TENDER DOCUMENT

ANNUAL MAINTAINANCE CONTRACT FOR EXTENDED GBBN CONNECTIVITY CARRIED OUT IN THE VARIOUS GOVERNMENT DEPARTMENTS IN THE STATE OF GOA

Department of Information Technology
Government of Goa
2nd Floor, IT HUB,
Althino, Panjim-Goa-403001, India

Tender-No.:11(27)/DOIT/2019/Gap-I Infrastructure Project AMC/ Date: 14/02/2020

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PART - I

TENDER DETAILS

Tender-No.:11(27)/DOIT/2019/Gap-I Infrastructure Project AMC/ Date: 14/02/2020

I. NOTICE INVITING TENDER

(Electronic mode only)

Tenders are invited by Department of Information Technology, Government of Goa in two bids – Eligibility & Technical bid and Financial bid from well-established and reputed Organizations / Institutions / Agencies who fulfill the eligibility criteria and having sufficient infrastructure and proven track record in the field of computer networking, and maintenance of networking to clients for providing maintenance of the GBBN extended connectivity and computer networking to various Government departments/institutions/ organizations in the State of Goa.

This RFP document invites all the qualified bidders to submit their technical and financial offers for "***Maintenance Contract for Extended GBBN Connectivity & Computer Networking***", in accordance with the conditions and manner prescribed in this Request for Proposal (RFP) document.

The bidder agencies are advised to study this RFP document carefully before submitting their proposals in response to the RFP notice. The submission of a proposal in response to this notice shall be deemed to have been done after careful study and examination of this document with full understanding of its terms, conditions and implications.

The RFP containing all the details about the programme can be obtained (downloaded) from the tender wizard site and the bidder is advised to pay the RFP cost (Document Fee) and the processing fee as mentioned in the tender document.

An Earnest Money Deposit (E.M.D.) of **Rs. 20.00 Lakhs (Rupees twenty Lakhs)** to be paid online through e-payment mode via NEFT/RTGS/OTC/debit card/credit card facility with pre-printed challans available on e-tendering website and directly credit the amount to ITG account as generated by challan and upload the scanned copy of NEFT/RTGS/OTC/debit card/credit card challan along with the bid. EMD in any other form will not be accepted.

The Eligibility & Technical bid will be opened / downloaded in the premises of Department of Information Technology, IT Hub, Althino, Panjim-Goa in the presence of bidders or their authorized representative if any, on **17/03/2020** at **2:30 p.m.** The commercial bid in respect of the bidders qualifying the Eligibility & Technical bid shall intimated to the eligible bidders by a letter/email.

II. CRITICAL INFORMATION

Sr No	Item	Particulars
1	Description of the work	**AMC of Extended GBBN Connectivity and Computer Networking**
2	Mode of Tendering	E-Tendering
3	E-Tendering Website	https://goaenivida.gov.in
4	Tender Document Fee	Rs 8000/- Rupees Eight thousand only (Non-Refundable) to be paid online through e-payment mode via NEFT/RTGS/OTC/debit card/credit card facility with pre-printed challans available on e-tendering website and directly credit the amount to ITG account as generated by challan and upload the scanned copy of NEFT/RTGS/OTC/debit card/credit card challan along with the bid.
5	Tender Processing Fee	Rs 1500/- Rupees one thousand five hundred only (Non-Refundable) to be paid online through e-payment mode via NEFT/RTGS/OTC/debit card/credit card facility with pre-printed challans available on e-tendering website and directly credit the amount to ITG account as generated by challan and upload the scanned copy of NEFT/RTGS/OTC/debit card/credit card challan along with the bid.
6	Earnest Money Deposit (E.M.D.)	An Earnest Money Deposit (E.M.D.) of **Rs. 20.00 Lakhs (Rupees twenty Lakhs)** to be paid online through e-payment mode via NEFT/RTGS/OTC/debit card/credit card facility with pre-printed challans available on e-tendering website and directly credit the amount to ITG account as generated by challan and upload the scanned copy of NEFT/RTGS/OTC/debit card/credit card challan along with the bid. EMD in any other form will not be accepted.
7	Date and Time for request of Tender Document	14/02/2020 to 12/03/2020 (upto 10.30 am)
8	Date and Time for issue of Tender document	14/02/2020 to 12/03/2020 (upto 5.00 pm)
9	Last date for submission of written pre-bid queries for clarification	20/02/2020 (upto 4:00 pm)
10	Date of Pre-bid meeting	25/02/2020 at 4:00 pm at the Department of Information Technology, Government of Goa, 2nd floor, IT Hub, Althino, Panjim-Goa.
11	Last Date for response to pre-bid queries	2/03/2020 upto 4:00 pm

12	Date and Time for Online submission of bids	16/03/2020 (upto 05:00 pm)
13	Date and Time for opening / of Eligibility & Technical bids	17/03/2020 (at 2:30 pm)
14	Date and time for technical presentation	Will be communicated to the shortlisted bidders.
15	Date and Time for opening / of commercial bids	Will be communicated to the shortlisted bidders
16	Contact details	Department of Information Technology, Government of Goa, 2nd Floor, IT Hub, Althino, Panjim-Goa, 403001 Phone Nos.: +91 (832) 2221505 / 2221509 Fax No.: +91(832) 2221490 Email Id's: (1) dir-dit.goa@nic.in (2) netdba2-dit.goa@nic.in For e-Tendering assistance: : 1800 212 680 680 Email Id: goasupport@c1india.com

Tenders not conforming to the requirements mentioned above and as laid down in the terms and conditions or not accompanied by EMD in the form prescribed at the time of opening of the technical bid are liable to be summarily rejected. The decision of Director (IT), Department of Information Technology for purpose of eligibility & Technical qualification / Commercial Bid shall be final and binding to all the bidders.
Please note that until the EMD is not credit to the ITG account, the bidder cannot proceed further.

For any of the assistance regarding participation in the e-Tender contact, email: goasupport@c1india.com and helpline number: 1800 212 680 680.
For any of the assistance regarding details in the RFP contact Mr. Akash 7875149214/ Gaurobh: 8830054149.

Other Important Information related to bid

Sr. No.	Item	Description
1	Bid Validity Period	180 days from the closing date of submission of the bid.
2	Deadline / last date for furnishing performance Bank Security	Within 30 days from the date of issue of Work Order or within 15 days from the date of signing the Agreement, whichever is earlier.
3	Performance security value (Performance Bank Guarantee)	2% to 5% of the quoted amount in the form Bank Guarantee for each work order issued.
4	Performance security validity period	For a period of 5 year.
5	Deadline / last date for signing agreement	Within 15 days of receipt of the Work Order after the Government approval

III. BACKGROUND

Government of Goa in India has made a foray into the world of hi-tech e-governance with the implementation of an end-to-end IP backbone in the state, called the **Goa Broadband Network, or GBBN**. This Super high speed network infrastructure will be leveraged to change the way administrative services are delivered to citizens, businesses, and Government employees

The GBBN has already connected State Headquarters, District Head Quarter with all 11 Taluka headquarters, Village Panchayats, households, and institution across the State.

The goal is to provide ultra-speedy and transparent Governance system capable of providing better e-Governance services to the common citizens of the State. GBBN is having IP based architecture, GBBN supporting voice, video and data. This is an end-to-end IP network, which carries data, phone calls as well as video conferences on the same converged infrastructure. The network will be used for communicating between the G2G, G2B, G2C, and other Government departments.

The GBBN Partner M/s United Telecoms Limited (UTL) has connected 225 office building locations / termination points and 190 village Panchayats. From these termination points the connectivity was extended to approx. 1500 + Government Departments /Corporations /autonomous bodies/schools /colleges and Village Panchayats. Now there is a requirement to rectify/repair /maintain the GBBN extended connectivity connected under Gap- I Infrastructure Project, Gap-II Infrastructure project and other projects as per the requirement for a period of 5 year. The bidder shall also be required to connect new GBBN connections and shifting of GBBN connectivity as per the requirement from time to time. The bidder may also be required to supply networking items as per the specifications in the tender document.

IV. SCOPE OF THE PROJECT

The Department of Information Technology, Government of Goa proposes to provide a comprehensive AMC (repair/replace/ maintain/supply) to the extended GBBN connectivity and Computer networking carried out in various Government Departments/institutions/etc in the state of Goa, for a period of 5 years.

The details and scope of the project are: -

(1) The scope of the work shall include 5 years comprehensive maintenance contract for the intra networking done (GBBN L3 switch to Govt. Department/ Village Panchayat Switch) and inter-networking done (LAN Connectivity) under Gap-I Infrastructure project, under Gap-II infrastructure Project and other GBBN extended connectivity projects.

(2) Most of the Items/equipment's mentioned /installed in Government departments/Village Panchayats/corporations/autonomous bodies such as Switches/routers/LAN cables etc are declared end of sale by OEM and are over 7-10 years old under Gap-I and Gap-II Infrastructure Project. The selected bidder may require to replace it with items as per the specifications in the tender.

(3) All LAN equipment's on the present network will be covered under this comprehensive AMC. As the AMC is of comprehensive nature, this includes repair/replacement of existing fiber cable/ switches/media converters/UTP/fiber patch cord/UTP patch etc. with items as per the specifications in the tender.

(4) The contractor shall deploy a minimum 2 resource (Service Engineer) at each talukas, on full time basis with spare 3 service engineers.

(5) The payment to the Successful Bidder shall be governed by Service Level Agreement (SLA), repair, replacement and supply of networking items as mentioned in this RFP document.

(6) SLA shall be monitored by using the existing Network Monitoring Software (NMS) and Helpdesk Software (HDS) deployed in the State Data Center (SDC).

(7) The payment to the bidder shall be done on quarterly basis to the bidder based on the Service Level Agreement (SLA).

(8) The bidder is required to deploy two fiber teams one at south Goa and one at North Goa within 15 days of issue of work order.

(9) The approximate locations to be covered under the AMC is more than 1400 locations. The data regarding the fiber layout diagrams and other connectivity details being huge cannot be uploaded on the e-tender portal and the considering the security aspects cannot be shared in the public domain.

(10) The bidder can visit the DOIT during the office hours to study the fiber diagrams, line diagrams and other required details. A departmental representative shall assist in this regards.

(11) No photography, no videography and photocopying of the files shall be allowed during the scrutiny of the line diagrams.

Special Conditions:

(12) DOIT shall form a Project Monitoring committee or appoint a Third Party Audit Agency to analyze whether the current infrastructure under GBBN extended connectivity needs to be replaced with entire /partly new infrastructure being 7-10 years old.

(13) The selected bidder may have to replace the old infrastructure (*Switches, LAN cables, old racks*) with new infrastructure as per the specifications provided in this tender and as per the requirement of Department of Information Technology, Government of Goa and payment shall be done as per the rates obtained in financial bid and payment conditions in the tender.

(14) The replaced new infrastructure shall carry a comprehensive warranty of 5 years and no separate AMC charges shall be paid to the replaced new infrastructure for a period of 3 years, however the total manpower cost shall be paid as per the commercial bid.

(15) In case of replacement of old infrastructure of GBBN extended connectivity with new infrastructure, the old infrastructure shall be property of Government of Goa.

(11) SERVICE LEVEL AGREEMENT:

The Operational portion of the Agreement between GoG and the selected bidder will be in the form of a Service Level Agreement. Whenever a call is received from the concerned Government Department, the selected bidder shall send his/her representative to the line department where the fault is occurred that shall be considered as response time. The selected bidder can also call the line department where the fault is occurred and can also resolve it online (telephonically).

The SLA specifies the expected levels of service to be provided by the partner to the various stakeholders of GBBN extended Project. This expected level is also called the baseline. SLA also specifies the limits and metrics for lower performance, which will be entailing a lower payment to the selected bidder. It would also specify similar criteria for higher Performance. The SLA would also specify the penalties for breach of the SLA metrics.

For calculation of SDT the day is divided in:
Prime Business Hours = 09:30 Hours to 17:45 Hours on Weekdays
Extended SLA Hours = 17:46 Hours to 09:29 Hours on Weekdays & 00:00 Hours to 24:00 Hours on Sundays and all other State Govt. holidays.

The time require to address the issue of any department shall be as per the response time in the below mentioned table. The call received after 4:00 PM can be addressed in the next day before 10:00 am excluding holidays/Saturdays/Sundays.

S.No	Severity level	Description
1	Severity level-1	Hardware and Connectivity at Citizen Service – Critical offices
2	Severity level-2	Hardware and Connectivity at Citizen Service – Normal offices

Response and Resolution times of faults during PBH:

S. No	Severity Level	Response Time (in Minutes)	Resolution Time excluding response time (in Minutes)
1	Severity level-1	8 hours	Within 24 hours
2	Severity level-2	10 hours	Within 24 hours

PENALTIES FOR RESPONSE AND RESOLUTION TIME:

S. No	Severity Level	Response Time	Credit Mark -A	Resolution Time	Credit Mark -B
Severity Level 1					
1	Severity level-1	15	10	90	10
2	Severity level-1	>15 and <= 20	9	> 90 and <=120	9
3	Severity level-1	>20 and <=25	8	>120 and <=180	8
4	Severity level-1	>25 and <= 30	7	>150 and <=180	7
5	Severity level-1	>30 and <=35	6	>180 and <=210	6
6	Severity level-1	>35	0	>210	0
Severity Level 2					
90	Severity level-2	15	10	120	10
7	Severity level-2	>15 and <= 20	9	>120 and <=150	9
8	Severity level-2	>20 and <=25	8	> 150 and <=180	8
9	Severity level-2	>25 and <= 30	7	>180 and <=210	7
10	Severity level-2	>30 and <=35	6	>210 and <=240	6
	Severity level-2	>35	0	>240	0

PENALTIES FOR DOWNTIME:

Network availability is defined as {Total time in a quarter (in minutes) less total down time (in minutes)} as a percentage of total time in the quarter. The network is considered available when all the services mentioned in the requirement Section in full capacity are available. Bandwidth downtime (downtime due to non-availability of

services from GBBN core services) shall not be considered as part of network downtime.

The successful bidder shall take at least 5 days prior approval from DIT for the network maintenance i.e. planned downtime and it shall be allowed only during Saturday or Sunday. Total planned downtime allowed in a month shall be 4 hrs ONLY. Planned downtime of more than 4 hrs in a given month shall be considered as network downtime and penalties shall be levied as per the penalty clause.

The additional down time can be allowed only in special circumstances with prior approval. The downtime percentages shall be calculated for CSCO and CSNO for PBH and NPBH separately.

$$\text{Downtime percentage for PBH (\%)} = \sum \frac{\text{Total Downtime during PBH} \times 100}{\text{Total PBH Time in a quarter}}$$

Uptime Percentage (%) = 100 - ∑ Downtime percentage (%)

Successful bidder is expected to maintain network availability as explained below:

Minimum Uptime Requirement and associated Penalty		
Office Type	**PBH [8:00 AM to 08:00 PM]**	
	Uptime	**Credit Mark-C**
Citizen Service – Critical offices (CSCO)	97% or better	10
	≥ 95% and <97%	9
	≥ 90% and <95%	8
	≥ 80% and <90%	7
	≥ 65% and 80%	6
	<65%	0
Citizen Service – Normal offices (CSNO)	95% or better	10
	≥ 93% and <95%	9
	≥ 89% and <93%	8
	≥78 % and <89%	7
	≥ 63% and <78%	6
	<63%	0

Payment Calculation:

Credit calculation for individual office:

(Credit Mark A+ Credit Mark B + Credit Mark C)/3= Average Credit Mark (**AvCM**)

Total Payment Calculation for Quarter:

= ∑QGR*0.4+QGR*AvCM*0.06

GENUINE CASES FOR CONSIDERATION OF DOWNTIME

1. Power off of the LAN Switches after office hours.
2. Internal power problem of the department.
3. Leakage of water in the LAN Switch.
4. Fiber cut due to major work undertaken by PWD /Electricity department.
5. Non denial access to the department.
6. GBBN core backbone switches down.
7. Switches which are not managed by NMS, i.e. those switches which are not support either IP or SNMP. Their SLA will be managed based on fault response and resolution time.

V. TERMS AND CONDITIONS

Definitions

In this tender document and associated documentation, the following terms shall be interpreted as indicated below:

- "GoG" means Government of Goa.
- "OEM" means Original Equipment Manufacturer.
- "Bidder/Tenderer" means Person/Company who bids against this tender.
- "Purchaser" means Department of Information Technology, Govt. of Goa.
- "PBH" means Prime Business Hours
- "NPBH" means Non-Prime Business Hours
- "SNMP" means Simple Network Management Protocol
- "MIB" means Management Information Base
- "NMS" means Network Management System
- "HDS" means Helpdesk Management System
- "Contractor/Supplier" means the successful Bidder to whom tender is awarded.
- "Contract" means an undertaking signed by the Vendor against the Tender.
- "Non-responsive" means failure to furnish complete information in a given format and manner required as per the tender documents or non-submission of tender bid in given Forms/Pro-forma or not following procedure mentioned in this tender or any of required details or documents is missing or not clear or not submitted in the prescribed format or non-submission of tender fee or EMD.

1. ELIGIBILITY CRITERIA

The bidder must fulfill the following eligibility conditions and must also submit documentary evidence in support of fulfilling these conditions while submitting the Eligibility and Technical bid. The scanned copy/copies of these documents should be uploaded on the e-tendering website during submission of bids before its last date. Tenders satisfying the following eligibility conditions will only be considered for further processing. In absence of proof of following supportive document the tender will not be considered.

Sr.No	Clause	Documents required	Compliance (YES/NO)
1	The bidder should be an established Information Technology company registered under the companies Act 1956 and should be have their registered offices in India.	1. Certificate of incorporation 2. Certificate consequent to change of name if applicable. 3. Relevant legal document confirming the acquisition /merger.	
2	The tenderer/ bidder should be in the business of supply of computer networking / AMC of networking in the last 3 years (2016-17,2017-18, 2018-19)	1. Valid Copy of Certificate	
3	The tenderer /bidder should have made a turnover of at least 20 crores in each of the last three financial years **or** turnover of 50 crores in last three financial years.	Proof of balance sheet showing profit & loss statement /CA certificate to be uploaded.	
4	The tenderer should have a valid GST and PAN No.	1. Copy of Tax Registration Certificate 2. Copy of Valid PAN No.	
5	The firm should have minimum 100 regular IT service employees on the pay roll. Proof to be furnished with the details like name of the person, Mobile no, educational qualifications, residential	1. Certificate from bidders HR Department for number of technically qualified professionals employed by the company along with bank statement indicating the salary	

	address, etc.	proof.	
6	The authorized dealer / channel partner should furnish the copy of authorization letter issued to the bidder from the Original Equipment Manufacturer (OEM) for the quoted brand.	1. Copy of the authorization letter from OEM.	
7	The bidder should neither be blacklisted/barred by GoG as on date of inviting Tender and the same should be declared by the bidder in the undertaking, as per **Annexure I**	1. Declaration in this regard by the authorized signatory of the bidder.	

2. MODE SUBMISSION & LATE TENDERS

All the tenders are to be submitted in electronic mode only. The tender wizard will not accept any tender submitted after the deadline for submission of Tenders prescribed by the Purchaser. Towards the end of the deadline time, the tender wizard server is likely to get jammed due to the heavy flow of traffic on the server. Hence, all the Tenderers / Bidders participating in the tender are requested to submit the bids well in advance before the deadline time period. The Director (IT), Department of Information Technology, Government of Goa will not accept any responsibility for any problems arising for delay in the submission of the tender.

The Tenderer / Bidder / Partner Should Quote For All The Items Listed In The Commercial Bid.

If any bid that is opened does not contain quote/price for all the items listed, then such bid may be rejected without any consideration and the quoted prices may not be used for comparing with the other eligible/opened bids.

3. OPENING OF THE TENDERS AND EVALUATION THEREOF BY THE PURCHASER:

The purchaser shall download all the documents submitted by the tenderer / bidder and place the same in the presence of tenderer / bidder or his/her authorized representative who choose to attend, 25/02/2020 at 4:00 pm at the Department of Information Technology, Government of Goa, 2nd floor, IT Hub, Althino, Panjim-Goa.

The tenderers / bidders representatives who are present shall sign an attendance register.

The Technical bid of the bidders will be opened on 17/03/2020 (at 2:30 pm) at DOIT in the presence of tenderer / bidder, who may like to attend. The eligibility & technical bid of the Tender document would be evaluated and the list of technically qualified tenderers / bidders will be prepared by committee constituted by the Director (IT), Department of Information Technology. The decision of the committee in selecting the bidder for Technical Bid will be final.

The commercial bids in respect of the bidders qualifying the technical bids will be intimated about the date and time by a letter/email. The details will be displayed on the notice board of the Director(IT), Department of Information Technology, at least one (01) day in advance along-with list of those tenderers / bidders who are approved / qualified technically for the bid. Non receipt of e-mail will not be accepted for raising any dispute and it shall be the responsibility of the bidder to find the details from the web-site or the Notice Board. The Director (IT), Department of Information Technology on the advice of the committee, reserves to himself the authority to reject any or all of the tenders received without assigning any reasons thereof and does not bind him to accept the lowest tender or to place the full order on any one of the tenderer / bidder.

DOIT's decision on the dispute in any way touching or concerning the tender will be final.

4. CLARIFICATION OF TENDERS*:*

To assist in the examination, evaluation and comparison of Tenders, the Purchaser may, at its discretion ask the tenderer / bidder for the clarification and the response shall be online e-tender website, e-mail or in writing. However, at no cost Tender clarification at the initiative of the tenderer / bidder shall be entertained.

5. CONTACTING THE PURCHASER:

No tenderer / bidder shall try to influence the Purchaser on any matter relating to the tender, from the time of the Tender opening till the time the contract is awarded. This may result in the rejection of the tender and blacklisting the tenderer / bidder.

6. PURCHASER'S RIGHT TO ACCEPT ANY TENDER AND TO REJECT ANY OR ALL TENDERS:

The purchaser reserves the right to accept or reject any tender and to annul the tendering process and reject all tenders, at time prior to award for contract without assigning any reason whatsoever and without thereby incurring any liability to the affected tenderer(s) / bidder(s) on the ground for purchaser's action.

7. EARNEST MONEY DEPOSIT (E.M.D.)

An Earnest Money Deposit (E.M.D.) of **Rs. 20.00 Lakhs (Rupees Twenty Lakhs)** should be provided by the Bidder. The EMD to be paid online through e-payment mode via NEFT/RTGS/OTC/debit card/credit card facility net-banking (AXIS bank) with preprinted challans available on e-tendering website and directly the amount to ITG account as generated by challan and upload the scanned copy of NEFT/RTGS/OTC/debit card/credit card /net-banking(Axis ban) challan along with bid. EMD in any other form will not be accepted. Tenders without valid E.M.D. at the time of opening of the technical bid will be rejected.

8. DETAILS TO BE FURNISHED

a. All particulars must be furnished, as asked for, in the specified formats for eligibility, technical and commercial bids in the tender document.

b. To maintain parity in rates quoted and to ensure fair comparison, the rates quoted should be inclusive of GST . Whenever there is discrepancy between words and figures, the rate indicated in words shall apply and be treated as quoted rate. DOIT shall not provide any kind of "Forms" and/or documents which may be used to get any kind of tax concessions.

c. The rates quoted should be kept valid for a period of **5 years** from the date of tender opening.

9. BID VALIDITY

b. The Bid validity of this tender is for 180 days.

c. The rates quoted shall be valid for five years from the date of acceptance of the offer.

10. DURATION OF CONTRACT

This contract shall be valid and remain in force for a period of 5 Years commencing after award and acceptance of the contract.

11. AGREEMENT

(a) The successful bidder shall execute an Agreement, for fulfillment of the terms and conditions of the said project / contract on **Rs. 100/-** Non-Judicial Stamp Paper (or as required by law), within **15 days** from the date of supply order or after the approval of Government.

(b) The incidental expenses of execution of Agreement, shall be borne by the successful bidder (hereinafter, the successful tenderer/bidder is referred to as the "Contractor").

(c) The conditions stipulated in the Agreement shall be strictly adhered to and violation of any of these conditions will entail termination of the Agreement, without prejudice to the rights of the Department of Information Technology for recovery of any consequential loss from the Contractor.

(d) If the successful bidder fails to sign the contract or after signing the contract fails to perform any contractual obligations, his EMD mentioned above will be forfeited in favor of Department of Information Technology and order shall be treated as cancelled. Further, the Director (IT), Department of Information Technology reserves the right to cancel the contract or take any such action as it deems fit.

12. TRANSITION & EXIT MANAGEMENT

Upon completion of the contract period or upon termination of the agreement for any reasons, the successful bidder shall comply with the following:

(a) Notify to the Government of Goa forthwith the particulars of all project assets;

(b) Deliver forthwith actual or constructive possession of the this project free and clear of all encumbrances and execute such deeds, writings and documents as may be required by the Government of Goa for fully and effectively divesting the successful bidder of all of the rights, title and interest of the successful bidder in the GBBN Project and conveying this project;

(c) All project assets including the hardware, software, documentation and any other infrastructure shall have been renewed and cured of all defects and deficiencies as necessary so that this project is compliant with the specifications and standards set forth in the RFP, Agreement and any other amendments made during the contract period;

(d) The successful bidder delivers relevant records and reports pertaining to this project and its design, engineering, operation, and maintenance for this work executed including all operation and maintenance records and manuals pertaining there to and complete as on the divestment date;

(e) The bidder executes such deeds of conveyance, documents and other writings as the Government of Goa may reasonably require to convey, divest and assign all the rights, title and interest of the bidder in this contract free from all encumbrances absolutely and free of any charge or tax unto the Government of Goa or its nominee; and

(f) The GBBN-extension bidder complies with all other requirements as may be prescribed under applicable laws to complete the divestment and assignment of all the rights, title and interest of the project, free from all encumbrances absolutely and free of any charge or tax to Government of Goa or its nominee.

(g) Not earlier than 3 (three) months before the expiry of the contract period but not later than 30 (thirty) days before such expiry, or in the event of earlier termination of the contract, immediately upon but not later than 15 (fifteen) days from the date of issue of termination notice, the independent consultant as nominated by the State Government shall verify, in the presence of a representative of the GBBN-extension Bidder, compliance by the GBBN-extension Bidder with the Divestment Requirements to the GBBN-extension Project and, if required, cause appropriate tests to be carried out at the GBBN-extension Bidder's cost for determining the compliance therewith. If either Party finds any shortcomings in the divestment requirements, it shall notify the other of the same and the GBBN-extension Bidder shall rectify the same at its cost.

(h) Upon the GBBN-extension Bidder conforming to all divestment requirements and handing over actual or constructive possession of the Project to Government of Goa or a person nominated by Government of Goa in this regard, Government of Goa shall issue a certificate, which will have the effect of constituting evidence of divestment of all rights, title and lien in the project by the bidder and their vesting in project pursuant hereto. State Government shall not unreasonably withhold issue of such certificate. the divestment of all rights, title and lien in the project shall be deemed to be complete on the date when all the divestment requirements have been fulfilled or the certificate has been issued, whichever is earlier, it being expressly agreed that any defect or deficiency in any divestment requirement shall not in any manner be construed or interpreted as restricting the exercise of any rights by State Government or its nominee on or in respect of the project on the footing as if all divestment requirements have been complied with by the concessionaire.

13. PAYMENT

The payment to the selected Agency shall be processed on quarterly basis. The Agency shall submit AMC reports for 20 quarters.

Sr. No	Milestone for release of Payment	Percentage of payment to be released
1	Mobilization Advance after issue of work order for existing infrastructure of the project	10% of the quoted price for AMC of first year to be released upon the issue of work order / signing of the Agreement within a period of 1 month whichever is earlier. Subjected to 10 % Bank Guarantee.
2.	End of every quarter for existing infrastructure of the project	Remaining 90% of the amount shall be paid in quarterly installments subject to the deduction of any penalties.
3	For Supply and installation of new networking equipments / shifting /new connectivity/rectification of networking.	75 % of CAPEX Value on delivery of the goods and 25 % on installation subjected to submission of 5% of Bank Guarantee.

14. OBLIGATIONS OF THE CONTRACTOR

In case of delay / inability of the contractor to carry out maintenance, the DOIT will be at liberty to get the work carried out from any other vendor and the total expenses paid to such vendor for carrying out the work will be recoverable from the contractor (L1), in addition to the penalty to be levied for the delay.

15. TERMINATION FOR NON FULFILLMENT OF CONTRACT

i. This contract may be terminated by either party to the contract by giving two month prior notice in writing on non-compliance of the terms and conditions mentioned herein, and in which case the charges payable, DOIT will be obliged to pay only for the actual amount for which the contractor has executed the work.

16. FORCE MAJURE

a) The contractor shall not be liable for any loss, damage, injury or delay which is due to fault or causes beyond the control of the contractor or force majored (but subject to all other clauses of this agreement) such as acts of God, Government directions, riots, war, Civil Commotion, Sabotage, fires, lightening, floods, earthquakes, explosions or other catastrophes, epidemics, quarantine, restrictions, strikes, lockouts, and other labor troubles, embargoes, theft of materials of the contractor, or other transportation delays beyond the control of the contractor.

b) In the circumstances mentioned in para **19.(a)**, the contractor shall not be liable for any loss of profit, consequential damages or any claim or demand by the DOIT or by any other party, even if the contractor has been advised by the DOIT of the possibility of such damages.

c) The damaged caused if any, either to the machines or to any other property of the Government department through negligence or otherwise, shall be at risk, cost and responsibility of the contractor or proportionate amount will be deducted towards such charges.

17. ACCEPTANCE AND WITHDRAWAL

a) The final acceptance of the tender would entirely vest with the Director(IT), Department of Information Technology, Government of Goa who reserves the right to accept or reject any or all the tenders without assigning any reasons whatsoever thereof and does not bind himself to accept the lowest tender. There is no obligation on the part of the Director (IT), Department of Information Technology, Government of Goa to communicate in any way with the rejected bidders. After acceptance of the tender by DOIT, the bidder shall have no right to withdraw his tender or claim higher price.

b) Tender with incomplete information/documentation or without valid EMD is liable for rejection without any notice/intimation to the tenderer/bidder.

c) If any information given by the Contractor / Tenderer / Bidder / Manufacturer is found to be false / fictitious, the Contractor / Tenderer / Bidder / Manufacturer will be debarred for 5 years from participating in any of the DOIT tenders.

d) All disputes, differences and questions whatsoever, which may arise between the Tenderer / Bidder / Contractor and the Director(IT), Department of Information Technology, Government of Goa in any way arising out of or relating to the terms and conditions or the construction or application thereof, any clause or thing therein contained, or the rights, duties and liabilities of either party, or otherwise in connection therewith shall be

referred to the sole arbitration of a person appointed by the Secretary(IT)), Department of Information Technology, Government of Goa. There shall be no objection from the Tenderer / Bidder / Contractor to such appointment. The decision of the arbitrator in the arbitration shall be final and binding on both the parties. All such arbitration proceedings shall be subject to the provisions of the Arbitration and Conciliation Act, 1996 (Central Act 26 of 1996), or any statutory modification or re-enactment thereof and the rules made thereunder for the time being in force.

e) In case of any dispute, the Court at Panaji, Goa, shall have the jurisdiction over the same.

18. THIRD PARY AUDIT

DOIT may appoint a Third Party Audit (TPA) Agency for monitoring the day to day activities of the work executed and for recommendation of payment. The selected bidder shall cooperate with the TPA Agency. DOIT officials shall monitor the day to day activities till TPA is appointed.

VI Evaluation Process

Overall Bid Evaluation

i. DOIT/Tender Evaluation Committee will evaluate and compare the bids determined to be substantially responsive.

Substantially Responsive bid: A substantially responsive bid is one, which confirm to all the requirements, terms, conditions and specifications of the Request for Proposal without any material deviations. Deviations from or objections or reservations to critical provisions such as those concerning performance security, warranty, applicable Law, taxes and duties will be deemed as material deviation.

i. DOIT's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence. It is DOIT/ Tender Evaluation Committee's intent to select the proposal that is most responsive /advantageous to the tender and each proposal would be evaluated using the criteria and process outlined in this section.

ii. Total Bid Evaluation: The Technical bid shall have a weightage of 50% in the overall evaluation of the technical bid and the financial bid shall

have a weightage of 50% in the overall evaluation.

iii. Final Score Computation: Based on the technical evaluation methodology, Technical Bid will be assigned a technical score (Tb) out of a maximum of 100 points as per the aforementioned Technical Evaluation Criteria Table.

iv. These technical scores would be normalized on a scale of 100, with highest score being normalized to 100 and the rest being awarded on a pro-rata basis. Such normalized scores would be considered for the purpose of QCBS based evaluation, explained in section below.

Quality and Cost based selection ()

The individual bidder technical scores will be normalized as per the formula below:

Tn = Tb/Tmax * 100

Where

Tn = normalized technical score for the bidder under consideration

Tb = absolute technical score for the bidder under consideration

Tmax = maximum absolute technical score obtained by any bidder evaluation of bids

v. The responsive bidders will be ranked in descending order according to the composite score as calculated based on the above formula. The bidder whose total composite score (weighted average of the technical and commercial score) is the maximum will be awarded the contract. However in order to ensure that the Government of Goa gets best solutions in Technical terms, DOIT reserves the right to enter into negotiation with bidder having highest technical score and place order with this bidder at a suitable price.

vi. The technical evaluation of bids will be carried out using a points system. Bidders with score of 35% and above in the technical bid shall be considered as technically qualified. The financial bid of only the technically qualified bidders shall be opened.

vii. If there is a discrepancy between words and figures, the amount in words will prevail. If the bidder does not accept the correction of the errors, its bid would be rejected and may result in forfeiture of EMD amount.

viii. The Tender Evaluation Committee may waive any minor infirmity,

nonconformity or irregularity in which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any bidder.

ix. The Tender Evaluation Committee reserves the right to reject any or all proposals on the basis of any deviations.

Evaluation of bids

I. DoIT/Tender Evaluation Committee will carry out a detailed evaluation of the Technical bids received by it in order to determine whether they are substantially responsive to the requirements set forth in the Request for Proposal. In order to reach such a determination, Tender Evaluation Committee will examine the information supplied by the bidders, and shall evaluate the same as per the evaluation criteria specified in this RFP.

II. Based on the technical evaluation, the financial bids of only the technically qualified shall be opened.

III. Bidders shall be opened by Tender Evaluation Committee. The Financial evaluation will take into account the information supplied by the bidders in the Financial Proposal, and shall evaluate the same as per the evaluation criteria specified in this RFP.

Technical Bid Evaluation

i. The objective of the Technical bid evaluation is to short list bidders who have the technical expertise/skills that are essential to establish / implement this business activity as envisaged.

ii. The technical bids shall be evaluated by the Tender Evaluation Committee based on a weighted point system, assessing each bidder's ability to satisfy the requirements set forth in this RFP Document. The Tender Evaluation Committee will evaluate the technical bid by taking into account factors mentioned below. The information furnished by the bidders in the technical bid shall be the basis for this evaluation.

iii. Each of the Technical bids shall be evaluated on a score of 100 points.

iv. Each Proposal will be evaluated according to the criteria mentioned at **Exhibit –I** .

v. An Evaluation Score (ES) shall be assigned to each prospective bidder on the basis of the technical bid submitted. The technical evaluation score shall be based on the number of points that shall be awarded as per the following Evaluation Criteria:

Quality and Cost based selection (QCBS)

The individual bidder technical scores will be normalized as per the formula below:

Tn = Tb/Tmax * 100

Where

Tn = normalized technical score for the bidder under consideration

Tb = absolute technical score for the bidder under consideration

Tmax = maximum absolute technical score obtained by any bidder evaluation of bids

vi. The responsive bidders will be ranked in descending order according to the composite score as calculated based on the above formula. The bidder whose total composite score (weighted average of the technical and commercial score) is the maximum will be awarded the contract. However in order to ensure that the Government of Goa gets best solutions in Technical terms, DOIT reserves the right to enter into negotiation with bidder having highest technical score and place order with this bidder at a suitable price.

vii. The technical evaluation of bids will be carried out using a points system. Bidders with score of 35% and above in the technical bid shall be considered as technically qualified. The financial bid of only the technically qualified bidders shall be opened.

Exhibit-I

Technical Evaluation (Points Distribution)

To technically qualify, the bidders would require satisfying a minimum score of 35% marks:

S. No.	Technical Criteria	Marks	Compliance
	Total	**50**	
I	The company with following ISO certifications:- ISO 270001:2013 ISO /IEC 20000-1:2018 ISO 9001:2015 CMMI maturity level 3 (Any certification shall carry 5 marks maximum 10 marks)	**10**	Necessary proof to be submitted.
II	The company/firm with qualified IT personnel CCNA/ CCNP/ Masters in Engineering (the certifications has to be recognized all over the world) or similar certifications on its roll with 20 Engineers= 10 marks 15 Engineers =8 marks 10 Engineers= 5 marks 5 Engineers = 3 marks	**10**	Necessary proof to be submitted.
III	The company form with single P.O of smart city or similar networking projects With value equals or more than 100 crores. 1 project = 5 marks 2 projects =7 marks 3 projects =10 marks	**10**	
IV	Presentation on AMC Execution plan – 10 Mark Innovation/Best Practice on AMC- 05 Mark Case studies on previous implemented projects -05 marks	**20**	Presentation to be submitted in soft copy and hard copy .

Note: All the relevant documents required for the technical scoring should be placed in the Technical bid.

Financial Bid Evaluation

Although the Financial bid will also be submitted at
the same time along with the Technical bid, the same would be opened at only after completing the evaluation of Technical bids.

Financial bids of only those bidders who score more than the minimum cutoff points in the technical bid will be opened in the presence of their representatives if any at a scheduled date and time.

To allow comparison on a common basis, each Financial Bid will be carefully scrutinized and an Estimated Total Price (ETP) will be determined. The Financial Bid with the lowest ETP will receive the maximum score of 100 marks. The score for each other Financial Proposal will be inversely proportional to its ETP and will be computed as follows:

Fn = Fm / F * 100

Where: **Fn** is the financial score of the Financial Bid being evaluated,

Fm is the ETP of the lowest priced Financial Bid,

F is the ETP of the Financial Bid under consideration.

Final Evaluation of the Bid

i. Proposals will be ranked according to their combined technical (Tn) and financial (Fn) scores using the weights (T = 0.50 the weight given to the Technical Proposal; P = 0.50 the weight given to the Financial Proposal; T + P = 1).

ii. The combined technical and financial S = Tn x T + Fn x P

iii. The responsive bidders will be ranked in descending order according to the composite score as calculated based on the above formula.

iv. The Bidder whose total composite score (weighted average of the technical and commercial score) is the maximum will be awarded the Contract.

SPECIFICATIONS OF ITEMS TO BE SUPPLIED:

	8 PORT GIGA L2 SMART MANAGED POE	
	Technical Specifications Description	Compliance
Make:_____ (Specify)		
Model:_____(Specify)		
Sr No		
1	Wall/Desktop Mountable	
2	8 Port 10/100/1000 with PoE Managed Switch + 2 Fiber SFP ports	
3	suppport 2 No's 1000 Base mini GBIC/SFP tans receivers LC connector for connecting single mode fiber(LX)	
4	75W (PoE+ supported)	
5	Display Each port must have a dedicated LED status display.	
	Supported Up to 8K MAC addresses	
6	At least 20 Gbps	
7	Packet throughput 14 Mbps or more	
8	Support for up to 4096 VLANs simultaneously Port-based and 802.1Q tag-based VLANs MAC-based VLAN	
9	HTTP/HTTPS; SSH; RADIUS; port mirroring; TFTP upgrade; DHCP client/server; Traceroot; BOOTP; SNTP; ping; syslog; Telnet client	
10	IEEE 802.1d Spanning tree protocol	
11	IEEE 802.1W RSTP(Rapid spanning Tree Protocol)	
12	IEEE 802.1s Multiple Spanning Tree Protocol (MSTP)	
13	Support EAPS for RING	
14	Support for IEEE 802.3ad Link Aggregation Control Protocol (LACP)	
15	● Up to 8 ports per group with 4 candidate ports for each (dynamic) 802.3ad link aggregation	
16	Port mirroring /span Port	
17	Support standard IP/ Extend IP / MAC IP / ARP ACL	
18	Web Management, SNMP v1/v2/v3, Telnet, Upgrade Firmware	
19	240mm x 104mm x 29mm	
20	AC Input 100-240V AC. Power Cable as per Indian Standards to be Provided	

	8 PORT GIGA L2 SMART MANAGED	
	Technical Specifications	Compliance
	Description	
Make:_____ (Specify)		
Model:_____(Specify)		
Sr No	General Features	
1	The switch support a minimum of 8 nos. 10/100/1000 Ethernet Ports	
2	The switch support a minimum of 2 SFP Uplinks	
3	The switch support a total of 10 Ports	
4	Performance and Scalability	
5	support Full-duplex Switching bandwidth of 20 Gbps	
	support 64-Byte Packet Forwarding Rate of 14.88 Mpps	
6	support a Dual Core CPU	
7	support 32 MB of Flash memory	
8	support 128 MB of DRAM	
9	support 64 VLANs	
10	support 4096 VLAN IDs	
11	support Jumbo frames of 9216 bytes	
12	Maximum transmission unit (MTU) of 9198 bytes	
13	The switch should support 8000 Unicast MAC addresses	
14	Dimension	
15	The Switch should be 1RU	
16	The switch should support Operating temperature from 0°to 45ºC	
17	The switch should support Operating relative humidity 15% to 90% noncondensing	
18	Power Supply	
19	support an auto-ranging power supply with input voltages between 100 and 240V AC	
20		
21	Standards	
22	support IEEE 802.1D Spanning Tree Protocol	
23	support IEEE 802.1p	
24	support IEEE 802.1Q Trunking	
25	support IEEE 802.1s Multiple Spanning Tree (MSTP)	
26	support IEEE 802.1w Rapid Spanning Tree (RSTP)	
27	support IEEE 802.1x	
28	support SNMP v1, v2c, and v3	
29	Layer-2 Features	

30	support Automatic Negotiation of Trunking Protocol, to help minimize the configuration & errors	
31	support IEEE 802.1Q VLAN encapsulation	
32	support Centralized VLAN Management. VLANs created on the Core Switches should be propagated automatically	
33	support Spanning-tree root guard to prevent other edge switches becoming the root bridge.	
34	support static routing	
35	support IGMP filtering	
36	Per-port multicast storm control to prevent faulty end stations from degrading overall systems performance	
37	support Per-port unicast storm control to prevent faulty end stations from degrading overall systems performance	
38	The switch should support IGMP v1, v2 Snooping & Filtering	
39	support IGMP v3 Snooping	
40	support Static Routing	
41		
42	Network security features	
43	support IEEE 802.1x to allow dynamic, port-based security, providing user authentication.	
44	support Port-based ACLs for Layer 2 interfaces to allow application of security policies on individual switch ports.	
45	DHCP Features	
46	Shall support DHCP snooping to allow administrators to ensure consistent mapping of IP to MAC addresses DHCP binding database, and to rate-limit the amount of DHCP traffic that enters a switch port.	
47	support DHCP Option 82 data Insertion	
48	support DHCP Option 82 - Configurable Remote ID and Circuit ID	

	8 PORT UNMANAGED POE SWITCH	
Sr No	Technical Specifications	Compliance
Sr No	Description	
Make:_____ (Specify)		
Model:_____(Specify)		
	Description	
1	8 Gigabit Unmanaged Ports	
2	Minimum 8 Ports should be PoE	

3	PoE Features : IEEE 802.3af & IEEE 802.3at compliant PoE on all ports, Supplies power to PD: up to 30 Watts	
4	PoE Budget : 130Watts	
5	Data Transfer Rates : Gigabit Ethernet min. 2000 Mbps (full duplex)	
6	RAM buffer : Min. 192 KBytes per device	
7	Switching Capacity : Min. 16 Gbps	
8	Operating temperature: 0°C ~ 40°C	
9	Storage temperature: -10°C ~ 70°C	
10	MAC Address Table : 8K Entries per device (or More)	
11	Power Adaptor: Internal Power 230V/AC	
12	Auto MDI/MDIX Crossover for all ports	
13	Transmission Method : Store-and-forward	
14	Plug and Play installation	
15	Standards :	
16	IEEE 802.3 10BASE-T Ethernet	
17	IEEE 802.3u 100BASE-TX Fast Ethernet	
18	IEEE 802.3ab 1000BASE-T Gigabit Ethernet	
19	IEEE 802.3x Full Duplex Flow Control	
20	IEEE 802.3af Power over Ethernet	
21	IEEE 802.3at Power over Ethernet	

	24 port Gigabit switch additional 4 SFP ports (Layer 2)	
	Technical Specifications **Description**	Compliance
Make:_____ (Specify)		
Model:_____(Specify)		
	Technical Specifications	
1	General Features	
2	The switch should support a minimum of 24 nos. 10/100/1000 Ethernet Ports	
3	The switch should support a minimum of 4 SFP Uplinks	
4	The switch should support a total of 28 Ports	
5	Performance and Scalability	
6	The switch should support Full-duplex Switching bandwidth of 56 Gbps	
7	The switch should support 64-Byte Packet Forwarding Rate of 41.67 Mpps	
8	The switch should support a Dual Core CPU	

9	The switch should support 32 MB of Flash memory	
10	The switch should support 128 MB of DRAM	
11	The switch should support 64 VLANs,4096 VLAN IDs	
12	The switch should support Jumbo frames of 9216 bytes	
13	The switch should support Maximum transmission unit (MTU) of 12K	
14	The switch should support 16000 Unicast MAC addresses	
15	Standards	
16	The switch should support IEEE 802.1D Spanning Tree Protocol,support IEEE 802.1p	
17	The switch should support IEEE 802.1s Multiple Spanning Tree (MSTP),The switch should support IEEE 802.1w Rapid Spanning Tree (RSTP)	
18	The switch should support IEEE 802.1x,should support IEEE 802.1Q Trunking	
19	The switch should support SNMP v1, v2c, and v3	
20	Layer-2 Features	
21	The switch should support Automatic Negotiation of Trunking Protocol, to help minimize the configuration & errors	
22	The switch should support IEEE 802.1Q VLAN encapsulation	
23	The switch should support Spanning-tree root guard to prevent other edge switches becoming the root bridge.	
24	The switch should support IGMP filtering	
25	The switch should support Per-port multicast storm control to prevent faulty end stations from degrading overall systems performance	
26	The switch should support Per-port unicast storm control to prevent faulty end stations from degrading overall systems performance	
27	The switch should support IGMP v1, v2 Snooping	
28	The switch should support IGMP v3 Snooping	
29	Network security features	
30	The switch should support IEEE 802.1x to allow dynamic, port-based security, providing user authentication.	
31	The switch should support Port-based ACLs for Layer 2 interfaces to allow application of security policies on individual switch ports.	

32	The switch should support SSHv2 and SNMPv3 to provide network security by encrypting administrator traffic during Telnet and SNMP sessions.	
33	The switch should support TACACS+ and RADIUS authentication enable centralized control of the switch and restrict unauthorized users from altering the configuration.	
34	The switch should support MAC address notification to allow administrators to be notified of users added to or removed from the network.	
35	The switch should support Private VLAN or equivalent	
36	DHCP Features	
37	The switch should support DHCP snooping to allow administrators to ensure consistent mapping of IP to MAC addresses DHCP binding database, and to rate-limit the amount of DHCP traffic that enters a switch port.	
38	The switch should support DHCP Option 82 data Insertion	
39	The switch should support DHCP Option 82 - Configurable Remote ID and Circuit ID	

	24 PORT MANAGED L3 POE GIGA SWITCH	
	Technical Specifications	Compliance
Sr No	Description	
Make:_____ (Specify)		
Model:_____(Specify)		
1	The switch should support a minimum of 20 nos. 10/100/1000 Ethernet Ports	
2	The switch should support a minimum of 4 Combo (GT/SFP) Uplinks.	
3	The switch should support a minimum of 4 SFP+ Uplinks.	
4	Performance and Scalability	
5	The switch should support Full-duplex Switching bandwidth of 128 Gbps	
6	The switch should support 64-Byte Packet Forwarding Rate of 95 Mpps	
7	The switch should support 32MB SPI + 128MB NAND of Flash memory	
8	The switch should support 512 MB of DRAM	

9	The switch should support 64 VLANs	
10	The switch should support 4096 VLAN IDs	
11	The switch should support Jumbo frames of 9216 bytes	
12	The switch should support Maximum transmission unit (MTU) of 10K	
13	Stacking	
14	The Switch architecture should be able to stack 4 switches together with virtual stacking	
15	Power Supply	
16	The switch should support an auto-ranging power supply with input voltages between 100 and 240V AC.	
17	Power over Ethernet Budget 370W	
18	All ports should support IEEE802.3af & IEEE802.3at	
19	Standards	
20	The switch should support IEEE 802.1D Spanning Tree Protocol	
21	The switch should support IEEE 802.1p	
22	The switch should support IEEE 802.1Q Trunking	
23	The switch should support IEEE 802.1s Multiple Spanning Tree (MSTP)	
24	The switch should support IEEE 802.1w Rapid Spanning Tree (RSTP)	
25	The switch should support IEEE 802.1x	
26	The switch should support SNMP v1, v2c, and v3	
27	Layer-2 Features	
28	The switch should support Automatic Negotiation of Trunking Protocol, to help minimize the configuration & errors.	
29	The switch should support IEEE 802.1Q VLAN encapsulation.	
30	The switch should support Centralized VLAN Management. VLANs created on the Core Switches should be propagated automatically.	
31	The switch should support Per-port multicast storm control to prevent faulty end stations from degrading overall systems performance	
32	The switch should support Per-port unicast storm control to prevent faulty end stations from degrading overall systems performance	
33	The switch should support Auto-negotiation on all ports to automatically selects half- or full- duplex transmission mode to optimize bandwidth	
34	The switch should support IGMP v1, v2 Snooping	

35	The switch should support IGMP v3 Snooping Multicasting	
36	The switch should support IGMP v1, v2 Filtering	
37	Layer-3 Features	
38	The switch should support Static Routing, RIPv1/v2, OSPFv2, BGP4, OSPFv3, BGP4+	
39	The switch should support LPM Routing	
40	The switch should support Policy-based Routing(PBR) for IPv4 and Ipv6	
41	The switch should support VRRP, URPF, ECMP, BFD, IGMP v1/v2/v3, IGMP Proxy	
42	Network security features	
43	DHCP Features	
44	The switch should support DHCP snooping to allow administrators to ensure consistent mapping of IP to MAC addresses DHCP binding database, and to rate-limit the amount of DHCP traffic that enters a switch port.	
45	The switch should support DHCP Option 82 data Insertion	
46	The switch should support DHCP Server/Client for IPv4/IPv6	

24 port Gigabit stackable switch with additional 4SFP+ ports (Layer 3)		
Sr No	Technical Specifications	
Sr No	Description	Compliance
Make:_____ (Specify)		
Model:_____(Specify)		
Sr No	Technical Specifications	
1	General Features	
2	The switch should support a minimum of 20 nos. 10/100/1000 Ethernet Ports	
3	The switch should support a minimum of 4 Combo (GT/SFP) Uplinks.	
4	The switch should support a minimum of 4 SFP+ Uplinks.	
5	Performance and Scalability	
6	The switch should support Full-duplex Switching bandwidth of 128 Gbps	
7	The switch should support 64-Byte Packet Forwarding Rate of 95 Mpps	

8	The switch should support 32MB SPI + 128MB NAND of Flash memory	
9	The switch should support 512 MB of DRAM	
10	The switch should support 64 VLANs	
11	The switch should support 4096 VLAN IDs	
12	The switch should support Jumbo frames of 9216 bytes	
13	The switch should support Maximum transmission unit (MTU) of 10K	
14	The switch should support 16000 Unicast MAC addresses	
15	Stacking	
16	The Switch architecture should be able to stack 4 switches together with virtual stacking	
17	The Switch stack should be based on Distributed forwarding Architecture, where in each stack member forwards its own information on network.	
18	The Switch should support Stateful Switchover (SSO) when switching over from Active to Standby switch in a Stack.	
19	The Switch stacking should support 20 Gbps of throughput.	
20	The Switch stacking should support single IP address management for the group of switches.	
21	Power Supply	
22	The switch should support an auto-ranging power supply with input voltages between 100 and 240V AC.	
23	Power over Ethernet Budget 370W	
24	All ports should support IEEE802.3af & IEEE802.3at	
25	Standards	
26	The switch should support IEEE 802.1D Spanning Tree Protocol, support IEEE 802.1p	
27	The switch should support IEEE 802.1w Rapid Spanning Tree (RSTP), support IEEE 802.1x	
28	The switch should support SNMP v1, v2c, and v3	
29	Layer-2 Features	
30	The switch should support Automatic Negotiation of Trunking Protocol, to help minimize the configuration & errors.	
31	The switch should support IEEE 802.1Q VLAN encapsulation.	
32	The switch should support Centralized VLAN Management. VLANs created on the Core Switches should be propagated automatically.	

33	The switch should support Per-port multicast storm control to prevent faulty end stations from degrading overall systems performance	
34	The switch should support Per-port unicast storm control to prevent faulty end stations from degrading overall systems performance	
35	The switch should support Auto-negotiation on all ports to automatically selects half- or full- duplex transmission mode to optimize bandwidth	
36	The switch should support IGMP v1, v2 Snooping, IGMP v3 Snooping Multicasting, IGMP v1, v2 Filtering	
37	Layer-3 Features	
38	The switch should support Static Routing, RIPv1/v2, OSPFv2, BGP4, OSPFv3, BGP4+	
39	The switch should support LPM Routing, The switch should support Policy-based Routing(PBR)	
40	IPv4 and Ipv6	
41	The switch should support VRRP, URPF, ECMP, BFD, IGMP v1/v2/v3, IGMP Proxy	
42	The switch should Static Multicast Route, Multicast Receive Control, Illegal Multicast Source Detect	
43	The switch should support ARP Guard, Local ARP proxy, Proxy, ARP, ARP Binding, Gratuitous ARP, ARP Limit	
44	Network security features	
45	The switch should support IEEE 802.1x to allow dynamic, port-based security, providing user authentication.	
46	The switch should support Port-based ACLs for Layer 2 interfaces to allow application of security policies on individual switch ports.	
47	The switch should support SSHv2 and SNMPv3 to provide network security by encrypting administrator traffic during Telnet and SNMP sessions.	
48	The switch should support TACACS+ and RADIUS authentication enable centralized control of the switch and restrict unauthorized users from altering the configuration.	
49	The switch should support MAC address notification to allow administrators to be notified of users added to or removed from the network.	

50	The switch should support Private VLAN, Guest VLAN, or equivalent	
51	DHCP Features	
52	The switch should support DHCP snooping to allow administrators to ensure consistent mapping of IP to MAC addresses DHCP binding database, and to rate-limit the amount of DHCP traffic that enters a switch port.	
53	The switch should support DHCP Option 82 data Insertion	
54	The switch should support DHCP Server/Client for IPv4/IPv6	
55	5 Years Warranty	

	24 PORT POE GIGA MANAGED SWITCH L2	
	Technical Specifications	
	Description	Compliance
Make:_____ (Specify)		
Model:_____(Specify)		
1	Form Factor 19" Rack Mountable.	
2	Physical Dimensions	
3	Architecture Non Blocking	
4	Ports It provides 24 10/100/1000Base-TX ports with PoE + 2 gigabit Combo ports(RJ45/SFP) + 2 gigabit SFP ports	
5	GBIC/SFP -support 2 gigabit combo ports (RJ45/SFP) + 2 x gigabit SFP Ports	
6	Management Interface -Web/SNMP/SSH/Telnet(IPv6 ready)/Console	
7	PoE 270W (PoE+ supported) with (6Kv) surge protection	
8	Port Status - Power, Link/Act, PoE	
9	Power over Ethernet- Support IEEE802.3af, IEEE802.3at	
10	24 port PoE Interfaces, Max. PoE Wattage per Port: 30W	
11	Surge Protection-with 6 Kv surge protection per port	
12	MAC Addresses- Supported Up to 8K MAC addresses	
13	Switching capacity- 56 Gbps	
14	and forwarding rate 41.7 MPPS	

15	VLANConfiguration- supports upto 4K VLAN Based on 802.1Q,MAC-Based VLAN, IP-Based VLAN	
16	Protocol-Based VLAN,VLAN Mapping	
17	Voice VLAN, Guest VLAN, Private VLAN	
18	Double VLAN Markup (Basic Q-in-Q)	
19	MAC Configuration -Support Static MAC Address, MAC Binding, MAC Filtering	
20	Support Web Management	
21	Support serial port management, Support TELNET management, Support SSH management	
22	Support RMON 1,2,3,9 group	
23	support port loop detection ,L2 Loop Protection	
24	Support STP/RSTP/MSTP,Link Aggregation	
25	Support manual Link Aggregation, Support LACP	
26	Up to 8 maximum aggregation groups, each containing up to 8 ports	
27	QOS Support -Support WRR, SP,WFQ, Sorting Based on 802.1p,	
28	Support packet mapped to the corresponding output queue, Support to modify the packet's COS and DSCP sign, Support limit of data flow, Support statistics of data flow, Support mirroring of data flow	
29	ACL SUPPPORT- Based on Standard IP	
30	Based on Extend IP, Based on MAC IP, Based on MAC ARP	
31	Based on time, Port Filtering, MLD Snooping	
32	DHCP SNOOPING,IGMP SNOOPING	
33	IPv6- ICMPv6	
34	IPv6 Neighbor Discovery, IPv6 Telnet	
35	Port Security- Each port can be configured into isolated protected port from each other	
36	SNMP Support SNMP protocol, Support SNMP TRAP, Support standard and private MIB	
37	Cluster Management -Support neighbor discovery protocol, Support topology discovery protocol, Support manual and automated join cluster group, Support cluster unification management	
38	OAM -Support 802.3ah, Support 802.1ag	
39	Configuration Download/Upload and Upgrade Firmware	

40	Debugging Tools- Support Ping, Traceroute, Telnet client.	
41	Port mirroring /span Port- Support many to one mirroring	
42	DHCP SNOOPING-Support dynamic ARP binding to prevent ARP spoofing	
43	Support dynamic IP,MAC port binding	
44	Support stationary port connect to DHCP server, to prevent privately connect to DHCP sever	
45	AAA-Support 802.1x protocol, RADIUS , Support MAC-based 802.1X authentication, Support 802.1x guest VLAN	
46	Layer 3 Switching support-Support static Route and Static ARP	
47	EAPS Protocol-support ERPS	
48	Power-AC Input 100-240V AC. Power Cable as per Indian Standards to be Provided.	
49	WARRANTY 3 YEARS	

	24 PORT L3 MANAGED	
Sr No	Technical Specifications	
Sr No	Description	Compliance
Make:_____ (Specify)		
Model:_____(Specify)		
1	General Features	
2	The switch should support a minimum of 24 nos. 10/100/1000 Ethernet Ports	
4	The switch should support a minimum of 4 SFP+ Uplinks.	
5	Performance and Scalability	
6	The switch should support Full-duplex Switching bandwidth of 128 Gbps	
7	The switch should support 64-Byte Packet Forwarding Rate of 95 Mpps	
8	The switch should support 32MB SPI + 128MB NAND of Flash memory	
9	The switch should support 512 MB of DRAM	
10	The switch should support 64 VLANs	
11	The switch should support 4096 VLAN IDs	
12	The switch should support Jumbo frames of 9216 bytes	

13	The switch should support Maximum transmission unit (MTU) of 10K	
14	The switch should support 16000 Unicast MAC addresses	
15	Stacking	
16	The Switch architecture should be able to stack 4 switches together with virtual stacking	
17	The Switch stack should be based on Distributed forwarding Architecture, where in each stack member forwards its own information on network.	
18	The Switch should support Stateful Switchover (SSO) when switching over from Active to Standby switch in a Stack.	
19	The Switch stacking should support 20 Gbps of throughput.	
20	The Switch stacking should support single IP address management for the group of switches.	
21	Power Supply	
22	The switch should support an auto-ranging power supply with input voltages between 100 and 240V AC.	
23	Standards	
24	The switch should support IEEE 802.1D Spanning Tree Protocol, support IEEE 802.1p	
25	The switch should support IEEE 802.1w Rapid Spanning Tree (RSTP), support IEEE 802.1x	
26	The switch should support SNMP v1, v2c, and v3	
27	Layer-2 Features	
28	The switch should support Automatic Negotiation of Trunking Protocol, to help minimize the configuration & errors.	
29	The switch should support IEEE 802.1Q VLAN encapsulation.	
30	The switch should support Centralized VLAN Management. VLANs created on the Core Switches should be propagated automatically.	
31	The switch should support Per-port multicast storm control to prevent faulty end stations from degrading overall systems performance	
32	The switch should support Per-port unicast storm control to prevent faulty end stations from degrading overall systems performance	
33	The switch should support Auto-negotiation on all ports to automatically selects half- or full- duplex transmission mode to optimize bandwidth	

34	The switch should support IGMP v1, v2 Snooping,IGMP v3 Snooping Multicasting, IGMP v1, v2 Filtering	
35	Layer-3 Features	
36	The switch should support Static Routing, RIPv1/v2, OSPFv2, BGP4, OSPFv3, BGP4+	
37	The switch should support LPM Routing.	
38	The switch should support Policy-based Routing(PBR)	
39	IPv4 and Ipv6	
40	The switch should support VRRP, URPF, ECMP, BFD, IGMP v1/v2/v3, IGMP Proxy	
41	The switch should Static Multicast Route, Multicast Receive Control, Illegal Multicast Source Detect	
42	The switch should support ARP Guard, Local ARP proxy, Proxy, ARP, ARP Binding, Gratuitous ARP, ARP Limit	
43	Network security features	
44	The switch should support IEEE 802.1x to allow dynamic, port-based security, providing user authentication.	
45	The switch should support Port-based ACLs for Layer 2 interfaces to allow application of security policies on individual switch ports.	
46	The switch should support SSHv2 and SNMPv3 to provide network security by encrypting administrator traffic during Telnet and SNMP sessions.	
47	The switch should support TACACS+ and RADIUS authentication enable centralized control of the switch and restrict unauthorized users from altering the configuration.	
48	The switch should support MAC address notification to allow administrators to be notified of users added to or removed from the network.	
49	The switch should support Private VLAN, Guest VLAN, or equivalent	
50	DHCP Features	
51	The switch should support DHCP snooping to allow administrators to ensure consistent mapping of IP to MAC addresses DHCP binding database, and to rate-limit the amount of DHCP traffic that enters a switch port.	
52	The switch should support DHCP Option 82 data Insertion	

53	The switch should support DHCP Server/Client for IPv4/IPv6	
54	WARRANTY 5 YEARS	

SFP Transmodule SM/MM		
	Technical Specifications	
	Description	Compliance
Make:_____ (Specify)		
Model:_____(Specify)		
1	Architecture 1-port mini-GBIC LX Single-mode/MM Fiber Transceiver	
2	Connector duplex LC Connector	
3	Flow control.Support 802.3x	
4	Mode 9/125 um Single mode Fiber Type up to 20 KM./MM upto 2kms.	
5	Support wavelenght :1310nm	
6	Power Support:3.3V	
SOLID CABLE CATEGORY 6 A UTP		
Sr No	Description	Compliance
Make:_____ (Specify)		
Model:_____(Specify)		
	The 4 pair Unshielded Twisted Pair cable shall be ULÒ Listed.	
	This cable well exceeds the requirements of TIA/EIA-568-C.2 and ISO/IEC 11801	
	Nominal Outer Diameter of Cable should be 7.10+/- 0.3mm and Conductor Diameter 0.56 mm (23 AWG)	
	Construction: 4 twisted pairs separated by internal PE Cross Separator. Full separator. Half shall not be accepted. Rip Cord is must.	
	Conductor Solid bare Copper and Outer jacket sheath FRPVC and UL approved CM rated cable. Jacket color: Light Grey	
	Insulation :High Density Polyethylene Solid	
	Dielectric Strength of cable should be 1000 V RMS	
	Bending Radius : < 4X Cable Diameter at -20°C +/- 1°C Pulling Force: 25.35 LBS	
	Electrical Parameters Pair – to – pair and PS NEXT, ELFEXT and PSELFEXT, Return Loss, ACR and PS ACR.	
	Insertion Loss of 33.9 db/100m at 250 MHz	

	Cable should support operating Temperature from -20° to +70°C	
	Cable support Conductor Resistance < 74.6 Ω /1000m	
	Mutual Capacitance of cable should be < 5.6nF/100m	
	Max Resistance Unbalance of cable should be 5% Max	
	Capacitance Unbalance of cable should max 330pF/100m	
	Cable support Delay Skew: < 45nS, Operating Voltage: 72V NVP: 69% and Current Rating : MAX 1.5A	
	Printed sequential Length Counter of each meter on Outer Jacket	
	Category 6A UTP cables shall Supports Gigabit Ethernet (1000 base-T) standard and Operates at bandwidth of 500MHz	

CAT6A KEYSTONE

Sr No	Description	Compliance
Make:_____ (Specify)		
Model:_____(Specify)		
	Category 6A Keystone is Tool less Design 50 Micron Gold Plating Suitable For 23~24 AWG Stranded and Solid Wire, Easy For Termination and Compliant to T568A and T568B Wiring Schemes	
	Efficient : Rotation Design Tool Free, Press with Click to Terminate Wires	
	Cable Holder with Strain Relief Function for Better Termination	
	Fast, Easy, Reliable Termination	
	Removable Shutter Option	
	Keystone Jack Can Be Easily Terminated by Hand, Optional Termination by Hand Tool	
	Backward compatible with both RJ11/RJ12 Plug	
	Physical:	
	Housing : High impact flame retardant plastic, UL 94V-0 rated	
	PCB : FR4, 1.6mm Thickness	
	Jack Wire : Phosphor bronze gold over nickel plating	
	Nickel Plating Base(Ni) : 40µ~80µ	

	Gold Plating : 50 microns	
	Connector : Insulation displacement connector	
	(IDC) Accept #23~24 AWG solid wire	
	Electrical:	
	Current Rating : 1.5amps	
	Insulation Resistance : 500 MΩ minimum	
	Contact Resistance : 10 mΩ maximum	
	DC Resistance : 0.1 Ω maximum	
	Mechanical:	
	Plug Insertion Life : 750 Cycles minimum	
	Plug & Jack Contact Force :100 Grams minimum using FCC-approved plug	
	Plug Retention Force : 30 lbs minimum	
	Temperature : -40° to 150°F (-40° to 68°C)	
	Standard Verification:	
	Qualified unscreened Class EA/Cat.6A	
	Permanent Link & Channel ANSI/TIA-568-C.2	
	IEC 60603-7-4 2nd Edition	
	ISO/IEC 11801 2.2 Edition	
	CENELEC EN 50173-1:2011	

24 PORT PATCH PANEL LOADED 90DEGREE		
Sr No	Description	Compliance
Make:_____ (Specify)		
Model:_____(Specify)		
	The Cat-6A transmission performance is in compliance and Exceeds ANSI/TIA/EIA-568-C.2 Standard. Supports 1000-Base-T.	
	90 Degree (Top Entry) Punch Down Design for Convenient Network Terminations	
	Ease of Installation with built in Rear Cable Management.	
	Removable Module Design	
	6x4 Module Specially Designed Jack Configuration	
	PCB: FR4, 1.6mm Thickness.	
	IDC Conductor : 0.5 mm Phosphor Bronze, Tin Plating	
	Contact Compatibility : 22~26 AWG Stranded and Solid Wires	
	1U Patch Panel to Mount In any Standard Rack. Panel Frame : SPCC Powder Coating In Black Color.	

	Housing : High Impact Flame Retardant Plastic, UL 94V-0 Rated	
	Easy Port Labeling Identification Provision	
	Electrical Characteristics:	
	Current Rating : 1.5amps	
	Insulation Resistance : >= 500mΩ	
	Contact Resistance : <=10mΩ	
	DC Resistance : <=0.1Ω	
	DC/AC Volt Endurance : DC 1000V/AC 750V 1 Min	
	Mechanical Characteristics:	
	Plug Insertion Life : >= 750 Cycles with FCC Compliant RJ-45 Plug	
	Plug & Jack Contact : >= 100 Grams with FCC Compliant RJ-45 Plug Force	
	Plug Retention Force : >= 11 LBF	
	Durability : 200 Termination Cycles	
	Operating Temperature : -10 Degree ~ 60 Degree	
	Operating Humidity : 10% ~ 90% RH	
	Storage Temperature : -40 Degree ~ 68 Degree	
	Standard Verification:	
	ANSI/TIA-568-C.2	
	ISO/IEC 11801:2002/AMMD.2:2010	
	YD/T 926.3-2009	
	ISO/IEC 60603-7 Compliant	
	RoHS Directive 2002/95/EC/Compliant	

FACE PLATE		
Sr No	Description	Compliance
Make:_____ (Specify)		
Model:_____(Specify)		
	Single & DUAL Face Plate Square (86 x 86mm) x 12 mm	
	Two Piece design : Mounting Frame and Cover Plate	

	Shutter on Face Plate	
	Elegant : hidden-screw design	
	Glossy Finish : Suite for all decor	
	Cover Material : ABS-UL94-V2	
	Base Material : ABS-UL94-V2	
	Dust Cover Material : ABS-UL94-V2	
	Plug Retention Force : 14Kgf (140N)	
	Plug Reliability : 750 Cycles minimum	
	Should support UTP and STP Jacks Cat5e, Cat6 and Cat6A	
	Standard Verification:	
	ANSI/TIA-568-C.2	
	ISO/IEC 11801:2002 AMMD.2:2010	
	YD/T 926.3-2009	
	ISO/IEC 60603-7 Compliant	
	RoHS Directive 2002/95/EC/Compliant	

SURFACE MOUNT BOX		
Sr No	Description	Compliance
Make:_____ (Specify)		
Model:_____(Specify)		
Model:_____(Specify)		
1	Should have Robust and installer friendly design Surface Mount Boxes for Face Plates for a variety of media including voice and data, Audio, video and CATV distribution to the work area.	
2	Should secure and protect wire with durable wall box	
3	Material : ABS	
4	Shape : Square Size : 86 x 86	
5	Color : White	

FIBER PATCHCORD DUPLEX 2/5MTR LSZH		
Sr. No	Description	Compliance
Make:_____ (Specify)		
Model:_____(Specify)		
	LSZH Jacket-Reduced Toxic Gasses Emitted During Combustion.	
	Simplex and Duplex Options	
	100% Factory Tested	

	Low Insertion Loss and Return Loss	
	Available with Corning Fiber	
	Available in PC/APC Type Options	
	High Precision Ceramic Ferrule with Good Concentricity	
	LC to LC ,LC TO SC , SC TO SC	
	Technical Specifications:	
	Connector Type : LC ,SC	
	Fiber Type : OS2	
	Tight Buffer Color : yellow	
	Tight Buffer Material : LSZH	
	Tight Buffer Diameter (mm) : 0.9 +/- 0.05	
	Strength Member : Aramid Yarn	
	Jacket Color : Yellow	
	Jacket Material : LSZH	
	Jacket Thickness (mm) : 0.45 +/- 0.05	
	Cable Diameter (mm) : 1.8(+/-0.1) X 5.9(+/-0.2)	
	Minimum Bending : 30 (static)	
	Radius (mm)	
	Attenuation (db/km) : <= 1.5 at 1300nm, <= 3.5mm at 850nm	
	Short Term Tensile (n) : 160	
	Crush Resistance (n/100mm) : 500	
	Operation Temperature : Minus 20 ~ Plus 70	
	(degree)	
	Optical Specifications	
	Insertion Loss : <= 0.2 db, Max 0.3db/MTRJ: Max 0.5db	
	Return Loss : PC>= 45db, UPC>=50db, APC>=60db	
	Mechanical Specifications	
	Connector Ferrule : Ceramic,	
	(MTRJ: PS Polyphenylene Sulphide)	
	Apex Offset : <50µm	
	Fiber Height : (+/-)100nm	
	End Face Radius of Curvature : 7mm <R<25mm(Excluding MTRJ)	
	Repeatibility : <= 0.2db 1000 Times Mating Cycles	

DRAWAER LIU		
Sr No	Description	Compliance
Make:_____ (Specify)		
Model:_____(Specify)		

	Unload 24 Port Configuration Available in Standard 19”	YES
	6/12/24 Ports Adapter Interface available from day one without any adapter plates.	YES
	Consist of Top Cover and Bottom Panel	YES
	Easy to Assemble and Dissemble	YES
	Three Types of Inlet Holes	YES
	Cable Entry Through Water Proof Cable Glands	YES
	Splice Max 24 Fibers per Splice Tray	YES
	Patch Cord with Bend Radius Guides Minimize Macro Bending	YES
	Install 6 Cable Management Rings Inside to Ensure Flexibility	YES
	Comprehensive Accessory Kits for Cable Entry and Fiber Management	YES
	Dimensions (mm) : 430 X 220 X 1U	YES
	Body Material : SPCC Black Powder Coating	YES

FIBER ADAPTOR		
Sr No	Description	Compliance
Make:_____ (Specify)		
Model:_____(Specify)		
Features	LC/SC adaptors should be duplex type.	
	Telcordia GR-326-Core.	
	RoHS Compliance	
	Low Insertion and Return Loss	
	Adapters should have compact design & high precision	
	Telcordia, TIA/EIA, IEC compliance	
Insertion Loss	<= 0.20 db for Zirconia Sleeve	
	Durability (1000 Matings): <= 0.2db	
	Main Body Material : PBT/ABS	
Sleeve/Ferrule Withdrawal Force	LC Adapter-1.0N ~ 2.5N	

FIBER PIGTAIL		
Sr No	Description	Compliance
Make:_____ (Specify)		
Model:_____(Specify)		
	LSZH Jacket-Reduced Toxic Gasses Emitted During Combustion	

	100% Factory Tested	
	Low Insertion Loss and Return Loss	
	Available with Corning Fiber	
	Available in PC Type Options	
	High Precision Ceramic Ferrule with Good Concentricity	
	LC/SC options	
	Technical Specifications:	
	Connector Type : LC /SC	
	Pigtail Length : 2 Mtr	
	Fiber Type : OS2	
	(9/125 Corning Clear Curve)	
	Tight Buffer Material : LSZH	
	Tight Buffer Diameter (mm) : 0.9 +/- 0.05	
	Jacket Color : Yellow for OS1/OS2	
	Jacket Material : LSZH	
	Minimum Bending : 30 (static) Radius (mm)	
	Attenuation (db/km) : <= 1.5 at 1300nm, <= 3.5mm at 850nm	
	Short Term Tensile (n) : 160	
	Crush Resistance (n/100mm) : 500	
	Operation Temperature : Minus 20 ~ Plus 70 (degree)	
	Optical Specifications	
	Insertion Loss : <= 0.2 db, Max 0.3db/MTRJ: Max 0.5db	
	Return Loss : PC>= 45db, UPC>=50db,	
	Mechanical Specifications	
	Connector Ferrule : Ceramic, (MTRJ: PS Polyphenylene	
	Sulphide)	
	Apex Offset : <50µm	
	Fiber Height : (+/-)100nm	
	End Face Radius of Curvature : 7mm <R<25mm(Excluding MTRJ)	
	Repeatibility : <= 0.2db 1000 Times Mating Cycles	
	Working Temperature : (minus 40 Deggree ~ Plus 85 Degree)	
	Storage Temperature : (minus 40 Deggree ~ Plus 85 Degree)	

Technical Specification Details for 1, 2 & 3 KVA UPS			
Sr.No	Characteristic	Minimum Required Specification	COMPLIANCE
	Make:_____ (Specify)		
	Model:_____(Specify)		
	Technical	1/2/3 KVA UPS	Compliance
1	INPUT		
1.1	Voltage	230 Volts, 1 Phase	
1.2	Voltage Variation	160-300 VAC	
		110-300 V AC @ 60% Load	
1.3	Frequency	50 Hz	
1.4	Frequency Variation	47.5 Hz to 52.5 Hz	
1.5	Power Factor	>0.98	
1.6	Input Current Distortion	< 10%	
2	OUTPUT		
2.1	Voltage	230Volts, 1 Phase	
2.2	Voltage Variation	± 1 %	
2.3	Power Factor	0.8	
2.4	Crest Factor	3:1	
2.5	Frequency	50 Hz	
2.6	Frequency Regulation	±0.1%	
2.7	Wave form	Sine wave	
2.8	Harmonic Distortion	< 3% THD for linear load	
		< 5% THD for non-linear load	
2.9	Overload Rating	105% ~ 110 % for 10 minutes	
		111% ~ 130 % for 60 Sec.	
2.10	Comunication	RS 232 & USB comport	
		SNMP/ Dry contact (optional)	
3	BYPASS	Inbuilt Auto static bypass require	
4	EFFICIENCY		
4.1	AC to AC	> 86%	
4.2	ECO mode	Up to 97%	
5	METERING DIGITAL		
5.1	LED / LCD Display	Required	
		Enclosure made of steel	
6	ENCLOSURE	sheet having 1.2 mm	

		(minimum) thickness, coated.	
7	Battery	SMF VRLA Batteries	
7.1	VAH	Minimum VAH (12V x AH x Nos. of Battery)	
7.2	Battery rack & battery inter connecting cable	suitable powder coated battery rack should be provided with battery interlinks	
8	Approved Make		
8.1	Battery Make	Quanta / Exide Powersafe / Panasonic	
9	OPERATING TEMEPARURE	0-40 degree continuous	
10	Standards		
10.1	Ingress Protection	IP20	
10.2	Safety	EN/IEC 62040-1	
10.3	EMI/EMC	EN/IEC 62040-2	
10.4	Performance	IEC 62040-3	
10.5	Certification	CE	

Technical Specification Details for 5/10KVA			
Sr.NO	**Characteristic**	**Minimum Required Specification**	**COMPLIANCE**
	Make:_____(Specify)		
	Model:_____(Specify)		
	Technical	**5/7.5/10 KVA UPS**	**Compliance**
1	**INPUT**		
1.1	Voltage	230 Volts, 1 Phase	
1.2	Voltage Variation	160-300 VAC	
		110-300 V AC @ 60% Load	
1.3	Frequency	50 Hz	
1.4	Frequency Variation	47.5 Hz to 52.5 Hz	
1.5	Power Factor	>0.98	

1.6	Input Current Distortion	< 10%	
2	**OUTPUT**		
2.1	Voltage	230Volts, 1 Phase	
2.2	Voltage Variation	± 1 %	
2.3	Power Factor	0.8	
2.4	Crest Factor	3:1	
2.5	Frequency	50 Hz	
2.6	Frequency Regulation	±0.1%	
2.7	Wave form	Sine wave	
2.8	Harmonic Distortion	< 3% THD for linear load	
		< 5% THD for non-linear load	
2.9	Overload Rating	105% ~ 110 % for 3 minutes	
		111% ~ 130 % for 30 Sec.	
2.10	Communication	RS 232 & USB comport	
		SNMP/ Dry contact (optional)	
3	BYPASS	Inbuilt Auto static bypass require	
4	EFFICIENCY		
4.1	AC to AC	> 86%	
4.2	ECO mode	Up to 97%	
5	METERING DIGITAL		
5.1	LED / LCD Display	Required	
6	ENCLOSURE	Enclosure made of steel sheet having 1.2 mm (minimum) thickness, coated.	
7	Battery	SMF VRLA Batteries	

7.1	VAH	Minimum VAH (12V x AH x Nos. of Battery)	
7.2	Battery rack & battery inter connecting cable	suitable powder coated battery rack should be provided with battery interlinks	
8	Approved Make		
8.1	Battery Make	Quanta / Exide Powersafe / Panasonic	
9	OPERATING TEMEPARURE	0-40 degree continuous	
10	Standards		
10.1	Ingress Protection	IP20	
10.2	Safety	EN/IEC 62040-1	
10.3	EMI/EMC	EN/IEC 62040-2	
10.4	Performance	IEC 62040-3	
10.5	Certification	CE	

ANNEXURE-I

(This form should be filled, signed with sealed and then scanned and uploaded on the tender wizard)

U N D E R T A K I N G

(To be filled by the Bidder only)

To,
The Director (IT),
Department of Information Technology,
2nd floor, Alcon Hyundai Constructions,
Porvorim- Goa.

Sub: Undertaking for participating in the tender for extended GBBN connectivity and computer networking.

We, _____<*Name of the firm*>_____, having a registered office at _____<*Office address*>_____, bearing registration no. _____<*Registration no.*>_____, have submitted the bids against the tender for rectification, new GBBN connectivity and for shifting of GBBN connectivity. We hereby agree to strictly abide by the Terms & Conditions of the tender, and also to undertake full responsibility for the successful execution of the Contract.

We hereby confirm that we are neither we are blacklisted/barred by Government / Semi – Government / Quasi- Government organization or Govt. Corporation nor do we have any pending cases with GoG, as on date.

We hereby also declare that all the particulars furnished by us in this Tender are true to the best of my/our knowledge and we understand and accept that if at any stage, the information furnished is found to be incorrect or false, we are liable for disqualification from this tender and also are liable for any penal action that may arise due to the above.

We declare that the Commercial bid has been submitted without any conditions and strictly as per the conditions of the tender document and we are aware that the Commercial bid is liable to be rejected if it contains any other conditions.

Authorized Signatory with Name, Designation & Date:

Type of components utilized for the extended GBBN connectivity at various locations under the project scope:

Sr. No	Description of the items	Make/Model
1	24 Port Switch 10/100/1000 Base-T Ports Managed Switch with 4 SFP Combo	D-Link (DGS 3024)
2	24 Port Switch 10/100/1000 Base-T Ports Managed Switch (Core Router)	D-Link (DI 7208)
3	24 Port Switch 10/100/1000 Base-T Ports Managed Switch – Managed Switch	D-Link (DGS 3324SRi)
4	24 Port Switch 10/100/1000 Base-T Ports Managed Switch with 4 SFP Combo Ports (layer 3)	D-Link (DGS 3627)
5	24 Port switch 10/100/1000 Base-T Ports Managed Switch	D-Link (DWS 3024)
6	Core Switch	D-Link (DI 7206)
7	16 Port Switch 10/100/1000 Base-T Ports Switch	D-Link (DGS 1016)
8	8 Port Switch 10/100/1000 Base-T Ports Switch	D-Link (DGS 1008D)
9	24 Port Switch	D-Link DGS-3610-26 (10/100/1000)
10	D-Link Switches	DES-1024 D (10/100)
11	D-Link Switches	DGS-1008D (10/100/1000 Mbps)
12	D-Link Switches	DGS-3627 (10/100/1000)
13	D-Link Switches	DGS-3120 (10/100/1000BASE-T)
14	D-Link Switches	DES-1024 C (10/100)
15	D-Link Switches	DES-1008A (10/100Mbps)
16	D-Link Switches	DGS-1024(10/100/1000)
17	D-Link Switches	DGS-1210 (10/100/1000)
18	D-Link Switches	DES 1005 (10/100)

The AMC of all passive components will be taken as per LAN/WAN with the inclusion of the components mentioned below. The bidder should use this information while quoating in table B in commercial bid.

Table: A

Sr. No	Description
1	**AMC for Networking Per Point**
	This will include Comprehensive AMC of all the following items:-
A	Cat 6 (+) cables having an average of appx 35 mts length from each Network point to the patch panel, Cat 6 (+) cables of 1 mt length connected between patch panel and 24 port switch, Cat 6 (+) cables of 3 mt length connected between I/o Point and the computer.
B	24 port Patch Panels, Racks, Input/output Devices, PVC casing & Capping
2	**AMC for UPS per Point**
C	All UPS points consisting of electrical Switches & Sockets (5 amps & 15 amp), electrical wires(1.5,2.5,4 & 6 sqmm), MCB's (43 & 63),PVC casing & capping.
C	Any type of Termination charges, laying charges, fixing charges, etc for smooth working of networking points.

Table: B

Sr. No	Description
2	**AMC for Terminated Fibre connectivity Per location**
	This will include Comprehensive AMC of all the following items:-
A	16/24 Port Rack Mount Light guide Interconnect unit, Fibre Patch Cords, Fibre Pig Tails, Adapters, Fibre Module transceivers, Media Convertors. All the above are for Single mode (SM) & Multimode (MM).
D	Any type of Termination charges, laying charges, fixing charges, spicing of fibre etc for smooth working of network.

Table: C

Sr. No	Description
3	**AMC for Optical Fiber laid Per Km**
	This will include Comprehensive AMC of all the following items:-
A	Outdoor corrugated Steel Tape Armored Direct Burial Cable6/12/24/48 core. This will include both Single mode(SM) & Multimode(MM)
B	Any Type of Termination charges, laying charges, fixing charges, splicing of fiber, digging of hard & Soft soil, taring of roads, digging of raod, etc for smooth working of network
C	HD Pipe, OTDR reading /testing ,etc

Table: D

Sr. No	Description
5	**AMC for CAT6 cable for GBBN cascading**
	This will include Comprehensive AMC of all the following items:-
A	Cat 6 cables having an average of approx. 50 X 2 mts length from the main GBBN L3 Switch to the department's internal network Switch.
B	Any type of Termination charges, laying charges, fixing charges, crimping etc for smooth working of network.

Note: There may be 2% to 5% difference in actual count of network components mentioned in above tables.

ANNNEXURE-II

LIST OF NETWORKING ITEMS:-

Sr.No	Item description	Model/Make to be provided by the bidder.
Sr.No	**Items description**	
1	8 Port gigabit L2 managed POE	
2	8 Port gigabit L2 managed	
3	8 Port unmanaged switch POE	
4	24 Port gigabit switch with 4 SFP ports (L2)	
5	24 port L3 managed switch	
6	24 port managed L3 POE gigabit switch	
7	24 port gigabit stackable switch with additional 4 SFP+ Ports Layer 3	
8	24 port POE gigabit managed (L2)	
9	CAT 6A Cable	
10	CAT 6A UTP surface mount box	
11	RJ 45 connector	
12	1 mtrs Patch Cord cat 6A	
13	3 mtrs Patch Cord cat 6A	
14	24 Port Keystone Patch Panel Cat6A	
15	I/O Cat 6A UTP Single Port, face plate(single)	
16	I/O Cat 6A UTP Single Port, face plate(dual)	
17	I/O Cat 6A UTP Single Port, face plate(quad)	
18	6 Amp Modular Electric Switch	
19	6 Amp Modular Electric Socket	
20	MCB 63 Amp	
21	MCB 40 Amp	
22	16 amp Modular Electric Switches	
23	16 Amp Modular Electric Socket	
24	Modular Plate 12 Modules	
25	Surface Box 12 Module	
26	Electrical copper wire: 1 sq mm wire	
27	Electrical copper wire : 2.5 sq mm wire	
28	Electrical copper wire : 4 sq mm wire	
29	Electrical copper wire : 6 sq mm wire	
30	PVC casing & capping 1”	
31	PVC casing & capping 2”	
32	6 U Rack	
33	9 U Rack	
34	12 U Rack	

35	19 U Rack	
36	42 U Rack	
37	6 Core armored cable –MM	
38	12 Core armored cable –MM	
39	24 Core armored cable –MM	
40	48 Core armored cable –MM	
41	6 Core armored cable –SM	
42	12 Core armored cable –SM	
43	24 Core armored cable –SM	
44	48 Core armored cable –SM	
45	SC/LC/STSC/LC/ST Fiber duplex patch cord-(MM) - 1 mtrs	
46	SC/LC/STSC/LC/ST Fiber duplex patch cord-(MM) - 2 mtrs	
47	SC/LC/STSC/LC/ST Fiber duplex patch cord-(MM) - 3 mtrs	
48	SC/LC/STSC/LC/ST Fiber duplex patch cord-(MM) - 5 mtrs	
49	SC/LC/STSC/LC/ST Fiber duplex patch cord-(MM) -10 mtrs	
50	SC/LC/STSC/LC/ST Fiber duplex patch cord-(SM) - 1 mtrs	
51	SC/LC/STSC/LC/ST Fiber duplex patch cord-(SM) - 2 mtrs	
52	SC/LC/STSC/LC/ST Fiber duplex patch cord-(SM) - 3 mtrs	
53	SC/LC/STSC/LC/ST Fiber duplex patch cord-(SM) - 5 mtrs	
54	SC/LC/STSC/LC/ST Fiber duplex patch cord-(SM) -10 mtrs	
55	Multi-Mode Fiber Converter	
56	Single-Mode Fiber Converter	
57	LC Connector – MM	
58	LC Connector – SM	
59	SC Connector – MM	
60	SC Connector – SM	
61	ST Connector – MM	
62	ST Connector – SM	
63	12 Port Rack Mount LIU loaded with Splice Tray and Cable spool	
64	24 Port Rack Mount LIU loaded with Splice Tray and Cable spool	
65	48 Port Rack Mount LIU loaded with Splice Tray and Cable spool	
66	6 Port adapter plate loaded with LC MM couplers	
67	6 Port adapter plate loaded with LC SM couplers	
68	6 Port adapter plate loaded with SC MM couplers	
69	6 Port adapter plate loaded with SC SM couplers	

70	Pigtail SC/LC MM - 2 mtr	
71	Pigtail SC/LC SM - 2 mtr	
72	Single Mode Fiber Transceiver	
73	Multi-Mode Fiber Transceiver	
74	Single-Mode Fiber Converter	
75	Multi-Mode Fiber Converter	
76	8/24 Port Rack mount LIU	
77	Fibre Patch Cord Sc-Lc Type – SM (3 mts)	
78	Fibre Patch Cord Sc-Lc Type – MM (3 mts)	
79	Fibre Pig Tails Sc / Lc - SM	
80	Fibre Pig Tails Sc / Lc - MM	
81	Adapters Sc / Lc - SM	
82	Adapters Sc / Lc - MM	

Note: All the managed switches should be IPv6 ready.

PART-II. COMMERCIAL BID

TABLE A:

Sr.No	Items description	Unit Quantity	Rate without any taxes in Rs (A)	Tax (GST) in % (B)	Total Rate with Taxes in Rs C=(A)+(B)
1	8 Port gigabit L2 managed POE	1			
2	8 Port gigabit L2 managed	1			
3	8 Port unmanaged switch POE	1			
4	24 Port gigabit switch with 4 SFP ports (L2)	1			
5	24 port L3 managed switch	1			
6	24 port managed L3 POE gigabit switch	1			
7	24 port gigabit stackable switch with additional 4 SFP+ Ports Layer 3	1			
8	24 port POE gigabit managed (L2)	1			
9	CAT 6A Cable	per mtrs			
10	CAT 6A UTP surface mount box	1			
11	RJ 45 connector	1			
12	1 mtrs Patch Cord cat 6A	1			
13	3 mtrs Patch Cord cat 6A	1			
14	24 Port Keystone Patch Panel Cat6A	1			
15	I/O Cat 6A UTP Single Port, face plate(single)	1			
16	I/O Cat 6A UTP Single Port, face plate(dual)	1			
17	I/O Cat 6A UTP Single Port, face plate(quad)	1			
18	6 Amp Modular Electric Switch	1			
19	6 Amp Modular Electric Socket	1			
20	MCB 63 Amp	1			
21	MCB 40 Amp	1			
22	16 amp Modular Electric Switches	1			
23	16 Amp Modular Electric Socket	1			
24	Modular Plate 12 Modules	1			
25	Surface Box 12 Module	1			
26	Electrical copper wire:	per mtrs			

	1 sq mm wire				
27	Electrical copper wire : 2.5 sq mm wire	per mtrs			
28	Electrical copper wire : 4 sq mm wire	per mtrs			
29	Electrical copper wire : 6 sq mm wire	per mtrs			
30	PVC casing & capping 1”	per mtrs			
31	PVC casing & capping 2”	per mtrs			
32	6 U Rack	1			
33	9 U Rack	1			
34	12 U Rack	1			
35	19 U Rack	1			
36	42 U Rack	1			
37	6 Core armored cable –MM	1			
38	12 Core armored cable –MM				
39	24 Core armored cable –MM	1			
40	48 Core armored cable –MM	1			
41	6 Core armored cable –SM	1			
42	12 Core armored cable –SM	1			
43	24 Core armored cable –SM	1			
44	48 Core armored cable –SM	1			
45	SC/LC/STSC/LC/ST Fiber duplex patch cord-(MM) - 1 mtrs	1			
46	SC/LC/STSC/LC/ST Fiber duplex patch cord-(MM) - 2 mtrs	1			
47	SC/LC/STSC/LC/ST Fiber duplex patch cord-(MM) - 3 mtrs	1			
48	SC/LC/STSC/LC/ST Fiber duplex patch cord-(MM) - 5 mtrs	1			
49	SC/LC/STSC/LC/ST Fiber duplex patch cord-(MM) -10 mtrs	1			
50	SC/LC/STSC/LC/ST Fiber duplex patch cord-(SM) - 1 mtrs	1			
51	SC/LC/STSC/LC/ST Fiber duplex patch cord-(SM) - 2 mtrs	1			
52	SC/LC/STSC/LC/ST Fiber duplex patch cord-(SM) - 3 mtrs	1			
53	SC/LC/STSC/LC/ST Fiber duplex patch cord-(SM) - 5 mtrs	1			

54	SC/LC/STSC/LC/ST Fiber duplex patch cord-(SM) -10 mtrs	1			
55	Multi-Mode Fiber Converter	1			
56	Single-Mode Fiber Converter	1			
57	LC Connector – MM	1			
58	LC Connector – SM	1			
59	SC Connector – MM	1			
60	SC Connector – SM	1			
61	ST Connector – MM	1			
62	ST Connector – SM	1			
63	12 Port Rack Mount LIU loaded with Splice Tray and Cable spool	1			
64	24 Port Rack Mount LIU loaded with Splice Tray and Cable spool	1			
65	48 Port Rack Mount LIU loaded with Splice Tray and Cable spool	1			
66	6 Port adapter plate loaded with LC MM couplers	1			
67	6 Port adapter plate loaded with LC SM couplers	1			
68	6 Port adapter plate loaded with SC MM couplers	1			
69	6 Port adapter plate loaded with SC SM couplers	1			
70	Pigtail SC/LC MM - 2 mtr	1			
71	Pigtail SC/LC SM - 2 mtr	1			
72	Single Mode Fiber Transceiver	1			
73	Multi-Mode Fiber Transceiver	1			
74	Single-Mode Fiber Converter	1			
75	Multi-Mode Fiber Converter	1			
76	8/24 Port Rack mount LIU	1			
77	Fibre Patch Cord Sc-Lc Type – SM (3 mts)	1			
78	Fibre Patch Cord Sc-Lc Type – MM (3 mts)	1			
79	Fibre Pig Tails Sc / Lc - SM	1			
80	Fibre Pig Tails Sc / Lc - MM	1			
81	Adapters Sc / Lc - SM	1			
82	Adapters Sc / Lc - MM	1			
INSTALLATION CHARGES					
83	CAT6A cable laying : Fixing & laying of cat6A cable in PVC casing from client node to the LAN main 24 port	mtrs			

	network switch/Rack/Junction box.				
84	Input /output Termination: Install, test and commission of input /output cat 6A UTP single port with surface mount box. The work shall include for all labour crimping and end terminations with proper tools as per the company standards.	mtrs			
85	Rack fixing with all networking components. The work shall include for all labour cost for rack fixing, end termination of patch panel and 24 port switch using 1 mtrs patch cord and commissioning of network.	1			
86	Fiber Termination: Install, test and commission of Optical fiber termination. The work shall include for all labour of fiber splicing and end terminations with proper tools as per the company standards. (1 core=2 fusion for fiber spicing). It also includes fixing of LIU, transreceiver, Fiber patch cord LC-SC Type, Fibre SM Pig Tails LC, LC Adapters, Fiber to copper converter in rack.	1			
87	Fibre Cable Laying : Laying & fixing of Outdoor Armored Fiber Cable without HD & GI Steel pipe.- Underground.	1 mtrs			
88	Fibre Cable Laying : Laying & fixing of Outdoor Armored Fiber Cable without HD & GI Steel pipe.- Aerial.	1mtrs			
89	Fibre Cable Laying : Fixing & Laying of Outdoor Armored fiber Cable in Gi/steel Piping of 10 m.m. when passing through tar/concrete road.	1mtrs			
90	Fibre Cable Laying : Fixing of Outdoor Armored Fiber Cable in High density (HD) pipe of 30 mm when laid	1 mtrs			

	under soil.				
91	Excavating & refilling of soil (Hard/Soft) without ROW /Permissions	1mtrs			
92	Excavating & refilling of tar/concrete road without ROW/Permissions	1 mtrs			
93	Removal of Old cabling (LAN) work including shifting/ rework, Bidder is required to remove the same & shift at new place or at DOIT store. (without transport cost)	1			
94	Re-installation and commissioning works that includes shifted items (racks, patch chords, patch panels switches, any other items, etc). (without transport cost)	1			
	UPS				
95	1 KVA UPS Include battery with 1 hour battery backup	1			
96	2 KVA UPS Include 2 hours battery backup.	1			
97	5 KVA UPS include 3 hours battery backup	1			
98	10 KVA UPS Include 3 hours battery backup	1			
99	Electrical Termination: Install, test and commission 3 nos of 6A socket & switch and 1 nos of 6 X 16A universal socket & 6 A switch with module modular polycarbonate surface box and module modular polycarbonate surface box and moulded modular polycarbonate switch plate including the termination of wires.	1 Nos			
100	Electrical Wire laying: fixing & laying of electrical wiring in PVC casing from client node to UPS output.	1 mtrs			
	Total				

Note: - All active and passive components shall carry 5 year of warranty.

- Total of above items with GST & other taxes shall be considered for financial bid evaluation

- All the items mentioned above for which the bidder intends to quote should be inter-operable with each other and also with the already used & existing network equipment's installed on the Goa BroadBand Network (GBBN).

TABLE B (AMC FOR 1 YEAR)

Sr. no	Description of work	qty (a)	Rate per unit without taxes (b)	Total rate per unit without taxes (c) =(a) X (b)	Total Tax(GST + any other tax) (d)	Total Cost with Taxes (e)=(c) +(d)
1	Annual Maintenance charges Per Link /node (Networking Switches)	**1492**				
2	Annual Maintenance charges for optical fiber cable (including media convertor and other passive components)	**1128.66 in kms**				
3	Annual Maintenance charges for Cat 6+ cables (including passive components)	**93 in kms.**				
4	AMC for I/O points	**19388**				
5	AMC for UPS points	**9939**				
6	Manpower cost for deployment of 25 personnel.	**25**				
Total Table B						

Note: L1 shall be determined based on the bid evaluation process; L1 financial shall be taken as lowest value of total value of table A and table B.

END