

Clause in RFP

Sr No.	Clause in RFP	Clarifications/ Changes made
1	<p>C. Experience & Support Infrastructure </p> <p>1. The Bidder should have supplied & supported Minimum 1000 Routers and 1500 Switches of the same make in the past total 3 financial years (2016-17, 2017-18 and 2018-19) AND Should have supplied, installed and supported network hardware with a total order value of at least Rs. 4 Crores in each year for past 3 financial years (2016-17, 2017-18 and 2018-19) to various branches/offices of Commercial Banks / Financial Institutions/ Telecommunication companies/ Govt. Organizations in India having a large branch network geographically spread across the country out of the above at least 300 routers and 300 switches should be supplied and supported in commercial Banks/ Financial institutions/ Govt. Organization. </p>	<p>C. Experience & Support Infrastructure </p> <p>1. The Bidder should have supplied & supported Minimum 1000 Routers and 1500 Switches of the same make from April 2016 till RFP date. AND Should have supplied, installed and supported network hardware with a total order value of at least Rs. 4 Crores in each year for past 3 financial years (2016-17, 2017-18 and 2018-19) to various branches/offices of Commercial Banks / Financial Institutions/ Telecommunication companies/ Govt. Organizations in India having a large branch network geographically spread across the country out of the above at least 300 routers and 300 switches should be supplied and supported in commercial Banks/ Financial institutions/ Govt. Organization </p>

Addendum to the following Annexures:
1. Annexure 13 – Technical Specification

All other Terms & Conditions are same as per our RFP no. BCC:IT:PROC:111:46 Dated 15th October 2019 for Request for Proposal- Rate Contract for Supply, Installation & Maintenance of Network Hardware at Bank Branches / Offices.

Annexure 13 - Technical Specification

Annexure 13A	
Router:	
Sr. No.	Required Minimum Specifications
1	Router should have packet forwarding rate of minimum 290 Kbps for 64 byte packets per second on a single chassis.
2	Router should support embedded hardware based IP SEC encryption and acceleration
3	The router should support a default DRAM of minimum 1GB upgradable up to 4GB
4	Minimum flash RAM should be at least 256 MB for proper operation under the proposed solution and as per the requirements of the Company.
5	The Router should be a Single Box configuration and modular, so that the Company has the flexibility to use the appropriate choice of interfaces as and when required.
6	It must be possible to fast boot the router to ensure that for software upgrades can be done with minimum network downtime.
7	High Mean Time Between Failure values should be available to ensure long life of router hardware.
8	
9	The router should have adequate flash memory to ensure storage of multiple router software images. The router software must support the flash file system to easily store and load multiple images.
10	Extensive debugging capabilities to assist in hardware problem resolution.
11	The router should be capable of IP routing protocols like RIP, OSPF, BGP, policy routing, NAT.
12	The router should be capable of WAN protocols like PPP, Multilink PPP, etc.
13	Firewall Services with Standard Access Lists, Extended Access Lists and Time based Access lists and Intrusion Detection system to provide supervision and control,
14	Control SNMP access through the use of SNMP with MD5 authentication.
15	Implement Access Lists on the router to ensure SNMP access only to the SNMP manager or the NMS workstation.
16	Multiple Privilege Levels.
17	Support for Remote Authentication Dial-In User Service (RADIUS) change of authorization, URL Redirection and AAA

18	PPP PAP & CHAP support.
19	IPSec DES, 3DES/AES (256 Bit) Support
20	Should be able to manage & administer point-to-point VPNs by actively pushing new security policies from a single headend to remote sites
21	Should be able to build IPSec tunnel dynamically, point to point or point to Multipoint
22	Should be able to secure large Layer 2 or MPLS networks to provide full-mesh connectivity by providing tunnel-less VPN without any impact on router performance
23	All Routers proposed in the solution should be certified under the Common Criteria Evaluation Program for atleast EAL2 or more.
24	Rack mounting kit for securing the router in standard rack are to be provided.
25	The proposed Model should be compatible with Cisco Ace.
Interfaces:	
1	Router should have atleast 2 routed 10/100/1000 Gigabit interfaces on Board used for WAN & LAN, 2 serial port.
2	At least additional 2 routed 10/100/1000 LAN/WAN interfaces
3	Async/Sync serial interfaces (V.35) for speeds up to 115 Kbps.
4	Synchronous Serial Interfaces for speeds up to 2 Mbps.
5	Flexibility should be offered on each and every port to be configured as Synchronous or Asynchronous Serial lines
6	Should support Wireless 4G & other latest technology connectivity.
7	Should be compatible with CISCO ACE IP Sec Load Balancer.
Software Features:	
Routing Protocols and General Router Features :	
1	Routing Information Protocol (RIPv1 and RIPv2), Layer 2 Tunneling Protocol (L2TP), Port Address Translation (PAT)
2	Dynamic Host Control Protocol (DHCP) server/relay/client
3	Access control lists (ACLs), Generic routing encapsulation (GRE)
4	Dynamic DNS Support
5	Support for OSPF & BGP
6	Support for 802.1q VLANs, Demilitarized Zone (DMZ)
7	Support for Multicast Routing Protocol - PIM Sparse Mode, PIM Sparse-Dense Mode / Source Specific Mode, Auto route processing (Auto-RP) or equivalent
8	Support ISDN protocol

Support for IPv6 Features:	
1	IPv6 addressing architecture, IPv6 name resolution, IPv6 statistics
2	IPv6 translation-transport packets between IPv6-only and IPv4-only endpoints
3	ICMPv6, IPv6 DHCP
4	The Device should be on the IPv6 Ready Logo Program Approved List and should have passed the IPv6 Ready Logo Program Phase II
5	Support for the following IP v6 features : RIP NG , OSPF v3 , BGP Support for V6, IP V6 Dual Stack, IP v6 Policy based Routing, and IP v6 QoS.
6	Should support following IP v6 Tunneling mechanisms : Automatic 6 to 4 tunnels, Automatic IP v4 compatible tunnels, IP v6 over IP v4 GRE Tunnels, ISATAP Tunneling Support.
Security Features:	
Mandatory Features (Required)	
1	Secure HTTP (HTTPS), FTP, and Telnet authentication
2	No Service Password Recovery
3	Hardware-accelerated 3DES for IPSec, Hardware-accelerated AES for IPSec
4	IPSec 3DES termination/initiation, IPSec passthrough
5	L2TP passthrough, 802.1X
6	System Logging
System should support (Feature currently not required)	
1	Stateful Inspection Firewall, Transparent Bridging firewall or equivalent feature
2	NAT transparency, Firewall support for skinny clients or equivalent feature
3	E-mail Inspection Engine & HTTP Inspection Engine
4	Advanced Application Inspection and Control
5	Support for Intrusion Detection System / Intrusion Prevention System (IDS / IPS) functionality
6	Router should support in-line IPS functionality with ability to schedule & automatically update signatures without requiring human intervention.
7	IPS functionality on the router should support tuning of the signatures i.e. changing the alert severity rating of signatures.
8	IPS functionality on the router should support multiple event actions to block attacks i.e deny-attacker-inline, deny-connection-inline, deny-packet-inline, produce-alert & reset tcp connection.
9	Should support user based firewall functionality to create policies based on different classes of users.
QoS Features :	

1	Weighted Fair Queuing (WFQ), Class-Based WFQ (CBWFQ) or equivalent feature
2	Class-Based Traffic Shaping (CBTS), Class-Based Traffic Policing (CBTP), Class-Based QoS MIB or equivalent features
3	Support for Priority and custom queuing, Class-Based Weighted Random Early Detection (CBWRED) or equivalent feature
4	Support for LFI
5	Support for RSVP, cRTP or equivalent feature, DiffServ, QoS Preclassify & Pre-fragmentation or equivalent feature, Class-Based Marking (CBM) or equivalent feature
Management Features :	
1	Management should support: Telnet, Simple Network Management Protocol (SNMP), CLI, and Web based HTTP management / management software, RADIUS
2	SNMP over IPV6 & AES & 3DES encryption support for SNMP Version 3
High-Availability Features	
1	Virtual Router Redundancy Protocol (VRRP) (RFC 2338)
2	Out-of-band management with external modem through virtual auxiliary port



Annexure 13B	
Switch	
Sr. No.	Required Minimum Specifications
1	Minimum 24 port 10/100/1000 Ethernet auto sensing ports, with minimum 41 Mpps for 64-byte packet forwarding rate
2	19-inch Rack-Mountable
3	Full-Duplex Operation on Fast Ethernet
4	Multiple Load Sharing Trunks
5	Minimum of 512MB DRAM and 32 MB Flash memory
6	Support for minimum of 8000 MAC addresses
7	IEEE 802.1Q VLAN Support – Port based VLANs
8	RADIUS or TACACS + Support
9	High MTBF Support
10	The Switches must be able to generate Syslog Messages with timestamp and Severity codes, which can be exported to a Syslog Server.
11	The Switches must be able to Build up its own inventory (like Device Name, Chassis Type, Memory, Flash, Software ver. Etc or equivalent fields)
12	Configurable up to 255 IGMP groups
13	Support for Local Proxy Address Resolution Protocol (ARP) to work in conjunction with Private VLAN Edge to minimize broadcasts and maximize available bandwidth.
14	Rack mounting kit for securing the switch in standard rack are to be provided.
15	The proposed model should be compatible with Cisco Ace router
Layer 1 Features: -	
1	Support for 100 BASE-TX
Layer 2 Features: -	
1	L2 Switching Support
2	Multi-Link Trunking
3	Ability to manage individual switches as a group for VLANs configuration purposes
4	Support for Spanning-Tree Protocol (IEEE 802.1D)
5	STP Fast Calculation features as uplink fast for faster convergence or equivalent feature
6	Per-port broadcast, multicast, and storm control to prevent faulty end stations from degrading overall systems performance.
QoS Features:-	
1	Support for Classification and scheduling based on 802.1p/Q
2	Support for 802.1p class-of-service (CoS). Ability to Mark/override 802.1P CoS per port

3	Four queues per egress port.
4	Weighted Tail Drop(WTD) for congestion avoidance or equivalent feature
Multicast Support:-	
1	Multicast must be supported in hardware so that performance is not affected by multiple multicast instances.
2	L2 Multicast Support – IGMP Snooping
3	Should support minimum of 255 IP addresses in a multicast group
Redundancy:-	
1	Link Aggregation
2	Spanning Tree (802.1d) with support for spanning tree per VLAN
3	Quick Failover over redundant links for improved network stability and reliability
4	Support for IEEE rapid spanning tree.
Security Features:-	
1	Support for External RADIUS for console access restriction and authentication
2	Multi-Level access security on switch console to prevent unauthorized users
3	Support for 802.1x port based authentication
4	Support for IEEE 802.1x with Guest VLAN allows guests without 802.1x clients to have limited network access on the guest VLAN.
5	Configuration Change Tracking
6	System Event Logging
7	Syslog
8	SNMP compatible
9	Support for minimum of 30 Virtual LAN (VLAN)
10	Support for Secured ports which restrict a port to a user-defined group of authorized stations. When secure addresses are assigned to a secure port, the switch should not forward any packets with source addresses outside the defined group of addresses
Other Features:	
1	The switch should have its own management software, which can be used remotely (through secured Web interface) to monitor, troubleshoot & manage the switch.
2	The management software should integrate with any EMS product suite.
3	The Switch should seamlessly integrate with existing network equipments
4	Layer 2 traceroute or equivalent feature to ease troubleshooting by identifying the physical path that a packet takes from the source device to a destination device.
5	Should support Link layer Discovery Protocol
6	Should Support DNS
7	Secure access to switch management, limiting management applications from specific hosts only
8	Should support BPDU guard to avoid topology loop.

9	Unicast MAC filtering, unknown Unicast and multicast Port blocking
10	Support for MAC address notification allows administrators to be notified of users added to or removed from the network.
11	The operating system should have a self healing mechanism for the automatic recovery of the switch when a specified event occurs
12	The software should have a mechanism to proactively detect and address potential hardware and software faults during runtime.
13	Support Bidirectional data support on the SPAN port allows the Intrusion Detection System (IDS) to take action when an intruder is detected.
14	DACL support for minimum 300 ACE(Access control entries) for a switch
Network Management (Management Feature) :-	
1	Embedded support for Web based management using standard secured web browser.
2	Support for SNMP v1 as per RFC1157 and SNMP v2c as per 1901 through 1907
3	Support for TFTP based software download
4	Support for port mirroring measurement using a network analyzer or RMON probe.
5	RMON: 4 Group (Statistics, Alarm, Events, History), on every port, no impact to performance
6	Switch must be remotely managed via one telnet session for all module configuration
7	Should have functionality to add new features like IOS/Firmware upgrades from central location, etc.
8	Provisioned and Dynamic Policies at Layers 1-4 for QoS and Security
10	Support for Dynamic VLAN assignment or equivalent feature is supported through implementation of VLAN Membership Policy Server (VMPS) client functions to provide flexibility in assigning ports to VLANs. Dynamic VLAN or equivalent feature helps enable the fast assignment of IP addresses.
11	Real Time Multi-Port Statistics
12	Mac/IP Address Finder or equivalent feature
13	Device and Port Groupings for Navigation and Policy Management
14	Radius or TACACS+ server Support
15	Private and Enterprise MIB / MIB
16	Administrative Access Right
17	Traffic Volume/Error/Congestion Monitoring
18	TFTP Download/Upload Software
19	The Switch should be able to discover the neighboring device of the same vendor giving the details about the platform, IP Address, Link connected through etc, thus helping in troubleshooting connectivity problems.
IEEE Standard Compliance: -	
1	802.1Q VLAN tagging
2	802.1p Priority

3	802.1D Spanning Tree
4	802.3u Fast Ethernet
5	802.3x Flow Control
6	802.1x Authentication
7	802.3ab Gigabit Interface
8	Support for Remote Authentication Dial-in User service (RADIUS) change of authorization, URL Redirection and AAA
9	Must have support to 802.1x network authentication and port security on a port basis which will help to deploy Network Access Control (NAC)
10	802.1x support with following features: <ul style="list-style-type: none"> • 802.1x with VLAN Assignment • 802.1x Guest VLAN • 802.1x - Auth-Fail VLAN or equivalent. (An auth fail VLAN allows users without valid credentials to access a limited set of services which can be controlled by an administrator) • 802.1x - Auth Fail Open or equivalent. (Auth Fail Open feature enables the administrator to apply a policy that allows users to have network access when the AAA server is unreachable.) • 802.1x MAC-Auth-Bypass • 802.1x with ACLs • 802.1x Accounting • Web Authentication for Non 802.1x Clients. • Switch should support concurrent deployment of 802.1x and MAB authentication
RFC (Request for Comment) Support: -	
1	768 UDP
2	783 TFTP
3	791 IP
4	792 ICMP
5	826 ARP
6	854 Telnet
7	1122 Host Requirements / ICMP
8	1542 BootP
9	2068 HTTP or equivalent
10	2236 IGMP
11	SNTP – RFC1769 or equivalent

Annexure 13C	
Racks- Branch	
Sr. No.	Description
1	Wall mounted 9U/600W/600D
2	3 Sets of adjustable mounting rails (adjusting in 1 Inch increments)
3	Removable/lockable side panels
4	Cage nut style mounting rails
5	Top and Bottom removable cable slots
6	Glass front door with built in lock and 180 degree swing
7	Maximum Weight Capacity 150 Pounds
8	Cooling Fan kit with 280 CFM
9	Racks Screws
10	Cage nuts / Brackets
11	Two pairs of 19" mounting angles with 'U' marking.
12	Cable tie bracket
13	Minimum 4 Power Sockets

Annexure 13D		
PDU		
Sr. No.	Description	
GENERAL		
1	Description	HP 7.3 kVA, 230V, 30 outlet, INTL Basic PDU
2	Function	Basic
3	Form Factor	Mid Height
INPUT		
4	Max VA	7300
5	PDU Inlet	IEC 60309 332P6
6	Cable Length (m)	8ft / 2.44m
7	Voltage	220-240V
8	Current	32
9	Phase	1-phase
10	Phase Configuration	L-N
OUTPUT		
11	Outlets	 
		(24) C13 (6) C19 Network Hardware power socket needs to be compatible with Indian standard without using any converter.
12	Circuit Breakers	3 x 16A
13	Output Voltage	220-240V

Annexure 13E	
Server Rack	
Sr. No.	Description
GENERAL	
1	All the racks should be of 42U size.
2	Dimension of Network rack is – 800mm x 1000mm x 2000mm or 42U whichever is less
3	Dimension of Server rack is – 600mm x 1000mm x 2000mm or 42U whichever is less
Technical Specifications	
1	Rack should be designed and engineered specifically for easy assembly and rapid equipment integration at site.
2	Design should be based on the use of aluminium profiles for the four vertical pillars, which should be connected solidly to two welded steel end-frames. This results not only in low weight and an elegant appearance, but also permits quick assembly.
3	Rigidity provided by the steel end-frames such that the rack should be able to handle equipment loads of upto 850kg.
4	Conforms to DIN 41494 - and current industry practices
5	Steel Doors - plain, vented at bottom, fully perforated and dual perforated
6	Glass Doors - with optional vented side trims for front-to-back air flow
7	Choice of powder coat shades
8	Vertical pillars of the frame are aluminium extrusions. All other parts are of formed sheet steel
9	Finishing should be with all block or combination of Light Grey (RAL 7035) and Dark Grey(RAL 7037)
10	The rack should stand on the Raised Access floor
11	The rack should support the cooling, cable management and power distribution Unit
12	The Rack should contain all the necessary component and accessories to mount the servers / switches, storage etc.,
13	Network Rack (aggregation) should have Patch panel for Cross/Inter Connectivity to Server Rack
14	Network rack shall be with proper cable management, Ladder, Vertical & Horizontal Wire Manager etc