



RAILTEL CORPORATION OF INDIA LTD.

(A Govt. of India Enterprise)

Eastern Region Office

RailTel Corporation of India Limited, Eastern Region,
19th Floor, Aurora Waterfront Building,
Plot no. 34/1, Block -GN, Sector - V, Salt Lake City,
Kolkata -700091, West Bengal

Corporate Office

Plate-A, 6th Floor, Office Tower-2,
NBCC Building, East Kidwai Nagar, New Delhi-110023

Invitation for Expression of Interest

for

**Selection of Implementation Partner from RailTel Empanelled Business Associate
for work of “Establishment of Secondary Data Center Setup at Siliguri IT park”.**

EOI No: RAILTEL/EOI/ER/Siliguri-DC/MKT/2023-24/003 DTD

04.05.2023

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RAILTEL

NOTICE

RailTel Corporation of India Ltd.

Eastern Region, 19th Floor, Aurora Waterfront Building,
Plot no. 34/1, Block -GN, Sector - V, Salt Lake City,
Kolkata -700091, West Bengal

EXPRESSION OF INTEREST

EOI No: RAILTEL/EOI/ER/Siliguri-DC/MKT/2023-24/003 DTD 04.05.2023

RailTel Corporation of India Ltd., (hereafter referred to as RailTel) invites EOIs from RailTel's Empanelled Partners for Selection of Implementation Partner from RailTel Empanelled Business Associate for work of "establishment of Secondary Data Center Setup at Siliguri IT park".

The details are as under:

1	Date of EOI Floating	4 th May 2023
2	Last date for submission of Bids against EOI	15 th May 2023 at 17:00 Hours
3	Opening of Bids received against EOI	15 th May 2023 at 17:30 Hours
4	Number of copies to be submitted	Two Stage (Two Packet System)
5	EOI document cost inclusive tax(non-refundable)	Rs 10000/- (Online Payment)
6	EOI processing fee inclusive tax(non-refundable)	As per eNivida Portal
7	Estimated amount of EOI	79,37,99,718/- (incl Tax)
8	Earnest Money Deposit	79,37,998/-
9	Bid Submission Mode	Online on https://railtel.enivida.com

Note: RailTel reserves the right to change the above dates at its discretion.

Earnest Money shall be submitted in the form of Demand Draft/Bank Guarantee from any Nationalized / Scheduled bank in India in favour of "RailTel Corporation of India Ltd. payable at Kolkata." Partner needs to share the details of EMD like UTR No. etc date and Bank along with the proposal. EMD may be forfeited if a bidder withdraws his offer or modifies the terms and conditions of the offer before

validity period and in the case of a successful bidder, if the bidder fails to accept the Purchase Order and furnish performance security.

Earnest Money of the unsuccessful bidder will be discharged/returned as promptly as possible. No interest shall be payable on the EMD.

The successful bidder's bid security will be discharged upon the bidder's acceptance of the purchase order satisfactorily and furnishing the performance bank guarantee in accordance with clause 13 (f).

Tenders not accompanied by Earnest money shall be summarily rejected.

RailTel Bank Details for Submission of EMD/PBG: Union Bank of India, Account no. 401601010519491, IFSC Code: UBIN0540161. Demand Draft should be submitted in favour of RailTel Corporation of India Limited payable at Kolkata.

Eligible Business Associates are required to direct all communications related to this Invitation for EoI document, through the following Nominated Point of Contact persons:

Prospective bidders are required to direct all communications related to this Invitation for EoI document, through the following Help Desk:

Level:1 Contact: Sh. Kuldeep Norge Position: Sr. Manager/Marketing/ER

Email: kuldeep.n@railtelindia.com Contact: +91- 9007041222

Level:2 Contact: Sh. Abhishek Mani Position: DGM/Marketing/ER

Email: abhishekmani@railtelindia.com Contact: +91-6289857500

Level:3 Contact: Sh. Maneesh Kaushal Position: GM/Marketing/ER

Email: maneeshk@railtelindia.com Contact: +91-9007044110

Note:

1. The EOI response is invited from eligible Empanelled Partners of RailTel only.
2. All the document must be submitted with proper indexing and page no.

3. Transfer and Sub-letting: The Business Associate has no right to give, bargain, sell, assign or sublet or otherwise dispose-off the Contract or any part thereof, as well as to give or to let a third party take benefit or advantage of the present Contractor any part thereof.
4. Bidder also undertake to submit Manufacturers Authentication Form (MAF) of major items of the proposed solution and other documents required in the end Customer Organization's tender in favour of BA against the proposed products.
5. The selected bidder will have to accept all Terms & Conditions of RailTel's End Customer on back-to-back basis.
6. As this is a customer centric bid on back-to-back basis. The benefits of MSME shall not be applicable on this EoI & Work Order issued basis this EoI.



1. RAILTEL – INTRODUCTION

RailTel Corporation of India Ltd (RailTel) is one of the largest neutral telecom infrastructure providers in the country owning a Pan-India optic fibre network on exclusive Right of Way (ROW) along Railway track. The OFC network presently reaches to over 4500 towns & cities of the country including several rural areas. With its Pan India high-capacity network, RailTel is working towards creating a knowledge society at various fronts.

The portfolio of services provided by RailTel includes Data Centre & DR services, Tele-presence as a service, NLD services, IP-1services, Internet and Broadband services on a pan-India basis.

Equipped with an ISO 9001, 20000-1:2011 & 27000 certification, RailTel offers a wide gamut of managed telecom services to Indian Telecom market including Managed lease lines, Tower colocation, MPLS based IP-VPN, Internet, Data Centre services, NGN based voice carriage services to Telecom Operators, Dark fibre leasing to MSOs/LCOs.

The major customer segment for RailTel comprises of Enterprises, Banks, Government Institutions/ Department, Educational Institutions/Universities, Telecom Service Providers, Internet Service Providers, MSOs, etc. RailTel being a “Mini Ratna (Category-I)” PSU is steaming ahead in the enterprise segment with the launch of various services coupled with capacity augmentation in its Core network

2. BACKGROUND OF EOI

RailTel Corporation of India Ltd (here after referred to as ‘RailTel’) an ICT arm of Indian Railways has been in the forefront of building innovative platforms and solutions and vision to build range of Information and Communication Technology (ICT) Services for its customers.

In this regard, RailTel has submitted a proposal to WBEIDC (here after referred to as ‘CoR’) and expecting to be awarded within next 10-15 days. Now RailTel is looking for partners who will be helping RailTel in execution of the CoR Project, if awarded.

RailTel invites EOIs from RailTel’s Empaneled Partners for the Selection of Implementation Partner for the work of “establishment of Secondary Data Center Setup at Siliguri IT park”. The empanelled partner

is expected to have excellent execution capability and good understanding of customer local environment.

Bidder has to agree to comply with OEM technical & Financial documentation including MAF, Technical certificates/others as per end-to-end requirement mentioned in the EOI. Bidder has to submit MAF of major items of the proposed solution and other documents required in the end Customer Organization tender. **Terms and conditions of e-tender conducted by Webel Technology Ltd. vide e-tender no. WTL/WBSDC/DR/22-23/012 dated 05/07/2022 for DR setup at Purulia and vide e-tender WTL/WBSDC/DC/22-23/017 dated 25/08/2022 for capacity enhancement of WBSDC-DC for the Department of Information Technology & Electronics, GoWB will be applicable for this project.**

3. SCOPE OF WORK & PARTNER SELECTION

3.1 SCOPE OF WORK:

The brief scope of work including Delivery, Installation and integration is outlined below in the following broad categories. This specification covers DC infrastructure, standalone system design, engineering, manufacture, assembly, testing at manufacturer's works, supply, delivery at site, unloading, handling, proper storage at site, erection, testing and commissioning at site of complete infrastructure for the proposed Data Centre to be installed at Siliguri IT Park, 1st Floor as detailed in the specification, complete with all accessories required for efficient and trouble-free operations.

Modular and scalable design, the critical components used to design the system should be redundant and in the Events of failure the components can be maintained easily. All the components of the infrastructure should be such that it can be easily dismantled and relocated to different location.

The DC infrastructure, standalone system shall be in adherence to standard Data Centre guidelines thus shall be composed of multiple active power and cooling distribution paths, but only one path active. Shall have redundant components.

3.1.1 Deliver, Installation & Integration of additional materials of Civil Infrastructure:

Delivery, installation and integration of following civil infrastructure related work shall be adopted for design and implementation of civil cum interior work for the proposed Data Center at Siliguri as detailed

below. Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation.

The scope of work shall include following:

1. Dismantling work
2. Doors
3. Partition/ walls
4. Painting
5. Insulation work
6. Damp Proofing
7. False flooring
8. False ceiling
9. Steps
10. Portable Removable Ramp
11. Fire Sealant
12. Furniture
13. Fire Proof Safe / Vault
14. Other related necessary installation to achieve the solution as per requirement

S/N	Component / Performance / Utility	Minimum Specification
1.	Demolition and dismantling	Demolition and dismantling: This would encompass removal of any existing structures, false ceiling, flooring, walls etc., if required. This would also include carting the debris away from the premises to a pre-determined spot or their disposal off so as not to infringe upon any local bye-laws or as directed by the building/regulatory authorities. Protection and repairs, if required, of any existing infrastructure damaged during dismantling works has to be ensured.
2.	Doors	<p>Fire Rated Doors</p> <p>Door for Server room, Staging Room, Telecom Room, BMS & NOC Room, Battery Room, Electrical & UPS Room should be 2 hr fire rated metal door with size as per BOQ given and requirement.</p> <p>GENERAL SPECIFICATION: Provision is to be made in the shutter/frame for access control cable/electric mortise lock. Door frames and leaves made of Galvanized steel 304 grade. Door leaves constructed from 1.25mm thick. Galvanized steel sheet press formed to provide a 46mm thick. Fully flush, double skin door shell with lock seam joints at stile edges. Internal reinforcements are provided at top, bottom & stile edges for fire rating. The internal construction of the door is a specially designed Honey comb structure with reinforcements at top, bottom & stile surrounds. The internal construction of the door varies with the degree of fire rating as tested. For doors having overall height in the excess of 2100 mm the shutters shall essentially have double latching. Door frames produced from 1.6mm</p>

S/N	Component / Performance / Utility	Minimum Specification
		<p>thick galvanized steel sheet press formed to double rebate profile of size 143 x 57 mm (+/- 0.3mm) with a maximum bending radius of 1.4mm. The door frames may be built into the brick or block walls using corrugated "TEE" anchors not welded to the frame (first fix).</p> <p>Frames may be fixed on plastered openings OR MS Section with the help not welded to the frame (first fix). Frames may be fixed on plastered/ Metal Section openings with the help of metallic expansion shield with counter sunk screw (second fix).Door frames are supplied to knock down form with butt joints for bolt assembly at site. Fire Rated vision glass with 6mm thk. Clear glass can be provided for a maximum of 2 hrs fire rating. The vision glass can be provided in 380 mm dia or square/rectangular in various dimensions such as 200mm x 300mm, 300mm x 300mm etc. The door frames and door shutters are primed with Zinc-phosphate stoving primer. Various finishes in synthetic stoving enamel, acrylic stoving paint or polyurethane can be provided on request.</p> <p>The Fire Doors are to be fully insulated and have been tested as per IS: 3809-1979, ISO: 834- 1975, IS: 3614 (PART-II)- 1992 and BS 476 (PART- 20 & 22)- 1987 under live fire conditions from Central Building Research Institute (CBRI), Roorkee, National Test House Calcutta for Stability, Integrity and Insulation for 2 Hrs. The wired glass is to comply with both BS 476: PART 22 and BS 6206 relating to fire resistant and impact performance.</p> <p>Finalized vendor to submit the Test certificates for the above.</p> <p>Other Doors</p> <p>P/F satin finish anodized aluminum doors of sizes as detailed below using 63.5mm x 38.1mm x 2mm section for main door frames, mm x mm x mm section for door top, side and middle sections, mm x mm x mm door bottom sec</p> <p>Main Door of size 1500mm x 2400mm double shutter with 12 mm toughened glass along with heavy duty floor spring complete with handles, locking system etc all complete.</p> <p>Doors of size 900mm / 1000mm / 1200mm x 2100 mm single shutter with heavy duty door closer, locking system, handles etc all complete</p>
		<p>Hinges provided are to be Stainless steel double ball bearing butt hinges of size 100mm x 76mm x 3mm thick conforming to BS 7352 standard for ‘Strength and durability performance of metal hinges for side hanging applications and dimensional requirements for template drilled hinges’ and are classified in class 8 ie, with 20000 annual operations.</p>

S/N	Component / Performance / Utility	Minimum Specification
		<p>The screws for hinges are SS 304 grade Philips head CSK screws of size M6x 15mm. Latching shall be Mortise lock with independent escutcheon. D pull handles of SS shall be provided. Door closures heavy duty rated shall be provided as required. Vendor to provide the manufacturer's test certificate for the installation. Cost to include all necessary extra support item</p> <p>OTHER DOORS:</p> <p>Supply of Double LEAF FRAMED AL DOOR: Aluminum door should have particle board in lower portion and upper portion should be 8 mm thick toughened glass with floor sprint, door stopper, Handle and lock etc. The lock shall be Godrej Make and Toughened Glass make shall be Saint Gobain or equivalent.</p> <p>Aluminum section should be galvanized, powder coated with appropriate color shade as approve by the Operating authority</p> <p>(Reception Only)</p>
3.	Partitions/ Walls	<p>Fire Rated Gypsum Partition</p> <p>Partitions/ wall for walls other than brick walls shall be of Fire line Gyp board. The internal partitions for Reception, battery room, Electrical & UPS Room and Staging cum Store Room shall be full height 125 mm thick fire line Gyp Board using 12.5 mm thick double fire line gyp-board on both sides with GI sheet metal vertical stud frame of size 75 mm wide fixed in the floor and ceiling channels of 75 mm wide to provide a strong partition. Glass wool insulation inside shall be provided as required. Fixing shall be made by self tapping screw width vertical & Horizontal studs being at 610 mm intervals. The same should be inclusive of making cut-out for switchboards, sockets, grills etc. It shall also include preparing the surface smoothly and finally finishing with one coat of approved brand of resistant coating.</p> <p>The partition to have laminate skirting of 100 mm ht at the bottom with 6mm Ply with laminate finishing. Including Required MS structure support for Fire Door fixing.</p> <p>Brick Partition</p> <p>Providing and constructing brick walls with bricks of class designation 7.5 in proper line and level, at all levels in cement mortar 1:4 of thicknesses of 260 mm, including plastering on visible sides, necessary lintels at intervals, all scaffolding, staging, curing etc.</p> <p>Toughened Glass partition for Telecom Room.</p> <p>Providing and fixing of 10 mm thick clear glass along with it's AL anodized powder coated frame on the side wall of Telecom room to view from NOC Room. The work should be completed along with wall opening to the size</p>

S/N	Component / Performance / Utility	Minimum Specification
		of Glass Frame should be minimum 1200 mm x 1000 mm and fixing the frame in the wall with masonry work.
4.	WALL TREATMENT.	<p>PAINTING:</p> <p>Providing and applying approved Zero VOC Plastic Emulsion paint in three or more coats of approved brand and shade to internal surfaces (walls / partitions/ ceiling or any other location as directed), to give an even shade, including thoroughly brushing the surface free from foreign matter, sand papering smooth, filling in all holes and cracks , applying lambi / palti and rubbing down the surface, lambi/palti sandwiched with two coats of approved primer. Rate to include all tools, labour, scaffolding, primer as required completed as directed.</p> <p>Note: Flat area in horizontal vertical plane will be measured for payment. No additional payment will be made for grooves, cornices, mouldings etc</p> <p>PUNNING:</p> <p>All wall to be punned using gypplaster of India Gypsum / equivalent make for an average thickness of 5 - 8 mm made of universal plaster/ Putty. The punning shall be finished uniform and wave free on both sides. The cost to include providing grooves at junctions wherever required as per the instructions of the Architect. Price shall be inclusive of any chipping & replastering if required. (columns included)</p> <p>FIRE RATED PAINT.</p> <p>2hrs Fire rated paints for server & Electrical & UPS room only, Make of MRF/ Burger.</p>
5.	Thermal Insulation Work	<p>The floor and ceiling slabs should be heat-insulated, or coated with a heat insulating material to avoid condensation on floors below and above and to reduce the heat transfer in the server Room area. Providing and fixing</p> <p>19 MM thick AL clad Nitrile rubber for Floor and Without AL cladding 19 mm Nitrile rubber for Ceiling CLASS O insulation above the false ceiling, true floor and joints should be finished properly as per manufacturer's specification. The rate shall be inclusive of jointing tap, cleaning the surface to make it free from dust Class O</p>
6.	Damp Proofing	SI to offer the necessary Materials / Component and accessories for the Damp Proofing only for Server room.
7.	Raised floor	<p>RAISED FLOORING: USF 1000 EDGE SUPPORT RIGID GRID SYSTEM- FINISHED FLOOR HEIGHT OF 600 MM: Providing and fixing Raised Access Flooring system 600 mm high finished with Anti-static laminate.</p>

S/N	Component / Performance / Utility	Minimum Specification
		<p><i>SPECIFICATIONS FOR RAISED FLOOR:</i></p> <p>SF 1000 Access The Floor panel shall be steel welded construction with an enclosed bottom pan with uniform pattern of modular pockets of 64 hemispherical cones. The top and bottom plates are fused together by resistant welding at 104 spots. The depth of the Laminated panel will be 36 MM. The panel is epoxy coated for protection from corrosion and cavity formed by the top and bottom plate is filled with non-combustible cementitious compound to support no less than 85% of the top plate of the panel. The panel is to withstand a Concentrated Load of 650 kgs applied on area 25mm x 25mm in the center of the panel which is placed on four steel blocks without deflecting more than 2.5mm and without setting permanently more than 0.20mm. The UNITILE / UNIFLAIR panel will withstand an Uniformly Distributed Load (UDL) minimum 1000 kg and shall deflect not more than 2mm on applying of loads and on removal it should not have a permanent deflection of more than 0.20mm.</p> <p><i>SPECIFICATION FOR FINISH OF PANEL:</i> The access floor panel if not required to be supplied BARE shall be laminated with finishes as required which shall be 1.5mm thick and same shall be factory laminated on an automatic lamination line. The finish shall be either High Pressure Laminate of required shade and color and the Laminate shall be protected on its edges with a PVC beading with mitered corners which shall factory fit.</p> <p><i>SPECIFICATION FOR PEDESTAL:</i> Pedestal installed to support the panel shall be suitable to achieve a minimum finished floor height of maximum of 600 mm from the existing floor level. Pedestal design shall confirm speedy assembly and removal for relocation and maintenance. Pedestal base to be permanently secured to position on the sub floor. Pedestal assembly shall provide for easy adjustment of leveling and accurately align panels to ensure lateral restrain. Pedestals shall support an axial load of 2000kgs. without permanent deflection and an ultimate load of 3500kgs. The understructure system shall be all steel type galvanized.</p> <p><i>SPECIFICATION FOR STRINGERS:</i> The stringer is hot dipped galvanized steel cold roll construction specially designed to stabilize lateral stability and to support the panels on all sides for alignment. The channels have a counter sunk holes at both ends to accommodate bolting of the same to the pedestal head assembly.</p>
		<p><i>GENERAL SPECIFICATION FOR RAISED FLOOR:</i> The Raised flooring is to have passed CLASS O as per BS 476 PART 6 for Fire propagation index and CLASS I as per BS 476 PART 7 for surface spread</p>

S/N	Component / Performance / Utility	Minimum Specification
		of flame. Please note that to meet CLASS O fire category as per 1991 Building regulations total index of Performance (I) should be less than 12 and sub Index (I1) should be less than 6. Finalized vendor to submit the test certificates for the above. Raised floor shall be consider for Server Room and Telecom Room .
8.	False Ceiling	<p>False Ceiling at appropriate height should be installed concealing any cabling tray and electrical lighting wiring in all areas.</p> <p>For BMS & NOC Room, Reception. Staging cum Store Room and Common corridor: MINERAL FIBER CEILING-Providing and Fixing mineral fiber ceiling consisting of tiles and grids as follows.:</p> <ol style="list-style-type: none"> 1. Armstrong Fine Fissured or equivalent, 600 x 600 mm nominal size range or equivalent with straight edge. Surface to have one coat of emulsion paint. 2. Ceiling grid to be of hot dip galvanized steel system, powder coated white finish, including main runners, cross tees and wall angles. Profile to be used is micro look, 15 mm wide. 3. Main runners to be spaced at 1200mm centers, fixed to soffit by approved hangers at 1200 mm distance. First and last hangers should not be at a distance of more than 450 mm from the adjacent wall. 600 x 600 mm module to be formed by fixing 600 mm cross tee between center of 1200 mm cross tees. Wall angels to be secured to wall at 450mm centers. <p>Acoustical false ceiling of mineral fiber Board (600 x 600 x 12.5 mm) of Armstrong or equivalent laid on Grid system (Micro lock edge) with 12.5 mm thick T- section (White) having main runner 1200mm x 600mm, cross Tee at suitable height. Mineral Fiber Board modular False Ceiling in Armstrong triangular edge fissured ANF tiles of size 600mX600mmX12.5mm having noise reduction co-efficient of 0.5, light reflection over 70%, Relative Humidity 99%, fire performance class 0 /class1.</p> <p>Ceiling tiles with standard perforation of 2.5mm dia. (16% open space) fleece, NRC of 0.70 shall be fixed to the structural soffit by butterfly clip hangers, suspension wires & anchor fasteners as per the specification. Suspension wires to be provided at adequate c/c. The ceiling tiles should be easily replaceable at every grid.</p> <p>METAL GRID CEILING :The drop ceiling shall be provided with Armstrong Lay in (Hot dipped galvanized steel) metal ceiling system 600 x 600 x 5 mm with standard 2.5 mm dia (16% open space) and fleece with NRC of 70 & CAC 36 to be laid on Armstrong grid system. The modular ceiling sheets with necessary fittings should be done up aesthetically to integrate with the lighting (details given under the head "lighting"). to be used in Telecom room only.</p>

S/N	Component / Performance / Utility	Minimum Specification
9.	Steps	<p>Construction of STEPS 2 x 300 mm height using Brick and cement mortal of 1: 4 with proper plastering and finished with Vitrified tiles.</p> <p>Including ant skating tape after curing.</p> <p>(Server room Emergency Exit and Telecom Room Entry)</p>
10.	Ramp	<p>Construction and fabrication of Entry Ramp using MS angle 50mm x50mm x 6 mm thick framework horizontal and vertical supports with appropriate slope with finish of top shall be 6 mm thick checker plate to move material into Data Center.</p> <p>The Ramp Size should be as per the layout</p> <p>Only <i>Server Room Entry</i>.</p>
11.	Fire Sealant	<p>Providing and fixing of 2 Hr fire sealant using pad and putty (removable) for closing holes of Server Room, UPS & Battery Room done for Cabling, Piping & etc.</p>
12.	Furniture	<p>Staging Room Workstation</p> <p>Staging room workstation linear type with 25mm thick laminated worktop fixed to existing wall include cost of laminated. CPU Trolley/ Key Board Tray. With MOBILE FULL HT METAL PEDEST , 3DR BOX + BOX + FILE METAL 646 X 390 X435 Complete to accommodate 5 personnel Approx.</p> <p>Staging Room Workstation Chair</p> <p>Medium Back with mesh and Hydraulic lift. (05 Nos.)</p> <p>BMS & NOC & Others Room Workstation</p> <p>NOC & Others Room workstation (1200x600) with 25mm thik laminated worktop fixed to 900mm high 65 mm thick modular partition. Cost should include cost of partition and laminated, CPU Trolley/ Key Board Tray. Complete to accommodate 10 personnel Approx. with MOBILE FULL HT METAL PEDEST , 3DR BOX + BOX + FILE METAL 646 X 390 X435.</p> <p>NOC & Others Room Chair</p> <p>Medium Back with mesh and hydraulic lift (15 Nos.)</p> <p>1 no. Four- Seated Sofa with Center Table for Reception Area.</p> <p>Modular Reception table as per the drawing.</p> <p>Shoe Rack</p> <p>Full Height Storage Cabinet</p>
13.	Fire Proof Safe / Vault	<p>The overall design of the safe should be suitable for safe storage of computer diskettes, tapes, smart cards and similar devices and other magnetic media, paper documents, etc. the safe should have adequate fire protection</p>

S/N	Component / Performance / Utility	Minimum Specification
14	VITRIFIED TILE FLOORING:	Providing and laying of pre-polished first class vitrified tile flooring of 600mm X 600mm size, laid to pattern & design, with paper thin joint, set in 20 mm thick cement mortar 1:4, suitably roughened cement slurry and pointing of joints with laticrete to match the colour of tiles, curing, oxalic acid washing etc., complete. (works at all levels). The contractor shall provide and lay the tiles as per the designs approved by Employer/Consultant/Architect. Skirting of above upto 4 inch. (BMS & NOC Room, Reception, Corridor, Battery Room, Electrical Room and Staging cum Store room)
15.	Warranty	5 Years onsite comprehensive warranty including entire civil infrastructure from the date of successfully installation, commissioning, integration and final acceptance

Tentative Bill of Materials for Delivery, Installation & Integration of Civil Infrastructure, Additional components, if any, have to be covered with the SI's own justification and completion of site survey				
S/N	Item / Service/Job Description	Make	Qty.	Unit
1	Demolition and dismantling as per the technical specs.	NA	1	Job
2	Doors			
2.1	1500 x 2100 mm Double leaf Un-equal Fire rated door With Vision Panel. <i>As per the technical specifications.</i>	SAKTI HARMANN/ Agni	5	Nos.
2.2	1200 x 2100 Single leaf Fire rated door with Vision Panel, <i>As per the technical specifications.</i>	SAKTI HARMANN / Agni	3	Nos.
2.3	1200 x 2100 Single leaf Fire rated door including Vision Panel & Panic Bar for Emr. Exit. <i>As per the technical specifications.</i>	SAKTI HARMANN / Agni	1	Nos.
2.4	Other door.			
	1500 x 2100 mm Double leaf Equal door as per technical specifications.	Jindal/ Hindalco	1	Nos
3	Partition / Wall			
3.1	2 hours Fire Rated Gypsum Partitions. As per the technical specifications.	India Gypsum/ Saint Gobain	1500	Sqft
3.2	Bricks Partitions as per the technical specification	Customised	3100	Sqft
3.3	Toughened Glass partition for Telecom Room. As per the technical specification	Saint Gobain-Hindalco or Equivalent	1	Nos
4	WALL TREATMENTS			
4.1	Painting as per the technical specifications.	Asian paints/ici/ burger/ nerolac	8000	sqft
4.2	2hrs Fire rated paints for server & Electrical room only	MRF/ Burger	3700	sqft
4.3	PUNNING as per the technical specifications	Asian paints/ici/ burger/ nerolac	1135 9	Sqft
5	Thermal Insulation Work as per the technical specifications.	Armaflex/K-Flex	1800	Sqft
6.0	Damp Proofing as per the technical specification	Asian paints/ici/ burger/ nerolac	1290	Sqft
7.0	Raised Floor as per the technical specification	Unitile/ Uniflair	1700	Sqft
7.1	Double Cup Tiles Pullers	ISI	2	nos

Tentative Bill of Materials for Delivery, Installation & Integration of Civil Infrastructure, Additional components, if any, have to be covered with the SI's own justification and completion of site survey				
S/N	Item / Service/Job Description	Make	Qty.	Unit
8	FALSE CEILING			
8.1	Mineral fiber Ceiling as per the technical specification	AMF/ ARMSTRONG	1850	sqft
8.2	Metal Grid ceiling s per the technical specification	AMF/ ARMSTRONG	450	sqft
9	Steps as per the technical specification	Customosed	2	nos
10	Ramp as per the technical specification and layout	Customosed	1	nos
11	Fire Sealant as per the technical specification	Hilti/ 3 M	100	sqft
12	Furniture as per the specifications			
12.1	Work Station as per the technical specification	FEATHERLITE/ Godrej/ Methodesk	15	Nos
12.2	Chair as per the technical specification	FEATHERLITE/ Godrej/ Methodesk	20	Nos
12.3	Center table	FEATHERLITE/ Godrej/ Methodesk	1	Nos
12.4	4 seated sofa	FEATHERLITE/ Godrej/ Methodesk	1	Nos
12.5	Reception table	FEATHERLITE/ Godrej/ Methodesk	1	Nos
12.6	Shoe Rack	FEATHERLITE/ Godrej/ Methodesk	1	Nos
12.7	Full Height Storage cabinet	FEATHERLITE/ Godrej/ Methodesk	2	Nos
13	Fire Proof Safe / Vault as per technical specification	Godrej	1	nos
14	VITRIFIED TILE FLOORING as per the technical specification	JOHNSON/KAJARIA /NITSON	3100	sqft
15	Miscellaneous Items.			
15.1	Signage's made of letters/graphics etched on brushed plate (200mmX100mm) fixed by double adhesive Tape.	CUSTOMISED	10	No.
15.2	GLOW SIGNAGE:- Providing & fixing glow signage on both sides of the door shutters marking PUSH / PULL along with other signage marking different work areas and emergency signs. (100 mm X 50mm) as approved	CUSTOMISED	20	nos
16	HOUSEKEEPING			
16.1	HOUSE KEEPING: The vendor is responsible for keeping the site clean /deep cleaning by removing all the debris etc. everyday, using adequate covering/tarpaulin sheets etc. to cover the any areas required (client property etc.). All cleaning equipments like heavy duty vacuum cleaners, Cloths, Bloom etc to be according to the approval of the project manager.	NA	1	Job
17	Professional charges towards the preparation of drawings in necessary formats for approval, follow up and arranging approval of drawings including GFC and As Built drawings.	NA	1	Job
18	Loading, unloading lifting and shifting the materials upto 1st floor construction area.	NA	1	Job

3.1.2 Deliver, Installation & Integration of Electrical Infrastructure:

Delivery, installation and integration of following Electrical infrastructure related work shall be adopted for design and implementation of Electrical work for the proposed Data Center at Siliguri as detailed as below. *Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation.*

The scope of work shall include following:

1. System Wiring
2. Illumination System
3. Power Cable Tray
4. L.V. Switchgear panel
5. L.V. Cables
6. Lighting DB - Raw power
7. Emergency Light DB
8. Indoor Lighting Fixtures
9. Point Wiring
10. Earthing Works
11. Earthing Strips & Cables
12. Other related necessary installation to achieve the solution as per requirement

S/ N	Component / Performance / Utility	Minimum Specification
1	System Wiring	The system of wiring shall consist of single core PVC insulated copper conductor multi strand wires in PVC HMS (ISI marked) concealed or exposed as called for in the drawings
		MATERIAL: PVC HMS CONDUIT : PVC conduit shall with smooth outside surface with ISI marked on all pipes at regular intervals. The minimum wall thickness shall be 1.6 mm for conduit up to 32mm diameter and 2.0 mm wall thickness for conduits above 32mm diameter and shall be ISI marked. No PVC conduit of less than 20mm shall be used. The outer surface of conduit including all bends, union, tees, junction boxes etc. and forming part of conduit system shall be protected conduit pipes, fittings etc.
		CONNECTIONS : All joints shall be sealed after threading by applying sealing compound as per manufacturer's recommendation. Junction boxes and running joints shall be provided at suitable places to allow for subsequent extension, if any, without undue dismantling of conduit system. As far as possible, diagonal run of conduits shall be avoided. Wherever numbers of conduits are crossing each other, they shall be laid along with PVC junction boxes. along with sufficient to accommodate pipes to full threaded portions. Conduit system shall be erect and straight as far as possible. Separate conduits shall be run for 16 amps power outlet wiring. The joints in conduit

S/ N	Component / Performance / Utility	Minimum Specification
		shall be free of burrs to avoid damage to installation of conductors while pulling them through the conduit.
		BENDS IN CONDUIT : Where necessary, bends or diversions may be achieved by means of bends and/or circular inspection boxes with adequate and suitable inlet and outlet connections. In case of recessed system each junction box shall be provided with a cover properly secured and flush with the finish wall surface, so that the conductors inside the conduit are easily accessible. No bend shall have radius less than 2.5 times the outside diameter of the conduit. Cut ends of conduit pipe shall not have any sharp edges or any burrs to avoid any damage to the insulation of conductor while pulling them inside pipes.
		FIXING CONDUITS : Conduits and junction boxes shall be kept in position while the walls, slabs and floor are under construction and proper hold fasts shall be provided. Conduits shall be so arranged as to facilitate easy drawing of wire through them. Adequate junction boxes of approved quality and size shall be provided. Where conduits cross expansion joints in the building, adequate expansion fittings or other approved devices shall be used to take care of any relative movement. All conduits shall be installed so as to avoid steam and hot water pipes. Conduit in floor slabs shall be kept as short as possible above finished floor level in order to avoid any damage to them. After the conduits, junction boxes, outlet boxes and switch boxes are installed in position, their outlet shall be properly plugged or covered so that water, mortar, insects or any other foreign matter does not enter into the conduit system. At certain places installation of concealed conduit, accessories and switch / socket / grid plate / mount boxes in woodwork and paneling will be required. The arrangement of fixing and installing these items in the gypsum work and paneling should in approved manner.
		Where called for, surface conduits shall be fixed by means of spacer bar saddles at intervals not more than 500mm and 100 mm from both sides of fitting or accessories.
		The saddles shall be PVC secured fixed to support by means of raw bolts and brass machine screws. Where unavoidable, conduit shall be fixed by means of staples not more than 600mm apart and the chases filled with cement mortar 1:4. Cutting of horizontal chases is prohibited. All socket connections shall be made fully sealed using suitable adhesives for PVC conduits.
		POWER RECEPTACLES.
		switched socket outlets, modular socket outlets and switches mounted separately for group control on wall and modular type partition with front plate & accessories including civil works like chipping etc.

S/ N	Component / Performance / Utility	Minimum Specification
		All sockets shall be provided with suitable stickers to indicate the UPS/RP source, ckt. Nos. etc.
		Wiring of Submains/circuit mains in concealed or surface conduit system with 2mm thick PVC conduits & 1100 V grade, multi strand copper conductor, PVC insulated wires as per IS694, for phase, neutral & earth, shall include end termination. The conduits shall be complete with bends, JB's etc.. There is no sub-circuit and circuit measurements. The laying cost shall also include supports/anchor rods for conduits & chipping works if necessary.
		POINT WIRING: Wiring of light points/socket outlets with 1100 V grade, stranded copper conductor, FRLS-PVC insulated wires, 3x1.5 Sq.mm for switch control & 3x2.5 Sq.mm wires for MCB control, in surface mounted / concealed 19mm dia 2mm thick FRLS-PVC conduits with modular type switches. The quoted rate shall include necessary bends, junction boxes & fixing accessories. The point wiring shall be terminated to suitable terminal blocks for connecting fixtures.
		CONDUCTORS All PVC insulated copper conductor wires shall conform to ISI standards
		BUNCHING OF WIRES Wires carrying current shall be so bunched in the conduit, that the outgoing and return cables are drawn in the same conduit. Cables originating from two different sources shall not be run in the same conduit. All wires being terminated either in switch box or elsewhere shall be properly ferruled with circuit numbers
		DRAWING CONDUCTORS The drawing and jointing of copper conductor wires and cables shall be executed with due regard to the following precautions: While drawing insulated wires into the conduits, care shall be taken to avoid scratches and kinks which cause breakage of conductors. There shall be no sharp bends. Strands of wires shall not be cut for connecting terminals. The terminals shall have sufficient cross-sectional area to take all strands and shall be tinned. The connecting brass screws shall have flat ends. All looped joints shall be connected through terminal blocks/connectors. The pressure applied to tighten terminal screws shall be just adequate, neither too much nor too less. Rubber bushes shall be provided to avoid insulation damage during drawing of wires. Conductors having nominal cross-sectional area exceeding 4sq.mm shall always be provided with cable sockets. At all bolted terminals, brass flat washers of large area and approved steel spring washers shall be used. Brass nuts and bolts shall be used for all connections.

S/ N	Component / Performance / Utility	Minimum Specification
		Only certified wiremen and cable jointers shall be employed to do jointing work. All wires and cables shall bear the manufacturer's label and shall be brought to site in new and original packaging. For all internal wiring, PVC insulated wires of 650/1100 volts grade shall be used. The sub circuit wiring for points shall be carried out in looping in system and no joint shall be made.
		<p>i. WALL SOCKET OUTLET</p> <p>All 6 amp/ 5 pin socket outlets where called for shall be with switch. All 16 amp/ 6 pin wall socket outlets where called for shall be with switch. The sockets shall be erected approximately 150mm above floor level (to the bottom of the box).</p> <p>The switch controlling the point outlets and socket outlets shall be on the phase wire of the circuit. The earth terminal of the socket shall be connected to the earth terminal provided inside the box by means of earth wire. No joints are allowed in the length of the conductors. If the use of joint connections is unavoidable due to any specific reasons, prior permission in writing shall be obtained from the project manager before the use of such connections. No wire shall be drawn into any conduit, until all work of any nature that may cause injury to the wire, is completed. Care shall be taken in pulling the wires so that no damage occurs to the installation of the wire. Before the wires are drawn into the conduit, the conduits shall be thoroughly cleaned of moisture, dust, dirt or any other, obstruction by forcing compressed air through the conduit. The minimum size of PVC insulated copper conductor wires for all sub circuit shall be as follow:</p> <p>Wiring for lights, exhaust fans and ceiling fan points shall be 2.5 sq mm. The two 16-amp power outlets shall be grouped in one circuit where called for. Wiring for the first power outlet shall be carried out with 4 sq mm PVC insulated copper conductor wires. Wiring for the second power outlet shall be carried out with 4 sq mm PVC insulated copper conductor wires. All power outlets shall be provided with PVC insulated green color copper earth wires.</p> <p>ii. MAINS AND SUBMAINS</p> <p>Mains and sub-main cable where called for shall be of the rated capacity. Every main and sub-main shall be drawn into an independent adequate size conduit. Adequate size draw boxes shall be provided at convenient locations to facilitate easy drawing of main and sub-main wires. Item cost of sub-mains will include the cost of conduits, junction boxes, wires and earthing wires. Single phase sub-main shall be provided with one earth wire and three phase sub-mains shall be provided with two earth wires.</p> <p>iii. COLOUR CODE OF CONDUCTORS / WIRE</p> <p>Color code shall be maintained for the entire wiring installation Red, Yellow, Blue for the three phases, Black for neutral, Green for earth.</p> <p>iv. FERRULEING AND THIMBLES</p> <p>All wiring and cabling shall have a ferrule at both ends with proper circuit number marking on it.</p>

S/ N	Component / Performance / Utility	Minimum Specification
2	Illumination System	Data Centre area illumination level achieved using following consideration in line with NBC & TIA guidelines
		LUX level Consideration:
		For Server Room : 300LUX
		Electrical / UPS Room : 200LUX
		Battery Room : 150LUX
		BMS & NOC Room : 300LUX
		Passage : 100 LUX
		Staging cum Store Room : 200 LUX
		Telecom Room : 200LUX
		Raw power lighting & Emergency Lighting shall be provided with LED fixtures to make the optimal choice between Lighting power density.
		<i>Occupancy Sensors have been provided to control the Lighting within Server Room & Telecom Room</i>
3	L.V. Switchgear panel	1.1 : Supply, Installation, Testing and Commissioning of compartmentalized Indoor Type LT Panel, powder coated cubical panel board, free standing type, suitable for 3 phase 4 wire, 415 volts 50Hz AC supply, fabricated with CRCA sheet steel of not less than 2 mm thick, dust and vermin proof, with ventilation louvers, cable alleys, detachable gland plate, ISMC 100 channel iron base frame with following capacity, insulated aluminum bus bar, incoming and outgoing switch gears, Multifunction meters, interconnection, earthing etc., with necessary bus bar chambers, MV danger notice board, 3 phase indicating LED lamps with toggle switches and HRC control fuse, GI Earth strips of size 50mm x 6mm for full width of board with 2 termination points, etc with necessary accessories complete as per the specifications.
		1.2 : DC LT Panel : 3 nos of Incomer : 400 A FP motorized MCCB ,with Bus Coupler 1 no. 400 A 4 pole Motorized MCCB, Output : 04 No 100 A FP MCCB ,08 Nos 32 A TP+N MCB , 02 Nos 32 A SP+N MCB with related accessories for auto change over – 01 Nos.
		1.3: 400 A 4 pole ISOLATOR with Enclosure = 2 nos for taping the power from Building sub stations to 2nd floor Data Centre Main Panel.
		1.4: UPS output DB, IP-42, 2 nos Incomer of 100 A 4 pole MCCB and Out Going, 3 nos of 100 A 4 pole MCCB.
4	L.V. Cables	1100V Grade, PVC insulated Single/multi Core, multi strand armored / Unarmored Conductor Cables. The cables shall be laid in cable tray & all single core cables shall be laid in trefoil form with necessary clamps. Outer Sheath FRLS. The work shall include :-
		a) Effecting proper and adequate connections at terminations.
		b) Ensuring that provision is left in building components and trenches as the work proceeds for incorporation of cable supports at a later date.

S/ N	Component / Performance / Utility	Minimum Specification
		c) Providing all fixing accessories such as clamping devices, Tie's, nuts and bolts, screws where laid in trenches or trays.(Not to consider Trays and Trenches rates, it will be paid Separately)
		d) Providing proper supports for cable terminal boxes .
		e) Providing heavy duty copper lugs, insulation tape etc. at joints and terminations.
		f) All fixing accessories such as GI saddles, Double compression gland, screws, raw plugs, suitable size Anchor Fasteners etc.
		g) Wire/Cable Joint by crimping type lugs.
		h) Testing of the Cables in the Manufactures works and providing test certificates with the handover documents is the sole responsibility of the Contractor.
		2R X 4C X 185 sq. mm AYEY Cable
		4C X 50 sq. mm CU, CU Flex FRLS Cable
		4C X 95 sq. mm, CU Flex, PVC, FRLS
		4Cx10 Sq.mm CU flexible FRLS cable
		3C X 4 sq. mm, CU Flex, PVC, FRLS
		3 R x 6 sq.mm cable(YY) with -PVC insulated outer sheath & multi strand copper conductors, unarmored, cable to be laid in raceways, modular partitions, conduits (cost of Raceways to exclude).
5	Cable Trays	<p>Perforated cable tray: 'Supply and Installation of powder coated perforated cable trays . The tray shall be using anchor fastener bolt (10/8 mm)and MS angle supports or for mounted from ceiling mounted MS bracket with 5 mm thick plate . The cable tray with all accessories i.e cable tray coupler plates and zinc plated nuts bolts. The cable tray will be layed along with MS angle support. Cable tray of following sizes:300 x 50 x 2 mm</p> <p>Ladder type cable tray: Pre-fabricated, factory assembled, bolted rung type Ladder trays made out of 2/1.6 mm thick pre-galvanized steel side runners and slotted rungs at every 250mm., The rate of Ladder type cable tray is inclusive of vertical supports using M12 Hitec rods for trays upto 300mm & factory fabricated supports for higher sizes, Earthing with 25x3 G.I strip, bends, 'T' sections, Anchor fasteners & accessories as required to complete the cable tray installation. 450 mm x 50 mm and 300 mm x 50 mm</p> <p>For Power 300 x 50 perforated cable tray & 450 x 50 ladder type tray shall be considered. For Data : 450 x 100 mm Wire mesh cable tray with all accessories to be mounted on the floor for data lines</p>
6	Lighting DB & Raw power	Double door Power Distribution Board (RPDB / LPDB) - (3 Phase 8 Way)Modular DBs

S/ N	Component / Performance / Utility	Minimum Specification
		Incomer - 32 A TPN MCB 10 kA--- 1 No.
		Outgoing - 32 A DP MCB 10 kA--- 3 No. and 20/16 A SP MCB 10 kA----- 12 Nos.
7	Emergency/ BMS DB	Double door power distribution board for 6 KVA UPS Lighting & BMS distribution boards MCB type of approved make only. The DB shall be IP-43, The rate shall also include supply and Installation 12 Way SPN DB.
		Incomer - 1 No 32 Amps DP MCB (10 kA) C Curve
		Outgoing - 10 Nos 10/16 Amps SP MCB (10 kA).
8	CAC DB	Double door power distribution board for CAC distribution boards MCB type of approved make only. The DB shall be IP-43, The rate shall also include supply and Installation 8 Way TPN DB.
		Incomer - 1 No 100 Amps TPN MCB (10 kA) C Curve
		Outgoing - 16 Nos 20 Amps SP MCB (10 kA).
9	Indoor Lighting Fixtures	Supply, Erection, Testing & Commissioning of the following Recess mounted light fixtures complete with Energy Efficient Electronic Ballast, Control gear and all the other standard accessories.
		Recess mountable stand-alone PIR presence detector. The device should be able to Switch & Regulate a Lighting load of at least 8 DSI Ballasts based on Human Presence availability. Detection coverage of 6m dia when mounted at a Height of 3m. The device should be equipped with a Field adjustable delay timer (5 - 60 mins).
		2'x2' 36 Watt Led Light fixtures.
		1200 mm Panel LED Light & fixtures
		18 W LED Down Light
		Occupancy Sensor= 06 nos (Server Room and Telecom Room)
10	Point Wiring	Wiring for the following light points with 2 x 1.5 sq. mm + 1 x 1.5sqmm (green) PVC insulated copper conductor FRLS wires of 650/1100 Volts grade in concealed PVC conduit as called for including providing 6 amp flush type switches (as, approved),including providing and fixing of Polycarbonate modular cover plate for switch boxes
		1. Wiring for the power points with 3 x 2.5 sq. mm PVC insulated copper conductor FRLS wires of 650/1100 Volts grade in concealed PVC Conduit as called for including providing 16 amp flush type switches (as, approved), including providing and fixing of Polycarbonate modular cover plate for switch boxes. – 10 Nos.
		2. Wiring for the power points with 2 x 2.5 sq. mm + 1 x 1.5sqmmPVC insulated copper conductor FRLS wires of 650/1100 Volts grade in concealed PVC Conduit as called for including providing 6 amp flush type switches & socket (as,

S/ N	Component / Performance / Utility	Minimum Specification
		approved),including providing and fixing of Polycarbonate modular cover plate for switch boxes. – 15 Nos.
11	Earthing Works	Supply installation testing of Chemical earthing with 19 mm copper bonded pipe as electrode with 2 bags of chemical compound for each earth pits with heavy duty 450 mm x 450 mm CI cover, the depth of each earth pit shall be 3 meter. As per the IS 3046.
		1. All earth pits shall be as per IS 3043 with latest amendments.
		2. Earthing shall be done at indicted location in Layout & Earth Schematic Drawing. The minimum distance between the two earth stations shall be 3 meters and that from the building is 1.5 meter.
		3. An earth ring with relevant earth test terminal boxes shall to be provided at regular intervals.
		4. Adequate number of earth strips with proper sized holes shall be provided for extending earthing/looping earth connections at various floors shall be provided and executed as per the requirement.
		5. The Contractor has to provide heavy duty Cover of size 450 x 450 x 8 mm thick to the Earthing Chamber.
		6. The cover is to be sand blasted and then Powder coated using Matt Jet Black Colour. The Cover is to be fabricated using 8 mm thick Chequered Plate.
12	Earthing Strips & Cables	Supply, installation & testing and commissioning of Chemical Maintenance Free Earth pits of FAST EARTH ELECTRODE-COPPER / 80 mm dia pipe, 3 meters, (Necessary Permission of statutory authorities to be obtained if required).all work as per IS:3043, typical drawing and Technical Specifications with Chamber and cover (Cost should consider for RCC breaking and finishing also). – 4 Nos.
		1. 50 x 6 mm GI. Strip for Body Earthing – 100 Mtr.
		2. Braided wire Earthing for Floor pedestals – 100 Mtr.
		3. 1 CX 50 Sq.mm. CU Flex., PVC , FRLS for Smart Rack
		4. Earth Stations supporting enclosure & insulators - 600 X 100 X 1200 (in mm) – 4 Nos.
13	Miscellaneous	1. Supply and fixing position the approved single line diagram framed in 1000 x 800 mm size glass frame and installed in main switch room.
		2. Supply and fixing of First Aid Box & Chart
		3. Name Plates: nameplates with the Panels designation in bold letters shall be fixed at top of the central panel. A separate nameplate giving feeder details shall be provided for each feeder module door.
		4. Danger Notice Plates : The danger notice plate shall be affixed in a permanent manner on operating side of the Panels.

S/ N	Component / Performance / Utility	Minimum Specification
		5. The letters, the figures, the conventional skull and bones etc. shall be positioned on plate as per recommendation of IS: 2551-1982
		6. The said letters, the figures and the sign of skull and bones shall be painted in signal red colour as per IS: 5-1978
		Robber mat : 12.5 mm thick 1.1 KV tested ISI mark antistatic rubber mat shall be provided in Battery room and Electrical and UPS room. Color shall be RED.
14	CAC for Server Room	Supply of wall mounted high performance 2 tr split type cooling units having Sensible heat ratio greater than .9, suitable for Critical Technology/Equipment room. Each unit shall facilitate installation in Small Areas, shall feature robust design to run 24x7, Auto-Restart function, Unit-to-Unit Communication and Ease of service. CFM of the machine should be 550 CFM per Tr.
		Machine should have two parts; Indoor section & outdoor section. The Indoor unit shall comprise of Metallic Body construction, Evaporator Coil with Hydrophilic Coating, EC Fan-High efficiency step-less speed modulation fan with EC motor, Expansion Valve, R407C Refrigerant, Corded Remote, Microprocessor based Controller, G4 Filter, Suction and Discharge piping, Internal power and Control wiring, HP/LP Cutouts, Power and Control contactors, RS485 card for monitoring, and Other Electrical & safety accessories. Outdoor cabinet consists of Scroll Compressor and Anti Corrosive Condenser coil. The dimensions of indoor unit must not be more than 1105 mm*375 mm*515 mm. Machine must be capable of functioning upto 30 meter Copper piping between Indoor & outdoor unit. Secured with an authenticated access with 3 levels of password security
		Team Mode feature for unit control, synchronizing the Multiple No. of units to work as single system for all above units.
		Fault Failure changeover
		Cascading Effect
		Sequencing of above Units
15	Warranty	5 Years onsite comprehensive warranty including entire electrical infrastructure including Comfort Air conditioners with other accessories from the date of successfully installation, commissioning, integration and final acceptance

Tentative Bill of Materials for Delivery, Installation & Integration of Electrical Infrastructure.
Additional components, if any, have to be covered with the SI's own justification and completion of site survey

S/N	Item / Job/ Service Description	Qty.	Unit	Remarks, Make & Model
1.0	L.T.SWITCHGEAR			
1.1	Main Data Centre Panel as per technical specification	1	Nos.	CUSTOMISED. BUT SWITCHGEAR SHALL BE MAKE SCHNEIDER / ABB
1.1	400 A 4 pole Isolator with enclosure as per technical specification	2	Nos.	SCHNEIDER/ ABB
1.3	UPS out put DB as per technical specification	1	Nos.	SCHNEIDER/ ABB
2.0	MCB DBs : with IP42 protection, pre wired as per technical specification.			
2.1	Lighting DB and Raw Power DB as per technical specification	2	Nos.	SCHNEIDER/ ABB
2.2	Emergency/ BMS DB as per technical specification	1	Nos.	SCHNEIDER/ ABB
2.3	CAC DB as per technical specification	1	Nos.	SCHNEIDER/ ABB
3.0	LIGHT FIXTURES			
3.1	366 W, 600 x 600 mm LED Lights & Fixtures	22	Nos.	PHILIPS/BAJAJ
3.2	1200 mm Long LED Panel Light	27	Nos.	PHILIPS/BAJAJ
3.3	18 W LED Down Light	9	Nos.	PHILIPS/BAJAJ
3.4	Occupancy Sensor as per technical specification	6	Nos.	Philips/ Schneider
4.0	CABLES & END TERMINATIONS.			
	Aluminum Cables			
4.1	185 sq.mm. AYEY Cable as per technical specification	##	Meter	POLYCAB/Finolex/RR
4.1 a	End Termination	30	Nos.	GROMET/DOWELS
5.0	COPPER CABLES			
5.1	4 Cx 50 Sq.mm Copper cable as per technical specification Main Panel to Rack Raw power	150	Rmt	POLYCAB/KEI/RR
5.1 a	End termination with lugs & sleeves only.	4	Nos.	GROMET/DOWELS
5.2	4C X 95 sq. mm, CU Flex, PVC, FRLS from IT to UPS and UPS to UPS O/P DB and UPS O/P DB to Rack as per technical specification.	350	Rmt	POLYCAB/KEI/RR
5.2 a	End termination with lugs & sleeves only.	12	Nos.	GROMET/DOWELS
5.2	4Cx10 Sq.mm CU flexible FRLS cable for CAC DB as per technical specifications	50	Rmt	POLYCAB/KEI/RR
5.2.a	End termination with lugs & sleeves only.	2	Nos.	GROMET/DOWELS
5.4	4Cx6 Sq.mm Copper flexible FRLS cable for Raw power DB and Lighting DB, Emergency/ BMS DB	100	Rmt	POLYCAB/KEI/RR
5.4.a	End termination	6	Nos.	GROMET/DOWELS
6.0	FLEXIBLE CABLES			

Tentative Bill of Materials for Delivery, Installation & Integration of Electrical Infrastructure.
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S/N	Item / Job/ Service Description	Qty.	Unit	Remarks, Make & Model
	Wiring of flexible 1100 V grade, multi strand copper conductor cables in a raceway/ cable tray.			
6.1	3 R x 6 sq.mm cable(YY) with -PVC insulated outer sheath & multi strand copper conductors, unarmored, cable to be laid in raceways, modular partitions, conduits (cost of Raceways to exclude).	200	Rmt	POLYCAB/KEI/RR
7.0	POINT WIRING as per technical specification			
7.1	light controlled by a 6A switch			POLYCAB/KEI/RR
7.2	Lighting Circuit wiring by 3 x 1.5 sqmm wire with HMS PVC conduit as per technical specifications	##	mtr	POLYCAB/KEI/RR
7.3	Power Point wiring both UPS and Raw Power by 3 x 2.5 sqmm as per technical specifications	##	mtr	POLYCAB/KEI/RR
7.4	Power Point wiring for CAC by 3 x 4 sqmm wire as per technical specifications.	800	mtr	POLYCAB/KEI/RR
8.0	POWER RECEPTACLES.			
	As per technical specification			
8.1	3 x 6A multi socket controlled by 16A switch, excluding box. (UPS power).	20	Nos.	ANCHOR ROMA
8.2	1 x 16/6A socket controlled by 16A switch, including box. (For house keeping-raw power).	15	Nos.	ANCHOR ROMA
8.3	1 x 6A socket controlled by 6A switch, including box. For UPS power (For IBMS).	25	Nos.	ANCHOR ROMA
8.6	AC Starter Unit	14	Nos.	SCHNEIDER
9.0	EARTH ELECTRODES AND EARTH STRIPS			
	Earthing Pits			
9.1	Chemical Earthing as per the technical specification	14	Nos.	REPUTED
10.0	Earthing Strips			
10.1	25 x 3 mm Copper strip in PVC Sleeve.	200	Rmt	STANDARD
10.2	50 x 6 mm GI Strip	100	Rmt	STANDARD
10.3	6 mm Copper braided tape	100	Rmt	CUSTOMISED
10.4	1 C x 50 sq.mm copper flexible cable FRLS for smart rack earthing	100	RMT	Polycab/ RR/ Finolex
10.5	1 cx 95 sq.mm. copper flexible cable for UPS & DG neutral earth.	200	Rmt	Polycab/ RR/ Finolex

Tentative Bill of Materials for Delivery, Installation & Integration of Electrical Infrastructure. Additional components, if any, have to be covered with the SI's own justification and completion of site survey				
S/N	Item / Job/ Service Description	Qty.	Unit	Remarks, Make & Model
10.6	Earth stations for earthing distribution as per the technical specification	4	nos	
11.0	Ladder type cable tray (As per technical specifications)			
11.1	Size of Cable Tray :450 mm x 50 mm	250	Rmt	Reputed
12.0	Perforated type cable tray (As per technical specifications)			
12.1	Size of Cable Tray :300 mm x 50 mm	300	Rmt	Reputed
14.0	GI Raceways with cover			
14.1	450 x 100 mm Wire mesh cable tray with all accessories to be mounted non the floor for data lines.	70	Rmt	OBO or equivalent
	Miscellaneous Items			
15.0	Shock treatment chart laminated	2	Nos.	CUSTOMISED
16.0	First aid kit	2	Nos.	CUSTOMISED
17.0	Rubber mat as per technical specification	10	Nos.	ISI
18.0	MS steel fabrication with one quote zinc white and another with Silver paint/ black paint	100	KGs	JINDAL/ TATA/ SAIL
19.0	CAC			
19.1	2 Ton Split AC for Server room as per technical specification	3	nos	Voltas/Carrier/ Blue Star
19.2	2 TON High wall split AC for Electrical Room & UPS Room, BMS & NOC Room, Battery Room, Staging cum Store Room	10	Nos	Voltas/Carrier/ Blue Star
19.3	1 Ton Split AC for Reception	2	nos	Voltas/Carrier/ Blue Star
19.4	Fabrication and fixing of Out Door Unit Cat walk as per the site requirement, prior fabrication SI has to taken approval on drawing and load calculations from Project Manger of concern department	1	Nos	Tata/ SAIL

3.1.3 Deliver, Installation & Integration of Diesel Generator Set with all related accessories (02 Nos):

Delivery, installation and integration of 2 Nos. Diesel Generator Sets related work shall be adopted for design and implementation of Diesel Generator Sets for the proposed Data Center at Siliguri as detailed given below. Requirement of additional components for achieve the solution/installation, if any, SI have

to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation.

All requisite approvals from local and statutory bodies like Municipality, Fire Department, Pollution Control Board etc for installation & maintenance for the entire warranty period of the Generator set shall be arrange by the successful SI and necessary help will be provided. Generator sets to be installed on a platform with a covered shed and chimney with other accessories.

1. Delivery, Installation and integration of DG sets with Data Center Power infrastructure
2. Testing, commissioning of Auto Start Green Diesel Generator set
3. Installation of exhaust piping
4. Earthing for DG sets

S/N	Minimum Specification
1.	Design, Supply, installation in position, testing, commissioning of an Auto Start Green Diesel Generator set of capacity of min 160 KVA with acoustic enclosure as per latest Govt. norms, with not less than 250 liter fuel tank as per latest detailed specification and CPCB norms, 3 phase, 415 volts, 50Hz complete with Diesel Engine having output not less than of 114 KW at rated load, Alternator having IP23 protection with class H insulation & temperature limited to class H insulation, +/- 1% VR, water cooled radiator, self-starting device, silencer with insulation, batteries with connecting copper wires, battery charger, engine panel, base frame, anti-vibration mounts, standard inbuilt recommended by OEM or a separate diesel tank with required MS structure, level indicator etc. and all connected accessories including cost of consumables like diesel, lubricant oil etc. for testing and commissioning of the new DG set (approx. 2 hours on full load at factory testing and 2 hours at site)
2.	Design, supply, installation and testing of commissioning of cubicle type microprocessor based AMF cum DG sync power control panel suitable for control of 160 kVA D G Set above, complete with all necessary hardware, control cable between D.G. Set and AMF cum DG sync panel, including power and control cable termination with required materials at existing source end (i.e. utility power supply), AMF cum DG sync panel end & alternator end all complete,
3.	Supply and installation of insulated MS exhaust piping of suitable dia. MS C class ISI mark pipe for DG set as recommended by the manufacturer of the engine with 50 mm thick thermal insulation and aluminum cladding, complete with required material such as supports structure and allied civil works etc. to be piping as per site requirement. – 25Mtr.
4.	Providing earth station with copper plates having square shape of size: 600 mm x 600 mm and 3.14 mm thick embedded at least at a depth of 12 feet and filling of alternate layers of charcoal and salt and making a 300 mm x 300 mm chamber (brick masonry) with MS sheet cover, funnel, water pipe including supply & laying of 40 mm x 6 mm copper earth strip up to the test point as per detailed IS: 3043/1966 amended till date.- 4 Nos.
5.	Supply and fixing of 25 mm x 3 mm copper earth strip, for connection of equipment's & neutral earthing, with required materials such as brass clamps, screws, spacers and with riveted joints and connections with chromium plated nut and bolts all complete. – 150 Mtr.
6.	All requisite approvals from local and statutory bodies like Municipality, Fire Department, Pollution Control Board etc for installation & maintenance for the entire warranty period of the Generator set shall be arrange

S/N	Minimum Specification
	by the successful bidder and necessary help will be provided. Generator sets to be installed on a platform with a covered shed and chimney with other accessories.
7.	5 Years onsite comprehensive warranty of DG sets including all related accessories, Infrastructure related to smooth operation of DG sets from the date of successfully installation, commissioning, integration and final acceptance

Cable Schedule and sizing for installation of DG Set. Additional components, if any, have to be covered with the SI's own justification and completion of site survey.

Sl. No.	From	To	No. of Racks / Eqpts	No of Runs	Required length per Run	Total Cable Length	Cable termination	XLPE/ PVC FRLS Cable Size
1	Building Panel	AMF cum DG sync	1	1	100	100	2	1R X 4C X 185 SQ.MM AYFY CABLE
2	DG Set	AMF cum DG sync	1	1	100	100	2	1R X 4C X 185 SQ.MM AYFY CABLE
3	AMF cum DG sync Panel	DC Panel	1	1	100	100	2	1R X 4C X 185 SQ.MM AYFY CABLE
4	DC Panel	Smart Row DB	1	1	75	75	2	4C X 50 Sq.mm. CU , CU Flex cable
5	DC LT Panel	Utility DB for Lighting	1	1	75	75	2	4C x 6 sqmm, CU Flex, PVC, FRLS
6	DC LT Panel	RDB	1	1	75	75	2	4C x 6 sqmm, CU Flex, PVC, FRLS
7	DC LT Panel	Battery Room Cooling	2	1	75	75	4	4C x 6 sqmm, CU Flex, PVC, FRLS
8	Utility UPS (From Existing) Output Panel	ELDB	1	1	75	75	2	3C x 4 sqmm, CU Flex, PVC, FRLS

N.B: Generator sets to be installed on a platform with a covered shed and chimney with other accessories. The scope of work involves supply, installation, commissioning, testing and maintenance for the five years including other accessories of Diesel Generator Set. Additional components, if any, have to be covered with the SI's own justification. All requisite approvals from local and statutory bodies like Municipality, Fire Department, Pollution Control Board etc for installation & maintenance for the entire

warranty period of the Generator set shall be arranged by the successful bidder and necessary help will be provided by WBEIDC & Department of IT&E.

3.1.4 Deliver, Installation & Integration of Isolation Transformer with all related accessories:

Delivery, installation and integration of 2 nos. 100KVA 3 phase Isolation Transformer related work shall be adopted for design and implementation of Isolation Transformer for the proposed Data Center at Siliguri. *Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation.*

3.1.5 Deliver, Installation & Integration of Central UPS System with all related accessories:

Delivery, installation and integration of 2 Nos. Central UPS system for Server frame area shall be adopted for design and implementation of Central UPS System for the proposed Data Center at Siliguri. Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation.

3.1.6 Deliver, Installation & Integration of UPS system for BMS equipments with all related accessories:

Delivery, installation and integration of 2 Nos. UPS system for BMS related system/equipment shall be adopted for design and implementation of UPS System for the proposed Data Center at Siliguri. *Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation.*

3.1.7 Deliver, Installation & Integration of Precision Air-conditioner System with all related accessories:

Delivery & installation of Precision Air-Conditioner Machine including all related accessories shall be installing for the proposed Data Center at Siliguri. Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own

justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation.

Data center server and network racks should be equipped with In-row Variable capacity cooling units to provide closed loop precision cooling system which should be able to cool the equipment's uniformly right from 1st U to 42nd U of Rack.

Precision Air Cooling units should be in multiples of minimum 35 kW capacities, catering the IT load of 35 kVA, in N+1 topology.

3.1.8 Deliver, Installation & Integration for Rack Containment Frame with Cold & Hot Aisle Containment system with all related accessories:

Delivery, installation & integration of for Rack Containment Frame with Rack and Cold & Hot Aisle Containment system with all related accessories shall be installing for the proposed Data Center at Siliguri. Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation

DC Infrastructure with hot and cold aisle containment of 12 racks (6 racks x 2 row) should cater IT load up to 35 KVA for each row. Both Hot & Cold aisle containment should be part of the rack frame.

Data center server and network racks should be equipped with In-row Variable capacity cooling units to provide closed loop precision cooling system which should be able to cool the equipment's uniformly right from 1st U to 42nd U of Rack.

3.1.9 Deliver, Installation & Integration of IP PDU for Server and Network Rack with all related accessories:

Delivery, Installation & installation of IP PDU including all related accessories shall be install for the proposed Data Center at Siliguri. Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation.

3.1.10 Deliver, Installation & Integration of IP KVM switch with Display Unit with all related accessories:

Delivery, Installation & installation of KVM switch with Display Unit including all related accessories shall be install for the proposed Data Center at Siliguri as detailed given in the Detailed scope of Work. Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation.

3.1.11 Deliver, Installation & Integration of various equipments for Building Management system with all related accessories:

Delivery, installation and integration of various equipments of under Building Management system with all related accessories as per scope work shall be adopted for design and implementation of BMS for the proposed Data Center at Siliguri as detailed given in the detailed scope of Work. Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation.

The scope of work shall include following:

1. Fire Detection Systems
2. Fire Suppression Systems
3. Access Control System
4. Closed-Circuit Television (Surveillance) System
5. High Sensitivity Smoke Detection System
6. Water Leakages Detection System
7. Rodent Repellent System
8. Periodic Pest Control System
9. Public Address system
10. Other related necessary installation to achieve the solution as per requirement

S/N	Component / Performance / Utility	Minimum Specification
1	Fire Detection Systems	
1.1	System Description	Addressable UL 864 10th Edition Listed, ULC-S527/EN 54 Listed single loop (250 detector/device in any combination) Fire Alarm Panel with modbus over RS 485 / Bacnet IP to integrate with BMS located throughout the DC (ceiling, false floor and other appropriate areas where fire can take place) with pull type, manual call points units on escape routes and exits.
1.2	Control and Indicating Component	The control panel shall be a microprocessor based single loop addressable unit, designed and manufactured to the requirements of UL/EN54 Part 2 or higher for the control and indicating component and UL/EN54 Part 4 for the internal power supply.
1.3	Multicriteria detectors	Addressable Multicriteria detectors shall be of the optical or ionization type. Devices shall be compatible with the CIE conforming to the requirements of UL/EN54 Part 7 and be LPCB approved. The detectors shall have twin LEDs to indicate the device has operated and shall fit on a common addressable base.
1.4	Heat Detectors	Addressable Heat detectors shall be of the fixed temperature or rate of temperature rise type with a fixed temperature operating point. Devices shall be compatible with the CIE conforming to the requirements of UL/EN54 Part 5 and be LPCB approved. The detectors shall have a single LED to indicate the device has operated and shall fit a common addressable base.
1.5	Addressable Detector Bases	All bases shall be compatible with the type of detector heads fitted and the control system component used. pre-programmed EPROM or setting of DIL switches. Detector bases shall fit onto an industry standard Junction box.
1.6	Audible Alarm	Electronic sounders shall be colored red with adjustable sound outputs. The sounders should be suitable for operation with a 24V DC supply providing a sound output of at least 100dBA at 1 meter and 75 dBA min, for a bed head or sounder base type device. The sounder frequency shall be in the range of 500Hz to 1000Hz.
1.7	Manual Call Points (MCP)	MCP's shall be addressable pull type manufactured to the requirements of BS 5839: Part 2. Or UL listed. The device shall be automatically addressed by the CIE on power up of the loop without the need of the insertion of a pre-programmed EPROM or setting of DIL switches. The device shall incorporate a short circuit isolation device and a red LED indicator. The MCP shall be suitable for surface or flush mounting. When flush mounted the device shall be capable of fixing to an industry standard single gang box.

S/N	Component / Performance / Utility	Minimum Specification
1.8	Commissioning	The fire detection and alarm system will be programmable and configurable via an alpha numeric keypad on the control panel or PC programing. The labeling of Device and Zone labels should be part of the system. Necessary Software to the control panel.
2.	Fire Suppression Systems	<ul style="list-style-type: none"> • The Clean Agent Fire Suppression system cylinder (3 nos. 80LTR with valve, 1 no. pressure guage, CCOE, Nagpur approved seamless cylinders, discharge hose, fire detectors and panels and all other accessories required to provide a complete operational system meeting applicable requirements of NFPA 2001 Clean Agent Fire Extinguishing Systems, NFPA 70 National Electric Code, NFPA 72 National Fire Alarm Code or ISO standards must be considered to ensure proper performance as a system with UL/FM/VDS approvals and installed in compliance with all applicable requirements of the local codes and standards. • The Clean Agent system considered for Total flooding application shall be in compliance with the provisions of Kyoto Protocol. • Care should be taken that none of the Greenhouse Gases identified in the Kyoto Protocol is used for fire suppression application. • The minimum criterion for the selection of the Clean Agent will be on the following parameters. <ul style="list-style-type: none"> • Zero Ozone Depleting Potential. • Global Warming Potential not exceeding one. • Atmospheric Lifetime not exceeding one week. • The clean agent fire suppression system with FK-5-1-12/ NOVEC 1230 and Inert Gas based systems are accepted as a replacement of HCFC and HFC as per Kyoto Protocol. • The Clean Agent considered for the suppression system must be suitable for managing occupied areas with NOAEL Level (No observable adverse effect level) of 10% as compared to the design concentration to ensure high safety margin for the human who might be present in the hazard area. • The minimum design standards shall be as per NFPA 2001, 2004 edition or latest revisions. • Care shall be given to ensure proper early warning detection system with minimum sensitivity of 0.03% - 0.05% per foot obscuration as per NFPA 318 & NFPA 72 to ensure that one gets a very early warning to investigate the incipient fire much before the other detectors activate the fire suppression system automatically <p>also required PESO certificate by the OEM for the Cylinders.</p>
3.	Access Control System	<ul style="list-style-type: none"> • Controlled Entries to defined access points • Controlled exits from defined access points • Controlled entries and exits for visitors • 2 door controllers may use. Total No. of controller shall be 5 nos. • Configurable system for user defined access policy for each access point

S/N	Component / Performance / Utility	Minimum Specification
		<p>Record, report and archive each and every activity (permission granted and / or rejected) for each access point.</p> <p>User defined reporting and log formats</p> <p>Fail safe operation in case of no-power condition and abnormal condition such as fire, theft, intrusion, loss of access control, etc.</p> <p>Day, Date, Time and duration based access rights should be user configurable for each access point and for each user.</p> <p>One user can have different policy / access rights for different access points.</p>
4.	Closed-Circuit Television (Surveillance) System	<ul style="list-style-type: none"> • The CCTV system should be IP based • Bullet / Dome camera should support PoE • Video Resolution : each Bullet / Dome Camera should min 4 megapixels • Metal Bullet/Dome IP Camera • The system shall provide visual images from the cameras located through out the facility. The cameras located shall be fed into the NVR located in the control room. • The NVR shall consist of min 16 channels Digital Multiplexer with built-in recording system into surveillance grade Hard Disks. • The Main Security Control Room which shall house the Monitors and the NVR • The CCTV should be equipped with Digital recording facility for later scrutiny, with at least 45 days of recording facility.
5.	Very Early smoke detection and Aspiration system	<p>The VESDA system shall provide an early warning of fire in its incipient stage, analyze the risk and provide alarm and actions appropriate to the risk. The system shall include, but not be limited to, a Display Control Panel, Air Sampling points Assembly and the properly designed sampling pipe network. Regulatory Requirements:</p> <ul style="list-style-type: none"> • National Electrical Code (NEC) • Factory Mutual/ OEM Design • Local Authority having Jurisdiction
6.	Water Leakages Detection System	<p>The water leak detector shall be installed to detect any seepage of water into the critical area and alert the Security Control Room for such leakage. It shall consist of water leak detection cable and an alarm module. The cable shall be installed in the floor areas around the periphery.</p> <ul style="list-style-type: none"> • Water Leak Detection system should be for the Server room & Telecom Room. • Areas to detect and water flooding below the floor of the DC.

S/N	Component / Performance / Utility	Minimum Specification
		<ul style="list-style-type: none"> Water Leak Detection System should be wire based solution with alarm; the wire needs to lay in DC surrounding the PAC units, which is the probable source of water leakage
7.	Rodent Repellent System	The entry of Rodents shall be controlled using non-chemical, non-toxic devices. Ultrasonic pest repellents shall be provided in the false flooring and ceiling to repel the pests without killing them. However periodic pest control using Chemical spray can be done once in 3 months as a contingency measure to effectively fight the pest menace.
8.	Periodic Pest Control System	The treatment shall be carried out generally in accordance with the stipulation laid down procedure as per IS: 6313 (Part II)-1971 Part II Pre-constructional chemical treatment measures I (code of practice for Anti-termite measures in building part II pre constructional chemical. Periodic (Monthly) Pest Control of entire Data Center Area.
9.	Public Address system	Public Address system (PA) shall be supply, installation and integration with necessary speaker, Microphone, Amplifier and other necessary accessories. IP based PA controller which will be integrated with Fire Alarm panel
10.	Warranty	5 Years onsite comprehensive warranty including all BMS related system components furnished and installed shall be warranted against defects in design, materials and workmanship from the date of successfully installation, commissioning, integration and final acceptance

Bill of Materials

(1) Fire Detection Systems		
S/N	Item Description	Qty.
1.	Addressable single loop Fire Alarm Panel with modbus over RS 485 / Bacnet IP to integrate with BMS	1 No.
2.	Battery backup 12V, 7 AH Battery	2 Nos.
3.	Supply installation Testing & commissioning of Addressable multi criteria Detector and (2 nos heat detector) with Detector base.	71 Nos.
4.	Addressable/Conventional MCP	09 Nos.
5.	Monitor Modules	06 Nos.
6.	Isolation Module	07 Nos
7.	Control Modules	17 Nos.
8.	Conventional Horn cum Strobe Hooter	2 Nos.
9.	Response Indicator	45 Nos.
10.	2 core Armored Cables	1500 Mtr.
(2) Fire Suppression Systems		
S/N	Item Description	Qty.

1.	SITC of Seamless Novec 1230 Cylinder and Valve Assembly, 68/100/120/140Ltrs. capacity, for Server Room & Telecom Room, Battery & Electrical Room/UPS Room.	6 Nos.
2.	Novec 1230 for Server Room	473 KG
3.	Electric Actuator	4 Nos.
4.	Manual Actuator	4 Nos.
5.	Pneumatic Actuator	6 Nos.
6.	Flexible discharge Hose	6 Nos.
7.	Manifold Check Valve	6 Nos.
8.	Flexible Actuation Hose	7 Nos.
9.	Discharge Nozzles	13 Nos.
10.	Piping ASTM Grade A 106 Sch. 40 with fittings & supports	4 Lot.
11.	Conventional Horn cum Strobe	4 Nos.
12.	Manual Abort Station	4 Nos.
13.	Manual Release Station	4 Nos.
14.	Gas Release Panel with 1 Release Module, Timer Circuits with RS 485 port	4 Nos.
15.	Manifold Discharge Pressure Switch	4 Nos.
16.	SITC of 2C x 1.5sqmm Armored cable	500 Mtr.
17.	ABC type fire extinguisher 5 Kg	05 Nos.

(3) Access Control System

S/N	Item Description	Qty.
1.	2 Door Access Reader Controllers. with modbus over RS 485 / Bacnet IP to integrate with BMS	05 Nos.
2.	Proximity Card Reader with Pin Pad	07 Nos.
3.	Bio Metric finger print reader	02 Nos.
4.	Exit Push Botton	06 Nos.
5.	Electromagnetic lock - single leaf	03 Nos.
6.	Electromagnetic lock - Double leaf	06 No.
7.	Door Contact	8 Nos.
8.	2C x 0.75 sq.mm unarmored cable	300 Mtrs.
9.	8C x 0.75 sq.mm unarmored Cable	300 Mtrs.
10.	conduits	300 Mtrs.
11.	Proximity Cards	100 Nos.
12.	Break Glass Unit	6 Nos.
13.	Buzzer	2 No.

(4) Closed-Circuit Television (Surveillance) System

S/N	Item Description	Qty.
1.	IP Dome Camera with min 4 MP, 30Mtr. IR, PoE Support	12 Nos.
2.	IP Bullet Camera with min 4 MP, 30Mtr. IR, PoE Support	02 Nos.
3.	16 Channel NVR	1 No.
4.	8TB Surveillance Grade Hard Disk	02 Nos.
5.	24 Port PoE Ethernet Switch	1 No.
6.	Industrial grade 42 inch Display Unit for run 24x7 Hrs.	1 No.

7.	Cat 6a UTP Cable, Cat 6a 24 Port Patch Panel, 35 Nos. 1 Mtr. Cat 6a UTP Patch Cord, 2 Nos. 2 Mtr. Cat 6a UTP Patch Cord, HDMI Cable, Network Rack and other necessary accessories	1 Lot
(5) VESDA		
S/N	Item Description	Qty.
1.	LED Display Control Panel with RS 485 Port	1 No.
2.	Detector Assembly with other related accessories	1 Lot
3.	pipe network with other related accessories	1 Lot
(6) Water Leakages Detection System		
S/N	Item Description	Qty.
1	2 Zone Water Leak detection panel with battery back up with RS 485 port	1 No.
2	Water Leak detection module	2 Nos.
3	Water leak detection cable sensor (min 25Mtrs.)	2 Nos.
4	12 – 24 V DC Electronic Hooter	1 No.
5	Supply and surface laying of 2C x 1.5 Sq.mm copper conductor PVC insulated cable in 20 mm dia PVC Conduit	70 Mtrs.
(7) Rodent Repellent		
S/N	Item Description	Qty.
1.	Main Console Panel with Rs 485 port	03 No.
2.	Transducer	61 Nos.
3.	Cable	700 Mtrs.
4.	Conduit	350 Mtrs.
(8) Pest Control System		
S/N	Item Description	Qty.
1.	Periodic (Monthly) Pest Control of entire Data Center Area (Server Room, NOC, BMS, UPS, Electrical Room and other area of Data Center for the duration of entire 5 years warranty period	Lot.
(9) Public Address system		
S/N	Item Description	Qty.
1.	IP based PA controller which will be integrated with Fire Alarm panel	1 No.
2.	Ceiling mount 6wt speaker	10 Nos.
3.	120wt booster Amplifier	1 No.
4.	Microphone call station	1 No.
5.	DVD player or any other player	1 No.
6.	3Cx1.5sqmm Shielded cable	15 Mtr.
7.	2Cx1sqmm speaker cable	250 Mtr.

3.1.12 Deliver, Installation & Integration of Building Management system software with all related accessories:

Delivery, installation and integration of various equipments of Building Management system through IP Based BMS software for monitoring with all related accessories as per scope work shall be adopted for design and implementation BMS Software for the proposed Data Center at Siliguri as detailed given in

the detailed scope of Work. Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation.

The building management system shall be implemented for effective management, monitoring and Integration of various components like HVAC systems, Access Control systems, fire detection, Alternative Power system etc. SI should provide manpower (24 x 7) to monitor the BMS & smooth functioning of entire setup.

The BMS shall perform the following general functions including but not limited to:

1. Building Management & Control
2. Data Collection & archival
3. Alarm Event & Management
4. Trending
5. Reports & MIS Generation
6. Maintenance & Complaint Management

S/N	Component / Performance / Utility	Minimum Specification
1.	General Integration	Integrated Building Management System Software integration with UPS systems, Energy Meter, DG Panel, PAC, Rack Containment Frame with Cold & Hot Aisle Containment system, Fire Alarm System, VESDA, WLD, Fire Suppression System and other related system. The license shall be priced for min 500 points, and 1 no client station for view the IBMS from DC area with Modbus, BACnet interface license.
2.	Network Devices for BMS Software	Supply of network devices/ IP Switches for inter-connecting the
3.		TCP/IP or LON based ,Programmable and Application specific DDC controllers, field mounted configured as per Data Point Summary for respective building services The controller shall be housed in vandal proof lockable MS cabinets for LT Panel Breaker Status
4.		T & RH Sensor
5.		Signal Cabling (2c x 1.0 sq.mm copper conductor cable).
6.		Communication Cabling
7.		25 mm PVC conduit
9.	Warranty	5 Years onsite warranty support including all other accessories related to smooth operation of BMS Software from the date of successfully installation, commissioning, integration and final acceptance.

3.1.13 Deliver, Installation & Integration of Structured Passive Cabling Components of LAN infrastructure with all related accessories:

Delivery, installation and integration of Structured Passive Cabling Components of LAN infrastructure with all related accessories as per scope work shall be adopted for design and implementation of Structured Passive Cabling for the proposed Data Center at Siliguri as detailed given in the detailed scope of Work. Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation.

The Structured Passive Cabling shall perform the following general functions including but not limited to:

1. All required cables should be laid up to the rack level in the Data Centre.
2. Dedicated raceways / cable-trays should be used for laying LAN.
3. All the cable raceways shall be adequately grounded and fully Concealed with covers.
4. The cables should be appropriately marked and labelled.
5. There should be enough space between data and power cabling and there should not be any cross wiring of the two, in order to avoid any interference, or corruption of data.
6. It is proposed to have power and data cables in separate trays in cold aisle and hot aisle respectively

3.1.14 Deliver, Installation & Integration of Monitoring Device of Various equipment for IT & Non-IT Infrastructure:

Desktop Make : Dell, Qty : 10Nos.,

MFP : Make HP Qty. 2Nos.,

Display Unit Make : LG 55" Display Qty : 6 Nos.

Delivery, installation and integration of Desktop, Printer and Display Devices with all related accessories as per scope work shall be adopted for implementation of monitoring and display of various equipment for IT & Non-IT Infrastructure for the proposed Data Center at Siliguri as detailed given in the detailed scope of Work. Requirement of additional components for achieve the solution/installation, if any, SI

have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation.

3.1.15 Deliver, Installation & Integration of Router:

Delivery, installation and integration of Routers with all related accessories as per scope work shall be adopted for the proposed Data Center at Siliguri as detailed given in the detailed scope of Work. Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation.

3.1.16 Deliver, Installation & Integration of Network Security Devices:

Delivery, installation and integration of Network Security Devices (Firewall and DDoS) with all related accessories as per scope work shall be adopted for the proposed Data Center at Siliguri as detailed given in the detailed scope of Work. Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation. Every security devices (like Firewall, IPS, Anti-malware) should not have any licensing restriction on number of users and should be supplied for unlimited users.

3.1.17 Deliver, Installation & Integration of Link Load Balancer:

Delivery, installation and integration of Link Load Balancer for integration of multiple MPLS and IIL links (link will be provided by the Department) with all related accessories as per scope work shall be adopted for the proposed Data Center at Siliguri as detailed given in the detailed scope of Work. Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation.

3.1.18 Deliver, Installation & Integration of Hardware Load Balancer:

Delivery, installation and integration of Hardware Load Balancer with all related accessories as per scope work shall be adopted for the proposed Data Center at Siliguri as detailed given in the detailed scope of

Work. Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation.

3.1.19 Deliver, Installation & Integration of Network Switching Devices:

scope work shall be adopted for the proposed Data Center at Siliguri as detailed given in the detailed scope of Work. Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation.

- Implementation of Spine Switch
- Implementation of Fiber Leaf Switch
- Implementation of Cooper Leaf Switch

3.1.20 Deliver, Installation & Integration of Hyper-Converged Infrastructure:

Delivery, installation and integration of Hyper-Converged Infrastructure with all related accessories as per same technology for smooth failover between Kolkata & Siliguri. Scope work shall be adopted for the proposed Data Center at Siliguri as detailed given in the detailed scope of Work. Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation. HCI Architecture should support following..

- Virtualization
- Replication
- Security
- Management
- Cloud Management Platform
- Firmware Code and Patch Management
- Proactive Maintenance and Support

3.1.21 Delivery, Installation, Configuration & Integration of Backup Device and related software:

Delivery, installation, integration and customization of Disk based Backup Device and full capacity necessary Backup Software with all related accessories as per scope of work shall be adopted for the proposed Data Center at Siliguri as detailed given in the detailed scope of Work. Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation. Customization backup solution should support following.

- Backup Policy will be decided during project implementation phase.
- Perpetual with unlimited valid License of Backup Software will be delivered.

3.1.22 Deliver, Installation & Integration of Centralized Monitoring Software:

Delivery, installation and integration of Centralized Monitoring Software including Network Management System with all related accessories as same as WBSDC CMS (implementation is under process) as per scope of work shall be adopted for the proposed Data Center at Siliguri as detailed given in the detailed scope of Work. Requirement of additional components for achieve the solution/installation, if any, SI have to be covered with during bid submission as per the SI's own justification and completion of site survey. No Additional cost will be allocated for achieve the solution during implementation. Centralized Monitoring Software should support following..

Centralized Monitoring Software should support following.

- Server, Database & Application Fault
- Performance Monitoring Management
- Network Management System
- Network Configuration Automation
- Network Traffic Flow Analysis System
- Helpdesk / Service Desk Management
- Reporting

3.1.23 Installation, Commissioning, Integration and documentation of entire project:

Selected bidder will submit project implementation and Migration plan including High level Design (HLD) and Low Level Design (LLD) documentation before installation. Selected bidder will install, commission, Migration and successful integration after successful deliver of the entire equipment's as per final project implementation plan submitted by selected bidder. After successful installation, commissioning, Migration and integration bidder will submit final project implementation document with all relevant information.

3.1.24 Operation & Maintenance Support Service:

Bidder shall provide five (5) years Operation & Maintenance Support from the date of final acceptance of deployed infrastructure. Technical resources at DR site with role and responsibility given in detailed below:

S/N	Type of Service	Scope of Work / Service	No. of Resources / Working Experience / Minimum Qualification
1.	Facility Manager	<ul style="list-style-type: none"> Co-ordinate and review with user department/vendors/ OEM's Consultant with respective authority for change management of system architecture Co-ordination with Network Service Provider Knowledge transfer with all O&M team members for project update Preparation & analysis of various daily, weekly and monthly report generate from Server health, Network & other devices as an when requirement Co-ordinate with WTL-WBSDC team for smooth operation of DR setup Co-ordinate with WTL-WBSDC authority for various activities related to project. Co-ordinate with existing DCO of WBSDC-DC database replication Any other O&M support related job 	01 / 7 years working experience in FMS/O&M team / B.E/MCA/Diploma Eng
2.	System Admin Support Service	<ul style="list-style-type: none"> Monitoring all IT Infra through management console and other monitoring tools /script in daily basis. Servers Operating system installation, re-installation, configuration, re-configuration, update the patch, additional software installation along with 	03 / 3 years working experience in Datacenter with the relevant OS, Storage & Backup / B.E/MCA/Diploma Eng

S/N	Type of Service	Scope of Work / Service	No. of Resources / Working Experience / Minimum Qualification
		<p>configuration, performance tuning and periodic updates.</p> <ul style="list-style-type: none"> ● Diagnosis of Hardware and Operating system related issues and immediate reporting to FM with a resolution / work around. ● Implementation, configuration & Monitoring of SMS, NTP, DNS Server ● Periodic Password change for all server and devices as per the policy. ● Call logging and coordinate with concerned hardware OEM for any hardware faults until the faulty hardware is replaced /repaired and proper functioning. ● Installation, Re-installation, configuration & tuning of Backup Software. ● Checking and configuration of OS level Firewall as per requirement. ● Co-ordinate with OS & Backup Software OEM for resolution. ● Configuration of LUN/Partitions/RAID on HCI Infra ● Monitoring of HCI performance ● Preparation of weekly report for IT Infra ● Other System Admin related job. 	
3.	Network & Security Admin Service	<ul style="list-style-type: none"> ● Preparation of Installation plan, Installation, re-installation of Network devices installed at DR Site. ● Configuration & Monitoring the Network system installed at DR Site. ● Call logging & coordinate with OEM & Vendor for replacement of faulty Network device or any other related issues. ● Co-ordinate with DCO-WBSDC for any network related issue ● Implementation & maintain of VLAN & other network configuration as per project requirement. ● Prepare and maintain the Asset list of Network infrastructure installed at DR Site ● Any other Network related job. 	<p>03/ 3 years working experience in LAN & WAN with the relevant switches, routers, network security and certificate on relevant Network / B.E/MCA/Diploma Eng/B.Sc</p>
4	BMS Admin Service	<ul style="list-style-type: none"> ● Re-Installation, Re-configuration & Monitoring the Non-IT Infrastructure installed at DR Site. ● Call logging & coordinate with OEM & Vendor for replacement of faulty Non-IT device or any other related issues. ● Prepare and maintain the Asset list of Non-IT Infrastructure installed at DR Site ● Any other BMS Service related job. 	<p>02/ 3 years working experience in Data Center / B.E/MCA/Diploma Eng/B.Sc</p>

S/N	Type of Service	Scope of Work / Service	No. of Resources / Working Experience / Minimum Qualification
5.	Security Personnel	● Providing 24x7x 365 physical security for entire Data Center area at Siliguri	04 / 3 years working experience in relevant filed
6.	Housekeeping	● Providing housekeeping service for entire Data Center area at Siliguri	02 / 3 years working experience in relevant filed
7.	Tenure of O&M Support	5 Years O&M Support Service will start from the date of successfully installation, commissioning, integration and final acceptance of DR site.	

NOTE : One resource can continue 22 days in a month, subject to compliance of extant provisions as laid down by the Department of Labour, GoWB. This is the minimum resources required to be deployed in the DC at Siliguri, however to maintain the SLA the Bidder must deploy additional resources, if required.

3.1.25 Supply:

All supplies must be certified, new and RoHS compliant. Supplied components must satisfy the minimum guiding specifications and guidelines, as applicable.

3.1.26 HCI Technology:

Proposed Hyper Converged Infrastructure as same as the proposed HCI of WBSDC (implementation is under process) with Necessary HCI compatible Network, Load Balancing, Backup Software, Software, Network Security and other related. Proposed solution should be Containerization capable

3.1.27 Installation, Integration & Implementation:

Installation, integration & implementation will be governed by the stated guidelines and associated standards & in line with the scope of work defined in this document. Installation, integration & implementation of all Non-IT infra, IT hardware components, system software, required tuning of the computing infrastructure including hardware, network, system software, database; application servers and utilities for optimal performances, registration of components with OEM or developer for post installation warranty support are the sole responsibility of the SI.

3.1.28 Project Management:

Selected bidder will be required to perform the following project management tasks for the assigned areas:

- Provide a detailed strategy and work plan for their scope of work including migration of existing Cloud Infrastructure
- Identify and address functional/technical issues that may arise during the project.
- Provide a strategy for data transferring/migration from existing infrastructure to augmented infrastructure.

3.1.29 Delivery at Site:

SI will install the Hardware at the designated installation sites. The equipment shall be delivered at respective site location and all arrangements for loading/unloading, movement etc. shall be done by the SI. The SI will make all necessary arrangement for hosting equipment's & transportation of materials (raw and/or fabricated) at site of work. WBEIDC will not provide any equipment to the successful SI for any site work.

3.1.30 Packing, Unpacking, unloading & etc.:

The SI is responsible for installation and configuration of systems at sites including unpacking of cartons / boxes, assembling, wiring, cabling between hardware units and connecting to power supplies. The SI will test all hardware operations and accomplish all adjustments necessary for successful and continuous operation of the hardware at all installation sites.

3.1.31 Installation, Re-installation:

Installation/ re-installation, configuration / re-configuration, parameterization and all other activities related to Hardware / Software/ DB/ HA/ Third party tools are the responsibility of the SI during entire contract period.

3.1.32 Cleaning:

Site Preparation & cleaning checking & fixing, aligning of structures, final cleaning of site after completion of the work shall be under the scope of the SI. No separate payment will be made towards this and the cost, if any, will be deemed to be included in the total contract price.

3.1.33 Site Inspection:

The SI, before start the work, is suggested to visit the site and ascertain the local conditions, labor rules, availability of construction materials, traffic restrictions, and all obstructions in the area and also ascertain all site conditions. After the award of work no additional claims will be entertained on these accounts under any circumstances.

3.1.34 Coordination with other agencies:

The SI shall coordinate with other agencies working at the site for the successful and timely implementation of the work

3.1.35 Damage during implementation

Ensuring that no other equipment/structure/setup gets damaged due to SI's activities. Any damages if caused to WBEIDC/Department property due to SI's negligence shall be passed on SI's account and will be recovered from Bills of SI

3.1.36 Civil Work:

Minor civil works such as chipping/cutting of floors for making grooves or laying pipes / cables, making holes / opening through walls, ceiling or floors, drilling of holes through steel structures and frames, grouting of frames, hooks on walls/ceiling etc. required for execution of work. After erection, surface shall be made good by plastering / painting to their original shape and finish.

3.1.37 Back-to-Back OEM Service Agreement:

The SI is to furnish Authorization/ Undertaking including back-to-back service arrangement for comprehensive maintenance from the OEMs of IT & Non-IT and other systems and solutions that will be provided as part of solution during contract. The Authorization/Undertaking must be submitted on OEMs letter head and OEM back to warranty certificate with warranty tenure including serial number all deployed product should be submitted.

3.1.38 Data Migration:

SI to implement of replication of data from WBSDC Kolkata to Siliguri DC for database replication would be implemented and also implement of replication of all the VM's from WBSDC, Kolkata to Siliguri for real time synchronization, failover of Application as well as Database with shrinking recovery point objective (RPO), to achieve zero data loss and Near-zero recovery time objective (RTO), for faster recovery of business-critical applications in case of disaster. Post implementation SI should demonstrate failover & fail-back to proof successful replication implementation. Weekly report on (a) Data sync between WBSDC Kolkata, Siliguri and Siliguri and System report of Application with VM's between WBSDC kolkata and Siliguri must be submitted on every Monday.

3.1.39 Stabilization Period:

The System shall be under stabilization period of minimum two months post Go Live and shall be monitored closely for any issue. The issue shall be addressed immediately so that no stoppage of business shall happen. All the deployed solution like HA, failover, failback, backup, restore, performance, CPU utilization, RAM Utilization, storage etc. shall be tested, monitored and any issue arising shall be addressed.

3.1.40 Additional Component:

Any component, license that has been missed out in this specification but is required to complete the solution shall be provided by the SI. Any component, license that has been mentioned but a higher quantity or volume is required to complete the solution shall be provided by the SI.

3.1.41 Patch Management:

SI should conduct periodic patch management as per recommendation from respective OEM and consultation.

3.1.42 License:

All Licenses, OEM warranty certificate issued by respective OEM. Respective License should be in the name of Government of West Bengal, Department of Information Technology & Electronics, Block-EP&GP, Sector-v, Salt Lake City, Kolkata – 700 0091

3.1.43 End of Support by OEM:

The new hardware that will be provided should not be under EoS/EoSL from respective OEM for the next Seven years from date of installation.

3.1.44 Testing:

Entrusted SI must test the installed and integrated systems(s) in-situ and produce system generated report showing that all asked-for minimum specifications and guidelines are met. Integration and testing of components may be jointly done by the WBEIDC and entrusted SI / System Integrator.

3.1.45 OEM responsibility:

SI to include confirmation from the respective OEMs for the products / solution proposed by them for the following:

- a) All product specific compliance information has been certified by the OEM
- b) OEM has not withheld any information about the product / solution that undermines the objectives of the proposed solution
- c) After final acceptance of successful installation, commissioning and integration SI will submit item-wise warranty coverage for five years (warranty start date from the date of final acceptance) for all hardware, system software and accessories from the respective OEMs.
- d) For any change in system part no. / Serial no. of any hardware / software from the time of submission of offer till completion of the contract (for reasons like model changes or replacement systems), SI should notify the change to the purchaser in written with supporting justification letter from the respective OEM for the change. The Purchaser reserves the right to accept or reject such changes.

3.1.46 Ownership:

After acceptance, porting of business information on ICT infrastructure, IT Department/ WBEIDC will be the sole owner of the information repository, and associated processes.

3.1.47 Warranty Period:

The entire system along with all the installed components shall be under comprehensive maintenance support for 5 years contract after successful final acceptance of the entire system. The scope of work shall cover manpower, spares and service. For all the installed Hardware and software, the SI should have back-to-back agreement with respective OEMs for technical services, spares and support during the entire period of contract.

3.1.48 Estimation with DC site compute requirement estimate

Environment	Node / Server	Core (Total)	RAM (Total) TB	Total Storage (PB)
Total estimated Requirement at Siliguri Site	52	2912 Min	52 Minimum	4 PB Minimum

Special Note: The EOI has been made basis of document given by WBEIDC. Bidder has to ensure that every aspect is considered. Proper Survey should be done & if any requirement is being missed, then it is liability of the bidder to make the necessary arrangement of same, without any financial implication to RailTel & thus to WBEIDC..

3.2 PURPOSE OF EOI: The intent of this EOI is to Selection of Implementation Partner for the work of “Establishment of Secondary Data Center Setup at Siliguri IT park”. **Terms and conditions of e-tender conducted by Webel Technology Ltd. vide e-tender no. WTL/WBSDC/DR/22-23/012 dated 05/07/2022 for DR setup at Purulia and vide e-tender WTL/WBSDC/DC/22-23/017 dated 25/08/2022 for capacity enhancement of WBSDC-DC for the Department of Information Technology & Electronics, GoWB will be applicable for this project.**

- 3.3 Solution provider needs to offer solution with no single point of failure in hardware and without any downtime in operations of CoR. **SLA shall be applied on back-to-back basis.**
- 3.4 Bidder may submit their response in form of duly signed and stamped and submit techno-commercial bid at the E-nivida portal through Online mode, within the stipulated date and time, as mentioned in this EOI document.

3.5 Interested partners may note that this is a **Two stage Two Packet Bid**.

3.6 Only those bids shall be opened, which have been submitted within the stipulated time as mentioned in this EOI document.

3.7 Stage-I: Technical Bid contains following

(i) Eligibility Criteria

S.No.	Type	Description	Document Required
1	Existence/ Origin	The company must be registered in India.	Certificate of Incorporation
2	General	The company must have: valid PAN card. Been registered with GST. has filed ITR for last 3 financial year ending 31 st March 2022. If FY 21-22 return has not been finalized at least last previous 3 FY (FY 19-20, FY 20-21 and FY 21-22).	Copy of PAN Card. Copy of GST registration certificate. Copy of ITR filed.
3	Turnover	The bidder must have cumulative turnover at least 150% of the advertised value/- in the last three financial year (FY 19-20, FY 20-21 and FY 21-22).	Balance Sheet & CA certificate
4	Experience	The bidder/group company shall have undertaken “Similar Nature of work” of at least three (03) orders each of an amount not less than Rs.9 Crore, over the preceding seven financial years in Government Department /PSU/ Autonomous Body /any reputed organization in the country. At least one of such projects shall have been completed during the preceding seven financial years. Reference order copies for the project to be submitted. OR The bidder/group company shall have undertaken “Similar Nature of work” of at least five (05) orders totalling of an amount not less than Rs.45 Crore, over the preceding Seven financial years in	Copy of Purchase/ Work Order & completion certificate issued by customer / PO issuing authority. The bidder must provide details of a personnel for verification purpose at PO/ certificate issuing organization clearly mentioning name of client, designation, contact number and mail ID on bidder’s letter head. For ongoing works: Ongoing works will be considered for value of

S.No.	Type	Description	Document Required
		<p>Government Department /PSU/ Autonomous Body /any reputed organization in the country. At least one of such projects of not less than rupees 9 crore shall have been completed.</p> <p>Definition of similar work: Works entailing completion of Supply, Installation, Testing and Commissioning of a project in the field of IT/ ICT/ Networking/ Server/DataCenter/Cloud/ Telecom for any Government department or Public Sector Units or public listed companies</p> <p><i>Note: Ongoing works will be considered for value of completed work (minimum 70% work completion) certified by PO issuing authority/ customer mentioning completed work value on the certificate along with satisfactory completion certificate for work completed so far. It shall be additional to above mentioned clause.</i></p>	<p>completed work (minimum 70% work completion) certified by PO issuing authority / customer mentioning completed work value on the certificate along with satisfactory completion certificate for work completed so far.</p>
5	Empanelment	Bidder must be empaneled with RailTel as business associate under category of “data centre services/facility management services” & should be in Category – III or Category - IV.	Copy of Empanelment letter.
6	MAF	The bidder / group Company should submit Manufacturer’s tender specific authorizations for all major IT Items i.e. HCI Software, HCI Server, Network Switch & Router, Link Load Balancer, Central Management Software & major non-IT items i.e. UPS, PAC, Rack etc. must be submitted. Authorization to be submitted on OEM’s letter head and signed by authorized signatory.	Copy of MAF

ii. The Technical Compliance of the Scope of Work.

- iii. The Technical Compliance sheet provided with Technical Specs.
- iv. BOQ/BOM without Price quote in the attached format.
- v. Compliance of OEM with their MAF's.
- vi. Unconditional Acceptance of the Tender document and declaration to agree with back to back terms.
- vii. This EOI acceptance.
- viii. Annexure Form at as mentioned in this EOI.
- ix. All documents mentioned in checklist and annexures of this EOI.
- x. The Seller agrees to undertake a Maintenance contract for a minimum period as per CoR. Undertaking in this regard is to be submitted along with the technical bid.
- xi. Delivery Period Undertaking – As per pertinent tender floated by CoR.
- xii. The bid should be duly signed and submitted by Authorized Signatory. The bidder has to submit notarized of non-judicial stamp paper of appropriate value Power of Attorney having authorized signatory's nomination along with board resolution in favour of power of attorney.
- xiii. **The bidder has to mandatorily submit notarized Annexure-09 on non-judicial stamp paper of Rs. 100.**

3.8. Prospective bidder's bid evaluation will be done based on above mentioned documents. Bids of those Bidders will be summarily rejected who submit Technical Documents without OEM Name, Make and Model, technical Compliance, and unconditional acceptance of the terms & conditions.

3.9. Based on valuation of outcome against 3.7, Whoever may qualify as per 3.7.i and further complying technical requirement with supporting documents of OEM MAF, datasheets, BOQ/BOM may be treated as Technically qualified partner for Stage-1.

3.10. Bidders selected as per Para 3.7 above will be treated as eligible for financial bid opening.

3.11 Stage-II: Financial contains following

- (i) The Annexure 4 & Annexure 4 A of EOI for financial quote

3.12 For the opened bid as per outcome of Clause 3.7 above, the bidder will be selected on the lowest quote (L-1) basis for complete 'Scope of Work' as mentioned in the EOI document and Physical documents of technical specifications of CoR, subject to the respective overall bid is in

compliance to the requirements of this EOI. The so selected partner will be termed as 'Commercially Suitable Partner (hereafter referred to as 'CSP')'. It is re-mentioned, that the final selection of CSP will be on the L-1 basis only. Further, RailTel reserves the right to have negotiation with the CSP.

- 3.13 As of now, EoI response from interested partners is invited considering that the selected partner will be responsible for delivering of complete 'Scope of Work' as mentioned in the CoR's tender document and subsequent corrigendum. However, RailTel at its discern, may take- up a certain portion / percentage of 'Scope of Work' by communicating to the CSP at any point of time during the engagement period. (The day at which 'CSP' is declared, will mark the start of engagement period. The period will be valid till final outcome of this tender is announced by CoR. In case, RailTel comes out to be winner of the CoR tender, then the engagement period will get auto-extended to the period RailTel serves CoR for the concerned tender, unless terminated earlier by RailTel as per terms and conditions mentioned in this EoI document). In this scenario, commercial engagement with the CSP will be for that portion / percentage only, which has not been taken by RailTel. Accordingly, resultant value of work will be derived on the basis of negotiated (in case) commercial bid of the CSP.
- 3.14 RailTel on the basis of inputs / factors available to it from various resources, past experiences of its ICT projects and on the basis of negotiated(in case)commercial bid of the CSP, will endeavour to place best techno-commercial bid in response to the pertinent CoR's tender. Further relationship with CSP will be based on the outcome pertinent CoR's tender.

4. COMPLIANCE REQUIREMENTS AND ELIGIBILITY CRITERIA FOR INTERESTED BIDDERS

- 4.1 The interested bidder should be an Empaneled Partner with RailTel on the last date of bid submission of EOI & has to provide relevant documents to qualify as per Clause 3.10.i of this EOI.
- 4.2. The interested bidder should submit Earnest Money Deposit (EMD), in the format as mentioned in this EOI document along with the bid.

- 4.3. The interested bidder should be in compliance to insertion of Rule 144(xi) in the GFR, 2017 vide office OM no. 6/18/2019-PPD dated 23-July-2020 issued by Ministry of Finance, Government of India, including revisions.
- 4.4. The interested bidder should submit an undertaking for maintaining of 'Local Content Compliance' and shall submit a certificate mentioning the 'Local Content Percentage' duly signed and stamped by statutory auditor or cost auditor or authorized signatory of the interested partner. **This will not be a binding clause in cases where end customer has not asked Local Content Clause/Make in India Clause in their Current RFP.**
- 4.5. The interested bidder should not be backlisted by any State / Central Government Ministry/Department/Corporation/Autonomous Body on the last date of submission of EOI.
- 4.6. There should not be any ongoing or past, arbitration case(s) between 'RailTel or Organizations under Indian Railways' and 'Interested Bidder' on the last date of submission of EOI.
- 4.7. The interested bidder shall not have a conflict of interest with one or more bidding parties. Participation of interested bidder(s) with a conflict-of-interest situation will result in the disqualification of all bids in which it is involved. A bidder may be in a conflict of interest with one or more parties if including but not limited to:
- a. Have controlling shareholders as his/her family members viz. spouse, son, daughter, father, mother or brother etc.in common or;
 - b. Have a relationship with each other directly or through common third parties that puts them in a position to have access to information about or influence on the bid of another interested partner.
- 4.8. The interested bidder should not be seeking / extending / exploring similar arrangements / engagements with any other organization except RailTel, for the CoR tender.
- 4.9. The interested partner should have a valid Goods and Service Tax Identification Number (GSTIN), as on the last date of submission of EOI.
- 4.10. In addition to above clauses, bid of interested bidder should be in compliance to terms and conditions and technical requirements of the pertinent CoR tender as referred above.

Note: The interested bidder should submit duly signed and stamped EOI cover letter as per the format mentioned at Annexure-01 of this EOI document, as unconditional submission of meeting the clauses mentioned above, from Clause 4.1. to Clause 4.10.

5. Proposal Preparation and Submission Cost

The interested partner is responsible for all costs incurred in connection with participation in this EOI process, including, but not limited to, cost incurred in conduct of informative and other diligence activities, participation in meetings/discussions/presentations, preparation of proposal, in providing any additional information required by RailTel to facilitate the evaluation process or all such activities related to the bid process. RailTel will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process. This EOI document does not commit to award a contractor to engage in negotiations.

6. Amendment to EOI Document

At any time prior to the deadline for submission of bids, RailTel, may, for any reason can modify the EOI document by an amendment. All the amendments made in the document would be informed by displaying on RailTel's (www.railtelindia.com) website only. The interested bidders are advised to visit the RailTel website on regular basis for checking necessary updates. RailTel also reserves the rights to amend the dates mentioned in this EOI Process. RailTel may, at its discretion, extend the last date for receipt of EOI response.

7. Bid Validity Period

7.1. Bid of Interested partners shall remain valid for the period of 120 days from the last date of submission of EOI, as mentioned in this EOI document.

7.2. RailTel may request for an extension of the period of validity. The validity of the 'EMD', should also be suitably extended if called upon to do so by RailTel. The request and the responses thereto shall be made in writing through e-mail communication only. Further, whenever the bid validity extension is submitted by the interested partner, it should be ensured by interested partner that their PBG related to the empanelment should have minimum validity of 90 days from the last date of extended bid validity period.

8. Right to Terminate the Process

8.1. RailTel may terminate the EOI process at any time without assigning any reason. RailTel makes no commitments, express or implied, that this process will result in a business transaction with anyone. This EOI does not constitute an offer by RailTel. The interested bidder's participation in this process may result in RailTel selecting the CSP to engage in further discussions and negotiations toward

execution of a contract. The commencement of such negotiations does not, however, signify a commitment by RailTel to execute a contract or to continue negotiations. RailTel may terminate negotiations at any time without assigning any reason.

9. Language of Bid

9.1. The bid prepared by the interested partner and all correspondence and documents relating to the bids exchanged by the bidder and RailTel, shall be written in English Language, provided that any printed literature furnished by the Bidder in another language shall be accompanied by an English translation in which case, for purposes of interpretation of the bid, the English translation shall govern. If any supporting documents submitted are in any language other than English, translation of the same in English language is to be duly attested by the Authorised Signatory of the interested partner.

10. Submission of Bid

10.1. The interested bidder should take into account any Corrigendum to this EOI document that may have been published before submitting their EOI response. The bid is to be submitted in the mode as mentioned in this EOI document. EOI response submitted in any other mode will not be entertained.

10.2. Interested bidders in their own interest are advised to submit the EOI response well in time before the last date and hence to avoid any inconvenience at the last moment.

10.3. An Organization / Interested Bidder can submit only 'One EOI Response'. Submission of multiple EOI Response by interested bidder(s) may lead to rejection of all of its bid.

11. Rights to Accept / Reject any or all EOI Response

11.1. RailTel reserves the right to accept or reject any EOI Response, and to annul the bidding process and reject all Bids at any time prior to award of the Contract, without thereby incurring any liability to the affected interested bidder(s), or any obligation to inform the affected Bidders of the ground for RailTel's action.

12. Payment Terms

Payment terms will be on back-to-back basis, i.e., payment will be made only on receipt

of payment from WBEIDC. A scheduled payment terms depicted below: phase wise payment will be release as per following mode.

SN	Job	Payment Milestone/Milestone	Remarks
1	On Delivery of any IT & Non-IT equipments (Delivery as per implementation plan)	70% of Basic value of delivered items + 100% of Tax amount of Basic value will release. (example: If SI delivered UPS, bidder will submit 70% of basic claim of UPS + 100% of Tax amount of basic value of UPS)	Payment release on successful check of all/part of the delivered equipment by WTL
2	PAT / Installation & Commissioning of delivered IT & Non-IT components	20% of Basic value of delivered items will release	Payment release on successful PAT/Installation Commissioning of all the installed IT & Non IT items
3	On successful installation, commissioning, integration, Migration and Final acceptance test of all delivered IT, Non IT components & other related items as per tender	Remaining 10% of Basic value delivered items will release	Payment release on successful implementation of FAT and submission of Back to Back OEM warranty support document as per tender terms.
4	Operation & Maintenance Support Charge	Payment will be made on quarterly deferred basis	O&M Support charges will be calculated as: (total value of O&M Support charges)/20 (20 quarter = Five years). Penalty as per SLA calculation will be deducted from quarterly O&M Support charges

12.1. Payment will be released after receiving the invoice for the work / services and after RailTel has received the payment from CoR for the same work / services. Any deduction /Penalties levied by CoR on invoices of RailTel will be carried **back-to-back** and will be deducted from CSP's invoices, subject to the cause to deduction / penalty is due to deviation in terms and conditions of service standards by the CSP.

12.3 Documents list required at the time of payment/invoice submission by selected bidder shall be: -

- i PO copy issued to selected vendor.
- ii Payment Proof that the end customer has paid to RailTel for the period claimed by Selected bidder/vendor against invoices raised by RailTel for such services.
- iii Submission/Declaration of applicable BG amount against PO issued to selected bidder/vendor.
- iv Original Invoice for the period claimed.
- v TDS declaration.
- vi Photocopy of all documents submitted by RailTel along with their invoice to customer.

13. Performance Bank Guarantee (PBG)

13.1. Successful Bidder shall at its own expense, deposit with RailTel, within fifteen (15) days of the notification of award (done through issuance of the Purchase Order / Work Order etc.) and communicated through email, an unconditional and irrevocable Performance Bank Guarantee (PBG) from a a Nationalized/ Commercial Scheduled Indian Bank as per the format enclosed in this EOI, payable on demand, for the due performance and fulfilment of the contract by the CSP. This PBG will be for an amount of '3 (%)' of the contract value. The quantum of this 'percentage (%)' will be equal to the PBG % as asked by CoR from RailTel. All charges whatsoever such as premium, commission, etc. with respect to the PBG shall be borne by the CSP. Besides, if the total BG amount comes upto ₹05 Lakhs, then same may be deposited through DD/RTGS/NEFT. Along with submission of PBG, CSP needs to submit PBG issuing bank's SFMS report. The SFMS report is also to be submitted in case of renewal / extension of PBG.

13.2. The PBG should have validity for a period as WBEIDC and **shall be on back to back basis**. The PBG may be discharged / returned by RailTel upon being satisfied that there has been due performance of the obligations of the CSP under the contract. However, no interest shall be payable on the PBG. In the event, CSP being unable to service the contract for whatsoever reason, RailTel would invoke the PBG at its discern. Notwithstanding and without prejudice to any rights whatsoever of RailTel under the contract in the matter, the proceeds of the PBG shall be payable to RailTel as compensation for any loss resulting from the CSP's failure to complete its obligations under the

contract. RailTel shall notify the CSP in writing of the exercise of its right to receive such compensation within 14 days, indicating the contractual obligation(s) for which the CSP is in default.

13.3. RailTel shall also be entitled to make recoveries from the CSP's bills, PBG or from any other amount due to him, the equivalent value of any payment made to him due to inadvertence, error, collusion, misconstruction or misstatement.

13.4. If the service period gets extended by virtue of extension of same by CoR, PBG should also be extended accordingly.

13.5. During the contract period, RailTel may issue Purchase Order(s) for the additional services ordered by CoR (in case) to RailTel. In such scenario(s) also, Clause No. 13.1. to Clause No. 13.4. are to be followed by the CSP.

13.6 In case the CoR has sought PBG of the contract in the terms of Indemnity Bond from RailTel, the selected bidder has to provide the equivalent value PBG from scheduled Bank to RailTel. No Indemnity Bond from Selected Bidder will be accepted in lieu of PBG from Scheduled Bank.

13.7. In case CoR has sought any other types of PBG in this contract at present or in future or else Integrity Pact PBG (presently or in future), same remain applicable on selected Bidder. The Said PBG will be issued by Selected Bidder from Scheduled Bank favoring RailTel Corporation of India Limited. No Indemnity Bond in lieu of such PBG will be accepted by RailTel.

13.8 If, CoR ask for submission for value more than 03%, same also needs to be submitted by the selected BA.

13.9 Integrity pact in the format as per CoR to be provided by the Bidder.

14. Details of Commercial Bid / Financial Bid

14.1. Interested partner should submit commercial bid strictly as per the format mentioned by CoR in the pertinent tender document or subsequent corrigendum (if any).

14.2. The commercial bid should clearly bring out the cost of the services with detailed break-up of taxes.

14.3. The rates mentioned in the commercial bid of the CSP will form basis of commercial transaction between RailTel and bidder.

14.4. The quantity of 'Line Items' may vary at the time of placing of Purchase Order during the Contract Period, as communicated by CoR (in case) to RailTel. In such scenarios, the 'Per Unit' cost will be considered to arrive on contractual amount between RailTel and CSP.

14.5. It is also possible that CoR may surrender / increase, some or all of the quantities of service

items ordered to RailTel during the contract period and accordingly the contractual amount between RailTel and CSP shall be considered, at sole discretion of RailTel.

14.6. It is also possible that during the contract period, CoR may raise Purchase Order to RailTel for the line items (and respective quantities) which are not mentioned in the pertinent tender of CoR. In such scenario, RailTel at its sole discretion, may extend the scope of the contract with CSP by placing order to CoR, **on back-to-back basis**.

14.7. In addition to the Payment Terms, all other Contractual Terms will also be on '**back-to-back**' basis between RailTel and CSP, as mentioned in the pertinent CoR's tender. MAF (Manufacturer's Authorization Form) in the name of RailTel and another MAF in Bidders Name (separately with reference to this EOI) from the OEMs, whose product is mentioned in commercial bid format, should also be ensured by the partner. The MAF format and required content should be in-line with CoR's tender, if specifically asked by CoR in a particular format.

15. Duration of the Contract Period

15.1. The contract duration shall be same as of CoR's contract duration with RailTel until otherwise terminated earlier. **Indicative contract duration is 5 Years as per CoR**, unless otherwise terminated earlier, as mentioned in this EOI document and subject to successful participation of RailTel in the pertinent CoR's tender. The contract duration can be renewed /extended by RailTel at its discern, in case CoR extends / renews services with RailTel by virtue of extending / renewing / new issuance of one or more Purchase Order(s) placed by CoR to RailTel.

16. DELIVERY & PROJECT COMPLETION SCHEDULE

16.1 Within 20 weeks after receiving of final work order. If delivery of materials delayed due to current shortage of semiconductors, competent authority may take necessary permission for additional timeline after receiving of justification. All delivery of the material will have to be completed within 12 weeks from the date of acceptance of contract or the contractor has to ensure all activities leading to the commissioning of the contract to be completed within 20 weeks from the date of award. Subsequent to the award of contract, the contractor will have to arrange for the requisite material as per BOM.

17. Restrictions on 'Transfer of Agreement'

17.1. The CSP shall not assign or transfer its right in any manner whatsoever under the contract / agreement to a third party or enter into any agreement for sub-contracting and/or partnership relating to any subject matter of the contract / agreement to any third party either in whole or in any part i.e., no sub-contracting / partnership / third party interest shall be created.

18. Suspension, Revocation or Termination of Contract / Agreement

18.1 RailTel reserves the right to suspend the operation of the contract / agreement, at any time, due to change in its own license conditions or upon directions from the competent government authorities, in such a situation, RailTel shall not be responsible for any damage or loss caused or arisen out of aforesaid action. Further, the suspension of the contract / agreement will not be a cause or ground for extension of the period of the contract / agreement and suspension period will be taken as period spent. During this period, no charges for the use of the facility of the CSP shall be payable by RailTel.

18.2 RailTel may, without prejudice to any other remedy available for the breach of any conditions of agreements, by a written notice of Three (03) month or as per CoR tender condition whichever is earlier issued to the CSP, terminate/or suspend the contract /agreement under any of the following circumstances:

- a) The CSP failing to perform any obligation(s) under the contract / agreement.
- b) The CSP failing to rectify, within the time prescribed, any defect as may be pointed out by RailTel.
- c) Non adherence to Service Level Agreements (SLA) which RailTel has committed to CoR for the pertinent tender.
- d) The CSP going into liquidation or ordered to be wound up by competent authority.
- e) If the CSP is wound up or goes into liquidation, it shall immediately (and not more than a week) inform about occurrence of such event to RailTel in writing. In that case, the written notice can be modified by RailTel as deemed fit under the circumstances. RailTel may either decide to issue a termination notice or to continue the agreement by suitably modifying the conditions, as deemed fit under the circumstances.
- f) It shall be the responsibility of the CSP to maintain the agreed Quality of Service, even during the period when the notice for surrender/termination of contract / agreement is pending and if the Quality of Performance of Solution is not maintained, during the said notice period, it shall be treated as material breach liable for termination at risk and consequent of which CSP's PBG related to contract / agreement along with PBG related to the Empanelment Agreement with RailTel shall be forfeited, without any further

notice.

- g) Breach of non-fulfillment of contract / agreement conditions may come to the notice of RailTel through complaints or as a result of the regular monitoring. Wherever considered appropriate RailTel may conduct an inquiry either Suo- moto or on complaint to determine whether there has been any breach in compliance of the terms and conditions of the agreement by the successful bidder or not. The CSP shall extend all reasonable facilities and shall endeavor to remove the hindrance of every type upon such inquiry. In case of default by the CSP in successful implementation and thereafter maintenance of services / works as per the conditions mentioned in this EOI document, the PBG(s) of CSP available with RailTel can be forfeited.

19. Dispute Settlement

19.1 In case of any dispute concerning the contract / agreement, both the CSP and RailTel shall try to settle the same amicably through mutual discussion / negotiations. Any unsettled dispute shall be settled in terms of Indian Act of Arbitration and Conciliation 1996 or any amendment thereof. Place of Arbitration shall be New Delhi.

19.2 The arbitral tribunal shall consist of the Sole Arbitrator. The arbitrator shall be appointed by the Chairman & Managing Director (CMD) of RailTel Corporation of India Ltd.

19.3 All arbitration proceedings shall be conducted in English.

19.4 Governing Laws : The contract 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.

20. Statutory Compliance

20.1. During the tenure of this Contract nothing shall be done by CSP in contravention of any law, act and/ or rules/regulations, there under or any amendment thereof and shall keep RailTel indemnified in this regard.

20.2. The Bidder shall comply and ensure strict compliance by his/her employees and agents of all applicable Central, State, Municipal and Local laws and Regulations and undertake to indemnify RailTel, from and against all levies, damages, penalties and payments whatsoever as may be imposed by reason of any breach or violation of any law, rule, including but not limited to the claims against RailTel or its Customer under Employees Compensation Act, 1923, The Employees Provident Fund and Miscellaneous Provisions Act, 1952, The Contract Labour (Abolition and Regulation) Act 1970, Factories Act, 1948, Minimum Wages Act and Regulations, Shop and Establishment Act and Labour

Laws which would be amended/modified or any new act if it comes in force whatsoever, and all actions claim and demand arising therefrom and/or related thereto.

21. Intellectual Property Rights

21.1. Each party i.e., RailTel and CSP, acknowledges and agree that the other party retains exclusive ownership and rights in its trade secrets, inventions, copyrights, and other intellectual property and any hardware provided by such party in relation to this contract / agreement.

21.2. Neither party shall remove or misuse or modify any copyright, trade mark or any other proprietary right of the other party which is known by virtue of this EOI and subsequent contract in any circumstances.

22. Severability

22.1. In the event any provision of this EOI and subsequent contract with CSP is held invalid or not enforceable by a court of competent jurisdiction, such provision shall be considered separately and such determination shall not invalidate the other provisions of the contract and Annexure/s which will be in full force and effect.

23. Force Majeure

23.1. If during the contract period, the performance in whole or in part, by other 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 EVENT), provided notice of happenings of any such event is given by the affected party to the other, within twenty one (21) days from the 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 contract shall be resumed as soon as practicable, after such EVENT comes to an end or ceases to exist.

23.2. 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 sixty (60) 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 contract. Neither party shall be liable for any breach, claims, and damages against the other, in respect of non-performance or delay in performance as a result of ForceMajeure leading to such termination.

24. Indemnity

24.1. The CSP agrees to indemnify and hold harmless RailTel, its officers, employees and agents (each an “Indemnified Party”) promptly upon demand at any time and from time to time, from and against any and all losses, claims, damages, liabilities, costs (including reasonable attorney’s fees and disbursements) and expenses (collectively, “Losses”) to which the Indemnified party may become subject, in so far as such losses directly arise out of, in any way relate to, or result from:

- a) Any mis-statement or any breach of any representation or warranty made by CSP or
- b) The failure by the CSP to fulfill any covenant or condition contained in this contract by any employee or agent of the Bidder. Against all losses or damages arising from claims by third Parties that any Deliverables (or the access, use or other rights thereto), created by CSP pursuant to this contract, or any equipment, software, information, methods of operation or other intellectual property created by CSP pursuant to this contract, or the SLAs (i) infringes a copyright, trade mark, trade design enforceable in India, (ii) infringes a patent issues in India, or (iii) constitutes misappropriation or unlawful disclosure or use of another Party’s trade secrets under the laws of India (collectively, “Infringement Claims”); or
- c) Any compensation / claim or proceeding by any third party against RailTel arising out of any act, deed or omission by the CSP or
- d) Claim filed by a workman or employee engaged by the CSP for carrying out work related to this agreement. For the avoidance of doubt, indemnification of Losses pursuant to this section shall be made in an amount or amounts sufficient to restore each of the Indemnified Party to the financial position it would have been in had the losses not occurred.

24.2. Any payment made under this contract to an indemnity or claim for breach of any provision of this contract shall include applicable taxes.

25. Limitation of Liability towards RailTel

25.1. The CSP liability under the contract shall be determined as per the Law in force for the time being. The CSP shall be liable to RailTel for loss or damage occurred or caused or likely to occur

on account of any act of omission on the part of the CSP and its employees (direct or indirect), including loss caused to RailTel on account of defect in goods or deficiency in services on the part of CSP or his agents or any person / persons claiming through under said CSP, However, such liability of the CSP shall not exceed the total value of the contract.

25.2. This limit shall not apply to damages for bodily injury (including death) and damage to real estate property and tangible personal property for which the CSP is legally liable.

26. Confidentiality cum Non-disclosure

26.1. The Receiving Party agrees that it will not disclose to third party/parties any information belonging to the Disclosing Party which is provided to it by the Disclosing Party before, during and after the execution of this contract. All such information belonging to the Disclosing Party and provided to the Receiving Party shall be considered Confidential Information. Confidential Information includes prices, quotations, negotiated issues made before the execution of the contract, design and other related information. All information provided by Disclosing Party to the Receiving Party shall be considered confidential even if it is not conspicuously marked as confidential.

26.2. Notwithstanding the foregoing, neither Party shall have any obligations regarding non-use or non-disclosure of any confidential information which:

- a) Is already known to the receiving Party at the time of disclosure;
- b) Is or becomes part of the public domain without violation of the terms hereof;
- c) Is shown by conclusive documentary evidence to have been developed independently by the Receiving Party without violation of the terms hereof;
- d) Is received from a third party without similar restrictions and without violation of this or a similar contract.

26.3. The terms and conditions of this contract, and all annexes, attachments and amendments hereto and thereto shall be considered Confidential Information. No news release, public announcement, advertisement or publicity concerning this contract and/or its contents herein shall be made by either Party without the prior written approval of the other Party unless such disclosure or public announcement is required by applicable law.

26.4. Notwithstanding the above, information may be transmitted to governmental, judicial, regulatory authorities, if so, required by law. In such an event, the Disclosing Party shall inform the other party about the same within 30 (thirty) Days of such disclosure.

26.5. This Confidentiality and Non- Disclosure clause shall survive even after the expiry or

termination of this contract.

27. Assignment

27.1. Neither this contract nor any of the rights, interests or obligations under this contract shall be assigned, in whole or in part, by operation of law or otherwise by any of the Parties without the prior written consent of each of the other Parties. Any purported assignment without such consent shall be void. Subject to the preceding sentences, this contract will be binding upon, inure to the benefit of, and be enforceable by, the Parties and their respective successors and assigns.

28. Insurance

The CSP agrees to take insurances to cover all the elements of the project under this EOI including but not limited to Manpower, Hardware, Software etc. as per CoR tender specified terms.

29. Exit Management

29.1. Exit Management Purpose

- a) This clause sets out the provision, which will apply during Exit Management period. The parties shall ensure that their respective associated entities carry out their respective obligation set out in this Exit Management Clause.
- b) The exit management period starts, in case of expiry of contract, at least 03 months prior to the date when the contract comes to an end or in case of termination contract, on the date when the notice of termination is sent to the CSP. The exit management period ends on the date agreed upon by RailTel or Three (03) months after the beginning of the exit management period, whichever is earlier.

29.2. Confidential Information, Security and Data: CSP will promptly, on the commencement of the exit management period, supply to RailTel or its nominated agencies the following (if asked by RailTel in writing):

- a) Information relating to the current services rendered and performance data relating to the performance of the services; documentation relating to the project, project's customized source code (if any); any other data and confidential information created as part of or is related to this contract;
- b) All other information (including but not limited to documents, records and agreements) relating to the services reasonably necessary to enable RailTel and its nominated agencies, or its replacing vendor to carry out due diligence in order to transition the provision of the services to RailTel or its nominated agencies, or its replacing vendor (as the case may be).

29.3. Employees : Promptly on reasonable request at any time during the exit management period, the CSP shall, subject to applicable laws, restraints and regulations (including in particular those relating to privacy) provide RailTel a list of all employees (with job titles and communication address), dedicated to providing the services at the commencement of the exit management period; To the extent that any Transfer Regulation does not apply to any employee of the CSP, RailTel or the replacing vendor may make an offer of contract for services to such employees of the CSP and the CSP shall not enforce or impose any contractual provision that would prevent any such employee from being hired by RailTel or any replacing vendor.

29.4. Rights of Access to Information: Besides during the contract period, during the exit management period also, if asked by RailTel in writing, the CSP shall be obliged to provide an access of information to RailTel and / or any Replacing Vendor in order to make an inventory of the Assets (including hardware / software / active / passive), documentations, manuals, catalogues, archive data, Live data, policy documents or any other related material.

Note: RailTel at its sole discern may not enforce any or all clauses / sub-clauses under the 'Exit Management' clause due to administrative convenience or any other reasons as deemed fit.

30. Waiver

30.1. Except as otherwise specifically provided in the contract, no failure to exercise or delay in exercising, any right, power or privilege set forth in the contract will operate as a waiver of any right, power or privilege.

31. Changes in Contract Agreement

31.1. No modification of the terms and conditions of the Contract Agreement shall be made except by written amendments signed by the both CSP and RailTel.

32. Liquidated Damages:

Railtel will levy the liquidated damages imposed by WBEIDC on completely back-to-back basis and on value terms. For example if WBEIDC levies penalty of Rs 2 Lakhs to RailTel, then RailTel will recover the entire 2 Lakhs from the bidder.

33. Service Legal Agreement:

SLA will be levied to selected Partner on Back-to-Back Basis. The SLA of WBEIDC is as follows:

Licenses/Subscriptions: The system software licenses/subscriptions mentioned in the Bill of Materials shall be genuine, perpetual, full use and should provide upgrades, patches, fixes, security patches and updates directly from the OEM. All the licenses and support (updates, patches, bug fixes, etc.) should be in the name of Government of West Bengal. All the licenses and support (updates, patches, bug fixes, etc.) should be in the name of Government of West Bengal. SI shall provide a comprehensive warranty that covers all components after the issuance of the final acceptance. The warranty should cover all materials (if applicable), licenses, services, and support for both hardware (if applicable) and software. SI shall administer warranties with serial number and warranty period. SI shall transfer all the warranties to WBEIDC at no additional charge at the time of termination of the project. All back to back OEM warranty documentation (no expiry) will be delivered to WBEIDC.

Capacity Building / Training

Overview

The SI would be required to provide training on various aspects to enable effective use of the new system to achieve the envisaged outcomes. The scope of work of the SI related to Capacity Building & Change Management is described in this section. Capacity building will include the following:

Preparation of Training material

- a) **Training Materials:** The following minimum training materials will be required to be prepared by the SI to facilitate the training of users:

FAT & Go-Live:

SI will assist in successful completion of Final Acceptance Testing (FAT) and audit of the system on the completion of the roll-out of each phase and will submit a Go-Live Report for each phase. The Final Acceptance Testing (FAT) for rolled-out application shall be tested for both remotely & onsite basis.

The application tested for acceptance testing & Final Acceptance Testing is observed over one month for Stabilization, Reliability & Consistency of the solution. On being consistent, reliable and efficient over a period of time the solution is said to be declared Go-Live. The application & resources should be well equipped such that SI is able to comprehensively meet the SLA / performance requirements.

Go-Live

Go-Live is declared by WTL when the proposed solution becomes operational after successful conclusion of all acceptance tests to the satisfaction of the Department.

Sign-off Deliverables

FAT Report signed off from the concerned department Go-Live report

Scope of Services - Operation and Maintenance Phase This phase starts from the successful completion of “Go-Live”.

The SI is responsible for the Comprehensive maintenance of all components of the project for the Contract period of 5 years from the date of Go-Live.

Success of the Project would rely on how professionally and methodically the entire Project is managed once the implementation is completed. From the Systems Integrator perspective, this is a critical phase since the quarterly payments are linked to the SLA's in the post implementation phases. System Integrator, thus, is required to depute a dedicated team of professionals to manage the Project and ensure adherence to the required SLAs.

Overview of Post Implementation Services

An indicative list of activities and nature of support to be provided is mentioned below:

- A. System Administration and Trouble Shooting
 - a. Overall monitoring and management of all IT infrastructure deployed by the SI
 - b. Repair or replace infrastructure deployed for this Project.
 - c. Replace component due to technical, functional, manufacturing or any other problem with a component of the same make and configuration. In case the component of same make and configuration is not available, the replacement shall conform to open standards and shall be of a higher configuration and shall be approved by the Department
 - d. Perform system administration tasks such as managing the user access, creating and managing users, taking backups etc.
 - e. Performance tuning of the system to ensure adherence to SLAs and performance requirements as indicated in the RFP.
- B. Database Administration and Trouble Shooting: Undertake end-to-end management of database on an on-going basis to facilitate smooth functioning and optimum utilization including regular database backup and periodical testing of backup data, conducting configuration review to tune database, maintaining the necessary documentation and managing database schema, disk space, user roles, and storage.
- C. Overall:
 - a. Undertake preventive maintenance (any maintenance activity that is required before the occurrence of an incident with an attempt to prevent any incidents) and carry out the necessary repairs and replacement of parts wherever needed to keep the performance levels of the hardware and equipment in tune with the requirements of the SLA. Such preventive maintenance shall not be attended during working hours of the State Departments, unless inevitable and approved by WTL / respective Departments.
 - b. Undertake reactive maintenance (any corrective action, maintenance activity that is required post the occurrence of an incident) that is intended to troubleshoot the system with sufficient teams
 - c. Escalate and co-ordinate with its OEMs for problem resolution wherever required

- d. The SI shall be required to comply with various policies relating to monitoring and management of infrastructure such as IS Policy, backup and archival policy, system software update policy etc. of the State.
- e. Provide a centralized Helpdesk and Incident Management Support till the end of contractual period
- f. Recurring refresher trainings for the users, training to new users and Change Management activities

Warranty Support – IT compute Infrastructure (for additional system software)

As part of the warranty services SI shall provide:

SI shall provide a comprehensive warranty and on-site free service warranty for 5 years from the date of Go Live for all equipments & project components.

SI shall provide the performance warranty in respect of performance of the installed software developed by the SI to meet the performance requirements and service levels in the RFP.

SI is responsible for sizing and procuring the necessary IT compute Infrastructure and software licenses as per the performance requirements provided in the RFP. During the warranty period SI shall replace or augment or procure higher-level new equipment or additional licenses at no additional cost to the State in case the procured hardware or software is not adequate to meet the service levels.

During the warranty period SI shall maintain the systems and repair / replace at the installed site, at no charge

The SI shall ensure that the warranty complies with the agreed Technical Standards, Security Requirements, Operating Procedures, and Recovery Procedures.

Any component that is reported to be down on a given date should be either fully repaired or replaced by temporary substitute (of equivalent configuration) within the time frame indicated in the Service Level Agreement (SLA)

Monitoring and Management Services

The system integrator shall provide the following monitoring and management services for the DC/DR and for the help desk.

- Server Monitoring, Administration & Management Services
- Database Administration & Management Services

- Storage Administration & Management Services
- Backup & Restore Services
- Security Administration Services.

Server Monitoring, Administration & Management Services

The activities shall include but not limited to:

- Configuration of server parameters, operating systems administration and tuning.
- Operating system administration, including but not limited to management of users, processes, resource contention, preventive maintenance and management of updates & patches to ensure that the system is properly updated.
- Re-installation in the event of system crash/failures.
- Maintenance of a log of the performance monitoring of servers including but not limited to monitoring CPU, disk space, memory utilization, I/O utilization, etc.
- Event log analysis generated in all the sub systems including but not limited to servers, operating systems, databases, applications, security devices, messaging, etc.
- Ensuring that the logs are backed up and truncated at regular intervals.
- Periodic health check of the systems, troubleshooting problems, analysing and implementing rectification measures.
- Identification, diagnosis and resolution of problem areas and maintenance of assured SLA levels.
- Implementation and maintenance of standard operating procedures for maintenance of the infrastructure.
- Management of the user names, roles and passwords of all the relevant subsystems, including, but not limited to servers, applications, devices, etc.
- System administration activities shall include tasks including but not limited to setting up the servers, executing hardware and software updates when necessary., OS and application software platform installation, performance monitoring, fine tuning as per application requirement, coordination with software development team, etc.

Database Administration & Management Services

The activities shall include but not limited to:

- End-to-end management of database on an ongoing basis to ensure smooth functioning of the same.

- Management of changes to database schema, disk space, storage and user roles.
- Conduct code and configuration reviews to provide tuning inputs to relevant stakeholders for improving the application performance or resolve bottlenecks, if any.
- Performance monitoring and tuning of the databases on a regular basis including, preventive maintenance of the database as required.
- Management of database upgrade or patch upgrade as and when required with minimal downtime.
- Regular backups for all databases in accordance with the backup and archive policies and conduct recovery whenever required with appropriate permissions
- DBA activities shall include tasks but not limited to database installation, configuration, replication, data protection services, performance monitoring, fine tuning, backup and restoration, etc

Backup and Restore Services:

The activities shall include but not limited to:

- Backup of operating system, database and application as per stipulated policies.
- Monitoring and enhancement of the performance of scheduled backups, schedule regular testing of backups and ensure adherence to related retention policies.
- Ensuring prompt execution of on-demand backups of volumes, files and database applications whenever required by department or in case of upgrades and configuration changes to the system.
- Real-time monitoring, log maintenance and reporting of backup status on a regular basis. Prompt problem resolution in case of failures in the backup processes.
- Media management including, but not limited to, tagging, cross-referencing, storing, logging, testing, and vaulting in fire proof cabinets.
- Ongoing support for file and volume restoration requests.
- A backup of all transactions shall be done so that in case of any disaster / emergency at the Data Centre, the DR will have all the data.
- SI shall be responsible for supply, install, test & commission of the backup storage of the archival of data.

Security Administration Services

The activities to be carried out under security administration shall include, but not limited to:

- Addressing the ongoing needs of security management including, but not limited to, monitoring of various devices / tools such as firewall, intrusion detection, content filtering and blocking, virus protection, and vulnerability protection through implementation of proper patches and rules.
- Root domain administration by creating the root and sub-domains and setting the root level security policies such as authentication mechanisms (single/multi factor).
- Password policies such as password length, password complexity, password expiry, account lockout policy, certificate policies, IPSEC policies, etc.
- Maintaining an updated knowledge base of all the published security vulnerabilities and virus threats for related software and microcode, etc.
- Ensuring that patches / workarounds for identified vulnerabilities are patched / blocked immediately.
- Respond to security breaches or other security incidents and coordinate with respective OEMs in case of a new threat is observed to ensure that workaround / patch is made available for the same.
- Provide a well-designed access management system, security of physical and digital assets, data and network security, backup and recovery etc.
- Maintenance and management of security devices, including, but not limited to maintaining firewall services to restrict network protocols and traffic, detecting intrusions or unauthorized access to networks, systems, services, applications or data, protecting email gateways, firewalls, servers, from viruses.
- Ensuring that the security policy is maintained and updates to the same are made regularly as per ISO 270001, ISO 20000 and BS 15000 guidelines.
- Investigate All Suspicious Activities. ...
- Maintain Secure Monitoring Tools. ...
- Liaise With And Delegate To The Rest Of The SOC Team. ...
- Review And Report On All Cybersecurity Processes. ...
- Keep All Security Programs And Resources Up To Date.
- Review, report, take corrective measures for all security incidents

Liaison with stakeholders

The SI shall coordinate and liaise with the key stakeholders of the project, respective departments, Third party vendors engaged by the line departments for developing services covered under the Ease of doing business framework. Such coordination and liaison is highly critical to the success of the project.

Warranty and Support

The SI shall warrant that the IT Computing Infrastructure supplied for this Project shall have no defects arising from design or workmanship or any act or omission of the SI. The warranty shall remain valid for the Contract period on all the items supplied as per the Contract. The SI shall replace any parts/components of the IT infrastructure supplied for the Project if the components are defective and during the entire warranty period the SI shall apply latest upgrades for all the hardware components after appropriate testing. WTL will not pay any additional costs separately for warranty and the overall IT infrastructure cost quoted by the SI shall include the same.

The SI shall be held solely responsible for performance and service levels of any infrastructure deployed by the SI as part of this Contract.

Knowledge Transfer

At the end of the Contract period, the SI will be required to provide necessary handholding and transition support to designated staff or any other agency that is selected for maintaining the system post the Contract with the SI. The handholding support will include but not be limited to, conducting detailed walkthrough and demonstrations for the IT Applications, handing over all relevant documentation, addressing the queries/clarifications of the new agency with respect to the working / performance levels of the infrastructure, conducting training sessions etc.

Knowledge Transfer is an integral part of the scope of work of the SI. This will have to be done even in case the Contract with the Bidder ends or is terminated before the planned timelines.

Please note that the above requirements are only indicative but not exhaustive. If any other work involved in the assignment for the purpose of meeting the project objectives would be the responsibility of the SI.

34. Service Legal Management:

The purpose of this Service Level Agreement (hereinafter referred to as SLA) is to clearly define the levels of service which shall be provided by the SI to SIA for the duration of this contract.

The SI and SIA shall regularly review the performance of the services being provided by the SI and the effectiveness of this SLA

Note:

The purpose of this Service Level Agreement (hereinafter referred to as SLA) is to clearly define the levels of service which shall be provided by the SI to SIA for the duration of this contract.

The SI and SIA shall regularly review the performance of the services being provided by the SI and the effectiveness of this SLA

34.1 Definitions:

For purposes of this Service Level Agreement, the definitions and terms as specified in the contract along with the following terms shall have the meanings set forth below:

- "Uptime" shall mean the time period for which the specified services / components with specified technical and service standards are available to the state and user departments. Uptime, in percentage, of any component (Non-IT & IT) can be calculated as:
- $$\text{Uptime} = \{1 - [(\text{Downtime}) / (\text{Total Time} - \text{Scheduled Maintenance Time})]\} * 100$$
- "Downtime" shall mean the time period for which the specified services / components with specified technical and service standards are not available to the state and user departments and excludes the scheduled outages planned in advance for the West Bengal State Data Center and the link failures that are SWO's responsibility.
- "Incident" refers to any event / abnormalities in the functioning of the Data Center Equipment / specified services that may lead to disruption in normal operations of the West Bengal State Data Center services.

34.2 Category of SLAs:

This SLA document provides for minimum level of services required as per contractual obligations based on performance indicators and measurements for the WBSDC Infrastructure (IT and Non-IT)

The SI shall ensure provisioning of all required services while monitoring the performance of the same to effectively comply with the performance levels. The services provided by the SI shall be reviewed by the West Bengal Electronics Industry Development Corporation Limited that shall:

- Regularly check performance of the SI against this SLA.
- Discuss escalated problems, new issues and matters still outstanding for resolution.
- Review of statistics related to rectification of outstanding faults and agreed changes.
- Obtain suggestions for changes to improve the service levels.

The SLA has been set on:

Implementation Service levels

The following measurements and targets shall be used to track and report the implementation performance on a regular basis. The targets shown in the following table are applicable for the duration of the contract. All the targets for the completion of the implementation activity are calculated on a weekly basis. Please note that the Bidder should provide comprehensive, end-to-end service to implement the SDC Infrastructure, including replacement of the equipment in case of physical damage. No reason shall be entertained (unless those mentioned in Force Majeure) in case of unavailability of any service given in the scope of work in this CONTRACT and the appropriate penalty shall be levied.

➤ **Implementation Service Levels**

Table 1: Implementation Service Levels

Measurement	Target	Severity	Penalty
Civil Work, Installation of all Non-IT Components including Electrical and BMS, Installation of all IT Components, Integrated Testing and Final Acceptance test (FAT) completed and handing over.	24 weeks from the date of Work Order	Critical	A Penalty as 1% per week for every week delay in PAT. Subject to a maximum of 10% Penalty will be computed on the remaining milestone activity

For purposes of this Service Level Agreement, the definitions and terms as specified in the contract along with the following terms shall have the meanings set forth below:

- "Uptime" shall mean the time period for which the specified services / components with specified technical and service standards are available to the state and user departments. Uptime, in percentage, of any component (Non IT & IT) can be calculated as:

$$\text{Uptime} = \{ 1 - [(\text{Downtime}) / (\text{Total Time} - \text{Scheduled Maintenance Time})] \} * 100$$

- “Downtime” shall mean the time period for which the specified services / components with specified technical and service standards are not available to the state and user departments and excludes the scheduled outages planned in advance for the West Bengal State Data Center and the link failures that are SWO’s responsibility.
- “Incident” refers to any event / abnormalities in the functioning of the Data Center Equipment / specified services that may lead to disruption in normal operations of the West Bengal State Data Center services.
- “Helpdesk Support” shall mean the 24x7 center which shall handle Fault reporting, Trouble Ticketing and related enquiries during this contract.
- “Resolution Time” shall mean the time taken in resolving (diagnosing, troubleshooting and fixing) an incident after it has been reported at the helpdesk. The resolution time shall vary based on the severity of the incident reported at the help desk. The severity would be as follows:
 - a) Critical: Incidents whose resolution shall require additional investment in components or time or shall involve coordination with OEMs. These incidents shall impact the overall functioning of the SDC. For example, purchase of printer, router, software bug fixing etc.
 - b) Medium: Incidents, whose resolution shall require replacement of hardware or software parts, requiring significant interruption in working of that individual component. For example, installation of operating system, replacement of switch etc.
 - c) Low: Incidents whose resolution shall require changes in configuration of hardware or software, which will not significantly interrupt working of that component. For example, installation of printer on a client etc.

Operation& Maintenance Service levels

IT Infrastructure Service Levels

Following outlines the service level indicators & and the target performance levels to be maintained by the Agency during the contract period. These SLAs shall be strictly imposed and a third party audit/certification agency shall be deployed for certifying the performance of the Agency against the target performance metrics as outlined in the table below:

Table 2: IT Infrastructure Service Levels

Sl. No.	Measurement	Target	Severity	Penalty
1	Individual Server and VM Availability (including the OS, database and web/app servers which are supplied / installed and	$\geq 99.749\%$	<u>Critical</u>	No Penalty
		$\geq 99\% < 99.749\%$		1% of the QGR
		$\geq 98\% < 99\%$		2% of the QGR
		$\geq 95\% < 98\%$		3% of the QGR

Sl. No.	Measurement	Target	Severity	Penalty
	maintained by SI for hosting the web portal)	< 95 %		Maximum of 5 of the QGR can be imposed
2	Connectivity between DC & DR	>= 99.749%	<u>Critical</u>	No Penalty
		>=99 % <99.749%		1% of the QGR
		>=98 % < 99 %		2% of the QGR
		>=95 % < 98%		5% of the QGR
		< 95 %		Maximum of 10 % of the QGR can be imposed
3	Backup Device Availability	>= 99.749%	<u>Critical</u>	No Penalty
		>=99 % <99.749%		1% of the QGR
		>=98 % < 99 %		2% of the QGR
		>=95 % < 98%		5% of the QGR
		< 95 %		Maximum of 10 % of the QGR can be imposed
		< 95 %		Maximum of 10 % of the QGR can be imposed
4	Connectivity with Internet	>= 99.749%	<u>Critical</u>	No Penalty
		>=99 % <99.749%		1% of the QGR
		>=98 % < 99 %		3% of the QGR
		>=95 % < 98%		5% of the QGR
		< 95 %		Maximum of 10 % of the QGR can be imposed
5	LAN Availability (Active and passive Component of DC equipments at Siliguri)	>= 99.749%	<u>Critical</u>	No Penalty
		>=99 % <99.749%		2% of the QGR
		>=98 % < 99 %		5% of the QGR
		>=95 % < 98%		8% of the QGR

Sl. No.	Measurement	Target	Severity	Penalty
		< 95 %		Maximum of 10 % of the QGR can be imposed
6	Restore the backed up databases/ applications etc. to be initiated within 2 hours of request	Full Restore	<u>Medium</u>	1% of the QGR for > 5 violations of service parameter on every QGR
7	Scheduled downtime for Preventive maintenance Week, if any • 1am to 3am on Sundays • Any further requirement for scheduled downtime	Notification of ≥ 7 days in advance	<u>Medium</u>	No Penalty
		Notification of less than 7 days		0.5% of the QGR

Note: Equipment Availability Related penalties shall be governed by the following conditions:

- The Penalty shall be calculated on a quarterly basis.
- If the SLAs drop below the lower limits specified for each component in the table above, it will be governed by the event of default / penalty clause as specified under “Section D: Instruction to the bidder” of the NIT.

Physical Infrastructure Service Levels

Table 3 : Physical Infrastructure Service Levels

Sl. No.	Measurement	Target	Severity	Penalty
1	Power Availability (UPS output)	$\geq 99.749\%$	<u>Critical</u>	No Penalty
		$< 99.749\%$ to $\geq 99\%$		2% of the QGR
		$\geq 98\%$ to $< 99\%$		5% of the QGR
		$\geq 95\%$ to $< 98\%$		8% of the QGR

Sl. No.	Measurement	Target	Severity	Penalty
		<95%		Maximum of 10 % of the QGR can be imposed
2	PAC system Availability PAC System availability would mean (all PAC's including the standby) temperature and the humidity at the sensor level. Temperature to be maintained $20^{\circ} \pm 2^{\circ}$ at all times Relative humidity to be maintained $50^{\circ} \pm 5^{\circ}$ at all times	$\geq 99.749\%$	<u>Critical</u>	No Penalty
		<99.749% to $\geq 99\%$		2% of the QGR
		$\geq 98\%$ to <99%		5% of the QGR
		$\geq 95\%$ to <98%		8% of the QGR
		<95%		Maximum of 10 % of the QGR can be imposed
3	Surveillance: CCTV Availability would include NVR system availability, availability of CCTV recording – 180 days of backup data from the present date	$\geq 99.749\%$	<u>Critical</u>	No Penalty
		<99.749% to $\geq 99\%$		0.5% of the QGR
		$\geq 98\%$ to <99%		2% of the QGR
		$\geq 95\%$ to <98%		5% of the QGR
		<95%		Maximum of 10 % of the QGR can be imposed
4	Complete BMS system. This parameter applies to all individual components of BMS system, i.e., VESDA, Fire detection, fire suppression, water leak detection, S&EMU, Rodent repellent etc., which can be monitored through DCIM/ BMS software. For any component downtime, the penalty will be applicable	$\geq 99.749\%$	<u>Critical</u>	No Penalty
		<99.749% to $\geq 99\%$		2% of the QGR
		$\geq 98\%$ to <99%		5% of the QGR
		$\geq 95\%$ to <98%		8% of the QGR
		<95%		Maximum of 10 % of the QGR can be imposed
5	Data Center Infrastructure Management (Measure all the components at the end terminal level)	$\geq 99.749\%$		No Penalty
		<99.749% to $\geq 99\%$		2% of the QGR
		$\geq 98\%$ to <99%		5% of the QGR
		$\geq 95\%$ to <98%	<u>Critical</u>	8% of the QGR

Sl. No.	Measurement	Target	Severity	Penalty
		<95%		Maximum of 10 % of the QGR can be imposed

Civil Work & Minor Works Service Levels

Table 4: Civil Work & Minor Works Service Levels

Sl. No.	Measurement	Target	Severity	Penalty
1	Major Civil Work including the False Flooring, False Ceiling, Doors & Locking, Partitioning, Fire Proofing of all surfaces, Furniture & Fixtures and Painting to be replaced within 2 days of reporting the problem	T days	<u>Critical</u>	No Penalty
		T1 = T + 2 days		0.05% of the QGR for every unresolved call
		T2 = T1 + 2 days		1% of the QGR for every unresolved call
	The SI should maintain sufficient inventory to carry out civil and electrical repairs without any disruption to operations. For critical items, the Resolution time shall be mutually agreed by the State and the SI at the time of award of contract. T shall be the agreed Resolution (All aspects of the Physical Data Center)	>T2		2% of the QGR for every unresolved call
2	Minor Civil Work including Cement Concrete Work, Masonry Work, Trench Work, Storage, Glazing and Scaffolding	T= 2 days	<u>Low</u>	No Penalty
		T1 = T + 2 days		0.05% of the QGR for every unresolved call

Sl. No.	Measurement	Target	Severity	Penalty
	Work to be carried within 4 days of the reporting problem	T2 = T1 + 2 days		1% of the QGR for every unresolved call
		>T2		2% of the QGR for every unresolved call

* The SI shall furnish the up-to-date standard OEM Onsite Call-to-Repair Service agreed turnaround / resolution time details to the SIA at regular intervals. The same should be either a global document or should be on the letterhead on the OEM.

Compliance and Reporting Process Service Levels

Table 5 : Reporting Process Service Levels

Sl. No.	Measurement	Target	Severity	Penalty
1	Submission of MIS reports. The SI shall submit the MIS reports as requested by SIA	Report for previous month to be submitted by 7 th of next Month	Medium	1% of the QGR for every 1 day of delay in submission of incremental basis to a maximum of 5%
2	Implementing Change Requests: The SI would implement approved change request within 2 days of its approval	100% of all approved change requests	Medium	1% of QGR for >5 violations of Service Parameter
3	Customization of EMS reports	Customized reports shall be created and submitted within 7 days from date of request submitted by SIA.	Medium	1% of QGR for every 7 days delay in submission of customized reports to a

				maximum of 10% of QGR.
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These SLAs would be calculated for each of the following types of incidences:

- **Virus Attack**- Any virus infection and passing of malicious code shall be monitored at the gateway level or user complains of virus infection shall be logged at the help desk system and collated every quarter.
- **Denial of Service Attack** Non availability of any services shall be analyzed and forensic evidence shall be examined to check whether it was due to external DoS attack. **Intrusion** Compromise of any kind of data hosted by SDC
- **SPAM statistics** on monthly basis shall be monitored through reports generated by Anti-SPAM software.
- Any other security related threat

Table 6: Security and Incident Management Service Level

Sl. No.	Incidents	Penalty
1	For every virus attack reported and not resolved within 24 hours from the time of patch or virus removal tool/process is available	Rs. 10,000
2	For every incidence of Denial of service attack	Rs. 200,000
3	For every incidence of Data Theft/Destroy/compromised on data Integrity (Compromise of any kind of data hosted by DR)	Rs. 5,00,000 (In addition to any other penalty, punishment applicable under the legal provisions of the Country and the State)
4	Host level Intrusion	Rs. 2,00,000
5	Ransomware Incident	Rs 5,00,000
6	Missing a security incident alert of critical nature	Rs 1,00,000/- per incident

Cloud Management Related SLA

Table 7 :Virtual infrastructure related Service Levels

Sl. No.	Measurement	Target	Severity	Penalty
1.	Provisioning and De-provisioning of Virtual Machines	Within 30 Minutes after the approval of the request	Medium	0.5% of the QGR for every 1 hours or part delay beyond the target time. To the maximum capping of 5 hrs.

Sl. No.	Measurement	Target	Severity	Penalty
		by the concerned Authority		Beyond 5 hours, 1% of the QGR for every 1 hour.
2.	Overall Cloud Solution Availability	99.749%	Critical	<p>99.25% – 99.749% - 1% of QGR</p> <p>98.75% - 99.25% - 2% of QGR</p> <p>Subsequently, every 0.5% drop in SLA criteria - 2% of QGR</p> <p>Overall Cloud Solution Availability will be measured by following formula:</p> $\text{Availability \%age} = \{(\text{Agreed Service Time} - \text{Subsystem Down Time}) / (\text{Agreed Service time}) * (100\%)\}.$ <p>** Scheduled downtime will be excluded.</p>
3.	Cloud Orchestration layer Availability	99.749%	Critical	<p>99.25% – 99.749% - 1% of QGR</p> <p>98.75% - 99.25% - 2% of QGR</p> <p>Subsequently, every 0.5% drop in SLA criteria - 2% of QGR</p> <p>The component availability will be measured by following formula:</p> $\text{Component Availability \%age} = \{(\text{Agreed Service Time for the component} - \text{Down Time of the component}) / (\text{Agreed Service time for the component}) * (100\%)\}$
4.	Cloud Security layer Availability	99.749%	Critical	<p>99.25% – 99.749% - 1% of QGR</p> <p>98.75% - 99.25% - 2% of QGR</p> <p>Subsequently, every 0.5% drop in SLA criteria - 2% of QGR</p> <p>The component availability will be measured by following formula:</p>

Sl. No.	Measurement	Target	Severity	Penalty
				Component Availability %age = $\{(Agreed\ Service\ Time\ for\ the\ component - Down\ Time\ of\ the\ component) / (Agreed\ Service\ time\ for\ the\ component)\} * (100\%)$
5	Data/VM Backup success per day	100% 96-99% 90-95.9%	Critical	No penalty 1% of QGR 5% of QGR

Patch Management related SLA

Table 8 :Patch Management SLA

Measurement	Target	Severity	Penalty
Patch Management	Critical Patches to be implemented within 10 days of patch release	Medium	0.05% of QGR
	Non Critical Patches to be implemented within 15 days of patch release	Low	0.01% of QGR
	Optional Patches to be implemented within 30 days of patch release	Low	0.01% of QGR

Technical Resources Service levels

Incases where 24x7 technical resources are not available the support personnel should be available over phone. On critical situations or when directed by SIA, the support personnel must be available onsite within 3 hours of request from SIA. Non availability of the support personnel as stated above will be treated equivalent to single occasion downtime for critical components. The core resources/manpower like Project Manager and level 3 resources deployed by the SI should be on rolls of the respective SI and not contracted or outsourced personnel.

Table 9 : Resource shift Service Level

Bidder needs to provide adequate number of resources to comply with the shift requirement. In case if any additional resource is required, he/she should meet the experience, educational and certification criteria.

One resource can continue 22 days in a month, subject to compliance of extant provisions as laid down by the Department of Labour, GoWB. This is the minimum resources required to be deployed in the DC cum DR at Siliguri, however to maintain the SLA the Bidder must deploy additional resources, if required.

Measurement	Target	Severity	Penalty
Resource availability for all services requested under Operations and Maintenance.	100% availability of individual type of service (resources) designated for Data Center Operations services and calculated on a quarterly basis	Critical	No Penalty of QGR
Resource availability would be calculated as: (No. of shift days for which resource present at the designated location / Total No. of shift days) x 100	< 100% to >= 90% availability of individual type of service (resources) designated for Data Center Operations services and calculated on a quarterly basis		10% of QGR
	< 90% to >= 80% availability of individual type of service (resources) designated for Data Center Operations services and calculated on a quarterly basis		30% of QGR
	< 80% availability of individual type of service (resources) designated for Data Center Operations services and calculated on a quarterly basis –		Penalty 100% for respective QGR

Example: to illustrate the Resource shift availability in case there are there are 3 shifts per day which will have 2 people in shift 1, 1 in shift 2 and 1 in shift 3.

Total shift per day will be = 4 (2 x 1 + 1 x 1 + 1 x 1) per quarter it would be = 360 shifts

In a quarter if two people were not present in shift 1 for 7 days then 2 x 7 = 14 shifts will be considered for the unavailability of manpower.

Uptime % = (shifts in which manpower was available / total number of shifts) x 100

Uptime c1/0 = (1 — 14/360) x 100

Uptime % = 96.11%

TPA will follow the process mentioned above while calculating man shift availability.

- Notwithstanding anything contained in this Agreement of the RFP, the maximum aggregate penalty that can be levied on the SI for a quarter shall not exceed 10% of the total QGR value of the respective quarter (i.e. the sum of all invoices raised for the respective quarter by the SI) and can be imposed for reasons that are solely applicable to the SI.

SLA Review Process

Either SIA or SI may raise an issue by documenting the business or technical problem, which presents a reasonably objective summary of both points of views and identifies specific points of disagreement with possible solutions.

- A meeting or conference call will be conducted to resolve the issue in a timely manner. The documented issues will be distributed to the participants at least 24 hours prior to the discussion if the issue is not an emergency requiring immediate attention.
- The SIA and the SI shall develop an interim solution, if required, and subsequently the permanent solution for the problem at hand. The SI will then communicate the resolution to all interested parties.
- Incase the issue is still unresolved; the arbitration procedures described in the Terms & Conditions section will be applicable.

Penalties are subject to:

- Maximum cumulative of 10% penalty (except Table No. 9) can be levied on the value of contract (exclusive of taxes) for reasons that are solely applicable to the SI.
- In the event of exceeding 20% penalty, it will be deemed to be an event of default and can lead to termination.
- In the case of maximum Penalty of 10% being calculated for the SLA breaches by the SI for four consecutive QGR due to breach of service level as per the agreement, then the performance of the SI will be reviewed and also may be subjected to Termination of the order for the FMS Period. In such case, the provisions of the Termination clause as per the agreement shall apply.

SAMPLE SLA AUDIT REPORT

Computation of other Penalty except manpower				
Sl. No.	SLA Description	Penalty (%)	Remarks	Priority
1	HCI Infra Availability			
2	Backup Device & Backup Service Availability			
3	Connectivity with DC Site			
4	Internet Availability			
5	LAN Availability			
6	Restore Requests			
7	Scheduled downtime			
8	Power Availability			

Computation of other Penalty except manpower				
Sl. No.	SLA Description	Penalty (%)	Remarks	Priority
9	PAC Availability			
10	Surveillance			
11	BMS Availability			
12	DCIM Availability			
13	Civil and Minor Works			
14	MIS Reporting			
15	Implementing Change Requests			
16	Customization of EMS Report			
17	Virus Attack			
18	DoS Attack			
19	Host level Intrusion			
20	Ransomware Incident			
21	Missing Security Incident alert of Critical Nature			
22	Provisioning and de-provisioning of VMs			
23	Overall Cloud Solution Availability			
24	Data/VM Backup success per day			
25	Patch Management			
Total Penalty (%)				

Annexure - 01**EOI COVER LETTER**
(On Organization Letter Head)

To,
Regional General Manager/East
Eastern Region, 19th Floor, Aurora Waterfront Building,
Plot no. 34/1, Block -GN, Sector - V,
Salt Lake City, Kolkata -700091, West Bengal

Ref: RailTel's EOI Ref:

Dear Sir/Madam,

1. I, the undersigned, on behalf of M/s, having carefully examined the referred EOI offer to participate in the same, in full conformity with the said EOI and all the terms and conditions thereof, including corrigendum issued till last date of submission of EOI. It is also undertaken and submitted that we are in abidance of Clause 4 (from Clause 4.1 to Clause 4.10) of EOI.
2. I agree to abide by this Proposal, consisting of this letter, our Pre-qualification, Technical and Commercial Proposals, for a period of 210 days from the date fixed for submission of Proposals as stipulated in the EOI and modifications resulting from contract negotiations, and it shall remain binding upon us and may be accepted by you at any time before the expiration of that period.
3. I acknowledge that the Authority will be relying on the information provided in the Proposal and the documents accompanying the Proposal for selection of the Commercially Suitable Partner (CSP) for the aforesaid Service, and we certify that all information provided therein is true and correct; nothing has been omitted which renders such information misleading; and all documents accompanying the Proposal are true copies of their respective originals.
4. I undertake, if our Bid is accepted, to commence our services as per scope of work as specified in the contract document.
5. Until a formal Purchase Order or Contract is prepared and executed, this Bid and supplement / additional documents submitted (if any), together with your written acceptance thereof in your notification of award shall constitute a binding contract between us.
6. I hereby undertake and give unconditional acceptance for compliance of all terms & conditions of CoR (WBEIDC's) Requirement.
7. I hereby undertake that there will be no deviation from the Terms and Conditions of EOI and CoR (WBEIDC's) Requirement.,

Signature of Authorised Signatory Name
Designation

Annexure - 02

Local Content Compliance
(On Organization Letter Head)

To,
Regional General Manager/East
Eastern Region, 19th Floor, Aurora Waterfront Building,
Plot no. 34/1, Block -GN, Sector - V,
Salt Lake City, Kolkata -700091, West Bengal

Ref: RailTel's EOI Ref:

Dear Sir/Ma'am,

I, the undersigned, on behalf of M/s _____, hereby submits that our technical solution for the 'Scope of Work' mentioned under the EoI document is in compliance of local content requirement and makes us equivalent to 'Class-I local supplier' / 'Class-II local supplier' (mention whichever is applicable) for the EoI under reference, as defined under the order No. P-45021/2/2017- PP(BE-II) dt. 04-June-2020 issued by Ministry of Commerce and Industry, Govt. of India.

I hereby certify that M/s _____ fulfills all requirements in this regard and is eligible to be considered and for the submitted bid Local Content Percentage is _____ % (write in figures as well as in words).

I hereby acknowledge that in the event of acceptance of bid of M/s on above certificate and if the certificate is found to be false at any stage, the false certificate would be a ground for immediate termination of contract and further legal action in accordance with the Law, including but not limited to the encashment of Bank Guarantee related to Empanelment and Performance Bank Guarantee (PBG), as available with RailTel, related to this EoI.

Signature of Authorised Signatory

Name Designation

Annexure - 03**CHECKLIST OF DOCUMENTS FOR BID SUBMISSION**

(On Organization Letter Head)

To,
Regional General Manager/East
Eastern Region, 19th Floor, Aurora Waterfront Building,
Plot no. 34/1, Block -GN, Sector - V,
Salt Lake City, Kolkata -700091, West Bengal

Ref: RailTel's EOI Ref:

S. No.	Document
1	EOI Cover Letter (Annexure-01)
2	EMD as per EOI document
3	This EOI copy duly Signed and Stamped by the Authorised Signatory of Bidder
4	All Annexure/ Appendices/Formats/ Declarations
5	Compliance of eligibility criteria related documents as per Clause 3
6	Manufacturers Authentication Form
7	Any relevant document found suitable by bidder

Note:

1. The technical bid should have a 'Index' at the starting and all pages of bid should be serially numbered and should be traceable as per the 'Index'.
2. All the submitted documents should be duly stamped and signed by the Authorized Signatory at each page.
3. The above checklist is indicative only. RailTel may ask for additional documents from the bidders, as per the requirement.

Annexure – 04**Commercial Bid**

(On eNvida Portal – format to be downloaded & then uploaded with filled value)

To be Uploaded as “excel” in eNvida Portal

To,
Regional General Manager/East
Eastern Region, 19th Floor, Aurora Waterfront Building,
Plot no. 34/1, Block -GN, Sector - V,
Salt Lake City, Kolkata -700091, West Bengal

Ref: RailTel's EOI Ref:

Dear Sir,

Sl. No.	Item / Job Description	Product	HSN/SAC	Qty.	Unit	Unit Rate	Total
1	Deliver, Installation, Commissioning and Integration of Civil Infrastructure	Misc		1	Lot	84,99,116.70	84,99,116.70
2	Deliver, Installation, Commissioning and Integration of Electrical Infrastructure	Misc		1	Lot	1,27,47,712.50	1,27,47,712.50
3	Deliver, Installation, Commissioning and Integration of Diesel Generator Set with all related accessories	Greaves		2	Nos.	41,45,123.70	82,90,247.40
4	Deliver, Installation, Commissioning and Integration of Isolation Transformer with all related accessories	Numeric		2	Nos.	4,84,380.00	9,68,760.00
5	Deliver, Installation, Commissioning and Integration of Central UPS system with all related accessories	Vertiv		2	Nos.	34,04,014.20	68,08,028.40
6	Deliver, Installation, Commissioning and Integration of UPS system for BMS equipments with all related accessories	Vertiv		2	Nos.	3,78,855.00	7,57,710.00

Sl. No.	Item / Job Description	Product	HSN/SAC	Qty.	Unit	Unit Rate	Total
7	Deliver, Installation, Commissioning and Integration of Precision Air-conditioner System with all related accessories	Vertiv		2	Nos.	18,55,349.10	37,10,698.20
8	Deliver, Installation, Commissioning and Integration for Rack Containment Frame with Rack and Cold and Hot Aisle Containment system with all related accessories	Vertiv (1 Rack containment with 6 Rack with 2 Nos. 35kVA PAC + 1 Rack containment with 4 Rack without RAC)		2	Lot	69,78,244.50	1,39,56,489.00
9	Deliver, Installation, Commissioning and Integration of IP PDU for Server and Network Rack with all related accessories	Vertiv		20	Nos.	61,055.10	12,21,102.00
10	Deliver, Installation, Commissioning and Integration of IP KVM switch with Display Unit including all related accessories	Vertiv		4	Nos.	18,19,720.80	72,78,883.20
11	Deliver, Installation, Commissioning and Integration of various equipments for Building Management system with all related accessories as per scope	Misc		1	Lot	70,61,712.30	70,61,712.30
12	Deliver, Installation, Commissioning and Integration of Building Management System software with all related accessories	Siemens		1	Lot	8,17,392.60	8,17,392.60
13	Deliver, Installation, Commissioning and Integration of Structured Passive Cabling Components of LAN	Commscope		1	Lot	38,92,342.50	38,92,342.50

Sl. No.	Item / Job Description	Product	HSN/SAC	Qty.	Unit	Unit Rate	Total
	infrastructure, Open Common Rack with all related accessories						
14	Delivery, Installation, Commissioning and Integration of Monitoring Device of Various equipment for IT and Non-IT Infrastructure	Desktop : Dell (10Nos.), MFP : HP (2Nos.), 55" Display : LG		1	Lot	16,43,433.30	16,43,433.30
15	Deliver, Installation, Commissioning and Integration of Router	HPE		2	Nos.	12,97,447.20	25,94,894.40
16	Deliver, Installation, Commissioning and Integration Network Security Devices	4 Nos. Firewall : Fortinet + 2 Nos. DDoS : Radeware		1	Lot	2,81,45,961.90	2,81,45,961.90
17	Delivery, Installation, Commissioning and Integration of Link Load Balancer	Array Network		2	Nos.	79,01,881.20	1,58,03,762.40
18	Deliver, Installation, Commissioning and Integration of Hardware Load Balancer	Array Network		2	Nos.	75,48,737.40	1,50,97,474.80
19	Deliver, Installation, Commissioning and Integration of Network Switching Devices	HPE (4 Nos. Spine Switch + 8 Nos. Leaf Switch + 4 Nos. Copper Leaf Switch)		1	Lot	3,15,02,853.00	3,15,02,853.00
20	Deliver, Installation, Commissioning and Integration of Hyper-Converged Infrastructure	52 Nos. HPE Servers + Nutanix HCI Software		1	Lot	41,18,28,517.80	41,18,28,517.80
21	Delivery, Installation, Configuration, Commissioning, and Integration of Backup Device and related software	5 Dell Server with 300TB capacity based License HYCU		1	Lot	1,86,83,244.90	1,86,83,244.90
22	Deliver, Installation, Commissioning, and Integration of	Microfocus		1	Lot	1,51,36,887.60	1,51,36,887.60

Sl. No.	Item / Job Description	Product	HSN/SAC	Qty.	Unit	Unit Rate	Total
	Centralized Monitoring Software						
23	Installation, Commissioning and Integration Charge	N/A		1	Lot	43,34,400.00	43,34,400.00
24	Operation and Maintenance Support Service	N/A		1	Lot	5,19,30,000.00	5,19,30,000.00
Total Estimated Cost (Without Tax)							67,27,11,624.90
Total Estimated Cost (With Tax)							79,37,99,717.38
	Total in Figures :: (Rs Seventy-Nine Crores Thirty Seven Lakhs Ninety Nine Thousand Seven Hundred Seventeen & Thirty Eight Paise Only)						
	Rate to be quoted in percentage [Above (+)/Below(-) /At par] of the Total Estimated Cost (IN FIGURES)						
	Rate to be quoted in percentage [Above (+)/Below(-) /At par] the Total Estimated cost (IN WORDS)						

NOTE:

	<p>Rate to be quoted in percentage [Above (+)/Below(-) /At par] the Total Estimated cost (IN WORDS)</p> <p>The bidder should submit a separate sheet, which includes the details of tax applicable and SAC/HSN Code for each component of the SOR, the breakup of price for each item of SOR in terms of Basic Unit Price, GST, Freight, Forwarding, Packing, Insurance and any other Levies/Charges already paid or payable by the supplier shall also be quoted separately</p> <p>In the event of any discrepancy between the rates in figures and in words, the quote shall be considered taking into account the one written in words for evaluation purpose.</p> <p>In case of Above(+)/Below(-) not mentioned with percentage bid then it shall be deemed to be considered below (-) and bid shall be evaluate accordingly</p> <p>Note: Prices in price bid should be quoted in the provided format. All prices should be quoted in Indian Rupees and indicated both in figure and words. Price in words shall prevail, in the event of any mismatch.</p>

	<p>CONTRACTOR: Signature..... Name </p>
	<p>Designation Company Seal</p>



Annexure – 05**PROFORMA FOR PERFORMANCE BANK GUARANTEE
(On Stamp Paper of ₹ One Hundred)**

To,
Regional General Manager/East
Eastern Region, 19th Floor, Aurora Waterfront Building,
Plot no. 34/1, Block -GN, Sector - V,
Salt Lake City, Kolkata -700091, West Bengal

Ref: RailTel's EOI Ref:

Dear Sir,

1. In consideration of the RailTel Corporation of India Limited (CIN: L64202DL2000GOI107905), having its registered office at Plate-A, 6th Floor, Office Block Tower-2, East Kidwai Nagar, New Delhi – 110023 (herein after called “RailTel”) having agreed to exempt (CIN :) having its registered office at (Hereinafter called “the said Contractor”) from the demand, under the terms and conditions of Purchase Order No. dated made between RailTel and for (hereinafter called “the said Agreement”) of security deposit for the due fulfilment by the said Contractor of the terms and condition contained in the said Agreement, or production of a Bank Guarantee for Rs. (Rs. Only). We (indicate the name and address and other particulars of the Bank) (hereinafter referred to as ‘the Bank’) at the request of contractor do hereby undertake to pay RailTel an amount not exceeding Rs. (Rs Only) 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 of any of the terms or conditions contained in the said Agreement.
2. We, the Bank do hereby undertake to pay the amounts 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 by the said Contractor of any of terms or conditions contained in the said Agreement 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 (Rs Only).
3. We, the Bank undertake to pay the RailTel any money so demanded notwithstanding any dispute or disputes raised by the Contractor in any suit or proceedings pending before any court or Tribunal relating thereto our liability under this present being, absolute and unequivocal. The payment so made by us under this Bond shall be a valid discharge of our liability for payment there under and the Contractor shall have no claim against us for making such payment.
4. We, the Bank further agree that the Guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and 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 and accordingly discharges this Guarantee. Unless a demand or claim under the Guarantee is made on us in writing on or before We shall be discharged from all liability under this Guarantee thereafter.

5. We, the Bank further agree with the RailTel that the RailTel shall have 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 or to postpone for any time or from time to time any of the powers exercisable by the RailTel against the said Contractor 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 or for any forbearance, act or omission on the part of RailTel or any indulgence by the RailTel to the said Contractor 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.

This Guarantee will not be discharge due to the change in the constitution of the Bank or the Contractor.

(..... indicate the name of Bank) lastly undertake not to revoke this Guarantee during its currency except with the previous consent of RailTel in writing.

Dated the Day of 2021 for (Name of Bank)

In the presence of Witnesses:

- | | |
|------------------------|------|
| 1. Signature With Date | Name |
| 2. Signature With Date | Name |

Encl: SFMS PBG Report

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Annexure – 06**NON-DISCLOSURE AGREEMENT**

This Non-Disclosure Agreement (this “Agreement”) is made and entered into on this ____ day of ___, 2021 (the “Effective Date”) at_.

By and between

RailTel Corporation of India Limited, (CIN: L64202DL2000GOI107905), a Public Sector Undertaking under Ministry of Railways, Govt. of India, having its registered and corporate office at Plate-A, 6th Floor, Office Block, Tower -2, East Kidwai Nagar, New Delhi-110023 & Eastern Region Office at Eastern Region, 19th Floor, Aurora Waterfront Building, Plot no. 34/1, Block -GN, Sector - V, Salt Lake City, Kolkata -700091, West Bengal, (hereinafter referred to as 'RailTel'), which expression shall unless repugnant to the context or meaning thereof, deem to mean and include its successors and its permitted assignees of the ONE PART,

And

_____) (CIN: _____), a company duly incorporated under _____ the _____ provisions of Companies Act, having its registered office at _____, (hereinafter referred to as '_____'), which expression shall unless repugnant to the context or meaning thereof, deem to mean and include its successors and its permitted assignees of OTHER PART

RailTel and _____ shall be individually referred to as “Party” and jointly as “Parties”

WHEREAS, RailTel and _____, each possesses confidential and proprietary information related to its business activities, including, but not limited to, that information designated as confidential or proprietary under Section 2 of this Agreement, as well as technical and non- technical information, patents, copyrights, trade secrets, know-how, financial data, design details and specifications, engineering, business and marketing strategies and plans, forecasts or plans, pricing strategies, formulas, procurement requirements, vendor and customer lists, inventions, techniques, sketches, drawings, models, processes, apparatus, equipment, algorithms, software programs, software source documents, product designs and the like, and third party confidential information (collectively, the “Information”);

WHEREAS, the Parties have initiated discussions regarding a possible business relationship for

WHEREAS, each Party accordingly desires to disclose certain Information (each Party, in such

disclosing capacity, the “Disclosing Party”) to the other Party (each Party, in such receiving capacity, the “Receiving Party”) subject to the terms and conditions of this Agreement.

NOW THEREFORE, in consideration of the receipt of certain Information, and the mutual promises made in this Agreement, the Parties, intending to be legally bound, hereby agree as follows:

1. Permitted Use.

(a) Receiving Party shall:

- (i) hold all Information received from Disclosing Party in confidence;
- (ii) use such Information for the purpose of evaluating the possibility of entering into a commercial arrangement between the Parties concerning such Information; and
- (iii) restrict disclosure of such Information to those of Receiving Party’s officers, directors, employees, affiliates, advisors, agents and consultants (collectively, the “Representatives”) who the Receiving Party, in its reasonable discretion, deems need to know such Information, and are bound by the terms and conditions of (1) this Agreement, or (2) an agreement with terms and conditions substantially similar to those set forth in this Agreement.

(b) The restrictions on Receiving Party’s use and disclosure of Information as set forth above

shall not apply to any Information that Receiving Party can demonstrate:

- (i) is wholly and independently developed by Receiving Party without the use of Information of Disclosing Party;
- (ii) at the time of disclosure to Receiving Party, was either (A) in the public domain, or (B) known to Receiving Party;
- (iii) is approved for release by written authorization of Disclosing Party; or
- (iv) is disclosed in response to a valid order of a court or other governmental body in the India or any political subdivision thereof, but only to the extent of, and for the purposes set forth in, such order; provided, however, that Receiving Party shall first and immediately notify Disclosing Party in writing of the order and permit Disclosing Party to seek an appropriate protective order.

(c)Both parties further agree to exercise the same degree of care that it exercises to protect its own Confidential Information of a like nature from unauthorised disclosure, but in no event shall a less than reasonable degree of care be exercised by either party.

2. Designation.

(a) Information shall be deemed confidential and proprietary and subject to the restrictions of this Agreement if, when provided in:

- (i) written or other tangible form, such Information is clearly marked as proprietary or confidential when disclosed to Receiving Party; or
- (ii) oral or other intangible form, such Information is identified as confidential or proprietary at the time of disclosure.

3. Cooperation. Receiving Party will immediately give notice to Disclosing Party of any unauthorized use or disclosure of the Information of Disclosing Party.

4. Ownership of Information. All Information remains the property of Disclosing Party and no license or other rights to such Information is granted or implied hereby. Notwithstanding the foregoing, Disclosing Party understands that Receiving Party may currently or in the future be developing information internally, or receiving information from other parties that may be similar to Information of the Disclosing Party. Notwithstanding anything to the contrary, nothing in this Agreement will be construed as a representation or inference that Receiving Party will not develop products, or have products developed for it, that, without violation of this Agreement, compete with the products or systems contemplated by Disclosing Party's Information.

5. No Obligation. Neither this Agreement nor the disclosure or receipt of Information hereunder shall be construed as creating any obligation of a Party to furnish Information to the other Party or to enter into any agreement, venture or relationship with the other Party.

6. Return or Destruction of Information.

(a) All Information shall remain the sole property of Disclosing Party and all materials containing any such Information (including all copies

made by Receiving Party) and its Representatives shall be returned or destroyed by Receiving Party immediately upon the earlier of:

- (i) termination of this Agreement;
- (ii) expiration of this Agreement; or
- (iii) Receiving Party's determination that it no longer has a need for such Information.

(b) Upon request of Disclosing Party, Receiving Party shall certify in writing that all Information received by Receiving Party (including all copies thereof) and all materials containing such Information (including all copies thereof) have been destroyed.

7. Injunctive Relief: Without prejudice to any other rights or remedies that a party may have, each party acknowledges and agrees that damages alone may not be an adequate remedy for any breach of this Agreement, and that a party shall be entitled to seek the remedies of injunction, specific performance and/or any other equitable relief for any threatened or actual breach of this Agreement

8. Notice.

(a) Any notice required or permitted by this Agreement shall be in writing and shall be delivered as follows, with notice deemed given as indicated:

- (i) by personal delivery, when delivered personally;
- (ii) by overnight courier, upon written verification of receipt; or
- (iii) by certified or registered mail with return receipt requested, upon verification of receipt.

(b) Notice shall be sent to the following addresses or such other address as either Party specifies in writing.

RailTel Corporation of India limited:

Attn: Regional General Manager/ East

Address: RailTel Corporation of India Limited, Eastern Region, 19th Floor, Aurora Waterfront Building, Plot no. 34/1, Block -GN, Sector - V, Salt Lake City, Kolkata - 700091, West Bengal Phone: 033-4401490

Attn: General Manager/ Marketing/East

Address: Eastern Region, 19th Floor, Aurora Waterfront Building,
Plot no. 34/1, Block -GN, Sector - V,
Salt Lake City, Kolkata -700091, West Bengal
Phone: 033-4401490

9. Term, Termination and Survivability.

- (a) Unless terminated earlier in accordance with the provisions of this agreement, this Agreement shall be in full force and effect for a period of years from the effective date hereof.
- (b) Each party reserves the right in its sole and absolute discretion to terminate this Agreement by giving the other party not less than 30 days' written notice of such termination.
- (c) Notwithstanding the foregoing clause 9(a) and 9 (b) , Receiving Party agrees that its obligations, shall:
 - (i) In respect to Information provided to it during the Term of this agreement, shall survive and continue even after the expiry of the term or termination of this agreement; and
 - (ii) not apply to any materials or information disclosed to it thereafter.

10. Governing Law and Jurisdiction. This Agreement shall be governed in all respects solely and exclusively by the laws of India without regard to its conflicts of law principles. The Parties hereto expressly consent and submit themselves to the jurisdiction of the courts of New Delhi.

11. Counterparts. This agreement is executed in duplicate, each of which shall be deemed to be the original and both when taken together shall be deemed to form a single agreement

12. No Definitive Transaction. The Parties hereto understand and agree that no contractor agreement with respect to any aspect of a potential transaction between the Parties shall be deemed to exist unless and until a definitive written agreement providing for such aspect of the transaction has been executed by a duly authorized representative of each Party and duly delivered to the other Party (a "Final Agreement"), and the Parties hereby waive, in advance, any claims in connection with a possible transaction unless and until the Parties have entered into a Final Agreement.

(a) Settlement of Disputes: The parties shall, at the first instance, attempt to resolve through good faith negotiation and consultation, any difference, conflict or question arising between the parties hereto relating to or concerning or arising out of or in connection with this agreement, and such negotiation or consultation shall begin promptly after a Party has delivered to another Party a written request for such consultation.

(b) In the event of any dispute, difference, conflict or question arising between the parties hereto, relating to or concerning or arising out of or in connection with this agreement, is not settled through good faith negotiation or consultation, the same shall be referred to arbitration by a sole arbitrator.

13. The sole arbitrator shall be appointed by CMD/RailTel out of the panel of independent arbitrators maintained by RailTel, having expertise in their respective domains. The seat and the venue of arbitration shall be New Delhi. The arbitration proceedings shall be in accordance with the provision of the Arbitration and Conciliation Act 1996 and any other statutory amendments or modifications thereof. The decision of arbitrator shall be final and binding on both parties. The arbitration proceedings shall be conducted in English Language. The fees and cost of arbitration shall be borne equally between the part

14. CONFIDENTIALITY OF NEGOTIATIONS

Without the Disclosing Party's prior written consent, the Receiving Party shall not disclose to any Person who is not a Representative of the Receiving Party the fact that Confidential Information has been made available to the Receiving Party or that it has inspected any portion of the Confidential Information or that discussions between the Parties may be taking place.

15. REPRESENTATION

The Receiving Party acknowledges that the Disclosing Party makes no representation or warranty as to the accuracy or completeness of any of the Confidential Information furnished by or on its behalf. Nothing in this clause operates to limit or exclude any liability for fraudulent misrepresentation.

16. ASSIGNMENT

Neither this Agreement nor any of the rights, interests or obligations under this Agreement shall be assigned, in whole or in part, by operation of law or otherwise by any of the Parties without the prior written consent of each of the other Parties. Any purported assignment without such consent shall be void. Subject to the preceding sentences, this Agreement will be binding upon,

inure to the benefit of, and be enforceable by, the Parties and their respective successors and assigns.

17. EMPLOYEES AND OTHERS

Each Party shall advise its Representatives, contractors, subcontractors and licensees, and shall require its Affiliates to advise their Representatives, contractors, subcontractors and licensees, of the obligations of confidentiality and non-use under this Agreement, and shall be responsible for ensuring compliance by its and its Affiliates' Representatives, contractors, subcontractors and licensees with such obligations. In addition, each Party shall require all persons and entities who are not employees of a Party and who are provided access to the Confidential Information, to execute confidentiality or non-disclosure agreements containing provisions no less stringent than those set forth in this Agreement. Each Party shall promptly notify the other Party in writing upon learning of any unauthorized disclosure or use of the Confidential Information by such persons or entities.

18. NO LICENSE

Nothing in this Agreement is intended to grant any rights to under any patent, copyright, or other intellectual property right of the Disclosing Party, nor will this Agreement grant the Receiving Party any rights in or to the Confidential Information of the Disclosing Party, except as expressly set forth in this Agreement.

19. RELATIONSHIP BETWEEN PARTIES:

Nothing in this Agreement or in any matter or any arrangement contemplated by it is intended to constitute a partnership, association, joint venture, fiduciary relationship or other cooperative entity between the parties for any purpose whatsoever. Neither party has any power or authority to bind the other party or impose any obligations on it and neither party shall purport to do so or hold itself out as capable of doing so.

20. UNPUBLISHED PRICE SENSITIVE INFORMATION (UPSI)

_____ agrees and acknowledges that _____, its Partners, employees, representatives etc., by virtue of being associated with RailTel and being in frequent communication with RailTel and its employees, shall be deemed to be "Connected Persons" within the meaning of SEBI (Prohibition of Insider Trading) Regulations, 2015 and shall be

bound by the said regulations while dealing with any confidential and/ or price sensitive information of RailTel. _____ shall always and at all times comply with the obligations and restrictions contained in the said regulations. In terms of the said regulations, _____ shall abide by the restriction on communication, providing or allowing access to any Unpublished Price Sensitive Information (UPSI) relating to RailTel as well as restriction on trading of its stock while holding such Unpublished Price Sensitive Information relating to RailTel

21. MISCELLANEOUS.

This Agreement constitutes the entire understanding among the Parties as to the Information and supersedes all prior discussions between them relating thereto. No amendment or modification of this Agreement shall be valid or binding on the Parties unless made in writing and signed on behalf of each Party by its authorized representative. The failure or delay of any Party to enforce at any time any provision of this Agreement shall not constitute a waiver of such Party's right thereafter to enforce each and every provision of this Agreement. In the event that any of the terms, conditions or provisions of this Agreement are held to be illegal, unenforceable or invalid by any court of competent jurisdiction, the remaining terms, conditions or provisions hereof shall remain in full force and effect. The rights, remedies and obligations set forth herein are in addition to, and not in substitution of, any rights, remedies or obligations which may be granted or imposed under law or in equity.

IN WITNESS WHEREOF, the Parties have executed this Agreement on the date set forth above.

Bidders Name:	RailTel Corporation of India Limited:
By	By
_ Name:	_ Name:
Title:	Title:

Witnesses:

Annexure – 07**Technical Compliance**

To,
Regional General Manager/East
Eastern Region, 19th Floor, Aurora Waterfront Building,
Plot no. 34/1, Block -GN, Sector - V,
Salt Lake City, Kolkata -700091, West Bengal

Ref: RailTel's EOI Ref:

Business Associates are requested to mention the details of compliance of technical solution proposed:

SN	Item	QTY	Make	Model	HSN	MAF	Compliance	Remarks

Note: MAF from OEM to be provided in name of RailTel Corporation of India Ltd. & in the name of the Bidder both separately.

Performa of PreBid Agreement

NOT APPLICABLE



Annexure – 09**FORMAT FOR AFFIDAVIT TO BE UPLOADED BY BA ALONGWITH THE EOI DOCUMENTS**

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

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

1. I/we the BA (s), am/are signing this document after carefully reading the contents.
2. I/we the BA(s) also accept all the conditions of the EOI and have signed all the pages in confirmation thereof.
3. I/we hereby declare that I/we have downloaded the EOI documents from RailTel website www.railtelindia.com. I/we have verified the content of the document from the website and there is no addition, no deletion or no alternation to be content of the EOI document. In case of any discrepancy noticed at any stage i.e., evaluation of EOI, execution of work or final payment of the contract, the master copy available with the RailTel Administration 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 EOI 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 EOI, it shall lead to forfeiture of the EOI EMD besides banning of business for five years on entire RailTel. Further, I/we (insert name of the BA)** and all my/our constituents understand that 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 incorrect at any time after the award of the contract, it will lead to termination of the contract, along with forfeiture of EMD/SD and Performance guarantee besides any other action provided in the contract including banning of business for five years on entire RailTel.

VERIFICATION

I/We above named EOI 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 BA

DEPONENT
SEAL AND SIGNATURE OF THE BA

Place:
Dated:

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

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Annexure – 10**Bank Guarantee Format (against EMD)**

Ref: RailTel's EOI Ref:

WHEREAS, _____ [name of Bidder] (hereinafter called "the Bidder") has submitted his Bid dated _____ [date] Selection of Implementation Partner from RailTel Empaneled Business Associate for the work of "XX name of the work XX." [name of Contract] (hereinafter called "the Bid").

KNOW ALL PEOPLE by these presents that We _____ [name of bank] of _____ [name of country] having our registered office at _____ (Hereinafter called "the Bank") are bound unto RailTel Corporation of India Limited., 6th Floor, IIIrd Block, Delhi Technology Park, Shastri Park, Delhi-110053 [name of Employer] (hereinafter called "the Employer") in the sum of Rs. xxxxxxx (Rupees **in words** only) for which payment well and truly to be made to the said Employer the Bank binds itself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this _____ day of _____ 2022.

THE CONDITIONS of this obligation are:

(1) If after Bid opening the Bidder withdraws his bid during the period of Bid validity specified in the Form of Bid;

or

(2) If the Bidder having been notified of the acceptance of his bid by the Employer during the period of Bid validity:

a) Fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders, if required;

or

b) fails or refuses to furnish the Performance Security, in accordance with the Instruction to Bidders;

or

c) does not accept the correction of the Bid Price;

we undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him owing to the occurrence of one or any of the three conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including the date ____* days after the deadline for submission of Bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this guarantee should reach the Bank not later than the above date.

DATE _____ SIGNATURE OF THE BANK _____

WITNESS _____ SEAL _____

[Signature, name, and address]

* _____ days after the end of the validity

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Annexure – 11**Performa for Contract Agreement**

(LOA No. _____ for “(Name of Work): _____
(_____) of Eastern Region”

This AGREEMENT is made at _____ on this _____ day of _____ two thousand and twenty, by and between RailTel Corporation of India Limited (A Govt. of India Undertaking) having its Registered office at 6th Floor, 3rd Block, Delhi Technology Park, Shastri Park, Delhi 110053, and Eastern Region office at **19th Floor, Aurora Waterfront Building, Plot no. 34/1, Block -GN, Sector - V, Salt Lake City, Kolkata -700091, West Bengal** acting in the premises through Executive Director /Eastern Region (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 “**Name of Work.**” as per tender papers at Annexure ‘A’ read with Corrigendum..... Issued by RailTel hereto, the Contractor has submitted a Tender as per Annexure ‘B’ hereto

AND WHEREAS the said Tender of the Contractor has been accepted for the work of “**Name of Work**” of Eastern Region” 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. Signature _____ :

Date :

Name in Block Capitals :

Address :

2. Signature :

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. Signature :

Date :

Name in Block Capitals :

Address :

2. Signature :

Date :

Name in Block Capitals :

Address :

Annexure – A : Tender Paper No. _____ with corrigendum, if any.

Annexure – B : Firm's offer.

Annexure – C : Letter of Acceptance No. _____ with all enclosures.

Annexure – D : Copy of Contract Performance Guarantee.

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 RAILTEL

Annexure – 12**Technical Specifications**

Scope of Work & Minimum Technical Specification for Deliver, Installation & Integration of Civil Infrastructure		
S/N	Component / Performance / Utility	Minimum Specification
1	Demolition and dismantling	As per Tender Scope of Work
2	Doors : Fire Rated Doors and Other Doors	As per Tender Scope of Work
3	Partitions/ Walls : Fire Rated Gypsum Partition, Brick Partition, Toughened Glass partition for Telecom Room	As per Tender Scope of Work
4	Wall Treatment : Painting & Punning	As per Tender Scope of Work
5	Thermal Insulation Work	As per Tender Scope of Work
6	Damp Proofing	As per Tender Scope of Work
7	Raised floor	As per Tender Scope of Work
8	False Ceiling	.As per Tender Scope of Work
9	Steps	As per Tender Scope of Work
10	Ramp	As per Tender Scope of Work
11	Fire Sealant	As per Tender Scope of Work
12	Furniture : Staging Room, BMS & NOC & Others Room Workstation and Chair, Four- Seated Sofa with Center Table for Reception Area, Modular Reception table, Shoe Rack, Full Height Storage Cabinet	As per Tender Scope of Work
13	Fire Proof Safe / Vault	As per Tender Scope of Work
14	Vitrified Tile for Flooring	As per Tender Scope of Work
15	Miscellaneous Items.	As per Tender Scope of Work
16	Housekeeping	As per Tender Scope of Work
17	Warranty	5 Years onsite comprehensive warranty including entire civil infrastructure from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification for Deliver, Installation & Integration of Electrical Infrastructure		
S/N	Component / Performance / Utility	Minimum Specification
1	System Wiring	As per Tender Scope of Work

2	Illumination System	As per Tender Scope of Work
3	L.V. Switchgear panel	As per Tender Scope of Work
4	L.V. Cables	As per Tender Scope of Work
5	Cable Trays	As per Tender Scope of Work
6	Lighting DB & Raw power	As per Tender Scope of Work
7	Emergency/ BMS DB	As per Tender Scope of Work
8	CAC DB	As per Tender Scope of Work
9	Indoor Lighting Fixtures	As per Tender Scope of Work
10	Point Wiring	As per Tender Scope of Work
11	Earthing Works	As per Tender Scope of Work
12	Earthing Strips & Cables	As per Tender Scope of Work
13	Miscellaneous	As per Tender Scope of Work
14	CAC for Server Room	As per Tender Scope of Work
15	Warranty	5 Years onsite comprehensive warranty including entire electrical infrastructure including Comfort Air conditioners with other accessories from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification for Deliver, Installation & Integration of each Diesel Generator Set with all related accessories

As per Tender selected Make : Greaves, Qty : 02 Nos.

S/N	Component / Performance / Utility	Minimum Specification
1	Capacity 160 KVA with acoustic enclosure as per latest Govt. norms, with not less than 250 liter fuel tank	As per Tender Scope of Work
2	Microprocessor based AMF cum DG sync power control panel suitable for control of 160 kVA D G Set	As per Tender Scope of Work
3	MS exhaust piping of suitable dia	As per Tender Scope of Work
4	Providing earth station with copper plates	As per Tender Scope of Work
5	Supply and fixing of 25 mm x 3 mm copper earth strip	As per Tender Scope of Work
6	Stacking options (one over to other)	As per Tender Scope of Work
7	Warranty	5 Years onsite comprehensive warranty of DG sets including all related accessories, Infrastructure related to smooth operation of DG sets from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification for Deliver, Installation & Integration of each Isolation Transformer

As per Tender selected Make : Numeric, Qty : 02 Nos.

S/N	Component / Performance / Utility	Minimum Specification
1	General	External Input Isolation Delta to Star Transformer
2	Rating	100KVA for individual UPS

3	Phase	3 phase
4	Connection HV	Delta
5	Connection LV	Star (Neutral brought out)
6	LV Neutral Earthing	The Neutral point of the secondary (LV) winding shall be brought out in a separate insulated terminal and shall be solidly earthed.
7	Type of Cooling	ONAN
8	Type of Core	CRGO material
9	Audible sound levels in decibel at rated voltage & frequency	Maximum 51db
10	Warranty	5 Years onsite comprehensive warranty of Isolation Transformer including other related accessories of Isolation Transformer from date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification for Deliver, Installation & Integration of each Central UPS system

As per Tender selected Make : Vertiv, Qty : 02 Nos.

S/N	Component / Performance / Utility	Minimum Specification
1	General	UPS system should be modular and the modules should be Hot Swappable
2	Capacity Module Rating	75KVA / 75KW or higher frame size
3	Capacity	50KVA / 50KW from day 1
4	Hot Swappable Power Module	25KVA/KW or Above
5	UPS topology	Double conversion, 3-level IGBT converters
6	No of controller	Modular control system i.e., each Module has its own control.
7	Switchgear (Internal)	<ul style="list-style-type: none"> ● Maintenance Bypass Switch ● Rectifier Input Switch ● Bypass Input Switch ● Output Isolation Switch
	Electrical Input/Output	
8	Rated input voltage	220/380 V; 230/400 V; 240/415 V
9	Input voltage range	320V to 475V at 100% Load
10	Operating Frequency	50 Hz , Tolerance 40-60Hz
11	Number of output phases	3 phase + neutral + PE
12	Rated output voltage	220/380 V; 230/400 V; 240/415 V, configurable
13	Output Voltage THD	< 1% (100% linear load), < 5% (non-linear load)
14	Overload capability On inverter	1 hour for 90% load ; 10 mins for 100%
15	Communication	SNMP/MODBUS
16	Battery technology	The UPS system shall be capable of utilizing the load testing function, including internally adjustable load testing at the customer site, without the need for a load bank. Testing could be carried out during the annual maintenance shutdown
17	Battery voltage range	12 V, SMF VRLA
18	Battery Backup time	Max 30 - 40 battery blocks
19	Battery Charging current limit	Min 10A each module
20	Battery Connection	15 minutes min VAH for each UPS should be 40500
21	Battery Monitoring System	Individual Battery Monitoring System from day 1
22	Monitoring	UPS and battery should communicate with BMS
23	Service Support Setup	OEM should have own service setup at Kolkata/WB
24	Warranty	5 Years onsite comprehensive warranty including batteries and other accessories related to smooth operation of UPS from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification for Deliver, Installation & Integration of each UPS system for BMS equipments with all related accessories

As per Tender selected Make : Vertiv, Qty : 02 Nos.

S/N	Component / Performance / Utility	Minimum Specification
1	System parameter	
a	Rating	6KVA/6kw 1In-1out
b	Technology	IGBT based Double conversion PWM based online UPS
c	Parallel mode	Yes
d	Installation mode	Rack/Tower
2	Input requirement	
a	Rated voltage	230vac 1-Phase ,3 wire
b	Voltage Range	180VAC -275VAC at full load
c	Rated Frequency	50Hz/60Hz
d	Frequency Range	40Hz ~ 70Hz
e	Power factor	0.99
3	Output Requirement	
a	Rated power	6KVA/6kw
b	Voltage	Single phase, 230VAC
c	Frequency synchronization range	Rated frequency±3Hz. Configurable range: ±0.5Hz ~ ±5Hz
d	Rated Power Factor	Unity
e	Voltage Regulation	1%
f	Dynamic response recovery time	60ms
g	Programmable Outlet	Available
4	Bypass	Static : Inbuilt
5	Efficiency	
a	Online mode (AC-AC)	> 95%
b	Inverter Efficiency (DC-AC)	>90%
6	Battery	
a	Battery Type	Sealed/ lead-acid/Tubular/LI-ION with min 30 minutes backup time with full load
c	Transfer Time	Mains – Battery : 0ms
7	Panel display mode	
8	Warranty	5 Years onsite comprehensive warranty including batteries and other accessories related to smooth operation of UPS from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification for Deliver, Installation & Integration of each Precision Air-conditioner system with all related accessories

As per Tender selected Make : Vertiv, Qty : 02 Nos.

S/N	Component / Performance / Utility	Minimum Specification
1	General	Precision Air Cooling units should be in multiples of minimum 35 kW capacity, catering the IT load of 35 kVA, in N+1 topology
		Cooling System should be Direct Expansion cooling (DX) type in N+1 Topology
		Inbuilt Heater and Humidifier per unit
		Outdoor Unit with fan speed controller
2	Cooling Circuits	One refrigeration circuit, incorporating a high efficiency, fully hermetic variable capacity compressor with crankcase heater, safety valve, filter drier, moisture indicating sight glass, liquid line solenoid valve and an externally equalized expansion valve.
		Each compressor is equipped with pre-set high and low pressure switches for protection against high condensing and low evaporating temperatures. The low pressure switch features an automatic reset.
		The compressor should be supplied along with an external solenoid valve.

		<p>The unit shall be provided with additional protection against high ambient temperature. When the temperature goes over the design conditions, the unit remains in operation with partial load (20% decrease against required).</p> <p>The inclined evaporator coil is manufactured from copper tubes, mechanically bonded to hydrophilic painted aluminum fins, with a stainless steel condensate drain pan.</p> <p>The moisture indicating sight glass, liquid line solenoid valve and expansion valve for each circuit are mounted in a service compartment, isolated from the air stream, to allow checking and adjustment while the unit is in operation.</p>
3	Fan Section	Units should be offered with two plug EC Direct Drive Fan, High efficiency, EC motor with integrated electronics, The fan shall be protected from over temperature of motor, electronics, locked rotor protection, short circuit of motor output. Fans are IP54, Protection class F
4	Cabinet and Frame	The unit shall be powder painted panels with ½” or 10mm insulation. A hinged control access panel opens to a second front panel which is a protection enclosure for high voltage components. The frame is painted with a powder coat finish to protect against corrosion. The unit is totally front and rear accessible including any component removal
5	Air Filtration	The filter cells are made of two deep pleated 4” filters rated MERV8 following ASHRAE 52.2 or G4 following EN779, located within the cabinet, and accessible from the rear of the unit. Frame of the filter shall be made of GI/Aluminum. Clogged filter alarm should be available as standard. Sends a visual alarm to display.
6	Copper piping & Refrigerant	All units equipped with direct expansion circuit are suitable for R410A refrigerant. The unit should support piping distance up to 50mtrs from indoor unit to condenser
7	Microprocessor Controller	Air conditioning models should be controlled by microprocessor-based controller. It can be programmed to control the function of every device within the unit via I/O.
8		<p>The controller should allow setting and monitoring of the following space parameters:</p> <ul style="list-style-type: none"> • Air inlet Temperature • Air supply Temperature • Return Temperature set-point • Supply Temperature set-point • Return Temperature band • Supply Temperature band • Humidity (inlet) • Humidity set-point • Humidity band • Rack Min, Max and Average temperature
9		<p>Following features should be incorporated in the controller.</p> <ul style="list-style-type: none"> • Status Report of the latest 200 event-messages of the unit. • Input for remote on-off and volt-free contacts for simple remote monitoring of low and high priority alarms: high/low temperature, high/low refrigerant pressure, fan/control failure, compressor/control failure and others should be available • LAN management: functions provided as standard include stand-by (in case of failure of the unit in operation, the second one starts automatically), and automatic rotation. • Automatic restart is provided after a power failure.
10	Monitoring	There should be SNMP and Web-management capability for enhanced communications and control. The cards make use of an Ethernet network to monitor and control a wide range of operating parameters, alarms and notifications via a standard web browser.
11	Condenser	The condenser should be with fan speed controller designed & set for usages of R410A refrigerant. The condenser frame shall be made up of a sturdy GI/MS structure. The motorized fan shall be IP54, protection class F
12	Humidifier	The unit is fitted with a canister type steam humidifier suitable for use with water of varying degrees of hardness, provided that the water is not treated or demineralized. The humidifier is complete with a water inlet valve, water outlet valve and a maximum water level sensor, disposable cylinder, steam distributor and electronic controls. Humidifier control is of the ON-OFF type
13	Warranty	5 Years onsite comprehensive warranty including all other accessories related to smooth operation of each Precision Air-conditioning system from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification for Deliver, Installation & Integration of Rack Containment Frame with Rack and Cold & Hot Aisle Containment system with all related accessories

As per Tender selected Make : Vertiv, Qty : 02 Lot

S/N	Component / Performance / Utility	Minimum Specification
1	General	2 Nos. Rack Containment Frame should be proposed with Rack and other accessories
		One Rack Containment frame should support minimum of 6 Nos. 42 U, 19" mounting type with standard Rack for mounting of Servers and Networking device (supplied by SI) plus Cold & Hot Aisle Containment with other necessary accessories as mentioned in the tender.
		Other Rack containment frame (except PAC system) should consider with 4 Nos. 42U Rack 19" mounting type with standard Rack for mounting of Servers and Networking device for future expansion purpose plus Cold & Hot Aisle Containment with other necessary accessories as mentioned in the tender.
		42 U Rack, 600mm (W) X 1000 mm (D) , with integrated hot & cold aisle containment of minimum 300 mm each , Vertical & Horizontal cable manager , blanking panels with rugged & light weight body structure with front glass door in front & rear non-perforated metal split door for effective air flow having a load bearing of 1000KG's
2		Both Cold aisle & hot aisle containment, of minimum 300 mm each, should be part of the Rack frame
3		Rack frame is scalable and modular with load carrying capacity of min1000 Kg
4		Color shade of Rack is RAL 7021
5		Base plinth with 100 mm height
6		Cable entry provision from top & bottom both side of rack
7		Cut outs with rubber/brush grommet on top and bottom cover of rack for cable entry
8		Vertical Cable manager on both LHS & RHS on rear side
9		Each rack shall have front glass door for complete 42U height visibility & rear steel split door integrated with common Biometric access control panel.
10		Thermally insulated cold aisle chamber
11		Blanking panels to prevent air mixing
12		Fixed Shelf to be provided
13		Plastic Cable duct on vertical LH & RH section of racks for cable routing
14		Front Rack doors to be provided with Biometric Access Control with 02 nos. of Electromagnetic lock per door
15		Gas spring to be provided on front doors of racks
16		Status based LED light to be provided on each rack
17		Each rack enclosure should be physically separated through caged partition at cold & hot aisle to avoid unauthorized access from one rack to another
18	Bio Metric based Access Control	The system deployed will be based on Biometric Technology. The front rack doors will be provided with magnetic locks, and will operate on fail-safe principle through one common Biometric access control system
		Rack system would be designed and implemented to provide following functionality
		<ul style="list-style-type: none"> Configurable system for user defined access.
		<ul style="list-style-type: none"> Built-in Real Time Clock (RTC), calendar; complete Database stored locally and shall be capable of operating offline on standalone mode
		<ul style="list-style-type: none"> Record, report and archive each and every activity (permission granted and / or rejected) with log formats.
		<ul style="list-style-type: none"> Fail safe operation in case of no-power condition and abnormal condition such as fire, theft, intrusion, loss of access control, etc.
19	Fire Alarm and Fire Suppression System	The entire volume of the integrated racks solution will be covered with fire alarm & gas based fire suppression system. Environmentally friendly NOVEC 1230/ FK-5-1-12 agent should be used to ensure that no harm to human beings and environment is caused.
		<ul style="list-style-type: none"> NOVEC 1230 Clean Agent for fire suppression system
		<ul style="list-style-type: none"> Fire detection and alarm systems, with detectors and panel.
		<ul style="list-style-type: none"> Protected area: The entire enclosed volume of the Intelligent Rack containment should be protected with fire detection and fire suppression system.

		<ul style="list-style-type: none"> • The NOVEC 1230/ FK-5-1-12 system is designed and installed as per NFPA 2001-2012 Edition. SMPV, Petroleum and Safety Explosives Organization (PESO) approved cylinder filled with NOVEC 1230/ FK-5-1-12
20	Monitoring	Supply and installation 1U rack mountable monitoring system with Sensors & notification system. The system shall continuously collect critical information from network connected devices such as UPS system, Cooling Units, temperature & humidity sensors, Door sensors, Water Leak sensor and other dry contact monitoring.
21		System should be able to send notifications based on pre-set parameters, automated email & SMS alerts
22		<p>The monitoring system should have the following features.</p> <ul style="list-style-type: none"> • Intelligent Rack environment remote monitoring • Modbus 485 Communications • SNMP Communication • Single window for monitoring all sensors <p>Data and logs of historical information of alarms and notification</p> <ul style="list-style-type: none"> • Temperature & Humidity Sensor, with LCD display • Door sensor • Water leak detection sensor • Smoke detection sensor
23	System performance parameters	<ul style="list-style-type: none"> • Enclosures: thermal path average temperature • Air conditioning: return air temperature, supply air temperature <p>All the components i.e., part of rack solution, shall be graphically represented on HMI</p>
24	Environmental Amount	<ul style="list-style-type: none"> • Door status icon static display, the door opened and closed the door to a different style static icon. • When the passage of hot / cold temperature and humidity sensor measured value exceeds the set range, the system will generate a corresponding alarm; conversely, when the hot / cold aisles temperature and humidity sensor measurement range is set to fall the alarm disappears
25	Alarm - historical alarm	Alarm History provides screening history alarms. Provides historical records up to 100 within the system two weeks. For longer or more the number of alarm history, Web pages can be viewed in alarm management
26	Preventive Maintenance	Quarterly PM to be carried out during the warranty period
27	Seamless Integration	Critical Component's for the DC solution i.e., Rack, rack PDU, Cooling and monitoring system along temperature & humidity sensors, should be from same & OEM for Seamless Integration & better Service Supports
28	Warranty	5 Years onsite comprehensive warranty including all other accessories related to smooth operation & working of entire Rack Containment Frame with Rack and Cold & Hot Aisle Containment system from the date of successful installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification of Deliver, Installation & Integration of each IP PDU for Server & Network Rack with all related accessories

As per Tender selected Make : Vertiv, Qty : 20 Nos.

S/N	Minimum Specification
1	Each Intelligent PDU socket should have 36 (C13) & 6 (C19) IEC sockets
2	Vertically Mounted Metered PDU
3	Current Monitoring at bank level /strip level over IP
4	IP based Rack mount PDU should provide Volts, Amps, total Power- kilowatt and Total Energy- kWh over IP. Locally it should be able to display the Volt, Amps and Power on the LCD display affixed on the Power strip itself.
5	Should be able to mount as 0U with tool-less mounting option.
6	Should have the ability to define alarm thresholds to avoid overloaded circuits
7	Should have a USB port for easy firmware upgrades
8	Option for SNMP monitoring & management for multiple trap receivers when events occur over IP
9	It should integrate with centralized monitoring software providing a unified view of complex physical infrastructure
10	It should have locking IEC receptacle and locking power cord compatibility
10	Warranty : 5 Years onsite comprehensive warranty including all other accessories related to smooth operation of each Comfort Air Conditioning machine from the date of successful installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification of Deliver, Installation & Integration of each IP KVM switch with Display Unit including all related accessories

As per Tender selected Make : Vertiv, Qty : 4 Nos.

S/N	Minimum Specification
1	Min 1 (One) remote console and min 1 (one) local console control up to 24 computers
2	Min 1(One) local and one remote user can simultaneously control separate ports
3	User can access Servers via the LAN
4	LCD monitor can be slides independently of the Keyboard /touchpad
5	Console lock facility which enables the console drawer to remain securely locked away in position when not in use
6	Should have a feature to view all 24 ports at the same time.
7	Three level login security: ●Administrator ●User ●Select
8	Support advanced security features include password protection and advanced encryption technologies - 1024 bit RSA, 256 bit AES, 56 bit DES, and 128 bit SSL
9	It can be flash firmware upgradeable over network connection
10	Computer can be selected via front panel pushbuttons, hotkeys or On Screen Display (OSD).
11	Rack mountable in 19" (1U) system rack.
12	It should have a facility to Auto Scan function to monitor computer operation.
13	Warranty : 5 Years onsite comprehensive warranty including all other accessories related to smooth working of each IP KVM with Display unit from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification of Deliver, Installation & Integration of various equipments for Building Management system with all related accessories

S/N	Component / Performance / Utility	Minimum Specification
1	Fire Detection Systems	
1.1	System Description	Addressable UL 864 10th Edition Listed, ULC-S527/EN 54 Listed single loop (250 detector/device in any combination) Fire Alarm Panel with modbus over RS 485 / Bacnet IP to integrate with BMS located throughout the DC (ceiling, false floor and other appropriate areas where fire can take place) with pull type, manual call points units on escape routes and exits.
1.2	Control and Indicating Component	The control panel shall be a microprocessor based single loop addressable unit, designed and manufactured to the requirements of UL/EN54 Part 2 or higher for the control and indicating component and UL/EN54 Part 4 for the internal power supply.
1.3	Multicriteria detectors	Addressable Multicriteria detectors shall be of the optical or ionization type. Devices shall be compatible with the CIE conforming to the requirements of UL/EN54 Part 7 and be LPCB approved. The detectors shall have twin LEDs to indicate the device has operated and shall fit on a common addressable base.
1.4	Heat Detectors	Addressable Heat detectors shall be of the fixed temperature or rate of temperature rise type with a fixed temperature operating point. Devices shall be compatible with the CIE conforming to the requirements of UL/EN54 Part 5 and be LPCB approved. The detectors shall have a single LED to indicate the device has operated and shall fit a common addressable base.
1.5	Addressable Detector Bases	All bases shall be compatible with the type of detector heads fitted and the control system component used. pre-programmed EPROM or setting of DIL switches. Detector bases shall fit onto an industry standard Junction box.
1.6	Audible Alarm	Electronic sounders shall be colored red with adjustable sound outputs. The sounders should be suitable for operation with a 24V DC supply providing a sound output of at least 100dBA at 1 meter and 75 dBA min, for a bed head or sounder base type device. The sounder frequency shall be in the range of 500Hz to 1000Hz.
1.7	Manual Call Points (MCP)	MCP's shall be addressable pull type manufactured to the requirements of BS 5839: Part 2. Or UL listed. The device shall be automatically addressed by the CIE on power up of the loop without the need of the insertion of a pre-programmed EPROM or setting of DIL switches. The device shall incorporate a short circuit isolation device and a red LED indicator.

		The MCP shall be suitable for surface or flush mounting. When flush mounted the device shall be capable of fixing to an industry standard single gang box.
1.8	Commissioning	The fire detection and alarm system will be programmable and configurable via an alpha numeric keypad on the control panel or PC programming. The labeling of Device and Zone labels should be part of the system. Necessary Software to the control panel.
2	Fire Suppression Systems	<ul style="list-style-type: none"> • The Clean Agent Fire Suppression system cylinder (3 nos. 80LTR with valve, 1 no. pressure guage, CCOE, Nagpur approved seamless cylinders, discharge hose, fire detectors and panels and all other accessories required to provide a complete operational system meeting applicable requirements of NFPA 2001 Clean Agent Fire Extinguishing Systems, NFPA 70 National Electric Code, NFPA 72 National Fire Alarm Code or ISO standards must be considered to ensure proper performance as a system with UL/FM/VDS approvals and installed in compliance with all applicable requirements of the local codes and standards.
		<ul style="list-style-type: none"> • The Clean Agent system considered for Total flooding application shall be in compliance with the provisions of Kyoto Protocol.
		<ul style="list-style-type: none"> • Care should be taken that none of the Greenhouse Gases identified in the Kyoto Protocol is used for fire suppression application.
		<ul style="list-style-type: none"> • The minimum criterion for the selection of the Clean Agent will be on the following parameters.
		<ul style="list-style-type: none"> · Zero Ozone Depleting Potential.
		<ul style="list-style-type: none"> · Global Warming Potential not exceeding one.
		<ul style="list-style-type: none"> · Atmospheric Lifetime not exceeding one week.
		<ul style="list-style-type: none"> • The clean agent fire suppression system with FK-5-1-12/ NOVEC 1230 and Inert Gas based systems are accepted as a replacement of HCFC and HFC as per Kyoto Protocol.
		<ul style="list-style-type: none"> • The Clean Agent considered for the suppression system must be suitable for managing occupied areas with NOAEL Level (No observable adverse effect level) of 10% as compared to the design concentration to ensure high safety margin for the human who might be present in the hazard area.
		<ul style="list-style-type: none"> • The minimum design standards shall be as per NFPA 2001, 2004 edition or latest revisions.
3	Access Control System	<ul style="list-style-type: none"> • Care shall be given to ensure proper early warning detection system with minimum sensitivity of 0.03% - 0.05% per foot obscuration as per NFPA 318 & NFPA 72 to ensure that one gets a very early warning to investigate the incipient fire much before the other detectors activate the fire suppression system automatically
		also required PESO certificate by the OEM for the Cylinders.
		<ul style="list-style-type: none"> · Controlled Entries to defined access points
		<ul style="list-style-type: none"> · Controlled exits from defined access points
		<ul style="list-style-type: none"> · Controlled entries and exits for visitors
		<ul style="list-style-type: none"> · 2 door controllers may use. Total No. of controller shall be 5 nos.
		<ul style="list-style-type: none"> · Configurable system for user defined access policy for each access point
		<ul style="list-style-type: none"> · Record, report and archive each and every activity (permission granted and / or rejected) for each access point.
		<ul style="list-style-type: none"> · User defined reporting and log formats
		<ul style="list-style-type: none"> · Fail safe operation in case of no-power condition and abnormal condition such as fire, theft, intrusion, loss of access control, etc.
4	Closed-Circuit Television (Surveillance) System	<ul style="list-style-type: none"> · Day, Date, Time and duration based access rights should be user configurable for each access point and for each user.
		One user can have different policy / access rights for different access points.
		<ul style="list-style-type: none"> • The CCTV system should be IP based
		<ul style="list-style-type: none"> • Bullet / Dome camera should support PoE
		<ul style="list-style-type: none"> • Video Resolution : each Bullet / Dome Camera should min 4 megapixels
		<ul style="list-style-type: none"> • Metal Bullet/Dome IP Camera
		<ul style="list-style-type: none"> • The system shall provide visual images from the cameras located through out the facility. The cameras located shall be fed into the NVR located in the control room.
		<ul style="list-style-type: none"> • The NVR shall consist of min 16 channels Digital Multiplexer with built-in recording system into surveillance grade Hard Disks.
		<ul style="list-style-type: none"> • The Main Security Control Room which shall house the Monitors and the NVR
		<ul style="list-style-type: none"> • The CCTV should be equipped with Digital recording facility for later scrutiny, with at least 45 days of recording facility.
5	Very Early smoke detection and Aspiration system	The VESDA system shall provide an early warning of fire in its incipient stage, analyze the risk and provide alarm and actions appropriate to the risk. The system shall include, but not be limited to, a Display Control Panel, Air Sampling points Assembly and the properly designed sampling pipe network. Regulatory Requirements:
		<ul style="list-style-type: none"> • National Electrical Code (NEC)
		<ul style="list-style-type: none"> • Factory Mutual/ OEM Design

		<ul style="list-style-type: none"> Local Authority having Jurisdiction
6	Water Leakages Detection System	<p>The water leak detector shall be installed to detect any seepage of water into the critical area and alert the Security Control Room for such leakage. It shall consist of water leak detection cable and an alarm module. The cable shall be installed in the floor areas around the periphery.</p> <ul style="list-style-type: none"> Water Leak Detection system should be for the Server room & Telecom Room. Areas to detect and water flooding below the floor of the DC. Water Leak Detection System should be wire based solution with alarm; the wire needs to lay in DC surrounding the PAC units, which is the probable source of water leakage
7	Rodent Repellent System	The entry of Rodents shall be controlled using non-chemical, non-toxic devices. Ultrasonic pest repellents shall be provided in the false flooring and ceiling to repel the pests without killing them. However periodic pest control using Chemical spray can be done once in 3 months as a contingency measure to effectively fight the pest menace.
8	Periodic Pest Control System	The treatment shall be carried out generally in accordance with the stipulation laid down procedure as per IS: 6313 (Part II)-1971 Part II Pre-constructional chemical treatment measures I (code of practice for Anti-termite measures in building part II pre constructional chemical. Periodic (Monthly) Pest Control of entire Data Center Area.
9	Public Address system	Public Address system (PA) shall be supply, installation and integration with necessary speaker, Microphone, Amplifier and other necessary accessories. IP based PA controller which will be integrated with Fire Alarm panel
10	Warranty	5 Years onsite comprehensive warranty including all BMS related system components furnished and installed shall be warranted against defects in design, materials and workmanship from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification of Deliver, Installation & Integration of Building Management System software with all related accessories

As per Tender selected Make : Siemens, Qty : 1 Lot

S/N		Minimum Specification
1	Component / Performance / Utility	Integrated Building Management System Software integration with UPS systems, Energy Meter, DG Panel, PAC, Rack Containment Frame with Cold & Hot Aisle Containment system, Fire Alarm System, VESDA, WLD, Fire Suppression System and other related system. The license shall be priced for min 500 points, and 1 no client station for view the IBMS from DC area with Modbus, BACnet interface license.
2	General Integration	Supply of network devices/ IP Switches for inter-connecting the
3	Network Devices for BMS Software	TCP/IP or LON based ,Programmable and Application specific DDC controllers, field mounted configured as per Data Point Summary for respective building services The controller shall be housed in vandal proof lockable MS cabinets for LT Panel-Breaker Status
4		T & RH Sensor
5		Signal Cabling (2c x 1.0 sq.mm copper conductor cable).
6		Communication Cabling
7		25 mm PVC conduit
9	Warranty	5 Years onsite warranty support including all other accessories related to smooth operation of BMS Software from the date of successfully installation, commissioning, integration and final acceptance.

Scope of Work & Minimum Technical Specification of Deliver, Installation & Integration of Structured Passive Cabling Components of LAN infrastructure, Open Common Rack with all related accessories

As per Tender selected Make : Commscope, Qty : 1 Lot

S/N	Component / Performance / Utility	Minimum Specification
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	General Guidelines	Multi-fiber push on connectors, or MPO OM4 system should be low loss to support the below listed applications under given configuration –
		MPO system shall support 4 connections in a single channel and meet the following application loss and length limits:
		· 10GBASE-S upto 450m
		· 25GBASE-S upto 100m
		· 40G BASE-SR/BiDi upto 150m
		· 100G BASE-SR upto 100m
		MPO system shall support 4 connections in a single channel and meet the following SAN applications:
		· 4G FC at 850nm upto 400m
		· 8G FC at 850nm upto 250m
		· 16F FC at 850nm upto 160m
		· 32G FC at 850nm upto 120m
		Max attenuation for 6 connector MPO channel shall not exceed 1.98dB @ 850nm over 50mtr. .
A	MPO OM4 Fiber Components	
1		MPO – LC 24F Cassette (2x12MPO): The 24-fiber module shall have 12 pre-installed duplex LC adapters at the front routed to 2x12-fiber / 1x24-fiber Low loss OM4 MPO adapters at the back.
2		All MPO modules must support 'Method B Enhanced' wiring pattern for ease of scalability.
		Same cassette should be used in both end of the link, without need of flipped or straight wiring management.
3		Dust caps on each port must be translucent to support VFL tests, without removing caps. Test light should be visible at the remote end, even with dust caps ON.
4		The cassettes shall be UL 1863 listed.
5		MPO Modules must be Intelligent without the need of removing any patched connection or changing any installed hardware.
B	Modular Fiber Panel	
1		Modular type 1U sliding fiber panel, shall accept (4) nos of MPO modules, for upto 48 duplex LC ports, intelligent upgradable.
2		The 1U Panel shall be equipped with a rear cable tray with management rings for securing and arranging trunk cable entry.
3		Fiber panel shall have integrated front patch cord management trough.
4		Shall be made of powder coated steel and UL listed component.
C	MPO Trunk Cable OM4	
1		Low Loss MPO-12/UPC to MPO-12/UPC, Pre-terminated, LSZH, Bend Insensitive OM4 Trunk Cable compliant to ANSI/ICEA S-83-596, TIA 492AAAD (OM4).
2		Cable MPO connector shall have Max Insertion Loss of 0.20dB
		Min Return loss of MPO shall be ≥ 27 dB.
3		Cable shall have OD of 5.2 – 5.8mm.
		Tensile strength shall be upto 650N.
4		All OM4 trunk cables must have Aqua colored jacket as per TIA and ISO standards recommendation.
5		Flame rating shall be NEC OFNR-LS (ETL) suitable for data center installations.
		The cable must have the flame test compliance to IEC 60332-3, IEC 60754-2, IEC 61034-2, IEEE 383, UL 1666 and UL 1685
6		Cable must be EN50575 CPR rated as Dca or better.
D.	LC – LC Multimode Duplex Uniboot Fiber Patch Cord	
1		LC/UPC to LC/UPC, Multimode OM4 duplex Uniboot Patch Cord, bend insensitive Fiber 2.0mm patch cords, Aqua.
2		Low Smoke Zero Halogen (LSZH) compliant to IEC 60332-3, UL 1666, UL 1685
3		Connector Optical Performance
		Insertion Loss, maximum: 0.15 dB
		Return Loss, minimum: 35.0 dB
D.	CAT 6A U/UTP LSZH Cable	
1		CAT6A U/UTP 23 AWG Cable should meet and exceed ANSI/TIA 568.2-D Category 6A and ISO/IEC 11801 Class EA Specifications

2		Cable shall be constructed with pair separator as well as individual conductor separator.
3		Electrical properties:
		Max DC Resistance: ≤ 7.61 Ohms/100m
		Max. Operating voltage: 80 V
		Frequency: up to 550 Mhz
4		The cable shall have Low-Smoke, Zero Halogen (LSZH) jacketing and must comply with the following Fire Safety standards:
		1) ISO/IEC 60332-3-22: Vertical Flame Spread
		2) ISO/IEC 60754-2: Acidity
		3) ISO/IEC 61034-2: Smoke Density
5		Cable shall be ETL verified as per ANSI/TIA 568-C.2 and ISO/IEC 11801 for CAT6A requirements.
E	6A U/UTP Modular Information Outlets	
1		The CAT6A UTP 8-pin modular (RJ-45) jacks shall have Electrical performance guaranteed to meet or exceed the channel specifications of ISO/IEC 11801 Class EA and ANSI/TIA-568-C.2 Category 6A.
2		The information outlet shall support IEEE 802.3bt (Type 4) and have a Current Rating of 1.5 A at 20°C
3		Insulation Resistance, minimum: 500 MOhm
F	6A U/UTP Patch Cord	
1		CAT6A U/UTP Patch Cord, shall be of 4 pair 24 AWG solid construction, with pair separator, compliant to ANSI/TIA 568-C.2 and IEEE 802.3bt 4PPoE.
2		Offered CAT6A Patch cord shall support intelligent cable detection mechanism and function when used with AIM system.
G	6A U/UTP Patch Panel	
1		CAT6A UTP Patch Panel 24 port loaded, 1U shall be compliant to ANSI /TIA 568-C.2 CAT6A and ISO 11801 Class EA, with rear cable manager
2		Panel must be certified by Intertek labs for 4 connector channel performance for 100m and 15m channel lengths
3		The panel must be capable of supporting upgrade to intelligent system without any interruption to service due to patch cord removal or terminal block re-termination.
H	Open Racks	
1	Features	Should be available in 2-Post Configurations
2		Option of 84" height
3		Should be available with an option of Rail Widths: 3", 6", 12" (2-Post)
4		EIA-310-E Compliance
5		Load Capacity: 1000 lb
6		Easily assembled, hardware included
7	Cable Management	Should have dual hinge latching door & can be opened right or left.
8		Cable fingers spaced at 1RMU increments for exact alignment with EIA standard
9		Cable fingers support up to 48 cables per RMU
10		Horizontal cable management troughs should be available in 1 & 2 RMU
11		Provision for Tool-less installation of Cable Spool
12	Warranty	5 Years onsite comprehensive warranty including all other accessories related to smooth operation of Passive LAN infrastructure with necessary intelligent software from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification of Deliver, Installation & Integration of Various equipment for IT & Non-IT Infrastructure Monitoring system

As per Tender selected Desktop Make : Dell, Qty : 10Nos., MFP : Make HP Qty. 2Nos., Display Unit Make : LG 55" Display Qty : 6 Nos.

S/N	Component / Performance / Utility	Minimum Specification
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A	Desktop Computer	10 Nos.
1	Processor with speed	Latest Generation x86 Processor with 3.0 GHz base frequency with min 6 Core
2	Chipset	Q470 or equivalent or higher
3	Memory	8 GB DDR4 SDRAM RAM (2660Mhz) Memory expandable up to 64GB
4	Drive	512GB SSD plus 1TB SATA HDD with 7200 RPM
5	Display Unit	22 Wide Screen LED Monitor with TCO 8.0 certified
6	Power Supply	240 watt 90% or higher efficient power supply with Energy Star 8.0 compliant, Active PFC
7	Optical Drive	Internal SATA 8 X or higher DVD +/- R/W Drive
8	Network	Integrated Gigabit Ethernet (10/100/1000) with PXE and Boot ROM. RJ45 Ethernet port
9	Keyboard	104 Keys USB keyboard
10	Mouse	2 Button USB Optical Scroll Mouse
11	Operating System	Genuine Windows 10 Pro 64 Bit with latest Service Packs Preloaded
12	Security	TPM (Trusted Platform Module) Enabled
13	Warranty	5 Years onsite comprehensive warranty including all other accessories related to smooth operation of Desktop from the date of successfully installation, commissioning, integration and final acceptance
B.	Multifunction Laser Printer	Qty : 2 Nos.
1	Print Type	A4 Mono Laser with composite Toner
2	Print Per Minute (PPM) of A4	35PPM
3	Memory	256MB
4	Multifunction Feature	Print, Scan (ADF & Flatbed Duplex scan) & Copy
5	ADF Tray capacity	50 Sheets
6	Duplex Printing	Automatic
7	Warranty	5 Years onsite comprehensive warranty including all other accessories related to smooth operation of Multi Function Printer from the date of successfully installation, commissioning, integration and final acceptance
C	Display Unit	6 Nos.
1	Size	50 inch or higher Panel Technology-IPS
2	Resolution	3,840x2160 (Ultra HD)
3	Interface	Min 2 HDMI Port 1 USB
4	Durability	Industrial Grade run on 24x7 of 365 days
5	Cable	Necessary HDMI & USB Cable (Copper coated)
6	Warranty	5 Years onsite comprehensive warranty including all other accessories related to smooth operation of Display Unit from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification of Deliver, Installation & Integration of each Router

As per Tender selected Make : HPE, Model : MSR 3000 series, Qty : 2 Nos.

S/N	Component / Performance / Utility	Minimum Specification
1	Interface	Should provide 4 x 10/100/1000 RJ 45 interface from day 1 and min 2 nos. 10G SFP+ interface from day 1. Out of which it should have 2x1G SFP-based ports for LAN and WAN connectivity
2	Throughput	The router should support minimum of 20Gbps of throughput with multiple services turned on
3	Processor	The router should support multi-core processor to host multiple services

4	Memory	Min 2GB DRAM and 256MB flash/SSD memory
5	Routing Protocol	Routing protocols like static, BGP, and OSPF ver2
6		Multicast routing protocols support: IGMPv1, v2, PIM-SM
7		Support IPv6 features: DHCPv6, IPv6 QoS, IPv6 Multicast support, RIP and OSPFv3 for IPv6.
8		Support IP Accounting features from day 1
9		Support QoS, Class-based Weighted Fair Queuing /LLQ/Priority Queue, Weighted Random Early Detection, PBR, FEC, CoS Marking
10		Shall support the following : AAA support using Radius and/or TACACS, GRE, IPSec
11		Router support Zone base firewall/Stateful firewall
12		Should provide a provision to analyze IP service levels for IP applications and services by using active traffic monitoring (the generation of traffic in a continuous, reliable, and predictable manner)
13		The router shall conform to UL 60950 or IEC 60950 or CSA 60950 or EN 60950 Standards for Safety requirements of Information Technology Equipment
14		The router shall conform to EN 55022/32 Class A/B or CISPR22/32 Class A/B or CE Class A/B or FCC Class A/B Standards for EMC (Electro Magnetic Compatibility) requirements
15	Warranty	5 Years onsite comprehensive warranty including all other accessories related to smooth operation of Router from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification of Deliver, Installation & Integration of Network Security Devices : Next Generation Firewall

As per Tender selected Make : Fortinet, Model : FortiGate 401E, Qty : 4 Nos.

S/N	Component / Performance / Utility	Minimum Specification
1	Generic	The proposed firewall vendor must be in Leader's quadrant of Gartner Enterprise/Network Firewall report of 2021, 2020 & 2019.
2		Firewall appliance must have 10x 1GE SFP interfaces & 10 x 1GE RJ45 interfaces from day one. All these interfaces should be available simultaneously. Firewall should have Dual Power Supply from day one
3		The Firewall should be Hardware based, Reliable, purpose-built security appliance with hardened operating system supporting State full policy inspection technology
4		Firewall appliance must have 10x 1GE SFP interfaces & 10 x 1GE RJ45 interfaces from day one. All these interfaces should be available simultaneously.
5		Firewall Throughput should be at least 25 Gbps
6		Threat Prevention (including FW, IPS, Application Control & Antivirus) throughput must be at least 5 Gbps with real-world / enterprise MIX traffic
7		NGFW (including FW, IPS, Application Control) throughput must be at least 6 Gbps with real-world / enterprise MIX traffic
8		NGFW should have IPsec VPN throughput of at least 10 Gbps
9		NGFW should support 100 site-to-site VPN Tunnels.
10		NGFW should support more than 400,000 new sessions per second
11		NGFW should support at least 4 Million concurrent sessions
12		The NGFW solution should support NAT64, NAT46, DNSv6 & DHCPv6
13		The proposed system should be able to operate in Transparent (Access) mode and NAT/Route mode simultaneously
14		The physical interface should be capable of link aggregation as per IEEE 802.3ad standard, allowing the grouping of interfaces into a larger bandwidth 'trunk'. It should also allow for high availability (HA) by automatically redirecting traffic from a failed link in a trunk to the remaining links in that trunk.
15		The NGFW should support WAN links load balancing and fail-over for at least 4 links

16		The NGFW should support fail-over based parameters such as Latency, Jitter, Packet-Loss"
17		The NGFW should have both SSL and SSH Inspection capabilities
18		The system should support 2 forms of site-to-site VPN configurations: Route based IPsec tunnel and Policy based IPsec tunnel
19		The system should support IPSEC site-to-site VPN and remote user IPsec VPN in transparent mode.
20		The system should provide IPv6 IPsec feature to support for secure IPv6 traffic in an IPsec VPN.
21		Solution must support at least 100 concurrent SSL VPN.
22		The proposed firewall must support at least 4 Gbps of SSL Inspection throughput along with IPS feature enabled.
23	Intrusion Prevention System	IPS throughput should be min 6 Gbps or better for Enterprise MIX traffic
24		The IPS should be able to inspect SSL sessions by decrypting the traffic
25		The IPS system should have at least 10,000 signatures
26		In event if IPS should cease to function, it should fail open by default and be configurable so that crucial network traffic should not be blocked and NGFW should continue to operate while the IPS problem is being resolved
27		Signatures should have severity level defined to it so that the administrator can understand and decide which signatures to enable for what traffic (e.g. for severity level: high medium low)
28		NGFW should have capabilities to limit number of parameters in URL, number of cookies in request, number of headers lines in request, total URL and Body parameters in length to block advanced HTTP layer attacks.
29	Application Control Features	The appliance should have at least 5000 application signatures database
30		Should have the intelligence to identify & control of popular IM & P2P applications like KaZaa, Bit Torrent, Skype, You Tube, Facebook, LinkedIn etc., so that it can be used in future if required.
31	Anti-Malware & Advanced Persistent Threat	NGFW should offer both anti-virus scanning options - Proxy mode and Flow (streaming) mode.
32		NGFW must include Anti-bot capability using IP reputation DB, terminates botnet communication to C&C servers also. Vendor needs to add additional license if it is required.
33		Antivirus module should be ICSA certified
34		NGFW should have functionality of Content Disarm and Reconstruction (CDR) to remove all active content from attachment in real-time before passing it to user.
35		NGFW should have cloud sandbox functionality to protect organization from Advance Persistence Threats. Additional license for sandboxing should include from day 1
36		The proposed solution should utilize a state-full attack analysis to detect the entire infection lifecycle, and trace the stage-by-stage analysis of an advanced attack, from system exploitation to outbound malware communication protocols leading to data exfiltration.
37		NGFW should be able to monitor encrypted traffic to detect APTs hidden in SSL traffic.
38		OEM's cloud portal / on-prem reporting server from where can view
		file-analysis status details including file submission time, source IP, destination IP, File name, URL, File size, File type, Suspicious Act etc.
39	High Availability	The proposed NGFW shall have high availability (HA) features without extra cost/license or hardware component from day 1
40		The NGFW shall support stateful session maintenance in the event of a fail-over to a standby unit.
41		High Availability feature must be supported for either NAT/Route, Transparent or Hybrid mode
42		The NGFW must support both Active-Passive and Active-Active High Availability options.
43		The NGFW shall support interface link monitoring failover
44		The NGFW shall support external device ping probe failover
45		The NGFW must have provision of fail-over in case of high memory utilisation on primary appliance.
46	Administration, Management and Logging Functionality Feature Requirements	The proposed Firewall should have minimum 450GB of Internal storage capacity for storing the logs & generating reports
47		Solution should provide Syslog output to integrate with major SIEM tools
48		Solution must allow administrator to choose to login in read only or read-write mode
49	Warranty	5 Years onsite comprehensive warranty including all other accessories related to smooth operation of Network Security Devices (Next Generation Firewall) from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification of Deliver, Installation & Integration of Network Security Devices : DDoS Appliance

As per Tender selected Make : Radware, Model : DefensePro 20-8, Qty : 2 Nos.

S/N	Component / Performance / Utility	Minimum Specification
1		The proposed OEM should be Parent Technology OEM (Should NOT be Whitelabeled or Co-branding or 3rd Party Technology or Open Source or Reseller Agreement).
2		The Proposed OEM should be present in Leader quadrant in latest publish report for Forrester for DDoS.
3		The Proposed solution should be a Dedicated appliance (NOT a part of Router, UTM, Application Delivery Controller, Proxy based architecture or any Stateful Appliance) with 20 Gbps of Mitigation Throughput. Dual Power Supply from day one
4		DDoS Flood Attack Prevention Rate: 25MPPS (In addition to Legitimate throughput)
		Legitimate throughput handling: 8Gbps from day-1 and scalable upto 12Gbps
		Attack Concurrent Sessions : Unlimited
		Inspection Ports supported : 6 x 1G Copper and 6 x 10G SFP+ from day-1. Additionally appliance should have 12x1G/10G SFP+ for future use (Without any break-out)
		Latency should be less than 60 microseconds.
		The appliance should have dedicated 2 x 1G RJ45 Out-of-band Management Port.
5		System should support horizontal and vertical port scanning behavioral protection.
6		BEHAVIORAL ANALYSIS using behavioral algorithms and automation to defend against IoT botnet threats, including Mirai DNS Water Torture, Burst and Randomized attacks. The solution should utilize behavioral algorithms and stateless solution to detect and defend against threats at L3-7.
7		Behavioral DoS (Behavioral Denial of Service) Protection should defend against zero-day network-flood attacks, detect traffic anomalies and prevent zero-day, unknown, flood attacks by identifying the footprint of the anomalous traffic.
		<u>Network-flood protection should include:</u>
		• TCP floods—which include SYN Flood, TCP Fin + ACK Flood, TCP Reset Flood, TCP SYN + ACK Flood, and TCP Fragmentation Flood
		• UDP flood
		• ICMP flood
		• IGMP flood
8		System should have DNS Flood protection for each type of query including, A, MX, PTR, AAAA, Text, SOA, NAPTR, SRV etc.
9		Positive Security Model should have advanced behavior-analysis technologies to separate malicious threats from legitimate traffic
10		System should support HTTP Challenge Response authentication without Scripts
11		System should have SIP Flood Protection, UDP and UDP Fragmented Flood.
12		System should support In-Line, SPAN Port, Out-of-Path deployment modes from day 1. The proposed device should have String Match Engine to support 5000+ inbuilt Signatures apart from custom Signatures from Day 1.
13		Solution should be transparent to control protocol like MPLS and 802.1 Q tagged VLAN environment. Also, it should be transparent to L2TP, GRE, IP in IP traffic.
14		The Proposed Solution should protect against Zero Day DDoS Attacks. ZERO DAY ATTACK PROTECTION should be provided using behavior based technology. Automatic Real Time Signature within 20 seconds, without any manual intervention for protection against Zero Day DDoS Attacks.
15		The appliance should have below Security Protection Profiles:
		1. BDoS Protection.
		2. DNS Protections..
		3. SYN-Flood Protection.
		4. Traffic Filters.
		5. Anti-Scanning Profile

16		The proposed Device should use the following Block Actions :
		1) Drop packet,
		2) Reset (source, destination, both),
		3) Suspend (source IP address, source port, destination IP address, destination port or any combination),
		4) Challenge-Response for TCP, HTTP and DNS suspicious traffic
17		The solution should support Integration with OEM Cloud based Scrubbing Centers in case of Bandwidth Saturation attacks, using the same technology for future use. All the baseline information including attack footprint should be in sync between physical appliance and scrubbing centre. OEM Should have its own Cloud DDoS Scrubbing Centre
18		Bidder should propose Centralized Management & Reporting Solution from
19	Warranty	5 Years onsite comprehensive warranty including all other accessories related to smooth operation of Network Security Devices (DDoS Appliances) from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification of Deliver, Installation & Integration of each Link Load Balancer

As per Tender selected Make : Array Networks, Model : AVX 7800, Qty : 2 Nos.

S/N	Minimum Specification
1	The proposed dedicated Hardware device should support minimum 8 WAN links for inbound/outbound traffic load balancing & redundancy. WAN Links must support IPv4 or IPv6 addressing or both simultaneously. Proposed device should support upto 16 virtual instances. It should have internal redundant Power supply with 4 TB usable hard disk, 64 GB RAM and capability to provide remote access using SSL VPN on the same appliance
2	Proposed Load Balancer should support minimum 8 x 10G SFP+ ports all populated from day one
3	Proposed Load Balancer should support Static NAT, port-based NAT and advanced NAT for transparent use of multiple WAN/ Internet links. Should support inbound load balancing and persistency features including RTS (return to sender) and IPFlow persistency.
4	Proposed Load Balancer should support minimum 10 Million concurrent connections and minimum 5 million L7 Requests per Sec.
5	Traffic load balancing should support algorithms including round robin, least connections, shortest response, persistence IP, hash IP, hash IP and port, consistent hash IP, SNMP, target proximity and dynamic detect
6	Proposed Load Balancer should support user-defined IP and Service Group functions for bandwidth management and routing policies.
7	Proposed Load Balancer should support XML-RPC for integration with 3rd party management and monitoring. Should also support SAA, SAML, Hardware binding and AAA support along with SSO.
8	Proposed Load Balancer should support Multi-homing function for inbound IPv4 and IPv6 traffic Load Balancing and fault tolerance across up to multiples WAN links by enabling DNS relay or DNS authoritative server function.
9	Proposed Load Balancer should have IPV6 support with IPv6 to IP4 and IPv4 to IPv6 translation and full IPV6 support. also, should have IPV6 support with DNS 6 to DNS 4 & DNS 4 to DNS 6 translation-based health check for intelligent traffic routing and failover
10	Proposed Load Balancer should support DHCP and support active-active and N+1 redundancy supporting open standard VRRP (No proprietary protocol).
11	Proposed Load Balancer should provide comprehensive and reliable support for high availability with Active- active & active standby unit redundancy mode. Should support both device level and VA level High availability
12	Proposed Load Balancer should support standard VRRP (No proprietary protocol) for HA interconnection over network.
13	Proposed Load Balancer should protect TCP based attacks: TCP SYN Flood, TCP SYN-ACK Flood, TCP ACK Flood, TCP FIN/RST Flood , TCP Connection Flood,TCP Slow Connection , TCP Abnormal Connection, TCP Fragments Flood, Defense WinNuke, TCP Error Flag
14	Proposed Load Balancer should protect UDP based attacks: UDP Flood, UDP Fragment Flood, UDP Fingerprint, Fraggles, UDP Large Packet
15	Proposed Load Balancer should protect HTTP & HTTPS based attacks: HTTP GET Flood, HTTP POST Flood, HTTP Slowloris, HTTP Slow POST, HTTP URL monitor, SSL Handshake, SSL Renegotiation
16	Proposed Load Balancer should protect DNS based attacks: DNS Cache Poisoning Defense, DNS Length Check Defense , DNS NXDomain Defense, DNS Query Flood Defense , DNS Reply Flood Defense, DNS TTL Check , DNS Source Authentication

17	In case of link failure, proposed Load Balancer should detect it in less than 30 seconds and divert the traffic to other available links. Dynamic detect (DD) based health check for intelligent traffic routing and failover
18	Proposed Load Balancer shall provide individual link health check based on physical port, ICMP Protocols, user defined 14 ports and destination path health checks.
19	Proposed Load Balancer should support for multiple internet links in Active-Active load balancing and active-standby failover mode. Proposed Load Balancer should support single system image i.e. same Virtual-IP should be active in both devices at same time to support higher performance scalability.
20	Warranty : 5 Years onsite comprehensive warranty including all other accessories related to smooth operation of Link Load Balancer from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification of Deliver, Installation & Integration of each Hardware Load Balancer

As per Tender selected Make : Array Networks, Model : AVX 5800, Qty : 2 Nos.

S/N	Minimum Specification
1	The Appliance Should be dedicated appliance-based solution with purpose-built hardware for high performance and the solution should not be a part of Router or UTM
2	The appliance should have minimum 20 Gbps throughput, 4x10GbE fiber ports, with minimum 4TB HDD and Dual Power Supply from day one
3	Support for multiple internet links in Active-Active load balancing and active-standby failover mode. The solution should support single system image i.e. Same Virtual-IP should be active in both devices at same time to support higher performance scalability.
4	Should support Inbound and Outbound load balancing algorithms like round robin, Weighted round robin, shortest response, target proximity and dynamic detect.
5	Should support Static NAT, Port based NAT and advanced NAT for transparent use of multiple WAN / Internet links.
6	Appliance should provide full ipv6 support and
7	In case of link failure, device should detect it in less than 30 seconds and divert the traffic to the available links. Dynamic detect (DD) based health check for intelligent traffic routing and failover
8	Shall provide individual link health check based on physical port, ICMP Protocols, user defined 14 ports and destination path health checks.
9	Should provide mechanism to bind multiple health checks, support for Application specific VIP health check and next gateway health checks. Should support persistency features including RTS (return to sender) and ip flow persistence.
10	It should support advance functions Authoritative name sever, DNS proxy/DNS NAT, full DNS server with DNSEC, DNS DDOS, application load balancing from day one. It should be capable of handling complete Full DNS bind records including A,MX, AAAA, CNAME, PTR, SOA etc.
11	The solution should support global server
	12.load balancing algorithms including - Weighted round robin, Weighted Least Connections, Administrative Priority, Geography, Proximity, Global Connection Overflow (GCO),Global Least Connection (GLC), IP Overflow (IPO)
12	The appliance should provide comprehensive and reliable support for high availability using standard VRRP (Non Proprietary). The device should have N+1 clustering based on Per VIP based Active- Active & Active Standby unit with standard VRRP (Non Proprietary) based redundancy. It should support USB based FFO link to synchronize configuration at boot time of HA for better inter-operability
13	It should support L2-L7 Load balancing, Server Persistence, Content Routing & Switching, SSL offload, ePolicy L7 Application Scripting, eRoute L4 Routing. Minimum 6 million L7 Requests per Sec. Minimum 10K TPS on RSA 2K Key and 7K TPS on ECC.
14	Application, Server & Link Health Checks - ARP, ICMP, TCP, HTTP/HTTPS, DNS, Radius, MySQL, MsSQL, RTSP, SIP single port/ protocol, Multi-port, physical port, ICMP and user defined L4 – Next gateway health checks
15	Appliance must support multiple configuration files with 2 bootable partitions for better availability and easy upgrade / fallback
16	OEM should be listed among top 4 in IDC for ADC vendor as per last two years reports in India
17	Warranty : 5 Years onsite comprehensive warranty including all other accessories related to smooth operation of Hardware Load Balancer from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification of Deliver, Installation & Integration of Network Switching Devices : Spine Switch

As per Tender selected Make : HPE, Model : 5945, Qty : 4 Nos.

S/N	Minimum Specification
1	The core/spine layer switches should have hardware level redundancy (1+1) in terms of control plane / device level. Issues with any of the plane should not impact the functioning of the switch. All the switches should be from same OEM
2	The switch should not have any single point of failure like power supplies and fans
3	Switch should support in line hot insertion and removal of different parts like modules/power supplies/fan tray etc. This should not require rebooting of the switch or create disruption in the working/functionality of the switch
4	Switch should support the complete STACK of IP V4 and IP V6 services.
5	The proposed switches should be part of Gartner Leader Quadrant / Challenger Quadrant for DC Networking for last 3 years / The proposed OEM should be part of Gartner Quadrant for DC Networking for 3 years
6	All relevant licenses for all the features and scale should be quoted along with switch
7	Switch should have the following interfaces: Min of 30 non-blocking interfaces populated with multimode 40 or 100G Transceivers (as per design needs)
8	Switch should support Graceful Restart for OSPF, BGP etc. Should support uninterrupted forwarding operation to ensure high availability during any of the spine switch failure
9	Switch should support minimum 1000 VRF instances with route leaking functionality
10	The switch should support minimum 300K IPv4 LPM routes
11	Switch should support a minimum of 6 Tbps BW
12	Spanning Tree Protocol (IEEE 802.1D, 802.1W, 802.1S)
13	Switch should support VLAN Trunking (802.1q)
14	Switch should support layer 2 extension over VXLAN across all Data Center to enable VM mobility & availability
15	Switch should support for Role Based access control (RBAC) for restricting host level network access as per policy defined
16	Shall have Data Centre Bridging (DCB) protocols such as IEEE 802.1Qaz Data Centre Bridging Exchange (DCBX),LLDP etc. Switch should support layer 2 extension over VXLAN (RFC7348) across all Data Center to enable VM mobility & availability.
17	Warranty : 5 Years onsite comprehensive warranty including all other accessories related to smooth operation of Spine Switch from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification of Deliver, Installation & Integration of Network Switching Devices : Fiber Leaf Switch

As per Tender selected Make : HPE, Model : 5945, Qty : 8 Nos.

S/N	Minimum Specification
1	The proposed switches should be part of Gartner Leader Quadrant / Challenger Quadrant for DC Networking for last 3 years / The proposed switches should be part of Gartner Quadrant for DC Networking for last 3 years
2	The Switch used have the capability to function in line rate for all ports with no oversubscription
3	Minimum 48 ports support 1/10/25 Gbps SFP ports for host connectivity and 6*100G ports for Fabric/Spine connectivity. The proposed switch should support native 25G and should be populated with 48*10G Multimode fiber Transceivers for downlink connectivity & 6*100G ports with multimode 100G Transceivers, for uplink connectivity .All the required transceivers should be from the same OEM as the switch
4	Switch should support minimum 1000 VRF instances with route leaking functionality
5	The switch should support 300k IPv4 LPM routes
6	Switch should support Network Virtualization using Virtual Over Lay Network using VXLAN
7	Shall have Data Centre Bridging (DCB) protocols such as IEEE 802.1Qaz Data Centre Bridging Exchange (DCBX),LLDP etc. Switch should support layer 2 extension over VXLAN (RFC7348) across all Data Center to enable VM mobility & availability.
8	Warranty : 5 Years onsite comprehensive warranty including all other accessories related to smooth operation of Fiber Leaf Switches from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification of Deliver, Installation & Integration of Network Switching Devices : Copper Leaf Switch

As per Tender selected Make : HPE, Model : 5944, Qty : 4 Nos.

S/N	Minimum Specification
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1	The proposed switches should be part of Gartner Leader Quadrant / Challenger Quadrant for DC Networking for last 3 years / The proposed switches should be part of Gartner Quadrant for DC Networking for last 3 years
2	The Switch used have the capability to function in line rate for all ports
3	Minimum 48 ports 1/10GBASE-T ports (for day 1) for host connectivity. Dual Power Supply from day 1.
4	Switch should re-converge all dynamic routing protocol at the time of routing update changes i.e. Graceful restart for fast re-convergence of routing protocols (OSPF, IS-IS, BGP)
5	The switch should support 300k IPv4 LPM routes
6	Shall have Data Centre Bridging (DCB) protocols such as IEEE 802.1Qaz Data Centre Bridging Exchange (DCBX),LLDP etc. Switch should support layer 2 extension over VXLAN (RFC7348) across all Data Center to enable VM mobility & availability.
7	Warranty : 5 Years onsite comprehensive warranty including all other accessories related to smooth operation of Cooper Leaf Switches from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification of Deliver, Installation & Integration of Hyper-Converged Infrastructure

As per Tender selecte HCI Software : Nutanix, HCI Hardware : HPE (52 Nos.)

S/N	Component / Performance / Utility	Minimum Specification
A	General	Proposed solution must be present in the Leader's Quadrant of latest released Gartner's Magic Quadrant for HCIS
B	HCI Architecture	
1		The proposed HCI software & hardware should be factory integrated by the OEM, License proposed should have flexibility to decouple the HCI software from hardware, in order to run HCI software on any certified hardware
2		Proposed solution must support at least One hypervisor listed in the latest Gartner's Magic Quadrant for x86 server Virtualization Infrastructure or any latest report.
3		The proposed HCI solution should be fully software defined and should not leverage any specialized (proprietary) hardware for providing data services such as de-duplication and compression
4		The proposed solution should independently scale storage and compute Nodes as and when needed without any downtime. HCI should support storage expansion either scaling out or scaling up storage space in the HCI Cluster.
5		The proposed solution must allow the mixing of different CPU families within a cluster, to allow for continual replacement of old hardware by "rolling forward" the cluster over time
6		The proposed solution must offer the ability to add nodes of different sizes, both in physical dimensions and in the quantity of RAM, Storage and Cores, to take account of the changing needs of the organization over time
7		The proposed HCI solution must support Data Compression, Deduplication & Erasure coding natively and licenses for this feature should be factored in the bill of material. If bidder wants to quote all flash to achieve the desired functionality, bidder can quote
8		The HCI storage must have integrated wizard to schedule snapshot for hourly / daily / weekly / monthly snapshot policies. Any additional software or license must be provided on day 1. If the proposed solution does not meet the above mentioned criteria then the proposed alternate solution to meet the requirement is allowed subject to the condition that the proposed solution should satisfy the reliability, availability, performance and scalability requirements mentioned in this specification.
9		The Solution should allow for taking clones of individual Virtual Machines for faster provisioning. Any additional software or license required must be provided on day 1.
10		The Solution should allow for taking snapshots of individual Virtual Machines to be able to revert back to an older state, if any additional software license is required, it must be provided on day 1.
11		Must support Instant space optimized point-in-time Snapshots. Should support unlimited snapshots
12		The proposed solution must support the automated rolling upgrades of hypervisor, storage software, and firmware with no VM or storage down time without requiring the VMs to be relocated to other cluster or storage platform to accomplish these non-disruptive upgrades, all from a single GUI interface
13		The solution design should have features like zero data loss and near zero downtime in case of disk, host, network, rack and site failure.
14		No Single Point of Failure with complete redundancy at all levels. Nodes should be configured to have at least two copy of data available in cluster, in order to support data & cluster availability in event of One Node Failure

15		The solution should be able to work on latest x86 server hardware available from all the leading vendors in the industry and should not be restricted to a particular vendor/make/model
16		All servers in the HCI cluster must contribute Compute & Storage.
17		The proposed solution must offer native File Services, supporting NFS 3.0/4.0, with the ability to scale-out. This is required for any future requirement that may arise. if additional license needs to be factored for replication, factor the same from day-1
18		The proposed solution should able to configure Active Data stored on SSD and Non-Active Data should be stored on HDD (SAS, if provided)
C	Virtualization	
1		The proposed virtualization software shall provide a virtualization layer that sits directly on the bare metal server hardware with no dependence on a general purpose OS for greater reliability and security
2		The solution shall provide the ability to add Memory , storage disks and NICs (provided the same is supported by the guest operating system) without the need to reboot the workload
3		The solution shall provide a tool based physical/Virtual-to-virtual conversion to migrate existing physical workloads to the virtual platform with minimal disruption
4		The solution shall provide zero-downtime, zero-data loss continuous availability against physical host failures. This should be offered without any dependency on the guest operating system. The solution should also store a redundant copy of the data which is accessible immediately by the Hypervisor and application.
5		The solution shall provide capabilities to limit I/O for virtual workloads to ensure that business critical VMs are not affected due to congestion by other VMs on the same host
6		The proposed solution's Hypervisor(s) must offer "Live VM Migration", "High Availability" and intelligent placement of workloads on nodes best suited to their execution.
7		Hypervisor shall provide automated live migration for initial placement and balancing of available resources with the rules to define affinity and / or anti-affinity of workloads
D.	Replication	
1		Proposed solution should support synchronous and asynchronous, local and remote replication to any x86 platforms as long as HCI SW is same.
2		The ability to carry simultaneous out bi-directional replication between two data centers.
3		The solution should provide orchestration layer to have automated disaster recovery. Minimum 3000 VMs licenses should be provided for covering all the VM's & any new VMs organization will deploy in future.
4		The ability to replicate bi-directional data center deployment of more than 2 DC's
5		The solution must allow changing of IP address of recovered Virtual Servers to match target datacenter.
6		The solution must allow the option to test DR failover to separate network with no impact to production workloads.
7		The solution should have feature to assist in failback process to Primary datacenter.
8		Replication & DR automation licenses to be included for 3000 VM's. There should not be any restriction in number of VM's that can be enabled for replication.
E	Security	
1		Proposed solution should have the feature of encrypting data-at-rest at SDS/Hard disk level, Third Party Key Management solution, if needed, should be provisioned from Day 1
2		The proposed solution must offer Micro segmentation for VM-level security (at the vNIC).
3		The solution should provide a statefull distributed firewall such that the firewall for Virtual Machines can be provided closest to the application within the server itself without traffic going to a Physical Firewall
F	Management	
1		The proposed solution must be managed through an HTML5 web based console that provides a single pane of glass view for the entire environment
2		The solution should provide prebuilt & customizable operations dashboards & reports to provide real time insight into infrastructure behavior, upcoming problems & opportunities for efficiency improvements.
3		The solution should provide explanations, recommended solutions to performance, capacity & configuration problems. It should also associate workflows with alerts to automatically initiate corrective measures at critical thresholds.
4		The solution should provide capacity analytics which can identify over-provisioned resources so they can be right-sized for most efficient use of virtualized resources.

5		The solution shall provide assistance in troubleshooting and operational management in the virtualized environment.
6		Capacity Planning must be integrated into the proposed solution, showing both efficiency savings available to the deployed system (such as right-sizing workloads) and the predicted time remaining for RAM, CPU and Storage on the cluster (given "current" demand). Additionally, the planning should advise on what resources need to be added and allow administrators to model the behavior of the platform given additional (configurable) workloads
G	Cloud Management Platform	
1		The solution should have catalogue of private as well as public cloud services, and should support self-service provisioning capabilities not limited to only HCI based solution but also for legacy architecture on X86 platform.
2		The proposed solution should support application lifecycle management with automated orchestration across multiple hypervisor and cloud.
3		The solution should provide authentication, authorization and accounting (AAA) out of the box like VM Access rights, Edit Rights, Delete Rights etc.
4		The solution should provide ability to orchestrate third-party integrations via APIs to simplify the use of complementary IT service management tools and products
5		The solution should have Life Cycle Management Work flows: Provisioning
6		The Solution should have the capabilities for customization of dashboards
7		The solution should provide capability of generating reports for usage & performance
8		The proposed solution should have capability to create VPC (virtual private cloud) with capability to use same subnets/CIDR in different VPC's
9		The solution shall provide an orchestration engine with ready workflows and ability to create custom workflows based on SOAP, REST operations and PowerShell scripts
10		Should be able to do cost and show/charge back to cloud users tenants
H	Nodes	Proposed cluster should have minimum 52 Nodes. Bidder should submit Make, Model & Part No. including detailed BoQ of HCI hardware infrastructure proposed by SI. MAF for proposed HCI Hardware Infrastructure submitted as per format given in Section - K
I	CPU per Node	Minimum 2 Nos. x86 28 Core processor or higher core with minimum 2.5GHz clock speed of each processor or higher
J	RAM per Node	Minimum 1024 DDR4 3200 MHz
K	Storage Space	Proposed solution should be configured with min 4PB of Storage (All-Flash or 60% SSD/Flash and 40% SAS) after RF2/FTT2 and should tolerate 1 Node Failure, the proposed storage should have data savings features like compression, deduplication and erasure coding. However, the usable storage capacity should be calculated without considering compression and deduplication factor. Should have redundant Boot drives"
L	Network Ports per Node	4 Nos. 25/10 Gbps with SFP+, 2 Nos. 10 Gbps BaseT, 1 No. IPMI
M	Power Supply per node	Redundant power supplies
N	Firmware Code and Patch Management	
1		The solution should provide seamless upgrade for (but not limited to) Firmware, Hypervisor, Storage OS, SDS software, BIOS and other such functions which are required in the solution.
2		All patches for the complete hardware and software solution must come from a single validated source. It should be possible to apply and upgrade all software and Hardware related firmware and patches from the same GUI that is used to manage the HCI (It should not use the hardware management console for doing firmware upgrade of hardware)
O	Proactive Maintenance and Support	
1		Proposed Appliance should come with a single proactive incident reporting and alerting which covers both Hardware components and full Software stack.
2		Proactive Maintenance feature should automatically have the ability to alert all hardware and hypervisor related alerts to the 24 x 7 Call center of the DC.
3		Original Equipment manufacturer should have online 24 x 7 support for any hardware or software related issue
4		Proposed solution should have one window support solution for all the components including hardware, firmware and software used. The support should be from OEM.
5		HCI solution must have direct OEM, L1, L2 and L3 support, 24x7x365 days with unlimited incident support (Telephonic / Web / Email) and technical contacts / contract with 60 mins or less response time including the unlimited upgrades and updates during tender specific warranty period.
P	Warranty	5 Years onsite comprehensive warranty including all other accessories related to smooth proposed HCI infrastructure from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification of Deliver, Installation, Configuration & Integration of Backup Device and Backup Software

As per Tender selected Backup Device : Dell(5 nos.), Software : Nutanix HYCU

S/N	Component / Performance / Utility	Minimum Specification
1	Category	Hardware backup Appliance
2	Type of Backup Hardware Appliance	Purpose Built Backup Appliance (PBBA)
3	Configured usable capacity of offered PBBA	300TB capacity/socket/core based license for both backup software and the hardware backup Appliance should be provided from day 1
4	Brief Product Description	Disk Based Backup Appliance
5	Software Appliance Tool Version	latest version
6	PBBA FEATURES 1	1. The offered product to be configured with RAID 6 or equivalent along with 1 hot/cold spare disk per disk shelf.
		2. The offered product to be supplied with all licenses of Software and Hardware for the offered capacity.
		4. The offered product to supports backup of 32 bits and 64 bits operating systems, databases and applications
		5. The offered product to be backup appliance with backup software and storage
		6. The offered product have a capability for manual/Automated Data Integrity check for backup data on device.
7	PBBA FEATURES 2	1. The offered product capable to support incremental policy for all kinds of backup (agent based file system and DB backup, image based backup).
		2. Offered PBBA to be provided with all features/capabilities available within it.
		3. Disk appliance to be offered with protection against data loss in power failure scenario and continuous automated file system check to ensure data integrity.
8	LAN/SAN Connection	Minimum 4 x 10Gig Ethernet ports along with optional 4x16Gbps (FC) ports (if required by the solution) with all required accessories
9	Client OS systems backup support needed	Windows and Linux
9a.	Client Database Backup support need	Client Database Backup support need : PostgreSQL, MySQL, MariaDB, SQL SRV, Oracle, DB2, MongoDB, No SQL etc
10	Graphical User Interface Features	1. The offered product to have web based Graphical User Interface (GUI) so that all backup can be managed centrally, regardless of location.
		2. GUI to be same across heterogeneous platform to ensure easy administration.
11	Recovery Features	The offered product have a capability to maintain a database for all backup jobs, policy jobs meta-data etc., and to have the capability of re-creating master system in case of disaster using this database.
12	De- Duplication Features	The offered products have a capability to support target based de-duplication along with source base de-duplication for improved backup window and lesser footprint.
13	Scheduling Features	1. Ability to configure automated backups for specific days and weeks within a month, while maintaining a simplified methodology for complex date scenarios.,
		2. The offered product to provide policy based system for backup scheduling i.e. clients with same data to be backed up may be added or removed from policy when required
		3. The offered product to provide sets creation for backup selection, schedule, target backup device such that when this set is modified its impact to be visible to all jobs/policies using that particular set
		4. The offered product to provide flexibility to backup data in multiple streams for lesser backup window.
14	Reporting Capabilities Features	1. Full job completion report:- Overview of the full backup jobs that are successful, partially successful and failed for each day
		2. Full backup data volume report:- Overview of the total data volumes that are backed up for each day.
15	Image level backup Capability Features	1. To support image level backup on host/hypervisor level for multiple SIs like Hyper-V/Vmware/Acropolis etc.
		2. To support source based deduplication while image level backup.
		3. To support granular recovery from image level backup.

		4. Software to provide instant recovery of image level backup.
16	Backup Software License	License as per perpetual with unlimited VMs backup
17	Replication Capability Features	Subsequent Replication to be transferred only difference data from previous successful replication.
		2. Replication to provide the flexibility to transfer only dedup data.
		3.To provide compression of data while replication.,4. The offered product to support bi-directional, many-to-one, one-to-many, and one-to-one replication.
		if additional license needs to be factored for replication, factor the same from day-1
18	Warranty	5 Years onsite comprehensive warranty including 5 years validity Backup License and all other accessories related to smooth Backup system from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work & Minimum Technical Specification of Deliver, Installation & Integration of Centralized Monitoring Software

As per Tender selected Make : Microfocus

S/N	Component / Performance / Utility	Minimum Specification
A	General	
1		The proposed EMS solution should be an integrated, modular, and scalable solution from single OEM family (i.e., all Network Monitoring, server Monitoring including application, database monitoring and Service Management tools should be from single OEM) to provide comprehensive fault management, performance management, Traffic Analysis & SLA monitoring functionality.
2		The system should be accessible via a Web based GUI console/portal from intranet as well as from internet.
3		It should have a secured single sign-on and unified console for all functions of components offered for seamless cross-functional navigation & launch for single pane of glass visibility across multiple areas of monitoring & management.
4		The proposed EMS solution deployment must support latest version of Windows and Linux Operating Systems and should be 64-bit application to fully utilize the server resources on which it is installed.
5		Any additional components (hardware, software, database, licenses, accessories, etc.) if required for implementation and execution of project, for providing the total solution as mentioned in the RFP document should be provided by the bidder.
6		The proposed EMS solution should be an integrated, modular, and scalable solution, accessible from a single pane of glass for KPI insights across the entire IT environment. This dashboard will provide service status, performance view, response-time data etc based on role-based access.
7		OEM of EMS solution provider should ISO 27034 certified from Global Leading Certified Agencies. Documentary proof must be provided at the time of submission.
B	Server, Database & Application Fault, Performance Monitoring Management	
1		The proposed Enterprise Management tools must be able to monitor end to end performance of Server Operating Systems & Databases and Should be able to manage distributed, heterogeneous Systems – Windows, UNIX & LINUX from a single management station.
2		There should be a single agent on the managed node that provides the system performance data, and for event management it should be able to prioritize events, do correlation & duplicate suppression ability to buffer alarms and provide automatic actions with capability to add necessary annotations.
3		The system must support multiple built in discovery mechanisms for e.g., Active Directory, Windows Browser, DNS with capability to discover and services discovery.
4		Each operator should be provided with user roles that should include operational service views enabling operators to quickly determine impact and root cause associated with events.
5		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. The system must ensure reduction in MTTR by means of advanced event correlation, filtering, and root cause analysis.
6		The proposed solution should provide out of the box root cause analysis with multiple root cause algorithms inbuilt for root cause analysis.
7		Alarms should be mapped to the live topology views and real time updates to topology based on alarm occurrences.

C	Network Management System (NMS)	
1		The Network Management function must monitor performance across heterogeneous networks from one end of the enterprise to the other.
2		The solution should allow for discovery to be run on a continuous basis which tracks dynamic changes near real-time; to keep the topology always up to date. This discovery should run at a low overhead, incrementally discovering devices and interfaces.
3		NMS should provide integrated fault, performance Monitoring, Configuration & compliance Management together in one tool.
4		NMS should support Industry-leading support for physical, virtual, and SDN-enabled devices like Cisco ACI, VMWare NSX, Viptela, Big Switch Networks, etc.
5		NMS should provide network Trap Analytics out of the box.
6		NMS should support out of the box monitoring of at least 5000+ devices
7		NMS should support 3-Dimensional Compliance Model - Configuration, Software, Running State.
8		The tool should automatically discover different type of heterogeneous devices (all SNMP supported devices i.e., Router, Switches, Servers 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.
9		The tool shall be able to discover IPv4 only, IPv6 only as well as devices in dual stack. In case of dual stack devices, the system shall be able to discover and show both IPv4 and IPv6 IP addresses.
10		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.
D	Network Configuration Automation	The system should be able to clearly identify configuration changes / policy violations / inventory changes across multi-vendor network tool.
1		The system should support secure device configuration capture and upload and thereby detect inconsistent “running” and “start-up” configurations and alert the administrators.
2		The proposed system should be able to administer configuration changes to network elements by providing toolkits to automate the following administrative tasks of effecting configuration changes to network elements:
		a) Capture running configuration
		b) Capture startup configuration
		c) Upload configuration; d) Write start-up configuration; e) Upload firmware
E	Network Traffic Flow Analysis System	
1		It shall be able to capture, track & analyse traffic flowing over the network via different industry standard traffic capturing methodologies viz. NetFlow, jflow, sFlow, IPFIX etc.
2		It shall provide key performance monitoring capabilities by giving detailed insight into the application traffic flowing over the network.
3		It shall collect the real-time network flow data from devices across the network and provide reports on traffic based on standard TCP/IP packet metrics such as Flow Rate, Utilization, Byte Count, Flow Count, TOS fields etc.
F	Reporting	
1		Reporting solution should be able to report on Service Level status of configured business service.
2		Solution should be able to collect Key performance measurements and statistics from all network domains and store it. This data is to be used for evaluation of performance of the end-to-end network infrastructure/services.
3		The performance management system shall be able to collect and report data like:
		a) Packet delay and packet loss
		b) User bandwidth usage rate
		c) Network availability rate
		d) CPU usage rate
		e) Input/output traffic through physical ports
		f) Input/output traffic through logical ports
G	License	Bidder should consider license as per following : 300 Nos. VM + 60 Nos.(including Servers, Routers, Switches, Load Balancer, Network security Devices, UPS and other devices)
H	Warranty	5 Years onsite warranty support including all other accessories related to smooth operation of EMS and NMS Software from the date of successfully installation, commissioning, integration and final acceptance

Scope of Work / Service for providing Operation & Maintenance Support Service

S/N	Type of Service	Scope of Work / Service	No. of Resources / Working Experience / Minimum Qualification
1		• Co-ordinate and review with user department/vendors/ OEM's	

	Facility Manager	<ul style="list-style-type: none"> • Consultant with respective authority for change management of system architecture • Co-ordination with Network Service Provider • Knowledge transfer with all O&M team members for project update • Preparation & analysis of various daily, weekly and monthly report generate from Server health, Network & other devices as an when requirement • Co-ordinate with WTL-WBSDC team for smooth operation of DR setup • Co-ordinate with WTL-WBSDC authority for various activities related to project. • Co-ordinate with existing DCO of WBSDC-DC database replication • Any other O&M support related job 	01 / 7 years working experience in FMS/O&M team / B.E/MCA/Diploma Eng
2	System Admin Support Service	<ul style="list-style-type: none"> • Monitoring all IT Infra through management console and other monitoring tools /script in daily basis. • Servers Operating system installation, re-installation, configuration, re-configuration, update the patch, additional software installation along with configuration, performance tuning and periodic updates. • Diagnosis of Hardware and Operating system related issues and immediate reporting to FM with a resolution / work around. • Implementation, configuration & Monitoring of SMS, NTP, DNS Server • Periodic Password change for all server and devices as per the policy. • Call logging and coordinate with concerned hardware OEM for any hardware faults until the faulty hardware is replaced /repaired and proper functioning. • Installation, Re-installation, configuration & tuning of Backup Software. • Checking and configuration of OS level Firewall as per requirement. • Co-ordinate with OS & Backup Software OEM for resolution. • Configuration of LUN/Partitions/RAID on HCI Infra • Monitoring of HCI performance • Preparation of weekly report for IT Infra • Other System Admin related job. 	03 / 3 years working experience in Datacenter with the relevant OS, Storage & Backup / B.E/MCA/Diploma Eng
3	Network & Security Admin Service	<ul style="list-style-type: none"> • Preparation of Installation plan, Installation, re-installation of Network devices installed at DR Site. • Configuration & Monitoring the Network system installed at DR Site. • Call logging & coordinate with OEM & Vendor for replacement of faulty Network device or any other related issues. • Co-ordinate with DCO-WBSDC for any network related issue • Implementation & maintain of VLAN & other network configuration as per project requirement. • Prepare and maintain the Asset list of Network infrastructure installed at DR Site • Any other Network related job. 	03/ 3 years working experience in LAN & WAN with the relevant switches, routers, network security and certificate on relevant Network / B.E/MCA/Diploma Eng/B.Sc
4	BMS Admin Service	<ul style="list-style-type: none"> • Re-Installation, Re-configuration & Monitoring the Non-IT Infrastructure installed at DR Site. • Call logging & coordinate with OEM & Vendor for replacement of faulty Non-IT device or any other related issues. • Prepare and maintain the Asset list of Non-IT Infrastructure installed at DR Site • Any other BMS Service related job. 	02/ 3 years working experience in Data Center / B.E/MCA/Diploma Eng/B.Sc
5	Security Personnel	<ul style="list-style-type: none"> • Providing 24x7x 365 physical security for entire Data Center area at Purulia 	04 / 3 years working experience in relevant filed
6	Housekeeping	<ul style="list-style-type: none"> • Providing housekeeping service for entire Data Center area at Purulia 	02 / 3 years working experience in relevant filed
5	Tenure of O&M Support	5 Years O&M Support Service will start from the date of successfully installation, commissioning, integration and final acceptance of DR site.	