

January 13, 2010

Oregon Health Network
Request for Proposals Number 6*

*This request for proposals is issued by the Oregon Health Network.

For Network Access and Transport Links

Due Date: On the allowable contract date posted on the Universal Service Administrative Company (USAC) web site. See <http://www.usac.org/rhc-pilot-program/tools/search-postings.aspx>

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Introduction

Oregon Health Network (OHN) requests proposals for components of an Internet Protocol (IP) network to provide broadband connections among hospitals, clinics and health education institutions throughout Oregon. The network is intended to provide a reliable data transport platform for a wide variety of health-related applications, including rapid transfer of very large digital imaging files, exchange of electronic medical records, and real-time high-quality videoconferencing for medical education, telemedicine consults and medical procedures.

OHN Request for Proposals number 1 (RFP #1)¹ asked for proposals for common network elements, including a Network Operations Center and regional data exchanges, plus network connectivity for a few initial sites. For more information about the Network Operations Center and the regional exchanges, see RFP #1. RFP #2, RFP #3, RFP #4 and RFP #5 asked for proposals for network connectivity for a number of additional sites. This RFP #6 asks for proposals for connectivity for yet more sites. Service to additional sites will be requested in subsequent requests for proposals.

The public Internet, as it currently exists, is not suitable for all health applications in Oregon for two reasons. First, many rural locations do not have adequate network capacity for rapid transfer of large files or for high-quality real-time applications. Second, real-time medical network applications require stronger guarantees of availability and service quality than the current “best efforts” standard of the public Internet.

OHN is not seeking to purchase or lease telecommunications infrastructure that is exclusively dedicated to health applications. Rather, OHN seeks to be one tenant in infrastructure that also could be used for a wide variety of other governmental, educational or business applications. OHN does not require a responder to propose to provide the entire network. The

¹ http://www.usac.org/_res/documents/rhc-pilot-program/pdf/search-postings/2008/Oregon-Health-scope.pdf

large number of different telecommunications carriers and Internet Service Providers (ISPs) serving different geographic regions of the state make it unlikely that one provider would have the most cost-effective solution for every different location. OHN seeks the most cost-effective proposals on a site-by-site or, in some cases, for a group of sites basis.

Because different service providers are likely to provide components of the resulting network, OHN sought proposals (in RFP #1) to obtain the services of a Network Operations Center (NOC) that is independent of the businesses providing the transport infrastructure. OHN has contracted with EasyStreet Online Services in Beaverton, Oregon to provide the OHN NOC services. The NOC is not exclusively dedicated to OHN. However, OHN will pay the NOC vendor only for services provided to OHN. The NOC is requested to monitor the end-to-end quality of OHN network services, and, when quality is unsatisfactory, work cooperatively with the providers of different network components to resolve any network problems that are observed. Transport vendors must agree to work with the NOC to resolve any network quality problems.

Much of the health-related communication in Oregon is relatively local, for example, between a local clinic and its nearest hospital or radiology imaging service. Consequently, OHN network quality and cost-effectiveness goals are more likely to be met if local data traffic is connected locally. Unlike the public Internet in Oregon, for which many of the connections between different networks occur out of state, OHN requires in-state connectivity at Oregon Internet exchanges. All providers of OHN data transport services are required to connect to the NorthWest Access Exchange (NWAX) in Portland for the exchange of Internet data traffic. OHN service providers are also encouraged to exchange regional traffic within the different geographic regions of the state, including the Oregon Internet Exchange (OIX) in Eugene, Cascades Internet Exchange in Redmond and Data Center West in Medford.

In its RFP #1, OHN sought proposals for two additional Oregon Internet exchanges, one in southern Oregon and one east of the Cascades to serve central and eastern Oregon. OHN data traffic that can be exchanged within a local region should be exchanged locally to provide improved quality and cost-effectiveness. OHN seeks to improve “off-net” OHN connectivity for OHN sites connecting with physicians in their homes, employees working or on-call at home and patients in their homes, for home health applications. Therefore, OHN service providers are encouraged to exchange their other Oregon Internet traffic, in addition to OHN traffic, at existing and planned Oregon Internet exchanges. OHN is working with Data Center West in Medford, Oregon for a southern Oregon exchange and with Cascades Internet Exchange in Redmond and Data Center West in Medford. Transport vendors proposing to serve sites in those regions that commit to exchanging both OHN and non-OHN traffic at regional exchanges will be given preference in the proposal review process over vendors not making such a commitment.

Some Oregon health-related communications will need to be transported out of state. In RFP #1, OHN sought proposals for connections to National Lambda Rail (NLR) and/or Internet2

(I2) at NWAX. No award was made for such service. We anticipate making a request for proposals to provide such services in a later RFP. Once such connections are in place, OHN transport service providers will be able to exchange Internet Protocol traffic with NLR or I2 through their connections at NWAX. For IP traffic that cannot be exchanged at Oregon exchanges, OHN transport providers will be required to make their own connections to the public Internet.

OHN subsidy funds from the Universal Service Administrative Company (USAC) are available in three different fiscal years. This request for proposals is the third of several RFPs. Other sites throughout Oregon will be connected in later phases. When completed, OHN estimates that approximately 300 Oregon sites will be connected to the network.

More background information is available in the OHN application to the Federal Communications Commission (FCC) for the funding that makes OHN possible. That application can be viewed at:

http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6519409632.

This RFP rather than the application will apply in the event of any discrepancies between the two documents. The application lists the sites OHN intends to connect to the network. Some changes will be made to that original list and other sites may be added. The site list for this RFP #6 is attached at the end of this document. The FCC order governing this process may be viewed at:

http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-07-198A1.pdf. Details of the USAC process for administering this program are available at: <http://www.usac.org/rhc-pilot-program/>.

Information for OHN vendors is posted on the vendor page of the OHN website:

<http://www.oregonhealthnet.org>.

OHN RFP #1 provided the specifications for the OHN Network Operations Center, for data access and transport links from some end user sites to NWAX, for NLR and/or I2 connectivity, and for additional Oregon Internet exchanges. This RFP #6 provides the specifications for data access and transport links from additional end user sites to NWAX, with local connectivity to regional exchanges where appropriate.

GENERAL INFORMATION

Issuing Office: The Oregon Health Network Proposal Review Team is the sole point of contact for clarifications regarding technical specifications and procedures in this Request for Proposal (RFP). All correspondence pertaining to these matters should be addressed to the contact person below:

Questions concerning clarification of technical requirements should be submitted by e-mail to: vendorinfo@oregonhealthnet.org, with a copy to Don Westlight dwestligh@ohsu.edu and Peter Trnavskis ptrnavskis@oregonhealthnet.org not later than 28 days after the RFP is posted to the Universal Service Administrative Company (USAC) website, <http://www.usac.org/rhc-pilot-program/tools/search-postings.aspx>. All questions and answers will be shared with all responders to this Request for Proposals. See <http://www.oregonhealthnet.org/join/vendorfaq>.

Mailing Address:

Oregon Health Network Proposal Review Team
c/o Kim Lamb
Oregon Health Network
2 Center Pointe Drive
5th Floor, Ste 570
Lake Oswego OR 97035
Telephone No: 503-697-7294
Fax Number: 503-344-3748

GENERAL PROVISIONS

The Oregon Health Network reserves the right to reject any and all Proposals received as a result of this Request for Proposals (RFP). Federal Communications Commission (FCC) and Universal Service Administrative Company (USAC) rules govern this process. See <http://www.usac.org/rhc-pilot-program/> for details.

1. Modification or Withdrawal of Proposal: Any Proposal may be modified or withdrawn at any time prior to the closing deadline, provided that a written request is received by the OHN RFP Committee, prior to the Closing date. The withdrawal of a Proposal will not prejudice the right of a Proposer to submit a new Proposal.

2. Protest of Specifications - Request for Changes: Protests of the specifications or requests for non-substantive or procedural changes to the RFP must be received in writing on or before 4:00 p.m. (Pacific Time), not later than 28 days after this RFP is posted to the USAC web site, at the address or e-mail listed under “General Information” in this RFP. Protests may be hand delivered, mailed or e-mailed. Protests may not be faxed. Protests of specifications will include the reason for the protest and any proposed changes to the requirements.

The purpose of this requirement is to permit OHN to correct technical requirements, prior to the opening of Proposals, that may be unlawful, improvident or which unjustifiably restrict competition. OHN will consider all requested changes and, if appropriate, amend the Request for Proposals.

3. Clarifying Questions. Proposers may submit questions regarding the specifications of the RFP. Questions must be e-mailed on or before 4:00 p.m. (Pacific Time), not later than 28 days after the RFP is posted to the USAC web site, at the e-mail address listed under “General Information” in this RFP. To ensure open competitiveness, OHN will post questions and responses on the vendor page of the OHN website. <http://www.oregonhealthnet.org/join/vendorfaq>. Every effort will be made to respond to questions within two business days.

4. Bidders’ Conference. OHN does not currently plan to hold a bidders’ conference. All questions should be submitted by e-mail to vendorinfo@oregonhealthnet.org with a copy to westligh@ohsu.edu and ptrnavskis@oregonhealthnet.org. All questions and answers will be shared publicly in a manner accessible to all responders to this Request for Proposals. See <http://www.oregonhealthnet.org/join/vendorfaq>

5. Addenda: If any part of this RFP is amended, addenda will be provided to all parties who submit a Notice of Interest pursuant to Paragraph 20 below.

6. Post-Selection Review and Protest of Award: OHN will name the apparent successful Proposer in a “Notice of Intent to Award Contract Letter”. Identification of the “apparent successful Proposer” is procedural only and creates no right in the named Proposer to award of the contract. Competing Proposers will be notified in writing of the selection of the apparent successful Proposer(s) and shall

be given five (5) calendar days from the date on the “Notification of Intent to Award Contract” letter to review the file and evaluation report at OHN offices and to file a written protest of award. Any award protest must be in writing and must be delivered by hand delivery, mail or e-mail to the address for the OHN as listed under “General Information” in this RFP.

OHN will consider any protests received and:

- (A) reject all protests and proceed with final evaluation of, and any contract language negotiation with, the apparent successful Proposer and, pending the satisfactory outcome of this final evaluation and negotiation, enter into a contract with the named Proposer; OR
- (B) sustain a meritorious protest(s) and reject the apparent successful Proposer as nonresponsive, if such Proposer is unable to demonstrate that its Proposal complied with all material requirements of the solicitation and Oregon public procurement law; thereafter, OHN may name a new apparent successful Proposer; OR
- (C) reject all Proposals for the element or elements of the RFP under protest.

The OHN Proposal Review Team or designee will respond to the protest within a timely manner of receipt. The decision shall be final.

7. Acceptance of Contractual Requirements: Failure of the selected Proposer to execute a contract and deliver required insurance certificates within ten (10) calendar days after notification of an award may result in cancellation of the award. This time period may be extended at the option of OHN.

8. Public Records: It may be later determined that the documents necessary for this RFP process and any resulting contracts may be subject to Oregon public record laws. This Request for Proposals and one copy of each original Proposal received in response to it, together with copies of all documents pertaining to the award of a contract may be open to public inspection. If a Proposal contains any information that is considered a **TRADE SECRET** under ORS 192.501(2), **SUCH INFORMATION MUST BE LISTED ON A SEPARATE SHEET CAPABLE OF SEPARATION FROM THE REMAINING PROPOSAL AND MUST BE CLEARLY MARKED WITH THE FOLLOWING LEGEND:**

“This information constitutes a trade secret under ORS 192.501(2), and shall not be disclosed except in accordance with the Oregon Public Records Law, ORS Chapter 192.”

The Oregon Public Records Law exempts from disclosure only bona fide trade secrets, and the exemption from disclosure applies only “unless the public interest requires disclosure in the particular instance.” ORS 192.500(1). Therefore, non-disclosure of documents or any portion of a document submitted as part of a Proposal may depend upon official or judicial determinations made pursuant to the Public Records Law. The above restriction will not include cost information.

9. Investigation of References: OHN reserves the right to investigate references and/or past performance of any Proposer with respect to its successful performance of similar services, compliance with specifications and contractual obligations, its completion or delivery of a project on schedule, and its lawful payment of subcontractors and workers. OHN may postpone the award or the execution of the contract after the announcement of the apparent successful Proposer in order to complete its investigation.

10. RFP Preparation Costs: Cost of developing the Proposal, attendance at an interview (if requested by OHN) or any other such costs are entirely the responsibility of the Proposer, and will not be reimbursed in any manner by OHN.

11. Clarification and Clarity: OHN reserves the right to seek clarification of each Proposal, or to make an award without further discussion of Proposals received. Therefore, it is important that each Proposal be submitted initially in the most complete, clear and favorable manner possible. The submission of network diagrams for multi-site interconnects is especially helpful.

12. Right to Reject Proposals: OHN reserves the right to reject any or all Proposals, if such rejection would be in the public interest, as determined by the OHN.

13. Cancellation: OHN reserves the right to cancel or postpone this RFP at any time or to award no contract.

14. Proposal Terms: All Proposals, including any price quotations, will be valid and firm through the period of contract execution.

15. Oral Presentations: At OHN’s sole option, Proposers may be required to give an oral presentation of their Proposals to OHN, a process which would provide an opportunity for the Proposer to clarify or elaborate on the Proposal but will in no way change Proposer’s original Proposal. If the evaluating committee requests presentations, the Issuing Office will schedule the time and location for said presentation. **Note:** Oral presentations are at the discretion of the evaluating committee and may not be conducted; therefore, **written Proposals should be complete.**

- 16. Usage:** It is the intention of OHN to utilize the services of the successful Proposer(s) to provide services as outlined in this RFP.
- 17. Rejections and Withdrawals.** The OHN reserves the right to reject any or all Proposals or to withdraw any item from the award.
- 18. RFP Incorporated into Contract.** This RFP will become part of the Contract with the selected contractor(s) for services. The contractor(s) will be bound to perform according to the terms of this RFP and their Proposals.
- 19. Communication Blackout Period.** Except as called for in this RFP, Proposers may not communicate with members of the Proposal Review Team about the RFP until the apparent successful Proposers are selected.
- 20. Notice of Interest.** The Notice of Interest will be due at the office of the OHN by **4:00 p.m. Pacific Time not later than 28 days after the RFP is posted to the USAC web site**, via e-mail, or hardcopy. In the notice, the Proposer must provide the name of the primary contact person, plus that person's telephone number and e-mail address for communication of information about the RFP, answers to questions submitted by Proposers, and other matters about the selection process. Proposers that complete and return the Notice will receive the same supplementary information.
- 21. Prohibition on Commissions.** The OHN will contract directly with organizations capable of performing the requirements of this RFP. Contractors must be represented directly. Participation by brokers or commissioned agents will not be allowed during the proposal process.
- 22. Ownership of Proposals.** All proposals in response to this RFP are the sole property of OHN, and may be subject to the provisions of Oregon Revised Statutes ORS 192.410-192.505 (Public Records Act).
- 23. Clerical Errors in Awards.** The OHN reserves the right to correct inaccurate awards resulting from its clerical errors.
- 24. Rejection of Qualified Proposals.** Proposals may be rejected in whole or in part if they limit or modify any of the terms and conditions and/or specifications of the RFP.
- 25. Collusion.** By responding, the Proposer states that the proposal is not made in connection with any competing Proposer submitting a separate response to the RFP, and is in all aspects fair and without collusion or fraud.

26. RHCPP Requirements. All bidders must comply with all regulations and requirements of the Federal Communications Commission (FCC) and the Universal Service Administrative Company (USAC) related to the FCC's Rural Health Care Pilot Program (RHCPP).

TERM OF CONTRACTS

Each Contract is expected to begin in spring 2010, and extend for a fixed period of time (typically a minimum of three years, but not beyond May 21, 2014), with the option to extend for up to ten years. OHN intends to reserve the right upon 30 days notice to the Contractor to terminate the Contract.

DELIVERY OF PROPOSALS

Due Date:

Proposals must be received not later than 4 p.m. on the allowable contract date for this RFP #6 posted on the Universal Service Administrative Company (USAC) website, <http://www.usac.org/rhc-pilot-program/tools/search-postings.aspx> .

Copies

An original (marked "original") and three paper copies of each response plus an electronic copy on Compact Disk (CD) containing a single document in PDF format must be delivered to:

Oregon Health Network Proposal Review Team
c/o Kim Lamb
Oregon Health Network
2 Center Pointe Drive
5th Floor, Ste 570
Lake Oswego OR 97035
Telephone No: 503-697-7294

The envelope/package containing the response must be clearly marked "**Response to RFP for Oregon Health Network.**" At least one original Proposal shall be **signed in blue ink** by an authorized representative of the Proposer. Alterations or erasures shall

be initialed in ink by the person signing the Proposal. Proposals may not be submitted by telephone or fax. It is the responsibility of the Proposer to ensure that Proposals arrive by the closing date and time. **NO LATE PROPOSALS WILL BE ACCEPTED.**

Proposals will be opened on the Closing Date by a representative of the OHN Proposal Review Team at:

Oregon Health Network
2 Center Pointe Drive
5th Floor, Ste 570
Lake Oswego OR 97035
Telephone No: 503-697-7294

SCHEDULE OF EVENTS

The timing and sequence of events resulting from this RFP will be ultimately determined by the OHN. This Schedule is illustrative of optimal timing goals, but may be changed.

RFP Issue Date: effective on posting at the USAC website

Notice of Interest Deadline: 28 days after posting

Deadline for Protest of Specifications: 28 days after posting

All Clarifying Questions Due: 28 days after posting

Closing Date (Proposals Due): on the allowable contract date posted on the USAC website

Deadline for Protest of Award: 5 calendar days after date on Notice of Award letter

Anticipated Contract Begin Date: Summer 2010

Request for Proposals # 6

Network Access and Transport Specifications

Introduction

This statement of requirements provides a description of network access and transport services requested to and from each of the end-user points on the Oregon Health Network (OHN). OHN anticipates that different network vendors will provide the services to different geographic locations. This is not a single vendor procurement process. OHN will select the most responsive vendor for each specific location to be served. In some cases a participating institution may request that a single vendor serve a group of their sites. Responders must specify which sites they propose to serve and the terms of their proposal, including price, for each location.

OHN anticipates that new facility construction will be required to provide service to many of the locations. Bids are requested for both the one-time construction and/or installation costs plus monthly recurring costs (under multi-year contracts). Service providers are requested to propose alternatives to the specifications described below when they believe alternative specifications will be more cost-effective, while meeting the general intent.

The purpose of the resulting network is to provide secure and reliable data communications links connecting each point on the OHN to any other point on the network and to off-network locations, such as patient homes (for home health monitoring applications) and physician homes (for off-hours consultations), even though off-network connections are not subsidized under this program. The anticipated applications include high-speed transport of very large data files for both store-and-forward and real-time applications. These will include digital image files from a variety of diagnostic imaging machines (x-rays, Computerized Tomography (CT) scans, Magnetic Resonance Imaging (MRI) and others), transmission of electronic medical records, real-time high definition television (HDTV) quality interactive videoconference transmission for health education applications and for medical consultations, robotic surgery, data collection from medical monitoring devices and a number of other applications. A secure and reliable network, with sufficient quality and capacity for high-quality, real-time voice, videoconferencing and imaging applications, will enable development of new applications that will take advantage of this new kind of network service that was not previously available.

OHN is not requesting dedicated, leased line type of network capacity. Rather, it is requesting Internet-type data transport on multi-purpose shared networks, but with guaranteed network capacity, reliability and security significantly greater than what is currently available through “best efforts” Internet access. OHN assumes that it will be more cost-effective for transport providers to

meet the OHN specifications by having enough general network capacity to avoid congestion problems. However, how the OHN specifications are met is up to the transport providers.

To meet the requirements of reliable off-net connectivity between OHN and local users, providers are encouraged to exchange all of their local IP traffic, not just OHN traffic, at the selected Oregon exchange points. This may avoid a requirement to differentiate OHN traffic from other IP traffic in the provider's network. However, connections at NWAX to Internet2 or National Lambda Rail may require that OHN traffic be distinguished from other traffic for purposes of meeting the eligibility requirements of those networks. For many locations, OHN anticipates that more than one service provider will be needed to connect the end-user location with an OHN-specified data exchange location. In order to provide the requested transport capacity at the specified quality of service levels between each end-user location and specified exchange location, OHN requests that a single service provider bid the access and transport service as the primary provider that assumes overall responsibility for the entire link through appropriate sub-contracting arrangements.

OHN has contracted with EasyStreet Online Services in Beaverton, Oregon for Network Operations Center (NOC) services. OHN required that the NOC not be affiliated with any OHN access and transport provider. The NOC is intended to provide to each end user site appropriate network quality monitoring equipment connected through the network to the NOC so that OHN can monitor independently, in real time, whether each access and transport provider is meeting the agreed service level specifications. The NOC will also be accessible to OHN access and transport providers to assist them with network troubleshooting. OHN network and transport vendors must cooperate with the NOC to resolve any network quality problems.

The list of specific sites for which service is requested is provided in Appendix A.

Access and Transport Requirements

1. Transport Internet Protocol (IP) data packets to and from a specified Ethernet interconnection point at each physical address for which service is contracted. Other communications protocols may be used to transport data packets; however, IP over Ethernet is required at the user and network interfaces.

2. Following the Open Systems Interconnection (OSI) model²: Layer three interfaces will be Internet Protocol version four (IPv4) with a potential future upgrade to version six (IPv6) after the initial period of contracted service. Layer two interfaces will be Ethernet.³ Layer one may be any physical medium (fiber optic cable, co-axial cable, copper wire, wireless, satellite or other) meeting the performance requirements specified below. OHN prefers fiber-optic cable as the physical medium because of the reliability and scalability advantages of fiber, but this is a preference, not a requirement.
3. All OHN end user sites must be connected for IP over Ethernet traffic to the NorthWest Access Exchange (NWAX)⁴ in the Pittock Building in Portland for exchange of Internet traffic at that location. Preference may be given to vendors that also connect with the Oregon Internet Exchange (OIX)⁵ in Eugene. OHN data transport providers must transport all data packets from the contractually served address first to an OHN exchange site for delivery to addresses that can be reached through that exchange. (Exception: Data traffic that can be delivered directly to a local end user destination with fewer router hops and less transit delay than going through an exchange point may be handed off locally.) OHN transport providers must also accept, for delivery to the OHN end user site, all data packets addressed to that user site that can be picked up at the exchange location or from the public Internet. Preference will be given to IP data transport providers that also exchange IP traffic other than OHN traffic that can be handed off (in either direction) at that exchange. [Note: The reason for this preference is to provide high-quality, low-latency, multi-carrier IP data transport service for connection of OHN users within Oregon and between “on-net” OHN users and other “off-net” IP addresses to which they wish to connect IP traffic, even though off-net connections are not subsidized under this program. The IP traffic from these other “off-net” OHN sites may be patients, clinicians, employees, home health monitoring devices for patients, medical radiology images being transported to or from a radiologist at his home office, communications from OHN member employees working from home, or other traffic between OHN sites and locations within the region served by the exchange.]
4. Additional OHN exchange locations are planned in southern Oregon at Data Center West in Medford and in central Oregon at Quantum Communications in Redmond. Those exchange locations will permit interconnection of any Internet traffic at the exchange site. If the nearest OHN Internet exchange location is other than the one in Portland, each OHN data access and

² http://en.wikipedia.org/wiki/OSI_model

³ <http://en.wikipedia.org/wiki/Ethernet>

⁴ <http://www.nwax.org/>

⁵ <http://www.oregon-ix.net/>

transport provider may exchange OHN traffic at that local exchange, but must deliver data packets not handed off at the nearest exchange to the OHN exchange location at NWAX in Portland. The OHN data transport provider must also accept data packets from other providers at the Portland exchange location (and other exchanges to which they connect) for delivery to the served OHN end user location. At some later date, after appropriate contractual arrangements are in place, data packets addressed to or from Internet2 (I2) or National Lambda Rail (NLR) locations are expected to be exchanged at NWAX in Portland. Non-OHN traffic may not be eligible to be exchanged with I2 or NLR because of the eligibility requirements of those networks. Therefore, access and transport vendors may be required to distinguish between OHN and non-OHN traffic when interconnecting with I2 or NLR.

5. The data transport provider will provide an Internet data connection for other Internet data packets addressed to or from the OHN end-user location that cannot be delivered or accepted for delivery at the Portland or other Oregon Internet exchange sites.
6. The data capacity between each OHN user location and OHN exchange locations will be a minimum of 10 Megabits per second, bi-directional. OHN anticipates that many users will want to later upgrade capacity in increments of 10 Megabits or 100 Megabits, up to 1 Gigabit, with potential future expansion to 10 Gigabits. Some locations will specify higher rates than 10 Megabits per second bi-directional for the initial service period.
7. Transport services must be available with at least 99.99 percent reliability. [Note: this availability level permits approximately 52 minutes of unscheduled downtime per year.] Even though the “tail-circuit” into the end-user facility need not be redundant, OHN will give preference to vendors with geographic route-diversity from the community in which the end-user facility is located to the exchange facility.
8. Latency is network transit delay. Transit delay between the served end user site and the exchange connections shall not exceed 45 milliseconds between each end user site and NWAX, and 150 milliseconds, end-to-end between any pair of end-user sites.
9. Packet Loss is generally a measure of capacity and traffic congestion. The number of data packets requiring retransmission shall not exceed 0.3 percent (three per thousand) between each end user site and NWAX and 1 percent for end-to-end loss between any pair of end-user sites.

10. Jitter is variability in network travel time. The jitter rate should not exceed 9 milliseconds between each end-user site and NWAX or 30 milliseconds end-to-end between any pair of end-user sites.⁶
11. The data access and transport provider must be willing to agree to Service Level Agreements (SLAs) with financial penalties for service outages, lack of availability of the contracted service capacity and any failure to meet quality of service specifications for transit delay, jitter and packet loss.
12. The data access and transport proposals must offer a price schedule that specifies the one-time non-recurring construction and/or installation charges and the monthly recurring prices for a three-year service contract or for a period ending May 21, 2014, with options for renewal for up to ten years from the start of service. Other contract periods may also be offered in the proposal.
13. Proposals must provide separate pricing for transport to NWAX as well as Internet connectivity. Please provide both 36 month and 60 month terms.
14. Proposals must list all telecommunications providers that will be subcontractors for the proposed services.
15. Proposals must list underlying physical transport technologies that will be used in providing the proposed services.
16. Proposals must contain a network diagram for each client site that is bid. Multiple sites that are interconnected should be diagrammed together on the same network diagram.
17. Proposers must agree to work with the NOC to provide and to receive network telemetry data necessary to resolve any network quality problems that occur. The OHN NOC will be placing “leaf node” telemetry boxes at each OHN end user site. Multiple site entities will have multiple leaf nodes strategically deployed within their network. Leaf nodes will need to be in continuous contact with network management systems at the NOC via protocols to be specified by the NOC. Leaf nodes will, on demand,

⁶ **Supporting notes regarding specifications discussed in 8, 9, and 10:** The OHN recognizes that how performance is tested will determine how the data are reported. To this end, the OHN wants to know what independent measures will be used to validate transport performance. Tools such as OWAMP, the One-Way Active Measurement Protocol, (<http://e2epi.internet2.edu/owamp/>) test for jitter, latency and packet loss. Please include in your proposal how measurements (the tool, the test) for latency, jitter and packet loss will be obtained.

pass traffic directly to any other leaf node in the network to isolate connectivity issues and assist the various providers and NOC personnel with problem resolution. Leaf nodes will require access via encrypted command traffic from a NOC specified address space. Information collected by the NOC related to proposer's traffic will be made available to successful proposers to assist in their network management.

18. Proposers may also elect to place one or more OHN "leaf nodes" at strategic points in the provider network (for example at interfaces between different carriers or networks) to assist in network problem resolution.
19. Proposers may also elect to grant to the NOC read-only access to selected diagnostic interfaces in the service provider's network.
20. Upon completion of site install, proposers must agree to provide OHN and the NOC with a completed network information form that will be provided to the proposed by OHN upon receipt of a funding commitment letter from USAC, and provide to either the NOC or OHN upon request, technical information necessary to monitor performance and assist with the purpose and implementation of the pilot program.
21. Proposers must agree to follow and comply with all administrative, invoicing and accounting processes and procedures that are necessary to comply with FCC and USAC requirements. These requirements include, but are not inclusive, to the submitting of detailed invoices in a timely manner.
22. Proposers must specify the extent to which they provide route diversity between each OHN end-user site and NWAX.

Evaluation Criteria for Network Access and Transport Proposals

With 100 total points available, proposals will be evaluated and assigned points based on the judgment of reviewers as to how well the respondent meets each of the following criteria. The categories for evaluation are indicated below.

- Price
- Quality commitments, including commitment to work with the OHN NOC to resolve issues
- Scalability commitments
- Commitment to exchange non-OHN traffic at NWAX
- Commitment to exchange OHN and other traffic at regional exchanges
- Route diversity commitment

