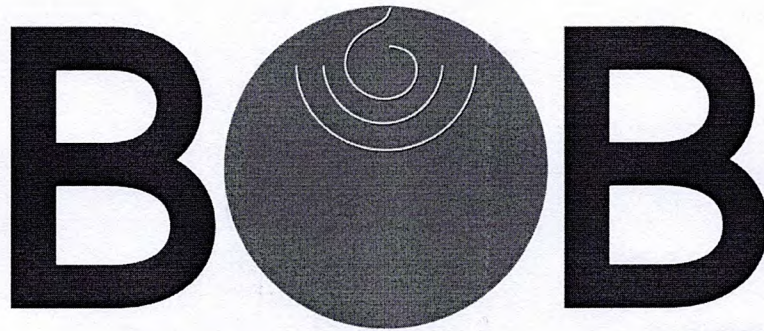འབྲུག་གི་དངུལ་ཁང་།

B⊚B
BANK OF BHUTAN

A dhi Company

Banker to the Nation since 1968

BIDDING DOCUMENT

for

SUPPLY, DELIVERY AND COMMISSIONING OF NETWORK EQUIPMENT, SOFTWARE AND LICENSES IN TCO (TOTAL COST OF OWNERSHIP) OVER A 5 YEAR BASIS

1.	Tender No. 000/BOB/TENDER/2021/011		Date: 29/05/2021
2.	**Description of item**		Supply, Delivery And Commissioning Of Network Equipment, Software And Licenses In TCO (Total Cost Of Ownership) Over A 5 Year Basis. **LOT I: ATM Dual ISP** **LOT II: DNS Security Solution** **LOT III: Wireless Solution for TCO**
3.	**Bids details:**		
	a.	Sale of bid documents	From 29/05/2021 to 22/06/2021
	b.	Cost of documents	Nu. 1,000.00 (Non-refundable)
	c.	Place of sale	BoB Head Office, Norzin Lam, Thimphu (during office hours)
	d.	Last date of submission	22/06/2021 at 1430 hours
	e.	Place of submission	BoB Head office, Norzin Lam, Thimphu
	f.	Opening date	22/06/2021 at 1500 hours
	g.	Venue for opening of bid	BoB Head Office, Norzin Lam, Thimphu,
4.	**Bid Security (EMD)**		2% of the total bid amount
5.	**Bid Validity Period**		60 calendar days from the bid opening date

I have read the bid document and accordingly, I hereby accept all the terms and conditions mentioned herein. I also vouch that all data/information stated herein are valid to my knowledge.

Signature & Seal _____ (Authorized Signature)

CHECK LIST FOR BID SUBMISSION

1.	Tender No. & Date	[000/BoBL/Tender/2021/011 dated 29/05/2021]
2.	Descriptions	Supply, Delivery And Commissioning Of Network Equipment, Software And Licenses In TCO (Total Cost Of Ownership) Over A 5 Year Basis
3.	Bidding Firm	_____

SL. NO.	PARTICULARS		Requirement	Submitted (Yes /No)
1	Signed & Stamped Bid Form with Addressed to: **Procurement Officer** **Bank of Bhutan, Head Office** **Norzin Lam, Thimphu,**		Yes	
2	Copies	**"Original" & "Copy"**	Yes	
3	Earnest Money Deposit (EMD)	2% of the total bid amount	Yes	
4	Valid Trade License		Yes	
5	Tax Clearance Certificate		Yes	

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REQUEST FOR PROPOSAL (RFP)

1. **SCOPE OF WORK**

Bank of Bhutan would like to invite the Bhutanese firm with the valid trade license to participate for *"Supply, Delivery and Commissioning of Network Equipment, Software and Licenses in TCO (Total Cost of Ownership) over a 5 year basis"* and following are the LOT wise and specification/technical requirement;

LOT I: NETWORK DEVICES

Sl/No	Particulars	Qty	Remarks
1	Network Switch with 8 x 10/100/1000 Base-T ports and 2*1G SFP uplinks ports loaded with 2 numbers of 1000 Base-LX (SM) modules	55	ATM remote site Switch
2	Network Switch with 48 x 1000 Base-X SFP ports loaded with 44 x 1000 Base-LX (SM) modules and 4 x 1000 Base-SX (MM) Modules.	3	Data Center Switch
3	Network Router with 50Mbps throughput and 1 x 1G UTP ports and 1 x 1G SFP port Loaded with 1 x 1000 Base-LX (SM) module.	3	Router
4	Network Switch with 24 x 10/100/1000 Base-T ports and 4 x 1G SFP ports	10	Switch
5	Fiber Optics 3 Mtrs Patch Cords (Multimode with LC to SC Connectors)	240	Patch Cords
6	Laser Fiber Tester	2	Laser Tester

LOT I Specifications

1. **ATM Remote Switch specifications**

Interface
Minimum 8 x 10/100/1000 Base-T ports and additional 2 nos. SFP uplinks ports loaded with 2 nos. of 1000 Base-LX modules
Uplink ports can be used to connect up to eight switches and manage them via a single IP address.
General Features :
Switch must be enterprise grade in 1 RU form-factor with internal power supply and fan less model

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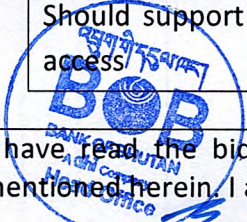
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Switch Should have minimum 512 MB RAM
Switch Should have minimum 256 MB Flash
Performance :
Switch shall have minimum 20 Gbps of switching fabric and 14 Mbps of forwarding rate.
Shall have minimum 15K MAC Addresses and 255 Active VLANs.
Shall have minimum IPv4 and IPv6 multicast routes and 1024 IGMP groups
Should have minimum 64 STP instances
Shall have 512 IPv4 and 512 IPv6 security access list entries
Switch should support 1024 IPv4 multicast routes, IGMP groups and IPv6 multicast groups
Switch Need to support 600 IPv4/MAC security ACEs and IPv6 security ACEs
Switch will support 10240 byte Jumbo Ethernet frame from day 1
Switch need to support. 9198 bytes MTU-L3 packet
Functionality :
Should support IEEE Standards of Ethernet: IEEE 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.3x, 802.1p, 802.1Q, 802.3, 802.3u, 802.3ab, 802.3az.
Switch must have features like static routing 16 for IPv4 and 16 for IPv6
Shall have 802.1p class of service, marking and classification & eight egress queues.
Switch should support QoS through Differentiated Services Code Point (DSCP) mapping and filtering.
Switch should support Shaped Round Robin (SRR) scheduling and Weighted Tail Drop (WTD) congestion avoidance.
Switch should support management features like SNMPv3, NTP, RADIUS and TACACS+.
Switch should support advance mechanism to handling link failures and improving convergence time in ring topologies with industry standard like Resilient Protocol or equivalent.
Switch should support DHCP, Auto Negotiation, DTP, LACP, UDLD, MDIX, VTP, TFTP, NTP, Per-port broadcast, multicast, Static routing, Layer 2 trace route and unicast storm control.
Must have the capabilities to enable automatic configuration of switch ports as devices connect to the switch for the device type.
Should support management CLI and web UI over SNMP, RJ-45, Bluetooth or USB console access

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Should have trunk failover capabilities to ensure server NIC adapters team up to provide redundancy in the network so that in case of the link is lost on the primary interface, network connectivity is transparently changed to the secondary interface.

Security with 802.1X support for connected devices, Switched Port Analyzer (SPAN), and Bridge Protocol Data Unit (BPDU) Guard

Switch should support MTBF of 2100000

Industry Standard : 60950-1, CISPR22 Class A, EN55024, RoHS and IPv6 Ready Logo

Switch should support enhanced QoS like, egress queues, Ingress policing to, QoS through Differentiated Services Code Point (DSCP) mapping and filtering, QoS through traffic classification, Trust boundary, Auto QoS, Shaped Round Robin (SRR) scheduling and Weighted Tail Drop (WTD) congestion avoidance, 802.1p Class of Service (CoS) ,

Operating Temperature range : -5 to +50 deg C

Certification:

OEM should be listed in Gartner Leader Quadrant for Wired and Wireless LAN Infrastructure from last 5 years.

Safety and compliance

Safety certification UL 60950-1 Second Edition, CAN/CSA-C22.2 No. 60950-1 Second Edition, EN 60950-1 Second Edition, IEC 60950-1 Second Edition, AS/NZS 60950-1

EMC: Emissions certification 47CFR Part 15 (CFR 47) Class A, AS/NZS CISPR22 Class A, CISPR22 Class A, EN55022 Class A, ICES003 Class A, VCCI Class A, EN61000-3-2, EN61000-3-3, KN22 Class A, CNS13438 Class A

EMC: Immunity, certification EN55024 (including EN 61000-4-5), CISPR24, EN300386, KN24

Environmental Reduction of Hazardous Substances (RoHS) including Directive 2011/65/EU

Security Features

Switch should support 802.1X features to control access to the network, including flexible authentication, 802.1X monitor mode, and RADIUS change of authorization

Switch support 802.1X with Network Edge Access Topology (NEAT), which extends identity and user distribution, which enables you to load-balance users with the same group name across multiple different VLANs.

Switch should have capability to disable per-VLAN MAC learning to allow you to manage the available MAC address table space by controlling which interface or VLANs learn MAC addresses

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Switch should support Multidomain authentication to allow an IP phone and a PC to authenticate on the same switch port while being placed on the appropriate voice and data VLANs.
Switch need to support Access Control Lists (ACLS) for IPv6 and IPv4 security and Quality-of-Service (QoS) ACL elements (ACEs).
Switch should have features like Port-based ACLs, SSH, Kerberos, and SNMP v3, TACACS+ and RADIUS authentication, Web authentication redirection, Multilevel security on console access, Spanning Tree Root Guard (STRG), Internet Group Management Protocol (IGMP) filtering,
Switch should support SPAN, with bidirectional data support, to allow the OEM Intrusion Detection System (IDS) to take action when an intruder is detected.

2. Data Center Switch specifications

Performance Features
Switch shall have 48 x 1000 Base-X SFP slots. The Switch should be populated with 44 x 1000 Base-LX (SM) Modules and 4 x 1000 Base-SX (MM) Modules .
The switch should support 2 x 40G QSFP+ ports in future by adding or replacing any interface card
The switch should support 8 x 10G SFP+ ports in future by adding or replacing any interface card
The switch should be able to support different interface types like 1G, 10G, 40G, 25G, MultiGig by adding or replacing any interface card
The switch should support Following 250Gbps switching capacity and 190 Mpps Forwarding rate.
Switch should have 8 GB RAM and 12 GB Flash.
The switch should support 32K MAC Addresses and 4000 VLAN IDs.
Switch should have slot/ports (excluding uplinks ports) for minimum 400 Gbps of stacking bandwidth with dedicated stacking ports and cables with minimum 8 switch in stack
Switch should be able to support 32000 IPV4 & 16000 IPV6 routing entries
Switch should be able to support 8000 Multicast routing entries
Switch should support minimum 1000 Switched Virtual Interfaces.
The switch should support Jumbo frames of 9216 bytes
General Features

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Proposed switch should be enterprise grade switch with x86 based CPU architecture
Proposed switch should have a capability to add modular uplinks of varied speeds between 10G and 1G.
The Switch should support Layer 2 features, Routed Access (RIP, OSPF - 800 routes), Policy Based Routing, PIM Stub Multicast (800 routes), PVLAN, VRRP, QoS, FHS, 802.1X, CoPP, SXP, IP SLA Responder from day-1
The Switch should support HSRP, IS-IS, BSR, MSDP, IP SLA, OSPF, VRF, VXLAN, LISP in future
The Switch should support Macsec-256
The proposed switch should be software defined networking capable and be able to at least integrate easily with the SDN controller from the same OEM.
Switch shall support application visibility and traffic monitoring with minimum 60K netFlow/sflow/jflow entries.
Switches should support both front and back beacon LEDs for easy identification of the switch being accessed.
Switches should have hardware support to connect a Bluetooth dongle to your switch, enabling you to use this wireless interface as an IP management port interface.
High availability &Resiliency
Switch should support redundant field replicable power supplies.
Switch should support redundant field replicable fans.
Switch should support cross-stack etherchannel.
Switch should be able to maintain the PoE+ power on an endpoint during a switch reload. This is important for critical endpoints, so that there is no disruption during a switch reboot.
Switch should support embedded event manager scripts
After a reboot when power is restored to a switch, switch should start delivering power to endpoints without waiting for the operating system to fully load.
L2 Features
The switch should support Automatic Negotiation of Trunking Protocol, to help minimize the configuration & errors
The switch should support IEEE 802.1Q VLAN encapsulation
The switch should support Spanning-tree PortFast and PortFast guard for fast convergence
The switch should support UplinkFast&BackboneFast technologies to help ensure quick failover recovery, enhancing overall network stability and reliability

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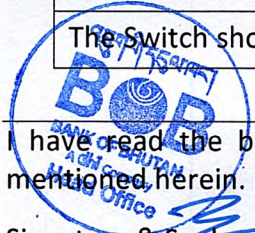
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The switch should support Spanning-tree root guard to prevent other edge switches becoming the root bridge.
The switch should support Voice VLAN to simplify IP telephony installations by keeping voice traffic on a separate VLAN
The switch should support Auto-negotiation on all ports to automatically selects half- or full-duplex transmission mode to optimize bandwidth
The switch should support Automatic media-dependent interface crossover (MDIX) to automatically adjusts transmit and receive pairs if an incorrect cable type (crossover or straight-through) is installed.
The switch should support Unidirectional Link Detection Protocol (UDLD) and Aggressive UDLD to allow for unidirectional links caused by incorrect fiber-optic wiring or port faults to be detected and disabled on fiber-optic interfaces.
The switch should support IGMP v1, v2 Snooping
Switch should support IPv4 and IPv6The Switch should be able to discover (on both IPv4 & IPv6 Network) the neighboring device giving the details about the platform, IP Address, Link connected through etc, thus helping in troubleshooting connectivity problems.
Network security features
The switch should support IEEE 802.1x providing user authentication, authorization and CoA.
The switch should support SSHv2 and SNMPv3 to provide network security by encrypting administrator traffic during Telnet and SNMP sessions.
The switch should support TACACS+ and RADIUS authentication enable centralized control of the switch and restrict unauthorized users from altering the configuration.
The switch should support MAC address notification to allow administrators to be notified of users added to or removed from the network.
The switch should support MACSec-256
The switch should support 5000 ACL Entries
Quality of Service
Switch should support 802.1p Class of Service (CoS) and Differentiated Services Code Point (DSCP) field classification, Shaped Round Robin (SRR) scheduling, Committed Information Rate (CIR), and eight egress queues per port.
Layer-3 Features should be supported the following L3 features from in future
The Switch should support routing protocols such OSPF, BSR, IS-ISv4, LISP, VXLAN, VRF.

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The Switch should support IPv6 Routing capable protocols such as OSPFv3 in hardware.
The Switch should support IP Multicast and PIM, PIM Sparse Mode & Source-Specific Multicast for Wired and Wireless Clients.
The Switch should support basic IP Unicast routing protocols (static, RIPv1 & RIPv2).
The Switch should support IPv6 & IPv4 Policy Based Routing (PBR)
The Switch should support Inter-VLAN routing.
The Switch should support HSRP for IPv4 & IPv6.
The Switch should support VRRPv3.
The Switch should support uRPF for IPv4 and IPv6.

3. **Router specifications**

General Feature and Performance
The Router should support modular architecture, multi-core Processor. The Router Should have capabilities to **seamless upgrade/replacement for modular interfaces** (without interrupting running processes and services).
Shall support 50Mbps Throughput from day-1, which can be scalable upto 1.5Gbps in future
Router should have 1 x 1G UTP ports and 1 x 1G SFP port populated with 1 x 1000 Base-LX module.
The Router should have additional 4 x 1G LAN ports.
The Router should support interfaces supported by router like Channelized E1/T1, V.35, G.703, LTE, Gigabit Ethernet modules to accommodate field upgrades without rebooting the router.
The Router should have 1 empty slot for future use
Router should have minimum 4 GB of DRAM from day-1 which can be upgradable upto 8GB in future.
Router should have minimum 4 GB of Flash Memory from day-1 which can be upgradable up to 8GB in future.
The router performance should be scalable up to 40Mbps or more with IPSec + QoS + NAT + FW services from Day1, which can be scalable up to 80Mbps with mentioned services.
Router should support minimum 720K IPv4 Routes, 720K IPv6 routes, with 200 IPsec tunnel.
The router should support 90 mbps of IPSEC Bandwidth as and when required
Latyer-3 Features and Security

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Should support other IP Services like GRE tunneling, ACLs, IPSEC VPNs, Firewalling, NAT services. Should support IPSec with IKEv2 Encryption.
Should support Voice traffic optimization with features like WRED, H-QoS, RSVP, performance routing and network based application routing
Router should support static Routes, OSPFv2, OSPFv3, BGP4, MBGP, BFD, Policy based routing, IPv4 and IPv6 tunneling
Should support Multicast routing protocols IGMP v1/v2/v3, PIM-SM, PIM-SS, DVMRP, IPv4 to IPv6 Multicast, BFD, IEEE802.3ah, IEEE802.1ag
Should support DHCPv6, IPv6 QoS, RIPng, OSPFv3
Should support MPLS, Layer2 and Layer3 VPN, L2TPv3
The Router should support Zone Based Firewall feature or an external appliance for the same functionality can be provided.
Router should Support Traffic Optimization feature built in the router operating system or an external appliance for the same functionality can be provided.
Shall have 802.1p class of service and marking, classification, policing and shaping.
Router should support SSHv2, SNMPv2c, SNMPv3 and NTP
Routers should support AAA using RADIUS and TACACS+
Should support extensive support for IP SLA and best path selection for metrics like delay, latency, jitter, packet loss to assure business-critical IP applications.
Router should support monitoring of network traffic with application level insight with deep packet visibility into web traffic, RTP-Based VoIP traffic.
The router should support cRTP to compress voice (RTP) streams
Router shall support traffic load balancing capability on dual WAN Links based on based on advanced criteria, such as reachability, delay, loss, jitter and bandwidth utilization.
Router shall support capability to add on demand IPSec VPN tunnels dynamically established multipoint-to-multipoint IPSEC based spoke-to-spoke VPN tunnels matching traffic conditions
The Router shall support DNS security capability with following features: a. The supported DNS security must be cloud-delivered security service for the Routers is simple deploy and easy to manage.   b. The supported DNS security Solution must have capability to analyze real-time, diverse data sets to learn Internet activity patterns.   c. The supported DNS security Solution must be capable to provide DNS Visibility and enforcement at the DNS layer blocks requests to malicious domains and IPs before a

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connection is ever made
Multi-media support (Only Future support by software upgradation in future):
Should support Voice capabilities
Should support G.711 and G.729 Codec
Should support the capability to integrate with PBXs using E1 connectivity.
Should support H.323, SIP, MGCP
Should support QSIG, E1 R2 and several CAS signaling
Should support bandwidth optimization features like Voice Activity Detection, Silence Suppression, Echo cancellation
Certification
Router shall conform to UL 60950 or IEC 60950 or CSA 60950 or EN 60950 Standards for Safety requirements of Information Technology Equipment.
Router shall conform to EN 55022 Class A/B or CISPR22 Class A/B or CE Class A/B or FCC Class A/B Standards for EMC (Electro Magnetic Compatibility) requirements.
Router/Router's Operating System should be tested and certified for EAL 3/NDPP or above under Common Criteria Certification
Router should be IPv6 Certified/IPv6 logo ready

4. **Switch Specifications**

Performance Features
The proposed switch should have 24 x 10/100/1000 Base-T ports and 4 x 1G SFP ports
The switch should have 56Gbps Switching capacity and 40Mpps forwarding rate
Switch should have 2GB RAM and 4GB Flash.
Shall have minimum 16K MAC Addresses
The switch should support stacking with 80 Gbps Stacking bandwidth to stack up to 8 switches into a single virtual switch. Stacking is not required from day 1, but stacking should be supported on the proposed switch model. The stacking ports should be excluding the 4 x 1G SFP uplink ports.
Switch should be able to support 3000 IPv4 & 1500 IPv6 routing entries.
The switch should support Jumbo frames of 9216 bytes
General Features

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Proposed switch should be enterprise grade switch with x86 based CPU architecture
Should support Layer 2 features, OSPF Routed Access (1000 Routes), RIP, Policy Based Routing (PBR), PIM Stub Multicast (1000 routes), PVLAN, VRRP, 802.1X, MACsec-128, CoPP, IP SLA Responder
The proposed switch should be software defined networking capable and be able to at least integrate easily with the SDN controller from the same OEM.
The Switch stack should be based on Distributed forwarding Architecture, where in each stack member forwards its own information on network.
Switch should have unique secure identity so that it's authenticity and origin can be confirmed with OEM. Switch BIOS, software image should be cryptographically signed to ensure integrity and switch should not boot with modified software regardless of user's privilege level.
Switch shall support application visibility and traffic monitoring with minimum 16K netFlow/sflow/jflow entries.
Switches should have hardware support to connect a Bluetooth dongle to your switch, enabling you to use this wireless interface as an IP management port interface.
High availability &Resiliency
Switch should support redundant field replicable platinum rated power supplies.
Switch should support redundant fans.
Switch should support cross-stack ether channel.
Switch should support embedded event manager scripts
After a reboot when power is restored to a switch, switch should start delivering power to endpoints without waiting for the operating system to fully load.
L2 Features
The switch should support Automatic Negotiation of Trunking Protocol, to help minimize the configuration & errors
The switch should support IEEE 802.1Q VLAN encapsulation
The switch should support Spanning-tree PortFast and PortFast guard for fast convergence
The switch should support UplinkFast&BackboneFast technologies to help ensure quick failover recovery, enhancing overall network stability and reliability
The switch should support Spanning-tree root guard to prevent other edge switches becoming the root bridge.

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The switch should support Voice VLAN to simplify IP telephony installations by keeping voice traffic on a separate VLAN
The switch should support Auto-negotiation on all ports to automatically selects half- or full-duplex transmission mode to optimize bandwidth
The switch should support Automatic media-dependent interface crossover (MDIX) to automatically adjusts transmit and receive pairs if an incorrect cable type (crossover or straight-through) is installed.
The switch should support Unidirectional Link Detection Protocol (UDLD) and Aggressive UDLD to allow for unidirectional links caused by incorrect fiber-optic wiring or port faults to be detected and disabled on fiber-optic interfaces.
The switch should support IGMP Snooping
Switch should support IPv4 and IPv6The Switch should be able to discover (on both IPv4 & IPv6 Network) the neighboring device giving the details about the platform, IP Address, Link connected through etc, thus helping in troubleshooting connectivity problems.
Network security features
The switch should support IEEE 802.1x providing user authentication, authorization and CoA.
The switch should support SSHv2 and SNMPv3 to provide network security by encrypting administrator traffic during Telnet and SNMP sessions.
The switch should support TACACS+ and RADIUS authentication enable centralized control of the switch and restrict unauthorized users from altering the configuration.
The switch should support MAC address notification to allow administrators to be notified of users added to or removed from the network.
The switch should support MACSec-128
Quality of Service
Switch should support 802.1p Class of Service (CoS) and Differentiated Services Code Point (DSCP) field classification, Shaped Round Robin (SRR) scheduling, Committed Information Rate (CIR), and eight egress queues per port.
Layer-3 Features should be supported post a license upgrade from L2 to L3 in future
The Switch should support routing protocols such OSPF, BSR, IS-IS, LISP, VXLAN, VRFin future
The Switch should support IPv6 Routing capable protocols such as OSPFv3 in hardware.
The Switch should support IP Multicast and PIM, PIM Sparse Mode, & Source-Specific Multicast for Wired and Wireless Clients.

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The Switch should support basic IP Unicast routing protocols (static, RIPv1 & RIPv2).
The Switch should support IPv6 & IPv4 Policy Based Routing (PBR)
The Switch should support Inter-VLAN routing.
The Switch should support HSRP for IPv4 & IPv6.
The Switch should support VRRPv3.
The Switch should support uRPF for IPv4 and IPv6.

5. **Fiber Optics 3 Mtrs Patch Cords (Multimode with LC to SC Connectors)**
   Preferred brand Schneider

6. **Laser Fiber Tester**

Optical wavelength:	650 nm
Optical output power:	> 10 mW
Operation range:	max. 10 km
Connector type:	Universal
Application:	Visual localization of the fiber damage
Material:	Aluminum - powder painted
Main features:	• The universal connector allows to connect all optical connectors of 2.5 mm standard, eg SC/FC/ST • High durability tool, made from high quality materials • Universal connector allows to test any fiber optic installation • The device works with both single-mode and multi-mode fibers • Small dimensions • The set includes a practical case
Power supply:	2 x 1.5 V - Battery type LR6 (AA) (included)
Weight:	0.08 kg - Without batteries
Dimensions:	Ø 27 x 176 mm

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LOT II: DNS SECURITY SOLUTION

Sl/No	Particulars	Qty	Remarks
1	DNS Security Solution (300 User License)	1	5 Years solution

LOT II Specifications

Architectural Requirements
The proposed solution must be based mandatorily on recursive DNS analysis.
The solution must have a minimal impact with the existing DNS infrastructure
The threat intelligence must be consumed from the OEM facilities that serve the recursive DNS requests.
The solution must offer several deployment options: either via an internal virtual forwarder, or pointing the forwarder of the existing authoritative DNS to the recursive service, or pointing the DNS configured on the Internal Proxy to the recursive service, without any additional physical hardware.
• The recursive DNS security must be:
• Easily deployable, simply changing the forwarders to the OEM recursive DNS.
• Delivered directly from the OEM's global network.
• Easy to manage and operate
The solution must be applicable simultaneously to corporate users connecting from wired and wireless networks, with the possibility to define different policies based on different public IPs, and or internal networks, or Active Directory attributes (in case an internal virtual forwarder is necessary).
Security Requirements
The solution must be able to detect and block advanced malware regardless of the specific ports or protocols used by the malware.
The solution must be able to detect and block malware using protocols different from HTTP/HTTPS.
The solution must be able to detect and block advanced malware used for both opportunistic attacks and targeted attacks targeted for this specific organization.
The solution must be able to protect at least from the following categories of malware: botnets, exploit kits, drive-by, phishing.

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The solution must be able to detect and block, suspicious DNS requests returning RFC1918 compliant IP addresses not allowed to be routed on the Internet, or directed to Dynamic DNS services.
The solution must be able to prevent infections, blocking the DNS requests towards malware distribution domains or drive-by domains, and contain the pre-existing infections, blocking the DNS requests towards command and control infrastructures.
The solution must leverage predictive intelligence and not use static signatures or blacklists
The predictive intelligence must be created via the DNS traffic analysis on a global scale, via a network of at least 20 distributed datacenters hosting the resolvers.
The analysis algorithms must be enforce predictive detectors able to identify in real time, where attacks are staged and consequently predict and prevent the next move of attackers.
In order to allow the malware detection on a global scale, the network utilized to build the threat intelligence must process at least 80 billion DNS requests/day coming from at least 60 million daily users.
The solution must have a proven efficacy being able to block at least 80 million of daily DNS requests.
The analysis algorithms must make use multi-layer predictive detectors. As a mere example, these include (but are not limited to):   • Analysis of DNS co-occurrences,   • Analysis of Domains based on Natural Language Processing algorithms.   • Detection of DGA via perplexity and entropy.   • Detection of DNS traffic peaks   • Soundwave analysis applied to DNS traffic   • BGP anomalies detection.
Solutions using blacklists are not admitted.
The threat intelligence must be automatically updated in less than 15 minutes after the discovery of a new threat without any manual update operations.
The solution must include a transparent intelligent proxy configurable inside each security policy and able to analyze both HTTP and HTTPS traffic.
The transparent proxy must be enforced without any explicit mechanism such as a proxy PAC file or an adapter inside the network device.
The solution must be able to enforce Web filtering policies, based on 62 categories. It must

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be possible to enforce the Web filtering policy independently form the security policy.
The web filtering and security policies must allow the creation of global exceptions for several domains, via custom whitelists or blacklists.
For each domain detected as malicious, the solution must allow to visualize the IoCs and the features of this domain inside a dedicated investigation dashboard.
The investigation dashboard must also allow the manual submission of domains, IPs, email addresses, ASNs and hashes.
For each malicious domain, the investigation dashboard must show, if available, the hash of the associated malware samples directly from the report, without connecting to external services.
Management Requirements
The management interface must be web-based. It must allow to create different user profiles with different level of permissions. As an example the roles must include: • Administrator   • Reporting User   • Read-Only Users
The management interface must provide a graphical policy editor to define security and web filtering policies.
The policy editor must allow the creation of security policies based on identities such as networks, users, computers.
Security Policies must allow the creation of distinct security and web filtering profiles.
The policy editor must have a test function to verify the identities matching a security policy prior to its deployment in production.
The policy editor must allow to define a blocking page for the blocked DNS connections.
It must be possible to customize the blocking page for each policy entry. The customization must include the ability to define a custom message, insert a custom logo, or an administrator email address.
The policy editor must allow to define a different blocking page for each identity and category of events (for instance a blocking page for security-related events, a blocking page for web filtering blocks, etc.)
The policy editor must allow to forward the blocked connection to an internal URLs.

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The policy editor must allow to create users, on a local database, with the ability to bypass the blocking page.
The policy editor must allow to create special codes that allow to bypass the block pages for the users who have them.
The events related to all the DNS queries analyzed must appear in real time, with the ability to configure filters based on identity, destination, source IP, response type and date.
The events related to the DNS queries associated to security events must appear in real time, with the ability to configure filters based on identity, destination, source IP and date.
All the filters must be applicable defining a custom time (filter by date).
All the filters must be applicable selecting web filtering categories and/on security categories.
The dashboard must allow to reclassify a domain related to a security event, directly from the event record, via a link allowing to open a ticket towards the security OEM research team.
In order to identify targeted attacks, the dashboard must be able to show the global DNS activity on each configured site, identifying in real time the targeted attacks comparing the local DNS traffic to a specific domain with the worldwide DNS traffic for the same domain.
The dashboard must show an overview of all the traffic of the local organization, with the ability to identify the prevented infections, the contained infections, and the blocks due to the web filtering policy.
The management platform must have advanced reporting capabilities to identify cloud services or *Shadow IT* devices, in order to determine which services are used inside the organization by traditional or embedded devices and eventually detect anomalies in their usage.
The management platform must allow to generate the following reports: • Total requests   • Activity volume   • Top Domains   • Top Categories   • Top Identities.
All the reports must be exported in csv format or scheduled to be sent via email.
All the activities made by administrators must be logged inside an Admin Audit Log Report.
The management interface must support 2 Factor Authentication mechanisms for the administrators, such as, for instance text messages or Google Authenticator.

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As an additional authentication mechanism for the administrators, the management interface must support the SAML integration with a SSO provider.

Integration Requirements

The solution must include a set of enforcement RESTful API able to import domains from external sources and enforce them globally for the organization via DNS.

The connector must use the EDNS0 protocol (RFC6891).

The solution must be able to extend the protection off the network through the installation of a lightweight roaming agent on the Windows and OSX devices.

The agent must be also available as a profile for the VPN Client.

The agent must be able to enforce a dedicated set of security and web filtering policies for the external users, or also transparently extend the internal corporate policies when the endpoint is outside the organization.

The roaming agent must be deployable via GPO or an MSI package.

The roaming agent must be lightweight, running in user mode, and transparent, meaning that it must not make use of Proxy PAC files or other explicit forwarding mechanisms.

The roaming agent must be able to apply an additional level of enforcement based on the analysis of the connections trying to connect directly to an IP without generating and DNS queries (*IP Layer Enforcement*).

It must be possible to selectively enable the IP Layer Enforcement inside each security policy.

Resiliency and reliability requirements

The network used to deliver the DNS security service must use *Anycast*.

The network used to deliver the DNS security service must have experienced an *uptime* of at least 99.9% over the last 10 years.

Support requirements

It is required a support service including:

- Access to Online support via *Knowledge Base*, Forum, Documentation, Case Portal and notifications.

- 24X7X365 Phone Access for Priority 1 Cases.

- 12X5 Phone Access for Priority 2 and Priority 3 Cases.

- 3 Named support contacts.

The support service must be delivered directly by the security OEM.

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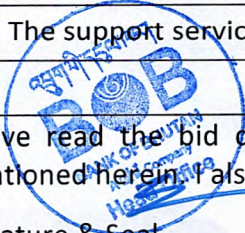
LOT III: WIRELESS NETWORK FOR TCO, BANK OF BHUTAN

Sl/No	Particulars	Qty	Remarks
1	Wireless Access Point	15	AP
2	Wireless Controller with guest login portal	1	Controller

LOT III Specifications

Wireless General Requirements

The proposed Wireless solution should support 15 AP and 500clients from day 1 scalable to 30 APs. 15 AP Licenses to be added in the WLC from day-1.
The solution should be able to support WIFI-6 in future with back ward compatibility.
The solution should display a portal for user to login using their credentials based on their Active Directory credentials. The solution should be able to create temporary users for guest Login to access the network with integration to the AD or Local Database.
The solution should include border Access point to control the signal broadcasted outside BoB TCO building.
Should provide secure Guest management including self-service guest portal (upon Admin authorization) where password can be shared through Email and SMS to guest.
The solution should offer a built-in monitoring, reporting, and troubleshooting console to assist helpdesk operators and administrators streamline operations. The solution should enable administrators to centrally configure and manage profiler, posture, guest, authentication, and authorization services in a single web-based GUI console, simplifying administration by providing consistency in managing all these services.

Wireless Access Point Specification

Access Point B227:B248shall support 4x4 MIMO on both radio (2.4 & 5.0 GHz) interfaces
Access Point shall be able to powered up using PoE
Access Point shall support assurance, packet capture, RF sensing capabilities
Access Point shall support application visibility and control
Access Point shall support encrypted traffic visibility
Access Point should have Bluetooth5 radio to support use cases of location, asset tracking and analytics.
Access Point shall ship with metal-based mounting bracket for durability and reliability

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Access Point shall be able to leverage current Access Point mount kit and cable conduit
Access Point shall support Console port that uses Standard Port (RJ-45) type connection
Access Point should have 1x 100, 1000, 2500 Multigigabit Ethernet (RJ-45) – IEEE 802.3bz
Access Point should have USB port for future requirement.
Must have at least 3 dBi Antenna gain on each radios
Must Support data rate up to 5Gbps.
Must support minimum of 23dbm of transmit power in both 2.4Ghz and 5Ghz radios. And should follow the local regulatory Norms.
Must support AP enforced load-balance between 2.4Ghz and 5Ghz band.
Must incorporate radio resource management for power, channel and performance optimization
Must have -97 dB or better Receiver Sensitivity.
Must support Proactive Key Caching and/or other methods for Fast Secure Roaming.
Must support Management Frame Protection.
Should support locally-significant certificates on the APs using a Public Key Infrastructure (PKI).
Access Points must support Hardware-based encrypted user data and management traffic between controller and Access point for better security.
Must support the ability to serve clients and monitor the RF environment concurrently.
Same model AP that serves clients must be able to be dedicated to monitoring the RF environment.
Must be plenum-rated (UL2043).
Must support 16 WLANs per AP for SSID deployment flexibility.
Access Point Must continue serving clients when link to controller is down. It should also have option to authenticate user through Radius server directly from Access Point during link unavailability to controller.
Must support telnet and/or SSH login to APs directly for troubleshooting flexibility.
802.11e and WMM
Must support QoS and Video Call Admission Control capabilities.
Access point should be Wi-Fi 6 certifiable.

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Wireless Controller Specifications

Hardware
Wireless controller should 15 AP and 500 clients from day 1 scalable to 30 APs. 15 AP Licenses to be added in the WLC from day-1.
The controller shall support deployment flexibility without compromising any features
The controller shall support 5 Gbps tunneling capacity
The controller shall support 2x 10G/Multigigabit copper or 2x 10G/Multigigabit fiber
Wireless Controller shall support link aggregation and load sharing between Access Point to WLC links
The controller shall support hardware encrypted data plane between Access Point and Controller
The controller shall be proposed with complete feature set including licensed feature
Software
Access Point shall be able to proactively distributes Client connection before and after association and tracking client condition in real time using data packet RSSI
The controller shall support standard-based, secure AP-Controller data & control protocol like CAPWAP. protocol that has known vulnerability like PAPI cannot be used.
The controller shall support Inter-Controller Wireless Roaming
The controller shall maintains per-user Application usage and shall be able to export it for network analytic.
The controller shall support Multi Languages options from embedded GUI Management
The controller shall provide per-Client Connection Scoring and provide reasoning of Client Connection Score
The controller shall support Cellular offload using IPv6 tunneling to Mobile Core network
RF Management
The controller shall be able to support multiple RF Management profile per group of APs, including Transmit Power Control and Dynamic Channel Assignment on both 2.4GHz and 5Ghz
The controller shall be able to identify and avoid interferers with network performance impact analysis report
The controller shall support optimized, automatic channel width (20~160Mhz) selection over 5GHz 802.11ac

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Mesh
Mesh AP nodes shall provide quick convergence and fast failover to new root mesh node
Mesh Backhaul interface shall support full duplex operation using wired daisy chaining
Mesh AP shall support fast roaming for Wired-client through wired-to-wireless bridge client
Recognition
The controller shall support per-user and per-WLAN based application recognition and control that throttle usage by rate-limiting
The controller application recognition technology shall support exporting to 3rd party compatible format, such as NetFlow v9
The controller shall provide policy-based mDNS gateway including Chromecast gateway
The controller shall support new application signatures without upgrading controller software
BYOD & Security
The controller shall provide Device Profiling using multiple profiling methods to reduce false-detection
The system shall provide secure onboarding service for both employee and guest based on standard-based security protocol
Proposed system shall not use public cloud as user data repository
The controller shall be able to embedded custom web portal page (HTML) to fully customize user experience without additional cost or extra box
The controller shall provide rule-based rogue classification and automatically run rogue mitigation action
The controller shall be able to detect employee device connection to Rogue Access Point and contain it automatically. It should also support protection from Honeypot or Evil twin.
The controller shall support Content Security using DNS integration, Web Classification shall be fully customizable
The system shall support control plane encryption on both IPv4 and IPv6
The Controller's image upgrade shall be done through secure, encrypted transport
The controller shall be able to provide unique pre-shared keys to the devices that do not support the 802.1x security protocol
The controller shall support Identity PSK for on boarding
Network

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The controller shall support mapping of specific VLANs to single SSID, depending on Access Point location and user
Configuration
The controller shall support automatic VLAN assignment per SSID to load-balance user connection. assigned VLAN pool shall be same as number of available VLAN in the system
The controller shall support embedded best practice configuration profile and setup
The system shall support monitoring and provisioning from Mobile App, supporting iOS and Android
The controller shall support packet fragmentation between Access Point and controller communication

2. OWNERSHIP OF THIS RFP

The content of this RFP is a copy right material of Bank of Bhutan Limited (BoBL). No part or material of this RFP document should be published on paper or electronic media without prior written permission from the Bank.

3. DUE DILIGENCE

The bid shall be deemed to have been submitted after careful study and examination of this RFP document. The bid should be precise, complete and in the prescribed format as per the requirement of this RFP document. Failure to furnish all information or submission of a bid not in-line with this RFP will be at the bidders' risk and shall result in rejection of the bid. Also the grounds for rejection of Bid should not be questioned after the final declaration of the successful Bidder.

The bidder is requested to carefully examine the RFP documents and the terms and conditions specified therein and if there appears to be any ambiguity, contradictions, inconsistency, gap and/or discrepancy in the RFP document, Bidder should seek necessary clarification.

4. AMENDMENT OF BIDDING DOCUMENT

a. At any time prior to the deadline for submission of Bids the Bank may amend the Bidding Documents by issuing an addendum. This may be done either on the Bank's own initiative or in response to a clarification request from a prospective Bidder.

b. Any addendum thus issued shall be part of the Bidding Documents and shall be communicated in writing to all who have obtained the Bidding Documents directly from the Purchaser. Such addendum shall be binding on the prospective Bidders, and shall require that prospective Bidders confirm receipt of it before the time established for the opening of Bids.

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c. The Purchaser may, at its discretion, extend the deadline for submission of Bids to allow prospective Bidders reasonable time in which to take the addendum into account in preparation of their Bids.

5. **CLARIFICATION OF THE BIDDING DCOUMENT**

a. Prospective bidders requiring any clarification with respect to this RFP may seek a clarification in writing or email to cheten.dorji@bob.bt and kinga.tshering2682@bob.bt

b. BoB may hold a pre-Bid meeting for any request or queries for clarification on the Bid documents, from the prospective Bidders but the clarifications may be requested not later than seven working days before the submission date.

c. Any clarification given by BoB shall be final, conclusive and binding on the Bidders.

6. **PUBLICITY**

Any publicity by the bidder, in which the Bank's name is to be used, should be done only with the explicit written permission of the Bank.

7. **NON-DISCLOSURE OF INFORMATION**

The bidders shall not, without the Bank's written consent, disclose any specification or information furnished by or on behalf of the Bank, to any person other than a person employed by the bidder in the performance of the work assigned to them.

8. **FORCE MAJEURE**

a. The Supplier shall not be liable for forfeiture of its Performance Security, liquidated damages or termination for default if and to the extent that it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

b. For purposes of this Clause, "Force Majeure" means an event or situation beyond the control of the Supplier that is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of the Supplier. Such events may include, but not be limited to, acts of the Purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

c. If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

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9. **BIDDING INSTRUCTION**

    The bidder(s) shall submit the bid in accordance with the following clauses. The Bank will not open the bid and will be directly rejected if such clauses are not complied with;

    a. Signed and sealed bids shall be delivered by hand or courier or registered post to the following address during office hours on or before the last submission timeline;

    <div align="center">

    Procurement Officer
    Bank of Bhutan, Head Office,
    Norzin Lam, Thimphu

    </div>

    b. Quotation by fax or by electronic means shall not be accepted.

    c. Two copies inside the outer envelope clearly marked as **"ORIGINAL"** and **"COPY"** with seal.

    c. No information of the bidders' on the outer envelope. The outer envelope shall be sealed without any tempering and marked the word **"Confidential"** with the tender name or tender number.

10. **LAST DEADLINE FOR SUBMISSION**

    a. Date: 22nd June, 2021 at 1430 hours

    b. Place for submission: Procurement Division, BoB Head Office, Norzin Lam, Thimphu

    c. Any Bid received after the deadline for submission shall not be accepted and declared as late and returned unopened to the Bidder.

11. **DEADLINE FOR OPENING OF BIDS**

    a. Date: 22nd June, 2021 at 1500 hours

    b. Place of opening: Meeting Room, BoB Head Office, Norzin Lam, Thimphu

    c. In case the due date of submission and opening of the bid falls on a non-working day, submission and opening of bid shall be on the next working day at the same time.

    d. The quotation(s) will be opened in the presence of bidders or their representatives who choose to attend the bid opening at the specified venue and time.

12. **SUBMISSION OF BID**

    The quotation rate should be quoted or submitted in accordance with the following Terms and Conditions of supply and delivery and shall be for an integral part of the Contract.

I have read the bid document and accordingly, I hereby accept all the terms and conditions mentioned herein. I also vouch that all data/information stated herein are valid to my knowledge.

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a. **PRICE QUOTATION**

   i. The bidder(s) may quote for all the *items or any of the items* under this invitation since awarding of contract is in item wise.

   ii. Price quoted shall be DDP and Ngultrum (BTN). The price quoted is inclusive of all the taxes and duties including supply and delivery till final delivery place; BoB Head Office, Norzim lam, Thimphu. The following are the Price, quantity and delivery schedule.

Code	Description	Qty (No.)	Rate/Piece (Nu.)	Total (Nu.)	Insert Bidders Project timeline (Day)
LOT I	**ATM Dual ISP**				
1	Network Switch with 8 x 10/100/1000 Base-T ports and 2*1G SFP uplinks ports loaded with 2 numbers of 1000 Base-LX (SM) modules	55			
2	Network Switch with 48 x 1000 Base-X SFP ports loaded with 44 x 1000 Base-LX (SM) modules and 4 x 1000 Base-SX (MM) Modules.	3			
3	Network Router with 50Mbps throughput and 1 x 1G UTP ports and 1 x 1G SFP port Loaded with 1 x 1000 Base-LX (SM) module.	3			
4	Network Switch with 24 x 10/100/1000 Base-T ports and 4 x 1G SFP ports	10			
5	Fiber Optics 3 Mtrs Patch Cords (Multimode with LC to SC Connectors)	240			
6	Laser Fiber Tester	2			
LOT I Total					
LOT II	**DNS Security Solution (300 User License) for 5 year solution**	1			
LOT II Total					
LOT III	**Wireless Solution for TCO, Bank of**				

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		Bhutan				
	1	Wireless Access Point	15			
	2	Wireless Controller with guest login portal	1			
	3	Any other equipment				
		LOT III Total				
	TOTAL BID PRICE (LOT I + LOT II + LOT III)					

Total Bid Price (in Words)	....
Project Timeline	Maximum project timeline is 60 calendar days from the date of issue of the Purchase Order.

Name of Supplier: .... Contact No.: .... Email id:	**Suppliers Official Stamp & Signature**
Date : ..../.................../2021	

b. **EVALUATION OF QUOTATION**

   i.   Evaluation shall carry out lot wise. The bidder shall need to quote all the items under same *LOT.* Any item not quoted under same LOT shall consider as non-responsive and shall be directly rejected without further evaluation.

   ii. To assist in the examination, evaluation and comparison of Bids, the Client may, at its discretion, ask the Bidder for a clarification of its Bid. All responses to requests for clarification shall be in writing, and no change in the price or substances of the Bid shall be sought, offered or permitted. Failing to respond to the clarifications sought by the client within two working days will be treated as non-responsive and hence be rejected.

   iii. Non-compliance with the technical/product specification shall be considered as non-responsive bid and shall not be evaluated.

   iv. Bidders' bid complied with the technical specification shall be evaluated based on the **FINANCAIL BID** and **TECHNICAL BID**; 30% for technical aspects and 70% for financial bid as mentioned below:

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Evaluation Criteria

SL/NO	PARTICULARS %		%	TOTAL (%)
1	**TECHNICAL**			
i	**Delivery Schedule** i. 30 Days or less = 10% ii. 31 Days to 60 Days = 5%		10%	
ii	**Dealership / OEM Certificate** i. OEM Partner/Authorize Dealership = 5% ii. Re-seller and others = 2%		5%	
Iii	**Experience & Technical Capacity** **3.1 Record of similar task carried out by the firm:** i. 6 works or More = 10%; ii. 3 to 5 works = 5%; iii. 1 to 2 works = 2% and iv. No work = 0.00%		10%	30%
	Warranty: i. Three years or More = 5% and ii. Two Years = 2%;		5%	
2	**COMMERCIAL**			70%
	Total			**100.0%**

Financial Evaluation Matrix of Bidder "X" = Financial bid % $* \dfrac{\text{Lowest Bidder's Rate}}{\text{Individual Bidder's Rate}}$

c. **while evaluating the quotations, the Bank will determine for each quotation and evaluate price by adjusting the quoted price in case there is any arithmetical errors as follows:**

i. Where there is a discrepancy between amounts in figures and in words, the amount in words will prevail;

ii. Where there is discrepancy between the Unit Rate and the line item, the resulting figure from multiplying the Unit Rate by the quantity shall prevail unless in the opinion of the Bank there is an obviously gross misplacement of the decimal point in the Unit Rate; and

iii. If the supplier refuses to accept the correction, this quotation will be rejected and the bid security shall be forfeited.

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13. **BID SECURITY**

a. The bid shall be accompanied by a bid security of 2% of the total bid amount in form of cash warrant/demand draft/unconditional Bank Guarantee/Banker's Cheque in favour of Bhutan of Bhutan Limited with the validity of 90 calendar days. Bid Security should be in original form; copies shall not be accepted.

b. Any bid not accompanied by bid security shall be treated as non-responsive and their bid shall be rejected.

c. Insufficient/less bid security amount shall be treated as non-responsive and their bid shall be rejected.

d. The Bid Securities of the bidders shall be returned as promptly as possible after the award of contract or upon the successful bidder furnishing the Performance Security; and

e. The Bid Security shall be forfeited:

   i. If the bidder withdraws the Bid during the period of bid validity before awarding the contract; or

   ii. If the bidder fails to submit the performance security or accept the contract; and

   iii. If the bidder fails to accept the correction as per clause 12 (c) of the bidding document.

14. **AWARD OF CONTRACT**

a. The awarding of contract shall be in LOT wise as per clause 12 (b) of the evaluation of quotation.

b. The bidder whose bid is accepted will be notified of the award of contract by the Bank prior to expiration of the bid validity period.

c. Bank shall notify and offer to the second lowest bidder for executing the contract, if the successful bidders fail to accept the contract.

15. **VALIDITY OF THE OFFERS**

a. Quotation(s) shall be valid for a period of 60 calendar days from the date of receipt of quotation(s) or opening of quotation(s).

b. The offered bid validity with less than 60 calendar days shall be rejected as non-responsive.

c. Bank shall request extension of bid validity if necessary. If not accepted extension, the Bank shall treated it as non-responsive bid.

I have read the bid document and accordingly, I hereby accept all the terms and conditions mentioned herein. I also vouch that all data/information stated herein are valid to my knowledge.

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16. **PEROFRMANCE SECURITY**

   a. The successful bidder needs to furnish performance security of 10% of the total contract value. The validity of performance security will be notified in the award letter or letter of acceptance.

   b. Performance security shall be released after completing warranty period.

   c. Bank shall forfeit performance security in whole or part after deducting all costs or expenses or other amounts that are to be paid to Bank or blacklist the firm for minimum of three years, if the bidder:

      i. Fails to perform his/her contractual obligation under the Bank's purchase/supply order;

      ii. Withdraws the contract without performing his/her obligation under the Bank's purchase/supply order;

      iii. Supplied inferior goods which is not as per the specification; and

      iv. Fails to replace the defective goods within 14 calendar days after notifying about the defective goods.

16. **SUPPLY and DELIVERY TIMELINE**

   a. Supply and delivery site: BoB Head Office, Norzim Lam, Thimphu.

   b. The maximum time period for the supply, delivery and installation/commissioning of the goods is 60 calendar days after the date of purchase order (exclusive purchase order date), but the supplier must supply within the time period mentioned in their bid. Failing to supply within the time period shall be ensue levy of liquidity damage as per clause 17 of the bidding document.

17. **LIQUIDITY DAMAGE**

   a. Bank shall levy a Liquidity Damage of 0.10% per day and shall not exceed 10% of the total contract value. Liquidity Damage is levied only if the bidder fails to supply and deliver the goods within their stipulated time period.

   b. Liquidity Damage shall be calculated as per formula below;

      - **Liquidity Damage = 0.10% * Total Value *No. of delay days**

18. **PAYMENT TERMS AND CONDITIONS**

   a. Payment for supplied goods shall be made within 30 working days after deducting 2% TDS at source.

   b. No advance payment shall be made prior to delivery of goods by the bidders.

I have read the bid document and accordingly, I hereby accept all the terms and conditions mentioned herein. I also vouch that all data/information stated herein are valid to my knowledge.

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20. TERMINATION/BLACKLISITING

The Bank may terminate or blacklist the suppliers/firms by giving notice under any of the terms and conditions of the bidding document/purchase/supply order, if the bidder:

a. Withdraws its bid during the period of bid validity before awarding the contract;

b. Fails to accept the contract;

c. Fails to perform any obligation(s) under the Purchase Order/Supply Order;

d. Fails to supply the items as per the specification or replace the defective items;

e. A bidder making any statement or enclosing any form, which turns out to be false, incorrect and/or misleading and/or concealing or suppressing material information.

f. Deliberately gives wrong/invalid information to Bank in competing for or in executing the tasks under this tender or Purchase Order/Supply Order;

g. Has engaged in any corrupt or fraudulent practices in competing for or in executing the tasks under this Purchase Order/Supply Order;

h. Becomes bankrupt or otherwise insolvent without compensation to the Supplier; and

i. If the maximum liquidity damage exceed 10 % of the total value.

21. OTHER TERMS AND CONDITIONS

a. The successful bidder shall not sub-contract the assignment.

b. The Bank is not bound to accept the lowest bid and reserves the right to accept or reject any or all the bids without assigning any reason whatsoever. And also Bank has the right to cancel or terminate the contract at any point of time before the expiry of contract and have a right to purchase the goods from local market if the price is cheaper.

c. Depending on the final requirement, the Bank may increase or decrease the quantities by twenty percent (20%) of the purchase order;

d. Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process. Any effort by a Bidder to influence the Bank processing of Bids or award decisions may result in the rejection of the Bidder's Bids;

e. Any other Terms and Conditions require for execution of contract shall be in writing upon agreeing by both the parties.

f. Any interlineations, erasures or overwriting shall be valid only if they are signed or initialed by the person signing the Bid.

I have read the bid document and accordingly, I hereby accept all the terms and conditions mentioned herein. I also vouch that all data/information stated herein are valid to my knowledge.
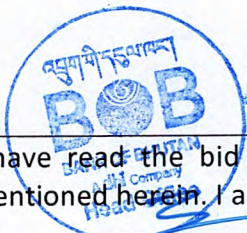
Signature & Seal _____ (Authorized Signature)

g. All other clarification or dispute with regards to the procurement procedures and governing laws shall be guided by:

    i. Bidding document;

    ii. BoBL Procurement Rules and Regulations 2013; and

    iii. Further, if the dispute was not resolved, it shall be governed by Court Law, The Kingdom of Bhutan.

"Thank You"

I have read the bid document and accordingly, I hereby accept all the terms and conditions mentioned herein. I also vouch that all data/information stated herein are valid to my knowledge.

Signature & Seal_____ (Authorized Signature)