

Performance Work Statement (PWS)

Communications Equipment, Services and Training

**Foreign Military Sales (FMS) Cases:
IQ-B-ADU and IQ-B-ZCA**

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1.0 Scope

1.1 General Scope

This document describes work to be performed by the Contractor to deliver Network Operations Center (NOC) Equipment, Software Licenses, Extended Warranty coverage, and to provide Installation Services, Support Services and Training under Foreign Military Sales (FMS) cases IQ-B-ADU and IQ-B-ZCA for the country of Iraq. The word Government in this document refers to the United States Government. The word country in this document refers to the FMS Customer(s). This acquisition supports two FMS cases under a consolidated contract. This contract will be a Firm Fixed Price (FFP) contract.

1.2 Scope by Phase

The Network Operations Centers (NOC) will be delivered and installed in two phases as turn-key solutions with classroom training occurring in parallel with each required NOC installation. Phase 1 will occur during the base period. Phase 2 will occur during the option period that is at the government's discretion to exercise or not via a modification. Two NOCs will be delivered under this PWS; one (1) semi-transportable system as part of Phase 1, and one (1) backup system installed in a fixed location within Baghdad, Iraq as part of Phase 2. Phase 1 training will take place in Iraq during the base period and the Phase 2 training will take place in Lebanon during the option period.

1.2.1 Phase 1 Scope Summary

The scope for Phase 1 is as follows:

- a. Conduct one in-country site survey.
- b. Supply, integrate and test a containerized turn-key NOC with all components and the power supply system; to be conducted in the Continental United States (CONUS).
- c. Install and integrate the containerized NOC and all associated equipment with Government furnished networks in Iraq.
- d. Provide Field Service Representatives to support all aspects of installation, integration and configuration of the NOC.
- e. Propose, supply and install all training lab equipment to be used in conducting all in-country training.
- f. Conduct classroom training in Iraq.
- g. Conduct On the Job training in conjunction with the NOC installation.
- h. Supply 10% spares for all specified equipment.
- i. Provide extended warranty coverage for specified NOC equipment.

1.2.2 Phase 2 Scope Summary

The scope for Phase 2 is as follows:

- a. Conduct one in-country site survey.
- b. Supply and install a Backup NOC at a fixed site location in Baghdad, including all components, cables and ancillary hardware with connection to and integration with the Phase 1 NOC.
- c. Integrate the Backup NOC with Government furnished networks in Iraq.
- d. Supply and install an Internet Protocol (IP) microwave Gigabit radio system to connect the two NOCs.
- e. Provide Field Service Representatives to support all aspects of installation, integration and configuration of the NOC.
- f. Conduct classroom training in Lebanon.
- g. Conduct On the Job training in conjunction with the NOC installation.
- h. Provided extended warranty coverage for specified NOC equipment.

1.2.3 Period of Performance

The Period of Performance for each period, base and option, is 18 months with 36 months warranty period to commence after each period ends.

2.0 Applicable Documents

2.1 Military Standards

MIL-STD-130N with Change 1	Identification Marking of U.S. Military Property
MIL-STD-129R	Military Marking for Shipment and Storage
MIL-STD-882E	System Safety
DoD Directive 5230.11	Disclosure of Classified Military Information to Foreign Governments and International Organizations
AR 25-2	Information Management, Information Assurance
AR 190-13	The Army Physical Security Program
AR 380-10	Foreign Disclosure and Contacts with Foreign Representatives
AR 381-12	Threat Awareness and Reporting Program
AR 525-13	Antiterrorism
AR 525-28	Personnel Recovery
AR 530-1	Operations Security
AR 715-9	Operational Contract Support Planning and Management
Army Directive 2014-05	Policy and Implementation Procedures for Common Access Card Credentialing and Installation Access for Uncleared Contractors
DoD 8570.01-M	Cyber Workforce Management Program

2.2 Commercial Standards

ISPM 15	Guidelines for Regulating Wood Packaging Material in International Trade
ASTM D 3951-15	Standard Practice for Commercial Packaging

3.0 Customer Requirements

3.1 Requirements for Hardware, Software and Materials

3.1.1 Phase 1 Hardware, Software and Materials Requirements

3.1.1.1 Phase 1 NOC Hardware

The Contractor shall procure and deliver the following NOC equipment for Phase 1 according to the models, descriptions, and quantities listed in Appendix A:

- a. Cisco Nexus 7000 Series For Data Aggregation, 1 package
- b. Cisco Router For DMVPN, 1 package
- c. Cisco Call Manager, 1 package
- d. Cisco Firewall, 1 package
- e. Cisco Firewall, 1 package
- f. Cisco Firewall Management Console, 1 package
- g. Cisco Email Security Appliance (ESA), 1 package
- h. Cisco Web Security Appliance (WSA), 1 package
- i. Cisco Identity Services Engine (ISE), 1 package
- j. Cisco – UCS, 1 package
- k. Dell EMC (Trademark) - Storage Server (200 TB), 1 package
- l. DC Integrated Information Technology Module (SmartShelter), 1 package
- m. Generator, 1 each
- n. Automatic Transfer Switch, 1 each
- o. Power Cable Feeder, 1 each

3.1.1.2 Phase 1 Training Lab Equipment

The Contractor shall propose and deliver a training lab package to include all hardware, materials and software required to conduct all training in Iraq. This includes all equipment, computers, training aids, display equipment, software and other materials as required in section 3.3.2. The Contractor shall propose exportable hardware, software and materials and list nomenclature, type, make, model and quantity for all proposed items.

3.1.1.3 Phase 1 NOC Software Licenses

The Contractor shall procure and deliver the following software licenses:

- a. SolarWinds, Solar Winds Network Performance Monitor Unlimited Devices, 1 each

- b. Microsoft, Windows Server 2016 Standard Edition, 100 each
- c. Microsoft, Exchange Server 2016 Enterprise edition, 100 each
- d. Symantec, Symantec Ghost Suit 3.2 (1 Server License with 2000 Managed Clients), 1 each
- e. Microsoft, Microsoft system Center 2016 Data Center Edition, 1 each

3.1.1.4 Phase 1 NOC Installation Materials

The Contractor shall propose and deliver an installation materials package required to make the Phase 1 NOC functional and operational. Installation materials include but are not limited to cables, trays, racks, ties and connectors. The Contractor shall propose exportable materials and list nomenclature, type, make, model and quantity for all proposed items.

3.1.1.5 Phase 1 Technical Manuals

The Contractor shall procure one each of the following Commercial off the shelf (COTs) technical manuals in English and deliver the manuals in Hard Copy and Digital Format in accordance with CDRL J001 Commercial Off-The-Shelf (COTS) Manuals and Associated Supplemental Data:

:

- a. Cisco Nexus 7000 Series
- b. Cisco Router
- c. Cisco Call Manager
- d. Cisco Firewall
- e. Cisco Firewall Management Console
- f. Cisco Email Security Appliance
- g. Cisco Web Security Appliance
- h. Cisco Identity Services Engine
- i. Cisco UCS
- j. EMC-Storage Server

3.1.1.6 Phase 1 Spare Parts

The Contractor shall procure and deliver 10% spares for the following equipment:

- a. Cisco UCS Blade Servers
- b. EMC Storage Server
- c. Hard Disks
- d. Fans
- e. Power Supplies
- f. RAM

3.1.2 Phase 2 Hardware, Software and Materials Requirements

3.1.2.1 Phase 2 NOC Hardware

The Contractor shall procure and deliver the following equipment for Phase 2 according to the models, descriptions, and quantities listed in Appendix A:

- a. Cisco Nexus 7000 Series For Data Aggregation, 1 package
- b. Cisco Router For DMVPN, 1 package
- c. Cisco Firewall (Internal Network), 1 package
- d. Cisco Firewall (External Network), 1 package
- e. Cisco Firewall Management Console, 1 package
- f. Cisco Email Security Appliance (ESA), 1 package
- g. Cisco Web Security Appliance (WSA), 1 package
- h. Cisco Identity Services Engine (ISE), 1 package
- i. Cisco – UCS, 1 package
- j. EMC - Storage Server (200 TB), 1 package

3.1.2.2 Phase 2 NOC Software Licenses

3.1.2.2.1 Cisco Phone Software License

The Contractor shall procure and deliver the Cisco Phone License, CUWL Professional License, 500 each.

3.1.2.2.2 Additional Software Licenses

The Contractor shall propose and deliver a software license package with all additional licenses required to make the Phase 1 NOC functional and operational with the Phase 2 NOC. The Contractor shall propose exportable software and list nomenclature, type, make, model and quantity for all proposed items.

3.1.2.2.3 Microsoft User Client Access License (CAL)

- a. Microsoft, Exchange Server 2019 Enterprise edition User CALs, 8500 each
- b. Microsoft, Datacenter Server 2019 edition User CALs, 8500 each

3.1.2.3 Phase 2 NOC Installation Materials

The Contractor shall propose and deliver an installation materials package required to make the Phase 2 NOC functional and operational. Installation materials include but are not limited to cables, trays, racks, ties and connectors. The Contractor shall propose exportable materials and list nomenclature, type, make, model and quantity for all proposed items.

3.1.2.4 IP Microwave Gigabyte radio hardware

The Contractor shall propose and deliver an IP microwave Gigabit radio hardware package to connect the two NOCs to work in parallel with the Fiber Optic Cable and provide redundancy. The Contractor shall propose exportable hardware and materials and list nomenclature, type, make, model and quantity for all proposed items.

3.1.2.5 Additional Hardware

The Contractor shall propose and deliver a hardware package with all additional hardware required to make the Phase 1 NOC functional and operational with the Phase 2 NOC. The Contractor shall propose exportable hardware and list nomenclature, type, make, model and quantity for all proposed items.

3.2 Requirements for Services

3.2.1 Site Survey Requirements

The Contractor shall conduct one site survey in Baghdad, Iraq for each phase. The Contractor shall obtain or generate any site and facility drawings required for the in-country installation and integration. Any site deficiencies and site preparation actions that the End User will need to perform shall be documented. These drawings, site survey findings and the information gathered from the site survey shall be summarized and submitted with the template provided in Appendix B and CDRL F001.

3.2.2 Installation Service Requirements

3.2.2.1 CONUS Installation Service Requirements

The Contractor shall install all required Phase 1 equipment and materials into the Contractor provided DC Integrated IT Modular SmartShelter. The Contractor shall integrate all installed equipment with all Phase 1 hardware and materials, install all Phase 1 software, and configure all software and equipment with baseline configurations prior to the start of Factory Acceptance Test (FAT) as outlined in section 4.4.3. The Contractor's installation services shall include the connection of the Generator and Automatic Transfer Switch in conjunction with a simulated national power source.

3.2.2.2 In-Country Installation Service Requirements

3.2.2.2.1 Phase 1 In-Country Installation Services

3.2.2.2.1.1 NOC Installation

The Contractor shall install the containerized NOC at the identified site once the system has been shipped to Iraq after completion of FAT. The Contractor's in-country installation services shall include the installation and connection of the Generator and

the Automatic Transfer Switch in conjunction with the national power source. All NOC components shall be powered by this power generation system.

3.2.2.2.1.2 Training Lab Installation

The Contractor shall install the training lab package proposed and delivered under this contract at the Iraq Defense Network NOC Classrooms in Baghdad, Iraq. The Contractor shall also configure all equipment and load all training materials on tablets so that it can be used to conduct the required in-country training.

3.2.2.2.2 Phase 2 In-Country Installation Services

The Contractor shall install all Phase 2 equipment and materials at the identified site once the system has been shipped to Iraq after completion of FAT. The Contractor shall also install, configure and connect the Microwave Gigabit Radios and antennas at both NOC sites to provide backup connectivity between both NOC sites on existing towers provided by the FMS Customer.

3.2.3 Integration Service Requirements

After each Phase of installation, the Contractor shall integrate the newly delivered systems, including all equipment and software with the Government of Iraq's existing equipment and networks. The Contractor shall ensure that all integration efforts are coordinated with Iraq to take place in a way that has minimal or no impact on continuing operations.

3.2.4 Field Service Representative Service Requirements

For Each Phase, the Contractor shall provide Field Service Representative (FSR) support for a period of six (6) months. The Contractor shall provide:

- a) One (1) System FSR
- b) One (1) Network FSR

The FSR shall provide all engineering and logistics support for the maintenance and sustainment of the Primary and Backup NOCs, starting at the conclusion of the system SAT. The Contractor shall provide FSR support to include hardware repair, software maintenance, configuration management and updates, site support at the Iraqi sites, engineering technical support, interconnection support and help desk services. The FSRs shall provide support services including operations and maintenance of the NOC software and equipment to ensure optimal performance and provide troubleshooting and first, second, and third level technical support. The FSRs shall work the normal local host country workweek of Sunday-Thursday, 8AM to 4PM local time, but shall be available on an on-call basis during all Iraqi duty hours. The FSRs shall work with the operations team in developing processes and procedures for system troubleshooting. The work location of the FSRs is at the Iraqi site, to be determined following contract award, but the Contractor shall be able to travel as needed. The FSRs shall also

support MoD personnel with transitioning data and applications from existing Iraqi systems to the delivered and installed NOCs. The FSRs shall oversee failover procedures should the NOC have to be cutover during the FSR support period. The Contractor shall update the Configuration Documentation with any configuration changes made during the FSR's performance period in accordance with CDRL D001, System/Subsystem Design Description (SSDD).

3.2.5 Extended Warranty and SmartNet Product Support

The Contractor shall deliver three years of extended warranty coverage and/or SmartNet Support for all of the following equipment delivered under each respective phase:

3.2.5.1 Phase 1 NOC Equipment

- a. Cisco Nexus 7000 Series For Data Aggregation
- b. Cisco Router For DMVPN
- c. Cisco Call Manager
- d. Cisco Firewall (Internal Network)
- e. Cisco Firewall (External Network)
- f. Cisco Firewall Management Console
- g. Cisco Email Security Appliance (ESA)
- h. Cisco Web Security Appliance (WSA)
- i. Cisco Identity Services Engine (ISE)
- j. Cisco UCS
- k. EMC - Storage Server (200 TB)
- l. DC Integrated Information Technology Module (SmartShelter)

3.2.5.2 Phase 2 NOC Equipment

- a. Cisco Nexus 7000 Series For Data Aggregation
- b. Cisco Router For DMVPN
- c. Cisco Firewall (Internal Network)
- d. Cisco Firewall (External Network)
- e. Cisco Firewall Management Console
- f. Cisco Email Security Appliance (ESA)
- g. Cisco Web Security Appliance (WSA)
- h. Cisco Identity Services Engine (ISE)
- i. Cisco UCS
- j. EMC - Storage Server (200 TB)

Extended Warranty: The Contractor shall provide extended warranty coverage to commence after the standard warranty period ends for the EMC Storage Server and the DC Integrated Information Technology Module (SmartShelter).

SmartNet Support: The Contractor shall provide SmartNet support to commence after each Phase of Systems Acceptance Testing for all Cisco equipment. The Contractor shall register all the SmartNet Support agreements to the Iraq Ministry of Defense. After contract award, The Government will provide the Contractor with product support registration details required to complete SmartNet Support registration (i.e. Iraq point of contact name and email address).

3.3 Requirements for Training

3.3.1 General Training Requirements

The Contractor shall provide for all required in-country and regional training a training plan, training materials and post training documents with CDRL C001 to include the following:

- a. A schedule for each course
- b. A list of the required materials for each course
- c. A detailed course overview for each course
- d. Syllabi for all courses
- e. Details and schedule for the certification exam, if applicable
- f. A digital and printed copy of all training materials
- g. Video recording of all training courses conducted
- h. Training Certificates of Completion
- i. Student exam results for all tests/exams taken

Training weeks are Sunday through Thursday and each training day consists of six (6) training hours. The Contractor shall provide appropriate breaks for each training day. The Contractor shall install all training materials and student manuals on tablets that shall be provided to the students as a take home reference. The Contractor shall provide all training materials in English and conduct all training in English. The Contractor shall video record all training and shall provide copies of the video in a common digital video format with CDRL C001. The Contractor shall provide to each enrolled student Certification vouchers for all training courses leading to or resulting in Certifications as specified in this PWS. If Certifications are not available for any of the required courses in this PWS, the Contractor shall issue with CDRL C001 a signed Training Certificate of Completion to each student successfully completing each course. The Contractor shall include the following in the Training Certificate of Completion: the student's name, training course title, number of training hours, date and training location.

In cases where a specified course or exam is retired, announced for retirement, obsolete, or otherwise no longer available, the contractor shall inform the Government and propose a replacement following the event prompting the change in accordance

with CDRL C001. The contractor shall teach all courses as requested until the Government approves any change proposed in this way.

3.3.2 Phase 1 In-Country Training Requirements

The Contractor shall conduct In-Country Network, System and Frequency Management training courses during Phase 1 at the Iraq Defense Network NOC in Baghdad, Iraq. The Contractor shall conduct Phase 1 in-country training in three sub-phases with three courses in each sub-phase, to be conducted one sub-phase after the other. The Government will specify the breakout of the courses per sub-phase after contract award. The Contractor shall provide training to eight (8) students and conduct training for up to five (5) days for each of the following training courses unless otherwise specified in the training paragraphs below:

*Note-number of students have increased for paragraph 3.3.2.4.

3.3.2.1 Microsoft Exchange Server

The Contractor shall provide the Microsoft course 20345-1A, Administering Microsoft Exchange Server 2016. The Contractor shall provide students who attend this course with a voucher for the Microsoft 70-345 exam, Designing and Deploying Microsoft Exchange Server 2016.

3.3.2.2 Microsoft Certified Solutions Associate (MCSA): Server

The Contractor shall provide the following courses as the MCSA: Server training consisting of the following:

3.3.2.2.1 Installation, Storage and Compute with Windows Server 2016

The Contractor shall provide Microsoft Course 20740, Installation Storage and Compute with Windows Server 2016. The Contractor shall provide students who attend this course with vouchers for the Microsoft 70-740 exam.

3.3.2.2.2 Networking with Microsoft Server 2016

The Contractor shall provide Microsoft Course 20741, Networking with Microsoft Server 2016. The Contractor shall provide students who attend this course with vouchers for the Microsoft 70-741 exam.

3.3.2.2.3 Identity with Microsoft Server 2016

The Contractor shall provide Microsoft Course 20742, Identity with Microsoft Server 2016. The Contractor shall provide students who attend this course with vouchers for the Microsoft 70-742 exam.

3.3.2.3 Dell EMC Information and Storage Management

The Contractor shall provide the Dell EMC Information and Storage Management Course Version 3. The Contractor shall provide students who attend this course with vouchers for the Dell EMC Certified Associate (DECA)-Information and Storage Management (ISM) E05-001 exam.

3.3.2.4 Cisco Certified Network Accosiate (CCNA)

The Contractor shall provide 32 students with the CCNA course. The Contractor shall provide students who attend this course with vouchers for the Cisco 200-301 Exam.

3.3.2.5 Basic Radio Frequency Planning

The Contractor shall provide a course that provides students the basic understanding of frequency planning and spectrum management. This course should present a wide range of material to introduce those new to the spectrum management and frequency planning arena with the basic concepts of frequency management and to familiarize students with the latest tools, techniques, methods, trends, and issues related to spectrum and frequency planning in a country like Iraq.

3.3.2.6 Advanced Frequency Spectrum Management

The Contractor shall provide an advanced course on Frequency Spectrum Management with a more advanced understanding of frequency planning and spectrum management IAW the International Telecommunications Union. Emphasis should be on the use of spectrum management tools like Spectrum XXI.

3.3.2.7 Red Hat Linux

The Contractor shall provide the following Red Hat Linux courses:

- a. Red Hat Systems Administration I
- b. Red Hat Systems Administration II

The Contractor shall provide all students who attend these courses with vouchers for the Red Hat Certified System Administrator EX200-RHCSA Exam.

3.3.3 Phase 2 Regional Training Requirements

3.3.3.1 Training Courses

The Contractor shall conduct Regional VSAT and Network training courses in Lebanon during Phase 2. The Contractor shall conduct Phase 2 regional training in three sub-phases with four courses in each sub-phase, to be conducted one sub-phase after the other. The Government will specify the breakout of the courses per sub-phase after contract award. The Contractor shall conduct all regional training at certified training locations that have all the equipment required for instruction and practical exercises and exams. The Contractor shall provide training to six (6) students and conduct

training for up to five (5) days for each of the following training courses unless otherwise specified in the paragraph's below:

*Note- the number of students for Paragraphs 3.3.3.1.4.1, 3.3.3.1.5.1 and 3.3.3.1.6.1

3.3.3.1.1 Microsoft Exchange Server

The Contractor shall provide the following courses as part of the Microsoft Exchange Server Regional Training:

3.3.3.1.1.1 Designing and Deploying Microsoft Exchange Server 2016

The Contractor shall provide Microsoft course 20345-2, Designing and Deploying Microsoft Exchange Server 2016. The Contractor shall provide students who attend this course vouchers for the Microsoft 70-345 exam, Designing and Deploying Microsoft Exchange Server 2016.

3.3.3.1.1.2 Symantec Ghost Solution Suite 3.0

The Contractor shall provide a training course on the Symantec Ghost Solution Suite 3.0.

3.3.3.1.1.3 Cisco Securing the Web

The Contractor shall provide a training course on securing the web with Cisco Web Security Appliance.

3.3.3.1.2 Virtualization

The Contractor shall provide the following Virtualization Courses:

3.3.3.1.2.1 Installing Cisco Unified Computing on Unified Computing System

The Contractor shall provide a course on Installing Cisco Unified Computing on a Unified Computing System in a Virtualized Environment.

3.3.3.1.2.2 VSphere Professional Data center Virtualization.

The Contractor shall provide the VSphere Professional Data center Virtualization course.

3.3.3.1.2.3 VMware vSphere Install, Configure, Manage plus Optimize Scale and Fast Track (6.5)

The Contractor shall provide the official VMware vSphere Install, Configure, Manage plus Optimize, Scale and Fast Track (6.5) course. The Contractor shall provide all students who attend all three Virtualization courses vouchers for the VMware Certified Professional—Data Center Virtualization Exam.

3.3.3.1.3 Data Storage Management

The Contractor shall provide the following Data Storage Management Courses:

- a. EMC VNX™ Unified Storage Management
- b. EMC Storage Area Network (SAN) Management

3.3.3.1.4 Implementing and Operating Cisco Security Core Technologies (SCOR)

The Contractor shall provide the following Cisco SCOR Courses:

3.3.3.1.4.1 Implementing and Operating Cisco Security Core Technologies

The Contractor shall provide a course for 32 students on Implementing and Operating Cisco Security Core Technologies (SCOR). The Contractor shall provide all students who attend this course vouchers for the Cisco SCOR 300-701 exam.

3.3.3.1.4.2 Securing Networks with Cisco Firepower

The Contractor shall provide a course on Securing Network With Cisco Firepower. The Contractor shall provide all students who attend this course vouchers for the Cisco SNCF 300-710 exam.

3.3.3.1.4.3 Implementing and Configuring Cisco Identity Services Engine (SISE)

The Contractor shall provide a course on Implementing and Configuring Cisco Identity Services Engine. The Contractor shall provide all students who attend this course vouchers for the Cisco SISE 300-715 exam..

3.3.3.1.4.4 Securing Email with Cisco Email Security Appliance (SESA)

The Contractor shall provide a course on Securing Email with Cisco Email Security Appliance (SESA) The Contractor shall provide all students who attend this course vouchers for the Cisco SESA 300-720 exam.

3.3.3.1.4.5 Securing the Web with Cisco Web Security Appliance (SWSA)

The Contractor shall provide a course on Securing the Web with Cisco Web Security Appliance (SWSA). The Contractor shall provide all students who attend this course vouchers for the Cisco SWSA 300-725 exam.

3.3.3.1.5 Implementing Cisco Enterprise Network Core Technologies (ENCOR)

The Contractor shall provide the following Cisco ENCOR courses:

3.3.3.1.5.1 Implementing Cisco Enterprise Network Core Technologies (ENCOR)

The Contractor shall provide 18 Students a course on Implementing Cisco Enterprise Network Core Technologies (ENCOR). The Contractor shall provide all students who attend this course vouchers for the Cisco ENOR 350-401 exam.

3.3.3.1.5.2 Implementing Cisco Enterprise Advanced Routing and Services (ENARSI)

The Contractor shall provide a course on Implementing Cisco Enterprise Advanced Routing and Services (ENARSI). The Contractor shall provide all students who attend this course vouchers for the Cisco ENARSI 300-410 exam.

3.3.3.1.5.3 Implementing Cisco Enterprise Wireless Networks (ENWLSI)

The Contractor shall provide a course on Implementing Cisco Enterprise Wireless Networks (ENWLSI). The Contractor shall provide all students who attend this course vouchers for the Cisco ENWLSI 300-430 exam.

3.3.3.1.5.4 Implementing Cisco SD-WAN Solutions (SDWAN300)

The Contractor shall provide a course on Implementing Cisco SD-WAN Solutions (SDWAN300). The Contractor shall provide all students who attend this course vouchers for the Cisco SDWAN300 300-415 exam.

3.3.3.1.5.5 CCIE Enterprise Infrastructure v1.0

The Contractor shall provide a course on Cisco expert level Training for CCIE Enterprise Infrastructure v1.0. The Contractor shall provide all students who attend this course vouchers for the Cisco Certified Internetwork Engineer (CCIE) Enterprise Infrastructure v1.0 lab exam.

3.3.3.1.6 Implementing and Operating Cisco Data Center Core Technologies (DCCOR)

The Contractor shall provide the following DCCOR courses:

3.3.3.1.6.1 Implementing and Operating Cisco Data Center Core Technologies (DCCOR)

The Contractor shall provide for 18 students a course on Implementing and Operating Cisco Data Center Core Technologies (DCCOR). The Contractor shall provide all students who attend this course vouchers for the Cisco DCCOR 300-601 exam.

3.3.3.1.6.2 Troubleshooting Cisco Data Center Infrastructure (DCIT)

The Contractor shall provide a course on Troubleshooting Cisco Data Center Infrastructure (DCIT). The Contractor shall provide all students who attend this course vouchers for the Cisco DCIT 300-615 exam.

3.3.3.1.6.3 Implementing Automation for Cisco Data Center Solutions (DCAUI)

The Contractor shall provide a course on Implementing Automation for Cisco Data Center Solutions (DCAUI). The Contractor shall provide all students who attend this course vouchers for the Cisco DCAUTO 300-635 exam.

3.3.3.1.6.4 Designing Cisco Data Center Infrastructure (DCID)

The Contractor shall provide a course on Designing Cisco Data Center Infrastructure (DCID). The Contractor shall provide all students who attend this course vouchers for the Cisco DCID 300-610 exam.

3.3.3.1.7 Advanced Frequency Spectrum Management

The Contractor shall provide an advanced course on Frequency Spectrum Management with a focus on the use of spectrum management tools like Spectrum XXI to handle especially complex Radio Frequency environments, large networks, and advanced problem solving.

3.3.3.1.8 CompTIA Project+

The Contractor shall provide a CompTIA approved CompTIA Project+ preparatory course. The Contractor shall provide students who attend this course vouchers to take the CompTIA Project+ examination.

3.3.3.1.9 Red Hat Systems Administration

The Contractor shall provide the Red Hat Systems Administration III course. The Contractor shall provide students who attend this course vouchers for the Red Hat Certified Engineer EX300 Examination.

3.3.3.1.10 VSAT and Vipersat System Administration

The Contractor shall provide a Comtech NetVue IMS, VMS & Advanced VSAT Course Certification. The Contractor shall provide all students who attend this course the opportunity to take the NetVue IMS, VMS, and ViperSat System Course Exam and receive the certification at the end of the course.

3.3.3.1.11 SolarWinds Certified Professional

The Contractor shall provide SolarWinds Certified Professional SPM Training.

3.3.3.1.12 iDirect Government

The Contractor shall provide the iDirect Government Quality of Service (QoS) Boot Camp (iQBC) Course. This course shall meet all requirements so that all students who successfully complete the course receive an official iDirect Certificate.

3.3.3.2 Training Facility Requirements

The Contractor shall conduct all regional training in Lebanon at certified training locations that have all the equipment required for instruction and practical exercises and exams. The Contractor shall ensure the training facility meets all requirements to allow for training, to include all classroom, equipment, and networking requirements or suggestions from the organizations overseeing the certification, testing, and training listed below. All required training in the PWS must be conducted in person with the

instructors and students physically present in a training facility and/or classroom. The Contractor shall ensure the training facility provides all equipment and software so each student can participate in all labs, simulations, practical exercises and other activities required as a part of the training.

3.3.3.3 Training, Travel and Logistics Support

The Contractor shall provide all travel and living expenses for all students attending the Regional Training Courses. This includes all hotel accommodations, airline tickets, ground transportation to and from the airport, hotel and training facility. The Contractor shall provide per-diem for all students. If the training location is not at the hotel where the students are staying the Contractor shall provide escorts to assist the students getting to and from the training facility each day. The Contractor shall provide all logistical support required to coordinate all travel. The Contractor shall facilitate the visa process; however, the Contractor may not apply for or pay for student visas. The Contractor shall provide a travel logistics plan with CDRL C001 to include the following:

- a. Training facility details, shall include confirmation of proposed facility
- b. Airline ticketing process
- c. Proposed travel itinerary from Baghdad to Lebanon
- d. Ground transportation plan airport-hotel-training facility
- e. Per Diem student disbursement plan
- f. Escort plan

3.3.4 On the Job Training

The Contractor shall provide On-The-Job Training (OJT) during each phase of installation. Each training block will provide training for fifteen (15) students. The duration of training will vary by phase as follows:

3.3.4.1 Phase 1 OJT

Phase 1 OJT is for 30 days and will include all provided equipment listed in Appendix A. The 15 trainees will be the end users.

3.3.4.2 Phase 2 OJT

Phase 2 OJT is for 60 days and the 15 trainees will be the end users.

4.0 General Requirements

4.1 Specialized Experience

The Contractor shall possess Corporate and Foreign Military Sales (FMS) experience. Corporate and FMS are considered specialized experiences.

4.1.1 Executive Summary

The Contractor shall provide an Executive Summary of its history/background, qualifications, number of employees, list of Government and private sector clients, parent company information (if applicable) and experience performing Network services to Department of Defense and/or foreign customers. Specific Foreign Military Sales (FMS) experience shall be detailed in this summary.

4.1.2 Corporate Experience.

The Contractor shall possess at least three years of Corporate Experience; one of these three years of experience must have been acquired in the past four (4) years. Corporate experience must be relevant. Relevant experience is defined as possessing experience in providing to a US Government customer all Network supplies and services identified in this PWS which includes but are not limited to Network hardware, software and supplies, installation services for all network components, Field Service Representative support, and training services in support of certification training.

4.1.3 Foreign Military Sales (FMS) Experience

The Contractor shall possess at least three years of FMS Experience. FMS Experience is defined as delivering equipment and/or services under a Department of Defense (DoD) contract for requirements which are set forth in a Letter of Offer and Acceptance. At least twelve (12) months of the contract performance must have taken place in the past four (4) years.

4.2 Requirements for Personnel

The Contractor shall provide qualified personnel for the performance of this contract for each phase.

4.2.1 Requirements for Key Personnel

The Contractor provide the following minimum Key Personnel for this contract:

- a. Program Manager
- b. Engineering Team Lead
- c. Field Support Representative (FSR) - Networking
- d. Field Support Representative (FSR) - System

The Contractor shall submit resumes with current (non-expired) certificates and current passports for all Key Personnel with CDRL E012 and update this CDRL if there are any personnel changes during the period of performance. The Contractor shall notify the

Government of any Key Personnel changes at least five days prior to documenting updated personnel changes.

4.2.1.1 Requirements for Program Manager

The Contractor shall provide a Program Manager (PM) who will be the single management focal point for all aspects of this contract. This PM shall ensure, in accordance with the approved Program Management Plan (PMP), and by using the management system defined in the PMP, that all programmatic, technical, and other contract requirements are correctly completed and performed within the approved schedule. The PM shall act as the single point of contact within the Contractor's activity for all required program status information to include administration and managerial updates. The PM shall be proficient in English and have a firm understanding of the Iraqi organization and function. The Program Manager shall have a current Project Management Professional Certification or a Defense Acquisition Workforce Improvement Act (DAWIA) Level II Certification. The PM shall possess a minimum of five (5) years management experience on programs of similar scope.

4.2.1.2 Requirements for Engineering Team Lead

The Contractor shall provide an Engineering Team Lead who will provide leadership and service support for all CONUS and OCONUS system/service/training activities in support of this contract. These services include management; coordination; installation; integration; verification; validation; system testing and evaluation (T&E); and training. The Engineering Team Lead shall be knowledgeable of Wired and Wireless Networking, Cisco Products, Software and Services, Firewalls, and Windows systems and administration and shall possess at least five (5) years past performance on projects of a similar scope. The Engineering Team Lead shall possess at least two (2) certificates from the following list: Red Hat Certified Administrator (RHCA), Cisco Certified Internetworking Expert (CCIE), Certified Information Systems Security Professional (CISSP), Certified IT Architect—Specialist (CITA-S) or Certified IT Architect--Professional (CITA-P).

4.2.1.3 Requirements for Field Support Representative (FSR) - Networking

The Contractor shall provide a Networking FSR who is knowledgeable of the entire NOC Network. This knowledge shall include the installed configuration; hardware and software installation procedures and settings; operation; configuration; troubleshooting; and system maintenance. The Networking FSR shall be knowledgeable of Cisco systems and software, wired and wireless networking, firewalls, and Windows system administration, configuration, and troubleshooting and shall possess a minimum of five (5) years past performance in projects of similar scope. The Networking FSR shall possess at least one (1) certificate from the following list: Network +, Security +, CCNA, CCNP, CCIE, or RHCE certifications.

4.2.1.4 Requirements for Field Support Representative (FSR) - System

The Contractor shall provide a System FSR who is knowledgeable of the entire NOC System. This knowledge shall include the installed configuration; hardware and software installation procedures and settings; operation; configuration; troubleshooting; and system maintenance. The System FSR shall be knowledgeable of Cisco systems and software, wired and wireless networking, firewalls, and Windows and Linux system administration, configuration, and troubleshooting and shall possess a minimum of five (5) years past performance in projects of similar scope. The System FSR shall possess at least one (1) certificate from the following list: Security +, Linux+, Sever+, CCNA, CCNP, CCIE, or RHCE certifications.

4.2.2 Requirements for Training Instructors

The Contractor shall provide qualified training instructors to instruct in the following subject matter:

- a. iDirect
- b. Microsoft
- c. Linux
- d. EMC
- e. Cisco
- f. Vipersat
- g. CompTIA
- h. Frequency Planning
- i. VMware

The Contractor shall provide training instructors who are certified as instructors for the applicable training subject matter. The Contractor shall provide instructors with all qualifications required by the organization issuing the applicable certification.

The Contractor shall submit resumes with current (non-expired) certificates for all instructors with CDRL E012 and update this CDRL if there are any personnel changes during the period of performance. The Contractor shall notify the Government of any training instructor changes at least five days prior to documenting updated personnel changes. All instructors are required to instruct in-person from the classroom. Virtual training instruction is not authorized.

The Contractor shall ensure personnel filling the following instructor positions shall meet the requirements specified for each instructor.

4.2.2.1 Requirements for iDirect Training Instructor

The Contractor shall provide an iDirect Training Instructor who can issue official iDirect certificates for the iDirect training classes required under this PWS. This instructor

shall instruct all iDirect courses required under this PWS. The iDirect Training Instructor shall possess a minimum of two (2) years past performance as a training instructor and five (5) years of experience in SATCOM, networking, or radio frequency. The iDirect Training Instructor shall possess an instructor certificate and at least iOM, Advanced iOM, iROCC, and iQBC certificates.

4.2.2.2 Requirements for Microsoft Training Instructor

The Contractor shall provide Microsoft Training Instructor(s) for the Microsoft training required under this PWS. The Microsoft Training Instructor shall possess a minimum of two (2) years past performance as a training instructor and five (5) years of experience in computers, networking, or the Microsoft product(s) they will be instructing. The Microsoft Training Instructor shall possess a current Microsoft Training certificate.

4.2.2.3 Requirements for Linux Training Instructor

The Contractor shall provide Red Hat Linux Training Instructor(s) for the Red Hat Linux training required under this PWS. The Red Hat Linux Training Instructor shall possess a minimum of two (2) years past performance as a training instructor and five (5) years of experience in computers, networking, and Linux. The Linux Training Instructor shall possess an instructor certificate and have a Red Hat Certified Architect Certificate.

4.2.2.4 Requirements for EMC Training Instructor

The Contractor shall provide EMC Training Instructor(s) for the EMC storage training required under this PWS. The EMC Training Instructor shall possess a minimum of two (2) years past performance as a training instructor and five (5) years of experience in Computers, Networking, and the Dell EMC Product(s) they will be instructing. The EMC Training Instructor shall be recognized as an instructor by Dell EMC and possess a current Dell EMC Certified Expert Certificate and a Dell EMC Certified Specialist Certification in a storage track.

4.2.2.5 Requirements for Cisco Training Instructor

The Contractor shall provide Cisco Training Instructor(s) for the Cisco training required under this PWS. The Cisco Training Instructor shall possess a minimum of two (2) years past performance as a training instructor and five (5) years of experience in computers, networking, and the Cisco product(s) they will be instructing. The Cisco Training Instructor shall possess an instructor certification and a current Cisco Certified Internet work Expert Certificate.

4.2.2.6 Requirements for Vipersat Training Instructor

The Contractor shall provide Vipersat Training Instructor(s) for the Vipersat training required under this PWS. The Vipersat Training Instructor shall possess a minimum of two (2) years past performance as a training instructor and five (5) years of experience

in Networking and VSAT. The Vipersat Training Instructor shall possess training instructor certification. The Vipersat Training Instructor shall be recognized by Vipersat as an approved training instructor for the required Vipersat training.

4.2.2.7 Requirements for CompTIA Training Instructor

The Contractor shall provide CompTIA Training Instructor(s) for the CompTIA training required under this PWS. The CompTIA Training Instructor shall possess a minimum of two (2) years past performance as a training instructor and five (5) years of experience in computers, networking, and the CompTIA Exam(s) they will be instructing. The CompTIA Training Instructor shall possess a Certified Technical Training instructor certification and a current CompTIA certificate for the course(s) they will be instructing.

4.2.2.8 Requirements for Frequency Planning Training Instructor

The Contractor shall provide Frequency Planning Training Instructor(s) for the Frequency Planning training required under this PWS. The Frequency Planning Training Instructor shall be a graduate of a United States government or Department of Defense Radio Frequency Management / Spectrum Management Course, have at least ten (10) years of experience working with Spectrum Management, two (2) years of experience as an instructor, and have experience working with spectrum management tools including Spectrum XXI.

4.2.2.9 Requirements for VMWare Training Instructor

The Contractor shall provide VMware Training Instructor(s) for the VMware training required under this PWS. The VMware Training Instructor shall possess a minimum of two (2) years past performance as a training instructor and five (5) years of experience in computers, networking, and the VMware technologies they will be instructing. The VMware Training Instructor shall possess a training instructor certification and a current VMware certificate for the course(s) they will be instructing. The VMware Training Instructor shall be recognized by VMware as an approved training instructor for the required VMware training.

4.3 Requirements for Program Management

4.3.1 Program Management Plan

The Contractor shall develop and implement a Program Management Plan (PMP) that defines how this contract effort shall be managed and who shall have overall responsibility for the control, execution, management, and coordination of all work performed, to include how they plan to manage their subcontractors. The Contractor shall submit the PMP with CDRL E012 and include the following:

- a. Program Scope Summary

- b. Milestones and Deliverables Summary
- c. A Project Planning Chart
- d. Personnel Management Plan
- e. Personnel resumes (Key Personnel and Training Instructors)
- f. Personnel certifications (Key Personnel and Training Instructors)
- g. Personnel passports (Key Personnel)
- h. A Communications Plan
- i. A Risk Management Plan
- j. Integrated Master Schedule
- k. Description of automation tools used for Program Management

4.3.2 Program Performance Reports

The Contractor shall continuously monitor the performance of this contract and deliver Program Performance Reports (PPRs) to the Government with CDRL E001 to include the following:

- a. Significant accomplishments and issues that arose during the reporting period
- b. Key Milestones met
- c. Projected activities for the following and subsequent periods
- d. Program risks and mitigation efforts (technical and schedule)
- e. Any general meetings that occurred with the Government or Iraqi representatives during the reporting period.
- f. Technical status/progress

4.3.3 Integrated Master Schedule

The Contractor shall submit an Integrated Master Schedule (IMS) with CDRL E012 to include the following for each phase:

- a. Kick Off Meeting (Phase 1 only).
- b. NOC supply, installation and related support tasks to include scheduling details for material delivery, installation, integration, testing, maintenance and support.
- c. Installation and Integration Plan
- d. Training equipment delivery and installation tasks to include material delivery and installation (Phase 1 only).
- e. Training schedule to include all required courses; Classroom and On the Job Training.
- f. Two Program Management Reviews
- g. Critical Design Review.
- h. Test Readiness Review.
- i. Factory Acceptance Test.
- j. System Acceptance Test.

4.3.4 Contract Award Kick-Off Meeting

The Contractor shall participate in one Contract Award Kick-Off Meeting no later than thirty days after contract award either at the Contractor's facility, at the Government's facility as directed by the KO. The Contractor shall provide a Kick-Off Meeting agenda with CDRL A001 to include the following:

- a. A high-level overview of the Contractor team composition and points of contact information
- b. A high-level overview of the Contractor's proposal
- c. Program risks as identified in the Risk Management Plan
- d. Input from the Government with agenda additional items

4.3.5 Program Management Review

The Contractor shall conduct two (2) Program Management Reviews (PMR) per phase as directed by the Government. One PMR will be conducted in Iraq and the other will take place at either the Contractor's or Government's facilities. The Contractor shall address present status of all aspects of the contract including equipment, training, documentation, scheduling, risk identification and status, problem areas with potential solutions, future plans, and any other areas deemed significant. The Contractor shall comply with all requests for discussion issued from the Government either by notice prior to the review or during the review.

4.3.6 Agenda, Meetings and Minutes

The Contractor shall provide an agenda and minutes for all meetings, reviews, conferences, and teleconferences in accordance with CDRL A001.

4.3.7 Additional Meetings

The Contractor shall participate in scheduled teleconferences as required to conduct test readiness reviews, technical and design reviews, discuss ongoing program activities, contract performance, and to identify potential issues and risks.

4.4 Requirements for Risk Management

The Contractor shall develop a Risk Management Plan (RMP) with CDRL E012 to include the following:

- a. Risk Identification
- b. Risk Analysis
- c. Risk Mitigation Procedures
- d. Stoplight charts identifying risk level and impacts

4.5 Requirements for Technical Management, Testing and Acceptance

The Contractor shall comply with the following requirements:

4.5.1 Critical Design Review

The Contractor shall conduct one (1) Critical Design Review (CDR) per phase no later than thirty days after site survey completion either at the Contractor's facility or at the Government's facility as directed by the COR. The Contractor shall submit the following CDR presentation material and supporting documentation with CDRL A001:

- a. Final technical design
- b. Implementation approach
- c. A list of all proposed hardware, software and installation materials for the level of effort (Bill of Materials)

The Contractor shall procure, with the approval of the KO, all proposed hardware, software and materials after the CDR has been conducted. The Contractor shall submit CDR minutes with CDRL A001 documenting any changes to what was presented, reviewed and discussed at the CDR. Government approval of the minutes will authorize the Contractor to proceed with ordering the required/proposed hardware, software and materials. The Contractor shall submit all design documentation and drawings resulting from the CDR in accordance with CDRL D001, System/Subsystem Design Description which will become the baseline system configuration.

4.5.2 Configuration Management

The Contractor shall develop a Configuration Management Plan and implement it for the program effort, addressing all material and system documentation in accordance with CDRL B001. The Contractor shall implement a CMP by identifying the baseline configuration in their CMP. The Contractor shall address how to control and maintain the status of all changes made against the established baselines. The system baseline configuration shall be established at the Critical Design Review, after which time the contractor's CMP shall incorporate a change control process that includes submittal of Engineering Change Proposals in accordance with CDRL H001. The Contractor shall include the following in their configuration management plan:

- a. Serial Numbers
- b. Software versions
- c. Firmware versions
- d. License information
- e. Images/backups
- f. Model and part numbers
- g. IP scheme/VLANs
- h. Configuration Files

4.5.3 Testing and Acceptance

The Contractor shall develop a test plan and test procedures to support both a CONUS Factory Acceptance Test (FAT) prior to shipping to Iraq and an OCONUS System Acceptance Test (SAT) in Iraq. The Contractor shall address FAT and SAT plans and procedures for all key requirements specified in this PWS and ensure all operation and

system/subsystem requirements and specifications have been met. The Contractor shall conduct test readiness review prior to all FATs and SATs.

The FAT setup shall accurately represent the operational configuration of the system when installed in Iraq. Any changes in configuration identified as required between FAT and SAT shall be reflected in the FAT test report and SAT Test plan and procedures. Changes identified will be tracked using the approved CM plan and procedures. Upon Government and Gol approval, the FAT and SAT test plans shall be the basis for approving these tests in accordance with contract requirements. In the event a System/subsystem requirement is not verified at the specified test event the Contractor shall include appropriate remediation steps within the Test Report including regression testing procedures necessary to fully verify the requirement once corrective actions have been implemented. Furthermore, any requirement may be subject to be re-verified at a future test event based on implicit dependencies with other requirements and the approved test procedures. FAT, SAT and any additional testing will be witnessed by the Government's Project Lead or a designated representative as well as Gol personnel as appropriate. The Contractor shall document test results in accordance with CDRL G002.

4.5.3.1 Factory Acceptance Test

The Contractor shall perform a Factory Acceptance Test (FAT) at the Contractor's CONUS facility to ensure all required system technical specifications and operating parameters are met. The FAT setup shall accurately represent the operational configuration of the system when installed in Iraq. Additionally, the FAT shall include assembly and integration at the Contractor's facility, test and burn-in of all tested equipment for at least five days prior to FAT execution. The Contractor shall provide all engineering and build/test support required to conduct the FAT. The Contractor shall provide the appropriate staff to be present during the FAT and shall report and repair/correct all failures which occur.

Prior to FAT the Contractor shall submit a FAT Test Plan with CDRL G001 to include the following:

- a. The Serial numbers for all equipment being tested
- b. New Production proof and verification
- c. FAT Test Procedures
- d. As-built configuration lists, complete with Serial numbers, submitted
- e. As-Built Drawings

All required FAT results, anomalies, configuration changes and any other pertinent information shall be documented with CDRL G002. Once FAT has been successfully

completed, the Contractor will be approved to package the system and start the shipping procedure.

4.5.3.2 System Acceptance Test

After successful completion of FAT and delivery/installation/integration of the system at the Gol facilities, the Contractor shall perform a System Acceptance Test (SAT) to ensure all required system equipment and software technical specifications and operating parameters are met. The Contractor shall provide all engineering and build/test support required to conduct SAT. The Contractor shall document with CDRL B001 any equipment or software that was not used during FAT or any equipment or software listed in the FAT Test Plan that is updated/changed after the completion of FAT. Any new equipment required for SAT will need to have a full 5-day burn-in completed prior to the execution of SAT.

Prior to SAT, The Contractor shall submit a SAT Test Plan with CDRL G001 to include the following:

- a. Test procedures
- b. Engineering and build/test support required to conduct the SATs
- c. Complete as-built configuration lists, complete with Serial numbers
- d. As-Built Drawings
- e. Interoperability testing and validation procedures

The Contractor shall provide the appropriate staff to be present during the SAT and shall report and repair/correct all failures which occur. All required SAT results, anomalies, configuration changes and any other pertinent information shall be documented with CDRL G002. Once the SAT has been completed and any anomalies corrected, the Contractor shall provide final drawings with CDRL D001 and configurations with CDRL B001.

4.5.3.3 Additional Testing

The requirements of this PWS do not relieve the Contractor of the responsibility to perform any additional tests or inspections on completed products, and this shall include all inspections and tests which are normally performed for the NOC Systems. The Contractor shall as a minimum perform any inspections and tests (including visual/mechanical inspections and functional tests) required to satisfy the technical and form, fit, and function requirements of the contract. The form, fit, and function requirements are defined by the Contractor's drawings and literature (specification sheets, brochures, technical manuals, etc.). The KO and/or COR shall be kept continuously informed of the testing schedules for all additional testing, and the Government and Gol as appropriate reserves the right to witness any and all tests. All

required results, anomalies, configuration changes and any other pertinent information identified as a result of any Additional Testing shall be documented with CDRL G002.

4.5.4 Quality System

The Contractor shall establish/maintain a system for the final inspection and test of all purchased items to comply with contract requirements. The Government has the right to review the Contractor's quality system and require correction whenever it, or any portion thereof, fails to meet the requirements set forth in the contract.

4.5.5 Records

The Contractor shall maintain adequate records of inspections and tests to demonstrate that the final product satisfies contract requirements. The Government has the right to review these records at any time.

4.6 Requirements for Warranty

The Contractor shall provide a no-cost warranty covering workmanship and materials for all items furnished IAW this contract or any modification thereof. If the warranty is a commercial warranty and states that the warranty is not in effect outside the continental United States, then the wording of the warranty shall be amended so that the warranty is extended to the final FMS customer. The warranty shall be for a minimum of one (1) year in duration, starting from the date of hardware acceptance by the U.S. Government.

4.6.1 FMS specific Requirements

This warranty shall run directly to the benefit of the FMS customer and shall not be structured so as to require any actions/administration on the part of the U.S. Government.

4.6.2 Warranty Procedures

Exercising of warranty shall commence upon Contractor receipt of notification of a failure by the FMS customer to the Contractor; the warranty clock shall be stopped relative to the unit in question. The Contractor shall be responsible for transportation cost from the FMS customer to the Contractor's facility and return to the FMS customer for warranty repairs or replacement of parts, as appropriate. The customer shall be responsible for (or pay for) shipping items to and from the Contractor's plant, plus evaluation and repair or replacement, as appropriate for out of warranty efforts.

4.7 Requirements for Security and Operational Security (OPSEC)

4.7.1 Foreign Subcontractor Participation

Foreign Subcontractor participation will be handled IAW AR 380-10 (Technology Transfer, Disclosure of Information & Contacts with Foreign Representatives); DoD

Directive 5230.11 (Disclosure of Classified Military Information to Foreign Governments and International Organizations.)

4.7.2 Anti-Terrorism (AT)

4.7.2.1 AT Level I Training. When applicable, all Contractor employees, to include subcontractor employees, requiring access to government installations, facilities and controlled access areas shall complete AT Level I awareness training within 30 calendar days after contract start date, or within 30 calendar days of applicable new employees commencing performance. The Contractor shall submit certificates of completion for each affected Contractor employee and subcontractor employee, to the COR within 30 calendar days after completion of training by all employees and subcontractor personnel with CDRL E002. When not applicable, the CDRL will not need to be submitted. AT level I awareness training is available at the following websites: <https://Jkodirect.jten.mil> or <http://jko.jten.mil/courses/at1/launch.html>.

4.7.2.2 AT Awareness Training for Official and Unofficial Contractor Personnel Traveling Overseas. US based Contractor employees and associated subcontractor employees shall receive government provided area of responsibility (AOR) specific AT awareness submit training as directed by AR 525-13, or other COCOM specific requirements, as necessary. Specific AOR training content is directed by the combatant commander with the unit ATO being the local point of contact. US based Contractor employees and associated subcontractor employees will update their PRO-File survey prior to their official or unofficial travel, in accordance with AR 525-28, Personnel Recovery. The PRO-File survey is available at the following link: <https://prmsglobal.prms.af.mil/prmsconv/Login/Banner>.

4.7.2.3 iWATCH Training. When applicable, the Contractor and all associated sub-Contractors shall brief all employees with an area of performance within an Army controlled installation, facilities, area or access to an FMS controlled area on the local iWATCH program (training standards provided by the requiring activity ATO, see the following website: <http://www.myarmyonesource.com/familyprogramsandservices/iwatchprogram/default.aspx>.) This local developed training will be used to inform employees of the types of behavior to watch for and instruct employees to report suspicious activity to the COR. This training shall be completed within 30 calendar days of contract award and within 30 calendar days of new employees commencing performance with the results reported to the COR NLT 30 calendar days after contract award with CDRL E003. When not applicable, the CDRL will not need to be submitted.

4.7.3 Operations Security (OPSEC)

4.7.3.1 OPSEC Standard Operating Procedure (SOP)/Plan. The Contractor shall develop an OPSEC SOP/Plan in accordance CDRL E011 within 90 calendar days of

contract award, to be reviewed and approved by the responsible Government OPSEC officer. This Plan will include a process to identify critical information, where it is located, who is responsible for it, how to protect it and why it needs to be protected. The Contractor shall implement approved OPSEC measures. In addition, the Contractor shall identify an individual who will be an OPSEC Coordinator. The Contractor will ensure this individual becomes OPSEC Level II certified per AR 530-1.

4.7.3.2 OPSEC Training. Per AR 530-1, Operations Security, current and new Contractor employees shall complete Level I OPSEC Awareness training within 30 calendar days of their reporting for duty. All Contractor employees shall complete annual OPSEC awareness training (completed training submitted with CDRL E004. Level 1 OPSEC training is available at <http://cdse.edu/catalog/elearning/gs130.html>.

4.7.3.3 Performance or Delivery in a Foreign Country. DFARS Clause 252.225-7043, Antiterrorism/Force Protection for Defense Contractors Outside the US, shall be used in solicitations and contracts that require performance or delivery in a foreign country. This clause applies to both contingencies and non-contingency support. The key AT requirement is for non-local national Contractor personnel to comply with theater clearance requirements and allows the combatant commander to exercise oversight to ensure the Contractor's compliance with combatant commander and subordinate task force commander policies and directives.

4.7.4 Threat Awareness Reporting

Per AR 381-12 Threat Awareness and Reporting Program (TARP), Contractor employees shall receive annual TARP training by a CI agent or other trainer as specified in 2-4b. Training completion shall be submitted with CDRL E005.

4.7.5 Information System Security Requirements

4.7.5.1 Army Training Certification Tracking System (ATCTS)

All Contractor employees with access to a government information system (IS) shall be registered in the ATCTS (Army Training Certification Tracking System) at commencement of services, shall successfully complete the DoD Cybersecurity Awareness Challenge and Acceptable Use Policy (AUP) prior to access to the IS, and then annually thereafter. IT access requests shall include current AUP and training certificates for initial and contract renewals. Registration verification shall be submitted with CDRL E006.

4.7.5.2 Department of Defense Cybersecurity Awareness Training.

All Contractor employees and associated subcontractor employees shall complete the DoD Cybersecurity awareness training before issuance of network access and annually thereafter. All contractor employees working Cybersecurity/IT functions shall comply with DoD and Army training requirements in DoD 8140.01, DoD 8570.01-M (Ch4) and AR 25-2 within six months of appointment to Cybersecurity/information technology functions. Training completion shall be submitted with CDRL E007.

4.8 Requirements for Item Unique Identification (IUID)

The Contractor shall mark all contract deliverables In Accordance With (IAW) DFARS clause 252.211-7003 in Section F of this contract and the following requirements.

4.8.1 IUID Markings

4.8.1.1 New Items

The Contractor shall provide IUID, or DoD recognized unique identification equivalent as detailed in DFARS 252.211-7003, for all items delivered with an acquisition cost of \$5,000.00 or more and Government serial numbered items. For long term contracts, the Contractor shall implement IUID markings IAW MIL-STD-130N w/Ch1, dated 16 Nov 12 for any item that will exceed the \$5,000.00 unit price for any range quantity or contract year. This requirement is effective throughout the life of this contract.

4.8.1.2 Repair Items

Items received for repair shall be inspected for IUID markings. For items where the marking is damaged or missing the Contractor shall mark the equipment with the appropriate IUID markings. For previously acquired items where the IUID markings were not required the Contractor shall follow the procedures as if the item was a new item.

4.8.1.3 Commercial Markings

All other items shall have acceptable commercial markings that meet the guidelines in Department of Defense (DoD) Guide to Uniquely Identifying Items <http://www.acq.osd.mil/dpap/pdi/uid/index.html>.

4.8.1.4 Permanency and Legibility

The IUID marking and identification plates, tags, etching, or labels when used on equipment, parts, assemblies, subassemblies, units, sets, groups, or kits shall be as permanent as the normal life expectancy of the item and be capable of withstanding the environment, test, cleaning, repair, and rebuild procedures specified for the item. Legibility shall be as required and verified for ready readability per MIL-STD-130N w/Ch1, dated 16 Nov 12.

4.8.1.5 Deleterious Effect

Marking of items shall be accomplished in a manner that will not adversely affect the life and utility of the item. Marking materials creating hazardous conditions shall not be used. Placement and choice of the marking shall not create hazardous conditions.

4.8.1.6 Mandatory Information Reporting for all items requiring IUID marking.

4.8.1.6.1 The Contractor shall include the National Stock Number (NSN), if the item has a NSN, the Serial Number marked on the item, if a Serial Number is marked on the item, the original part number, the current part number (only if not the same as the original part number), the current part number effective date (only if the current part number is used) and the US ARMY as the SERVICE /AGENCY/COMMAND data element in the information reported to the IUID Registry, in addition to the information required to be reported to the IUID Registry by DFARS clause 252.211-7003.

4.8.1.6.2 Wide Area Workflow (WAWF) users shall report this mandatory information to the IUID Registry by Direct submission via an X12 Ship Notice/Shipment and Billing Notice (856/857) transaction, an IUID XML transaction, an IUID flat file transaction or a WAWF IUID Material Inspection and Receiving Report/Combo UDF through the Global Exchange (GEX) Service, or manually, via the IUID Web Entry Site at <http://www.bpn.gov/iuid>. For WAWF users, these methods do not replace the current WAWF interaction, but are performed in addition to it after the shipment has been accepted to provide IUID data that cannot be provided via WAWF.

4.8.2 IUID Coding

4.8.2.1 IUID markings and readability requirements shall comply with MIL-STD-130N w/Ch1, dated 16 Nov 12.

4.8.2.2 Symbology markings and the order of priority for marking the hardware shall be in accordance with MIL-STD-130N w/Ch1, dated 16 Nov 12. First priority is the 2D

data matrix symbol (machine readable) IUID is the minimum requirement when there are severe space limitations. The second priority is the human readable characters. The third priority is the Linear Bar Code.

4.8.2.3 If the technical data has not specified the marking location, markings shall be located such that they are visible during item use, provided that sufficient space is available, and does not interfere with equipment operations.

4.8.2.4 If items are not described by Government Product Technical Data (i.e. Commercial Items), the Contractor shall maintain diagrams showing placement and description of the IUID marking and applicable installation and processing instructions for government review.

4.8.2.5 The Contractor shall maintain an accurate, current list of IUIDs for all manufactured items on this contract. Dates of manufacture, substitutions, shop changes, etc. shall be included on this list. The list shall be available for inspection by the PCO or other Government representative at any time during the life of this contract. The Contractor shall provide this list to the government at the end of the contract.

4.8.3 Correction of Noncompliant Equipment and Technical Data

4.8.3.1 The Contractor shall initiate the appropriate configuration control document to correct all affected drawings/specifications which conflict with or omit the marking requirements stipulated above.

4.8.3.2 The Contractor shall advise the Contracting Officer's Representative (COR) if any configuration control requirements do not apply or when the equipment on order is defined by technical data which conflicts with or omits the marking requirements stated above. Such advice shall list the number of each deficient drawing/specification and a brief description of the deficiency.

4.8.3.3 If the item on order is defined by existing Government technical documentation and such documentation is in conflict with the requirements of this PWS, production of equipment with revised markings shall not proceed until Government approval is received by email from the PCO.

4.8.4 Government Purchase of Product/Technical Data.

4.8.4.1 Specifications. Any equipment specification(s) on this contract procured by the Government shall include a requirement to mark the appropriate items with IUID.

4.8.4.2 Drawings. If the Government is procuring engineering drawings or drawing revisions on this contract, the Contractor shall include IUID marking requirements on each applicable drawing. Location shall be depicted on the pictorial and other details presented in the notes.

4.8.5 Pricing of IUID Requirements.

All efforts required by this PWS and contract, including, but not limited to, the preparation of ECPs or notification of marking deficiencies, serial number data reporting at end of contract and the actual marking of hardware, will be included in the base contract price.

4.9 Requirements for Packaging

Packaging/packing shall be in accordance with ASTM D 3951-10, Standard Practice for Commercial Packaging, Level of Protection (LOP): Commercial, Level of Pack (LPK): Commercial, Quantity Unit Pack (QUP): 001. Marking shall be in accordance with MIL-STD-129R.

4.9.1 Wood Packaging Material (WPM)

Wood Packaging Material (WPM) includes but is not limited to pallets, skids, load boards, pallet collars, wooden boxes, reels, dunnage, crates, frame and cleats. This requirement excludes materials that have undergone a manufacturing process, such as corrugated fiberboard, plywood, particleboard, veneer, and oriented strand board (OSD).

4.9.2 WPM Standards

All WPM shall meet the requirements of International Standards for Phytosanitary Measures (ISPM) Number 15, "Regulations in Wood Packaging Material in International Trade (2009)". DoD shipments inside and outside of the United States shall meet the requirements of ISPM 15 whenever WPM is used to ship DoD cargo.

4.9.3 WPM Quality Control

All WPM shall comply with the official quality control program for heat treatment (HT) or kiln dried heat treatment (KD HT) (IAW) American Lumber Standard Committee (ALSC), Incorporated, Wood Packaging Material Program and WPM Enforcement Regulations (see ALSC WPM).

4.9.4 ALSC Standard

All WPM shall include certification/quality markings IAW the ALSC standard. Markings shall be placed in an unobstructed area that will be readily visible to inspectors. Pallet markings shall be applied to the stringer or block on diagonally opposite sides of the pallet and be contrasting and clearly visible. All containers shall be marked on a side other than the top or bottom, contrasting and clearly visible. All dunnage used in configuring and/or securing the load shall also comply with ISPM 15 and be marked with an ASLC approved DUNNAGE stamp.

4.9.5 Non-compliance

Failure to comply with these requirements may result in refusal, destruction, or treatment of materials at the point of entry. The Government reserves the right to recoup from the Contractor any remediation costs incurred by the Government.

4.9.6 Handling, Storage, Preservation, Packaging and Shipping

The Contractor shall establish, maintain, control and be responsible for the handling, storage, preservation, packaging and shipping to protect the quality of the materials and to prevent damage from loss, deterioration, degradation, or substitution of products.

4.10 Requirements for Safety Engineering

The Contractor shall identify all real and potential hazards associated with the equipment ordered on this contract. This shall include any toxic substance exposure concerns to personnel during operation or maintenance to include transportation or resulting from damage to the equipment. The Contractor shall also identify any special disposal procedures. The identified hazards and special disposal procedures shall be described either in the applicable Technical Manual shipped with each hardware item, or alternatively as a separate insert (in English) included with each hardware item if no Technical Manual is available for the item. All hazards that cannot be eliminated shall be reduced to lowest risk possible. Those hazards that cannot be eliminated shall be presented to the COR via email, providing at a minimum the post and pre-fix hazard severity and hazard probability levels, corrective action and status, prior to government acceptance of the equipment. MIL-STD-882E shall be used in assessing system safety. The Contractor shall affix applicable safety/hazardous precautionary warnings on hardware in English.

4.11 Procurement New Production

The Contractor shall provide written verification to the COR that all delivered hardware is supplied from new production and is of the latest configuration at time of production. The verification shall be submitted with CDRL G001 and shall include model/configuration number, date of production, and serial number of major end items delivered.

4.12 Procurement Contracting Officer

The ACC-APG Procurement Contracting Officer (PCO) is the single point of contact within the government for funds, program direction or approval of progress payments. Only the PCO can approve or direct changes or additions to the contract.

4.13 Common Access Card (CAC) Security Requirements when CACs are Required

If applicable, before CAC issuance, the Contractor employee requires, at a minimum, a favorably adjudicated National Agency Check with Inquiries (NACI) or an equivalent or higher investigation in accordance with Army Directive 2014-05. The Contractor employee will be issued a CAC only if duties involve one of the following: (1) Both physical access to a DoD facility and access, via logon, to DoD networks on-site or remotely; (2) Remote access, via logon, to a DoD network using DoD-approved remote access procedures; or (3) Physical access to multiple DoD facilities or multiple non-DoD federally controlled facilities on behalf of the DoD on a recurring basis for a period of 6 months or more. At the discretion of the sponsoring activity, an initial CAC may be issued based on a favorable review of the Federal Bureau of Investigation (FBI) fingerprint check and a successfully scheduled NACI at the Office of Personnel Management.

4.14 Non-CAC access to a Department of Defense Facility or Installation

Contractor and all associated subcontractors employees shall comply with adjudication standards and procedures using the National Crime Information Center Interstate Identification Index (NCIC-III) and Terrorist Screening Database (TSDB) (Army Directive 2014-05/AR 190-13), applicable installation, facility and area commander installation/facility access and local security policies and procedures (provided by government representative), or, at OCONUS locations, in accordance with status of forces agreements and other theater regulations.

4.15 Travel and Life Support

The Contractor is responsible for all life support of their personnel, transportation and security in the performance of this contract.

The Contractor shall arrange security in conjunction with in-country travel and accommodations, to include risk-based travel, as there are current war operations occurring in regions of Iraq. The Contractor's force protection team shall determine the safety of travel by security and travel information provided from the State Department as well as through their own resources. The Contractor shall give all notices and comply with any applicable Iraqi laws, codes and regulations in connection with this contract.

The Contractor is responsible for obtaining all applicable approvals and country clearances for contractor and subcontractor personnel, to include but not limited to, securing Visas. The Contractor is responsible for securing, lodging, medical support for

their personnel, transportation, and personal security as required. All requirements for Defense Base Act (DBA) Insurance are the responsibility of the Contractor.

The Contractor shall ensure that all travel rules, regulations and requirements regarding travel alerts and visa/passport requirements are met at all times. State department requirements can be found at the following website:

<https://travel.state.gov/content/travel/en/international-travel/International-Travel-Country-Information-Pages/Iraq.html#/>

4.16 Contract Requiring Performance or Delivery in a Foreign Country

DFARS Clause 252.225-7043, Antiterrorism/Force Protection for Defense Contractors Outside the US. The clause shall be used in solicitations and contracts that require performance or delivery in a foreign country. This clause applies to both contingencies and non-contingency support. The key AT requirement is for non-local national contractor personnel to comply with theater clearance requirements and allows the combatant commander to exercise oversight to ensure the contractor's compliance with combatant commander and subordinate task force commander policies and directives.

4.17 Equipment Delivery Documentation

The Contractor shall submit signed DD250s or Wide Area Work Flow (WAWF) documentation with CDRL E008 for each equipment CLIN delivered under this contract. The Contractor shall submit this documentation after WAWF invoices have been approved by the COR.

4.18 Services Delivery Documentation

4.18.1 Certificate of Completion

When the period of performance for services has ended, the Contractor shall submit a Certificate of Completion with CDRL E009 and the template in Appendix C. This documentation shall be submitted after WAWF invoicing has been approved by the COR.

4.18.2 Services Verification

Inspection and acceptance for all services is destination. Since the COR is not located at destination a Services Verification form will have to be vetted by the Contractor prior to invoicing in WAWF for all services delivered under this contract. For each service CLIN which will be invoiced to the Government, the Contractor shall complete a Services Completion Verification form and submit it to the in-country OSC-I case manager for Services Completion Verification prior to invoicing for services in WAWF. The OSC-I case manager will verify with the Iraqi POC that the services were delivered

and sign the Services Completion Verification form on behalf of the Government. Once the Services Completion Verification form has been signed by the OSC-I representative, the Contractor shall send the signed form to the COR and SAMD FMS case manager. Upon receipt of the signed form the COR will approve the invoices in WAWF for the service CLINS which are referenced on the Services Completion Verification form. WAWF invoices submitted for any services delivered under this PWS will not be approved in WAWF without a completed and signed Services Verification Form. The Contractor shall submit the Services Completion Verification Form with CDRL E010 and Appendix D.

4.19 Intellectual Property Clauses

The Contractor shall not purchase commercial software on behalf of the Government (where the Government is a licensee or end user) unless the corresponding commercial software license agreement has been reviewed and approved by the Contracting Officer. The Government shall not accept any commercial software license terms that conflict with federal procurement law or do not satisfy user needs. Commercial Software License terms that are unacceptable to the Government include (but are not limited to) indemnification provisions (and other types of provisions that include unauthorized or unbudgeted funding obligations), attorney's fees provision, state or foreign choice of law/jurisdiction provisions, binding arbitration provisions, and injunctive relief provisions.

The Government's rights in non-commercial technical data and software deliverables shall be governed by DFARS 252.227-7013 and DFARS 252.227-7014, respectively. The Government's rights in commercial technical data deliverables shall be governed by DFARS 252.227-7015. All non-commercial technical data and software deliverables shall be properly marked in accordance with the marking requirements set forth in DFARS 252.227-7013(f) and DFARS 252.227-7014(f). Technical data and software deliverables with non-conforming restrictive markings may be rejected and corrected by the Contractor at the Contractor's expense, in accordance with DFARS 252.227-7014(h)(2).

Appendix A Equipment Specifications

A.1 Phase 1 NOC Equipment

A.1.1 Phase 1 Cisco Nexus 7000 Series

1. N7K-C7009, 9 Slot Chassis, No Power Supply, Includes Fans, 1 each
2. CON-SNT-C7009, SNTC-8X5XNBD 9 Slot Chassis, No Power Supply Incl Fan, 36 Months
3. N7KS2K9-81, Cisco NX-OS Release 8.1 for Nexus 7000 Series, 1 each
4. N7K-MODULE-BLANK, Nexus 7000 - I/O Module Blank Slot Cover, 5 each
5. N7K-SUP-BLANK, Nexus 7000 - Supervisor Blank Slot Cover, 1 each
6. N7K-C7009-F-BLANK, Nexus 7009 Fabric Module Blank, 2 each
7. N7K-C7009-FAB-2, Nexus 7000 - 9 Slot Chassis - 110Gbps/Slot Fabric Module, 3 each
8. N7K-C7009-FD-MB, Nexus 7009 Front Door Kit, 1 each
9. N7K-DP-DCI, N7K or N77 DCI Deployment; For Tracking Only, 1 each
10. N7K-AC-7.5KW-INT, Nexus 7000 - 7.5KW AC Power Supply Module International (cab, 2 each
11. N7K-EL21K9, Nexus 7000 Enhanced layer 2 (includes Fabric Path, RISE), 1 each
12. N7K-LAN1K9, Nexus 7000 LAN Enterprise License (L3 protocols), 1 each
13. N7K-TRS1K9, Nexus 7000 Transport Services License (OTV/LISP), 1 each
14. N7K-ADV1K9, Nexus 7000 Advanced LAN Enterprise License (VDC, CTS ONLY), 1 each
15. N7K-SAN1K9, Nexus 7000 SAN Enterprise License, 1 each
16. N7K-SUP2, Nexus 7000 - Supervisor 2, Includes External 8GB USB Flash, 1 each
17. N7K-USB-8GB, Nexus 7K USB Flash Memory - 8GB (Log Flash), 1 each
18. N7K-F248XT-25E, Nexus 7000 F2-Series 48 Port 1/10GBase-T (RJ-45) Enhanced, 1 each
19. N7K-F348XP-25, Nexus 7000 F3-Series 48 Port 10GbE (SFP+), 1 each
20. SFP-10G-SR, 10GBASE-SR SFP Module, 5 each
21. GLC-LH-SMD, 1000BASE-LX/LH SFP transceiver module, MMF/SMF, 1310nm, DOM, 5 each
22. N7K-FCOE-F348XP=, FCoE License for Nexus 7000 48-port 10G SFP+ (F3), 1 each

A.1.2 Phase 1 Cisco Router for Dynamic Multiport Virtual Private Network (DMVPN)

1. ASR1006, Cisco ASR1006 Chassis, Dual P/S, 1 each
2. CON-SSSNT-ASR1K6, SOLN SUPP 8X5XNBD Cisco ASR1006 Chassis, Dual P/S, 36 months
3. ASR1K-MSE, ASR1k-MultiService Edge incl. MPLS, L2/L3VPN- Tracking only, 1 each
4. MEMUSB-1024FT, 1GB USB Flash Token, 1 each
5. ASR1000-ESP40, Cisco ASR1000 Embedded Services Processor, 40G, 1 each
6. CON-SSSNT-ASR1000E, SOLN SUPP 8X5XNBD Cisco ASR1000 Embedded Services Processor, 1 each
7. ASR1000-SIP-BLANK, Blank Cover ASR1000 SIP, 2 each
8. ASR1000-RP-BLANK, Blank Cover for ASR1000 RP, 1 each
9. ASR1000-ESP-BLANK, Blank Cover for ASR1000 ESP, 1 each
10. ASR1000-RP2, Cisco ASR1000 Route Processor 2, 8GB DRAM, 1 each

11. CON-SSSNT-ASRRP2, SOLN SUPP 8X5XNBD ASR1000 Route Processor 2, 8GB DRAM, Spare, 36 months
12. SASR1KRPUK9-165, Cisco ASR 1000 RP2/RP3 UNIVERSAL, 1 each
13. M-ASR1K-RP2-8GB, Cisco ASR1000 RP2 8GB DRAM, 1 each
14. SLASR1-AES, Cisco ASR 1000 Advanced Enterprise Services License, 1 each
15. CON-SSSNT-SLASR1AM, SOLN SUPP 8X5XNBD Cisco ASR 1000 Advanced Enterprise Service, 36 months
16. M-ASR1K-HDD-80GB, Cisco ASR1000 RP2 80GB HDD, 1 each
17. ASR1000-SIP40, Cisco ASR1000 SPA Interface Processor 40, 1 each
18. CON-SSSNT-1000SP40, SOLN SUPP 8X5XNBD Cisco ASR1000 SPA Interface Processor 40, 36 months
19. SPA-BLANK, Blank Cover for regular SPA, 2 each
20. ASR1006-PWR-AC, Cisco ASR1006 AC Power Supply, 2 each
21. CAB-1900W-EU, Power Cord, 250VAC 16A, Right Angle C19, CEE 7/7 Plug, EU, 2 each
22. FLASR1-IPSEC-RTU, Encryption Right-To-Use Feature Lic for ASR1000 Series, 1 each
23. CON-SSSNT-ASRIPSEC, SOLN SUPP 8X5XNBD Encryption Right-To-Use Feature Lic for AS, 1 each
24. SPA-10X1GE-V2, Cisco 10-Port Gigabit Ethernet Shared Port Adapter, 1 each
25. GLC-ZX-SMD, 1000BASE-ZX SFP transceiver module, SMF, 1550nm, DOM, 4 each
26. GLC-LH-SMD, 1000BASE-LX/LH SFP transceiver module, MMF/SMF, 1310nm, DOM, 1 each
27. ASR1000-SPA, SPA for ASR1000; No Physical Part; For Tracking Only, 1 each
28. FLASR1-FWNAT-RED, Firewall/NAT Stateful Inter-Chassis Redundancy License, 1 each

A.1.3 Phase 1 Cisco Call Manager

1. BE7H-M4-K9, Cisco Business Edition 7000H Svr (M4), Export Restrict. SW, 1 each
2. CON-ECMU-BE7HM40K, SWSS UPGRADES Cisco Business Edition 7000H Server, Exp, 1 each
3. CAB-9K10A-EU, Power Cord, 250VAC 10A CEE 7/7 Plug, EU, 2 each
4. VMW-VS6-FND-K9, Embedded License, Cisco UC Virt. Foundation 6.x (2-socket), 1 each
5. CON-ECMU-VMWVS6FN, SWSS UPGRADES Embedded License, Cisco UC Virt. Foundat, 1 each
6. CIT2-MRAID12G-4GB, Cisco 12Gbps SAS 4GB FBWC Cache module (Raid 0/1/5/6), 1 each
7. CIT2-PSU2V2-1200W, 1200W V2 AC Power Supply for 2U C-Series Servers, 2each
8. CIT2-PCI-1B-240M4, Right PCIe Riser Board (Riser 1) (3 x8) for 6 PCI slots, 1 each
9. CIT2-PCIE-IRJ45, Intel i350 Quad Port 1Gb Adapter, 2 each
10. R2XX-RAID5, Enable RAID 5 Setting, 1 each
11. CIT2-HD300G15K12G, 300GB 12G SAS 15K RPM SFF HDD, 20 each
12. CIT2-CPU-E52660D, 2.60 GHz E5-2660 v3/105W 10C/25MB Cache/DDR4 2133MHz, 2 each
13. CIT2-MRAID12G, Cisco 12G SAS Modular Raid Controller, 1 each
14. CIT2-MR-1X162RV-A, 16GB DDR4-2400-MHz RDIMM/PC4-19200/dual rank/x4/1.2v, 8 each

A.1.4 Phase 1 Internal Network Firewall

1. FPR4110-BUN, Cisco Firepower 4110 Master Bundle, 1 each
2. FPR4110-NGFW-K9, Cisco Firepower 4110 NGFW Appliance, 1U, 2 x Net Mod Bays, 1 each

3. CON-SNT-FPR4110N, SNTC-8X5XNBD Cisco Firepower 4110, 36 months
4. FPR4K-PWR-AC-1100, Firepower 4000 Series 1100W AC Power Supply, 2 each
5. CP-PWR-CORD-UK, Power Cord, United Kingdom, 2 each
6. SF-FXOS4K-2.1-K9, Firepower Extensible Operating System (FXOS) for FPR4K, 1 each
7. SF-FPR-TD6.2-K9, Cisco Firepower Threat Defense software v6.2, 1 each
8. FPR4K-SSD200, Firepower 4000 Series SSD for FPR-4110/4120, 1 each
9. FPR4K-SSD-BBLKD, Firepower 4000 Series SSD Slot Carrier, 1 each
10. GLC-TE, 1000BASE-T SFP transceiver module for Category 5 copper wire, 1 each
11. FPR4K-ACC-KIT, FPR4K Hardware Accessory Kit (Rack Mounts, Cables), 1 each
12. FPR4K-FAN, Firepower 4000 Series Fan, 6 each
13. FPR4K-PWR-AC-1100, Firepower 4000 Series 1100W AC Power Supply, 1 each
14. FPR4K-RACK-MNT, Firepower 4000 Series Rack Mount Kit, 1 each
15. FPR4K-NM-BLANK, Firepower 4000 Series Network Module Blank Slot Cover, 1 each
16. FPR4K-NM-BLANK, Firepower 4000 Series Network Module Blank Slot Cover, 1 each
17. L-FPR4110T-T=, Cisco FPR4110 Threat Defense Threat Protection License, 1 each
18. L-FPR4110T-T-3Y, Cisco FPR4110 Threat Defense Threat Protection 3Y Subs, 1 each

A.1.5 Phase 1 External Network Firewall

1. FPR2110-BUN, Cisco Firepower 2110 Master Bundle, 1 each
2. FPR2110-NGFW-K9, Cisco Firepower 2110 NGFW Appliance, 1U, 1 each
3. CON-SNT-FPR21FWN, SNTC-8X5XNBD Cisco Firepower 2110 NGFW Appliance, 1U, 36 months
4. CAB-ACU, AC Power Cord (UK), C13, BS 1363, 2.5m, 2 each
5. SF-F2K-TD6.2.1-K9, Cisco Firepower Threat Defense software v6.2.1 for FPR2100, 1 each
6. GLC-SX-MMD, 1000BASE-SX SFP transceiver module, MMF, 850nm, DOM, 4 each
7. FPR2K-SSD100, Firepower 2000 Series SSD for FPR-2110/2120, 1 each
8. FPR2K-SSD-BBLKD, Firepower 2000 Series SSD Slot Carrier, 1 each
9. L-FPR2110T-TM=, Cisco FPR2110 Threat Defense Threat and Malware License, 1 each
10. L-FPR2110T-TM-3Y, Cisco FPR2110 Threat Defense Threat and Malware 3Y Subs, 1 each

A.1.6 Phase 1 Cisco Firewall Management Console

1. FMC1000-K9, Cisco Firepower Management Center 1000 Chassis, 1 each
2. CON-SNT-FMC1000K, SNTC-8X5XNBD Cisco Firepower Management Center 1000 C, 36 months
3. FMC-PWR-AC-770W, Cisco AC Power Supply 770W for FMC, 2 each
4. CAB-9K10A-UK, Power Cord, 250VAC 10A BS1363 Plug (13 A fuse), UK, 2 each
5. SF-FMC-6.2-K9, Cisco Firepower Management Center Software v6.2, 1 each
6. FMC-MRAID12G, Cisco FMC 12G SAS Modular Raid Controller, 1 each
7. FMC-SD-32G-S, Cisco FMC 32GB SD Card Module, 1 each
8. FMC-MEM-8GB, Cisco 8GB DDR4-2400-MHz RDIMM/PC4-19200/single rank/x4/1.2v, 4 each
9. FMC1K-HDD-900G, Cisco FMC 900GB 12GB 10K 2.5" SAS, 2 each
10. FMC-CPU-E52620E, Cisco 2.10 GHz E5-2620 v4/85W 8C/20MB Cache/DDR4 2133MHz, 1 each
11. R2XX-RAID1, Enable RAID 1 Setting, 1 each

A.1.7 Phase 1 Cisco Email Security Appliance

1. ESA-C690-K9, ESA C690 Email Security Appliance with Software, 1 each
2. CON-SNT-C690, SMARTNET 8X5XNBD ESA C690 Email Security Appliance with S, 36 months
3. CCS-PWR-ACV2-650W, Cisco Content Sec AC Power Supply 650W for x90 Appliance, 2 each
4. CAB-9K10A-EU, Power Cord, 250VAC 10A CEE 7/7 Plug, EU, 2 each
5. SF-ESA-9.7.2-K9, ESA Async OS v9.7.2, 1 each
6. CCS-CPU-E5-2620D, Content Sec 2.40 GHz E5-2620 v3/85W 6C/15MB Cache, 2 each
7. CCS-MRAID-12G-1G, Cisco Content Sec 12Gbps SAS 1GB FBWC Cache module, 1 each
8. CCS-MRAID-12G, Cisco Content Sec 12G SAS Modular Raid Controller, 1 each
9. CCS-HDD-600GB, Content Sec 600GB 12G SAS 10K RPM SFF HDD (4K), 4 each
10. CCS-MLOM-I-RJ45, Cisco Content Sec i350 MLOM NIC, 1 each
11. CCS-MEM-8GB, Content Sec 8GB DDR4-2133-MHz RDIMM/PC4-17000, 4 each
12. CCS-HDD-BLNK, Content Sec 2.5 inch HDD blanking panel, 12 each
13. ESA-BOUNCE-LIC, ESA Bounce Verification License, 1 each
14. CCS-MESSAGING-LIC, Cisco Content Security Messaging License, 1 each
15. ESA-ESP-LIC=, ESA Premium SW Bundle (AS, AV, OF, DLP, ENC) License, 5000 each
16. ESA-ESP-1Y-S8, Premium SW Bundle(AS+AV+OF+ENC+DLP) 2YR Lic, 5K-9999 Users, 5000 each

A.1.8 Phase 1 Cisco Web Security Appliance

1. WSA-S690-K9, WSA S690 Web Security Appliance with Software, 1 each
2. CON-SNT-S690, SMARTNET 8X5XNBD WSA S690 Web Security Appliance with Sof, 36 months
3. CCS-PWR-ACV2-650W, Cisco Content Sec AC Power Supply 650W for x90 Appliance, 2 each
4. CAB-9K10A-EU, Power Cord, 250VAC 10A CEE 7/7 Plug, EU, 2 each
5. SF-WSA-9.1.1-K9, WSA Async OS v9.1.1, 1 each
6. CCS-HDD-BLNK, Content Sec 2.5 inch HDD blanking panel, 8 each
7. CCS-MEM-8GB, Content Sec 8GB DDR4-2133-MHz RDIMM/PC4-17000, 8 each
8. CCS-HDD-600GB, Content Sec 600GB 12G SAS 10K RPM SFF HDD (4K), 8 each
9. CCS-MLOM-I-RJ45, Cisco Content Sec i350 MLOM NIC, 1 each
10. CCS-MRAID-12G-1G, Cisco Content Sec 12Gbps SAS 1GB FBWC Cache module, 1 each
11. CCS-MRAID-12G, Cisco Content Sec 12G SAS Modular Raid Controller, 1 each
12. CCS-CPU-E5-2680D, Content Sec 2.50 GHz E5-2680 v3/120W 12C/30MB Cache, 2 each
13. WSA-L4TM-LIC, WSA L4 Traffic Monitoring License, 1 each
14. WSA-CASM-LIC, WSA Cisco AnyConnect Secure Mobility License, 1 each
15. WSA-HTTPS-LIC, WSA HTTPS Inspection License, 1 each
16. WSA-PROXY-LIC, WSA Proxy and Dynamic Vectoring and Scanning License, 1 each
17. WSA-WSP-LIC=, Web Premium SW Bundle (WREP+WUC+AMAL) Licenses, 5000 each
18. WSA-WSP-1Y-S8, Web Premium SW Bundle (WREP+WUC+AMAL) 1YR, 5K-9999 Users, 5000 each

A.1.9 Phase 1 Cisco Identity Services Engine

1. SNS-3595-K9, Large Secure Server for ISE Applications
2. R-ISE-VM-K9=, Cisco ISE virtual machine image (eDelivery)

3. L-ISE-BSE-25K=, Cisco ISE 25,000 Endpoint Base License
4. L-ISE-PLS-S-5K=, Cisco ISE 5-Yr 5K Endpoint Plus License

A.1.10 Phase 1 Cisco Unified Computing System

1. UCS-SP-FI48-2X, UCS SP Select 6248 FI w/ 12p LIC 2Pk, 1 each
2. UCS-SP-FI48P, UCS SP Select 6248 FI w/ 12p LIC, 2 each
3. CAB-9K10A-UK, Power Cord, 250VAC 10A BS1363 Plug (13 A fuse), UK, 4 each
4. SFP-10G-SR, 10GBASE-SR SFP Module, 8 each
5. SFP-H10GB-CU3M, 10GBASE-CU SFP+ Cable 3 Meter, 8 each
6. DS-SFP-FC8G-SW, 8 Gbps Fiber Channel SW SFP+, LC, 8 each
7. UCS-FI-DL2, UCS 6248 Layer 2 Daughter Card, 2 each
8. N10-MGT014, UCS Manager v3.1, 2 each
9. UCS-FAN-6248UP, UCS 6248UP Fan Module, 4 each
10. UCS-ACC-6248UP, UCS 6248UP Chassis Accessory Kit, 2 each
11. UCS-BLKE-6200, UCS 6200 Series Expansion Module Blank, 2 each
12. UCS-PSU-6248UP-AC, UCS 6248UP Power Supply/100-240VAC, 4 each
13. UCS-SP-5108-AC, UCS SP Select 5108 AC2 Chassis w/2208 IO, 4x SFP cable 3m, 1 each
14. CON-SNT-5108AC, SMARTNET 8X5XNBD UCS SP Select 5108 AC2 Chassis w/2208 IO, 4, 36 months
15. CAB-BS1363-C19-UK, BS-1363 to IEC-C19 14ft UK, 4 each
16. N20-FAN5, Fan module for UCS 5108, 8 each
17. SFP-H10GB-CU3M, 10GBASE-CU SFP+ Cable 3 Meter, 4 each
18. UCSB-PSU-2500ACDV, 2500W Platinum AC Hot Plug Power Supply – DV, 4 each
19. UCSB-5108-PKG-HW, UCS 5108 Packaging for chassis with half width blades, 1 each
20. N01-UAC1, Single phase AC power module for UCS 5108, 1 each
21. UCS-IOM-2208XP, UCS 2208XP I/O Module (8 External, 32 Internal 10Gb Ports), 2 each
22. N20-CBLKB1, Blade slot blanking panel for UCS 5108/single slot, 8 each
23. N20-CAK, Accessory kit for UCS 5108 Blade Server Chassis, 1 each
24. N20-FW014, UCS 5108 Blade Chassis FW Package 3.1, 1 each
25. UCS-SP-B200M4-BC2, UCS SPSelect B200M4 Hi-Core2w/2xE52697v4,8x32GB,VIC1340, 8 each
26. UCS-SP-B200M4-B-C2, B200M4Hi-Core2w/2xE52697v4,8x32GB,VIC1340, 8 each
27. CON-SNT-B200BC2, SNTC 8X5XNBD, Not sold standaloneB200M4Hi-Core2w/2xE52697v4, 36 Months
28. UCS-CPU-E52697E, 2.30 GHz E5-2697 v4/145W 18C/45MB Cache/DDR4 2400MHz, 16 each
29. UCS-MR-1X322RV-A, 32GB DDR4-2400-MHz RDIMM/PC4-19200/dual rank/x4/1.2v, 64 each
30. UCSB-MRAID12G, Cisco Flex Storage 12G SAS RAID controller with Drive bays, 8 each
31. UCSB-MLOM-40G-03, Cisco UCS VIC 1340 modular LOM for blade servers, 8 each
32. UCSB-LSTOR-BK, Flex Storage blanking panels w/o controller, w/o drive bays, 16 each
33. UCS-M4-V4-LBL, Cisco M4 - v4 CPU asset tab ID label (Auto-Expand), 8 each
34. UCSB-HS-EP-M4-F, CPU Heat Sink for UCS B200 M4/B420 M4 (Front), 8 each
35. UCSB-HS-EP-M4-R, CPU Heat Sink for UCS B200 M4/B420 M4 (Rear), 8 each
36. UCS-HD12TB10K12G=, 1.2 TB 12G SAS 10K RPM SFF HDD, 16 each
37. VMW-VCS-STD-1A=, VMware vCenter 6.5 Server Standard, 2 yr support required, 1 each

38. CON-ISV1-VCXSTD1A, VCenter Server STD for vSphere 2-Inst; ANNUAL List 2-YR, 1 each
39. UCS-VMW-TERMS, Acceptance of Terms, Standalone VMW License for UCS Servers, 1 each
40. VMW-VSP-STD-1A=, VMware vSphere 6.5 enterprise plus (1 CPU), 2-yr, 16 each
41. CON-ISV1-VSXSTD1A, VSphere Standard for 1 CPU; ANNUAL List 2 year, 16 each
42. UCS-VMW-TERMS, Acceptance of Terms, Standalone VMW License for UCS Servers, 16 each

A.1.11 Phase 1 EMC Storage Server

1. VNXB56DP25, VNX5600 DPE 25X2.5" DRIVE SLOTS-EMC RA, 1 each
2. VNXBRACK-40U, VNXB 40U RACK WITH FRONT PANEL, 1 each
3. VNXBDPERES, VNXB 4U SPACE RES FOR FILE UPG-EMC RACK, 1 each
4. VNXB6GSDAE15, VNXB 15X3.5 6G SAS EXP DAE-EMC RACK, 6 each
5. VNXB6GSDAE25, VNXB 25X2.5 6G SAS EXP DAE-EMC RACK, 4 each
6. VNXB6GSDAE25P, VNXB 25X2.5 6G SAS PRI DAE-EMC RACK, 1 each
7. V4-2S10-600, VNX 600GB 10K SAS 25X2.5 DPE/DAE, 99 each
8. V4-2S6F-200, VNX 200GB SSD 25X2.5 DPE/DAE, 32 each
9. V4-VS07-030, VNX 3TB NL SAS 15X3.5 DAE, 83 each
10. V-V4-260010, VNX 600GB 10K VAULT 25X2.5 DPE/DAE, 1 each
11. FLV42S6F-200, VNX 200GB FAST CACHE 25X2.5 DPE/DAE, 9 each
12. VBPW40U-IEC3, CAB QUAD POWER CORD IEC309, 1 each
13. VNX56-KIT, VNX5600 Documentation Kit=IC, 1 each
14. VSPBMXGI2A, VNXB 2 PT OP 10G ISCSI IO MOD PR-SFP, 2 each
15. ESRG-GW-200, EMC SECURE REMOTE SUPPORT GATEWAY CLIENT, 1 each
16. RP-LS, RECOVERPOINT LICENSE SOLUTION, 1 each
17. 456-104-616, RP/SE LOC FOR LPS V55 V56=IC, 1 each
18. VNXBOECAPT, VNXB OE PER TB HI CAPACITY, 249 each
19. VNXBOEPERFTB, VNXB OE PER TB PERFORMANCE, 67 each
20. FSTS-VNX5600, VNX5600 FAST Suite=IC, 1 each
21. VNXOE-5600, VNX5600 Operating Environment, 1 each
22. LPS-VNX5600, VNX5600 Local Protection Suite=IC, 1 each
23. UNISB-VNX5600, VNX5600 Unisphere Block Suite=IC, 1 each

A.1.12 Phase 1 DC Integrated Information Technology Module

Prefabricated Data Center SmartShelter Container All-in-One IT Module with the following specifications:

50kW 400V/50Hz power

12 Racks

Fancoil DX

Busway

Integrated HVAC System

A.1.13 Phase 1 Generator

Caterpillar C4.4 (50Hz) Generator with a Maximum rating of 110 KVA

A.1.14 Phase 1 Automatic Transfer Switch

Automatic Transfer Switch for failover

A.1.15 Phase 1 Power Cable Feeder

Power Cable Feeder for the Main Data Center

A.2 Phase 2 NOC Equipment

A.2.1 Phase 2 Cisco Nexus 7000 Series

1. N7K-C7009, 9 Slot Chassis, No Power Supply, Includes Fans, 1 each
2. CON-SNT-C7009, SNTC-8X5XNBD 9 Slot Chassis, No Power Supply Incl Fan, 36 months
3. N7KS2K9-81, Cisco NX-OS Release 8.1 for Nexus 7000 Series, 1 each
4. N7K-MODULE-BLANK, Nexus 7000 - I/O Module Blank Slot Cover, 1 each
5. N7K-SUP-BLANK, Nexus 7000 - Supervisor Blank Slot Cover, 1 each
6. N7K-C7009-F-BLANK, Nexus 7009 Fabric Module Blank, 2 each
7. N7K-C7009-FAB-2, Nexus 7000 - 9 Slot Chassis - 110Gbps/Slot Fabric Module, 3 each
8. N7K-C7009-FD-MB, Nexus 7009 Front Door Kit, 1 each
9. N7K-DP-DCI, N7K or N77 DCI Deployment; For Tracking Only, 1 each
10. N7K-AC-7.5KW-INT, Nexus 7000 - 7.5KW AC Power Supply Module International (cab), 2 each
11. N7K-EL21K9, Nexus 7000 Enhanced layer 2 (includes Fabric Path, RISE), 1 each
12. N7K-LAN1K9, Nexus 7000 LAN Enterprise License (L3 protocols), 1 each
13. N7K-TRS1K9, Nexus 7000 Transport Services License (OTV/LISP), 1 each
14. N7K-ADV1K9, Nexus 7000 Advanced LAN Enterprise License (VDC, CTS ONLY), 1 each
15. N7K-SAN1K9, Nexus 7000 SAN Enterprise License, 1 each
16. N7K-SUP2, Nexus 7000 - Supervisor 2, Includes External 8GB USB Flash, 1 each
17. N7K-USB-8GB, Nexus 7K USB Flash Memory - 8GB (Log Flash), 1 each
18. N7K-F248XT-25E, Nexus 7000 F2-Series 48 Port 1/10GBase-T (RJ-45) Enhanced, 1 each
19. N7K-F348XP-25, Nexus 7000 F3-Series 48 Port 10GbE (SFP+), 1 each
20. SFP-10G-SR, 10GBASE-SR SFP Module, 1 each
21. GLC-LH-SMD, 1000BASE-LX/LH SFP transceiver module, MMF/SMF, 1310nm, DOM, 1 each
22. N7K-FCOE-F348XP=, FCoE License for Nexus 7000 48-port 10G SFP+ (F3), 1 each

A.2.2 Phase 2 Cisco Router for Dynamic Multiport Virtual Private Network (DMVPN)

1. ASR1006, Cisco ASR1006 Chassis, Dual P/S, 1 each
2. CON-SSSNT-ASR1K6, SOLN SUPP 8X5XNBD Cisco ASR1006 Chassis, Dual P/S, 36 months
3. ASR1K-MSE, ASR1k-MultiService Edge incl. MPLS, L2/L3VPN- Tracking only, 1 each
4. MEMUSB-1024FT, 1GB USB Flash Token, 1 each
5. ASR1000-ESP40, Cisco ASR1000 Embedded Services Processor, 40G, 1 each
6. CON-SSSNT-ASR1000E, SOLN SUPP 8X5XNBD Cisco ASR1000 Embedded Services Processor, 36 months
7. ASR1000-SIP-BLANK, Blank Cover ASR1000 SIP, 1 each
8. ASR1000-RP-BLANK, Blank Cover for ASR1000 RP, 1 each
9. ASR1000-ESP-BLANK, Blank Cover for ASR1000 ESP, 1 each
10. ASR1000-RP2, Cisco ASR1000 Route Processor 2, 8GB DRAM, 1 each
11. CON-SSSNT-ASRRP2, SOLN SUPP 8X5XNBD ASR1000 Route Processor 2, 8GB DRAM, Spare, 36 months

12. SASR1KRPUK9-165, Cisco ASR 1000 RP2/RP3 UNIVERSAL, 1 each
13. M-ASR1K-RP2-8GB, Cisco ASR1000 RP2 8GB DRAM, 1 each
14. SLASR1-AES, Cisco ASR 1000 Advanced Enterprise Services License, 1 each
15. CON-SSSNT-SLASR1AM, SOLN SUPP 8X5XNBD Cisco ASR 1000 Advanced Enterprise Service, 1 each
16. M-ASR1K-HDD-80GB, Cisco ASR1000 RP2 80GB HDD, 1 each
17. ASR1000-SIP40, Cisco ASR1000 SPA Interface Processor 40, 1 each
18. CON-SSSNT-1000SP40, SOLN SUPP 8X5XNBD Cisco ASR1000 SPA Interface Processor 40, 36 months
19. SPA-BLANK, Blank Cover for regular SPA, 2 each
20. ASR1006-PWR-AC, Cisco ASR1006 AC Power Supply, 2 each
21. CAB-1900W-EU, Power Cord, 250VAC 16A, Right Angle C19, CEE 7/7 Plug, EU, 2 each
22. FLASR1-IPSEC-RTU, Encryption Right-To-Use Feature Lic for ASR1000 Series, 1 each
23. CON-SSSNT-ASRIPSEC, SOLN SUPP 8X5XNBD Encryption Right-To-Use Feature Lic for AS, 36 months
24. SPA-10X1GE-V2, Cisco 10-Port Gigabit Ethernet Shared Port Adapter, 1 each
25. GLC-ZX-SMD, 1000BASE-ZX SFP transceiver module, SMF, 1550nm, DOM, 1 each
26. GLC-LH-SMD, 1000BASE-LX/LH SFP transceiver module, MMF/SMF, 1310nm, DOM, 1 each
27. ASR1000-SPA, SPA for ASR1000; No Physical Part; For Tracking Only, 1 each
28. FLASR1-FWNAT-RED, Firewall/NAT Stateful Inter-Chassis Redundancy License, 1 each

A.2.3 Phase 2 Internal Network Firewall

1. FPR4110-BUN, Cisco Firepower 4110 Master Bundle, 1 each
2. FPR4110-NGFW-K9, Cisco Firepower 4110 NGFW Appliance, 1U, 2 x Net Mod Bays, 1 each
3. CON-SNT-FPR4110N, SNTC-8X5XNBD Cisco Firepower 4110, 36 months
4. FPR4K-PWR-AC-1100, Firepower 4000 Series 1100W AC Power Supply, 2 each
5. CP-PWR-CORD-UK, Power Cord, United Kingdom, 2 each
6. SF-FXOS4K-2.1-K9, Firepower Extensible Operating System (FXOS) for FPR4K, 1 each
7. SF-FPR-TD6.2-K9, Cisco Firepower Threat Defense software v6.2, 1 each
8. FPR4K-SSD200, Firepower 4000 Series SSD for FPR-4110/4120, 1 each
9. FPR4K-SSD-BBLKD, Firepower 4000 Series SSD Slot Carrier, 1 each
10. GLC-TE, 1000BASE-T SFP transceiver module for Category 5 copper wire, 1 each
11. FPR4K-ACC-KIT, FPR4K Hardware Accessory Kit (Rack Mounts, Cables), 1 each
12. FPR4K-FAN, Firepower 4000 Series Fan, 6 each
13. FPR4K-PWR-AC-1100, Firepower 4000 Series 1100W AC Power Supply, 2 each
14. FPR4K-RACK-MNT, Firepower 4000 Series Rack Mount Kit, 1 each
15. FPR4K-NM-BLANK, Firepower 4000 Series Network Module Blank Slot Cover, 1 each
16. FPR4K-NM-BLANK, Firepower 4000 Series Network Module Blank Slot Cover, 1 each
17. L-FPR4110T-T=, Cisco FPR4110 Threat Defense Threat Protection License, 1 each
18. L-FPR4110T-T-3Y, Cisco FPR4110 Threat Defense Threat Protection 3Y Subs, 1 each

A.2.4 Phase 2 External Network Firewall

1. FPR2110-BUN, Cisco Firepower 2110 Master Bundle, 1 each

2. FPR2110-NGFW-K9, Cisco Firepower 2110 NGFW Appliance, 1U, 1 each
3. CON-SNT-FPR21FWN, SNTC-8X5XNBD Cisco Firepower 2110 NGFW Appliance, 1U, 36 months
4. CAB-ACU, AC Power Cord (UK), C13, BS 1363, 2.5m, 2 each
5. SF-F2K-TD6.2.1-K9, Cisco Firepower Threat Defense software v6.2.1 for FPR2100, 1 each
6. GLC-SX-MMD, 1000BASE-SX SFP transceiver module, MMF, 850nm, DOM, 4 each
7. FPR2K-SSD100, Firepower 2000 Series SSD for FPR-2110/2120, 1 each
8. FPR2K-SSD-BBLKD, Firepower 2000 Series SSD Slot Carrier, 1 each
9. L-FPR2110T-TM=, Cisco FPR2110 Threat Defense Threat and Malware License, 1 each
10. L-FPR2110T-TM-3Y, Cisco FPR2110 Threat Defense Threat and Malware 3Y Subs, 1 each

A.2.5 Phase 2 Cisco Firewall Management Console

1. FMC1000-K9, Cisco Firepower Management Center 1000 Chassis, 1 each
2. CON-SNT-FMC1000K, SNTC-8X5XNBD Cisco Firepower Management Center 1000 C, 36 months
3. FMC-PWR-AC-770W, Cisco AC Power Supply 770W for FMC, 2 each
4. CAB-9K10A-UK, Power Cord, 250VAC 10A BS1363 Plug (13 A fuse), UK, 2 each
5. SF-FMC-6.2-K9, Cisco Firepower Management Center Software v6.2, 1 each
6. FMC-MRAID12G, Cisco FMC 12G SAS Modular Raid Controller, 1 each
7. FMC-SD-32G-S, Cisco FMC 32GB SD Card Module, 1 each
8. FMC-MEM-8GB, Cisco 8GB DDR4-2400-MHz RDIMM/PC4-19200/single rank/x4/1.2v, 4 each
9. FMC1K-HDD-900G, Cisco FMC 900GB 12GB 10K 2.5" SAS , 2 each
10. FMC-CPU-E52620E, Cisco 2.10 GHz E5-2620 v4/85W 8C/20MB Cache/DDR4 2133MHz, 1 each
11. R2XX-RAID1, Enable RAID 1 Setting, 1 each

A.2.6 Phase 2 Cisco Email Security Appliance

1. ESA-C690-K9, ESA C690 Email Security Appliance with Software, 1 each
2. CON-SNT-C690, SMARTNET 8X5XNBD ESA C690 Email Security Appliance with S, 36 months
3. CCS-PWR-ACV2-650W, Cisco Content Sec AC Power Supply 650W for x90 Appliance, 2 each
4. CAB-9K10A-EU, Power Cord, 250VAC 10A CEE 7/7 Plug, EU, 2 each
5. SF-ESA-9.7.2-K9, ESA Async OS v9.7.2, 1 each
6. CCS-CPU-E5-2620D, Content Sec 2.40 GHz E5-2620 v3/85W 6C/15MB Cache, 2 each
7. CCS-MRAID-12G-1G, Cisco Content Sec 12Gbps SAS 1GB FBWC Cache module, 1 each
8. CCS-MRAID-12G, Cisco Content Sec 12G SAS Modular Raid Controller, 1 each
9. CCS-HDD-600GB, Content Sec 600GB 12G SAS 10K RPM SFF HDD (4K), 4 each
10. CCS-MLOM-I-RJ45, Cisco Content Sec i350 MLOM NIC, 1 each
11. CCS-MEM-8GB, Content Sec 8GB DDR4-2133-MHz RDIMM/PC4-17000, 4 each
12. CCS-HDD-BLNK, Content Sec 2.5 inch HDD blanking panel, 12 each
13. ESA-BOUNCE-LIC, ESA Bounce Verification License, 1 each
14. CCS-MESSAGING-LIC, Cisco Content Security Messaging License, 1 each

A.2.7 Phase 2 Cisco Web Security Appliance

1. WSA-S690-K9, WSA S690 Web Security Appliance with Software, 1 each

2. CON-SNT-S690, SMARTNET 8X5XNBD WSA S690 Web Security Appliance with Sof, 36 months
3. CCS-PWR-ACV2-650W, Cisco Content Sec AC Power Supply 650W for x90 Appliance, 2 each
4. CAB-9K10A-EU, Power Cord, 250VAC 10A CEE 7/7 Plug, EU, 2 each
5. SF-WSA-9.1.1-K9, WSA Async OS v9.1.1, 1 each
6. CCS-HDD-BLNK, Content Sec 2.5 inch HDD blanking panel, 8 each
7. CCS-MEM-8GB, Content Sec 8GB DDR4-2133-MHz RDIMM/PC4-17000, 8 each
8. CCS-HDD-600GB, Content Sec 600GB 12G SAS 10K RPM SFF HDD (4K), 8 each
9. CCS-MLOM-I-RJ45, Cisco Content Sec i350 MLOM NIC, 1 each
10. CCS-MRAID-12G-1G, Cisco Content Sec 12Gbps SAS 1GB FBWC Cache module, 1 each
11. CCS-MRAID-12G, Cisco Content Sec 12G SAS Modular Raid Controller, 1 each
12. CCS-CPU-E5-2680D, Content Sec 2.50 GHz E5-2680 v3/120W 12C/30MB Cache, 2 each
13. WSA-L4TM-LIC, WSA L4 Traffic Monitoring License, 1 each
14. WSA-CASM-LIC, WSA Cisco AnyConnect Secure Mobility License, 1 each
15. WSA-HTTPS-LIC, WSA HTTPS Inspection License, 1 each
16. WSA-PROXY-LIC, WSA Proxy and Dynamic Vectoring and Scanning License, 1 each

A.2.8 Phase 2 Cisco Identity Services Engine

1. SNS-3595-K9, Large Secure Server for ISE Applications
2. R-ISE-VM-K9=, Cisco ISE virtual machine image (eDelivery)
3. L-ISE-BSE-25K=, Cisco ISE 25,000 Endpoint Base License
4. L-ISE-PLS-S-5K=, Cisco ISE 5-Yr 5K Endpoint Plus License

A.2.9 Phase 2 Cisco Unified Computing System

1. UCS-SP-FI48-2X, UCS SP Select 6248 FI w/ 12p LIC 2Pk, 1 each
2. UCS-SP-FI48P, UCS SP Select 6248 FI w/ 12p LIC, 2 each
3. CAB-9K10A-UK, Power Cord, 250VAC 10A BS1363 Plug (13 A fuse), UK, 4 each
4. SFP-10G-SR, 10GBASE-SR SFP Module, 8 each
5. SFP-H10GB-CU3M, 10GBASE-CU SFP+ Cable 3 Meter, 8 each
6. DS-SFP-FC8G-SW, 8 Gbps Fiber Channel SW SFP+, LC, 8 each
7. UCS-FI-DL2, UCS 6248 Layer 2 Daughter Card, 2 each
8. N10-MGT014, UCS Manager v3.1, 2 each
9. UCS-FAN-6248UP, UCS 6248UP Fan Module, 4 each
10. UCS-ACC-6248UP, UCS 6248UP Chassis Accessory Kit, 2 each
11. UCS-BLKE-6200, UCS 6200 Series Expansion Module Blank, 2 each
12. UCS-PSU-6248UP-AC, UCS 6248UP Power Supply/100-240VAC, 4 each
13. UCS-SP-5108-AC, UCS SP Select 5108 AC2 Chassis w/2208 IO, 4x SFP cable 3m, 1 each
14. CON-SNT-5108AC, SMARTNET 8X5XNBD UCS SP Select 5108 AC2 Chassis w/2208 IO, 4, 36 months
15. CAB-BS1363-C19-UK, BS-1363 to IEC-C19 14ft UK, 4 each
16. N20-FAN5, Fan module for UCS 5108, 8 each
17. SFP-H10GB-CU3M, 10GBASE-CU SFP+ Cable 3 Meter, 4 each
18. UCSB-PSU-2500ACDV, 2500W Platinum AC Hot Plug Power Supply – DV, 4 each

19. UCSB-5108-PKG-HW, UCS 5108 Packaging for chassis with half width blades, 1 each
20. N01-UAC1, Single phase AC power module for UCS 5108 , 1 each
21. UCS-IOM-2208XP, UCS 2208XP I/O Module (8 External, 32 Internal 10Gb Ports), 2 each
22. N20-CBLKB1, Blade slot blanking panel for UCS 5108/single slot, 8 each
23. N20-CAK, Accessory kit for UCS 5108 Blade Server Chassis, 1 each
24. N20-FW014, UCS 5108 Blade Chassis FW Package 3.1, 1 each
25. UCS-SP-B200M4-BC2, UCS SPSelect B200M4 Hi-Core2w/2xE52697v4,8x32GB,VIC1340, 8 each
26. UCS-SP-B200M4-B-C2, B200M4Hi-Core2w/2xE52697v4,8x32GB,VIC1340, 8 each
27. CON-SNT-B200BC2, SNTC 8X5XNBD, Not sold standaloneB200M4Hi-Core2w/2xE52697v4, 36 Months
28. UCS-CPU-E52697E, 2.30 GHz E5-2697 v4/145W 18C/45MB Cache/DDR4 2400MHz, 16 each
29. UCS-MR-1X322RV-A, 32GB DDR4-2400-MHz RDIMM/PC4-19200/dual rank/x4/1.2v, 64 each
30. UCSB-MRAID12G, Cisco Flex Storage 12G SAS RAID controller with Drive bays, 8 each
31. UCSB-MLOM-40G-03, Cisco UCS VIC 1340 modular LOM for blade servers, 8 each
32. UCSB-LSTOR-BK, Flex Storage blanking panels w/o controller, w/o drive bays, 16 each
33. UCS-M4-V4-LBL, Cisco M4 - v4 CPU asset tab ID label (Auto-Expand), 8 each
34. UCSB-HS-EP-M4-F, CPU Heat Sink for UCS B200 M4/B420 M4 (Front), 8 each
35. UCSB-HS-EP-M4-R, CPU Heat Sink for UCS B200 M4/B420 M4 (Rear), 8 each
36. UCS-HD12TB10K12G=, 1.2 TB 12G SAS 10K RPM SFF HDD, 16 each
37. VMW-VCS-STD-1A=, VMware vCenter 6.5 Server Standard, 2 yr support required , 1 each
38. CON-ISV1-VCXSTD1A, VCenter Server STD for vSphere 2-Inst; ANNUAL List 2-YR, 1 each
39. UCS-VMW-TERMS, Acceptance of Terms, Standalone VMW License for UCS Servers, 1 each
40. VMW-VSP-STD-1A=, VMware vSphere 6.5 enterprise plus (1 CPU), 2-yr, 16 each
41. CON-ISV1-VSXSTD1A, VSphere Standard for 1 CPU; ANNUAL List 2 year, 16 each
42. UCS-VMW-TERMS, Acceptance of Terms, Standalone VMW License for UCS Servers, 16 each

A.2.10 Phase 2 EMC Storage Server

1. VNXB56DP25, VNX5600 DPE 25X2.5" DRIVE SLOTS-EMC RA, 1 each
2. VNXBRACK-40U, VNXB 40U RACK WITH FRONT PANEL, 1 each
3. VNXBDPERES, VNXB 4U SPACE RES FOR FILE UPG-EMC RACK, 1 each
4. VNXB6GSDAE15, VNXB 15X3.5 6G SAS EXP DAE-EMC RACK, 6 each
5. VNXB6GSDAE25, VNXB 25X2.5 6G SAS EXP DAE-EMC RACK, 4 each
6. VNXB6GSDAE25P, VNXB 25X2.5 6G SAS PRI DAE-EMC RACK, 1 each
7. V4-2S10-600, VNX 600GB 10K SAS 25X2.5 DPE/DAE, 99 each
8. V4-2S6F-200, VNX 200GB SSD 25X2.5 DPE/DAE, 32 each
9. V4-VS07-030, VNX 3TB NL SAS 15X3.5 DAE, 83 each
10. V-V4-260010, VNX 600GB 10K VAULT 25X2.5 DPE/DAE, 1 each
11. FLV42S6F-200, VNX 200GB FAST CACHE 25X2.5 DPE/DAE, 9 each
12. VBPW40U-IEC3, CAB QUAD POWER CORD IEC309, 1 each
13. VNX56-KIT, VNX5600 Documentation Kit=IC, 1 each
14. VSPBMXGI2A, VNXB 2 PT OP 10G ISCSI IO MOD PR-SFP, 2 each
15. ESRS-GW-200, EMC SECURE REMOTE SUPPORT GATEWAY CLIENT, 1 each

16. RP-LS, RECOVERPOINT LICENSE SOLUTION, 1 each
17. 456-104-616, RP/SE LOC FOR LPS V55 V56=IC, 1 each
18. VNXBOECAPT, VNXB OE PER TB HI CAPACITY, 249 each
19. VNXBOEPERFT, VNXB OE PER TB PERFORMANCE, 67 each
20. FSTS-VNX5600, VNX5600 FAST Suite=IC, 1 each
21. VNXOE-5600, VNX5600 Operating Environment, 1 each
22. LPS-VNX5600, VNX5600 Local Protection Suite=IC, 1 each
23. UNISB-VNX5600, VNX5600 Unisphere Block Suite=IC, 1 each

Appendix B Site Survey Report Template

1. Site Survey Minimum Information

Each Site Survey Report shall be submitted in a standardized format and include the following information:

1.1. Site Management Information

The site management information shall include all information regarding site access and contacts. This includes, but is not limited to:

- 1) Site Name
- 2) Site Address
- 3) Shipping Address
- 4) Site Contact
 - a) Name
 - b) Title
 - c) Phone Number
 - d) Mobile Number
 - e) Email
 - f) Contact Hours
- 5) Access Hours for the site
- 6) Site Access Procedures
- 7) Room Access Procedures
- 8) Safety needs
- 9) Specific install location
 - a) Building number
 - b) Floor
 - c) Room Number
 - d) Rack/Desk/Slot information

1.2. Environmental Considerations

The site survey shall consider all relevant environmental considerations.

This includes, but is not limited to:

- 1) The structural integrity of the building, room, roof, floor, rack, desk, stairs, hallway, and anything else that may see structural stress from the equipment during installation
- 2) The space required for the install
 - a) Are there any stairs/curbs/other obstacles that would require the equipment to be lifted to get it in position for installation?
 - b) Are all doors, hallways, corridors, etc. wide enough for the movement and installation of all equipment?

- c) Is there a secure area that is large enough to store all equipment between arrival and completion of the installation phase?
- 3) Is there a loading dock at the building?
- 4) What equipment is available to move pallets, crates, or boxes?
- 5) Are there any other potential physical obstructions to the movement or installation of the equipment?
- 6) What is the anticipated manpower required to install the equipment?
- 7) HVAC considerations
 - a) What kind of HVAC is installed?
 - b) Is there a backup HVAC system?
 - c) Is the HVAC system on any sort of backup power?
 - d) Is the HVAC sufficient for the thermal load of the new equipment?
- 8) Is there a raised floor?
- 9) What is the floor covering?
 - a) Does the floor need to be protected during installation?
- 10) Is the proposed installation footprint currently vacant?
 - a) If not:
 - i) When will it be?
- 11) Are there any other environmental concerns?

1.3. Electrical Considerations

The Site Survey shall document all electrical requirements including but not limited to:

- 1) Are the existing outlets and electrical connections the correct type?
- 2) Is there an appropriate earth ground located near the proposed installation locations?
- 3) Are all circuits appropriately grounded?
- 4) If a Government furnished rack or cabinet is being used, is it attached to an appropriate earth ground?
- 5) Are there any restrictions for when the equipment can be powered up?

1.3.1. DC Systems/Equipment

The Site Survey shall document all DC electrical requirements including but not limited to:

- 1) Is the correct DC power source available?
- 2) Is all power cabling appropriately sized for the required draw and the length of the cable run?
- 3) Are there suitable DC circuit breakers in place for all DC circuits?
- 4) Will there be any non-contract procured backup power equipment?
 - a) Is the backup equipment appropriately sized for any existing equipment and all new equipment?

1.3.2. AC Systems/Equipment

The Site Survey shall document all AC electrical requirements including but not limited to:

- 1) Is the correct AC power source available for all equipment?
 - a) Are the outlets the correct type?
 - b) Is the Voltage and frequency rating correct?
- 2) Are there redundant circuits for any equipment requiring dual power supplies?
- 3) Are all circuits sized appropriately to support any existing equipment in addition to all new equipment?
 - a) Are all circuit breakers sufficient for the planned draw?
 - b) Is all wiring sufficient for the circuit's circuit breaker?
- 4) Is there anything currently using the proposed circuits?
 - a) Are there plans to install anything new that is not provided by this contract?
- 5) Are all circuits connected to an appropriately sized circuit breaker?
- 6) Will there be any non-contract procured backup power sources?
 - a) Which circuits are protected?
 - b) Is the backup equipment appropriately sized for any existing equipment and all new equipment?

1.4. Cabling

The Site Survey shall document all cabling requirements including but not limited to:

- 1) Proposed Cable paths
- 2) Is all cabling available required to connect contract procured equipment to Government furnished equipment?
 - a) Has it been run to the proposed installation location?
- 3) Are all proposed cable paths prepared?
 - a) Are any new wall, floor, or ceiling penetrations required?
 - b) Are they available?
 - i) If not, what needs to be done?
 - c) Are they currently in use?
 - i) If so, do they have the required space/weight available?

1.5. Government Furnished Network Equipment

The Site Survey shall document all information regarding Government furnished equipment that will be connected to the contract procured equipment as part of the installation or integration including but not limited to:

- 1) A list of all devices on Iraq's network that will be directly connected to the new equipment
 - a) Device ID
 - b) IP Addresses

- c) MAC Addresses
- d) Physical location
 - i) Room
 - ii) Rack
 - iii) Slot
- e) Model
- f) Interface
 - i) Connection type
 - ii) Port Number
- g) Configuration
 - i) Required speed/duplex
 - ii) VLAN information

1.6. Floor Plan

The Site Survey shall include a detailed floor plan. The floor plan shall include, but is not limited to:

- 1) All proposed new equipment locations
- 2) Data cable paths and outlet locations
 - a) Existing data cable paths and outlet locations
 - b) Required data cable paths and outlet locations
 - c) Government furnished data connection locations
- 3) Required power distribution paths
 - a) Power receptacle locations (wall, post or under raised floor)
 - b) Circuit breaker locations and circuit breaker number
- 4) Location of other devices
 - a) Devices that will interfere with the installation
 - b) Devices that need to have connectivity to the newly installed equipment

1.7. Additional Site Survey Requirements

The Contractor shall take photographs of all staging and installation areas, racks, circuit breakers, outlets, data cable paths, etc. unless specifically

Appendix C Certificate of Completion Form

To be placed on Contractor letterhead.

Date <<input date>>

CENTCOM Division

Attention: FMS Case Manager <input name>

Subject: Name of the Service description from the FMS case

Reference: Contract Number <<input contract number>>, FMS Case Designator <<input FMS case ID>>, FMS Case Line Item <<input line item>>, Requisition <<input requisition number>>

Contract CLIN: <<input CLIN>>, Period and Performance completed <<input Period of Performance from contract>>.

This memo is to certify that <<Contractor>>, per Contract Number <<input contract number and DO>>, CLIN <<input CLIN>>, has delivered and invoiced <<input service description from FMS case>>. Please reference <<input FMS case ID>>, Requisition <<input requisition>>, Line Item <<input line item>>.

Please let me know if you have any questions or concerns regarding this memo.

Sincerely,

Contractor name and signature

Appendix D Services Completion Verification Form

Date: _____
Description of Services: _____
Contract Number: _____
FMS Case Designator: _____
FMS Case Line Number: _____
FMS Requisition Number _____
Contract CLIN: _____
Period of service
invoiced: _____

Customer Comments:

Contractor Representative
Printed Name: _____
Title: _____
Date: _____
Signature: _____

OSC-I Case Manager
Printed Name: _____
Title _____
Date _____
Signature _____