

# Illinois Rural HealthNet

## Illinois Critical Access Hospital Network

June, 2008

# Introduction and Background

- In March, 2007, the Federal Communications Commission created the Rural Health Care Pilot Program and asked for proposals.
- Purpose of grant:
  - The FCC recognized that existing USAC rural health care programs were not achieving the objectives of providing high-speed communications to rural hospitals and clinics.
  - As a result, the benefits of innovative telemedicine and telehealth services could not be readily accessed in rural areas.
  - The Pilot Program was specifically designed to fund the construction of state or regional networks and the services provided over these networks.
- Who is eligible for funding? Health Care Providers, defined as:
  - Universities offering health care instruction, teaching hospitals, medical schools.
  - Rural non-profit hospitals, health clinics, and mental health centers.
  - Consortiums made up of these entities.

# Illinois Rural HealthNet

- The FCC stated that funding can only be used for a dedicated broadband network that connects health care providers.
- The FCC encouraged multiple health care providers in a state to join together for the purpose of formulating and submitting proposals.
- The Pilot Program pays for 85% of the cost of constructing and deploying the new network.
- The Broadband Development Group of Northern Illinois University contacted health care entities in Illinois to organize a consortium to apply for funding, and to develop and write the proposal.

# Illinois Rural HealthNet

- The following entities came together in the proposal, and incorporated as a not-for-profit organization:
  - Northern Illinois University
  - Illinois Critical Access Hospital Network (ICAHN)
  - Tri-Rivers Health Partners
  - Metropolitan Research and Education Network
  - Illinois State University
  - Janet Wattles Center
  - Ben Gordon Center
  - Sinnissippi Center
  - Delnor Hospital
  - University of Illinois Urbana-Champaign, and College of Medicine
  - Carle Foundation Hospital
  - Southern Illinois University School of Medicine, Telehealth Networks and Programs

# FCC Funding for the IRHN

- The Illinois Rural HealthNet was awarded funding of \$7,021,176 per year for 3 years, a total of over \$21 million, the third largest award in the country.
- IRHN submits detailed network design, schedule, and implementation plan.
- IRHN submits detailed budget and network costs worksheets, and certifies that funds will be used for eligible purposes.
- IRHN submits letters of agency for each health care provider stating that it is eligible to participate and is included in the consortium.
- IRHN approves invoices arising from network implementation and submits them to USAC. Payment is made directly to the service provider.

# Management of the IRHN

- The following subcommittees have begun meeting:
  - Medical and Health Applications
    - Existing and new applications
    - Areas of collaboration
    - Training
  - Education and Outreach
    - Getting the word out
    - Identifying and addressing areas of need
  - Technology
    - Network capabilities
    - Network expansion
    - Disaster recovery and resumption of business
  - Sustainability
    - Existing sources of funding
    - New sources of funding
  - Management and Organization
    - Staffing the not-for-profit organization
    - Implementing the IRHN work plan
    - Tracking and addressing public policy issues

# What is the definition of High Speed for a Health Network?

- It is a critical question. Most of the Rural Health Care funding provided by USAC was being used for T-1 circuits, which provide only 1.5 Mgbps.
- But rural hospitals said they needed to transmit radiology and cardiology imaging and files and hence needed much more bandwidth.
- This would allow them to confer with specialists, but their patients would not have to travel for diagnosis.
- So the network was designed to provide a minimum of 100Mgbps, and up to 1Gbps.

# Convergence

- Organizational Convergence: Bringing together new practices, participants, and technologies.
- Technological Convergence: The term used to describe how voice, video, and data are being combined into the same digital format.



# Quick Review of Data Speeds

- 1 Kilobit (Kbps) is 1,000 bits/second
- 1 Megabit (Mbps) is 1,000 Kbps
- 1 Gigabit (Gbps) is 1,000 Mbps
- 1 Terabit (Tbps) is 1,000 Gbps
- Other commonly used definitions:
  - T-1 circuit is 1.5 Mbps
  - T-3 circuit is 45 Mbps

# Defining Broadband

- The Federal Communications Commission has been defining broadband as 200 Kbps (kilobits per second)
- Is 200 Kbps fast enough for:
  - Business video applications? From 750 Kbps up to 10 Mbps is needed.
  - Industrial graphics and computer aided design? From 50 to 100 Mbps is needed.
  - Telemedicine transmission of medical files and images? At least 100 Mbps will be needed.
- ***So the definition of High Speed is: As fast as needed for the activity you are engaged in.***

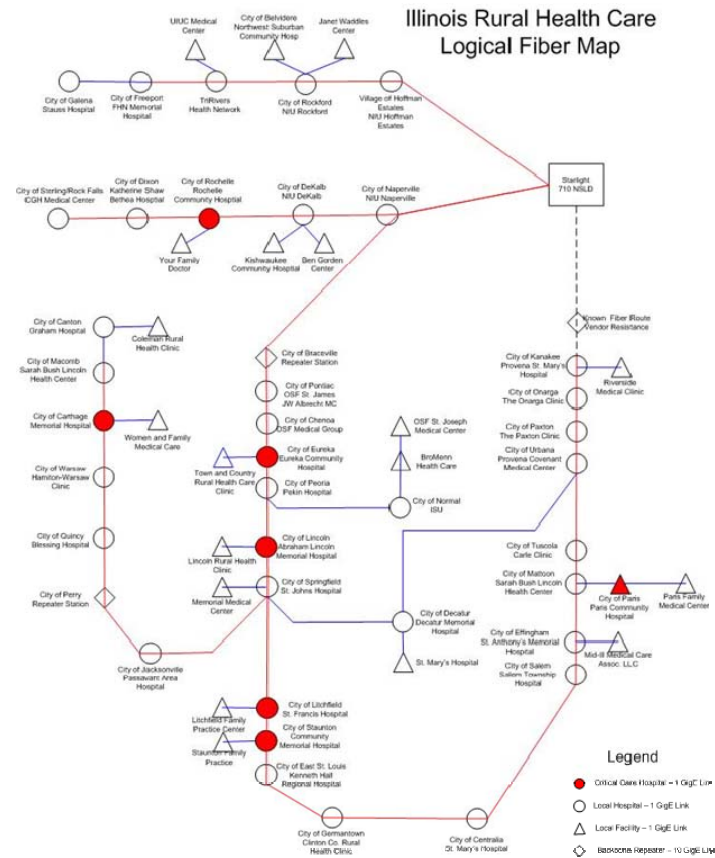
# Design of the Network

- The main backbone network will be composed of a 10 Gbps fiber optic system running through key areas of the state, with lateral connections to nearby hospitals running at 1 Gbps.
- To complement the fiber optic system, a wireless network will be built to provide service to those healthcare organizations that are not along the fiber optic path.
- At key points along the fiber path, access points will be established where Gigabit Ethernet connections can provide service to a high-performance wireless network. This wireless network will be established as a trunk and tributary system.
- The trunk section of the wireless network will connect directly to the local interface on the fiber optic network at a speed of 1 Gbps.
- The radios used in the trunk system are capable of transporting voice, video and data traffic at about 200 Mbps, using a full duplex type of connection (an aggregate speed of 400 Mbps).

# Design of the Network

- The trunk will be constructed using existing public facilities, such as water towers, to support the radio equipment.
- The tributary links will connect to local facilities at a speed of 100 Mbps, using a full duplex type of connections (an aggregate speed of 200 Mbps).
- Each local link(s) will connect from the local point-of-presence (trunk radio) to each of the local facilities that are participating in the Consortium.
- This system will transport services between each of the participants of the Consortium in a manner that best meets their technical and business needs.
- The system will also provide each organization with access to the Internet and the resources and technology of Internet 2.
- The network will be capable of being expanded, both within Illinois and also to connect with neighboring states and to federal nodes.

# Design of the Network



# What Should Hospitals Prepare For?

- Because of the FCC funding cycles, this will be a three year implementation. The sequence of connection of hospitals will be determined by several factors:
  - Deployment of fiber optic backbone
  - Economies of geographical scale
  - Identification of hospitals that have strong need and will be able to make effective use of the high speed connection
- On the technical side, we will need to communicate with each hospital's IT Administrator, to discuss nuts and bolts of connectivity.
  - Hospitals will essentially trade costs to receive much more bandwidth
- On the application side, help us understand what this high speed connection will mean for your specific hospital.
  - What will you be able to do that you can't do now – the Value Added!

# Next Steps

- Each hospital is asked to provide a lead contact person or coordinator.
- We will then provide to that coordinator:
  - Draft letter of agency
  - Technical survey form for each hospital
  - Application survey form for each hospital
- Please email the contact information for your hospital's coordinator to:
  - [akraus@niu.edu](mailto:akraus@niu.edu) (815-753-8945)
  - [dpower@niu.edu](mailto:dpower@niu.edu) (815-753-8947)
- If you have questions, please don't hesitate to call!