Request for Proposal (RFP) for Selection of Implementation Agency to Establish an IP-MPLS Network Connectivity in Odisha under OdishaNet Phase 1.0

Enquiry No.: OCAC-SEGP-INFRA-0035-2023-23127: Date: 30-12-2023

1	Availability of Bid Document in the website (www.ocac.in, www.enivida.odisha.gov.in)	30-12-2023 at 3.00 PM
2	Last date of receiving pre-bid queries (telecom.pmu@odisha.gov.in and gm.ocac@gov.in)	06-01-2024 at 3.00 PM
3	Pre-bid Meeting	09-01-2024 3.00 PM
4	Communication regarding corrigendum if any	16-01-2024
5	Last date and time for submission of bid	29-01-2024 at 3.00 PM
6	Opening of Pre-Qualification and Technical Bids (PQ & TQ)	30-01-2024 at 4.00 PM
7	Bid Presentation	To be intimated later
8	Opening of Price Bid (PB)	To be intimated later

ODISHA COMPUTER APPLICATION CENTRE (OCAC)

OCAC Building, Plot No. – N-1/7-D, Acharya Vihar Square, RRL PO, Bhubaneswar-13, Odisha

Tel: 0674-2567064/2567280, FAX- 0674-2567842

Website: www.ocac.in

Contents

1. Fact Sheet

This Fact Sheet comprising important factual data of the tender is for quick reference of the bidder.

Clause Reference	Topic
The Proposal	OCAC invites tenders from CPSU firms (referred as Bidder) for the "**Establish an IP-MPLS Network Connectivity in Odisha under OdishaNet Phase 1.0"** as described in "Scope of Work" of this RFP document. The bidder must possess the requisite experience, strength and capabilities in providing the services necessary to meet the requirements, as described in the tender document.
Method of Selection	**Least cost based method (L1)** shall be used to select the Bidder. The Bidder has to submit the bid through electronic mode as Pre-Qualification (PQ), Technical Bid (TB) and Price Bid (PB)
Document Fee	RFP Document RFP document fee Rs. 5600/- (Rupees Five Thousand six Hundred Only) inclusive of GST @ 12% must be submitted along with the proposal. The RFP document fee must be in favour of Odisha Computer Application Centre drawn on any scheduled commercial bank and payable at Bhubaneswar or paid online.
EMD	Earnest Money Deposit (EMD) of amount Rs. 50,00,000/- (Fifty Lakhs Only) in shape of Bank Guarantee (BG) from any scheduled commercial bank and payable at Bhubaneswar. Bidder should upload the scan copy of the BG online and submit the original BG at OCAC office on or before the opening of bid.
PBG	Performance Bank Guarantee (PBG) @ 10% of the cost of project from any nationalized/scheduled commercial bank in the prescribed format attached in this RFP, in favor of the Odisha Computer Application Centre shall be submitted by the successful bidder within 15 days of issue of LoI.
Scope of Work	Selected Agency is expected to deliver the services listed in Scope of Work required for successful execution. Responsibility of the services for a period of 5 years. The selected bidder needs to start the services at designated site within 15 days of issuance of LoI .
Language	Bid must be prepared by the Bidder in English language only
Currency	The bidder should quote in Indian Rupees only. The Total Price inclusive of taxes and duties will be considered for evaluation.
Validity Period	Proposals/bid must remain valid minimum for 180 days from the last date of bid submission.
Bid to be submitted on or before last date of submission at:	The proposal must be submitted through online mode. Website: **www.enivida.odisha.gov.in** **Address of Purchaser:** The General Manager (Admin) Odisha Computer Application Centre (OCAC) OCAC Building, Plot No.-N-1/7-D, Acharya Vihar Square, RRL Post Office, Bhubaneswar-751013 (INDIA)

2. Request for Proposal

Odisha Computer Application Centre (OCAC) invites RFP from the CPSU towards Establishment of an IP-MPLS Network Connectivity in Odisha under OdishaNet Phase 1.0 as described in "Scope of Work" of this RFP. The Agency shall be responsible for implementing the IP-MPLS Network Connectivity and providing the operations and maintenance support for 5 years from the date of final Go-Live.

3. Background Information

Odisha Computer Application Centre(OCAC), the Designated Technical Directorate of Information Technology Department, Government of Odisha, has evolved through years as a center of excellence in Training, IT solutions and e-Governance. It has contributed significantly to the steady growth of IT in the state.

Odisha Power Transmission Corporation Limited (OPTCL), one of the largest Transmission Utility in the country was incorporated in March 2004 under the Companies Act, 1956 as a company wholly owned by the Government of Odisha to undertake the business of transmission and wheeling of electricity in the State. The registered office of the Company is situated at Bhubaneswar, the capital of the State of Odisha. Its projects and field units are spread all over the State.

The OdishaNet Phase 1.0 is proposed to provide IPMPLS connectivity from State Head Quarter (SHQ) to each District Head Quarters (DHQs) utilizing the spare fibers of OPGW cable of OPTCL (Odisha Power Transmission Corporation Ltd.). The end links are proposed from the OPTCL grid to the District Collector's office, where the District PoPs will be co-located with the OSWAN POP. In due course, this PoP will be shifted to a new PoP proposed in the Collector's office. The end links to the District Collector's office will be underground with an average length of nearly 5 Km per District. Though the fiber network will not be in a ring, the reliability of OPGW cable is good enough to give the network uptime of more than 99%. The network will be IPMPLS utilizing carrier grade state-of-the-art Routers and DWDM technology. The network will be scalable and has provision for expansion as the demand grows. Thus, phase I of Odisha Net 1.0 will be a steppingstone for future growth of connectivity in the state. Subsequently the network will be expanded to the Blocks/GPs/Villages. The performance monitoring of the network will be carried out from the existing SNOC. The proposed network should have its own EMS to be integrated to the SNOC for service provisioning and monitoring of the network. The network is meant for use by the Government for any G2G applications. However, the surplus bandwidth could be commercially leased to earn revenue. In due course, it could be extended to the GPs, and villages through the Blocks. All the networks leased from the operators by various departments could be considered for surrender once this network gets commissioned. The internet bandwidth could be centrally leased and extended to Districts and all horizontal offices resulting in economy of scale for the leased internet bandwidth. The project is proposed to be financed by the State Government.

3.1. Basic Information

3.1.1. OPGW Cables:

Optical Ground Wire (OPGW) is a dual functioning cable, meaning it serves two purposes. It is designed to replace traditional static/shield/earth wires on overhead transmission lines with the added benefit of containing optical fibers which can be used for telecommunications purposes. OPGW is primarily used by the electric utility industry, placed in the secure topmost position of the transmission line where it "shields" the all-important conductors from lightning while providing a telecommunications path for internal as well as third party communications. OPGW must be capable of withstanding the mechanical stresses applied to overhead cables by environmental factors such as wind and ice. OPGW must also be capable of handling electrical faults on the transmission line by providing a path to the ground without damaging the sensitive optical fibers inside the cable. The positioning of the OPGW cable in a transmission tower is shown in the figure given below.

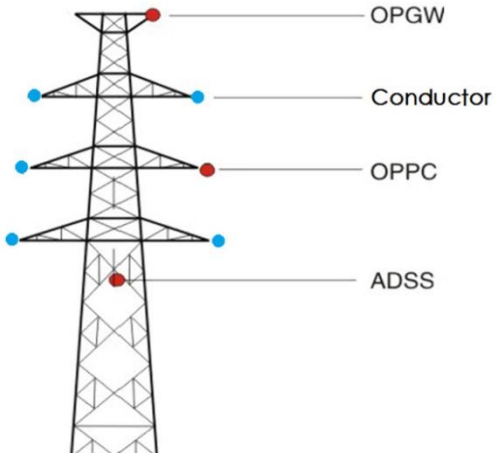


Figure 1

3.1.2. Overview of OPGW cables laid by OPTCL

OPTCL has a strong backbone of optic fibre communication network through its OPGW laid over 400kv, 220kv, and 132 KV transmission lines covering nearly 100 substations spread over the state. OPTCL is earning a revenue of Rs. 3.5 Cr by way of leasing out dark fibres to PowerGrid, BSNL, LWPTL, AIRTEL, and Tata Communications. Mostly 24F OPGW cable has been erected to the extent of 5736 Km. There is a plan to erect another 1000Km of OPGW cable.

OPTCL has indicated the availability of spare fibres for such a network. OPTCL may share the bandwidth as per its need in future. The OPGW fibre connectivity as given by OPTCL is given in the **figure 2** below.

3.1.3. End link Identification

The end links necessary for connecting the district headquarters (DC's office) to the nearest grid station have been worked out by OPTCL. The POP will be established in the collector's office. PR department has been requested to allocate 800 sq. ft of space in the collector's office. It is proposed to lay Arial OFC for the end link to complete the project. However, the underground cable is to be laid for the end link to provide redundancy and increase reliability. The following table summarizes the requirement of end links. A total of around 144 KM is to be laid.

Details of End links:

Sl No	District Collector Office	Nearest OPTCL Grid Sub-Station	Distance from Nearest OPTCL GRID to Collector Office in KM
1	ANGUL	ANGUL GRID	1.7
2	BALANGIR	BOLANGIR OLD GRID	2.67
3	BALESHWAR	BALASORE GRID	4.8
4	BARGARH	BARGARH OLD GRID	2.42
5	BHADRAK	BHADRAK GRID	2
6	BOUDH	BOUDH GRID	8.59

Sl No	District Collector Office	Nearest OPTCL Grid Sub-Station	Distance from Nearest OPTCL GRID to Collector Office in KM
7	CUTTACK	BIDANASI GRID	2
8	DEOGARH	DEOGARH GRID	7
9	DHENKANAL	DHENKNAL GRID	7.55
10	GAJAPATI	PARLAKHEMUNDI GRID	2.7
11	GANJAM	CHATRAPUR GRID	0.850
12	JAGATSINGHPUR	JAGATSINGHPUR GRID	2.67
13	JAJPUR	JAJPUR TOWN GRID	2.1
14	JHARSUGUDA	JHARSUGUDA GRID	6.24
15	KALAHANDI	BHAWANIPATNA GRID	4.19
16	KANDHAMAL	PHULBANI GRID	2.11
17	KENDRAPARA	KENDRAPARA GRID	5.43
18	KEONJHAR	KEONJHAR GRID	8.68
19	KHORDHA	KHURDA GRID	2.51
20	KORAPUT	SUNABEDA GRID	17.2
21	MALKANGIRI	MALKANGIRI GRID	7.22
22	MAYURBHANJ	BARIPADA GRID	4.2
23	NAYAGARH	NAYAGARH GRID	7.89
24	NOWRANGPUR	NABARANGAPUR GRID	7.24
25	NUAPADA	NUAPADA GRID	4.25
26	PURI	PURI GRID	5.65
27	RAYAGADA	RAYAGADA GRID	3.68
28	SAMBALPUR	SAMBALPUR GRID	5.42
29	SONEPUR	SONEPURE GRID	1.94
30	SUNDARGARH	SUNDARGARH GRID	3.74
31	SLDC, Mancheswar	OCAC	10
Total Distance			**153.79 km**

Any contract that may result from this RFP processes will be issued for a term of total 6 years and 6 months which would include implementation period of 18 months. If the Go-live is delayed, SI shall be bound to provide the operations and maintenance support for 5 years from the date of Go-Live.

Proposals must be received not later than time, date and venue mentioned in the Fact Sheet. Proposals that are received late will not be considered in this procurement process.

4. Definitions

- "Request for Proposal (RFP)", means this detailed notification seeking a set of solution(s), services(s), materials and/or any combination of them.
- "State" shall mean the state of Odisha.
- "SWAN" shall mean State Wide Area Network.
- "GoI" shall stand for the Government of India.
- "GoO" shall mean Government of Odisha.
- "OCAC", shall mean the Odisha Computer Application Centre, the Designated Technical Directorate of Information Technology Department, Government of Odisha
- "Bidder" means any CPSU firm offering the solution(s), service(s) and /or materials required in the RFP. The word Bidder when used in the pre award period shall be synonymous with Bidder, and when used after award of the Contract shall mean the successful Bidder or Vendor with whom Government of Odisha signs the agreement for rendering of services for.
- "Requirements" shall mean and include schedules, details, description, statement of technical data, performance characteristics, standards (Indian as well as International) as applicable and specified in the RFP.
- "Site" shall mean the location(s) for which the Contract has been issued and where the service shall be provided as per agreement.
- "Default Notice" shall mean the written notice of Default of the Agreement issued by one Party to the other in terms hereof.
- "Termination Notice" means the written notice of termination of the Agreement issued by one Party to the other in terms hereof.
- "Fraudulent Practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a Contract and includes collusive practice among Bidders (prior to or after Bid submission) designed to establish Bid prices at artificial non-competitive levels and to deprive the Government of Odisha of the benefits of free and open competition.
- "Law" shall mean any Act, notification, by law, rules and regulations, directive, ordinance, order or instruction having the force of law enacted or issued by the Central Government and/ or the Government of Odisha or any other Government or regulatory authority or political subdivision of government agency.
- "LoI" means issuing of Letter of Intent which shall constitute the intention of the bidder to place the Purchase Order with the successful bidder.
- "Party" means Government of Odisha or Bidder, individually and "Parties" means Government of Odisha and Bidder, collectively.

5. Instruction to Bidder

5.1. General

- The terms and conditions given in the RFP, subsequent corrigendum if any released by OCAC against this RFP and release of corrigendum if any shall apply.
- Each bidder shall submit only one Proposal. The bidder who submits or participates in more than one Proposal will be disqualified.
- Consortium is not allowed.
- While every effort has been made to provide comprehensive and accurate background information with desired responsibilities and requirements. Bidders must form their own conclusions about the support needed to meet the requirements based on their past experience.
- All information supplied by bidders may be treated as contractually binding on the bidders, on successful award of the assignment by the OCAC.
- No commitment of any kind, contractual or otherwise shall exist unless and until a formal written contract has been executed by or on behalf of the OCAC. Any notification of preferred bidder status by the OCAC shall not give rise to any enforceable rights by the Bidder. The OCAC may cancel this procurement at any time prior to a formal written contract being executed by or on behalf of the OCAC.

5.2. Completeness of the Tender

a) Submission of the bid shall be deemed to have been done after careful study and examination of the RFP document with full understanding of its implications.

b) Failure to comply with the requirements of this paragraph or any clause of the RFP document may render non-compliant and the RFP document may be rejected. Bidders must:-

- Include all documentation specified in this RFP document;
- Follow the format prescribed in this RFP document and respond to each element in the order as set out in this RFP document.
- Comply with all requirements as set out within this RFP document.

5.3. Key Requirements of Bid

5.3.1. Right to Accept Any Proposal and To Reject Any or All Proposal(s)

- OCAC reserves the right to accept or reject any proposal at any time prior to award of contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders of the grounds for such action.
- OCAC makes no commitments, express or implied, that this process will result in a business transaction with anyone.
- The submission of RFP does not constitute an offer by OCAC. The bidder's participation in this process may result in selecting the bidder to engage towards execution of the contract.

5.3.2. Cost of RFP and EMD

- The bidder must furnish along with its bid required bid processing fee amounting to ₹ 5600/- inclusive of GST @ 12% in shape of DD in favor of Odisha Computer Application Centre (OCAC),

drawn in any scheduled commercial bank and payable at Bhubaneswar failing which the bid will be rejected. The fee may also be paid through electronic mode to the following account:

Bank A/c No.: 149311100000195
Payee Name: Odisha Computer Application Center
Bank Name & Branch: Union Bank of India, Acharya Vihar, Bhubaneswar
Account Type: Savings
IFSC: UBIN0814938

Also, the fees may be paid online on e-Nivida portal through e-Payment Gateway.

- Bidders shall submit, along with their General Bid, EMD of Rs.50,00000 /- (Rupees Fifty Lakhs Only) only in the shape of bank guarantee issued by any scheduled commercial bank only and shall be valid for minimum 180 days from the bid submission date.
- EMD of all unsuccessful bidders would be refunded by OCAC within 45 days of award of LoI to successful bidder.
- The EMD amount is interest free and will be refundable to the unsuccessful bidders without any accrued interest on it.
- The Bid submitted without RFP Document fee & EMD will be summarily rejected.
- The EMD may be forfeited:

  - ✓ If a bidder withdraws its bid during the period of bid validity.
  - ✓ In case of a successful bidder, if the bidder fails to sign the contract in accordance with this tender paper.
  - ✓ If found to have a record of poor performance such as having abandoned work, having been black-listed, having inordinately delayed completion and having faced Commercial failures or found to have furnished false/ forged documents etc.

5.3.3. Performance bank Guarantee

- An unconditional and irrevocable Performance Bank Guarantee (PBG) equivalent to **10%** of the cost of project from any nationalized / scheduled commercial bank in the prescribed format given in this RFP, in favor of the Odisha Computer Application Centre shall be submitted by the successful bidder within **15 days** of issue of LoI.
- Failure of submission PBG within the specified time period may lead to cancel the LoI.
- The Bank guarantee shall be valid till **180 days** beyond completion of all the contractual obligations.
- In the event of the bidder being unable to service the contract for whatever reason, OCAC would evoke the PBG. OCAC shall notify the Bidder in writing of the exercise of its right to receive such compensation within **60 days,** indicating the contractual obligation(s) for which the Bidder is in default.

5.3.4. Pre-Bid Queries

Bidders are requested to submit their queries by e-mail to telecom.pmu@odisha.gov.in and **gm.ocac@gov.in** as per the format given below on or before 06-Jan-2024 till 3: 00 PM.

Company Name	Person Name	Designation, e-Mail, Contact Number		
Page No.	**Section**	**Sub-Section**	**Clarification**	**Remarks**

5.3.5. Responses to Pre-Bid Queries and Issue of Corrigendum

- The Nodal Officer mentioned in the RFP document will endeavor to provide timely response to all queries. However, OCAC makes no representation or warranty as to the completeness or accuracy of any response made in good faith, nor does OCAC undertake to answer all the queries that have been posed by the applicants. The responses to the queries from all applicants will be published on OCAC website.
- At any time prior to the last date for receipt of RFP, OCAC may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective applicant, modify the RFP Document by a corrigendum.
- The Corrigendum (if any) & clarifications to the queries from all applicants will be published by OCAC on the website.
- Any such corrigendum shall be deemed to be incorporated into this RFP.
- In order to provide prospective applicants reasonable time for taking the corrigendum into account, OCAC may, at its discretion, extend the last date for the receipt of RFP.

5.3.6. Submission of Proposals

The bidder is expected to examine all instructions, forms, terms, and requirements in the bid document. Failure to furnish all information required by the bid document or submit a bid not substantially responsive to the bid document in every respect may result in the rejection of the Bid. Online bid document submission instruction given below.

5.3.6.1. Instructions to Bidders for Online Bid Submission:

e-Nivida is the complete process of e-Tendering, from publishing of tenders online, inviting online bids, evaluation and award of contract using the system. You may keep a watch of the tenders floated under https://enivida.odisha.gov.in

Bidder Enrolment can be done using “Bidder Enrolment”.

The instructions given below are meant to assist the bidders in registering on the eNivida Portal, and submitting their bid online on the portal as per uploaded bid. More information useful for submitting online bids on the eNivida Portal may be obtained at: https://enivida.odisha.gov.in,

5.3.6.2. Guidelines for Registration:

i. Bidders are required to enroll themselves on the eNivida Portal https://enivida.odisha.gov.in or click on the link “Bidder Enrollment” available on the home page of e-tender Portal by paying the Registration fee of Rs.2,500/- + Applicable GST.
ii. As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
iii. Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication with the bidders.
iv. Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate

(Only Class III Certificates with signing + encryption key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / TCS / nCode / eMudhra etc.), with their profile.

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

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

vii. The scanned copies of all original documents should be uploaded in pdf format on e-tender portal.

viii. After completion of registration payment, bidders need to send their acknowledgement copy on our help desk mail id odishaenivida@gmail.com, for activation of the account.

5.3.6.3. Searching for Tender Documents

i. There are various search options built in the e-tender Portal, to facilitate bidders to search active tenders by several parameters.

ii. Once the bidders have selected the tenders they are interested in, then they can pay the Tender fee and processing fee (NOT REFUNDABLE) by net-banking / Debit / Credit card then they may download the required documents / tender schedules, Bid documents etc. Once you pay both fee, tenders will be moved to the respective 'requested' Tab. This would enable the e- tender Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.

5.3.6.4. Bid Preparation:

i. Payment of Tender Document Fee & EMD of online Bids:
The payment for Tender document fee and EMD can be made, as mentioned in clauses 5.3.2.. Any bid, submitted without Tender Document Fee and EMD or with a lesser amount may be rejected being non-responsive. The bidder should ensure that the original fee payment receipt/Demand Draft (as applicable) of the Tender Document Fee and Bank Guarantee against EMD has been uploaded online during submission of the Tender. Original copy of DD/Payment Receipt and BG shall be submitted at OCAC before tender opening. The bidders shall attach their eligibility and technical offer containing documents, qualifying criteria, technical write-up, and all other terms and conditions.

ii. The bidders shall submit their quotes in price/finance bid format only.

iii. Any clarifications/revisions in the tender document on this tender shall be shared on the gm.ocac@gov.in and **telecom.pmu@odisha.gov.in** email id.

iv. The bidders may visit the site and obtain additional information at their own cost and responsibility. Failure of a Bidder in visiting sites will not be a cause for disqualification.

v. In case of any change in the authorization, it shall be the responsibility of the management/ partners of the CPSU Firm to inform the certifying authority about the change and to obtain the digital signatures of the new person/ user on behalf of the CPSU firm. The procedure for application of a digital certificate however will remain the same for the new user.

vi. The same procedure holds for authorized users in a CPSU firm. In this case, the authorization certificate will have to be signed by the authorized directors of the CPSU firm.

vii. Tender documents will only be accepted through online mode only.

viii. Bids sent through any other mode, i.e., Post/Email/Fax etc. shall not be acceptable.

ix. The bidders are strictly advised to follow dates and times as indicated in the online Notice Inviting Tenders. The date and time shall be binding on all bidders. All online activities are time

tracked and the system enforces time locks that ensure that no activity or transaction can take place outside the start and end dates and the time of the stage as defined in the online Notice Inviting Tenders.

x. The Client may, at its discretion, extend this deadline for any administrative reason.

xi. Bidder should take into account any corrigendum published on the tender document before submitting their bids.

xii. Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid.

xiii. Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF formats. Bid Original documents may be scanned with 100 dpi with Colour option which helps in reducing size of the scanned document.

xiv. To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g., PAN card copy, GST, Annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "My Documents" available to them to upload such documents.

xv. These documents may be directly submitted from the "My Documents" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process. Already uploaded documents in this section will be displayed. Click "New" to upload new documents.

5.3.6.5. Submission of Bids:

i. Bidder should log into the website https://enivida.odisha.gov.in well in advance for the submission of the bid so that it gets uploaded well in time i.e., on or before the bid submission time. Bidder will be responsible for any delay due to other issues.

ii. The bidder has to digitally sign and upload the required bid documents one by one as indicated in the tender document as a token of acceptance of the terms and conditions laid down by Department.

iii. Bidder has to select the payment option as per the tender document to pay the tender fee / Tender Processing fee & EMD declaration as applicable and enter details of the instrument.

iv. In case of BG, bidder should prepare the BG as per the instructions specified in the tender document. The BG in original should be posted/couriered/given in person to the concerned official before the Online Opening of Financial Bid. In case of non-receipt of BG amount in original by the said time, the uploaded bid will be summarily rejected.

v. Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. If the price bid has been given as a standard BOQ format with the tender document, then the same is to be downloaded and to be filled by all the bidders. Bidders are required to download the BOQ file, open it and complete the yellow colored (unprotected) cells with their respective financial quotes and other details (such as name of the bidder). No other cells should be changed. Once the details have been completed, the bidder should save it and submit it online, without changing the filename. If the BOQ file is found to be modified by the bidder, the bid will be rejected.

vi. Bidders are requested to note that they should necessarily submit their financial bids in the format provided and no other format is acceptable. Bidders not specifying any cost against the line item(s) and mentioned as zero (0) will be treated as non-responsive.

vii. Any material deviation will be treated as non-responsive bid.

viii. The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.

ix. The uploaded bid documents become readable only after the tender opening by the authorized bid openers.

x. Upon the successful and timely submission of bid click "Complete" (i.e. after Clicking "Submit" in the portal), the portal will give a successful Tender submission acknowledgement & a bid summary will be displayed with the unique id and date & time of submission of the bid with all other relevant details.

xi. The tender summary has to be printed and kept as an acknowledgement of the submission of the tender. This acknowledgement may be used as an entry pass for any bid opening meetings.

5.3.6.6. Clarification using eNivida Portal:

i. Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.

ii. Any queries relating to the process of online bid submission or queries relating to e-tender Portal in general may be directed to the Helpdesk Support.

iii. Please feel free to contact eNivida Helpdesk (as given below) for any query related to e-tendering.
Phone No. 011-49606060
Mail id: - odishaenivida@gmail.com

5.3.7. Authentication of Bids

The RFP document shall be accompanied by an Authorization Letter (Annexure-G3) / power-of-attorney in the name of the authorized signatory of the proposal.

5.4. Preparation and Submission of Bid

5.4.1. Preparation Costs

The bidder shall be responsible for all costs incurred in connection with participation in the bid process, including site visits but not limited to, costs incurred in conduct of informative and other diligence activities, participation in meetings/ discussions/ presentations, preparation of bid, in providing any additional information required by OCAC to facilitate the evaluation process, and in negotiating a definitive contract or all such activities related to the bid process. OCAC will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

5.4.2. Language

The proposal shall be filled by the bidder in English language only. 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 bidders. For purposes of interpretation of the proposal, the English translation shall govern.

5.4.3. Venue and Deadline for Submission of Bid

The bid-submission will be online for establishment of IPMPLS network in Odisha under OdishaNet Phase 1.0 project must be received not later than the last date and time for submission of bids specified under "Key Events & Date". The bidder has to submit the bid electronically in e-Nivida System at www.enivida.odisha.gov.in. The soft copy will be treated as final proposal.

Submission of Proposal Website: www.enivida.odisha.gov.in

Purchaser Address:

The General Manager (Admin),
OCAC Building, Plot No.-N-1/7-D,
Acharya Vihar Square, RRL Post Office,
Bhubaneswar-751013 (INDIA)

5.4.4. Late Bids

- Bids received after the due date and the specified time (including the extended period if any) for any reason whatsoever, shall not be entertained and shall be returned unopened.
- The bids submitted by telex/ telegram/ fax/ e-mail etc. shall not be considered. No correspondence will be entertained on this matter.
- OCAC shall not be responsible for any delay or non-receipt / non-delivery of the documents. No further correspondence on the subject will be entertained.

5.4.5. Modification & Withdrawal of Bids

i. The Bidder is allowed to modify or withdraw its submitted bid at any time before the last date prescribed for receipt of bids, by giving a written notice to the OCAC.
ii. After the last date for receipt of bids, no modification of bids shall be allowed.
iii. The Bidders cannot withdraw the bid in the interval between the last date for receipt of bids and the expiry of the bid validity period specified in the Bid. Such withdrawal may result in the forfeiture of its Bid Security.

5.4.6. Bid Forms

i. Wherever a specific form is prescribed in the Bid document, the Bidder shall use the form to provide relevant information. If the form does not provide space for any required information, space at the end of the form or additional sheets shall be used to convey the said information.
ii. For all other cases, the Bidder shall design a form to hold the required information

5.4.7. Local Condition

i. Each Bidder is expected to fully get acquainted with the local conditions and factors, which would have any effect on the performance of the contract and /or the cost.
ii. The Bidder is expected to know all conditions and factors, which may have any effect on the execution of the contract after the issue of the letter of Award as described in the bidding documents. The tenderer shall not entertain any request for clarification from the Bidder regarding such local conditions.
iii. It is the Bidder's responsibility that such factors have properly been investigated and considered while submitting the bid proposals and no claim whatsoever including those for financial adjustment to the contract awarded under the bidding documents will be entertained by the OCAC. Neither any change in the schedule of the contract nor any financial adjustments arising thereof shall be permitted by the OCAC on account of the failure of the Bidder to know the local laws/conditions.

5.5. Opening of Proposal

i. The evaluation of the bids shall be carried out as detailed below:

ii. Step 1: The Client will first open Pre-Qualification cum Technical Bid in the presence of Bidder's representatives who choose to attend the Bid opening meeting on the date mentioned above or on any other later day and time fixed or other enabling provisions in this behalf, in the Conference Hall, OCAC Building, Plot no-n-1/7-d, Acharya Vihar, RRL Post Office, Bhubaneswar- 751013 or through online mode. The Bidder's representatives who are present shall sign a register evidencing their attendance. The proposal documentation (as mentioned in clause 4 above) furnished by the bidders shall be examined to ensure that the proposal has been properly prepared, signed, and accompanied by relevant documents and criteria to substantiate compliance with the criteria as explained in this document.

iii. Only the proposals qualifying for the Preliminary Evaluation would be considered for further financial evaluation.

iv. Step 2: The financial evaluation shall be done based on the details submitted by the bidder and the financial quote submitted in the price bid format given in Annexure-G7 below.

v. In the event of the date specified for Bid receipt and opening being declared as a holiday, the Bids will be received/opened the following working day at the appointed times

vi. Any Change in the schedule on which the Commercial bid would be opened and the date and time for the conduct of demonstration/presentations, if any, will be communicated to the qualified bidders through Telephone/Post/E-mail

vii. Bids that are not opened shall not be considered further for evaluation, irrespective of the circumstances. Withdrawn Bids will be returned unopened to the bidders

viii. The Bidder shall be responsible for the proper submission of bids and the Bid Evaluation Committee shall not be responsible for the accidental opening of Envelopes that are not properly superscribed and sealed.

ix. OCAC reserves the right to accept or reject any Bid, to annul the bidding process and reject all Bids at any time before the award of the Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for department's action.

x. Failure to agree with the Terms & Conditions of the RFP/Contract: Failure of the successful Bidder to agree with the Terms & Conditions of the RFP/Contract shall constitute sufficient grounds for the annulment of the award, in which event OCAC shall forfeit the PBG and make the award to the next Best Value Bidder or call for new Bids.

6. Criteria for Evaluation

The selection process consists of below three stages -

1. Pre-Qualification

2. Technical Evaluation

3. Commercial Evaluation

6.1. Pre-Qualification or eligibility Criteria:

Sr. No.	Qualification Criteria	Documents/Information to be provided in the submitted proposal
1.	The responding firm/agency (a) Should have made a payment of INR. 5000 (Rupees Five Thousand Only) plus taxes as mentioned in this RFP (non-refundable) for the Tender Fee (b) Should have submitted EMD of INR. 50,00,000.00 (Rupees Fifty Lakhs only)	(a) Copy of payment receipt/Demand Draft (as applicable) against the Cost of tender document fee must be submitted online; else bid will be summarily rejected. Original of the same shall be submitted to OCAC before the Tender opening. (b) The EMD may be paid through electronic mode to the following financial Bank A/c No.: 149311100000195 Payee Name: Odisha Computer Application Centre Bank Name & Branch: Union Bank of India, Acharya Vihar, Bhubaneswar Account Type: Savings IFSC: UBIN0814938 or may be paid vide bank guarantee as mentioned in clause 5.3.2. Original of the same shall be submitted to OCAC before the Tender opening.
2.	Legal Entity • The bidder should be a CPSU and in the Telecom business for at least last 5 (five) years as of 31st March 2023 and should be registered under Companies Act, 1956 or later	Copy of Certificate of Incorporation or Copy of Registration Certificate Copy of all documents listed above should be attested by authorized signatory and must be submitted along with the response
	• Registered with the Income Tax and GST	Copy of all documents listed below should be attested by authorized signatory and must be submitted along with the response a) Copy of PAN Card b) Copy of GST Certification
3.	The Net Worth of the Bidder must be positive for the last 3 audited financial years i.e., 2020-21, 2021-22, and 2022-23	Separate Chartered Accountant Certificate for positive Net worth of the Bidder
4.	The Bidder must not be blacklisted by any Government/Public Sector organization /department in India at the time of submission of the response to this RFP	A declaration as per the format prescribed in Form - "Declaration that the Bidder has not been blacklisted" to be given by the authorized signatory of the Bidder – Annexure – G12

Sr. No.	Qualification Criteria	Documents/Information to be provided in the submitted proposal
5.	Bidder's average annual turnover must be INR 1000 Crores or above in Telecom business for last three financial years	Copy of audited BS & PL along with a separate certificate from Statutory auditor/CA regarding the turnover from Telecom business
6.	The Bidder must have successfully completed the establishment of IPMPLS network connectivity for its own operation or for any Central / State Government Organization / Public Sector Unit (PSU)/Large Enterprise in India, during the last 5 years (as on 31.03.2023 or later), amongst which the following value specified has to be included in the criteria mentioned herein: 1. One project with minimum 80 Crore or 2 projects with minimum project value of 60 crore each or 3 or more projects with minimum project value of 40 crores. Project value is inclusive taxes. 2. The project completed should be carrier grade using DWDM, OTN etc. 3. Should be successfully operating a IPMPLS network of 100 nodes for last 3 years.	Ref Annexure G13: - "Project Citation Format" supported with Work order or Purchase Order (PO) or 'Letter of Intent (LoI) with extract from signed contract showcasing the project value and scope of work' for each project along with completion certificate (if the project is completed) or Go-Live/PAT/FAT certificate (if the project is still running). Project completion/Client satisfactory certificates must be signed by the authorized official from client mentioning the scope of work and project value. OCAC may check the authenticity of the documents provided by the Bidder.
7	The Bidder must have at least 100 Telecom professionals (B.E /B.Tech / MCA) on its payroll as on bid submission date	Certificate from HR Department/CEO/MD for number of technically qualified professionals employed with the CPSU firm.
8	The bidder should have some presence in terms of deployed personnel and deployed network in the 30 districts headquarters as on bid submission date.	Proof thereof to be submitted in terms of work order/MSA of any/multiple ongoing projects
9	The Bidder should have direct authorization from the Original Equipment Manufacturer (OEM) for selling and supporting the equipment offered. MAF is required for the major components as mentioned below – 1. Active IT Components 2. OFC 3. NMS	Refer: Annexure G11: - "Manufacturers'/Producers' Authorization Form" for the MAF and complete the associated table provided with the form.

Sr. No.	Qualification Criteria	Documents/Information to be provided in the submitted proposal
10	Bidder should have office in Odisha. However, if the local office is not there in Odisha, the bidder should give an undertaking for establishment of an office, within one month of award of the contract.	Evidence of local office in Odisha or Self-certified declaration by the authorized signatory of the Bidder should be submitted along with the proposal.
11	Authorized signing authority	Refer Annexure-G3 separate "Copy of Board resolution" or POA from the Bidder authorizing the person to sign on behalf of the company or Power of Attorney for the designated person to be provided as per the format prescribed in Form "Bidder's Authorization Certificate". (Must be on a Non-Judicial INR 100/- Stamp Paper or higher)"
12	Land Border Clause: Bidder shall ensure compliance to the Office Memorandum for insertion of Rule 144 (xi) in the General Finance Rules (GFR)-2017 bearing reference number F.No. 6/18/2019-PPD dated 23 July 2020 including amendments thereon, by the Public Procurement Division, Department of Expenditure, Ministry of Finance. Non-compliant bid(s) will be summarily rejected	Self-declaration by the bidder (for all the products quoted in the bid) as per the clauses mentioned in Land Border Clause.

Note: - Only bidders qualifying in Pre-Qualification evaluation would be considered for the technical evaluation as per below criteria.

6.2. Technical Evaluation

In order to determine whether the bidders are qualified and whether the technical aspects are substantially responsive to the requirements set forth in the bidding documents, the Tendering Authority will examine the information supplied by the Bidders and shall award points to the bidders on the basis of the following parameter.

Technical Evaluation Criteria		Description	Max Marks	Supporting Documents Required
A	**Past Experience of the Bidder**		**60 Marks**	
A1	Average Annual Turnover in Telecom business in last	>=1000 Cr but <1200 Cr = 7 Marks >=1200 Cr but <1400 Cr = 8 Marks	10 Marks	CA or Statutory Auditor's certificate- regarding average annual turnover in Telecom business in last three financial

Technical Evaluation Criteria		Description	Max Marks	Supporting Documents Required
	three financial years	>=1400 Cr but <1600 Cr = 9 Marks >=1600 Cr = 10 Marks		years (FY 20-21, FY 21-22, FY 22-23)
A2	Project Experience for Long distance transport network (minimum 1000 Km)	For each project, 5 marks will be provided. Maximum 15 Marks for 3 or more projects will be provided	15 marks	LoI with MSA/Work Order/Purchase Order a with certificate from statutory auditor/CA regarding completion of scope of work with commencement of Long distance transport network of minimum 1000 Km or client certificate for completion of scope of work with commencement of Long distance transport network of minimum 1000 Km
A3	Project Experience for establishment of IPMPLS Network (100 nodes minimum)	For each project, 5 marks will be provided. Maximum 15 Marks for 3 or more projects will be provided	15 marks	LoI with MSA/Work Order/Purchase Order a with certificate from statutory auditor/CA regarding completion of IPMPLS network of minimum 100 nodes or client certificate for completion of IPMPLS network of minimum 100 nodes
A4	ISO certification (valid as on bid submission date)	ISO 9001 > 2 Marks ISO 27001 > 5 Marks ISO 20000 > 3 Marks	10 Marks	Copy of certificate(s)
A5	Overall regular staff strength with Telecom experience on its payroll as on bid submission date	>=100 but < 150 resources = 7 Marks >=150 but < 200 resources = 8 Marks >=200 but < 250 resources = 9 Marks >250 resources = 10 Marks	10 Marks	Certificate from HR Department/CEO/MD for number of Telecom professionals employed with the firm.
B	**Approach And Methodology**		**40 Marks**	
B1	Technical proposal submitted by the bidder - Understanding of the Project and it's Scope of Work – 5 Marks Approach & Methodology for implementation and support – 5 Marks Risk Management Plan – 5 Marks Detailed Project Plan – 5 marks		20 Marks	Bid documents submitted online and clarifications received (if any)

Technical Evaluation Criteria	Description	Max Marks	Supporting Documents Required
B2	Presentation by the Bidder – Understanding of the Project and it's Scope of Work – 5 Marks Approach & Methodology for implementation and support – 5 Marks Risk Management Plan – 5 Marks Detailed Project Plan – 5 marks	20 Marks	Presentation by the bidders

Note: - As a part of Technical Qualification Process, those bidders who have scored >=70 marks would be considered for opening of commercial bid.

6.3. Notification of Award

OCAC will award the contract to the successful bidder whose proposal has been determined to be substantially responsive as per the process outlined above. The bidder with the lowest price quote shall be considered as L1 and award of the contract shall be made to the bidder with the lowest cost (L1). If the L1 bidder refuses / fails to accept the LoI within Ten (10) days, the next higher responsive bidder (L2) will be proposed to accept the LoI at the rates offered by the lowest bidder (L1). If L1 bidder refuses / fails at any stage of contract, the entire work can be given to the L2 bidder at L1 rate. OCAC reserves the right to negotiate prices during evaluation if found necessary. OCAC will notify the successful bidder in writing or by fax or email, that its proposal has been accepted. In case the tendering process / public procurement process has not been completed within the stipulated period, OCAC may like to request the bidders to extend the validity period of the bid. In such case such extended period shall be accepted as mutually agreed upon. Notification of award will constitute the formation of the contract.

6.4. Signing of Contract

After the OCAC notifies the successful bidder that its proposal has been accepted, OCAC shall enter into a contract within fifteen (15) days of the award of the contract or within such extended period, as may be specified by the Authorized Representative of OCAC., incorporating all clauses and the proposal of the bidder with the successful bidder. The Draft Service Level Agreement (SLA) will be provided as a separate document to the bidder.

6.5. Failure to Agree with the Terms and Conditions of the RFP

Failure of the successful bidder to agree with the Draft Service Level Agreement (SLA) and Terms & Conditions of the RFP shall constitute sufficient grounds for the annulment of the award, in which event OCAC may award the contract to the next best value bidder or call for new proposals from the interested bidders. In such a case, the OCAC shall forfeit the EMD of the successful bidder.

6.6. Period of Contract

The period of the contract shall be for a period of 6 years 6 months or 5 years from the date of Go-Live whichever is later. The period may be extended for further periods on mutual agreement by both the parties on similar terms and conditions.

6.7. Key Stakeholders

The key stakeholders are -

- ✓ Department of IT, Govt. of Odisha

- ✓ Odisha Computer Application Center (OCAC)
- ✓ The BharatNet Project Implementation Agency (OPTCL)

7. Scope of Work

The OPGW cables are being underutilized, whereas the state government is paying rentals for leasing bandwidth from the capital to the district offices. Because of the cost involved in leasing sometimes compromises are made in leasing bandwidth. Almost all the departments need bandwidth to connect to the district-level offices. The schools and hospitals also need bandwidth for smart school and telemedicine applications. Similar requirements are there for police, agriculture, education, and skill development departments. In any network, the major cost is accounted for towards the laying of optical fiber cables. In the proposed project majority requirement of core, cables are available and only end links are to be laid. Leveraging the available OPGW cables a reliable IPMPLS network could be built up to the district headquarters. The proposed infrastructure for the POP will be a long-term investment for the telecom infra and is common to swan, future state-wide IP MPLS. As the preparation of proposed district POPs will take time, it is proposed to install the equipment in the SWAN room. Provision for additional AC and DG sets has been made in this project to upgrade the SWAN infrastructure. The existing earthing at sites to be checked by the selected bidder and if the earthing found to be inappropriate along with any of its supporting infrastructure, the selected bidder will be responsible for installation of additional infrastructure for proper earthing. The same will be treated as part of change request under the project and will be approved by OCAC based on the site survey report and change request to be submitted by the selected SI. The cost will be determined based on the discovered rates in the price bid.

The OdishaNet project involves connecting all the Districts through OPGW optical fiber connectivity to the state capital (SNOC, OCAC) through the IP MPLS network. To establish a state-of-the-art fiber network to provide desired Quality of Service (QoS), this Project Report has been prepared.

In line with the vision of the project, the scope of the OdishaNet project has been defined as stated below:

a. To create a state capital up to district level fiber-based **Network Infrastructure** with the features of scalability, capacity, and assured Quality of Service (QoS) up **to the district level.**
b. Provide connectivity from **State Headquarters to Districts** with "enter anywhere, exit anywhere" capabilities for service providers with Points of Presence (PoPs) at District levels.
c. **Adequate network capacity** to carry traffic as per the outlined project vision with aim of providing infrastructure as a service to last-mile service providers at the district level.
d. Provide **horizontal connectivity** to government institutes at the district level approximately 10 per District. The cost of horizontal connectivity has not been accounted for in this project. The fiber laid through BSNL could be utilized for the end link. No provision for horizontal connectivity has been provided in the project.
e. **When the network is extended up to the block level in the future, the existing/future Telecom Infrastructure of the BharatNet** shall be used to the extent permissible by the defined parameters of network reliability and capacity. In the next level of expansion of BharatNet to the Villages, provision is being made to provide IP MPLS network from villages (with a population of more than 1000), and GPs up to the Blocks.
f. Integrate all the active & passive components of the Network with the **central network operations centre** for real-time monitoring. A provisioning module for the OdishaNet will be commissioned.
g. Designed for G2G services.
h. The selected bidder shall survey for a ring structure of the entire network including end links which shall be used for future expansion of the project.

The project scope can be broadly categorized into two parts:

a. Implementation
b. Operation and Maintenance

7.1. Technological Requirements

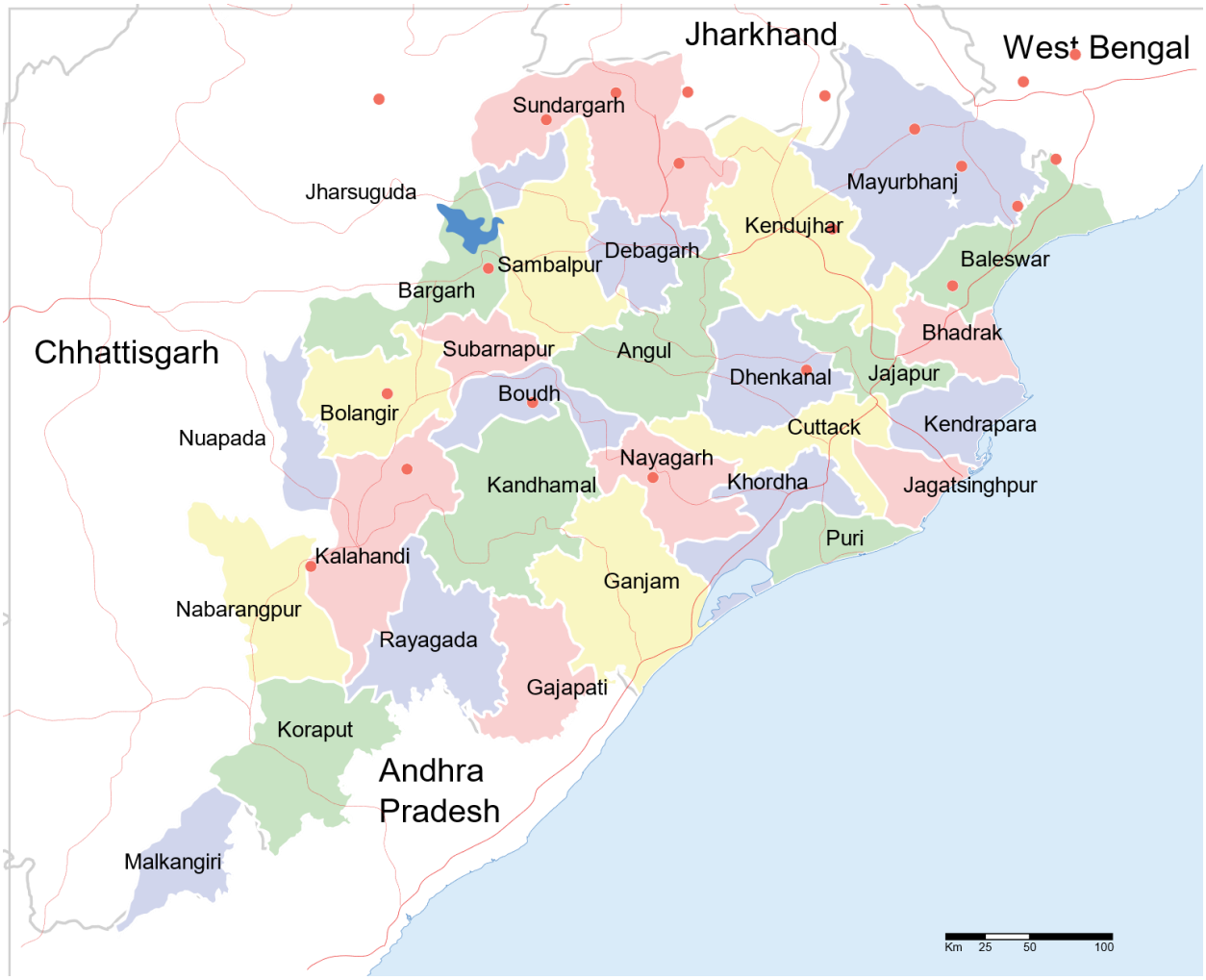
The Technology model for the OdishaNet project is prepared with the philosophy of creating capacity as per the demand. The overall network is designed considering the critical design parameters i.e., Capacity, Resiliency, Scalability, Manageability, Reliability, Interoperability, and Security requirements.

To meet the network service delivery requirements, it is proposed that an end-to-end Internet Protocol – Multi-Protocol Label Switching (IP-MPLS) based service delivery network shall be deployed. This will provide end-to-end network management and service delivery. To meet the transport network requirement in a high-capacity environment **DWDM** is proposed to be used.

The Core network connecting all District HQs (DHQ) is proposed to carry a maximum of 100 Gbps traffic to all the DHQs to aggregate a maximum ~5.0 Tbps capacity at State HQ (SHQ). To accommodate the load at the DHQ level, a 1.5 Tbps router has been considered with scalability.

OFC end links

The end links to the district collector's office (SWAN POPs) will be extended by laying underground OFC through HDPE pipes.

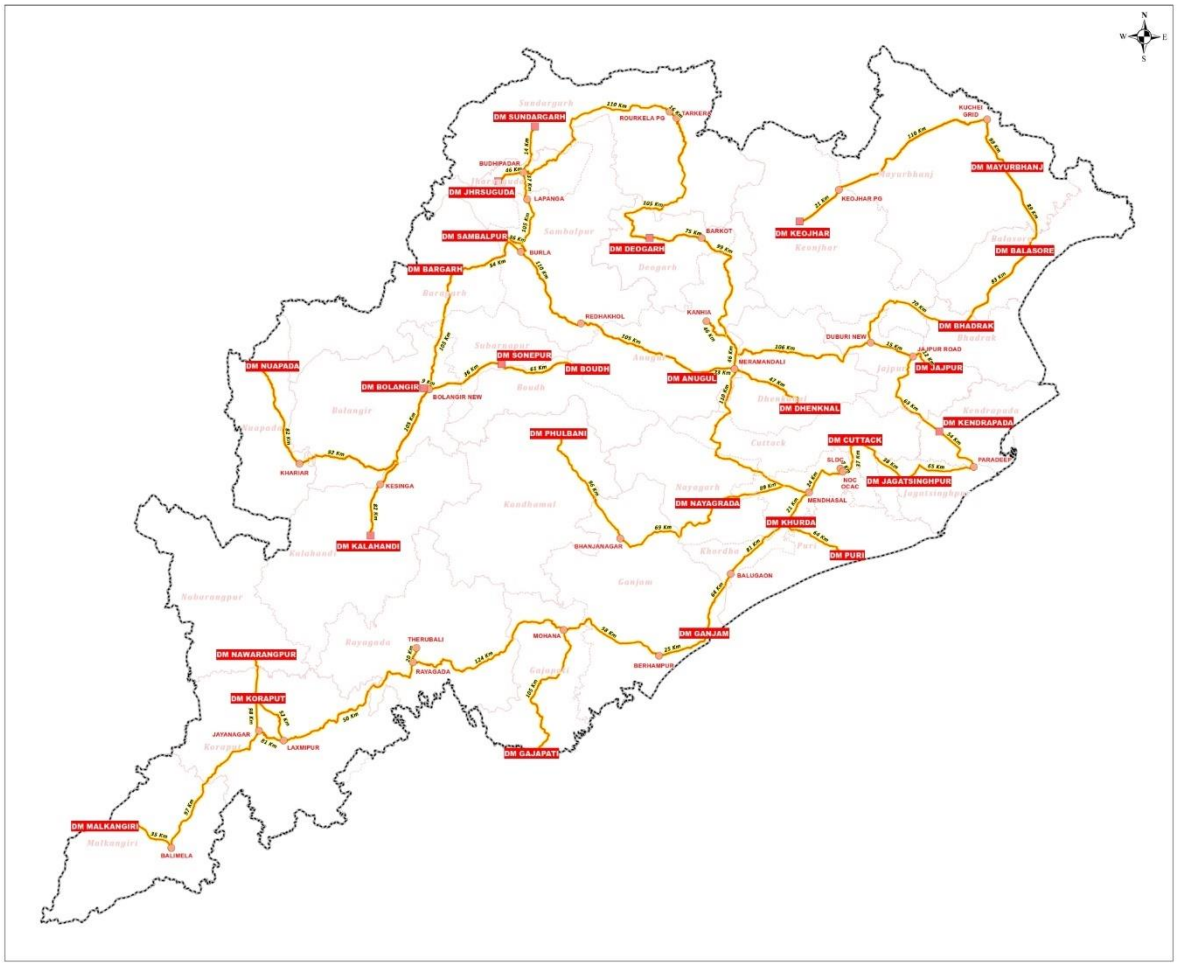

Jharkhand
West Bengal
Sundargarh
Jharsuguda
Mayurbhanj
Kendujhar
Debagarh
Sambalpur
Baleswar
Bargarh
Bhadrak
Chhattisgarh
Subarnapur
Angul
Dhenkanal
Jajapur
Boudh
Bolangir
Cuttack
Kendrapara
Nuapada
Nayagarh
Khordha
Kandhamal
Jagatsinghpur
Puri
Kalahandi
Ganjam
Nabarangpur
Rayagada
Gajapati
Koraput
Andhra
Pradesh
Malkangiri
Km 25 50 100

7.2. Network Hierarchy and Architecture

It is proposed to have a two-layer network. Some of the districts will be aggregated through a router network to the aggregation layer. The aggregation points identified are Rayagada, Ganjam, Bolangir, Sambalpur, Meramandali, Balasore and Nayagarh. These may vary depending on the technology vendor and the solution offered in the RFP. Initially, the districts can have a maximum of 100Gb shared connectivity upgradable to 400G

The existing OPGW cable network as collected from OPTCL is given in the figure below.

Figure 2 - OPGW cable network of OPTCL

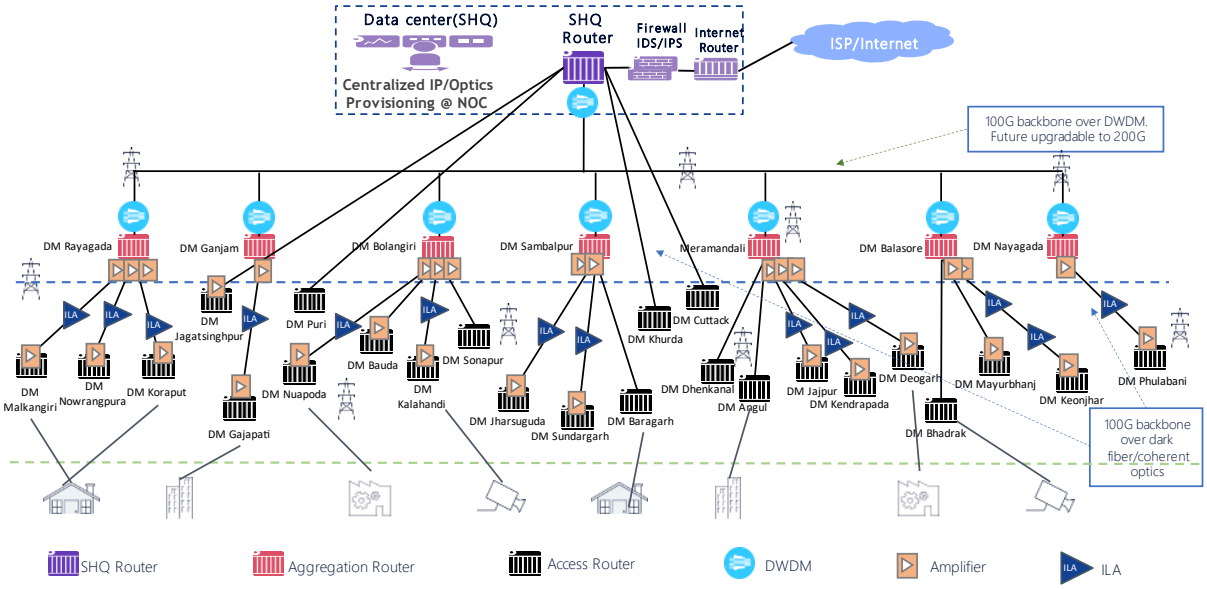


7.3. Network Topologies

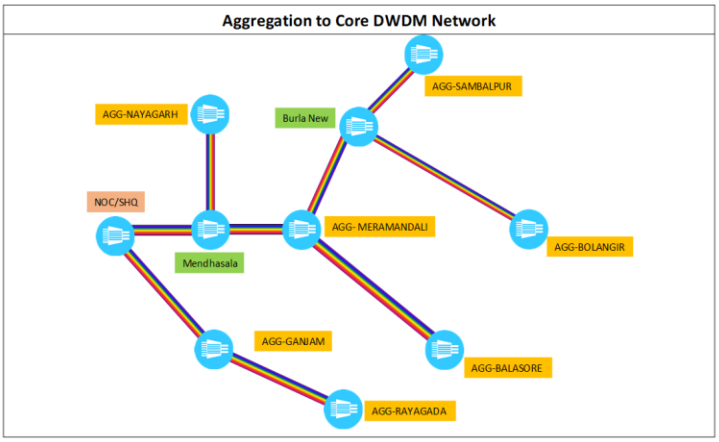
The network will be IPMPLS based using router/DWDM nodes as per the need. The districts will be connected to the state headquarters node located in Bhubaneswar at the SNOC location. The districts can have a maximum of 100G Bandwidth and bandwidth will be expanded as per the need of the districts. The network should be capable of expansion from 100G to 400 G in the initial phase. The SHQ router will be connected to the existing internet gateway using the firewall already available. The existing infrastructure of the SNOC will be utilized. Augmentation of UPS will be necessary as mentioned in below section. Amplifiers will be needed in the network wherever the distances between nodes are higher. The EMS provided for the purpose is to be integrated into HP OSS based on the API provided by the vendor. There is a need for the provisioning module too.

Some of the indicative solutions are as follows-

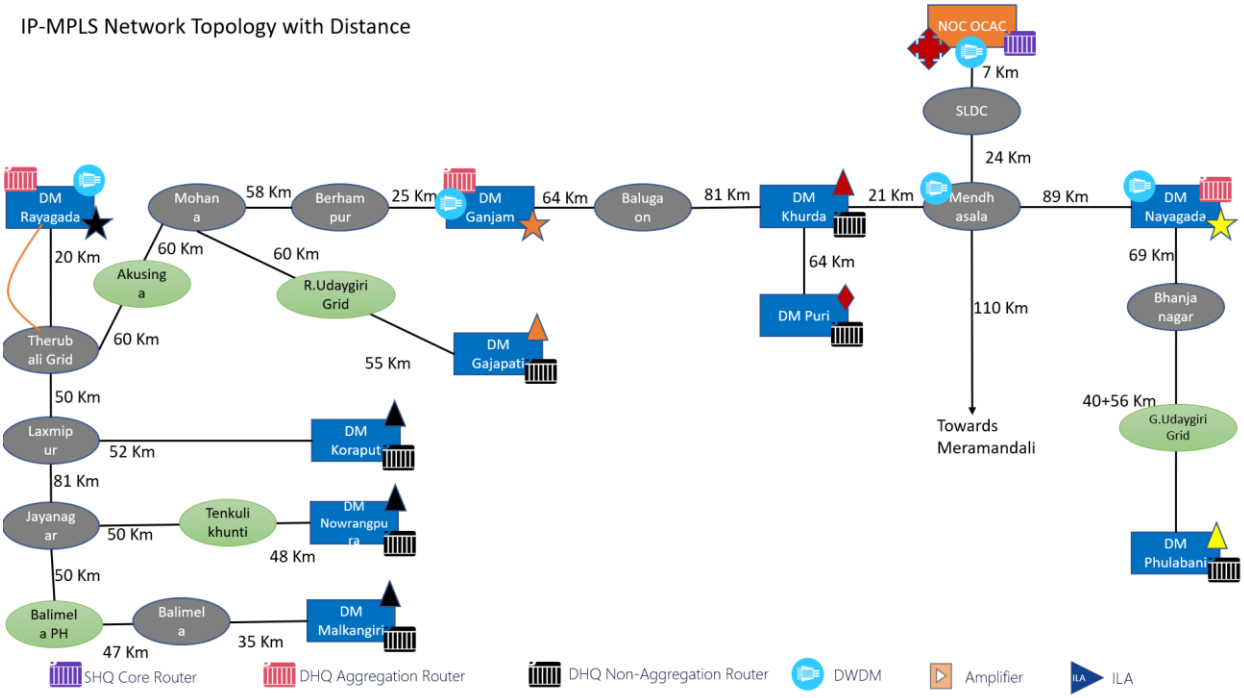
Odisha STATE CAPITAL TO DHQs:IP-MPLS Proposed Network Topology

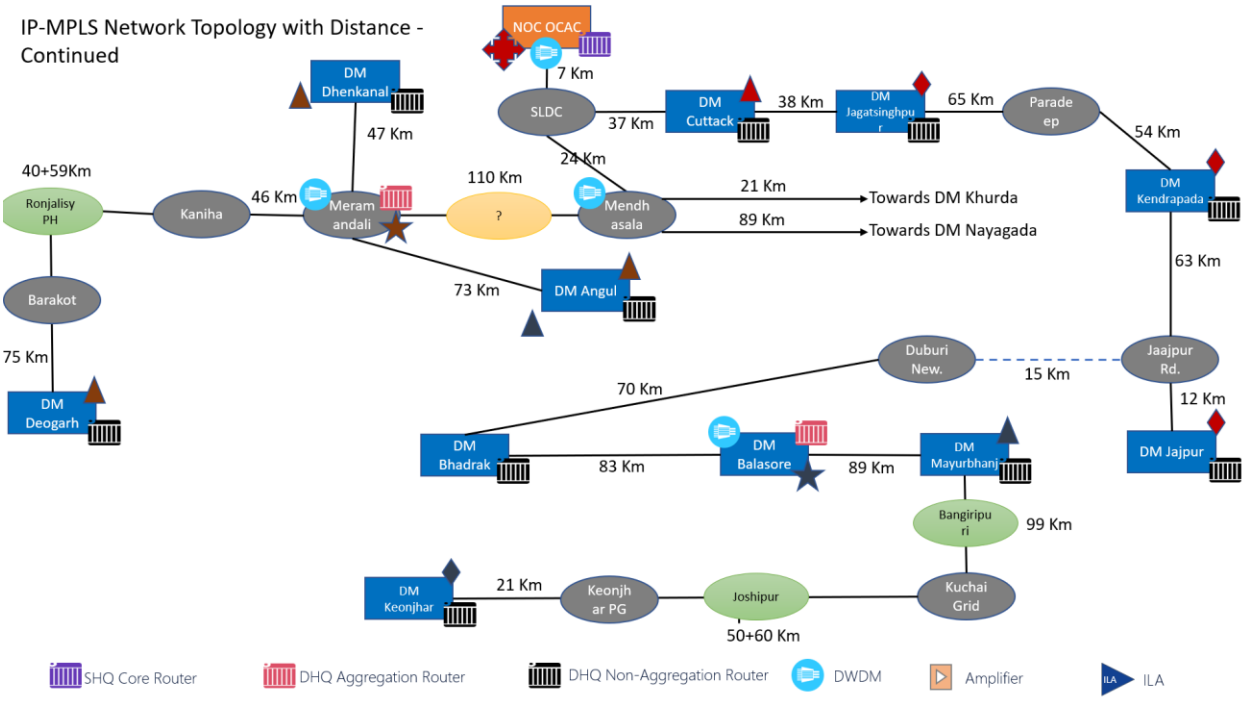


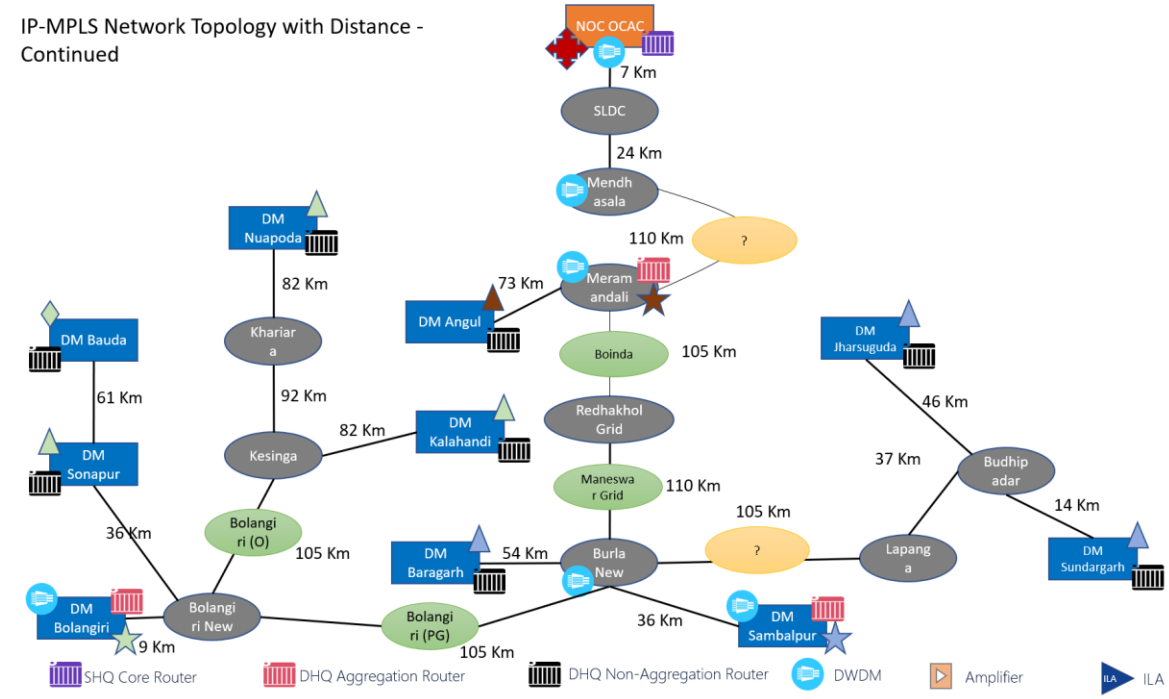
DWDM Aggregation – Core & Aggregation Connectivity

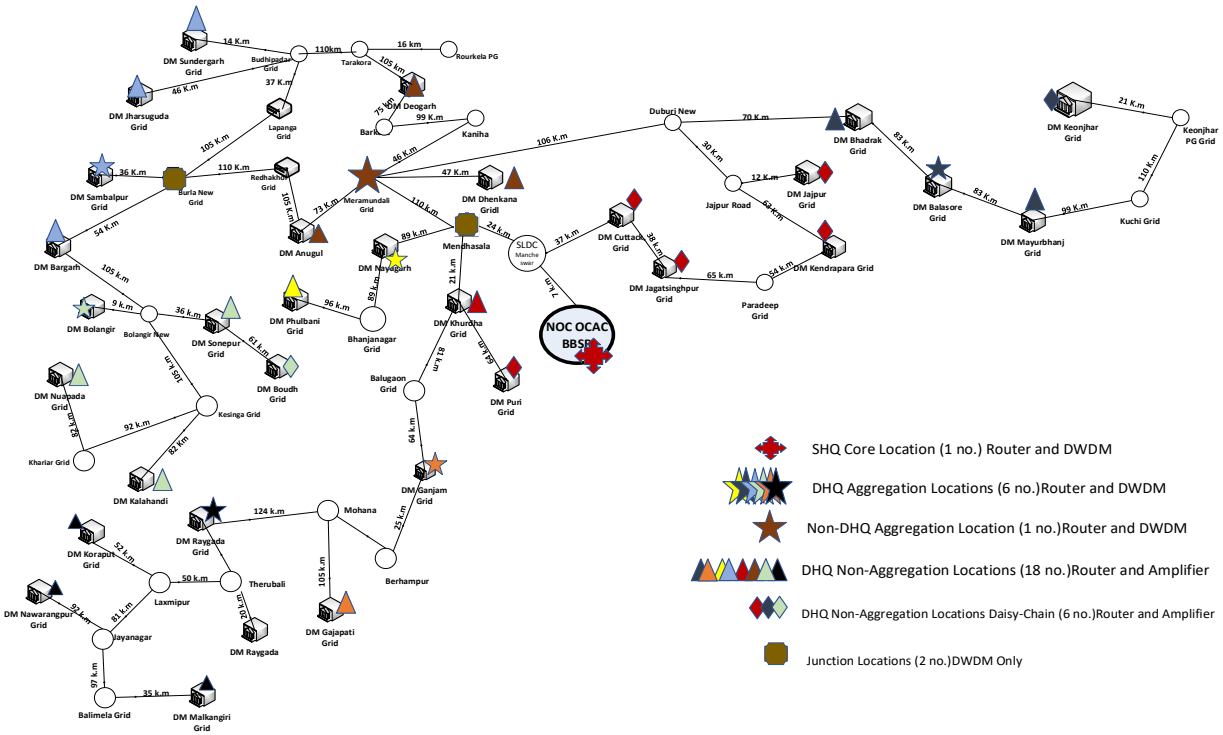


Sr. No	Site Details	Site Type
1	NOC/SHQ	Central NOC
2	AGG-BALASORE	Aggregation
3	AGG-GANJAM	Aggregation
4	AGG-NAYAGARH	Aggregation
5	AGG-RAYAGADA	Aggregation
6	AGG-SAMBALPUR	Aggregation
7	AGG-BOLANGIR	Aggregation
8	AGG- MERAMANDALI	Aggregation
9	Burla New	3 Direction DWDM Node
10	Mendhasala	3 Direction DWDM Node
11	ILA-Balugaon	DWDM ILA
12	ILA-Baragarh	DWDM ILA
13	ILA-Bhadrak	DWDM ILA
14	ILA ANGUL	DWDM ILA
15	ILA-Dubri	DWDM ILA
16	ILA-Mohana	DWDM ILA
17	ILA-Riarakhol	DWDM ILA
18	ILA-New	DWDM ILA
19	ILA-khurda	DWDM ILA




IP-MPLS Network Topology with Distance - Continued
NOC OCAC
7 Km
SLDC
37 Km
DM Cuttack
38 Km
DM Jagatsinghpur
65 Km
Paradeep
54 Km
DM Kendrapada
63 Km
Jaajpur Rd.
12 Km
DM Jajpur
15 Km
Duburi New.
70 Km
DM Bhadrak
83 Km
DM Balasore
89 Km
DM Mayurbhanj
Bangiripuri
99 Km
Kuchai Grid
50+60 Km
Joshipur
Keonjhar PG
21 Km
DM Keonjhar
24 Km
Mendhasala
21 Km
Towards DM Khurda
89 Km
Towards DM Nayagada
110 Km
?
46 Km
Meramandali
47 Km
DM Dhenkanal
40+59Km
Ronjalisy PH
Kaniha
73 Km
DM Angul
Barakot
75 Km
DM Deogarh
SHQ Core Router
DHQ Aggregation Router
DHQ Non-Aggregation Router
DWDM
Amplifier
ILA


IP-MPLS Network Topology with Distance - Continued
NOC OCAC
7 Km
SLDC
24 Km
Mendhasala
110 Km
?
Meramandali
73 Km
DM Angul
DM Nuapoda
82 Km
Khariara
DM Bauda
61 Km
DM Sonapur
92 Km
Kesinga
82 Km
DM Kalahandi
Boinda
105 Km
Redhakhol Grid
Maneswar Grid
110 Km
105 Km
?
DM Jharsuguda
46 Km
37 Km
Budhipadar
14 Km
DM Sundargarh
Lapanga
54 Km
DM Baragarh
Burla New
36 Km
DM Sambalpur
Bolangiri (O)
105 Km
36 Km
DM Bolangiri
9 Km
Bolangiri New
Bolangiri (PG)
105 Km
SHQ Core Router
DHQ Aggregation Router
DHQ Non-Aggregation Router
DWDM
Amplifier
ILA



7.4. Creation of PoPs at Identified Locations

As a part of project implementation, Point of Presence (PoP) would be created at the district levels. The State level POP will be collocated with the existing SNOC. These PoPs shall be created at locations identified by the technology vendors in their solution. The following table depicts the total number of proposed PoPs, which will be needed during the implementation of the project: The state headquarters node will be co-located in the SNOC at OCAC building. The district nodes will be eco-located in the existing OSWAN room. The Repeaters/amplifiers etc will be co-located in the OPTCL POPs. Infrastructure namely UPS, E/A, AC, earthing etc.at all these places have to be upgraded as per the requirement of equipment proposed to be installed as part of the solution provided by the bidder. Login credential of the NMS will be given to OPTCL by the Executing Agency for monitoring of the links.

Table 8 - POPs distribution data

Type of area	**Total Number of PoPs**
State Head Quarter	1 (SNOC)
District	30
Aggregation points other than DHQ	Depend on solution
Amplifier locations for DWDM	Depend on solution
Amplifier locations for routers	Depend on solution

It is envisaged that the following would form part of the PoP infrastructure –

a. Passive fibre termination equipment
b. Electronics equipment and related infrastructure
c. Power provisioning including grid power and backup power (PoPs would have DG power backup.

7.5. Envisaged Project Outcomes and Benefits

Key outcomes and benefits of the project include:

a. Provide a state-of-the-art network from the state capital up to DHQ for all G2G services. It will be a state government-funded project and can provide bandwidth on demand to the districts.
b. It will be a foundation stone for Odisha State Enterprise Architecture.
c. It will enable the implementation of an efficient ecosystem of all G2G public services up to the district level.
d. Provide a boost to industry and economy by:
    i. Opening new markets through e-Commerce,
    ii. Encouraging innovation,
    iii. Promoting the growth of IT & electronics industry, and
    iv. Enhancing their productivity
e. Due to enhanced economic activity on account of the ecosystem created by the proposed Odisha Net Phase I project, it is expected that the Gross State Domestic Product (GSDP) is likely to increase in the state of Odisha due to the project.

8. Implementation Plan

- Laying OFC end links in each district for connecting the district headquarters to the nearest OPGW cable landing station.
- It is proposed to provide the connectivity by laying UG OFC from the nearest OPTCL grid to the POP in the office of the respective District Collector.
- It is felt that these infrastructures will be common to OdishaNet, future IP MPLS, SWAN, or any other ICT project of the Government. However, establishing such POPs will take time and the project is proposed to be commissioned using the existing SWAN infrastructure.
- Implement the network infrastructure for affordable and high-speed broadband connectivity and Digital services in all the districts, which shall be extended to Blocks, GPs, and villages in due course.
- Some of the POPs of OPTCL may be utilized for repeater purposes too. A government order to co-locate OdishaNet network devices in OPTCL premises as and when needed may be arranged after proper identification of such nodes.
- Integration of all the active & passive components of the Network with the **central network operations center (existing SNOC)** for real-time monitoring.
- Some upgradations of SNOC will be carried out which will include augmentation of the SNOC and commissioning of the provisioning module.
- A login credential of the EMS will be given to OPTCL by the Executing Agency for monitoring of the links.
- Delivery of G2G services up to the district level by providing high-speed broadband connectivity to government offices, educational institutions, hospitals, banks, etc.
- Implementation approach – Identifying the Implementation Partner/s and their scope of services through a bid process.
- The Executive Agency will be responsible for arrangements of the raw power at sites and make payment for electricity consumptions for the installed equipment at each location. OCAC will reimburse the Executive Agency for these expenses based on the submission of installation charges paid to the respective Power Distribution Company and electricity bills for O&M period on actual basis. Original bills for the same needs to be submitted by the Executing Agency to OCAC for reimbursement.
- For diesel generators, the Executive Agency will be responsible for arranging the fuel and OCAC will reimburse the diesel costs for O&M period to the Executing Agency on actual basis. Original bills of the Diesel need to be submitted to OCAC for reimbursement.

8.1. Implementation Strategy

The project will be funded by the Government of Odisha and subsequently OCAC/SPV, the Department of E&IT shall award the work to a Executing agency through a bidding process.

To implement the project, an MOU will be signed with the OPTCL for using their cables and equipment premises (wherever needed). The cooperation of OPTCL is a must for the successful implementation of this project. A member from OPTCL is to be a part of the project steering committee to be constituted.

This project has proposed laying of underground cable to the extent of a maximum of 150 km. Thus, there could be some ROW requirements in respect of the following such as:

- ROW of state highways
- ROW of rural roads
- ROW of national highways
- ROW of forests
- Railway crossings.
- ROW from distribution company like TPCODL etc.

The extent and exact requirement of RoW can only be ascertained only during the implementation of the project. The EA has to apply for the ROW permission. The cost for the same will be re-imbursed by client.

The project shall be implemented as a Turnkey project. The Executing Agency (EA) would be responsible for executing all tracks in the Core Network and the Support Layer.

Support Layer

- Upgradation of SNOC, Call Centre
- Integration of the EMS with NOC
- Commissioning of provisioning module
- Integration with BSS and CRM in due course

Core Network

- Supply, Installation of Networking components, Routers, DWDM, Amplifiers, UPS, OFC, and accessories
- OFC laying UG.

Features of Provisioning module

- Order management
- Service provisioning
- User interface
- A self, reliable and resilient solution

The following table represents the broad roles of the organization

Table 2 Broad role of organizations

S. No.	Attribute	Roles and responsibilities
1.	Implementation	• Execution Agency

S. No.	Attribute	Roles and responsibilities
2.	Role of Implementation Agency	• Design & Create Network • Manage Network per SLAs • Provide / Sell Bulk Bandwidth • Connect Towers of ISPs/ TSPs • Manage EA • Orchestrate Content & Services • Promote Digital Literacy • Innovation of access devices • Last mile connectivity in selected areas
3.	Proposed Sources of Funding for Capex	• GoO
4.	Revenue Streams	• Sale of Bulk Bandwidth • Surrender of existing bandwidth lease from operators • Viability Gap Funding from GoO
5.	KPI's	• % Infrastructure utilized • Govt. Offices / PSU's connected • Number of Business Users • Bandwidth utilization • Innovations in Access Technologies and Devices • Cost saving

8.2. Planning & Designing

- Conduct an on-field survey and optimize the network design and a corresponding detailed implementation plan. Executive Agency (EA) shall submit a cable laying drawing and GIS map along with ABD diagram for OFC to be laid under the project.
- PMU for preparation of RFP, pre-bid conference and amendments if any, evaluation of the RFP, draft the agreement, and onboarding of the successful bidder. The PMU will supervise project monitoring too.
- Get the optimized design approved by OCAC before the start of implementation work.
- Necessary coordination with local authorities and other agencies, if any, for site access, route access, etc. based on ROW already signed with the State.
- Upgradation of existing SWAN infrastructure. Existing SWAN infra is given in the table below.

- Identification of Facilities for Establishment or enhancement of existing NOC/District POP.
- Preparation of the Functional Requirement Specifications for integration of EMS to existing OSS.
- Installation of the provisioning module for OdishaNet
- Integration to BSS & CRM in due course.

8.3. Implementation Phase

- Establishment of DHQ POPs
- Site preparation and Physical Infrastructure provisioning like power, air conditioning, etc, based on the requirement.
- Supply, Installation, and commissioning of UPS, Earthing etc.
- Implementation of the following components of the network
- Trenching through HDD only, Pipe Laying, and Cable Pulling work from District Head-Quarters (DHQ) to OPTCL POP (OPGW cable dropping station). Agency should necessarily inform through CBuD App regarding commencement of digging activities.
- Identification of Fibre pairs, their termination, and end-to-end testing.
- Setup of required networking components at District PoPs as per the agreed design
- Ensuring the integration of all the network elements with NOC
- Creation of Data Communication Network
- Procurement, supply, and installation of all materials required for successful implementation of work by following the engineering standards.
- Site-level coordination with local authorities for carrying out laying work and establishment of PoPs in each DHQ
- Identification of repeater locations and coordination with OPTCL for space power etc.
- Capturing the GIS coordinates of the laid OFC route and all sites being set up and uploading the same to OCAC Servers.
- Providing required support to OCAC or its selected agency for conducting verification and acceptance testing processes
- Preparing and uploading of As-Built-Drawings (ABD) of laid OFC as well as the OPGW cables and submit to OCAC.

9. Operations & Management

- Operations and Maintenance of the entire infrastructure for 5 years which includes 1 year of warranty, extendable to 5 years of warranty/AMC or further as mutually agreed between OCAC and the selected agency and delivering on the required SLAs.
- Forming of Fault Repair Teams (FRTs) in each District for easy support and resolution of problems in the network.
- Ensuring that the ABDs and GIS coordinates are updated to reflect the actual on-ground status. Doing necessary changes if any during the operations phase and updating the existing data on a monthly basis.
- Stores and Warehouse management for spares.
- Procurement and supply of all replacement material required for maintenance work.

10. Resource Requirements

The Executing Agency (EA) shall be responsible for onboarding resources during project kick-off and deploy the resources as per the minimum requirements set out below.

Minimum resource requirements during implementation phase:

One project Manager shall be deployed full-time for the entire project period along with one NMS Expert and one Network cum System Administrator who will be deployed during the implementation phase as per the requirement. Field Engineers may be deployed based on the requirements as per the Phase wise implementation plan.

During the O&M of the project, the bidder shall be responsible for deploying one Project Manager along with one NMS Expert, one Network cum System Administrator and Field Engineers at each district on fulltime basis.

In future, OCAC recruits it's own personnel, there could be a reduction in the number of people to be deployed by the EA. In such case, EA shall be responsible to handover and knowledge transfer to the resource deployed by OCAC.

The qualifications of the resources are mentioned in the below table-

#	Position	Educational Qualification and Experience
1	Project Manager	B.E./B.Tech/ 'MBA or PGDBA or PGDBM in IT' with total 10 years of experience out of which more than 3 years in Project Management including project implementation and O&M experience. Shall have worked in Telecom/IP-MPLS Networking project.
2	NMS Expert	B.E./B.Tech/'MBA or PGDBA or PGDBM in IT' with total 7 years of experience out of which 1 project experience of NMS implementation and reporting. Experience in Microfocus/HPE/IBM Tivoli or equivalent is mandatory. Shall have experience of integrating different EMS and NMS.
3	Network cum System Administrator	B.E./B.Tech/'MBA or PGDBA or PGDBM in IT' with total 5 years of experience out of which 1 project experience of IP-MPLS project implementation. Shall have experience of implementing routers, DWDM, Amplifiers for establishing telecom network.
4	Field Engineer	B.E./B.Tech/'MBA or PGDBA or PGDBM in IT'/Diploma with total 3 years of experience. Relevant experience of network fault management, maintenance and support for O&M is mandatory

11. Compliance with the generic requirements of BharatNet

i. The networking technology proposed to be used is **IP-MPLS**

ii. All the IP/SNMP-enabled components will be monitored from State Network Operation Centre (S-NOC).

iii. The network would be created, owned, and managed through an independent state-owned entity. This would ensure **Non-Discriminatory Access** to the infrastructure for all service providers

iv. Only bulk **Wholesale Bandwidth** at an affordable cost will be offered to service providers to ensure the proliferation of digital services.

12. Status of SWAN Infrastructure

Sl. No	DHQ	Additional Space	AC	DG	6KVA UPS	Earthing
1	Angul	No	One (Working)	No	1.5 Hours	Yes
2	Balasore	Yes	One (Working)	No	6 Hours	Yes
3	Bargarh	Yes	One (Working)	25KVA	1 Hour	Yes
4	Bhadrak	Yes	One (Working)	No	1 Hour	Yes
5	Bolangir	No	One (Working)	25KVA	2 Hours	Yes
6	Boudh	Yes	Two (Working)	25KVA	3 Hours	Yes
7	Cuttack	Yes	One (Working)	25KVA	2 Hours	Yes
8	Deogarh	Yes	Two(One Working)	25KVA	3 Hours	Yes
9	Dhenkanal	Yes	One (Working)	30KVA	1 Hour	Yes
10	Gajapati	Yes	One (Working)	10KVA	1 Hour	Yes
11	Ganjam	No	Two (Working)	25KVA	3-4 Hours	Yes
12	Jagatsinghpur	Yes	One (Working)	25KVA	2 Hours	Yes
13	Jaipur	Yes	One (Working)	No	2 Hours	Yes
14	Jharsuguda	Yes	One (Working)	25KVA	2.5 Hours	Yes
15	Kalahandi	No	One (Working)	25KVA	4 Hours	Yes
16	Kandhamal	No	One (Working)	25KVA	2 Hours	Yes
17	Kendrapara	No	Two (Working)	25KVA	2.5 Hours	Yes
18	Keonjhar	Yes	One (Not Working)	25KVA	3-4 Hours	Yes
19	Khurda	No	One (Not Working)	No	3-4 Hours	Yes

Sl. No	DHQ	Additional Space	AC	DG	6KVA UPS	Earthing
20	Koraput	Yes	Two (Not Working)	No	3-4 Hours	Yes
21	Malkangiri	Yes	Three (Working)	10KVA	6 Hours	Yes
22	Mayurbhanj	Yes	One (Working)	25KVA	3-4 Hours	Yes
23	Nabarangpur	No	Two (Not Working)	25KVA	3-4 Hours	Yes
24	Nayagarh	No	Two (Working)	25KVA	3 Hours	Yes
25	Nuapada	Yes	No	30KVA	3 Hours	Yes
26	Puri	No	One (Working)	No	3-4 Hours	Yes
27	Rayagada	No	One (Not Working)	25KVA	3-4 Hours	Yes
28	Sambalpur	Yes	One (Working)	25KVA	6 Hours	Yes
29	Sonepur	Yes	One (Working)	10KVA	1.5 Hours	Yes
30	Sundergarh	No	Two (Working)	25KVA	1.5 Hours	Yes

13. Project Governance

The project will be monitored at the highest level by a Steering Committee. The E&IT department will constitute the steering committee and indicate the members of the committee. A **Steering Committee** under the chairmanship of Principal Secretary E&IT/Special secretary may be constituted for the smooth conduct of the project with the following members

1. Special secretary - chairman
2. Technical advisor - Telecom Member
3. Director SLDC - OPTCL Member

The committee will review the progress of the project and resolve all implementation issues. The committee will have authority to approve the AT schedule. In case the completion time is to be extended due to any unavoidable situations, the committee will examine all such proposals and recommend to the appropriate authority. Revision of DPR for escalation of cost will be examined and recommended by the committee to competent authority. The PMU will report to the steering committee.

The **PMU** will comprise of the following members:

1. Technical Advisor Telecom chairman.
2. Member from OPTCL at least a DGM level officer
3. Member from executing agency. Two member of GM level and higher.
4. Two management consultants hired for the purpose.
5. One member from OCAC (Consultant Mobile and MPLS)

PMU will monitor the project implementation schedule and resolve all issues. PMU will be constituted after award of the work to the executing agency.

There will be third party audit of each activity of the executing agency.

The **TPA** will comprise of the following:

1. Consultant Mobile and MPLS from OCAC
2. Two management consultants hired for the project.

The TPA will carry out check of inventory and all works completion as per specification. They will check the invoices and recommend for payment as per the payment schedule. They will carry out the acceptance testing of the system. The AT schedule will be worked out by the TPA in consultation with the executing agency and approved by the steering committee.

Execution Agency

a. The Executing agency will be selected based on open bidding who is having experience in Telecom works. Ordinarily, the implementing agency will carry out two types of work namely - one for the network and the other - for the OFC laying and associated works for the end links.

a. The total duration of implementation shall be 18 months divided into six quarters.

b. Project shall have predefined milestones and the project shall be monitored and tracked against those milestones.

c. The target implementation schedule for implementation is as follows and this is based on the current understanding of the perceived scope of work and challenges in hand, this may change with change in the ecosystem and dependencies.

14. Responsibility Matrix

For successful execution of the OdishaNet project various activities would need to be undertaken at different stages during implementation and subsequent operations. The major activities that are to be undertaken are mentioned below:

Table 3

Responsibility Matrix

Sl. No.	Activity	Details	Responsibility
1.	Planning	Architectural design of OdishaNet project network with detailed technology specifications	OCAC
2.	Designing	Network design to be prepared at a detailed granular level involving preparation of a complete view of the network layout including the distribution of network and infrastructural elements.	OCAC
3.	Bidding and award of contract	Issue of tender with complete network implementation details including commercial aspects and award of contract through competitive bid processes or on nomination basis. The terms shall include appropriate incentives and disincentives benchmarked to timely achievement of milestones.	OCAC/PMU
4.	Optimizing	The successful bidder would be required to optimize the network design.	Executing agency (EA)
5.	Approval	All the optimizations suggested by the EA would be evaluated keeping in view the overall network requirements and duly approved/rejected.	OCAC
6.	QA	All supplies conforming to standards like TEC approval/TSEC has to be factory tested before dispatch.	QA/PMU selected by OCAC
7.	Implementing	Post award of contract, the EA will be required to deliver as per approved milestones.	Executing agency (EA)
8.	Monitoring	Building infrastructure at the State level requires the implementation to be monitored closely to ensure that the quality of work is not compromised.	OCAC/PMU
9.	Accepting	Post implementation by the Implementation Agency, relevant	PMU/TPA

Sl. No.	Activity	Details	Responsibility
		tests shall be carried out prior to commissioning.	
10.	Operations & Maintenance	The contract with the EA is bundled to provide O&M for the entire network segment based on well-defined, pre-determined SLAs. All network/service failures would have to be handled based on mutually agreed turnaround time.	EA/OCAC
11.	Monitoring & Enforcing Contract	The network would be monitored closely based on approved SLAs through a NOC from where Billing & provisioning will also be carried out.	OCAC/PMU
12.	Making OPGW Fibres available as per need	To be intimated in writing to OPTCL and a GO may be needed to utilise the OPGW fibres free of cost.	OPTCL/E&IT Department

15. Project Timeline

Activity – Pre-Implementation Phase	**Total Timeline – 18 months**					
	Q1	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**
MSA signing, project kick-off						
Project Planning, Resource mobilization, survey, technical design and BoQ finalization						
OFC laying/commissioning & AT, Identification of OPGW cable and its end-to-end testing.						
POP readiness, Central Infrastructure Setup including NOC, Nodal Centre, OSS, Provisioning module etc						
Handover of end-links and testing of OPGW cables						
Project Implementation in 2 Districts with AT of Network and the NOC						
Project Implementation in 8 Districts with AT						
Project Implementation in 10 Districts with AT						
Project implementation in 10 districts with AT						
AT of the total network with end-to-end testing for all the districts.						
Post-commissioning and commencement of services (Go-Live)						

Post implementation and commissioning of all the districts and after Go-Live is declared, the EA shall be responsible for 5 years of operations and management of the network and associate infrastructures.

16. Utilization Model

OCAC/SPV shall implement the business models that would encourage maximum utilization of networks with the objective of the proliferation of digital services at the district level. The bandwidth leased from operators is to be surrendered to utilize the bandwidth of the proposed network. The network has been built for the Government user network; however certain commercial utilization could be explored too as follows if approved by the competent authority:

Following are the key features of the model –

a. **Bulk bandwidth** at a very competitive tariff fixed following the TRAI guidelines on the subject may be offered to TSPs and ISPs up to the district level.

b. **A**ll the bandwidth leased from operators up to the district level may be surrendered and all the departments may shift to the OdishaNet.

c. Horizontal connectivity may be extended for high bandwidth to all Government offices, Schools, Hospitals etc.

d. The ILL could be leased centrally and extended to the districts on a utilization basis. This shall lead to economy of scale.

e. The revenue generated or expenditure saved from the streams indicated above would be utilized to **provide for the Operating Expenditure** of the network comprising

    a. Operations & Maintenance of the network

    b. Administrative overheads

    c. Depreciation to the extent of replacement of equipment and related infrastructure

    However, support from the Government will be needed in the initial years.

17. Payment Terms and Conditions

Payment Terms

The payment terms to EA against the project capex are proposed to be as below –

a. 90 percent of the project capex would be paid against achieving implementation milestones
b. 10 percent of the project capex would be paid after 1 year from the date of Go-Live of the entire network or may be paid on submission of a BG to cover 10% of the cost.

The payment terms would have provision to incentivize the implementation agency for timely implementation and penalties for delays in implementation.

17.1. Indicative Payment Milestones

a. Payments to be spread over the entire implementation period on achievement of completed and accepted milestones.
b. The milestones to be defined in terms of completion of one unit of work as provided in the table below

The payment milestones will be as below-

Sl No.	Payment Milestones	Payment % in Terms of CAPEX and OPEX	Documents Required for Verification of Payment Milestones
1	Project Planning, Resource mobilization, survey, technical design and BoQ finalization	3% of the total CAPEX	MoM of Kick off meeting with resource deployed; Survey data along with GIS MAP and ABD Drawing; Technical design documents (HLD and LLD) and final BoQ (sign off provided by OCAC)
2	Delivery of hardware for OFC laying/commissioning	70% of the respective CAPEX	Delivery challans signed off by end user/client
3	OFC laying/commissioning & AT, Identification of OPGW cable and its end-to-end testing.	5% of the respective CAPEX	Installation report signed off by end user/client; testing report for identified OPTCL cables along with ABD diagram
4	Delivery of Hardware for SNOC and PoPs for 2 districts	70% of the respective CAPEX	Delivery challans signed off by end user/client
5	POP readiness, Central Infrastructure Setup including NOC, Nodal Centre, OSS, Provisioning module etc	5% of the respective CAPEX	Installation report along with ABD documents/diagram signed off by end user/client; sample reporting after integration with existing NMS;

Sl No.	Payment Milestones	Payment % in Terms of CAPEX and OPEX	Documents Required for Verification of Payment Milestones
			acceptance testing report signed off by OCAC
6	Handover of end-links and testing of OPGW cables	2% of the total CAPEX	End links testing reports signed off by end users / client along with ABD documents/diagram
7	Delivery of hardware for 2 Districts	70% of the respective CAPEX	Delivery challans signed off by end user/client
8	Project Implementation in 2 Districts with AT	5% of the respective CAPEX	Installation report signed off by end user/client along with ABD documents/diagram; Report from NMS after discovery; acceptance testing report signed off by OCAC
9	Delivery of hardware for 8 Districts	70% of the respective CAPEX	Delivery challans signed off by end user/client
10	Project Implementation in 8 Districts with AT	5% of the respective CAPEX	Installation report signed off by end user/client along with ABD documents/diagram; Report from NMS after discovery; acceptance testing report signed off by OCAC
11	Delivery of hardware for 10 Districts	70% of the respective CAPEX	Delivery challans signed off by end user/client
12	Project Implementation in 10 Districts with AT	5% of the respective CAPEX	Installation report signed off by end user/client along with ABD documents/diagram; Report from NMS after discovery; acceptance testing report signed off by OCAC
13	Delivery of hardware for 10 Districts	70% of the respective CAPEX	Delivery challans signed off by end user/client
14	Project Implementation in 8 Districts with AT	5% of the respective CAPEX	Installation report signed off by end user/client along with ABD documents/diagram; Report from NMS after discovery; acceptance testing report signed off by OCAC
15	Post-commissioning and commencement of services (Go-Live)	10% of total CAPEX	FAT Certificate issued by OCAC and declaration of Go-Live
16	Successful O&M for 1 year	10% of CAPEX against Bank Guarantee of equivalent amount valid for next 4 years	After submission of QGR reports for 4 quarters by PMU/TPA and review of O&M performance by OCAC
17	Quarterly payment for O&M period	5% of the OPEX value per quarter for 20 quarters	After submission of QGR reports by PMU/TPA

18. Service Level Agreement

There shall be two different service levels for Implementation Phase and O&M Phase. For Implementation Phase, the EA shall be liable for meeting the Project timeline as defined in the RFP. If the EA fails to meet the overall implementation timeline and execute the project, then liquidated damage will be applicable as pre-implementation SLA. The delay calculated for implementation phase will be calculated for which the EA shall be liable to extend the O&M for the delayed period additional to 5 years of O&M without any additional cost to OCAC.

As part of pre-implementation SLA, the manpower availability will be calculated and measured as mentioned in the Table 6. SLAs during O&M phase to be measured against following categories –

a. Infrastructure Availability
b. Network Availability
c. End link availability
d. Manpower availability

Indicative SLAs in each category to be measured are as below:

Table 6

SLAs

SLA Category	SLA	Measurement
Infrastructure Availability	▪ 99.5% average uptime for each active components (IT and Non-IT components) on quarterly basis	▪ Measured on the basis of infrastructure availability at S-NOC and DHQs ▪ For uptime <99.5% but >=99% - penalty shall be 0.25% of the QGR value of the active components ▪ For uptime <99% but >=98% - penalty shall be 0.5% of the QGR value of the active components ▪ For uptime <98% but >=95% - penalty shall be 1% of the QGR value of the active components ▪ For uptime <95% - penalty shall be 5% of the QGR value of the active components
Network availability	▪ 99.5% network availability for Districts	▪ Measured on the basis of availability in the central S-NOC against each node of the network at the DHQs . ▪ For network uptime of DHQ<99.5% but >=99% - penalty shall be 1% of the QGR value for the DHQ

SLA Category	SLA	Measurement
		▪ For network uptime of DHQ <99% but >=98% - penalty shall be 2% of the QGR value for the DHQ ▪ For network uptime of DHQ <98% but >=95% - penalty shall be 5% of the QGR value for the DHQ ▪ For network uptime of DHQ <95% but >=90% - penalty shall be 10% of the QGR value for the DHQ ▪ For network uptime of DHQ <90% - penalty shall be 100% of the QGR value for the DHQ
Mean Time to Repair (MTTR)	▪ Fibre failure (End links only) MTTR <= 6 hrs per reported fibre failure ▪ Network failure (non-fibre failure) MTTR <= 30 mins for non-fibre failure	▪ Measured on a quarterly basis ▪ Fibre failure (End links only) - MTTR > 6 hrs but <=8 hours per reported fibre failure – 1% of the QGR value of the affected DHQs MTTR > 8 hrs but <=12 hours per reported fibre failure – 2% of the QGR value of the affected DHQs MTTR > 12 hrs but <=24 hours per reported fibre failure – 3% of the QGR value of the affected DHQs MTTR > 24 hrs per reported fibre failure – 5% of the QGR value of the affected DHQs ▪ Network failure (non-fibre failure) - MTTR > 30 mins but <=1 hour for non-fibre failure– 1% of the QGR value of the affected DHQs MTTR > 1 hour but <=2 hour for non-fibre failure– 2% of the QGR value of the affected DHQs MTTR > 2 hours but <=4 hour for non-fibre failure– 3% of the QGR value of the affected DHQs MTTR > 4 hours for non-fibre failure– 5% of the QGR value of the affected DHQs
Preventive Maintenance	▪ End of life cable replacement for all cables where db loss >= 0.27 db/Km (only for end links)	▪ db loss for each fibre km to be measured and reported on a quarterly basis ▪ If db loss>= 0.27 db/Km, respective fiber to be replaced within one month timeline otherwise 10% of the QGR value of the end links will be deducted as penalty. ▪ If the same is reported in the consecutive quarter; entire QGR value will be deducted for the respective end links

SLA Category	SLA	Measurement
OPGW cable	Maintenance, fault repair of OPGW cable will be the responsibility of OPTCL	EA shall intimate and raise dockets with SPOC of OPTCL for repair of OPGW cables. Without call being logged in the system, the same will be attributable to EA
Manpower Availability	i. Project Manager – Full Time ii. NMS Expert iii. Network cum System Administrator iv. Field Engineers (during O&M Phase)	For each resource: availability of resource considering weekly off, holidays, the absence will be calculated based on leave only. Leave <=4 days on quarterly basis – no penalty Leave >4 days but <=7 days – cost of the resources on pro-rata basis will be deducted Leave >7 days but <=15 days – 2 times of the cost of the resources on pro-rata basis will be deducted Leave >15 days– QGR value of the cost of the resource will be deducted.

Minimum manpower stated in the RFP to be deployed onsite at OCAC during Implementation and O&M phase. Field Engineers to be deployed at District Levels for which open-source tool based attendance will be required to submit by the EA as proof of attendance and additional manpower may be deployed by the EA to maintain their SLA.

19. Sizing Requirements and Bill of Materials

The below tables describe the minimum general and functional requirements of the key components in terms of technology based on the objective of the project and minimum sizing of the appliances.

19.1. General Requirement IP-MPLS Network

This section specifies the Technical and Performance requirements of the IP-MPLS Network for Odisha.

Overview of fibre optic based IP-MPLS Network is as given below-

- The IP-MPLS Network shall consist of an IP-MPLS based CORE and Aggregation Network and shall be based on open standard(s) / architecture utilizing proven, reliable, and scalable technology fully conforming to ITU-T, IEEE, and IETF standards and recommendations.
- The IP-MPLS based network and associated Fiber Network at all DHQs, Govt Enterprises, Institutes, etc. shall be provisioned with sufficient bandwidth to cater for Odisha state's operational needs as also future system extension requirements.
- Typical Topology of the proposed IP-MPLS Network is detailed in this document.
- The IP-MPLS network shall provide a common backbone network for all Telecom and non-Telecom sub-systems viz. CCTV, e-govt applications, state enterprise and IT apps, etc. provided by different Designated state departments.
- The bandwidth required by various systems along with requisite spare capacity shall be configured on the IP-MPLS Network by the IP-MPLS execution agency.
- Quality of Service (QoS) functionality / feature shall also be activated for all the sub-systems configured on the IP-MPLS network.
- IP-MPLS network execution agency shall accordingly submit a proposal

The IP-MPLS network shall consist of following components:

- IP-MPLS based Aggregation Network consisting of Carrier grade Ethernet IP-MPLS Routers at all major DHQs.
- The Aggregation routers should have all critical components (like: controller card, power, fans) in redundant mode.
- IP-MPLS based Core Network consisting of carrier grade IP-MPLS Router for NOC/SHQ.
- The Core router shall have all critical components (like controller card, power, fans) in redundant mode.
- SHQ to DHQ Aggregation IP-MPLS WAN connectivity overriding underlay DWDM using 100G links on Day-1 which shall be upgradable to 200G in future.
- DHQ Non-Aggregation IP-MPLS routers parented to nearest DHQ Aggregation routers over point-to-point WAN links using coherent 100G optics with required Amplification solution.

General Features:

- The memory on all the different processing modules of the router shall be provided with maximum capacity of memory supported on that router so as to support the ultimate capacity of the router with all features/services enabled. The line/interface module shall also be provided with sufficient memory to support all features and services simultaneously without degrading the performance in any manner.
- The resources in the router, such as CPU, memory, etc. shall be capable of handling the ultimate capacity with all the features enabled as specified in the requirements without deterioration in

performance. If at any stage, it is found that these resources are insufficient, the bidder/OEM shall provide the same at no extra cost to Odisha state.

- All of the proposed interfaces shall be offered on modular Line cards so that some of the modular ports from modular line cards can be re-used in these routers at different location for granular usability. Also, in case of failure of one of the module adaptor, full-length line card should not be replaced.
- Shall support various technologies like IP-MPLS, and Carrier Ethernet in access network in future. The proposed IP-MPLS network should be access agnostic and should be able to work as transit network for all the above-mentioned access methods/technology.
- MTBF: > 200,000 hrs
- Service Life: Not less than 8 Yrs

19.2. Functional Requirement IP-MPLS SWAN

- The IP-MPLS Network shall be based on highly resilient, multiservice technology to provide traffic engineered service assurance and bandwidth guaranteed behavior for mission critical, delay sensitive and bandwidth intensive services & applications
- The network design should cater for capability to engineer traffic links between nodes with user defined bandwidth guarantee and QoS profile.
- Allocation of user configurable queues should be supported for differentiated treatment to traffic for speed and reliability.
- It should be possible to re-route traffic from failed routes to protected routes with no impact on active sessions.
- The network should be implemented with open and standard based protocols
- All the network equipment should be IPv4 and IPv6 fully capable and should fully support IPv4 and IPv6 dual stack.
- High Availability features like node protection, path protection, link protection, and critical components should be in redundant mode.
- Network should provide sub 50 msec of recovery and re-convergence at all levels.
- Should be able to support multiple VPNs for different services with traffic engineering defined.
- All the routers (core, aggregation, and non-aggregation) shall be of the same make (OEM)
- DWDM, Routers, and EMS Platform shall be preferably from same OEM, if not, then it shall be the responsibility of the bidder to integrate all products without any additional cost to the client. Also, the bidder shall provide the solution so that the EMS shall be ingrate to the existing HP NMS in the S-NOC.

Note: In addition to generic technical / functional specification mentioned above, the detailed specification for each Network equipment is given in individual sections that needs to be complied by the bidder.

19.3. Minimum Sizing Requirements of the Key Appliances-

S. No.	Details	Bandwidth carrying Capacity	Appliance Key requirements and Specs
State HQ PoP (NOC)			
1	IP-MPLS Router (SHQ Core POP)	2 Tbps full-duplex or higher	Chassis based router with modular architecture and redundant AC power. Port Requirement Day-1: • 6 x 100GE ports with 100GE LR4 optics, • 1 x 100GE port with 100GE coherent/coloured optic, • 12 x 1/10GE ports with 12 x 10GE LR optics. All the above interface ports distributed across minimum two-line cards. Equipped with redundant controller cards to support control and fabric redundancy.
2	DWDM Appliance	Supports upto 88 no's of 100/200 Gig channels	100/200G Optical Transponder + client pluggable +Mux/Demultiplexer + Amplifiers.
DHQ PoP			
1	IP-MPLS Router (DHQ Aggregation POPs)	800 Gbps full-duplex or higher	Chassis based router with modular architecture and redundant AC power. Ports Requirement Day-1: • 3 x 100GE ports with 3 x 100GE coherent/coloured optics, • 1 x 100GE port with 1 x 100GE LR4 optic, • 18 x 1/10GE ports with 12 x 10GE LR optics and 6 x 1GE LX optics. Equipped with redundant controller cards to support control and fabric redundancy
2	IP-MPLS Router (DHQ Non-Aggregation POPs)	800 Gbps full-duplex or higher	Chassis based router with modular architecture and redundant AC power. Ports Requirement Day-1: • 2 x 100GE ports with 2 x 100GE coherent/coloured optics, • 14 x 1/10GE ports with 8 x 10GE LR optics and 6 x 1GE LX optics. Equipped with redundant controller cards to support control and fabric redundancy

S. No.	Details	Bandwidth carrying Capacity	Appliance Key requirements and Specs
3	DWDM Aggregation Locations	Supports upto 88 no's of 100/200 Gig channels	100/200G Optical Transponder + client pluggable +Mux/Demux+ Amplifiers
4	DWDM 3 direction locations for Aggregation to core NW	Supports upto 88 no's of 100/200 Gig channels	100/200G Optical Transponder + client pluggable +Mux/Demux+ Amplifiers for all directions

19.4. Bill of Materials

SL NO	ITEM DESCRIPTION	UoM	Qty
S.NOC LOCATION			
IP MPLS			
1	DWDM Appliances	No	1
2	IP-MPLS Router (SHQ Core POP)	No	2
NMS/OSS Software			
1	Service Order, Provisioning, Activation Management for GPON	Set	1
2	Fault Management for IP-MPLS	Set	1
3	Network Provisioning & Automation Platform for IP-MPLS	No	1
4	Integration of proposed EMS with existing HP OSS	No	1
NMS/OSS Implementation & Training			
1	Implementation, Configuration and Commissioning	Lot	1
2	NOC User-Training (2 Batches of 25 Users each)	Lot	1
3	O&M Training (2 Batches of 25 Users each)	Lot	1
IT Hardware & Software Sizing for NMS/OSS			
1	Rack Mount Server as per Bidder's solution	Set	1
2	Upgradation of Existing SAN Storage – 10 TB usable (Make - HPE and Model - 3PAR 8200 existing SAN Storage)	No's	1
3	Backup Software as per Bidder's solution and license for minimum 10 TB data backup	Set	1
4	D2D Backup Appliance with 10 TB usable capacity as per bidder's solution	Set	1
5	Virtualization Software as per Bidder's solution	Set	1
6	Windows Server OS Standard Edition (Latest version) as per Bidder's solution	Set	1
7	Linux Server OS Enterprise Edition (Latest version) as per Bidder's solution	Set	1
8	Additional End-Point Protection License based on Bidder's solution to protect all devices proposed under the scope of work (Existing End-Point Protection Software – Trendmicro Deep Security and Apex One)	Set	1
9	Database as per Bidder's solution	Set	1
10	Desktop with Preloaded Windows & MS Office, Antivirus	No's	2
11	Layer-3 Network Switch	Nos.	2
12	DMZ Switch	Nos	2
13	Any Other IT components required as per bidder's solution (please specify)	Set	1
Non-IT & Other Equipment for S-NOC			
1	Network Racks 42 U	No	2
2	40 KVA ONLINE UPS with 30 min back up	No	1
3	Passive Networking (including Cat-6 Cable, Patch panel, MPO cassettes, Cable basket, Fibre Runner, I/O module, Patch Cord-Copper/Fiber, Faceplate, Wall mount Rack, Conduit with accessories as required)	Set	1
DHQ & OTHER LOCATION			
1	10 Kva On-Line UPS with Battery Set (30 Min. Backup on full load) DHQ	No	62
2	30 kVA DG Set	No	31

SL NO	ITEM DESCRIPTION	UoM	Qty
3	Electrical Wiring as required	Set	31
4	Chemical Earthing & Surg Protection as required	Nos	31
5	Network Racks 42 U (Cooling Rack)	No	31
6	IP-MPLS Router (DHQ Aggregation POPs)	No	7
7	IP-MPLS Router (DHQ Non-Aggregation POPs)	No	24
8	ILA-Non-Aggregation to Aggregation	No	25
9	Amplifiers (AMP) at terminal locations (Non-aggregation to aggregation)	No	35
10	DWDM Aggregation Locations	No	7
11	ILA locations for Aggregation to core NW	No	9
12	DWDM 3 direction locations for Aggregation to core NW	No	2
13	2 kVA Online UPS with Battery Set (30 Min. Backup on full load) for DWDM 3 direction locations, ILA, Amplifiers (AMP) at terminal locations	No	62
14	10 kVA DG Set	No	62
15	Electrical Wiring	Set	62
16	Chemical Earthing & Surg Protection	Nos	31
17	Passive Components including required earthing for all DHQs and all locations to install ILA, DWDM and Amplifiers as required	Set	93
18	Air Conditioning 1.5 ton	No	93
LAST MILE CONNECTION			
1	24F OFC cable	MTR	170000
2	Laying of PLB HDPE duct by HDD	MTR	155000
3	Jointing Box 24 F(SJC)	No's	68
4	24F FTB (CT Box)	No's	62
5	PLB HDPE pipe	MTR	155000
6	Commissioning of 24 F(SJC)	No's	68
7	Commissioning of 24F FTB	No's	62
8	Pigtail (6mtr)	No's	204
9	OFC Patch cord (6mtr)	No's	204
10	OFC Pulling through Laid HDPE Duct	MTR	170000
11	Fusion Jointing / Coupler Jointing (including supply of Coupler) of HDPE Duct	Nos	As per Bidder solution
12	Handhole with Cover (0.5Mtr x 0.5Mtr x 0.5Mtr)	Nos	As per Bidder solution
13	Manhole with Cover (1Mtr x 1Mtr x 1Mtr)	Nos	As per Bidder solution
14	Splicing of 24 Count OFC inside of Manhole	Nos	As per Bidder solution

20. Technical Specifications

20.1. Detailed Technical Requirements - IP-MPLS Router (SHQ Core)

Category	S No.	Minimum Requirement Description	Compliance (Yes / No)
Architecture	1.	Router should be chassis based & should have modular architecture for scalability	
Architecture	2.	Chassis should be 19" rack mountable type	
Architecture	3.	The router should support CE/MEF services framework. The router (model/family) must be MEF CE 3.0 certified	
Architecture	4.	Should support redundant controller cards for high availability	
Architecture	5.	Should have power and fan redundancy.	
Architecture	6.	The router should have both AC and DC power options	
Architecture	7.	There should not be any impact on the router performance in case of single power failure.	
Architecture	8.	All interface modules, line cards should be hot swappable for high availability	
Architecture	9.	All interfaces on the routers shall provide wire-rate throughput	
Architecture	10.	The router shall support following type of interfaces – 100GE, 40G, 25GE, 10GE, 1GE interfaces natively	
Architecture	11.	All line-card slots should be universal. All the line-cards should be capable to be configured on all given line-card slots without any restriction	
Architecture	12.	The Router/Router Series/Router OS/Router family should be EAL certified from Day-1	
Architecture	13.	The router must have minimum of 16GB RAM and must support minimum 16GB of storage memory (SD/CF, etc)	
Performance	14.	Router shall support minimum non-blocking capacity of 2 Tbps full-duplex or higher at full services scales	
Performance	15.	The router should have capability of minimum 2 Million IPv4, 1 Million IPv6 routes	
Performance	16.	The router should support minimum 1 Million MAC address.	
Performance	17.	Router should support 64k multicast routes.	
Performance	18.	Router should support 120K MPLS PWE3.	
Performance	19.	Router should support 20K VPLS.	
Performance	20.	Router should support 10K MPLS L3 VPN	
Performance	21.	The router should support 100K labels and 10 label stack.	
High Availability	22.	Shall support On-line insertion and removal for cards, fast reboot for minimum network downtime, VRRP or equivalent	
High Availability	23.	Shall support Non-Stop forwarding for fast re-convergence of routing protocols (BGP, OSPF, IS-IS)	
Protocol Support	24.	Should have IPv4 Routing, Segment Routing, Segment Routing Traffic-Engineering, Border Gateway Protocol, IS-IS, and Open Shortest Path First (OSPFv2 and OSPFv3), Virtual Router Redundancy Protocol (VRRP), IPv6 Routing, BGP Prefix Independent Convergence, flex-algo, static and BGP SR policy	

Category	S No.	Minimum Requirement Description	Compliance (Yes / No)
Protocol Support	25.	Should have Multicast routing protocols IGMPv1, v2, v3, PIM-SM (RFC2362) and PIM-SSM, MSDP, IGMP v2 snooping	
Protocol Support	26.	Should have OSPFv3 for IPv6	
Protocol Support	27.	The router must support multiple instances of protocol OSPF (v2 & v3) and IS-IS	
Protocol Support	28.	Shall support MPLS Provider/Provider Edge functionality. MPLS VPN, MPLS mVPN (Multicast VPN), AS VPN, DiffServ Tunnel Modes, MPLS TE (Fast re-route), DiffServ- Aware TE, Inter-AS VPN, Resource Reservation Protocol (RSVP), VPLS, VPWS, Ethernet over MPLS, EVPN, Segment routing and Segment routing Traffic engineering	
Protocol Support	29.	The router shall support IEEE 802.3ad link aggregation of minimum of 32 links within a single bundle.	
Protocol Support	30.	Should support 64 ECMP (equal cost multipath).	
Protocol Support	31.	The routers shall support both L2 and L3 services on all interfaces	
Protocol Support	32.	The router should support BGP link-state (BGP-LS).	
Protocol Support	33.	Some of the streaming models/sensors the device should support are:	
Protocol Support	34.	System	
Protocol Support	35.	(i) Chassis Environment	
Protocol Support	36.	(ii) Line card utilization (memory , processor, QoS, Temp, Port utilization), errors counters	
Protocol Support	37.	(iii) System sensors (memory, CPU, Temp etc)	
Protocol Support	38.	(iv) Fabric statistics	
Protocol Support	39.	Interface	
Protocol Support	40.	(i) Interface statistics (Physical and logical interfaces)	
Protocol Support	41.	(ii) Interface optical diagnostic	
Protocol Support	42.	(iii) Congestion and latency	
Protocol Support	43.	(iv) Filter statistics	
Protocol Support	44.	The router should support jumbo frame.	
Protocol Support	45.	The router should support port mirroring	
QoS Features	46.	Shall support the following:	
QoS Features	47.	Traffic Classification using various parameters like source physical interfaces, source/destination IP subnet, protocol types (IP/TCP/UDP), source/destination ports, IP Precedence, 802.1p, MPLS EXP, DSCP	

Category	S No.	Minimum Requirement Description	Compliance (Yes / No)
QoS Features	48.	Shall support Strict Priority Queuing or Low Latency Queuing to support real time application like Voice and Video with minimum delay and jitter	
QoS Features	49.	Congestion Management: Priority queuing, Class based weighted fair queuing	
QoS Features	50.	Traffic Conditioning: Committed Access Rate/Rate limiting	
QoS Features	51.	Platform must support hierarchical shaping, scheduling, and policing for the control upstream and downstream traffic	
QoS Features	52.	Router should have 4 level of scheduling for HQOS	
QoS Features	53.	Ability to configure hierarchical queues in hardware for IP QoS at the egress to the edge. Minimum 750K queues per system	
QoS Features	54.	Per VLAN QoS. Shall support at least 8 hardware queues to be available for each GE interface on the router	
QoS Features	55.	Shall support Priority propagation to ensure service integrity for voice and video throughout all hierarchy layers, even at peak hours with high traffic load	
QoS Features	56.	Platform must support hierarchical QOS policies	
QoS Features	57.	Should support hierarchical QoS for voice and video	
Security	58.	Support Access Control List to filter traffic based on Source & Destination IP Subnet, Source & Destination Port, Protocol Type (IP, UDP, TCP, ICMP etc) and Port Range etc.	
Security	59.	Support per-user Authentication, Authorization and Accounting through RADIUS or TACACS	
Security	60.	The routers shall provide hardware accelerated IETF Netflow/cFlow/J-Flow/equivalent feature.	
Security	61.	SNMPv3 authentication, SSHv2	
Security	62.	Multiple privilege level authentications for console and telnet access through Local database or through an external AAA Server	
Management	63.	Event and System logging: Event and system history logging functions shall be available. The Router shall generate system alarms on events. Facility to put selective logging of events onto a separate hardware here the analysis of log shall be available	
Management	64.	The router should support SNMP/NETCONF/RESTCONF/Yang / JSON / GPB / XML for network management & provisioning functions.	
Interface	65.	The router must support 1GE, 10GE, 100GE, 400GE interface pluggable up to 80Km distances	
Interface	66.	The router must support multi-rate interfaces: 1/10GE, 10GE/25GE, 40GE/100GE, 100GE	
Interface	67.	The router must support 100GE interfaces with coherent optics for longer distances over dark fiber	
Interface	68.	The router must have capability to support minimum interfaces : 30 x 40/100GE, 60 x 10/25GE, 60 x 1/10GE	
Controller Requirement	69.	Should be equipped with redundant controller card on day-1	

Category	S No.	Minimum Requirement Description	Compliance (Yes / No)
Interface Requirements on Day One	70.	The Router should be supplied with following interfaces on Day-One:- (i) 8 x 100GE interfaces distributed across minimum two line cards. Of these 8 x 100GE interfaces, minimum 1 x 100GE interface must be equiped with coherent optics. The router should also be equipped with minimum 6 LR4 100G Optics (ii) minimum 12 x 1/10GE interfaces, equipped with 10GE LR Optics	
Interface Requirements	71.	After fulfilling Day One interface requirements, the router must have minimum of 2 interface slots vacant for future expansion.	
Interface Requirements	72.	The 'slot' for router means a main slot or full slot on the router chassis. Only such a slot shall be counted towards determining the number of free slots. Any sub slot or daughter slot or a half slot shall not be considered as a slot	
Physical specifications	73.	Operating temperature: +5°C to +40°C guaranteed	
Physical specifications	74.	Humidity: 5% to 85% non-Condensing	
Regulatory Compliance	75.	The Router should be NEBS Level 3 compliant	

20.2. Detailed Technical Requirements - IP-MPLS Router (DHQ Aggregation POPs)

Category	S No.	Minimum Requirement Description	Compliance (Yes / No)
Architecture	1.	Router should be chassis based & should have modular architecture for scalability	
Architecture	2.	Chassis should be 19" rack mountable type	
Architecture	3.	Chassis should be compatibility with 300 mm ETSI-compliant cabinets	
Architecture	4.	The router should support CE/MEF services framework. The router (model/family) must be MEF CE 3.0 certified	
Architecture	5.	Should support redundant controller cards in order to have control and fabric redundancy for high availability from day-one. All interface modules, line cards, should be hot swappable for high availability	
Architecture	6.	Should have power and fan redundancy from day one	
Architecture	7.	The router should have both AC and DC power options	
Architecture	8.	All interfaces on the routers shall provide wire-rate throughput	
Architecture	9.	The router shall support following type of interfaces – 100GE, 40G, 25GE, 10GE, 1GE interfaces natively from day one	
Architecture	10.	All line-card slots should be universal. All the line-cards should be capable to be configured on all given line-card slots without any restriction	
Performance	11.	Router should support minimum 120Gbps full-duplex per slot capacity from day-1	

Category	S No.	Minimum Requirement Description	Compliance (Yes / No)
Architecture	12.	The Router/Router Series/Router OS/Router family should be EAL certified from Day-1	
Architecture	13.	The router musst have minimum of 16GB RAM and must support minimum 16GB of storage memory (SD/CF, etc)	
Architecture	14.	The router must support on-board GNSS receiver	
Performance	15.	Router shall support minimum non-blocking throughput capacity of 800 Gbps full-duplex or higher at full services scale	
Performance	16.	The router should have capability of minimum 100K IPv4, 60K IPv6 routes (FIB)	
Performance	17.	The router should support minimum 60K MAC address.	
Performance	18.	Router should support 2K MPLS PWE3.	
Performance	19.	Router should support 2K VPLS.	
Performance	20.	Router should support 2K MPLS L3 VPN	
Performance	21.	The router should support 10K labels and 6 label stack depth.	
Performance	22.	The router should be able to function as an IP-MPLS Label Switch Router (LSR) and/or Label Edge Router (LER)	
High Availability	23.	Shall support On-line insertion and removal for cards, fast reboot for minimum network downtime, VRRP or equivalent	
High Availability	24.	Shall support Non-Stop forwarding for fast re-convergence of routing protocols (BGP, OSPF, IS-IS)	
Protocol Support	25.	Should have IPv4 Routing, Segment Routing, Segment Routing Traffic-Engineering, Border Gateway Protocol, IS-IS, and Open Shortest Path First (OSPFv2 and OSPFv3), Virtual Router Redundancy Protocol (VRRP), IPv6 Routing, and BGP Prefix Independent Convergence	
Protocol Support	26.	Should have Multicast routing protocols IGMPv1, v2, v3, PIM-SM and PIM-SSM, MSDP, IGMP v2 snooping	
Protocol Support	27.	The router must support multiple instances of protocol OSPF (v2 & v3) and IS-IS	
Protocol Support	28.	Shall support MPLS Provider/Provider Edge functionality. MPLS VPN, MPLS mVPN (Multicast VPN), AS VPN, DiffServ Tunnel Modes, MPLS TE (Fast re-route), DiffServ- Aware TE, Inter-AS VPN, Resource Reservation Protocol (RSVP), VPLS, VPWS, Ethernet over MPLS, EVPN, Segment routing and Segment routing Traffic engineering	
Protocol Support	29.	Should support 16 ECMP (equal cost multipath).	
Protocol Support	30.	The router should support BGP link-state (BGP-LS).	
Protocol Support	31.	Some of the streaming models/sensors the device should support are:	
Protocol Support	32.	System	
Protocol Support	33.	(i) Chassis Environment	
Protocol Support	34.	(ii) Line card utilization (memory , processor, QoS, Temp, Port utilization), errors counters	
Protocol Support	35.	(iii) System sensors (memory, CPU, Temp etc)	

Category	S No.	Minimum Requirement Description	Compliance (Yes / No)
Protocol Support	36.	(iv) Fabric statistics	
Protocol Support	37.	Interface	
Protocol Support	38.	(i) Interface statistics (Physical and logical interfaces)	
Protocol Support	39.	(ii) Interface optical diagnostic	
Protocol Support	40.	(iii) Congestion and latency	
Protocol Support	41.	(iv) Filter statistics	
Protocol Support	42.	The router should support port mirroring	
QoS Features	43.	Shall support the following:	
QoS Features	44.	Traffic Classification using various parameters like source physical interfaces, source/destination IP subnet, protocol types (IP/TCP/UDP), source/destination ports, IP Precedence, 802.1p, MPLS EXP, DSCP	
QoS Features	45.	Shall support Strict Priority Queuing or Low Latency Queuing to support real time application like Voice and Video with minimum delay and jitter	
QoS Features	46.	Congestion Management: Priority queuing, Class based weighted fair queuing	
QoS Features	47.	Traffic Conditioning: Committed Access Rate/Rate limiting	
QoS Features	48.	Platform must support hierarchical shaping, scheduling, and policing for the control upstream and downstream traffic	
QoS Features	49.	Router should have 4 level of scheduling for HQOS	
QoS Features	50.	Ability to configure hierarchical queues in hardware for IP QoS at the egress to the edge. Minimum 20k egress and ingress hardware queues	
QoS Features	51.	Per VLAN QoS. Shall support at least 8 hardware queues to be available for each interface on the router	
QoS Features	52.	Shall support Priority propagation to ensure service integrity for voice and video throughout all hierarchy layers, even at peak hours with high traffic load	
QoS Features	53.	Platform must support hierarchical QOS policies	
QoS Features	54.	Should support hierarchical QoS for voice and video	
Security	55.	Support Access Control List to filter traffic based on Source & Destination IP Subnet, Source & Destination Port, Protocol Type (IP, UDP, TCP, ICMP etc) and Port Range etc.	
Security	56.	Support per-user Authentication, Authorization and Accounting through RADIUS or TACACS	
Security	57.	The routers shall provide hardware accelerated IETF Netflow/cFlow/J-Flow/equivalent feature.	
Security	58.	SNMPv3 authentication, SSHv2	
Security	59.	Multiple privilege level authentications for console and telnet access through Local database or through an external AAA Server	

Category	S No.	Minimum Requirement Description	Compliance (Yes / No)
Management	60.	Event and System logging: Event and system history logging functions shall be available. The Router shall generate system alarms on events. Facility to put selective logging of events onto a separate hardware here the analysis of log shall be available	
Interface	61.	The router must support 1GE, 10GE, 100GE interface pluggable up to 80Km distances	
Interface	62.	The router must support multi-rate interfaces: 1/10GE, 10/25GE, and 40/100GE	
Interface	63.	The router must support line-rate 10GE, 100GE interfaces with coloured pluggable	
Interface	64.	The router must support 100GE interfaces with coherent optics for longer distances over dark fiber	
Interface	65.	The router must support minimum interfaces natively without the need of adapter or convertors: 6 x 100GE (Coherent), 24 x 10/25GE, 48 x 1/10GE	
Controller Requirement	66.	The router should be equipped with 2 controller cards to support control and fabric redundancy on day-1	
Licensing condition	67.	The Router should be supplied with all applicable feature and interface perpetual-licenses from day one. No interface should have year based capping for usage.	
Interface Requirements from Day One	68.	The Router should be supplied with following interfaces on Day-One:- (i) 3 x 100GE coherent interfaces distributed across minimum 2 line cards and equipped with 100G coherent optics on Day-1. (ii) 1 x 100GE QSFP28 interface equipped with 1 LR4 100G Optic. (iii) 18 nos. of 1/10GE distributed across minimum two (2) interface slots with minimum 30% fill-up ratio per card. Equipped with 12 x SFP+ LR, and 6 x SFP LX	
Interface Requirements	69.	After fulfilling Day One interface requirements, the router must have minimum of 2 interface slots vacant for future expansion.	
Operating Environmental Requirements	70.	Operating temperature: -5°C to +40°C guaranteed	
Operating Environmental Requirements	71.	Humidity: 5% to 85% Non-Condensing	
Operating Environmental Requirements	72.	As the routers are going to be installed in harsh environments at remote geography locations, the router should be natively Conformal Coated or PCB Enhanced Plated for corrosion mitigation. External cabinet solutions would be over and above this solution.	
Regulatory Compliance	73.	The Router should be NEBS Level 3 compliant	

20.3. Detailed Technical Requirements - IP-MPLS Router (DHQ Non-Aggregation POPs)

Category	S No.	Minimum Requirement Description	Compliance (Yes / No)
Architecture	1.	Router should be chassis based & should have modular architecture for scalability	
Architecture	2.	Chassis should be 19" rack mountable type	
Architecture	3.	Chassis should be compatibility with 300 mm ETSI-compliant cabinets	
Architecture	4.	The router should support CE/MEF services framework. The router (model/family) must be MEF CE 3.0 certified	
Architecture	5.	Should support redundant controller cards in order to have control and fabric redundancy for high availability from day-one. All interface modules, line cards, should be hot swappable for high availability	
Architecture	6.	Should have power and fan redundancy from day one	
Architecture	7.	The router should have both AC and DC power options	
Architecture	8.	The router shall support following type of interfaces – 100GE, 40G, 25GE, 10GE, 1GE interfaces natively from day one	
Architecture	9.	All line-card slots should be universal. All the line-cards should be capable to be configured on all given line-card slots without any restriction	
Performance	10.	Router should support minimum 120Gbps full-duplex per slot capacity from day-1	
Architecture	11.	The Router/Router Series/Router OS/Router family should be EAL certified from Day-1	
Architecture	12.	The router must have minimum of 16GB RAM and must support minimum 16GB of storage memory (SD/CF, etc)	
Architecture	13.	The router must support on-board GNSS receiver	
Performance	14.	Router shall support minimum non-blocking throughput capacity of 800 Gbps full-duplex or higher at full services scale	
Performance	15.	The router should have capability of minimum 100K IPv4, 60K IPv6 routes (FIB)	
Performance	16.	The router should support minimum 60K MAC address.	
Performance	17.	Router should support 2K MPLS PWE3.	
Performance	18.	Router should support 2K VPLS.	
Performance	19.	Router should support 2K MPLS L3 VPN	
Performance	20.	The router should support 10K labels and 6 label stack depth.	
Performance	21.	The router should be able to function as an IP-MPLS Label Switch Router (LSR) and/or Label Edge Router (LER)	
High Availability	22.	Shall support On-line insertion and removal for cards, fast reboot for minimum network downtime, VRRP or equivalent	
High Availability	23.	Shall support Non-Stop forwarding for fast re-convergence of routing protocols (BGP, OSPF, IS-IS)	
High Availability	24.	Boot options like booting from TFTP server, Network node & Flash Memory	

Category	S No.	Minimum Requirement Description	Compliance (Yes / No)
Protocol Support	25.	Should have IPv4 Routing, Segment Routing, Segment Routing Traffic-Engineering, Border Gateway Protocol, IS-IS, and Open Shortest Path First (OSPFv2 and OSPFv3), Virtual Router Redundancy Protocol (VRRP), IPv6 Routing, and BGP Prefix Independent Convergence	
Protocol Support	26.	Should have Multicast routing protocols IGMPv1, v2, v3, PIM-SM and PIM-SSM, MSDP, IGMP v2 snooping	
Protocol Support	27.	The router must support multiple instances of protocol OSPF (v2 & v3) and IS-IS	
Protocol Support	28.	Shall support MPLS Provider/Provider Edge functionality. MPLS VPN, MPLS mVPN (Multicast VPN), AS VPN, DiffServ Tunnel Modes, MPLS TE (Fast re-route), DiffServ-Aware TE, Inter-AS VPN, Resource Reservation Protocol (RSVP), VPLS, VPWS, Ethernet over MPLS, EVPN, Segment routing and Segment routing Traffic engineering	
Protocol Support	29.	The router shall support IEEE 802.3ad link aggregation of minimum of 32 links within a single bundle.	
Protocol Support	30.	Should support 16 ECMP (equal cost multipath).	
Protocol Support	31.	The router should support BGP link-state (BGP-LS).	
Protocol Support	32.	Some of the streaming models/sensors the device should support are:	
Protocol Support	33.	System	
Protocol Support	34.	(i) Chassis Environment	
Protocol Support	35.	(ii) Line card utilization (memory , processor, QoS, Temp, Port utilization), errors counters	
Protocol Support	36.	(iii) System sensors (memory, CPU, Temp etc)	
Protocol Support	37.	(iv) Fabric statistics	
Protocol Support	38.	Interface	
Protocol Support	39.	(i) Interface statistics (Physical and logical interfaces)	
Protocol Support	40.	(ii) Interface optical diagnostic	
Protocol Support	41.	(iii) Congestion and latency	
Protocol Support	42.	(iv) Filter statistics	
Protocol Support	43.	The router should support jumbo frame.	
Protocol Support	44.	The router should support port mirroring	
QoS Features	45.	Shall support the following:	
QoS Features	46.	Traffic Classification using various parameters like source physical interfaces, source/destination IP subnet, protocol types	

Category	S No.	Minimum Requirement Description	Compliance (Yes / No)
		(IP/TCP/UDP), source/destination ports, IP Precedence, 802.1p, MPLS EXP, DSCP	
QoS Features	47.	Shall support Strict Priority Queuing or Low Latency Queuing to support real time application like Voice and Video with minimum delay and jitter	
QoS Features	48.	Congestion Management: Priority queuing, Class based weighted fair queuing	
QoS Features	49.	Traffic Conditioning: Committed Access Rate/Rate limiting	
QoS Features	50.	Platform must support hierarchical shaping, scheduling, and policing for the control upstream and downstream traffic	
QoS Features	51.	Router should have 4 level of scheduling for HQOS	
QoS Features	52.	Ability to configure hierarchical queues in hardware for IP QoS at the egress to the edge. Minimum 10k egress and ingress hardware queues	
QoS Features	53.	Per VLAN QoS. Shall support at least 8 hardware queues to be available for each interface on the router	
QoS Features	54.	Shall support Priority propagation to ensure service integrity for voice and video throughout all hierarchy layers, even at peak hours with high traffic load	
QoS Features	55.	Platform must support hierarchical QOS policies	
QoS Features	56.	Should support hierarchical QoS for voice and video	
Security	57.	Support Access Control List to filter traffic based on Source & Destination IP Subnet, Source & Destination Port, Protocol Type (IP, UDP, TCP, ICMP etc) and Port Range etc.	
Security	58.	Support per-user Authentication, Authorization and Accounting through RADIUS or TACACS	
Security	59.	The routers shall provide hardware accelerated IETF Netflow/cFlow/J-Flow/equivalent feature.	
Security	60.	SNMPv3 authentication, SSHv2	
Security	61.	Multiple privilege level authentications for console and telnet access through Local database or through an external AAA Server	
Debug, Alarms & Diagnostics	62.	Display of Input and Output data rate statistics on all interfaces	
Management	63.	Event and System logging: Event and system history logging functions shall be available. The Router shall generate system alarms on events. Facility to put selective logging of events onto a separate hardware here the analysis of log shall be available	
Interface	64.	The router must support 1GE, 10GE, 100GE interface pluggable up to 80Km distances	
Interface	65.	The router must support multi-rate interfaces: 1/10GE, 10/25GE, and 40/100GE	
Interface	66.	The router must support line-rate 10GE, 100GE interfaces with both coloured pluggable	
Interface	67.	The router must support 100GE interfaces with coherent optics for longer distances over dark fiber	

Category	S No.	Minimum Requirement Description	Compliance (Yes / No)
Interface	68.	The router must support minimum interfaces natively without the need of adapter or convertors: 6 x 100GE (Coherent), 24 x 10/25GE, 48 x 1/10GE	
Controller Requirement	69.	The router should be equipped with 2 controller cards to support control and fabric redundancy on day-1	
Licensing condition	70.	The Router should be supplied with all applicable feature and interface perpetual-licenses from day one. No interface should have year based capping for usage.	
Interface Requirements from Day One	71.	The Router should be supplied with following interfaces on Day-One:- (i) 2 x 100GE interfaces distributed across 2 line cards and equipped with 100G coherent optics on Day-1. (ii) 14 nos. of 1/10GE distributed across minimum two (2) interface slots with minimum 30% fill-up ratio per card. Equipped with 8 x SFP+ LR, and 6 x SFP LX	
Interface Requirements	72.	After fulfilling Day One interface requirements, the router must have minimum of 3 interface slots vacant for future expansion.	
Operating Environmental Requirements	73.	Operating temperature: -5°C to +45°C guaranteed	
Operating Environmental Requirements	74.	Humidity: 5% to 85% non-Condensing	
Operating Environmental Requirements	75.	As the routers are going to be installed in harsh environments at remote geography locations, the router should be natively Conformal Coated or PCB Enhanced Plated for corrosion mitigation. External cabinet solutions would be over and above this solution.	
Regulatory Compliance	76.	The Router should be NEBS Level 3 compliant	

20.4. DWDM

S No.	Minimum Requirement Description	Compliance (Yes/No)
1	The DWDM node must be capable of supporting 3-4 directions with backplane slot connectivity in order to allow efficient traffic aggregation.	
2	System must support FOADM configuration as per current network requirement and same system must have capability to support ROADM configuration.	
3	Multiple protocol clients interface should be supported, OTN, SDH, Ethernet, FICON with different client services: 100G , OTU4, 40GE, 10GE, OTU2/E.	
4	The system should have capability to support encryption to improve signal transmission safety, AES-256 Galois Counter Mode (GCM) should be supported to give highest safety.	
5	The system should provide FEC technology, SD-FEC, Ultra SD-FEC and HD-FEC should be supported.	

S No.	Minimum Requirement Description	Compliance (Yes/No)
6	Footprint optimized Optical transponder cards (up to 200G line rate) utilizing minimum chassis slots must be supported.	
7	System should support compact 8 channel filters for Low cost DWDM configurations (support for 44 channel filter must also be there)	
8	Universal slot with backplane compatible with Core node shelf, i.e., all cards including OT, OA, L2 card, OTDR card and Filters on Core node shelf can be supported on the Metro node shelf	
9	System should support DC as well as AC power option.	
10	Amplifiers should have Pluggable OSC on faceplate	
11	Amplifiers should have tilt control, Transient response control	
12	Amplifiers should have Automatic Power Reduction (APR) due to fibre cut / pull	
13	DWDM system must be capable of supporting Single Fibre Working for coherent 100G/200G/400G Channels.	
14	DWDM system must have capability of Optical Channel Monitoring.	
15	DWDM System should be capable of supporting L2 packet switching using card interconnection via backplane, without central fabric to lower start-up costs	
16	DWDM System should support multi-shelves cascading configuration	
17	DWDM system must be capable of supporting Integrated ROADM cards (WSS, Amps, OTDR function in one slot card).	

20.5. 42 U Network Rack

S No.	Minimum Requirement Description	Compliance (Yes/No)
1	The Network rack should be of 42U height with minimum 800mm x 1000mm dimensions.	
2	The Rack should have metal sheet perforated front and rear doors.	
3	Both the side panels should be easily removable for easy access to the equipment's.	
4	The top/bottom panels should have ventilation and cable entry facility.	
5	The rack should have adjustable 19" vertical mounting	
6	As part of supply the rack should have 2 x PDU, 1 x Rack tray, 2 x Fan, cable manager(s) and hardware kit as required.	

20.6. Layer-3 Network Switch

S No.	Minimum Requirement Description	Compliance (Yes/No)
1	Shall be 19" Rack Mountable	
2	The switch should have dual power supplies	
3	The switch should have minimum 24 number 10 Gbps ports from day one with 2 nos of 40 Gbps uplinks	
4	Minimum 1 serial / RJ-45 based console port	
5	Switch shall have minimum 512 MB RAM and 256 MB Flash	
6	Dual stack (IPv4 and IPv6): transition IPv4 to IPv6, supporting connectivity for both protocols	

S No.	Minimum Requirement Description	Compliance (Yes/No)
7	Forward IPv6 multicast traffic to the appropriate interface	
8	IPv6 ACL/QoS: support ACL and QoS for IPv6 traffic	
9	IPv6 routing: support static, RIPng, OSPFv3 routing protocols	
10	Security: provide RA guard, DHCPv6 protection, dynamic IPv6 lockdown	
11	The Switch should support Virtualized switching or physical stacking to provide simplified management as the switches appear as a single chassis when stacked.	
12	The switch should support Nonstop switching and routing	
13	The switch should support Multiple Spanning Tree	
14	The switch should support VLAN and tagging 128 VLANs simultaneously	
15	The switch should support Loopback interface address	
16	The switch should support DHCP server	
17	The switch should support Static IP routing for both IPv4 and IPv6 networks	
18	The switch should support NTP, Secure shell, Secure Sockets Layer (SSL), Port security, MAC address lockout and Secure FTP/TFTP	
19	The switch should support Secure management access to deliver secure encryption of all access methods (CLI, GUI, or MIB) through SSHv2, SSL, and/or SNMPv3	
20	Certification: - Switch shall conform to UL /BIS Standards for Safety requirements of Information Technology Equipment. Switch/Switch OS should be EAL/NDPP Certified.	

20.7. DMZ Network Switch

S No.	Minimum Requirement Description	Compliance (Yes/No)
1	Shall be 19" Rack Mountable	
2	The switch should have dual power supplies	
3	The switch should have minimum 24 number 1 Gbps ports from day one with 2 nos of 10 Gbps uplinks	
4	Minimum 1 serial / RJ-45 based console port	
5	Switch shall have minimum 512 MB RAM and 256 MB Flash	
6	Dual stack (IPv4 and IPv6): transition IPv4 to IPv6, supporting connectivity for both protocols	
7	Forward IPv6 multicast traffic to the appropriate interface	
8	IPv6 ACL/QoS: support ACL and QoS for IPv6 traffic	
9	IPv6 routing: support static, RIPng, OSPFv3 routing protocols	
10	Security: provide RA guard, DHCPv6 protection, dynamic IPv6 lockdown	

S No.	Minimum Requirement Description	Compliance (Yes/No)
11	The Switch should support Virtualized switching or physical stacking to provide simplified management as the switches appear as a single chassis when stacked.	
12	The switch should support Nonstop switching and routing	
13	The switch should support Multiple Spanning Tree	
14	The switch should support VLAN and tagging 128 VLANs simultaneously	
15	The switch should support Loopback interface address	
16	The switch should support DHCP server	
17	The switch should support Static IP routing for both IPv4 and IPv6 networks	
18	The switch should support NTP, Secure shell, Secure Sockets Layer (SSL), Port security, MAC address lockout and Secure FTP/TFTP	
19	The switch should support Secure management access to deliver secure encryption of all access methods (CLI, GUI, or MIB) through SSHv2, SSL, and/or SNMPv3	
20	Certification: - Switch shall conform to UL /BIS Standards for Safety requirements of Information Technology Equipment. Switch/Switch OS should be EAL/NDPP Certified.	

20.8. Desktop

S No.	Minimum Requirement Description	Compliance (Yes/No)
1.	x-86 Quad core latest or "latest -1" generation processor- min 3.0 GHz	
2.	1 GB Graphics Card	
3.	8 GB RAM	
4.	1 TB HDD	
5.	Keyboard, Mouse	
6.	Min 21" LED Monitor	
7.	2 HDMI Connector	
8.	5 years of onsite warranty and support	
9.	Connectivity Type: Integrated Gigabit 10/100/1000 Ethernet	
10.	Preloaded Windows 10 Professional or higher	
11.	Preloaded Antivirus and basic office suite preloaded	

20.9. 40 KVA ONLINE UPS with Battery Set (30 min back up on full load)

Sr. No.	Parameter	Minimum Requirement Description	Compliance
	AC INPUT		
1	Rating	40 KVA	
2	Voltage	410 – 440 V	
3	Frequency	50Hz ± 4 Hz	
4	Phase	Three Phase	
	AC Output		
6	Nominal Output Voltage	220/230/240 VAC	
7	Voltage Regulation	± 1%	

Sr. No.	Parameter	Minimum Requirement Description	Compliance
8	Frequency (Synchronized range)	50Hz ± 4 Hz	
9	Frequency (Battery mode)	50Hz ± 0.1%	
10	Waveform	Sine wave	
11	Harmonic Distortion	Harmonie Distortion- <2% (Linear load), <5% (non-linear load)	
12	Inverter Efficiency (AC-AC)	>91%	
13	Crest Factor	03:01	
14	Backup time	Backup time-30 minutes through suitable SMF Battery Bank at full load	
	General		
15	Control panel	Status display (indicators) with Online, On Battery & Overload Indications	
16	Audible Alarm	Audible and visible alarms	
17	Operating Environment	0 – 40 °C	
18	Bypass	Should be available	
	Communication Interface		
19	Standard	RS 232/RS485 port for software interface	
20	SNMP	SNMP interface as mandatory requirement.	
21	Product Certification	BIS certification with ISO 9001, ISO 14001 & ISO 45001. UPS should be complied with ROHS directive and IEC test standards	
OEM Certificate			
1	Should have existence in India for more than 5 years in India: Certificate of incorporation/ Registration Certificate to be provided.		
2	OEM must not be blacklisted or banned by any State/Central Government, Semi-Government or PSU and any other GOVT. organization in India: A declaration as per Annexure – G14 to be given by the authorized signatory of the OEM		
3	The product must be in compliance with UL/EN/BIS certifications. In case the information not available in datasheet/supporting documents provided by the SI/OEM, copy of the UL/EN/BIS certificates to be provided.		
4	OEM Should have its own infrastructure and minimum Service support at within Odisha: Supporting evidence		
5	OEM should have mandate EPR Authorization from Central Pollution Control Board, Govt. of India/Pollution Control Board, State Govt.: A copy of certificate		

20.10. 10 KVA ONLINE UPS with Battery Set (30 min back up on full load)

Sr. No.	Parameter	Minimum Requirement Description	Compliance
	AC INPUT		
1	Rating	10 KVA	
2	Voltage	170 – 270 V	
3	Frequency	50Hz ± 4 Hz	
4	Phase	Three Phase	
	AC Output		

Sr. No.	Parameter	Minimum Requirement Description	Compliance
6	Nominal Output Voltage	220/230/240 VAC	
7	Voltage Regulation	± 1%	
8	Frequency (Synchronized range)	50Hz ± 4 Hz	
9	Frequency (Battery mode)	50Hz ± 0.1%	
10	Waveform	Sine wave	
11	Harmonic Distortion	Harmonie Distortion- <2% (Linear load), <5% (non-linear load)	
12	Inverter Efficiency (AC-AC)	>91%	
13	Crest Factor	03:01	
14	Backup time	Backup time-30 minutes through suitable SMF Battery Bank at full load	
	General		
15	Control panel	Status display (indicators) with Online, On Battery & Overload Indications	
16	Audible Alarm	Audible and visible alarms	
17	Operating Environment	0 – 40 °C	
18	Bypass	Should be available	
	Communication Interface		
19	Standard	RS 232/RS485 port for software interface	
20	SNMP	SNMP interface as mandatory requirement.	
21	Product Certification	BIS certification with ISO 9001, ISO 14001 & ISO 45001. UPS should be complied with ROHS directive and IEC test standards	
OEM Certificate			
1	Should have existence in India for more than 5 years in India: Certificate of incorporation/ Registration Certificate to be provided.		
2	OEM must not be blacklisted or banned by any State/Central Government, Semi-Government or PSU and any other GOVT. organization in India: A declaration as per Annexure – G14 to be given by the authorized signatory of the OEM		
3	The product must be in compliance with UL/EN/BIS certifications. In case the information not available in datasheet/supporting documents provided by the SI/OEM, copy of the UL/EN/BIS certificates to be provided.		
4	Must have received a single order for at least 50 Nos. Online UPS of 10 and/or 20 KVA or more capacity throughout Odisha locations from any Central Govt. / State Govt. / PSU / Bank. : Copy of LoI/MSA/work order along with work completion/PAT/FAT certificate		
5	OEM Should have its own infrastructure and minimum Service support at within Odisha: Supporting evidence		
6	OEM should have mandate EPR Authorization from Central Pollution Control Board, Govt. of India/Pollution Control Board, State Govt.: A copy of certificate		

20.11. 2 kVA Online UPS with Battery Set (30 Min. Backup on full load)

Sr. No.	Parameter	Minimum Requirement Description	Compliance
	AC INPUT		
1	Rating	2 KVA	
2	Voltage	170 – 270 V	
3	Frequency	50Hz ± 4 Hz	
4	Phase	Single Phase	
	AC Output		
6	Nominal Output Voltage	220/230/240 VAC Single Phase Output	
7	Voltage Regulation	± 1%	
8	Frequency (Synchronized range)	50Hz ± 4 Hz	
9	Frequency (Battery mode)	50Hz ± 0.1%	
10	Waveform	Sine wave	
11	Harmonic Distortion	Harmonie Distortion- <2% (Linear load), <5% (non-linear load)	
12	Inverter Efficiency (AC-AC)	>91%	
13	Crest Factor	03:01	
14	Backup time	Backup time-30 minutes through suitable SMF Battery Bank at full load	
	General		
15	Control panel	Status display (indicators) with Online, On Battery & Overload Indications	
16	Audible Alarm	Audible and visible alarms	
17	Operating Environment	0 – 40 °C	
18	Bypass	Should be available	
	Communication Interface		
19	Standard	RS 232/RS485 port for software interface	
20	SNMP	SNMP interface as mandatory requirement.	
21	Product Certification	BIS certification with ISO 9001, ISO 14001 & ISO 45001. UPS should be complied with ROHS directive and IEC test standards	
OEM Certificate			
1	Should have existence in India for more than 3 years in India: Certificate of incorporation/ Registration Certificate to be provided.		
2	OEM must not be blacklisted or banned by any State/Central Government, Semi-Government or PSU and any other GOVT. organization in India: A declaration as per Annexure – G14 to be given by the authorized signatory of the OEM		
3	The product must be in compliance with UL/EN/BIS certifications. In case the information not available in datasheet/supporting documents provided by the SI/OEM, copy of the UL/EN/BIS certificates to be provided.		
4	Must have received a single order for at least 50 Nos. Online UPS of 2 KVA or more capacity throughout Odisha locations from any Central Govt. / State Govt. / PSU / Bank. : Copy of LoI/work order/MSA along with work completion/PAT/FAT certificate		

Sr. No.	Parameter	Minimum Requirement Description	Compliance
5	OEM Should have its own infrastructure and minimum Service support at within Odisha: Supporting evidence		
6	OEM should have mandate EPR Authorization from Central Pollution Control Board, Govt. of India/Pollution Control Board, State Govt.: A copy of certificate		

20.12. 30 kVA DG Set

Sl No	Description	Minimum Requirement	Compliance (Yes/No)
1	Genset Output (KVA / KW)	30 / 24	
2	Engine rating or Max. Power at rated RPM, in KW (BHP)	31.2 (42)	
3	No. of Cylinders / Cylinder arrangement	3 / Inline	
4	Displacement (L)	2.14	
5	Bore & Stroke (mm)	91X110	
6	Compression ratio	17.5	
7	Rated RPM	1500	
8	Governor: Type /Class of Governing	Mechanical/G2	
9	Over speed trip (rpm)	1650	
10	Charging alternator Voltage / Current (DC)	12V / 35Amps	
11	Starter Motor rated voltage (DC)	12	
12	Fuel tank capacity (Ltr)	75	
13	Lubricating Oil system	6.5	
14	Oil Cooler	Water cooled	
15	Cooling system is designed for max ambient temp, Deg. C at rated load	50	
16	Radiator System capacity, including engine, (L)	12.5 Ltr	
17	Generator Display Parameter	Engine Oil pressure, coolant temperature, Fuel level indicator, Battery Voltage, Engine RFP, DG set running Hours, Generator Volts- Phase - Neutral & Phase Phase	
18	Generator Audio Visual Warning	Low Oil Pressure, High Coolant temperature, Low Battery Voltage, Low Fuel Level	

20.13. 24 Core OFC Cable

S No.	Minimum Requirement Description	Compliance (Yes/No)
1.	24 Core Fibers in Loose Tube, configuration with dielectric strength member.	
2.	Fibre Count: 24	
3.	Loose tube count: 1	
4.	Fibre/Tube Identification: Single Tube	
5.	Fibre protection (Tubes): Polybutylene Terephthalate (PBT)	
6.	Armoring: ECCS tape;	
7.	Outer Sheath: UV Stabilized FRLSZH or equivalent	
8.	Strength Member: Steel wire coated with PE/ di-electric type central member/ Glass yarns.	
9.	Water Blocking: Thixotropic Gel (Tube);	

S No.	Minimum Requirement Description	Compliance (Yes/No)
10.	Petroleum Jelly (Interstices)	
11.	Min. Bending Radius (during Installation): 20 D; D-Outer Diameter	
12.	Max. Tensile Strength-Short Term: 1000N	
13.	Max. Crush Resistance-Short Term: 3000N/100 mm or more	
14.	Operating Temperature range: -10°C to +70°C	
15.	OEM must provide declaration on conformity of all the passive components to the following standards: a) TIA/EIA 568-C.3 b) ISO/IEC 11801	
16.	All the products must have RoHS Compliance	
17.	OEM shall have min 5 years of manufacturing experience for the offered products. Relevant document to be submitted with bid	

20.14. Split AC 1.5 Ton

S No.	Minimum Requirement Description	Compliance (Yes/No)
1.	Type: Split units	
2.	Cooling Capacity: minimum 18000 BTU / Hr	
3.	Noise Level: < 50 dB	
4.	Operation: Remote Control	
5.	Power: 230VAC, 50Hz	
6.	Type of Refrigerant: R 32 (CFC free)	
7.	Energy Efficiency: 5 Star	
8.	Inclusive of Cables, Refrigerant pipes, drainpipes, MS Stand or any other item if required to make the same operational.	

21. OSS Software Requirements and Specifications at S-NOC

This section describes software requirements for various functionalities of OCAC SNOC. SNOC shall facilitate centralized supervision, operation & control of the State level network on round the clock basis with main & back-up configuration. It shall be possible to operate, monitor, configure, addition/ deletion and control elements of Communication Network from SNOC. This system shall also assist in the operations and maintenance of the communication resources including detection of circuit failure and system performance, the diagnosis of problems, the implementation of system suggested remedial actions and the allocation or reallocation of communications resources.

21.1. General Solution Quality Requirements

The supplied system of SNOC shall be provided in a single site with High Availability (HA) mode, for single point for failure, consisting of SNOC server software & hardware.

21.1.1. Next Gen ready and Telco grade quality Solution

- To ensure future readiness of the supplied system, the manufacturer of the supplied SNOC system should have appeared in the Quintant for Next-Generation Telecom Operations and Business Support Systems (NG-TOBS) published by Tech Republic
- To ensure the telco grade readiness of the supplied system, the manufacturer of the supplied system should have appeared in the Gartner leaders magic quadrant for Operations Support System at least once in last 5 years

21.1.2. Satisfactory Operation of a Telco grade quality Solution

- Manufacturer of the supplied systems Should have atleast 2 customer reference of managing IP MPLS and GPON technologies for atleast 20,000 nodes with minimum 2 OEMs under each technology and the solution shall have in satisfactory operation atleast for 3 years anytime during the window of last five (5) years at the date of bid invitation.
  Bidder should provide customer certificate or supply of records or any ongoing contract or self certificate.
- The proposed OSS solution vendor should have supplied and implemented at least one service provisioning solution for the provisioning of triple play (Data, Voice Video) service. The OEM should provide a customer certificate or supply of records or any ongoing contract or self certificate on successful implementation and operation of such solution anytime during the window of last five (5) years as on the originally scheduled date of bid invitation
- There should be at least one reference of supply of E2E single integrated solution with below functionalities for at least 1000 IPMPLS nodes with at least 3 IP-MPLS multi-vendor setup in a telco environment.
  - Service Provisioning
  - Fault Management
  - Fault Correlation (RCA - Root Cause Analysis)
  - Performance Management
  - Customer Portal

Manufacturer should provide customer certificate or supply of records or any ongoing contract or self certificate.

21.1.3. Manufacturer's Experience

The Manufacturer of the offered NOC System shall have at least seven years (7) years' experience in manufacturing/developing the quoted NOC OSS System at the date of bid invitation and should have delivered similar solution and functionalities for a telco grade network with minimum 50,000 Telecom Network Elements. To fulfil the requirement of this clause Bidder shall submit Client/user certificates from Telecom Service Providers or supply of records or any ongoing contract or self certificate from the manufacturer.

21.1.4. Supply Record. Implementation and Integration Experience

- The NOC System manufactured by Bidder/manufacturer shall have been supplied to at least three (3) Telecom Service Providers in three (3) different countries with at least one reference of all proposed functionalities deployed as single integrated solution. To fulfil the requirement of this clause Bidder shall submit supply record / Certificates.
- The vendor should have experience in deploying solution for provisioning of voice, video, and data services.
- The SNOC design concept, functional and informational architecture and physical architecture shall comply with ITU-T Recommendation M.3010.

21.1.5. Turnover

- The manufacturer shall have minimum cumulative sales turnover of and above USD 30 million for NOC System every year within last three (3) consecutive years (any three consecutive years from 2018, 2019, 2020, 2021 and 2022) which shall be supported by audited Financial Statement or Annual Reports.

21.2. Architecture and data-center requirements

I. Proposed solution should support the following design principles:
   - Readiness for Cloud and microservices based architecture
   - Open APIs to extend and customize applications

II. Proposed solution should be modular, scalable and have an extensible architecture for scaling-out/in and scaling-up/down.

III. Proposed solution shall support distributed and centralized deployment models.

IV. Proposed solution/product should offer following capabilities:
   - Scalability & elasticity
   - High Availability

V. Proposed solution shall have automated self-healing capabilities, to self- recover/fix basic critical issues, and notify such events to the system administrator.

VI. The proposed solution shall have High Availability (HA) at main DC to maintain uninterrupted service in the event of single point of failure of software or hardware failure.

VII. The infrastructure offered for proposed solution shall be completely virtualized and it shall be possible to scale it vertically and horizontally for future requirements. Supply, installation & commissioning of Software for virtualization shall be in the scope of bidder.

VIII. Solution should offer 100% Web GUI for users

IX. **HA Built-in within Application :** For alarm collection layer the HA should be built in within the application.

21.3. Software requirements for S-NOC

The SOC system shall have capability of integration with multiple wired/wireless technologies like IP MPLS, GPON etc. from multiple vendors. However, during implementation of SNOC, transmission system technology, termination/cross-connect/Access system configured in the network shall be considered for integration in the proposed SNOC. SNOC shall ensure seamless operation & management of Communication network

21.3.1. Network Inventory & Topology

- The inventory module should collect and distribute the collected inventory information to both assurance as well as fulfilment modules
- System shall integrate with NMS to capture network inventory. Further, it shall have facility to integrate with more than one of the following applicable sources and capture the inventory from a combination of sources
    a) Integration with EMS of IPMPLS
    b) Importing from Excel/CSV files from EMS
- The system shall provide inventory management process automation capabilities and offer full visibility of all communication assets across the Regional/Statility network
- EMS should share the physical attributes info like node name, node id, Serial number and ports etc.
- It should provide different reports based on the collected data and export the data in mutually agreed formats such as .exe /.pdf/.html etc.
- The system shall collect from EMS the source and destination ports.
- System shall be able to accommodate data for network growth based on network elements, new device types etc. in the proposed system.
- The system shall be scalable vertically and horizontally based on growth in the network
- The system shall have the capability to integrate with Assurance and Fulfillment Systems to provide enriched Inventory.

21.3.2. Service Order Management

- The Service Order Management module should support the Order-to-Service (O2S) process that includes all activities to manage customer services across entire lifecycles. Including initial provisioning, activation of a service and in-flight changes during activation and post-activation modifications as well.
- The product should support standard interfaces including YANG / Restconf, OpenAPI / Swagger, CLI, Netconf, SOAP, etc.
- The product should support Telco Grade Deployment State Model that is based on MTOSI TMF518_SA_2
- The Service Order Management tool should comply with TMF641 order management API
- The Service Order Management module should support the Idea-to-Implementation (I2I) process that includes the activity to conceive, validate, design, model, implement, and maintain a service catalog and an inventory of new services as well as manage/propagate the changes of existing ones.
- The Service Order Management module should support the declarative language that allows to model complex order and task management, service decomposition, provisioning and activation processes describing them declaratively.

- The Service Order Management module should receive the order requests, typically from a COM system and it should orchestrate the physical and virtual resources provisioning using the Service definition designed with declarative language
- The Service Order Management tool should have Microservices-based platform architecture and should support container deployment using Docker, Kubernetes, and Helm Charts
- The Service Order Management tool should enqueuing and priority management to safeguard activation systems from request storms
- The Service Order Management tool should support integrated full lifecycle management for orders, tasks, services
- The Service Order Management tool should support easy modeling of manual and automated long running tasks and support for in-flight modification/cancelation
- The Service Order Management tool should provide intent-based modeling of services, its components, relationships, policies for dynamic provisioning of services taking the current network environment into account
- The tool should support one common catalog model allowing unified operations across provisioning and should support both simple and composite or nested service instantiation
- The tool should support transactional models based on Multi-Technology Operations Systems Interface [MTOSI] helping retries, rollbacks
- The product should support in-flight order changes supported by TMF641 compliant API gateway that covers
  a) Canceling the whole Order, and potentially rolling back everything already provisioned.
  b) Adding some Order Items.
  c) Modifying existing CFSs (which are either already Active or not).
  d) Deleting an Order or Order Items that were usually created by the initial Order, but not necessarily.

- The application should provide a user-friendly web application, that allows end user to manage the full E2E of order management. The SOM User Interface should provide specialized views for each user role for creation, management or monitoring of the following objects:
  (Customer Management)
  a. Orders
  b. Tasks
  c. Tenants
  d. Accounts
  e. Sites
  f. Products
  g. Services
  h. Resources
  i. Activity reports

- The application should provide out of the box action buttons which allow the user to do several actions over the orders to be managed:
  a. Open the details of an individual
  b. Trigger Task Management pop up
  c. Manage responsible PM and group
  d. View Related Notes
  e. Add Notes
  f. View related documents to the order
  g. Attach document to the order
  h. Go to order tree view for a selected order

i. Check order timeline
j. Go to Task list of selected orders
k. Import from CSV
l. Export to CSV orders information
m. Bulk reprocess of selected orders
n. In-flight Cancellation
o. Launch Create Order Wizard

- The application should offer a detailed view of the order components for easy navigation of information like:
  a. Tasks and SLA status
  b. Related services / order items
  c. Service Details

- The task management function should allow following
  a. Track task expected timeline execution
  b. Configuration of relevant thresholds
  c. Management of business calendar
  d. Management of task lifecycle (suspended tasks)
  e. UI enhancement for clear identification of delayed tasks
  f. Event trigger to activate escalation processes
  g. Alarm generation toward external systems
  h. Dashboard reporting of delayed task (current sprint)
  i. Re-prioritization of automatic task execution (future)
  j. Extension to delayed orders (future)

- The product should provide a full-fledged Service Model Definition with following capabilities:
  a. Incremental multi-level graph modeling apart from the basic features like monolithic trees, graph templates.
  b. Full multiple inheritance feature should be available that will help compose new Service from different existing in one Descriptor
  c. Support for loose coupling between compound services and the service components
  d. Catalog versioning allowing automation of upgrades at runtime

- The solution should support dynamic service graph creation based on dependency calculation and should support automated Modification of existing services .
- The tool should support an automatic upgrade of an instance of a service to the newer version of the service
- The tool should provide a library of workflow and actions that can be used to compose new workflows to execute activation tasks
- The tool should provide set of predefined rule to manage different enforcement at runtime for actions like
  a. Order Validation
  b. Project Manager Assignment
  c. Manual Task Group Assignment
  d. Error Handling Recovery Policy

- The tool should support Jeopardy management functionality to estimate execution deadlines for Services and Process steps and timely trigger the executions.

- The jeopardy management function of the tool should support following:
  e. External waits
  f. Manual tasks
  g. Errors, causing the Service to wait for Error Recovery

21.3.3. Service Provisioning and Activation

- The Solution shall provide a service modeling environment supporting a well-defined and clear methodology for creating and managing service models within the proposed solution.
- Proposed service provisioning system should possess intent based service modeling with dynamic service descriptors to enable fully catalogue driven approach.
- Service Provisioning system shall interact with NMS for the provisioning.
- Service Provisioning solution should support Multi-Technology Operations System Interface (MTOSI) standard.
- The time taken for E2E configuration & provisioning from command to execution including data pulling from multiple NMS and final execution by SNOC shall be as per Industry standard.
- The provisioning system shall interface with the inventory management system and update service and network inventory.
- The system shall ensure that the requested service is provisioned on the required network elements/NMS.
- The provisioning system must be capable of provisioning a working path and protection path.
- The bandwidth provisioning system shall automate the end-to-end provisioning for a given source and destination for the entire Communication network hierarchy.
- The bandwidth provisioning system shall have the capability to perform pre-activation validation
- A batch interface shall also be supported for service provisioning requests.
- The proposed system needs to interface with NMS/network elements belonging to different OEMs, supporting different interfaces in the future also.
- There shall be a front end to monitor the status of the requests and any errors in processing.
- The provisioning system shall support rollback in case the activation fails.
- The system shall be able to support establishment of user groups, and permissions to restrict certain users to specific provisioning activities.
- The system shall send provisioning transactions to the NMS/EMS/NE in the real time
- The system shall facilitate feasibility study for providing a circuit of a particular capacity between two end points and block the network resources for a configurable time period
- The system shall be able to flow-through provisioning and activate network devices & services in a multi-vendor EMS/NMS/Device landscape to support “flow through service activation”.
- On successful provisioning, the system shall update the service inventory.
- The system shall support concurrent provisioning to various NMS/EMS.
- The system shall provide capability to a user to be able to reject the best path computed/proposed by tool and to select/view from alternative options.
- The system shall provide GUI to view the designed end-to-end circuit/service before activation in network.
- The system shall support all type of planned network changes.
- The system shall provide the list of circuits/links/services, which are pending for provisioning.
- The system shall support upgrading/downgrading the existing circuit.
- The system shall support creation/deletion/modification of NE level constraints during activation.
- The system shall highlight dropping and/or capacity constraints if path computation failed.
- The system shall consider the card capacity rules during provisioning.
- The system shall support creation/deletion/modification of card capacity rules.

- The system shall support bulk provisioning of more than one circuit.
- The system shall provide capability to do ring/link optimization by checking free ports in same node/card and suggest possible optimization & take action accordingly.

21.3.4. Reports

- Reporting system should be capable of producing following reports in mutually agreed formats such as Excel/Word/XML/Pdf etc.:
  a. Network Reports: Yearly, Quarterly, Monthly, Weekly, daily (Vendor wise, Node wise, Section wise, Link wise, Service wise, Ring wise, Region wise, Technology wise and for complete network).
  b. Adequate security of the extensions (as mentioned above) through internet shall be ensured.
  c. The reports should be extractable in CSV, Excel & PDF form or any other mutually agreed format.
  d. Reports shall be made available in the desired format on the website designed for proposed SNOC

21.3.5. Fault Management

The solution shall cover integration of IP-MPLS EMS with existing OCAC BBNL NOC. The solution coverage should include extension of all feature/functionalities of existing OCAC BBNL NOC to IP-MPLS domain as well. Below features of existing OCAC BBNL NOC should be extended for new IP-MPLS domain.

- The solution shall support type of NBI (CORBA, SNMP, TL1, JMS, ASCII, MOTSI, OSI (Q3/CMIP) etc) used to receive alarms for each NE type, EMS and NMS
- The solution shall support both real-time streaming and batch collection.
- The System shall be able to recognize duplicate alarms by comparing incoming alarms to those already in the current problem list for the reporting object, based on one or more alarm attributes (for example, object name and notification identifier), and automatically suppress such alarms.
- The function shall allow resynchronization of the System alarm status to the current status of the managed equipment.
- The system shall generate alarm for any synchronization issue. It should also report for services affected due to synchronization in network.
- There is a requirement to log alarms at the alarm-handling level. The alarms saved shall be used for statistical analysis of alarm handling behavior, but they may also be used for SLA dispute resolution and may be kept for 7 years.
- The function shall handle ISO-formatted alarms (notification events defined in the ITU X.733 & X.736 Standards): Communications Alarm, Quality of Service Alarm, Processing Error Alarm, Equipment Alarms and Environment Alarm.
- The function shall handle both notification type events (notification events defined in the ITU X.733 & X.736 Standards) and configuration type events (configuration events defined in the ITU X.730, X731 & X.732 Standards) raised by equipment or applications.
- The solution will provide standard-Based Alarm Categorization and display: The system shall adhere to the ITU-T X.733 format specifications and support common presentation and fields based on the standard. The bidder shall provide a detail list indicating all fields available for an alarm and shall support at least the following text fields.
  a. Event type.

b. Managed object identifier.
c. Date and time of alarm emission.
d. Perceived severity.
e. Probable cause.
f. Notification identifier or correlated notification identifier.
g. Additional text.
h. Specific problem.
i. Activation Time
j. Modification Time
k. Alert Name
l. Threshold Information
m. User Responsible
n. Acknowledgement Flag
o. Trouble Ticket Number (#)

- The solution shall provide event/alarm filtering at EMS/NMS mediation level to reduce the collected events at source.
- The solution shall have the ability to apply filters to alarm streams to remove alarms that are of no interest. Filtering shall take place after alarms have been logged so no incoming alarms are lost.
- The solution shall have at least three level of filters:
  a. Low Level Filtering to filter out alarms before entering in the Fault Management system
  b. Medium Level Filtering to filter out alarms before storing
  c. High Level Filtering to filter alarms before displaying on GUI to operator

- The solution shall enable the engineer to define several types of Event Filter that can be used to design a filtering system that best suits the requirements.
- The solution shall have facilities to modifies an event before forwarding it to other filters (if they exist) and can also generate an event as the result of a user-defined customization
- The solution shall have on/off, event filter, which either passes or rejects an event.
- The system shall forward a value-added event containing statistical information about how many "similar" events have been received in a given timeframe.
- The solution will provide alarm handling function to handle ISO-formatted alarms (notification events defined in the ITU X.733 & X.736 Standards) raised by EMS applications. The alarms defined in the ITU-T X733: Communications Alarm, Quality of Service Alarm, Processing Error Alarm, Equipment Alarms and Environment Alarm.
- The solution will support the security alarms defined in the ITU-T X736: Integrity Violation, Operational violation, Physical Violation, Security Service or Mechanism Violation, Time Domain Violation.
- The function shall handle both notification type events (notification events defined in the ITU X.733 & X.736 Standards) and configuration type events (configuration events defined in the ITU X.730, X731 & X.732 Standards) raised by equipment or applications.
- The stored alarm records shall be made available to, and managed by, other NOC applications in real-time (for example: User Interface server applications, Expert system, Trouble Ticket…).
- The solution shall provide root cause analysis out of the box & custom definable algorithms such as Modelling Technology, Event Correlation & conditional correlation.
- The current OCAC BBNL NOC solution shall be extended to include event-based correlation and topology-based correlation. For root-cause analysis on Topology based correlation proposed Fault Management system should integrate with inventory management system to understand the topology of inventory.
- When a root-cause is determined, the System shall raise a root-cause alarm, associate the contributory alarms (that is, those alarms that root-cause analysis used to determine the root-cause) with the root-cause alarm and remove the contributory alarms from the operator's view.

- The solution shall enable an operator to see the contributory alarms associated with a root-cause alarm by initiating a mouse action or menu selection against the selected root-cause alarm.
- The solution shall apply all actions that are applied to a root-cause alarm to the associated contributory alarms. For example, if a root-cause alarm is acknowledged, the contributory alarms shall automatically be acknowledged.

21.3.6. Performance Management System (PMS)

- Performance Management Tool shall be agnostic to technologies and vendors.
- The user interface of the solution shall be web-based with multiple concurrent users support.
- PMS Tool shall provide centralized storage of pre-calculated KPIs in case of complex KPIs to improve the user response times.
- The tool shall enable continuous PM data import from the live network at whatever granularity configured in the Network elements.
- The solution shall be able to produce standard and ad-hoc reports as requested for easy data analysis.
- Data Retention: 12 Months online and 48 Months offline for alarms

21.4. Sizing Parameters

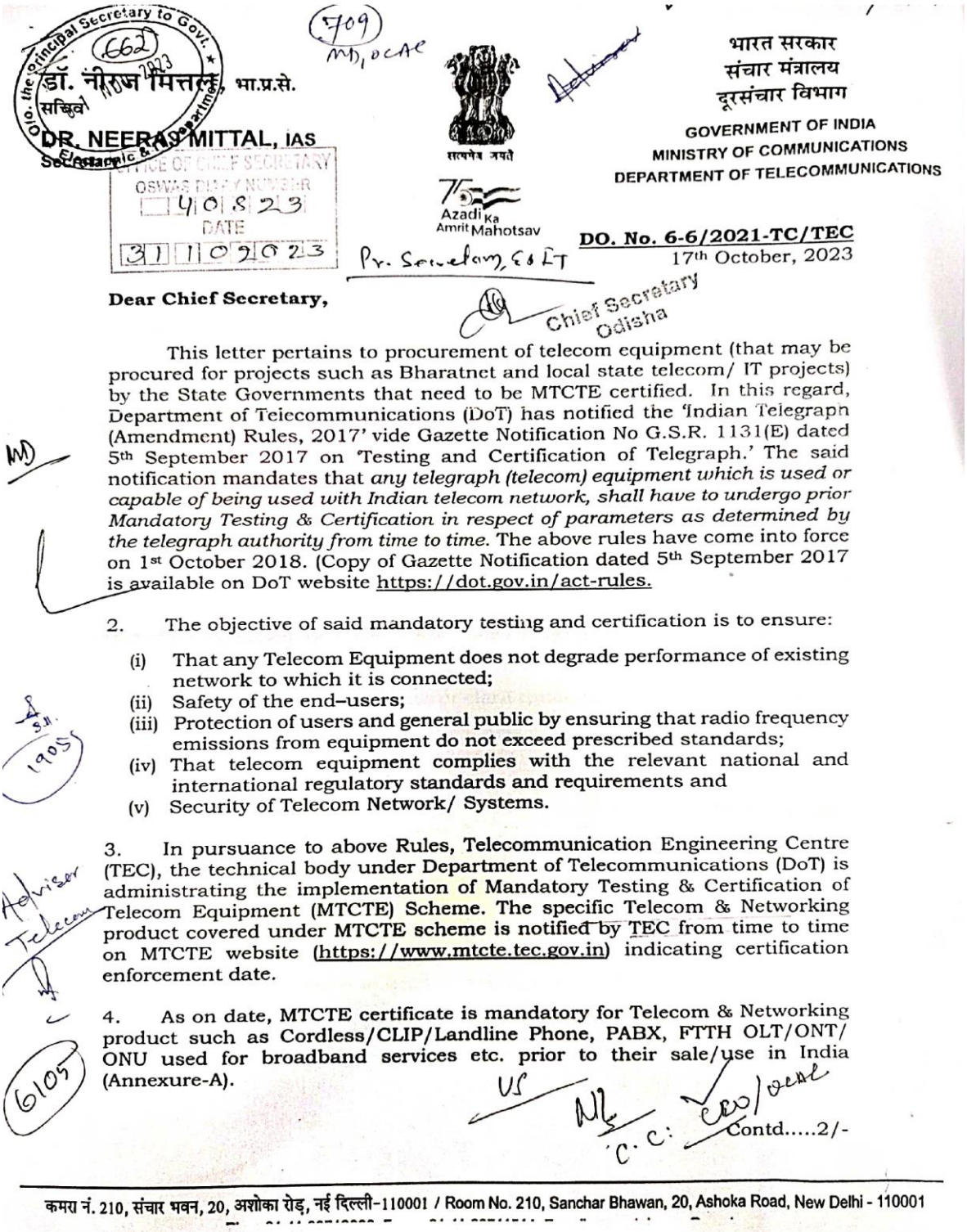
Following active devices and sizing parameters to be considered tentatively for the project:

Sizing Parameter	**Sizing Input (Phase 2 – Addition)**
Types of EMS	GPON – 1 (Tejas) IP-MPLS 1 (TBD)
Total Network elements	3300 (OLT-200, ONT-3000, MPLS-100)
Total number of system Users	30
Concurrent number of users	20

Category	**Parameters**	**Value**
Expansion of existing Service Assurance	Integration of IP-MPLS EMS with existing platform for Fault monitoring	IP-MPLS 1 (TBD)
Service Provisioning	Type. Of EMS (1 Each in IP/MPLS, GPON) for Provisioning	GPON – 1 (Tejas) IP-MPLS 1 (TBD)
	Type of Services to be provisioned - IP-MPLS [Layer2vpn, Layer3vpn, Multi-cast VPN], GPON [Voice, Video, Data], BB	Minimum of 3
	No. of provisioning request/day	200
Performance	No. of Interfaces	260000
	Performance Management data collection	From EMS
	Total KPIs	As defined
	Performance management reports	5-10
Data Retention	Provisioning (GPON & IP-MPLS)	12 Months Online + 48 Months Offline

Category	**Parameters**	**Value**
	Fault (IP-MPLS)	Last 5-10 core alarms Online covering IPMPLS and GPON+ 48 Months Offline
	Performance	12 Months data ~~offline~~ online reports
Custom Reports	No. of custom reports Provisioning and Service Inventory/Provisioning	5-10
	Performance Management (IP-MPLS)	5

Note: Bidders to comply with the DO. No. 6-6/2021-TC/TEC dated 17th October, 2023 as mentioned below –



डॉ. नीरज मित्तल, भा.प्र.से.
सचिव
DR. NEERAJ MITTAL, IAS
Secretary

भारत सरकार
संचार मंत्रालय
दूरसंचार विभाग
GOVERNMENT OF INDIA
MINISTRY OF COMMUNICATIONS
DEPARTMENT OF TELECOMMUNICATIONS

सत्यमेव जयते

Azadi Ka Amrit Mahotsav

DO. No. 6-6/2021-TC/TEC
17th October, 2023

Dear Chief Secretary,

This letter pertains to procurement of telecom equipment (that may be procured for projects such as Bharatnet and local state telecom/ IT projects) by the State Governments that need to be MTCTE certified. In this regard, Department of Telecommunications (DoT) has notified the 'Indian Telegraph (Amendment) Rules, 2017' vide Gazette Notification No G.S.R. 1131(E) dated 5th September 2017 on 'Testing and Certification of Telegraph.' The said notification mandates that *any telegraph (telecom) equipment which is used or capable of being used with Indian telecom network, shall have to undergo prior Mandatory Testing & Certification in respect of parameters as determined by the telegraph authority from time to time.* The above rules have come into force on 1st October 2018. (Copy of Gazette Notification dated 5th September 2017 is available on DoT website https://dot.gov.in/act-rules.

2. The objective of said mandatory testing and certification is to ensure:

(i) That any Telecom Equipment does not degrade performance of existing network to which it is connected;
(ii) Safety of the end–users;
(iii) Protection of users and general public by ensuring that radio frequency emissions from equipment do not exceed prescribed standards;
(iv) That telecom equipment complies with the relevant national and international regulatory standards and requirements and
(v) Security of Telecom Network/ Systems.

3. In pursuance to above Rules, Telecommunication Engineering Centre (TEC), the technical body under Department of Telecommunications (DoT) is administrating the implementation of Mandatory Testing & Certification of Telecom Equipment (MTCTE) Scheme. The specific Telecom & Networking product covered under MTCTE scheme is notified by TEC from time to time on MTCTE website (https://www.mtcte.tec.gov.in) indicating certification enforcement date.

4. As on date, MTCTE certificate is mandatory for Telecom & Networking product such as Cordless/CLIP/Landline Phone, PABX, FTTH OLT/ONT/ ONU used for broadband services etc. prior to their sale/use in India (Annexure-A).

Contd.....2/-

कमरा नं. 210, संचार भवन, 20, अशोका रोड़, नई दिल्ली-110001 / Room No. 210, Sanchar Bhawan, 20, Ashoka Road, New Delhi - 110001

Further, from 1st January 2024, MTCTE certificate for more products (such as Router, LAN Switch, wifi Access Modems, IoT gateway, Tracking Device, Smart electricity meter, End Point Device for Environmental Monitoring, Optical Fibre, Optical Fibre Cable, Walkie-talkie etc.) will become mandatory as being connected to Telecom network/used for data transfer. The complete list of such notified Telecom product is available on MTCTE website.

Presently, the MTCTE certificate has been issued to more than 3,000 Telecom & Networking product models. The details of MTCTE certified products are available on website (https://www.mtcte.tec.gov.in > certified equipment).

5. In view of the above, it is requested to kindly inform about Mandatory Testing & Certification of notified Telecom equipment to IT Department and other concerned departments/Autonomous bodies/attached offices etc., so as to ensure that only MTCTE certified Telecom & Networking products are procured and connected in the Indian Telecom Network as mandated by Indian Telegraph (Amendment) Rules, 2017. Further, the regulatory requirement of obtaining MTCTE certification by OEMs/Importers before sale of notified Telecom & Networking products may also be communicated to Manufacturers/Sellers, who are supplying/selling such Telecom & Networking products.

6. In case of any further details or clarification in this regard, Director (TC-1), TEC, New Delhi may be contacted on e-mail id: dirta.tec@gov.in.

Yours sincerely

Encl: as above

(Neeraj Mittal)

All the Chief Secretaries of State Governments/ UTs

Annexure-A

List of Notified Telecom & Networking Products under Mandatory Testing & Certification of Telecom Equipment (MTCTE)

S.N	Essential Requirement/ Product Name	Main Product Variants	MTCTE Phase	Mandatory date of certification of product underMTCTE
1.	2- Wire Telephone Equipment	2-Line Feature Phone; CLIP (Calling Line Identification Presentation) Phone; Electronic Telephone Instrument; Executive Telephone Systems; Key Telephone Systems; Key Telephone Systems with proprietary interface;	Phase-1	1st October, 2019
2.	G3 Fax Machine	FAX machine with & without handset	Phase-1	1st October, 2019
3.	Modem	V.90 or V.92 or V.21 to V.34 Modem	Phase-1	1st October, 2019
4.	Cordless Telephone	Cordless Telephone	Phase-1	1st October, 2019
5.	ISDN (Integrated Services Digital Network) Customer Premises Equipment	ISDN Gateway; ISDN Terminal;	Phase-1	1st October, 2019
6.	Private Automatic Branch Exchange	Private Automatic Branch Exchange	Phase-1	1st October, 2019
7.	PON (Passive Optical Network) Family of Broadband Equipment	PON OLT (Optical Line Terminal); PON ONT (Optical Network Terminal); PON ONU (Optical Network Unit);	Phase-2	1st October, 2020
8.	Feedback Device	Feedback Device	Phase-2	1st October, 2020
9.	Transmission Terminal Equipment	Multiplexing Equipment; SDH (Synchronous Digital Hierarchy) Equipment	Phase-2	1st October, 2020

Note 1: The complete list/details of MTCTE notified products with enforcement date are available on website https://www.mtcte.tec.gov.in

Note 2: The details of MTCTE certified products (make & model) are available on website (https://www.mtcte.tec.gov.in > certified equipment)

22. General Terms and Conditions of Contract

22.1. Confidentiality

i. The Bidder shall keep confidential any information related to this tender with the same degree of care as it would treat its own confidential information. The Bidders shall note that the confidential information will be used only for this tender and shall not be disclosed to any third party for any reason whatsoever.

ii. At all times during the performance of the Services, the Bidder shall abide by all applicable security rules, policies, standards, guidelines, and procedures. The Bidder should note that before any of its employees or assignees is given access to the Confidential Information, such employee and assignees shall agree to be bound by the term of these tender and such rules, policies, standards, guidelines, and procedures by its employees or agents.

iii. The Bidder should not disclose to any other party and keep confidential the terms and conditions of this Contract Agreement, any amendment hereof, and any Attachment or Annexure hereof.

iv. The obligations of confidentiality under this section shall survive till the rejection of the contract.

22.2. Publicity

Any publicity by the bidder in which the name of this Project is to be used should be done only with explicit written permission from the OCAC and OPTCL.

22.3. Liquidated Damage

Subject to clause for Force Majeure if the Bidder fails to complete the project before the scheduled completion date or the extended date or if any -

- Vendor repudiates the contract before completion of the work, OCAC at its discretion may without prejudice to any other right or available remedy, may recover 0.5% of the CAPEX of the contract value per week for first 4 weeks and 1% per week for 4 subsequent weeks and 2% per week for subsequent 2 weeks as Liquidity Damages (LD). If the penalty reaches 10% of the total contract value, OCAC may invoke Termination clause. LD will be addition to the any other penalty applicable during the contract period.

- In the case it leads to termination, OCAC shall give 30 days' notice to the vendor of its intention to terminate the contract and shall so terminate the contract unless during the 30 days' notice period the vendor initiates remedial action acceptable to the OCAC.

- OCAC may without prejudice to its right to affect recovery by any other method deduct the amount of liquidated damages from any money belonging to the vendor in its hands (which includes the OCAC right to claim such amount against vendor's Performance Bank Guarantee) or which may become due to the vendor. Any such recovery or liquidated damages shall not in any way relieve the vendor from any of its obligations to complete the works or from any other obligations and liabilities under the Contract. .

22.4. Dispute Resolution

i. OCAC and the selected Bidder shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

ii. In the event of any dispute or differences or objection whatsoever arises in any way in connection with or arising out of this instrument of the meaning of or operation by either party,

then save in so far the decision of any such matter including whether its decision has been otherwise provided for and/or whether it has been finally decided accordingly or whether the contract should be terminated or has been rightly terminated in whole or in part and as regards the rights and obligations of the party as the result of such termination, shall be referred for arbitration to the Secretary (IT) to the Government of Odisha who shall be the Arbitrator and his/her decision shall be final and binding on both the parties. Such arbitration proceedings shall be by the Indian Arbitration and Conciliation Act of 1996, the rules thereunder and any statutory modification or re-enactments thereof, shall apply to the arbitration proceedings.

iii. It is an express condition of the agreement that no suit regarding any matter whatsoever arising out of this agreement shall be instituted, in any Court save a court of competent jurisdiction in Bhubaneswar under the territorial jurisdiction of the High Court of Odisha.

iv. The Client may terminate this contract by giving a written notice of termination of a minimum of 60 days to the Executing Agency (EA), if the EA, fails to comply with any decision which has become final and binding after exhaustion of remedies of appeal and objection reached consequent upon arbitration proceedings under Clause 4.19(ii) above.

v. Even though the settlement of dispute(s) (if any) under arbitration may be pending, the parties hereto shall continue to be governed by and perform the work following the provisions under this contract to ensure the continuity of operations.

22.5. Limitation of Liability

I. Neither Party shall be liable to the other Party for any indirect or consequential loss or damage (including loss of revenue and profits) arising out of or relating to the Contract.

II. Notwithstanding anything to the contrary elsewhere contained in this or any other contract between the parties, neither party shall, in any event, be liable for (1) any indirect, special, punitive, exemplary, speculative or consequential damages, including, but not limited to, any loss of use, loss of data, business interruption, and loss of income or profits, irrespective of whether it had an advance notice of the possibility of any such damages; or (2) damages relating to any claim that arose more than one year before institution of adversarial proceedings thereon.

III. Subject to the above and notwithstanding anything to the contrary elsewhere contained herein, the maximum aggregate liability of the EA under this Agreement shall not exceed the contract value of the EA under this Agreement.

22.6. Applicable Law

The contract shall be governed by the laws and procedures established by Govt. of India/ State of Odisha within the framework of applicable legislation and enactment made from time to time concerning such commercial dealings/processing.

22.7. Contract amendment

No variation in or modification of the terms of the Contract shall be made except by a written amendment signed by both parties.

22.8. Exit Management

1. Purpose

a) This clause sets out the provisions that will apply on expiry or termination of the contract.

b) In the case of termination of contract due to illegality, OCAC will decide at that time whether, and if so during what period, the provisions of this clause shall apply.
c) The Parties shall ensure that their respective associated entities, authorized representatives of or its nominated agencies, and the successful bidder, carry out their respective obligations set out in this Exit Management Clause.

2. Cooperation and Provision of Information

During the exit management period:

d) The bidder will allow OCAC/OPTCL or its nominated agencies access to the information reasonably required to define the then-current mode of operation associated with the provision of the services to enable it to assess the existing services being delivered;
e) Promptly on reasonable request by the OCAC/OPTCL or its nominated agencies, the bidder shall provide access to and copies of all information held or controlled by it, which have been prepared or maintained following the contract. OCAC or its nominated agencies shall be entitled to copy all such information. Such information shall include details about the services rendered and other performance data. The vendor shall permit the OCAC/OPTCL or its nominated agencies and/or any Replacement vendor to have reasonable access to its employees and facilities as reasonably required to understand the methods of delivery of the services employed by the vendor and to assist appropriate knowledge transfer.

3. Confidential Information, Security, and Data

i. The vendor will promptly on the commencement of the exit management period supply to the OCAC/OPTCL or its nominated agencies the following:
   a) Information relating to the current services rendered and customer satisfaction surveys and performance data relating to the performance of the services; and
   b) Documentation relating to Intellectual Property Rights; and
   c) OCAC data and confidential information; and
   d) All current and updated departmental data as is reasonably required for purposes of the OCAC or its nominated agencies transitioning the services to its replacement vendor in a readily available format; and
   e) All other information (including but not limited to documents, records, and agreements) relating to the services reasonably necessary to enable OCAC or its nominated agencies, or its Replacement vendor to carry out due diligence to transition the provision of the Services to the OCAC or its nominated agencies, or its Replacement Operator (as the case may be).

ii. Before the expiry of the exit management period, the Vendor shall deliver to the OCAC or its nominated agencies all new or updated materials from the categories set out in point (1) above, and shall not retain any copies thereof, except that the Vendor shall be permitted to retain one copy of such materials for archival purposes only.

iii. Before the expiry of the exit management period, unless otherwise provided under the contract, OCAC or its nominated agencies shall deliver to the Vendor all forms of Vendor confidential information which is in the possession or control of OCAC or its nominated agencies or its users

4. Right of Access to Premises

i. At any time during the exit management period, where Assets are located at the EA premises about this project, the EA will be obliged to give reasonable rights of access to (or, in the case of Assets located on a third party's premises, procure reasonable rights of access to) OCAC or its nominated agencies.

ii. The EA shall also give OCAC or its nominated agencies, the right of reasonable access to the EA's premises and shall procure the OCAC or its nominated agencies, rights of access to relevant third-party premises during the exit management period and for such period following termination or expiry of the contract as is reasonably necessary to migrate the services to OCAC or its nominated agencies.

5. General Obligations of the Executing Agency (EA).

i. The EA shall provide all such information as may reasonably be necessary to effect as seamless handover as practicable in the circumstances to OCAC or its nominated agencies or its replacement Vendor and which the EA has in its possession or control at any time during the exit management period.
ii. For this Clause, anything in the possession or control of any Vendor or associated entity is deemed to be in the possession or control of the EA.
iii. The EA shall commit adequate resources to comply with its obligations under this Exit Management Clause.

6. Exit Management Plan

i. The EA shall provide OCAC with a recommended exit management plan ("Exit Management Plan") which shall deal with at least the following aspects of exit management concerning the contract as a whole and about the Project Implementation, the Operation and Management SLA and scope of work.
    a) A detailed program of the transfer process that could be used in conjunction with a Replacement Vendor including details of the means to be used to ensure continuing provision of the services throughout the transfer process or until the cessation of the services and of the management structure to be used during the transfer; and
    b) Plans for communication with such of the EA's staff, suppliers, customers, and any related third party as are necessary to avoid any material detrimental impact on OCAC's operations as a result of undertaking the transfer; and
    c) If applicable, proposed arrangements for the segregation of the EA's networks from the networks employed by OCAC or its nominated agencies and identification of specific security tasks necessary at termination; and
    d) Plans for provision of contingent support to the OCAC or its nominated agencies, and Replacement Vendor for a reasonable period after transfer to provide service for replacing the Services.
ii. The EA shall re-draft the Exit Management Plan regularly as decided mutually thereafter to ensure that it is kept relevant and up to date.
iii. Each Exit Management Plan shall be presented by the EA to and approved by OCAC or its nominated agencies.
iv. In the event of termination or expiry of the contract, each Party shall comply with the Exit Management Plan.
v. During the exit management period, the EA shall use its best efforts to deliver the services.
vi. Payments during the Exit Management period shall be made following the Terms of Payment Clause.
vii. This Exit Management plan shall be furnished in writing to the OCAC or its nominated agencies by the Executing Agency before 6 months of the completion of the project. In case of prior termination by either party, termination clause shall be followed and during the termination notice, exit management plan shall be submitted by the SI.

22.9. Acceptance Test

OCAC/OPTCL will conduct the Acceptance Test and will issue the Certificate of Completion. During the Acceptance test OCAC will verify the services as mentioned in the RFP, the selected EA will provide full support including a testing facility during the validity of Contract.

22.10. Termination of Contract

A. Termination for default

OCAC, without prejudice to any other remedy for breach of Contract or non-compliance with service levels, by written notice of default sent to the Bidder, may terminate the Contract fully or in part:

- If the selected Bidder fails to deliver any or all Contracted services as per service standards specified in the Contract or
- If the selected Bidder fails to perform any other obligation(s) under the Contract as per the contract timeline and for the period of the contract, or
- If the Bidder/ selected Bidder has engaged in corrupt or fraudulent practices in competing for or in executing the Contract

In the event OCAC terminates the Contract in whole or in part, it may procure, upon such terms and in such manner, as it deems appropriate, services similar to those undelivered, and the selected Bidder shall be liable to OCAC for any excess costs for such similar services. However, the Bidder may continue the performance of the Contract to the extent not terminated. OCAC would not be liable to pay any damages to the selected Bidder in cases comprising Termination for default.

B. Termination for insolvency

OCAC may at any time terminate the Contract by giving written notice to the selected Bidder if the selected Bidder becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the selected Bidder, provided that such termination will not prejudice or affect any right of action or remedy, which has accrued or will accrue thereafter to the OCAC.

C. Termination for Convenience

OCAC, by written notice sent to the successful bidder, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for its convenience. In case of termination for convenience, OCAC would pay the bidder cost of services provided till the date of the termination. The PBG in such a case would be refunded to the successful bidder.

22.11. Notices

- Any notice or other document, which may be given by either Party under this SLA, shall be given in writing and signed by the duly authorized representatives of the Parties. The notice or document may be given either in person or by pre-paid recorded delivery post or by e-mail. A notice shall be effective from the date when delivered, tendered, or affixed on the notice board whichever is earlier.
- To a notice given under this Agreement, any such notice or other documents shall be addressed to the other Party's principal or registered office address.
- Immediately upon the signing of the Agreement, EA will appoint its duly authorized representative/ project manager who will be taking/ sending notices on behalf of EA and will be responsible for deliverables and communication with OCAC. EA will confirm in writing the name of the nodal person/project manager to OCAC along with his/ her official email address. Similarly, OCAC will appoint a nodal officer and inform EA.

22.12. Interpretation of Clauses

In case of any ambiguity in the interpretation of any of the clauses in the bid document, OCAC's interpretation of the clauses shall be final and binding on all parties.

22.13. Third-Party Claims

- The Bidder (the "Indemnifying Party") within its scope of work undertakes to indemnify the OCAC claims or damages including losses, claims or damages on account of bodily injury, death or damage to tangible property.
- The Bidder shall indemnify OCAC against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof in reference to this project in India.

22.14. Force Majeure

a) Force Majeure shall not include any events caused due to acts/omissions of such Party or result from a breach/contravention of any of the terms of the Contract, Bid and/or the Tender. It shall also not include any default on the part of a Party due to its negligence or failure to implement the stipulated/proposed precautions, as were required to be taken under the Contract

b) The failure or occurrence of a delay in performance of any of the obligations of either party shall constitute a Force Majeure event only where such failure or delay could not have reasonably been foreseen, or where despite the presence of adequate and stipulated safeguards the failure to perform obligations has occurred. In such an event, the affected party shall inform the other party in writing within five days of the occurrence of such event. OCAC will make the payments due for Services rendered till the occurrence of Force Majeure. However, any failure or lapse on the part of the EA in performing any obligation as is necessary and proper, to negate the damage due to projected force majeure events or to mitigate the damage that may be caused due to the above-mentioned events or the failure to provide adequate disaster management/recovery or any failure in setting up a contingency mechanism would not constitute force majeure, as set out above

c) In case of a Force Majeure, all Parties will endeavor to agree on an alternate mode of performance in order to ensure the continuity of service and implementation of the obligations of a party under the Contract and to minimize any adverse consequences of Force Majeure

22.15. Representation & Warranties by Bidder

a) There is no pending or threatened actions, suits or proceedings affecting the Bidder or its affiliates or any of their respective assets before a court, governmental agency, commission or arbitrator or administrative tribunal which affects the Bidder's ability to perform its obligations under the Agreement; and neither Bidder nor any of its affiliates have immunity from the jurisdiction of a court or from legal process (whether through service of notice, attachment prior to judgment, attachment in aid of execution or otherwise);

b) The Bidder confirms that all representations and warranties of the Bidder outlined in the bid are true, complete and correct in all respects;

c) No information given by the Bidder about the Agreement, project documents or any document comprising security contains any material misstatement of fact or omits to state as fact which would be materially adverse to the enforcement of the rights and remedies of OCAC or which would be necessary to make any statement, representation or warranty contained herein or therein true and correct;

23. Annexures

23.1. Annexure: G-1 - Particulars of Bidder

Details of the Bidder		
1	Name of the Bidder	
2	Address of the Bidder	
3	Status of the Company (Public Ltd/ Pvt. Ltd)	
4	Details of Incorporation/Registration Certificate of the Company	
5	Details of Commencement of Business	
6	Permanent Account Number (PAN)	
7	GST registration No.	
8	Name & Designation of the contact person to whom all references shall be made regarding this tender	
9	Telephone No. (with STD Code)	
10	Fax No. (with STD Code)	
11	E-Mail of the contact person	
12	Website	
13	Company's Revenue for last 3 years (Year wise)	
14	Company's Profitability for the last 3 years (Year wise)	

<Submit the relevant proofs for all the details mentioned above along with Bid response>

Contact Details of officials for future correspondence regarding the bid process:

Contact Details of officials for future correspondence regarding the bid process: Details	**Authorized Signatory**	**Secondary Contact**
Name		
Title		
Company Address		
Phone/mobile		
FAX		
Email		

23.2. Annexure: G-2 - Self declaration of not be under Ineligibility for corrupt and fraudulent practice

(To be submitted on the letterhead of the Bidder)

To
The General Manager (Admin)
Odisha Computer Application Centre
(Technical Directorate of E&IT Dept, Govt. of Odisha)
N-1/7-D, Acharya Vihar P.O. - RRL, Bhubaneswar - 751013

Ref: RFP No <……>

Sub: RFP for "Establishment of an IP-MPLS Network Connectivity in Odisha under OdishaNet Phase 1.0"

Dear Sir/Madam,
We have examined the RFP document, we, the undersigned, herewith submit our RFP in response to your RFP no. _____ dated _____ for "Establishment of an IP-MPLS Network Connectivity in Odisha under OdishaNet Phase 1.0" in full conformity with the said RFP document.

I. We have read the provisions of the RFP document and confirm that these are acceptable to us. We further declare that additional conditions, variations, deviations, if any, found in our RFP shall not be given effect to.
II. We agree to abide by this RFP, consisting of this letter, the detailed response to the RFP and all attachments, for a period of 180 days from the date of submission of the bid.
III. We would like to declare that we are not involved in any major litigation that may have an impact of affecting or compromising the delivery of services as required under this assignment and we are not under a declaration of ineligibility for corrupt or fraudulent practices.
IV. We would like to declare that there is no conflict of interest in the services that we will be providing under the terms and conditions of this RFP.
V. We hereby declare that all the information and statements made in this proposal are true and accept that any misrepresentation contained in it may lead to our disqualification.
VI. We understand you are not bound to shortlist / accept any RFP you receive.

Sincerely,
Signature of Authorized Signatory and Seal of the Bidder
Name:
Designation:
Date:

23.3. Annexure: G-3 - Authorization Letter

(On Stamp Paper of relevant value)

Tender Ref. *Date:*

To
The General Manager (Admin)
Odisha Computer Application Centre
(Technical Directorate of E&IT Dept, Govt. of Odisha)
N-1/7-D, Acharya Vihar P.O. - RRL, Bhubaneswar - 751013

Ref: RFP Notification no <xxxx> dated <dd/mm/yy>

Subject: Authorization Letter/Power of Attorney in response to the RFP for Selection of Executive Agency for Establishment of an IP-MPLS Network Connectivity in Odisha under OdishaNet Phase 1.0

Dear Sir,

Know all men by these presents, we (name of the company and address of the registered office) do hereby appoint and authorize Mr. / Ms. (full name and residential address) who is presently employed with us and holding the position of as our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our bid document for 'Establishment of an IP-MPLS Network Connectivity in Odisha under OdishaNet Phase 1.0', in response to the tenders invited by Odisha Computer Application center (referred to as OCAC), including signing and submission of all documents and providing information / responses to OCAC in all matters in connection with our bid.

We hereby agree to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall and shall always be deemed to have been done by us.

Dated this _____ day of _____ 2023

For _____

(Signature)

(Name, Designation and Address) Accepted

(Signature) (Name, Title and Address of the Attorney)

Date:

Note:

The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executants and when it is so required the same should be under common seal affixed in accordance with the required procedure. Also, wherever required, the Bidder should submit for verification the extract of the charter documents and documents such as a resolution /power of attorney in favour of the person executing this Power of Attorney for the delegation of power hereunder on behalf of the Bidder. In case the bid is signed by an authorized Director / Partner or Proprietor of the Bidder, a certified copy of the appropriate resolution / document conveying such authority may be enclosed in lieu of the Power of Attorney.

23.4. Annexure: G-4 - Acceptance of Terms & Conditions Contained In the RFP Document

(To be submitted on the Letterhead of Bidder)

To
The General Manager (Admin),
Odisha Computer Application Centre,
N-1/7-D, Acharya Vihar P.O. RRL,
Bhubaneswar - 751013.

Ref: RFP <<No>>

Sub: Sub: Submission of RFP for "Establishment of an IP-MPLS Network Connectivity in Odisha under OdishaNet Phase 1.0"

Madam/Sir,
I have carefully and thoroughly gone through the Terms & Conditions along with scope of work contained in the <> regarding RFP for "RFP for Establishment of an IP-MPLS Network Connectivity in Odisha under OdishaNet Phase 1.0" <<RFP Enqry. No.>>".

I <<Name Of The Bidder>> declare that all the provisions/clauses including scope of work of this RFP are acceptable to our company. I further certify that I am an authorized signatory of the company and I am, therefore, competent to make this declaration.

Yours faithfully,

Sincerely,
Signature of Authorized Signatory and Seal of the Bidder
Name:
Designation:
Date:

23.5. Annexure: G-5 - Format for List of Previous Work Orders Executed

#	Name of Previous Work Orders Executed	Start Date	End Date	Project Value	No. of Nodes	Total OFC Laid Under the project (in KM)
1						
2						
3						
4						
5						
6						

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23.6. Annexure: G-6 - Price Bid Letter

To
The General Manager (Admin)
Odisha Computer Application Centre
(Technical Directorate of E&IT Dept, Govt. of Odisha)
N-1/7-D, Acharya Vihar P.O. - RRL, Bhubaneswar - 751013

Ref: RFP No <……>

Subject: Submission of financial proposal of RFP for "Establishment of an IP-MPLS Network Connectivity in Odisha under OdishaNet Phase 1.0"

Dear Sir,
We, the undersigned, offer to provide the services as mentioned in the scope of work of the RFP dated (date]. Our Financial Proposal shall be binding upon us subject to the modifications resulting from arithmetic correction, if any, up to expiration of the validity period of the Proposal, i.e. [date].

We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".

We understand you are not bound to accept any Proposal you receive. We remain,

Yours sincerely,
Authorized Signature [In full and initials]:
Name and Title of Signatory:
Name of Firm:
Address:

23.7. Annexure: G-7 - Price Bid Format

CAPEX:

SL NO	ITEM DESCRIPTION	UoM	Qty	Unit Price	Amount	GST in %	GST Amount	Total Cost including GST
S.NOC LOCATION								
IP MPLS								
1	DWDM Appliances	No	1					
2	IP-MPLS Router (SHQ Core POP)	No	2					
NMS/OSS Software								
1	Service Order, Provisioning, Activation Management for GPON	Set	1					
2	Fault Management for IP-MPLS	Set	1					
3	Network Provisioning & Automation Platform for IP-MPLS	No	1					
4	Integration of proposed EMS with existing HP OSS	No	1					
NMS/OSS Implementation & Training								
1	Implementation, Configuration and Commissioning	Lot	1					
2	NOC User-Training (2 Batches of 25 Users each)	Lot	1					
3	O&M Training (2 Batches of 25 Users each)	Lot	1					
IT Hardware & Software Sizing for NMS/OSS								
1	Rack Mount Server as per Bidder's solution	Set	1					
2	Upgradation of Existing SAN Storage – 10 TB usable (Make - HPE and Model - 3PAR 8200 existing SAN Storage)	No's	1					
3	Backup Software as per Bidder's solution and license for minimum 10 TB data backup	Set	1					
4	D2D Backup Appliance with 10 TB usable	Set	1					

SL NO	ITEM DESCRIPTION	UoM	Qty	Unit Price	Amount	GST in %	GST Amount	Total Cost including GST
	capacity as per bidder's solution							
5	Virtualization Software as per Bidder's solution	Set	1					
6	Windows Server OS Standard Edition (Latest version) as per Bidder's solution	Set	1					
7	Linux Server OS Enterprise Edition (Latest version) as per Bidder's solution	Set	1					
8	Additional End-Point Protection License based on Bidder's solution to protect all devices proposed under the scope of work (Existing End-Point Protection Software – Trendmicro Deep Security and Apex One)	Set	1					
9	Database as per Bidder's solution	Set	1					
10	Desktop with Preloaded Windows & MS Office, Antivirus	No's	2					
11	Layer-3 Network Switch	Nos.	2					
12	DMZ Switch	Nos	2					
13	Any Other IT components required as per bidder's solution (please specify)	Set	1					
Non-IT & Other Equipment for S-NOC								
1	Network Racks 42 U	No	2					
2	40 KVA ONLINE UPS with 30 min back up	No	1					
3	Passive Networking (including Cat-6 Cable, Patch panel, MPO cassettes, Cable basket, Fibre Runner, I/O module, Patch Cord-Copper/Fiber, Faceplate, Wall mount Rack, Conduit with accessories as required)	Set	1					

SL NO	ITEM DESCRIPTION	UoM	Qty	Unit Price	Amount	GST in %	GST Amount	Total Cost including GST
DHQ & OTHER LOCATION								
1	10 Kva On-Line UPS with Battery Set (30 Min. Backup on full load) DHQ	No	62					
2	30 kVA DG Set	No	31					
3	Electrical Wiring as required	Set	31					
4	Chemical Earthing & Surg Protection as required	Nos	31					
5	Network Racks 42 U (Cooling Rack)	No	31					
6	IP-MPLS Router (DHQ Aggregation POPs)	No	7					
7	IP-MPLS Router (DHQ Non-Aggregation POPs)	No	24					
8	ILA-Non-Aggregation to Aggregation	No	25					
9	Amplifiers (AMP) at terminal locations (Non-aggregation to aggregation)	No	35					
10	DWDM Aggregation Locations	No	7					
11	ILA locations for Aggregation to core NW	No	9					
12	DWDM 3 direction locations for Aggregation to core NW	No	2					
13	2 kVA Online UPS with Battery Set (30 Min. Backup on full load) for DWDM 3 direction locations, ILA, Amplifiers (AMP) at terminal locations	No	62					
14	10 kVA DG Set	No	62					
15	Electrical Wiring for other locations	Set	62					
16	Chemical Earthing & Surg Protection	Nos	31					
17	Passive Components including required earthing for all DHQs and all locations to install ILA, DWDM and Amplifiers as required	Set	93					

SL NO	ITEM DESCRIPTION	UoM	Qty	Unit Price	Amount	GST in %	GST Amount	Total Cost including GST
18	Air Conditioning 1.5 ton	No	93					
LAST MILE CONNECTION								
1	24F OFC cable	MTR	170000					
2	Laying of PLB HDPE duct by HDD	MTR	155000					
3	Jointing Box 24 F(SJC)	No's	68					
4	24F FTB (CT Box)	No's	62					
5	PLB HDPE pipe	MTR	155000					
6	Commissioning of 24 F(SJC)	No's	68					
7	Commissioning of 24F FTB	No's	62					
8	Pigtail (6mtr)	No's	204					
9	OFC Patch cord (6mtr)	No's	204					
10	OFC Pulling through Laid HDPE Duct	MTR	170000					
11	Fusion Jointing / Coupler Jointing (including supply of Coupler) of HDPE Duct	Nos	As per Bidder solution					
12	Handhole with Cover (0.5Mtr x 0.5Mtr x 0.5Mtr)	Nos	As per Bidder solution					
13	Manhole with Cover (1Mtr x 1Mtr x 1Mtr)	Nos	As per Bidder solution					
14	Splicing of 24 Count OFC inside of Manhole	Nos	As per Bidder solution					
Grand Total of CAPEX including GST								

OPEX:

SL NO	ITEM DESCRIPTION	UoM	Qty	Support cost for 5 years	Amount	GST in %	GST Amount	Total Cost including GST
S.NOC LOCATION								
IP MPLS								
1	DWDM Appliances	No	1					
2	IP-MPLS Router (SHQ Core POP)	No	2					

NMS/OSS Software								
1	Service Order, Provisioning, Activation Management for GPON	Set	1					
2	Fault Management for IP-MPLS	Set	1					
3	Network Provisioning & Automation Platform for IP-MPLS	No	1					
IT Hardware & Software Sizing for NMS/OSS								
1	Rack Mount Server as per Bidder's solution	Set	1					
2	Upgradation of Existing SAN Storage – 10 TB usable (Make - HPE and Model - 3PAR 8200 existing SAN Storage)	No's	1					
3	Backup Software as per Bidder's solution and license for minimum 10 TB data backup	Set	1					
4	D2D Backup Appliance with 10 TB usable capacity as per bidder's solution	Set	1					
5	Virtualization Software as per Bidder's solution	Set	1					
6	Windows Server OS Standard Edition (Latest version) as per Bidder's solution	Set	1					
7	Linux Server OS Enterprise Edition (Latest version) as per Bidder's solution	Set	1					
8	Additional End-Point Protection License based on Bidder's solution to protect all devices proposed under the scope of work (Existing End-Point Protection Software – Trendmicro Deep Security and Apex One)	Set	1					
9	Database as per Bidder's solution	Set	1					

10	Desktop with Preloaded Windows & MS Office, Antivirus	No's	2					
11	Layer-3 Network Switch	Nos.	2					
12	DMZ Switch	Nos	2					
13	Any Other IT components required as per bidder's solution (please specify)	Set	1					
Non-IT & Other Equipment for S-NOC								
1	Network Racks 42 U	No	2					
2	40 KVA ONLINE UPS with 30 min back up	No	1					
3	Passive Networking (including Cat-6 Cable, Patch panel, MPO cassettes, Cable basket, Fibre Runner, I/O module, Patch Cord-Copper/Fiber, Faceplate, Wall mount Rack, Conduit with accessories as required)	Set	1					
DHQ & OTHER LOCATION								
1	10 Kva On-Line UPS with Battery Set (30 Min. Backup on full load) DHQ	No	62					
2	30 kVA DG Set	No	31					
3	Electrical Wiring as required	Set	31					
4	Chemical Earthing & Surg Protection as required	Nos	31					
5	Network Racks 42 U (Cooling Rack)	No	31					
6	IP-MPLS Router (DHQ Aggregation POPs)	No	7					
7	IP-MPLS Router (DHQ Non-Aggregation POPs)	No	24					
8	ILA-Non-Aggregation to Aggregation	No	25					
9	Amplifiers (AMP) at terminal locations (Non-aggregation to aggregation)	No	35					

10	DWDM Aggregation Locations	No	7					
11	ILA locations for Aggregation to core NW	No	9					
12	DWDM 3 direction locations for Aggregation to core NW	No	2					
13	2 kVA Online UPS with Battery Set (30 Min. Backup on full load) for DWDM 3 direction locations, ILA, Amplifiers (AMP) at terminal locations	No	62					
14	10 kVA DG Set	No	62					
15	Electrical Wiring for other locations	Set	62					
16	Chemical Earthing & Surg Protection	Nos	31					
17	Passive Components including required earthing for all DHQs and all locations to install ILA, DWDM and Amplifiers as required	Set	93					
18	Air Conditioning 1.5 ton	No	93					
LAST MILE CONNECTION								
1	24F OFC cable	MTR	170000					
2	Laying of PLB HDPE duct by HDD	MTR	155000					
3	Jointing Box 24 F(SJC)	No's	68					
4	24F FTB (CT Box)	No's	62					
5	PLB HDPE pipe	MTR	155000					
6	Pigtail (6mtr)	No's	204					
7	OFC Patch cord (6mtr)	No's	204					
Manpower Cost								
1	Project Manager	No	1					
2	NMS Expert	No	1					
3	Network cum System Administrator	No	1					
4	Field Engineers	No	30					
Grand Total of OPEX including GST								

Total Cost of the Bid including GST = Grand Total of OPEX including GST + Grand Total of OPEX including GST

Total Cost of the Bid including GST will be considered for financial evaluation purpose.

23.8. Annexure: G-8 - Proposed Manpower Details

Name of Staff with qualification and experience	Area of Expertise	Position Assigned	Task Assigned	Time committed for the engagement

Curriculum Vitae (CV) of Key Personnel:

General Information		
Name of the person & Photograph		
Current Designation/Job Title		
Current job responsibilities		
Proposed Role in the Project		
Whether resource is engaged by the firm in its own payrolls		Yes/No
Proposed Responsibilities in the Project		
Academic Qualifications: • Degree • Academic institution graduated from • Year of graduation • Specialization (if any) • Key achievements and other relevant information (if any)		
Professional Certifications		
Total number of years of experience		
Number of years with the current company		
Summary of the Professional / Domain Experience		
Summary of Projects undertaken/worked on (Only project name, client name, client contact details)		
Details of Past assignment details (For each assignment provide details regarding name of organizations worked for, designation, responsibilities, tenure) Prior Professional Experience covering: ▪ **Organizations worked for in the past** • Organization name • Duration and dates of entry and exit • Designation Location(s) • Key responsibilities ☐ Prior project experience • Project name • Client • Key project features in brief • Location of the project • Designation • Role • Responsibilities and activities • Duration of the project Please provide only relevant projects.		
Proficient in languages (Against each language listed indicate if speak/read/write)		

23.9. Annexure: G-9 - Performance Bank Guarantee

To
The General Manager (Admin)
Odisha Computer Application Centre
(Technical Directorate of E&IT Dept, Govt. of Odisha)
N-1/7-D, Acharya Vihar P.O. - RRL, Bhubaneswar - 751013

Sub: RFP for "Establishment of an IP-MPLS Network Connectivity in Odisha under OdishaNet Phase 1.0"
Ref:

Whereas <<name of the supplier>> (hereinafter called "the bidder") has undertaken, in pursuance of <<contract no. >> <<dated.>> to Establishment of an IP-MPLS Network Connectivity in Odisha under OdishaNet Phase 1.0 (Hereinafter called "the beneficiary").

And whereas it has been stipulated by in the agreement that the bidder shall furnish you with a bank guarantee by a recognized bank for the sum specified therein as security for compliance with its obligations in accordance with the agreement.

And whereas we, << Name of Bank>> a banking company incorporated and having its head /registered office <<Address of registered office>> at and having one of its office at<<Address of Local Office>> have agreed to give the supplier such a bank guarantee.

Now, therefore, we hereby affirm that we are guarantors and responsible to you, on behalf of the supplier, up to a total of <<Cost of Services>> in (words) and we undertake to pay you, upon your first written demand declaring the supplier to be in default under the agreement and without cavil or argument, any sum or sums within the limits of <<Cost of Services>> (in Words) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the bidder before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the agreement to be performed there under or of any of the agreement documents which may be made between you and the Bidder shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition or modification.

This Guarantee shall be valid until <<insert Date >>

Notwithstanding anything contrary contained in any law for the time being in force or banking practice, this guarantee shall not be assignable or transferable by the beneficiary i.e OCAC. Notice or invocation by any person such as assignee, transferee or agent of beneficiary shall not be entertained by the Bank.

NOTHWITHSTANDING ANYTHING CONTAINED HEREIN:

i) Our liability under this bank guarantee shall not exceed <<Amount>> (Amt. in words).

ii) This bank guarantee shall be valid up to <<Insert Date>>.

iii) It is condition of our liability for payment of the guaranteed amount or any part thereof arising under this bank guarantee that we receive a valid written claim or demand for payment under this bank guarantee on or before <<Insert date>> failing which our liability under the guarantee will automatically cease.

(Authorized Signatory of the Bank)

Seal:

Date:

23.10. Annexure: G-10 – Compliance to specifications

S No.	Minimum Requirement Description	Compliance (Yes/No)	Reference with Section and Page No.

23.11. Annexure:G-11-Manufacturer Authorization Form(MAF) Format

(To be submitted on the Letterhead of the Manufacturer and duly signed by an authorized signatory)
(This form has to be provided by the OEMs of all products proposed. Separate MAF's to be provided from OEM if same item has different parts from different OEM)

To
The General Manager (Admin)
Odisha Computer Application Centre
(Technical Directorate of E&IT Dept, Govt. of Odisha)
N-1/7-D, Acharya Vihar P.O. - RRL, Bhubaneswar - 751013

Ref: RFP No <……>

Sub: Issue of the Manufacturer's Authorization Form (MAF) of RFP for "Establishment of an IP-MPLS Network Connectivity in Odisha under OdishaNet Phase 1.0"

Dear Sir,

We, (name and address of the manufacturer) who are established and reputed manufacturers of having factories at (addresses of manufacturing locations) do hereby authorize (name of the Bidders & address of the manufacturer) to bid, negotiate, and conclude the contract with you against the above-mentioned tender for the equipment manufactured by us.

We undertake to provide OEM Support / Warranty for the offered Software, as mentioned above, for Years.

We hereby confirm that the offered Software/Hardware is not declared as End-of-Service/ Support on the date of bid submission and comply with the technical specifications mentioned in this Tender.

Yours faithfully,
For and on behalf of M/s (Name of the manufacturer)
Signature Name: _____
Designation Address: _____
Date: _____
Directorate Seal: _____

Note: This letter of authority should be on the letterhead of the manufacturer and should be signed by a person competent and having the power of attorney to bind the manufacturer. The Bidder in its Bid should include it. The Bidder should complete the below given table with details of all OEMs as proposed for this assignment.

Item	Name of OEM and brand/ Make	Model no.

23.12. Annexure G-12- Declaration form (Bidder has not been blacklisted)

To be submitted on the Letterhead of the responding agency)

{Place}
{Date}

To,
General Manager Admin,
Odisha Computer Application Centre,
Acharya Vihar, RRL Post Office
Bhubaneswar

Ref: RFP Notification no <xxxx> dated <dd/mm/yy>

Subject: Self Declaration of not been blacklisted in response to the RFP for Selection of Implementation Agency for Establish an IP-MPLS Network Connectivity in Odisha under OdishaNet Phase 1.0

Dear Sir/Madam,

We confirm that our company, _____, is not blacklisted in any manner whatsoever by any of the State/UT and/or central government in India on any ground including but not limited to indulgence in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice. It is further certified that I am an authorized signatory of my company and am, therefore, competent to make this declaration.

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

Yours very Truly,

Place: Bidder's Company Seal:

Date: Authorized Signatory's Signature:

Authorized Signatory's Name and Designation:

Note: The Bidder shall necessarily provide a copy of 'Power of Attorney' authorizing the signatory for signing the Bid on behalf of the Bidder in its Pre-Qualification Bid.

23.13. Annexure-G13: Project Citation Format

Relevant project experience	
General Information	
Name of the project	
Client for which the project was executed	
Name and contact details of the client (email, Phone no.)	
Project Details	
Description of the project	
Scope of services	
Technologies used	
Outcomes of the project	
Other Details	
Total cost of the project	
Total cost of the services provided by the respondent	
Duration of the project (no. of months, start date, completion date, current status)	
Other Relevant Information	
Letter from the client to indicate the successful completion of the projects	
Copy of Work Order/Purchase Order (PO)/ Letter of Intent (LoI) 'Letter of Intent (LoI) with extract from signed contract showcasing the project value and scope of work'/Go-Live/PAT/FAT/Experience Certificate etc.	

23.14. Annexure-G14: Declaration form (OEM has not been blacklisted)

To be submitted on the Letterhead of the responding agency)

{Place}
{Date}

To,
General Manager Admin,
Odisha Computer Application Centre,
Acharya Vihar, RRL Post Office
Bhubaneswar

Ref: RFP Notification no <xxxx> dated <dd/mm/yy>

Subject: Self Declaration of Original Equipment Manufacturer (OEM) not been blacklisted in response to the RFP for Selection of Implementation Agency for Establish an IP-MPLS Network Connectivity in Odisha under OdishaNet Phase 1.0

Dear Sir/Madam,

We confirm that our company (OEM), _____, is not blacklisted in any manner whatsoever by any of the State/UT and/or central government in India on any ground including but not limited to indulgence in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice. It is further certified that I am an authorized signatory of my company and am, therefore, competent to make this declaration.

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

Yours very Truly,

Place: OEM's Company Seal:

Date: Authorized Signatory's Signature:

Authorized Signatory's Name and Designation:

23.15. Annexure: Bank Guarantee for Earnest Money Deposit

To,
General Manager Admin,
Odisha Computer Application Centre,
Acharya Vihar, RRL Post Office
Bhubaneswar

Whereas <Name of the bidder> (hereinafter called 'the Bidder') has submitted the bid for Submission of RFP
<RFP Number> dated <Date> for <Name of the assignment> (hereinafter called "the Bid") to OCAC
Know all Men by these presents that we < > having our office at <Address> (hereinafter called "the Bank") are bound unto OCAC (hereinafter called "the Purchaser") in the sum of Rs. <Amount in figures> (Rupees <Amount in words> only) for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors and assigns by these presents. Sealed with the Common Seal of the said Bank this <Date>
The conditions of this obligation are:
If the Bidder having its bid withdrawn during the period of bid validity specified by the Bidder on the Bid Form; or
If the Bidder, having been notified of the acceptance of its bid by the Purchaser during the period of validity of bid
Withdraws his participation from the bid during the period of validity of bid document; or
Fails or refuses to participate in the subsequent Tender process after having been short listed;

We undertake to pay to the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.
This guarantee will remain in force up to <insert date> and including <extra time over and above mandated in the RFP> from the last date of submission and any demand in respect thereof should reach the Bank not later than the above date.
Notwithstanding Anything Contained Herein:
a) Our liability under this Bank Guarantee shall not exceed Rs. <Amount in figures> (Rupees <Amount in words> only)
b) This Bank Guarantee shall be valid up to <insert date>)
c) It is condition of our liability for payment of the guaranteed amount or any part thereof arising under this Bank Guarantee that we receive a valid written claim or demand for payment under

Selection of Implementation Agency for Establish an IP-MPLS Network Connectivity in Odisha under OdishaNet Phase 1.0 this Bank Guarantee on or before <insert date>) failing which our liability under the guarantee will automatically cease.

(Authorized Signatory of the Bank)
Seal:
Date:

23.16. The Net Worth of the Bidder for the last 3 audited financial years i.e., 2020-'21, 2021-'22, and 2022-'23

<<To be printed on Bidder company's letterhead and signed by Authorized signatory>>

To,
General Manager Admin,
Odisha Computer Application Centre,
Acharya Vihar, RRL Post Office
Bhubaneswar

Ref: Tender Enquiry No.<< >>

Dear Sir,

I have carefully gone through the terms and conditions contained in the RFP document. I hereby declared that below are the details regarding net worth for the last 3 audited financial year i.e. 2020-21, 2021-22, and 2022-23.

Particulars	**Financial Year** 2020-21	**Financial Year** 2021-22	**Financial Year** 2022-23
The Bidder should have average annual turnover of more than <xxx> crores in Telecom business for last 3 financial years (i.e., 2020-21, 2021-22, and 2022-23).			

Yours Sincerely,

Signature of statuary Auditor/CA (With Official Seal):

Name:
Designation:
Address:
Telephone/Fax:
Email Address: