ILLINOIS RURAL HEALTHNET

Federal Communications Commission
Rural Health Care Pilot Program

IRHN RFP 05

REQUEST FOR PROPOSALS

NETWORK EQUIPMENT – Two Types

- **Section 1: DWDM and Optical Transport**
- **Section 2: Network Switches**
- **Section 3: Multi-Vendor Equipment Maintenance**

VENDORS ARE WELCOME TO RESPOND TO A SINGLE SECTION, OR MULTIPLE SECTIONS, AS THEY MAY CHOOSE

June 8, 2010

RESPONSES ARE DUE 30 DAYS FROM THE DATE THAT THE RFP IS POSTED ON THE USAC WEB SITE

Illinois Rural HealthNet

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Section 1. Project Overview

Objective of the Request for Proposals:

This document follows:

- RFP 02, Fiber-Based Facilities or Services
- RFP 03, Last Mile/Middle Mile Facilities or Services
- RFP 04, Selected Sites Pricing

NOTE: IF YOUR COMPANY SUBMITTED A RESPONSE TO RFP 02, AND/OR RFP 03, THOSE RESPONSES ARE STILL BEING ACTIVELY CONSIDERED.

RFP 02 and RFP 03 were designed to identify cost-effective statewide and region-wide backbone options. Such options were proposed by multiple vendors, and the IRHN is in discussions with a number of these vendors to develop contracts. As was stated in the previous RFPs, the IRHN expects that there will be multiple vendors under contract with the IRHN to provide facilities and/or services, all developed within the USAC Pilot Program guidelines.

RFP 04 was designed to identify cost-effective last-mile pricing to many of the IRHN locations. It is expected that some vendors' responses to RFP 04 will include equipment, as was allowed for in RFP 04.

VENDOR RESPONSES TO RFP 04 WILL BE ACTIVELY CONSIDERED, WHETHER THEY INCLUDE EQUIPMENT OR DO NOT INCLUDE EQUIPMENT.

THE ISSUING OF THIS RFP 05 DOES NOT AFFECT THE VIABILITY OF VENDOR RESPONSES TO RFP 04.

1.A. PURPOSE OF THIS RFP 05 FOR EQUIPMENT – Two types of equipment are addressed in this RFP:

- Section 1: DWDM and Optical Data Transport Equipment
- Section 2: Switches

- In addition, Section 3 asks Vendors, if they so choose and provide such services, to offer proposals on maintenance on equipment provided by multiple Equipment Vendors.

VENDORS ARE WELCOME TO RESPOND TO A SINGLE SECTION OR MULTIPLE SECTIONS, AS THEY CHOOSE.

The IRHN has received proposals which will provide a statewide backbone, as well as portions of regional backbones. As was provided for in RFP 02 and RFP 03, vendors were allowed to offer fiber facilities or services, other network facilities or services, and/or combinations thereof. Section 1.B describes generically the current state of the procurement for the IRHN network, and explains why the IRHN is seeking multiple types of equipment via this RFP 05.

1.B. Current State of IRHN Network Procurement and Rationale for RFP 05:

- The IRHN network will include some elements of dark fiber. For that reason, RFP 05 includes Section 1 relating to DWDM Equipment. If your company can offer DWDM equipment, the IRHN welcomes your response to Section 1 of this RFP.
- The IHRN network will include some elements of fiber-based services, including lambdas. For that reason, RFP 05 includes Section 2 related to Switches. If your company can offer Switching equipment, the IRHN welcomes your response to Section 2 of this RFP.
- The IRHN network will include various solutions to last-mile connectivity, and for that reason Section 2 of this RFP also addresses equipment that might be located near or at the end user location.

NOTE: Responses to RFP 05 will be considered as viable for any and all IRHN locations for which such responses may be relevant. The IRHN desires to sign a multi-year contract with equipment providers that can be used on an as-needed basis.

The IRHN expects to have contracts with more than one equipment provider, as may be appropriate.

So, via this RFP 05, the IRHN seeks proposals for various types of equipment for the Illinois Rural HealthNet, in full accordance with the guidelines issued by the Federal Communications Commission (FCC) Rural Health Care Pilot Program, and as administered by the Universal Service Administrative Company (USAC).

Vendors are encouraged to provide responses to:

- A single Section of this RFP
- Multiple Sections of this RFP

as appropriate for each vendor.

1.1. Organization Mission:

The Illinois Rural HealthNet (IRHN) was created to facilitate and assist in the deployment of high-speed networking for rural hospitals, clinics, and mental health facilities, to allow rural patients access to advanced emergency and specialized health care services. The IRHN will connect rural health care entities to sources of specialized care, at high speeds that allow for electronically aided remote diagnostics in clinical areas such as cardiology, neurology, mammography, and mental health.

1.2. Geographic Service Area:

The service area for this RFP comprises locations throughout Illinois.

1.3. Project Summary:

Illinois Rural HealthNet (IRHN) will be a high-speed communications network connecting rural Illinois hospitals and medical clinics with specialists at larger facilities throughout the state and nation for the delivery of telemedicine and tele-health services.

When completed, the IRHN will transform healthcare delivery in many areas of the state where access to specialty care is currently unavailable, providing virtually instantaneous transfer of diagnostic images for treating cardiology, neurology, and oncology patients; real-time virtual consults for trauma patients; psychiatric services in real time for patients in areas with no psychiatric specialists; and improved access to patient information via electronic medical records.

1.4. Project Background:

The IRHN was initially formed in April, 2007, to participate in opportunities for funding from the FCC's Rural Health Care Pilot Program. The IRHN consortium includes behavioral and medical health service organizations, higher education, and existing health, education, and research networks.

In November 19, 2007, the FCC issued their Order, WC Docket No. 02-60 (available at the FCC website, Rural Health Care Pilot Program), which awarded $21,063,528 to the Illinois Rural HealthNet, contingent on the IRHN securing the required 15% match.

The IRHN was incorporated as a State of Illinois Not For Profit on January 30, 2008, File No. 6594-484-7, and has been granted Federal 501(c)(3) status.

1.5 Desired Network Concept

Financial Overview:

The FCC's Rural Health Care Pilot Program contains a clear objective, which is that Pilot Participants utilize the Pilot Program funding for these two purposes:

- Provide improved capabilities for high speed broadband to connect rural health care providers, by creating a dedicated broadband network;
- Implement the new network in such a manner that it will continue functioning successfully after the Pilot Program funding has expired, and without the need for continuing external financial support.

In other words, the IRHN must be sustainable for the long term, such that it can continue to function with no need for financial support other than the monthly/annual recurring charges that will be paid by each of its member health care providers.

Thus, the IRHN will use the Pilot Program funding for capital expenditures, or for the equivalent of capital expenditures. In practical terms, this means that funding will be used to pay for:

- Contracts for the purchasing of equipment and/or facilities, whether wireless or fiber.
- Contracts for purchase, or for long-term leases, of equipment, with the majority of payments being made within the first three years.
- Indefeasible Right to Use contracts for fiber or lambdas, where available and appropriate.

- Long-term contracts for services, with the majority of payments being made within the first three years of the contracts.

The intent is to have, at the end of the four-year Pilot Program, a network in place that is financially sustainable without the need for significant external funding support.

Technical Overview:

The IRHN will contract for wide-area, dedicated, broadband network services for our Members and will solicit bids, via the USAC website, from entities capable of providing these services. The IRHN will be the entity that contracts with vendors for communications services for the IRHN network.

The IRHN application to the FCC outlined the following approach: We envision a backbone network composed of multiple lambdas over a fiber-based system with overlay services of ten gigabits per second running through key areas of the state, with lateral connections to nearby hospitals running, ideally, at one gigabit per second. If a one-gigabit connection to individual hospitals is not achievable or cost efficient, the objective is for connections to individual hospitals to meet a standard of at least 100Mbps, upstream as well as downstream. Use of some wireless applications is expected. PLEASE NOTE: A DETAILED SUMMARY OF THE IRHN NETWORK CONCEPT IS PROVIDED IN APPENDIX I.

The IRHN issued RFP 02 for Fiber-Based Facilities or Services, which was posted on the USAC website, with the intent of procuring long-term use of fiber-based facilities or services to serve as a backbone for the IRHN, and to explore the availability of fiber facilities or services to link individual health care entities to the IRHN backbone. The IRHN issued RFP 03, for Last Mile/Middle Mile Facilities or Services, to identify the availability and pricing of wireless or wireline facilities or services to connect the individual 85 hospital and clinic locations to IRHN network hubs/access points.

With RFP 04, Selected Sites Pricing, the IRHN sought to identify more cost-efficient pricing for selected end-user health care locations, whether via wireless or landline, and whether via equipment purchase, equipment lease, or via services.

And with this RFP 05, Equipment, the IRHN seeks to identify cost-efficient pricing for two general types of equipment, as will be described in detail in the following sections:

- Section 2.1 – DWDM Equipment;
- Section 2.2 – Switches;
- And, if the Vendor offers such services, maintenance services on multiple types of equipment.

Section 2: Scope of Work - General

Vendor responses are required in Section 2.1, and/or in Section 2.2, as Vendors may choose. Vendor responses to Section 2.3 are optional.

Items in the Scope of Work that pertain to Cost and Pricing should be addressed, as appropriate, in Vendors' responses to Section 4, Vendor Proposed Pricing.

GENERAL ITEMS:

2.0.1 Purpose:
The Illinois Rural HealthNet (IRHN) is requesting proposals to enable the provisioning of a high-speed network, which will be used to support advanced communication services for multiple healthcare communities in Illinois. This Request for Proposals (RFP) specifies the instructions for submitting these proposals, the procedure and criteria by which a vendor may be selected, and some of the contractual terms by which the IRHN intends to govern the relationship between it and the selected Vendors.

2.0.2 Definition of Parties:
The Illinois Rural HealthNet will hereinafter be referred to as the "IRHN." Vendors responding to the RFP shall be referred to as "Vendor." Vendors can include both traditional and non-traditional providers.

2.0.3 Background:
IRHN is a high-performance network connecting rural Illinois hospitals with other communities at other organizations throughout the state and nation. Where fiber-based facilities and services are not available cost effectively, the IRHN intends to fill in the gaps in the network with wireless or wireline facilities or services. When completed, IRHN will transform healthcare delivery in many areas of the state where access to specialty care is currently unavailable. IRHN is comprised of healthcare, academic, research, and government agency member organizations. The IRHN infrastructure is being designed to interconnect these organizations to allow for advanced communication services that are not otherwise possible. The network will primarily transport telemedicine, telehealth, research, and education traffic related to healthcare, but it is also intended to allow healthcare, government agencies and other member organizations to form partnerships and collaborations to create specialized services for their healthcare constituencies. This RFP is intended to allow the IRHN to successfully undertake a fair and comprehensive evaluation of the wireless and/or wireline solutions proposed by all potential providers who have responded. From among the responses, the IRHN intends to analyze and select the best option(s) for completion of stated objectives.

2.0.4 Scope:
The IRHN will approach the Provider community as a single entity on behalf of its organizational members.

- The IRHN may select multiple Vendors, as may prove beneficial to the IRHN.

- In the case that a multi-Vendor solution is selected, straightforward interconnection procedures become critically important evaluation criteria.

- The IRHN will evaluate the response to this RFP with consideration for both one-time costs and operating costs through the term. The IRHN will analyze options based on 10, 15, and 20-year cost scenarios, and will seek the solution that provides the most cost effective solution per FCC requirements as well as the greatest flexibility during these periods.

- The IRHN is interested primarily in IRU-type pricing, or equipment pricing, with a greater up-front payment and a lesser annual maintenance cost. It is anticipated that proposals will contain an initial cost for deployment of facilities, equipment, or services, with annual maintenance costs. In order to comply with IRHN's plan for network sustainability, ***the great majority of cost for the entire term of the contract must be able to be invoiced and paid within the initial four years of the contract***. While we understand this may not be typical for some Vendors, the FCC Rural Health Care Pilot Program requires that the funding be used primarily for the equivalent of capital spending, to implement the network in such a manner that the ongoing costs, after the initial four years, will be sustainable without the need for further outside funding. Hence the need for front-loaded contracts. The IRHN will use front-loaded pricing, combined with ongoing maintenance costs, for overall cost comparisons.

- Vendors should include detailed technical information in the RFP response.

2.0.5 Underlying IRHN Rationale:

The IRHN has a requirement to build an advanced health care network that can provide a wide range of specialized service. IRHN members may purchase additional services, such as IP services, local loops, and support services

2.0.6 Partial Proposals and Provider Partnerships:

The IRHN understands that many Vendors may not have a solution that fully addresses all of the sites the IRHN intends to connect.

2.0.7 Support Services and Integrated Solutions:
The IRHN's intention in issuing this RFP is to secure connectivity to selected locations listed in the 465 Attachment. It is anticipated that contracts with multiple vendors may result. The use of industry standards-based specifications will be important in order to integrate the multiple components of the network into a smoothly operating whole.

2.0.8 Requirements:

2.0.8.1 General Overview of Connectivity Requirements:

Last Mile connection must provide a minimum speed of one hundred megabits per second using a full duplex synchronous connection. 100Mbps per location upstream and downstream at each location must be guaranteed at all times. The handoff should be 100BaseTX or 1000BaseTX.

SECTION 2.1 – DWDM and OPTICAL TRANSPORT EQUIPMENT

NOTE: Section 2.1 requests equipment for portions of the IRHN network. The specifications are provided in this Section 2.1, and some of the intended locations are provided in this Section 2.1.

VENDORS THAT CHOOSE TO RESPOND TO THIS SECTION OF THE RFP ARE ASKED TO REVIEW THE 2.1 SCOPE OF WORK, AND TO RESPOND WITH THEIR PROPOSALS IN SECTION 2.1.11.

IRHN Key Components and Infrastructure

The IRHN is architected as portions of networks that will interact with other selected service providers providing services for the IRHN. The initial requirement of the IRHN for equipment build-out will include seven Network Access Points (NAP's) between Belleville IL to Champaign IL. Each NAP is envisioned to have high-speed, high-capacity connectivity between each NAP using DWDM as a transport base. At a high level, this premise would enable healthcare facilities to communicate cooperatively between each other. Each NAP will require future capacities to be added as the demand for the service will increase. The network is also intended to expand within metro regions allowing the build requiring expansion of services over time.

Vendors are encouraged to read the Appendix I "IRHN Technical Narrative" for a better understanding of the IRHN methodology.

The IRHN intends to provide a high capacity optical backbone network throughout the State of Illinois. The proposed network should at minimum support transport of 40 Gigabit ethernet services. Portions of the network will be constructed in a physical two-strand fiber ring. The system should initially provide 8 DWDM channels at 10 Gigabit/sec and should grow to a total of 40 DWDM channels. The addition of wavelengths 9 – 40 should be factored into the initial design to avoid re-tuning and re-engineering of the system. Responses must include the upgrade methodology that will be used to grow the system from 9 to 40 channels. The proposed network equipment must support protection of the DWDM wavelengths. The optical system will require, at a minimum, seven terminal locations to provide services to IRHN customers. All channels must be available at each Terminal location. In addition, IRHN considers tunable optics and reconfigurable optical add/drop multiplexors highly desirable features. Figure 1 and Table 1 show the fiber optic cable route and the locations on the route.

Figure 1: Fiber Optic Network Overview

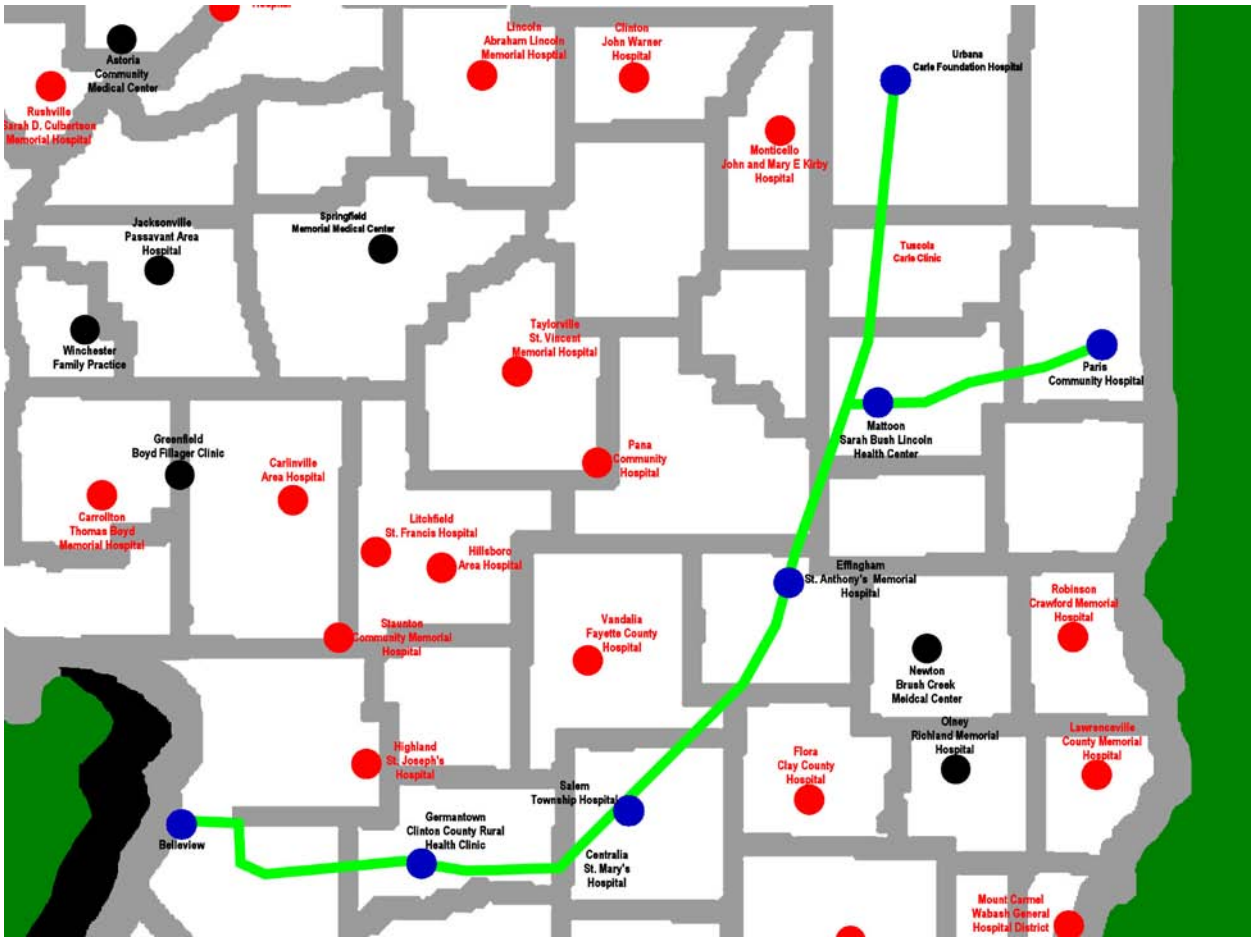

Table 1: Site designations

Location Name	Address	City
Memorial Hospital	4500 Memorial Drive	Belleville, IL
Clinton County Rural Health Clinic	205 Munster St.	Germantown, IL
Salem Township Hospital	1201 Ricker Rd.	Salem, IL
St. Anthony's Memorial Hospital	503 N. Maple Street	Effingham, IL
Sarah Bush Lincoln Health Ctr.	1000 Health Center Drive	Mattoon, IL
Paris Community Hospital	721 East Court Street	Paris, IL
Carle Hospital	611 West park Street	Urbana, IL
Remote Site	(multiple locations)	IL

2.1.1 Goals of Section 2.1

IRHN seeks a partnership with a qualified vendor(s) who will design, install, configure, test and provide training on this portion of the optical network. The network will utilize single-mode dark fiber and must meet the following expectations:

System Design:

Primary Path

- Provide DWDM network design for all primary optical paths for the solution.
- Provide a minimum 8 wavelengths/channel across this portion of the network.
- Allow for system growth of a minimum 40 wavelength/channels.
- DWDM channels must use ITU-T grid spacing of 100 GHz maximum or more condensed.
- All wavelengths/channels must be capable of 10Gbps operation using OTU2 standards.
- Provide details for wavelength, line card, and redundancy options.
- Provide redundant power and processor cards.
- Provide access to all wavelength/channels at each terminal location.
- Provide alarm contact for facility connections.
- Provide hardware bill of materials for project, to include minor materials (i.e. power cabling, wire management, patch cords).
- Provide and install all wire management assemblies and parts.

Secondary Path (1 Gigabit)

- Provide single channel 1 Gigabit network transport design to support secondary remote optical paths for end site locations.
- Secondary fiber path (s) should be supported by integral primary OTU cards at the backbone node locations. Secondary 1 Gigabit path is not mandated to subscribe to DWDM ITU-T standards.
- Provide details for wavelength (if applicable), line card, and redundancy options.

- Provide hardware bill of materials for project, to include minor materials (i.e. power cabling, wire management, patch cords).
- Provide and install all wire management assemblies and parts.

System Installation:

- Work closely with IRHN technology committee on installation and configuration of system.
- Provide a Project Manager to act as central point of contact for the installation.
- Install all network components in accordance with industry and manufacturers' guidelines.
- Perform testing on installed network to verify error-free operation.
- Document installation of network components and configurations.
- Document test procedures and test results.
- Provision and test services required in proposed build-out.
- Document system provisioning as turned over to IRHN.
- Provide as-built documentation of optical system.

System Maintenance

- 4-hour on-site technician response/hardware delivery to system degraded or down conditions.
- Vendor to provide support staff and depot location details in response.
- 5 years hardware maintenance. Advanced replacement service next business day.
- 5 years software maintenance for networking and management components.

2.1.2 Physical Plant

The network will be constructed using single-mode dark fiber. Below is a list of each fiber span with the available technical details of each. Sites marked as Terminal locations have appropriate rack space, power and environmental to house the DWDM equipment.

Span ID	Location A	Location Z	Distance	Type of Fiber	Conn. Type at Loc A	Conn. Type at Loc Z
1	Belleville, IL	Germantown, IL	37.01 Miles	SMF 28	SC/UP	SC/UP
2	Germantown, IL	Salem, IL	37.66 Miles	SMF 28	SC/UP	SC/UP
3	Salem, IL	Centralia, IL	46.14 Miles	SMF 28	SC/UP	SC/UP
4	Centralia, IL	Effingham, IL	53.20 Miles	SMF 28	SC/UP	SC/UP
5	Effingham, IL	Mattoon, IL	27.12 Miles	SMF 28	SC/UP	SC/UP
6	Matton, IL	Champaign, IL	43.10 Miles	SMF 28	SC/UP	SC/UP
7	Mattoon, IL	Paris, IL	39.00 Miles	SMF 28	SC/UP	SC/UP
8	Effingham, IL (Example only)	Remote Site IL (Multiple)	5.00 Miles	SMF 28	SC/UP	SC/UP

2.1.3 Technical Requirements

The proposed primary backbone optical system (10GbE) must use ITU-T grid wavelengths, with a maximum spacing of 100GHz or more condensed, for the transport of the data signals. The DWDM network will be constructed as a multiple linear point-to-point network with the intention to create a ring when complete (if other fiber resources are obtained). The system must provide 8 wavelengths/channels of 10Gbps transport using OTU2 standards in the Phase I build,

but must scale to 40 wavelengths/channels capable of OTU3 standards without re-engineering or major system disruption. Vendor proposals must include all multiplexor/demultiplexor and OADM hardware to support 8 channels. Transponder hardware is only required for services identified in **Table 2.** The system must also provide options to gain direct access to the DWDM multiplexer and bypass the transponder. Direct access to the DWDM multiplexor will allow ITU-T grid interfaces in CPE network hardware. This will also provide a test point between the transponder interfaces and the DWDM multiplexor/demultiplexor. The system must provide options for wavelength protection and line card, power and processor redundancy. The system must be designed such that the loss of any individual fiber or electronic component will not result in any node on the network becoming unreachable. The system must support performance alarms and provide alarm contacts to receive facility alarms. Each terminal site must provide the ability to monitor individual DWDM wavelengths. Amplification sites must provide the ability to monitor aggregate receive and send power levels. The proposed equipment must support both AC and DC power options with redundant A/B feeds. System must be capable to transporting 40GE of data or OTU3 standards. The solution must also provide out-of-band access to all network components. The proposed network architectures must be flexible to accommodate future DWDM network expansion into metro regions.

The secondary backbone node to Remote Site transport must provide 1 Gigabit Ethernet connectivity between the two locations. The optical characteristics of the Remote Site link are not mandated to comply with DWDM channel specifications as only 1 ea. 1 Gigabit channel is anticipated to the Remote Site (CWDM, DWDM or baseband optical may be used). The Gigabit Ethernet interface at the node location must integrate into and be managed by the primary backbone chassis providing both backbone transport and primary node Ethernet services. The remote site interface should provide 10/100/1000 Ethernet for subscriber equipment access.

2.1.3.1 Reconfigurable OADM Configurations

Vendors offering reconfigurable optical add/drop multiplexors may provide this functionality as part of an optional configuration above and beyond the base system configuration. Any re-design or re-engineering efforts required to accommodate the proposed ROADM solution must also be clearly identified in the responses. ROADM solutions are required to be multi-degree with a minimum of four degrees of flexibility.

2.1.3.2 Pricing for Additional Hardware, Software & Maintenance

In Section 4, Pricing, the Vendor is asked to include the pricing structure applied to future purchases or additional hardware and software components associated with the system not specifically listed in this RFP. The Vendor should identify the percentage discount for hardware, software and associated maintenance, and identify the duration of time this discount structure will be applicable for.

2.1.4. Provisioning Required

The transports supported by the optical network must include Ethernet ports supported up to 10GE. The provisioning is broken down into two phases. Services, identified in Table 2, must be functional upon delivery of this portion of the system to IRHN**. Figure 2A** represents that each site will be Ethernet configurable at rates from 10Mb to 10Gb and able to provide switching capability between sites. The desired lightwave services are defined in **Figure 2B** using OTU2 standards as part of the initial pilot program. RFP responses must include itemized cost figures for installation, configuration and testing of equipment to support services. All services

provisioned on the optical network will be subject to a thirty-day (30) IRHN acceptance period. Service interruption or degradation during the acceptance period results in the restart of the full 30-day acceptance period. If any re-engineering is expected, as the service configuration grows, that must also be included in the response.

Table 2: Services

Location A	Location B	Type of Service	Wavelength Service
Belleville	Germantown	Ethernet	(2) OTU2
Germantown	Salem	Ethernet	(2) OTU2
Salem	Effingham	Ethernet	(2) OTU2
Effingham	Mattoon	Ethernet	(2) OTU2
Mattoon	Paris	Ethernet	(1) OTU2
Mattoon	Champaign	Ethernet	(2) OTU2

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Figure 2A: Ethernet Services

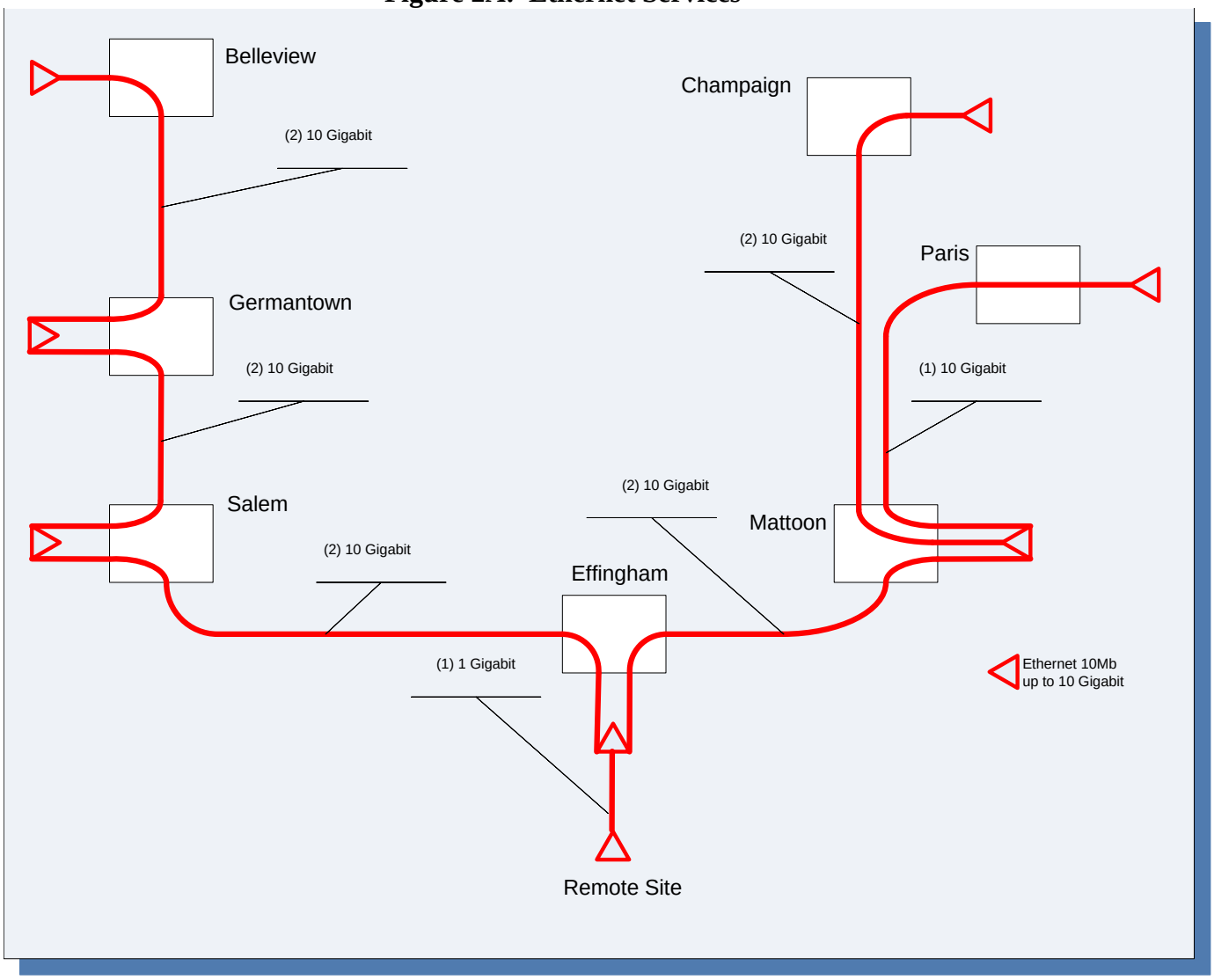
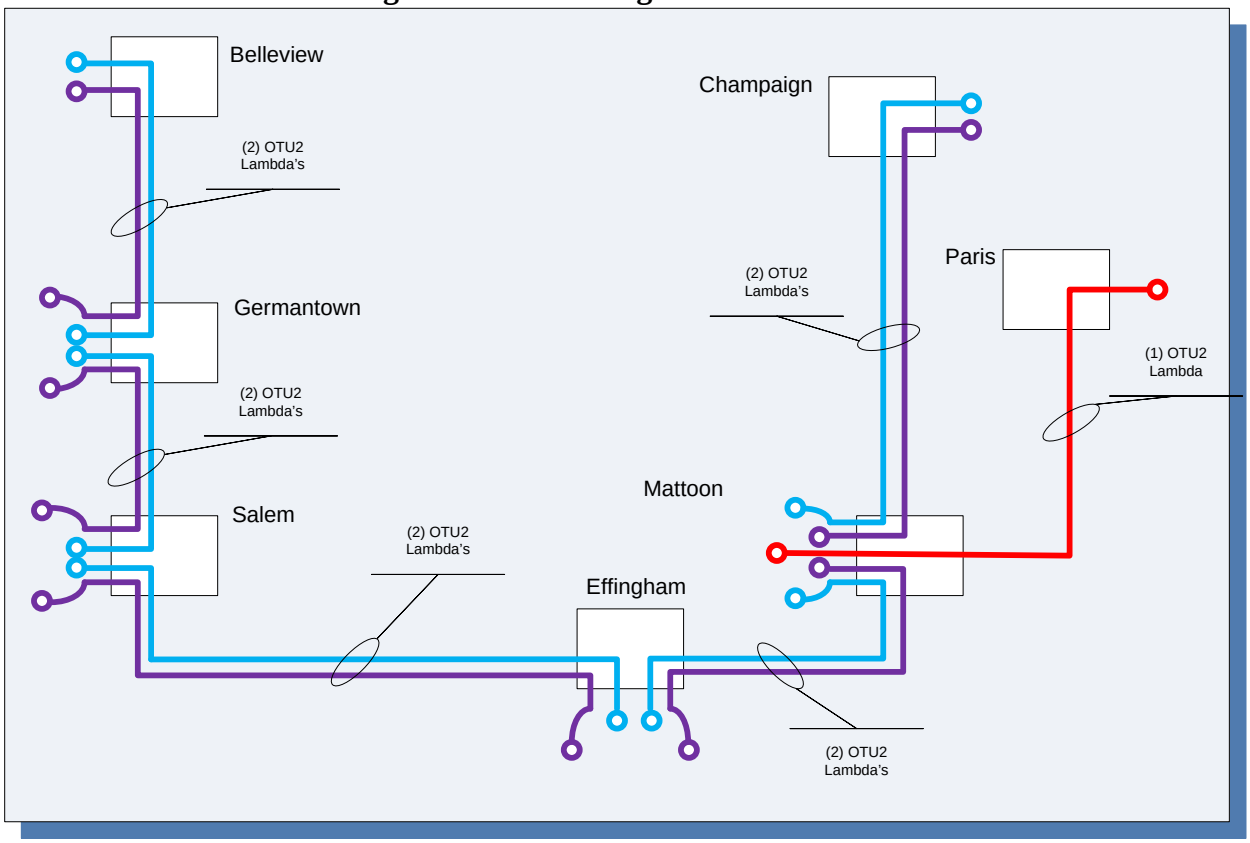


Figure 2B: Wavelength Services



2.1.5 Management

The optical system must include a management solution capable of managing all elements installed for this project. The ability to backup system configurations and create performance and capacity reports is of critical importance to the IRHN. Responses must include details on the configuration management, monitoring and reporting capabilities of the management system. Methods of remote access to network management station and individual network components must be included. Images of the management interface are encouraged for the RFP response.

The proposed solution must include redundant management platforms to store provisioning information, track network performance, collect system alarms and aid in system upgrades. The management platform must support SNMP and syslog and must be configured to forward critical event notifications.

2.1.6. Installation Requirements:

The selected vendor must deliver and install the optical system to IRHN as a turn-key solution. Pre-installation fiber test results, site survey data, detailed hardware inventory, individual device configurations and results of post-installation system testing must be

submitted to IRHN. The vendor must perform a fiber test to certify that the proposed optical system will work within the equipment specifications. Services must be provisioned and documented prior to turnover of the system to IRHN. An IRHN Project Manager will be assigned to act as a central point of contact for this project. The IRHN Project Manager will coordinate all scheduling and site access. In addition, the IRHN Project Manager will coordinate remediation issues identified during site surveys. Additional IRHN personnel will be assigned as required and will work closely with the selected vendor on the installation to ensure access and overall system QA.

2.1.7 System Documentation:

The documentation for the optical system will be broken down into two categories: System Installation and System Provisioning.

System Installation Documentation:

- Visio diagram of proposed system
- Fiber strand count used for each connection
- Fiber patch panel number and port number for each connection
- Fiber connector type used for each connection
- Launch and receive power per wavelength, per span
- OSA plot documentation per fiber span
- EDFA receive power levels and gain settings
- Attenuators used in the network (electronic/physical)
- Bit Error rate test results per wavelength. Tests must be run for 6 hours
- As-built diagrams of each location

System Provisioning Documentation:

- Service Type
- Wavelength used
- Service endpoint locations
- Protection type
- DWDM path used. Include both primary and backup for protected services
- Visio diagram of circuits provisioned over optical network

All documentation will be delivered with three hard copies and three CDs containing the electronic version of the documents.

2.1.8. System Turnover:

The selected vendor must provide an Optical Engineer for the first 30 days of network operation available during normal business hours by phone. Personnel provided must be familiar with the system installation and provisioning.

2.1.9. Thirty-Day Acceptance Period

The completed DWDM network will be subjected to a thirty-day (30) acceptance period. The Acceptance Period will commence upon receipt, by the IRHN, of a Letter from the

vendor acknowledging that all equipment has been installed, tested and is ready for production traffic.

2.1.10. Maintenance

Vendor proposals must include maintenance costs for the first ten years of system. System maintenance must include 4-hour on-site technician and hardware response time to system-down or degraded issues. Vendor responses must include the qualifications and location of personnel who will maintain the system. Please provide pricing quote for coverage of failed network components resulting in a service outage to be replaced within 4 hours. The locations of warehouses that will store spares for the optical system should be included in the response.

Software maintenance for all network components and the network management stations must be included in the response. The software maintenance will include patches and upgrades.

SECTION 2.1.11 VENDOR RESPONSE TO SECTION 2.1

VENDORS WHO CHOOSE TO RESPOND TO THIS SECTION ARE ASKED TO PROVIDE THEIR RESPONSE TO THE SECTION 2.1 SCOPE OF WORK BELOW, PARTS 1, 2, AND 3:

Part 1:

The Vendor must provide a concise narrative description of the proposed DWDM system and associated requirements. Vendor must provide technical documentation for all proposed equipment. This technical documentation can be in the form of paper or electronic copy, but one copy of each is preferred. The vendor must also provide documentation demonstrating that they meet or exceed all technical requirements outlined in this RFP. Items addressed in the Vendor's response must include:

- Statement of Work that identifies the Vendor's understanding of the project goals, scope, Vendor's approach, deliverables and risk management/mitigation capabilities.
- Diagram of the proposed DWDM solution.
- Estimated receive power levels, loss and gain settings based upon fiber characterizations included in Section 2.1.
- Proposed locations of regeneration and/or attenuation based upon fiber characterizations included in Section 2.1.
- Inventory of materials for the project, including hardware and minor materials, itemized per location. Vendor proposals must include all multiplexor/demultiplexor and OADM hardware to support 8 channels. Transponder hardware is only required for services identified in Table 2.
- Environmental and HVAC specifications and operating ranges of proposed hardware.

- Details of wavelength, line card and redundancy features of proposed hardware.
- Testing methodology used to qualify fiber.
- Testing methodology used to certify the completed system and each individual service.
- Methodology and proposed project plan to upgrade the system from 9 to 32 wavelengths, if applicable.
- Features and capabilities of the network management platform.
- Maintenance services provided by the Vendor including the qualifications and locations of personnel and equipment depots.

Part 2:

The Vendor must designate a Project Manager who shall be its Services representative and the IRHN's prime contact with regard to all provisions of the Contract. The Project Manager shall be named in the Vendor's proposal and a copy of their resume provided in the response.

Part 3:

The Vendor must designate a Network Engineer who shall work on-site for the IRHN for the installation of the system. Personnel provided must be familiar with the system installation, provisioning and operations. The IRHN prefers that this resource participate in the design and installation of the proposed system so they may have direct knowledge of the network environment.

- Relation of switches to end user locations, end user terminal network devices
- Installation requirements
- Management requirements

SECTION 2.2 – NETWORK SWITCHES

NOTE: Section 2.2 requests equipment for portions of the IRHN network. The specifications are provided in this Section 2.2, and the intended locations are provided in this Section 2.2.

VENDORS THAT CHOOSE TO RESPOND TO THIS SECTION OF THE RFP ARE ASKED TO REVIEW THE 2.2 SCOPE OF WORK, AND TO RESPOND WITH THEIR PROPOSALS IN SECTION 2.2.11.

IRHN Key Components and Infrastructure

The IRHN is architected as portions of fiber-enabled networks and node locations that will interact with:

1) Each other;
2) Selected service providers providing public Internet services for the IRHN;
3) MREN, Internet 2 and other closed network service providers;

The initial requirement of this component of the IRHN network is to establish master and secondary switch equipment build-out to provide:

1) Multiple port 10Gigabit Ethernet interfaces at two key locations to interface and interconnect Ethernet transport networks and both public and private network interfaces.
2) Data traffic forwarding, management, and monitoring capability for common data packet types across all data ports.
3) Establishment and management of VLANs and VLAN tagging across all network ports.
4) Enable healthcare facilities to communicate cooperatively between each other. Each NAP will require future capacities to be added as the demand for service increases. The network is also intended to expand within the regions allowing expansion of services over time.

All network switch hardware, services, and applications must support IPv6 and must conform to the mandatory components of the "Profile for IPv6 in the U.S. Government – Version 1.0" (USGV6). If there are any exceptions, the vendor must provide details of non-conformance by component along with a good-faith estimate of when the component will be fully conformant to the standard.

Vendors are encouraged to read the Appendix I "IRHN Technical Narrative" for a better understanding of the IRHN methodology.

PLEASE REVIEW THE FOLLOWING NETWORK OVERVIEW

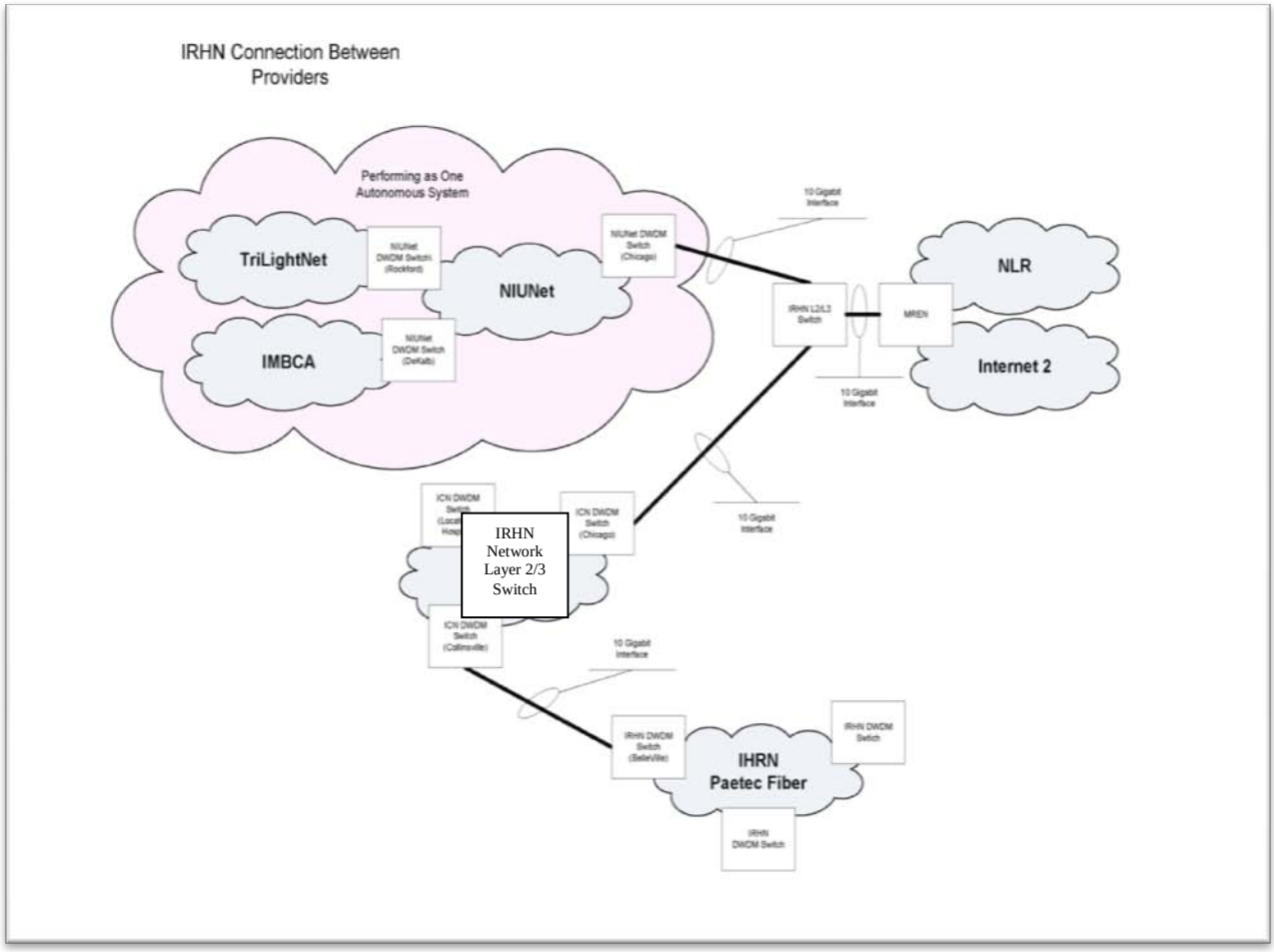


Figure 1: IRHN Switch Network Overview

Table 2.2: Switch Site Locations

Location Name	Address	City
MREN	710 N Lakeshore Drive	Chicago, IL
Collinsville POP	1102 Eastport Plaza Drive	Collinsville, IL

2.2.1 Goals of Section 2.2

IRHN seeks a partnership with a qualified vendor(s) who will configure, install, test and provide training on the central switch components of the IRHN network. The central switch components for the network will utilize 10G copper interfaces and must meet the following expectations:

System Design:

- Multiple port (4) 10Gigabit Ethernet interfaces and multiple port (4 or greater) GigE 10/100/1000 Mb ports at two key locations to interface and interconnect Ethernet transport networks and both public and private network interfaces.
- Data traffic forwarding, management, and monitoring capability for common data packet types across all data ports.
- Establishment and management of VLANs and VLAN tagging across all network ports.
- Enable healthcare facilities to communicate cooperatively between each other. Each NAP will require future capacities to be added as the demand for service increases. The network is also intended to expand within the regions allowing expansion of services over time.
- Provide redundant power and processor cards.
- Provide hardware bill of materials for project, to include minor materials (i.e. power cabling, cable management, patch cords).
- Provide and install all assemblies and parts.

System Installation:

- Work closely with IRHN technology staff on installation and configuration of system.
- Provide a Project Manager to act as central point of contact for the installation.
- Install all network components in accordance with industry and manufacturers' guidelines.
- Perform testing on installed network to verify error-free operation.
- Document installation of network ports, components and configurations.
- Document test procedures and test results.
- Provision and test services required in proposed build-out.
- Document system provisioning as turned over to IRHN.
- Provide as-built documentation of integrated switch system.

System Maintenance

- 4-hour on-site technician response/hardware delivery to system degraded or down conditions.
- Vendor to provide support staff and depot location details in response.
- 10 years hardware maintenance. Advanced replacement service next business day.
- 10 years software maintenance for networking and management components.

2.2.2 Physical Environment

The network switch equipment will be placed in existing computer room environments at both the Collinsville and Chicago locations. The switch equipment will be placed in standard 19" racks with A/B power (either 48 VDC or 120VAC) availability. The 10 Gigabit Ethernet ports of the provided switch will be cross-connected with the IRHN transport equipment and the MREN backbone equipment in adjacent racks.

2.2.3 Technical Requirements

Layer 2/3 Network Switch Required Specifications and Functionality

- Must have a minimum of 4 10 Gigabit Ethernet ports (Three will be used as part of initial configuration)
- Must have minimum of 4 Ethernet 10/100/1000 Mb ports (Two will be used as part of initial configuration)
- Must provide and sustain of forwarding capability and capacity equal or great than the sum of all installed interfaces. (44 Gb)
- Must offer OSI layer 3 functionality in a managed configuration
- Must support maximum transmission unit (MTU) of up to 9000 bytes, with a maximum Ethernet frame size of 9018 bytes (Jumbo frames) and up to 1546 bytes for bridging of Multiprotocol label Switching (MPLS) tagged frames on all ports
- Must support basic IP unicast routing protocols (static, OSPF, EIGRP)
- Must support IPv6 routing capability (OSPFv3, EIGRPv6)
- Must support Policy-Based Routing (PBR)
- Must support inter-VLAN IP routing
- Must support Internet Group Management Protocol v3 (IGMP) Snooping for IPv4 and IPv6 MLD v1 and v2 Snooping
- Must support IGMP filtering
- Must support TACACS+ and RADIUS authentication
- Must support Border Gateway Protocol (BGP)
- Must support Intrusion Prevention System (IPS)
- Must support IPsec VPNs
- Must have a *minimum* documented mean time between failures (MTBF) of 100,000 hours
- Must support AC and DC power options with redundant A/B feeds

- Must provide out-of-band access to all network components

In addition, the Network Switch:

- Should support PBB-TE dual homing and backup tunnels supporting immediate service switchover in event of primary tunnel failure
- Should provide redundant CPU and management fabric to ensure uninterrupted traffic forwarding during software upgrades and control module switchover, failure and/or replacement
- Should support optimization of the IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) to enhance failover times for restoration of port or path
- Should support "Q-in-Q" VLAN tagging
- Should provide a minimum of 100 Gigabit backplane bandwidth in support of system expansion, and next-generation applications

2.2.3.2 Pricing for Additional Hardware, Software & Maintenance

In Section 4, Pricing, the Vendor is asked to include the pricing structure applied to future purchases or additional hardware and software components associated with the system not specifically listed in this RFP. The Vendor should identify the percentage discount for hardware, software and associated maintenance, and identify the duration of time this discount structure will be applicable for.

2.2.4. Provisioning Required

The Network Switches must provide a minimum of 4 Ethernet ports supported up to 10GE and additional ports, four or greater, that support up to 1 Gigabit (10/100/1000) Ethernet connectivity.
Provisioning components that must be considered include:

- Configuration, testing and operation of data forwarding between IRHN closed network segments and ports
- Configuration, testing and operation of data forwarding between IRHN closed network segments and ports and ports supporting connectivity with Internet 2, NLR and MREN network partners
- Configuration, testing and operation data forwarding between IRHN member nodes and Public Internet Service Providers to support access to Internet sites, services and applications
- Configuration, testing and operation of V-LAN segmentation in support of hospital groups within the IRHN closed network
- Management, monitoring and reporting of network traffic by data type, origination and destination.
- Configuration, testing and operation of all available alarm and management points required for reliable and sustainable services.

Provisioning costs required for this RFP response must include itemized cost figures for installation, configuration and testing of equipment to support services. All services provisioned on the Network Switch will be subject to a thirty-day (30) IRHN acceptance period. Service interruption or degradation during the acceptance period results in the restart of the full 30-day acceptance period. Anticipated re-engineering supporting service configuration growth must also be documented in the vendor RFP response.

2.2.5 Management

The network switch system must include a management solution capable of managing all ports and elements installed for this project. The ability to backup system configurations and create performance and capacity reports is of critical importance to the IRHN. Responses must include details on the configuration management, monitoring and reporting capabilities of the management system. Methods of remote access to network management station and individual network components must be included. Images of the management interface are encouraged for the RFP response.

The proposed solution must include redundant management platforms to store provisioning information, track network performance, collect system alarms and aid in system upgrades. The management platform must support SNMP and syslog and must be configured to forward critical event notifications.

2.2.6. Installation Requirements:

The selected vendor must deliver and install the network switch system to IRHN as a turn-key solution. System configuration (both hardware and software), detailed hardware inventory, individual device configurations and results of post-installation system testing must be submitted to IRHN. Data systems and services must be provisioned and documented prior to turnover of the system to IRHN. An IRHN Project Manager will be assigned to act as a central point of contact for this project. The IRHN Project Manager will coordinate all scheduling and site access.

2.2.7 System Documentation:

The documentation for the optical system will be broken down into two categories: System Installation and System Provisioning.

System Installation Documentation:

- Visio diagram of proposed system
- Port used for each connection
- As-built diagrams of each location

System Provisioning Documentation:

All documentation will be delivered with three hard copies and three CDs containing the electronic version of the documents.

2.2.8. System Turnover:

The selected vendor must provide a Network Engineer for the first 30 days of network operation available during normal business hours by phone. Personnel provided must be familiar with the system installation and provisioning.

2.2.9. Thirty-Day Acceptance Period

The completed switch network will be subjected to a thirty-day (30) acceptance period. The Acceptance Period will commence upon receipt, by the IRHN, of a Letter from the vendor acknowledging that all equipment has been installed, tested and is ready for production traffic.

2.2.10. Maintenance

Vendor proposals must include maintenance costs for the first ten years of system operation. System maintenance must include 4-hour on-site technician and hardware response time to system-down or degraded issues. Vendor responses must include the qualifications and location of personnel who will maintain the system. Please provide pricing quote for coverage of failed network components resulting in a service outage to be replaced within 4 hours. The locations of warehouses that will store spares for the network switch system should be included in the response.

Software maintenance for all network components and the network management system must be included in the response. The software maintenance must include patches and upgrades.

SECTION 2.2.11 VENDOR RESPONSE TO SECTION 2.2

VENDORS WHO RESPOND TO THIS SECTION ARE ASKED TO PROVIDE THEIR RESPONSE TO THE SECTION 2.2 SCOPE OF WORK BELOW, PARTS 1, 2, AND 3:

Part 1:

The Vendor must provide a concise narrative description of the proposed network switch system and associated requirements. Vendor must provide technical documentation for all proposed equipment. This technical documentation can be in the form of paper or electronic copy, but one copy of each is preferred. The vendor must also provide documentation demonstrating that they meet or exceed all technical requirements outlined in this RFP. Items addressed in the Vendor's response must include:

- Statement of Work that identifies the Vendor's understanding of the project goals, scope, Vendor's approach, deliverables and risk management/mitigation capabilities.
- Diagram of the proposed network switch solution.
- Inventory of materials for the project, including hardware and minor materials, itemized per location. Vendor proposals must include all 10Gig and OADM hardware to support the switching systems

- Environmental and HVAC requirements, specifications and operating ranges of proposed hardware.
- Testing methodology used to certify the completed system and each individual network service supported are fully functional and meet design parameters.
- Features and capabilities of the network management platform.
- Maintenance services provided by the Vendor including the qualifications and locations of personnel and equipment depots.

Part 2:

The Vendor must designate a Project Manager who shall be its Services representative and the IRHN's prime contact with regard to all provisions of the Contract. The Project Manager shall be named in the Vendor's proposal and a copy of their resume provided in the response.

Part 3:

The Vendor must designate a Network Engineer who shall work on-site for the IRHN for the installation of the system. Personnel provided must be familiar with the system installation, provisioning and operations. The IRHN prefers that this resource participate in the design and installation of the proposed system so they may have direct knowledge of the network environment.

- Relation of switches to end user locations, end user terminal network devices
- Installation requirements
- Management requirements

SECTION 2.3 MULTI-VENDOR EQUIPMENT MAINTENANCE

Response to this Section 2.3 is optional. In Section 2.1.10, and in Section 2.2.10, this RFP asked Vendors responding to those sections to include maintenance costs for the first ten years of system operation. Please note that this Section 2.3 is separate and distinct from Sections 2.1.10 and 2.2.10.

Some equipment Vendors, in addition to providing pricing for maintenance on equipment they have sold to customers, also offer to provide a more far-reaching suite of services. In general, such services include maintenance of multiple types of equipment manufactured by multiple vendors. For the purposes of this RFP, let's call this Network Management Services. Listed below will be some of the items that may be included in such services.

PLEASE NOTE: THE IRHN WILL ALSO BE ISSUING AN RFP FOR NETWORK OPERATION CENTER (NOC) SERVICES IN THE NEAR FUTURE. The NOC RFP will include the high-level customer call-in, customer response, trouble ticket issuance and management, etc. This Section 2.3 does not include those levels of service. This

Section envisions an entity that has the expertise to provide maintenance to standard and commonly used equipment, and that has personnel and locations located in Illinois. When the NOC receives a trouble call, or detects a fault in the network with the NOC diagnostics, the NOC may need to deploy a technician to a site to address an equipment issue. This Section 2.3 is seeking responses from Vendors who may choose to offer proposals for such technical expertise and field staffing to be used on-demand and as needed.

Section 2.3.1 Vendor Response

If Vendors choose, please propose, in response to this Section 2.3.1, the relevant sets of services and the pricing regimens that are used to address items such as listed below:

- Network diagnostics (if available)
- Remote Equipment diagnostics (if available)
- Ability to maintain equipment provided by multiple vendors (list primary manufacturers that can be handled)
- 24/7 Diagnostic capability
- Field staffing for maintenance and MAC assignments
- 24/7 Field staffing for maintenance
- Standard maintenance package
- 4-Hour on-site maintenance package and hardware response time for system-down or degraded issues
- Information on the qualifications and location of personnel who provide service
- Information on locations of spare parts

In the Pricing Section, please provide pricing regimens for three-year and five-year packages.

Section 3. Vendor Experience

Vendors must provide brief answers to the following to demonstrate their experience.

Section 3.1 Vendor Experience

Vendor must provide a brief corporate/business history including a general mission statement, number of personnel, and other general information about the firm. The Vendor must provide evidence that it has maintained an organization capable of performing the work hereinafter described, in continuous operation for at least the past five (5) years. In addition, each Vendor must provide a statement of previous experience that qualifies the Vendor, and the personnel the Vendor proposes to use.

Section 3.2

Please summarize your experience related to the following:

- Number of years experience providing the proposed level(s) of service.
- Provide evidence of employee certifications.
- Vendors must have a current Service Provider Identification Number (SPIN).
- Vendors must have a track record of successful deployment and delivery of services. Please describe.
- Please include at least 2 references for which the Vendor provided similar levels of service as described in this RFP.

Section 4. Vendor Proposed Pricing

The FCC's Rural Health Care Pilot Program contains a clear objective, which is that Pilot Participants utilize the Pilot Program funding for these two purposes:

- Provide improved capabilities for high speed broadband to connect rural health care providers, by creating a dedicated broadband network;
- Implement the new network in such a manner that it will continue functioning successfully after the Pilot Program funding has expired, and without the need for continuing external financial support.

In the IRHN application for Pilot Program funding, one of the required elements was to "Indicate to what extent the network can be self-sustaining once established." (Excerpt from Paragraph 17 of FCC Order released September 29, 2006, establishing the Rural Health Care Pilot Program.)

The IRHN must be sustainable for the long term, such that it can continue to function with no need for financial support other than the monthly/annual recurring charges that will be paid by each of its member health care providers.

Thus, the IRHN will use the $21 million Pilot Program funding for capital expenditures, or for the equivalent of capital expenditures. In practical terms, this means that funding will be used to pay for:

- Contracts for the purchasing of equipment, or for long-term leases of equipment, with the majority of payments being made within the first three years.
- Long-term contracts for services, with the majority of payments being made within the first three years of the contracts;

The intent is to have, at the end of the four-year Pilot Program, a network in place that is financially sustainable without the need for significant external funding support.

Desired Approach to Pricing:

The IRHN seeks Vendors who can offer cost-effective equipment in a contractual manner that includes the following:

- Other than low-cost maintenance charges, all costs associated with the IRHN's use of the equipment must be front-loaded within the contract, to be paid within the first 3 years of the contract.

FCC Definition of "Cost-Effective"

In the FCC Order (WC Docket No. 02-60) announcing funding awards for the Rural Health Care Pilot Program, "Cost-effective" was defined in Paragraphs 78 and 79:

Paragraph 78:

> The Commission has defined "cost-effective" for purposes of the existing RHC support mechanism as "the method that costs the least after consideration of the features, quality of transmission, reliability,

and other factors that the health care provider deems relevant to…choosing a method of providing the required health care services." In selecting the most cost-effective bid, in addition to price, we require participants to consider non-cost evaluation factors that include prior experience, including past performance; personnel qualifications, including technical excellence; management……The non-cost factors may form a reasonable basis on which to evaluate whether a bid is cost effective. Because designing and constructing a new network represents a substantial undertaking and requires technical expertise, training, and skills of a different level than those services supported by the existing RHC support mechanism, we make consideration of these factors mandatory for Pilot participants.

79. The existing RHC support mechanism, unlike E-Rate, does not require participants to consider price as the primary factor in selecting service providers. The FCC has stated that RHC applicants should not be required to use the lowest-cost technology, because of telemedicine needs for reliability and quality. Participants need not select the lowest bid, and need not consider price the sole primary factor in selecting bids for network construction and services. The needs for telemedicine, complex design, infrastructure planning and construction, technical excellence, personnel qualifications are particularly relevant. Requiring least-cost bids could result in Pilot participants being relegated to using obsolete or soon-to-be-retired technology. Initially higher-cost options may prove to be lower cost in the long run, by providing useful benefits to telemedicine in terms of future medical and technological developments and maintenance. Thus, we do not require participants to make price the sole primary factor in bid selection, but it must be a primary factor.

Section 4.0.1 Vendor Pricing Proposal

Because of the structure of this RFP, the Pricing Proposal has two distinct sections.

Two types of equipment are addressed in this RFP:

- Section 2.1: DWDM Equipment
- Section 2.2: Switches

Vendor Pricing for Section 2.1 should be provided in Section 4.1, DWDM Pricing.

Vendor Pricing for Section 2.2 should be provided in Section 4.2, Switches Pricing.

Additionally, if Vendors choose to respond to Section 2.3, Multi-Vendor Equipment Maintenance, such proposed Pricing should be provided in Section 4.3, Multi-Vendor Equipment Maintenance Pricing.

VENDORS ARE WELCOME TO RESPOND TO ONE OR MULTIPLE SECTIONS OF THIS RFP, AS THEY MAY CHOOSE.

Section 4.1 DWDM Pricing:

Vendors responding to Section 2.1 are asked to provide the pricing information here.

Pricing proposals for Section 2.1 must include all aspects to address the requirements of the scope of work in Section 2.1, and must include all elements outlined in Section 2.1.11, Vendor Response to Section 2.1.

In addition to providing the prices per their response, Vendors are asked to include the pricing structure applied to possible future purchases by the IRHN of additional hardware and software components associated with the system. The Vendor is asked to identify the percentage discount for hardware, software and associated maintenance. In addition, the Vendor is asked to identify the duration of time for which this discount structure will be applicable.

Vendor proposals must include maintenance costs for the first five years of system. System maintenance pricing must include options for 4-hour on-site technician and hardware response time to system-down or degraded issues.

The Pricing Proposal for Section 4.1 will be evaluated for reasonableness of cost for all equipment in Section 2.1 of this RFP. All rates must be inclusive of all direct and indirect costs, as well as all overhead fees.

The Vendor's pricing proposal for Section 2.1 must apply to all IRHN locations specified in Section 2.1. Locations may be added or deleted during the term of the Contract, resulting from this RFP.

Section 4.2 – Switches Pricing

Vendors responding to Section 2.2 are asked to provide the pricing information here.

Pricing proposals for Section 2.2 must include all aspects to address the requirements of the scope of work in Section 2.2, and must include all elements outlined in Section 2.2.11, Vendor Response to Section 2.2.

In addition to providing the prices per their response, Vendors are asked to include the pricing structure applied to possible future purchases by the IRHN of additional hardware and software components associated with the system. The Vendor is asked to identify the percentage discount for hardware, software and associated maintenance. In addition, the Vendor is asked to identify the duration of time for which this discount structure will be applicable.

Vendor proposals must include maintenance costs for the first five years of system. System maintenance pricing must include options for 4-hour on-site technician and hardware response time to system-down or degraded issues.

The Pricing Proposal for Section 4.2 will be evaluated for reasonableness of cost for all equipment in Section 2.2 of this RFP. All rates must be inclusive of all direct and indirect costs, as well as all overhead fees.

The Vendor's pricing proposal for Section 2.2 must apply to all IRHN locations specified in Section 2.2. Locations may be added or deleted during the term of the Contract, resulting from this RFP.

Section 4.3 – Multi-Vendor Equipment Maintenance Pricing

For those Vendors who choose to respond to Section 2.3, please provide here your proposed Pricing Regimen for three-year and five-year periods. Given that the amount of equipment to be maintained has not been provided to you, it is assumed that your response will provide information on standard and premium maintenance packages that your company offers. After the specific types and amounts of equipment are delineated, the IRHN and Vendors who respond to this Section can discuss the specifics of how your pricing regimen would be specifically applied.

Section 5. Evaluation of Vendors' Responses

The following criteria will be used to evaluate vendors' responses to this RFP:

1. Vendor experience in providing similar services as those proposed.
2. Vendor's ability to provide high-speed connectivity.
3. Vendor's ability to maintain acceptable levels of service.
4. Vendor's ability to achieve the "cost-effectiveness" objective of the Pilot Program.
5. Price for proposed service for a minimum of 10 years.

Evaluation Criteria: Proposals will be evaluated on many criteria deemed to be in the IRHN's best interests, including but not limited to completeness of the equipment solution, presence in primary sites, all non-recurring and recurring costs, delivery timeline, financial stability and viability, and references.

Section 6. Submission Requirements and Vendor Questions

Responses to this posting are due no later than 30 days from the date that this document is posted to the USAC web site.

Vendors shall provide their responses to Section 2.1, and/or to Section 2.2, as they may choose and as noted in those sections. Please provide responses in the order in which the items are presented herein.

Vendor responses to Section 2.3 are optional.

Vendors shall provide their experience in response to Section 3.

Vendors shall provide their pricing responses to Section 4.

Submissions shall be submitted to:
Pat Schou
Member, Executive Committee, Illinois Rural HealthNet
245 Backbone Road East
Princeton, IL 61356
info@illinoisruralhealthnet.org
815-875-2999

Please provide your Responses per the following:

- **Four hard copies of Proposal, not including the pricing**
- **Four hard copies of Price Proposal, in a separate envelope within the same container**
- **One CD containing the Proposal, including the pricing**
- **NOTE: Each vendor shall also submit (via email) an electronic copy of the Response to the Proposal, including the Pricing Proposal, to: info@illinoisruralhealthnet.org**

Hard copy Responses shall be submitted to Pat Schou at the above street and email address. Email Responses must be submitted electronically no later than 30 days from the date that this document is posted to the USAC Pilot Program web site. Mailed Responses must be postmarked no later than 30 days from the date that this document is posted to the USAC Pilot Program web site.

VENDOR QUESTIONS

Questions from Vendors must be submitted within 15 days of the RFP posting on the USAC Pilot Program web site. Submit questions to: info@illinoisruralhealthnet.org

Questions and Answers will be posted on the www.illinoisruralhealthnet.org web site.

Section 7. Terms and Conditions

7.1.1 Communication with the IRHN: It is the responsibility of the Provider to inquire about any requirement of this RFP that is not understood. Responses to questions will be posted on the IRHN website. The IRHN will not be bound by oral responses to inquiries or written responses other than postings to the IRHN website.
Inquiries must be made to:
info@illinoisruralhealthnet.org

If for any reason the IRHN web site is not functioning, please contact Alan Kraus at:
815-753-8945
akraus@niu.edu

7.1.2 Award of Proposal: The IRHN reserves the right to cancel this RFP or reject any or all proposals in whole or in part, and is not necessarily bound to accept the lowest cost proposal if that proposal is contrary to the best interests of the IRHN.

7.1.3 Implementation of Contract: The IRHN is acting on behalf of multiple health care providers, seeking to establish a high speed network. Until such time as the IRHN evaluates responses to the RFPs for network and equipment, the IRHN is not able to define a final cost to the health care providers for connection to the IRHN network. When sufficient contracts, or pending contracts, are in place, the IRHN will be able to define the final cost to the health care providers, and at that point will be able to determine how many of the health care providers will connect to the network. Therefore, Vendors are hereby notified that actual deployment of the network will depend, ultimately, on the active participation of sufficient health care providers to render the project feasible.

7.1.4 Confidentiality: The information contained in proposals submitted for the IRHN's consideration will be held in confidence until all evaluations are concluded and an award has been made. At that time, the winning proposal will be available for public inspection. Pricing and other information that is an integral part of the offer cannot be considered confidential after an award has been made. The IRHN will honor requests for confidentiality for information of a proprietary nature to the extent allowed by law. Clearly mark any information considered proprietary.

7.1.5 Costs of Preparation: Provider assumes all costs of preparation of the proposal.

7.1.6 Debarment: Submission of a signed proposal in response to this solicitation is certification that the Provider firm (or any sub-contractor) is not currently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from participation in this transaction by any State or Federal department or agency. Submission is also agreement that the IRHN will be notified of any change in this status.

7.1.7 Proposal Understanding: By submitting a proposal, the Provider agrees and assures that the specifications are adequate, and the Provider accepts the terms and conditions herein. Any exceptions should be noted in the response.

7.1.8 Proposal Validity: Unless specified otherwise, all proposals shall be valid for 180 days from the due date of the proposal.

7.2.0 (CONTRACT) GENERAL TERMS AND CONDITIONS:
The IRHN anticipates that there could be multiple contract frameworks that result from this RFP process. Elements could include the following:

- IRHN and the Vendor may enter into a 10 Year contract for services, with payments front-loaded during the first 3 years, for high-speed services among designated sites.
- IRHN and the Vendor may enter into a 5 Year maintenance and/or co-location agreement with three (3) five-year renewals.

7.2.1 Contract Documents: Draft contract documents should be included with the RFP response.

7.2.2 Contract Modification and Amendment: The parties may adjust the specific terms of the contract (except for pricing) where circumstances beyond the control of either party require modification or amendment. Any agreed-upon modification or amendment must be in writing and signed by both parties.

7.2.3 Contract Validity: In the event one or more clauses of the contract are declared invalid, void, unenforceable or illegal, that shall not affect the validity of the remaining portions of the contract.

7.2.4 Cancellation/Termination: If the Vendor defaults in its agreement to provide personnel or equipment, or in any other way fails to provide service in accordance with the contract terms, the IRHN shall promptly notify the Vendor of such default and if adequate correction is not made within a reasonable timeframe, the IRHN may take whatever action it deems necessary to provide alternate services and may, at its option, immediately cancel the Contract with written notice. Cancellation does not release the Vendor from its obligation to provide goods or services per the terms of the contract during the notification period.

7.2.5 Assignment: Neither party of the contract shall assign the contract without the prior written consent of the other, nor shall the Vendor assign any money due or to become due without the prior written consent of the IRHN.

7.2.6 Equal Opportunity: In the execution of the contract, the Vendor and all sub-contractors agree not to discriminate on the grounds of race, color, religion, sex, sexual orientation, including transgender status or gender expression, national origin or citizenship status, age, disability or veteran status and to provide reasonable accommodations to qualified individuals with disabilities upon request.

7.2.7 Indemnification: The Vendor agrees to be responsible for, and to protect, save harmless, and indemnify the IRHN and its members from and against all loss, damage, cost and expense (including attorney's fees) suffered or sustained by the IRHN or for which the IRHN may be held or become liable by reason of injury (including death) to persons or property or other causes whatsoever, in connection with the operations of the Vendor or any subVendor under this agreement.

7.2.8 Business Profile:
7.2.8.1 Financial – If requested, Vendors need only supply one copy of the following.
Public Companies:
-annual reports for the last three years
-history and description of the company
-recent reports from securities analysts
-published reports about the company
Private Companies:
-audited financial statements or tax forms from three years
-history and description of the company
-published reports about the company, if any
7.2.8.2 If requested, Credit rating/report, letter from bank, suppliers.
7.2.8.3 If requested, References: A list of three references your firm has done business with in the past two years on projects with a similar scope to the services you are offering.

7.2.9 Co-location Costs: Co-location costs should include power fees, installation and ongoing fees for adding supplementary amperage to existing power feeds, cross connect costs, rack installation and ongoing rental fees and, where specified, meet-me area or entrance charges.

7.2.10 Security/Risk Management: If Vendors are chosen for contract, they must provide a description of all Security/Risk Management measures in place to protect both the Vendor’s facilities and the IRHN’s equipment located in the Vendor’s facilities.

7.2.11 Liability Insurance: If chosen for contract, Vendors must provide a description of all liability and property insurances that Vendors will have in place relative to the contract as outlined in this RFP.

APPENDIX I

IRHN Technical Design Narrative

Overall Design Approach

The primary purpose for the IRHN is to meet the requirements specified in WC Docket No. 02-60 for Rural Health Care Pilot grants. The IRHN has two specific goals that meet these requirements in the network design satisfying the grant requirements. The first goal is for the IRHN to provide broadband communications between healthcare organizations for information exchange, telemedicine and telehealth applications. The second goal for the IRHN is to connect to the Lambda Rail or Internet 2 for communications with other regional medical networks, national healthcare information exchanges or governmental resources available to healthcare providers. To satisfy the needs of healthcare, the IRHN network design is engineered to carry large volumes of networking traffic and the design allows for expansion of the system as healthcare needs expand. The network design will bring added value to hospital groups by providing point-to-point connectivity, transport services to create an Internet Service Provider (ISP) network and having the ability to create other network layers that would be essential to healthcare needs. Each of these design proposals will be addressed in further detail.

IRHN Closed Network

All members of the IRHN will have access to the IRHN closed network as part of the initial installation. The technical design allows for each member to be connected either by a 1 Gigabit (Gb) or 100 Megabit (Mb) connection depending on the accessibly of fiber or wireless to the healthcare facility. The IRHN closed network allows open communications between IRHN healthcare providers and will communicate with other IRHN members throughout the State of Illinois.

The primary structure of the IRHN, at minimum, is to provide a high speed network capable of transferring medical imaging, video and electronics records throughout the State of Illinois between all members of the IRHN network. This particular network is considered to be a closed network that is not opened to the public internet. The purpose for the IRHN being a closed network is to preserve the integrity of a high speed healthcare network for the purpose of transporting healthcare content. The network design further assists healthcare providers in their compliance with the Health Insurance Portability and Accountability Act (HIPAA) by providing a closed network that will minimize threats otherwise propagated throughout the public internet space. Even though the IRHN is a closed network, IRHN members will still be required to secure their local networks as a precautionary process.

Methods of Connectivity into the IRHN

The IRHN pilot grant has provisioned two primary types of connectivity for the initial build of the IRHN. All connectivity into the network will be ethernet based and will not accommodate traditional telecommunications services without conversion to ethernet (i.e. T-3, T-1, Sonet, etc.).

Fiber Connected IRHN Members

If the IRHN member is connected to the fiber network then the connectivity provided from the IRHN pilot program will be 1Gb ethernet. If the IRHN member is considered a Point of Presence (POP) location then the connectivity

will be a fiber patch cable from the IRHN equipment to the hospital network using a 1310 baseband connection. This same method will be used if an IRHN member is using a broadband provider to access the POP location via a local fiber connection or a metro fiber ring.

Wireless Connected IRHN Members

Not all healthcare organizations will have the ability to connect directly into the fiber optic backbone network. One of the alternate means for this connectivity will be a wireless connection that will connect into a IRHN POP location. The IRHN technical group will engineer a wireless link from the IRHN POP location to an IRHN member. This connection will provide a 100Mb symmetrical link between the IRHN member and the IRHN POP location where they can obtain access into the IRHN. The connection point into the network will be a 100Mb copper connection between the wireless equipment and the IRHN member network.

Other Methods of Connectivity

The IRHN is an ethernet based system and can offer services between 10mb and 10Gb. For IRHN members that do not require the transfer of large amounts of information (i.e. Small clinics, Doctor Practices, etc.) or healthcare providers do not not have access to fiber or wireless options may have to rely on connectivity at lower rates through other media types using a third party internet service provider. The IRHN encourages healthcare providers to use third party internet service providers to provide broadband transport between the IRHN POP and their healthcare facility. Third party connections are not funded as part of the IRHN grant and healthcare facilities will have to directly pay for any recurring expenses. Since the only requirement for an IRHN member to participate in the IRHN is to have an ethernet connection interface, the IRHN can adapt to the local providers speeds. The connection provided by a third party internet service provider will be required to be a point to point private connection and not provided over the public internet space.

Healthcare Resources

The IRHN closed network will provide opportunities for Heath Information Exchanges (HIE) or other types of medical systems that can be utilized across a network. These systems can either be shared by hospital groups or contracted with specialized healthcare facilities to be accessible to healthcare providers in the State of Illinois. Since the IRHN is a closed network, it will help maintain the integrity of these systems and avoid the constant assault of common threats found over the public network. HIE systems can assist IRHN members in several ways:

- Smaller clinics or practices can utilize HIE systems over the network as opposed to obtaining the expenses of a system locally.
- Larger hospital systems can exchange data between HIE systems.
- HIE systems will have access to other resources throughout the Internet 2 network.

IRHN educational partners will be available over the IRHN as another valuable resource. Broadband applications will allow healthcare facilities access to online training and live

educational classes or training essential to the ongoing needs of the medical community. With the IRHN high speed network, these educational opportunities can be performed in high definition quality speeds using intensive tools that require large broadband capacities.

Hospital to Hospital/Clinic

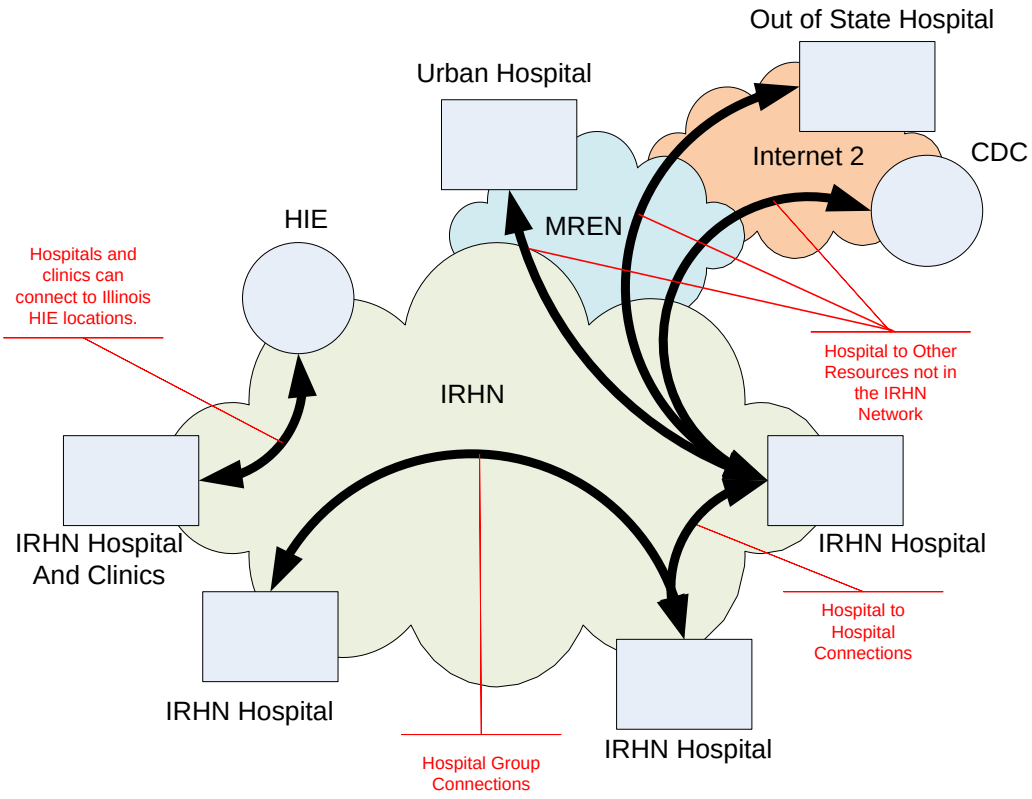
One of the benefits of the IRHN is it will allow members of the IRHN to communicate seamlessly with each other. IRHN healthcare facilities will have the ability to communicate at high speed between each other. This can provide for new collaborations or support current ones between rural and urban hospitals. IRHN members can share or obtain medical expertise otherwise not available in the rural areas. The design of the IRHN high speed network will permit the exchange of large imaged medical records between IRHN members for specialized cases that may not be a long term commitment between members.

Within the IRHN members can share data center locations for disaster recovery. With the high speed access available to IRHN members, collaboration is encouraged for healthcare facilities to locate offsite equipment to prevent a monumental loss of patient data. These sites can be utilized in several ways.

- Develop a complete backup data center that can result in cold restoration of systems.
- Develop a warm back data center that will utilize the IRHN high speed backbone in the event of local system failures for seamless recoveries.
- Share data center space to avoid building a costly offsite location.
- Work with virtualized systems over the high speed IRHN backbone for seamless restoration of systems in the event of a disaster.
- Perform instant backup procedures for less data loss in the event of a disaster.

There are many more benefits that can be utilized over the IRHN closed network that allows members to communicate freely between each other. Overall this model will assist healthcare facilities in the savings of broadband infrastructure costs. The IRHN closed network is represented in Figure A.

Figure A
IRHN Closed Network



Metropolitan Research and Education Network (MREN), National Lambda Rail (NLR) and Internet 2

The IRHN will be a member of MREN and will be the gateway for connectivity into other regional healthcare networks that provide for healthcare needs. MREN is located in Starlight at 710 North Lake Shore Drive in Chicago Illinois and is considered the optical hub of the world. MREN connects several medical institutions in the Chicago urban areas as well as other advanced medical facilities outside of Illinois that provide for research and development in healthcare. Northern Illinois University is a MREN partner with NIUNet connected into the MREN network. Through MREN, NIUNet can provide a gateway for IRHN members to have access to suburban healthcare partnerships over high speeds if required. MREN opens the opportunity for an extensive network of healthcare professionals throughout the State of Illinois.

As part of the requirements of the rural healthcare pilot, Internet 2 or NLR connectivity is a requirement. The partnership the IRHN has with MREN allows the IRHN to establish the Internet 2 and NLR connectivity gateway for rural healthcare. The Internet 2 or NLR is where the IRHN facilities can communicate across the United States with other healthcare groups or government databases like the Center for Disease Control (CDC) or Health and Human Services (HHS). While new HIE strategies are being developed, the Internet 2 or NLR will be critical for healthcare organizations and the distribution of healthcare records. The Internet 2 and NLR will be the gateway to provide or obtain

information for a nationwide HIE system. MREN and the Internet 2 or NLR will be part of the closed network for the IRHN and the IRHN members will have unrestricted access to resources over MREN and Internet 2 or NLR as specified for the healthcare network.

Enhancements Added to the IRHN

To better meet the needs of healthcare, the IRHN has developed strategies to enhance the services for the IRHN. The network is engineered to provide other services outside the closed network bringing a value add to common services often required for day to day operations. The design of the IRHN is provisioned to keep the operating and maintenance costs low while allowing flexibility to expand and add services.

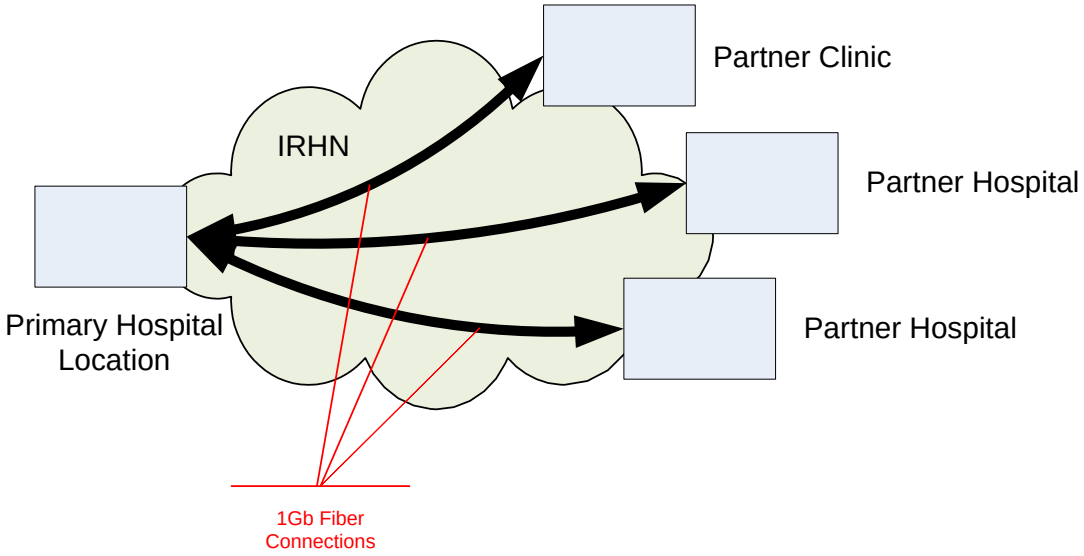
Hospital Groups

Healthcare facilities currently have many partnerships defined either throughout the State of Illinois or within a defined region. There is a need for these healthcare groups to exchange information between facilities. Many of these healthcare groups are interconnected with inadequate traditional services like T-1 (1.54Mb) and T-3 (45Mb) type connections that have high monthly rates associated with them. The IRHN will perform different roles for providing faster low cost services for these groups. First the IRHN can replace the current broadband connection between group facilities and become the primary carrier of traffic for the healthcare providers. Second, the IRHN can be used as a redundant service for the hospital group to add additional capacities to their facilities while maintaining traditional services as backup. Some examples of hospital group connections through the IRHN might be:

Fiber Connected Hospital Groups

If the healthcare provider in a specific region has a partnership with regional hospitals, they can be interconnected through the IRHN fiber network. Under the pilot at program 1Gb per location can be provided through the IRHN. If the hospital group requires speeds above 1Gb, the IRHN can provide additional bandwidth up to 10 Gigabit's however, this capacity is not currently built into the pilot budget. The IRHN will work with the hospital group on the specific costs to engineer and implement this type service if it is required. Figure B illustrates how a hospital group might connect using the IRHN.

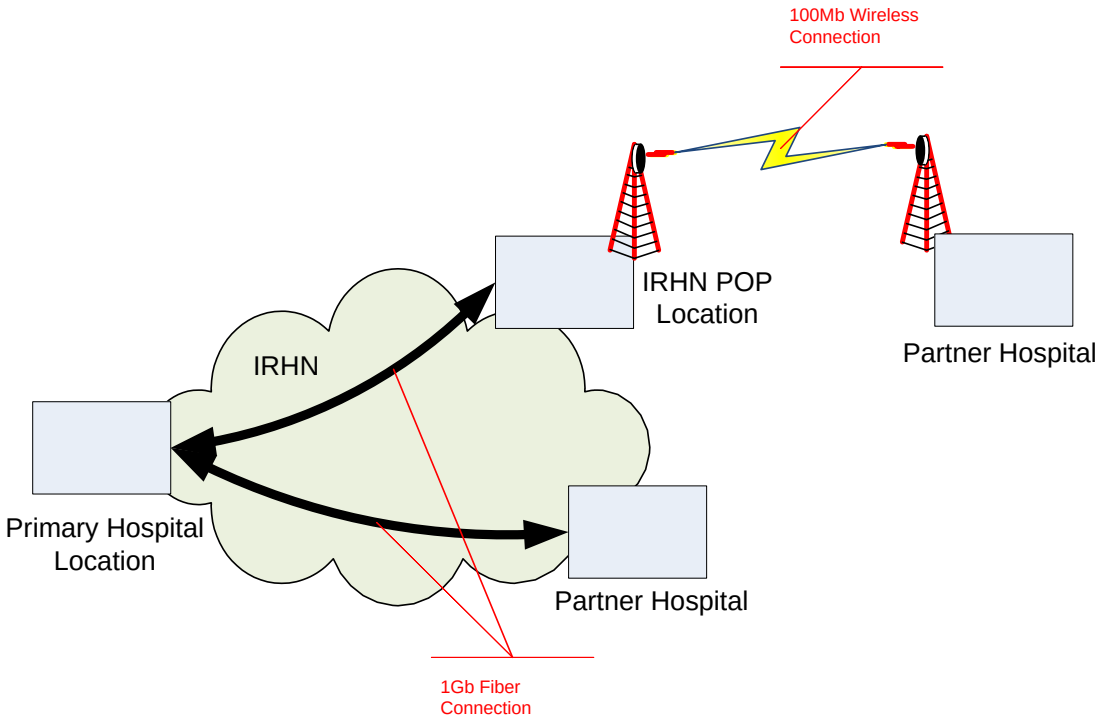
Figure B
Fiber Connected Hospital Groups



Wireless Connected Hospital Groups

Not all hospitals will have the ability to connect directly into the fiber optic backbone network. One of the alternate means for this connectivity is to have a wireless connection between the hospitals. This will restrict the hospital groups to a slower speed of 100Mb. Wireless connected locations typically will connect back to the IRHN fiber optic backbone to an IRHN POP location. Depending on the requirements, this connection can be directed to a hospital group. Figure C shows how a hospital group might be connected using a wireless connection into the IRHN fiber network.

Figure C
Wireless Connected Hospital Groups

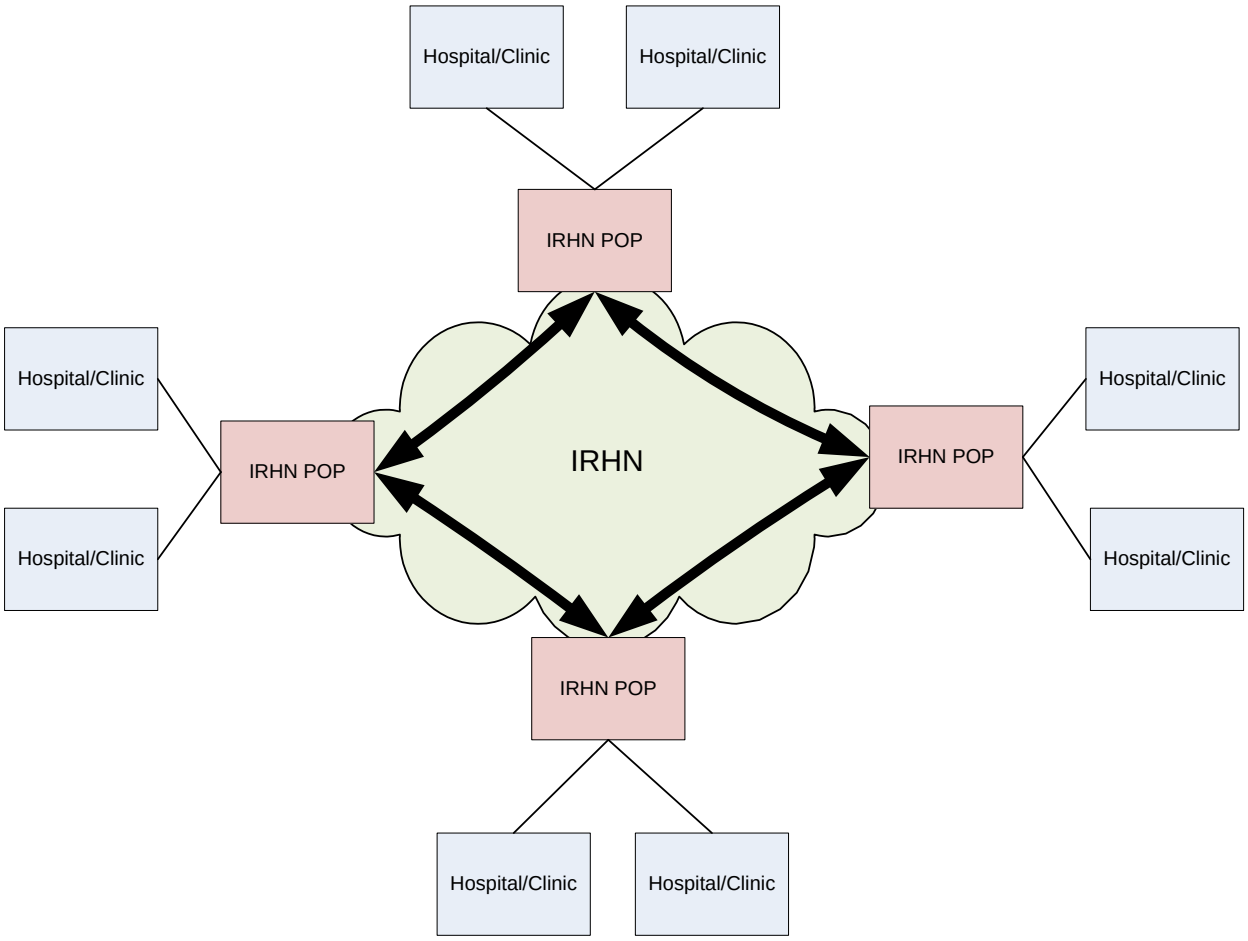


Point of Presence Locations (POP)

The IRHN is a cooperative network build that will provide healthcare facilities the ability to obtain broadband services at lower costs. The IRHN design relies on its members to act as a cooperative and provide space for network equipment and connectivity for the IRHN. The IRHN members will be expected to grant broadband access for other healthcare providers throughout the region to locations where IRHN has agreed to locate services. The purpose for this design is to keep the cost low for the IRHN members and minimizing equipment in telecommunications co-location spaces.

Once all of the POP locations are in place, members of the IRHN will be directed to use one of these locations as a connectivity point into the IRHN. Once connectivity is established at any of the defined IRHN POP locations, ethernet services at various rates can be obtained from these locations. An illustration of POP connectivity is shown in Figure D.

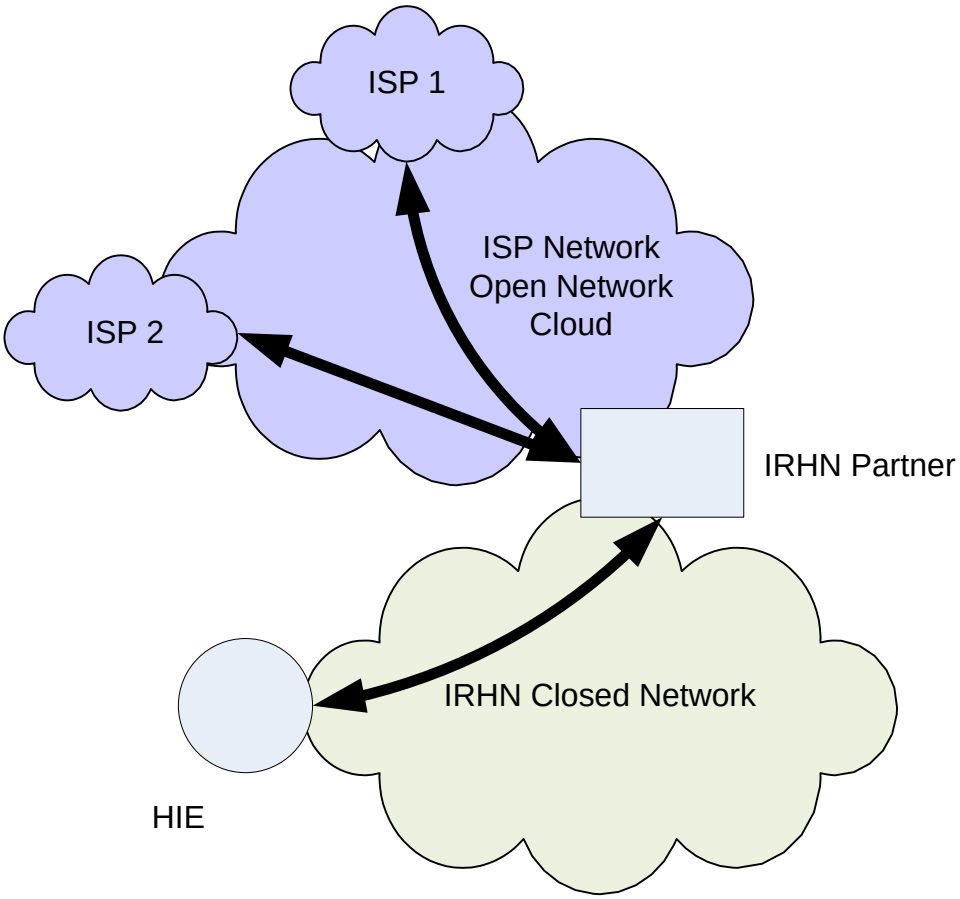
Figure D
POP Design



ISP Network Cloud

The IRHN can create networks within itself. To provide additional services to healthcare facilities, an Internet Service Provider (ISP) network is part of the design. This network is considered to be an open network that will provide IRHN members the ability to contract for ISP services to the public internet. The IRHN will be the transport to these providers where IRHN can invoke competition for services among vendors for the best value and price. Currently two locations have been defined where internet services can be obtain. These locations are at Starlight, 710 North Lake Shore Drive, Chicago IL, using Cogent Communications and the DuPage National Technology Park in West Chicago, IL using DTNP Partners. It is anticipated as the IRHN is built out, more ISP service opportunities will be available. Figure E shows how the ISP cloud can connect an IRHN member.

Figure E
ISP Open Network Cloud



Other Network Clouds

The design of the IRHN is flexible and will allow for other layers of networks as required by IRHN members. The network has the ability to carry digital television or voice over IP (VOIP) and additional closed networks as required. With this flexibility, the IRHN is positioned to provide the IRHN members with additional services as they become available.