No. 058/IT/HOD/22-23   Date: 28-03-2023

NOTICE INVITING QUOTATION

Sealed quotation are invited by OSD-IT, Howrah Municipal Corporation from reputed resourceful and bonafide bidders having experience at least 15 years in supply, installation and commissioning of IT Network Infrastructure and also having office around Kolkata, with non-returnable current copies of PAN, GST, Certificate of Enlistment (Trade License), PT & IT signed by the applicant with the seal of the company/firm. Further details in this connection may be obtained from the office of the I. T. Department, Howrah Municipal Corporation, Annex Building (4th Floor) during any working days. Quotations in sealed cover to be submitted at the I. T. Department, HMC on/before 06/04/23 at 3.00PM. The details are mentioned below-

Particulars details
Supply, Installation and Commissioning of IT Network Infrastructure backbone at Annex Building including Town Hall & Collection Building of Head Office, HMC

Terms & condition

- All required item including all ancillary article is to be ascertained as per help of the attached Network Schematic.
- Data Transmit speed of the network will be at least 10 GBPS.
- Entire network will be Wi-Fi enabled.
- Floor to floor data connectivity will be made on high bandwidth Optic fiber based.
- New network system will cater services more than 1500 users.
- Technical support and warranty of devices used for the network can be obtained from maintenance provider and OEMs respectively are at least of 5 (five) years.
- Centralised AC power connectivity and controlling for all network switches may be required for uninterrupted running of devices.
- Troubleshooting is possible within an hour with the help of cloud based Network Management System software without disturbing other users and within office hours also.
- Network will run uninterruptedly i.e. 24 x 7 formats without the support of Air-conditioning devices.
- Latest, firewall may be required to enhance the internet security to ensure various cyber securities (Hacking, Malware, Trojans, Spyware, Ransomware, Adware, Botnets etc.)
- Bidder should submit their bid by the fulfilment of minimum specifications which was attached herewith.
- Corporation reserve the right to accept or reject any or all offers or part thereof without assigning any reasons whatsoever.

Sd/-
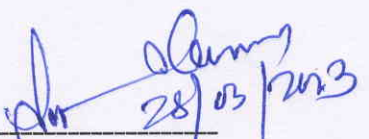
OSD (IT)

Howrah Municipal Corporation
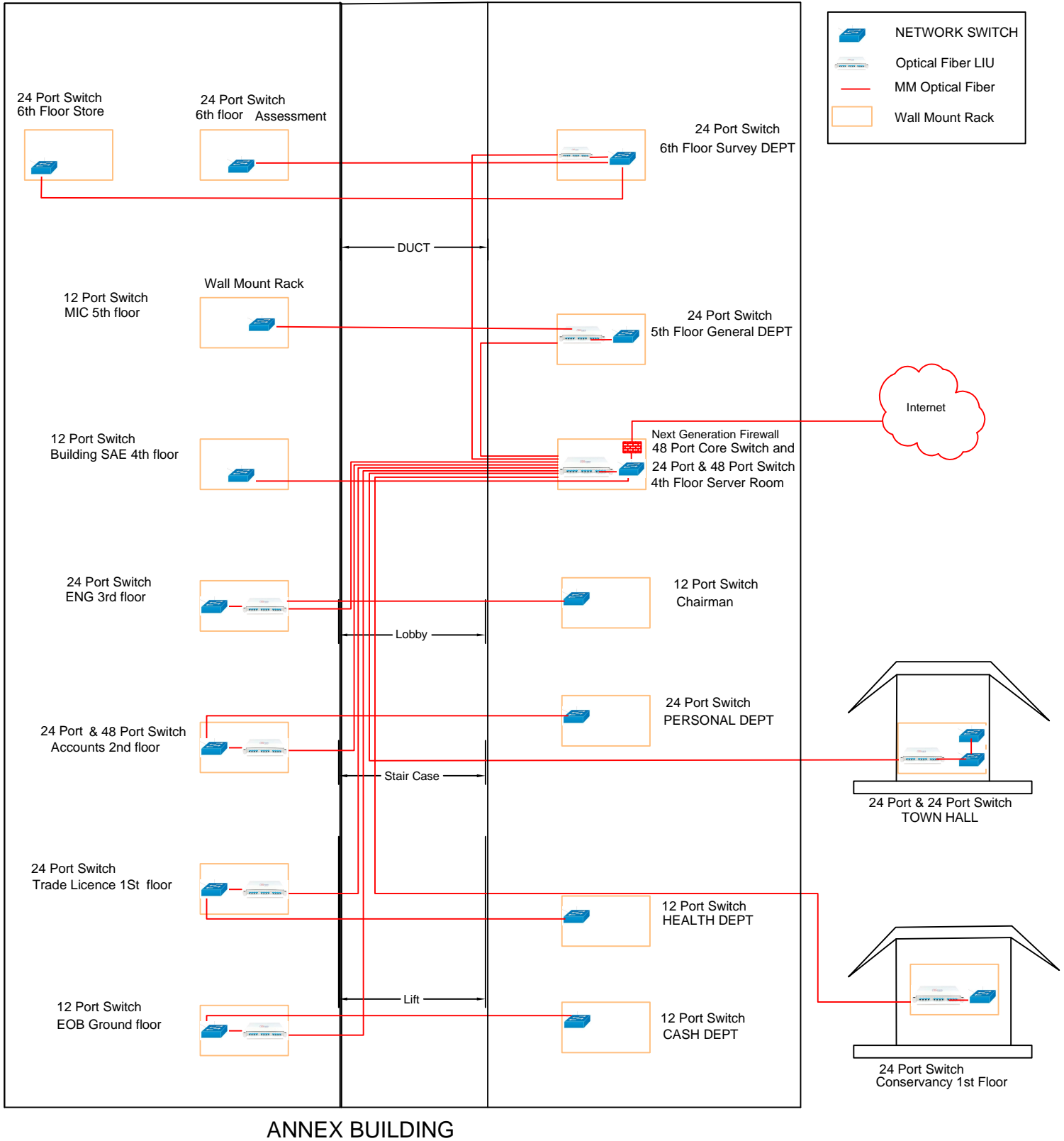
Memo No.058/1-9/8 /IT/HOD/22-23   Date: 28-03-2023

Copy Forwarded to:

1. Commissioner, HMC.
2. Dy. Commissioner-I, HMC.
3. Dy. Commissioner-II, HMC.
4. Controller of finance, HMC.
5. Chief Auditor, HMC.
6. Resident Audit Officer, HMC.
7. Notice Board, HMC Central Office.
8. HMC Website.
9. Office Copy.

OSD (IT)

Howrah Municipal Corporation

HMC Proposed Local Area Network Schematic Diagram

NETWORK SWITCH
Optical Fiber LIU
MM Optical Fiber
Wall Mount Rack

24 Port Switch
6th Floor Store

24 Port Switch
6th floor   Assessment

24 Port Switch
6th Floor Survey DEPT

12 Port Switch
MIC 5th floor

Wall Mount Rack

24 Port Switch
5th Floor General DEPT

Internet

12 Port Switch
Building SAE 4th floor

Next Generation Firewall
48 Port Core Switch and
24 Port & 48 Port Switch
4th Floor Server Room

24 Port Switch
ENG 3rd floor

DUCT

12 Port Switch
Chairman

Lobby

24 Port Switch
PERSONAL DEPT

24 Port & 48 Port Switch
Accounts 2nd floor

Stair Case

24 Port & 24 Port Switch
TOWN HALL

24 Port Switch
Trade Licence 1St floor

12 Port Switch
HEALTH DEPT

12 Port Switch
EOB Ground floor

Lift

12 Port Switch
CASH DEPT

24 Port Switch
Conservancy 1st Floor

ANNEX BUILDING

#	Minimum Specification of Chassis / Virtual Chassis Based Layer-3 Core Switch	Compliance (Yes / No)	Remarks, if any
1	The chassis / virtual-chassis based switch should have 16 no. of 10G SFP+ ports and 32 no. of 1G SFP ports from day 1 loaded with 16 x 10 GbE LR SFP Multimode Transceivers LC Type from same OEM		
2	Future Expansion: Chassis based solution should support 8 line cards and virtual-chassis based solution should able to accommodate 8 members. 1G, 10G, 25G, 40G, and 100G ports should be supported.		
3	Each switch Should have 2 x 40G / 100G QSFP+ / QSFP28 ports which can be used for High Availability / Stacking /Virtual Chassis. All accessories, software and licenses (if any) are to be included to achieve High Availability from day 1 to be provided.		
4	Should have at least 784 Gbps switching fabric		
5	Packet forwarding rates 583 million PPS		
6	Should support at least 96 K entries in the MAC table.		
7	Should support at least 16K ARP entries.		
8	Should Support minimum 4000 active VLANs.		
9	Should support Ethernet VPN–Virtual Extensible LAN (EVPN-VXLAN)		
10	Should support IEEE Standards-based micro segmentation using group-based policies		
11	Should support Dual Images and should be having modular operating system for enterprise grade performance. This feature will improve system uptime by preventing entire system down due to isolated failures of system software.		
12	Should support port mirroring and jumbo frame.		
13	Should support following for min. 64 Groups : i) IGMP Snooping, ii) IGMP v1/v2/v3 awareness Snooping, iii) IGMP Snooping Queried.		
14	Should support RSTP, Spanning-tree root guard, Port Fast, Loopback Detection and BPDU Guard/Filter or similar functionalities.		
15	Switch should have IP SLA monitoring (or equivalent functionality) for Latency, Packet drop, Jitter etc. and should also support SNMP polling for IP SLA monitoring.		
16	Switch should have Inter-Vlan Routing, and Static Routing features from day-1.		
17	Switch should support advance features like RIPng, OSPF, OSPFv3, IS-IS, BGP, EVPN-VXLAN using software / license upgrade, if required in future.		
18	Should support following security features viz.: i) Web Management (HTTPS), ii) Broadcast/Multicast/Unicast Storm Control, iii) Support for MACsec AES256 iv) Control plane DoS Attack Prevention		
19	Switch should support following SNMP traps or Syslog: i) Interface UP & Down ii) Optical power SFP threshold alarms iii) STP Topology Changes and New root bridge iv) LLDP table changes v) Threshold alarms for Temperature.		
20	Switch should comply to following Temperature performance parameters: i) Operating Temperature: min 0° to 45°C (32° to 113 °F) ii) Storage Temperature: min -40° to 70 °C (-40° to 158 °F)		
21	It shall support MAC address notification to allow administrators to be notified of users added to or removed from the network.		
22	The switch shall be designed for continuous operations.		
23	It should support IPv6/v4-L3 and IPv6-Multicast functionalities / features		
24	Safety Requirement: - Switch should have safety compliance of UL 60950-1 IEC 62368-1 and 60950-1		
25	Electromagnetic Compatibility (EMC) Requirements: - Switch should have EMC compliance of FCC 47 CFR Part 15, EN 55032, CISPR 32		
26	The LAN switch shall support a console port or auxiliary/Ethernet port for the purpose of local and remote configuration and diagnostics.		
27	IPv6 feature should be ready from day 1 and IPv6 Ready Logo approved		
28	Qualitative Requirements: - The switch should be NDPP/NDcPP certified and the certificate is to be submitted before project completion.		
29	The equipment shall be manufactured in accordance with the international standards ISO 9000:2008 or later for which the manufacturer shall be duly accredited. A quality plan describing the quality assurance system followed by the manufacturer shall be required to be submitted		
30	The switch should be enterprise class and designed for continuous operations. It should be having MTBF (Mean Time Between Failure) and MTTR (Mean Time To Repair) values predicted and observed by the manufacturer.		
31	The switch should support standards-based micro segmentation using group-based policies (GBP)		
32	The switch should be supplied with 3 years warranty including but not limited to advanced faulty part replacement, OS bug fixing, all major and minor software update and upgrade during the warranty period.		
33	The OEM should be placed as Leaders in the Gartner Magic Quadrant for Wired & Wireless Access Infrastructure for last three consecutive years.		

#	Minimum Specifications of 48-PORT ACCESS SWITCH	Compliance (Yes / No)	Remarks, if any
1	*Hardware and interface requirements*		
1.1	The switch should be a stackable switch with minimum 48 x 10/100/1000Base-T ports; and 4 x dedicated 10G SFP+ ports all of which can be used as uplink and for virtual chassis formation.		
1.2	The switch should support a virtual chassis of 4 switches and 80 Gbps Stacking bandwidth support.		
2	*Performance requirements*		
2.1	Switch should support a switching bandwidth of 176 Gbps for line rate performance of a fully populated switch		
2.2	Switch should have minimum 130 Mpps Forwarding rate for line rate performance of a fully populated switch		
3	*Layer 2 Switching*		
3.1	Switch should support minimum 16000 MAC addresses per system		
3.2	Switch should support Jumbo frames – 9,000 bytes		
3.3	Switch Should support minimum 4000 Active VLAN's and VLAN ID's		
3.4	Switch Should support Port-based VLAN and MAC-based VLAN		
3.5	Switch Should support 802.1Q VLAN tagging		
3.6	Switch Should support Voice VLAN		
3.7	Switch Should support LLDP		
3.8	Switch Should support LLDP-MED with VoIP integration		
4	*Layer 3 Routing*		
4.1	Switch should support IPv4 and IPv6 static routing		
4.2	Switch should support VRRP, IGMP V1/V2/V3, OSPFV2/V3, RIPng and Bidirectional Forwarding Detection (BFD) by adding a feature license if, required in future.		
5	*Quality of Service (QoS) requirements*		
5.1	Switch should support Class-based queuing with prioritization		
5.2	Switch should support Queuing based on VLAN, interface and port		
5.3	Switch should support Marking, policing, and shaping		
5.4	Switch should support WRED		
6	*System Management and Administration*		
6.1	Switch should support Software upgrades		
6.2	Switch should support SNMPv2 and SNMPv3		
6.3	Switch should support IPv6 Management including Neighbor discovery, Logging, Telnet, SSH, Web, SNMP, NTP and DNS		
6.4	802.1ag -connectivity fault management		
7	*Security features*		
7.1	Switch Should support Port, VLAN and Router based Access control lists (ACLs)		
7.2	Should support minimum 1K Security Access Control Entries		
7.3	Switch should support MAC limiting		
7.4	Switch should support Dynamic ARP Inspection (DAI)		
7.5	Switch should support DHCP snooping		
7.6	Switch should support L2-L4 ACL		
7.7	Switch should support Control plane DoS protection		
8	*Services and Manageability*		
8.1	Switch should be managable through CLI, Web Interfce, SSHv2 and HTTP/HTTPs		
8.2	Configuration backup via FTP/secure copy		
9	*OEM Qualification Criteria*		
9.1	The OEM should be placed as Leaders in the Gartner Magic Quadrant for Wired & Wireless Access Infrastructure for last three consecutive years.		
9.2	The OEM should have 24x7 technical assistance center and tollfree call logging facility		
9.3	The OEM should have at least two spare depos in Eastern India.		
10	*Certifications and compliances*		
10.1	Should be Reduction of Hazardous Substances (ROHS) 6 compliant Should have FCC 47CFR Part 15 Class A, EN 55022 Class A, ICES-003 Class A, CISPR 22 Class A		
11	*Warranty*		
11.1	Switch should be provided with hardware replacement warranty and ongoing software upgrades for all major and minor releases for a period of 1 year.		

#	Minimum Specification of 24-Port ACCESS SWITCH	Compliance (Yes / No)	Remarks, if any
A	*Hardware and interface requirements*		
1	The switch should be a stackable switch with minimum 24 x 10/100/1000Base-T ports and 4 x dedicated 10G SFP+ uplink ports. Should be 19" rack mountable and mounting accessories should be included.		
2	The switch should support a stack of 4 switches		
B	*Performance requirements*		
3	Switch should support a switching bandwidth of 128 Gbps for line rate performance of a fully populated switch		
4	Switch should have minimum 95 Mpps Forwarding rate for line rate performance of a fully populated switch		
C	*Layer 2 Switching*		
5	Switch should support minimum 16000 MAC addresses per system		
6	Switch should support Jumbo frames – 9,000 bytes		
7	Switch Should support minimum 1000 Active VLAN's and VLAN ID's		
8	Switch Should support Port-based VLAN and MAC-based VLAN		
9	Switch Should support 802.1Q VLAN tagging		
10	Switch Should support Voice VLAN		
11	Switch Should support LLDP		
12	Switch Should support LLDP-MED with VoIP integration		
D	*Quality of Service (QoS) requirements*		
13	Switch should support Class-based queuing with prioritization		
14	Switch should support Queuing based on VLAN, interface and port		
15	Switch should support Marking, policing, and shaping		
16	Switch should support WRED		
E	*System Management and Administration*		
17	Switch should support Software upgrades		
18	Switch should support SNMPv2 and SNMPv3		
19	Switch should support IPv6 Management including Neighbor discovery, Logging, Telnet, SSH, Web, SNMP, NTP and DNS		
20	802.1ag -connectivity fault management		
F	*Security features*		
21	Switch Should support Port, VLAN and Router based Access control lists (ACLs)		
22	Should support minimum 1K Security Access Control Entries		
23	Switch should support MAC limiting		
24	Switch should support Dynamic ARP Inspection (DAI)		
25	Switch should support DHCP snooping		
26	Switch should support L2-L4 ACL		
27	Switch should support Control plane DoS protection		
G	*Services and Manageability*		
28	Switch should be managable through CLI, Web Interfce, SSHv2 and HTTP/HTTPs		
29	Configuration backup via FTP/secure copy		
H	*OEM*		
30	The OEM should be placed as Leaders in the Gartner Magic Quadrant for Wired & Wireless Access Infrastructure for last three consecutive years.		
31	The OEM should have 24x7 technical assistance center and spare depo in Kolkata.		
I	*Certifications and compliances*		
32	Should be Reduction of Hazardous Substances (ROHS) 6 compliant		
33	Should have the folloring certifications: FCC 47CFR Part 15 Class A, EN 55022 Class A, ICES-003 Class A, CISPR 22 Class A		
J	*Warranty & Other*		
34	Switch should be provided with hardware replacement warranty and ongoing software upgrades for all major and minor releases for a period of 1 year.		
35	All the switches and switch must be from same OEM		

#	Minimum Specifications of 12-PORT POE ACCESS SWITCH	Compliance (Yes / No)	Remarks, if any
1	The switch should be be having minimum 12 x 10/100/1000Base-T ports and 2 x dedicated 10G SFP+ uplink ports. Should be 19" rack mountable and mounting accessories should be included.		
2	Switch should support switching bandwidth of minimum 64 Gbps and forwarding rate of minimum 47 Mpps for line-rate performance of a fully populated switch		
3	Switch should support minimum 16000 MAC addresses per system		
4	Switch should support Jumbo frames – minimum 9,200 bytes		
5	Switch Should support minimum 2000 Active VLAN's and VLAN ID's		
6	Switch Should support 802.1Q VLAN tagging and voice VLAN		
7	Switch Should support LLDP and LLDP-MED with VoIP integration		
8	Switch should support IPv4 and IPv6 static routing		
9	Switch should support VRRP, IGMP V1/V2/V3, OSPFV2/V3, RIPng and Bidirectional Forwarding Detection (BFD) by adding a feature license if, required in future.		
10	Switch should support Class-based queuing with prioritization		
11	Switch should support Queuing based on VLAN, interface and port		
12	Switch should support Marking, policing, and shaping		
13	Switch should support WRED		
14	Switch should support SNMPv2 and SNMPv3		
15	Switch should support IPv6 Management including Neighbor discovery, Logging, Telnet, SSH, Web, SNMP, NTP and DNS		
16	802.1ag -connectivity fault management		
17	Switch Should support Port, VLAN and Router based Access control lists (ACLs)		
18	Should support minimum 1K Security Access Control Entries		
19	Switch should support MAC limiting		
20	Switch should support Dynamic ARP Inspection (DAI)		
21	Switch should support DHCP snooping		
22	Switch should support L2-L4 ACL		
23	Switch should support Control plane DoS protection		
24	Switch should be managable through CLI, Web Interfce, SSHv2 and HTTP/HTTPs		
25	Configuration backup via FTP/secure copy		
26	The switch must have 124W PoE bower budget		
27	The switch must support both IEEE 802.3af (PoE) and IEEE 802.3at (PoE+) standards.		
28	Should be Reduction of Hazardous Substances (ROHS) 6 compliant		
29	Should have following certificaitons EAL2/NDPP/NDcPP FCC 47CFR Part 15 Class A EN 55022 Class A ICES-003 Class A CISPR 22 Class A		
30	Switch should be provided with advanced hardware replacement warranty and ongoing software upgrades for all major and minor releases for a period of 1 years. OEM certificate/auhorization to be submitted.		
31	The OEM should be placed as Leaders in the Gartner Magic Quadrant for Wired & Wireless Access Infrastructure for last three consecutive years.		
32	The OEM should have 24x7 technical assistance center and tollfree call logging facility		
33	The OEM should have at least two spare depos in Eastern India.		

#	NEXT GENERATION FIREWALL Specification	Compliance (Yes / No)	Remarks, if any
1	The Next Generation Firewall appliance should be a purpose built appliance based solution with integrated functions like Firewall, IPSEC VPN, Application Awareness, IPS, BOT prevention, Antivirus, URL Filtering and Zero Day Threat Prevention.		
2	Firewall must be configured with atleast 120 GB storage		
3	The appliance should have at least 8 * 1G Gigabit ports		
4	The Firewall should be configured with integrated redundant power supply from day 1		
5	Throughput capacity of firewall should not be less than 3 Gbps per appliance and atleast 500 Mbps with FW, Application Control, URL Filtering,Antivirus, Antibot and IPS features from day 1 on each unit		
6	Appliance should support min 100,000 to 200,000 concurrent sessions.		
7	Appliance should support at least 35000 and above connections per second		
8	The firewall must support user, client and session authentication methods.		
9	Solution must support Zone-based network segmentation and zone protection		
10	Solution must support DoS protection against flooding of new sessions		
11	Required TLS/SSL decryption and inspection for inbound and outbound traffic for TLS 1.3 and HTTP/2 protocols		
12	Reqired malware prevention automatically enforced through payload-based signatures		
13	Solution should must have ablity to prevent malicious domains identified with real-time analysis.		
14	Must support to stop in-process credential phishing Custom URL categories, alerts, and notification		
15	Ablity to detection of zero-day malware,exploits complementary analysis techniques for most threats across networks, endpoints, and clouds		
16	The Anti-APT appliance should identify new malware hidden in files types		
17	Required C2 or data theft capabilities		
18	Solution must have the granularity of administrators that works on parallel on same policy without interfering each other		
19	Solution must support User identification and control: VPNs, WLAN controllers, captive portal, proxies, AD, eDirectory, Exchange, Terminal Services, syslog parsing, XML API		

#	Minimum Technical Specification 10G SFP Module	Compliance (Yes/No)	Remarks, if any
1	10GSFP+ Module provides a 10 Gb optical connection using LC connectors and Single Mode fiber cable.		
2	The transceivers should be from the same Switch OEM should be compatible with the offered Industrial Grade switchs		

#	Minimum Technical Specification 10G SFP Module	Compliance (Yes/No)	Remarks, if any
1	10GSFP+ Module provides a 10 Gb optical connection using LC connectors and Single Mode fiber cable.		
2	The transceivers should be from the same Switch OEM should be compatible with the offered Industrial Grade switchs		

		Specifications for Passive Materilas		

OEM Eligibility Criteria

Requirement	Compliance (Yes/No)
All components shall be ROHS compliant.	
OEM shall be ISO 9001 and 14001 certified. Copy of Valid Certificate submitted	
The OEM should be member of Telecommunication Industry Association.	
Passive OEM should be in India for more than 15 years.	
Tender specific authorization letter should be submitted along with bid.	

		Specification for 6 Core Single Mode Outdoor Fiber Cable		
#	**Specifications**	**Requirement**	**Compliance**	**Remarks**
1	Cable Type	6 fiber Single Mode, Armoured, Unitube, Gel filled cable complying to ISO.IEC 11801 - 2nd Edition, type OS2; AS/ACIF S008; AS/NZS 3080,ITU-T REC G 652D, IEC 60793/60794, TIA 568, EIA 455; suitable for use in direct burial, outdoor ducts and backbone cabling.		
2	Armour	Corrugated Steel Tape Armour -Thickness > 0.125mm		
3	Water Blocking	Thixotropic Gel (Tube), Petroleum Jelly (Interstices)		
4	Attenuation	,@ 1310nm <=0.35 db/Km MAX		
		,@1550nm <=0.22 db/Km MAX		
5	Numerical Aperture	0.14		
6	Attenuation Discontinuity	Both Windows <0.10dB		
7	Core/Mode-Field (um)	9		
8	Clad Diameter (um)	125 + - 1		
9	Coat Diameter	245 + - 10		
10	Loose tube material	Single PBTP Loose tube filled with water blocking Thixotropic gel		
11	Jacket material	UV Stabilised Polyethylene (HDPE)		
12	Peripheral Strength Member	Two Steel wires / Aramid Yarns		
13	Tensile Strength	1000N		
14	Crush Resistance	2000N/10 cm		
15	Cable Diameter	7.8 + - 0.5 mm		
16	Max. Bending Radius (during installation)	20 X Overall diameter		
17	Max. Bending Radius (during full load)	10 X Overall diameter		
18	Cable weight Kg/Km	80 kg/km		
19	Operating Temperature	.-10 Degree C to +70 Degree C		

	12 Port / 24 Port / 48 Port Fiber Optic Rackmount LIU, loaded with LC adapter plates and Splice Tray			
#	**Specifications**	**Requirement**	**Compliance**	**Remarks**
1	Fiber Management Shelf	Configurable Fibre drawer is a 1U rack mount unit for storing and terminating incoming fibre cable. Using vast range of 6 Pak plates you can configure your fibre system to suit all fibre applications.		
		Configurable. Fits up to four 6 Pak Plates/ Angled 6 Pak plates		
		Management rings within system to accommodate excess fibre cordage behind the trough adapters and maintain fibre bend radius		
		Sliding drawer for ease of reconfiguring fibres		
		Rugged steel construction finisdhed in attractive		
		Accommodates 2 x 12 fibre Splice Trays		
2	Weight	5KG		
3	Compact size (mm)	45mm H x 485mm W x 255mm D		
4	Optical Fibre Adapter Plates Loded	LC 12 Port Fibre SM Plate		
5	No of Adapter Plate Req	As per Requierment		

#	Specifications	Requirement	Compliance	Remarks
LC to LC Patch Cord SM, 3 Mtrs			
1	Make and Type	LC to LC Duplex tuned Fiber Optic Patch Cord 3 Mtr, 9/125 Micron		
2	Cable Sheath	LSZH		
3	Cable Diameter	1.8 mm twin zip		
4	Ferrule	Ceramic		
5	Buffer	Tight buffered		
6	Insertion Loss	MAX .3 db		
7	Return Loss	> 45 db		
8	Temperature Range	.-10 Degree C to +60 Degree C		
9	ROHS	ROHS Compliant		
	LC, SM Pigtail- 1.5 Mtrs			
1	LC, SM Pigtail	1.5 Mtrs		
2	Cordage O.D.	2.0mm+/-0.1mm x 4.1mm +/- 0.2mm		
3	Jacket	LSZH applications flame resistance IEC 60332-1 and LS0H IEC 61034-1 & 2, IEC-60754-1 & 2		
4	Ferrule Material	Full zirconia		
5	Insertion Loss	Max. 0.3dB typical 0.2dB		
6	Operating Temperature	.-40ºC to +85ºC		
	WALL MOUNT RACK - 6U and 9U			
1	Wall Mount 19 Size (H X W X D)	359mm x 600mm x 600mm 492mm x 600mm x 600mm		
2	Power Distribution Unit	4 Socket, 06 AMP Universal, 3 Pin plug with power cable 0.75 sq.mm 1.5 meter length		
3	Certificate	UL & IK 08 certificate, IP 20 certificate		