Revised

Request for Proposals

For

Appointment of an Agency for Operations and Maintenance of Gujarat State Wide Area Network (GSWAN) Infrastructure for Gujarat State on behalf of Department of Science & Technology, Govt. of Gujarat

RFP No. GIL/DST/GSWAN O & M/2014

Volume-II

Scope of work and Service Level Agreement for O&M Agency for GSWAN Infrastructure

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Table of Contents

1 EXECUTIVE SUMMARY

GSWAN (Gujarat State Wide Area Network) is envisaged as the converged backbone network for data, voice and video communications throughout the State of Gujarat and is expected to cater to the information communication requirements of all the Government offices/departments. GSWAN will increase the efficiency of Government's service delivery mechanism besides making services available in a cost-efficient manner and to provide a secure backbone for encouraging electronic transactions and make available various services and information to the citizen anytime anywhere.

In general, this RFP for appointment of an agency for O&M of GSWAN for Gujarat State seeks following major services for 3 years:

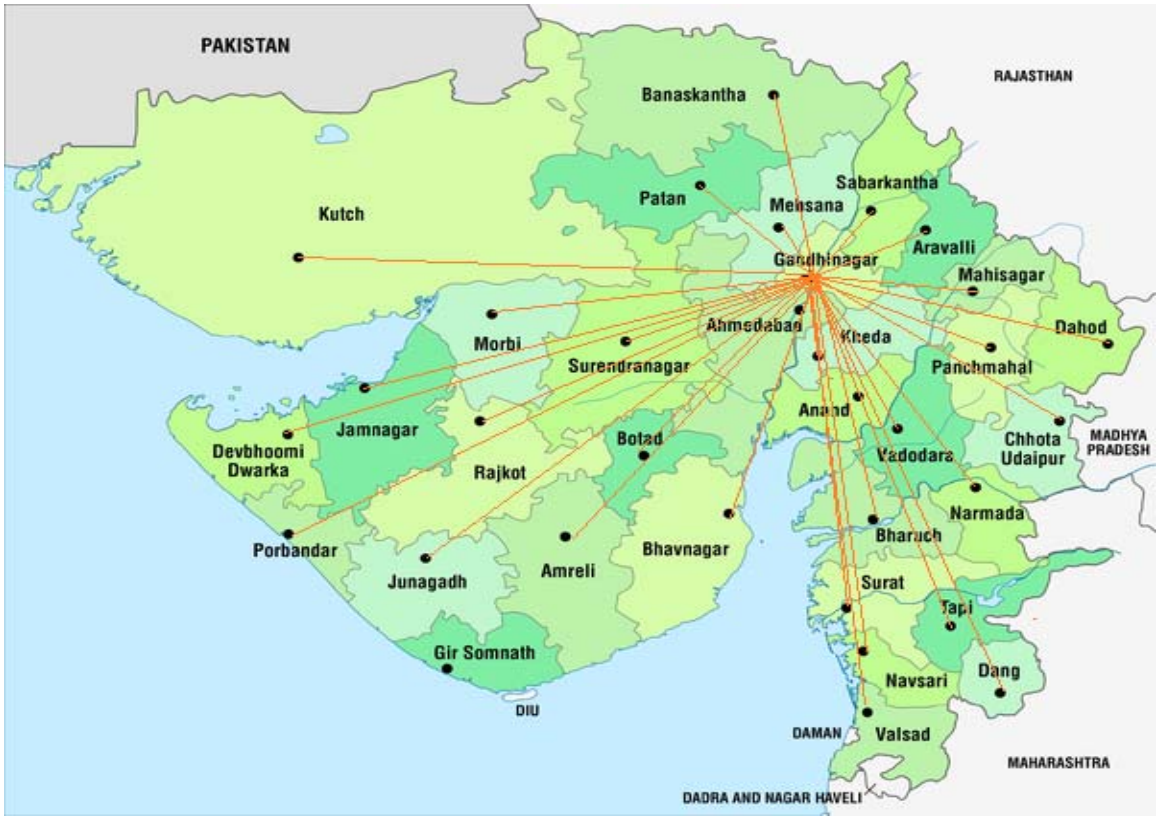
1. (a)Operation & Services (O&S) & (b) Comprehensive AMC of out of warranty equipment at SC, DCs, TCs and other PoPs as prescribed including up time and meeting of SLA.
2. O&S of the horizontal links (including JFC/OFC/CAT/Wireless/NEL/Lease-lines) from the PoPS or otherwise as defined by DST, GOG. This includes fault detection, analysis and escalation with respective agencies and DST, GOG within 4 hours of complaints/problem reported on NMS tool or otherwise and follow-up to close the same with the concerned agency responsible for AMC till the closure of the complaint. Also, O&M team need to upload service call report in CA NMS service desk with user sign/stamp of field visit and user confirmation report once problem get resolved. A separate mechanism shall be set up at helpdesk to respond/resolve the complain calls regarding horizontal connectivity received from offices like Raj Bhavan, Chief Minister's Office, Ministers Office, Secretaries offices within Sachivalaya Campus Area Network & also from the offices of Collectors, DDOs, Superintendent of Police & High Court horizontally connected to District Centres. For any such un-attended calls found in helpdesk, separate penalty shall be levied.
3. Rates of services for installation and commissioning & Operations and services of new PoP which includes carrying out anti-static flooring, earthling, aluminium glass partition, electrification, LAN cabling and installation and configuration of procured equipment with GSWAN network.
4. Shifting of equipments from old district/taluka centre control room to new building control room including transport/logistic & carry out anti-static flooring, earthling, aluminium glass partition, electrification, LAN cabling and installation and configuration of old equipment at new control room (typically in District control room, the size will be approx.. 300 sq.ft. and in Taluka control room, the size will be approx. 150 sq.ft.

5. O&S (includes fault detection, analysis, and follow up) and vendor management rates for LAN set up/ computers in Govt offices.
6. Rate list of various items for providing new horizontal connectivity using JFC/OFC/CAT cabling, lease lines etc. and rate list for setting up internal LAN in the offices which will be valid for 1 year. (As per Annexure-7 of RFP Volume -2)
7. Migration of network from IPV4 to IPV6 with necessary IOS and/or memory upgrade, if required
8. Bidder is required to keep requisites spares to ensure adherence of O & M operations.

1.1 Overview

State Government has planned and augmented the state wide area network (GSWAN) to cater to the administration's internal and external communication service needs related to voice, video and data.

Originally GSWAN was designed in a star topology centred at Secretariat, Gandhinagar with arms extending to all districts, having further horizontal (district HQ level) and vertical downward extensions integrating multiple district level other offices and Talukas respectively with the state wide area network.



All the services delivered through GSWAN such as Video conferencing, Voice (telephony) and data services are IP based.

The network topology as conceived and designed for GSWAN was based on a hub-and-spoke design philosophy, with three tiers.

First tier - Secretariat Centre (SC) at state capital, Gandhinagar, which houses the highest offices of Government functions in the state. Various departments and hundreds of subordinate offices located at the state capital are connected to SC horizontally through SCAN (Secretariat Campus Area Network). All districts and Taluka offices are vertically connected with SC (the hub of wide area network).

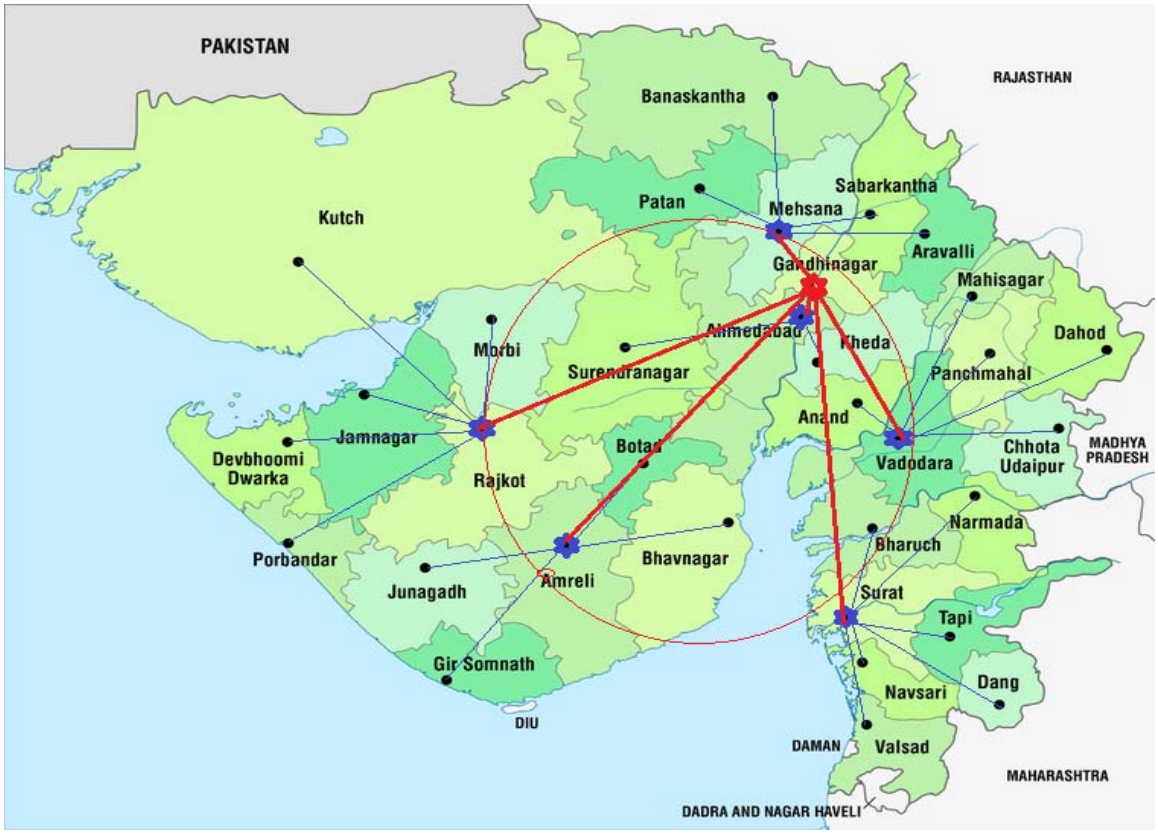
Second Tier- constitutes District Centre, or "DC"s, located at District Collector's office, and multiple district level offices connected with DC horizontally.

Third Tier - constitutes Taluka Centre, or "TC's, located at Taluka Mamlatdar's office, and couple of Taluka level offices horizontally connected with TC.

GSWAN links Government offices at the State Secretariat (Sachivalaya), Gandhinagar, called as the State Centre (SC), District Head quarter called as Distinct Centre, and all the Taluka Head quarters called as Taluka Centre (TC) of Gujarat. GSWAN has been implemented on build-own, operate & manage (BOOM) basis spread over a period of eight years to provide Data / Voice / Video services to various designated offices at GoG. The key applications envisaged on the network are broadcast, video conferencing, Voice and Data Communication, Intranet Operation.

GSWAN voice has been provided to various GOG offices using Cisco ATA and Cisco 3662 router configured as Gatekeeper. GSWAN Data/Voice connectivity to some of the Government offices in Districts and Talukas has been provided using manageable Switch/Router/Lease Line equipments/ATA.

Later, GOG has interconnected nearby districts to form RING / MESH, for regulating and better management of the traffic flow which has enormously increased during past few years. Six rings have been setup as follows.



(i) Ring – I: covered **Surat**, Valsad, Navsari, Bharuch, Narmada, and Dang Districts.

(ii) Ring – II: covered **Vadodara**, Anand, Chota Udepur, Mahi Sagar, Panchmahal, and Dahod Districts.

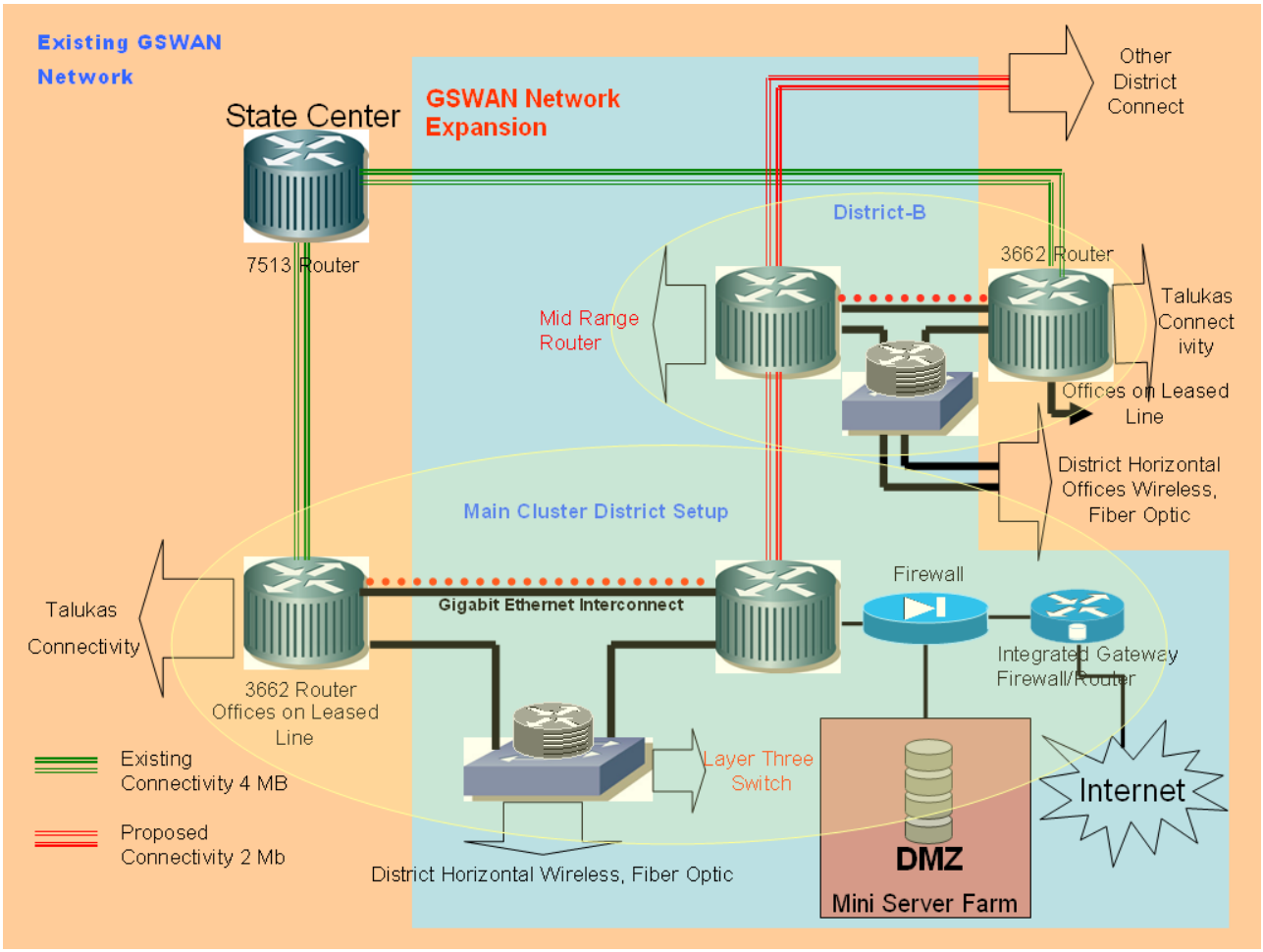
(iii) Ring – III: covered **Ahmedabad**, Surendranagar, and Kheda Districts.

(iv) Ring – IV: covered **Mahesana,** Patan, Aravalli, Banaskantha, and Sabarkantha.

(v) Ring – V: covered **Rajkot**, Jamnagar, Morbi, Devbhumi Dawrka, Kutch, and Porbandar.

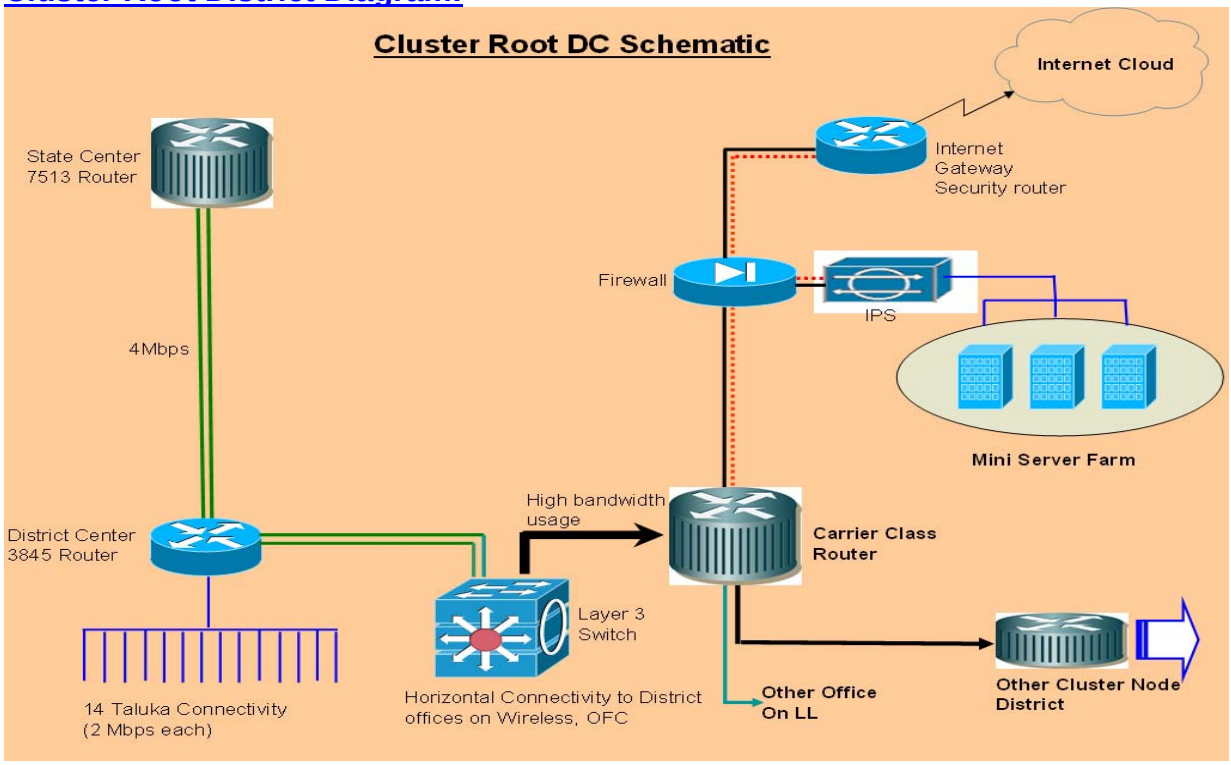
(vi) Ring – VI: covered **Amreli**, Botad, Gir Somnath, Junagadh, Botad and Bhavnagar.

Proposed High and Mid Range Routers have been configured with the existing Routers (Cisco 3662 and Cisco 3845) installed.

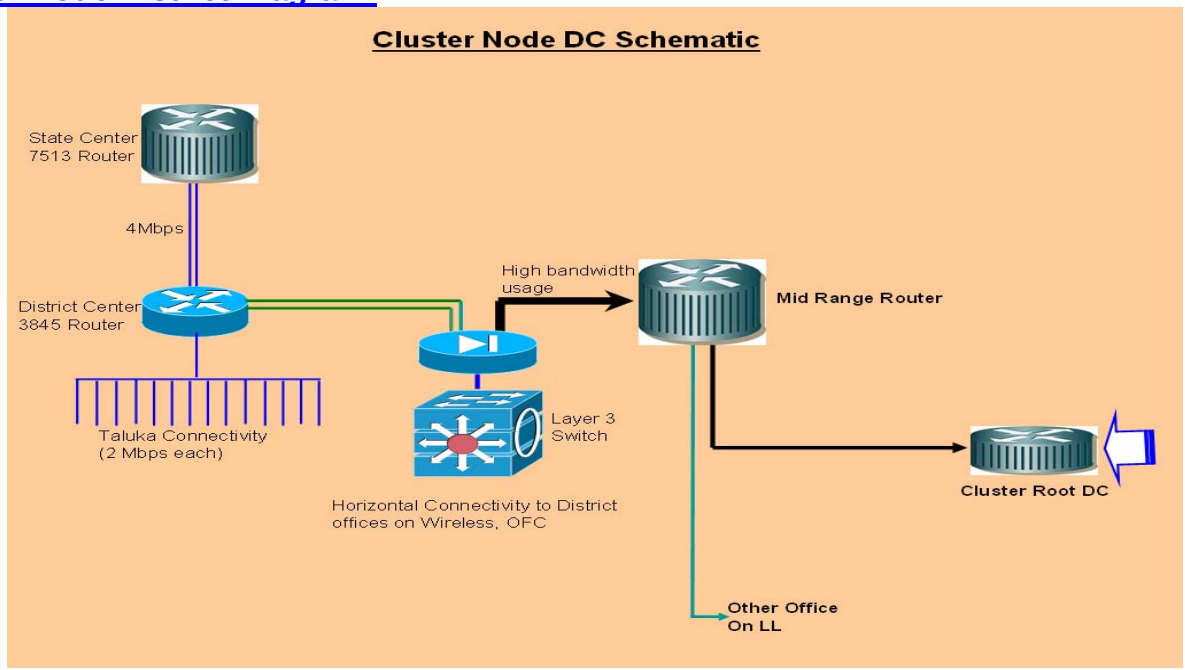

Existing GSWAN Network
State Center
7513 Router
GSWAN Network Expansion
Other District Connect
District-B
3662 Router
Mid Range Router
Talukas Connectivity
Offices on Leased Line
District Horizontal Offices Wireless, Fiber Optic
Main Cluster District Setup
Firewall
Gigabit Ethernet Interconnect
Talukas Connectivity
Integrated Gateway Firewall/Router
3662 Router Offices on Leased Line
Existing Connectivity 4 MB
Proposed Connectivity 2 Mb
Layer Three Switch
Internet
DMZ
Mini Server Farm
District Horizontal Wireless, Fiber Optic

1.1 Network Diagram of the existing Network and after Expansion

Cluster Root District Diagram:



Cluster Node District Diagram:



The original GSWAN infrastructure is established on OSPF protocol.

The bidder is expected to go through below mentioned recommendations/suggested guidelines carefully. Aforesaid recommendation/suggested guidelines shall be considered part and parcel of scope of work described herein after.

Annexure-1 - Asset register template

Annexure-2 - Handover and take over procedure checklist

Annexure-3 - Guideline of network management processes

Annexure-4 - Guidelines and best practices for Connectivity

Annexure-5 - Network components Dos and Don'ts

Annexure-6 - List of logs

Annexure-7 - Specification of new equipment.

2 SCOPE OF WORK

The scope of work for the successful bidder of the GSWAN project is to operate and manage the GSWAN for a period of three years from the day of signing of Contract. The minimum specified work to be undertaken by the Successful bidder for operating and maintaining of GSWAN is to be performed as per the scope of work and conditions mentioned in this RFP and the contract that would be signed for this project.

The following deliverables are to be covered as part of the IT Services under the Operations and Services (O&S) & Maintenance Management scope–

- Operation , Service and Comprehensive Maintenance,
- Facility Management
- POP Implementation & commissioning followed by its Operation ,Services and Maintenance

The proposed activities for operation and services and maintenance are detailed below for the bidder to understand the scope in perspective.

2.1 Operation and Maintenance

The successful bidder shall operate and maintain the GSWAN backbone infrastructure and services offered by GSWAN backbone. The scope of work for operation and maintenance is detailed below.

The Successful bidder shall be responsible for operating and maintaining the network for 3 years (further extendable upto 2 years) from the day of signing of Contract for connectivity between State Centre (SC), District Centre (DC) and offices connected with DC horizontally (approx. 70 to 80 offices per DC) and Taluka Centre (TC) and office connected with TC horizontally (approx 20 offices per TC). The successful bidder is responsible for operating and maintaining network of one State Centre, all district **centre** including newly formed district center and about all Taluka centre including newly formed Taluka center, all MS Buildings and all other PoPs (list enclosed) & future horizontal connectivity provided/to be provided by DST. For better Network availability, preventive maintenance activity is required to be carried out at least once in a quarter which includes configuration backup and software up gradation/updation. Successful Bidder is required to submit preventive maintenance schedule of all the equipments in consultation with TPA to DST. After performing preventive maintenance activities, bidder is required to submit the report of the same duly certified by TPA. All such activities should be done preferably in non-working hours.

2.1.1 Network operations, Services and maintenance

The Successful bidder shall be responsible for operating and maintaining the network for 3 years from the day of signing of Contract. The services as per the scope of the contract shall include maintaining the network equipment; ensure running of the services (Data, Voice, Video) with availability in line with the SLA & Round the clock Network monitoring. This shall include

i. Equipment Configuration Management.
ii. Upgrading IOS.
iii. Maintaining access control list.
iv. Regular review of Networks.
v. Regular reports as required by DST & authorized agency from SC, DC & TC.
vi. Bidder has to adhere to the guidelines as per ISO 20000 (Latest Version)
vii. Regular backup of NMS server
viii. Regular report of SLA v/s compliance provided to GSWAN connectivity vendors & other agencies.
ix. Setup to monitor GSWAN Network at SC, DC,TC & Cluster Level.
x. Regular reports as required by DST & authorized agency from SC, DC ,TC & Cluster Level.
xi. Auto configuration of Router & Switches backup for SC, DC, TC.
xii. Regular SLA Violation reports for GSWAN other vendors.
xiii. Upgrading Patches on all equipments including NMS-Servers and network devices & Security Devices within the scope of support and hardening of network devices and security devices.
xiv. The Successful bidder is required to maintain uptime of the network between SC, DC, TC and other POPs to meet the SLA .In case the network uptime is not maintained due to non-availability of link/Bandwidth by Service provider, bidder is required to produce documentary proof (Service Desk Complaints/Incidents or Vendor assigned Tickets) in terms of certificate of downtime of network link/b/w from the service providers, In case bidder fails to provide such documentary proof the same shall be treated as non-performance of SLA and would be liable for penalty.
xv. The Successful bidder should keep the details of all the WAN Assets and document and any changes in the assets including up gradation and/or replacement of assets. The asset inventory for the entire WAN architecture shall always be up to date and shall be submitted to the DST on quarterly basis. **Indicative templates of asset register are attached at annexure-1 (asset register).**

xvi. The successful bidder has to support DST and co-ordinate for future expansion and integration of E-gram with GSWAN, MPLS,IPV6, VPN on Broad band and other Govt. authorized Network.

xvii. Bidder is required to keep requisites spares to ensure adherence of O &M operations

xviii. Successful bidder will have to do operational liasoning with stake holders (link providers, state government, local bodies, third party agencies / consultants appointed/identified by GoG) to keep the link up & running.

xix. Successful Bidder will have to liaison with Vendors and OEM for existing critical equipments. For this purpose, Bidder should submit a letter for support from OEM for the existing equipments as mentioned.

xx. Successful bidder should deploy prescribed resources as given in the proposed technical solution in the technical bid of the RFP at various SC, DC, TC & other POPS to provide operation, maintenance and support services.

O&S (including fault detection, analysis and follow-up) and vendor management services at GSWAN user field offices

(i) Scope for maintaining connected environment (LAN and Desktop) at offices:

Scope for maintaining LAN:

a. Solving the problems related to local LAN cabling, wiring and switches and connectivity
b. Setting up of IP and detection of GSWAN in user's desktops
c. Co-ordinating with Central Help Desk of GSWAN O&M to resolve the issues related to non-working of GSWAN connectivity at local filed office
d. Co-ordinating with hardware vendor for repair/replacement of spares used in LAN

(ii) Scope for maintaining Desktops connected to LAN:

e. Removal of virus from the user's desktop
f. Helping users of problem related to desktop operating system and office productivity suite.
g. Coordinating with vendor for repair/replacement of spares, OS, Office productivity suite.

xxi. **Comprehensive Annual Maintenance Contract of out of warranty equipment at SC, DC, TC and other POPS: Successful** bidder shall enter into comprehensive AMC

contract for out of warranty equipment/ hardware & software at SC, DC, TC & other POPs.

xxii. During the contract period, if OEM declares any equipment as end of support for any reasons, Successful Bidder /OEM has to replace those equipment with better or equivalent products without any cost to GoG. OEM has to also submit on their letter head, a complete details on the support available for the equipment, their end of support dates and replacement model if any.

xxiii. Successful Bidder has to ensure smooth IPV6 migration in case DST,GOG wishes to go for IPV6 over GSWAN. Bidder has to consider effort cost and required IOS and/or memory upgrade cost for the IPV6 implementation and operation management during the contract period of THREE years.

xxiv. Successful bidder is responsible to facilitate services for video conferencing events using manpower proposed in their proposed technical solution for SC, DC and TC to end-user offices located at SC, DC or TC or any other defined office across the State to carry out Video–conferencing on GSWAN network where VC equipments would be made available to the bidder. Mainly VC equipments are installed and used at all district including newly formed districts, District Collectors & District Development offices, Police/DSP offices at district level and all Taluka including newly formed Talukas mamlatdar offices, and between district jail and courts etc. This also includes exclusive State level Event organized for Gujarat Govt. Officials. For such events, O & M team test the setup and confirm to DST/TPA. Also once the activity completed need to submit user satisfaction report with sign/stamp to DST/TPA. Non performance of this clause will result into penalty.

xxv. Department of Science & Technology Govt. of Gujarat is providing GSWAN Connectivity for web casting and Video conferencing service to various remote places across the State for various events of Dignitaries through last mile connectivity provided by ISP, Wireless Vendor and Mobile VSAT VAN. This facility is being extended from Gandhinagar State Centre. Successful bidder is responsible for managing and coordinating these events. Successful bidder is required to keep four skilled resource having background of VSAT operations, Web Casting, Video Conferencing etc. Non performance of this clause will result into penalty.

xxvi. Successful bidder will submit competitive proposal for taking insurance of the equipments under O&M within three month from date of final take over. For subsequent years, successful bidder is also required to provide the details of change, if any in insured equipments.

xxvii. Successful bidder will help and co-ordinate with DST, GOG for paying electricity bills of SC, DC, TC and other POPs on behalf of DST, GOG, and actual amount of electricity bills will be reimbursed by DST, GOG .

xxviii. Bidder has to provide UPS & Battery Health Reports in every quarter after completing proactive maintenance every quarter.

xxix. Present O & M operator has set- up control room at State Centre Gandhinagar and District Centers at District collector offices across the State. Successful bidder has to ensure the following for smooth running and operation of the systems at SC, DC, TC & other PoPs, as prescribed.

a. Cooling requirement of the operational equipment at DC control room need to be maintained.
b. Proper electrification along with proper earthing & anti-static flooring, false ceiling for proper management of cables need to be maintained at SC, DC, TC & other POP.
c. Cabling with proper feruling and tagging as per cabling standard with network diagram need to be maintained at SC, DC, TC & other POP; Bidder is required to keep network diagram & other record in soft as well as hard copy & regularly update the same.
d. Filed/Location engineer has to provide NMS Service Desk & Network Monitoring report for respective locations authorized by local GOG authority
e. Successful bidder will put in place attendance system for all manpower deployed under O & M Contract and will submit dully authorized (Signed & Stamp) monthly absent report from representative Location
f. Cleanliness, cable tagging, hygiene and safety requirement like rodent repellent, fire detection and extinguisher and water leakage detection and prevention need to be maintained at DC, TC & other POPs and submit report as and when required by DST, GoG.
g. Record keeping of access, man and material movement registers, attendance registers of engineers, network diagram for the SC, DC & TC control room need to be maintained.

xxx. Successful bidder is also responsible for providing technical feasibility report as per format defined by DST/Third party audit (TPA) agency along with Cable route diagram, LAN sitting arrangement & diagram, digging permission status in case of JFC/OFC connectivity & permission status for mast installation in case of wireless connectivity for expansion and laying of new horizontal link/POPs and effort estimation and cost-

estimation (with detailed BOQ) for the same to the DST, Govt. of Gujarat. This work has to be performed within the prescribed time schedule of 7 working days. Non adherence of time schedule will result into penalty. Bidder has to follow Change Management documentation, while submitting new location report, along with capacity Report for new location.

xxxi. Successful Bidder is required to follow the handing over and taking over process as per **Annexure-2.** During the handing over and taking over process, if certain equipment, links are found down or not operational, successful bidder has to make the equipment/links in operational condition with prior approval of DST and cost of one time repair/replacement will be borne by DST, Govt. of Gujarat or the existing agencies.

2.1.2 Network Planning, Optimization and Expansion Services

The successful bidder will provide on-going support to GSWAN for specific network planning and optimization services such as configuration support required for addition of new sites and locations to the network, VLAN creations, and voice/ data/ video/ services, upgrading to IP v6 from existing IP v4, improving network availability and performance and capacity planning services. This may include following specific activities:

- Provide inputs for network expansion including effort estimation and cost – estimation.
- Up gradation of SC, DC, TC & POP network from IPv4 to IPV6 using latest technology (Dual Stacking, Bridging , Encrypted Tunnel preparation etc.) if DST decides to upgrade during the period of contract
- Integration of other IPv6 integrated GoG / GOI network with existing GSWAN.
- Update technical design documents on quarterly basis.
- Configuration of network hardware and software and planning for implementation.
- Create a checklist of activities to be performed for technical network operations
- Successful bidder will ensure IP network is monitored for performance and utilization of the network resources, including monitoring of the IP network and equipment for its over or under utilization, and provide capacity reports to optimize and commission the B/W or equipment accordingly.
- Evaluate the utilization of all the IP network and check for the adequate bandwidth provisioning.

2.1.3 Network Management Processes

For better management of the network, the process is elaborated in **Annexure -3** (network management process) and should be implemented by the Successful bidder.

The Gujarat State Wide Area Network (GSWAN), should be managed in accordance with various standards e.g. ISO Network Management Model (ISO20000:latest version), ITIL, , Disaster Recovery Model, OEM Certifications for AMC & Services for GSWAN etc.
For this purpose, processes may be defined under three functional areas that would govern the GSWAN Network Management:

- Configuration management
- Performance management
- Fault management
- Backup management
- Network Security Management
- Network Redundancy Management
- Change Management

Further Successful bidder is required to adhere to standard operating procedure and guidelines and best practices of LAN, WAN & Network implementation **(Annexure-4)** and Network dos and don'ts as **per Annexure-5.**
Non-performance of this clause may result in termination of the contract.

2.1.4 Network support for SLA and Performance Reporting

(i) The Successful bidder shall operate & maintain a Network Management System (NMS) and SLA and Performance Monitoring System for GSWAN backbone at Network Operation Centre (NOC) centrally at SC. This tool should be managed by the Successful Bidder for the complete contract period. These systems shall be used by the Successful Bidder for regular monitoring of the network, the third party audit (TPA) Agency for monitoring and auditing the systems or any other agency/ies prescribed by DST, GOG from time to time. Successful bidder shall configure/ provision the systems to be used by the TPA Agency appointed by GoG for audits and also help in monitoring the service level parameters on an ongoing basis as defined in Service level agreements. The TPA Agency shall have access to all generated reports for service levels audits and monitoring. Successful bidder shall have to deploy adequate access policy and security policy on the systems in consultation with DST,GOG and TPA for ensuring authenticity and integrity of reports. The system shall essentially have 3 components, a Network Management component, Help desk & SLA Management component. The TPA Agency should be able to view the SLA Management component. Currently GSWAN is monitored through CA-NMS tool version 6.3. Successful Bidder is expected to ensure optimum utilization of CA-NMS capabilities. The Successful bidder shall be responsible for creating network monitoring environment through the following:

- The NMS system shall be configured to automatically discover all manageable elements of the GSWAN.
- All network components shall be configured to alert the centralized NMS server in case of any events, so as to reflect real status of all network components and links across GSWAN.
- The NMS should also poll all network devices at regular intervals in order to determine their status and working.
- The NMS system should be configured to generate the following reports:

1. NMS should offer tabular information giving % of uptime of individual links on monthly basis.
2. Bandwidth utilization report.
3. Device availability report
4. Statistical report regarding resource utilization and Faults in network (e.g. – CPU and memory utilization for routers and switches).
5. Link wise latency report (both one way and round trip) times.
6. Historical reporting facility that will allow for the generation of on-demand and scheduled reports of Business Service related metrics with capabilities for customization of the report presentation.
7. Detailed Inventory report (Hardware/Software).
8. Generate SLA violation alarms to notify whenever any of the SLA parameters are violated or are in danger of being violated.
9. Any other reports/format other than the above mentioned reports required by DST, GOG shall also be provided by the successful bidder either through NMS (automated) or manually prepared.
10. Firewall and other security devices uptime
11. Any other report as indicated by the Government as per tool capability.

(ii) Successful bidder shall provide the following

- NMS reports including Bandwidth utilization report & Link up-time report & network equipment health check report on a monthly basis.
- Change management carried out by GSWAN Help Desk operation.

- Network Device Performance Report for SC-DC-TC and other priority offices, Weekly Monthly.
- GSWAN Change management report – Monthly
- New Location Connectivity – Weekly, Monthly
- Asset Report Location wise – Monthly
- Help Desk Report – Daily, Weekly, Monthly
- NetQOS Report about utilization of Network protocol and GOG applications.
- GSWAN Vendor SLA Violation Report – Weekly, Monthly
- GSWAN Audit Report – Quarterly
- GSWAN Network Utilization Report – Monthly
- GSWAN Network performance after Integration (with other network) Reports – every 6 month.
- VC & other Web Event completion report – Monthly
- Preventive Maintenance Report - Quarterly

Successful bidder shall have to consult DST, GoG for finalizing the report formats and frequency formulating a Communication Plan prior to the start of services. Successful bidder shall also enable the GoG designated Officer to be able to view any (up-to-date/ historical) reports related to GSWAN at any point of time via a Web-based interface to the NMS. The reference list is indicative and not exhaustive.

Bidder should also provide on-line GSWAN Dash board where, DST stake holder can get summary view of GSWAN Connectivity and Health Status.

(iii) Successful bidder would generate and provide Reports as stated below periodically. Bidder shall also be under obligation to provide any other reports as asked by DST, GoG.

(Currently Govt. of Gujarat is using CA e-Health Performance Manager 6.3.1.05 (D03) deployed on Windows 2008 Server Standard Edition (SP1) on an Intel server with dual CPU, 8GB RAM and 272 GB HDD for third party auditing and SLA monitoring purposes. DST, GOG is responsible for providing NMS TOOL) this task should complete in given time frame, non-adherence of this will result into penalty.

1. **General Reporting Features:**

   Should be able to generate Graphical User Interface (GUI) based reports for Primary Business Hour (PBH 9:00 am to 9pm) and Extended SLA Business Hour (ESH 9:00pm to 9:00 am Next day).

   a. Shall be able to present the reports through web, and also generate “PDF” version reports of the same.

b. Should provide user flexibility to create customized reports according to the user privilege level.
c. Should provide information regarding capacity utilization and error statistics for physical and logical WAN links.
d. Should create reports on trend analysis and capacity planning from historical data and also by considering Mean Time Between Failure (MTBF) of equipment.
e. Should be capable to send the reports through e-mail to predefined user at pre-defined interval.
f. Should have capability to exclude the planned downtimes from SLA.
g. Should be able to generate web based reports both in near real time and historical data for supported devices.

2. Availability Reports:

a. Overall Network Availability and Uptime Report on Daily, Weekly, Monthly, Yearly basis through GUI.
b. Uptime & Availability Report for Vendor/Service provider; MPLS network, Leased Lines, LAN, Server on Daily, Weekly, Monthly, Yearly basis.
c. Uptime & Availability Report on Network Devices: Router, Switch, Security Appliance on Daily, Weekly, Monthly, Yearly basis.
d. Uptime & Availability Report of UPS at State, District & Taluka level on Daily, Weekly, Monthly, Yearly basis.
e. Mean Time To Acknowledge (MTTA) and Mean Time To Repair (MTTR) Reports.

3. Performance Reports

a. Overall Network Device Performance (Router, Switch, Security Appliance) – CPU and Memory Utilized at State, District & Taluka level.
b. Every Link Input/Output Utilization (percentage, bps, kbps, mbps, octets/sec) on Leased Line, Wireless, Trunks between Switches, Link errors (Leased Lines, ISDN, Trunks, etc).
c. Should be able to indicate the Network Latency, Flapping Links, Changed Link Metrics, Prefix List and New Prefixes on each leased links at State, District & Taluka level.
d. Trend report based on Historical Information.

4. SLA Based Report:

a. Should be able to do computation of SLA for entire GSWAN network and Individual links
b. Should be able to generate automated Daily, Weekly, Monthly, Quarterly and Yearly SLA reports
c. Should be able to present "At-a-Glance" report comprising critical SLA parameters
d. Should provide component level report.

5. Inventory Status Report:

a. Equipment Inventory report –device name, device part number & serial number, device model number deployed at SC, DC & TC level.
b. Change Management report - Change management scorecards, change audit reports, changes by user and change detail reports provide immediate visibility into whether or not the defined CCM process is working and being followed.

6. Event & Fault Management Report

a. Should provide details about the number of complaints received due to failure of network devices and Voice devices.
b. Should provide the exact time and date when the complaints was resolved on daily, monthly and yearly basis. This should include the time taken to resolve the complaint and the reason due to which fault had occurred.

For management of NMS, bidder has to deploy 2 CA-NMS certified resource at SC.

2.1.5 Quality of Service (QOS)

Successful bidder shall configure quality of service (QOS) parameters on network switching and routing devices for end-to-end QoS for voice, video and other critical traffic over the network. Successful bidder shall configure network management policies for managing all the network and security devices using network management systems. Bidder will also be responsible for generating NETQOS reports from NMS tool and adhering to such policies that are issued from time to time by GoG/GOI.

2.2 Facility Management

2.2.1 Helpdesk (CA-NMS: Service Desk provided by GOG)

For servicing the GSWAN users, Successful bidder will maintain a centralized Help Desk number with IVR (Intelligent Voice Recognition), E-mail and call tracking mechanism. GSWAN users can log queries / complaints, which should be resolved as per the Service Level requirements. The helpdesk queries / complaints can be related to connectivity, security, configuration or any other issues which relate to the usage of GSWAN. Daily report of calls logged & resolved should be submitted by successful bidder to GoG. Successful bidder shall have to consult GoG for finalizing the report format. **At any given point of time GoG should be able to see the details of calls logged and resolved online.**

To facilitate help desk functions, Help Desk software shall be managed by the Successful bidder. This software should be able to take care of classification, automatic escalation, management, status tracking and reporting of incidents as expected by the service level requirements. Status tracking should be available to GSWAN users through the centralized Help Desk number as well as online through software. GoG / TPA Agency appointed by GOG have online access to Help Desk System information and historical data. Helpdesk software should also give a report on status of calls and violation of SLAs during disposal of such calls.

1. Help Desk will respond to and resolve the problems as per the SLA. Successful bidder will keep DST, GoG informed about the progress by contacting the DST, GoG at regular intervals.
2. Help Desk shall have a centralized Help Desk number set up for users to call in and log calls.
3. Problems shall be classified into various levels of priority mentioned in the SLA. The assigned priority for each problem shall be dependent upon the extent of the problem's impact on the usability of the system and the percentage of GSWAN users affected by the problem.
4. Initial assignment of priorities is the responsibility of the Help Desk's Team Leader. However, GoG can change or challenge the priority assigned to a particular problem and the procedures that exist for escalating a problem to progressively higher management levels for each call, until the agreement is secured.
5. Precise definition of problem priorities should be documented in the Successful bidder's Problem Management procedures.

6. Troubleshooting of network related issues, security issues and 3rd party coordination for issues escalated.

7. There shall be prescribed resources as specified in the resource requirement section. All the problems/queries at local offices will be reported by any departmental user as defined below in "Problem Resolution and Sign-Off" section. Users can track the status of the call by using the Trouble Ticket number which they would receive either through the online mechanism or on the Toll Free call made to the Central Helpdesk Team who would provide the Ticket number to user. The Central Helpdesk Team will diagnose the call and try to remotely resolve the call. In case the call needs to be attended then the Resident engineer will resolve the problem on the basis of priority and severity and within given SLA matrix. All call reports need to submit to DST/TPA for which Resident engineer attended the call to resolve the problem with user sign/stamp. Server Call Report should be closed in server desk by resident engineer.

8. Help Desk shall be responsible for change management like scheduled up-gradation of hardware and software components of GSWAN backbone etc. Help Desk will co-ordinate with all stake holders for change management and take approval from DST, GoG for the same and will inform all users for such event in advance.

9. Help Desk shall also be responsible for managing problems/incidents related to each PoP of GSWAN. Help Desk shall ensure timely response by assigning the problem/incident to resident engineer at that PoP on priority basis.

2.2.2 Problem Resolution and Sign-Off

Every departmental user can report any network related problem through Online Helpdesk interface or by calling the Centralized Help Desk Number to be notified by Successful bidder. In case of a toll free call, the Support Engineer shall be responsible for generating an online Trouble Ticket and also closing the call on the online system after resolution. The severity of the call will be automatically decided according to the Helpdesk Severity Matrix detailed in the SLA section. The Bidder will keep track of Helpdesk performance. This online report would contain:

1. Trouble Ticket Number as generated in the Online System
2. Time at which the problem was logged
3. Problem Description
4. Customer Details – Contact and Location

5. Helpdesk Engineer
6. Problem Resolution Time
7. Cause of problem

At the end of each problem, resolution performed by the Helpdesk or GSWAN Engineer at respective location, the Customer/End user would provide a confirmation indicating closure of call and optionally provide rating/feedback for the support provided. The call shall not be treated as closed until a customer/ user confirmation has been obtained .However if the users do not raise any concern within 72 hours, the call shall be deemed as closed. The user would have to close the call if it was logged online.

At the end of each month, all Helpdesk Call Reports must be sent to the TPA Agency for verification and approval. Helpdesk shall operate on all days basis during PBH and ESH as prescribed by DST, GoG.

2.3 Operation & services of horizontal link from all POPs or otherwise.

Successful Bidder would be responsible for uptime as mentioned in SLA for defined district level and taluka level POPs. There are offices connected horizontally either through wireless link, ADSL modem or through Non-exchange line of BSNL from POPs. The Bidder would be responsible for operation and services of horizontal links. **This includes fault detection, analysis and escalation to respective agencies and DST, Govt. of Gujarat within 4 hours of down-link reported in NMS tool or otherwise or on help desk and follow-up with respective agencies to close the complaint.** Successful Bidder would be responsible for uptime as mentioned in the SLA for these existing approx. 4400 horizontal links at horizontal offices at SC, DC & TC as well as new horizontal links which may be established during contract period at the unit rates specified in the bid. Bidder has to provide detailed uptime report which also include vendor uptime portion once every month. Non performance of this clause will result into penalty.

2.4 Implementation, operations and services & maintenance of New POPs

New POP Implementation Scope:

In case DST desires to set up the new POPs, onetime cost for implementation/ setting up of new POPs should be quoted by the bidder. After implementation of the said POPs, Operation, Services and maintenance of new POPs will be applicable at the quoted unit rate of operation, service and maintenance rate of other POPs ,as defined in this bid .

At any time during the contract period, DST may ask successful bidder to create the new POPs as

per the requirement. Bidder has to set up this new POPs in consultation with DST. For any new POPs set up/implementation, all equipments (including Routers/switches/UPS/ and required accessories/consumables (I/O/ UTP cable, PVC Pipe, & necessary electrification including switch and plug) would be procured/ supplied by DST, GOG. Link commissioning/Termination and Bandwidth provisioning would be the responsibility of DST, GOG.

Implementation activity would mainly constitute:

- Configuration of Network equipment i.e. Routers, Switch/Modem/Hub
- Liaison with service providers,
- Co-ordinate with NOC State Centre team of the bidder for checking connectivity related issue
- Discovery of New POP Location in Centralized NMS Tool
- Update of Asset Register after implementation of new POP

It is the responsibility of the successful bidder to maintain the networking infrastructure at the existing/newly created PoPs. All the networking equipment and spares shall be kept in good working condition and shall be repaired or replaced. In case of any equipment which is under Warranty the Bidder would be required to liaison with respective Vendor to ensure that all equipments are repaired/ replaced.

All the electrical equipment and accessories including lighting equipment, backup power sources, plugs, wires etc. shall be maintained and if required replaced by the successful bidder at its own cost. The successful bidder shall deploy the prescribed resources as given in the proposed technical solution in the technical bid of RFP for ensuring desired uptime of all GSWAN PoPs and other IT infrastructure. At various PoPs, the bidder shall provide maintenance and support services.

The Successful bidder shall also maintain an up-to-date inventory of all GSWAN supported equipment and spares and make the same available for review and inspections every quarter by GoG/ TPA Agency.

3.0 Resource requirement:

The bidder shall submit the details of resources for O&M of GSWAN. The bidder shall have to manage resources for meeting the requisite SLAS.

Bidder has to deploy the minimum manpower at different levels /location for successful

management and implementation of the project scope without extra cost to the DST department. The manpower deployed by the bidder shall report to the respective nodal officers nominated by GOG/DST.

The Bidder has to provide supporting IT and Communication Infrastructure to such manpower, during entire contract period without any extra cost to the DST. Although workspace shall be made available to the bidder by the concerned offices. Bidder has to ensure that the Support personnel deputed during all stages of the project shall carry an Identity Card duly authenticated by the DST/GOG.

3.1 Resource Requirement for Operation, Services and Maintenance:

The minimum requirement of manpower resources, their qualification and responsibility of each resource is given below. This is minimum indicative list of resources and the bidder may based on actual requirements, increase the number of resources deployed to meet the SLA. DST, GoG shall not pay any cost for additional resources required to operate, maintain, monitor & manage the GSWAN as per the SLA. In case support staff is not available or is on leave, the bidder is required providing the alternative personnel with same technical capabilities of the non-available personnel timely.

Minimum manpower required is as Follow:

1. One project Head at SC.
2. Two Network Project Manager.
3. One Project Manager (Events & Coordination)
4. Two CA certified NOC Engineer.
5. Four Video Conferencing /Event Coordinator
6. Six NOC/Service Desk Engineer.
7. Two MIS/DST Coordinators.
8. Eight Scan Engineer.
9. 66 District Engineers
10. 248 Taluka Engineers

Notwithstanding above, the successful bidder shall deploy core project team and quality of manpower as per their technical solution proposal in the RFP during contract period. Non-compliance of such deployment would result into imposition of penalty/termination of the contract as per the terms and condition of RFP.

POPs	Resource Level	Responsibility (Daily Activity)	Qualification	No. of Resources per PoP
SC Resource Requirement				
SC NOC (Gandhinagar)	Project Head	In charge of NOC operation and Team Management for GSWAN project across the state. Reporting to GoG for GSWAN operation & maintenance on regular basis. He will be the highest point of escalation for any problem that occurs in GSWAN backbone anywhere in state. He will have to resolve the problem within given SLA with the help of his team. He will be responsible for coordinating with any third party agency, bandwidth operator & software/ equipment's vendors.	Engineering Graduate (Electronics/Computers/IT). Should have OEM certification on network & security. Should have minimum 10 years of post-qualification experience in network & security implementation, NMS, project management, vendor management. Should be certified PMP Should be ITIL v3 Certified Should have min. 3 years of experience, working in Govt Sector. projects	1
SC NOC (Gandhinagar)	Project Manager (Network)	Technical Management of GSWAN Network Planning, Designing & Optimization.	Engineering Graduate (Electronics/Computers/IT). Should be having CCNP / CCIE & ITIL certification. Should have minimum 6 to 8 years post qualification experience in network & security implementation, NMS, project management, Should have network Security Specialization & Experience in IPv6 Technology	2

SC NOC (Gandhinagar)	Project Manager (Events & Co-ordination)	Event Management & Co-ordination of GSWAN Liasoning with various stakeholders / agencies & GoG departments	Engineering Graduate (Electronics/Computers/IT). Should be preferably having CCNP or ITIL certification. Should have minimum 6 to 8 years post qualification experience in network implementation, project management, event management	1
SC NOC (Gandhinagar)	NOC Engineer	Managing Network operations using NMS tool. Managing Helpdesk operations Managing Network Monitoring.	Engineering Graduate / Diploma in (Electronics/Computers/IT) Should have minimum 5 years for Engineers / 10 years for Diploma holders post qualification experience in NOC operations. Should be CCNA certified. Should be CA-NMS Certified (CA-Spectrum & CA-Service Desk both)	2
SC	Video Conferencing/Event Coordinator	Managing Video Conferencing events and equipments. Managing Network & Coordination with Vendor.	Diploma in electronics /networking/IT Should have minimum 1 year's experience in Video conferencing operations. Should have hands-on experience in VC equipment.	4
SC NOC (Gandhinagar)	Help Desk/Service Desk Support/NOC Engineer	Managing GSWAN Help Desk with Online Network Monitoring , Telephone support & Trouble Shooting , Ticketing System	Graduate with Call Centre Experience. Should have min. 2 years' experience Experienced in Networking technology. Should have experience in Ticket Management System. Should have good soft skills.	6

MIS Engineer (SC, DST)	MIS & Dept. coordinator	Managing daily to daily departmental interaction from GSWAN team, responsible for providing GSWAN MIS report as per contract and on demand basis by DST and by authorized agencies.	Graduate with Administration experience include letter communication, MIS reports Should have IT/Computer Application diploma	2
SCAN Engineer	SCAN Engineer	Installation, Troubleshooting, commissioning of network equipment for horizontal offices & support & solution all problem related to GSWAN PoP. Maintenance, Monitor & Support for network equipment of PoP Installation, configuration and maintenance of wireless network and managing wireless NMS. Regular update of software patches for network equipment, anti-virus etc.	Engineering Graduate / Diploma in (Electronics/Computers/IT) Should have minimum 3 years for Engineers / 5 years for Diploma Should have certification in network technologies from an OEM. Should have 2-3 years of experience in network services / SWAN project. Should have good soft skills	8

DC Resource Requirements				
DC PoP	Network Engineer	Installation, Troubleshooting, commissioning of network equipment for horizontal offices & support & solution all problem related to GGSWAN PoP. Maintenance, Monitor & Support for network equipment of PoP Installation, configuration and maintenance of wireless network and managing wireless NMS. Regular update of software patches for network equipment, anti-virus etc. Monitoring bandwidth utilization for the PoP Taking backup and storage of configuration, user data like mails etc on periodic basis. Generating report and submit it to NOC manager at SCR. Providing all services as mentioned in the scope section including multimedia/ security/backbone and other services.	Engineering Graduate / Diploma in (Electronics/Computers/IT) Should have minimum 3 years for Engineers / 5 years for Diploma Should have certification in network technologies from an OEM. Should have 2-3 years of experience in network services / SWAN project. Should have good soft skills	Minimum 2 nos. of Engineer per district

TC Resource Requirement				
TC PoP	Network Support Assistant	Installation, Troubleshooting, commissioning of network equipment for horizontal offices & support & solution all problem related to GSWAN PoP. Maintenance, Monitor & Support for network equipment of PoP Installation, configuration and maintenance of wireless network and managing wireless NMS. Regular update of software patches for network equipment, anti-virus etc. Monitoring bandwidth utilization for the PoP Taking backup and storage of configuration, user data like mails etc on periodic basis. Generating report and submit it to NOC manager at SCR. Handholding support for Software Application at Taluka level offices. Providing all services as mentioned in the scope section including multimedia/security/back bone and other services.	Diploma (EC, IT, CE) /BCA Should have 1-2 years of experience in network services / SWAN Project Should have good soft skills	Minimum 1 nos. of Engineer per Taluka.

3.1.1 Attendance System

Attendance mechanism is required for supporting the GSWAN infrastructure by bidder. For this the staff would report to the nodal officer nominated by the GOG/DST at each location. Attendance of all the on-site FMS Manpower shall be submitted on monthly basis, by 2nd day of every month to DST duly verified by the nodal officer. Attendance registers to be maintained for entire FMS team for all sites, clearly marking the Time-in and Time-out in the same.

3.1.2 Training Plan for GSWAN team

Bidder have to conduct minimum 2 training programs in a year for the GSWAN team, which aims to upgrade their technology & operation knowledge base with latest information.

4. SERVICE LEVEL AGREEMENT (SLA)

1. Service Level Agreement (SLA) is the contract to be signed between the GoG and the network operator. SLA defines the terms of the operator's responsibility in ensuring the performance of the GSWAN based on the agreed performance indicators as detailed in the agreement.

2. The table below summarizes the performance indicators for the services to be offered by the operator. The detailed description of the performance indicators, SLA Terms and their definitions are discussed in the following sections.

3. **Details of Penalties for non-performance of SLA defined in this section have been provided in section 4.1 (Penalties)**

S.No	SLA Parameter	SLA Target
1	Network Availability between SC – DC during Prime Business Hours	>=99.5 %
2	Network Availability between DC – TC , DC- other POPs , TC- other POPs during Prime Business Hours	>=99%
3	Network Availability between SC – DC during Extended Business Hours	>=95%
4	Network Availability between DC – TC , DC- other POPs , TC- other POPs during Extended Business Hours	>=90%
5	Horizontal Connectivity (RF Links) during Prime Business Hours	>=99%
6	Horizontal Connectivity (RF Links) during Extended Business Hours	>=95%
5	GSWAN Backbone Latency	Less than 90 ms
6	GSWAN Backbone Packet Loss	<=1 %

4. GSWAN SLA Terms & Definitions

S.No	SLA Terms	Description
1	GSWAN Backbone	'GSWAN Backbone' refers to Internet Protocol (IP) based routing infrastructure consisting network of selected GSWAN points of presence identified by the State at which, GSWAN O&M Agency has installed network devices ("Selected PoPs") for Wide Area Network within the State.
2	Uptime	'Uptime' refers to GSWAN backbone availability across various segments i.e. between State Head Quarters to District Head Quarters and District Head Quarters to Taluka Head Quarters. "%Uptime" means ratio of 'up time' (in minutes) in a month to Total time (in minutes) in the month multiplied by 100.
3	Latency	'Latency' refers to the average time required for round-trip packet transfers between Selected PoPs on the selected portions of the GSWAN Backbone during a calendar month.
4	Packet Loss	'Packet Loss' refers to the average percentage of IP packets transmitted between Selected PoPs during a calendar month that are not successfully delivered.
5	Prime Business Hours (PBH)	PBH refers to the prime network utilization period for GSWAN, which shall be starting from 9:00 AM till 9:00 PM on all the days of the week.
6	Extended SLA Hours (ESH)	ESH refers to the lean network utilization period for GSWAN, which shall be typically starting from 9:00PM to 9:00 AM of next day on all days of the week.
7	Planned Network Outage	'Planned Network Outage' refers to unavailability of network services due to infrastructure maintenance activities such as configuration changes, up gradation or changes to any

S.No	SLA Terms	Description
		supporting infrastructure. Details related to such planned outage shall be agreed with the State government and shall be notified to the SC, DC, TCs and related Departments in advance (at least five working days). Such outage shall be taken on Sundays or other Government holidays to the extent possible.
8	Unplanned Network Outage	'Unplanned Network Outage' refers to an instance in which no traffic can pass in or out of the Selected PoP through which Departments connects to the GSWAN Backbone for more than 5 consecutive minutes.

5. GSWAN Backbone Latency

The Latency on the GSWAN Backbone shall be maintained at:

i. 90 milliseconds or less for the District level Network

ii. 120 milliseconds or less for the Taluka level Network.

SLA Parameter	GSWAN Backbone Latency	
Network Segment	Network Latency	Remarks
SC – DC	90 ms	SLA allows a maximum of 90 Milliseconds in the connectivity between the State Head Quarter and to all the District Head Quarters.
DC – TC DC- other POPs , TC- other POPs	120 ms	SLA allows a maximum of 120 Milliseconds in the connectivity between the District Head Quarters to all the Taluka Headquarters.

6. GSWAN Backbone Packet Loss

The Packet Loss on the GSWAN Backbone shall be maintained typically at less than 1%.

SLA Parameter		Packet Loss
Network Segment	Packet Loss	Remarks
SC - DC , DC-TC DC- other POPs , TC- other POPs	<=1%	SLA allows a maximum of 1% of packet loss in the connectivity between the State Head Quarter and to all the District Head Quarters And between the District Head Quarters to all the Taluka Headquarters.

7. Denial of Service

Denial of Service (DoS) is the most common form of attack on the Network, which leads to network unavailability for the genuine network users. Successful Bidder shall respond to Denial of Service attacks reported by departments/ GSWAN users or GSWAN maintenance personnel within 15 minutes of intimation to the helpdesk. Denial of Service attack can be defined as sudden burst of network traffic leading to more than 90-95% utilization of the GSWAN bandwidth in any segment or complete network. In such a scenario operator shall perform an analysis of the issue, verify whether the network utilization is due to genuine user requirements or it is a denial of service attack. In case it is identified as DoS attack, operator shall identify the source of Denial of Service attack, and shall disconnect the source or network from GSWAN backbone and resolve the issue to ensure availability and performance of the backbone.

Successful bidder at regular intervals, shall monitor and measure the actual bandwidth allocated by the Bandwidth Provider against the agreed Committed Interface Rate (CIR) and issues identified shall be reported to DST, GoG and shall be escalated to the Bandwidth Service provider for resolution.

8. Network Operations Management

Successful bidder is required to establish Contact Center (Helpdesk) at the State level with an appropriate Helpdesk tool. Helpdesk shall act as a SPOC (Single Point of Contact) for all the Network & Security related issues reported by the government departments or any other related stakeholders of the GSWAN. Each issue need to be recorded in the Helpdesk tool as a Service Request (with allocation of service request number) and the resolution timelines for such Service Requests shall be monitored by the State.

S.No	Severity	Initial Response Time	Issue Resolution Time
1	Level 1	15 Mins	1 Hr
2	Level 2	30 Mins	2 Hrs
3	Level 3	60 Mins	8 Hrs
4.	Level 4	240 Mins	24 Hrs

9. Severity Level Definition

Level 1:	The network outage, security or performance related issues impacting the network availability/performance and leading to unavailability of the services in State Head Quarter.
Level 2:	The network outage, security or performance related issues impacting the network availability/performance and leading to unavailability of the services in one or more Districts or PoPs.
Level 3:	The network outage, security or performance related issues impacting the network availability/performance and leading to unavailability of the services to one or more departments in Sub division/ Taluka.
Level 4	The network outage, security or performance related issues impacting the network availability/performance and leading to unavailability of the services to one or more Horizontal Links

Other Information related to SLA management is provided below.

a. Capacity and Performance Management

Successful bidder shall provide capacity planning services through network base lining and trending, to determine the resources required for GSWAN and to plan and complete network upgrades before a capacity problem causes GSWAN down time or performance problems. In addition to availability, latency and packet loss, Successful bidder shall monitor the network and dependent infrastructure (resource) utilization during successive time periods (hour, day, week, month, and year) and shall provide recommendations to State government on GSWAN infrastructure up-gradation. Successful bidder shall perform the planned network upgrades with prior notification to the departments/users in the network segment (s) affected by the planned outages. Successful bidder should ensure that all the planned outages are performed only in the Extended SLA Hours and only the emergency upgrades are performed in the Prime Business Hours. In case of planned downtime all stakeholders should be informed one day before through e-mail.

The overall responsibility of ensuring the GSWAN performance rests with the Successful bidder and the following are critical areas in management which shall be monitored by the Successful bidder on a constant basis.

i. CPU Utilization

ii. Backplane or I/O

iii. Memory and Buffers

iv. Link Utilization

I. CPU Utilization

CPU is used by both the control plane and data plane on any network device. In capacity and performance management, Successful bidder must ensure that the device and network have sufficient CPU capacity to function at all times. Successful bidder shall configure the NMS to monitor the CPU utilization of the critical network devices implemented in PoPs. In case the average CPU utilization is above 80 % on a continuous basis, Successful bidder shall perform the diagnostic review of the device and provide recommendations on addressing the issue. Successful bidder shall own the overall responsibility of the performance and shall accordingly escalate any performance related issues to the state government.

II. Backplane or I/O

Backplane or I/O refers to the total amount of traffic that a device can handle, usually described in terms of BUS size or backplane capability. Any issues with backplane or I/O need to be monitored and recommendations need to be provided to address the performance issues.

III. Memory and buffers

Memory is another resource that has data plane and control plane requirements. When devices run out of memory, operations on the device can fail. In case the average memory utilization is above 70 % on a continuous basis, Successful bidder shall perform the diagnostic review of the device and provide recommendations on addressing the issue. Successful bidder shall own the overall responsibility of the performance and shall accordingly escalate any performance related issues to the state government.

IV. Link Utilization

Successful bidder shall monitor the utilization of GSWAN links across the segments to verify the current utilization and the trends to ensure that enough bandwidth is made available for the applications and services to function without performance issues. Successful bidder shall provide fortnightly reports on the link utilization and in case the link utilization on a constant basis is exceeding 70 %, Successful bidder shall provide recommendations to the State government on procurement of additional bandwidth.

b. Measurement of SLA

The Measurement of SLA shall be performed by a third party audit Agency, independent of the Successful bidder, to be identified by the State Government.

Successful bidder shall establish an Enterprise/ Network Management System for monitoring and measurement of the SLA parameters identified for the GSWAN.

c. Certification

ISO 27001 ISMS Standards

Bidders are required to submit the ISO 27001 (ISMS) implementation cum certification plan as part of their technical proposal. This plan should be

comprehensive enough and will include the milestones, description, timelines etc.

O&M agency have to ensure to establish Plan-Do-Check-Act (PDCA) model for the ISMS. O&M agency would be responsible for establishing, operating, monitoring, reviewing, maintaining and improving the Information Security Management System (ISMS) at the GSWAN control rooms at SC & DC. For this purpose O&M agency shall implement ISO/IEC 27001 standard and get certification from the certification body such as STQC, BSI, DNV, BVQi, etc.

O&M agency have to take consent of DST/GIL in case of any changes required in policy manual or documentation or in forming of Information security organization or as required.

O&M agency has to plan and implement the processes as per ISO/IEC 27001 standard for GSWAN. O&M agency should be made responsible to apply, obtain and maintain the ISO 27001 certification for the project duration. The cost incurred for obtaining and maintaining the certification shall be borne by the O&M agency.

The O&M agency has to get the certificate of the same within one year from the date of takeover of operations of GSWAN. Subsequently periodic surveillance audits must be carried out. The Surveillance audit will be carried by the Third Party Agency as appointed by the DST/GIL & the cost of the surveillance audit would be borne by the DST/GIL.

The ISO 27001 certification would be obtained by the O&M agency latest by end of one year of the Operations phase failing which penalty would be levied.

ISO 20000 ITIL (Information Technology Infrastructure Library) Standard

Bidders are required to submit the ISO 20000 (ITSM/ITIL) implementation cum certification plan as part of their technical proposal. This plan should be comprehensive enough and will include the milestones, description, timelines etc.

ISO/IEC 20000 adoption in GSWAN infrastructure helps in ascertaining that the Services delivered to the DST / User Departments by the O&M agency are:

- As per the agreed Service levels
- Professionally managed with domain expertise
- Project Risks are well understood and managed

O&M agency shall be responsible to implement ISO/IEC 20000 standard which shall

promote the adoption of an integrated process approach to effectively deliver managed services to meet the GoG requirements. The ISO 20000 certification would be obtained by the O&M agency latest by the end of one year of the Operations phase failing which penalty will be levied. The Surveillance Audit would be carried by the Third Party Agency as appointed by the DST/GIL & the cost of the surveillance audit would be borne by the DST/GIL.

Following methodologies are proposed for ITSM / ITIL standard:

PDCA (Plan-Do-Check-Act) methodology shall be adopted to implement ISO 20000 standard to establish the objectives and processes necessary to deliver results in accordance with DST/GIL requirements as well as the GSWAN policies and to implement the processes accordingly. O&M agency shall monitor and measure processes and services against policies objectives and requirements and report the results and take actions on the differences and continually improve process performance.

- Alignment of information technology services and strategy.
- To create a formal framework for current service improvement projects.
- To improve relationship between different departments via better definitions & more clarity in terms of responsibility and goals.
- To create stable framework for both resource training and service management automation.

4.1 SLA Review Process

- Either DST, Govt. of Gujarat or Successful bidder may raise an issue by documenting the business or technical problem, which presents a reasonably objective summary of both points of view and identifies specific points of disagreement with possible solutions.

- A meeting or conference call will be conducted to resolve the issue in a timely manner. The documented issues will be distributed to the participants at least 24 hours prior to the discussion if the issue is not an emergency requiring immediate attention.

- DST, Govt. of Gujarat and the Successful bidder shall develop an interim solution, if required, and subsequently the permanent solution for the problem at hand. The Successful bidder will then communicate the resolution to all the stakeholders.

- In case the issue is still unresolved, the arbitration procedures described in the Terms & Conditions section will be applicable.

4.1 Penalties

Successful Bidder shall be paid Quarterly Payment (QP) as per the services (i.e. availability) provided to GoG. The overall penalty would be capped at 15% of QP amount. If the cap of overall penalty is breached in two consecutive quarters, the cap of 15% would not be applicable in the subsequent quarters and the penalty would be levied on actual. GoG also reserves right to terminate the contract under above circumstances. Availability will be calculated on a quarterly basis. Penalties will be levied based on the impact on GSWAN network due to down time of any equipment or part of equipment or any PoP.

a. QP penalty Type 1 - When a SC-DC device is down, than penalty will be levied on the sum of the following:

   i. (60% of QP of SC) / (Total no of DC connected with SC)

   ii. 60% of the arithmetic sum of the QP of DC, all TCs and other POPS linked with this DC and all horizontal offices connected to these affected DCs & TCs and other POPS

b. QP penalty Type 2 – When a DC-TC device is down, than penalty will be levied on the sum of the following:

   i. (70% of QP of DC) / (Total no of TCs and other POPS connected with this DC)

   ii. 70% of the arithmetic sum of the QP of TC and other POPS and all horizontal offices connected to the affected TC and other POPS

1. Penalties for Vertical Connectivity

Link	Availability during PBH	Penalty	Availability during ESH	Penalty
SC-DC	>= 99.5%	Nil	>= 95%	Nil
	99.5% to >=98.5%	0.5% of the QP Type-1	95% to >=94%	0.25% of the QP Type-1
	98.5% to >=97.5%	1.5% of the QP Type-1	94% to >=93%	0.75% of the QP Type-1
	97.5% to >=96.5%	3.5% of the QP Type-1	93% to >=92%	1.75% of the QP Type-1
	96.5% to >=95.5%	5.5% of the QP Type-1	92% to >=91%	2.75% of the QP Type-1
	95.5% to >=94.5%	7.5% of the QP Type-1	91% to >=90%	3.75% of the QP Type-1
	94.5% to >=93.5%	10% of the QP Type-1	90% to >=89%	5% of the QP Type-1
	93.5% to >=92.5%	12.5% of the QP Type-1	89% to >=88%	6.25% of the QP Type-1
	92.5% to >=91.5%	15% of the QP Type-1	88% to >=87%	7.5% of the QP Type-1
	91.5% to >=90.5%	17.5% of the QP Type-1	87% to >=86%	8.75% of the QP Type-1
	90.5% to >=90.0%	20% of the QP Type-1	86% to >=85%	10 % of the QP Type-1
	90% to >=89.5%	22.5% of the QP Type-1	85% to >=84%	11.25 % of the QP Type-1
	And so on			
DC – TC & DC-Other	>= 99%	Nil	>= 90%	Nil
	99% to >=98%	0.5% of the QP	90% to >=89%	0.25% of the QP

Link	Availability during PBH	Penalty	Availability during ESH	Penalty
POPs & TC-Other POPs		Type-2		Type-2
	98% to >=97%	1.5% of the QP Type-2	89% to >=88%	0.75% of the QP Type-2
	97% to >=96%	3.5% of the QP Type-2	88% to >=87%	1.75% of the QP Type-2
	96% to >=95%	5.5% of the QP Type-2	87% to >=86%	2.75% of the QP Type-2
	95% to >=94%	7.5% of the QP Type-2	86% to >=85%	3.75% of the QP Type-2
	94% to >=93%	10% of the QP Type-2	85% to >=84%	5% of the QP Type-2
	93% to >=92%	12.5% of the QP Type-2	84% to >=83%	6.25% of the QP Type-2
	92% to >=91%	15% of the QP Type-2	83% to >=82%	7.5% of the QP Type-2
	91% to >=90%	17.5% of the QP Type-2	82% to >=81%	8.75% of the QP Type-2
	90% to >=89%	20% of the QP Type-2	81% to >=80%	10% of the QP Type-2
	And so on			

2. Penalties for Horizontal Connectivity per link/port

Horizontal connectivity		
Responsibility	**Issue**	**Penalty**
Bidders are responsible for operation and services of horizontal links. This includes fault detection, analysis, and escalation to respective agencies and DST, Govt. of Gujarat within 4 hours of down-link reported in NMS or on help desk and follow-up with respective agencies to close the complaint.	Un escalated events/ incidents/faults to respective agencies for more than 4 hours from the time of detection	After resolution time is over, Rs. 100/- per hour per incident and part thereof

A separate mechanism shall be set up at helpdesk to respond/resolve the complain calls regarding horizontal connectivity received from offices like Raj Bhavan, Chief Minister's Office, Ministers Office, Secretaries offices within Sachivalaya Campus Area Network & also from the offices of Collectors, DDOs, Superintendent of Police & High Court horizontally connected to District Centres.		

3. Network availability

Network availability for a month is defined as total time (in minutes) in a month less total down time (in minutes) in a month excluding planned downtime. The network is considered available when all the services mentioned in the requirement section in full capacity are available. Bandwidth or Link downtime will not be considered as part of network downtime.

Network Uptime (%) =

Sum of total minutes during the Month - Sum of downtime minutes during the Month

---------- X 100

Sum of total minutes during the Month

Bidder will take at least 7 days prior approval from the DST/GOG for the network maintenance i.e. planned downtime. Bidder's SLA and Penalty would be applicable only after final acceptance testing indicating that the link is completely functional. The Operator's request for payment shall be made at the end of each quarter by invoices along with the following supporting documents:

- Performance statistics
- Log of network parameters along with Service Down time calculation and Uptime percentage.
- Any other document necessary in support of the service performance acceptable to GoG.

The TPA Agency shall verify all the supporting documents as prescribed and acceptable to GoG. On receipt of such invoice after verification by the Third Party Audit Agency and after deducting Income Tax, other taxes and any Penalties, GoG shall pay the amount.

The Quarterly Total Downtime will be the sum of the downtime incurred in each month. The deduction/penalty will be calculated on the Quarterly Total Downtime.

4. Penalties for GSWAN Backbone Latency

The Latency on the GSWAN Backbone shall be maintained at

SLA Parameter	GSWAN Backbone Latency	
Network Segment	Network Latency	Remarks
SC – DC	90 ms	SLA allows a maximum of 90 Milliseconds in the connectivity between the State Head Quarter and to all the District Head Quarters.
DC – TC DC-other POPs TC-other POPs All HO Links	120 ms	SLA allows a maximum of 120 Milliseconds in the connectivity between the District Head Quarters to all the Taluka Headquarters.

If the GSWAN Backbone Latency is more than the permissible as mentioned above, Successful bidder has to analyze report and escalate to various stakeholders within 2 hours of incident reported. If Successful Bidder fails to analyze, report and escalates to various stakeholders within 2 hours of incident reported, Rs. 1000 per 30 minute or part thereof thereafter will be levied.

5. Penalties for GSWAN Backbone Packet Loss

The Packet Loss on the GSWAN Backbone shall be maintained typically at less than 1%.

If the GSWAN Backbone packet loss is more than 1% measured on a monthly basis as mentioned above, Successful bidder has to detect, analysis and report to various

stakeholders within 2 hours of incident reported. Successful bidder has to take corrective action and resolve the issue within 6 hours of incident reported. If Successful Bidder fails to detect, analysis, report and report to various stakeholders within 2 hours of incident reported, Rs. 1000 per 30 minute or part thereof thereafter will be levied. If Successful Bidder fails to take corrective action and resolve the issue within 6 hours of incident reported, Rs. 2000 per 30 minute or part thereof thereafter will be levied.

6. Penalty for non-reporting:

If Successful Bidder fails to submit or update the various reports mentioned in scope of work Rs. 1000 per incidence per report will be levied.

7. Penalty for not providing Video-conferencing/ Web casting services

If Successful Bidder fails to provide Video conferencing services or managing VC/Web casting mentioned in scope of work, Rs. 1000 per incidence per location will be levied.

8. Penalty for non-keeping the control room upto date

If Successful Bidder fails to keep proper cooling, electrification, cable tagging, cleanliness, hygiene and safety requirement, various registers and network diagram as mentioned in scope of work, Rs. 2000 per day per location from the date of reporting will be levied till the cleanliness is restored. TPA / DST designated agency would inform the bidder regarding incidences of non-maintained control rooms.

9. Penalty for not providing technical feasibility and cost-estimation report:

If Successful Bidder fails to provide technical feasibility report for expansion and laying of new horizontal links/POPS and effort and cost estimation of the same within 7 working days from the date of intimation from DST, as mentioned in scope of work, Rs. 1000 per feasibility per day or part thereof will be levied.

10. Penalties for delay in takeover

If successful bidder fails to complete the pre-requisites of handing over and taking over as mentioned in the RFP or the Partial Acceptance Test within the time periods specified in the implementation plan, DST, GoG may, without prejudice to its other remedies under the Agreement, levy as Penalties, a sum equivalent to 0.25% of Type-1 or Type-2 as per Penalties Section 4.1 for each week of delay or part thereof, until actual delivery of

performance. If the delay continues beyond 12 weeks, DST, GoG may terminate the Agreement and forfeit the PBG.

Failure to complete the Final Acceptance Test as specified in the implementation plan and handing over and taking over as mentioned in the RFP, DST, GoG may, without prejudice to its other remedies under the Agreement, levy as Penalties, a sum equivalent to 0.5 % of Type-1 or Type-2 as per Penalties Section 4.1 for each week of delay or part thereof, until actual delivery of performance. If the delay continues beyond 12 weeks, DST, GoG may terminate the Agreement and forfeit the PBG.

The above clause for penalties due to delay in PAT and FAT shall only be applicable for the delay attributed solely to the successful bidder as per his roles and responsibilities, delay due to other reasons shall not be considered.

11. Operational Penalties

In the event the successful bidder is unable to meet any one of the SLA parameters defined in this RFP for 10% or more of the operational units (DC, TC & other PoPs) during two quarters in a year or five quarters during the three years of the contract, DST, GoG reserves the right to terminate the contract and forfeit the PBG.

Also in case the successful bidder is not able to meet some particular SLA parameter at a PoP location continuously for 2 quarters then per quarter or part there of a penalty of 10 % of the payment due based on that PoP shall be levied.

12. Penalties for misuse

In case of misuse of bandwidth/ Internet at the instance of successful bidder, the penalty imposed on the successful bidder, without prejudice to other remedies available to DST, GOG under the Agreement, shall be 200% of annual value of bandwidth/Internet costs. If the misuse continues for two quarters, DST, GoG may terminate the Agreement

13. Penalties for not keeping man-power.

If successful bidder does not deploy the required specified quantity & quality manpower as per deployment plan of the proposed technical solution of the RFP or a person deployed is not reporting to the duty, there would be a penalty per person per day as defined below and will be deducted from the quarterly payment.

Penalties related to manpower deployment can be applied during the project:

Manpower penalties during the Operations stage		
Sl. No	**Penalty Clause**	**Penalty**
1	Successful bidder has to ensure that the number of personnel required as per Manpower clause 3.1 at the various operational levels of GSWAN. The successful bidder shall ensure that alternate arrangements are made and leave for a staff is pre-sanctioned by GoG. If not, the penalties described in the following column shall apply (Any deviation in qualification or in experience of the deployed manpower will be treated as non-deployment for the purpose of penalty calculation)	1. Manpower at SC & DC: Rs. 2000 per person per day of unsanctioned leave or non reporting or non-deployment. **2.** Manpower at TC & PoP Rs. 1000 per person per day of unsanctioned leave or non reporting or non-deployment.

Bidder has to provide attendance Report Penalty of all manpower deployed for the project every month, penalty of 10000 per month shall be levied every day every month of delay beyond the expected response time.

14. Penalty for not obtaining required ISO certifications for GSWAN

If the successful bidder fails to obtain the required ISO certifications for GSWAN within one year from the date of award of contract, the penalty of Rs. 2 lacs will be levied every month of delay beyond the expected completion time.

15. Successful bidder will submit competitive proposal for taking insurance of the equipment under O & M within three month from date of final take over. Penalty of 1 Lakh will be levied every month of delay beyond the expected completion time.

5 EXIT MANAGEMENT

(In this section, successful bidder has been referred to as O&M Agency)

A) Purpose

a) This clause sets out the provisions which will apply upon completion of the contract period or upon termination of the agreement for any reasons. The Parties shall ensure that their respective associated entities, in case of DST, GoG, any third party appointed by the DST, GoG and in case of the O & M Agency, the sub-contractors, carry out their respective obligations set out in this Exit Management Clause.

b) The exit management period starts 3 months before the expiry of contract or in case of termination of contract, the date on which the notice of termination is sent to the O & M Agency. The exit management period ends on the date agreed upon by the DST, GoG or one year after the beginning of the exit management period, whichever is earlier.

c) The Parties shall ensure that their respective associated entities, authorized representative of or its nominated agencies and the vendor carry out their respective obligations set out in this Exit Management Clause.

d) Before the expiry of the exit management period, the O & M Agency shall deliver to the DST, GOG or its nominated agencies all new or up-dated materials from the categories set out in point (1) above, and shall not retain any copies thereof, except that the O & M agency shall be permitted to retain one copy of such materials for archival purposes only.

B) Cooperation and Provision of Information

a) During the exit management period:

(i) The O&M Agency will allow DST, GoG or any third party appointed by DST, GoG, access to information reasonably required to define the then current mode of operation associated with the provision of the services to enable DST, GoG or any third party appointed by DST, GoG to assess the existing services being delivered;

(ii) Promptly on reasonable request by DST, GoG or any third party appointed by DST, GoG, the O&M Agency shall provide access to and copies of all information held or controlled by them which they have prepared or maintained in accordance with the “Contract”, the Project Plan, SLA and Scope of Work, relating to any material aspect of the services. DST, GoG or any third party appointed by DST, GoG shall be entitled to copy all such information. Such information shall include details pertaining to the services rendered and other performance data. The GSWAN operator shall permit DST, GoG or any third party appointed by DST, GoG to have reasonable access to its employees and facilities as

reasonably required by DST, GoG or any third party appointed by DST, GoG to understand the methods of delivery of the services employed by the GSWAN operator and to assist appropriate knowledge transfer.

(iii) Before the end of exit management period, the O&M Agency will ensure a successful trial run of Network administration, Facility management including helpdesk management etc. by DST,GoG or by any third party appointed by DST, GoG.

C) Confidential Information, Security and Data

a) The O&M Agency will promptly, on the commencement of the exit management period, supply to DST, GoG or any third party appointed by DST, GoG the following:

(i) Information relating to the current services rendered and performance data relating to the performance of sub contractors/ bandwidth providers in relation to the services.

(ii) Documentation related to Intellectual Property Rights.

(iii) All confidential information related to DST, GoG.

(iv) Documentation relating to sub-contractors.

(v) All current and updated DST, GoG data as is reasonably required by DST, GoG or any third party appointed by DST, GoG for purposes of transitioning the services to DST, GoG or any third party appointed by DST, GoG, in a format prescribed by DST, GoG or any third party appointed by DST, GoG.

(vi) All other information (including but not limited to documents, records and agreements) relating to the services reasonably necessary to enable DST, GoG or any third party appointed by DST, GoG, to carry out due diligence in order to transition the provision of the Services to DST, GoG or any third party appointed by DST, GoG, (as the case may be).

b) Before the expiry of the exit management period, the O&M Agency shall deliver to DST, GoG or any third party appointed by DST, GoG all new or up-dated materials from the categories set out above and shall not retain any copies thereof.

c) Before the expiry of the exit management period, unless otherwise provided under the "Contract", DST, GoG or any third party appointed by DST, GoG shall deliver to the GSWAN operator all forms of "GSWAN operator's" confidential information which is in the possession or control of DST, GoG or any third party appointed by DST, GoG.

D) Right of Access to Premises

a) At any time during the exit management period, where Assets are located at the O&M Agency's premises, the O&M Agency will be obliged to give reasonable rights of access to (or, in the case of Assets located on a third party's premises, procure reasonable rights of access to) DST, GoG or any third party appointed by DST, GoG in order to take stock of the Assets.

b) The GSWAN operator shall also give DST, GoG or any third party appointed by DST, GoG, right of reasonable access to it's premises and shall procure DST, GoG or any third party appointed by DST, GoG, rights of access to relevant third party premises during the exit management period and for such period of time following termination or expiry of the "Contract" as is reasonably necessary to migrate the services to DST, GoG or any third party appointed by DST, GoG.

E) General Obligations of the O&M Agency

a) The O&M Agency shall provide all such information as may reasonably be necessary to effect as seamless a handover as practicable in the circumstances to DST, GoG or any third party appointed by DST, GoG and which the O&M Agency has in its possession or control at any time during the exit management period.

b) For the purposes of this Clause, anything in the possession or control of any O&M Agency, associated entity, or sub contractor is deemed to be in the possession or control of the O&M Agency.

c) The O&M Agency shall commit adequate resources to comply with its obligations under this Exit Management Clause.

F) Exit Management Plan

a) The O&M Agency shall provide DST, GoG or any third party appointed by DST, GoG with a recommended exit management plan ("Exit Management Plan") which shall deal with at least the following aspects of exit management in relation to the "Contract" as a whole and in relation to the Project Plan, SLA and Scope of Work.

   (i) A detailed programme of the transfer process that could be used in conjunction with DST, GoG or any third party appointed by DST, GoG including details of the means to be used to ensure continuing provision of the services throughout the transfer process and of the management structure to be used during the transfer.

(ii) Plans for the communication with such of the O&M Agency's sub contractors, staff, suppliers, customers and any related third party as are necessary to avoid any material detrimental impact on DST, GoG's operations as a result of undertaking the transfer.

(iii) Identification of specific security tasks necessary at termination.

(iv) Plans for provision of contingent support to DST, GoG or any third party appointed by DST, GoG for a reasonable period after transfer for the purposes of seamlessly replacing the Services.

b) The O&M Agency shall re-draft the Exit Management Plan annually to ensure that it is kept relevant and up to date.

c) Each Exit Management Plan shall be presented by the O&M Agency to and approved by DST, GoG or any third party appointed by DST, GoG.

d) In case of expiry or termination of contract, each Party shall comply with the Exit Management Plan.

e) During the exit management period, the O&M Agency shall use its best efforts to deliver the services.

f) Payments during the Exit Management period shall be made in accordance with the Terms of Payment Clause.

g) This Exit Management plan shall be furnished in writing to DST, GoG or any third party appointed by DST, GoG within 90 days from the Effective Date of "Contract".