

Annexure-IX-Technical Specifications of Link

Name of the Bidder-

Please enter in the Green Cells Only

Sr.No	General Functionality	Compliance (Y/N)	Remarks
1	The links should be dedicated (1:1; uncompressed, unfiltered and unshared) MPLS VPN link .		
2	The bidder shall provide Private multiprotocol label switching (MPLS) virtual private network (VPN) .		
3	The circuit should be available in full duplex mode with sending and receiving available on the same circuit. (For e.g. - On a 2 Mbps circuit, 2 Mbps sending and 2 Mbps receiving should be possible simultaneously).		
4	The MPLS VPN should support any to any connectivity and should be a closed user group for LIC and should not have any physical and logical interference with other customers of the TSP or Internet route/traffic.		
5	The bidders should have their own nation-wide high availability MPLS network backbone. The bidder's core MPLS backbone should be fully meshed.		
6	All the POPs from where the MPLS bandwidth is provided to LIC should have redundancy of equipments, links, power, backhaul connectivity etc		
7	The bidder shall be required to commission the links from the bidder's nearest PoP		
8	The solution should provide end to end transparent data, reachability of data, voice, video etc (no filter of traffic from SP)		
9	Bidder has to replace/repair faulty/damaged equipment at the bidder's own cost, irrespective of the reason of fault/damage, during the contract period. However, the “force majeure” clauses will apply. In any case, the bidder will have to arrange for replacement of the faulty/defective equipment . In case of reasons attributable to LIC, the same may be reimbursed to the vendor.		
10	All DC,DR,CO-LO,ZO should be on fibre		
	Network performance parameters		
11	Latency for wired connectivity should not be more than 110 ms (End to end/round Trip) for a 1500 byte packet size measured for a minimum of 1000 packets on a 50% bandwidth utilization.Latency ,for RF/wireless connectivity,should not be more than 135 ms(End to end/round Trip) for a 1500 byte packet size measured for a minimum of 1000 packets on a 50% bandwidth utilization.		

12	Average Jitter of the connectivity should be less than 30 ms measured for a minimum 1000 packets		
13	Minimum MTU (maximum transmission unit) size should be 1500 bytes .		
14	At all backhaul links Packet Delivery Packet drop should not exceed one out of every one lakh packets and at other locations Packet Delivery Packet drop should not exceed one out of every ten thousand packets.		
15	The connectivity should display of Dynamic ARP table		
16	The connectivity should support trace-route, Ping, extended PING		
17	The MPLS-VPN solution should be capable to support multicast using industry standard multicast protocols in all variants (like dense mode,sparse mode etc.) i.e. Protocol Independent Multicast - PIM Sparse Mode (PIM-SM) and above standards.		
18	The Bidder should have predefined traffic transport QoS (Quality of Service) parameters, which provide throughput, latency, packet loss, jitter commitments and application prioritization		
19	The connectivity should be capable of providing end to end Quality of Service (QoS) features which includes end to end differentiated services code point (DSCP) and class of service (CoS) continuation,end to end traffic categorization, bandwidth provisioning and prioritization etc.		
20	The ISP should have Dual Stack (IPv4 plus IPv6) ready Network.		
21	Bidders network should support dynamic routing protocols like Open Shortest Path First (OSPF), Border Gateway Protocol (BGP) ,IS-IS(Intermediate System to Intermediate System),Enhanced Interior Gateway Routing Protocol(EIGRP), etc		
22	The bidders network should provide end to end traffic categorization, bandwidth provisioning and prioritization as required by LIC .		
23	The bidders network should able to provide Multi VRF environment.		
24	The bidder should have the capability of increasing / decreasing bandwidth on demand and such changes in bandwidth must be provided within 21 days.		
	Infrastructure Capabilities		
25	Should support features such as IP-SLA or equivalent and Embedded Event Management or equivalent		
26	Should support Access control list (ACL)		
27	Should support route redistribution between any of the above protocols		
28	Should support route distribution between EIGRP and other routing protocols		

29	Should support Network Time Protocol Version 4 (NTPv4), Syslog, Ping, Trivial File Transfer Protocol (TFTP) and Secure Shell version 2 (SSHv2) , telnet etc .		
30	Should support syslog, buffer logging		
	Security		
31	The telecom infrastructure must be hardened in accordance with the respective vendor's latest IS guidelines.		
32	LIC and/or third party consultants hired by LIC should have rights to audit/review the whole setup of the bidder catering to LICs application		
33	The selected Bidder should undertake to implement the observations/recommendations of the LIC's IS-Audit, Security Audit Team or any other audit conducted by the LIC or external agencies and any escalation at no extra cost to the LIC. All upgrades/patches/firmware etc. shall be installed by the bidder promptly and at no cost to LIC. It shall be the responsibility of the bidder to conduct all activities related to such upgrades etc		
34	The selected Bidder should have their Network Infrastructure Audited for Cyber Security as per IS/DOT/CERT-In guidelines		
35	The Selected Bidder should support AES 128/ AES 256/AES 512 BIT encryption.		
36	Bidder Network devices should be updated with latest firmware and security patches		
37	The bidder must ensure complete data privacy and shall utilize only the private IP addresses assigned by the Life Insurance Corporation of India.		
38	The bidder will ensure physical and/or logical segregation of LIC network from that of other networks		
39	The vendor should have a clear Disaster Recovery and Business Continuity Plan (BCP) in place for support services and should submit the BCP plan to LIC		
40	The connectivity should support netflow or equivalent feature for network & security monitoring		
	Monitoring and Reporting		
41	The bidder should use a standard Network Management and Monitoring System (NMS) to cater such a large network efficiently and LIC should be provided with viewing rights of the same. Bidder should provide a system for creating and managing the tickets.		

42	The bidder should provide a centralized non dedicated Network Operation Centre (NOC) services. The Network Management System at the NOC should provide the following facilities on a 24*7*365 basis : <input type="checkbox"/> Monitoring network status <input type="checkbox"/> Configuration of all network components related to the bidder. <input type="checkbox"/> Downloading of operational Software to network components related to the bidder. <input type="checkbox"/> Enabling or disabling of remote RF devices. <input type="checkbox"/> Fault diagnosis and display of alarm <input type="checkbox"/> Support for SNMP all versions		
43	The bidder should proactively monitor the entire network and arrange for timely resolution. Bidder should provide the detailed methodology of monitoring and calculating the uptime/SLAs in the technical bid. LIC reserves the right to evaluate the methodology suggested by the Bidder. In case the suggested methodology is not acceptable to LIC , it shall prescribe a suitable method		
44	Polling interval for status update should be 5 min / as per the LICs requirements		
45	The selected bidder shall have to provide access to its monitoring portal that provides :		
46	Real time dash board showing summary of the network health like number of up down offices and links		
47	The portal should also provision features to drill down till each branch like branch link status, device status, interface status, bandwidth utilization in real time .		
48	All monthly SLA reports submitted to the LIC should be compiled by the Bidder using the Bidder's monitoring portal for the entire duration of the contract. SLA report should contain all parameters given in this RFP and their value .		
	Mast Specifications		
	Specification for mast height <=3metres		
49	Monopole tower should be used		
50	A monopole tower should be guyed or self supported		
51	Hollow, heavy duty, thick non-corrosive steel tube , with high strength should be used		
52	Weight of structure should be less than 15 Kg		
53	Deflection of antenna should be less than 05 cm for winds <=150Kmph		
54	Total floor area covered by the installation should not be more than 1 square foot .		
55	Specification for mast height for more than 3metre and less than equal to 9 meters		
56	Tower should be guyed and may be fitted with climbing rungs where necessary		

57	Guyed masts may be in lattice, triangular or square, tapered or straight, as well as monopole structural forms.		
58	Weight of structure should be less than 50 Kg		
59	Deflection of antenna should be less than 15Cm for winds $\leq 150\text{Kmph}$		
60	Total floor area covered by the installation should not be more than 4 square feet excluding the guy wires.		
	Specification for mast height for more than 9 meters		
61	Tower should be in lattice, triangular or square, tapered or straight		
62	Base of the tower should be on a concrete structure. If tower is erected on ground, should have a firm foundation made of good quality concrete structure of which minimum 1 metre part should be inside a pit in the ground.		
63	Tower may be guyed and should be fitted with climbing rungs		
64	Weight of structure should be less than 200 Kg		
65	Deflection of antenna should be less than 05Cm for winds $\leq 150\text{Kmph}$		
66	Total floor area covered by the installtaion should not be more than 9 square feet		
67	Mast/tower should have protection including anti climb system against birds, monkeys and other animals		
68	All structural components including washers, clips, nuts & bolts should be galvanized (anti rust)		
69	Separate down conductors shall be installed from each tower to earth		
70	Wires from the antenna should be properly guided and firmly bound to mast		
71	Outdoor wire should have proper shielding from antenna till system room		
	Maintenance of the tower		
72	Towers require regular maintenance for Purposes of early detection of deterioration and as a mandatory measure to prevent breakdowns and the attendant consequences.		
73	Engineers should visit and conduct health checkup of the tower in every first and third quarter or as and when called by branch. If anything is found to be faulty should be replaced/repared without any cost to LIC .		
74	The top of mast or tower should be painted red. Rest of the pole, mast or tower should be painted blue (non gloss paint)		

75	For every tower site, vendor shall keep a maintenance log book and get signatures from branch for every preventive checkup visit. Log book should contain information such as Installation Date,Next preventive due dates ,Next Painting due dates,Adhoc Maintenance dates ,Details of activity carried out and replaced parts ,Name and address of engineer etc.		
	Others		
76	External antennas should have proper lightning conductors, wherever necessary		
77	Bidder shall meet all the Govt. or other Regulatory directions/ requirements and ensure compliance.		
78	Security for the External devices lies with the Bidder		