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Manageable Switch (24 port)

Quantity: 6

Minimum requirements

| | | |
|--------------------------|-------------------------|-----------------------------------|
| Hardware | Networking interface | (12) 1 GbE RJ45 ports |
| | | (12) 2.5 GbE RJ45 ports |
| | | (2) 10G SFP+ ports |
| | PoE interface | (24) PoE/PoE+ (Pins 1, 2+; 3, 6-) |
| | Supported voltage range | 100—240V AC |
| | LCM display | (1) 1.3" color touchscreen |
| Application Requirements | UniFi Network | Version 5.14.12 and later |

Wi-Fi Access point

Quantity: 6

Minimum requirements

| | | |
|------------------------------|----------------------|----------------------------------|
| Hardware | Networking interface | (1) 2.5GbE RJ45 port |
| | Management interface | Ethernet |
| | | Bluetooth |
| | Power method | PoE+ |
| | Power supply | UniFi PoE switch |
| | | 48V, 0.5A PoE adapter (optional) |
| | Max. TX power | 2.4 GHz: 22dBm |
| | | 5-7 GHz: 26dBm |
| | | |
| | MIMO | 2.4 GHz: 2 x 2 (UL MU-MIMO) |
| 5 GHz: 4 x 4 (DL/UL MU-MIMO) | | |
| 6 GHz: 4 x 4 (DL/UL MU-MIMO) | | |
| Software | WiFi standards | 802.11a/b/g |
| | | WiFi 4/WiFi 5/WiFi 6/WiFi 6E |

| | | |
|---------------------------------|-------------------|--|
| | Wireless security | WPA-PSK, WPA-Enterprise (WPA/WPA2/WPA3) |
| Application Requirements | UniFi Network | Version 7.2.91 and later |

Laptop

Quantity: 1

Minimum requirements

| | | |
|------------------|--|---------------------|
| Processor | Intel Core i7-12700H | |
| | Cache | 12MB |
| | Cores | 14 |
| | Threads | 20 |
| | Frequency | Up to 4.70GHz Turbo |
| Operating System | Windows 11 Pro, English, Genuine 1 year | |
| Video Card | NVIDIA GeForce RTX 3050 Ti, 4GB GDDR6 | |
| RAM | 16 GB, 4800MHz | |
| Hard Drive | 512GB, m.2, PCIe NVMe, SSD | |
| Display | Size | 16" |
| | Resolution | 1900 x 1200 |
| Keyboard | Backlit Keyboard with Numeric Keyboard, English US | |
| Ports | USB 3.2 Gen 1 | x2 ports |
| | Thunderbolt™ 4 port with DisplayPort™ and Power Delivery | x1 port |
| | Universal headset jack | x1 port |
| | HDMI 2.0 | x1 port |
| | RJ45 Ethernet port | x1 port |
| Wireless | Intel® Wi-Fi 6E (6GHz) AX211 2x2 Bluetooth 5.2 Wireless Card | |
| Accessories | Backpack (Same brand as the laptop) | x1 |
| | Charger | x1 |



Laptop**Quantity: 1****Minimum requirements:**

| Minimum Requirements | |
|------------------------|--|
| Processor: | Intel Core i9-13980HX |
| GPU: | NVIDIA GeForce RTX 4070 8GB GDDR6 |
| Installed Memory: | 32 GB DDR5 5200 MHz |
| Display: | 16" OLED 3200x2000 120Hz Touch Screen |
| Installed Storage: | 1 TB Nvme SSD |
| I/O | 2 x USB-A 3.1 / 3.2 Gen 2 2 x USB-C (Thunderbolt 4, Video Alt and Power Delivery) 1 x HDMI 2.1 |
| Wireless Connectivity: | WiFi 6E Bluetooth 5.0 |
| Input Devices: | Chiclet Keyboard with Backlight, Control Dial, Number Pad, Touchpad, Touchscreen |
| Accessories | Backpack (Same brand as the laptop) Charger |



Supply, install and configuration of server

| # | Requirements | Compliance (Yes / No) | Part No. / Reference |
|---|--------------|--------------------------|-------------------------|
|---|--------------|--------------------------|-------------------------|

Supply Installation and Configuration for Server Infrastructure

Platform:

1. The offered storage platform should feature advanced capabilities, combining Converged and Hyper-converged functionalities. It should allow independent scaling of Storage and Compute components without disruptions.
2. The platform must ensure complete autonomy for scaling Compute and Storage, eliminating the need for immediate disk re-balancing.

Hypervisor Support:

- The platform should seamlessly integrate with recognized Hypervisors (e.g., VMware or Microsoft) and include the necessary licenses as per specifications.

Capacity & Scalability:

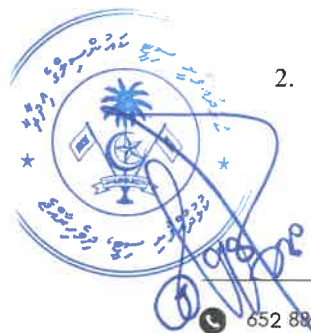
1. The platform must include a minimum of two Compute nodes/engines within a single cluster, paired with 23TB all-flash capacity employing 1.92 NVMe SSD drives on the storage layer.
2. Each compute engine should possess the flexibility to access and employ the entire storage layer capacity.
3. Each compute node/engine should adhere to the following minimal configuration:
 - 1 x Intel Xeon-Silver 4316 2.3GHz 20-core Processor
 - 4 x 32GB (1x32GB) Dual Rank DDR4-3200 Registered Memory
 - 2 x Hot plug OS boot device 480 GB M.2 NVMe SSDs in RAID1
 - 2 x Ethernet 10/25Gb Dual port SFP28 Adapter
 - 2 x 1600W Platinum Hot Plug Low Halogen Power Supply
 - 1 x Enterprise Server Remote Management License
 - 1 x Server Rail Kit
4. The platform should also include dedicated 64GB cache/memory for read and write operations on each storage layer node.

Management:

1. The entire platform should be effortlessly managed from the integrated hypervisor management layer, simplifying daily operations without necessitating multiple management tools.
2. Each compute engine should include an additional network port for remote management.

Data Protection:

1. The platform should exclusively employ NVMe flash drives for the storage layer, configured with Hardware RAID to withstand a minimum of three simultaneous drive failures or Replication factor 3 (RF-3) to meet the requested usable capacity if hardware RAID isn't supported.
2. The failure of any compute engine should not affect the overall number of offered drives. If this capability isn't supported by the vendor, an additional node with identical compute and storage specifications must be provided.



| # | Requirements | Compliance (Yes / No) | Part No. / Reference |
|---|--------------|--------------------------|-------------------------|
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Performance:

1. The platform should offer flexibility in utilizing all storage layer drives for read and write operations for a given virtual machine, without constraining allocations to local nodes.
2. There should be no performance degradation during critical support activities such as firmware upgrades or patch installations.

No Single Point of Failure:

1. The platform should be designed to prevent any single points of failure, ensuring at least 6 nines (99.9999%) data availability. VM availability should be upheld through hypervisor clustering.
2. Storage layer performance should remain unaffected by a single component or storage node failure.

Cloud-Enabled Monitoring, AI Support, and Analytics:

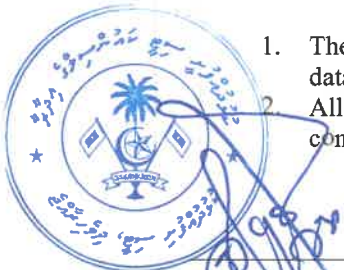
1. The platform should offer cloud-enabled monitoring, AI support, and analytics for proactive management and risk mitigation. All necessary licenses for these features should be included.
2. The platform should provide proactive recommendations for firmware and patch upgrades, considering the connected peripheral infrastructure.
3. It should automatically prevent the installation of conflicting firmware.
4. The platform should provide granular historical capacity and performance trend analysis by default, without additional logging, appliances, or software.
5. It should maintain a history of support cases with operational efficiencies.
6. Automated upgrade recommendations for both software and hardware should be available.
7. The platform should tightly integrate with the Hypervisor layer and be certified for use with at least VMware.
8. Hypervisor integration should enable comprehensive monitoring of the Hypervisor Datacenter, Datastore, Hypervisor Host, and VMs, linking with the storage layer.
9. Detailed analysis of CPU contention, Memory contention, and IO contention for each VM should be available.
10. The platform should identify the top-performing VMs contributing to maximum IOs and Latency.
11. If the vendor doesn't support the above functionality, they should supply an enterprise license for VMware vRealize Suite for the entire configuration.

Thin Provisioning and Space Optimization:

1. The platform should support global data efficiency features, including inline deduplication, inline compression, and thin provisioning, with no performance impact.
2. These data efficiency features should be truly global, comparing chunks across all VMs and datastores within the platform.
3. The platform should support both non-duplicated and duplicated datastores, as well as non-compressed and compressed datastores simultaneously.

Snapshot / Point in Time Copy / Zero Copy Clone / Thin Clone:

1. The platform should support more than 1000 Snapshots for a given datastore.
All created snapshots should support global deduplication and compression.



| # | Requirements | Compliance (Yes / No) | Part No. / Reference |
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- The platform must support multiple Snapshots, Clones, or Replication sessions without affecting performance.

Remote Replication:

- The platform should support a Stretch cluster across locations while maintaining dual write at each location. Replication across locations should be native to the platform.
- The platform should replicate only incremental changes between two sites (Primary and Secondary).

Core Network Switch:

- The platform should come with **two core network switches** featuring the following configuration:
 - Switching Capacity: Up to 1.8 Tbps
 - Forwarding Rate: Up to 1.33 Bpps
 - Buffer Size: Up to 16MB
 - Port Configuration and Connectivity: 18 x SFP28 Ports, 4 x QSFP28 Ports
 - Port Speed: 25GbE on SFP28 ports, 100GbE on QSFP28 ports
 - Network Protocols and Standards: IEEE 802.1AB (LLDP), IEEE 802.1D (Spanning Tree Protocol), IEEE 802.1p (Priority Tagging), IEEE 802.1Q (VLAN Tagging), IEEE 802.1s (Multiple Spanning Tree Protocol), IEEE 802.1w (Rapid Spanning Tree Protocol), IEEE 802.3ad (Link Aggregation Control Protocol)
 - Management: Web-based GUI, SNMP, CLI, RESTful API
 - Authentication: RADIUS, TACACS+, Secure Shell (SSHv2), SNMPv3, SSL/TLS
 - Security Features: MAC address lockout, Secure File Copy (SFTP), BPDU protection, STP root guard
 - Redundancy and High Availability: Redundant Power Supply and Fans for continuous operation
- The platform should include the following connectivity accessories and cables:
 - 10 x 25Gb SFP28 SR Transceiver with 3m connectivity cable
 - 2 x 100Gb QSFP28 Transceiver with 1m connectivity cable
 - 4 x 10Gb SFP+ SR Transceiver with 3m connectivity cable

Server Rack and UPS:

- 3000VA On-Line UPS:
 - Quantity: 01 Nos
 - Type: On-Line Double-Conversion
 - Wave type: Sine wave
 - Rack unit: 4U
 - Capacity: 3000VA
 - Rate Power: 2400W
 - Input Voltage: 230V/240V
 - Input Connection Type: IEC 60320 C20
 - External Battery Pack: Shall be included.
 - Battery Type: Sealed Lead-Acid
 - Battery Voltage: 72V
 - Number of battery blocks per string: 6
 - Battery cable should be included
 - Rack mounting kits should be included
 - Battery Type: Sealed Lead-Acid
 - Battery Management: Hot-swappable, replaceable batteries



| # | Requirements | Compliance (Yes / No) | Part No. / Reference |
|---|--------------|--------------------------|-------------------------|
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- Runtime: Minimum 30min for a load of 1200W
- Output Voltage: 230V/240V
- Output connection type: 6 IEC 60320 C13, 1 IEC 60320 C19
- Efficiency: 88% at full load
- Display: Multifunction LCD status and control console
- Bypass type: Internal bypass (automatic and manual)
- Communication Ports: USB, RS-232, SNMP
- Rack-Mountable: Yes, with included Rail Kit
- Warranty: 1 Year parts and service
- Certification: CE, UKCA, EAC, TISI

2. Server Rack:

- Rack
 - Quantity: 01 Nos
 - External Dimensions (HxWxD): 1170 mm x 600 mm x 1070 mm
 - Rack Units (U): 24U
 - Usage: For low to medium density edge computing.
 - Color: Black
 - Front Door: Perforated, lockable with reversible hinge
 - Rear Door: Split, lockable with reversible hinge
 - Side Panels: Lockable, removable
 - Roof: Solid, cable entry
 - Cable Management: Vertical cable management channels and openings
 - Grounding: Pre-installed grounding studs
 - Ventilation: Ventilated roof and front door for improved airflow
 - Casters: Included for mobility
 - Integrated electrical bonding of sides, doors, roof, and rails to frame
 - Adjustable Mounting Rails: 19" EIA-310-E compliant
 - Compatibility: Standard 19" rack-mountable equipment
 - Security: Lockable doors and side panels
 - Cable Access: Brushed cable entry ports on the roof
 - Standards: UL Listed, Electronic Industries Association (EIA)/ECA-310-E compliant
 - Warranty: 1 Year parts and service
- Vertical PDU
 - Quantity: 01 Nos
 - Type: Basic, Zero U
 - Input: 208V/230V, 10A, IEC 60320 C14
 - Output Connections: 15 x IEC 60320 C13, 230V/240V
 - Load Capacity: 2300VA
 - Mounting: Toolless mounting kit, Rack-mounted (Zero U)
- Horizontal PDU
 - Quantity: 01 unit
 - Type: Basic, 1 U
 - Input: 230V, 10A
 - Output Connections: 6 way UK type
- Cat6 24 Port Patch Panel 1U
 - Quantity: 02 Nos
 - Number of ports: loaded 24
 - Type of connector: RJ45
 - Category: 6
 - Connection type: LSA
 - Color: Black
 - Mounting: 19 inch rack mounting



| # | Requirements | Compliance (Yes / No) | Part No. / Reference |
|---|--------------|--------------------------|-------------------------|
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- Patch Cord: 50 Nos x Cat6 Patch Lead UTP Unshielded LSOH Booted 3m
- The vendor shall provide a Manufacturer Authorization Letter, confirming their status as an authorized distributor or reseller of the proposed products.
- The vendor shall have a local service center for the proposed products to ensure timely maintenance and support.
- The vendor shall employ OEM certified OEM engineers for warranty and technical support, with evidence of certifications provided.

Licenses:

1. The vendor should provide licenses for all critical functionalities such as capacity expansion, Snapshot, Thin Clone, Replication, and QOS for the maximum supported capacity of the platform. There should be no additional software license requirements for future capacity upgrades. Any additional licenses needed to meet the RFP specifications should be included upfront.
2. Hypervisor Licenses should include:
 - 02 Nos x VMware vSphere 8 Standard with 1 Year Production Support/Subscription
 - 01 Nos x VMware vCenter Server 8 Standard with 1 Year Production Support/Subscription

Warranty and Support (3 year period):

- Coverage should include 3-Year hardware and software support.
- 1-hour response 24x7 for severity 1 incidents.
- Direct access to product specialists.
- 24x7 4-hour attendance for hardware repair assistance (online)
- 24x7 access to online self-serve and self-solve capabilities, 24x7 incident logging.
- Technical support assistance for remote problem diagnosis.
- Proactive notification for important product updates and issues.
- Access to software updates and patches.
- 3-Year Local Technical Support by OEM certified engineers

Installation and Configuration

The project encompasses the deployment of a cutting-edge storage platform featuring both converged and hyper-converged functionalities, facilitating independent scaling of storage and compute components. The selected vendor must maintain the following certified professionals in-house, with all pertinent certificates and documentation furnished as part of the proposal. These professionals are required to be available onsite throughout the setup period:

- OEM Certified for the proposed platform
- VMware Certified
- Cisco CCNP Certified or equivalent industry-standard network professional certification

Design and Planning:

- Thoroughly examine the provided requirements and technical specifications.
- Devise a solution architecture aligning with specified criteria, encompassing converged and hyper-converged functionalities and autonomous scalability of storage and compute environments. Strategically outline the implementation procedure, covering hardware and software configurations, network connectivity, and hypervisor layer integration.



| # | Requirements | Compliance (Yes / No) | Part No. / Reference |
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|---|--------------|--------------------------|-------------------------|

- Strategize the integration and workload segregation process.

Implementation:

- Execute the installation of Server rack, UPS and other accessories
- Configure UPS alert notification
- Execute the deployment and installation of the storage platform, encompassing the provided storage, compute nodes, and core network switches.
- Configure the storage platform to ensure the autonomous scaling of compute and storage elements.
- Establish the hypervisor layer, including VMware vSphere and vCenter Server installation.
- Establish and configure network ports, ensuring seamless connectivity and remote management capabilities.
- Configure the core network layer ensuring high availability and optimal security as per industry best practice
- Configure the provided platform to facilitate thin provisioning, space optimization, and global data efficiency functionalities, including deduplication, compression, and thin cloning.

Integration and Testing:

- Seamlessly integrate the storage platform with the hypervisor management layer, enabling centralized management and monitoring.
- Validate the configuration, testing for the absence of single points of failure, confirming data and VM availability through hypervisor clustering.
- Integrate the cloud-enabled monitoring, AI support, and analytics engine.

Knowledge Transfer and Documentation:

- Deliver comprehensive knowledge transfer sessions to the IT team, encompassing configuration, management, and monitoring of the implemented solution.
- Document the implemented solution, including configuration specifics, network diagrams, and any customized settings.
- Furnish user manuals or guides for day-to-day operations and troubleshooting.

Support and Maintenance:

- Provide on-the-job training for support and maintenance processes related to the implemented solution to the IT team within **1 month** after completing the setup process.
- Collaborate with OEM support services to ensure seamless support and timely issue resolution.
- Offer assistance with firmware upgrades, patch upgrades, and deliver recommendations for software and hardware enhancements.

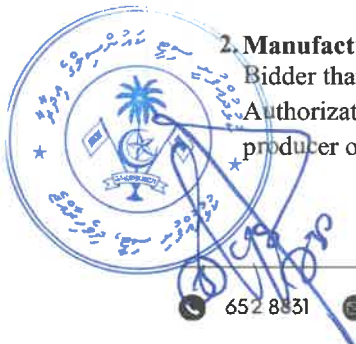
MINIMUM BIDDER'S QUALIFICATION REQUIREMENTS

1. Experience:

The Proposer should provide approach and reference of successful implementation and technical support of similar system and should include descriptions of system implementations they have completed. The mentioned project references must include names and contact information of the respective clients.

2. Manufacturer's Authorization Letter / Certificate:

Bidder that does not manufacture or produce the Goods it offers to supply shall submit the Manufacturer's Authorization Letter or Certificate, to demonstrate that it has been duly authorized by the manufacturer or producer of the Goods/Services to supply these Goods/Services in the Maldives.



| # | Requirements | Compliance (Yes / No) | Part No. / Reference |
|---|--------------|--------------------------|-------------------------|
|---|--------------|--------------------------|-------------------------|

3. Completed similar projects (Value above MVR 500,000.00):

The bidder shall provide reference letter / documents of successful completion of similar system (enterprise servers, enterprise storage, hyperconverged infrastructure, server virtualization) within last five (5) years. The mentioned project references must include names and contact information of the respective clients, if requires the client can contact and verify the project summaries. The submitted reference documents shall be complying the followings:

- Document shall be from the client (signed and stamped)
- Client opinion on regarding the vendor performance and completion of the project.
- Project names and project value

4. Team Composition for Technical Support:

It is mandatory that the vendor will maintain the required technical team as deemed as suited based on the requirements and milestones. However, the client expects that the proposer would have allocated the following more team compositions having specific skill sets and professional experience. Importantly it is expected that the vendor will maintain necessary resources for on-site technical support during crucial stages of the project that requires closer interaction with the client during installation, configuration, integration, training, testing, etc. The bidder **MUST** have full time Vendor Certified Professional/Engineer under its payroll.

The bidder shall submit the following documents:

- Certifications copy of the relevant training
- ID card OR Passport Copy of the engineer

