Annex 1

Technical Specification

- It is the Bidders responsibility to check the existing infrastructure and propose hardware accordingly. Bidder may request information formally if required on the existing infrastructure.
- Bidders should provide a clear technical write-up of the overall proposed solution with clear diagrams highlighting how the required specifications are met.
- Bidders must propose all other required accessories accordingly based on the proposed solution. It is the bidder's responsibility to provide any missing software or hardware components free of charge, which is relevant for the proposed solution once the project is awarded.
- The Bidder should provide approach and reference of successful implementation of similar system and should include descriptions of system implementations they have completed.
- Manufacturer's Authorization Letter must be referred to the tender advertisement.
  Bidder 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/Services to supply these Goods/Services in the Maldives.
- It is mandatory that the vendor will maintain the required technical team as deemed as suited based on the requirements and milestones.
  Bidder Should include the CV and Certificates of the implementation engineers.
    - o Letter from organization that the engineer is employed at that organization
    - o Certification copies of the relevant training
    - o ID card OR Passport Copy of the engineer(s)

LOT #1

General Purpose Virtualization HCI Cluster

- Should be configured as a single cluster
- Proposed HCI solution should be sized with manufacturer tools to cater for the following workload requirements. Manufacturer sizing report should be submitted.

Workload Group	# of VMs	IOPs Per VM	Storage Per VM (GB)	vCPU Per VM	vCPUs: Physical CPU Ratio	Memory Per VM (GB)
Low-Perf	5	100	150	2	2:1	8
Medium-Perf	5	500	300	4	2:1	16
High-Perf	5	1200	500	4	2:1	32
Fileserver	1	100	2500	2	2:1	8

- All nodes in the cluster should be high performance All-Flash nodes
- The cluster should be configured for N+1 high availability
- Each node should support up to two 2nd Generation Intel® Xeon® Scalable Processors
- Each node should allow inbox upgrade from 1 to 2 processors
- Each node should support latest DDR4-2666 Registered Memory
- Each node should allow inbox upgrade of RAM minimum 2TB per node
- Should supply at least 2 x 10GbE SFP+ Ethernet ports per node
- Should supply 02 nos x 5m AOC cable per node for 10GbE connections Cisco core switch
- Embedded 1 x out-of-band management to simplify remote management
- Each node should have one or more 12G SAS RAID controllers with 4GB cache to manage internal disks for availability
- The storage tier in the nodes should be based on high endurance, mixed use enterprise SSD only
- Each node shall be supplied with dual redundant non shared Power Supplies
- Each node should have redundant fans
- The platform shall support individual VM-centric policy-based backup and recovery. All necessary software like backup software licenses shall be supplied.
- Deduplication and data compression should be enabled on all nodes
- Should include cloud based intelligent analytics platform

- VMware vSphere (latest) Standard for 1 processor with 1 Year Basic Support/Subscription License for all the processors in the HCI Cluster
- Windows Server Standard 2019 SNGL OLP 2Lic NL CoreLic for all the processor cores in the HCI Cluster.
- Installation and configuration
    - Should be deployed by vendor certified engineers
    - Should be installed and configured as per manufacturer best practice guidelines
    - Configure Cisco nexus core switches networking to support the HCI cluster
    - Should initialize the cluster in N+1 HA configuration
    - Should migrate existing workload to new HCI cluster with minimal impact or downtime
    - Should configure all relevant VMware networking stack
    - Should configure cloud analytics platform
    - Configuration documentation and on the job training
- Warranty: 3-Year parts and service with onsite support, 3-Year local technical support
- Vendor should submit the following certification:
    1. Server Solution Certification for Installation of Hardware and Support.
    2. VMware Certification for Virtualization
    3. Cisco Certification for Configuring the Networks

LOT #2

Software License

- 10 Nos x VMware vSphere (latest) Standard for 1 processor with 1 Year Basic Support/Subscription License for existing servers
- 01 Nos x VMware vCenter Server (latest) Standard with 1 Year Basic Support/Subscription License for existing servers
- 50 Nos x Windows Server Standard 2019 SNGL OLP 2Lic NL CoreLic
- 02 Nos x Veeam Backup & Replication Universal License
    - Includes Enterprise Plus Edition features
    - 1 Year Subscription Upfront Billing
    - Production (24/7) Support
    - Includes 10 instance
- Installation and Configuration
    - Installation should be done by vendor certified engineer only (VMware, Veeam)
    - Install and deploy VMware licenses to existing hosts

- Install and update VMware vCenter server latest stable release
- Configure VMware update manager with baseline profile for host updating
- Update all host to same and latest stable baseline
- Configure Vcenter server daily backup and full backup policies
- Install and deploy Veeam backup server
- Design daily, weekly, monthly and quarterly backup schedules as per the technical team guidelines
- Design backup retention policies as per technical team guidelines
- Backup should be configured for all infrastructure servers, application servers, file server and mail servers
- Crash consistent or application consistent backups should be configured for relevant backup jobs
- VM replication configuration and testing between current infrastructure and new HCI cluster.
- Backup verification testing
- Configuration documentation and on the job training.

LOT #3

UPS and Rack

- 01 Nos x 42U Server Rack Enclosure 600mm x 1070mm
  - Standard enclosure for low to medium density server and networking applications.
  - Should include Baying hardware, Key(s), Keyed-alike doors and side panels, leveling feet, Mounting hardware, Pre-installed casters, Side panels
  - Vendor-neutral mounting compatibility with all EIA-310 compliant 19" equipment.
  - Split rear doors, Perforated front and rear door, Quick release doors
  - Integrated electrical grounding
  - Basic Zero U rack PDU, 16A, 208/230V, (15) C13
  - Installation
- 01 Nos x 6000VA 230V UPS
  - Double-conversion on-line power protection with scalable runtime
  - Web/SNMP management card
  - Output: (8) IEC 60320 C13, (2) IEC 60320 C19

- Input Connections: Hard wire 3-wire
- Hot-swappable batteries
- Automatic internal bypass
- Form factor: rack/tower convertible
- Installation and configuration

LOT #4

Storage Expansion for Archiving and Backup

- 01 Nos x HPE MSA 2040 LFF Disk Enclosure (12 LFF Slot) with necessary cables to connect to existing MSA2040 controller
- 06 Nos x HPE MSA 8TB 12G SAS 7.2K LFF (3.5in) Hard Drive
- Installation and Configuration
  - Installation should be done by vendor certified personal only
  - Rack mounting, cabling and labeling
  - Configure archive tier as per manufacture best practice
  - Configure archive data store for VMware with multipathing
  - Configure backup server storage pool for backup and archiving
  - Configuration documentation and on the job training
- Warranty
- The bidder should provide 3-Year comprehensive Warranty for all equipment and 1 Year Support for the software included in the proposed solution.