BIDS AND AWARDS COMMITTEE

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SECTION VI
SCHEDULE OF REQUIREMENTS

ITB NO. 041-2023

The delivery schedule expressed as weeks/months stipulates hereafter a delivery date which is the date of delivery to the project site.

ITEM NO.	DESCRIPTION	QTY	TOTAL	Delivered, Weeks/Months
ANC23-01	**DELIVERY, CONFIGURATION, DEPLOYMENT AND COMMISSIONING OF THE NATIONAL CENTER FOR MENTAL HEALTH (NCMH) CORE NETWORK ACTIVE COMPONENTS**	1	11,207,727.00	**60 calendar days**
	SCOPE OF WORKS **A. General Works** 1. Delivery, configure, deploy, and commission the procured NCMH core network active components. 2. The bidder must configure the procured network active components based on the configuration provided by NCMH IHOMP/IT Unit; Migrate all the configurations from the existing network components to the newly procured network components. 3. During the deployment and configuration, the supplier must ensure that the activity will only have minimal to no business disruptions. 4. Configure and update the existing core switch that will be used in NCMH Camarin based on the configuration provided by NCMH IHOMP/IT Unit without the additional; the supplier must assess the existing core switch. If the existing core switch software issues are discovered, the bidder will fix the problem with no additional cost to NCMH. 5. Deploy, deliver, commission and configure network active components to the following locations:			

Network Components	Locations
Core switch	IT – Server Room
Distribution Switch	Server Farm Switch
	DMZ Server Switch
Access Switch	Pavilion 1 – Ward 4 and 5
	Pavilion 1 – Ward 7 and 8
	Pavilion 3

6. The bidder must provide all components, cables, modules, or devices that are necessary for the project. The bidder must consult the system administrator for their preferred schedule before doing any major installation and/or fixes.
7. Define and configure administrative and system security policies, practices, and codes.
8. Prepare hardened system and turnover of administrative rights to NCMH.
9. Test and debug the deployed network active components.
10. The bidder must provide detailed technical documentation of the project.
11. Any improvement and/or supplemental to the conceptual design, quantity, and/or deemed necessary to attain functionality, integrity, security, and completion of the project must be shouldered by the bidder with no additional cost.

12. Other works and materials that may have been omitted here but are necessary to put the system in operation and to complete the works to commission and implement the system within the required period.
13. Bidder must provide manufacturer-certified network professional full course training on the existing network engineering technology.
   i. Curriculum-based and manufacturer training from a certified training center for two (2) NCMH network administrators on the following but not limited to installing, configuring, administration, and management of network active components

B. Technical Specifications

The specifications of the proposed network core active components will be the following:

Core Network Switch

1. Chassis Requirements
   i. The switch must have seven (7) total slots with five (5) available for line cards and two (2) for supervisor engine slots.
   ii. The switch must be able to support redundant supervisor engine slots.
   iii. Has a maximum of eight (8) power supply bays.
   iv. It has the capability to support a total of at least two-hundred forty (240) ports.
   v. It has one (1) fan-tray bays.
   vi. The switch must provide approximately 4300W POE per slot and must be supporting integrated POE.

2. Supervisor Engine Requirements
   i. Must be ready for next-generation technologies that are programmable, have micro-engine capabilities, and template-based and Quality-Of-Service entries.
   ii. Has Intel 2.4 GHZ x86 processor with a maximum of 960 GB of SATA SSD
   iii. It has the capability to support 2 non-blocking 25 Gigabit Ethernet uplinks for the supervisor engine.
   iv. Has the capability to support 2 non-blocking 40 Gigabit Ethernet uplinks (QSFP) and up to eight (8) 10 Gigabit Ethernet (SFP+) for the supervisor engine.
   v. Performance and Scalability:
      a. Has a centralized wired capacity of up to 9.6 Tbps
      b. Support at least 240 GBPS per line card slot.
      c. Can store at least 60,000 MAC addresses.
      d. Can store at least 250,000 IPV4 and IPV6 routes.
      e. Has the capability to store 4096 VLANs
      f. Has the capacity to route up to 1000 SVIs.
      g. Has a jumbo frame of at least 9200 bytes.
      h. Can support multicast routes of at least 32,000 on Layer 2 and 3.
      i. Can have at least 16,000 QOS entries.
      j. Can have at least 16,000 Security ACL hardware entries.
      k. At least 16 GB DRAM.
      l. At least 10 GB Flash Memory.
      m. At least 420GB SSD capacity.
      n. At least 3 Bpps forwarding rate for IPV4 and IPV6.
      o. At least 100MB for packet buffer.
      p. Has the capability to support high-availability deployments.
      q. Has the capability to perform different advanced switch capabilities such as BGP, HSRP, IS-IS, BSR, MSDP, IP SLA, and OSPF.
      r. Must be utilizing existing networking protocols
   vi. Security
      a. Supports encryption for MACsec security that will provide secure link connection.
      b. Provides protection against man-in-the-middle compromise of software and firmware.
   vii. Resiliency and high availability
      a. Has the ability to configure EtherChannel on multiple/different members of the stack to provide high resiliency.
      b. Supports IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)
      c. Can be configured using existing network protocols
   viii. Must include perpetual base licenses that can provide the indicated switching features.
   ix. Must be fully utilizing the existing switching protocols that are configured in NCMH.

3. Line Module Requirements
   i. Must support gigabit/multigigabit ethernet, SFP, and SFP+
   ii. Must have ports for SFP and SFP+
      a. Supports up to 24 ports of 10GE SFP+ or 24 Ports 1GE SFP
      b. IEEE 802.1AE (MACsec-256) capability in hardware
      c. Layer 2 to Layer 4 Jumbo Frame support (up to 9216 bytes)

      d. SFP+ and SFP can be used simultaneously on the same line card without any restrictions
- iii. Must have 48 ports of Gigabit/Multigigabit Ethernet;
  - a. 24 - 10/100/1000 ports
  - b. 24 - Multigigabit 100/1000 Mbps 2.5/5 Gbps 10GBASE-T ports
  - c. Nonblock of up to 1000 Mbps
  - d. Layer 2 to Layer 4 Jumbo Frame support (up to 9216 bytes)
  - e. Capable of up to 60W on all ports in the line card

Distribution Switches

1. Hardware Specification
   - i. Must have 8 x 10G SFP/SFP+ based Ethernet ports
   - ii. Must have 24 x 1G Ethernet Ports
   - iii. Must include SFP Modules for the uplinks or downlinks facing Core/Access switches
   - iv. Must include perpetual licenses that will be used for advanced switching capabilities, network segmentation, and security.

2. Performance and Scalability
   - i. Switching capacity of at least 680 Gbps
   - ii. Forwarding rate of at least 150 Mpps
   - iii. Can support up to 480 Gbps of stacking bandwidth
   - iv. Supports IPV6 routing of at least 15,000
   - v. Supports MAC Address entries of at least 32,000
   - vi. Supports IPv4 routing entries of at least 30,000
   - vii. Supports multicast routing scale of at least 8,000
   - viii. Supports SVIs of at least 1000
   - ix. Must have at least 8GB of DRAM
   - x. Must have at least 16GB of Flash
   - xi. Must support at least 4,000 VLAN IDs
   - xii. Must support jumbo frame 9198 bytes
   - xiii. Must be utilizing existing networking protocols

3. Feature Specification
   - i. Must have Cryptographically signed images provide assurance that the firmware, BIOS, and other software are authentic and unmodified
   - ii. Must have 802.1p Class of Service (CoS) and Differentiated Services Code Point (DSCP) field classification, Shaped Round Robin (SRR) scheduling, Committed Information Rate (CIR), and eight egress queues per port
   - iii. Must support IP unicast routing protocols including static, Routing Information Protocol Version 1, RIPv2, and Open Shortest Path First (OSPF), Routed Access
   - iv. Must support Protocol-Independent Multicast (PIM) for IP multicast routing is supported, including PIM Sparse Mode (PIM SM), and Source-Specific Multicast (SSM).
   - v. Must support static routing and advanced switch capabilities and IP routing protocols such as; OSPF, BGP and IS-IS

4. Support IEEE 802.1ba AV Bridging (AVB) built in to provide a better audio and video experience through improved time synchronization and QoS
5. Supports modern operating system for the enterprise with support for model-driven programmability features
6. Must support Layer 3 Capability
7. Supports encryption and MACsec of at least 256-bits
8. Has the capability to utilize machine learning to identify and address threats or anomalies in your network
9. Must support and seamlessly integrate with the existing networking protocols
10. Must support fundamental switch features such as
    - i. Routed Access (RIP, OSPF)
    - ii. PBR
    - iii. PIM Stub Multicast (1000 routes)
    - iv. PVLAN
    - v. VRRP
    - vi. PBR
    - vii. CDP
    - viii. QoS
    - ix. FHS
    - x. 802.1X

Access Switch

1. Hardware Specification
   - i. Must have 24 x 10/100/1000 Ethernet ports POE+
   - ii. Must have at least 4 SFP-based network modules
   - iii. Must include perpetual licenses that will be used for advanced switching capabilities, network segmentation, and security.

2. Performance and Scalability
   - i. Switching capacity of at least 120 Gbps
   - ii. Forwarding rate of at least 90 Mpps
   - iii. Can support up to 80 Gbps of stacking bandwidth

iv. Supports IPV6 routing of at least 1500
v. Supports SVIs of at least 512
vi. Supports MAC Address entries of at least 16,000
vii. Supports IPv4 routing entries of at least 3,000
viii. Supports multicast routing scale of at least 1,000
ix. Must have at least 2GB of DRAM
x. Must have at least 4GB of Flash
xi. Must support at least 4,000 VLAN IDs
xii. Must support jumbo frame 9198 bytes
xiii. Must be utilizing existing networking protocols.

3 Feature Specification
i. Must have Cryptographically signed images provide assurance that the firmware, BIOS, and other software are authentic and unmodified
ii. iMust have 802.1p Class of Service (CoS) and Differentiated Services Code Point (DSCP) field classification, Shaped Round Robin (SRR) scheduling, Committed Information Rate (CIR), and eight egress queues per port
iii. Must support IP unicast routing protocols including static, Routing Information Protocol Version 1, RIPv2, and Open Shortest Path First (OSPF), Routed Access
iv. Supports encryption and MACsec of at least 128-bits
v. Must support and seamlessly integrate with the existing networking protocols

IV. EXPECTED DELIVERABLES
1. 1 unit of Core Switch including licenses
2. 2 units of Distribution Switches including licenses
3. 3 units of Access Switches including licenses
4. 16 units of SFP+ transceivers
5. 6 perpetual licenses for Core, Distributions, and Access Switches

V. IMPLEMENTATION ARRANGEMENTS INCLUDING ROLES AND RESPONSIBILITIES

Within the Project duration the NCMH shall:
1. Provide a technical working committee to supervise and monitor the project.
2. Provide a technical contact person
3. Facilitate access to information, documents, facilities and other necessary things needed by the contractor to perform services.
4. Assist in coordinating with and issue instructions as may be necessary or appropriate to other government agencies for the prompt and effective implementation of the services.
5. Approve the proposed working schedule of the supplier.
6. Provide temporary ID to all personnel involved in the installation
7. Grant authorized representative access to premises as well as equipment and all facilities located therein to perform the supplier's obligations.
8. Make prompt review and revision, if necessary, which shall be not later than ten (10) working days from receipt of the work produced.
9. Pay the contractor upon presentation of requisite documents, the amount due him upon receipt of claims supported with documents subject to acceptance by the NCMH.

Within the Project duration the winning Contractor/Supplier shall:
1. Perform services professionally based on industry standards and always protect the interest of the government in general and NCMH.
2. Provide list of certified engineers/technical support team with addresses and contact numbers, involved and other activities related to the project.
3. Secure for the NCMH permits, licenses and approvals that are or maybe necessary to perform services.
4. Provide a chief officer or program manager (licensed ECE, COE or EE) who will be directly in charge of managing the project, and day-to-day contact personnel in charge of operations.
5. Complete the delivery, installation and configuration within sixty (60) calendar days from the receipt of the Notice to Proceed. Otherwise, the winning Service Provider/Bidder shall pay the corresponding penalties/liquidated damages in the amount of one tenth of one percent (1/10 of 1%) of the total contract price for every calendar day of delay.
6. Submit a proposed working schedule for approval of NCMH and secure security pass and working permit on their site.
7. Ensure that all personnel involved in the project must be in proper uniform, because it will be their identification from the rest of NCMH's employees and visitors.
8. Protect the privacy of NCMH and ensure that all confidential information and data on its ICT infrastructure are kept confidential.

VI. QUALIFICATION OF THE SUPPLIER
1. Bidder must attach to his/her proposal an assurance from his/her principal that the items called for will be supplied in full and on time

2. Extensive knowledge, background and technical experience in a great number of projects covering Network installation, configuration cabling, set-up of PABX, IP Telephony, VOIP, WLAN, VLAN Systems and Maintenance.			
3. Extensive knowledge, background and technical experience in the installation, configuration, interoperability, security and industry standards on fiber and structured data cabling, wireless LAN, IP telephony, and other factors concerning cabling solutions.			
4. Should have been engaged for at least five (5) years in various ICT services such as IT project management, computer networking, voice and data communications infrastructure development, and ICT facilities operation and management.			

5. The bidder should have locally-based Manufacturer Certified Engineers who will do the installation, configuration, and after-sales support of all proposed equipment for cabling, WLAN, and Network Engineering.
  i. Licensed Electronics and Communications Engineer
  ii. Manufacturer Certified Network Associate
  iii. Manufacturer Certified Network Professional			

6. Must have a 24x7 helpdesk support system.			
7. All proposed items must be certified genuine and brand new. Bidder must be an authorized Philippine Distributor, Dealer or Value-Added Reseller of his/her proposed products and must provide local technical services on these.			
VII. ADDITIONAL REQUIREMENTS TO BE SUBMITTED WITH TECHNICAL PROPOSAL 1. Plan of Approach and Methodology 2. Complete technology solution offered including detailed specifications. 3. Corporate Profile which should include major achievements, service Portfolio or services offered by the firm, experience or engagements both local and international. 4. Certification from the manufacturer or main authorized distributor in the Philippines that all proposed items will not reach their END-OF-SALE and END-OF-SUPPORT (services) in 3 years' time from the date of award of contract. 5. Training proposal shall be curriculum based Training from a certified training center for two (2) NCMH system administrators on the following but not limited to installing, configuring, administration, management, and policy creation, automation, backup, and troubleshooting of the proposed network active components. 6. Draft of Service Level Agreement			

VIII. WARRANTY PERIOD AND SERVICES
1. Certification of After Sales Service that components/parts for the active network components shall be available at the authorized Philippine Service Center/s for a period of at least three (3) years after the warranty period
  i. Period: Three (3) years warranty is required on all delivered goods and shall take effect immediately after final acceptance of the project with NCMH.
  ii. Period: Three (3) years of workmanship on support and cabling and shall take effect immediately after final acceptance of the project with NCMH.
2. Product upgrades:
  i. Provision, supply and installation of announced improvements on the proposed product and/or any of its components, after date of submission of proposals and before date of implementation in the project sites without additional costs to NCMH.
  ii. Provision or entitlement of all applicable upgrades including hardware firmware or software upgrades without additional cost to NCMH.
3. Preventive and Remedial Services:
  i. Preventive maintenance services are done semi-annually on-site.			

CONFORMED BY:
(Signature over printed name)

DATE: