भारतीय राष्ट्रीय भुगतान निगम
NATIONAL PAYMENTS CORPORATION OF INDIA

EXPRESSION OF INTEREST (EOI) FOR IDENTIFYING SWITCHING INFRASTRUCTURE SOLUTION FOR NVIDIA GPUS

EOI Reference No: NPCI/EOI/2025-26/IT/02 dated 25th June 2025

National Payments Corporation of India
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Raheja Titanium, CTS No. 201,
Western Express Highway,
Goregaon East, Mumbai 400 063
Website: www.npci.org.in

Disclaimer

1. National Payments Corporation of India along with its subsidiaries and divisions are hereinafter referred to as "NPCI".

2. NPCI has prepared this document to give background information to the prospective Bidders about EOI for identifying Switching Infrastructure solution for NVIDIA GPUs.

3. The information is not intended to be exhaustive. While NPCI has taken due care in the preparation of the information contained herein and believe it to be accurate, neither NPCI nor any of its authorities or agencies nor any of their respective officers, employees or advisors give any warranty or make any representations, express or implied as to the completeness or accuracy of the information contained in this document or any information which may be provided in association with it. Prospective Bidders are required to make their own inquiries and will be required to confirm in writing that they have done so and they do not rely only on the information provided by NPCI while submitting the response to an EOI.

4. Any clarification sought from NPCI should be sent to the designated email ids mentioned in this document. No new clarifications will be entertained after the pre-bid meeting. Any responses provided by NPCI pursuant to this EOI to the queries raised/ clarification sought by the Bidders, are non–binding on NPCI or any of its authorities or agencies or any of their respective officers, employees or advisors unless included in the final understanding between NPCI and the shortlisted Bidder.

5. NPCI reserves the right to halt/ postpone/ modify/ cancel this EOI, whole or in part, at any stage without any answerability to the Bidders. It also reserves the right to decline, discuss the matter further with any Bidder expressing interest. No reimbursement of cost of any type will be paid to Bidders expressing interest except EMD as defined further in this document.

Checklist:

The following items must be checked before the Bid is submitted:

1. Eligibility criteria and technical bid should be prepared in accordance with the EOI document.
2. **Folder 'A'** should contain eligibility criteria response.
3. **Folder 'B'** should contain technical bid.
4. All the pages of eligibility criteria response and technical bid must be duly sealed and signed by the authorized signatory.
5. All the pages of the EOI document should be sealed and signed by an authorized signatory and the document should be placed in **Folder – 'A'**.
6. All the pages of documents submitted as part of response should be duly numbered, sealed and signed by the authorized signatory.
7. All relevant certifications, audit reports, etc. should be enclosed to support claims made in the relevant Folders.

Table of Contents

Abbreviations and Acronyms 5
Chapter 1 About NPCI 8
Chapter 2 Solution Objective 8
Chapter 3 Ownership of this EOI 8
Chapter 4 Scope of work 8
Chapter 5 Definition and Eligibility Criteria for Bidders 21
5.1 Definition of Bidder 21
5.2 Eligibility Criteria for Bidders 21
5.3 Contents 21
5.4 Opening of Bids 22
5.5 Pre-Bid Queries for EOI 22
Chapter 6 General Terms and Conditions 24
6.1 Terms 24
6.2 EMD 25
6.3 Forfeiture of EMD 25
6.4 Acceptance or Rejection of Bid: 25
6.5 Adherence to terms and conditions: 25
6.6 Confidentiality: 25
6.7 Design Ownership: 26
Chapter 7 Evaluation Process 27
7.1 Preliminary Examination of Bids 27
7.2 Evaluation and Comparison of Bids 27
7.3 Technical Bid Evaluation: 27
7.4 Evaluation Outcome 28
Chapter 8 ANNEXURES 29
ANNEXURE A- OFFER LETTER 29
ANNEXURE B Details of the Bidder 30
ANNEXURE C Declaration for Clean Track Record 31
Annexure D - Declaration for Acceptance of EOI Terms and Conditions 32
Annexure E - Declaration for Acceptance of Scope of Work 33
Annexure F - Format Power of Attorney 34
ANNEXURE G Eligibility Criteria Response 35
ANNEXURE H - OEM / Manufacturer's Authorization Letter 36
ANNEXURE I TECHNICAL DETAILS 37
ANNEXURE J Service Level Agreement 38
ANNEXURE K - Technical Specifications 39
Annexure L - Client Reference Details (For Similar Solution Deployment) 52

Abbreviations and Acronyms

The following abbreviations and acronyms defined in this EOI are as under:

Sr.No	Abbreviations	Description
1.	EOI	Expression of Interest
2.	NPCI	National Payments Corporation of India
3.	OEM	Original Equipment Manufacturer
4.	POC	Proof of Concept
5.	QA	Quality assurance
6.	RFP	Request for Proposal
7.	SLA	Service Level Agreement
8.	NOS	Network Operating System
9.	EMD	Earnest Money Deposit
10.	UPI	Unified Payment Interface
11.	AEPS	Adhar Enabled Payment System
12.	IMPS	Immediate Payment Service
13.	CTS	Cheque Truncation System
14.	NFS	National Financial Switch
15.	NETC	National Electronic Toll Collection
16.	NACH	National Automated Clearing House

Notice inviting Expression of Interest (EOI) for identifying Switching Infrastructure solution for NVIDIA GPUs.

NPCI invites proposals from GPU Switching Solution suppliers who have experience in supplying, implementing and supporting Switching Infrastructure solution for NVIDIA GPUs. The EOI is being floated in order to enable bidders to propose their capability in the space of Switching Infrastructure solution for NVIDIA GPUs.

EOI Schedule and Communication Address

The following is an indicative timeframe for the overall process. NPCI reserves the right to vary this timeframe in its absolute and sole discretion and in case of any variation; a notice/intimation shall be published on the company's website. Changes to the timeframe shall be relayed to all the Bidders during the process.

The EOI schedule is as follows:

Sr. No.	Description	Detailed Information
1.	Name of Project	Expression of Interest for identifying Switching Infrastructure Solution for NVIDIA GPUs
2.	Tender Reference Number	**NPCI/EOI/2025-26/02**
3.	Date of release of EOI document	25th June 2025
4.	Last date and time of receiving Bidders pre-bid clarification in writing from bidders	30th June 2025
5.	Date and Time of Pre-Bid Meeting	will be intimated suitably
6.	Last date and time for Bid Submission	7th July 2025, 5:30 PM
7.	Bid Submission	Electronic bid response submission should be sent to the following email address: **Folder A (Eligibility) & Folder B (Technical):** vishal.shetake@npci.org.in nikhil.shetty@npci.org.in prashant.patil@npci.org.in saurabh.thakur@npci.org.in nadeem.shaik@npci.org.in There will be no physical bid submission for this EOI. During the electronic bid submission, bid response attachments should not exceed the size of 10 MB vide each email and bid response may be segregated to adjust the maximum attachment capacity (10 MB). In case of the bid response being segregated into separate emails to accommodate the complete set of attachments, the total number of emails and corresponding attachment numbers forming the complete bid response need to be mentioned in the 1st mail itself.
8.	Date and Time of Eligibility Criteria Response Opening(Folder A)	7th July 2025, 6:30 PM

9.	Date and Time of Technical Bid Response Opening (Folder B)	Eligible Bidders shall be informed over email
10.	Name and Address for Communication	Dy Chief - IT Procurement & Planning National Payments Corporation of India, Unit no. 202, 2nd Floor, Raheja Titanium, CTS No. 201, Western Express Highway, Goregaon East, Mumbai 400 063
11.	Bid Related Queries	**Note** – All pre-bid queries and EOI bid response should be sent to designated Email ID's mentioned below: vishal.shetake@npci.org.in nikhil.shetty@npci.org.in prashant.patil@npci.org.in saurabh.thakur@npci.org.in nadeem.shaik@npci.org.in

Note:

1. Only the pre-bid queries received on or before the last date as per the above schedule would be replied.

Chapter 1 About NPCI

NPCI is a Company registered under Section 25 of the Companies Act, 1956 (corresponding to Section 8 of The Companies Act, 2013) with its Registered Office in Mumbai, India. NPCI was promoted by 10 (Ten) banks in India under the aegis of the Indian Bank's Association with majority shareholding by Public Sector Banks. As of 30th April 2024, the shareholders (including promoter banks, shareholder banks and RBI regulated entities) of the NPCI stands at 65 (11 Public Sector Banks, 18 Private Banks, 5 Foreign Banks, 10 Co-operative Banks, 6 Regional Rural Banks, 4 Small Finance Banks, 1 Payment Banks and 10 Payment System Operators).

The vision and mission of NPCI are as under:
Vision - To be the best payments network globally.
Mission – Touching every Indian with one or other payment services and to make our mission possible.

NPCI's aim is to transform India into a 'less-cash' society by touching every Indian with one or other payment services. With each passing year, NPCI is moving towards it's vision to be the best payments network globally. NPCI, during its journey over decade, has made a significant impact on the retail payment systems in the country. It has introduced many innovative products dealing with money transactions through the digital eco-system. Today, it holds to its credit, products like UPI, NFS (RuPay), IMPS, AEPS, NETC, CTS, NACH, etc., which have transformed digital payment eco-system. As a result, NPCI and its product family is now being recognized as pioneers of modern edge digital payment eco-system, not only in India but globally as well.

Information Technology has been the backbone of NPCI journey. NPCI has thrived to adopt modern edge technologies in all domains thereby keeping pace with the ability to meet ever increasing demand for ease of doing transactions with adequate controls. Currently NPCI operates out of two captive DCs running from Hyderabad and Chennai and one co-located DC operating out of Chennai with active-active setup.

Chapter 2 Solution Objective

The Expression of Interest (EOI) is floated in order to identify bidders who have experience in supplying, implementing and supporting Switching Infrastructure Solution for NVIDIA GPUs. The identified bidders through this EOI shall receive the detailed and more specific RFP/RFQ for subsequent process.

Chapter 3 Ownership of this EOI

Chapter 4 Scope of work

High-performance switches are essential for GPU(Model H200) servers used in AI workloads due to the massive data volumes and the need for ultra-fast, low-latency communication between GPUs, storage, and compute nodes. AI training and inference tasks involve frequent data exchanges across servers, which, if not supported by high-bandwidth and low-latency switches, can lead to significant bottlenecks, impacting both performance and scalability. Modern AI clusters, like those built with NVIDIA H200 systems, require switches that support speeds of 400G or 800G to handle current and future data demands efficiently.

The scope of work for purchasing and deploying high-performance switches for H200 servers typically includes:

- Requirements Analysis: Assess current and projected network bandwidth, latency, and scalability needs based on AI workload profiles

- Switch Selection: Identify and procure switches that meet technical requirements (e.g., port density, speed, redundancy, management features).
- Rack and Stack: Physically install switches in the data center, including racking, cabling, and power connections.
- Configuration: Set up switch interfaces, VLANs, routing protocols, and security policies to integrate with the H200 server environment.
- Testing: Perform connectivity and performance tests to verify network readiness and ensure low-latency, high-throughput operation.
- Integration: Connect switches to H200 servers, storage, and other infrastructure, ensuring seamless data flow for AI workloads.
- Documentation: Provide network diagrams, configuration files, and operational procedures.

Solution Guidelines:

- Solution proposed can be either or both of below
  - Nvidia spectrum supporting ethernet switching
  - OEM specific IOS supporting Ethernet switching
    e.g. – OEM's can propose both solutions i.e. with Nvidia Spectrum on their hardware or their own operating system on their own hardware
- For GPU infra., OEM need to propose SFP's at both server and switch end considering 32 nodes per site
- Server end SPF's should be validated by server OEM's
- OEM need to propose MPO cabling solutions. (DAC / AOC cables are recommended for Interswitch connectivity)
- From switch to GPU servers please consider direct cabling and proposed MPO cables
- Consider 2 or 3 GPU server per rack
- Genius architecture (option 2 with 10/25 G switches) will be independent of GPU setup
- Installation should be done by OEM engineer. Proper documentation along with knowledge transfer is expected post implementation.

Scope of Work

Phase 1: Hardware Setup and Initial Configuration

Phase 2: Software Installation and Configuration

- Install RDMA Drivers and Libraries
- Configure RoCEv2
- Enable Priority Flow Control (PFC) on the Switch
- Configure RoCEv2 on the Host NIC

Phase 3: Verification and Testing

- Verify RDMA Functionality
- Verify GPU-GPU Communication
- Monitor and Troubleshoot

Phase 4:

- Knowledge Transfer and Training
- Post-Deployment Support and Services

Switching Infrastructure Requirements

Category	Specification / Requirement
Topology & Scale	Scalable Leaf-Spine architecture
	Support for 32 nodes (each: H200 HGX with CX7 NICs)
	Modular and expandable switching fabric
East-West Communication	400 Gbps per NIC uplink
	Switches 800G line-rate ports
	Ultra-low latency

North-South Communication	100G bandwidth to external components
	Uplink breakout and flexible port configs
RDMA & Lossless Ethernet	RoCEv2 support with: • Priority Flow Control (PFC) • Explicit Congestion Notification (ECN) • Deep buffering for microburst absorption
	End-to-end lossless transport
Compatibility & Interoperability	Support for ConnectX-7 (CX7) NICs
	• RDMA over Ethernet (RoCEv2) • Telemetry/monitoring tools
	Switch silicon ≥ NVIDIA Spectrum-4 or OEM specific

Indicative Switch Specification:

1. **800G Switch:**

Capacity and Performance	19" 2RU form factor switch with 64-ports 800G QSFP56-DD or 800G OSFP ports and 2x 10G SFP+ Ports
	Switch should support breakout of 800 ports to 256 ports of 100G and 64 ports of 400G simultaneously or Switch should support breakout of 800G ports to 512 ports of 100G and 128 ports of 400G simultaneously
	Min. Switching Fabric Capacity: 51.2 Tbps (102.2 Tbps full duplex)
	Min. Forwarding Throughput: 15 Bpps
	Switching latency: <1ms
	Must have advance features: SSHv2, TACAS+, SNMP-V3, OSPF, BGP
	Support Open Network Install Environment (ONIE) where the switch can install other 3rd party Network Operating system. - optional
	Switch should have support for Switch Abstraction Interface (SAI) for hardware abstraction models for switching silicon (ASICs). - optional
	Must have packet memory buffer of 164MB or more
Layer 2 Features	Support Min. 6K MAC addresses
	Support 3965 VLANs (IEEE 802.1Q)
	Support IEEE 802.3ad Link Aggregation
	Support minimum 64 link aggregation groups of 32 ports each
	Support Auto-negotiation of port speed and duplex
	Support IEEE 802.3x full-duplex flow control
	Support IEEE 802.1D Spanning Tree Protocol (STP)
	Support IEEE 802.1s Multiple Spanning Tree Protocol instances (MSTP)
	Support BPDU (Bridge Protocol Data Unit) protection
	Jumbo Frames (minimum 9000 bytes)
	Support LLDP
	Support up to 4K ARP table entries
Layer 3 Features	Support Hardware based routing
	Support OSPF (Open Shortest Path First)
	Support ECMP (Equal Cost Multi-Path) for OSPF
	Support DHCP Relay (Dynamic Host Configuration Protocol Relay) - optional

	Support TCP/IP protocol stack ARP with minimum of 4K ARP entries
	Support BGP with minimum 500 Neighbours
	Support 1Million IPv4 and 1 Million IPv6 Routes
	Support IGMP Snooping v1 & v2
	Support BGP-EVPN
	Support BGP Unnumbered interfaces
	Should support a minimum of 512 Layer 3 interfaces on physical, port channel, and subinterface ports per switch
	Should support VxLAN
	Should support a minimum of 64 ECMP paths per ECMP group
Quality of Service	Support Eight hardware queues per port
	Support Ingress and egress queue
	Support Queuing algorithms
	Support Port based QoS such as IEEE802.1p, rate policing and rate shaping.
	Support Policy based QoS configuration such as DSCP and strict priority queue
	Should support ROCEv2 (RDMA over Converged Ethernet)
Security	Support Local authentication and RADIUS authentication
	Support TACACS+ (Terminal Access Controller Access Control System Plus) authentication
	Support Wirespeed packet filtering in hardware - optional
	Supports a minimum of 256 ACL rules per system
	Support ACLs filter at Layers 2, 3, and 4:
	• Source / Destination MAC address
	• Layer 3 protocol
	• Source / Destination IP address
	• IP Layer 4 protocol / ports
	Support encrypted management traffic using SSH v2 and SNMP v3
Management	Support CLI (Command Line Interface) configuration mode
	Support Configuration via the console (control console) port
	Support Local / Remote configuration via Telnet / SSH
	Support System configuration with SNMP v1, 2, and 3
	Support Port mirroring
	Support ACL/QoS, IP interface statistics, Network Congestion Monitoring, like Queue WRED / ECN stats, PFC Rx/Tx stats
	Support Syslog
	Support Ping and Traceroute
	Support Network Time Protocol (NTP)
	Support RESTconf API
Power Supply	Support redundant power supply and should be hot swappable / field replaceable. Fans need to be hot swappable
	Input voltage: 100-140 or 200-240 VAC auto-ranging
	Operating frequency: 50/60 Hz
	Max power consumption: 3000W under full load (using max range transceivers on all ports)
	Must have both IO-to-PSU and PSU-to-IO airflow options
Compliances	RoHS compliant

	UL/CUL 62368-1
	FDA Regulation 21 CFR 1040.10 and 1040.11
	EN 60825-2 Safety of Laser Products Part 2
	EN 300 386
	EN55032/55035, Class A

2. 400G Switch:

Capacity and Performance	19" 2RU form factor switch with 64-ports 400G QSFP56-DD ports and 2x 10G SFP+ Ports
	Min. Switching Fabric Capacity: 25 Tbps (50 Tbps full duplex)
	Min. Forwarding Throughput: 8 Bpps
	Min. Switching latency: < 1.5 ms
	Must have advance features: SSHv2, TACAS+, SNMP-V3, OSPF, BGP
	Support Open Network Install Environment (ONIE) where the switch can install other 3rd party Network Operating system. optional
	Switch should have support for Switch Abstraction Interface (SAI) for hardware abstraction models for switching silicon (ASICs).- optional
	Must have packet memory buffer of 112MB or more
Layer 2 Features	Support Min. 8K MAC addresses
	Support 3965 VLANs (IEEE 802.1Q)
	Support IEEE 802.3ad Link Aggregation
	Support minimum 30 link aggregation groups of 32 ports each
	Support Auto-negotiation of port speed and duplex
	Support IEEE 802.3x full-duplex flow control
	Support IEEE 802.1D Spanning Tree Protocol (STP)
	Support IEEE 802.1s Multiple Spanning Tree Protocol instances (MSTP)
	Support BPDU (Bridge Protocol Data Unit) protection
	Jumbo Frames (minimum 9000 bytes)
	Support LLDP
	Support up to 8K ARP table entries
Layer 3 Features	Support Hardware based routing
	Support OSPF (Open Shortest Path First)
	Support ECMP (Equal Cost Multi-Path) for OSPF
	Support DHCP Relay (Dynamic Host Configuration Protocol Relay)
	Support TCP/IP protocol stack ARP with minimum of 16K ARP entries
	Support BGP with minimum 500 Neighbours
	Support 1Million IPv4 and 1 Million IPv6 Routes
	Support IGMP Snooping v1 & v2
	Support BGP-EVPN
	Support BGP Unnumbered interfaces
	Should support a minimum of 512 Layer 3 interfaces on physical, port channel, and subinterface ports per switch
	Should support a minimum of 32 ECMP paths per ECMP group
	Support Hardware based routing
Quality of Service	Support Eight hardware queues per port

	Support Ingress and egress queue
	Support Queuing algorithms
	Support Port based QoS such as IEEE802.1p, rate policing and rate shaping.
	Support Policy based QoS configuration such as DSCP and strict priority queue
	Should support ROCEv2 (RDMA over Converged Ethernet)
	Support Eight hardware queues per port
Security	Support Local authentication and RADIUS authentication
	Support TACACS+ (Terminal Access Controller Access Control System Plus) authentication
	Support Wirespeed packet filtering in hardware
	Supports a minimum of 512 ACL rules per system
	Support ACLs filter at Layers 2, 3, and 4:
	• Source / Destination MAC address
	• Layer 3 protocol
	• Source / Destination IP address
	• IP Layer 4 protocol / ports
	Support encrypted management traffic using SSH v2 and SNMP v3
Management	Support CLI (Command Line Interface) configuration mode
	Support Configuration via the console (control console) port
	Support Local / Remote configuration via Telnet / SSH
	Support System configuration with SNMP v1, 2, and 3
	Support Port mirroring
	Support ACL/QoS, IP interface statistics, Network Congestion Monitoring, like Queue WRED / ECN stats, PFC Rx/Tx stats
	Support Syslog
	Support Ping and Traceroute
	Support Network Time Protocol (NTP)
	Support RESTconf API
Power Supply	Support redundant power supply and should be hot swappable / field replaceable. Fans need to be hot swappable
	Input voltage: 100-140 or 200-240 VAC auto-ranging
	Operating frequency: 50/60 Hz
	Max power consumption: 2200W under full load
	Must have both IO-to-PSU and PSU-to-IO airflow options
Compliances	RoHS compliant
	UL/CSA 60950-1, Second Edition
	EN 60950-1, Second Edition
	EN 60825-2 Safety of Laser Products Part 2
	EN 300 386 V1.4.1:2008
	EN 55024: 1998 + A1:2001 + A2:2003

3. 100G Switch:

Capacity and Performance	19" 1RU form factor switch with 36 -ports 100G SFP56-DD with 8 x400G QSFP56-DD ports
	Min. Switching Fabric Capacity: 10 Tbps (full duplex)
	Min. Forwarding Throughput: 2.6 Bpps (full duplex)

	Min Port-to-port latency: <1.8 ms
	Must have advance features: SSHv2, TACAS+, SNMP-V3, OSPF, BGP
	Must support sFlow
	Support Virtualization technology where 2 chassis can be logical group in single domain providing multichassis LAG capability.
	Support Open Network Install Environment (ONIE) where the switch can install other 3rd party Network Operating system.- optional
	Switch should have support for Switch Abstraction Interface (SAI) for hardware abstraction models for switching silicon (ASICs). - optional
	Switch RAM: 32GB or better, Disk type and size: SSD and 128GB or better
	Must have packet memory buffer of 80MB or more
Layer 2 Features	Support Min. 224K MAC addresses
	Support 3965 VLANs (IEEE 802.1Q)
	Support IEEE 802.3ad Link Aggregation, with support for aggregation groups across switches in a virtual chassis
	Support minimum 128 link aggregation groups of a minimum of 30 ports in each group
	Support Auto-negotiation of port speed and duplex
	Support IEEE 802.3x full-duplex flow control
	Support IEEE 802.1D Spanning Tree Protocol (STP)
	Support IEEE 802.1s Multiple Spanning Tree Protocol instances (MSTP)
	Support BPDU (Bridge Protocol Data Unit) protection
	Jumbo Frames (more than 9,000 bytes)
	Support for LLDP
	Support a minimum of 32K ARP table entries
Layer 3 Features	Support Hardware based routing
	Support a minimum of 1 million Layer-3 Routing table entries
	Support OSPF (Open Shortest Path First)
	Support ECMP (Equal Cost Multi-Path) for OSPF
	Support DHCP Relay (Dynamic Host Configuration Protocol Relay)
	Support BGP with minimum 500 Neighbours
	Support IPv4 and IPv6 Routing
	Support IGMP Snooping v1 & v2
	Support PIM-SSM / PIM-SM
	Support VXLAN
	Support BGP-EVPN
	Support BGP Unnumbered interfaces
	Support 2 or more switches to be added in virtual chassis so as to provide LACP from the virtual chassis to anyexternal devices. Switches in virtual chassis must have separate control plane
	Should support RDMA over Converged Ethernet (RoCE v2) capabilities
	Support a minimum of 1000 VRFs per switch
	Support IPv6 unnumbered interfaces
Quality of Service	Support Eight hardware queues per port
	Support Ingress and egress queue

	Support Queuing algorithms
	Support Port based QoS such as IEEE802.1p, rate policing and rate shaping.
	Support Policy based QoS configuration such as DSCP and strict priority queue
	Should support ROCEv2 (RDMA over Converged Ethernet)
Security	Support Local authentication and RADIUS authentication
	Support TACACS+ (Terminal Access Controller Access Control System Plus) authentication
	Support Wirespeed packet filtering in hardware
	Supports a minimum of 512 ACL rules per system
	Support ACLs filter at Layers 2, 3, and 4:
	• Source / Destination MAC address
	• Layer 3 protocol
	• Source / Destination IP address
	• IP Layer 4 protocol / ports
	Support encrypted management traffic using SSH v2 and SNMP v3
Management	Support CLI (Command Line Interface) configuration mode
	Support Configuration via the console (control console) port
	Support Local / Remote configuration via Telnet / SSH
	Support System configuration with SNMP v1, 2, and 3
	Support Port mirroring
	Support ACL/QoS, IP interface statistics, Network Congestion Monitoring, like Queue WRED / ECN stats, PFC Rx/Tx stats
	Support Syslog
	Support Ping and Traceroute
	Support Network Time Protocol (NTP)
	Support RESTconf API
Power Supply	Support redundant power supply and field replaceable
	Input voltage: 100-140 or 200-240 VAC auto-ranging
	Operating frequency: 50/60 Hz
	Max power consumption: 920W under full load (while using maximum range transceivers type)
	Must have both IO-to-PSU and PSU-to-IO airflow options
Compliances	RoHS compliant
	UL/CSA 60950-1, Second Edition
	EN 60950-1, Second Edition
	EN 60825-2 Safety of Laser Products Part 2
	EN 300 386 V1.4.1:2008
	EN 55024: 1998 + A1:2001 + A2:2003

4. 10/25 G Switch:

Capacity and Performance	19" 1RU form factor switch with minimum of 48x SFP28 with 4x QSFP28 and 2x QSFP28-DD uplinks
	Min. Switching Fabric Capacity: 3.2 Tbps (full duplex)
	Min. Forwarding Throughput: 1.2 Bpps (full duplex)
	Port-to-port latency: <1ms
	Must have advance features: SSHv2, TACAS+, SNMP-V3, OSPF, BGP

	Must support sFlow
	Support option of Front-to-Back or Back-to-Front airflow
	Support Virtualization technology where 2 chassis can be logical group in single domain providing multichassis LAG capability.
	Switch should have support for Switch Abstraction Interface (SAI) for hardware abstraction models for switching silicon (ASICs).- Optional
	Support Open Network Install Environment (ONIE) where the switch can install other 3rd party Network Operating system.- optional
	Switch RAM: 16GB or better, Disk type and size: SSD and 64GB or better
	Must have packet memory buffer of 32MB or more
Layer 2 Features	Support Min. 224K MAC addresses
	Support 3965 VLANs (IEEE 802.1Q)
	Support IEEE 802.3ad Link Aggregation, with support for aggregation groups across switches in a virtual chassis
	Support minimum 128 link aggregation groups of a minimum of 30 ports in each group
	Support Auto-negotiation of port speed and duplex
	Support IEEE 802.3x full-duplex flow control
	Support IEEE 802.1D Spanning Tree Protocol (STP)
	Support IEEE 802.1s Multiple Spanning Tree Protocol instances (MSTP)
	Support BPDU (Bridge Protocol Data Unit) protection
	Jumbo Frames (more than 9,000 bytes)
	Support for LLDP
	Support a minimum of 32K ARP table entries
Layer 3 Features	Support Hardware based routing
	Support a minimum of 160K IPv4 and 64K IPv6 Routing table entries
	Support OSPF (Open Shortest Path First)
	Support ECMP (Equal Cost Multi-Path) for OSPF
	Support DHCP Relay (Dynamic Host Configuration Protocol Relay)
	Support BGP with minimum 500 Neighbours
	Support IPv4 and IPv6 Routing
	Support IGMP Snooping v1 & v2
	Support PIM-SSM / PIM-SM
	Support VXLAN
	Support BGP-EVPN
	Support BGP Unnumbered interfaces
	Support 2 or more switches to be added in virtual chassis so as to provide LACP from the virtual chassis to any devices. Switches in virtual chassis must have separate control plane
	Should support RDMA over Converged Ethernet (RoCE v2) capabilities
	Support a minimum of 960 VRFs per switch
	Support IPv6 unnumbered interfaces
Quality of Service	Support Eight hardware queues per port
	Support Ingress and egress queue

	Support Port based QoS such as IEEE802.1p, rate policing and rate shaping.
	Support Policy based QoS configuration such as DSCP and strict priority queue
Security	Support Local authentication and RADIUS authentication
	Support TACACS+ (Terminal Access Controller Access Control System Plus) authentication
	Support Wirespeed packet filtering in hardware
	Supports a minimum of 512 ACL rules per system
	Support ACLs filter at Layers 2, 3, and 4:
	• Source / Destination MAC address
	• Layer 3 protocol
	• Source / Destination IP address
	• IP Layer 4 protocol / ports
	Support encrypted management traffic using SSH v2 and SNMP v3
Management	Support CLI (Command Line Interface) configuration mode
	Support Configuration via the console (control console) port
	Support Local / Remote configuration via Telnet / SSH
	Support System configuration with SNMP v1, 2, and 3
	Support Port mirroring
	Support ACL/QoS, IP interface statistics, Network Congestion Monitoring, like Queue WRED / ECN stats, PFC Rx/Tx stats
	Support Syslog
	Support Ping and Traceroute
	Support Network Time Protocol (NTP)
	Support RESTconf API
Power Supply	Support redundant power supply and field replaceable
	Input voltage: 100-140 or 200-240 VAC auto-ranging
	Operating frequency: 50/60 Hz
	Max power consumption: 650W under full load (while using maximum range transceivers type)
	Must have both IO-to-PSU and PSU-to-IO airflow options
Compliances	RoHS compliant
	UL/CSA 60950-1, Second Edition
	EN 60950-1, Second Edition
	EN 60825-2 Safety of Laser Products Part 2
	EN 300 386 V1.4.1:2008
	EN 55024: 1998 + A1:2001 + A2:2003

5. Management Switch:

Capacity and Performance	19" 1RU form factor switch with 48x RJ45 10/100/1000Mbps auto-sensing ports, 4x 10G SFP+ ports and 2x 100G QSFP28 ports
	Min. Switching Fabric Capacity: 170 Gbps (full duplex)
	Min. Forwarding Throughput: 130 Mpps (full duplex)
	Must have advance features: SSHv2, TACAS+, SNMP-V3, OSPF, BGP
	Support option of Front-to-Back or Back-to-Front airflow
	Support Virtualization technology where 2 chassis can be logical group in single domain providing multichassis LAG capability.

	Support Open Network Install Environment (ONIE) where the switch can install other 3rd party Network Operating system.- optional
	Switch should have support for Switch Abstraction Interface (SAI) for hardware abstraction models for switching silicon (ASICs).- optional
	Switch RAM: 6 2 GB or better, Disk type and size: SSD and 4 GB or better
Layer 2 Features	Support Min. 8K MAC addresses
	Support 3900 VLANs (IEEE 802.1Q)
	Support IEEE 802.3ad Link Aggregation, with support for aggregation groups across switches in a virtual chassis
	Support minimum 8 link aggregation groups of a minimum of 8 ports in each group
	Support Auto-negotiation of port speed and duplex
	Support IEEE 802.3x full-duplex flow control
	Support IEEE 802.1D Spanning Tree Protocol (STP)
	Support IEEE 802.1s Multiple Spanning Tree Protocol instances (MSTP)
	Support BPDU (Bridge Protocol Data Unit) protection
	Jumbo Frames (more than 9,000 bytes)
	Support for LLDP
	Minimum must have packet memory buffer of 6 MB
	Support a minimum of 6K ARP table entries
Layer 3 Features optional	Support Hardware based routing
	Support a minimum of 8K Layer-3 Routing table entries
	Support OSPF (Open Shortest Path First)
	Support ECMP (Equal Cost Multi-Path) for OSPF
	Support DHCP Relay (Dynamic Host Configuration Protocol Relay)
	Support BGP with minimum 64 Neighbours
	Support IPv4 and IPv6 Routing
	Support IGMP Snooping v1 & v2
	Support PIM-SSM / PIM-SM
	Support VXLAN
	Support BGP-EVPN
	Support BGP Unnumbered interfaces
	Support 4 or more switches to be added in virtual chassis so as to provide LACP from the virtual chassis to any devices. Switches in virtual chassis must have separate control plane
	Support a minimum of 30 VRFs per switch
	Support IPv6 unnumbered interfaces
Quality of Service	Support Eight hardware queues per port
	Support Ingress and egress queue
	Support Port based QoS such as IEEE802.1p, rate policing and rate shaping.
	Support Policy based QoS configuration such as DSCP and strict priority queue

Security	Support Local authentication and RADIUS authentication
	Support TACACS+ (Terminal Access Controller Access Control System Plus) authentication
	Support Wirespeed packet filtering in hardware
	Supports a minimum of 512 ACL rules
	Support ACLs filter at Layers 2, 3, and 4:
	• source/destination MAC address
	• Layer 3 protocol
	• source/destination IP address
	• IP Layer 4 protocol / ports
	Support encrypted management traffic using SSH v2 and SNMP v3
Management	Support CLI (Command Line Interface) configuration mode
	Support Configuration via the console (control console) port
	Support System configuration with SNMP v1, 2, and 3
	Support Port mirroring or Remote Port Mirroring
	Support Syslog
	Support Ping and Traceroute
	Support Network Time Protocol (NTP)
	Support REST-API
Power Supply	Support redundant power supply and field replaceable
	Input voltage: 100-140 or 200-240 VAC auto-ranging
	Operating frequency: 50/60 Hz
	Max power consumption: 220W under full-load (while using maximum range transceivers type)
	Must have both IO-to-PSU and PSU-to-IO airflow options
Compliances	RoHS compliant
	ICES Class A
	VCCI Class A
	FCC Class A
	FDA 21 CFR 1040.10 and 1040.11

OEM's need to provide BOQ and final technical specifications which is in line with indicative technical specifications as provided in Annexure - K

I. AI GPU Switches for 2 locations - Considering 32 nodes and 10 storage servers (40*100G ports) per location
   a. Provide 800G GPU switch requirement for Backend infra (spine and leaf)
   b. Provide 400G and 100G switch requirement for frontend infra (super spine, border leaf, spine and leaf)
   c. Single mode SFP's at switch end
   d. Single mode SFP's at server end
   e. MPO cables considering 10,15, and 30 Mtr distance
   f. DAC/AOC cables between switching fabric
   g. Monitoring / Management software for the overall solution

II. Genius application switching fabric for 2 locations - purpose super spine, spine, border leaf and leaf architecture considering
   a. 700 nos 10/25G switching ports for compute
   b. 200 nos 40/100 switching ports for storage
   c. Provide leaf, spine, border leaf and super spines switching BOQ

d. Consider Switch end multimode SFP's
e. Consider 400G SFP's for Aggregator connectivity

III. Management switches
a. 48 port ethernet with 1G / 10G uplink management switches
b. SFP's for the uplink connectivity

Chapter 5 Definition and Eligibility Criteria for Bidders

5.1 Definition of Bidder

Only those Bidders who fulfill the following criteria (as laid down in Clause 4.2 hereto) are eligible to respond to the EOI. Offers received from the Bidders who do not fulfill any of the following eligibility criteria are liable to be rejected.

5.2 Eligibility Criteria for Bidders

Sr. No	Eligibility Criteria	MSME	Other than MSME
1	Governance – Statutory obligations	There shall be no continuing statutory default as on date of submitting the response to the tender. Necessary self-declaration along with extract of auditors' report.	There shall be no continuing statutory default as on date of submitting the response to the tender. Necessary self-declaration along with extract of auditors' report.
2	Blacklisting	Neither the OEM nor the bidder should have been currently blacklisted by any Bank or institution in India or abroad	Neither the OEM nor the bidder should have been currently blacklisted by any Bank or institution in India or abroad
3	Manufacturer authorization (MAF)	The bidder should be authorized to quote and support OEM products and services. The bidder shall not get associated with the distribution channel in any other capacity once he is eligible for price discussion.	The bidder should be authorized to quote and support for OEM products and services. The bidder shall not get associated with the distribution channel in any other capacity once he is eligible for price discussion.
4	Bid participation	The OEM can participate directly or can authorize only one bidder certified on proposed technology having deep expertise and implementation experience to participate on the OEMs behalf.	The OEM can participate directly or can authorize only one bidder certified on proposed technology having deep expertise and implementation experience to participate on the OEMs behalf.

Contents and Response

5.3 Contents

- This chapter contains the table of contents for the proposal response. In order to facilitate evaluation and comparison of proposal responses, Bidders shall submit their response in this format. Any failure to do so may result in the EOI being eliminated at the examination stage as unresponsive.

- Should the bidder have additional information to submit that cannot be encompassed by the current table of contents, additional sections may be added at the end.

- The bid must be prepared and submitted in two Folders: Folder A and Folder B. Both the Folder should be put in an outer Folder marked "EOI - Software Defined Network Solution".

- Folder A must be super scribed as "Eligibility Criteria". The following documents duly placed in a file must be inserted inside Folder A:

1) Offer letter – Annexure A
2) Bidder Information – Annexure B
3) Declaration of Clean Track Record – Annexure C
4) Declaration of Acceptance of Terms and Conditions – Annexure D
5) Declaration of Acceptance of Scope of Work – Annexure E
6) Power of Attorney for signing of bid – Annexure F
7) Eligibility criteria Compliance - Annexure G
8) OEM/Manufacturer Authorization Letter – Annexure H
9) EOI document duly sealed and signed by the authorized signatory on each page

All necessary supporting documents

- Folder B must be super scribed as "Technical Bid". The following documents duly placed in a file must be inserted inside Folder B:

  1) Technical details (Annexure I)
  2) Service Level Agreement (Annexure J)
  3) Technical Specifications (Annexure K)
  4) Client Reference Details (Annexure L)
  5) Solution architecture covering network design, security, Scalability, Interoperability, observability, security compliance
  6) Project plan along with schedule and industry standards if any
  7) Solution blueprint along with approach to comply required features as per Annexure – K
  8) Development and support centres in India

Any other supporting documents as may be required

5.4 Opening of Bids

- EOI response shall be accepted till date given in EOI notice as given in the EOI schedule.
- No EOI response will be accepted after the deadline as mentioned in the EOI schedule.
- NPCI reserves the right to reject any response received late i.e., after the closing time on the date specified.

Bids shall be opened in 2 stages:
Phase I – In the first stage the Eligibility bid i.e. Folder 'A' shall be opened.

Note: Bids of only those bidders who meet the Eligibility Criteria shall be evaluated for Phase II Technical Bid opening.

Phase II – In the second stage the Technical bid i.e. Folder 'B' shall be opened.

The date, time and address is mentioned in Section 1 or may be amended by NPCI from time to time.
As this is online submission of bids, the bids shall be opened on the date and time mentioned in Section 1 or as amended by NPCI from time to time.

5.5 Pre-Bid Queries for EOI

- It may be noted that all queries, clarifications, questions etc., relating to this EOI, technical or otherwise, must be communicated vide email and should be to the nominated point of contact as mentioned section "EOI Schedule and Communication Address" herein above.
  - Bidders should submit the queries only in the format given below in **an excel sheet.** The subject of the email for pre-bid queries should be titled **"Pre-bid queries – Invitation For Expression Of Interest (EOI) – for identifying Switching Infrastructure Solution for NVIDIA GPUs, EOI# NPCI/EOI/2025-26/IT/02 dated 25th June 2025".**

Sr. No	Document Reference	Page No	Clause No	Description in the EOI	Clarification Sought	Additional Remarks (if any)

- Bidders should provide their email address in their queries without fail since replies from NPCI shall be by emails only. The e-mail address and phone numbers of the bidder should also be indicated in the email.
- Any modification to the bidding documents which may become necessary shall be made by NPCI by issuing an Addendum.
- Pre-bid queries to be submitted to following email ids:
  vishal.shetake@npci.org.in, nikhil.shetty@npci.org.in, prashant.patil@npci.org.in, saurabh.thakur@npci.org.in, nadeem.shaik@npci.org.in

Chapter 6 General Terms and Conditions

6.1 Terms

- The Bidder for this EOI can only submit one bid. The shortlisted Bidders cannot change their proposed Solution, architecture and their OEMs during the period of the shortlisting and subsequent RFP.

- Only the selected Bidder would be required to execute the agreement with NPCI.

- Application: These general conditions shall apply to the extent that provisions in other parts of the document do not supersede them. For interpretation of any clause in the EOI, the interpretation of NPCI shall be final and binding on the Bidders.

- Relationship between the Parties: Nothing mentioned herein shall be construed as relationship of master and servant or of principal and agent as between NPCI and 'the Bidder'. The Bidder subject to this EOI, if engages / empanels any personnel, for the Purpose of this EOI, Bidder shall have complete charge of its personnel empanelled in performing the services under the Project from time to time. The Bidder shall be fully responsible for the services performed by them or on their behalf. The selected Bidder should ensure due participation, support and physical involvement of OEMs during the various stages of the EOI.

- Language of Bids: All bids and supporting documentation shall be submitted in English. The proposal should be prepared in English in MS Word/PDF format.

- Applicable Law: This EOI shall be governed by and interpreted in accordance with the Indian Law.

- No legal binding relationship: It may be noted that no binding legal relationship will exist between any of Bidder of this EOI and NPCI.

- Professionalism: The Bidder should provide professional, objective and impartial advice at all times and hold NPCI's interest's paramount and should observe the highest standard of ethics while executing the assignment.

- Adherence to Standards: The Bidder should adhere to laws of land and 'rules, regulations and guidelines' prescribed by various regulatory, statutory and Government authorities.

- The proposed team members of successful Bidder should possess the knowledge along with the necessary experience and should be deployed in the relevant phases as per the requirements of the proposed Switching Infrastructure Solution for NVIDIA GPUs.

- The Bidders, if found involved in any form of lobbying/ influencing/ canvassing etc., in selection process shall be disqualified.

6.2 EMD

Not Applicable.

6.3 Forfeiture of EMD

Not Applicable

6.4 Acceptance or Rejection of Bid:

NPCI reserves the right not to accept any bid, or to accept or reject a particular bid at its sole discretion without assigning any reason whatsoever.

NPCI reserves the absolute right to reject the response/proposal if it is not in accordance with its requirements and no correspondence will be entertained by the NPCI in the matter. The bid is liable to be rejected if,

- It is not in conformity with the instructions mentioned in this proposal document.
- If it is not strictly as per prescribed form and format.
- It is not properly/duly signed.
- It is received through Fax.
- It is received after expiry of the due date and time.
- It is incomplete including non-furnishing the required documents.
- It is evasive or contains incorrect information.
- There is canvassing of any kind.
- It is submitted anywhere other than the correspondence email address mentioned in the "EOI Schedule and Communication Address" section of this document.

6.5 Adherence to terms and conditions:

The Bidders who wish to submit responses to this EOI should note that they should abide by all the terms and conditions contained in the EOI. If the responses contain any extraneous conditions put in by the Bidder/Bidders, such responses will be disqualified and will not be considered for the selection process.

- NPCI reserves the right to:
  - ✓ Reject any and all responses received in response to the EOI without assigning any reason whatsoever
  - ✓ Cancel the EOI at any stage, without assigning any reason whatsoever
  - ✓ Waive or Change any formalities, irregularities, or inconsistencies in this EOI (format and delivery). Such a change/waiver would be duly and publicly notified in the NPCI's website before the closure of the bid date
  - ✓ Extend the time for submission of all proposals and such an extension would be duly and publicly notified on NPCI's website
  - ✓ Share the information/ clarifications provided in response to EOI by any bidder, with all other bidder(s), in the same form as clarified to the bidder raising the query.

- Forms with respective Annexures must be submitted and signed by the authorised signatory. Unsigned bids would entail rejection of the bid. The Bidders should use only the formats prescribed in this document for submitting technical bids. Any deviation from the prescribed formats in submitting the bids will entail the bidder from being disqualified.

6.6 Confidentiality:

Information relating to the examination, clarification and comparison of the proposals shall not be disclosed to any Bidders or any other persons not officially concerned with such process until the identification process is over. The undue use by any Bidder of confidential information related to the process may result in rejection of its proposal. During the execution of the project except with the prior written consent of the NPCI, the Bidder and its personnel shall not at any

time communicate to any person or entity any confidential information acquired in the course of the proposal.

6.7 Design Ownership:

- The Bidder shall indemnify the NPCI from all actions, costs, claims, demands, expenses and liabilities, whatsoever, resulting from any actual or alleged infringement as aforesaid and at the expenses of the Bidder. NPCI shall be defended in the defence of any proceedings which may be brought in that connection.

- Project plans, reports, ideas, documentation etc., developed for NPCI by the Bidder, while submitting the EOI response, shall be the property of the NPCI, unless otherwise agreed upon explicitly in writing.

DISCLAIMER: NPCI and/or its officers, employees disclaim all liability from any loss or damage, whether foreseeable or not, suffered by any bidder/Bidder/person acting on or refraining from acting because of any information including statements, information, forecasts, estimates or projections contained in this document or conduct ancillary to it whether or not the loss or damage arises in connection with any omission, negligence, default, lack of care or misrepresentation on the part of the organization and/or any of its officers, employees.

Note: ***This is not a Request for proposal (RFP) and Commercial bids should not be submitted with "Expression of Interest".***

Chapter 7 Evaluation Process

7.1 Preliminary Examination of Bids

NPCI will examine the bids to determine whether they are complete containing required information as mentioned in this bid document, duly signed and arranged in order. Bidder shall provide all Annexures on it's company letterhead signed by a person authorized to do so.

NPCI may in its sole and absolute discretion, waive any minor informality, non-conformity or irregularity in a bid that does not constitute a material deviation provided such waiver does not prejudice or affect the relative ranking of any Bidder.

If a Bid is not substantially responsive, it will be rejected by NPCI and may not subsequently be made responsive by the Bidder by correction of the nonconformity. NPCI's determination of bid responsiveness will be based on the content of the bid itself. **NPCI may interact with the Customer references submitted by Bidder, if required.**

7.2 Evaluation and Comparison of Bids

Only complete and responsive bids meeting the eligibility criteria as per Chapter 4.2 will be processed to the stage of being fully evaluated and compared.

NPCI will adjudge the Bidder capabilities and NPCI reserve rights to shortlist the Bidders for participation in further technical evaluation process on the basis of response submitted in the support of various requirements including adequate documents submitted by the Bidders for supporting each of requirements, wherever required. NPCI reserves the right to condone the delay in submission of bid documents within scheduled time depending on merits of such cases. Subject to sole discretion of NPCI, any document deficiency observed during the evaluation process and fulfilled by the Bidder within stipulated time will not result into any violation of time allotted for bid submission. The decision of NPCI is final and binding on all the bidders.

7.3 Technical Bid Evaluation:

Bidders who are qualified during eligibility evaluation will be considered for Technical Evaluation. The indicative parameters to be used for technical evaluation will be based on:

1) Domain expertise and knowledge in handling such projects of similar magnitude and nature
2) Execution methodology
3) Adherence to industry standards
4) Solution architecture offered
5) Development and support centres and adherence to SLA's

Bidders are expected to provide necessary details on the above parameters in the technical bids submitted by them to enable assessment of technical capabilities. The Bidders shall also be required to do a technical presentation to showcase their capabilities covering above parameters.

7.4 Evaluation Outcome

1. Technical Evaluation would include the following:

The indicative parameters to be used for technical evaluation:

Sr No	Scoring weightage
1	Domain expertise and knowledge in handling such projects of similar magnitude and nature
2	Execution methodology
3	Adherence to industry standards
4	Solution architecture offered
5	Development and support centres and adherence to SLA's
6	Presentation

Above is only indicative criteria, NPCI reserves the right to decide the final evaluation criteria. NPCI decisions stands final.

2. Shortlisting will be done on the OEM solutions and RFP/RFQ would be issued to the authorised partners (in addition to the participated partner).

Chapter 8 ANNEXURES

ANNEXURE A OFFER LETTER

(Bidder's Letter Head)

Date:

To
The Chief Executive Officer
National Payments Corporation of India
1001A, B wing 10th Floor,
'The Capital', Bandra-Kurla Complex,
Bandra (East), Mumbai - 400 051.

Dear Sir,

Subject: EOI No. NPCI/EOI/2025-26/IT/02 dated 25th June 2025 - EOI for identifying Switching Infrastructure Solution for NVIDIA GPUs.

We have examined the above referred EOI document.
We acknowledge having received the following addenda / corrigenda to the EOI document.

Addendum No. / Corrigendum No.	Dated

While submitting this bid, we certify that:

1. We have not induced nor attempted to induce any other bidder to submit or not submit a response/offer for restricting competition.
2. We agree that the terms and conditions furnished in this EOI are for NPCI and its Associates.

The response under this EOI shall be binding on us. We also certify that the information/data/particulars furnished in our response /offer are factually correct. We also accept that in the event of any information / data / particulars are found to be incorrect, NPCI will have the right to disqualify /blacklist us and forfeit bid security.

We undertake to comply with the terms and conditions of the response /offer document / EOI. We understand that NPCI may reject any or all of the responses/offers without assigning any reason whatsoever.

Yours sincerely,

(Signature)

(Name)
(In the capacity of)
Duly authorized to sign Bid for and on behalf of

ANNEXURE B Details of the Bidder

(Bidder's Letter Head)

Details of the Bidder		
1	Name of the Bidder (Prime)	
2	Address of the Bidder	
3	Constitution of the Bidder (Public Ltd / Pvt Ltd / Start up)	
4	Details of Incorporation of the Company.	Date: Ref#
5	Valid Goods and Services tax registration no.	
6	Permanent Account Number (PAN)	
7	Name & Designation of the contact Official to whom all references shall be made regarding this EOI	
8	Telephone No. (Cell # and Landline # with STD Code)	
9	E-Mail of the Contact official:	
10	Website	

Bidder should also provide the information related to its area of expertise, and implementation in below format:

Area Of Domain	Brief description of expertise on relevant areas	Years of expertise

Name and complete Postal Address of the Customer (Purchaser):	Name, Designation, Telephone, e-mail address of the contact person (customer)	Year of Implementation

Details of Key / Senior Officials / Directors

Sl. No	Name	Designation	Qualification	With the Company since	Line of Experience / Expertise

(Signature)

(Name)
(In the capacity of)
Duly authorized to sign Bid for and on behalf of

ANNEXURE C Declaration for Clean Track Record

(Bidder's Letter Head)

To,

The Chief Executive Officer
National Payments Corporation of India,
1001A, B wing 10th Floor,
'The Capital', Bandra-Kurla Complex,
Bandra (East), Mumbai - 400 051.

Sir,

I have carefully gone through the Terms & Conditions contained in the EOI document for **identifying Switching Infrastructure Solution for NVIDIA GPUs.**

I hereby declare that

a) My company has not been debarred/blacklisted by any Government / Semi Government / Private organizations in India or oversees.

b) My company has development and design experience in _____

I further certify that I am competent officer and duly authorized by my company to make this declaration.

Yours faithfully,

(Signature of the Bidder)
Printed Name
Designation
Seal
Date:
Business Address:

ANNEXURE D - Declaration for Acceptance of EOI Terms and Conditions

(Bidder's Letter Head)

To

The Chief Executive Officer
National Payments Corporation of India
1001A, B wing 10th Floor,
'The Capital', Bandra-Kurla Complex,
Bandra (East), Mumbai - 400 051

Dear Sir,

I have carefully gone through the Terms & Conditions contained in the **EOI No. NPCI/EOI/2025-26/IT/02 dated 25th June 2025 for "EOI for identifying Switching Infrastructure Solution for NVIDIA GPUs".** I declare that all the provisions of this EOI document are acceptable to my company. I further certify that I am an authorized signatory of my company and am, therefore, competent to make this declaration.

Yours faithfully,

(Signature of the Bidder)
Printed Name
Designation
Seal
Date:
Business Address:

ANNEXURE E - Declaration for Acceptance of Scope of Work
(Bidder's Letter Head)

To

The Chief Executive Officer
National Payments Corporation of India
1001A, B wing 10th Floor,
'The Capital', Bandra-Kurla Complex,
Bandra (East), Mumbai - 400 051

Sir,

I have carefully gone through the Scope of Work contained in the **EOI No. NPCI/EOI/2025-26/IT/02 dated 25th June 2025 for "EOI for identifying Switching Infrastructure Solution for NVIDIA GPUs".** I confirm that the proposed solution in response to this EOI complies with the expected scope of work, technical criteria in terms of scalability, interoperability and required support commitments as per **Annexure - J**. I also confirm that the proposed solution meets technical specifications as defined in this EOI.

I declare that all the provisions of this EOI Document are acceptable to my company. I further certify that I am an authorized signatory of my company and am, therefore, competent to make this declaration.

Yours faithfully,

(Signature of the Bidder)
Printed Name
Designation
Seal
Date:
Business Address:

ANNEXURE F - Format Power of Attorney

(On Stamp paper of relevant value)

Know all men by the present, we _____ (name of the company and address of the registered office) do hereby appoint and authorize _____ (full name and residential address) who is presently employed with us holding the position of _____ as our attorney, to do in our name and on our behalf, deed and things necessary in connection with or incidental to our proposal for **EOI No. NPCI/EOI/2025-26/IT/02 dated 25th June 2025 - "EOI for identifying Switching Infrastructure Solution for NVIDIA GPUs"** in response to the EOI document by NPCI, including signing and submission of all the documents and providing information/responses to NPCI in all the matter in connection with our bid. We hereby agree to ratify all deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all deeds and things done by our aforesaid attorney shall always be deemed to have been done by us.

Dated this _____ day of _____ 2025.
For _____.

(Signature)

(Name)
(In the capacity of)
Duly authorized to sign Bid for and on behalf of

ANNEXURE G Eligibility Criteria Response

(Bidder's Letter Head)

Sr. No.	MSME	Other than MSME	Compliance Yes/No	Documentary proof to be attached
1.	There shall be no continuing statutory default as on date of submitting the response to the tender. Necessary self-declaration along with extract of auditors' report.	There shall be no continuing statutory default as on date of submitting the response to the tender. Necessary self-declaration along with extract of auditors' report.		Self-declaration to be provided by SI along with customer references
2.	Neither the OEM nor the bidder should have been currently blacklisted by any Bank or institution in India or abroad	Neither the OEM nor the bidder should have been currently blacklisted by any Bank or institution in India or abroad		Declaration as per Annexure H on company letter head
3.	The bidder should be authorized to quote and support OEM products and services. The bidder shall not get associated with the distribution channel in any other capacity once he is eligible for price discussion. The bidder has paid the bid cost as given in the RFP at the time of purchasing the bid document or has paid or submitted along with the bid submission.	The bidder should be authorized to quote and support for OEM products and services. The bidder shall not get associated with the distribution channel in any other capacity once he is eligible for price discussion. The bidder has paid the bid cost as given in the RFP at the time of purchasing the bid document or has paid or submitted along with the bid submission.		Declaration from OEM (as per Annexure H) Self-declaration of not being part of distribution channel
4.	The OEM can participate directly or can authorize only one bidder certified on proposed technology having deep expertise and implementation experience to participate on the OEMs behalf.	The OEM can participate directly or can authorize only one bidder certified on proposed technology having deep expertise and implementation experience to participate on the OEMs behalf.		MAF

(Signature)
(Name)
(In the capacity of)
Duly authorized to sign Bid for and on behalf of

ANNEXURE H - OEM / Manufacturer's Authorization Letter

(OEM's Letter Head)

[*The Bidder shall require the Manufacturer to fill in this Form in accordance with the instructions indicated. This letter of authorization should be on the letterhead of the Manufacturer and should be signed by a person with the proper authority to sign documents that are binding on the Manufacturer. The Bidder shall include it in its bid]*

Date:

To:

WHEREAS

We_____, are official manufacturers/OEM vendors of_____. We_____ do hereby authorize M/S_____ to submit a bid the purpose of which is to provide the following Goods, manufactured by us _____, and to subsequently negotiate and sign the Contract.

We hereby extend our full guarantee and warranty, with respect to the Goods offered by the above firm.

Signed by the Manufacturer/OEM Vendor:

Name:

Title:

Seal:

Dated on _____ day of _____, _____

ANNEXURE I TECHNICAL DETAILS

Sr. No.	Area	Provide details in brief and attach necessary supporting documents	Supporting documents
1	Domain expertise and knowledge and implementation experience in handling such projects of similar magnitude and nature.		• Number of certified resources • Number of projects executed of similar magnitude and nature • Customer reference as per **Annexure – L.**
2	Execution methodology and delivery timeframe, Adherence to industry standards		Project plan along with schedule and industry standards if any
3	Solution architecture covering network design, security, Scalability, Interoperability, observability, security compliance		Solution blueprint along with approach to comply required features as per **Annexure – K.**
4	Development and support centres in India		Details of the development and support centres to be provided along with areas of coverage (including advisory services for planning, design, implementation, optimize and operation wherever necessary). The proposal should also include the bidders plan to meet the SLA's given in **Annexure - J**

(Signature)

(Name)
(In the capacity of)
Duly authorized to sign Bid for and on behalf of

ANNEXURE J Service Level Agreement

(Bidder's Letter Head)

<table>
<tr><th>Sr. No.</th><th>SLA parameter</th><th colspan="5">Details of SLA</th></tr>
<tr><td rowspan="4">1</td><td rowspan="4">99.999% uptime</td><td colspan="5">Solution uptime along with underlying device/Hardware that are reported by NPCI to the Supplier with an issue on a given date shall be repaired / replaced with identical or higher fix/ configuration at no extra cost to NPCI so as to ensure minimum downtime</td></tr>
<tr><td colspan="5">24 * 7 Support for warranty</td></tr>
<tr><td colspan="5">Unlimited number of support requests</td></tr>
<tr><td colspan="5">Telephonic/ Fax / online or email support</td></tr>
<tr><td rowspan="5">2</td><td rowspan="5">Response & Resolution as per severity mentioned in the Description</td><td>Incident severity</td><td>Impact</td><td>Description</td><td>Response Time</td><td>Resolution Time</td></tr>
<tr><td>P1</td><td rowspan="2">Critical</td><td>System Down - Unable to perform any business operation</td><td>2 Hrs</td><td>4 Hrs</td></tr>
<tr><td>P2</td><td>Major Disruption - Significant impact on business applications</td><td>2 Hrs</td><td>6 Hrs</td></tr>
<tr><td>P3</td><td>Minor</td><td>Minor Disruption - Low impact on business applications, may be enhancement</td><td>4 Hrs</td><td>Same day</td></tr>
<tr><td>P4</td><td>Low</td><td>Question / request for information / administration queries</td><td>Same business day</td><td>Next business day</td></tr>
<tr><td>3</td><td>Part replacement</td><td colspan="5">Within 4 Hrs from the time OEM authorized issuance of Return Merchandise Authorization</td></tr>
</table>

ANNEXURE K - Technical Specifications

(Bidder's Letter Head)

Indicative functionalities are mentioned below:

Switching Infrastructure Requirements

Category	Specification / Requirement	Compliance (Yes/No)	Deviations if any (Yes/No)	Workaround incase of deviations
Topology & Scale	Scalable Leaf-Spine architecture			
	Support for 32 nodes (each: H200 HGX with CX7 NICs)			
	Modular and expandable switching fabric			
East-West Communication	400 Gbps per NIC uplink			
	Switches 800G line-rate ports			
	Ultra-low latency			
North-South Communication	100G bandwidth to external components			
	Uplink breakout and flexible port configs			
RDMA & Lossless Ethernet	RoCEv2 support with: • Priority Flow Control (PFC) • Explicit Congestion Notification (ECN) • Deep buffering for microburst absorption			
	End-to-end lossless transport			
Compatibility & Interoperability	Support for ConnectX-7 (CX7) NICs			
	• RDMA over Ethernet (RoCEv2) • Telemetry/monitoring tools			
	Switch silicon ≥ NVIDIA Spectrum-4 or OEM specific			

Switch Specification:

1. **800G Switch:**

Category	Specification / Requirement	Compliance (Yes/No)	Deviations if any (Yes/No)	Workaround in case of deviations
Capacity and Performance	19" 2RU form factor switch with 64-ports 800G QSFP56-DD or 800G OSFP ports and 2x 10G SFP+ Ports			
	Switch should support breakout of 800 ports to 256 ports of 100G and 64 ports of 400G simultaneously or Switch should support breakout of 800G ports to 512 ports of 100G and 128 ports of 400G simultaneously			
	Min. Switching Fabric Capacity: 51.2 Tbps (102.2 Tbps full duplex)			
	Min. Forwarding Throughput: 15 Bpps			
	Switching latency: <1ms			
	Must have advance features: SSHv2, TACAS+, SNMP-V3, OSPF, BGP			
	Support Open Network Install Environment (ONIE) where the switch can install other 3rd party Network Operating system. - optional			
	Switch should have support for Switch Abstraction Interface (SAI)			

	for hardware abstraction models for switching silicon (ASICs). - optional			
	Must have packet memory buffer of 164MB or more			
Layer 2 Features	Support Min. 6K MAC addresses			
	Support 3965 VLANs (IEEE 802.1Q)			
	Support IEEE 802.3ad Link Aggregation			
	Support minimum 64 link aggregation groups of 32 ports each			
	Support Auto-negotiation of port speed and duplex			
	Support IEEE 802.3x full-duplex flow control			
	Support IEEE 802.1D Spanning Tree Protocol (STP)			
	Support IEEE 802.1s Multiple Spanning Tree Protocol instances (MSTP)			
	Support BPDU (Bridge Protocol Data Unit) protection			
	Jumbo Frames (minimum 9000 bytes)			
	Support LLDP			
	Support up to 4K ARP table entries			
Layer 3 Features	Support Hardware based routing			
	Support OSPF (Open Shortest Path First)			
	Support ECMP (Equal Cost Multi-Path) for OSPF			
	Support DHCP Relay (Dynamic Host Configuration Protocol Relay) - optional			
	Support TCP/IP protocol stack ARP with minimum of 4K ARP entries			
	Support BGP with minimum 500 Neighbours			
	Support 1Million IPv4 and 1 Million IPv6 Routes			
	Support IGMP Snooping v1 & v2			
	Support BGP-EVPN			
	Support BGP Unnumbered interfaces			
	Should support a minimum of 512 Layer 3 interfaces on physical, port channel, and subinterface ports per switch			
	Should support VxLAN			
	Should support a minimum of 64 ECMP paths per ECMP group			
Quality of Service	Support Eight hardware queues per port			
	Support Ingress and egress queue			
	Support Queuing algorithms			
	Support Port based QoS such as IEEE802.1p, rate policing and rate shaping.			
	Support Policy based QoS configuration such as DSCP and strict priority queue			
	Should support ROCEv2 (RDMA over Converged Ethernet)			

Security	Support Local authentication and RADIUS authentication			
	Support TACACS+ (Terminal Access Controller Access Control System Plus) authentication			
	Support Wirespeed packet filtering in hardware - optional			
	Supports a minimum of 256 ACL rules per system			
	Support ACLs filter at Layers 2, 3, and 4:			
	• Source / Destination MAC address			
	• Layer 3 protocol			
	• Source / Destination IP address			
	• IP Layer 4 protocol / ports			
	Support encrypted management traffic using SSH v2 and SNMP v3			
Management	Support CLI (Command Line Interface) configuration mode			
	Support Configuration via the console (control console) port			
	Support Local / Remote configuration via Telnet / SSH			
	Support System configuration with SNMP v1, 2, and 3			
	Support Port mirroring			
	Support ACL/QoS, IP interface statistics, Network Congestion Monitoring, like Queue WRED / ECN stats, PFC Rx/Tx stats			
	Support Syslog			
	Support Ping and Traceroute			
	Support Network Time Protocol (NTP)			
	Support RESTconf API			
Power Supply	Support redundant power supply and should be hot swappable / field replaceable. Fans need to be hot swappable			
	Input voltage: 100-140 or 200-240 VAC auto-ranging			
	Operating frequency: 50/60 Hz			
	Max power consumption: 3000W under full load (using max range transceivers on all ports)			
	Must have both IO-to-PSU and PSU-to-IO airflow options			
Compliances	RoHS compliant			
	UL/CUL 62368-1			
	FDA Regulation 21 CFR 1040.10 and 1040.11			
	EN 60825-2 Safety of Laser Products Part 2			
	EN 300 386			
	EN55032/55035, Class A			

6. 400G Switch:

Category	Specification / Requirement	Compliance (Yes/No)	Deviations if any (Yes/No)	Workaround in case of deviations

Capacity and Performance	19" 2RU form factor switch with 64-ports 400G QSFP56-DD ports and 2x 10G SFP+ Ports			
	Min. Switching Fabric Capacity: 25 Tbps (50 Tbps full duplex)			
	Min. Forwarding Throughput: 8 Bpps			
	Min. Switching latency: < 1.5 ms			
	Must have advance features: SSHv2, TACAS+, SNMP-V3, OSPF, BGP			
	Support Open Network Install Environment (ONIE) where the switch can install other 3rd party Network Operating system. optional			
	Switch should have support for Switch Abstraction Interface (SAI) for hardware abstraction models for switching silicon (ASICs).- optional			
	Must have packet memory buffer of 112MB or more			
Layer 2 Features	Support Min. 8K MAC addresses			
	Support 3965 VLANs (IEEE 802.1Q)			
	Support IEEE 802.3ad Link Aggregation			
	Support minimum 30 link aggregation groups of 32 ports each			
	Support Auto-negotiation of port speed and duplex			
	Support IEEE 802.3x full-duplex flow control			
	Support IEEE 802.1D Spanning Tree Protocol (STP)			
	Support IEEE 802.1s Multiple Spanning Tree Protocol instances (MSTP)			
	Support BPDU (Bridge Protocol Data Unit) protection			
	Jumbo Frames (minimum 9000 bytes)			
	Support LLDP			
	Support up to 8K ARP table entries			
Layer 3 Features	Support Hardware based routing			
	Support OSPF (Open Shortest Path First)			
	Support ECMP (Equal Cost Multi-Path) for OSPF			
	Support DHCP Relay (Dynamic Host Configuration Protocol Relay)			
	Support TCP/IP protocol stack ARP with minimum of 16K ARP entries			
	Support BGP with minimum 500 Neighbours			
	Support 1Million IPv4 and 1 Million IPv6 Routes			
	Support IGMP Snooping v1 & v2			
	Support BGP-EVPN			
	Support BGP Unnumbered interfaces			
	Should support a minimum of 512 Layer 3 interfaces on physical, port channel, and subinterface ports per switch			
	Should support a minimum of 32 ECMP paths per ECMP group			

	Support Hardware based routing			
Quality of Service	Support Eight hardware queues per port			
	Support Ingress and egress queue			
	Support Queuing algorithms			
	Support Port based QoS such as IEEE802.1p, rate policing and rate shaping.			
	Support Policy based QoS configuration such as DSCP and strict priority queue			
	Should support ROCEv2 (RDMA over Converged Ethernet)			
	Support Eight hardware queues per port			
Security	Support Local authentication and RADIUS authentication			
	Support TACACS+ (Terminal Access Controller Access Control System Plus) authentication			
	Support Wirespeed packet filtering in hardware			
	Supports a minimum of 512 ACL rules per system			
	Support ACLs filter at Layers 2, 3, and 4:			
	• Source / Destination MAC address			
	• Layer 3 protocol			
	• Source / Destination IP address			
	• IP Layer 4 protocol / ports			
	Support encrypted management traffic using SSH v2 and SNMP v3			
Management	Support CLI (Command Line Interface) configuration mode			
	Support Configuration via the console (control console) port			
	Support Local / Remote configuration via Telnet / SSH			
	Support System configuration with SNMP v1, 2, and 3			
	Support Port mirroring			
	Support ACL/QoS, IP interface statistics, Network Congestion Monitoring, like Queue WRED / ECN stats, PFC Rx/Tx stats			
	Support Syslog			
	Support Ping and Traceroute			
	Support Network Time Protocol (NTP)			
	Support RESTconf API			
Power Supply	Support redundant power supply and should be hot swappable / field replaceable. Fans need to be hot swappable			
	Input voltage: 100-140 or 200-240 VAC auto-ranging			
	Operating frequency: 50/60 Hz			
	Max power consumption: 2200W under full load			
	Must have both IO-to-PSU and PSU-to-IO airflow options			
Compliances	RoHS compliant			

	UL/CSA 60950-1, Second Edition			
	EN 60950-1, Second Edition			
	EN 60825-2 Safety of Laser Products Part 2			
	EN 300 386 V1.4.1:2008			
	EN 55024: 1998 + A1:2001 + A2:2003			

7. 100G Switch:

Category	Specification / Requirement	Compliance (Yes/No)	Deviations if any (Yes/No)	Workaround in case of deviations
Capacity and Performance	19" 1RU form factor switch with 36 -ports 100G SFP56-DD with 8 x400G QSFP56-DD ports			
	Min. Switching Fabric Capacity: 10 Tbps (full duplex)			
	Min. Forwarding Throughput: 2.6 Bpps (full duplex)			
	Min Port-to-port latency: <1.8 ms			
	Must have advance features: SSHv2, TACAS+, SNMP-V3, OSPF, BGP			
	Must support sFlow			
	Support Virtualization technology where 2 chassis can be logical group in single domain providing multichassis LAG capability.			
	Support Open Network Install Environment (ONIE) where the switch can install other 3rd party Network Operating system.- optional			
	Switch should have support for Switch Abstraction Interface (SAI) for hardware abstraction models for switching silicon (ASICs). - optional			
	Switch RAM: 32GB or better, Disk type and size: SSD and 128GB or better			
	Must have packet memory buffer of 80MB or more			
Layer 2 Features	Support Min. 224K MAC addresses			
	Support 3965 VLANs (IEEE 802.1Q)			
	Support IEEE 802.3ad Link Aggregation, with support for aggregation groups across switches in a virtual chassis			
	Support minimum 128 link aggregation groups of a minimum of 30 ports in each group			
	Support Auto-negotiation of port speed and duplex			
	Support IEEE 802.3x full-duplex flow control			
	Support IEEE 802.1D Spanning Tree Protocol (STP)			
	Support IEEE 802.1s Multiple Spanning Tree Protocol instances (MSTP)			
	Support BPDU (Bridge Protocol Data Unit) protection			
	Jumbo Frames (more than 9,000 bytes)			

	Support for LLDP			
	Support a minimum of 32K ARP table entries			
Layer 3 Features	Support Hardware based routing			
	Support a minimum of 1 million Layer-3 Routing table entries			
	Support OSPF (Open Shortest Path First)			
	Support ECMP (Equal Cost Multi-Path) for OSPF			
	Support DHCP Relay (Dynamic Host Configuration Protocol Relay)			
	Support BGP with minimum 500 Neighbours			
	Support IPv4 and IPv6 Routing			
	Support IGMP Snooping v1 & v2			
	Support PIM-SSM / PIM-SM			
	Support VXLAN			
	Support BGP-EVPN			
	Support BGP Unnumbered interfaces			
	Support 2 or more switches to be added in virtual chassis so as to provide LACP from the virtual chassis to anyexternal devices. Switches in virtual chassis must have separate control plane			
	Should support RDMA over Converged Ethernet (RoCE v2) capabilities			
	Support a minimum of 1000 VRFs per switch			
	Support IPv6 unnumbered interfaces			
Quality of Service	Support Eight hardware queues per port			
	Support Ingress and egress queue			
	Support Queuing algorithms			
	Support Port based QoS such as IEEE802.1p, rate policing and rate shaping.			
	Support Policy based QoS configuration such as DSCP and strict priority queue			
	Should support ROCEv2 (RDMA over Converged Ethernet)			
Security	Support Local authentication and RADIUS authentication			
	Support TACACS+ (Terminal Access Controller Access Control System Plus) authentication			
	Support Wirespeed packet filtering in hardware			
	Supports a minimum of 512 ACL rules per system			
	Support ACLs filter at Layers 2, 3, and 4:			
	• Source / Destination MAC address			
	• Layer 3 protocol			
	• Source / Destination IP address			
	• IP Layer 4 protocol / ports			

	Support encrypted management traffic using SSH v2 and SNMP v3			
Management	Support CLI (Command Line Interface) configuration mode			
	Support Configuration via the console (control console) port			
	Support Local / Remote configuration via Telnet / SSH			
	Support System configuration with SNMP v1, 2, and 3			
	Support Port mirroring			
	Support ACL/QoS, IP interface statistics, Network Congestion Monitoring, like Queue WRED / ECN stats, PFC Rx/Tx stats			
	Support Syslog			
	Support Ping and Traceroute			
	Support Network Time Protocol (NTP)			
	Support RESTconf API			
Power Supply	Support redundant power supply and field replaceable			
	Input voltage: 100-140 or 200-240 VAC auto-ranging			
	Operating frequency: 50/60 Hz			
	Max power consumption: 920W under full load (while using maximum range transceivers type)			
	Must have both IO-to-PSU and PSU-to-IO airflow options			
Compliances	RoHS compliant			
	UL/CSA 60950-1, Second Edition			
	EN 60950-1, Second Edition			
	EN 60825-2 Safety of Laser Products Part 2			
	EN 300 386 V1.4.1:2008			
	EN 55024: 1998 + A1:2001 + A2:2003			

8. 10/25 G Switch:

Category	Specification / Requirement	Compliance (Yes/No)	Deviations if any (Yes/No)	Workaround in case of deviations
Capacity and Performance	19" 1RU form factor switch with minimum of 48x SFP28 with 4x QSFP28 and 2x QSFP28-DD uplinks			
	Min. Switching Fabric Capacity: 3.2 Tbps (full duplex)			
	Min. Forwarding Throughput: 1.2 Bpps (full duplex)			
	Port-to-port latency: <1ms			
	Must have advance features: SSHv2, TACAS+, SNMP-V3, OSPF, BGP			
	Must support sFlow			
	Support option of Front-to-Back or Back-to-Front airflow			
	Support Virtualization technology where 2 chassis can be logical group in single domain providing multichassis LAG capability.			
	Switch should have support for Switch Abstraction Interface (SAI)			

	for hardware abstraction models for switching silicon (ASICs).- Optional			
	Support Open Network Install Environment (ONIE) where the switch can install other 3rd party Network Operating system.- optional			
	Switch RAM: 16GB or better, Disk type and size: SSD and 64GB or better			
	Must have packet memory buffer of 32MB or more			
Layer 2 Features	Support Min. 224K MAC addresses			
	Support 3965 VLANs (IEEE 802.1Q)			
	Support IEEE 802.3ad Link Aggregation, with support for aggregation groups across switches in a virtual chassis			
	Support minimum 128 link aggregation groups of a minimum of 30 ports in each group			
	Support Auto-negotiation of port speed and duplex			
	Support IEEE 802.3x full-duplex flow control			
	Support IEEE 802.1D Spanning Tree Protocol (STP)			
	Support IEEE 802.1s Multiple Spanning Tree Protocol instances (MSTP)			
	Support BPDU (Bridge Protocol Data Unit) protection			
	Jumbo Frames (more than 9,000 bytes)			
	Support for LLDP			
	Support a minimum of 32K ARP table entries			
Layer 3 Features	Support Hardware based routing			
	Support a minimum of 160K IPv4 and 64K IPv6 Routing table entries			
	Support OSPF (Open Shortest Path First)			
	Support ECMP (Equal Cost Multi-Path) for OSPF			
	Support DHCP Relay (Dynamic Host Configuration Protocol Relay)			
	Support BGP with minimum 500 Neighbours			
	Support IPv4 and IPv6 Routing			
	Support IGMP Snooping v1 & v2			
	Support PIM-SSM / PIM-SM			
	Support VXLAN			
	Support BGP-EVPN			
	Support BGP Unnumbered interfaces			
	Support 2 or more switches to be added in virtual chassis so as to provide LACP from the virtual chassis to any devices. Switches in virtual chassis must have separate control plane			
	Should support RDMA over Converged Ethernet (RoCE v2) capabilities			

	Support a minimum of 960 VRFs per switch			
	Support IPv6 unnumbered interfaces			
Quality of Service	Support Eight hardware queues per port			
	Support Ingress and egress queue			
	Support Port based QoS such as IEEE802.1p, rate policing and rate shaping.			
	Support Policy based QoS configuration such as DSCP and strict priority queue			
Security	Support Local authentication and RADIUS authentication			
	Support TACACS+ (Terminal Access Controller Access Control System Plus) authentication			
	Support Wirespeed packet filtering in hardware			
	Supports a minimum of 512 ACL rules per system			
	Support ACLs filter at Layers 2, 3, and 4:			
	• Source / Destination MAC address			
	• Layer 3 protocol			
	• Source / Destination IP address			
	• IP Layer 4 protocol / ports			
	Support encrypted management traffic using SSH v2 and SNMP v3			
Management	Support CLI (Command Line Interface) configuration mode			
	Support Configuration via the console (control console) port			
	Support Local / Remote configuration via Telnet / SSH			
	Support System configuration with SNMP v1, 2, and 3			
	Support Port mirroring			
	Support ACL/QoS, IP interface statistics, Network Congestion Monitoring, like Queue WRED / ECN stats, PFC Rx/Tx stats			
	Support Syslog			
	Support Ping and Traceroute			
	Support Network Time Protocol (NTP)			
	Support RESTconf API			
Power Supply	Support redundant power supply and field replaceable			
	Input voltage: 100-140 or 200-240 VAC auto-ranging			
	Operating frequency: 50/60 Hz			
	Max power consumption: 650W under full load (while using maximum range transceivers type)			
	Must have both IO-to-PSU and PSU-to-IO airflow options			
Compliances	RoHS compliant			
	UL/CSA 60950-1, Second Edition			
	EN 60950-1, Second Edition			

	EN 60825-2 Safety of Laser Products Part 2			
	EN 300 386 V1.4.1:2008			
	EN 55024: 1998 + A1:2001 + A2:2003			

9. Management Switch:

Category	Specification / Requirement	Compliance (Yes/No)	Deviations if any (Yes/No)	Workaround in case of deviations
Capacity and Performance	19" 1RU form factor switch with 48x RJ45 10/100/1000Mbps auto-sensing ports, 4x 10G SFP+ ports and 2x 100G QSFP28 ports			
	Min. Switching Fabric Capacity: 170 Gbps (full duplex)			
	Min. Forwarding Throughput: 130 Mpps (full duplex)			
	Must have advance features: SSHv2, TACAS+, SNMP-V3, OSPF, BGP			
	Support option of Front-to-Back or Back-to-Front airflow			
	Support Virtualization technology where 2 chassis can be logical group in single domain providing multichassis LAG capability.			
	Support Open Network Install Environment (ONIE) where the switch can install other 3rd party Network Operating system.- optional			
	Switch should have support for Switch Abstraction Interface (SAI) for hardware abstraction models for switching silicon (ASICs).- optional			
	Switch RAM: 6 2 GB or better, Disk type and size: SSD and 4 GB or better			
Layer 2 Features	Support Min. 8K MAC addresses			
	Support 3900 VLANs (IEEE 802.1Q)			
	Support IEEE 802.3ad Link Aggregation, with support for aggregation groups across switches in a virtual chassis			
	Support minimum 8 link aggregation groups of a minimum of 8 ports in each group			
	Support Auto-negotiation of port speed and duplex			
	Support IEEE 802.3x full-duplex flow control			
	Support IEEE 802.1D Spanning Tree Protocol (STP)			
	Support IEEE 802.1s Multiple Spanning Tree Protocol instances (MSTP)			
	Support BPDU (Bridge Protocol Data Unit) protection			
	Jumbo Frames (more than 9,000 bytes)			
	Support for LLDP			
	Minimum must have packet memory buffer of 6 MB			

	Support a minimum of 6K ARP table entries			
Layer 3 Features optional	Support Hardware based routing			
	Support a minimum of 8K Layer-3 Routing table entries			
	Support OSPF (Open Shortest Path First)			
	Support ECMP (Equal Cost Multi-Path) for OSPF			
	Support DHCP Relay (Dynamic Host Configuration Protocol Relay)			
	Support BGP with minimum 64 Neighbours			
	Support IPv4 and IPv6 Routing			
	Support IGMP Snooping v1 & v2			
	Support PIM-SSM / PIM-SM			
	Support VXLAN			
	Support BGP-EVPN			
	Support BGP Unnumbered interfaces			
	Support 4 or more switches to be added in virtual chassis so as to provide LACP from the virtual chassis to any devices. Switches in virtual chassis must have separate control plane			
	Support a minimum of 30 VRFs per switch			
	Support IPv6 unnumbered interfaces			
Quality of Service	Support Eight hardware queues per port			
	Support Ingress and egress queue			
	Support Port based QoS such as IEEE802.1p, rate policing and rate shaping.			
	Support Policy based QoS configuration such as DSCP and strict priority queue			
Security	Support Local authentication and RADIUS authentication			
	Support TACACS+ (Terminal Access Controller Access Control System Plus) authentication			
	Support Wirespeed packet filtering in hardware			
	Supports a minimum of 512 ACL rules			
	Support ACLs filter at Layers 2, 3, and 4:			
	• source/destination MAC address			
	• Layer 3 protocol			
	• source/destination IP address			
	• IP Layer 4 protocol / ports			
	Support encrypted management traffic using SSH v2 and SNMP v3			
Management	Support CLI (Command Line Interface) configuration mode			
	Support Configuration via the console (control console) port			

	Support System configuration with SNMP v1, 2, and 3			
	Support Port mirroring or Remote Port Mirroring			
	Support Syslog			
	Support Ping and Traceroute			
	Support Network Time Protocol (NTP)			
	Support REST-API			
Power Supply	Support redundant power supply and field replaceable			
	Input voltage: 100-140 or 200-240 VAC auto-ranging			
	Operating frequency: 50/60 Hz			
	Max power consumption: 220W under full-load (while using maximum range transceivers type)			
	Must have both IO-to-PSU and PSU-to-IO airflow options			
Compliances	RoHS compliant			
	ICES Class A			
	VCCI Class A			
	FCC Class A			
	FDA 21 CFR 1040.10 and 1040.11			

We hereby declare that all the above stated indicative functionalities and any other additional functionality that NPCI may require would be made available in the solution.

Bidder to provide technical specifications/ datasheets of proposed solution.

(Signature)

(Name)
(In the capacity of)
Duly authorized to sign Bid for and on behalf of

Annexure L - Client Reference Details (For Similar Solution Deployment)

(Bidder's Letter Head)

Sr. No.	Particulars	Details
1	Name of the Organization	
2	Contact Person Name and Designation	
3	Phone Number of the Contact person	
4	Email Address of the Contact person	
5	Brief on the similar solution deployment done	

(Signature)

(Name) (In the capacity of)
Duly authorized to sign Bid for and on behalf of