

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



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TECHNICAL SPECIFICATIONS (PROC-2023-009)

Subject: To Procure Primary Storage.

The Items quoted by the bidders are required to be meet minimum specifications as below.

1. TECHNICAL REQUIREMENT AND SCOPE OF WORKS

Note: It is required for each submitter to fill the following table. Failure to fill this table will consider this submission invalid.

#	Requirements	Quantity	Compliance (Yes / No)	Part No. and Reference
1.	Supply, installation, configuration, migration and maintenance for HPE Alletra 9000 series storage & Cisco Nexus 9300 Series Switches	1 LOT		
1.1	HPE Alletra 9000 SAN Storage System	01 Bundle		
1.1.1	Data Availability and All Flash <ul style="list-style-type: none"> Should be an enterprise storage array with 100% data availability guaranteed architecture and All Flash cloud native NVMe array. The storage array should support industry-leading Operating System platforms and clustering including Windows Server 2016 / 2019 and VMware 			
1.1.2	Capacity and Scalability <ul style="list-style-type: none"> The Storage array should support all NVMe protocol enabled SSD inside the storage array and shall be scalable to at-least 48 NVMe drives within the controller enclosure and shall be further capable for scaling to overall 144 NVMe drives by adding the additional drive enclosure(s). The storage array should have at least 4 x 100GbE NVMeOF enabled ports for drive enclosure connectivity and shall be scalable to 8 x 100GbE NVMeOF ports. 			



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#	Requirements	Quantity	Compliance (Yes / No)	Part No. and Reference
	<ul style="list-style-type: none"> The storage array should be scalable to 2.2PB raw capacity The storage array should be supplied with 122TB RAW Capacity using 3.84TB FIPS encrypted NVMe drives and should be configured in RAID. Vendor Should not use more than 10D+2P while sizing the array. The storage array Should be supplied with one (01) expansion drive enclosure including 24 NVMe SFF drive bays, IO modules, mounting rail kit, and power cables. The storage array Should support distributed Global Hot Spare for offered Disk drives. Vendor Should offer only the encrypted drives with appropriate encryption licenses and shall meet FIPS 140-2 – Level 2 security requirements. Vendor Should not offer any controller based or Software based encryption. 			
1.1.3	<p>Controllers</p> <ul style="list-style-type: none"> Should be supplied with at-least Dual controller and shall be scalable to at-least Quad controllers. The storage array Should be configured in a No Single Point of failure configuration including Array Controller card, Cache memory, FAN, Power supply etc. Should support online non-disruptive firmware upgrade for both Controller and disk drives without any reboot of controller. The storage array should have at-least 512GB protected DRAM cache and shall be scalable to at-least 1TB without replacing the existing controllers. Should be based upon latest generation Intel CPUs, minimum cascade lake series, and should be supplied with at-least 40 numbers of CPU cores. Controllers Should be true symmetric active-active so that a single logical unit can be shared across all offered controllers in symmetrical fashion. The storage array Should have native virtualization support so that Raid can be carved 			



#	Requirements	Quantity	Compliance (Yes / No)	Part No. and Reference
	out from a logical space instead of dedicating separate physical disks for each application.			
1.1.4	Cloud Enabled Management, Monitoring, Analytics and Integration <ul style="list-style-type: none"> Should Provide Firmware upgrade and patch upgrade recommendations proactively along with release notes A Dashboard Should clearly highlight whether there is any issue with array with respect to best practices and should recommend the required action, if any. Should provide granular per-minute historical capacity and performance trend analysis, without the need to enable extra logging, install any appliances (physical or virtual), or install any software. Should provide an overall saturation level of the array while analyzing various parameters like IOPS, MB/sec, Block size Cloud enabled monitoring and analytics engine (if any). Should be integrated with VMware. VMware integration Should be able to provide end to end monitoring of Data-store, Host and VMs running within the hypervisor datacenter. Should provide a detailed analysis of CPU Contention, Memory contention, IO contention for each VM. The Storage Array should have cloud native data console for managing unlimited number of arrays. 			
1.1.5	Host Ports and Back-end Ports <ul style="list-style-type: none"> The storage array Should have minimum of 16 x 25Gbps iSCSI ports that have the capability to work at line speed. The storage array should be supplied with minimum 08 x 25Gbps transceivers and 10 Meter fiber optic cable (patch cord) for front end host connectivity. The Storage Array Should be scalable to at least 32 x 32Gbps Fiber channel ports and 24 x 25Gbps iSCSI ports. 			



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#	Requirements	Quantity	Compliance (Yes / No)	Part No. and Reference
	<ul style="list-style-type: none"> The Storage Array Should be supplied with quad additional native 10Gbps IP ports for storage-based replication. All ports Should be provided with SFP+ transceiver for fiber connectivity. 			
1.1.6	<p>Capacity efficiency, replication and data protection</p> <ul style="list-style-type: none"> The Storage Array Should support inline data efficiency engine (Supporting Thin Zero detect and re-claim, De-duplication and Compression) and shall be enabled by default. Should have flexibility to enable / disable the data efficiency engine at the time of Volume creation. Storage subsystem Should be supplied with Thin Provisioning, Thin Re-claim, Snapshot, De-duplication, Compression, Performance Monitoring, and Quality of service on day 1 for the maximum supported capacity of the array. should have support for controller-based snapshots (At least 1024 copies for a given volume). The storage array Should support both Synchronous and Asynchronous replication across 2 storage arrays natively without the use of any third-party software or solution. The storage array Should have capability to provide true Active / Active Replication and Stretch clustering at metro distances for Zero RPO and RTO 			
1.1.7	<p>Integration – VMware and HPE Synergy Composable Infrastructure</p> <ul style="list-style-type: none"> The storage array Should be integrated with VMware and shall be certified for VVOL and should provide following functionalities for VVOL Should support both compression and de-duplication for VVOL Should be capable of integrating with existing HPE Synergy Composable Infrastructure providing streamlined management and automation, reducing manual configuration and improving operational efficiency Should be capable of integrating with existing HPE One View, allowing a unified view of the entire 			



#	Requirements	Quantity	Compliance (Yes / No)	Part No. and Reference
	infrastructure, allowing for simplified troubleshooting and monitoring			
1.1.8	Warranty and Technical Support <ul style="list-style-type: none"> 3 Year 8x5xNBD International Vendor Support and 3-Year 24x7 Local Technical Support Hardware Maintenance Onsite Support <ul style="list-style-type: none"> 24 Hours, 7 Days A Week. Hardware Problem Diagnosis Onsite Support Service Parts and Material provided 4 Hour Onsite Response Access to Advance Technical Specialists Software Technical Unlimited Support <ul style="list-style-type: none"> 24 Hours, 7 Days A Week. Software Unlimited Technical Support Software Electronic Support Standard Response Access to Advance Technical Specialists 			
1.1.9	Installation, Configuration, Integration and Data Migration Service (As per Section 1.3)			
1.2	Cisco Nexus 9300 Switch <i>Note: All quantities mentioned for this item is applicable for each switch, Total of 2 bundles are required</i>	02 Nos		
1.2.1	Cisco Nexus 9300 Series, 36p 40/100G QSFP28			
1.2.2	Cisco 3 Year Smart Net Total Care (SNTC) 8X5XNBD For Nexus 9300 Series, 36p 40/100G QSFP28			
1.2.3	Airflow Selection Port-side Intake			
1.2.4	Cisco Nexus 3K/9K Fixed Accessory Kit, 1RU front and rear removal			
1.2.5	02 x Cisco Nexus AC 750W PSU - Port Side Intake			



#	Requirements	Quantity	Compliance (Yes / No)	Part No. and Reference
1.2.6	02 x Cabinet Jumper Power Cord, 250 VAC 10A, C14-C13 Connectors			
1.2.7	03 x Cisco Nexus Fan, 65CFM, port side intake airflow			
1.2.8	Cisco Data Center Networking Essentials Term N9300 XF, 3 Years			
1.2.9	04 x Cisco 25G BASE Short-Range Transceivers with minimum 5-meter Multimode fiber optic cable (Patch Cord)			
1.2.10	04 x Cisco 10G BASE Short-Range Transceivers with minimum 5-meter Multimode fiber optic cable (Patch Cord)			
1.2.11	06 x Cisco 100G BASE Short Range QSFP Transceivers, with minimum 06 x 5-meter multimode fiber optic cable (Patch Cord)			
1.2.12	06 x Cisco QSFP to SFP10G adapter			
1.2.13	Warranty and Local Support <ul style="list-style-type: none"> 3-Year Cisco SmartNet Contract 8x5xNBD 3-Year 24x7 Local Technical Support 			
1.2.14	Installation, Configuration, Migration, and Integration Service (as per Section 1.3)			
1.3	Installation, Configuration, Integration and Data Migration for HPE SAN Storage	01 Nos		
1.3.1	The vendor MUST have at minimum the following full time OEM Certified Professional/Engineer in their team to provide installation, configuration, integration, migration and training services. All relevant engineer(s) certificates and supporting documents shall be included with the proposal. <ul style="list-style-type: none"> VMware Certified HPE Storage Solution Certified 			
1.3.2	<u>Planning and Assessment</u> <ul style="list-style-type: none"> All work should be planned to be conducted during official government working hours unless specified by NCIT. 			

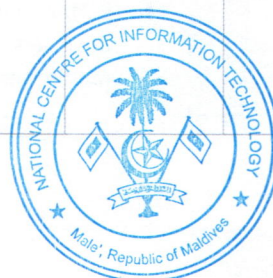


#	Requirements	Quantity	Compliance (Yes / No)	Part No. and Reference
	<ul style="list-style-type: none"> • Conduct a site survey and assess the current storage infrastructure and network environment. • Review the customer's business requirements and data growth projections. • Determine the appropriate configuration for the proposed storage solution to meet the customer's needs. <p><u>Installation and Configuration</u></p> <ul style="list-style-type: none"> • Install and configure the SAN storage solution according to the agreed-upon design and plan. • Install and configure all required software and firmware updates. • Ensure the new storage system is integrated with the customer's existing network infrastructure and the data center core network. • Configure the new SAN storage system networking and zoning as per customer requirements • Configure the desired RAID level, LUN creation, and mapping • Configure the storage system's replication (if required) <p><u>HPE Storage System Startup Drive Enclosure Field Service:</u></p> <ul style="list-style-type: none"> • Unpack and install the drive enclosure(s) according to HPE guidelines and best practices • Verify physical connectivity and cabling to ensure proper communication with the storage system • Verify proper power and cooling to the enclosure(s) • Perform initial configuration and setup of the drive enclosure(s) according to customer requirements and HPE best practices 			



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#	Requirements	Quantity	Compliance (Yes / No)	Part No. and Reference
	<ul style="list-style-type: none"> • Test the enclosure(s) to ensure they are functioning as required and are integrated into the storage system as expected • Provide knowledge transfer and training to technical personnel as requested by NCIT <p><u>HPE Storage System Startup Base Software Service:</u></p> <ul style="list-style-type: none"> • Install the HPE base software on the storage system according to HPE guidelines and best practices • Configure the software to meet customer requirements and HPE best practices • Test the software to ensure it is functioning as required and providing the expected functionality • Provide knowledge transfer and training to technical personnel as requested by NCIT <p><u>HPE Storage System Startup 4Wy Base Field Service:</u></p> <ul style="list-style-type: none"> • Install the HPE 4Wy base software on the storage system according to HPE guidelines and best practices • Configure the software to meet customer requirements and HPE best practices • Test the software to ensure it is functioning correctly and providing the expected functionality • Provide knowledge transfer and training to technical personnel as requested by NCIT • All professional services should be performed by HPE-trained professionals who have the knowledge and experience to complete the work to HPE standards. This should be proven with the documents as required in 1.3.1 <p><u>Integration with Existing HPE Synergy and HPE One View Infrastructure</u></p> <ul style="list-style-type: none"> • Review existing HPE Synergy and HPE One View infrastructure • Review HPE SAN Storage design and configuration requirements 			

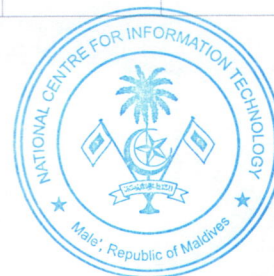


#	Requirements	Quantity	Compliance (Yes / No)	Part No. and Reference
	<ul style="list-style-type: none"> • Validate all prerequisites such as firmware, driver, and software versions • Verify and validate the connectivity of the new SAN storage system to the existing HPE Synergy and HPE One View infrastructure • Discover the SAN storage system in HPE One View • Create and configure SAN storage pools in HPE One View • Add the SAN storage pools to the HPE Synergy Composer and map to the desired servers • Validate HPE Synergy integration by performing a health check of the SAN storage system • Configure HPE One View to automate storage provisioning and management tasks, such as creating new volumes and assigning them to hosts. • Ensure that all policies and configurations are consistent across the entire infrastructure and that the SAN storage solution is fully integrated into the customer's automated IT operations. • Ensure the integration provides streamlined management and automation, reducing manual configuration and improving operational efficiency • Ensure the integration allows a unified view of the entire infrastructure, allowing for simplified troubleshooting and monitoring <p><u>Data Migration</u></p> <ul style="list-style-type: none"> • Develop a detailed migration plan that minimizes downtime and risk. The plan should be revised until agreed upon by the relevant team of NCIT. • Conduct a thorough data analysis to identify any potential issues or challenges. • Conduct the data migration, ensuring data integrity and maintaining data access during the process. 			

#	Requirements	Quantity	Compliance (Yes / No)	Part No. and Reference
	<ul style="list-style-type: none"> Approximately 90TB of data needs to be migrated. Integration of all compute nodes (physical & virtual) into the storage system, including the required configurations on VMware/Windows/Linux machines Data migration from existing HPE 3PAR/HPE MSA storage arrays with minimal impact and downtime of services The data migration should provide LUN-to-LUN migration and should verify data consistency. Data migration services and any required tools should be included as part of this proposal. Verify that the migrated data and confirm that it meets NCIT's expectations. <p><u>Testing and Validation</u></p> <ul style="list-style-type: none"> Conduct performance testing and validation to ensure the new storage system meets or exceeds the agreed-upon service levels. Conduct any necessary tuning or optimization to ensure optimal performance and reliability. Conduct a final acceptance test with the relevant personnel of NCIT to ensure that all requirements have been met. <p><u>Documentation and Knowledge Transfer</u></p> <ul style="list-style-type: none"> Develop and provide all necessary documentation for the operation, maintenance and troubleshooting of the system. Conduct knowledge transfer sessions with NCIT's Relative Personnel to ensure they understand the new system's operation and maintenance. <p><u>Post-Installation Support</u></p> <ul style="list-style-type: none"> Provide post-installation support for up to 03 months to address any issues that may arise. 			



#	Requirements	Quantity	Compliance (Yes / No)	Part No. and Reference
	<ul style="list-style-type: none"> Provide 3-Year local ongoing technical support to ensure the continued optimal operation of the new storage system. On the job training for up to 02 technical person to Install, configure, manage and troubleshoot the Storage system and its components 			
1.4	Installation, Configuration, Integration and Data Migration for Cisco Storage Fabric Switch			
1.4.1	<p>The vendor MUST have at minimum the following full time OEM Certified Professional/Engineer under its payroll to provide installation, configuration, integration, migration and training services. All relevant engineer(s) certificates and supporting documents shall be included with the proposal.</p> <ul style="list-style-type: none"> Cisco CCNA Certified for Routing and Switching 			
1.4.2	<p><u>Assessment and Planning:</u></p> <ul style="list-style-type: none"> Conduct a thorough assessment of the current network infrastructure to identify potential issues and constraints. Develop a migration plan that outlines the migration phases, timelines, and resources required. Define the scope of the upgrade, including which devices will be migrated and which features will be used. <p><u>Configuration of the New Nexus 9300 Series Switch:</u></p> <ul style="list-style-type: none"> Configure the new switch with appropriate network parameters, such as IP addresses, VLANs, and routing protocols. Configure Cisco Virtual Port Channel (VPC) between the new Nexus 9300 and the existing switches (if compatible). Configure optimized iSCSI storage network configuration for the new switch. <p><u>Migration of the Core Network:</u></p> <ul style="list-style-type: none"> Migrate the relative components of the existing network topology and configurations to the new Nexus 9300 switch. 			



#	Requirements	Quantity	Compliance (Yes / No)	Part No. and Reference
	<ul style="list-style-type: none"> • Verify the configuration and connectivity of the new switch with the existing network components. • Conduct a testing phase to ensure that the new switch is functioning as required. <p><u>Documentation and Training:</u></p> <ul style="list-style-type: none"> • Provide documentation for the new network configuration and topology. • Provide training to the relevant personnel of NCIT on the new switch and its features. • Ensure that all documentation and training materials are up-to-date and accessible. <p><u>Post-Migration Support:</u></p> <ul style="list-style-type: none"> • Provide post-migration support for up to 03 months to troubleshoot and resolve any issues that arise during and after the migration. • Conduct post-migration testing to ensure that the new switch is operating efficiently and as required. • Monitor the new switch for any issues or potential problems. • Provide 3-Year local ongoing technical support to ensure the continued optimal operation of the new switch. • On the job training for up to 02 technical person on Install, configure, manage and troubleshoot the switch and its components 			
1.5	<p>Service Level Expectations</p> <ul style="list-style-type: none"> • The support service vendor should provide the contact number of a single point of contact to facilitate immediate contact by NCIT's representative and he or she shall be responsible to liaise with all vendors for rectification of faults within the Next Business Day. • Defective equipment should be replaced by the vendor at their own cost including the cost of transport and other expenses if any; 	01 Nos		



#	Requirements	Quantity	Compliance (Yes / No)	Part No. and Reference
	<ul style="list-style-type: none"> The support service vendor should provide all normal toolkits and test equipment needed for the maintenance of the hardware to NCIT. System maintenance and support services should minimally include the following activities. <ul style="list-style-type: none"> 24 x 7 on-line Support. Patch installations and major / minor software version upgrading support. Phone/Email TAC support must be provided during support period Issue resolution / Onsite Visits within 1 hour of reported hardware failures Local TAC support plan must be maintained by the vendor for the entire duration of the maintenance period. 			
1.6	<p>Maintenance Support Services including on-site Technical Support:</p> <ul style="list-style-type: none"> On-site hardware repairing/replacements and maintenance support service should be delivered by an experienced OEM Certified Engineer On-site diagnostics and repair service should be delivered by experienced OEM Certified Engineer and should diagnose, repair, and test to ensure optimal performance. Technical support engineers should be available to answer questions required. Flexible on-site response times that meet business requirements Service summary report should provide after performing each work including recommendations for further actions or equipment that is required to ensure optimal performance The Maintenance Support Engineer should check and ensure that the supplied devices are running the most recent firmware version. Firmware upgrades should be provided with no additional costs. During each maintenance visit, field service Engineers should run tests to verify that the supplied units are operating as required in all operational modes. 	01 Nos		



#	Requirements	Quantity	Compliance (Yes / No)	Part No. and Reference
	<ul style="list-style-type: none"> ● Maintenance Support Engineer should follow a well-defined set of processes and procedures to provide high quality services. ● The support service vendor should maintain critical parts locally in Male' to provide immediate after sale support. 			

2. MINIMUM BIDDER'S QUALIFICATION REQUIREMENTS:

2.1. 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.

2.2. 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.

2.3. Completed similar projects (Value above MVR 300,000.00):

The bidder shall provide reference letter / documents of successful completion of similar system (enterprise storage, compos able server infrastructure, network and network security) within last five (5) years. The mentioned project references must include names and contact information of the respective clients, if required the NCIT can contact and verify the project summaries. The submitted reference documents should minimally contain the following:

- Document should be from the client (signed and stamped)
- Client opinion regarding the vendor performance and completion of the project should be stated in the document.
- Project name(s) and project value(s) should be included in the document.



3. EVALUATION CRITERIA

NCIT will evaluate the technical aspects of the Bid submitted in accordance with this RFP, to confirm that all requirements specified in the RFP, have been met without any material deviation or reservation.

3.1 Evaluation of the bid shall have been based on the following marking criteria.

Evaluation Categories	Percentage (%)
Price	70%
Technical (<i>marks break down below</i>)	25%
Delivery and Installation	5%
Total	100%

Technical breakdown (marks break down below)

Technical Criteria Detail	Marks
Completion of the Technical and Support Proposal including supporting documents	5%
Trained/Qualified staff (Team Composition)	Mandatory
Completed Similar Systems and Support Services Projects <u>Maximum 5 reference letters/purchase orders/contract copy or completion certificate:</u> <ul style="list-style-type: none">- 5 points for each reference letter / completion certificate signed and stamp by client.- Completed similar systems and support services projects (value above MVR 300,000.00 per project) within the last five (5) years.	20%
Total	25%

Information for Procurement Department (Internal only)

Mandatory General Requirements	YES/NO
Information Session Required	YES
Manufacture Authorization Letter	YES
Warranty Minimum Duration	Required as indicated in the RFP
Installation	Required as indicated in the RFP
Training	Required as indicated in the RFP



Technical Criteria Detail	Marks
Completion of the Technical and Support Proposal including supporting documents	5%
Trained/Qualified staff (Team Composition)	Mandatory
<p>Completed Similar Systems and Support Services Projects</p> <p><u>Maximum 5 reference letters/purchase orders/contract copy or completion certificate will be counted:</u></p> <ul style="list-style-type: none"> - 5 points for each reference letter / completion certificate signed and stamp by client - Completed similar systems and support services projects (value above MVR 300,000.00 per project) within the last five (5) years. 	20%
Total	25%

