

Technical Specifications

General requirements:

A.	Produsele trebuie să fie livrate cu cele mai recente versiuni de firmware / software.
B.	Ambalaje originale nedeteriorate și nedespachetate.
C.	Toate componentele trebuie să fie certificate pentru a funcționa sub Microsoft Windows Server 2016 și Microsoft Hyper-V.
D.	Implementarea (instalarea și configurarea) produselor va fi făcută de Vânzător la sediul Secretariatului Parlamentului Republicii Moldova.
E.	Interoperabilitatea și compatibilitatea produselor livrate cu infrastructura existentă a SPRM va fi demonstrată obligatoriu la livrarea mărfii.
F.	În caz de incompatibilitate, produsele vor fi înlocuite cu alte produse complet compatibile și funcționale din contul Vânzătorului, SPRM nesuportând careva cheltuieli adiționale.
G.	Toate componentele relevante au o declarație de conformitate CE.
H.	Livrarea este completă și include documentație (manuale, datasheet, note, etc) tipărite sau pe disc în format obișnuit (PDF sau MS Word).

Converged Ethernet

1. RDMA Ethernet Switch – 2 pcs		
1.1.	Device Type	Switch - 16 ports - L3 - Managed
1.2.	Enclosure Type	Rack-mountable 1U
1.3.	Subtype	min. 50 Gigabit Ethernet
1.4.	Ports	16 x min. 50 Gigabit (non-blocking ports)
1.5.	Performance	Switching capacity: min. 3 Tbps, min Latency: 300 μs
1.6.	Capacity	Multicast entries (Layer 2): 256000 Virtual interfaces (VLANs): 4000
1.7.	Routing Protocol	BGP-4, VRRP, OSPFv2, static IPv4 routing, static IPv6 routing
1.8.	Remote Management Protocol	SNMP 1, SNMP 2, Telnet, SNMP 3, SSH-2, CLI
1.9.	Features	Flow control, load balancing, IGMP snooping, Syslog support, port mirroring, IPv6 support, sFlow, Rapid Spanning Tree Protocol (RSTP) support, Multiple Spanning Tree Protocol (MSTP) support, Data Center Bridging Exchange (DCBX) support, event log, Access Control List (ACL) support, RADIUS support, Rapid Per-VLAN Spanning Tree Plus (PVRST+), LACP support, LLDP support, DHCP relay, e-mail notification, Priority-Based Flow Control (PFC), event notification
1.10.	Compliant Standards	IEEE 802.1Q, IEEE 802.3x, IEEE 802.3ad (LACP), IEEE 802.1w, IEEE 802.1x, IEEE 802.1ab (LLDP), IEEE 802.1Qbb, IEEE 802.1Qaz

1.11.	Authentication Method	RADIUS, TACACS+, Secure Shell v.2 (SSH2), LDAP
1.12.	Expansion / Connectivity Interfaces	16 x 50Gbit LAN QSFP28 1 x management (Gigabit LAN) RJ-45 1 x console RJ-45
1.13.	Warranty	Min 3 years parts/ 3 years labour/ 3 years on-site

2.	Converged Network Adapter with RDMA – 6 pcs	
2.1.	Ports	min. 2 x 50 Gigabit Ethernet
2.2.	Cable	min. one 5m cable for each port
2.3.	Interoperability and compatibility	<ul style="list-style-type: none"> - With SPRM servers (Lenovo System x3650 M5) - Item 1 (RDMA Ethernet Switch).
2.4.	Warranty	min 3 years on-site

Storage (JBOD's)

3.	JBOD SFF SAS SSD disk enclosure – 2 pcs	
3.1.	Connection	min. dual 12 Gb/s SAS standard, active/active failover
3.2.	Drives	min. 24 x 2.5" SSDs (all bays with caddy bay)
3.3.	Drive Interface	12Gb/s SAS or 6Gb/s SATA
3.4.	Hard disk	min. 12 x SAS SSD 12Gb/s: min. 800 GB MLC SFF 3DW/D Enterprise (2.5-inch)
3.5.	Controllers	2x Redundant I/O module
3.6.	Expandability	min. 2 units
3.7.	Ports	Per I/O module: <ul style="list-style-type: none"> - min. one 12 Gb SAS port for connection to the host - min. one 12 Gb SAS port for expansion to an additional enclosure - min. one Ethernet management port
3.8.	Interoperability and compatibility	The JBOD enclosure must be connected directly to the SPRM servers (Lenovo System x3650 M5) via SAS interfaces
3.9.	Chassis type and form factor	Rack mounted, max 2U, with cable management arm
3.10.	Power Supply	2x (Hot Plug), Redundant
3.11.	OS Support	Compatible with MS Windows server 2016
3.12.	Virtualization Support	MS Hyper-V 2016
3.13.	Installation and cabling	including all necessary parts
3.14.	Warranty	Min 3 years parts/ 3 years labour/ 3 years on-site

4. JBOD SFF 10K RPM disk enclosure – 2 pcs		
4.1.	Connection	min. dual 12 Gb/s SAS standard, active/active failover
4.2.	Drives	min. 24 x 2.5" SSDs (all bays with caddy bay)
4.3.	Drive Interface	12Gb/s SAS or 6Gb/s SATA
4.4.	Hard disk	min. 24 x SAS 12Gb/s: min. 1.2 TB 10K RPM HDD Enterprise (2.5-inch)
4.5.	Controllers	2x Redundant I/O module
4.6.	Expandability	min. 2 units
4.7.	Ports	Per I/O module: <ul style="list-style-type: none"> - min. one 12 Gb SAS port for connection to the host - min. one 12 Gb SAS port for expansion to an additional enclosure - min. one Ethernet management port
4.8.	Interoperability and compatibility	The JBOD enclosure must be connected directly to the SPRM servers (Lenovo System x3650 M5) via SAS interfaces
4.9.	Chassis type and form factor	Rack mounted, max 2U, with cable management arm
4.10.	Power Supply	2x (Hot Plug), Redundant
4.11.	OS Support	Compatible with MS Windows server 2016
4.12.	Virtualization Support	MS Hyper-V 2016
4.13.	Installation and cabling	including all necessary parts
4.14.	Warranty	Min 3 years parts/ 3 years labour/ 3 years on-site

5. JBOD LFF disk enclosure – 2 pcs		
5.1.	Connection	min. dual 12 Gb/s SAS standard, active/active failover
5.2.	Drives	min. 24 x 3.5" SSDs (all bays with caddy bay)
5.3.	Drive Interface	12Gb/s SAS or 6Gb/s SATA
5.4.	Hard disk	min. 24 x SAS 12Gb/s: min. 10 TB HDD Enterprise (3.5-inch)
5.5.	Controllers	2x Redundant I/O module
5.6.	Expandability	min. 2 units
5.7.	Ports	Per I/O module: <ul style="list-style-type: none"> - min. one 12 Gb SAS port for connection to the host - min. one 12 Gb SAS port for expansion to an additional enclosure - min. one Ethernet management port
5.8.	Interoperability and compatibility	The JBOD enclosure must be connected directly to the SPRM servers (Lenovo System x3650 M5) via SAS interfaces
5.9.	Chassis type and form factor	Rack mounted, max 2U, with cable management arm
5.10.	Power Supply	2x (Hot Plug), Redundant
5.11.	OS Support	Compatible with MS Windows server 2016

5.12.	Virtualization Support	MS Hyper-V 2016
5.13.	Installation and cabling	including all necessary parts
5.14.	Warranty	Min 3 years parts/ 3 years labour/ 3 years on-site

SAS Networking

6. SAS HBA– 6 pcs		
6.1.	Connectivity	12 Gb/s SAS 3.0 Compliant
6.2.	Form Factor	Low Profile
6.3.	Interoperability and compatibility	<ul style="list-style-type: none"> - With SPRM servers (Lenovo System x3650 M5) - Item 3, 4, 5.
6.4.	Ports	min. 2x SAS ports
6.5.	Cable	min. one 5m SAS cable for each port
6.6.	Warranty	min. 3 years on-site

7. SAS SWITCH – 2 pcs		
7.1.	SAS Compliances	min. 16 ports x 12Gb/s SAS 3.0 Compliant
7.2.	SAS Protocols	SSP, STP and SMP
7.3.	Storage Types	1.5, 3.0, 6.0Gb/s or 12 Gb/s SAS and/or SATA End Devices
7.4.	SAS Bandwidths	Half Duplex Wide Port (4 phys) – 24Gb/s Full Duplex Wide Port (4 phys) – 48Gb/s
7.5.	Zoning	T10 Compliant Zoning
7.6.	Connectors	SAS Fourteen x4 SFF8088 (MiniSAS) - Passive connectors Two x4 SFF8088 (MiniSAS) - Active connectors Ethernet One RJ-45
7.7.	LED Indicators	Activity – 1 per port Link/Fault – 1 per port
7.8.	Accessories	1U Mounting Tray Replacement Power Supply Active Cables 10 m
7.9.	Warranty	Min 3 years parts/ 3 years labour/ 3 years on-site