THE ASIATIC SOCIETY

FOUNDED IN 1784
(An Institution of National Importance declared by an Act of Parliament)
1, PARK STREET, Kolkata 700 016

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF ACTIVE NETWORK AT THE ASIATIC SOCIETY

Tender No. : AS/IT/2018/01 Date: 20.01.2018

Last Date and Time of submission of the Tender: 1500 Hrs on 09.02.2018

Notice Inviting Tender (NIT)

Sealed Tenders are invited from experienced, resourceful and reputed firms for Supply, Installation, Testing and Commissioning of Active Network at The Asiatic Society at 1, Park Street, Kolkata 700 016 as per enclosed Basic Details, Scope of Work, Eligibility Conditions, Instruction to Bidders and General Terms & Conditions.

The Tender comprise as follows:

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF ACTIVE NETWORK AT THE ASIATIC SOCIETY

Tenders in prescribed forms are invited from agencies (either OEM who is willing to undertake total scope of work or an authorized solution provider of the OEM) having experience in supply, installation, testing, commissioning and maintenance of structured cabling, Fiber Optics Technology, Switching, Wi-Fi etc. for Office Network at The Asiatic Society, Kolkata.

All bidders would be bound by the tender specifications in all respects as detailed in the Tender Documents of The Asiatic Society.

The Tender Documents can be downloaded from the website www.asiaticsocietykolkata.org.

19/1/18
(S B Chakrabarti)
General Secretary

General Secretary
THE ASIATIC SOCIETY

INSTRUCTIONS TO THE BIDDERS

A. General Information:

1) Tenders are invited by the General Secretary, The Asiatic Society, 1, Park Street, Kolkata- 700 016 for and on behalf of The Asiatic Society for **supply, installation, testing and commissioning of active network at The Asiatic Society.**

2) Tender documents consisting of Technical & Financial Bids shall be submitted by the bidders in two separate sealed envelopes, Cover –I named **'TECHNICAL BID'** and Cover –II named **'PRICE BID'**, latest by **1500 Hrs on 09/02/2018**. Cover-I should consist all necessary required documents except "PRICE BID". Both the above said sealed Covers i.e. Cover –I & Cover –II be then put in another separate big cover Cover–III named **'TECHNO-COMMERCIAL BID'** and properly wax sealed.

3) Bids should be forwarded by Bidders under their original letter pad inter alia furnishing details like TIN number, GST number, Bank address with NEFT/RTGS Account if applicable, etc and complete postal & e-mail address of their office.

4) Sealed bids should be dropped in the **"TENDER BOX"** at 3rd Floor, Main Building of The Asiatic Society, 1, Park Street, Kolkata-700 016 this office by due date and time. Late tenders will not be accepted in any circumstances.

5) A bidder may modify or withdraw his bid after submission provided that the written notice of modification or withdrawal is received by this office prior to deadline prescribed for submission of bids. No bid shall be modified after the deadline for submission of bids and expiration of the period of bid validity specified. Withdrawal of a bid during this period will result in Bidder's forfeiture of bid security (EMD).

6) The Technical Bids, which do not contain full information and documents called for, shall be rejected. The financial bids of only those bidders shall be opened, who has qualified in technical bid. **The technical specifications mentioned here are minimum specifications and bids with higher specifications are also admissible.**

7) **Price bid should specify individual pricing of items as mentioned in the Price bid format. However the composite price will be considered for selection of the successful bidder.**

8) The bidders shall submit all details, documents etc. as required in the tender document duly signed on each page. In case bidder fails to do so, The Asiatic Society reserves the right to reject the tender without seeking any further clarification.

9) The bidder shall submit the copy of the tender document and addenda thereto, if any, with each page signed and stamped to confirm the acceptance of the entire terms and conditions of the tender.

10) Only the documents relevant to items specified and required for the Network at The Asiatic Society should be submitted. Documents irrelevant to tender scope of work like bulky brochures, leaflets, handouts, catalogues, general information of items, companies and branding documents should NOT

be attached. The website links for this additional information if required may be mentioned in one page and this page may be attached with the tender.

11) The Asiatic Society at its sole discretion reserves the right to extend last date of submission of tender and the same shall be updated in the website and all bidders are requested to visit the website for latest updates.

12) The Asiatic Society reserves the right to annul the bidding process at any time without any liability for such annulment, without assigning any reason there to.

13) The Asiatic Society reserves the right to invite revised tenders with or without amendment at any stage without any liability for such invitation and without assigning any reason thereof.

14) The Asiatic Society shall notify the successful bidder through Registered letter/ speed post / fax / e-mail or in person confirming that their offer has been accepted. The Asiatic Society will issue the Purchase Order (PO) to the successful bidder.

15) Bidder should submit their bid after careful and precise site inspection so that their submitted tender (Technical and Price Bid) would be taken as final. Any further addition of any components, software, hardware etc. if required for the successful completions (supply, installation, commissioning, testing, trail etc.) of the project should be carried out at the vendor's responsibility and cost only.

16) This PO shall indicate the approximate items & quantity to be supplied by the bidder and the amount which The Asiatic Society shall pay to the successful bidder in consideration of the execution of the solution by them.

17) **The vendor must enclose a tender specific original authorization from the Manufacturer (OEM) of active network devices and software.**

18) Prices quoted by the bidders should include all GST, duties, levies, transportation costs, back-to-back support with OEM during Warranty and insurance costs till the equipment is accepted.

19) Quoted rates must be valid for 6 months from the date of closing of Tender.

20) **CONSORTIUM approach is not acceptable.** The Bids shall be submitted by only the Bidder. Declaration in this regard needs to be submitted.

B. Earnest Money Deposit (E.M.D)

Earnest Money Deposit (E.M.D) Rs. 1,00,000/- (Rupees One lakh Only) by way of D.D./Banker's Cheque in favour of **"The Asiatic Society"** payable at Kolkata to be submitted along with "TECHNICAL BID".

The bids of the bidder, who fail to submit E.M.D, shall be summarily rejected. The E.M.D. of the unsuccessful bidders would be returned within 15 days from the date of finalization of Tender.

The E.M.D. of the successful bidder will be retained as the Security deposit for 1 year.

E.M.D. will not carry any interest.

C. Payment Terms:

The payment will be made as per the following terms:

STAGE	PARTICULARS
I	50% of the **product cost**, on receipt of all the items in good condition and duly accepted by The Asiatic Society and on submission of bills.
II	40% of the balance on satisfactory installation commissioning and successful trial of the Integrated network system by the contractor along with acceptance of all documentation mentioned as per Tender and on submission of bills.
III	Balance 10% after 12 months from the date of installation.

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D. Pre- Qualification criteria

1. The bidder should not have been blacklisted by the department /Ministries of the Government of India / PSUs / corporate Sectors /Educational Institutions / any other reputed organizations. A self-declaration to this effect is to be produced by the bidder along with "TECHNICAL BID".

2. The bidder should submit copy of valid Trade License, PAN and Sales Tax / GST Registration No. with the "TECHNICAL BID" of Tender documents.

3. The bidder should submit the Income Tax return and Sales Tax clearance certificate for last three previous years ending 31st March 2017 with the "TECHNICAL BID" of Tender documents.

4. The bidder should submit one of the following along with "TECHNICAL BID":-

   i) Proof of Registration of the bidder under relevant law such as Companies Act, and /or Shop and Establishment Act.
   ii) For Partnerships firms, full name and address of each partner along with the certified copy of the registered partnership deed, copy of Trade License.
   iii) For proprietorship firms, full name and address of proprietor along with the copy of trade license.

5. The tenderer should be either OEM who is willing to undertake total scope of work or an authorized solution provider of the OEM. If the tenderer is not a manufacturer he must furnish OEM authorization letter (in OEM's letterhead) specific to this requirement. **Tender specific MAF has to be submitted for each & every individual items quoted. Bidder without a valid MAF will be out rightly rejected.**

6. The bidder should be authorized partner of quoted product and the latest certificate from the manufacturer only should be attached along with the "TECHNICAL BID".

7. Tenderer must submit a detailed Bill of Material in tabular format with product description, make/type & model, part code & quantity including warranty details & part codes as per Specification in Tender along with the "TECHNICAL BID" as per **Annexure- I & II** .

8. The bidder should submit brochure/catalogues of quoted products & relevant detailed specification of documents has to be provided along with the "TECHNICAL BID".

9. Mandatory Quality Certifications: The bidder must process valid ISO 9001:2008/ISO 9001:2008 and ISO 14001:2004/ISO 14001:2004 certificate. Failure to comply with this condition will disqualify the bidders. The certificate must be valid during the currency of the project should be submitted along with Bid.

10. The Biding Company must be a profit making company for the last 3 years & should be operational in business for the last 10 years. Documentary evidence has to be provided along with the Bid.

11. The Bidder must have the following minimum annual average turnover of minimum Rs. 2,00,00,000/- (Rupees Two Crores only), for the last 3 financial year i.e. 2013-14, 2014-15 and 2015-16. All bidders should submit copies of Audited statement of Accounts for the said three financial years along with the tender documents. In case of exemption from the requirement of Audit of Statement of Accounts, necessary certificate should be provided.

12. The bidder shall furnish Bank Solvency Certificate in a **sealed envelope** alongwith the Technical Bid for Rs 40,00,000/- (Rupees Twenty Lakhs only) from any Nationalised /Scheduled Bank having a branch at Kolkata.

13. The intending bidder must have experience and past performance on similar nature of contract for last preceding three years ended on 31st March 2017 in Central/State Govt. Depots./Organization/PSUs or in reputed establishments/ Govt. Educational institute/ reputed Private Educational Institute in India. All the order copies must be accompanied by Successful completion certificate should submit along with Bid.

14. The bidder should have successfully completed One similar single completed work costing not less than the amount equal to Rs.40,00,000.00/- (Fourty Lakhs) or more at any.

    OR

    Two similar single completed works costing not less than the amount equal to Rs.20,00,000.00/- (Twenty Lakhs)

    All bidder must submit documentary evidence in support of above in the form of certified copy of work order, completion certificate or payment/vouchers.

15. Bidders have to quote all the items mentioned in tender document. No part bid will be accepted. Otherwise, the bid(s) will be treated as cancelled.

16. All active networking equipment i.e Switches and Transceivers has to be from the same OEM.

17. The Bidder shall give an undertaking that he will comply with all conditions in the tender documents and sign each page of the tender documents. For this purpose, the tender documents shall be completed in all respects and duly signed and stamped on each page by an authorized representative of the bidder.

18. Bidders are expected to submit all necessary documents in support of fulfillment of eligibility criteria. However, in case any further document is found necessary for proper assessment, the bidder shall be requested to furnish the same within five (5) working days from the date of intimation in writing.

19. The offer will remain valid for a period of 90 days from the date of opening of Price Bid. If required, the validity shall be extended for further period by mutual consent.

20. The Asiatic Society reserves the right to accept or reject any bid or to annul the bidding process and reject all bids at any time prior to award of the Contract / Purchase Order without assigning any reason whatsoever and without thereby incurring any liability whatsoever to the affected Bidder(s). Mere submission of tender document shall not mean fulfillment of requirements of eligibility of the Bidder(s).

21. Deviations seeking any change in the text of various Clauses or Articles shall not be accepted.

22. The Asiatic Society takes no responsibility for delay, loss or non-receipt of documents sent by post/ courier at any time. No financial obligation shall accrue to The Asiatic Society in such an event.

E. Scope Of Work

The scope of work includes supply, installation, testing and commissioning of passive & active components, as per The Asiatic Society requirement for networking solution. The Asiatic Society intends to network to the building as shown in drawing, specifications, and as specified in Annexures, schedule of items etc. The Asiatic Society reserves the right to amend aforesaid drawing, specifications, schedule of items etc. during execution of work. It will be the responsibility of the contractor to integrate the proposed networking system with the existing in-campus network.

The scope also includes providing necessary labour, materials, scaffoldings, construction equipment, tools and plants, appliances, as well as preparing detailed lay out plan (to be approved by The Asiatic Society), and execution of all incidental items not specified or indicated but implied or required to complete the work under this scope of work in all respects and in strict compliance with the specifications, Annexure , schedule of items and drawings including their revisions and amendments made from time to time.

The scope of work also includes conducting all necessary tests for all materials, providing drawings/catalogues, sample etc of all bought out items to The Asiatic Society.

All new active solution should integrate with the existing network Switch (Cisco) in exiting network of The Asiatic Society. The vendor may be required to configure the existing network Switch (Cisco) with new Layer 3 switches for connecting different locations with VLAN technology. Vendor may be required to configure the existing switches for incorporating the requirements of the project.

The vendor is required to configure the added new Core Layer 3 and Layer 2 switches, new UTM for connecting different locations with VLAN technology and Firewall Policies as decided by The Asiatic Society administration. Vendor is required also to configure the existing switches for incorporating the requirements of the project.

Complete documentation and end to end test results must be submitted to The Asiatic Society after installation.

Any levelling or filling, if required to commence work, will be done by the vendor at his own cost.

The Scope of Work also includes final surfacing to all repairs done for the fixtures, installation etc. and removal of spoil arising out of the contract.

The work shall be executed strictly in accordance with the relevant and current Indian Standard Specification and recent code of practice, National Building Code of India, the practice of Indian Institute of Architect and/or instruction and direction given by The Asiatic Society.

Site Address for Network solutions Installation: The Asiatic Society, 1, Park Street, Kolkata-700 016.

Annexure – I

Bill of Quantities for Active & Software Components

Sl No	Description	Quantity
1	Layer 3 switch managed 24 port 10/100/1000 Mbps & 4 port 1G SFP	1
2	1G multimode SFP Transceiver Module	5
3	Layer 2 switch managed 24 port 10/100/1000 Mbps (non-Poe)	7
4	Layer 2 switch managed 24 port 10/100/1000 Mbps (Poe)	2
5	Wireless Access Points with Antenna	10
6	Rack server with accessories	1
7	Network Firewall	1
8	Support pack for 3 years for all the above devices	NA

Bill of Material-2

Sl No	Description	Quantity
1	Virtualization Software	1
2	3 years Support for Virtualization Software	1
3	Virtual Wireless LAN controller	1
4	3 year support for VWLC	1
5	Virtual Network Administration Control Software(AAA + TACACS server)	1
6	3 year support for Network Administrator Control Software	1

OEM Criteria: All the active network components (Network Switches, Wireless access point, Network Firewall) including the Virtual wireless controller and Virtual network administrator control software should be from same OEM.

Annexure –II

TECHNICAL SPECIFICATIONS FOR NETWORK EQUIPMENTS
(Active Components)

Layer 3 switch managed 24 port 10/100/1000 Mbps with 4 port 1G SFP slot

General Features
The switch should have minimum 24 x 10/100/1000 Base-T Ports & 4 x 1000 Base-X SFP slots.
Future support for Redundant Power supply
Should have fan for proper cooling.
Performance
At least 200 Gbps switching bandwidth
Forwarding rate – At least 60 Mpps.
Configurable at least 30000 MAC addresses
The switch should support stacking with 400 Gbps Stacking bandwidth to stack upto 8 switches into a single virtual switch.
At least DRAM 4GB and 2GB Flash
Layer-2 Features
IEEE 802.1Q VLAN encapsulation. Support for 4000 VLAN IDs.
Support for Automatic Negotiation of Trunking Protocol, to help minimize the configuration & errors.
Centralized VLAN Management. VLANs created on the Core Switches should be propagated automatically.
Link Aggregation Protocol (LACP)
Network Security Features
SSHv2 and SNMPv3 to provide network security by encrypting administrator traffic during Telnet and SNMP sessions.

RADIUS authentication to enable centralized control of the switch and restrict unauthorized users from altering the configuration.
MAC address notification to allow administrators to be notified of users added to or removed from the network.
DHCP snooping to allow administrators to ensure consistent mapping of IP to MAC addresses. This can be used to prevent attacks that attempt to poison the DHCP binding database, and to rate-limit the amount of DHCP traffic that enters a switch port.
Multilevel security on console access to prevent unauthorized users from altering the switch configuration using local database or through an external AAA Server.
Should support at least 500 ACL entries
Quality of Service (QoS) & Multicast
Shaped Round Robin (SRR) scheduling and Weighted Tail Drop (WTD) congestion avoidance.
1000 Multicast Groups
Management
Command Line Interface (CLI) support for configuration & troubleshooting purposes.
Domain Name System (DNS) support to provide IP address resolution with user-defined device names.
FTP/ Trivial File Transfer Protocol (TFTP) to reduce the cost of administering software upgrades by downloading from a centralized location.
Network Timing Protocol (NTP) based on RFC 1305 to provide an accurate and consistent timestamp to all intranet switches.
SNMP v1, v2c, and v3 and Telnet interface support delivers comprehensive in-band management, and a CLI-based management console provides detailed out-of-band management.

Technical Specification of multimode SFP transceiver module:

1. Compatible with the IEEE 802.3z standard.
2. Should operates on legacy 50 µm multimode fiber links up to 550 m .
3. Should be compatible with the offered L3 switch.

Layer 2 switch managed 24 port 10/100/1000 mbps (non-PoE):

General Features
The switch should have minimum 24 x 10/100/1000 Base-T Ports & 4 x 1000 Base-X SFP slots.
Future support for Redundant Power supply
Should have fan for proper cooling.
Performance
At least 200 Gbps switching bandwidth
Forwarding rate – At least 70 Mbps.
Configurable at least 8000 MAC addresses
The switch should support stacking with 80 Gbps Stacking bandwidth to stack upto 8 switches into a single virtual switch.
At least DRAM 512 MB and 128 MB Flash
Layer-2 Features
IEEE 802.1Q VLAN encapsulation. At least 1000 VLANs should be supported. Support for 4000 VLAN IDs.
Link Aggregation Protocol (LACP)
Local Proxy Address Resolution Protocol (ARP) to work in conjunction with Private VLAN Edge to minimize broadcasts and maximize available bandwidth.
Multicast VLAN registration (MVR) to continuously send multicast streams in a multicast VLAN while isolating the streams from subscriber VLANs for bandwidth and security reasons.
Network Security Features
IEEE 802.1x to allow dynamic, port-based security, providing user authentication.
Port-based ACLs for Layer 2 interfaces to allow application of security policies on individual switch ports.
SSHv2 and SNMPv3 to provide network security by encrypting administrator traffic during Telnet and SNMP sessions.
RADIUS authentication to enable centralized control of the switch and restrict unauthorized users

from altering the configuration.
MAC address notification to allow administrators to be notified of users added to or removed from the network.
DHCP snooping to allow administrators to ensure consistent mapping of IP to MAC addresses. This can be used to prevent attacks that attempt to poison the DHCP binding database, and to rate-limit the amount of DHCP traffic that enters a switch port.
Should support 500 ACL entries
Management
FTP/ Trivial File Transfer Protocol (TFTP) to reduce the cost of administering software upgrades by downloading from a centralized location.
Network Timing Protocol (NTP) based on RFC 1305 to provide an accurate and consistent timestamp to all intranet switches.
SNMP v1, v2c, and v3 and Telnet interface support delivers comprehensive in-band management, and a CLI-based management console provides detailed out-of-band management.

Layer 2 switch managed 24 port 10/100/1000 mbps (PoE) :

General Features
The switch should have minimum 24 x 10/100/1000 Base-T POE/POE+ Ports & 4 x 1000 Base-X SFP slots.
Future support for Redundant Power supply
Should have fan for proper cooling.

Performance
At least 200 Gbps switching bandwidth
Forwarding rate – At least 70 Mpps.
Configurable at least 8000 MAC addresses
The switch should support stacking with 80 Gbps Stacking bandwidth to stack upto 8 switches into a single virtual switch.
At least DRAM 512 MB and 128 MB Flash
Layer-2 Features
IEEE 802.1Q VLAN encapsulation. At least 1000 VLANs should be supported. Support for 4000 VLAN IDs.
Support for Automatic Negotiation of Trunking Protocol, to help minimize the configuration & errors.
Centralized VLAN Management. VLANs created on the Core Switches should be propagated automatically.
Link Aggregation Protocol (LACP)
Multicast VLAN registration (MVR) to continuously send multicast streams in a multicast VLAN while isolating the streams from subscriber VLANs for bandwidth and security reasons.
Network Security Features
Port-based ACLs for Layer 2 interfaces to allow application of security policies on individual switch ports.
SSHv2 and SNMPv3 to provide network security by encrypting administrator traffic during Telnet and SNMP sessions.
RADIUS authentication to enable centralized control of the switch and restrict unauthorized users from altering the configuration.
MAC address notification to allow administrators to be notified of users added to or removed from the network.
DHCP snooping to allow administrators to ensure consistent mapping of IP to MAC addresses. This can be used to prevent attacks that attempt to poison the DHCP binding database, and to rate-limit the amount of DHCP traffic that enters a switch port.
Should support 500 ACL entries

Management
FTP/ Trivial File Transfer Protocol (TFTP) to reduce the cost of administering software upgrades by downloading from a centralized location.
Network Timing Protocol (NTP) based on RFC 1305 to provide an accurate and consistent timestamp to all intranet switches.
SNMP v1, v2c, and v3 and Telnet interface support delivers comprehensive in-band management, and a CLI-based management console provides detailed out-of-band management.

Wireless Access Point

S.l No	Features	Descriptions
1	Hardware	Access Points proposed must include radios for 2.4 GHz and 5 GHz with 802.11ac Wave 1.
		Mounting kit should be standard from OEM directly.
		Must include dual band antennas to support both the 2.4GHz and 5GHz operations simultaneously from single antenna.
		Access point should be modular and support expandable modules to support 802.11ac wave 2 or a third radio for wIPS.
		Must have atleast 512 MB DRAM and 64 MB flash
2	802.11n	Must support 4x4 multiple-input multiple-output (MIMO) with three spatial streams
		Must support simultaneous 802.11n on both the 2.4 GHz and 5 GHz radios.
		Must support 802.11ac Wave 1 on the integrated 5-GHz radio
		Must support data rates up to 450Mbps and 1.3 Gbps on 802.11ac.
		Must support up to 23dbm of transmit power in both 2.4Ghz and 5Ghz radios.
3	Security	Must support Management Frame Protection.

		Should support locally-significant certificates on the APs using a Public Key Infrastructure (PKI).
		Must operate as a sensor for wireless IPS
		Should support Off-Channel Rogue Detection and Containment for both radio
4	Encryption	Access Points must support a distributed encryption/decryption model.
		Access Points must support Hardware-based DTLS encryption on CAPWAP Standard
5	Monitoring	Must support the ability to serve clients and monitor the RF environment concurrently.
6	Flexibility	Must support at least 8 WLANs per AP for SSID deployment flexibility.
		Must support Controller-based and standalone(autonomous) deployments
7	Operational	Must support telnet and/or SSH login to AP directly for troubleshooting flexibility.
10	Power	Must support Power over Ethernet, local power(DC Power), and power injectors.
		Must operate at 3x3 or higher with 802.3af PoE is the source of power
11	Quality of Service	802.11e and WMM
		WiFi Alliance Certification for WMM and WMM power save
12	License and Management	Controller license to be proposed for existing controller for centralized configuration , policy and optimization of the proposed wireless network.

Rack Server with Accessories

Sl No	Specification	Description
1	Processor	The rack server shall be populated with at least 2 X 16 cores CPU, at least 2 threads per core, clock speed 2.5 GHz or higher, Cache at least 32 MB per CPU.
2	Hard disk	The server should be populated with 2 X 2Tb SATA hard disk of 7200 RPM supporting mirror.

3	Memory	Populated with memory of 256 GB DDR4@2666 MHz. Should support scalable memory up to 2TB DDR4 @2666 Mhz.
4	Network Interface Card (NICs)	Should have at least dual 10GBASE-T NICs
5	Management	It should support remote KVM(Keyboard,video,mouse) capability.
6	Mounting Kit	Should provide ball-bearing rail kit or friction rail kit with optional reversible cable management arm of OEM make for mounting in the Server Rack

Technical Specification of Network Firewall:

Sl No	Parameter	Description
1	Stateful Inspection Thoughput (Application Control)	Min 500 Mbps
2	Throughput: [Application Control and IPS]	Min 200 Mbps
2	Packets per Seconds	Min 60,000
3	Integrated I/O	Min 8 X 1G Ethernet Port
4	VLANs	Should support minimum 40 VLANs
5	Session	Should support minimum 50K concurrent session
6	Site-to-site and IPsec/IKEv1 client VPN user	Should support minimum 100 VPN sessions
7	3DES/AES VPN throughput	Minimum of 150 Mbps

Technical Specification for Virtualization Software

Shall provide a Virtualization layer that sits directly on the bare metal server hardware with no dependence on a general purpose OS for greater reliability and security.
Shall have the capability to create virtual machines with up to 64 virtual processor and 2 TB virtual RAM in virtual machines for all the guest operating system supported by the hypervisor.
Should provide a storage efficient backup solution which utilized variable length duplication rapid recovery and WAN-optimized replication for DR. It should integrate with virtualization solution and provide a simple user interface making it an easy and efficient backup tool.
Should provide efficient, array agnostic replication of virtual machine data over the LAN .
Must support for increasing capacity by adding CPU, memory or any other devices to virtual machines on an as needed basis without any downtime for the virtual machines.
Should enable abstraction for external storage (SAN or NAS) devices by means of making them virtual machine aware.
Should support user role and permission assignment (RBAC)
Should support deploy and export virtual machines, virtual appliances in Open Virtual Machine Format (OVF).

Technical Specification for Virtual Wireless LAN Controller:

SL No	Parameter	Description
1	Scalability	Should support at least 150 wireless Access point
		Should support at least 4000 client.
2	Virtual Machine Specification	Virtual Wireless Controller can run on any x86 server that supports Hypervisor or KVM Linux based systems. Should have support minimum 2 number of Network Interface Card (NICs)

3	Wireless	Should support IEEE 802.11a, 802.11ac, 802.11b, 802.11g, 802.11d, WMM/802.11e, 802.11h, 802.11k, 802.11n, 802.11r, 802.11u, 802.11w protocol.
4	Wired/Switching/Routing	Should support IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX specification, 1000BASE-T. 1000BASE-SX, 1000□BASE-LH, IEEE 802.1Q VLAN tagging.
5	Data Request For Comments (RFC)	Should support RFC 768 UDP ,RFC 791 IP,RFC 2460 IPv6 (pass through Bridging mode only) ,RFC 792 ICMP ,RFC 793 TCP ,RFC 826 ARP ,RFC 1122 Requirements for Internet Hosts , RFC 1519 CIDR , RFC 1542 BOOTP, RFC 2131 DHCP ,RFC 5415 CAPWAP Protocol Specification
6	Management	Should support Web Interface, Command line Interface (telnet,ssh),

Technical Specification of Network Administrator Control Software:

Sl No	Parameter	Description
1	Centralized management	Helps administrators centrally configure and manage profiler, posture, guest, authentication, and authorization services in a single web-based GUI console
2	Access control	Provides a range of access control options, including downloadable access control lists (dACLs), virtual LAN (VLAN) assignments, URL redirections, named ACLs, and security groups (SGs)
3	Security group tag exchange protocol (SXP) support	Uses SXP as a control protocol for propagating IP-to-SGT binding information across network devices that do not have the capability to tag packets with security group tags (SGTs).Allows security services on switches, routers, or firewalls to learn identity information from access devices.

4	AAA services	Uses standard RADIUS protocol for authentication, authorization, and accounting (AAA).upports a wide range of authentication protocols, including, but not limited to PAP, MS-CHAP, Extensible Authentication Protocol (EAP)-MD5, Protected EAP (PEAP), EAP-Flexible Authentication via Secure Tunneling (FAST), EAP Transports Layer Security (TLS), and EAP-Tunneled Transport Layer Security (TTLS).
5	Device administration access control and auditing	Supports the TACACS+ protocol
		Grants users access based on credentials, group, location, and executable commands.
6	Internal certificate authority	Provides a single console to manage endpoints and certificates. Certificate status is checked through the standards-based Online Certificate Status Protocol (OCSP). Certificate revocation is automatic.
7	System Requirement	The AAA server should run on any x86 server that supports Hypervisor or KVM Linux based systems. Should have support minimum 2 number of Network Interface Card (NICs)

Annexure –IV

PRICE BID

Tender for Supply, Installation, Testing and Commissioning of Active Network at The Asiatic Society

Sl No.	Product Description	Approximate Quantity	UOM	Rate/Unit (INR)	Amount (INR)	Applicable Taxes	Total Including Tax (INR)
1	Layer 3 switch managed 24 port 10/100/1000 Mbps & 4 port 1G SFP	1					
2	1G multimode SFP Transceiver Module	4					
2	Layer 2 switch managed 24 port 10/100/1000 Mbps (non-Poe)	7					

3	Layer 2 switch managed 24 port 10/100/1000 Mbps (Poe)	2					
4	Wireless Access Points with Antenna	10					
5	Rack server with accessories	1					
6	Network Firewall	1					
7	Support pack for 3 years for all the above devices						
8	Virtualization Software	1					
9	3 years Support for Virtualization Software	1					
10	Virtual Wireless LAN controller	1					
11	3 year support for VWLC	1					
12	Virtual Network Administration Control Software(AAA + TACACS server)	1					
13	3 year support for Network Administrator Control Software	1					

INR in Words (Inclusive of Taxes):