

ANNEX 1

Specifications

TECHNICAL SPECIFICATION / COMPLIANCE OF SERVER SYSTEM

Database Servers – 2 Qty

Description	Required Specification
Form factor	2U Rack Mount Server
No of processors supported	Support minimum 2
Processor	One (1) 2nd-generation 4216 16C 100W 2.1GHz Processor
Processor Cache	Minimum 22MB Cache
Processor Cores	Minimum 16 cores
Chipset	Compatible Intel chipset
RAM	Minimum 2 x 32GB DDR4 2666 MHz (2Rx4 1.2V) RDIMM
Memory Capabilities	Support up to 768 GB with 12x 64 GB RDIMMs (Up to 384 GB per processor)
Memory Protection	Support Error Correction Code (ECC), memory mirroring, memory rank sparing
Hard Disk Capacity	2 x 800GB Mixed-Use SAS 24Gb HS SSD
Number of Hard Disk Bays	Support up to 16 SFF hot-swap drive bays
RAID Controller	SAS RAID Controller supporting 8 internal SAS or SATA drives with 2GB cache with flash-based backup
Networking ports	Two (2) x 1 GigE Copper Interfaces, Dual Port 10G SFP+ Daughter or Card, Dual Port 10G SFP+ Ad-on Card, 2 x Single port FC HBA 16G Card Should provide necessary transceivers & FC cables should provide with necessary transceivers & FC cables
Expansion Slots	Support a total of up to six I/O expansion slots
I/O Interfaces	Front: 1x USB 2.0 port, 1x USB 3.0 port and 1x VGA port Rear: 2x USB 3.0 ports and 1x VGA port
Management Port	1x GbE dedicated management port
Management	Should provide Integrated Remote Access Management and Controller with Enterprise Features



	Should provide Real-time monitoring, fault handling, and alert notification capabilities
	Should Provide Service & Support for Management Software throughout the support period
Security	Administrator's password Secure firmware updates
Power supply	Dual, Platinum Hot-Plug Power Supply (550W(230V/115V) with two Rack Power cables
Quality Standards	The quoted product should be a product of an ISO 9001:2008 certified company for designing & manufacturing computers
Mechanical	Toolless Slide Rail Kit with 2U Cable Management Arm Lockable front bezel
Warranty	3-year Parts and 24x7 Service
Defective Media Retention	Should allow keeping storage media if it is defective and requires replacement while under warranty
Manufacture Authorization	Compulsory
Installation & Setup	Rack Mount, Power, and Data Cabling, /Initial Configuration of Servers / Install and Configuration of Hyper-V or OS and related Setup
Training	Server administration and Management training for AEH IT staff (Minimum – 3)

VM Servers – 2 Qty

Description	Required Specification
Form factor	2U Rack Mount Server
No of processors supported	Support minimum 2
Processor	Two (2) 2nd-generation 4216 16C 100W 2.1GHz Processor
Processor Cache	Minimum 22MB Cache
Processor Cores	Minimum 16 cores per Processor
Chipset	Compatible Intel chipset
RAM	Minimum 4 x 64GB DDR4 2933MHz (2Rx4 1.2V) RDIMM
Memory Protection	Support Error Correction Code (ECC), memory mirroring, memory rank sparing
Hard Disk Capacity	2 x 800GB Mixed-Use SAS 24Gb HS SSD
Number of Hard Disk Bays	Support up to 16 SFF hot-swap drive bays
RAID Controller	SAS RAID Controller supporting 8 internal SAS or SATA drives with 2GB cache with flash-based backup
Networking ports	Two (2) x 1 GigE Copper Interfaces, Dual Port 10G SFP+ Daughter or Card,



	Dual Port 10G SFP+ Ad-on Card, 2 x Single port FC HBA 16G Card Should provide with necessary transceivers & FC cables
Expansion Slots	Support a total of up to six I/O expansion slots
I/O Interfaces	Front: 1x USB 2.0 port, 1x USB 3.0 port and 1x VGA port Rear: 2x USB 3.0 ports and 1x VGA port
Management Port	1x GbE dedicated management port
Management	Should provide Integrated Remote Access Management and Controller with Enterprise Features
	Should provide Real-time monitoring, fault handling, and alert notification capabilities
	Should Provide Service & Support for Management Software throughout the support period
Security	Administrator's password Secure firmware updates
Power supply	Dual, Platinum Hot- Plug Power Supply (550W(230V/115V) With two Rack Power cables
Quality Standards	The quoted product should be a product of an ISO 9001:2008 certified company for designing & manufacturing computers
Mechanical	Toolless Slide Rail Kit with 2U Cable Management Arm Lockable front bezel
Warranty	3-year Parts and 24x7 Service
Defective Media Retention	Should allow keeping storage media if it is defective and requires replacement while under warranty
Manufacture Authorization	Compulsory
Installation & Setup	Rack Mount, Power, and Data Cabling, /Initial Configuration of Servers / Install and Configuration of VMware ESXi Server and related Setup
Training	Server administration and Management training for AEH IT staff (Minimum - 3)

SAN Storage - 1 Qty



Description	Required Specification
Form factor	2U Rack Mount SAN Storage
Controller configuration	Dual active-active controller configuration with automatic load balancing
RAID levels	RAID 0, 1, 5, 6, and 10
Controller system memory	64 GB cache Memory per system (32 GB per controller) Should provide with Cache mirroring between the controllers & Flash-backed cache protection
Capacity	10TB Usable Capacity from 3.84TB 1DWD 2.5" SAS SSD (after RAID 10)

Host connectivity	8x 8/16/32 Gb FC SFP+ host ports (SW fiber optics [LC]) (4 ports per controller) Should provide with necessary 16Gb FC Universal SFP+ Module & FC Cables
Drive expansion connectivity	4 x 12 Gb SAS host ports (Mini-SAS HD, SFF-8644) (2 ports per controller)
Host operating systems	Microsoft Windows Server; Red Hat Enterprise Linux (RHEL); SUSE Linux Enterprise Server (SLES); VMware vSphere.
Standard software features	SSD read cache (5 TB SSD read cache), snapshots (up to 128 targets), volume copy
Additional software features	Should support Encryption, Snapshots upgrade (Up to 512), Synchronous Replication, Asynchronous replication
Cooling	Redundant cooling with the fans that are built into power supplies
Power supply	Two redundant hot-swap 913 W (100 - 240 V) Platinum AC power supplies & Rack Power Cables
Hot-swap parts	Controllers, I/O modules, drives, power supplies,
Management ports	1x 1 GbE port (UTP, RJ-45) per controller for out-of-band management. 2x Serial console ports (RJ-45 and Micro-USB) for system configuration.
Management interfaces	System Manager web-based GUI; SSH CLI; Serial console CLI; SMI-S Provider; SNMP, email, and Syslog alerts
Quality Standards	The quoted product should be a product of an ISO 9001:2008 certified company for designing & manufacturing computers
Mechanical	Storage Rack Mount Kit 2U
Warranty	3-year Parts and 24x7 Service
Defective Media Retention	Should allow keeping storage media if it is defective and requires replacement while under warranty
Manufacture Authorization	Compulsory
Installation & Setup	Rack Mount, Power, and Data Cabling, /Initial Configuration of Storage /Present Storage to VMware ESXi Host Server and related Setup
Training	Storage administration and Management training for AEH IT staff (Minimum - 3)

Server virtualization and consolidation plus business continuity

Description	Required Specification
Hypervisor	VMware vSphere 7 Enterprise for 4 Sockets - 3 Years Production Support
Management	VMware VCentre Standard x 1 Instance with 3 Years Production Support
Installation & Setup	Rack Mount, Power, and Data Cabling, /Initial Configuration of Storage /Present Storage to VMware ESXi Host Server and related Setup
Training	vCenter Server administration and Management training for AEH IT staff (Minimum - 3)
Manufacture Authorization	Compulsory



Network Switch 10G x 2

Description	Required Specification per Switch
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Form Factor	1U Rack Mount
10G Ports	Minimum 20 x Port SFP+
25G Ports / 40G Ports	Minimum 4 x 25G SFP28 / 2x 40G QSFP+
Management Layer	Layer 3
Hardware Stacking	Minimum 2 Units
Power Supply	1+1 Hot-swappable Power Supplies
10G Base-T Transceivers	6
10G SFP+ Transceivers	12
Management Layer	Layer 3
Optical Patch Code	20 x LC to LC Duplex OM4 - 3M
Direct Attached Cables	1 x 25G SFP28 Passive Direct Attach Copper Twinax Cable 1M
Installation & Setup	Rack Mount, Power, and Data Cabling, /Initial Configuration of Switch and related Setup
Warranty	1-Year
Training	Network Switch administration and Management training for AEH IT staff (Minimum - 3)
Manufacture Authorization	Compulsory

Backup Storage

Description	Required Specification
Form Factor	1U/2U Rack Mount
CPU	Intel® Celeron® 2.9GHz Dual-Core Processor
System Memory	8GB DDR4
No of HDD	4 x 3.5" + 2 x 2.5"
HDD Type	3.5" SATA III / SATA II HDD 2.5" SATA III / SATA II HDD SSD
Power Supply	1+1 Hot-swappable Power Supplies
Network Ports	Minimum 2 x Gigabit LAN ports Minimum 2 x 10G SFP+ Ports - with Transceivers and 3M Patch Codes
USB 3.0 Ports	Minimum 2
Rack Rails	Should be included
Hard Disk	3 x WD 12TB Red Plus SATA III 3.5" Internal NAS HDD or Equivalent
Installation & Setup	Rack Mount, Power, and Data Cabling, /Initial Configuration of Switch and related Setup
Warranty	1-year
Training	Backup Storage administration and Management training for AEH IT staff (Minimum - 3)
Manufacture Authorization	Compulsory



Backup Software

Description	Required Specification
License Type	Per Workload
Number of Work Loads	20
License Period	3 years

Features	<p>Create image-based, incremental backups of VMware vSphere, Microsoft Hyper-V, Create image-based, incremental backups of Windows-based and Linux-based physical servers and workstations. Instantly verify VMware vSphere and Microsoft Hyper-V VM backups; get a report with screenshots of test-recovered machines Boot VMware vSphere and Microsoft Hyper-V VMs directly from backups, migrate booted VMs to production if necessary Instantly restore files and folders to their original location, to a custom location (local folder or CIFS/NFS share), or forward via email as an attachment. Create and maintain VMware vSphere and Microsoft Hyper-V VM replicas, are identical copies of source VMs.</p>
Installation & Setup	Initial Configuration of Backup Software and related Setup
Training	Backup Software administration and Management training for AEH IT staff (Minimum - 3)
Manufacture Authorization	Compulsory

