

With reference to our RFP dated 21.12.2020 issued for “Request for Proposal for Selection of Vendor for Supply, Installation and Maintenance of Wi-Fi Solution at Baroda Sun Tower, Mumbai and Baroda Bhavan (Head Office), Vadodara and online Pre-Bid meeting held on 30.12.2020. Various queries raised in the pre-bid meeting and Bank’s response against the same, are given in the table below.

Clause in RFP

Sr. No.	Clause in RFP	Clarifications/ Changes made
1	A-2 RFP Coordinator Name, Contact details (Bank)	Contact No. - 022-6698 5119 / 5788
2	A-5 Last date & time for submission of Technical & Commercial Bid and Address	3.00 PM on 15th January 2021 Mode: Offline Location: Bank of Baroda Facilities Management Department 1st Floor, Baroda Corporate Centre, C-26, G-Block, Bandra Kurla Complex, Bandra (East), Mumbai-400051.
3	A-6 Eligibility Cum Technical Bid Opening Date	3.30 PM on 15th January 2021 Mode: Offline Venue: Bank of Baroda Facilities Management Department Baroda Corporate Centre, C-26, G-Block, Bandra Kurla Complex, Bandra (East), Mumbai-400051.
4	<p>1. Introduction</p> <p>1.3 Project Scope c) Providing Internet Leased line with minimum 100 Mbps Primary bandwidth and 100 Mbps Secondary Bandwidth. (BSNL/MTNL must be mandatorily one of the service provider).</p> <p>1.9 Warranty In event of any equipment / part is replaced or any defect in respect of any equipment / part is corrected for more than one instance of any quarter during the base warranty period of 3 years, where the period of warranty remained is less than twelve month of the comprehensive warranty, the warranty in respect of the entire hardware equipment for which the equipment / part is replaced / defect is corrected, will be extended for an additional period of twelve months from the date of such replacement/ correction of defects.</p>	<p>2. Introduction</p> <p>1.3 Project Scope c) Providing Internet Leased line with minimum 100 Mbps Primary bandwidth and 100 Mbps Secondary Bandwidth. (BSNL/MTNL may be preferred as one of the service provider).</p> <p>1.9 Warranty In event of any equipment / part is replaced or any defect in respect of any equipment / part is corrected for more than one instance in any of the quarter during the base warranty period of 3 years, where the period of warranty remained is less than twelve month of the comprehensive warranty, the warranty in respect of the entire hardware equipment for which the equipment / part is replaced / defect is corrected, will be extended for an additional period of twelve months from the date of such replacement/ correction of defects.</p>

Sr. No.	Clause in RFP	Clarifications/ Changes made
	<p>1.13 Handover Services b) Listing of all process being monitored with their monitoring frequency</p> <p>.....</p> <p>.....</p>	<p>1.13 Handover Services b) Listing of all process being monitored with their monitoring frequency. Bidders to deploy Network Management System (NMS) for the same, if required.</p> <p>.....</p> <p>.....</p>
5	<p>Annexure 02 - Eligibility Criteria</p> <p>C. Experience & Support Infrastructure</p> <p>1. The Bidder must have executed the following: a) Minimum 3 orders for supply, installation and maintenance of Building Network Infrastructure – Wifi Solution (With each order for supplying minimum 30+ Access Point of proposed OEM make at one building / location (LAN)) in the last 5 Years in Banks / Financial Institutions / Government Organizations / PSUs / Corporate Enterprises in India</p> <p>.....</p> <p>.....</p> <p>2. Must have direct support team in Mumbai (Maharashtra) and Vadodara (Gujarat)</p> <p>.....</p> <p>.....</p> <p>3. Bidder must have technically qualified engineers who have expertise and certification to support the installations of Wi-Fi Solution.</p>	<p>Annexure 02 - Eligibility Criteria</p> <p>C. Experience & Support Infrastructure</p> <p>1. The Bidder must have executed the following: a) Minimum 3 orders for supply, installation and maintenance of Building Network Infrastructure – Wi-Fi Solution (With each order for supplying minimum 30+ Access Point of proposed OEM make at one building / location (LAN)) or b) Minimum 2 orders for supply, installation and maintenance of Building Network Infrastructure – Wi-Fi Solution (With each order for supplying minimum 50+ Access Point of proposed OEM make at one building / location (LAN)) in the last 5 Years in Banks / Financial Institutions / Government Organizations / PSUs / Corporate Enterprises in India</p> <p>.....</p> <p>.....</p> <p>2. Must have support team in Mumbai (Maharashtra) and Vadodara (Gujarat)</p> <p>.....</p> <p>.....</p> <p>3. Bidder must have technically qualified engineers who have expertise and certification to support the installations of Wi-Fi Solution or as Network Support Analyst.</p>
6	<p>Annexure 10 - Scope of Work (Technical Requirement)</p> <ul style="list-style-type: none"> The network must be managed and monitored centrally with scalability upto the full requirement of the bank. 	<p>Annexure 10 - Scope of Work (Technical Requirement)</p> <ul style="list-style-type: none"> The network must be managed and monitored centrally with scalability upto the full requirement of the bank. Bidders to deploy Network Management System (NMS) for the same, if required.

Sr. No.	Clause in RFP	Clarifications/ Changes made
6	New Addition	<p>Annexure 10- Scope of work (Technical Requirement):</p> <ol style="list-style-type: none"> 1. Bidder should provide DNS security solution covering total of 3000 users across each location providing detection and blocking advanced malware domains regardless of specific ports or protocols used by the malware, DNS tunneling attacks etc. 2. Technical Specification of Firewall (Annexure 12 H) 3. Technical Specification DNS security (Annexure 12 I) 4. New Line Item additions in Commercial Bid Format (Annexure 14) 5. Floor wise carpet area (Annexure 17)

Addendum to the following Annexures:

- a) Annexure 12 – Technical Specification of Wireless Solution
- b) Annexure 14 – Commercial Bid Format
- c) Annexure 17 – Floor wise details of Wi-Fi Solution

1. Bidders are advised to consider and confirm the above points while submitting the bids.
2. The above shall be complementary in contents with the existing terms and conditions of the RFP except otherwise explicitly superseded. All other terms and conditions of the RFP shall remain unchanged.
3. This Corrigendum – I shall form part of the RFP dated 21.12.2020.
4. The bidders have to submit “Unconditional RFP”. Conditional bids are liable to be rejected.

General Manager & Head
(FM, COA, DMS & PD)

Date: 06.01.2021
Place: Mumbai

Annexure 12 – Technical Specification for Wireless Solution.

Annexure – 12 A Wireless Controller (Compliance Sheet)

Sr No	Required Minimum Specifications Make & Model: _____	Bidder's compliance (Yes / No)	Bidder's remarks
Hardware			
1	Controller should be hardware appliance and support 250 APs and 5000 clients from day-1		
2	It should possible to upgrade controller to support additional 100 APs. If not, Bidder needs to provide controller hardware to support up to 350 APs from day-1		
3	The controller shall support deployment flexibility without compromising any features		
4	The controller shall support 5 Gbps tunneling capacity		
5	The controller shall support 2 x 10G Fiber Connectivity		
6	Wireless Controller shall support link aggregation and load sharing between Access Point to WLC links		
7	The controller shall support hardware encrypted data plane between Access Point and Controller		
High Availability			
1	All feature license needs to be provided with controller from day-1		
2	High Availability mode shall support controller inline data plane mode as well as local switching mode and Mesh mode		
3	High Availability mode shall allow geographically dispersed installation between Controllers		
4	The controller failover shall not trigger client de - authentication and re-association		
5	Heartbeat interval shall not be longer than 100msec		
6	The controller shall support hot WLC software patching for fixing bugs		
7	The controller shall support hot AP software patching for fixing bugs		
8	The controller shall support new AP hardware without need for upgrading entire controller software. (if there is need to upgrade the software the OEM / bidder should provide the upgrade without any additional cost to the bank)		
9	The controller shall support rolling / live AP upgrade		
10	The controller shall support rolling AP upgrade with / without need for clustering		
Software			
1	The redundant Controller shall sync Access Point and Client Status, including DHCP IP lease status		
2	Access Point shall be able to proactively distributes Client connection before and after association and tracking client condition in real time using data packet RSSI		
3	The controller shall support standard-based, secure AP-Controller data & control protocol like CAPWAP or equivalent. Protocol that has known vulnerability like PAPI cannot be used.		
4	The controller shall support Inter-Controller Wireless Roaming or equivalent		

Sr No	Required Minimum Specifications	Bidder's compliance (Yes / No)	Bidder's remarks
	Make & Model:		
5	The controller shall maintains per-user Application usage and shall be able to export it for network analytic.		
6	The controller shall support English Languages options from embedded GUI Management		
7	The controller shall provide per Client Connection Scoring / visibility		
RF Management			
1	The controller shall support Cellular offload using IPv6 tunneling to Mobile Core network		
2	The controller shall be able to support multiple RF Management profile per group of APs, including Transmit Power Control and Dynamic Channel Assignment on both 2.4GHz and 5Ghz		
3	The controller shall be able to identify and avoid interferers with network performance report		
Mesh			
1	The controller shall support optimized, automatic channel width (20~160Mhz) selection over 5GHz, 802.11ac		
2	Mesh AP nodes shall provide quick convergence and fast failover to new root mesh node		
3	Mesh Backhaul interface shall support full duplex operation using wired daisy chaining		
Application Recognition and Control			
1	Mesh AP shall support fast roaming for Wireless Client		
2	The controller shall support per-user and per-WLAN based application recognition and control that throttle usage by rate-limiting		
3	The controller should support application recognition technology.		
4	The controller shall provide policy-based mDNS gateway		
BYOD & Security			
1	The controller shall support new application signatures without upgrading controller software		
2	The controller / solution shall provide Device Profiling using multiple profiling methods to reduce false-detection		
3	The system shall provide secure onboarding service for both employee and guest based on standard-based security protocol Proposed system shall not use public cloud as user data repository		
4	The controller shall be able to embedded web portal page (HTML) to user experience without additional cost or extra box		
5	The controller shall provide rule-based rogue classification and automatically run rogue mitigation action		
6	The controller shall be able to detect employee device connection to Rogue Access Point and contain it automatically. It should also support protection from Honey-pot or Evil twin.		
7	The controller shall support Content Security using DNS integration, Web Classification shall be fully customizable		

Sr No	Required Minimum Specifications Make & Model:	Bidder's compliance (Yes / No)	Bidder's remarks
8	The system shall support control plane encryption on both IPv4 and IPv6		
9	The Controller's image upgrade shall be done through secure, encrypted transport		
10	The controller shall be able to provide unique pre-shared keys to the devices that do not support the 802.1x security protocol		
11	The controller shall support Identity PSK / Multi PSK for on boarding		
Configuration			
1	The controller shall support mapping of specific VLANs to single SSID, depending on Access Point location and user		
2	The controller shall support automatic VLAN assignment per SSID to load-balance user connection.		
3	The controller shall support embedded best practice configuration profile and setup		
4	The WLAN solution should have the HW to implement WIDS & WIPS from day 1		

Annexure – 12 B – Core Switch (Compliance Sheet)

Sr No	Required Minimum Specifications Make & Model:	Bidder's compliance (Yes / No)	Bidder's remarks
General Specification			
1	The Switch should support non-blocking Layer 2 switching and Layer 3 routing		
2	The proposed switch must have at least 320Gbps switching capacity scalable to 480 Gbps		
3	The proposed switch must have at least 240 Mpps packet forwarding performance.		
4	The proposed switch must support Min. 14 nos. of 10G Multimode SFP+ ports and Min. 2 no's of 1G SFP RJ45 Port from day one and it should have capability to support additional Min. 8 Nos. of 10G Multimode SFP+ ports for future (Vendor should provide the required SFP+ Module / SFP Module to populate all the ports)		
5	The switch should support private VLAN to provide logical segmentation at the subnet level.		
6	The proposed switch should provide OEM level hardware and software authenticity assurance for supply chain trust and strong mitigation against man-in-the-middle compromise of software Bios and firmware along with hardware authenticity assurance		
7	The proposed switch should support Hot patching / Non Stop Switching or equivalent		
8	The proposed switch should support Time Protocol for accurate time synchronization		
9	The proposed switch should support Packet capture for operational troubleshooting.		
10	The proposed switch should support standard SDN protocol OpenFlow or REST API for future readiness		
11	The Switch shall have hot swappable 1:1 redundant internal power supply and redundant fan.		
12	The Switch support in-line hot insertion and removal of different parts like power supplies / fan tray etc. should not require switch reboot and disrupt the functionality of the system		
13	The Switch must support VSS or equivalent features allows links that are physically connected to two different switch to appear as a single port channel		
14	The Switch should support the complete STACK of IP V4 and IP V6 services.		
15	The switch must Support 256-bit encryption for switch-switch links or IEEE 802.1AE MACsec.		
16	The Switch and different modules used should function in line rate and should not have any port with oversubscription ratio applied		
17	Switch should have minimum 2 GB RAM and 1 GB Flash		
18	The proposed switch should support minimum 128 port-channels		
19	Min. 8 links per lag		

Sr No	Required Minimum Specifications Make & Model:_____	Bidder's compliance (Yes / No)	Bidder's remarks
20	The Switch should have minimum 60K MAC Addresses and 1K VLANs.		
21	The Switch should support minimum 10K IPv4 & 5K IPv6 Routes.		
22	The Switch should support min. 4K ACLs, 2K IPV4 and 1K IPv4/IPV6 Multicast routes/Group		
23	The routing protocols configured on access switch should be supported using BFD.		
24	The proposed switch should have minimum 4 sessions for local/remote spanning/mirroring sessions on the system		
25	The Switch should support application visibility and traffic monitoring with minimum 60 K jflow/netFlow entries or sflow entries.		
26	The switch must support 12MB of Packet Buffer		
27	Communication between switches to switch should be encrypted at Layer 2. It also encapsulates and protects the metadata fields. It should use industry standard MKA. Communication should have AES-GCM (Galois/Counter Mode) symmetric encryption, which is capable of line-rate encryption and decryption and provides replay attack protection of every frame. Switches should support MACSec encryption for switch-to-switch (inter-network device) security and MKA-based key exchange protocol or Support IEEE 802.1AE MACsec on uplink ports		
28	The Switch should support minimum 1K Switched Virtual Interfaces		
Layer 2 Features			
1	The switch should Spanning Tree Protocol (IEEE 8201.D, 802.1W, 802.1S)		
2	The Switch should support basic Multicast IGMP v1, v2, v3		
3	The Switch should support Industry Standard Port/Link Aggregation for All Ports across any module or any port.		
4	The Switch should support Jumbo Frames up to 9K Bytes on 1G/10G Ports		
5	The switch must support Unidirectional Link Detection (UDLD) or equivalent		
6	The Switch should provide gateway level of redundancy in Ip V.4 and IP V.6 using VRRP		
7	The Switch should Support for broadcast / multicast and / or unknown unicast storm control to prevent degradation of switch performance from storm due to network attacks and vulnerabilities		
Layer 3 Features			
1	The Switch should support all physical ports to use either in Layer2 or Layer 3 mode and also should support layer 3 VLAN Interface and Loopback port Interface		
2	Switch should support static and dynamic routing using: BGP, VRRP, PBR, MSDP / PIM, PIM SM / PIM SSM / PIM DM, OSPF		

Sr No	Required Minimum Specifications Make & Model:_____	Bidder's compliance (Yes / No)	Bidder's remarks
3	Switch should be capable to work as DHCP server and relay		
4	Switch should provide multicast traffic reachable using: a. PIM-SSM/PIM SM b. PIM-SSM c. Bi-Directional PIM/PIM DM d. Support Multicast Source Discovery Protocol (MSDP)/PIM e. IGMP V.1, V.2 and V.3		
5	The switch should have the capability to measure the network performance using IP SLA / Flow.		
6	The switch should support IPv6 in hardware, providing wire rate forwarding / Switching for IPv6 network		
Quality of Service			
1	The Switch system should support 802.1P classification and marking of packet using: a. CoS (Class of Service) b. DSCP (Differentiated Services Code Point) c. Source physical interfaces d. Source/destination IP subnet e. Protocol types (IP/TCP/UDP) f. Source/destination TCP/UDP ports		
2	The Switch should support methods for identifying different types of traffic for better management and resilience		
3	Switch should support for different type of QoS features for ream time traffic differential treatment using: a. Weighted Random Early Detection / weighted-round-robin. b. Strict Priority Queuing		
4	Switch should support to trust the QoS marking/priority settings of the end points as per the defined policy		
5	The switch must Hierarchical Quality of Service (QoS) / Quality of Service (QoS)		
6	The switch should support Eight egress queues per port for different types.		
Security			
1	The Switch should support for deploying different security for each logical and physical interface using Port Based access control lists of Layer-2 to Layer-4 in IP V.4 and IP V.6 and logging for fault finding and audit trail		
2	"The Switch should support for external database for AAA using:		
3	a. TACACS+		
4	b. RADIUS"		
5	The Switch should support to restrict end hosts in the network. Secures the access to an access or trunk port based on MAC address. It limits the number of learned MAC addresses to deny MAC address flooding		
6	The Switch should support DHCP Snooping		

Sr No	Required Minimum Specifications Make & Model:_____	Bidder's compliance (Yes / No)	Bidder's remarks
7	The Switch should support Dynamic ARP Inspection / Protection to ensure host integrity by preventing malicious users from exploiting the insecure nature of the ARP protocol		
8	The Switch should support Spanning tree BPDU protection		
9	The switch should support during system boots, the system's software signatures should be checked for integrity. System should capable to understand that system OS are authentic and unmodified, it should have cryptographically signed images to provide assurance that the firmware & BIOS are authentic.		
10	The switch should support 802.1x authentication and accounting, IPv4 and IPv6 ACLs and Dynamic VLAN assignment.		
Certification			
1	Switch shall conform to UL 60950, IEC 60950, CSA 60950, EN 60950 Standards		
2	Switch / Switch's Operating System should be tested for EAL 2 / NDPP / FCC Certification or above under Common Criteria Certification.		

Annexure – 12 C – Access Switch (Compliance Sheet)

Sr No	Required Minimum Specifications Make & Model:_____	Bidder's compliance (Yes / No)	Bidder's remarks
General Features			
1	The Switch should be 1U and rack mountable in standard 19" rack.		
2	The Switch should support redundant power supply from day 1		
3	The Switch should have minimum 1 GB RAM and 2 GB Flash.		
4	The Switch should have dedicated slot for modular stacking, in addition to asked uplink ports. Should support for minimum 48 Gbps of stacking throughput with 8 switch in single stack.		
5	The Switch must provide the capability of performing cold patch		
Performance			
1	The Switch shall have minimum 132 Gbps of switching fabric and Minimum 98 Mpps of forwarding rate.		
2	The Switch shall have minimum 16K MAC Addresses and 250 active VLAN.		
3	The switch Should support minimum 10K IPv4 routes or more		
4	The Switch shall have 1K or more multicast routes/Group		
5	The Switch should support atleast 60K flow entries/ supports flow		
6	The Switch should support 128 or more STP Instances / minimum 8 MSTP Instances.		
7	The Switch should have 4 MB or more packet buffer.		
Functionality			
1	The Switch should support IEEE Standards of Ethernet: IEEE 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.3x, 802.1p, 802.1Q, 802.3, 802.3u, 802.3ab, 802.3z.		
2	The Switch must have functionality like static routing, RIP, PIM, OSPF, VRRP, PBR and QoS features from Day1		
3	The Switch should network segmentation based on VLAN.		
4	The Switch shall have 802.1p class of service, marking, classification, policing and shaping and eight egress queues.		
5	The Switch should support management features like SSHv2, SNMPv2c, SNMPv3, NTP, RADIUS and TACACS+.		
6	The Switch should support IPv6 Binding Integrity Guard or equivalent, IPv6 Snooping, IPv6 RA Guard, IPv6 DHCP Guard, IPv6 Neighbor Discovery Inspection and IPv6 Source Guard.		
7	The Switch should support 802.1x authentication and accounting, IPv4 and IPv6 ACLs and Dynamic VLAN assignment and MACSec-128 on hardware for all ports / uplink ports.		
8	The Switch must have the capabilities to enable automatic configuration of switch ports as devices connect to the switch for the device type.		
9	During system boots, the system's software signatures should be checked for integrity. System should capable to understand that system OS are authentic and unmodified, it should have		

Sr No	Required Minimum Specifications Make & Model:_____	Bidder's compliance (Yes / No)	Bidder's remarks
	cryptographically signed images to provide assurance that the firmware & BIOS are authentic.		
10	The Switch / Controller shall be capable of providing a first line of defense by inspecting the Domain Name System (DNS) query and prevent a user from accessing a site if it is known to be malicious		
11	The Switch / Controller should support application visibility for custom applications		
Interfaces			
1	The Switch shall have 24 nos. of 10/100/1000/2500 Base-T ports and additional 4 nos. SFP+ (10G) or higher uplinks ports. (Vendor should provide the required SFP+ Module to populate all the ports)		
2	All 24 port should support PoE (802.3af) and PoE+ (802.3at) with a PoE power budget of 370 W or higher with redundant power supply.		
Certification			
1	Switch shall conform to UL 60950 or IEC 60950 or CSA 60950 or EN 60950 Standards for Safety requirements of Information Technology Equipment.		
2	Switch shall conform to EN 55022 Class A/B or CISPR22 Class A/B or CE Class A/B or FCC Class A/B Standards for EMC (Electro Magnetic Compatibility) requirements.		
3	Switch / Switch's Operating System should be tested for EAL 2/NDPP/FCC Certification or above under Common Criteria Certification.		

Annexure – 12 D – Wireless Access Point (Compliance Sheet)

Sr No	Required Minimum Specifications Make & Model: _____	Bidder's compliance (Yes / No)	Bidder's remarks
General			
1	Access Point shall support 4x4 MIMO on both 2.4 and 5GHz radio interfaces or higher.		
2	Access Point shall be able to powered up using PoE (.af) and should support full features with PoE+		
3	Access Point shall support packet capture, sensor capabilities		
4	Access Point shall support application visibility and control		
5	Access Point shall support encrypted traffic visibility		
6	Access Point shall support integrated BLE5 radio		
7	Access Point shall support Console port that uses Standard Port (RJ-45) / UBS Port / Micro USB Port type connection		
8	Access Point should have 1x 100, 1000, 2500 Multigigabit Ethernet (RJ-45) – IEEE 802.3bz		
9	Access Point should have USB port for future requirement.		
10	Must have atleast 3 dBi Antenna gain on each radios		
11	Must Support data rate upto 2.9gbps.		
12	Must support minimum of 20dbm of transmit power in both 2.4Ghz and 5Ghz radios and The Access point should follow the regulatory norms of Wireless Planning Commission – Govt. of India		
13	Must support AP enforced load-balance between 2.4Ghz and 5Ghz band.		
14	Must incorporate radio resource management for power, channel and performance optimization		
15	Must have -97 dB or better Receiver Sensitivity.		
16	Must support Proactive Key Caching and/or other methods for Fast Secure Roaming.		
17	Must support Management Frame Protection.		
18	Should support locally-significant certificates on the APs using a Public Key Infrastructure (PKI).		
19	Access Points must support Hardware-based encrypted user data and management traffic between controller and Access point for better security.		
20	Must support the ability to serve clients and monitor the RF environment concurrently.		
21	Same model AP that serves clients must be able to be dedicated to monitoring the RF environment.		
22	Must be plenum-rated (UL2043).		
23	Must support 16 WLANs per AP for SSID deployment flexibility.		
24	Must support telnet and/or SSH login to APs directly for troubleshooting flexibility.		
25	802.11e and WMM		
26	Must support QoS and Video Call Admission Control capabilities.		
27	Access point should be Wi-Fi 6 certified from day 1.		
28	The access point should support WPA3.		

Annexure – 12 E Router (Compliance Sheet)

Sr No	Required Minimum Specifications Make & Model: _____	Bidder's compliance (Yes / No)	Bidder's remarks
General Specification			
1	Multi-core processor architecture		
2	The router should have 2 gigabit 10/100/1000 Mbps Ethernet LAN/WAN ports with RJ 45 interface from day one. The router should support minimum 4 gigabit 10/100/1000 Mbps Ethernet LAN ports with RJ 45.		
3	One USB port for storage		
4	The router's performance should support minimum 200 Mbps of WAN bandwidth.		
5	Minimum 2 GB of SDRAM should be supported upgradeable to 4GB from day one.		
6	Minimum 256 MB Flash memory supported from day one.		
7	Router should support at least 200000 routes in routing table		
Security			
1	GRE and IP Sec 3DES/AES and complex suit of crypto for configuration of VPN tunnels.		
2	Support for IPSEC Site-to-Site and Remote Access VPNs. System Should provide hardware assisted IPsec acceleration.		
3	VPN support – Dynamic/Automatic tunnel-less VPN, IPsec VPN etc.		
4	IKEv2 support and IPv6- IKEv2, IPsec support		
5	MD5, SHA-1, SHA-2 Authentication support		
6	PKI (CA certificate) infrastructure support		
7	IEEE standard protocol for tunnelless any to any dynamic VPN support technology.		
8	NAT, PAT		
9	Access control - Multilevel for use with RADIUS and TACACS+		
10	Support ACL's to provide supervision and control.		
11	Multiple Privilege Levels for managing & monitoring		
12	Support for Remote Authentication User Service (RADIUS) and AAA		
13	Support for Standard, Advanced, time based Access Lists to provide supervision and control.		
14	Controlled SNMP Access using ACL on router to ensure SNMP access only to identified NMS/EMS. SNMP v1, 2c, 3 should be supported from day one		
15	DNS, DHCP, DNS spoofing		
16	DoS prevention through TCP Intercept & DDoS protection		
Protocols			
1	Static Routes		
2	RIPv1, RIPv2, RIPv3		
3	OSPFv2 and v3.		
4	BGP for IPv4 and BGP+ for IPv6		
5	IS-IS routing protocols for IPv4 and IPv6		
6	Policy Based Routing: System should support policy based routing for providing different path selection for different applications and		

Sr No	Required Minimum Specifications	Bidder's compliance (Yes / No)	Bidder's remarks
	Make & Model:_____		
	also should support best path selection using parameters like jitter, link load distribution, minimum cost, network path availability, packet loss etc.		
7	Performance Based Routing or equivalent		
8	Should support load balancing of the links		
9	Bidirectional Forwarding detection (BFD)		
10	Multicast Listener Discovery (MLD)		
11	Multicast over GRE Tunnels		
12	PPP, Multi-link PPP		
13	Load Balancing Protocol using ECMP, uRPF		
14	IPv4, IPv6		
15	MPLS L2 & L3		
16	VRRP / HSRP for IPv4 and IPv6		
17	Shall support IPv6 features with no additional cost		
QOS to eliminate Congestion			
1	QOS based on: Source and destination IP address, Source and destination TCP port, Source and destination UDP port, CoS value Application, Random Early Detection, Weighted Fair Queuing, Priority Queuing, Low-Latency Queuing (LLQ), DiffServ, RSVP, WRED, Traffic Shaping (TS), Traffic Policing (TP), DSCP Marking, policing and shaping, IPv6 Packet classification & Marking, IPv6 Policing & Shaping, IPv6 Queuing, IPv6 Dual Stack.		
2	The Router should recognize and classify common applications (i.e. voice, video, peer to peer, encrypted, social media applications) with deep inspection mechanism. It should be possible to define QoS based on application to give higher priority to corporate and business critical applications.		
3	Router should identify home grown or custom applications used in the enterprise and it should be possible to define custom application based on Port numbers, payload analysis or URL/URI from day one		
IP Multicasting			
1	IGMPv1&v2, PIM-SM, PIM-DM.		
Management			
1	IP SLA or equivalent		
2	EEM / EEA or equivalent		
3	SLA verification probes/alerts configurations		
4	Real-time performance monitoring		
BYOD & Security			
1	Functionality of measuring service level indicators including delay, jitter & availability		
2	Accessibility using Telnet, SSH, Console access, RMON		
3	Software upgrades using FTP, TFTP, CLI, etc.		
4	SNMP Support for v1, v2 , v3		

Sr No	Required Minimum Specifications Make & Model:_____	Bidder's compliance (Yes / No)	Bidder's remarks
5	Should support auto deployment using USB disk or via central management system		
6	Should be able to integrate with any SNMP based NMS tool		
7	Syslog, Buffer logging		
8	Configuration Rollback function		
9	Netflow or equivalent feature for network & security monitoring		
10	Should be able to integrate with third party enterprise network management tool		
11	IP SLA or equivalent		
12	SLA verification probes/alerts configurations		
13	Real-time performance monitoring		
Debug & Diagnostics			
1	Display of input and output error status on all interfaces		
2	Display of Dynamic ARP table		
3	Display of physical layer line status signals like DCD, DSR, DTR, RTS, CTS or equivalent on all interfaces		
4	Trace-route, Ping, extended PING		
Others			
1	EAL 2 or higher certified		
2	Safety certifications UL 60950-1		
3	AC Power Cord (Indian standard)		
4	Console Cable		
5	AC Power Supply		
6	Rack mount kit		

Annexure – 12 F Rack with Patch Panel (Compliance Sheet)

Sr No	Required Minimum Specifications Make & Model:_____	Bidder's compliance (Yes / No)	Bidder's remarks
General Specification (9U)			
1	Wall mounted 9U / 1200W		
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 lbs		
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		
14	The Rack should be compatible with Access Switch in all parameters.		
15	Bidder should provide required patch panel, cables etc with Rack		

Sr No	Required Minimum Specifications Make & Model:_____	Bidder's compliance (Yes / No)	Bidder's remarks
General Specification (42U)			
1	Floor Standing Rack (800 x 1000)mm		
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 3000 lbs		
8	Cooling Fan kit (min 4)		
9	Racks Screws		
10	Cage nuts / Brackets		
11	Front and Rear wheels with lock		
12	Cable tie bracket		
13	Minimum 24 Power Sockets		
14	The Rack should be compatible with Access Switch in all parameters.		
15	Bidder should provide required patch panel, cables etc with Rack		

Annexure – 12 G (other Hardware details)

Description	Quoted Make & Model	Approved make / model
Rack 9U / 42U		APW President / VAL / HP
CAT 6A 24 port Patch Panels		Systemax / Commscope / Panduit / Corning.
CAT 6A Cables		
Multimode OM4 LC-LC Duplex Fibre Optic Patch Cord		
6 core, 50/125um (OM4) Indoor Multimode Fibre Optic Cable which can support upto 400m distance for 10Gbps Ethernet connectivity. Fibre Optic cable should Support operational wavelength of 850nm ~ 1300nm. Jacket Material should be LSZH sheath.		
6-Port Wall / Rack Mount Fibre LIU Enclosure that provides cross-connect and interconnect capabilities for splicing and terminating OFC cables, pigtails in fiber access network, Used for Indoor Optical Installation. To be quoted with all accessories like LC Pigtails, Enclosures Etc. for complete Installation.		
PVC Conduit / Usage of Existing Conduits will be required to run this Fibre Optic Cable between the Floors.		

Annexure – 12 H (Firewall)

Sr No	Required Minimum Specifications Make & Model: _____	Bidder's compliance (Yes / No)	Bidder's remarks
Hardware Architecture			
1	The appliance based security platform should provide firewall and IPS functionality in a single appliance from day one		
2	The appliance should support minimum of 8RJ 45 & 4x1G SFP Ports		
3	The appliance hardware should be a multicore CPU architecture with a hardened 64 bit operating system should support minimum of 16 GB of RAM		
4	The proposed solution shouldn't use a proprietary ASIC hardware for any kind of performance Improvement. If option to disable ASIC is there than OEM must mention the performance numbers in datasheet		
Performance & Scalability			
1	Should support NGFW (FW, AVC and IPS) real-world / production / Enterprise Testing performance		
2	Firewall should support at least 100000 concurrent sessions.		
3	Firewall should support at least 5,000 new connections per second.		
4	Firewall should have NGIPS Throughput (1024B) 1Gbps		
5	Firewall should have NGFW throughput (1024B) 1Gbps		
6	Firewall should support creating access-rules with IPv4 & IPv6 objects, user/groups, application, geo-location, url, zones, vlan, etc		
7	Firewall should support static nat, dynamic nat, dynamic pat		
8	Firewall should support Nat66 (IPv6-to-IPv6), Nat 64 (IPv6-to-IPv4) & Nat46 (IPv4-to-IPv6) functionality		
NG Firewall Features			
1	Should support Static, RIP, OSPF, OSPFv3 and BGP, BGPv6		
2	Should support Multicast protocols like IGMP, PIM, etc		
3	Should support capability to integrate with other security solutions to receive contextual information like security group tags/names		
4	Should be capable of dynamically tuning IDS/IPS sensors (e.g., selecting rules, configuring policies, updating policies, etc.) with minimal human intervention.		
5	Should support more than 25,000 (excluding custom signatures) IPS signatures or more. Should support capability to configure correlation rule where multiple rules/event can be combined together for better efficacy		
6	Should be capable of automatically providing the appropriate inspections and protections for traffic sent over non-standard communications ports.		
7	Should be able to link Active Directory/LDAP usernames to IP addresses related to suspected security events.		
8	Should be capable of detecting and blocking IPv6 attacks.		
9	The solution should be able to support SSL decryption.		
10	Should be capable of dynamically tuning IDS/IPS sensors (e.g., selecting rules, configuring policies, updating policies, etc.) with minimal human intervention.		

Sr No	Required Minimum Specifications Make & Model:_____	Bidder's compliance (Yes / No)	Bidder's remarks
11	Should support the capability to quarantine end point by integrating with other security solution like Network Admission Control		
12	The solution must provide IP reputation feed that comprised of several regularly updated collections of poor reputation of IP addresses determined by the proposed security vendor		
13	Solution must support IP reputation intelligence feeds from third party and custom lists of IP addresses including a global blacklist		
14	Should must support DNS threat intelligence feeds to protect against threats		
15	The Appliance OEM must have its own threat intelligence analysis center and should use the global footprint of security deployments for more comprehensive network protection.		
16	The detection engine should support capability of detecting and preventing a wide variety of threats (e.g., network probes/reconnaissance, VoIP attacks, buffer overflows, P2P attacks, etc.).		
17	Should be able to identify attacks based on Geo-location and define policy to block on the basis of Geo-location		
18	The detection engine must incorporate multiple approaches for detecting threats, including at a minimum exploit-based signatures, vulnerability-based rules, protocol anomaly detection, and behavioral anomaly detection techniques.		
19	Should support Open based Application ID / Custom Application ID for access to community resources and ability to easily customize security to address new and specific threats and applications quickly		
20	Should must support URL threat intelligence feeds to protect against threats		
21	Should support and provide IP, URL, and DNS threat intelligence		
22	Must support Active-passive/active-active Architecture		
23	Should support the capability of providing network-based detection of malware by checking the disposition of unknown files using SHA-256 file-hash or signature (update to be provided in 300 seconds) as they transit the network and capability to do dynamic analysis on premise on purpose built-appliance		
24	Solution shall have capability to analyze and block TCP/UDP protocol to identify attacks and malware communications. At minimum, the following protocols are supported for real-time inspection, blocking and control of download files: HTTP, SMTP, POP3, IMAP, NetBIOS-SSN and FTP		
25	Proposed solution shall have required subscription like Threat Intelligence for proper functioning		
Management			
1	The management platform must be accessible via a web-based interface and ideally with no need for additional client software		
2	The management platform can be a dedicated OEM appliance/VM running on server.		
3	The management platform must provide centralized logging and reporting functionality		

Sr No	Required Minimum Specifications Make & Model:_____	Bidder's compliance (Yes / No)	Bidder's remarks
4	The management platform must be capable of role-based administration, enabling different sets of views and configuration capabilities for different administrators subsequent to their authentication.		
5	Should support REST API for monitoring and config programmability		
6	The management platform must provide multiple report output types or formats, such as PDF, HTML, and CSV.		
7	The management platform must support multiple mechanisms for issuing alerts (e.g., SNMP, e-mail, SYSLOG).		
8	The management platform must provide built-in robust reporting capabilities, including a selection of pre-defined reports and the ability for complete customization and generation of new reports.		
9	The management platform support running on-demand and scheduled reports		
10	The management platform must risk reports like advanced malware, attacks and network		
11	The management platform must include an integration mechanism, preferably in the form of open APIs and/or standard interfaces, to enable events and log data to be shared with external network and security management applications, such as Security Information and Event Managers (SIEMs), and log management tools.		
12	Proposed solution should support 24x7x365 OEM TAC support and advance Next Business Day Hardware replacement		

Annexure – 12 I (DNS Security Solution)

Sr No	Required Minimum Specifications	Bidder's compliance (Yes / No)	Bidder's remarks
DNS solution Name: _____			
Architectural Requirements			
1	Bank is planning to procure DNS security services for outbound traffic via recursive DNS. The proposed solution must be based mandatorily on recursive DNS analysis requiring no physical hardware installation.		
2	The threat intelligence must be consumed from the vendor facilities that serve the recursive DNS requests		
3	The solution must be both IPv4 and IPv6 compatible.		
4	The cloud based DNS security service must be hosted within India with full compliance to Indian regulations.		
5	The solution must be applicable simultaneously to corporate users connecting from wired and wireless networks, with the possibility to define different policies based on different public IPs, and or internal networks		
Security Requirements			
1	The solution must be able to detect and block advanced malware related domains regardless of the specific ports or protocols used by the malware		
2	The solution must be able to detect and block malicious domains using protocols different from HTTP/HTTPS.		
3	The solution must be able to prevent infections, blocking the DNS requests towards malware distribution domains or drive-by domains, and contain the pre-existing infections, blocking the DNS requests towards command and control infrastructures		
4	The solution must leverage predictive intelligence and not just use static signatures or blacklists		
5	The threat intelligence must be automatically updated in a time bound manner after the discovery of a new threat without any manual update operations.		
6	The web filtering and security policies must allow the creation of global exceptions for several domains, via custom whitelists or blacklists		
Management Requirements			
1	The management interface must be web-based. Vendor shall provide the credentials of management interface to the Bank.		
2	The policy editor must allow to create security policies, to define a blocking page for the blocked DNS connections to forward the blocked connection to an internal URL.		
3	It must be possible to customize the blocking page for each policy entry. The customization must include the ability to define a custom message, insert a custom logo, or an administrator email address		
4	The events related to all the DNS queries analysed must appear in real time, with the ability to configure filters based on destination, source IP, response type and date etc.		
5	The Solution must support the prevention from Data Exfiltration over DNS with Behavioral Analysis / DNS Tunneling VPN.		

Sr No	Required Minimum Specifications	Bidder's compliance (Yes / No)	Bidder's remarks
6	DNS solution Name: _____ The Solution must support the Security policy to prevent from Domain Generation Algorithm based Attacks, to prevent from DNS Based Fast Flux attacks.		
7	The management platform must have advanced reporting capabilities in order to determine which services are used inside the organization by traditional or embedded devices and eventually detect anomalies in their usage.		
8	All the activities made by administrators must be logged inside an Admin Audit Log Report		
9	The management platform must allow to generate the predefined standard reports.		

Annexure 17 – Floor wise details of Wi-Fi Solution

Bidders are required to supply Hardware as per the requirement given below:

Location: Baroda Sun Tower, Mumbai

S. No.	Floor	Wireless Access Point Required (Approx. Qty)	Network Switch & Optical Fiber Connectivity
1	Ground Floor	6	1. 1 no. (24 Port Switch) 2. 2 no's of Core Switch in Active – Active Mode 3. 2 no's of Wireless Controller in High Availability 4. 2 no's of Routers 5. 2 no's of 100 MBPS ILL (Primary and Secondary of different ISPs – Both should be in Active – Active Mode) 6. 1 no. of 42 U Rack with Patch Panel and other required passive components
2	Third Floor	8	1 no. (24 Port Switch) & 1 no. of 9U Rack with Patch Panel 2 no's of Uplink from Core Switch to Access Switch
3	Fourth Floor	7	
4	Fifth Floor	7	
5	Sixth Floor	8	1 no. (24 Port Switch) & 1 no. of 9U Rack with Patch Panel 2 no's of Uplink from Core Switch to Access Switch
6	Seventh Floor	7	
7	Eight Floor	4	
Total Quantity		47	3

Note: The total quantity mentioned of wireless access point is indicative quantity which may increase/decrease as per the requirement of the Bank.

Floor	Carpet Area (Sq. m.)
Ground floor	760
Third Floor	860
Fourth Floor	860
Fifth Floor	710
Sixth Floor	860
Seventh floor	860
Eight floor	860

The approximate carpet area is provided for considering the cabling required to be done through false ceiling.

Location: Baroda Bhavan (Head Office), Vadodara

S. No.	Floor	Wireless Access Point Required (Approx. Qty)	Network Switch & Optical Fiber Connectivity
1	Ground Floor	7	1. 1 no. (24 Port Switch)
2	First Floor	7	2. 2 no's of Core Switch in Active – Active Mode 3. 2 no's of Wireless Controller in High Availability 4. 2 no's of Routers 5. 2 no's of 100 MBPS ILL (Primary and Secondary of different ISPs – Both should be in Active – Active Mode) 6. 1 no. of 42 U Rack with Patch Panel and other required passive components
3	Second Floor	7	1 no. (24 Port Switch) & 1 no. of 9U Rack with Patch Panel 2 no's of Uplink from Core Switch to Access Switch
4	Third Floor	9	
5	Fourth Floor	9	1 no. (24 Port Switch) & 1 no. of 9U Rack with Patch Panel 2 no's of Uplink from Core Switch to Access Switch
6	Fifth Floor	9	
7	Sixth Floor	8	1 no. (24 Port Switch) & 1 no. of 9U Rack with Patch Panel 2 no's of Uplink from Core Switch to Access Switch
8	Seventh Floor	11	
Total Quantity		67	4

Note: The total quantity mentioned of wireless access point is indicative quantity which may increase/decrease as per the requirement of the Bank.

Floor	Carpet Area (Sq. m.)
Ground Floor	603
First Floor	576
Second Floor	576
Third Floor	983
Fourth Floor	983
Fifth Floor	983
Sixth Floor	875
Seventh Floor	1273

The approximate carpet area is provided for considering the cabling required to be done through false ceiling.

Annexure 14 – Commercial Bid Format

I. Location: Baroda Sun Tower, Mumbai

S No	HW Particulars	Qty	Unit Rate (Rs)	Amount (Rs)	AMC (%) per Year	AMC Amt (Rs) (2 Yrs)	Total Amount (Rs)
		a	b	c = a x b	d = % of c	e = 2 x 100 x d	f = c + e
1	Wireless Controller (As per Technical Specs Annexure – 12 A)	2					
2	Implementation Cost of Wireless Controller (Incl. Passive Components)	2					
3	Core Switch (As per Technical Specs Annexure – 12 B)	2					
4	Implementation Cost of Core Switch (Incl. Passive Components)	2					
5	Access Switch (24 Port) (As per Technical Specs Annexure – 12 C)	3					
6	Implementation Cost of Access Switch (Incl. Passive Components)	3					
7	Wireless Access Point (As per Technical Specs Annexure – 12 D)	48					
8	Implementation Cost of Wireless Access Point (Incl. Passive Components)	48					
9	Router (As per Technical Specs Annexure – 12 E)	2					
10	Implementation Cost of Router (Incl. Passive Components)	2					
11	Rack with Patch Panel (As per Technical Specs Annexure – 12 F)	3					

Annexure 14 – Commercial Bid Format

12	Implementation Cost of Rack (Incl. Passive Components)	3					
13	Firewall (As per Technical Specs Annexure – 12 H)	2					
14	DNS Security Solution (As per Technical Specs Annexure – 12 I)	1					
15	Other Charges (if any, Please specify)	xxx					
Total Amount							
(A) Total Cost of Ownership for 5 Years (i.e. 3 years OEM comprehensive Onsite Warranty and 2 years OEM comprehensive Onsite AMC for both hardware and software - (24x7 support)				In figures:			
				In words:			

TABLE 2								
S No	Ser. charges for Engineer / ILL	Qty	Year 1	Year 2	Year 3	Year 4	Year 5	Total Amount
			Amount	Amount	Amount	Amount	Amount	
1	Primary ILL – 100 Mbps	1						
2	Secondary ILL – 100 Mbps	1						
3	Onsite Support Engineer	1						
Total Amount								
(B) Total Amount for 5 Years				In figures:				
				In words:				
Total Cost (TABLE 1 (A) + TABLE 2 (B)) for 5 Yrs (in Rs.)					In figures:			
					In words:			

Annexure 14 – Commercial Bid Format

II. Location: Baroda Bhavan (Head Office), Vadodara

S No	HW Particulars	Qty	Unit Rate (Rs)	Amount (Rs)	AMC (%) per Year	AMC Amt (Rs) (2 Yrs)	Total Amount (Rs)
		a	b	c = a x b	d = % of c	e = 2 x 100 x d	f = c + e
1	Wireless Controller (As per Technical Specs Annexure – 12 A)	2					
2	Implementation Cost of Wireless Controller (Incl. Passive Components)	2					
3	Core Switch (As per Technical Specs Annexure – 12 B)	2					
4	Implementation Cost of Core Switch (Incl. Passive Components)	2					
5	Access Switch (24 Port) (As per Technical Specs Annexure – 12 C)	4					
6	Implementation Cost of Access Switch (Incl. Passive Components)	4					
7	Wireless Access Point (As per Technical Specs Annexure – 12 D)	67					
8	Implementation Cost of Wireless Access Point (Incl. Passive Components)	67					
9	Router (As per Technical Specs Annexure – 12 E)	2					
10	Implementation Cost of Router (Incl. Passive Components)	2					
11	Rack with Patch Panel (As per Technical Specs Annexure – 12 F)	4					

Annexure 14 – Commercial Bid Format

12	Implementation Cost of Rack (Incl. Passive Components)	4				
13	Firewall (As per Technical Specs Annexure – 12 H)	2				
14	DNS Security Solution (As per Technical Specs Annexure – 12 I)	1				
15	Other Charges (if any, Please specify)	xxx				

Total Amount

(A) Total Cost of Ownership for 5 Years (i.e. 3 years OEM comprehensive Onsite Warranty and 2 years OEM comprehensive Onsite AMC for both hardware and software - (24x7 support)	In figures:
	In words:

TABLE 2								
S No	Ser. charges for Engineer / ILL	Qty	Year 1	Year 2	Year 3	Year 4	Year 5	Total Amount
			Amount	Amount	Amount	Amount	Amount	
1	Primary ILL – 100 Mbps	1						
2	Secondary ILL – 100 Mbps	1						
3	Onsite Support Engineer	1						
Total Amount								

(B) Total Amount for 5 Years	In figures:
	In words:

Total Cost (TABLE 1 (A) + TABLE 2 (B)) for 5 Yrs (in Rs.)	In figures: In words:
--	--

Annexure 14 – Commercial Bid Format

BOM.

- f. If the cost for any line item is indicated as zero then it will be assumed by the Bank that the said item is provided to the Bank without any cost.
- g. All Deliverables to be supplied as per RFP requirements provided in the tender
- h. The Service Charges need to include all services and other requirement as mentioned in the RFP
- i. The bidder has to make sure all the arithmetical calculations are accurate. Bank will not be held responsible for any incorrect calculation show ever for the purpose of calculation Bank will take the corrected figures / cost.
- j. Detailed BOM (Bill of Material) needs to be submitted along with technical proposal.
- k. All prices to be in Indian Rupee (INR) only.
- l. Prices quoted by the Bidder should be inclusive of all taxes, duties, levies etc. except GST which will be paid extra at actuals. There will be no price escalation for during the contract period and any extension thereof. Bid submitted with an adjustable price quotation will be treated as non-responsive and will be rejected
- m. Details to be provided for any commercial provided against “Any Other Charges”. Bank have discretion to mark these line items under any other charges if Bank feels these items are not mandatory for the project. Cost of any other charges will be consider for TCO calculation purpose however Bank will place order for these items at Bank’s discretion as per requirement.
- n. All Quoted Commercial Values should comprise of values only upto 2 decimal places. Bank for evaluation purpose will consider values only upto 2 decimal places for all calculations & ignore all figures beyond 2 decimal places.
- o. In case of arithmetic error/discrepancy in total amount, the amount arrived as per quoted unit rate of line items shall be considered.

Authorized Signatory

Name:

Designation:

Bidder’s Corporate Name