

Annexure - 2

Minimum Indicative Technical Specifications for Network Switches

Required Quantity - 5

S.No	Specifications	Compliance Yes / No	Remarks
	Make and Model		
1	<u>Architecture</u>		
1.1	Shall be 19" Rack Mountable.		
1.2	Shall have dual, redundant power supplies.		
1.3	Switch should have 48 10/100/1000 Ethernet Ports and additional at least 2 SFP+ uplink ports.		
1.4	1 RJ-45 console port and suitable console cable should be supplied with the switch.		
1.5	1 RJ-45 out-of-band management port.		
1.6	Shall have switching capacity of 216 Gb/s or more.		
1.9	Shall have up to 130 million packets per second switching throughput or more.		
1.10	Switch should support stacking up to 8 switches with stacking bandwidth of minimum 80Gbps. Stacking Ports, Cables and license, if required, for the same shall be provided from day 1.		
1.11	One Switch should be populated with 2 no's of 1G Single mode fiber transceivers & other four should be supplied with 2 no's of 1G Base-T (Electrical) transceivers.		
1.12	Should have Non-blocking and distributed forwarding hardware architecture.		
1.13	All interfaces should provide wire speed forwarding for both fiber and copper modules.		
2	<u>Layer 2 and Convergence Features</u>		
2.1	IEEE 802.1D Spanning Tree Protocol, IEEE 802.1w Rapid Spanning Tree Protocol and IEEE 802.1s Multiple Spanning Tree Protocol		
2.2	IEEE 802.3ad Link Aggregation Control Protocol (LACP).		
2.3	Shall support up to 4,000 VLANs		
2.4	MAC address table size of minimum 16000 entries or higher.		
2.5	Should support 802.1Q based VLAN, MAC-Based VLAN, Protocol-Based VLAN & Private		

S.No	Specifications	Compliance Yes / No	Remarks
	VLAN.		
2.6	Switch should support Jumbo Frame up to 9216 Bytes. Switch can support Port Base Control of Jumbo Frame.		
2.7	Internet Group Management Protocol (IGMP).		
2.8	Switch should support DHCP server and relay capabilities.		
2.9	Should support VLAN Interface or Loopback Interface.		
3	<u>Layer 3 Features (any additional licenses required shall be included)</u>		
3.1	Static Routing for IPv4 and IPv6 from day 1.		
3.2	OSPF for IPv4 (OSPFv2) and IPv6 (OSPFv3) from day 1.		
3.3	Policy-based routing from day 1.		
3.4	RIP(v1/v2),VRRP from day 1.		
3.5	Switch Should support IPv6 Applications: DHCPv6 Client, Ping6, Tracert6, Telnet(v6), IPv6 SNMP, IPv6 SSH, IPv6 SSL, IPv6 TFTP, IPv6 Interface, IPv6 Routing.		
3.6	Switch should support IPv6 Features: Dual IPv4/IPv6 stack, MLD Snooping, IPv6 neighbour discovery (ND), Path maximum transmission unit (MTU) discovery,ICMPv6, IPv6 ACL.		
4	<u>QoS and Security Features</u>		
4.1	Access Control Lists for filtering traffic to prevent unauthorized users from accessing the network.		
4.2	Switch should support Layer 2 and Layer 3 QoS.		
4.3	Switch should support minimum 8 hardware queues per port and strict priority queuing.		
4.4	Per-port broadcast, multicast, and unicast storm control.		
4.5	Switch should support ACL based on source & destination MAC Address, IP address, TCP/UDP Ports, 802.1P Priority & DSCP.		
4.6	Switch should support QoS mechanisms like 802.1p CoS/DSCP priority.		
4.7	Port Based ,VLAN based and Router based ACLs.		
4.8	DHCP Snooping support, Dynamic ARP inspection (DAI).		
4.9	Should support IP-MAC-Port Binding & Port security.		

S.No	Specifications	Compliance Yes / No	Remarks
5	<u>Management Features</u>		
5.1	Configuration through secure command-line interface (CLI) over Telnet and SSH.		
5.2	SNMPv1, v2, and v3.		
5.3	NetFlow/ sFlow (RFC 3176) or equivalent for traffic analysis.		
5.4	FTP and TFTP support.		
5.5	Switch Should support RMON(1,2,3,9 Groups).		
5.6	RADIUS or TACACS+ for switch security access administration.		
5.7	Network Time Protocol (NTP) or equivalent support.		
6	<u>Environmental Features</u>		
6.1	Shall provide ROHS Compliance.		
6.2	Shall be capable of supporting AC and supplied with Indian standard power cord and power cord must be compatible with supplied 42U Rack PDU.		
7	<u>Warranty & Support</u>		
7.1	3 years 24 x7 Support with commitment to resolve the problem within 6 Hours.		
7.2	The vendor has to give part nos. of every component which will be cross verified by OEM.		
7.3	All switches, transceivers should be of same OEM make and model.		

Note:

- a) Bidders shall mention the value/ parameter specifications details in remarks column in addition to select compliance indicating Yes / No.
- b) Please attach necessary data sheets / product specifications of manufactures / support information if nay along with these technical specifications.
- c) All switches should be of same brand and mix brands should not be allowed.

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