

(1)

### 1. Compute (CPU)

Component	Specification
Processor Type	Enterprise Server-Grade CPU
Recommended CPU	Dual <b>AMD EPYC 9354</b> (32 Cores each) or Dual <b>Intel Xeon Gold 6430</b>
Total Cores / Threads	64 Cores / 128 Threads
Base Clock	≥ 2.4 GHz
Virtualization Support	AMD-V / Intel VT-x, VT-d
NUMA Support	Yes
Rationale	High core count ensures smooth VM isolation, concurrent workloads, and scalability

---

### 2. Memory (RAM)

Component	Specification
Installed Memory	<b>256 GB DDR5 ECC Registered</b>
RAM Speed	≥ 4800 MT/s
Slots Available	≥ 16 DIMM slots
Expandability	Upgradable to <b>512 GB or higher</b>
Rationale	Prevents memory contention when multiple VMs run databases, caching, and background jobs

---

### 3. Storage (Primary – VM & Application Data)

Component	Specification
Total Usable Capacity	<b>20–24 TB usable</b>
Drive Type	Enterprise SATA SSD

<b>Component</b>	<b>Specification</b>
Configuration	<b>RAID 10</b> (Performance + Redundancy)
Drive Count	8 × 4 TB SATA SSD
Interface	SATA 3.5 or higher

---

#### 4. RAID & Storage Controller

<b>Component</b>	<b>Specification</b>
RAID Controller	Hardware RAID with Cache
Cache Memory	≥ 4 GB cache + battery/flash-backed
RAID Levels	RAID 1, 5, 6, 10
Pass-Through Mode	Yes (for ZFS/Proxmox if needed)

---

#### 5. Network Interfaces

<b>Component</b>	<b>Specification</b>
Primary NIC	Dual <b>25 Gbps SFP28</b>
Secondary NIC	Dual <b>10 Gbps Ethernet</b>
Management NIC	Dedicated 1 Gbps
NIC Features	SR-IOV, VLAN tagging

---

#### 6. Virtualization Platform Support

<b>Platform</b>	<b>Supported</b>
Hypervisor	Proxmox VE / VMware ESXi / Hyper-V
Guest OS	Windows Server, Linux (Ubuntu, Debian, RHEL)
Live Migration	Supported
VM Snapshots	Supported

(3)

---

## 7. Power Supply

Component	Specification
-----------	---------------

Power Supplies	Dual Redundant PSU
----------------	--------------------

Rating	1600W Platinum (80 PLUS)
--------	--------------------------

Hot-Swap	Yes
----------	-----

Power Input	Dual independent feeds
-------------	------------------------

---

## 8. Cooling & Chassis

Component	Specification
-----------	---------------

Chassis Type	Rackmount 2U or 4U
--------------	--------------------

Cooling	Redundant Hot-Swap Fans
---------	-------------------------

Drive Bays	≥ 16 hot-swap bays
------------	--------------------

---

## 9. Management & Monitoring

Component	Specification
-----------	---------------

Out-of-Band Management	IPMI / iDRAC / iLO
------------------------	--------------------

Remote Console	Yes
----------------	-----

Power Control	Yes
---------------	-----

Hardware Health Monitoring	Yes
----------------------------	-----

Firmware Update	Remote supported
-----------------	------------------

---

## 10. Security & Reliability

Feature	Specification
---------	---------------

TPM	TPM 2.0
-----	---------

(4)

<b>Feature</b>	<b>Specification</b>
Secure Boot	Supported
ECC Memory	Mandatory
Hardware Watchdog	Supported

---

### **11. Operating Environment (Recommended)**

<b>Layer</b>	<b>Recommendation</b>
Hypervisor	Proxmox VE (ZFS optional)
VM Storage	SATA RAID 10
Monitoring	Prometheus / Zabbix

---