Specifications

Minimum Required Specification for Firewall Appliance:

Recommended Brand: Sophos/Cisco/Juniper

S.N.	Minimum Specification
1	**ARCHITECTURE (Hardware & System Performance)**
1.1	UTM device should be appliance based and desktop/rack mountable
1.2	UTM appliance should have minimum with 10x GbE Copper 10/100/1000 RJ-45. Flexible to use any port as LAN, WAN, or DMZ ports. 2x1 GbE SFP Port, 2x2.5 GbE Port POE and 1 Expansion Slot
1.3	UTM appliance should have atleast One Console Port (RJ-45), one USB Port
1.4	UTM appliance should have minimum of 4 GB of RAM/Memory or Higher to perform during peak traffic volumes.
1.5	**Firewall Should have following minimum performance**
a.	Firewall throughput 11 Gbps
b.	Threat Protection Throughput 1000 Mbps
c.	4.5 million Concurrent sessions
d.	IPS throughput 3 Gbps
e.	New Sessions/second 60,000
f.	NGFW Throughput 350 Mbps.
g.	IPsec VPN throughput 225 Mbps
h.	IPsec site-to-site VPN Tunnels 1500
1.6	UTM appliance should support unlimited Users/Nodes License.
1.7	UTM appliance should be IPv6 ready.
2	**FEATURES**
2.1	Proposed solution or OEM should be listed on Gartner's Magic Quadrant for Network Firewalls
2.2	UTM appliance should have Multicore Processor based UTM, Identity based Firewall, limit on surfing quota & surfing time, based on per user & group
2.3	UTM appliance should supports routing: static, default, multicast (PIM-SM) and dynamic (RIP, BGP, OSPF) and DoS and DDoS attacks and port scan blocking
2.4	Firewall should support local Authentication and remote authentication servers like Active Directory, eDirectory, RADIUS, LDAP and TACACS+. Should also include options for Client authentication agents for Windows, Mac OS X.
2.5	The solution should support Internal/External 2FA (Two-Factor Authentication) Hardware/software for minimum 200 User from day one (Software should support Android and iOS platform).
2.6	Should support Transparent (Single Sign On), proxy authentication (NTLM) or client authentication.
2.7	UTM appliance should have Bandwidth Management feature.
2.8	UTM appliance should have Feature of real time monitoring.
2.9	Shall be configurable with IPSec, Auto VPN, IP-IP with: DES, 3DES, AES.
2.10	Shall support authentication algorithm MD5, SHA128/256 configurable.
2.11	Shall have Firewall feature set supporting DoS, DDoS, Stateful firewall.

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3	ADMINISTRATION AND GENERAL CONFIGURATION
3.1	UTM appliance should support administration via secured communication over HTTPS from GUI, SSH and Telnet from console.
4	**FIREWALL**
4.1	UTM appliance should have well-known certifications like: CB, CE, FCC, RCM, UL, BIS, EAL4+ and ICSA, NSS Lab, Checkmark for Firewall
4.2	UTM appliance must have a 64-bit hardware platform & based on Multi-Core Architecture with the Fast Path Packet Optimization for excellent throughput for all your key processes.
4.3	UTM appliance should be standalone appliance with hardened operating system (OS) and embedded software.
5	**CERTIFCATE and AUTHORIZATION**
5.1	Bidder should be Authorized System Integrator of the quoted product. (Manufacturer Authorization Certificate from the principal specific to the tender should be enclosed with the bid). Manufacturer Authorization Letter from OEM should sent letter directly to Official Email: **info@birtamodmun.gov.np**
6	**Warranty**
6.1	1 Year Replacement Warranty with Parts and Service

Minimum Required Specification for Branch Router:

S.N.	Minimum Specification
1	**ARCHITECTURE (Hardware & System Performance)**
1.1	Minimum Throughput : 225 Mbps
1.2	LAN Interface: 4 x 10/100/1000 Base-TX (1 GbE Copper) or higher WAN Interfaces : **1x 10/100/1000** Base-TX or higher SFP Interfaces: 1 X SFP Fiber or higher (shared port with WAN shall work) USB Ports: 2X USB 3.0 or higher
1.3	**Branch Router Should have followin minimum performance**
a.	Should be of Plug and Play Type Deployment
b.	Data between branch Router and Firewall should be encrypted using AES-256 levels or higher.
c.	Branch Router should be centrally manageable.
d.	Branch Router should have SD WAN Features.
2	**FEATURES**
2.1	Proposed solution or OEM should be listed on Gartner's Magic Quadrant for Network Firewalls

Minimum Required Specification of Managed PoE Switch:

S. No	Minimum Specification
1	**Port Requirement**
1.1	Minimum PoE Ethernet Ports :16
1.2	**10/100/1000** SFP Uplink Ports : 2
2	**Performance Requirement**
2.1	Minimum Switching Capicity : 36 Gbps

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2.2		Minimum Forwarding Rate: 26 Mpps
	2.3	Minimum VLAN: 16
	2.4	Minimum MAC Address Table : 8 K
2.5		Minimum Power Supply- 100-240V AC, 6A
	3	**PoE Requirement**
	3.1	Should have IEE 802.3af/802.3at
	3.2	Should have inbuilt FAN
	3.3	Should have at least 240W PoE Power Budget
	4	Should be Rack Mountable with Mount Kit

Minimum Required Specification of PoE Switch:

S. No		Minimum Specification
	1	**Port Requirement**
	1.1	Minimum PoE Ethernet Ports :16
	1.2	**10/100/1000** SFP Uplink Ports :1
	2	**Performance Requirement**
	2.1	Minimum Switching Capicity :7.2 Gbps
2.2		Minimum Forwarding Rate: 5.3 Mpps
	2.3	Minimum MAC Address Table :4 K
2.4		Minimum Power Supply- 100-240V AC, 6A
	3	**PoE Requirement**
	3.1	Should have IEEE 802.3, IEEE 802.3u, IEEE 802.3x

Minimum Required Specification of CAT6 Cable:

S. No	CAT 6 Cable Specification
	Product Specification
1.1	Jacket material: FR-PVC (Poly Vinyl Chloride), LSZH*(Low Smoke Zero Halogen).
1.2	Insulation material : Polyethylene
1.3	Separator Material: Polyolefin.
1.4	Conductor Type: Bare solid copper.
1.5	Nominal Outer Diameter: 6.0mm (Nominal).
1.6	Conductor Diameter: 23 AWG (0.573mm)
2.0	**Electrical, Mechanical and Environmental Specification**
2.1	Characteristics Impedance: 100±6Ω @ 1-600 MHz
2.2	DC Resistance: 72 Ω/Km (max)
2.3	Voltage rating: 72 Vdc (max)
2.4	Dielectric Strength: 1500 V per 60s (min) rms.
2.5	Insulation Resistance: 500MΩ/Km (min) @ 500 Vdc

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2.6	Nominal Velocity of Propagation (NVP): 69%
2.7	Delay Skew : 45ns /100mtr
2.8	Pulling Tension: 11Kg / 25Lbs
2.9	Operating Temperature: - 10°C to 75 °C
2.10	Storage Temperature: 0°C to 50 °C
3.0	**Product Compliance**
3.1	Performance guaranteed upto 600 MHz extended frequency. Performance verified by ETL.
3.2	UL listed as per UL94V-0 rated plastic.
3.3	Compliance as per UL-1666
3.4	RoHS Compliant (lead free).

SPECIFICATIONS OF Server SAS HDD	
Capacity	1.2TB/1200GB
Secure	Yes
TurboBoost	Yes
PERFORMANCE	
Spindle Speed (RPM)	10K
Average Latency (ms)	2.9
Sustained Transfer Rate (Outer to Inner Diameter, MB/s)	241 to 117
Cache, Multisegmented (MB)	128
CONFIGURATION/RELIABILITY	
Disks	3
Heads	6
Interface	12Gb/s SAS
External Transfer Rate (MB/s)	1200
Nonrecoverable Read Errors per Bits Read	1 per 10e16
Annualized Failure Rate (AFR)	0.44%
TURBO BOOST ENHANCED CACHE FEATURE	
I/O Acceleration and Response Time Optimization	Enabled
NAND Flash Type	eMLC
NAND Flash Size	32GB
Intelligent NAND Endurance Management	Yes
POWER MANAGEMENT	
Typical Op (A) +5V/+12V	0.44/0.42
Typical Operation (W)	7.25
Power Idle (W)	4.26
Performance Efficiency Index (Idle W/GB)	0.0036

Server Protection Software Specification:

Proposed Server Protection solution should have following features:

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- Web Security
- Web Control/Category-based URL Blocking
- Peripheral Control
- Application Control
- Application Whitelisting/ Server Lockdown
- Deep Learning Malware Detection
- Anti-malware File Scanning
- Live Protection
- Pre-execution Behavior Analysis (HIPS)
- PUA Blocking
- Intrusion Prevention System
- Data Loss Prevention
- Runtime Behavior Analysis
- Antimalware Scan Interface
- Malicious Traffic Detection
- Exploit Prevention
- Active Adversary Mitigation
- Ransomware File Protection
- Disk and Boot Record Protection
- Man-in-the Browser Protection
- Enhanced Application Lockdown
- Root cause Analysis
- Automated Malware Removal
- Synchronization with Firewall
- Server Specific Policy Management
- Update Cache and Message Relay
- Automatic Scanning Exclusions
- File Integrity Monitoring

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