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# **TERMS OF REFERENCE**

**LEASE-TO-OWN FOR THE NETWORK  
EQUIPMENT**

## **I. BACKGROUND**

The Maritime Industry Authority (MARINA) was created on 01 June 1974 as an attached Agency to the Office of the President (OP). With the issuance of Presidential Decree No. 474, otherwise known as the “Maritime Industry Decree of 1974”, to integrate the development, promotion and regulation of the maritime industry in the country and with the creation of the Ministry (now Department) of Transportation (DOTr) by virtue of Executive Order No. 546, the MARINA was attached to the DOTr for policy and program coordination on 23 July 1979. By virtue of Republic Act No. 10635, the Maritime Industry Authority (MARINA) is established as the “Single Maritime Administration” responsible for the implementation and enforcement of the 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, as amended, and International Agreements or Covenants related thereto.

## **II. OBJECTIVE**

Provide Marina-STCW Office with network equipment for the security of the Information System being used by the Marina-STCW Office.

## **III. LEGAL BASIS**

Revised implementing rules and regulations of republic act no. 9184, otherwise known as the government procurement reform act

*“Section 46. Lease Contracts*

The lease of construction and office equipment, including computers, communication and information technology equipment, are subject to the same public bidding and to the processes prescribed under the Act and this IRR. Lease may also cover lease purchases or lease-to-own and similar variations.”

#### IV. PROVIDER'S QUALIFICATIONS

- Bidder must have at least two (2) years of experience in supply, delivery, installation, testing and commissioning of network equipment.
- At least three (3) similar projects in supply, delivery, installation, testing and commissioning of network equipment, structured cable system, server room design and construction and database system development. This should be vouched by a Certificate of Completion from at least one Government Agency in the Philippines.
- Personnel to undertake the project must be a certified installer of the equipment being offered.
- The Bidder shall shoulder all damages and will take sole responsibilities against all liabilities and damages arising from injuries or disabilities to persons, or damages to property occasioned by any or omission of the contractor, or any of his subcontractors, including any and all legal expenses or otherwise.
- The Bidder shall be responsible for all required permits.
- The Bidder shall be held solely responsible for any property or personal damages or claims, including damage to existing structures, systems, equipment and/or site caused by the Bidder shall repair or replace it to its original condition at no additional cost to the office.
- The Bidder should have been operating in the Philippines for two (2) years and is registered with SEC or DTI.
- Bidders shall provide copies of all certificates and test results required throughout this TOR. This is to vouch for the quality and standards compliance of the proposed System and its components.
- The Bidder must provide to the satisfaction of the Client any other documentation deemed necessary to establish any and all claims or representation that they make in the bidding documents.

#### V. OTHER REQUIREMENTS

The bidder should conduct actual site visit, they should submit a time-line (Gantt chart) of activities as part of technical proposal.

#### VI. DELIVERABLES

##### NETWORK EQUIPMENT

	PARTICULARS	QTY	UNIT
1	Core Switch (Backbone Switch)	1	unit
2	Network-Attached Storage (NAS)	2	units
3	Rack (Data) Cabinet	1	unit
4	Firewall	1	unit
5	Wireless Controller/Management	1	unit
6	Access Point (wireless)	4	units

## SSL ENCRYPTION

	PARTICULARS	QTY	UNIT
7	X509 1024-bit SSL encryption for MARINA servers (1 Year Subscription)	4	units

## OTHER REQUIREMENTS

	PARTICULARS	QTY	UNIT
8	Set-up, install and configure of back-up/mirror server. (Server shall be provided by Marina-STCW Office)	1	lot

## VII. TECHNICAL SPECIFICATIONS

### GENERAL REQUIREMENTS:

#### 1. MANUFACTURER

Only products listed under the Underwriters Laboratories (UL) and Telecommunications Industry Association/Electronics Industries Alliance (TIA/EIA) standards will be accepted.

### NETWORK EQUIPMENT

#### 1. Core Switch

- Must be designed with power-saving features including Energy **Efficient Ethernet (IEEE 802.3az)**, which will reduce per port power consumption considerably when the link is idle, or if ports are inactive, as well as 80 PLUS certified power supplies and multi-speed fan operation, which together help decrease Cooling and power costs
- Can deliver up to 160 Mbps throughput and a data rate of up to 224 Gbps (full duplex) for both Layer 2 and Layer 3 environments.
- The 7048R model offers a datacenter friendly switch design with features such as high availability, redundant internal power supplies and fans (protecting the switch from a single power supply or fan failure), as well as configurable airflow.
- With lifetime warranty which guarantees Basic Hardware Service (repair or replacement) for life
- 24 10/100/1000BASE-T auto-sensing Gigabit Ethernet switching ports
- Switch Fabric Capacity 176 Gb/s, Forwarding Rate 125 Mpps, Up to 32,000 MAC Addresses
- Resilient stacking up to 12 systems of switches
- Web-based management interface, Industry-standard CLI accessible via Telnet, Out-of-Band Ethernet or Local Serial Port; SNMPv1, SNMPv2c and SNMPv3 supported; four RMON groups supported (history, statistics, alarms and events); TFTP transfers of firmware and configuration files; Dual firmware images on-board; Multiple configuration file upload/download supported; Statistics for error monitoring and performance optimization including port summary tables;

BootP/DHCP IP address management supported; Syslog remote logging capabilities; LLDP-MED, SNTP, iSCSI Auto Configuration

- IEEE 802.1Q tagging and port-based, up to 1,000 user-configurable VLANs
- Redundant Power Supply

## 2. Storage (NAS)

- 14 nm Intel® Celeron® N3150/N3160 1.6 GHz quad-core processor
- Hardware Encryption: (AES-NI)
- Supports Floating Point Unit
- 8th generation Intel HD Graphics
- TS-453A-4G: 4GB (2 x 2GB)
- TS-453A-8G: 8GB (2 x 4GB)
- 8 GB
- 2, SODIMM DDR3L-1600 (\*For dual-DIMM configurations, you must use a pair of identical DDR3L modules.)
- Flash Memory: **512Mb**
- Capacity: **8 Tb**
- Number of Hard Drives: **4**
- Supported disk types: Hot-swappable 3.5" or 2.5" SATA 6Gb/s, SATA 3Gb/s hard drive or SSD
- 4 x Gigabit RJ-45 Ethernet port
- 4 x USB 3.0 port (Front:1, Rear:3)
- Support USB printer, pen drive, and USB UPS etc.
- 2 x HDMI, up to 4K 2160P 30Hz Ultra HD support
- 2 x 6.3mm microphone jacks (dynamic microphones only)
- Line Out Jack (for amplifier or headphone amplifier)
- Status, USB, HDD 1-4
- Mono-LCD display with backlight
- System: Power button, USB one-touch-backup button, Reset button
- Console port (system maintenance)
- System warning
- Form Factor: Tower
- System sleep mode: 1.61W
- HDD standby: 18.86W
- In operation: 32.35W
- Sound pressure (LpAm) :19.7 dB(A)
- 0-40°C
- 5~95% RH non-condensing, wet bulb: 27°C
- 96W AC adapter, 100-240V
- 12cm quiet cooling fan (12V DC)

### **3. Rack (Data) Cabinet**

- 4u Rack Cabinet Size
- 42 U Height
- Must have removable tail-bars at both top and bottom of the rear of the rack
- Can Accommodate four full height PDU's at rear of rack
- Tool less PDU Mounting kit
- Must include the 1U KVM Console with 18.5" LED Display
- Designed for maximum airflow and the reduction of thermal issues, which means greater efficiency and power savings for your data center
- Must Include the PDU to support all the Devices (Server, Storage, Switches)

### **4. Firewall**

Must be unified threat management and have superior protection for Marina-STCW applications and information assets using industry-leading IPS, firewall, and VPN technology. Firewall protection by blocking threats including worms, trojans, viruses, denial of service, distributed denial of service, reconnaissance, and attacks against operating system and application vulnerabilities. Antivirus, anti-spam, anti-spyware, anti-phishing, web content and url filtering, ALG, LAN/WAN bandwidth optimization and other advanced content security services for additional layers of protection.

#### **Interfacing Requirements**

- Shall support at least 6 x 10/100/1000 GE Interfaces

#### **Industry compliant**

- Shall be compliant with EAL4+ Common Criteria Assurance Level

#### **Capacity Requirements**

- Shall support a sustained Firewall throughput of the firewall system without packet drop of at least 2.75 Gbps and above
- Shall support a sustained Gateway Antivirus throughput of the firewall system without packet drop of at least 690 Mbps and above
- Shall support a sustained Intrusion prevention throughput of the firewall system without packet drop of at least 1.4 Gbps and above
- Shall support a sustained Gateway level Anti-spyware throughput of the firewall system without packet drop of at least 690 Mbps and above
- Shall support a sustained Deep Packet Inspection (DPI/UTM) throughput of the firewall system without packet drop of at least 600 Mbps and above, with the following functions turned on simultaneously: Gateway Antivirus, Antispyware and Intrusion prevention
- Shall support at least 500,000 maximum firewall connections and 250,000 maximum DPI/UTM connections
- Shall support at least 10,000 new firewall connections per second
- Shall support a sustained 3DES/AES IPSEC VPN throughput of the firewall system without packet drop of at least 1.0 Gbps and above

### **System architecture**

- Hardware appliance must use only Cavium Octeon Multicore Processor
- Hardware architecture should not contain any ASIC chips
- Shall be over 256 Mb RAM
- Shall have at least 32 MB of Compact Flash Memory

### **High availability**

- Should support High Availability (HA) Active/Standby with Stateful Failover
- Should support minimal two WAN link outbound load-balancing with failover algorithm of Active/Passive, Per-destination round-robin, Percentage base, split traffic to Secondary WAN when bandwidth exceed certain kbps
- Should support Inbound Server Load Balancing to balance incoming traffic across multiple, similar network resource with NAT method of Sticky IP / Round robin / Random distribution.

## **5. Wireless Controller**

- WLAN controller must be located at Marina-STCW Server Room.
- WLAN controller should be an enterprise-class switch and scalable which will connects, controls, manage and intelligently integrates wireless Access Points (WAPs) and RF Monitors into the wired LAN.
- WLAN controller must support 802.11n with backward compatibility to a/b/g
- WLAN controller must support 802.11n WAP with backward compatibility to a/b/g
- Uplink port that supports;
  - 10/100/1000Mbps (10/100/1000Base-T) copper port
- All ports automatically sense and negotiate speed, duplex, and MDI/MDX Settings
- High-speed Layer-2/Layer-3 packet forwarding
- The WLAN controller must support seamless roaming across Marina-STCW Office subnets
- To maintain the health of WLAN, controller must capable of monitoring Switch and control the wireless network to reconfigure access point parameters as needed to maintain high service levels
- WLAN controller must perform tasks such as client authentication, policy enforcement, configuration control, fault tolerance and network expansion.
- High-performance packet processing provides value-added wireless services such as load balancing, rate limiting, self-healing, calibration, authentication, mobility, security, firewalls, encryption, intrusion detection and mitigation, centralized monitoring and configuration
- WLAN controller must work seamlessly with all the wired LAN equipment
- WLAN controller must support multiple APs per MARINA-STCW building and offices and multiple users and sessions.
- The controller firmware can be easily upgraded, as future software releases are made available
- The controller must support 802.11e and Quality of Service (QoS)
- The controller must support redundancy
- Can be mounted in a standard 42U (19-inch) network equipment rack
- Mounting kits and railings must included

## 6. Wireless Access Point

- Locations of Wireless Access Points (WAPs) in all buildings and offices must be optimal to achieve total performance desired throughput.
- WAPs have to be small, lightweight and can be securely deployed in a variety of locations such as on walls, cubicles, desktops, and in the ceiling.
- The WAP antenna diversity should allow for the best possible signal processing using dual, Omni-directional antennas and directional antennas and other type of antennas that will assure signal strength in all areas.
- WAPs should work with centralized wireless controllers to provide a high performance, centrally managed, wireless mobility solution for Marina-STCW's network. WAPs should have an extended lifespan and can be configured manually or automatically across any L2/L3 network, allowing easy upgrades when new features, capabilities, or standards emerge.
- WAPs should function as "thin" WAPs which would provide 802.11n with backward compatibility to a/b/g user access. Functions should also include but not limited to wireless user authentication, link layer encryption, VPN termination. Support roaming and low-latency handoffs between APs, ideal for handling delay-sensitive applications such as voice over wireless.
- WAP 802.11 services must be controllable
- WAPs must supports operation in the radio frequency bands that will take advantage of higher density AP deployment, better overlapping coverage and reduced interference from other technologies (medical equipment, microwave ovens, cordless phones, Bluetooth devices)
- WAPs activity must be coordinated by a wireless centralized controller
- RF Management software must be available to automatically support channel selection, power levels, load balancing and failover
- WAPs minimum and maximum power level must be configurable
- WAPs must support Power-over-Ethernet standard 802.3af
- WAPs must supports 802.11e and Quality of Service (QoS)
- WAPs must support access via Ethernet
- All WAP must include mounting kits

## 7. X509 1024-bit SSL Certificate encryption

- **1024-bit** RSA Public key encryption to secure the server communications
- **Automatic:** servers can be configured to automatically take care of renewal of the certificate
- **Secure:** platform for advancing TLS security best practices, both on the CA side and by helping site operators properly secure their servers.
- **Transparent:** All certificates issued or revoked will be publicly recorded and available for anyone to inspect



- **Open:** The automatic issuance and renewal protocol will use an open standard that others can adopt
- **Cooperative:** the certificate authority must be a joint effort to benefit the community, beyond the control of any one organization only

## **VIII. TRAINING AND TECHNOLOGY TRANSFER**

To ensure that proper maintenance and sustainment an appropriate training shall be conducted by the proponent as Essential part of Technology Transfer to prepare and equipped the Marina-STCWICTMD Office and its personnel in the overall operations and maintenance of its Network Infrastructure.

- The proponent shall provide a comprehensive training program on the operationalization, maintenance and sustainment of all deliverables to qualified employees/staff selected by the MARINA.
- The Training shall be conducted and completed prior the formal turnover and acceptance.
- All expenses related to training (e.g. venue, meals, equipment, certificate..) shall be borne by the proponent.
- Venue of Training shall be determined by the proponents unless MARINA opted to conduct said training inside MARINA premises.

## **IX. RISK MANAGEMENT PLAN**

Risk Management Plan shall be formed part of the project. Step by step procedures to be undertaken during disaster must be clearly identified to avoid loss of data. A retrieval and restoration procedure that includes troubleshooting flowchart shall be incorporated in the plan. Likewise, personnel responsible to undertake the plan and procedures shall be identified and drawn up in the Risk Management Plan Organizational Chart.

## **X. TECHNICAL SUPPORT**

The Bidder shall provide technical support via telephone/fax, on-site assistance to resolve technical and other related problems. Resolution can be delivered in the form of telephone, electronic and/or on-site resolution. It shall refer to a condition wherein the reported problem is resolved by the proponent to the satisfaction of the end-user.

The proponent shall resolve a problem within twenty four (24) hours after it was reported by MARINA-STCWO in any available and fastest means of communications.

## **XI. WORK REQUIRED**

- The supplier shall include additional components required to make the system operate, although not specifically detailed in this specification.
- The work herein described shall fully completed in every detail for the function designated and its hereby required that the SUPPLIER in accepting the contract, agrees to furnish all apparatus, materials and labor not herein specifically mentioned or included to furnish but which may found necessary to complete, perfect or test any portion of the network or function.
- The provider shall Install and configure all deliverables to the existing network of the STCW-Office.

## **XII. ACCEPTANCE**

- A certificate of acceptance for any of the bid items shall be issued by the MARINA-STCWO only after completion of the scope of work and compliance to all the requirements.

## **XIII. MAINTENANCE, SUPPORT AND WARRANTY**

- The winning bidder shall provide technical support via telephone/fax, on-site assistance to resolve technical and other related problems. Resolution can be delivered in the form of telephone, electronic and/or on-site resolution. It shall refer to a condition wherein the reported problem is resolved by the bidder to the satisfaction of the end user.
- To provide monthly maintenance for the duration of the warranty period, adequate supply of parts must be readily available.

## **XIV. PROVISION OF DOCUMENTATION**

- The winning bidder shall provide a complete documentation for every deliverable and at every end of each development stage and milestone which must be submitted to the MARINA for approval. The Marina shall own any and all documents and shall reserve the right to reproduce at no additional cost.
- The documentation must be written in English of durable construction with concise and high quality presentation to include but not limited to the following:
  - ✓ User Manuals
  - ✓ Technical/Reference Manual
  - ✓ System/Operation Manual
  - ✓ Troubleshooting and Installation Guides

## **XV. TIME FRAME**

The project must be completed within Thirty (30) calendar days from the issuance of Notice to Proceed.

## **XVI. TERMS OF LEASE**

- The leased shall be for a period of twelve (12) months.
- Payment shall be made on monthly basis for 12 months subject to submission of billing statement and other supporting documents by the winning bidder and the issuance of certificate of satisfactory service by the Maritime Industry Authority (MARINA).
- The Provider shall turn over all equipment after the period lease.

## **XVII. APPROVED BUDGET FOR THE CONTRACT**

The Approved Budget for the Contract (ABC) is One Million Pesos (**₱ 1,000,000.00**), inclusive of all government taxes and charges.

## **XVIII. MARINA OPTION**

The MARINA has the right to test, evaluate and accept hardware and software component mention in this Technical Specification.