

# **Request for Proposal**

## **For the Alabama Pediatric Health Access (ALPHA) Telemedicine Network Wide Area Network Project**

**Requested by  
Children's Hospital of Alabama  
Birmingham, Alabama**

**Table of Contents**

1. Executive Summary/SBAR
  - 1.1. Executive Summary
  - 1.2. SBAR
2. Due date and Contact Instructions
3. Proposal Evaluation
  - 3.1. Evaluation of Responses
  - 3.2. Rights Reserved
4. Requested Solutions, Features, Functions
  - 4.1. General Overview
  - 4.2. Per Site Breakout
    - 4.2.1. Children's Hospital of Alabama, DBA Children's Health System of Alabama (Birmingham, AL)
    - 4.2.2. Bryan W. Whitfield Medical Center (Demopolis, AL) or Alternate
    - 4.2.3. Russell Memorial Hospital (Alexander City, AL) or Alternate
    - 4.2.4. Coosa Valley Medical Center (Sylacauga, AL) or Alternate
  - 4.3. Additional Functional Requirements
    - 4.3.1. Mandatory Requirements
    - 4.3.2. Desirable Features
  - 4.4. Technical Description
    - 4.4.1. TCP/IP Solutions (IPv4)
    - 4.4.2. Internet Connectivity
    - 4.4.3. Future Migration to IPv6
    - 4.4.4. Quality of Service for Interactive Video Conferencing
    - 4.4.5. Network Monitoring Software and Installation
      - 4.4.5.1. Data Collection and Reporting
      - 4.4.5.2. Bidirectional Voice Channels and Capacity
      - 4.4.5.3. Bidirectional Video Channels and Capacity
      - 4.4.5.4. Availability and Threshold Alerts
      - 4.4.5.5. Problem Resolution and Remediation
    - 4.4.6. Failover to Backup Links When Primary Connection Fails
    - 4.4.7. Patient and Provider Privacy and Security
    - 4.4.8. Staffing Requirements to Monitor and Manage the Wide Area Network (WAN)
5. Pricing and Cost Information
  - 5.1. Telecommunications
  - 5.2. Hardware and Software
  - 5.3. Network Testing
6. Implementation Schedule Description
7. Service and Performance Level Agreements
8. Systems End to End Test and Acceptance Testing Provisions
9. Proposed Network diagram

## 1. Background/Executive Summary

- 1.1 **Executive Summary:** This RFP is intended to solicit proposals to address the telecommunications, network monitoring and management, perimeter hardware and software, and physical plant construction needed to provision and maintain the proposed ALPHA network. Several vendors may be required to provide all of the components needed to build the proposed ALPHA network. Vendors are encouraged to make proposals for the complete RFP based on components provisioned by either themselves or by other vendors. Vendors must list all components for each site that are needed to establish a functioning ALPHA Network: Hardware, software, physical plant, electrical power, space, etc. If additional components or systems are required, the vendor must explicitly document these requirements. In summary, CHS must be able to determine the entire cost for establishing (building) and maintaining (operating) the ALPHA Network. If the vendor is unable to provide certain cost components, this inability must be explicitly stated in the response to this RFP.
- 1.2 **SBAR – Situation, Background, Analysis, and Recommendations**
- 1.2.1 Situation –Pediatric subspecialty services are not available in all areas of Alabama.
- 1.2.2 Background – Patients and care providers in rural areas have limited access to timely pediatric subject matter expertise. An opportunity exists for Children’s Hospital to partner with rural healthcare providers to bridge this gap and work together to improve the quality of pediatric care in rural areas.
- 1.2.3 Analysis – Current technology exists to allow pediatric physicians at Children’s Hospital of Alabama, dba Children’s Health System (CHS), the only level I pediatric trauma center in Alabama, to make initial examinations of pediatric patients in rural hospitals using high definition cameras and audio coupled with high-speed data networks, described henceforth as telemedicine.
- 1.2.4 Recommendation - A pilot study should be conducted between CHS and rural hospitals to determine the effectiveness of using telemedicine over a dedicated broadband wide area network, the “ALPHA Network,” to improve pediatric patient outcomes. To accomplish the pilot study, this request for proposal (RFP) is posted to determine specifications and costs for CHS to establish the ALPHA Network, capable of carrying interactive HD video and audio, as well as bidirectional data communications, with selected rural hospitals. The ALPHA Network must be scalable and allow for additional Alabama sites to join the ALPHA Network in the future. Additionally, the proposed ALPHA Network will enhance broadband access to the public Internet (I) for the participating rural hospitals.

## **2. Due Date and Contact Instructions**

A response to this proposal is requested no later than the 29<sup>th</sup> day from when it is published. Responders are requested to send an initial email to the following contact to acknowledge receipt of the RFP:

Pam Barlow, Grant Administrator  
USAC/FCC Associate Project Coordinator , ALPHA Telemedicine Project  
Children's Hospital of Alabama  
2112 11<sup>th</sup> Avenue South, Suite 100  
Accounting  
Birmingham, AL 35205  
Phone: 205-558-2452  
Fax: 205-939-6060  
Email: [pam.barlow@chsys.org](mailto:pam.barlow@chsys.org)

All questions regarding this RFP should be submitted in Word format and emailed to Pam Barlow.

### 3. Proposal Evaluation

- 3.1 Evaluation of Responses: Responses to this RFP will be evaluated based on but not limited to the following informational components as well as other appropriate evaluation criteria:
  - 3.1.1 Cost of Solution
  - 3.1.2 Evaluation Team Satisfaction with the overall proposed solution including information gathered via telephone and video conference calls, site visits, technical evaluations, etc.
  - 3.1.3 Compliance with RFP guidelines
  - 3.1.4 Solution's suitability to meet project goals with functions and features
  - 3.1.5 Project milestone completion timelines
  
- 3.2 Rights Reserved: CHS reserves all rights, including but not limited to the following rights, in the proposal evaluation and vendor selection processes:
  - 3.2.1 The right to issue any resulting order with any vendor CHS chooses for any reason
  - 3.2.2 The right to waive any or all technicalities in accepting or rejecting any proposal
  - 3.2.3 The right to reject any proposal or all proposals
  - 3.2.4 The right to accept or reject any or all parts of any proposal

#### 4. Requested Solutions, Features, Functions

- 4.1 General Overview: This section provides a general description of all the network components required. See the attached network diagram for general component and site location information. Generally, the following network components, functions, features, and levels of service are required:
  - 4.1.2 Units of measurement: Data transfer rates (aka bandwidth) will be expressed in megabits per second, abbreviated at Mbit/s in all communications, unless otherwise clearly and unambiguously specified.
  - 4.1.3 The ALPHA Network will be provisioned as a full duplex network.
  - 4.1.4 CHS will have a minimum of 100 Mbit/s full duplex connection to the broadband network.
  - 4.1.5 Participating sites will have a minimum of 10 Mbit/s full duplex connection to the broadband network such that proposed service provides bandwidth greater than or equal to bandwidth existing at the time of installation.
  - 4.1.6 The ALPHA Network will have a minimum of 100 Mbit/s full duplex connection to the public internet with a minimum of 50 Mbit/s dedicated to CHS traffic.
  - 4.1.7 Lower bandwidth failover connections will be available.
  - 4.1.8 Wide Area Network Termination hardware (including installation) for each facility will manage redundant telecommunications facilities. Termination hardware will be capable of providing the following features:
    - 4.1.8.1 High Availability (99.99% of time tested) /failover/redundancy
    - 4.1.8.2 Bandwidth management/Quality of Service
    - 4.1.8.3 Secure Virtual Private Network Capabilities
    - 4.1.8.4 Threat Management
    - 4.1.8.5 Intrusion Detection/Intrusion Prevention
  - 4.1.9 Network Monitoring software (including installation) capable of monitoring the following:
    - 4.1.9.1 Network bandwidth
    - 4.1.9.2 Availability
    - 4.1.9.3 Threshold Alerts
  - 4.1.10 Network Testing to certify appropriate security and availability
  - 4.1.11 Guaranteed service/repair response times in the event of service degradation or interruption
  - 4.1.12 Location Details – Refer to the attached network diagram for site locations and proposed network details.
  - 4.1.13 Internet connectivity details. Currently, CHS and participating hospitals have individual Internet connections. These individual connections will be replaced or enhanced by individual full duplex connections from each site to the broadband network. Internet connectivity will then be provided to the participating sites from the broadband network to the Internet via a shared (by participating hospitals) full duplex network connection with sufficient bandwidth to transport a minimum of 100 Mbit/second traffic.

Refer to the attached network diagram at the end of this RFP for details on internet connectivity.

- 4.2 Per Site Breakout – The following sites wish to participate in the ALPHA pilot study. Refer to the attached network diagram for details.
  - 4.2.1 Children’s Hospital of Alabama – Emergency Dep’t, Birmingham, AL
  - 4.2.2 Bryan W. Whitfield Medical Center or Alternate – Demopolis, AL
  - 4.2.3 Russell Memorial Hospital or Alternate – Alexander City, AL
  - 4.2.4 Coosa Valley Medical Center or Alternate – Sylacauga, AL
  
- 4.3 Additional Functional Requirements
  - 4.3.1 Mandatory Requirements
    - 4.3.1.1 Average and peak data traffic levels may need to be investigated by vendors. Arrangements should be made with the contacts listed in this RFP.
    - 4.3.1.2 Acceptance Testing – Identify any and all testing services provided as necessary to ensure that transmission rates and data loss rates fall within specified parameters
    - 4.3.1.3 Because HD interactive video and audio will be used to assist in medical emergencies, it is imperative that the proposed communication infrastructure have adequate network reliability, quality of service, and the capability to promptly recover from interrupted or degraded services. Guarantees of service level performance (e.g., monitoring, detection, and correction of problems) must be included in responses to this RFP.
  
  - 4.3.2 Desirable Features – The ALPHA pilot study desires the ability to test the point-to-point network performance any time by authorized ALPHA personnel. The performance measures must include measures of Packet Loss, Jitter, and Packet Delays (in both directions and round-trip).
  
- 4.4 Technical Description
  - 4.4.1 TCP/IP Solutions: The network will be based on Internet standards specified by the IETF using IP, TCP, SIP and other IETF protocols. The network will have a “private” IP address range with appropriate DNS Server support. Stations and Users will be authenticated (e.g., via an Active Directory). This directory will be managed by designated Alpha team members. The termination points will provide Network Address and Port Translation to the IP networks of each hospital.
  - 4.4.2 The ALPHA hospitals can access the Public Internet but Internet Users cannot access the ALPHA network unless they are authorized (e.g., a pediatrician working at home). Hospitals will connect to the termination points using 10/100/1000 Ethernet (as defined by the IEEE 802).

4.4.3 Future Migration to IPv6: Within the next 5-years a migration to the new IPv6 protocols may be required. The vendor should outline the impact in terms of cost and expanded service capabilities.

4.4.4 Quality of Service for Interactive Video Conferencing: Interactive video conferencing for emergency pediatric care requires a robust communications infrastructure that is supporting clinical care. The following network traffic priorities need to be established:

Router to Router1 (highest)	1
Voice	2
Video	3
Critical Data (Allergies, Lab, etc.)	4
All other traffic	5 (lowest)

4.4.5 Network monitoring software and installation: The vendor should describe the capability of network monitoring software with regard to data collection and reporting. The following parameters are important: packet loss, jitter, packet delays, available bandwidth, and others. The network monitoring software will need to be able to measure:

4.4.5.1 Performance of Voice Channels in each direction and bidirectional

4.4.5.2 Performance of Video Channels in each direction and bidirectional

4.4.5.3 Performance of Priority Data Channels in each direction and bidirectional

4.4.5.4 Availability measures and thresholds triggering alerts

4.4.5.5 Problem resolution and remediation

4.4.6 Failover to Backup Links When Primary Connection Fails: The vendor should describe the availability of backup links and their characteristics. The vendor should also describe proactive monitoring, manual, and automated failover provisions and procedures.

4.4.7 Patient and Provider Privacy and Security: The vendor should describe the processes and technologies assuring the privacy and security of data transmitted on the ALPHA Network and the implications for the participating hospital.

4.4.8 The vendor should provide recommendations for the staffing requirements by the ALPHA hospitals to monitor and manage the ALPHA network. In addition, outline the interactions of ALPHA staff with the vendor's network monitoring staff with the vendor's network support services.



## 5. Pricing and Cost Information

Vendor responses to this RFP should include, by site (as referenced in section 4.2), all one time costs for construction, installation, hardware, software, acceptance testing, maintenance/repair and any other one time costs. All monthly recurring telecommunication costs, by site should also be included. All costs should be provided in a financial format using the template below with totals by site and by charge category with header and footer totals.

Site	One Time Costs						Recurring Costs					
	Construction Charges	Telecom Hardware Charges	Telecom Software Charges	Installation Charges	Other One Time Charges	One Time Taxes	Total One Time Charges	Monthly Connection Charges	Service Level Guarantee Charges	Maintenance Charges	Recurring Taxes	Total Recurring Charges.
Children's Hospital - Birmingham												
Russell - Alex City												
Coosa Valley - Sylacauga												
Whitfield - Demopolis												
<b>Total Charges</b>												

## 6. Implementation Schedule Description

Vendor responses to this RFP must include, by site, an implementation and milestone schedule. A 90 day implementation schedule with milestones listed is preferred.

## 7. Service and Performance Level Agreements

Vendor responses must include detailed service and performance level agreements provided to assure quality and reliability of services previously described in this RFP. Network Operations Center (NOC) locations and service details must be provided, as well as staffing levels and hours of operation.

## 8. Systems End to End Test and Acceptance Testing Provisions

Vendor will provide resources and technical assistance to allow CHS employees to test the completed network to the satisfaction of CHS and participating hospitals. Vendor will provide end to end and system test instructions, simulations, and scripts to be used at the discretion of CHS and participating hospitals. CHS and participating hospitals reserve the right to conduct their own tests of the implemented systems.

**ALPHA - OVERALL SYSTEM DIAGRAM**

**ALPHA Telemedicine Network - Linking Rural Hospitals with CHS and UAB via High Speed Data Network**  
Design Updated 4/20/09

Network Carrier (Sprint, Verizon, Charter, etc.)

