MAHARASHTRA METRO RAIL CORPORATION LIMITED

(Nagpur Metro Rail Project)

Date : 03.03.2017

Name of Work: Supply Design & Commissioning of IT Network, IT Infrastructure and provision of facility management services.

Tender No. N1IT-03/2016

Tender No.(As uploaded in the E-Tender Portal of NMRCL): 73

Corrigendum – VIII

A. Addendum for N1IT-03 in Annexure 1

B. Revision of Key dates

Event	Current date & time	Revised Date & time
Last date of Submission of bids	Till 15.03.2017at 16.00hrs	Till 25.03.2017 at 16.00hrs
Date of Opening of Bids	On 15.03.2017at 16.30hrs	On 25.03.2017at 16.30hrs

GM/Procurement
Maharashtra Metro Rail Corp. Ltd.

ANNEXURE 1

ADDENDUM for N1IT-03/2016

NAGPUR METRO RAIL PROJECT

ADDENDUM/CORRIGENDUM

FOR

SUPPLY, DESIGN &COMMISSIONING OF IT NETWORK, IT INFRASTRUCTURE AND PROVISION OF FACILITY MANAGEMENT SERVICES

TENDER NO.

N1IT-03/2016

MAR-2017

Maharashtra Metro Rail Corporation Limited
Metro House, Bungalow No: 28/2,
Anand Nagar, CK Naidu Road,
Civil Lines, Nagpur-440001
Maharashtra, INDIA
Website: http://www.metrorailnagpur.com

Section 3,Bid Data Sheet

1.Replace the existing provision of Clause no. 36 with following

36	The bid security may be forfeited or the Bid-Securing Declaration executed: (a) if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letter of Bid, or any extension thereto provided by the Bidder; or (b) if the successful Bidder: (i) Fails to furnish a performance security in 28 days (as per Sr. No. 33) and fails to sign or refuses to sign the contract agreement. (ii) Bidder fails to accept the Letter of Acceptance. (iii) If a Bidder withdraws its tender during the period of bid validity as specified in the Tender (iv) If bidder furnish false information, false & forged experience certificate/documents with the bid, which fails in authenticity verification by NMRCL, shall lead to disqualification from the tender process and forfeitures of Bid Security/EMD and or termination of contract even after award of the contract, including forfeiture of Performance Guarantee. (v) Submission of any fake, forged or fabricated documents with the Bid, which fails the verification of its authenticity or having inconsistent or misleading information, shall lead to rejection of Bid & forfeiture of EMD / Bid Security (Partial of full). Such bidder may be debarred from participation in the future bid of NMRCL

2.Add the provision of Clause No. 40, 41,42 with following

40	**i. A firm, who has purchased the Bid Document in his name shall submit the Bid in his own name by using his DSC.** **ii. In case of JV / Consortium the power of attorney holder of lead member is authorized to sign all legal documents and other enclosures. However the digital signature (DSC) of any member of JV/Consortium may be used for accessing/downloading/uploading & submitting the tender documents.** **iii. Such digital signature holders who is submitting the bid shall be jointly and appropriately authorized by all JV/Consortium partner & a notarized authority letter should be enclosed with the bid.** **iv. The facility in the e-tender portal of NMRCL is also available for viewing & downloading the document free of cost.**
41	(a) Any document pertains to bidders eligibility criteria or evaluation criteria or stipulated anywhere in bid document, submitted by bidder with partial, incomplete, hidden, tampered or concealed information, shall not be consider in support of eligibility, evaluation or what so ever mentioned in tender document. (b) Any tampered, fabricated, altered, concealed or manipulated information furnished with bid in terms of certificates or formats or documents shall not be considered for evaluation & shall lead to disqualification of bidder.

42	**Right to Change/ postponement /defer/cancellation/ Withdrawal of bid & bidding procedure by NMRCL.** NMRCL (Employer) reserve the right to postpone / defer / cancel or recall/ withdraw the entire bidding procedure at any stage without assigning any reason. Such changes shall be notified in form of **Corrigendum** published on E-Tender portal of NMRCL. In this circumstance the bidders shall not have any claim towards the cost & expenditure incurred by bidders for preparation of bid & bid document cost.

Section 4, Eligibility Criteria

3.Replace the existing provision of 4.2 B (1) with following

The Applicant should have minimum average annual turnover of **Rs. 25 Crores** in last 3 (Three) years. Audited Balance sheet and Profit & Loss account statement of the Applicant for each of the last 3 audited financial years (By assuming 5% escalation for Indian Rupee)(FY 2013-14, 2014-15 & 2015-16) and Certificate duly signed by Statutory Auditor of the Bidder for total average annual turnover from IT services in last three years.

In case of a Joint Venture/Consortium, the evaluation against the above eligibility criteria will be done in totality (i.e. algebraic aggregate of turnover of each member) and not as individual member.

4.Replace the existing provision of 4.2 C (2) with following

The Bidder should have experience in successful implementations of IT Infrastructure involving servers, storage, backup solution, Network components & software or IT Network Infrastructure Solution with Active and /or Passive network component and is in operation. The bidder should have completed

At least One work of the value not less than **INR 4 Crore.**
OR
At least two work of the value not less than **INR 3 Crore**

in organizations of Indian Central Govt. or State Govt. or PSU or global Railways or Metro Rail or Airports or Ports or Large Enterprise in last **5 years** prior to last date of bid submission

Purchase orders or Project completion or Installation certificate from Client(s) of the referred projects shall be submitted.

5.Replace the existing provision of 4.2 C (3) with following

The bidder should have completed at least one work of providing Facility Management services or IT Maintenance Support in a multi-year contract of value not less than **INR 50 Lacs**, in organizations of Indian Central Govt. or State Govt. or PSU or global Railways or Metro Rail or Airports or Ports or Large Enterprises in last 5 years prior to last date of bid submission.
Purchase orders or Project completion or Installation certificate from Client(s) of the referred projects shall be submitted. Cumulative value will be considered if same tender is extended.

6.Replace the existing provision of 4.2 C (4) with following

The bidder should have completed at least one work of creation and deployment of Email server or network setup or Active Directory or LDAP Creation or DHCP Services in organizations of Indian Central Govt. or State Govt. or PSU or global Railways or Metro Rail or Airport or Ports or Large Enterprises, in last 5 years prior to last date of bid submission

Purchase orders or Project completion or Installation certificate from Client(s) of the referred projects shall be submitted.

7. Replace the existing provision of 4.2 C (5) with following

The bidder should have completed at least one work of Network management System (NMS) or Infrastructure Management Services or Help Desk System in organizations of Indian Central Govt. or State Govt. or PSU or global Railways or Metro Rail or Airport or Ports or Large Enterprises, in last 5 years prior to last date of bid submission.

Purchase orders/Project completion/ Installation certificate from Client(s) of the referred projects shall be submitted.

Section 5, Evaluation Criteria

8. Replace the existing provision of B with following

B. Bidder's Experience

	Citation Details	Documentary Evidence	Marks Allotted
1.	The Bidder should have experience in successful implementations of IT Infrastructure involving servers, storage, backup solution, Network components & software or IT Network Infrastructure Solution with Active and /or Passive network component and is in operation. The bidder should have completed At least One work of the value not less than INR 4 Crore. OR At least two work of the value not less than INR 3 Crore in organizations of Indian Central Govt. or State Govt. or PSU or global Railways or Metro Rail or Airport or Ports or Large Enterprises in last 5 years prior to last date of bid submission. 25 marks per citation up to 4 works for maximum of 100 marks 10 additional marks per workup to 2 citations for maximum of 20 marks if one of the above work is in Railways or Metro or Airport or Ports.	Purchase orders or Project completion certificate(s) from Client(s) of the referred projects	100 20
2	The bidder should have completed at least one work of providing Facility Management services or Maintenance Support in a multi-year contract of value not less than INR 50 Lacs, in organizations of Indian Central Govt. or State Govt. or PSU or global Railways or Metro Rail or Airport or Ports or Large Enterprises, in last 5 years prior to last date of bid submission 25 marks per work upto 3 works for maximum of	Purchase orders of running contracts or project completion certificate from Client(s) of the referred projects	75
3	The bidder should have completed at least one work of creation and deployment of Email server or network setup or Active Directory or LDAP Creation or DHCP Services, in organizations of Indian Central Govt. or State Govt. or PSU or global Railways or Metro Rail or Airport or Ports or Large Enterprises, in last 5 years prior to last date of bid submission 25 marks per works upto 4 works for maximum of 100 marks	Purchase orders or project completion certificate from Client(s) of the referred projects	100

	Citation Details	Documentary Evidence	Marks Allotted
4	The bidder should have completed at least one work of Network management system (NMS) or Infrastructure Management Services or Help Desk System in organizations of Indian Central Govt. or State Govt. or PSU or global Railways or Metro Rail or Airport or Ports or Large Enterprise, in last 5 years prior to last date of bid submission 25 marks per work upto 3 works for maximum of 75	Purchase orders or project completion certificate from Client(s) of the referred projects	75
5	The Bidder must have a valid quality certification of at least ISO 9001:2008 and ISO 27001:2013. 25 marks for each certificate	Valid copies of certificate.	50

Section 6, Scope of Work

9. **Replace the provision of 6.2 (2) with following**

Backup server shall be installed, commissioned and maintained at equipment room of Metro Bhavan. Contractor shall be responsible for submit design accordingly. Contractor shall consider retention period of 10 years, details of backup policy shall be finalized during detailed design. Bidder shall propose suitable media for backup.

10. **Replace the provision of 6.2 (5) with following**

a. OA&IT Network with OFC, Switches, LAN Ports, Patch Panels, and Termination Points at Work Stations at OCC / BCC / Stations / Interchange Stations / Depots & RSS shall be implemented by N1TL01 for operation, maintenance staff of Nagpur Metro.
b. CPM/ Office at Sneh nagar, Subhasnagar & Shivangaon, Udyog Bhavan, Metro House, SBI Building office are already connected toNMRCL IT network through MPLS network.

N1IT-03 Contractor shall

i. Take over Network implemented by N1TL-01 for FMS
ii. Upgrade existing NMRCL network (if required) & setup network in Metro Bhavan and any new CPM office. He shall coordinate with N1TL -01 contractor for implementation & takeover of OA & IT Network after DLP
iii. Assist & coordinate with N1TL–01 contractor for interface and integration of all networking and other IP based solutions

Delays or defaults in resolution of complaints by N1TL -01 contractor shall not be included in the SLA of N1IT - 03 contractor, however he shall report all the delays & exception to NMRCL.

11. **Replace the provision of 6.3 (7) with following**

Scope of responsibility of N1IT - 03 shall be limited to
a. Providing coordination to N1TL -01 contractor for OA & IT Network
b. Route calls to N1TL -01 contractor for response and resolution on complaints. Track performance against SLA and report exception conditions if any.
c. Shall assist and coordinate with N1TL -01for interface & integration activities.

Delays or defaults in resolution of complaints by N1TL -01 contractor shall not be included in the SLA of N1IT - 03 contractor, however he shall report all the delays & exception to NMRCL.

12. **Replace the provision of 6.3 (11) with following**

Provide operational support to the COTS software packages that NMRCL has decided to deploy. The scope is to ensure that the licensed software components are installed on the devices identified and that they are functional in all aspects. Solutions would include but not limited to

SN	List of COTS Products	Minimum requirement
1	MS Office 2016 Professional	300 nos
2	MS Exchange 2016	500 Mailboxes
3	MS Windows Server 2012 R2 DC	As per design
4	MS Windows AD CAL Licenses	500 nos
5	Software License for Antivirus	As per design
6	Software License for Patch Management	As per design
7	MS Windows Remote Desktop Server CAL	2 nos

The above requirement is minimum. In case there are any functionality support or changes required to solutions which require creation of additional custom software or debugging of solutions like ERP or 5D BIM, the bidder shall log the call and route to the respective agencies for resolution.

13. **Replace the provision of 6.3 (13) with following**

Procure, deploy and manage requisite Hardware and Software for creating Active Directory/LDAP, proxy server, E-mail server, DHCP for NMRCL to allow the users access to resources based on roles, privileges, and responsibilities defined and maintained. Creation, modification of user privileges and rights, suspension of users, password resets, and archiving of users will be managed by the Bidder. The Bidder shall also coordinate with the software vendors to provide authentication to applications through the AD. Architecture should allow domain authentication even in case of network failure. Specifications provided in section 6.7. Present Email System is MS Exchange will continue till new setup is ready, however bidder scope includes transferring all the emails from the existing server to the new setup. Total no of users 1100. In case all desired functionality of Layer 2 Protocols and improvisation of Web response can be achieved with Firewall then Proxy Server may be excluded. Contactor shall submit detailed design to NMRCL for review.

14. **Replace the provision of specific clause in 6.4 (16) with following**

Server Administrator & Site In-charge – Should have good knowledge and work experience on Windows /LINUX/Client-Server mode/Virtualization. He being the project

manager, also should be capable of interaction with the customer and vendor and coordinate activities within the team. He should also be capable of monitoring all the remote sites connectivity through either Leased Line /MPLS WAN. He shall also be capable to monitor all the remote IP based equipment either PC, SERVER, ROUTER, SWITCH, NETWORK PRINTER or any other network equipment through the monitoring tools. He should also have sufficient knowledge of running Network Monitoring Tool & working experience of more than 2 years. He should also be responsible for Generating call reports, analyzing the call statistics, all failure case studies, all Change case studies, and all Configuration case studies. Server Administrator shall be responsible for coordination on all sorts of installation of OS (Windows/Linux) during any sort of new installation. For migration of services, the server administrator shall be responsible to accomplish the work as per NMRCL requirement.

15. **Replace the provision of 6.4 (17) with following**

Bandwidth & Network Management and Maintenance tools

Requirement is for both Monitoring tool & diagnosis tool i.e., a total Management tool. For this vendor shall have to install a licensed NMS for monitoring LAN & WAN facilities. The supply, installation & implementation of the tool shall be under vendor's scope. The NMS should have some standard /bench marking. For NMS tentatively 500 endpoints need to be managed by Contractor initially, however, it is suggested to visit and study the existing infrastructure available with NMRCL before submission of the Bids. The existing IT Network infrastructure of NMRCL Offices and Data center along with their respective MPLS Bandwidths deployed has been provided in Clause 6.8

It is the responsibility of the Contractor to ensure smooth running of the machines along with its installed software (preloaded & system). Contractor shall ensure that the tool kits and their spares shall be made available with the different competent FMS Personnel as mentioned above. The tools and testing kit shall be provided like LAN analyzer, Engineering Terminal, Pliers, screw drivers, torx blade & other accessories of required size in sufficient quantity.

16. **Replace the provision of 6.7 (1)(3) with following**

3. Layer 2 Features		**Compliance(Y/N)**
	802. 1Q VLAN on all ports with support for 4000 concurrent VLANs.	
	Support for 128 K MAC addresses or better as per design requirement	
	Support for MSTP, PVST+ and RSTP	
	Should support Private VLAN , VLAN Aggregation and 802.1v or equivalent protocols	
	Must support Layer2 Ping and Layer 2 Traceroute/ Internet Control Message Protocol (ICMP) packets for connectivity and Fault Management or equivalent standard protocol to achieve the functionality	
	Must support multicast Traceroute or applicable equivalent standards.	
	Should support SNMP and syslog Notification for MAC addition, deletion and movement across ports.	

17. Replace the provision of 6.7 (1)(4) Layer3 features with following

4. Layer 3 Features		Compliance(Y/N)
	Support for IP Unicast routing protocols (static, RIPv2, OSPF) from day 1 and upgradeable to ISIS / BGP.	
	Multicast routing protocol with PIM-SM and upgradeable to PIM DM with license	
	Should support policy based routing in hardware	
	Switch should support minimum 100K IP arp entries	
	Switch should support minimum 96 K unicast routes	

18. **Replace the provision of 6.7 (2)(2) with following**

2. Required Port Densities		Compliance(Y/N)
	Switch should have minimum 48 x 100/1000 BaseT and 4 x 10G SFP + / XFP fiber ports. Scalable to support at least 2 x 40G in future	

19. **Replace the provision of 6.7 (2)(3) with following**

3. Layer 2 Features		Compliance(Y/N)
	802. 1Q VLAN on all ports with support for 4000 concurrent VLANs, and 802.1 AK or equivalent for dynamic VLAN propagation	
	Support for minimum 48K MAC addresses or better	
	Support for MSTP, PVST+ , RSTP	
	Should support Private VLAN, VLAN Aggregation, and 802.1v or equivalent protocols.	
	Must support Layer2 Ping and Layer 2 Traceroute for connectivity and Fault Management Must support multicast Trace route	
	Must support multicast Traceroute or applicable equivalent standards.	
	Should support snmp and syslog Notification for MAC addition, deletion and movement across ports	

20. **Replace the provision of 6.7 (3)(2) with following**

2.Design & Performance		Compliance(Y/N)
	Each switch should have minimum 128 Gbps or more with non-blocking architecture and Forwarding rate of 95 Mbps	
	Switch should be equipped with minimum 1 GHZ CPU , 1GB RAM and 1 GB Flash	
	Should have LED indicator for per port status , FAN, PSU and Management Status	
	0°C to 45°C operating temperature and 10% to 90% relative humidity	
	Switch should support PoE with minimum power Budget of 380 W	
	OS should have xml api with SDK to integrate with 3rd party applications	
	Hardware and software configuration have for IPv6 from day one	

21. Replace the provision of 6.7 (3)(3) with following

3. Switching / Routing		Compliance(Y/N)
	Should have 16 K MAC Address, 1 K active VLAN	
	Should support 10 K ARP entries	
	802.1D spanning Tree and PVST+, 802.1w, 802.1s , Should have BPDU Guard or equivalent feature on edge port to auto disable port for a configurable time period to if an accidental loop occurs in the network	
	Should support aggregating and load balancing of traffic to two or more peer switches within same VLAN	
	Should support G.8032 standard for high resiliency.	
	Should have Port based VLAN, MAC based VLAN, private VLAN and 802.1 AK for dynamic VLAN propagation	
	Should have Local, Remote and multisession port mirroring (minimum 4 session)	
	Support Standard based protocols for lossless transport of real time data with dynamic QOS reservation.	
	Should have 8 Hardware QOS Queues per port	
	Should have traffic rate limiting with Configurable bandwidth granularity of 8 Kbps	
	Should have Link Layer Discovery Protocol (802.1ab) to allow recognition of third party network devices and LLDP MED for auto configuration	
	Should have MAC address tracking and notification for mac address addition , delete or movement in the Network	
	Should support policy based routing and switching	
	Should have basic dynamic routing protocols like RIP from day 1 and be upgradeable to OSPF , PIM , VRRP	
	Should have Configurable multicast session limit per port	
	Should support lossless audio and video standard with 802.1ak, 802.1AS, 802.1QAT and 802.1qav.	

22. **Replace the provision of 6.7 (4)(2) with following**

2.Design & Performance		Compliance(Y/N)
	Each switch should have minimum 176 Gbps or more with non-blocking architecture and Forwarding rate of 130 Mbps	
	Switch should be equipped with minimum 1 GHZ CPU , 1GB RAM and 1 GB Flash	
	Should have LED indicator for per port status , FAN, PSU and Management Status	
	0°C to 45°C operating temperature and 10% to 90% relative humidity	
	Switch should support PoE with minimum power Budget of 740 W	
	OS should have xml api with SDK to integrate with 3rd party applications	
	Hardware and software configuration have for IPv6 from day one	

23. Replace the provision of 6.7 (4)(3) with following

3. Switching / Routing		Compliance(Y/N)
	Should have 16 K MAC Address, 1 K active VLAN	
	Should support 10 K ARP entries	
	802.1D spanning Tree and PVST+, 802.1w, 802.1s , Should have BPDU Guard or equivalent feature on edge port to auto disable port for a configurable time period to if an accidental loop occurs in the network	
	Should support aggregating and load balancing of traffic to two or more peer switches within same VLAN	
	Should support G.8032 standard for high resiliency	
	802. 1Q VLAN on all ports with support for 4000 concurrent VLANs, and 802.1 AK or equivalent for dynamic VLAN propagation	
	Should have Local, Remote and multisession port mirroring (minimum 4 session)	
	Support Standard based protocols for lossless transport of real time data with dynamic QOS reservation.	
	Should have 8 Hardware QOS Queues per port	
	Should have traffic rate limiting with Configurable bandwidth granularity of 8 Kbps	
	Should have Link Layer Discovery Protocol (802.1ab) to allow recognition of third party network devices and LLDP MED for auto configuration	
	Should have MAC address tracking and notification for mac address addition , delete or movement in the Network	
	Should support policy based routing and switching	
	Should have basic dynamic routing protocols	
	Should have Configurable multicast session limit per port	
	Should support lossless audio and video standard with 802.1ak, 802.1AS, 802.1QAT and 802.1qav	

24. **Replace the provision of Specific Clause in 6.7 (5) with following**

5. Technical Specification of Wireless LAN Controller

Existing clause	Revised Clause	Compliance (Y/N)
Temperature 0 to 45 degC Humidity 10% to 90%, non-condensing	Temperature 0 to 40 degC Humidity 10% to 90%, non-condensing	

25. Add the provision of 6.7 (5) (Configuration) with following

	Configuration	Compliance (Y/N)
	Controller should support mirroring of Traffic on per SSID for troubleshooting and user experience monitoring	
	Controller should support accurate Location triangulation and Wi-Fi location reporting of each client at an interval of minimum 60 seconds or less.	
	Controller should support configuration of policy rules and RF protection from day 1. Any necessary licenses shall be quoted.	

26. **Replace the provision of Specific Clause in 6.7 (6) with following**

Wireless Access Point		**Compliance (Y/N)**
Clause in Previous Tender	**Revised Clause**	
Access Point (AP) with two independent radio units 802.11 a/b/g/n/ac and External Antennae Operating temperature 0 to 45 deg C, Humidity 10%-90%	Access Point (AP) with two independent radio units 802.11 a/b/g/n/ac and External Antennae Operating temperature 0 to 50 deg C, Humidity 10%-95%	

27. Add the provision of 6.7 (6) with following

Wireless Access Point		**Compliance (Y/N)**
Indoor Access Point With External Antennae		
	Should support Policy Based Traffic mapping of single user to multiple VLAN depending on traffic type	
	AP should have transmit power of 350 mW or higher	
	Should support Application based Filters and Rate limits to control or block common application like Whatsapp, Facebook or Mobile OS updates directly on the AP	

28. **Replace the provision of Specific Clause in 6.7 (6) with following**

Indoor Access Point With integrated Antennae		**Compliance (Y/N)**
Clause in Previous Tender	**Revised Clause**	
Netflow support for traffic analysis or equivalent.	Net flow or IPFIX (IEEE standard) support for application visibility	
Access Point (AP) with two independent radio units 802.11 a/b/g/n/ac and External Antennae Operating temperature 0 to 45 deg C, Humidity 10%-90%	Access Point (AP) with two independent radio units 802.11 a/b/g/n/ac and External Antennae Operating temperature 0 to 50 deg C, Humidity 10%-95%	
Supports branch office mode: APs can act controller independent as local Bridges with up to 4K	Supports branch office mode: APs can act controller independent as local Bridges with up to 4K VLAN ID's	

29. Add the provision of 6.7 (6) with following

Indoor Access Point With integrated Antennae		**Compliance (Y/N)**
	Should support Policy Based Traffic mapping of single user to multiple VLAN depending on traffic type	
	AP should have transmit power of 350 mW or higher	
	Should support Application based Filters and Rate limits to control or block common application like Whatsapp, Facebook or Mobile OS updates directly on the AP	

30. **Replace the provision of Specific Clause in 6.7 (7) with following**

Technical Specifications of NAC / Identity Services for Network Visibility		**Compliance(Y/N)**
Clause in Previous Tender	**Revised Clause**	
IPv6 support for implementation in networks with IPv6 end systems.	NAC shall support 802.1x workloads protocol.	

31. Replace the provision of Specific clause from all items in Section 6

Note(below all specifications)	**Revised Note**	**Compliance (Y/N)**
Note: In case of protocol /functionality is not available in proposed model/ solution, based on open standard/ protocols alternate solution may be submitted for approval with detailed justification for deviation, however intended functionality shall be achieved by approved solution.	NMRCL has specified the minimum design requirement based on open and accepted industry standards. OEM/Bidders should try to meet the requirement as much as possible with their product portfolio. In case of protocol / functionality not available in proposed model/solution, OEM / Bidder need to specify clearly the deviations in Compliance sheet with Justification.	

32. **Replace the provision of 6.7 (17) with following**

17. Technical Specification for Intelligent Jack/Patch Panel

SN	**Specifications**	**Compliance(Y/N)**
1	Compatible to Unshielded Twisted Pairs (UTP) cabling systems	
2	High performance panel that supports Category 6 performance specifications up to 250 MHz	
3	Conforming to ANSI/TIA/EIA-568-B.2-1, ISO/IEC 11801 2nd edition (2002) and CENELEC EN50173 (2002) for Category 6/Class E	
4	Simple, labor saving assembly and installation	
5	Supports 48 ports, using 2U of rack space	
6	Compatible with 22-26 AWG solid or stranded wire cables	
7	24 port 1U or 48 port 2U, Option for reduced patch cord capability	

33. **Replace the provision of 6.7 (18) with following**

18. Technical Specification for Multi Conferencing Unit (MCU), Gatekeeper, Management & Recording Solution

SN	Parameter, Make & Model	Functional Requirement	Compliance (Yes/ No)
1	MCU	Solution should be software based/Hardware Appliance and should support up to 10 concurrent users(licenses). It should be Full High Definition @1080 pixels 30 frame per second from day1	
2	Architecture	1.The solution should provide multipoint video conferencing software so that users/clients could login using a client software or web based interface from all 10 locations or they can connect through Endpoints from all 10 locations 2.It should be possible to have 3 simultaneous Video Conference Call (one of 5 Party and one of 3 party and One Point to Point) at the same time. 3.The solution should support scalability to minimum 50 ports and the up-gradation should be possible in multiples of 1 port.	
3	Video Codec	Solution should have H.264, H.264 SVC/VBR/HP/AVC/PRO or better Video Codec for video quality at lower bandwidth.	
4	Audio Codec	Solution should have G.711, G.722, G.723 / GIPS or demonstrably superior Audio Codec for good quality Audio communication at lower bandwidth.	
5	Bandwidth	Solution should be able to connect minimum @ 1mb in full HD (1080P).	
		Video conference should be possible using data card (3G, 4G), broadband, VSAT, leased line, broadband or any other form of connectivity.	
6	Solution Capability	Solution should offer video conferencing through appliance based VC Endpoints and the downloaded clients when installed on the PC should turn the same into a full-fledged codec.	
		Solution should offer video Conferencing through Web Browser or Clients based. For client based, there should be unlimited client downloads facility.	
		Solution should offer video conferencing through Smartphone & Tablets	
		Solution should offer participation through Chat.	
		Solution Should support multiple VC room facility. As many rooms as desired may be created	
		The soft client should support multiple camera inputs and multiple display devices at a time and the images of at least 3 camera inputs should be there in the same conference	

		The VC solution should support generic products / standards / protocols.	
		Solution should display site location/user ID over video of each location for user identification.	
		Solution should offer minimum 10000 registered users.	
7	Management /Administration	Solution should offer capability to control far end camera, audio and endpoints from administrator end.	
		The system should have functionality of Management & Scheduler, call controller, authentication from central location	
		Solution should provide User Management feature.	
		Solution should provide Conference Locking and Conference Grouping facility.	
8	Layout	Flexibility to have multiple layouts.	
		Should support mix of 16:9 & 4:3 participants.	
		Layout on multiple screens desirable.	
9	Continuous Presence (CP) mode	Solution sh1ould support minimum 16 videos on CP mode.	
10	Voice Activated/Large Conference Mode	Solution Should support VA Mode / large Conference Mode suitable for addressing large conference.	
11	Binding factor	Solution should not bind on the MAC ID of Desktop PC / Laptop / Smartphone / Tablet etc.	
12	Sharing	Solution should support Desktop sharing. It should also facilitate Sharing of Audio & Video files and other office files in the conference in full HD	
13	Interoperability with Existing Devices	The Solution should have capability to connect with existing IP based VC setup available at State and district headquarters. It should have the capability to provide connectivity with Minimum 9 IP Based Hardware/MCU Video Conference devices (Existing Legacy Devices) in full HD mode. The Solution should also be able to share data presentations among these existing legacy devices.	
14	Recording	Solution should have capacity to record sessions up to minimum 500 Hours and of resolution up to 1080p at central locations. It should also be able to record all ongoing VC sessions at a particular time. Only the administrator at head quarter should have rights of recording. The administrator can authorize the local sites to record also. In case Same OEM doesn't support the same, separate recording solution can be provided from compatible OEM's	

15	Data Collaboration	Solution should have capability to do content sharing in Multi party conference.	
16	Call Monitoring	Compatibility with SNMP, should generate Call Detail Record (CDR) reports for all point to point and multi-point conferences made by various registered users and any other methods of monitoring.	
17	Scheduling	Solutions should support Scheduling feature for adhoc conference and non adhoc conference.	
18	Updates/ Patches	Solution should offer all updates/ patches/ licenses (as required in firmware/ software/ plugins/ third party/ additional software framework) to fix security vulnerabilities against cyber- attacks so as to keep the system functional. This will be provided by the vendor free of cost for the warranty years.	
		All software updates/ patches/ licenses required to support provided hardware / software changes should be provided free of cost by the Vendor for the warranty years.	
		Vendor need to ensure that the updates/ upgrades/ patches are genuine and provided from the authorized source to avoid any cyber security breach/ vulnerability.	
19	Security	Solution should be a secured system with latest patches and updates. System should support 128 bit Fully Encrypted Video Conference Meetings to ensure encrypted data flows between client and server (Certificate from OEM in regards to be attached. Solution should have Lock Conference feature so that once the conference is locked even if someone knows the password cannot enter the Video conference session.	
		Any individual on network/internet, joining VC, should be authenticated with the user name and password.	
		System should support firewall traversal for secured calling through internet and Intranet.	
20	OS Support for Desktop/Laptops at Client End	Solution offered should able to support Windows 7 and later version of Windows	
21	Warranty	The whole package should come with 3 years onsite warranty	

34. **Add the provision of 6.7 (20) with following**

20. Technical Specification for Endpoint
(Codec, Camera, Mic and Other Accessories) - 5 End Points

S. No	Parameter, Make & Model	Functional Requirement	Compliance (Yes/ No)

1	Video Standards	Endpoint should have H.264, H.264 SVC/VBR/HP/AVC/PRO or better Video Codec for video quality at lower bandwidth.	
2	Audio Standards	Endpoint should have G.711, G.722, G.723 / GIPS or demonstrably superior Audio Codec for good quality Audio communication at lower bandwidth.	
3	Min Bandwidth	Endpoint should be able to connect minimum @ 1mb in full HD (1080P).	
4	Multiparty Upgrade	All the Endpoints should have the provision to upgrade to 1+3 in future in full HD mode, without changing the hardware.	
5	Bandwidth Support	The system should support upto 4 Mbps in a Point to Point call and min 6 Mb in multiparty calls	
6	Multiparty Support	Basically the system should be supplied as point to point endpoint and all calls will be connected through Central MCU. But if required the Endpoint should have the provision to be upgraded to 1+3 full HD 1080p30 calls in future	
7	H.323& H.329	The system should support H.323 with H.329 calls from legacy system through MCU	
8	Video Resolution	The System should support HD Resolution of 1080p30 from day 1	
9		The system must support 16:9 and 4:3 aspect ratio	
10		The system should support minimum 30 frames per second from 256 kbps and beyond at Standard Resolution	
11	Data sharing	The system should support H.239 for data sharing	
12	Microphone	The system should be equipped with at least one microphone capable to pick up audio from at least 10 feet from the microphone. It should have 360 degree pickup and the same should be supplied with the endpoint day 1	
13	Display Support	The system should support dual HD Display and presentation sharing from day 1	
14		The codec should support 2 Cameras and a document camera from day one	
15	Camera Connectivity	DVI/HDMI/USB or Equivalent	
16	Camera Zoom	10X Optical	
17	Resolution	Minimum 1920*1080p @30fps or better	
18	PAN Rotation	90 Degrees or more	
19	Tilt	100 Degrees or more	

	Rotation		
20	Signal Processing	Adaptive Echo Canceller, Noise reduction, Mic Zone Control	
21	Operating Temperature	O degrees C ~ 60 degrees	
22	Warranty	The whole package should come with 3 years onsite warranty	

35. **Add the provision of 6.7 (21) with following**

PASSIVE NETWORK – INTELLIGENT CABLING SYSTEM COMPONENT SPECIFICATIONS

21 UTP Cabling System

UTP Cabling System		**Compliance (Y/N)**
Unshielded twisted pair cabling system, TIA / EIA 568-C.2 addendum Category 6 Cabling system		
Networks Supported	10 / 100/1000 Ethernet, 155 Mbps ATM, 1000 Mbps IEEE 802.3ab Ethernet, and Cat 6 Gigabit Ethernet	
Warranty	25-year Performance warranty; Warranty to cover Bandwidth of the specified and installed cabling system.	
Performance characteristics to be provided along with bid	Attenuation, Pair-to-pair and PS NEXT, ELFEXT and PSELFEXT, Return Loss, ACR and PS ACR for 4-connector channel.	
Site Certification	Site certification to be done by OEM certified installer for 25 years and certificate to be issued.	
Unshielded Twisted Pair, Category 6, TIA / EIA 568-C.2		
Conductors	23 AWG solid bare copper or better	
Insulation	Polyethylene	
Jacket Approval	Rating : 60 deg. C As per ETL Listed CMR Rated	
Pair Separator	Cross-member fluted member	
Approvals	UL tested for TIA/EIA-568C.2	
	4 Connector ETL verified to Cat 6	
Operating temperature	-20 Deg. C to +60 Deg. C	
Frequency tested up to	Minimum 600 MHz	
Packing	Box of 305 meters	
Delay Skew	35ns MAX.	
Impedance	100 Ohms + / - 6 ohms, 1 to 250 MHz.	

Performance characteristics to be provided along with bid	Pair-to-pair and PS NEXT, ELFEXT and PSELFEXT, Return Loss, ACR and PS ACR	

36. **Add the provision of 6.7 (22) with following**

22. UTP Jacks

UTP Jacks		**Compliance (Y/N)**
Type	Unshielded Twisted Pair, Category 6, TIA / EIA 568-C.2	
Modular Jack	750 mating cycles	
Wire terminal	200 termination cycles	
Accessories	Strain relief and bend-limiting boot for cable	
	It should have a Dust cover to cover the keystone..	
Approval	UL	
Housing	Polyphenylene oxide, 94V-0 rated	
Wiring blocks	Polycarbonate, 94V-0 rated	
Jack contacts	Phosphorous bronze, plated with 1.27micro-meter thick gold	
Approvals	UL , ETL	
Performance Characteristics to be provided with bid	Attenuation, NEXT, PS NEXT, FEXT and Return Loss	
Material	Spring Contact: 50m" goldover 100m" nickel	
	ROHS compliant	

37. **Add the provision of 6.7 (23) with following**

23. UTP Jack Panels

UTP Jack panels		**Compliance (Y/N)**
Type	24-port, Unshielded Twisted Pair, Category 6, TIA / EIA 568-C.2	
Ports	24	
Port arrangement	Keystone type. Ports must be individually replaceable.	
Category	Category 6	
Circuit Identification Scheme	Icons on each of 24-ports	
Port Identification	9mm or 12mm Labels on each of 24-ports (to be included in supply)	
Height	1 U (1.75 inches)	
Durability		
Modular Jack	750 mating cycles	

Wire terminal (110 block)	200 termination cycles	
Accessories	Strain relief and bend limiting boot for cable	
Materials	ROHS compliant	
Housing	Polyphenylene oxide, 94V-0 rated	
Wiring blocks	Polycarbonate, 94V-0 rated, Spring Contact: Phosphor bronze 50m" gold	
Jack contacts	Phosphorous bronze	
Panel	Black, powder coated steel	
Approvals	UL , ETL	
Termination Pattern	TIA / EIA 568 A and B;	
Performance Characteristics to be provided along with bid	Attenuation, NEXT, PS NEXT, FEXT and Return Loss	

38. **Add the provision of 6.7 (24) with following**

24. Face Plates

Face plates		**Compliance (Y/N)**
Type	1-port, White surface box	
Material	ABS / UL 94 V-0	
No. of ports	One / two	
	High Impact Plastic Body ABS FR Grade 86 x 86 mm	
	Flush mountable or surface mountable with a back mount frame	

39. **Add the provision of 6.7 (25) with following**

25. Workstation / Equipment Cords

Workstation / Equipment Cords		**Compliance (Y/N)**
Type	Unshielded Twisted Pair, Category 6, TIA / EIA 568-C.2	
Conductor	24-26 AWG stranded copper.	
Length	1 meter, 2 meter and 3 meter	
Plug Protection	Matching colored snag-less, boot to maintain bend radius	
Warranty	25-year component warranty	
Category	Category 6	
Housing	Clear polycarbonate	
Terminals	Phosphor Bronze with gold plating , 50 micron" gold over nickel	
Load bar	PBT polyester	
Jacket	PVC	
Insulation	Flame Retardant Polyethylene	
End point	Factory standard connector	

connector		
Approvals	UL, ETL certificates.	
Material	ROHS compliant	

40. **Add the provision of 6.7 (26) with following**

26. Cable Manager

Cable Manager	**Compliance (Y/N)**
It should be Finger Duct type 1 U Cable Manager	

41. **Add the provision of 6.7 (27) with following**

27. Single mode Fibre optic Cable

Single mode Fibre optic Cable		**Compliance (Y/N)**
Cable Type	6-core, Single mode Double HDPE Sheath, Armored, loose-tube, Multi Tube, CST armour, Gel Filled	
Fiber type	9/ 125, Telcordia's GR-20 and ITU-T 652.D Compliance	
No. of cores	6/12	
No. of Core per Tube	2/4	
No. of Tube	3	
Cable Construction	BELLCORE GR 20 / IEC 794-1	
Attenuation		
at 1310 nm	≤ 0.38 dB/km	
at 1550 nm	≤ 0.24 dB/km	
Coating / Cladding non-circularity	<= 12 microns	
Tensile rating	2500N	
Maximum Crush resistance	3500N	
Operating Temperature	-10 Degree C to +70 Degree C	
Armor	ECCS	
Colour	Black	
Inner jacket and Jacket Thickness	High density polyethylene Halogen Free Fire Retardant (HFFR) PE, 1.2 mm	
Outer jacket and Jacket Thickness	High density polyethylene , 1.8 mm	
Secondary Buffer Material	Gel filled Loose Tube.	

Min Bend	20 X Outer Diameter	
Marking	Identification marking at regular intervals of 1 meter	
Length of cable drum	standard factory length and can be supplied is max 4 Kms	
Fiber Core	Fiber Core should be Silica Glass.	

42. **Add the provision of 6.7 (28) with following**

28. Fiber Optic Connectors

Fiber Optic Connectors		**Compliance (Y/N)**
Connector Type	SC-Style, Simplex	
Operating temperature	-20 Degree C to +70 Degree C	
MM connectors	500 cycles, Beige	
SM connectors	220 cycles, Blue	
Ferrules	Pre-radius Ceramic Zirconia Ferrule.	
Attenuation	Not more than 0.75 dB per mated pair	
Insertion Loss	SM: < 0.3 dB MM:< 0.5 dB	
Standard	Meets and exceeds ITU specifications, UL listed and 3rd Party RoHS compliant. Fully in compliance with JIS C5973 F04 Type.	
Bayonet Coupling	2.5 mm Zirconia Ferrule	

43. **Add the provision of 6.7 (29) with following**

29. Fiber Optic Patch panels

Fiber optic Patch Panels		**Compliance (Y/N)**
Fiber optic patch panel	19-inch, Rack mounted Fiber optic patch panel	
Height	1 U, 1.75 inches	
No. of fibers	6,12,24	
Dimensions	44 * 410 * 280 mm (H*W*D)	
Material	Complete Aluminium Alloy housing, fully powder coated	
	Splice tray and cable spools to be included	
	Fully cushioned splice holder containing grooves for fixing splice protective sleeves	
No. of OSP Cables for termination	Minimum 2	

Grounding	2 Nos. of earthing lugs, pre-loaded	
Cable Management rings	Front and rear cable management rings, pre-loaded	
No. of 6-port adapter plates	4 max	
Sliding	Panel cover is of slide out for easy maintenance	

44. **Add the provision of 6.7 (30) with following**

30. Fiber Optic Adapter plates

Fiber Optic Adapter Plates		**Compliance (Y/N)**
Fiber Optic adapter plate	6-port, SC-Style, MM	
Attenuation	Max of 0.75 Db per mated pair	

45. **Add the provision of 6.7 (31) with following**

31. Fiber Optic Patch Cord LC-SC TYPE.

Fiber Optic Patch Cord LC-SC TYPE.		**Compliance (Y/N)**
Fiber Optic Patch Cords	OM3 Patch Cord MM patch cord LC-SC TYPE	
Type	1.6mm or 3mm simplex or Duplex Zipcord.	
	Fiber Patch cord must have Clear Curve Feature for more flexibility.	
	Qualifies as per ITU-T G652 D Fiber, and ITU-T G.657.A1	
Outside Diameter	(Simplex): 1.6mm x 3.0mm	
	(Duplex): 1.6mm x 3.3mm	
Minimum Cable Retention Strength	1.6mm: 11.24 lbs (50 N)	
Insertion Loss	Less than 0.5 dB for MM and 0.3 dB for SM	

46. **Add the provision of 6.7 (32) with following**

32. Scanning Device Specifications:

Scanning Device Specifications:			**Compliance (Y/N)**
Interface	100Base -T	RJ-45 socket, Ethernet IEEE 802.3,100 Base Tx/10Base T, 10/100 Mbps industry standard for connection to local area network.	

	5 Push buttons		Control device functionality (Replaces control pad)	
Panels interface	26 pin connector		6 or 12 attachment cords connectors to enable communication with up to	
LED Indicators	Power On		Indicates the device's power state	
	CPU		A Flashing LED indicates the CPU	
	100Base-T	Act:	Indicates data transmission	
		Lnk:	Lit when link is active	
	Pending		Pending Task	
Physical	Height		44.4mm/ 1.75" (1U)	
	Width		482.6mm/19"	
	Depth		191.7mm 17.547"	
	Weight		2.0kg/4.4 lb	
Environment	Temperature		0 - 50°C /32-122° F	
	Humidity		Up to 90% non-condensing	
Power			100VAC to 240VAC, 0.6-1.2 A, 47 to 63 Hz,	

47. **Add the provision of 6.7 (33) with following**

33. SMART F/O Panel, 48, LC, SM

SMART F/O Panel, 48, LC, SM	**Compliance (Y/N)**
Height 1 U	
It should managed the patching on LIU.	
SNMP real-time management of patch cord connections with Managed patching solution.	
Scan fiber optic patching configuration and subsequently report the connectivity status with the help of Solution.	
Require LED Indicators on LIU to identify port connectivity.	
Require automatic LED displays to guide the Engineer for any changes.	
No. of fibers 6,12,24,48	
Rack Size 1U	
Material steel housing,	
Fully cushioned splice holder containing grooves for fixing splice protective sleeves	
No. of OSP Cables for termination: 4	
Grounding 2 Nos. of earthing lugs, pre- loaded	
Cable Management rings : Front and rear cable management rings,	

pre- loaded	
No. of 6- port adapter plates : 4 max	

48. **Add the provision of 6.7 (34) with following**

34. F/O SMART Jumper, LC, SM, 3m

F/O SMART Jumper, LC, SM, 3m	**Compliance (Y/N)**
Designed for IPLMS applications	
Comprised of two 0.6 mm HFFR tight buffer fibers and an additional 28 AWG copper wire housed within a MiniZIP Triamese construction cable.	
Fiber types – Single-Mode	
The LC SMART Jumper is an LC patch cord designed for IPLMS applications.	
It should have two 0.6 mm HFFR tight buffer fibers and an additional 28 AWG copper wire housed.	

49. **Add the provision of 6.7 (35) with following**

35. Cords connect scanning devices to panels:

Cords connect scanning devices to panels	**Compliance (Y/N)**
Should be flat bus cable type of scanner cords	
Should be connected on one side to Panels and on the other side to scanning devices	
Should be available in different lengths like 1m, 3m, 5m	
Should be flat or round type	

50. **Add the provision of 6.7 (36) with following**

36. Standards

Standards	**Compliance (Y/N)**
The Jumper meets the requirements of ANSI/TIA/EIA-568-C.3	
Cable Dimensions 1.6 x 4.9 mm (+0/-0.1) mm	
Max. Tensile Strength - Short Term: 220 N	
Max. Tensile Strength - Long Term: 150 N	
Min. Bend Radius for Installation: 35 mm	
Min. Bend Radius for Operation: 28 mm	
Repeated Bending 9,000 cycles or more	
Operating Temperature -25 to +75 °C	
Storage Temperature -25 to +75 °C	

51. **Add the provision of 6.7 (37) with following**

37. The Intelligent Infrastructure Management Solution

Intelligent Infrastructure Management Solution	Compliance (Y/N)
1. The system should provide information only about patching between the panels in various communication rooms/racks spread all over NMRCL's Metro Network.	
2. The system should not require any external or additional software or server installation, to provide patching information and should ONLY be hardware based through the scanning devices.	
3. Information regarding the connections throughout the intelligent panels and communication racks should constantly and automatically be collected and delivered via a user-friendly, permission-based GUI.	
4. The GUI should be accessible on Internet web browsers using NMRCL Network.	
5. It should report immediately any patching changes in the racks, in real time.	
6. It should provide capability to create work orders for any patching changes without any external software or server.	
7. The system should have capability to provide LED guided patching and auto-correction without the use of external software or server.	
8. The solution should have the capability to provide historical patch connectivity information.	
9. It should report both panel and port connectivity information.	
10. The system should generate connectivity change alerts and should provide the information through emails/pop-up/sms.	
11. The information will need to be exported in excel format for further use and so the system should provide this capability.	
12. The solution should be based on a cross connect design ONLY.	

52. **Add the provision of 6.7 (38) with following**

38. Intelligent Patching features:

Intelligent Patching features:	Compliance (Y/N)
13. The solution should be strictly based on the physical detection of patch cord connectivity ONLY.	
14. Patching information should be reported by physical verification of the circuit between the two ends of the patch cord.	
15. The patching information should not be through any of the existing 4 pairs of the cable but should use a non-invasive technology, like the ninth wire technology.	
16. The system should report the patching connectivity information as complete **ONLY** when the two ends of the same patch cords are	

connected.	
17. The solution should provide an optional design in cross connect whereby minimum patch cords have to be used.	
18. The solution should provide the technician an easy method of patching with- out imposing any specific sequence rules/order for the patching	
19. The solution should be capable to be installed at any time during the network installation and testing. The solution should not have any dependencies on installation stage to execute the solution.	
20. In case any changes are made to the network (patching) during a planned (power) down time, the solution should be able to register and report the changes if any during the power down time, once the system is up again, without any human intervention.	

53. **Add the provision of 6.7 (39) with following**

39. Intelligent Panel features:

Intelligent Panel Features	**Compliance (Y/N)**
21. The intelligent panels should have guidance lights (LED) on a per port basis. The LED functionality is **mandatory** for tracing the two ends of any patch cord, executing planned work orders and for remote management.	
22. The lights per port on the panels should be powered from the scanning devices and should not require a separate power supply.	
23. The intelligent panels should be passive and should not require any power for their functioning.	

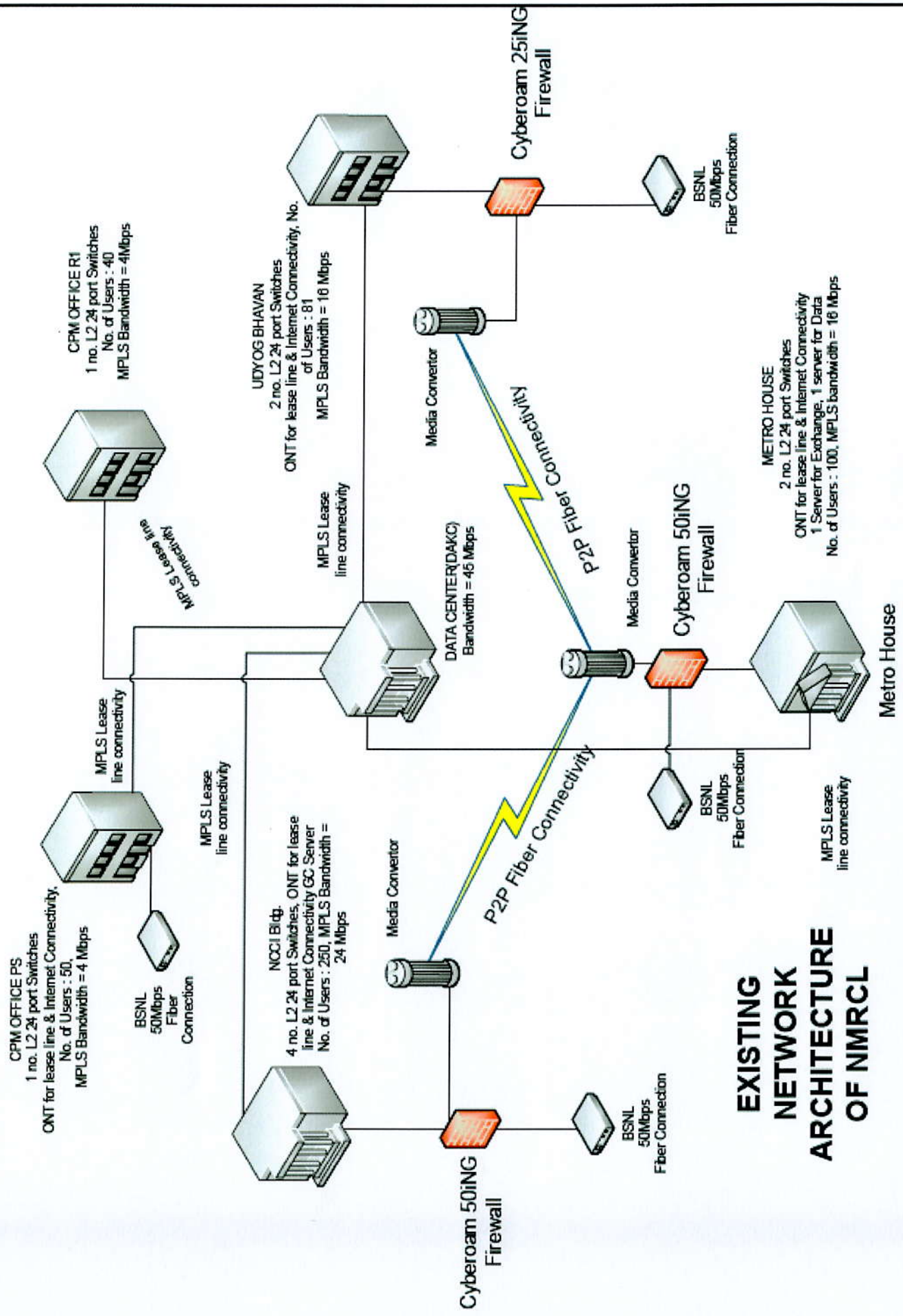
54. **Add the provision of 6.7 (40) with following**

40. Intelligent Scanning Devices:

Intelligent Scanning Devices	**Compliance (Y/N)**
24. All scanning devices should be 1U only.	
25. The scanning devices should automatically detect the panel type; the scanning devices are connected to.	
26. The scanning device connection capability should extend to distances more than 7 feet in order to be used in more than a single rack if required.	
27. The solution should not impose restriction on any future technology adaptation over the network.	

55. **Add the provision of 6.8 (c) with following**

The Existing Network of NMRCL offices



Section 7, Conditions of Contract

56. **Add the provision of 7.1 (19) with following**

The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the contractor.

Section 10, Financial Bid

57. Replace the provision of 10.2 with following

10.2 Details of Cost Components

Please add rows to ensure that line item wise details of each set of components are available in this sheet. Unit costing of equipment may be attached separately.

Note: -

1. No column should be left blank.
2. All rates to be quoted by the bidder in Indian National Rupees.
3. All rates to be quoted bidder shall be inclusive of all statutory taxes, including LBT, duties except service taxes as applicable prior to last date stipulated for submission of Bid. Rate also includes all direct and indirect taxes.
4. Service Tax (as applicable) at time of billing shall be reimbursed by NMRCL to successful bidders on production of proof of payment of Service Taxes.

S. No		Item description	Name of Tax	Rate of Tax	Year0 (Pre GoLive)			Year1			Year 2			Year 3			Year 4			Year 5			Year 6			Total Cost		
					Base Cost	Applicable Taxes	Total	Base Cost	Applicable Taxes	Total	Base Cost	Applicable Taxes	Total	Base Cost	Applicable Taxes	Total	Base Cost	Applicable Taxes	Total	Base Cost	Applicable Taxes	Total	Base Cost	Applicable Taxes	Total	Base Cost	Applicable Taxes	Total
A	1A	Design engineering																										
	2A	Supply of COTS Solutions, Software & Licenses																										
	3A	Supply of hardware, and networking, LDAP/AD, , etc.																										
	4A	Installation, Testing & Commissioning of hardware , COTS Solutions, Software & Licenses																										
	5A	Anything else required to comply the requirement																										
B	1B	Recurring Annual Maintenance Charges for hardware			[redacted]																							
	2B	Recurring Charges for Manpower for FM and other																										

		activities																											
	3B	Recurring Annual Maintenance Charges for software & license																											
	4B	Anything else required to comply the OPEX																											
Total Cost (A+B)		Year wise cost																											
Total In Figures & in words																													

58. Replace the provision of 10.3.1 of minimum bill of material with following

10.3.1 Total Equipment

The network equipment specified below is minimum. Bidder shall quote the quantity as per his design complying the bid technical specification. Since this is Design & built contract final quantity required as per approved design shall be supplied by the Contractor without any extra cost to NMRCL. Wireless network across all locations need to work seamlessly for any user moving from one location to another without having to reselect the network name or re-authenticate using passwords or any other mechanism.

Bidder to list the equipment type with specifications and unit price below. Please add rows as appropriate under each header if more than one type of equipment/license is being proposed. Licenses for virtualization, creating AD services, Network Management, File & Print services, Anti-virus solutions, Helpdesk software, and others as required to complete the solution. Project Go Live shall be considered on completion of each site respectively. Sites readiness shall be intimated to the contractor and handed over for implementation. On completion of Testing & Commissioning of IT network, the site will be declared Go Live. N1IT03 Contractor may supply all the items of BOQ for all sites as per the finalised design documents in one lot or progressively to the NMRCL stores. The material shall be drawn from the store as and when required as per site wise implementation plan.

SL No.	Description	Unit	Quantity	Unit price in INR	Total Price In INR
1	UTM	No.	02		
2	Core Switch	No.	02		
3	L-2 Switch	No.	15		
4	Access Point	No.	35		
5	Wireless Controller	No.	02		
6	Office printer	No.	12		
7	CAT 6e Cable UTP typeLSFRZH	Meters	22500		
8	Network rack 42 U	No.	2		
9	Network rack 24 U	No.	12		
10	Network rack 12 U	No.	12		
11	ODF – Equipment room side 24 port- and accessories	No	04		
12	ODF – Field Side – 6 port and accessories	No	26		
13	6 Core Single Mode Fiber –Armored – LSZH	meters	2000		
14	Intelligent Patch Panel/Jack Panel -24 Port	No.	15		
15	Factory made Patch cords (Cat.6e, UTP, 1 meter)	No.	150		
16	Factory made Patch cords (Cat.6e, UTP, 2 meter)	No.	450		
17	I/O outlets (RJ45 Compatible)	No.	450		
18	Items to meet Intelligent structured cabling requirement	LS	LS		
19	Cable trays / secondary cable containment at	LS	LS		

	Metro Bhawan				
20	Video Conferencing Equipment with accessories	No.	5		
21	Active Directory Server: Intel Xeon E5-2697 v4 2.3GHz,45M Cache, 9.60GT/s QPI, Turbo, HT, 18C/36T (145W) Max Mem 2400MHz or better	No.	01		
22	Email Server: Intel Xeon E5-2697 v4 2.3GHz,45M Cache, 9.60GT/s QPI, Turbo, HT, 18C/36T (145W) Max Mem 2400MHz or better	No.	01		
23	Backup Server: Intel Xeon E5-2697 v4 2.3GHz,45M Cache, 9.60GT/s QPI, Turbo, HT, 18C/36T (145W) Max Mem 2400MHz or better.	No.	01		
24	Storage for redundancy	No.	01		
25	Helpdesk MMI	No.	02		
26	NMS	No.	01		
27	NAC Software 50IPnodes,250WirelessAPandscalabletodoublethe current capacity	No.	01		
28	Required Software with License	No.	As per design		
29	Backup Management Software	No.	01		
30	Any other Item required to comply the Contract	LS			
31	AD Management Software	No.	01		
32	Asset & Patch Management Software and Licenses	No.	01		
33	Antivirus software and licenses	No.	As per design		
34	MS Office 2016 Professional	No.	300		
35	MS Exchange 2016 (500 mailboxes)	No.	As per design		
36	MS Windows Server 2012 R2 DC	No	As per design		
37	MS Windows AD CAL Licenses	No.	500		
38	MS Windows Remote Desktop Server CA Licenses	No.	2		
39	Any other item to meet specification or design requirement.				

59. Replace the provision of 10.3.2 servers and storage with following

Deleted

60. Replace the provision of 6.3(9) of work description with following

Procure, deploy and maintain personal, network, and WIFI Printers at NMRCL premises. Consumables shall be provided by NMRCL and will be managed by the bidder.