



thsti

ट्रान्सलेशनल स्वास्थ्य विज्ञान
एवं प्रौद्योगिकी संस्थान

TRANSLATIONAL HEALTH SCIENCE
AND TECHNOLOGY INSTITUTE

(An autonomous Institute of Dept. of Biotechnology, Ministry of Science & Technology, GOI)

496, UDYOG VIHAR, PHASE – III GURGAON, HARYANA

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TENDER DOCUMENT
FOR
Local Area Networking (LAN)
at
NCR – Bio Science Cluster, Faridabad.

(TENDER NO: THSTI/NIT/IT-LAN/2014-15)

22nd August, 2014



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PART A : Notice Inviting Tender

1.0 Tender Notice:

Online bids under Two- bid System are invited on behalf of Executive Director, THSTI for award of contract pertaining to creation of Local Area Network facility at NCR-Bio Science Cluster, Faridabad, Haryana. The scope of work includes supply, installation, integration, testing and commissioning of Active and Passive network equipments for Local Area Networking as per attached technical specification and bill of quantity (BoQ).

| | | |
|--------------------------|---|--|
| Tender No. | : | THSTI/NIT/IT-LAN/2014-15 |
| Name of Work | : | Local Area Networking at NCR-Bio Science Cluster, Faridabad, Haryana. |
| Location of supply/work | : | NCR-BSC, Faridabad, Haryana - 121004 |
| Sale of Tender documents | : | From 22.08.2014 to 11.09.2014 upto 18.00 hrs Tender documents can be obtained from IT Department, THSTI- Gurgaon on all working days (Monday to Friday) from 9 AM to 5.30 PM or can be downloaded from THSTI website : www.thsti.res.in or CPPP portal https://eprocure.gov.in . |
| Cost of tender documents | : | Rs 1500/- by DD in favour of THSTI, Gurgaon payable at Gurgaon. In case of Tender document being downloaded from website, DD should be submitted along with EMD. The tender fees is non refundable. |
| Earnest Money Deposit | : | EMD of Rs 320000/- (Rupees Three lakh twenty thousand only) is to be submitted to THSTI directly in a separate sealed envelope so as to reach us on or before the due date of opening of technical bids. The EMD shall be in the form of Demand Draft, drawn in favour of THSTI payable at Gurgaon. EMD will be refunded to the unsuccessful bidder after award of the work. |
| Pre-bid meeting | : | A pre-bid meeting with all the prospective bidders is schedule to be held on 29 th August, 2014 at 14.00 hours at THSTI, Gurgaon. Interested applicants/ firms are invited to attend the same with a written statement of their query. |

- Notification of amendments : As a result of the pre-bid meeting, if the technical specification requires any modification, suitable amendment to the tender document will be issued and the same will form part of the tender document. **Corrigendum/amendments etc., if any, will be notified only on the THSTI web site/ CPP portal and no separate advertisement will be released for the same.** Prospective bidders are therefore advised to regularly visit the THSTI web site or the CPP portal for any such updates.
- Submission of Bids : The bids are required to be submitted online on the CPP portal i.e <http://eprocure.gov.in> . Under the Two bid system the Technical bid and Price bid are required to be uploaded separately on the Portal.
- Website for Online bid Submission : <https://eprocure.gov.in>
- Last date and time for online submission of bids : 12.09.2014 upto 14.30 hrs (BID DUE DATE)
- Date and time of opening of tender : 12.09.2014 at 15.00 hrs (Technical Bid Only)
- Period for completion of work : 4 months from the date of release of Work Order.

KINDLY NOTE THAT ONLY ONLINE BID WILL BE CONSIDERED AGAINST THIS TENDER. Further, requests for postponement will not be entertained. Bids send by post/Fax/email bids shall be rejected straightway. Executive Director, THSTI reserves the right to accept/ reject any or all tenders either in part or in full without assigning any reasons thereof.

Store & Purchase Officer
THSTI

Note : In case of any clarification in with regard to submission of bids please contact Shri Mohd. Shahid, SPO (Tel: 0124- 2876431) or Shri Deepak Baghele, SO (Tel : 0124-2876405). Also, the bidders are advised to read the “Guidelines to bidders on CPPP’s e-procurement module” available at the end of this tender document before submitting their bids.

PART B : Schedule of Requirements

1.0 Introduction

Translational Health Science and Technology Institute (THSTI) and Regional Centre for Biotechnology (RCB) are autonomous research Institutes under the Dept. of Biotechnology, Ministry of Science and Technology, Government of India. The interim facilities of both the Institutes are located at Gurgaon, which will soon be moving to its permanent campus at NCR-BSC, Faridabad. THSTI and RCB have constructed a 4 lakhs sq. feet building space in NCR-Bio Science Cluster, Faridabad consisting of 5 floors. The building work is completed and we are now looking for a suitable agency to supply, install, integrate and commission the Local Area Network in this building.

The purpose of NCR-Bio tech (THSTI-RCB) network is to provide connectivity to the all users so as to share and access applications, data, & internet services. This is a NETWORK which will construct high speed connectivity to various departments like Administration, Academic, Labs of THSTI and RCB spread across the campus building. This network will provide steady and reliable access of Intranet along with various applications to all departments from the data center which is planned at the 2nd floor of Library and will also provide the support for applications. The network will also comprise of WLAN and will provide wi-fi facility to all the mobile users for their laptops and smart phones in future phase. Users must experience rich connectivity to available recourses in network. Network shall be constructed in structured manner and shall keep strong LAN management system.

NCR Biotech Cluster, Faridabad wishes to establish an OFC Local Area Network and Wireless to provide connectivity to all users using Indoor Access Points.

2. Objective

THSTI –RCB wishes to set up the LAN for the entire campus and thus providing high connectivity, scalable, reliable, secure and robust network architecture. We intend to build a new network for NCR-BSC that will provide latest technology benefits like data security, guaranteed application response, reliability etc. The network will also support multimedia, audio and video streaming and accessing other latest facilities which can be integrated in the future. High speed connectivity will be offered to various departments users across the building.

The network infrastructure as well as the IT setup should offer minimal downtime due to failure or breakdown of links or devices and even for planned outages. The redundant network backbone shall ensure that there is no delay in the flow of information and data, irrespective of file size or amount of network traffic at any given point in time.

The network shall be scalable as well as flexible so that future expansions and enhancements can be made in keeping with the rapid growth of technology and growing demands. Future augmentations and expansions should not require forklift upgrades for any of the active components to be deployed now.

3. Network Plan

The Backbone connectivity of the NCR-BSC network will be on 10G OFC in order to ensure minimum network downtime. For troubleshooting and debugging the network will be managed centrally. To ensure security, various

security application and appliances will be deployed into the network. Following are the different layers of the network architecture:

Core layer:

The core layer comprises of heavy duty modular Ethernet switches to which all the links from Access/Edge, Aggregation/Distribution, WAN & Internet and Servers/Storage connect. The core layer forms the heart of the network and performs all Layer-2 – Layer4 switching & forwarding of traffic. Access Policies, Quality of Services to control and manage bandwidth, etc., all are applied at this core layer.

Access / Edge Layer:

The user-end devices like – PC/Workstation, network printers & plotters, IP-Phones, Wireless LAN Access Points, IP based Surveillance Camera's, etc in near future, along with the Layer-2/3 managed stackable Ethernet Switches to which these devices connect form the Access or Edge layer.

Network security at NCR-BSC will consist of the provisions and policies adopted by a network team to prevent and monitor unauthorized access, misuse, modification, or denial of a computer network and network-accessible resources. Network security involves the authorization of access to data in a network, which is controlled by the network administrator. Users choose or are assigned an ID and password or other authenticating information that allows them access to information and programs within their authority. Network security covers a variety of computer networks, both public and private, that are used in everyday jobs conducting transactions and communications among businesses, government agencies and individuals. UTM is the evolution of the traditional firewall into an all-inclusive security product able to perform multiple security functions within one single appliance: network firewalling, network intrusion prevention and gateway antivirus (AV), gateway anti-spam, VPN, content filtering, load balancing, data leak prevention and on-appliance reporting. It secures the network, as well as protecting and overseeing operations being done. UTMs represent all-in-one security appliances that carry a variety of security capabilities including firewall, VPN, gateway anti-virus, gateway anti-spam, intrusion prevention, content filtering, bandwidth management, application control and centralized reporting as basic features. The UTM has a customized OS holding all the security features at one place, which can lead to better integration and throughput than a collection of disparate devices.

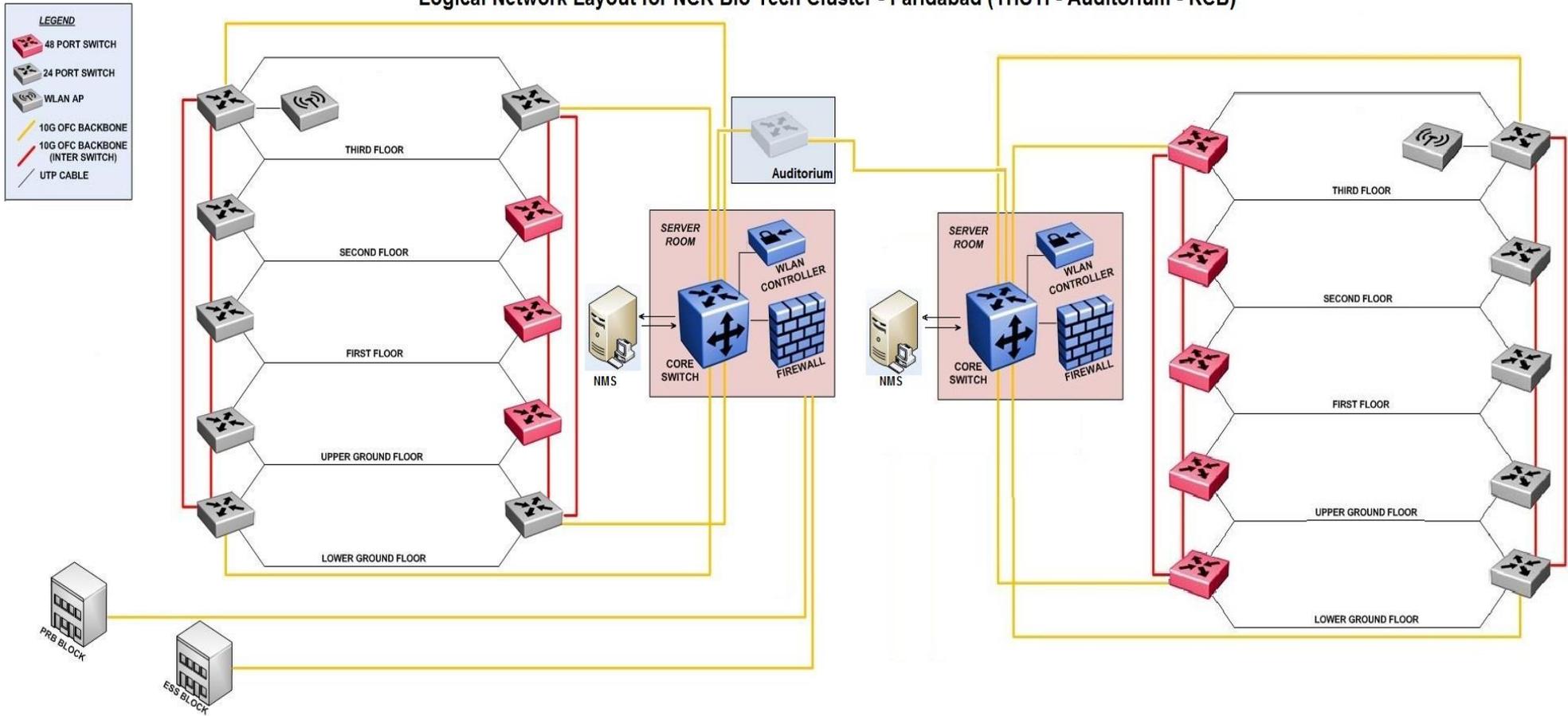
4. Estimated Nodes at THSTI building

The LAN Implementation for the NCR Bio tech Cluster, Faridabad is surveyed. THSTI and RCB had shown the requirement of 500+ Nodes to be connected on WLAN/LAN. The THSTI-RCB connectivity is spread over the following locations.

| Nodes Details for NCR Biotech Science Cluster - Haryana : Faridabad Campus | | | | | | | | | | |
|--|----------|--------------------------|--------------|-------|-----|---------|---------|-------------|----------------|--|
| Racks + Switches | | | | | | | | | | |
| S.No | Building | Floors | Nodes | Racks | | PoE | | Core Switch | Total Switches | |
| | | | | 15U | 42U | 24 Port | 48 Port | | | |
| 1 | THSTI | Lower Ground Floor | 21 | 1 | | | 1 | | 1 | |
| | | | 5 | 1 | | | 1 | | 1 | |
| 2 | | Upper Ground Floor | 40 | 1 | | | | 1 | 1 | |
| | | | 22 | 1 | | | | 1 | 1 | |
| 3 | | First Floor (ServerRoom) | 47 | 1 | | | 1 | 1 | 1 | |
| | | | 23 | 1 | 1 | | | 1 | 1 | |
| 4 | | Second Floor | 40 | 1 | | | | 1 | 1 | |
| | | | 24 | 1 | | | | 1 | 1 | |
| 5 | | Third Floor | 11 | 1 | | | 1 | | 1 | |
| | | | 23 | 1 | | | | 1 | 1 | |
| 6 | | Block 1* | Provision | | 1 | | | 1 | 1 | |
| 7 | | Block 2* | Provision | | 1 | | | 1 | 1 | |
| 8 | | Library | First Floor | 10 | 1 | | | 1 | 1 | |
| 9 | | Auditorium | Ground Floor | 15 | 1 | | | 1 | 1 | |
| 10 | RCB | Lower Ground Floor | 22 | 1 | | | | 1 | 1 | |
| | | | 5 | 1 | | | 1 | | 1 | |
| 11 | | Upper Ground Floor | 38 | 1 | | | | 1 | 1 | |
| | | | 11 | 1 | | | 1 | | 1 | |
| 12 | | First Floor (ServerRoom) | 37 | 1 | | | | 1 | 2 | |
| | | | 10 | 1 | 1 | | 1 | | 1 | |
| 13 | | Second Floor | 37 | 1 | | | | 1 | 1 | |
| | | | 9 | 1 | | | 1 | | 1 | |
| 14 | | Third Floor | 15 | 1 | | | | 1 | 1 | |
| | | | 11 | 1 | | | 1 | | 1 | |
| Total | | | 476 | 24 | 2 | 12 | 13 | 2 | 27 | |
| | | | | 26 | | 25 | | | 27 | |

2. Proposed Network Connectivity Diagram

Logical Network Layout for NCR Bio Tech Cluster - Faridabad (THSTI - Auditorium - RCB)



PART C : Bidder/ OEM Eligibility criteria

1. Bidder should have experience in successfully implementing works of similar nature during the last 5 years ending 31st July, 2014. The work execution should be either of the following:
 - i) One similar order costing not less than Rs 128 Lakhs.
 - Or
 - ii) Two similar orders each costing not less than Rs 96 Lakhs.

Similar order means “Supply, installation and commissioning of Network Switches, Router and Firewall etc.”.(Bidder to submit copy of PO/Completion Certificate from the Client).
2. The Bidder should be OEM or Authorized Dealer/Distributor/System Integrator of the OEM of the offered product (Bidder to submit documentary proof).
3. The bidder should be in Networking business for a period of Minimum 5 years (supporting documents to be enclosed).
4. The average financial turnover during the last three consecutive financial years should be atleast Rs. 80/- lacs per year for similar works.
5. The bidders should attach solvency certificate for minimum value of Rs. 64 lakhs issued by a nationalised bank. The certificate should not be more than six months old.
6. The Bidder should have their service /spares centre in Delhi-NCR, details of the same should be enclosed. If the Bidder doesn't have a service facility in Delhi-NCR, necessary proof for the understanding with vendor having service centres in Delhi-NCR to provide service support to THSTI for this project to be enclosed.
7. The OEM / Bidder should have a clean Track record, i.e. The OEM/ Bidder / its sister concern/ any group company should not have been black listed by any Govt. or Quasi- Govt/ Govt. Under taking companies in India at any point of time. (Declaration in this regard to be submitted along with Technical bid).
8. The Bidder shall have been assessed by the income tax department of India during last 3 Financial years, supporting copies should be enclosed.
9. The OEM/ Bidder should give an undertaking that service & spare support will be provided for at least 3 years, after the specified warranty period on separate commercial terms.
10. All switches shall be from same OEM.

11. Bidder should be single party, consortium will not be accepted.
12. The Bidder is required to quote for the complete BoQ. Partial quote are liable to be rejected.
13. The Bidder should be ISO 9001:2008 certified.
14. Detailed Network Diagram / Solution document of the offered system should be attached in the technical bid.

PART D : Instruction to Bidders

1.0 Special Instructions :

- 1 The Bidder shall carefully examine and understand the specifications/conditions of the tender document and if required seek clarifications in writing during the pre-bid meeting to ensure that they have understood all specifications/conditions of the tender document. If no such clarifications are sought in writing, it will be taken that the Bidder has read, understood and accepted all the terms, conditions and specifications in the tender document.
- 2 The Bidder is required to upload a copy of this tender document, with all pages signed by the authorized person, to confirm that Bidder has read and understood the conditions of this tender document and that the proposal is submitted in full understanding and agreement of the requirements of THSTI.
- 3 The Bidder should visit the site with prior appointment and carry out necessary inspection and test/measurement as are necessary before attending the pre-bid meeting and before submitting its bids. All costs associated with such site visit and in preparation and submission of the Bid will have to be bear by the bidder. THSTI will in no case be responsible for such costs, regardless of the conduct or outcome of the bidding process.
- 4 THSTI reserves its rights to amend any of the terms and conditions of this tender document. Such amendment shall be published on THSTI and CPPP website only and will not be published in newspapers. The bidders are advised to regularly visit the website for any such update.
- 5 The complete bid shall be without alteration or erasures, except those to accord with instructions issued by the THSTI or as necessary to correct errors made by the bidder, in which case such corrections shall be initialled by the person or persons signing the bid.
- 8 The bidder shall submit only one option, which is best suitable to meet THSTI requirements. The bids submitted with more options shall be liable to be rejected.
- 9 The Bid prepared by the Bidder, as well as all correspondence and documents relating to the Bid exchanged by the Bidder and THSTI, shall be in English only.
- 10 The bidder shall base his solution on the basis of continuous availability of spares for at least 3 years, after the specified warranty period.
- 11 Wherever a specific form is prescribed in the Bid document, the Bidder shall use the form to provide relevant information. If the form does not provide space for any required information, space at the end of the form or additional sheets shall be used to convey the said information. For all other cases, the Bidder shall design a form to hold the required information.

- 12 The Bidder shall explicitly indicate the non-compliance or deviation of the Solution offered in the Proposal to all the terms, clauses, conditions and specifications stipulated in this RFP. If non-compliance or deviation for any term, clause, condition or specification is not explicitly indicated, it will be construed as compliance and if successful in the bid, the bidder is obligated to comply with all the requirements (excluding those non compliances explicitly accepted by THSTI in writing) in toto.
- 13 Successful bidder shall perform all the obligations specified in accordance with the terms and conditions laid down in the RFP. All details provided by the Bidder should be specific to the requirements specified in this RFP. Detailed clarification may be provided by Bidder, if so desired by THSTI. The Bidder shall specify the responsibilities of THSTI, if any, separately for the successful implementation of the project.
- 14 The format of technical bid (including organisational capability) and price bid are give in 'Part-H' and 'Part-I' respectively. Bidder should ensure that all documents are uploaded with the Technical bid and Price bid as per the checklist given at Annexure- I.

2.0 General Instructions :

1. Quotation/Tender should be uploaded on or before the bid due date stated in the NIT. Quotations/Tenders received after the bid due date will not be considered.
2. Quotation should clearly specify delivery schedule.
3. When quotation is in foreign currency, agency commission payable, if any, should be shown separately in Indian rupees.
4. Any taxes or statutory levies payable should be shown separately, otherwise quoted price will be treated as all inclusive.
5. Any deviation from THSTI's specification of items shall be clearly indicated in quotation itself.
6. The validity of quotation should be for a minimum of 90 days from the bid due date.
7. The bidder should be existing and in operation in India for the last 5 years.
8. The Annual turnover of the bidder for the last 3 years may be submitted.
9. The bidder should submit the list of major works carried out (Govt./ semi Govt.), with client details such as name, contact address, email, phone etc.
10. Bidder should preferably have an office in Delhi-NCR.
11. Items offered should be as per requirements mentioned in the Technical specification.
12. The bidder may quote the items, which meets the requirements and specification. In such case, the bidder shall provide the layout, make, model, material specifications, dimensions, brochures, photo catalogues of items quoted along with the bid, if available.
13. Items are to be supplied and installed at NCR-BSC Campus, Faridabad.
14. Delivery of material at site and installation including loading and unloading shall be the responsibility of supplier.
15. Bidders are advised to visit and familiarize themselves with the site conditions and concerned areas

before submission of tender documents.

16. Bidder shall contact the tenderer for any clarification regarding the technical requirement.
17. The bidder should inform acceptance of Purchase Order within three days of receiving the order.

PART E : General and Special Tender Conditions

1. Period of validity:

The tender shall remain valid for acceptance for a period of ninety days from the bid due date.

2. Bidding Format:

a. The bidder should submit its bid in the Technical and Financial bid format as provided in Part 'H' and Part 'I' of this tender document. All the enclosures are required to be attached with the bids as per the sequence mentioned therein.

b. Split-up part numbers of each item of the BoQ is to be shown in the financial bid with line item cost.

c. Being a research organization, THSTI is entitled for Customs & Excise duty exemption, as mentioned under clause 8.0 below. Hence, bidders are requested to take note of the same while submitting their bids.

3. Award of Contract

The contract will be awarded to the bidder whose bid has been determined to be eligible and to be substantially responsive to the bid documents and who has offered the lowest evaluated bid.

4. Performance Security

a. Within 15 days of receipt of the Work Order from the THSTI, the successful Bidder shall furnish to THSTI a Security in the form of a Bank Guarantee from Nationalised/Scheduled bank for an amount of 10 percent of the Contract sum as per format prescribed at Annexure-II .

b. The validity of the Performance Security as per the Notification of Award for work shall be upto the end of the Warranty period with 3 months claim period after expiry of warranty period.

c. Failure of the successful Bidder to lodge the required Bank Guarantee shall constitute sufficient grounds for the annulment of the Award and forfeiture of the Bid Security, in which event the THSTI may make the Award to the next lowest evaluated Bidder or, if there are no other Bidders, call for new Bids.

5. Supply and Installation Terms:

- a. The Bidder shall provide the detailed (technical specifications, dimensions, brochures, make, model, photo catalogues, and conformance to standards) mentioned about the quoted components and system along with the bid.
- b. The required delivery schedule must be mentioned against each item.
- c. The successful bidder should supply items as per the quantity listed in the BOQs.
- d. Supply & Installation is at NCR-BSC, Faridabad.

6. Project Duration:

- a. The entire work including Supply, Installation, Integration, Testing and Commissioning should be completed within four months of releasing the work order.
- b. The entire documentation and testing reports should be submitted within the project duration of four months.
- c. Training to the identified group of engineers in THSTI & RCB also to be provided within the project duration of four months.
- d. Final acceptance certificate will be issued by THSTI only after completing point a, b & c mentioned above.

7. Final Acceptance Certificate:

- a. On successful completion of the work as per the 'Scope of work' specified under Part 'G' of this tender document, the contractor shall submit its application to THSTI for issue of 'Final Acceptance Certificate' for the work carried under this contract.
- b. The complete work shall be subject to inspection by the technical committee consisting of expert members. The performance of the system as a whole will be tested to comply with the acceptable standards and norms as per the 'Scope of work'.
- c. On successful testing of the system the bidders will be issued the 'Final Acceptance Certificate'. In case any deficiencies are noticed during the inspection, the bidder will be liable to make good the deficiency failing which the 'Final Acceptance Certificate' will not be issued.
- d. The bidder will be entitled to submit its bill for payment only when 'Final Acceptance Certificate' is issued by THSTI.

8. Taxes, Duties and other charges :

- a. Sales Tax: Full CST/VAT applicable. 'C', 'D' forms not applicable.
- b. Excise Duty: THSTI is a Govt. Of India Organisation Registered with the Department of Scientific and Industrial Research (DSIR) and is Exempted from Payment of Excise Duty vide Central Excise notification No 10/97 and amended vide 16/2007. The necessary ED Exemption Certificate shall be

provided by THSTI, Gurgaon for availing exemption. Tenders are requested to take note of the ED exemption available and accordingly submit the offer without ED element.

- c. Customs Duty: THSTI is a Govt. Of India Organisation Registered with the Department of Scientific and Industrial Research (DSIR). We are hence availing exemption for customs duty Vide Notification No: 51/96 as amended vide Notification No: 24/2007. Necessary Customs Duty Exemption Certificate will be Provided by THSTI, Gurgaon for availing CD Exemption.

Note : Since THSTI is entitled to concession on payment of custom duty/excise duty as per above stated notification, the bidders should keep this point in mind while submitting their bids. The responsibility to claim concession on payment of custom duty/excise duty on items to be used for the works shall be that of the bidder. THSTI will only issue concessional custom duty form as and when requested by the bidder.

9. Payment Terms:

- a. On successful completion of the work 100% payment shall be made to the contractor subject to issue of 'Final Acceptance Certificate' as per clause 7.0 above.
- b. Quantities mentioned under BoQ, as per Part -F are approximate only. So the successful bidder should supply items listed in this section as and when required during the execution of the work. The payment will be made only for actual/supply installed/ utilized quantities & labour at the site
- c. The Contractor shall pay all taxes, duties, levies, work contract tax etc. of the Government provisions of the Income tax Act or as per the advice of the Income Tax Authority. Deduction of Income tax/ Works Contract tax/ other taxes shall be made from payment as per the relevant provisions of the Income tax Act or as per the advice of the Income tax Authority/ other Competent Authority.

10. Liquidated Damages for Delay

If the Contractor fails to complete the execution of works or any section by the time for completion, within the relevant time prescribed by Clause 4.0, then the Contractor shall pay to THSTI liquidated damages at the rate of the 0.5 % of contract value for per week of delay or part thereof subject to maximum of 5% of the contract value. The Employer may, without prejudice to any other method of recovery, deduct the amount of such damages from any monies due or to become due to the Contractor. The payment or deduction of such damages shall not relieve the Contractor from his obligation to complete the Works, or from any other of his obligations and liabilities under the contract.

11. Warranty Clause

- a. All devices as per BoQ (UTM, Core Switch and Access Switches) should have comprehensive onsite warranty for three years from the date of commissioning of the network.
- b. During the first year of warranty, the bidder will have depute atleast one qualified network engineer (CCNA Certified) at site for configuration of network devices, troubleshooting and service support. The engineer so deputed will have to remain necessarily at site during the working hours of THSTI/RCB and will be responsible for smooth functioning of the network.
- c. All ongoing software upgrades for all major and minor releases should be provided during the warranty period.
- d. Bidder should ensure that there is a back-to-back agreement with OEM to meet above hardware and software warranty terms.
- e. Bidder should ensure service & spare support for at least 3 years, after the specified warranty period on separate commercial terms.

12. Price Variation Clause

The rates quoted by the bidder shall be firm throughout the contract period and there shall be no upward revision of the rates quoted by the bidder for any reason what so ever.

13. Liability / Accident :

The bidder shall indemnify and keep indemnified THSTI & RCB against all losses and claims for injuries and damages to any person or property whatsoever which may arise out of or in consequence of the construction or maintenance of the work and against all claims, demands, proceedings, damages, costs, changes , expenses whatsoever in respect thereof in relation thereto.

14. Extra Item

Any unforeseen item of work/supply / extra item of work as being authorised by the Centre and not included in the contract, shall be done by the Contractor at mutually agreed rates. Written prior approval of THSTI should be obtained before undertaking any extra work. Payment of such items shall be made at actual supported by necessary documentary evidence duly approved.

15. Termination

Not withstanding anything elsewhere provided herein and in addition to any other right or remedy available to THSTI under the contract or otherwise including right of THSTI to claim compensation for delay, the THSTI may, without prejudice to his right against Contractor in respect of any delay, bad workmanship or otherwise or to any

claims for damage in respect of any breaches of the contract and without prejudice to any rights or remedies under any of the provisions of this contract or otherwise and whether the date for completion has or has not elapsed by intimation in writing, absolutely determine the Contract.

A) Default or failure by the contractor in any of the under mentioned cases, including but not limited to the following shall be the basis of taking action under this clause of the contract:

- 1) Failure to provide at the job site, sufficient labor, material, equipment, machinery, and / or facilities, required for the proper and / or due execution of the work or any part thereof:
- 2) Failure to execute the works or any of them in accordance with the contract .
- 3) Disobedience of any order or instruction of the Site Engineer and / or Engineer-in-charge.
- 4) Negligence in carrying out the work or carrying out of work found to be unsatisfactory by the Engineer-in-charge/THSTI.
- 5) Abandonment of the works or any part thereof.
- 6) Failure to execute the Contract in terms of the form of Contract forming part of the tender documents within Ten days of notice in this behalf from THSTI.
- 7) If the Contractor is incapable of carrying out the work.
- 8) If the Contractor misconduct in any manner.
- 9) If there is any change in the constitution of the Contractor (if a firm) or in the circumstances or organization of the Contractor, which is detrimental to the interests of THSTI.
- 10) Dissolution of the Contractor (If a firm or commencement of liquidation) or winding up (whether voluntary or compulsory) of the Contractor (if a company or appointment of a receiver or Manager of any of the Contractor's assets and / or insolvency or the Contractor (if a sole proprietorship) or of any partner of the Contractor (if a firm).
- 11) Delay in execution of work, which in opinion of THSTI shall delay the completion of work beyond the stipulated date of completion.
- 12) Distress, execution, or other legal process being levied on or upon any of the Contractors goods and /or assets .
- 13) Death of Contractor (if an individual)
- 14) If the Contractor or any person employed by him shall make or offer for any purpose connected with the contract any gift, gratuity, royalty, commission, gratification or other inducement (whether money or in any other form) to any employee or agent to THSTI.

The decision of the Executive Director, THSTI as to whether any of the events/ contingencies mentioned in aforesaid clauses entitling THSTI to terminate the contract has occurred shall be final and binding upon the Contractor. The reason for the termination stated in the notice of termination shall be final and binding upon the Contractor and shall be non-arbitral. The jobs left however by the Contractor shall be got done at his risk and cost through the other agencies and the Contract shall be determined accordingly.

16. Force majeure

The right of the contractor to proceed with the work shall not be terminated because of any delay in the completion of the work due to unforeseeable causes beyond the control and without the fault or negligence of the contractor, including but not limited to acts of god, or of the public enemy, restraints of a sovereign state, floods, unusual severe weather conditions.

17. Arbitration

Any claim, dispute or difference arising out of or in connection with this agreement and which cannot be settled by mutual consultations, shall be referred to sole Arbitration or an Arbitrator to be appointed by mutual consultations. The award of the Arbitrator shall be final and binding between the parties as per the terms and conditions of the Agreement to be executed on award of contract. The Arbitration proceeding shall be governed by the Arbitration and Conciliation Ordinance dated 26th March, 1996 and shall be conducted in Haryana.

18. Jurisdiction of Dispute

All dispute under this contract shall be subject to the jurisdiction of Haryana high court.

19. Terms not expressly provided for

In case this tender document does not contain a provision or terms for dealing with a situation that may arise during the execution of the works, the relevant provisions contained in the CPWD manual or any other laws/rules shall be followed in such cases and the same will be binding on the Contractor.

PART F : BoQ and Specification

1.0 Bill of Quantity -

I. ACTIVE COMPONENTS

| Sl.No | Description | Unit | QUANTITY (Approx) | | |
|-------|---|------|-------------------|------------|-----|
| | | | THS | Auditorium | RCB |
| 1 | Unified Threat Management | Nos | 1 | 0 | 1 |
| 2 | Log Analyser | Nos | 1 | 0 | 1 |
| 3 | Core Switch | Nos | 1 | 0 | 1 |
| 4 | Access Switch-Type I (48Port PoE) | Nos | 6 | 0 | 3 |
| 5 | Access Switch-Type II (24Port PoE) | Nos | 4 | 1 | 3 |
| 6 | Access Switch-Type III (24Port PoE) | Nos | 2 | 0 | 2 |
| 7 | Access Switch-Type IV (48Port PoE) | Nos. | 2 | 0 | 2 |
| 8 | Wireless Controller | Nos | 1 | 0 | 1 |
| 9 | Wireless Access Points | Nos | 55 | 10 | 50 |
| 10 | Network Management System & security software | | | | |
| 10(a) | Element Management Software | Nos | 1 | | 1 |
| 10(b) | Network Security Software : NAC | Nos | 1 | | 1 |

II. PASSIVE COMPONENTS

| Sl.No | Description | Unit | QUANTITY (Approx) | | |
|-------|---|--------|-------------------|------------|------|
| | | | THSTI | Auditorium | RCB |
| 1 | Cat6 UTP cable box (305 mtrs) | Nos. | 8 | 1 | 7 |
| 2 | CAT6 1 Mtr. Patch Cord | Nos. | 306 | 25 | 400 |
| 3 | CAT6 2 Mtr. Patch Cord | Nos. | 256 | 15 | 320 |
| 4 | CAT6-24 Port PMP | Nos. | 16 | 1 | 15 |
| 5 | 6 Core MM OFC (OM3 50/125) | Meters | 1800 | 200 | 800 |
| 6 | LIU MM Loaded 12 Port Loaded with Duplex Adaptors (OM3 50/125)Adaptors (OM3 50/125) | Nos. | 7 | 1 | 4 |
| 7 | LIU MM Loaded 24 Port Loaded with Duplex Adaptors (OM3 50/125) | Nos. | 2 | 0 | 1 |
| 8 | MM-SC Pigtails (OM3 50/125) | Nos. | 108 | 12 | 48 |
| 9 | MM/SC-LC Fiber Patch Cord 3Mtrs. (OM3 50/125) | Nos. | 20 | 4 | 10 |
| 10 | 15 U Wall Mount Data Rack (600x500) | Nos. | 13 | 1 | 10 |
| 11 | 42U Floor Standing Data Rack | Nos. | 1 | 0 | 1 |
| 12 | 25mm PVC conduit/casing capping | Meters | 1600 | 200 | 1600 |
| 13 | 32/40 mm HDPE Pipe for outdoor OFC | Meters | 1200 | 200 | 400 |
| 14 | OFC Route marker | Nos. | 20 | 10 | 20 |

2.0 Detailed Specification of Active Component

2.1 Specification for Unified Threat Management

| Specification for UTM | | | |
|-----------------------|---|---------------------|-----------------------------|
| SI No. | Description | Compliance Yes / No | Cross Reference and Remarks |
| 1 | Firewall: Appliance based firewall with build in OS | | |
| 2 | Should have CLI, GUI and console option | | |
| 3 | Vendor should have ICSA lab certification for Firewall and IPSEC, if not the exact model or product line | | |
| 4 | Vendor should also have FIPS 140-2 lab certification, not necessary the exact model or product line | | |
| 5 | Vendor should have EAL 4 certification | | |
| 6 | Number of NIC slots, should have minimum 10x10/100/1000 Mbps Ethernet interfaces, 8x SFP interface for fibre connectivity | | |
| 7 | Firewall should have Internal Storage 120 GB SSD | | |
| 8 | The Antivirus should have a guaranteed throughput of more than 3.4 Gbps (flow based) | | |
| 9 | Operating system should be based on real time , secure, embedded operating system | | |
| 10 | Number of sessions : should support at least 6 million concurrent sessions and at least 2,80,000 new sessions per second | | |
| 11 | Should have a Stateful throughput of at least 16 Gbps for Firewall | | |
| 12 | The Intrusion Prevention should have a guaranteed throughput of more than 4.7 Gbps | | |
| 13 | Licensing: should be a per device license and not user/IP based license. | | |
| 14 | Number of tunnels supported by the device should be minimum 2000 IPsec VPN client to gateway tunnels. | | |
| 15 | Integrated purpose built in Firewall and VPN: This feature should be easy to configure and use. Should have a support inbuilt for IPSEC VPNs, should support DES, 3 DES and AES (128,192, 256) | | |
| 16 | Integrated SSL VPN with license for 500 users should be provided from day one. | | |
| 17 | Firewall should have build in IPS , Antivirus and webfiltering license and should get automatically updates from the internet. | | |
| 18 | Should also have support for Antibot, DLP and application control as well | | |
| 19 | Should have integrated application control. Should be able to define security policy and enforcement for thousands of applications, regardless of the port or the protocol used for communication. Control popular IM/P2P protocols: AOL-IM, Yahoo, MSN, KaZaa, ICQ, Gnutella, BitTorrent, MySpace, WinNY, Skype, eDonkey, Facebook etc | | |
| 20 | Management: should support management of the box through HTTPS as well as SSH along with console access. | | |
| 21 | Security Policy: should be easy to configure and manage the firewall policies. Should support policy level logging. Should support policy level natting | | |

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| 22 | NAT: should support dynamic NAT as well as one-to-one NAT. | | |
| 23 | Performance : Robust High Level Performance for firewall and VPN and should minimum of 16 Gbps firewall throughput and 14 Gbps VPN throughput | | |
| 24 | High Availability: The firewall should be able to support high availability (active - active and active - hot standby) | | |
| 25 | Build in URL filtering should be able to integrate with AD and should have minimum 76 categories | | |
| 26 | Multi WAN/ISP support: should support automatic ISP failover as well as ISP load sharing for outbound traffic. Should have separate interfaces for terminating dual ISP Ethernet connectivity. | | |
| 27 | Traffic Management: option to configure traffic shaping on a per policy basis for specific application/specific networks and should be able to define guaranteed bandwidth and maximum bandwidth per policy. | | |
| 28 | The appliance should support VLAN tagging (IEEE 802.1q) and should support VLANs on all interfaces and minimum of 1024 VLAN should be supported | | |
| 29 | Should have option to block file based on their extension. | | |
| 30 | RIPv1 and RIPv2 routing must be supported. | | |
| 31 | The Firewall should support OSPF & BGP | | |
| 32 | Logging & Reporting : should support secure logging to a external logging device and generate reports based on the firewall logs | | |
| 33 | should have configurable options to enable logging at a firewall policy level | | |
| 34 | Should be able to log denied traffic details | | |

2.2 Specification for Log Analyser

| Specification for Log Analyser | | | |
|--------------------------------|--|---------------------|-----------------------------|
| SI No. | Description | Compliance Yes / No | Cross Reference and Remarks |
| 1 | The appliance should be an Security Hardened Platform | | |
| 2 | The appliance should have support minimum 150 Number Devices from day one | | |
| 3 | Minimum 4 Number of NIC slots, should have minimum 10x10/100/1000 Mbps Ethernet interfaces | | |
| 4 | It should have 1TB of Total Hard Drive Capacity | | |
| 5 | Should have CLI, GUI and console option | | |
| 6 | It should support Up to 350 (Logs / Sec) Standalone Mode Performance | | |
| 7 | Should support Analyze logs from multiple devices, by user, or by group of users, and generate a variety of reports that enable you to proactively secure networks as threats arise, avoid network abuses, manage bandwidth, monitor Web site visits, and ensure appropriate usage policies. | | |

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| 8 | Should have Archived content is data mined to report on types of traffic on your networks as well as actual content of data transferred in Web, FTP, email and IM traffic. | | |
| 9 | Firewall systems that do not have a hard disk, the Analyzer offer the ability to quarantine infected or suspicious files entering your network environment. A quarantine browser allows you to view the files to determine whether they are dangerous or not. | | |
| 10 | Log Browser enables you to view any log file or messages from registered devices. All log files and messages are searchable and can be filtered to drill down and locate specific information. | | |
| 11 | Real-time display of information allows you to follow real-time trends in network usage such as the source IP address and the destination URL for HTTP traffic or IM message traffic. | | |
| 12 | The integrated network analysis tool allows any available interface on the Analyzer to be used to monitor traffic on a segment of network. Analyzer network analyzer functions much like a packet capture device to capture traffic data save it to the Analyzer hard disk and display the data for analysis. | | |
| 13 | The integrated vulnerability scanner identifies vulnerabilities on a host or server, such as a mail server, FTP server or other UNIX or Windows host and generates vulnerability reports showing potential weaknesses to attacks that may exist for a selected device | | |
| 14 | The analyzer should support multiple types of report format PDF. | | |

2.3 Specification for Core Switch

| Specification for Core Switch | | | |
|-------------------------------|---|---------------------|-----------------------------|
| SI No. | Description | Compliance Yes / No | Cross Reference and Remarks |
| 1 | Switch should be non blocking wire speed architecture for all ports from day one. | | |
| 2 | Switch should have a modular operating system with resource separation, restart process separately, restart process independently and should have protected memory for stability. | | |
| 3 | Switch should have at least dedicated 12 x 1000 Base T RJ45 100 meter over UTP, dedicated 36 x1/10GB Base-X SFP+ and dedicated 4x40G BaseX QSFP+ Uplink Ports from day one | | |
| 4 | Switch should be mountable on 19" standard rack. | | |
| 5 | Switch should have IPv4 and IPv6 support. | | |
| 6 | Switch should support virtualization feature by which two or more switches can be clustered together to act as one single virtual switching system. In such case the software, configuration & policies across both switches shall be automatically synchronize | | |
| 7 | Switch fabric, throughput: Minimum 1280 Gbps full duplex or more, 950 Mbps throughput or more. | | |
| 8 | Higher speed and Non-Blocking architecture | | |
| 9 | Port level security to lock and limit option for stopping unauthorized station from accessing switch. | | |

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| 10 | RAM 1GB or higher and Flash 512MB or higher. Support two switches should be acting as one virtual switch (stackable) | | |
| 11 | Switch should have at-least 4000 active VLANs using 802.1Q and 4000 VLAN ID. | | |
| 12 | Switch should have IEEE compliance for 802.1d STP ,802.1w RSTP ,802.1s M STP , | | |
| 13 | Switch should have support BPDU PROTECTION FOR Spanning tree protocols, | | |
| 14 | Switch should have support loop protection for Spanning tree protocols. | | |
| 15 | Switch should have support Root protection for spanning tree protocols , | | |
| 16 | Switch should have support VLAN spanning tree protocols(VSTP), | | |
| 17 | Should have At least 96K or above MAC address table size | | |
| 18 | Switch should support MAC-Based VANS | | |
| 19 | Switch should support Multiple VLAN registration protocol(MVRP) | | |
| 20 | Switch should support Private VLAN s | | |
| 21 | Switch should support Q-IN Q and Selective Q-in-Q tunneling. | | |
| 22 | Switch should support Redundant trunk groups. | | |
| 23 | Switch should support Routed VLAN interface (RVIs) | | |
| 24 | Switch should support LLDP. | | |
| 25 | Flow control IEEE 802.3X when full duplex, back pressure for half duplex & Head of line blocking prevention | | |
| 26 | Jumbo frame up to 9K bytes. | | |
| 27 | Switch Should have following for both IPv4 & IPv6 version Routing protocols RIPv1, RIPv2, RIPng, OSPFv2, OSPFv3, VRRPv2, VRRPv3, PBRv4 and PBRv6 from day one. Should support PIM-DM, PIM-SIM, PIMv6, PIM-SSM, BGP4, BGPv4+, MBGP, ISISv4 and ISISv6 with license upgrade. | | |
| 28 | Switch should support Bidirectional Forwarding Detection(BFD) | | |
| 29 | Switch should support IPv4 & IPv6 Filter-Based forwarding | | |
| 30 | Switch should support Jumbo frames on routed VLAN interfaces (RVIs) | | |
| 31 | Switch Should have support Static Routing, Virtual route forwarding lite (VRF lite) | | |
| 32 | Switch hardware should support for OpenFlow 1.0 or 1.3 or equivalent , ONF/Open day light SDN southbound API for future upgrade/license | | |
| 33 | Switch should have support for IGMP Version 1,2 & 3, IGMPv1/v2/v3 snooping ,MVR, PIM-DM,PIM-SM , PIMv6, AND PIM-SSM from day one. | | |
| 34 | Switch should have Class based queuing with prioritization, Layer2 and Layer 3 classification, rewrite, and Queuing; strict priority queuing on egress. | | |
| 35 | CoS support on route VLAN interface (RVIs) | | |
| 36 | Switch should have support port shaping and queue shaping. | | |
| 37 | Switch should have support Shaped Deficit weighted Round-robin(SDWRR) | | |

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| 38 | Switch should have support Single-rate two color marking. | | |
| 39 | Switch Should support Layer2- 4 Access Control Lists | | |
| 40 | Switch Should support Dynamic ARP inspection (DAI) and MAC limiting ,MAC address limit per port, persistent MAC learning(sticky MAC) | | |
| 41 | Switch should support Static ARP support. | | |
| 42 | Should support integrated security features like DHCP relay, Control Plane DOS protection, Should Support MAC Authentication | | |
| 43 | Should support 802.1X Network Security and Authentication, Should have support for RADIUS and TACACS+ | | |
| 44 | The switch should support 2000 Security ACL's and various type of ACLs like port based/VLAN based | | |
| 45 | The Switch should support Port-security | | |
| 46 | The Switch should support Automatic recovery for port error disable conditions | | |
| 47 | Support embedded DHCP Server, NTP server, Support Embedded Event Manager with support for event based macro execution support. | | |
| 48 | Should Support secure management via SSL, SNMPv3, Radius, and TACACS+, SSH, SCP, SFTP and XMP API. Should have audittrail feature for per user configuration changes. | | |
| 49 | Should have compatible with SNMP v1, v2, v3 base devices. | | |
| 50 | Should have command line interface based management console to provide out band dedicated Ethernet management interface. (separate then console) | | |
| 51 | External USB/compact flash for fast implementation/restoration of firmware & configurations preferably | | |
| 52 | Mirroring for 4 or more sessions. Local & Remote mirroring to multiple destination ports, 802.1ag CFM L2 ping and L2 trace route, Port management feature. | | |
| 53 | Switch should have support RMON, and uplink failure detection | | |
| 54 | Switch should have support WEB interface, for switch configuration and management | | |
| 55 | Switch should have support Link Aggregation Control Protocol (LACP) | | |
| 56 | Switch should have support Link Aggregation Group (LAGs). | | |
| 57 | Switch should have support Virtual Router Redundancy Protocol (VRRCP) | | |
| 58 | Switch should have support Virtual Router Redundancy Protocol (VRRCP) for IPv6 | | |
| 59 | GRES for ARP entries ,forwarding database and Layer 3 protocols GRES for LACP | | |
| 60 | 802.1d,802.1w, PVST+, RPVST+,802.1s, | | |
| 61 | Dual internal hot swappable redundant power supply supported. | | |
| 62 | Internal hot swappable fan tray with redundant fans supported. | | |
| 63 | Should support software upgrades with minimal traffic disruption during the upgrade | | |
| 64 | Should support graceful switchover during Supervisor failure | | |

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| 65 | Nonstop forwarding/ nonstop routing /Nonstop software upgrade(NSSU) | | |
| 66 | OS should be modular based ie. Individual process restart to prevent reboot in case of software process crash. | | |
| 67 | Gigabit Ethernet : 1000BASE-X(mini-GBIC/SFC),1000BASE-SX,1000BASE-LX/LH based SFP support | | |
| 68 | 10G ETHERNET : 10Gbase-SR,10Gbase-LR | | |
| 69 | 40G ETHERNET : 40base-SR4,40Gbase-LR4, 40GBase Direct Attach | | |
| 70 | IEEE 802.1D Spanning-Tree Protocol | | |
| 71 | IEEE 802.3AD LACP | | |
| 72 | IEEE 802.3AB LLDP | | |
| 73 | IEEE 802.1S & 1W for Rapid Spanning tree and Multiple Spanning tree convergence | | |
| 74 | IEEE 802.1P CoS Prioritization | | |
| 75 | IEEE 802.3x Flow Control | | |
| 76 | Support have IPv6 feature : RFC 2461,IPv6 DAD,RFC 4193 ULcV6 RFC 4862,IPv6-IN-IPv4 tunnels,624 tunnels and IPv6 advertisement guard filtering etc. | | |
| 77 | Operating Temp: 0° C to +45° C | | |
| 78 | Operating Humidity: 10% to 90% non-condensing. | | |
| 79 | Should support variable speed fan to auto adjust to different temperature conditions | | |
| 80 | The switch should have hardware model and software and Operating System ISO/IEC 15408 CC EAL 2 or 3 certified as followed by SQTC, Department of Electronics and Information Technology (DeitY), Ministry of Comm. & Info. Tech, Govt of India, | | |
| 81 | All switches, Transceivers and NMS should be of same OEM make. | | |

2.4 Specification for Access Switch-Type I

| Sl. No | Specification Required | Compliance Yes / No | Cross Reference and Remarks |
|--------|---|---------------------|-----------------------------|
| 1.0 | Product details- Please specify | | |
| 1.1 | Make, Model No with part no. | | |
| 2.0 | Architecture | | |
| 2.1 | Switch should offer Wire-Speed and Non-Blocking Switching. | | |
| 2.2 | Switch should have 48 10/100/1000 PoE+ RJ45 Ethernet with minimum 370 PoE wattage | | |
| 2.3 | Switch should have 2 ports of 10G SFP+ from day 1 for Stacking over 10GE between floors. Must include one optics and stack cable for stacking on 10GE with stack distance of 10 meters to adjacent floor. | | |
| 2.4 | Should have Flash ROM of 64MB or more. | | |
| 2.5 | Should have DRAM of 256MB or more. | | |
| 2.6 | Should have dedicated out of band management Ethernet port and dedicated serial port | | |
| 3.0 | Performance & Scalability | | |
| 3.1 | Should provide Non-Blocking switch fabric capacity of 136Gbps or more. | | |

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|-----|---|--|--|
| 3.2 | Should provide wire-speed packet forwarding of 101Mpps or more. | | |
| 3.3 | Should support 16,000 MAC addresses or more. | | |
| 3.4 | Should support 16 or more MSTP instances | | |

2.5 Specification for Access Switch-Type II

| Sl. No | Specification Required | Compliance Yes / No | Cross Reference and Remarks |
|--------|---|---------------------|-----------------------------|
| 1.0 | Product details- Please specify | | |
| 1.1 | Make, Model No with part no. | | |
| 2.0 | Architecture | | |
| 2.1 | Switch should offer Wire-Speed and Non-Blocking Switching. | | |
| 2.2 | Switch should have 24 10/100/1000 PoE+ RJ45 Ethernet with minimum 370 PoE wattage | | |
| 2.3 | Switch should have 2 ports of 10G SFP+ from day 1 for Stacking over 10GE between floors. Must include one optic and cable for stacking on 10GE with stack distance of 10 meters to adjacent floor | | |
| 2.4 | Should have Flash ROM of 64MB or more. | | |
| 2.5 | Should have DRAM of 256MB or more. | | |
| 2.6 | Should have dedicated out of band management Ethernet port and dedicated serial port | | |
| 3.0 | Performance & Scalability | | |
| 3.1 | Should provide Non-Blocking switch fabric capacity of 88Gbps or more. | | |
| 3.2 | Should provide wire-speed packet forwarding of 65Mpps or more. | | |
| 3.3 | Should support 16,000 MAC addresses or more. | | |
| 3.4 | Should support 16 or more MSTP instances | | |

2.6 Specification for Access Switch-Type III

| Sl. No | Specification Required | Compliance Yes / No | Cross Reference and Remarks |
|--------|---|---------------------|-----------------------------|
| 1.0 | Product details- Please specify | | |
| 1.1 | Make, Model No with part no. | | |
| 2.0 | Architecture | | |
| 2.1 | Switch should offer Wire-Speed and Non-Blocking Switching. | | |
| 2.2 | Switch should have 24 10/100/1000 PoE+ RJ45 Ethernet with minimum 370 PoE wattage | | |
| 2.3 | Switch should have 2 ports of 10G SFP+ from day 1 for Stacking over 10GE between floors. Must include one optic, cable for stacking on 10GE with stack distance of 10 meters to adjacent floor and one SR SFP+ to complete stack of top-to-bottom hub room's. | | |
| 2.4 | Switch should have 2 additional 10G SFP+ ports from day 1 loaded with two SFP+ for uplink to core. | | |
| 2.5 | Switch should have 2 additional 10G SFP+ ports from day 1 for adding high capacity endpoints as and when required | | |
| 2.6 | Should have Flash ROM of 256MB or more. | | |
| 2.7 | Should have DRAM of 512MB or more. | | |
| 2.8 | Should have dedicated out of band management Ethernet port and dedicated serial port | | |
| 3.0 | Performance & Scalability | | |

| | | | |
|-----|--|--|--|
| 3.1 | Should provide Non-Blocking switch fabric capacity of 160Gbps or more. | | |
| 3.2 | Should provide wire-speed packet forwarding of 120Mpps or more. | | |
| 3.3 | Should support 32000 MAC addresses or more. | | |
| 3.4 | Should support 32 or more MSTP instances | | |

2.7 Specification for Access Switch-Type IV

| Sl. No | Specification Required | Compliance Yes / No | Cross Reference and Remarks |
|--------|---|---------------------|-----------------------------|
| 1.0 | Product details- Please specify | | |
| 1.1 | Make, Model No with part no. | | |
| 2.0 | Architecture | | |
| 2.1 | Switch should offer Wire-Speed and Non-Blocking Switching. | | |
| 2.2 | Switch should have 48 10/100/1000 PoE+ RJ45 Ethernet with minimum 370 PoE wattage | | |
| 2.3 | Switch should have 2 ports of 10G SFP+ from day 1 for Stacking over 10GE between floors. Must include one optic, cable for stacking on 10GE with stack distance of 10 meters to adjacent floor and one SR SFP+ to complete stack of top-to-bottom hub room's. | | |
| 2.4 | Switch should have 2 additional 10G SFP+ ports from day 1 loaded with two SFP+ for uplink to core. | | |
| 2.5 | Switch should have 2 additional 10G SFP+ ports from day 1 for adding high capacity endpoints as and when required | | |
| 2.6 | Should have Flash ROM of 256MB or more. | | |
| 2.7 | Should have DRAM of 512MB or more. | | |
| 2.8 | Should have dedicated out of band management Ethernet port and dedicated serial port | | |
| 3.0 | Performance & Scalability | | |
| 3.1 | Should provide Non-Blocking switch fabric capacity of 216Gbps or more. | | |
| 3.2 | Should provide wire-speed packet forwarding of 160Mpps or more. | | |
| 3.3 | Should support 32000 MAC addresses or more. | | |
| 3.4 | Should support 32 or more MSTP instances | | |

Common Specifications for all four Access switches

| Sl. No | Specification Required | Compliance Yes/No | | | | Remarks |
|--------|---|-------------------|-------|-------|-------|---------|
| | | Type1 | Type2 | Type3 | Type4 | |
| 4.0 | Layer 2 Features | | | | | |
| 4.1 | Should support 4000 VLANs with 4000 VLAN IDs | | | | | |
| 4.2 | Should support 802.1Q with tagging | | | | | |
| 4.3 | Should support 802.1ad (Q-in-Q) tagging | | | | | |
| 4.4 | Should support VTP/GVRP/MVRP or equivalent | | | | | |
| 4.5 | Should support Port-based VLANs | | | | | |
| 4.6 | Should support Protocol VLANs (IPv4, dynamic IPv6, and IPX) | | | | | |
| 4.7 | Should support 802.1p Quality of Service (QoS) with Strict Priority (SP) and Weighted Round Robin (WRR) | | | | | |
| 4.8 | Should support ACL-based rate limiting QoS | | | | | |
| 4.9 | Should support 802.1D Spanning Tree Protocol (STP) | | | | | |

| | | | | | |
|------------|---|--|--|--|--|
| 4.10 | Should support 802.1s Multiple Spanning Tree | | | | |
| 4.11 | Should support 802.1W Rapid Spanning Tree (RSTP) | | | | |
| 4.12 | Should support PVST/PVST+ and PVRST+ compatibility | | | | |
| 4.13 | Should support 802.3ad link aggregation (dynamic trunk groups) | | | | |
| 4.14 | Should support Link Aggregation Control Protocol (LACP) with support for Single link LACP | | | | |
| 4.15 | Should support Uni-directional Link Detection (UDLD) or equivalent | | | | |
| 4.16 | Should support Dynamic Host Configuration Protocol (DHCP) | | | | |
| 4.17 | Should support IGMP v1/v2/v3 Snooping | | | | |
| 4.18 | Should support 8 hardware queues per port | | | | |
| 4.19 | Should support 802.3af PoE & 802.3at PoE+ on all copper ports. | | | | |
| 5.0 | Layer 3-LiteFeatures | | | | |
| 5.1 | Should support IPv4 & IPv6 static routes from day 1 | | | | |
| 5.2 | Should support Layer 3/4 ACLs from day 1 | | | | |
| 5.3 | Should support virtual interfaces and routed interfaces from day 1 | | | | |
| 5.4 | Should support RIP v1/v2 and RIPng from day 1 | | | | |
| 5.5 | Should be upgradable to support OSPF v2 & OSPFv3 routed edge from day 1 | | | | |
| 5.6 | Should be upgradable to support Virtual Route Redundancy Protocol (VRRP) from day 1 | | | | |
| 6.0 | System-Level Features | | | | |
| 6.1 | Should support ACL-based mirroring | | | | |
| 6.2 | Should support ACL-based rate limiting | | | | |
| 6.3 | Should support Packet-based broadcast, multicast, and unknown-unicast rate limits | | | | |
| 6.4 | Should support DiffServ support | | | | |
| 6.5 | Should support Digital Optical Monitoring | | | | |
| 6.6 | Should support Flow control | | | | |
| 6.7 | Should support Symmetric flow control with the ability to transmit and receive 802.1x PAUSE frames | | | | |
| 6.8 | Should support Port flap dampening | | | | |
| 6.9 | Should support Software Redundant link groups | | | | |
| 6.10 | Should support Port mirroring and monitoring (mirroring of both inbound and outbound traffic on individual ports) | | | | |
| 6.11 | Should support System time using a Simple Network Time Protocol (SNTP) server or local system counter | | | | |
| 7.0 | Stacking and Virtual Chassis Functionality | | | | |
| 7.1 | Should support a stack of up to 8 switches or more to form a virtual chassis. | | | | |
| 7.2 | Should support a stacking BW of 40G or more | | | | |
| | | | | | |
| 8.0 | Security Features | | | | |
| 8.1 | Should support 802.1X port security | | | | |

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| 8.2 | Should support 802.1X authentication RADIUS timeout action | | | | | |
| 8.3 | Should support Access Control Lists (ACLs) for filtering transit traffic with support for inbound ACLs and support Outbound ACLs | | | | | |
| 8.4 | Should support Address locking for MAC addresses | | | | | |
| 8.7 | Should support Authentication, Authorization and Accounting (AAA) with support for RADIUS and TACACS/TACACS+ | | | | | |
| 8.8 | Should support Denial of Service (DoS) attack protection | | | | | |
| 8.9 | Should support DHCP Snooping | | | | | |
| 8.10 | Should support Dynamic ARP Inspection | | | | | |
| 9.0 | Management Features | | | | | |
| 9.1 | Should support 802.1X accounting. | | | | | |
| 9.2 | Should support AAA support for console commands | | | | | |
| 9.4 | Should support DHCP Server | | | | | |
| 9.5 | Should support Embedded Event Manager with capability to take automated action on any defied event like apply ACL, rate-limit, apply QoS, create vlan, disable port etc | | | | | |
| 9.6 | Should support manageability using an Element or Network Management System. This EMS or NMS should be able to configure and monitor the switch. | | | | | |
| 9.7 | Should support Remote monitoring (RMON) | | | | | |
| 9.8 | Should support sampled Flow export with sFlow or IPFix or equivalent Netflow-lite from day one. | | | | | |
| 9.9 | Should support NTP/SNTP Client | | | | | |
| 9.10 | Should provide Industry-standard Command Line Interface (CLI), including support for Serial and Telnet access, | | | | | |
| 9.11 | Should support SNMP v1, v2, v3 | | | | | |
| 9.12 | Should have dedicated out of band management Ethernet port and dedicated Serial port. | | | | | |
| 10.0 | Physical Attributes, Power Supply and Fans | | | | | |
| 10.1 | The switch should be 19" Universal EIA (Telco) rack mountable and should be provided with a rack mount kit. | | | | | |
| 10.2 | Should support 100-240VAC, 50/60 Hz internal universal power; Indian type power cord. | | | | | |
| 10.3 | Should support Optional Internal/External Redundant AC Power Supplies for System Power. | | | | | |
| 11.0 | Operating Environment | | | | | |
| 11.1 | The switch should have operating temperature of 0 to 45 C | | | | | |
| 11.2 | The switch should Operating relative humidity: 10% to 90%, non-condensing | | | | | |
| 12.0 | OEM Make | | | | | |

| | | | | | | |
|------|--|--|--|--|--|--|
| 12.1 | The switch should have hardware Model and software operating system ISO/IEC 15408 CC EAL2 or higher certified as followed by SQTC, Department of Electronics and Information Technology(DeitY), Ministry of Comm& Info. Tech, Govt of India. | | | | | |
| 12.2 | All switches, transceivers and NMS should be of same OEM make. | | | | | |

2.8 Specification for Wireless Controller

| Specification for Wireless Controller | | | |
|---------------------------------------|---|---------------------|-----------------------------|
| SI No. | Description | Compliance Yes / No | Cross Reference and Remarks |
| | Should be Rack Mountable appliance | | |
| 1 | Should include security features available within the controller or externally which shall operate both in "bridge mode" or "transparent mode" apart from the standard NAT mode. | | |
| 2 | The controller should be web manageable. | | |
| 3 | Wireless controller shall control 100 Access Points from day one but expandable up to 250 AP's | | |
| 4 | The appliance should support IEEE 802.11a/b/g/n standards-based wireless Access Points | | |
| 5 | Supports strong Authentication and Encryption Standards Include Open/ WEP64/ WEP128/ Shared, Guest Captive Portal, WPA /WPA2 802.11i Pre-shared key, WPA / WPA2 802.11i with Radius support | | |
| 6 | The wireless controller support the following types of client load balancing: | | |
| 6(a) | Access Point Hand-off - the wireless controller signals a client to switch to another access point. | | |
| 6(b) | Frequency Hand-off - the wireless controller monitors the usage of 2.4GHz and 5GHz bands, and signals clients to switch to the lesser-used frequency automatically | | |
| 6(c) | Support Fast Roaming (IEEE 802.11r) or equivalent. This includes Seamless rapid mobility across VLAN and subnets Includes 802.11i pre-auth and fast roaming | | |
| 6(d) | Support fast roaming across L2, and L3 for video, audio and voice over wireless client | | |
| 7 | Allow IP connectivity between the Controller and the APs for external VLAN routing where the Controller and the APs are on different VLANs | | |
| 8 | The wireless controller should include the following features. | | |
| 8(a) | Wireless guest management | | |
| 8(b) | Captive portal with capability to capture login credentials or identity | | |
| 8(c) | Wireless Mesh, Bridging Features | | |
| 8(d) | BYOD (Bring Your Own Device) Support | | |
| 8(e) | User and application control | | |
| 8(f) | Encrypted Remote Access point support | | |

| | | | |
|-------|---|--|--|
| 8(g) | Traffic Rate shaping | | |
| 9 | BYOD should be having below features (separate appliance must be quote if wireless controller doesn't have this feature) | | |
| 10 | Detect client device Mac address, device type(such as windows device, Android device, Iphone, Ipad, blackberry, etc) and host name | | |
| 11 | Controller should be able to allow or deny traffic based on device type (such as windows device, Android device, Iphone, Ipad, blackberry, etc) | | |
| 12 | Controller should be able control the bandwidth based on device type(such as windows device, Android device, Iphone, Ipad, blackberry, etc) | | |
| 13 | The wireless Controller should support the following RF Management features | | |
| 13(a) | a) Having Automatic Channel Allocation | | |
| 13(b) | b) Having Automatic Power Control | | |
| 13(c) | c) Supporting Neighbourhood scanning of RF environment to minimize neighbouring AP interference and leakage across floors. | | |
| 13(d) | d) Having Coverage Hole Detection | | |
| 13(e) | e) Providing alerts when APs are down or compromised RF environment is detected | | |
| 13(f) | f) Having Self healing - Automatic neighbouring AP power increase to fill in for coverage losses | | |
| 13(g) | Support 802.11i/WPA/WPA2 Enterprise with standard interface to external AAA/RADIUS Server | | |
| 14 | Support IEEE 802.11e Media Access Control (MAC) Protocol, Wi-Fi Multimedia (WMM) and Traffic Specification (TSPEC). | | |
| 15 | Restrict ingress traffic to the wired network - should also allow restriction of bandwidth per user, device, SSID | | |
| 16 | Prioritise all traffic by a minimum of four categories (highest to low voice, video, best effort and background | | |
| 17 | The wireless Controller should support Rogue AP detection and Blocking | | |
| 18 | It should be able to detect the 3rd party wireless enabled Mobile devices with Hot spot programs and able to prevent the users from connecting those mobile devices | | |
| 19 | Wireless Controller should able to Block Intra SSID traffic | | |
| 20 | It should Include Wireless Guest Access Provisioning for Allowing non-IT staff to create Guest account, Assign Time quota, generate temp password, print, email or SMS the information to the Guest user | | |
| 21 | The wireless Controller should able to detect the following Wireless Intrusion Attacks such as Unauthorized Device Detection, Rogue/Interfering AP Detection, Ad-hoc Network Detection and Containment, Wireless Bridge Detection, Misconfigured AP Detection, Weak WEP Detection | | |
| 22 | The OS on the wireless controller or the external security device should be "IPv6 Phase II Ready" certified | | |
| 23 | Basic Firewall feature to prevent and block unnecessary traffic between various SSID's | | |

| | | | |
|----|---|--|--|
| 24 | The Wireless controller should support two or more gigabit copper interfaces with auto sensing 10/100/1000 capability. If external security device having firewall, Gateway Anti-Virus, DLP, etc., with storage for logs is provided, then it shall have minimum 6 x 10/100/1000BaseT network interfaces. | | |
| 25 | Should have 1 console port | | |
| 26 | Should support VLAN tagging (IEEE 802.1q) | | |
| 27 | Should have authentication for Users/Admins (Local and Remote - RADIUS, LDAP & TACACS+) | | |
| 28 | Support for RSA SecureID or other Token based Products | | |
| 29 | Support for Native Windows Active Directory and Novell eDirectory Integration | | |
| 30 | Should support PKI / Digital Certificate based two-factor Authentication for all type of users | | |
| 31 | The Controller should be able to provide all reports. | | |

2.9 Specification for Wireless Access Points

| Specification for Wireless Access point | | | |
|---|---|---------------------|-----------------------------|
| SI No. | Description | Compliance Yes / No | Cross Reference and Remarks |
| 1 | The Access Point should support IEEE 802.11a/b/g/n standards | | |
| 2 | Should have the dual radio option and should be able to support devices on 2.4GHz and 5 GHz simultaneously. | | |
| 3 | Should have at least 4 Internal or external Antennas | | |
| 4 | Should have 1 x 10/100/1000 Interface | | |
| 5 | Should support Power over Ethernet (PoE) 802.3af | | |
| 6 | Support 2x2 MIMO dual stream or better | | |
| 7 | The access Point should support aggregate throughput of minimum 450 Mbps Bandwidth | | |
| 8 | Should support L2 and L3 wireless controller discovery | | |
| 9 | Should support auto-selection of RF channel and transmit power | | |
| 10 | Should support Simultaneous AP and dedicated air monitor or concurrent 2.4Ghz and 5Ghz AP with background scan | | |
| 11 | WME Multimedia Extensions support 4 priority queues for voice, video, data and background traffic | | |
| 12 | Certified by the Wi-Fi Alliance's Wi-Fi Multimedia™ certification program | | |
| 13 | Should support 16 Simultaneous SSIDs | | |
| 14 | Support EAP-TLS EAP-TTLS/MSCHAPv2 EAPv0/EAP-MSCHAPv2 PEAPv1/EAP-GTC EAP-SIM EAP-AKA EAP-FAST | | |
| 15 | support self-healing, self-optimizing local mesh extending network availability to areas without an Ethernet infrastructure | | |

| | | | |
|----|--|--|--|
| 16 | Should support 802.11n tx Beam-Forming | | |
| 17 | Should support atleast 17dBm Transmission Power | | |
| 18 | Should have integrated / 3rd party locking mechanism (such as Kensington lock feature) – Cost to be included | | |
| 19 | Should be centrally managed through the wireless controller | | |
| 20 | Should support DNS based Controller discovery, DHCP Based Controller discovery | | |
| 21 | Should support web-based secured management interface | | |
| 22 | Command line CLI | | |
| 23 | Support Wall or Ceiling mounting option | | |
| 24 | Operating Temperature - 32 – 104 °F (0 – 40 °C) | | |
| 25 | Should include the necessary mounting kits | | |
| 26 | Low Voltage Directive , RoHS complaint | | |
| 27 | Should include the necessary mounting kits | | |

2.10 Specification for Element or Network Management System and Security Software

a) Element or Network Management System

| Specification for NMS | | | |
|-----------------------|---|---------------------|-----------------------------|
| SI No. | Description | Compliance Yes / No | Cross Reference and Remarks |
| 1 | Graphically displays aggregated wired and future wireless network information for centralized and simplified management of all infrastructure components as a single system | | |
| 2 | The NMS shall be hardened 64bit OS delivered as Virtual Appliance or Physical Appliance by OEM. | | |
| 3 | The NMS Virtual Appliance/Physical Appliance shall come with an initial license managed all supplied switches in 5 different stacks. The NMS appliance shall have the capability to extend the node limit to 250+ switches, 2000+ AP's future by purchasing the additional node licenses. | | |
| 4 | The software shall enable centralized management of proposed network elements with a variety of automated automates management of device configurations and provides tools to capture, modify, load, verify configurations and | | |
| 5 | Shall support unified web-based interface and fine-grained interactive search for network analysis, problem solving, help desk visibility and reporting | | |
| 6 | Shall provide performance management including CPU utilization, Memory utilization, Bandwidth utilization, TopN statistics, threshold-based alarming etc | | |

| | | | |
|----|--|--|--|
| 7 | Shall support single glass of pane providing easy-to-use, exceptionally detailed information about connected end systems | | |
| 8 | Shall support automating the definition and enforcement of network-wide policy rules controlling QoS, priority, bandwidth, and security | | |
| 9 | Shall integration with NAC solution supplied for providing granular control over users and applications, and featuring a high-level dashboard view of the complete security posture on a single glass of pane. | | |
| 10 | Shall support optimizing network management and help desk troubleshooting with anywhere, anytime access to critical information using popular mobile devices and tablets | | |
| 11 | Shall support integration with NAC, IPS, SIEM and other third party security appliances to respond automatically and remediate threats in real-time | | |
| 12 | Shall support comprehensive configuration Management like Bulk configuration, scheduled backup and restore, base lining and notification of changes etc | | |
| 13 | Shall Transform complex network data into business-centric, actionable information and easily integrate with business apps with Software Defined Networking | | |
| 14 | Shall provide flexible reporting capabilities including pre-defined and custom reports with scheduled and flexible delivery options. | | |
| 15 | Shall provide a simple, open, programmable and centrally managed way to implement Software Defined Networking (SDN) for any network | | |
| 16 | The software shall have modular architecture supporting other software plug-ins to enrich the network's management capabilities. This shall include Wireless Network Heat Maps, SIEM Management, IDS Management, Network Analysis Module, Network Traffic Analyzer (using sflow/Netflow/IPFixetc), etc | | |
| 17 | The NMS shall have be hardened 64bit OS delivered as Virtual Appliance or physical appliance by OEM. | | |

b) Network Security Software : NAC

| Specification for NAC | | | | |
|-----------------------|---|--|---------------------|-----------------------------|
| SI No. | Specification Header | Description | Compliance Yes / No | Cross Reference and Remarks |
| 1 | Single Appliance Concurrent Device Capacity | Minimum 500 concurrent endpoint devices at day one | | |
| 2 | NAC Solution Scalability Capacity | 60000 concurrent endpoint devices in future | | |

| | | | | |
|----|---------------------------|--|--|--|
| 3 | Appliance services | Device detection, profiling, on boarding and web based registration, authentication, authorization and remediation as well as guest portal services must be hosted from day one. All necessary physical/virtual appliance must be provided from day one. | | |
| 4 | Appliance chassis | deliverable as VM with Vmware vSphere support or dedicated 19" rack mount appliance(s) | | |
| 5 | Operating system | must be delivered on a hardened 64-bit OS | | |
| 6 | Deployment Method | Out of band | | |
| 7 | Interoperability | Must interoperate for L2 enforcement with supplied switches and any kind of switch or wireless products that support RFC3580 (802.1X and/MAC) and also for L3 enforcement with leading VPN gateways | | |
| 8 | Network Visibility | Automatically detect and track in real time all connected users and devices on the network - tracking needs to include mac, IP, hostname, OS, device type, user, location, timestamp and also externally configurable options | | |
| 9 | IT Integration | Must provide XML (REST and SOAP) based API to retrieve user and device information as well as the ability to modify the policy engine configuration via the API | | |
| 10 | Workflow Integration | Must be able to trigger configurable actions as changes on the network occur - like new devices, location change, state change occur | | |
| 11 | Mobile Device Integration | Must be able to integrate with leading MDM solutions to provide extensive device profiling and health assessment for mobile devices | | |
| 12 | Guest Access services | Must have web based authentication, registration, sponsored registration and SMS or Email based verification of guests | | |
| 13 | Authentication services | Must be able to act as a full radius server and proxy with configurable backend authentication via LDAP, SMB (AD) and RADIUS as well as local user authentication | | |
| 14 | Authorization | Must be able to support heterogenous switch infrastructures with a configuration abstraction that allows to return different types or policies and attributes based on switch type | | |
| 15 | Policy Creation | Offer flexibility to create the right network policies for each individual enterprise. Fine grained control should allow NAC administrator to define High Risk, Medium Risk, and Low Risk thresholds based on local security policies and concerns. | | |
| 16 | Dissolvable Client | Persistent, multi-platform client for added peripheral protection for guest machines | | |

| | | | | |
|----|--|---|--|--|
| 17 | Bonjour | Must control Bonjour and other multicast traffic to maximize network performance. | | |
| 18 | Network Access Control & Compliance Management | Automate network access control and bring devices into security policy compliance without disrupting the user. | | |
| 19 | Policy Creation | Offer flexibility to create the right network policies for each individual enterprise. Fine grained control should allow NAC administrator to define High Risk, Medium Risk, and Low Risk thresholds based on local security policies and concerns. | | |
| 20 | Policy Compliance | Built-in mechanisms to automate user and device compliance checks and remediation or containment of non-compliance devices. | | |
| 21 | Audit Mode | Simulate and fully understand the impact of a specific policy on devices and users before enforcements are turned on. | | |
| 22 | Notifications | Alert / inform the user of policy violations. Automated notifications and actions such as trouble ticketing, emails, browser hijacks, and redirects with auditable end-user acknowledgement to enable tracking of warnings to users. | | |
| 23 | Access Control | Automatically limit non-compliant devices access to specified resources without disrupting user productivity while remedial action is taken. | | |
| 24 | Role-based Network Control | Apply network access policies at the user and group level, based on roles defined in the directory service. | | |
| 25 | Enforcement | Custom fit the enforcement action to the level of policy violation and avoid interruption of user productivity unless absolutely necessary. | | |
| 26 | Endpoint security | Detect gaps and failures of existing security systems – such as antivirus, patch management, encryption, etc. and automatically remediate endpoint security deficiencies. | | |
| 27 | Endpoint Application Control | Ensure that the required application and processes are running on the endpoint at all times. | | |
| 28 | Auto-Remediation | Work with existing services to provide guided remediation. Integration with third-party remediation services like patch management, anti-virus, anti-spyware, vulnerability management, etc. to automate correction of policy violations. | | |
| 29 | Blocking | Ability to completely block the access of any malicious device on the network by turning off the switch port or with virtual firewall. | | |

| | | | | |
|----|----------------------------|--|--|--|
| 30 | Disabling | Kill unauthorized or illegal processes and applications on the endpoint. | | |
| 31 | Post Connection Monitoring | Continuously monitor the network or integrate with monitoring solutions for policy violations or threats from connected devices to ensure the network is always safe and devices are compliant with established network security policies. | | |
| 32 | Reporting | Reporting engine that allows filtering of both current and historical data to help IT staff monitor and control device compliance and fulfill regulatory audit requirements. | | |
| 33 | Inventory | Get accurate inventory of all endpoints and ensure compliance at all times. | | |
| 34 | Management | Management application must include: - Wired dashboards with drill down ability - Wireless dashboards (when deploy with wireless) with drill down ability - Detailed identity and access information - Customized reporting for historical and real-time data - Interactive topology maps - Device views - Events logs - Device search functionality | | |
| 35 | Certification | The NAC must be ISO/IEC 15408 CC EAL 2 or 3 certified as followed by SQTC, Department of Electronics and Information Technology (DeitY), Ministry of Comm & Info. Tech, Govt of India. | | |

Detailed Specification of Passive Component:

All Fiber Components should be from the same OEM.

The OEM should be ISO 9001:2000 & QS: 9000 Certified. In the changing needs of the global resources if the company has environmental management systems in place like ISO 14001 accreditation the same shall be added advantage.

The cabling should be certified to have application support warranty for next 25 years.

The complete cabling system (copper as well as fiber) offered shall be upgradeable to the intelligent system if required in future by retrofitting of sensors.

The OEM should have at least one site on intelligent system within India.

The bidder/OEM should be able to physically demonstrate intelligent system monitors (for both copper & fiber), patch cords etc. if so required by the customer.

Technical Specifications -

1. Category 6 UTP Cable, 4 Pair CM rated, with LSZH

| Characteristic | Min. Required Specification |
|--|---|
| Features | Category 6 Unshielded Twisted Pair 100Ω cable shall be compliant with EIA/TIA 568-C.2 transmission performance specifications |
| | Category 6 UTP cables shall extend between the work area location and its associated telecommunications closet and consist of 4 pair, 23 AWG, UTP |
| | The 4 pair Unshielded Twisted Pair cable shall be UL Listed |
| All Category 6 cables shall meet or exceed the following characteristics: | |
| Mechanical Characteristics | Construction: 4 twisted pairs separated by internal X shaped, 4 channel, polymer spine / full separator. Half shall not be accepted. |
| | Conductor: Solid Copper |
| | Conductor Diameter: 0.57±0.005mm (23 AWG only) |
| | Insulator Polyolefin |
| | Jacket: LSZH, Purple in color |
| | Outer Diameter: 6.0±0.4mm |
| | Filler: PE |
| | Weight (kg/km): 42 |
| | Fire performance - 332.1 |
| NVP (%): 68 | |
| Insulation Dia. (±0.05mm): 1.04 | |

2. MOUNTING UTP Patch Cords (1 Mtr. 2 Mtr.)

| Characteristic | Min. Required Specification |
|--|---|
| Features | Category 6 Equipment cords |
| | The work area equipment cords shall, at a minimum comply with proposed ANSI/TIA/EIA-568-C.2 Commercial Building Cabling Standards Transmission Performance Specifications for 4 pair 100Ω Category 6 Cabling. |
| | Category 6 modular equipment cords: Shall be round, and consist of eight insulated 24 AWG, stranded copper conductors, arranged in four color-coded twisted-pairs |
| | Equipped with modular 8-position plugs on both ends, wired straight through with standards compliant wiring. |
| | Should have 50 micro inches of gold plating over nickel contacts. |
| | Modular cords should include slim clear anti-snag slip-on boots |
| | Mounting cords should have ETL component compliance. (ETL certificate to be enclosed) |
| Mechanical – Cable | Conductor size: 24 AWG stranded bare copper |
| | Nominal outer diameter: 5.9mm |
| | Jacket: LSOH / LSZH |
| | Temperature range: - 20°C to + 60°C |
| Mechanical Characteristics – Plug | Operating life: Minimum 750 insertion cycles |
| | Contact material: Copper alloy |
| | Contact plating: 50μ” Gold/100μ”Nickel |
| | Plug dimensions compliant with ISO/IEC 60603-7-4 and FCC 47 Part 68 |
| | Fire Propagation tests: LSOH Sheath: CSA FT1, IEC 60332-1, IEC 61034 |
| Electrical Characteristics – Plug | Max voltage: 150 VAC (max) |
| | Max current: 1.5A @ 25°C |
| | Operating temperature: -20°C to +60°C |

3. 24 PORT UTP PMP

| Characteristic | Min. Required Specification |
|----------------|--|
| Features | Be made of cold rolled steel, in 24 port configurations. Each jack should have spring loaded shutter inside the jack for 100% dust free environment. |
| | Allow for a minimum of 750 plug mating cycles |
| | Have port identification numbers on the front of the panel. |

| | |
|--|--|
| | Should have self adhesive, clear label holders (transparent plastic window type) and white designation labels with the panel, with optional color labels / icons. |
| | Each port / jack on the panel should be individually removable on field from the panel. |
| | Should have integrated rear cable management shelf (Cable support Bar) |
| | Should comply to the following : TIA/EIA-568-C.2 Component Compliant FCC Subpart F 68.5 Compliant IEC-603-7 Compliant ISO 11801 Class E Compliant UL 1863 CSA C22.2 |

4. 6 Core Outdoor Unitube Single Sheathed Armored 50/125µm OM3 Type

Technical Specifications

Characteristics - Optical Performance

Cable containing 6 optical fibers in water blocked one loose tube, taped, corrugated steel tape armored (STA) polyethylene (HDPE) outer sheathed embedded with two steel wires on the periphery

| | |
|------------------------------------|---|
| Number of elements : | 5 |
| Tube Identification : | Single tube |
| Fibre Protection(Tube) : | Polybutylene Terephthalate (PBT) |
| Water Blocking : | Thixotropic Gel (Tube) Petroleum Jelly (Interstices) |
| Core Wrapping : | Polyethylene Terephthalate |
| Armouring : | Corrugated Steel Tape Armour (ECCS Tape) |
| Peripheral Strength Member: | Two Steel wires |
| Sheath : | UV Stabilised Polyethylene (HDPE) |

Technical Specifications

Attenuation;

| | |
|-------------|-----------|
| At 850 nm: | 3.0 dB/km |
| At 1300 nm: | 1.0 dB/km |

Min. Bandwidth;

| | |
|-------------|----------|
| At 850 nm: | 2000 MHz |
| At 1300 nm: | 500 MHz |

Dimensions and Mass

Overall Cable (Nominal) : 9.8 mm
Mass (Nominal) : 95 kg/km

Mechanical and Environmental Performance

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/Storage Temperature range : -40°C -+70
 Mode Field Diameter @ 850nm : 50 + 3.0 µm
 Cladding Diameter : 125 + 2.0 µm

5. LIU - FIBER PATCH PANELS – RACK MOUNT

| Characteristic | Min. Required Specification |
|----------------|--|
| | Have sufficient slots accommodate duplex SC adapters individually. |
| | Should have fiber management provision inside |
| | Should be Rack Mount as well as Wall Mount |
| | Have earthing plugs and other accessories. |
| | Panel cover should be slide out for easy maintenance |
| | Provide self-adhesive, clear label holders (transparent plastic window type) and white designation labels with the panel, for front panel labeling. |
| | Should be upgradeable as Intelligent Patch Panel without changing the existing Patch Panel hardware by simple retro fitting of intelligent sensors as and when required. |

6. SC DUPLEX ADAPTORS

| Characteristic | Min. Required Specification |
|----------------|---|
| Features | All SC adaptors should be duplex type with shutter for protection. Adaptors should be snap mount for easy insertion and removal. |

7. Optical Fiber Pigtails (SC)

| Characteristic | Min. Required Specification |
|----------------|--|
| Features | <ul style="list-style-type: none"> _ Standard or custom assemblies _ Precision ferrule endface geometry _ Controlled fibre protrusion _ Factory polished, tested and serialized. |

| |
|---|
| <p>Connector End : 1xSC connectors, singlemode, zirconia ceramic ferrule, composite body Insertion Loss : 0.35dB max. Retention Strength : 100N Operating Temperature : -10°C to 60°C</p> |
| <p>Cable Sheath Material : PVC Colour : Random</p> |
| <p>Characteristics Cable : 900µm Buffered Outside Diameter : 900µm Buffer Diameter : 900µm tight buffer Min. Bend Radius : 30mm Attenuation : @ 850nm <2.5dB/km @ 1300nm <0.7dB/km</p> |

8. MM/SC-LC Fiber Patch Cord 3Mtrs.

| Characteristic | Min. Required Specification |
|----------------|---|
| Features | All optical fiber patch leads shall comprise of Multimode mode 50/125µm fiber with SC, fiber connectors terminated at each end. The optical fiber patch leads shall comply with the following specifications: |
| | Connector: Zirconia ceramic ferrule |
| | Pre-radiuses and pre-polished ferrule |
| | Epoxy type fiber encapsulation |
| | Color-coded connector boots fitted to connectors on duplex patch leads. |
| | Dust caps shall be fitted on each connector at the assembly |
| | Cable: 50/125, OM3 |
| | Strength member: aramid yarn |

Bandwidth :
 @ 850nm 2000MHz/km
 @ 1300nm 500MHz/km
 Attenuation :
 @ 850nm <2.5dB/km
 @ 1300nm <0.7dB/km

9. 15U Wall Mounting Rack

| Specification for Wall Mount 15U Rack | | | | |
|---------------------------------------|---------------|--|---------------------|-----------------------------|
| Sl No. | Items | Description | Compliance Yes / No | Cross Reference and Remarks |
| 1 | Physical | 15U wall mounted rack | | |
| 2 | Make | APW President | | |
| 3 | Model | To be indicated by the bidder | | |
| 4 | Material | Powder coated steel (gray colored) | | |
| 5 | Width | 550mm | | |
| 6 | Depth | 500mm | | |
| 7 | Front Door | tuffen glass door | | |
| 8 | fans | 2fans top mounted 90 cfm 230vac | | |
| 9 | tray | 1nos 255mm cantilever tray | | |
| 10 | PDU | 6 socket 5 amp with fuse and indicator | | |
| 11 | cable manager | 1u pvc lopps cable manager | | |
| 12 | hardware | M-6 hardware pkt of 20 | | |
| 13 | Bottom/Top | Cable entry cut-out provided. | | |

10. 42U Floor Standing Rack

| Specification for Floor Standing 42U Rack | | | | |
|---|-------------|--|---------------------|-----------------------------|
| Sl No. | Items | Description | Compliance Yes / No | Cross Reference and Remarks |
| 1 | Physical | 42 U rack for Passive installation | | |
| 2 | Make | APW President | | |
| 3 | Model | To be indicated by the bidder | | |
| 4 | Material | Powder coated steel | | |
| 5 | Width | 800mm | | |
| 6 | Depth | 800mm or higher | | |
| 7 | Front Door | 100% perforated 19" | | |
| 8 | Rear Door | 100% Hexognal perforated on 19" rails, easy to remove, | | |
| 9 | Side Panels | Removable side panels | | |
| 10 | Bottom | Cable entry cut-out provided. | | |

| | | | | |
|----|-----------------------------|---|--|--|
| 11 | Castor wheels | 100kg med duty | | |
| 12 | Load rating | 700 Kg or more | | |
| 13 | Fan | 4 Fans mounted at top of the rack | | |
| 14 | Equipment mounting angles. | 19" equipment mounting angles at front and rear. With Reducing cable channel with pvc loops | | |
| 15 | Power Supply | Vertical AC mains channel with 10 or more 5/15A sockets with MCB and indicator. | | |
| 16 | Horizontal cable management | 1u cable manager with PVC Loops | | |
| 17 | Vertical cable management | Vertical cable channels for vertical cable management at rear | | |
| 18 | Earthing kit | earthing kit split | | |
| 19 | Mounting fasteners | 40 nos of mounting nut bolt to be provided. | | |
| 20 | Locking arrangement | Lock with 2 keys for both front and rear doors | | |

11. Specification for 25mm PVC conduit/casing capping & 32/40 mm HDPE Pipe for outdoor OFC

PVC pipe minimum 25mm dia, ISI mark, HMS grade (2mm thick), accessories for PVC pipes of the same make that of pipe; such as Spacers & Saddles, Couplers, Bends, inspection or non inspection type Elbows, Tees, Junction boxes of required ways and resin / adhesive to make all joints rigid. Black pipe shall not be used for surface type wiring. Permanently Solid Lubricated HDPE Pipes (33 mm inner dia, 40 mm outer dia),

12. OFC Route Marker:

The marker should be Cast Iron for cable route marking.

PART G : Scope of Work (SoW)

1. Scope of Supply

- Supply of all Active and Passive components as per BoQ at THSTI, NCR-BSC campus, Faridabad.

2. Scope of Installation, Configuration and Integration

- Physical installation and powering of all Active and Passive components as per Network diagram provided by THSTI.
- Proper marking of cable, Safety Sign board/Route marker to be installed for cable laid underground and other miscellaneous work.
- Any structure, permanent or temporary, dismantled or destroyed during the execution of the work shall be refilled/remake or restore to its original condition by the contractor at his own cost.
- Any extra electrical points and data points required in the server room shall be provided by the contractor at his own cost.
- The required UPS power points in the rack shall be provided by THSTI.
- Configuration and Integration of all of Active and Passive components as per the approved implementation plan.
- Configuration of VLAN and Inter VLAN routing as per implementation plan.

3. Scope of Acceptance testing and commissioning

- After installation and configuration of each and every subsystem, integrating various systems and providing various services, tests shall be conducted for system performance as a whole.
- Commissioning shall mean end-to-end commissioning of the network with testing of live applications. Test parameters, commitments etc shall be submitted along with implementation plan, which is shall be approved by THSTI.
- In the event, the test parameters, commitments are not submitted or not accepted explicitly in writing/minutes by THSTI, the Test parameters, commitments etc as decided by THSTI will be final and

binding.

- Penetration test of the network after installation of IT/Network Devices.
- Upon Self testing and Commissioning, the system shall be offered for inspection by THSTI.
- The successful Bidder, along with THSTI shall prepare an inspection and acceptance schedule with details of each activity.

4. Scope of Documentation

- Providing original manuals of all hardware items supplied.
- Implementation plan, to be approved by THSTI before initialising the installation and configuration activity.
- Test parameters, commitments etc for acceptance testing to be enclosed along with Implementation plan.
- Documentation on Equipment/ rack layout plan and connectivity Diagram
- Technical write up of the network design and functioning, System and Network architecture diagram, Active and Passive components configuration details, Security implementation.
- As built network configuration details (portwise) with IP address, subnet, VLAN , port description, etc for all active components.
- Security implementation including VPNs, Firewall rules, IDS/IPS, ACL details etc.
- Operator manual for shutdown/start of the active resources.
- Acceptance test reports, performance test reports of networking components.
- Any other Relevant Documentation

5. Scope of Training

- Training on the THSTI and RCB building Network design and functioning, Network architecture, Configuration of active components and Security implementation
- The participants for the training shall be two (2)THSTI and (2)RCB engineers for minimum 2 days at THSTI, NCR-BSC Campus.
- Course material for the above (one copy each per participant) to be provided.

PART- H : Format of Technical bid including Organisational capability

ATTACHMENT #1

General Information of the BIDDER

| | | |
|----|--|--|
| 1 | Name of BIDDER | |
| 2 | Address | |
| 3 | Telephone Number | |
| 4 | Fax Number | |
| 5 | Email | |
| 6 | Web Site | |
| 7 | <p>Legal status</p> <ul style="list-style-type: none"> • Government/ Public Sector Undertaking • Propriety firm • Partnership firm (if yes, give partnership deed) • Limited company or limited corporation • Member of a group of companies (if yes, give name and address, and description of other companies) • Subsidiary of a large corporation (if yes give the name and address of the parent organisation) If the company is subsidiary, state what involvement if any, will the parent company have in the project. | |
| 8 | Is the firm a registered company? If yes, submit documentary proof. Date of Establishment | |
| 9 | <p>Correspondence Address</p> <p>Name</p> <p>Address</p> <p>E-mail</p> <p>Phone fax</p> | |
| 10 | Is the firm registered with sales tax department? If yes, submit valid sales tax registration certificate. | |
| 11 | Income Tax | |
| 11 | Is the firm registered for service tax with Central Excise Department (Service Tax Cell)? If yes, submit valid service tax registration certificate. | |
| 12 | Is the firm registered under Labour Laws Contract Act? If yes, submit valid registration certificate. | |
| 13 | Number of years of experience in the relevant field ? Submit documentary evidence. | |
| 15 | Number of Offices / Project Locations | |
| 16 | Do you have a service/spares centre in Delhi-NCR ? If so, please give the address and the details of staff, infrastructure etc in the office and no. of years of operation of the local office. If the Bidder doesn't have a service facility in Delhi-NCR, necessary proof for the understanding with vendor having service centres in Delhi-NCR to provide service support to THSTI for this project to be enclosed. | |

| | | |
|----|---|--|
| 17 | Is your organization has SEI –CMM / ISO 9000 certificates? If so, attach copies of the certificates. State details, if certified by bodies, other than that stated. | |
| 18 | List the major clients with whom your organization has been/ is currently associated. | |
| 19 | Whether the OEM is ISO 9001:2008 and ISO 14001:2004 Certified. Documentary proof to be provided. | |
| 20 | Have bidder/OEM/its sister concern ever been blacklisted by any govt. or quasi govt./PSU in India during the last five years. Necessary declaration to be submitted along with the technical bid. | |

Signature of Bidder
Seal of Bidder

ATTACHMENT # 2 FINANCIAL INFORMATION And SOLVENCY CERTIFICATE

| Sl. No | Name of the bidder | Turnover (Rs. Crores) | | | Networth (Rs.Crores) |
|--------|--------------------|-----------------------|---------|---------|----------------------|
| | | 2011-12 | 2012-13 | 2013-14 | 2013-14 |
| | | | | | |

Note:

1. Submit the audited financial statement/ audited annual report of the last three financial years.
2. Submit solvency certificate for minimum value Rs. 64/- lakhs issued by nationalised bank. The certificate should not be more than six months old.

ATTACHMENT # 3

Letter of authorization from the OEMs that the bidder is representing them, and that the bidder's commitment shall be met in Toto by them.

ATTACHMENT # 4 FORMAT FOR TECHNICAL CAPABILITY – Network actives – Supply, Installation and configuration

| S. No. | Name of Client | Project Name | Start Date | End date/ status | Brief Description of the Project & Scope of work (Supply, iinstallation and configuration) | Role of bidder | OEM and devices supplied | Value of the project | Contact details of the Customer |
|--------|----------------|--------------|------------|------------------|--|----------------|--------------------------|----------------------|---------------------------------|
| | | | | | | | | | |
| | | | | | | | | | |

Note:

1. Submit the copy of purchase order indicating the project value, customer contact details, customer completion/satisfaction certificate.

ATTACHMENT #5

Detailed Technical Proposal meeting the bid requirements covering detailed specifications should include

- I. Make, model and part no. of items and sub-items quoted. II. Detailed Description of Technical specifications
- III. Detailed brochure with specifications for the offered items with model & part nos. highlighted.
- IV. Relevant test certificates/performance certificate/End-user acceptance certificate of the offered components/ systems

ATTACHMENT # 6

Any proposed deliverable/ functional aspects/ technical aspects/ terms/ conditions or any other item NOT IN compliance to tender Requirement

| Sl No | Section/ Page No. in tender | Sl.No. as in tender | Requirement as specified in tender | Deviation | Remarks/ Reasons /Alternatives |
|-------|-----------------------------|---------------------|------------------------------------|-----------|--------------------------------|
| | | | | | |
| | | | | | |

ATTACHMENT # 7

Detailed Project Schedule.

ATTACHMENT # 8

Financial Bid with value/price information masked. Make, model, quantity etc of each of the line item with sub-items indicated.

ATTACHMENT # 9

Facilities sought from THSTI

ATTACHMENT # 10

Any other relevant matter.

**PART – I : FINANCIAL BID FORMAT
(PART A + PART B + PART C)**

PART A - SUPPLY OF UTM, WIRELESS AND SWITCHES

| Sl.No | Part Nos. | Description | Unit | QUANTITY (Approx) | RATE | AMOUNT |
|--------------------|-----------|---|--------|----------------------|------|--------|
| Active Components | | | | | | |
| 1 | | Unified Threat Management | Nos. | 2 | | |
| 2 | | Log Analyser | Nos. | 2 | | |
| 3 | | Core Switch | Nos. | 2 | | |
| 4 | | Access Switch-Type I (48Port PoE) | Nos. | 9 | | |
| 5 | | Access Switch-Type II (24Port PoE) | Nos. | 8 | | |
| 6 | | Access Switch-Type III (24Port PoE) | Nos. | 4 | | |
| 7 | | Access Switch-Type IV (48Port PoE) | Nos. | 4 | | |
| 8 | | Wireless Controller | Nos. | 2 | | |
| 9 | | Wireless Access Points | Nos. | 110 | | |
| 10 | | Network Management System | Nos. | 2 | | |
| SUB TOTAL | | | | | | |
| Passive Components | | | | | | |
| 1 | | Cat6 UTP cable box (305 meters) | Nos. | 16 | | |
| 2 | | CAT6 1 Mtr. Patch Cord | Nos. | 731 | | |
| 3 | | CAT6 2 Mtr. Patch Cord | Nos. | 591 | | |
| 4 | | CAT6-24 Port PMP | Nos. | 32 | | |
| 5 | | 6 Core MM OFC (OM3 50/125) | Meters | 2800 | | |
| 6 | | LIU MM Loaded 12 Port Loaded with Duplex Adaptors (OM3 50/125)Adaptors (OM3 50/125) | Nos. | 12 | | |

| | | | | | | |
|---|--|--|--------|------|--|--|
| 7 | | LIU MM Loaded 24 Port Loaded with Duplex Adaptors (OM3 50/125) | Nos. | 3 | | |
| 8 | | MM-SC Pigtails (OM3 50/125) | Nos. | 168 | | |
| 9 | | MM/SC-LC Fiber Patch Cord 3Mtrs. | Nos. | 34 | | |
| 10 | | 15 U Wall Mount Data Rack (600x 500) | Nos. | 24 | | |
| 11 | | 42U Floor Standing Data Rack | Nos. | 2 | | |
| 12 | | 25mm PVC conduit/casing capping | Meters | 3400 | | |
| 13 | | 32/40 mm HDPE Pipe for outdoor OFC | Meters | 1800 | | |
| 14 | | OFC Route Marker | Nos. | 50 | | |
| 15 | | Any other Item not included above | | | | |
| SUB TOTAL | | | | | | |
| FOR FOREIGN SUPPLY (Option 'A') | | | | | | |
| 1 | | Freight , Transit Insurance and other charges | Lump | 1 | | |
| 2 | | Custom duty (as applicable) | | | | |
| 3 | | Custom clearance and other misc. charges | Lump | 1 | | |
| DDP THSTI, Faridabad Price (PART – A) | | | | | | |
| FOR LOCAL SUPPLY (Option 'B') | | | | | | |
| 1 | | Excise Duty | Lump | 1 | | |
| 2 | | Sales Tax | Lump | 1 | | |
| 3 | | Freight and other misc. charges | Lump | 1 | | |
| FOR THSTI, Faridabad Price (PART – A) | | | | | | |
| <p>Note : The bidders are requested to submit this part of the commercial bid either in foreign currency or Indian currency. In case Of quotations submitted in foreign currency kindly fill the relevant columns of “Option A” and in case of quotation submitted in Indian currency kindly fill the relevant columns of “Option B”.</p> | | | | | | |

PART B - INSTALLATION, CONFIGURATION AND INTEGRATION

| SL NO. | Part No. | Item Description | Unit | Quantity | Unit Rate | Total Amount | Taxes | Gross Total |
|---------------------------|----------|--|-------|----------|-----------|--------------|-------|-------------|
| | | | | | Rs | Rs | Rs | Rs |
| Active Components | | | | | | | | |
| 1 | | Installation and configuration of Unified Threat Management | Nos | 2 | | | | |
| 2 | | Integration and configuration of Log Analyser | Nos | 2 | | | | |
| 3 | | Configuration of Core Switch | Nos | 2 | | | | |
| 4 | | Access Switch-Type I (48Port PoE) | Nos | 9 | | | | |
| 5 | | Access Switch-Type II (24Port PoE) | Nos | 8 | | | | |
| 6 | | Access Switch-Type III (24Port PoE) | Nos | 4 | | | | |
| 7 | | Access Switch-Type IV (48Port PoE) | Nos | 4 | | | | |
| 8 | | Configuration, Installation & Integration of Wireless Controller | Nos | 2 | | | | |
| 9 | | Mounting of Access Points | Nos | 110 | | | | |
| 10 | | Network Management System | Nos | 2 | | | | |
| Passive Components | | | | | | | | |
| 1 | | Laying of Cabt6 UTP Cable through PVC Conduit/Casing capping | Mtrs. | 4880 | | | | |
| 2 | | Fixing and termination of Cat 6-24 port PMP | Nos. | 32 | | | | |
| 3 | | Fiber Splicing per Core | Nos. | 168 | | | | |
| 4 | | Installation of Fiber LIU With accessories | Nos. | 15 | | | | |
| 5 | | Laying of Fiber through existing laid HDPE Pipe/PVC Conduit/Cable Tray | Mtrs. | 2800 | | | | |
| 6 | | Installation of 15U Rack including cable dressing | Nos. | 24 | | | | |
| 7 | | Installation of 42U Rack including cable dressing | Nos. | 2 | | | | |
| 8 | | Laying of PVC Conduit/Casing capping on wall/ceiling | Mtrs. | 3400 | | | | |
| 9 | | Laying of underground HDPE in Soft Soil | Mtrs. | 900 | | | | |
| 10 | | Laying of underground HDPE in Hard Soil/road | Mtrs. | 620 | | | | |
| 11 | | Laying of HDPE on wall/ceiling | Mtrs. | 750 | | | | |
| 12 | | Fixing of OFC route marker | Nos. | 50 | | | | |
| 13 | | Installation and Commissioning Charges for relevant components | Lump | | | | | |
| 14 | | Any other Item not included above | | | | | | |
| | | Total Cost- FOR THSTI, Faridabad (Part- B) | | | | | | |

PART C - TRAINING AND DOCUMENTATION

| SL NO. | Item Description | Unit | Quantity | Amount (in Rs.) | Taxes Rs. | Net Total (Rs) |
|----------------------|---|------|----------|------------------|-----------|----------------|
| DOCUMENTATION | | | | | | |
| 1 | Original manuals of all hardwares supplied | set | 1 | | | |
| 2 | Equipment/ rack layout plan and connectivity Diagram | set | 2 | | | |
| 3 | Technical write up of the network design and functioning, System and Network architecture diagram, Active components configuration details, Security implementation | set | 2 | | | |
| 4 | As built network configuration details(portwise) with IP address, subnet, VLAN , port description, etc for all active components | lot | 2 | | | |
| 5 | Security implementation including VPNs, Firewall rules, IDS/IPS, ACL details etc. | | | | | |
| 6 | Operator manual for shutdown/start of the active resources | lot | 2 | | | |
| 7 | Acceptance test reports, performance test reports of networking components. | lot | 2 | | | |
| 8 | Any other Relevant Documentation | set | 2 | | | |
| | Sub Total (A) | | | | | |
| TRAINING | | | | | | |
| 1 | Training on the building Network design and functioning, Network architecture, Configuration of active components and Security implementation to Identified THSTI & RCB engineers for minimum 2days.Course material for the above (one copy each per participant) to be provided. | Lump | 1 | | | |
| | Sub Total (B) | | | | | |
| | TOTAL PRICE (Part C) | | | | | |

COST SUMMARY

| SI.No | COMPONENT | TOTAL AMOUNT |
|-------|---|--------------|
| 1 | SUPPLY | |
| 2 | INSTALLATION, CONFIGURATION & INTEGRATION | |
| 3 | DOCUMENTATION & TRAINING | |
| | GRAND TOTAL (PART A+B+C) | |

PART- J : ANNEXURES

ANNEXURE-I

CHECK LIST

| Sl. No | Description | Included (Y/N/NA) | Remarks |
|--------|--|-------------------|---------|
| 1 | Technical bid should contain copy of Demand Draft of Rs. 320000/- payable towards EMD. The original Demand Draft should reach the THSTI office | | |
| 2 | Technical bid contain copy of Demand Draft of Rs. 1500/- only payable towards cost of Tender documents (Non refundable), in case tender document is downloaded from the website. The original DD should be submitted along with EMD on or before the due date of opening of technical bid. | | |
| 3 | Technical bid should contain all information as in the Financial bid, except for the price information. The split-up part numbers of the line item should be present. | | |
| 4 | Copy of Audited balance sheet for last 3 years, ending 2013-14 to be uploaded along with technical bid.. | | |
| 5 | Copy of PO/Completion Certificate from the Client for similar works as specified in Part 'C' to be uploaded along with technical bid. | | |
| 6 | Certificate for proving that the Bidder is OEM or Authorised dealer / Distributor / System integrator to be uploaded along with technical bid. | | |
| 7 | Document to prove experience of 5 years in Networking business to be uploaded along with technical bid | | |
| 8 | Details of service/spare centre in Delhi-NCR. to be uploaded along with technical bid. | | |
| 9 | Undertaking with vendor having service/spare centres in Delhi-NCR to provide support to THSTI, if Bidder doesn't have such facility in Delhi-NCR to be uploaded along with technical bid. | | |
| 10 | Declaration that the Bidder has a clean track record to be uploaded along with technical bid. | | |
| 11 | Document on Income tax assessment for last three Years to be uploaded along with technical bid | | |
| 12 | Undertaking that service & spare support will be provided for at least 3 years, after the specified warranty period on separate commercial terms to be uploaded along with technical bid. | | |

| | | | |
|----|---|--|--|
| 13 | Copy of the Bidder's ISO 9001:2008 Certificate to be uploaded along with technical bid. | | |
| 14 | All switches should be from same OEM. | | |
| 15 | Bidder should be single party, not consortium. | | |
| 16 | Detailed Network Diagram / Solution document of the offered system attached in the technical bid. | | |
| 17 | Technical Bid (incl. Organisational capability) and Financial bid are to be uploaded separately. | | |
| 18 | A copy of the tender document, with all pages signed by the authorized person is to be uploaded along with the technical bid. | | |
| 19 | Complete BoQ is quoted. | | |
| 20 | Financial bid should contain full price details including taxes. (i.e Part A + B +C) | | |
| 21 | Split-up part numbers of each item of the BoQ is to be shown in the financial bid with line item cost. | | |

Form of Performance Bank Guarantee/Bank Guarantee

BG No.:

Date

| | |
|----------------------------------|---|
| From The Name of the Bank | To Translational Health Science Technology Institute,496, Udyog Vihar, Gurgoan-122016 |
|----------------------------------|---|

In consideration of the Translational Health Science and Technology Institute, 496, Ph-III, Udyog Vihar, Gurgoan (hereinafter called "The INSTITUTE") having offered to accept the terms and conditions of the proposed agreement between The Institute.....and..... (hereinafter called "the Contractor(s)" for the work..... (hereinafter called "the said agreement") having agreed to production of an irrevocable Bank guarantee for Rs..... (Rupees.....only) as a security/guarantee form the contractor(s) for compliance of his obligations in accordance with the terms and conditions in the said agreement.

1. We (hereinafter referred to as the "Bank") hereby undertake to (Indicate the name of the Bank) Pay to the Institute an amount not exceeding Rs..... (Rupees..... only) on demand.
2. We...(indicate the name of the Bank) Do hereby undertake to pay the amounts due and payable under this Guarantee without any demur, merely on a demand from the Institute stating that the amount claimed is required to meet the recoveries due or likely to be due from the said contractor(s). Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, our liability under this Guarantee shall be restricted to an amount not exceeding Rs..... (Rupees.....only).
3. We, The said Bank, further undertake to pay to the Institute any money so demanded notwithstanding any disputes raised by the contractor(s) in any suit or proceeding pending before any Court or Tribunal relating thereto, our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment thereunder, and the contractor(s) shall have no claim against us for making such payment.
4. We (indicate the name of the Bank) further agree that the Guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement, and it shall continue to be enforceable till all the dues of the Institute under or by virtue of the said agreement have been fully paid, and its claims satisfied or discharged, as per the terms

and conditions of the said agreement have been fully and properly carried out by the said contractor(s), and accordingly discharges this guarantee.

5. We.....(name of the bank)..... further agree with the Institute that the Institute shall have the fullest liberty without our consent, and without effecting in any manner our obligations hereunder, to vary any of the terms and conditions of the said agreement or to extend time of performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Institute against the said contractor(s), and to forbear or enforce any of the terms and conditions relating to the said agreement, and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said not be relieved from our liability by reason of any such variation or extension being granted to the said contractor(s) or for any forbearance, act of omission on the part of the Institute or any indulgence by the Institute to the said contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.
6. This Guarantee will not be discharged due to the change in the constitution of the Bank or the contractor(s).
7. We(Name of the bank)..... lastly under take not to revoke the Guarantee except with the previous consent of the Institute in writing. This bank Guarantee on the Bank or its successors or permitted assigns.
8. We.....(Indicate the name of the Bank)..... lastly undertake not to revoke this Guarantee except with (indicate the name of the Bank) the previous consent of the Institute extended on demand by the Institute. Notwithstanding anything mentioned above, our liability against this Guarantee is restricted to Rs.....(Rupees.....only), and unless a claim/demand is made on the bank in writing on or beforeall your rights under the Guarantee will be forfeited and we shall be relieved and discharged from all liabilities thereunder.

Authorised Signatories of the Bank with name and Seal

Name of the Officer:

Designation:

Code if any:

Date:

Place

Guidelines to bidders on CPPP e-Procurement Module

1. Procedure for Registration by the Bidder

1.1. Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL: <https://eprocure.gov.in/eprocure/app>) by clicking on the link "Click here to Enroll" on the CPP Portal.

1.2. As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.

1.3. Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.

1.4. Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / TCS / nCode / eMudhra etc.), with their profile.

1.5. Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSC's to others which may lead to misuse.

1.6. Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / e-Token.

2. Searching for Tender Documents

2.1. There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organization name, location, date, value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as organization name, form of contract, location, date, other keywords etc. to search for a tender published on the CPP Portal.

2.2. Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective 'My Tenders' folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.

2.3. The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

3. Procedure for preparation and submission of bids

3.1. The documents should be page numbered and contain the list of contents with page numbers. The deficiency in documentation may result in the rejection of the Bid.

3.2. Bidder should take into account any corrigendum published (if any) on the tender document before submitting their bids.

3.3. Bidders are advised to go through the Tender advertisement and the Tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.

3.4. Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF formats. Bid documents may be scanned with 100 dpi.

3.5. To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "My Space" area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

3.6. As part of the bid, bidder should provide all the documents as follows:-

- Bidder should log into the site well in advance for bid submission so that he/she upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.
- The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document.
- The serve time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.

- All the documents being submitted by the bidders would be encrypted to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology. Data storage encryption of sensitive fields is done.
- The uploaded tender documents become readable only after the tender opening by the authorized bid openers.
- Upon the successful and timely submission of bids, the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.
- The bid summary has to be printed and kept as an acknowledgement of the submission of the bid. This acknowledgement may be used as an entry pass for any bid opening meetings

4. Assistance to Bidders

Any queries relating to the NIT document and the terms and conditions contained therein should be addressed to the Store Purchase Officer, Translational Health Science and Technology Institute, Plot No. 496, Phase III, Udyog Vihar, Gurgaon -122016, Telephone Number:0124-2876431,405.

Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk. The contact number for the helpdesk is 1800 3070 2232.