

## TERMS OF REFERENCE

### 1. Introduction:

The purpose of this Term of Reference (TOR) is to outline the scope, objectives, responsibilities, and deliverables for the projects involving the implementation of a Backup Network-Attached Storage (NAS), Failover Core Manageable Switch, and an upgrade to the Storage Area Network (SAN). These projects aim to enhance data protection, network resilience, and performance to meet the organization's evolving IT infrastructure requirements.

### 2. Project Overview:

This initiative involves the coordinated implementation of a Backup NAS Storage solution, the installation of a Failover Core Manageable Switch, and an upgrade to the existing SAN Storage infrastructure. The projects collectively focus on improving data backup capabilities, network reliability, storage capacity, and overall system performance, aligning the organization's IT infrastructure with its operational needs.

### 3. Project Objectives:

The primary objectives of these projects are as follows:

#### a. Backup NAS Storage Implementation:

- Deploy a dedicated Backup NAS Storage solution to safeguard critical data assets.
- Enhance data protection mechanisms, including backup policies and disaster recovery capabilities.
- Optimize data organization and management for efficient data retrieval.

#### b. Failover Core Manageable Switch Installation:

- Strengthen network resilience and minimize network downtime.
- Implement failover mechanisms to ensure seamless network transition during disruptions.

- Improve network performance by utilizing advanced switch features.

#### **c. SAN Storage Upgrade:**

- Upgrade the existing SAN Storage to accommodate growing data storage demands.
- Enhance data access performance, reduce latency, and implement advanced data protection mechanisms.
- Improve data tiering strategies to optimize storage utilization.

#### **4. Mandatory Documents to submitted**

- No record of criminal offences for last 5 years
  - \*Companies – Board Directors
  - \*LLP’s – Shareholders
- Company profile and registration certificate
- GST Registration Certificate
- Proposal quotation
- Authorized partner certificate
- Last 2 years financial statements
- Reference letters from previous project clients with relevant referees and contact details
- Parties who are submitting combined bids/proposals shall submit details of third party.
- Declaration on ethical conduct and fraud and corruption agreement

#### **5. Bid Rejection**

- Submitting false information/ documents
- Quoting too high prices
- Submission of low-quality proposals
- Bidders who fail to submit any of mandatory documents
- Bidders who fail to meet the defined requirement
- Bidders who fail to submit declaration on ethical conduct and fraud and corruption agreement.

## 6. Project Scope

The combined scope of work for these projects includes, but is not limited to, the following:

### a. Procurement and Installation:

- Source and procure necessary hardware and technologies for the Backup NAS storage, failover core manageable switch, and SAN storage upgrade projects.
- Ensure compatibility between the new components and existing infrastructure.
- Physically install and configure the new hardware within the organization's data centre.

### b. Configuration and Integration:

- Configure the Backup NAS storage, failover core switch, and upgraded SAN storage to integrate seamlessly into the existing network architecture.
- Implement redundancy mechanisms, failover protocols, multipath connectivity, and RAID configurations to enhance data availability and fault tolerance

### c. Data Backup Policies and Testing:

- Define and implement backup policies, schedules, and data retention settings based on the organization's data protection needs.
- Develop and execute data backup tests to ensure data integrity, effective backups, and quick data recovery.

### d. Documentation and Training:

- Create comprehensive documentation for the configuration, integration, and management of the upgraded systems.
- Develop training materials and conduct training sessions for IT staff responsible for managing and maintaining the upgraded infrastructure.

## 7. Deliverables:

The following deliverables are expected from these projects:

- Successfully implemented Backup NAS storage solution for safeguarding critical data.
- Installed and configured failover core manageable switch with enhanced network resilience and performance.
- Upgraded SAN storage infrastructure with improved data access, advanced data protection, and optimized storage utilization.
- Comprehensive documentation for each project, including configuration guides, integration procedures, backup policies, and disaster recovery plans.
- Conducted data backup testing and validation reports.
- Conducted training sessions and training materials for IT staff members

## 8. Evaluation and Comparison of Bids

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Criteria	Marks
Price	70%
Experience	20%
Certified Engineers	10%

### a. Experience:

- Bidder should submit minimum 2 to 4 or more purchase orders or reference letters from organizations mentioning successful implementations in the Maldives. Minimum 3 letters should submit.

### b. Trained/Qualified staff:

- The proposer shall attach the CV, professional certificate and experience letters for reference.

**c. Warranty Support and Maintenance:**

- The proposer shall provide minimum 3-Year warranty and technical support for the proposed project.

**9. Technical Specification:**

#	Description	Compliance (Yes/No)
1	<p><b>Upgrade Main Server SAN Storage</b></p> <p>a. 06 Nos x HPE MSA 1.2TB SAS 12G Enterprise 10K SFF (2.5in) M2 HDD for MSA 1060</p> <p>b. Installation and Configuration</p> <ul style="list-style-type: none"> <li>The services must be delivered by HPE Storage solutions certified engineers only.</li> <li>Engineer(s) shall be available onsite for the duration of the installation and configuration service</li> <li>Assess the existing HPE MSA storage infrastructure to determine the current capacity and performance levels.</li> <li>Install and integrate 06 Nos x HPE MSA 1.2TB SAS 12G Enterprise 10K SFF M2 HDDs to the existing SAN storage system.</li> <li>Configure RAID 0 (R0) to achieve optimal performance and capacity utilization.</li> <li>Ensure proper cabling and connectivity for the newly added drives.</li> <li>Implement storage re-balancing to distribute data evenly across the expanded storage space.</li> <li>Verify and optimize data access paths to maintain high availability and performance.</li> </ul>	
2	<p><b>Fail-over Core Network Switch</b></p> <p>a. 01 Nos x Aruba Instant On 1960 12XGT 4SFP+ Switch</p> <p>b. 01 Nos x Aruba Instant On 10G SFP+ to SFP+ 1m Direct Attach Copper Cable</p> <p>c. Installation and Configuration</p> <ul style="list-style-type: none"> <li>The services must be delivered by Cisco or HPE certified network engineers only.</li> <li>Engineer(s) shall be available onsite for the duration of the installation and configuration service</li> <li>Physically install the Aruba Instant On 1960 12XGT 4SFP+ Switch at the designated location.</li> <li>Connect the network devices and servers to the new switch.</li> <li>Configure the switch for fail-over redundancy to enhance network stability and availability.</li> <li>Set up VLANs, QoS, and other necessary network parameters according to the client's requirements.</li> </ul>	
3	<p><b>Backup NAS Storage</b></p> <p>a. 01 Nos x Rackmount 2U 8Bay NAS Storage</p> <ul style="list-style-type: none"> <li><b>Form Factor:</b> 2U Rackmount</li> <li><b>Processor:</b> Intel Celeron 2.9 GHz Dual-Core CPU</li> <li><b>Memory:</b> 8GB DDR4 RAM (Expandable up to 64GB)</li> <li><b>Hard Drive Bays:</b> 8 x 3.5" SATA drive bays (Hot-swappable)</li> <li><b>Ethernet Ports:</b> 4 x 1GbE ports (RJ45)</li> <li><b>USB Ports:</b> 4 x USB 3.0</li> </ul>	



	<ul style="list-style-type: none"><li>• <b>PCIe Expansion:</b> 1 x Gen3x8 Slot, 1 x Gen3x4 Slot</li><li>• <b>Power Supply:</b> Dual redundant power supply, 100V-240V</li><li>• <b>RAID Levels:</b> RAID 0, 1, 5, 6, 10, 50, 60, JBOD</li><li>• <b>Drive Interface:</b> SATA 6Gb/s</li><li>• <b>Ethernet:</b> 4 x 1GbE ports for network connectivity</li><li>• <b>Network Protocols:</b> TCP/IP, SMB/CIFS, NFS, AFP, FTP, HTTP, HTTPS</li><li>• <b>Snapshot Support:</b> Yes, with snapshot scheduling and rollback</li><li>• <b>Hot Spare Support:</b> Yes, automatic drive replacement in case of failure</li><li>• <b>Web-based Management Interface:</b> Intuitive web GUI for system configuration and monitoring</li><li>• <b>Email Notifications:</b> Alert notifications for system events and warnings</li></ul> <p>b. 08 Nos x Seagate 4TB SATA III 3.5" Internal NAS HDD</p> <p>c. Installation and Configuration</p> <ul style="list-style-type: none"><li>• Physically mount the NAS Storage unit in the designated rack space.</li><li>• Install and configure the NAS Storage for optimal performance.</li><li>• Install 08 Nos x Seagate 4TB 5900 rpm SATA III 3.5" Internal NAS HDDs in RAID configuration for data redundancy.</li><li>• Set up RAID configuration and logical volumes to create a reliable storage solution.</li><li>• Backup Repository Configuration with Veeam Backup:</li><li>• Install and configure the Veeam Backup software on the client's systems.</li><li>• Set up the NAS Storage as a dedicated backup repository for Veeam.</li><li>• Configure backup schedules, retention policies, and data compression settings as per the client's backup strategy.</li></ul>	
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