# Supply, Installation, Configuration, and Integration of Compute Expansion and Storage Expansion

## 1. Compute Node – 1 Bundle

| # | | Minimum Specification | ✓ |
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| **1.1** | Form Factor: | 2U Rack Server | |
| **1.2** | Processor | 2 Nos × Intel Xeon Silver 4514Y(2.0GHz/16-Core/30MB/150W) | |
| **1.3** | Memory | - Up to 48 × DDR5 DIMM slots<br>- Supports up to 12 TB memory capacity.<br>- Installed: 4 Nos x DDR5 RDIMM, 64GB, 5600MT/s, 2Rank" | |
| **1.4** | Storage & Controller | - Flexible hot-swappable storage chassis supporting 2.5" HDD/SSD (≥ 33 hot-swappable drive bays supported)<br>- Installed Drives: 2 × 960 GB SATA 6Gb/s Read-Intensive (RI) 2.5" SSD<br>- RAID Controller: Installed hardware RAID controller card with ≥ 4 GB cache capacity<br>- RAID Levels Supported: RAID 0, 1, 10, 5, 50, 6, 60<br>- Power Protection: Supercapacitor included for power-off cache protection | |
| **1.5** | Networking | - Installed: 1 × OCP 3.0 Dual-Port 25GE SFP28 Ethernet Adapter<br>- Cables Included: 2 × 25G SFP28 Passive High-Speed Direct Attach Cables (3 meters)<br>- Data/Management Ports: 4 × 1GbE Data Ports, 1 × 1GbE Dedicated Management Port | |
| **1.6** | PCIe & GPU Support | Must support up to 4 × dual-width or 14 × single-width GPU cards | |
| **1.7** | Cooling System | 4 × Hot-swappable counter-rotating fans with N+1 redundancy | |
| **1.8** | Power Supply | - 2 × Hot-swappable 2000W Platinum PSUs with 1+1 redundancy<br><br>2 × Power Cords (AC 250V 10A, 1.8m, C14-to-C13 PDU connection) | |
| **1.9** | Installation Accessories | - 1 x Ball Bearing Rail Kit<br>- 1 x 2U Bezel/Panel" | |
| **1.10** | Server Management: | - Integrated iBMC with dedicated management port<br>- Protocols: Redfish, SNMP, IPMI 2.0, HTML5/VNC KVM, Agentless Monitoring, Remote Control<br>- Interfaces: Web-based GUI, Serial Port CLI<br>- Supported OS: VMware ESXi / vSphere, Microsoft Windows Server, RHEL, SUSE, Ubuntu, Debian, CentOS, Oracle Linux, openEuler | |
| **1.11** | Warranty & Support | - 3-Year Warranty Onsite Standard<br>- 24x7 Technical Assistance Center (TAC) Support<br>- Online Self-help Support & System Software/Firmware Update<br>- 9x5xNBD Advance Hardware Replacement<br>- 9x5xNBD Onsite Support | |

## 2. Storage Expansion - 1 Bundle

**Infrastructure & Compatibility Notes:**

- **Enclosure Capability:** The current HPE MSA 2060 deployment features separate enclosures supporting both 2.5" SFF and 3.5" LFF drive form factors.
- **Drive Bay Availability:** Existing enclosures contain sufficient unpopulated, available drive bays to host all 11 new drives directly.
- **Hardware Requirement:** No additional expansion shelves or drive enclosures are required for this supply.

| # | | Minimum Specification | ✓ |
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| **2.1** | **SAS Enterprise Drives (SFF)** | 8 × HPE MSA 2.4 TB SAS 12G Enterprise 10K SFF (2.5in) M2 *(Includes 3-Year Warranty)* | |
| **2.2** | **High Capacity Drives (LFF)** | 3 × HPE MSA 14 TB 7.2K LFF (3.5in) M2 *(Includes 3-Year Warranty)* | |
| **2.3** | **Service License Renewal** | 1 × 1-Year HPE TechCare Essential Service Renewal for existing HPE MSA 2060 Storage | |

## 3. Professional Services: Installation, Configuration, and Integration Service - 1 Bundle

| # | | Minimum Specification | ✓ |
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| **3.1** | Team requirement | The vendor MUST employ and submit valid certification copies for all listed certifications prior to award:<br>- **IT Project Management or IT Service Management**<br>- **Fortinet Certified Professional (FCP)** Network Security<br>- **HPE Accredited Technical Professional (ATP)** – Storage Solutions<br>- **HPE SimpliVity System Administration**<br>- **Cisco Certified** (CCNA / CCNP) | |
| **3.2** | Service Planning and Design | - Assess existing compute nodes, HPE MSA 2060 Storage, Cisco core network, and Fortinet security infrastructure.<br>- Prepare detailed deployment and integration plan: network topology, VLAN allocation, IP addressing, and security considerations.<br>- Design compute node expansion to ensure seamless compatibility with existing server cluster.<br>- Plan HPE MSA 2060 storage expansion (disk group layout, capacity utilization, and RAID structure). | |
| **3.3** | Hardware Installation | - Rack-mount compute node server and install the 2.5" SFF & 3.5" LFF drives into their respective existing HPE MSA 2060 enclosures.<br>- Install dual power cables, management connections, data networking, and storage connectivity cables.<br>- Update server and storage firmware, BIOS, and management | |

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| | | modules to approved stable versions.<br>- Configure hardware RAID settings, iBMC management, and network interfaces. | |
| **3.4** | Virtualization & Cluster Integration | - Add the new compute node to the existing VMware vSphere virtualization environment/cluster.<br>- Configure cluster membership, resource pooling, vSphere HA (High Availability), and DRS settings.<br>- Verify cluster-wide host compatibility and performance. | |
| **3.5** | Storage Integration | - Expand existing HPE MSA 2060 storage capacity using the supplied SFF and LFF drives.<br>- Configure storage pools, virtual disks, and LUNs.<br>- RAID Configuration: Final RAID levels will be determined during implementation based on existing cluster configuration and optimization requirements.<br>- Verify storage accessibility and LUN path redundancy across the VMware vSphere hosts. | |
| **3.6** | Cisco Core Network Integration | - Configure network interfaces for the compute node, including VLAN tagging and port configuration.<br>- Ensure high-speed data communication, path redundancy, and compliance with existing Cisco network standards. | |
| **3.7** | Fortinet Security Integration | - Enforce existing Fortinet security and access control policies on the new compute and storage components.<br>- Configure required firewall rules and strict network segmentation.<br>- Lock down management interfaces to ensure accessibility is restricted to authorized ICT administrators only. | |
| **3.8** | Testing & Commissioning | - Verify complete physical and logical installation of all hardware.<br>- Perform compute node failover, vMotion, HA testing, and storage performance/accessibility checks.<br>- Validate network connectivity, path redundancy, and firewall security rule enforcement. | |
| **3.9** | Documentation & Knowledge Transfer | - Deliver detailed **As-Built Documentation** covering compute host settings, storage allocations, IP/VLAN tables, and security policies.<br>- Provide updated network, storage, and cluster architecture diagrams.<br>- Hand over warranty cards, software licenses, and support contact details.<br>- Conduct technical training/knowledge transfer for PGO ICT personnel on routine system administration, monitoring, and troubleshooting. | |

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| ބިލިން ބާބަތުން ކުރިން ދިން ތަފުސީލު | • ކުރިން ބަދަލު ކުރެވިފައިވާ ފުރިހަމަ ބިލުގެ ވިލާގެ ފަރާތުން (ފާސްކުރި ނަންބަר 6/2013) ގެ ދަށުން ހިންގާ ބިލުން ހެދުމުގެ ބިލުގެ ބިންގާ ބިލުތަކުން ބޭނުންކުރާ ބިލުގެ ބަންދުކުރުން (ފާސްކުރި ނަންބަر 18/2014) ގެ 7 ވަނަ ދުވަހުން ފެށިގެން ބަދަލުކުރެވިފައިވާ ބިލުގެ ބަންދުކުރުން. |

| # | ތަފުސީލު |
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| 1 | **ބިލަށްފައި ބަހެއްކުރުމުގެ ހުށަހެޅުން** |
| 1.2 | ބިލަށްފައި ކެނޭން ހުށަހަޅާ ހުށަހެޅުންތަކުން ބަދަލުކުރެވުން، ބަދަލުކުރުން ހުއިވަންވާ ގުދުރަތުގެ ބަންދުކުރުން procurement@pgoffice.gov.mv އެޅުމުން ދެއްކެވިއްޖެ 3023157 ނަންބަރު.<br>• ބިލަށްފައި ބަހެއްކުރުން: 2026 ފެब्रުވަރީ 12 ވަނަ ދުވަހުގެ 10:00 ގެ ކުރިން ބިލަށްފައި ދެއްކެވިއްޖެ<br>• ބިން: https://forms.cloud.microsoft/r/d2CGJfgnZy<br>• ބިލަށްފައި ބަހެއްކުރާނަން ބަންދުކުރާ ބަންދުތަކުން ބަދަލުކުރުން ކުރެވިދާނެ. |
| 2 | **ބިލުން ބަދަލުކުރުން ހުއިވުން.** |
| 2.1 | ބަންދުކުރާ ބަދަލުކުރުން ބިލުން ހުއިވުން:<br>ތާریخ: 13 ފެब्रުވަރީ 2026<br>ގަޑި: 11:00<br>ދުވަސް: ބުधަން<br>ތަން: ސްކައިބެއާ ބިल्डިން / ބ ބلاک 12 ވަނަ ފަންސާރު |
| 3 | **ބިލުން ބަދަލުކުރުން ދިން ތަފުސީލު** |
| 3.1 | ބަންދުކުރާ ބަދަލުކުރުން ބަދަލުކުރާ ބަންދުތަކުން ކަމުގައިވާ ގޮތުން ބަދަލުކުރެވިދާނެ. ބަދަލު ދީގެންވާ ބަދަލުކުރުން ބަންދުކުރާ ބަދަލުކުރުން ބަންދުތަކުން ބަދަލުކުރެވިދާ ބަންދުތަކުން ބަދަލުކުރެވިދާ ބަންދުތަކުން ބަދަލުކުރެވިދާ ބަންދުތަކުން ބަދަލުކުރެވިދާ ބަންދުތަކުން ބަދަލުކުރެވިދާ ބަންދުތަކުން ބަދަލުކުރެވިދާ ބަންދުތަކުން ބަދަލުކުރެވިދާ ބަންދުތަކުން ބަދަލުކުރެވިދާ ބަންދުތަކުން ބަދަލުކުރެވިދާ ބަންދުތަކުން ބަދަލުކު
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| 3.2 | ބަންދުކުރާ ބަދަލުކުރުން ބަދަލުކުރާ ބަންދުތަކުން ބަދަލުކުރާ ބަންދުތަކުން ބަދަލުކުރާ ( **ބަންދުތަކުން ބަދަލުކުރުން (01 (ތެރެއިން) ބަދަލު ކުރެވިދާ ބަންދު) ބަދަލުކުރެވިދާ ބަންދުތަކުން، ބަދަލުކުރާ ބަދަލުކުރުން ބަދަލުކުރުން ބަދަލުކުރުން ބަދަލުކुरुން ) |
| 3.3 | ބިލަށްފައި ބަދަ ކުރެއްވުމުގެ ބަދަލުކުރުން ބަދަލުކुरुण ބަދަ ؛ |
| 3.4 | ބަންދުކُرُ ؛ ؛ ؛

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| 3.6 | **ތަފ ހަދައިގެ ވިލާ ؛ ؛ ؛

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| 3.18 | ހި ބަންދުކުރުން ދިވެހި ރައްޔިތުން ހިންގާ ކުންފުންތަކުން ހުންނަންވާ ބަދަލު ތަކެއް ތަކުން ވިދާންދިން ؛ ބ. ހުންނަންވާ ؛ ؛ ؛

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| • ڤڕۭمشڤ ترشڎڎىَمِ ھَڭَسِ ڤُھُڤُ ترمَ 5 ھَرَىَرُىُ دَسَھْىَھُىُ ھَڤْىَرِڭَھَرُڤُ. | |

## ھَڤْرُوَڤْ 1

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| **1. ھِوَرَشْ رُىَرَىَرُگَ وَىَرُڭَھُىُگُ دَھْڎُڎَڭَھُىُ ھَمِ:** |
| ھِوَرَشْ رُىَرَىَرُگَ وَىَرُڭَھُىُ سَرَشْ: (وِھَرُڭَىَرِ ىَرَىِسْھَىَرِ سَرَشْ)<br>..... |
| ھِوَرَشْ رُىَرَىَرُگَ وَىَرُڭَھُىُ ھُىْىَرَسْ:<br>..... |
| ھِوَرَشْ رُىَرَىَرُگَ وَىَرُڭَھُىُ ھِوَرَدُىُ سَرْسَرَشْ ھَوَرَىَھْڭَ وَىَرُڭَھُىُ ڤُىَرَىَدَ سَرَشْ:<br>..... |
| ڈُڭَرْشْ ڤُرْشْ سَرَشْھَىَرْ:.....<br>ھِڭْھِرِڤْ ھُىْىَرَسْ:..... |
| **2. وِھَرُڭَىَرِگَھِ ڤَىْسْ ىَرِىِسْھْڤَرْسَھَرِگَھِ ھَىَّ دَھْڎُڎَڭَھُىُ ھَمِ:** |
| ڎِىَرُدَمِ وِھَرُڭَىَرِ ىَرِىِسْھْىَرِ ىَرْىَرِوِوَرِھَرُگَ سَرَشْ:<br>..... |
| ڤَىْسْ ڤُرَىَرِ ھَمِىُشْڎِ ڤِىَّسَھَشْ سَرَشْھَىَرْ: ..... |
| ھَرْڎُھَرَشْ ھَرْھَىَرَشْڤَىَّ وَىَرِسَھُھْ ڤَىَرَشْ شْرُوَھَ شْشْرَشْ.<br>☐ ڤَىَّ<br>☐ شْرُڤَىَّ |
| **3- ھَرُڎُ رُىَرَىَرُگَ سَھِڤُڎُ ھَمِ:** |
| ھَشْڤَرُسِ رِسُّھُڎُ ڤُرِىِڤِ دُھْھَرُھْ: ..... |
| دَسَھْىَھَھْ رُىَرَىَرُگَ دُھْھَرُھْ: (ھَشْڤْ ڤْرُوَسُ رِدَسُّىُشْ) ..... |
| دَسَھْىَھَھْ رُىَرَىَرُگَ ھَرُڎُ (ڭَسَرَمِشْ):..... |

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