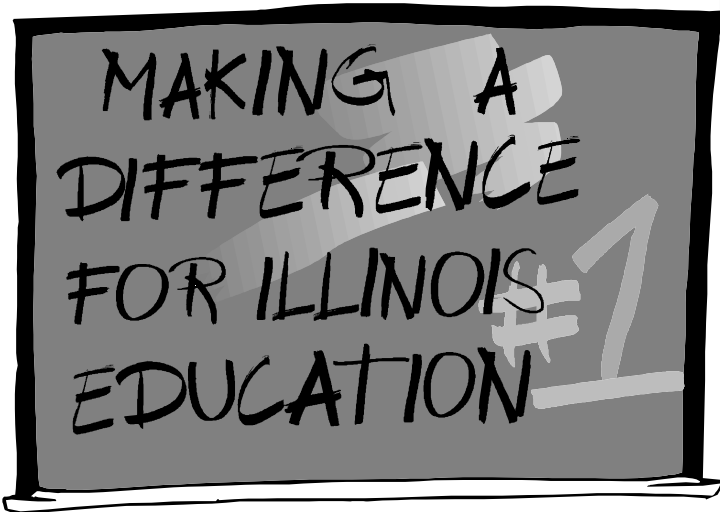


# ILLINOIS CENTURY NETWORK

Progress Report 2002



Making a Difference for Illinois Education

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## INTRODUCTION

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On June 8, 1999, Governor George H. Ryan signed Public Act 91-21 into law creating the Illinois Century Network. This legislation provided the framework for Illinois to develop a robust, high-speed statewide network that would serve the education, training, and information needs of Illinois citizens, now and into the future.

Since that time, the Illinois Century Network has made significant progress toward the initial goal of connecting more than 4,100 public K-12 schools, nearly 1,400 private K-12 schools, almost 200 public and private college and university campuses, nearly 800 libraries, and more than 300 museums into a vast education resource that reaches students across Illinois, regardless of location.

### THE WALL STREET JOURNAL

## High Tech Haven

To find America's most wired states, head for the cornfields.

---Wall Street Journal, January 10, 2002

The Illinois Century Network currently supports nearly 5,500 connections and that number continues to grow. The growth and expansion of the network contributed significantly to Illinois advancing from forty-ninth place to first place in the use of technology in education in the 2001 Digital State Survey (Government Technology, December 2001).

As the Illinois Century Network enters its third year of operation, this progress report has been prepared to provide an overview of the network's development and to share plans for the future. The Illinois Century Network has aggregated the networking needs of Illinois institutions, providing them with world-class service at lower costs, while leveraging the state's investment in the development of a statewide network that is the largest of its kind in the nation.

## ILLINOIS CENTURY NETWORK COLLABORATION

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- ◆ *Vision* - A robust, high speed statewide network created to serve "Illinois schools, institutions of higher education, libraries, museums, research institutions, State agencies, units of local government, and other local entities that provide services to Illinois citizens" (PA 91-21).
- ◆ *Governance* - To ensure governance by the primary constituents for which the network exists, the Illinois Century Network Policy Committee was established to develop policy and provide overall direction for the network.
- ◆ *User Groups* - Working across traditional institutional boundaries, the Illinois Century

### COMPUTER User

"The Internet is revolutionizing the ease with which Americans can pursue higher education."

---Computer User, October 2000

Network user groups help identify best practices in the utilization of advanced networking, investigate future networking tools and technologies, and provide feedback on additional network services provided through nine Regional Technology Centers.

## eLearningIllinois

The Illinois Online Leadership Council brings together the major state-funded elearning content initiatives that are designed to take full advantage of the resources provided by the Illinois Century Network. More information can be found at the elearning website at <http://elearning.illinois.net>.

- ◆ *Regional Technology Centers* - Nine regional technology centers located throughout the state work with constituents to secure the best possible connection to the network. Technology Centers are staffed by certified technicians, ensuring the highest quality customer service. Staff proactively monitor constituent connections and work with the telecommunications vendors to promptly resolve outages.

## LEVERAGING THE STATE'S INVESTMENT IN TELECOMMUNICATIONS INFRASTRUCTURE

- ◆ *Solid Foundation* - The Illinois Century Network is built upon the State's previous investments in telecommunications infrastructure - maximizing the joint funding appropriations awarded to the Board of Higher Education and the State Board of Education
- ◆ *State-Owned Fiber* - Traffic on networks like the ICN more than doubles every year and new educational applications will accelerate this trend into the future. Nationally, data traffic already far exceeds traffic generated by traditional voice telephone services. To meet this demand within the anticipated financial resources of the ICN, the core backbone network will need to be migrated from the types of circuits offered by telephone companies to less expensive, but more robust, dedicated optical fiber. Fortunately, utility companies, including telcos, have built extensive fiber networks in most of the areas the ICN backbone crosses, and have extra fibers which can be obtained for prices comparable to the lower capacity circuits currently being leased. In some cases the state already has obtained the right to use fiber in exchange for the Illinois Department of Transportation allowing the utility to build on the right of way on major highways.


It is critical to move ahead using dedicated fiber in the highest traffic areas, both to control costs and to ensure that the ICN is able to support the kind of aggressive educational uses that justify the state's investment. Within a few years, it will be essential to move the entire ICN backbone to dedicated fiber.


The I-Wire project links the National Center for Supercomputer Applications, the University of Illinois at Urbana-Champaign, the Chicago area research universities, and Argonne National Laboratory in the most advanced prototype network in the nation. This project represents the first use of dedicated fiber in Illinois. The ICN will collaborate with the I-Wire project, which could not have been undertaken without the use of dedicated fiber acquired from McLeod Telecommunications.

The State Journal Register

Half of America  
now Web-savvy

---State Journal Register, February 8, 2002

- ◆ *Lower Circuit Costs* - Through special agreements with telecommunication providers, the Illinois Century Network has secured agreements that extend lower pricing for telecommunications circuits to all education constituents.
- ◆ *Federal E-rate Funding Maximized* - The Illinois Century Network coordinates a statewide application that takes advantage of the size of the network and the number of constituents served to receive the largest amount of federal dollars possible. In FY03, Illinois expects to receive between 2 and 4 million in Federal E-rate funds.
- ◆ *Internet2* - Under a new program designed to support increased access to educational and research applications available through Internet2, the Illinois Century Network has become a Sponsored Education Group Participant on behalf of all education constituents. This agreement allows the ICN to provide access to Internet2 over existing connections to the network at no additional cost. Without this agreement, most connected institutions would be ineligible due to the size of the institution or the costs associated with individual access. Access to Internet2 will provide Illinois educators and their students with educational and research opportunities previously available only to larger research institutions.
 
- ◆ *Strategic Partnerships* - The educational community has come together to strategically build and expand the Illinois Century Network, a statewide telecommunications resource to serve all of education and other entities that provide services to Illinois citizens.
- ◆ *Aggregate Purchasing Power* - Leveraging the purchasing power of all ICN constituents, the Illinois Century Network is able to secure competitive prices for telecommunication services; take advantage of alternative technologies available in different regions in the state; and incorporate the most cost effective telecommunications solutions within the network. These efforts result in measurable cost savings and therefore lower costs for K-12 schools, colleges and universities, museums, and libraries throughout the state.
- ◆ *Cost Recovery Model* - Effective July 1, 2002 (fiscal year 2003), the Illinois Century Network will implement a cost recovery model to help manage and plan for the growth of the network based on constituent needs and demand for additional bandwidth.
- ◆ *Future Planning* - Responsible management of fiscal resources helps to ensure that the Illinois Century Network will be sustainable and scalable into the future - staying slightly ahead of demand for resources in order to maintain the high level of reliability and speed that Illinois education requires to fulfill its collective mission.
 



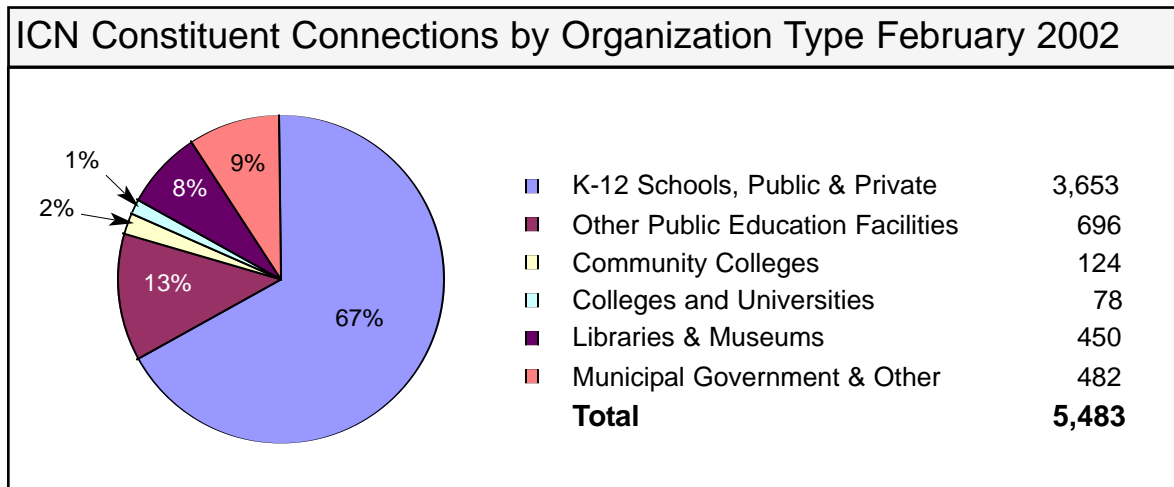
"Internet usage both in school and at home has increased dramatically. The Web has become an important tool for instruction and administration, as well as a rich source for information and resource sharing." Dr. Sylvia Chorp, Editor-in-Chief, T.H.E. Journal

---T.H.E. Journal, February 2002

## ◆ CONSTITUENT GROWTH

- ◆ *90% Overall Growth* - 2,900 constituents connected in July 1999, to 5,500 constituents in February 2002.

- ◆ *Benefiting Illinois Education* - Over 91% of total network connections represent Illinois Century Network primary constituents, which consist of K-12 schools, colleges and universities, libraries, and museums. The Illinois Century Network is first and foremost an education network - the largest of its kind!
- ◆ *Educational Applications Lead the Way* - 91.7% of all network traffic supports educational utilization of the network.



## MAKING A DIFFERENCE

On a daily basis, the Illinois Century Network serves as the "pipeline" for Illinois citizens to access a vast array of resources, information, and education and training opportunities; truly making a difference in the way information is obtained and how skills needed to participate fully in the 21st century are acquired.

Here are but a few examples of the Illinois Century Network's impact on Illinois education:

✿ **Bismark-Henning High School** in Bismark is now able to connect to the ICN utilizing the same T1 that was previously dedicated solely to video education. Combining services, with the help of the ICN Regional Technology Staff, has allowed increased bandwidth at a lower cost and better overall performance.

✿ Connected to the ICN through participation in a community network, the **Greenfield School District** has more than tripled Internet bandwidth from 56k to 2Mb without increasing costs. Elementary schools previously denied access to the Internet due to high local costs are now able to afford it by participating in the ICN.

✿ In cooperation with the **Southern Illinois University School of Medicine**, the ICN participated in a **Teleburn** demonstration that allowed doctors to utilize the ICN network to conduct remote diagnostics of critical burn victims. Using the ICN to facilitate telemedicine applications means that in the near future, Illinois citizens may have access to specialists and specialized services in even the most remote areas of the state.

✿ **Harrisburg Community Unit School District** located in Southeastern Illinois has increased access to the Internet six-fold while cutting costs in half. As a result of the cost savings, the school district now has all five of their buildings connected to the Internet. The ICN has not only

provided affordable, robust connectivity, but has also provided technical consultation to the school as it developed a plan to upgrade the internal network to take full advantage of the speed of the ICN.



✿ The ICN provided Internet access and multicast services to McCormick Place in Chicago for the continuing professional education sessions held at the **2001 Radiological Society of North America** conference, which is the largest conference held annually in the country.

✿ **Montmorency School District** in Rock Falls has found the ICN to be invaluable. Every day 6th, 7th, and 8th grade students gather the latest "Current Events" from the Internet. If all 120 students who participate daily had to rely on the local newspaper this activity would be impossible.

✿ Connected through a community network, the **Taylorville School District** has connected all schools in the district at less than half the previous cost. This robust connectivity resulted in a LITES grant that provides teacher training, computers in the classroom, and develops ongoing web-based curriculum accessible to all schools.

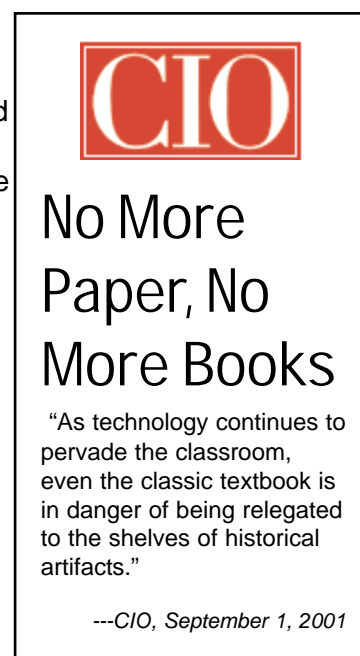
✿ The **Whiteside Area Vocational Center** in Sterling relies on a web-based curriculum for Cisco Academy instruction. The web-based training, made possible through the ICN, trains students to install, maintain, and repair Cisco equipment. Since Cisco is the number one provider of the technology that makes the Internet possible, this training will lead to excellent jobs.

✿ **Black Hawk College** in Moline is using the increased bandwidth provided by the ICN to meet online growth goals and to facilitate online learning. Once a major cause for concern, the college no longer has to worry about the lack of adequate bandwidth required for online programs.

✿ **Carl Sandburg Community College** in Galesburg has partnered with 26 local schools to provide state-of-the-art web development and course management software. The partnership provides schools and teachers with free technical training, free access to software, and free technical support. The program's goal is to introduce and train instructors to effectively use technology in the classroom.

✿ Through the robust connection to the ICN, the **Illinois Institute of Technology** in Chicago is able to expand research capabilities by sharing traffic with key partners such as Argonne Lab, Fermilab, and other Illinois higher education institutions.

✿ While **McKendree College** in Lebanon has only been a member of the ICN for a short time, the connections to the Internet through the ICN have been performing in a very satisfactory manner. The need for Internet access has proven to be a necessity for all educational venues. The college notes that Regional Technology Center



staff has provided cordial, professional, and high-quality service in establishing and maintaining the connection.

✿ **Sauk Valley Community College** in Dixon is not only saving money with an ICN connection, it is serving as a leader in testing compressed interactive video standards that will deliver business-quality videoconferencing over an Internet-based IP network. The information and experience gathered from this project will assist others in making a smooth transition to the new video standards.

✿ With an ICN connection, **Southeastern Illinois College** in Harrisburg is pursuing real-time audio and video instructional technology that previously was not physically or economically possible. The savings realized through the ICN is allowing the college to expand and improve the classroom use of technology.

✿ Through the ICN, **Southern Illinois University at Carbondale** can now meet Internet and Internet2 bandwidth needs. Before the ICN, the University had limited bandwidth available. Today utilization often reaches over 20Mb, plus another 45Mb is available for Internet2. Because of the additional bandwidth, SIU can now participate in Internet2, allowing further resources for university research efforts.

✿ To date, 58 **University of Illinois Extension Offices** are connected to the ICN, improving access to a wealth of educational information and programs to all Illinois Citizens.

## ADVANCED ENGINEERING TASKFORCE

- ◆ *Network Planning* - Planning for the long-term scalability and sustainability of the network, the Advanced Engineering Taskforce considers current network infrastructure, identifies areas of concern, and offers alternative courses of action to assist the Illinois Century Network in meeting constituent needs and demands into the future.
- ◆ *Membership* - Representation is drawn from a wide group of knowledgeable professionals, representing the diversity of Illinois Century Network constituents and the most advanced technology projects in the state.
- ◆ *Advanced Engineering Taskforce Annual Report* - September 2001 - Distributed to all Illinois Century Network constituents, with another 3,000 copies downloaded from the ICN website, [www.illinois.net](http://www.illinois.net).



"Education over the Internet is going to be so big, it's going to make e-mail usage look like a rounding error,"  
John Chambers, CEO,  
Cisco Systems

---Inc Magazine, July 1, 2000

### AET Recommendations:

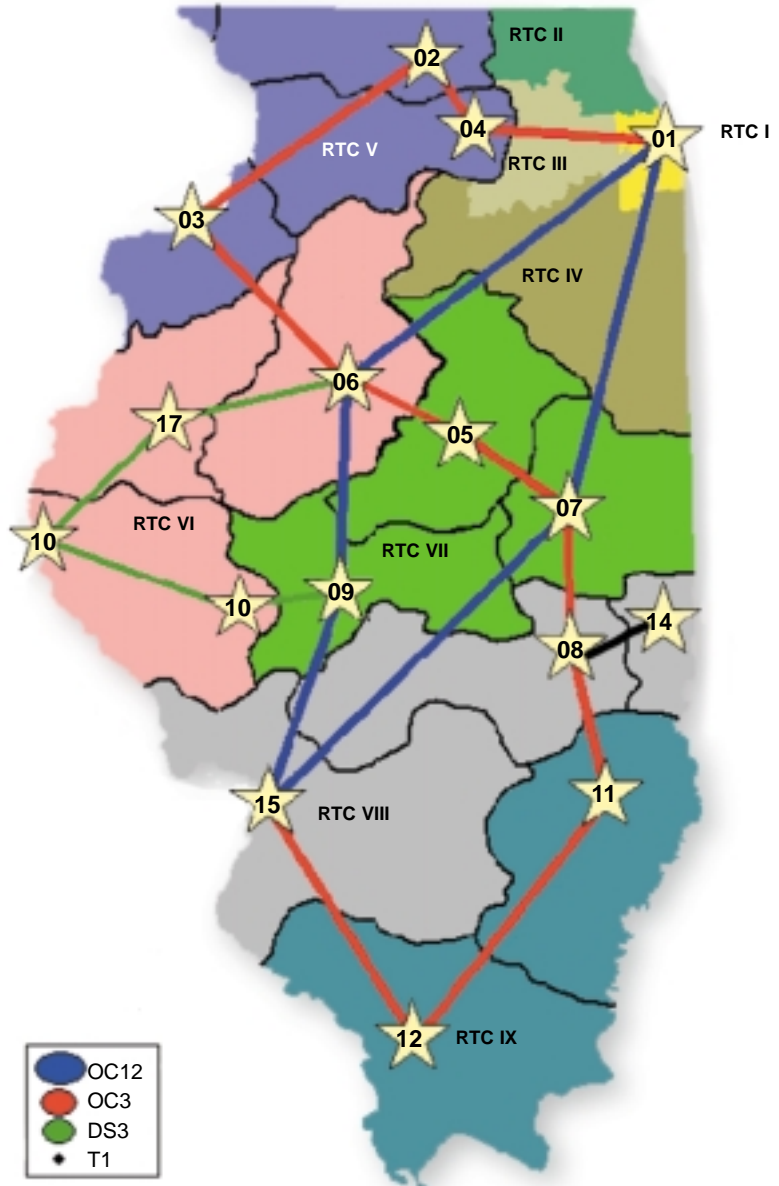
- acquire dark fiber for the long-term scalability and sustainability of the network
- further expand and support the backbone network
- investigate additional service offerings
- continue connecting new constituents
- offer advanced support for video applications
- improve network performance through caching and mirroring technologies as well as acquiring additional Internet egress
- improve data collection for future analysis and performance measurement

## TELECOMMUNICATIONS INFRASTRUCTURE

Recently acquired backbone circuits have allowed the Illinois Century Network to provide enhanced network services to all constituents.

### ICN Points of Presence

- 01 - Chicago
- 02 - Rockford
- 03 - Moline
- 04 - DeKalb
- 05 - Normal
- 06 - Peoria
- 07 - Champaign-Urbana
- 08 - Charleston
- 09 - Springfield
- 10 - Jacksonville
- 10 - Quincy
- 11 - Olney
- 12 - Carbondale
- 14 - Paris
- 15 - Collinsville
- 17 - Macomb



ICN Points of Presence (POPs) and distribution sites are located on university campuses, State facilities, private businesses, community centers, county government facilities, and Regional Offices of Education.

All but one of the ICN POPs are currently connected via DS3 (45Mb) or faster circuits. The ICN Network is connected to the Internet with multiple connections ranging from DS3 to OC12 speeds. Further, five different providers are utilized to ensure that the ICN has the fastest and most robust Internet connectivity available in the State of Illinois.

**94% of all ICN constituent traffic is carried within the state.**

## LEADING THE WAY

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In an on-going effort to inform constituents about current and future issues impacting the network and technology's role in education, the Illinois Century Network staff has contributed to the publication of several informational pieces. For example, changes in technology and planning for the future of the network are covered in the Advanced Engineering Taskforce Report; Illinois based content initiatives are described in the Illinois Online Leadership Council matrix; general information about the Illinois Century Network is provided in the Information and Welcome packets; and The Century Line, the ICN Newsletter, provides updates throughout the year.



### Internet Top Information Resource, Study Finds

*---Search Engine Report (a publication of Search Engine Watch), February 6, 2001*

