

**REQUEST FOR INFORMATION  
#2017-0089**

**ISSUE DATE: 09/14/2017  
DUE DATE: 4:00 PM, 11/01/2017**

**ISSUE AGENCY: University of Arkansas for Medical Sciences UAMS  
4301 West Markham  
Little Rock, AR 72205**

**ON BEHALF OF: The e-Link Telehealth Network Consortium HCP#17206**

University of Arkansas for Medical Sciences (UAMS) is soliciting information from potential partners on behalf of the e-Link Telehealth Network (e-Link Consortium).

**CONSORTIUM PARTNERS**

The e-Link Consortium partners are comprised of the following health care entities: Federally Qualified Health Centers, Community Health Centers providing health care to migrants, Community Mental Health Centers, local health department/agencies, non-profit hospitals, part-time eligible entities located in ineligible facilities, post-secondary educational institutions offering health care instruction, teaching hospitals or medical schools, rural health clinics, mobile units of rural health care providers, dedicated ER of rural for-profit hospitals, Skilled Nursing Facilities or consortium of the above.

Additional partners include Arkansas state health care associations, Health Information Exchanges, and in the future, may include Emergency Medical Technicians, volunteer fire departments, Arkansas county jails and school-based telemedicine/telehealth.

**BACKGROUND**

University of Arkansas for Medical Sciences, Center for Distance Health (CDH), is the FCC Universal Service Administrative Company, Rural Healthcare Connect Fund designated Arkansas e-Link Consortium Leader HCP#17206.

As the designated Arkansas e-Link Consortium Leader; CDH, by way of this RFI, is seeking demonstration of abilities, solutions, processes and knowledge to support, monitor, maintain, manage, grow and report across all infrastructure and/or endpoint devices that comprise the e-Link data network.

**RESPONDENTS**

UAMS and Arkansas e-Link Consortium is requesting service providers with knowledge, equipment and experience to respond with relevant information. The purpose of this request is to gather information that would assist UAMS with the possible development of one or more Request for Proposals (RFPs).

Responses must include information relative to projects completed by the respondent in recent years.

Respondents must include the name, address, e-mail and telephone number of the person(s) with authority to represent the company and answer questions or provide clarification concerning their response, FCC Service Provider Identification Number (SPIN), FCC Registration Number (FCCRN).

## **INTENT OF RFI**

The intent of this RFI is to seek information only. Therefore, the responses will not be considered to be a binding bid or proposal. While the information gathered through this request will be helpful to UAMS at this preliminary stage, it will not be a basis for contractor selection should UAMS proceed with the project(s). UAMS is not obligated to any course of action as the result of this RFI. Issuance of this RFI does not constitute a commitment to issue a Request for Proposal or to award any contract. UAMS retains the right to proceed, or not, with the project(s) and may modify the UAMS approach based upon information received through this process. Participation in this RFI is not a guarantee that respondents will receive further consideration in the form of a bid solicitation (Request for Proposal). Likewise, those parties who choose not to respond to this RFI will not automatically be denied participation in a possible bid solicitation. Vendors are strongly encouraged to respond to this RFI to ensure UAMS is aware of the vendor's available goods and services.

RFI responders will assist the e-Link Consortium Leader in the design and implementation of a system that meets the needs of UAMS/Arkansas e-Link. The e-Link Consortium Leader (CDH) is seeking to receive presentations, demonstrations and witness proof of abilities and/or products as described in the following section "RFI Areas of Interest".

## **RFI AREAS OF INTEREST:**

- **PROFESSIONAL SERVICES:** Focusing on, but not limited to, Project Management and Problem Resolution in the areas of vendor circuit transitions, circuit upgrades, new circuit installations and circuit terminations.
  - o Vendor must demonstrate proficiency in all areas of Project Management and Problem Resolution, as well as a high aptitude and functional understanding of commercial networking equipment, providers, business practices and any or all Federal and/or State policies, regulations, and/or best practices and standards governing this industry.
  - o Vendor must describe in detail their proposed Project Management Plan and Processes for managing the e-Link Network Connectivity Services.
  - o Vendor is encouraged to demonstrate any/all industry technologies they feel might provide benefit to the e-Link Consortium in support of the above professional services, as well as any and all other proposed or potential benefits to e-Link Consortium Leader and its Members.
  - o Vendor is expected to provide a list of Project Management and Problem Resolution Software and/or Tools that will be used in support of the e-Link Consortium.
  
- **MANAGED SERVICES:** Focusing on, but not limited to, WAN Management, Global e-Link Data Network NOC, including custom real-time monitoring and alerting of the e-Link WAN, e-Link Data Network Standards Reporting, e-Link Data Network Security and WAN Aggregation. RFI responders will need to produce and demonstrate in all of the aforementioned areas of "managed services" based on details provided below. The e-Link Data Network technical details can be found later in this RFI.
  - o WAN Management includes but is not limited to e-Link Data Network Hub and CAI router management (firmware and software updates, including all security patches);

Monitoring and Maintenance of all e-Link Data Network Hub and CAI routers and supporting equipment, including PMUs, Line Cards and/or any other equipment operating in support of e-Link Data Network infrastructure.

- NOC should monitor and report against all HUB and CAI routers. NOC will be responsible for engaging Data Circuit or Internet Service Providers and holding these providers to SLA Metrics defined by e-Link Consortium Leader (metrics found further along in this RFI). NOC will also report in real-time all outages to UAMS Telemedicine Department, along with ticket numbers and ETR (estimated time to repair) for affected sites. Incremental updates will need to be provided by NOC to UAMS Telemedicine Department. The frequency and timing of updates will be contingent on severity types.
- Network Standards Reporting will be made available to e-Link Consortium every 30 days, as well as upon request over a period spanning 12 months. A demonstration of this will be required based on the following criteria:

- **Core Network (Hub Routers)**

- Network Latency

- Measured from Core router to Core router.
- Reported for each Core router against each Core router.
- The report should indicate any latency greater than 20ms round trip that lasted or was for a large majority intermittently present for a period of one day or more, include all sites affected by this defect and the duration of the defect along with Data/ISP and Circuit IDs.

- Jitter

- Measured from Core router to Core router.
- Reported for each Core router against each Core router.
- The report should indicate any Jitter greater than 2.0ms that lasted or was for a large majority intermittently present for a period of one day or more, include all sites affected by this defect and the duration of the defect along with Data/ISP and Circuit IDs.

- Network Data Delivery

- Measured from Core router to Core router.
- Reported for each Core router against each Core router.
- The report should indicate any packet loss greater than .05% that lasted or was for a large majority intermittently present for a period of one day or more, include all sites affected by this defect and the duration of the defect along with Data/ISP and Circuit IDs.

- Site Availability
  - Report should indicate any hard-down Core router with longer than eight hours to restore from the point at which the Telco provider was notified of the issue.
  - Report should represent how long from the moment a Data/ISP was notified of the issue and how long until the connectivity was restored.
  
- **Access PPP/Ethernet (CAI Routers)**
  - Site Availability
    - Report should indicate any hard-down CAI router with longer than eight hours to restore from the point at which the Telco provider was notified of the issue.
    - Report should represent how long from the moment a Data/ISP was notified of the issue and in turn how long until the connectivity was restored.
  
  - Packet Delivery
    - The report should indicate any packet loss greater than .5% that lasted or was for a large majority intermittently present for a period of 30 days.
    - Measured from Core router to CAI router and CAI router to Core router.
    - Reported for each CAI site router against Primary and Secondary Hub (core) Routers.
  
  - Latency
    - The report should indicate any latency greater than 40ms round trip that lasted or was for the large majority intermittently present for a period of 30 days.
    - Measured from Core router to CAI router and CAI router to Core router.
    - Reported for each CAI site router against Primary and Secondary Hub (core) Routers.
  
- E-Link Data Network Security at CAI and Core Router locations to include intrusion detection and alerting.
- WAN Aggregation Services should be demonstrated to the effect of reliability, performance, management, monitoring and traffic shaping with MPLS as a base for comparison.

- **BROADBAND TECHNOLOGIES:** Focusing on, but not Limited to, MPLS, Virtual Private Network, SIP (Session Initiated Protocol) Trunking, Cellular 600MHZ and 700MHZ (Appliances, Services, coverages), Metro-Ethernet Services and coverages, Dark Fiber Services, WAN Aggregation and SD-WAN (Software Defined Wide Area Network).
- - o MPLS network must support traditional non-proprietary dynamic routing protocols, be able to prioritize video traffic via industry accepted methods such as CoS, Virtual Circuit Channel (VCC), Virtual Routing and Forwarding (VRF), Multiple Virtual Local Area Networks (VLANs), etc.
    - The MPLS network must be capable of supporting symmetrical upload/download speed.
  - o Virtual Private Network - Ethernet Private Line point-to-point and multi-point to multi-point capabilities
  - o Session Initiation Protocol (SIP) trunking services and coverage areas
  - o Cellular appliances, services, coverage areas
    - 600 MHz spectrum “TV white space” appliances, services, coverage
    - 700 MHz spectrum appliances, services, coverage
  - For the select 158 geographies:
    - o Acorn, Alexander, Alma, Altheimer, Amity, Arkadelphia, Ash Flat, Ashdown, Augusta, Bald Knob, Barling, Batesville, Bearden, Bee Branch, Beebe, Bella Vista, Benton, Bentonville, Berryville, Blytheville, Booneville, Brinkley, Bryant, Cabot, Calico Rock, Camden, Carlisle, Cave City, Cave Springs, Cherokee Village, Cherry Valley, Clarendon, Clarksville, Clinton, Conway, Corning, Cotton Plant, Crossett, Danville, Dardanelle, De Queen, Deer, Dermott, Des Arc, DeWitt, Drasco, Dumas, Earle, El Dorado, England, Eudora, Eureka Springs, Fairfield Bay, Farmington, Fayetteville, Fordyce, Forrest City, Fort Smith, Gravette, Green Forest, Green Forest, Greenbrier, Greenwood, Greers Ferry, Hamburg, Hampton, Harrisburg, Harrison, Haughton, Hazen, Heber Springs, Helena West Helena, Hope, Horseshoe Bend, Hot Springs, Hoxie, Hughes, Huntsville, Jacksonville, Jasper, Jefferson, Johnson, Jonesboro, Kensett, Lake City, Lake Village, Lamar, Lepanto, Lewisville, Lincoln, Little Rock, Lonoke, Lowell, Madison, Magnolia, Malvern, Mammoth Springs, Mansfield, Marianna, Marion, Marked Tree, Marshall, Maumelle, Mayflower, McCrory, McGehee, Melbourne, Mena, Monticello, Morrilton, Mount Ida, Mountain Home, Mountain View, Mountainburg, Mulberry, Murfreesboro, Nashville, Newport, North Little Rock, Osceola, Ozark, Paragould, Paris, Parkin, Perryville, Piggott, Pine Bluff, Pleasant Plains, Pocahontas, Portia, Portland, Prairie Grove, Prescott, Ratcliff, Redfield, Rison, Rogers, Russellville, Salem, Searcy, Sheridan, Sherwood, Siloam Springs, Springdale, Star City, Strawberry, Strong, Stuttgart,

Swifton, Texarkana, Trumann, Van Buren, Vilonia, Wabash, Waldron, Walnut Ridge, Warren, West Memphis, Wilmot, Wynne, Yellville

- Metro-Ethernet services available for the select geographies:
  - Batesville, Bella Vista, El Dorado, Fayetteville, Fort Smith, Helena West Helena, Hot Springs, Jacksonville, Jonesboro, Little Rock, Lowell, Magnolia, Maumelle, Morrilton, Mountain Home, Mountain View, Newport, North Little Rock, Pine Bluff, Pocahontas, Searcy, Sherwood, Springdale, Texarkana, Warren, West Memphis.
- Dark Fiber services available in select geographies:
  - Batesville, Bella Vista, El Dorado, Fayetteville, Fort Smith, Helena West Helena, Hot Springs, Jacksonville, Jonesboro, Little Rock, Lowell, Magnolia, Maumelle, Morrilton, Mountain Home, Mountain View, Newport, North Little Rock, Pine Bluff, Pocahontas, Searcy, Sherwood, Springdale, Texarkana, Warren, West Memphis.
- WAN Aggregation Services should be demonstrated to the effect of reliability, performance, management, monitoring and traffic shaping with MPLS as a base for comparison.
- SD-WAN by way of Cisco Meraki or White Label Appliances and fabrics.
- **MONITORING AND REPORTING TOOLS:** Focusing on, but not limited to, Bandwidth Utilization, Jitter, Latency, Packet Loss, Availability, SD-WAN (Software Defined Wide Area Network) Management, Netflow, sFlow, Log Server, SNMP
- - Bandwidth Utilization reporting requires the ability to report against not only interface utilization but also CAI site up/down bandwidth utilization based on currently allocated speeds.
  - Jitter--please reference metrics listed under managed services section "Network Standards Reporting".
  - Latency-- please reference metrics listed under managed services section "Network Standards Reporting".
  - Packet Loss-- please reference metrics listed under managed services section "Network Standards Reporting".
  - Availability-- please reference metrics listed under managed services section "Network Standards Reporting".
  - SD-WAN—Currently, the e-Link Data Network utilizes the Cisco Meraki appliances and would like to further grow this in regards to SD-WAN and WAN management with abilities to report and monitor all WAN sites.
  - SNMP-- NetFlow, sFlow, all other industry standard monitoring and reporting protocols must be supported by and proposed products.

**E-LINK NETWORK INFRASTRUCTRE DESCRIPTION:**

The Arkansas e-Link telehealth video conference network consists of approximately 157 circuits varying in bandwidth from broadband to 10Gb/s connections. Consortium Member (CAI) locations use a Cisco 881 or 2900 router to connect the WAN circuit to their LAN and/or Video Conference network. These connections all communicate via H.323 and SIP IP protocols. The e-Link Data Network has approximately 259 remote locations utilizing H.323 and SIP to accommodate the sites’ telemedicine needs. The e-Link Network utilizes 1Gb/s fiber to provide connectivity to the Arkansas Department of Health WAN. This connectivity allows Arkansas Department of Health Hospital Bio-Preparedness sites and 109 Local Health unit networks to access seamless, cross-network video conferencing.

The e-Link network video conferences are hosted with 15 Codian 4520 Multipoint Control Units (MCU), as well as two Cisco Meeting Server X3 configurations for bridging. The e-Link Network utilizes Telepresence Management Suite (TMS) to monitor and manage video conferencing equipment at each location and scheduled conferences. Cisco VCSc and VCSe appliances are used to facilitate calls from inside the Arkansas e-Link telehealth video network to outside video resources and are fully integrated with TMS as well as the Codian and Cisco Meeting MCUs.

**NETWORK BACKBONE DESCRIPTION:**

The backbone consists of Layer 2 and 3 MPLS services on top of Dense Wave Division Multiplexing (DWDM) optical transport equipment operating on over 1500 sheath miles of dark fiber. The backbone leverages MPLS fast reroute, multiple long haul fiber optic rings and physically diverse fiber routes to meet the network reliability requirements of its members.

**Current Acceptable Network Hardware Standards in this RFI include:**

**Hardware**

Closet Switches	Cisco 3850 and Cisco 4510 or better Brocade ICX7450 or better
Core Switches	Cisco 6500 series or better Brocade ICX7450 or better
Facility Routers – Small	Cisco 2900 or 800 or better Brocade ICX6430 / ICX7450 or better

**Other SD-WAN/VPN/Security Technologies:**

- Meraki Z1 and Z3 Teleworker
- Meraki MX Security Appliances
- Meraki MDM
- White Label Appliances
- SD-WAN Fabrics

**Routing Standards:**

- a. Routers must be provided and managed at each and all CAI sites and designated e-Link Network Hub sites.
- b. All routers must, at a minimum, be capable of the following concurrently:
  - 1. Open Shortest Path First version 2 (OSPFv2) and Open Shortest Path First version 3 (OSPFv3) supported;
  - 2. Capable of running the Protocol Independent Multicast (PIM) protocol in a SPARSE configuration allowing TCP/IP multicast connectivity ingress and egress to both the local customer and e-Link Network Hub routers;
  - 3. Consortium Leader will define Class of Service (CoS) priority Video, Voice and Data for ingress and egress traffic. Vendors submitting bids must accept and maintain priority across their entire solution;
  - 4. Be able to define a gateway of last resort (default route);
  - 5. Provide layer 2 transport (802.1q) between the customer and the e-Link Network hub router(s);
  - 6. Routers provided by the vendor must connect to the e-Link Network hub routers using two 1 gigabit Ethernet connections over category 6 cabling running in a full duplex configuration or be able to utilize a small form-factor plug (SFP) for multi-mode or single-mode fiber optic connectivity.
  - 7. The routers provided by the vendor must connect to the customer-owned local routers using 10/100/1000 Ethernet over category 6 cabling running in a full duplex configuration or be able to utilize a SFP for multi-mode or single-mode fiber optic connectivity.

**PROPOSAL STRUCTURE:**

- A) Provide an overview of your solution's components.
- B) Describe the staff requirements.
- C) Provide information related to your solution's approach to the project's specified requirements.
- D) Provide any available time projections.
- E) Provide cost estimates based on time projections and information about existing UAMS systems provided in this RFI. Please detail any assumptions made to determine cost estimates.

Under no circumstances shall UAMS be liable for, or reimburse, the costs incurred by respondents whether or not UAMS, in its sole discretion, chooses to solicit proposals for the project.

At its option, UAMS may request oral presentations or discussion with any or all respondents for the purpose of clarification or to amplify the materials presented in any part of the response. However, respondents are advised that UAMS will assume that submitted information is complete and accurate, and as such, it may not seek additional clarification.

Acknowledgement of responses will not be made, nor will respondents be notified of UAMS' assessment of the information received. No basis for claims against UAMS shall arise as a result of response to this RFI or UAMS' use of such information as part of subsequent RFPs.

UAMS reserves all rights available by federal and state law. If an RFP results, respondents to this RFI are hereby notified that all information, documentation and any specific content or approaches included in the RFI responses may be used in resulting solicitations. Therefore, do not submit any copyrighted, proprietary or confidential information.

Ownership of all data, material and documentation originated and submitted to UAMS, pursuant to this RFI, shall belong exclusively to UAMS and be subject to public inspection and copying in accordance with the Arkansas Public Records Law.

By submitting a response, respondent agrees that UAMS may copy the response information for purposes of facilitating review or to respond to a formal public records request. The respondent consents to such copying by submitting a response and warrants that such copying will not violate the rights of any third party. UAMS will have the right to use ideas or adaptations presented in the response. Ideas, approaches, and options presented by respondent may be used in whole or in part by UAMS in developing a Request for Proposals (RFP) should UAMS decide to move forward with seeking outside services. Further, combinations of ideas from various respondents may also become part of an RFP, based on the consideration of the various submissions and the needs of UAMS, which may differ from respondent's experiences in other places.

**As part of your response to this RFI, please feel free to include any additional comments or suggestions that your company believes would be helpful.**

**DO NOT SUBMIT A FORMAL COST PROPOSAL.** While rough cost estimates are welcomed, it is understood that any costs provided are strictly "ESTIMATES" and subject to change due to the services and scope of the project. This is a request for information only and will not result in a Contract Award or agreement.

Please also provide a Word or .pdf copy of your company's contract/license agreement and identify any terms and conditions that are non-negotiable. Name the file with your company name followed by "Contract" (e.g., "ABCCompanyContract.pdf").

**RFI Format Criteria:**

Please note that RFI responses, including the Appendix, must not exceed 25 pages. Use single-spaced, 12-point, Times New Roman font.

The following file naming convention should be used: **UAMS RFI firstinitial lastname.doc.**

Authorized file formats include: Adobe Acrobat (.pdf) Microsoft Word (.doc) and Microsoft Excel (.xlsx)

**TIMELINE**

- **RFI written questions are due to UAMS by 10/02/2017 (questions will not be accepted after this date)**
- **RFI written answers are due back to respondents by 10/09/2017**
- **RFI responses are due to UAMS by 11/01/2017 by 4:00 PM.**
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**Written responses to questions submitted in writing will be consolidated and provided to all vendors.**

**Point of Contact for Inquiries and Submissions:**

[Arkansaselink@uams.edu](mailto:Arkansaselink@uams.edu)

Thank you for your interest in the project to expand broadband and related telehealth benefits to the citizens of Arkansas.