

Q&A Addendum #2

Arkansas Research and Education Optical Network ARE-ON Optical Equipment Refresh RFP 666832

This document provides question and answer information pertaining to the above captioned RFP.

REMINDER: It is the Respondent's responsibility to thoroughly examine and read the entire RFP document and any appendices and addenda to this RFP.

Posted February 16, 2018

Questions Dated February 13, 2018

Question 7: Clause 1.5.3 talks about an interactive document which will be posted on the Hogbid site. Is that the current RFP document in Word format (which can be used to insert responses in) or is there going to be another interactive document posted for the bid responses.

Answer: The Word document posted on HOGBID.UARK.EDU is the interactive document and should be used to insert the vendor's responses.

Question 8: Clause 5.3.3.1 – 5.3.3.3 Requirement about Jumpers

Answer: The question is incomplete. However, to clarify, all jumpers provided by the vendor shall meet the specifications in the RFP unless there is a technical reason requiring different jumper types, such as the need for multimode cables or for cable assemblies with MTP or MTRJ connectors. Fiber optic patch cables meeting these specifications are readily available from multiple distributors/manufacturers.

Question 9: Clause 5.5.1 -*As such, the vendor's proposal shall eliminate the use of the existing system's Dispersion Compensation Modules (DCMs), yet use a design strategy that supports the transmission of 10G optical wavelengths that coexist with 100G (and higher) coherent wavelengths across the same span. 10G services may or may not require DCMs (Information)*

Answer: The question is incomplete. However, to clarify, ARE-ON currently has 10G transport services that both terminate and pass through the part of our network that this RFP seeks to replace. These 10G transport services will continue to be used in the new network. ARE-ON is seeking a network solution that will prepare us for additional 100G waves and higher bandwidth transport and still allow for the use of existing 10G transport services. The current RE2 based network is optimized for 10G transport waves and uses fiber-based Dispersion Compensation Modules (not fiber grating based). These modules are not ideal for 100G and higher bandwidth transport services. The proposed network must be optimized for use with 100G (and beyond)



transport, but it must account for the transport of the existing 10G services that terminate in or pass through this portion of the network.

Question 10: 5.5.16_Maximum Reach. Can it be expressed in dB's.

Answer: Yes.

Question 11: Asks for Information on types of Protection. Do we need to price out protection for any services.

Answer: Protection is not required by this RFP and should not be included in the vendor's proposed system. In response to Section 5.5.18, vendors are to provide a description of the protection methodologies available within the vendor's proposed solution.

Question 12: Is our understanding correct that on Appendix II, Replace means just replacing the hardware that is being used to carry that service and not the actual wavelength assignment. In the same way the "Leave in place" is referring to the hardware which needs to stay (R7 in a combined R7/RE Node). What is meant by services which are left with the blank in front?

Answer: In Appendix II the columns titled "Equipment Refresh Status" contain an indication of the requirement for the replacement of the hardware on each line. Lines in which the column is marked "Replace" indicate RE2 based hardware that the vendor must replace with new equipment or services. Lines marked "Leave in Place" indicate transponders and services that have an endpoint outside the scope of this RFP and must be left in place to support those services. Lines in which the column is blank indicate that the vendor may optionally replace the equipment or services. If the equipment or services are left in place, the vendor's proposed system must include and incorporate the equipment or services in the new network's transport system. The channel assignments indicate the current channel assignments and may be adjusted if needed.

Question 13: What level of connectivity into the existing network do the following sites need to have: Tulsa, Alma, N. Little Rock, Hope and Dallas

Answer: Tulsa and Dallas are currently fixed OADM sites that are the termination points of their respective routes. The vendor's proposed system shall provide a ROADM or some other technology that provides for the automatic balancing of waves that egress these nodes onto the new network.

Alma, North Little Rock, and Hope are multi-degree ROADM sites. Each of these sites has two degrees that are connected to routes that are within the scope of this RFP. These sites also have one or more degrees that are connected to routes that are not in the scope of this RFP.

Wave/services are currently being terminated in or switched through these nodes as shown in Appendix II Diagram 3. The vendor's solution must make provisions for the continued use of these services in their proposal. Replacement of some or all of the ROADM hardware at these sites is optional.



Question 14: Which span loss numbers do we use, Current or Measured? (columns E or G in the Fiber Distance & Loss tab of Appendix II)

Answer: The “Fiber Distance & Loss” tab in Appendix II has been amended to address this question. Please download the new file from the hogbid.uark.edu website. The column marked “Measured Loss” contains more accurate loss measurement numbers and shall be used if provided. Where there is no measured loss available, use the loss under the “Current Equipment Loss” column. Where neither loss numbers are available, use a loss estimate based on the cable length and type.

Question 15: For the split fiber type spans, can you verify which end of the spans contain which fiber type?

Answer: The “Fiber Distance & Loss” tab in Appendix II has been amended to address this question. In the span from Dallas to Edgewood, the SMF cable is at the Dallas end. In the span from UAMS to North Little Rock, the SMF cable is at the UAMS end. The table has been updated to align the fiber type with the node order shown in each line.

Question 16: In the Services tab of Appendix II_Table1, please explain column E. We need to know which are new services to quote and how to hand “Leave in Place”, etc. vs blank entries

Answer: Please see the answer to Question 12 above.

Question 17: What does the “-01”, “0—2”, etc. specify in the Services tab in Appendix_II?

Answer: The node names are formatted as a four-character site name followed by a two-digit number. The number is used only to provide a unique name for a site that has multiple nodes and has no other meaning. As an example, there are two nodes at Tulsa, TULS-01 and TULS-02.

Question 18: Is ARE-ON expecting services listed in Appendix I - Diagram 3 to be provided on the existing network?

Answer: Services depicted in Appendix I Diagram 3 are the services carried on the current ARE-ON optical network. The vendor’s proposed system shall provide for the continuance of these services. Services shown in Diagram 4 are optional services that ARE-ON may wish to add as a part of the bid award. As explained in Section 5.14, vendors are asked to provide pricing for these optional services under the Optional tab of the Official Bid Price Sheet.

Question 19: Regarding Confidentiality and Pricing. Can we still consider module level pricing Confidential? In other words, can we Redact the module and line level pricing but leave the Summary level pricing un-redacted?

Answer: NO. Cost component of any kind cannot be considered as proprietary.

Questions Dated February 14, 2018

Question 20: Want to confirm the LEAF fiber is actually LEAF and not ELEAF? Or could it possibly be a mix?

Answer: ARE-ON has no direct information about the type of LEAF fiber in its inter-city fiber routes. However, we believe that there is likely a mix of LEAF fiber types in use. The inter-city fiber provider for the route from North Little Rock to Dallas stated that their fiber is Corning LEAF. Since it was placed a number of years ago, it may predate the availability of Corning ELEAF. ARE-ON built and spliced fiber laterals into the inter-city fiber using new manufacture Corning LEAF fiber in the year 2009 and beyond.

Question 21: The OTDR loss from Muskogee to Salisaw at 1550nm shows 31dB. Is this accurate? There is a big variance between the measured equipment loss and OTDR reading. Please advise.

Answer: The “Fiber Distance & Loss” tab in Appendix II has been amended to correct these numbers. See Question 14 above for related information.

Question 22: Appendix II, Services tab, has several rows that have nothing in the Equipment Refresh Status column. Do these match up with the “May Be Replaced” notation in Appendix I, Diagram 3?

Answer: Yes. Please see the answer to Question 12 above.

Question 23: Q&A Addendum posted 02-14-018. Regarding the answer to question 2, you state the OSC for managing the R7’s must be terminated on the new equipment being proposed. Are these OSC channels called out anywhere in the RFP in an A to Z fashion? If so, please state where. If not, please provide the details on port type, speed and A to Z termination required.

Answer: Optical Service Channels are inband data channels transported between adjacent nodes and usually terminated in a filter module or in the amplifier module of a node. The use of OSCs is assumed to be vendor specific and will not be required to be integrated with the remaining FSP3000 R7 nodes. The FSP3000 R7 management ports are 10/100/1000 Ethernet ports and will need access to a data network for management purposes. The vendor’s implementation of a management network must take into account the need to pass management traffic to and from the remaining FSP3000 R7 nodes and ARE-ON’s existing management network. The management traffic may be handed off to ARE-ON’s management network at any or all of the following sites: Alma, North Little Rock, Hope, and Monticello.

Questions Dated February 15, 2018

Question 24: Are the 22 sites highlighted in Appendix I, Diagram 1 all the sites needing equipment upgrades? There are 28 sites listed in Appendix III.

Answer: The sites highlighted in Appendix I Diagram 1 are the only sites in the scope of this RFP. Appendix III and Appendix V have been amended to remove the sites not in the scope of

this RFP. To avoid confusion and to keep the site numbers the same, the removed sites are simply indicated as “[removed]” in the Site Name Field.

Question 25: What are the addresses or Latitude/Longitude coordinates of the sites included in the scope of the project?

Answer: This information will be developed and available during the detailed implementation planning phase with the winning vendor.

Question 26: Is powering available at each of the respective sites or will power upgrades be required to support adding the new equipment? If additional powering is required, who is responsible for this work? Will any BDFB upgrades be required and are there available slots to add additional fuses.

Answer: The vendor may assume that power will be available at each location. ARE-ON operates a 48V DC power distribution system (A and B side) at each location and ARE-ON engineers will perform any required power work on the DC power distribution system. However, the vendor will be responsible for power cables (wiring, lugs) and installation of power cables from their equipment to the fuse/breaker panel located at the top of the installation rack. Battery distribution fuse bay (BDFB) upgrades are not in the scope of this RFP. Appendix III Space and Power Requirements is required information and will be used by ARE-ON to evaluate the power and space requirements of the proposed solution.

Question 27: Is rack space available at each of the respective sites or will additional racks be required to support adding the new equipment? If racks are required, who is responsible for this work?

Answer: The vendor may assume that rack space will be available. Any rack additions will be ARE-ON’s responsibility. Appendix III Space and Power Requirements is required information and will be used by ARE-ON to evaluate the power and space requirements of the proposed solution.

Question 28: The RFP identifies “a few” sites that may require removing the existing equipment to make room for the new equipment. Which sites are these and what services are currently supported from each of these sites on the equipment that will need to be removed?

Answer: Until the power and space requirements for the vendor’s proposed system are available, ARE-ON cannot answer this question conclusively for each site. However, the following is known. There is limited space and/or power available at the following sites: Sallisaw, Muskogee, UALR, and possibly Tulsa and Ozark. Limitations may exist at other locations depending on the vendor’s proposed equipment space and power requirements. Services at these locations are shown in Appendix II. Sallisaw, Muskogee, and Ozark are amplification sites only and do not have services terminating at these locations.

Question 29: Are dark fiber strands available between each site to build the new network in parallel with the existing network?

Answer: No. It will be necessary to leave the old network up and functioning on the current fiber strands and perform a flash cut to the new equipment onto the fiber strands in a manner that minimizes down time.

Question 30: Who is responsible to provide fiber strands with adequate characteristics to support the new equipment network?

Answer: In every case, the vendor's proposed system will use existing and in-production dark fiber strands between sites. All of the inter-city fiber is from various fiber providers off which ARE-ON has built its own fiber laterals. The vendor's proposed system must be functional on these fiber strands. Fiber loss characteristics are available in the "Fiber Distance & Loss" tab of Appendix II. Additional fiber characterization information about these strands is not available.

Question 31: Are bid modifications or change orders allowed at any time during the project?

Answer: Bid/proposal modifications are not permitted after the proposal deadline. However, during the detailed planning phase after the bid has been awarded and a contract has been completed, adjustments will be permitted to address technical issues not anticipated prior to the proposal deadline. Section 1.29 addresses the need for pricing to remain valid for at least one year following the contract award to accommodate changes.

Question 32: Are the services supported by the existing network fully disclosed in Appendix I, Diagram 3? If additional services are provisioned post bid, will bid adjustments be allowed to address the changes?

Answer: The services shown in Appendix I Diagram 3 and in Appendix II are, to the best of our knowledge, complete. If additional services are provisioned post bid, adjustments will be made to accommodate the additional components for those services. Section 1.29 addresses the need for pricing to remain valid for at least one year following the contract award to accommodate changes.

Question 33: What is the definition of the maintenance window?

Answer: A maintenance window is a predetermined block of time when network repair, modifications, and/or installation will occur. Maintenance windows will be scheduled to minimize interruption to our constituents' network operations. ARE-ON shall be solely responsible for determining maintenance windows and will take responsibility for sending notifications in advance to all affected parties.

Question 34: What are the building entry requirements? (on site security, building access cards)

Answer: There are a variety of access requirements at locations including but not limited to: access cards, key entry, security personnel notification, and escort requirements. In most locations, ARE-ON personnel will accompany the vendor and provide site access. There may be some cases where the vendor must visit a site without escort by an ARE-ON employee; however, ARE-ON will make arrangements for the vendor's access to these sites.



Question 35: Will any work be allowed to be performed outside of the maintenance window? If so, please define the types of work allowable outside of the maintenance window.

Answer: Yes. Work such as rack and stacking, powering, and testing of equipment where such work does not interfere with the operation of the current network will be allowed outside of maintenance windows.

Question 36: Is work allowed 7 days per week?

Answer: The implementation schedule including the days and hours of work will be coordinated with the winning vendor and with respect to the availability of ARE-ON personnel. Due to the complexity of the network and a desire to minimize interruptions to our clients' network operations, work on weekdays and weekends will be considered.

Question 37: Which sites can have equipment shipped directly to the site and which will not allow direct shipping?

Answer: Vendors shall ship all equipment to an ARE-ON designated location at or near the ARE-ON offices in Fayetteville, AR. Exact shipping details will be coordinated with the winning vendor. ARE-ON will be responsible to transport the equipment to its installation site.

Question 38: The RFP stipulates the laws of the State of Arkansas. Does this apply to the sites in Texas, Louisiana, and Oklahoma as well?

Answer: Per the RFP and in compliance to Arkansas state laws, any contact entered into by the University of Arkansas and/or ARE-ON must be governed by the laws of the state of Arkansas. This stipulation applies to the entire contract.

Question 39: The RFP stipulates testing. What specific testing will be required and at which sites will the testing be necessary?

Answer: Vendors are to provide testing during the staging and pre-configuration phase prior to implementation. The level and scope of testing shall at least be designed to identify component failure before the component is moved to the target site and installed. As a minimum, vendors should identify DOA components that fail to power up properly or communicate with the system. ARE-ON expects that all equipment be newly manufactured, new-in-box, and under full warranty, including components replaced during testing.

Question 40: Will the testing require fiber characterization?

Answer: The vendor must insure that the proposed system will function properly on the existing fiber plant currently in use in the ARE-ON network. If the vendor requires additional fiber characterization information, then the vendor must coordinate the testing with ARE-ON and shall perform the tests during a maintenance window.

Question 41: Is the Network Management System expected to communicate in conjunction with existing devices or operate independently?

Answer: It is not a requirement that the Network Management System for the vendor's proposed system communicate with and manage existing devices in the ARE-ON network. ARE-

ON currently operates an ADVA based FSP Network Management/ Service Management System which will remain in place to independently manage FSP 3000R7 devices that remain in the network.

Question 42: Q&A Addendum posted 02-14-018. Regarding the answer to question 4, you state some equipment will need to be removed by the RFP winner due to space and power constraints. May we get a list of those locations where you see this happening? Trying to figure out those professional service costs.

Answer: There is limited space and/or power available at the following sites: Sallisaw, Muskogee, UALR, and possibly Tulsa and Ozark. Other locations may also be limited depending on the vendor's proposed equipment space and power requirements.

Questions Dated February 16, 2018

Question 43: Appendix II, Table 1 includes a column titled "Equipment Refresh Status". In this column, some fields show "Leave in Place", some show "Replace" and others are blank. What is the status of the equipment where the fields are blank under "Equipment Refresh Status"?

Answer: Answered in Question #12 above. Lines that do not have any indication in the "Equipment Refresh Status" column may be optionally replaced at the vendor's discretion. However, these hardware items and services, if left in place, must be included in the new network's transport system.

Question 44: Appendix 1, Diagram 3 includes a section for Monticello to Monroe. It indicates that there are 4x10G services (10G AL2S, 10G LONI, and 2x10G I2-BB). It notes to "replace w/ 1x10G". Does this mean that only 3x10G services should be dropped from Monticello to Monroe? Further, looking at Appendix II, Table 1, the services tab shows 3x10G in rows 37-39.

Answer: Yes. Only three 10G services are needed terminating in Monticello to Monroe.

Question 45: Section 5.6.3 states a requirement for native support of OTU2, OTU3 and OTU4. If the supplier can provide and demonstrate a more efficient design that does not include support for these, is this acceptable?

Answer: Yes. This, however, does not eliminate the requirement that the vendor's proposed system have native support for OTU2, OTU3, and OTU4.

Question 46: Will there be a "dial in" number available for the pre-proposal meeting?

Answer:

Join by PC, Mac, Linux, iOS, or Android (please allow time for app to install):

<https://zoom.us/j/735936946>

Join by telephone:

1-877-369-0926 (Toll Free) or 1-646-558-8656

Meeting ID: 735 936 946