PR No.1000022587   RFx No. 6100000967

Data centre network switch Technical specifications

The following are the technical specifications for the access and data centre network infrastructure. All the below-mentioned components/features/hardware/software and required licenses must be available from the date of installation. Bidders should quote all the mentioned switches, transceivers, and cables strictly from the same OEM only.

A. Access switches: (Quantity: 12 numbers)

1. Each proposed switch must have 24 ports with 10/100/1000 Base-T and 4 ports 1/10G SFP+ ports fully available from day one (if any license is required then it must be included in the BOQ).
2. Each proposed switch must have 1 x Out of Band IP-based management Port, 1 Console Port, USB Port / External Flash support.
3. Each proposed switch must support stacking for up to 8 switches with a minimum of 2 stacking ports and should provide a 40 Gbps stacking solution. Should support stacking with existing access switch is a must.
4. Each proposed switch must have redundant Power Supply support and a variable speed fan to adjust to varying weather conditions on the campus.
5. Each proposed switch must have a minimum of 128 Gbps backplane or more with non-blocking architecture and a Forwarding rate of 95 Mpps.
6. Each proposed switch must be equipped with a minimum of 1GB RAM and 1GB flash.
7. Each proposed switch must have a separate LED status indicator for each port, FAN, PSU, and Management port.
8. Each proposed switch must work correctly between 0°C to 50°C operating temperature and 10% to 95% relative humidity.
9. Each proposed switch must have IPv6 support from day one
10. Each proposed switch must have 16K MAC Addresses, 4K active user-configurable VLANs.
11. Each proposed switch must have 802.1D spanning Tree and PVST+, 802.1w, 802.1s. 802.3ba. Should have BPDU Guard or equivalent feature on edge port to disable itself automatically for a customizable time period if an accidental loop occurs in the network.
12. Each proposed switch must have support for aggregating and load balancing of traffic over two or more peer switches within the same VLAN.
13. Each proposed switch must support G.8032, and it should seamlessly integrate with existing switches.
14. Each proposed switch must have a port-based VLAN, MAC-based VLAN, private VLAN, and 802.1 AK for dynamic VLAN propagation.

15. Each proposed switch must have Local, Remote and multi-session port mirroring.
16. Each proposed switch must support standard-based protocols for lossless transport of real-time data with dynamic QoS reservation. Each proposed switch must have 8 Hardware QoS queues per port and traffic rate limiting with customizable bandwidth granularity of 8 KBps.
17. Each proposed switch must support Link Layer Discovery Protocol (802.1ab) to recognize third-party network devices and LLDP MED for auto-configuration.
18. Each proposed switch must have MAC address tracking and notification for mac address addition, deletion, or movement in the network.
19. Each proposed switch must support Static routing and basic dynamic routing protocols like RIP from day one and be upgradeable to OSPF, PIM, and VRRP.
20. Each proposed switch must have a customizable multicast session limit per port.
21. Each proposed switch must have a local authentication database for RADIUS Authentication over 802.1x.
22. Each proposed switch must have MAC security – Lockdown & Limit. MAC address tracking with Syslog
23. Each proposed switch must have SNMP v2 and v3 support, and Trap notification.
24. Each proposed switch must have SSH-2, SCP, SFTP and web-based management.
25. Each proposed switch must have a dynamic ARP inspection, DHCP snooping, Private VLAN, SYN attack protection, GARP protection.
26. Each proposed switch must have ASIC-based traffic flow analysis based on Netflow/ sFlow/IPfix and should have a minimum of 1K ACL entry support.
27. Each proposed switch must have scheduled archiving/uploading of configuration and sending system log to a central server.
28. Each proposed switch must support an inbuilt DHCP server and Client for quick configuration of endpoints and switches.
29. Each proposed switch must have a Telnet Server, Ssh Server, Ping, and traceroute over IPv4 and IPv6.
30. Each proposed switch must have L2 Traceroute, L2 Ping, Multicast Traceroute, Web Console and CLI management.
31. Each proposed switch must be SDN capable with Openstack, OpenFlow, and RestConf API support, in addition a support for IEEE P802.1Qaz is must
32. A pair of standard size C13 to C14 power cords must be provided with each switch.

33. Each proposed switch model should have safety and standard certifications as below :

   IEC61000-4-6:2013/EN61000-4-6:2014, IEC61000-4-11:2004, EN 55024:2010 Class A, CISPR 32:2015 Class A,IEC61000-4-6:2008/EN61000-4-6:2009, IEC61000-4-8:2009/EN61000-4-8:2010 , EN 55022:2010 Class A, CISPR 22:2008 Class A, CISPR24:2010 ClassA, Radiated Immunity 10V/m,CriteriaA, UL60950-1 2ndEd, CE 2.0 Compliant.

B. Core data centre switches 25G: (Quantity: 5)

1. Each proposed switch must have a minimum of 48 ports.
2. Each port must be an SFP28 port with 10/25Gbps capacity.
3. Each proposed switch must have a minimum of 8 x 10/25/40/100Gbps additional QSFP28 ports.
4. All the above-mentioned ports must be fully available from day one (if any license is required then it must be included in the BOQ).
5. Each proposed switch must be of 1U form factor for reduced power and footprint. Also, all the proposed switches should be rack-mountable and fit into a 19" standard server rack.
6. Each proposed switch must have a minimum of 4Tbps switching capacity or more.
7. Each proposed switch must be equipped with a minimum of 16GB of RAM and a multicore CPU.

8. Each proposed switch must support VCS or VSS or equivalent architecture by which two separate switches placed in two different locations can be combined in a single switch fabric and managed as a single switch.

9. Each Proposed switch must support stacking with min 8 switches in a single stack and support stacking bandwidth of 400Gbps.

10. Each proposed switch must support at least 120K IPV4 routes, 60K IPV6 routes, and 128K Multicast routes.

11. Each proposed switch must support a minimum of 280K MAC addresses.

12. Each proposed switch must have support for Static, RIP, OSPF, BGP, VRF in the same hardware from day one.

13. Each proposed switch must support G.8032 or equivalent.

14. Each proposed switch must support a multicast routing protocol with PIM-SM and PIM-DM.

15. Each proposed switch should support the virtualization of the switch to segment one single switch into isolated Virtual Routers/Device Contexts. Each Virtual Router/Device Context should be isolated from each other, and there should not be any traffic leakage between them. Each Virtual Router/Device Context should run independent instances of routing and switching protocols. Protocol Crash on one Virtual Router/ Device Context should not affect the performance/traffic of the other Virtual Routers/Device Contexts. This feature should be available from day one via any technologies like MDC/VDC/LSYS/VR.

16. Each proposed switch must support RoCE with all its features like PFC, ETS, and DCB from day one.

17. Each proposed switch must support at least eight hardware queues per port.

18. Each proposed switch must support a minimum of 8000 Hardware ACLs.

19. Each proposed switch must support a threshold-based mechanism for detection of Malicious Threats and protocol-based anomaly detection.

20. Each proposed switch must support Python/TCL/Ruby programming.

21. Each proposed switch must support the ability to restart individual CPU processes like BGP, Spanning tree, SNMP, ssh, stp, etc. in case of a process crash.

22. Each proposed switch must be manageable by SSH, RMON, SNMP, XML API, and HTTP/s protocols.

23. Each proposed switch must support SDN with Openflow/Openstack/Scripting, source-based policy routing and policy-based routing using acls.

24. Each proposed switch must support a standard-based tunnel for L2 Traffic Transport across L3 hops.

25. Each proposed switch must have an ability to deploy third-party applications and tools directly on the device for monitoring, troubleshooting, or extended network functionality, based on tools like Wireshark, perfSONAR, etc.

26. Each proposed switch must come with redundant PSU (both AC and DC supported) and redundant fans. The PSU and FANs must be hot-swappable.

27. A pair of standard size C13 to C14 power cords must be provided with each switch.

28. It will be an added advantage if it is possible to change the airflow direction i.e., front to back or from back to front.

29. Each proposed switch must support the following regulations.
   i. Support for RoHS, WEEE, C.E 2.0 ETSI 300 019-2-1 v2.1.2 - Class 1.2 Storage, ETSI 300 019-2-2 v2.1.2 - Class 2.3 Transportation, ETSI 300 019-2-3 v2.1.2 - Class 3.1e Operational.
   ii. UL 60950-1, FCC, CSA 22.2, EN, 60950-1, IEC 62368-1, FCC CFR 47 Part 15 Class A, ICES-003 Class A.
   iii. CISPR 32 Class A, CISPR 24 Class A, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8 / EN 61000-4-8 EN 55032, EN 55024, EN 300 386, EN 55011, CISPER 11 Class A

C. Core data centre switches 10G: (Quantity: 3)

1. Each proposed switch must have a minimum of 48 48 x 10GBase-T ports.
2. Each proposed switch must have a minimum of 6 X 40G QSFP+ ports or 4x100G additional QSFP28 ports.
3. All the above mentioned ports must be fully available from day one (if any license is required then it must be included in the BOQ).
4. Each proposed switch must be of 1U form factor for reduced power and footprint. Also, all the proposed switches should be rack-mountable and fit into a 19" standard server rack.
5. Each proposed switch must have a minimum of 1.7 Tbps switching capacity or more.
6. Each proposed switch must be equipped with a minimum of 4GB of RAM and a multicore CPU and 24GB of Flash.
7. Each proposed switch must support VCS or VSS or equivalent architecture by which two separate switches placed in two different locations can be combined in a single switch fabric and managed as a single switch.
8. Each Proposed switch must support stacking with min 8 switches in a single stack and support stacking bandwidth of 400Gbps. Fiber and copper switches must be stackable with each other.
9. Each proposed switch must support a minimum of 270K MAC addresses.
10. Each proposed switch must have support for Static, RIP, OSPF, BGP, VRF in the same hardware from day one.
11. Each proposed switch should support the virtualization of the switch to segment one single switch into isolated Virtual Routers/Device Contexts. Each Virtual Router/Device Context should be isolated from each other, and there should not be any traffic leakage between them. Each Virtual Router/Device Context should run independent instances of routing and switching protocols. Protocol Crash on one Virtual Router/ Device Context should not affect the performance/traffic of the other Virtual Routers/Device Contexts. This feature should be available from day one via any technologies like MDC/VDC/LSYS/VR.
12. Each proposed switch must support at least eight hardware queues per port.
13. Each proposed switch must support a minimum of 8000 Hardware ACLs.
14. Each proposed switch must support a threshold based mechanism for detection of Malicious Threats and protocol-based anomaly detection.
15. Each proposed switch must support Python/TCL/Ruby programming.
16. Each proposed switch must support the ability to restart individual CPU processes like BGP, Spanning tree, SNMP, ssh, stp, etc. in case of a process crash.
17. Each proposed switch must be manageable by SSH, RMON, SNMP, XML API, and HTTP/s protocols.
18. Each proposed switch must support SDN with Openflow/Openstack/Scripting, source based policy routing and policy based routing using acls.
19. Each proposed switch must support a standard-based tunnel for L2 Traffic Transport across L3 hops.
20. Each proposed switch must come with redundant PSU (both AC and DC supported) and redundant fans. The PSU and FANs must be hot-swappable.
21. A pair of standard size C13 to C14 power cords must be provided with each switch.
22. It will be an added advantage if it is possible to change the airflow direction i.e., front to back or from back to front.

D. Trans-receivers and DAC cables:

The trans-receiver, DAC cables, and the switch proposed in this tender must be from the same switch OEM.

1. **25Gb SFP28 SR MMF LC: (quantity 240)**
   The LR SFP28 module must provide a 25 Gb optical Ethernet connection using LC duplex optical connectors over MMF (multi-mode fiber). One data lane operates in each direction at 25.78 Gbps using multi-mode fiber.

2. **10GBase-SR SFP+, MMF LC: (quantity 16)**
   The LR SFP+ module must provide a 10 Gb optical Ethernet connection using LC duplex optical connectors over MMF (multi-mode fiber). One data lane operates in each direction at 10 Gbps using multi-mode fiber.

3. **100Gb, QSFP28-QSFP28 Direct-attach passive copper cable, 5m length: (quantity 6)**

4. **100Gb, QSFP28-QSFP28 Active optical cable, 20m length: (quantity 4)**

5. **10 Gigabit Ethernet SFP+ passive cable assembly, 5m length: (quantity 10)**

Terms and Conditions:

GENERAL TERMS AND CONDITIONS:

Bidders are advised to read all the clauses mentioned in the tender carefully. Submitting your solution implies that you agree to act as per the terms and conditions mentioned in the tender.

1. The bidder shall bear all the costs during the preparation and submission of the proposal, site visit, POC (proof of concept) of the equipment at IIT Bombay premises, (if required), etc. POC may involve actual equipment to be given to IIT Bombay for testing and evaluation.
2. The bidders may be requested to come to IIT Bombay and present the solutions proposed in their technical bids.
3. No new information will be accepted from the bidder after the submission of the bids. However, IIT Bombay may ask for clarifications, POC (proof of concept) of the equipment and if needed may visit the manufacturing unit for the inspection/verification. if required, on submitted information in order to evaluate the bid. The bidder should respond to such a clarification request within the specified time.

4. The bidder has to quote for all the items mentioned in the specification. On failing to do the same, IIT Bombay may invalidate the bid and disqualify the bidder.
5. The quoted product must be the most recent or currently supported models, and that they incorporate all recent improvements in design and materials. On failing to do the same, IIT Bombay may invalidate the bid and disqualify the bidder.

6. Due to a stringent deadline for incurring the expenditure, IIT Bombay has the right to **cancel the PO or charge the penalty** if the delivery, installation, and acceptance testing is not completed within the stipulated timeline. Specifically
    a. Delivery should be within **eight weeks** of issuing of PO.
    b. Installation, commissioning, and acceptance testing should complete within **two weeks of the delivery.**
7. The purchase committee will make the final decision on the quantity of purchase after evaluating the proposals. The actual quantity purchased could be lower or higher up to 20% of indicated quantity.
8. At the time of installation, if it is found that some additional hardware or software items are required to meet the operational requirement of the configuration but not included in the OEM's original list of deliverables, the OEM shall supply such items to ensure the completeness of the configuration at no extra cost.
9. Bidders should submit only the necessary documentation related to this tender with a proper index highlighting the required technical specs in the product documentation that matches the tender specs or asked by the purchaser with page numbers. Failure to do the same will invalidate the bid and result in disqualification.
10. Bidder is not allowed to outsource any work mentioned in the scope of work for this tender to a third party.
11. As per government of India's rules, if any bidder wants to claim any kind of purchase preference and/or exemptions to the experience and eligibility criteria. Then the bidder has to exactly match the quality and technical specifications specified in this tender
12. Along with the technical bid, the bidder has to submit the compliance sheet as per the given format in Annexure-V and complete bill of material (BoM). Failure to do the same will invalidate the bid and result in disqualification.
13. The bidder has to give an undertaking of acceptance of all terms & conditions along with the technical bid on the company's letterhead as per the format given in Annexure-III. Failure to do the same will invalidate the bid and result in disqualification.
14. The bidder has to give an undertaking of authenticity along with the technical bid on the company's letterhead as per the format mentioned in Annexure-I. Failure to do the same will invalidate the bid and result in disqualification.

15. IIT Bombay reserves the right to accept or reject, in full or in part, any or all the offers if a) seller fails to comply with any material term of the contract; b) seller fails to deliver the material(s) or any part thereof within the stipulated delivery period and /or fails to replace/ rectify any rejected or defective material(s) promptly; c) seller becomes bankrupt or goes into liquidation or the seller makes a general assignment for the benefit of the creditors or a receiver is appointed for any substantial property owned by the seller; d) seller has misrepresented to buyer.
16. IIT Bombay does not bind itself to accept the lowest bid or any other bid and reserves the right to reject all or any bid or cancel the Tender without giving any reason whatsoever.
17. IIT Bombay also reserves the right to re-issue the tender without any explanation. The bidders will not have any right to object to such re-issue of tender.

18. IIT Bombay reserves the right to terminate the order/tender/PO if the bidder/OEM violates any of the terms and conditions of the tender.

BIDDER ELIGIBILITY CRITERIA:

S. No	Qualifying Criteria	Mandatory Document proof to be furnished
1	The bidder should be an Indian Company registered under the Companies Act / Partnership / LLP for the last 5 years. In a similar line of business, i.e., Installation, configuration, and commissioning of Enterprise network switches and routers. In case the Bidding Company is the result of a merger/acquisition, at least one of the merging companies should have been in operation for at least 3 years as on the date of submission of the bid.	Copy of the Partnership deed/Bye-Law/Certificate of Incorporation issued by Registrar of Companies and Memorandum & Articles of Association and full address of the registered office.
2	The bidder should have supplied at least 5 orders of enterprise-grade L2 and L3 switches from a reputed OEM like Extreme, Cisco, Juniper, Mellanox, HPE to the State/Central Government/PSUs, or any listed corporate company in the last 5 years.	Purchase order copies along with satisfactory work completion certificate/ Final Acceptance certificate issued by Client. Relevant Purchase Orders received in the last 5 years.
3	The bidder should have at least two qualified, experienced OEM Certified Network Engineers/professionals on its payroll with a minimum experience of 5 years in handling switches and routers from reputed brands. (OEM Certification has to be in a valid state)	Bio-data of the personnel proposed to be deployed for the project along with copies of the certifications, valid company ID, and salary slips.
4	The bidder has to be an OEM or partner authorized by OEM for this tender.	Bidders should furnish a letter of authorization (MAF) from OEM for this tender as per the format given in Annexure - IV.
5	The bidder should have an average annual turnover of ₹ 1.2 Crores and should be a positive net worth company for the last three financial years.	The Audited Financial Statements (Profit and loss statement, Balance sheet) for the last three years and CA certificate should be furnished/ uploaded.
		Solvency certificate for the value of ₹1.5 Crores issued by Scheduled Banks to be furnished.
6	The bidder should be an ISO 9001 certified company at least for the last three years.	The ISO certificate should be enclosed.
7	The bidder should have an office/branch in the MMR region.	Any government-approved proof should be provided.
8	The bidder is not blacklisted by any department of IIT Bombay, or by any other IIT, or by any state or central government body or organization, or by an autonomous body governed by state or central government during the past 3 years.	Self-declaration should be given on companies letterhead as per the format provided in the Annexure-II
9	The bidder can only go with a single OEM.	-NA-

OEM QUALIFICATION CRITERIA:

S. No	Qualifying Criteria	Mandatory Document proof to be furnished
1	The OEM should be in the Gartner leader's magic quadrant for wired and wireless, at least for the last three years.	URLs of OEM and Gartner website should be provided or The OEM should submit a self-declaration with all the details mentioned on his letterhead.
2	The OEM of quoted products should have its own corporate office or parts warehouse and service centre or RMA depot in the MMR region with fully qualified engineers.	Should submit any government authorized document which will prove this or should provide the OEM website URLs where this information is published Or the OEM should submit a self-declaration with all the details mentioned on his letterhead.
3	The OEM should be well equipped and located to honor 4 hours of response time in case of failures.	The OEM should submit a self-declaration with all the details mentioned on his letterhead.
4	The OEM should be well established at least from the last 20 years in enterprise series of Network switches and wireless devices and should have a global footprint across a minimum of 5 continents.	Should submit any government authorized document which will prove the establishment of OEM/Brand and or copy of PO needs to be attached.
5	The OEM should have a direct presence in India at least from the last 10 years and OEM should have their own R&D setup in India for at least the past 10 years.	Should submit any government authorized document which will prove the establishment of OEM/Brand and or copy of PO needs to be attached.
6	The OEM should have at least 08 Crores average annual turnover from the last 3 consecutive years.	The Audited Financial Statements (Profit and loss statement, Balance sheet) for the last three years and CA certificate should be furnished/ uploaded. OR a duly signed and stamped self-declaration on companies letterhead.
7	The OEM should have their own 24x7 technical support centre in India and the technical support resources should be on direct rolls with the OEM.	Should submit any government authorized document which will prove this or should provide the OEM website URLs where this information is published or The OEM should submit a self-declaration with all the details mentioned on his letterhead.

8	The OEM should not be from a country that shares a land border with India.	-NA-
9	The OEM should not be blacklisted by any department of IIT Bombay, or by any other IIT, or by any state or central government body or organization, or by an autonomous body governed by state or central government during the past 5 years.	Self-declaration should be given on companies letterhead as per the format provided in the Annexure-II
10	The OEM can only bid through a maximum of 3 bidder/channel partners.	-NA-

TENDER EVALUATION:

The competent authority will evaluate all the proposals to determine whether these are complete in all respects as specified in the tender document. Evaluation of the proposal shall be done in two stages as

(a) Stage - I (Technical Evaluation):

1. The competent authorities will evaluate the technical bid(s) to determine whether they are meeting the essential eligibility criteria, whether the tenderer has submitted the EMD undertaking whether any computational errors have been made, whether all the documents have been appropriately signed & stamped, whether all the documents as mentioned / or required to be submitted with technical bid are submitted and whether a bid is complete and generally is in order. There will not be any further technical evaluation will be done in case of incomplete bid, and the bidder will be disqualified.

2. After evaluating the performance parameters offered, support structures, technical evaluation of proposed switches, and references, the competent authority will shortlist a group of bidders. Subsequent to this, the shortlisted bidders will be required to participate in the commercial bidding phase, and the disqualifications will be informed to the concerned bidders.

(b) Stage- II (Financial evaluation through Reverse Auction):

The financial bidding will be in the form of an electronic reverse auction. The details of the financial bidding phase will be announced to the short-listed bidder(s) at a later date.
Bidders should quote a single figure which includes all the cost of the project only in INR. The successful bidder will submit the item-wise bifurcation of the single figure quoted and an item-wise cost of a single switch and cables from each category within 24 hours.
The bidders who have cleared /qualified for the technical evaluation are only allowed to participate in this stage. Base price for Reverse auction will be determined from these price bids submitted in SRM portal. The all technically qualified bidders will be allowed to participate in reverse auction.

EVALUATION MATRIX:

In Annexure-V, a set of attributes pertaining to equipment has been given in the compliance sheet. The purchase committee at IIT Bombay will check the quoted product is matching with the tender specifications. The evaluation will be done based on the documentation, details, and remarks given by the bidder and from the OEM website. The bidder/OEM will be disqualified if the quoted product is not compiling with any of the tender specifications.

SCOPE OF WORK:

1. The selected Bidder has to supply the listed items within the stipulated time.
2. The selected Bidder has to deploy, install, configure and test the switches as per specification mentioned in the tender at Computer Centre's Data Centre in accordance with the technical team of Computer Centre IITB. The scope of the work at this phase would include but not restricted to the following:
   A. Site Inspection and Bill of Material Verification.
   B. Rack Mounting and Stacking of the switches.
   C. Structured cabling of OFC, CAT6a/CAT7 and power and any other required cabling and enclosing via flexible pipes wherever necessary with design approval from Technical staff assigned by Computer Centre IIT Bombay.
   D. Labelling for each and every cable and its diagram and documentation.
   E. Power on Self/Burn-In/Stress Test activity –Minimum 48 Hours
   F. Replacement of hardware if any fault is observed.
   G. License installation.
   H. Firmware upgradation.
   I. Management IP and any additional configuration requested by the technical team of the purchaser.
   J. Final acceptance from the technical team of the indenter.

3. The Bidder has to ensure that the proposed equipment/components must not be declared "End of Life" or "End of Support" in the next 6 years from the date of purchase. If the supplied equipment is declared End of Support/End of Life during the warranty period of 5 years, the bidder/OEM has to replace the equipment having equivalent or higher configurations without any additional cost to the purchaser.

4. The Bidder should have a back-to-back arrangement with the OEM so that the purchaser will be able to log a call with the OEM directly for the contract period of 84 months.

5. Single Point of Contact: The selected Bidder shall appoint a single point of contact, with whom IIT Bombay will deal, for any activity pertaining to the requirements of this Tender. This person has to be awarded all the necessary authority by the Bidder at its own expense.

WARRANTY, AMC & SLA:

1. Each and every component of the supplied equipment, security keys, accessories, and licenses should have an on-site comprehensive 24x7x365 days warranty for the period for 60 months and AMC of 24 months with 4 hours of response time and would be in

the name of Computer Centre IIT Bombay. No parts, accessories, licenses of the systems should be excluded from such warranty and AMC.

2. The said warranty will begin from the date of acceptance and sign-off from the technical team of Computer Centre IIT Bombay.

3. The bidder should also provide the cost of an annual maintenance contract (AMC) within the bifurcation document mentioned above which starts at the end of the warranty period with back-to-back, onsite support from the OEM. The price of the AMC will be valid for 24 months after the end of the warranty period. The payment of the AMC will be released on a quarterly basis based on the performance, and if there is any penalty, it will be deducted from the payment of the next quarter.

4. The bidder will be fully responsible for getting support from OEM in respect of each and every Hardware parts, Software, Licenses, and technical support for the equipment mentioned in this tender. In case the bidder fails to provide the support, OEM has to provide technical support for the period mentioned in the contract. Bidder has to attach a confirmation letter from the OEM.

5. The said warranty and the AMC should not be considered violated if the IIT Bombay buys any other compatible supplemental hardware from a third party and installs it in the machines with an intimation to the Bidder/OEM. However, the warranty will not apply to such additional hardware items installed.

6. Mean time between failures (MTBF): If during the warranty period, any switch or any component fails for four or more occasions and caused downtime in a period of less than three months or six times in a period of less than twelve months, it shall be replaced by equivalent or better configured and robust new switch /equipment device by the Bidder/OEM at no cost to the IIT Bombay.

7. For any delay in delivery of replacement of faulty parts during the inspection, commissioning of the systems, or for acceptance tests/checks, the IIT Bombay reserves the right to charge a penalty.

8. The Bidder will depute an experienced engineer as and when required to visit the site and assist the staff during the initial configuration and/or during the failure and ensure the system's proper functioning.

9. The Root Cause Analysis (RCA) faced for any issues related to the system should be provided by the OEM within 3 Business Days.

10. If any component supplied by the Bidder/OEM is inoperative, which renders the entire system useless, then it will be treated as system downtime

11. The Uptime commitment of 99.6% monthly is a must on all the equipment, commencing from the date of the acceptance of the entire system (hardware/software). The uptime will be calculated as,

Uptime (%) = ((Sum of total hours during the month - Sum of downtime hours during the month) X 100) / Sum of total hours during the month

Total hours during the month = No. of working days x24 hours

12. Any hardware issues should be resolved/rectified within the 24 hours. It is the responsibility of Bidder to coordinate with the OEM to provide a replacement.

13. Along with the technical bid, the OEM should submit a letter of commitment for **84 months (60 months of warranty and 24 months of AMC)** from the installation date, with respect to Hardware, Software, and Firmware support, and uptime

commitment. The bid will be rejected if they are not accompanied by the letter from the OEM.

14. In case of merger/sale of business by the OEM, the above-said warranty, AMC and SLA will be applicable to the new OEM. If the new OEM does not honor the said warranty, AMC, and SLA, the IIT Bombay reserves the right to blacklist both the OEM and reserve the right to take proper legal action. The OEM has to accept this clause in the commitment letter. Failure of the same may result in disqualification of the bid.

PENALTY:

1. Delivery of all equipment should be within 8 weeks from the date of the Purchase Order. In the event of any or all equipment(s) not being delivered, installed, tested, and commissioned within a period of 10 weeks from the date of Purchase Order, a penalty of one percent of the total cost of equipment's for each week or part thereof the delay, will be charged to the bidder. This amount of penalty so calculated shall be deducted at the time of making final payment after successful installation and commissioning of hardware.

2. A penalty during the warranty period and AMC period:

Uptime Percentage	Penalty Details
During the warranty period	
Uptime is more than 99.6%	No Penalty
Uptime lesser than 99.6% but more than 99%	3% of the product cost
Uptime lesser than 99%	Penalty at an incremental rate of 2% (in addition to a base of 3%) of the product cost for every 0.5%lower than the stipulated uptime
During the AMC period	
Uptime is more than 99.6%	No Penalty
Uptime lesser than 99.6% but more than 99%	10% of the monthly product AMC cost
Uptime lesser than 99%	20% of the monthly product AMC cost

3. The penalty is to ensure that the OEM and the Bidder are putting their best efforts to honor SLAs committed. There will not be any upper limit on the penalty. If there is any penalty above the PBG, the bidder has to pay the penalty on demand raised by IIT Bombay. In case of failure to pay the penalty, the IIT Bombay reserves the right to take legal action and blacklist the bidder/OEM.

4. The IIT Bombay reserves the right to publish the information about the unsatisfactory service by the bidder/OEM and action taken by the institute, on their website and in the national newspaper(s).

PREBID MEETING: 12/01/2022 @ 11.00 AM
Link:
https://kaksha.webex.com/kaksha/j.php?MTID=m7b4d5dfc19eb150e6ba2d583b0648efc
Meeting number: 2514 604 6065
Password: fmG87DSUKd2

Annexure – I   **Format for Undertaking of Authenticity**
(To be given on company's letterhead)

                                         Date:

To,
The Head Computer Centre,
IIT Bombay,
Powai Mumbai – 400076.

        Sub: Undertaking of Authenticity for Hardware and/or Software Supplies
        Tender Reference No.: _____

Dear Sir,

With reference to the equipment being quoted to you vide our Quotation No:_____ dated _____, we hereby confirm that all the components, parts, assembly, software, etc. used in the equipment to be supplied shall be original new components/parts/assembly/software and of the most recent or current supported models, and that they incorporate all recent improvements in design and materials, only from respective OEMs of the products and that no refurbished / duplicate / second-hand components /parts/assembly/software shall be supplied or shall be used. We also undertake to produce a certificate from the Original Equipment Manufacturers (if required by you) to support the above statement at the time of delivery/installation.

2. We also confirm that in respect of licensed operating systems and other software utilities to be supplied, the same will be procured from authorized sources and provided with an Authorized License Certificate

3. In case of default and the purchaser finds that the above conditions are not complied with, we agree to take back the equipment supplied and return the money paid by you, in full within seven days of intimation of the same by the purchaser, without demur or any reference to a third party and without prejudice to any remedies the purchaser may deem fit.

4. In case of default and we are unable to comply with the above at the time of delivery or during installation, for the IT Hardware / Software already billed, we agree to take back the equipment without demur if already supplied and return the money if any paid to us by you in this regard.

5. We also take full responsibility for both parts & Service SLA as per the content even if there is any defect by our authorized Service Centre / Reseller / SI.

Dated this .... day of .... 202…

_____

(Signature)   (Name)   (In the capacity of)

Duly authorised to sign Bid for and on behalf of _____

Annexure-II   **Self declaration of blacklisting**

(To be given on company's letterhead)

Date:

To,
Head Computer Centre,
IIT Bombay,
Powai Mumbai – 76.

Sub: Declaration of Non-Blacklisting.
Tender Reference No.: _____

Dear Sir,

With reference to the equipment being quoted to you vide our Quotation No:_____ dated _____, we hereby declare that neither we nor our Start-up or a parent, subsidiary, or associate Company under direct or indirect common parent is/are presently not placed on any Blacklist or Holiday list by any department of IIT Bombay, or by any other IIT, or by any state or central government body or organization, or by any PSU's, or by an autonomous body governed by state or central government for any kind of fraudulent practice(s)/activity(s).

It is understood that, If this declaration is found to be incorrect, then without prejudice to any other action that may be taken, my/ our security may be forfeited in full, and the tender, if any to the extent accepted, may be canceled.

Dated this .... day of .... 202…

_____

(Signature)   (Name)   (In the capacity of)

Duly authorised to sign Bid for and on behalf of _____

Annexure – III   **TENDER / CONDITIONS ACCEPTANCE LETTER**

(To be given on company's letterhead)

Date:

To,
Head Computer Centre,
IIT Bombay,
Powai Mumbai – 76.

Sub: Acceptance of Terms & Conditions of Tender.
Tender Reference No.: _____

Dear Sir,

1. I/We have downloaded/obtained the tender document(s) for the above-mentioned 'Tender/Work.'

2. I/We hereby certify that I/We have read the entire terms and conditions of the tender documents (including all documents like annexure), schedule(s), etc.,) and I/We shall abide hereby the terms/conditions/clauses contained therein.

3. The corrigendum(s) issued from time to time by your department/organization has also been taken into consideration while submitting this acceptance letter.

4. I/We hereby unconditionally accept the tender conditions of the above-mentioned tender document(s)/corrigendum(s) in totality/entirely.

5. In case any provisions of this tender are found violated, your department/ organization shall be at liberty to reject this tender/bid, including the forfeiture of the full said earnest money deposit absolutely, and we shall not have any claim/ right against deptt in satisfaction of this condition.

Dated this .... day of .... 202…

_____

(Signature)   (Name)   (In the capacity of)

Duly authorised to sign Bid for and on behalf of _____

Annexure – IV   **Manufacturer's Authorization Form**

(To be given on OEM's letterhead)

Date:

To,
Head Computer Centre,
IIT Bombay,
Powai Mumbai – 76.

Sub: Authorization for participation in the Tender.
Tender Reference No.: _____

Dear Sir,

We, who are established and reputable manufacturers / producers of _____having factories / development facilities at (address of factory / facility) do hereby authorise M/s_____(Name and address of Agent) to submit a Bid, and sign the contract with you against the above Bid Invitation.

2. We hereby extend our full warranty for the above firm's Solution, Products, and services against this Bid Invitation for the mentioned period.

3. We duly authorize the said firm to act on our behalf in fulfilling all installations, Technical support, and maintenance obligations required.

Dated this .... day of .... 202…

_____

(Signature)   (Name)   (In the capacity of)

Duly authorised to sign Bid for and on behalf of _____

Annexure -V   **Format for the Data Centre and Access switches compliance sheet:**

All the bidders are requested to mention the details/any deviations with respect to the specifications along with the exact reference page number from the documentation in the compliance sheet format given below. Please do not copy and paste the specifications as it is in the Compliance/Remark field.

1. **Data Centre Switches 25G:**

Sr. No	Specifications	Bidder Compliance/Remark/Make and Model
1.	The proposed switch has 48 SFP28 ports with 10/25Gbps capacity and a minimum of 8 numbers of 10/25/40/100Gbps SFP28 ports.	
2.	The switch is of 1U form factor rack-mountable and fit into a 19" standard server rack.	
3.	The switch has a minimum of 4Tbps switching capacity or more.	
4.	The switch is equipped with a minimum of 16GB of RAM and a multicore CPU.	
5.	The switch is having VCS or VSS or equivalent architecture.	

6.	The switch is capable of stacking with minimum 8 switches in a single stack and supports stacking bandwidth of 400Gbps.	
7.	The switch supports at least 120K IPV4 routes, 60K IPV6 routes, 128K Multicast routes and a minimum of 280K MAC addresses.	
8.	The switch supports Static, RIP, OSPF, BGP, VRF and multicast routing protocol with PIM-SM and PIM-DM in the same hardware from day one.	
9.	The switch supports G.8032 : Ethernet ring protection switching or equivalent.	
10.	The switch supports the virtualization of the switch to segment one single switch into isolated Virtual Routers/Device Contexts via any technologies like MDC/VDC/LSYS/V or equivalent.	
11.	The switch supports RDMA and RoCE with all its features like PFC, ETS, and DCB from day one.	
12.	The switch supports at least eight hardware queues per port and a minimum of 8000 Hardware ACLs.	
13.	The switch supports a standard-based tunnel for L2 Traffic Transport across L3 hops.	
14.	The switch supports Python/TCL/Ruby programming.	
15.	The switch supports the ability to restart individual CPU processes like BGP, Spanning tree, SNMP, ssh, stp, etc. in case of a process crash.	
16.	The switch is manageable by SSH, RMON, SNMP, XML API, and HTTP/s protocols and can be monitored using SNMP v2, v3 protocols and able to generate Traps.	

17.	The switch supports SDN with Openflow/Openstack/Scripting, source based policy routing and policy based routing using acls.	
18.	The switch is having an ability to deploy third-party applications and tools directly on the device for monitoring, troubleshooting, or extended network functionality, based on tools like Wireshark, perfSONAR, etc Also the switch supports a threshold based mechanism for detection of Malicious Threats and protocol-based anomaly detection.	
19.	The switch comes with redundant PSU (both AC and DC supported) and redundant fans. The PSU and FANs must be hot-swappable. It will be an added advantage if it is possible to change the airflow direction of the fan i.e., front to back or from back to front.	
20.	The switch supports the following regulations. Support for RoHS, WEEE, C.E 2.0 ETSI 300 019-2-1 v2.1.2 - Class 1.2 Storage, ETSI 300 019-2-2 v2.1.2 - Class 2.3 Transportation, ETSI 300 019-2-3 v2.1.2 - Class 3.1e Operational. UL 60950-1, FCC, CSA 22.2, EN, 60950-1, IEC 62368-1, FCC CFR 47 Part 15 Class A, ICES-003 Class A. CISPR 32 Class A, CISPR 24 Class A, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8 / EN 61000-4-8 EN 55032, EN 55024, EN 300 386, EN 55011, CISPER 11 Class A	

2. **Data Centre Switches 10G:**

Sr. No	Specifications	Bidder Compliance/Remark/Make and Model
1.	The proposed switch has 48 x 10GBase-T ports and a minimum of 6 X 40G QSFP+ ports or 4x100G QSFP28 ports.	
2.	The switch is of 1U form factor rack-mountable and fits into a 19" standard server rack.	
3.	The switch has a minimum of 1.7Tbps switching capacity or more.	
4.	The switch is equipped with a minimum of 4GB of RAM and a multicore CPU and 24GB Flash.	
5.	The switch is having VCS or VSS or equivalent architecture.	
6.	The switch is capable of stacking with minimum 8 switches in a single stack and supports stacking bandwidth of 400Gbps. Fiber and copper switches must be stackable with each other.	
7.	The switch supports Static, RIP, OSPF, BGP, VRF and multicast routing protocol with PIM-SM and PIM-DM in the same hardware from day one.	
8.	The switch supports the virtualization of the switch to segment one single switch into isolated Virtual Routers/Device Contexts via any technologies like MDC/VDC/LSYS/V or equivalent.	
9.	The switch supports at least eight hardware queues per port and a minimum of 8000 Hardware ACLs.	

10.	The switch supports a standard-based tunnel for L2 Traffic Transport across L3 hops.	
11.	The switch supports Python/TCL/Ruby programming.	
12.	The switch supports the ability to restart individual CPU processes like BGP, Spanning tree, SNMP, ssh, stp, etc. in case of a process crash.	
13.	The switch is manageable by SSH, RMON, SNMP, XML API, and HTTP/s protocols and can be monitored using SNMP v2, v3 protocols and able to generate Traps.	
14.	The switch supports SDN with Openflow/Openstack/Scripting, source based policy routing and policy based routing using acls.	
15.	The switch comes with redundant PSU (both AC and DC supported) and redundant fans. The PSU and FANs must be hot-swappable. It will be an added advantage if it is possible to change the airflow direction of the fan i.e., front to back or from back to front.	

2. Access Switches:

Sr. No	Specifications	Bidder Compliance/Remark/Make and Model
1.	The proposed switch has 24 ports with 10/100/1000 Base-T ports and 4 numbers of 1/10G SFP+ ports.	
2.	The proposed switch has 1 x Out of Band IP-based management Port, 1 Console Port, USB Port / External Flash support.	
3.	The proposed switch supports stacking for up to 8 switches with a minimum of 2 stacking ports and should provide 40 Gbps stacking solution. Support for stacking over fiber will get added advantage. Should support stacking with existing access switches is must.	
4.	The proposed switch has a minimum of 128 Gbps backplane or more with non-blocking architecture and a Forwarding rate of 95 Mpps.	
5.	The switch is equipped with a minimum of 1GB of RAM and a 1GB Flash.	
6.	The proposed switch has 16K MAC Addresses, 4K active user-configurable VLANs. The VLANs are of type port-based VLAN, MAC-based VLAN, private VLAN, and 802.1 AK for dynamic VLAN propagation.	
7.	The proposed switch has 802.1D spanning Tree and PVST+, 802.1w, 802.1s. 802.3ba. It also has BPDU Guard or equivalent feature on edge port to disable itself automatically for a customizable time period if an accidental loop occurs in	

	the network. Also the switch supports G.8032, and it should seamlessly integrate with existing switches.	
8.	The proposed switch has support for aggregating and load balancing of traffic over two or more peer switches within the same VLAN.	
9.	The proposed switch has a Local, Remote and multi session port mirroring. Also the switch supports standard-based protocols for lossless transport of real-time data with dynamic QoS reservation. Each proposed switch must have 8 Hardware QoS queues per port and traffic rate limiting with customizable bandwidth granularity of 8 KBps.	
10.	The proposed switch supports Link Layer Discovery Protocol (802.1ab) to recognize third-party network devices and LLDP MED for auto-configuration.	
11.	The proposed switch has MAC address tracking and notification for mac address addition, deletion, or movement in the network.	
12.	The proposed switch supports Static routing and basic dynamic routing protocols like RIP, OSPF from day one and be upgradeable to PIM, VRRP.	
13.	The proposed switch must have a local authentication database for RADIUS Authentication over 802.1x. Also the proposed switch must support an inbuilt DHCP server and Client for quick configuration of endpoints and switches.	
14.	The proposed switch has a dynamic ARP inspection, DHCP snooping, Private VLAN, SYN attack protection, GARP protection.	
15.	The proposed switch has ASIC-based traffic flow analysis based on Netflow/ sFlow/IPfix and should have a minimum of 1K ACL entry support.	

16.	The proposed switch has scheduled archiving/uploading of configuration and sending system log to a central server.	
17.	The switch is manageable by SSH, RMON, SNMP, XML API, and HTTP/s protocols and can be monitored using SNMP v2, v3 protocols and able to generate Traps.	
18.	The switch supports SDN with Openflow/Openstack/Scripting, source based policy routing and policy based routing using acls.	
19.	The proposed switch has L2 Traceroute, L2 Ping, Multicast Traceroute, Web Console and CLI management.	
20.	The switch comes with redundant PSU (both AC and DC supported) and redundant fans. The PSU and FANs must be hot-swappable. It will be an added advantage if it is possible to change the airflow direction of the fan i.e., front to back or from back to front.	
21.	The switch supports the following regulations. IEC61000-4-6:2008/EN61000-4-6:2009, IEC61000-4-8:2009/EN61000-4-8:2010 , EN 55022:2010 Class A, CISPR 22:2008 Class A, CISPR24:2010 ClassA, Radiated Immunity 10V/m,CriteriaA, UL60950-1 2ndEd, CE 2.0 Compliant.	

3. **Trans-receivers:**

Sr. No	Specifications	Bidder Compliance/Remark/Make and Model
1.	**25Gb SFP28 SR MMF LC:** The SR SFP28 module must provide a 25 Gb optical Ethernet connection using LC duplex optical connectors over MMF (multi-mode fiber). One data lane operates in each direction at 25.78 Gbps using multi-mode fiber.	
2.	**10GBase-SR SFP+, MMF LC:** The LR SFP+ module must provide a 10 Gb optical Ethernet connection using LC duplex optical connectors over MMF (multi-mode fiber). One data lane operates in each direction at 10 Gbps using multi-mode fiber	
3.	**100Gb, QSFP28-QSFP28 Direct-attach passive copper cable, 5m length:**	
4.	**100Gb, QSFP28-QSFP28 Active optical cable, 20m length:**	
5.	**10 Gigabit Ethernet SFP+ passive cable assembly, 5m length:**	