



HAMDARD INSTITUTE OF MEDICAL SCIENCES & RESEARCH
RFP No. : HIMSR/RFP/TENDER/DC-NETWORK-HIMS/09/2018/01

TENDER NOTIFICATION

RFP No. : HIMSR/RFP/TENDER/DC & NETWORK/09/2018/01

TENDER DOCUMENT

FOR

**SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF
DATACENTER INFRASTRUCTURE, SERVERS, UPGRADATION OF
WIRED & WIRELESS NETWORK INFRASTRUCTURE**

AT

HAMDARD INSTITUTE OF MEDICAL SCIENCES & RESEARCH
(A CONSTITUENT INSTITUTION OF JAMIA HAMDARD)
HAMDARD NAGAR,
NEW DELHI – 110062

Phone: 91-011-29901014 Website: www.himsr.org



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LIST OF DOCUMENTS COMPRISING TECHNICAL BID

TENDER DOCUMENT DULY SIGNED & STAMPED BY AUTHORIZED PERSON OF FIRM.

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|-----------|--|------------------------|
| 1. | STANDARD TERMS & CONDITIONS OF TENDER | ANNEXURE-I |
| 2. | TERMS & CONDITIONS OF SLA's | ANNEXURE-II |
| 3. | GENERAL INFORMATION ABOUT THE BIDDER | ANNEXURE-III |
| 4. | SCOPE OF WORK | ANNEXURE-IV |
| 5. | TECHNICAL COMPLIANCE | ANNEXURE-V-XVI |
| 6. | CHECK LIST | ANNEXURE - XVII |

LIST OF DOCUMENTS COMPRISING FINANCIAL BID

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| 1. | FINANCIAL BID FORMAT | ANNEXURE-XVIII |
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ANNEXURE-I

Sealed Tenders are invited from manufactures / authorized distributors, for supply, installation and commissioning of **SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF DATACENTER INFRASTRUCTURE, SERVERS, UPGRADATION OF WIRED & WIRELESS NETWORK INFRASTRUCTURE & HIMS SOFTWARE** at HIMSR, New Delhi

STANDARD TERMS & CONDITIONS OF TENDER

1. Detailed specifications are given in Annexure V to Annexure XVI.
2. Bonafide and reputed manufacturers / Indian agents (on behalf of their foreign Principals) can only quote and submit RFP at **Purchase Section, HIMSR, Block-B, Hamdard Nagar, New Delhi**.
3. The Tender Document for detailed specifications may be obtained from **IT Section, HAHC, Hamdard Nagar, New Delhi** on payment of Rs.2000/- through Bank Draft (non-refundable) drawn in favor of **Hamdard Institute of Medical Sciences & Research payable at New Delhi** during working days up to **15.10.2018 till 3.00 PM**.

The last date of the receipt of the Bids is 15.10.2018 up to 3.00 p.m.

4. **The Technical Bids will be opened on 19.10.2018 at 4.30 P.m. in the office of Head Finance and Administration, HIMSR, Block-B, Jamia Hamdard, New Delhi.**
5. **List of Technically qualified bidders will be posted on our website till 25.10.2018**
6. **Commercial Bids will be opened on 30.10.2018 at 4:00 P.m. in the office of Head Finance and Administration, HIMSR, Block –B, Jamia Hamdard , New Delhi.**
7. The Tender forms are to be submitted in two separate sealed envelopes - one envelope containing **Technical Bid (Part A)** and second envelope containing **Commercial Bid (Part B)**. Both the above sealed envelopes should be put in another duly sealed envelope and **super scribed ‘Supply, Installation, Testing & Commissioning Of Datacenter Infrastructure, Servers, Upgradation Of Wired & Wireless Network Infrastructure & HIMS Software at HIMSR’** with the type of bid, tender no., due date and other relevant details and should be addressed to **The Head Finance and Administration, HIMSR, Block-B, Hamdard Nagar, New Delhi** and dropped in **Tender box available at Ground floor of B-Block HAHCH**. On the due date, only Technical Bids (Part A) will be opened. Commercial Bids (Part B) shall only be opened after acceptance of Technical Bids by the competent authority. (Note : All bidders are requested to enclose documents as per Checklist mentioned in Annexure – XVII)
8. **Email Tender or Tender without EMD and Tender Fee will be summarily rejected.**
9. HIMSR reserves the right to reject any / all the tenders without assigning any reason whatsoever.

Head Finance and Administration



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10. The Tender should be neatly typed. The rates should be quoted in words and figures without any over writing/ erasure. Any over writing/ erasure will render the Tender of the particular item invalid. The tenderer should attest all corrections by affixing his signatures and each page of the tender should be signed by the tenderer.
11. The rates quoted should be per unit and should include charges for packing and delivery and should be as per Financial Bid format mentioned on Annexure XVIII. However, the Sales tax, wherever applicable should be shown separately at the prevailing rate. If it is decided to ask for excise duty or any other levy as extra, the same must be specifically stated. In the absence of such a stipulation, it will be presumed that the prices include all such charges and no claim for the same will be entertained. HIMSIR is not liable to pay any other charges over the above the rates quoted.
12. **Bid Type : Two- Bid System, after Technical Evaluation, Financial Bid will be Opened.**

13. Bidders Qualification Criteria

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- i. The bidder must be registered with the Registrar of Companies and with the Sales Tax Department. Copies of necessary supporting documents like GST Certificate and Pan Card, etc. must be attached.
- ii. The Bidder should submit the MAF from the respective major OEMs. A letter of authorization from the Principal specific to the tender should be enclosed, failed so, bid will be summarily rejected.
- iii. The vendor should have experience in implementing similar work in University / Educational Institutes / Govt. / PSU environments. Copies of such work order or any other documentary evidence clearly showing that they have implemented such similar works should be attached.
- iv. Bidder should be ISO 9001 certified.
- v. Bidder must enclosed proof of partnership level with OEMs of Wired & Wireless, Servers & Network Security.
- vi. OEM should be an Profit making Entity for at least last 3 years/12 Quarters.
- vii. OEM for Wireless Network should be listed in latest Gartner's Leaders quadrant for both Wired and Wireless LAN Access Infrastructure.
- viii. Bidder should have an average turnover of 2 Crores for last three Financial Year, duly certified by CA. Turnover certificate from Chartered Accountant to be enclosed.
- ix. Check List shall be on the top of the technical bid.



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14. EARNEST MONEY DEPOSIT (EMD)

Earnest Money Deposit (EMD) of Rs.5,00,000/- (Rupees Two Lakh Seventy Five Thousand only) in form of crossed demand draft/pay order in favor of **Hamdard Institute of Medical Sciences & Research payable at New Delhi** shall be deposited at the time of submission of tender, as a part of the Technical Bid. Tender received without EMD shall be summarily rejected. *The Bid Security of the successful bidder would be returned, without any interest whatsoever, after the receipt of Performance Security from them as called for in the contract.* The EMD will be forfeited if the bidder withdraws or amends, impairs or derogates from the tender in any respect within the validity period of their tender.

15. Minimum warranty period for each equipment / instrument should be for **three years** with spare parts from the date of installation and the successful tenderer will be liable to repair / replace the equipment / instrument if any defect is found within the warranty period. **However, for some instruments/equipment's, the extended warranty has been mentioned against each. In such cases, warranty mentioned against the instruments/equipment's shall be applicable.**
16. Provide service for at least 3 years in writing specifying "Uptime" & response time (usually less than 2 hours)
17. Local suppliers must possess a counter guarantee of service in case of imported equipment's from Parent Company(OEM).
18. The successful tenderer will have to deposit 5% of the total value of supply as Security Money; which will be refunded after completion of the warranty period and will be adjusted in case of violation of terms and conditions laid down above.
19. Successful Tenderer will have the responsibility for arranging training to HIMSR IT Team for smooth handling and proper functioning of supplied equipment's through specified number of training sessions.
20. **In case of Import for active components, the following terms and conditions will be adhered to:**
 - a) Prices should be quoted on F.O.R. (in Indian Rupees) HIMSR and inclusive of all taxes.
 - b) Order Acknowledgement from principal company should be given within 5 days from date of purchase order.
 - c) Suppliers through their own clearing agent will clear the consignment on arrival at IGI Airport. All payment in respect of clearing & landing will be borne by supplier.
 - d) Payment shall be released after receipt and acceptance. However other terms and conditions of payment and delivery shall be clearly mentioned by the bidder.
21. The HIMSR shall not be responsible if the consignment incurs any demurrage.
22. HIMSR reserves the right to accept/reject a part/whole or all tenders without assigning any reason and no inquiry in this regard, will be entertained.
23. The HIMSR reserves the right to increase or decrease quantity as Bill of Quantity.
24. Bidders are not allowed to subcontract in any manner and Consortium EOIs are not acceptable.
25. The issue of this Tender document does not imply that HIMSR is bound to select a Bidder and HIMSR reserves the right to reject all or any of the Bidders without assigning any reason whatsoever.
26. The Bidder should abide by the terms and conditions specified in the Tender document. If Bidders submit conditional offers, they shall be liable for outright rejection which will be decided by HIMSR.
27. At any time before the deadline for submission of Tender, HIMSR may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Tender Document by amending, modifying and / or supplementing the same. All changes shall be posted on website www.himsr.org and prospective Bidders are required to go through the same before submission of Tender.



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All such amendments shall be binding on them without any further act or deed on HIMSAR part. In the event of any amendment, HIMSAR reserves the right to extend the deadline for the submission of the Tender, in order to allow prospective Bidders reasonable time in which to take the amendment into account while preparing their Tender.

28. Participating in this tender would mean that Bidder is accepting all terms and conditions of this tender document. Bidders are requested to do survey and understand the existing Network of HIMSAR for Smooth Integration with proposed network.

29. The compatibility of all the networking components is the essence of this tender for efficient working of the network, hence bidders shall essentially quote all active components of one make for Servers, Firewall, Network Switches, IP Phones and Wireless Controller and passive components of one make only.

Any deviations in this matter will subject to disqualification.

30. All information in the Tender/Bid shall be in English. Information in any other language should be accompanied by its translation in English. Failure to comply with this may disqualify the Bidder.

31. Validity of the quoted offer should cover the period of the completion of project. Offers without such validity shall be rejected.

32. The vendor must give a point-by-point compliance to the Technical Specifications of the quoted products as per **Annexure V to Annexure XVI** of the Tender/Bid Documents and enclose with the technical bid.

33. Any cutting and changes in the document must be initialed by the person/persons signing the Tender/Bid.

34. Each page of the Tender/Bid document should be signed & stamped by the Bidder as a token of acceptance to terms and conditions mentioned.

35. Bidders should quote for all accessories which are either part of an item or are necessary for proper functioning of that item. Thus, for accessories of individual items **HIMSAR** shall not pay anything separately and if the functioning of any item is not proper or does not function at all, **HIMSAR** shall have the full right to deduct complete payment of that item(s).

36. The successful Bidder shall have to sign an agreement with HIMSAR to comply with all rules, regulations, Laws and Byelaws enforced by Local and State Govt. and HIMSAR in whose premises the work has to be done.

37. It shall be the responsibility of the contractor to make an inventory of all the materials upon its arrival at the customer's location and notify the customer of any missing components.

38. The contractor shall be responsible for safe custody of the items handed over to him by the HIMSAR any loss or wastage shall have to be made good by the contractor at his/her own cost.

39. If the contractor commits any violation of the above terms, the HIMSAR shall claim such damages as it may deem fit and the decision of the HIMSAR.

40. All Passive Cabling work whether it is Fiber, UTP, Patch Panels, Racks Patch Cords etc should be done neatly and with proper tagging. It should be very professional and aesthetic. Entire cabling should be structured.

41. All work shall be done in a thorough and conscientious manner according to EIA/TIA guidelines and industry standards, and shall be subject to inspection and acceptance.

42. The contractor shall be certain that all the installation work areas are secure and made safe in accordance with Health and Safety regulations.

43. All legal disputes, arising if any, would be settled under jurisdiction of Delhi court.



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SPECIAL CONDITIONS OF THE TENDER/BID

- a) **All Active, Passive, Licenses, Services & other Components as per Financial BOQ should be quoted in INR only.**
- b) All prices quoted shall be inclusive of all **taxes, freight and octroy** etc. and shall be **FOR HIMSR**. No separate payments shall be made whatsoever.
- c) All pricing shall be guaranteed not to increase, based on an order placed.
- d) The vendor must give a point-by-point compliance to the Technical Specifications of the quoted products as per Annexure V to Annexure XVII of the Tender/Bid Documents
- e) The bidder must clearly mention the **make, model & enclose relevant datasheet/brochures along with requisite certificates of the products** as per the Technical specifications as mentioned in Annexure.
- f) Additional similar pieces of equipment or components may be required at a later date, contingent on additional funding being made available.
- g) In the event of the goods not being in accordance with the specification or the conditions of the contract or failure by the bidder to perform services as outlined in the Tender/Bid document, **HIMSR** reserves the right to cancel the contract at any stage.
- h) A detailed Project plan is to be provided by bidder for material delivery and execution. Material delivery has to be done in 6 weeks from the release of PO and complete installation has to be done in 8 weeks from the date of release of PO.
- i) Support and Supply of spare parts of the active components should be available for 5 years min after the warranty period.
- j) **Bidder has to quote all the active components of the same make for Financial Format PART A Components as per Tender Specifications. Similarly, bidder has to quote all the passive components of the same make or as per Tender Specifications. Passive most preferred OEM will be Molex, Panduit and Systemax.**
- k) **Payment Terms will be as follows:**

FOR PART A, B & C COMPONENTS:

100 % On Delivery and acceptance of Material at HIMSR.

FOR INSTALLATION & SERVICES COMPONENTS : 100 % of Total Installation & Service Components Value will be paid on satisfactory execution of Project.

FOR RESIDENT ENGINEER :

100 % of Total RESIDENT ENGINEERS YEARLY QUOTE will be divided in four quarters and payable quarterly at the end of each quarter.



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l) DELIVERY SCHEDULE

The delivery and installation of all the ordered items shall be completed within 6 weeks from the date of placement of order.

m) WARRANTY / GUARANTEE

The system supplied or installed shall be guaranteed by the contractor for a minimum period of Three years in regards to quality of material, workmanship, performance, efficiency, installation, etc. Defects developed in the system within guarantee period, shall be rectified by the contractor at his own expense promptly.

n) VARIATIONS IN QUANTITY

The quantity mentioned in the Tender/Bid is only indicative one. **HIMSR** reserves the right to increase/decrease/ remove any/all quantities while placing the order. Servers, Switches, Firewall, IP Telephony, SAN Storage, OEM Licenses, Cables & Connectors, Fiber Cables, PVC channel, Fiber patch cords, etc., all passive components will be on actual basis.

During the Site Survey, the successful Bidder may suggest additional equipment which **HIMSR** may have left by oversight or which the Contractor considers essential in Project Implementation, The same may be submitted with the BOM after site Inspection. Along with justification for the same if the item is not a part of the Tender/Bid documents.

Any work not covered under this contract, but which is essentially required for the completion of job (to the satisfaction of **HIMSR**) shall be carried out by the Contractor as extra item with prior approval of **HIMSR** for which payment shall be made separately at the rates decided by **HIMSR**.



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ANNEXURE – II

TERMS & CONDITIONS OF SLA's

1. Bidder will be responsible for onsite maintenance and operations support for 3 years from the date of material delivery.
2. During the period of SLA the Vendor shall ensure proper functioning of the Jamia Hamdard Network components and keep an **uptime** of 96% {ninety nine percent} per month .

Uptime is defined as follows:

Uptime (in %) = $\frac{\text{Total no. of hours in the month of all devices} - \text{Total Downtime (in hours of all devices in average)}}{\text{Total no. of hours in the month of all devices}} \times 100$

Total No. of Hours in the month

Average uptime/downtime of each device/component as mentioned in point no 3 of this Annexure.

3. For the purpose of measurement, “**downtime**” or “**fault duration**” constitutes any period of time during which the network connection is not useable for Data, Voice & Video. Causes of downtime include:
 - Network connection equipment failures, supplied by Bidder to HIMSIR.
 - Process failure
 - Distribution & Access Switch, IP Phones, Firewall, DC Infrastructure or any other fault/failure.
 - Any failure in the entire solution provided.
 - Cable fault in the network e.g. OFC cable, internal OFC patch cords, patch panel etc.
4. If the network uptime for the applicable year is below the uptime of 98%, then a penalty .5 % of Project value will have to be paid by the Bidder. For this purpose the number of days in a year is taken as 365 leading to a total duration of 8760 hours per year..
5. All change requests will be routed to Bidder for next 3 years and will be taken care by Bidder as a part of warranty with zero Cost.



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- a. You have to share the 24*7 Helpline numbers to us. **There must an email as well as Telephone Helpline from Bidder.**
 - b. Turnaround time for completion of any Change request will be 4 hrs. **Any deviation will attract a penalty of Rs. 300 per day**
6. Vendor to depute 1 DC Server Resources with >3 years of Networking Experience for day to day operations and changes in the Network. They will report to designated team as per HIMSR IT Department instructions. The Resident Engineer will be in HIMSR on 8 x 5 – 5 days a week (Monday to Friday). They need to be Experts on the Overall SAN Storage & Server deployed and Virtualization deployments.
 7. Issue response time must be 2 hour.
 8. Issue resolution time must be same Business day. Any deviation will attract a penalty of Rs.500 Per day.
 9. You will provide one week training to IT team on the entire setup of this project.
 10. Any spare replacement will be competed in next Business day. Any deviation will attract a penalty of Rs.500 per day.
 11. The Contractor shall take immediate action to carry out any rectification work and restore the installation to its normal operating conditions upon receipt of the complaint from the officer in-charge of the END-USER or his representatives. If no action is taken to carry out the repair work within twenty four hours upon lodging of the report, the HIMSR shall reserve the right to engage a third party to carry out the rectification works with all the costs and expenses charged to the Contractor.
 12. A comprehensive SLA report must be submitted by the SI by the end of every Month.

The Standard of Service will be maintained as per TRAI Guidelines and all Govt. of India Regulations and International health and safety Standards.



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ANNEXURE – III

GENERAL INFORMATION ABOUT THE BIDDER

1.	Name Of The Bidder	
2	Postal Address	
3	Telephone no.	
4	E-mail address & URL	
5	Type of Company Attach Proof of Company Registration along with a copy of the Partnership Deed/ Article of Association and Memorandum of Understanding	
6	Name and designation of the representative of the Bidder to whom all references shall be made to expedite technical co-ordination.	
7	Amount and reference of the Tender Fee & EMD	
8	Financial capacity of the company/ firm. (Attach Proof of Turnover of 3 Years Certified copy of annual accounts)	
9	Performance Details of Company (Similar Works)	
10	Technical Resources Employed with Company	
11	PAN,TAN and GST Number (A copy should be enclosed)	
12.	List Of Clients	



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ANEXXURE - IV

SCOPE OF WORK

As a part of IT infrastructure upgrade & build up at New Hospital Block, HIMSR & HAHC, **HIMSR** desires to set up Datacenter, SAN Storage & Servers, Firewall, OFC Network Connectivity, IP Phones & upgradation of existing HIMS Software infrastructure along with related IT services using state of the art existing networking equipment integration with existing Cisco CUCM, Wireless Access Points & Switches, Fiber and UTP cabling system at **HIMSR, New Delhi**.

The following summarizes the scope of work.

1. To Implement Data Center Infrastructure with complete false flooring & ceiling, creation of HOT & COLD Aisle using N+1 Precision ACs, Fire Alarm & Fire Suppression, Biometric Access & CCTV Surveillance System at HIMSR.
2. To Supply, install and commission SAN Storage & Servers, Virtualization Solution, Wireless Controller, IP Phones and integration with existing IT Infrastructure (Wireless Access Points, Switches & IP Telephony), and all active components as per specifications.
3. To Supply, install / upgradation of HIMS Software with Migration of existing Database to Microsoft SQL Server and integration with existing IT Infrastructure as per specifications.
4. To supply, install and commission Intra building Fiber structured cabling Network for as per BOQ.

Head Finance and Administration

The above terms & conditions are accepted.

Signature

Name

Designation

Company Name

Company Seal



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ANEXXURE – V

TECHNICAL SPECIFICATIONS OF SERVER & STORAGE

Sr.no	Specifications for Hyper-Converged Systems	Compliance (Yes/No)
1	The solution should provide hyper-converged software that allows delivery of enterprise-class storage services using latest 2.x GHz, 128GB RAM, Dual 10 Core Processors, x86 server infrastructures without dependence on a separate Storage Area Network & associated components such as SAN Switches & HBAs.	
2	The proposed HCI solution should be true Software defined with required Software, there should not be any dependence on Hardware engine for Raid, Compression and De-duplication.	
3	The proposed HCI solution should be a factory shipped engineered & integrated system . All the components of HCI such should be factory installed and shipped ready for fast deployment.	
4	The proposed solution should be quoted with min 1*480 GB 2.5in Enterprise Performance 12G SAS SSD(3X endurance or better) cache disk. The solution should be capable of cache disk failure so any node's cache disk failure should not result in node failure.	
5	The proposed solution should be quoted with min 6*1.8TB 12G SAS 10K RPM SFF HDD. There should be future expansion of adding additional min 2 disks per node. The solution should have NSOF.	
6	Each server node should have dedicated redundant hot swap power supplies & cooling fans.	
7	The Hyperconverged solution should be proposed with a shared nothing (no common power supplies, networking etc.) converged node and must be provided with inline deduplication and compression. The licenses if any should be quoted from day one	
8	The applications that are not certified to run on HCI solution should be quoted on external storage. The solution should be capable for Replication factor 2 . Any license required to enable the same should be provided from day 1	
9	The HCI should be support SAS/SSD for capacity tier per server node. The HDDs should be presented via pass through mode without any hardware RAID on every server node.	
10	2*10 GBPS network ports per server node.	
11	The solution should support Single button non-disruptive rolling upgrades of HCI software and system firmware.	
12	The HCI storage should be a scale-out distributed storage.	



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13	The HCI software should pool all SSDs from all the nodes in the cluster to present a single storage cache pool across the HCI nodes.	
14	The HCI should support connecting to external 3 rd party SAN (iSCSI) and NAS (CIFS, NFS) storage into the HCI cluster for capacity expansion and ease of migration from existing environment to HCI	
15	The HCI solution should provide Inline Deduplication and compression across all storage tiers and the licenses if any should be quoted from day one with the required support	
16	HCI Solution should include Leading Virtualisation SW that sits directly on bare metal hypervisor with functionality of High Availability, Fault Tolerance, hot Add (CPU, Memory, Storage & Network), dynamic resource scheduler, distributed switch, dynamic power management, storage and network IO control,	
17	Virtualization software should allow for hot addition of vCPU, memory, disk without any downtime.	
18	The solution should provide special integration with Storage API's providing integration with supported third-party data protection solutions.	
19	Virtualization software shall be able to dynamically allocate and balance computing capacity across collections of hardware resources aggregated into one unified resource pool with optional control over movement of virtual machines like restricting VMs to run on selected physical hosts.	
20	Hypervisor should have inbuilt Distributed Switch to centralize network provisioning, administration and monitoring using data center-wide network aggregation, should provide Network QoS to define priority access to network resources.	
23	If any hardware is required for management- needs to be quoted along with the management Licenses. (as per best practice)	
24	The vendor must provide all features & license applicable in Hypervisor OS on day 1.	
25	The proposed hypervisor should support zero data loss in the event of node failure without any dependency on guest OS	
26	The vendor must provide Virtualization Software VMware vSphere for 2 Processors having 10 Cores each x 3 Nos with licenses from Day 1 with three years support.	
27	The vendor must provide vCenter license from Day 1 with three years support.	
28	The vendor must provide Guest OS Microsoft Windows 2019 Server for 2 Processors having 10 Cores each x 3 Nos licenses from Day 1 with three years support.	



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ANEXXURE – VI

TECHNICAL SPECIFICATIONS OF CORE SWITCH FOR HA

S No	Required Parameter	Compliance (Yes/No)
A	General specifications	
A1	19 Inch Rack mountable Ethernet switch.	
A3	Non-Blocking architecture	
A4	All Functionalities of Switch shall be IPv6 compliant and it should work on IPv6 Platform without any additional hardware/ software.	
A5	The offered product series and its operating system series must have achieved Common Criteria Certification of EAL2+/- NDPP or higher in the Common Criteria certification.	
A7	Switches should have rich set of API's exposed directly to augment existing Software Defined controller	
A8	Switch should be SDN ready from day 1	
B	Technical Specifications	
B1	Switch should have 24 Port 10GE fibre ports and scalable up to 32 x 10 Gig SFP+ ports	
B2	Delivers up-to 800 Gbps of switching capacity, capable of scaling up to 1.6-Tbps capacity with the VSS technology	
B3	Each port must have a dedicated LED for status display.	
B4	Delivers the network availability demanded by business-critical enterprise applications through comprehensive high-availability capabilities, including VSS and EVN	
B5	IPv4 Routing in Hardware 250 Mpps and Ipv6 up to 125 Mpps	
B6	L2 Bridging in Hardware in 250 Mpps	
B7	MAC Entries up to 55K	
B8	Should be capable of supporting L3 features like OSPF V1/V2/V3, RIP, IPV6 routing and Flexible Net flow Entries up till 128K	
B9	Proposed switch should be configured in VSS or equivalent mode with existing Cat4500-X switch	
D	Layer features	
D1	IEEE 802.1d Spanning tree protocol	
	802.1s MSTP (Multiple instances of STP)	
	802.1w RSTP (Rapid spanning tree)	
D2	802.3ad Link Aggregation	
D4	Switch should support QOS	



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	IGMP Snooping	
	Port mirroring must be available.	
D5	Switch should support static routing, Enterprise access Layer 3 RIP, EIGRP stub, OSPF for routed access, PBR, IPv4 & IPv6 EIGRP stub routing, WCCP, IPV6 URPF, IPV6 PBR, VRRPv3, Policy Classification Engine, HSRP v6	
E	Security features	
E1	MAC and 802.1 X based Login must be available	
E2	MAC Address based Lockdown and Limited Learning.	
E3	AAA using RADIUS must be available	
E4	The Switch should support MAC Security Aging	
E5	The Switch should support Port Security on Standard and Port Channel	
E6	The Switch should support IP Source Guard on standard and port Channel	
E7	DHCP snooping to allow administrator to ensure consistent mapping of IP to MAC address	
E8	Dynamic ARP protection blocking ARP broadcasts from unauthorized hosts	
E9	IP source guard to prevent IP spoofing attacks	
E10	STP BPDU port protection to prevent forged BPDU attacks.	
E11	STP Root Guard to protect the root bridge from malicious attacks or configuration mistakes.	

ANEXXURE – VII

TECHNICAL SPECIFICATIONS OF DISTRIBUTION SWITCH

S No	Required Parameter	Compliance (Yes/No)
A	General specifications	
A1	19 Inch Rack mountable Ethernet switch.	
A2	1.73 x 17.5 x 17.625 inches	
A3	Non-Blocking architecture	
A4	All Functionalities of Switch shall be IPv6 compliant and it should work on IPv6 Platform without any additional hardware/ software.	
A5	The offered product series and its operating system series must have achieved Common Criteria Certification of EAL2+/ NDPP or higher in the Common Criteria certification.	
A6	OEM End-of-sale declaration shall not have been released for the quoted model at the time of delivery.	
A7	Switches should have rich set of API's exposed directly to augment existing Software Defined controller	
A8	Switch should be SDN ready from day 1	
B	Technical Specifications	



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B1	Switch should have 48 x10/100/1000Mbps Base T ports with RJ45 Connector and have POE+ functionality	
B2	At least 8 x 10 Gigabit Ethernet with SFP+ or 8 x Gigabit Ethernet with SFP	
B3	Each port must have a dedicated LED for status display.	
B4	At least 12 M gig ports are available on day 1	
C		
C1	At least 472 Gbps or more	
C2	290 Mpps or more	
C5	Capable of provisioning 160 Gbps of dedicated stacking ports other than uplink ports for future requirement	
C6	Should be capable of supporting L3 features like OSPF V1/V2/V3, RIP, IPV6 routing.	
D	Layer features	
D1	IEEE 802.1d Spanning tree protocol	
	802.1s MSTP (Multiple instances of STP)	
	802.1w RSTP (Rapid spanning tree)	
D2	802.3ad Link Aggregation	
D4	Switch should support QOS	
	IGMP Snooping	
	Port mirroring must be available.	
D5	Switch should support static routing, Enterprise access Layer 3 RIP, EIGRP stub, OSPF for routed access, PBR, IPv4 & IPv6 EIGRP stub routing, WCCP, IPV6 URPF, IPV6 PBR, VRRPv3, Policy Classification Engine, HSRP v6	
E	Security features	
E1	MAC and 802.1 X based Login must be available	
E2	MAC Address based Lockdown and Limited Learning.	
E3	AAA using RADIUS must be available	
E4	The Switch should support MAC Security Aging	
E5	The Switch should support Port Security on Standard and Port Channel	
E6	The Switch should support IP Source Guard on standard and port Channel	
E7	DHCP snooping to allow administrator to ensure consistent mapping of IP to MAC address	
E8	Dynamic ARP protection blocking ARP broadcasts from unauthorized hosts	
E9	IP source guard to prevent IP spoofing attacks	
E10	STP BPDU port protection to prevent forged BPDU attacks.	
E11	STP Root Guard to protect the root bridge from malicious attacks or configuration mistakes.	
F	Operational feature sets	



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F1	The switch shall be powered with 230 V AC power supply. Capable of providing 1+1 internal redundant power supply.	
F2	All the licenses required to implement the features specified in this document shall be provided.	
F3	The switch shall conform to IEC-60950/CSA-60950/EN-60950/UL- 60950 standard for safety requirements of information technology equipment.	
F4	The Offered equipment shall have FCC Part 15 (CFR 47) Class A certification or equivalent international certification for electromagnetic interference.	
G	Management	
G1	Configuration and management through the CLI, GUI, console, Telnet and SSH	
G2	Switch should support SSHv2.	
G3	Switch should support SNMPv2c, SNMPv3 and Remote monitoring (RMON).	
G4	Network Time Protocol(NTP) or equivalent support	
G5	Switch should support AAA using RADIUS and TACACS+.	
G6	Switch should support software upgrades via TFTP or FTP	
G7	Software Defined Networking Ready with Open flow protocol support	
G8	Switch Shall have Switch Port Analyser (SPAN) and Remote Switch Port Analyser (RSPAN).	
G9	Switch shall have secure VTP with MD5 protocol or equivalent support to reduce administrative burden of configuring VLANs on multiple switches in turn eliminating the configuration errors & troubleshooting in secure manner.	
G10	Switch shall have Layer 2 trace route for ease of troubleshooting by identifying the physical path that a packet takes from source to destination.	
G11	Switch shall have Internet Group Management Protocol (IGMP) Snooping for IPv4 and IPv6.	
G12	Switch shall have Multicast Listener Discovery (MLD) v1 and v2 Snooping	
G13	IEEE 802.1 ab Link Layer Discovery Protocol (LLDP) support	
G14	Shall support multicast VLAN Registration protocol.	
G15	Shall support Voice VLAN feature to automatically assigns VLAN and priority to devices like IP phones.	
G16	Shall have the capability to monitor link connectivity and shutdown ports at both ends if unidirectional traffic is detected, preventing loops.	
G17	Switch shall have Per-port broadcast, multicast and unicast storm control.	
G18	Link Aggregation Control Protocol (LACP)	
G19	Port Aggregation Protocol (PAgP) and Dynamic Trunking Protocol (DTP) or <u>equivalent</u> .	
G20	Should support Time Domain Reflector (TDR) or <u>equivalent</u> feature to diagnose and resolve cabling problems.	



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ANEXXURE – VIII

TECHNICAL SPECIFICATIONS OF ACCESS POE SWITCH

S. No.	Generic Requirements	Compliance (Yes/No)
1	Architecture	
1.1	Shall be 1 RU, 19" Rack Mountable	
1.2	Switch should have minimum 24 nos. 10/100/1000 Base-T ports with additional 2 nos. SFP+ uplink ports	
1.3	Switch should have one dedicated slot for stacking and should support minimum 48 Gbps of stacking bandwidth with dedicated stacking ports and cables with minimum 9 switches in stack.	
1.4	Switch should support internal/external redundant power supply.	
2	Performance Requirements	
2.1	Switch shall have minimum 50 GBPS of switching fabric and 41 Mpps of forwarding rate.	
2.2	Shall have minimum 16K MAC Addresses.	
2.3	Shall have minimum 1000 Active VLANs and 4,096 VLAN Ids support	
3	IEEE Standards	
3.1	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.	
4	Quality of Service (QoS) requirements and Security Features	
4.1	Shall have 802.1p class of service, IP differentiated service code point (DSCP) and IP precedence.	
4.2	Switch should support marking, classification, policing and shaping. Should support strict priority queuing.	
4.3	Switch should support port security.	
4.4	DHCP snooping to allow administrator to ensure consistent mapping of IP to MAC address	
4.5	Dynamic ARP protection blocking ARP broadcasts from unauthorized hosts	
4.6	IP source guard to prevent IP spoofing attacks	
4.7	STP BPDU port protection to prevent forged BPDU attacks.	
4 S	STP Root Guard to protect the root bridge from malicious attacks or configuration mistakes.	
4.9	IPv6 First Hop Security.	
4.1	Should support 802.1x authentication and accounting with Dynamic VLAN assignment.	



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4.11	Switch should support IPv4 and IPv6 ACLs, VLAN, Port and Time based access list with time ranges.	
5	System Management and Administration	
5.1	Configuration and management through the CLI, GUI, console, Telnet and SSH	
5.2	Switch should support SSHv2.	
5.3	Switch should support SNMPv2c, SNMPv3 and Remote monitoring (RMON).	
5.4	Network Time Protocol(NTP) or equivalent support	
5.5	Switch should support AAA using RADIUS and TACACS+.	
5.6	Switch should support software upgrades via TFTP or FTP	
5.7	Software Defined Networking Ready with Open flow protocol support	
5.8	Switch Shall have Switch Port Analyser (SPAN) and Remote Switch Port Analyser (RSPAN).	
5.9	Switch shall have secure VTP with MD5 protocol or equivalent support to reduce administrative burden of configuring VLANs on multiple switches in turn eliminating the configuration errors & troubleshooting in secure manner.	
5.1	Switch shall have Layer 2 trace route for ease of troubleshooting by identifying the physical path that a packet takes from source to destination.	
5.11	Switch shall have Internet Group Management Protocol (IGMP) Snooping for IPv4 and IPv6.	
5.12	Switch shall have Multicast Listener Discovery (MLD) v1 and v2 Snooping	
5.13	IEEE 802.1 ab Link Layer Discovery Protocol (LLDP) support	
5.14	Shall support multicast VLAN Registration protocol.	
5.15	Shall support Voice VLAN feature to automatically assigns VLAN and priority to devices like IP phones.	
5.16	Shall have the capability to monitor link connectivity and shutdown ports at both ends if unidirectional traffic is detected, preventing loops.	
5.17	Switch shall have Per-port broadcast, multicast and unicast storm control.	
5.18	Link Aggregation Control Protocol (LACP)	
5.19	Port Aggregation Protocol (PAgP) and Dynamic Trunking Protocol (DTP) or equivalent.	
5.20	Should support Time Domain Reflector (TDR) or equivalent feature to diagnose and resolve cabling problems.	
6	Regulatory Compliance	
6.1	Switch shall conform to UL 60950 or IEC 60950 or CSA 60950 or EN 60950 Standards for Safety requirements of Information Technology Equipment.	
6.2	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.	



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7	Evaluation Compliance	
7.1	Switch / Switch's Operating System should be tested and certified for EAL 2/NDPP or above under Common Criteria Certification.	
7.2	Switch should be IPv6 Certified/IPv6 logo ready.	
8	Warranty and Support	
	The below warranty shall be offered directly from the switch OEM.	
8.1	3 year support and warranty with advance replacement and next business day delivery.	
8.2	Vendor has to provide certificate of valid authorisation from the OEM company. The OEM shall take the overall the responsibility of the Vendor. This undertaking should also clearly mention that the spares availability will be ensured for at least five years in future.	

ANEXXURE – IX

TECHNICAL SPECIFICATIONS OF IP PHONE WITH LICENSES

Sr.no	Feature description	Compliance (Yes/No)
1	The phone should support at least 1 line.	
2	It should support the following codec G.711a/μ, G.729a	
3	It should have graphical display with a minimum resolution of 128 x 32 pixels	
4	The phone should support QoS mechanism through 802.1p/q.	
5	Should have built-in high-quality full-duplex speakerphone	
6	Should include audio controls for the full-duplex speakerphone and handset.	
7	IP address Assignment by DHCP or statically configured	
8	The Phone should support the ability to provide different ringtones for internal and external calls.	
9	Should have volume control button for easy decibel-level adjustments for the speakerphone, handset and ringer.	
10	The phone should support mounting against a wall	
11	The phone should support IPv4 and IPv6 from day1.	
12	The phone should support Power over Ethernet IEEE 802.3af class 1/2/3 and should also have AC power adapter option	
13	The phone should be a SIP based Phone i.e. session Initiation protocol (SIP) supported	



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14	The phone should provide basic 3-way conferencing	
15	The phone should support at least 50 entries for call history i.e. missed, received, placed etc.	
16	Should have keys for specific functionalities such as – Redial, settings, transfer, speakerphone, mute on/off, hold/resume	
17	Should have 4 MB flash memory and 30 MB or more SDRAM.	

ANEXXURE – X

TECHNICAL SPECIFICATIONS OF VIDEO CONFERENCING SYSTEM

Sr. no	Item	Feature description	Compliance (Yes/No)
1	Video		
	Video Standards	H.264, H.265	
	Video Frame Rate	Should support 60 fps with 1080p resolution.	
2	Video Features	Ability to send and receive two live simultaneous video sources in a single call, so that the image from the main camera and PC or document camera can be seen simultaneously.	
		Should support H.239 and BFCP protocols	
	Video Output	Should have at least 3 no.'s of HD (High Definition) output to connect Full High Definition display devices such as plasma and projectors for both Video and content.	
		The unit must provide the flexibility to display video or content one any of the video output.	
	Video Input	Should have one DVI (Digital Video Interface) input to connect PC/ Laptop directly to the Video conferencing system and display resolutions from WXGA (1280 x 768) to 1080p (1920 x 1080)	
		Should have at least 3 HDMI inputs to connect multiple HD cameras.	
		Support for 1080p 60fps has to be present on the HDMI inputs	
		The system must have the ability to pair mobile devices such as Tablets and Smartphones based on iOS or Android platforms so that these devices can be used for: 1) View the Presentation that is being shown in the VC call. 2) Add and disconnect call. 3) Take snapshot of the presentation being shown	
		The system must have the ability to pair with laptop for sending content without any wires to the VC system	



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3	Other Desirable features	Noise Reduction, Automatic Gain control, Acoustic Echo Canceller, Active Lip synchronization	
	Audio Inputs	should support 6 Microphone inputs to connect 6 microphones.	
		The system must have the capability to mix the audio from all the microphones and the line input and send the same to the far end side.	
		In case the audio mixing capability is not possible as a built-in feature, an additional external mixer may be supplied to provide audio mixing function.	
		The pickup of the microphones should be at least 10 feet from the microphone.	
		Echo Cancellation for every input must be available.	
4	Audio Outputs	Should support digital main audio output with the HDMI interface	
5	Network Interfaces	1 LAN /Ethernet--10/100/1000 Mbps full duplex	
6	Bandwidth	H323/SIP up to 6 Mbps point-to-point.	
7	Network Capabilities	Packet Loss Based Down speeding	
8	H.323/ IP Features	QOS--DiffServe	
		IP adaptive bandwidth management (including flow control)	
		Auto Gatekeeper discovery	
		Auto Network Address Translation(NAT) support	
		Standards based- Packet Loss Recovery feature	
		Should support URL Dialling	
		Support for H.245 DTMF tones in H.323	
		Must support IPv4 and IPv6 from day one.	
9	Security		
	Menu Control	Password protected system menu	
	Encryption of video call	ITU-T standards based Encryption of the video call	
		Call should be encrypted end-to-end on IP	
		Should support Standards-based: H.235 v2 & v3 and AES Encryption via Automatic key generation and exchange. The same should be available in a call with Video with presentation (dual video)	
		Ability to manually turn encryption On or OFF should be there.	
		Automatic key generation and exchange	
10	Camera		
		Should consists of High Definition 1080p@60fps Camera that can be connected simultaneously to the unit.	
		Camera must have the ability to be mounted upside down so as to give better eye-eye contact.	



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		The following technical features of the camera must be provided:	
		Minimum of 10 x optical zoom	
		1920 x 1080 pixels progressive @ 60fps	
		Must have a PTZ camera with +15°/-25° tilt, +/- 90° pan	
		The Camera and codec should be from the same manufacturer.	
		Should have at least 72 degrees static field of view.	
11	Directory services		
		Should support Local and Global directories	
		Should support LDAP and H.350 protocols for directory transfer.	
12	External devices		
		Should have USB port to connect external devices.	
		Should have RS232 port for management.	
13	Multipoint Capability		
		Must have built-in Multi conference capability to connect at least 1+4 sites at 720p in a continuous presence mode	
		All sites must be visible in a continuous presence mode with rate matching and transcoding such that different sites may connect at different speeds and protocols and still maintain a resolution of at least 720p	
14	User Interface		
		In order to provide a good user experience, the unit must be equipped with an intuitive Touch Screen/Panel for controlling the VC unit.	
		Must have ability to browse the directory, search a contact, Enable / disable speaker tracking, change layouts, mute/ unmute, increase-decrease volume.	
		Must have the capability to integrate with external control systems to control Blinds, Lights, air conditioning using the API's . The User interface must have the necessary icons for controlling the external devices	



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ANEXXURE – XI

TECHNICAL SPECIFICATIONS OF NETWORK FIREWALL

S. No.	Generic Requirements	Compliance (Yes/No)
1	Industry Certifications and Evaluations	
	The Firewall solution offered must be rated as 'leaders' or 'Challengers' in the latest Magic Quadrant for Enterprise Firewall published by Gartner.	
2	Hardware Architecture	
	The appliance based security platform should be capable of providing firewall, AVC and IPS functionality in a single appliance	
	The appliance should support at least 8 * 10/100/1000 Gigabit ports from Day one & optional 4 GE SFP Ports for Fibre connectivity	
	The appliance hardware should be a multicore CPU architecture with a hardened 64 bit operating system to support higher memory	
	Proposed Firewall should not be proprietary ASIC based in nature & should be open architecture based on multi-core cpu's to protect & scale against dynamic latest security threats.	
3	Performance & Scalability	
	Should support 450 Mbps of real-world NGFW (FW, AVC and IPS) performance / throughput	
	Firewall should support at least 250,000 concurrent sessions with application visibility turned on	
	Firewall should support at least 8,000 connections per second with application visibility turned on	
4	Firewall Features	
	Firewall should support creating access-rules with IPv4 & IPv6 objects, user/groups, application, geolocation, url, zones, vlan, etc.	
	Firewall should support manual NAT and Auto-NAT, static Nat, dynamic Nat, dynamic pat	
	Firewall should support Nat66 (IPv6-to-IPv6), Nat 64 (IPv6-to-IPv4) & Nat46 (IPv4-to-IPv6) functionality	
	Should support Static, RIP, OSPF, OSPFv3 and BGP, BGPv6	
	Should support Multicast protocols like IGMP, PIM, etc.	
	Should support capability to integrate with other security solutions to receive contextual information like security group tags/names	
	Should have the capability of passively gathering information about virtual machine traffic, network hosts and their activities, such as operating system, services, open ports, client applications, and vulnerabilities, to assist with multiple activities, such as intrusion event data correlation, elimination of false positives, and policy compliance.	
	Solution must be capable of passively gathering details unique to mobile devices traffic to identify a wide variety of mobile operating systems, mobile applications and associated mobile device hardware.	



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	Should support more than 3000 (excluding custom application signatures) distinct application signature as application detection mechanism to optimize security effectiveness	
	Should be capable of dynamically tuning IDS/IPS sensors (e.g., selecting rules, configuring policies, updating policies, etc.) with minimal human intervention.	
	Should support more than 25,000 (excluding custom signatures) IPS signatures or more	
	Should be capable of automatically providing the appropriate inspections and protections for traffic sent over non-standard communications ports.	
	Should be able to link Active Directory and/or LDAP usernames to IP addresses related to suspected security events.	
	Should be capable of detecting and blocking IPv6 attacks.	
	Should support the capability to quarantine end point by integrating with other security solution like Network Admission Control	
	Solution should support full-featured NBA capability to detect threats emerging from inside the network. This includes the ability to establish “normal” traffic baselines through flow analysis techniques (e.g., Net Flow) and the ability to detect deviations from normal baselines.	
	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	
	Solution must support IP reputation intelligence feeds from third party and custom lists of IP addresses including a global blacklist	
	Should must support URL threat intelligence feeds to protect against threats	
	Should support Reputation- and category-based URL filtering offering comprehensive alerting and control over suspect web traffic and enforces policies on more than 280 million of URLs in more than 80 categories.	
	Should support safe search for YouTube EDU enforcement	
	The Appliance OEM must have its own threat intelligence analysis centre and should use the global footprint of security deployments for more comprehensive network protection.	
	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.).	
	Should be able to identify attacks based on Geo-location and define policy to block on the basis of Geo-location	
	The detection engine should support the capability of detecting variants of known threats, as well as new threats	



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	The detection engine must incorporate multiple approaches for detecting threats, including at a minimum exploit-based signatures, vulnerability-based rules, protocol anomaly detection, and behavioural anomaly detection techniques. Identify and explain each type of detection mechanism supported.	
	Should support Open based Application ID for access to community resources and ability to easily customize security to address new and specific threats and applications quickly	
5	Management	
	The management platform must be accessible via a web-based interface and ideally with no need for additional client software	
	The management platform must provide a highly customizable dashboard.	
	The management platform must be capable of integrating third party vulnerability information into threat policy adjustment routines and automated tuning workflows	
	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.	
	Should support troubleshooting techniques like Packet tracer and capture	
	Should support REST API for monitoring and config programmability	
	The management platform must provide multiple report output types or formats, such as PDF, HTML, and CSV.	
	The management platform must support multiple mechanisms for issuing alerts (e.g., SNMP, e-mail, SYSLOG).	
	The management platform must provide robust reporting capabilities, including a selection of pre-defined reports and the ability for complete customization and generation of new reports.	
	The management platform must risk reports like advanced malware, attacks and network	
	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.	



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ANEXXURE – XII

TECHNICAL SPECIFICATIONS OF NETWORK MANAGEMENT SYSTEM

S. No.	Generic Requirements	Compliance (Yes/No)
1	NMS License should be device based	
2	Must be licensed for Management & Monitoring at least 100 nos. of devices.	
3	Must be licensed for Configuration download at least 100 nos. of devices.	
4	Should provide the following features	
5	Network mapping and discovery software using layer 2/ Layer 3 protocol for minimum 100 devices	
6	Integrated Performance Information, from single interface	
7	It should be able to manage all the vendors in the leader quadrant for both switches and routers.	
8	NMS should be able to configure, manage, provide audit-trails of all the switch's, wireless infrastructure, NAC,WAN, NAC & router infrastructure from single console	
9	NMS should be able to do a major inventory collection and full config archive.	
10	NMS should be able to detect the high-availability mode on core switch's.	
	Discovery Features:	
6	Supports Device 360 Degree View	
7	Support for SNMP v1-3, IPv4/IPv6 address range, SNMP Smart scan, hosts file	
8	Scheduled discovery scans & Web-based discovery	
9	Network assurance for wireless network which includes Client Health Scoring, WLC Health Scoring and Clients coverage information.	
	Mapping Features:	
9	Automated map creation	
10	Customizable topology maps	
11	Multi-level topology views	
	Monitoring Features:	
13	Real-time monitoring	
14	Able to support instant diagnosis of the node status through Ping, SNMP Walk / Mib walker, Telnet, SSH, Trace route	
15	Wireless Infrastructure Monitoring, Alerting and Reporting	
16	Custom monitoring with Jscript, VBScript or Python Script and others	
17	Threshold monitoring (Performance, Passive)	
18	Blackout period to suspend specific actions during the scheduled period of time	
19	Management Console with reporting tool, Alerts Notification and Multilevel escalation notification	
20	Web and Windows based management console	
21	Alert Centre for centralized alerts/notifications escalation management	



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23	Configurable Alert and Notification escalation policies	
24	Configurable role based management and solution should have integration between NAC and NMS	
25	Scheduling of recurring reports	
26	Report export to: email, Excel®, and PDF formats	
27	Pre-defined and customizable reports	
28	Configurable alert thresholds	
29	Support of wild card search for device configuration, inventory or other device specific information	
30	Network Discovery	
31	Visual Mapping.	
32	Based upon discovery, should be able to automatically generate integrated network topology maps showing both Layer 3 addressing and Layer 2 connectivity.	
33	Inventory and Configuration	
34	Agentless scans for inventory control.	
35	Should collect and store comprehensive hardware inventory and configuration information for all networking devices	
36	Single point Console for Managing network discovery, creation and administration of maps, to access detailed device inventory and configuration information.	
37	User Defined Device Categories	
38	Should provide the users to have the ability to define, edit, add or delete device categories from auto discovered connected devices.	
39	Should support both LAN or WAN connectivity	
40	Should display in-bound & out-bound interfaces for each network device in the path	
41	IP/Mac Finder	
42	Should provide IP/Mac finder tool to locate an IP or Mac address on a network from console	
43	It must work collectively in a heterogeneous group of devices make of different OEMs	
44	Configuration management for download current running configuration, scheduled download of configuration file from network devices, support base-lining of specific version of the running configuration file. Tool should support comparison of different versions of the configuration file of a device or across devices	
45	GUI based VLAN Management functionality	
46	Single interface management of NMS and it's plug-ins	
47	Email Alert on configuration changes	
48	Provide methods to send the reports by email to specific user or portal users and option should be available to store reports on any specified hard-disk destination	
50	Able to collect Syslog based events generated from standard network elements	



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ANEXXURE – XIII

TECHNICAL SPECIFICATIONS OF PRECISION AIR CONDITIONING AND DATACENTRE ENVIRONMENT MONITORING

S. No.	PAC Specifications	Compliance (Yes/No)
1	2.0Tr / 3.0Tr Precision Air Conditioning units with hydrophilic coating on indoor coil shall be able to maintain 23.0+-1 Deg C and 50% +- 5% Rh of UPS/Server Room at Outdoor ambient condition @ 45.0 Deg C.	
2	Wall Mounted top discharge Precision Air conditioning Unit of 2.0TR / 3.0TR at 45 degree ambient temperature with fixed compressor, Electronic expansion valve, DIDW plug type indoor fan with forward curved centrifugal type EC fan, units must have heater & with humidifier to work efficiently in Server Room, condensing unit and R407c refrigerant.	
3	PAC units must have SNMP Card for Remote monitoring	
B	Low Side accessories and Installation & Commissioning: -	
1	Indoor unit stand duly painted along with fitting, accessories, bolts and vibration pads	
2	Outdoor unit Stand duly painted along with fitting, accessories, bolts and vibration pads.	
3	Installation and Commissioning and Lifting, shifting & positioning of units to site.	
4	R 407c Refrigerant Gas - Duo-point	
5	Interconnecting Copper piping between indoor & outdoor unit. Copper piping will be duly insulated with nitrile rubber insulation in building area. Density of insulation shall be as per specification. Note:- Insulation to be provided in pipes running in AC areas only.	
6	Suitable Hot gas line & Liquid line - Hard Copper piping with necessary support, fitting and accessories without cable tray - 18G	
7	Communication Cables 3cx10 sq.mm running between indoor and outdoor units with fitting and accessories	
8	Incoming Copper Cabling 4cx16sqmm from Incoming Isolator to PAC Unit	
9	32mm HDPE drain pipe with necessary arrangement and insulation in building area.	
10	Minor civil work like opening & closing of wall for copper piping & cable route	
11	Supply & Installation of raised Flooring, False Ceiling at Datacentre space will in Bidder's Scope.	
12	Datacentre Environment Monitoring includes temperature, humidity, Fire Protection & Suppression, biometric & Access Control, CCTV Camera will be in Bidders Scope.	



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ANEXXURE – XIV

TECHNICAL SPECIFICATIONS OF 10KVA ONLINE UPS

Sr.no.	Features	Specification	Compliance (Yes/No)
1	UPS should support High Frequency and double conversion True Online Technology,		
2	UPS should have Digital Signal Processor & IGBT inverter control technology.		
3	Should be Fully digitalized microprocessor controlled		
4	Should have Wide input voltage range		
5	Should be Highly Efficient $\geq 92\%$		
6	Should have High input power factor > 0.99		
7	Should have Input current harmonic $< 5\%$		
8	Should have readable LCD display		
9	Should support Cold start		
10	Should have Advanced battery management		
11	Should have Automatic battery charge in UPS OFF mode		
12	Should have Short circuit & overload protection.		
13	Should have EMI/RFI noise filter.		
14	Should have High reliability digital control		
15	Should have Full protection function		
16	Should have Hot Swappable Battery pack		
	INPUT		
17	Capacity (VA/Watts)	10000 / 9000	
18	Nominal Voltage	220/230/240VAC, 1-Ph	
19	Operating voltage range	110 ~280VAC	
20	Operating frequency range	50Hz: 45~55Hz ; 60Hz: 54~66Hz (auto sensing)	
21	Power factor	≥ 0.99	
	OUTPUT		
22	Output voltage	220/230/240Vac $\pm 1\%$	
23	Output frequency	+/- 1%, +/- 2%, +/-3%, +/- 4%, +/- 5%, +/- 10% of the rated frequency(optional); 50Hz/60Hz $\pm 0.2\%$ on Battery mode	
24	Power Factor	0.8/0.9 (Optional)	
25	Output voltage THD	$\leq 2\%$ (linear load), $\leq 5\%$ (Non Linear Load)	
26	Crest Factor	3:1(max)	
27	Efficiency	$\geq 92\%$	
	BATTERY		
28	DC Voltage	192Vdc/ 216 & 240 Vdc (Optional)	
29	Charge Current	10A (Max)	
30	Typical recharge time	6~8 Hours(to 90% of full capacity)	
	SYSTEM FEATURES		



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31	LCD indication	<ol style="list-style-type: none"> 1. Input voltage, input frequency, output voltage, output frequency, load watt / VA and percentage, battery voltage, inverter temperature 2. Operation mode such as “on line”, “on batt”, or “or bypass” 	
32	LED indication	Line mode, Backup mode, Bypass mode, Battery low, Overload & UPS fault	
33	Overload capability	<ol style="list-style-type: none"> 1. Load <=110% for 60mins; 2. Load <= 125% for 10mins; 3. Load <= 150% for 1 min 	
34	Transfer time	Utility to battery : 0ms ; Utility to bypass:0ms	
35	Protections	<ol style="list-style-type: none"> 1. Short circuit: Hold Whole system 2. Overload : UPS Shutdown immediately beyond rated 3. Overheat: Line mode:- Switch to bypass; Back up mode:- Shut down UPS immediately 4. Low battery voltage: Alarm & switch off 	
36	Communication interface	RS232 ; SNMP (optional)	
	ENVIRONMENTAL		
37	Operating temperature	0~40°C	
38	Storage Temperature	-25~55 °C	
39	Humidity range	0%~95% (non-condensing)	
40	Altitude	<1500m	
41	Noise Level	<55dB	
	STANDARDS		
42	Safety	IEC/EN62040-1; IEC/EN60950-1	
43	EMC	IEC/EN62040-2;IEC61000-4-2;IEC61000-4-3;IEC61000-4-4;IEC61000-4-5;IEC61000-4-6;IEC61000-4-8	



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ANEXXURE – XV

TECHNICAL SPECIFICATIONS OF DESKTOP

Sr.no.	Technical Specification of Desktop		Compliance (Yes/No)
1	MOTHERBOARD	Suitable for Processor	
2	PROCESSOR	Intel CORE i5-2500 3.30GHZ Processor	
3	FSB SPEED	1333 MHz	
4	OPERATING SYSTEM	Windows 10 Professional (64-bit)	
5	CHIPSET	Intel Q67 Express or Better	
6	MEMORY	8GB DDR3-1333 (2 x 4GB)	
7	MEMORY SLOTS	4	
8	HARD DRIVE	1TB 6GB/S NCQ 7200RPM SATA or 120GB SATA Solid State HD	
9	AUDIO	Intel Integrated High Definition audio	
10	GRAPHICS	Integrated	
11	LAN	Gigabit	
12	I/O PORTS	4 – USB 2.0 ports (Rear)	
		2 – USB 2.0 ports (Front)	
13	Display	19.5 Inch or Better	



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ANEXXURE – XVI

TECHNICAL SPECIFICATIONS OF PASSIVE OPTICAL COMPONENTS

S. No	Technical Specification		Compliance (Yes/No)
Technical Specifications Optical Fibre Armoured Single-Mode OS2			
1	Cable Type	Optical fibres in water blocked loose tube, taped, corrugated steel tape armoured (STA) polyethylene (HDPE) outer sheathed embedded with two steel wires on the periphery. The cables are with UV Stabilized PE Jacket and protected from Rodent attacks. Complying to ISO/IEC 11801, EN50173, ANSI/TIA 568-C.3,Telcordia GR-20; suitable for use in indoor / outdoor ducts, direct burial and backbone cabling	
2	Fibre Type	Single Mode, 9/125 micron primary coated buffers, OS2 (IEC 60793-2-50, B1.3 and ITU T G652.d). Shall be manufactured using Vapor Axial Deposition technology.	
3	Construction type		
	Tube:	Polybutylene, Terephthalate(PBT)	
	Tube colour:	White	
	Tube diameter	3.0/2.0 mm nominal OD/ID	
	No of fibres:	6	
	Fibre colour sequence	Blue, Orange, Green, Brown, Slate (Grey), White, Red, Black, Yellow, Violet, Pink, Aqua	
	Water Blocking	Thixotropic Gel (Tube) Petroleum Jelly (Interstices)	
	Core Wrapping	Polyethylene Terephthalate	
	Armouring:	Corrugated Steel Tape Armour (ECCS Tape) Thickness > 0.125mm	
	Peripheral Strength Member	Two Steel wires (0.9 mm dia)	
	Ripcord:	Polyester based yarns below armoured tape for easy ripping	
	Outer Sheath	UV Stabilised Polyethylene (HDPE)	
	Sheath thickness	2.0 mm nominal	
	Sheath colour	Black	



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4	Standards	Complying to ISO/IEC 11801 2nd Edition, type OS1/OS2; AS/ACIF S008; AS/NZS 3080 ; TIA/EIA 568.C.3; IEC-60793-1, 60793-2, EN50173, ANSI/TIA 568-C.3, Telcordia GR-20; suitable for use in indoor / outdoor ducts, direct burial and backbone cabling	
5	Mechanical characteristics		
	Dimensions and Mass Overall Cable (Nominal):	9.0 MM	
	Mass (Nominal)	80 kg/km	
	Cable length	2 km \pm 10%	
	Max. Bending Radius (during installation)	20 X Overall diameter	
	Max. Bending Radius (during full load):	10 X Overall diameter	
	Max. Tensile Strength-Short Term	1500N	
	Max. Crush Resistance-Short Term:	2000N/10 cm	
	Operating Temperature range	-40°C \pm 70°C	
6	Optical characteristics		
	Core Diameter @ 1310nm	9 + 0.6 μ m	
	Cladding Diameter	125 + 1.0 μ m	
	Cladding Non circularity	< 1.0 %	
	Core Non circularity	< 6.0 %	
	Core-Cladding Concentricity error	< 0.6 μ m	
	Primary Coating Diameter-uncoloured	245 + 10 μ m	
	Primary Coating Diameter-coloured	250 + 15 μ m	
	Primary Coating Non Circularity	< 6.0 %	
	Primary Coating Cladding Concentricity error	< 12.5 μ m	



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	Proof Stress Level	> 0.7 (~ 1%) GPA	
	Strip Force (Peak):	$1.0 < F_{\text{peak. Strip}} < 8.9$	
	Zero dispersion wavelength	1310-8/+12 nm	
	Zero dispersion slope	> 0.091 ps/(nm ² .km)	
	Fibre curl:	> 4 m-radius of curvature	
	Cut-off wavelength	< 1260 nm	
	Mode field diameter at 1310	$9.3 \pm 0.5 \mu\text{m}$	
	Mode field diameter at 1550	$10.4 \pm 0.8 \mu\text{m}$	
	Macro bending loss @ 1550 nm, 100 turns on a 60mm mandrel	<0.5 dB	
	Max (chromatic)dispersion:		
	@ 1270-1340nm	<5.3ps/nm-km	
	@ 1285-1330nm	<3.5ps/nm-km	
	Polarisation mode dispersion (PMD)		
	coefficient, cabled	< 0.5 ps/sq. km)	
	PMD Link Design Value	< 0.2 PS/sq. km) RoHS Complaint	
7	Electrical/Optical Characteristics		
	Attenuation	Characteristics - Optical Performance Max. Attenuation (Cable with fibres) At 1310 nm: 0.35 dB/km At 1550 nm: 0.22 dB/km Max. Average Attenuation; At 1310 nm: 0.33 dB/km At 1550 nm: 0.21 dB/km	
Technical Specifications of 24 Port Rack Mount Fibre Panel			
1	Rack Mount	Lockable 19" rack mounted with 1U height, Sliding Drawer Type with 4 Cable entry/exit points (covered with rubber grommets)	
2	Material	Powder coated mild steel	



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3	Accommodation and Supports	Accommodation of single mode cable multimode fibres Capable of supporting SC and LC interface - For 24 Port with SC Coupler Configurable. Fits up to four 6 pack plates/Angled 6 pack plates Management rings within system to accommodate excess fibre bend radius.	
4	Compatibility	Labelling for port identification, Fibre Management rings to accommodate excess fibre cordage behind the trough adapters and maintain fibre bend radius	
Technical Specifications of Optical Fibre Adapter Plates			
1	Features and Benefits	Molex's Optical Fibre Adapter Plates are modular platform that is compatible with a various Molex Enclosures and Fibre Splicing Systems. Adapter density ranges from 6 fibres to 24 fibre per plate, allowing for 1U 96 fibre density. Available in a variety of connectors and performance levels, the Molex Plates require no tools for installation	
		From 6 Fibre to 24 Fibre Density – Allows you to reuse your existing enclosure and increase your fibre count to meet demand	
		Greater Asset Utilisation – Easily Expandable – allows multiple generational uses of the enclosure for the same rack area. Our blank plates and a small profile plate ensures you only pay for the adapters you need.	
		Snap Rivets – allows for easy installation and removal	
		100% Factory Tested – Guaranteed performance	
2	Commercial Standards	ISO/IC 11801, ANSI/TIA/EIA 568.B.3-2000, ANSI/TIA/EIA-492, TELECORDIA GR-409, ICEA-596	
3	Mechanical Characteristics	Dimensions: 86 x 33mm	
		Plate Material: Black Electroplate or Thermoplastic	
Technical Specifications of Pigtail			
	Type of connectors	SC / LC LSOH Jacket - Reduces toxic / corrosive	
	Length	1.5 Mtrs	
	Polishing	100% Factory polished, tested and Guaranteed Performance	
	Standards	ROHS Compliant	
Technical Specifications of LC-LC Single Mode OFC Patch Cords 9/125 Micron			
1	Type of connectors	SC or LC LSOH Jacket - Reduces toxic / corrosive	
2	Length	Minimum 1 meters	
3	Polishing	100% Factory polished and tested	



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4	Insertion Loss	Less than 0.35dB per connector	
5	Attenuation	0.4dB/km over 1310nm to 1625nm	
6	Standards	ROHS Compliant	
7	Jacket colour	Industry Standard Colour - OS1-Yellow, OM3-Aqua, OM2-Grey, OM1-Orange	
8	Make and Type	SC to LC Duplex Fiber Optic Patch Cord 9/125 Micron	
9	Cable Sheath	LSZH	
10	Cable Diameter	1.6 mm	
11	Ferrule	Ceramic	
12	Buffer	Tight buffered	
13	Temperature Range	.-40 Degree C to +85 Degree C	
14	Buffer Diameter:	900µm	
15	Primary Coating :	245µm	
16	Strength Member:	Aramid Yarn	
17	Jacket Material:	LS0H IEC 61034-1 & 2, IEC-60332-1, IEC-60754- 1 & 2	
Technical Specifications of 12 / 24 Port Rack Mount Fibre LIU			
1	Material	Powder coated CRS-Cold Rolled Steel Body.	
2	Versatile Compatible	Dual Support - Rack or Wall Mountable	
3	Coupler Compatible	Fibre Panel should accommodate with compatible SC Duplex and LC Quad Couplers	
4	Type	Removable Lid also affords protection to the interface patch cords and Contains management rings to accommodate excess fibre cordage and maintain bend radius	
5	Labelling	Adhesive labelling for easy port identification	
6	Compliance	ROHS Compliant	
Technical Specifications of Duplex Single Mode Adapter / Coupler			
1	Type	SC, Should be compatible with unloaded Fibre Panel (ordered separately)	
2	Standards	NTT-SC and Bell core 326 Compliant Connectors standards	
		Meets TIA/EIA 568-B.3 and IEC 874-109 standards	
3	Compliance	ROHS Compliant	

Signature of Bidder with Company Stamp



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ANEXXURE - XVII

CHECK LIST

To ensure that your offer submitted to HIMSR is complete in all respects, please go through the following checklist & tick mark for the enclosures attached with your offer:

Sr.no	DESCRIPTION	ENCLOSED	FLAG / PAGE NO.
1	General Information about Bidder		
2	Tender Fees for Rs.2,000/-		
3	Earnest Money Deposit of Rs.5,00,000/- (Five Lakhs Only) in the prescribed form		
4	Tender/Bid document duly signed & sealed on every page, as a confirmation of acceptance of the terms & conditions of the Tender/Bid.		
5	The bidder must be registered with the Registrar of Companies and with the Sales Tax Department. Copies of necessary supporting documents like GST Certificate and Pan Card, etc. must be attached.		
6	The Bidder should submit the MAF from the respective major OEMs. A letter of authorization from the Principal specific to the tender should be enclosed, failed so, bid will be summarily rejected.		
7	The vendor should have experience in implementing similar work in University / Educational Institutes / Govt. / PSU/ Hospitals. Copies of such work order or any other documentary evidence clearly showing that they have implemented similar works should be attached.		
8	Bidder should be ISO 9001 certified.		
9	Bidder must enclose proof of partnership level with OEMs of Wired & Wireless, Servers & Network Security.		
10	OEM should be a Profit making Entity for at least last 3 years/12 Quarters.		
11	OEM for Wireless Network should be listed in latest Gartner's Leaders quadrant for both Wired and Wireless LAN Access Infrastructure.		
12	Bidder should have an average turnover of 2 Crores for last three Financial Year, duly certified by CA. Turnover certificate from Chartered Accountant to be enclosed.		
13	Technical Bid in Separate Envelope - Annexure III to Annexure XIX Compliance		
14	Financial Bid in a Separate Sealed Envelope - Annexure XIX		

Signature of Bidder with Company Stamp



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ANNEXURE XVIII

(FINANCIAL BID FORMAT)

FINANCIAL BID ACTIVE COMPONENTS (PART A)

S.NO.	DESCRIPTION	UoM	QTY	UNIT RATE	AMOUNT	GST-%	GST AMOUNT	TOTAL AMOUNT
1	Hyper-Converged Systems with 2.x GHz, 128GB RAM, Dual 10 Core Processors, 6 x 1.8TB on each node, with VMware vSphere, vCenter & Microsoft Windows 2019 Server as per specifications.	Nos.	3					
2	Core Switch with minimum 16 SFP+ Ports	Nos.	1					
3	Distribution Switch with 24 10/100/1000BASE-T Ports with 8 x 1/10 G SFP+ uplink Ports.	Nos.	2					
4	Access Switch with 24 10/100/1000BASE-T 802.3at Poe+ Ports with 2 x 10 G SFP+ Ports	Nos.	10					
5	SFP 10 G LR Single Mode Up to 10 KM, (10 G SFP+ Fiber Module)	Nos.	6					
6	10GBASE- LRM SFP+ Module	Nos.	20					
7	Copper Gigabit SFP	Nos.	12					
8	Basic IP phone with existing IPPBX licenses	Nos.	100					
9	H.D Video Conferencing System	Nos.	1					
10	Firewall with 450 Mbps of real-world NGFW (FW, AVC and IPS) performance / throughput	Nos.	1					
11	Network Management Software with 100 devices licenses	Nos.	1					
12	Unified SIP Phone Attendant Console IP Phone should integrate / work with Cisco Business Edition 6000	Nos.	1					
13	Any Other Component / Equipment Required for functional of Wireless & Switch solution	Nos.						
TOTAL AMOUNT FOR PART A COMPONENTS								

COMPANY NAME :

SIGNATURE WITH COMPANY STAMP :

MOBILE NO. :

E-MAIL ID :



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FINANCIAL BID

ACTIVE COMPONENTS (PART B)

S.NO.	DESCRIPTION	UoM	QTY	UNIT RATE	AMOUNT	GST-%	GST AMOUNT	TOTAL AMOUNT
1	Precision Air Conditioning System with Datacentre Environment Monitoring & Civil Works.	Nos.	2					
2	Anti-Virus (End Point Security) with 3 years support	Nos.	300					
3	42 U Rack Server Rack with accessories	Nos.	1					
4	10KVA UPS in N+1 architecture with 1 Hr Battery Backup	Nos.	2					
5	Microsoft SQL Database License as per Server Processor Cores	Nos.	1					
6	Desktop for VMware Monitoring	Nos.	1					
7	Any Other Component / Equipment Required for functional of Wireless & Switch solution	Nos.						
TOTAL AMOUNT FOR PART B COMPONENTS								

COMPANY NAME :

SIGNATURE WITH COMPANY STAMP :

MOBILE NO. :

E-MAIL ID :



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FINANCIAL BID FORMAT **PASSIVE COMPONENTS (PART C)**

S. No	Passive Components	UOM	Qty	Unit Rate (in Rs.)	Amount	Tax %	Tax Amount	Total Amount
1	6 Core Single mode Fibre OS2: corrugated steel tape 6 core fibre cable 9/125 micron	Mtrs.	2500					
2	24 Ports fibre optic drawer sliding type loaded with 24 SC adapters units for single mode fibres, OS 2, 9/125 micron	Nos.	3					
3	12 Ports fibre optic drawer sliding type loaded with 24 SC adapters units for single mode fibres, OS 2, 9/125 micron	Nos.	10					
4	LC – LC Single mode 3 Mtrs Fibre Patch Cord	Nos.	26					
5	PVC Conduit 25mm with accessories	Mtrs.	500					
6	HDPE Pipe 40mm	Mtrs.	2000					
TOTAL FOR PASSIVE COMPONENTS - C								

COMPANY NAME :

SIGNATURE WITH COMPANY STAMP :

MOBILE NO. :

E-MAIL ID :



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FINANCIAL BID FORMAT **PASSIVE COMPONENTS (PART D)**

Sr. no	Service Components	Qty	UOM	Unit Rate	Amount	Tax %	Tax Amount	Total Amount
1	Installation & Configuration of Part A Components	1	Nos.					
2	Installation & Configuration of Part – B Components	1	Nos.					
3	Pulling / Blowing of OFC in GI/Flexible GI/HDPE Pipe	2500	Mtrs.					
4	Installation of LIU	13	Nos.					
5	Fibre Splicing per core	120	Nos.					
6	Laying of PVC Conduit Pipe	500	Mtrs.					
7	Laying of HDPE Pipe	2000	Mtrs.					
8	Resident Engineer on 24 x 7 (365 Days) / Per Engineer on Yearly basis.	3	Yrs.					
9	Project Management Charges	1	Nos.					
10	Intranet Management & Monitoring Charges	1	Yearly					
11	Any other Service, necessary of completion & successful implementation of the Project		Nos.					
TOTAL INSTALLATION COST (PART D)								

TOTAL COST OF PART A COMPONENTS	
TOTAL COST OF PART B COMPONENTS	
TOTAL COST OF PART C COMPONENTS	
TOTAL COST OF PART D COMPONENTS	
GRAND TOTAL	Rs.
GRAND TOTAL IN WORDS	Rupees.

COMPANY NAME :

SIGNATURE WITH COMPANY STAMP :

MOBILE NO. :

E-MAIL ID :