

BHEL RANIPET INFORMATICS CENTRE

RFQ for NETWORK UPGRADATION at BHEL –RANIPET

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1 **OVERVIEW**

BHEL is the largest engineering and manufacturing enterprise in India in the energy-related/infrastructure sector. BHEL was established more than 50 years ago, ushering in the indigenous Heavy Electrical Equipment industry in India - a dream that has been more than realized with a well-recognized track record of performance.

Boiler Auxiliaries Plant (BAP) is one of the manufacturing unit of BHEL located at Ranipet, Tamilnadu. LAN of BHEL is having three tier architecture with Core, Distribution and Access switches. It is planned to upgrade the Core , Distribution and some of the Aecess switches in the existing set-up. In near future, BHEL is also planning to implement IPv6 in the campus.

This networking proposal consists of the following:

1. Supply, installation and configuration of data switches.
2. Establishment of connectivity, testing, commissioning and documentation.
3. Supply, installation and configuration of Network Management System (NMS).
4. Supply, installation and configuration of UTM Appliance (Firewall ,Web Content Filtering, Antivirus,Antispam, IPS Appliance, Proxy).
5. Maintenance of the network and all the supplied equipments for a period of 5 years.
6. Maintenance of passive components for a period of 5 years.

This will be under a Financial lease rental contract for a period of 5 years. During the lease rental period of 5 years, the contractor shall maintain sufficient spares, to ensure the prescribed uptime of the items supplied under rental.

After completion of 5 years of contract period BHEL may opt for subsequent 2 years of Annual Maintenance Contract (AMC).

2 **ELIGIBILITY CRITERIA**

Eligibility criteria for Bidders

1. The bidder should be a company/firm that is registered/incorporated in India.
2. The bidder should be an existing Network System Integrator for more than 5 years.
3. The bidder should have highest level of partnership with OEM for switches.
4. The bidder should possess ISO 9001 certification.
5. The bidder should not be involved in any bankruptcy Issues. The bidder should give a declaration to this effect.
6. The Average annual financial turnover of the bidder during the last 3 years ending 31st March of the previous year should be at least 1.5 Crores. Supporting documents in form of Copy of Balance sheet, Profit & Loss Account duly certified & audited by Chartered Accountant has to be submitted by the bidder.
7. The bidder having successfully completed similar works during the last 7 years ending 31st April 2015 should be either of the following:
 - a. Three similar completed works costing not less than amount equal to 2 Crores
OR
 - b. Two similar completed works costing not less than amount equal to 2.5 Crores
OR
 - c. One similar completed work costing not less than amount equal to 4 Crores

Here similar works means :-

Executing Enterprise LAN Network comprising Supply, Installation and commission of Active Components i.e Switches etc and Passive Components i.e laying of Optical Fiber etc.

Note:-Bidder has to submit the copy of completion certificates from the customer justifying the above mentioned conditions.

8. At least one of these contracts(in a/b/c above) or any other contract with order value of not less than Rs. 2.0 Crores, shall be on lease rental basis. The lease rental contract should have been successfully completed or if continuing, should have completed at least 3 years.
9. The bidder should not be under Hold or Blacklist by any of BHEL units as on bid opening date, for any of product or service related to Network. The bidder should give a declaration on this in the BHEL Format (Annexure II).
10. The bidder should have professionals certified for OEM products (actives and passives) in its rolls who possess experience of implementing / maintaining Enterprise Network Solution. List of certified professionals should be submitted.
11. The bidder should be able to provide committed support for quoted network actives for a minimum period of 5 years from OEM in writing. The bidder shall give commitment letter for additional 2 years support either through OEM or on their own.
12. Authorisation letter from the OEM (for actives) clearly mentioning the bidder name shall be enclosed to participate in this tender as Form A.
13. Authorisation letter from the OEM (for passives) clearly mentioning the bidder name shall be enclosed to participate in this tender Form B.
14. The OEM for passives shall be ISO 9001 certified for manufacture of passives.
15. The bidder can also be an MSME vendor registered as per MSME act. The guidelines issued by government from time to time for engaging MSME vendor, will be applicable. However, there can be no relaxation in the eligibility criteria clauses.

Eligibility criteria for OEM of actives

1. OEM should possess ISO 9001 certification.
2. OEM should be profit earning for the last three years.
3. OEM should not be involved in any bankruptcy Issues. OEM should give a declaration to this effect.
4. OEM should have at least one Spares Logistics Depot (for the switches quoted in this tender) in South India within 500 Km from Ranipet.
5. OEM switches should have been successfully implemented in at least 2 nos. of 2000 node (each) LAN installations in India. Documentary evidence should be produced.
6. All products should demonstrate interoperability with standards-based switches of other manufacturers. The demonstration of interoperability is an essential condition for evaluating the tender. The demonstration should be carried out by OEM or Partners at his nearest centre.

Note:

1. Certificates and evidences should be provided as a proof for all the above mentioned eligibility criteria as required.
2. If the bidder and OEM do not fulfill any of the eligibility criteria mentioned above, the offer will be rejected.

3 SPECIAL INSTRUCTIONS TO THE BIDDER

1. The offer shall be submitted in full, covering the total scope. Partial offer will not be accepted and will not be considered for evaluation.
2. The bidder shall sign all the pages of the Tender document and all the supporting documents. Signing of the document means that the bidder has fully understood the Tender and complies with all the requirements.
3. The bidder shall give cross reference for all the points, clearly mentioning the supporting document and highlight the reference portion in the document.

4. **All Software updates and upgrades of Switches, NMS and UTM appliance shall be provided during the entire 5 year lease period at no extra cost. The bidder shall give commitment letter in this regard.**
5. All actives (network switches) should be from the same OEM. Mix and match with other OEMs is not allowed.
6. These new switches should work along with the existing set-up (Existing set-up is having all the switches of M/s Cisco). It should meet all the management and functional and operation requirement of the existing LAN set-up.
7. Proper and Structured cabling should be done by the Bidder.

4 SCOPE OF WORK -ACTIVE

The scope of the project consists of supply, installation and maintenance of both active and passive components. To ensure proper manageability of the network, the bidder has to undertake the total scope of this project. In no case, this project can be split among different bidders.

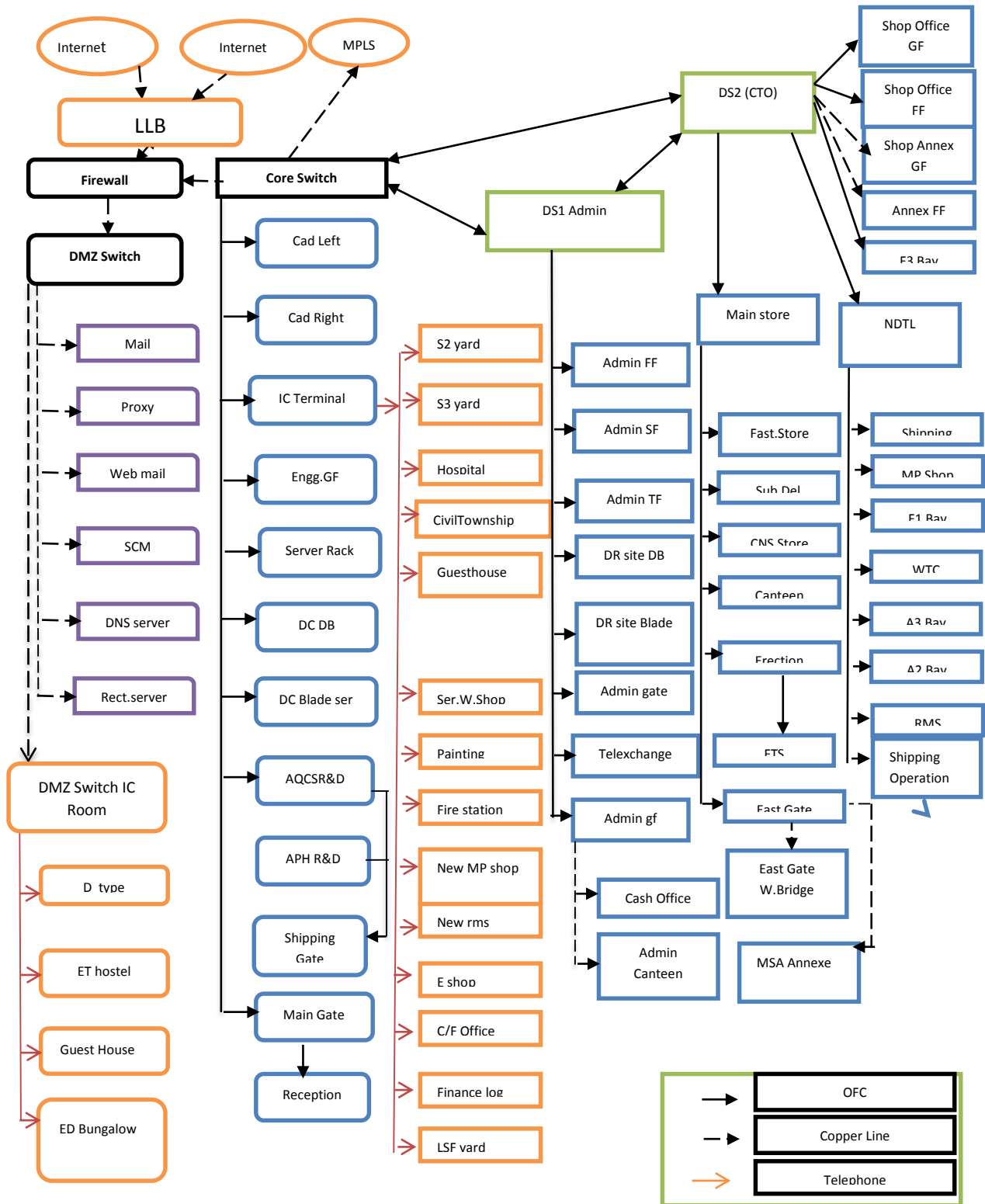
- a. The offered product and solution should work with the existing active components of BHEL Ranipet LAN. The present network of BHEL Ranipet consists of Cisco switches at Core, Distribution, Server Farm and Access Layer as given in network diagram (Refer Section 4.1). In case the supplied product fails to work with existing setup the vendor has to replace with the latest products of existing OEM make without any additional cost.
- b. The products that have reached the end-of-life should not be offered. Products offered should be latest and have minimum 5 years lifetime in the OEMs roadmap. Documentary evidence for this should be produced with the authorized signatory.
- c. Bidder should carry out proof of concept (POC) for the core and distribution switches offered by them demonstrating the interoperability with existing OEM of BHEL Ranipet (in case the product offered is different from the existing setup) at any nearby test centre during technical evaluation before price bid opening.
- d. All the active components (Core, Distribution, Server Farm, Access Switches, UTM Appliance, NMS) offered should comply IPV6 from date of commissioning.
- e. The installation should be in the following phases to minimize the downtime of production setup.
 1. Replace the existing core (Primary Data centre) and two distributions (one at Admin building and other at CTO)with the new core and distribution switches and restore the network connectivity on the existing network backbone.
 2. Lay the optical fiber cable between core 1(primary datacenter) and core 2(secondary datacenter) .
 3. Lay optical fibre cable between core 2(secondary datacentre) to all the three distribution locations i.e CTO , ADMIN, IC(new distribution switch to be put in Primary Datacentre) and establish the network connectivity with core 2(instead of core 1) and three distribution switches as mentioned above.
 4. Lay new cable between core 1 to all three distributions i.e CTO,ADMIN and IC and establish the connectivity.
 5. Establish the connectivity between core 1(Primary Datacentre) and core 2(secondary datacentre) and implement high availability on load sharing basis.
- f. On successful installation of the equipment and configuration of individual components and the solution as a whole, the Vendor shall submit the following documents as part of the commissioning:
 1. Newness certificate for all items.
 2. Configuration detail for each items – name, IP address, OS version, etc.
 3. Network diagrams / cabling scheme.
 4. Operation manual for all the Active Components- Two Nos.

5. Details of Backup solution
6. Performance Bank Guarantee
7. Insurance documents for all the items
8. Certificate from respective OEM for back-to-back support for entire lease period for both active and passive components.
9. Vendor has to give required training on working with Switches, NMS, UTM Appliance and submit all the necessary solution document
10. Vendor has to arrange for training on UTM appliance from the concerned OEM directly.

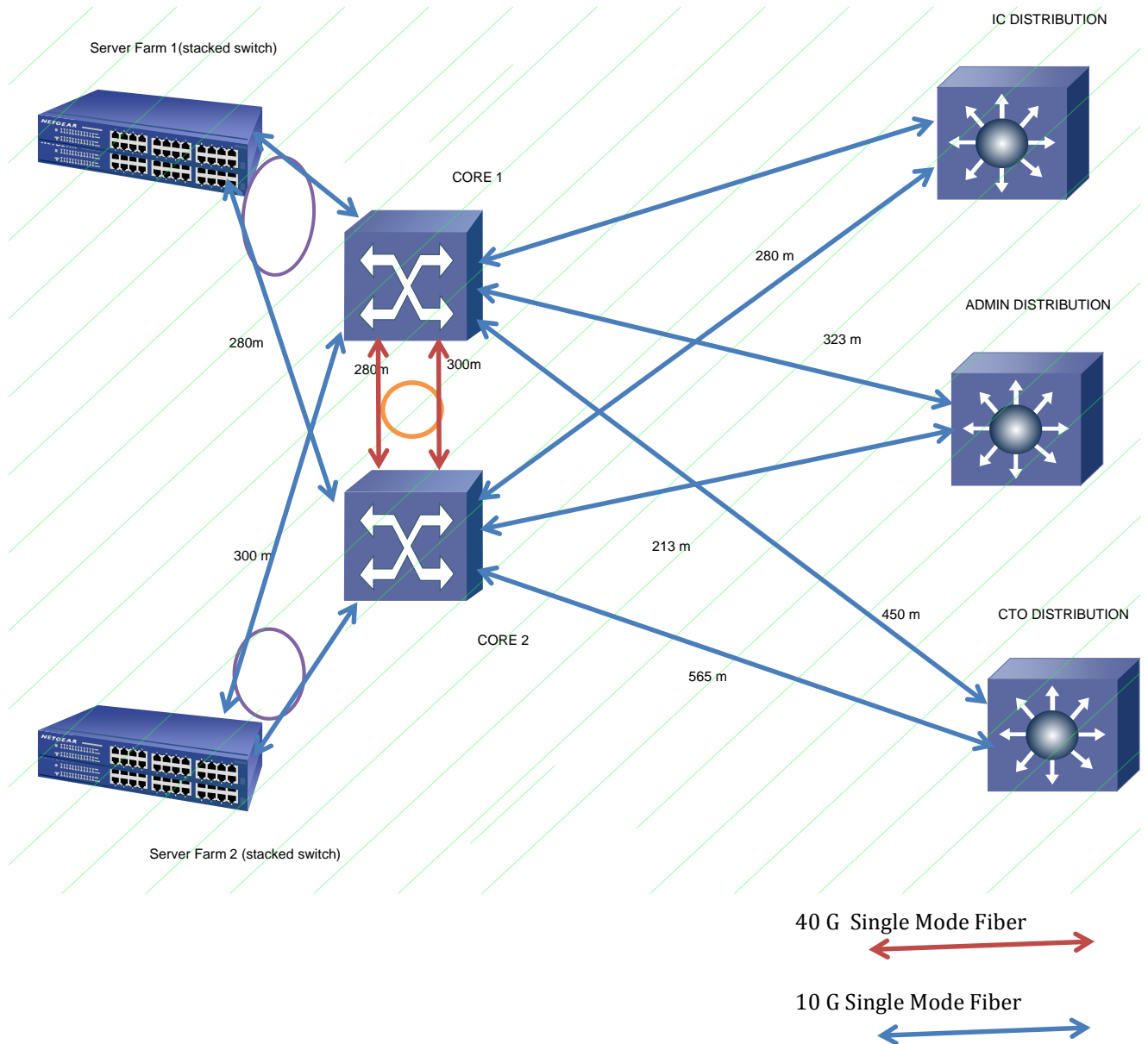
The scope of the project is given in the following sections.

4.1 Scope Of Work- Actives

Existing Network Diagram:-



Proposed Network



Core1 (IC) would be located at the Primary Data Centre, Core 2 would be located at the Secondary Data Centre. IC Distribution will be located at Primary Data centre, Admin distribution will be located Admin building and CTO distribution will be located at time office.

Note: 1. Each blue colour link is 10g link. Where the channeling(ring) is done, the link becomes 20g. Link between core1 and core2 is 40G and with channeling, it become 80G.
 2.The Distance mentioned in the above diagram is approx. only.

4.1.1 Switches:

1. Supply and installation of switches
2. Initial configuration of all switches as per BHEL's requirement
3. Configuring Quality of service for video and voice traffic
4. Implementing High availability features in the switches (Core and Distribution) deployed, as per BHEL's requirement
5. Testing and documentation
6. Configuration and troubleshooting training for 3 days
7. Maintenance
8. All the switches components should be from a single OEM.

4.1.2 UTM Appliance (Firewall , IPS, Web Content Filtering, Antivirus,Antispam,Proxy):

1. Supply of Appliance
2. Installation and configuration
3. Maintenance

4.1.3 Network Management System:

1. Supply of NMS
2. Installation and configuration
3. Maintenance

4.2 Scope Of Work – Passives

- 4.2.1. Supply, laying, termination, testing and maintenance of Fiber Optic cable.
- 4.2.2 Supply and installation of racks for mounting of network equipment including proper dressing of cables in the racks using cable managers.
- 4.2.3. Repairing/replacing any fiber during full lease period, cut due to any reason whatsoever, will be done by the vendor. BHEL shall not bear any cost for the same.
- 4.2.4. Supply and installation of all passive components including Light Interconnect Units (LIUs), Patch panels, Patch cords, Pigtails ,connectors etc required to complete the work on structured cabling concept.
- 4.2.5. Supply of all cable laying accessories including PVC pipes/channels/HDPE pipes, supporting structures, clamps, identification tags, cable route markers etc required for laying of cables.
- 4.2.6 The vendor shall include in his scope, any digging work ,Road Cutting work required for laying of cables. The Vendor has to follow instruction as laid in clause 5.3 and its sub section of the tender document.
- 4.2.7 Minor civil works such as chipping / cutting of floors for making grooves, making holes/opening through walls, ceiling or floors, drilling of holes through steel structures and frames, grouting of frames, hooks on walls/ceiling etc. required for execution of work. After erection, surface shall be made good by plastering / painting to their original shape and finish.
- 4.2.8 The fibre cable and terminations, covered under the scope shall be tested and test report shall be submitted.
- 4.2.9 All installations shall be done by certified technicians and the bidder should submit the required documents at the time of commissioning.
- 4.2.10 The fibre cable within the scope of the bidder should be certified for a minimum life span of 20 years. Corresponding certificates issued from OEM should be submitted at the time of Bid Submission.
- 4.2.11 The materials shall be moved to the respective place of work within the campus by the bidder.
- 4.2.12 The bidder should provide sample for the passive components during technical evaluation.
- 4.1.13 All the passive components as in Table 5.2 BOM of Passive Components (Sl No. 1 to Sl.No. 10) should be from single OEM.

5 **BILL OF MATERIAL**

The bill of material for the active and passive components to be installed under this contract is given in the following sections.

5.1 **Bill Of Material - Active**

Sl. No	Description	Unit	Quantity
1.	CoreSwitch	No	2
2.	DistributionSwitch	No	3
3.	Server farm switch	No	8
4.	AccessSwitch – Type I	No	11
5.	AccessSwitch– Type II	No	14
6.	1G MM Fiber Transceivers	No	20
7.	1G MM Fiber Transceivers (between core and UTM appliance)	No	6
8.	1G SM Fiber Transceivers (between core and UTM appliance)	No	6
9.	10G SFP+ Single Mode Fiber Transceivers	No	4
10.	10G SFP+ Multimode Fiber Transceivers	No.	8
11.	UTM Appliance (Firewall ,IPS,Web Content Filtering, Antivirus,Antispam,Proxy)	No	2
12.	Network Management System	No	1

Note: The quantities from Sl. No. 6 to Sl No. 10 are tentative . Payment will be made based on the actuals.

5.1.1 **Material Specification – Actives**

5.1.1.1 **Core Switch:**

Core Switch shall be Chassis based Multilayer architecture capable of redundant supervisory modules. The core switches will be placed in the Primary Data Centre and Secondary Data Centre.

Each core switch shall have Two supervisory modules, Minimum two power supplies, minimum 2 nos.of 40 Gbps transceivers populated, minimum 8 No. of SFP+ ports populated with compatible 10Gbps transceiver module, atleast 20 no. of 1 Gbps SFP ports and atleast 40 no of 10/100/1000 Mbps Copper ports.

Switch shall be with following specifications:

General Features
The Switch should be Chassis based Multilayer Switch Architecture with minimum 7 slots and should support minimum of 5 payload slots
The Switch should have Two Supervisor Modules for redundancy
The switch should support Layer 2/Layer 3 switching/routing
The switch should have passive back-plane
The Switch should have Power supply redundancy with a minimum of two hot-swappable power supplies
The Switch should support a minimum of 80 Gbps (Half Duplex)/160 Gbps(Full Duplex) switching capacity per slot
The Switch should support online insertion and removal of the Supervisor
The Switch should support online insertion and removal of payload modules
The Switch should support hot-swappable fan trays

The Switch should support a distributed switching architecture
The Switch should support aggregate data forwarding rates up to 700 million packets per second (Mpps) for IPv4 traffic
The Switch should support 1 Gbps interfaces
The Switch should support 10 Gbps interfaces
The Switch should support 40 Gbps interfaces
Version of software for supplied switch should be latest release to support all required features
Software updates should be bundled for the entire contract period
Performance & Scalability
The Switch should support single fabric throughput of 2 Tbps and when combined together the aggregate switching capacity of both the switches (in virtual switching mode) should be 4 Tbps
Layer 2 & Layer 3 Features
The Switch should support Layer 2 switch ports
The Switch should support IEEE 802.3ad- Link aggregation Control Protocol(LACP)
The Switch should support move/add/changes of VLANs dynamically .
The Switch Shall have IEEE compliance for 802.1Q VLAN, 802.1p QoS, 802.1d STP, 802.1w RSTP, 802.1s MSTP, 802.3ad LACP, IEEE 802.1ab Link Layer Discovery Protocol.
The Switch should support basic Routing-Static IP routing, RIP v1/v2, RIPng and policy based routing/filter-based forwarding
The Switch should support hardware enabled advance IP routing protocols OSPF, OSPFv3, BGPv4, PIM-SM, PIM-DM , PIM-SSM etc.
The Switch should support VRRP or equivalent for High Availability
The Switch should support Rapid convergence Layer 3 protocols
The switch should support the ability to configure Layer 3 Aggregate links
The Switch should support minimum 512K IPv4 Routes
The Switch should support RFC 2439 - Route flap dampening
The Switch should support RFC 2328 - OSPFv2
The Switch should support RFC 1850 - OSPFv2 Management Information Base (MIB)

Multicast
The Switch should support minimum 2K Multicast Routes
The Switch should support IGMP v1, v2, v3
The Switch should support IP multicast routing protocols PIM & SSM
The Switch should support IGMP Snooping
The Switch should support MLD snooping
The Switch should support RFC 2362 - Protocol-Independent Multicast (PIM)-SM
The Switch should support Multicast Source Discovery Protocol (MSDP)
The Switch should support multicast performance at line rate in hardware
Virtual Switching

The Switch should support combining of two separate physical switch in a single logical unit without any additional/external devices
The Virtual switch should support the Standby Supervisor to take over in the event of a failure on the Active Supervisor
The Virtual switch should support Stateful Switch over in case of a failure of the Active Supervisor
The Virtual switch data planes of both the physical switches should be active
The Virtual switch should support minimum 740 ports of 1Gbps
The Virtual switch should support minimum 120 ports of 10Gbps
The switch should support In-Service OS upgrade mechanism with a minimal disruption of traffic through upgrade process.
StatefulSwitchOver& Non-Stop Forwarding
The switch should support Stateful Switchover if the Active supervisor fails .
The switch should support stateful feature information between the two Supervisors in the same chassis
The switch should support forwarding of network traffic with no loss of sessions during a Supervisor switchover
The switch should support switchover from Active Supervisor to the Standby Supervisor in less than 3 seconds
The switch should support Fast Software Upgrade to reduce planned downtime
The switch should support Nonstop Forwarding
IPv6
The switch should support IPV6 in hardware without the addition of special modules to achieve IPv6 forwarding
The Switch should support Separate IPv6 and IPv4 interface statistics on egress and ingress
The Switch should support Stateful switchover for both intra-chassis and inter-chassis redundancy
The Switch should support Router Advertisement (RA) Guard
The Switch should support Routing Information Protocol (RIP) enhancements for IPv6 - RFC 2080
The Switch should support IPv6 RIP split horizon with poison reverse
The Switch should support RFC 2740
The Switch should support IS-IS for IPv6
The Switch should support Multiprotocol BGP for IPv6
The Switch should support Static Route for IPv6
The Switch should support 6to4 tunnelling
MPLS
The Switch should support MPLS in hardware without the addition of special modules to achieve MPLS forwarding
The Switch should support RFC 2547 - MPLS VPN
The Switch should support MPLS mVPN (Multicast VPN), MPLS Class of Service (CoS), DiffServ-Aware TE, RFC-4364.
The Switch should support VRF-Lite or equivalent for L3 virtualization
The Switch should support RFC 3036 - Label Distribution Protocol
The Switch should support Native support for VPLS

QoS
The Switch should support sophisticated QoS and Traffic Management
The Switch should support QoS Classification, Marking, Policing, Mutation.
The Switch should support Advance security – DOS and NAT
The Switch should support priority queuing
The Switch should support differentiated service code point (DSCP)
The Switch should support classification and marking based on full Layer 3, 4 headers
The Switch should support input and output policing based on Layer 3, 4 headers.
The Switch should support Enterprise wide QoS management: LAN to WAN integration
The Switch should support Traffic Marking: IEEE 802.1Q/P COS
The Switch should support Congestion Avoidance: WRED
The Ethernet ports must support Weighted Round Robin (WRR)
NetFlow/SFlow
The Switch should support NetFlow/SFlow
The Switch should support ingress NetFlow/Sflow for collecting flow statistics for packets at ingress interface or interfaces
The Switch should support Egress NetFlow/Sflow for collecting flow statistics for packets prior to transmission out the egress interface or interfaces
Security
The Switch should provide robust protection of the control plane in Hardware
The Switch Shall have Filters/Access-List on all ports
The Switch should support IEEE 802.1x
The Switch should support VLAN ACLs
The Switch should support Router ACLs
The Switch should support port based ACLs
The Switch should support L2, L3 and L4 ACLs
The Switch should support Source MAC + IP Binding
The Switch should support Private VLANs
The Switch Should support IPV6 ACLs
Management & Monitoring
The Switch Shall have TACACS+/RADIUS enabled.
The Switch Shall have SSHv1 , SSHv2, SNMPv1, SNMPv2, SNMPv3 and NTP support
The Switch should support Web based management console
The Switch should support Telnet and TFTP access
The Switch should support RMON - Remote Monitoring (RMON)
The Switch should support email-based/web-based notification of critical system events
The Switch should support Continuous device health monitoring and real-time diagnostics alerts
The Switch should support Backplane Traffic Monitoring to monitor the backplane and fabric-channel traffic utilization at a configured interval and threshold

The Switch should support USB for configuration & new software image download
Switch should offer power management solution.
Port Mirroring
The Switch should support port mirroring .
The Switch should support Port Mirroring without affecting the switching of traffic on sources
The Switch should support port mirroring for Ingress traffic and egress traffic

5.1.1.2 Distribution Switch:

Distribution switch shall be Chassis based Multilayer architecture with redundant supervisory modules. These distribution switches shall be placed at Admin Building ,IC and at CTO. The Distribution switch shall have Two supervisory modules, minimum two power supplies, minimum 4 No. of SFP+ (supports 10Gbps) ports populated with compatible transceiver module, 24 No. of 1Gbps SFP ports and 144 No. 10/100/1000 Mbps Copper ports.

Switches shall be with following specifications:

General Features
The Switch should be Chassis based Multilayer Switch Architecture with minimum 7 slots and should support minimum of 5 payload slots
The Switch should have Two Supervisor Modules for redundancy
The Switch should support online insertion and removal of the Supervisor module
The performance of the switch should not be affected in case of failure of one of the supervisor module. The other supervisor module should take over with the same performance capabilities.
Dual Hot-swappable power supplies, hot-swappable fan tray with redundant fans, and hot-swappable payload modules
Performance
800Gbps switch Capacity.
Layer 2, L3, L4 hardware forwarding at 250 Mpps (IPV4)& 125 Mpps (IPv6).
No performance penalty with advanced Layer 3 and Layer 4 services enabled
Support for 32,000 MAC addresses
Scalability to 4000 virtual ports (VLAN port instances)
Layer 3 features
IP routing protocols Open Shortest Path First [OSPF], Routing Information Protocol [RIP], RIP2), Intermediate System to Intermediate System (IS-IS), Border Gateway Protocol Version 4 (BGP4) and Multicast Border Gateway Protocol (MBGP), ICMP Router Discovery Protocol, Policy-Based Routing (PBR)
The Switch should support minimum 1K of IPv4 multicast table size and 512 of IPv6 multicast table size.
The switch should support IP multicast routing protocols (PIM, SSM, Distance Vector Multicast Routing Protocol [DVMRP]),
The switch should support IGMP v1, v2, and v3.
Support for Virtual Route Forwarding feature(VRF) or equivalent
Support for IPv6 Protocol Unicast & Multicast forwarding in Hardware
Quality Of Service
The switch should support minimum 1000 QoS hardware entries/ACL entries

Per-port quality of service (QoS) configuration, Support for four queues per port in hardware
Strict priority queuing, IP differentiated service code point (DSCP) and IP Precedence
Input and output policing based on Layer 3 and Layer 4 headers.
Shaping and sharing output queue management, Support for Congestion avoidance feature like DBL (Dynamic Buffer Limiting) or tail drop or equivalent.
No performance penalty for granular QoS functions
Support for Automatic Quality of Service for easy configuration of QoS features for critical applications.
Security Feature
Support for Admission Control features for end-point security (PCs & Desktop Posture Assessment) and thereby controlling the spread of viruses & worms
RADIUS, which allow centralized control of the switch and restrict unauthorized users from altering the configuration
Standard and extended ACLs on all ports
802.1x user authentication (with VLAN assignment and Guest VLAN extensions)
The Switch should support Router ACLs (RACLs) , VLAN ACLs (VACLs), Port ACLs (PACLs)
Private VLANs (PVLANS) on access and trunk ports
Management Features
Single console port and single IP address to manage all features of the system
Software-configuration management, including local and remote storage
Optional Compact Flash memory card to store software images for backup and easy software upgrades
In-service software upgrade
Manageability through common network-management software on a per-port and per-switch basis, providing a common management interface for routers, switches of the same vendor
Support for SNMP versions 1, 2, and 3
Analysis support, including ingress port, egress port.
Support for sFlow / NetFlow or equivalent for Deep traffic & session flow analysis.
Support for Port Mirroring, Remote Mirroring & ACL filtering.

5.1.1.3 Server Farm Switches

These switches shall be L3 stack based multilayer switches. All servers shall terminate on these switches. These 8 Server Farm Switches will be divided into two groups and each group consisting 4 Server Farm Switches Stacked together and placed one group at Primary Datacentre and other group at Secondary Data Centre. Each switch shall have minimum two power supplies, minimum 2 No. of SFP+ (supports 10Gbps) ports and 48 No. 10/100/1000 Mbps Copper ports.

Specifications shall be as follows:

Category	Specifications
Architecture	The switch should have static route, RIPv2, OSPF, IS-IS and BGP4 routing functionalities. The switch must support following architectural features:-
	(a) The switch should have 48 Ethernet 10/100/1000 ports and 2 nos of 10 Gigabit Ethernet SFP+ ports. The switch should be stackable. Switch must be provided with necessary cables for stacking.
	(b) The switch backplane bandwidth at minimum should be 170 Gbps fabric. The switch must support minimum 100 Mpps forwarding bandwidth. The required forwarding rates are based 64 bytes packet length.
Standards & Protocols	The switch should support following standards & protocols:
	1) 802.1Q VLAN
	2) 802.1p Priority & DSCP
	3) 802.1D Spanning Tree Protocol
	4) 802.1w (Rapid Spanning Tree Protocol)
	5) 802.1s (Multiple Spanning Tree protocol)
	6) 802.3x Flow Control
	7) 802.1x Authentication
	8) VLAN Trunking Protocol or Equivalent to reduce administrative burden of configuring VLANs on multiple switches
	9) IGMP
	10) RADIUS
	11) 802.3ad Port/Link Aggregation for All Ports
	12) 802.1AE
	13) Simple Network Time Protocol (SNTP)
	14) SPAN/SFLOW or equivalent
	15) SSH
	16) SNMP v1, SNMP v2c & SNMP v3
	17) Telnet & TFTP
	18) IPv6

Security & Performance Features Required	1) Support for fast convergence features like PortFast/ UplinkFast or equivalent
	2) Support for broadcast/multicast storm control to prevent degradation of switch performance from faulty end stations
	3) Minimum no. of MAC Addresses 10000
	4) Should Support MAC Address Filtering based on source and destination address
	5) Switch should support rate limiting (bandwidth control). Rate limiting should be supported on the Ingress or Egress of any port without sacrificing additional ports.
	6) Should support multicasting
	7) Should support port mirroring feature for monitoring network traffic of a particular port/VLAN/group of ports/entire switch.
	8) Should support standard, extended, port based, time based ACL
	9) Should support policy based traffic Classification
Jumbo Frame	Jumbo Frames support up to 9K Bytes
VLAN Support	1) Port & Subnet Based VLAN
	2) Voice VLAN or equivalent for spreading and prioritising VoIP traffic.
	3) Should support minimum 1000 active VLANs
IP Routing Support	Should support RIPv1, RIPv2, OSPF, OSPF V3, BGP4, Inter- VLAN routing, IPv6, VRF etc. Should support minimum 10000 route entries
Software	The offered switch should have the latest operating system supporting all the above features, standards & protocols.
Power	Should have dual redundant power supplies
Manageability	Should be manageable through a standard web browser & command line interface.
Environmental Features	Shall provide Support for ROHS
	Operating temperature of 0°C to 40°C
	Safety and Emission standards including UL 60950-1; IEC 60950-1; EN 55022 Class A
Warranty & Support	OEM onsite , labour, parts warranty for the entire lease period

5.1.1.4 Access Switch:

Access switches shall be used to connect desktops /workstations / peripherals etc.

Specifications shall be as given below.

Access Switch Type I

The Access switch Type I shall have minimum 4No . 1Gbps SFP Ports and 24 No. 10/100/1000 Mbps copper (Ethernet) ports .

The Access switch Type I shall have minimum **one SFP Port populated** with the compatible transceiver module.

Category	Specifications
Architecture	Fixed Configuration Layer2 1U Rack mountable Switch. Forwarding bandwidth of 56 Gbps and Switch forwarding rate of 40 Mpps
Rack mounting	19" inch rack mountable. Rackmount kit to be provided along with the switch
Flash & Memory	The switch should have enough Memory (Flash and/or any other) to hold the latest Software Release. The Memory should be large enough to support fully populated ports, all features of switch and parameters like MAC Address Table, VLANs etc.at their peak values as claimed in the Data Sheets of the Switch.
No. of 10/100/1000 Ports	The Switch should have minimum 24 nos. 10/100/1000BaseTX (Ethernet) ports
No of 1G fibre Ports	The switch should have 4 numbers of 1G SM fibre ports.
Management	
Network monitoring/ management	Switch should be manageable through NMS on per port/switch basis with common interface for all manageable devices on the network. Should Support syslog, SNMP, RMON, SSH, telnet, web management
Port Mirroring	Should support port mirroring feature for monitoring network traffic of a particular port/VLAN/group of ports/entire switch.
Software	
Software Version	Version of software for supplied switch should be latest release to support all required features
Software Updates	Software updates should be bundled for the entire contract period
Standards & Protocol	The Switch should support following standards & protocols:
	1) 802.1Q VLAN
	2) 802.1p Priority & DSCP
	3) 802.1D Spanning Tree Protocol
	4) 802.1w (Rapid Spanning Tree Protocol)
	5) 802.1s (Multiple Spanning Tree Protocol)
	6) 802.3x Flow Control
	7) 802.1x Authentication
	8) VLAN Trunking Protocol or Equivalent to
	Reduce administrative burden of configuring VLANs on multiple switches
	9) IGMP
	10) Dynamic trunking Protocol (DTP) or

	Equivalent
	11) RADIUS
	12) 802.3ad Port/Link Aggregation for All ports
	13) DHCP Server & DHCP Relay
	14) DHCP Snooping to filter untrusted DHCP
	messages
	15) Simple Network Time Protocol
	16)SPAN/SFLOW or equivalent
	17) SSH & SCP
	18) SNMP v1, SNMP v2c & SNMP v3
	19) Telnet & TFTP
	20) Ipv6
	21) IEEE 802.1ab (LLDP)
Security & Performance Features required	1)Support for fast convergance features like PortFast/UplinkFast or Equivalent.
	2) Support for broadcast/multicast storm control to prevent degradiation of switch performance from faulty end stations
	3) Minimum no Of MAC Addresses 8000
	4) Should support MAC Address Filtering based on source and destination address
	5) Switch should support rate limiting (bandwidth control). Rate limiting should be supported on the Ingress or Egress of any port without sacrificing additional ports
	6) Should support multicasting
	7) Should support Port mirroring
Stacking support	Should support stacking of up to 4 switches
Jumbo Frame	Jumbo Frame jumbo frames support up to 9K Bytes
VLAN support	1) Port based VLAN
	2)Voice VLAN or equivalent for spreading and prioritising VoIP traffic.
	3) Should support minimum 250 active VLANs
Sustainability	Should be able to move switch ports to low power state when not in use
Manageability	Should be manageable through a standard web browser & command line Interface
Environmental Features	Shall provide support for RoHS
	Shall have features to improve energy efficiency like variable-speed fans, shutoff unused ports etc
	Operating temperature of 0°C to 40°C
	Safety and Emission standards including UL 60950-1; IEC 60950-1; EN 55022 Class A
Warranty and Support	OEM onsite , labour, parts warranty for the entire lease period

Access Switch Type II

Access switch Type II shall have minimum 4No. 1Gbps SFP Ports and 48 No. 10/100/1000 Mbps copper (Ethernet) ports.

The Access switch Type II shall have minimum **one SFP Port populated** with the compatible transceiver module.

Category	Specifications
Architecture	Fixed Configuration Layer2 1U Rack mountable Switch. Forwarding bandwidth of 80 Gbps and Switch forwarding rate of 75 Mpps
Rack mounting	19" inch rack mountable. Rackmount kit to be provided along with the switch
Flash & Memory	The switch should have enough Memory (Flash and/or any other) to hold the latest Software Release. The Memory should be large enough to support fully populated ports, all features of switch and parameters like MAC Address Table, VLANs etc.at their peak values as claimed in the Data Sheets of the Switch.
No. of 10/100/1000 Ports	The Switch should have minimum 48 nos. 10/100/1000BaseTX(Ethernet) ports
No of 1G fibre Ports	The switch should have 4 numbers of 1G SM fibre ports.
Standards & Protocol Support	The Switch should support following standards & protocols:
	1) 802.1Q VLAN
	2) 802.1p Priority & DSCP
	3) 802.1D Spanning Tree Protocol
	4) 802.1w (Rapid Spanning Tree Protocol)
	5) 802.1s (Multiple Spanning Tree Protocol)
	6) 802.3x Flow Control
	7) 802.1x Authentication
	8) VLAN Trunking Protocol or Equivalent to Reduce administrative burden of configuring VLANs on multiple switches
	9) IGMP
	10) Dynamic trunking Protocol (DTP) or Equivalent
	11) RADIUS
	12) 802.3ad Port/Link Aggregation for All ports
	13) DHCP Server & DHCP Relay
	14) DHCP Snooping to filter untrusted DHCP messages
	15) Simple Network Time Protocol
	16)SPAN/SFLOW or equivalent
	17) SSH & SCP
	18) SNMP v1, SNMP v2c & SNMP v3
	19) Telnet & TFTP
	20) Ipv6
	21) IEEE 802.1ab (LLDP)
Security & Performance Features	1)Support for fast convergence features like PortFast/UplinkFast or Equivalent.

	2) Support for broadcast/multicast storm control to prevent degradation of switch performance from faulty end stations
	3) Minimum no Of MAC Addresses 8000
	4) Should support MAC Address Filtering based on source and destination address
	5) Switch should support rate limiting (bandwidth control). Rate limiting should be supported on the Ingress or Egress of any port without sacrificing additional ports
	6) Should support multicasting
	7) Should support Port mirroring
Stacking Support	Should support stacking of up to 4 switches
Jumbo Frame	Jumbo Frame jumbo frames support up to 9K Bytes
VLAN Support	1) Port based VLAN
	2)Voice VLAN or equivalent for spreading and prioritising VoIP traffic.
	3) Should support minimum 250 active VLANs
Software	The offered switch should have the latest operating system supporting all the above features, standards & protocols.
Sustainability	Should be able to move switch ports to low power state when not in use
Manageability	Should be manageable through a standard web browser & command line Interface
Environmental Features	Shall provide support for RoHS
	Shall have features to improve energy efficiency like variable-speed fans, shutoff unused ports etc
	Operating temperature of 0°C to 40°C
	Safety and Emission standards including UL 60950-1; IEC 60950-1; EN 55022 Class A
Warranty & Support	OEM onsite , labour, parts warranty for the entire lease period

5.1.1.5 Transceivers

SL. No	Transceivers Type	Total
1	1G MM Fiber Transceivers	20
2	1G SM Fiber Transceivers	6
3	1G MM Fiber Transceivers	6
3	10G SFP+ Single Mode Fiber Transceivers	4
4	10G SFP+ Multimode Fiber Transceivers	8

Note: In point No.2 and No.3 the Transceiver will be used to connect UTM and the core switch. Vendor has to quote compatible Transceiver for connectivity between Core switch and UTM appliance.

5.1.1.6 UTM Appliance (Firewall ,Web Content Filtering, Antivirus, IPS,Anti Spam,Proxy)

1	General Features
a.	OEM should have regional presence for sales & support
b.	Proposed appliance should have at least 60 GB of storage
c.	Proposed solution should comply FCC and CE norms
d.	The proposed solution should match following criteria.
	a. Hardware platform must be 64 bit
	b. Minimum 1 USB Port
	c. Minimum of 4 x1GE SFP ports
	d. Minimum 4 10/100/1000 Mbps copper Port
	e. Minimum 1 RJ-45 Serial Console
	f. Minimum 60000 number of new connection
	g. Minimum 2.6 Million concurrent connection
	h. Minimum 14 Gbps Firewall throughput
	i. Minimum 4 Gbps IPS Throughput
e.	The proposed solution should have unrestricted user/node license.
f.	The proposed solution must work as standalone HTTP proxy server with integrated Firewall, Anti-Virus, Anti-Spam, Content filtering, IPS.
g.	The proposed solution must support User based policy configuration for security & internet management.
h.	The proposed solution should provide on appliance reports based on user not only on the base of IP address.
i.	The proposed solution should cover all updates, upgrades and subscription for 5 years from the date of supply of the product
2	Administration, Authentication & General Configuration
a.	The proposed solution should support administration via secured communication over HTTPS, SSH and from Console.
b.	The proposed solution should be able to export and import configuration backup including user objects
c.	The proposed solution should support integration with Active Directory, LDAP, Radius or Local Database for user authentication.
d.	The proposed solution must support automatic transparent Single Sign on (ASSO) for user authentication. SSO must be proxy independent and support all applications for authentication.
e.	The proposed solution should support Dynamic DNS configuration.
g.	The proposed solution should provide real time data transfer/bandwidth utilization done by individual user/ip/application.
h.	The proposed solution should support Parent Proxy with IP/FQDN support.
i.	The proposed solution should support NTP.
j.	The proposed solution should support ACL based user creation for Administration purpose.
l.	The proposed solution should support SNMP v1, v2c & v3.

m.	The proposed solution must support of Thin Client (Microsoft TSE, Citrix) authentication and must be able to differentiate users coming From same IP address.
3	High Availability
a.	The proposed solution should support High Availability Active/Passive or Active/Active
b.	The proposed solution should be ICSA certified or Equivalent for High Availability .
c.	The proposed solution should send notification to admin on change of appliance status in High Availability.
d.	The HA traffic between two peers must be encrypted.
e.	The proposed solution should support Link, device & Session failure.
f.	The proposed solution should support automatic & manual synchronization between appliances in cluster.
4	Firewall
a.	The proposed solution should be standalone appliance with hardened OS
b.	The proposed solution should be ICSA or EAL4 or Webcoast checkmark certified or equivalent for Firewall
c.	The proposed solution should support state full inspection with user based one-to-one & dynamic NAT, PAT.
d.	The proposed solution must support user identity as matching criteria along with Source/Destination IP/Subnet/group, destination Port in firewall rule.
e.	The proposed solution should facilitate to apply unified threat policy like AV/AS, IPS, Content filtering, Bandwidth policy & policy based routing decision on firewall rule for ease of use, also unified threat controls must be applied on inter zone traffic.
f.	The proposed solution should support 802.1q VLAN tagging support.
g.	The proposed solution should support dynamic routing like RIP1, RIP2,ISPF, BGP4.
h.	The proposed solution must be support IPv6 from day 1.
i.	The proposed solution should support Fully Qualified Domain Name (FQDN) based host and host group.
j.	The proposed solution should support Differentiated Services Code Point (DSCP)
5	IPS
a.	The proposed solution should be web coast checkmark or ICSA certified or equivalent.
b.	The proposed solution should have signature based and protocol anomaly based Intrusion prevention system.
c.	The proposed solution should have 4000+ signature database.
d.	The proposed solution should automatically takes update from update server.
e.	The proposed solution should able to detect & block known P2P based instant messaging application like Skype & known chat application like WLM, Rediffbol etc.
f.	The proposed solution should generate the alerts for attacks
g.	The proposed solution should generate historical reports based on top alerts, top attackers, severity wise, top victims, protocol wise.
6	Gateway Anti-Virus
a.	The proposed solution should have an integrated Anti-Virus solution.

b.	The proposed Integrated Anti-Virus/Ant-Spyware should have atleast one Certification as part of a UTM viz. NSS or Webcoast Checkmark or ICSA or equivalent.
c.	The proposed solution should support scanning for SMTP, POP3, IMAP,FTP, HTTP, FTP over HTTP protocols.
d.	The basic virus signature database of proposed solution should comprise complete wild list signatures and variants as well as malware like Phising, spyware.
e.	The proposed solution should support blocking of dynamic/executable files based on file extension.
f.	The proposed solution should update the signature database at a frequency of less than one hour & it should also support manual update.
g.	For POP3 & IMAP traffic, the proposed system should strip the virus infected attachment & send notification to recipient & Admin.
h.	The proposed solution should scan http traffic based on username,source/destination IP address or URL based regular expression.
i.	The proposed solution should provide historical reports based on username, IP address, Sender, Recipient & Virus Names.
7	Gateway Anti-Spam
a.	The proposed solution should have an integrated Anti-Spam solution.
b.	The proposed Integrated Anti-Spam should have atleast one Certification as part of a UTM viz. NSS or Webcoast Checkmark or ICSA or equivalent.
c.	The proposed solution should have configurable policy options to select what traffic to scan for spam.
d.	The proposed solution should support spam scanning for SMTP, POP3,IMAP.
e.	The proposed solution should support real time spam detection & also supports proactive virus detection technology which detects and blocks the new outbreaks immediately and accurately.
f.	The proposed solution should support IP/Email address white list/Black list facility.
g.	The proposed solution should support language independent spam detection functionality.
h.	The proposed solution should block image based spam mails i.e. email message with text embedded in a image file.
i.	The proposed solution should provide historical reports based on username, IP address, Sender, Receptient & spam category.
j.	The proposed solution must save bandwidth by blocking 85% of spam messages at gateway level itself without downloading the message using advanced IP Reputation Filtering feature.
8	Proxy Solution Web content filtering
a.	The proposed solution should be web coast checkmark certified or equivalent.
b.	The proposed solution should be integrated solution with local Database or cloud database.
c.	The proposed solution must work as Standalone HTTP proxy.
d.	The proposed solution must have 70+ web category with 40 Million URL database.
e.	The proposed solution must block HTTP or HTTPS based anonymous proxy request available on the internet.
9	Logging & Reporting
a.	The proposed solution must have On-Appliance integrated iView or external reporting solution.

b.	The proposed solution should provides reports in HTML/CSV/ PDF/ Excel/graphical format.
c.	The proposed solution should support logging of Antivirus, Antispam, content filtering, Traffic discovery, IPS, Firewall activity on syslog server.
d.	The proposed solution should have configurable option for email alerts/automated Report scheduling.
e.	The proposed solution must be capable to provide Multiple Dashboard Report along with custom to customize the dashboards.

5.1.1.7 NMS

NMS can be software based or appliance based. In case of software based, the vendor has to supply the server with required licenses for operating system and suitable for software with 5 years support.
The Network Management Software shall be a standalone, comprehensive management platform that delivers integrated, modular management capabilities across fault, configuration, accounting, performance, and security (FCAPS) needs.
The software shall be designed on a service-oriented architecture (SOA) using a business application flow model and capable of including additional modules to the base platform to provide deeper functionality
The NMS should support devices from various vendors.
The software shall be compatible with Microsoft Windows and Linux operating systems
The software shall come with an initial license for 200 managed devices. Additional node licenses shall be available to extend the node limit.
The software shall enable centralized management of all network elements with a variety of automated tasks, including discovery, categorization, baseline configurations, software images, configuration comparison tools, version tracking, change alerts, and more.
The software shall have modular architecture supporting addition of new modules to enrich a network's management capabilities. This shall include Wireless Network Management, User Access Management (AAA), Network Traffic Analyzer (using Sflow/Netflow).
It should support IPV6 from day one
Rich Resource Management - Discovery, full inventory, L2/L3 topology
Performance management – CPU, Memory, Bandwidth, threshold-based alarming etc.
VLAN Management – view current VLAN configuration, VLAN topology, bulk VLAN deployment
ACL Management - Simplified definition and deployment of ACLs, ACL rule optimisation
Comprehensive Configuration Management – Bulk configuration, scheduled backup and restore, baselining and notification of changes etc
Fault Management – In-depth correlation and analysis of alarms
Flexible Reporting – Pre-defined and custom reports, scheduled and flexible delivery options

Note: Day One means the date of commissioning as certified by BHEL

5.2 Bill Of Material – Passive

Sl. No	Description	Unit	Quantity
1.	12 Core Outdoor Single Mode (OS2) Fibre Optic Cable	Meter	2500
2.	24 Port Rack Mountable LIU 19"	No	7
3.	Single Mode Pigtail For 10G Fibre (OS2)	No.	68
4.	Single Mode Pigtail For 40 G Fibre (OS2)	No.	24
5.	SC-LC Single Mode (OS2) Fibre Patch Cord 5 Metre (40 G)	No.	8
6.	SC-LC Single Mode (OS2) Fibre Patch Cord 5 Metre (10 G)	No	20
7.	LC-LC Multimode (OM3) Fibre Patch Cord 5 Metre (10 G)	No	9
8.	SC-LC Single Mode (OS2) Fibre Patch Cord 5 Metre (1 G)	No	7
9.	SC-LC Multimode (OM3) Fibre Patch Cord 5 Metre (1 G)	No	35
10.	LC-LC Multimode (OM3) Fibre Patch Cord 5 Metre (1 G)	No	4
11.	Cable route markers	No	50
12.	FloorMount Rack 42 U	No	5

Note: Item Sl.No. 1 to 11 quantities are indicative figures only. Payments will be made based on actuals.

5.2.1 Material Specification – Passive

5.2.1.1 Outdoor Single mode Fibre Optic cable:

1	Make	Molex / Panduit (Pan Net) / Schneider(Digilink) / Commscope (Systemax) / TE (AMP)
2	Type of Fiber	12 Core OS2 Singlemode 9/125 micron Loose Tube armored
3	Application	Outdoor gel Filled/ Underground
4	Jacket	UV Stabilised Polyethylene HFFR/LSZH -HDPE Sheath
5	Armouring	Corrugated Steel Tape Armour (ECCS Tape), Thickness > 0.15mm
6	Strength Member	Two Steel Wires
7	Standard	ITU G652.D - LWP, Low water peak
8	Attenuation	=<0.4dB/km over 1310nm to 1625nm

9	Overall cable Dimension	Minimum 9mm +/-0.5 mm
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5.2.1.2 Rack mount LIU:

1	Make	Molex / Panduit (Pan Net) / Schneider(Digilink) / Commscope (Systimax) / TE (AMP)
2	Rack Mount	Lockable and can be fixed on the wall
3	Material	Durable Epoxy Powder Coated Steel Body / CRS
4	Accommodation	24 Port for SC Coupler using Adapter Plate
5	Labelling	Labelling for port identification
6	Couplers	LIU should be fitted with couplers
8	Coupler	SC Duplex Type
9	Splice Holder material	ABS - Halogen Free

5.2.1.3 Single mode Pigtail:

1	Make	Molex / Panduit (Pan Net) / Schneider (Digilink) / Commscope (Systimax) / TE (AMP)
2	Type of connectors	SC-SC / SC-LC LSZH/LSOH Jacket
3	Polishing	100% Factory polished and tested

5.2.1.4 Single Mode Full Duplex Fibre Patch cord:

1	Make	Molex / Panduit (Pan Net) / Schneider (Digilink) / Commscope (Systimax) / TE (AMP)
2	Type of connectors	SC-SC / SC-LC /LC-LC LSZH/LSOH Jacket
3	Polishing	100% Factory polished and tested
5	Attenuation	=<0.4dB/km over 1310nm to 1625nm
7	Jacket colour	Yellow or Standard Colour

5.2.1.5 Multimode Full Duplex Fibre Patch cord:

1	Make	Molex / Panduit (Pan Net) / Schneider (Digilink) / Commscope (Systimax) / TE (AMP)
2	Type of connectors	LC-LC/SC-SC/SC-LC with LSZH/LSOH Jacket
3	Polishing	100% Factory polished and tested
5	Attenuation	<3.5/1.0 dB/km at 850/1300 nm
7	Jacket colour	Orange or standard colour

5.2.1.6 Cable route markers:

1	Material	RCC slab
2	Marking	BHEL OFC
3	Height	700 mm
4	Width	300 mm
5	Thickness	60 mm

6	Top	Semi-circular
7	Painting	Orange or Standard

5.2.1.7 Floor-Mount Rack (42 U):

1	Make	APW President / HCL / Netrack/CONTEG
2	Size	19" Floor mount rack
3	Height	42U
4	Depth	800 mm or deep enough to accommodate the depth of the switch provided.
5	Side Panels	Both Side panels shall be of removable type and access-protected with lock and key.
6	Front & Back Panels	Back panel and full length Glass Front door, both hinged type and with lock and key
7	Power strip	Power strip with 12 Nos. of 5A, 3 pin socket
8	Fan	230V AC 90CFM fan at the top - 2 No
9	Cable Manager	Horizontal cable manager - 15 Nos.
10	Keys	All the racks shall have common key for all the doors

Note: In the above specifications, for type of connectors(SC-SC/SC-LC/LC-LC) bidder has to take care regarding the type of connectors at the time of actual designing phase.

5.3 Installation of passives:

Sl. No	Description	Unit	Qty.
1.	Outdoor Fibre laying in hard soil	m	2300
2	Outdoor Fibre laying in road	m	200
3	Splicing of pigtail	No	92

Note: Item Sl.No. 1 to 3 quantities are indicative figures only. Payments will be made based on actuals

5.3.1 Specification for Installation of passives

5.3.1.1 Outdoor Fibreoptic cable laying in soft soil:

The cable shall be laid underground by excavating the earth to a depth of 1 metre, in HDPE pipe. The pipe shall be covered with half round concrete trough of 4" dia. Cable route markers shall be installed at intervals of 50 meters and at turning points. The excavated portion shall be refilled to about 60 cms.and warning tape shall be placed. The balance soil shall be refilled upto the ground level.Bidder shall supply and use the necessary HDPE pipe of ISI standard, half-round concrete trough and Warning tape as per the requirement.

5.3.1.2 Outdoor Fibreoptic cable laying in hard soil:

The cable shall be laid underground by excavating the earth to a depth of 0.5 metre, in HDPE pipe. The pipe shall be covered with half round concrete trough of 4" dia. Cable route markers shall be installed at intervals of 50 meters and at turning points. The excavated portion shall be refilled about 30 cms.and warning tape shall be placed. The balance soil shall be refilled upto the ground level.Bidder shall supply and use the necessary HDPE pipe of ISI standard, half-round concrete trough and Warning tape as per the requirement.

5.3.1.3 Outdoor Fibreoptic cable laying in road:

The cable shall be laid underground by cutting the road and excavating the earth to a depth of 0.5 metre. The cable shall be laid in a HDPE pipe within a steel pipe. The excavated portion shall be refilled fully with the excavated earth and shall be finished by cementing and making good surface matching with the existing road surface. Bidder shall supply and use the necessary HDPE pipe of ISI standard. Supply of steel pipe is under the scope of BHEL.

5.3.1.4 Outdoor Fibreoptic cable laying in trench:

In some places fibre cable shall be laid along trenches. This involves removal of cement slabs at few locations, laying of HDPE pipe, laying of fibre cable inside HDPE pipe and replacement of cement slabs.

In sand covered trenches, the job involves burying HDPE pipe in the sand and laying fibre optic cable inside HDPE pipe. Bidder shall supply and use the necessary HDPE pipe of ISI standard as per the requirement.

5.3.1.5 Splicing:

The pigtailed shall be spliced to the ends of fibre cables and neatly arranged using splice holders in the LIU and the LIU shall be fixed in the racks.

5.3.1.6 Installation of rack-mount LIU:

The rack mount LIU shall be mounted in the switch rack included in this tender using suitable clamps, nuts etc as required.

Note: Road cutting wherever required to complete fibre laying will be fully in the vendors scope

6 MAINTENANCE

All the active and Passive supplied and installed as per this tender consisting both active and passive components shall be maintained for a period of 5 years.

At least 3 resident certified engineer (One Team Leader and Two Network Engineers) shall be posted to maintain the network. These engineers should be the direct employee of the bidder. These engineers should be available in two shifts (8:00 to 16:30 and 16:30 to 01:00) on all working days (Monday to Saturday). The engineers should be available 24 X 7 on call. Engineers will adhere to BHEL's holiday calendar.

Maintenance of active includes the following:

- Daily report showing status of all switches.
- Configuration changes as per the requirement of BHEL and BackUp Taking at regular interval.
- Troubleshooting and resolution of network complaints.
- Upgrade of OS on switches as and when required.
- Replacement of faulty/malfunctioning switches as per SLA

Maintenance of LAN includes the following:

- Labelling of all fibre and UTP cables
- Attending to user complaints on network connectivity
- Attending to minor changes and relocations in connectivity
- Identifying faults
- Rectifying UTP problem
- Testing for identifying fibre cable problems and failure locations (within 6 hours)

Signature of the Bidder

- Cleaning and dressing of network racks

The activities given above are only indicative. The engineers shall carry out relevant activities as per the instructions of the Concerned Network Engineer of BHEL.

Tools required for performing the above activities are under the scope of the bidder.

Note: These Resident engineers will do the maintenance job like network switch monitoring, troubleshooting, backup etc. for the already existing switches also.

7 SERVICE LEVEL AGREEMENT

1. Bidder shall be responsible for continuous and smooth operation of the LAN for the entire lease period.
2. Maintenance and services shall cover services, repairs and replacements necessary to keep the hardware and software in good working condition.
3. Bidder shall maintain sufficient spares, in BHEL Ranipet to ensure immediate attention in case of breakdown.
4. Uptime of 99.5% per month should be ensured for all the actives individually. Uptime is calculated on 24x7 basis.
Uptime = ((Hours in the month - downtime hours) / Hours in the month) * 100
5. In case the uptime is less than 99.5% for a particular month, deduction will be calculated as per the following scheme and the amount will be deducted from the quarterly lease rental:
Deduction for the month for an item = (99.5 - uptime percentage)/100 × rental per month × multiplication factor

Where, the multiplication factor is calculated by,

For uptime ≥ 99.5%	multiplication factor = 0
For uptime ≥ 99.0% and <99.5%	multiplication factor = 1
For uptime ≥ 98.5% and <99.0%	multiplication factor = 2
For uptime ≥ 98.0% and <98.5%	multiplication factor = 4
For uptime ≥ 95.0% and <98.0%	multiplication factor = 8
For uptime < 95.0%	multiplication factor = 16

6. If non availability of an item affects availability of other items, then all such items will also be treated as not-available and penalty calculation will be done for all these items.
7. If an item has less than 95% availability continuously for 3 months then it shall be replaced with a new item and uptime is to be ensured at more than 95%. If majority items are having availability less than 95% continuously for more than three months and not rectified, BHEL reserves the right to terminate part or entire contract.

8 OTHER TERMS & CONDITIONS

1. Commissioning certificate will be issued for the actives only after completion of the total work including actives and passives.
2. The bidder shall comply with all the welfare regulations (PF no. and ESI no./Medical policy) for the labour involved in executing the contract.
3. The Bidder has to comply all the welfare regulations (PF & ESI) for the Resident Service Engineer stationed at BHEL Ranipet as a part of the contract
4. Maintenance during the lease period shall not be sub-contracted. The maintenance engineers posted at site shall be direct employees of the bidder.
5. In case a service engineer leaves the bidder organization, a suitable substitute resource shall be provided, with the approval of BHEL, within a week.
6. Bidder shall arrange for a visit of BHEL Team to a site where a similar system has been installed by the bidder if required by BHEL.

7. During the period of lease rental/AMC all defective parts/modules shall be replaced/rectified free of cost without any cost implication on BHEL.
8. Any part/module that becomes faulty shall not be blamed to be the fault of BHEL. The faulty parts/modules shall be repaired within the scope of lease rental /AMC.
9. BHEL reserves the right to opt for continuation of maintenance support for the hardware and software at end of 5 year lease period by way of awarding AMC contract to bidder at the rate equal to maintenance charges paid per quarter during the original lease contract. Bidder shall agree to provide the AMC service for at least two years after the expiry of the 5 year lease period. The Technical terms of AMC shall be same as that of maintenance support during the lease period. The payment for AMC will be made quarterly at the end of the each quarter.
10. BHEL reserves the right to retain the hardware, software and other items supplied in this procurement at the end of the lease period on payment of Re. 1/- (Rupee One only) per equipment.

9. GENERAL TERMS AND CONDITIONS

1. BIDDER TO INFORM HIMSELF FULLY:

- 1.1. The bidder shall closely peruse all the clauses, specifications, drawings etc., specified in the tender documents, and the offer made should be in accordance with these documents. If bidder requires any clarification and additional information on any of the tender documents/conditions, the bidder shall contact the BHEL Official inviting bids at the earliest.
- 1.2. Bidders are advised to study all the tender documents carefully and submit their offer and the Bidder obliged to honor the offer without any modifications. Any offer not meeting the scope/specifications, terms, conditions, and any other clause specified in the tender documents shall be liable to be rejected.
- 1.3. No Counter Conditions will be accepted and bids with counter conditions will be summarily rejected. Any deviations shall be indicated under relevant clauses only.

2. PROCEDURE FOR SUBMISSION OF BIDS

- 2.1. Earnest Money Deposit (EMD): EMD of Rs 2,00,000/- shall be submitted with the offer, in the form of Demand Draft from any nationalized bank / scheduled bank, drawn in favour of M/s Bharat Heavy Electricals Limited, Ranipet, Payable at Ranipet. EMD is exempted for bidders having valid registration with NSIC (National Small Industries Corporation Ltd).
- 2.2. The bidder shall sign all the pages of the Tender document and all the supporting documents. Signing of the document means that the bidder has fully understood the Tender and complies with all the requirements.
- 2.1. The Techno-Commercial bid and the Price Bid shall be submitted on or before 14:00 Hrs of the due date indicated in the tender notice.
- 2.2. Offer shall be made in two parts in separate envelopes, as specified below.

Part-I: Techno-Commercial Bid

This part shall consist of the following documents in a separate envelope:

- a. Demand Draft for Rs 2,00,000/ towards EMD (Earnest Money Deposit).
- b. All pages of the tender document should be signed.
- c. Un-priced Price Bid format duly signed with the tax break up details. Un- Priced Price Bid shall not contain any Price Information.
- d. All the supporting documents satisfying the Eligibility Criteria as specified in clause 2. Bidder may include literature/leaflets, which is relevant to the offer and no general literature shall be enclosed.

- e. All required documentary evidence as mentioned in the Checklist ANNEXURE I.
- f. Copy of Service Tax registration Certificate, TIN No. and PAN No.
- g. The offer shall not contain any counter Conditions / Terms by the bidder.

Part-II: Price Bid

This part shall consist of the following documents in a separate envelope:

- a. Price Bid as per the format given. The prices shall be quoted in Indian Rupees only.
- b. Price Bid shall not contain any technical details and/or Techno-Commercial terms/conditions.

3. MARKING ON THE ENVELOPE

3.1 The offer – Part-I and Part-II – shall be enclosed in separate envelopes with bidder’s distinctive SEAL and super-scribed with the details given below:

- PART-I:**
 - 1. “PART-I: TECHNO-COMMERCIAL BID”**
 - 2. Tender Reference and Description of the Tender**
 - 3. Due Date for Opening of the Tender**
- PART-II:**
 - 1. “PART-II: PRICE BID”**
 - 2. Tender Reference and Description of the Tender**

The two Envelopes of Part-I and Part-II shall be enclosed in another envelope and submitted with markings specified below:

- 1. Tender Notice / Tender Reference and Description of the Tender**
- 2. Due Date for Opening of the Tender**
- 3. Bidder's Address and SEAL**

Note: Un-sealed envelopes and envelopes not super-scribed as above are liable to be rejected.

4. BID SUBMISSION

4.1 Bids shall be sent to the following address:

Engineer, Informatics Center,
Engineering Building,
BHEL, RANIPET,
TAMILNADU – 632406.

Bids can also be submitted in person in Informatics center on or before the tender due date.

Late / delayed Bids will be rejected.

5. BID OPENING

- 5.1 PART-I (Techno-commercial bid) shall be opened on the due date and time as specified in the Tender Notification, in the presence of bidders who may like to attend. Part-II (Price Bid) shall be opened only for such offers, which have qualified after evaluation of PART-I.
- 5.2 For Price Bid (Part-II) opening, date and time of Price opening shall be intimated to the bidders qualified in PART-I.
- 5.3 Not more than two representatives will be permitted to be present for the tender opening. Representative participating in Tender Opening must bring company's authorization letter in original.
- 5.4 Unsolicited bids shall not be entertained at any stage of the tendering process.
- 5.5 No Literature / Data Sheets other than what is relevant for the offer shall be enclosed. All such enclosures shall be considered as unread and also will not be considered as part of the quotation.
- 5.6 BHEL reserves the right to carry out negotiations with bidder on the tender offer / price.

6 PRICE AND VALIDITY

- 6.1 Price shall be firm throughout the tenure of the contract. Variation of what so ever nature is to Vendor's account. Applicable Taxes shall be quoted separately in unambiguous terms. Invoices for claiming the contract price shall be as per the prevalent law. BHEL may avail CENVAT/service tax credit and vendors invoice to support the same.
- 6.2 Price should be valid for a period of ninety days from the date of opening of the tender.
- 6.3 Bidder should give the price bid in the format as per Annexure – VIII.

7. TENDER EVALUATION

1. Only those Bidders who meet all the requirements as per Eligibility criteria for Bidders will be considered for further evaluation
2. Price part of only those bidders, whose bids are considered techno-commercially acceptable, shall be opened. The Rate (s)/price(s) quoted by the Bidders either in price bid (or) RA shall be arithmetically checked and contract shall be awarded to bidders quoted lowest (L1) on the total cost for the entire scope of the tender i.e. on the basis of delivered cost (Net cash outflow to BHEL). AMC charges quoted after lease period will also be considered.
3. Bidder shall quote the quarterly rental charges (including principal repayment, tax, interest, support charges etc) for 5 years including maintenance and support during the lease period at BHEL Ranipet.
4. Though offer of higher warranty/configuration/rating, than what is required as per tender specifications, may be accepted, no extra weightage or preference will be given for the same

5. Order/contract or any part thereof shall not be sub-contracted, assigned or otherwise transferred without prior written consent of BHEL.
6. Prices of optional items, if any, shall not be considered for Price evaluation and comparison, unless stated otherwise.
7. BHEL reserves the right to go for a **Reverse Auction (RA)** instead of opening the submitted sealed price bid, which will be decided after techno-commercial evaluation. In case BHEL decides not to go for Reverse Auction procedure for the tender enquiry, the Price bids and price impacts, if any, BHEL shall be opened as per BHEL's standard practice. BHEL decision regarding this mode of bidding will be final.

8. EMD

An amount of Rs. 2,00,000.00(Rupees Two Lakhs Only) will have to be paid as EMD(Earnest Money Deposit) either cash at our cash office or as DD to be drawn in favor of BHEL, Ranipet Payable at State Bank of India, Mukundarayapuram, (MRPURAM PROJECT Code Number : 07013) Ranipet. In case DD is obtained from other Banks, the same to be "Payable at Ranipet".

Vendors registered with NSIC will be exempted from depositing EMD amount on submission of proper documents as per clause 27.

- 8.1 EMD by the Tenderer will be forfeited if:
 - a. After opening the tender, the bidder revokes the tender within the validity period or increases his earlier quoted rates.
 - b. The successful bidder does not commence the work as per the terms of Contract.
- 8.2 EMD shall be refunded to unsuccessful bidders, **normally within fifteen days of acceptance** of award of work by the successful bidder.
- 8.3 EMD of successful bidder will be converted to Security Deposit. If Security Deposit is not applicable or provided in other form/mode, EMD will be refunded after commencement of work.
- 8.4 EMD shall not carry any interest.

9. SERVICE TAX

9.1 The Bidder shall not include Service Tax in their quoted rates; but the bidder has to separately indicate the Service Tax rate, amount and workings thereof in the Price bid schedule included in the bid documents.

9.2 If service tax amount is not indicated separately in the price bid schedule included in the Bid documents, it will be presumed that the quoted rate is inclusive of applicable service tax and bids will be evaluated accordingly.

9.3 Bidders have to quote the applicable Service Tax payable in the Price bid format included in the Bid document which shall be considered for evaluation. The same shall be considered for reimbursement against valid documentary evidence to successful bidders.

The documentary evidence should comprise the following documents:

- Copy of service tax Registration certificate.
- Copies of challans for deposit of service tax.
- A certificate from the vendor that the tax collected from BHEL has been remitted to tax authorities and the certificate should be signed by the authorised official of the contractor mentioning name and designation.

10. SECURITY DEPOSIT

- a) Security Deposit shall be collected from the successful tenderer. The rate of Security Deposit will be as below for the business value as mentioned:

Upto Rs.10 Lakhs	: 10%
Above Rs.10 lakhs up to Rs.50 Lakhs	: 1 Lakh + 7.5% of the amount exceeding Rs.10 Lakhs
Above Rs.50 Lakhs	: Rs.4 Lakhs + 5% of the amount exceeding Rs.50 Lakhs

The Security Deposit shall be remitted before start of the Work.

- b) Security Deposit may be furnished in any one of the following forms:
- i) Cash (as permissible under the Income Tax Act)
 - ii) Pay Order, Demand Draft in favour of BHEL.
 - iii) Local cheques of Scheduled Banks, subject to realization.
 - iv) Securities available from Post Offices such as National Savings Certificates, Kisan Vikas Patras etc., (Certificates should be held in the name of Contractor furnishing the security and duly pledged in favour of BHEL and discharged on the back).
 - v) Bank Guarantee from Scheduled Banks / Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format should have the approval of BHEL.
 - vi) Fixed Deposit Receipts issued by Scheduled Banks / Public Financial Institutions as defined in the Companies Act. The FDR should be in the name of the Contractor, A/C BHEL, duly discharged on the back.
 - vii) Security Deposit shall also be recovered at the rate of 10% from the running Bills. However, in such cases at least 50% of the Security Deposit should be remitted before the start of the work and the balance 50% may be recovered from the running bills.
 - viii) EMD of the successful tenderer shall be converted and adjusted against the Security Deposit.
 - ix) The security deposit shall not carry any interest.

Note:

Acceptance of Security Deposit against Sl. No. (iv) and (vi) above will be subject to Hypothecation or endorsement on the documents in favor BHEL. However, BHEL will not be

liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith. The Earnest Money paid at the time of tender will be adjusted as part of the Security Deposit and the balance amount will be recovered by deduction from the running bills of the contractor at the rates mentioned above.

Security Deposit shall not be refunded except in accordance with the terms of Security Bond or Agreement. No interest shall be allowed on Security Deposits. BHEL shall not be responsible for any loss of securities, due to liquidation for any other reasons, what-so-ever or any depreciation in the value of the securities while in their charge or for any loss of interest there on.

All compensation or other sums of money payable by the Contractor to BHEL under the terms of this contract or under any other contract with BHEL may be deducted from the Security Deposit or realized by the sale of the securities or from the interest arising therefrom or from any sums which may be due or may become due to the contractor by BHEL and in the event of this Security Deposit being deducted by reason of such deductions or sale, as aforesaid, the Contractor shall within 7 days thereafter, make good in cash or in securities endorsed as aforesaid, any sum by which the Security Deposit has been reduced.

11. EXECUTION, PENALTY and TERMINATION

- a. **Execution:** Installation requirements will be intimated to the Bidder and shall be completed as per BHEL schedule.
- b. **Penalty:** Applicable rate 0.5% and ceiling value 10.00 %. If the vendor fails to deliver the materials and commission the contracts within the period specified in the contract due to reasons not attributable to BHEL RANIPET, BHEL RANIPET shall deduct the penalty amount equivalent to 0.5% of the total price for each week of delay and upto maximum of 10 % of the total price of the delayed contract.
- c. **TERMINATION:** BHEL reserves the right to cancel the order for delay or non-performance, without any monetary or legal obligations.

12. PAYMENT TERMS

The payment will be made at the end of each quarter after being certified by the concerned Engineer in Charge from Informatics Centre. The rates quoted should include all taxes, levies, duties, cess etc., and no extra payment will be made other than the quoted value.

13. No interest shall be payable by BHEL on EMD/SD if applicable or any money due to the contractor by BHEL.

14. CONFIDENTIALTY

14.1 Vendor shall, at all times, undertake to maintain complete confidentiality of all data, information, software, drawings & documents, etc. belonging to the BHEL and also of the Systems, procedures, reports, input documents, manuals, results and any other company documents discussed and/or finalized during the course of execution of the order/contract.

14.2 The successful bidder should execute a Non-Disclosure Agreement as given in the format In Annexure - V.

15. Discrepancy in “words “ & “ Figures “

- a) If, in the price structure quoted for the required goods/services/works, there is discrepancy between the unit price and the total price(which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of the purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly.
- b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
- c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject of (a) and (b) above.
- d) If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date up to which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of the purchaser, the bid is liable to be ignored.

16. BHEL shall have the right to recover any money due from the contractor from any money due to the contractor under this contract or any other contract or from the security deposit.

17. LANGUAGE AND CORRECTIONS

The offer shall be in English only and international numerals shall be used.

18. AGREEMENT

Successful bidder shall sign the Contract Agreement signed on bond paper (Rs 20 /-) as per annexure to be submitted before commencement of work in the format enclosed in Annexure – VII.

19. GOVERNING LAW

This contract shall be governed in all respects by India Law.

20. ASSIGNMENT

No part of this contract shall be assigned without the consent of BHEL.

21. EXEMPTIONS, CHANGES IN CONDITIONS

- a. FORCE MAJURE: BHEL and/or Vendor shall not be responsible for delay or failure of performance of any of its obligations under or arising out of this contract if the delay or failure results from any of the following conditions - any unforeseeable acts/events beyond the control of the parties, and include natural disasters (earthquake, storm, floods), wars, riots, accidents, strikes, lockouts, epidemics, fire and Government Regulations superimposed after the date of order/contract.
- b. In the event of the occurrence of any cause constituting FORCE MAJURE, the affected Party shall give notice with full particulars in writing to the other Party, of such occurrence or cause if the affected Party is thereby rendered unable, wholly or in part, to perform its obligations and meet its responsibilities under the Contract, within fifteen days from the event of force majeure.
- c. If the Vendor is rendered unable, wholly or in part, by reason of force majeure to perform its obligations and meet its responsibilities under the contract, BHEL shall have the right to terminate the Contract on the same terms and conditions as are provided for in 'Termination' clause.

22. ARBITRATION

In all cases of disputes emanating from and in reference to this contract, the matter shall be referred to the arbitration of the sole arbitrator appointed by the Unit Head, BHEL, Ranipet, TamilNadu. The arbitration shall be under 'THE ARBITRATION AND CONCILIATION ACT OF 1996' and the rules there under.

23. ALTERATIONS, REJECTION OF BID AND OTHER CONDITIONS

- 23.1. Any clarification pertaining to this tender can be obtained from Engineer/IC, BHEL, Ranipet, TamilNadu on all working days of BHEL between 14:00 Hrs to 16:00 Hrs. Bidders are requested to seek appointment on telephone 04172-284383/284507 or by email sksingh@bhelrpt.co.in/anitha@bhelrpt.co.in.
- 23.2. BHEL reserves the right to cancel the tender without assigning any reason.
- 23.3. BHEL reserves the right to reject the technical offer at any stage of the tender with proper reasons.
- 23.4. Bidders are requested to provide complete data / information as required by the tender documents. Any format not properly filled, partially filled or not filled or documents not provided will make the bid liable for rejection.
- 23.5. Non-compliance with any of the requirements and instructions of the Tender Enquiry may result in the rejection of the bid.
- 23.6. Resubmission / cancellation of offers, as desired by bidder, may be done before Tender due Date & Time. The covers containing modified bids shall be clearly marked as 'Revised Bid'.
- 23.7. If the bidder deliberately gives wrong information, BHEL reserves the right to reject such a bid at any stage or to cancel the Order/Contract.
- 23.8. Equipment offered must have certifications as per the tender requirement and/or as applicable by relevant standard. Future expectations of certification, conditional certifications, variation in certification and certification for equipment different from the make and model offered in the bid is not acceptable.
- 23.9. BHEL is entitled to ask for any equipment for evaluation. Bidders are requested to note that they shall provide equipment exactly as per specification without any charge and precondition(s) to BHEL within ONE week of receiving such notice and demonstrate the equipment capability. Upon completion of such evaluation BHEL shall return the equipment to the bidder.
24. Bidder shall satisfy statutory requirements / registrations applicable for the execution of Works Contract - PAN, VAT, GST / CST / ST, ESI / PF, etc. Copies of the certificates shall be submitted with tender documents.
25. Bidder shall fulfill all statutory and safety requirements for personnel engaged in the contract execution. Due to noncompliance of the applicable statutory provisions, if BHEL has to incur any expenditure in this regard the same will be compensated by the Bidder.

26. Tender Opening Date and Time :

Last date for submission of Tender : 17-06-2015 14:00 Hrs and to be submitted at Informatics Centre, BHEL, Ranipet. Opening of Tender : 17-06-2015 14:30 Hrs at Informatics Centre.

27. MSE suppliers can avail the intended benefits only if they submit along with the offer, attested copies of either EM II certificate having deemed validity (five years from the date of issue of acknowledgement in EM-II) or valid NSIC certificate or EM-II certificate along with attested copy of a CA certificate (as below) where deemed validity of EM II certificate of five years has expired) applicable for the relevant financial year (latest audited). Date to be reckoned for determining the deemed validity will be the last date of bid opening (Part 1 in case of two part bid). Non submission of such documents will lead to consideration of their bid at par with other bidders. No benefit shall be applicable for this enquiry if any deficiency in the above required documents are not submitted before price bid opening. If the tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal. Documents should be notarized or attested by a Gazetted officer.

All MSE suppliers shall continue to be in PMD with MSE status based on the EM II certificate or valid NSIC certificate.

Any new supplier will be eligible for registration with BHEL as MSE supplier provided at least any one of the following documents are submitted along with application for registration.

- a) Valid NSIC certificate or
- b) Entrepreneurs Memorandum part II (EM II) certificate (valid based on deemed validity of 5 years) or
- c) EM II certificate along with attested copy of CA certificate (as per prescribed format as below applicable for the relevant financial year (latest audited) , where the deemed validity of EM II is over.

However credentials of all MSE suppliers will be verified before considering the intended benefits for MSE suppliers as per clause 9ii) at the time of tender evaluation.

Certificate by Chartered Accountant on Letter head

This is to certify that M/s.....,

(hereinafter referred to as 'Company') having its registered office at.....

..... is registered under MSMED Act 2006, (Entrepreneur memorandum No (Part-II)..... dtd:.....

Category:..... (Micro/Small). (Copy enclosed)

Further verified from the Books of Accounts that the investment of the company as per the latest audited financial year as per MSMED Act 2006 is as follows:

1. For Manufacturing Enterprises: Investment in plant and machinery (i.e. original cost excluding land and building and the items specified by the Ministry of Small Scale Industries vide its notification No.S.O.1722(E) dated October 5, 2006:
Rs..... Lacs
2. For Service Enterprises: Investment in equipment (original cost excluding land and building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED Act, 2006.
Rs..... Lacs

(Strike off whichever is not applicable)

The above investment of Rs.....Lacs is within permissible limit of Rs..... Lacs for.....Micro/Small(Strike off which is not applicable)Category under MSMED Act 2006.

Or

The company has been graduated from its original category (Micro/Small) (Strike off which is not applicable) and the date of graduation of such enterprise from its original category is (dd/mm/yyyy) which is within the period of 3 years from the date of graduation of such enterprise from its original category as notified vide S.O.No.3322(E) dated 01-11-2013 published in the gazette notification dated 04-11-2013 by Ministry of MSME.

Date:

(Signature)

Name-

Membership number

Seal of Chartered Accountant

CheckList**ANNEXURE I**

SI No	Documents to be attached	Format attached as annexure	Whether attached or not
1)	All the required documents as per the Eligibility Criteria i.e clause 2 of Tender Document		
2)	Acceptance of all the Technical Specifications as per clause 5		
3)	Documentary Evidences for Active Components(Switches,NMS,UTM) signed by authorized signatory as per clause 4.b of the Tender Document		
4)	Documentary evidence in form of declaration from OEM(passive) for OFC Cable life span of 20 years as per clause 4.2.10 in the tender document		
5)	Deviations, if any, as per BHEL's Format or "No-Deviations" Certificate	Form C & Form D	
6)	Un-priced Bid Format filled with only the tax in % wherever applicable	Annexure III	
7)	Authorization Letter from OEM for Active Component (Switches) clearly mentioning the bidder name for participating in the tender.	Form A	
8)	Authorization Letter from OEM for Passive Components clearly mentioning the bidder name for participating in the tender.	Form B	
9)	Commitment letter from the bidder for software update and upgrades for entire lease period of 5 years as per clause 3.4 of Tender Document.		
10)	Certificates from respective OEMs for Back to Back support for entire lease period for both Active Components and Passive Components.		
11)	Acceptance Test Procedure Document		
12)	Performance Bank Guarantee	Annexure VI	
13)	Quoted for all items	Check	
14)	The Vendor should have PF and ESI/Medical Policy for persons deployed at BHEL Site.	PF/ESI Certificates	
15)	Signed copy of tender		
16)	Income Tax Clearance Certificate of last three years		
17)	Copy of Service Tax registration Certificate, TIN No. and PAN No.		
18)	Certificate of Incorporation/Registration		
19)	Non-Disclosure Agreement	Annexure-V	

ANNEXURE II

**Confirmation on not hold/delist/banned
(As per Eligibility Criteria)**

With reference to the above tender we confirm that we have not been under hold or delist or banned by any of BHEL unit as on bid opening date for database server.

Signed By:

Name: _____

Designation: _____

Organization: _____

Date & Place: _____

Phone/Fax/Mobile/Email: _____

Stamp & Seal: _____

Place:

Date:

Un Priced Bid												
ANNEXURE III												
Sl. No.	Item	Unit	Qty.	Unit Price (Outright)	Five years Lease Rental charges							
					Towards Equipment cost (Excluding VAT)	VAT/CST on [a]	Towards Maintenance charges (Excluding Service Tax)	Service tax on maintenance on [c]	Total Interest charges	Service tax on [e]	Any other tax	Total (a+b+c+d+e+f+g)
					Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly
	Items on lease				(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1.	Core Switch with populated ports as specified	No.	2									
2.	Distribution Switch with populated ports as specified	No.	3									
3.	Server Farm Switches	No.	8									
4.	Access Switch Type I	No.	11									
5.	Access Switch Type II	No.	14									
6.	1G MM Fiber Transceivers	No.	20									
7.	1G MM Fiber Transceivers (between core and UTM appliance)	No.	6									
8.	1G SM Fiber Transceivers (between core and UTM appliance)	No.	6									
9.	10G SFP+ Single Mode Fiber Transceivers	No.	4									
10.	10G SFP+ Multimode Fiber Transceivers	No.	8									
11.	UTM Appliance	No.	2									
12.	NMS	No.	1									
13.	12 Core Outdoor Single Mode (OS2) Fibre Optic Cable	Mtrs	2500									
14.	24 Port Rack Mountable LIU 19"	No	7									
15.	Single Mode(OS2) Pigtail For 10G Fibre	No	68									
16.	Single Mode (OS2) Pigtail For 40 G Fibre	No	24									
17.	SC-LC Single Mode (OS2) Fibre Patch Cord 5 Metre (40 G)	No	8									

18.	SC-LC Single Mode Fibre (OS2) Patch Cord 5 Metre (10 G)	No	20									
19.	LC-LC Multimode (OM3) Fibre Patch Cord 5 Metre (10 G)	No	9									
20.	SC-LC Single Mode (OS2) Fibre Patch Cord 5 Metre (1 G)	No	7									
21.	SC-LC Multimode (OM3) Fibre Patch Cord 5 Metre (1 G)	No	35									
22.	LC-LC Multimode (OM3) Fibre Patch Cord 5 Metre (1 G)	No	4									
23.	Cable route markers	No	50									
24.	FloorMount Rack 42 U	No	5									
	TOTAL (A)											
	Quarterly AMC charges from 6th year valid for 2 years (In Rs.) - (B)											
	GRAND TOTAL(Total CASH OUTFLOW) C=A+B											

Note: In Unpriced Bid, Vendor has to mention only taxes(wherever applicable) in % . Actual price should not be mentioned

FORM-A

(Network Actives)

“LETTER OF AUTHORITY CUM UNDERTAKING”

Date: _____

To,

Subject: **Letter of Authority cum Undertaking**

Tender Ref. No.: _____ dated _____

Dear Sir,

We hereby authorize _____ who will fulfill the requirements of the tender enquiry ref. no. _____, dated _____ to quote/ negotiate and service the equipment as required in the above tender enquiry.

This authorization is valid for the following equipment for which we are the OEM:

1. _____
2. _____
3. _____
4. _____

Our Spares Logistic centers in India are at the following locations:

1. _____
2. _____

We also undertake that we will not change the authorized agency during the tenure of the contract equipment supply period. This undertaking shall stand valid irrespective of any changed relationship between us and the authorized agency during this tender.

(Authorized Signatory)

For _____

Place:

Date:

Note: This ‘Letter of Authority’ should be issued on the letterhead of OEM and enclosed in Part-I.

FORM-B

(Network Passives)

“LETTER OF AUTHORITY CUM UNDERTAKING”

Date: _____

To,

Subject: **Letter of Authority cum Undertaking**

Tender Ref. No.: _____ dated _____

Dear Sir,

We hereby authorize _____ who will fulfill the requirements of the tender enquiry ref. no. _____, dated _____ to quote/ negotiate and service the equipment as required in the above tender enquiry.

This authorization is valid for the following equipment for which we are the OEM:

- 1. _____
- 2. _____

Our Spares Logistic centers in India are at the following locations:

- 1. _____
- 2. _____

We also undertake that we will not change the authorized agency during the tenure of the contract equipment supply period. This undertaking shall stand valid irrespective of any changed relationship between us and the authorized agency during this tender.

(Authorized Signatory)

For _____

Place:

Date:

Note: This 'Letter of Authority' should be issued on the letterhead of OEM and enclosed in Part-I.

Form D

No Deviation Certificate
(To be given in bidder's letter head)

Ref: BHEL's Enquiry No. _____ Dated _____

It is Certified that the offered solution vide Enquiry No. _____ dated _____
_____ in response to BHEL's enquiry mentioned under reference has no Technical deviation
from the requirement of BHEL, Ranipet given vide the Technical Specification
(Requirement).

Date:

Bidder's Signature with seal

ANNEXURE IV

Contract Ref:

Agreement for LEASE RENTAL AND MAINTENANCE

This agreement made on this----- day of ----- 2015 between M/s -----, incorporated under Companies Act, 1956 and having its Registered office at ----- (hereinafter called the 'Company' which expression shall, unless it be repugnant to the context or meaning thereof, mean and include its successors and assignees) of the one part, and the BHARAT HEAVY ELECTRICALS LTD, Ranipet, TamilNadu – 632406, incorporated under the Companies Act, 1956 and having its Registered Office at BHEL House, Siri Fort, New Delhi (hereinafter called the 'BHEL' which expression shall, unless repugnant to the context or meaning thereof, mean and include its successors and assignees) of the other part.

Whereas 'Company' is in the business of manufacturing and/or selling and renting out equipment(s) and whereas the 'BHEL' has placed an order (No: -----) on Company for hiring Computer Network Equipment i.e. Network Switches and other equipment for a period of Five years as per the Lease Rental Contract (No: -----) and 'Company' has agreed to renting out the said equipment(s) to the 'BHEL' under the following terms and conditions.

Now, therefore, the agreement witnesseth as follows:

1. CONTRACT REFERENCE:

This Document shall be read along with the Lease Rental Contract '_____'. The Terms & Conditions of the Lease Rental Contract shall be fulfilled along with the clauses of this agreement.

2. SCOPE of CONTRACT (in Brief):

'Company' will design, supply, install, configure, test, commission and maintain the '**Network Upgradation**' on Five year lease rental basis in consideration of Lease Rental Payment as per Terms and Conditions of the Lease Rental Contract.

3. DEFINITIONS:

The following expressions herein used shall, unless repugnant to the subject or context thereof, carry the meaning hereunder respectively assigned to them namely

'CONTRACT' means the Lease Rental Contract referred in the Clause 1.0.

'EQUIPMENT' shall mean all the equipment supplied against the 'CONTRACT'.

'DATE OF INSTALLATION' shall mean the date given in the certificate of acceptance by 'BHEL' after the equipment is installed, commissioned & acceptance testing as per Terms & Conditions of the 'CONTRACT'.

'QUARTERLY LEASE RENTAL' means Lease Rental Payment for Three months and payable after completion of the quarter.

'TERMINAL PAYMENT' means the one time fixed charges as specified in 'CONTRACT', be paid by 'BHEL' at the end of the Lease Rental Contract.

Upon the payment of 'Terminal Payment', the ownership of the entire equipment is transferred to 'BHEL' and 'Company' has no right on the Equipment.

4. Lease / Prices

- a. The lease period shall be 5 years and it will start after issue of Commissioning Certificate by BHEL, Ranipet.
- b. Quarterly lease rental charges become payable at the end of each quarter after certification by BHEL, Ranipet. Bidder shall submit the invoice in triplicate after each quarter. 100% quarterly payment will be made available within 45 days from the date of submission of invoice. Deduction of downtime if any shall be made from quarterly lease rental value as per SLA given in this document.
- c. Prices shall remain firm without any variation during contract period. No interest whatsoever shall be payable by BHEL on any amount due, to the vendor.
- d. Lease charges are all inclusive of regular hardware, maintenance, support, interest, etc. Taxes and duties by central government and state government shall be quoted extra. Quarterly lease charges indicated in the price bid format (Annexure-VIII) of the Tender Document for all the items shall remain firm and fixed without any variation during the contract/lease period of 5 years.
- e. In case the government (Centre/ State) imposes any new taxes/ duties on the output services/ work after the award of contract, the same shall be reimbursed by BHEL at actuals. All necessary documents as required by BHEL shall have to be provided by the Bidder. However, in the event of delay in work execution attributable to the Bidder, the new taxes/ duties imposed during the delay period shall not be reimbursed to the Bidder. BHEL's decision in this regard shall be final.
- f. In case the government (Centre/ State) changes the taxes/ duties on the output services/ work after the award of contract, the same shall be reimbursed by BHEL at actuals. All necessary documents as required by BHEL shall have to be provided by the Bidder. However, in the event of delay in work execution attributable to the Bidder, the changes in the taxes/ duties imposed during the delay period shall not be reimbursed to the Bidder. BHEL's decision in this regard shall be final.
- g. The vendor shall be responsible for payment of excise duty, custom duty, all other state/central/local govt. taxes, freight and insurance up to equipment-installation-sites in BHEL Ranipet and during the lease period.
- h. The Bank guarantee shall be paid along with the acceptance of order. The Bank guarantee shall be equivalent to 10% of the value of the lease rental contract and valid for the complete lease period. Refer Form –I of Annexure-VI.
- i. Offers with Non-acceptance of Performance Bank Guarantee valid for the complete lease period or acceptance of Performance Bank Guarantee with lesser percentage or lesser period than specified will be rejected.
- j. The Bank Guarantee (PBG) shall be released only on expiry of the claim period, provided there has been no claim by BHEL on the Supplier.
- k. The insurance coverage should be comprehensive with provisions for theft, fire, floods, riots etc. The responsibility for the insurance will rest with the vendor. Evidence of insurance policy shall be submitted to BHEL. Insurance coverage for bidders employees posted at BHEL, Ranipet is also in bidder scope.
- l. In case of any taxes which are reimbursable to BHEL in form of Cenvat etc. will be considered for payment.
- m. BHEL may go in for additional quantity of equipment/software. The vendor shall extend the same rates for 12 months from the date of PO for the additional equipment / software to be installed at BHEL Ranipet. Any requirement after 12 months from the PO date will be subject to mutual consent. However if any downward trend is there, it should be passed on to BHEL.
- n. The benefit of depreciation under IT act and other related statutory provisions for the equipment supplied by the vendor under this contract will be claimed by BHEL after capitalisation of goods in its books. The vendor will furnish all relevant documents to enable BHEL to claim benefit of depreciation.

5. Delivery

- a. The vendor shall deliver the equipment within 7 weeks of the placement of order and install the active components within 14 weeks of the placement of order and commission the whole network within 16 weeks of the placement of the order.
- b. BHEL reserves the right to ask for a delayed delivery of a part of network equipment.
- c. Hardware/software configuration shall be deemed as incomplete or undelivered, if any component of hardware or software within the configuration or main documentation related thereto is not delivered and if delivered is not operational or not acceptable after testing/examination.

6. Liquidated Damage (LD):

In case the delivery, installation and successful commissioning schedule for the Equipment is not adhered to, penalty at the rate of 0.5% of the amount equivalent to four quarterly rentals of the goods in arrears per week (subject to a maximum of 10%) shall be levied by BHEL on the vendor.

This penalty will be deducted from the first quarter rental charges, in case the penalty amount to be deducted is more than the first quarter rental charges, the same will be adjusted from the consecutive quarter.

7. Insurance

Insurance for the complete Systems/Goods shall be arranged by the Supplier at his own risk and cost during transit, movement, storage and throughout the period of lease. Purchaser/Lessee, under any circumstances, will not be responsible for any loss/damage/theft of any Systems/goods. due to any reasons, whatsoever. Claim(s) etc., if any, will be dealt with the underwriters directly by the Supplier. Evidence of insurance policy shall be submitted to BHEL.

8. Risk Purchase

Alternatively, BHEL at its option will be entitled to terminate the contract and to purchase elsewhere at the risk and cost of the seller either the whole of the goods or any part which the bidder has failed to deliver or dispatch within the time stipulated as aforesaid or if the same were not available from the best and the nearest available substitute. The bidder shall be liable for any loss which BHEL may sustain by reason of such risk purchases. .

9. Scope of Work

Migration of existing 1Gbps campus network to high speed 40Gbps between Core to Core Switch and 10 Gbps between Core to Distribution on 5 year lease rental basis consisting of following:

- a. The offered product and solution should work with the existing active components of BHEL Ranipet LAN. The present network of BHEL Ranipet consists of Cisco switches at Core, Distribution, Server Farm and Access Layer as given in network diagram (Refer Section 4.1 of the Tender Document). In case the supplied product fails to work with existing setup the vendor has to replace with the latest products of existing OEM make without any additional cost.
- b. Supply, installation, testing, commissioning and maintenance of networking, security equipment, software and passives as specified in the Tender Bill of Material.
- c. Supply and installation of racks for mounting of network equipment including proper dressing of cables in the racks using cable managers.
- d. Supply, laying, termination, testing and maintenance of Fiber Optic cable.
- e. Repairing/replacing any fiber during full lease period, cut due to any reason whatsoever, will be done by the vendor. BHEL shall not bear any cost for the same.

- f. Supply and installation of all passive components including Light Interconnect Units (LIUs), Patch panels, Patch cords, connectors etc required to complete the work on structured cabling concept.
- g. Supply of all cable laying accessories including PVC pipes/channels/HDPE pipes, supporting structures, clamps, identification tags, cable route markers etc required for laying of cables.
- h. The vendor shall include in his scope, any digging work ,Road Cutting work required for laying of cables. The Vendor has to follow instruction as laid out in clause 5.3 and its sub section of the tender document.
- i. Minor civil works such as chipping / cutting of floors for making grooves, making holes/opening through walls, ceiling or floors, drilling of holes through steel structures and frames, grouting of frames, hooks on walls/ceiling etc. required for execution of work. After erection, surface shall be made good by plastering / painting to their original shape and finish.
- j. Dismantling of existing networking equipment after successful testing & commissioning of the proposed network.
- k. Supply of all relevant documents/drawings/test certificates and manuals (two sets of Hardcopy as well as on CD).
- l. Comprehensive maintenance of entire network comprising the existing Active components and the newly commissioned Active and Passive components which shall become the part of new network for entire 5 year lease period.

10. Installation

- a. The vendor shall nominate a Project Manager who on behalf of the vendor shall coordinate and be responsible for all the activities related to execution of the order for establishing/Upgrading the network at BHEL. He shall act as an interface between the vendor and BHEL. The project manager shall:
 - Carry out detailed site inspection
 - Prepare Bill of Material for structured cabling system location wise.
 - Suggest additional site preparation requirement to BHEL not a part of the order.
 - Submit a complete layout plan for networking equipment and cabling system.
 - Submit the detailed project schedule in consultation with BHEL.
 - Monitor the progress vis-à-vis the project schedule.
 - Coordinate for all required help and inputs necessary for the execution of the contract.
 - Maintain logbook of the cabling work carried out.
 - Submit a detailed drawing of cable layout, position of nodes, switches etc.
 - Finalise the training requirement with the BHEL.
 - Finalise the acceptance test procedure with the BHEL.
- b. Any equipment, fitting, material, software or supplies which may not be specifically mentioned in the specifications but which are necessary for carrying out the contract works within the scope of the tender are to be provided for and rendered to by the vendor. Such items not quoted by the vendor, if found necessary during execution of the contract, shall have to be supplied at no extra charge by the vendor.
- c. The vendor shall provide the following certificates along with the equipment at the time of supply:
 - Certificate of newness of the equipment
 - Test Certificate of the equipment/fiber
 - Performance warranty certificate (at least 20 years) of the structured cabling(OFC) from OEM

- The cabling system installed by the vendor shall meet the specifications as prescribed in the tender specification of passives .
- 5.4 The vendor shall ensure that the structured cabling system work is carried out by an experienced, registered and certified contractor of the proposed system.
- 5.5 Migration from the current network setup to new network setup should be done such that the entire Network downtime should be less than 24 hours, where segmented downtime also should be minimal and without affecting the operation and business continuity. The migration can be planned in phased manner to achieve the minimal downtime and business continuity. Migration process will include, but not limited to, migrating the network connectivity of users/desktop/links/servers/routers from the existing switches to the new core/distribution/access switches as per the design.
- 5.6 Any temporary make shift arrangement like shifting of switches, rerouting of Fiber, etc., which are required during migration work is in vendor's scope.

6 Acceptance Test Procedure

- 6.1 The vendor shall submit project completion report to BHEL once the network is established so that acceptance test can be carried out. All manuals, accessories etc. will be handed over by vendor to BHEL.
- 6.2 The preliminary acceptance test procedure consisting of standard vendor test shall be submitted by the vendor along with the technical offer . The procedure will be vetted and approved by BHEL. The vendor shall submit the final detailed acceptance test document to BHEL during the design phase for BHEL approval and this document will include all the tests to be carried out on each hardware / software installed. The following two activities will necessarily form part of Acceptance testing:
- d. Automatic Failover in case of supervisor engine (or equivalent) failure in core and distribution switch.
 - e. Demonstrate High Availability i.e when core 1 fails core 2 will automatically take over and vice versa.
- 6.3. The vendor shall submit the detailed documentation of network including cabling layout, equipment location and bill of material etc. prior to start of the acceptance test. The vendor shall give all documents in computer format.
- 6.4 Acceptance test shall be carried out and demonstrated as per the acceptance test procedure .The acceptance test which involves running standard vendor tests and/or BHEL tests and the operations of the complete network will be for 10 days after completion of installation. This will also include the testing of all the software quoted by the vendor.
- 6.5 All the software offered, shall be loaded completely and made functional in all respects before the start of the acceptance test by the vendor. Vendor shall demonstrate all the features of the equipment/software and show that equipment/software is performing as per specified configuration.
- 6.6 If any equipment fails during the acceptance test, it will be replaced by the vendor and the acceptance test on the replaced equipment shall be performed afresh.

7 Training

7.1 Training of BHEL personnel shall be part of the contract. During installation at BHEL, the associated BHEL engineers shall be guided on the configuration being made and usage. Advanced level training shall be provided by OEM / authorized training partner at OEM Place /OEM certified training centre or at BHEL Premises on mutual consent. BHEL will nominate engineers. BHEL team shall get training for minimum 10 (ten) working days. Training shall be focused on fundamentals of networking/security in general and supplied equipment in particular. It should be based on standard certification programmes of OEM's equipment.

7.2 The training should include the following areas:

- Introduction to Networking Technologies
- Interconnecting Network Devices
- Implementing Multilayer Switched Networks
- Internetwork Troubleshooting
- Security & Monitoring
- Network Management Solution and QOS
- Structure Cabling Solution
- OFC Solution

8 Warranty, Maintenance & Support

8.1. The vendor should be able to provide the support for quoted network active technology and the equipment for a minimum period of 8 years. Vendor shall give commitment letter in this regard. Vendor shall warrant that spare parts of the equipment shall be available for minimum period of 8 years after completion of the acceptance test. Products offered should be having minimum of 5 years life line in the OEM road map.

8.2. The vendor shall maintain the network after completion of 5 year lease period, if BHEL desires so, on the same scope, terms & conditions as during the lease period. The Annual Maintenance Charges subsequent to the lease rental period shall be quoted as a percentage of total outright purchase value of each item.

8.3. The vendor shall keep the sufficient spares to keep the network downtime at minimum.

8.4. The vendor shall provide comprehensive maintenance support on 24x7 hours basis by three OEM certified and trained resident engineers posted at BHEL Ranipet without payment of extra charges for maintenance and upkeep of network. All engineers shall be engineering degree holder with minimum two year experience(for network engineers) and four years (for team leader) in network maintenance and should hold OEM (network) or relevant network certifications also. The 3 resident engineers (One team leader and two network engineers):

8.4.1. Shall observe BHEL working hours and BHEL holidays.

8.4.2. One engineer shall come in general shift (8:00 AM to 4:30 PM) and other engineer shall come in second shift(4.30 PM to 1.00 AM) and shall be available on call basis round the clock, to meet any exigency. Team leader shall come in general shift(8:00 AM to 4:30 PM) or as required by BHEL.

8.4.3. Maintenance during this period shall not be sub-contracted. The maintenance engineers posted at site shall be direct employees of the Vendor.

8.4.4. Shall change the resident engineers only after seeking permission from BHEL and arranging for proper substitute.

8.4.5. Shall ensure network connectivity up to the desktop level.

8.4.6. Shall have their own vehicles for movements and shall have mobile phones accessible from BHEL landline/mobile phones.

8.4.7. Accommodation, boarding, transport and other logistics for these engineers are vendor's scope.

- 8.5. Comprehensive maintenance shall include the following :
- 8.5.1. Replacement of faulty equipment
 - 8.5.2. Installation charges
 - 8.5.3. Site inspection charges
 - 8.5.4. Cost of Maintenance Engineers
 - 8.5.5. Lease tax/right to use tax / any other statutory levies including service tax.
 - 8.5.6. Keeping sufficient spares to maintain the specified uptime.
 - 8.5.7. Shifting and installation of equipment from one location to another within BHEL campus without any extra cost to BHEL.
- 8.6. The vendor should fulfill all statutory and safety requirements for personnel engaged while executing the contract. If BHEL has to incur any expenditure due to non-compliance of the applicable statutory provisions, the same will be compensated by the Bidder
- 8.7 BHEL reserves the right to opt for continuation of maintenance support for the hardware and software at end of 5 year lease period by way of awarding AMC contract to bidder at the quarterly AMC charges quoted by bidder from 6th years onwards. Bidder shall agree to provide the AMC service for at least two years after the expiry of the 5 year lease period. The Technical terms of AMC shall be same that of maintenance support during the lease period. The payment for AMC will be made quarterly at the end of the each quarter.

9. Service Level Agreement (SLA)

1. Bidder shall be responsible for continuous and smooth operation of the LAN for the entire lease period.
2. Maintenance and services shall cover services, repairs and replacements necessary to keep the hardware and software in good working condition.
3. Bidder shall maintain sufficient spares, in BHEL Ranipet to ensure immediate attention in case of breakdown.
4. Uptime of 99.5% per month should be ensured for all the actives individually. Uptime is calculated on 24x7 basis.
Uptime = ((Hours in the month - downtime hours) / Hours in the month) * 100
5. In case the uptime is less than 99.5% for a particular month, deduction will be calculated as per the following scheme and the amount will be deducted from the quarterly lease rental:

Deduction for the month for an item = $(99.5 - \text{uptime percentage})/100 \times \text{rental per month} \times$
multiplication factor

Where, the multiplication factor is calculated by,

For uptime $\geq 99.5\%$	multiplication factor = 0
For uptime $\geq 99.0\%$ and $<99.5\%$	multiplication factor = 1
For uptime $\geq 98.5\%$ and $<99.0\%$	multiplication factor = 2
For uptime $\geq 98.0\%$ and $<98.5\%$	multiplication factor = 4
For uptime $\geq 95.0\%$ and $<98.0\%$	multiplication factor = 8
For uptime $< 95.0\%$	multiplication factor = 16

6. If non availability of an item affects availability of other items, then all such items will also be treated as not-available and penalty calculation will be done for all these items.
7. If an item has less than 95% availability continuously for 3 months then it shall be replaced with a new item and uptime is to be ensured at more than 95%. If majority items are having availability less than 95% continuously for more than three months and not rectified, BHEL reserves the right to terminate part or entire contract.

10. Transfer of Ownership

The transfer of ownership of the equipment which is in efficient working condition and is also decided to be taken over by BHEL shall be automatically in favour of BHEL at the termination of

the 5 year lease period on payment of token terminal payment of Rs. One only per equipment. The government taxes if any, and to the extent chargeable, shall be borne by vendor.

11. Claims

All the claims etc. lodged with the underwriters, if any, shall be dealt with by the vendor or Assignee directly.

12. Arbitration

Disputes, if any arising out of or in connection with this contract shall be resolved mutually, at the very first instant. In the event parties fail to amicably resolve the dispute within a period of 30 days of being communicated in writing by one party to the other, the same shall be referred to arbitration under the Indian Arbitration and conciliation Act, 1996 to be held at Ranipet. The unit head of BHEL/BAP, Ranipet or his nominee shall be sole arbitrator and the decision of the sole Arbitrator shall be final and binding on the both the parties hereto

13. Jurisdiction

All disputes or differences arising out of, under or in connection with this contract shall be subject to the exclusive jurisdiction of Ranipet courts only.

14. Governing Law

15.1 This contract shall be governed in all respects by the Indian laws.

15.2 The Contractor shall comply with all the provisions of Applicable Laws, including any laws relating to the Project, statutory compliances, tax, labour law. The Contractor shall be bound to give all notices required by Applicable Laws as aforesaid and to pay all fees and taxes payable to any authority in respect thereof. BHEL shall not be responsible for any reason whatsoever for the non-compliance by the Contractor of Applicable Laws.

15. Force Majeure

If at any time during the currency of this contract, the performance in whole or in part, by either party of any obligations under this contract shall be prevented or delayed by reason, of any war, hostilities, acts of the public enemy, civil commotion, strike, sabotage, fires, explosions, epidemics, quarantine, restrictions or acts of GOD (herein after referred to as events), then provided notice of happening of any such events is given by either party to other within ten days from the date of occurrence thereof, neither party shall reason of such events be entitled to terminate this contract nor shall either party have any such non performance and delay is resumed as soon as practicable after such events has come to an end or ceased to exist. If the performance in whole or part of any obligation under this contract is prevented or delayed by any reason or any such event claims for extension of time shall be granted for period considered reasonable by the purchaser subject to prompt notification by the seller to the purchaser of the particulars of the events and supply to the purchaser if required of any supporting evidence. Any waiver of time in respect of partial installment shall not be deemed to be a waiver of time in respect of remaining deliveries.

16. Confidentiality

Vendor shall, at all times, undertake to maintain complete confidentiality of all data, information, software, drawings & documents, etc. belonging to the BHEL and also of the Systems, procedures,

reports, input documents, manuals, results and any other company documents discussed and/or finalized during the course of execution of the order/contract

17. Patents and TradeMarks

Vendor shall at all times indemnify BHEL against all claims which may be made in respect of the Systems/goods/Software supplied, for infringement of any right protected by patent, registration of designs or trademarks and legality of usage of Software. In the event of any such claims being made against BHEL, BHEL will inform the Bidder who shall at his own cost either settle any such dispute or conduct any litigation that may arise there from.

18. Non-Disclosure Agreement

Vendor shall sign an non-disclosure agreement as per BHEL format (copy enclosed) in compliance to Information Security Management System.

19. Intellectual Property Rights

Vendor shall at all times indemnify the BHEL Ranipet against all claims which may be made in respect of the systems/goods/software supplied by the vendor, for infringement of any right protected by patent, registration of designs or trademarks and legality of use of software. In the event of any such claims being made against BHEL Ranipet, BHEL Ranipet will inform the vendor who shall at his own cost settle any such dispute or conduct any litigation that may arise there from.

20. Termination of Inquiry

- a) BHEL reserves the right to cancel any inquiry before opening of the tender, without assigning any reason.
- b) BHEL reserves the right to cancel any tender and refloat a fresh tender, at any time after opening of the tender, in case it finds the response to its tender as not meeting its requirement. This shall be at the sole discretion of BHEL.

21. Termination of Lease contract

BHEL reserves the right to terminate the Contract, at any stage during the period of the Contract based on the contractor's performance, by giving 30 days' notice in writing.

BHEL shall have the right to terminate this contract if:

- The contractor fails to provide services or contractual obligations in accordance with the SLA.
- The contractor suspends the performance of all or part of the services, or
- The contractor abandons the services, or
- The contractor becomes bankrupt or goes into receivership (or) liquidation or makes an assignment for the benefit of his creditors.
- In the event of termination of contract, the amount due to the Contractor as per contractual provisions after recovery of dues (from Contractor's pending invoices/ Security Deposit, as the case may be), shall be released to them.

22. Acceptance of Order

Bidder shall submit Letter of acceptance for the LOI/ Order/ Contract within 7 working days. This will be submitted along with the Bank guarantee.

23. Withdrawal from the Contract

In case the bidder withdraws the offer submitted by him/her after it is accepted by BHEL and fails to supply the goods as per the terms and conditions of the contract, or at any time repudiated the contract wholly or in part, BHEL shall be at liberty to cancel the purchase order and to recover from the bidder the extra cost and the other loss incidentals to the breach of contract on the part of the Bidder. BHEL may put HOLD or Delist or Ban the bidder as per BHEL Policy.

24. Limitation of Liability

The Vendor/Lessor's liability will be limited to the scope of this contract fully.

25. ENTIRE CONTRACT:

The Lease Rental Contract, No. _____ forms part of this Agreement along with the references mentioned therein.

This agreement and any amendments thereto shall be valid and binding upon 'Company' only if signed by the Authorised signatories of both 'BHEL' and 'Company'.

IN WITNESS WHEREOF, 'BHEL' has caused this agreement to be signed at Ranipet, the day and year first above written, while 'Company' has caused this agreement to be signed at Ranipet through its Authorised Signatory - under their stamp who are the only constituted attorneys for this purpose, the day and year indicated below against the execution on its behalf.

SIGNED & DELIVERED FOR & on behalf of the above named 'BHEL' by

Shri

its

at Ranipet this the day of , 2015

SIGNED & DELIVERED FOR & on behalf of the above named 'Company' by

its Authorized Representative

at Ranipet this the day of , 2015

Annexure-V

THIRD PARTY NON-DISCLOSURE AGREEMENT

I, _____, on behalf of the _____ (Name of Company), acknowledge that the information received or generated, directly or indirectly, while working with BHEL, Ranipet on contract is confidential and that the nature of the business of the BHEL, Ranipet is such that the following conditions are reasonable, and therefore:

I warrant and agree as follows:

I, or any other personnel employed or engaged by our company, agree not to disclose, directly or indirectly, any information related to the BHEL, Ranipet Without restricting the generality of the foregoing, it is agreed that we will not disclose such information consisting but not necessarily limited to:

- Technical information: Methods, drawings, processes, formulae, compositions, systems, techniques, inventions, computer programs/data/configuration and research projects.
- Business information: Customer lists, project schedules, pricing data, estimates, financial or marketing data,

On conclusion of contract, I, or any other personnel employed or engaged by our company shall return to BHEL, Ranipet all documents and property of BHEL, Ranipet, including: drawings, blueprints, reports, manuals, computer programs/data/configuration, and all other materials and all copies thereof relating in any way to BHEL, Ranipet business, or in any way obtained by me during the course of contract. I further agree that I, or any others employed or engaged by our company shall not retain copies, notes or abstracts of the foregoing.

This obligation of confidence shall continue after the conclusion of the contract also.

I acknowledge that the aforesaid restrictions are necessary and fundamental to the business of the BHEL, Ranipet and are reasonable given the nature of the business carried on by the BHEL, Ranipet I agree that this agreement shall be governed by and construed in accordance with the laws of country.

I enter into this agreement totally voluntarily, with full knowledge of its meaning, and without duress.

Dated at _____, this ____ day of _____, 20__.

Name

Company

Signature

[RESTRICTED USE]

ANNEXURE -VI

PERFORMANCE BANK GUARANTEE (PBG) FORMAT

INSTRUCTIONS FOR PBG AND LIST OF BHEL BANKERS

Compliance: Accepted to comply all the above points

Name: Company Seal

Signature of bidder with Date:

Bank Guarantee No. _____ Date _____
Banker Name _____ Bank Guarantee Value _____

Please affix Non-Judicial Stamp here
as per Stamp Act

BANK GUARANTEE

1. This deed of guarantee made this _____ day of _____ by

_____ (Bank's name, branch, place, address) (hereinafter referred to as 'the Bank') in favour of M/s. Bharat Heavy Electricals Limited (A Government of India undertaking, a company incorporated under the Companies Act 1956 having its Registered Office at "BHEL House", SIRI Fort, New Delhi - 110049) through its Boiler Auxiliaries Plant located at Ranipet – 632406, (hereinafter called "the Company").

2. WHEREAS the Company has entered into a contract with M/s. _____ (hereinafter called "the said Contractor", which term includes "suppliers" for the purpose of this guarantee), for supply of equipments and/or services by the said Contractor vide Contract No. _____, dated _____.

3. WHEREAS under the terms and conditions of the said Contract between the Company and the said Contractor, the said Contractor is to furnish a performance Bank Guarantee for due performance of the equipment to be supplied under the said Contract and for the fulfillment of all the terms and conditions of the said Contract.

4. WHEREAS the said Contractor have requested the Bank to offer a Guarantee and at their request, WE the Bank have agreed to furnish such Guarantee to the said Contractor.

.....2

Sign & Seal of the Issuing Bank

Bank Guarantee No. _____ Date _____

Banker Name _____ Bank Guarantee Value _____

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5. NOW, THEREFORE, WE the Bank do hereby undertake to pay the Company an amount not exceeding Rs. _____ (Rupees _____ only) against any loss or damage caused to or suffered or would be caused to or suffered by the Company by reason of any breach by the said Contractor of any of the terms and conditions contained in the said Contract.

6. We, the Bank, do hereby undertake to pay the amount due and payable under this Guarantee without any demur, merely on a demand from the Company stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the Company by reason of breach by the said Contractor of any of the terms and conditions contained in the said Contract or by the reason of the said Contractor's failure to perform the said Contract. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this Guarantee. However, the Bank's liability under this Guarantee shall be restricted to an amount not exceeding Rs. _____ (Rupees _____ only).

7. The Bank's liability under this Guarantee is absolute and unequivocal and we, the Bank, undertake to pay unconditionally to the Company any money so demanded notwithstanding any dispute(s) raised by the Contractor in any suit, or proceedings pending before any Court or Tribunal or Arbitration or before any other authority and such payment under this guarantee shall not wait till the disputes, if any, have been decided by any Court or Tribunal or in the arbitration proceedings or by any other authority.

8. This Guarantee comes into force immediately and shall remain in full force and effect up to and including _____ (date) (including a claim period of 3 months after the date of completion of warranty period).

9. We, the Bank, further agree that, subject to Clause-8, the Guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract and that it shall continue to be enforceable till all the dues of the Company under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged or till the Purchase Department of the Company certifies that the terms and conditions of the said Contract have been fully and properly carried out by the said Contractor and accordingly discharges this Guarantee.

.....3

Sign & Seal of the Issuing Bank

Bank Guarantee No. _____ Date _____

Banker Name _____ Bank Guarantee Value _____

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10. Unless a demand or claim under this Guarantee is made on the Bank in writing on or before the date specified under Clause-8 above, the Bank shall be discharged from the liability under this Guarantee thereafter. But where such claim or demand has been preferred by the Company with the Bank on or before the expiry of the said date, the claim shall be enforceable notwithstanding the fact that the said enforcement is effected after the said date.

11. For the purpose of Clause-10, any letter making claim or demand on the Bank by the Company lodged in person or dispatched by Registered Post or by Fax or by Telegram or by any Electronic media addressed to the above mentioned address of the Bank on or before the date specified under Clause-8 above, shall be deemed to be the claim/demand in writing referred to above irrespective of the fact as to whether and when the said communication reaches the Bank.

12. We, the Bank, further agree that the Company shall have the fullest liberty, without our consent and without affecting in any manner our obligations hereunder, to vary any of the terms and conditions of the said Contract or to extend time of performance by the said Contractor from time to time or to postpone for any time or from time to time any of the powers exercisable by the Company against the said Contractor and to forbear or enforce any of the terms and conditions relating to the said Contract and we shall not be relieved from our liability by virtue of any such variation or extension being granted to the said Contractor or for any forbearance, act or omission on the part of the Company or any indulgence by the Company to the said Contractor or by any such matter or thing whatsoever which under the law relating would, but for this provision, have effect of so relieving us.

13. This Guarantee shall not become void due to any change in the constitution of the said Bank or the said Contractor.

14. The Guarantee herein contained shall not be determined or affected by the liquidation or winding up or insolvency of or change in the constitution of the said Contractor, but shall in all respects and for all purpose be binding and operative until all payments of all moneys due or that may hereafter become due to the said Company are settled irrespective of any liability or obligation of the said Contractor under the said Contract.

15. It shall not be necessary for the said Company to proceed against the said Contractor before proceeding against the guarantor bank and the Guarantee herein contained shall be enforceable against the said Bank notwithstanding any security, which the said Company may have obtained or obtain from the said Contractor.

.....4

Sign & Seal of the Issuing Bank.

Bank Guarantee No. _____ Date _____
Banker Name _____ Bank Guarantee Value _____

16. Any claim or dispute arising under the terms of this document shall be subject to the jurisdiction of the Courts at Ranipet, Tamilnadu.

17. The said Bank declares that it has powers to issue this Guarantee under the Bank's Memorandum and Articles of Association and the undersigned has full powers to do so on its behalf under the powers granted to him by the proper authorities of the said Bank.

18. We, the Bank hereby undertake not to revoke this Guarantee during its currency except with the previous consent of the said Company in writing.

In witness whereof we _____ (name of the Bank) have hereunto set out Bank Seal the _____ day of _____ month _____ year.

SIGN & SEAL OF THE ISSUING BANK

Sign & Seal of the Issuing Bank



BHEL BAP RANIPET

INSTRUCTIONS FOR BANK GUARANTEE

- 1.1 Bank Guarantee shall be issued by any one of BHEL's Bankers or any Nationalized Bank. Please refer to List of BHEL's Bankers enclosed.
- 1.2 If it is not possible, then BG can be issued by a Scheduled Commercial Bank with the prior approval of BHEL.
- 1.3 BG from Co-operative Banks is not acceptable.
- 2.1 Pre-printed BG Form of BHEL only shall be used.
- 2.2 Only the relevant information like Supplier Name, BG Value, Contract No., Validity etc. shall be typed in the pre-printed form and executed by Bank.
- 2.3 Special adhesive stamp of the required value shall be affixed on the 1st Page of the Form.
- 2.4 If Special Adhesive stamps are not available, then applicable stamp duty shall be paid at the Bank / Agency nominated by the concerned State Government to collect stamp duty, who will affix their signature, date and seal in the first page of the BG Form clearly marking it as "SPECIAL ADHESIVE" & "STAMP DUTY".
- 2.5 Stamp Duty for the BG shall be at the rate as applicable in the State where the BG is executed.
- 2.6 Bank seal shall be affixed on the special adhesive stamp.
- 3.1 The executing officer of the Bank shall indicate his name, designation and power of attorney number / signing power number etc. on the BG.
- 3.2 Any correction / overwriting on the BG shall be duly authenticated under the Seal and signature of the executing officer of the Bank.
- 3.3 Each page of the BG shall be duly signed/initialed by the executing officer of the Bank and the last page is to be signed with full particulars under the seal of the Bank.
- 3.4 Fax number, e-mail Address, contact person, phone number and complete postal address shall be indicated in the covering letter of the BG from Bank.
- 4.1 The validity of the BG shall cover a period of 18 months (or such other period as per purchase Order, if otherwise specified) from the last date of dispatch as per Purchase Order or actual date of last dispatch under the Purchase Order, whichever is later.
- 4.2 The BG shall have a claim period of 3 months. If no separate claim period is indicated in the BG, then the validity shall be 18 months (or such other period as per Purchase Order, if otherwise specified) plus 3 months.

- 5.1 No clause of the BHEL BG Form shall be altered, deleted or new clauses added by the Issuing Bank under any circumstances. Bank Guarantees with altered/ deleted/added clauses will not be accepted by BHEL under any circumstances.
- 5.2 If the Issuing bank wants to add any additional clauses, it shall be intimated to BHEL well in advance with exact text of clause, which shall be subject to approval by BHEL Law Department. Those clauses specifically accepted by BHEL Law Dept. can be added in the last page of the BG Form and excuted by Bank.
- 6.1 Bank Guarantee shall be forwarded by Issuing Bank directly to Accounts Officer/ Stores Bills, BHEL/BAP, Ranipet-632406.
- 6.2 If it is not directly forwarded to BHEL due to unavoidable circumstances, then the Issuing Bank shall send a letter directly to BHEL confirming the issue of the BG enclosing a photocopy of the Original BG.
- 6.3 The Bank Guarantee should not be routed through Bank along with other dispatch documents under any circumstances.
- 7.1 In case of any extension of a BG the same shall be executed on non-judicial stamp paper of the required value.
- 7.2 Only the due date and claim period shall be extended.
- 7.3 The extension should not result in alteration of any material facts of the BG.

Bank Guarantees executed as per the above instructions only shall be accepted at our end. Hence kindly ensure compliance with the above instructions for early processing of the bills and to avoid hold up of the bills.



**LIST OF BHEL'S BANKERS
FROM WHOM BANK
GUARANTEE IS TO BE OBTAINED**

Sl. No.	Name of the Bank
1.	State Bank of India
2.	ABN AMRO Bank N.V.
3.	Bank of Baroda
4.	Canara Bank
5.	CITI Bank N.A.
6.	Duestche Bank AG
7.	HDFC Bank Ltd.
8.	ICICI Bank Ltd.
9.	IDBI Bank Ltd.
10.	Punjab National Bank
11.	Standard Chartered Bank
12.	State Bank of Hyderabad
13.	State Bank of Travancore
14.	The Hongkong and Shanghai Banking Corporation Ltd.

Annexure-VII

Past Experience Of Similar Executed Projects

SL NO.	DESCRIPTION OF WORK	POSTAL ADDRESS OF CLIENT & NAME OF OFFICER IN CHARGE	CONTRACT VALUE	STARTING DATE	E-mail	Fax Number

SIGNATURE OF BIDDER : _____

NAME OF BIDDER : _____

COMPANY SEAL : _____

Annexure-VIII

Price Bid												
Sl. No.	Item	Unit	Qty.	Unit Price (Outright)	Five years Lease Rental charges							
					Towards Equipment cost (Excluding VAT)	VAT/CST on [a]	Towards Maintenance charges (Excluding Service Tax)	Service tax on maintenance on [c]	Total Interest charges	Service tax on [e]	Any other tax	Total (a+b+c+d+e+f+g)
					Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly
	Items on lease				(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1)	Core Switch with populated ports as specified	No.	2									
2)	Distribution Switch with populated ports as specified	No.	3									
3)	Server Farm Switches	No.	8									
4)	Access Switch Type I	No.	11									
5)	Access Switch Type II	No.	14									
6)	1G MM Fiber Transceivers	No.	20									
7)	1G MM Fiber Transceivers (between core and UTM appliance)	No.	6									
8)	1G SM Fiber Transceivers (between core and UTM appliance)	No.	6									
9)	10G SFP+ Single Mode Fiber Transceivers	No.	4									
10)	10G SFP+ Multimode Fiber Transceivers	No.	8									
11)	UTM Appliance	No.	2									
12)	NMS	No.	1									
13)	12 Core Outdoor Single Mode (OS2) Fibre Optic Cable	Mtrs	2500									
14)	24 Port Rack Mountable LIU 19"	No	7									
15)	Single Mode(OS2) Pigtail For 10G Fibre	No	68									
16)	Single Mode (OS2) Pigtail For 40 G Fibre	No	24									
17)	SC-LC Single Mode (OS2) Fibre Patch Cord 5 Metre (40 G)	No	8									

18)	SC-LC Single Mode Fibre (OS2) Patch Cord 5 Metre (10 G)	No	20									
19)	LC-LC Multimode (OM3) Fibre Patch Cord 5 Metre (10 G)	No	9									
20)	SC-LC Single Mode (OS2) Fibre Patch Cord 5 Metre (1 G)	No	7									
21)	SC-LC Multimode (OM3) Fibre Patch Cord 5 Metre (1 G)	No	35									
22)	LC-LC Multimode (OM3) Fibre Patch Cord 5 Metre (1 G)	No	4									
23)	Cable route markers	No	50									
24)	FloorMount Rack 42 U	No	5									
	TOTAL(A)											
	Quarterly AMC charges from 6th year valid for 2 years. Sum of D(In Rs.)- (B)											
	GRAND TOTAL(Total CASH OUTFLOW) C=A+B											