PUBALI BANK PLC.
ICT OPERATION DIVISION
HEAD OFFICE, 26 DILKUSHA C/A, DHAKA.

PBPLC/HO/ICTOD/QUOTATION/ 2013/2024   January 01, 2024

Notice inviting quotation for supply of Cisco Switch for our Bank.

Sealed quotations are hereby invited from bonafide Sellers, Manufacturers, Traders, and Importers of CISCO Switch for supply of the same to our Bank as per following specifications.

Specifications of the Switch:

Access Switch POE (Quantity:01): C9200L-24P-4G		
Item Description	**Technical Specifications**	**Bidder Specification**
Quality	ISO 9001/9002 for manufacturer, FCC Class A/B for quality assurance	
Brand	To be mentioned by the bidder	
Model	To be mentioned by the bidder	
Environmental	Maintain International Quality Environmental Safety standard	
Form factor	Rack Mountable with Rack Mounting Kit	
Quantity	01 (One)	
Architecture	Should be highly performed fixed switch with wire rate Layer 2 and Layer 3 throughput on all the ports on the chassis. Should have minimum of 24 ports full PoE+ and 4x 1G fixed uplinks Switch should support stacking feature Switch should support Dual redundant platinum rate power supply and redundant Fans Switch should support SDN technology Should have min. 2GB DRAM & 4GB Flash	
Switching Performance	Minimum Switching capacity 56 Gbps full duplex or more Minimum Forwarding Throughput Minimum 41.66 Mpps or more	
Switch Layer 2 Services	Layer 2 switch ports and VLAN trunks IEEE 802.1Q VLAN encapsulation Support for up to 1000 VLANs ID Minimum 16,000 MAC Address Support minimum 9198 bytes Jumbo frame Support STP, RSTP, EtherChannel/LACP, VLAN Trunking Must have 5 MB of shared buffer for traffic/packet Queuing and processing	
Switch Layer 3 Services	Support Routing Protocols Static, RIP, Policy-Based Routing/Forwarding, Virtual redundant Routing Protocol (VRRP) from day 1 Support Routing protocols IS-IS, IP SLA, OSPFv3 Minimum Up to 2,900 IPv4 route and 1,400 IPv6 route Support minimum 500 L3 VLAN Interfaces or Switched Virtual Interfaces Minimum 16,000 flow entries for security and traffic visibility.	

	Support Internet Group Management Protocol (IGMP), PIM Stub etc.	
	Support QoS with 802.1p Class of Service, Weighted Random Early Detection, DSCP field classification, Class-Based Weighted Fair Queuing, Shaped Round Robin scheduling or similar protocol	
Security features	Support 802.1X, Flexible Authentication, 802.1x Monitor Mode, and RADIUS Change of Authorization	
	Support min.1400 ACL entries	
	Support Port-based ACLs, VLAN ACLs	
	Support Port Security, Dynamic ARP Inspection, and IP Source Guard	
	Support OS, Firmware/BIOS & patch authenticity as encrypted images to protect from unauthorized and modified/cracked images.	
	Support OS validation during booting to protect from threats	
Management features	Support SNMP, syslog, NetFlow or SFlow, Data telemetry collection and correlation for performance monitoring.	
	Support sampled NetFlow/SFlow, Switched Port Analyzer, Remote SPAN, shared NetFlow/SFlow policy, RSPAN and packet capture tool like Wireshark for troubleshooting and network visibility.	
	Support Network automation with Open PnP, Containers, Python scripting, NETCONF, RESTCONF using YANG	
	The switch must have at least 290,000 hours Mean Time Between Failure (MTBF) for hardware reliability.	
	Should support centralize management platform for configuration rollout, change, backup, troubleshooting	
Manufacturer's part number	Bidder should submit BOQ of proposed device including the details part numbers and Manufacturer's Warranty part number	
Warranty	Manufacturer's warranty part number should be mentioned, minimum 3 (Three) years warranty for OEM technical solution support, Patch & New Software Upgrade, RMA replacement should be provided for this unit from the date of commissioning.	

Access Switch POE (Quantity:01): C9200L-48P-E

Item Description	Technical Specifications	Bidder Specification
Quality	ISO 9001/9002 for manufacturer, FCC Class A/B for quality assurance	
Brand	To be mentioned by the bidder	
Model	To be mentioned by the bidder	
Environmental	Maintain International Quality Environmental Safety standard	
Form factor	Rack Mountable with Rack Mounting Kit	
Quantity	01 (One)	
Architecture	Should be highly performed fixed switch with wire rate Layer 2 and Layer 3 throughput on all the ports on the chassis.	
	Should have minimum of 24 ports full PoE+ and 4x 1G fixed uplinks	
	Switch should support stacking feature	
	Switch should support Dual redundant platinum rate power	

Access Switch POE (Quantity:01): C9200L-48P-E		
	supply and redundant Fans	
	Switch should support SDN technology	
	Should have min. 2GB DRAM & 4GB Flash	
Switching Performance	Minimum Switching capacity 104 Gbps full duplex or more	
	Minimum Forwarding Throughput Minimum 77.38 Mpps or more	
Switch Layer 2 Services	Layer 2 switch ports and VLAN trunks	
	IEEE 802.1Q VLAN encapsulation	
	Support for up to 1000 VLANs ID	
	Minimum 16,000 MAC Address	
	Support minimum 9198 bytes Jumbo frame	
	Support STP, RSTP, EtherChannel/LACP, VLAN Trunking	
	Must have 5 MB of shared buffer for traffic/packet Queuing and processing	
Switch Layer 3 Services	Support Routing Protocols Static, RIP, Policy-Based Routing/Forwarding, Virtual redundant Routing Protocol (VRRP) from day 1	
	Support Routing protocols IS-IS, IP SLA, OSPFv3	
	Minimum Up to 2,900 IPv4 route and 1,400 IPv6 route	
	Support minimum 500 L3 VLAN Interfaces or Switched Virtual Interfaces	
	Minimum 16,000 flow entries for security and traffic visibility.	
	Support Internet Group Management Protocol (IGMP), PIM Stub etc.	
	Support QoS with 802.1p Class of Service, Weighted Random Early Detection, DSCP field classification, Class-Based Weighted Fair Queuing, Shaped Round Robin scheduling or similar protocol	
Security features	Support 802.1X, Flexible Authentication, 802.1x Monitor Mode, and RADIUS Change of Authorization	
	Support min.1400 ACL entries	
	Support Port-based ACLs, VLAN ACLs	
	Support Port Security, Dynamic ARP Inspection, and IP Source Guard	
	Support OS, Firmware/BIOS & patch authenticity as encrypted images to protect from unauthorized and modified/cracked images.	
	Support OS validation during booting to protect from threats	
Management features	Support SNMP, syslog, NetFlow or SFlow, Data telemetry collection and correlation for performance monitoring.	
	Support sampled NetFlow/SFlow, Switched Port Analyzer, Remote SPAN, shared NetFlow/SFlow policy, RSPAN and packet capture tool like Wireshark for troubleshooting and network visibility.	
	Support Network automation with Open PnP, Containers, Python scripting, NETCONF, RESTCONF using YANG	
	The switch must have at least 290,000 hours Mean Time Between Failure (MTBF) for hardware reliability.	
	Should support centralize management platform for	

Access Switch POE (Quantity:01): C9200L-48P-E		
	configuration rollout, change, backup, troubleshooting	
Manufacturer's part number	Bidder should submit BOQ of proposed device including the details part numbers and Manufacturer's Warranty part number	
Warranty	Manufacturer's warranty part number should be mentioned, minimum 3 (Three) years warranty for OEM technical solution support, Patch & New Software Upgrade, RMA replacement should be provided for this unit from the date of commissioning.	

Access Switch (Quantity:01): C9200L-24T-4G-E		
Item Description	**Technical Specifications**	**Bidder Specification**
Quality	ISO 9001/9002 for manufacturer, FCC Class A/B for quality assurance	
Brand	To be mentioned by the bidder	
Model	To be mentioned by the bidder	
Environmental	Maintain International Quality Environmental Safety standard	
Form factor	Rack Mountable with Rack Mounting Kit	
Quantity	01 (One)	
Architecture	Should be highly performed fixed switch with wire rate Layer 2 and Layer 3 throughput on all the ports on the chassis. Should have minimum of 24 x 1GE switch ports and 4 x 1G uplinks ports. Switch should support stacking feature Switch should support Dual redundant platinum rate power supply and redundant Fans Switch should support SDN technology Should have min. 2GB DRAM & 4GB Flash	
Switching Performance	Minimum Switching capacity 56 Gbps full duplex or more Minimum Forwarding Throughput Minimum 41.66 Mpps or more	
Switch Layer 2 Services	Layer 2 switch ports and VLAN trunks IEEE 802.1Q VLAN encapsulation Support for up to 1000 VLANs ID Minimum 16,000 MAC Address Support minimum 9198 bytes Jumbo frame Support STP, RSTP, EtherChannel/LACP, VLAN Trunking Must have 5 MB of shared buffer for traffic/packet Queuing and processing	
Switch Layer 3 Services	Support Routing Protocols Static, RIP, Policy-Based Routing/Forwarding, Virtual redundant Routing Protocol (VRRP) from day 1 Support Routing protocols IS-IS, IP SLA, OSPFv3 Minimum Up to 2,900 IPv4 route and 1,400 IPv6 route Support minimum 500 L3 VLAN Interfaces or Switched Virtual Interfaces Minimum 16,000 flow entries for security and traffic visibility. Support Internet Group Management Protocol (IGMP), PIM Stub etc.	

Access Switch (Quantity:01): C9200L-24T-4G-E		
	Support QoS with 802.1p Class of Service, Weighted Random Early Detection, DSCP field classification, Class-Based Weighted Fair Queuing, Shaped Round Robin scheduling or similar protocol	
Security features	Support 802.1X, Flexible Authentication, 802.1x Monitor Mode, and RADIUS Change of Authorization	
	Support min.1400 ACL entries	
	Support Port-based ACLs, VLAN ACLs	
	Support Port Security, Dynamic ARP Inspection, and IP Source Guard	
	Support OS, Firmware/BIOS & patch authenticity as encrypted images to protect from unauthorized and modified/cracked images.	
	Support OS validation during booting to protect from threats	
Management features	Support SNMP, syslog, NetFlow or SFlow, Data telemetry collection and correlation for performance monitoring.	
	Support sampled NetFlow/SFlow, Switched Port Analyzer, Remote SPAN, shared NetFlow/SFlow policy, RSPAN and packet capture tool like Wireshark for troubleshooting and network visibility.	
	Support Network automation with Open PnP, Containers, Python scripting, NETCONF, RESTCONF using YANG	
	The switch must have at least 290,000 hours Mean Time Between Failure (MTBF) for hardware reliability.	
	Should support centralize management platform for configuration rollout, change, backup, troubleshooting	
Manufacturer's part number	Bidder should submit BOQ of proposed device including the details part numbers and Manufacturer's Warranty part number	
Warranty	Manufacturer's warranty part number should be mentioned, minimum 3 (Three) years warranty for OEM technical solution support, Patch & New Software Upgrade, RMA replacement should be provided for this unit from the date of commissioning.	

Access Switch (Quantity:01): C9200L-48T-4G-E		
Item Description	Technical Specifications	Bidder Specification
Quality	ISO 9001/9002 for manufacturer, FCC Class A/B for quality assurance	
Brand	To be mentioned by the bidder	
Model	To be mentioned by the bidder	
Environmental	Maintain International Quality Environmental Safety standard	
Form factor	Rack Mountable with Rack Mounting Kit	
Quantity	01 (One)	
Architecture	Should be highly performed fixed switch with wire rate Layer 2 and Layer 3 throughput on all the ports on the chassis.	
	Should have minimum of 48 x 1GE switch ports and 4 x 1G uplinks ports.	
	Switch should support stacking feature	
	Switch should support Dual redundant platinum rate power	

Access Switch (Quantity:01): C9200L-48T-4G-E		
	supply and redundant Fans	
	Switch should support SDN technology	
	Should have min. 2GB DRAM & 4GB Flash	
Switching Performance	Minimum Switching capacity 104 Gbps full duplex or more	
	Minimum Forwarding Throughput Minimum 77.38 Mpps or more	
Switch Layer 2 Services	Layer 2 switch ports and VLAN trunks	
	IEEE 802.1Q VLAN encapsulation	
	Support for up to 1000 VLANs ID	
	Minimum 16,000 MAC Address	
	Support minimum 9198 bytes Jumbo frame	
	Support STP, RSTP, EtherChannel/LACP, VLAN Trunking	
	Must have 5 MB of shared buffer for traffic/packet Queuing and processing	
Switch Layer 3 Services	Support Routing Protocols Static, RIP, Policy-Based Routing/Forwarding, Virtual redundant Routing Protocol (VRRP) from day 1	
	Support Routing protocols IS-IS, IP SLA, OSPFv3	
	Minimum Up to 2,900 IPv4 route and 1,400 IPv6 route	
	Support minimum 500 L3 VLAN Interfaces or Switched Virtual Interfaces	
	Minimum 16,000 flow entries for security and traffic visibility.	
	Support Internet Group Management Protocol (IGMP), PIM Stub etc.	
	Support QoS with 802.1p Class of Service, Weighted Random Early Detection, DSCP field classification, Class-Based Weighted Fair Queuing, Shaped Round Robin scheduling or similar protocol	
Security features	Support 802.1X, Flexible Authentication, 802.1x Monitor Mode, and RADIUS Change of Authorization	
	Support min.1400 ACL entries	
	Support Port-based ACLs, VLAN ACLs	
	Support Port Security, Dynamic ARP Inspection, and IP Source Guard	
	Support OS, Firmware/BIOS & patch authenticity as encrypted images to protect from unauthorized and modified/cracked images.	
	Support OS validation during booting to protect from threats	
Management features	Support SNMP, syslog, NetFlow or SFlow, Data telemetry collection and correlation for performance monitoring.	
	Support sampled NetFlow/SFlow, Switched Port Analyzer, Remote SPAN, shared NetFlow/SFlow policy, RSPAN and packet capture tool like Wireshark for troubleshooting and network visibility.	
	Support Network automation with Open PnP, Containers, Python scripting, NETCONF, RESTCONF using YANG	
	The switch must have at least 290,000 hours Mean Time Between Failure (MTBF) for hardware reliability.	
	Should support centralize management platform for configuration	

Access Switch (Quantity:01): C9200L-48T-4G-E		
	rollout, change, backup, troubleshooting and performance analysis feature.	
Manufacturer's part number	Bidder should submit BOQ of proposed device including the details part numbers and Manufacturer's Warranty part number	
Warranty	Manufacturer's warranty part number should be mentioned, minimum 3 (Three) years warranty for OEM technical solution support, Patch & New Software Upgrade, RMA replacement should be provided for this unit from the date of commissioning.	

Access Switch (Quantity:01): C1000-24T-4G-L		
Item Description	Technical Specifications	Bidder Specification
Quality	ISO 9001/9002 for manufacturer, FCC Class A/B for quality assurance	
Brand	To be mentioned by the bidder	
Model	To be mentioned by the bidder	
Environmental	Maintain International Quality Environmental Safety standard	
Form factor	Rack Mountable with Rack Mounting Kit	
Quantity	01 (One)	
Architecture	Should have minimum 24x 10/100/1000 Ethernet ports, 4- 1G SFP uplinks with each switches from day 1. All the modules should be OEM original and same as Switch brand. Must have minimum 512 MB DRAM & 256 MB Flash.	
Switching Performance	Minimum Switching bandwidth should be 56 Gbps or more. Minimum Forwarding bandwidth 28 Gbps or more and Forwarding rate(64—byte L3 packets) should be 41 Mbps.	
Switch Layer 2 Services	Layer 2 switch ports and VLAN trunks. IEEE 802.1Q VLAN encapsulation. Support for up to 4000 VLANs ID. Minimum 16,000 MAC Address. Support minimum 10,240 bytes Jumbo Ethernet frame. Support STP, RSTP, EtherChannel/LACP, VLAN Trunking, Q-in-Q/IEEE VLAN Tunnelling.	
Switch Layer 3 Services	Support Routing Protocols Static, RIP, Policy-Based Routing/Forwarding, Virtual redundant Routing Protocol (VRRP) from day 1 Support Routing protocols IS-IS, IP SLA, OSPFv3 Minimum Up to 2,900 IPv4 route and 1,400 IPv6 route Support minimum 500 L3 VLAN Interfaces or Switched Virtual Interfaces Minimum 16,000 flow entries for security and traffic visibility. Support Internet Group Management Protocol (IGMP), PIM Stub etc. Support QoS with 802.1p Class of Service, Weighted Random Early Detection, DSCP field classification, Class-Based Weighted Fair Queuing, Shaped Round Robin scheduling or similar protocol	
Security features	Support 802.1X, Router Advertisement guard, IPv6 snooping,	

Access Switch (Quantity:01): C1000-24T-4G-L

Item Description	Technical Specifications	Bidder Specification
	IPv6 ND inspection, IPv6 device tracking.	
	Support OS, Firmware/BIOS & patch authenticity as encrypted images to protect from unauthorized and modified/cracked images.	
Management features	Support SNMP, syslog, NetFlow or SFlow, Data telemetry collection and correlation for performance monitoring.	
	Support sampled NetFlow/SFlow, Switched Port Analyzer, Remote SPAN, shared NetFlow/SFlow policy, RSPAN and packet capture tool like Wireshark for troubleshooting and network visibility.	
	The switch must have at least 2,026,000 hours Mean Time Between Failure (MTBF data) for hardware reliability.	
Manufacturer's part number	Bidder should submit BOQ of proposed device including the details part numbers and Manufacturer Warranty.	
Warranty	Three (03) years full warranty with onsite support (Technical solution support, Patch & New Software Upgrade), labour, parts & replacement. The Bidder must provide MAL(Manufacturer Authorization Letter).	

Access Switch (Quantity:01): C1000-48T-4G-L

Item Description	Technical Specifications	Bidder Specification
Quality	ISO 9001/9002 for manufacturer, FCC Class A/B for quality assurance	
Brand	To be mentioned by the bidder	
Model	To be mentioned by the bidder	
Environmental	Maintain International Quality Environmental Safety standard	
Form factor	Rack Mountable with Rack Mounting Kit	
Quantity	01 (One)	
Architecture	Should have minimum 48x 10/100/1000 Ethernet ports, 4x 1G SFP uplinks with each switches from day 1. All the modules should be OEM original and same as Switch brand.	
	Must have minimum 512 MB DRAM & 256 MB Flash.	
Switching Performance	Minimum Switching bandwidth should be 104 Gbps.	
	Minimum Forwarding bandwidth 52 Gbps and Forwarding rate(64—byte L3 packets) should be 130.94 Mbps.	
Switch Layer 2 Services	Layer 2 switch ports and VLAN trunks. IEEE 802.1Q VLAN encapsulation. Support for up to 4094 VLANs ID. Minimum 16,000 MAC Address. Support minimum 10,240 bytes Jumbo Ethernet frame. Support STP, RSTP, EtherChannel/LACP, VLAN Trunking, Q-in-Q/IEEE VLAN Tunnelling.	
Switch Layer 3 Services	Support Routing Protocols Static, RIP, Policy-Based Routing/Forwarding, Virtual redundant Routing Protocol (VRRP) from day 1	
	Support Routing protocols IS-IS, IP SLA, OSPFv3	

**Access Switch (Quantity:01): C1000-48T-4G-L**
Item Description	**Technical Specifications**	**Bidder Specification**
	Minimum Up to 2,900 IPv4 route and 1,400 IPv6 route	
	Support minimum 500 L3 VLAN Interfaces or Switched Virtual Interfaces	
	Minimum 16,000 flow entries for security and traffic visibility.	
	Support Internet Group Management Protocol (IGMP), PIM Stub etc.	
	Support QoS with 802.1p Class of Service, Weighted Random Early Detection, DSCP field classification, Class-Based Weighted Fair Queuing, Shaped Round Robin scheduling or similar protocol	
Security features	Support 802.1X, Router Advertisement guard, IPv6 snooping, IPv6 ND inspection, IPv6 device tracking.	
	Support OS, Firmware/BIOS & patch authenticity as encrypted images to protect from unauthorized and modified/cracked images.	
Management features	Support SNMP, syslog, NetFlow or SFlow, Data telemetry collection and correlation for performance monitoring.	
	Support sampled NetFlow/SFlow, Switched Port Analyzer, Remote SPAN, shared NetFlow/SFlow policy, RSPAN and packet capture tool like Wireshark for troubleshooting and network visibility.	
	The switch must have at least 1,452,667 hours Mean Time Between Failure (MTBF data) for hardware reliability.	
Manufacturer's part number	Bidder should submit BOQ of proposed device including the details part numbers and Manufacturer Warranty.	
Warranty	Manufacturer's warranty part number should be mentioned, minimum 3 (Three) years warranty for OEM technical solution support, Patch & New Software Upgrade, RMA replacement should be provided for this unit from the date of commissioning and services are free of cost. Bidder must have local Authorized RMA depot in Bangladesh to ensure early replacement if this product and any component is faulty.	

Terms and conditions:-

1) The offer must be submitted through **"Offering Sheet"** enclosed with the schedule.

2) The Switch will be under comprehensive Warranty for **full 3(three) years** from the date of delivery.

3) In case of any trouble with the Switch within the warranty period the supplier shall have to replace/repair the Item free of cost at the premises of the Branch/Office where it will be supplied within 24(twenty four) hours. If the Item is not in repairable condition on the premises, it should be replaced by a similar one within 24 (twenty four) hours from getting the information of trouble prior to bring the same at their end for repairing purpose. In case of failure of the supplier, the Bank shall have the right to get the replacement or repairing works done by other agency at the cost of the supplier. Such costs will be recovered from the supplier and the supplier shall have no objection to it.

4) Payment of the bills will be made from ICT Operation Division, Head Office, after delivery of the same to the Branches/Offices as per terms of the Supply Order.

5) **10% (ten percent) of the bill amount** will be retained as Security Money which will be paid to the supplier after expiry of the warranty period at the satisfaction of the purchaser.

6) All Tax, Vat, Govt. Duties etc. will be deducted from the bill as per rule prior payment of the same.

7) Bidder must have at least 60% of the total product in stock or already on shipment (shipment documents must be submitted with the tender documents).

8) Bidder must ensure delivery of all products (100%) within 60 (sixty) days of receiving work order. Delaying of product delivery will be resulted into Security Money confiscation.

9) The authority reserves the right either to accept or to reject all or any offer without assigning any reason.

10) Bank may ask the successful bidder to store the products at their warehouse at their own cost.

11) Warranty (Local) of the products will be started from the date of delivery of the products at ICT Operation Division after getting Work Order against specific Branch.

12) **Successful bidder must ensure delivery of Routers after getting workorder from Branches/Sub Branches/Offices/IBW within 15 (Fifteen) days.**

13) **Successful bidder must have an account like SB/CD/CC at any Branch of our Bank for receiving their payment through online.**

14) Bank will pay the full/partial amount of the products after ensuring the availability of all/partial products at successful bidder's warehouse.

15) Successful Bidder may submit full/partial bill amount after submitting the specific serial numbers of the products (full/partial).

10) Bank is not bound to accept the lowest Quotation. To be successful in the bid, quality of
the offered items, financial capability, reputation etc. of the firm as assessed by the Bank are
the prime factors for consideration.

11) Photocopy of Trade License, TIN Certificate, VAT registration Certificate (if any), Financial Solvency Certificate (if any), Appreciation letter, Major client List and Company profile to be submitted with the Quotation.

Offer / Bid to be dropped in the Tender Box kept in **Establishment and General Services Division, Pubali Bank PLC., 12th Floor, 26 Dilkusha C/A, Dhaka by 11-00 a.m. up to 10-01-2024** which will be opened on the same day at 11.30 a.m. in presence of the bidders present (if any).

Sd/-	Sd/-
(Md. Aminul Islam)	**(Md. Helal Uddin)**
Asst. General Manager	**GM & Division Head**

CC TO : The Member Secretary, Purchase Committee, Pubali Bank PLC., Head Office, Dhaka for information and necessary action.

CC TO : Notice Board, Pubali Bank PLC., Head Office, Dhaka .

CC TO : www.pubalibangla.com

Asst. General Manager

GM & Division Hea

OFFERING SHEET

(To be submitted alongwith the offer)

Tenderer's Name :

Address   :

Access Switch POE (Quantity:01): C9200L-24P-4G			
Item Description	**Technical Specifications**	**Bidder Specification**	**Price (including VAT & Tax)**
Quality	ISO 9001/9002 for manufacturer, FCC Class A/B for quality assurance		
Brand	To be mentioned by the bidder		
Model	To be mentioned by the bidder		
Environmental	Maintain International Quality Environmental Safety standard		
Form factor	Rack Mountable with Rack Mounting Kit		
Quantity	01 (One)		
Architecture	Should be highly performed fixed switch with wire rate Layer 2 and Layer 3 throughput on all the ports on the chassis. Should have minimum of 24 ports full PoE+ and 4x 1G fixed uplinks Switch should support stacking feature Switch should support Dual redundant platinum rate power supply and redundant Fans Switch should support SDN technology Should have min. 2GB DRAM & 4GB Flash		
Switching Performance	Minimum Switching capacity 56 Gbps full duplex or more Minimum Forwarding Throughput Minimum 41.66 Mpps or more		
Switch Layer 2 Services	Layer 2 switch ports and VLAN trunks IEEE 802.1Q VLAN encapsulation Support for up to 1000 VLANs ID Minimum 16,000 MAC Address Support minimum 9198 bytes Jumbo frame Support STP, RSTP, EtherChannel/LACP, VLAN Trunking Must have 5 MB of shared buffer for traffic/packet Queuing and processing		
Switch Layer 3 Services	Support Routing Protocols Static, RIP, Policy-Based Routing/Forwarding, Virtual redundant Routing Protocol (VRRP) from day 1 Support Routing protocols IS-IS, IP SLA, OSPFv3 Minimum Up to 2,900 IPv4 route and 1,400 IPv6 route Support minimum 500 L3 VLAN Interfaces or Switched		

	Access Switch POE (Quantity:01): C9200L-24P-4G		
	Virtual Interfaces Minimum 16,000 flow entries for security and traffic visibility. Support Internet Group Management Protocol (IGMP), PIM Stub etc. Support QoS with 802.1p Class of Service, Weighted Random Early Detection, DSCP field classification, Class-Based Weighted Fair Queuing, Shaped Round Robin scheduling or similar protocol		
Security features	Support 802.1X, Flexible Authentication, 802.1x Monitor Mode, and RADIUS Change of Authorization Support min.1400 ACL entries Support Port-based ACLs, VLAN ACLs Support Port Security, Dynamic ARP Inspection, and IP Source Guard Support OS, Firmware/BIOS & patch authenticity as encrypted images to protect from unauthorized and modified/cracked images. Support OS validation during booting to protect from threats		
Management features	Support SNMP, syslog, NetFlow or SFlow, Data telemetry collection and correlation for performance monitoring. Support sampled NetFlow/SFlow, Switched Port Analyzer, Remote SPAN, shared NetFlow/SFlow policy, RSPAN and packet capture tool like Wireshark for troubleshooting and network visibility. Support Network automation with Open PnP, Containers, Python scripting, NETCONF, RESTCONF using YANG The switch must have at least 290,000 hours Mean Time Between Failure (MTBF) for hardware reliability. Should support centralize management platform for configuration rollout, change, backup, troubleshooting		
Manufacturer's part number	Bidder should submit BOQ of proposed device including the details part numbers and Manufacturer's Warranty part number		
Warranty	Manufacturer's warranty part number should be mentioned, minimum 3 (Three) years warranty for OEM technical solution support, Patch & New Software Upgrade, RMA replacement should be provided for this unit from the date of commissioning.		

Access Switch POE (Quantity:01): C9200L-48P-E			
Item Description	Technical Specifications	Bidder Specification	Price (including VAT & Tax)
Quality	ISO 9001/9002 for manufacturer, FCC Class A/B for quality assurance		
Brand	To be mentioned by the bidder		
Model	To be mentioned by the bidder		

Access Switch POE (Quantity:01): C9200L-48P-E			
Environmental	Maintain International Quality Environmental Safety standard		
Form factor	Rack Mountable with Rack Mounting Kit		
Quantity	01 (One)		
Architecture	Should be highly performed fixed switch with wire rate Layer 2 and Layer 3 throughput on all the ports on the chassis. Should have minimum of 24 ports full PoE+ and 4x 1G fixed uplinks Switch should support stacking feature Switch should support Dual redundant platinum rate power supply and redundant Fans Switch should support SDN technology Should have min. 2GB DRAM & 4GB Flash		
Switching Performance	Minimum Switching capacity 104 Gbps full duplex or more Minimum Forwarding Throughput Minimum 77.38 Mpps or more		
Switch Layer 2 Services	Layer 2 switch ports and VLAN trunks IEEE 802.1Q VLAN encapsulation Support for up to 1000 VLANs ID Minimum 16,000 MAC Address Support minimum 9198 bytes Jumbo frame Support STP, RSTP, EtherChannel/LACP, VLAN Trunking Must have 5 MB of shared buffer for traffic/packet Queuing and processing		
Switch Layer 3 Services	Support Routing Protocols Static, RIP, Policy-Based Routing/Forwarding, Virtual redundant Routing Protocol (VRRP) from day 1 Support Routing protocols IS-IS, IP SLA, OSPFv3 Minimum Up to 2,900 IPv4 route and 1,400 IPv6 route Support minimum 500 L3 VLAN Interfaces or Switched Virtual Interfaces Minimum 16,000 flow entries for security and traffic visibility. Support Internet Group Management Protocol (IGMP), PIM Stub etc. Support QoS with 802.1p Class of Service, Weighted Random Early Detection, DSCP field classification, Class-Based Weighted Fair Queuing, Shaped Round Robin scheduling or similar protocol		
Security features	Support 802.1X, Flexible Authentication, 802.1x Monitor Mode, and RADIUS Change of Authorization Support min.1400 ACL entries Support Port-based ACLs, VLAN ACLs Support Port Security, Dynamic ARP Inspection, and IP Source Guard		

Access Switch POE (Quantity:01): C9200L-48P-E			
	Support OS, Firmware/BIOS & patch authenticity as encrypted images to protect from unauthorized and modified/cracked images.		
	Support OS validation during booting to protect from threats		
Management features	Support SNMP, syslog, NetFlow or SFlow, Data telemetry collection and correlation for performance monitoring.		
	Support sampled NetFlow/SFlow, Switched Port Analyzer, Remote SPAN, shared NetFlow/SFlow policy, RSPAN and packet capture tool like Wireshark for troubleshooting and network visibility.		
	Support Network automation with Open PnP, Containers, Python scripting, NETCONF, RESTCONF using YANG		
	The switch must have at least 290,000 hours Mean Time Between Failure (MTBF) for hardware reliability.		
	Should support centralize management platform for configuration rollout, change, backup, troubleshooting		
Manufacturer's part number	Bidder should submit BOQ of proposed device including the details part numbers and Manufacturer's Warranty part number		
Warranty	Manufacturer's warranty part number should be mentioned, minimum 3 (Three) years warranty for OEM technical solution support, Patch & New Software Upgrade, RMA replacement should be provided for this unit from the date of commissioning.		

Access Switch (Quantity:01): C9200L-24T-4G-E			
Item Description	Technical Specifications	Bidder Specification	Price (including VAT & Tax)
Quality	ISO 9001/9002 for manufacturer, FCC Class A/B for quality assurance		
Brand	To be mentioned by the bidder		
Model	To be mentioned by the bidder		
Environmental	Maintain International Quality Environmental Safety standard		
Form factor	Rack Mountable with Rack Mounting Kit		
Quantity	01 (One)		
Architecture	Should be highly performed fixed switch with wire rate Layer 2 and Layer 3 throughput on all the ports on the chassis.		
	Should have minimum of 24 x 1GE switch ports and 4 x 1G uplinks ports.		
	Switch should support stacking feature		
	Switch should support Dual redundant platinum rate power supply and redundant Fans		
	Switch should support SDN technology		
	Should have min. 2GB DRAM & 4GB Flash		
Switching	Minimum Switching capacity 56 Gbps full duplex or more		

Access Switch (Quantity:01): C9200L-24T-4G-E			
Performance	Minimum Forwarding Throughput Minimum 41.66 Mpps or more		
Switch Layer 2 Services	Layer 2 switch ports and VLAN trunks		
	IEEE 802.1Q VLAN encapsulation		
	Support for up to 1000 VLANs ID		
	Minimum 16,000 MAC Address		
	Support minimum 9198 bytes Jumbo frame		
	Support STP, RSTP, EtherChannel/LACP, VLAN Trunking		
	Must have 5 MB of shared buffer for traffic/packet Queuing and processing		
Switch Layer 3 Services	Support Routing Protocols Static, RIP, Policy-Based Routing/Forwarding, Virtual redundant Routing Protocol (VRRP) from day 1		
	Support Routing protocols IS-IS, IP SLA, OSPFv3		
	Minimum Up to 2,900 IPv4 route and 1,400 IPv6 route		
	Support minimum 500 L3 VLAN Interfaces or Switched Virtual Interfaces		
	Minimum 16,000 flow entries for security and traffic visibility.		
	Support Internet Group Management Protocol (IGMP), PIM Stub etc.		
	Support QoS with 802.1p Class of Service, Weighted Random Early Detection, DSCP field classification, Class-Based Weighted Fair Queuing, Shaped Round Robin scheduling or similar protocol		
Security features	Support 802.1X, Flexible Authentication, 802.1x Monitor Mode, and RADIUS Change of Authorization		
	Support min.1400 ACL entries		
	Support Port-based ACLs, VLAN ACLs		
	Support Port Security, Dynamic ARP Inspection, and IP Source Guard		
	Support OS, Firmware/BIOS & patch authenticity as encrypted images to protect from unauthorized and modified/cracked images.		
	Support OS validation during booting to protect from threats		
Management features	Support SNMP, syslog, NetFlow or SFlow, Data telemetry collection and correlation for performance monitoring.		
	Support sampled NetFlow/SFlow, Switched Port Analyzer, Remote SPAN, shared NetFlow/SFlow policy, RSPAN and packet capture tool like Wireshark for troubleshooting and network visibility.		
	Support Network automation with Open PnP, Containers, Python scripting, NETCONF, RESTCONF using YANG		
	The switch must have at least 290,000 hours Mean Time Between Failure (MTBF) for hardware reliability.		
	Should support centralize management platform for		

Access Switch (Quantity:01): C9200L-24T-4G-E			
	configuration rollout, change, backup, troubleshooting		
Manufacturer's part number	Bidder should submit BOQ of proposed device including the details part numbers and Manufacturer's Warranty part number		
Warranty	Manufacturer's warranty part number should be mentioned, minimum 3 (Three) years warranty for OEM technical solution support, Patch & New Software Upgrade, RMA replacement should be provided for this unit from the date of commissioning.		

Access Switch (Quantity:01): C9200L-48T-4G-E			
Item Description	Technical Specifications	Bidder Specification	Price (including VAT & Tax)
Quality	ISO 9001/9002 for manufacturer, FCC Class A/B for quality assurance		
Brand	To be mentioned by the bidder		
Model	To be mentioned by the bidder		
Environmental	Maintain International Quality Environmental Safety standard		
Form factor	Rack Mountable with Rack Mounting Kit		
Quantity	01 (One)		
Architecture	Should be highly performed fixed switch with wire rate Layer 2 and Layer 3 throughput on all the ports on the chassis. Should have minimum of 48 x 1GE switch ports and 4 x 1G uplinks ports. Switch should support stacking feature Switch should support Dual redundant platinum rate power supply and redundant Fans Switch should support SDN technology Should have min. 2GB DRAM & 4GB Flash		
Switching Performance	Minimum Switching capacity 104 Gbps full duplex or more Minimum Forwarding Throughput Minimum 77.38 Mpps or more		
Switch Layer 2 Services	Layer 2 switch ports and VLAN trunks IEEE 802.1Q VLAN encapsulation Support for up to 1000 VLANs ID Minimum 16,000 MAC Address Support minimum 9198 bytes Jumbo frame Support STP, RSTP, EtherChannel/LACP, VLAN Trunking Must have 5 MB of shared buffer for traffic/packet Queuing and processing		
Switch Layer 3 Services	Support Routing Protocols Static, RIP, Policy-Based Routing/Forwarding, Virtual redundant Routing Protocol (VRRP) from day 1		

Access Switch (Quantity:01): C9200L-48T-4G-E			
	Support Routing protocols IS-IS, IP SLA, OSPFv3		
	Minimum Up to 2,900 IPv4 route and 1,400 IPv6 route		
	Support minimum 500 L3 VLAN Interfaces or Switched Virtual Interfaces		
	Minimum 16,000 flow entries for security and traffic visibility.		
	Support Internet Group Management Protocol (IGMP), PIM Stub etc.		
	Support QoS with 802.1p Class of Service, Weighted Random Early Detection, DSCP field classification, Class-Based Weighted Fair Queuing, Shaped Round Robin scheduling or similar protocol		
Security features	Support 802.1X, Flexible Authentication, 802.1x Monitor Mode, and RADIUS Change of Authorization		
	Support min.1400 ACL entries		
	Support Port-based ACLs, VLAN ACLs		
	Support Port Security, Dynamic ARP Inspection, and IP Source Guard		
	Support OS, Firmware/BIOS & patch authenticity as encrypted images to protect from unauthorized and modified/cracked images.		
	Support OS validation during booting to protect from threats		
Management features	Support SNMP, syslog, NetFlow or SFlow, Data telemetry collection and correlation for performance monitoring.		
	Support sampled NetFlow/SFlow, Switched Port Analyzer, Remote SPAN, shared NetFlow/SFlow policy, RSPAN and packet capture tool like Wireshark for troubleshooting and network visibility.		
	Support Network automation with Open PnP, Containers, Python scripting, NETCONF, RESTCONF using YANG		
	The switch must have at least 290,000 hours Mean Time Between Failure (MTBF) for hardware reliability.		
	Should support centralize management platform for configuration rollout, change, backup, troubleshooting and performance analysis feature.		
Manufacturer's part number	Bidder should submit BOQ of proposed device including the details part numbers and Manufacturer's Warranty part number		
Warranty	Manufacturer's warranty part number should be mentioned, minimum 3 (Three) years warranty for OEM technical solution support, Patch & New Software Upgrade, RMA replacement should be provided for this unit from the date of commissioning.		

Access Switch (Quantity:01): C1000-24T-4G-L			
Item Description	**Technical Specifications**	**Bidder Specification**	**Price (including VAT & Tax)**
Quality	ISO 9001/9002 for manufacturer, FCC Class A/B for quality assurance		
Brand	To be mentioned by the bidder		
Model	To be mentioned by the bidder		
Environmental	Maintain International Quality Environmental Safety standard		
Form factor	Rack Mountable with Rack Mounting Kit		
Quantity	01 (One)		
Architecture	Should have minimum 24x 10/100/1000 Ethernet ports, 4- 1G SFP uplinks with each switches from day 1. All the modules should be OEM original and same as Switch brand. Must have minimum 512 MB DRAM & 256 MB Flash.		
Switching Performance	Minimum Switching bandwidth should be 56 Gbps or more. Minimum Forwarding bandwidth 28 Gbps or more and Forwarding rate(64—byte L3 packets) should be 41 Mbps.		
Switch Layer 2 Services	Layer 2 switch ports and VLAN trunks. IEEE 802.1Q VLAN encapsulation. Support for up to 4000 VLANs ID. Minimum 16,000 MAC Address. Support minimum 10,240 bytes Jumbo Ethernet frame. Support STP, RSTP, EtherChannel/LACP, VLAN Trunking, Q-in-Q/IEEE VLAN Tunnelling.		
Switch Layer 3 Services	Support Routing Protocols Static, RIP, Policy-Based Routing/Forwarding, Virtual redundant Routing Protocol (VRRP) from day 1 Support Routing protocols IS-IS, IP SLA, OSPFv3 Minimum Up to 2,900 IPv4 route and 1,400 IPv6 route Support minimum 500 L3 VLAN Interfaces or Switched Virtual Interfaces Minimum 16,000 flow entries for security and traffic visibility. Support Internet Group Management Protocol (IGMP), PIM Stub etc. Support QoS with 802.1p Class of Service, Weighted Random Early Detection, DSCP field classification, Class-Based Weighted Fair Queuing, Shaped Round Robin scheduling or similar protocol		
Security features	Support 802.1X, Router Advertisement guard, IPv6 snooping, IPv6 ND inspection, IPv6 device tracking. Support OS, Firmware/BIOS & patch authenticity as encrypted images to protect from unauthorized and modified/cracked images.		
Management features	Support SNMP, syslog, NetFlow or SFlow, Data telemetry collection and correlation for performance		

Access Switch (Quantity:01): C1000-24T-4G-L			
Item Description	**Technical Specifications**	**Bidder Specification**	**Price (including VAT & Tax)**
	monitoring. Support sampled NetFlow/SFlow, Switched Port Analyzer, Remote SPAN, shared NetFlow/SFlow policy, RSPAN and packet capture tool like Wireshark for troubleshooting and network visibility. The switch must have at least 2,026,000 hours Mean Time Between Failure (MTBF data) for hardware reliability.		
Manufacturer's part number	Bidder should submit BOQ of proposed device including the details part numbers and Manufacturer Warranty.		
Warranty	Three (03) years full warranty with onsite support (Technical solution support, Patch & New Software Upgrade), labour, parts & replacement. The Bidder must provide MAL(Manufacturer Authorization Letter).		

Access Switch (Quantity:01): Access Switch (Quantity:01): C1000-48T-4G-L			
Item Description	**Technical Specifications**	**Bidder Specification**	**Price (including VAT & Tax)**
Quality	ISO 9001/9002 for manufacturer, FCC Class A/B for quality assurance		
Brand	To be mentioned by the bidder		
Model	To be mentioned by the bidder		
Environmental	Maintain International Quality Environmental Safety standard		
Form factor	Rack Mountable with Rack Mounting Kit		
Quantity	01 (One)		
Architecture	Should have minimum 48x 10/100/1000 Ethernet ports, 4x 1G SFP uplinks with each switches from day 1. All the modules should be OEM original and same as Switch brand. Must have minimum 512 MB DRAM & 256 MB Flash.		
Switching Performance	Minimum Switching bandwidth should be 104 Gbps. Minimum Forwarding bandwidth 52 Gbps and Forwarding rate(64—byte L3 packets) should be 130.94 Mbps.		
Switch Layer 2 Services	Layer 2 switch ports and VLAN trunks. IEEE 802.1Q VLAN encapsulation. Support for up to 4094 VLANs ID. Minimum 16,000 MAC Address. Support minimum 10,240 bytes Jumbo Ethernet frame. Support STP, RSTP, EtherChannel/LACP, VLAN Trunking, Q-in-Q/IEEE VLAN Tunnelling.		
Switch Layer 3 Services	Support Routing Protocols Static, RIP, Policy-Based Routing/Forwarding, Virtual redundant Routing Protocol (VRRP) from day 1 Support Routing protocols IS-IS, IP SLA, OSPFv3		

Access Switch (Quantity:01): Access Switch (Quantity:01): C1000-48T-4G-L			
Item Description	**Technical Specifications**	**Bidder Specification**	**Price (including VAT & Tax)**
	Minimum Up to 2,900 IPv4 route and 1,400 IPv6 route		
	Support minimum 500 L3 VLAN Interfaces or Switched Virtual Interfaces		
	Minimum 16,000 flow entries for security and traffic visibility.		
	Support Internet Group Management Protocol (IGMP), PIM Stub etc.		
	Support QoS with 802.1p Class of Service, Weighted Random Early Detection, DSCP field classification, Class-Based Weighted Fair Queuing, Shaped Round Robin scheduling or similar protocol		
Security features	Support 802.1X, Router Advertisement guard, IPv6 snooping, IPv6 ND inspection, IPv6 device tracking.		
	Support OS, Firmware/BIOS & patch authenticity as encrypted images to protect from unauthorized and modified/cracked images.		
Management features	Support SNMP, syslog, NetFlow or SFlow, Data telemetry collection and correlation for performance monitoring.		
	Support sampled NetFlow/SFlow, Switched Port Analyzer, Remote SPAN, shared NetFlow/SFlow policy, RSPAN and packet capture tool like Wireshark for troubleshooting and network visibility.		
	The switch must have at least 1,452,667 hours Mean Time Between Failure (MTBF data) for hardware reliability.		
Manufacturer's part number	Bidder should submit BOQ of proposed device including the details part numbers and Manufacturer Warranty.		
Warranty	Manufacturer's warranty part number should be mentioned, minimum 3 (Three) years warranty for OEM technical solution support, Patch & New Software Upgrade, RMA replacement should be provided for this unit from the date of commissioning and services are free of cost. Bidder must have local Authorized RMA depot in Bangladesh to ensure early replacement if this product and any component is faulty.		

Authorised Signature