nextel to provide the necessary chips.

- **Funding**

The ICN depends upon some capital investment appropriations for network enhancements and replacement. For 2007-2008, ICN will receive approximately \$2 million from the State for equipment replacement and infrastructure enhancement. Appropriations may be impacted in the futures, which will also affect the ability to acquire USAC (Universal Service Fund) funding since the infrastructure appropriation is utilized to provide discounted video conferencing for schools, hospitals, and libraries. Legislation has been proposed at a federal level that may impact USAC funding. These funds annually provide \$1.8 million to the Network, a significant amount for a \$36 million company.

The ICN is dedicated to the delivery of applications to meet the educational needs of Iowa students through the integration of technology in the classroom and the services provided to Iowans. Iowa is positioned to be a leader in virtually sharing educational resources. In a fast-paced, ever-changing world where most fall behind in the race against change and technology, it is reassuring to know the ICN, in cooperation with Iowans throughout the State, will enable Iowa to remain competitive in the information age.

Tactical Projects That Have Escalated from the Planning Process

o Ethernet Deployment

The telecommunications industry is becoming more and more focused on Internet Protocol (IP) due to its portability, as well as to determine ways to provide IP services most cost effectively. ATM and Frame Relay telecommunications platform technologies that the ICN have been using are being replaced in the industry with Ethernet. The ICN has been providing Ethernet services for several years through the ATM network. Due to the evolution of the Ethernet technologies and the complexities involved, it is evident that some of the value added Ethernet features can not be provided when implemented using an ATM network. The equipment selected will allow the ICN to leverage the existing investment into the backbone network while providing the full feature set available on Ethernet technologies.

o Outsourcing Long Distance

The ICN has owned and operated its own carrier-grade voice switch for approximately 15 years. This equipment has been highly reliable, and has allowed some flexibility otherwise not available at the time. The ICN is planning to remove the switch due to:

- age of the equipment
- cost it would take to move to a soft switch (where the industry is going)
- lack of response to bid requests for SS7 service
- demands of maintaining CALEA compliance
- changing landscape of the services most requested by customers.

Staff will determine and implement a solution for all of the services currently provided via this switch. ICN is planning to replace the voice conferencing services before the end of the 2007 calendar year. An assessment will be required of each type of service including the demands for each type of service and how the ICN can best provide the service without the use of the current switch. Also included will be a determination of how any changes will impact invoicing and call record validation.

o Creating Capitol Complex Redundancy

The ICN has been evaluating the vulnerability of its network in providing the support for continuity of government during times of major storms or disasters. The Capitol Complex is a relatively high risk area for losing connectivity, due to the “hub and spoke” method used to connect the buildings on the Complex decades ago. Since the Capitol Complex is a critical area for most state agencies to continue operations, it follows that a plan to remove the criticality of any one site was imperative to being able to provide a highly available network during any event. The project has been divided into three phases. The current tactical project calls for using the installing fiber within the DAS ductwork to create a ring on the Capitol Complex.

o Integrate ICN Customer Databases

Maintaining reliable, current, and consistent ICN customer and contact data is essential to support ICN business processes. This core data is used as part of the process to maintain and offer new ICN products and services to customers. This project will bring

about a coordination of automated and manual processes to provide a reliable source for customer and contact information. The goal will be to store the master data in one place and synchronize this data to dependent systems.

- **Communication Strategies**

Communications is an integral part of any organization, especially a state agency that has a fiduciary responsibility to a number of diverse groups ranging from customers, users, and citizens. To be successful in any endeavor, communications must be accurate, timely, and relative to the audience that needs to know or should know about the ICN. Communications for the ICN consists of three areas to emphasize the importance of the dissemination of information to the specific audience. These areas are Public Relations, Government Relations, and ICN communications within the organization and state agencies.

The enhanced strategy calls for adapting the image of ICN is a crucial part of the communication effort. However, this responsibility lies not only with the Communications staff, but with each and every ICN staff member. Every contact that a team member makes with a customer, an educator, a state employee, an industry peer, media, legislator...whatever the contact is, there should be an organizational persona that is consistently presented, which represents the values and objectives of this organization. This project plan has been created in order to maximize every contact made by ICN staff members.

Goals and Strategies

Goal 1: To operate the Network in an efficient and responsible manner providing the most economical service attainable under established performance standards to authorized users.

Strategies:

- Establish and maintain an effective business process to enable efficient service delivery to authorized users.
- Maintain a qualified workforce.
- Maintain effective and efficient operating systems.

Goal 2: To achieve optimal utilization of the network's facilities, by assuring that future growth requirements will be met, and that sufficient network capacity is available to meet the needs of all users.

Strategies:

- Maintain and continually enhance the physical network to enable management to meet the needs of authorized users. Ensure the network's continual technology upgrade is in accordance with industry standards.
- Improve the Network to provide viable redundant wide area network support for the delivery of services.
- Deploy the latest technologies to enhance the speed and the capacity of the Network.
- Disaster Recovery Planning to address natural or man-made disasters.
- Partner with ICN users to develop and market applications using the ICN.
- Enhance the fiber infrastructure to provide Internet protocol based services for voice and video conferencing.
- Provide web-based services.

Goal 3: To provide essential advanced telecommunication service to all authorized users.

Strategies:

- Improve the Network to enhance its ability to serve primarily as a distance learning platform.
- Develop collaborative partnerships with stakeholders, which position the Network to provide future service offerings.
- Continually assess current services available to customers to determine if they are still sufficient.

The ICN's Goals Support the Governor's Major Goal Groups

The ICN's goals are based on the duties designated by the Chapter 8D, *Code of Iowa*. They focus on ensuring that the telecommunications services of the agency provided to the authorized users are dependable, capable of meeting users' missions in the future, and that all authorized users have access to ICN services. ICN's mission is to provide the telecommunications resources required by the authorized users in order to meet their needs while pursuing their missions.

Workforce Development and Economic Growth

The telecommunications services that are provided by the ICN allow training and data transfer statewide. The authorized users have missions designed to keep workforce their skills current. Community colleges offer training as do other Iowa colleges and universities utilizing various ICN video and Internet services. Using the video conferencing capabilities of ICN, IWD is planning to launch 'virtual career fairs' for veterans returning home. By networking with employers throughout the Iowa, veterans returning home can identify job opportunities prior to arriving back into the State as well as receive training in 'soft skills,' such as writing resumes, interviewing skills, and other important aspects of job search. The State benefits by also attracting potential new citizens that might not have thought about making Iowa their home.

Another program soon to be launched by IWD is based upon using ICN video conferencing capabilities. By partnering with Department of Corrections, IWD plans to establish a virtual apprenticeship for offenders who will be re-entering the communities and require skills to acquire a job. Through regular training sessions conducted over the ICN, inmates could learn a trade for such jobs as an electrician, plumber, or carpenter along with 'soft' skills.

Energy and Environment

The energy and environment planning team included support infrastructure development to enhance the R & D and commercialization efforts of energy efficiency and renewable energy. Just as important as the traditional transportation infrastructures, the state's fiber-optic and telecommunications infrastructures will play a major role in enhancing the R & D and commercialization of bio-diesel, ethanol and other new energy technologies and industries.

During fiscal year 2007, the ICN averaged 59.6% usage for E-85 fuel in its vehicles. This 2007 achievement is close to the 2009 goal of 60% E-85 fuel usage set by the Governor in Executive Order #3. In May 2007, over 95% of the fuel used by the ICN was E-85 fuel. The ICN is committed to optimizing the use of E-85 in the agency's E-85 capable vehicles.

Health Care

Telemedicine via the ICN has allowed the sharing of medical resources for a number of years in Iowa. Over 20 rural hospitals that are participating in the Midwest Rural Telecommunications Consortium are connected via the ICN. Through various services

their missions to provide stroke and trauma teleconsultation enable larger health care facilities to share their resources with smaller hospitals. The communications availability, in times of national security or disaster emergency, is vital. Healthcare applications that are delivered via Internet Protocol will increase in the future. The goals of the ICN to ensure appropriate capacity to all corners of the State will only become more imperative as IP telehealth applications become more prevalent and critical for quality health care in rural Iowa. Although not listed as a team provider in the Health Care Goal “to improve access to mental health services for all Iowans”, use of ICN IP services to connect mental health facilities would be an effective use of an existing state resource.

Education

By law, providing telecommunications services for education is the top priority of the ICN. The Iowa Communications Network Executive Director serves on the 2007 Education Enterprise Planning team.

The Education Enterprise Planning team identified a number of goals for the upcoming year. The ICN’s infrastructure and staff members’ technical expertise will play a role in the successful execution of the action steps to meet the educational goals of the Culver/Judge administration. Those defined goals with specific action steps are:

All K-12 students prepared for success in postsecondary options

1. Strategy – Attract and retain qualified K-12 and administrators.
 - Action step – Provide quality professional development opportunities for Iowa educators to improve instruction.
 - Action step - Provide quality professional and technical assistance for school administrators aligned to the standards for school leaders
 - on and increase student achievement.
2. Strategy – Provide access to a broad array of high quality courses for all high school students across Iowa.
 - Action step – Use time shifting, virtual course work, and dynamic content to accommodate the vast array of student needs and schedules leveraging existing programs such as Iowa Learning Online, weighted funding, and dual credit courses.
 - Expand the number of Iowa postsecondary graduates from state-supported institutions.
3. Strategy – Increase awareness of and educational opportunities to meet Iowa’s future workforce needs.
 - Action step – Create an outreach unit to promote, market, implement, and train Iowans on the educational opportunities available in Iowa, especially in workforce areas of need.

Overview of the ICN

Prior to 1994, rural Iowans, while enjoying the amenities of country living, could not reap the benefits of access to extensive curriculums offered by urban schools, community colleges, public and private colleges and universities, medical specialists, and government services.

With an 80 percent rural population base, a need for equalization of course offerings and media resources between rural and urban educational providers was recognized. The Legislative Council determined there was a need for a coordinated statewide communications system. At the same time, several other services requiring telecommunications technologies including telemedicine and telejustice, were recognized as essential tools for economic development in Iowa's rural communities. The Iowa Communications Network (ICN) was created to fill these needs.

The ICN is a statewide, state-administered fiber-optic network responsible for delivering education, government and telemedicine services via the transmission of high quality full-motion, two-way, interactive video; data transport; and long distance voice communications. The ICN is governed by Chapter 8D of the Code of Iowa. The ICN is used as a tool through which Iowans can more easily access educational, medical, and governmental services throughout the State.

First and foremost, lawmakers have stressed that education, though not the only reason, is the ICN's top priority because the network was created to strengthen the quality of education in Iowa.

The ICN is organized with an Executive Director, Deputy Director, the Chief Financial Officer, along with the managers of Operations and Data Networking Bureau, Service Delivery Bureau, and Engineering and Research/Development Bureau. The ICN oversight is provided by the Iowa Telecommunication and Technology Commission (ITTC), **Code of Iowa**, Chapter 8D.3. The ITTC members are appointed by the Governor and confirmed by the Senate. The ICN is authorized to have 105 full-time positions and currently has 97 employees on staff. ICN administrative offices are located in the Grimes State Office Building on the Capitol Complex in Des Moines with the network hub located at the JFHQ Armory in Johnston.

The ICN maintains the network for its customers from a centralized location using contact teams located throughout the State provided by *McLeod USA*.

Business Directions

The ICN is a young agency in a very competitive, highly regulated, dynamic environment. The ICN started as a telecommunications installer and has evolved into a full-service provider that is still installing and upgrading a complicated network.

The ICN's staff is constantly developing new technologies to meet the requirements of ICN user applications. Examples include: Voice over IP, Video over IP, and wireless services. The ICN is currently in the process of upgrading the network to current "state-of-the-art" IP

capabilities utilizing rapid deployment of technology. These capabilities will allow educators and other user's additional application choices, which will increase curriculum choices.

The ICN has reorganized its staff to facilitate better communications among the divisions and ultimately better service to its users.