



ONGC TRIPURA POWER COMPANY LIMITED

TECHNICAL SPECIFICATIONS

FOR

SUPPORT SERVICES

DATA CENTRE AND IT INFRASTRUCTURE

AT

DELHI OFFICE AND PALATANA PLANT

(This document is meant for the exclusive purpose of bidding against this specification and shall not be transferred, reproduced or otherwise used for purposes other than that for which it is specifically issued).



Project: SETTING-UP DATA CENTRE AND IT INFRASTRUCTURE

TECHNICAL SPECIFICATIONS FOR SUPPORT SERVICES FOR DATA CENTRE AND IT INFRASTRUCTURE AT DELHI OFFICE AND PALATANA PLANT

TABLE OF CONTENT

Serial No.	Description	Page No.
1.0	Background	3
2.0	Section 2.1 (SAP ERP System)	12
3.0	Section 2.2 (Storage)	13
3.1	Section 2.3 (Backup Solution)	15
3.2	Section 2.4 (Infrastructure Setup)	16
3.3	Section 2.5 (Network & Security)	14
3.4	Section 2.6 (LAN)	21
3.5	Section 2.7 (Enterprise Management System)	25
3.6	Section 3.0 (Operation, Management and Support Services)	27

SECTION - 1.0

1.0 BACKGROUND

- 1.1 ONGC Tripura Power Company Limited (hereinafter referred as "**OTPC**" or "**Owner**"), a joint venture company promoted by Oil and Natural Gas Corporation Limited ("**ONGC**"), Infrastructure Leasing and Financial Services Limited ("**IL&FS**"), **IDFC** and Government of Tripura, is a public limited company incorporated under the Indian Companies Act, 1956 and having its registered office at Udaipur-Kakraban Road, P.O. Palatana, District Gomati, Tripura - 799105 (India) and one of its office at 6th Floor, IFCI Tower, 61, Nehru Place, New Delhi-110019 (India). OTPC has set up a 2 x 363.3 MW gas based combined cycle power plant at Palatana, which is located about 60 (sixty) km from the capital city of Agartala in the State of Tripura. The Plant is located about 9 (nine) km from nearest town Udaipur.
- 1.2 OTPC has set-up Data Centre and IT Infrastructure at Delhi office and Palatana plant. The setup caters to the SAP ERP System and other IT infrastructure requirement.
- 1.3 SAP ECC 6.0 with latest enhancement package is implemented. OTPC has implemented SAP ECC modules of Financial Accounting (FI), Controlling (CO), Materials Management (MM), Plant Maintenance (PM), Human Capital Management (HCM) including Payroll (PY), Enterprise Portal (EP) - Employee Self Service (ESS) and Manager Self Service (MSS), BASIS including Solution Manager.
- 1.4 Delhi and Palatana locations are connected through redundant 4 Mbps MPLS links and Internet links.
- 1.5 Existing LAN setup at Palatana is spread across different buildings in the campus. Existing LAN at Delhi office is spread across on 6th floor of IFCI Tower, Nehru place, New Delhi. CAT 6 cabling is used for networking. The entire setup is housed in 2 racks. Delhi office is planned to be shifted to SCOPE Minar, Laxmi Nagar by March 2021. New Data Center is being set-up at SCOPE Minar, Laxmi Nagar to house IT Infrastructure.
- 1.6 Details of Data Center & IT Infrastructure at Delhi and Palatana: Following are the details:

OTPC IT Asset Summary

Hardware / Software Type	Count
Physical	16
Virtual	44
Total Servers (Delhi / Plant)	60
Total Applications (Delhi / Plant)	53
Total Network Devices (Delhi / Plant)	40
Firewalls (Delhi)	4
Link Load Balancers (Delhi)	2
Storage (Delhi)	1
DLP (Delhi)	1
LTO Drives (Delhi / Plant)	2
Total IT End Points (Laptops / Desktops)	105
Total VLANs (Delhi / Plant)	32

Data Center-Delhi Servers Summary

Server Type	SLES 11 for SAP SP 4	Ubuntu	Windows Server 2012 R2 Data Center	Windows Server 2012 R2 Std.	Windows Storage Server 2012 R2 Std	Grand Total
Physical	5	-	3	3	2	13
Virtual	16	2	16	5	-	39

Data Center-Delhi Servers Summary						
Virtual (Clustered)	-	-	-	1	-	1
Grand Total	21	2	19	9	2	53

Site-Palatana Servers Summary			
Server Type	Windows Server 2012 R2 Std.	Windows Storage Server 2012 R2 Std	Grand Total
Physical	2	1	3
Virtual	4	-	4
Grand Total	6	1	7

Data Center-Delhi Applications								
Application	Zone	Operating Systems						Grand Total
		SUSE 11 for SAP SP 4	Ubuntu (Linux)	Windows Svr 2012 R2 Data Center	Windows Svr 2012 R2 Std.	Windows Storage Svr 2012 R2 Std	Other	
Symantec Antivirus	DMZ	-	-	1	-	-	-	1
Veritas NetBackup	PRODUCTION	-	-	-	3	-	-	3
BMS (Access Ctrl)	PRODUCTION	-	-	-	1	-	-	1
MS DHCP / WSUS	PRODUCTION	-	-	2	-	-	-	2
AD / DNS	PRODUCTION	-	-	2	-	-	-	2
EMS	PRODUCTION	1	-	2	3	-	-	6
MS Exchange	PRODUCTION	-	-	4	-	-	-	4
NAS (WorkFolder)	PRODUCTION	-	-	-	-	2	-	2
SAP ERP PRD	PRODUCTION	8	-	-	-	-	-	8
SAP ERP DEV	PRODUCTION	2	-	-	-	-	-	2
SAP ROUTER	DMZ	1	-	-	-	-	-	1
SAP REVERSE PROXY	DMZ	1	-	-	-	-	-	1

Data Center-Delhi Applications								
Application	Zone	Operating Systems						Grand Total
		SUSE 11 for SAP SP 4	Ubuntu (Linux)	Windows Svr 2012 R2 Data Center	Windows Svr 2012 R2 Std.	Windows Storage Svr 2012 R2 Std	Other	
SAP ERP QLT	PRODUCTION	2	-	-	-	-	-	2
SAP SANDBOX	PRODUCTION	1	-	-	-	-	-	1
SAP Service Desk	PRODUCTION	1	-	-	-	-	-	1
CA Service Desk	PRODUCTION	-	-	-	1	-	-	1
CA Spectrum	PRODUCTION	-	-	-	1	-	-	1
CA Nimsoft	PRODUCTION	-	-	-	1	-	-	1
Symantec SMTP Gateway	DMZ	-	2	-	-	-	-	2
Lepide	PRODUCTION	-	-	1	-	-	-	1
GFI Languard	DMZ	-	-	1	-	-	-	1
SOPHOS SafeGuard	PRODUCTION	-	-	1	-	-	-	1
Paloalto Traps	PRODUCTION	-	-	1	-	-	-	1
SOPHOS MDM	Cloud	-	-	-	-	-	1	1
OTPC Corporate Website	Cloud	-	-	-	-	-	1	1
Grand Total		17	2	15	10	2		48

Site-Palatana Applications		
Application Name	Zone	Windows Server 2012 R2 Std.
AD / DNS / NTP	PRODUCTION	2
Symantec Antivirus / WSUS	PRODUCTION	1
Varitas NetBackup	PRODUCTION	1
Paloalto Traps	PRODUCTION	1
Grand Total		5

<i>Current Data as on 01-02-2021</i>			
Hardware	Location		Grand Total
	Delhi	Palatana	
Desktop	10	26	36
Laptop	21	41	62
Tablet	5	2	7
Grand Total	36	69	105

Data Center-Delhi
Data Center Network Switches

Switch Type	Count
Core	2
Access	2
Management	2
Aggregation	2
WAN	2
Grand Total	10

Data Center Network Router

Router Type	Count
WAN Core Internet	2
WAN Core MPLS	2
Grand Total	4

Data Center Firewall / LLB / DLP

Device Type	Count
External FW	2
Internal FW	2
Link Load Balancer	2
DLP	1
Grand Total	7

Storage

Model	Count
IBM v7000	1
IBM TS3200 LTO	1
Grand Total	2

Site-Palatana
Data Center Network Switches

Switch Type	Count
Core	4
Access	20
Grand Total	24

Palatana Network Switches

Router Type	Count
WAN Core MPLS	2
Grand Total	2

Storage

Model	Count
IBM TS2900 LTO	1
Grand Total	1

OTPC Corporate Network VLAN Database

Delhi Aggrigation Sw	Vlan Name	Vlan ID & Subnet mask
	Access_Vlan_10	10\24
	External -FW-Vlan	200\30
	Internal -FW- Vlan	20\30
	Wifi Vlan	21\24
	Mpls vlan	210\30
	Server Vlan	901\24

Site-Palatana Core Sw	Vlan Name	Vlan ID & Subnet mask
	Admn_bld_VLAN	10\24
	Chemical_lab-VLAN	11\24
	Ctrl_Fclty_bld_VLAN	12\24
	DM_Plant_VLAN	13\24
	Fire_stn_bld_VLAN	14\24
	Management	1\24
	Management_FW	100\24
	Medical_bld_VLAN	15\24
	Security_Hostel_VLAN	21\24
	Server_VLAN_1	5\24
	Server_VLAN_2	6\24
	Store_room_VLAN	16\24
	Switch_Yard_VLAN	20\24
	Trainee_Hstl_VLAN	17\24
Training_Center_bld_VLAN	18\24	
Workshop_bld_VLAN	19\24	

Delhi Core Sw	Vlan Name	Vlan ID & Subnet mask
	DMZ	100\24
	Internal -FW- Vlan	20\30
	Management	11\24
	Nas Vlan	25\24
	Server Vlan5	5\24
	Server Vlan6	6\24
	Server Vlan7	7\24
	Server Vlan8	8\24
	Server Vlan9	9\24
Server Mgmt	12\24	

- 1.7 Objective:
 - 1.7.1 Operate, maintain and support Data Centre & IT infrastructure facility for 24X7X365 uninterrupted services.
 - 1.7.2 Data Centre infrastructure facility management and maintenance services.

- 1.7.3 Providing all necessary resources and expertise to resolve any issues and carry out required updates, upgrades, changes, optimizations and modification so that complete system as a whole works according to the specified requirements and to satisfaction of the OTPC and OTPC obtains optimum performance from the system.
- 1.7.4 The Contractor should provide the managed services for all locations of OTPC and manage the entire components involved in end-to-end connectivity.

SECTION 2.0

SYSTEMS IMPLEMENTED

- SECTION - 2.1 SAP ERP SYSTEM**
- SECTION - 2.2 STORAGE**
- SECTION - 2.3 BACKUP SOLUTION**
- SECTION - 2.4 INFRASTRUCTURE SETUP**
- SECTION - 2.5 NETWORK AND SECURITY**
- SECTION - 2.6 LAN (LOCAL AREA NETWORK) FOR DELHI AND PALATANA,
TRIPURA**
- SECTION - 2.7 ENTERPRISE MANAGEMENT SYSTEM (EMS)**

SECTION 2.1

SAP ERP SYSTEM

- 2.1.1 OTPC has implemented 3 tier landscape for SAP ERP System i.e. Development, Quality and Production. Production servers are clustered in High Availability mode.
- 2.1.2 For Application instance, the total required SAPS for application servers are divided in to multiple servers or partitions to provide load balancing and redundancy.
- 2.1.3 The DB (Database) & CI (Central Instance) systems for SAP Production system are running in a High Availability (HA) cluster on two different systems with redundancy and with equal performance and configuration, and have access to the same database and storage.
- 2.1.4 All critical components (for production) are in Highly Available (HA) mode to ensure business continuity.
- 2.1.5 All production systems SAPS rating requirement are indicated for 65% CPU Utilization.

SECTION 2.2

STORAGE

- 2.2.1 OTPC have centralized storage for applications running in Data Centre using storage with Fiber Channel (FC) switch between servers and storage systems. For NAS requirement, Highly Available NAS gateways based on Windows Storage Server 2012 and 2016 are configured.
- 2.2.2 Disk staging / disk cloning are provisioned for the SAP production servers.
- 2.2.3 Separate Network Attached Storage (NAS) is provided for Palatana Plant users to store their files.
- 2.2.4 Development, Quality and Training Systems main SAP instance & Database are with minimum of RAID 5 configuration.
- 2.2.5 Production systems SAP & Database files are with RAID 1+0 for maximum I/O performance and data security.
- 2.2.6 Following tables provides the storage configured for the applications running in Data Centre.

Product	Usable Storage required by applications (in GB) on SAN in RAID-1+0
SAP Applications (Production) :	
ERP	1600
EP	500
Miscellaneous for cluster quorum etc	500
E-Mail Servers:	1000
Reserved space	900
TOTAL	4.5 TB

Product	Usable Storage required by applications (in GB) on SAN in RAID-5
SAP Applications (Non-Production) :	
IDES	800
Development Systems	1000
Quality System	1400

Solution Manager	400
SAP DVDs	500
Reserved space	400
TOTAL	4.5 TB

Product	Usable Storage required by Desktop Users(in GB) on SAN in RAID-6 (For NAS)
OTPC Delhi Desktop Users	2000
TOTAL	2 TB

Product	Usable Storage required by applications (in GB) on SAN in RAID-5
Backups	
Disk Staging for SAP	3TB
Total	3TB

Product	Usable Storage required by applications (in GB) on NAS storage in RAID-6
OTPC Palatana Servers and Desktop Users	2000
Reserved Space	1000
TOTAL	3 TB

SECTION 2.3

BACKUP SOLUTION

- 2.3.1 OTPC has implemented Veritas NetBackup solution for taking backups at Delhi office and Palatana Plant.
- 2.3.2 For SAP, backup is implemented using disk staging. In this scenario data will be copied in Disk to Disk (using disk cloning /flash copy) to Tape cycle.
- 2.3.3 Considering the criticality of the data backup and restore, to avoid single point of failure, appropriate number of servers are installed to meet backup requirement.
- 2.3.4 Daily incremental / differential backup, weekly full backup, quarterly and yearly full backup and other periodic backup policies are configured.

SECTION 2.4**INFRASTRUCTURE SETUP**

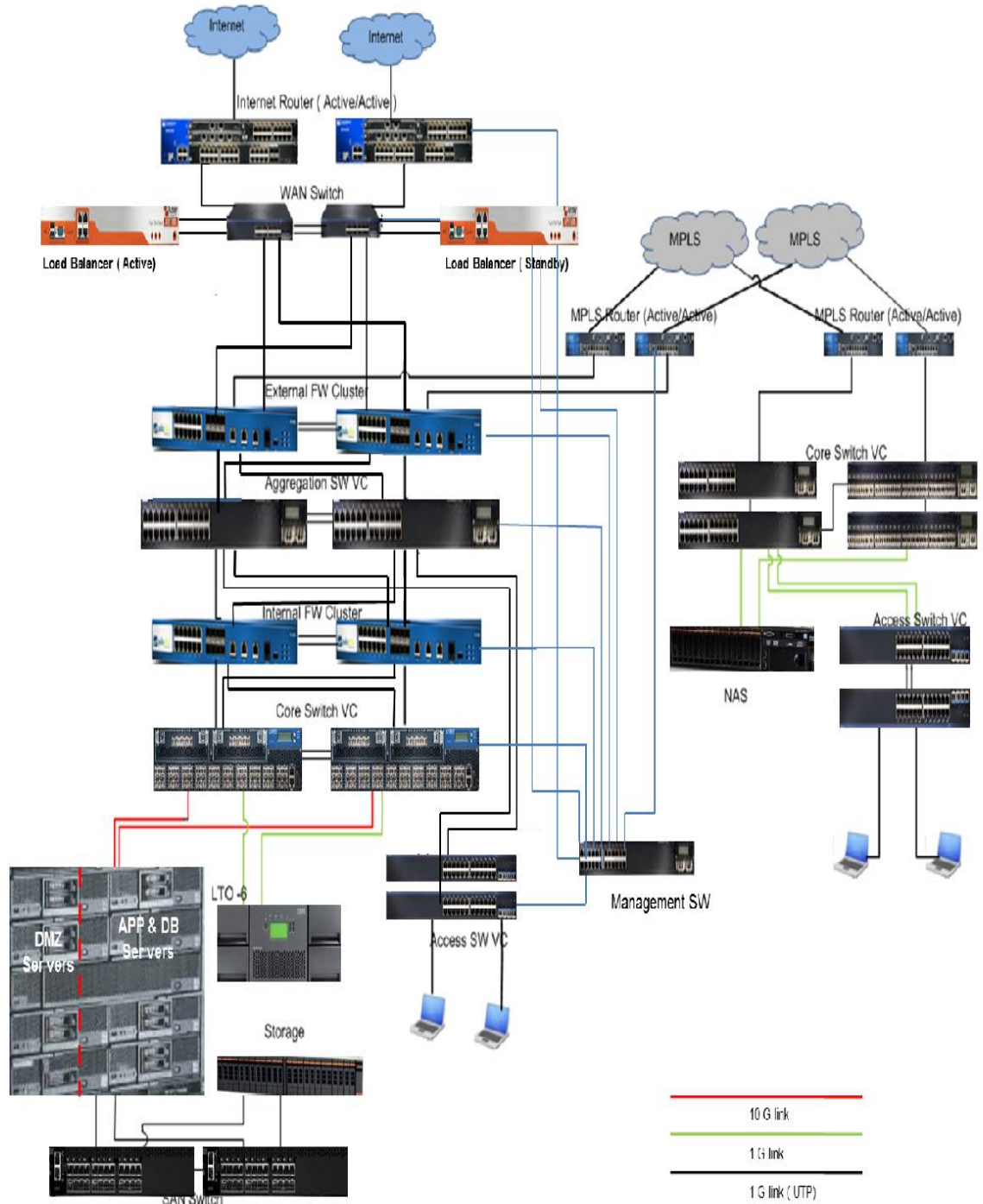
- 2.4.1 Microsoft Active Directory infrastructure is implemented to provide the LDAP (Lightweight Directory Access Protocol) functionality for user authentication for applications hosted at Data Centre as well as for managing desktops in organization.
- 2.4.2 The infrastructure servers have following roles:
- 2.4.2.1 Directory Servers (Domain Controllers)
 - 2.4.2.2 DNS Service Servers
 - 2.4.2.3 DHCP Service Servers
 - 2.4.2.4 Windows Update Service
 - 2.4.2.5 Network Time Protocol
- 2.4.3 There are be two domain controllers in Data Centre. These servers have distributed FSMO (Flexible Single Master Mode) roles.
- 2.4.4 There is domain integrated DNS, thus both the Domain Controllers will have DNS service running on them. The DNS server will have the URL, IP address mapping which will be used by internal users for accessing the SAP and other applications available through the web-browser. The DNS address will be distributed to the clients via DHCP.
- 2.4.5 There are additional Domain Controller at Palatana, Tripura. In case the Domain Controller is unavailable at Palatana, Tripura; the user's desktop and applications shall get authorized from Domain Controllers at Data Centre.
- 2.4.6 Windows update service are configured at each location to enable the windows patch management for desktops at respective locations. At each location there will be one server running the print server service.
- 2.4.7 Redundant gateway anti-spam and antivirus servers for email system protection.
- 2.4.8 Redundant servers for Exchange 2013 are configured for Mailbox and CAS roles.
- 2.4.9 Symantec antivirus server at Delhi and Palatana Plant are installed to protect from cyber threats.

SECTION 2.5**NETWORK AND SECURITY**

- 2.5.1 Data Center network architecture is segregated in three tiers:
 - 2.5.5.1 Internet Zone / DMZ (De-Militarized)
 - 2.5.5.2 Core / Aggregation Zone
 - 2.5.5.3 Server Zone
- 2.5.2 Tier 1 - Internet Zone:
 - 2.5.2.1 The prime objective of Internet Zone is to make services such as Enterprise Portal Application, Incoming mails, Outgoing requests such as mails, Internet availability to users.
 - 2.5.2.2 Firewall provides security for internet traffic, provide visibility and control of applications and contents by user regardless of IP address, accurately identify applications regardless of port, protocol, evasive tactic or SSL encryption and scan contents to stop known and unknown threats.
 - 2.5.2.3 Firewall, IPS (Intrusion Prevention System), application identification, Gateway Antivirus & URL Filtering, Antispyware & Antimalware functionality are integrated in a single solution and are in High Availability mode. Palo Alto 3020 firewalls are implemented in OTPC.
 - 2.5.2.4 DMZ (De-Militarized) will cater Servers such as Portal, Web & public interfacing Servers, Mail Gateway, Proxy, SSL VPN (Secure Socket Layer Virtual Private Network), External DNS etc. Switches in DMZ should provide high speed connectivity (Gbps) to Servers to meet the performance requirement.
- 2.5.3 Tier 2 – Core / Aggregation Zone
 - 2.5.3.1 The objective of Core / Aggregation zone is to provide single point of aggregation for OTPC users.
 - 2.5.3.2 As a best practice for Data Centre architecture, there should not be any direct access to Application Servers from the users.
 - 2.5.3.3 For redundancy two L3 (Layer-3) switches are configured. Internal Firewall is implemented, in High Availability mode, which separates OTPC Users (from WAN, MPLS backbone and LAN) from Application servers in Military zone.

- 2.5.3.4 The core switches will act as aggregation points for the following:
 - 2.5.3.4.1 Two routers in High Availability mode connect OTPC users at Delhi Office and Palatana Plant.
 - 2.5.3.4.2 LAN users from OTPC Delhi network.
 - 2.5.3.4.3 Internet Users
- 2.5.3.5 Authentication, Authorization and Access [AAA] to be provided for authorized access for remote management of the infrastructure
- 2.5.4 Tire 3 - Server Zone:
 - 2.5.4.1 Appropriate security zones are ensured for applications running in Server zone.
 - 2.5.4.2 The aggregation zone and the server zone are separated via firewall.
- 2.5.5 Figure below shows the network architecture at Data Center

5 OTPC NETWORK - HIGHLEVEL DESIGN

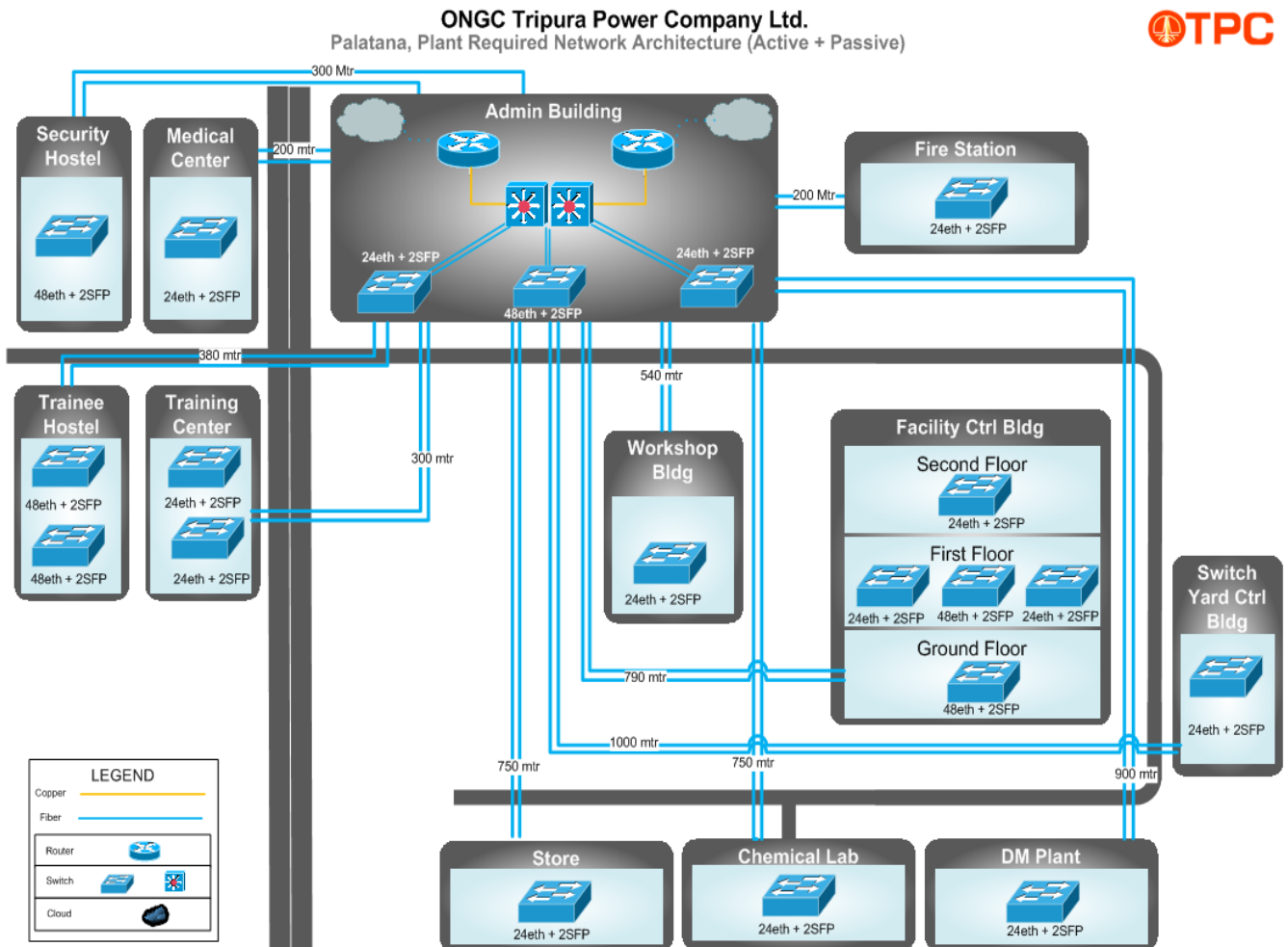


- 2.5.6 Data Loss Prevention & Information Security Enforcement Solution is implemented at Data Center.
- 2.5.6.1 The solution is a next generation data threat prevention and information discovery functions to protect structured, semi-structured, unstructured mission critical data in the enterprise. OEM is M/s GhangorCloud Inc.
- 2.5.7 To load balance links, Array Load Balancer is implemented at Data Center.

SECTION 2.6

LAN (LOCAL AREA NETWORK) FOR DELHI AND PALATANA

2.6.1 Following is the LAN setup at Palatana Plant:



2.6.2.1 Fiber Cabling

2.6.2.1.1 Fiber is laid from Administrative Block (server and network room) to Control & Facility Block, Switch Yard Control Block, Medical Centre, Training Centre, Fire Station Block, Workshop Block, Training Hostel, DM Plant, Chemical Lab, Store and Security Hostel.

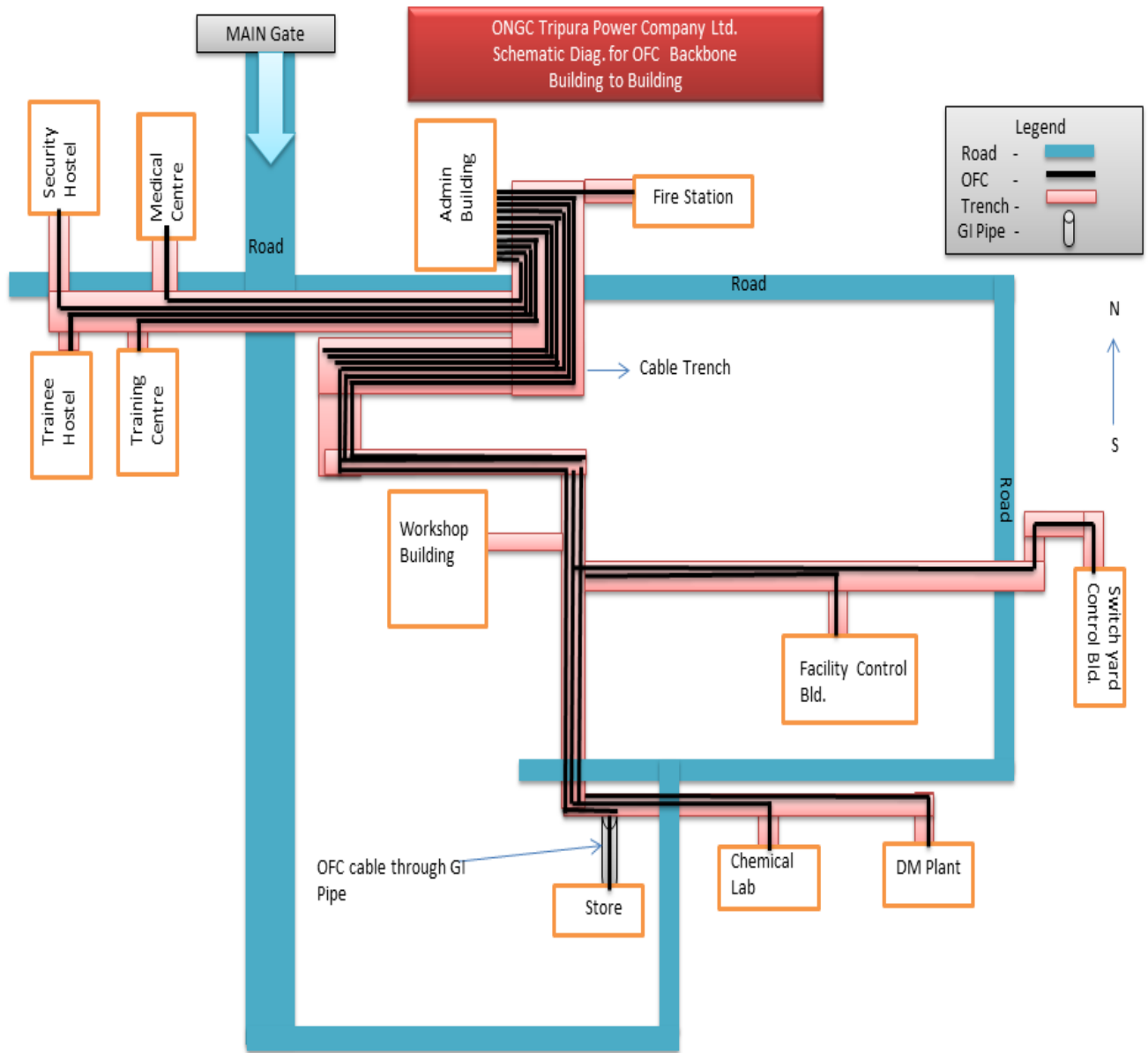
2.6.2.1.2 For redundancy, each block have two fibres terminating on different core switches at Administrative Block.

2.6.2.2 The following table gives the switch distribution details from Administrative Block at the Palatana Plant.

Sr. No.	Block / Building	Type of Switches	Number Of SFP	Fiber Type	Approximate Distance From Administrative Block (1 st Floor)	Qty
1	Administrative Block – Ground Floor	48 port 10/100/1000Mbps	2	Multi-Mode, OM3 6 core	Local	1
2	Administrative Block – Ground Floor	24 port 10/100/1000Mbps	2	Multi-Mode, OM3 6 core	Local	1
3	Administrative Block – First Floor	24 port 10/100/1000Mbps	2	Multi-Mode, OM3 6 core	Local	1
4	Medical Center – Ground Floor	24 port 10/100/1000Mbps	2	Single-Mode, OM3 6 core	200 Mtrs.	1
5	Training Center – First Floor	24 port 10/100/1000Mbps	2	Single-Mode, OM3 6 core	300 Mtrs	1
6	Training Center – Ground Floor	24 port 10/100/1000Mbps	2	Single-Mode, OM3 6 core	300 Mtrs	1
7	Workshop Block – First Floor	24 port 10/100/1000Mbps	2	Single-Mode, OM3 6 core	540 Mtrs	1
8	Facility Control Block – Ground Floor	48 port 10/100/1000Mbps	2	Single-Mode, OM3 6 core	790 Mtrs	1
9	Facility Control Block – First Floor	24 port 10/100/1000Mbps	2 Per Switch	Single-Mode, OM3 6 core	790 Mtrs	2
10	Facility Control Block – First Floor	48 port 10/100/1000Mbps	2	Single-Mode, OM3 6 core	790 Mtrs	1
11	Facility Control	24 port	2	Single-	790 Mtrs	1

	Block – Second Floor	10/100/1000Mbps		Mode, OM3 6 core		
12	Switch Yard Control Block – First Floor	24 port 10/100/1000Mbps	2	Single-Mode, OM3 6 core	750 Mtrs	1
13	Training Hostel – Ground Floor	48 port 10/100/1000Mbps	2	Single-Mode, OM3 6 core	380 Mtrs	1
14	Training Hostel – First Floor	48 port 10/100/1000Mbps	2	Single-Mode, OM3 6 core	380 Mtrs	1
15	Security Hostel	48 port 10/100/1000Mbps	2	Single-Mode, OM3 6 core	300 Mtrs	1
16	Fire Station Building	24 port 10/100/1000Mbps	2	Single-Mode, OM3 6 core	200 Mtrs	1
17	Store	24 port 10/100/1000Mbps	2	Single-Mode, OM3 6 core	750 Mtrs	1
18	Chemical Lab	24 port 10/100/1000Mbps	2	Single-Mode, OM3 6 core	750 Mtrs	1
19	DM plant	24 port 10/100/1000Mbps	2	Single-Mode, OM3 6 core	900 Mtrs	1

2.6.2.3 Below diagram shows the existing cable path layout.



SECTION 2.7**ENTERPRISE MANAGEMENT SYSTEM (EMS)**

- 2.7.1 OTPC has implemented CA Enterprise Management System for managing the IT infrastructure at Data Centre as well as at Palatana plant site.
- 2.7.2 Following components are implemented for monitoring and management:
 - 2.7.2.1 Network Management System: For monitoring and management of the networking components in Data Centre as well as at Palatana plant site.
 - 2.7.2.2 EMS for Server Management: For monitoring and management of servers in Data Centre and at Palatana plant site.
 - 2.7.2.3 Desktop patch / software Management: For remote patch and software deployment.
 - 2.7.1.4 Application Performance Management
- 2.7.3 Performance Measures:
 - 2.7.3.1 Should provide information regarding interface utilization and error statistics for physical and logical links.
 - 2.7.3.2 Should be capable to send the reports through e-mail to pre-defined user with pre-defined interval.
 - 2.7.3.3 Should have capability to exclude the planned-downtimes or downtime outside SLA (Service Level Agreement).
 - 2.7.3.4 Should be able to generate SLA reports.
 - 2.7.3.5 Should be able to generate web-based reports both real time and historical data for systems and network devices.
 - 2.7.3.6 Should be able to generate the reports for Server, Application, Infrastructure services and network devices.
 - 2.7.3.7 Should be able to generate Availability and Uptime (Daily, Weekly, Monthly and Yearly Basis) reports. Should also support trend report and custom report feature.
 - 2.7.3.8 Should be able to generate MTBF (Mean Time between Failures) and MTTR (Mean Time to Repair) reports.

- 2.7.3.9 EMS (Enterprise Management System) should compile the performance statistics from all the IT systems involved and compute the average of the parameters over a quarter, and compare it with the SLA metrics laid down in the Contract.
- 2.7.3.10 Should be able to receive and process SNMP (Simple Network Management protocol) traps from infrastructure components such as router, switch, servers etc.
- 2.7.3.11 EMS should integrate with automatic discovery to analyze changes to configuration items.
- 2.7.4.12 Desktop management should provide:
- 2.7.4.12.1 Remote control of end-user desktop for facilitating resolution of desktop issues without the need to go to the end-user machines, through agents installed on them.
- 2.7.4.12.2 Several levels of security for remote control, ranging from defining users with specific rights with specific IP address and local confirmation/or without conformation before a remote session is enabled.
- 2.7.4.12.3 Ability to perform diverse tasks on multiple remote systems simultaneously, transfer control between users.
- 2.7.4.12.4 Desktop capture functionality should automatically record the information required to isolate applications issues, letting end users continue with their work.
- 2.7.4.12.5 Desktop capture should record screen events, sequence of user actions, comprehensive system and application configuration, application errors and performance information while the end-user is reproducing the issue.
- 2.7.4.12.6 System and application configuration.

SECTION 3.0

OPERATION, MANAGEMENT AND SUPPORT SERVICES

3.1 IT Infrastructure Management services

3.1.1 Shall provide taking-over services from existing Contractor, operate, maintain, and support Data Center & IT Infrastructure at Delhi and Palatana Plant during the term of the Contract.

3.1.2 Should understand that OTPC and its business units are dependent on information technology to support its day-to-day business operations. Unreliable or untimely delivery of the information technology related services could result in disruption to business. Accordingly, high degrees of reliability, availability, accuracy and timeliness of the services are required. Performance measures and performance standards are required to measure on-going performance and to continuously improve performance.

3.1.3 Contractor needs to take care of leaves, sicknesses etc. of its employees deployed for the project at no extra cost to OTPC.

3.1.4 Contractor shall maintain the IT infrastructure at Delhi office and Palatana Plant for all the components discussed in this scope. IT Infrastructure management function shall be carried out on 24 X 7 X 365 basis.

3.1.5 For off-site services, if the problems / issues are not resolved through remote support, engineer should be assigned on-site till such time the problem / issue gets resolved.

3.1.6 The following services shall be provided offsite:

Sr no.	Deliverable	Service Window
1	System Administration & Server Management	24 x 7
2	Technical support	24 x 7
3	Network Management	24 x 7
4	Security Management	24 x 7
5	E-Mail Support	24 x 7
6	Backup & Storage Management	24 x 7
7	Application Management & Technical Support	24 x 7

3.1.7 Services where on-site personnel are required:

Sr no.	Deliverable	Service Window
1	Windows Server Administrator for AD, DNS, DHCP, Exchange Server, Email Gateway etc. 1 Manpower – DELHI	9 x 5
2	SUSE Linux Server Administrator 1 Manpower – DELHI	9 x 5
3	Network (Juniper), Security (Palo Alto) & Load Balancer (Array) 1 Manpower - DELHI	9 x 5
4	Helpdesk Management 1 Manpower – DELHI	9 x 5

3.1.8 -deleted-

3.1.9 System administration and server management:

3.1.9.1 Services in this area include, but are not limited to the following:

3.1.9.1.1 Maintain systems to ensure maximum performance.

3.1.9.1.2 Troubleshoot performance problems.

3.1.9.1.3 Perform all software installations, re-installation, upgrades and updates for software applications.

3.1.9.1.4 Develop, maintain and update processing policies, procedures and documentation.

3.1.9.1.5 Coordinate with the OTPC on process and procedures changes.

3.1.9.1.6 Prepare, maintain and ensure adherence to batch job or scheduled processing activities.

3.1.9.1.7 User creation and management

3.1.9.1.8 SAN and storage management.

3.1.9.1.9 Monitoring and Troubleshooting of batch data

3.1.9.1.10 Remote support for Data Center & IT Infrastructure systems and applications.

- 3.1.9.2 Data Back-up and Recovery
 - 3.1.9.2.1 Provide backup procedures that meet recovery and restore needs
 - 3.1.9.2.2 Recovery and restoration
 - 3.1.9.2.3 As per mutually agreed policies carry out restoration. This may include design and execute mock data restoration drills to confirm integrity of data, process and procedure.
 - 3.1.9.2.4 Centrally manage the backup operations using backup tool
- 3.1.9.3 System Monitoring
 - 3.1.9.3.1 Escalation of issues, problem at appropriate technical level, observe escalation procedure and ensure resolution of issues.
 - 3.1.9.3.2 Vendor Management – Coordinate with other vendors and service providers to resolve issues and problem.
 - 3.1.9.3.3 Conduct standard jobs as per requirement of application.
 - 3.1.9.3.4 Backup and recovery as per policy, schedule and procedure.
- 3.1.9.4 Active Directory Services at all the locations
 - 3.1.9.4.1 Maintain security of the Active Directory infrastructure and ensure the operating systems are properly patched and maintained. Ensure all AD servers are properly synchronized.
 - 3.1.9.4.2 Respond expeditiously to requests from authorized OTPC personnel by effectively tracking, managing, and resolving all problems.
 - 3.1.9.4.3 Ensure that server operating systems are properly patched and maintained.
 - 3.1.9.4.4 Provide recommendations regarding backup and recovery procedures. Conduct routine backup and recovery procedures so as not to impact scheduled operations.
 - 3.1.9.4.5 Conduct routine monitoring and corrective action on CPU utilization, disk space utilization etc.
- 3.1.9.5 Technical Support: Contractor shall supports the operating environment and includes the following functions: system software support, capacity planning and change management.

- 3.1.9.5.1 Should provide comprehensive onsite/off-site support to OTPC at the Data Centre to meet up with service levels for the IT infrastructure.
- 3.1.9.5.2 Should ensure that the entire solution as a whole is operational and run according to stipulated performance standards.
- 3.1.9.5.3 Should commit to provide all necessary resources and expertise to resolve any issues and carry out required changes, optimizations and modification so that the complete system as a whole works according to the specified requirements and satisfactions of OTPC.
- 3.1.9.5.4 Should provide comprehensive technical support services for all the software supplied for the entire period of the contract. Technical support should include all the upgrades, updates, signatures and patches that are released by the respective OEMs during the period of contract.
- 3.1.9.5.5 Shall provide health checks and supporting review, remediation services, patch consulting / critical patch recommendation, case trend monitoring and analysis, remote technical review.
- 3.1.9.6 System Support
 - 3.1.9.6.1 Test, install and support all system software and hardware mentioned under this Contract.
 - 3.1.9.6.2 Provide support for all operating systems required at OTPC.
 - 3.1.9.6.3 Recovery of servers from crashes and failures.
 - 3.1.9.6.4 Maintain all system software products including: operating systems, utilities, performance monitoring tools, security software, and performance tuning and productivity tools.
 - 3.1.9.6.5 Monitor and tune overall performance of the systems environment including the reinstallation and reconfiguration of tools/products to improve service delivery.
 - 3.1.9.6.6 Maintain compatibility between operating systems and applications in coordination with application vendor.
 - 3.1.9.6.7 Examine new features of operating systems and IT Infrastructure management software tools to determine how they could be utilized to improve and optimize OTPC's operations environment.
 - 3.1.9.6.8 Maintaining compatibility among operating systems and third party products to ensure operational continuity of applications

- 3.1.9.6.9 Assist application software vendors while testing of new system software releases of application software.
- 3.1.9.7 Install, Moves, Adds and Changes (IMAC's) at Data Centre
- Response time for any IMAC request like planned installations, movement, addition and changes to software and hardware inventory will be on mutually agreed timeframe. Pre-requisites and expected resolution time for that IMAC request will be documented through the response for that IMAC Request.
- 3.1.9.7.1 Perform change management functions
- 3.1.9.7.2 Perform testing and "burn-in" of new equipment
- 3.1.9.7.3 Perform IMAC's. Perform equipment removal or re-deployment
- 3.1.9.7.4 Test and ensure integrity of changes
- 3.1.9.8 Media Management
- 3.1.9.8.1 Storing tape media in fire and water proof vaults at third party locations in and around Delhi NCR area. Contractor may store the media at his own facility or in a bank's locker without any additional cost to OTPC.
- 3.1.9.8.1 Log and track movement of all media in and out of Data Centre and complete required rotation of media for off-site vaulting as per policies.
- 3.1.9.8.2 Ensure media is reliable and read/write errors are kept to a minimum and that equipment is properly cleaned and maintained at required intervals to minimize problems and outages
- 3.1.9.8.3 Retrieve archived media and restore required files and data-sets within agreed to timeframes.
- 3.1.9.8.4 Report media utilization and requirements
- 3.1.9.8.5 Effectively track, manage, communicate and resolve all media exceptions
- 3.1.9.9 General Administration and Audit
- 3.1.9.9.1 Development and maintenance of operations, systems and end user documentation.

- 3.1.9.9.2 Ensure the stability of the Data Centre environment and Coordinate with facilities staff regarding adequate utility services (e.g., electrical, grounding, Air conditioning etc.).
- 3.1.9.9.3 Participate in Data Center & IT Infrastructure's services audit and take appropriate steps and responsibility to ensure closure of observations, recommendations, etc. made during audit.
- 3.1.10 Network Management
 - 3.1.10.1 The Contractor shall be responsible for managing all network components.
 - 3.1.10.2 Ensure that all networking paths are available with reliable quality and that all networking components are functioning properly.
 - 3.1.10.3 Work and coordinate with other vendors and Contractors when needed for WAN and LAN setup.
 - 3.1.10.4 Effectively track, manage, communicate and resolve all networking exceptions, issues and problem.
 - 3.1.10.5 Ensure that adequate security is in place to prohibit unauthorized network access from network components.
 - 3.1.10.6 Work with all involved parties (other vendors, OTPC personnel, etc.) to expeditiously resolve all network problems on WAN by tracking them till resolution.
 - 3.1.10.7 Schedule outages for network maintenance, expansions and modifications that meet operational needs and minimize disruption.
 - 3.1.10.8 Maintain and provide network documentation. Install, maintain, upgrade and support all network software.
 - 3.1.10.9 Perform tuning to network configuration and network parameters to enhance network performance. Provide capacity modifications if required.
- 3.1.11 Security Management services
 - 3.1.11.1 Provide and monitor security for the systems and data network.
 - 3.1.11.2 Manage and maintain all Information security software, appliances and component like anti-virus, content filter, Intrusion Detection System, Intrusion Prevention System, Firewall, Data Leakage Prevention system etc.

- 3.1.11.3 Ensure security incidents containment
- 3.1.11.4 Security administration and virus protection
- 3.1.11.5 Helpdesk Service
 - Shall provide helpdesk services at the Data Centre on 9x5 basis for the issues and problems related to Data Centre, IT infrastructure and production setup, desktop management services. Services in this area include, but are not limited to the following:
- 3.1.11.5.1 Logging the all the calls related to Data Centre Infrastructure and applications and take appropriate action.
- 3.1.11.5.2 Assigning the call within the stipulated time.
- 3.1.11.5.3 Tracking the call till closure and ensure SLA adherence by service providers and vendors.
- 3.1.11.5.4 Generate reports on a daily, weekly and monthly basis. Generate exception reports.
- 3.1.11.5.5 Provide the need base reports.
- 3.1.11.5.6 Interact with OTPC, OTPC vendors and observe escalation processes.
- 3.1.11.5.7 Provide support for desktop users at all locations.
- 3.1.11.5.8 Effectively track, manage, communicate and resolve all print problems.
- 3.1.11.5.9 Provide operational support to manage printing services and associated environments.
- 3.1.11.5.10 Manage printer equipment at Data Centre.
- 3.1.11.5.11 If the Helpdesk coordinator is on leave then the Contractor needs to provide the replacement immediately. Knowledge transfer is the responsibility of the System Integrator in-case of the replacement.
- 3.1.12 Database Administration: Services will be applicable for Databases installed
- 3.1.12.1 Database monitoring:
 - Services in this area include but are not limited to the following:

- 3.1.12.1.1 Monitor Control files, Data files, Logs, Objects, Segments, Spaces
- 3.1.12.1.2 Monitor Problems and track them till resolution
- 3.1.12.1.3 Monitor Processes, Disk/CPU/Memory utilization
- 3.1.12.1.4 Performance
- 3.1.12.2 Database Services
 - Services in this area include but are not limited to the following:
 - 3.1.12.2.1 Database creation and maintenance
 - 3.1.12.2.2 Monitoring of scheduled processes and batch jobs
 - 3.1.12.2.3 Object storage management
 - 3.1.12.2.4 Database refresh
 - 3.1.12.2.5 Database reorganization
 - 3.1.12.2.6 Backup and restore
 - 3.1.12.2.7 Security
 - 3.1.12.2.8 Implementation of schema changes
 - 3.1.12.2.9 Resolution of problems, issues etc. in coordination with application vendors
 - 3.1.12.2.10 Any other services required to maintain database

3.2 Data Centre Facility at Delhi and Palatana Plant

3.2.1 Contractor shall undertake maintenance service for Data Centre Infrastructure on 24x7 basis.

3.2.2 Monitor, manage and trouble shoot the various components of the Data Centre infrastructure components including power, UPS, racks, air-conditioning system, fire detection system, fire suppression system, early smoke detection system, access control doors and systems, surveillance system, CCTV, WLD system, access control system, etc. Contractor shall perform quarterly maintenance services at Delhi and Palatana Plant of Data Center facility.

3.2.3 Ensure the preventive maintenance of equipment is done as per schedule.

3.2.4 On-site manpower shall be deployed by the Contractor to maintain services 24X7:

Sr no.	Deliverable	Service Window
1	Delhi (4 resources)	24 x 7
2	Palatana Plant (4 resources)	24 x 7