

## Annex I

## TECHNICAL SPECIFICATIONS FOR DATA CENTRE SWITCH, NETWORK CABLE ACCESSORIES WIRELESS ACCESS POINT / WIRELESS CONTROLLER

### 1. TECHNICAL SPECIFICATIONS FOR DATA CENTRE SWITCH

ITEM	REQUIREMENT	COMPLIANCE(Y/N)
Model	Internationally recognized brand and model. Bidder must specify brand and model.	
Quantity	2	
Ports	<ol style="list-style-type: none"> <li>1. Minimum of 48 x 1/10G RJ-45 or 48 x 1/10G SFP+ connections as per requirements.</li> <li>2. Minimum of 6 Fixed 40-Gbps QSFP+ uplink ports.</li> </ol>	
Availability	Hot-swappable, redundant power supplies and fan trays to increase availability.	
CPU, SSD, and memory	The device must have dual-core 2.5-GHz x86 CPUs with 64-GB SSD drive and 16 GB of memory provide enhanced network performance.	
Max local switching capacity (Throughput)	Minimum 1 Tbps non-blocking switching performance	
Max inter-slot switching capacity Performance	<ol style="list-style-type: none"> <li>1. 5.04 bpps (IPv4 unicast) in combination with supervisor and fabric modules</li> <li>2. Capability to collect analytics telemetry information at line rate across all the ports without adding any latency to the packets or negatively affecting switch performance.</li> </ol>	
Reliability and availability	OIR of all redundant components: supervisor and fabric modules, power supplies, and Hot-swappable 3+1 redundant fan trays	
Management information base (MIBs)	<ul style="list-style-type: none"> <li>• Supports SNMPv3, v2c, and v1</li> <li>• Monitoring – Devices need to be able to be monitored by a variety of protocols, including but not limited to SNMP</li> <li>• TACACS+ support</li> <li>• Jumbo (9000+ MTU) Frame support</li> <li>• Must support mirroring of network traffic to a network security monitoring platform</li> </ul>	
Airflow	<ul style="list-style-type: none"> <li>• Front to back</li> </ul>	

ITEM	REQUIREMENT	COMPLIANCE(Y/N)
	<ul style="list-style-type: none"> <li>• Designed for end-of-row deployments</li> </ul>	
Cable management	Integrated dual side for flexible cabling deployments	
Power	<ul style="list-style-type: none"> <li>• Redundant power supply</li> <li>• 1+1 redundant hot-swappable Power Supplies</li> </ul>	
Network connectivity	<ul style="list-style-type: none"> <li>• Expansion modules</li> <li>• Minimum of 48 port 1 and 10 Gigabit Ethernet and FCoE module/SFP cards pre-installed and licensed.</li> <li>• Minimum of 48 port 2/4/8/16 FC pre-installed with FC card and all 48 ports licenced.</li> <li>• Minimum of 48 port 10/100/1000 module pre-installed with all ports populated and licensed.</li> <li>• Should support Layer3 module</li> <li>• Should support layer 2 switching and VLANs</li> <li>• 2 x SFPs LR (upto 25km)</li> <li>• Networking overlay – NVGRE &amp; VXLAN</li> <li>• Multicast – IGMPv2/IGMPv3 support is required on ToR / Leaf switches to support multicast requests</li> <li>• Must support 802.1q VLAN tagging / trunking.</li> </ul>	
Mounting	Must include Rail kits and power cord included per switch	
Licenses	<ol style="list-style-type: none"> <li>1. Must include Activation permit for trunking, advanced performance monitoring, fabric watch, extended fabric and adaptive networking and fabric vision</li> <li>2. Access to ongoing innovation and new technology from OEM through software support service</li> <li>3. Investment protection of software purchases through software services-enabled license portability. Licenses must be portable between generations of hardware, eliminating the need to repurchase software when upgrading to new hardware.</li> <li>4. Telemetry information should include flow information, interpacket variation and context details.</li> </ol>	
Warranty	Three (3) years warrant support	
Installation and configuration	Provide installation setup and configuration of the device to IEBC Local Area Network.	

ITEM	REQUIREMENT	COMPLIANCE(Y/N)
services.		

## 2. TECHNICAL SPECIFICATIONS FOR NETWORK ACCESSORIES

ITEM	QTY		COMPLIANCE(Y/N)
5M Patch cord	100	Factory Made CAT 6A UTP Patch Cord of 5 Meters each.	
3M Patch cord	100	Factory Made CAT 6A UTP Patch Cord of 3 Meters each.	
Cable Roll	2	CAT 6A UTP cable roll	
Switch	15	16 Port Unmanaged Switches for Small Business.  Interfaces: 16 x 100Base-TX/1000 Base-T - RJ-45  Ports: 16 x 1000 Mbps	
Wifi access point for internet access	10	Technical specifications outlined in table below.	
NAS Storage	1	With Minimum 6 Terabytes capacity.	

### 3. TECHNICAL SPECIFICATIONS FOR WIRELESS ACCESS POINTS /WIRELESS CONTROLLER

ITEM	QTY	FEATURES	SPECIFICATIONS	COMPLIAN CE(Y/N)
Wireless access points	9	Network Interfaces	10/100/1000BASE-T autosensing (RJ-45) ports	
		Wi-Fi Standards	802.11a, 802.11b, 802.11g and 802.11n	
		Power method	1. Supports PoE 2. Power injectors,power cable included.	
		SSID	Supports multiple SSID	
		Guest Traffic Isolation	Supported	
		Concurrent clients	Supported	
		Mounting	Wall/Ceiling (Kits Included)	
		Controller Based Management	Supported	
		Wireless Security	WEP, WPA-PSK, WPA-Enterprise (WPA/WPA2, TKIP/AES)	
		Design and Deployment	<ol style="list-style-type: none"> <li>1. Support Controller based and Controller less /Standalone (Compatible to Cisco 2500,5500 or controller higher version)</li> <li>2. Gives IEBC remote workers wired and wireless connectivity</li> <li>3. Supports Layer 3 mobility across central or remote locations on the enterprise campus, in branch offices, and at remote sites.</li> <li>4. Supports Routing Function</li> <li>5. Supports PHY data rates up to300 Mbps or higher.</li> <li>6. Supports 2x3 multiple-input multiple-output (MIMO) with two spatial streams</li> <li>7. Supports Web based</li> </ol>	

ITEM	QTY	FEATURES	SPECIFICATIONS	COMPLIAN CE(Y/N)
			configuration and monitoring	
Wireless controller	1	Design and Deployment	<ol style="list-style-type: none"> <li>Supports authentication with existing Active Directory/LDAP</li> <li>Supports multiple VLANs.</li> <li>Supports MAC filtering therefore limiting what devices can connect to it.</li> <li>Minimum Access Points per Group is 25</li> </ol>	
		Network Interfaces	<ol style="list-style-type: none"> <li>10/100/1000BASE-T autosensing (RJ-45)</li> <li>Management console port (RJ-45)</li> </ol>	
		Wi-Fi Standards	IEEE 802.11a, 802.11ac, 802.11b, 802.11g, 802.11d, WMM/802.11e, 802.11h, 802.11k, 802.11n, 802.11r, 802.11u, 802.11w, 802.11ac	
		Power method	<ol style="list-style-type: none"> <li>Supports PoE</li> <li>Power injectors, power cable included.</li> </ol>	
		Security Standards	WEP, WPA-PSK, WPA-Enterprise (WPA/WPA2, TKIP/AES) or higher.	
		Authentication, Authorization, and Accounting (AAA)	Supports authentication with existing Active Directory/LDAP, RADIUS Authentication, RADIUS Accounting, RADIUS Tunnel Accounting, Web-based authentication, and TACACS support for management users	
		Warranty	Three (3) years warrant support	
		Installation and configuration services.	Provide installation, setup and configuration of the device to IEBC Local Area Network	