COAL INDIA LIMITED (A MAHARATNA COMPANY) Coal Bhavan, Materials Management Division Level 1 (1st Floor); Premises No.04,Plot No.AF-III Actiona Area 1A, New Town, Rajarhat, Kolkata – 700 156 (WB)	PHONE:033-2324 4127 FAX : 033-23244115 Website : www.coalindia.in E mail : gmmm.cil@coalindia.in	कोल्इंडियालिमिटेड कोयलाभवन सामग्रीप्रबंधन विभाग, लेवल १,परिसर No.04, प्लॉट No. AF-III, Actionएरिया 1A, न्यू टाउन,Rajarhat कोलकाता- 700 156..	दुरोभास:033-2324 4127 फैक्स: 033-2324 4115 वेबसाइट: www.coalindia.in ईमेल: gmmm.cil@coalindia.in

Ref: CIL/C2D/Switches & Firewall/R-60/2018/318/102   Date: 15.02.19

Supply Order

M/s Smart Planet IT Solutions Pvt Ltd
106/C. Selimpur Road,
Dhakuria, Kolkata – 700031   **Regd. Post**

Dear Sirs,

Sub: Supply of Firewall & L2, L3 Switches with 3 years CAMC after completion of warranty period of one year

Ref: 1) Our Tender No. CIL/C2D/Firewall and Switches/2018/318 dated 26/06/18.
   2) Your offer submitted in our e-Procurement portal (https://coalindiatenders.nic.in) against above tender opened on 13.08.18 and subsequent correspondences.

With reference to the above, Notification of Award is hereby issued to you confirming acceptance of your offer for supply of Firewall & L2, L3 Switches with 3 years CAMC after completion of warranty period of one year at Coal India Limited (HQ) at the prices and terms indicated hereunder:-

PRICE SCHEDULE

Sl. No.	Item Description	Quantity	Units	Unit Price in Rs.	TOTAL Extended Value in Rs.
1	**Next Generation Firewall: Qty-2sets (in HA):** Next Generation Firewall: 19 inch rack mountable firewall appliances in HA for 2000 users/devices (approximate 500 concurrent users) with IPS,IPSec, Antivirus, web & application filtering, malware protection from day one with 1 Year warranty with required licenses and 24x7 on-site support.	2.000	Nos	818909.00	1637818.00
2	**Managed L2 Switches: Qty (2Nos)** Managed L2 Switches: 24-port 10/100/1000 BASE-T with four SFP Gigabit Ethernet uplink ports with transceivers and optional support for redundant power supply with 1 Year warranty with required licenses/policies and 24x7 on-site support .	2.000	Nos	88942.50	177885.00

3	**L3 Managed stackable switch:** L3 Managed stackable switch with 12 SFP Gigabit ports with transceivers and redundant power supply with 1 Year warranty with required licenses/policies and 24x7 on-site support	2.000	Nos	340695.00		681390.00
4	**L3 Managed stackable switch:** L3 Managed stackable switch with 24-port 10/100/1000 BASE-T with four SFP Gigabit Ethernet ports with transceivers and redundant power supply with with 1 Year warranty with required licenses/policies and 24x7 on-site support.	2.000	Nos	198789.00		397578.00
				Total		2894671.00
				Add GST @18%		521040.78
				Total Order value		3415711.78

Price for CAMC :

Sl No.	CAMC Heads	Rate/Quarter	No. of Quarter	Total	GST	Total amount including GST
1.	Next Generation Firewall: Qty-2sets (in HA):	191667.00	12	2300004	18%	2714004.72
2.	Managed L2 Switches: Qty (2Nos)	4682.00	12	56184		66297.12
3.	L3 Managed stackable switch: Qty (2Nos)	15622.00	12	187464		221207.52
4.	L3 Managed stackable switch: Qty (2Nos)	12943.00	12	155316		183272.88
	Total					3184782.24

Make and Model :

Sl No.	Description	Make	Model
1.	Next Generation Firewall	Checkpoint	Model : 5800
2.	Managed L2 Switches	Cisco	Model: 2960 X Series Switch
3.	L3 Managed stackable switch	Cisco	Model: 3850 Series Switch
4.	L3 Managed stackable switch	Cisco	Model: 3850 Series Switch

Technical Specifications of item shall be as per Annexure -A.

Terms and Conditions

1. The Total contract value shall be Rs. 6600494.00 (Rupees Sixty Six Lakhs Four Hundred and Ninety Four only) including CAMC and all taxes & duties.

2. GST: At present @18% as indicated above. Any statutory variation within the scheduled delivery period shall be payable extra.

3. **Delivery period:** The delivery, Installation, Integration, testing & commissioning including training of the tendered items shall be completed within 10 weeks from the date of placement of supply order.

4. Contract Period: 4 Years including CAMC (01 year initial warranty and 03 years CAMC).

5. **PAYMENTS TERMS**
   a. 100% payment of the system along with the applicable taxes and duties and other charges shall be paid within 21 days from the date of Delivery, Installation, Integration, Testing and commissioning including training of the system on submission of bill complete in all respect.
   Documents Required:
      1. Pre receipted bill duly accepted by GM (E&T) or his authorised representative.
      2. Pre receipted challan.
      3. Installation, Integration, Testing, commissioning & Training certificate from GM (E&T) or his authorised representative.
      4. Lowest Price Certificate.
      5. Copy of Security Deposit Cum Performance Bank Guarantee & its confirmation
      6. Any other document required as per Contract

   b. Payment terms for On-site Comprehensive AMC after one-year free warranty period:
   Payment of CAMC will be made quarterly after successful completion of each quarter and duly accepted by GM (E&T). Payment of CAMC, along with taxes and duties as applicable, will be made on quarterly basis within 21 days of expiry of each quarter, on submission & acceptance of bills. GM (E&T), CIL/ Authorized representative will certify regarding satisfactory performance of the System with penalty deduction if any during bill period.

   Documents Required:
      1. Pre receipted bill duly accepted by GM (E&T) or his authorised representative.
      2. Satisfactory performance report with penalty deduction if any by GM (E&T) or his authorised representative.
      3. Lowest Price Certificate.
      4. Any other document required as per contract

   c. The supplier must submit a price certificate in all their invoices in the following format, "It is certified that the prices indicated in this invoice is not higher than the

amount billed to other Govt. Deptts./ Undertakings including other Subsidiaries of CIL/ Private organizations for item of same specifications.

6. **SECURITY DEPOSIT CUM PERFORMANCE BANK GUARANTEE (SDPBG)**
   You have submitted Bank guarantee towards Security Deposit Cum Performance (SDPBG) vide No. 11640100009520 dt. 06/02/2019 for Rs. 6,60,050/- issued by Axis Bank Ltd., Kolkata in favor of "Coal India Limited" valid up to 25/04/2023.

   This Bank guarantee is for faithful performance of the contract in accordance with the terms and conditions and technical specification specified in the contract/ bid document

   The SDPBG shall be discharged and returned to you after satisfactory performance of the contract for entire contract period.

7. **PRICE FALL CLAUSE**

   You will have to undertake that you have not supplied /is not supplying similar product/systems or subsystems at a price lower than that offered in the present bid in respect of any other Ministry/Department of the Government of India, PSU or Pvt party and if it is found at any stage that similar product/systems or sub systems was supplied by you to any other Ministry/Department of the Government of India, PSU or Pvt party at a lower price, then that very price, with due allowance for elapsed time, will be applicable to the present case and the difference in the cost would be refunded by you to CIL, if the contract has already been concluded.
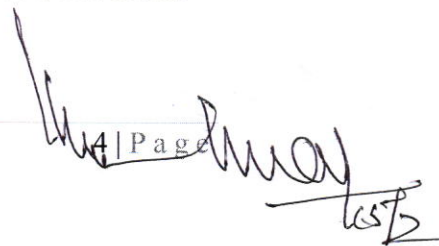
8. **LIQUIDATED DAMAGES**
   In the event of failure to complete requirements of the project within the stipulated period mentioned in the work order and in the event of breach of any of the terms and conditions mentioned in the work order, CIL shall be entitled at its option either:-
   a) To recover from the successful tenderer as agreed liquidated damages, a sum not less than 0.5% (Half percent) of the total value of the contract for delay of each week or part of a week limited to 10%.
   b) To obtain services from elsewhere, after due notice to the successful tenderer on the account and at the risk of the defaulting service provider.
   c) To cancel the work order or a portion thereof and if so desired to get the services at the risk and cost of the defaulting supplier and also,
   d) To extend the period of delivery with or without penalty as may be considered fit and proper, the penalty, if imposed shall not be more than the agreed liquidated damages referred to in clause (a) above.
      e) To forfeit the security deposit fully or partly.
   f) Whenever, under this contract, a sum of money is recoverable from and payable by the Service Provider, CIL shall be entitled to recover such sum by appropriation in part or in whole by deducting any sum or which at any time thereafter may become due to the successful tenderer in this or any contract should this sum be not sufficient to cover the full amount recoverable, the successful tenderer shall pay CIL on demand the remaining amount. The supplier shall not be entitled to any gain on any such purchase.

9. Paying Authority: General Manager (Fin), Coal India Ltd. Premises No. 04, Plot no. AF-III, Action Area 1A, New Town, Kolkata – 700 156.

10. Consignee:- General Manager (E&T), CIL, Kolkata

11. Other technical terms & conditions: -

A. WARRANTY/GUARANTEE:

i) The equipment and total system will be warranted against any manufacturing defects /workmanship for a period of 12 months from the date of commissioning. Any defect observed on this account shall be attended by you immediately and in no case beyond a period of 24(twenty-four) hours.

ii) In the event of any breakdown or failure of performance due to defects in materials, design, workmanship, spare parts etc., CIL shall promptly notify you in writing of any claims arising under this warranty. The repairs, replacement or rectification work shall be carried out by you at CIL site at no cost to the Coal India Ltd. within 48 (Forty-Eight) hours of warranty claims.

"At no cost to the Coal India Ltd." means that the supplier will have to bear all the expenses upto the destination site i.e. all applicable taxes, duties and levies, to ensure free delivery of warranty replacement at CIL sites wherever breakdown takes place.

You will ensure for availability of Spare for restoration within 48 (Forty-Eight) hours from the time of intimation of breakdown/fault.

iii) All warranty repairs will have to be attended to by you at site and all services and spares will have to be provided at site free of cost including all freight, duties, taxes etc.

iv) You must ensure that no major breakdown occurs due to manufacturing defects in design, materials and workmanship during the warranty period. In case such breakdown occurs, Coal India Limited will reserve the right to extend the warranty period suitably, as deemed fit.

B. TESTING & COMMISSIONINING

System Acceptance & Commissioning: On successful installation, integration, testing, and acceptance of the same by GM (E&T), CIL or his authorized representative, the system will be taken as commissioned and System acceptance/Commissioning Certificate will be issued by GM(E&T), CIL. Warranty maintenance period will also start simultaneously.

C. TRAINING:

Training of three executives of CIL has to be provided for operation on-site and advance training has to be provided for 2 to 3 executives of CIL at OEM / OEM authorized centre free of cost, however, cost of TA, DA, Boarding, Lodging will be borne by CIL. For each of the systems installed, you are required to train the designated Coal India Ltd. technical and end-user staff to enable them to effectively manage and use the systems as specified in the Technical Specifications. The training and accompanying materials shall be provided in English.

D. PENALTY CLAUSE:

The supplier shall ensure that the total system remains fully operational during the Comprehensive AMC (CAMC) period of 3 years after 1-year free warranty period

In the event of the system going under breakdown, the same will be intimated by CIL immediately. Any break down intimated by CIL is to be attended immediately and in no case beyond a period of 24 hours and the defect(s) need to be repaired/ replaced and system is to be made fully operational within 48 hours. In case the system is not made fully operational within 48 hours from the time of intimation, the supplier will be liable to pay to Coal India Ltd. as penalty 0.1% of total CAMC value of the contract for each day of delay in making the system operational subject to a maximum of 10% of the total CAMC value of the contract. Penalty, if any, would be deducted from the Quarterly CAMC bills.
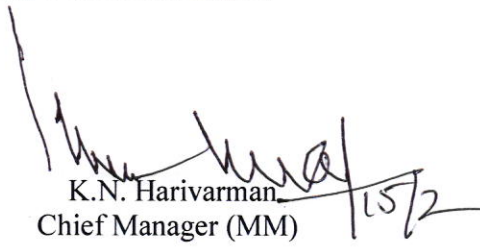
E. **Payment terms for On-site Comprehensive AMC after one year free warranty period.**

Payment of CAMC will be made quarterly after successful completion of each quarter and duly accepted by GM (E&T). Payment of CAMC, along with taxes and duties as applicable, will be made on quarterly basis within 21 days of expiry of each quarter, on submission & acceptance of bills. GM (E&T), CIL/ Authorized representative will certify regarding satisfactory performance of the System with penalty deduction if any during bill period.

12. All other terms and conditions shall be as per the tender documents.

Yours Faithfully
For & on Behalf of Coal India Limited

Mayank Garg
Dy. Manager (MM)

K.N. Harivarman
Chief Manager (MM)
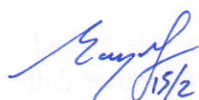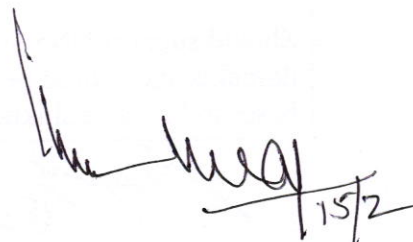
Copy to:
1. GM (MM)/HOD, CIL
2. GM(E&T), CIL
3. GM (Finanace), CIL – BC Ref: 042 dt.11/01/2019
4. Chief Manager(Fin)/MM

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Detailed Technical Specification for Firewall, L2 Switches & L3 switches:

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1. Next Generation Firewall:

Qty-2 sets (in HA): 19 inch rack mountable firewall appliances in HA for 2000 users/devices (approximate 500 concurrent users) with IPS, IPSec, Antivirus, web & application filtering, malware protection from day one with 1 Year warranty with required licenses and 24x7 on-site support:
Type: Next Generation Enterprise Firewall
Authorization : Original Manufacturer Authorization Certificate to be submitted along with the bid
3rd Party Test Certification 1. The OEM for the offered item must be in the certified on ICSA Labs Advanced Threat Defense Criteria or NSS LAB test certification/report. 2. The OEM for the offered item must be in the Leader's/challenger's quadrant of the Enterprise Firewalls Gartner Magic Quadrant for 2017 or latest. 3. The OEM for the offered item must be in the Forrester Wave Automated Malware Analysis, report 2016
Equipment Test Certification : FCC / CE / VCCI / CB
No of Units :Two Units in HA
Form factor :Modular/Fixed purpose built hardware, rack mountable
Control Plane : Should be separated from the Data Plane
Storage: Minimum storage minimum 100GB SSD
Power : Single Power with AC Option
Minimum 2 nos 1G SFP Ports with Transceivers
Minimum 10 Nos Gb E copper Ports
Dedicated HA ports in addition to requested data ports
Minimum IP sec VPN throughput – 500 Mbps
Minimum concurrent sessions – 2,00,000
Minimum New sessions per second – 10,000
High Availability : Active/Active, Active/Passive
NGFW Throughput: Minimum NG firewall application throughput 2 Gbps or higher
Total Threat Protection Throughput: Minimum Threat prevention throughput should be 1Gbps or higher (After enabling firewall policies, IPS, Application services, user id, URL filtering, Antivirus, zero day protection/APT, Logging for real world traffic mix with various packet size traffic). The Supplier shall submit the performance test reports from OEM to certify the mentioned.

Interface Operation Mode: The proposed firewall shall support Dual Stack IPv4 / IPv6 application control and threat inspection support in: - Tap Mode - Transparent mode (IPS Mode) - Layer 2 - Layer 3 - Should be able operate mix of multiple modes
Next Generation Firewall Features ●The proposed firewall shall support network traffic classification which identifies applications across all ports irrespective of port/protocol/evasive tactic. ●The proposed firewall shall be able to handle (alert, block or allow) unknown/unidentified applications like unknown UDP & TCP ●The proposed firewall shall be able to create custom application signatures and categories using the inline packet capture feature of the firewall without any third-party tool or technical support. ●The proposed firewall shall be able to implement Zones, IP address, Port numbers, User id, Application id and threat protection profile under the same firewall rule or the policy configuration or under different set of policies. ●The proposed firewall shall delineate different parts of the application such as allowing Facebook chat but blocking its file-transfer capability inside the chat application base on the content. ●The proposed firewall shall be able to protect the user from the malicious content upload or download by application such as Facebook chat or file sharing by enforcing the total threat protection for known and unknown malicious content such as virus, malware or a bad URLs.
Threat Protection Intrusion prevention signatures should be built based on the vulnerability itself, A single signature should stop multiple exploit attempts on a known system or application vulnerability. Should block known network and application-layer vulnerability exploits The proposed firewall shall perform content based signature matching beyond the traditional hash base signatures The proposed firewall shall have on box Anti-Virus/Malware, Anti Spyware signatures. Should perform stream-based Anti-Virus inspection and not store-and-forward traffic inspection to keep the maximum firewall performance Should be able to perform Anti-virus scans for SMB traffic Should support DNS sink holing for malicious DNS request from inside hosts to outside bad domains and should be able to integrate and query third party external threat intelligence data bases to block or sinkhole bad IP address, Domain and URLs

Should be able to call 3rd party or its own threat intelligence data on malicious IPs, URLs and Domains to the same firewall policy to block those malicious attributes and list should get updated dynamically with latest data

Vendor should automatically push dynamic block list with latest threat intelligence data base on malicious IPs, URLs and Domains to the firewall policy as an additional protection service

Vendor should provide features with the ability to prevent the theft and abuse of stolen credentials.
• Automatically identify and block phishing sites
• Prevent users from submitting credentials to phising sites
• Prevent the use of stolen credentials.

Advanced Persistent Threat (APT) Protection
This should be a unknown malware analysis service with guaranteed protection

Advance unknown malware analysis engine should be capable of machine learning with static analysis and dynamic analysis engine with custom-built virtual hypervisor analysis environment

Advance unknown malware analysis engine with real hardware, detecting VM-aware malware to detect and protect from virtual sandbox evading advance unknown malware

The proposed next generation security platform should be able to detect and prevent zero day threats infection through HTTP,HTTPS,FTP, SMTP/POP3/ IMAP use by any of application used by the users.

Advance unknown malware analysis engine should be able to creates automated high-fidelity signature for command and control connections and spyware to inspect command and control http payload to create one to many payload base signatures protection from multiple unknown spyware and command and control channels using single content base signature or separate Anti-bot signature

URL Filtering and Web Protection

Same Hardware platform should be scalable to provide URL filtering and web protection and should maintain same performance/throughputs mention in primary scope

The proposed firewall shall have the database located locally on the device

The proposed firewall shall support custom URL-categorization

The proposed firewall shall support customizable block pages

The proposed firewall shall support block and continue (i.e. allowing a user to access a web-site which potentially violates policy by presenting them a block page with a warning with a continue option allowing them to proceed for a certain time)

The proposed firewall shall support logs populated with end user activity reports for site monitoring within the local firewall or with separate management solution

The proposed firewall shall support Drive-by-download control

The proposed firewall shall support URL Filtering policies by AD user, group, machines and IP address/range

Should support zero-day malicious web site or URL blocking update for URL DB update for zero-day malware command and control, spyware and phishing websites access protection

Should support URL or URL category base protection for user cooperate credential submission protection from phishing attack with malicious URL path
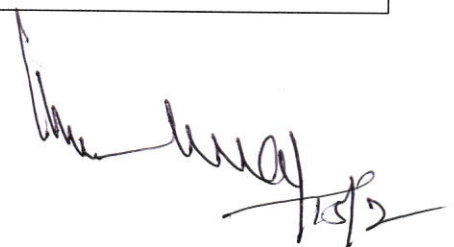
SSL/SSH Decryption

The proposed firewall shall be able to identify, decrypt and evaluate SSL traffic in an outbound connection (forward-proxy)

The proposed firewall shall be able to identify, decrypt and evaluate SSL traffic in an inbound connection

The proposed firewall shall be able to identify, decrypt and evaluate SSH Tunnel traffic in an inbound and outbound connections

The NGFW shall support the ability to have a SSL inspection policy differentiate between personal SSL connections i.e. banking, shopping, health and non-personal traffic

SSL decryption must be supported on any port used for SSL i.e. SSL decryption must be supported on non-standard SSL port as well

Network Address Translation

The proposed firewall must be able to operate in routing/NAT mode

The proposed firewall must be able to support Network Address Translation (NAT)

The proposed firewall must be able to support Port Address Translation (PAT)

The proposed firewall shall support Dual Stack IPv4 / IPv6 (NAT64, NAT66/ NPTv6)

Should support Dynamic IP reservation, tunable dynamic IP and port oversubscription

IPv6 Support

L2, L3, Tap and Transparent mode

Should support on firewall policy with User and Applications

Should support SSL decryption on IPv6

Should support SLAAC Stateless Address Auto configuration

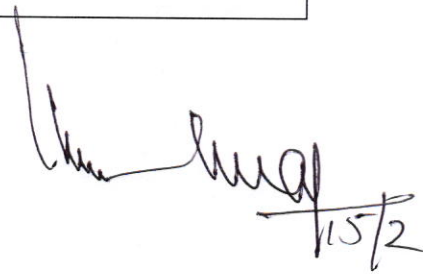| |
|---|
| Routing and Multicast support
The proposed firewall must support the following routing protocols:
- Static
- RIP v2
- OSPFv2/v3
- BGP v4
Policy-based forwarding
PIM-SM, PIM-SSM, IGMP v1, v2, and v3 |
| Authentication
should support the following authentication protocols:
- LDAP
- Radius (vendor specific attributes)
- Token-based solutions (i.e. Secure-ID)
- Kerberos |
| The proposed firewall's SSL VPN shall support the following authentication protocols
- LDAP
- Radius
- Token-based solutions (i.e. Secure-ID)
- Kerberos
-SAML
- Any combination of the above |
| Monitoring, Management and Reporting
Should support on device / External centralized management with complete feature parity on firewall administration.
Should have separate real time logging base on all Traffic, Threats, User IDs, URL filtering, Data filtering, Content filtering, unknown malware analysis, Authentication, Tunneled Traffic and correlated log view base on other logging activities
Should support the report generation on a manual or schedule (Daily, Weekly, Monthly, etc.) basis
Should allow the report to be exported into other format such as PDF, HTML, CSV, XML etc.
Should have built in report templates base on Applications, Users, Threats, Traffic and URLs
Should be able to create reports base user activity
Should be able to create custom report base on custom query base any logging attributes |
| Support & Warranty
• 3 Years Comprehensive AMC with all licenses along with 24x7 on-site support after 1 year initial warranty, license and support .

• 3 Years OEM support bundle with 24x7 TAC support, RMA, software updates and subscription update support. Supplier's quote include all subscriptions which includes NGFW, Application, User ID, Content ID, SSL & SSH Decryption, NGIPS, Anti-Virus, Anti Spyware, Anti Botnet, URL Filtering and Anti-APT features. (All the licenses and subscriptions should included in the quoted price from day one for entire contract period i.e 1+3 years.) |

Supply, Installation, Integration and commissioning, Training

• The Supplier shall provide all tools, cables and accessories along with Rack mounting kit. Any accessories required but not mentioned in the BoQ/ Specifications for commissioning and integration of the firewalls have to be provided by the Supplier free of cost.

• The Supplier has to Supply, install, test, commission and integrate the Firewalls with all the licenses, policies in the existing CIL Network at Coal India Corporate office, Rajarhat, Kolkata -700156. . Training of three executives of CIL has to be provided for operation on-site and advance training has to be provided for 2 to 3 executives of CIL at OEM / OEM authorized centre free of cost, however, cost of TA, DA, Boarding, Lodging will be borne by CIL.
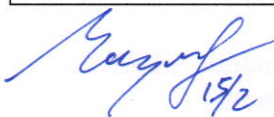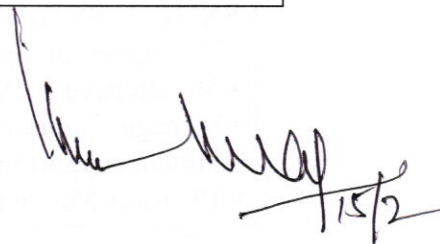
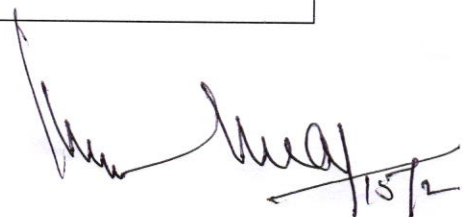## 2. Managed L2 Switches:

Qty (2Nos) 24-port 10/100/1000 BASE-T with four SFP Gigabit Ethernet uplink ports with transceivers and optional support for redundant power supply with 1 Year warranty with required licenses/policies and 24x7 on-site support
• 24 Nos. 10/100/1000 Ethernet ports • 4 SFP Gigabit Ethernet uplink ports equipped with transceivers in all 4 ports • Forwarding Rate based on 64 Byte packet should be min 71 Mpps • Switching Bandwidth/ Backplane : Switching bandwidth should be 100 Gbps or higher
• VLAN : IEEE 802.1Q VLAN support for at least 64 VLANs • Should be equipped with MAC Address notification, IGMP Filtering, Dynamic VLAN • Should have SNMP, Web based and command line interface for management • Should have remote monitoring (RMON) • Should support advanced QoS features

• Manage, monitor and configure from central network management console.
• Should support third party open standard NMS.
• Standards Supported :
   • IEEE 802.1p
   • IEEE 802.3x
   • IEEE 802.3ad
   • IEEE 802.1s
   • IEEE 802.1w
   • IEEE 802.1D
• 19" Rack Mountable with rack mounting accessories
• Should support redundant power supplies(Internal/External).

3 Years Comprehensive AMC with all licenses/policies along with 24x7 on-site support after 1 year initial warranty for above Managed L2 Switches.
• The Supplier has to Supply install, test, commission and integrate the switches with all the licenses/ policies in the existing CIL Network at Coal India Corporate office, Rajarhat, Kolkata -700156. . The Supplier shall provide all tools, cables and accessories along with Rack mounting kit. Any accessories required but not mentioned in the BoQ/ Specifications for commissioning and integration of the switches have to be provided by the Supplier free of cost.

3. L3 Managed stackable switch:

Qty (2Nos) with 12 SFP Gigabit ports with transceivers and redundant power supply with 1 Year warranty with required licenses/policies and 24x7 on-site support + 3 Years Comprehensive AMC with all licenses/policies along with 24x7 on-site support after 1-year initial warranty

Technical Specifications of Layer 3 Switch - 12 SFP Ports Certification: The OEM for the offered item must be in the Leader's/challenger's quadrant of the Gartner Magic Quadrant for Data Center Networking for 2017 or latest. Equipment Test Certification: FCC / CE / VCCI
General The Switch should have minimum 12 SFP Gigabit ports equipped with 1000BASE-SX SFP transceiver module(fully loaded), MMF in all ports Power and stacking cables Equipped with Redundant Power supply IPv4 & IPv6 Layer 3 forwarding in hardware Should have Minimum 4GB DRAM & Minimum 2GB Flash memory
Performance Should have stacking facility with dedicated stacking port and support minimum total stacking bandwidth of 400 Gbps. Should have Minimum 66 Gbps Switching capacity & Minimum 50 Mpps forwarding rate MAC Address table : min. 30000
Features Basic IP unicast routing protocols (static, RIPv1, and RIPv2) should be supported from day 1. Should have future support for advanced routing support including OSPF, IS-IS, BGP, policy based routing & Multicast routing Support for mimimum 4000 VLAN IDs. IEEE 802.1d, 802.1s, 802.1w, 802.3ad, 802.3x, 802.1Q standard support from day-1 Link Aggregation Protocol (LACP)
Network Security Features Port security to secure the access to an access or trunk port based on MAC address. Spanning tree feature to shut down Spanning Tree Protocol enabled interfaces when BPDU's are received to avoid accidental topology loops.
Quality of Service (QoS) & Control Standard 802.1p CoS and DSCP QoS ACLs Strict priority queuing mechanisms Granular QoS functions Switch should support at least 1600 aggregate polices.
Management Command Line Interface (CLI) support for configuration & troubleshooting purposes. For enhanced traffic management, monitoring, and analysis, upto four RMON groups (history, statistics, alarms, and events) must be supported. FTP/ Trivial File Transfer Protocol (TFTP) Network Timing Protocol (NTP) SNMPv1, SNMPv2c, and SNMPv3 • Should be equipped with MAC Address notification, IGMP Filtering, Dynamic VLAN • Should have SNMP, Web based and command line interface for management • Manage, monitor and configure from central network management console. • Should support third party open standard NMS. • 19" Rack Mountable with rack mounting accessories

3 Years Comprehensive AMC with all licenses/policies along with 24x7 on-site support after 1 year initial warranty for above L3 Managed stackable Switches
The Supplier has to Supply install, test, commission and integrate the switches with all the licenses/ policies in the existing CIL Network at Coal India Corporate office, Rajarhat, Kolkata -700156. . The Supplier shall provide all tools, cables and accessories along with Rack mounting kit. Any accessories required but not mentioned in the BoQ/ Specifications for commissioning and integration of the switches have to be provided by the Supplier free of cost.

4. L3 Managed stackable switch:

Qty (2Nos) 24-port 10/100/1000 BASE-T with four SFP Gigabit Ethernet ports with transceivers and redundant power supply with with 1 Year warranty with required licenses/policies and 24x7 on-site support + 3 Years Comprehensive AMC with all licenses/policies along with 24x7 on-site support after 1-year initial warranty
Technical Specifications of Layer 3 Switch - 24 x 1 Gig Port + 4 x SFP Certification : The OEM for the offered item must be in the Leader's/challenger's quadrant of the Gartner Magic Quadrant for Data Center Networking for 2017 or latest. Equipment Test Certification: FCC / CE / VCCI
General The Switch should have minimum 24-port 10/100/1000 BASE-T Ethernet ports and 4 SFP Gigabit ports equipped with 1000BASE-SX SFP transceiver module(fully loaded), MMF in all ports Power and stacking cables Equipped with Redundant Power supply IPv4 & IPv6 Layer 3 forwarding in hardware Should have Minimum 4GB DRAM & Minimum 2GB Flash memory
Performance Should have stacking facility with dedicated stacking port and support minimum total stacking bandwidth of 400 Gbps. Should have Minimum 90 Gbps Switching capacity & Minimum 66 Mpps forwarding rate MAC Address table : min. 30000
Features Basic IP unicast routing protocols (static, RIPv1, and RIPv2) should be supported from day 1. Should have future support for advanced routing support including OSPF, IS-IS, BGP, policy based routing & Multicast routing Support for mimimum 4000 VLAN IDs. IEEE 802.1d, 802.1s, 802.1w, 802.3ad, 802.3x, 802.1Q standard support from day-1 Link Aggregation Protocol (LACP)
Network Security Features Port security to secure the access to an access or trunk port based on MAC address. Spanning tree feature to shut down Spanning Tree Protocol enabled interfaces when BPDU's are received to avoid accidental topology loops.

Quality of Service (QoS) & Control Standard 802.1p CoS and DSCP QoS ACLs Strict priority queuing mechanisms Granular QoS functions Switch should support at least 1600 aggregate polices.
Management Command Line Interface (CLI) support for configuration & troubleshooting purposes. For enhanced traffic management, monitoring, and analysis, upto four RMON groups (history, statistics, alarms, and events) must be supported. FTP/ Trivial File Transfer Protocol (TFTP) Network Timing Protocol (NTP) SNMPv1, SNMPv2c, and SNMPv3 • Should be equipped with MAC Address notification, IGMP Filtering, Dynamic VLAN • Should have SNMP, Web based and command line interface for management • Manage, monitor and configure from central network management console. • Should support third party open standard NMS. • 19" Rack Mountable with rack mounting accessories
3 Years Comprehensive AMC with all licenses/policies along with 24x7 on-site support after 1-year initial warranty for above L3 Managed stackable Switches
The Supplier has to Supply install, test, commission and integrate the switches with all the licenses/ policies in the existing CIL Network at Coal India Corporate office, Rajarhat, Kolkata -700156. . The Supplier shall provide all tools, cables and accessories along with Rack mounting kit. Any accessories required but not mentioned in the BoQ/ Specifications for commissioning and integration of the switches have to be provided by the Supplier free of cost. Note:- All L2, L3 switches at S.No 2, 3 & 4 of Schedule of Requirements should be of same make. The Supplier must submit point wise compliance of technical specifications with relevant Brochure /data sheet/supporting documents

1. **Detailed Scope of Supply**

   A. The Supplier has to Supply, Install, Test, Commission and Integrate the Firewalls and Switches with all the licenses, policies in the existing CIL Network at Coal India Corporate office, Rajarhat, Kolkata -700156.The Supplier shall provide all tools, cables and accessories along with Rack mounting kit. Any accessories required but not mentioned in the BoQ/ Specifications for commissioning and integration of the firewalls& switches have to be provided by the Supplier free of cost.

   B. The supplier is responsible for On-site Installation of the supplied System, site preparation, if required, as per terms of technical specifications. The Supplier is responsible for all unpacking, assembling, wiring, installation, cabling between equipment units and components, and connection to power supplies. The supplier will test all Systems operations and perform all the necessary setup, configuration and customization for successful operation at the site.

   C. Onsite technical support and service obligations during the four years period at the Coal India's Installation site(s) as per the Technical Specifications.
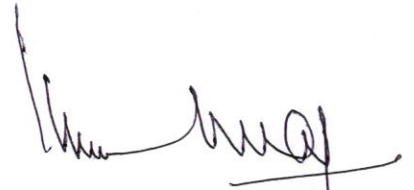
D. During the Implementation Period and Warranty Period, the supplier is responsible for the functionality and the performance of the system. After one year initial warranty, Supplier has to provide 3 Years Comprehensive AMC as per terms & conditions of the NIT.

2. **Terms and conditions of Comprehensive AMC: -**
   - 3 Years Comprehensive AMC with all licenses along with 24x7 on-site support as & when required, after 1-year initial warranty for firewall and switches
   - All the licenses and subscriptions should be provided from day one for entire contract period i.e 1+3 years as per the NIT.
   - To carry out all routine schedule maintenance of the total system, as per manufacturers' guidelines.
   - To provide inspection and supervision services related to the above.
   - To provide all labour, spare parts, consumables required for maintenance of all hardware and software items. If any item is to be rectified / replaced, the same shall be done by supplier free of cost during CAMC period. The CAMC charges will include cost of such spares (FOR destination basis landed price), labour charges and all other charges as and when required.
   - The payment of CAMC charges will be made on quarterly basis against invoice / bill raised for that purpose after completion of each quarter.
   - To provide all software/firmware upgrades and new patches for a total contract period of 1+3 years. The CAMC cost will include cost of such Software/firmware upgrades.
   - The supplier shall take back to back support from respective OEMs for the three year CAMC period & shall submit the relevant documents to CIL before release of first Quarter payment.