**भौतिक अनुसंधान प्रयोगशाला (पीआरएल)**
**PHYSICAL RESEARCH LABORATORY (PRL)**
**(अंतरिक्ष विभाग, भारत सरकार की यूनिट**
**A UNIT OF DEPT OF SPACE, GOVERNMENT OF INDIA)**
**अहमदाबाद AHMEDABAD – 380 009**

**Advt Ref No: PRL/CPUR/EOI/03-2025** **दिनांक: 27-05-2025**

**नेटवर्क स्विचों के लिए ऑन-प्रिमाइज़ हार्डवेयर के रूप में सर्विस हेतु अभिरुचि अभिव्यक्ति (ईओआई) के लिए आमंत्रण । Invitation for Expression of Interest (EoI) for On-Premise Hardware As A Service for Network Switches**

पीआरएल अपने सभी चार परिसरों (मुख्य परिसर, अहमदाबाद, थलतेज परिसर, अहमदाबाद, इन्फ्रारेड वेधशाला, माउंट आबू, राजस्थान और उदयपुर सौर वेधशाला, उदयपुर, राजस्थान) में नेटवर्क स्विच के लिए ऑन-प्रिमाइसेस हार्डवेयर एज ए सर्विस के लिए संभावित बोलीदाताओं से अभिरुचि अभिव्यक्ति (EoI) आमंत्रित करता है।PRL invites EoI from prospective bidders for On-Premise Hardware As A Service for Network Switches across all four campuses (Main Campus, Ahmedabad, Thaltej Campus, Ahmedabad, Infrared Observatory, Mount Abu, Rajasthan and Udaipur Solar Observatory, Udaipur, Rajasthan) of PRL.

इस ईओआई का उद्देश्य है The objective of this EoI is:-

(i) नेटवर्क स्विचों के लिए ऑन-प्रिमाइज़ हार्डवेयर के रूप में सर्विस की उपलब्धता जानना।
To know the availability of suitable products and latest technology for On-Premise Hardware As A Service for Network Switches.

(ii) वांछित क्षेत्र में कार्य करने की योग्यता और अनुभव वाले संभावित विक्रेताओं/उत्तरदाताओं के बारे में जानकारी एकत्र करना।
To collect information about the potential vendors/respondents with qualifications and experience working in the desired area.

(iii) अपेक्षित कार्य हेतु अधिकतम प्रतिभागिता को प्रोत्साहित करना।
To encourage maximum participation for the work required to be done.

(iv) विभिन्न प्राधिकृत विक्रेताओं से बजटीय अनुमान जानना।
To know the Budgetary estimates from the different authorised vendors.

(v) ईओआई बहुत महत्वपूर्ण है क्योंकि हमारे LAN की आवश्यकताएँ ISRO/DoS की आईटी सुरक्षा नीति के कारण सामान्य सेटअप्स से भिन्न हैं। इसलिए, बोलीदाता के लिए यह आवश्यक है कि वह हमारी आवश्यकताओं को सही ढंग से समझे, तकनीकी सुझाव दे तथा उपयुक्त समाधान के साथ उपयुक्त कंपनी और मॉडल का प्रस्ताव रखे, जो हमारी आवश्यकताओं को पूरा कर सके। The EoI is very important because our Lan requirements are different than the standard setups due ISRO/DOS IT Security Policy and need proper understanding for bidder for providing technical inputs and suggest suitable solution with make, model which cater our need.

तत्पश्चात बोलियां प्रस्तुत करने के लिए विस्तृत प्रस्ताव अनुरोध (आरएफपी) के साथ जीईएम (GeM) पोर्टल पर एक सार्वजनिक निविदा जारी की जाएगी।
A Public tender will be released subsequently on GeM Portal with detailed Request for Proposal (RFP) for submitting bids.

ईओआई दस्तावेज हमारी वेबसाइट https://www.isro.gov.in/Tenders.html, https://www.prl.res.in/prl-eng/tender, https://eprocure.gov.in/cppp/ (केंद्रीय सार्वजनिक क्रय पोर्टल) पर उपलब्ध हैं। सभी आवश्यक जानकारी भरने के बाद इसे नियत तिथि और समय के भीतर प्रस्तुत करना होगा। इच्छुक पक्ष **24 जून 2025 [17:00 बजे] तक** हमारे संदर्भ *PRL/CPUR/EOI/03-2025* दर्शाते हुए सीलबंद लिफाफे में ईओआई का उत्तर निम्नलिखित पते पर भेज सकते हैं:
EoI documents are available at our website https://www.isro.gov.in/Tenders.html, https://www.prl.res.in/prl-eng/tender, https://eprocure.gov.in/cppp/ (Central Public Procurement Portal).The same shall be submitted after filling all the necessary information within the due date and time. Interested parties may furnish their response to EoI in sealed envelope quoting our reference *PRL/CPUR/EOI/03-2025* **on or before 24 June 2025 [17:00hrs]** to the following address or submit their response on GeM Portal:

**क्रय एवं भंडार अधिकारी Purchase and Stores Officer,**
**कमरा सं. 117, क्रय अनुभाग Room No 117, Purchase Section**
**भौतिक अनुसंधान प्रयोगशाला Physical Research Laboratory**
**गुजरात यूनिवर्सिटी के पास Near Gujarat University**
**नवरंगपुरा – अहमदाबाद Navrangpura – Ahmedabad**
**गुजरात Gujarat-380 009**

**Focal Point for Pre-EoI Meeting:**

क्रय एवं भंडार अधिकारी **Purchase and Stores Officer**
**Contact No.: 079 2631 4195/4117**
**E-mail : cpurchase@prl.res.in**

| ईओआई विवरण प्रस्तुत करने की अनुसूची Schedule for Submission of EoI Details | |
|---|---|
| पूर्व-ईओआई स्पष्टीकरण/प्रश्न प्रस्तुत करने की तिथि Pre-EoI Clarification/Queries submitting date | 04 जून 2025 1700 बजे IST<br>04 June 2025 1700 Hrs IST |
| पूर्व-ईओआई बैठक Pre-EoI Meeting | 10 जून 2025 1000 बजे IST<br>10 June 2025 1000 Hrs IST |
| ईओआई के उत्तर प्रस्तुत करने की अंतिम तिथि Last date for submission of response to EoI | 24 जून 2025 1700 बजे IST<br>24 June 2025 1700 Hrs IST |
| ईओआई खोलने की तिथि Opening date of EoI | 25 जून 2025 1000 बजे IST<br>25 June 2025 1000 Hrs IST |

पीआरएल के पास, प्राप्त सभी या किसी भी ईओआई को स्वीकार या अस्वीकार करने का अधिकार सुरक्षित है। PRL reserves the right to accept or reject all or any of the EoIs received.

इस ईओआई के लिए यदि कोई परिशिष्ट होगा तो उसे हमारी वेबसाइट पर उपरोक्तानुसार प्रदर्शित किया जाएगा। Addendum, if any, to this EoI shall be hosted on our website as mentioned above.

**निर्धारित तिथि और समय के बाद प्राप्त प्रस्तावों को विलंबित उत्तर माना जाएगा तथा आगे की प्रक्रिया के लिए उन पर विचार नहीं किया जाएगा।**
**Proposals received after the due date and time will be treated as late response and will not be considered for further procedure.**

**यह सुनिश्चित करना बोलीदाता की एकमात्र जिम्मेदारी है कि प्रस्ताव नियत तिथि और समय पर या उससे पहले गंतव्य तक पहुंच जाए। किसी भी परिस्थिति में नियत तिथि विस्तार के अनुरोध पर विचार नहीं किया जाएगा।**
**It is the sole responsibility of the bidder, to make sure that the offer reaches the destination on or before the due date and time. Requests for due date extension will not be considered at any circumstances.**

**अस्वीकरण**: ईओआई के इस आमंत्रण को किसी भी प्रतिभागी विक्रेता के साथ पीआरएल की ओर से दृढ़ प्रतिबद्धता या अनुबंध नहीं माना जाएगा।

**Disclaimer** This call for EoI shall **NOT** be treated as a firm commitment or contract from PRL with any of the participating vendors.

# Expression of Interest (EOI)

# On-Premise Hardware As A Service for Network Switches

**Note:**

1. This is Expression of Interest (EOI) not the actual RFP or tender.
2. The participation in EOI does not mean qualification in RFP or tender.
3. Based on the response received from the bidder in this EOI, PRL will accordingly prepare final RFP.
4. The specifications are prepared based on the existing working Dell Network Switches. Hence, the technical requirements are bare minimum requirement of PRL. Apart from them, based on the experience, few new features are also added to improve network reliability.
5. The bidder has to take up this project an On-Premise Hardware as a Service to supply, install, configure, commission and maintain the network switches across all four campuses (Main Campus, Ahmedabad, Thaltej Campus, Ahmedabad, Infrared Observatory, Mount Abu, Rajasthan and Udaipur Solar Observatory, Udaipur, Rajasthan) of PRL.
6. The objective of this EOI
    a. To have wider participation from the all the bidders.
    b. To get budgetary estimate to propose the project in FY 2026-2027.
    c. To know availability of product as per the requirement of PRL and accordingly prepare the RFP.

## [A] Equipment Details/Requirement:

*(a)* **Core Switch:** ***Qty. 02 Nos. (Primary core and Redundant Core)***

The new Layer 3 Stackable core switch will be installed at Computer Center, Main Campus, Ahmedabad.

The new core switch has to comply with following features:

| Sr. No | Required Features/Specifications | Compliance (Yes/No) | Remarks (if any) |
|---|---|---|---|
| 1 | Rack Mountable Switch, which can be housed in existing Network Rack, deployed in Computer Centre, No additional Rack or Space requirement will be considered. | | |
| 2 | Minimum 52 ports Switch. The switch should support 1G SFP module slots and 10G | | |

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|---|---|---|---|
| | SFP+ module slots, 40G QSFP+ module slots, 1G Copper slots and 10G Copper slots as mentioned below;<br><br>1. Switch should have minimum 4 Nos of ports that provides both 10G SFP+ and 40G QSFP+ Fiber (optical) connectivity ports/slots.<br>2. Switch should have minimum 16 Nos of ports that provides both 1G SFP and 10G SFP+ Fiber (optical) connectivity ports/slots.<br>3. Switch should have minimum 32 Nos of ports supporting 1G and 10G Copper (electrical) connectivity ports/slots (Ethernet ports).<br><br>The following modules have to be populated from day-1 of commissioning the Switches in PRL. *For future provisioning the support and capabilities of other connectivity-modules mentioned above has to be there in supplied switches.*<br><br>1. 6 Nos of 1G SFP Fiber modules and 10 Nos of 10G SFP+ Fiber modules in 16 numbers of Fiber (optical) module related ports. (Total 16 Nos)<br>2. 16 Nos of 1G Ethernet slots (Copper modules) and 16 Nos of 10G Ethernet (Copper modules) in 32 numbers of Copper (electrical) module related ports. (Total 32 Nos) | | |
| 3 | Switching Capacity: Minimum 1280 Gbps or better. | | |
| 4 | Minimum Backplane Capacity must be equal or greater than Switching Capacity. | | |
| 5 | Packet Forwarding Rate: Minimum 950 Mpps or better. | | |
| 6 | a. Hot Swappable and Redundant Power Supply. | | |
| | b. Switch should also have Redundant FAN. | | |
| 7 | The Switch should support buffer size of larger than or equal to 9M. | | |
| 8 | Switch has to support STP/RSTP/MSTP. | | |
| 9 | Switch has to support Jumbo Frame. | | |
| 10 | All required modules, cables, connectors' etc. items to connect our existing Optical Fiber Cable (OFC) cable from 4$^{th}$ floor Multi | | |

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|---|---|---|---|
| | storied building to Computer Centre Network room and Computer Centre network room to other Buildings in a campus to be supplied along with the switch.<br><br>[To study existing architecture bidders may visit PRL campuses with prior appointment as mentioned in point – G of this document.] | | |
| 11 | The Switch should have intuitive and user friendly Web based Graphical User Interface to manage the switch. | | |
| 12 | The Switch has to provide CLI Support through IPv4 via SSH and Console via RS232 interface. | | |
| 13 | The switch should support SSL2.0 | | |
| 14 | The Switch has to provide Management access filter for limiting switch access to Specific users. | | |
| 15 | The Switch must support detailed logging on external (remote) Linux syslog server for permanent retention of logs for ALL THE PARAMETERS MENTIONED BELOW.<br>a. All activities has to be logged (like user login-logout, configuration changes done by admin users and remaining all other types of activities happening on the switch)<br>b. All types of alarms logging<br>c. All types of information logging<br>d. Any notification generated for/by the switch has to be logged<br>e. Warning messages logging<br>f. Error event/messages logging<br><br>[Operating System - RHEL Linux and rsyslogd package for logging on the server] | | |
| 16 | All the logging mentioned in point-15 has to be meaningful and user interpretable based on which system administrators should be able to take corrective measures. | | |
| 17 | The Switch should support energy saving features like auto power off the un-used ports. | | |
| 18 | The proposed core switch must support IPv6 traffic in all aspects from day one of installation. | | |

**(b) Distribution Switch *(Total quantity 6 Nos.)***

**a. Navrangpura campus 4th Floor *02 Nos.* b. Navrangpura campus Telephone Exchange Room *02 Nos.* and c. Thaltej Campus Computer Centre room *02 Nos.***

Distribution switches will be installed on 4th Floor (Room No.: 464), Telephone exchange room and Thaltej Campus Computer Centre, supplier has to provide required modules, connectors etc. for connecting our existing optical fiber cable to new core switch in computer center and subsequent Edge/Access switches connected with Distribution switch.

| Sr. No | Required Features/Specifications | Compliance (Yes/No) | Remarks (If any) |
|---|---|---|---|
| 1 | Minimum 26 ports Switch. The switch should support 1G SFP module slots and 10G SFP+ module slots, 40G QSFP+ module slots, 1G Copper slots and 10G Copper slots as mentioned below;<br>1. Switch should have minimum 2 Nos of ports that provides 40G QSFP+ connectivity based ports/slots.<br>2. Switch should have minimum 16 Nos of ports that provides both 1G SFP and 10G SFP+ Fiber connectivity ports/slots solutions.<br>3. Switch should have minimum 8 Nos of ports that provides 1G and/or 10G Copper (Electrical) (Ethernet) connectivity ports/slots.<br><br>The following modules have to be populated from day-1 of commissioning the Switches in PRL. *For future provisioning the support and capabilities of other connectivity-modules mentioned above has to be there in supplied switches.*<br><br>From the above-mentioned ports/slots, the 14 Nos of 10G SFP+ Fiber module slots and 2 Nos | | |

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| | of 1G SFP Fiber module slots and 8 Nos of 10G Ethernet (Copper module) slots/ports has to be populated from day-1 of installation and commissioning in PRL. | | |
| 2 | Rack Mountable Switch, which can be housed in existing Network Racks of Main Campus and Thaltej Campus, No additional Rack or Space requirement will be considered. | | |
| 3 | Switching Capacity: Minimum 160 Gbps or better **without stacking**. | | |
| 4 | Minimum Backplane Capacity must be equal or greater than Switching Capacity. | | |
| 5 | Packet Forwarding Rate: Minimum 130 Mpps or better **without stacking.** | | |
| 6 | Hot Swappable Redundant Power Supply. Switch should also have Redundant FAN. | | |
| 7 | Should Support Layer3 Features | | |
| 8 | The proposed distribution switch must support IPv6 traffic in all aspects. | | |

These switches must be commissioned with appropriate modules, connectors etc. to provide 10G Primary connectivity and 1G Fallback connectivity to Proposed New Core switch in Computer Center and subsequent Edge/Access switches connected with Distribution switches on 4$^{th}$ floor. If Primary 10G connectivity between Core and Distribution fails than it must automatically switch over to 1G Fallback connectivity without any manual intervention. **The Bidder must demonstrate this feature as a part of acceptance test and failing to which may lead to cancellation of the entire purchase order. PRL will not allow any extra time to meet the feature requirement.**

**All the switches must be housed/installed within the existing Racks only. PRL will not allow to change existing RACKs. PRL will not allow to setup any new extra RACKS. For example: in case of 4$^{th}$ Floor Network Room of Navrangpura campus contains Two Network racks. Each rack contains Four (4) Nos of Edge/Access Switches and One (1) Distribution switch. Now as already mentioned in our Distribution and Edge/Access switch specifications it should be configured in following way as mentioned in "Dist-Edge Link Aggregations Table"**

**Table:** Dist-Edge Link Aggregations Table:

| Sr. No | Specification Requested in Tender | Required Configurations | Compliance (Yes/No) |
|---|---|---|---|
| 1 | **Distribution Switch requested configuration**<br><br>All 14 Nos of 10G SFP+ Fiber slots and 2 Nos of 1G SFP module slots and 8 Nos of 10G Ethernet (Copper module) ports should be populated from day-1. | **Two or Three 10G Uplink Ports of every Edge/Access switches residing in 4th floor network and Thaltej network room should be connected to 2 or 3 Nos of 10G (aggregated) ports of Distribution switch.**<br><br>**This Distribution-Edge Port/Link aggregation has to provide 40G or 60G of combine transmit-receive bandwidth as the case may be.**<br><br>**Vendor should implement and demonstrate this feature.** | |
| 2 | **Edge/Access Switch requested configuration**<br><br>All 50 Nos of Edge/Access switch should have minimum 3 Nos of ports supporting 10G SFP+ module slots and 1 Nos of 1G SPF module slots amongst the 4 Nos of uplink ports mentioned above and all remaining 48 numbers of 10/100/1000BaseT Ports should support 1G Copper (Ethernet) modules. | | |

**(c) Edge Switch (With 1G/10G Module): 50 Nos.**

These switches will be installed at all the locations in Main campus and Thaltej campus in Ahmedabad, Udaipur Solar Observatory Campus, Udaipur and Mt. Abu Gurushikhar Campus at Mt. Abu.

| Sr. No | Required Features/Specifications | Compliance (Yes/No) | Remarks (if any) |
|---|---|---|---|
| 1 | Layer2+ Switch with 48 numbers of 10/100/1000BaseT Ports and additionally 4 numbers of 1G SFP and 10G SFP+ connectivity providing module slots/ports. All the 4 (uplink) slots/ports have to support 1G SFP and 10G SFP+ connectivity means all 4 ports (four) can be used for 1G SFP or 10G SFP+ connectivity or in mix mode as the case may be. | | |
| 2 | All 50 Nos of Edge/Access switch | | |

| | | | |
|---|---|---|---|
| | should have minimum 3 Nos of ports supporting 10G SFP+ module slots and 1 Nos of 1G SPF module slots amongst the 4 Nos of uplink ports mentioned above and all remaining 48 numbers of 10/100/1000BaseT Ports should support 1G Copper (Ethernet) modules. | | |
| 3 | Rack Mountable Switch, which can be housed in existing Network Racks of Main Campus and Thaltej Campus, No additional Rack or Space requirement will be considered. | | |
| 4 | Minimum Switching capacity 150 Gbps or better **without stacking.** | | |
| 5 | Minimum Backplane Capacity must be equal or greater than Switching Capacity. | | |
| 6 | Minimum Packet Forwarding Rate: 120 Mpps or better **without stacking.** | | |
| 7 | All Switches should be Full Power PoE+ switches | | |
| 8 | Switches have to provide minimum power budget of 740W for PoE devices. | | |

## Table-1*: Important technical features required in all Edge Switches as compliance in addition to other requirements of the tender.

***Following are mandatory Conditions for Live Demonstration for Technical tender evaluation bidders have to comply with them.***

1. **Tender Technical evaluation will be based on the compliance of this table-1. All bidders are mandatorily required to bring their actual quoted Edge/Access switches and any other required resources (if any) at PRL premises for live demonstrations of below mentioned table-1 features.**

2. **Not appearing for Live demonstration activity within specific schedule given by PRL or not bringing exact switches (i.e. same as quoted in the bid) for Live demonstrations may lead to rejection of bids.**

3. **The Live demonstrations activity has to be conducted at PRL campus within PRL network environment only; Bidder's or OEM's laboratory result or performance will not be accepted for technical evaluation.**

4. **All the servers, hardware, software or any tools required to carry out demonstration of table-1 features has to be brought by the bidder at PRL campus within specified scheduled time only. PRL will not provide any tools or server for live demonstration activity.**

5. **The Bidder has to complete this Live demonstration activity within two weeks after receiving official communication from PRL, this includes delivery of demo quoted device(s), configuration of device(s) and 3-4 days of live testing. PRL will not provide any resources for technical live demonstration. PRL will not accept and entertain extension related request for live demonstration activity.**

6. **With reference to requirement of PRL every features mentioned in Table-1 has specific numeric weightage points (marks) associated with it. If bidder's quoted product FULLY COMPLIES to the required features FULL weightage points (marks) will be given otherwise ZERO weightage points (marks) will be given. <u>There is no partial compliance considered for further technical evaluations.</u> Based on the gained total weightage points (marks) product will be evaluated. Every bidder's quoted product has to obtain minimum 70 weightage points (marks) to qualify for further evaluation process.**

7. **The Bidder must demonstrate the technical features mentioned in their technical tender bid as per the PRL requirements during this evaluation period on PRL premise, All those Features which would have not been be demonstrated at PRL premises during tender evaluation will be considered at non-availability of that feature in quoted product of that bidder.**

8. **During the live demonstration, all the required features as mentioned in Table -1 shall be configurable without disabling any other required or functional feature. Any such product will not be considered for evaluation and the bid will be rejected.**

Table-1

| Sr. No. | Required Features | Associated Weightage points (marks) | Feature FULLY available in proposed Switch (Yes/No) | TOTAL Weightage (marks) Obtained |
|---|---|---|---|---|
| **1 (CLI) (IPv4)** | IPv4 addresses Binding (Allowing/Blocking) with following criteria through CLI | | | |

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|---|---|---|---|---|
| | interface of switch. | | | |
| | A) Many IPs or Single IP on single port of Switch and deny rest of all IPs on that port. | **2** | | |
| | B) Many IPs or Single IP on all ports of Switch and deny rest of all IPs on all the ports. | **2** | | |
| | C) Allowing only a particular single IP on a single port and multiple ports and deny rest of the IPs. | **2** | | |
| | D) Allowing an entire range of IPs (i.e. 172.16.1.1 to 172.16.1.255) on a single port and multiple ports and deny rest of the IPs. | **2** | | |
| | E) Allowing an entire range of IPs on all ports but restricting certain key IPs on all ports. (i.e. 172.16.9.1 to 172.16.9.255 range should be allowed but 172.16.9.10 172.16.9.153 172.16.9.251 172.16.9.64 should not be allowed on that Edge switch) and deny rest of the IPs. | **2** | | |
| | F) Switch must have default deny policy for all IPs and the rest of all denied IPs need not required to be entered manually. i.e Default Deny and Allow Specific IP Policy. | **2** | | |
| **2 (WEB) (IPv4)** | IPv4 addresses Binding (Allowing/Blocking) with following criteria through WEB interface of switch. | | | |
| | A) Many IPs or Single IP on single port of Switch and deny rest of all IPs on that port. | **2** | | |
| | B) Many IPs or Single IP on all ports of Switch and deny rest of all IPs on all the ports. | **2** | | |
| | C) Allowing only a particular | **2** | | |

| | | | | |
|---|---|---|---|---|
| | single IP on a single port and multiple ports and deny rest of the IPs. | | | |
| | D) Allowing an entire range of IPs (i.e. 172.16.1.1 to 172.16.1.255) on a single port and multiple ports and deny rest of the IPs. | **2** | | |
| | E) Allowing an entire range of IPs on all ports but restricting certain key IPs on all ports. (i.e. 172.16.9.1 to 172.16.9.255 range should be allowed but 172.16.9.10 172.16.9.153 172.16.9.251 172.16.9.64 should not be allowed on that Edge switch) and deny rest of the IPs. | **2** | | |
| | F) Switch must have default deny policy for all IPs and the rest of all denied IPs need not required to be entered manually. i.e Default Deny and Allow Specific IP Policy. | **2** | | |
| **3 (CLI) (IPv6)** | IPv6 addresses Binding (Allowing/Blocking) with following criteria through CLI interface of switch. | | | |
| | A) Many IPs or Single IP on single port of Switch and deny rest of all IPs on that port. | **1** | | |
| | B) Many IPs or Single IP on all ports of Switch and deny rest of all IPs on all the ports. | **1** | | |
| | C) Allowing only a particular single IP on a single port and multiple ports and deny rest of the IPs. | **1** | | |
| | D) Allowing an entire range of IPs on a single port and multiple ports and deny rest of the IPs. | **1** | | |
| | E) Allowing an entire range of IPs on all ports but restricting certain key IPs | **1** | | |

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| | on all ports and deny rest of the IPs. | | | |
| | F) Switch must have default deny policy for all IPs and the rest of all denied IPs need not required to be entered manually. i.e Default Deny and Allow Specific IP Policy. | **1** | | |
| **4 (WEB) (IPv6)** | IPv6 addresses Binding (Allowing/Blocking) with following criteria through WEB interface of switch. | | | |
| | A) Many IPs or Single IP on single port of Switch and deny rest of all IPs on that port. | **1** | | |
| | B) Many IPs or Single IP on all ports of Switch and deny rest of all IPs on all the ports. | **1** | | |
| | C) Allowing only a particular single IP on a single port and multiple ports and deny rest of the IPs. | **1** | | |
| | D) Allowing an entire range of IPs on a single port and multiple ports and deny rest of the IPs. | **1** | | |
| | E) Allowing an entire range of IPs on all ports but restricting certain key IPs on all ports and deny rest of the IPs. | **1** | | |
| | F) Switch must have default deny policy for all IPs and the rest of all denied IPs need not required to be entered manually. i.e Default Deny and Allow Specific IP Policy. | **1** | | |
| **5 (CLI)** | The Switch should prevent Broadcast strome traffic through Broadcast strome control feature and properly log that information for system administrator's actions on external Linux syslog server.<br><br>This feature configuration shall | **2** | | |

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| | be available through CLI interface. | | | |
| **6 (WEB)** | The Switch should prevent Broadcast strome traffic through Broadcast strome control feature and properly log that information for system administrator's actions on external Linux syslog server.<br><br>This feature configuration shall be available through Web interface. | **3** | | |
| **7 (CLI) (IPv4)** | The Switch must support detailed logging on external (remote) Linux syslog server for permanent retention of logs for ALL THE PARAMETERS MENTIONED BELOW.<br>a. All activities logging (like user login-logout, configuration changes done by admin users and all other types of network activities happening on the switch)<br>b. All types of alarms being generated on the switch that has to be logged<br>c. All types of information (other than above two points) has to be logged<br>d. Any notification generated for the switch has to be logged<br>e. Any kind of warning generated in switch that has to be logged<br>f. Any kind of error generated in switch that has to be logged<br><br>[Operating System - RHEL 9.4 Linux and rsyslogd package for logging on the server] | **5** | | |
| **8 (WEB) (IPv4)** | The Switch must support detailed logging on external (remote) Linux syslog server for | **10** | | |

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| | permanent retention of logs for ALL THE PARAMETERS MENTIONED BELOW.<br>a. All activities logging (like user login-logout, configuration changes done by admin users or all types of other activities happening on the switch)<br>b. All types of alarms being generated on the switch that has to be logged<br>c. All types of information (other than above two points) has to be logged<br>d. Any notification generated for the switch has to be logged<br>e. Any kind of warning generated in switch that has to be logged<br>f. Any kind of error generated in switch that has to be logged<br><br>[Operating System – RHEL 9.4 Linux and rsyslogd package for logging on the server] | | | |
| **9 (CLI) (IPv6)** | The Switch must support detailed logging on external (remote) Linux syslog server for permanent retention of logs for ALL THE PARAMETERS MENTIONED BELOW.<br>a. All activities logging (like user login-logout, configuration changes done by admin users or all types of other activities happening on the switch)<br>b. All types of alarms being generated on the switch that has to be logged<br>c. All types of information (other than above two points) has to be logged<br>d. Any notification generated for the switch | **5** | | |

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| | has to be logged<br>e. Any kind of warning generated in switch that has to be logged<br>f. Any kind of error generated in switch that has to be logged<br>[Operating System - RHEL 9.4 Linux and rsyslogd package for logging on the server] | | | |
| **10 (WEB) (IPv6)** | The Switch must support detailed logging on external (remote) Linux syslog server for permanent retention of logs for ALL THE PARAMETERS MENTIONED BELOW.<br>a. All activities logging (like user login-logout, configuration changes done by admin users or all types of other activities happening on the switch)<br>b. All types of alarms being generated on the switch that has to be logged<br>c. All types of information (other than above two points) has to be logged<br>d. Any notification generated for the switch has to be logged<br>e. Any kind of warning generated in switch that has to be logged<br>f. Any kind of error generated in switch that has to be logged<br><br>[Operating System - RHEL 9.4 Linux and rsyslogd package for logging on the server] | **5** | | |
| **11 (CLI) (IPv4)** | Switch must control IP Conflict at port level and properly log that information for system administrator's actions on external Linux syslog server.<br><br>This feature configuration shall be available through CLI | **2** | | |

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| | interface on IPv4 network.<br><br>***Note: In absence of proper DETAILED LOGGING of IP Conflict event related all details ON TO EXTERNAL SYSLOG SERVER as mentioned in point 7 & 8 the evaluation weightage will be considered as zero.*** | | | |
| **12 (WEB) (IPv4)** | Switch must control IP Conflict at port level and properly log that information for system administrator's actions on external Linux syslog server.<br><br>This feature configuration shall be available through Web interface on IPv4 network.<br><br>***Note: In absence of proper DETAILED LOGGING of IP Conflict event related all details ONTO EXTERNAL SYSLOG SERVER as mentioned in point 7 & 8 the evaluation weightage will be considered as zero.*** | **2** | | |
| **13 (CLI) (IPv6)** | Switch must control IP Conflict at port level and properly log that information for system administrator's actions on external Linux syslog server.<br><br>This feature configuration shall be available through CLI interface on IPv6 network.<br><br>***Note: In absence of proper DETAILED LOGGING of IP Conflict event related all details ONTO EXTERNAL SYSLOG SERVER as mentioned in point 9 & 10 the evaluation weightage will be considered as zero.*** | **1** | | |
| **14** | Switch must control IP Conflict | **1** | | |

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| **(WEB) (IPv6)** | at port level and properly log that information for system administrator's actions on external Linux syslog server.<br><br>This feature configuration shall be available through Web interface on IPv6 network.<br><br>***Note: In absence of proper DETAILED LOGGING of IP Conflict event related all details ONTO EXTERNAL SYSLOG SERVER as mentioned in point 9 & 10 the evaluation weightage will be considered as zero.*** | | | |
| **15 (WEB)** | The Switch has to detect any unauthorized or Rough DHCP Server within LAN and it must prevent it. Only PRL authorized DHCP server that we want to allow it should work but rest of all other Rough DHCP servers have to be blocked through the Switch. Switch should properly log all the activities related to this event on external Linux syslog server.<br><br>This feature configuration shall be available through WEB interface or CLI interface.<br><br>***Note: In absence of proper DETAILED LOGGING of Rough DHCP detection and prevention event related all details ONTO EXTERNAL SYSLOG SERVER as mentioned in point 7 & 8 the evaluation weightage will be considered as zero.*** | **5** | | |
| **16 (WEB) (IPv4)** | Login activity on Switch should be allowed only from authorized IP addresses only; The switch should restrict switch administrations from certain | **5** | | |

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| | ALLOWED IPs only. No user should be able to login on the switch from unauthorized IP addresses. This is different from IP address binding rules or ACLs. This is more like restricting Switch access with few selected IP addresses only, from the entire PRL LAN IP addresses. PRL is not asking anything related to INBOUND AND OUTBOUND traffic control from these selected IPs. The switch should also log all details related to users' login, unsuccessful attempts, attacks or any other event related to login and all the configuration related activities performed by user after successful login. These details should be well interpretable based on users and sessions.<br><br>This feature configuration shall be available through WEB interface on IPv4 network.<br><br>***Note: In absence of proper DETAILED LOGGING of Administrative/Management IP login event related all details ON TO EXTERNAL SYSLOG SERVER as mentioned in point 7 & 8 the evaluation weightage will be considered as zero.*** | | | |
| **17 (CLI)** | Backup and Restore of entire switch configuration has to be possible through the local machine from where the Web Management interface of the switch has been invoked directly without requiring any FTP or TFTP server on local machine.<br><br>This feature configuration shall be available through CLI | **4** | | |

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| | interface.<br><br>***Note: If FTP or TFTP server or any other tools required to use on local machine for backup and restore operations of the switch evaluation weightage will be considered as zero.*** | | | |
| **18 (WEB)** | Backup and Restore of entire switch configuration has to be possible through the local machine from where the Web Management interface of the switch has been invoked directly without requiring any FTP or TFTP server on local machine.<br><br>This feature configuration shall be available through WEB interface.<br><br>***Note: If FTP or TFTP server or any other tools required to use on local machine for backup and restore operations of the switch evaluation weightage will be considered as zero.*** | **6** | | |
| **19** | All the proposed Switches have to support IPv4 and IPv6 clients simultaneously. | **3** | | |
| **20** | The switch is designed to block any client that uses the IP and/or MAC addresses associated with known PRL services (such as PRL Proxy and PRL DNS etc). This blocking mechanism operates independently of the standard port security feature. In other words, even if port security is disabled, the switch will still prevent any device from accessing the network if it duplicates any of the predefined PRL service configurations. A list of these known service IPs and MAC addresses will be provided in advance (for IPv4). | **10** | | |

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| **21** | The switch shall provide a centralized mechanism that enables PRL administrators to immediately block network access for any device identified as malicious MAC and/or IP address. This blocking functionality must be enforced across both core/distribution and edge switches, ensuring comprehensive network protection. (for IPv4) | **10** | | |
| **22** | Switch should provide-<br>a)IP ACL entry with description of each entry<br>b) MAC ACL entry with description of each entry<br>C) IP and MAC entry with single ACL along with option of description . (for IPv4) | **5** | | |
| **23** | Logging of Command history typed in Core/Distribution and Edge switches | **5** | | |
| **24** | The switch must detect network loop and eliminate the loop, block/shutdown the respective port without affecting entire network. | **5** | | |

**[B] Network Management Software (NMS):**

Necessary software for Network management along with complete documentation

| **Specification** | **Compliance (Yes/No)** | **Remarks** |
|---|---|---|
| The Network Management Software should be able to configure switched specific all the configurations. It has to Configure and manage all the configurable parameters' of the proposed switch. Barely just monitoring software utility will not be accepted as Network Management Software solution. | | |
| The proposed NMS should support a unified monitoring platform It should provide an auditing system to record for post-audit. | | |
| NMS must allow IT administrators to easily define a number of pre-configured network policies, and designate select personnel to activate/deactivate these policies as appropriate. To achieve this It should have different user roles and privileges. | | |

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| The management software should be capable of displaying all-round network topology information to facilitate routine operation and maintenance. Administrator should be able to view traffic, device performance, and access terminals based on the topologies. | | |
| The management software should allow highlighting important devices; mark important links; view information such as interface sending/receiving rate and interface inbound/outbound bandwidth usage; and set different colors for links | | |
| NMS should be capable of managing all the switches deployed across multi-campus vide deployed Local Area Network of PRL.<br>i.e PRL has other three campuses connected to Main campus via Managed Leased Line Network (MLLN) from external service provider, the NMS should detect, display managed entirely all the switches deployed in all the campuses. | | |
| NMS must provide a system wide deployment of VLAN configuration and monitoring capabilities. | | |
| **Alarm management** | | |
| The management software should support real-time monitoring on alarms of all devices on the entire network and notification of alarms in various manners, for example, display on the topology page, SNMP trap, Syslog, Custom script and emails. It should support customization of the content in emails. | | |
| **Performance and Inventory management** | | |
| The management software should support task-based and long-term performance monitoring. It should generate alarms of different levels (critical, major, minor, and warning) based on the configured performance threshold values | | |
| Must be able to define policies for the following:<br>To rate-limit bandwidth<br>To throttle the rate of new network connections<br>To prioritize based on Layer 2 or Layer 3 QoS mechanisms<br>To apply packet tags<br>To isolate/quarantine a particular port or VLAN<br>To trigger pre-defined actions. | | |
| Should be able to track device attributes such as asset tags, serial numbers, CPU type, firmware version and memory of all the devices being managed | | |
| Should be able to provide/present detailed configuration information such as date and time when configuration was saved, file size and firmware version etc. | | |

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| Should be able to record history of all the devices/switches attributes and be able to report in case if any changes are made to the device. | | |
| Should be capable to provide history of configuration changes made and the firmware of the device. | | |
| Should be capable of generating in-depth reports for the purpose of network inventory planning. | | |
| There should be support for downloading the firmware(s) of single/multiple devices simultaneously | | |
| Must provide port level analysis capability | | |
| **Unified network** | | |
| The NMS should support a unified management system for uniformly managing network switches. | | |
| The management functions should include security policy configuration, security event analysis | | |
| **Network quality monitoring** | | |
| Must provide customizable reports | | |
| Should allow following views:<br>Flexible Web-based view<br>Device views<br>Event logs for the entire setup. | | |
| The management software should support NTA (network traffic analysis) component to display traffic distribution and types on the network. Received, flow packets, analyzes traffic statistics on ports, and display the statistics from various aspects. | | |
| **Licensing** | | |
| The proposed NMS shall be licensed to manage minimum of 100 devices/switches from the date of commissioning in PRL | | |
| The proposed NMS software hosting platform must be a virtual appliance on VMware Platform. PRL VMware version is “VMware vCenter Server, 5.5.0, 2001466” The bidder has to deploy proposed NMS solution in PRL’s existing VMware setup. All the required licenses related to proposed NMS software deployment has to be supplied by bidder. Vendor should provide all software-licensing certificate related to NMS to PRL. The bidder must provide details requirements of Processors, Memory (RAM), and Hard Disk Space. | | |
| **Warranty** | | |
| 5 year comprehensive onsite warranty | | |

**[D] Configuration/Installation/Testing:**

All the supplied active components and modules must have On-premise Hardware as a service of Network switches for 5 years and start after completion of entire installation and acceptance in PRL. The quoted products should not have end of life for another minimum 05 years from the date of commissioning in PRL. The bidder must provide certificate from the OEM.

**[E] Training:**

The bidder must provide training to PRL computer center staff members for general Network administration/management of the all Network Switches management through CLI, Web Interface and using the supplied Network Management software including but not limited to Initial network configuration, migration of our existing configurations, logging, monitoring, trouble shooting, managing Edge switches and Bidder has to provide required documentation for the same.

**[F]** Criteria for bidders:

| Sr. No. | Criteria for bidders | Compliance (yes/no) |
|---|---|---|
| **1.** | The bidder must take this requirement as an On-premise Hardware As A Service for the supplied network switches and Software AS a Service for the supplied NMS for the period of 5 years. | |
| **2.** | The Bidder has to provide Technical support for administration/maintenance as and when required/requested (both software and hardware levels) of proposed Network Switches and Network Management Software during services period at Main Campus, Thaltej Campus, Udaipur Campus and Mt. Abu Campus. | |
| **3.** | The bidder must be responsible to protect data during any upgrades of firmware/OS; and Bidder has to provide complete Technical support onsite at PRL campuses/locations and help our team for replacing any faulty network switches with newer one by preserving/migrating implementing PRL specific policies in it. | |
| **4.** | Bidder must be either OEM or System Integrator and must attach an Authorization letter from OEM for supply, installation, commissioning and after sales warranty support. | |
| **5.** | The bidder must ensure 99% uptime of network service at all the location. To ensure 99% uptime, the bidder must keep sufficient number of additional components like switches, modules, cables at all the locations. | |
| **6.** | The bidder must provide the support matrix details of their engineer. PRL designated engineer will use the details to raise the support/service request. | |
| **7.** | On receipt of the support/service request, the bidder must respond at PRL site within two hours and resolve the issue within two hours. | |
| **8.** | The bidder must coordinate with OEM for any hardware/software related support. PRL will only raise support/service request to the bidder. | |
| **9.** | **Service Level Agreement (SLA):** | |

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| **a.** | The SLA will be applicable for all the four locations. However, for Mount Abu and Udaipur location, it is given separately. | |
| **b.** | After registration of complaint by PRL, If bidder does not respond within 2 hours at Thaltej Campus or Main Campus of Ahmedabad, PRL will deduct ₹2000/- per hour delay amount from their respective duration bill. | |
| **c.** | After registration of complaint by PRL, If bidder does not respond within 4 hours at Mount Abu Campus or Udaipur Campus of Rajasthan, PRL will deduct ₹2000/- per hour delay amount from their respective duration bill. | |
| **d.** | If bidder does not resolve the reported issue within two hours at any location, PRL will deduct ₹5000/- per hour delay amount from their respective duration bill. | |
| **e.** | If the bidder fails to provide satisfactory service in terms of any below, PRL reserves the right to keep all the supplied materials as a property of PRL without any payment to the bidder.<br><br>I. Total Six times failure in response time at site OR Total Six Times failure in resolving reported issue in a particular financial year.<br><br>II. Total Six times failure of time to time updation of firmware without losing any configuration OR Total Six Times failure of time to time upgradation of switches hardware in a particular financial year. | |
| **10.** | Bidder must provide detailed diagram for proposed LAN showing all the quoted switches, modules, patch cords, connectors etc. with reference to RFP. | |
| **11.** | The bidder must provide all the necessary and sufficient length of cables, connectors, Fiber Modules, and other components required for the quoted solution and to make the Network operational. | |
| **12.** | The Bidder must migrate existing ACL (IP binding or any other rules) configured in old edge switches to the supplied new edge switches. | |
| **13.** | The bidder must be OEM or Authorized Partner/Service Provider of OEM or System Integrator (SI) of OEM. Letter of Authorization from OEM for the same and specific to this Tender (clearly mentioning PRL Tender Number) must be enclosed. OEM must have registered office in India for at least 2 years and appropriate document showing this must be attached along with technical bid. | |
| **14.** | If the bidder is other than OEM, an undertaking from OEM must be given. This undertaking must be of after tender date and clearly mention that they would facilitate the bidder on a regular basis with all hardware, software related issues, technology, products updates and extended comprehensive support for the entire warranty period including extended warranty and maintenance contracts as well. | |
| **15.** | The proposed solution must be housed within the existing racks of PRL, No additional racks or room space will be provided. PRL will not allow proposal with any additional racks or space | |

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| | requirements. The bidder must clean the network racks and rewrite the tags on the existing cables properly before installing new devices. The bidder/supplier must cover all the unused ports (both Ethernet and Fiber) on network switches reside in the racks with anti-dust jack cover. | |
| **16.** | The Bidder must supply the proposed materials within 6 weeks. The bidder must complete installation within 6 weeks after supply with all rules and existing configurations. | |
| **17.** | If the bidder is other than OEM, than the bidder must be authorized partner/service provider/system integrator of OEM before the release of this Tender. The Bidder must provide the certificate for this from OEM. | |
| **18.** | All the quoted switches shall be as per RoHS and WEEE regulations. | |
| **19.** | The operating temperature of all the switches should be 0 degree to 45 degree Celsius. | |
| **20.** | The Bidder must submit the tender document duly signed by authorized person with Company seal. | |
| **21.** | The Bidder and OEM both must provide the Support Matrix to call the engineer for any support. The Bidder will register any call log to OEM for any issues related to supplied Hardware and Software during the entire warranty period. | |
| **22.** | During the Technical evolution of the Tender, if required PRL may call upon All the Bidder(s) for Live demonstrations of the technical features of the quoted product in the PRL Network at PRL Main campus Ahmedabad.<br>The Bidder has to complete this Live demonstration activity within two weeks after receiving official communication from PRL, this includes delivery of demo quoted device(s), configuration of device(s) using quoted NMS and 3-4 days of live testing. PRL will not provide any resources for technical live demonstration.<br>The Bidder must demonstrate the technical features mentioned in their technical tender bid as per the PRL requirements during this evaluation period on PRL premises. Those who will successfully demonstrate the technical features required by PRL as mentioned in technical details and technical evaluation criteria will only get considered for further tender evaluation. | |
| **23.** | The bidder and or OEM along with quoted product or product model should not be blacklisted/banned by the Government of India or by any other Government of India organizations. The bidder should give undertaking for this on their letter-head along with their bid. | |
| **24.** | **Payment Terms:**<br><br>PRL will pay the service charges as per duration mentioned below. PRL will review the network service uptime and accordingly initiate a process to release the payment.<br><br>I. April-May (The bidder shall submit the bill in June for | |

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| | payment)<br><br>II. June-July (The bidder shall submit the bill in August for payment)<br><br>III. August-September (The bidder shall submit the bill in October for payment)<br><br>IV. October-November (The bidder shall submit the bill in December for payment)<br><br>V. December-January (The bidder shall submit the bill in February for payment)<br><br>VI. February-March ((The bidder shall submit the bill in April for payment) | |

**[G] EOI meeting for bidders:**

PRL will arrange an in-person/physical meeting with bidders after 10 days of release of EOI. All the participating bidders must send their queries well in advance i.e. within 7 days of release of EOI. PRL will send meeting invitation date, time ONLY to those bidders who submitted their queries. PRL will respond only to those queries in the meeting. PRL will also arrange site survey to understand physical network setup.