

**RFP for up-gradation of Campus Network at IIM, Bangalore**

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**Tender Ref. No.: IIMB/NWTender/2024-25/10/01 dated 20.09.2024**

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**Notice Inviting Tender**

N.I.T. No.: IIMB/NWTender/2024-25/10/01

Date: 20.09.2024

Indian Institute of Management (IIM), Bangalore invites bids in two bid systems from reputed, experienced and financially sound-firms for the following IT supply and Services

<b>Name of Work</b>	Supply, Installation, Testing & Commissioning of Campus Network upgradation including Passive Lan cabling, network switches & Wi-Fi Setup
<b>Tender Type</b>	Open tender
<b>The Currency in which payment shall be made</b>	Indian Rupees (INR)
<b>Bid Submission Start Date and Time</b>	20.09.2024 from 03:30 pm
<b>Bid Submission Close Date and Time</b>	14.10.2024 at 03:30 pm
<b>Details of Pre-Bid Meeting and Time</b>	Online Registration Link: <a href="https://iim-b.zoom.us/meeting/register/tJYpce2upjwrG9bVVmGsOSHsnGDSZ_guAcfY">https://iim-b.zoom.us/meeting/register/tJYpce2upjwrG9bVVmGsOSHsnGDSZ_guAcfY</a> Date: 01-10-2024 Time: 11:30 AM Note: Pre-bid Meeting will be held though online mode only through zoom. Registered participants will receive the meeting details in the registered mail IDs
<b>Bid queries should reached by</b>	Bidders are requested to send their pre-bid queries on or before 30.09.2024 3 PM at <u>Prebid</u> meeting registration link or E-mail id- CC to check . After the due date no queries will be entertained. Replies to the queries will be made on pre-bid meeting and the replies will also be available on CPP portal.
<b>Date and Time of Opening of Technical Bids</b>	15.10.2024 at 04:30 pm
<b>Technical Presentation</b>	To be informed later (Qualified Bidders only)
<b>Date and Time of Opening of Financial Bids</b>	Will be opened online through CPP portal
<b>Earnest Money Deposit</b>	Rs.28,00,000.00 (Rupees Twenty-Eight Lacs Only)
<b>No. of Covers</b>	02 (Two Packets)
<b>Bid Validity</b>	120 Days
<b>Performance Bank Guarantee (PBG)</b>	The selected bidder shall be required to submit to the Performance Bank Guarantee (PBG) equivalent to 5% of the total work order (WO) value. PBG shall be from any scheduled commercial bank in the name of IIM Bangalore for to cover the warranty period plus an additional 3 months. This BG must be extended for the additional period after the Installation and acceptance. PBG is required to be submitted within 15 days from the date of issue of work Order.
<b>Purchaser and Place of delivery</b>	Bills to be submitted to <b>IIM Bangalore</b> . Successful Bidder shall be responsible for Design, Supply, Installation, Testing & Commissioning of LAN cabling, network switches, Wi-Fi setup for IIM Bangalore Bannerghatta Road, Bangalore, India Pin Code: 560 076. as per the scope of work mentioned in the tender document.

1. This is an open tender. Consortium/JV bids are not allowed.
2. Tender shall be available on CPP portal link available at <https://eprocure.gov.in/eprocure/app> or IIM Bangalore website <https://iimb.ac.in/>. Interested Bidders are advised to go through the instructions provided at “Instructions to Bidders for e-tendering.”
3. No manual bids shall be accepted. All bids (both Technical and Financial) should be submitted in the online portal.
4. Bidders are advised to visit the CPP portal for getting themselves updated for information on this tender. Corrigendum, if any may be issued on the changes required. Reply on pre-bid queries received by IIM Bangalore shall be displayed on tendering portal. Bidders are advised to visit the webpage regularly and update themselves. The Pre-Bid queries, Corrigendum are part of tender document and Bidders are supposed to upload the same accordingly, duly signed as per the guidelines given in the tender document.

**Campus Computer Manager.  
Indian Institute of Management, Bangalore  
Bannerghatta Road, Bangalore,  
India Pin Code: 560076**

## **1. Instructions to the Bidders**

### **1.1 Invitation of Bid**

- a) IIM Bangalore invites responses (“Tenders”) to this Request for Proposal (“RFP”) from OEMs or their authorized Partners (“Bidders”) for the provision of items as described in this RFP for Supply, Installation and commissioning of campus wide network upgradation including LAN cabling, network switches and replacement of existing Wi-Fi setup.
- b) Proposals must be submitted online through CPP portal before the due date and time of submission.

### **1.2 General**

- a) While effort has been made to provide accurate background information and requirements and specifications, Bidders must form their own conclusions about the solution needed to meet the requirements.
- b) All information supplied by Bidders may be treated as contractually binding on the bidders, on successful award of the assignment by IIM Bangalore on the basis of this RFP.
- c) No commitment of any kind, contractual or otherwise shall exist unless and until a formal written contract has been executed by IIM Bangalore.

### **1.3 Compliant Proposals/ Completeness of Response**

- a) Bidders are advised to study all instructions, forms, terms, requirements and other information in the tender documents carefully. Submission of the bid shall be deemed to have been done after careful study and examination of the tender document with full understanding of its implications.
- b) Failure to comply with the requirements set out in this Tender may render the Proposal noncompliant and the Proposal may be rejected. Bidders must:
  - i. Include all documentation specified in this Tender;
  - ii. Follow the format of this tender and respond to each element in the order as set out in this tender.
  - iii. Comply with all requirements as set out within this tender.

### **1.4 Pre-bid Meeting**

- a) IIM Bangalore shall hold a pre-bid meeting with the prospective bidders via video conferencing on [https://iim-b.zoom.us/meeting/register/tJYpce2upjwrG9bVvmGsOSHsnGDSZ\\_guAcfY](https://iim-b.zoom.us/meeting/register/tJYpce2upjwrG9bVvmGsOSHsnGDSZ_guAcfY)

Date: 01-10-2024

Time: 11:30 AM

Note: Pre-bid Meeting will be held though online mode only through zoom. Registered participants will receive the meeting details in their registered mail IDs

- b) The Bidders will have to ensure that their queries for Pre-Bid meeting should be updated in the prebid meeting registration link on or before 30.09.2024 3:30 PM by email : [jayaram.nair@iimb.ac.in](mailto:jayaram.nair@iimb.ac.in) with a copy to [CCManager@iimb.ac.in](mailto:CCManager@iimb.ac.in) on or before 30.09.2024 till 03:30 pm. The queries should necessarily be submitted as per the format (Annexure-XI)
- c) IIM Bangalore shall not be responsible for ensuring receipt of the bidders’ queries. Any requests for clarifications post the indicated date and time may not be entertained by IIM Bangalore.

### **1.5 Key Requirements of the Bid**

- a) This tender does not constitute an offer by IIM Bangalore. The bidder’s participation in this process may result in selecting the bidder to engage towards execution of the contract.

### **1.6 Earnest Money Deposit (EMD)**

- a) Bidders shall submit, along with their Bid an EMD of INR.28,00,000.00 may be furnished electronically or in the shape of Demand Draft OR Bank Guarantee issued by any scheduled bank in favor of IIM Bangalore. In the case of EMD submitted through Bank Guarantee, it should be valid for 120 days .The date of opening of Technical bids. The format for submission of BG is in Annexure XVII
- b) EMD of all unsuccessful bidders would be refunded within 30 days of finalization of tender or within 15 days after award of work to selected bidder, whichever is earlier. The EMD of successful bidder would be returned upon acceptance of the purchase order and submission of Performance Bank Guarantee.
- c) The EMD amount is interest free and will be refundable to the unsuccessful/successful bidders without any accrued interest on it.
- d) The bid / proposal submitted without EMD, mentioned above, will be summarily rejected.
- e) The EMD may be forfeited:
  - If a bidder withdraws its bid during the period of bid validity.
  - In case of a successful bidder, if the bidder fails to sign the contract in accordance with this RFP and fails to submit the Performance Bank Guarantee.
  - If found to have a record of poor performance such as having abandoned work, having been blacklisted, having inordinately delayed completion and having faced Commercial failures etc.
  - The Bidder being found to have indulged in any suppression of facts, furnishing of fraudulent statement, misconduct, or other dishonest or other ethically improper activity, in relation to this RFP

### **1.7 Submission of Manufacturer Authorization letter**

- a) Bid specific Manufacturer Authorization Form (MAF) as per format (Annexure X) should be submitted along with, while submitting the response to RFP failing which the bid is subject to rejection.
- b) The Bidder(s) must submit the technical compliances on their letterhead along with the Datasheet of the equipment quoted.
- c) OEM qualification criteria is not required for Racks, but bidder has to ensure that the rack OEM should be ISO certified (latest) and should provide make / model no. along with supporting documentation.
- d) For ducts, conduits, pipe and accessories MAF is not required, however make and model needs to be specified.

### **1.8 Domestic Manufacturer Clause**

- a) Supplier must submit an undertaking on notarized Rs. 100/- stamp paper, providing the information as specified in Annexure xvi. The Supplier also need to specify the category it belongs to. This is in compliance with Order No. P-45021/2/2017-PP (BE - II), Ministry of Commerce & Industries (DPIIT) dt. 4th June 2020 or modified time to time.

## **2. Eligibility Criteria**

- a. The bidder should be either an OEM (or) a business partner / channel partner / system integrator duly authorized by the respective OEMs of active & passive components to quote for this tender.
- b. **Experience Criteria:** The Bidder must have successfully executed the similar projects including passive cabling and active network components in centrally funded educational institutions (CFEI) /Central or State Govt. organizations/Large public Enterprise Companies in the last seven years from the due date of bid submission. [The list of Centrally funded Educational Institute is available at Ministry of Education, Government of India Website.](#) Bidder must submit copy of relevant Contracts / Work / Purchase orders executed in the last seven years and documentary evidence for successful installation / execution / completion of the above orders along with Names, address and contact details of client(s) shall be uploaded with the bid for verification.

One project of similar nature costing not less than the amount equal to 12 Crores

OR

Two projects of similar nature costing not less than the amount equal 7.5 Crores each

OR

Three projects of similar nature costing not less than the amount equal to 6 Crores each

'Similar Projects' is defined as, Supply, installation and maintenance of Networking like network switches, wireless solution, LAN cabling, network security devices.

- c. **Financial Criteria:**

1. The minimum Average Annual Turnover of the Bidder must be INR 15 crores as per their audited financial statement during the three financial years- 2020-21, 2021-22 and 2022-2023.

2. **Net Worth**

Net worth of the Bidder shall be Positive as per the financial year statement Auditor certified (FY 2022-2023)

Only documents (Purchase Order, Completion certificate, Execution Certificate etc.) which have been referred/ specified in the bid shall be considered in reply to queries during evaluation of Bids. After submission of bid, only related shortfall documents will be asked for in TQ/CQ and considered for evaluation. For example, if the bidder has submitted a contract without its completion/ performance certificate, the certificate will be asked for and considered. However, no new reference/ PO/WO/LOA is to be submitted by bidder in response to TQ/CQ so as to qualify and such documents will not be considered by IIM Bangalore for evaluation of Bid.

Any shortfall information / documents on the Audited Annual Report / Financial Statement of the Bidder and/or line of credit for working capital issued on or before the final bid due date can only be sought against Commercial queries (CQs). Any information/ documents issued post final bid due date shall not be considered for evaluation.

- d. Bidder should not be blacklisted in India in the last three years and any blacklisting should not be effective on the date of bid opening. A self-certified undertaking from the authorized signatory to be submitted as per the format.
- e. Power of Attorney (PoA) shall be issued in the name of authorized person signing the bid documents on behalf of the bidder & attested copy to be submitted.



**3. 1 OEM Criteria for Active Components: (To be signed and submitted with technical bid)**

S.No.	Pre-qualification criteria	Compiled (Yes/No)	Remarks
1	Proposed OEM must be present in India for the last 15 years or more. ( OEM incorporation certificate shall be shared with the bid)		
2	Similar deployment in India – OEM should have deployed similar campus networking solutions in Centrally funded educational institutions (CFEIs/IIMs)/ Central or State Govt. organizations/Large public Enterprise Companies in last 7 years with minimum 2000 network nodes and minimum 1000 access points successfully deployed in any of these organizations for a minimum of one year. Proof to be submitted in the form of Purchase orders/completion certificate from end customer.		
3	Products proposed should have been released and shipments commenced at least 12 months before date of bid.		
4	OEM should provide an undertaking that the proposed models are latest and spares support for the models offered will be available for a period of 10 years from the date of bid submission. OEM must have at least 15 spare depot centers in India including one in Bangalore so that timely replacement can be done for IIM. OEM to submit undertaking confirming the same and providing list of depot Centres on their letterhead		
5	Support during the warranty / AMC period will include back lining with OEM, advance replacement of faulty parts, labor and onsite support to resolve issues reported by IIM within the SLA defined by IIM. Bidder to undertake preventive maintenance visits once every 6 months and do patch updates and updates to the latest version in the switches/wireless controller / access points during these visits.		
6	OEM should have 24*7 TAC (Technical Assistance Centre) support based in India. OEM should provide direct TAC support to IIMB as and when required during the warranty period. OEM should confirm in their warranty letter that warranty support part codes considered by bidder includes direct 24/7 TAC support from OEM to IIM Bangalore.		
7	OEM should participate via their authorized partners in this bid. MAF to be provided to the authorized partner and OEM should submit an undertaking that they will support IIM Bangalore directly or via another partner, if the bidder fails to fulfil their contractual obligations with respect to support during warranty or AMC period.		
8	All active networking components (Network switches, Wireless access points, Wireless controller) should be from the same OEM.		
9	OEM through SI/bidder has to submit “unpriced part coded bill of material” for complete BoQ offered along with technical compliances on OEM letterhead.		

**3.2 OEM Criteria for Passive Components: (To be signed and submitted with technical bid)**

S.No	Pre-qualification criteria	Compiled (Yes/No)	Remarks
1	Passive OEM offered must be present in India for at-least 15 years or more.		
2	OEM should be a member of Telecommunications Industry Association (EIA / TIA) Information.		
3	All cables & components offered should be ROHS complied & the same shall be mentioned in their Data Sheet		
4	OEM Should be ISO certified organization- 9001/ISO 45001/ ISO 14001 certified manufacturing facility in india		
5	All passive products should be from single OEM & should have 25 years of channel performance and component warranty.		

## **4.RFP Background**

The **Indian Institute of Management Bangalore (IIM Bangalore)** is a business school and an institution of national importance located in Bangalore, India

In today's digital age, a reliable and secure Network Infrastructure including Campus wide Wi-Fi network is essential for any establishment.

Campus Wi-Fi typically refers to the wireless internet network provided on a college or university campus. It is an essential service for students, faculty, and staff to access the internet for research, coursework, communication, and other online activities while on campus.

Some key points related to campus Wi-Fi are.

**Availability:** Campus Wi-Fi is usually available in various locations across the campus, including classrooms, libraries, dormitories, outdoor spaces, and common areas. The goal is to ensure that students, faculty and staff have easy access to the Internet wherever they are on campus based on SSID with secure encryption.

**Access Control:** To prevent unauthorized access and ensure security, most campus Wi-Fi networks require users to log in with their university-issued credentials (username and password).

**Speed and Capacity:** Campus Wi-Fi networks need to provide high-speed and high-capacity connections to accommodate the needs of many simultaneous users. This is especially important during peak usage times, such as when multiple students are in a lecture hall or library.

**Coverage:** Campuses are often large, so Wi-Fi networks must have adequate coverage to reach all areas. This might require a network of access points strategically placed throughout the campus.

**Support for Various Devices:** Campus Wi-Fi should be compatible with various devices, including laptops, smartphones, tablets, and other internet-connected devices.

**Security:** Maintaining the security of the network is crucial to protect sensitive data and ensure that only authorized users can access it. This may involve encryption, firewalls, and other security measures.

**Guest Access:** Many campuses also offer guest Wi-Fi access for visitors or those who are not part of the institute community. Guest networks are typically separate from the main network to maintain security.

**Bandwidth Management:** Sometimes, campus IT departments may need to implement bandwidth management policies to ensure fair usage among all users. This can help prevent network congestion.

### **4.1 Overview of the Existing Network Setup**

Currently at IIM Bangalore, around 3300 nos. LAN & Wi-Fi points have been distributed to end user using star topology in a spread out way. OFC backbone to connect various buildings with server rooms, and currently, the residence area passive networking need to refresh with CAT 6 STP/UTP

- **Scalability Issues:** As the institute continues to grow in terms of student intake, faculty, and

administrative staff, the current network infrastructure struggles to keep pace. The existing setup is unable to scalable to a level that is required to accommodate the increasing number of users and devices connecting to the network.

#### **4.1 Proposed Solution to overcome existing challenges:**

a. Achieving high-performance connectivity with a network bandwidth of 40/100 Gbps (Gigabits per second) involves several key considerations and components, i.e.

- **Hardware Infrastructure:** Utilize network switches, routers, and network interface cards (NICs) that support 10/40 Gigabit Ethernet (GbE) interfaces. These devices should have sufficient processing power and port density to handle the increased bandwidth.
- **Fiber Optic Cabling:** Deploy high-quality, low-latency fibre optic cables capable of supporting 10/40GbE speeds. Single-mode fiber (SMF)
- **Network Topology:** Design the network topology to minimize latency and optimize throughput. Consider factors such as link aggregation (using techniques like LACP) for increased bandwidth and redundancy, as well as proper VLAN segmentation for traffic isolation and security.
- **Quality of Service (QoS):** Implement QoS policies to prioritize critical traffic types and ensure consistent performance for latency-sensitive applications such as VoIP or video conferencing.

Eliminating single points of failure in the core and wireless controller network is crucial for ensuring high availability and reliability of the network infrastructure. Some of the design elements incorporated to achieve this include :

- **Redundant Hardware:** Implement redundancy at critical points in the network by deploying redundant core switches, routers, and wireless controllers. This involves using technologies like Virtual Router Redundancy Protocol (VRRP) or Hot Standby Router Protocol (HSRP) for routers, and Virtual Switching System (VSS) or Virtual Port Channel (vPC) for switches.
- **Redundant Links and Paths:** Configure redundant links between core switches, routers, and wireless controllers to create alternate paths for traffic in case of link failures. Use protocols like Rapid Spanning Tree Protocol (RSTP) or Multi-Chassis Link Aggregation (MLAG) to manage redundant links efficiently.
- **High Availability Features:** Enable high availability features on network devices, such as stateful failover and fast convergence mechanisms, to minimize downtime in the event of component or link failures. This includes technologies like Bidirectional Forwarding Detection (BFD) for fast link failure detection.
- **Cloud WLAN Controllers:** WLAN controllers that support CAPWAP-based operation and provide the scalability, performance, and feature set required for your deployment. Consider factors such as maximum supported APs, throughput, redundancy options, and integration with other network management systems.
- **Selecting Access Points:** Select wireless APs that are compatible with the chosen WLAN controllers and support CAPWAP for centralized management and control. Consider factors such as supported wireless standards (e.g., 802.11ac, 802.11ax), antenna configuration, and deployment options (indoor, outdoor).
- **Network Configuration:** Configure the WLAN controllers with network settings, VLAN configurations, security policies, and other parameters as per the network design. Configure CAPWAP settings on both the WLAN controllers and APs to establish communication and control channels between them.

- **AP Deployment:**  
Install and mount the APs in their designated locations according to the best signal coverage and design specifications. Connect the APs to the network infrastructure, ensuring the use of the existing cable path for proper cabling. Establishment of a secure network infrastructure.  
**if the signal strength /coverage observed vendor needs to re position the AP accordingly with the proper conduit/ casing capping.**

#### **4.2 Requirements at IIM Bangalore Site**

- **Overhaul the existing network backbone to augment/upgrade:** This includes a comprehensive review and enhancement of the core network infrastructure to improve its capacity, reliability, and performance. It also involves upgrading hardware components such as switches, and cables, as well as optimizing network configurations.
- **Implement a high-performance network backbone with 40G connectivity:** This entails installing a robust backbone network capable of handling high data volumes with 40 Gigabit per second (Gbps) connectivity speeds. It involves deploying switches, and cables that support 40G Ethernet standards. Access layer connectivity will be 10G connectivity.
- **Deploy a smart network infrastructure capable of sustaining triple play services:** Triple play services typically include voice, video, and data services delivered over a single network infrastructure. Deploying a smart network infrastructure involves implementing technologies that can efficiently handle these diverse services without compromising performance.
- **Provide a mix of wired and wireless connectivity to locations as per suitability and convenience:** This suggests offering both wired and wireless connectivity options to accommodate various user needs and preferences. It involves deploying Ethernet ports for wired connections and Wi-Fi access points for wireless connectivity in different areas of the campus.
- **Ensure wireless access for over 3000 plus users 24x7x365:** There is a need to provide reliable and uninterrupted wireless access to accommodate a large number of users throughout the year, including weekends and holidays. It requires deploying sufficient Wi-Fi infrastructure and implementing measures to manage network congestion and ensure quality of service.
- **Seamlessly integrate all network components:** This involves ensuring compatibility and smooth operation among different network components such as switches, routers, access points, and management systems. It requires proper configuration, testing, and monitoring to achieve seamless integration with existing solutions,
- **Optimize the utilization of existing infrastructure wherever possible:** This involves maximizing the efficiency and effectiveness of existing network infrastructure to minimize costs and resources. It involves upgrading existing equipment, optimizing network configurations, and implementing resource management strategies.
- **Enterprise Network Management System for monitoring and managing the network equipment's :**  
This involves deploying a comprehensive network management system capable of monitoring, configuring, and managing all network devices and services across the campus, it should support with existing ,Hostel R & Q block which running with Cisco Meraki cloud wireless controller and Cisco DNA controller .  
It includes features such as performance monitoring, configuration management, fault detection, and security management.
- **Conduct training for preliminary maintenance and monitoring of the network system:** This entails

providing training sessions or workshops to relevant personnel responsible for maintaining and monitoring the campus network. The training should cover topics such as basic troubleshooting, configuration management, and best practices for network maintenance.

- **Perform a test run to ensure the proper operation of the entire network:** Before fully deploying the network infrastructure, it's crucial to conduct thorough testing to verify its performance, reliability, and security. This involves simulating various usage scenarios, conducting stress tests, and identifying and resolving any issues or vulnerabilities before production deployment.
- **Equipment procurement and supply**

The objective of this task is to order the equipment as per the Bill of Quantity proposed by system Integrators.

Receipt of the Purchase Order will serve as authorization for the System Integrator to order the equipment and ship it to the location specified in the order.

Coordinate shipment(s) of the order(s) to the installation location.

Verify the equipment received versus BOQ Proposed by system Integrator and take sign-off from IIM-B

The Equipment should be delivered within 6 weeks from the date of issue of the PO from IIM-Bangalore.
- **Equipment's Installation and Power-on Testing**

The objective of this task is to install the equipment at the IIM-Bangalore location.

The System Integrator will install the equipment detailed in the BOQ proposed by the system Integrator and carry out a typical Power-on Test for the new Equipment.

Identify the missing components or the equipment that is dead on arrival and intimate IIM-Bangalore.

The System Integrator will submit the report on Power on self-test and missing Components/ Dead-on arrival equipment within two days after the equipment delivery.

The system integrator will take the necessary steps to deliver the missing components and equipment that is dead on arrival within 10 days of submitting the report.
- **AMC for the existing network infrastructure**

The current network infrastructure is out of OEM support and it needs to be maintained until the revamp completes. The asset details are as per the buyback list. The minimum required standby should be maintained in this period . The bidder should ensure the maximum uptime of the network infrastructure in the meantime.
- Extended warranty after the five years warranty that is 6<sup>th</sup> and 7<sup>th</sup> year should be quoted in the financial bid, which will be payable annually after fifth year. However the extended warranty cost will be considered for financial bid evaluation.

**4.3 Network Requirements Details in Location Wise**

Hub room	32F port Core Switch 100G link	24 port Fiber Distribution Switch 40G link	Multigig Access Switch 10G link	High density AP	Room AP	Room AP with (Ether Out)	Outdoor AP
FACULTY A			3	5		22	
FACULTY B			3	15		28	
FACULTY C			2	6		23	
FACULTY D			3	9		25	
Auditorium			1	3			
FACULTY E			4	8		22	
FACULTY F			2	5		23	
NSRCL			2	8			
CLASS K			2	9			
CLASS M			2	13			
CLASS P			2	8			
CLASS C11			2	5			
CLASS C12			2	5			
Road Wi-Fi 7(Near Faculty F)			1	1			
DIRECTOR OFFICE			2	5		4	
Road Wifi 8 (AmulShop)			1	2			
NOC & Accounts		1	5	7	2		
Ganga Lab			1	2			
HR & Marketing			3	7			
Maingate			1	1			
MHU Rack1			1	9	30		
MHU Rack2			1				
MHU Rack3			1				
LIBRARY BLOCK rack1 First floor			1	3			
LIBRARY BLOCK rack2 2nd floor			2	11			
MDC ESR		1	2	14	118		2
Yoga Room			2				
Executive Lounge			1				
Conference Room			1				
Generator Room			3				
N Cluster RackA Library side	1		3	34			
N Cluster RackB Canteen side			4	14			
Class N			1				
Canteen			1	2	1		
Student Mess			1	6			
HOSTEL AB		2	3	7	80		

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HOSTEL CD			3		88		
HOSTEL EF			3		80		
HOSTEL GH			3		88		
HOSTEL IJ			3	1	80		
EXECUTIVE PHD Rack2			1	3	50		
EXECUTIVE PHD rack1			1				
HOSTEL K		2	3	5	83		
HOSTEL L			3		75		
HOSTEL M			3		56		
HOSTEL N					76		
HOSTEL O			4		76		
HOSTEL P			3		92		
SPORTS COMPLEX Rack A				1	3	2	
SPORTS COMPLEX Rack B Pool area			1				
Residence rack		2	1		300		
Rack102			1				
Rack117			1				
Rack110			1				
Rack313			1				
Rack416			1				
Rack422			1				
Rack509C			1				
Rack520A			1				
Rack538B			1				
Rack450			1				
Rack434			1				
Rack442			1				
DIRECTOR BUNGLOW			1		3		
FUSION			2				
Data centre Existing	1		2				
Common areas							8
Q & R hostels							
Spares		1	6	14	40	13	2
<b>Total</b>	<b>2</b>	<b>9</b>	<b>128</b>	<b>250</b>	<b>1420</b>	<b>160</b>	<b>12</b>

DS point ( Distribution point



## **5. Scope of Work**

The scope of the RFP covers implementation (including any design modifications based on site requirements) of the proposed augmentation of campus-wide Network Infrastructure, including the Wireless network (Wi-Fi), with the necessary passive and active work. The Network Infrastructure so deployed should be capable of supporting partial as well as situations of complete outage of any one site as well as the requirement of additional operational facilities and enhancement of overall throughput. The design is supposed to take care of the following objectives:

This section gives the scope of work for implementing and commissioning the proposed Network Access Control (NAC) Solutions and service level expectations.

This section lists the minimum service level required to be maintained by the successful bidders upon awarding the contract.

Detailed below are the requirements for supply, one-time installation

1. Onsite Installation and implementation of the NAC solution IIMB.
2. Bidder's expert team will be onsite till installation, implementation, and project signoff is complete.
3. Once implementation is completed, the vendor needs to provide Knowledge transfer and project handover to the IIMB Team, as well as shadow the IIMB Team for a period of 2 weeks.
4. The bidder should have back-to-back support arrangements with the OEM so that the IIMB Team will be able to log a call with the OEM directly.
5. The bidder should have a 24/7, 365-day support contact center to log the calls. The Common support numbers should be provided to the IIMB, along with the escalation matrix mentioning the contact person's name, number, and company designation. Post
6. The selected bidder must supply, install and configure the hardware and software provided as per the timelines and SLA levels prescribed in the RFP.
7. Warranty and support shall be for 5 (Five) years ( and extendable up to another 2 years)
8. OEM/ Bidder to provide hardware replacement within Next Business day if failed as part of RMA replacement(except the core switch)
9. For the Core switch, we do require 6 Hours of CTR (call to Repair)

### **5.1 NAC solution should broadly cover:**

1. Bidder/vendor is expected to configure this during the one-time implementation
2. The solution should individually support all the three mentioned integration methods, 802.1X, non-802.1X, & Hybrid, to completely manage the endpoint.
3. The solution should be integrated with all network & security devices (new and existing) for AAA functionality.
4. The solution should not only rely on 802.1X for authentication & remediation, but it should also have various other methods to achieve the same, such as SSH, Telnet and SNMP-based authentication.
5. The solution must seamlessly integrate with existing identity management systems such as Active Directory or LDAP, ensuring that all user authentication processes are aligned with institutional identity protocols
6. The solution must be scalable to support the total number of 5000 endpoints from inception, with capabilities to expand support as institutional needs grow. Performance should support both normal and peak operational loads.
7. The solution should be capable of restricting the access of endpoints that are connected to the unmanaged switches and should be able to integrate with all existing network devices with no upgrade requirements.
8. Fall back to be confirmed such that if NAC or Secondary NAC will process the traffic and vice versa, the solution Should be capable of achieving all features & functionality (including full posture assessment) with complete agentless/Agent-based & Dissolvable agent mode deployment.
9. Should operate within a heterogeneous network with switches from multiple OEM

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10. The NAC solution must integrate with Patch management solution.
11. The NAC solution must bi-directionally integrate with the Antivirus solution.
12. The solution should offer extensive customization options for security policies, allowing granular controls based on user roles, device types, access times, and geographic locations
13. The proposed NAC solution should trigger real-time malware scans and help enforce compliance at device connection time. It must help automate response actions to isolate or restrict network access of non-compliant or infected devices and facilitate remediation.
14. The NAC solution must also provide the ability to scan devices for malware and report leveraging IOS from third-party products.
15. The solution should provide policies to address ransomware threats by providing the ability to detect, evaluate, and respond to vulnerabilities and threats used by ransomware. Policies should provide the organization with instant visibility, options for a fast and simple response, and the ability to track and segment devices that cannot be patched or mitigated.
16. The solution should automatically detect heavily scanned services, and respond to it by either monitoring or blocking these services. The solution should detect and block service attacks and email worms.
17. The solution should include advanced UEBA capabilities to detect anomalies and potential security threats based on deviations from established behavior patterns of users and network entities
18. The solution must provide comprehensive reporting and analytics tools, capable of generating detailed reports on security incidents, compliance status, and network access logs. It should also feature a real-time analytics dashboard for continuous monitoring and assessment
19. The solution should be configured to provide compliance for disk encryption, AV, OS patch, and Domain joined systems.
20. The solution should be configured to provide compliance for rouge cloud applications, p2p software, IM, IM, non-admin shares, and admin shares.
21. The solution should have a provision to support non-NAC capable hosts (i.e., printers, IP phones, IoT's, etc.) based on different parameters, including MAC Authentication Bypass (MAB) etc.
22. All the NAC functionality/features asked in the RFP should be available from day one.
  
23. The vendor should also ensure as a part of the delivery:
  - a. Create a monthly NAC dashboard for Management reporting.
  - b. Ensure periodic patching and NAC OS version updates.
  - c. Review Existing Network Architecture.
  - d. Log configuration for existing Syslog server
  - e. Devices Hardening
  - f. Configuration of SNMP and NTP.
  
24. IIM Bangalore intends to implement a Network Access Control Solution to enforce policies on devices that access the IIMB network to increase network security visibility and mitigate risk.
25. Scope includes supply, implement and manage NAC Solution based on the requirement of the IIMB as mentioned in the RFP.
26. The solution should be designed and deployed at the IIMB campus.
27. The Bidder shall supply all necessary components and licenses that should be viable for 5 years to make the solution complete and shall not be limited by the material requirements in this RFP.
28. Network access control (NAC) solution that provides posture services to secure network access.
29. The solution shall be integrated with existing Anti-virus, EDR, Windows AD environment, Patching Solution and SIEM solution.
30. The successful Bidder shall deploy their own computing resources to implement the system.
31. The Bidder shall supply, install, configure, integrate, and support all the necessary software and hardware components required for the Solution, which will be defined in the RFP.
32. Bidder shall provide OEM training (preferably onsite) to IIMB /IIMB Support staff team (for 10 persons) through authorized OEM partners for products and technology being implemented as defined in the RFP.

## **5.2 Cloud Wireless controller & Wireless Access Point**

IIMB expects the vendor to provide a stable wireless network solution; the vendor should install, configure, and fine-tune the Signal Wireless Access Points.

The vendor must integrate the proposed solution with our existing Cisco Meraki Cloud controller so that the IIMB IT team should be able to manage all the IT administration with a single management console, which includes access point management (adding and removing APs), security patching for APs, user authentication management, and admin user privileges management.

The selected vendor must remove existing APs and return them to IIMB; the proposed Wireless Access Points should have the following features:

- Centralized cloud management
- mGig capable
- Capable of supporting 100+ users per AP
- Each AP contains a dedicated radio for security and RF optimization
- API support
- Integration with NAC
- Built-in guest access
- Full Lifetime warranty on indoor APs with advanced replacement (i.e. next business day)
- System must support a stateful application layer firewall to classify and prioritize applications using layer 7 intelligence. Applications should be able to be traffic-shaped to ensure that unwanted applications (ex, BitTorrent, Pandora, etc) are controlled while testing apps and educational apps are prioritized.
- System must support identifying client device types (ex: iPad, iPhone, Android, Windows, etc.) and apply security settings to those devices without the need for additional appliances or licenses.
- Packet capture is directly from the management interface, with the ability to filter based on client, IP address, MAC address, and others.
- Allow Airplay, Printing, iTunes/streaming and other Bonjour-based services to flow seamlessly across the wireless network.

## **5.3 Acceptance Testing**

- The objective of the task is to test whether IIM-B and the Proposed design have accepted each deliverable item and whether BOQ has met the technical requirements and Product specifications mentioned in the RFP.
- The system integrator will create an acceptance test document in accordance with technical requirements and, in consultation with IIM-B, demonstrate each of the acceptance tests to IIM. The Acceptance Test plan document should be submitted along with LLD.
- The System Integrator will carry out acceptance tests in accordance with the agreed acceptance test plan. The acceptance test should be completed within 10 days of equipment delivery.

## **5.4 Switching & DR**

- The proposed solution must be integrated with existing DNAC ( which is installed in Hostel Q & R block ) or specific single window solution for all the new access switches and distribution switches, access points & etc.. for easy administration.
- Two core switches will be configured with DR in different buildings(300-500 meters distance on BG campus) with Active- Active mode with load balancing and a total uplink of 200G with virtual stacking.
- All the distribution switches will be configured in active mode with redundancy uplink with a total capacity of 80G.
- All-access Switches will be configured under the distribution with maximum redundancy uplink with

a total Bandwidth of 20G.

- All AP's should be connected to access switches with PoE+ , with maximum signal coverage.
- After the successful full configuration, the DR vendor must provide a DR demo, which includes failover and failback access switches, Distribution switches and Core switches

## **Wired Campus**

Installation of RJ45 data outlet points: Strategically place RJ45 data outlet points throughout the campus, including rooms, common areas, and other designated locations wherever required.

**Connectivity setup:** Connect data outlet points to Rack Panels/Computer hubs using 4 pair CAT-6 wiring in raceways or conduits, ensuring efficient connectivity wherever required.

**Redundant connectivity:** Establish redundant connectivity paths to the core switch from each building to ensure seamless connectivity.

**Infrastructure setup:** Install necessary infrastructure components including Rack Panels, Network switches, patch cords, power supply units, cooling fans, Wire managers, LIUs, Trans-receivers, Fiber patch cord, etc., in individual buildings/Blocks/floors as per requirements.

**Manhole provision:** Construct brick masonry manholes with covers at suitable lengths to facilitate easy wire/cable pulling and maintenance as per requirements, which including soil digging minimum 2 feet and need to refill properly after cable laid

**Integration with existing systems:** Ensure seamless integration of the wired infrastructure with existing systems and networks on the campus.

**Compliance and standards:** Adhere to industry standards and best practices for wired network infrastructure deployment to ensure reliability, scalability, and security.

The scope of work for the wired campus aims to provide a robust and reliable network infrastructure that supports the connectivity needs of students, faculty, and staff across the campus premises.

## **5.5 Wireless Network**

- Indoor wireless network has to be based on latest IEEE 802.11ax standards and should support multiuser MIMO (MU-MIMO).
- All Access points should be able to manage through existing centralized wireless controller . This wireless controller should have high availability ( HA).
- Indoor Access points shall be powered on via POE/UPOE access switches supporting gigabit standards. The minimum number of Indoor access points estimated are 400 Nos. for proper coverage in the entire campus. However, bidders keen to participate in this bid are free to do the SITE survey on their own without any financial implication on IIM Bangalore & propose their estimation on APs count. Bidders have to ensure 100% coverage & no dark spots.
- Network solution to manage both switching and wireless network devices spread across the campus network.
- Going forward IIMB may add additional services like IOT devices etc. Network must be secure enough to add any new services as & when required.
- New Wi-Fi setup will be used to provide data and internet access to students, faculties, Staff, Students various equipment securely & residential users with different levels of access. This may increase over period of time and may require different set of security policies to access network. Selected SI shall have

to define the security policies accordingly from time to time.

Bidders, should have the capability to provide a TOTAL TURNKEY solution which covers design/development of a suitable architecture/layout of the proposed networking system, pre-dispatch inspection / testing, packing and forwarding, transportation, insurance and carrying out further activities at sites viz. unloading, storage, (space to be provided by the IIM Bangalore) further handling, erection, testing and commissioning including successful completion of acceptance tests and any other services specified.

## **5.6 Passive Networking**

- 1) The vendor must relay the Cat 6 UTP/STP cables at the residence area; the scope will be to Lay the STP /UTP cables from the Residence Distribution switch to the access switch and lay the UTP cable from the access switch inside each residence. We need to extend the in case of repositioning the AP for better signal coverages.
- 2) In Residence, the vendor needs to lay the UTP cable from one AP to another AP, with casing and capping.
- 3) The vendor must test all the existing Fiber cables in the residence and fiber labeling
- 4) The vendor must check all existing network racks and reuse all the network racks,
- 5) The vendor must dress and label the cables inside the network rack in across all locations.
- 6) The vendor must dig the soil a minimum of 2 feet deep and put HDPE pipe,
- 7) The vendor must use a trenching machine to avoid road cutting across in the Residence area. (vendor need quote separately )
- 8) The vendor must lay the fiber for the DR setup from the DC rack to the secondary network rack area over the roof.
- 9) The vendor should survey the site and let us know of the existing locations if any changes are required.
- 10) Mountings and clamping of new access points are the vendor's responsibility.
- 11) Crimping of the cables (in case the need arises) is within the scope of work. In case cables need to be changed, vendor should let us know in advance for the same.
- 12) On all floors of each block, the vendor needs to lay the bigger/smaller channel /conduits/cement pipes, preferably grey, on the floors so that all cables can accommodate the channel and the building aesthetic can be maintained.
- 13) In the residence area, the Old UTP cables are to be removed and replaced with the NEW CAT 6 STP cables. The same conduit can be used in quarters. Most of the cables are laid under the HDPE pipe, and the CAT 6 cables need to be relayed.
- 14) There are some fiber/copper chambers, and the Institute has requested that they be cleaned.
- 15) Make sure the successful bidder should have less disturbance to the users across the campus.
- 16) The successful bidder should be able to work late-night hours, so be able to lay the cable in case it is necessary in the residence location with minimal noise.
- 17) Almost all the racks required Preventative maintenance; the successful bidders should visit this location and give us the estimates for PM (in case of labelling).
- 18) The existing Rack needs to be labelled and Dressed Properly. It is part of the scope, and the commercial can be quoted separately.
- 19) In quarters, copper cables need to be labelled and dressed properly on the rack, and the copper termination should be industry standard; we do not expect any calls for termination in the near future.
- 20) All removed fiber/copper cables/ Information Outlet/Casing and capping and conduit have been brought back to CC and handed over to the concerned officials/Project manager.
- 21) All active components like L-3 switches, L-2 switches & SFP should be handed over to the Concerned official with the Signatures and Handed over to the Manager CC/Project Managers.
- 22) The selected vendor has to configure and integrate the wireless equipment without disturbing the current architecture of the network as and when required. Interoperability of existing wireless infrastructure with the newly proposed infrastructure has to be demonstrated such that existing.
- 23) The passive BOQ is a tentative calculation, and there may be a 25% difference in actual usage, and the payment will be made based on actual usage.

- 24) Digging Permission must taken from the IIMB officials before doing Any job.
- 25) Most of the quarters are laid with a Conduit inside the home, and the Vendor can use the same conduit for laying the cables.
- 26) Maintaining the Quarter clean after the Laying and termination of copper cables is part of the vendor.
- 27) Request for minimum disturbance to residence and damage to residence gardens for these activities. Holes dug should be filled back up after the cable-laying is complete.
- 28) OFC Connectivity Details
- 29) DC1 to DC2: SM OFC Cable need to be laid between DC1 to DC2.
- 30) Faculty Blocks A to F & NSRCEL :- Secondary SM OFC Cable need to be laid between DC2 to Faculty A, DC2 to Faculty B, DC2 to Faculty C, DC2 to Faculty D, DC2 to Faculty E, DC2 to Faculty F, DC2 to Faculty NSRCEL
- 31) Hostel Blocks A to J & Executive PHD:- Secondary SM OFC Cable need to be laid between DC2 to Hostel AB distribution point and SM OFC cable need to be laid between Hostel AB distribution point to Hostel CD, Hostel AB distribution point to Hostel GH, Hostel AB distribution point to Hostel IJ
- 32) Hostel Blocks K to P & Sports Complex: Secondary SM OFC Cable must be laid between DC2 and Hostel K distribution points. And SM OFC cable need to be laid between Hostel K distribution point to Hostel M, Hostel K distribution point to Hostel L.
- 33) Class Rooms ( K, M,N, P, C11 & C12 ): Secondary SM OFC Cable need to be laid between DC2 to Class K, DC2 to Class M, DC2 to Class N Cluster, DC2 to Class P, DC2 to Class C11, DC2 to Class C12
- 34) MDC, Library, NOC & MHU: Secondary SM OFC Cable need to be laid between DC2 to MDC, DC2 to Library, DC2 to NOC, DC2 to MHU

#### **1. Rack Replacements:**

- 1) The rack needs to be replaced in Staff A.
- 2) The rack needs to be replaced in Staff B.
- 3) The rack needs to be replaced in Residence 313.
- 4) Racks need to be replaced in New Residence 450,434 & 442.
- 5) Rack needs to be placed on top of the existing rack at Hostel K, Hostel AB & MDC Note: Route markers need to be placed for the residence areas

The passive payment will be made as per the actual use and work done; in case of excess material supplied, the vendor needs to take it back without any additional charge

Vendors must visit the campus to access the passive work and materials before submitting the proposal to IIMB with appointment .

#### **5.7. Project Documentations**

- Detailed Floor-wise cable laying chart along with the classroom.
- Post- and pre-installation AP signal strength survey in the classrooms/hostel blocks/MDC/faculty blocks/open corridors.
- Detailed A0 Size Photograph along with the Frame and Fiber length across the fiber segments should be published to the Manager CC
- Inventory of the Switch/AP/ Blade 6509/4510R/3560/3650/2960/SFP along with the location details
- Total Access points count along with the location Details.
- Step-by-step configuration along with a screenshot of NAC/NMS/Core Switch /distribution switch/Access switch /cloud Wireless controller / Individual AP/AC
- Training: This will include the 4 days training program for in house engineers for the day-to-day operation.
- Wherever needed, our technical two persons should be trained by the supplier at the project site free of cost. In case the person is to be trained at the supplier's site abroad or in India, it should be

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mentioned in the quotation clearly. The supplier should bear all the expenses for such training, including 'to & fro' fares and lodging & boarding charges.

- Bidder should provide the site specific training to five people and implementation documentation.

### **5.8 Vendor Visit**

The Vendor is advised to visit the site, at his own cost, and examine it and its surroundings by himself, collecting all information that he considers necessary for proper assessment of the prospective assignment.

The successful bidder shall assign project manager and associated support personnel for the one-time implementation.

The timeline of the project is four months from the date of the PO.

### **5.9 Buyback Equipment**

The successful bidder must Buy Back all the listed items in this RFP as on condition.

The vendor should collect all the equipment'ss as on condition, IIMB will not be responsible for the equipment not working after dismantle of the old equipment inventory list needs to be handed over to the IIMB team with details.

IIM Bangalore has all the rights in case to retain any equipment in case IIMB needs and the buyback cost will be adjusted accordingly.

### **5.9 Safety**

The successful Bidder should take care of all the safety measures of their workers. IIMB will not be responsible for any casualties which occurred during the work.

The successful Bidder must bring all the required tools for the passive and active works.

The successful bidder should arrange the required manpower for all the activities.

### **5.10 Network AMC (Comprehensive) for existing devices**

Indian Institute of Management Bangalore (IIMB) would want to go for comprehensive maintenance for all Network equipment. The objective is to ensure uninterrupted operation till the project is completed.

The successful bidder should coordinate with the in-house IT team for any equipment replacement.

The service provider's professionally qualified/trained engineer must be aligned during the AMC period. Scope includes ticketing, identifying, troubleshooting, and documenting the action taken for the closure.

Suppose the hardware goes down or has any performance or functionality issues. In that case, the vendor should replace the existing equipment with the same or equivalent model without compromising existing functionality & features.

- The vendor should coordinate with in-house IT for hardware issues.
- The materials should be shown to IIM IT officials before replacing it and get the approval.
- If any hardware change vendor should ensure all licenses will also work.
- All the inwards should be with DC
- Vendor should follow the SLA.
- No additional payments will be provided for site visit, transport etc..

### **5.11 Miscellaneous**

The material and services other than those mentioned in the BOQ and required to complete the project in all sense should be included. The breakup list should be submitted along with the technical bid. The modules or the cables and connectors require to fulfill the compatibility with the existing (Cisco Firewall,etc.)/proposed infra should be included and quoted in miscellaneous.

### **5.12 Proposed BOQ of Active Components :**

<b>Sl. No</b>	<b>Item Description</b>	<b>Units</b>	<b>Quantity</b>
1	Core Switch Core Switch Chassis Based: 1) 24-Port 40GE SFP- 1No per Switch 2) 48-Port 10GE/1GE SFP - 1No per Switch 3) 48-Port 10Gig/1G Copper - 1No per Switch 4) Supervisor engine- 1 No per switch	Nos	2
2	Access Switch Semi MultiGig 48 ports Layer 2 PoE+ Switch with 48 1GbE ports with minimum 8port of 1GbE/2.5GbE (Multi-Gigabit) 4x 1/10G fixed uplinks	Nos	128
3	Distribution Switch 48 ports of 10GbE/25GbE (SFP+/SFP28). Cables/Transceivers shall be populated as per the design and The switch should have min 2 ports of 40GbE/100GbE (QSFP+/QSFP28).	Nos	9
4	In Room Access Point with License Wi-Fi 6 Access Points (Room Access Point) 2x2 on 2.4 & 5 GHz	Nos	1420
5	In rooms with Multiple RJ45 Ports with License Wi-Fi 6 Access Points (Rooms with RJ45 Ports ) 2x2 on 2.4 & 5 GHz	Nos	160
6	Corridor /Classrooms Access Points WiFi6 Access Points (Corridor Access Points, High density ) 4x4 on 2.4GHz and 5GHz	Nos	250
7	Outdoor areas Access Points with License WiFi6 Access 4x4 on (Common areas Access Points) 2.4GHz and 5GHz	Nos	12
8	Small form-factor pluggable transceiver - SM (SFP+) - 10G	Nos	200
9	Small form-factor pluggable transceiver - SM (SFP+) - 40G	Nos	33
10	Cloud Wireless Controller	Nos	1
11	Small form-factor pluggable transceiver - SM (SFP+) - 10G copper transceiver module	Nos	2
12	NAC Device with 5000 User License	Lot	2



**5.12 Passive Supply details**

<b>B</b>	<b>Passive Revamp Supply</b>		
1	9U*600MM wall mount rack including PDU and Accessories	6.00	Nos
2	15U*600MM Floor mount rack including PDU and accessories	3.00	Nos
3	36U*800mm Floor mount rack including PDU and accessories	3.00	Nos
4	Cat 6 STP Cable (305 M Box)	50.00	Nos
5	Cat 6 UTP Cable (305 M Box)	6.00	Nos
6	24 Port Jack Panel Cat6 STP Fully Loaded	11.00	Nos
7	24 Port Jack Panel Cat5e UTP Fully Loaded	10.00	Nos
8	Cat 6 STP IO's	220.00	Nos
9	Cat6 single port face plate	220.00	Nos
10	I/O Back box	220.00	Nos
11	Cat 6 1Mtr STP Patch Cord	420.00	Nos
12	Cat5e 1Mtr UTP Patch Cord	30.00	Nos
13	24 Core Single Mode Fiber Optic outdoor armoured cable	700.00	Mtrs
14	6 Core Single Mode Fiber Optic outdoor armoured cable	8,000.00	Mtrs
15	24 Port LIU fully Loaded	14.00	Nos
16	12 Port LIU fully Loaded	2.00	Nos
17	6 Port LIU fully Loaded	37.00	Nos
18	Single Mode Fiber Patch Cord 3 Mtrs	200.00	Nos
19	1" InchHDPE Pipe	5,000.00	Mtrs
20	1.5" InchHDPE Pipe	1,600.00	Mtrs
21	2" InchHDPE Pipe	2,000.00	Mtrs
22	1" Inch Hard Flexible Pipe	400.00	Mtrs
23	2" Inch Hard Flexible Pipe	120.00	Mtrs
24	1" Inch PVC Conduit with bends and Clamps	5,000.00	Mtrs
25	2" Inch PVC Conduit with bends and Clamps	300.00	Mtrs
26	2" Inch GI Pipe 6 Mtr Length	12.00	Mtrs
27	OFC Route Marker	150.00	Nos.
28	Outdoor OFC cable enclosure jointer	15.00	Nos.
29	Miscellaneous items and accessories	1.00	Lot

**5.13 Passive Services**

<b>A</b>	<b>Passive Revamp Services</b>		
1	Laying charges of 4 pair UTP/STP cable (CAT6) Outdoor	15,000.00	Mtrs
2	Fixing of 24 Port CAT6 /CAT5e Jack Panel	21.00	Nos
3	Termination charges of Cat6 STP Information Outlet	440.00	Nos
4	Fixing charges of Face Plates	440.00	Nos
5	Fixing Charges of Back Boxes	220.00	Nos
6	Termination charges of Cat5e Information Outlet	200.00	Nos
7	Scanning, Testing, and Documentation of UTP Points.	300.00	Nos
8	Laying 24 Core Outdoor OFC SM	700.00	Mtrs
9	Laying 6 Core Outdoor OFC SM	8,000.00	Mtrs
10	Fixing charges of Rack Mount LIU	53.00	Mtrs
11	Splicing charges for Pigtails	600.00	Nos
12	OTDR Testing charges of Fiber Core. for existing fiber and fiber loss reporting	300.00	Mtrs
13	Rack Dressing	41.00	Nos
14	Rack Replacement	13.00	Nos
15	Laying HDPE Pipe (1" Inch)	5,000.00	Mtrs
16	Laying HDPE Pipe (1.5" Inch & 2" Inch)	3,600.00	Mtrs
17	Digging of soft soil Manual Digging and Back filling of the trench with soil and leveling (2Feet Depth)	2,300.00	Mtrs
18	Digging of Hard soil Manual Digging and Back filling of the trench with concrete (2Feet Depth)	150.00	Mtrs
19	Laying charges of 1" Inch Pvc Channel/Conduit /pipe with bend and junctions indoor over the wall and roof	5,000.00	Mtrs
20	Laying charges of 2" Inch Pvc Channel/Conduit /pipe with bend and junctions indoor over the wall and roof	300.00	Mtrs

In addition to the above, the selected bidder will depute technical engineers (L2) at IIM Bangalore for a period of 6 months after project completion to address ongoing issues until stabilize the network. The engineers shall have adequate experience in independently managing same/similar projects of this kind.

**5.14 Call Flow and Escalation Matrix - Operations & Maintenance**

Operation and Maintenance Support goes through the following phases:

- a) Support Call Logging
- b) Support Call Resolution
- c) Support Call Closure

Section 10.4 & 5 describe the various activities that take place in each of the above phases, the necessary reports that need to be generated and submitted.

**5.15 Training**

3 days training shall be imparted by experienced & certified person from the selected SI. A considerable practical/ hands-on training shall be included apart from imparting theoretical training. Project Completion certificate will be furnished only with post in-house training of IIMB Staff.

The proposed schedule for the same is as below

**Schedule for Training :**

<b>Sr.No.</b>	<b>Topics for Training</b>
1	Basics of Data Networking & logical Connectivity
2	Layer 2 & Layer 3 Switches, Wireless Controller & Access Point
3	Network Fault identification, Troubleshooting, Administration, Policies formulation and management, Network Monitoring, report generation
4	Network Management Systems installation and handling, usage.

## **6. TECHNICAL SPECIFICATIONS**

**6.1 ACTIVE COMPONENTS**

SL	Access point Room biased Description	Compliance
1	The proposed access point shall support 2.4 GHz 802.11b/g/n/ax client access radio and 5 GHz 802.11a/n/ac/ax client access radio	
2	The proposed access point shall support hardware accelerated encryption	
3	The proposed access point shall support band steering and 802.11e/WMM	
4	The proposed access point shall support 1x 100/1000 BASE-T Ethernet (RJ45)	
5	The proposed access point shall support 2 x 2 multiple input, multiple output (MIMO) with two spatial streams and beam forming	
6	Must support 1.5Gbps aggregate frame rate or higher	
7	Must support 40 & 80 MHz wide channels in 5 GHz.	
8	The proposed access point shall support zero touch provision with true plug & play with zero configuration	
9	The proposed access point shall support rapid deployment options to deploy of 100's of access points using centralized single configuration template, configuration copy, configuration sync etc	
10	The proposed access point shall support device configuration in the dashboard even before the devices are delivered	
11	The proposed access point shall support fully remote monitoring, configuration, troubleshooting considering the situation of the deployment	
12	The proposed access point shall support client fingerprinting with 20+ parameters along with client real time location	
13	The proposed solution shall support built in self-registration & SMS authentication	
14	Access point should be powered with POE or Power adapter	
15	Access point should be unified and should be managed from central WLC / dashboard and support WIDS/WIPS functionality.	
16	Access Point should have Real-time spectrum intelligence capabilities	
17	The proposed solution shall support detailed location analytics and presence analytics	
18	The access points solution should have real time asset visibility including real time location in the management platform from day 1	
19	The access points solution should have Bluetooth based engagement support for Bluetooth device tracking and communication from day 1	
20	The access points solution should have wireless health/assurance which includes data like latency, SNR, RSSI, data rates and more intelligent information from day 1	
21	The proposed solution shall support premium analytics from day 1	
22	The proposed solution shall support AI based recommendations through dashboard or via Virtual assistant	
23	The proposed solution shall support Social media authentication & Email OTP ( automated ) to support users to onboard without depending on the admin/IT team	
24	The proposed solution shall support internal as well as external captive portal API integration to support 3rd party Captive portal and should have inbuilt Captive portal customization ( logo, URL, themes, message etc )	
25	The proposed solution shall support PMK, 802.11r for fast layer 2 roaming	
26	The proposed solution shall support distributed layer 3 roaming	
27	The proposed solution shall support decision at the access points level which includes layer 3 to layer 7 stateful decisions, QOS policies, NAC policies etc for high performance and scaling ( by taking decisions at the edge level )	

28	The proposed solution shall support WIPS/WIDS solution to protect from threats.	
29	The proposed solution shall support full client, OS visibility and context-based policy can be assigned to different users, devices based on preferences	
30	The proposed solution shall support inbuilt Radius database for authentication ( username/password ) and authorization with expiry time	
31	The proposed solution shall support log management up to 12 months inbuilt	
32	The proposed solution shall support summary reporting and network analytics and the same shall be maintained up to 3 months	
33	The solution must health visibility of Wireless network and Individual client connectivity issues/latency that impact Wireless user experience	
34	The solution must have built-in guest captive portal for on boarding users	
35	The proposed solution shall support WIPS/WIDS solution using a dedicated 3rd radio/hardware with the round the clock monitoring to protect from threats.	
36	The vendor should be the market leaders in the wired and wireless segment in Gartner report as per the latest report	
37	The proposed solution shall support 3 years replacement warranty and 24/7 TAC support along with the India TAC number. Should also have 10 year warranty support	
38	The proposed solution shall support cross integration and automation among the proposed products like AP, Switches and ( cameras, IOT sensors which can be added in the future ) from the same OEM	
39	The proposed solution shall support health and realtime visibility of proposed products like AP, Switches, from the same OEM	
40	The proposed solution shall support entire topology of the whole network including wireless, switches, ( cameras, IOT sensors which can be added in the future ) into one topology using the same OEM dashboard	
41	The vendor should be the market leaders in the wired and wireless segment in gartner report as per the latest report	

SL	Access point Room biased Description with Ethernet out	Compliance
1	The proposed access point shall support 2.4 GHz 802.11b/g/n/ax client access radio and 5 GHz 802.11a/n/ac/ax client access radio	
2	The proposed access point shall support hardware accelerated encryption	
3	The proposed access point shall support band steering and 802.11e/WMM	
4	The proposed access point shall support 1x 100/1000 BASE-T Ethernet (RJ45)	
5	The proposed access point shall support 1x 10/100/1000 BASE-T Ethernet (RJ45) (Uplink on the back)  1x 10/100/1000 BASE-T Ethernet (RJ45) with 802.3af Power over Ethernet output  2x 10/100/1000 BASE-T Ethernet (RJ45) outputs 1x Passthrough port (non-managed).	
6	Must support 1.5Gbps aggregate frame rate or higher	
7	Must support 40 & 80 MHz wide channels in 5 GHz.	
8	The proposed access point shall support zero touch provision with true plug & play with zero configuration	
9	The proposed access point shall support rapid deployment options to deploy of 100's of access points using centralized single configuration template, configuration copy, configuration sync etc	
10	The proposed access point shall support device configuration in the dashboard even before the devices are delivered	

11	The proposed access point shall support fully remote monitoring, configuration, troubleshooting considering the situation of the deployment	
12	The proposed access point shall support client fingerprinting with 20+ parameters along with client real time location	
13	The proposed solution shall support built in self-registration & SMS authentication	
14	Access point should be powered with POE or Power adapter	
15	Access point should be unified and should be managed from central WLC / dashboard and support WIDS/WIPS functionality.	
16	Access Point should have Real-time spectrum intelligence capabilities	
17	The proposed solution shall support detailed location analytics and presence analytics	
18	The access points solution should have real time asset visibility including real time location in the management platform from day 1	
19	The access points solution should have Bluetooth based engagement support for Bluetooth device tracking and communication from day 1	
20	The access points solution should have wireless health/assurance which includes data like latency, SNR, RSSI, data rates and more intelligent information from day 1	
21	The proposed solution shall support premium analytics from day 1	
22	The proposed solution shall support AI based recommendations through dashboard or via Virtual assistant	
23	The proposed solution shall support Social media authentication & Email OTP ( automated ) to support users to onboard without depending on the admin/IT team	
24	The proposed solution shall support internal as well as external captive portal API integration to support 3rd party Captive portal and should have inbuilt Captive portal customization ( logo, URL, themes, message etc )	
25	The proposed solution shall support PMK, 802.11r for fast layer 2 roaming	
26	The proposed solution shall support distributed layer 3 roaming	
27	The proposed solution shall support decision at the access points level which includes layer 3 to layer 7 stateful decisions, QOS policies, NAC policies etc for high performance and scaling ( by taking decisions at the edge level )	
28	The proposed solution shall support WIPS/WIDS solution to protect from threats.	
29	The proposed solution shall support full client, OS visibility and context-based policy can be assigned to different users, devices based on preferences	
30	The proposed solution shall support inbuilt Radius database for authentication ( username/password ) and authorization with expiry time	
31	The proposed solution shall support log management up to 12 months inbuilt	
32	The proposed solution shall support summary reporting and network analytics and the same shall be maintained up to 3 months	
33	The solution must health visibility of Wireless network and Individual client connectivity issues/latency that impact Wireless user experience	
34	The solution must have built-in guest captive portal for on boarding users	
35	The proposed solution shall support WIPS/WIDS solution using a dedicated 3rd radio/hardware with the round the clock monitoring to protect from threats.	
36	The vendor should be the market leaders in the wired and wireless segment in Gartner report as per the latest report	
37	The proposed solution shall support 3 years replacement warranty and 24/7 TAC support along with the India TAC number. Should also have 10 year warranty support	

38	The proposed solution shall support cross integration and automation among the proposed products like AP, Switches and ( cameras, IOT sensors which can be added in the future ) from the same OEM	
39	The proposed solution shall support health and realtime visibility of proposed products like AP, Switches, from the same OEM	
40	The proposed solution shall support entire topology of the whole network including wireless, switches, ( cameras, IOT sensors which can be added in the future ) into one topology using the same OEM dashboard	
41	The vendor should be the market leaders in the wired and wireless segment in Gartner report as per the latest report	

SL	Hi-Density Access points	Compliance
1	The proposed access point shall support 2.4 GHz 802.11b/g/n/ax client access radio and 5 GHz 802.11a/n/ac/ax client access radio	
2	The proposed access point shall support hardware accelerated encryption	
3	The proposed access point shall support band steering and 802.11e/WMM	
4	The proposed access point shall support 1x 100/1,000/2.5G BASE-T Ethernet (RJ45)	
5	The proposed access point shall support 4 x 4 multiple input, multiple output (MIMO) with four spatial streams	
6	Must support aggregate 2.98Gbps aggregate	
7	Must support 40 & 80 MHz wide channels in 5 GHz.	
8	The proposed access point shall support zero touch provision with true plug & play with zero configuration	
9	The proposed access point shall support rapid deployment options to deploy of 100's of access points using centralized single configuration template, configuration copy, configuration sync etc	
10	The proposed access point shall support device configuration in the dashboard even before the devices are delivered	
11	The proposed access point shall support fully remote monitoring, configuration, troubleshooting considering the situation of the deployment	
12	The proposed access point shall support client fingerprinting with 20+ parameters along with client real time location	
13	The proposed solution shall support built in self-registration & SMS authentication	
14	Access point should be powered with POE or Power adapter	
15	Access point should be unified and should be managed from central WLC / dashboard and support WIDS/WIPS functionality.	
16	Access Point should have Real-time spectrum intelligence capabilities	
17	The proposed solution shall support detailed location analytics and presence analytics	
18	The access points solution should have real time asset visibility including real time location in the management platform from day 1	
19	The access points solution should have Bluetooth based engagement support for Bluetooth device tracking and communication from day 1	
20	The access points solution should have wireless health/assurance which includes data like latency, SNR, RSSI, data rates and more intelligent information from day 1	
21	The proposed solution shall support premium analytics from day 1	
22	The proposed solution shall support AI based recommendations through dashboard or via Virtual assistant	
23	The proposed solution shall support Social media authentication & Email OTP ( automated ) to support users to onboard without depending on the admin/IT team	



24	The proposed solution shall support internal as well as external captive portal API integration to support 3rd party Captive portal and should have inbuilt Captive portal customization ( logo, URL, themes, message etc )	
25	The proposed solution shall support PMK, 802.11r for fast layer 2 roaming	
26	The proposed solution shall support distributed layer 3 roaming	
27	The proposed solution shall support decision at the access points level which includes layer 3 to layer 7 stateful decisions, QOS policies, NAC policies etc for high performance and scaling ( by taking decisions at the edge level )	
28	The proposed solution shall support WIPS/WIDS solution to protect from threats.	
29	The proposed solution shall support full client, OS visibility and context-based policy can be assigned to different users, devices based on preferences	
30	The proposed solution shall support inbuilt Radius database for authentication ( username/password ) and authorization with expiry time	
31	The proposed solution shall support log management up to 12 months inbuilt	
32	The proposed solution shall support summary reporting and network analytics and the same shall be maintained up to 3 months	
33	The solution must health visibility of Wireless network and Individual client connectivity issues/latency that impact Wireless user experience	
34	The solution must have built-in guest captive portal for on boarding users	
35	The proposed solution shall support WIPS/WIDS solution using a dedicated 3rd radio/hardware with the round the clock monitoring to protect from threats.	
36	The vendor should be the market leaders in the wired and wireless segment in Gartner report as per the latest report	
37	The proposed solution shall support 3 years replacement warranty and 24/7 TAC support along with the India TAC number. Should also have 10 year warranty support	
38	The proposed solution shall support cross integration and automation among the proposed products like AP, Switches and ( cameras, IOT sensors which can be added in the future ) from the same OEM	
39	The proposed solution shall support health and realtime visibility of proposed products like AP, Switches, from the same OEM	
40	The proposed solution shall support entire topology of the whole network including wireless, switches, ( cameras, IOT sensors which can be added in the future ) into one topology using the same OEM dashboard	
41	The vendor should be the market leaders in the wired and wireless segment in Gartner report as per the latest report	

SL	Out Door Access Point	Compliance
1	The proposed access point shall support 2.4 GHz 802.11b/g/n/ax client access radio and 5 GHz 802.11a/n/ac/ax client access radio	
2	The proposed access point shall support hardware accelerated encryption	
3	The proposed access point shall support band steering and 802.11e/WMM	
4	The proposed access point shall support 1x 100/1,000/2.5G BASE-T Ethernet (RJ45)	
5	The proposed access point shall support 4 x 4 multiple input, multiple output (MIMO) with four spatial streams and beam forming	
6	The proposed solution should be IP67 rated, with all associated cabling and conduiting appropriately weather proofed.	
7	Access point should have operating temperature range of -40 to 55 degrees.	
8	Access point should be able to handle 5 to 95% humidity	
9	Must support 2.98Gbps aggregate frame rate or higher	

10	Must support 40 & 80 MHz wide channels in 5 GHz.	
11	The proposed access point shall support zero touch provision with true plug & play with zero configuration	
12	The proposed access point shall support rapid deployment options to deploy of 100's of access points using centralized single configuration template, configuration copy, configuration sync etc	
13	The proposed access point shall support device configuration in the dashboard even before the devices are delivered	
14	The proposed access point shall support fully remote monitoring, configuration, troubleshooting considering the situation of the deployment	
15	The proposed access point shall support client fingerprinting with 20+ parameters along with client real time location	
16	The proposed solution shall support built in self registration & SMS authentication	
17	Access point should be powered with POE or Power adapter	
18	Access point should be unified and should be managed from central WLC / dashboard and support WIDS/WIPS functionality.	
19	Access Point should have Real-time spectrum intelligence capabilities	
20	The proposed solution shall support detailed location analytics and presence analytics	
21	The access points solution should have real time asset visibility including real time location in the management platform from day 1	
22	The access points solution should have Bluetooth based engagement support for Bluetooth device tracking and communication from day 1	
23	The access points solution should have wireless health/assurance which includes data like latency, SNR, RSSI, data rates and more intelligent information from day 1	
24	The proposed solution shall support premium analytics from day 1	
25	The proposed solution shall support AI based recommendations through dashboard or via Virtual assistant	
26	The proposed solution shall support Social media authentication & Email OTP ( automated ) to support users to onboard without depending on the admin/IT team	
27	The proposed solution shall support internal as well as external captive portal API integration to support 3rd party Captive portal and should have inbuilt Captive portal customization ( logo, URL, themes, message etc )	
28	The proposed solution shall support PMK, 802.11r for fast layer 2 roaming	
29	The proposed solution shall support distributed layer 3 roaming	
30	The proposed solution shall support decision at the access points level which includes layer 3 to layer 7 stateful decisions, QOS policies, NAC policies etc for high performance and scaling ( by taking decisions at the edge level )	
31	The proposed solution shall support WIPS/WIDS solution to protect from threats.	
32	The proposed solution shall support full client, OS visibility and context based policy can be assigned to different users, devices based on preferences	
33	The proposed solution shall support inbuilt Radius database for authentication ( username/password ) and authorization with expiry time	
34	The proposed solution shall support log management up to 12 months inbuilt	
35	The proposed solution shall support summary reporting and network analytics and the same shall be maintained up to 3 months	
36	The solution must health visibility of Wireless network and Individual client connectivity issues/latency that impact Wireless user experience	
37	The solution must have built-in guest captive portal for on boarding users	

38	The proposed solution shall support WIPS/WIDS solution using a dedicated 3rd radio/hardware with the round the clock monitoring to protect from threats.	
39	The vendor should be the market leaders in the wired and wireless segment in Gartner report as per the latest report	
40	The proposed solution shall support 3 years replacement warranty and 24/7 TAC support along with the India TAC number. Should also have 10 year warranty support	
41	The proposed solution shall support cross integration and automation among the proposed products like AP, Switches and ( cameras, IOT sensors which can be added in the future ) from the same OEM	
42	The proposed solution shall support health and realtime visibility of proposed products like AP, Switches, from the same OEM	
43	The proposed solution shall support entire topology of the whole network including wireless, switches, ( cameras, IOT sensors which can be added in the future ) into one topology using the same OEM dashboard	
44	The vendor should be the market leaders in the wired and wireless segment in Gartner report as per the latest report	

SL	Core Switch	Compliance
	<b>General Features &amp; Performance:</b>	
1	Chassis-based switch with at least 4 payload slots and additional two slot to accommodate two nos. of switch processor.	
2	The proposed switch support redundant CPUs. Should support Non-Stop Forwarding and Stateful Switchover to ensure information between supervisor engines are fully to allow the standby supervisor engine to take over in sub second time if the primary supervisor fails.	
3	Switch should have non-blocking per-slot throughput from day 1.	
4	Shall support In Service Software Upgrade (ISSU) or Hit less update to provide an upgrade of the entire chassis or an individual task/process without impacting hardware forwarding	
5	Switch should have redundant power supply from day 1.	
6	Shall support Single Operating System binary image for all switch models proposed as part of the design.	
7	Switch should support field replaceable components such as Supervisor, Line cards, Power-supply and Fan trays.	
8	Platform should be SDN ready from day 1.	
9	Should have 16 GB DRAM and 16 GB Flash	
10	The switch chassis should support up to 25 Tbps switching capacity.	
11	The switch should support minimum 8 Bpps.	
12	IPv4 Routing entry support: 200K	
13	IPv6 Routing entry support: 200K	
14	Multicast Routing entry support: 32K	
15	MAC addresses support: 64K	
16	VLANs ID: 4K	
17	ACL & QOS entry support (20K Security ACL & 16K QOS ACL)	
18	Packet buffer: 100 MB and HW should ready to support more buffer.	
19	The device should be IPv6 ready from day one	
20	Must support BGP, MPLS, IS-IS, VRF, VXLAN, OSPF Routed Access, Policy-Based Routing (PBR),	

21	PIM SM, and Virtual Router Redundancy Protocol (VRRP) from Day 1	
22	STP, PVLAN, First Hop Security, Link Aggregation Protocol (LACP)	
23	STP, Trunking, Private VLAN (PVLAN), Q-in-Q, Shaped Round Robin (SRR) scheduling, Committed Information Rate (CIR), and eight egress queues per port	
24	Should have AES-256 support with MACSEC-256 encryption algorithm on hardware.	
25	During system boots, the system's software signatures should be checked for integrity. System should be capable of understanding that system OS are authentic and unmodified, it should have cryptographically signed images to provide assurance that the firmware & BIOS are authentic.	
26	OS should have support for Management automation via Netconf /Yang or equivalent	
27	Should support Streaming Telemetry, Netflow /Sflow/Jflow, SPAN, RSPAN or equivalent	
28	Interface	
29	The Switch will be populated with:	
30	1) 24-Port 40GE SFP- 1No per Switch 2) 48-Port 10GE/1GE SFP - 1No per Switch 3) 48-Port 10Gig/1G Copper - 1No per Switch 4) Supervisor engine- 1 No per switch	
31	1 x Console port	
	<b>Scalability:</b>	
32	Chassis should be ready to support 400G ports, if required.	
33	Chassis should support QSFP28 ports, if required	
	<b>Certification:</b>	
34	The switch should be CE Marking, UL 60950, EN 60950 and ROHS5	

SL	48-Port Distribution Switch - Technical Specifications	Compliance
	<b>General Features :</b>	
1	Switch should have: 48 x 1/10/25G ports	
2	Switch should have minimum 4x40/100G ports, Cables/Transceivers shall be populated as per the design	
3	Switch shall be 1U and rack mountable in standard 19" rack.	
4	Switch shall have min. 16 GB RAM.	
5	Switch shall have min. 32GB SSD/flash for hosting container applications or internal storage	
6	Switch shall have a hot swappable 1:1 redundant internal power supply and redundant fan.	
7	Switch shall support VSS or equivalent features allowing links that are physically connected to two different switches to appear as a single port channel with inter-switch bandwidth of min. 400Gbps	
8	Switch shall support In Service Software Upgrade (ISSU) or equivalent hitless failover to provide an upgrade of the entire platform or an individual task/process without impacting hardware forwarding.	
9	Switch shall have hot swappable 1:1 redundant internal power supply and redundant fan, on day1	
	<b>Performance :</b>	
10	Switching system shall have a minimum 2 Tbps of switching fabric and minimum 1Bpps of forwarding rate.	
11	Switching system shall have a minimum 80K MAC Addresses and 4K VLANs.	
12	Switch should support minimum 5K ACLs, 5K Multicast and 30K IPv4, 15K IPv6 Routes..	
13	Switch shall support application visibility and traffic monitoring with minimum 50 K netflow/jflow entries, or with minimum sampling rate of 4096 in case of sflow.	
14	Min. Packet buffer : 30 MB	

15	The device should be IPv6 ready support or logo certified from day one	
	<b>Functionality:</b>	
16	Should support IEEE Standards of Ethernet: IEEE 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.1ae (256-bit and 128-bit AES)/VXLAN overlay, 802.3x, 802.1p, 802.1Q, 1588v2/NTP/SNTP	
17	Switch should support routing protocols like BGPv4, OSPF(v2, v3)/ ISISv4, RIP, Static, EVPN, PIM, SSM, BFD, VRF aware BFD, IEEE 802.1ae/VXLAN overlay from day 1 on the same hardware	
18	Shall have 802.1p class of service, marking, classification, policing and shaping. Should support strict priority queuing.	
19	Switch should support API Driven configuration and support Netconf and Restconf using YANG data model. It should support automation tool like python	
20	Switch should support port security/DHCP snooping/first hop security/Spanning tree root guard or equivalent.	
21	IPv6 support in hardware, providing wire rate forwarding for IPv6 network	
22	Should support 802.1x authentication and accounting, IPv4 and IPv6 ACLs and Dynamic VLAN assignment.	
23	Eight egress queues per port for different types.	
24	During system boots or OS upgrades, the system's software should be checked for integrity.	
25	Switch should support management features like SSHv2, SNMPv2c, SNMPv3, NTP, RADIUS and TACACS+, SSL/SSH, SFTP	
26	Switch OS should support programmability through REST APIs and Python scripting or equivalent	
	<b>Certification:</b>	
27	Switch shall conform to UL 60950 or IEC 60950 or CSA 60950 or EN 60950 Standards for Safety requirements of Information Technology Equipment.	
28	Switch shall conform to EN 55022/EN55032 Class A/B or CISPR22 Class A/B or CE Class A/B or FCC Class A/B Standards for EMC (Electro Magnetic Compatibility) requirements.	
29	Switch / Switch's Operating System should be tested for EAL 2/NDPP or above under Common Criteria Certification.	
	<b>Security</b>	
30	Switch should support for sending logs to multiple centralised syslog server for monitoring and audit trail	
31	Protection from unnecessary or DoS traffic by using storm control functions for unicast/multicast/broadcast.	
32	Storm control (multicast, and broadcast)	
33	Dynamic Host Configuration Protocol (DHCP) snooping or Equivalent	
34	BPDU Protection or Equivalent	
35	STP Root Protection/Equivalent	
36	Dynamic ARP Inspection/VXLAN ARP/ND suppression	

SL	Multigig 24 Port PoE Switch - Technical Specifications	Compliance
	<b>General Features :</b>	
1	Switch should be 1U and rack mountable in standard 19" rack.	
2	Switch should support internal field replaceable unit redundant power supply from day 1.	
3	Switch should have minimum 2 GB RAM and 2 GB Flash.	
4	Switch should have dedicated slot or ports for stacking. Should support for minimum 80 Gbps of stacking throughput with 8 switch in single stack.	

	<b>Performance :</b>	
5	Switch shall have minimum 270 Gbps of switching fabric and 215 Mbps of forwarding rate.	
6	Switch shall have minimum 16K MAC Addresses and 250 active VLAN.	
7	Should support minimum 11K IPv4 routes or more	
8	Switch shall have 1K or more multicast routes.	
9	Switch should support at least 16K flow entries	
10	Switch should support 128 or more STP Instances.	
11	Switch should have 6MB or more packet buffer.	
	<b>Functionality :</b>	
12	Switch should support IEEE Standards of Ethernet: IEEE 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.3x, 802.1p, 802.1Q, 802.3, 802.3u, 802.3ab, 802.3z.	
13	Switch must have functionality like static routing, RIP, PIM, OSPF, VRRP, PBR and QoS features from Day1	
14	Switch should support network segmentation that overcomes the limitation of VLANs using VXLAN and VRFs.	
15	Switch shall have 802.1p class of service, marking, classification, policing and shaping and eight egress queues.	
16	Switch should support management features like SSHv2, SNMPv2c, SNMPv3, NTP, RADIUS and TACACS+ .	
17	Switch should support IPv6 Binding Integrity Guard, IPv6 Snooping, IPv6 RA Guard, IPv6 DHCP Guard, IPv6 Neighbor Discovery Inspection and IPv6 Source Guard.	
18	Switch should support 802.1x authentication and accounting, IPv4 and IPv6 ACLs and Dynamic VLAN assignment and MACSec-128 on hardware for all ports.	
19	Switch must have the capabilities to enable automatic configuration of switch ports as devices connect to the switch for the device type.	
20	During system boots, the system's software signatures should be checked for integrity. System should capable to understand that system OS are authentic and unmodified, it should have cryptographically signed images to provide assurance that the firmware & BIOS are authentic.	
21	Interfaces	
22	Switch shall have 16 nos. 10/100/1000 Base-T ports and additional 8 nos. port supporting 100MB/1G/2.5G/5G/10G, Additional 4 nos. of 10G SFP+ uplinks ports.	
23	All 24 port should support PoE (802.3af) and PoE+ (802.3at) with a PoE power tentative of 370 W.	
	<b>Certification:</b>	
24	Switch shall conform to UL 60950 or IEC 60950 or CSA 60950 or EN 60950 Standards for Safety requirements of Information Technology Equipment.	
25	Switch shall conform to EN 55022 Class A/B or CISPR22 Class A/B or CE Class A/B or FCC Class A/B Standards for EMC (Electro Magnetic Compatibility) requirements.	
26	Switch / Switch's Operating System should be tested for EAL 2/NDPP or above under Common Criteria Certification.	

SL	Multigig 48 Port POE Switch - Technical Specifications	Compliance
	<b>General Features :</b>	
1	Switch should be 1U and rack mountable in standard 19" rack.	
2	Switch should support internal field replaceable unit redundant power supply from day 1.	
3	Switch should have minimum 2 GB RAM and 2 GB Flash.	

4	Switch should have dedicated slot or ports for stacking, Should support for minimum 80 Gbps of stacking throughput with 8 switch in single stack.	
	<b>Performance :</b>	
5	Switch shall have minimum 390 Gbps of switching fabric and 290 Mpps of forwarding rate.	
6	Switch shall have minimum 16K MAC Addresses and 250 active VLAN.	
7	Should support minimum 11K IPv4 routes or more	
8	Switch shall have 1K or more multicast routes.	
9	Switch should support at least 16K flow entries	
10	Switch should support 128 or more STP Instances.	
11	Switch should have 6MB or more packet buffer.	
	<b>Functionality:</b>	
12	Switch should support IEEE Standards of Ethernet: IEEE 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.3x, 802.1p, 802.1Q, 802.3, 802.3u, 802.3ab, 802.3z.	
13	Switch must have functionality like static routing, RIP, PIM, OSPF, VRRP, PBR and QoS features from Day1.	
14	Switch should support network segmentation that overcomes the limitation of VLANs using VXLAN and VRFs.	
15	Switch shall have 802.1p class of service, marking, classification, policing and shaping and eight egress queues.	
16	Switch should support management features like SSHv2, SNMPv2c, SNMPv3, NTP, RADIUS and TACACS+ .	
17	Switch should support IPv6 Binding Integrity Guard, IPv6 Snooping, IPv6 RA Guard, IPv6 DHCP Guard, IPv6 Neighbor Discovery Inspection and IPv6 Source Guard.	
18	Switch should support 802.1x authentication and accounting, IPv4 and IPv6 ACLs and Dynamic VLAN assignment and MACSec-128 on hardware for all ports.	
19	Switch must have the capabilities to enable automatic configuration of switch ports as devices connect to the switch for the device type.	
20	During system boots, the system's software signatures should be checked for integrity. System should capable to understand that system OS are authentic and unmodified, it should have cryptographically signed images to provide assurance that the firmware & BIOS are authentic.	
	<b>Interface</b>	
21	Switch shall have 36 nos. 10/100/1000 Base-T ports and additional 12 nos. ports supporting 100MB/1G/2.5G/5G/10G. Additional 4 nos. of 10G SFP+ uplinks ports.	
22	All 48 port should support PoE (802.3af) and PoE+ (802.3at) with a PoE power budget of 740W.	
	Certification:	
23	Switch shall conform to UL 60950 or IEC 60950 or CSA 60950 or EN 60950 Standards for Safety requirements of Information Technology Equipment.	
24	Switch shall conform to EN 55022 Class A/B or CISPR22 Class A/B or CE Class A/B or FCC Class A/B Standards for EMC (Electro Magnetic Compatibility) requirements.	
25	Switch / Switch's Operating System should be tested for EAL 2/NDPP or above under Common Criteria Certification.	

SL	Technical specification for NAC	Compliance
1	The Solution should provide a highly powerful and flexible attribute- based access control solution that combines authentication, authorization, and accounting (AAA); profiling; and guest management services on a single platform.	

2	It should allow enterprises to authenticate and authorize users and endpoints via wired, wireless, and VPN with consistent policy throughout the campus	
3	Provides complete guest lifecycle management by empowering sponsors to on-board guests	
4	Solution should be scalable enough to support 10,000 endpoints in the network. Currently to be supplied with licence for 5000 endpoints for AAA, 802.1x, Guest Access and BYOD, profiling and device administration	
5	Support comprehensive visibility of the network by automatically discovering, classifying, and controlling endpoints connected to the network to enable the appropriate services per endpoint	
6	The proposed NAC / AAA must be able to identify IOT devices for instant fingerprinting of medical equipment within the campus environment and provide secure access	
7	Should Support capability of addresses vulnerabilities on user machines through periodic evaluation and remediation to help proactively mitigate network threats such as viruses, worms, and spyware	
8	Should support capability to enforces security policies by blocking, isolating, and repairing noncompliant machines in a quarantine area without requiring administrator attention	
9	Should support a built-in monitoring, reporting, and troubleshooting console to assist helpdesk operators and administrators streamline operations	
10	Support Should capability to allows you to get finer granularity while identifying devices on your network with Active Endpoint Scanning	
11	Augments network-based profiling by targeting specific endpoints (based on policy) for specific attribute device scans, resulting in higher accuracy and comprehensive visibility of what is on your network	
12	Manages endpoint access to the network with the Endpoint Protection Service, which enables administrators to specify an endpoint and select an action - for example, move to a new VLAN, return to the original VLAN, or isolate the endpoint from the network entirely - all in a simple interface	
13	Utilizes standard RADIUS protocol for authentication, authorization, and accounting (AAA).	
14	Supports a wide range of authentication protocols, including PAP, MS-CHAP, Extensible Authentication Protocol (EAP)-MD5, Protected EAP (PEAP), EAP-Flexible Authentication via Secure Tunneling (FAST), and EAP-Transport Layer Security (TLS).	
15	Should support a rules-based, attribute-driven policy model for creating flexible and business-relevant access control policies. Provides the ability to create fine-grained policies by pulling attributes from predefined dictionaries that include information about user and endpoint identity, posture validation, authentication protocols, profiling identity, or other external attribute sources. Attributes can also be created dynamically and saved for later use. Posture validation service is required the future needs.	
16	should support a wide range of access control mechanisms, including downloadable access control lists (dACLs), VLAN assignments, URL redirect/Security Group Access (SGA) tagging.	
17	Should support predefined device templates for a wide range of endpoints, such as IP phones, printers, IP cameras, smartphones, and tablets.	
18	It should support Administrators to create their own device templates. These templates can be used to automatically detect, classify, and associate administrative-defined identities when endpoints connect to the network. Administrators can also associate endpoint-specific authorization policies based on device type.	
19	The Solution should support capability to collect endpoint attribute data via passive network telemetry, querying the actual endpoints, or alternatively from the infrastructure via device sensors on switches.	



20	Solution should support allow end users to interact with a self-service portal for device on-boarding, providing a registration vehicle for all types of devices as well as automatic supplicant provisioning and certificate enrolment for standard PC and mobile computing platforms.	
21	Should support full guest lifecycle management, whereby guest users can access the network for a limited time, either through administrator sponsorship or by self-signing via a guest portal. Allows administrators to customize portals and policies based on specific needs of the enterprise.	
22	Should support and capability to verifies endpoint posture assessment for PCs connecting to the network. Works via either a persistent client-based agent or a temporal web agent to validate that an endpoint is conforming to a company's posture policies. Provides the ability to create powerful policies that include but are not limited to checks for the latest OS patches, antivirus and antispymware software packages with current definition file variables (version, date, etc.), registries (key, value, etc), and applications. Solution should support auto-remediation of PC clients as well as periodic reassessment to make sure the endpoint is not in violation of company policies. This functionality not required from day one.	
23	Should support and capability to allows administrators to quickly take corrective action (Quarantine, Un-Quarantine, or Shutdown) on risk- compromised endpoints within the network. This helps to reduce risk and increase security in the network. This functionality not required from day one.	
24	Should support to Enables administrators to centrally configure and manage profiler, posture, guest, authentication, and authorization services in a single web-based GUI console, greatly simplifying administration by providing consistency in managing all these services. Posturing services not needed from day one.	
25	Should support Includes a built-in web console for monitoring, reporting, and troubleshooting to assist helpdesk and network operators in quickly identifying and resolving issues. Offers comprehensive historical and real-time reporting for all services, logging of all activities, and real-time dashboard metrics of all users and endpoints connecting to the network.	
26	Should support consistent policy in centralized and distributed deployments that allows services to be delivered where they are needed	
27	Solution should support to determine whether users are accessing the network on an authorized, and authenticated device.	
28	Solution should support to establish user identity, location, and access history, which can be used for compliance and reporting.	
29	Solution should support to assign services based on the assigned user role, group, and associated policy (job role, location, device type, and so on).	
30	Solution should support to grant authenticated users with access to specific segments of the network, or specific applications and services, or both, based on authentication results.	
31	Solution should Support portal used for Device registration should be customizable, allowing to customize portal theme by changing text, banners, background color, and images	
32	Should provide a Registered Endpoints Report which provides information about a list of endpoints that are registered through the device registration portal by a specific user for a selected period of time. The report should provide the following details	
33	Logged in Date and Time	
34	Portal User (who registered the device)	
35	MAC Address	
36	Identity Group	

37	Endpoint Policy	
38	Static Assignment	
39	Static Group Assignment	
40	Endpoint Policy ID	
41	NMAP Subnet Scan ID	
42	Device Registration Status	
43	Solution should classify a client machine, and should support client provisioning resource policies to ensure that the client machine is set up with an appropriate agent version, up-to-date compliance modules for antivirus and antispymware vendor support, and correct agent customization packages and profiles, if necessary	
44	Solution should support receiving updated endpoint profiling policies and the updated OUI database as a feed from the OEM database.	
45	Should support native supplicant profiles to enable users to bring their own devices into network. When the user logs in, based on the profile that you associate with that user's authorization requirements, solution should provide the necessary supplicant provisioning wizard needed to set up the user's personal device to access the network. This should be supported over Microsoft windows, Apple Mac and iOS and Android devices.	
46	When endpoints are discovered on the network, they can be profiled dynamically based on the configured endpoint profiling policies and assigned to the matching endpoint identity groups depending on their profiles.	
47	Should support using a simple filter that you can use to filter endpoints. The quick filter filters endpoints based on field descriptions, such as the endpoint profile, MAC address, and the static status that is assigned to endpoints.	
48	Should support an advanced filter that you can pre-set for use later and retrieve, along with the filtering results, The advanced filter filters endpoints based on a specific value associated with the field description. You can add or remove filters, as well as combine a set of filters into a single advanced filter.	
49	Should support importing endpoints from a comma-separated values (CSV) file in which the list of endpoints appears with the MAC address and the endpoint profiling policy details separated by a comma.	
50	Support for importing endpoints from LDAP server. Should allow to import MAC addresses and the associated profiles of endpoints securely from an LDAP server. Should support an LDAP server to import endpoints and the associated profiles, by using either the default port 389, or securely over SSL, by using the default port 636.	
51	Should support multiple Admin Group Roles and responsibilities like Helpdesk Admin, Identity Admin, Monitoring Admin, Network Device Admin, Policy Admin, RBAC Admin, Super Admin and System Admin	
52	Should support Role-based access policies which are access control policies which allow you to restrict the network access privileges for any user or group. Role-based access policies are defined when you configure specific access control policies and permissions. These admin access policies allow you to customize the amount and type of access on a per-user or per-group basis using specified role-based access permission settings that apply to a group or an individual user.	
53	Should support Identity source sequences which defines the order in which the solution will look for user credentials in the different databases. Solution should support the following databases:	
	Internal Users	
	Internal Endpoints	
	Active Directory	
	LDAP	
	RADIUS Token Servers	

	Certificate Authentication Profiles	
	Must be able to differentiate policy based on device type + authentication	
54	Solution should support MAB and can further utilize identity of the endpoint to apply the proper rules for access. MacAddressBypass is typically used for devices which do not support 802.1x	
55	Solution must support Non 802.1x technology on assigned ports and 802.1x technology on open use ports	
56	Solution should provide support policy enforcement through VPN gateways	
57	Solution should support to allow users access to the network in a worst case scenario in case of AAA server outages or any other reasons like WAN failure.	
58	Should support authenticating Machines and users connected to the same port on the switch in a single authentication flow	
59	Should support authenticating IP phones and users connected behind IP phones on the same physical port.	
60	Solution should Support profiling capabilities integrated into the solution in order to detect headless host. The profiling features leverage the existing infrastructure for device discovery. Should support the use of attributes from the following sources or sensors:	
61	Profiling using MAC OUIs	
62	Profiling using DHCP information	
63	Profiling using RADIUS information	
64	Profiling using HTTP information	
65	Profiling using DNS information	
66	Profiling using NetFlow information	
67	Profiling using SPAN/Mirrored traffic	
68	Solution should support troubleshooting authentication issues by triggering session reauthentication to follow up with an attempt to reauthenticate again.	
69	Should support session termination with port shutdown option to block an infected host that sends a lot of traffic over the network.	
70	Should support the functionality to force endpoint to reacquire IP address that do not support a supplicant or client to generate a DHCP request after a vlan change.	
71	Troubleshooting & Monitoring Tools	
72	Should support tools to run SHOW command on the network device.	
73	Should support evaluation of the configuration of the device with the standard configuration.	
74	Should support TCP dump utility & also support saving a TCP dump file.	
75	Solution should support schedule reports to run and re-run at specific time or time intervals & send and receive email notifications once the reports are generated.	
76	Solution should have capability to administrate devices through TACACS+ from day one	

## 6.3 PASSIVE COMPONENTS

### CAT6 UTP Outdoor CABLE

Details	Specification	Compliance
Type	23 AWG solid bare copper, Unshielded Twisted 4 Pair, Category 6, confirming to TIA 568.C.2, Class EA - ISO/IEC 11801:2002 Amendment 2. Third party channel verified to TIA/EIA-568-C.2, Category 6A	
Conductors	Solid Bare Copper 23 AWG	
Insulation	Polyolefin	
Pair Separator	X-spline Central Member	
Barrier Material	Barrier Tape - Tri-Laminate - for improved heat transfer and achieves uniform heat flow dissipation to eliminate hotspots in cable bundles when delivering remote power.	
Inner and Outer Jacket	Polyolefin/LLDPE and Polyolefin respectively	
Applicable Standards	Category 6 - TIA 568.C.2 ANSI/ICEA S-99-689 ANSI/ICEA S-107-704 Paragraph 8.2.1 Water Penetration ANSI/ICEA S-56-434 Outdoor Use POE per IEEE 802.3af & POE+ per IEEE 802.3at-2009 ISO/IEC 11801 ed 2 Amendment 2:2010 Class EA -40C Cold Bend Compliance Per UL1581 Water Penetration per GR 421-CORE para. 4.3.5.1. and ANSI/ICEA S-107-704 Para. 8.2.1.	
Suitable Applications:	OSP Cable, 10 Gigabit Ethernet, Outdoor, Aerial, Burial, Sunlight Resistant, Noisy Environments, PoE, PoE+	
Guaranteed Bandwidth	<b>500 Mhz for 100 MT Channel</b>	
Packing	Box of 305 meters	
Cable Outer Diameter	<b>9.2 mm</b>	
Delay Skew	<b>45 ns @ 100M</b>	
Bend Radius (Installation)	92 mm	
Maximum Conductor DC Resistance:	DCR @ 20°C (Ohm/100 m) = 7.9	
Maximum Delay:	Delay (ns/100 m) = 537	
Nom. Mutual Capacitance	Capacitance (pF/m) < 56	
Nom. Velocity of Propagation	65 %	
Temperature Range	-40 Deg C to +75 Deg C	

<b>Operation</b>		
<b>Performance characteristics @ 500 MHz</b>	Max. Attenuation: 45.4 dB/100m Min. PS NEXT : 31.8 dB Min. Return Loss: 15.2 dB Min. PSACR : 0.9 dB @ 300Mhz Min. PS ANEXT: 52.0 dB Min. PS AACRF: 24.2 dB	
<b>PoE Compatibility</b>	<b>PoE Type 1 (15 W), Type 2 (30 W)</b>	
<b>ELV</b>	EU Directive 2000/53/EC	
<b>Ripcord</b>	Should be available under Outer Jacket	
<b>RoHS and WEEE and BFR</b>	It should be RoHS , WEEE & BFR Complied	
<b>Jacket Color</b>	Black (Sunlight Resistant)	

**CAT6 U/UTP LSZH CABLE**

Details	Specification	Compliance
<b>Type</b>	23 AWG Solid Bare Copper, Unshielded Twisted 4 Pair, Category 6, confirming to TIA 568.2.D, Class EA - ISO/IEC 11801:2002	
<b>Conductors</b>	Solid Bare Copper 23 AWG	
<b>Insulation</b>	Polyolefin	
<b>Jacket</b>	LSZH jacket complying to: Acid Gas Emission pH per IEC 60754-1: $\geq 4.3$ Acid Gas Conductivity per IEC 60754-2: $\leq 10\mu\text{s}/\text{mm}$ Smoke density IEC 61034-2: $\geq 60\%$ Light Transmittance Flame Test: IEC 60332-3-1 Third Party Test Reports of all above parameters should be available in technical sheet	
<b>Pair Separator</b>	+ Shape Spline	
<b>Suitable Applications:</b>	Premise Horizontal Cable, 10 Gigabit Ethernet, 100BaseTX, 100BaseVG ANYLAN, 155ATM, 622ATM, NTSC/PAL Component or Composite Video, AES/EBU Digital Audio, AES51, RS-422, Noisy Environments, PoE, PoE+, PoE++	
<b>Guaranteed Bandwidth</b>	500 Mhz for 100 MT Channel	
<b>Packing</b>	Box of 305 meters	
<b>Cable Outer Diameter</b>	7.5 mm Max.	
<b>Max. Delay Skew</b>	45 ns @ 100M	
<b>Bend Radius (Installation)</b>	50 mm	
<b>Maximum Conductor DC Resistance:</b>	DCR @ 20°C (Ohm/100 m) < 9.5	
<b>Third Party Verification</b>	<ul style="list-style-type: none"> <li>ETL/Intertek Test Report for compliance to EN 50173-1 &amp; ISO/IEC 11801-1 for Min. 500Mhz or Higher.</li> <li>ETL/Intertek Test Report for Alien crosstalk (6 around 1) for ANEXT, AFEXT, PS ANEXT.</li> <li>ETL/Intertek Test Report for testing at elevated temperature of 40 Deg C and 60 Deg C respectively min. 500 Mhz or higher for IL (&lt; 45.5 dB), Propagation Delay (&lt; 538ns) and Delay Skew (&lt; 45 ns)</li> <li>ETL/Intertek 4 connector Channel Test Report</li> <li>All above test reports to be submitted along with bid</li> </ul>	
<b>Nom. Mutual Capacitance</b>	Capacitance (nF/100m) < 5.6	

<b>Temperature Operation</b>	<b>Range</b>	-20 Deg C to +60 Deg C	
<b>Performance characteristics @ 500 MHz</b>		Max. Attenuation: 45.5 dB/100m Min. NEXT : 34.5 dB Min. PS NEXT : 31.5 dB Min. Return Loss: 17.0 dB Min. PSACRF : 11.0 dB	
<b>IEEE Requirement</b>		IEEE 802.3bt Type 1, Type 2, Type 3, Type 4	
<b>ETL/Intertek Report Submission</b>	<b>Test</b>	Average DCR <= 7.5 Ohms @ 20 Deg C, Resistance Unbalance <=1%, Max. Capacitance Unbalance <= 100pf/100m	
<b>ETL/Intertek Tested</b>		TIA 568.2.D (Test Report to be submitted)	
<b>RoHS</b>		Yes	

**Cat6 Unshielded Modular Jack**

Parameters	Specifications	Compliance
<b>Type</b>	Modular Jacks shall meet and exceed channel specification of ANSI/TIA/EIA-568-C.2 Category 6 and ISO/IEC 11801:2002/Amd 1:2002 Ed2 when used as a component in a properly installed UTP channel.	
<b>Front Connection</b>	RJ 45 : 50uin Gold plated contacts over Nickel	
<b>Rear Connection</b>	Copper alloy, Gold plated contacts over Nickel or IDC	
<b>Connector Body</b>	PBT glass reinforced UL94V-0 or Plastic	
<b>Accessories</b>	Jack should support uniform hassle free termination technology and be able to ensure performance in each termination without dependency on expertise of technician.	
<b>Termination Interface</b>	Front Mated Connection: 750 Cycles Min. Rear Mated Connection: 20 Cycles Min.	
<b>IEEE Specification (PoE)</b>	IEEE 802.3bt type 3 and 4 (up to 100W) UPOE (up to 60W) and Power over HDBase-T (up to 100W)	
<b>Performance tests</b>	Modular Jacks shall be tested for performance to ANSI/TIA/EIA-568-C.2	
<b>Guaranteed Bandwidth</b>	Min. 500 Mhz or higher Guaranteed Bandwidth for 100 MT Channel Link	
<b>Approvals</b>	UL Listed, UL2043 Air Handling Spaces	
<b>UL Rating</b>	UL 94V-0	
<b>Other Specifications</b>	UL 1863, IEC 60603-7, FCC part 68-F	
<b>RoHS</b>	EU Directive 2002/95/EC Compliant	
<b>Feature</b>	The jacks shall not have an integrated spring shutter as the shutter malfunctions and causes operational issues in Panel.	
<b>Operating Temperature</b>	-40° to 70°C	
<b>Dielectric Strength</b>	1,000 V RMS @ 60 Hz for 1 minute (Signals to Ground)	
<b>Electrical Performance @ 500 Mhz or higher</b>	Insertion Loss: Max. 0.48 dB NEXT: Min. 37.0 dB FEXT: Min. 31.1 dB RL: Min. 12.9 dB PSANEXT: Min 56.0 dB PSACRF: Min 56.0 dB Balanced TCL: Min 19.0 dB	
<b>Termination Process</b>	Termination of cable on IO through Universal Termination Tool to minimize any manual termination like punch down. All the four pairs should get crimped and cut together with the help of the tool. Pairs should not be separated in termination process to avoid any cross talk issue at Jack. Tool-less jack is not required because the tool-less jack is installer dependent, whereas the termination using a tool has consistent terminations irrespective of the installer.	



<b>Cat6A Jack</b>	It should be covered under 25 year warranted solution from OEM.	
<b>Third Party Test Report</b>	Enclose 4 Connector ETL/UL/3P Test Report ANSI/TIA – 568 Cat6 6A, ISO/IEC 11801 (Class Ea), EN 50173 (Class Ea) and IEEE 802.3-2012.	

**Cat 6 Unshielded Patch Cords, LSZH, ETL Tested**

Parameters	Specifications	Compliance
<b>Type</b>	Modular Cord shall meet and exceed channel specification of ANSI/TIA/EIA-568-B.2 Category 6 and ISO/IEC 11801 2nd edition (2002) & Amendment 2 (2010) up to 500 MHz when used as a component in a properly installed UTP channel. It should also comply to EN 50173-1 (2002) & EN 50173-1 Amendment 1 (2009).	
<b>Conductor</b>	Stranded copper ETP, 7/26AWG	
<b>Insulation</b>	Foam Polyethylene/PE (1.05 mm +/- 0.05 mm)	
<b>Plug Boot</b>	Clear boot with PVC material	
<b>Plug Housing</b>	Polycarbonate (PC)	
<b>Plug contact blade</b>	Phosphor bronze plated with 1.27um gold over 2.54um nickel undercoat	
<b>Insertion Life</b>	750 Cycles	
<b>Operating/Storage Temperature Range</b>	-20 to +60 Deg C	
<b>Channel compliance certificate</b>	Certificate by Intertek (ETL)/UL/3P for the 4-Connectors and 3 Connectors channel testing to the Cat 6A Cabling system as per the ANSI/TIA 568 C.2 standards, ISO/IEC 11801 and EN 50173-1. Document to be submitted.	
<b>Guaranteed Bandwidth</b>	500 Mhz or Better Guaranteed Bandwidth	
<b>Sheath Material</b>	LSZH	
<b>Flame Rating</b>	IEC 60332-3-22	
<b>OD</b>	6.1 ± 0.3 mm	

*RFP for up-gradation of Campus Network at IIM, Bangalore*

**Face Plate, UK Style, Square with Shutters**

<b>Details</b>	<b>Specification</b>	<b>Compliance</b>
<b>Type</b>	<b>Simplex/Duplex/Quad</b>	
<b>Material</b>	Fire -retardant Plastic, ABS, White color, UK Style with Shutters	
<b>Acceptability</b>	Should be able to accept Cat6 and Cat5e information outlets	
<b>UL Flame Test (Material)</b>	UL94V0	
<b>Compliant</b>	RoHS	
<b>Dimensions</b>	(H x W x D) 86 x 86 x 10 mm	

**24 Port CAT 6 Patch Panel**

Parameters	Specifications	Compliance
<b>CAT 6A patch Panel</b>	Conforming to ANSI/TIA/EIA-568 C.2 latest or ISO/IEC:11801 latest	
<b>Patch panel suitability for</b>	Cat5E, CAT6 and Cat6 UTP (shielding is not acceptable)	
<b>Height of patch panel</b>	1U/2U	
<b>No. of ports (RJ 45)</b>	For 1U 24 Ports Loaded/Unloaded (Unloaded + Jacks is acceptable) For 2U 48 Ports Loaded/Unloaded (Unloaded + Jacks is acceptable)	
<b>Cable Management (Rear side)</b>	With Rear Cable Management Bar and 2 Rear Cable Management Bracket	
<b>Cable Management (Front side)</b>	6 Port Removable angled inserts with ability to flip left or right as per requirements	
<b>Applications</b>	0BASE-T, 100BASE-TX Fast Ethernet, 1000BASE-T (IEEE802.3) , 100VG-AnyLAN (IEEE802.12), 250 MHz Broadband Video, Voice, T1, ISDN, 155/622 Mbps ATM , Power over Ethernet (POE, POE+, 4 PPOE)	
<b>Modular plug fitting (RJ 45)</b>	Assembly of 6 jacks/ 4 assemblies in 24 port 1U panel	
<b>Plug insertion durability</b>	≥ 750 mating cycles"	
<b>Safety Listing for Jacks</b>	c(UL)us Listed	
<b>Other Specification for Jacks</b>	UL 1863, IEC 60603-7, FCC part 68-F	
<b>UL Flame Test for Jacks</b>	UL2043 Air Handling Spaces	
<b>Termination Process</b>	Termination of cable on IO through Universal Termination Tool to minimize any manual termination like punch down. All the four pairs should get crimped and cut together with the help of the tool. Pairs should not be separated in termination process to avoid any cross talk issue at Jack. Tool-less jack is not required because the tool-less jack is installer dependent, whereas the termination using a tool has consistent terminations ir-respective of the installer.	

**6 / 12/24 Core Singlemode (9/125µm) G657-A1 Bend Insensitive Fibre optic Cable**

Details	Specification	Compliance
<b>Cable</b>	6/12/24 Core Singlemode 9/125, Central Loose Tube Cables, High mechanical and full rodent protection provided by Outdoor – Corrugated Steel Tape Armor (CST), complying to both 9/125 ITU <b>G.652D &amp; G.657A1 BI</b> standards	
<b>Application</b>	Cable should be suitable for Structured (premises) wiring systems: For outdoor use in structured (data) wiring systems such as industrial backbone, campus backbone, building backbone (riser). Suitable for direct burial. Easy to install in ducts, tunnels and trenches.	
<b>Jacket</b>	Black UV resistant PE outer jacket. Water swellable E-glass yarns as strength members and for the <b>longitudinal watertightness</b> , surrounded by swelling tape.	
<b>Loose Tube Construction</b>	Std. plywood reel: $\varnothing$ 1000 * 588 mm, Central tube, jelly filled ( <b>non-dripping and silicon-free</b> ).	
<b>Optical Properties</b>	Core: 9.2 +/- 0.4 $\mu$ m Cladding: 125 +/- 0.7 $\mu$ m Loose Tube fibres: $\varnothing$ 250 $\pm$ 15 $\mu$ m 1310 Wavelength (nm): 0.33 / 0.34 Attenuation typical/ max. (dB/km) 1550 Wavelength (nm): 0.18 / 0.19 Attenuation typical/ max. (dB/km) 1625 Wavelength (nm): 0.20 / 0.24 Attenuation typical/ max. (dB/km) Dispersion (ps/ (nm-km)) @ 1310 nm: $\leq$ 3.2 Dispersion (ps/ (nm-km)) @ 1550 nm: $\leq$ 17 Cutoff Wavelength : $\leq$ 1260 nm PMD (ps/km) : $\leq$ 0.06	
<b>Temperature Range</b>	Storage Temperature Range: -30 to +70 °C Installation Temperature Range: -5 to +50 °C Operating Temperature Range: -30 to +70 °C	
<b>Physical Properties</b>	Watertightness according to IEC 60794-1-22-F5 Crush resistance according to IEC 60794-1-21-E3	
	Bending radii tube (Installation & Operation) >25 mm Cable Min. Bend Radius Operation (Long Term): 20 x Cable Diam. Cable Min. Bend Radius Installation (Short Term): 20 x Cable Diam. Cable Max. Tensile Strength Operation (Long Term): 730 N Cable Max. Tensile Strength Installation (Short Term): 2220 N Cable Max. Crush Resistance Operation (Long Term): 11 kN/m Cable Max. Crush Resistance Installation (Short Term): 22 kN/m <b>Nominal Cable OD: 9.3 mm Max.</b>	
<b>Bend Insensitive Optical Properties</b>	Maximum Attenuation increase for Bend Insensitive Fibers 9/125 G.657A1 Bend Insensitive 1550 (nm): 0.03dB (Turns 100 Radius 30 mm), 0.25 dB (Turns 10 Radius 15 mm), 0.75 dB (Turns 1 Radius 10 mm) 1625 (nm): 0.03 dB (Turns 100 Radius 30 mm), 1.0 dB (Turns 10 Radius 15 mm), 1.5 dB (Turns 1 Radius 10 mm)	

**24/48Fiber 1U Rack Mount Fiber Enclosure (LIU), Splice Trays and Adapter**

Details	Specification	Compliance (YES/NO)
<b>Fiber Management Shelf</b>	The fiber management shelf shall have compact design and be ideal for high density front patching applications.	
	Should be fully loaded and factory fitted assembly with no assembling required during installation at site	
<b>Fiber Interface Unit</b>	Should be mounted directly on any 19" rack or cabinet. It should be able to accommodate a variety of Fiber connectors and terminated to fiber cables using Splicing or other methods.	
<b>Type</b>	Fiber LIU should be 1U (1.75"), 19 Inch Rack Mount.	
	12/24/48 Port should be available in 1U Rack Mount LIU.	
	LC Type Connectors will be required.	
<b>Features &amp; Compatibility</b>	Each 1U LIU should be able to accommodate atleast 48 fibers in LC type connectors.	
	24/48 Fiber Splice trays should loaded in LIU with Pigtails, Splice Tubes, Min. 2 x PG13.5 Gland, Cable Ties and Velcro Straps	
	Panel Material – Powdered Coated Steel	
	Couplers in adapter strip should be Blue Colored	
	Operating Temp Range: -10°C to +60°C	
	Storage Temp Range: -40°C to +70°C	
	EU Directive 2011/65/EU (ROHS II)	
<b>Cable entry ports</b>	Min 4 cable entry points at rear of shelf, sealed with rubber grommets.	
<b>Drawer style shelf</b>	o Easy access to splicing tray and connectors	
	o Should have front locking latches on both side of shelf, for preventive sliding	
<b>Accessories</b>	Fiber management guides, secure tie downs and all splicing accessories like sleeves, cleaning kits, cable markers and grommet shall be packed with panel kit.	
	Pre-loaded with labeling strips, 2 grounding lugs	
<b>Dust protection.</b>	Sealed cable inlets for dust and rodent protection. Front adapters with dust caps.	
<b>Material</b>	Min 1.6mm CRCA Sheet steel with powder coating	
<b>Fiber / buffer tube storage</b>	Min of 320 mm depth to accommodate fiber slack and buffer tube storage space.	
<b>Pigtails loaded in Shelf:</b>	LC type SM, 900 micron cordage.	

**Fiber Patch Cords, LC-LC / SC-LC / SC-SC Duplex, Singlemode OS2, 3MT**

Details	Specification	Compliance (YES/NO)
<b>Type</b>	2mm Duplex Zipcord.	
	Singlemode OS2	
<b>Outside Diameter</b>	(Duplex): 2.0mm x 3.0mm or as per design	
<b>Jacket Material</b>	LSZH (IEC 60332-3, IEC 60754-2, IEC 61034-2)	
<b>Length</b>	3 MT	
<b>Minimum Cable Retention Strength</b>	2.0/3.0mm: 200 N Tensile Strength	
	2.0/3.0mm: 1000 N Crush Resistance	
<b>Insertion Loss</b>	≤ 0.3 dB	
<b>Return Loss</b>	≥ 55dB @ 1310nm	
<b>RoHS Certified</b>	Yes	
<b>Cable Standards</b>	IEC 60794, IEC 60332, UL 1685, NFPA 262	
<b>Connector Standards:</b>	IEC 61754, TIA 604	

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**Pigtail, LC/SC Type, Single mode OS2, 2 MT**

<b>Details</b>	<b>Specification</b>	<b>Compliance</b>
<b>Type</b>	Optical Fiber Pigtail LC - Simplex, Single mode OS2 , 2 Mtr	
<b>Feature</b>	Tight Buffer construction (0.9mm) Single mode OS2 should be of min 2 Meter Length	
<b>Standard</b>	Optical Fiber Pigtail should comply with TIA 568 3 D. It shall be mentioned in technical datasheet.	
<b>Minimum Cable Retention Strength</b>	Optical Fiber Pigtail should have Max. Tensile Strength of 30N (Short Term).	
	Optical Fiber Pigtail should have Max. Crush Resistance of 100 N/100 (Short Term).	
<b>Optical Performance</b>	Optical Fiber Pigtail should have Insertion Loss of $\leq 0.3\text{dB}$ @ 1310nm for OS2 as per TIA/EIA 568-C.3	
	Optical Fiber Pigtail should have Return Loss of $\geq 55\text{dB}$ @ 1310nm for OS2 as per TIA/EIA 568-C.3	
<b>RoHS Certified</b>	RoHS Complaint	

**6.4 Buyback List**

SL	Devices	SI Number
<b>ISE</b>		
1	SNS-3515-K9	FCH2114V0BH
2	SNS-3515-K9	FCH2050V2VV
<b>Firewall</b>		
1	ASA5585-X-SSP-20	JAD195201H5
2	ASA5585-X-SSP-20	JAD195201HQ
3	ASA-Firepower	JAD195201MU
4	ASA-Firepower	JAD195200LY
<b>WLC</b>		
1	WS-SVC-WISM2-K9	SAL16159JQ1
2	WS-SVC-WISM2-K9	SAL1817R24Q
<b>Switches</b>		
Core Switch		
1	WS-C6509-E	SMC16110049
2	WS-C4510R	FOX114000ZZ
L2 /L3 Switches		
1	WS-C2960+48TC-L	FOC2001Z1SS
2	WS-C3650-24PD-S	FDO2002E0AT
3	WS-C3650-24PD-S	FDO2002E0B0
4	WS-C3650-24PD-S	FDO1951Q1QN
5	WS-C2960+48TC-L	FOC2001Z1RP
6	WS-C3650-24PD-S	FDO2001E2GC
7	WS-C2960-24TC-L	FCQ1616Y5GH
8	WS-C3650-48FD-S	FDO2002E2WA
9	WS-C2960-24TC-L	FCQ1617X0UK
10	WS-C2960-24PC-L	FCQ1519Z3NN
11	WS-C3560G-48TS-S	FOC1426Y6EL
12	WS-C3650-48FD-S	FDO2002E2LL
13	WS-C3650-48FD-S	FDO2003Q03T
14	WS-C3560G-24TS-S	FOC1423W4C6
15	WS-C3650-48FD-S	FDO2003E0BY
16	WS-C3650-48FD-S	FDO2002Q16J
17	WS-C3560G-48TS-S	FOC1011Y31D
18	WS-C2960-24TC-L	FCQ1616Y5N5
19	WS-C3560G-48TS-S	FOC1426Y6EH
20	WS-C2960-48TC-L	FOC1204Z2HR
21	WS-C3560G-48TS-S	FOC1426Y6F7
22	WS-C2960-24PC-L	FOC1427Z447
23	WS-C2960+48TC-L	FOC2001Z1T3
24	WS-C3650-48FD-S	FDO2003E0BC
25	WS-C3650-48FD-S	FDO2002Q1AX



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26	WS-C3650-48FD-S	FDO2002Q1AY
27	WS-C2960+48TC-L	FOC2001Z1SB
28	WS-C2960+48TC-L	FOC2001Z1TC
29	WS-C3650-48FD-S	FDO2002Q16L
30	WS-C3650-48FD-S	FDO2002E2SX
31	WS-C2960-24TC-L	FCQ1616Y2XK
32	WS-C2960+48TC-L	FOC2001Z1TD
33	WS-C2960-24TC-S	FOC1427W2AL
34	WS-C3560G-24TS-S	FOC1205Y0HT
35	WS-C3650-48FD-S	FDO2002Q1AW
36	WS-C3560G-48TS-S	FOC1006Y08D
37	WS-C2960+48TC-L	FOC2001Z1TJ
38	WS-C2960-48TC-S	FOC1426V12X
39	WS-C2960-24TC-L	FCQ1617X0G7
40	WS-C2960+48TC-L	FOC2001Z1MW
41	WS-C3560G-48TS-S	FOC1334Z22V
42	WS-C2960+48TC-L	FOC2001Z1TA
43	WS-C3650-48FD-S	FDO2002Q1AS
44	WS-C3650-48FD-S	FDO2002Q1B3
45	WS-C2960+48TC-L	FOC2001Z1S7
46	WS-C2960+48TC-L	FOC2001Z1N6
47	WS-C2960+48TC-L	FCW2333A1BK
48	WS-C3650-48FD-S	FDO2002E2W6
49	WS-C2960+48TC-L	FOC2001Z1SQ
50	WS-C2960+48TC-L	FOC2001Z1TE
51	WS-C2960+48TC-L	FOC2001Z1S4
52	WS-C2960+48TC-L	FOC2001Z1T0
53	WS-C3650-48FD-S	FDO2002E2VH
54	WS-C2960+48TC-L	FOC2001Z1T2
55	WS-C2960+48TC-L	FOC2001Z1SW
56	WS-C3650-48FD-S	FDO2002E2VU
57	WS-C3560G-48TS-S	FOC1144Y29Z
58	WS-C2960+48TC-L	FOC2001Z1SD
59	WS-C3650-48FD-S	FDO2003E0BM
60	WS-C3650-48FD-S	FDO2002E2VR
61	WS-C2960+48TC-L	FOC2001Z1RY
62	WS-C3650-48FD-S	FDO2002Q1AU
63	WS-C3650-24PD-S	FDO2002Q0B9
64	WS-C2960-24TC-L	FCQ1616Y5HM
65	WS-C2960+48TC-L	FOC2001Z1SP
66	WS-C2960+48TC-L	FOC2001Z1SK
67	WS-C3650-48FD-S	FDO2002E2VC
68	WS-C3560G-24TS-S	FOC1205Y0JC
69	WS-C3650-48FD-S	FDO2309R02K
70	WS-C2960-24TC-L	FCQ1616Y35T

71	WS-C2960-24TC-L	FCQ1616Y2X2
72	WS-C3650-48FD-S	FDO2003Q03U
73	WS-C3650-48FD-S	FDO2002Q16N
74	WS-C2960-24PC-L	FCQ1521Z37X
75	WS-C3850-12S-S	FOC2001X04Y
76	WS-C2960-24TC-S	FOC1427W2BT
77	WS-C2960-24PC-L	FCQ1520Z6GR
78	WS-C3650-48FD-S	FDO2002E2VT
79	WS-C2960-24PC-L	FOC1427Z440
80	WS-C3650-48FD-S	FDO2003E0BB
81	WS-C2960-24PC-L	FCQ1626Y396
82	WS-C3650-48FD-S	FDO2002E2LC
83	WS-C3850-48F-S	FCW1821C0NS
84	WS-C3850-48F-S	FOC1817X06J
85	WS-C3650-48FD-S	FDO2003Q03Y
86	WS-C2960-24PC-L	FOC1427Z44J
87	WS-C2960-24PC-L	FCQ1630Y3X6
88	WS-C2960X-24PS-L	FOT2032S00Y
89	WS-C2960+48TC-L	FOC2001Z1T1
90	WS-C2960+48TC-L	FOC2001Z1T9
91	WS-C3650-48FD-S	FDO2002E2R5
92	WS-C3850-12S-S	FCW2001C03Y
93	WS-C2960-24PC-L	FCQ1521Z369
94	WS-C2960+48TC-L	FOC2001Z15C
95	WS-C2960X-24PS-L	FCW2103B5GQ
96	WS-C2960-24PC-L	FCQ1602Y4R7
97	WS-C2960-24PC-L	FOC1442X6C0
98	WS-C2960X-24PS-IN	JIN2308102U
99	WS-C2960-24PC-L	FOC1441W55C
100	WS-C2960-24TC-L	FCQ1616Y34N
101	WS-C3560G-24TS-S	FOC1226Z09R
102	WS-C3560G-24TS-S	FOC1205Y0FM
103	WS-C2960X-24PS-L	FCW2103B5CB
104	WS-C2960X-24PS-IN	JIN2308101X
105	WS-C2960-24PC-L	FOC1229Z4L1
106	WS-C2960-24PC-L	FOC1442X3NG
107	WS-C2950G-24-EI	FOC1008Y0FQ
108	WS-C2950G-24-EI	FOC0813Y0DS
109	WS-C2950G-24-EI	FOC0751Z4MN
110	WS-C2950G-24-EI	FOC1011Z2XE
111	WS-C2950G-24-EI	FOC0908X062
112	WS-C2950G-24-EI	FOC0946Y2VF
113	WS-C2970G-24TS-E	CAT1012Z5VR
114	WS-C2960-24TC-L	FCQ1616Y38F
115	WS-C2970G-24TS-E	CAT1009Z1JQ

116	WS-CE500-24LC	FOC1205Z04D
117	WS-CE500-24LC	FOC1205Z04X

Access Point		
	AP Model	Count of Model
1	AIR-AP2802I-D-K9	20
2	AIR-CAP2602E-N-K9	121
3	AIR-CAP2702I-D-K9	175
4	AIR-CAP3502I-N-K9	39
5	AIR-CAP3702E-D-K9	27
6	AIR-CAP3702I-D-K9	16
7	AIR-CAP702W-D-K9	3
8	AIR-CAP702W-N-K9	506
9	AIR-AP1832I-D-K9	2
10	AIR-CAP702W-N-K9	3
<b>Grand Total</b>		<b>912</b>

**Comprehensive Network device AMC details (For 6 Months)**

ISE			
1	SNS-3515-K9	FCH2114V0BH	
2	SNS-3515-K9	FCH2050V2VV	
WLC			
1	WS-SVC-WISM2-K9	SAL16159JQ1	
2	WS-SVC-WISM2-K9	SAL1817R24Q	
Switches			
	Hostname	Serial Number	PID
1	MDC-YOGA-SW-2960-02	FCQ1521Z37X,	WS-C2960-24PC-L
2	MDC-GEN-SW-2960-03	FCQ1520Z6GR,	WS-C2960-24PC-L
3	MDC-GEN-SW-3650-01	FDO2002E2LC,	WS-C3650-48FD-S
4	MDC-GEN-SW-2960-02	FOC1427Z440,	WS-C2960-24PC-L
5	MDC-CONF-2960-01	FOC1427W2BT,	WS-C2960-24TC-S
6	EXB-R2-SW-3650-01	FDO2002E2WA,	WS-C3650-48FD-S
7	HOS-AB-SW-2960-03	FOC2001Z1S7,	WS-C2960+48TC-L
8	EXB-R1-SW-3650-01	FDO2003E0BY,	WS-C3650-48FD-S
9	HOS-AB-SW-3650-01	FDO2002Q1B3,	WS-C3650-48FD-S
10	HOS-AB-SW-2960-02	FOC2001Z1TC,	WS-C2960+48TC-L
11	HOS-CD-SW-3650-01	FDO2002Q1AW,	WS-C3650-48FD-S
12	HOS-EF-SW-3650-01	FDO2002Q16L,	WS-C3650-48FD-S
13	HOS-EF-SW-2960-02	FOC2001Z1TJ,	WS-C2960+48TC-L
14	HOS-CD-2960-03	FOC2001Z1SB,	WS-C2960+48TC-L
15	HOS-EF-SW-2960-03	FOC1426V12X,	WS-C2960-48TC-S
16	HOS-K-SW-3650-01	FDO2003E0BM,	WS-C3650-48FD-S
17	GANGA-LAB-SW-2960-01	FCQ1617X0G7,	WS-C2960-24TC-L

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18	GANGA-LAB-SW-2960-02	FOC1427W2AL,	WS-C2960-24TC-S
19	CLS-K-SW-3650-01	FDO2001E2GC,	WS-C3650-24PD-S
20	CLS-M-SW-3650-01	FDO2002Q1AV,	WS-C3650-48PD
21	CLS-P-SW-3650-01	FDO1951Q1QN,	WS-C3650-24PD-S
22	MDC-CC-SW-2960-01	FCQ1616Y2X2,	WS-C2960-24TC-L
23	CLS-C12-SW-3650-01	FDO2002E0AT,	WS-C3650-24PD-S
24	CLS-C11-SW-3650-01	FDO2002E0B0,	WS-C3650-24PD-S
25	MHU-S-RAC2-SW-2960-02	FOC1427Z44J,	WS-C2960-24PC-L
26	IIMB_Road_WiFi7	FCQ1616Y34P,	WS-C2960-24TC-L
27	FAC-F-SW-3650-01	FDO2002Q1AS,	WS-C3650-48FD-S
28	HR-SW-3650-02	FDO2002Q0B9,	WS-C3650-24PD-S
29	HR-SW-3560-01	FOC1144Y29Z,	WS-C3560G-48TS-S
30	NOC-SW-2960-04	FOC2001Z1T9,	WS-C2960+48TC-L
31	LIB-1F-SW-3650-01	FDO2003Q03U,	WS-C3650-48FD-S
32	LIB-SW-3650-03	FDO2309R02K,	WS-C3650-48FD-S
33	LIB-SW-3650-02	FDO2002E2VC,	WS-C3650-48FD-S
34	NOC-SW-2960-02	FOC2001Z15C,	WS-C2960+48TC-L
35	IIMB-Road-WiFi1	FOC0903X39Y,	WS-C2950G-24-EI
36	IIMB_Road_WiFi8	FOC1330Y2J3,	WS-C3560G-24TS-S
37	NOC-SW-2960-03	FOC2001Z1T1,	WS-C2960+48TC-L
38	IIMB_RSDN_CSW01	FCQ1521Z369,	WS-C2960-24PC-L
39	IIMB_RSDN_CSW02	FOC2631YK81,	WS-C2960X-24PS-L
40	IIMB_RSDN_CSW03	FCW2103B5GQ,	WS-C2960X-24PS-L
41	res-sw	FOC1205Y0FM,	WS-C3560G-24TS-S
42	IIMB_RSDN_CSW05	FCW2103B5CB,	WS-C2960X-24PS-L
43	IIMB_RSDN_CSW06	FCQ1602Y4R7,	WS-C2960-24PC-L
44	IIMB_RSDN_CSW07	JIN2308102U,	WS-C2960X-24PS- IN
45	IIMB_RSDN_CSW08	JIN2308101X,	WS-C2960X-24PS- IN
46	IIMB_RSDN_CSW09	FOC1229Z4L1,	WS-C2960-24PC-L
47	IIMB_RSDN_CSW04	FCQ1630Y3X6,	WS-C2960-24PC-L
48	Placement_SW_MDC	JAE27040L3Y,	C9200L-48PXG-4X
49	DPT-Canteen-SW-2960	FOC1204Z2HR,	WS-C2960-48TC-L
50	IIMB_DRTR_BNGL	FCQ1617X0UK,	WS-C2960-24TC-L
51	FAC-E-SW-3650-01	FDO2002E2LL,	WS-C3650-48FD-S
52	FAC-D-SW-3650-01	FDO2003E0BC,	WS-C3650-48FD-S
53	FAC-C-SW-3650-01	FDO2002Q16J,	WS-C3650-48FD-S
54	FAC-B-SW-3650-01	FDO2002Q1AY,	WS-C3650-48FD-S
55	FAC-A-SW-3650-01	FDO2003Q03T,	WS-C3650-48FD-S
56	DIR-G-SW-3650-01	FDO2002Q1AX,	WS-C3650-48FD-S
57	NOC-SW-3850-05	FCW2001C03Y,	WS-C3850-12S-S
58	MDC-R1-SW-3650-01	FDO2002Q16N,	WS-C3650-48FD-S
59	MDC-YOGA-SW-3650-01	FDO2003E0BB,	WS-C3650-48FD-S
60	MDC-R1-SW-3850-02	FOC2001X04Y,	WS-C3850-12S-S
61	HOS-GH-SW-3650-01	FDO2002E2SX,	WS-C3650-48FD-S

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62	HOS-GH-SW-2960-02	FOC2001Z1TA,	WS-C2960+48TC-L
63	HOS-IJ-SW-3650-01	FDO2002Q1AU,	WS-C3650-48FD-S
64	HOS-IJ-SW-2960-02	FOC2001Z1N6,	WS-C2960+48TC-L
65	HOS-IJ-sw-2960-03	FOC2001Z1SQ,	WS-C2960+48TC-L
66	HOS-L-SW-3650-01	FDO2002E2VU,	WS-C3650-48FD-S
67	HOS-L-SW-2960-02	FOC2001Z1RY,	WS-C2960+48TC-L
68	HOS-L-SW-2960-03	FCW2333A1BK,	WS-C2960+48TC-L
69	NSRCEL-GF-SW-3650-01	FDO2002E2R5,	WS-C3650-48FD-S
70	HOS-GH-SW-2960-03	FOC2001Z1MW,	WS-C2960+48TC-L
71	FAC-A-SW-3560-02	FOC1011Y31D,	WS-C3560G-48TS-S
72	FAC-B-SW-3560-02	FOC1426Y6EL,	WS-C3560G-48TS-S
73	FAC-C-SW-3560-02	FOC1426Y6EH,	WS-C3560G-48TS-S
74	FAC-D-SW-3560-02	FOC1426Y6F7,	WS-C3560G-48TS-S
75	FAC-D-SW-3560-03	FOC1423W4C6,	WS-C3560G-24TS-S
76	FAC-E-SW-3560-03	FOC1334Z22V,	WS-C3560G-48TS-S
77	FAC-E-SW-3560-02	FOC1006Y08D,	WS-C3560G-48TS-S
78	FAC-F-SW-3560-02	FOC1205Y0HT,	WS-C3560G-24TS-S
79	FAC-B-SW-2960-03	FOC1427Z447,	WS-C2960-24PC-L
80	FAC-A-SW-2960-03	FCQ1616Y5GH,	WS-C2960-24TC-L
81	FAC-E-SW-2960-04	FCQ1616Y2XK,	WS-C2960-24TC-L
82	MHU-RAC1-SW-3650-01	FDO2002E2VT,	WS-C3650-48FD-S
83	SPO-A-3560-01	FOC1226Z09R,	WS-C3560G-24TS-S
84	SPO-B-2960-01	FCQ1616Y34N,	WS-C2960-24TC-L
85	MHU-N-RAC3-SW-2960-03	FCQ1626Y396,	WS-C2960-24PC-L
86	IIMB-Auditorium-2960	FCQ1616Y5N5,	WS-C2960-24TC-L
87	IIMB-MainGate-2960	FCQ1616Y35T,	WS-C2960-24TC-L
88	HR-SW-3560-03	FOC1205Y0JC,	WS-C3560G-24TS-S
89	HOS-M-SW-2960-03	FCQ1616Y5HM,	WS-C2960-24TC-L
90	HOS-M-SW-3650-01	FDO2002E2W6,	WS-C3650-48FD-S
91	HOS-O-SW-3650-01	FDO2002E2VH,	WS-C3650-48FD-S
92	HOS-P-SW-3650-01	FDO2002E2VR,	WS-C3650-48FD-S
93	HOS-O-SW-2960-02	FOC2001Z1TE,	WS-C2960+48TC-L
94	HOS-P-SW-2960-02	FOC2001Z1SP,	WS-C2960+48TC-L
95	HOS-M-SW-2960-02	FOC2001Z1T0,	WS-C2960+48TC-L
96	HOS-O-SW-2960-04	FOC2001Z1SD,	WS-C2960+48TC-L
97	HOS-O-SW-2960-03	FOC2001Z1SK,	WS-C2960+48TC-L
98	HOS-P-SW-2960-03	FOC2001Z1SW,	WS-C2960+48TC-L
99	IIMB_RSDN_CSW10	FOC1441W55C,	WS-C2960-24PC-L
100	IIMB_RSDN_CSW11	FOC1442X6C0,	WS-C2960-24PC-L
101	NOC-SW-3650-01	FDO2003Q03Y,	WS-C3650-48FD-S
102	IIMB_RSDN_CSW05-1	JIN22471088,	WS-C2960X-24PS-L
103	HOS-K-SW-2960-02	FOC2001Z1T2,	WS-C2960+48TC-L
104	HOS-K-SW-2960-03	FOC2001Z1S4,	WS-C2960+48TC-L
105	HOS-CD-SW-2960-02	FOC2001Z1TD,	WS-C2960+48TC-L

106	CLS-N001-S-2960	FCQ1519Z3NN,	WS-C2960-24PC-L
107	IIMB-CLASS-SW1	FOC1817X06J,	WS-C3850-48F-S
108	IIMB-CLASS-SW2	FOC1817U05K,	WS-C3850-48F-S
109	CLASS-NCR-Rac2-SW4	FOC2001Z1T3,	WS-C2960+48TC-L
110	CLASS-NCR-Rac2-SW3	FOC2001Z1SS,	WS-C2960+48TC-L
111	CLASS-NCR-Rac1-SW3	FOC2001Z1RP,	WS-C2960+48TC-L

## **7. Terms & Conditions of Contract**

### **7.1 Arbitration**

All disputes arising out of this contract shall be referred to the Director, IIM Bangalore whose decision shall be final and binding on both parties.

### **7.2 Special Terms and Condition:**

In view of office memorandum F.No.6/18/2019-PPD dated 23rd July 2020 issued by Public Procurement Division, Department of Expenditure, Ministry of Finance, all tenderers, vendors or service provider should comply to the restrictions under rule 144 (xi) of General Financial Rules (GFRs). If any of the bidder fail to comply then their bids shall be rejected.

### **7.3 Clarification of Offers**

To assist in the scrutiny, evaluation and comparison of offers, IIM Bangalore may, at its discretion, ask (by email) some or all bidders for clarifications with regards to their offer. The request for such clarifications and the response will necessarily be in writing (by email). Failure of a Bidder to submit additional information or clarification as sought by the institute within the prescribed period will be considered as a non-compliance and the proposal may get evaluated based on the limited information furnished along with the bid proposal.

### **7.4 Extension of Delivery Period and Liquidated Damages**

Buyer may, on the request of the Seller or otherwise, extend the delivery date suitably subject to the following conditions:

The original Delivery Period may be re-fixed by the Buyer without any Liquidated damages subject to Force Majeure conditions mentioned below and also on the ground/reasons of delay attributable to the Buyer.

### **7.5 Liquidated Damages:**

If the Seller/Service Provider fails to deliver any or all of the Goods/Services within the original/re-fixed delivery period(s) specified under Delivery Schedule this tender, the Buyer will be entitled to deduct/recover the Liquidated Damages for the delay, unless covered under Force Majeure conditions aforesaid, @ 0.1% of the contract value of delayed quantity per day of delayed period as pre estimated damages not exceeding 10% of the contract value of delayed quantity without any controversy/dispute of any sort whatsoever.

### **7.6 Force Majeure Conditions:**

If at any time during the continuance of the Contract, the performance in whole or in part by either party of any obligation under this Contract shall be prevented or delayed by the reasons of any war, hostility, acts of the public enemy, epidemics, civil commotion, sabotage, fires, floods, explosion, quarantine restrictions, strikes, lockouts or act of God (but not including negligence or wrongdoing, predictable/seasonal rain) provided notice of happening of such event duly evidenced with documents is given by one party to the other within 10 days from the date of occurrence thereof, neither party shall be by reasons of such event, be entitled to terminate the Contract nor shall either party have any claim for damages against the other in respect of such

nonperformance or the delay in performance, and deliveries under the contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist, and the decision of the Buyer as to whether the deliveries have been so resumed or not, shall be final and conclusive, Provided further that if the performance in whole or part of any obligation under this contract is prevented or delayed by reason of any such event for a period exceeding 90 days, either party may at its option terminate the contract provided also that the Buyer shall be at liberty to take over from the Seller at a price to be fixed by Buyer, which shall be final, all unused, undamaged and accepted material, bought out components and Goods in course of manufacture in the possession of the Seller at the time of such termination or such portion thereof as the Buyer may deem fit excepting such materials, bought out components and Goods as the Seller may with the concurrence of the Buyer elect to retain.

- Selected bidder shall have adequate manpower to execute the project successfully at IIM Bangalore.
- Consortium/JV is not allowed in this bid.
- Bidders are to submit Unpriced BoQ along with Technical Compliance sheet in the technical Bid.
- Only bidders meeting the minimum criterion as defined above will be considered for further technical evaluation.
- Participating eligible bidders will be required to give a technical presentation to IIM Bangalore of their offered solution during the course of technical evaluation as per the mutually agreed plan.
- The selected bidder will submit the detailed project plan within one week from the date of issuance of work order.

## **8. Bid Evaluation**

For the purpose of selection of the bidder, a two bid system evaluation process will be followed. The response to the tender should be submitted in two parts viz. Technical Bid & Financial Bid. Evaluation will be done strictly on Eligibility Criteria and Technical Specification as mentioned in this tender.

The Technical Evaluation Committee constituted by the IIM Bangalore shall verify the particulars furnished by the bidder independently and shall examine the bids to confirm that all documents pertaining to the Eligibility Criteria and Technical Criteria have been provided and shall ascertain the completeness of each document submitted. If any of these documents or information is missing, IIM Bangalore reserves the right to call upon the missing documents/ Clarification on the submitted documents from the Bidders or reject the bid on account of unresponsive bid and the rejected bids will be ignored for the further evaluation purpose.

Only those bidders who fulfil the minimum eligibility criteria to participate in this bid will be considered for the further evaluation purpose i.e., Technical Scores Evaluation.

70% of weightage will be awarded for technical evaluation and 30% weightage will be awarded for financial evaluation.

Technical Score (Ts) will be assigned out of 100 marks as per the details given in Table below, only those bidders who score a minimum of 60 marks as per the below mentioned table will be considered for further evaluation of the financial bid.

The details submitted by the bidder will be evaluated in the following manner.

S.No.	Criterion	Marks				Max Marks (100)
1	Number of similar projects in last seven years		Min. No. of Projects	CFEI (Centrally Funded Educational Institutions)	Central /PSU/ State	20
		Projects of value more than 12 Crores	1	10	7	
		Projects of value more than 7.5 Crores	2	5	3	
		Projects of value more than 6 Crores	3	3.5	2	
		Max Marks		20		
2	Average Annual Turnover	15 Crore to 20 Crore – 5 Marks >20 Crore to 25 Crores – 8 Marks > 25 Crores – 10 Marks				10
3	Understanding of Project requirements	a. Integrated Project Management Plan covering the entire scope of work. (12 Marks) b. Project Plan covering areas including but not limited to (12 Marks): i. WBS (Work breakdown structure) ii. Activities, Timelines, Milestones and Deliverables iii. Site survey iv. Governance and RACI (Responsibility assignment Matrix) c. Risk Management Plan specially to manage project timelines and deliverables and business continuity plan (6 Marks).				30
4	Technical Presentation	The Technical Presentation should cover all the Project Components and the Bidders approach to successfully implement the same for Project duration, Need to be submitted in PDF format in the technical bid.				20
5	Technical Manpower	CVs of the Technical Manpower offered to be deployed on the project – Minimum 4 CVs * of resources including, Project Manager, Engineer, Resource to be deployed on site.  Engineer   L3 - Specialist - 05 years of Experience (Marks 10) Engineer – Wireless Specialist – 03 years of Experience (Marks 4) Engineers 2 nos   L2 - Network - 02 Years of Experience (Marks 6)  * This resource cannot be changed without written consent of IIM Bangalore				20



### **8.1 Technical presentation**

The presentation may be offline or online. The presentation should not be more than 15 slides and will be for 20 minutes to be followed by queries from IIMB team. The presentation should cover:

<b>Sl. No</b>	<b>Particulars</b>	<b>Marks</b>
1	Design &Relevant Site Reference details	5
2	Implementation and Methodology	6
3	Manpower details and Project timeline	4
4	Training and Documentation details	3
5	Understanding and adherence to the Tender specifications	2

### **8.2 Final Selection and Award of Work**

The Final Standing would be evaluated based on a composite score derived out of the technical evaluation and financial bid. The Financial Score (FS) shall be evaluated based on the financial offer from the shortlisted bidders.

After opening of the commercial bid proposals of the shortlisted bidders, the Lowest Financial proposal amongst all opened financial proposals shall be given a financial score (FS) of 100 marks.

The Financial Score (FS) of any other proposal will be determined using the following formula.

$$FS = 100 \times FL / F$$

Here, FL is the lowest financial proposal amongst all opened financial proposals and F is the financial proposal of the applicant whose FS is to be computed.

For the purpose of calculation of composite score (S) for each proposal, the weightage shall be 70% for Technical Evaluation Score (TE) and 30% for Financial Score (FS) of the respective bidders. The Composite Score (S) shall be calculated using the following formula.

$$S = 0.7 \times TE + 0.3 \times FS$$

Proposals will be ranked according to their composite scores (S) and, the top scorer H1 will be eligible for award of work. In case of a tie at the top position between two or more Finalists, the Finalist with higher Technical Score (TS) shall be given preference.

## **9. Delivery and Installation Conditions**

At the destination site, the cartons will be opened only in the presence of IIM Bangalore Officials and the vendor's representative. All delivery of items shall be signed with clear depiction of date on delivery note. Upon satisfactory installation of the equipment, vendor should obtain signed installation certificate from the official after making the stock entry at their end and specify the same in the installation certificate. Delivery notes and Installation certificate in original shall be submitted along with the bills by the vendor for payment.

For site not ready (SNR) case, vendor is required to submit a certificate, duly signed with date and stamp by the concerned officials. No Penalty will be levied for SNR cases; however, LD on late delivery shall be imposed. Vendor has to start installation work within 15 days of receipt of site ready notice from user and complete as per PO terms, failure on the same will invoke the penalty.

**10.Comprehensive Warranty and AMC Support Services & SLA:**

- a) The warranty for active components would be valid for a period of 05 years from the date of final acceptance by IIM Bangalore subsequent to the supply, installation, testing and commissioning of the entire active component set up. or 63 months from the date of delivery to the consignee (in case delay in installation is on part of consignee), whichever is earlier.-
- b) The warranty for passive components would be valid for a period of 01 years from the date of final acceptance of the equipment by IIM Bangalore or 15 months from the date of delivery to the consignee (in case delay in installation is on part of consignee), whichever is earlier.
- c) The bidder should have a centralized helpdesk for logging of complaints. After the call is logged, the complainant should receive a call back within 1 hour to brief the status of the call logged and the details of the engineer to whom the call is assigned, for efficient and quick resolution of the problem.
- d) There shall be a provision to log complaints/ open support cases directly with OEM on 24 x 7 basis through Phone/Email/Web for supplied equipment. Problems in equipment which causes downtime/degradation of services and resolution of which require development of patches, bug fixes etc. shall be treated by OEM on urgent basis. The OEM shall provide appropriate solution on fast track basis so that desired Service levels. The bidder shall furnish an undertaking from OEM in this regard.
- e) The vendor shall provide full details such as postal address/telephone no., email address, contact no. of Project Manager- Single Point of Contact (SPOC), Technical Expert and Field Engineer deputed for warranty support. Vendor to ensure that the manpower for Support is technically competent to expeditiously provide the support/ resolution of the issue(s) noted during Warranty period..
- f) The bidder shall be responsible for any defects that may develop under the conditions provided by the contract and under proper use, including arising from faulty materials, design or workmanship such as corrosion, inadequate quantity of material to meet equipment requirements, inadequate contact protection, in design etc. and/or otherwise and shall rectify such defects at his own cost when called upon to do so by the IIM Bangalore.
- g) Bidder shall nominate an Account Manager / Senior functionary for day-to-day coordination with IIMB throughout the warranty support service period.
- h) The Bidder should arrange to attend site at least once in six months by OEM/Authorized experts for preventive maintenance/Health checks/updates of equipment.
- i) The bidder shall provide Upgrades and Updates for all network & security equipment, software and hardware as and when released by OEMs and shall be made available free of cost. Software updates/upgrades shall also be done keeping in view advancement in technology, shortcomings of the system, security vulnerabilities, or changes required for improving functional efficiency and security level of the system. The bidder shall ensure complete rollback to original status in case of problem and shall take necessary system backups before the activity.
- j) All the patches installation and upgrades of network equipment are to be carried out by the bidder as per the recommendations and releases done by the OEM.

- k) Bidder shall ensure all latest updates/patches should be installed after replacement / reinstallation / maintenance activity of any device.
- l) All the equipment shall have on-site warranty i.e. the repair / replacement of faulty units during the warranty period has to be ensured at IIM Bangalore campus after the complaint is lodged at the nearest customer support office.

### **10.1 Service Level Agreement(SLA)**

The purpose of this Service Level Agreement (hereinafter referred to as SLA) is to clearly define the levels of service which shall be provided by the Selected Bidder to IIM Bangalore for the duration of this Agreement. The selected Bidder shall regularly review the performance of the services being provided by the Selected Bidder and the effectiveness of this SLA.

### **10.2 Category of SLAs**

This document provides for minimum level of services required as per contractual obligations based on performance indicators and measurements thereof. The Bidder shall ensure provisioning of all required services while monitoring the performance of the same to effectively comply with the performance levels. The services provided by the Bidder shall be reviewed by IIM Bangalore as the following:

- a. Adherence to delivery schedule.
- b. Regularly check performance of the Bidder against this SLA.
- c. Obtain suggestions for changes to improving the service levels.
- d. Types of Incidents and requests
- e. Time to resolve and number of unclosed tickets.

### **10.3 Penalty for breach of SLA**

S. No.	Activity	Rate
1	Failure in maintaining the delivery schedule	Any unjustified and unacceptable delay in delivery schedule will render the vendor liable for penalty at the rate of 0.1% (Zero-point one percent) per day to maximum 10% of the purchase order value whichever is lower after which the purchase order may be cancelled. Also, user holds the option to complete the delivery through alternate sources with extra cost of completion to be borne by the defaulting vendor.
2	Failure in maintaining the installation schedule	0.1% (Zero-point one percent) per day to maximum 10% of the purchase order value whichever is lower, thereafter IIM Bangalore holds the option to complete the installation work through alternate sources with the extra cost of completion to be borne by the defaulting vendor.
3	Maintenance during warranty	Under warranty , penalty per day per equipment at the rate of 0.05% (Zero-point zero five percent) of the purchase value of the equipment if not repaired within 12/24/48 hours based on the call severity (defined in SLA Section). Maximum penalty will be limited to 5% (Five percent) of the purchase order value of the equipment. If system remains down beyond 30 days, IIM Bangalore will have option to get it rectified through alternate source. The cost of repair on such default shall be recovered from the vendor outstanding payment or PBG.

4	Replacement of the faulty system	Any system, failing at subsystem level at least three times in three months, displaying chronic system design or manufacturing defects or Quality Control problem will be totally replaced by the Vendor at his cost and risk within 30 days, from the date of last failure. If supplier fails to replace the system within 30 days, penalty will be charged at the rate of 0.1% (Zero-point two percent) of system purchase value per day per system up to a maximum value of 10% (Ten percent) of the purchase order
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The penalty mentioned above will be deducted either from the quarterly payment or from the performance guarantee.

Operation and Maintenance Support goes through the following phases:

- a) Support Call Logging
- b) Support Call Resolution
- c) Support Call Closure

**10.4 Escalation and Notifications:**

The SI ensures that all the stakeholders are notified in a timely manner on the status of event/ticket. SI Service Desk system notifies users during following events:

- 1. Logging of ticket.
- 2. Status change of ticket.
- 3. Support engineers'-initiated notifications.

In order to ensure issues are resolved within SLA, Successful SI will have to use defined escalation mechanisms. Below is the standard Functional Escalation process followed for different severity calls. **Severity of calls will be defined by user based on the business impact on the system or equipment type.**

Severity of call	Type of call	Resolution time
<b>Severity-1: Critical (above 100 users Impacted)</b>	Incident	12 Hours
<b>Severity-2: Major (10-100 users Impacted)</b>	Incident	24 Hours
<b>Severity-3: Minor (1-10 users Impacted)</b>	Incident	48 Hours

**10.5 SLA Review Process**

- 1. Either IIM Bangalore or the selected Bidder may raise an issue, by documenting the business or technical problem, which presents a reasonably objective summary of both points of view and identifies specific points of disagreement with possible solutions.
- 2. A meeting or conference call will be conducted to resolve the issue in a timely manner. The documented issues will be distributed to the participants at least 24 hours prior to the discussion if the issue is not an emergency requiring immediate attention.
- 3. IIM Bangalore and the selected Bidder shall develop an interim solution, if required, and subsequently permanent solution for the problem at hand. The selected Bidder will then communicate the resolution to all interested parties.
- 4. Penalties shall not be levied on the successful bidder in case of is a Force Majeure event affecting the SLA which is beyond the control of the successful bidder.

## **11 Acceptance Criteria for the Proposed Solution:**

### **1. Coverage and Capacity Planning**

- 1.1. The bidder should provide the location of LAN and Access Points on the floor plan for all buildings.

### **2. Physical Installation:**

- 2.1. Inspect installation of network racks, OFC laying, UTP cables, and network switches.
- 2.2. Configuration check on controller including the policies.
- 2.3. Test the physical mounting of each access point.
- 2.4. Test each access point connectivity to the wireless controller.

### **3. Wired Network Test**

- 3.1. Perform OTDR tests for all OFC links and submit reports.
- 3.2. Perform end-to-end connectivity test of all UTP links and submit reports.
- 3.3. Check reachability and latency test on all network switches and submit reports.

### **4. Wi-Fi Controller Configuration Test:**

- 4.1. Check authorized Wi-Fi set up for each subnet, VLAN, and location, as the case may be.
- 4.2. Check both authorized user and guest user policies.
- 4.3. Test each access point if it has the right authorized and guest policy.
- 4.4. Check Wi-Fi prevention policy for each subnet, VLAN, and location.
- 4.5. Check the configured alerts and alert delivery methods.
- 4.6. Check the administrative users and their access rights.
- 4.7. Check the configured reports (content, delivery frequency, recipient list).
- 4.8. Check the automatic backup and archival parameters.
- 4.9. Check archival of logs.

### **5. Commissioning Test:**

- 5.1. Test for all access points connectivity to the wireless controller.
- 5.2. Test and verify authorized access points inventory and authorized client inventory.
- 5.3. Verify external access points list and verify uncategorized / unauthorized client list.
- 5.4. Verify if all authorized wireless devices are tagged to right location.
- 5.5. Test for authorized client connection to authorized access point and respective SSID as per the set authentication policy.
- 5.6. Test for guest client connection to authorized access points and respective SSID as per the set authentication policy.
- 5.7. Test if automatic rogue access points prevention is working on all types of rogue APs.
- 5.8. Test if unauthorized client association to authorized access point is automatically prevented.
- 5.9. Test if automatic client Mis-association prevention is working.
- 5.10. Test if ad-hoc networks are detected and automatically prevented.

- 5.11. Test if MAC-spoofing is detected.
- 5.13 Test is Denial of Service (DoS) attack is detected.
- 5.14 Testing of deployment of policies, firmware updating remotely through the controller.
- 5.15 Testing WIPS functionality across the subnet.
- 5.16 The entire testing exercise should complete in stipulated time.

**Documentation and Reports:**

- 6.1. Documentation of the entire project along with testing reports must be submitted to IIM Bangalore.
- 6.2. Documentation must include complete network diagram, which clearly depicts switch management IP Address, switch location, AP location, and switch port to each AP etc.
- 6.3. Documentation must include complete configuration in a step-by-step manner.

**Intellectual Property Rights**

All intellectual property rights for the work performed under this Tender as far as data is concerned shall lie with IIM Bangalore. This clause is applicable to all data in any form or format designed and developed for IIM Bangalore under this Tender by the vendor. The vendor shall not use such data for any other purpose during and after the term of contract.

**Payment Terms**

- i) 70% of the Product cost will be released at the time of delivery of equipment's after receipt inspection, and acceptance of the material at IIM Bangalore campus and certification of receipt by stores in charge at IIM Bangalore.
- ii) 20% of the product cost & 50% of the installation cost will be released on completion of installation and testing of the devices.
- iii) Balance 10% of the product cost & 50% of the installation cost will be released 03 months after the successful commissioning of complete network (active and passive), including submission of FAT Reports.
- iv) AMC support bill payment will be released quarterly on prorated basis after deducting penalties due to SLA breach, if any.
- v) Payment will be released subject to deduction of TDS as per rules/laws prevalent at that time.

**Performance Security / Performance Bank Guarantee (PBG):**

The successful bidder must submit Performance Security / Performance Bank Guarantee (PBG) within two weeks of the issue date of the order. The PBG will be 5% of the total order value. The performance security must be valid for Five years and three months from the date of acceptance of successful installation by IIM Bangalore. Performance security may be furnished in the form of Bank Guarantee issued by a scheduled commercial bank in India (preferably nationalized bank) in favor of "IIM BANGALORE" or payment through RTGS / NEFT in the following bank details:

<b>Bank Name</b>	<b>: HDFC Bank Ltd</b>
<b>Bank Street Address</b>	<b>: J.P. NAGAR BRANCH, BANGALORE</b>
<b>Branch Code</b>	<b>: 0133</b>
<b>IFSC CODE</b>	<b>: HDFC0000133</b>
<b>Customer HDFC Bank a/c name</b>	<b>: Indian Institute of Management</b>
<b>Customer HDFC Bank a/c number</b>	<b>: 01331450000019</b>

No interest will be payable by IIM Bangalore on the Performance Security deposited. The Earnest Money Deposit (EMD) of the successful bidder shall be returned on receipt of Performance Security (Performance Bank Guarantee / PBG).

## **12.Delivery Schedule**

The project is to be completed within the overall proposed timelines of twenty (20) weeks. The activity wise timeline is as mentioned below:

<b>S. No.</b>	<b>Measurement</b>	<b>Baseline Timeline (in Week) T= Date of issue of Purchase Order(PO)</b>
1.	Start of shipment of Material Supply of CAT-6 & fiber cables, cable laying & Termination, passive components	T+3 weeks
2.	Delivery of Hardware/Equipment's Active Components: Switches, WLC, APs	T+6 weeks
3.	Installation, Configuration, Commissioning of all networking Hardware/ equipment's and Final acceptance test (FAT)	T+10 weeks
5.	Warranty	Five (5) Years from the date of FAT



**13.CHECKLIST FOR BIDDERS TO BE SUBMITTED IN DULY FILLED AND SIGNED**

<b>Bid Sl. No.</b>	<b>Name of the Document</b>	<b>Document Particulars</b>	<b>Submitted (Yes/No)</b>	<b>Page No. of the attached Document</b>
1.	PAN Card			
2.	Incorporation/Registration certificate of company			
3.	GST Registration copy			
4.	Company Registered Address and Contact Details			
5.	Tender acceptance letter			
6.	Non-Blacklisting undertaking			
7.	<b>Experience Criteria (As per Annexure VII):</b> The Bidder or its OEM {themselves or through reseller(s)} should have regularly, manufactured and supplied same or similar Category Products to any centrally funded educational institutions / Central or State Govt. Organization / Large Public Enterprise Companies for 7 years before the bid opening date. Copies of relevant contracts to be submitted along with bid in support of having supplied some quantity during each of the year. OEM offered must be present in India for at-least 15 years or more.			
8.	<b>Bidder Turn Over Criteria (As per Annexure VI):</b> The minimum average annual financial turnover of the bidder during the last three years, ending on 31st March of the previous financial year, should be 15 Crores as indicated in the bid document. Documentary evidence in the form of certified Audited Balance Sheets of relevant periods or a certificate from the Chartered Accountant / Cost Accountant indicating the turnover details for the relevant period shall be uploaded with the bid.			
9.	Compliance of OEM Criteria for Active Component			
10.	Compliance of OEM Criteria Pre-Qualification for Passive Component			
11.	The overall solution submitted by the bidder			

	should be a <u>Class-I/ Class-II</u> in line with the Public Procurement (Preference to Make in India) Order 2017 No. P-45021/2/2017-PP (BE-II) dated 04 Jun 2020. A Self-Declaration Certificate regarding “ <u>Class-I/ Class-II/ Non-local suppliers</u> ” for all the items along with %age of MII content to be submitted. %age of MII content should be supported by the declaration of OEM on his letter head.			
12.	The bidder should be either OEM or OEM authorized business partner / Channel partner / system integrator of reputed brand having authorization for sales and after sales support. Bid Specific MAF (Manufacturer Authorization Form) is required to participate in this tender.			
13.	Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder registered with the competent authority. The concerned bidder(s) are required to attach the relevant valid Registration Certificate along with the bid for consideration.			
14.	Purchase Preference: (if applicable) Micro and Small Enterprises (MSEs):			
15.	Purchase Preference: Make in India			
16.	Payment Terms: i) 70% of the Product cost will be released at the time of delivery of equipment’s after inspection, Installation and acceptance of the material at IIM Bangalore campus and certification of receipt by stores in charge at IIM Bangalore. ii) 20% of the product cost & 50% of the installation cost will be released on completion of installation and testing of the devices. iii) Balance 10% of the product cost & 50% of the installation cost will be released 03 months after the successful commissioning of complete network (active and passive), including submission of FAT Reports. iv) Warranty, AMC support and Manpower (based on MPR) bill payment will be released quarterly on prorate basis after deducting penalties due to SLA breach, if any.			

	v) Payment will be released subject to deduction of TDS as per rules/laws prevalent at that time.			
17.	Bid validity: 120 days from the date of opening of the tender.			
18.	Integrity pact to be submitted by bidder			
19.	Unpriced BoQ and Technical Compliance sheet			
20.	Specification Technical Compliance Statement			

**Note:**

**The tender will lead to rejection/disqualification if submitted:**

- 1) Submission of tender without the above-mentioned documents
- 2) It is mandatory for the bidder to sign page numbers to the tender documents and the same must be mentioned in the above checklist.
- 3) With incomplete information, subjective, conditional offers and partial offers submitted.
- 4) Have non-compliance of any of the clauses stipulated in the Tender.
- 5) With lesser validity period

Signature of the bidder with stamp

## **14. Annexures**

**14.1 Annexure-I**  
**Particulars of the Bidder**

S. No.	Information Required	Details to be Furnished
1.	Name, address and URL of the bidding Company	
2.	Incorporation status of the firm (public limited / private limited, etc.)	
3.	Year of Establishment	
4.	Date of Registration	
5.	Details of company registration	
6.	GST Certificate	
7.	Average Turnover for the last 3 financial years	
8.	Name, Address, e-mail ID, Phone nos. and Mobile Number of Contact Person	

**14.2 Annexure-II**  
**Compliance Declaration Sheet**

We hereby confirm that we are complying with the technical specifications and Scope of Work as specified in the tender document without any deviation and the offer is submitted in accordance with the technical requirements. All relevant documents in support of our claims are enclosed at the following pages:

Signature of Bidder:

Name of Bidder:

Designation:

Organization Name:

Contact No.:

Email:

Mobile:

**14.3 Annexure-III**  
**DECLARATION SHEET**

(On Organization Letter Head)

We .....hereby certify that all the information and data furnished by our organization with regard to this tender specification are true and complete to the best of our knowledge. I have gone through the specifications, conditions and stipulations in detail and agree to comply with the requirements and intent of specification.

We further certify that our organization meets all the conditions of eligibility criteria laid down in this tender document. Moreover, we will support the project on a regular basis with technology / product updates and extend support for the warranty.

We further specifically certify that our organization has not been Blacklisted/ De Listed or put to any Holiday by any Institutional Agency/ Govt. Department/ Public Sector Undertaking in the last three years	NAME & ADDRESS of the VENDOR/ MANUFACTURER
Phone	
E-mail	
Contact Person Name	
Contact Number	
TIN Number	
PAN Number	
In case of on-line payment of EMD) UTR No. (For EMD)	
Kindly provide bank details of the Bidder in the following format:	
a) Name of the Bank	
b) Account Number	
c) Kindly attach scanned copy of one Cheque book page to enable us to return the EMD to unsuccessful Bidder	

**(Signature of the Bidder)**

**Name:**

**Seal of the Company**

**14.4Annexure-IV**  
**Letter of Undertaking**

**(ON THE LETTER HEAD OF THE BIDDER)**

To,

**The Director**  
**Indian Institute of Management (IIM) Bangalore**  
**Karnataka560076**

Sir/Madam,

**SUBJECT: Selection of System Integrator for Supply, Installation, Testing & Commissioning of LAN Upgradation including network switches, passive cabling & Wi - Fi setup at IIM Bangalore campus**

This bears reference to IIM Bangalore Bid No. .... Dated ..... We hereby accept all the terms and conditions for submitting bid as mentioned in this Bid Document.

We hereby certify that no terms and conditions have been stipulated by us in the Financial Bid.

We warrant that the services do not violate or infringe upon any patent, copyright, trade secret or other property right of any other person or other entity. We agree that we shall not prevent IIM Bangalore from any claim or demand, action or proceeding, directly or indirectly resulting from or arising out of any breach or alleged breach of any of the terms & conditions of bid document and contract.

The above document is executed on ..... at (place) and we accept that if anything out of the information provided by us is found wrong, our bid/ work order shall be liable for rejection.

Thanking you,

Yours faithfully,

Signature of Bidder:

Name of the Bidder

Designation:

Seal of the Organization

Date:

Place:



**14.5Annexure V**

**SELF-DECLARATION – NON-BLACKLISTING**

To,

**The Director**

**Indian Institute of Management (IIM)**

**Bangalore Karnataka560076**

Sir/Madam,

In response to the Tender ..... dated ..... for Selection of System Integrator for Supplying, Installation, Testing & Commissioning of LAN Upgradation including network switches , passive cabling & Wi - Fi setup at I IM Bangalore campus, Karnataka.

I/We hereby declare that presently our Company/Service provider M/s .....

is having unblemished record and is not blacklisted for corrupt or fraudulent practices or non- performance either indefinitely or for a particular period of time by any State/ Central Government/PSU/Autonomous Body on the date of bid submission.

If this declaration is found to be incorrect then without prejudice to any other action that may be taken, my/ our EMD may be forfeited in full and the tender if any, to the extent accepted be cancelled.

Thanking you

Yours faithfully

Signature of Bidder:

Name of the Bidder:

Designation:

Seal of the Organization:

Date:

Place:

**14.6 Annexure VI**  
**Annual Average Turnover**

S. No.	Financial Year	Turnover	Net worth
1.	2020-21		
2.	2021-22		
3.	2022-23		
	TOTAL		
	AVERAGE		

Note: Certificate from Statutory Auditors / Chartered Accountant certifying above information for all three years to be enclosed.

Signature with Seal of the Chartered Accountant

Signature with Seal of the Bidder

**14.7 Annexure-VII**  
**Experience**

(only those works should be reported which are \*similar in nature of works and were completed)

SN	Name of work/ project and location	Owner or sponsoring organization	Cost of *Similar Project in crores of rupees (Incl. GST)	Date of commencement as per Work	Stipulated date of completion of Work	Actual date of completion of Work	Name and address / telephone No. of officer to whom reference may be made
1							
2							
...							

*(add as many rows as needed)*

*(Supporting document to be attached)*

Signature of the bidder with seal and stamp

\*'Similar Projects' is defined as, Supply, installation and maintenance of IT hardware & System Networking like network switches, wireless solution, LAN cabling, servers, network security devices.

**14.8 Annexure-VIII**

**PROFORMA FOR DECLARATION ON PROCEEDINGS UNDER INSOLVENCY AND BANKRUPTCY CODE, 2016**

Tender No. : .....

Name of Work: .....

Bidder's Name: .....

I/ We, M/s. \_\_\_\_\_ declare that: -

- a. I /We am / are not undergoing insolvency resolution Process or liquidation or bankruptcy proceeding as on date.
- b. I /We am / are undergoing insolvency resolution process or liquidation or bankruptcy proceeding as on date as per Details mentioned below. (Attached detail with technical bid)

Note: Strike out one of the above which is not applicable.

It is understood that if this declaration is found to be false, IIM Bangalore shall have the right to reject my / our bid, and forfeit the EMD, if the bid has resulted in a contract, the contract will be liable for termination without prejudice to any other rights or remedies (including holiday listing) available to IIM Bangalore.

Place:

Date:

Signature of

Bidder:

Name of Signatory:

**14.9 Annexure-IX**  
**PROFORMA PRE CONTRACT INTEGRITY PACT**

**GENERAL**

This pre-bid pre-contract Agreement (hereinafter called the Integrity Pact) is made on \_\_\_\_\_ day of the month of ..... 2024, between, on one hand, acting through Shri/Smt. \_\_\_\_\_, Designation, IIM Bangalore (hereinafter called the “BUYER”/ “IIM Bangalore” interchangeably, which expression shall mean and include, unless the context otherwise requires, his successors in office and assigns) of the First Part

**AND**

M/s \_\_\_\_\_ represented by \_\_\_\_\_, Authorized Signatory (hereinafter called the “Bidder/Seller” which expression shall mean and include, unless the context otherwise requires, his successors and permitted assigns) of the Second Part.

WHEREAS the IIM Bangalore proposes to procure services towards **“Selection of System Integrator for Supplying, Installation, Testing & Commissioning of Campus Wide LAN upgradation (Both active & passive Equipment at IIM Bangalore campus, Karnataka)”**).

Bidder/Seller is willing to offer the said services and related items as referred to in the Bid document no. .... Dated ..... 2024.

WHEREAS the Bidder is a private company /public company / Government undertaking / Partnership

/ Registered expert agency, constituted in accordance with the relevant law in the matter and the IIM Bangalore is a higher education institution of national importance under Ministry of Education performing its functions.

NOW, THEREFORE,

To avoid all forms of corruption by following a system that is fair, transparent and free from any influence / prejudiced dealings prior to, during and subsequent to the currency of the contract to be entered into with a view to:

Enabling the IIM Bangalore to obtain the desired services as referred to in the Bid Document No. .... dated .....2024 at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement and Enabling Bidders to abstain from bribing or indulging in any corrupt practice in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing and other corrupt practices and the IIM Bangalore will commit to prevent corruption, in any form, by its officials by following transparent procedures. The parties hereby agree to enter into this Integrity Pact and agree as follows:

**Commitments of the IIM Bangalore**

- The buyer undertakes that no official of the IIM Bangalore, connected directly or indirectly with the contract, will demand, take a promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favor or any material or immaterial benefit or any other advantage from the Bidder, either for themselves or for any person, organization or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting or implementation process related to the contract.

- The BUYER will, during the pre-contract stage, treat all Bidders alike, and will provide to all Bidders the same information and will not provide any such information to any particular Bidder which could afford an advantage to that particular Bidder in comparison to other Bidders.
- All the officials of the IIM Bangalore will report to the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.
- In case any such preceding misconduct on the part of such official(s) is reported by the Bidder to the IIM Bangalore with full and verifiable facts and the same is prima facie found to be correct by the IIM Bangalore, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings shall be initiated by the IIM Bangalore and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the IIM Bangalore the proceedings under the contract would not be stalled.

### **Commitments of Bidders**

- The Bidder commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:
- The Bidder will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the IIM Bangalore, connected directly or indirectly with the bidding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.
- The Bidder further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favor, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the IIM Bangalore or otherwise in procuring the Contract or forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the Government for showing or forbearing to show favor or disfavor to any person in relation to the contract or any other contract with the Government.
- Bidders shall disclose the name and address of agents and representatives and Indian Bidders shall disclose their foreign principals or associates.
- Bidders shall disclose the payments to be made by them to agents/brokers or any other intermediary, in connection with this bid/contract.
- The Bidder further confirms and declares to the IIM Bangalore that the Bidder is the original manufacturer/integrator/authorized government sponsored export entity and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the IIM Bangalore or any of its functionaries, whether officially or unofficially to the award to the contract to the Bidder, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation, as the case shall be for satisfactory performance of the proposed terms of Bidder.
- The Bidder will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.
- The Bidder will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.
- The Bidder shall not use improperly, for purposes of competition or personal gain, or pass on to others, any information provided by the IIM Bangalore as part of the business relationship, regarding plans, technical proposals and business details, including information contained in any electronic data carrier. The Bidder also undertakes to exercise due and adequate care lest any such information is divulged.
- The Bidder commits to refrain from giving any complaint directly or through any other manner without

supporting it with full and verifiable facts.

- The Bidder shall not instigate or cause to instigate any third person to commit any of the actions mentioned above.
- If the Bidder or any employee of the Bidder or any person acting on behalf of the Bidder, either directly or indirectly, is a relative of any of the officers of the IIM Bangalore, or alternatively, if any relative of an officer of the IIM Bangalore has financial interest / stake in the Bidder's firm, the same shall be disclosed by the Bidder at the time of filing of Bid.
- The Bidder shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of IIM Bangalore.

#### **PREVIOUS TRANSGRESSION**

The Bidder declares that no previous transgression occurred in the last three years immediately before signing of this integrity pact, with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify Bidder's exclusion from the bid process.

The Bidder agrees that if it makes incorrect statement on this subject. Bidder can be disqualified from the Bid process or the contract, if already awarded, can be terminated for such reason.

#### **EARNEST MONEY DEPOSIT**

No interest shall be payable by IIM Bangalore to the Bidder on Earnest Money Deposit for the period of its currency.

#### **SANCTIONS FOR VIOLATIONS**

- i. Any breach of the aforesaid provisions by the Bidder or anyone employed by it or acting on its behalf (whether with or without the knowledge of the Bidder) shall entitle the IIM Bangalore to take all or any one of the following actions, wherever required:
- ii. To immediately call off the pre-contract negotiations without assigning any reason or giving any compensation to the Bidder. However, the proceedings with the other Bidder(s) would continue.
- iii. The Earnest Money Deposit (in pre-contract stage) and/or Security Deposit /Performance Bond (Bank Guarantee) (after the contract is signed) shall stand forfeited either fully or partially, as decided by the IIM Bangalore and the BUYER shall not be required to assign any reason, therefore.
- iv. To immediately, cancel the contract, if already signed, without giving any compensation to the Bidder.
- v. To encash the advance bank guarantee, if furnished by the Bidder, in order to recover the payments already made by IIM Bangalore, along with interest.
- vi. To cancel all or any other Contracts with the Bidder. The Bidder shall be liable to pay compensation for any loss or damage to IIM Bangalore resulting from such cancellation/rescission and IIM Bangalore shall be entitled to deduct the amount so payable from the money(s) due to the Bidder.
- vii. To debar the Bidder from participating in future bidding processes of the Government of India for a minimum period of five years, which shall be further extended at the discretion of the IIM Bangalore.
- viii. Forfeiture by way of encashment of Performance bank guarantee in case of a decision by the IIM Bangalore to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.
- ix. The decision of the IIM Bangalore to the effect that a breach of the provisions of this Pact has been committed by the Bidder shall be final and conclusive on the Bidder. However, an Independent Monitor(s) shall be appointed by IIM Bangalore, in case of breach of the provisions of the pact.

#### **OTHER LEGAL ACTIONS**

The actions stipulated in this Integrity Pact are without prejudice to any other legal action that shall follow in

accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

**VALIDITY**

The validity of this Integrity Pact shall be governed by the terms of the Bid No..... towards complete execution of the contract to the satisfaction of both the IIM Bangalore and the Bidder/Seller, including warranty period, whichever is later. In case the Bidder is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract awarding the Bidder with successful Bidder.

Shall one or several provisions of this Pact turn out to be invalid; the remainder of this Pact shall remain valid. In this case, the parties will strive to come to an agreement to their original intentions.

The parties hereby sign this Integrity Pact at \_\_\_\_\_ on \_\_\_\_\_.

**IIM Bangalore**

**BIDDER**

Name of the Officer:

Authorized Signatory

Designation:

Designation:

Witness:

Witness:

1. \_\_\_\_\_

1. \_\_\_\_\_

2. \_\_\_\_\_

2. \_\_\_\_\_



**14.9 Annexure X**

**Original Equipment Manufacturer (OEM) Authorization Form (General Proforma)**

No. \_\_\_\_\_ dated \_\_\_\_\_

To,

Sir/Madam,

Bid No. \_\_\_\_\_

We \_\_\_\_\_ who are established and reputed manufacturer of \_\_\_\_\_ (name and description of goods offered) having factories at \_\_\_\_\_ (address of factory) with factory registration no. \_\_\_\_\_

----- do hereby authorize M/s \_\_\_\_\_ (Name and address of Bidder) to submit a bid, and sign the contract with you for the goods manufactured by us against the above bid.

We hereby extend our full warranty as per the required conditions of Contracts, for the goods and services offered for supply by the above firm against this Invitation for Bid. We further certify that we shall support vendor with all related spares and maintenance during the entire contract period including the period of warranty as per tender and we also declare that the product proposed in this contract will not be end of life till the contract period.

We undertake that we will support IIM Bangalore directly or via another partner, if the bidder fails to fulfil their contractual obligations with respect to support during warranty or AMC period.

We also certify that the proposed products meet the technical & functional requirements & also products quoted are of the latest version.

Yours faithfully,

(Name): \_\_\_\_\_

(Name of manufacturers): \_\_\_\_\_

Note: This letter of authority should be on the letterhead of the manufacturer or OEM and should be signed by a person competent and having the power of attorney to legally bind the manufacturer.

**OEM Criteria for Active Components:**

S.No.	Pre-qualification criteria	Compiled (Yes/No)	Remarks
1	Proposed OEM must be present in India for the last 15 years or more.( OEM incorporation certificate shall be shared with the bid)		
2	Similar deployment in India – OEM should have deployed similar campus networking solutions in Centrally funded educational institutions (CFEIs/IIMs)/ Central or State Govt. organizations/Large public Enterprise Companies in last 7 years with minimum 2000 network nodes and minimum 1000 access points successfully deployed in any of these organizations for a minimum of one year. Proof to be submitted in the form of Purchase orders/completion certificate from end customer.		
3	Products proposed should have been released and shipments commenced at least 12 months before date of bid.		
4	OEM should provide an undertaking that the proposed models are latest and spares support for the models offered will be available for a period of 10 years from the date of bid submission. OEM must have at least 15 spare depot centers in India including one in Bangalore so that timely replacement can be done for IIM. OEM to submit undertaking confirming the same and providing list of depot Centres on their letterhead		
5	Support during the warranty / AMC period will include back lining with OEM, advance replacement of faulty parts, labor and onsite support to resolve issues reported by IIM within the SLA defined by IIM. Bidder to undertake preventive maintenance visits once every 6 months and do patch updates		

	and updates to the latest version in the switches/wireless controller / access points during these visits.		
6	OEM should have 24*7 TAC (Technical Assistance Centre) support based in India. OEM should provide direct TAC support to IIMB as and when required during the warranty period. OEM should confirm in their warranty letter that warranty support part codes considered by bidder includes direct 24/7 TAC support from OEM to IIM Bangalore.		
7	OEM should participate via their authorized partners in this bid. MAF to be provided to the authorized partner and OEM should submit an undertaking that they will support IIM Bangalore directly or via another partner, if the bidder fails to fulfil their contractual obligations with respect to support during warranty or AMC period.		
8	All active networking components (Network switches, Wireless access points, Wireless controller) should be from the same OEM.		
9	OEM through SI/bidder has to submit "unpriced part coded bill of material" for complete BoQ offered along with technical compliances on OEM letterhead.		

**OEM Criteria for Passive Components:**

S.No	Pre-qualification criteria	Compiled (Yes/No)	Remarks
1	Passive OEM offered must be present in India for at-least 15 years or more.		
2	OEM should be a member of Telecommunications Industry Association (EIA / TIA) Information.		
3	All cables & components offered should be ROHS complied & the same shall be mentioned in their Data Sheet		
4	OEM Should be ISO certified organization- 9001/ISO 45001/ ISO 14001 certified manufacturing facility in india		
5	All passive products should be from single OEM & should have 25 years of channel performance and component warranty.		

**14.11 Annexure XI**  
**Pre-Bid Query Format**

Pre-bid queries should be submitted in .XLS format.

RFP Description				
RFP No.				
Organization				
Address				
Contact Person				
Contact No.				
Mail Id				
S.no.	Chapter No.	Page No.	Clause as per RFP	Clarification Sought

**14.12 Annexure XII**  
**INSTALLATION CERTIFICATE**

The following goods/equipment, supplied by the Supplier at IIM Bangalore have been successfully installed and commissioned by the Supplier.

Sl. No.	Description of Equipment	Serial No of Device (Wherever possible)	Make	Model	Quantity
1					

Remarks:

---

Signature of Supplier or its representative:

Signature of IIM Bangalore representative

Name:

Name:

Designation:

Designation:

Date:

Date

Rubber Seal:

Rubber Seal of the institution

Verified by

Signature:

Name:

Designation:

Date: \_

**14.13 Annexure XIII**  
**Land Border Sharing Declaration**

(To be submitted in the Bidder's Letter head)

I have read the clause regarding restrictions on procurement from a Bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries.

I certify that this Bidder is not from such a country or, if from such a country, has been registered with the Competent Authority and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority.

I hereby certify that this Bidder fulfils all requirements in this regard and is eligible to be considered.

[Where applicable, evidence of valid registration by the Competent Authority shall be attached.]”.

For and behalf of \_\_\_\_\_(Name of the Bidder)

(Signature, date & seal of authorized representative of the Bidder)

**14.14 Annexure-XIV****Format of CV of key personnel proposed to be engaged in the project**

(Please attach one sheet per key person)

1. Name:
2. Date of Birth and Age:
3. Position currently being held:
4. Role envisaged for the project:
5. Field specialization:
- a. Key projects:
- b. Role and actions performed (in each of the key projects):
6. Educational Qualifications\*:

	Name of the degree	Year of graduation	University/Board	Marks or Grade Point (Overall)
Postgraduate Degree				
Undergraduate Degree				
Diploma				
Any Other (Pl specify)				

\* A self-attested copy of each person's degree/Diploma certificate is to be provided by the bidder.

7. Professional Experience in years:
8. Remarks:

(Authorized Signatory)

**14.15 Annexure XV**  
**FINANCIAL BID SUBMISSION FORM**

To,

Dated: \_\_\_/\_\_\_/2024

**The Director**  
**Indian Institute of Management (IIM)**  
**Bangalore P. O. - Karnataka 560076**

Dear Sir,

We, the undersigned, offer to provide **“Selection of System Integrator for Supplying, Installation, Testing & Commissioning of Network Upgradation including network switches, passive cabling & Wi - Fi setup at IIM Bangalore campus, Karnataka”**.

In accordance with your request for proposal dated \_\_\_/\_\_\_/2024 and certify that no terms and conditions have been stipulated by us in the Financial Bid.

Please note that tender validity will be 120 days after opening the commercial.

Yours Sincerely,

Authorized Signature {In full and initials}:

Name and Title of Signatory:

In the capacity of:

Address:

E-mail:



**14.15.1 FINANCIAL BID****Instructions to Bidders**

1. Financial Bid shall be submitted with full price details.  
Financial Bid shall contain only the prices duly filled in as per the format given in the Schedule of Rates provided in the tender document. Price bid should not have any Commercial and/or technical stipulation.
2. Financial Bid Standard form shall be used for the preparation of the price quote according to the instructions provided.
3. The prices quoted by the Bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
4. The changes displayed in the corrigendum/addendum to the bid documents, particularly with the financial bid should be attached with the Financial Bid Submission Form, in the same packet, duly signed and stamped by the authorized signatory of the Bidder firm.
5. The financial bid should be filled in all respect and uploaded in “.PDF” format (only) duly signed and sealed by the authorized representative. In case the financial bid documents are not complete in all respects the same shall be treated as incomplete at financial bid opening stage and shall be considered non-responsive.
7. As per section 9, *extract is reproduced below:*

*“...THE ABOVE BOQ IS ~~INDICATIVE~~ FOR THE PURPOSE OF INFORMATION ONLY. ALL BIDDERS SHOULD CONDUCT A DETAILED SITE SURVEY OF THE CAMPUS AND UNDERSTAND THE REQUIREMENTS COMPLETELY BEFORE SUBMITTING THE TENDER. ANY ADDITIONAL REQUIREMENTS AT SITE TO ENSURE DELIVERY OF THE REQUIRED CAPABILITIES DEFINED ABOVE NEED TO BE CONSIDERED AND BIDDER SHOULD QUOTE ACCORDINGLY. ...”*

Bidders are to provide Total Offered Solution Cost (TOSC) calculated based on their own rates as per Table A, Table B , Table C and Table D.

**Active components BOQ**

Sl. No	Item Description	Units	Quantity
1	Core Switch Core Switch Chassis Based: 1) 24-Port 40GE SFP- 1No per Switch 2) 48-Port 10GE/1GE SFP - 1No per Switch 3) 48-Port 10Gig/1G Copper - 1No per Switch 4) Supervisor engine- 1 No per switch	Nos	2
2	Access Switch Semi MultiGig 48 ports Layer 2 PoE+ Switch with 48 1GbE ports with minimum 8port of 1GbE/2.5GbE (Multi-Gigabit) 4x 1/10G fixed uplinks	Nos	128
3	Distribution Switch 48 ports of 10GbE/25GbE (SFP+/SFP28). Cables/Transceivers shall be populated as per the design and The switch should have min 2 ports of 40GbE/100GbE (QSFP+/QSFP28).	Nos	9

4	In Room Access Point with License Wi-Fi 6 Access Points (Room Access Point) 2x2 on 2.4 & 5 GHz	Nos	1420
5	In rooms with Multiple RJ45 Ports with License Wi-Fi 6 Access Points (Rooms with RJ45 Ports ) 2x2 on 2.4 & 5 GHz	Nos	160
6	Corridor /Classrooms Access Points WiFi6 Access Points (Corridor Access Points, High density ) 4x4 on 2.4GHz and 5GHz	Nos	250
7	Outdoor areas Access Points with License WiFi6 Access 4x4 on (Common areas Access Points) 2.4GHz and 5GHz	Nos	12
8	Small form-factor pluggable transceiver - SM (SFP+) - 10G	Nos	200
9	Small form-factor pluggable transceiver - SM (SFP+) - 40G	Nos	33
10	Cloud Wireless Controller	Nos	1
11	Small form-factor pluggable transceiver - SM (SFP+) - 10G copper transceiver module	Nos	2
12	NAC Device with 5000 User License	Lot	2

### Passive Supply details

B	Passive Revamp Supply		
1	9U*600MM wall mount rack including PDU and Accessories	6.00	Nos
2	15U*600MM Floor mount rack including PDU and accessories	3.00	Nos
3	36U*800mm Floor mount rack including PDU and accessories	3.00	Nos
4	Cat 6 STP Cable (305 M Box)	50.00	Nos
5	Cat 6 UTP Cable (305 M Box)	6.00	Nos
6	24 Port Jack Panel Cat6 STP Fully Loaded	11.00	Nos
7	24 Port Jack Panel Cat5e UTP Fully Loaded	10.00	Nos
8	Cat 6 STP IO's	220.00	Nos
9	Cat6 single port face plate	220.00	Nos
10	I/O Back box	220.00	Nos
11	Cat 6 1Mtr STP Patch Cord	420.00	Nos
12	Cat5e 1Mtr UTP Patch Cord	30.00	Nos
13	24 Core Single Mode Fiber Optic outdoor armoured cable	700.00	Mtrs
14	6 Core Single Mode Fiber Optic outdoor armoured cable	8,000.00	Mtrs
15	24 Port LIU fully Loaded	14.00	Nos
16	12 Port LIU fully Loaded	2.00	Nos
17	6 Port LIU fully Loaded	37.00	Nos
18	Single Mode Fiber Patch Cord 3 Mtrs	200.00	Nos
19	1" InchHDPE Pipe	5,000.00	Mtrs
20	1.5" InchHDPE Pipe	1,600.00	Mtrs
21	2" InchHDPE Pipe	2,000.00	Mtrs
22	1" Inch Hard Flexible Pipe	400.00	Mtrs
23	2" Inch Hard Flexible Pipe	120.00	Mtrs

24	1" Inch PVC Conduit with bends and Clamps	5,000.00	Mtrs
25	2" Inch PVC Conduit with bends and Clamps	300.00	Mtrs
26	2" Inch GI Pipe 6 Mtr Length	12.00	Mtrs
27	OFC Route Marker	150.00	Nos.
28	Outdoor OFC cable enclosure jointer	15.00	Nos.
29	Miscellaneous items and accessories	1.00	Lot

### **5.13 Passive Services**

<b>A</b>	<b>Passive Revamp Services</b>		
1	Laying charges of 4 pair UTP/STP cable (CAT6) Outdoor	15,000.00	Mtrs
2	Fixing of 24 Port CAT6 /CAT5e Jack Panel	21.00	Nos
3	Termination charges of Cat6 STP Information Outlet	440.00	Nos
4	Fixing charges of Face Plates	440.00	Nos
5	Fixing Charges of Back Boxes	220.00	Nos
6	Termination charges of Cat5e Information Outlet	200.00	Nos
7	Scanning, Testing, and Documentation of UTP Points.	300.00	Nos
8	Laying 24 Core Outdoor OFC SM	700.00	Mtrs
9	Laying 6 Core Outdoor OFC SM	8,000.00	Mtrs
10	Fixing charges of Rack Mount LIU	53.00	Mtrs
11	Splicing charges for Pigtails	600.00	Nos
12	OTDR Testing charges of Fiber Core. for existing fiber and fiber loss reporting	300.00	Mtrs
13	Rack Dressing	41.00	Nos
14	Rack Replacement	13.00	Nos
15	Laying HDPE Pipe (1" Inch)	5,000.00	Mtrs
16	Laying HDPE Pipe (1.5" Inch & 2" Inch)	3,600.00	Mtrs
17	Digging of soft soil Manual Digging and Back filling of the trench with soil and leveling (2Feet Depth)	2,300.00	Mtrs
18	Digging of Hard soil Manual Digging and Back filling of the trench with concrete (2Feet Depth)	150.00	Mtrs
19	Laying charges of 1" Inch Pvc Channel/Conduit /pipe with bend and junctions indoor over the wall and roof	5,000.00	Mtrs
20	Laying charges of 2" Inch Pvc Channel/Conduit /pipe with bend and junctions indoor over the wall and roof	300.00	Mtrs

The installation cost mentioned above includes expenses for tasks such as excavation, constructing chambers, laying charges, labor, and related activities as per standards. The work in accordance with the Government of India standards.

**14.16 Annexure XVI****Undertaking for category by the Bidder (Certified by Auditor)**

(To be submitted by bidder)

This is to confirm that the information mentioned below is in compliance with the Order No. P-45021/2/2017-PP (BE - II), Ministry of Commerce & Industries (DPIIT) dt. 4th June 2020 and is correct to the best of my knowledge. I also provide consent to IIM Bangalore to validate our claim at any point of time. The bid shall be rejected, and Security Deposit will be forfeited, in case any discrepancies / any information/ data provided by me in this regard found to be false / incorrect / misleading.

S. No	Particulars	Details <i>(to be filled by the Bidder/ OEM/Supplier)</i>
I	<b>OEM Category</b>	
a.	Category – I Local Supplier	
b.	Category – II Local Supplier	
c.	Non – Local Supplier	

Authorized Signatory:

Date:

Name &amp; Designation:

Place:

**14.17 ANNEXURE – XVII**  
**Format of Bank Guarantee towards EMD**

Whereas \_\_\_\_\_ (hereinafter called the tenderer”) has submitted their offer dated \_\_\_\_\_ for the supply of \_\_\_\_\_ (hereinafter called the tender”) against the purchaser’s tender enquiry No. \_\_\_\_\_

KNOW ALL MEN by these presents that WE \_\_\_\_\_ of \_\_\_\_\_ having our registered office at \_\_\_\_\_ are bound unto \_\_\_\_\_ (hereinafter called the “Purchaser”)

In the sum of \_\_\_\_\_ for which payment will and truly to be made to the said Purchaser, the Bank binds itself, its successors and assigns by these presents. Sealed with the Common Seal of the said Bank this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_.

THE CONDITIONS OF THIS OBLIGATION ARE:

(1) If the tenderer withdraws or amends or modifies or impairs or derogates from the Tender in any respect within the period of validity of this tender.

Or

(2) If the tenderer having been notified of the acceptance of his tender by the Purchaser during the period of its validity:-

(a) If the tenderer fails to furnish the Performance Security for the due performance of the contract.

(b) Fails or refuses to accept/execute the contract.

WE undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it owing to the occurrence of one or both the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including 120 days after the opening of technical bids and any demand in respect thereof should reach the Bank not later than this date.

\_\_\_\_\_  
(Signature of the authorized officer of the Bank)

Name and designation of the officer  
Seal, Name & Address of the Issuing Branch of the Bank

### **14.18 INSTRUCTIONS OF ONLINE BID SUBMISSION**

Instructions to the Bidders to submit the bids online through the Central Public Procurement Portal for e Procurement at <http://eprocure.gov.in/eprocure/app>.

1. Possession of valid Digital Signature Certificate (DSC) and enrollment/registration of the contractors/bidders on the e-Procurement/e-RFP portal is a prerequisite for e-tendering.
2. Bidder should do the enrollment in the e-Procurement site using the "Online Bidder Enrollment" option available on the home page. Portal enrollment is generally free of charge. During enrollment/registration, the bidders should provide the correct/true information including valid email id. All the correspondence shall be made directly with the contractor/bidders through email id provided.
3. Bidder need to login to the site through their user I.D./ password chosen during enrollment/registration.
4. Then the Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by SIFY/TCS/nCode/eMudra or any Certifying Authority recognized by CCA India on eToken/SmartCard, should be registered.
5. The DSC that is registered only should be used by the bidder and should ensure safety of the same.
6. Contractor/Bidder may go through the RFPs published on the site and download the required RFP documents/schedules for the RFPs he/she is interested.
7. After downloading / getting the RFP document/schedules, the Bidder should go through them carefully and then submit the documents as asked, otherwise bid will be rejected.
8. If there are any clarifications, this may be obtained online through the RFP site, or through the contact details. Bidder should take into account the corrigendum published before submitting the bids online.
9. Bidder then logs in to the site through the secured log in by giving the user id/ password chosen during enrolment/registration and then by giving the password of e-Token/Smartcard to access DSC.
10. Bidder selects the RFP which he/she is interested in by using the search option & then moves it to the 'my RFPs' folder.
11. From my RFP folder, he selects the RFP to view all the details indicated.

12. It is construed that the bidder has read all the terms and conditions before submitting their offer. Bidder should go through the RFP schedules carefully and upload the documents as asked; otherwise, the bid will be rejected.
13. Bidder, in advance, should get ready the bid documents to be submitted as indicated in the RFP documents/schedule and generally, they can be in PDF/xls/rar/jpg/dwf formats. If there is more than one document, they can be clubbed together and can be provided in the requested format. Bidders Bid documents may be scanned with 100 dpi with black and white option. It is advisable that each document to be uploaded through online for the RFPs should be less than 2 M.B. If any document is more than 2 M.B., it can be reduced through rar and the same can be uploaded, if permitted. However, if the file size is less than 1 MB the transaction uploading time will be very fast.
14. If there are any clarifications, this may be obtained through the site. Bidder should take into account the corrigendum published from time to time before submitting the online bids.
15. The Bidders can update well in advance, the documents such as certificates, annual report details etc., under My Space option and these can be selected as per RFP requirements and then send along with bid documents during bid submission. This will facilitate the bid submission process faster by reducing upload time of bids.
16. Bidder should submit the RFP Fee/EMD as specified in the RFP. The original should be posted/couriered/given in person to the RFP Inviting Authority, within the bid submission due date & time for the RFP or as indicated in the RFP. Scanned copy of the instrument should be uploaded as part of the offer.
17. While submitting the bids online, the bidder reads the terms & conditions and accepts the same to proceed further to submit the bid packets.
18. The bidder has to select the payment option as offline to pay the RFP Fee/EMD as applicable and enter details of the instruments.
19. The details of the D.D./ any other accepted instrument, physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise submitted bid will not be acceptable or liable for rejection.
20. The bidder has to digitally sign and upload the required bid documents one by one as indicated. Bidders to note that the very act of using DSC for downloading the bids and uploading their offers shall be deemed to be a confirmation that they have read all sections and pages of the bid document including General conditions of contract without any exception and have understood the entire document and are clear about the requirements of the RFP requirements.
21. The bidder has to upload the relevant files required as indicated in the cover content. In case of any irrelevant files, the bid will be rejected.

22. If the price bid format is provided in a spread sheet file like BoQ\_xxxx.xls, the rates offered should be entered in the allotted space only and uploaded after filling the relevant columns. The Price-bid BOQ template must not be modified/replaced by the bidder; else the bid submitted is liable to be rejected for this RFP.
23. The bidders are requested to submit the bids through online e-tendering system to the RFP Inviting Authority (TIA) well before the bid submission end date & time (as per Server System Clock). The TIA will not be held responsible for any sort of delay or the difficulties faced during the submission of bid online by the bidders at the eleventh hour.
24. After the bid submission (i.e. after Clicking "Freeze Bid Submission" in the portal), the acknowledgement number, given by the system should be printed by the bidder and kept as a record of evidence for online submission of bid for the particular RFP and will also act as an entry pass to participate in the bid opening date.
25. The time settings fixed in the server side & displayed at the top of the RFP site, will be valid for all actions of requesting, bid submission, bid opening etc., in the e-RFP system. The bidders should follow this time during bid submission.
26. All the data being entered by the bidders would be encrypted using P.K.! encryption techniques to ensure the secrecy of the data. The data entered will not be viewable by unauthorized persons during bid submission & not be viewable by any one until the time of bid opening.
27. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid openers' public keys. Overall, the uploaded RFP documents become readable only after the RFP opening by the authorized bid openers.
28. The confidentiality of the bids is maintained since the secured Socket Layer 128 bit encryption technology is used. Data storage encryption of sensitive fields is done.
29. The bidder should logout of the tendering system using the normal logout option available at the top right hand corner and not by selecting the (X) exit option in the browser.
30. For any queries regarding e-tendering process, the bidders are requested to contact as provided in the RFP document. Parallely for any further queries, the bidders are asked to contact over phone: 0120-4001 002 or send a mail over to [cphp-nic@nic.in](mailto:cphp-nic@nic.in).