



**RFP #1718-03**

**REQUEST FOR PROPOSAL**

**FOR**

**DISTRICTWIDE NETWORK REFRESH DESIGN**

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**MANDATORY PRE-PROPOSAL CONFERENCE**

July 27, 2017 @ 2:00 p.m.

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**RFQ DUE DATE:**

August 23, 2017 @ 2:00 p.m.

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NORTH ORANGE COUNTY  
COMMUNITY COLLEGE DISTRICT

*Greatness. Achieved.*

## PURPOSE

The North Orange County Community College District (NOCCCD) is seeking an individual person or firm to help in the design of a state-of-the-art network capable of serving the District now, and into the future. The District's overall design schema was chosen as a result of the Phase I assessment that determined the strategic direction the District would like to take for the network:

1. **One voice and data network system across the District which retains local network support at each campus**
2. **Primarily wireless infrastructure**
3. **Voice over IP either on premise or cloud based**

## BACKGROUND

The background was approved by the NOCCCD Board of Trustees on February 9th, 2016.

In 1998 the District embarked on the journey to develop an implementation plan for a completely redesigned district-wide network. The primary objective of this network was to provide access for students, faculty, and staff to timely and accurate information using state-of-the-art information systems. It was the objective of the project to create three separate campus networks—one for Cypress College, one for Fullerton College, and one for the District offices—that would perform as one network when needed. Since that time, the network has become a necessary utility to provide services for instruction, learning, and the business functions of the district. When the network stops working, so does the mission critical work of our institutions. Although the network has performed well and met the original objectives, it is time to reassess its functionality for the future. Since the network was put in place many new technologies to improve network performance and reliability have been developed. There are three primary motivators for reassessing and redesigning our current network:

1. Replacing core switches. The network core switches at two out of the three campuses will reach end-of- support in December 2017.
2. Providing a more responsive support structure. Currently each campus network is managed separately and when multi-campus network issues have occurred, there is often two different approaches and no central coordination to resolving the issue, which have resulted in delays to finding a solution.
3. Preparing for cloud computing. Over the past few years, there has been an increasing prevalence of cloud computing solutions. A network redesign can take advantage of cloud technologies that we have already implemented and apply them to a district-wide private-cloud design. Additionally, public-cloud computing offers many options for us and the network redesign will optimize the network to take advantage of these offerings.

As the original design was developed in 1998, there were six goals set for the new network: Reliability, Supportability, Open Architecture, Upgradeability, Security, and Configuration Management. Those goals remain relevant today in the design of a new network across the District with some specific refinements that need to be incorporated. They are:

- Reliability now requires Redundancy
- Supportability now requires Responsive Support
- Open Architecture now requires embracing Mobile Computing
- Upgradeability now requires Increased Bandwidth
- Security must now address Cloud Computing
- Configuration Management now requires Cooperative Support

These goals will provide the framework for the design and development of the new network.

The District’s large-scale internet service provider, CENIC (Corporation for Education Network Initiative in California) provides a centrally coordinated statewide network that serves the needs of diverse institutions across the state including K-12, UC, CSU, Public Libraries, USC, Caltech and Stanford. A similar cooperative concept would be used within our District to form a Steering Team for addressing the network needs of each

**Phasing**

The following is a list the major project phases the District anticipates for the refresh project. This includes the project assessment and discovery through implementation, but is a general guideline and can be modified as dependencies are discovered for each phase.

<b>Phase</b>	<b>Description</b>
1. Assessment	Assess current network & identify options
<b>2. Design</b>	<b>Evaluate future needs and specifications</b>
3. Procurement	Competitive bid process to secure equipment & training
4. Implementation	Plan & execute the acquisition of hardware and software; train staff

**STATEMENT OF WORK**

The North Orange County Community College District is seeking a qualified vendor to create a new network design for the District, which includes three (3) campus locations as well as two (2) or more extended site locations.

The three site locations are District Office, Fullerton College (FC), Cypress College (CC), and the School of Continuing Education (SCE, located in Anaheim). For purposes of this assessment, SCE will be referred to as College in reference hereafter.

The two extended site locations include a co-location in Chandler, Arizona (CH), as well as the SCE’s Adult Education Block Grant (AEBG) site located in Anaheim, CA. The network should provide scalability to support future network needs.

The deliverables shall be based on the Phase I assessment (Findings and Key Recommendations from Phase I can be found in Appendix I, and a full report will be provided upon award of contract), industry best practices, the District’s Telecommunications Standards (link can be found in Appendix IV), and

collaboration with the District's network team. As an acceptance condition, the successful bidder must accept the Findings and Key Recommendations of the Network Refresh Assessment Phase I.

The deliverables shall be a District-Wide Network Design Report, a comprehensive Network Technical Design, a Voice over IP Design Report, a comprehensive Voice over IP Technical Design and a Request for Proposal (RFP) for Phase III (procurement) of the refresh project.

## PROJECT GOAL

The goal of this request for proposal is to provide a design of the District's future facing network infrastructure with a focus on modern college architectures. The new network design should account for the District's needs specific to logical infrastructure for the next 10 years. The newly designed physical infrastructure should account for the District's needs for the next 20 years.

The design will be used to support District-wide file sharing, databases, applications, monitoring, printing, single-sign-on, electronic mail delivery, security, and other applications. A collaborative internet connection to CENIC's 10Gbps must also be supported, with scalability to 100Gbps.

## PROJECT SCOPE AND DELIVERABLES

The Network Design shall address, at a minimum, the following top-level requirements

1. **One network across all sites**
2. **Primarily wireless infrastructure**
3. **Voice over IP phone system across the district**

Subcomponents for the top-level requirements:

- a. Upgrade or replace existing infrastructure (hardware and software)
- b. Account for extensibility, flexibility, security, and compatibility
- c. Multi-tiered management of the system
- d. Network security
- e. Security (from the WAN and LAN) protections for all server-to-server and endpoint-to-server traffic over wired and wireless (across all campuses)
- f. 10Gbps fiber uplink and downlink at boundary; scalable to 100Gbps
- g. Cabling and data jack requirements as mapped to the District Telecommunication Standards
- h. Multi-tiered monitoring, management, and alerting

The four primary deliverables will be:

1. Network Design Report
  - a. Executive summary of the design
    - i. Analysis of costs and operational requirements:
      1. Licensing requirements
      2. Recommended hardware refresh cycles

3. Capital expense report
    4. Total cost of ownership for 10 years
  - ii. Deployment plan
    1. No impact to users
    2. Impact to other systems
    3. Timeline
  - iii. Plan for removal / disposal of old equipment
2. Comprehensive Network Technical Design (NTD) - for a complete list of network factors, refer to Appendix II
  - a. Campus specific schematics
  - b. District-wide network topologies
  - c. Capital expenditure Bill of Materials
    - i. Telecommunication Room upgrades
    - ii. Coax cabling upgrades
    - iii. Fiber-optic cabling upgrades
    - iv. Networking equipment
    - v. Copper cabling upgrades
    - vi. Software
    - vii. Others
  - d. Operational expenditure Bill of Materials
  - e. Multi-tiered monitoring and management design
  - f. Wireless network design
    - i. Descriptions of how this design includes best practices to enhance what we currently have and at the same time prepare for the future, especially with the consideration in preparing for cloud computing.
    - ii. Other
3. Voice over IP Design Report
  - a. Executive summary of the design
  - b. Analysis of ongoing costs:
    - i. Licensing requirements
    - ii. Recommended hardware refresh cycles
    - iii. Capital expense report
    - iv. Total cost of ownership for 10 years
  - c. Deployment plan
    - i. Impact to users
    - ii. Impact to other systems
    - iii. Timeline
4. Comprehensive Voice over IP Technical Design – for a complete list of Voice over IP factors, refer to Appendix III
  - a. Campus specific schematics
  - b. District-wide voice over IP topologies
  - c. Capital expenditure Bill of Materials
  - d. Operational expenditure Bill of Materials
  - e. Multi-tiered monitoring and management design
  - f. Account for a minimum of 2 alternative Voice over IP designs
    - i. Cloud-based solution

- ii. On-Premise based solution
- 5. Request for Proposal (RFP) for the Phase III (Procurement)
  - a. A completed RFP outlining the procurement details for:
    - i. Telecommunication Room, Coax and Fiber Infrastructure
    - ii. Hardware
    - iii. Software
    - iv. Licensing
    - v. Training
    - vi. Deployment services

**EXPECTED GENERAL TIMEFRAMES FOR PROJECT COMPLETION**

The following table is the timeframe expected for this project. It is subject to change per the District’s discretion, as necessary.

Date	Event
7/27/17	Mandatory pre-proposal conference
8/23/17	RFP due
10/16/17	Project begins
1/31/18	Stage I - Network design completion
2/31/18	Stage II – VOIP/WAN design completion
3/31/18	Final report/design due. Project completion

**NEXT STEPS**

NOCCCD expects to be able to use the Phase 1 Assessment and this RFP as the basis for a contract statement of work for upgrading IT infrastructure as recommended with the specific goal of network design.

**SUBMISSION REQUIREMENTS**

To be considered responsive, the proposal must contain the following, referenced by number and in the order below:

1. Qualifications, background and experience
  - a. Experience in educational environments
  - b. Past project of similar (or larger) scope or size, that would provide referential data and past experience commiserate to the District’s needs
  - c. Provide three (3) references
2. A description of the chronology for completing the work, including a timeline, and deadlines for each task
3. A general description of the techniques, approaches and methods to be used in completing the projects

All responses must provide at a minimum all requested information in this document. **Any portion not included will be cause of elimination from the qualification process.** Each response will be reviewed to

determine if it is complete prior to actual evaluation. The information should be organized as indicated in the requirements. Any portions of the submitted response, which are to be treated by the District as proprietary and confidential information, must be clearly marked as such. District reserves the right to eliminate from further consideration any response, which is deemed to be substantially or materially unresponsive to the request for information, contained in this section. In order to control information disseminated regarding this Proposal, vendors interested are directed not to make personal contact with members of the Board of Trustees, District employees or consultants with the exception of Thomas Pham, buyer. Questions or request for clarification must be submitted, in writing, via email Thomas Pham, Buyer at [tpham@nocccd.edu](mailto:tpham@nocccd.edu).

## EVALUATION OF PROPOSALS – SELECTION FACTORS

An evaluation panel chosen by the District or College designee, will review and evaluate each proposal and selection will be made on the basis of the criteria listed below. Proposals shall be evaluated on the following:

### Evaluation of Proposals – Selection Factors

- A. Ability to meet or exceed requirements listed in the Statement of Work and Proposal specifications
- B. Contract viability and support, including Project Plan, Timetable, and availability
- C. Credentials and related experience, including project team credentials
- D. Cost of services
- E. Quality of References
- F. Other factors staff determines are relevant

The District reserves the right to ask for clarification from any proposer. The proposal should include contact information for the purpose of asking for clarification. The evaluation panel will collectively recommend a vendor to the District Director of Information Services. The District’s Board of Trustees will approve the final vendor selection and contract.

All Proposals must be made on the basis of and either meet or exceed, the requirements contained in the scope of services.

The District reserves the right to reject any or all proposals.

## SCHEDULE OF EVENTS

RFP Issued	7/25/17
Mandatory Pre-Proposal Conference	7/27/17 @ 2:00 p.m. Location: 1830 W. Romneya Drive, Anaheim, CA 92801, Room 107
Questions due	8/3/2017 by 5:00 p.m. to <a href="mailto:tpham@nocccd.edu">tpham@nocccd.edu</a>
Addendum	8/9/2017
RFP due:	8/23/17 at 2:00 p.m.

RFP reviewed by Committee      Tentatively scheduled for the week of 8/28-9/8

Vendor Interview:                      Tentatively scheduled for the week of 9/18-9/21

## SUBMITTAL REQUIREMENTS

- A. Disqualification: Each submittal must be complete. Failure to submit in the above described format and will result in an RFP being considered non-responsive. Incomplete statements will be considered non-responsive and grounds for disqualification. In addition, the Proposer may be automatically disqualified for any one of the following:
1. Falsification of information
  2. Lack of relevant experience
  3. Lack of higher education experience
  5. Lack of responsiveness
  6. Late submittal

The Proposer is entirely responsible for the means of delivering the RFP to the appropriate office on time. Delays due to internal routing of misdirected RFP or due to verbal directions given by District staff shall be the responsibility of the Proposer. The RFP must be completed and delivered in sufficient time to avoid lateness due to difficulties in delivery. **LATE SUBMITTALS WILL BE REJECTED BY THE DISTRICT.** Modifications of RFP received after the RFP deadline specified in this section will not be considered.

B. Number of Copies

One (1) original, five (5) identical copies and one (1) electronic copy (USB) of SOQ and Proposal shall be submitted no later than **August 23, 2017, at 2:00 p.m.** at the District's office to:

NORTH ORANGE COUNTY COMMUNITY COLLEGE DISTRICT  
ANAHEIM CAMPUS, PURCHASING DEPARTMENT  
Thomas Pham, Buyer  
1830 W. ROMNEYA DRIVE, 8<sup>TH</sup> FLOOR, ANAHEIM, CA 92801

All materials submitted as part of a SOQ in response to the RFQ shall be on 8-1/2" x 11" standard white paper in portrait orientation with each page clearly numbered on the bottom. All submitted materials must be bound in a plastic spiral bound notebook. Do not submit three ring binders or spine bars. All other forms of submittals will be rejected and considered disqualified.

Faxed or e-mail only proposals will not be accepted. Hand-delivered submissions should be delivered to the address and location listed above. Written submittals should include all of the information requested in this RFP and should be submitted in a sealed envelope marked "RFP#1718-03, RFP for Districtwide Network Refresh Design".

The proposal must be signed by an official authorized to bind the company, and must contain a statement that the proposal and cost are valid for a period of sixty (60). The proposal shall be submitted in sealed packages with the name of the Proposer clearly marked on the outside of the package



## OTHER TERMS AND CONDITIONS

### The Proposer agrees to the following:

1. To examine the RFP and conditions thoroughly. At the time of the opening of proposals, each Proposer will be presumed to have read and to be thoroughly familiar with the RFP documents provided. The failure of omission of any Proposer to examine any form, instrument, or document shall in no way relieve any Proposer from any obligation in respect to their proposal.
2. To provide appropriate insurance as follows: Worker's Compensation as required by California law. General and Automobile liability insurance in the amount of \$1,000,000 CSL (Combined Single Limit) and \$3,000,000 aggregate occurrences must be received by NOCCCD. The **additional insured** endorsement document must specify "North Orange County Community College District, its officers, agents, program & construction managers; and employees are additional insured. In addition, a Professional Liability Insurance in the amount of \$1,000,000 CSL and \$3,000,000 aggregate occurrences is required from all professional firms providing services for the District.
3. To comply with all federal, state, and local laws, ordinances, and rules applicable to public purchasing.

### NOCCCD expressly reserves the following rights:

1. To waive or reject any and/or all irregularities in the proposals submitted.
2. To waive or reject any and/or all proposals or portions thereof.
3. To reject all proposals and negotiate with an individual Proposer or any other person or entity.
4. To base awards with due regard to quality services, experience, compliance with specifications, and other such factors as may be necessary due to circumstance.
5. To make the award to any Proposer whose proposal is in the best interest of NOCCCD.
6. To negotiate different terms and conditions with any Proposer the District may choose.
7. To utilize concepts submitted to the District, via proposal, without compensation.

NOCCCD Not Bound by Oral Statements: NOCCCD will not be bound by any oral statement or representation contrary to the written specifications.

Ownership and Use of Documents: All documents, reports, proposals, submittals, working papers or other materials submitted to the District from the Proposer shall become the sole and exclusive property of the District, in the public domain and not the property of the Proposer and are subject to public disclosure under the California Public Records Act. The Proposer shall not copyright, or cause to be copyrighted, any portion of any of said documents submitted as a result of this solicitation. Further, the District may utilize concepts submitted via proposal without compensation.

Qualifications of Proposer. The District may make such investigations as deemed necessary to determine the ability of the Proposer to perform the work, and the Proposer shall furnish all information and data for this purpose as the District may request. The District reserves the right to reject any proposal if the evidence submitted by, or investigation of, such Proposer fails to satisfy the District that such Proposer

is properly qualified to carry out the obligations of the contract and to complete work contemplated therein. Conditional proposals will not be accepted.

Informality. The District reserves the right to waive any informality, irregularity, or defect in the proposal process and to select any Proposer, even if the selected proposal does not meet all requirements of this RFQ. Any such waiver by the District shall not be deemed a waiver with respect to any subsequent informality, irregularity, or defect in the proposal process.

Execution of Contract: No contract shall be binding on the District until it has been approved by the District Board of Trustees.

## Appendix I

### Findings

Voice and Data Network: There are approximately 11,425 data network connections and 3,337 telephone connections across the District. The numbers of connected devices are expected to grow to 17,955 and 3,989 respectively by the year 2026. Network functionality is also expected to grow in strategic importance through new and increased demand of applications such as wireless and cloud computing.

There are two Avaya telephone systems, one at the District Office and one at Cypress College, and one Cisco VoIP system serving Fullerton College.

There is redundant core networking equipment on each campus. The core networking equipment is more than 10 years old and needs to be replaced. The typical life of core networking equipment is seven years. Most networking equipment located in the telecommunication rooms (TRs) provide power over ethernet to support Voice over Internet Protocol (VoIP) and wireless access points, however, 50% of the equipment is more than five years old and needs to be replaced. The typical life of access layer switches is 5 years.

Wide-Area Network and Inside and Outside Cable Plant: The District Office, Cypress College, and Fullerton College are connected to the Internet and to the enterprise systems at the District Office via connections provided by the California Education Network Initiatives (CENIC). The

District Office and Cypress College have only one physical fiber optic cable path connecting to the CENIC network resulting in a single point of failure for each campus. Fullerton has two physically diverse connections to CENIC.

There are 113 telecommunication rooms across the District. These rooms were assessed and costs were estimated to bring these rooms up to the District infrastructure standards.

### Key Recommendations

- Move from managing three separate data and voice networks to one voice and data network system across the District, while retaining local network support at each campus.
- Make ubiquitous and sufficient Wi-Fi coverage a key component of NOCCCD's strategic network plan since support for mobility is essential.
- Pursue establishing a diverse, alternate backup Internet fiber optic connection at both the District Office and the Cypress campus.
- Complete the Design Phase that includes a roadmap that prioritizes the rollout of technology, creates the timing of funds needed to support the roadmap, and identifies IT staffing requirements across the District.
- Conduct RFP processes for the voice and data networks
- Include an annual budget line item for technical staff training to build enterprise-level data and voice network expertise.

## Appendix II

List of minimum network design factors (may change as design progresses). This is not an exhaustive list.

1. Firewalls (External)
  - a. At each site, including Disaster Recovery
  - b. Detect, report, and take action without human interaction
  - c. Application / bandwidth throttling
2. Firewalls (Internal)
  - a. In front of servers (guard against LAN threats)
  - b. Either physical or virtual
3. Virtual Private Network (VPN)
  - a. For staff / faculty / specialized students accounts
  - b. With self-help service (e.g. password reset)
4. Networking
  - a. All switching technology (Layer 2 and Layer 3 capable)
  - b. DNS, DHCP, IP addressing and namespace scheme
  - c. Minimum of two core switches per physical site; this is open to discussion given architectures for scalability and modularity
  - d. Connection(s) to Virtual Machines
  - e. Security between campuses and within the campuses
  - f. High-availability failover for all major network appliances (typically Layer 3 devices)
  - g. IPv6, if applicable
5. Network Management (ITIL Based)
  - a. Multi-tiered management of all network devices
  - b. Network authentication, authorization, and accounting (AAA) best practices for an enterprise environment
  - c. Network throttling (inbound and outbound)
  - d. Monitoring, Reporting, and Alerting
    - i. District-wide monitoring of utilization/quality of service/logs/etc.
    - ii. Automatic altering of critical thresholds
    - iii. Internal monitoring (for each campus)
    - iv. Change management best practices for enterprise environments
6. Load Balancing
  - a. Every critical application load balanced (if application goes down, LB points traffic to an alternate web page)
  - b. Clustered global load-balancing with remote site(s) or other campuses
7. Network Based Intrusion Detection/Intrusion Prevention Systems
  - a. Ease of management
  - b. Insourcing vs. outsourcing of the service
8. Wireless
  - a. District-wide coverage
    - i. Full coverage and density for indoor areas
    - ii. Coverage and density for outdoor areas
  - b. Universal log-in across the district for staff and students
    - i. Hierarchical management structure for policy enforcement

- c. Secure / limited guest access
    - i. Four (4) distinct landing pages for Anaheim, SCE, Cypress, and Fullerton
    - ii. Independently controllable profiles – each campus may set variables differently
  - d. Placement of controllers (for DR purposes), clustered across the district
- 9. Application support
  - a. Single Sign-on
  - b. Traffic security / management
- 10. Virtual Machines
  - a. Support multiple distributed Virtual Machine environments
  - b. Secure access across the district
- 11. Voice over IP connectivity
  - a. Ensure uptime of wireless and Voice over IP traffic in the event of a prolonged outage
- 12. Disaster Recovery
  - a. Remote connection / user access to a remote co-location in Chandler, AZ
- 13. Cabling Standards
  - a. Color-coding / labeling all labels
  - b. Standardizing copper / fiber cables across the district
- 14. Video
  - a. Design consideration
- 15. Public Address Systems
  - a. Support for a Public Address system
- 16. Standardized Network Maps
  - a. Logical representation of network locations (room numbers, rack locations), connections, schemes, labels
- 17. Comprehensive Network Security
  - a. Part of our design requirements are recommendations for applicability and usability related to network security. The following is not an exhaustive list of security software and appliances that NOCCCD would like to explore as part of the comprehensive redesign. This list is subject for additions or modifications:
    - i. Intrusion detection system/intrusion prevention systems
    - ii. Web proxies
    - iii. Next-Generation Firewalls
    - iv. Network access control (NAC) appliances and best practices
    - v. Insourcing vs. outsourcing security operations centers and management
    - vi. Industry recommendation for recommend security information and event management (SIEM) solutions (if applicable)
    - vii. Ensure scalability to integrate offsite classrooms, workers, and offices for future securitization of district-wide assets

### Appendix III

List of minimum Voice over IP design factors (may change as design progresses). This is not an exhaustive list

1. Hard Phones
  - a. Power over Ethernet (POE)
  - b. Classroom, staff, management phone types
2. Soft Phones
  - a. Ability to use an app phone on a personal device
  - b. Connect via district-wide wireless
  - c. Connect from remote network, such as from home
3. Quality of Service
  - a. Voice over IP traffic will share data network
4. Insource vs. Outsourced Call Manager (must account for two designs)
  - a. Cloud-based solution
  - b. On-premise based solution
  - c. Multiple call managers across at least two campuses
  - d. Session initiation protocol (SIP) trunking
5. Emergency alerting
  - a. Notification/alerting to appropriate parties when 911 is dialed
6. Hierarchical Management Structure for Policy Enforcement
  - a. Multi-tiered administrative management
  - b. Alerting system for system health
7. Call Center Capability
  - a. Ability to call one number and cycle to another number if first one not answered
  - b. Ability to for one number to call several phones simultaneously
8. Miscellaneous
  - a. Ability to retrieve message from on-site and from a remote network
  - b. Integration to existing directory management
  - c. Elevator phones
    - i. Account for plain old telephone service (POTS) lines
  - d. Voice over IP system used for notifications
    - i. Emergency
      1. Administrator can use any phone and send a campus-wide live message (password protected)
        - a. Pre-recorded messages can be sent
    - ii. Non-emergency
      1. Administrator can send a notification to their staff

## **Appendix IV**

Links to external resources

NOCCCD Districts Telecommunications Standards:

<https://www.nocccd.edu/cabling-infrastructure-guidelines>