

INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE
2A & 2B, Raja S.C. Mullick Road, Jadavpur, Kolkata-700032

NIT No.: IACS/CCRES/SWITCH/2021-22/126

Date: 18/02/2022

Sealed tender in two bids system (technical bid and price bid) is invited from bonafide, resourceful and eligible manufacturer/exclusive distributor/vendors for '**Supply, installation, testing and commissioning of 12 Nos. of L2 managed Network Switches and associated UPS's and Transreceiver**'.

Part-I (Technical Bid) of the tender should contain technical specifications in detail as well as commercial terms and conditions. Part-II (Price Bid) should clearly indicate item-wise price, if needed, as mentioned in the technical bid. The Technical Bid and Price Bid are to be submitted in separately sealed envelopes, distinctly marked accordingly and both to be put inside another envelope, that should be sealed and super scribed with tender notice no. and due date. The bidders may submit bids duly signed in their own letterheads.

Completed tender bids should reach to the Dispatch section, IACS on or before the scheduled date and time specified below:

Tender Notice No.	NIT No. IACS/CCRES/SWITCH/2021-22/126 Date : 18-02-2022
Last date and time of submitting Tender	March 09, 2022 at 1.00 P.M. at Dispatch Section
Pre-bid meeting to discuss Technical specifications	March 02, 2022 at 3.00 P.M.
Date and time of opening tender	March 09, 2022 at 4.00 P.M.
Place of opening Tender	I.A.C.S., Kolkata
Contact	Email: ccesrc@iacs.res.in, admap@iacs.res.in. Tel.+91 33 2473 4971 [Ext. 1176]

The technical bids will be opened first to judge/evaluate the technical specifications of the said switches and associated UPS's and thereafter the price bids of only technically qualified bidders will be opened.

Technical Bid Evaluation: The technical bids will be opened first to judge/evaluate the technical specifications of the said materials.

Opening of price-bid: The Price Bids of the bidders qualifying the technical bid will only be opened, the date and time of which will be intimated to the short-listed bidders at their email addresses. The rest of the bids will be rejected.

Please note that IACS will not provide any accommodation or reimburse any expenses to any of the bidders for attending opening of technical bid.

Quotations received incomplete or beyond the stipulated time will be summarily rejected.

1. TECHNICAL BID

The technical bid should contain technical specifications and should be kept in a separate sealed envelope duly super scribed as 'TECHNICAL BID' on the outer cover of the envelope as already detailed above. **It should be clearly mentioned on the envelope as "Technical Specification for Network Switches and associated UPS's and Transreceiver "**.

1.1. Bill of materials

Description	Quantity No
Layer 2 Switch Managed 48 port 10/100/1000 Mbps with 4 X 1G SFP Port (PoE)	10 Nos.
Layer 2 Switch Managed 24 port 10/100/1000 Mbps with 4 X 1G SFP Port (PoE)	2 Nos.
UPS 600 VA	12 Nos.
1G Multimode Fiber Transceiver (Integrated part of the L2 switch)	6 Nos.
1G Single Mode Transceivers (Integrated part of the L2 switch)	2 Nos.

1.2 Technical specification:

- **Layer 2 Switch Managed 48 port 10/100/1000 Mbps with 4 X 1G SFP Port (PoE)**

Performance Features
The proposed switch should have 48 x 10/100/1000 Base-T ports and 4 x 1G SFP ports.
All 48 port should support PoE (802.3af) and PoE+ (802.3at) with a PoE power budget of 1440 W.
The switch should have 104Gbps Switching capacity and 77.38Mpps forwarding rate.
Switch should have 2GB RAM and 4GB Flash.
Shall have minimum 16K MAC Addresses.
Switch should be able to support 3000 IPv4 & 1500 IPv6 routing entries.
The switch should support Jumbo frames of 9198 bytes.
General Features
Proposed switch should be enterprise grade switch with x86 based CPU architecture.
The proposed switch should have redundant power supply from Day1.

Should support Layer 2 features, OSPF Routed Access (1000 Routes), RIP, Policy Based Routing (PBR), PIM Stub Multicast (1000 routes), PVLAN, VRRP, 802.1X, MACsec-128, CoPP, IP SLA Responder.
The proposed switch should be software defined networking capable and be able to at-least integrate easily with the SDN controller from the same OEM.
The Switch stack should be based on Distributed forwarding Architecture, where in each stack member forwards its own information on network.
Switch should have unique secure identity so that it's authenticity and origin can be confirmed with OEM. Switch BIOS, software image should be cryptographically signed to ensure integrity and switch should not boot with modified software regardless of user's privilege level.
Switch shall support application visibility and traffic monitoring with minimum 16K netFlow/sflow/jflow entries.
Switches should have hardware support to connect a Bluetooth dongle to your switch, enabling you to use this wireless interface as an IP management port interface.

High availability & Resiliency
Switch should support redundant field replacable platinum rated power supplies.
Switch should support redundant fans.
Switch should support cross-stack etherchannel.
Switch should support embedded event manager scripts.
After a reboot when power is restored to a switch, switch should start delivering power to endpoints without waiting for the operating system to fully load.

L2 Features
The switch should support Automatic Negotiation of Trunking Protocol, to help minimize the configuration & errors.
The switch should support IEEE 802.1Q VLAN encapsulation.
The switch should support Spanning-tree PortFast and PortFast guard for fast convergence.
The switch should support UplinkFast & BackboneFast technologies to help ensure quick failover recovery, enhancing overall network stability and reliability.
The switch should support Spanning-tree root guard to prevent other edge switches becoming the root bridge.
The switch should support Voice VLAN to simplify IP telephony installations by keeping voice traffic on a separate VLAN.
The switch should support Auto-negotiation on all ports to automatically select half- or full-duplex transmission mode to optimize bandwidth.
The switch should support Automatic media-dependent interface crossover (MDIX) to automatically adjust transmit and receive pairs if an incorrect cable type (crossover or straight-through) is installed.
The switch should support Unidirectional Link Detection Protocol (UDLD) and Aggressive UDLD to allow for unidirectional links caused by incorrect fiber-optic wiring or port faults to be detected and disabled on fiber-optic interfaces.
The switch should support IGMP Snooping.
Switch should support IPv4 and IPv6The Switch should be able to discover (on both IPv4 & IPv6 Network) the neighboring device giving the details about the platform, IP Address, Link connected through etc, thus helping in troubleshooting connectivity problems.

Network security features
The switch should support IEEE 802.1x providing user authentication, authorization and CoA.
The switch should support SNMPv3.
The switch should support TACACS+ and RADIUS authentication enable centralized control of the switch and restrict

unauthorized users from altering the configuration.
The switch should support MAC address notification to allow administrators to be notified of users added to or removed from the network.
The switch should support MACSec-128

Quality of Service
Switch should support 802.1p Class of Service (CoS) and Differentiated Services Code Point (DSCP) field classification, Shaped Round Robin (SRR) scheduling, Committed Information Rate (CIR), and eight egress queues per port.

● **Layer 2 Switch Managed 24 port 10/100/1000 Mbps with 4 X 1G SFP Port (PoE)**

Performance Features
The proposed switch should have 24 x 10/100/1000 Base-T ports and 4 x 1G SFP ports.
All 24 port should support PoE (802.3af) and PoE+ (802.3at) with a PoE power budget of 740 W.
The switch should have 56Gbps Switching capacity and 41.66 Mbps forwarding rate.
Switch should have 2GB RAM and 4GB Flash.
Shall have minimum 16K MAC Addresses.
Switch should be able to support 3000 IPv4 & 1500 IPv6 routing entries.
The switch should support Jumbo frames of 9198 bytes.

General Features
Proposed switch should be enterprise grade switch with x86 based CPU architecture.
The proposed switch should have redundant power supply from Day1.
Should support Layer 2 features, OSPF Routed Access (1000 Routes), RIP, Policy Based Routing (PBR), PIM Stub Multicast (1000 routes), PVLAN, VRRP, 802.1X, MACsec-128, CoPP, IP SLA Responder.
The proposed switch should be software defined networking capable and be able to at-least integrate easily with the SDN controller from the same OEM.
The Switch stack should be based on Distributed forwarding Architecture, where in each stack member forwards its own information on network.
Switch should have unique secure identity so that it's authenticity and origin can be confirmed with OEM. Switch BIOS, software image should be cryptographically signed to ensure integrity and switch should not boot with modified software regardless of user's privilege level.
Switch shall support application visibility and traffic monitoring with minimum 16K netFlow/sflow/jflow entries.
Switches should have hardware support to connect a Bluetooth dongle to your switch, enabling you to use this wireless interface as an IP management port interface.

High availability & Resiliency
Switch should support redundant field replacable platinum rated power supplies.
Switch should support redundant fans.
Switch should support cross-stack etherchannel.
Switch should support embedded event manager scripts
After a reboot when power is restored to a switch, switch should start delivering power to endpoints without waiting for the operating system to fully load.

L2 Features
The switch should support Automatic Negotiation of Trunking Protocol, to help minimize the configuration & errors.
The switch should support IEEE 802.1Q VLAN encapsulation.
The switch should support Spanning-tree PortFast and PortFast guard for fast convergence.
The switch should support UplinkFast & BackboneFast technologies to help ensure quick failover recovery, enhancing overall network stability and reliability.
The switch should support Spanning-tree root guard to prevent other edge switches becoming the root bridge.
The switch should support Voice VLAN to simplify IP telephony installations by keeping voice traffic on a separate VLAN.
The switch should support Auto-negotiation on all ports to automatically select half- or full-duplex transmission mode to optimize bandwidth.
The switch should support Automatic media-dependent interface crossover (MDIX) to automatically adjust transmit and receive pairs if an incorrect cable type (crossover or straight-through) is installed.
The switch should support Unidirectional Link Detection Protocol (UDLD) and Aggressive UDLD to allow for unidirectional links caused by incorrect fiber-optic wiring or port faults to be detected and disabled on fiber-optic interfaces.
The switch should support IGMP Snooping.
Switch should support IPv4 and IPv6The Switch should be able to discover (on both IPv4 & IPv6 Network) the neighboring device giving the details about the platform, IP Address, Link connected through etc., thus helping in troubleshooting connectivity problems.

Network security features
The switch should support IEEE 802.1x providing user authentication, authorization and CoA.
The switch should support SNMPv3.
The switch should support TACACS+ and RADIUS authentication enable centralized control of the switch and restrict unauthorized users from altering the configuration.
The switch should support MAC address notification to allow administrators to be notified of users added to or removed from the network.
The switch should support MACSec-128.

Quality of Service
Switch should support 802.1p Class of Service (CoS) and Differentiated Services Code Point (DSCP) field classification, Shaped Round Robin (SRR) scheduling, Committed Information Rate (CIR), and eight egress queues per port.

PRICE BID

The financial bid indicating (item-wise) price for the item(s) mentioned in the technical bid should be kept in a separate sealed envelope and should be submitted in the following format duly super scribed as 'PRICE BID' on the outer cover of the envelop as already detailed above. Price bids of only technically qualified bidders will be opened and they will be intimated the date and time of the opening of price-bid at their e-mail ids. Rest of the bidders will stand rejected.

Sr. No	Item	Quantity	Make/Model	HSN/SAC Code	Base price	Total Price(Without GST)	GST@	GST Value	Total price with GST
1	48 Ports L2 Switch	10							
2	24 Ports L2 Switch	2							
3	UPS (600 VA)	12							

	Total GST:	Total Price:
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2. SCOPE OF WORK:

The switches will replace the existing Cisco make switches in the entire IACS Campus. The L2 switches will be used as Access switches and Wireless APs (Cisco Aironet 3802) which are 802.11 g/n/ac complied will also be connected to them. These L2 switches will be connected through CAT6A with both L3 switches using Spanning Tree Protocol.

3. WARRANTY:

- i. The Comprehensive Warranty shall be for a period of 3 years from the date of satisfactory installation, testing, commissioning and handing over the equipment which covered under warranty in working order. During the Warranty period the replacement of any part(s) of the equipment or rectification of the defective product will be free of cost.
- ii. If, the tenderer is required to replace the rejected equipment and/ or other articles, he will replace them forthwith, but not later than a period of 14 (fourteen) days from the date of rejection. The tenderer shall bear all cost of such replacement, including freight, if any, of such replacement or repaired equipment and/ or other articles but without being entailed to any extra payment on that or any other account.
- iii. Vendor shall make necessary arrangements for keeping the sufficient spares at site to minimize the down time.
- iv. Software updates released by the OEM should be installed by the vendor free of cost within the warranty period.
- v. Warranty should be offered directly by the OEM.
- vi. Single point of contact for all communication related with after sales and support.

4. CERTIFICATIONS:

Switch OEM should be in the Gartner's Leaders & Challengers quadrant for Wired LAN Access infrastructure.

5. BID SECURITY: (Declaration vide order no. F.9/4/2020-PPD dtd. November 12, 2020)

- a. An Account payee Demand Draft/Pay Order of Nationalized Bank for Rs. 1,00,000/- (Rupees 1 Lakh only) drawn in favor of "Indian Association for the Cultivation of Science (State Bank of India, Jadavpur University Branch, A/C No. 11079699211, IFSC: SBIN000093, MICR Code: 700002048)" is to be furnished by the bidders except those who are registered with the Central Purchase Organizations, National Small Industries Corporation or the concerned Ministry or Department, as Bid Security money or Earnest Money Deposit (EMD). Alternatively, the Bidder shall have the option to furnish the EMD in the format of Bank Guarantee (BG).
- b. The Demand Draft for the Bid-Security should have at least about 90 (ninety) days validity period of opening of the bids.
- c. In case of non-award of the work the Bid Security money would be returned to the unsuccessful Bidders.

6. PERFORMANCE SECURITY:

An Account Payee Demand Draft on any commercial bank of India of 3% of the order value in the name of "Indian Association for the Cultivation of Science" is to be furnished by the successful bidder as Performance security. Performance Security may be furnished in the form of Fixed Deposit Receipt or Bank Guarantee from a Commercial Bank. Performance security money should remain valid for a period of 60 days beyond the date of completion of all contractual obligations of the supplier including warranty obligations. Bid security money or EMD will be refunded to successful bidder on receipt of the Performance security money.

7. TERMS OF PAYMENT:

All rates should be quoted in INR only. Payment will be made 100% on successful delivery of the switches /execution of orders. Partial payment against supply within scheduled delivery period will not be admissible.

8. ELIGIBILITY CRITERIA AND DOCUMENTS REQUIRED:

The following shall be the minimum eligibility criteria for selection of bidders technically

1. The Bidder should be an Original Equipment Manufacturer (OEM) or an authorized firm of reputation having sufficient expertise and experience in the subject tender with sound warranty/service support capability and authorization from Manufacturer.
2. Either the Indian agent on behalf of the Principal/OEM or Principal/OEM itself can bid but both cannot bid simultaneously for the same item/product.
3. If an agent submits bid on behalf of the Principal/OEM, the same agent shall not submit a bid on behalf of another Principal/OEM in the same tender for the same item/product.
4. The tenderer should clearly mention whether they are the OEM or authorized dealer/agent of the

manufacturers. In the case of dealer/distributor/agent, latest letter of authorization from the OEM specifically for this tender should be submitted along with the Technical Bid.

5. Submission of duly filled in and signed compliance certificate from Bidder are must with the Technical Bid.
6. Equipment offered must be supported with printed catalogue & description on OEM website.
7. Manufacturers / exclusive distributors / vendors should have history of supplying this type of switches to this or other scientific organizations. Availability of a list in this regard would be preferred.
8. Bidder should submit their past experience for supplying and successful installation of similar units to other research Institute/Universities/other organization in India. Please provide documentary proofs of such successful installation and project completion. Also, a compliance table (see below) must be prepared and submitted along with the technical bid.

Sr. No	Item	Tender specification	Your offered instrument specification	Extent of compliance
1	48 and 24 port managed L2 PoE Switch			

9. Attested copy of Registration certificates of the firm/company and GST details should also be submitted.
10. Manufacturers or Bidder are requested to provide ISO 9001:2015.

11. Bidder should enclose copy of following documents:

- i. Trade license.
- ii. Company Registration certificate.
- iii. Bid specific OEM Authorization certificate is mandatory.
- iv. GST registration certificate.
- v. PAN GST certificate to be submitted.
- vi. Similar 3 Purchase Order.
- vii. Income Tax Return (for the last 3 years).
- viii. Audited Balance Sheet (for the last 3 years).
- ix. A list of clients where L3/L2 Switch has been installed should also be provided.
- x. Documentary proof of Servicing facility and service engineer stationed at Kolkata.
- xi. Documentary proof of the vendor/bidder working in this field for at least last 3 years.
- xii. Annexure-I in letter head with company seal and sign.

12. Technical Supporting Staff – The bidder should have trained and qualified customer support staff with ample experience in the required field. Complete details of service centres and support staff should be provided. They should have service centre in Kolkata with proper address. The details of the service centres should be provided.

13. Documentary proof of Servicing facility and service engineer stationed at Kolkata.
14. Documentary proof of the vendor/bidder working in this field for at least last 3 years.
15. Annexure-I in letter head with company seal and sign.
16. All Active network components should be from same OEM. All Switches and fibre transceiver should be from same OEM.
17. The OEM of the active network product should have well established manufacturing plant/ Research & Development Lab in India or abroad.
18. All active network devices quoted by the bidder should be from a single OEM only and it should be supported by Single NMS/Controller.
19. The OEM of active network devices to be quoted by the bidder should have local Technical Assistance Centre (TAC) support in India through a toll-free number and Returned Materials Authorization (RMA) depot in India.
20. The OEM of active network devices to be quoted by the bidder should be present in the country from at least past 10 years.
21. Products (active) being quoted should be available as on date with the OEM and should be publicly available.
22. All active material to be procured should be from an OEM, which has not been acquired by other business entities for the period of last 3 years, this is to ensure dependable and continuous support as per warranty requirements and lifecycle of the network.

10. GENERAL INSTRUCTIONS

1. Validity of tender: Tender submitted should remain valid for at least six months from the date of opening the tender. Validity beyond six months from the date of opening of the tender shall be lapsed by mutual consent.
2. Incomplete and conditional tenders as well as tenders received after the due date will be summarily rejected without assigning any reasons thereof.
3. At any time prior to the bid due date, IACS may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder during pre-bid meeting, modify the bidding documents. The amendment(s) will be notified on the institute website. Prospective bidders are advised to occasionally to visit the website (www.iacs.res.in) for any amendment.
4. Considering the current pandemic situation, only 1 representative per bidder, duly authorized, may be allowed to attend the pre-bid meeting.
5. Service facility: In Kolkata, supplier should mention their details of service setup and man powers that are responsible for after sales support. Response time should be within 24 hrs.
6. Proposed delivery schedule should be mentioned clearly.
7. Guarantee certificate, users manuals etc. are to be handed over to the user after successful commissioning of the system.
8. In the event of date being declared a closed holiday for purchaser's office, the due date for submission of bids and opening of the technical bids will be the following working day at the appointed time.
9. In case of any dispute, the decision of IACS authority shall be final and binding on the bidders.

10. Once the pre-bid meeting is over and issues are clarified, no query or objection or complain shall be entertained in connection with the tender. Absence of any vendors in pre-bid conference shall not be considered as justification for making query or objection thereto. Also, non-attendance in the pre-bid meeting is not a disqualification for participating in the tender process.
11. For any clarification regarding technical specifications, information etc., please send your queries to Rimi Chakraborty (ccresrc@iacs.res.in), Abhra Paul (admap@iacs.res.in).
12. The authority of IACS reserves the right to reject any or all of the tenders received without assigning any reason thereof.

Acting Registrar