



Item #1 : Intel based Virtualization server		QTY 4
High quality brand name with the following minimum specification:		
Processor	Two Dual CPU Intel 6520P Xeon 2.4GHz 24C 144M 210W	
Memory	256GB DDR5-6400MHz ECC, Server Must include 32 Memory Slots for Future Expandability	
Storage & RAID controller	4 x SSD SATA 960GB Hardware RAID controller supporting RAID 6 and RAID 10 With 2GB cache and battery/flash protection	
Controllers	1 x 4 port 1GbE Two x 2 port 10Gb SFP+ with SFP+ include 10M LC/LC MM Cables 2x 32Gb/sec single port Fiber channel controller 1GbE for Management	
Management	Include Advance/Enterprise Full management software that can provide the following Features: - -Intelligent asset management and real-time tracking of asset changes -can be deployed on multiple devices and adapts to virtual machines (KVM/VMware) and bare-metal deployment scenarios. -can provide full lifecycle management of servers. -Can provides comprehensive alert monitoring and fault warning services. -realize fault prediction of drives and DIMMs in the server and AI-based maintenance, ensuring the efficient and stable operation of enterprise infrastructure. -Provides functions such as batch firmware update, hardware configuration, system deployment, and software deployment, remote graphical access IPKVM.	
Expansion & I/O	Min 4USB ports, VGA or equivalent Min 5 x PCI-E Slots	
Power	Fully used & redundant Hot-pluggable power supplies, 220-250 VAC/50Hz redundant cooling fans Enough cooling dissipation designed to enable working continuously 24/7 without overheating	
From factor	Rack mount with all accessories to install the servers in the cabinet should be provided Cable Management ARM must be included	
others	All drivers that support the system must be provided by manufacturers. Original full featured server management software for installation, configuration and remote management	
Certified and /or support	MICROSOFT WINDOWS SERVER 2022 and latest MICROSOFT HYPER-V SERVER 2022 and latest VMware VSphere latest Red hat Enterprise Linux 64bit	
Warranty	3 years warranty parts and labor on site (24x7 support)	
Optional	Please proposed the optional cost of additional 256GB Ram per servers	



Item #2 : SAN storage Array		QTY 1
High quality brand name with the following minimum specification		
Features	Required specification	
Host interface	4 x 32Gb/s FC port Per controller Total	
Storage architecture	<ul style="list-style-type: none"> must be listed as a leader on Gartner Magic Quadrant for primary storage. Dual redundant Active/Active RAID controllers At least The storage main controller unit or equivalent must be 100% NVME. Main components are redundant and hot-pluggable, such as controllers, power supply units, cooling fans and hard disk drives Storage controllers must utilize Intel® Xeon® Scalable processors or AMD. 	
System Cache	Total Of 256GB Cache in case of DRAM Cache storage OR Total of 16GB NVRAM+128GB Memory for Vendors proposing NVRAM Cache Storage	
Operating system	Microsoft windows RED hat Linux, Oracle Linux, VMware ESXi, Solaris and AIX	
Required Usable Capacity (min)	~36TB NVMe Drives Usable Capacity after RAID 6 or Equivalent + Min One Hot Spare Disks And The drives Must be SED (Self-Encrypted Drives). (Disk Capacity does not exceed 5TB) The proposed drivers must use TLC Technology.	
RAID supported	Support RAID level at least 5 or 6 or Equivalent	
cables	All required cables should be provided	
Manageability	Management software using web or GUI support local and remote administration	
Features	<ul style="list-style-type: none"> Storage capacity is ready to support adding additional shelves for future expansion. Storage should be ready to connect to the maximum number of hosts supported by the storage Snapshot & Snap Cloning, storage Mirroring & Replication Thin Provisioning. Deduplication or compression Optional Anti-ransomware protection for post-attack recovery safeguards your critical data from ransomware attacks. No Single Point of failure architecture Rack industry standard rack All licenses should be included to maximum capability of the storage proposed 	
Warranty	3 years warranty parts and labor on site	



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Item #3 : SAN switch specification		QTY 2
Features	Description	
Form factor	Rack mountable with all needed accessories to install in a rack cabinet with all needed cables (power and FC)	
No of ports	24 Ports	
No of active ports	8Port with SFPs 32Gbit/s Port rate (short wave) include 5M MM LC/LC FC Cables	
Management	Management software can be used through an intuitive web interface or GUI	
Warranty	3 Years warranty parts and Labor on Site	



Item #4 : Virtualization Software for above servers

Features	Description
Product	<p>Option One Virtualization Solution Based on MS-HV</p> <p>Option Two Virtualization Solution that meets the below features</p> <p>Both Options need to be proposed</p>
Features	<ol style="list-style-type: none"> Virtualization Capability <ul style="list-style-type: none"> The solution must support virtualization of servers and containers (VMs / LXC) with efficient CPU, memory, and storage allocation. Centralized Management Console <ul style="list-style-type: none"> The solution must provide a unified management interface for monitoring, provisioning, and managing compute, storage, and networking resources. High Availability (HA) <ul style="list-style-type: none"> The solution must support high availability for virtual machines, ensuring automatic failovers in case of node or host failure. Scalability / Scale-out Architecture <ul style="list-style-type: none"> The solution must allow seamless addition of nodes to scale compute, resources without downtime. Backup and Snapshot Support <ul style="list-style-type: none"> The solution must include backup capabilities, snapshot support, and, where applicable, continuous data protection to safeguard virtual workloads. Resource Pooling and Virtual Resource Management <ul style="list-style-type: none"> The solution must allow pooling of CPU, memory, and storage resources to optimize utilization and allocate resources dynamically to workloads. Monitoring and Alerts <ul style="list-style-type: none"> The solution must provide performance monitoring, health checks, and alerting capabilities for proactive management. Disaster Recovery / Redundancy <ul style="list-style-type: none"> The solution must support disaster recovery strategies, including replication, snapshot restore, and redundant configuration options for critical workloads in Future use (Licenses is not needed) Hardware Flexibility / Compatibility <ul style="list-style-type: none"> The solution must support deployment on commodity x86 servers, ensuring flexibility and minimizing vendor lock-in. Migration Tools <ul style="list-style-type: none"> The proposed solution must include built in Migration tool from VMware to proposed virtualization solution, if not support bedder must provide external tool or migration plan.
Vendor support	<p>The proposed solution must include a 3-year vendor subscription and support. Perpetual licenses are also acceptable.</p> <p>The proposed software must retain all above functional features, and no functionality should be disabled if support or subscription expired</p>



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Local Support	3 years of local company support
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Item #5 : Rack Cabinet		QTY 1
42U rack cabinets	Rack cabinets for servers to accommodate all items min 800 mm width	
Rack cabinet doors	Front and back doors and side panels with keys Perforated Front and Back Doors	
Rack Structure	Welded frame, reliable structure Cable entries on both top cover and bottom panel	
PDUs	Equipped with vertical 2x 16-Ways PDU per cabinet Must support C-13-C14 Power Cables 32Amp, Industrial Socket input.	
FAN	6 Fans	
Shelf	3 x Fixed Shelves	
Warranty	3 years	

Item #6 : Official Training for IT Staff		QTY 2
Provision of Official Training on Products:		
<ul style="list-style-type: none"> • Item 2 • Item 4 • Item 7 <p>The vendor must include the full cost of training in the proposal, including accommodation and travel expenses for any external training, if applicable.</p>		



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Item #7 : NAS storage for Backup with Dual Controller		QTY 1
Format	2U RACK with Rail kit	
Controller	Dual Controllers with Total of 32GB Memory Support RAID 0, RAID 1, RAID 5, RAID 6, RAID 10 Support SMB1 (CIFS), SMB2, SMB3, NFSv3, NFSv4, NFSv4.1, iSCSI Dual-port 10GbE SFP+ Per Controller, RJ-45 10GbE LAN Port Per Controller ,2xRJ-45 1GbE LAN Port Per controller	
Capacity	Total of 12x12TB SAS 12Gb 3.5" HDD, must support Hot spare Must be upgradable up to 36 Drives for Future Expandability	
Power Supplies & Fans	The hardware redundancy mechanism leverages controllers, power supplies, and fans to prevent a single point of failure.	
Warranty	3 years	



Special Conditions & Scope of Work

(Bidders must fill the comply sheet for all technical specifications and special conditions listed in this document.)

The project is about replacing the current VMWARE Virtualization environment with New Scalable and latest technology Solution including Virtualization servers, Virtualization Software and All Flash Storage to deliver business- critical applications and services in TTU.

- Bidder should provide full installation and configuration for all the newly proposed components.
- Bidder must propose a migration tools/Plan/ Services to insure the migration of existing VMs to new proposed solution

- Bidder Can visit TTU data center to check all current environment.
- Test and insure that all the services are up and running and work without any issues is the Bidder responsibility.
- Bidders Company must be registered for more than 10 years
- Bidders must have an excellent experience in such environment, a complete Company profile must be presented with **Min three references for virtualization environment installation or migration** in general.
- The bidder **must be Official Partner (Item 1,2,4)** for the proposed Hardware Products (Documents must be included in Bidder proposal).
- The proposed Hardware should have official service Center inside Jordan
- The Bidder must have **at least Two Certified Technical persons** in the proposed Hardware Products (Documents must be included in Bidder proposal).
- The design must grantee highest levels of availability and responsiveness for all applications and services through:
 - Failover protection against hardware and operating system failures within the environment.



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➤ Minimizing Downtime from server and Operating system Failures.

- The bidder must provide TTU with detailed implementation plan for the solution.
- The bidder must provide TTU with a complete testing plan for the Virtualization cluster and failover of virtual servers.
- The Bidders must guarantee local on-site support for their products.
- Bidders are responsible of the configuration for all devices based on TTU Needs. Bidders must guarantee a high-standards configuration.
- Suppliers shall specify the Time for delivery from the date of the acceptance of the award by the supplier
- Suppliers shall propose only one complete solution that will meet all the requirements indicated in this specifications document.
- It is **(Turn Key solution) and One Lot Tender.**