TECHNICAL SPECIFICATIONS

PROCUREMENT OF VARIOUS INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) MACHINERY & EQUIPMENT FOR 2026 FOR THE MARITIME INDUSTRY AUTHORITY (MARINA)

A. Background

The Maritime Industry Authority (MARINA) is a government agency established pursuant to Presidential Decree No. 474 and attached to the Department of Transportation (DOTr). In compliance with the Republic Act No. 9184 known as the Government Procurement Reform Act, and New Government Procurement Act (Republic Act No. 12009) , MARINA will be procuring ICT equipment for the official use in the MARINA Central Office and MARINA Regional Offices.

B. Objective

To procure various branded and new ICT equipment that can assist MARINA employees in increasing the efficiency and speed of the process and other official use in the MARINA Central Office and MARINA Regional Offices.

C. Approved Budget for the Contract (ABC)

For **LOT 1 (SUPPLY, DELIVERY, AND INSTALLATION OF ICT EQUIPMENT FOR STCW's EXAMINATION/SIMULATION ROOM)** the Approved Budget for the Contract (ABC) is Four Million Nine Hundred and Twenty-Five Thousand Pesos **(Php 4,953,435.00)**, inclusive of VAT and other applicable government taxes to be charged against the General Appropriations Act (GAA) FY 2026.

For **LOT 2 (SUPPLY, DELIVERY, AND CONFIGURATION OF ADDITIONAL ONE (1) NODE FOR MARINA's EXISTING (Hyperconverged Infrastructure))** the Approved Budget for the Contract (ABC) is Twenty Million One Hundred and Fifty Thousand Pesos **(Php 11,000,000.00)**, inclusive of VAT and other applicable government taxes to be charged against the General Appropriations Act (GAA) FY 2026..

For **LOT 3 (SUPPLY, DELIVERY, AND CONFIGURATION OF TRADITIONAL SERVER)** the Approved Budget for the Contract (ABC) is Twenty Million One Hundred and Fifty Thousand Pesos **(Php 13,260,000.00),** inclusive of VAT and other applicable government taxes to be charged against the General Appropriations Act (GAA) FY 2026..

D. Mode of Procurement

Bidding will be conducted through open competitive bidding.

E. MARINA Requirements

In addition to the mandated requirements under RA12009 and its IRR, the bidders must comply with the MARINA requirements, as follows:

1. Due to the complexity of the equipment under Lot 1, the supplier must have at least one Certified Technology Specialist (CTS) and one Certified Technology Specialist–Design (CTS-D). (*The certificate/s shall be submitted as a post-qualification requirement.)*
2. For Lot 2 and Lot 3, the bidder must submit a valid certificate from the manufacturer stating that the bidder is an authorized reseller or partner of the brand being offered. (*The certificate/s shall be submitted as a post-qualification requirement.)*
3. For Lot 2 and Lot 3, the bidder must submit a valid certificate from the manufacturer stating that the bidder is an authorized service provider or is authorized to provide after-sales service during the warranty period for the brand being offered. (*The certificate/s shall be submitted as a post-qualification requirement.)*

F. Deliverables

Lot	Unit	Description	Quantity
LOT 1		**SUPPLY, DELIVERY, AND INSTALLATION OF ICT EQUIPMENT FOR STCW's EXAMINATION/SIMULATION ROOM**	
	Pcs	**Professional-Grade 55-Inch Ultra High Definition**	8
	Pcs	- With USB Microphone	1
	Pcs	- With Hand Controller	2
	Pcs	- With HDMI Cable for bigview computer	15
	Pcs	**Standard Simulator Computer**	3
	Pcs	- With Printer	2
	Pcs	- With 24-Inch Full HD (IPS Panel) 1920 x 1200 Monitor	7
	pcs.	- With 1000VA UPS	7
		- With Display Port Cable to HDMI (2 meters)	2
	pcs	**Visual Computer/Server/Instructor**	12
	Pcs	- With 1500VA UPS	12
	Pcs.	- With 24-Port Smart-Managed Fixed-Configuration Gigabit Ethernet Switch	1
	Pcs	- With Firewall	1
	Pcs	- With Ethernet Adapter	2
	Pcs	- With Desktop Stereo	4

		Speakers	
	Pcs	- With 24-Inch Touchscreen Monitor	6
	Pcs	- With PC Suspension	14
	Pcs	- Patch Cable (2 meters)	5
	Pcs	- With Patch Cable (10 meters)	20
LOT 2		**SUPPLY, DELIVERY, AND CONFIGURATION OF ADDITIONAL ONE (1) NODE FOR MARINA's EXISTING (Hyperconverged Infrastructure)**	
	Pcs	**Additional One (1) Node for MARINA's Existing HCI**	1
LOT 3		**SUPPLY, DELIVERY, AND CONFIGURATION OF TRADITIONAL SERVER**	
	Pcs	**Traditional Server**	2
	Pcs	- with KVM Console System 8-port capacity	1
	Pcs	- with Managed Network Switches	3
	Pcs	- with Microsoft SQL Server 2022	5

LOT 1 (SUPPLY, DELIVERY, AND INSTALLATION OF ICT EQUIPMENT FOR STCW's EXAMINATION/SIMULATION ROOM)

Below are the minimum specifications of the Eight (8) units of Professional-Grade 55-Inch 4K UHD Display to be procured:

Display

- Screen size: 55 inches (± tolerance acceptable)
- Panel type: Flat-panel display using In-Plane Switching (IPS) technology or equivalent wide-viewing-angle LCD technology
- Backlighting: LED or equivalent energy-efficient backlight system
- Native resolution: Minimum 3840 × 2160 (4K Ultra High Definition)
- Refresh rate: Minimum 60 Hz
- Response time: Typical gray-to-gray response of 8 ms or faster

Storage / Internal Media Capability

- Minimum internal storage: 512 GB solid-state storage (M.2 NVMe PCIe or equivalent high-speed solid-state technology)

Connectivity

Must support modern digital input/output interfaces or equivalent, including:

- At least 1 × DisplayPort input supporting high-bandwidth digital content protection (HDCP or equivalent)
- At least 2 × HDMI inputs supporting HDCP or equivalent
- Audio support via digital inputs (DisplayPort and HDMI)
- At least 1 × analog audio output (3.5 mm jack or equivalent)

External Control & Management

- At least 1 × RS-232C or equivalent serial control interface for system integration
- At least 1 × RJ45 LAN port for network control and management
- At least 1 × IR receiver or equivalent external control interface

Power Requirements

- Typical power consumption: approximately 110 W or lower under normal operation
- Maximum power consumption: not exceeding 250 W
- Standby power consumption: less than 0.5 W in network standby or equivalent low-power mode

USB Ports

- At least 1 × USB 2.0 or higher port for media playback functionality
- At least 1 × USB port for service, maintenance, or firmware updates

Additional Features

- Must support HDR content playback (e.g., HDR10, HLG, or equivalent industry-standard HDR formats)
- Must include integrated media playback capability supporting common audio, video, and image formats via USB or equivalent external storage
- Must support multi-source input switching and basic display management functions

With One (1) USB Microphone

Microphone Type

- Condenser-type microphone (pre-polarized or equivalent technology)

Polar Pattern

- Cardioid pickup pattern or equivalent directional pattern suitable for voice capture with background noise reduction

Audio Performance

- Frequency response: 50 Hz to 16 kHz or wider
- Output impedance: approximately 1000 ohms or equivalent
- Sensitivity: approximately 1.3 mV/Pa at 1 kHz or equivalent
- Signal-to-noise ratio: minimum 64 dB or higher
- Maximum sound pressure level (SPL): at least 115 dB or higher
- Dynamic range: at least 85 dB or higher

Controls and Interface

- Integrated control interface with functions such as:
- Power on/off

- Push-to-talk and/or push-to-mute capability Switch type: membrane, capacitive, or equivalent non-mechanical control interface

Audio Processing Features
- Integrated low-frequency attenuation (bass roll-off) filter around 150 Hz or equivalent functionality

Connectivity
- USB interface for digital audio transmission (plug-and-play compatible with common operating systems)

Monitoring
- Built-in headphone output (3.5 mm jack or equivalent) for real-time audio monitoring

General Requirements
- Suitable for voice recording, conferencing, streaming, or instructional use
- Must support plug-and-play operation without requiring proprietary drivers for basic functionality

With Two (2) units of Hand Controller

Connectivity
- Must support wireless connectivity via Bluetooth (version 4.0 or higher, or equivalent stable wireless protocol)
- Must support wired connectivity via USB Type-C or equivalent universal USB interface

Power Source
- Rechargeable internal battery pack or equivalent rechargeable power system
- Must support charging via USB or compatible charging interface

Audio Support
- 3.5 mm stereo headset jack or equivalent analog audio output interface for headset connectivity

Control Features
- Ergonomic design with textured or non-slip grip for improved handling
- Directional control pad (D-pad or equivalent multi-directional input control)
- Dedicated share or function button for content capture or system interaction
- Additional standard input buttons suitable for interactive control applications

General Requirements
- Must support stable wireless and wired operation without requiring proprietary drivers for basic functionality
- Must be compatible with commonly used computing or simulation systems
- Must be suitable for instructional, simulation, or interactive control applications

With Fifteen (15) Digital Audio-Video Interface Cables (HDMI-compatible) for use with the existing large-format display computer system.

Standard/Version
- Must comply with HDMI 2.0 or higher standard, or equivalent, supporting high-definition multimedia transmission.

Length
- Approximately 5 meters (±10% tolerance).

Connector Type
- Must have HDMI connectors (male-to-male) on both ends, compatible with standard HDMI ports of display and computing devices.

Performance
- Must support high-speed data transmission of at least 18 Gbps and video resolutions up to 4K at 60 Hz or higher.

Compatibility
- Must be compatible with televisions, monitors, computers, and other HDMI-enabled devices.

Construction
- Must be factory-assembled, properly shielded, and designed for stable audio-video signal transmission.

Warranty
- Must include a minimum of one (1) year warranty against manufacturing defects.

Below are the minimum specifications of the Three (3) units of Standard Simulator Computer to be procured:

Processor
- High-performance multi-core desktop processor with at least 12 cores, comprising a hybrid or equivalent architecture (minimum 8 performance-type cores and 4 efficiency-type cores or equivalent)
- At least 20 threads or higher
- Performance comparable to modern high-end desktop processors suitable for simulation and multi-tasking workloads

Memory
- Minimum 16 GB DDR5 RAM

Storage
- 512 GB SSD (primary system drive)
- 4 × 8 TB 3.5-inch enterprise-grade SATA hard disk drives (secondary storage)

Graphics
- Integrated graphics processing unit (GPU) capable of supporting:

- Up to 4K display output
- Multi-display configuration (minimum 2 monitors)
- Hardware-accelerated graphics processing using modern industry-standard APIs (e.g., DirectX 12, Vulkan, or equivalent)

Operating System

- 64-bit enterprise-class operating system with advanced security, management, and compatibility features, or equivalent open-standard platform meeting organizational requirements

Display Support

- Must support dual-monitor setup (minimum 2 displays) or higher

With Two (2) units of Printer

Type/Functionality
- Must be a wide-format all-in-one printer capable of printing, scanning, and copying

Connectivity/Interfaces
- Must support USB connectivity (USB 2.0 or higher), Ethernet (LAN), and wireless connectivity (Wi-Fi 802.11 b/g/n or higher, or equivalent).

Wireless Capability
- Must have built-in wireless functionality to support network printing.

Paper Handling
- Input Capacity: At least 250 sheets
- Output Capacity: At least 75 sheets

Media Size Capability
- Must support wide-format printing (e.g., up to A3 size or equivalent).

Power Requirements
- Must operate on 100–240 VAC, 50/60 Hz, suitable for standard electrical systems.

Consumables
- Must use at least four (4) color consumables (e.g., black, cyan, magenta, yellow) or equivalent color system.

Ports/Additional Features
- May include additional ports (e.g., fax/modem ports) if supported, but not mandatory unless required for operations.

Compatibility
- Must be compatible with commonly used operating systems and existing office network environments.

Warranty
- Must include a minimum of one (1) year warranty covering parts and labor.

With Seven (7) units of 24-inch WUXGA Monitor

Display

- Screen size: 24 inches (± tolerance acceptable)
- Panel type: Flat-panel display using In-Plane Switching (IPS) technology or equivalent wide-viewing-angle LCD technology
- Backlight: LED or equivalent energy-efficient backlighting system
- Native resolution: Minimum WUXGA (1920 × 1200) at 60 Hz or higher
- Aspect ratio: 16:10 or equivalent widescreen format
- Brightness: Minimum 300 cd/m² or higher
- Contrast ratio: Minimum 1000:1 static contrast or equivalent performance level
- Dynamic contrast: Minimum 5,000,000:1 or equivalent enhancement technology
- Viewing angles: At least 178° horizontal and 178° vertical
- Response time: 5 ms (on/off) or faster
- Pixel pitch: Approximately 0.27 mm or better (or equivalent clarity standard)
- Color performance: Minimum 99% sRGB color gamut coverage or equivalent color accuracy standard

Connectivity

- Must support standard video and data interfaces or equivalent, including:
- At least 1 × VGA input (or equivalent legacy-compatible input)
- At least 1 × HDMI input (version 1.4 or higher, with HDCP or equivalent content protection support)
- At least 1 × DisplayPort input (version 1.2 or higher, with HDCP or equivalent support)
- At least 1 × USB upstream port (USB 3.0 or higher equivalent)
- At least 2 × USB downstream ports (USB 3.0 or higher equivalent)
- Ergonomics & Physical Features
- Must support anti-glare or anti-reflective screen coating
- Must support wide viewing angle technology suitable for multi-monitor setups
- Must allow physical adjustability such as tilt, pivot/rotation, and height adjustment or equivalent ergonomic positioning features
- Must support plug-and-play functionality without requiring proprietary drivers for basic operation
- Mounting Compatibility
- Must be VESA mount compatible (minimum 100 × 100 mm or equivalent standard mounting interface)
- Additional Requirement (Functional)
- Must support seamless multi-display configurations suitable for workstation environments

With Seven (7) units of 1000VA UPS

Capacity

- Minimum capacity: 1000 VA / 600 W or higher
- Must be sufficient to support connected ICT equipment under normal operating load

Input Characteristics
- Input voltage: 230 VAC or within standard utility power range (± tolerance acceptable)
- Input frequency: 50/60 Hz with automatic frequency detection or equivalent

Topology
- Line-interactive UPS or equivalent technology providing voltage regulation and battery backup functionality

Battery System
- Maintenance-free sealed lead-acid battery or equivalent rechargeable battery technology
- Must support safe charging and automatic recharge functionality

Transfer Time
- Typical transfer time: approximately 6 ms
- Maximum transfer time: not exceeding 10 ms

With Two (2) units of Display Port Cable to HDMI (2 meters)

Connector Type
- Must have DisplayPort (male) to HDMI (male) connectors.

Length
- Approximately 2 meters (±10% tolerance).

Functionality
- Must support unidirectional signal transmission from DisplayPort (source) to HDMI (display).

Standard/Compatibility
- Must be compliant with DisplayPort and HDMI standards (e.g., DisplayPort 1.2/1.4 and HDMI 2.0 or higher, or equivalent).

Video Performance
- Must support video resolutions of at least 4K (3840 × 2160) at 60 Hz or higher.

Audio Support
- Must support digital audio transmission, including multi-channel audio (e.g., up to 7.1 surround sound).

Compatibility
- Must be compatible with DisplayPort-enabled source devices (e.g., desktops, laptops) and HDMI-enabled display devices (e.g., monitors, projectors, televisions).

Construction
- Must be factory-terminated, properly shielded, and designed for stable audio-video transmission.

Warranty
- Must include a minimum of one (1) year warranty against manufacturing defects.

Below are the minimum specifications of the Twelve (12) units of Visual Computer/Server/Instructor to be procured:

Processor

- High-performance desktop processor with at least 20 cores and 28 threads or higher
- Hybrid or equivalent multi-core architecture (e.g., combination of high-performance and efficiency cores or equivalent)
- Base and boost clock speeds comparable to current-generation high-end desktop processors
- Must be capable of handling intensive visualization, simulation, and multi-tasking workloads

Memory

- Minimum 16 GB DDR5 RAM (expandable)

Storage

- Minimum 1 TB solid-state drive using high-speed PCIe NVMe interface or equivalent technology

Graphics

- Dedicated/discrete graphics processing unit (GPU) suitable for professional visualization, simulation, and rendering workloads
- Must support:
  - Hardware-accelerated 3D graphics and compute workloads
  - High-resolution display output (up to 4K or higher)
  - Modern graphics APIs (e.g., DirectX 12, Vulkan, OpenGL, or equivalent)
- Performance level must be comparable to current-generation mid- to high-tier discrete **GPUs used for professional or advanced workstation applications**

Operating System

- 64-bit enterprise-class operating system with advanced security, device management, and domain/network integration features (e.g., professional edition of a widely used desktop OS or equivalent)

General Requirements

- System must be fully compatible with simulation, visualization, and instructional software environments
- Must support multi-display configurations (minimum of two monitors or more)

- **With Twelve (12) 1500VA UPS**

  Capacity
  - Minimum capacity: 1500 VA / 1000 W or higher
  - Must be sufficient to support connected ICT equipment under typical operating loads

  Input Characteristics
  - Input voltage: 220–240 VAC or within standard utility supply range (multi-voltage acceptable)
  - Input frequency: 50/60 Hz with automatic frequency detection or equivalent

Output Characteristics

- Output voltage: 220–240 VAC, selectable or automatically regulated
- Output frequency: 50/60 Hz with synchronization to input frequency or equivalent stability control
- Output waveform: Pure sine wave or equivalent high-quality waveform suitable for sensitive electronic equipment

Topology

- Line-interactive UPS or equivalent technology providing automatic voltage regulation and battery backup functionality

Transfer Time

- Typical transfer time: approximately 6 ms
- Maximum transfer time: not exceeding 10 ms

Battery System

- Rechargeable sealed lead-acid battery or equivalent maintenance-free battery technology
- Must support automatic charging and safe battery management system

Recharge Time

- Typical recharge time: approximately 3 hours or faster under normal operating conditions

General Performance Requirements

- Must provide surge protection, overload protection, and voltage regulation
- Must support stable operation for connected ICT equipment during power fluctuations and outages

With One (1) unit of 24-Port Smart-Managed Fixed-Configuration Gigabit Ethernet Switch

Ports and Interfaces

- At least 24 × RJ-45 autosensing Ethernet ports supporting 10/100/1000 Mbps speeds (Gigabit Ethernet)
- At least 4 × SFP/SFP+ uplink ports supporting 1 Gbps and/or 10 Gbps fiber connectivity
- Must support auto-negotiation and auto MDI/MDIX functionality

Performance

- Switching capacity: at least 128 Gbps or equivalent
- Forwarding rate (throughput): at least 95 million packets per second (Mpps) or equivalent
- Non-blocking architecture supporting full wire-speed forwarding

Hardware Resources

- Sufficient internal processing capability and memory to support switching, management, and feature operations (e.g., embedded processor and memory architecture appropriate for smart-managed switches)
- Packet buffer memory adequate for traffic optimization and congestion handling

Power Requirements

- Input voltage: 100–240 VAC, 50/60 Hz (auto-ranging)
- Power consumption:
  - Maximum: approximately 25 W or lower
  - Idle: optimized for energy efficiency

Management and Features

- Smart-managed or equivalent functionality, including:
  - Web-based management interface
  - VLAN support
  - Quality of Service (QoS)
  - Link aggregation
  - Port mirroring
  - Basic security features (e.g., access control, port security)

General Requirements

- Fixed-configuration, rack-mountable or desktop form factor
- Designed for enterprise or institutional network environments
- Must include necessary mounting accessories and power cable

With One (1) unit of Firewall

Interfaces

- At least 5 × Ethernet ports (RJ-45) configurable for WAN, LAN, and/or DMZ functions, supporting 10/100/1000 Mbps auto-negotiation
- At least 1 × USB port (USB 3.0 or higher) for storage, configuration backup, or firmware updates
- At least 1 × console port (RJ-45 or equivalent) for local management and configuration

Physical Design

- Fanless or equivalent low-noise design suitable for office or server room environments

Performance

- Stateful Packet Inspection (SPI) firewall throughput: at least 350 Mbps or higher
- VPN throughput (IPsec): at least 90 Mbps or higher
- VPN IMIX throughput: at least 40 Mbps or higher
- Maximum concurrent TCP sessions: at least 20,000 or higher

VPN Capability

- Support for site-to-site (gateway-to-gateway) IPsec VPN tunnels:
  - Recommended: at least 5 simultaneous tunnels
  - Maximum capacity: at least 20 concurrent tunnels
- Must support secure VPN protocols (e.g., IPsec, SSL VPN, or equivalent)

Network Features

- Support for VLAN configuration with at least 8 VLAN interfaces or higher
- Must support common firewall and routing features, including:
  - Network Address Translation (NAT)
  - Access control policies
  - Traffic filtering and monitoring

Management and Security

- Web-based and/or command-line management interface
- Secure remote management capability
- Firmware upgradability and configuration backup/restore

General Requirements

- Purpose-built firewall appliance suitable for small to medium enterprise or institutional deployment
- Must include necessary power adapter/cable and mounting accessories (if applicable)

With Two (2) units of Ethernet Adapter

General Description

- Device type: Network interface adapter
- Form factor: Plug-in card, low-profile compatible (must include standard and low-profile brackets or equivalent)

Interface

- Bus interface: PCI Express (PCIe) x1 or compatible slot interface
- Must be compatible with commonly available desktop/workstation systems

Port Configuration

- Single RJ-45 Ethernet port

Performance

- Data rate per port: Supports 10/100/1000 Mbps auto-negotiation (Gigabit Ethernet)
- Must support full-duplex operation at Gigabit speeds

Cabling and Connectivity

- Supports standard Ethernet cabling:
  - 10Base-T
  - 100Base-TX
  - 1000Base-T

Performance and Features

- Must support hardware-based or equivalent features for:
  - VLAN tagging
  - Traffic prioritization (QoS)
  - Flow control
  - Energy-efficient operation

General Requirements

- Must include necessary drivers compatible with commonly used operating systems or support native plug-and-play functionality
- Must be suitable for enterprise or institutional networking environments

With Four (4) units of Desktop Stereo Speakers

Audio Performance

- Total power output: at least 6W peak / 3W RMS or higher
- Driver configuration: dual speaker drivers per unit or equivalent stereo output design
- Driver size: approximately 2 inches (5 cm) or equivalent
- Frequency response: up to at least 20 kHz or wider audible range

Connectivity

- Audio input: 3.5 mm stereo audio input or equivalent analog line-in interface
- Auxiliary input: additional 3.5 mm line-in or equivalent secondary audio input (if available)
- Headphone output: 3.5 mm jack or equivalent pass-through audio output

Controls

- Integrated physical controls for:
  - Power on/off
  - Volume adjustment (knob, button, or equivalent control interface)

Power Supply

- Powered via AC adapter or equivalent external power supply
- Must support standard household/institutional electrical supply (220–240V, 60Hz or compatible range)

General Requirements

- Compact desktop form factor suitable for workstation use
- Plug-and-play operation without requiring additional drivers for basic audio functionality
- Suitable for instructional, office, or multimedia use

With Six (6) 24-Inch Touchscreen Monitor

Display

- Screen size: approximately 24 inches (± acceptable tolerance)
- Panel type: Flat-panel display using In-Plane Switching (IPS) technology or equivalent wide-viewing-angle LCD technology
- Native resolution: Full HD (1920 × 1080) or higher

Touch Functionality

- Must support multi-touch capability with at least 10 simultaneous touch points
- Touch technology: Projected capacitive or equivalent high-accuracy touch sensing technology
- Must support responsive and accurate touch input suitable for interactive applications

Connectivity
Must support standard video and data interfaces or equivalent, including:

- At least 1 × HDMI input
- At least 1 × DisplayPort input or equivalent digital video input
- At least 1 × VGA input (or equivalent legacy-compatible interface, if required)
- At least 1 × USB interface (USB 3.0 or higher equivalent) for touch functionality and data communication

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Ergonomics and Design

- Must include adjustable stand or equivalent ergonomic mounting solution
- Must support tilt and/or height adjustment for user comfort
- Must be suitable for continuous interactive or instructional use

With Fourteen (14) units of PC Suspension
General Description

- Monitor arm system with gas spring (gas lift) assisted adjustment mechanism or equivalent counterbalance technology

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Color / Finish

- Neutral finish such as silver, gray, black, or equivalent professional-grade coating suitable for office environments

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Compatibility

- Must support flat-panel displays/monitors up to at least 32 inches in screen size or larger
- Must be compatible with standard VESA mounting interfaces (e.g., 75×75 mm and 100×100 mm or equivalent)

Adjustment Features

- Must support smooth height adjustment using gas spring or equivalent mechanism
- Must allow multi-axis movement, including tilt, swivel, and rotation for ergonomic positioning

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Installation

- Must support secure desk clamp or grommet mounting or equivalent stable installation method
- Must be suitable for workstation and instructional environments

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General Requirements

- Must be durable, stable, and suitable for continuous professional or institutional use
- Must include necessary mounting hardware and installation accessories

With Five (5) units of Patch Cable (2 meters)

Category/Standard

- Must comply with **Category 6 (CAT6) or higher**, in accordance with applicable international standards (e.g., ANSI/TIA-568 or equivalent).

Length

- Approximately **2 meters (±10% tolerance)**.

Connector Type

- Must be terminated with **RJ45 connectors** on both ends, compatible with standard Ethernet ports.

Performance

- Must support **data transmission frequencies of at least 250 MHz** and **data rates up to 1 Gbps minimum**, with capability to support higher speeds (e.g., up to 10 Gbps where applicable).

Build Quality

- Must be factory-terminated, tested, and compliant with recognized quality standards for structured cabling systems.

Compatibility

- Must be compatible with existing network infrastructure and devices.

Warranty

- Must include a minimum of **one (1) year warranty** against manufacturing defects.

With Twenty (20) units of Patch Cable (10 meters)

Category/Standard

- Must comply with **Category 6 (CAT6) or higher**, conforming to recognized international standards (e.g., ANSI/TIA-568, ISO/IEC 11801, or equivalent).

Length

- Approximately **10 meters (±10% tolerance)**.

Connector Type

- Must be equipped with **RJ45 connectors** on both ends, compatible with standard Ethernet interfaces.

Performance

- Must support **data transmission frequencies of at least 250 MHz** and **data rates of at least 1 Gbps**, with capability to support higher speeds (e.g., up to 10 Gbps where applicable).

Construction

- Must be **factory-terminated and tested**, with durable insulation and connectors suitable for reliable network connectivity.

Compatibility

- Must be fully compatible with existing network equipment and structured cabling systems.

Warranty

- Must include a minimum of **one (1) year warranty** against manufacturing defects.

LOT 2 (SUPPLY, DELIVERY, AND CONFIGURATION OF ADDITIONAL ONE (1) NODE FOR MARINA's EXISTING Hyperconverged Infrastructure)

Below are the minimum specifications of the additional one (1) node for MARINA's existing HCI to be procured:

A. Hardware Specifications

- Nodes: 1 unit
- Form Factor: 2U Rackmount
- Processor: 1 x Intel Xeon 6507P, 8-core, 150W, 3.5GHz or higher
- Memory: 8 x 32GB DDR5 RDIMM, 6400MHz or higher
    - Must support ECC (Error Correction Code), memory mirroring, and protection against non-correctable memory failures including equivalent technologies to Adaptive Double Device Data Correction (ADDDC) or better
- Storage:
    - 4 x 1.92TB NVMe PCIe SSD
    - 2 x 960GB NVMe M.2 SSD (non-hot swap or equivalent form factor)
- Power Supply: 2 x Hot-Swap redundant power supplies, minimum 1300W each
- Network Interface:
    - 2-port 10GbE Base-T
    - 2-port 10/25GbE SFP28 with compatible transceivers and cables for existing infrastructure integration
- Hardware Management Tool: Must include a system management and diagnostic tool (integrated or external) capable of system monitoring, fault detection, and troubleshooting, and fully compatible with the server platform.
- Hot-Swap Components: Storage drives (if applicable), power supplies, and system fans

B. HCI Software Capabilities

The solution must be capable of integrating with and extending the existing HCI environment and must support:

- Integration and expansion of existing HCI cluster resources
- Heterogeneous cluster support
- Data tiering

- Online cluster expansion and reduction (grow/shrink)
- Data path redundancy
- Configurable data redundancy mechanism supporting multiple levels of fault tolerance (e.g., dual- or triple-copy replication, or equivalent technology) to ensure high availability and data resilience."
- Availability domains: node, block, and rack awareness
- Inline and post-process compression (basic compression)
- Advanced compression for cold data
- Cache and capacity deduplication
- Support erasure coding or an equivalent data protection mechanism that provides efficient storage utilization, fault tolerance, and data resiliency.
- VM-centric storage QoS
- Support storage acceleration features or equivalent technologies that optimize virtual machine performance and reduce storage latency.
- Volume groups for internal cluster workloads
- Volume groups for external access (primary and backup use cases)
- Self-service restore capability
- Multi-site disaster recovery (many-to-one, one-to-many, many-to-many)
- Client authentication
- Cluster lockdown/security hardening features
- High availability with guaranteed failover or equivalent HA mechanism
- VM-to-host affinity policies

C. HCI Management Capabilities

The management platform must support:

- Reporting and analytics
- Capacity forecasting and planning
- Resource inefficiency detection and workload right-sizing
- Support for virtualization environments (e.g., ESXi or equivalent hypervisors in non-native deployments)
- Low-code / no-code automation workflows
- SQL Server monitoring for IT operations
- Application discovery
- Machine learning-based optimization or self-tuning capabilities
- Cost metering / chargeback or showback for private cloud resources
- Cloud visibility and optimization dashboards
- Self-service marketplace for end users
- IaaS provisioning (single VM and template/blueprint-based deployment)
- Advanced orchestration runbooks

D. Implementation and Warranty

- Includes full installation, configuration, integration, and testing with existing HCI cluster
- Warranty: 3 Years Premier Technical Support Service, 24x7, 4-hour onsite response time, with Drive Retention or equivalent data retention policy

LOT 3 (SUPPLY, DELIVERY, AND CONFIGURATION OF TRADITIONAL SERVER)

Below are the minimum specifications of the Two (2) units of Traditional Server to be procured:

A. Server Hardware Specifications

- **Processor:**
  1 x Intel Xeon 6505P, 12-core, 150W, 2.2GHz or higher equivalent processor
- **Memory:**
  4 x 32GB DDR5 RDIMM, 6400MHz (2Rx8) or higher
  - Must support ECC (Error Correction Code) and advanced memory reliability features or equivalent technologies
- **Storage:**
  - 2 x 480GB 2.5" SATA 6Gb/s Read Intensive SSD, Hot-Swap
  - 3 x 2.4TB 2.5" SAS 12Gb/s 10K RPM HDD, Hot-Swap or equivalent performance class storage
- **RAID Controller:**
  Must support RAID levels 0, 1, 5, 6, 10, 50, and 60 or equivalent enterprise RAID functionality
- **Network Interface:**
  1 x 4-port 10GbE Base-T Ethernet adapter or equivalent high-density Ethernet connectivity
- **External Optical Drive:**
  External USB DVD-RW drive or equivalent removable optical media support device
- **Hardware Management Tool:**
  Must include a built-in or external system management and diagnostic tool capable of performing real-time monitoring, troubleshooting, and hardware diagnostics, fully compatible with the server platform.

B. Operating System and Licensing

- **Operating System:**
  Windows Server 2025 Standard (16-core license) or latest equivalent version
  - Must include downgrade rights to Windows Server 2022
  - Multi-language support required

- **Client Access Licenses (CALs):**
  Windows Server CAL 2025 for at least 5 devices or equivalent licensing coverage

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C. Management Software Requirements

The server management software must provide enterprise-grade system administration capabilities including:

- Advanced server lifecycle management (deployment, monitoring, and maintenance)
- Must support multiple concurrent users for remote access and collaborative system management.
- Secure Key Management support for Self-Encrypting Drives (SED) or equivalent encryption key handling
- Remote operating system deployment and provisioning capability
- Centralized system monitoring and alerting

D. Peripheral Equipment and Software/License

With KVM Console System (One unit, 8-port capacity)

- Maximum target systems supported: 8
- Local connections: VGA and USB
- Maximum resolution: at least 1600x1200 (4:3) and 1680x1050 (widescreen) or higher
- Multi-factor authentication support or equivalent access security mechanism
- Password protection feature
- Input power: 100–240V, 50/60Hz
- Power consumption: Shall not exceed 15 watts (W) under maximum load and must be energy-efficient during typical operation
- LCD Console: 18.5" display, 16:9 aspect ratio, at least 1920 x 1080 resolution @ 60Hz
- Warranty: 3 years or higher

With Managed Network Switches (Three (3) units)

The switches must be enterprise-class, Layer 3 managed switches with the following minimum capabilities:

- Layer 3 switching capability
- Minimum 20 x 10GbE access ports
- Minimum 4 x 10GbE SFP+ uplink ports (fiber or equivalent)
- At least 1 x dedicated out-of-band (OOB) management port
- Switching capacity: minimum 480 Gbps or higher
- Stacking capability of at least 8 units
- CPU: dual-core processor or better (approx. 1.5 GHz or higher equivalent)
- Memory: minimum 512MB flash and 1GB DDR4 or higher
- MAC address table: minimum 16,000 entries
- VLAN support: up to 4,000 VLANs or higher
- Jumbo frame support up to 9000 bytes
- Packet buffer: at least 1.5MB or higher
- Cooling: at least 1 active cooling fan or equivalent thermal design
- Management: Web GUI, CLI, SNMP, and centralized dashboard support
- Uplink module support: 10G SFP+ or equivalent
- Transceivers: 10GBASE-SR SFP+ or equivalent (850nm wavelength or compatible standard)

With Five (5) Microsoft SQL Server 2022

E. Warranty and Support

- Minimum **3 years comprehensive warranty**
- 24x7 support with **4-hour onsite response time**
- Includes **drive retention service or equivalent secure data retention policy**

F. Implementation Services

- Full installation, configuration, and integration with existing infrastructure
- Testing and commissioning
- Knowledge transfer / basic administration training

G. DOCUMENTATION

The winning bidder must provide complete technical documentation for every lot/deliverable. All documentation and appropriate manuals must be written in English and be available in soft and/or paper formats.

H. TRANSFER OF TECHNOLOGY

1. Training and technology transfer shall be completed before final acceptance by MARINA.

I. TERMS OF PAYMENT

The payment shall be made upon issuance of Billing Statement on a Bank-to-Bank- basis. Automatic Debit Arrangement (ADA) though Land Bank of the Philippines (LBP) facilities, for other Commercial bank, applicable bank charges shall be for the account of the winning bidder. The winning bidder shall submit bank details together with the billing statement/invoice for ready reference.

J. Delivery Schedule

The various ICT equipment shall be supplied, delivered, and installed within one hundred twenty (120) days upon receipt of the Notice to Proceed (NTP) at the MARINA Central Office.

Prepared by:

ADRIAN G. RAMOS
ITO-II

Approved by:

JOSEPH VICTOR S. GENERATO PhD
Director II, Management Information Systems Service