

14x2

S.No.	Description	Quantity
	Branded Centralized Wireless Network (IEEE 802.11 ac Wave 2 Standard PoE+) with complete mounting kit same brand	
A	Access Points with power adpoter	17
	Centralized Controller	1
SEPARATE HARDWARE REQUIRED		
B	Branded 10GBase-T Ethernet copper cable Cat 6a or Cat7/7a (Branded (2) Boxes-STP 1000 feet per box) with (1) Box Branded connectors and (2) Cat 6a or Cat 7 10 G Ethernet patch panels	2 Cable rolls 1 Connectors Box 2 Patch Panel
SEPARATE HARDWARE REQUIRED		
C	Branded 8 port IP based KVM Console Switch with KMM LED display (complete solution) with 18.5 inch LED screen with Rack mountable-Sliding-Folding-tray, with all required cables for server connectivity, upgradable to Digital switch (2 IP KVM Switches with 2 KMM Integrated LED consoles) with 16 USB SIP module (cables) for server , switch and KMM connectivity..	2 KVM switch 2 LED Screen 16 Cables

2. Bidding documents, containing detailed terms and conditions, method of procurement, procedure for submission of bids, bid security, bid validity, opening of bid, evaluation criteria, clarification / rejection of bids, performance guarantee etc. are available for the interested bidders at www.pta.gov.pk. Price of the bidding documents is Rs.500/- (Cash/Pay Order non-refundable in favor of PTA). Bidding documents can also be downloaded from www.pta.gov.pk free of cost.

3. The bids, prepared in accordance with the instructions in the bidding documents, must reach at PTA Headquarters F-5/1, Islamabad on or before **7th September 2017 by 10:30 AM**. Technical Bids will be opened the same day at **11:00 AM**. This advertisement is also available on PPRa website at www.ppra.org.pk.

Ahmed Bakhat Masood, Deputy Director (ICT-III)
Phone: 051-2878134 Fax: 051-9225368
Email address: ahmedbakhat@pta.gov.pk

PID(0)



BIDDING DOCUMENTS

Sealed bids are invited from well reputed and authorized dealers having Tier-1 / Tier -2 level dealership, registered with Sales Tax and Income Tax Department, having at least 5 years of relevant business experience for the procurement of following items ,

S.No.	Description	Quantity
	Branded Centralized Wireless Network (IEEE 802.11 ac Wave 2 Standard PoE+) with complete mounting kit same brand (Aruba / Ruckus or equivalent)	
A	Access Points with power adopter	17
	Centralized Controller Hardware	1
	PATCH PANEL & CABLES (SEPARATE HARDWARE)	
B	Branded 10GBase-T Ethernet copper cable Cat 6A or Cat7/7A (Branded (2 Nos) Boxes-STP 1000 feet per box) with (1 No) Box Branded connectors and (2 Nos) cat 6a or cat 7,10 G Ethernet patch panels	2 Cable rolls 1 Connectors Box 2 Patch Panel
	IP BASED KVM (SEPARATE HARDWARE)	
C	Branded 8 port IP based KVM Console Switch with KMM LED display (complete Solution) with 18.5 inch LED screen with Rack mountable-Sliding-Folding-tray, with all required cables for server connectivity, upgradable to Digital switch (2 IP KVM Switches with 2 KMM Integrated LED consoles) with 16 USB SIP module (cables) for server , switch and KMM connectivity.	2 KVM switch 2 LED Screen 16 Cables

Detailed specifications of above-mentioned items are provided at Annex-C of this document. Notice of the bids issued on PTA's/PPRA's websites is part of the bidding document.

Key Terms and Conditions

1. GENERAL INFORMATION:

- a. Bidding documents duly completed in all respect will be received on or before **7th September, 2017 up to 1030 AM.** The submission and evaluation of bids will be carried out under the "*Single Stage Two Envelop Procedure*". Technical bids will be opened by Technical Evaluation

Committee, at PTA HQs on the same day at **1100 AM**, in presence of bidder's representative, who may choose to attend.

- b. Bid will comprise of single package containing two separate sealed envelopes. One envelop will contain the "Technical Proposal" and the second envelop will contain the "**Financial Proposal**". Technically qualified bidders will be informed the date, time and venue for the opening of financial bids. Financial bids of technically disqualified bidders will be returned un-opened.
- c. Bids should be sent at the address of Deputy Director (ICT-III) Pakistan Telecommunication Authority (PTA), Headquarters F-5/1, Islamabad.
- d. Bidder can quote for any one, or all of the IT equipment mentioned above, depending on relevant dealership in each IT equipment. i.e. a vendor can participate for Wireless Network or 10G-Base-T Ethernet Cables or for IP KVM Console Switches or a Vendor can participate for all items, Wireless Network and 10G-Base-T cables with IP KVM Console Switches.
- e. Annex-A, Annex-B, Annex-C and Annex-D are integral part of technical and financial proposals, which may be read/filled carefully, signed and stamped by the bidders. Further, details of the annexures are mentioned below:
 - i. Annex-A consists of mandatory requirements for bidder(s)
 - ii. Annex-B consists of technical capabilities of bidder(s), which has total 100 marks, whereas minimum qualifying marks are 70%
 - iii. Annex-C consists of technical evaluation of the product and bidder(s) may quote higher specs, however, quoting lower specs shall disqualify the bidder
 - iv. Annex-D, comprises of financial bid format, to be followed by all bidders, The bidder should quote its rates clearly for each item, in the financial proposal in both figures and words without any ambiguity and evaluation will be completed separately for each item.

2. **BIDDER'S INFORMATION**

- a. Name of Firm _____
- b. Date of establishment of business
(documentary proof of registration etc.) _____
- c. Address _____
- d. Telephone No _____ Fax No. _____
- e. GST Reg. No _____
- f. National Tax No _____

3. **EVALUATION CRITERIA**

- a. Technical bids shall be opened and evaluated by technical evaluation committee in view of Annex-A, Annex- B and Annex-C. Bidder, obtaining at least 80% out of 100 marks, shall be eligible for the participation in financial bid opening.
- b. Financial bids shall be opened and evaluated by procurement committee of PTA i.e. PC-I as the case may be, on the basis of criteria given in Annex-D.
- c. Work will be awarded to **financially lowest bidder against each item**.
- d. If two or more bidders quote equal lowest price in financial proposals, then the work will be awarded to the one having higher technical marks, in technical evaluation.
- e. The bidder should quote its rates clearly against **each item**, in the financial proposal in both figures and words.
- f. Item A and B and C are completely independent of each other and the bidder should quote its rates clearly in the financial proposal in both figures and words against **each item separately**. Technical and Financial evaluation of the items will be independent of each other.

4. **EARNEST MONEY**

- g. Earnest money will be 2% of the bid amount and will be in the shape of pay order / demand draft in favor of Pakistan Telecommunication Authority, Headquarters, Sector F-5/1, Islamabad Earnest money **shall be attached with the financial proposal otherwise proposal** will not be accepted.
- h. **Bids without earnest money will be rejected without any right of appeal.**
- i. **Earnest money of successful bidder will be retained till the warranty / support period.** However, earnest money of unsuccessful bidders will be returned after award of supply order to successful bidder.
- j. In case of cancelation of Supply Order due to default of the supplier, the earnest money shall be forfeited in favor of PTA.

5. **PRICES:**

- a. **The bidder should quote its rates clearly in Pak Rupees** inclusive of all applicable taxes i.e. GST etc. **in the financial proposal and amount in both figures and words as per format attached at Annex-D**
- b. The rates quoted shall remain valid for 90 days from the date of opening of Technical Proposal, and, any raise in dollar/foreign currency against Pakistani rupees should not be applicable, and, any increase in price shall be borne by the Bidder.
- c. PTA will not bear transportation/carriage charges.

6. **PAYMENT PROCEDURE**

- a. No advance payment shall be made against the supply of equipment / software mentioned in the bidding document.
- b. Payment shall be made on provision of invoice/bill, after delivery of the equipment /software at PTA Headquarters and issuance of satisfactory completion/stock verification/physical inspection certificate by PC-I.
- c. Payment shall be subject to withholding of applicable taxes as per government rules.

7. **EQUIPMENT / SOFTWARE**

- a. IT equipment should be new, not used or refurbished. The components of the equipment should be assembled by the manufacturer and shall be verifiable at principal manufacturer website.
- b. IT equipment / software should be arranged through the legal channels by clearing all customs/duties/taxes (if any) levied by Govt..

8. **DELIVERY PERIOD**

- a. Delivery of items shall be made within eight (8) weeks' time after issuance of supply order.
- b. Vendor will be responsible for the safe supply of equipment / software at PTA H/Qs Islamabad with the provision of warranty / support as mentioned in the bidding agreement.

9. **AUTHORIZED DEALERPARTNER**

Bidder shall be an authorized dealer//partner, having Tier 1 or Tier 2 partnership / dealership of the quoted brand. Certificate of dealership / partnership from principle manufacturer is required in the name of the authorized dealer / partner of the manufacturer with Authorization letter Wireless network and KVM switch only.

10. **WARRANTY/SUPPORT/INSTALLATION**

- a. Vendor will be responsible for the provision of free onsite warranty / support / free Software updates with labor and parts as per detail below;
 - i. Centralized Wireless Network with central controller: **Five years or manufacturer warranty period whichever is higher**, with Five years free software updates including firmware and signatures updates, and **three years free support**.
 - ii. IP KVM Console switches: **One year or manufacturer warranty period** whichever is higher, with one year free support/software updates.

- b. The warranty period will be considered from the date of actual date of delivery of IT equipment.
- c. Installation and deployment of the Wireless Network with 10 G cables will be the responsibility of the vendor, as per deployment design laid down by PTA.

11. PENALTY

- a) If the supplier fails to supply equipment within due time of eight weeks, mentioned in this document and supply order, then a penalty of 1% per week will be charged upto maximum period of four weeks. (Days less than six will be considered as one week). Thereafter, supply order will be cancelled and earnest money will be forfeited. However, the next lowest bidder will be asked to supply equipment on matching the lowest winning price and subject to submission of earnest money (if released earlier) and willingness for the shipment within eight (08) weeks, with extended time of four (04) weeks with 1% fine mentioned above.
- b) In case 2nd lowest bidder also failed to ship the equipment, work order shall be canceled and deposited earnest money shall be forfeited.
- c) A penalty of **1% of the earnest money per day** will be charged if the faulty hardware replacement time exceeds the time mentioned, in the certificate provided as per Annex-B- part B-(3), during the warranty period.

12. DISQUALIFICATIONS

Proposals will be liable to be rejected if any deviation is found from the instructions as laid down in the bid document i.e.

- a. Financial bid is submitted without the required earnest money.
- b. Offers are received after specified date and time.
- c. Specification and other requirements are not properly adhered to or different from those given in the bidding documents.
- d. GST and NTN certificates are not attached.
- e. Service centre is not in Islamabad/Rawalpindi.
- f. Supplier is not an authorized dealer/partner and warranty provider of the principal manufacturer for Pakistan as per section 9 of this document.
- g. Any inferior product / spec / requirement that mentioned at Annex-C.
- h. Bidder shall quote **only one option**, bids with multiple options will be rejected without any right of appeal.

13. AFFIDAVIT

Affidavit on **Judicial Paper** to the effect that the firm has not been black listed by any government/semi government/autonomous body or company.

14. RIGHTS RESERVED

Pakistan Telecommunication Authority Islamabad reserves the rights to cancel the bid, accept or reject any bid as per PPRA Rules.

CHECKLIST

- a. Earnest money in shape of bank draft/pay order. (Yes/No)
(cheques are not acceptable)
- b. Relevant documents for Annex A-C(Yes/No)
- c. List of such projects handled with copies of supply order. (Yes/No)
- d. List of clients with telephone numbers and addresses. (Yes/No)
- e. List of employees including technical staff for this project. (Yes/No)
- f. Affidavit on legal paper for not being black listed. (Yes/No)
- g. Copies of authorized dealership/partnership etc. of the principal manufacturer for Pakistan. (Yes/No)
- h. Specification and other requirements are met (Yes/No)
- i. Service centre is at Islamabad/Rawalpindi (Yes/No)

Deputy Director (ICT-III)

General Evaluation- Part-A

Annex-A

Part A) Mandatory Requirement *	
1	Firm has to produce Sales Tax and Income Tax Registration.
2	Firm has to produce Authorization dealer, partner, etc Certificate of the principal/manufacture for Pakistan as per section 9 of this bidding document. Tier 1 and Tier 2 partners only with authorization letter, wireless and KVM switch only.
3	Firm shall be authorized warranty provider on behalf of manufacturer. Documentary proof required.
4	Minimum Five years of relevant experience of the vendor
5	Sales and Service Centers at Islamabad / Rawalpindi

Part B) General Evaluation*				
Sr. #	Attributes	Max. Score	Points Earned	Criteria
1	Detail of Offices	10		Firm has sales and services offices at four (4) provincial headquarters with proof of authorized service provider from principal manufacturer. Two and half (2.5) points for each p.h.q.
2	Spare Parts Availability	10		Firm has Spare Parts of the quoted model Depot/facility at Islamabad / Rawalpindi.
3	Replacement time for faulty under warranty equipment/parts (Certificate has to be produced) (Clause 11(c) referred)	25	25	1-3 working days
			15	4-7 working days
			05	7-14 working days
4	Total strength of relevant Technical Staff at Rawalpindi / Islamabad (List shall be attached with name, designation, qualification and related experience).	10	10	Firm has ten(10) or more relevant technical staff in Islamabad / Rawalpindi.
			7	Firm has more than seven (7) or more up to nine (9) relevant technical staff in Islamabad / Rawalpindi
			5	Firm has five (5) or more upto six(6) relevant technical staff in Islamabad / Rawalpindi
5	Firm Experience (minimum Five years' experience required)	20		(4) points will be given for each year of experience, beyond 5 years of mandatory requirement.
6	Projects completed of similar nature (documentary proof be provided i.e. Supply Orders etc.)	25		Five points will be awarded for each project of same nature on provision of supply order/certificate i. Supply of Centralized Wireless Solution with minimum 20 Aps with 1 central controller or more in single supply order. (Max Five Supply orders) ii. Supply of 01or above IP KVM console Switches in single supply order. (Max Five Supply orders) iii. Supply of 05-10 G cable rolls, with 1 box connectors and (24) 10G patch panels. (Max 05 Supply orders)
Sub Total		100		
Minimum qualifying marks are 70% in above table whereas Annex "C" shall be compulsory. All supporting Documents to be attached for all relevant pages of Annex-B.				

Features	Descriptions
Hardware Scalability	Enterprise Dual Radio / Dual Band Access point supporting comprehensive feature set for mobility first campuses
	Support for 4x4:4 spatial streams
	Support for 802.11ac wave 2
	Support for MU-MIMO
	Support for PoE+/PoE Injector and power adapters
	Support for 1,733 Mbps data rate in 5 Ghz and 800 Mbps data rate in 2.4 Ghz
	Support for virtual controller inside Aps to complement the dedicated controller
	Minimum number of Aps inside a cluster – 100
	Should provide HA, in case primary AP fails, fallback to next eligible AP should be supported
	Support for 1 or more PoE+ Enabled Ethernet port
	Support for dedicated spectrum analyzer capabilities
	Support for upto 255 associated clients per radio
	Support for atleast 16 SSIDs or above
Application Assurance	Should provide HA, in case primary AP fails, fallback to next eligible AP should be supported, Support for Band Steering
	Support for dedicated spectrum analyzer capabilities, Support for sticky client issues
	Support for 2 or more PoE+ Enabled Ethernet port , Support for Layer 2 and Layer 3 roaming
	Support for atleast 16 SSIDs ,Support for Advanced Cellular Coexistence
	Support for VHT80, Support for QoS
	Support for Band Steering ,Support for Airtime fairness
	Support for sticky client issues, Support for intelligent application visibility and control
	Support for Layer 2 and Layer 3 roaming, Support for integrated wireless intrusion protection
	Support for Advanced Cellular Coexistence, Support for Mesh
	Support for QoS ,Support for Direct-sequence spread-spectrum (DSSS)
	Support for Airtime fairness, Support for Orthogonal frequency-division multiplexing (OFDM)
	Support for intelligent application visibility and controlSupport for modulation types: BPSK, QPSK, CCK, BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM
	Support for integrated wireless intrusion protection,Transmit power should be configurable in increments of 0.5 dBm
	Support for Mesh Support for Short guard interval for 20-MHz, 40-MHz, 80-MHz and 160-MHz channels.
	Support for Direct-sequence spread-spectrum (DSSS),Support for Space-time block coding (STBC) for increased range and
	Support for Orthogonal frequency-division multiplexing (OFDM),improved reception
	Support for modulation types: BPSK, QPSK, CCK, BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM Support for Low-density parity check (LDPC) for high-efficiency error
	Transmit power should be configurable in increments of 0.5 dBmcorrection and increased throughput.
Support for Short guard interval for 20-MHz, 40-MHz, 80-MHz and 160-MHz channels. Support for Transmit beam-forming (TxBF) for increased signal	

	reliability and range.
Radio Frequency (RF) Management, Visibility and Security	Support for Low-density parity check (LDPC) for high-efficiency error correction and increased throughput.
	Support for Transmit beam-forming (TxBF) for increased signal reliability and range.
	Supported data rates:
	802.11n: 6.5 to 600 (MCS0 to MCS31)
	802.11ac: 6.5 to 1,733 (MCS0 to MCS9, NSS = 1 to 4 for VHT20/40/80, NSS = 1 to 2 for VHT160)
	Support for 802.11n high-throughput (HT) support: HT 20/40
	Support for 802.11ac very high throughput (VHT) support: VHT 20/40/80/160
	Support for 802.11n/ac packet aggregation: A-MPDU, A-MSDU
	Support for Kensington security slot
	Supported Certifications and Regulations
	UL2043 plenum rating
	Wi-Fi Alliance (WFA) certified 802.11a/b/g/n/ac
	• CE Marked
	• R&TTE Directive 1995/5/EC
	• Low Voltage Directive 72/23/EEC
	• EN 300 328
	• EN 301 489
	• EN 301 893
	• UL/IEC/EN 60950
	• EN 60601-1-1, EN60601-1-2
Principal Warranty of 5 years	
Support for Low-density parity check (LDPC) for high-efficiency error correction and increased throughput.	
Support for Transmit beam-forming (TxBF) for increased signal reliability and range.	
Controller and License	All Licenses with Enforcement Firewall at Controller
	Controller Shall support 64 APs and minimum License support for 20 APs for PTA
	Including minimum 20 AP and RF Protect license per AP
	License shall support 5 years
Features	Description
1. General	Centralized WLAN architecture with “thin” Access Point and centralized switch/controllers, and integrated network management
	Wi-Fi Alliance Certification for 802.11 a/b/g/n/ac (wave 1 and wave 2)
	Newly installed controllers automatically synchronized with the already existing controller(s), without requiring a separate network management server
2. Authentication & Encryption	Support the following:
	I. MAC & 802.1X based authentication.
	II. WPA2/AES, WEP, WPA/TKIP link layer encryption.
	III. LEAP, PEAP, EAP-TLS, EAP-TTLS, EAP-GTC authentication.
	VI. Integrated RADIUS termination for increased security and cryptographic offload. Must support EAP-PEAP and EAP-TLS using EAP-MSCHAPv2 or EAP-GTC.
	Web-Based Authentication (e.g. WebAuth/Captive Portal):
	I. Integrated into the controller/switch.
II. User name and password authentication, as well as support for token based authentication.	

	IV. Facilitate process for non-IT staff to create temporary guest IDs and passwords to automatically age out / expire.
	V. Ability to customize the pre-authentication network access rights beyond DHCP response (e.g. to allow PCs and MACs to finish network scripts and network boot ups),
	VI. Airtime-based bandwidth contract for the guest SSID to preserve channel access for particular SSIDs. As an example, granting a higher percentage of airtime to employee SSIDs as opposed to guest SSIDs.
	VIII. 802.1X based guest access using a local database on the switch/controller that can be used to authenticate users.
	XI. Secure tunnelling via IPSec/GRE to a generic L3 switch/router for ease of deployment and reduced cost
3. Wireless LAN controller	Support up to 64 AP & 4000 number of concurrent connected wireless clients.
	Support up to 8 Gbps of stateful firewall throughput & over 65000 concurrent active firewall sessions
	Support 8 x 1G Combo ports (Rj45 / SFP)
4. AP-to-Controller Communication	Use of industry standards-based (IEEE or IETF) tunneling protocols; specify standard that the tunneling mechanism is based on.
	Centralized Encryption/De-encryption on switch/controller in data center.
	Support secure connection (e.g. IPSEC/VPN) of APs to centralized switch over “untrusted” (e.g. public WAN) network transport, without requiring external hardware and without requiring dedicated switch/controller.
5. AP Management	Automatic updates of firmware and software on all APs without user intervention.
	Support discovery protocol from APs to find and sync with switch/controller, that works over routed and switched subnets and that does not require reconfiguration or features on routers or switches.
	All AP configuration and service delivery information centrally managed and maintained via the switch/controller.
	Centralized switch/controller provides a mechanism to support different groups of APs that share the same configuration of SSIDs, user VLANs, etc. – without requiring a separate management interface.
6. RF Management	Automatic adjustment of individual AP power and channel setting to maximize performance around other APs, limit the effects of interference (both 802.11 and non-802.11), and detect and correct any RF coverage holes.
	Dynamic load balancing to automatically distribute clients to the least loaded channel and AP; load balancing must not require any client specific configurations or software.
	Load balancing across bands and steering of dual-band capable clients from 2.4GHz to 5GHz in order to improve network performance without the use of client specific configurations or software.
	Continuous steering client to the best AP, even after client is associated to AP. To ensure client is always connected to best AP.
	Steering client decision is based on the probes request from the client which takes the client’s perspective of the network into account.
	Continuously steers clients to 5Ghz radio, even post association to move capable clients to a cleaner RF spectrum
	Continuously balances clients across the available number of APs and channels for increased system throughput
	Moving sticky clients to a better AP, factoring in AP load and client traffic, to optimize overall system throughput
Displays interference source on a map without need for additional appliances other than NMS	
7. Access Control	Security enforcement for wireless users through the use of a role-based, stateful firewall that can be directly integrated with the roles defined within existing authentication servers.

	Dynamic, stateful (as defined by ICSA) access rights into the network once authenticated based on source, destination, and/or ports.
	The firewall must be able to take action including to allow the traffic, deny the traffic, reject the traffic, route the traffic, destination or source NAT the traffic, modify the QoS level of the traffic, and blacklist (remove from the network) the client for policy matches.
	Offers bandwidth contract on a per application basis (voice, video and data) & per AP-Group
	Acts as a VPN gateway to terminate traffic from remote home/office users with a VPN soft client
	Securely connects different networks using site to site VPN
	DoS attack identification and classification without an additional appliance
	Offers wireless containment using Tarpitting
	Offers wired containment with ARP poisoning
	Secures wired and wireless traffic with a layer 2 sec tunnel on top of dot1x
	Secures the controller-to-controller communication using a xSec point-to-point tunnel
	National Security Agency (NSA) approved
	Accurate method of classifying real Rogues (on network) versus interfering neighbor networks whether Rogues have encryption or not and without client software or upgrades to current network.
	Blacklisting of wireless devices after firewall / ACL access rule violations are detected within the centralized switch / controller
	Automatically recognize the type (eg. Apple iOS) and model (eg. iPhone, iPad) of the mobile device connecting to the network.
	Identify over 1500+ applications, including cloud and web-based mobile apps like Lync, SharePoint, Box, GotoMeeting and Salesforce.com.
	Able block, apply QoS and bandwidth control based on the application.
	Support web content policy and reputation in firewall policy with:
	Directs/redirects traffic using GRE tunnels
	Support roles based include unique web & reputation policies content policies
	Offers bandwidth contract on a per application basis (voice, video and data)
8. Mobility	The system must support L2 & L3 roaming capabilities across APs (terminated on the same and different controllers) with no special client-side software required.
	The system must support Opportunistic Key Caching (OKC), Pairwise Master Key (PMK) caching,
	The system must support seamlessly connectivity with roaming handoff times of 2-3 milliseconds, delay-sensitive and persistent applications such as voice and video experience uninterrupted performance, included:
	I. Fast roaming: 2-3 msec intra-controller, 10-15 msec inter-controller
	II. Roaming across subnets and VLANs: session do not drop as clients roam on the network
	III. Proxy mobile IP, Proxy DHCP, VLAN Pooling automatically establishes home agent/foreign agent relationship between Mobility Controllers
9. Quality of Service (QoS)	The system must be WMM-certified by the Wi-Fi alliance.
	Per user, per device, and per application/TCP-port prioritization.
	Dynamic voice-aware load balancing (call admission control) that takes into effect which voice protocol is used by the voice handset. This load balancing should pre-emptively move voice clients across APs while they are out-of-call in order to improve network performance
	Automatic call recognition of Initiation Protocol (SIP), Skinny Client Control Protocol (SCCP), VOCERA, Spectralink Voice Protocol (SVP) VoWLAN protocols

	Apply different QoS and bandwidth policies to different users based on their role within the organization and the device type they currently use, even when these different users/devices are connected to the same SSID.
	Support ALGs for common voice protocols (SIP, SCCP, H323, NOE, Vocera, Lync and Jabber) & Offers real time call quality analysis
	Web content filtering and web reputation in built natively in the platform
	Can rate limit multiple applications at the same time (>10 applications)
10. Network Services	The system must support internal routing, bridging and spanning tree capabilities across its ports within the centralized switch/controller in order to enable ease of deployment and scalability.
	WLAN infrastructure should support multiple VLAN assignments to a single SSID in an effort to ease the pain in VLAN subnet sizing management. WLAN infrastructure should automatically distribute mobile devices to different VLANs.
	Support wireless devices that print and share media that leverage UpnP®, DLNA®, AirPrint and AirPlay® technology. Also provides QoS and policy enforcement to control resource sharing based on group, user, role, time and location
	Support enterprise-grade adaptive WLANs to automatically manages all RF parameters to achieve maximum performance, included:
	I. Support 802.11ac VHT20, VHT40 and VHT80 – manages spectrum for all 802.11ac networks.
	III. Client band steering – keeps dual-band clients on optimal RF band.
	IX. Coverage hole and interference detection – detects clients that cannot associate due to coverage gaps.
	XIII. Rogue AP detection and containment – Detects unauthorized Aps and automatically shuts them down.
	XIV. Real-time location tracking and monitoring – enhanced with optional Aruba ALE solution.
	Support controller high availability to minimize downtime in the unlikely event of a mobility controller failure, with the following deployment models and features:
	I. Active/active (1:1) – each Mobility Controller typically serves 50% of its rated capacity. The first acts as a standby for Aps served by second controller and vice-versa. If a controller fails, its Aps failover to the other controller, ensuring high-availability to all Aps.
	III. N+1 – multiple active Mobility Controllers are backed-up by a single standby controller.
	IV. AP establish simultaneous communication channel with both active and standby Mobility Controller – instantaneous failover to redundant Mobility Controller when the first controller fails.
	V. During a failover, the Aps do not turn their radios off and on – SSID always available.
VI. The solution works across layer 3 network – no special topology needed.	
VII. Client state sync – Credentials are cached, eliminating need to re-authenticate and overload RADIUS server.	
11. Management	Command line interface to control and manage all aspects of the system on the controller/switch , SNMP v3
	HTTPS must be supported and must be the default browser based interface access technology.
	Administrative rights partitioning - different admins have different rights. At a minimum should be:
	I. full access – Full administrative privileges on the switch/controller.
	II. read-only – Read only access on the switch/controller with no ability to modify the device configuration.
	III. guest provisioning support – A limited interface that only allows for the provisioning of guest users.
Configuration and policy changes applied globally to all systems and APs from a single entry point.	

Any inferior Specifications of Wireless Network will be rejected

Bidder shall quote only one option, bids with multiple options will be rejected without any right of appeal.

Authorized Signature of bidder with seal stamp

Detailed Specifications of 8 ports IP KVM console Switches with Integrated LED console KMM solution Dell or equivalent (Same Brand) upgradable to Digital Switch

S.No.	Feature	Requirements
1.	LED Console Screen	Integrated KMM solution with 18.5 inch LED/LCD, 1 U, Display-Sliding-folding
2.	LED Console Display Type	18.5" TFT LED – LCD module
3.	LED Foldable Screen	Yes (integrated with IP KVM Switch, KMM solution)
4.	LED Back Lighting	Yes
5.	LED Mode Support	Both Legacy Server and Widescreen video modes
6.	LED VGA connector	15
7.	Multiple Windows support	Yes
8.	Vesa modes	Up to 28 Vesa mode with, Vesa DPMS power management and plug and play function
9.	Switch Ports Network	16 ARI ports for connecting SIPs, with cascading upto 256 servers ACI support with all essential cables
10.	Rail mounting support (included)	ReadyRails static rails for toolless 1U mounting in 4-post racks with square or unthreaded round holes or tooled mounting in 4-post threaded and 2-post (Telco) racks
11.	Operating system Support	Windows, Linux, MAC, Unix etc
12.	Resolution	1680 X 1050 or above
13.	Sliding Rail and mounting kit	Yes, for both LED and KVM switch
14.	KVM remote IP user	1 or above
15.	Chassis	1 U
16.	Communication	TCP/IP
17.	Management	On board Web interface via browser
18.	Switch access	USB Keyboard/Mouse, VGA Video
19.	Device access	USB, PS2, SUN
20..	Virtual media support	Yes, with MPUIQ-VMCHS
21	Common access card capability	Yes, with MPUIQ-VMCHS
17.	LDAP	Yes, with DRAK-Key and DSView
18.	Video Support	Analog VGA, SVGA, and XGA, 16:10 widescreen, up to 1680 x 1050 4:3 standard, up to 1600 x 1200
19.	Switch Dimensions	1.72 x 17.00 x 9.20 in (4.39cm x 43.18 x 23.69)
20.	Local users	2 via usb, remote 1 authentic remote user using AES encryption
21.	Authentication	OBWI or DSview or IP over KVM
22.	Upgradable	Upgradable to Digital Switch via Key (Included)
23	Security	Ensure multi-factor authentication over USB and Ethernet with CAC support and provide encrypted remote access through the OBWI.
24.	Warranty	One years or manufacturer whichever is greater

Any inferior specifications of IP KVM console Switches with LED console (KMM) will be rejected

Bidder shall quote only one option, bids with multiple options will be rejected without any right of appeal.

Authorized Signature of bidder with seal stamp

Financial Proposal (Bid Format)

Annex-D

Date _____

Company Name _____

Required Specification	Quoted Specification (With Brand Name)	Unit Price Inclusive of GST	Qty	Total Price Inclusive of GST
Branded Centralized Wireless Network (IEEE 802.11 ac Wave 2 Standard PoE+) with complete mounting kit, with 17 Aps and 1 Central controller, same brand			17 Access points +1 Controller	
Branded 10 G Base-T Ethernet Cable STP (3 Boxes 1000 feet per Box) with branded LAN connectors (1 Box) and (2) cat 6a or cat7 10 G Ethernet patch panels			2 Cable rolls 1 Connectors Box 2 Patch Panel	
Branded 8 port IP based KVM Console Switch with KMM LED display (complete Solution) with 18.5 inch LED screen with Rack mountable-Sliding-Folding-tray, with all required cables for server connectivity, upgradable to Digital switch (2 Nos IP KVM Switches with 2 KMM Integrated LED consoles) with 16 USB SIP module (cables) for server , switch and KMM connectivity.			2 KVM switch 2 LED Screen 16 Cables	
Total				

Amount in words: (Rupees-----)

Any inferior specifications will be rejected

FINANCIAL BID not accompanied with earnest money will be rejected without any right of appeal.

Bidder shall quote only one option, bids with multiple options will be rejected without any right of appeal.

Authorized Signature of bidder with seal stamp