

Proposed QRs/Tech Specification for Router is given below for inviting valuable comments/suggestions from Vendors and OEMs

QRs and TRIAL DIRECTIVES FOR ROUTER

Ser No	Qualitative Requirements	Trial Directives	Remarks
1	<u>Router System Features</u>		
	(a) High performance up to 1.1 Mbps.	The Board will also carry out functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
	(b) Modular and flexible configuration.		
	(c) Redundant power supply.		
	(d) Comprehensive security.		
	(e) Multi WAN load balance.		
	(f) High Network availability.		
	(g) End to end QoS services.		
	(h) Bandwidth Optimization and Congestion Management.		
	<u>Hardware Specification</u>		
	(a) High-Speed MIPS processor.	The Board will also carry out functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
	(b) Throughput 1.1 Mbps.		
	(c) Flash : 16MB~80MB.		
	(d) SDRAM : 256MB ~ 1 GB (Two memory slots).		
(e) Boot ROM : 512 Kbps.			
(f) CF card (optional) : 16 (16 to 46)			
(g) AUX Ports.	01 Ports	The Board will carry out physical check of the mentioned features. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
(h) USB 2.0 Ports.	01 Ports		
(j) Console Ports.	01		
(k) NM Slots.	02		
(l) Hardware encryption slot.	01		
<u>(m) Wan Interface</u>			

(i) 10/100/1000 T Gigabit Ethernet ports.	02 Ports		
(ii) 1000X-SM-1310-LC-20 Single Mode Gigabit Fiber Ports.	02 Ports		
(iii) Hot Swappable 4 ports Channelized E1/ISDN PRI Interface Module with 120 ohm RJ45 cable.	01		
(iv) V.35 Ports.	02 Ports		
(n) Lan Interface			
(i) 10/100/1000 T Gigabit Ethernet ports.	04 Ports		
(ii) 1000X-SM-1310-LC-2 Multi Mode Gigabit Fiber Ports.	02 Ports		
Link Layer Protocols			
PPP, MLPPP, PPPoE, SLIP, SDLC, Frame Relay(LMI & ITU), Data Compression for Header & Payload (FR, Leased Line and dialup), LLC2 ISDN, X.25, HDLC, LAPB, Ethernet, 802.1Q, Multiple Spanning Tree Protocol (MSTP).		The Board will carry out functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
Layer 2 standards			
(a) IEEE 802.1D Spanning tree.		The vendor will submit OEM compliance certificate.	
(b) IEEE 802.1W Rapid spanning tree.			
(c) IEEE 802.1S Multiple spanning tree.			
(d) IEEE 802.1Q VLAN.			
High Availability			
(a) VBRP (Virtual Backup Router Protocol).		The vendor will submit OEM compliance certificate.	
(b) VRRP (Virtual Router Redundancy Protocol).			

Ser No	Qualitative Requirements	Trial Directive	Remarks
	<p><u>Network Protocols</u></p> <p>TCP/IP (IPv4 and IPv6), ICMP, UDP, FTP, TFTP, RLOGIN, DHCP, DNS, DDNS, ARP, DLSw, DDR, NAT, NTP, IPFIX</p> <p><u>IP unicast Routing protocols</u></p> <p><u>(a) Static route</u></p> <p>(i) RIP v1/v2 (Routing information Protocol)</p> <p>(ii) IRMP (Internal Routing Message Protocol , compatible with the EIGRP)</p> <p>(iii) OSPF V2 as per RFC2328 (Open shortest past first), OSPF NSSA as per RFC 3101, OSPF Demand circuit as per RFC1793 and OSPF virtual link.</p> <p>(iv) MPLS TE as per the RFC3630</p> <p>(v) Control of database overflow-as per the RFC1765</p> <p><u>(b) Route Redistribution</u></p> <p>(i) BGP v4 (Border gateway protocol)</p> <p>(ii) IS-IS (Intermediate System to Intermediate System)</p> <p>(iii) VRF - IP VPN Routing/Forwarding</p> <p>(iv) Prefix list, Aspath-list, Community-list, Extcommunity-list.</p> <p><u>(c) Route map</u></p> <p>(i) Text authentication, MD5 authentication.</p> <p>(ii) IP unicast Routing protocols (IPv6), IPv6 Static Route, Ipv6 Policy route, IPv6 RIPng Dynamic Route and IPv6 OSPFv3 Dynamic Route.</p>	<p>The vendor will submit OEM compliance certificate.</p> <p>The vendor will demonstrate the features to the BOO and will also submit the OEM compliance certificate.</p> <p>The vendor will demonstrate the features to the BOO and will also submit the OEM compliance certificate.</p> <p>The vendor will demonstrate the features to the BOO and will also submit the OEM compliance certificate.</p>	

<p>(iii) OSPFv3 NSSA Area, OSPFv3 Demand-Circuit, OSPFv3 Route Redistribution, OSPFv3 Virtual Link.</p>		
<p>(iv) IPv6 BGP4+ Dynamic Route, IPv6 IS-IS, Ipv6 Prefix list for filtering the routes, IPv6 to IPv4 Tunneling, NAT-PT.</p>		
<p><u>Multicast routing Protocols</u></p>		
<p>IGMP v1/V2, PIM-SM, PIM-DM, DVMRP, MVPN (Multicast VPN), MSDP (Multicast Source Discovery Protocol)</p>	<p>The Board will also carry out functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.</p>	

VPN		
VPN, VPDN, L2TP (Layer 2 Tunneling Protocol), L2TPv3 GRE (Generic Routing Encapsulation), Security Association (SA), Internet Key Exchange (IKE), IPSEC, GRE, VRF aware IPSEC	The Board will also carry out functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
MPLS VPN		
MPLS VPN, MPLS Load balancing	The Board will also carry out functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
VoIP protocols		
H.323, H.225, H.245, RTP/RTCP, RTP Condensation, MPLS LDP (Label Distribution protocol), MPLS L2VPN, MPLS L3VPN, MPLS-TE, VPLS, MPLS-OAM, MPLS Ping / Traceroute	The Board will also carry out functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
Quality of Service		
(a) First In First Out (FIFO)	The Board will also carry out functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
(b) Priority Queue (PQ), Custom Queuing (CQ), Fair Queue (FQ), Weighted Fair Queue (WFQ), Class Based Weighted Fair Queue (CBWFQ) and Low Latency Queuing (LLQ).		

(c) Committed Access Rate (CAR)	The Board will also carry out functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
(d) Static Priority with Deadline Consideration (SPD)		
(e) Weighted Random Early Detection (WRED) and Random Early Detection (RED)		
(f) Traffic shaping and RSVP		
<u>Access control list (IPv4)</u>		
(a) Standard Access control list and Extended Access control list.	The Board will also carry out functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
(b) MAC standard access list and MAC Extended Access List.		
(c) Ethernet protocol access list, Reflexive Access List.		
(d) Time based ACL.		
<u>Authentication and Accounting (AAA)</u>		
(a) IEEE 802.1x.	The Board will also carry out functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
(b) Auto VLAN (Port based authentication) and Guest VLAN (Port based authentication).		
(c) Transparent transmission of 802.1X EAPOL packets.		
(d) 802.1X multicast triggering and 802.1X EAP relay/termination.		
(e) RADIUS and TACACS+.		
<u>Firewall</u>		
(a) Detecting the ASPF state.	The Board will also carry out functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
(b) Supporting the prevention of 5Th flood, UDP flood or ICMP flood.		
(c) Supporting ARP attack prevention, ARP Scan and DHCP snooping.		
(d) Supporting the prevention of attacks from all kinds of network packets such as Ping of Death, Teardrop, Land Based, Ping Sweep, ARP attack and IP Spoofing.		
<u>NAT</u>		
NAT, PAT, Inside Source NAT, Inside	The Board will also carry out	

Destination NAT, Outside Source NAT, LOCALSTAT.	functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
<u>DHCP (IPv4 and IPv6)</u>		
DHCPv6, DHCP client / Server / Relay.	The Board will also carry out functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
<u>Backup function</u>		
(a) Supporting interface backup.	The Board will also carry out functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
(b) Supporting the backup of the floating route of the line.		
(c) Supporting the F backup and keep alive of Ethernet.		
(d) Supporting VRRP and HSRP.		
(e) Supporting bandwidth based load bearing and backup.		
(f) Supporting the flow based load, balance and backup.		
<u>Testing / Troubleshooting</u>		
(a) Ping and Trace route.	The Board will also carry out functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
(b) Net stat for status and detailed statistics information of the network interfaces.		
(c) System status information and statistics.		
(d) Network interfaces status and statistics.		
(e) Network fault inspector (NFI).		
(f) System log and CPU utilization.		
(g) System Information Unit.		
(h) Embedded Event Platform (EEP).		

(j) Configuration / Management.		
(k) NTP, RMON, DHCP v4/v6, SSHv2, SNMP v1/v2/v3.		
(l) Configuration Via Console port (CLI) / Telnet.	The Board will also carry out functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
(m) Configuration Rollback.		
(n) Console port, Telnet and Remote login.		
(o) Firmware upgrade via TFTP / FTP / X modem.		
Power Supply		
(a) DC voltage : 40-70 V	The Board will also carry out functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
(b) AC voltage : 150 - 240V @ 47 Hz – 63 Hz.		
(c) Power Consumption: 150W		
Temperature/Humidity		
Working temperature and humidity: 0°C ~ 40°C; 10% ~ 85% no Condensation.	The Board will also carry out functional test of the mentioned parameter. In case of any discrepancies/ problem, the vendor/rep of firm will demonstrate the features to the Board of officer and the vendor will also submit OEM compliance certificate.	
Storage temperature and humidity: -20°C ~ 65°C; 5% ~ 95% no Condensation.		

Please forward your valuable Comments/Suggestions by clearly mentioning in subject line as “QRs/TDs suggestion for Router” on the following address/route: -

Through Mail	itwing@crpf.gov.in
Through Fax	011-24361992
By Hand	Room No.325, 3 rd Floor, Block No-1, Directorate General, CRPF, Lodhi Road, New Delhi-3

NOTE:-You are hereby requested to submit the documents also as per given list below.

1. You are OEM/Supplier or otherwise.----- (document in support-scan copy only).
2. Clearly mention in all paras of QR/Specifications that you are complied with or otherwise.

E.g :-

S/No.	Specifications	Requirements	Comment	Remark
1	Power Supply	230 V \pm 5%, 50/60 Hz-Standard	No	Complied
2	Degausser System	Capacitive Discharge	No	Complied
3	Duty Cycle	Continuous	No	Complied
4	Cyclic Time	60 Seconds or less	50 Sec or more	Not Complied
5	Display	LCD Display to visually provide the user with erase, power & mode verification & other indications	No	Complied