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Request for Quotation

1. Project Overview

As part of the MeitY funded India Open source for Mobile Communication Networks project the procurement is being done for setting up the lab infrastructure. We seek quotations from qualified vendors for the procurement of PTP Grandmaster Switch to support the development and testing of 5G Core infrastructure. The selected devices will be utilised for generating and sending accurate timing signals to other devices in the network, ensuring that all devices are synchronised to a common time reference.

2. RFQ Details

RFQ Number: FSID/IOSMCN/05

RFQ Issue Date: 20th February 2024

RFQ Deadline: 26th February 2024

Delivery Date: 15th April 2024

Delivery Location: IISc, Bangalore

Contact Person: Rajini B (+91 984560397)

3. Scope of Work:

Provide the PTP Grandmaster switch configured to meet the specifications outlined below, including all necessary hardware, software, and peripherals required.

Deliver PTP Grandmaster switch that offer scalability, reliability, and performance to accommodate future expansion and evolving project requirements. Include warranty, technical support, and maintenance services to ensure the continued operation and reliability of the device.

4. Technical Requirements:

Mentioned below are the specifications that are must for the quote to be sent.

Interfaces & Indicators	
Ethernet	● 4 x 100/1000/2500BaseX (SFP) ● 2 x 10/100/1000BaseT (RJ45) ● 2 x 1/2.5/10G (SFP+) All ports should support PTP, syncE and NTP
Sync	● ToD/1PPS (RJ45) ● 2 x 1PPS/10MHz (SMA) ● BITS (RJ48) ● GNSS antenna in (SMA, active, 5VDC)
USB Console	
IEEE1588/PTP	
Functions: Grandmaster (PRTC), Boundary Clock (Class C/D), Ordinary Clock (M/S), Transparent Clock (Class C/D)	
Modes supported: 1 and 2 step, L2 Multicast, L3/UDP Unicast/Multicast, Mixed transport modes, E2E and P2P delay, VLAN tagging	
Profiles supported: Telecom Frequency (G.8265.1), Telecom Phase (G.8275.1, G.8275.2), Default (1588)	
Slave capacity: Up to 128 Unicast @ full packet-rate (optional)	
Other Timing Services/Features	
Synchronous Ethernet (SyncE): G.8261, G.8262, ESMC (G.8264)	
GNSS: 32 channels, Multi-constellation (GPS, GLONASS, Galileo, Beidou)	
NTP: Server (Future upgradable to HW based), Client	
Physical interfaces: 2 x SMA connectors,User configurable for 1PPS/10MHz input/output,ToD/1PPS (NMEA) input and output	
Architecture & Forwarding	
Hardware architecture Hybrid (ASIC-FPGA)	
RAM/Flash memory: 256MB/256MB	
L2 forwarding: 802.1D MAC bridging	
Flow-based forwarding	
Performance: Wire-speed, on all ports, all frame sizes	
Switching fabric: 34 Gbps, non-blocking	
MTU: 10K bytes	
MAC table: 16K addresses	
VLANs: 4K concurrent	
Provider bridging: 802.1ad **(Q-in-Q)**	

Private VLANS
L1-L4 ACLs
Multicast: IGMPv3 snooping, MLD snooping, up to 8K MC groups
Layer 3: Static routes, IPv4/IPv6, DHCP (client, server, relay)
Quality of Service
Classification: Based on L1-L4 information
Ingress policing per flow: MEF BW profiles
Hierarchical queuing/scheduling, Hierarchical shaping
Priority based flow control: 802.1Qbb
Scheduling: Strict and DWRR (WFQ equivalent)
Compliant with 3GPP QoS requirements for LTE backhaul
Protection
Link: Static or LACP link aggregation, Link protection
Linear protection (G.8031), Ring protection (G.8032v2), Loop protection
Spanning tree: STP, RSTP, MSTP
OAM & Diagnostics
Link OAM, CFM, Performance Monitoring, Traffic generator & analyser, L2 loopbacks, Throughput metering, SFP diagnostics, Traffic mirroring & Remote mirroring, sFlow
Management
CLI Interfaces: Console (RS232), Telnet, SSH1/2 **SNMP:** v1/v2c/v3, extensive MIBs, trap profiles, **Web:** HTTP/HTTPS, Management VLAN, IPv6 management
Link discovery: LLDP, CDP snooping
Operations: Remote System Update, Configuration upload/download, Text based config files
Alarms: SNMP traps, Syslog (internal and remote server), CLI events, Remote temperature reading & alarm
Statistics: Per port, EVC and CoS detailed statistics, RMON; NTPv4
NMS integration: Integrated into the NetACE NMS
Physical
Dimensions <= 50x250x150mm
Mounting: Desktop, Rack, Wall
Accessories: Power cable, RS232 cable (console), Rack mounting kit (optional), GPS antenna.
Regulatory & Compliance
Safety, CE, RoHS, EMC and MEF

5. Quantity of Requirements:

The hardware specified in the mentioned specifications, along with all contingency requirements, is required in the quantity of 2 **(Two)** unit. Vendors are requested to provide quotations that include the following:

Per Unit Price: Please specify the price per unit of the hardware, inclusive of all specified components and features, as well as any additional contingency provisions.

Total Quantity Price: Calculate the total price for the specified quantity of units, incorporating all contingency requirements.

6. Submission Requirements:

The quotation should be submitted in the form of 2 separate documents as specified below:

1. TECHNICAL EVALUATION DOCUMENT: This should contain the following:

a. A checklist indicating compliance with or deviation from the above technical requirements.

b. A technical datasheet of the PTP Grandmaster Switch which includes all or subset of the requirements specified in the technical requirements.

c. Certifications and compliance documentation if any should be included with the quotation.

2. COMMERCIAL BID DOCUMENT:

a. Quotations should include detailed pricing, including unit prices, taxes, shipping costs, and any additional fees.

b. Provide information on warranty terms, technical support services, and maintenance agreements.

c. Include company profile, relevant experience, and references from past projects.

d. Quote for the product must be enclosed in a password protected PDF file format.

e. Quotations must be addressed to

Director,
Foundation for Science Innovation and Development
Innovation Centre, IISc Campus Near Maramma Circle gate
Bengaluru 560012 GSTIN: 29AAECF1802E1Z1

7. Evaluation Criteria:

The evaluation criteria include for considering the quote and awarding with the purchase order includes,

- Compliance with RFQ requirements and specifications.
- Price competitiveness.
- Vendor experience, and track record.
- Warranty and support offerings.
- Technical capabilities and compatibility with existing infrastructure.

8. Important Notes:

- The lowest-priced quotation may not necessarily be selected; quality, reliability, and vendor reputation will also be considered.
- IOS MCN reserves the right to reject any or all quotations and to award the purchase order on its own evaluation criteria.
- Any clarifications or questions regarding this RFQ should be directed to the contact person listed above.