

ANNEXURE C

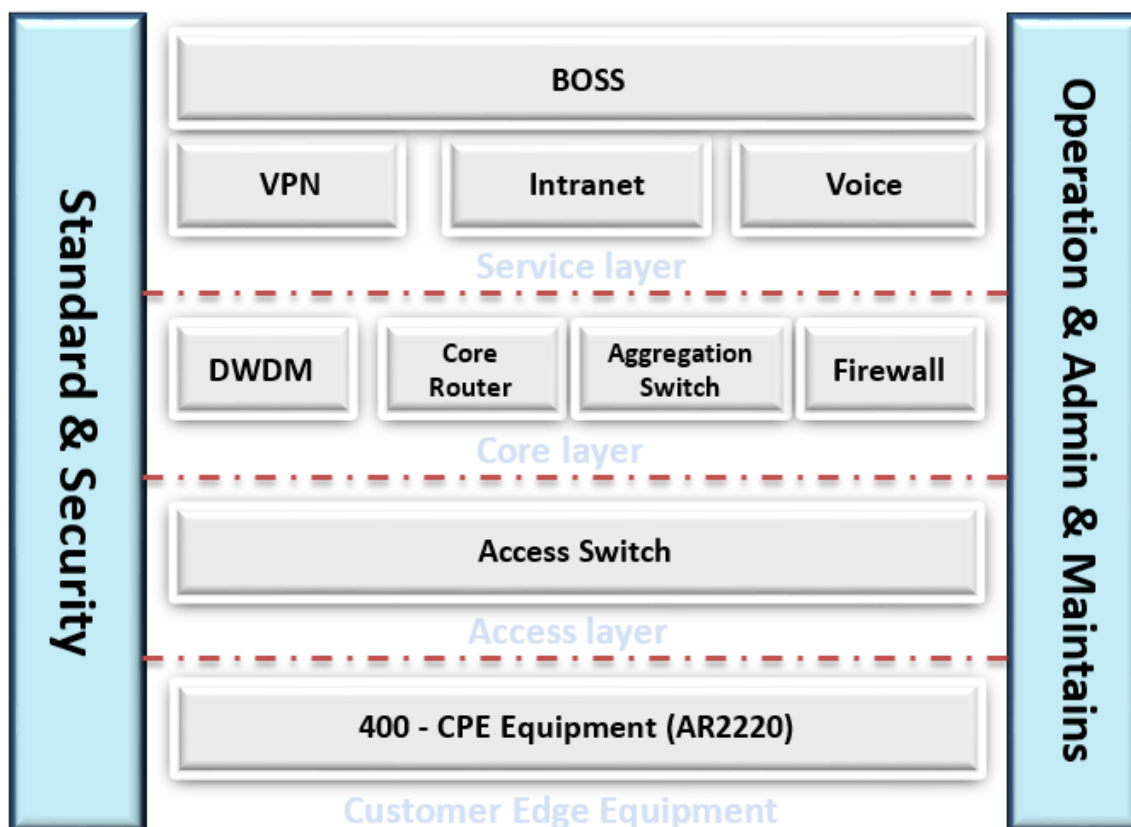
Operate and Maintenance Services for COT

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1. Network Proposal – Product Offering

The Network comprises of the following building blocks and will enable VPN, Intranet and Voice Services.



The CPE (400 x AR2220) will connect to the access Switches via Fibre or cable (dependent on distance) to enable service connection. The CPE device is also called the customer edge. The COT LAN equipment will be connected to the CPE device. The procurement, maintenance, operation and expansion of all COT LAN infrastructure remains the responsibility of COT

2. Service Offering

1.1 VPN Services on all locations with CPE (AR2220)

1.1.1 Enterprise L3VPN

Enterprise Layer 3 (L3) network virtualization enables one physical network to support multiple L3 virtual private networks (L3VPNs).

1.1.2 Enterprise L2VPN

Enterprise Multiprotocol Label Switching L2 Virtual Private Network (MPLS L2VPN) virtual private networks.

1.2 Intranet Services on all locations with CPE (AR2220)

2.2.1 Enterprise Intranet

High speed Broadband Intranet solution enables access to COT on-net content
Two Internet Gateways (IGWs) will be deployed at Centurion and TDK sites. COT is responsible for the connectivity and ISP cost for the internet usage and bandwidth.

3. Voice Services on all locations with CPE (AR2220)

An IMS (IP Multi-Media Subsystem) network will be installed to support voice services. The system will be dimensioned for a max number of subscribers of 24,000.

The IMS system will handle all the voice services across the different departments and buildings on the broadband network and off net voice services.

COT will be responsible for the PBX equipment, associated SIP licences and connectivity to PSTN/PLMN service providers, this includes the associated monthly cost.

Max users on this design

Subscriber Type	Amount Users
IP Business Trunk	3000
IP Business Trunk Subs(sub)	24,000
Concurrent calls	3000

Max per user traffic model

Item	Maximum Value
Traffic per registered subscriber(BHSA)	1
The traffic of per Business Trunk Subscriber(ERL)	0.04
Average session holding time (s)	90
Interconnection percentage (with PSTN/PLMN) (%)	30%

4. Network Operations Services

As part of the Operational Support Services and Business Support Services the following tasks will be undertaken to ensure that the SLA is maintained.

These functions needs to be unpacked and customised according to the Business requirement and scope of work.

The Service Desk will receive queries from the customer with regards to service quality. This will start the incident management process. The service desk function includes:

- Help Desk – Receiving and analysis of query
- Incident management
- Problem Management
- Change Management

The Business Support Systems will be used to monitor the service level and product performance. Some functions include:

- Customer Relationship Management
- Product Catalogue (Product Design and Configuration)
- Customer Order Management
- Billing
- Reporting

Additional SLA measurement and Support tasks include:

- Monitoring of application, hardware and database
 - Measure and improve KPI's
 - Ensure availability of applications, hardware and database
- L2 and L3 Support

- Provide Application Level 2 support
- Provide Application Level 3 support
- Provide Server Admin and Application Admin support
- Perform Operational Reporting at regular intervals
- Provide Managed Services capabilities based on ITIL
- Provide Data Base Analysis Support for all applications
- SLA support
 - Incident Notification
 - Escalation of Incidents
 - Escalation of SLA breaches
- Operational Support System functions will aid in supporting service provisioning and assurance. These functions include
 - Service Order Management
 - Inventory Management
 - Configuration and Activation Management
 - Performance Management
 - Fault Management
 - Service Desk
 - Workforce Management

Network Management Support is needed to monitor, interrogate and correct network performance degradation. These functions include:

- Network Monitoring
 - Alarm Management
 - Capacity management
 - Fault/Incident management
 - Service analytics
- Alarm Management
 - Preventative measures
 - Risk assessment
- Event Management
 - Problem management
 - Trend Analysis
- Inventory Management
 - Configuration
 - Firmware
 - Software
 - Capacity management
- Change Management
 - Risk assessment
 - Implementation

- Fall-back procedures
- Notification
- CAB

Workforce Management - Field Support is to ensure that faults are fixed within the SLA timelines. Onsite support also includes preventative maintenance tasks. The functions include:

- L1 - Onsite Support
- Hardware replacement
 - Spare management
 - Hardware replacement
 - Warrantee control
- Scheduled maintenance activities - Preventative
 - Cleaning of Fiber connections
 - Upgrade of capacity
 - Upgrade or New service integration
 - Measure and report on capacity
 - On site hardware and facility inspection
- Control and coordinate activities during “break fixes”
 - Monitor SLA
 - Escalation on non-performance
 - Disaster management (DRP)

Customer Relationship Management is key to achieving the SLA timelines. Maintaining a relationship with the customer will enable quicker access and remote fault finding activities. The following will be maintained:

- Maintain relationship with Building manager
- Maintain site database
 - Location
 - Access
 - Power
 - Installation environment

Other activities performed in order to maintain the environments/elements and systems:

- Regular housekeeping of OS, Syslogs and software patches
- Archiving data as per COT Retention policies
- Maintaining the Network configuration and services database
- Documenting the procedures for operate and maintenance activities
- Regular patching in terms of security, new versions, bug fixing
- Reporting application issues
- Performing the testing on the environments before services goes live
- Maintaining batch schedules, batch run

- Maintaining user authorization and user profiles and perform user management
- Maintaining performance related parameters
- Monitoring the data cloning in the DR site
- Executing the DR procedures and test as per COT policies
- Applying and configure elements as per COT security policies
- Managing Capacity and Performance of network elements

To ensure continues improvement on the service levels, the SPV will perform the following activities:

- Identify possible measure to improve SLA
- Collect data using problem-tracking tool
- Conduct Pareto analysis and identify the top hitters
- Take corrective action to improve SLA's
- The same process will be repeated till SLA improves

Minimum Services

For the avoidance of doubt, the services set out in Annexure A and this Annexure C, comprise the Services to be provided by the Service Provider to the COT, in consideration for which, the COT shall make payment to the Service Provider at set out in clause 37 of the Agreement.

As and when a section of the Network is accepted, or deemed to be accepted (as the case may be), pursuant to clause 14 of the Agreement, the relevant percentage of the Services (in proportion to the relevant section of the Network) shall be made available by the Service Provider to the COT.