



**Indian Institute of Technology, Kharagpur
Kharagpur 721 302, WB, India**

Sub: PROCUREMENT OF ETHERNET SWITCHES FOR NETWORK EXPANSION AND MAINTENANCE WORK

Ref: Tender Notice No. IIT/CIC/NETWORK/SWITCH/2017-18/ 24 dated 4th October 2017

Indian Institute of Technology Kharagpur, an Institute of National Importance, invites sealed bids from reputed **Original Equipment Manufacturers (OEMs) OR their Authorized System Integrators** who have adequate credential for supplying, installing and maintaining similar product in IITs or similar Autonomous Institutions /Universities, Government /Public Sector Undertakings, etc., for procurement of **Ethernet switches** with **five years** comprehensive onsite warranty for regular network expansion and maintenance work.

Interested vendors are requested to send their sealed bids under a **two cover system** as per requirement mentioned in tender document, along with the Technical Specifications & Compliance Certificate (as mentioned in **Specification Annexure-I to 4**) and the quantity as specified in tender document.

Details are also mentioned in the Institute website www.iitkgp.ac.in [link: tenders].

The proposal has to be sent in a sealed packet, containing two separate sealed envelopes (**Technical Bid** and **Price Bid**) duly superscripted with Reference Number (Tender Notice No. **IIT/CIC/NETWORK/SWITCH/2017-18/24 dated 4th October 2017**), to the Office of the **Head, Computer & Informatics Centre, Indian Institute of Technology, Kharagpur, P.O. Kharagpur Technology, PIN : 721 302 on or before 30th October 2017 at 3:00 pm.**

The **technical bids (should also contain detailed un-priced bill of material based on Table – 1) which will be opened on 30th October 2017 at 3:30 PM** in the presence of the vendors and their authorized representatives and price bids will be opened (to be notified separately), only of those firms, who will be found technically qualified/shortlisted, after evaluation of their technical bids.

**Head
Computer & Informatics Centre**

Copy to:

- 1. Institute website**
- 2. Notice Board**
- 3. News Paper**
- 4. CPPP**

PROCUREMENT OF ETHERNET SWITCHES FOR NETWORK EXPANSION AND MAINTENANCE WORK

Introduction

Indian Institute of Technology, Kharagpur has a campus wide network spread over academic, hostel and residential areas, based on optical fiber as a backbone. This state-of-the-art scalable campus network is expanding on regular basis as new academic complexes, hostels and residential complexes are coming up as per Institute needs. In view of this Institute has decided to procure some Ethernet switches for regular expansion and maintenance of its campus network.

1. Scope of work:

- I. The scope of the work includes supply, installation, commissioning and integration of the Ethernet switches as per the institute's requirement and maintenance of the same for a period of five years. All items supplied must have a comprehensive onsite OEM warranty for a period of five years.
- II. Complete delivery of the material has to be accomplished within eight Weeks of receipt of the purchase order, failing which Liquidation Damage (LD) @ 1% per month of the total order value will be imposed as per Institute purchase rules. Total liquidated damage will be capped at 5% of the PO value.
- III. The installation would be deemed as complete, after the delivery, self-testing of all switches and final acceptance and certification by Head, CIC, IIT Kharagpur. The warranty period will start after the final acceptance and certification by Head, CIC, IIT Kharagpur.
- IV. Selected vendor will have to provide support to IIT Kharagpur personnel to configure and integrate the Ethernet switches as and when required within the warranty period without disturbing the current architecture of the network.
- V. Replacement of defective equipment and shipment of the same should be the responsibility of the selected vendor without any financial commitment from IIT Kharagpur. The same has to complete within ten working days after reporting the problem.
- VI. In case of any future expansion / up-gradation within the warranty period, necessary changes in the configuration have to be done by the selected vendor for smooth integration / migration.
- VII. The vendor will be liable for any hardware and software up-gradation for maintenance without any extra cost during warranty period.
- VIII. The vendor should supply all required hardware and software to meet the technical specifications. Part bid will not be entertained.
- IX. The vendor should provide onsite comprehensive warranty for **FIVE YEARS** on all items as mentioned in **Table-1**. All products should have 5 years 8 x 5 x NBD (Next Business Day) support commitment with back-to-back agreement with OEM. In case of equipment failure, IIT Kharagpur should be able to log case with the OEM **both** through the vendor and directly without vendor intervention. Emergency response team should be available from OEM directly in case of any critical failures. For the entire warranty period, latest software updates for all products should be available free of any additional cost. Declaration from OEM that the above conditions will be satisfied if the vendor is selected have to be submitted.

2. Pre-Qualification Criteria:

- I. The bidder should have minimum 10 years of working experience in eastern India in the domain of network infrastructure, with sales and support office in Eastern India. The bidder should have at least 3 orders for supplying network equipment (each of minimum Rs. 25 Lakhs) in the last 3 years either directly or through a system integrator (if bid submitted from OEM). Copies of purchase orders to be submitted as supporting documents.
- II. The bidder should be a profit making entity for each of the last 3 years. Audited P & L reports to be submitted as supporting document.
- III. The bidder should not have been blacklisted by any IITs or similar Autonomous Institutions /Universities, Government /Public Sector Undertakings on the date of submission of this bid. A declaration from the bidder must be submitted.
- IV. The bidder should have a minimum turnover of Rs. 10 Crores per annum during each of last three financial years. Audited balance sheet must be provided.
- V. The bidder should have valid ISO 27001:2013 Certification or ISO 9001:2008 Certification.
- VI. The quoted products should not be under end of sales or end of support in next five years from the date of submission.
- VII. OEM should have office and spare depot in India. Documentary proof from OEM must be submitted.
- VIII. OEM should have Industry presence in India for more than 10 years.
- IX. OEM should have 24 x7 toll free call center for providing technical assistance.

3. Submissions of Bids:

- I. Technical bid (should also contain the detailed un-priced bill of material) and price bid should be sealed and quoted separately. The technical bid will be evaluated first for technical suitability. Only technically qualified bids would be considered for price comparison. Price bid should be quoted in the given format (**Table-1**) indicating the tax components. Vendor may provide the priced bill of materials indicating the unit price, tax and total price of each detailed component of the materials. But total price quoted in the given price bid format as per tender should match the total price calculated from the priced bill of material. In case of any ambiguity, the unit rate quoted in the priced bill of material will be considered as the final price.
- II. The authorization letter issued by the OEM (specifically against this tender) should be enclosed in original (if OEM is not the bidder).
- III. The technical bid should contain the technical solution as per the requirement (Table-1). Bill of Materials should mention model number indicating relevant part numbers for each component.
- IV. Technical bid should contain the tender document signed by authorized signatory of the bidder as a token of acceptance of specifications, requirements and terms and conditions.
- V. The capabilities, operating characteristics and other technical details of the hardware and software offered should be furnished together with product brochures, literature, etc. in the

technical bid. The bidder should ensure that the software versions being quoted if any are latest.

- VI. Technical bid should contain all relevant technical details; printed technical leaflet of models quoted and other details, which may be necessary to ensure that offer is complete in all, respect e.g. technical specification, delivery period, guarantee period, validity, etc.
- VII. Technical bid should also contain a signed “compliance certificate” (Specification Annexure – 1 to 4) duly counter signed by the manufacturer or bidder.
- VIII. Bidders should also enclose the following documents in the technical bid as proof of their credential:
 - ❖ Tender fee
 - ❖ Earnest Money Deposit (EMD)
 - ❖ Certificate of Registration
 - ❖ Current Income Tax, PAN Number and GST Number.
 - ❖ Banker’s Solvency Certificate.
 - ❖ Summary of Audited Statement of Accounts for the last three years.
 - ❖ Three order copies for computer networking as specified in Pre-qualification Criteria.
 - ❖ Copy of ISO Certifications.
 - ❖ Signed Tender document as a token of acceptance for the Terms & Conditions specified in various sections of the Tender Document

4. General Terms & Conditions:

- I. **Last Date of Submission of Sealed Bids: 30th October 2017 by 3:00 pm** (In the Office of the Head, Computer & Informatics Centre, Indian Institute of Technology Kharagpur).
- II. **Date of opening of the Technical Bids 30th October 2017 at 3:30 pm** (In the Office of the Head, Computer & Informatics Centre, Indian Institute of Technology Kharagpur).
- III. **Payment Terms:** 80% (value of the purchase order) payment will be made after the successful acceptance of the materials. Balance 20% of the payment will be made on submission of Bank Guarantee of 20% of the total purchase value valid for a period of five years plus three months.
- IV. **Price:** Price should be **quoted only in Indian Rupees** on free delivery at site **inclusive of all taxes and incidental charges.**
- V. **Custom Duty Exemption Certificate/Excise Duty Exemption Certificate/Way Bill will be issued to the Selected Bidders as applicable in Institute rules.**
- VI. **Tender Fee:** An amount of **Rs. 10,000.00** (Rupees ten thousand only) as tender fee (non refundable) has to be paid. The payment shall be made by Demand Draft from any Bank in favour of "Indian Institute of Technology Kharagpur", payable at "Kharagpur". **Quotation will not be accepted without the Tender Fee.** Tender fee should be enclosed separately in an envelope and stapled with the Technical Bid.
- VII. **Earnest Money Deposit (EMD):** An amount of **Rs.1,50,000.00** (Rupees one lakh fifty thousand only) (Refundable) in the form of Demand Draft drawn in favour of "**Indian Institute of Technology Kharagpur**", payable at Kharagpur or Bank Guarantee as per format at **Annexure 5. E.M.D. should be enclosed separately in an envelope and stapled with the Technical Bid document superscribing EMD.** The validity of the EMD should be 6 (six) months from the date of issue. **Any bid without EMD will summarily be rejected. No interest is payable on EMD.** EMD will be refunded to the unsuccessful bidder, finalization of the tender process. The EMD of vendor awarded with the contract to be treated as part of security deposit towards Performance Guarantee. No interest is payable on Security Deposit. Security Deposit shall be forfeited if the selected vendor after award of contract, fails to execute the same
- VIII. Conditional Offer will not be accepted.
- IX. **Period of Validity:** Bids shall remain valid for acceptance for a period of 120 days from the date of opening of the price bid but any benefit for **downward revision of prices should be extended to the IIT Authority.**
- X. Past Performance of the Vendors will be judged at the time of Technical evaluation.
- XI. Complete delivery of the material has to be accomplished within **eight Weeks** of receipt of the purchase order, failing which Liquidation Damage (LD) will be imposed as per Institute purchase rules (refer clause II of Scope of work).
- XII. The vendor should provide comprehensive onsite warranty for **FIVE YEARS** on all supplied items.

- XIII. Replacement of defective equipment and shipment of the same should be the responsibility of the selected vendor without any financial commitment from IIT Kharagpur. The same has to complete within **ten working days**.

5. Acceptance of Tender

- I. The Institute does not bind itself to offer any explanation to those bidders whose technical bids have not been found acceptable by the Evaluation.
- II. The Institute does not bind itself to accept the lowest tender and reserves the right to reject any or the entire tender received without assigning any reason thereof.
- III. The bids (technical and price bids) once submitted shall be the property of the Institute and shall not be returned to the vendor in future.
- IV. A bid submitted with false information will not only be rejected but the vendor may also be debarred from participation in future tendering processes.
- V. Canvassing in any form not only invites disqualification in this tender but also debar the vendor participation in the future tendering processes.
- VI. The person/officer signing the tender/bid documents should be delegated with an appropriate Power of Attorney (essentially endorsed by a Notary Public) by the Chief Executive Office/MD of the Company, to sign such documents.
- VII. **Opening of Price Bids:** The Price Bid(s) of only those vendor(s) who are found technically qualified will be opened. The date and time will be informed separately.
- VIII. Authorized representative (with proper authorization letter to attend opening of technical bids and also for opening of price bids) may choose to be present at the time of opening of Technical Bids/Price Bids.
- IX. Director may accept or reject any or all the bids in part or in full without assigning any reason and does not bind himself to accept the lowest bid. The Institute at its discretion may change the quantity/upgrade the criteria/drop any item or part thereof at any time before placing the Purchase Order. In case of any dispute, the decision of the Director of this Institute shall be final and binding on the bidders.
- X. This Tender Document and the Contract shall be governed by and interpreted in accordance with Laws in force in India. The Courts at Midnapur shall have exclusive jurisdiction in all matters arising under the contract.

For any query pertaining to this tender, correspondence may be addressed to:

**The Head, Computer & Informatics Centre
Indian Institute of Technology,
Kharagpur-721 302
Email: head@cc.iitkgp.ernet.in**

In case the due date for submission and/or opening of the tender happens to be a holiday, the same will be accepted on the next working day. The timings will however remain unchanged. Please Note that the Institute remains closed during Saturdays & Sundays.

6. Price Bid Format

Table 1: List of Items

S/N	Description (Interfaces should be populated from day-1 as mentioned in bullet points)	Specification	Qty. (no.)	Unit Price (Rs.) with 5 years warranty	Tax (Rs.)	Total Price (Rs.) with 5 year warranty
1.	Access switch with following port configuration should be available from day-1 <ul style="list-style-type: none"> • 1 x 1000 Base LX • 50 x 10/100/1000 Base T 	As per Annexure-1	52			
2.	Aggregation switch with following port configuration should be available from day-1 <ul style="list-style-type: none"> • 2 x 10G LR • 12 x 1000 Base LX 	As per Annexure-2	08			
3.	Access switch with POE interfaces to support 20 nos. of existing type APs and following port configuration should be available from day-1 <ul style="list-style-type: none"> • 1 x 1000 Base LX • 50 x 10/100/1000 Base T 	As per Annexure-3	25			
7.	Transceiver Similar to SFP-10G-LR= for existing Core switches (Cisco Nexus 7010)	As per Annexure-4	14			
Total Price including all Taxes with 5 years comprehensive onsite warranty						

Annexure-1: Specification for Access Switch

S/N	Features	Compliance (Y/N)
1	The switch should have 50 Ethernet 10/100/1000 Base-T Ports + 2 combo mini-GBIC ports (populated as Specified in Table 1).	
2	The switch should have 52 usable port at any time.	
3	The switch have minimum switching capacity of 104 Gbps or more	
4	The switch should have minimum Forwarding Rate of 77 Millions of Packets per Second (mpps) (64-byte packets)	
5	The switch should have minimum 16K MAC address.	
6	The switch should have support for IGMP versions 1, 2, and 3 snooping and minmum 1K multicast groups	
7	The switch should have minimum Packet Buffer of 8Mb * 2 or more	
8	The switch have support for MTBF of 200,000 hrs @ 40 C or more	
9	The switch have support for Wirespeed routing of IPv4 packets, Up to 32 static routes and up to 32 IP interfaces	
10	The switch have support for IEEE 802.3ad Link Aggregation Control Protocol (LACP), Up to 8 groups, Up to 8 ports per group with 16 candidate ports for each (dynamic) 802.3ad link aggregation	
11	The switch have support for IGMP limits bandwidth-intensive multicast traffic to only the requesters; supports 256 multicast groups (source-specific multicasting is also supported)	
12	The switch have support for Relay of broadcast information across Layer 3 domains for application discovery or relaying of BootP/DHCP packets	
13	The switch have support for Priority levels - 4 hardware queues or more	
14	The switch have support for Strict priority and weighted round-robin (WRR), Ingress policer; egress shaping and rate control; per VLAN, per port, and flow based	
15	The switch have support for Port-based ACLs (PACLs) for Layer 2 interfaces to allow application of security policies on individual switch ports up to 512 rules or more.	
16	The switch have support for RADIUS and TACACS authentication.	
17	The switch have support for Storm control for Broadcast, multicast, and unknown unicast	
18	The switch have support for DoS attack prevention	
19	The switch have support for Built-in switch configuration utility for easy browser-based device configuration (HTTP/HTTPS). Supports configuration, system dashboard, system maintenance, and monitoring	
20	The switch have support for SNMP versions 1, 2c, and 3 with support for traps, and SNMP version 3 user-based security model (USM)	
21	The switch should have a console port for CLI base configuration	
22	The switch should have minimum following Certifications :	
22.1	UL (UL 60950), CSA (CSA 22.2), CE mark, FCC Part 15 (CFR 47) Class A	
22.2	USGv6 and IPv6 Gold Logo certified	

Annexure-2: Specification for Aggregation Switch (02x 10Gbps LR + 12x 1000BaseLX)

S/N	Features	Compliance (Y/N)
1	General	
1.1	The Switch should have minimum 16 x 10G SFP+ Ports. 12 x 1Gbps SFP+ ports and 2 x 10G SFP+ uplink Ports loaded with 12x1000BaseLX and 2x10G LR Transceivers from day-1	
1.2	Should have internal Redundant Power supply from Day 1	
1.3	IPv4 & IPv6 Layer 3 forwarding in hardware	
1.4	Should have 4GB DRAM & 2GB Flash memory	
2	Performance	
2.1	Should have stacking facility with dedicated stacking port and support minimum total stacking bandwidth of 300 Gbps. Should support stacking of eight switches into a virtual switch.	
2.2	Should have 320 Gbps Switching capacity & 200 Mpps forwarding rate	
2.3	MAC Address table : 30000	
2.4	Should support 24000 IP routes	
2.5	Should support 4000 Multicast routes	
3	Layer 3 feature	
3.1	Basic IP unicast routing protocols (static, RIPv1, and RIPv2) should be supported from day 1.	
3.2	Should have future support for advanced routing support including OSPF, IS-IS, BGP, policy based routing & Multicast routing	
4	Layer 2 feature	
4.1	IEEE 802.1Q VLAN encapsulation. At least 1000 VLANs should be supported. Support for 4000 VLAN IDs.	
4.2	IEEE 802.1d, 802.1s, 802.1w, 802.3ad, LACP standard support from day-1	
4.3	Support for Detection of Unidirectional Links (in case of fiber cut) and to disable them to avoid problems such as spanning-tree loops.	
4.4	The Switch should be able to discover the neighboring device giving the details about the platform, IP Address, Link connected through etc, thus helping in troubleshooting connectivity problems.	
4.5	Per-port broadcast, multicast, and storm control to prevent faulty end stations from degrading overall systems performance.	
4.6	Support for Multicast VLAN registration (MVR) to continuously send multicast streams in a multicast VLAN while isolating the streams from subscriber VLANs for bandwidth and security reasons.	
5	Network Security Features	
5.1	IEEE 802.1x to allow dynamic, port-based security, providing user authentication.	
5.2	Port-based ACLs for Layer 2 interfaces to allow application of security policies on individual switch ports.	
5.3	MAC address notification to allow administrators to be notified of users added to or removed from the network.	

5.4	DHCP snooping to allow administrators to ensure consistent mapping of IP to MAC addresses. This can be used to prevent attacks that attempt to poison the DHCP binding database, and to rate-limit the amount of DHCP traffic that enters a switch port.	
5.5	Port security to secure the access to an access or trunk port based on MAC address.	
5.6	Switch should support Application visibility and control.	
5.7	Security ACL entries – At least 1000.	
6	Quality of Service (QoS) & Control	
6.1	Standard 802.1p CoS and DSCP, Control- and Data-plane QoS ACLs	
6.2	Eight egress queues per port to enable differentiated management of up to four traffic types across the stack.	
6.3	There should not be any performance penalty for highly granular QoS functions. Strict priority queuing mechanisms	
6.4	Future support for feature which will provide rate limiting based on source and destination IP address, source and destination MAC address, Layer 4 TCP and UDP information, or any combination of these fields, using QoS ACLs (IP ACLs or MAC ACLs), class maps, and policy maps.	
6.5	Switch should support at least 1000 aggregate polices.	
7	Management	
7.1	For enhanced traffic management, monitoring, and analysis, upto four RMON groups (history, statistics, alarms, and events) must be supported.	
7.2	FTP/ Trivial File Transfer Protocol (TFTP) to reduce the cost of administering software upgrades by downloading from a centralized location.	
7.3	Network Timing Protocol (NTP) based on RFC 1305 to provide an accurate and consistent timestamp to all intranet switches.	
7.4	SNMP v1, v2c, and v3 and Telnet interface support delivers comprehensive in-band management, and a CLI-based management console provides detailed out-of-band management.	
7.5	RMON I and II standards	
7.6	SNMPv1, SNMPv2c, and SNMPv3	
8	The switch should have minimum following Certifications :	
8.1	The switch should be Common Criteria EAL4 or NDPP certified and IPv6 logo or equivalent IPv6 certified (The supporting URL and certification link need to be attached with the Bid)	

Annexure-3: Specification for Access switch with POE interfaces to support existing type APs (1x 1000 Base LX + 48x 10/100/1000 Base T)

S/N	Features	Compliance (Y/N)
1	The switch should have minimum 48 GE + 2 combo GE (out of which one should be populated with 1000 Base LX transceiver) + 2 x 1G/5G SFP (GE 10/100/1000 Base-T Port)	
2	The switch should have support for IEEE 802.3af and 802.3at power delivered over any of the 48 RJ-45 ports within 375W.	
3	The switch should have minimum support for 16 instances Multiple spanning tree instances using 802.1s (MSTP).	
4	The switch should have minimum support for IEEE 802.3ad Link Aggregation Control Protocol (LACP)	
5	The switch should have support up to 32 groups, 8 ports per group with 16 candidate ports for each (dynamic) 802.3ad LAG	
6	The switch should have support for Wirespeed routing of IPv4 packets with minimum 2K static routes and up to 256 IP interfaces	
7	The switch should have support up to 2K static routes and up to 128 for IPv6 packets	
8	The switch should support minimum 8 units in a stack. Up to 416 ports managed as a single system with hardware failover with Fast stack failover delivers minimal traffic loss.	
9	The switch should have support up to 2K ACL rules	
10	The switch should have support drop or rate limit based on source and destination MAC, VLAN ID or IP address, protocol, port, DSCP/IP precedence, TCP/ User Datagram Protocol (UDP) source and destination ports, 802.1p priority, Ethernet type, Internet Control Message Protocol (ICMP) packets, Internet Group Management Protocol (IGMP) packets, TCP flag and Time-based ACLs	
11	The switch should have support for Priority levels of 8 hardware queues	
12	The switch should have support Strict Priority and weighted round-robin (WRR)	
13	The switch has support for Built-in switch configuration utility for easy browser-based device configuration (HTTP/HTTPS). Supports configuration, system dashboard, system maintenance, and monitoring	
14	The switch should have a console port for CLI base configuration	
15	The switch should have supports for IEEE 802.3az on all Gigabit copper ports.	
16	The switch should support minimum 16K MAC addresses.	
17	The switch should have minimum following Certifications :	
17.1	UL (UL 60950), CSA (CSA 22.2), CE mark, FCC Part 15 (CFR 47) Class A	
17.2	USGv6 and IPv6 Gold Logo certified	

Annexure-4: Transceivers

Sl. No.	Product Description	Product Part No. to be Quoted	Complied YES / NO
1	Transceiver for existing Core Switches (Cisco Nexus 7010) similar to SFP-10G-LR=		
1.1	Support warranty documents for five Years from the OEM should be submitted to IIT KGP		

Annexure-5 Bank Guarantee Format

MODEL BANK GUARANTEE FORMAT FOR FURNISHING EMD

Whereas(hereinafter called the "tenderer") has submitted their offer dated for the supply of (hereinafter called the "tender") against the purchaser's tender Notice No.

KNOW ALL MEN by these presents that WE of having our registered office at are bound unto (hereinafter called the "Purchaser") in the sum of for which payment will and truly to be made to the said Purchaser, the Bank binds itself, its successors and assigns by these presents. Sealed with the Common Seal of the said Bank this Day of 20

THE CONDITIONS OF THIS OBLIGATION ARE

- (1) If the tenderer withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of this tender.
- (2) If the tenderer having been notified of the acceptance of his tender by the Purchaser during the period of its validity:
 - (a) If the tenderer fails to furnish the Performance Security for the due performance of the contract.
 - (b) Fails or refuses to accept/execute the contract.

WE undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it owing to the occurrence of one or both the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including 45 days after the period of tender validity and any demand in respect thereof should reach the Bank not later than the above date.

(Signature of the authorized officer of the Bank)

Name and designation of the officer

Seal, name & address of the Bank and address of the Branch