CORRIGENDUM No.2

Corrigendum no. 2 dated 06.12.2022

Tender no. RailTel/e-Tender/SLT/SR/SC/2022-23/161

Name of the Work**: "Design, Supply, Installation, Commissioning and Maintenance for 5 years of Network Infrastructure for NMDC from RailTel's Empaneled Business Associates"**

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Sl.No	Existing Tender Document	Revised Tender Document with changes
1	Existing Tender document with name-''**Special Limited Tender NMDC IT NW Infra''** is withdrawn	Revised Tender document with name "**Special Limited Tender NMDC IT NW Infra-Revised''** is uploaded with changes in Bid Data Sheet and Date of submission of Bid w.r.t Corrigendum No.1dt. 05.12.2022.

Sd/-
(P.Vikrant Kumar)
RailTel Corporation of India Limited

रेलटेलकार्पोरेशनऑफइंडियालिमिटेड (आरसीआईएल)
RailTel Corporation of India Limited (RCIL)

Special Limited Tender for Selection of System Integrator

For

"Design, Supply, Installation,Commissioning and Maintenance for 5 years of Network Infrastructure for NMDC from RailTel's Empaneled Business Associates"

Electronic Tender Document

Special Limited Tender (Two Stage-Two Packet-Reverse Auction)

Tender No:- RailTel/e-Tender/SLT/SR/SC/2022-23/161

SPECIAL LIMITED TENDER NOTICE

E-Tender No. RailTel/e-Tender/SLT/SR/SC/2022-23/161 Dated: 02-12-22

RailTel Corporation of India Ltd. (RailTel) invites E-Tenders in Two Packet (Part I –Credential/ Techno commercial Bid and Part II - Price Bid) Reverse Auction System from RailTel's Empaneled Business Associates for Selection of System Integrator for Design, Supply, Installation, Testing, Commissioning and Maintenance for 5 years of Network Infrastructure for NMDC".

The details are as under: -

a)	Closing date for Submission of E-Bids	Up to 15:00 hrs. of 16.12.2022 (online)
b)	Date of opening of E-Bids	Up to 15:30 hrs. of 16.12.2022 (online)
c)	Earnest Money Deposit (EMD) #	Rs. 50,00,000/- in the form of Bank Guarantee as per format in Form-12 Chapter-6. Validity of the BG should be 90 days from the Last Date of sub-mission of Bid
d)	Cost of Tender Document	Nil
e)	e-Tender portal for Submission of Bids	https://railtel.eNivida.com
e)	Place of Opening of Tender	Executive Director, RailTel Corporation of India Ltd., 1-10-39 to 44, 6A, 6th Floor, Begumpet Airport Road, opp. Shoppers Stop, Begumpet, Hyderabad- 500 016

Eligible MSEs are exempted from EMD, more details are given in clause 4.A.32, chapter-4

Note: Tender Notice and link for Tender Document are available on RailTel's website and e-Tender portal https://railtel.eNivida.com for download. For online bid submission the bidder will have to necessarily download an official online copy of the Tender documents from e-Nivida Portal. All future Information viz. corrigendum/addendum/ amendments etc. for this Tender shall be posted on the RailTel's website and e-Tender Portal only. Printed copy of Tender document will not be sold from RailTel office. Bid will be submitted online on e-Nivida Portal only.

The bidder shall bear all costs associated with the preparation, submission/participation in the bid. RailTel in no way will be responsible or liable for these costs regardless of the conduct or outcome of the bidding process.

This Tender is covered under Integrity Pact Program of RailTel and bidders are required to sign the Integrity Pact and submit the same to RailTel along with the bids. Tender received without signed copy of the Integrity Pact document shall be liable to be **REJECTED**.

CHAPTER-1 OFFER LETTER

To
Executive Director,
RailTel Corporation of India Ltd.,
1-10-39 to 44, 6A, 6th Floor,
Begumpet Airport Road, opp. Shoppers Stop,
Begumpet, Hyderabad- 500 016.

1. I/We _____ have read the various conditions detailed in Tender documents attached here to and hereby agree to ABIDE BY THE SAID CONDITIONS. I/We also agree to keep this offer open for acceptance for a period of 60 days from the date of submission and in default thereof, I/We will be liable for face action. I/We offer to do the work at the rates quoted in the attached schedules and hereby bind myself/ourselves to complete the work of subject Tender within 22 weeks from the date of issue of LOA. I/We also hereby agree to abide by the Various Conditions of Tender/Contract and to carry out the supplies/services according to the Specifications for items/materials and works laid down by RailTel.

2. I/We have submitted the EMD in the form of Bank Guarantee and accept the conditions of the EMD clause. Action will be taken if,

I/We withdraw or modify the offer within validity period or do not deposit the PBG (Performance Bank Guarantee) as mentioned in Clause 4.A.8 after issue of LOA,

or

I/We do not execute the contract agreement within 15 days after receipt of notice issued by RailTel that such documents are ready,

or

I/We do not commence the work within 15 days after receipt of orders to that effect.

Until a formal agreement is prepared and executed the acceptance of this Tender document shall constitute a binding contract between us subject to modifications, as may be mutually agreed to between us and indicated in the “Letter of Acceptance” of my/our offer for this work.

SIGNATURE OF CONTRACTOR (S)

Date

SIGNATURE OF WITNESS CONTRACTOR (S) ADDRESS

1.
2

CHAPTER- 2A SCHEDULE OF REQUIREMENT (SOR)

1. Server Infrastructure (Supply & Installation)

1.1 Local Server Infrastructure (Supply & Installation)

SN	Local Server Hard-ware	UOM	Qty	Unit Price	Total Price	GST %	Total Price in-cluding GST
1	xMII Rack Servers	Nos	6				
2	ADS, Antivirus & Patch Mgmt Servers (Rack servers)	Nos	6				
3	NAC Rack Servers	Nos	6				
4	Installation Charges – Lumpsum	LS	LS				

1.2 Software with 5 Years Support

SN	Local Server Soft-ware	UOM	Qty	Unit Price	Total Price	GST	Total Price including GST
1	Operating System for xMII Servers (SUSE Linux for SAP 2Skt Unlim-ited Guest OS)	Nos	6				
2	Operating System for ADS, Antivirus & Patch Mgmt Servers (Windows server 2019 stand-ard operating sys-tem)	Nos	12				
3	Enterprise Man-agement System	LS	1				
4	Installation Charges – Lump-sum	LS	1				

1.3 Managed Services (One Time Cost)

SN	Description	UoM	Qty	Unit Price	Total Price	GST %	Total Price inclGST
1	Managed Services	LS	LS				
	Total OTC for Managed Ser-vices						

1.4 Managed Services (Recurring Cost)

SN	Description	UoM	Qty	ARC Year 1	ARC Year 2	ARC Year 3	ARC Year 4	ARC Year 5	Total Price	GST %	Total Price incl GST
				Unit Price							
1	Man-aged Services	LS	LS								

2 LAN Infrastructure

2.1 Firewall

SN	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price in-cluding GST
WAN Network Interface Firewalls with 5 YearSupport							
1	Firewall – Type 1 HA (High Availability). 2 Firewall in Each HA (i.e. 2X2)	Nos.	4				
2	Firewall – Type 2	Nos.	09				
3	Firewall – Type 3	Nos.	10				
4	Firewall – Type 4	Nos.	20				
5	Firewall – Web Application Firewall	Nos.	2				
6	Centralized Management, log and anal-ysis license with 5 -year support. upto 100x firewall devices/administrative, supplied along with 5 years 24 x 7 support along with hardware appliance	Nos.	1				
7	Training to 20-people team of Network Engineers from NMDC to be provided by OEM at a centralized place covering all aspects of operations and maintenance of the Firewalls	LS	1				

2.2 Campus Switches & Indoor Wifi

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
Ethernet Switches and Access Points at NMDC Locations with 5 Year Support							
1	Core Switch - Type 1 HA (High Availability) 2 Switch in each HA (i.e. 6HA 6X2)	Nos.	12				
2	Core Switch - Type 2	Nos.	2				
3	10G-ER SM SFPs for distri-butionSwitches to core Switches links	Nos.	8				

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
4	10G-LR SM SFPs for distribution Switches to Access and DistributionSwitches	Nos.	64				
5	Distribution Switch – Type 1	Nos.	6				
6	Distribution Switch – Type 2	Nos.	11				
7	1G-LX SM SFPs for distribution Switchesto Access Switches links	Nos.	478				
8	10G-LR SM SFPs for distribution Switches to access Switches links	Nos.	200				
9	1000BASE-T RJ45 SFP Transceiver	Nos.	20				
10	Access Switch – Type 1	Nos.	305				
11	Access Switch (Industrial Grade) – Type 2	Nos.	153				
12	Access Point (Indoor). Payment will bemade as per actual quantities used.	Nos.	300				
13	Wireless LAN Controller for Access Points in HA, 5 year warranty & NBD Support	Nos.	02				
14	NAC licenses for switches and accesspoints, 5 year warranty & NBD support	Nos.	6				
15	OEM EMS for Integrated Monitoring of(Industrial, Access, Distribution and Core) Switches and Wireless Access Points, 5 year NBD support	Nos.	6				
16	Training to 20-people team of Network Engineers from NMDC to be provided ata centralized place covering all aspects of operations and maintenance of theSwitches, APs, NAC, WLC, EMS	LS	LS				

2.3 Outdoor Wifi

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
Outdoor Wi-Fi Zone. Bidders may include costs of developing a Good-For-Construction (GFC) analysis of site prior to installation							
1	Outdoor (IP67 rated or better) 802.11ax WLAN AP with Tilt bracket & PoE Injector, 5-year extended warranty to be included. AP with integrated/ external antenna should be proposed.	Nos.	142				

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price in-cluding GST
2	Supply & Installation of Tower / Pole, 5m, Galvanized steel, with grouting base and accessories with Lightning Arrestors	Nos.	82				
	P2P Radio Links						
3	5 GHz PTP Radio, Integrated High Gain Antenna (ROW) with power lead, 5-year extended warranty. Integrated/ External Antenna. Link may be required upto 15km. Data, Video and Voice all three should be feasible. Radio transmit power should be >=27db and antenna gain >=23db with a net gain as per WPC regulatory compliance PTP Radio should be carrier class Radio (based on non-Wi-Fi Chipset) with 27dB or better Tx power, 2x2 OFDM delivering 450Mbps or more throughput with 45Mhz channel width. Should be IP66 or better with -20 to +60degree temperature sup-port and ruggedized, should have Gigabit Eth port and 1SFP Port. Should support nLos and nLos conditions, 1024 sub-car-riers. Channel size 5, 10, 15, 20, 30, 40, 45 MHz, FIPS-197 128/256-bit AES IPv4/ IPv6 (dual stack), Telnet, FTP, SNMPv2c, v3 90K + PPS. Should support Govt Regulations as per GSR-1048(E) safety standards - UL 60950	Nos.	52				
4	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable	Nos.	104				
5	LPU and Grounding Kit (1 kit per ODU)	Nos.	52				
6	Power Supply, as per the requirement & supplied by OEM. NMDC will provide AC and UPS power. Bidder will have to factor power adapter as per the equipment offered.	Nos.	52				
7	Tilt Bracket Assembly	Nos.	52				
8	Supply & Installation of Tower / Pole, 15m, Galvanized steel, with grouting base and accessories with Lightning Arrestors. As per industry standard, Min. 10 cm diameter pole shall be used or as required section wise.	Nos.	25				
9	1PPS GPS Sync generator	Nos.	46				
10	PoE Gigabit DC Injector as supplied by OEM	Nos.	46				
	Training to 20-people team of Network Engineers from NMDC to be provided by OEM at a centralized place covering all						

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
11	aspects of operations and maintenance of the Outdoor WAPs	LS	LS				
12	PMP Radio, IP66 or better rated, 240- degrees coverage (may need 2 base stations with each unit providing 120- degree coverage) dual polarized, with all accessories and 5-year extended warranty. Link may be required up to 10km. Data, Video and Voice all three should be feasible. Integrated/ External antenna. The antenna and Radio should be from same OEM and EIRP should be equal to WPC guidelines for maximum gain. Radio transmit power should be >=27db and antenna gain >=23db with a net gain as per WPC regulatory compliance PTP/ PMP Radio should be carrier class Radio (based on non-Wi-Fi Chipset) with 27dB or better Tx power, 2x2 OFDM. By varying the uplink and downlink speeds more remote radios can be connected and up to maximum throughput of 300 Mbps (aggregate). CPE shall be configurable for variable speed of uplink & downlink. Should be IP66 or better with -20 to +60degree temperature support and ruggedized, should have Gigabit Eth port, channel size 5, 10,15,20, 30, 40 MHz, MTU 1700Byte, FIPS-197 128/256-bit AES IPv4/IPv6 (dual stack), Telnet, FTP, SNMPv2c, v3. Should support Govt Regulations as per GSR-1048(E) safety standards - UL 60950	Nos.	5				
13	Remote radios for the PMP, 4 radios per zone, 240-degree coverage with all accessories and 5-year extended warranty	Nos.	20				

2.2 Cabling

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price in-cluding GST
Campus Backbone Cabling							
1	48-fiber rack mounted fiber optic patch panels, for terminating OSP cables, with fusion splice trays, fully loaded with Duplex-LC SM adapters and 48 numbers of LC SM pigtails (48 numbers per panel)	Nos.	50				
2	24-fiber 1U rack mounted fiber optic patch panels, for terminating OSP cables, with fusion splice trays, fully loaded with Duplex-LC SM adapters and 24 numbers of LC SM pigtails (24 numbers per panel)	Nos.	234				
3	LC-LC Duplex SM Patch Cords, 3 meter	Nos.	626				
Closed Steel Racks -							
1	42U Racks as per specifications with vertical 2 smart/ intelligent PDUs, SNMP enabled (for Core Switches)	Nos.	11				
2	42U Racks as per specifications with vertical 2 PDUs, surge pro-tected (for Distribution Switches)	Nos.	21				
3	24U Racks as per Specifications, with horizontal PDUs (IP55 or above)	Nos.	153				
4	24U Racks as per Specifications, with horizontal PDUs only (Non-IP Rated)	Nos.	227				
Horizontal Cabling							
1	1U, 24-port Cat6A UTP Unloaded Jack Panel with rear Cable Support bar	Nos.	9				
2	Cat6A UTP Patch Cord (7-feet)	Nos.	462				
3	Cat6A UTP Information Outlet at DC Rack End	Nos.	362				
4	1-port Face Plate	Nos.	161				
5	45mm x 45mm Backbox (Back Box should be compatible with the proposed Faceplate)	Nos.	130				
6	IP rated Backbox for Faceplates and Information Outlets	Nos.	50				

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price in-cluding GST
7	Cat6A UTP Cable	(305 Mtr.)Roll	20				
8	Plugs for Modular Plug Termi-nated Links, for Wi-Fi APsand CCTV (Please quote MPTL plugs of same make as cables. Modular RJ45 plugs will not be acceptable)	Nos.	275				
9	Cat6A UTP Information Outlet at End-User Rack End	Nos.	100				
Horizontal Cabling							
1	1U, 24-port Cat6 UTP Unloaded Jack Panel with rear Cable Support bar	Nos.	234				
2	Cat6 UTP Patch Cord (7-feet)	Nos.	5,600				
3	Cat6 UTP Information Outlet at DC Rack-End	Nos.	2,800				
4	1-port Face Plate	Nos.	1,401				
5	45mm x 45mm Backbox (Back Box should be compatible with the proposed Faceplate)	Nos.	982				
6	IP rated Backbox for Faceplates and Information Outlets	Nos.	510				
7	1 Port Surface Mount Box	Nos.	1,294				
8	Cat6 UTP Cable	(305 Mtr)Roll	472				
9	Cat6 UTP Information Outlet at End-User Rack-End	Nos.	2,800				

2.3 UPS

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
1	Supply of 1 KVA UPS system (prefer 19' rack mountable unit)for Distribution and access Switches at Bacheli, Kirandul, Donimalai, Panna and Paloncha. 1KVA rating, SNMP manageable. Supply should include 30-minute battery back-up batteries of 65AH, 12V, SMFrelated electrical protection accessories and rack, 5-year on-site warranty and maintenance	Nos.	259				

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
2	Supply of (N) 30KVA UPS System for Central Distributor tosupport core switches, Servers, WAN Optimizers, ILL load balancers, and other network-ingequipment along with 30- minutes battery back-up (about 40 batteries of 65AH, 12V, LeadAcid, SMF) along with Battery rack, MCB protection gear and all other accessories - Bacheli, Kiran-dul, Donimalai, Panna andPaloncha . UPS to be SNMP manageable. 30kVA rating. Supply should include 5-yearon-site warranty and maintenance	Nos.	5				
3	Supply of Grounding Pit and services- for servers andcom-munication	Nos.	14				
4	Supply of Lightning arrestorsand grounding pit	Nos.	14				

2.4 LAN Installation and Commissioning

SN	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price Including GST
1	Copper Cable Laying						
	Laying of UTP Cables	Meters	150060				
	Supply & Laying & Fixing of PVC Pipes	Meters	150060				
	Termination of IO's at Both end	Nos	3,162				
	Fixing of Jack Panels	Nos	243				
	Rack Fixing, Earthing etc.	Nos	412				
	Testing and Certification	Nos	3,162				
2	Firewall						
	Installation & Commissioning	Nos	45				
3	Switching						
	Installation & Commissioning	Nos	483				
4	NAC						
	Installation & Commissioning	Nos	6				
5	OEM EMS						
	Installation & Commissioning	Nos	6				
6	Wireless						
	Indoor Wireless Installation andCommissioning	Nos	300				
	Wireless Installation and Commissioning	Nos	142				

SN	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price Including GST
	Radios Installation and Commissioning	Nos	77				
7	UPS						
	Installation, Testing and Commissioning 1 KVA UPS	Nos	259				
	Installation, Testing and Commissioning 30 KVA UPS	Nos	5				
8	Earthing Pit & Lightning Arrestors						
	Installation of Grounding Pit and services- for servers and communication	Nos	14				
	Installation of Lightning arrestors and grounding pit	Nos	14				

3 Network Operating Center (NOC)

Sl. No.	Network Components	UoM	Qty	Unit Price	Total Price	GST %	Total Price including GST
1	Desktop for NOC	Nos.	4				
2	Console/Screen (LED) for NOC room	Nos.	2				
3	Videowall Display						
3.1	55" Full HD Bezel to Bezel 1.8 mm Display with 500 Nits or Higher	Nos.	9				
3.2	Kramer/Extron/ Crestron or equivalent HDMI 15 mtr cables	Nos.	18				
3.3	Customized Push Pull Video Wall Brackets 2X3 Matrix (NT/Logic or Equivalent)	Nos.	9				
3.4	MTC/ Data path or equivalent Videowall Controller 4 inputs and 84 outputs	Nos.	1				
3.5	Rack for Video Wall Controller (Netrack or Equivalent) - 6U	Nos.	1				
3.6	Power sockets with required cables for Installation	Lot	1				

4 Annual Maintenance (Recurring Cost)

Sl. No.	Description	UoM	Qty	ARC Year 1 Unit Price	ARC Year 2 Unit Price	ARC Year 3 Unit Price	ARC Year 4 Unit Price	ARC Year 5 Unit Price	Total Price	GST %	Total Price including GST
1	System Engineer	Nos.	18								
2	Network Engineer	Nos.	5								

Sl. No.	Description	UoM	Qty	ARC Year 1 Unit Price	ARC Year 2 Unit Price	ARC Year 3 Unit Price	ARC Year 4 Unit Price	ARC Year 5 Unit Price	Total Price	GST %	Total Price in-clud-ing GST
3	Network Engi-neer at NOC OFC/ LAN	Nos.	3								
4	Maint. Engineer	Nos.	5								
5	Help Desk (Hyderabad)	Nos.	5								

Note 1: (Regarding SOR)

Note:1	
I	Before quoting, please see relevant para of Chapter 7 of Technical Specifications.
II	Unit rate quoted against each item of SOR above should be a basic Price including freight, insurance and any other charges etc. Bidder should quote GST percentage against each SoR item. Total Price including GST against each SoR item will be calculated as [**(Unit Rate x Quantity) + GST]** The materials as per SOR are required to be delivered within the delivery period as indicated in Bid Data Sheet (BDS, Chapter 5) to the sites as mentioned in Tender or decided by authorized Nominated Executive.
III	**Offers without particulars of Make & Model or multiple OEMs of same item are liable to be REJECTED.**
IV	Deleted
V	**Technical Bid -The Un-priced copy (with make & model) of the SOR along with the Breakup of individual itemized BOQ (as per Format given below) should be submitted with the Technical Bid for evaluation. The above document should not include any prices, if found so, the bid will be REJECTED.** **Financial Bid - Bidder(s) shall upload the complete SOR along with the price Breakup of individual itemized BOQ for EACH ITEM in eNivida Portal.**
VI	Successful bidder is required to propose project progress and planning of supply of related material in consultation with RailTel.
VII	The Bidders are required to meet all eligibility criteria mentioned in this Tender document and financial bid of eligible bidders only will be opened.
VIII	Non-conformities between Figures and Words Sometimes, non-conformities/errors are also observed in responsive Tenders between the quoted prices in figures and in words. This situation normally does not arise in case of e-Procurement. This should be taken care of in the manner indicated below: i) If, in the price structure quoted for the required goods, there is discrepancy between the unit price and total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly; ii) If there is an error in a total corresponding to the addition or subtraction of sub-totals, the sub-totals shall prevail and the total shall be corrected; and iii) If there is a discrepancy between words and figures, the amount in words shall prevail;

Chapter 2B Unpriced BoQ and Make and Model

1.Server Infrastructure (Supply & Installation)

1.1 Local Server Infrastructure (Supply & Installation)

Sl. No.	Local Server Hardware	UOM	Qty	Make	Model
1	xMII Rack Servers	Nos	6		
2	ADS, Antivirus & Patch Mgmt Servers (Rack servers)	Nos	6		
3	NAC Rack Servers	Nos	6		
4	Installation Charges – Lumpsum	LS	LS		

1.2 Software with 5 Years Support

SN	Local Server Software	UOM	Qty	Make	Model
1	Operating System for xMII Servers (SUSE Linux for SAP 2Skt Unlimited Guest OS)	Nos	6		
2	Operating System for ADS, Antivirus & Patch Mgmt Servers (Windows server 2019 standard operating system)	Nos	12		
3	Enterprise Management Solution	LS	1		
4	Installation Charges – Lumpsum	LS	1		

1.3 Managed Services (One Time Cost)

Sl. No.	Description	UoM	Qty	Make	Model
1	Managed Services	LS	1		

1.4 Managed Services (Recurring Cost)

Sl. No.	Description	UoM	Qty	Make	Model
1	Managed Services	LS	LS		

2 LAN Infrastructure

Sl. No.	Network Components	UoM	Qty	Make	Model
WAN Network Interface Firewalls with 5 Year Support					
1	Firewall – Type 1 HA (High Availability). 2 Firewall in Each HA (i.e. 2X2)	Nos.	4		
2	Firewall – Type 2	Nos.	09		
3	Firewall – Type 3	Nos.	10		
4	Firewall – Type 4	Nos.	20		
5	Firewall – Web Application Firewall	Nos.	2		
6	Centralized Management, log and analysis license with 5 -year support. up to 100x firewall	Nos.	1		

	devices/administrative, supplied along with 5 years 24 x 7 support along with hardware appliance				
7	Training to 20-people team of Network Engineers from NMDC to be provided by OEM at a centralized place covering all aspects of operations and maintenance of the Firewalls	LS	LS		

2.1 Firewall

2.1.1 Campus Switches & Indoor Wifi

SN	Network Components	UoM	Qty	Make	Model
Ethernet Switches and Access Points at NMDC Locations with 5 Year Support					
1	Core Switch - Type 1 HA (High Availability) 2 Switch in each HA (i.e. 6 HA 6X2)	Nos.	12		
2	Core Switch - Type 2	Nos.	2		
3	10G-ER SM SFPs for distribution Switches to core Switches links	Nos.	8		
4	10G-LR SM SFPs for distribution Switches to Access and Distribution Switches	Nos.	64		
5	Distribution Switch – Type 1	Nos.	6		
6	Distribution Switch – Type 2	Nos.	11		
7	1G-LX SM SFPs for distribution Switches to Access Switches links	Nos.	478		
8	10G-LR SM SFPs for distribution Switches to access Switches links	Nos.	200		
9	1000BASE-T RJ45 SFP Transceiver	Nos.	20		
10	Access Switch – Type 1	Nos.	305		
11	Access Switch (Industrial Grade) – Type 2	Nos.	153		
12	Access Point (Indoor). Payment will be made as per actual quantities used.	Nos.	300		
13	Wireless LAN Controller for Access Points in HA, 5 year warranty & NBD support	Nos.	02		
14	NAC licenses for switches and access points, 5 year warranty & NBD support	Nos.	6		
15	OEM EMS for Integrated Monitoring of (Industrial, Access, Distribution and Core) Switches and Wireless Access Points, 5 year NBD support	Nos.	6		
16	Training to 20-people team of Network Engineers from NMDC to be provided at a centralized place covering all aspects of operations and maintenance of the Switches, APs, NAC, WLC, EMS	LS	LS		

2.2 Outdoor Wifi

Sl. No.	Network Components	UoM	Qty	Make	Model
Outdoor Wi-Fi Zone. Bidders may include costs of developing a Good-For-Construction (GFC) analysis of site prior to installation					
1	Outdoor (IP67 rated or better) 802.11ax WLAN AP with Tilt bracket & PoE Injector, 5-year extended warranty to be included. AP with integrated/ external antenna should be proposed.	Nos.	142		
2	Supply & Installation of Tower / Pole, 5m, Galvanized steel, with grouting base and accessories with Lightning Arrestors	Nos.	82		
3	5 GHz PTP Radio, Integrated High Gain Antenna (ROW) with power lead, 5-year extended warranty. Integrated/ External Antenna. Link may be required upto 15km. Data, Video and Voice all three should be feasible. Radio transmit power should be >=27db and antenna gain >=23db with a net gain as per WPC regulatory compliance PTP Radio should be carrier class Radio (based on non-Wi-Fi Chipset) with 27dB or better Tx power, 2x2 OFDM delivering 450Mbps or more throughput with 45Mhz channel width. Should be IP66 or better with -20 to +60degree temperature support and ruggedized, should have Gigabit Eth port and 1SFP Port. Should support nLos and nLos conditions, 1024 sub-carriers. Channel size 5, 10, 15, 20, 30, 40, 45 MHz, FIPS-197 128/256-bit AES IPv4/ IPv6 (dual stack), Telnet, FTP, SNMPv2c, v3 90K + PPS. Should support Govt Regulations as per GSR-1048(E) safety standards - UL 60950	Nos.	52		
4	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable	Nos.	104		
5	LPU and Grounding Kit (1 kit per ODU)	Nos.	52		
6	Power Supply, as per the requirement & supplied by OEM. NMDC will provide AC and UPS power. Bidder will have to factor power adapter as per the equipment offered.	Nos.	52		
7	Tilt Bracket Assembly	Nos.	52		
8	Supply & Installation of Tower / Pole, 15m, Galvanized steel, with grouting base and accessories with Lightning Arrestors. As per industry standard, Min. 10 cm diameter pole shall be used or as required section wise.	Nos.	25		
9	1PPS GPS Sync generator	Nos.	46		
10	PoE Gigabit DC Injector as supplied by OEM	Nos.	46		
11	Training to 20-people team of Network Engineers from NMDC to be provided by OEM at a centralized place covering all aspects of operations and maintenance of the Outdoor WAPs	LS	LS		

12	PMP Radio, IP66 or better rated, 240-degrees coverage (may need 2 base stations with each unit providing 120-degree coverage) dual polarized, with all accessories and 5-year extended warranty. Link may be required up to 10km. Data, Video and Voice all three should be feasible. Integrated/ External antenna. The antenna and Radio should be from same OEM and EIRP should be equal to WPC guidelines for maximum gain. Radio transmit power should be >=27db and antenna gain >=23db with a net gain as per WPC regulatory compliance PTP/ PMP Radio should be carrier class Radio (based on non-Wi-Fi Chipset) with 27dB or better Tx power, 2x2 OFDM. By varying the uplink and downlink speeds more remote radios can be connected and up to maximum throughput of 300 Mbps (aggregate). CPE shall be configurable for variable speed of uplink & downlink. Should be IP66 or better with -20 to +60degree temperature support and ruggedized, should have Gigabit Eth port, channel size 5, 10,15,20, 30, 40 MHz, MTU 1700Byte, FIPS-197 128/256-bit AES IPv4/IPv6 (dual stack), Telnet, FTP, SNMPv2c, v3. Should support Govt Regulations as per GSR-1048(E) safety standards - UL 60950	Nos.	5		
13	Remote radios for the PMP, 4 radios per zone, 240-degree coverage with all accessories and 5-year extended warranty	Nos.	20		

2.3 Cabling

Sl. No	Network Components	UoM	Qty	Make	Model
Campus Backbone Cabling					
1	48-fiber rack mounted fiber optic patch panels, for terminating OSP cables, with fusion splice trays, fully loaded with Duplex-LC SM adapters and 48 numbers of LC SM pigtails (48 numbers per panel)	Nos.	50		
2	24-fiber 1U rack mounted fiber optic patch panels, for terminating OSP cables, with fusion splice trays, fully loaded with Duplex-LC SM adapters and 24 numbers of LC SM pigtails (24 numbers per panel)	Nos.	234		
3	LC-LC Duplex SM Patch Cords, 3 meter	Nos.	626		
Closed Steel Racks -					
1	42U Racks as per specifications with vertical 2 smart/ intelligent PDUs, SNMP enabled (for Core Switches)	Nos.	11		

2	42U Racks as per specifications with vertical 2 PDUs, surge protected (for Distribution Switches)	Nos.	21		
3	24U Racks as per Specifications, with horizontal PDUs (IP55 or above)	Nos.	153		
4	24U Racks as per Specifications, with horizontal PDUs only (Non-IP Rated)	Nos.	227		
Horizontal Cabling					
1	1U, 24-port Cat6A UTP Unloaded Jack Panel with rear Cable Support bar	Nos.	9		
2	Cat6A UTP Patch Cord (7-feet)	Nos.	462		
3	Cat6A UTP Information Outlet at DC Rack End	Nos.	362		
4	1-port Face Plate	Nos.	161		
5	45mm x 45mm Backbox (Back Box should be compatible with the proposed Faceplate)	Nos.	130		
6	IP rated Backbox for Faceplates and Information Outlets	Nos.	50		
7	Cat6A UTP Cable	(305 Mtr.) Roll	20		
8	Plugs for Modular Plug Terminated Links, for Wi-Fi APs and CCTV (Please quote MPTL plugs of same make as cables. Modular RJ45 plugs will not be acceptable)	Nos.	275		
9	Cat6A UTP Information Outlet at End-User Rack End	Nos.	100		
Horizontal Cabling					
1	1U, 24-port Cat6 UTP Unloaded Jack Panel with rear Cable Support bar	Nos.	234		
2	Cat6 UTP Patch Cord (7-feet)	Nos.	5,600		
3	Cat6 UTP Information Outlet at DC Rack-End	Nos.	2,800		
4	1-port Face Plate	Nos.	1,401		
5	45mm x 45mm Backbox (Back Box should be compatible with the proposed Faceplate)	Nos.	982		
6	IP rated Backbox for Faceplates and Information Outlets	Nos.	510		
7	1 Port Surface Mount Box	Nos.	1,294		
8	Cat6 UTP Cable	(305 Mtr.) Roll	472		
9	Cat6 UTP Information Outlet at End-User Rack-End	Nos.	2,800		

2.4 UPS

SN	Network Components	UoM	Qty	Make	Model
1	Supply of 1 KVA UPS system (prefer 19' rack mountable unit) for Distribution and access Switches at Bacheli, Kirandul, Donimalai, Panna and Paloncha. 1KVA rating, SNMP manageable. Supply should include 30-minute battery back-up batteries of 65AH, 12V, SMF related electrical protection accessories and rack, 5-year on-site warranty and maintenance	Nos.	259		
2	Supply of (N) 30KVA UPS System for Central Distributor to support core switches, Servers, WAN Optimizers, ILL load balancers, and other networking equipment along with 30-minutes battery back-up (about 40 batteries of 65AH, 12V, Lead Acid, SMF) along with Battery rack, MCB protection gear and all other accessories - Bacheli, Kirandul, Donimalai, Panna and Paloncha. UPS to be SNMP manageable. 30kVA rating. Supply should include 5-year on-site warranty and maintenance	Nos.	5		
3	Supply of Grounding Pit and services- for servers and communication	Nos.	14		
4	Supply of Lightning arrestors and grounding pit	Nos.	14		

2.5 LAN Installation and Commissioning

SN	Activities	UoM	Qty	Make	Model
1	Copper Cable Laying				
	Laying of UTP Cables	Meters	1,50,060		
	Supply & Laying & Fixing of PVC Pipes	Meters	1,50,060		
	Termination of IO's at Both end	Nos	3,162		
	Fixing of Jack Panels	Nos	243		
	Rack Fixing, Earthing etc.	Nos	412		
	Testing and Certification	Nos	3,162		
2	Firewall				
	Installation & Commissioning	Nos	45		
3	Switching				
	Installation & Commissioning	Nos	483		
4	NAC				
	Installation & Commissioning	Nos	6		
5	OEM EMS				
	Installation & Commissioning	Nos	6		
6	Wireless				

	Indoor Wireless Installation and Commissioning	Nos	300		
	Wireless Installation and Commissioning	Nos	142		
	Radios Installation and Commissioning	Nos	77		
7	UPS				
	Installation, Testing and Commissioning 1 KVA UPS	Nos	259		
	Installation, Testing and Commissioning 30 KVA UPS	Nos	5		
8	Earthing Pit & Lightning Arrestors				
	Installation of Grounding Pit and services- for servers and communication	Nos	14		
	Installation of Lightning arrestors and grounding pit	Nos	14		

3. Network Operating Center (NOC)

SN	Network Components	UoM	Qty	Make	Model
1	Desktop for NOC	Nos.	4		
2	Console/Screen (LED) for NOC room	Nos.	2		
3	Videowall Display				
3.1	55” Full HD Bezel to Bezel 1.8 mm Display with 500 Nits or Higher	Nos.	9		
3.2	Kramer/Extron/ Crestron or equivalent HDMI 15 mtr cables	Nos.	18		
3.3	Customized Push Pull Video Wall Brackets 2X3 Matrix (NT/Logic or Equivalent)	Nos.	9		
3.4	MTC/ Data path or equivalent Videowall Controller 4 inputs and 84 outputs	Nos.	1		
3.5	Rack for Video Wall Controller (Netrack or Equivalent) - 6U	Nos.	1		
3.6	Power sockets with required cables for Installation	Lot	1		

Note: Seating arrangement to be provisioned by NMDC for 6 persons

Note-1:

The item description in above format for BOQ is indicative in Nature only and Bidder is required to submit the detailed BOQ covering all important components of the supplied items.

Note-2:

1) All Firewalls solution should be considered from one single OEM.
2) Core, Distribution and Access Switches (Type-1) should be considered from one single OEM.
3) All Indoor Wi-Fi Solution should be considered from one single OEM.
4) All outdoor Wi-Fi Solution should be considered from one single OEM.
5) Cabling Solution should be considered from one single OEM.
6) Enterprise Management Solution functionality should be from one single OEM.

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CHAPTER-3 SCOPE OF WORK AND TECHNICAL REQUIREMENTS

3.A. Introduction

3.A.1 About RailTel

RailTel Corporation of India Limited (RailTel), an ISO-9001:2000 organization is a Government of India undertaking under the Ministry of Railways. The Corporation was formed in Sept 2000 with the objectives to create nationwide Broadband Telecom and Multimedia Network in all parts of the country, to modernize Train Control Operation and Safety System of Indian Railways and to contribute to realization of goals and objective of national telecom policy 1999.

RailTel with strong nationwide presence is committed to bring cutting edge technology and offer innovative services to the Indian Telecom market. RailTel is in the forefront in providing nationwide Broadband Telecom & Multimedia Network in all parts of the country. With its Pan India high-capacity network, RailTel is working towards creating a knowledge society at various fronts.

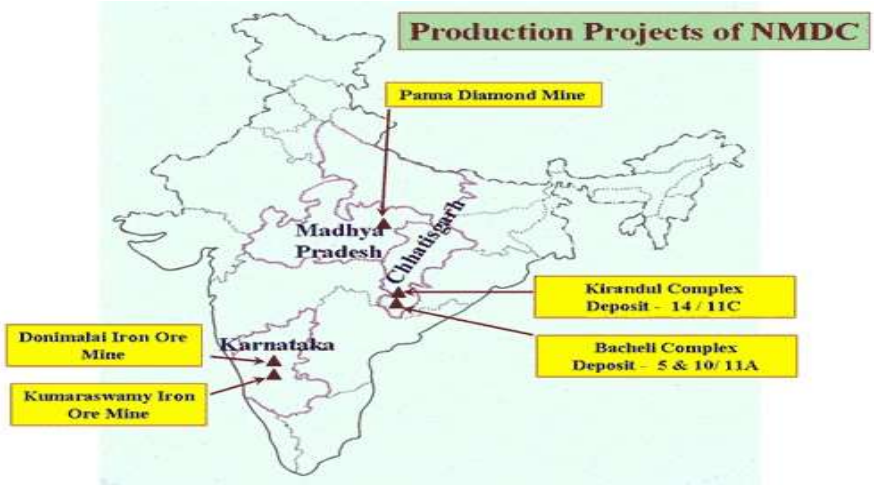
In addition, RailTel with its rich experience in the domain of Telecom and ICT field have been selected for implementation of various mission-mode Govt. projects in the telecom field including National Optical Fibre Network (NOFN), National Knowledge Network (NKN) and NE-I & NE-II under USOF/DoT etc.

In line with its commitment to bring next generation telecommunication technologies and services to people across the length and breadth of the country, RailTel is already providing high speed Wi-Fi network at train stations across the country.

3.A.1.2 Project Background

RailTel invites Request for Proposal from the Empaneled Associates for the selection of suitable Business Associate (BA) to implement agile, secure and flexible IT Infrastructure backbone to support ERP & other Digital Initiatives of NMDC. The empaneled BA is expected to have excellent execution capability and good understanding of customer's local environment with projects execution experience in mining industry.

National Mineral Development Corporation (NMDC) Limited, is a government-owned mineral producer and in it's over 60 years of existence, has been critical to the mineral security of the nation. It comes within the administrative purview of Ministry of Steel, Government of India.



3.A.1.3 Scope of Work

The scope of work includes:

1. Submission of Detailed Design, Deployment Methodology and Implementation Plan.
2. Supply, Installation, Integration, Testing, Commissioning & maintenance of LAN & WAN Network.
3. Implementations of Wired & Wireless Network, both for Indoor & Outdoor Solutions.
4. Deployment of Secured Security Solutions like Next Generation Firewall, Web Application Firewall (WAF), etc.
5. Enterprise Management Solution.
6. Laying & Maintenance of UTP Cable at Units of NMDC viz. HO, Kirandul, Bacheli, Donimalai, Panna, Sponge Iron Unit at Paloncha etc.
7. Supply and installation of Network Rack, UPS, Earthing Pit and Lightening arrestors.
8. Operation and Maintenance and Manpower Services for Five(5) years

3.A.1.4 Bidder's Responsibility

The bidder will be responsible for all the activities mentioned in Scope of Work. Bidder will also responsible for the following activities:

1. Planning, designing of NMDC Network Infrastructure.
2. It shall be the responsibility of Supplier to transport the equipment to site for the Installation & Commissioning.
3. Maintenance of NMDC Network Infrastructure during implementation, maintenance supervision period, warranty period & AMC period as per terms & conditions of Tender and its corrigendum.

3.A.1.5 Installation, Integration, Testing and Commissioning of Network/System

The bidder shall be fully responsible for Quality Assurance of equipment & other network elements and supervision of following:

1. Installation and Integration of the above said equipment/items as per system design
2. Integration with existing network/system
3. Testing of the Network/System as specified in the document

4. Trial run of the network/system
5. Commissioning of Network/system

3.A.1.6 Training of Purchaser's Personnel

As per Schedule of Requirement.

3.A.1.7 Final Commissioning

The Network Infrastructure shall be considered to be commissioned only after successful completion of the Trial Run and SAT accepted by NMDC and of Final Acceptance Certificate (FAC).

Any item of bidder's goods/services not specifically mentioned, but considered essential for completion/commissioning of the work in all respects shall be deemed to be included in the scope of work. Any additional item, if required for completion of work, shall be required to be supplied by the bidder free of cost.

3.A.1.8 General System Guidelines

a) Bidder shall be responsible for the successful completion of the project.
b) If during the course of execution of the work any discrepancy or inconsistency, error or omission in any of the provisions of the contract is discovered, the same shall be referred to the Purchaser/ Engineer who shall give his decision in the matter and issue instructions directing the manner in which the work is to be carried out. The decision of the Purchaser/Engineer shall be final and conclusive and the bidder shall carry out the work in accordance thereof.

3.A.1.9 Technical Response

The technical response shall be fully comprehensive and detailed and will include detailed guaranteed specifications of the equipment and systems to be supplied. Marginal performance shall not be accepted.

3.A.1.10 Features and Capabilities of Equipment

The specifications defined under Chapter-7 contain the necessary requirements of RailTel with regard to the features and capabilities of the equipment to be offered by the bidders. These will be carefully studied and commented upon by the bidder.

3.A.1.11 Compliance to Technical Requirements

In the offer, the bidder shall include NIL deviation certificate (Form No. 6 of Chapter-6) statement for compliance of terms and conditions mentioned in the Tender document.

In case of any deviation from terms and conditions mentioned in the Tender document, the bidder may include item-wise statement for partially complied/non-complied clauses as Annexure with NIL Deviation statement as per details given below:

a) "PARTIALLY COMPLIANT," if systems and functions offered meet the Tender requirement partially. The bidder shall state the reason why the offer is partially compliant. However, if the bidder is able to fulfill the specified requirement later, the time schedule for this shall be stated. In such

cases, the bidder shall clearly mention the extent to which other requirements or specifications are affected.

b) "NON-COMPLIANT," if systems and functions cannot meet the requirements. The bidder shall also state the reasons for it.

c) In addition to the above-mentioned compliance statements, wherever statement is given for some numerical parameter specified in Tender, then bidder shall state the actual numerical value of specification as met by the offered systems/equipment.

d) In case of partially compliant or non-compliant bid, RailTel reserves the rights to **REJECT** the bid without assigning any reason.

3.A.1.11.1 Unclear Statements

In case of unclear statements for compliance of any specified requirement, RailTel will interpret that particular requirement as being "NON-COMPLIANT."

3.A.1.11.2 Detailed Technical Information

The bidder shall include in his proposal the detailed technical information, drawings and functional descriptions of the offered equipment to support the Compliance to Technical Specifications as in Chapter-7 of this Tender document.

****

3.B NMDC Network Infrastructure

3.B.1 Architecture Overview

(This is an indicative Architecture, bidder to Propose as per site condition and will be finalized in discussion with NMDC)

Network Single Line Diagrams (NSLD)

Kirandul Iron Ore Mine

Network Design Single Line Diagram

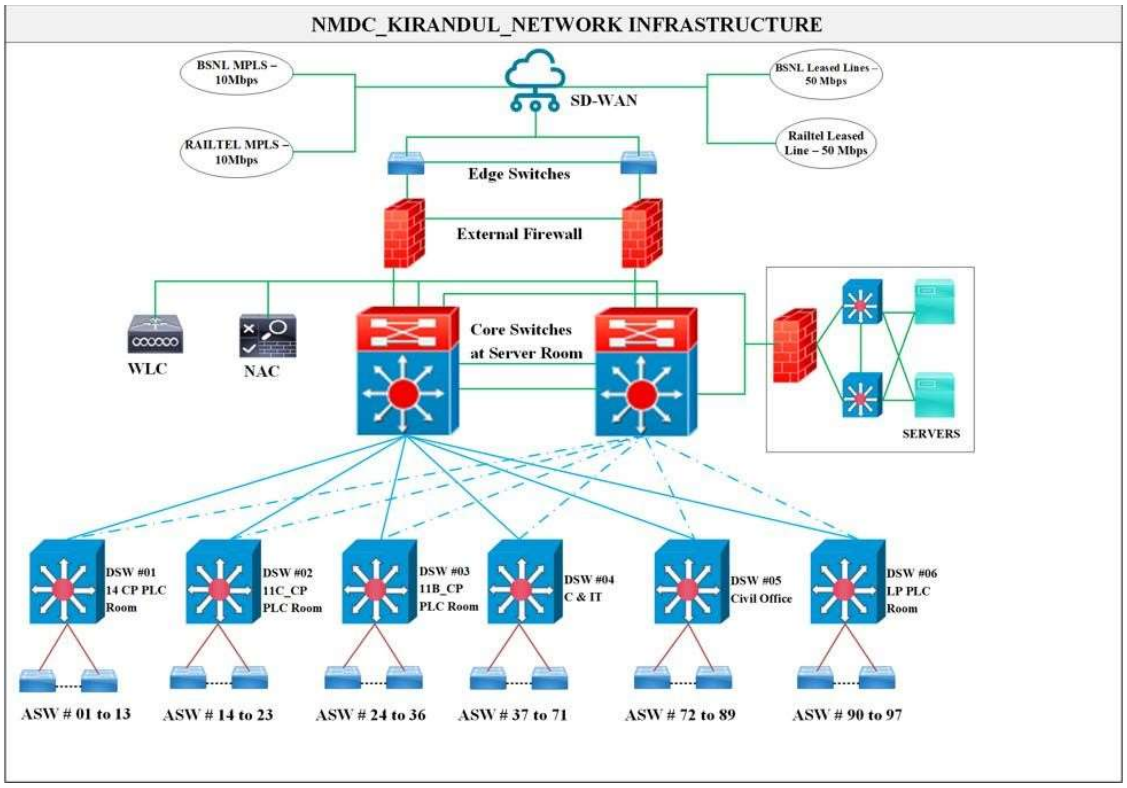


Fig 1 Kirandul Single Line Diagram

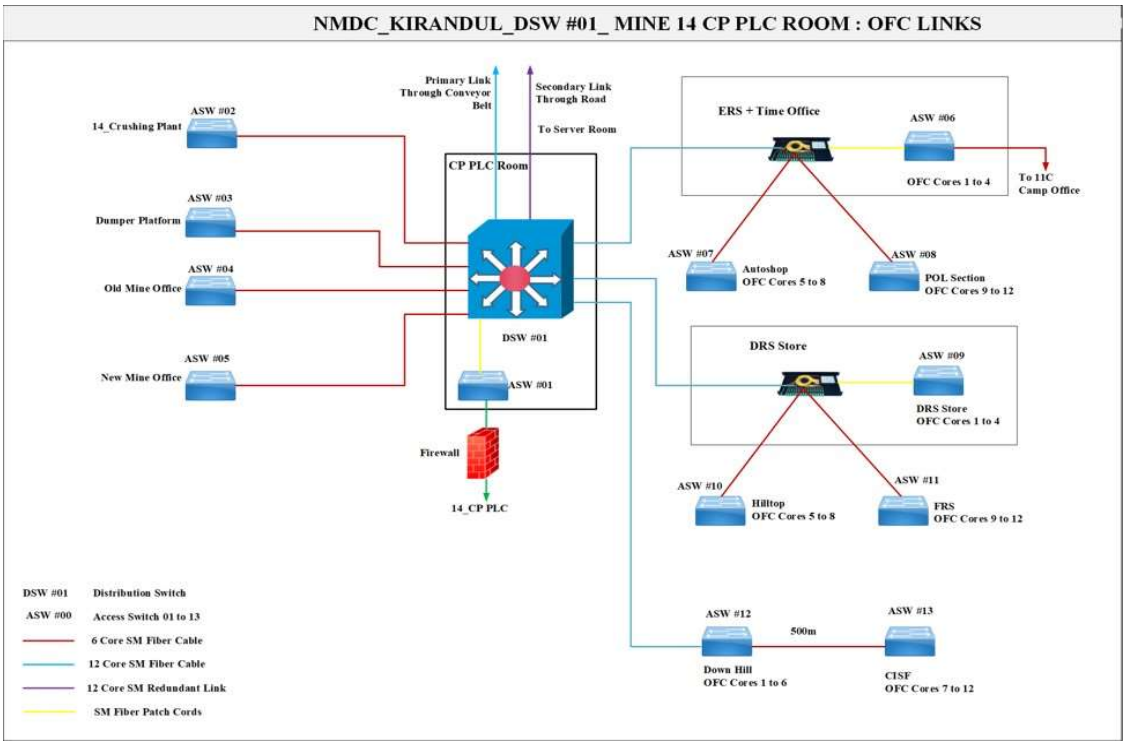


Fig 2 Kirandul Distribution Switch#1 Network Diagram

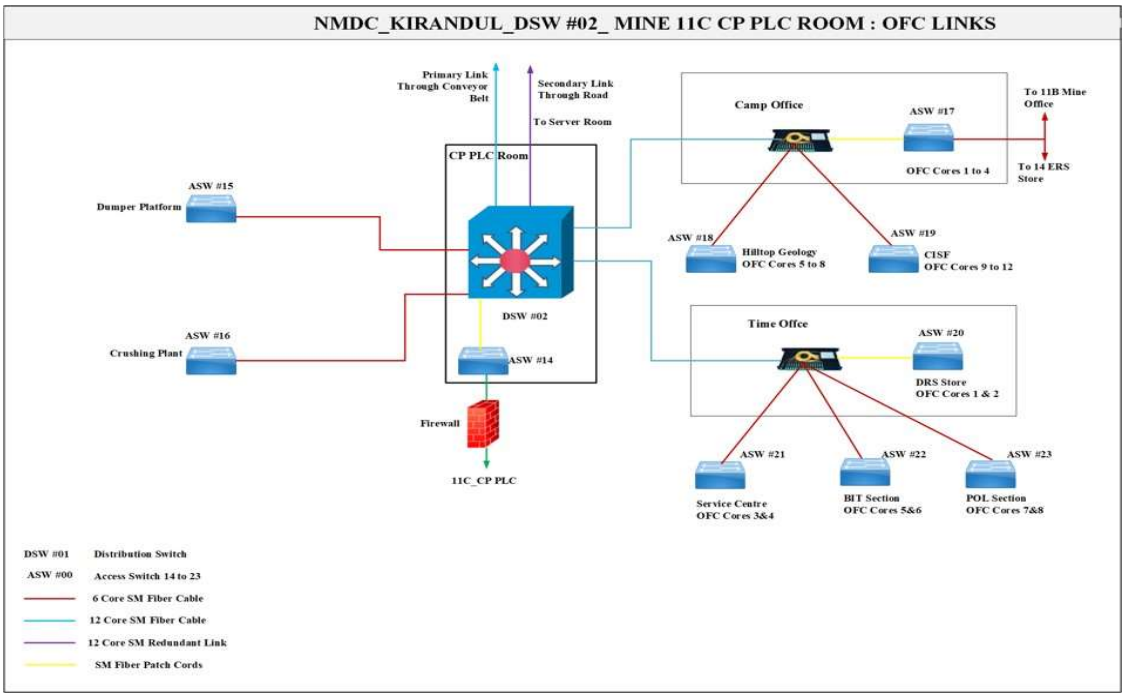


Fig 3 Kirandul Distribution Switch#2 Network Diagram

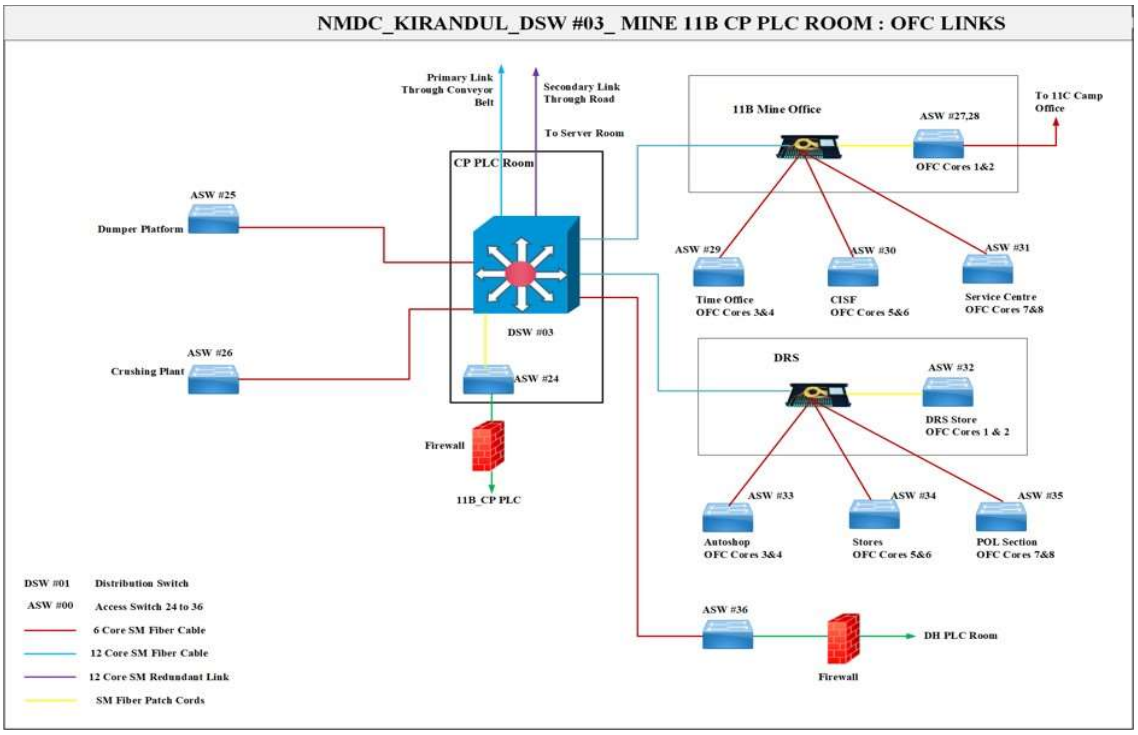


Fig 4 Kirandul Distribution Switch#3 Network Diagram

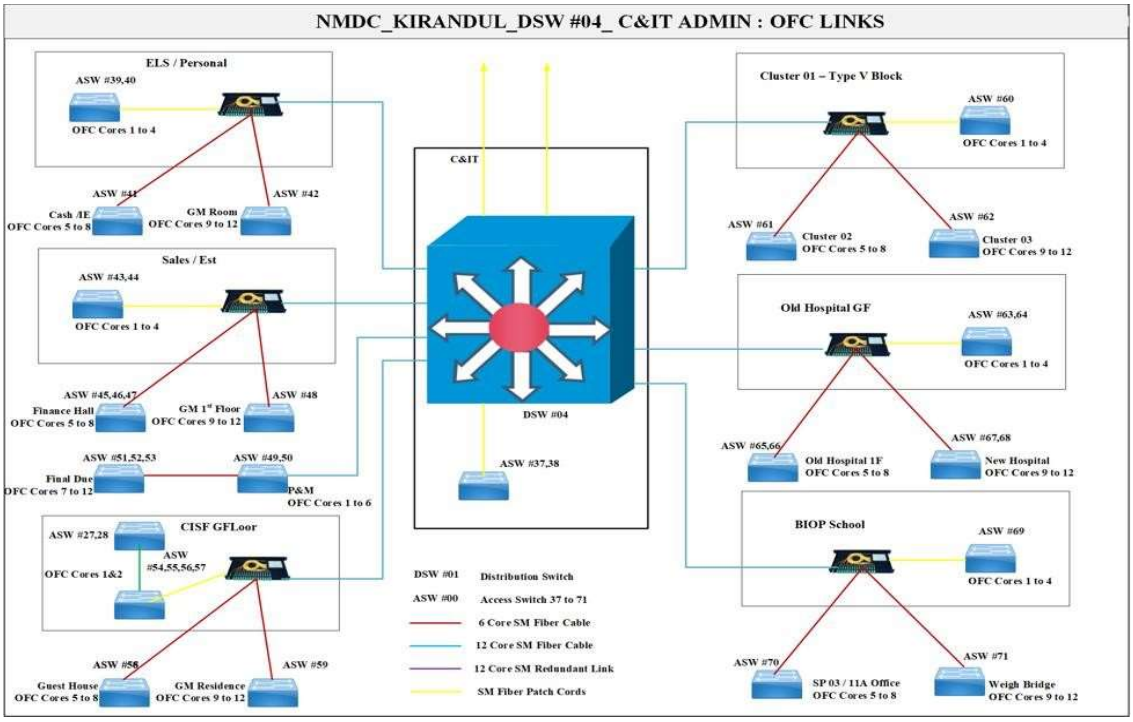


Fig 5 Kirandul Distribution Switch#4 Network Diagram

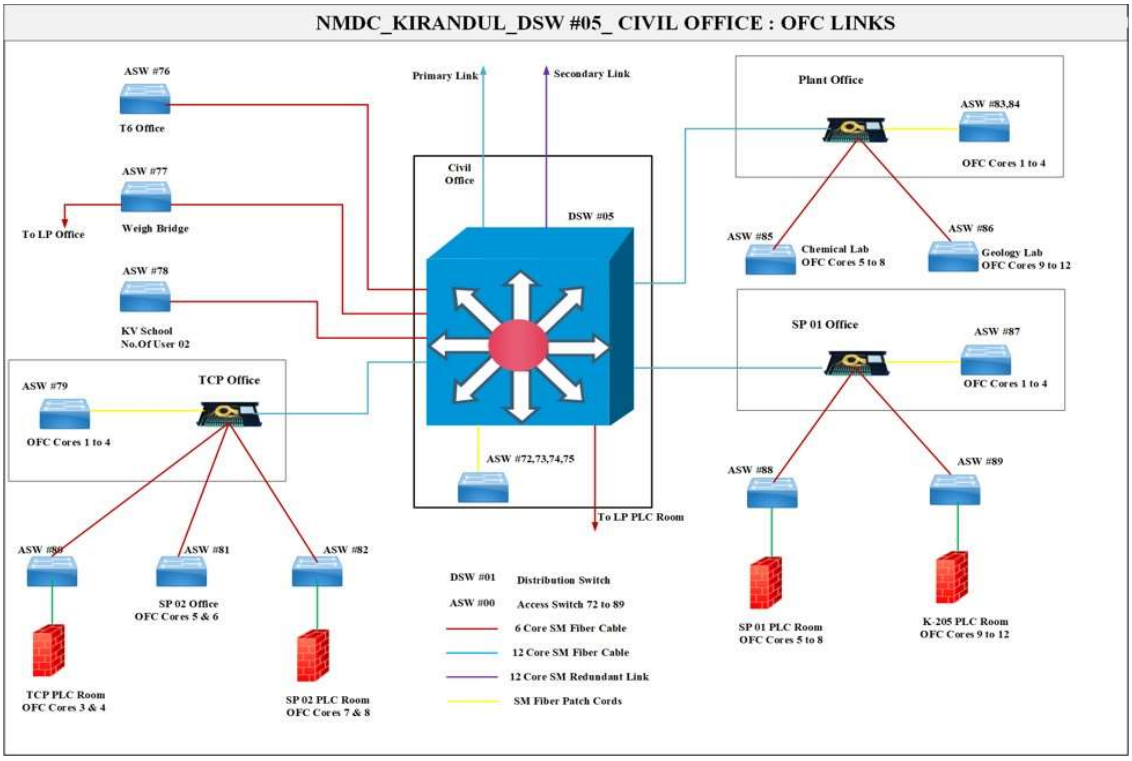


Fig 6 Kirandul Distribution Switch#5 Network Diagram

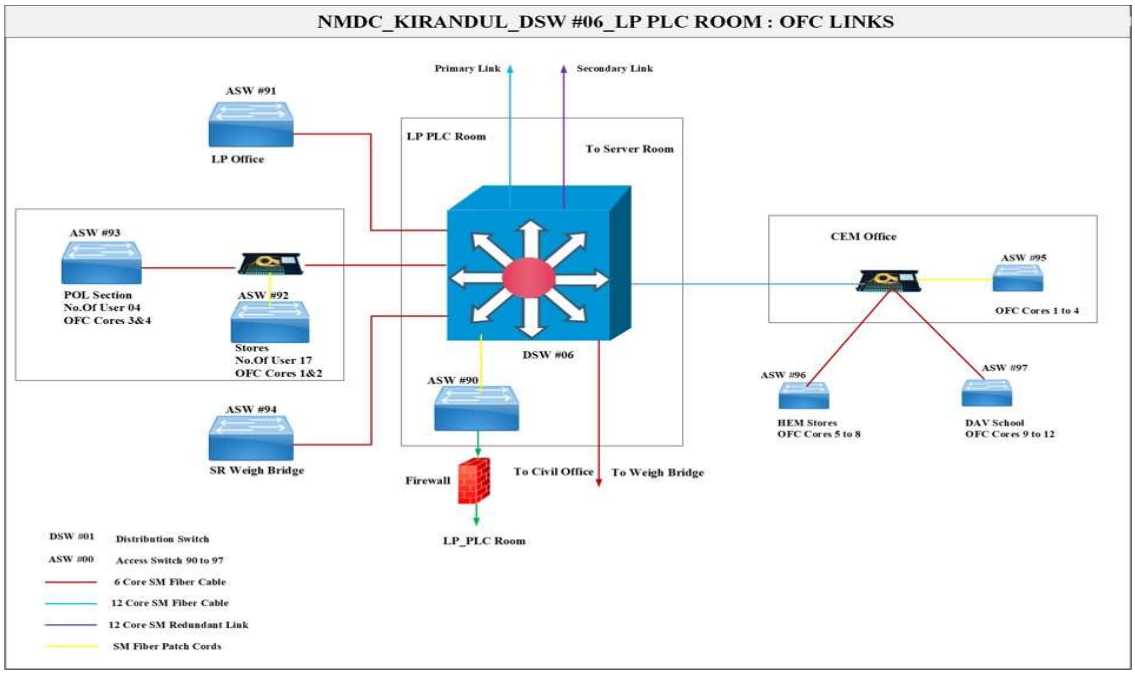


Fig 7 Kirandul Distribution Switch#6 Network DiagramRedundant OFC Links

- 14 ERS to 11C Camp Office
- 11C Camp Office to 11B Mine Office
- Old Hospital to Weigh Bridge
- LP PLC Room to Civil Office

- LP PLC Room to Weigh Bridge

Outdoor Wi-Fi for Mining Area

- Provide outdoor coverage for gathering data from devices on-board movingvehicles.
- Connectivity on Wi-Fi / unlicensed bands preferred.
- At each mine, we propose 2 Wi-Fi zones for data collection
- One covering the vehicles inside the mine
  - Backhaul to be planned on P2P radio links
- One covering the vehicles near the crusher plant
  - Backhaul is on optical Fiber
- The idea of providing the 2nd Wi-Fi zone at Crusher plant is to make sure datais collected from each vehicle at least once during a trip

Kirandul: Has 3 mines:
Mine 14, Mine 11B, Mine 11C

Kirandul 14 Coverage Area

Fig 8 Kirandul Mine 14 Coverage Area

Kirandul 14 Locations for Root Access Points

Fig 8

Fig 9 Kirandul 14 Root Access Point Locations

Fig 9

Kirandul 14 Wireless PTP backhaul Link for Root AP # 1

Fig 10 Kirandul 14 Wireless P2P Backhaul

Kirandul 14 Existing Fiber Optic Link to Crusher Plant Backhaul for Root AP # 2

Fig 11 Kirandul 14 Crusher Plant Backhaul

Kirandul 14 – Summary

- Total Wi-Fi Hotspot zones: 2
- Number of PTP links: 1
- Root AP # 1 to be connected on Wireless Backhaul link
- Approximate link distance 550 M
- Root AP # 2 is having OFC connectivity (Crusher Plant)

Kirandul 11B Coverage Area

Fig 12 Kirandul 11B Coverage Area

Kirandul 11B – Locations for Root Access Points

Fig 13 Kirandul 11B Root Access Point Locations

Kirandul 11B – Wireless Link for Root AP # 1 Wireless PTP backhaul

Fig 14 Kirandul 11B Wireless PTP Backhaul

Kirandul 11B – Fiber Optic backhaul Available at Location Root AP # 2

Fig 15 Kirandul 11B Fiber Optic Backhaul

Fig 15

Kirandul 11B – Summary

- Total Wi-Fi Zones: 2
- Number of PTP links: 1
- Root AP # 1 to be connected on Wireless Backhaul link
- Approximate link distance 910 M
- Root AP # 2 is having OFC backhaul connectivity

Kirandul 11C Coverage Area

Fig 16 Kirandul 11C Coverage Area

Kirandul 11C – Locations for Wi-Fi Zones

Fig 17 Kirandul 11C Wi-Fi Zones

Kirandul 11C – Wireless Link for Root AP # 1 & # 3

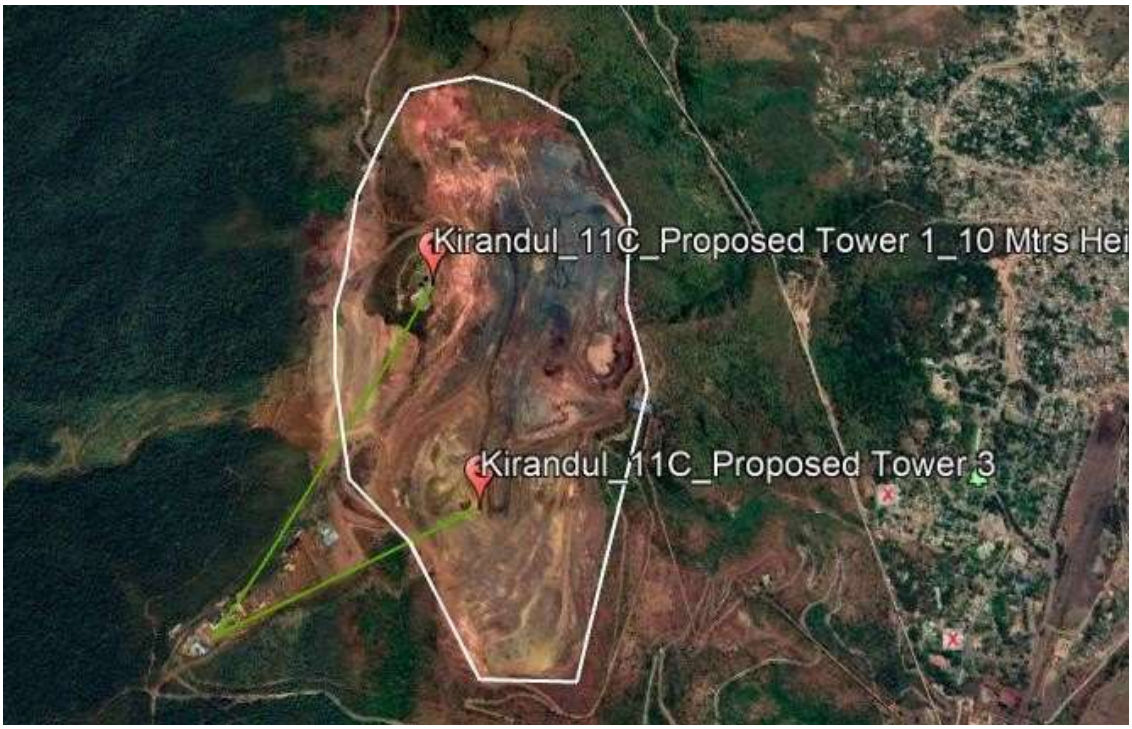


Fig 18 Kirandul 11C Wireless Link

Kirandul 11C – Fiber Optic backhaul Available at Location Root AP # 2

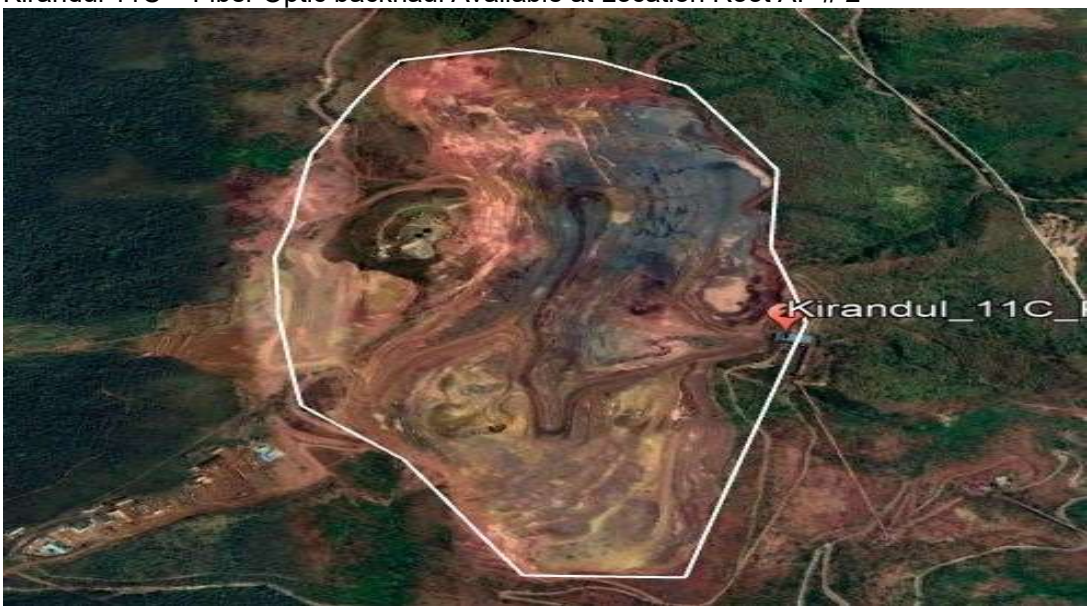


Fig 19 Kirandul 11C Fiber Optic Backhaul

Kirandul 11C – Summary

- Total Wi-Fi Zones: 3
- Number of PTP links: 2
- Location 1 & 3 to be connected on Wireless Backhaul link
  - Link 1 distance 1180 M
  - Link 3 distance 830 M
- Location 2 is having OFC backhaul connectivity
- Bacheli Iron Ore Mine

Network Design Single Line Diagram

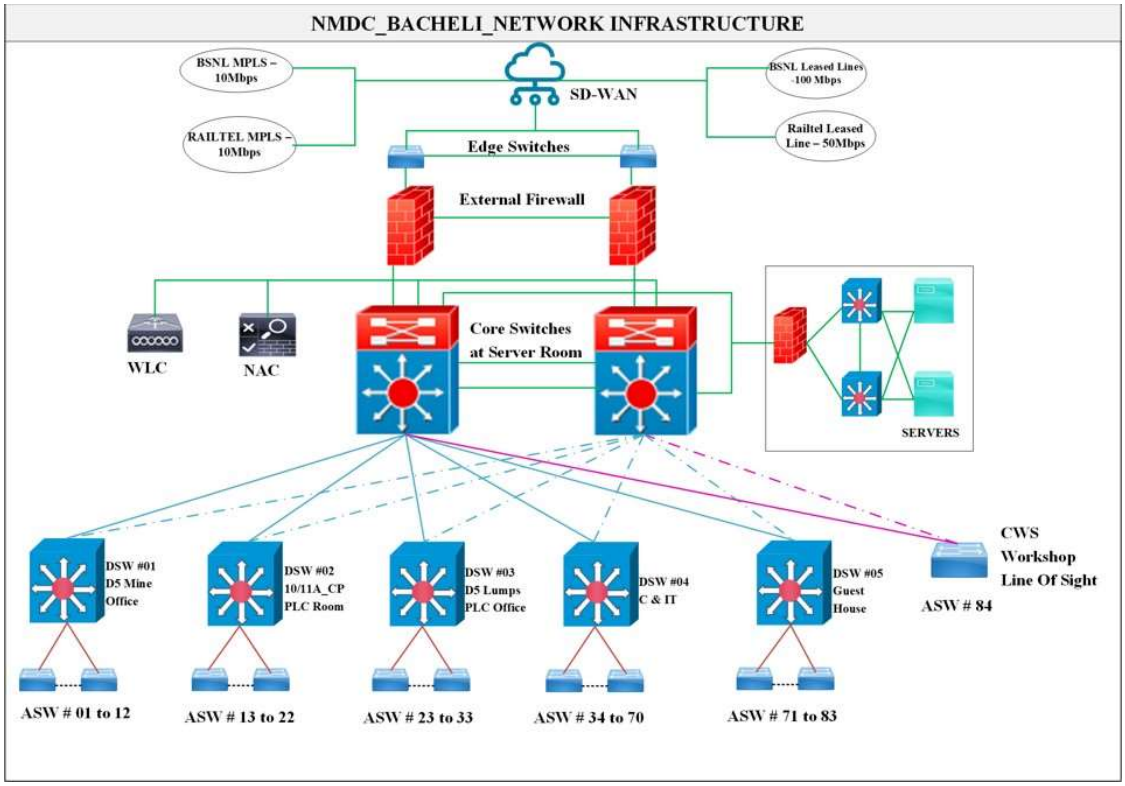


Fig 20 Bacheli Single Line Diagram

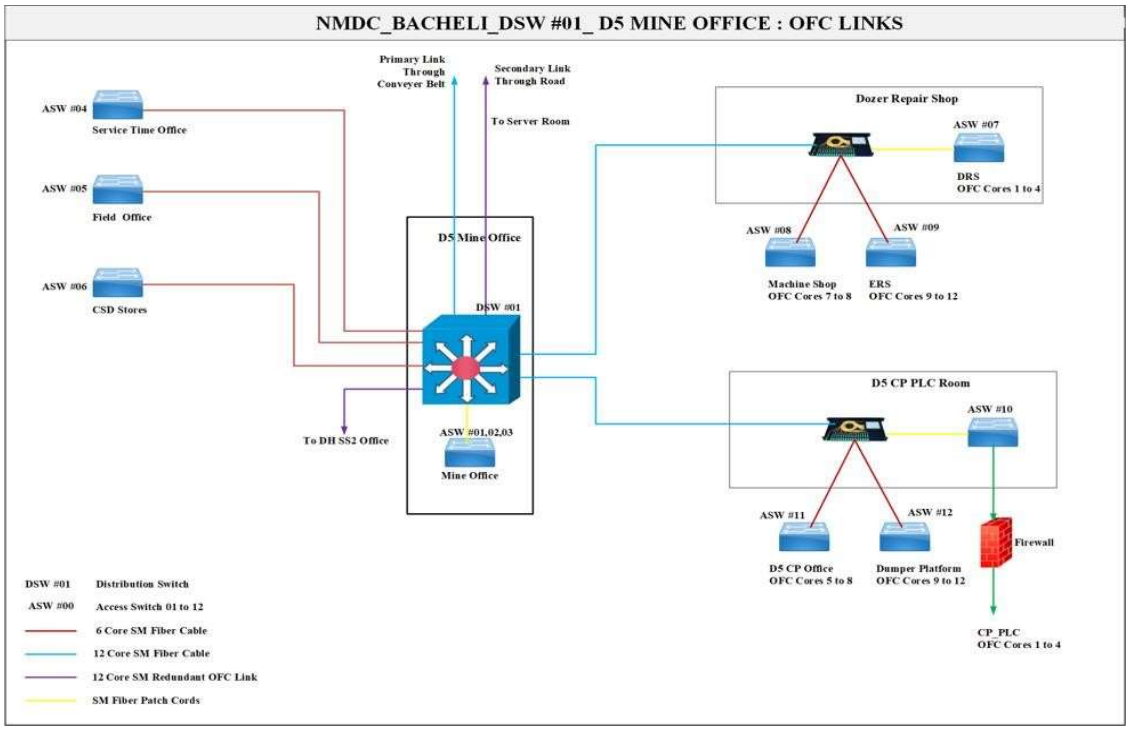


Fig 21 Bacheli Distribution Switch#1 Network Diagram

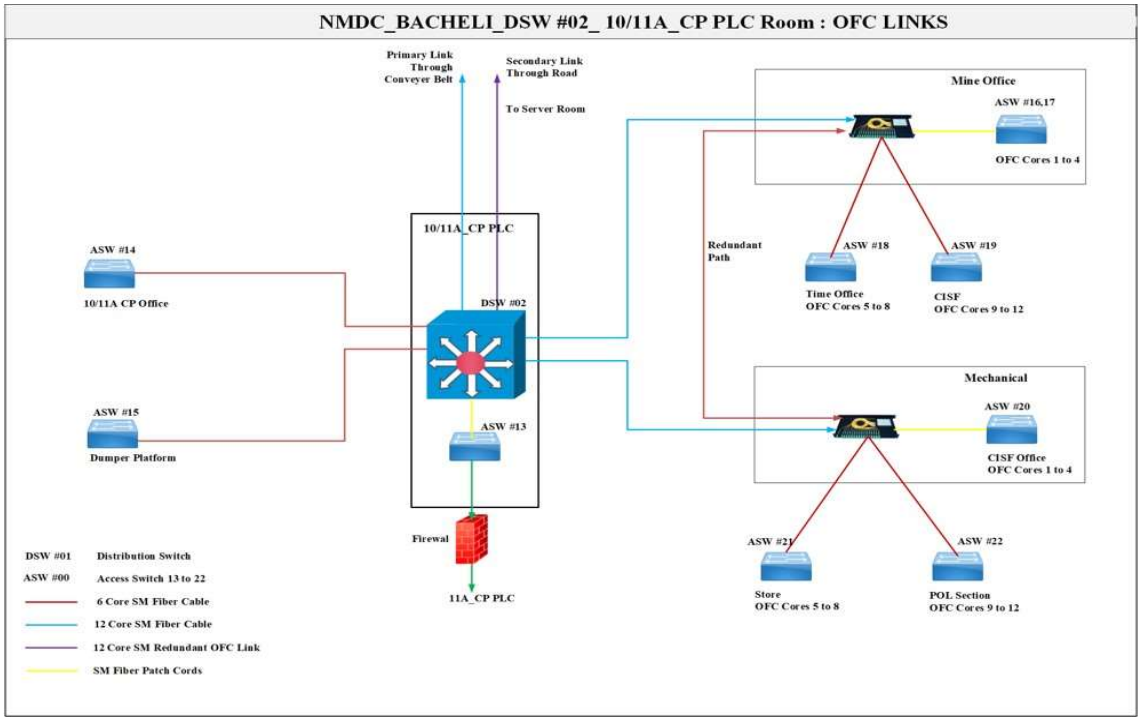


Fig 22 Bacheli Distribution Switch#2 Network Diagram

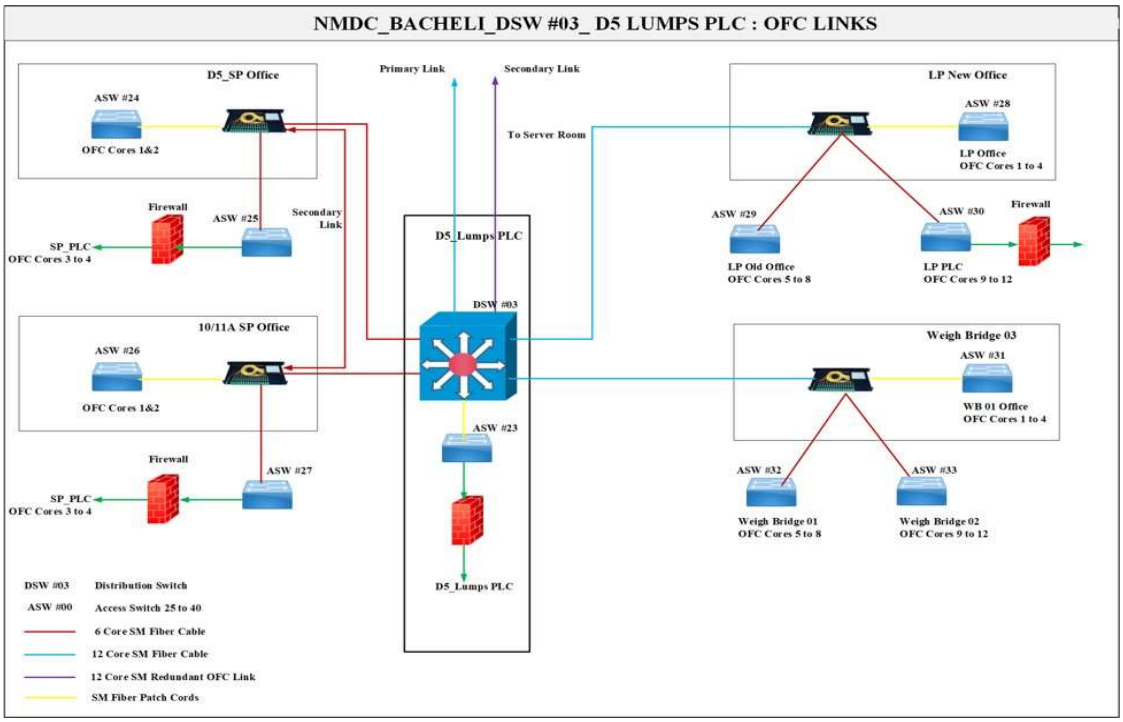


Fig 23 Bacheli Distribution Switch#3 Network Diagram

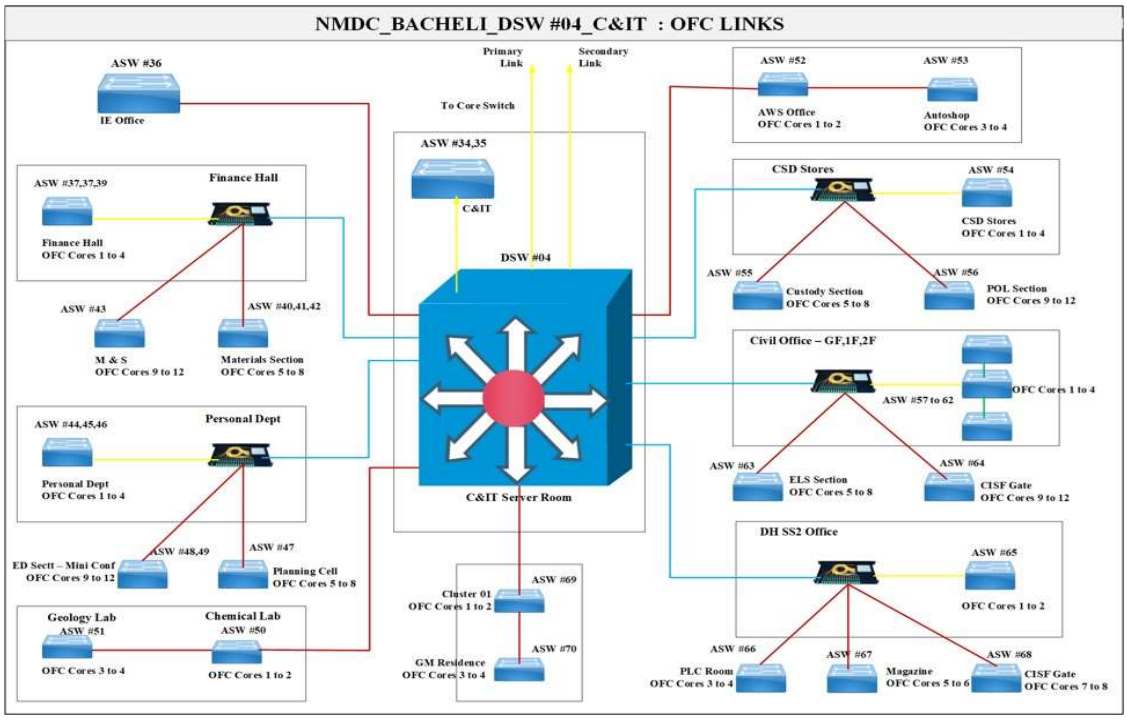


Fig 24 Bacheli Distribution Switch#4 Network Diagram

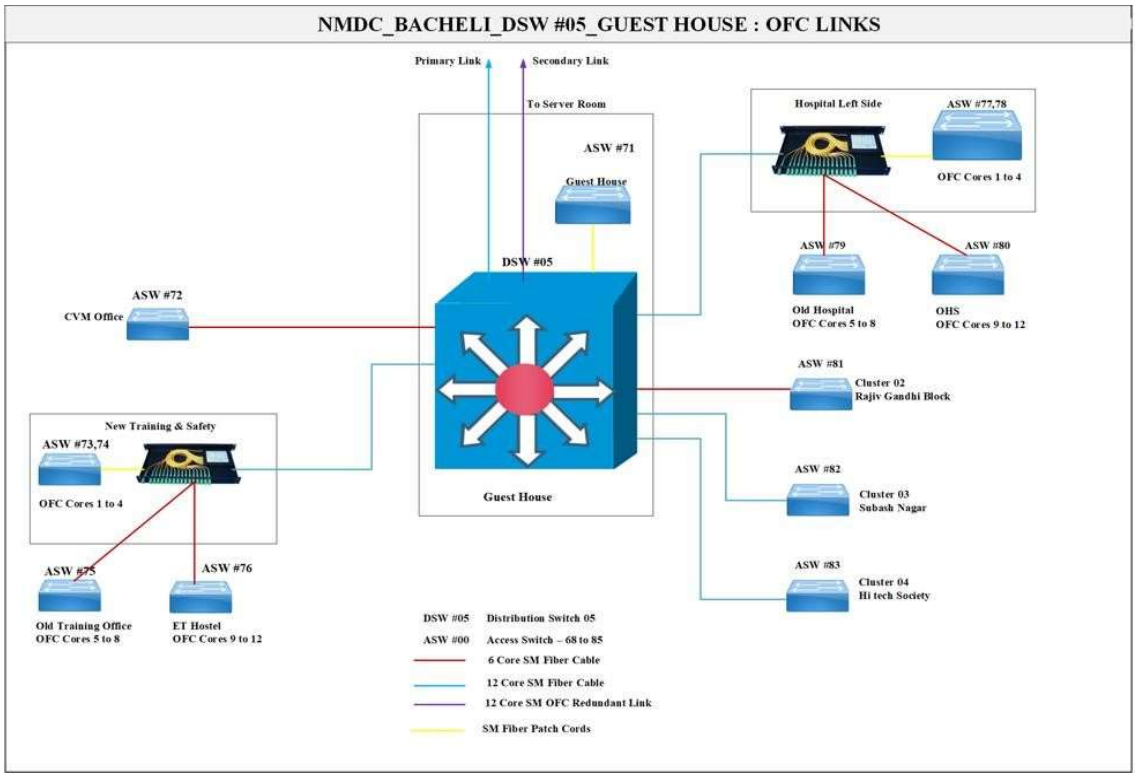


Fig 25 Bacheli Distribution Switch#5 Network Diagram

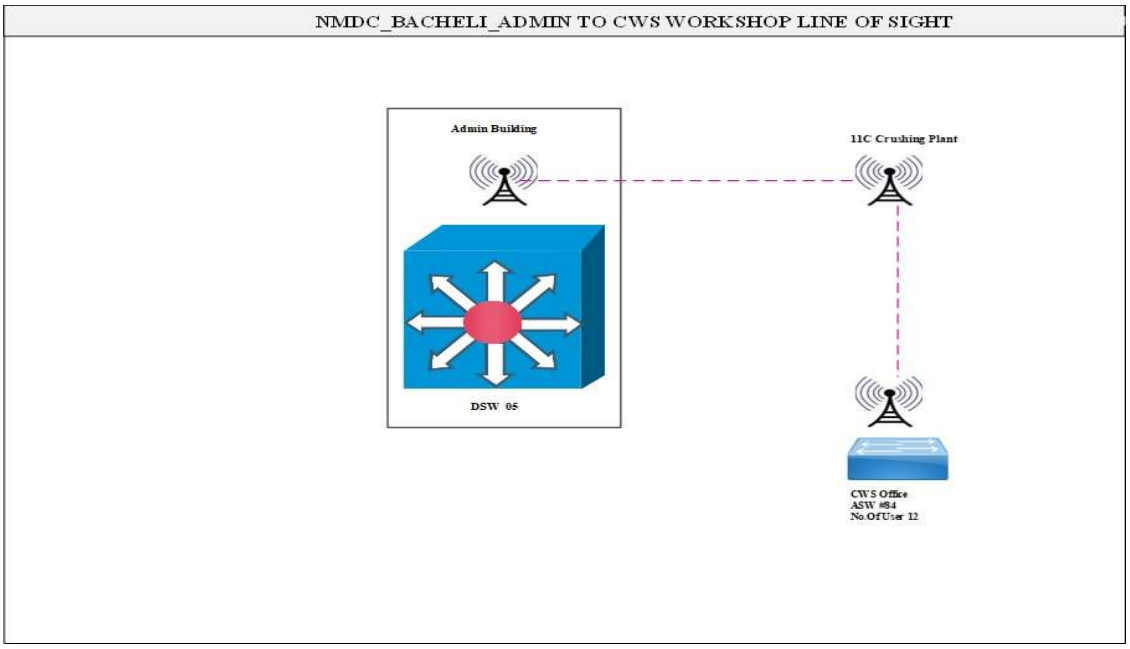


Fig 26 Bacheli Admin to CWS LoS

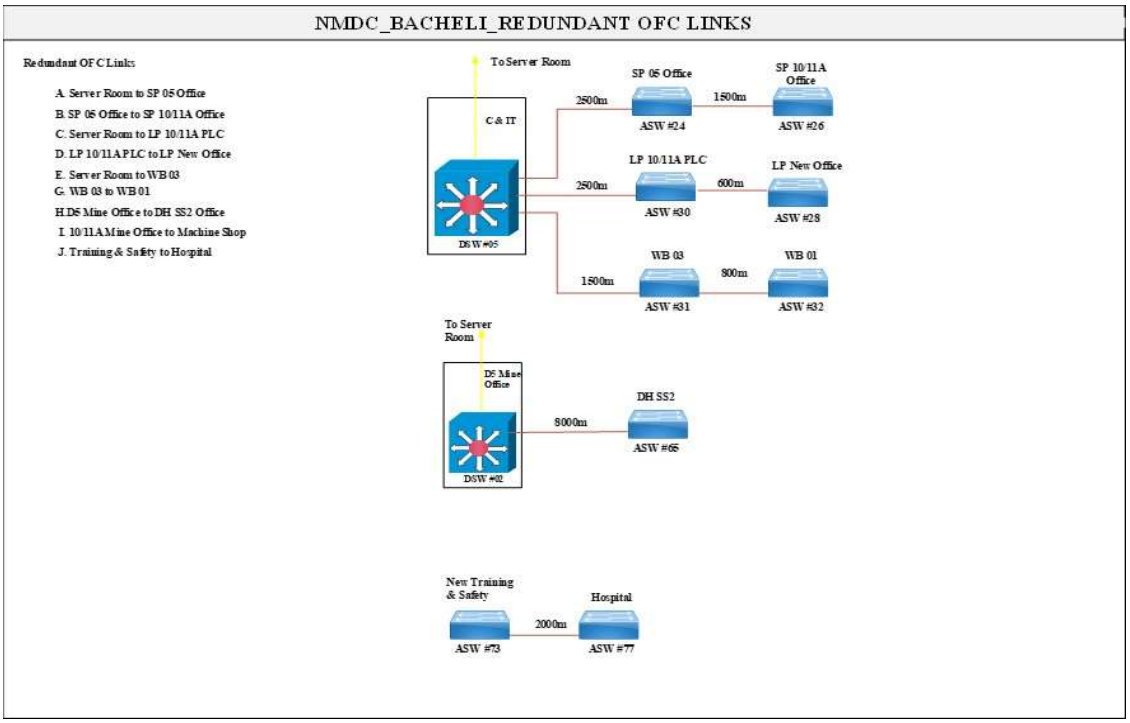


Fig 27 Bacheli OFC Redundant Links

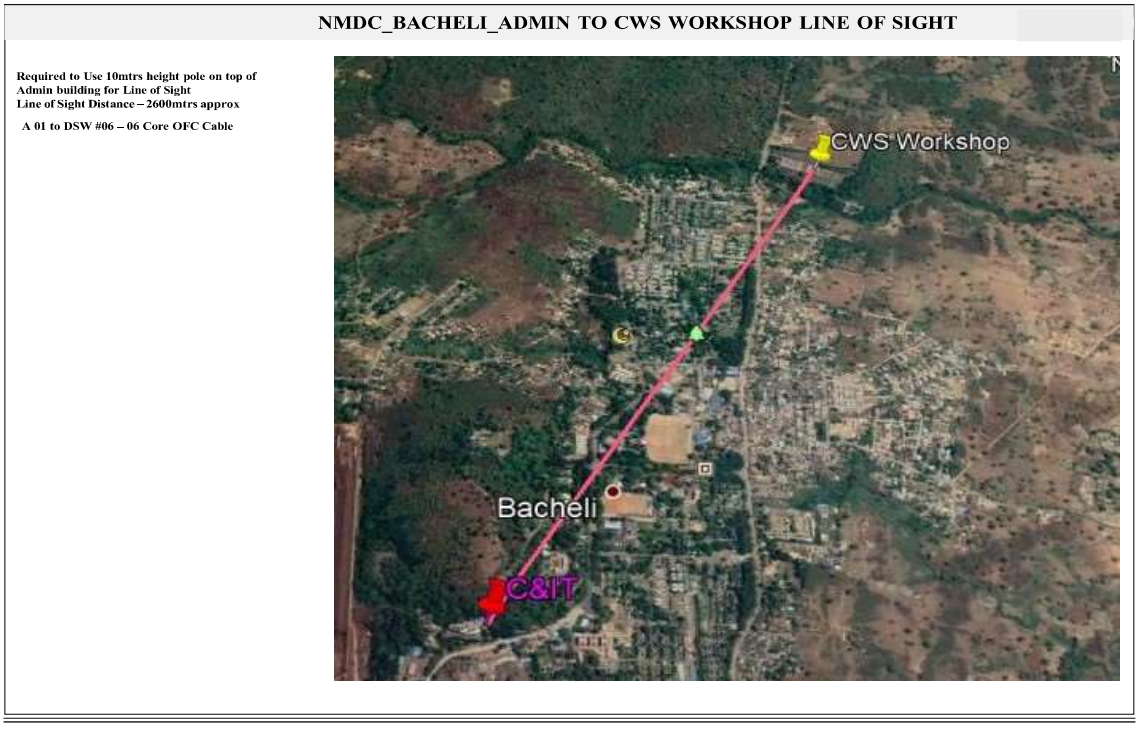


Fig 28 Bacheli Admin to CWS LoS

Outdoor Wi-Fi for Mining Area

- Provide outdoor coverage for gathering data from devices on-board movingvehicles.
- Connectivity on Wi-Fi / unlicensed bands preferred.
- At each mine, we propose 2 Wi-Fi zones for data collection
- One covering the vehicles inside the mine
    - Backhaul to be planned on P2P radio links
- One covering the vehicles near the crusher plant
    - Backhaul is on optical Fiber
- The idea of providing the 2nd Wi-Fi zone at Crusher plant is to make sure datais collected from each vehicle at least once during a trip

Bacheli: Has 2 mines – Mine D5, Mine 10/11A

Bacheli D5 – Coverage Area

Fig 29 Bacheli D5 Coverage Area

Bacheli D5 – Locations for Wi-Fi Zones

Fig 30 Bacheli D5 Wi-Fi Zone Locations

Bacheli D5 – Wireless Link for Root AP # 1 & # 2

Fig 31 Bacheli D5 Wi-Fi Links

Bacheli D5 – Summary

- Total Wi-Fi Zones: 2
- Number of PTP links: 2
- Location 1 & 2 to be connected on Wireless Backhaul link
    - Link 1 distance 650 M
    - Link 2 distance 590 M

Bacheli 10/11A Coverage Area

Fig 32 Bacheli 10/11A Coverage Area

Bacheli 10/11A – Locations for Wi-Fi Zones

Fig 33 Bacheli 10/11A Wi-Fi Zones

Bacheli 10/11A – Fiber Optic backhaul Link Available at Root AP # 1

Fig 34 Bacheli 10/11A Fiber Optic Backhaul

Bacheli 10/11A – Wireless Link for Root AP # 2 from Root AP # 1

Fig 35 Bacheli 10/11A Wireless Link for AP#2

Bacheli 10/11A – Wireless Link for Root AP # 3 from Root AP # 1

Fig 36 Bacheli 10/11A Wireless Link for AP#3

Bacheli 10/11A – Wireless backhaul Link for Root AP # 4 from Root AP # 1

Fig 37 Bacheli 10/11A Wireless Link for AP#4

Bacheli 10/11A –

Summary

- Total Wi-Fi Zones: 4
- Number of PTP links: 3
- Root AP # 2, # 3 & # 4 to be connected on Wireless Backhaul link
  - Link 2 distance 420 M
  - Link 3 distance 890 M
  - Link 4 distance 520 M
- Root AP # 1 is having OFC backhaul connectivity

Donimalai Iron Ore Mine

Network Design Single Line Diagram

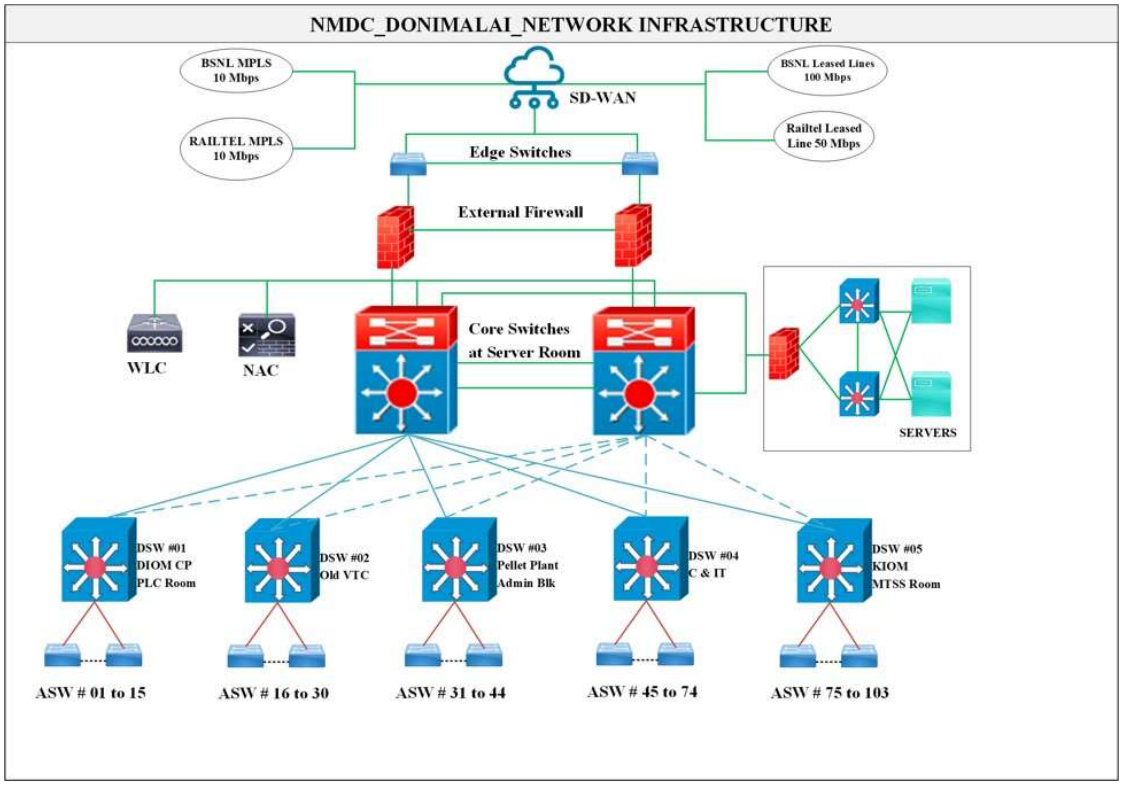


Fig 38 Donimalai Single Line Diagram

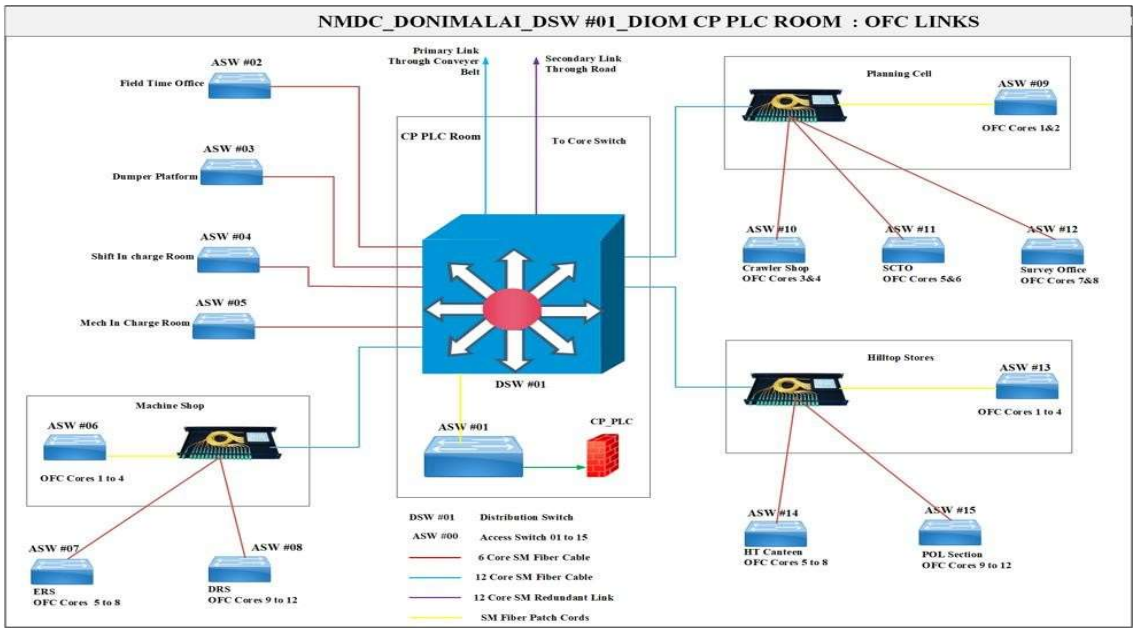


Fig 39 Donimalai Distribution Switch#1 Network Diagram

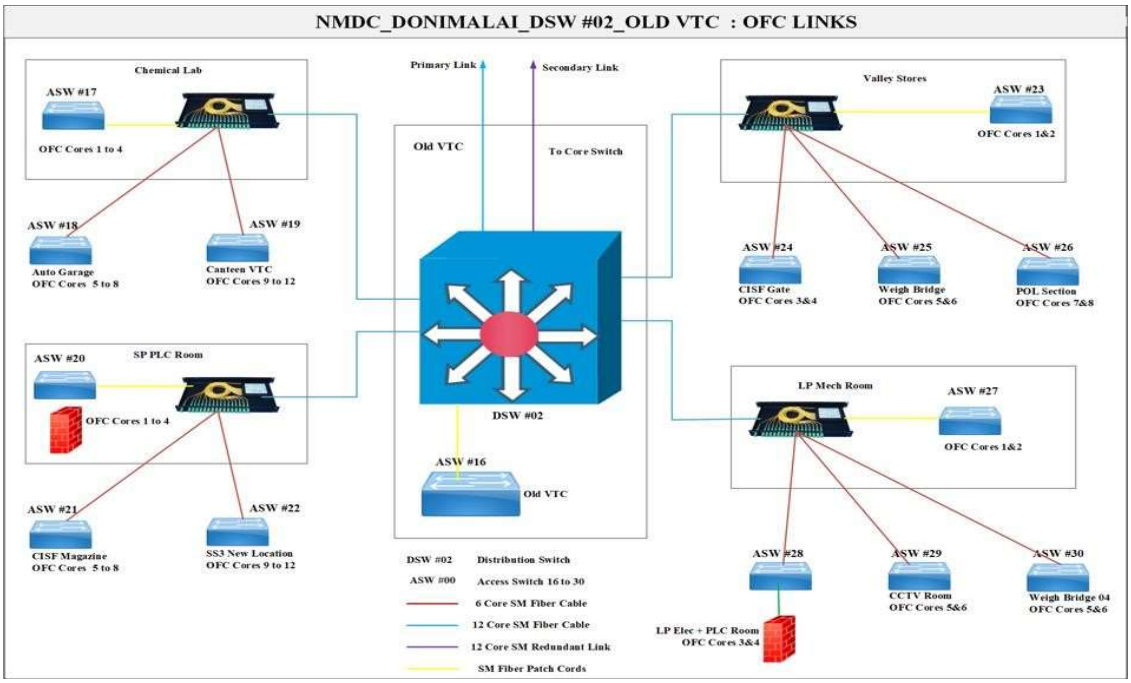


Fig 40 Donimalai Distribution Switch#2 Network Diagram

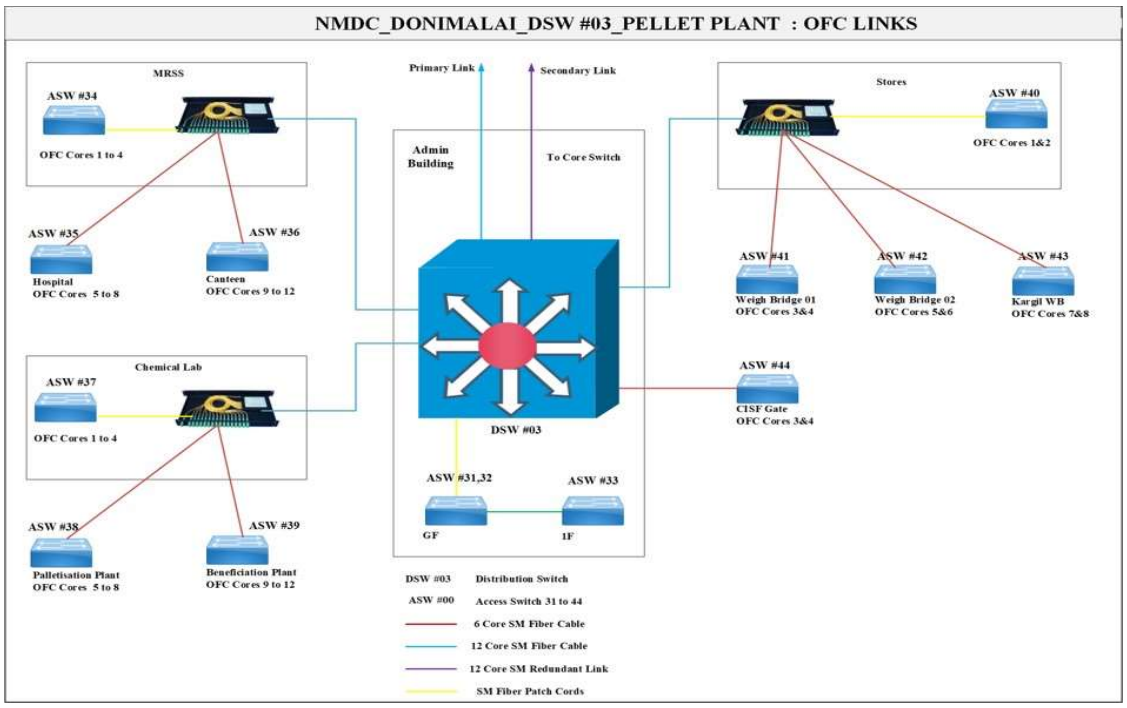


Fig 41 Donimalai Distribution Switch#3 Network Diagram

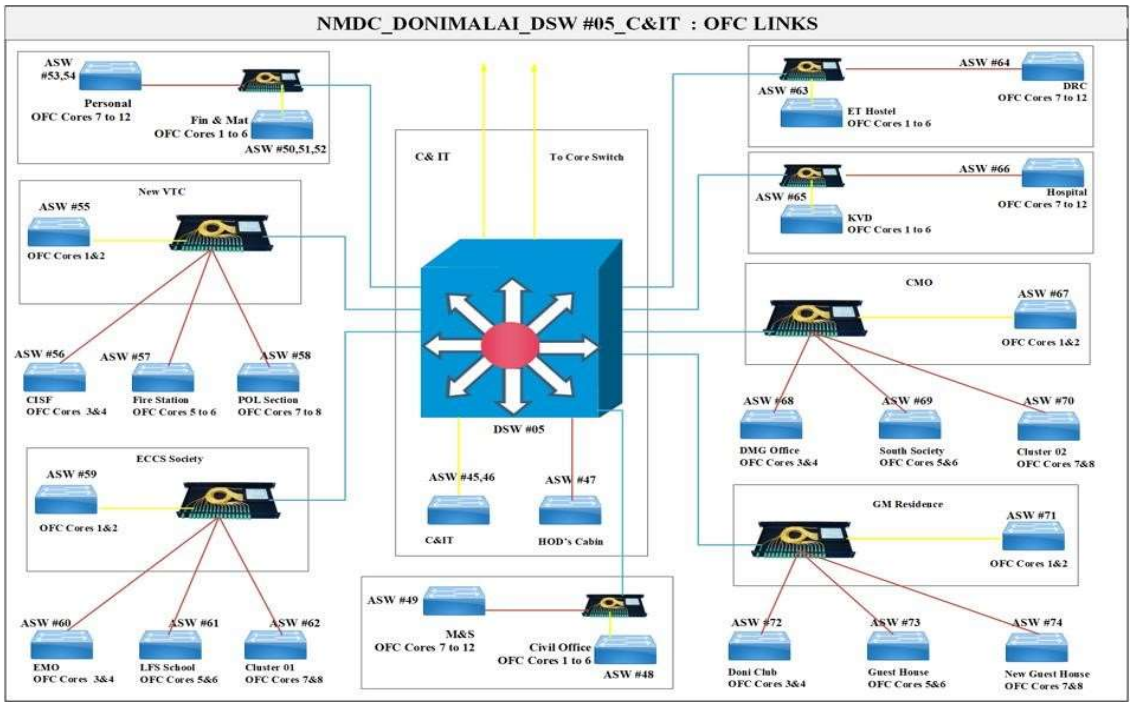


Fig 42 Donimalai Distribution Switch#5 Network Diagram

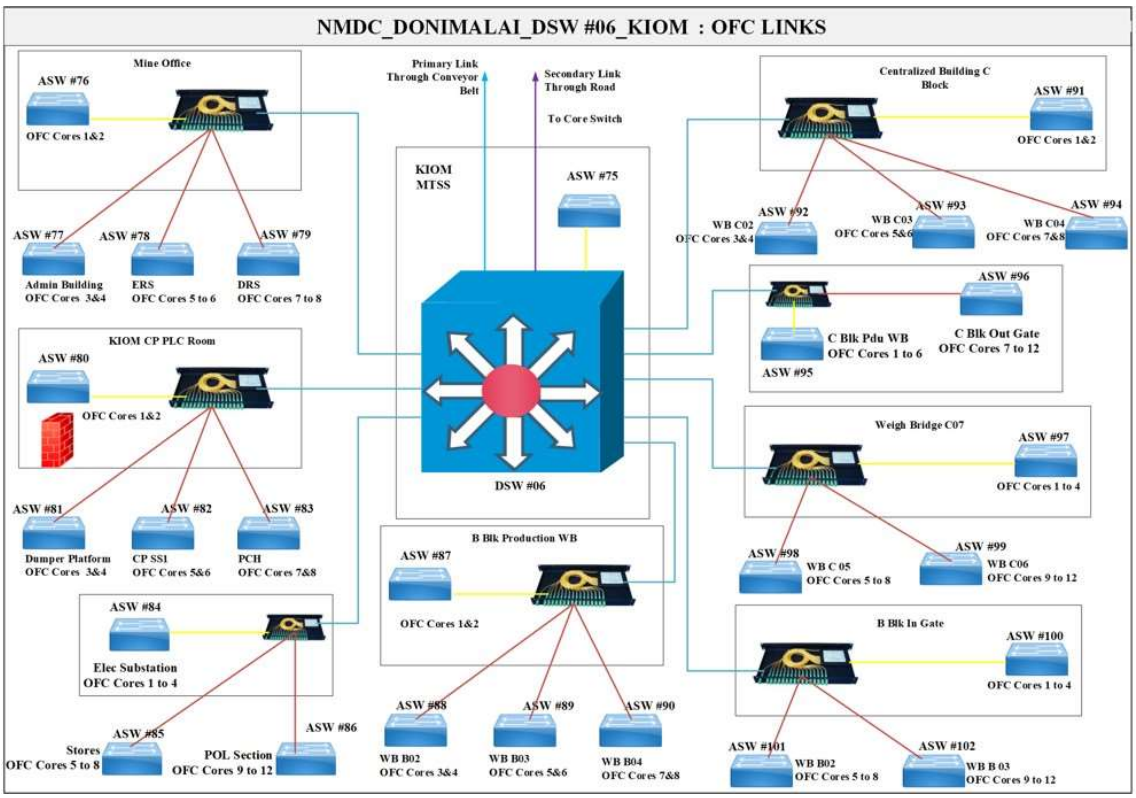


Fig 43 Donimalai Distribution Switch#6 Network Diagram

Line of Sight Details
DIOM CP PLC Room to Planning Cell Server Room to SP PLC Room (SCADA) KIOM MTSS Room to KIOM PLC Room
Pellet Plant Admin Building to LP Mech Room

Outdoor Wi-Fi for Mining Area

- Provide outdoor coverage for gathering data from devices on-board movingvehicles.
- Connectivity on Wi-Fi / unlicensed bands preferred.
- At each mine, we propose 2 Wi-Fi zones for data collection
- One covering the vehicles inside the mine
  - Backhaul to be planned on P2P radio links
- One covering the vehicles near the crusher plant
  - Backhaul is on optical Fiber
- The idea of providing the 2nd Wi-Fi zone at Crusher plant is to make sure datais collected from each vehicle at least once during a trip

Donimalai: Has 1 mine Kumaraswamy: Has 2 mines Kumaraswamy_1, Kumaraswamy_2
Donimalai Coverage Area

Fig 44 Donimalai Coverage Area

Donimalai – Proposed Locations for Wi-Fi Zones

Fig 45 Donimalai Wi-Fi Zones

Donimalai – Fiber Optic backhaul Link Available at Root AP # 1

Fig 46 Donimalai Fiber Optic Backhaul

Donimalai – Proposed Wireless backhaul Link for Root AP # 2 from Root AP # 1

Fig 47 Donimalai Wireless Link for AP#2

Donimalai – Proposed Wireless backhaul Link for Root AP # 3 from Root AP # 2

Fig 48 Donimalai Wireless Link for AP#3

Donimalai – Proposed Wireless backhaul Link for Root AP # 4 from Root AP #3

Fig 49 Donimalai Wireless Link for AP#4

Donimalai – Proposed Wireless backhaul Link for Root AP #5 from Root AP#4

Fig 50 Donimalai Wireless Link for AP#5

Donimalai Summary

- Total Wi-Fi zones: 5
- Number of PTP links: 4
- Root AP #2, #3, #4 & #5 to be connected on Wireless Backhaul link on daisychain
  - Link 2 distance 1110 M
  - Link 3 distance 940 M (To be connected from Location 2)
  - Link 4 distance 840 M (To be connected from Location 3)
  - Link 5 distance 750 M (To be connected from Location 4)
- Root AP # 1 is having OFC backhaul connectivity

Kumarswamy_1 – Coverage Area

Fig 51 Kumarswamy_1 Coverage Area

Kumarswamy_1 – Proposed Locations for Wi-Fi zones

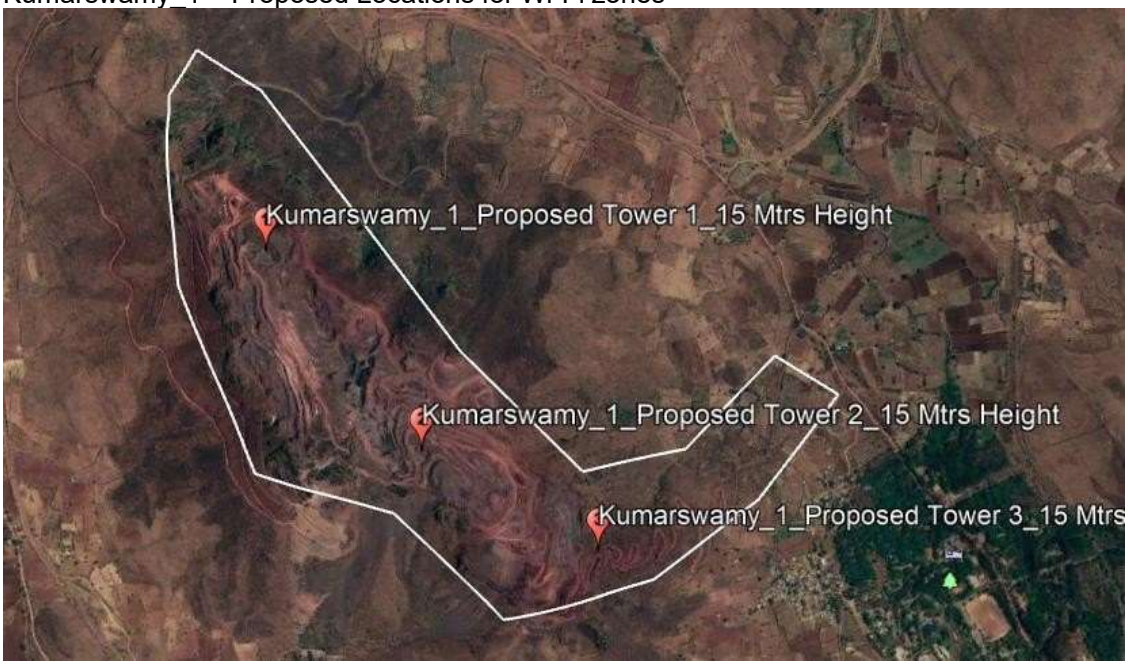


Fig 52 Kumarswamy_1 Wi-Fi Zones

Kumaraswamy_1 – Proposed Wireless backhaul Link for Root AP # 1

Fig 53 Kumarswamy_1 Wireless Link for AP#1

Kumaraswamy_1 – Proposed Wireless Link for Root AP # 2 from Root AP Location 1

Fig 54 Kumarswamy_1 Wireless Link for AP#2

Kumaraswamy_1 – Proposed Wireless backhaul Link for Root AP # 3 from Root AP #2

Fig 55 Kumarswamy_1 Wireless Link for AP#3

Kumaraswamy_1 Summary

- Total Wi-Fi zones: 3
- Number of PTP links: 3
- Root AP # 1, # 2 & # 3 to be connected on Wireless Backhaul link on daisychain
    - Link 1 distance 200 M
    - Link 2 distance 870 M (To be connected from Root AP # 1)
    - Link 3 distance 690 M (To be connected from Root AP # 2)Kumarswamy_2 –

Coverage Area

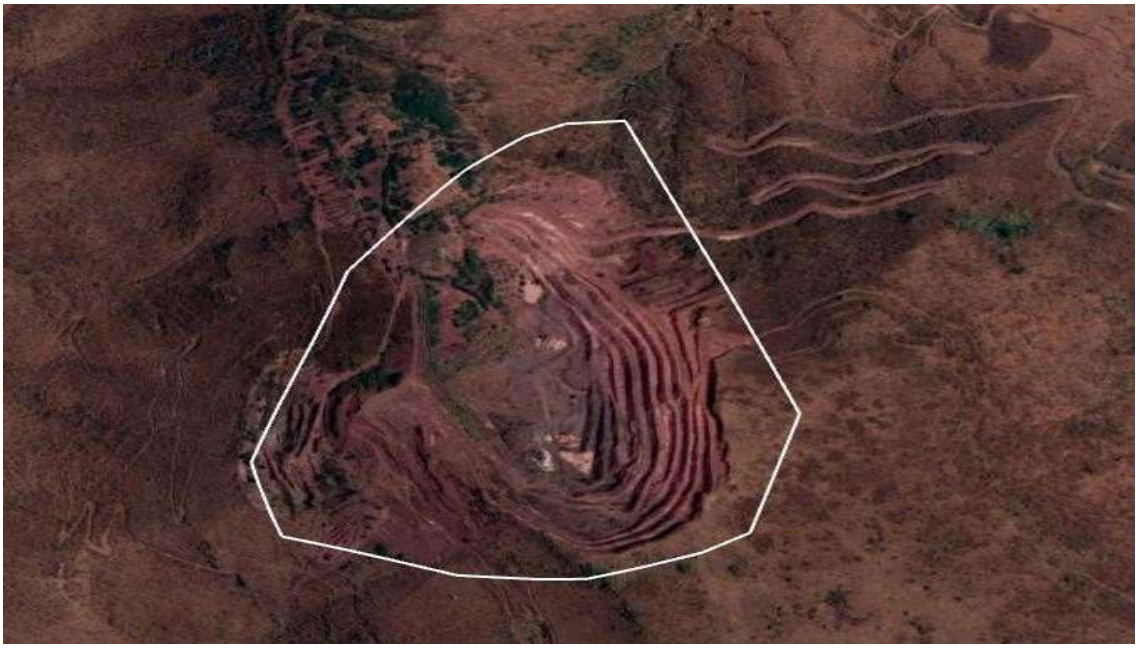


Fig 56 Kumarswamy_2 Coverage Area

Kumarswamy_2 – Locations for Wi-Fi zones

Fig 57 Kumarswamy_2 Wi-Fi Zones

Kumaraswamy_2 – Wireless Link for Root AP # 1 from Kumaraswamy_1 Root AP # 1

Fig 58 Kumarswamy_2 Wireless Link for AP#1

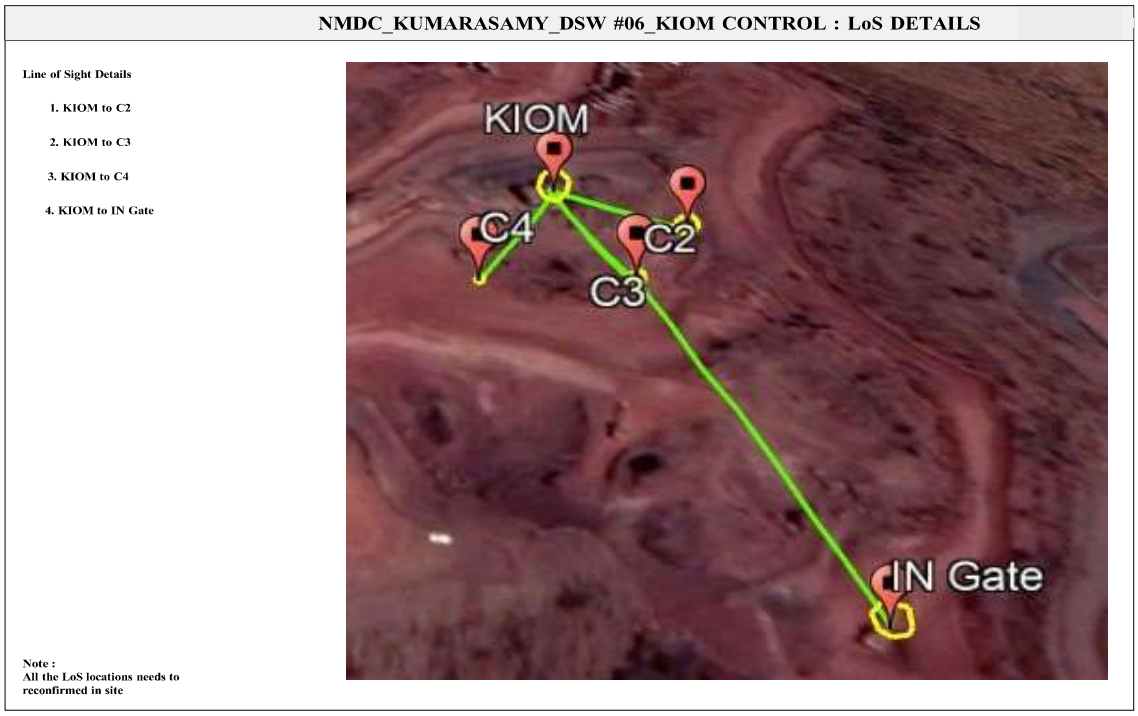


Fig 59 Kumarswamy_2 LoS Details for C Gates

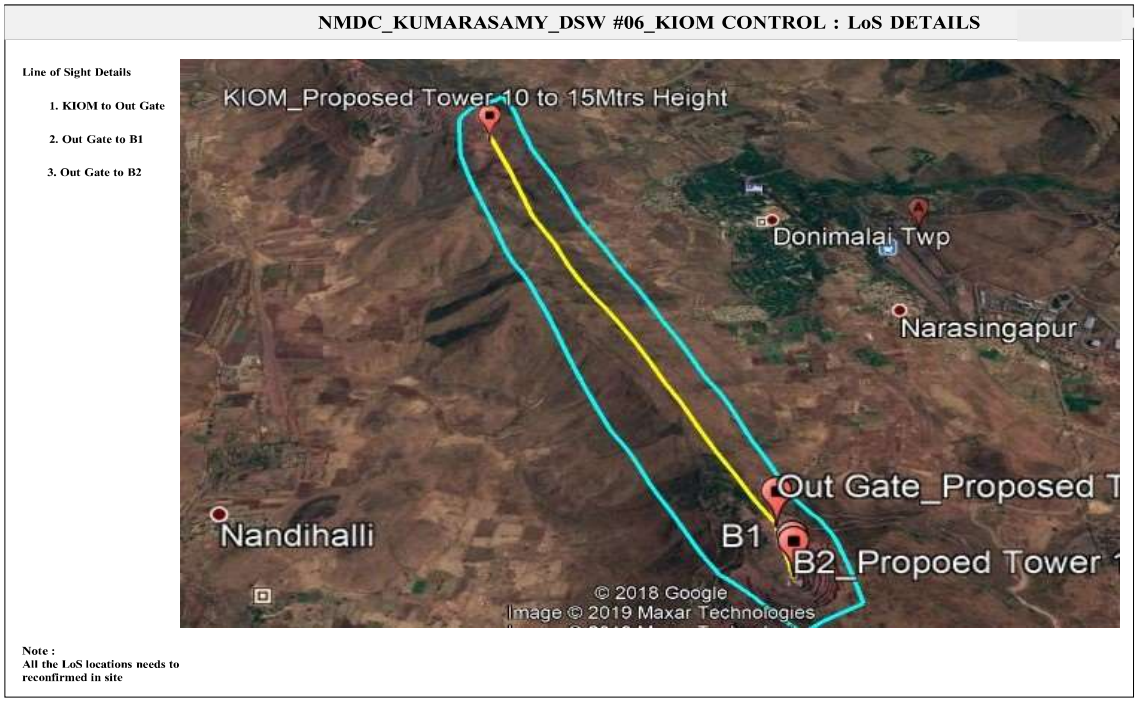


Fig 60 Kumarswamy_2 LoS Details for B Gates

Kumaraswamy_2 Summary

- Total Wi-Fi zones: 1

- Number of PTP links: 1
- To be connected from Kumarswamy_1 Location 1 to Kumarswamy_2 Location1 on Wireless backhaul link
  - Link 1 distance 5000 M

Wi-Fi access for End-Points at Weighbridges

- 4 weighbridge zones
- P2P links – 4
  - Max distance: 400m
  - Fiber backhaul available
- Wi-Fi zones – 4

Diamond Mine Panna

Network Design Single Line Diagram

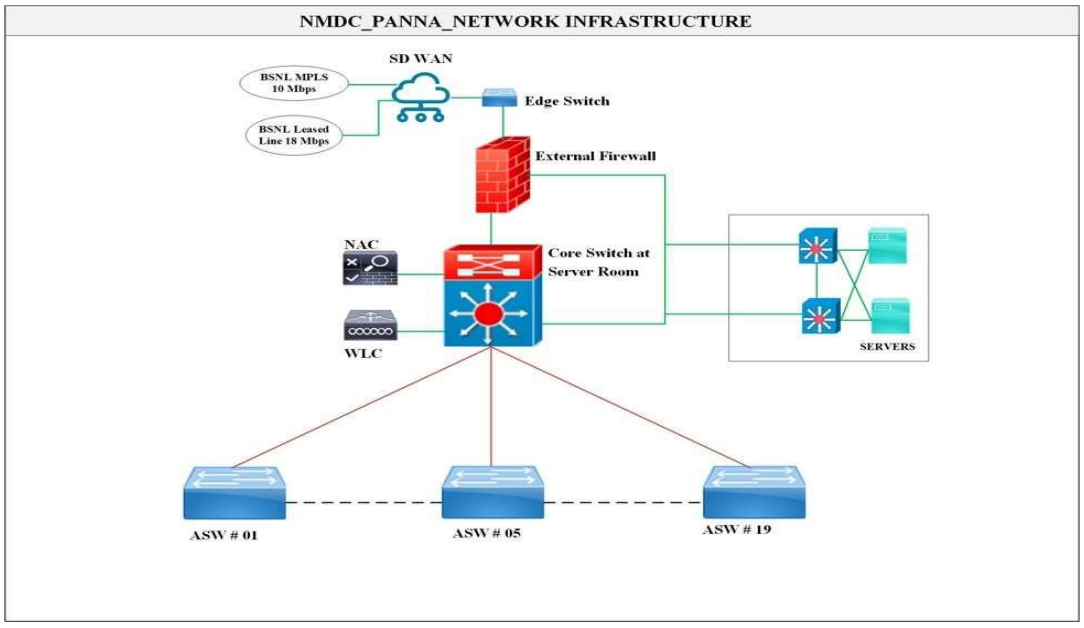


Fig 61 Panna Single Line Diagram

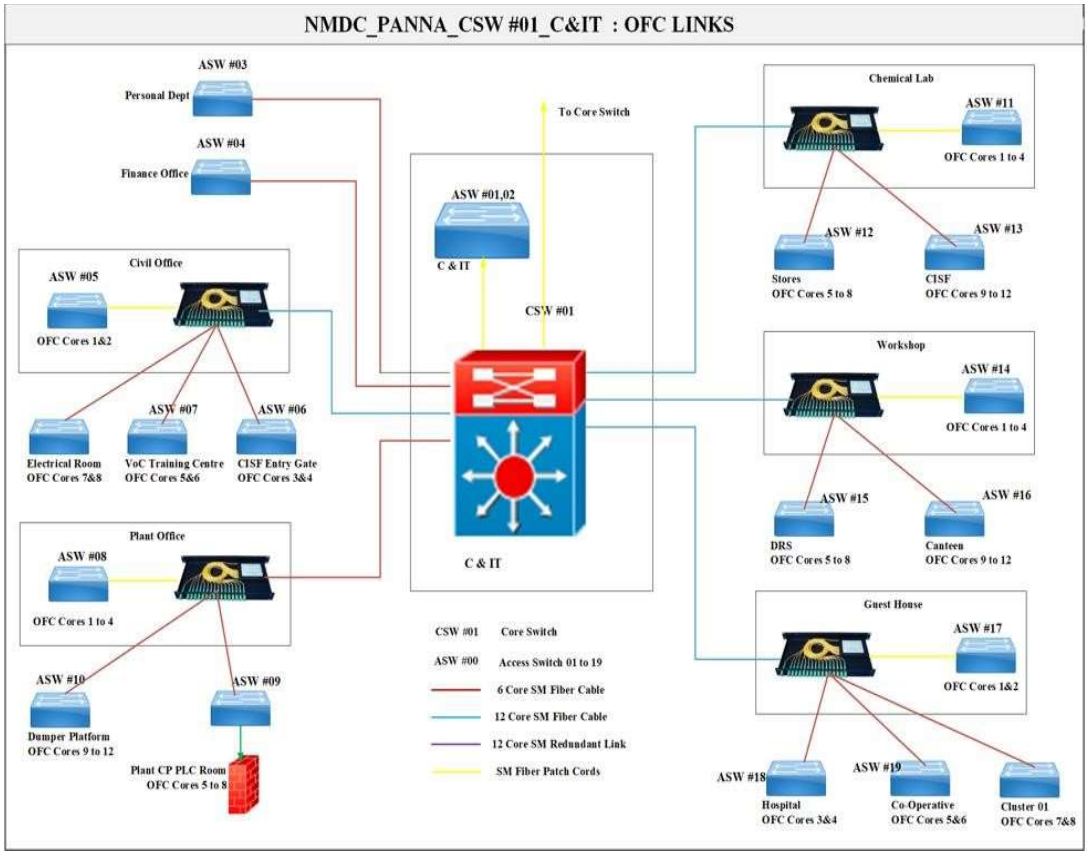


Fig 62 Panna Distribution Switch#1 Network Diagram

Sponge Iron Unit Paloncha

Network Design Single Line Diagram

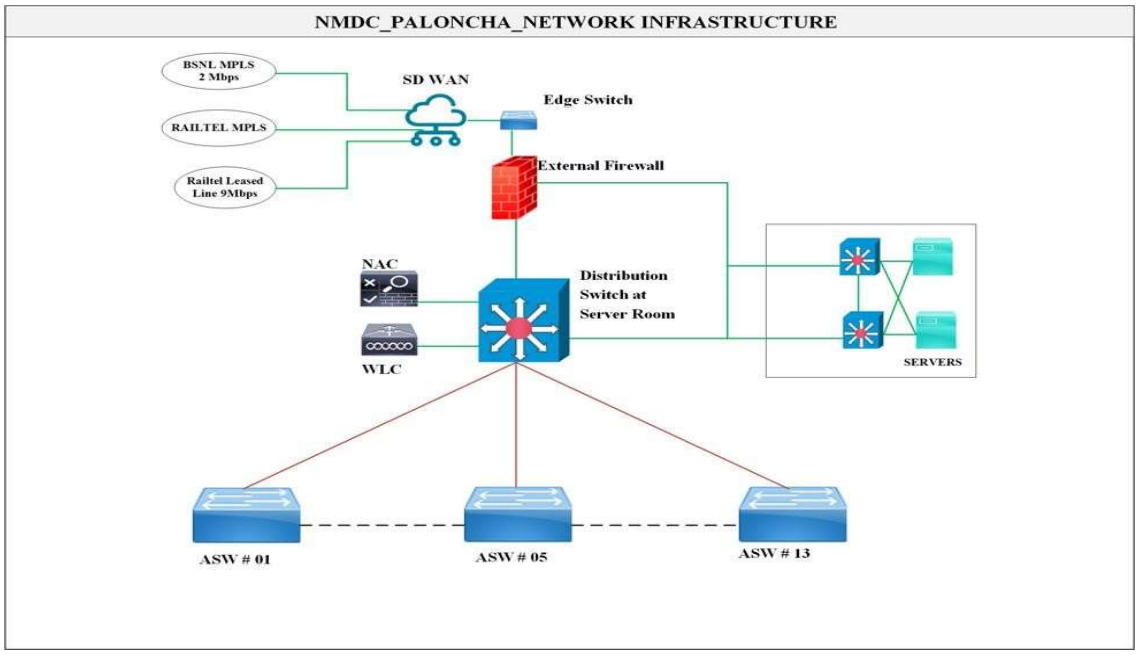


Fig 63 Paloncha Single Line Diagram

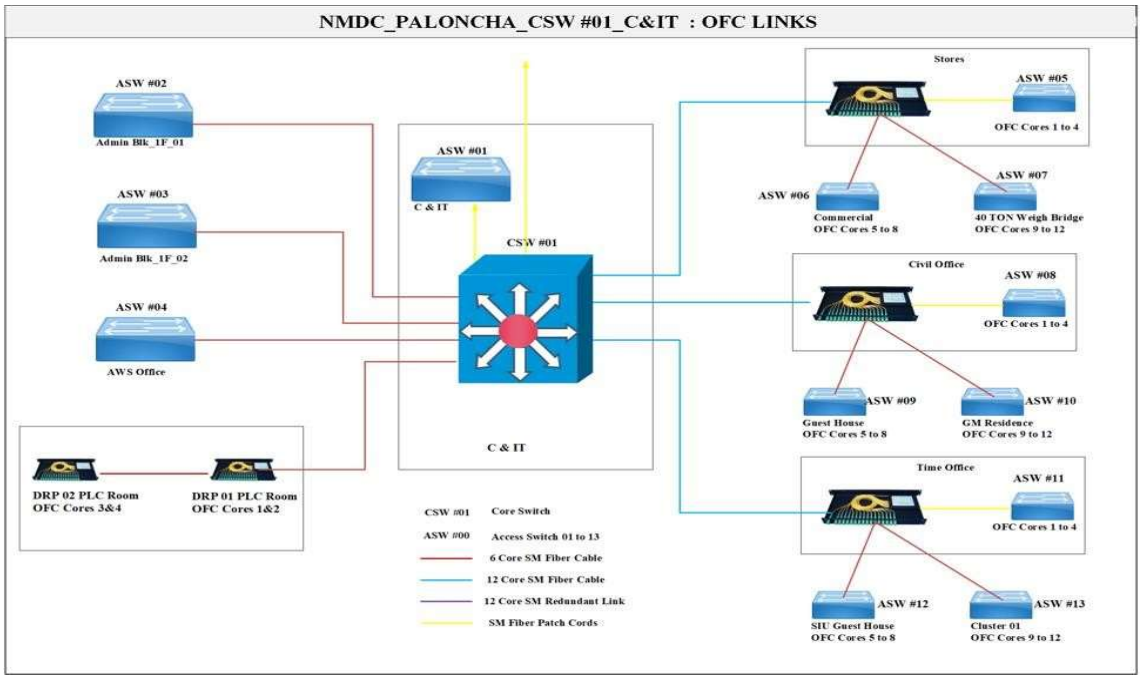


Fig 64 Paloncha Switch#1 Network Diagram

3.C. INSPECTION AND SUPERVISION OF INSTALLATION, TESTING & COMMISSIONING

3.C.1. Inspection

Inspection will be carried by RailTel/customer appointed agency. Any additional Scope of the Inspection would be as per the requirement of the Customer.

3.C.2. Installation

After successful completion of inspection, equipment shall be sent to site for installation. Equipment without consignee acceptance/inspection certificates shall not be acceptable at site.

Prior to installation, all equipment shall be checked for completeness as per the specifications of equipment required for a particular station. Installation shall be carried out in accordance with the installation manuals and approved installation drawings & site plan in the best workmanship.

Bidder shall indicate the number of teams and the list of equipment for each team to be required for installation in order to complete the work within the stipulated time frame.

Bidder shall bring all installation tools, accessories, special tools, test gears, spare parts etc. at his own cost as required for the successful completion of the job.

A detailed time schedule for these activities shall be submitted by bidder to Purchaser/Engineer to enable their representatives to be associated with the job.

Bidder shall supply all installation materials required for proper installation of the equipment. These shall include but not be limited to, all connectors, inter bay and inter equipment cables, power supply cables and connectors, power distribution boxes, anchoring bolts, nuts, screws, washers, main distribution frames, audio distribution frames, voice frequency cables, junction boxes etc.

The installation of equipment shall be supervised by the bidder in such a manner so as to ensure neat and clean appearance in accordance with approved installation document drawings. All inter bay, power supply and other cables shall be routed through wall mounted cable trays/conduit pipes. No cable shall be visible. All through wall openings, trenches etc. shall be properly sealed to prevent the entry of rodents, insects and foreign materials.

3.C.3.Pre-Commissioning

On completion of installation of Network Infrastructure, the correctness and completeness of the installation as per Manufacturer’s manual and approved installation documents shall be checked by the bidder on his own.

A list of Pre-Commissioning tests (same as approved by the Purchaser/Engineer for site acceptance testing) and activities shall be prepared by bidder and the test shall be carried out by the bidder on his own. After the tests have been conducted to the bidder’s own satisfaction, the bidder shall provide the test results for review by Purchaser/Engineer and then offer the system for Site Acceptance Testing.

During pre-commissioning, if any fault occurs to any equipment or system, bidder shall identify the same and provide report/history of all faults to the Purchaser.

During installation and pre-commissioning of the infrastructure, bidder shall have enough number of commissioning spares so that the installation is not held up because of non-availability of commissioning spares.

3.C.4.Site Acceptance Testing (SAT)

On completion of Pre-commissioning, Site acceptance testing shall be conducted on the system as per approved SAT procedures and its constituents by the bidder under the presence of Purchaser/Engineer.

The tests shall include, but not be limited the following:

a) Checks for proper installation as per the approved installation drawings for each equipment / item and system as a whole.
b) Guaranteed performance specifications of individual equipment/item.
c) Self diagnostics test on individual equipment.
d) Tests on remote alarm transmission and reception.
e) System tests on END TO END for the system, all complete.

3.C.5 Final Acceptance

(i) After SAT, Site wise physical installation and commissioning report shall be jointly signed by representatives of RailTel, NMDC and contractor for successful commissioning and testing. In case of any deficiency affecting the overall working of the system, the contractor shall rectify the deficiencies within one month and verify them from RailTel/Customer. On the basis of physical Installation & commissioning report by Bidder, RailTel will issue work completion report.

(ii) All completion drawings/plans and joint report duly signed by RailTel representative shall be handed over to the respective site In-charge of NMDC at the time of signing of completion certificate in soft copies and hard copies of which prints in the required numbers shall be supplied by the bidder.

Before issue of FAC, the bidder will offer its complete work for testing by Third Party/RailTel for auditing the Work completed and full functionality of the Network. FAC shall be issued only after submission of Work Completion certificate by the bidder and closure of all points raised by the Auditing Organization.

The final acceptance of the complete work shall take effect from the date of successful completion of one month of Maintenance Supervision after SAT. The Final Acceptance Certificate shall be signed by authorized representative of RailTel nominated by the Executive Director of the Region. Notwithstanding the issue of Final Acceptance Certificate, the contractor and the purchaser shall remain liable for fulfillment of any obligation incurred under the provision of the contract prior to the issue of Final Acceptance Certificate which remains unperformed at the time such certificate is issued and for determining the nature and extent of such obligation the contract shall be deemed to remain in force between the parties hereto.

****

3.D. TRAINING, VENDOR DATA REQUIREMENT, DOCUMENTATION, AND DESIGN GUIDELINES

3.D.1 Training of NMDC Personnel

Scope of Training:

The successful bidder shall provide hands on training with course material on the installed equipment, maintenance and software in following areas-

1) Training to 20-people team of Network Engineers from NMDC to be provided by OEM at a centralized place covering all aspects of operations and maintenance of the Firewalls for a minimum of five(5) of days

2) Training to 20-people team of Network Engineers from NMDC to be provided atcentralized place covering all aspects of operations and maintenance of the Switches, Aps, NAC, WLC, EMS for a minimum of Five(5) days

3) Training to 20-people team of Network Engineers from NMDC to be provided byOEM at a centralized place covering all aspects of operations and maintenance of the Outdoor WAPs for a minimum of Five(5) days

3.D.2 Vendor Data Requirement and Documentation

A) One set of Documentation with hard and soft copy shall be supplied for each site.

The following documents for the complete system shall be supplied and approved by Purchaser/ Engineer in order to site Acceptance Testing:

i) System description, System configuration diagram & Connectivity diagram

B) Detail technical manual of each type of equipment

Equipment interconnection diagram including details of various interfaces, signaling protocols used at each stage.

Layout of equipment and space requirements for each station.

Installation manual including installation procedure and commissioning.

Supervisory configuration, alarm list, operator interface etc.

C) Maintenance manual of each type of equipment containing:

i) Preventive maintenance procedures.
ii) Trouble shooting/repairs procedures including failure analysis and the details of the maintenance support service centre with contact details.
iii) Expansion possibilities of the system without causing deterioration in the system performance.
iv) Any other data, document not specifically mentioned, but required for the satisfactory testing, installation and commissioning, operation and maintenance of the system shall be provided.

****

CHAPTER- 4 A

4.A. COMMERCIAL TERMS & CONDITIONS

4.A.1 Offer letter and Validity of offer

The bidder shall complete the offer letter (Chapter-1) and the Price Schedule (Chapter-2) furnished in the Tender documents, indicating the goods to be supplied, description of the goods, associated technical literature, quantity and prices etc.

The offer should remain valid for a minimum period of 60 days from the date of opening of Tender including the date of opening as indicated in Bid Data Sheet (BDS) Chapter-5.

4.A.2 Warranty

The warranty would be valid for a period as indicated in Bid Data Sheet (BDS) Chapter-5. The supplier shall warrant that store to be supplied shall be new and free from all defects and faults in material, workmanship and manufacture and shall be of the highest grade and consistent with the established and generally accepted standards of materials of the type ordered and shall perform in full conformity with the specifications and drawings. The supplier shall be responsible for any defects that may develop under the conditions provided by the contract and under proper use, arising from faulty materials, design or workmanship such as corrosion, inadequate quantity of material to meet equipment requirements, inadequate contact protection, deficiencies in design and/or otherwise and shall remedy such defects at his own cost when called upon to do so by the Purchaser who shall state in writing in what respect the stores are faulty.

If it becomes necessary for the contractor to replace or renew any defective portion/portions of the supplies under this clause, the provisions of the clause shall apply to the portion/portions of the equipment so replaced or renewed or until the end of the above-mentioned period or sixty months, whichever may be later. If any defect is not remedied within defined SLA clause 4.A.2.2, the Purchaser may proceed to do the work at the contractor's cost, but without prejudice to any other rights which the Purchaser may have against the contractor in respect of such defects.

Replacement under warranty clause shall be made by the contractor free of all charges at site including freight, insurance and other incidental charges.

4.A.2.1 Warranty Support

Material for repair during Warranty Period shall be handed over /taken over by contractors engineer at respective NMDC site.

During the warranty period, the contractor shall be responsible to the extent expressed in this clause for any defects that may develop under the conditions provided for by the contract and under proper use, arising from faulty materials, design or workmanship in the plant, or from faulty execution of the work by the contractor but not otherwise and shall remedy such defects at his own cost when called upon to do so by the Purchaser Engineer who shall state in writing in what respect the portion is faulty.

During the warranty maintenance period, contractor should stabilize the working of the system. Purchaser has the right to extend the period of supervision of the maintenance free of cost till the system stabilizes and works satisfactorily for a reasonable period of time. If during the time any equipment etc. is to be added or deficiencies are to be rectified to make the system work trouble free, the same also will have to be done by the contractor at no cost to RailTel as to make good all the deficiencies. Additional Manpower, if considered necessary, shall be provided by the bidder to stabilize the network at no additional cost to RailTel. Penalty as per SLA shall be imposed on the contractor for not meeting the down time prescribed. The Contractor's Engineer shall be responsible to identify the fault and advise corrective measures and ensure that defective cards are replenished.

4.A.2.2 Replacement Services

In case of hardware failure, the replacement must be given in next business day. If the bidder fails to replace as per below mentioned duration, the following penalties will be imposed:

If the Bidder fails to replace Equipment card/Part in next business day, the following penalties will be imposed.

Equipment	Duration of repair	Deduction/Penalties
All Modules and accessories	More than 1 days and up to 7 days	2% of the cost of affected Equipment.
All Modules and accessories	More than 7 days and up to 15 days	10% of the cost of affected Equipment.
All Modules and accessories	More than 16 days and up to 30 days	25% of the cost of affected Equipment.
All Modules and accessories	More than 30 days	100% of the cost of affected Equipment.

Note:

a. OEM should provide facility to RailTel for direct fault case open on TAC Support in case of emergency.

b. The above replacement services will be applicable during maintenance supervision and warranty period.

4.A.2.3 Maintenance Supervision

After issue of last Work Completion certificate {as mentioned in Clause 3.C.5} is issued (including trial run period if any), the contractor shall be responsible for proper maintenance supervision of the complete system by deploying manpower as per the SoR for 60 months. For this purpose he shall prepare a maintenance plan and make available the services of qualified maintenance engineer stationed at the location approved by RailTel/Customer authorized representative who will supervise and maintain the NMDC infra as per scope of work as per manpower requirement specified in SOR.

During this period of maintenance supervision if any shortfall is noticed in the functioning, as a result of any deficiency in work, the contractor will rectify the same at no cost to RailTel. During such rectification if any faulty equipment/modules need replacement or repair, they shall be provided by the contractor from the set of equipment or modules that the contractor should bring to the site of installation in addition to all the materials to be supplied against this contract.

To summarize, the total period of warranty as per BDS in Chapter-5,is Five (5) years from the date of issue of Go-Live/FAC certificate

4.A.4 Long Term Maintenance Support

Bidder shall provide maintenance support by deploying Manpower as per the SoR at each site for a period of sixty (60) months from the date of issue of Go-Live/FAC certificate. The long-term maintenance support shall be comprehensive and include all hardware and software of equipment supplied against this contract. RailTel/Customer should be extended the benefits of software update/up-grades made by Bidder on the system from time to time to improve performance. During this period the scope of work as mentioned in Clause 3.A.1.3 (Chapter-3) its sub clauses will be applicable.

Quarterly payment for Manpower deployment for O&M activity as per the Service Level Agreement (SLA) at the end of every quarter would be made by RailTel after successful completion of O&M Services for that quarter and on the certificate furnished by concerned RailTel/Customer representative.

Note: The acceptance of the above clause is mandatory and specific acceptance from OEM is required to be enclosed as per Form no.3 (Chapter-6). Any deviation /non acceptance will lead to **REJECTION** of the bid summarily.

4.A.5 Implementation timelines

For the successful outcome of the envisaged benefits, the project needs to be executed within a fixed timeline.

i. For supply, Installation and Commissioning – Within 22 weeks (154 days) from effective date of LOA /contract.
ii. O&M Support - 60 months (5 years) from the date of issue of the Go-Live/ FAC certificate .

Proposed Project Plan:

Tentative Project Plan is mentioned hereunder. The bidder should specify the Project Plan in his bid. The bidders proposed Project Plan should adhered to the overall project delivery time lines & SLA as specified in the Tender.

SN	Activity	Schedule
1.	Release of Work Order/ PO by RailTel to Successful BA	T0
2.	Supply of all hardware and Software.	T0 + 14 Weeks
3.	Installation and Commissioning of entire IT Infrastructure	T0 + 22 Weeks

All timeline calculations are from the date of issue of LOA. Bidders need to share their detailed project plan as per the schedule mentioned above. Time is essence of the contract.

Bidder in all cases is required to adhere to the project timelines and the project plan shared. In case of delay in implementation and/or on the basis on inability to adhere to the functional and operational

requirements of the System as stated in this Tender, RailTel will be within its right to take measures as detailed in Terms and Conditions of the Contract.

RailTel Southern Region Details:

SN	Region/Head Office	Address
1	Southern Region/ Secunderabad	Executive Director RailTel Corporation of India Limited, Southern Region, Hyderabad. Fax: +91-40-27820682, Tel: +91-40-27788000 Email: : kmr@railtelindia.com

4.A.6 Project Deployment

The successful bidder shall submit a detailed implementation plan as per the project deliverables time-lines before the commencement of the project.

The successful bidder shall conduct a detailed study of functional and technical requirements of the work to make the required system configuration and design modifications to its solution if required in order to achieve the desired functionality. However, the same must be accepted and approved by Rail-Tel/Customer.

Submission of Design Document for proposed Solution indicating all the components of the infrastructure of system for RailTel/Customer approval.

Installation, Configuration and Customization

Installation and commissioning of software, hardware and equipment as per terms and condition of the Tender.

Carry out all the customization/configuration activities as identified during Design phase by RailTel/ Customer

RailTel reserves the right to seek customization to meet its requirements.

4.A.7 Payment Terms

4.A.7.1 Payment Terms for Capex Items:

For supply items, payments will be made on Back-to-back basis on receipt of payment from NMDC for material supplied at each site in stages for various items supplied

a) 80% payment of the items would be made on receipt and acceptance of material by the consignee duly inspected and on submission of the following documents subject to any deductions or recovery which RailTel may be entitled to make under the contract on pro-rata basis.
   i) Tax Invoice
   ii) Delivery Challan
   iii) Packing list.
   iv) Consignee receipt

v) Warranty certificate of OEM
vi) Inspection certificate
vii) A certificate duly signed by the firm certifying that equipment/ materials being delivered are new and conform to technical specification.

b) 10% payment of the value of items of Schedule shall be made by RailTel after I&C and on issue of Site acceptance Test certificate for concerned site/location on pro-rata basis.

c) 10% payment on issue of Final Acceptance certificate (FAC). FAC will be issue after one (1) month of trial period after issue of SAT.

4.A.7.2 Payment of Service Items:

90% payment of items shall be made on successful Installation, Testing, Commissioning and issue of SAT at sites, final 10% on issue of Final Acceptance Certificate.

100% Payment towards "Training of personnel over and above the on-site training during the installation, maintenance and supervision period as detailed in the Tender document" shall be on successful completion of specified trainings.

4.A.7.3 Payment of O&M/Manpower Services

Payment of due amount for SOR item towards " O&M Support by deploying manpower as per SoR " would be paid Quarterly after completion of O&M services, certificate furnished by concerned and after deduction of SLA penalties.

All the invoices raised by the bidder will be raised in the name of M/s RailTel Corporation of India Limited and corresponding payments will be made by RailTel.

The consideration will be paid by RailTel to the contractor against quarterly invoices raised after end of each quarter after paying the monthly emoluments to manpower duly complying the applicable Labour laws i.e., Minimum Wages Act, Payment of Wages Act, Workmen Compensation Act etc. by the service provider in duplicate. Such payments shall be made within fifteen working days of the receipt of the said invoices. TDS and other statutory deductions as applicable will be deducted as per statutory provisions on the entire Bill value (including Tax, GST etc). The consideration aforementioned is all inclusive and no other amounts will be payable to the service provider by RailTel on any account whatsoever, unless otherwise specifically agreed to in writing.

The agency should submit the bill with details of GST Regd. No, PAN No, PF & ESI Regd. No, Professional Tax if applicable and Bank account details in which payment will be made by RailTel through RTGS method. The following documents should be enclosed along with the bill

i. Bank Transfer challan showing payment of salaries to each resources engaged along with Actual Attendance
ii. Monthly PF & ESI payment challan of all resources duly mentioning UAN number
iii. Monthly GST & Professional Tax challan payment along with copy of Pay slip.
iv. Details regarding uploading the data in ‘Shramikkalyan’ portal

Accounting unit/bill passing unit for the supplies and services under SOR is Executive Director/SR. Bills to be submitted to the authorized representative of Executive Director/SR for certifying receipt of material & services, for passing for payment.

The breakup of taxes has to be furnished and same should be reflected in the bills, Invoice should be visible in GSTR 2B or in relevant Reports of GST Portal as per GST Act so that input GST credit can be availed by RailTel (RCIL).

All invoices will be raised by the contractor state-wise.

4.A.8 Performance Bank Guarantee (PBG)

To ensure due performance of the contract, Performance Bank Guarantee (PBG) is to be obtained from the successful bidder after issue of LOA. PBG should be 3% of the LOA value (rounded off to the nearest higher Rs. 10) as specified in the bid documents. PBG may be furnished in the form of an account payee demand draft, fixed deposit receipt from a Nationalized/Scheduled Bank, bank guarantee issued/confirmed from any of the nationalized/ Scheduled Bank in India in an acceptable form, safeguarding the purchaser's interest in all respects.

PBG shall be furnished with-in 30 (thirty) days of issue of LOA, and it should be valid for a period of Project execution phase Plus O&M phase of 60 months. PBG shall remain valid for a period of 90 (ninety) days beyond the date of completion of all contractual obligations of the Bidder including 5 years warranty and O&M support

Successful Bidder is required to furnish PBG (as per Form no. 1, Chapter-6), the same should be submitted within 30 days of issue of LOA failing which a penal interest of 15% per annum shall be charged for the delay period i.e., beyond 30 (thirty) days from the date of issue of LOA. This PBG should be from a Nationalized/ Scheduled Bank and should cover Warranty and AMC period as per Tender conditions.

The PBG will be forfeited and credited to the RailTel's Account in the event of a breach of contract by the contractor. It should be refunded to the contractor without interest, after he duly performs and completes the contract in all respects but not later than 60 (sixty) days of completion of all such obligations including the warranty and AMC under the contract. Return of PBG should be monitored by the senior officers and delays should be avoided.

The PBG will bear no interest.

4.A.8.1 Verification of PBG –

A separate advice of the PBG will invariably be sent by the PBG issuing bank to the RailTel's Bank through SFMS and only after this the PBG will become acceptable to RailTel. It is therefore in own interest of bidder to obtain RailTel's bank IFSC code, its branch and address and advise these particulars to the PBG issuing bank and request them to send advice of PBG through SFMS to the RailTel's Bank.

The onus is on the successful bidder to ensure submission of PBG for complete contractual period as mentioned above.

4.A.9 Taxes & Duties

The price quoted in the offer should be firm, fixed indicating the breakup and inclusive of all taxes & duties like import, custom, antidumping, CGST, SGST, IGST, UTGST etc. The Offer should be inclusive of packing, forwarding, freight upto destination, insurance charges.

Bidder shall quote all-inclusive rates, but there shall be break up of basic price and all type of applicable taxes such as SGST/CGST/IGST/UT GST along with respective HSN/SAC Code under GST Law (Including tax under reverse charges payable by the recipient).

Bidder shall issue valid tax invoice to RailTel for availing proper credit of CGST/SGST/IGST/UT-GST in case of award of Contract. GST will not be reimbursed in the absence of valid tax invoice.

For all the taxable supplies made by the vendor, the vendor shall furnish all the details of such taxable supplies in the relevant returns to be filed under GST Act.

If the vendor fails to comply with any of the above, the vendor shall pay to purchaser any expense, interest, penalty as applicable under the GST Act.

In case of incorrect reporting of the supply made by the vendor in the relevant return, leading to disallowance of input credit to purchaser, the vendor shall be liable to pay applicable interest under the GST Act to the credit of purchaser. The same provisions shall be applicable in case of debit/credit notes.

Wherever the law makes it statutory for the Purchaser to deduct any amount towards GST at sources, the same will be deducted and remitted to the concerned authority.

In regards to works contract, the Bidder should have registration no. of GST in respective state where work is to be executed and shall furnish GST registration certificate on award of LOA.
The imposition of any new tax and/or increase/ in the aforesaid taxes, duties levies, after the last stipulated date for the receipt of Tender including extensions if any and the bidder there upon necessarily and properly pays such taxes/levies/cess, the bidder shall be reimbursed the amount so paid, provided such payments, if any, is not, in the opinion of RailTel attributable to delay in execution of work within the control of bidder. The bidder shall, within a period of 30 days of the imposition of any such tax or levy or cess, give a written notice thereof to RailTel that the same is given pursuant to this condition, together with all necessary information including details of input credit relating thereto. In the event of non-payment/default in payment of any of the above taxes, RailTel reserves the right to with-hold the dues/payments of bidder and make payment to state/Central Government authorities as may be applicable. However, if the rates are reduced after the last stipulated date for receipt of Tender, bidder has to pass on the benefits to RailTel.

In case of imported equipment

Anti-Dumping duty if applicable on the equipment proposed to be supplied by OEM/Bidder as per extant instructions of Ministry of Commerce/Finance Government of India, has to be borne by the Bidder and shall be deducted from the amount payable to the bidder at the time of making payment to the firm, if this duty amount is paid to Custom Authority by RailTel.

4.A.10 Service Level Agreement (SLA) and Penalties during O&M period

The purpose of this Service Level Agreement (SLAs) is to define the level of service to be provided by the successful bidder to RailTel for the O&M period. The successful bidder has to comply with all SLAs defined below and as back-to-back basis as defined/imposed upon by NMDC to ensure adherence to project timelines, quality and availability of Network Infrastructure. Non-compliance of SLAs will lead to penalties as defined in subsequent sections.

Penalties shall not be levied on the successful bidder in the following cases: -

a) Non-compliance of SLAs has been solely due to reasons (acceptable to RailTel) beyond the control of the successful bidder and
b) There's a Force Majeure event affecting the SLA which is beyond the control of the successful bidder.

4.A.11 Definitions

For the purposes of this SLA, the definitions and terms are specified in the contract along with the following terms shall have the meanings set forth below:

- **"Uptime"** shall mean the time period for the specified services / components with the specified technical service standards are available to the user department. Uptime, in percentage, of any component (Non-IT& IT) will be calculated as: Uptime = {1- [(Downtime) / (Total Time – Planned Downtime)]} * 100

- **"Downtime/ Non-Availability"** shall mean the time period for which the specified services / components with specified technical and service standards are not available to the user department and excludes downtime owing to Force Majeure & Reasons beyond control of the bidder. For items being monitored/reported by EMS, downtime/non-availability will be reckoned from the time failure has been reported by EMS. For other item not being monitored/informed by EMS, down time/non-availability will be reckoned from the time contractor or his representative has been informed by the means of Telephone/mobile, fax, email or any other method at the address as specified by the contractor (whichever is earlier). The bidder shall specify the details of a) Telephone no. for calling, b) Fax no., c) Mobile no. for calling & SMS, d) e-mail id, e) postal address for correspondence. **Non-availability of back-up/stand-by system shall also be counted for down-time calculation.**

- **"Incident"** refers to any event / abnormalities in the functioning of the NMDC Network Infrastructure specified as part of the Scope of Work of the Bidder that may lead to disruption in normal operations of the NMDC Network Infrastructure.

- **"Resolution Time"** shall mean the time taken (after the incident has been reported at the helpdesk or EMS), in resolving (diagnosing, troubleshooting and fixing) the incident by making the service/component available to the user department.

4.A.12 Planned Downtime

Any planned application / System downtime would not be included in the calculation of application / System availability. However, the Successful Bidder should take at least 2 days prior approval from RailTel in writing for the planned outage, which should not be for more than 30 minutes, would be in lean period (non-movement period) and limited to max. 4 outages in a year. The bidder would ensure that the activities under the planned down-time are started only after getting the approval from the authorized representative of Rail-Tel. In case activities are carried out without approval, the time period shall be considered as downtime under SLA.

4.A.13 Measurement of SLA

The SLA metrics specifies performance parameters as baseline performance, lower performance and breach conditions. All site wise SLA calculations will be done on monthly basis and penalties will be recovered on quarterly basis during Maintenance period. Payment to the successful bidder will be linked to the compliance with the SLA metrics.
For period pertaining to Pre-Implementation SLA- Please refer to Liquidated damages Clause at 4.A.17.

SLA Matrix for O&M period:

S N	SLA Parameter	Description/ Reporting	Target	Definition of Downtime	Monitoring Mechanism
1	Log and Response to issue raised	Response to an incident call will include sending a notification to the person raising the call, either through email or on Phone/SMS, acknowledging the call and informing him/her of the expected resolution time for the call. The contractor is expected to log and respond to 98% of all the incident calls registered within the stipulated time frame of max. 60mins.	98% (Log and response in max. 60 minutes of min. 98% of incident raised)	Response to calls raised in more than 60 mins during dayshift and 6 hrs during night shift or non-response	Automated reporting tool from helpdesk

Note: Period for SLA calculation: Monthly

4.A.14 Penalty

Penalty table includes penalty that would be levied on the successful bidder on non-achievement of SLAs defined above. Slabs have been created for each SLA and penalty would be imposed on bidder as per the SLA achievement/non-achievement for the period under consideration. System downtime/Non availability will be calculated as per monitoring mechanism defined in SLA matrix. Penalties will be levied on the bidder on back-to-back basis as levied by NMDC on RailTel.

- O&M Charges shall be paid on quarterly basis at the end of the quarter, subject to the de duction for the down time mentioned below.
- SLAs will be monitored and reported through EMS on monthly basis to RailTel by the 10th working day of each month.
- Penalties shall be calculated and is to be deducted from the O&M Charges on quarterly basis. Overall penalty in a quarter shall not exceed 10% of the due amount of the quarterly AMC work executed by the Bidder.

Penalty during O&M Period

SN	Penalty Description	
1	Availability of Network	Penalty to be charged on a quarterly basis of annual cost of O&M
	Above or equal to 98%	No penalty
	Below 98% to more than or equal to 95%	5%
	Less than 95%	10%
2	Log and Response to issue raised	Penalty to be paid on a quarterly basis
	Above or equal to 98%	No penalty
	Below 98% to more than or equal to 95%	5%
	Less than 95%	10%

In addition to the above penalty for breach of the SLA parameters, no payment for the month would be made for a site where the down time observed would be more than 20% for Availability of Network

In case of frequent SLA breaches, RailTel reserve the right to forfeit the PBG submitted by the bidder.

The PBG submitted by the selected bidder after issue of LOA, shall remain valid during complete project duration including O&M Period plus three months. There is no need to take separate PBG for O&M

4.A.15 Manpower Support

Bidder shall keep Manpower as per Tender during Operation & Maintenance Supervision and Warranty period. Additional manpower, if considered necessary shall be provided by contractor to stabilize the network. The bidder shall arrange the suitable replacement in case the assigned support engineer goes on leave or is unavailable due to any other reason to ensure uninterrupted support services.

The Contractor has to obtain the required license from the licensing authority of respective Department/Circle/Division/Other units as and where applicable before deployment of personnel, the service provider should have valid registration certificates, including registration with the Regional Labour Commissioner, EPF Registration, ESI Registration, GST Registration and PAN Card and registration under applicable labour laws and should submit copy of the same.

4.A.16 Insurance

The Contractor shall take out and keep in force a policy or policies of insurance against all liabilities of the Contractor or the Purchaser at common law or under any statute in respect of accidents to persons who shall be employed by the contractor in or around the site for the purpose of carrying out the works on the site. The Contractor shall also take out and keep in force a policy or policies of Insurance against all recognized risks to their offices and depots. Such insurance shall in all respects be to the approval of the Purchaser and if he so requires, in his name.

The Contractor shall take out and keep in force a policy or policies of insurance from the date, the delivery of material starts (including the transit portion) against all liabilities of the Contractor or the Purchaser. The contractor shall take out and keep in force a Policy or policies of Insurance for all materials covered in schedule of requirement irrespective of whether used up in the portion of work already done or kept for the use in the balance portion of the work until such material are provisionally handed over to RailTel. The goods will be issued by purchaser to supplier and risk of goods shall remain with supplier until the issue of SAT by RailTel (RCIL). Insurance policy has to be kept valid by the contractor till issue of SAT by RailTel (RCIL).

The Contractor should also insure the stores brought to site, against risks in consequence of war and invasion, as required under the Emergency Risk (Goods) Insurance Act in force from time to time.

It may be noted that the beneficiary of the insurance policy should be RailTel (RCIL) or the policies should be pledged in favor of RailTel (RCIL). The contractor shall keep the policy/policies current till the equipment are installed and commissioned on the site. It may also be noted that in the event of contractor's failure to keep the policy current and alive, renewal of policy will be done by purchaser for which the cost of the premium plus 20% of premium shall be recovered from the contractor.

4.A.17 Liquidated Damages

The timely delivery is the essence of this Tender. Liquidated damages will be applicable at the rate of half percent per week or part thereof for undelivered portion of SOR subject to a maximum of 10% of the cost of Purchase order/LOA for any reason whatsoever attributed to failure of bidder. RailTel will have the right to cancel the order, place order on alternative source besides levying the liquidated damages as above.

4.A.18 Transportation

The rates quoted should be CIP destination. The destination shall be Site Locations of NMDC which shall be indicated by RailTel.

It shall be the responsibility of Bidder to transport the equipment to site for the Installation & Commissioning. Materials not installed / not to be installed at one location need to be shipped from that location to another location by the bidder as may be decided by Executive Director of the Region. All transportation cost to be borne by the bidder.

4.A.19 Statutory Deduction

These will be made at source as per the rules prevalent in the area of work.

4.A.20 Qualification Criteria

Qualifying criteria under this clause lays down minimum acceptable qualifications in various areas to ensure that qualified bidder has necessary experience, technical expertise, equipment and financial and human resources to successfully complete the project. Bids from bidder not meeting these qualification criteria may liable to be **REJECTED**.

In case bidder has submitted the CA certificate or statutory auditor certificate against eligibility clause, contact details of CA or statutory auditor shall be mandatorily mentioned.

4.A.21 Eligibility Criteria Requirements for Bidders:

#	Particulars	Criteria for Tender Package (Mandatory Compliance & Document Submission)
A)	**Association with RailTel**	
i)	The Bidder Should be **RailTel Empaneled Business Associate (BA)** with validity of association at least upto the last date of submission of this bid. This is the primary and mandatory eligibility criteria; however, the bidder is also required to meet other eligibility criteria of this Tender.	Copy of LOI/ Agreement/ documentary proof to be submitted
B)	**Financial Conditions**	
i)	**RailTel Empaneled Business Associates** should be registered under Companies Act,1956 or Companies Act 2013 or as amended and should	1. Certificate of Incorporation 2. GST Registration 3. PAN Card

#	Particulars	Criteria for Tender Package (Mandatory Compliance & Document Submission)
	have at least **3 years** of operations in India as on bid submission date.	
	EMD of Rs. 50,00,000/- in the form of Bank Guarantee. Validity of the BG should be 90 days from the Last Date of submission of Bid	Scanned copy of BG should be submitted with Bid. Physical Copy of BG should be submitted before Date as defined in BDS.
ii)	RailTel Empaneled BA should have an average annual turnover of Rs.100 crs or more during the last three financial years (i.e., FY 2019-20, FY -2020-21, FY 2021-22).	Turn over Certificate issued by the Chartered Accountant. Certificate should contain UDIN no. issued by ICAI or Audited Balance sheet with P&L statements
iii)	RailTel Empaneled Partner should also have a positive net worth & be profitable in the last 3 financial years (FY 2019-20, FY 2020-21, FY 2021-22).	Positive Net Worth and Profitability Certificate issued by the CA for the last three financial years (FY 2019-20, FY 2020-21, FY 2021-22). Certificate should contain UDIN no. issued by ICAI
C)	**ANNEXURES**	The bidder should fill all the annexures and the same should be signed, stamped by the authorized representative or head of the firm.
D)	**Technical Conditions**	
i)	Power of Attorney	Power of Attorney and Board Resolution in favor of one of its employees who will sign the Bid Documents.
iii)	Experience in Large scale ICT project execution	1. The bidder shall have experience in Executing large-scale ICT Projects in past 5 years from the date of submission of bid as below (i) . One project worth of minimum Rs.59.43 crs OR (ii) Two projects worth of minimum Rs.39.62 crs each OR (iii) Three Projects worth of minimum Rs.29.72 crs each The above works should have been in India for any Central / State Governments/ PSUs / Reputed Indian Companies (where the Annual Turnover of the Company in last three financial years (2019- 20, 2020-21 and 2021-22) must be greater than INR 500 Crore) as on Bid Submission date/ Cooperative

#	Particulars	Criteria for Tender Package (Mandatory Compliance & Document Submission)
		or any Governmental department in India. (ICT stands for Information and Communications Technology project and include IT systems integration project) 2. To this extent the Client Purchase Order / agreement copy along with successful completion certificate/work satisfactory certificate/work experience certificate received from client should be enclosed 3. The references should indicate client name, scope of work, Project start date etc. as per form 9 Chapter -6
iv)	Experience of similar work implementation	1. The Bidder must have a proven track record for Experience in Networking Infrastructures project with all the following mentioned components in single project of a value not less than Rs. 30 Crores in last five years in India for any Central / State Governments/ PSUs / Reputed Indian Companies (where the Annual Turnover of the Company in last three financial years (2019- 20, 2020-21 and 2021-22) must be greater than INR 500 Crore) as on Bid Submission date/ Cooperative or Governmental department in India. - Servers - Switches - Firewall - Network Management System (NMS) - Operation & Maintenance Support for a minimum of 1 year Note: The Project cited for above criteria shall be declared as completed and 1+ years of Operation and Maintenance (O&M) shall be completed as on last date of submission of Tender. 2. To this extent the Client Purchase Order / agreement copy along with successful completion certificate/work satisfactory certificate/work experience certificate received from client should be enclosed. The furnished Certificate must clearly state the components mentioned above.

#	Particulars	Criteria for Tender Package (Mandatory Compliance & Document Submission)
		The references should indicate client name, scope of work, Project start date etc. as per form 9 Chapter 6
vi)	Technical Manpower	1. Bidder should have more than 100 Technical Manpower on their payroll 2. Self-Certification from authorized /HR Head of the organization.
vii)	Accreditations	1. The Bidder must have valid certificate of ISO 9001:2015 2. The Bidder must have valid certificate of ISO 27001: 2013 3. The Bidder must be CMM Level 3 or above certified 4. To this extent, the bidder should enclose the accreditation certificate.
viii)	No Black Listing: The bidder including Sub contractors should not have been black-listed currently by Central Govt./State Govt./CPSU in India or anywhere globally by Government for security reasons.	Self-Declaration by the Bidder on Company's letter head
ix)	Bidder Type: The bidder should be OEM or a System Integrator authorized by OEMs for supply of licenses/commercial support, solution implementation and maintenance support under warranty/AMC/commercial support, for the following products: Servers Switches Firewall WiFi P2P & P2MP Radio Enterprise Management System	MAF/Authorization Letter by OEM (Form no. 8, Chapter-6). OEM undertaking for Long Term Maintenance Support. (Form No. 3, Chapter-6).
x	Only bidders offering minimum 20% of local content for the overall solution of their offered bid (Class-I Local suppliers/bidders-minimum 50% LC and Class-II Local Suppliers/bidders- minimum 20% LC as per PPP-MII Order) are eligible to participate in this Tender.	Undertaking on bidder's letter head as per Clause no. 4.A.52 and certificate by statutory auditor or cost auditor of the company as per Clause no. 4.A.52

Note:

1. In case a contract is started prior to 05 (five) years, ending last day of month previous to the one in which Tender is invited, but completed in last 05 (five) years, ending last day of month previous to the one in which Tender is invited, the completed work shall be considered for fulfillment of credentials.
2. If a contract is physically completed and completion certificate to this extent is issued by the concerned organization but final bill is pending, such contract shall be considered for fulfillment of credentials.
3. If a part or a component of contract is completed but the overall scope of contract is not completed, this work shall not be considered for fulfillment of technical credentials even if the cost of part completed work/component is more than required for fulfillment of credentials.
4. In case a contract is considered similar in nature for fulfillment of technical credentials, the overall cost of that work including PVC amount if any shall be considered and no separate evaluation for each component of that work shall be made to decide eligibility.
5. The value of final bill including PVC amount-if paid, or otherwise in case final bill is pending the contract cost in last approved variation statement plus PVC amount paid or cumulative amount paid up to last on-account bill including PVC amount and statutory deductions whichever is less, shall be considered as the completion cost of contract.
6. For qualifying experience or credentials projects where the bidder has executed the project as a sub-contractor will not be considered for evaluation purposes.
7. OEM experience will not be considered as bidder's experience unless bidder is also an OEM.

4.A.22 Eligibility Credentials and Verification

The bidder is required to submit purchase order and satisfactory working/implementation certificate issued by the user/customer. Purchase orders without relevant organization's confirmation through a credential letter will not be considered as implementation certificate from the client.

For client credentials where NDA has been signed, the bidder may submit the corresponding NDA document along with a self-declaration confirming the requirements of the eligibility criteria for which the NDA is being submitted.

The Bidders shall submit a notarized affidavit on a non-judicial stamp paper stating that they are not liable to be disqualified and all their statement/documents submitted along with bid are true and factual. Standard format of the affidavit to be submitted by the bidder is enclosed as Form no. 4 (Chapter-6). **NON-SUBMISSION OF AN AFFIDAVIT BY THE BIDDER SHALL RESULT IN SUMMARY REJECTION OF HIS/THEIR BID.** And it shall be mandatorily incumbent upon the Bidder to identify, state and submit the supporting documents duly self-attested by which they/he is qualifying the Qualifying Criteria mentioned in the Tender Document. It will not be obligatory on the part of Tender Committee to scrutinize beyond the submitted document of Bidder as far as his qualification for the Tender is concerned.

RailTel (RCIL) reserves the right to verify all statements, information and documents submitted by the bidder in his Tender offer, and the bidder shall, when so required by RailTel (RCIL), make available all such information, evidence
and documents as may be necessary for such verification.

In case of any wrong information submitted by Bidder, the contract shall be terminated. Performance Guarantee (PG) and Security Deposit (SD) of contract forfeited and agency barred for doing business on RailTel (RCIL) for 5 (five) years.

For International project if the original client certificate and other documents are in language other than English than a translated copy duly confirmed by Indian embassy.

In the event of Foreign Original Equipment Manufacturer (OEM), it's Indian Subsidiary fully authorized for bidding on behalf of OEM is allowed to participate with the experience and financial credential of parent company with specific authorization for doing so from the OEM. The specific authorization addressed to RailTel should be submitted by the bidder.

4.A.23 RailTel Reserves the right:

(i) To verify, if so desired, the correctness of documentary evidence furnished by the bidder.

(ii) To verify the successful operation and performance of qualifying projects and bidder shall arrange permission for the same.

(iii) To carry out capability assessment of the bidder(s) including referral to in-house information.

(iv) RailTel shall not be responsible for any delay in the receipt of Tenders and reserves the right to **ACCEPT/REJECT** any or all Tenders without assigning any reason. To ask the clarification and supporting documents in respect to submitted eligibility documents.

4.A.24 System Performance Guarantee

The Bidder shall give unqualified and unconditional guarantee that when the equipment/ material supplied by him is installed and commissioned at site, it shall achieve the desired objective and that in the event of performance of the system when installed not complying with the end objective or with the specifications, he shall further strengthen the system to realize the end objectives with full compliance of the specifications contained in these documents and inform RailTel. No additional payment will be made to the contractor for supply of any additional goods and service required in this regard.

This certificate in the Performa given in Chapter-6 Form No. 2, shall accompany the final offer. Absence of this certificate which will form part of the agreement shall **DISQUALIFY** the bidder automatically and summarily reject the bid.

The OEM has also to give unqualified and unconditional guarantee that when the Hardware/ Software supplied by him is installed and commissioned at site, it shall achieve the desired objective mentioned in the Tender document. The certificate in the Performa given in Chapter-6 Form No. 2.

4.A.25 Evaluation of Offer

During evaluation of offer, if required RailTel may ask clarification from the bidder.

Additional features offered by the bidder, over and above the ones asked for in the Tender documents, shall not be considered for evaluation of bids.

The bidders should quote for all items & the offer will be evaluated in totality. Bidders should indicate brand name, type/model number of the products offered. Optional items (if any) will not be considered for evaluation of offers. The equipment and software should be supplied as per Technical Specifications given in Chapter-7.

Inter se position of the offers will be determined on total cost which will include basic rate, custom duty, CGST, SGST, IGST, UTGST, freight, insurance and any other charge or cost quoted by the Tenderer, including GST payable, on reverse charge by RailTel.

After opening of Price Bid, Reverse Auction (RA) will be applicable as per clause 4.B.9 of Tender document.

Eligible Bidders who have fulfilled the eligibility criteria as detailed in Clause 4.A.52 and are within 20% of L1 price, will be added to the list of bidders eligible for eRA.

Further after eRA, if reduced price of PMA bidder(s) is within 20% of revised L1 price received after eRA, PMA bidder(s) will be considered for award of work under PMA in terms of Clause 4.A.52 of Tender document.

4.A.26 Security Considerations & Security Agreement

4.A.26.1 Additional guidelines issued by Ministry of Finance through OM no. 6/18/2019-PPD dated 23.07.2020.

Relevant guidelines have been given below and in case of contradiction with any condition of this Tender document, guidelines issued by Ministry of Finance vide above mentioned OM (including any addendum/corrigendum issued by MoF and any other relevant guidelines pertaining to the subject issued by GoI) shall prevail:

1. Any bidder from a country which shares a land border with India will be eligible to bid in this Tender only if the bidder is registered with the Competent Authority.

2. “Bidder” (including the term ‘consultant’, ‘service provider’ or ‘OEM’ in certain contexts) means any person or firm or company, every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.

3. “Bidder from a country which shares a land border with India” for the purpose of this Order means:

i) An entity incorporated, established or registered in such a country; or
ii) A subsidiary of an entity incorporated, established or registered in such a country; or
iii) An entity substantially controlled through entities incorporated, established or registered in such a country; or
iv) An entity whose beneficial owner is situated in such a country; or
v) An Indian (or other) agent of such an entity; or
vi) A natural person who is a citizen of such a country;

4. Subcontractor for the purpose of this order means:
   i) An entity engaged by the bidder for execution of work or part of work; or
   ii) An entity engaged by any Subcontractor for execution of work or part of work; or
   iii) An entity engaged by OEM for supply of part of material used in manufacturing of supplied item under Network Infra Project.

5. The beneficial owner for the purpose of (iii) above will be as under:

   I. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.

   Explanation-

   "Controlling ownership interest" means ownership of or entitlement to more than twenty-five percent of shares or capital or profits of the company;

   "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;

   II. In case of a partnership firm, the beneficial owner is the natural persons(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership:

   III. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;

   IV. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

   V. In case of a trust, the identification of beneficial owner(s)shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

6. An agent is a person employed to do any act for another, or to represent another in dealings with third person.

7. The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with Competent Authority i.e. DPIIT.

4.A.27 Undertaking regarding such clause need to submit in the format given below:

i) Certificate to be provided by Bidder/OEMs on their letter heads:

"I have read the clause regarding restrictions on procurement from a bidder/OEMs of a country which shares a land border with India; I certify that this bidder/OEM is not from such a country or, if from such a country, has been registered with the Competent Authority, I hereby certify that this bidder/OEM 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.]"

ii) Certificate for Bidder for Works involving possibility of sub-contracting

"I have read the clause regarding restrictions on procurement from a bidder/OEM of a country which shares a land border with India and on sub-contracting to contractors from such countries; I certify that this bidder/OEM 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/OEM 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]".

The said instructions will not apply to the bidders from those countries (even if sharing a land border with India) to which the Government of India has extended lines of credit or in which the Govt. Of India is engaged in development projects. Updated list of countries to which line of credit have been extended or in which development projects are undertaken are given in the website of the Ministry of external affairs.

Any discrepancy between above mentioned clause and guidelines issued from Public Procurement Division of Department of Expenditure under Ministry of Finance vide letter no. F. No. 6/18/2019-PPD dt. 23.07.2020 later will be applicable.

4.A.28 Purchaser's Right to Vary Quantities

The purchaser shall be at liberty to enhance or reduce the quantity mentioned in the LOA as indicated in Bid Data Sheet (BDS) Chapter-5 without assigning any reasons. The bidder shall comply with such modifications unconditionally provided these are made before completion of the deliveries under the purchase order/LOA.

4.A.29 Purchaser's Right to accept any offer / Bid and to REJECT any or all offer/ Bid

The Purchaser reserves the right to ACCEPT or **REJECT** any offer / bid, and to annul the bidding process and REJECT all offers / bids, at any time prior to award of order without

assigning any reason whatsoever and without thereby incurring any liability to the affected bidder or bidders on the grounds for the Purchaser's action.

4.A.30 Annulment of Award

Failure of the successful bidder to comply with the requirement of various clauses of Tender document shall constitute sufficient ground for the annulment of the award and action will be taken, in which event the Purchaser may make the award to any other bidder at the discretion of the Purchaser or call for new offers/ bids.

4.A.31 Earnest Money Deposit (EMD)

All the bidders shall submit EMD in the form of Bank Guarantee (BG) as per form-12 Chapter 6 from a Nationalized/Schedule bank, Scan copy of BG shall be submitted online through E-Nivida Portal. Physical copy of the BG should reach the office of Executive Director/ Southern Region, Secunderabad on or before the Date specified in BDS.

Action will be taken if a bidder withdraws his offer or modifies the terms and conditions of the offer during validity period and in the case of a successful bidder, if the bidder fails to accept the Purchase order/LOA and fails to furnish performance bank guarantee (security deposit) in accordance with clause 4.A.8.

Offers not accompanied with EMD in the form of Bank Guarantee shall be summarily **REJECTED**.

4.A.32 For Micro and Small Enterprises (MSEs)

MSEs are required to meet the eligibility criteria as specified in Tender clause 4.A.21 above as the case may be. **Further, the subject work being a works contract having scope of integrating various IT products and applications, the purchase preference criteria for MSME will also be not applicable in the Tender.**

For Small Scale Units / Micro Small Enterprises/ MSME registered with UDYAM under Ministry of MSME and participating in this tender, following exemptions shall be available

(i) They shall be exempted from submission of cost of tender documents (if applicable).
(ii) They shall also be exempted from depositing Earnest money.

These exemptions shall be applicable provided Tenderer registered with UDYAM for tendered item/work/services and registration is current and valid. Firms calming these exemptions are required to submit along with their offer, a copy of their current and valid UDYAM registration certificate for the tendered item/wok/ services, otherwise their offer would not be considered, will be treated as invalid and **summarily rejected.**

(iii) As mentioned in Section 7(4) of Ministry of MSME's Notification No. S.O2119 (E) dated 26th June, 2020, an enterprise registered with any other organization under the Ministry of MSME shall register itself under Udyam Registration. With effect from 01.07.2020, MSEs registered under Udyam Registration are eligible to avail the benefits under the Policy.

(iv) However, traders/ distributors/ sole agent/ Works Contract are excluded from the purview of Public Procurement Policy for MSEs Order, 2012. Further, as mentioned in O.M. No. 5/2(2)/2021-E/P & G/Policy dated 02.07.2021, Retail and Wholesale traders can register on Udyam Registration Portal for the purpose of Priority Sector Lending (PSL) only. **Accordingly, in Udyam site if it is mentioned as below:**

Then, the tenderer submitted Udyam certificate showing above in Udyam site will not be considered for exemption of cost of tender and EMD and their tender will be summarily rejected.

4.A.33 Offer/ Bid Prices

The bidder shall give the prices indicating all levies and taxes, packing forwarding, freight and insurance etc. The basic unit price and all other components of the price need to be individually indicated against the goods it proposes to supply under the Tender document as per schedule given in Chapter-2. The price shall be quoted in Indian Rupees only.

The break-up of price of each item of SOR in terms of basic Unit price shall be inclusive of Freight, Custom Duty, Forwarding, Packing, Insurance and any other Levies/charges already paid or payable by the bidder(with applicable taxes break-up viz. SGST/CGST/IGST/UT-GST)shall be quoted in the SOR Chapter-2.

4.A.34 NIL Deviation

Bidder is required to submit the **"NIL Deviation compliance undertaking"** for all the terms and conditions of Tender including all corrigenda shall be enclosed with the offer as per proforma given in Form no. 6 (Chapter-6).

4.A.35 Inspection

Inspection will be carried by RailTel/customer appointed agency. Any additional Scope of the Inspection would be as per the requirement of the Customer.

Along with inspection call, the Bidder/manufacturer shall submit details of test procedures, test program, test parameters together with permitted values, etc., and their Quality Assurance Plan.

In case material fails during inspection, the fresh lot of material shall be offered without any extra cost, by the manufacturer/bidder. In such a case, total cost of re-inspection including

travel, lodging & boarding of the inspecting officials shall be to manufacturer's/ bidder's account.

4.A.36 Force Majeure

If during the Agreement, the performance in whole or in part, by either party, of any obligation under this is prevented or delayed, by reason beyond the control of the parties including war, hostility, acts of the public enemy, civic commotion, sabotage, Act of State or direction from Statutory Authority, explosion, epidemic, quarantine restriction, strikes and lockouts (as are not limited to the establishments and facilities of the parties), fire, floods, earthquakes, natural calamities or any act of GOD (hereinafter referred to as EVENTS), provided notice of happenings of any such EVENT is given by the affected party to the other, within twenty one (21) days from date of occurrence thereof, neither party shall have any such claims for damages against the other, in respect of such non-performance or delay in performance. Provided service under this Agreement shall be resumed as soon as practicable, after such EVENT comes to an end or ceases to exist.

In the event of a Force Majeure, the affected party will be excused from performance during the existence of the Force Majeure. When a Force Majeure occurs, the affected party after notifying the other party will attempt to mitigate the effect of the Force Majeure as much as possible. If such delaying cause shall continue for more than thirty (30) days from the date of the notice stated above, the party injured by the inability of the other to perform shall have the right, upon written notice of thirty (30) days to the other party, to terminate this Agreement. Neither party shall be liable for any breach, claims, damages against the other, in respect of non-performance or delay in performance as a result of Force Majeure leading to such termination.

4.A.37 Settlement of Disputes/Arbitration

1) Any dispute or difference whatsoever arising between the parties out of or relating to the construction, meaning, scope, operation or effect of this contract or the validity or the breach thereof shall be settled by arbitration in accordance with the Arbitration and Conciliation Act, 1996 as amended and the award made in pursuance thereof shall be binding on the parties. The venue of such arbitration or proceedings thereof shall be at New-Delhi.

2) All arbitration proceedings shall be conducted in English. Recourse against any arbitral award so rendered maybe entered into court having jurisdiction or application may be made to such court for the order of enforcement as the case may be.

3) The Arbitral Tribunal shall consist of the Sole Arbitrator appointed by CMD/RailTel Corporation of India Limited, if the value of claim is up to Rs. 10 lakhs. If the value of the claim or amount under dispute is more than Rs. 10 Lakhs, the matter shall be referred to the adjudication of arbitral council. Chairman Managing Director (CMD) of RailTel Corporation shall furnish a panel of three names to the contractor, out of which, contractor will recommend one name to be his nominee and then CMD/RailTel shall appoint one name as RailTel's nominee and these two arbitrators with mutual consent shall appoint a third arbitrator who shall act as the deciding arbitrator in terms of Arbitration and Conciliation Act. The award of the sole arbitrator or the Arbitral council, as the case may be, shall be final and binding on both the parties. Each of the parties agree that notwithstanding that the matter may be referred to

Arbitrator as provided herein, the parties shall nevertheless pending the resolution of the Controversy or disagreement, continue to fulfill their obligation under this Agreement so far as they are reasonably able to do so.

4.A.38 Governing Laws

The LOA shall be interpreted in accordance with the laws of India. The courts at New Delhi shall have exclusive jurisdiction to entertain and try all matters arising out of this contract.

4.A.39 Indemnity by Contractors

The Contract shall indemnify and save harmless RailTel from and against all actions, suit proceedings, losses, costs, damages, charges, claims, and demands of every nature and description brought or recovered against RailTel by reason of any act or omission of the Contractor, his agents or employees, in the execution of the works or in his guarding of the same. All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the actual loss or damage sustained, and whether or not any damage shall have been sustained.

4.A.40 Termination for Default

The purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default, sent to the bidder, terminate this contract in whole or in part.

a) If the bidder fails to deliver any or all of the goods within the time period(s) specified in the contract.
b) If the bidder fails to perform any other obligation(s) under the contract; and
c) If the bidder, in either of the above circumstance(s) does not remedy his failure within a period of 30 days (or such longer period as the Purchaser may authorize in writing) after receipt of the default notice from the Purchaser.

4.A.41 Risk & Cost

If the contractor fails to deliver the equipment or honour the contractual commitment within the period fixed for such delivery in the contract, the Purchaser may terminate the LOA/contract in whole or in part, the Purchaser may proceed to purchase, upon such terms and in such manner as it deems appropriate, goods similar to those undelivered at no risk and cost to contractor. However, Performance Bank Guarantee shall be encashed. The failed bidder shall not be permitted to take part in the Tender for balance work.

The Maximum Liability of bidder to any Loss/Damages to RailTel including Liquidity Damages and Performance Guarantee shall be limited to 100% of Value of contract.

4.A.42 Termination for Insolvency

The purchaser may at any time terminate the LOA by giving written notice to the bidder, without compensation to the bidder, if the bidder becomes bankrupt or otherwise insolvent

as declared by the competent court provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Purchaser.

4.A.43 Rates During Negotiation

The purchaser may call the successful bidder for the negotiation for reducing the rates. During negotiation the bidder/s shall not increase his/their quoted rates including payment terms in case RailTel negotiates for reduction of rates. Such negotiations shall not amount to cancellation or withdrawal of the original offer and the rates originally quoted will be binding on the bidder/s.

4.A.44 Submission of Offer (Online Tender)

All offers in the prescribed forms should be submitted before the time and date fixed for the receipt of the offers.

In case the schedule of requirement quoted by Bidder is incomplete with reference to Tender document, the offer is liable to be **REJECTED**.

ATTESTATION OF ALTERATION: No scribbling is permissible in the Tender documents. Tender containing erasures and alterations in the Tender documents are liable to be **REJECTED**. Any correction made by the Bidder/ Bidders in his/their entries must be signed (not initialed) by him/them.

The Bidder shall submit his bid online using the e-Procurement Portal https://railtel.eNivida.com. For detailed instructions please refer to E-Nivida Portal.

The offer shall be submitted in two packet. Both Bids, Credential Bid (Techno-Commercial Bid) & Price Bid shall be submitted online using the e-Procurement Portal https://railtel.eNivida.com.The bid shall consist of following documents as mentioned in Checklist of **Chapter-.8.**

4.A.45 Constitution of Firm and power of Attorney

Any individual(s) signing the Tender or other documents connected therewith should specify whether he is signing: -

(a) As sole proprietor of the concern or as attorney of the sole Proprietor.

(b) As a partner or partners of the firm.

(c) As a Director, Manager or Secretary in the case of Limited Company duly authorized by a resolution passed by the Board of Directors or in pursuance of the authority conferred by Memorandum of Association.

In the case of a firm not registered under the Indian Partnership Act, all the partners or the attorney duly authorized by all of them should sign the Tender and all other connected documents. The original Power of Attorney or other documents empowering the individual or individuals to sign should be furnished to the Purchaser for verification, if required.

RailTel will not be bound by Power of Attorney granted by the bidder or by the changes in the composition of the firm made subsequent to the execution of the contract agreement.

In case where the Power of Attorney partnership deed has not been executed in English, the true and authenticated copies of the translation of the same by Advocate, authorized translators of Courts and Licensed Petition Writers should be supplied by the Contractor(s) while Tender for the work.

Power of attorney in favour of the signatory duly authorizing the signatory. Original copy is need to be submitted by the successful bidder before issuance of LOA.

4.A.46 Opening of Tender

Bidder's Credential Bid (Part-I) will be opened on specified date & time as mentioned in BDS Chapter-5 of the Tender

After scrutinizing Credential Bid, "Price Bid (Part- II)" will be opened on a time and date to be informed separately to those bidders who qualify in "Credential Bid (Part-I)" as per qualifying criteria laid down in Clause 4.A.21 of this Chapter-4 .

Price Bid (part-II) envelopes of those bidders who are not found to meet Tender conditions will not be opened.

4.A.47 Non-Transferability & Non-Refundability

The Tender documents are not transferable. The cost of Tender paper, if any, is not refundable.

4.A.48 Errors, Omissions & Discrepancies

The Contractor(s) shall not take any advantage of any misinterpretation of the conditions due to typing or any other error and if in doubt, shall bring it to the notice of the purchaser without delay. In case of any contradiction only the printed rules, and books should be followed and no claim for the misinterpretation shall be entertained.

4.A.49 Wrong Information by bidder

If the Bidder/s deliberately gives/give wrong information in his/their Tender which creates/create circumstances for the acceptance of his/their Tender RailTel(RCIL) reserves the right to **REJECT** such bidder at any stage.

4.A.50 Limitation of Liability:

Provided the following does not exclude or limit any liabilities of either party in ways not permitted by applicable law:

1. The Supplier shall not be liable to the Purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Supplier to pay liquidated damages to the Purchaser; and

2. The aggregate liability of the Supplier to the Purchaser, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to any obligation of the Supplier to indemnify the Purchaser with respect to intellectual property rights infringement.

4.A.51 Integrity Pact Program

RailTel has adopted Integrity Pact Program and for implementation thereof all Tenders relating to procurement of OFC, quad cable, prefab shelters, electronic equipment and its installation and/or commissioning etc and other item(s) or activity/activities proposed to be carried out or required by the Company for the value exceeding Rs. 15 crores at a time including for repair and maintenance of cable/network and any other items required for special works assigned to RailTel will be covered under the Integrity Pact Program and the vendors are required to sign the IP document and submit the same to RailTel before or along with the bids.

a) Only those vendors who have purchased the Tender document and signed the IP document can send their grievances, if any, to the Independent External Monitors (IEMNs) through the nodal officer, i.e. Chief Vigilance Officer (CVO), RailTel.

Name of IEMs and contact details:

1. Mrs. Vijaya Kanth E-Mail: vkanthmrl2003@yahoo.com
2. Sh. Vinayaka Rao Turaga E-mail: tvrao56@gmail.com

Name & contact details of Nodal Officer (IP) in RailTel:

Chief Vigilance Officer
RailTel Corporation of India Ltd
6th Floor, Office Block Tower-2,
NBCC Complex, East Kidwai Nagar,
New Delhi-110023
E-Mail: **cvo@railtelindia.com**

b) If the order, with total value equal to or more than the threshold value, is split to more than one vendor and even if the value of PO placed on any/each vendor(s) is less than the threshold value, IP document having been signed by the vendors at bid stage itself, the Pact shall continue to be applicable.

c) Bidder of Indian origin shall submit the Integrity Pact (in 2 copies) on a non-judicial stamp paper of Rs. 100/- duly signed by the person signing the bid.

d) Bidder of foreign origin may submit the Integrity Pact on its company's letterhead, duly signed by the person signing the bid.

e) The 'Integrity Pact' shall be submitted online by all the Bidders duly signed in all pages along with the Bid. Tender received online without signed copy of the Integrity Pact document along with the technical bid documents will be liable to be **REJECTED**. Proforma for signing the Integrity Pact is available in Chapter-6 of this Tender document (Form No. 5). Original copies are needed to be submitted by the successful bidder before issuance of LOA as per Clause 4.B.3, Point (b) of Chapter-4B.

f) One copy of the Integrity Pact shall be retained by RailTel and the 2nd copy will be issued to the representative of the bidders before issuance of LOA to the successful bidder. If the Bidders representative is not present during the issuance of LOA, the 2nd copy shall be sent to the bidder by post/courier.

g) The Integrity Pact is applicable in this Tender vide CVC circular no. 10/05/09 dated 18.05.09 and revised guideline of CVC circular no. 015/VGL/091 dated 13.01.17 or the latest updated from time to time shall be followed.

4.A.52 Preference to Domestic Manufacturers

The provisions of the revised "Public Procurement (Preference to Make in India),Order 2017",dated16.09.2020(and subsequent amendments, if any, till opening of the Tender) by Department of Industrial Policy and Promotion, GoI shall apply to this Tender to the extent feasible. The criteria for Capability (verifiable evidence that they have manufacturing capability to manufacture the specified quantity and supply the same with in stipulated time period), Equipment and Manufacturing facilities as well as net worth under the financial standing eligibility criteria shall be applicable to local suppliers also.

Bidders seeking Purchase preference for this Tender shall submit the documents/ declarations etc. as per latest DIPP guidelines and the applicable/associated latest letters if any till date of opening of the bid.

The necessary documentation for the individual items being declared to be Local shall be as per the stipulated guidelines as laid down in above mentioned policy letters and to be signed by the OEM as well as the bidder

Only bidders offering minimum 20% of local content for the overall solution of their offered bid (Class-I Local suppliers/bidders-minimum 50% LC and Class-II Local Suppliers/bidders- minimum 20% LC as per PPP-MII Order) are eligible to participate in this Tender. Bid of bidders offering less than 20% local content for the overall solution of their offered bid will be SUMMARILY REJECTED.

The System Integrator (SI) / Bidder has to submit the consolidated MII (local content) % for the complete solution being offered.

The margin of purchase preference shall be 20% and shall be given to 'Class-I local supplier'. 'Margin of purchase preference' means the maximum extent to which the price quoted by a Class-I local supplier may be above the L1 (Class-II local supplier) for the purpose of purchase preference.

Class-I & Class-II Suppliers/Bidders shall furnish following undertaking on their letter head along **with their technical bid clearly mentioning % of local content**. The undertaking shall

become a part of the contract.

"We M/s._____(Name of bidder) hereby certify that we are offering minimum Local Content of____% of overall solution of our offered bid *in our offer No. dated____ against RailTel Tender No._____."*

Since value of procurement under this Tender is more than ₹ 10 Cr, Class-I & Class-II local suppliers/bidders are required to provide a certificate (with UDIN number) from the statutory auditor or cost auditor of the company giving percentage of local content of all scheduled items. Undertaking mentioned in Clause

4.A.52 shall be supported by the following certificate issued by Auditor on their letter head as mentioned below **(to be submitted with technical bid)**:

"We_____the statutory auditor/cost auditor of M/s. (name of the bidder) hereby certify that M/s._____ (name of bidder) are offering___% Local Content for overall solution *of the Project Work under this Tender in accordance with GOI Guidelines vide offer No. dated____against RAILTEL Tender No.__.*

These undertaking/certificate shall not mention any unit price or total amount quoted by the bidder. Any mention of price or quoted amount will lead to SUMMARILY REJECTION of the bid. In case of non-submission of above-mentioned undertaking/certificate with technical bid documents, bid will be SUMMARILY REJECTED.

In price bid, the bidder shall provide price Break- up of "Local Content" and "Imported Content" for each SOR item **as per DPIIT's PMI Policy and its clarifications** and same shall be uploaded by the bidders along with their price bid in the e- procurement portal.

If after opening of price bid, lowest bid is of Class-II local supplier/bidder the eligible (techno-commercially qualified) Class-II local supplier(s)/bidder(s) shall be granted a purchase preference to 20% i.e., where their evaluated price bid is within 20% of the evaluated lowest price bid of Class-II local supplier/bidder. Such eligible Class-I local bidders, to whom purchase preference of 20% has be granted, will be allowed to participate in eRA irrespective of the selection criteria for eRA mentioned in Clause no. 4.B.9
However, if after opening of price bid, lowest bid is of Class-I Bidder then bidders for eRA will be selected as selection criteria mentioned in Clause no. 4.B.9

RailTel (RCIL) shall have the right to satisfy itself of the production capability and product quality of the manufacturer.

if L1 is a Class-I bidder then the contract will be awarded to L1. If L1 is a Class-II bidder then only those Class-I bidders, whose bids after completion of e-RA are within 20% of the Class-II L1's bid, would be allowed an opportunity to match L1's bid as detailed in Para 3A(c) of DPIIT's PMI Policy dated 16-09-2021. All the such eligible Class-I bidders shall be asked to submit their confirmation to match their price in sealed envelopes as per PMI Policy. Envelopes of the bidders shall be opened and award for the complete Tender shall be made to the lowest evaluated TA/CA (Techno-Commercial Acceptable) bidder among the eligible Class-I bidders. In case the lowest eligible Class-I bidder fails to match L1 price, the offer of next eligible Class-I bidder in sealed envelope will be checked and so on. In case none of the eligible Class-I bidders matches the Class-II bidder's L1 bid, complete contract will be awarded to the Class-II bidder holding L1 price.

For the purpose of this policy, all terms used vide aforesaid policy shall be governed by the definitions specified in Para 2 of the policy document notified by DIPP vide letter No. P-45021/2/2017-B.E.-II dated 16.09.2020.

The successful bidder shall be obliged to fulfill the requirements of quality and delivery time in accordance with the provisions of the Purchase order/contract.

4.A.53 Sanctions

RailTel shall impose sanction of bidder/successful bidder for not fulfilling LC in accordance with the value mentioned in certificate of LC.

The sanctions may be in the form of written warning, financial penalty and blacklisting.

If the bidder does not fulfill the obligation after the expiration of the period specified in such warning. RailTel shall initiate action for blacklisting such bidder/successful bidder.

4.A.54 Make in India

The bidder may set up his manufacturing unit in India to the extent possible through a subsidiary or under license or through transfer of technology to any local manufacturer permitted by the purchaser. The bidder may indicate such tie ups for manufacturing in India if an arrangement is already in place.

The provisions of the Public Procurement (Preference to Make in India) Order 2017 dated June 15, 2017 (including revision issued on and 16.09.2020 subsequent amendments issued till opening of Tender, if any) by Department of Industrial Policy and Promotion, GoI shall apply to this Tender to the extent feasible. The eligibility criteria as mentioned in clause 4.A.21 shall be applicable to local manufacturers/OEMs also.

4.A.55 Contract Agreement

On completion of the selection process, RailTel will enter into a contract agreement with the selected bidder(s). The contract entered with RailTel would be operated by RailTel. The Contract Agreement shall be entered by RailTel only after submission of valid Performance Guarantee by the successful bidder. Failure to do so shall constitute a breach of the agreement affected by the acceptance of the Tender. In such cases RailTel may determine that such Bidder has abandoned the contract and there upon his Tender and acceptance thereof shall be treated as cancelled and RailTel shall be entitled to take action and to forfeit other dues payable to the Contractor under this contract. The failed Contractor shall be debarred from participating in the re-Tender for that work.

The following documents would form part of the agreement between RailTel & the successful bidder: -

i) This Tender document/Tender and all the issued addendum/ corrigendum.

ii) The bidder's proposal in response to this Tender/Tender and clarifications made in course of evaluation, including all Appendixes and supporting documents.

iii) The implementation plan identifying the tasks to be completed, the assigned responsibilities and the scheduled completion dates.

iv) Copy of Signed LOA along with the copy of the PBG document.

4.A.56 Damage to NMDC Property or Private Life and Property:

The Contractor shall be responsible for all risk to the work and for trespass and shall make good at his own expense all loss or damage whether to the works themselves or to any other property of RailTel or the lives, persons or property of others from whatsoever cause in connection with the works until they are taken over by RailTel, although all reasonable and proper precautions may have been taken by the Contractor.

In case RailTel shall be called upon to make good any costs, loss or damages, or to pay any compensation, including that payable under the provisions of the Workmen's Compensation Act or any statutory amendments thereof to any person or persons sustaining damages as aforesaid by reason of any act, or any negligence or omissions on the part of the Contractor; the amount of any costs or charges including costs and charges in connection with legal proceedings, which RailTel may incur in reference thereto, shall be charged to the Contractor. RailTel shall have the power and right to pay or to defend or compromise any claim of threatened legal proceedings or in anticipation of legal proceedings being instituted consequent on the action or default of the Contractor, to take such steps as may be considered necessary or desirable to ward off or mitigate the effect of such proceedings, charging to Contractor, as aforesaid; any sum or sums of money which may be paid and any expenses whether for reinstatement or otherwise which may be incurred and the propriety of any such payment, defence or compromise, and the incurring of any such expenses shall not be called in question by the Contractor.

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CHAPTER- 4B INSTRUCTIONS TO THE BIDDERS

4.B.0 General

These are the Special Instructions to the Bidders for e-Tender.

4.B.1 Order of Priority of Contract Documents:

The documents forming this Tender document are to be taken as mutually explanatory of each other. For purpose of interpretation, the precedence and priority of the documents shall be in the following sequence:

1) Agreement (applicable after signing)
2) Letter of Acceptance of Tender
3) Notice Inviting Tender
4) Bid Data Sheet
5) Schedule of Requirements
6) Instructions to the Bidders
7) Annexure/Appendix to Tender
8) Form of Bid
9) Commercial Terms and Conditions of the Contract
10) Technical Specifications
11) Relevant Codes and Standards
12) Drawings

Note: If any ambiguity or discrepancies is found in the Tender document, RailTel reserves the right to issue any clarification or instructions necessary to correct such ambiguity or discrepancy and such clarification/instruction shall be final and binding on the bidder and RailTel.

4.B.2 Submission of Bids only through online process is mandatory for this Tender

E-Tender is a new methodology for conducting Public Procurement in a transparent and secured manner. Now, the Government of India has made e-Tender mandatory. Suppliers/ Vendors will be the biggest beneficiaries of this new system of procurement. For conducting electronic Tender, RailTel has decided to use the portal https://railtel.eNivida.com**.**

Bidders are advised to visit the E-Nivida Portal for details related to E-Tender i.e., Registration, FAQ, Helpdesk, Learning Center etc.

4.B.2.1 Tender Bidding Methodology:

Bidder has to submit each packet of the bid (Part I –Credential/ Techno commercial Bid and Part II - Price Bid) “ONLINE”.

Helpdesk

Please visit Helpdesk section on RailTel E-Nivida Portal.

RailTel Contact-I (for general Information)

As mentioned in BDS (Chapter-5)

RailTel Contact-II (for general Information)

As mentioned in BDS (Chapter-5)

4.B.2.2 Bid related Information for this Tender

The entire bid-submission would be online on RailTel E-Nivida Portal.

Broad outline of submissions are as follows:

1. Submission of Scan copy of Earnest Money Deposit (EMD) in the form of BG
2. Submission of digitally signed copy of Tender Documents/Addenda
3. Two Packet(Part I –Credential/ Techno commercial Bid and Part II - Price Bid)
4. Online response to Terms & Conditions of Tender.

NOTE:

I. Bidder must ensure that the bid must be successfully submitted online as per instructions of E-Nivida Portal.

II. Bidder may submit their offer depending upon meeting of the qualification criteria and other terms & conditions of the Tender. However, Price bid of the bidder shall only be opened once the bidder offer is found meeting the qualification criteria and other terms & conditions of the Tender.

4.B.3 Online Submissions:

The bidder is required to submit all the relevant documents online only with the following documents:

a) Scan copy of EMD (in the form of BG) to be submitted online **through E-Nivida Portal . MSEs claiming EMD exemption must submit** copy of their current and valid UDYAM registration certificate for the tendered item/wok/ services,
b) Integrity pact to be submitted as per Clause 4.A.51 (Form No. 5, Chapter-6). Original copies are needed to be submitted by the successful bidder before issuance of LOA.
c) Constitution of Firm and Power of attorney to be submitted online as per Clause 4.A.45. Original copy is needed to be submitted by the successful bidder before issuance of LOA.
d) In case bidder happens to be an MSE bidder, the documentary evidence (UDYAM) for same shall be submitted on line.
e) System Performance Guarantee (Form No. 2, Chapter-6). Original copy is needed to be submitted by the successful bidder before issuance of LOA.
f) Affidavit (Form No. 4 Chapter-6). Original copy is needed to be submitted by the successful bidder before issuance of LOA.

Hard copy may be sought by RailTel offline for verification/clarification, after opening of the e-bid response on E-Nivida Portal (e-Procurement), if required.

4.B.4 Submission of Eligibility Criteria related documents

All Eligibility criteria related documents as applicable shall be scanned and submitted ONLINE.

NOTE: It is advised to all bidders to submit their offer online well before the closing time of Tender to avoid any last-minute issues in uploading. Its bidder's responsibility to proactively plan for the bid submission and in case of internet related problem at a bidder's end, especially during 'critical events' such as a short period before bid-submission deadline, during online public Tender opening event, during e-auction, it is the bidder's responsibility to have backup internet connections.

4.B.5 Preparation of Bids

a) Bidder should take into account any corrigendum published on the Tender document before submitting their bids. Please go through the Tender advertisement and the Tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents including the names and content of each of the document that need to be submitted.

b) Bidder, in advance, should get ready the bid documents to be submitted as indicated in the Tender document/schedule and generally, they can be in PDF/SLS/RAR/DWF formats. Bid documents may be preferably scanned with100 dpi with black and white option.

4.B.6 Instructions for Tender Document to the Bidders

The NIT and link to Tender is published on www.railtelindia.com E-Nivida Portal and the Tender is published on E-Nivida, a online Portal https://railtel.eNivida.com . **Tender offers shall be submitted online at E-Nivida Portal-**
https://railtel.eNivida.com **only**

NOTE: For online bid submission the bidder will have to necessarily download an official online copy of the Tender documents from E-Nivida Portal, and this should be done well before the deadline for bid-submission.

4.B.7 Submission of Offers and Filling of Tender:

This e-Tender should be duly submitted online using the e-Procurement Portal https://railtel.eNivida.com. For detailed instructions please refer to E-Nivida Portal.

4.B.8 Attendance of Representatives for Tender Opening:

Representatives of bidders desirous to attend the Tender opening can do so on production of a proper letter of authority from the respective firm, failing which they may not be allowed to attend the Tender opening. Authorized representatives of those firms who have submitted the Tender documents alone shall be allowed to attend the Tender opening.

4.B.9 e- Reverse Auction:

The procurement in this Tender will be done on reverse auction. The procedure for the reverse auction will be as per e-Nivida Portal.

Submission of Bids

In addition to the instructions given above, the bids shall be processed through Two Stage Reverse Auction method, to be implemented through RailTel e-Nivida portal. Two packets system shall be followed for the 1st stage of reverse auction, which means that Techno-commercial bid will be opened first; and after deciding the suitability or otherwise of the technical bids, the financial bids of only those firms which are found to be suitable shall be opened.

The financial bid of those firms whose technical bids have been found to be suitable shall be opened on or after scheduled date and time. The financial tabulation statement shall be generated immediately thereafter, and can be viewed by the participating bidders by logging into RailTel e-Nivida account.

After opening the financial bids, the Tendering department shall schedule the start of reverse auction. The Tenderers who are eligible for the participation in the reverse auction process can view the reverse auction catalogue by logging into their RailTel e-Nivida account.

The lowest Initial Price Offer (L1 offer price) as submitted by the technically qualified bidders during the financial evaluation stage shall be the base price for starting the reverse auction. The base price shall be notified to the bidder.
Date and time of start of RA will be informed on RailTel e-Nivida /RailTel Website.

Selection of vendors for RA shall be as under:

If the number of Tenderers qualified for award of contract is less than 3, No RA shall be conducted and the Tender shall be decided on the basis of initial price offer. If the numbers of Tenderers qualified are 3 to 6, only 3 Tenderers shall be eligible for participating in RA.

If the numbers of Tenderers qualified are more than 6, only 50% of Tenderers shall be eligible for RA (rounded off to next higher integer).

The bids disallowed from participating in the RA shall be the highest bidder(s). In case the highest bidders quote the same rate, the initial price offer received last as per time log of RailTel e-Nivida, shall be removed first, on the principle of last in first out, by RailTel e-Nivida system itself.

Initial Cooling Off period shall be 2 hours.
Auto Extension Period shall be 30 minutes.
Minimum Decrement in percentage shall be 0.1% of Current Lowest Bid.

Once the reverse auction process is closed the lowest rate received in the reverse auction/financial offer will be evaluated. RailTel reserves the right not to consider the lowest bid received in the reverse auction/financial bid process. Percentage rate reduction after RA will be proportionately done across all the items for all SOR items.

In case of no participation in RA process by any bidder, the base value of RA process will be considered for commercial bid assessment.

Technical e-RA training can be opted by the bidder to know the procedure of e-RA (Reverse Auction).

RailTel may discharge the Tender at any stage without assigning any reason.

Bidders may please note that Bidding close Date/Time gets extended automatically every time an offer is received against the Tender during a time interval equivalent to Cooling Off prior to the closing date and time. For example: If the Closing Time of RA is 13:00 Hrs and the Cooling Off period is 30 Minutes, if two offers are received between 12:30 Hrs and 13:00 Hrs, lets say at 12:40 Hrs and 12:55 Hrs, the Closing Time shall be extended by 30 Minutes from the time of submission of the last bid i.e. up to 13:25 Hrs.

Award of Contracts
Financial Evaluation

Reverse Auction (e-RA):
After the evaluation of technical proposals, the financial bids (initial price offer) of those firms whose technical bids meet eligibility criteria shall be categorized as qualified for the purpose of Reverse Auction (e-RA). These financial bids shall be opened on the scheduled date and time. As per the procedure a minimum of three bids are mandatory for conduct of e-RA. In case the numbers of qualified bids are less than three, the L-1 would be decided on the initial price offer quoted by the bidder on RailTel e-Nivida. In case of more than three qualified bidders, the e-RA as explained in the manual mentioned above will be implemented. After the end of e-RA, L-1, L-2 and so on stand identified.

After completion of eRA, reduction achieved in lowest initial price offer (L-1 offer price) shall be distributed proportionately among all SOR items.

4.B.10 Addenda / Corrigenda:

Addenda / Corrigenda to the Tender documents may be issued by RailTel prior to the date of opening of the Tenders, to clarify or reflect modifications in the contract terms and conditions or in the design. Such addendum/corrigendum shall be available on e-Nivida and RailTel web-site . Bidders who are unable or unwilling to bring their Tenders to conform to the requirements of RailTel are liable to be **REJECTED**.

4.B.11 Ambiguity/ Pre- Bid Clarification Requests:

If there is any ambiguity or doubt as to the meaning of any of the Tender clauses/ conditions or if any additional information required, the matter should immediately be referred to RailTel in writing through emails to RailTel Contacts mentioned in BDS.

4.B.12 Compulsory Compliance Conformations by all Participating Bidders

The instructions given in the Tender document are binding on the bidder and submission of the Tender shall imply unconditional acceptance of all the Terms & conditions by the bidder.

Each and every page of submitted Tender document including documentation shall be serially numbered & indexed. Bidders shall enclose relevant documents in their bid document to support their claims of experience/ eligibility/compliance meeting criteria mentioned under different clauses of the Tender.

In case some false information is submitted by any bidder in support of experience, performance certificate, financial turnover, etc., then the bidder Tender shall be REJECTED and action will be taken as per 4.A.30

RailTel shall be sole judge in the matter of shortlisting bidders at all stages of the Tender and the decision of RailTel shall be final and binding on the bidders.

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CHAPTER- 5 BID DATA SHEET (BDS)

The section consists of provisions that are specific to various Clauses of the Tender document

Clause	Description
Clause 3.A.1.3, Chapter-3-A,	The scope of work includes: 1. Submission of Detailed Design, Deployment Methodology and Implementation Plan. 2. Supply, Installation, Integration, Testing, Commissioning & maintenance of LAN & WAN Network. 3. Implementations of Wired & Wireless Network, both for Indoor & Outdoor Solutions. 4. Deployment of Secured Security Solutions like Next Generation Firewall, Web Application Firewall (WAF), etc 5. Enterprise Management Solution. 6. Laying & Maintenance of UTP Cable at Units of NMDC viz. HO- HYD, Kirandul, Bacheli, Donimalai, Panna, Sponge Iron Unit at Paloncha etc. 7. Supply and installation of Network Rack, UPS, Earthing Pit and Lightening arrestors. 8. Operation and Maintenance and Manpower Services for Five (5) years
Clause 4.A.1, Chapter-4-A,	**Validity of offer** Validity: The offers submitted shall be valid for a period of 60 days from the date of opening of Tender.
Clause 4.A.2, Chapter-4-A,	**Warranty** The successful Bidder shall provide comprehensive on-site warranty for Five (5) years for all components with back to back arrangements with OEM from the date of acceptance of the entire system as per Tender. The services manageability should be governed by the SLA terms and conditions. Bidder shall also update necessary OS, Patches and should support the hardware and the software for the period of five years from the date of acceptance of the entire system by RailTel/Customer

Clause	Description
Clause 4.A.5, Chapter-4-A,	**Delivery/Implementation Timelines** Refer Clause 4.A.5 of Chapter-4
Clause 4.A.5.7, Chapter-4-A,	Billing Address: Executive Director RailTel Corporation of India Ltd., 1-10-39 to 44, 6A, 6th Floor, Begumpet Airport Road, Opp. Shoppers Stop, Begumpet, Hyderabad- 500 016 Fax: +91-40-27820682, Tel: +91-40-27788000
Clause 4.A.8, Chapter-4-A,	**Performance Bank Guarantee** Equivalent to 3% of the total value of the LOA issued. For more details please refer Clause 4.A.8 of Chapter-4.
Clause 4.A.21, Chapter-4-A,	Eligibility Criteria Requirements for Empanelled Business Associates **Financial Eligibility** RailTel Empaneled BA should have an average annual turnover of 100 crs or more during the last three financial years (i.e., FY 2019-20, FY -2020-21, FY 2021-22). **Technical Capability –** 1. The bidder shall have experience in Executing large-scale ICT Projects in past 5 years from the date of submission of bid as below (i) . One project worth of minimum Rs.59.43 crs OR (ii) Two projects worth of minimum Rs.39.62 crs each OR (iii) Three Projects worth of minimum Rs.29.72 crs each 2. The Bidder must have a proven track record for Experience in Networking Infrastructures project with all the following mentioned components in single project of a value not less than Rs. 30 Crores in last five years in India for any Central / State Governments/ PSUs / Reputed Indian Companies (where the Annual Turnover of the Company in last three financial years (2019- 20, 2020-21 and 2021-22) must be greater than INR 500 Crore) as on Bid Submission date/ Co-operative or Governmental department in India. - Servers - Switches - Firewall - Network Management System (NMS) - Operation & Maintenance Support for a minimum of 1 year

Clause	Description
Clause 4.A.28, Chapter-4-A,	**Purchaser's Right to Vary Quantities** (A) Upto maximum extent of +/- 50% subject to following condition i. Upto +25% with no rebate. ii. From +25% to +40% with 2% rebate iii. From +40% to +50% with 4% rebate (B) For variation beyond +50% of the quantity mentioned in the SOR may be done after proper negotiation with the selected bidder.
Clause 4. A.31	**EMD** As per Tender notice. Soft Copy of EMD in the form of BG of Rs. 50 Lakh to be submitted online through E-Nivida Portal. Physical copy of EMD in the form of BG must be submitted within 2 days of Last Date of Submission of Bid.
Clause **4.A.44, Chapter-4-A,**	**Last Date of Submission of Offer (Online)** Date: 16.12.2022(Last Date of uploading of the Tender document on E-Nivida Portal) Time: 15:00 hours **Date of Opening of Tender (Online)** Date: 16.12.2022(Date of bid opening on E-Nivida Portal) Time: 15:30 hours
Clause 4.B.2.1, Chapter-4-B,	**RailTel Contact-I (for general Information)** Sh. Shailendra Dusa, DGM/Marketing Telephone: Tel: +91-40-27788000, Ext:532 Mobile: 9866327886 Email ID :sdusa@railtelindia.com **RailTel Contact-II (for general Information)** RailTel's Contact Officer Sh. Vikrant K,Jt.GM /Mktg, Telephone: Tel: +91-40-27788000, Ext:551 Mobile: 9003144205 Email ID: Vikrantk@railtelindia.com
Chapter-1, Chapter-6, Regional Address,	**Executive Director** RailTel Corporation of India Ltd., 1-10-39 to 44, 6A, 6th Floor, Begumpet Airport Road, Opp. Shoppers Stop, Begumpet, Hyderabad- 500 016 E-mail ID: **kmr@railtelindia.com**

Note:

1. If the details given in BDS contradict with referred clause in the detailed Tender document, the details in BDS will have overriding priority (as per clause 4.B.1) over the referred clause in the Tender document.

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CHAPTER- 6 -FORM (S)/PROFORMA (S)

Form No. 1 - PROFORMA FOR "PERFORMANCE BANK GUARANTEE BOND (PBG)"

(To be stamped in accordance with stamp act)

(To be used by approved Indian scheduled commercial banks)

(To be customized and use for bank guarantee for financial closure and for operational bank guarantee as well)

1. In consideration of the RailTel Corporation Of India Ltd, Corporate Office, Plot No. 143,Sector 44, Gurgaon, Haryana -122003 (Hereinafter called " the RailTel") having agreed to exempt …… ……..(hereinafter called " the said Contractor(s)") from the demand, under the terms and conditions of an Agreement No. …… …… dated …… made between…… and …….. for (hereinafter called "the said Agreement") of total cost of ownership for the due fulfillment by the said contractor) s) of the terms and conditions contained in the said Agreement, or production of a Bank Guarantee for Rs. …….. (Rs……. only). We, …… (indicate the name of the Bank) hereinafter referred to as "the Bank") at the request of ……. ……. Contractor(s) do hereby undertake to pay the RailTel an amount not exceeding Rs. ……. Against any loss or damage caused to or suffered or would be caused to or suffered by the RailTel by reason of any breach by the said Contractor(s) of any of the terms or conditions contained in the said Agreement.

2. We, ……. Bank do hereby undertake to pay the amount due and payable under this Guarantee without any demur, merely on demand from the RailTel stating that the amount is claimed is due by way of loss or damage caused to or would be caused to or suffered by the RailTel by reason of breach by the said Contractor(s) of any of terms or conditions contained in the said Agreement or by reason of the Contractor(s) failure to perform the said Agreement. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. ……

3. We, ……. bank undertake to pay to the RailTel any money so demanded notwithstanding any dispute or disputes raised by the Contractor(s) / Supplier(s) in any suit or proceedings pending before any court or Tribunal relating thereto our liability under this present being, absolute and unequivocal.

4. The payment so made by us under this Bond shall be a valid discharge of our liability for payment there under and the Contractor(s) / Supplier(s) shall have no claim against us for making such payment.

5. We, ……. Bank further agree that the Guarantee here in contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the RailTel under or

by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till RailTel certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this Guarantee. Unless a demand or claim under the Guarantee is made on us in writing on or before the ……. (A*) ……. We shall be discharged from all liability under this Guarantee thereafter.

6. We, …… (indicate the name of Bank) Further agree with the RailTel that the RailTel shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the Agreement or to extend time of to postpone for any time or from time to time any of the powers exercisable by the RailTel against the said contractor(s) and to forbear or enforce any of the terms and conditions relating to the said Agreement and we shall not be relieved from our liability by reason of any such variation, or extension to the said Contractor(s) or for any forbearance, act or omission on the part of RailTel or any indulgence by the RailTel to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have affect of so relieving us.

7. This Guarantee will not be discharged due to the change in the Constitution of the Bank or the Contractor(s) Supplier(s). We, …… (indicate the name of Bank) lastly undertake not to revoke this Guarantee during its currency except with the previous consent of the RailTel in writing.

Dated the day of 2022

for …….

(Indicate the name of the Bank)
Witness

1. Signature

Name

2. Signature

Name

Form No. 2 - PROFORMA FOR "SYSTEM PERFORMANCE GUARANTEE"

(On Stamp Paper of Rs. One Hundred)
(To be signed by the Bidder)

To
The Executive Director, RailTel Corporation of India Ltd.,
1-10-39 to 44, 6A, 6th Floor, Begumpet Airport Road,
Opp. Shoppers Stop, BEGUMPET, HYDERABAD- 500 016

Tender Reference No.:

Applicable for Bidder/OEM(s) directly participating in the Tender

Dear Sir,

I / We ……. hereby guarantee that the design on the basis of which we have submitted our Tender no. …… has been carefully made to conform to the end objectives in the Tender documents and to technical specification therein. We further guarantee that in the event of the performance of the system, when installed, not complying with the end objectives or with the specifications contained in the Tender documents, we shall provide further inputs to enable the RailTel to realize the end objectives contained in these documents without any additional payment for any additional equipment which may be required in this regard. We further guarantee that all the expenses for providing the additional inputs under the System Guarantee will be borne by us. We further guarantee that these additional inputs will be provided by us to make the system workable within 1 month from the date on which this guarantee is invoked by the Purchaser. The guarantee is valid for a period of one year from the date of commissioning of the system.

(Signature of Firm's Authorized Officer)
Seal

Signature of witness:

1. ……
2. …….

Or

Applicable for OEM(s)

I / We ……. hereby guarantee that the design on the basis of which we have submitted our Tender no. …… has been carefully made to conform to the end objectives in the Tender documents and to technical specification therein related to OEM's scope. We further guarantee that in the event of the performance of the system, when installed, not complying with the end objectives or with the specifications contained in the Tender documents as per OEM's scope, we shall provide further inputs to enable the RailTel to realize the end objectives contained in these documents without any additional payment for any additional equipment which may be required in this regard. We further guarantee that all the expenses for providing the additional inputs under the System Guarantee will be borne by us. We further guarantee that these additional inputs will be provided by us to make the system workable within 1 month from the

date on which this guarantee is invoked by the Purchaser. The guarantee is valid for a period of one year from the date of commissioning of the system.

(Signature of Firm's Authorized Officer)
Seal

Signature of witness:

1. ……

2. …….

Form No. 3 - PROFORMA FOR "MAINTENANCE SUPPORT"

(To be signed by the Bidder as well as the OEM's)

To

The Executive Director, RailTel Corporation of India Ltd.,
1-10-39 to 44, 6A, 6th Floor, Begumpet Airport Road,
Opp. Shoppers Stop, BEGUMPET, HYDERABAD- 500 016

Tender Reference No.:

Applicable for OEM participating in the Tender

I / We ……. hereby confirm that we have read specifications & Tender conditions of RailTel Tender No. ……..and accept that the requirement of Long Term Maintenance Support as per Clause 4.A.4 of Chapter-4,shall be met **by us directly or through our subsidiary in India** as per rates quoted in the Price Bid. I / We shall provide services as per terms and conditions pertaining to Long Term Maintenance Support of Tender document.

OR

Applicable for Authorized Distributor/Partner of OEM

I / We ……. hereby confirm that we have read specifications & Tender conditions of RailTel Tender No. ……and accept that the requirement of Long Term Maintenance Support as per Clause 4.A.4 of Chapter-4shall be met **by Authorized Distributor/Partner of OEM. However, if Authorized Distributor/Partner fails to fulfill the support obligation due to any un-foreseen circumstances, the same shall be provided by us directly or through our subsidiary in India for the mentioned/remaining period at the quoted prices by the bidder. I/We have gone through the requirement mentioned in the Tender Document and shall provide services as per terms and conditions** pertaining to Long Term Maintenance Support of Tender document.

(Signature of Firm's Authorized Officer)
Seal

Signature of witness:

1. ……

2. …….

Note: Please Strike out whichever is not applicable.

Form No. 4 -PROFORMA FOR AFFIDAVIT TO BE UPLOADED BY BIDDER ALONG-WITH THE Tender DOCUMENTS

(To be signed by the Bidder)

(To be executed in presence of public notary on non-judicial stamp paper of the value of Rs.100/-. The stamp paper has to be in the name of the Bidder) **

I…….(Name and designation)** appointed as the attorney/authorized signatory of the Bidder (including its constituents),
M/s._____ (hereinafter called the Bidder) for the purpose of the Tender documents for the work of _____
as per the Tender No._____ of (-------RailTel Region), do hereby solemnly affirm and state on the behalf of the Bidder including its constituents as under:

1. I/We the Bidder (s), am/are signing this document after carefully reading the contents.

2. I/we the Bidder(s) also accept all the conditions of the Tender and have signed all the pages in confirmation thereof.

3. I/We hereby declare that I/We have downloaded the Tender documents from electronic-Tender portal. I/We have verified the content of the document from the website and there is no addition, no deletion or no alteration to the content of the Tender document. In case of any discrepancy noticed at any stage i.e., evaluation of Bidders, execution of work or final payment of the contract, the master copy available with the RailTel/NMDC shall be final and binding upon me/us.

4. I/We declare and certify that I/we have not made any misleading or false representation in the forms, statements and attachments in proof of the qualification requirements.

5. **I/We also understand that my/our offer will be evaluated based on the documents/credentials submitted along with the offer and same shall be binding upon me/us.**

6. **I/We declare that the information and documents submitted along with the Tender by me/us are correct and I/we are fully responsible for the correctness of the information and documents submitted by us.**

7. I/We undersigned that if the certificates regarding eligibility criteria submitted by us are found to be forged/false or incorrect at any time during process for evaluation of Tenders, it shall lead to banning of business for five years on entire RailTel. Further, I/we (*insert name of the Bidder*) ** _____ and all my/our constituents understand that my/our offer shall be **Summarily REJECTED**.

8. I/we also understand that if the certificates submitted by us are found to be false/forged or by OEMs of the offered Hardware/Software incorrect at any time after the award of the contract, it will lead to termination of the contract, along with forfeiture of SD and Performance Guarantee besides any other action provided in the contract including banning of business for five year on entire RailTel.

DEPONENT

SEAL AND SIGNATURE
OF THE BIDDER

VERIFICATION

I/We above named Bidder do hereby solemnly affirm and verify that the contents of my/our above affidavit are true and correct. Nothing has been concealed and no part of it is false.

DEPONENT
SEAL AND SIGNATURE
OF THE BIDDER

Place:
Dated:

** The contents in Italics are only for guidance purpose. Details as appropriate, are to be filled in suitably by Bidder. Attestation before Magistrate/Notary Public.

Form No. 5 - PROFORMA FOR "SIGNING THE INTEGRITY PACT"

(To be signed by the Bidder)

RailTel Corporation of India Limited, hereinafter referred to as "The Principal".

AND

……., hereinafter referred to as "The Bidder/ Contractor"

Preamble

The Principal intends to award, under laid down organizational procedures, contract/s for ……The Principal values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/transparency in its relations with its Bidder(s) and /or Contractor(s).

In order to achieve these goals, the Principal will appoint an Independent External Monitor (IEM), who will monitor the Tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1- Commitments of the Principal

1. The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles: -

   a. No employee of the Principal, personally or through family members, will in connection with the Tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

   b. The Principal will during the Tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/additional information through which the Bidder(s) could obtain an advantage in relation to the process or the contract execution.

   c. The Principal will exclude from the process all known prejudiced persons.

2. If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Act, or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and in addition can initiate disciplinary actions.

Section 2- Commitments of the Bidder(s) / Contractor(s)

1. The Bidder(s)/Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the contract execution.

   a. The Bidder(s)/contractor(s) will not, directly or through any other persons or firm, offer promise or give to any of the Principal's employees involved in the Tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally

entitled to, in order to obtain in exchange any advantage during Tender process or during the execution of the contract.

b. The Bidder(s)/Contractor(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

c. The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act; further the Bidder(s) /Contractors will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

d. The Bidder(s)/Contractor(s) of foreign origin shall disclose the name and address of the Agents/representatives in India, if any. Similarly, the bidder(s)/contractor(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any. Further details as mentioned in the "Guidelines on Indian Agents of Foreign Suppliers" shall be disclosed by the Bidder(s)/Contractor(s). Further, as mentioned in the Guidelines all the payments made to the Indian agent/representative have to be in Indian Rupees only. Copy of the "Guidelines on Indian Agents of Foreign Suppliers' as annexed and marked as Annexure A.

e. The Bidder(s)/Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

2. The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3: Disqualification from Tender process and exclusion from future contracts

If the Bidder(s)/Contractor(s), before award or during execution has committed a transgression through a violation of Section 2, above or in any other form such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/Contractor(s) from the Tender process or take action as per the procedure mentioned in the "Guidelines on Banning of business dealings". Copy of the "Guidelines on Banning of business dealings" is annexed and marked as Annex-"B".

Section 4: Compensation for Damages

1. If the Principal has disqualified the Bidder(s) from the Tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/Bid Security.

2. If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to be terminated the contract according to Section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages of the Contract value or the amount equivalent to Performance Bank Guarantee.

Section 5: Previous Transgression

1. The Bidder declares that no previous transgressions occurred in the last three years with any other company in any country conforming to the anti-corruption approach or with any other public sector enterprise in India that could justify his exclusion from the Tender process.

2. If the bidder makes incorrect statement on this subject, he can be disqualified from the Tender process for action can be taken as per the procedure mentioned in "Guidelines on Banning of business dealings".

Section 6: Equal treatment of all Bidders / Contractors/Subcontractors.

1. The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.

2. The Principal will enter into agreements with identical conditions as this one with all bidders, contractors and subcontractors.

3. The Principal will disqualify from the Tender process all bidders who do not sign this Pact or violate its provisions.

Section 7: Criminal charges against violation by Bidder(s) / Contractor(s) / Sub contractor(s)

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or ofan employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same to the Chief Vigilance Officer.

Section 8: Independent External Monitor / Monitors

1. The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

2. The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, RailTel.

3. The Bidder(s)/Contractor(s) accepts that the Monitor has the right to access without restriction to all project documentation of the Principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s)/Subcontractor(s) with confidentiality.

4. The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

5. As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or to take other relevant action. The monitor can in this regard submit non-

binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

6. The Monitor will submit a written report to the CMD, RailTel within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.

7. Monitor shall be entitled to compensation on the same terms as being extended to provide to Independent Directors on the RailTel Board.

8. If the Monitor has reported to the CMD, RailTel, a substantiated suspicion of an offence under relevant IPC/PC Act, and the CMD, RailTel has not, within the reasonable time taken visible action to proceed against such offence or reported it to the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner.

9. The word 'Monitor' would include both singular and plural.

Section 9: Pact Duration

This pact begins when both parties have legally signed it. It expires for the Contractor 10 months after the last payment under the contract, and for all other Bidders 6 months after the contract has been awarded.

If any claim is made / lodged by either party during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged / determined by CMD of RailTel.

Section 10: Other Provisions

1. This agreement is subject to Indian Law, Place of performance and jurisdiction is the Registered Office of the Principal, i.e. New Delhi.

2. Changes and supplements as well as termination notices need to be made in writing.

3. Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

(For & on behalf of the Principal)
(Office Seal)

(For & On behalf of Bidder/Contractor)
(Office Seal)

Place ——————————

Date ——————————
Witness 1:

Annexure-A of INTEGRITY PACT

GUIDELINES FOR INDIAN AGENTS OF FOREIGN SUPPLIERS

1.0 There shall be compulsory registration of agents for all global (Open) Tender and Limited Tender. An agent who is not registered with RailTel Units shall apply for registration in the prescribed Application-Form.

1.1 Registered agents will file an authenticated Photostat copy duly attested by a Notary Public/ Original certificate of the principal confirming the agency agreement and giving the status being enjoyed by the agent and the commission/ remuneration/retainer-ship being paid by the principal to the agent before the placement of order by RailTel.

1.2 Wherever the Indian representatives have communicated on behalf of their principals and the foreign parties have stated that they are not paying any commission to the Indian agents, and the Indian representative is working on the basis of salary or as retainer, a written declaration to this effect should be submitted by the party (i.e. Principal) before finalizing the order.

2.0 DISCLOSURE OF PARTICULARS OF AGENTS/ REPRESENTATIVES IN INDIA, IF ANY.

2.1 Bidders of Foreign nationality shall furnish the following details in their offer:

2.1.1 The name and address of the agents/representatives in India, if any and the extent of authorization and authority given to commit the Principals. In case the agent/representative be a foreign Company, it shall be confirmed whether it is real substantial Company and details of the same shall be furnished.

2.1.2 The amount of commission/ remuneration included in the quoted price(s) for such agents/representatives in India.

2.1.3 Confirmation of the Bidder that the commission/ remuneration if any, payable to his agents/ representatives in India, may be paid by RAILTEL in Indian Rupees only.

2.2 Bidders of Indian Nationality shall furnish the following details in their offers:

2.2.1 The name and address of the foreign principals indicating their nationality as well as their status, i.e. whether manufacturer or agents of manufacturer holding the Letter of Authority of the Principal specifically authorizing the agent to make an offer in India in response to Tender either directly or through the agents/representatives.

2.2.2 The amount of commission /remuneration included in the price(s) quoted by the Bidder for himself.

2.2.3 Confirmation of the foreign principals of the Bidder that the commission/ remuneration, if any, reserved for the Bidder in the quoted price(s), may be paid by RAILTEL in India in equivalent Indian Rupees on satisfactory completion of the Project or supplies of Stores and Spares in case of operation items.

2.3 In either case, in the event of contract materializing, the terms of payment will provide for payment of the commission/ remuneration, if any payable to the agents/representatives in

India in Indian Rupees on expiry of 90 days after the discharge of the obligations under the contract.

2.4 Failure to furnish correct and detailed information as called for in paragraph 2.0 above will render the concerned Tender liable to **REJECTION** or in the event of a contract materializing, the same liable to termination by RAILTEL. Besides this there would be a penalty of banning business dealings with RAILTEL or damage or payment of a named sum.

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Annexure-B of INTEGRITY PACT

GUIDELINES ON BANNING OF BUSINESS DEALINGS

CONTENTS

1. **Introduction**

RailTel Corporation of India Ltd (RAILTEL), being a Public Sector Enterprise, under the administrative control of the Ministry of Railways and therefore being an authority deemed to be 'the state' within the meaning of Article 12 of Constitution of India, has to ensure preservation of rights enshrined in Chapter III of the Constitution. RAILTEL has also to safeguard its commercial interests. RAILTEL deals with Agencies, who have a very high degree of integrity, commitments and sincerity towards the work undertaken. It is not in the interest of RAILTEL to deal with Agencies who commit deception, fraud or other misconduct in the execution of contracts awarded / orders issued to them. In order to ensure compliance with the constitutional mandate, it is incumbent on RAILTEL to observe principles of natural justice before banning the business dealings with any Agency.

Since banning of business dealings involves civil consequences for an Agency concerned, it is incumbent that adequate opportunity of hearing is provided and the explanation, if tendered, is considered before passing any order in this regard keeping in view the facts and circumstances of the case.

2. Scope

1. The General Conditions of Contract (GCC) of RAILTEL generally provide that RAILTEL reserves its rights to remove from list of approved suppliers/ contractors or to ban business dealings if any Agency has been found to have committed misconduct and also to suspend business dealings pending investigation. If such provision does not exist in any GCC, the same may be incorporated.

2 Similarly, in case of sale of material there is a clause to deal with the Agencies/ customers/ buyers, who indulge in lifting of material in unauthorized manner. If such a stipulation does not exist in any Sale Order, the same may be incorporated.

3 However, absence of such a clause does not in any way restrict the right of Company (RAILTEL) to take action / decision under these guidelines in appropriate cases.

4. The procedure of (i) Removal of Agency from the List of approved suppliers/ contractors; (ii) Suspension and (iii) Banning of Business Dealing with Agencies, has been laid down in these guidelines.

5. These guidelines apply to Corporate Office, all Regions and Subsidiaries of RAILTEL.

6 It is clarified that these guidelines do not deal with the decision of the Management to avoid entertaining any particular Agency due to its poor / inadequate performance or for any other reason.

7. The banning shall be with prospective effect, i.e., future business dealings.

3. Definitions

In these Guidelines, unless the context otherwise requires:

i) 'Party / Contractor / Supplier / Purchaser / Customer' shall mean and include a public limited company or a private limited company, a firm whether registered or not, an individual, a

cooperative society or an association or a group of persons engaged in any commerce, trade, industry, etc. 'Party / Contractor / Supplier / Purchaser / Customer' in the context of these guidelines is indicated as 'Agency'.

ii) 'Inter-connected Agency' shall mean two or more companies having any of the following features:

a) If one is a subsidiary of the other;

b) If the Director(s), Partner(s), Manager(s) or Representative(s) are common;

c) If management is common;

d) If one owns or controls the other in any manner;

iii) 'Competent Authority' and 'Appellate Authority' shall mean the following:

a) For Company (entire RAILTEL) wide Banning: The Director shall be the'Competent Authority' for the purpose of these guidelines. CMD, RAILTEL shall be the 'Appellate Authority' in respect of such cases except banning of business dealings with Foreign Suppliers of imported items.

b) For banning of business dealings with Foreign Suppliers of imported items, RAILTEL Directors Committee (RDC) shall be the 'Competent Authority'. The Appeal against the Order passed by RDC, shall lie with CMD, as First Appellate Authority.

c) In case the foreign supplier is not satisfied by the decision of the First Appellate Authority, it may approach RailTel Board as Second Appellate Authority.

d) For RailTel Regions only: Any officer not below the rank of General Manager appointed or nominated by the Executive Director of concerned Region shall be the 'Competent Authority' for the purpose of these guidelines. The Executive Director of the concerned Region shall be the 'Appellate Authority' in all such cases.

e) For Corporate Office only: For procurement of items / award of contracts, to meet the requirement of Corporate Office only, Concerned Group General Manager / General Manager shall be the 'Competent Authority' and concerned Director shall be the 'Appellate Authority'.

f) CMD, RAILTEL shall have overall power to take suo-moto action on any information available or received by him and pass such order(s) as he may think appropriate, including modifying the order(s) passed by any authority under these guidelines.

iv) 'Investigating Department' shall mean any Department or Unit investigating into the conduct of the Agency and shall include the Vigilance Department, Central Bureau of Investigation, the State Police or any other department set up by the Central or State Government having powers to investigate.

v) 'List of approved Agencies - Parties / Contractors / Suppliers/ Purchaser/ Customers' shall mean and include list of approved /registered Agencies - Parties/ Contractors / Suppliers / Purchasers / Customers, etc.

4. Initiation of Banning / Suspension

Action for banning / suspension of business dealings with any Agency should be initiated by the department having business dealings with them after noticing the irregularities or misconduct on their part. Besides the concerned department, Vigilance Department of each Region / Unit/ Corporate Office may also be competent to initiate such action.

5. Suspension of Business Dealings

- If the conduct of any Agency dealing with RAILTEL is under investigation by any department (except Foreign Suppliers of imported items), the Competent Authority may consider whether the allegations under investigation are of a serious nature and whether pending investigation, it would be advisable to continue business dealing with the Agency. If the Competent Authority, after consideration of the matter including the recommendation of the Investigating Department, if any, decides that it would not be in the interest to continue business dealings pending investigation, it may suspend business dealings with the Agency. The order to this effect may indicate a brief of the charges under investigation. If it is decided that inter-connected Agencies would also come within the ambit of the order of suspension, the same should be specifically stated in the order. The order of suspension would operate for a period not more than six months and may be communicated to the Agency as also to Investigating Department. The Investigating Department may ensure that their investigation is completed and whole process of final order is over within such period.

- The order of suspension shall be communicated to all the departmental heads within the unit/ region/ Corporate Office as the case may be. During the period of suspension, no business dealing may be held with the agency.

- As far as possible, the existing contract(s) with the Agency may continue unless the Competent Authority, having regard to the circumstances of the case, decides otherwise.

- If the gravity of the misconduct under investigation is very serious and it would not be in the interest of RAILTEL, as a whole, to deal with such an Agency pending investigation, the Competent Authority may send his recommendation to Chief Vigilance Officer (CVO), RAILTEL Corporate Office along with the material available. If Corporate Office considers that depending upon the gravity of the misconduct, it would not be desirable for all the units/ regions of RAILTEL to have any dealings with the Agency concerned, an order suspending business dealings may be issued to all the units/ Regions / Corporate Office by the Competent Authority of the Corporate Office, copy of which may be endorsed to the Agency and all concerned. Such an order would operate for a period of six months from the date of issue.

- For suspension of business dealings with Foreign Suppliers of imported items, following shall be the procedure:

i) Suspension of the foreign suppliers shall apply throughout the Company/ Regions including Subsidiaries.

ii) Based on the complaint forwarded by ED / GGM / GM or received directly by Corporate Vigilance, if gravity of the misconduct under investigation is found serious and it is felt that it would not be in the interest of RAILTEL to continue to deal with such agency, pending investigation, Corporate Vigilance may send such recommendation on the matter to Executive Director / GGM / GM, to place it before a Committee consisting of the following:

1. ED / GGM/ GM (viz. Representative of Corporate Finance).
2. ED / GGM/ GM (viz. Representative of Department concerned with procurement of imported items)- Convener of the Committee.
3. ED / GGM/ GM (to be nominated on case to case basis).
4. ED / GGM/ GM ((viz. Representative of Corporate Law).

The committee shall expeditiously examine the report and give its comments / recommendations within twenty one days of receipt of the reference by ED/ GGM/ GM.

iii) The comments / recommendations of the Committee shall then be placed byED/GGM/GM, before RAILTEL Directors' Committee (RDC) constituted forimport of items. If RDC opines that it is a fit case for suspension, RDC may pass necessary orders which shall be communicated to the foreign supplier by the ED/GGM/GM.

- If the Agency concerned asks for detailed reasons of suspension, the Agency may be informed that its conduct is under investigation. It is not necessary to enter into correspondence or argument with the Agency at this stage.

- It is not necessary to give any show-cause notice or personal hearing to the Agency before issuing the order of suspension. However, if investigations are not complete in six months time, the Competent Authority may extend the period of suspension by another three months, during which period the investigations must be completed.

6. Ground on which Banning of Business Dealings can be initiated

- If the security consideration, including questions of loyalty of the Agency to the State, so warrants;

- If the Director / Owner of the Agency, proprietor or partner of the firm, is convicted by a Court of Law for offences involving moral turpitude in relation to its business dealings with the Government or any other public sector enterprises or RAILTEL, during the last five years;

- If there is strong justification for believing that the Directors, Proprietors, Partners, owner of the Agency have been guilty of malpractices such as bribery, corruption, fraud, substitution of Tenders, interpolations, etc;

- If the Agency continuously refuses to return / refund the dues of RAILTEL without showing adequate reason and this is not due to any reasonable dispute which would attract proceedings in arbitration or Court of Law;

- If the Agency employs a public servant dismissed / removed or employs a person convicted for an offence involving corruption or abetment of such offence;

- If business dealings with the Agency have been banned by the Govt. or any other public sector enterprise;
- If the Agency has resorted to Corrupt, fraudulent practices including misrepresentation of facts;
- If the Agency uses intimidation/ threatening or brings undue outside pressure on the Company (RAILTEL) or its official in acceptance/ performances of the job under the contract;
- If the Agency indulges in repeated and / or deliberate use of delay tactics in complying with contractual stipulations;
- Willful indulgence by the Agency in supplying sub-standard material irrespective of whether pre-dispatch inspection was carried out by Company (RAILTEL) or not;
- Based on the findings of title investigation report of CBI / Police against the Agency for mal-afide/ unlawful acts or improper conduct on his part in matters relating to the Company (RAIL-TEL) or even otherwise;
- Established litigant nature of the Agency to derive undue benefit;
- Continued poor performance of the Agency in several contracts;
- If the Agency misuses the premises or facilities of the Company (RAILTEL), forcefully occupies tampers or damages the Company's properties including land, water resources, etc.

  (Note: The examples given above are only illustrative and not exhaustive. The Competent Authority may decide to ban business dealing for any good and sufficient reason).

7. Banning of Business Dealings

Normally, a decision to ban business dealings with any Agency should apply throughout the Company including subsidiaries. However, the Competent Authority of the Region/ Unit except Corporate Office can impose such ban Region-wise only if in the particular case banning of business dealings by respective Region/ Unit will serve the purpose and achieve its objective and banning throughout the Company is not required in view of the local conditions and impact of the misconduct/ default to beyond the Region/ Unit. Any ban imposed by Corporate Office shall be applicable across all Regions/ Units of the Company including Subsidiaries.

For Company-wide banning, the proposal should be sent by ED of the Region/ Unit to the CVO/RailTel setting out the facts of the case and the justification of the action proposed along with all the relevant papers and documents except for banging of business dealings with Foreign Suppliers of imported items.

The Corporate Vigilance shall process the proposal of the concerned Region/ Unit for a prima-facie view in the matter by the Competent Authority nominated for Company-wide banning.

The CVO shall get feedback about that agency from all other Regions/ Units. Based on this feedback, a prima-facie decision for banning / or otherwise shall be taken by the Competent Authority.

If the prima-facie decision for Company-wide banning has been taken, the Corporate Vigilance shall issue a show-cause notice to the agency conveying why it should not be banned throughout RAILTEL.

After considering the reply of the Agency and other circumstances and facts of the case, a final decision for Company-wide banning shall be taken by the competent Authority.

There will be a Standing Committee in each Region/ Unit to be appointed by Chief Executive Officer for processing the cases of "Banning of Business Dealings" except for banning of business dealings with foreign suppliers. However, for procurement of items/ award of contracts, to meet the requirement of Corporate Office only, the committee shall be consisting of General Manager/ Dy. General Manager each from Operations, Finance, Law & Project. Member from Project shall be the convener of the committee. The functions of the committee shall, inter-alia include:

(i) To study the report of the investigating Agency and decide if a prima-facie case for Company-wide / Region wise banning exists, if not, send back the case to the Competent Authority.

(ii) To recommend for issue of show-cause notice to the Agency by the concerned department.

(iii) To examine the reply to show-cause notice and call the Agency for personal hearing, if required.

(iv) To submit final recommendation to the Competent Authority for banning or otherwise.

If the Competent Authority is prima-facie of view that action for banning business dealings with the Agency is called for, a show- cause notice may be issued to the Agency and an enquiry held accordingly.

Procedure for Banning of Business Dealings with Foreign Suppliers of imported items.

i) Banning of the agencies, shall apply throughout the Company including subsidiaries.

ii) Based on the complaint forwarded by Executive Director or received directly by Corporate Vigilance, an investigation shall be carried out by Corporate Vigilance. After investigation, depending upon the gravity of the misconduct, Corporate Vigilance may send their report to Executive Director/ GGM/ GM, to be placed before a Committee consisting of the following:

1. ED / GGM/ GM (viz. Representative of Corporate Finance).
2. ED / GGM/ GM (viz. Representative of Department concerned with procurement of imported items)- Convener of the Committee.
3. ED / GGM/ GM (to be nominated on case to case basis).
4. ED / GGM/ GM ((viz. Representative of Corporate Law).

The Committee shall examine the report and give its comments/ recommendations within 21 days of receipt of the reference by ED.

iii) The comments/recommendations of the Committee shall be placed by ED/ GGM/ GM before RAILTEL Directors' Committee (RDC) constituted for import of foreign items. If RDC opines that it is a fit case for initiating banning action, it will direct ED/ GGM/ GM to issue show-cause notice to the agency for replying within a reasonable period.

iv) On receipt of the reply or on expiry of the stipulated period, the case shall be submitted by ED to RDC for consideration & decision.

v) The decision of the RDC shall be communicated to the agency by ED/GGM/GM concerned.

8. Removal from List of Approved Agencies –Suppliers/ Contractors, etc.

If the Competent Authority decides that the charge against the Agency is of a minor nature, it may issue a show-cause notice as to why the name of the Agency should not be removed from the list of approved Agencies - Suppliers / Contractors, etc.

The effect of such an order would be that the Agency would not be disqualified from competing in Open Tender Enquiries but LTE (Limited Tender Enquiry) may not be given to the Agency concerned.

Past performance of the Agency may be taken into account while processing for approval of the Competent Authority for awarding the contract.

9. Show-cause Notice

- In case where the Competent Authority decides that action against an Agency is called for, a show-cause notice has to be issued to the Agency. Statement containing the imputation of misconduct or misbehavior may be appended to the show-cause notice and the Agency should be asked to submit within 15 days a written statement in its defence.

- If the Agency requests for inspection of any relevant document in possession of RAILTEL, necessary facility for inspection of documents may he provided.

- The Competent Authority may consider and pass all appropriate speaking order:

  a) Forex one rating the Agency if the charges are not established.

  b) For removing the Agency from the list of approved Suppliers/ Contactors, etc.

  c) For banning the business dealing with the Agency.

- If it decides to ban business dealings, the period for which the ban would be operative may be mentioned. The order may also mention that the ban would extend to the interconnected Agencies of the Agency.

10. Appeal against the Decision of the Competent Authority

The agency may file an appeal against the order of the Competent Authority banning business dealing, etc. The appeal shall lie to Appellate Authority. Such an appeal shall be preferred within one month from the date of receipt of the order banning business dealing, etc.

Appellate Authority would consider the appeal and pass appropriate order which shall be communicated to the Agency as well as the Competent Authority.

11. Review of the Decision by the Competent Authority

Any petition / application filed by the Agency concerning the review of the banning order passed originally by Chief Executive / Competent Authority under the existing guidelines either before or after filing of appeal before the Appellate Authority or after disposal of appeal by the Appellate Authority, the review petition can be decided by the Chief Executive / Competent Authority upon disclosure of new facts / circumstances or subsequent development necessitating such review. The Competent Authority may refer the same petition to the Standing Committee for examination and recommendation.

12. Circulation of the names of Agencies with whom Business Dealings have been banned

- Depending upon the gravity of misconduct established, the Competent Authority of the Corporate Office may circulate the names of Agency with whom business dealings have been banned, to the Government Departments, other Public Sector Enterprises, etc. for such action as they deem appropriate.
- If Government Departments or a Public Sector Enterprise request for more information about the Agency with whom business dealings have been banned, a copy of the report of the Inquiring authority together with a copy of the order of the Competent Authority / Appellate Authority may be supplied.

- If business dealings with any Agency have been banned by the Central or State Government or any other Public Sector Enterprise, RAILTEL may, without any further enquiry or investigation, issue an order banning business dealing with the Agency and its interconnected Agencies.

- Based on the above, Regions / Units may formulate their own procedure for implementation of the guidelines.

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Form No. 6 - PROFORMA FOR "NIL DEVIATION COMPLIANCE UNDERTAKING"
(To be signed by the Bidder)

To

The Executive Director,
RailTel Corporation of India Ltd.,
1-10-39 to 44, 6A, 6th Floor, Begumpet Airport Road,
Opp. Shoppers Stop, BEGUMPET, HYDERABAD- 500 016

Tender Reference No.:

Sub: NIL Deviation Compliance

Over and above all our earlier conformations and submissions as per your requirements of the Tender, we confirm that,

1. All proposed in scope are compliant to the technical specifications of the equipment as mentioned in the latest version of the specifications in the Tender.

2. We hereby certify that the hardware and software (if applicable) mentioned in our technical solution and Bill of Material (BOQ) are complete.

3. We confirm that there is no requirement of any other hardware and software to fulfill requirements as per scope against the Tender. If any additional hardware and software is required to meet in scope requirements, then it would be procured by us at no extra cost to RailTel.

4. We will also ensure our unconditional compliance of all the terms and conditions as mentioned in the Tender document including all corrigenda and specifications.

5. List of deviations (Partial Compliance and Non-compliance) from terms and conditions as mentioned in the Tender document including all corrigenda and specifications, if any, is enclosed as Annexure with this form. We understand that any partial compliance or non-compliance, may result in **REJECTION** of our bid.

Seal and signature of the bidder

Place:
Date:

(This letter should be on the letterhead of the bidder duly signed by an authorized signatory)

Form No. 7 - PROFORMA FOR "NO MALICIOUS CODE UNDERTAKING LETTER BY BIDDER and OEM

To

The Executive Director,
Railtel Corporation of India Ltd.,
1-10-39 to 44, 6A, 6th Floor, Begumpet Airport Road,
Opp. Shoppers Stop, BEGUMPET, HYDERABAD- 500 016

Tender Reference No.:

Sub: Undertaking for No Malicious Code

Dear Sir,

Over and above all our earlier conformations and submissions as per your requirements of the Tender, we confirm that,

1. All proposed hardware and software components in scope of supplies < OEM related supply/component> when shipped by _____, does not contain embedded malicious code that would activate procedures to:-

   a. Inhibit the desired and designed function of the equipment.
   b. Cause physical damage to the user or equipment during the exploitation.
   c. Tap information resident or transient in the equipment/networks.

2. We, _____ will be considered to be in breach in case physical damage or malfunctioning is caused due to activation of any such malicious code in embedded software and thus be liable to repair, replace or refund the price of the infected software if reported (or, upon request, return) to the party supplying the software to Customer, if different than _____
3. Security breach or damages to system, if any, so caused by any embedded malicious code or otherwise, due to the act of either OEM or bidder or both, the OEM as well as the bidder would be considered liable jointly or severally and shall be banned for conducting any business with RailTel. Also the present contract, may liable to be terminated by the purchaser.

Place:
Date: Seal and signature of the bidder

(This letter should be on the letterhead of the Bidder & OEM duly signed by an authorized signatory)

Form No. 8 - PROFORMA FOR "MANUFACTURER's AUTHORIZATION FORM"

Note: This authorization letter should be printed on the letterhead of all the original equipment manufacturer (OEM) and should be signed by a competent person having the power of attorney to bind the manufacturer.

To
The Executive Director,
Railtel Corporation of India Ltd.,
1-10-39 to 44, 6A, 6th Floor, Begumpet Airport Road,
Opp. Shoppers Stop, BEGUMPET, HYDERABAD- 500 016

Subject: Manufacturer Authorization form (MAF) to M/s …… for ……
Ref: Bid No……..……..dated…….

Dear Sir,

We, M/s……, are established and reputed manufacturer and service provider of ……. (Product details), having our registered office at …….

We hereby authorize M/s ……. (Bidder name), Office …… to participate in bid and subsequently upon award of the bid to execute the supply and Installation & Commissioning of our range of products against your above said bid. We also support our range of products offered by M/s …… in the above said bid with a warranty of 5 (five) years

Thanking you,

Best regards,

Authorized Signatory

Note: Warranty period in above certificate must cover 5(five) years

Form No. 9 - PAST EXPERIENCE FORM (To be submitted each for of the eligibility criteria / Experience ask in the Pre-Qualifying criteria mentioned in Bid data sheet.)

SN	Item	Details
1. General Information		
i.	Customer Name	
ii.	Details of Contact Person	
iii.	Name	
iv.	Designation	
v.	Email	
Vi.	Mailing Address	
vii.	Phone	
viii.	Fax	
2. General Information		
i.	Name of the Project	
ii.	Government/Private/PSU/Others please specify	
iii.	Start Date and End Date of PO/LOA	
iv.	Current Status (Completed/Work in Progress)	
v.	Contract Tenure	
3. Project detail		
I.	Order Value of the project	
II.	Please Provide customer certificate and Work order for executed Scope	
iii.	Narrative description of Project including technology deployed	
iv.	Key project components	

Certification: I, the undersigned, certify that these data correctly describe the Projects implemented by our Company.

(Signature)
(Name of Authorized Signatory)
(Designation)
(Date)
(Name and address of the bidder)
(Company Seal)

Form No. 10 - PROFORMA FOR SELF CERTIFICATION REGARDING LOCAL CONTENT (LC) FOR TELECOM PRODUCT, SERVCIES OR WORKS

(For OEM's claiming preference as Domestic Manufacturer under PMI policy)

Date:

……..S/o, D/o, W/o ……. , Resident of ……. do hereby solemnly affirm ---------- and declare as under:

That I agree to abide by the terms and conditions of Department of Telecommunications, Government of India issued vide Notification No: ……..dated ……...

That the information furnished hereinafter is correct to best of my knowledge and belief and I undertake to produce relevant records before the procuring entity or any other authority so nominated by the Department of Telecommunications, Government of India for the purpose of assessing the LC.

That the LC for all inputs which constitute the said Telecom Product/Services/Works has been verified by me and I am responsible for the correctness of the claims made therein.

That in the event of the LC of the Telecom Product/Services/Works mentioned herein is found to be incorrect and not meeting the prescribed LC norms, based on the assessment of
an authority so nominated by the Department of Telecommunications, Government of India
and I will be liable as under clause 9 (f) of Public Procurement (Preference to Make in India) Order 2017.
1 agree to maintain all information regarding my claim for LC in the Company's record for a period of 2 years and shall make this available for verification to any statutory authorities.

i) Name and details of the Local supplier (Registered Office, Manufacturing unit location, nature of legal entity)
ii) Date on which this certificate is issued
iii) Telecom Product/Services/Works for which the certificate is produced
iv) Procuring agency to whom the certificate is furnished
v) Percentage of LC claimed
vi) Name and contact details of the unit of the manufacturer
vii) Sale Price of the product
viii) Ex-Factory Price of the product
ix) Freight, insurance and handling
x) Total Bill of Material
xi) List and total cost value of inputs used for manufacture of the Telecom Product/Services/Works
xii) List and total cost of inputs which are locally sourced. Please attach LC certificates from local suppliers, if the input is not in-house.
xiii) List and cost of inputs which are imported, directly or indirectly

For and on behalf of ……. (Name of firm/entity)

Authorized signatory (To be duly authorized by the Board of Directors resolution)
<Insert Name, Designation and Contact No. and date>

Form No. 11 - CONTRACT AGREEMENT

(CA No. …….)

This AGREEMENT is made at <Location of RO Office> on this day of _____ two thousand and twenty one by and between RailTel Corporation of India Limited (A Govt. of India Undertaking) having its Registered & Regional office at Plat-A, 6th Floor, Office Block-II, East Kidwai Nagar, New Delhi-110023, acting in the premises through RGM/ED or his authorized representative (hereinafter referred to as 'RailTel', which expression should unless repugnant to the context or meaning thereof include its successors and permitted assigns) of the one part;

And _____having its registered office at ---------- acting in the premises through……. (hereafter referred to as "Contractor", which expression should unless repugnant to the context or meaning thereof include its successor and permitted assigns) of the other part.

Whereas in response to a call for Tender by RailTel for the work of "……..……..." for RailTel Corporation of India Limited as per Tender papers at Annexure 'A' read with Corrigendum…….. issued by RailTel hereto, the Contractor has submitted offer letter as per Annexure 'B' hereto

AND WHEREAS the said Tender of the Contractor has been accepted for the work of "……" for RailTel Corporation of India Limited as per copy of Letter of Acceptance of Tender No. _____dated_____ complete with enclosures at the accepted rates and agreed deviations from Tender papers as per Annexure-C hereto at contract value of Rs._____(Rupees _____ Only) duly accepted by the contractor.

Now this agreement witnesses that in consideration of the premises and the payment to be made by the Purchaser (RailTel) to the Contractor provided for herein, the Contractor shall supply all equipment and materials and execute and perform all works for which the said Tender of the Contractor has been accepted strictly according to the various provisions in Annexure 'B' and 'C' hereto and upon such supply, execute and performance to the satisfaction of the purchaser (RailTel) and the purchaser (RailTel) shall pay to the Contractor at the rates accepted as per the said Annexure 'C' and in terms of the provisions therein.

IN WITNESS whereof both the parties have hereunto set and subscribed their respective hands and/or seals on the day and year respectively mentioned against their respective signatures.

Signed and delivered by Shri _____ for and on behalf of RailTel Corporation of India Ltd.

The contract within named in the presence of:

1. Signatures
   Date
   Name in Block Capitals
   Address:

2. Signatures
   Date
   Name in Block Capitals
   Address:

Signed and delivered by Shri. _____ for and on behalf of _____

The contractor within named in the presence of :

1. Signatures
   Date
   Name in Block Capitals
   Address:

2. Signature
   Date
   Name in Block Capitals
   Address:

Form No. 12 – EMD

Bank Guarantee Bond from any scheduled commercial bank of India

(On non-judicial stamp paper, which should be in the name of the Executing Bank).

Date: .....

Bank Guarantee Bond No.: **Date: ---------**

In consideration of the RailTel acting through----- ***(Designation & address of Contract Signing Authority***), ……. RailTel, ……., …. (Hereinafter called "The RailTel") having invited the bid for ……. through Notice inviting tender (NIT) No. _____, We have been informed that . . .. ***[Insert name of the Bidder]*** ..... (**hereinafter called "the Bidder"**) intends to submit its bid (hereinafter called "the Bid").

WHEREAS the Bidder is required to furnish Bid Security for the sum of ***[Insert required Value of*** Bid Security***]***, in the form of Bank Guarantee, according to conditions of Bid.

AND

WHEREAS .....***[Insert Name of the Bank]***, with its Branch .....***[Insert Address]*** having its Headquarters office at..... ***[Insert Address]***, hereinafter called the **Bank,** acting through .....***[Insert Name and Designation of the authorized persons of the Bank]***, have, at the request of the Bidder, agreed to give guarantee for Bid Security as hereinafter contained, in favor of the RailTel:

1. KNOW ALL MEN that by these present that I/We the undersigned ***[Insert name(s) of authorized representatives of the Bank],*** being fully authorized to sign and incur obligations for and on behalf of the Bank**,** confirm that the Bank, hereby, unconditionally and irrevocably guarantee to pay to the RailTel full amount in the sum of ***[Insert required Value of Bid Security]*** as above stated.

1. The Bank undertakes to immediately pay on presentation of demand by the RailTel any amount up to and including aforementioned full amount without any demur, reservation or recourse. Any such demand made by the RailTel on the Bank shall be final, conclusive, and binding, absolute and unequivocal on the Bank notwithstanding any disputes raised/ pending before any Court, Tribunal, Arbitration or any Authority or any threatened litigation by the Bidder or Bank.
2. The Bank shall pay the amount as demanded immediately on presentation of the demand by RailTel without any reference to the Bidder and without the RailTel being required to show grounds or give reasons for its demand of the amount so demanded.
3. The guarantee hereinbefore shall not be affected by any change in the constitution of the Bank or in the constitution of the Bidder.
4. The Bank agrees that no change, addition, modifications to the terms of the Bid document or to any documents, which have been or may be made between the RailTel and the Bidder, will in any way absolve the Bank from the liability under this guarantee; and the Bank, hereby, waives any requirement for notice of any such change, addition or modification made by RailTel at any time.

5. This guarantee will remain valid and effective from***……. [insert date of issue]*** till …….. ***[insert date, which should be minimum 90 days beyond the expiry of validity of Bid]***. Any demand in respect of this Guarantee should reach the Bank within the validity period of Bid Security.
6. The Bank Guarantee is unconditional and irrevocable.
7. The expressions Bank and RailTel herein before used shall include their respective successors and assigns.
8. The Bank hereby undertakes not to revoke the guarantee during its currency, except with the previous consent in writing of the RailTel. This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No.758.
9. The Bank hereby confirms that it is on the SFMS (Structured Financial Messaging System) and shall invariably send the advice of this Bank Guarantee to the following bank details

IFSC CODE	UBIN0805050
ACCOUNT NO	327301010373008
IFSC TYPE	Branch
BANK NAME	Union Bank
BRANCH NAME	RP Road Branch, Secunderabad – 500003
CITY NAME	Hyderabad
ADDRESS	Bungalow no 109, New No 1-7-252 to 254 Oxford Street, SD Road, Near Parklane Center, Secunder-abad – 500003
DISTRICT	Hyderabad
STATE	Telangana
BG ENABLED	YES

The Guarantee shall be valid in addition to and without prejudice to any other security Guarantee(s) of Bidder in favour of the RailTel. The Bank, under this Guarantee, shall be deemed as Principal Debtor of the RailTel.

Date …… ……

Place…….. Bank's Seal and authorized signature(s)

[Name in Block letters] ……....

[Designation with Code No.] ……

[P/Attorney] No.

Witness:

1 Signature, Name & Address & Seal

2 Signature, Name& address & Seal Bank's Seal

[P/Attorney] No.

Note: All italicized text is for guidance on how to prepare this bank guarantee and shall be deleted from the final document.

MANDATORY – REGISTRATION SHRAMIK KALYAN PORTAL

A. "Contractor is to abide by the provisions of Payment of Wages act & minimum Wages act in terms of clause 54 ad 55 of Indian Railways General Condition of Contract. In order to ensure the same, and application has been developed ad hosted on website www.shramikkalyan.indianrailways.gov.in. Contractor shall register his firm/ company etc. and upload requisite details of labour and their payment I this portal. These details shall be available in public domain. The Registration/ updation of Portal shall be done as under:

a) Contractor shall apply for onetime registration of his company/firm etc. in the Shramik kalyan portal with requisite details subsequent to issue of Letter of Acceptance. Manpower resource shall approve the contractor's registration on the portal within 7 days of receipt of such request.

b) Contractor once approved by Manpower resource, can create password with login ID (PAN No.) for subsequent use of portal for all LOAs issued in his favour.

c) The contractor once registered on the portal, shall provide details of his Letter of Acceptance (LoA) / Contract Agreements on shramik kalyan portal within 15 days of issue of any LOA for approval of concerned engineer. Engineer shall update (if required) and approve the details of LoA filled by contractor within 7 days of receipt of such request.

d) After approval of LoA by Engineer, contractor shall fill the salient details of contract labours engaged in the contract and ensure updating of each wage payment to them on shramik kalyan portal on monthly basis.

e) It shall be mandatory upon the contractor to ensure correct and prompt uploading of all salient details of engaged contractual labour & payments made thereof after each wage period.

B. "While processing payment of any "On Account Bill" or "Final Bill" or release of "Advances' or "Performance Guarantee/Security Deposit", contractor shall submit a certificate to the Manpower resource or resources' representatives that "I have uploaded the correct details of contract labours engaged in connection with this contract and payments made to them during the wage period in Railways' Shramik kalyan portal at "www.shramikkalyan.indianrailways.gov.in" till _____ Month _____ Year."

CHAPTER- 7 Specifications and requirements

7.1 TECHNICAL, FUNCTIONAL REQUIREMENTS & SPECIFICATIONS

Note 1: It may kindly be noted that in the specification wherever support for a feature has been asked for, it will mean that the feature should be available without RailTel requiring any other hardware/software/licenses. Thus, all hardware/software/licenses required for enabling the support/feature shall be included in the offer.

Note 2: Any additional hardware and software/license required for completion of work as per scope of this work shall be supplied by the selected bidder without any additional cost to RailTel.

Note 3: The below mentioned technical specifications for the supply items are bare minimum requirements of the purchaser, the supply items quoted by bidder must comply with these technical specifications.

General Requirement

The equipment shall be able to work in the temperature range and humidity as specified in the corresponding clauses of the specification.

7.2 Technical Specification

The below mentioned technical specifications for the supply items are bare minimum requirements of the purchaser, the supply items quoted by bidder must comply with these technical specifications. However, the bidder can quote the items with higher technical specifications catering to the futuristic requirements of the proposed solution.

The technical specifications for different components/items shall be as below:

Technical Specification

7.2.1 Local Server Hardware

1.XMII Rack Servers

Sl. No.	Item	Description
1	Chassis	2 U Rack Mountable
2	CPU	2x Intel Xeon-Gold 6346 (3.10GHz/16-core/205W) Processor
3	Memory	24DIMM slots. 384 (12x32GB DIMM) GB Dual Rank RDIMMs
4	Hard disk drive	2x 480GB, 6G SSD or higher & 6 x 1.2TB 10K RPM SAS drives

2.ADS, Antivirus & Patch Mgmt. Servers (Rack Server)

SN	Item	Description
1	Chassis	2 U Rack Mountable
2	CPU	2x Intel Xeon-Gold 6346 (3.10GHz/16-core/205W) Processor
3	Memory	24DIMM slots. 256 (8x32GB DIMM) GB Dual Rank RDIMMs
4	Hard disk drive	2x 480GB, 6G SSD or higher & 6 x 1.2TB 10K RPM SAS drives

3.NAC + Element Management System Servers at HO and Plant Locations

Sl. No.	Item	Description
1	Chassis	2 U Rack Mountable
2	CPU	2x Intel Xeon-Gold 5318S (2.10GHz/24-core/165W) Processor
3	Memory	24DIMM slots. 256 (8x32) GB Dual Rank RDIMMs
4	Hard disk drive	2x 480GB, 6G SSD or higher & 6 x 1.2TB 10K RPM SAS drives

4.Other General Specifications

Sl. No.	Item	Description
1	Memory Protection	ECC with multi-bit error protection, Online spare or mirrored memory
2	HDD Bays	Up to 8 SFF HDD/SSD
3	Controller	It should support Integrated or add-on PCIe 3.0 based 12G SAS Raid Controller with RAID 0, 1, 5, 6, 10, 50, 60 with 2GB of Flash backed write cache onboard
4	Networking features	1Gb 4-port network adaptors 2x10Gb 2-port adapter 10GBASET Copper (adapter level fault tolerance is required)
5	Interfaces	Serial — 1 Micro SD slot — 1 Total of 3 USB port, USB 2.0 or higher
6	Bus Slots	Server should support three PCI-Express 3.0 slots, at least one x16 PCIe slots
7	Power Supply	Should support hot plug redundant power supplies with minimum 94% efficiency
8	Fans	Redundant hot-plug system fans
9	Industry Standard Compliance	ACPI 4.0 Compliant or above PCIe 3.0 Compliant PXE Support Energy Star ASHRAE A3/A4 or equivalent SMBIOS Redfish API SNMP v3

		TLS 1.2 DMTF Systems Management Architecture
10	System Security	UEFI Secure Boot and Secure Start support Security feature to ensure servers do not execute compromised firmware code FIPS 140-2 validation Common Criteria certification Configurable for PCI DSS compliance or equivalent Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser or equivalent Tamper-free updates - components digitally signed and verified Secure Recovery - recover critical firmware to known good state on detection of compromised firmware Ability to rollback firmware Secure erase of NAND/User data TPM (Trusted Platform Module) 1.2 TPM (Trusted Platform Module) 2.0 Secure erase of NAND Chassis Intrusion detection
11	Operating Systems and Virtualization Software Support	Microsoft Windows Server Red Hat Enterprise Linux for SAP (RHEL) SUSE Linux Enterprise Server for SAP (SLES) VMware
12	GPU support	System should support NVIDIA's latest computational accelerators and graphics accelerators
13	System Performance Tuning is as per respective OEM management feature.	1. System should support feature for improved workload through-put for applications sensitive to frequency fluctuations. This feature should allow processor operations in turbo mode without the frequency fluctuations associated with running in turbo mode 2. System should support workload Profiles for simple performance optimization
14	Firmware security	1. For firmware security, system should support remote management chip creating a fingerprint in the silicon or equivalent, preventing servers from booting up unless the firmware matches the fingerprint. This feature should be immutable 2. Should maintain repository for firmware and drivers' recipes to aid rollback or patching of compromised firmware. Should also store Factory Recovery recipe preloaded to rollback to factory tested secured firmware
15	Server Management	System remote management should support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Drive.
		System should support embedded remote support to transmit hardware events directly to OEM for automated phone home support
		Should help provide proactive notification of actual or impending component failure alerts on critical components like CPU, Memory and HDD and automatic calls logging. System should support

		embedded remote support to transmit hardware events directly to OEM or an authorized partner for automated phone home support.
		Should provide an online portal that can be accessible from anywhere. The portal should provide one stop, online access to the product, support information and provide information to track warranties, support contracts and status. The Portal should also provide a personalized dashboard to monitor device heath, hardware events, contract and warranty status. Should provide a visual status of individual devices and device groups. The Portal should be available on premise (at our location - console based) or off premise (in the cloud).
		Should help to proactively identify out-of-date BIOS, drivers, and Server Management agents and enable the remote update of system software/firmware components.
16	Cloud Enabled Monitoring and Analytics or equivalent web console.	Offered servers shall have cloud enabled monitoring for proactive management. All required licenses for same shall be included in the offer. Cloud/ Web Enabled Monitoring shall have capability to provide following: Providing Firmware upgrade and patch upgrade recommendations proactively. Providing power and support entitlement status. Recommendations to eliminate performance bottlenecks and critical events, having capability of proactive recommendation for arresting the issues / problems.
17	Warranty	5 Years 24x7 onsite support with commitment to resolve the problem within NBD (Next Business Day). Support has to be provided directly by OEM during the warranty period.
18	Bill of Materials	The vendor has to give make, model, part nos. of every component which will be cross verified by OEM.
19	Manufacturer Authorization Letter	Manufacturers Authorization Letter Specific to this Tender must be submitted. Tender submitted without MAF will be rejected.

7.2.2 Firewalls (All Firewalls should be from same OEM)

1. Firewall – Type 1

Sl. No	Description
General	
1	OS should be “IPv6 Phase II Ready” certified
2	The Firewall must be appliance based. As per mentioned clause both CPU as well as ASIC based architecture are acceptable
3	Should support 16 or more gigabit RJ45 interfaces
4	Should have 4 nos. of 10G SFP+ slots populated with the transceivers and should have upgrade option for 2 nos. of 40G QSFP+ in future
5	Should have 1 console port (RJ45) and 1 or more Number of USB ports

Firewall Performance	
6	Should have Firewall throughputs of minimum 60 Gbps or more
7	IPSec VPN throughput should be 20 Gbps or more
8	NGFW throughput (AVC, IPS, FW) should be 8 Gbps with enterprise mix traffic
9	Threat protection throughput should be 6 Gbps with enterprise mix traffic
10	Must support at least 7,000,000 or more concurrent connections
11	Must support at least 400,000 or more new sessions per second processing.
12	Should Support Virtualization (ie Virtual Systems / Virtual Domains). Should be having 5 or more virtual system license from day one
Firewall Features	
13	Should support both “bridge mode” or "transparent mode” apart from the standard NAT mode
14	Should provide NAT functionality, including PAT. Should support NAT 66, NAT 64, Static NAT IPv4 to IPv6 and vice versa (VIP64 and VIP46) and IPv6-IPv4 tunnelling or dual stack.
15	Should support IPv4 & IPv6 policies
16	Provision to create secure zones / DMZ (i.e. Multi- Zone support)
17	Should support the standards based Multi-Link aggregation technology (IEEE 802.3ad) to achieve higher bandwidth.
18	Should support VLAN tagging (IEEE 802.1q) in NAT/Route mode
19	Should support Static routing and Dynamic Routing (RIP, OSPF & BGP)
20	Should support Active-Active/ clustering
21	Should support ISP Load balancing/ Link Sharing and Failover
22	Should support multi-path intelligence based on link quality criteria
23	Should support link performance check based on packet loss, latency & jitter
24	Should support WAN path controller providing high application performance
25	Should support application specific rules based on SLA strategy
26	Should support high performance deep packet inspection for application identification and control
Authentication	
27	Should support User-Group based Authentication (Identity based Firewalling) & Scheduling
28	Should support authentication servers – RADIUS, LDAP & Active Directory
29	Support for RSA SecureID or other Token based Products
VPN	
30	Should support protocols such as DES & 3DES, MD5, SHA-1, SHA-256 authentication, Dif-fie- Hellman Group 1, Group 2, Group 5, Group 14, Internet Key Exchange (IKE) v1 as well as IKE v2 algorithm, The new encryption standard AES 128, 192 & 256
31	Should support minimum 2000 IPSec Site-to-Site and 5000 no of IPSec Site-to-Client VPN tunnels.

32	Should have integrated SSL VPN with license for 1000 concurrent SSL VPN users
33	Support for Client based VPN is mandatory and support for SSL Web VPN is preferable.
34	Should support Windows, Linux and MAC OS for SSL-VPN
35	Should support NAT within IPSec/SSL VPN tunnels
36	Should support Stateful failover for both Firewall and VPN sessions.
IPS	
37	Should have a built-in Signature and Anomaly based IPS engine on the same unit
38	Should have protection for 7000+ signatures
39	Able to prevent denial of service and distributed Denial of Service attacks.
40	Supports user-defined signatures (i.e., Custom Signatures) with Regular Expressions.
Application Control	
41	Should have Application control feature with 3000 or more application signatures
42	Should perform Traffic Shaping/ Rate Limiting based on applications
43	Should control popular IM/P2P, proxy applications regardless of port/protocol
Gateway Antivirus	
44	The appliance should facilitate embedded anti-virus/ anti-malware support
45	Gateway AV/ Antimalware should be supported for real-time detection of viruses and malicious code for HTTP, HTTPS, FTP, SMTP, SMTPS, POP3 and IMAP protocols
46	Should also include Botnet filtering and detecting and preventing Botnet command and control traffic
47	Should have configurable policy options. Possible to select traffic to scan for viruses
Web Filtering	
48	The appliance should facilitate embedded Web Content and URL Filtering feature
49	Web content and URL filtering solution should work independently without the need to integrate with External proxy server.
50	URL database should have 200 million or more URLsunder more than 70 categories
51	Should be able to block different categories/sites based on User Authentication.
Management, Log & Reporting	
52	Firewall should support management either through GUI/CLI or through Central Management
53	Firewall should support logging to multiple syslog servers.
54	Log & Reporting should be a dedicated solution out of the Firewall

55	The log & reporting tool needs to be bundled or quoted along with the solution. The logging and analysis should either be an appliance or on a dedicated PC/ Server platform with 12 TB storage. The Executing Agency should take the responsibility of supplying the hardware and the OS with suitable warranty.
56	The solution should provide comprehensive security event logging, reporting

2.Firewall – Type 2

Sl. No	Description
General	
1	OS should be “IPv6 Phase II Ready” certified
2	The Firewall must be appliance based. As per mentioned clause both CPU as well as ASIC based architecture are acceptable.
3	Should support 8 or more gigabit RJ45 interfaces
4	Should have 4 nos. of 10G SFP+ slots populated with the transceivers
5	Should have 1 console port (RJ45) and 1 or more Number of USB ports
6	Should have internal storage of 200 GB SSD
Firewall Performance	
7	Should have Firewall throughputs of minimum 30 Gbps or more
8	IPSec VPN throughput should be 6 Gbps or more
9	NGFW throughput should be 10 Gbps with enterprise mix traffic
10	Threat protection throughput should be 8 Gbps with enterprise mix traffic
11	Must support at least 7,000,000 or more concurrent connections
12	Must support at least 300,000 or more new sessions per second processing.
13	Should Support Virtualization (ie Virtual Systems / Virtual Domains). Should be having 5 or more virtual system license from day one
Firewall Features	
14	Should support both “bridge mode” or "transparent mode” apart from the standard NAT mode
15	Should provide NAT functionality, including PAT. Should support NAT 66, NAT 64, Static NAT IPv4 to IPv6 and vice versa (VIP64 and VIP46) and IPv6-IPv4 tunneling or dual stack.
16	Should support IPv4 & IPv6 policies
17	Provision to create secure zones / DMZ (ie Multi- Zone support)
18	Should support the standards based Multi-Link aggregation technology (IEEE 802.3ad) to achieve higher bandwidth.
19	Should support VLAN tagging (IEEE 802.1q) in NAT/Route mode
20	Should support Static routing and Dynamic Routing (RIP, OSPF & BGP)
21	Should support Active-Active/ Clustering as well as Active- Passive redundancy.

22	Should support ISP Load balancing/ Link Sharing and Failover
23	Should support multi-path intelligence based on link quality criteria
24	Should support link performance check based on packet loss, latency & jitter
25	Should support WAN path controller providing high application performance
26	Should support application specific rules based on SLA strategy
27	Should support high performance deep packet inspection for application identification and control
Authentication	
28	Should support User-Group based Authentication (Identity based Firewalling) & Scheduling
29	Should support authentication servers – RADIUS, LDAP & Active Directory
30	Support for RSA Secure ID or other Token based Products
VPN	
31	Should support protocols such as DES & 3DES, MD5, SHA-1, SHA-256 authentication, Diffie- Hellman Group 1, Group 2, Group 5, Group 14, Internet Key Exchange (IKE) v1 as well as IKE v2 algorithm, The new encryption standard AES 128, 192 & 256
32	Should support minimum 200 IPSec Site-to-Site and 2000 no of IPSec Siteto-Client VPN tunnels.
33	Should have integrated SSL VPN with license for 1000 concurrent SSL VPN users
34	Support for Client based VPN is mandatory and support for SSL Web VPN is preferable.
35	Should support Windows, Linux and MAC OS for SSL-VPN
36	Should support NAT within IPSec/SSL VPN tunnels
37	Should support Stateful failover for both Firewall and VPN sessions.
IPS	
38	Should have a built-in Signature and Anomaly based IPS engine on the same unit
39	Should have protection for 7000+ signatures
40	Able to prevent denial of service and distributed Denial of Service attacks.
41	Supports user-defined signatures (i.e., Custom Signatures) with Regular Expressions.
Application Control	
42	Should have Application control feature with 3000 or more application signatures
43	Should perform Traffic Shaping based on applications
44	Should control popular IM/P2P, proxy applications regardless of port/protocol
Gateway Antivirus	

45	The appliance should facilitate embedded anti-virus/ anti-malware support
46	Gateway AV/ Anti-malware should be supported for real-time detection of viruses and malicious code for HTTP, HTTPS, FTP, SMTP, SMTPS, POP3 and IMAP protocols
47	Should also include Botnet filtering and detecting and preventing Botnet command and control traffic
48	Should have configurable policy options. Possible to select traffic to scan for viruses
Web Filtering	
49	The appliance should facilitate embedded Web Content and URL Filtering feature
50	Web content and URL filtering solution should work independently without the need to integrate with External proxy server.
51	URL database should have 200 million or more URLs under more than 70 categories
52	Should be able to block different categories/sites based on User Authentication.
Management, Log & Reporting	
53	Firewall should support management either through GUI/CLI or through Central Management
54	Firewall should support logging to multiple syslog servers.
55	Log & Reporting should be a dedicated solution out of the Firewall
56	The log & reporting tool needs to be bundled or quoted along with the solution. The logging and analysis should either be an appliance or on a dedicated PC/ Server platform. The Executing Agency should take the responsibility of supplying the hardware and the OS with suitable warranty.
57	The solution should provide comprehensive security event logging, reporting

3.Firewall – Type 3

Sl. No	Description
General	
1	OS should be “IPv6 Phase II Ready” certified
2	The Firewall must be appliance based. As per mentioned clause both CPU as well as ASIC based architecture are acceptable.
3	Should support 12 or more gigabit RJ45 interfaces
4	Should support 1 or more Number of USB ports
5	Should have 1 console port (RJ45)
6	Should have internal storage of 200 GB SSD
7	Should have 2 no of 10G SFP+ slots populated with the transceivers
Firewall Performance	
8	Should have Firewall throughputs of minimum 6 Gbps or more

9	IPSec VPN throughput should be 3 Gbps or
10	NGFW throughput should be 1 Gbps with enterprise mix traffic
11	Threat protection throughput should be 800 Mbps with enterprise mix traffic
12	Must support at least 1,000,000 or more concurrent connections
13	Must support at least 30,000 or more new sessions per second processing.
14	Should support both “bridge mode” or "transparent mode” apart from the standard NAT mode
15	Should provide NAT functionality, including PAT. Should support NAT 66, NAT 64, Static NAT IPv4 to IPv6 and vice versa (VIP64 and VIP46) and IPv6-IPv4 tunnelling or dual stack.
16	Should support IPv4 & IPv6 policies
17	Provision to create secure zones / DMZ (ie Multi- Zone support)
18	Should support the standards based Multi-Link aggregation technology (IEEE 802.3ad) to achieve higher bandwidth.
19	Should support VLAN tagging (IEEE 802.1q) in NAT/Route mode
20	Should support Static routing and Dynamic Routing (RIP, OSPF & BGP)
21	Should support ISP Load balancing/ Link Sharing and Failover
22	Should support multi-path intelligence based on link quality criteria (optional)
23	Should support link performance check based on packet loss, latency & jitter(optional)
24	Should support WAN path controller providing high application performance (Optional)
25	Should support application specific rules based on SLA strategy
26	Should support high performance deep packet inspection for application identification and control
Authentication	
27	Should support User-Group based Authentication (Identity based Firewalling) & Scheduling
28	Should support authentication servers – RADIUS, LDAP & Active Directory
29	Support for RSA Secure ID or other Token based Products
VPN	
30	Should support protocols such as DES & 3DES, MD5, SHA-1, SHA-256 authentication, Dif-fie- Hellman Group 1, Group 2, Group 5, Group 14, Internet Key Exchange (IKE) v1 as well as IKE v2 algorithm, The new encryption standard AES 128, 192 & 256
31	Should support minimum 200 IPSec Site-to-Site and 1000 no of IPSec Site to-Client VPN tunnels.
32	Should have integrated SSL VPN with license for 200 concurrent SSL VPN users
33	Support for Client based VPN is mandatory and support for SSL Web VPN is preferable.
34	Should support Windows, Linux and MAC OS for SSL-VPN
35	Should support NAT within IPSec/SSL VPN tunnels
36	Should support Stateful failover for both Firewall and VPN sessions.
IPS	
37	Should have a built-in Signature and Anomaly based IPS engine on the same unit
38	Should have protection for 7000+ signatures
39	Able to prevent denial of service and distributed Denial of Service attacks.

40	Supports user-defined signatures (i.e., Custom Signatures) with Regular Expressions.
Application Control	
41	Should have Application control feature with 3000 or more application signatures
42	Should perform Traffic Shaping/ Rate Limiting based on applications
43	Should control popular IM/P2P, proxy applications regardless of port/protocol
Gateway Antivirus	
44	The appliance should facilitate embedded anti-virus/ anti-malware support
45	Gateway AV/ Anti-malware should be supported for real-time detection of viruses and malicious code for HTTP, HTTPS, FTP, SMTP, SMTPS, POP3 and IMAP protocols
46	should also include Botnet filtering and detecting and preventing Botnet command and control traffic
47	Should have configurable policy options. Possible to select traffic to scan for viruses
	Web Filtering
48	The appliance should facilitate embedded Web Content and URL Filtering feature
49	Web content and URL filtering solution should work independently without the need to integrate with External proxy server.
50	URL database should have 200 million or more URLs under more than 70 categories
51	Should be able to block different categories/sites based on User Authentication.
Management, Log & Reporting	
52	Firewall should support management either through GUI/CLI or through Central Management
53	Firewall should support logging to multiple syslog servers.
54	Log & Reporting should be a dedicated solution out of the Firewall
55	The log & reporting tool needs to be bundled or quoted along with the solution. The logging and analysis should either be an appliance or on a dedicated PC/ Server platform. The Executing Agency should take the responsibility of supplying the hardware and the OS with suitable warranty.
56	The solution should provide comprehensive security event logging, reporting

4.Firewall (PLC Network) – Type 4

Sl. No	Specification
General	
1	OS should be “IPv6 Phase II Ready” certified
2	The Firewall must be appliance based with CPU/ ASIC based architecture
3	Should support 8 or more gigabit RJ45 interfaces
4	Should support 1 or more Number of USB ports
5	Should have 1 console port (RJ45)
Firewall Performance	
6	Should have Firewall throughputs of minimum 2 Gbps or more
7	NGFW throughput should be 200 Mbps with enterprise mix traffic

8	Threat protection throughput should be 150 Mbps with enterprise mix traffic
9	Must support at least 1,000,000 or more concurrent connections
10	Must support at least 30,000 or more new sessions per second processing.
Firewall Features	
11	Should support both “bridge mode” or "transparent mode” apart from the standard NAT mode
12	Should provide NAT functionality, including PAT. Should support NAT 66, NAT 64, Static NAT IPv4 to IPv6 and vice versa (VIP64 and VIP46) and IPv6-IPv4 tunnelling or dual stack.
13	Should support IPv4 & IPv6 policies
14	Provision to create secure zones / DMZ (ie Multi- Zone support)
15	Should support the standards based Multi-Link aggregation technology (IEEE 802.3ad) to achieve higher bandwidth.
16	Should support VLAN tagging (IEEE 802.1q) in NAT/Route mode
17	Should support Static routing and Dynamic Routing (RIP, OSPF & BGP)
18	Should support ISP Load balancing/ Link sharing and Failover
19	Should support application specific rules based on SLA strategy
20	Should support high performance deep packet inspection for application identification and control
Authentication	
21	Should support User-Group based Authentication (Identity based Firewalling) & Scheduling
22	Should support authentication servers – RADIUS, LDAP & Active Directory
23	Support for RSA Secure ID or other Token based Products
VPN	
24	Should support protocols such as DES & 3DES, MD5, SHA-1, SHA-256 authentication, Diffie-Hellman Group 1, Group 2, Group 5, Group 14, Internet Key Exchange (IKE) v1 as well as IKE v2 algorithm, The new encryption standard AES 128, 192 & 256
25	Should have integrated SSL VPN with license for 50 concurrent SSL VPN users
26	Support for Client based VPN is not mandatory and support for SSL Web VPN is preferable.
27	Should support Windows, Linux and MAC OS for SSL-VPN
28	Should support NAT within IPSec/SSL VPN tunnels
29	Should support Stateful failover for both Firewall and VPN sessions.
IPS	
30	Should have a built-in Signature and Anomaly based IPS engine on the same unit
31	Should have protection for 7000+ signatures
32	Able to prevent denial of service and distributed Denial of Service attacks.
33	Supports user-defined signatures (i.e., Custom Signatures) with Regular Expressions.
Application Control	
34	Should have Application control feature with 3000 or more application signatures
35	Should perform Traffic Shaping/ Rate Limiting based on applications
36	Should control popular IM/P2P, proxy applications regardless of port/protocol

Gateway Antivirus	
37	The appliance should facilitate embedded anti-virus/ anti-malware support
38	Gateway AV/ Anti-malware should be supported for real-time detection of viruses and malicious code for HTTP, HTTPS, FTP, SMTP, SMTPS, POP3 and IMAP protocols
39	should also include Botnet filtering and detecting and preventing Botnet command and control traffic
40	Should have configurable policy options. Possible to select traffic to scan for viruses
Web Filtering	
41	The appliance should facilitate embedded Web Content and URL Filtering feature
42	Web content filtering and URL solution should work independently without the need to integrate with External proxy server.
43	URL database should have 200 million or more URLs under more than 70 categories
44	Should be able to block different categories/sites based on User Authentication.
Management, Log & Reporting	
45	Firewall should support management either through GUI/CLI or through Central Management
46	Firewall should support logging to multiple syslog servers.
47	Log & Reporting should be a dedicated solution out of the Firewall
48	The log & reporting tool needs to be bundled or quoted along with the solution. The logging and analysis should either be an appliance or on a dedicated PC/ Server platform. The Executing Agency should take the responsibility of supplying the hardware and the OS with suitable warranty.
49	The solution should provide comprehensive security event logging, reporting

5.Firewall – Web Application Firewall

SN	Description
1	Web application firewall should be appliance based and provide specialized application threat protection.
2	Should be ICSA Certified
3	Should protect against application-level attacks targeted at web applications.
4	Should provide protection against sophisticated threats like SQL injection and cross-site scripting
5	Should provide controls to prevent identity theft, financial fraud and corporate espionage.
6	Appliance should have unlimited application licenses.
7	Automatic signature update and install
8	Device should have Sub Millisecond Latency
9	Should deliver at least 500 Mbps of WAF throughput
10	Should have minimum 4 no's of 1G RJ45
11	Should support at-least 4 nos of 1GB SFP slots
12	Should have minimum 200 GB of Storage space
13	Should have dual power supply
14	Dual-stack support for both IPv4 to IPv6 and IPv6 to IPv4 communication.

15	The appliance should be able to perform in multiple modes such as Active mode, passive mode, Transparent mode, Reverse proxy mode,
16	Appliance should continuously track the availability of the Servers being protected.
17	Should support integration with external or inbuilt Web Vulnerability Scanner to detect existing vulnerabilities in the protected web applications
18	Should have Data Leak Prevention module to analyse all outbound traffic alerting/blocking any credit card leakage and information disclosure
19	Provide controls to meet PCI compliance requirements for web application servers.
20	Should have controls for Anti Web Defacement and provide ability to check the authorized version of the website content.
21	The solution should offer an on-board Anti-Virus solution for blocking the virus/malware file uploads into the servers from outside and the database should be updated automatically.
22	Should enforce strict RFC compliance check to prevent attacks such as encoding attacks, buffer overflows and other application specific attacks.
23	Should support automatic signature updates to protect against known and potential application security threats.
24	Should support XML firewall capability with schema validation, XML Firewall, IPS and routing capabilities.
25	Should Include policies for network and application layer denial of service threats
26	Should support XML Application protection
27	Should have built in policies
28	Should support custom signatures
29	Provide ability to allow/ deny URL access
30	Ability to define different policies for different applications
31	Ability to create custom attack signatures or events
32	Ability to combine detection and prevention
33	Should protect certain hidden form fields.
34	Must provide ability to allow or deny a specific URL access.
35	WAF should support Normalization methods such as URL Decoding, Null Byte string, termination, converting back slash to forward slash character etc.
36	A given user must be enforced to follow a sequence of pages while accessing.
37	Should provide a statistical view on collected application traffic
38	Should have controls against Brute force attacks
39	should Detect brute force attack (repeated requests for the same resource) against any part of the applications
40	Custom brute force attack detection for applications that do not return 401.
41	Protection against SYN-flood type of attacks
42	Should be able to protect Cookie Poisoning and Cookie Tampering.
43	Must support multiple HTTP versions
44	Should support restricting the methods used.
45	Should support restricting the method exceptions.
46	Should validate header length, content length, Body length, Parameter length, body line length etc.
47	The device must be supported in reverse proxy mode

48	Appliance should be able to terminate SSL
49	Should Passively decrypt SSL
50	Client certificates should be supported in passive mode and active mode.
51	In termination mode, the backend traffic (i.e. the traffic from the WAF to the web server) can be encrypted via SSL
52	Should support High Availability in active /Passive, Configuration Sync modes.
53	WAF appliance should have application-aware load-balancing engine to distribute traffic and route content across multiple web servers.
54	The vulnerability scan should identify vulnerabilities such as XSS, SQL injection, Source code disclosure, HTTP Request Smuggling, Common web server vulnerabilities etc..
55	Solution should be capable of detecting and distinguishing two sets of Bots from the Inter-net: Known search engines, Bad robots (scanners, crawlers, spiders)
56	Must be able to scan the authenticated applications.
57	Should support exclusions in scanning by the administrator.
58	Should support Secure Administrative Access using HTTPS and SSH
59	Should support Role Based Access Control for Management
60	Should support multi-tenancy feature via administrative domains
61	Separate network interface for SSH/HTTPS access.
62	Ability to identify and notify system faults and loss of performance
63	Should support multiple log formats such as CSV, Syslog, TXT, etc.
64	Should be able to send logs to the existing log & report solution
65	Should support inbuilt Reporting and sending the report via E-Mail
66	Should support report formats in PDF, HTML, WORD etc..
67	Should generate comprehensive event reports

7.2.3 Network Switches

Campus Core Switch, Distribution Switches, Access Switches (Type-1) and OEM EMS should be from same OEM

1. Core Switch – Type 1 (Option-1)

Sl. No.	Description	
1	Form Factor	Chassis switch with Minimum 4 usable Slots 19 Inch Rack mountable switch with management/supervisor Engine 1+1 availability. OEM should provide all the hardware including , CPU, Power Supplies, Fan Trays etc. and software, licenses to get full capacity of the provided chassis.
2	Architecture	Non-Blocking architecture.
3	IPV6 Compliance	All Functionalities of Switch shall be IPV4 and IPv6 compliant and it should work on IPv6 Platform without any additional hardware/ soft-ware.
4	End of sale	OEM End-of-sale declaration shall not have been released for the quoted model at the time of the bid submission.

5	Feature Availability	All the specified features/ parameters/ certifications must be available on the Technical Bid opening date. Features/ parameters/ certifications proposed to be available in near future/ on roadmap shall not be considered. Switch should support ISSU (In Service Software upgrade) or hitless upgrade, Virtualization, Fabric provisioning support BGP-EVPN, OSPF, VxLAN, VRF, VRRP, should support netconf, openstack/ openflow/ REST API support in same hardware. Should support hardware based IEEE 802.1AE MACSEC (AES 256) on the switch Proposed Switch should support below features from Day1 (can be achieved within the switch or with external solution) 1.Automated provisioning of layer-3 routed access layer design for access switches 2.Policy based Micro segmentation between users to allow/restrict communication between users on the same segment/VLAN. 3. Collection of real time telemetry data from syslog, SNMP, flow etc. and should provide end to end visibility, network time travel that allows the ability to view historical events to check network status when issue occurred, provide proactive and predictive information for troubleshooting. 4.Troubleshooting issue along network path, checking if ACL, QoS affecting connectivity or performance issue
6	Ports	24 Port 10G SFP Line Card, 24 Port 1G SFP Line card and 48 port 1/10G SFP+. Switch should support 40/100 Gbps ports module cards scalability in same hardware from day 1.
7	SFP Transceivers	All the Transceivers/Modules used to connect the Switches should be from the same OEM/ make of the switches only. Switch should support 1Gbps and 10 Gbps models.
Hardware Specification		
1	Centralized wire capacity	Switch at least 9 Tbps switching bandwidth or more
2	Per Slot Switching Capacity	1.2 Tbps or more
3	Total number of IPv4 routes	Total number of IPv4 routes 112000 or more,
4	VLANs (802.1q tagged VLAN)	4000 or more Concurrent
5	Memory	4GB DRAM or more

6	Storage	1GB SSD/Flash or more
7		Manufacturers Authorization Letter Specific to this Tender must be submitted. Tender submitted without MAF will be rejected.
Support		
1	Switches must be supported for a minimum of 5 years by the hardware vendor with soft-ware updates and upgrades without additional cost.	
2	The OEM should provide support services 24x7 TAC with L1, L2 and L3 for 5 years free of cost. India toll free number should be reflected in official website of the OEM.	

2. Core Switch – Type 1 (Option-2)

Sl. No.	Description	
1	Form Factor	1U /2U 19 Inch Rack mountable switch. OEM should provide all the hardware including CPU, Power Supplies, Fan Trays etc. and software, licenses to get full capacity.
2	Architecture	Non-Blocking architecture.
3	IPV6 Compliance	All Functionalities of Switch shall be IPV4 and IPv6 compliant and it should work on IPv6 Platform without any additional hardware/ software.
4	End of sale	OEM End-of-sale declaration shall not have been released for the quoted model at the time of the bid submission.
5	Feature Availability	AII the specified features/ parameters/ certifications must be available on the Technical Bid opening date. Features/ parameters/ certifications proposed to be available in near future/ on roadmap shall not be considered. Switch should support ISSU (In Service Software upgrade) or hitless upgrade, Virtualization, Fabric provisioning support BGPEVPN, OSPF, VxLAN, VRF, VRRP, should support netconf, openstack/ REST API support in same hardware. Should support hardware based IEEE 802.1AE MACSEC (AES 256) on the switch Proposed Switch should support below features from Day1 (can be achieved within the switch or with external solution) 1.Automated provisioning of layer-3 routed access layer design for access switches 2.Policy based Micro segmentation between users to allow/restrict communication between users on the same segment/VLAN. 3. Collection of real time telemetry data from syslog, SNMP, flow etc. and should provide end to end visibility, network time travel that allows the ability to view historical events to check network status when issue occurred, provide proactive and predictive information for

		troubleshooting. 4.Troubleshooting issue along network path, checking if ACL, QoS affecting connectivity or performance issue.
6	Ports	48 port 1/10/25G SFP+. Switch should support 6x40/100 Gbps ports module cards scalability in same hardware from day 1.
7	SFP Transceivers	All the Transceivers/Modules used to connect the Switches should be from the same OEM/ make of the switches only. Switch should support 1Gbps and 10 Gbps models.
Hardware Specification		
1	Centralized wire capacity	Switch at least 3.6 Tbps switching bandwidth or more
2	Switching Performance	1000 Mpps or more
3	Total number of IPv4 routes	Total number of IPv4 routes 112000 or more,
4	VLANs (802.1q tagged VLAN)	4000 or more Concurrent
5	Memory	4GB DRAM or more
6	Storage	8GB SSD/Flash and 32MB Buffer
7		Manufacturers Authorization Letter Specific to this Tender must be submitted. Tender submitted without MAF will be rejected.
Support		
1	Switches must be supported for a minimum of 5 years by the hardware vendor with software updates and upgrades without additional cost.	
2	The OEM should provide support services 24x7 TAC with L1, L2 and L3 for 5 years free of cost. India toll free number should be reflected in official website of the OEM.	

3.Core Switch – Type 2 (Option -1)

Sl. No.	Description	
1	Form Factor	Chassis switch with Minimum 4 usable Slots 19 Inch Rack mountable switch with management/supervisor Engine 1+1 availability. OEM should provide all the hardware including, CPU, Power Supplies, Fan Trays etc. and software, licenses to get full capacity of the provided chassis.
2	Architecture	Non-Blocking architecture.
3	IPV6 Compliance	All Functionalities of Switch shall be IPV4 and IPv6 compliant and it should work on IPv6 Platform without any additional hardware/ software.
4	End of sale	OEM End-of-sale declaration shall not have been released for the quoted model at the time of the bid submission.

5	Feature Availability	All the specified features/ parameters/ certifications must be available on the Technical Bid opening date. Features /parameters / certifications proposed to be available in near future / on roadmap shall not be considered. Switch should support ISSU (In Service Software upgrade)/ hitless upgrade, Virtualization, Fabric provisioning support BGPEVPN, OSPF, VxLAN, VRRP, should support netconf, openstack/ openflow or REST API support in same hardware. Should support hardware based IEEE 802.1AE MACSEC (AES 256) on the switch Proposed Switch should support below features from Day1 (can be achieved within the switch or with external solution) 1.Automated provisioning of layer-3 routed access layer design for access switches 2.Policy based Micro segmentation between users to allow/restrict communication between users on the same segment/VLAN. 3. Collection of real time telemetry data from syslog, SNMP, flow etc. and should provide end to end visibility, network time travel that allows the ability to view historical events to check network status when issue occurred, provide proactive and predictive information for troubleshooting. 4.Troubleshooting issue along network path, checking if ACL, QoS affecting connectivity or performance issue.
6	Ports	24 Port 1G/10G SFP Line Card. Switch should support 100 Gbps ports module cards scalability in same hardware from day 1.
7	SFP Transceivers	All the Transceivers/Modules used to connect the Switches should be from the same OEM/ make of the switches only. Switch should support 1Gbps and 10 Gbps models.
Hardware Specification		
1	Centralized wire capacity	Switch at least 9 Tbps switching bandwidth or more
2	Per Slot Switching Capacity	1.2 Tbps or more
3	Total number of IPv4 routes	Total number of IPv4 routes 112000 or more,
4	VLANs (802.1q tagged VLAN)	4000 or more Concurrent
5	Memory	4GB DRAM or more

6	Storage	1GB SSD/Flash or more
7		Manufacturers Authorization Letter Specific to this Tender must be submitted. Tender submitted without MAF will be rejected.
Support		
1	Switches must be supported for a minimum of 5 years by the hardware vendor with software updates and upgrades without additional cost.	
2	The OEM should provide support services 24x7 TAC with L1, L2 and L3 for 5 years free of cost. India toll free number should be reflected in official website of the OEM.	

4.Core Switch – Type 2 (Option-2)

Sl. No.	Description	
1	Form Factor	1U /2U 19 Inch Rack mountable switch. OEM should provide all the hardware including, CPU, Power Supplies, Fan Trays etc. and software, licenses to get full capacity.
2	Architecture	Non-Blocking architecture.
3	IPV6 Compliance	All Functionalities of Switch shall be IPV4 and IPv6 compliant and it should work on IPv6 Platform without any additional hardware/ software.
4	End of sale	OEM End-of-sale declaration shall not have been released for the quoted model at the time of the bid submission.
5	Feature Availability	All the specified features/ parameters/ certifications must be available on the Technical Bid opening date. Features/ parameters/ certifications proposed to be available in near future / on roadmap shall not be considered. Switch should support ISSU (In Service Software upgrade) or hitless upgrade, Virtualization, Fabric provisioning support BGPEVPN, OSPF,VxLAN, VRF, VRRP Should support netconf, openstack/ openflow/ REST API support in same hardware. Should support hardware based IEEE 802.1AE MACSEC (AES 256) on the switch Proposed Switch should support below features from Day1 (can be achieved within the switch or with external solution) 1.Automated provisioning of layer-3 routed access layer design for access switches 2.Policy based Micro segmentation between users to allow/restrict communication between users on the same segment/VLAN. 3. Collection of real time telemetry data from syslog, SNMP, flow etc. and should provide end to end visibility, network time travel that allows the ability to view historical events to check network status when issue occurred, provide proactive and predictive information for

		troubleshooting. 4.Troubleshooting issue along network path, checking if ACL, QoS affecting connectivity or performance issue
6	Ports	24 port 1/10/25G SFP+. Switch should support 6x40/100 Gbps ports module/ cards scalability in same hardware from day 1.
7	SFP Transceivers	All the Transceivers/Modules used to connect the Switches should be from the same OEM/ make of the switches only. Switch should support 1Gbps and 10 Gbps models.
Hardware Specification		
1	Centralized wire capacity	Switch at least 3.6 Tbps switching bandwidth or more
2	Switching Performance	1000 Mpps or more
3	Total number of IPv4 routes	Total number of IPv4 routes 112000 or more,
4	VLANs (802.1q tagged VLAN)	4000 or more Concurrent
5	Memory	4GB DRAM or more
6	Storage	8GB SSD/Flash and 32MB Buffer
7		Manufacturers Authorization Letter Specific to this Tender must be submitted. Tender submitted without MAF will be rejected.
Support		
1	Switches must be supported for a minimum of 5 years by the hardware vendor with software updates and upgrades without additional cost.	
2	The OEM should provide support services 24x7 TAC with L1, L2 and L3 for 5 years free of cost. India toll free number should be reflected in official website of the OEM.	

5. Distribution Switch – Type 1

SN	Description	
1	Form Factor	19 Inch Rack mountable Ethernet
2	Architecture	Non-Blocking architecture.
3	IPV6 Compliance	All Functionalities of Switch shall be IPV4 and IPv6 compliant and it should work on Ipv6 Platform without any additional hardware/ software.
4	End of sale	OEM End-of-sale declaration shall not have been released for the quoted model at the time of the bid submission.
5	Feature Availability	All the specified features/ parameters/ certifications must be available on the Technical Bid opening date. Features /parameters /certifications proposed to be available in near future / on roadmap shall not be considered. Switch should support VRF, OSPF, VRRP/ HSRP, BGP protocols.

		Should support hardware based IEEE 802.1AE MACSEC (AES 256) on the switch Proposed Switch should support below features from Day1 (can be achieved within the switch or with external solution) 1.Automated provisioning of layer-3 routed access layer design for access switches 2.Policy based Micro segmentation between users to allow/restrict communication between users on the same segment/VLAN. 3. Collection of real time telemetry data from syslog, SNMP, flow etc. and should provide end to end visibility, network time travel that allows the ability to view historical events to check network status when issue occurred, provide proactive and predictive information for troubleshooting. 4.Troubleshooting issue along network path, checking if ACL, QoS affecting connectivity or performance issue
6	Ports	Should support at least 48X1/10Gbps SFP and 4x40G/100G ports should be Ready from day 1.
7	SFP Transceivers	All the Transceivers/Modules used to connect the Switches should be from the same OEM/make of the switches only. Switch should support up-to 1Gbps and 10Gbps models
Hardware Specifications:		
1	Back Plane Band-width	1.2 Tbps switching bandwidth or more
2	Packet throughput	700 Mpps or more
3	MAC Addresses and MTBF	82K or more and MTBF 315000 Hrs. or more.
4	VLANs (802.1q tagged VLAN)	4000 or more
5	Memory	2GB DDR or more,
6	IPV6 host	16K or more
7	Storage	2GB Flash/SSD or more
8		Manufacturers Authorization Letter Specific to this Tender must be submitted. Tender submitted without MAF will be rejected.
Support		
1	Switches must be supported for a minimum of 5 years by the hardware vendor with soft-ware updates and upgrades without additional cost.	
2	The OEM should provide support services 24x7 TAC with L1, L2 and L3 for 5 years free of cost. India toll free number should be reflected in official website of the OEM.	

6.Distribution Switch – Type 2

SN	Description	
1	Form Factor	19 Inch Rack mountable Ethernet
2	Architecture	Non-Blocking architecture.

3	IPV6 Compliance	All Functionalities of Switch shall be IPV4 and IPv6 compliant and it should work on Ipv6 Platform without any additional hardware/ software.
4	End of sale	OEM End-of-sale declaration shall not have been released for the quoted model at the time of the bid submission.
5	Feature Availability	All the specified features/ parameters/ certifications must be available on the Technical Bid opening date. Features /parameters /certifications proposed to be available in near future / on roadmap shall not be considered. Switch should support VRF, OSPF, VRRP/ HSRP, BGP protocols. Should support hardware based IEEE 802.1AE MACSEC (AES 256) on the switch Proposed Switch should support below features from Day1 (can be achieved within the switch or with external solution) 1.Automated provisioning of layer-3 routed access layer design for access switches 2.Policy based Micro segmentation between users to allow/restrict communication between users on the same segment/VLAN. 3. Collection of real time telemetry data from syslog, SNMP, flow etc. and should provide end to end visibility, network time travel that allows the ability to view historical events to check network status when issue occurred, provide proactive and predictive information for troubleshooting. 4.Troubleshooting issue along network path, checking if ACL, QoS affecting connectivity or performance issue.
6	Ports	Should Support at least 24x1/10Gbps SFP+ and 2x40/100 Gbps ports should be ready from day 1
7	SFP Transceivers	All the Transceivers/Modules used to connect the Switches should be from the same OEM/make of the
		switches only. Switch should support up-to 1Gbps and 10Gbps models
Hardware Specifications:		
1	Back Plane Band-width	800 Gbps switching bandwidth or more
2	Packet throughput	600 Mpps or more
3	MAC Addresses and MTBF	82K or more and MTBF 315000 Hrs. or more.
4	VLANs (802.1q tagged VLAN)	4000 or more
5	Memory	2GB DDR or more,
6	IPV6 host	16K or more
7	Storage	2GB Flash/SSD or more
8		Manufacturers Authorization Letter Specific to this Tender must be submitted. Tender submitted without MAF will be rejected.

Support		
1	Switches must be supported for a minimum of 5 years by the hardware vendor with software updates and upgrades without additional cost.	
2	The OEM should provide support services 24x7 TAC with L1, L2 and L3 for 5 years free of cost. India toll free number should be reflected in official website of the OEM.	

7.Access Switch – Type 1

Sl. No.	Description	
1	Form Factor	19 Inch Rack mountable Ethernet switch with 1RU form
2	Architecture	Non-Blocking architecture.
3	IPV6 Compliance	All Functionalities of Switch shall be IPV4 and IPv6 compliant and it should work on IPv6 Platform without any additional hardware/ software.
4	End of sale	OEM End-of-sale declaration shall not have been released for the quoted model at the time of the bid submission.
5	Feature Availability	All the specified features/ parameters/ certifications must be available on the Technical Bid opening date. Features /parameters /certifications proposed to be available in near future / on roadmap shall not be considered. Switch should support SNMP V2c and V3, 802.1AB, REST API or SDN-OpenFlow or equivalent feature. Should support internal/ external RPS. Should support IGMP V1,V2,V3 and MLDV1/V2 from day1.
6	Ports	24-port Access Switch: Minimum of 24 ports 10/100/ 1000 Base T, POE/POE+ and 2 x10G SM SFP ports, 1 x Out of Band IP based management Port, 1 Console Port, 0°C to 45°C operating temperature, and, 10% to 90% relative humidity. Should have 16 K MAC Address, 500 active VLANs. Every switch must be supplied with 1 meter stacking cable and stacking accessories.
7	Basic Layer-3 Support	Switches must be managed Basic Layer-3 type for better broadcast segmentation.
8	SFP Transceivers	All the Transceivers/Modules used to connect the Switches should be from the same OEM/make of the switches only.
Hardware Specification		
1	Back Plane Bandwidth	At-least 128 Gbps switching bandwidth
2	Packet throughput	95 Mpps or more for each member switch
3	MAC Addresses and MTBF	MAC - 16K or more and MTBF 300000 Hrs. or more
4	VLANs (802.1q tagged VLAN)	500 or more Concurrent
Support		
1	Switches must be supported for a minimum of 5 years by the hardware vendor with software updates and upgrades without additional cost.	
2	The OEM should provide support services 24x7 TAC (Hardware	

	Replacement - NBD) with L1, L2 and L3 for 5 years free of cost. India toll free number should be reflected in official website of the OEM.
3	Switch should have 16MB or more packet buffer.
4	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.It should support for a minimum internal SSD strorge of 200Gb with the ability host 3rd party container applications .
5	Should support IEEE 802.1AE MACSEC (AES 256) on all ports.

8.Access Switch (Industrial Grade) – Type 2

Sl. No.	Description	
1	Back Plane Band-width	**20** Gbps switching bandwidth or more
2	Packet throughput	14 Mpps or more
3	Type	Manageable Industrial Grade Switch.
4	Ports	Minimum 8 x of 10/100/1000 RJ45 and 2 x 1G SFP inter-face.
4.1	Packet Buffer	1.5 MB or more
5	Performance and Reliability	It should be industrial grade switch. Should support operate at wider temperature range (-20 to 70 degree C) withstands greater shock, vibrations, temperature and EMI/EMC tests. MTBF value not less than 200000 Hrs. NEMA Compliant, IP30 support.
6	Power	46-58 V DC Redundant power input; POE Budget – 240 watts; Simultaneous 802.3at PoE+ for min 8 ports. Support for IEEE 802.3af as well.
7	VLAN support	a. Minimum 256 active VLANS b. Dynamic VLAN with VTP / MVRP
8	Security	a. 802.1x support b. MAC-based Authentication c. DHCP relay ipv4/ipv6, Snooping d. ACL support, Sflow, RMON, RADIUS, TACACS+ e. IP Source Guard, Flow Control and Storm Control
9	Surveillance Traffic handling Features:	a. 8K MAC table b. 4 QoS queues per port, DSCP remarking c. NTP over IPv4/IPv6 d. IGMP v1, v2, v3 & MLD v1/ v2
10	Certification	ROHS and safety certification
11	Operating condi-tions	temperature -20 ~ 70°C, humidity 5% to 90% (Noncondensing)
12	Accessories & OEM Criteria	The OEM should provide support services 24x7 TAC (Hardware Replacement - NBD) with L1, L2 and L3 for 5 years free of cost. India toll free number should be reflected in offi-cial website of the OEM.
Support		

1	Switches must be supported for a minimum of 5 years by the hardware vendor with software updates and upgrades without additional cost.

7.3 Wireless Solution

1.Access Point (Indoor)

Sl. No.	Description
1	Access Points proposed must comply with IEEE 802.11ax and must proposed APs include tri radios (2.4 GHz, 5 GHz and dedicated sensor WIPS) or Access Points proposed must include dual radios with MU-MIMO and access point for dedicated dual band sensor (WIPS)
2	The access point should be light weight and should support installations above drop ceiling, under ceiling or on wall
3	LED should be available for activity indication
4	Must have 1x IEEE 802.3 Gigabit Ethernet autosensing/Smart Rate Interfaces and USB port.
5	The access point must have integrated antenna
802.11 ac/ax Features	
6	Must support 4x4 multiple-input multiple-output (MIMO) on both radio interfaces.
7	Should have dual Radios and should support 1024 QAM
8	Should support 4.8Gbps or more data rates on dual concurrent radio operations
9	Should support 20, 40, and 80 MHz Channels
10	Should support 802.11 ax with DL SU-MIMO & MU-MIMO
Radio Features	
11	Maximum conducted transmit power shall be 18 dBm or more on both 2.4 and 5 GHz.
12	Access Point should have antenna gain 4 dBi or better on 2.4 Ghz and 5 dBi or better on 5 Ghz.
Networking Features	
13	Access points or solution should provide automatic redundancy In-case a site controller fails
14	Must have a dynamic or smart RF management features which allows WLAN to automatically and intelligently adapt to changes in the RF environment
Roaming Features	
15	Along with a controller the Access Points should support fast roaming feature
Security Features	
16	The access point should provide wireless IPS sensor support on both radios
17	The WLAN Solution should support IP filtering.
18	WLAN Solution must support Application Visibility Control (Deep Packet Inspection).
19	WLAN Solution must support personal and enterprise WPA2/ WPA3 authentication.
20	Security solution must provide Rogue AP detection by comparing the MAC address forwarding tables in common enterprise class Ethernet LAN switches
21	Security solution must provide air termination of Rogue Aps
Management Features	
21	WLAN solution should provide features that provides no touch AP discovery, adoption, provisioning

22	WLAN solution should provide features that provides other management functions including firmware push and statistics
23	Must support telnet and/ or SSH login to Aps directly for troubleshooting flexibility
Power	
24	Access point should have PoE and power injector Support
QoS Support	
25	The Access Points should support WMM, WMM-UAPSD, 802.1p, Diffserv and TOS
26	Support for Voice-over-wireless LAN (VoWLAN) quality of service (QoS) ensures toll quality, even with many simultaneous calls on a single access point
Certification	
27	Access points must have WiFi Alliance and WPC certification
Support	
1	Access point must be supported for a minimum of 5 years by the hardware vendor with software updates and upgrades without additional cost.
2	The OEM should provide support services 24x7 TAC with L1, L2 and L3 for 5 years free of cost.

2.Access Point (Outdoor)

Sl. No.	Description
Make & Model:	
1	Access Points proposed must include dual radios (2.4 GHz and 5 GHz) and should cover a distance of 250 meters in open area. Outdoor (IP67 rated or better) Wi-Fi6 802.11ax WLAN AP with Tilt bracket & PoE Injector
2	The access point should be light weight and should support installations on walls or light poles without disturbing the aesthetics of the area.
3	LED should be available for activity indication
4	The Access Point should have auto-sensing 100/1000/2500 Mbps RJ45 port with other 10/100/1000 Mbps Ethernet 802.3at POE out capability.
802.11 ax Features	
5	Must support 2x2 multiple-input multiple-output (MIMO) with Radio 1: 2.4GHz: 2x2 with 2SS or better and Radio 2: 5GHz: 2x2 with 2SS
6	Should have dual Radios and should support 200 clients
7	Should support 1.1 Gbps data rates on dual concurrent radio operations
8	Should support 1024-QAM, and 20/40/80 MHz Channels
Radio Features	
9	Minimum conducted transmit power shall support 26 dBm or more on both 2.4 and 5 GHz.
10	AP shall have integrated/ external antenna with minimum gain of 5dBi or more for 2.4 GHz and 5dBi or more for 5 GHz radios for Omni Directional Antenna device.
11	AP shall support LTE co-existence with filter for rejecting interference on 2.4 GHz from adjacent LTE bands 38, 40 in outdoor deployments. (Optional)
Networking Features	
12	The access point or the controller should support DHCP relay
13	Must have a dynamic or smart RF management features which allows WLAN to automatically and intelligently adapt to changes in the RF environment

14	WLAN Solution should support Mesh capabilities
Roaming Features	
15	Along with a controller the Access Points should support fast roaming feature
Security Features	
16	The access point should provide wireless IPS sensor support on both radios
17	The WLAN Solution should support IP filtering
18	WLAN Solution must support Application Visibility/Control
19	WLAN Solution must support WPA3, WPA2 (CCMP, AES, 802.11i), WPA2 with open access public WLAN.
20	Security solution must provide Rogue AP detection and protection
21	System should support Authentication via 802.1X, mac authentication to local database or external RADIUS Server.
22	For troubleshooting purposes, the administrator should have the ability to remotely packet capture and / or 802.3 frames from an access point without disrupting client access
Management Features	
23	WLAN solution should provide features that provides no touch AP discovery, adoption, provisioning and should be from same OEM
24	WLAN solution should provide features that provides other management functions including AP management and configuration, firmware push and statistics reporting
25	Must support telnet and/ or SSH login to Aps directly for troubleshooting flexibility
Power	
26	Access point should have Integrated PoE and power injector Support
27	AP shall Support Surge Suppression of up to 4 Kv.
28	Operating Temperature: - 40°C to 65°C and Operating Humidity up to 95% RH non-condensing.
QoS Support	
29	The Access Points should support WMM, WMM-UAPSD, 802.1p, Diffserv and TOS
30	Support for Voice-over-wireless LAN (VoWLAN), quality of service (QoS).
Certification	
31	Access points must have WiFi Alliance and Pass point 2 certified (Optional). WPC certification.
32	Should be FCC, CE, EN 60950-1, IEC 62368-1 Safety, EN 61000-4- 2/3/5 Immunity, EN 62311 Human Safety/RF Exposure
Support	
33	Access point must be supported for a minimum of 5 years by the hardware vendor with software updates and upgrades without additional cost.
34	The OEM should provide support services 24x7 TAC with L1, L2 and L3 for 5 years free of cost.

3. Point to Point Radio Link (P2P)

Sl. No.	Description
1	5 GHz PTP Radio, Integrated High Gain Antenna (ROW)with power lead, 5-year extended warranty. Integrated/External Antenna. Link may be required upto 10km. Data, Video and Voice all three should be feasible.

	Radio transmit power should be >=27db and antenna gain >= 22db with a net gain as per WPC regulatory compliance. PTP/PMP radio should be carrier class radio (based on Non Wifi) chipset) with 27db or better Tx power, 2x2 OFDM. By varying the uplink and downlink speeds more remote radios can be connected and maximum throughput of 300 Mbps will not be exceeded. CPE shall be configurable for variable speed of uplink and downlink. Should be IP66 or better with - 40 to 80deg temperature support and ruggedized. Should have Gigbit Eth port, channel size 5, 10, 20, 40 MHz, MTU 1500 Byte or better, FIPS-197 128/256-bit AES IPv4/ IPv6 (dual stack), Telnet, FTP, SNMPv2c, v3 90K +PPS. Should support Govt Regulations as per GSR-1048(E) safety standards - UL 60950

4.Point to Multi Point Radio (PMP)

Sl. No.	Description
1	PMP Radio, IP66 or better rated, 240-degrees coverage (may need 2 base stations with each unit providing 120-degree coverage) dual polarized, with all accessories and 5-year extended warranty. Link may be required up to 10km. Data, Video and Voice all three should be feasible. Integrated/ External antenna. The antenna and Radio should be from same OEM and EIRP should be equal to WPC guidelines for maximum gain. Radio transmits power should be >=27db and antenna gain >=22 db with a net gain as per WPC regulatory compliance PTP/ PMP Radio should be carrier class Radio (based on non-Wi-Fi Chipset) with 27dB or better Tx power, 2x2 OFDM. By varying the uplink and downlink speeds more remote radios can be connected and up to maximum throughput of 300 Mbps (aggregate). CPE shall be configurable for variable speed of uplink & downlink. Should be IP66 or better with -20 to +60degree temperature support and ruggedized, should have Gigabit Eth port, channel size 5, 10,20, 40 MHz, MTU 1700Byte, FIPS-197 128/256-bit AES IPv4/IPv6 (dual stack), Telnet, FTP, SNMPv2c, v3. Should support Govt Regulations as per GSR1048(E) safety standards - UL 60950

5.Wireless Controller for Access Points

Sl. No.	**Description**
1	WLC should support 1+1 failover for high availability.
2	The proposed WLC must be compliant with IEEE CAPWAP or equivalent for controller-based WLANs.
3	The proposed WLC should be virtualized/ hardware appliance, rack mountable with 2 x 1G (or better) Ethernet interface.
4	The proposed WLC should support both centralized as well as distributed traffic forwarding architecture from day 1. It should be IPv6 ready from day one.
5	The proposed controller should support minimum 10K users/devices and WLANs-250 or more.
6	The proposed WLAN controller should be supplied with minimum 512 AP license from Day-1 and can scale up to 1500 APs without change / additional hardware. Additional AP license will be procured in future.

7	The wireless access points must securely download image from WLC and should be configured from WLC only.
8	The proposed WLC should support L2/L3 roaming for mobile clients
9	The proposed WLC should provide real-time radio power adjustments based on changing environmental conditions and signal coverage adjustments. It should also adjust radio channel automatically.
10	Should support dynamic bandwidth selection among 20Mhz, 40 MHz, and 80Mhz channels.
11	Controller should support Wi-Fi 6, 802.11ax technology
12	The proposed system must support coverage hole detection and correction that can be adjusted on a per WLAN basis.
13	Should support web-based authentication to provide a browser-based environment to authenticate clients that do not support the IEEE 802.1X supplicant.
14	Should support port-based and SSID-based IEEE 802.1X authentication.
15	Should support MAC authentication to provide simple authentication based on a user's MAC address.
16	Should support AP grouping to enable administrator to easily apply APbased or radio-based configurations to all the APs in the same group
17	Plug-and-Play Fast and easy zero-touch installation plus rule-based access point adoption from all locations automates equipment discovery and deployment. (Optional)
18	WLC should support Comprehensive Integrated Network Security Services Wired/wireless, built-in Wireless Intrusion Protection System (WIPS), and secure guest access with Captive web portal or equivalent solution.
19	WLC should provide BYOD Support. It should provide device fingerprinting and required to help manage and secure user-owned devices.
20	WLC should support 802.11w to secure management frames, NAC integration support.
21	WLC should support guest access.
22	WLC architecture should support tunnel forwarding and local forwarding.
23	WLAN Solution should support captive portal with time-based access, Customize Guest page and must have option for self-guest registration options, so that guest can automatic register himself from day 1 or with equivalent solution.
24	System/Solution should provide safeguard from DOS attacks and Intrusion Detection and termination of Rogue Access Points.
25	System/Solution should support detection of Impersonation attack, Decryption failures, Invalid MAC transmission, Fake AP attack, Invalid 802.1x frames, Invalid source and destination address
26	WLAN Solution should have feature to create captive portal guest users for authenticating using their User ID (Email Address/ Mobile Number/ Member ID) and the received pass code on Email or SMS in order to complete the registration process or any equivalent solution/ third-party components to full-fill the requirement.
27	SMS Gateway required for OTP should be provided along with the WLC.
Support	
1	Access point must be supported for a minimum of 5 years by the hardware vendor with software updates and upgrades without additional cost.
2	The OEM should provide support services 24x7 TAC with L1, L2 and L3 for 5 years free of cost. India toll free number should be reflected in official website of the OEM.

6. Network Access Control

SN	Description
1	Dedicated redundant hardware Appliance or virtualized platform and one Centralized Console. Should be supplied with 1000 AAA (Endpoint Security) perpetual / subscription licenses per location. In case of subscription license, the license should be for 6 years.
2	Should be able to integrate with offered makes and models of manageable network devices which can support open standard based protocols required for NAC operation.
3	Each appliance should scale to at least 10000 devices
4	Solution must utilize standards-based authentication mechanisms enabling non-intelligent devices the ability to connect to the network and receive the proper network services.
5	Should be able to gather Detailed identity and access information with OS and device fingerprinting for iOS/ OSX, Android, Windows and more
6	Should be able to perform posture check for compute end points (Windows & MAC) for OS health for parameters like Registry Keys, allowed process, AV or Firewall Enabled etc.
7	Detect and protect any device with IP address without the need for a client application on each endpoint including detection of VoIP phones, printers, wireless devices, machinery, cameras, sensors etc.
8	Device search functionality by attributes such as username / OS type / IP- MAC address / System Name
9	Must Support location-based Registration portals to redirect Users entering through common location to different portals for different Network Zones
10	Must support automated context-based policy provisioning of network services for mobile devices
11	Support Management Access Authentication and Authorization for Network Device Access
12	Must support RADIUS or LDAP Authentication for users of the application.
13	Must provide a tool to search and locate the physical location of connected devices and end users, quickly and easily.
14	Must allow IT administrators to easily define number of pre-configured network policies, and designate select personnel to activate/deactivate these policies as appropriate
15	Must support the ability to present detailed configuration information including date and time of configuration saves, firmware version, and file size.

7.OEM Element Management System (EMS)

Sl. No.	Description
1	NMS should be from the same OEM providing switching and Indoor wireless solution
2	It Should have Single Pane of Glass Overview of the network
3	NMS Solution should be virtual / hardware-based appliance
4	Must be able to support minimum 200 Devices per location and should be scalable to support minimum 1200 switches on the same virtual appliance
5	Should support topology view and support ability to discover & view links and devices in the L2 network. Discovery of links between devices should be based on

	LLDP/ SNMP/ STP or equivalent supported method
6	The device should support Centralized management that should be able to discover and monitor/ manage wired and wireless components of at least the respective
7	Must allow system-level operations such as device discovery, event management, logging and application maintenance to be performed centrally.
8	Must provide the capabilities to modify, filter, and create your own flexible views of the network.
9	Must provide deployment of VLAN configuration and monitoring capabilities.
10	Must provide comprehensive remote management support for all proposed network devices as well as any SNMP MIB-I or MIB-II manageable devices.
11	Must support RADIUS and LDAP Authentication for users of the application.
12	Must have SNMP MIB compile capability to integrate any SNMP compliant device (Optional)
13	Must be able to monitor the application performances affected by QoS class definitions and supports changes in the QoS configuration
14	Must provide a tool to find the physical location of systems and end users, and where they are connected, quickly and easily.
15	Must provide automated functionality to ensure that appropriate services are available to each user, no matter where they log on.
16	Must provide an audit trail (event log).
17	Must be able to integrate with NAC and Wireless devices
18	Must allow IT administrators to easily define a number of pre-configured network policies, and designate select personnel to activate/deactivate these policies as appropriate
19	Must provide a detailed inventory of products organized by device type.
20	Should provide detailed inventory reports which shows detailed hardware components
21	Must support he ability to present detailed configuration information including date and time of configuration saves, firmware version and file size.
22	Must record a history of device attributes and reports any changes made to the device.
23	Must be able to provide a history of firmware and configuration changes made to the device.
24	Must be able to generate valuable, in-depth reports for network inventory for planning purposes.
25	Must provide a centralized history of inventory management operations.
26	Must support the liability to download firmware to single or multiple devices simultaneously.
27	Must be able schedule route device configuration back-ups.
28	Must instantly identify the physical location and user profile where an attack was sourced.
29	Must be able to take action based on a predefined security policy, including the ability to notify the intrusion detection system of the action taken via a SNMPv3 trap (inform).
30	When integrated with security devices such as NAC or IDS it must be able to isolate and quarantine the attacker without disruption to other users, applications and business critical systems.
31	When integrated with security devices such as NAC or IDS it must be able to dynamically deny, limit or change the characteristics of the user's access to the network.

32	Must provide a web interface that contains reporting, dashboards, troubleshooting and monitoring tools.
33	Must provide web-based flexible view, device views and event logs for the entire infrastructure.
34	Must enable diagnosis of network issues and performance through Real time/ Near-Real time data or equivalent analysis.
35	Must provide port level analysis capability.
36	Must provide customizable reports.
37	Must be able to write Python scripts/ REST APIs to integrate with IoT solutions.
38	Should have the capability to integrate with 3rd Party Vendors.
39	Should have the capability to reduce risk and ensure network configurations comply to HIPAA / PCI or equivalent with those analyses and assesses network configuration for compliance across entire wired / wireless network.
	and SOC to have the single consolidated console of infrastructure andsecurity events.
Server Fault Monitoring & Application Performance Management	
10	The proposed Enterprise Management tools must be able to monitor end toend performance of Server Operating Systems & Databases and Should be able to manage distributed, heterogeneous systems – Windows, UNIX & LINUX from a single management station.
11	Should provide a centralized point of control with out-of-the-box policy- based management intelligence for easy deployment for the servers, operating systems, applications and services for correlating and managing all the IT infrastructure components of a business service
12	There should be a single agent on the managed node that provides the system performance data, and for event management it should be able toprioritize events, do correlation & duplicate suppression ability to buffer alarms and provide automatic actions with capability to add necessaryannotations
13	Each operator should be provided with user roles that should include operational service views enabling operators to quickly determine impactand root cause associated with events.
14	The system should integrate with Helpdesk / Service desk tool for automated incident logging and also notify alerts or events via e-mail orSMS.
15	The system should have context-based analysis and forecasting based onperformance data with automated policy deployment with detailed, intelligent monitoring of performance and availability data collection
16	Solution should provide alarm correlation and facilitate reduction of total number of alarms displayed by means of intelligent alarm correlation, suppression and root cause analysis techniques built into the system. Thesystem must ensure reduction in MTTR by means of advanced event correlation, filtering and root cause analysis.

17	The proposed Alarm Correlation and Root Cause Analysis system shall integrate network, server and database performance information and alarms in a single console and provide a unified reporting interface for network components. The current performance state of the entire network& system infrastructure shall be visible in an integrated console.
18	It should have capability to perform cross domain correlation with alarm correlation from Network Monitoring tool, Systems monitoring tool andother domain monitoring tools.
19	Alarm Filtering should allow flexible filtering rules for DC staff to filter thealarms by category, severity, elements, duration, by user, by views, by geography or by department.
20	The proposed solution should provide out of the box root cause analysiswith multiple root cause algorithms inbuilt for root cause analysis.
21	Should be able to send e-mail or Mobile –SMS to pre-defined users for pre-defined faults.
22	The proposed solution should able to monitor application middleware &database
Network Fault Monitoring & Performance Management with Reporting	
23	The Network Management function must monitor performance acrossheterogeneous networks from one end of the enterprise to the other.
24	The solution should allow for discovery to be run on a continuous basis which tracks dynamic changes near real-time; in order to keep the topologyalways up to date. This discovery should run at a low overhead, incrementally discovering devices and interfaces.
25	The tool should automatically discover different type of heterogeneous devices (all SNMP supported devices i.e. Router, Switches, LAN ExTender,Servers, Terminal Servers, Thin-Customer and UPS etc.) and map the connectivity between them with granular visibility up to individual ports level. The tool shall be able to assign different icons/ symbols to different type of discovered elements. It should show live interface connections between discovered network devices.
26	It should support various discovery protocols to perform automatic discovery of all L2, L3 Network devices across NMDC locations and any further Network connectivity's planned in future.
27	The tool shall be able to discover IPv4 only, IPv6 only as well as devices indual- stack. In case of dual stack devices, the system shall be able to discover and show both IPv4 and IPv6 IP addresses.
28	The tool shall be able to work on SNMP V-1, V-2c & V-3 based on the SNMP version supported by the device. It shall provide an option to discover and manage the devices/elements based on SNMP as well as ICMP.
29	The proposed Network Fault Management solution must support extensivediscovery mechanisms and must easily discover new devices using mechanisms such as SNMP Trap based discovery. It must also allow for inclusion and exclusion list of IP address or devices from such discovery mechanisms
30	The proposed solution must provide a detailed asset report, organized by vendor name, device type, listing all ports for all devices. The Solution mustprovide reports to identify unused/dormant Network ports in order to facilitate capacity planning

31	The proposed solution should have diagnostic analytics capability that ableto visually correlate performance and configuration changes of all network issues and it must be highly scalable solution and supports at least 10,000devices and must be scaled to 30,000 nodes with distributed architecture without making any major architectural changes.
Network Configuration Automation	
32	The system should be able to clearly identify configuration changes / policyviolations/ inventory changes across multi-vendor network tool.
33	The system should support secure device configuration capture and uploadand thereby detect inconsistent “running” and “start-up” configurations and alert the administrators.
34	The proposed system should be able to administer configuration changesto network elements by providing toolkits to automate the following administrative tasks of effecting configuration changes to network elements:
35	a) Capture running configuration; b) Capture start-up configuration; c) Upload configuration; d) Write start-up configuration; e) Upload firmware
36	The proposed fault management solution must able to perform “load &merge” configuration changes to multiple network devices
37	The proposed fault management solution must able to perform real-time orscheduled capture of device configurations
38	NMS should support 3-Dimensional Compliance Model - Configuration,Software, Running State
Reporting	
39	Reporting solution should be able to report on Service Level status ofconfigured business service.
40	It should be able to collect and collate information regarding relationshipbetween IT elements and business service, clearly showing how infrastructure impacts business service levels.
41	The solution should be user configurable for building additional reports.
42	Solution should be able to collect Key performance measurements and statistics from all network domains and store it. This data is to be used forevaluation of performance of the end-to-end network infrastructure/services.
43	The performance management system shall be able to collect and reportdata like:
44	Packet delay and packet lossBandwidth usage rate Network availability rate CPU usage rate Input/output traffic through physical portsInput/output traffic through logical ports
45	The Performance Management shall have user defined set of reports like:
	a. Summary Reports for specific groups: Reports displaying per group ofresources the group aggregations for a set of metrics (for example, per City, the maximum traffic or the total traffic).
	b. Summary Reports for specific Resources: Reports displaying for a set ofresources the period aggregations for the same set of metrics (for example, per interface, the maximum traffic over the day)

	c. Detailed chart Reports: Reports displaying for one resource and thesame set of metrics the values over the period (for example, the raw collected values for the day).
	d. Resource Threshold Violation Reports: Reports displaying the resourcesfor which a threshold was violated
	c. Detailed chart Reports: Reports displaying for one resource and thesame set of metrics the values over the period (for example, the raw collected values for the day).
	d. Resource Threshold Violation Reports: Reports displaying the resourcesfor which a threshold was violated.
General Requirement of IT Service/ Helpdesk	
46	Should be able to support and handle large volume of incident, servicerequests, changes, etc.
47	Should have the feature to integrate with third party IVR or CTI
48	The proposed helpdesk system must support out-of-the-box templates for various ITIL service support processes like Change Management, IncidentManagement, Knowledge Management, Problem Management, Release &Deployment Management, Request Fulfillment, Service Asset & Configuration Management, Service Catalog Management, Service Portfolio Management as the necessary processes for managing the SAP HANA environment.
49	The solution should provide to browse through CMDB which should offer powerful search capabilities for configuration items and services, enablingto quickly find CIs as well as their relationships to other CIs.
50	Should support deployment of multiple tenants per installation using Multi- tenancy features, it must have multi-tenant console and grid allow agents to view and edit records from multiple tenants in a single user interface andenabled with social collaboration features that include the ability to vote, translation on the fly, ask a friend, or survey help end-users source answers from the community and enhance end-user autonomy.
51	The tool should have the knowledge management OOB – knowledge databases to support investigations, diagnoses, root cause analysis techniques, and creating / updating workarounds, temporary fixes andresolutions
52	The tool should allow the creation of different access levels (i.e. Read only,write, create, delete) to knowledge management system
53	The proposed helpdesk solution must support code less configuration ofprocesses that can be upgraded seamlessly without the need to reconfiguration of processes.
54	Solution should support comprehensive SLA management platform
55	Must allow creating and applying various operational level parameters toIncidents, Requests, Changes, and Release management modules.
56	The application should have a predefined/customizable field to indicate &track the progress/status of the lifecycle of ticket(s).
57	The tool should provide an audit trail, tracking & monitoring for record information and updates from opening through fulfilment to closure for example: IDs of individuals or groups opening, updating & closing records;dates / times of status & activities updates, etc.

58	SI's must proposed a full fledges Service Level Management Solution that allows for tracking of various service level performances of IT Infrastructureand vendor performance.
59	The solution should support SLA violations alerts during the tracking period.
60	The solution should support managing and maintaining a full history of an SLA.
61	The solution must provide a flexible framework for collecting and managingservice level templates including Service Definition, Service Level Metrics, Penalties and other performance indicators measured across infrastructure and vendors
Auto-Discovery and Inventory	
62	Discovery should work without requiring agent installation (that is, agent-less discovery) while discovery Layers 2 through Layers 7 of OSI model
63	Should use Industry-standard protocols such as WMI, SNMP, JMX, SSH toperform discovery without requiring the installation of an agent
64	Discovery system should have ability to modify out-of-box discovery scripts, create customized discovery scripts
65	The EMS must provide a common configuration management database that must have a single solution for discovery of networks devices, servers& desktops, using a common probe, that supports both agent-less and agent-based technologies. No. of Physical Servers/ VM's – 300No. of Desktops – 3000 No. of Network Devices – 1500
66	Patch Management Solution is to be provided either in EMS or as a 3rdParty Solution.
67	The proposed Management Pack for SAP HANA should be enabled to monitor SAP HANA database with following features like Discovery and Monitoring of SAP HANA Multitenant Database Containers (MDC), It should also support monitoring of SAP HANA High Availability systems & Enhanced monitoring of Workload Statistics which shall include Performance Dashboard to track and analyze the performance trend of theHANA metrics.
Warranty & MAF	
68	5 Years 24x7 online support
69	The vendor has to give make, model, part nos. of every component which will be cross verified by OEM.
70	Manufacturers Authorization Letter Specific to this Tender must be submitted. Tender submitted without MAF will be rejected.

8. Enterprise Management System (EMS) Solution

SN	Description
Make & Model:	
General Requirement – For Entire NMDC Network	

1	The proposed EMS solution should be an integrated, modular and scalablesolution from single OEM (i.e., all Network Monitoring, server Monitoring including application and database monitoring and Service Management tools should be from single OEM) to provide comprehensive fault management, performance management, traffic analysis and business service management, IT service desk\ help desk \trouble ticketing system &SLA monitoring functionality. To be deployed HA in DC and Non-HA in DR.
2	It should have a secured single sign-on and unified console for all functionsof components offered for seamless cross-functional navigation & launch for single pane of glass visibility across multiple areas of monitoring &management.
3	The proposed EMS solution should be built on modern containertechnologies and have an option to deploy on classic mode non-containerized as well as containerized mode.
4	The solution should have self-monitoring ability to track status of its criticalcomponents & parameters such as Up/Down status of its services, applications & servers, CPU utilization, Memory capacity, File system space, Database Status, synchronization status between primary and secondary system and event processing etc. It should provide this information in real-time through graphical dashboards, events/alarms as well as in the form of historical reports.
5	To ensure the proposed software is secure, it should have ISO 27034certification from a verification or certification agency from Schellman/KPMG/ PwC/ Ernst & Young/ Deloitte recognized
6	The proposed EMS/ NMS solution must have necessary workflows for transparent, smoother and cordial support framework and the solution mustbe an enterprise grade solution to manage & Integrate with the complex ERP/ SAP HANA environment and it must be present in the IDC MarketScape report for IT Service Management.
7	It shall be ensured by MSP/OEM that the proposed EMS solution (hardware and software) provisioned from Day 1 is able to handle 3000devices and shall be scalable to 5000 devices.
8	Proposed EMS Solutions MUST have been in operations in at least 2 or more deployments across government/public sector, monitoring and managing at least 10,000 network nodes in each of the cases individually.Self-certification of the OEM, along with the customer names and proof ofsoftware delivery must be submitted at the time of bid submission.
9	Solution should ensure compatibility of existing Infrastructure with the procured infrastructure, and it must fill the end functionality of the project. Offered solution should support bi-directional integration between the NOC and SOC to have the single consolidated console of infrastructure andsecurity events.
Server Fault Monitoring & Application Performance Management	
10	The proposed Enterprise Management tools must be able to monitor end toend performance of Server Operating Systems & Databases and Should be able to manage distributed, heterogeneous systems – Windows, UNIX & LINUX from a single management station.

11	Should provide a centralized point of control with out-of-the-box policy- based management intelligence for easy deployment for the servers, operating systems, applications and services for correlating and managing all the IT infrastructure components of a business service
12	There should be a single agent on the managed node that provides the system performance data, and for event management it should be able toprioritize events, do correlation & duplicate suppression ability to buffer alarms and provide automatic actions with capability to add necessaryannotations
13	Each operator should be provided with user roles that should include operational service views enabling operators to quickly determine impactand root cause associated with events.
14	The system should integrate with Helpdesk / Service desk tool for automated incident logging and also notify alerts or events via e-mail orSMS.
15	The system should have context-based analysis and forecasting based onperformance data with automated policy deployment with detailed, intelligent monitoring of performance and availability data collection
16	Solution should provide alarm correlation and facilitate reduction of total number of alarms displayed by means of intelligent alarm correlation, suppression and root cause analysis techniques built into the system. Thesystem must ensure reduction in MTTR by means of advanced event correlation, filtering and root cause analysis.
17	The proposed Alarm Correlation and Root Cause Analysis system shall integrate network, server and database performance information and alarms in a single console and provide a unified reporting interface for network components. The current performance state of the entire network& system infrastructure shall be visible in an integrated console.
18	It should have capability to perform cross domain correlation with alarm correlation from Network Monitoring tool, Systems monitoring tool andother domain monitoring tools.
19	Alarm Filtering should allow flexible filtering rules for DC staff to filter thealarms by category, severity, elements, duration, by user, by views, by geography or by department.
20	The proposed solution should provide out of the box root cause analysiswith multiple root cause algorithms inbuilt for root cause analysis.
21	Should be able to send e-mail or Mobile –SMS to pre-defined users for pre- defined faults.
22	The proposed solution should able to monitor application middleware &database
Network Fault Monitoring & Performance Management with Reporting	
23	The Network Management function must monitor performance acrossheterogeneous networks from one end of the enterprise to the other.
24	The solution should allow for discovery to be run on a continuous basis which tracks dynamic changes near real-time; in order to keep the topologyalways up to date. This discovery should run at a low overhead, incrementally discovering devices and interfaces.

25	The tool should automatically discover different type of heterogeneous devices (all SNMP supported devices i.e. Router, Switches, LAN ExTender,Servers, Terminal Servers, Thin-Customer and UPS etc.) and map the connectivity between them with granular visibility up to individual ports level. The tool shall be able to assign different icons/ symbols to different type of discovered elements. It should show live interface connections between discovered network devices.
26	It should support various discovery protocols to perform automatic discovery of all L2, L3 Network devices across NMDC locations and any further Network connectivity's planned in future.
27	The tool shall be able to discover IPv4 only, IPv6 only as well as devices indual- stack. In case of dual stack devices, the system shall be able to discover and show both IPv4 and IPv6 IP addresses.
28	The tool shall be able to work on SNMP V-1, V-2c & V-3 based on the SNMP version supported by the device. It shall provide an option to discover and manage the de-vices/elements based on SNMP as well as ICMP.
29	The proposed Network Fault Management solution must support extensivediscovery mecha-nisms and must easily discover new devices using mechanisms such as SNMP Trap based discovery. It must also allow for inclusion and exclusion list of IP address or devices from such discovery mechanisms
30	The proposed solution must provide a detailed asset report, organized by vendor name, de-vice type, listing all ports for all devices. The Solution mustprovide reports to identify un-used/dormant Network ports in order to facilitate capacity planning
31	The proposed solution should have diagnostic analytics capability that ableto visually corre-late performance and configuration changes of all network issues and it must be highly scal-able solution and supports at least 10,000devices and must be scaled to 30,000 nodes with distributed architecture without making any major architectural changes.
Network Configuration Automation	
32	The system should be able to clearly identify configuration changes / policyviolations/ inven-tory changes across multi-vendor network tool.
33	The system should support secure device configuration capture and uploadand thereby detect inconsistent "running" and "start-up" configurations and alert the administrators.
34	The proposed system should be able to administer configuration changesto network elements by providing toolkits to automate the following administrative tasks of effecting configuration changes to network elements:
35	a) Capture running configuration; b) Capture start-up configuration; c) Upload configuration; d) Write start-up configuration; e) Upload firmware
36	The proposed fault management solution must able to perform "load &merge" configuration changes to multiple network devices
37	The proposed fault management solution must able to perform real-time orscheduled capture of device configurations

38	NMS should support 3-Dimensional Compliance Model - Configuration,Software, Running State
Reporting	
39	Reporting solution should be able to report on Service Level status ofconfigured business service.
40	It should be able to collect and collate information regarding relationshipbetween IT elements and business service, clearly showing how infrastructure impacts business service levels.
41	The solution should be user configurable for building additional reports.
42	Solution should be able to collect Key performance measurements and statistics from all network domains and store it. This data is to be used forevaluation of performance of the end-to-end network infrastructure/services.
43	The performance management system shall be able to collect and reportdata like:
44	Packet delay and packet lossBandwidth usage rate Network availability rate CPU usage rate Input/output traffic through physical portsInput/output traffic through logical ports
45	The Performance Management shall have user defined set of reports like:
	a. Summary Reports for specific groups: Reports displaying per group ofresources the group aggregations for a set of metrics (for example, per City, the maximum traffic or the total traffic).
	b. Summary Reports for specific Resources: Reports displaying for a set ofresources the period aggregations for the same set of metrics (for example, per interface, the maximum traffic over the day)
	c. Detailed chart Reports: Reports displaying for one resource and thesame set of metrics the values over the period (for example, the raw collected values for the day).
	d. Resource Threshold Violation Reports: Reports displaying the resourcesfor which a threshold was violated
General Requirement of IT Service/ Helpdesk	
46	Should be able to support and handle large volume of incident, servicerequests, changes, etc.
47	Should have the feature to integrate with third party IVR or CTI
48	The proposed helpdesk system must support out-of-the-box templates for various ITIL service support processes like Change Management, IncidentManagement, Knowledge Management, Problem Management, Release &Deployment Management, Request Fulfillment, Service Asset & Configuration Management, Service Catalog Management, Service Portfolio Management as the necessary processes for managing the SAP HANA environment.
49	The solution should provide to browse through CMDB which should offer powerful search capabilities for configuration items and services, enablingto quickly find CIs as well as their relationships to other CIs.

50	Should support deployment of multiple tenants per installation using Multi- tenancy features, it must have multi-tenant console and grid allow agents to view and edit records from multiple tenants in a single user interface andenabled with social collaboration features that include the ability to vote, translation on the fly, ask a friend, or survey help end-users source answers from the community and enhance end-user autonomy.
51	The tool should have the knowledge management OOB – knowledge databases to support investigations, diagnoses, root cause analysis techniques, and creating / updating workarounds, temporary fixes andresolutions
52	The tool should allow the creation of different access levels (i.e. Read only,write, create, delete) to knowledge management system
53	The proposed helpdesk solution must support code less configuration ofprocesses that can be upgraded seamlessly without the need to reconfiguration of processes.
54	Solution should support comprehensive SLA management platform
55	Must allow creating and applying various operational level parameters toIncidents, Requests, Changes, and Release management modules.
56	The application should have a predefined/customizable field to indicate &track the progress/status of the lifecycle of ticket(s).
57	The tool should provide an audit trail, tracking & monitoring for record information and updates from opening through fulfilment to closure for example: IDs of individuals or groups opening, updating & closing records;dates / times of status & activities updates, etc.
58	SI's must proposed a full fledges Service Level Management Solution that allows for tracking of various service level performances of IT Infrastructureand vendor performance.
59	The solution should support SLA violations alerts during the tracking period.
60	The solution should support managing and maintaining a full history of an SLA.
61	The solution must provide a flexible framework for collecting and managingservice level templates including Service Definition, Service Level Metrics, Penalties and other performance indicators measured across infrastructure and vendors
Auto-Discovery and Inventory	
62	Discovery should work without requiring agent installation (that is, agent-less discovery) while discovery Layers 2 through Layers 7 of OSI model
63	Should use Industry-standard protocols such as WMI, SNMP, JMX, SSH toperform discovery without requiring the installation of an agent
64	Discovery system should have ability to modify out-of-box discovery scripts, create customized discovery scripts

65	The EMS must provide a common configuration management database that must have a single solution for discovery of networks devices, servers& desktops, using a common probe, that supports both agent-less and agent-based technologies. No. of Physical Servers/ VM's – 300No. of Desk-tops – 3000 No. of Network Devices – 1500
66	Patch Management Solution is to be provided either in EMS or as a 3rdParty Solution.
67	The proposed Management Pack for SAP HANA should be enabled to monitor SAP HANA database with following features like Discovery and Monitoring of SAP HANA Multitenant Database Containers (MDC), It should also support monitoring of SAP HANA High Availability systems & Enhanced monitoring of Workload Statistics which shall include Performance Dashboard to track and analyze the performance trend of theHANA metrics.
Warranty & MAF	
68	5 Years 24x7 online support
69	The vendor has to give make, model, part nos. of every component which will be cross verified by OEM.
70	Manufacturers Authorization Letter Specific to this Tender must be submitted. Tender submitted without MAF will be rejected.

9.Cabling

9.1. Fiber Termination Box

Sl. No.	Description
1	Data Sheets in support of below to be provided
2	19-inch rack mounted,
3	1U or more height for 48-Fiber panels; 1U height for 24 fiber panels
4	Couplers: Panel fully loaded with Duplex LC SM Couplers and pigtailszirconia-ceramic sleeves, rated for minimum of 220 cycles mate & un-mate; integrated dust / protective caps preferred
5	Built-in Fusion Splice tray – 48 Fibers and built-in pigtail managementtrays
6	Minimum 4 numbers of rubber cable glands in rear for entry of 15mmcables
7	Integrated fiber management in front of panel to save rack U space
8	Minimum 1.2mm/ 16 gauge steel, powder coated, drawer style tofacilitate on-site splicing
9	Adequate provision for label holders and labelling

9.2. Optical Fiber Pigtails

Sl. No.	Description
1	Data Sheets in support of below to be provided
2	LC Simplex pigtails, 1m length
3	SM, 2mm buffered jacketed Fiber, RoHS compliant
4	Insertion Loss: less than 0.3dB
5	Return Loss: greater than 45dB
6	End-face: OEM should certify compliance to IEC 61300-3

9.3. Optical Fiber Cable (OFC) Patch Cord

Sl. No.	Description
1	Data Sheets in support of below to be provided
2	LC-LC Duplex patch cords,
3	Assorted lengths: 3m, 5m,
4	SM, 2mm zip-cord, RoHS compliant
5	Insertion Loss: less than 0.3dB
6	Return Loss: greater than 45dB
7	End-face: OEM should certify compliance to IEC 61300-3

9.4.CAT 6A Cabling System & Cable

Sl. No.	Description
1	The Copper Cabling system shall be made up of 4-pair, Cat6A U/UTPLSZH cabling system.
2	The proposed U/UTP cabling system shall comply with 4-connector channel as well as permanent link performance specifications of the latest revisions of the TIA 568 (or equivalent ISO/ IEC 11801) standard.Documented data sheets shall be furnished by MSP / OEM.
3	All end points of the network will connect to the Passive NetworkInfrastructure using Cat6A U/UTP Cabling System.
4	All components of the U/UTP Cabling system proposed by a MSPshould be from a single OEM.
5	It is preferable to have all components of the proposed U/UTP cabling system from an OEM be from a single, documented, publicly published,cabling solution set.
6	Cat6A U/UTP cabling system shall support 1000BASE-T Ethernet, 2.5GBASE-T and 5GBASE-T Ethernet, 10GBASE-T, as well as, Type1, Type 2, Type 3, and Type 4 PoE delivery over a full 100m 4- connector channel. MSP to furnish documented proof for support of such applications.

7	The proposed Cat6A U/UTP cabling system shall comply performanceof the following performance parameters for a 100m 4-connector Channel with the requirements of the latest revisions of TIA 568 standard DC Resistance and DC Resistance Unbalance;Insertion, NEXT, PSNEXT and Return Losses; ACRF and PSACRF; TCL and ELTCTL; Propagation Delay and Propagation Delay Skew;PSANEXT and PSAACRF
8	MSP shall submit OEM documentation supporting performance compliance of proposed Ca6A U/UTP cabling systems to the channelspecifications to the latest revision of TIA 568 standard. Such documentation should include the manufacturers' part numbers that make up the 4-connector channel.
9	Performance headroom (worst case margins only), if any guaranteedby the OEM, for parameters specified above may be included in the OEM's supporting documentation for channel specification. If is preferred that such documentation be a publicly published one.
10	Third party test reports of compliance of the performance parameters to the channel specifications of TIA 568 standards clearly indicating the part numbers that comprised the testing shall be included if available.
11	OEM certification for providing a 25-year performance warranty (uponinstallation and acceptance testing)
	Performance compliance to Permanent Link performancespecifications. Performance (successful delivery) of applications as listed above. Data sheets should be provided in support of above specification byMSP/ OEM
12	Data sheet(s) in support of below to be provided.
13	Should meet channel specifications of latest TIA 568 standard forCat6A when used as a component in the installed Cat6A U/UTP channel.
14	23 AWG, U/UTP cable, 4-pair, LSZH
15	Pulling Tension, Max. 11.34 Kg/ 25 lb
16	Electrical Performance as per latest revision TIA 568 (or equivalentISO/IEC standards) to Cat6A U/UTP performance requirements respectively DC Resistance and DC Resistance UnbalanceInsertion, Return, NEXT, PSNEXT losses ACRF and PSACRF TCL and ELTCTL Propagation Delay and Propagation Delay SkewPSANEXT and PSAACRF
17	UL approved
18	Fire rating: IEC 60332-3-22
19	RoHS compliant
20	Any 3rd party test reports for electrical, mechanical and fire-ratingperformance to be included

9.5.CAT 6A Patch Cord (2 Meter)

Sl. No.	Description
1	Data Sheets in support of below to be provided
2	Should meet channel specifications of latest TIA 568 standard for Cat6A when used as a component in the installed Cat6 U/UTP channel
3	100 ohms, Solid copper, 24AWG
4	CM jacket, with plug boot
5	Insertion life: 750 mate & un-mate cycles
6	Any 3rd party test reports for electrical, mechanical and fire-ratingperfor-mance to be included

9.6.CAT 6A UTP Information Outlet/ Modular Jacks

Sl. No.	Description
1	Data Sheets in support of below to be provided
2	Should meet channel specifications of latest TIA 568 standard forCat6A when used as a component in the installed Cat6 U/UTP channel.
3	8-position, 4-pair, UTP jack, with IDC contacts supporting 22 AWG to24 AWG solid conductors.
4	Electrical Performance as per latest revision TIA 568 (or equivalentISO/IEC stand-ards) to Cat6A U/UTP performance requirements respectively DC Resistance and DC Resistance Unbalance; Insertion, Return, NEXT and PSNEXT losses; FEXT and PSFEXT losses; TCL and TCTL; Propagation Delay and Propagation Delay Skew; PSANEXTand PSAFEXT losses
5	Durability: Min 750 mate & un-mate cycles for plug interface; Min 20 re-termina-tions for the IDC punch down contacts
6	PoE Support: Support Type 1, Type 2, Type 3 and Type 4 PoE levels
7	Operating temperature: -10 Degree C to +60 Degrees C
8	UL approved.
9	RoHS Compliant

9.7 CAT 6A Jack Panel

Sl. No.	**Description**
1	Data Sheets in support of below to be provided
2	Should meet channel specifications of latest TIA 568 standard forCat6A when used as a component in the installed Cat6 U/UTP channel.
3	19”, 1U, straight, 24-port, un-loaded (support discrete modular jacks),metal frame, with integrated label holder. Modular Jacks as specified above.
4	Rear Cable bar should be included in supplies

5	Modular Jack of the panel should meet the specifications of Modular Jacks for electrical, durability, PoE support and operating temperature specified above
6	UL approved, RoHS compliant

9.8 CAT 6A U/UTP MPTL Plugs

Sl. No.	Description
1	Data Sheets in support of below to be provided. Modular Plugs notacceptable.
2	Should meet channel specifications of latest TIA 568 standard forCat6A when used as a component in the installed Cat6 U/UTP channel.
3	Cable side termination: 8-position, 4-pair, UTP jack, with IDC contacts supporting 22 AWG to 24 AWG solid conductors, 20 re-terminationsdurability
4	Plug/Jack compatibility: RJ45 style, 750 mate & un-mate cyclesdurability
5	Electrical performance, PoE support, operating temperaturespecifications same as that for modular plug
6	UL approved and RoHS compliant

9.9 CAT 6 Cabling System & Cable

Sl. No.	Technical Specifications
1	The Copper Cabling system shall be made up of 4-pair, Cat6 U/UTPLSZH cabling system.
2	The proposed U/UTP cabling system shall comply with 4-connector channel as well as permanent link performance specifications of the latest revisions of the TIA 568 (or equivalent ISO/ IEC 11801) standard.Documented data sheets shall be furnished by MSP / OEM. Such performance compliance document shall be publicly published catalog
3	All end points of the network will connect to the Passive NetworkInfrastructure using Cat6 U/UTP Cabling System.
4	All components of the U/UTP Cabling system proposed by a MSPshould be from a single OEM.
5	It is preferable to have all components of the proposed U/UTP cabling system from an OEM be from a single, documented, publicly published,cabling solution set.
6	Cat6 U/UTP cabling system shall support 1000BASE-T Ethernet, 2.5GBASE-T and 5GBASE-T Ethernet, as well as, Type 1, Type 2, Type 3, and Type 4 PoE delivery over a full 100m 4-connector channel.MSP to furnish documented proof for support of such applications.
7	The proposed Cat6A U/UTP cabling system shall comply performanceof the following performance parameters for a 100m 4-connector Channel with the requirements of the latest revisions of TIA 568 standard DC Resistance and DC Resistance Unbalance;Insertion, NEXT, PSNEXT and Return Losses; ACRF and PSACRF; TCL and ELTCTL; Propagation Delay and Propagation Delay Skew;

8	MSP shall submit OEM documentation supporting performance compliance of proposed Cat6 U/UTP cabling systems to the channelspecifications to the latest revision of TIA 568 standard. Such documentation should include the manufacturers part numbers that make up the 4-connector channel.
9	Performance headroom (worst case margins only), if any guaranteedby the OEM, for parameters specified above may be included in the OEM's supporting documentation for channel specification. If is preferred that such documentation be a publicly published one.
10	Third party test reports of compliance of the performance parameters to the channel specifications of TIA 568 standards clearly indicating thepart numbers that comprised the testing shall be included if available.
11	OEM certification for providing a 25-year performance warranty (uponinstallation and acceptance testing) Performance compliance to Permanent Link performancespecifications. Performance (successful delivery) of applications as listed above. Data sheets should be provided in support of above specification byMSP/ OEM
12	Data sheet(s) in support of below to be provided.
13	Should meet channel specifications of latest TIA 568 standard for Cat6when used as a component in the installed Cat6 U/UTP channel.
14	23 AWG, U/UTP cable, 4-pair, LSZH
15	Pulling Tension, Max. 11.34 Kg/ 25 lb
16	Electrical Performance as per latest revision TIA 568 (or equivalentISO/IEC standards) to Cat6A U/UTP performance requirements respectively DC Resistance and DC Resistance Unbalance
	Insertion, Return, NEXT, PSNEXT lossesACRF and PSACRF TCL and ELTCTL Propagation Delay and Propagation Delay Skew
17	UL approved
18	Fire rating: IEC 60332-3-22
19	RoHS compliant
20	Any 3rd party test reports for electrical, mechanical and fire-ratingperformance to be included

9.10 CAT 6 Patch Cord (2 Meter)

Sl. No.	Description
1	Equipped with modular 8-position modular plugs on both ends, wiredstraight through with standards compliant wiring.
2	The Patch cords shall, at a minimum comply with proposed ANSI/TIA/EIA-568-C.2 Commercial Building Cabling Standards Transmission Performance Specifications for 4 pair 100 Category 6Cabling.
4	Should be covered by ETL verification program for compliance with TIA568.C.2
5	Conductor size: 23 AWG stranded bare copper
7	Jacket: LSZH

8	Temperature range: -10^{0}C to +60^{0}C
9	Operating life: Minimum 750 insertion cycles
16	Cable length: 2 Meter

9.11 CAT 6 UTP Information Outlet

Sl. No.	Description
1	INFORMATION OUTLET should support Category 6, ANSI/EIA/TIA568 C.2 and 568A/B configuration
2	All information outlets for 100 , 22-26 AWG copper cable shall: Useinsulation displacement connectors (IDC)
3	Allow for a minimum of 200 re-terminations without signal degradationbelow standards compliance limits.
4	Be constructed of high impact, flame-retardant thermoplastic with coloroptions for better visual identification.
11	Operating Life: Minimum 750 insertion cycles
13	Surface mount box should be compatible with single RJ45 socket toterminate UTP CAT 6 Cable

9.12 CAT 6 Jack Panel

Sl. No.	**Technical Specifications**
1	The Cat-6 transmission performance is in compliance with ANSI/TIA-568-C.2, ISO/IEC 11801 Ed.2 and EN 50173-1 specification
2	Allow for a minimum of 20 re-terminations without signal degradation
3	Have port identification numbers on the front of the panel with writableand erasable marking surfaces for each port on the front panel.
4	Should have self-adhesive, clear label holders and white labels with thepanel should be of 1U height with 24 port un-loaded IO.
5	Each port / jack on the panel should be individually removable on fieldfrom the panel.
6	Jack Operating life: minimum 750 insertions
7	IDC Contact: 0.8mm thickness phosphor bronze, tin plating over nickel
8	Should be 19” rack mountable

9.13 CAT 6/ 6A Faceplates

Sl. No.	**Description**
1	Data Sheets in support of below to be provided
2	Fire -retardant Plastic, ABS,
3	1-port and 2-port styles, each port with spring Shutters
4	British Style, Square, white color
5	UL approved and RoHS compliant
6	Support Modular Jacks specified above
7	Integrated label holder
8	Back-box to be separately supplied for surface mount applications

9.14 Surface Mount Box

Sl. No.	Description
1	Data Sheets in support of below to be provided
2	Fire -retardant Plastic, ABS,
3	1-port, 2-port and 12-port styles, white color
4	UL approved and RoHS compliant
5	Support Modular Jacks specified above

9.15 Network Rack

Sl. No.	**Description**
42U Rack	
1	Racks should be 7' high with dimensions of 800mm x 1200mm suitablefor mounting equipment and panels for network applications and servers
2	Racks should provide sufficient cable entry and exit cut-outs in top andbottom of the rack
3	Integrated fan module – 4 fans with tray
4	Rack should support static load of at least 750 KGs on Casters andLevellers.
5	Racks should have a tough glass/ convex grill front door and steelsheet, split rear door.
6	Front and back doors shall have door handles and provided with locks.
7	Rack should have numbered U positions to easily locate positions formounting as well as identifying equipment.
8	All mounting hardware should come along with the rack
9	Side panels to be included. Side panels should sit flush with the rackand do not take up additional space
10	Rack should be supplied along with 4 Nos. of 1U covered horizontalCable managers
11	Rack should be supplied along with 2 Nos. of covered vertical Cablemanagers
12	Rack should have provision for grounding and bonding. All accessoriesfor grounding and bonding shall be supplied along with tacks.
13	1 number of tray/ shelve
14	All sheet metal parts should be Pre-Treated and powder coatedmeeting ASTM Standard.
15	Racks shall be UL listed and RoHS compliant
16	Supply with 2 numbers of Vertical PDUs, Rack PDU SNMP enabled forCore Switches / Non-SNMP enabled for Distribution Switches, meteredby Outlet with Switching, Zero U, 32A, 230V, (21) C13 & (3) C19 (or equivalent) along with all mounting accessories

24U Rack (IP and Non-IP Rated)	
1	Racks should be 24U high with dimensions of 600mm x 800mm suitable for mounting equipment and panels for network applications
2	24U (Outdoor) IP 55 rated or above24U (Indoor) IP 20 rated or above
3	Racks should provide sufficient cable entry and exit cut-outs in top orbottom of the rack
4	Integrated fan module preferred
5	Rack should support static load of at least 750 KGs on plinth as per thesite requirement
6	Racks should have a tough glass front door and steel sheet, split reardoor.
7	Front and back doors shall have door handles and provided with locks.
9	Rack should have numbered U positions to easily locate positions formounting as well as identifying equipment.
10	All mounting hardware should come along with the rack
11	Side panels to be included. Side panels should sit flush with the rackand do not take up additional space
12	Racks should be supplied with 2 Nos. of 1U horizontal cable managers.
13	Rack should have provision for grounding and bonding. All accessoriesfor grounding and bonding shall be supplied along with tacks.
14	All sheet metal parts should be Pre-Treated, and powder coatedmeeting ASTM Standard.
15	1 number of tray/ shelve
16	Racks shall be UL listed and RoHS compliant
17	Supply with 1 number of horizontal PDU, 16A along with all mountingaccessories with electrical overload & short-circuit protection.

9.16 Earthing Pit

SN	Description
1	17mm diameter X 3 meter Steel High Tensile EN-8D Grade Rod with Copper Bonding of minimum 250 microns, Pre-welded Clamp should haveprovision to connect external cables & strips.
2	Jam plus compound (03 Nos.)
3	Poly plastic earth pit cover
4	The rod should be CPRI tested
5	Conductive Gel (4 Kg). Polyplastic Earth Inspection Pit Cover. Earth pit cover of 10” diameter (EPC10) with load bearing capacity of more than 8tones Tested from national Test House.
6	Back fill compound (BFC) Certified by National Test House (Govt. of India Lab) as per IEC 62561-7 and ASTM G57-06 for a resistivity of 0.244 ohms-mtr & tested for PH value of more than 9.

9.17 Spike Lightning Arrestor

Sl. No.	Description	
1	Spike	5 Prone
2	MOC	Copper
3	Down Pipe Dia	25 mm
4	Down Pipe Length	1500 mm
5	Base Plate Size	90x90x3 mm

9.18 1kVA Online UPS

Sl. No.	Specifications	Requirement
1	Capacity (in kVA / kW)	1kVA/0.8kW 1-Phase Input / 1-PhaseOutput
2	Technology and Capability	a) True Online configuration with doubleconversion UPS & Zero transfer time. b) DSP based control with advancedtechnology. c) Wide Input voltage range from (110 ~ 280VAC) d) Auto restart & capability with the Independent battery bank operation ofthe UPS. e) UPS should be designed at Rated PFof 0.8 i.e. 1kVA/0.8kW UPS rating. f) Generator compatibility with cold startand AC start features. g) Automatic bypass to transfer the load on mains due to overload & internal fault. h) ECO mode should be available in theUPS.
3	Model Name & Number	
3.1	1kVA /0.8kW	Make / Model / Part No to be specified
4	Input	
4.1	Input facility -Phases / Wires	Single-Phase / 2-Wire & Gnd (1Phase &Neutral + Ground)
4.2	Input Voltage Range	110-280VAC Range (Full Load) 175~280VAC Range (50 ~ 100% load is required)110~175VAC
4.3	Nominal Input Frequency	50/60Hz ± 10Hz
4.4	Input Frequency Range	40 to 70 Hz
4.5	Input Power Factor	> 0.99(@ full resistive load)
4.6	Generator Compatibility	Compatibility to genset supply required
4.7	Input Protection	Should be provided at the input of the UPS suitable for the full rated capacity ofthe UPS.
5	Output	
5.1	Nominal Output voltage	208/220/230/240 VAC
5.2	Output Voltage Regulation	± 1% for linear load
5.3	Nominal Output Frequency	50/60 Hz
5.4	Output Frequency Regulation	± 0.1Hz

5.5	Output Frequency Slew Rate	< 1Hz/sec
5.6	Output Wave Form	Pure sine wave
5.7	Output Voltage Distortion (THDu)	< 3% for linear load & < 6% for non-linear load.
5.8	Crest Factor	3:1 On Full Load (Minimum)
5.9	Output Short circuit Protection	Electronic Protection
6	Transfer Time	
6.1	Transfer Time (Mode ofop-eration)	Zero ms from Mains mode to BatteryMode Zero ms from Battery Mode to Mainsmode
6.2	Transfer Time (Inverter to By-pass / Bypass to Inverter)	< 4ms
6.3	Automatic Bypass switch	UPS should be capable of automatic change over to bypass.
7	Efficiency (At Nominal Voltage & Resistive Load up to kW rating of UPS)	
7.1	Overall Efficiency (AC to AC) - Online (Double Conversion)	Upto 86% (at 100% load)
8	Overload	
8.1	Inverter Overload capacity	<105% : continuous ; 105% ~ 125%: 1 minutes; 130%: 1 seconds
9	Display Panel (In-build LC Display & LED)	
9.1	Measurements (On LCD)	Input Voltage & Frequency, Bypass, Output Voltage & frequency, Kilowatt, kVA, ECO mode, Battery & Load Level Indicator, Ambi-ent temperature & Eventcode.
9.2	Fault Indication (On LCD)	Charger warning, Fan fault, Temperatureout of Range,+/-DC bus High/Low, Inverter Fault, DC-DC fault, abnormal output/Inverter voltage, out-put short circuit, charger fault, overload shut-down,battery low shutdown.
9.3	Setable data	Inverter Voltage, Inverter Frequency, Standby bypass, ECO, Bypass Range, Buzzer, Battery Capacity, Battery String,& Overload alarm
9.4	Indications (LED)	Green & Red
10	Alarms	
10.1	Audible Alarms	Charger warning, Fan fault, Temperatureout of Range, +/-DC bus High/Low, Inverter Fault, DC-DC fault, abnormal output/Inverter voltage, out-put short circuit, charger fault, overload shutdown,battery low shutdown.
11	Battery Backup / Battery Bank & Charger	
11.1	Backup Required	30 minutes at 0.8 pf output
11.2	Battery Bank Voltage	24 V DC

11.3	Batteries Type	Sealed Maintenance Free (SMF) - 12VCells, VRLA/ GEL, AGM
11.4	Battery Makes	Amara Raja / Exide / HBL / Amco / Rocket
11.5	Number of Battery Banks	Single Bank system.
11.6	Minimum Charger Rating (Including internal / external)	The charger should be able to deliver charging current equivalent to 10% of Battery Ah rating offered. (In-case of external chargers, suitable monitoring ofthe chargers should be provided in the UPS. Also, all external chargers taking AC input must have PFC - Power factorcorrection)
11.7	Charger type / Charging Method & Charging Voltages	Constant Voltage Constant Current Solidstate SMPS charger
11.8	Charger current	4A extended upto 8A with internal charger (OPTIONAL)
11.9	Battery Housing (Vendor to provide the GA drawings of theoffered Battery Rack)	Should be compact and space savingMS steel open racks complete with interconnectors
11.10	Battery End Cell Voltage	1.75 V/cell
12	Interfaces	
12.1	USB Port should be available (Mandatory)	There should be provision for USB portalso in the UPS.
12.2	RS232 Port should be available (Mandatory)	There should be provision for RS232port also in the UPS.
12.3	Interface to NMS (Network Management System)	SNMP (IPV6) Card for connecting the UPS to LAN thru Ethernet port & monitoring thru NMS should be available(The cost of SNMP Card / NMS software to be quoted separately)
13	Restart / Testing Capability	
13.1	Cold Start	UPS should start up On AC Supply (Mains) without DCSupply (Batteries) On DC Supply (Batteries) without ACSupply (Mains)
13.2	Automatic Restart	UPS should start up automatically onmains resumption after battery low shutdown
13.3	Self-Diagnosis	UPS should be capable to carry out self-test of Rectifier / Charger /Battery &Inverter module during start-up
14	Physical	
14.1	Operating Temperature	0 to 40 deg C
14.2	Storage Temperature	-15 to 50 deg C

14.3	Operating Humidity	20% ～95%RH (No Condensing)
14.4	Operating Altitude	0-1000m
14.5	Type of Cooling	Forced Air
14.6	Noise Level	< 50 dbA at 1meter distance
14.7	Form Factor	Rack mountable
14.8	Packaging Material / Vibration Withstand & Drop Test	Recyclable (No CFC) & 1. Vibration testing as per ISTA -1GNon-operational with Packing
14.9	Standard Package of UPS to include the following minimumaccessories	1. UPS 2. Input cable 3. Battery cable 4. USB cable 5. User Manual
15	Certifications	
15.1	Manufacturer	ISO 9001/ 14001
15.2	Product Safety Certifications	BIS & RoHS Compliant

9.19 30kVA Online UPS

Sl. No.	**Specifications**	**Requirement**
1	Capacity (in kVA / kW)	30 kVA/ 30 kW 3-Phase Input / 3-PhaseOutput
2	Technology and Capability	a) True Online configuration with doubleconversion UPS b) DSP based technology with reductionin electronic components. c) Fully rated power (kVA=kW) formaximum power availability. d) Possibility of enhancing UPS capacity / redundancy by operating UPS in N+X Parallel Redundant Configuration (PRS). e) Capability of Independent or Commonbattery bank operation of the UPS when operated in PRS. f) UPS should be designed at Rated PFof 1 i.e. 30kVA /30kW UPS rating. g) Dual Input design. h) UPS should have IGBT topology for both PFC (power factor correction) andinverter. i) Should have Dual Aux power design.
3	Model Name & Number	
3.1	30 kVA / 30 kW	Make / Model / Part No to be specifiedby the vendor
4	Input	
4.1	Input facility -Phases / Wires	3-Phase / 4-Wire & Gnd (3Phase &Neutral + Ground)

4.2	Input Voltage Range	230/400V, 240/415V (3Φ4W) Range (Full Load) 173~276 / 300~477VAC Range (Derating to 70% Load) 132~173 / 228~300VAC
4.3	Nominal Input Frequency	50/60Hz (Auto-Selectable)
4.4	Input Frequency Range	45 to 65 Hz
4.5	Input Power Factor	> 0.99 (Full Load)
4.6	Current Harmonic Distortion (ITHD)	< 3%
4.7	Generator Compatibility	Compatibility to genset supply required
4.8	Input Protection (Thru In-built3P MCB)	Should be provided at the input of the UPS suitable for the full rated capacity of the UPS
5	Output	
5.1	Nominal Output voltage	220/380V,230/400V,240/415V (3Φ4W)
5.2	Output Voltage Regulation	± 1 %
5.3	Nominal Output Frequency	50/60 Hz
5.4	Output Frequency Regulation	± 0.05Hz
5.5	Output Frequency Slew Rate	＜1Hz/sec
5.6	Output Wave Form	Pure sine wave
5.7	Output Voltage Distortion (THDu)	< 2 % (linear load)
5.8	Crest Factor	3:1
5.9	Output Short circuit Protection	Electronic Protection
6	Transient Response / Recovery	
6.1	Transient Response: Dynamic Regulation for 10% to 90% step linear load	±7% or 60ms
6.2	Transient Recovery to steady state condition after 10% to 90% step linear load	< 1 cycle
7	Transfer Time	
7.1	Transfer Time (Mode ofoperation)	Zero ms from Mains mode to BatteryMode Zero ms from Battery Mode to Mainsmode
7.2	Transfer Time (Inverter to Bypass / Bypass to Inverter)	<1ms (Synchronized Mode)
7.3	Automatic & Bi-directional static by-pass (In-built)	Bypass To Inverter ±10 % (Rated Voltage) Inverter To Bypass ±7 % (Rated Voltage)

7.4	Maintenance Bypass	1. UPS should have option for manual maintenance bypass 2. Maintenance bypass needs to be sensed and needs to be displayed atfront panel 3. Hot-swap should be there in the bypass system (100% Load needs to betaken care in bypass).
8	Efficiency (At Nominal Voltage & Resistive Load up to kW rating of UPS)	
8.1	Overall Efficiency (AC to AC) - Online (Double Conversion)	Upto 96%
8.2	Overall Efficiency (AC to AC) - ECO Mode (Bypass feeding the load under normal conditions)	Upto 99%
9	Overload	
9.1	Inverter Overload capacity	≤105 %: 1 Hr; 106% ~ ≤125%: 10 minutes; 126% ~ ≤150%: 1 minute;
10	Display Panel (In-build LC Display & LED)	
10.1	Measurements (On LCD)	Input: Voltage / Frequency, Bypass: Voltage / Frequency, Output: Voltage / frequency, Battery: Remaining time / Battery Level Indicator, Load: Percentage / Load Level Indicator, Battery Voltage Capacity/Status/Test Result, System Date/Time Setting, Current Time, PFC Fuse Open, BatteryTemperature Too High, Battery Over Charge, Battery Out of Date, INV ShortCircuit, Output Breaker Off, kVA, kW, output current, Battery current.
10.2	Fault Indication (On LCD)	Main Input Sequence Fault, Power Module General Fault, Battery GroundFault, Bypass Static Switch Fault, Parallel Fault, System General Fault, Provide Bypass O/P Even If UPS Fault.
10.3	Indications (LED)	Normal-Green/Battery-Orange/Bypass-Green/Fault-Red
11	Alarms	
11.1	Audible Alarms	Battery Low beep / DC Fault beep/ UPSOverload beep/ o/p short ckt fault beep/Shutdown beep
12	Battery Backup / Battery Bank & Charger	
12.1	Backup Required	30 minutes
12.2	Battery Bank Voltage	384 V DC or higher

12.3	Battery Bank VAh (Vendor toinclude battery sizing calculations with Tender)	26000 or higher
12.4	Batteries Type	Sealed Maintenance Free (SMF) - 12V Cells
12.5	Battery Makes	Amara Raja / Exide / HBL / Amco / Rocket
12.6	Number of Battery Banks	Maximum Two Banks in parallel
12.7	Minimum Charger Rating (Including internal / external)	The charger should be able to deliver charging current equivalent to 10% of Battery Ah rating offered. (In case of external chargers, suitable monitoring ofthe chargers should be provided in the UPS. Also, all external chargers taking AC input must have PFC - Power factor correction)
12.8	Charger type / Charging Method & Charging Voltages	Constant Voltage Constant Current Solidstate SMPS charger as per System DC voltage.
12.9	Battery recharge time (After complete discharge) to 90%capacity	10-12 hours
12.10	Battery Housing (Vendor to provide the GA drawings of theoffered Battery Rack)	Should be compact and space savingMS steel open racks complete with interconnectors
12.11	Battery End Cell Voltage	1.75 V/cell or above
13	Interfaces	
13.1	Serial Communication RS232 Port (Option of USB Port should be available)	RS232 Port should be provided as standard in the UPS. However, there should be provision for USB port also inthe UPS.
13.2	REPO(Remote Emergency Power OFF) / ROO(RemoteON - OFF) Port	Provide onsite EPO to shutdown UPSwhen emergency situation happens.
13.3	Interface to NMS (Network Management System)	SNMP (IPV6) Card for connecting the UPS to LAN thru Ethernet port & monitoring thru NMS should be available(The cost of SNMP Card / NMS softwareto be quoted separately)
13.4	Interface to BMS (Building Management System) - To bequoted as option	ModBus Card for connecting to UPS to BMS thru RS485 & monitoring thru BMS
13.5	Interface to DCS (Distributed Control System) - To be quoted as option	Relay I/O Card or PFC (Potential free contacts) for connecting to UPS to DCS /PLC / SCADA system for communicating UPS operating status

13.6	UPS status information presented as 3 contactclosures	UPS should have configurable input signal as shutdown UPS or battery testdry contact.
14	Restart / Testing Capability	
14.1	Cold Start	UPS should start up On AC Supply (Mains) without DCSupply (Batteries) On DC Supply (Batteries) without ACSupply (Mains)
14.2	Automatic Restart	UPS should start up automatically onmains resumption after battery low shutdown
14.3	Self Diagnosis	UPS should be capable to carry out self test of Rectifier / Charger /Battery &Inverter module during start-up
15	Physical	
15.1	Operating Temperature	0℃ ~ 40℃
15.2	Storage Temperature	－20℃ ~ 40℃
15.3	Operating Humidity	＜95%
15.4	Operating Altitude	0 to 3000m(0 To 10000ft)
15.5	Type of Cooling	Forced Air
15.6	Noise Level	＜60dBA at 1 Meter
15.7	Air Filters	UPS should have internal anticorrosion air filters for dust filtration (Optional)
15.8	Dimension (w x d x h) in mm	To be furnished by the vendor
15.9	Weight - in kg	To be furnished by the vendor
15.10	Reliability	MTBF greater than 100000 hours
15.11	Packaging Material / Vibration Withstand & Drop Test	Recyclable (No CFC) & 1. Vibration testing as per ISTA -1GNonoperational with Packing
15.12	Standard Package of UPS to include the following minimumaccessories	1.SMART Slot 2.MINI Slot 3.Parallel Port4.RS232 Port 5.REPO Port 6.Charger Detection Port7.Input Dry Contact 8.Output Dry Contact 9.USB Port
15.13	Parallel Configuration	UPS should have capability for parallel 4units.
15.14	DC bus Capacitor	UPS DC bus capacitor have minimum life of 5 years@40°ambient.
16	Certifications	
16.1	Manufacturer	ISO 9001: 2015, ISO 14001: 2015, ISO 18001: 2007

16.2	Product Safety Certifications (Mandatory)	General Safety Requirements for UPSEMC EN/IEC/AS 62040-1 Requirements for UPS EN/IEC/AS62040-2 UPS Classification according to IEC EN 62040-3 VFI-SS-111
16.3	RoHS compliance	UPS should be RoHS compliance

10.NOC Component Specification

10.1 Desktop for NOC

Sr.No.	Description	
1	Make & Model Offered	To be clearly mentioned. All the relevant productbrochures and manuals must be submitted
2	Processor: 10th Generation Intel Core i5 or above.	
3	Operating System: Windows 10 Prof. or above (64 bit).	
4	Display: 23 inch or above HD	
5	Port: HDMI, USB	
6	Memory (in GB): 8 or higher	
7	Hard Drive: 1 TB 5400 rpm	
8	Graphics Card: 2 GB Graphics Card make NVIDIA GeForce, ATI Radeon orequivalent	
9	DVD- R/W	
10	MS Office Standard License	

10.2 Screen/ Console (Large Format Display)

SN	Description	
1	Make & Model Offered	To be clearly mentioned. All the relevant product brochuresand manuals must be submitted
2	LED shall be of 55-inch, full HD, 2 HDMI Ports, 1 VGA Port with AV features,1 USB min, Contrast 4000:1	

10.3 Videowall 3x3 Display

SN	Description	
1	Make & Model Offered	To be clearly mentioned. All the relevant productbrochures and manuals must be submitted
2	Screen Size	55" or above
3	Panel Tech-nology	IPS or equivalent
4	Aspect Ratio	16:9 or better

5	Native Resolution	1,920 X 1,080 (FHD)
6	Brightness	500nit or Higher
7	Dynamic Contrast Ratio	Minimum 500,000:1
8	Viewing Angle (H x V)	178 X 178
9	Color Depth	1.06 Billion (10 bit) or better
10	Haze	3% or better
11	Response Time	8ms (G to G) or lesser
12	Operation Hours	24 Hrs
13	Orientation	Portrait & Landscape
14	Minimum Inputs ports	HDMI -1 or above, DP-1, DVI-D-1, USB-1 (optional), RJ45(LAN-1), IR in-1
15	Minimum Output ports & Control ports	DP -1, RJ45 (LAN-1)-1, RS232
16	Bezel to Bezel (Gap)	1.8 mm or less bezel to bezel / 0.9 mm even bezel from allsize
17	Key Feature required	Temperature Sensor, Tile mode (5X5), Built-in Quad coreprocessor, Built-in media player, Calibration Mode, Wakeon LAN, Daisy Chain of LAN to take control of Video wall Panels for health Check, Image Gap Reduction
18	Features:	
	Allow content to be shown on the entire video wall from a single sourceAllow the display wall to be split into smaller, virtual walls Allow resizing and positioning of sources anywhere on the display wallAllow sources to be overlapped on the display wall Allow source position and size to be saved as a layout for later use Support displaying the same source multiple times on the video wall, witheach source instance able to be a different size Support input resolution of up to at least 1920x 1200 @60HzAllow creation of layouts from pre-defined templates Support bezel compensation Support scaling on all inputs and outputs Support overlap, stretch, cross screen, and picture in picture (PIP) of anyinput on the video wall Auto detect and configure connected input	
19	Operation Humidity	10 % to 80 %
20	Power Supply	100-240V~, 50/60Hz
21	Power Consumption	200 Watts or less
22	Certifications required	Safety-UL, EMC-FCC Class A, Energy Star 7.0, BIS
23	Warranty	3 Years

10.4 Videowall Controller

SN	Description	
1	Make & Model Offered	To be clearly mentioned. All the relevant productbrochures and manuals must be submitted
2	Video Wall Controller Chassis	1.5U with 3 Input Card Slot and 3 Output Card Slot
3	Video Wall Controller Power	100-240VAC, 50-60Hz, <100W
4	Video Wall Controller Switching Technology	Cross Point Bus
5	Input Card	HDMI Input card, support HDMI 1.3,
6	Input Card Resolution	Maximum resolution up to 1920*1200@60Hz
7	Output Card	HDMI Output card, support HDMI 1.3
8	Output Card Resolution	Maximum resolution up to 1920*1200@60Hz
9	Video Wall Controller supported mode	Up to 4 Windows in Single Video Wall DisplaySingle Content on full display mode Multi-Input Random Size display modeInput Overlap display mode Input Zoom IN/OUT display mode Drag Input to any position in the Video Wall

11.Managed Services

SN	Description
Network Management Service	
Monitoring and Support	
1	Network devices ICMP monitoring
2	CPU, Memory and sessions on Firewall
3	P2P link monitoring
4	MRTG
5	Complete monitoring of network devices, links etc
6	Incident management
7	Problem management
8	Change management
9	Network support
Firewall Services	
1	Standalone Firewall setup
2	Firewalls with HA setups
3	Cable pull test for HA
4	Firewall port opening/ blocking
5	Trusted SSL certificate import
6	Using the Load balancer feature in Firewalls

7	Policy verification every year
8	IPSEC VPN/ SSL VPN
9	Two factor-based authentication Integration
OS Management Service	
Windows OS Installation and Upgrades	
1	OS Critical and Security Patch Management
2	Monitoring of Windows Server. Monitoring of CPU, RAM, Disk Usage
3	Monitoring of Disk IO, Windows Time Sync,
4	Monitoring of Windows Server Services
5	Monitoring of Windows Server Performance
6	Antivirus Patch Management
7	Windows Server OS Log Analysis/Management
8	System, Application and Security Log Analysis
9	Windows Server Security Management
10	Security Processes - User and Group Management
11	Security Policies and Configurations
12	Security Patches and Hot Fixes
13	Windows Registry Configurations
14	Windows Services
15	File and Directory Security
16	Audit Logging
17	Windows Firewall Policy
18	Time Zone Setting
19	Event log setting
20	Installation of server feature
21	Cluster setup and management
22	Installation/ Modification/ Removal of IIS/ File server role.
23	Configuring disks and volumes includes creating and formatting partitions,logical drives, & volumes
24	Defragmenting volumes to improve file-system performance
25	Managing file-system errors and bad sectors on a hard disk.
26	Windows Server folder and File access security/ share permissionmanagement.
27	Windows Server backup Monitoring
28	Configuring system state and bare metal backup.
29	Restoring system state and bare metal backup.
30	Windows Server Debug logs and Analysis
31	Windows Scheduled Tasks Management. Windows Server Remote AccessManagement.
32	Enable/Disable Remote Desktop
33	Installation/modification/removal of Device Drivers.
34	Create/delete/modify Users and groups
35	Reset password, unlock users
36	Windows Server Problem/ Change/ Incident Management
37	24x7 OS Support with Windows Support Service
Linux OS Management	
1	Installation/ upgrade/ Monitoring of Linux OS

2	Server hardening and uptime monitoring notifications
3	Administration of Linux (SUSE)
4	OS Virtualizations (KVM etc)
5	Cluster setup and management.
6	OS Patching/ Performance tuning/storage migration
7	Advance Authentication service (LDAP etc)
8	Incident/Problem/Change management
9	Antivirus management
10	Support Service
Backup Management for Local Servers	
1	Monitoring of backup servers and backup Management
2	Backup Configuration
3	Backup Job Schedule Management
4	Alert Mechanism for Failures
5	Capacity Management
6	Backup Restore Administration
7	Backup Failure Analysis
8	Data Encryption at Transit and at Rest
9	Bare metal Backup
10	Snapshot Backup, Backup on tape
11	Linux Filesystem Backup
12	Windows File System Backup
13	Sybase DB and MS SQL Backup
Security Management	
1	OS Logs, AV/AS logs, Vulnerability Assessment, Network Device Logs,Rule Based Correlation & Risk Based Correlation
2	Incident Management, Log Retention for 6 Months
3	Basic web filter service
4	Application filter services
5	Automatic updates of signatures
6	WEB Application Fire Wall (WAF) - Deployment, policy changes andmanagement

12.Manpower Services:

12.1 Distribution of Manpower Services:

Sr. No.	District	Field Engineers			Network Operating Center (24 X 7)			Help Desk
		System Engineer	Network Engineer	OFC/LAN Maint. Engineer	System Admin	Network Engineer	Service Delivery Manager	
1	Hyderabad	4	1	1	-	3	-	5
2	Kirandul	4	1	1	-			
3	Bacheli	4	1	1	-			

4	Jagdalpur				-			
5	Donimalai	4	1	1	-			
6	Panna	1	1	1	-			
7	Paloncha	1	-	-	-			
	Total	18	5	5	-	3	-	5

12.2 Details of the resources required with their roles and minimum qualification

Sl. No.	Type of Support Team	Key Responsibilities	Qualification & Skillset
1	System Support Engineer	Diagnose hardware/ software faults	Graduate or Engineering Diploma in specialized courses of hardware/networking
		Verify that peripheralsare working properly	5+ years of experience in managing large IT hard-ware and NetworkingProjects
		Install necessary soft-ware's. Should perform preventive maintenance on regularbasis	Installing and Configuring Windows/ other required software's. Knowledgeof Mail/ Printer Configura-tion etc.
		Managing Local Servers/ Laptops/ Desktops/ Printers/ Scanners/ MFP's	MCP, MCSE Certified preferred.Configuration and policy management of Servers, Desktops, on-site applications
2	Network Support Engineer	Diagnose hardware/ software faults	Graduate or Engineering Diploma in specialized courses of hardware/networking
		Verify that peripheralsare working properly	Cisco CCNA Certified preferred
		Managing Switching, Indoor Wi-fi, Outdoor Wi-Fi, Moni-toring (EMS, NMS, UPS), Helpdesk Mgmt, WAN & MPLS Links, Firewalls	5+ years of experience in managing large IT hard-ware and NetworkingProjects. Configuration of LAN equipment; upkeep of net-work policies;troubleshooting all network devices on basis of user complaints and trouble tickets and resolve performance issues; interface with WAN and Internet LL SPs to maintainuptime and perfor-mance of the same;manage the NOC & Helpdesk locallyat site and across NMDC; help guarantee uptime SLAs of the LAN
		Diagnose hardware/ software faults	Diploma in Engineering in specializedcourses of hardware/networking.
		Verify that peripheralsare working properly	Cabling OEM Certification preferred.
		Managing OFC's, UTP's and UPS	5 years of experience in handlinglarge campus projects.

3	OFC/ LAN Maint. Engineer	OSP Cabling, Premises Cabling, Racks and UPS	Maintenance and upkeep of network,documentation, labelling and patch lists; Moves, Adds and Changes (MACs) of physical network infrastructure; testing &troubleshooting of copper and Opticalfiber cabling systems with good knowledge of handing cable analyzers and OTDRs; skills in handling splicing of fibre optic links and OSP splice joints; manage and maintain UPS - uptime and performance

Note:

1) All Firewalls solution should be considered from one single OEM.
2) Core, Distribution and Access Switches (Type-1) should be considered from one single OEM.
3) All Indoor Wi-Fi Solution should be considered from one single OEM.
4) All outdoor Wi-Fi Solution should be considered from one single OEM.
5) Cabling Solution should be considered from one single OEM.
6) Enterprise Management Solution functionality should be from one single OEM.

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Chapter-8 CHECK LIST (To be filled up & uploaded)

List of Documents to be Submitted with Technical Bid

SN	Have you submitted the following documents?	Submitted /complied or Not	Page No./ref No. of Offer
1	Offer Letter as per Chapter-1		
2	Schedule of Requirements with quantities but with prices blanked out (this will be a replica of price bid with prices blanked out) **format in Chapter-2 of SOR.**		
3	Breakup of individual itemized BOQ but prices blanked out with Make and Model.		
4	Submission of scanned copy of Earnest Money Deposit (EMD) in the form of BG as per form 12(Chapter-6). MSEs claiming exemption from EMD shall submit copy of valid UDYAM Certificate as per clause 4.A.32 of Chapter-4		
5	Audited balance sheet duly attested by Notary Public		
6	Constitution of Firm and Power of Attorney **as per clause 4.A.45 of Chapter-4.**		
7	Compliance to Technical Requirements **as mentioned in Clause 3.A.1.11 of Chapter-3.**		
8	Copies of purchase orders and other documents in support of meeting qualifying criteria **as mentioned in Clause 4.A.21 of Chapter-4.**		
9	Complete technical data sheets, MAFs and particulars of the equipment offered, as specified in the Tender papers together with descriptive literature, leaflets, Drawings, if any, complete with list etc.		
10	Documentary proof of equipment being proven and working for more than 12 months in India or outside India along with user certificate and Contact Details of user/firm **as mentioned in Clause 4.A.21 of Chapter-4.**		
11	Technical proposal of Bidder in conformity with system design		
12	System Performance Guarantee as per Chapter 6, Form no. 2		
13	(a) Undertaking by bidder on their letter head as per Clause 4.A.52 of Tender document. (b) Certificate by *Statutory Auditor/Cost Auditor* on their letter head (with UDIN number) as per Clause 4.A.52 of Tender document.		
14	**Chapter-6 Form No.1 -Proforma For "Performance Bank Guarantee Bond (PBG)"**		
15	**Chapter-6 Form No. 2 - Proforma For "System Performance Guarantee"**		

16	**Chapter-6 Form No. 3 - Proforma For "Maintenance Support"**		
17	**Chapter-6 Form No. 4 -Proforma For Affidavit To Be Uploaded By Bidder Along with The Tender Documents**		
18	**Chapter-6 Form No. 5 - Proforma For "Signing the Integrity Pact"**		
19	**Chapter-6 Form No. 6 - Proforma For "Nil Deviation Compliance Undertaking"**		
20	**Chapter-6 Form No. 7 - Proforma For "No Malicious Code Undertaking Letter By Bidder And OEM"**		
21	**Chapter-6 Form No. 8 - Proforma For "Manufacturer's Authorization Form"**		
22	Chapter-6 Form No. 9 - Past Experience Form		
23	**Chapter-6 Form No. 10 - Proforma For Self-Certification Regarding Local Content (Lc) For Telecom Product, Services Or Works**		
24	**Chapter-6 Form No. 12 – EMD**		
25	Any other information required to be submitted by the bidder as per technical and eligibility criteria.		
26	CVs of proposed Resources with qualification mentioned in Chapter -7		
27	Submission of digitally signed copy of Tender Documents/Addenda.		
28	Any other document mentioned in Tender Document including all Forms of Ch-6		
29	Solution Document		
30	In price bid, the bidder shall provide price Break- up of "Local Content" and "Imported Content" for each SOR item as per DPIIT's PMI Policy and its clarifications and same shall be uploaded by the bidders along with their price bid in the e- procurement portal.		

DETAILS OF CREDENTIALS SUBMITTED AGAINST ELIGIBILITY CRITERIA OF BIDDER as per Clause 4.A.21 of Chapter-4 :

SNo	Have you submitted the following documents?	Submitted /complied or Not	Page No./ref No. of Offer
1.	Schedule of Requirements with quantities and priced filled up (this will be a replica of technical bid with prices).		
2	Breakup of individual itemized BOQ (as per For-mat given in SOR) as per format given in Chapter-2.		
3	Any other information required to be submitted by the Bidder as per technical and eligibility criteria.		

SN	Clause	Supporting documents	Details/Remarks	Page no of the Bid
1				
2				
3				
4				
5				

Note: Non submission/ non-compliance of above documents as deliberated in Check List will make the offer liable to be **REJECTED**