

بِسْمِ اللّٰهِ الرَّحْمٰنِ الرَّحِیْمِ



Ministry of Economic Development, Transport and Trade  
Male', Republic of Maldives

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މި ގޮތުން ބަޔާންކޮށްފައިވާ ގޮތުގައި

# SHOPPING FOR IT EQUIPMENT'S - SUPPLY, UPGRADE, INSTALLATION, CONFIGURATION, INTEGRATION, AND COMMISSIONING OF ICT INFRASTRUCTURE

for

Ministry of Economic Development, Transport and Trade.

## ANNEX1-REQUEST FOR QUOTATION (RFQ)

Source of Funding: ADB Loan 3794 – MLD and ADB Grant 0646 – MLD

RFQ Ref: RFQ/2026/003

**South Asia Subregional Economic Cooperation  
National Single Window Project**



-2-

## **SECTION A** **SCOPE OF WORK**

This Request for Quotation (RFQ) invites qualified and experienced vendors to submit proposals for the **SUPPLY, UPGRADE, INSTALLATION, CONFIGURATION, INTEGRATION, AND COMMISSIONING OF ICT INFRASTRUCTURE FOR MINISTRY OF ECONOMIC DEVELOPMENT, TRANSPORT & TRADE**, including primary cluster upgrades, disaster recovery (DR) replication storage, and distribution network enhancements.

The scope includes the provision of enterprise-grade storage systems, virtualization platforms, network infrastructure, and associated professional services, together with 24x7 local technical support for a period of one (1) years and on-the-job training for designated personnel.

The selected vendor shall be a reputable and experienced systems integrator with proven expertise in delivering complex infrastructure upgrades, system integration, and data center transformation initiatives.

Vendors are expected to deliver a highly available, scalable, and resilient solution that ensures optimal performance, business continuity, and seamless integration with existing systems, while minimizing operational risks and downtime.

All hardware and software components shall be delivered, installed, tested, and commissioned in a fully functional, stable, and fault-free condition, to the satisfaction of the Client.



## **SECTION A – CLIENT REQUIREMENTS**

**SUPPLY, UPGRADE, INSTALLATION, CONFIGURATION, AND COMMISSIONING OF PRIMARY CLUSTER UPGRADE, DR REPLICATION STORAGE and DISTRIBUTION NETWORK UPGRADE, INCLUDING 1 YEAR 24 x 7 LOCAL TECHNICAL SUPPORT AND ON-THE-JOB TRAINING**

#	Description
1	<b>SUPPLY, UPGRADE, INSTALLATION, CONFIGURATION, AND COMMISSIONING OF PRIMARY CLUSTER UPGRADE, DR REPLICATION STORAGE and DISTRIBUTION NETWORK UPGRADE, INCLUDING 1 YEAR 24 x 7 LOCAL TECHNICAL SUPPORT AND ON-THE-JOB TRAINING</b>
1.1	<b>Primary Cluster Upgrades</b>
1.2	<b>DR Replication Storage</b>
1.3	<b>Distribution Network Upgrade</b>
1.4	<b>Professional Services: Installation, Configuration, and Commissioning of Primary Cluster Upgrades</b>
1.5	<b>Professional Services: Installation, Configuration, and Commissioning of DR Replication Storage</b>
1.6	<b>Professional Services: Installation, Configuration, and Commissioning of Distribution Network Upgrade</b>
1.7	<b>Professional Services: ICT Infrastructure Consolidation</b>
1.8	<b>On-the-job training in basic management and operation</b>
1.9	<b>Sign-off Documentation</b>



**SECTION B**

#	Description	Qty
1	<b>SUPPLY, UPGRADE, INSTALLATION, CONFIGURATION, AND COMMISSIONING OF PRIMARY CLUSTER UPGRADE, DR REPLICATION STORAGE and DISTRIBUTION NETWORK UPGRADE, INCLUDING 1 YEAR 24 x 7 LOCAL TECHNICAL SUPPORT AND ON-THE-JOB TRAINING</b>	<b>1 LOT</b>
1.1	<b>Primary Cluster Upgrades</b>	<b>1 Bundle</b>
1.1.1	<p><b>Primary All Flash Storage</b></p> <p>System Architecture</p> <ul style="list-style-type: none"> <li>• Controllers work in active-active mode. LUNs do not belong to any controller. Service loads are balanced among two or more controllers.</li> <li>• 2 U disk and controller integrated architecture, providing <math>\geq 24</math> disk slots on the controller enclosure</li> <li>• Controllers can be expanded. Number of controllers supported <math>\geq 8</math>.</li> <li>• Non-disruptive upgrade is supported. Controllers do not need to be restarted during the upgrade.</li> <li>• Software upgrade is supported over a single link. During the upgrade, the I/O suspension duration is <math>\leq 1</math> second.</li> </ul> <p>System Configuration:</p> <ul style="list-style-type: none"> <li>• Two controllers are configured.</li> <li>• The total cache capacity of the system is <math>\geq 64</math> GB, and the cache capacity of any controller is <math>\geq 32</math> GB (excluding any performance acceleration module, FlashCache, PAM, SSD Cache, or SCM).</li> <li>• Type of front-end host ports: 8/16/32 Gbit/s Fibre Channel, 1GE, 10GE, 25GE</li> <li>• Supports enterprise-level SAS TLC SSDs, non-SATA SSDs, non-QLC SSDs, and SCM.</li> <li>• Max number of disks: Supports at least 200 disk slots.</li> <li>• Supports RAID 5, RAID 6, and RAID-TP. RAID-TP is able to tolerate simultaneous failure of three disks.</li> <li>• Supports dynamic RAID reconstruction. If a disk is faulty, the number of member disks in the RAID group can be reduced to ensure that the data redundancy level does not decrease.</li> <li>• Should be configured with 4 x 10 Gbit/s Ethernet interfaces</li> <li>• Should include multi-mode transceivers and 3m duplex LC fiber optic multi-mode cable</li> <li>•</li> </ul> <p>SAN Features:</p> <ul style="list-style-type: none"> <li>• Configure QoS to control traffic by LUN, LUN group, or host.</li> <li>• The snapshot function meets the following requirements: <ul style="list-style-type: none"> <li>• Supports at least 20,000 snapshots for a single LUN and at least 250,000 snapshots for a system.</li> </ul> </li> </ul>	01 Nos



	<ul style="list-style-type: none"> <li>• Snapshots do not compromise performance.</li> <li>• Cascading snapshots are supported.</li> <li>• The system supports the clone function, which provides an entity copy for a snapshot and a source LUN.</li> <li>• The system provides the data replication function to replicate data from the active data center to the standby data center.</li> <li>• Synchronous replication and asynchronous replication are supported.</li> <li>• Fibre Channel, IP replication links are supported.</li> </ul> <p>Capacity:</p> <ul style="list-style-type: none"> <li>• The system should be configured with a minimum 10 Nos x 3.84TB SAS SSD (2.5") disks</li> </ul> <p>Management:</p> <ul style="list-style-type: none"> <li>• Supports hot swap of SSDs, power modules, and interfaces without service interruption.</li> <li>• Monitors the service life of SSDs and displays the wear degree and estimated remaining service life of each SSD.</li> <li>• Supports capacity prediction <math>\geq</math> 365 days in advance.</li> <li>• Management software: Provides graphical management software with comprehensive functions, including disk array and volume management software. Provides graphical management, configuration and monitoring software for storage devices.</li> </ul> <p>Warranty:</p> <ul style="list-style-type: none"> <li>• Should provide 3-year 7 x 24 Support</li> <li>• 24 x 7 Direct OEM technical assistance center (TAC) support</li> <li>• Online self-help support</li> <li>• Software update rights</li> <li>• 8x5xNBD advance hardware replacement</li> </ul> <p>Onsite support by OEM certified engineers</p>	
1.1.2	<p><b>Virtualization Software License with 1 Year Support</b></p> <p>Compute Virtualization</p> <ul style="list-style-type: none"> <li>• Should support online adjustment of VM specifications, including CPU and memory resources.</li> <li>• Should allow to configure whether to enable HA for VMs upon storage faults or not to handle storage faults to ensure high service availability.</li> <li>• Should allow to create consistency snapshots for VMs.</li> <li>• Should support GPU virtualization.</li> <li>• During VM startup and running, the system should periodically check the load of each host in a cluster and migrate VMs among different hosts to implement load balancing among hosts in the cluster.</li> <li>• Should allow to set VM live migration across different CPU generations by cluster.</li> </ul> <p>Storage Virtualization</p> <ul style="list-style-type: none"> <li>• The virtualization platform should support local disks, IP SAN, FC SAN, and NAS.</li> </ul>	05 Nos



	<ul style="list-style-type: none"> <li>Should allow to configure CHAP information before interconnection with a remote storage device to improve data security.</li> <li>Should allow to migrate only VM storage.</li> </ul> <p>Network Virtualization</p> <ul style="list-style-type: none"> <li>Should support interconnection with network overlay SDN.</li> <li>Should allow to configure virtual switches.</li> <li>Should support SR-IOV passthrough.</li> <li>Should support virtual switch-level user-mode switching technology (OVS+DPDK), allowing high-performance network forwarding, and improving data processing performance and throughput, as well as the work efficiency of application programs on the data plane.</li> <li>Virtual switches should be able to use principal and subordinate VLANs (MUX VLAN) to implement communication or isolation between VM network devices in the same port group.</li> </ul> <p>Management</p> <ul style="list-style-type: none"> <li>Should provide graphical indicator monitoring on hosts and VMs.</li> <li>Should support alarms for various indicators, including but not limited to CPU usage, memory usage, disk usage, storage I/O latency, partition usage, and virtualization domain resource usage.</li> <li>Should support SNMP v2c/v3 to facilitate unified monitoring on the virtualization platform by a third-party monitoring system.</li> <li>Should support log recording of operations performed by O&amp;M personnel on the O&amp;M system.</li> </ul> <p>Security</p> <ul style="list-style-type: none"> <li>Should allow to safely delete VMs on the GUI. When a VM is deleted, the underlying storage space is zeroed out to prevent data from being maliciously restored.</li> <li>The management system should be able to interconnect with legacy LDAP and LDAPS to simplify account and permission management.</li> <li>The system should support role-based O&amp;M.</li> <li>Should allow to replace the default certificates used for communication between different nodes to ensure O&amp;M security.</li> </ul> <p>License</p> <ul style="list-style-type: none"> <li>Licensed for 5 physical CPU</li> <li>Unlimited core licenses</li> <li>Should include 1 Year Support</li> </ul>	
1.1.3	Local 1-Year 24 x 7 On-site Technical Support Services and Labour for Primary Storage	01 Nos
1.1.4	Local 1 -Year HW Configuration, Migration Services, and Change Request for Primary Storage	01 Nos
1.1.5	Local 1-Year 24 x 7 On-site Technical Support Services and Labour for Virtualization Software	01 Nos



1.1.6	Local 1-Year 24 x 7 On-site Technical Support Services and Labour for Virtualization Software	01 Nos
1.2	<b>DR Replication Storage</b>	<b>1 Bundle</b>
1.2.1	<p><b>DR Storage</b></p> <p>System architecture</p> <ul style="list-style-type: none"> <li>The storage system should use a symmetric active-active architecture. LUNs should not belong to any controller. When multiple controllers are configured, service loads are balanced among all controllers.</li> <li>Should use 2U disk and controller integration architecture to save space.</li> <li>2U controller, support up to 12 or 25 disks</li> <li>Minimum Two Controllers</li> <li>SAN and NAS services share the same storage pool and are managed on the same management interface</li> <li>The storage systems support gateway-free active-active for converged SAN and NAS, enabling two core storage systems to work in active-active mode.</li> <li>Storage communication without routing/gateway support, iSCSI, IP SAN, FC SAN, NFS, CIFS protocol support needed.</li> <li>Should support Online capacity expansion and reduction of active-active file systems</li> <li>Should be able to configure two controllers. The controllers use multi-core processors, and the total number of cores of a single controller processor is greater than or equal to 18</li> <li>The system should support non-disruptive upgrade. Controllers do not need to be restarted during the upgrade.</li> </ul> <p>System Configuration</p> <ul style="list-style-type: none"> <li>The total cache capacity of the system should be 64 GB.</li> <li>Should support 8/16/32 Gbit/s Fibre Channel, 1GE 10GE, 25GE</li> <li>Back-end disk channel bandwidth ≥ 192 Gbit/s</li> <li>Should supports enterprise-level dual-port, SAS TLC SSDs, SAS disks, and NL-SAS disks.</li> <li>Should support at least 400 disk slots</li> <li>Should support triple RAID. Three disks (excluding hot spare disks) in a RAID group (excluding RAID 1 and RAID 10) are allowed to fail simultaneously without data loss or service interruption.</li> <li>Should be configured with 4 x 10 Gbit/s Ethernet interfaces, 8 x 1 Gbit/s Ethernet interfaces</li> <li>Should include multi-mode transceivers and 3m duplex LC fiber optic multi-mode cable</li> </ul> <p>SAN Features:</p>	01 Nos



	<ul style="list-style-type: none"> <li>• The proposed storage should support dynamic reconstruction without decreasing redundancy and tolerate consecutive failures of five or more disks.</li> <li>• The storage should support below snapshot Features: <ul style="list-style-type: none"> <li>○ Supports at least 20,000 snapshots for a single LUN and 250000 snapshots for the entire system.</li> <li>○ Snapshots do not compromise performance. System performance will not decrease as the number of snapshots increases. System latency stays shorter than 1 ms with the snapshot function enabled.</li> <li>○ Cascading snapshots should be supported with a maximum of eight cascading levels</li> </ul> </li> <li>• The storage system should support the clone function. After a secondary LUN of a clone pair is created, it can be mapped to a host for I/O access without waiting for data synchronization to be completed. Services on the source LUN should not be affected.</li> <li>• Below Replication Features should be supported <ul style="list-style-type: none"> <li>○ Online conversion between synchronous and asynchronous replications should be supported.</li> <li>○ Fibre Channel and IP replication links should supported.</li> </ul> </li> <li>• The storage system should supports the multi-tenancy function for SAN</li> </ul> <p>Capacity:</p> <ul style="list-style-type: none"> <li>• The system should be configured with a minimum 04 Nos x 960GB SSD disks</li> <li>• The system should be configured with a minimum 08 Nos x 8TB 7.2K RPM NL-SAS disks</li> </ul> <p>Management:</p> <ul style="list-style-type: none"> <li>• Should provide graphical management software with comprehensive functions, including disk array and volume management software.</li> </ul> <p>Warranty</p> <ul style="list-style-type: none"> <li>• Should provide 3-year 7 x 24 Support</li> <li>• 24 x 7 Direct OEM technical assistance center (TAC) support</li> <li>• Online self-help support</li> <li>• Software update rights</li> <li>• 8x5xNBD advance hardware replacement</li> <li>• Onsite support by OEM certified engineers</li> </ul>	
1.1.4	Local 1-Year HW Configuration, Migration Services, and Change Request for DR Storage	01 Nos
1.1.5	Local 1-Year 24 x 7 On-site Technical Support Services and Labour for DR Storage	01 Nos
1.3	<b>Distribution Network Upgrade</b>	<b>1 Bundle</b>



1.3.1	FortiSwitch-124F-FPOE Layer 2 FortiGate switch controller compatible PoE+ switch with 24x 1G RJ45 with PoE+ and 4x 10G/1G SFP+/SFP ports and 1x RJ45 console port. Max 370W PoE output limit with smart fan/temperature control.	08 Nos
1.3.2	FortiSwitch-124F-FPOE 1 Year FortiCare Premium Support	08 Svc
1.3.3	Local 1-Year 24 x 7 On-site Technical Support Services and Labour for FortiSwitch	01 Nos
1.3.4	Local 1-Year HW Configuration, Migration Services, and Change Request for FortiSwitch	01 Nos
<b>1.4</b>	<b>Professional Services: Installation, Configuration, and Commissioning of Primary Cluster Upgrades</b>	<b>1 Bundle</b>
1.4.1	<p><b>Installation, Configuration, and Commissioning of Primary All Flash Storage</b></p> <ul style="list-style-type: none"> <li>o Service Planning and Design <ul style="list-style-type: none"> <li>- Conduct a discovery workshop with the customer to gather functional and performance requirements.</li> <li>- Assess the current IT infrastructure, including compute, network topology, and data services integration.</li> <li>- Define storage capacity, performance targets (IOPS, latency, throughput), and data protection needs.</li> <li>- Prepare a Storage Architecture Design Document (SADD) covering: <ul style="list-style-type: none"> <li>• Physical layout and rack allocation for the SAN storage.</li> <li>• Logical configuration includes storage pools, LUN design, RAID policy, and tiering configuration.</li> <li>• Data protection architecture.</li> <li>• Integration design with virtualization platform.</li> <li>• Integration design with existing HPE SVT Cluster</li> <li>• Integration design with existing Fortinet Security Fabric</li> <li>• Integration design with existing Veeam Backup Infrastructure</li> </ul> </li> <li>- Review and obtain approval of the final design before implementation.</li> <li>- Develop detailed implementation and migration plans, including pre-installation checklist, risk assessment, and rollback strategy.</li> <li>- Prepare and validate HW and software readiness (firmware compatibility, licenses, networking, cabling).</li> </ul> </li> <li>o Service Deployment <ul style="list-style-type: none"> <li>- Unpack, inspect, and stage the storage system components.</li> <li>- Rack-mount the SAN Storage system.</li> <li>- Install any accessories according to OEM best practice guides.</li> <li>- Perform structured cabling using the fiber optic patch cords to connect storage to SAN or IP network.</li> <li>- Connect and label power feeds dual power sources.</li> <li>- Initial System Configuration <ul style="list-style-type: none"> <li>• Power up the system and verify system boot and component health.</li> <li>• Configure management IPs, DNS, and time synchronization (NTP).</li> <li>• Create disk domains and storage pools using the SAS SSD drives.</li> <li>• Enable data reduction features (compression/deduplication) and thin provisioning.</li> <li>• Configure host connectivity and mapping using iSCSI or FC protocols based on customer infra.</li> <li>• Implement basic security settings, including administrator credentials, audit logs, and remote access.</li> <li>• Activate and configure all licensed software modules.</li> </ul> </li> <li>- Integration and Migration <ul style="list-style-type: none"> <li>• Integrate SAN storage with the existing virtualization platform and new virtualization platform</li> <li>• Integration of the storage system with existing HPE SimpliVity Cluster</li> <li>• Configure host initiators, zoning (if FC), or target mapping (if iSCSI) on all existing clusters</li> <li>• Register hosts in the storage system and verify multipathing.</li> <li>• Migrate up to 30 VMs workload to new system.</li> <li>• Integrate storage alerts and performance metrics with centralized monitoring.</li> <li>• Validate performance benchmarks (IOPS, latency, throughput) against design objectives.</li> </ul> </li> </ul> </li> <li>o Installation Verification Tests (IVT) <ul style="list-style-type: none"> <li>- Power and hardware redundancy test (controllers, PSUs, fans).</li> <li>- Storage pool and LUN creation/expansion verification.</li> <li>- Host connectivity validation (multipath I/O, network failover).</li> <li>- Snapshot function verification.</li> </ul> </li> </ul>	01 Svc

	<ul style="list-style-type: none"> <li>- Performance baseline test under normal and failover conditions.</li> <li>o Documentation and Knowledge Transfer <ul style="list-style-type: none"> <li>- On-the-job training of the client's IT team for Daily operations, health monitoring, and performance tuning.</li> <li>- Data protection, replication, and snapshot management.</li> </ul> </li> <li>o Basic troubleshooting and escalation process.</li> </ul>	
1.4.2	<p><b>Install, Configure and Commission of Virtualization Software</b></p> <ul style="list-style-type: none"> <li>o Service Planning and Designing <ul style="list-style-type: none"> <li>- Engage with customer stakeholders to understand business requirements, performance SLAs, workloads, growth plans, and DR/HA needs</li> <li>- Survey current infrastructure, storage, network, virtualization landscape, and constraints</li> <li>- Define architecture targets: compute cluster layout, network fabric, storage back-end integration, high availability zones</li> <li>- Produce a detailed solution design document including: <ul style="list-style-type: none"> <li>- Logical architecture (compute, network, storage, management)</li> <li>- Physical architecture and placement (node distribution, rack layouts)</li> <li>- Network zoning, VLANs, overlay/underlay planning</li> <li>- Storage connectivity (SAN, iSCSI, shared storage, disaggregated storage)</li> <li>- High availability, fault domains, disaster recovery topologies</li> <li>- Security segmentation, access boundaries, multi-tenant or tenant isolation</li> <li>- Sizing, capacity planning, growth roadmap</li> <li>- Review the design with the customer</li> <li>- Validate alignment of design with requirements and constraints</li> </ul> </li> </ul> </li> <li>o Implementation Service: <ul style="list-style-type: none"> <li>- Review and finalize the approved solution design document (from above)</li> <li>- Confirm infrastructure components (compute nodes, network fabric, storage, licenses) are delivered and ready</li> <li>- Define implementation schedule, cutover plan, rollback strategy, and resource assignment</li> <li>- Apply the license onto each compute node in the cluster.</li> <li>- Activate license features if any.</li> <li>- Ensure that license registration is correctly reflected in the management console.</li> <li>- Install and configure DCS virtualization platform on compute nodes (booting, clustering)</li> <li>- Deploy management cluster, network overlay, storage integration, and control plane</li> <li>- Configure resource pools, HA/DR policies, VM provisioning templates, and scheduling policies</li> <li>- Migrate up to 30 production VM workloads (virtual machines, containers) into the newly built environment</li> <li>- Perform integration with existing identity, backup, monitoring, and orchestration systems</li> </ul> </li> <li>o Installation Verification Tests (IVT): <ul style="list-style-type: none"> <li>- Validate cluster health, failover, and upgrade paths</li> <li>- Test VM migration paths and workload performance under typical load</li> <li>- Verify HA, fault tolerance, and DR operations</li> <li>- Confirm integration points (authentication, backup, monitoring) function correctly</li> <li>- Produce an acceptance test report with results</li> </ul> </li> <li>o Customer Orientation Session: <ul style="list-style-type: none"> <li>- Walk through design documents, architecture decisions, and trade-offs</li> <li>- Provide hands-on training to IT staff on operating the virtualization platform, day-to-day management, scaling operations, and maintenance</li> <li>- Demonstrate procedures for provisioning, monitoring, troubleshooting, and performing minor upgrades</li> <li>- Train on how to access support, upgrade privileges, and service portal functions</li> </ul> </li> </ul>	01 Svc
1.5	<p><b>Professional Services: Installation, Configuration, and Commissioning of DR Replication Storage</b></p>	1 Bundle
1.5.1	<ul style="list-style-type: none"> <li>o Service Planning and Design <ul style="list-style-type: none"> <li>- Conduct a discovery workshop with the customer to gather functional and performance requirements.</li> <li>- Assess the current IT infrastructure, including compute, network topology, and data services integration.</li> <li>- Define storage capacity, performance targets (IOPS, latency, throughput), and data protection needs.</li> <li>- Prepare a Storage Architecture Design Document (SADD) covering: <ul style="list-style-type: none"> <li>• Physical layout and rack allocation for the SAN storage.</li> </ul> </li> </ul> </li> </ul>	01 Svc

	<ul style="list-style-type: none"> <li>• Logical configuration including storage pools, LUN design, RAID policy, and tiering configuration.</li> <li>• Data protection architecture.</li> <li>• Integration design with existing Fortinet Security Fabric</li> <li>• Integration design with existing Veeam Backup Infrastructure</li> <li>- Review and obtain approval of the final design before implementation.</li> <li>- Develop detailed implementation and migration plans, including pre-installation checklist, risk assessment, and rollback strategy.</li> <li>- Prepare and validate HW and software readiness (firmware compatibility, licenses, networking, cabling).</li> <li>o Service Deployment <ul style="list-style-type: none"> <li>- Unpack, inspect, and stage the storage system components.</li> <li>- Rack-mount the SAN Storage system.</li> <li>- Install any accessories according to OEM best practice guides.</li> <li>- Perform structured cabling using the fiber optic patch cords to connect storage to SAN or IP network.</li> <li>- Connect and label power feeds to dual power sources.</li> <li>- Initial System Configuration <ul style="list-style-type: none"> <li>• Power up the system and verify system boot and component health.</li> <li>• Configure management IPs, DNS, and time synchronization (NTP).</li> <li>• Create disk domains and storage pools using the SAS SSD drives.</li> <li>• Enable data reduction features (compression/deduplication) and Thin provisioning.</li> <li>• Configure host connectivity and mapping using iSCSI or FC protocols based on customer infra.</li> <li>• Configure snapshot policies on primary storage and DR storage</li> <li>• Configure storage replication policies and retention policies for LUNs</li> <li>• Implement basic security settings, including administrator credentials, audit logs, and remote access.</li> <li>• Activate and configure all licensed software modules.</li> </ul> </li> <li>- Integration and Migration <ul style="list-style-type: none"> <li>• Integrate SAN storage with the existing virtualization platform and new virtualization platform</li> <li>• Register hosts in the storage system and verify multipathing.</li> <li>• Integrate with Veeam to replication and backup.</li> <li>• Integrate storage alerts and performance metrics with centralized monitoring.</li> <li>• Validate performance benchmarks (IOPS, latency, throughput) against design objectives.</li> </ul> </li> </ul> </li> <li>o Installation Verification Tests (IVT) <ul style="list-style-type: none"> <li>- Power and hardware redundancy test (controllers, PSUs, fans).</li> <li>- Storage pool and LUN creation/expansion verification.</li> <li>- Host connectivity validation (multipath I/O, network failover).</li> <li>- Snapshot function verification.</li> <li>- Performance baseline test under normal and failover conditions.</li> </ul> </li> <li>o Documentation and Knowledge Transfer <ul style="list-style-type: none"> <li>- On-the-job training of the client's IT team for Daily operations, health monitoring, and performance tuning.</li> <li>- Data protection, replication, and snapshot management.</li> <li>- Basic troubleshooting and escalation process.</li> </ul> </li> </ul>	
<p style="text-align: center;"><b>1.6</b></p>	<p style="text-align: center;"><b>Professional Services: Installation, Configuration, and Commissioning of Distribution Network</b></p>	<p style="text-align: center;"><b>1 Bundle</b></p>
<p style="text-align: center;"><b>1.6.1</b></p>	<p style="text-align: center;">Installation, Configuration, and Commissioning of DR Replication Storage</p> <ul style="list-style-type: none"> <li>o Service Planning and Design <ul style="list-style-type: none"> <li>- Conduct a technical discovery workshop with customer stakeholders to capture: <ul style="list-style-type: none"> <li>- Current Layer 2/Layer 3 topology and dependencies</li> <li>- VLAN structure, IP schema, and segmentation policies</li> <li>- PoE device requirements (IP Phones, APs, CCTV, IoT)</li> <li>- Uplink architecture to Cisco Nexus Core</li> <li>- Security enforcement points via FortiGate</li> </ul> </li> <li>- Perform a detailed assessment of the existing network: <ul style="list-style-type: none"> <li>- Review Cisco SG300 configurations (VLANs, trunks, STP, port assignments)</li> <li>- Analyze integration with Cisco Nexus (vPC, port channels, trunking)</li> <li>- Review FortiGate HA topology, interface mappings, and FortiLink readiness</li> <li>- Validate physical cabling, fiber uplinks, and patch panel layout</li> </ul> </li> <li>- Define the target access/distribution architecture: <ul style="list-style-type: none"> <li>- FortiSwitch topology (standalone / FortiLink managed)</li> </ul> </li> </ul> </li> </ul>	<p style="text-align: center;"><b>01 Svc</b></p>

	<ul style="list-style-type: none"> <li>- FortiLink design (L2 or L3 FortiLink depending on topology constraints)</li> <li>- VLAN segmentation strategy aligned with existing network</li> <li>- PoE power allocation plan (per switch and per port)</li> <li>- Uplink redundancy design (LACP / port-channel to Nexus core)</li> <li>- Spanning Tree Protocol alignment (RSTP/MST with Nexus root bridge consideration)</li> <li>- Prepare a Network Architecture Design Document (NADD) including: <ul style="list-style-type: none"> <li>- Physical topology diagrams (rack layout, switch placement, uplinks)</li> <li>- Logical topology (VLANs, IP schema, routing boundaries)</li> <li>- FortiLink design and FortiGate integration model</li> <li>- Interface mapping (access ports, trunk ports, uplinks)</li> <li>- Security segmentation (VLAN-to-policy mapping via FortiGate)</li> <li>- High availability design (dual uplinks, HA firewall integration)</li> <li>- Migration strategy from Cisco SG300 to FortiSwitch</li> <li>- Review and obtain formal customer approval of the design.</li> </ul> </li> <li>- Develop detailed implementation and migration plan: <ul style="list-style-type: none"> <li>- Pre-installation checklist</li> <li>- Downtime planning and change window scheduling</li> </ul> </li> </ul> <p>o Service Deployment</p> <ul style="list-style-type: none"> <li>- Hardware Installation</li> <li>- Unpack, inspect, and stage all FortiSwitch-124F-FPOE units</li> <li>- Rack-mount switches in designated racks as per approved layout</li> <li>- Power up and verify hardware health (fans, PSU, PoE budget)</li> <li>- Upgrade firmware to Fortinet recommended stable release</li> <li>- Configure: <ul style="list-style-type: none"> <li>- Management access (via FortiGate FortiLink)</li> <li>- Time synchronization (NTP)</li> <li>- DNS and system parameters</li> <li>- Establish FortiLink integration with FortiGate FG-200F (HA): <ul style="list-style-type: none"> <li>- Configure FortiLink interface (aggregate or redundant links)</li> <li>- Authorize and adopt FortiSwitches into FortiGate controller</li> <li>- Validate HA synchronization of switch management</li> </ul> </li> <li>- Configure switching features via FortiGate: <ul style="list-style-type: none"> <li>- VLAN creation and mapping</li> <li>- Port profiles (access/trunk/voice VLANs)</li> <li>- PoE configuration and prioritization</li> <li>- LLDP/LLDP-MED for endpoint discovery</li> <li>- Configure uplinks to Cisco Nexus Core: <ul style="list-style-type: none"> <li>- LACP port-channels (vPC alignment if applicable)</li> <li>- VLAN trunking and allowed VLAN lists</li> </ul> </li> <li>- Implement Layer 2 services: <ul style="list-style-type: none"> <li>- VLAN segmentation consistent with existing design</li> <li>- STP configuration aligned with Nexus as root bridge</li> <li>- Loop prevention and BPDU guard</li> </ul> </li> <li>- Integrate with FortiGate Security Fabric: <ul style="list-style-type: none"> <li>- Map VLANs/interfaces to firewall zones</li> <li>- Apply security policies for inter-VLAN routing</li> </ul> </li> <li>- Backup existing SG300 configurations</li> <li>- Map legacy configuration to new FortiSwitch architecture: <ul style="list-style-type: none"> <li>- VLANs</li> <li>- Port assignments</li> <li>- Uplink configurations</li> </ul> </li> <li>- Execute phased migration: <ul style="list-style-type: none"> <li>- Move access layer connections (patching endpoints)</li> <li>- Validate connectivity per segment</li> <li>- Minimize downtime through staged cutover</li> <li>- Decommission or isolate legacy switches post-migration</li> </ul> </li> </ul> </li> </ul> <p>o Installation Verification Tests (IVT)</p> <ul style="list-style-type: none"> <li>- Verify hardware redundancy and health</li> </ul> </li></ul>	
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	<ul style="list-style-type: none"> <li>- End-to-end VLAN communication validation</li> <li>- Uplink redundancy (link failover tests) validation</li> <li>- LACP/port-channel behavior validation</li> <li>- Validate power delivery to connected devices</li> <li>- Perform security validation: <ul style="list-style-type: none"> <li>- Inter-VLAN routing via FortiGate</li> <li>- Policy enforcement and segmentation</li> </ul> </li> </ul> <ul style="list-style-type: none"> <li>o Documentation and Knowledge Transfer <ul style="list-style-type: none"> <li>- Provide as-built documentation including: <ul style="list-style-type: none"> <li>- Final topology diagrams (physical and logical)</li> <li>- VLAN and IP addressing schema</li> <li>- Port allocation and labeling</li> <li>- FortiGate–FortiSwitch integration details</li> <li>- Configuration backups</li> <li>- Deliver operational manuals</li> <li>- Conduct on-the-job training session for IT staff: <ul style="list-style-type: none"> <li>- Day-to-day operations using FortiGate switch controller</li> <li>- Monitoring and alert handling</li> </ul> </li> <li>- Escalation procedures with Fortinet TAC (FortiCare Premium)</li> </ul> </li> </ul> </li> </ul>	
<b>1.7</b>	<b>Professional Services: ICT Infrastructure Consolidation</b>	<b>1 Bundle</b>
<b>1.7.1</b>	<p><u>Discovery &amp; Assessment:</u> Conduct a comprehensive assessment of both organizations’ IT environments, including servers, networks, storage, applications, identity services, and cloud platforms.</p> <ul style="list-style-type: none"> <li>o Servers (physical/virtual), OS versions, roles</li> <li>o Storage systems (SAN/NAS, capacity, usage)</li> <li>o Network topology (LAN/WAN, VLANs, IP schemes)</li> <li>o Security systems (firewalls, IDS/IPS, endpoint protection)</li> <li>o Active Directory forests/domains (trusts, schema versions)</li> <li>o OU structures, GPOs, service accounts</li> <li>o DNS/DHCP configurations</li> <li>o Applications &amp; Workloads</li> <li>o Line-of-business apps and dependencies</li> <li>o Authentication mechanisms (AD, LDAP, local)</li> <li>o Data Assessment</li> <li>o File shares, databases, ownership</li> <li>o Data classification (sensitive, regulated, archival)</li> <li>o Duplication and conflicts</li> <li>o Deliverables <ul style="list-style-type: none"> <li>- Current State Architecture Document</li> <li>- Risk &amp; Gap Analysis</li> <li>- Migration Readiness Report</li> </ul> </li> </ul>	<b>1 Svc</b>
<b>1.7.2</b>	<p><u>Target Architecture &amp; Design:</u> Define and document a unified logical architecture covering identity, network, applications, and storage aligned with the merger objectives</p> <ol style="list-style-type: none"> <li>a. Identity Strategy <ul style="list-style-type: none"> <li>o Decide: <ul style="list-style-type: none"> <li>o Single AD forest vs multi-forest trust</li> <li>o Domain consolidation vs coexistence</li> </ul> </li> <li>o Define: <ul style="list-style-type: none"> <li>o UPN naming standard</li> <li>o OU and GPO structure</li> <li>o Identity lifecycle processes</li> </ul> </li> </ul> </li> <li>b. Network Design</li> </ol>	<b>1 Svc</b>

	<ul style="list-style-type: none"> <li>o IP address harmonization (avoid overlaps)</li> <li>o WAN/VPN or MPLS connectivity design</li> <li>o Network segmentation (prod, mgmt, user, DMZ)</li> </ul> <p>c. Infrastructure Distribution</p> <ul style="list-style-type: none"> <li>o Placement of:</li> <li>o Primary, Secondary, Tertiary Domain Controllers</li> <li>o DNS/DHCP services</li> <li>o Define replication topology and sites</li> </ul> <p>d. Storage &amp; File Services</p> <ul style="list-style-type: none"> <li>o DFS Namespace design</li> <li>o DFS Replication strategy</li> <li>o Access control model (RBAC)</li> </ul> <p>e. Application Architecture</p> <ul style="list-style-type: none"> <li>o Decide:</li> <li>o Keep, retire, or consolidate applications</li> <li>o Define high availability and failover</li> </ul> <p>f. Deliverables</p> <ul style="list-style-type: none"> <li>o Target Architecture Document</li> <li>o Detailed Migration Plan</li> <li>o Rollback Strategy</li> </ul>	
1.7.3	<p><b>Network &amp; Connectivity Integration:</b> Establish secure physical and logical connectivity between both environments, including IP harmonization, routing, and firewall policy alignment.</p> <p>a. Tasks</p> <ul style="list-style-type: none"> <li>o Establish secure site-to-site connectivity</li> <li>o Configure routing between environments</li> <li>o Implement firewall rules and segmentation</li> <li>o Validate latency and bandwidth for replication</li> </ul> <p>b. Deliverables</p> <ul style="list-style-type: none"> <li>o Inter-site connectivity validation report</li> <li>o Security policy alignment</li> </ul>	1 Svc
1.7.4	<p><b>Identity &amp; Directory Consolidation:</b> Design and implement a unified directory services model, including domain consolidation or trust configuration, user migration, and GPO standardization.</p> <p>a. Tasks</p> <ul style="list-style-type: none"> <li>o Establish AD trust (if phased approach)</li> <li>o Deploy new domain controllers across sites</li> <li>o Configure AD Sites &amp; Services properly</li> <li>o Migrate users, groups, and service accounts</li> <li>o Consolidate GPOs and remove conflicts</li> </ul> <p>b. Deliverables</p> <ul style="list-style-type: none"> <li>o Unified directory services</li> <li>o Authentication validation report</li> </ul>	1 Svc
1.7.5	<p><b>File Services &amp; Data Migration:</b> Implement a unified file services architecture (e.g., DFS), migrate data with permissions intact, and eliminate duplication while ensuring data integrity</p> <p>a. Tasks</p>	1 Svc

	<ul style="list-style-type: none"> <li>o Design DFS namespaces</li> <li>o Migrate file shares using tools</li> <li>o Preserve NTFS permissions and ownership</li> <li>o De-duplicate redundant data</li> </ul> <p>b. Considerations</p> <ul style="list-style-type: none"> <li>o Downtime management</li> <li>o Data integrity validation</li> </ul> <p>c. Deliverables</p> <ul style="list-style-type: none"> <li>o Unified file access structure</li> <li>o Data migration report</li> </ul>	
1.7.6	<p><u>Application Migration &amp; Integration:</u> Assess, migrate, or consolidate applications, ensuring compatibility with the unified identity and infrastructure while retiring redundant systems.</p> <p>a. Tasks</p> <ul style="list-style-type: none"> <li>o Reconfigure apps to use unified AD</li> <li>o Migrate databases where required</li> <li>o Update connection strings, APIs, endpoints</li> <li>o Validate dependencies (DNS, certificates, ports)</li> </ul> <p>b. Deliverables</p> <ul style="list-style-type: none"> <li>o Application validation reports</li> <li>o Updated application architecture</li> </ul>	1 Svc
1.7.7	<p><u>Security Alignment:</u> Align security policies across both organizations, including access control, MFA, endpoint protection, network security, and logging/monitoring</p> <p>a. Tasks</p> <ul style="list-style-type: none"> <li>o Standardize:</li> <li>o Password policies</li> <li>o MFA enforcement</li> <li>o Conditional access</li> <li>o Consolidate endpoint protection</li> <li>o Align firewall and network security policies</li> </ul> <p>b. Deliverables</p> <ul style="list-style-type: none"> <li>o Security baseline document</li> <li>o Compliance validation</li> </ul>	1 Svc
1.7.8	<p><u>Infrastructure Optimization:</u> Retire legacy systems, consolidate resources, and optimize infrastructure for performance, cost, and maintainability.</p> <p>a. Tasks</p> <ul style="list-style-type: none"> <li>o Decommission legacy systems</li> <li>o Consolidate underutilized servers</li> <li>o Optimize storage usage</li> <li>o Implement monitoring and alerting</li> </ul> <p>b. Deliverables</p> <ul style="list-style-type: none"> <li>o Decommission report</li> <li>o Optimized infrastructure baseline</li> </ul>	1 Svc
1.7.9	<p><u>Testing, Validation and Documentation</u></p> <p>a. Testing Types</p> <ul style="list-style-type: none"> <li>o Authentication and access testing</li> <li>o Application functionality</li> <li>o File access and permissions</li> <li>o Network failover scenarios</li> </ul>	1 Svc



-16-

	b. Documentation & Handover <ul style="list-style-type: none"><li>○ Updated architecture diagrams</li><li>○ Guides for:<ul style="list-style-type: none"><li>○ User provisioning</li><li>○ Backup and recovery</li><li>○ Incident response</li><li>○ Admin training sessions</li></ul></li></ul>	
<b>1.8</b>	<b>On-the-job training in basic management and operation</b>	<b>1 Svc</b>
<b>1.9</b>	<b>Sign-off Documentation</b>	<b>1 Svc</b>



-17-

## **SECTION C** **PRE-QUALIFICATION**

Parties interested in delivering the scope of work outlined in Annex I must meet the Section C Pre-Qualification requirement below:

**a) Experience.**

Proof of supply of similar items to other organizations within the last 5 years. (Bidders should submit purchase orders or letters from organizations mentioning successful delivery and implementation.)

**b) Mandatory Documents:**

- Company Registration Certificate
- GST Registration Certificate
- Tax Clearance Certificate (last 30 days from the date of bid submission)
- Last 2 Year Financial Statements
- All the other relevant documents required/mentioned to submit in this bid document.

**c) Manufacture Authorization / Accreditation:**

A firm that does not manufacture or produce the goods it offers to supply shall submit the Manufacturer's Authorization Letter to demonstrate that it has been duly authorized by the manufacturer or producer of the goods to supply and install the goods and service in the Republic of Maldives.

**d) Delivery and Installation Duration:**

Delivery and installation should be completed within 90 days of receiving the purchase order.

**e) Resources/Team Requirement:**

The vendor MUST have the following full-time OEM Certified Professional/Engineer under its payroll to provide all professional services. All relevant engineer(s) certificates and supporting documents shall be included with the proposal. Required certificates of the engineer(s):

*Implementation and Technical Support Engineer Certificate:*

- IT Project Management or IT Service Management
- OEM Certification for the proposed Storage
- OEM Certification for the proposed Virtualization Platform

*Migration and Integration Engineer Certificate:*

- Fortinet Certified Fundamentals in Cybersecurity
- Fortinet Certified Associate in Cybersecurity
- Fortinet Certified Professional Network Security
- HPE Accredited Technical Professional Storage Solution
- HPE SimpliVity System Administration
- Veeam Certified Engineer (VMCE)



- Cisco Certified Specialist – Enterprise Core

It is mandatory that the supplier attaches a professional certificate of engineering and other related reference documents. The supplier shall submit the following documents:

- a) Certification copies of the relevant training.
- b) Letter from the organization that the engineer employed at that organization.
- c) ID card OR passport copy of the engineer.
- d) Contact information of the staff and his/her supervisor in that organization.

The bidder must read, understand, and comply with all areas of this RFQ. Any other information passed during the information session or any information passed via email shall be considered as a requirement of this RFQ.

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