

Microwave MPLS-Public Safety

Proposal 1091-008

for

Cochise County

Developed by

HYE TECH NETWORK & SECURITY SOLUTIONS, LLC

AZ STATE CONTRACT: ADSP012-024661



HYE TECH

NETWORKS

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SUMMARY

Cochise County (County) is considering implementation of a new label switched network and microwave network. The project will require reconfiguration of the existing County edge routers, primarily converting the routing protocol in use (EIGRP) to OSPF. There will also be redundant routers installed at the County offices for the microwave handoff. This proposal is for the professional services provided by Hye Tech Network & Security Solutions, LLC (HyeTech).

SCOPE OF WORK

PHASE I – DISCOVERY

- ◆ Perform a brief discovery of existing layer 3 environment
 - Review router OS and licensed features
 - Review topology and routing design in place
 - Review redundancy requirements per location
- ◆ Identify installation location targets for all required equipment
 - Identify rack space and power requirements
- ◆ Identify physical plant limitations and needs
- ◆ Identify current WAN and network addressing scheme
 - Proposed new transport addressing space
 - Updates to any internal addressing needed
 - Management address space
- ◆ Current County manufacturer support and maintenance
- ◆ Identify any risk from discovery phase

PHASE II – DESIGN

- ◆ Develop a proposed detailed design for the new MPLS deployment
 - Final addressing scheme
 - WAN
 - Updates to required physical plant
 - Cabling
 - LAN, Microwave handoff
 - Power
- ◆ Develop router template to be deployed
 - Conversion of routing protocol
 - County standards
- ◆ Create detailed implementation process for routing changes
 - EIGRP to OSPF
 - Addressing changes
 - Route and network summarization
 - Define router roles



PHASE III – PLANNING

- ◆ Develop migration plan for all County locations
 - Change windows, engineer assignment, and testing
- ◆ Review configuration plan for each target location
 - IP scheme, new equipment installation and conversion of routing
- ◆ Develop target schedule and notify all locations of proposed installation dates

PHASE IV – VALIDATION

- ◆ Review final designs with County team
 - Gain agreement and consensus from stakeholders
 - Ensure County team and HyeTech team are in agreement for all plans
 - Validate final schedule
- ◆ Review final migration & implementation plan with County staff
 - Ensure all aspects meet the needs of County team
 - Validate approach

PHASE V – SITE CUTOVER SUPPORT

- ◆ Support County team during initial Microwave deployment
 - Assist with conversion to EIGRP during implementation
 - Deploy new linknet and new management loopback on each ME3600
 - Ensure EIGRP neighbors come up successfully post implementation
- ◆ Provide County team with additional support as needed for site implementation

PHASE VI – IMPLEMENTATION (DEPLOY & MIGRATE)

HyeTech team will work with County team to execute all changes.

- ◆ County staff will secure access to all public safety locations and other sites as required
 - County staff to complete installation of all equipment at public safety locations
 - HyeTech will complete all configuration of all equipment
 - County and HyeTech will connect any new equipment as necessary
 - Work with County staff to verify management and access
 - Configure OSPF to best practice and county standards as applicable
 - Verify all configurations and routing
- ◆ Configure MPLS on all edge routers (ME3600X)
 - Implementation and configuration of route reflectors
 - Configure MPLS Label switching and required protocols on each device



- Deploy mpBGP
- Deploy LDP
- Tune OSPF for MPLS
 - Implement proper MPLS technology to ensure Motorola SLAs are met
 - Ensure full communication with County endpoints as well as Motorola
- ◆ HyeTech will work with County staff to schedule final cutover for all county locations in scope
- ◆ Work with County staff to perform all installations as set forth by this SoW

PHASE VII – SUPPORT

- ◆ Provide day 1 support through all cutover activity
 - Post routing protocol change
 - Post MPLS implementation
- ◆ Verify that all implementations were completed and successful
 - Execute test plan

PHASE VIII – DOCUMENTATION & KNOWLEDGE TRANSFER

- ◆ Ensure all aspects of design and deployment are documented
- ◆ Develop physical and logical documentation of the client network
 - Network diagrams
 - Spreadsheets



DELIVERABLES AND TIMELINE ESTIMATES

- ◆ **PHASE I DELIVERABLES:** DISCOVERY DATA, IDENTIFIED RISK
- ◆ **PHASE II DELIVERABLES:** DETAILED DESIGN DOCUMENTS
- ◆ **PHASE III DELIVERABLES:** MIGRATION & IMPLEMENTATION PLAN, FINAL PROJECT PLAN AND SCHEDULE
- ◆ **PHASE IV DELIVERABLES:** VALIDATED FINAL PLANS & DESIGN
- ◆ **PHASE V DELIVERABLES:** NO SPECIFIC DELIVERABLES
- ◆ **PHASE VI DELIVERABLES:** IMPLEMENT OSPF AND LABEL SWITCHING
- ◆ **PHASE VII DELIVERABLES:** DAY 1 / 2 SUPPORT
- ◆ **PHASE VIII DELIVERABLES:** PROJECT FINAL DOCUMENTATION & KNOWLEDGE TRANSFER

REQUIREMENTS/ASSUMPTIONS

- ◆ Access to network resources and other resources within County, as needed, to perform the duties presented above
- ◆ County will provide HyeTech an overview of relevant policies associated with the project
- ◆ County will provide access to all of County's information, documentation and technology necessary for consultant to perform the Services.
- ◆ All required hardware, software and licenses to be provided by County prior to the commencement of the project
- ◆ County to provide HyeTech engineer with remote access for the duration of the service to ensure timely completion
- ◆ Service does not include monitoring for fault, utilization or any other data in an automated fashion by HyeTech. Such a service can be provided, but would be considered outside of the Scope of this project
- ◆ The phases of the project may or may not run consecutively
- ◆ County staff shall provide SMS server and Mail server; as well as associated access information, including, will creating proper formatting for requests to comply with SMS gateway requirements
- ◆ Basic customization of web portal is included. Adding County logo and changing template color schemes. Custom portal customization is out of the scope of this project.

PROJECT RISK

- ◆ Timely delivery of hardware/software/licensing can negatively impact project timelines
- ◆ Change in scope can negatively impact the project timeline



OUT OF SCOPE SERVICES

Any services that are not explicitly in this SoW are considered Out-of-Scope and additional charges may apply. This includes at least, but not limited to, the following:

- ◆ Reconfiguration of any LAN equipment other than edge routers/switches
- ◆ Configuration of any wireless assets
- ◆ Configuration of VMWare host servers

SCOPE CHANGE PROCEDURES

Customer may request changes in or additions to the work being provided hereunder by written notification to the HyeTech Project Manager assigned to this project. Changes may cause an increase the cost to the project. If such a situations arises, HyeTech will notify the County team of such. Requested changes shall not become effective, until agreed upon and executed by HyeTech and signed by County as an addendum "Change Order" to this SoW. The Change Order will include:

- Change request number
- Reasons for change request
- Changes to the SOW
- Schedule impact
- Cost impact
- Other impact (if necessary)



APPENDIX A

MPLS Implementation

DESCRIPTION	FEE
County OSFP Conversion and MPLS Implementation	\$101,000.00
Travel Costs	None
Total	\$101,000.00

****THIS IS A FLAT FEE BASED SERVICE. PRICING WILL NOT CHANGE UNLESS THE SCOPE IS CHANGED**

Hye Tech Network & Security Solutions, LLC	Cochise County
Signature: _____	Signature: _____
Name: _____	Name: _____
Date: _____	Date: _____
Title: _____	Title: _____



