

**Government of Pakistan
Ministry of National Health Services, Regulation & Coordination
ISLAMABAD**



TENDER DOCUMENT

FOR

**“PROVISION OF UTILITIES & COMMUNICATION FOR ESTABLISHMENT OF KING HAMAD UNIVERSITY OF
NURSING & ALLIED SCIENCES IN ISLAMABAD”**

www.nhsrc.gov.pk

F.NO 1-19/2019-(IT)
GOVERNMENT OF PAKISTAN
Ministry of National Health, Services, Regulation & Coordination

TENDER NOTICE

Ministry of National Health Services Regulations & Coordination, Islamabad (M/o NHR&C) invites sealed bids from reputed firms/suppliers/distributor of similar works/assignments and registered with FBR for "PROVISION OF UTILITIES & COMMUNICATION FOR ESTABLISHMENT OF KING HAMAD UNIVERSITY OF NURSING & ALLIED SCIENCES IN ISLAMABAD"
Financial Year 2023-24

1. The procurement shall be completed in according with the Public Procurement Rules.
2. All the firms / bidders should submit proposals as per Rule 36 (a) of PPRA Rules, 2004 (**Single Stage Two Envelope Procedure**). Technical Bids will be opened in the presence of bidders and committee members.
3. The tender documents containing detailed information, terms and conditions etc. can be obtained from the Office of Deputy Director (IT/P&D), M/o National Health Services, Regulation & Coordination, Islamabad or can be downloaded from official website (www.nhsr.c.gov.pk)
4. 2% of the bid will be deposited as bid Security in shape of pay order in favor of Deputy Director (P&D) for the project titled "PROVISION OF UTILITIES & COMMUNICATION FOR ESTABLISHMENT OF KING HAMAD UNIVERSITY OF NURSING & ALLIED SCIENCES IN ISLAMABAD"
5. Financial Year 2023-24 ", Islamabad which in case of unsuccessful tenders will be released and in case of successful bidders after satisfactory completion of work.
6. The sealed bids /proposals containing (Separate Financial and Technical Bids) will be received before or latest by **26-07-2023** at **11:30 AM** .The technical bid will be opened on the same day at **12:00 PM** in the Committee Room of Ministry of National Health Services, Regulation & Coordination, 3rd Floor, Khosar Block Pak Secretariat in the presence of available bidders or their representatives. After the evaluation of Technical bids the Financial Bids of technically qualified bidders will be opened.
7. Ministry of NHS, R&C reserves the right to accept /cancel/reject any or all proposals, as per Rule 33 of PPRA Rules, 2004.

(Ahmad Nauman)
Deputy Director (IT/P&D)
Ministry of National Health, Services, Regulation & Coordination
3rd Floor, Pak Secretariat, Kohsar Block,
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1. SCOPE OF WORK

- i) Hardware /software etc installation, configuration and support services will be solely responsibility of the vendor.
- ii) Software bidder will be responsible for the installation, configuration and support services.
- iii) **In case of any discrepancy** or less item bid will be rejected. Compliance/ Checklist sheet with the Technical specification must be attached with the Technical proposal.
- iv) Product Support Services must be within 24 hours hardware replacement under warranty period as described in detailed specifications, and 10 years for Passive LAN work/components.
- v) In case of failure or malfunctioning of hardware equipment/component, a free replacement and installation of the device/part will be the responsibility of the vendor and on exchange bases as Free of Cost (FOC) under warranty.
- vi) Technical Support services should include resolution of complaints related to equipment.
- vii) The drivers/applications support CD/media must be provided for hardware equipment compatible with the OS respectively (if any)
- viii) Hardware devices having end of life must be communicated, moreover, nearly end of life hardware devices will not be acceptable.
- ix) Vender will responsible for all types of equipment being delivered.
- x) 24 x 7 availability of hotline.

Note: *Vendor is solely responsible to provide the support services for the offered product even the support for the same product would have been discontinued by the OEM*

TERMS, CONDITIONS AND INSTRUCTIONS FOR THE BIDDERS

(Please Read Carefully)

A formal agreement will be signed by the qualified bidder with the **M/o NHS, R&C** in this regard.

2.1. Documents Required

- i. Company profile with list of its recent clients.
- ii. Copy of NTN Certificate of the firm.
- iii. Copy of Active Sales Tax Registration Certificate of the firm.
- iv. Bid Security 2% of quoted price in the shape of Bank Draft/Pay Order bearing No., Date
- v. Compliance sheet for offered product.
- vi. Official Authorized Partnership Certificate from sole manufacture along with Product Broachers.
- vii. Proof of Financial capability and experience certificate.
- viii. Proof of after sale Service Centre located in Islamabad / Rawalpindi.

2.2. Opening of Competitive Bids

- i. All the firms/ bidders should submit proposals as per Rule 36 (b) of PPR 2004 (**Single Stage – Two Envelope Procedure**)
- ii. Bids are required to be submitted lot wise for equipment; clearly

indicating rates in Pak Rupees and should be valid for 90 days.

2.3. Rejection of the Bid

- i. Any offer not compliant with the terms & conditions of the tender enquiry is liable to be rejected under provision of PPRA Rules-2004.
- ii. Any offer will not be entertained if:
 - Firm/bidder is black listed/suspended by any Government department.
 - Offer with shorter price/delivery validity than required in the tender enquiry.
 - Not compliant with the required specifications, terms & conditions.
 - Bid submission after the time and date fixed for its receipt.
 - Received without earnest money.
 - Tender is received by telegram.
 - Tender/offer is un-signed.
 - Offer is ambiguous.
 - Offer is conditional.
 - Bid offering less items as defined in LOT for equipment etc
- M/o NHS, R&C Islamabad further reserves the right to accept or reject any or all tender(s) without assigning any reason.

2.4. Performance Guarantee

- i. The qualified bidder/firm will be required to furnish 2% performance guarantee of the total amount of supply order in the shape of CDR/Bank Guarantee and released after satisfactory completion of the warranty/guarantee period. In addition, earnest money can also be retained as a performance guarantee, if vendor desires.
- ii. The Bank Guarantee must be issued by a scheduled bank.
- iii. In case, if supplier/contractor fails to complete the given assignment within specified timeframe, the performance guarantee/security deposit will be forfeited.

2.5. Warranty/ Guarantee

- i. The successful bidder shall provide warranty/guarantee as specified in detailed specifications against each hardware item.
- ii. The warranty period will start from the date of supplies received in M/o NHS, R&C
- iii. The qualified bidder must warranty the Equipment and ensure availability of Technical support services as informed through electronic & non-electronic means. Each and every complaint should be completely responded by the competent resource of the firm and visit on-site within 24 hours of its notification.
- iv. If any bidder fails to rectify the problem in the provided equipment during warranty period due to any reason, M/o NHS, R&C will be authorized to repair or replace the faulty equipment/component thereof and forfeit the Bank Guarantee/retained value.
- v. The security deposit for warranty and guarantee will be released after expiry of the warranty period.

2.6. Taxes

- i. The rates should be quoted inclusive of all applicable taxes.
- ii. The bidder should provide the Income Tax and Sales Tax Registration Certificates.
- iii. The project authorities will deduct the taxes at source as per prevailing rules/regulations of the Government.

- iv. In case the supplies or part thereof are exempt from levy of any tax, the bidder shall provide an exemption certificate (SRO) to this effect, otherwise taxes will be deducted.

2.7. Bidding

- i. Rate quoted for the offered product in Pak Rupees.
- ii. Installation and commissioning charges of equipment must be included in the quoted rates.
- iii. Tender documents must be filled in, stamped and signed by authorized representative of the firm.
- iv. Any bid with erasing/cutting/crossing etc. must be properly signed by the authorized person signing the tender. Moreover, all pages of the tender must also be properly signed. Offers with any over writing, not authenticated with signatures of authorized person, shall in no circumstances be accepted. Softcopy should also be provided.
- v. The participated firm must be an official authorized partner from principal for the quoted brand.

2.8. Bid Evaluation

- i. Bids shall be evaluated in accordance with advertised specifications of equipment, terms & conditions.
- ii. Rates offered by the firms.
- iii. Supply time, and maintenance of warranty period.
- iv. Physical compliance with required specifications and quality conformance for the offered product in demonstration session.
- v. Active part inspection will be carried-out visiting the site where offered product installed and operational.
- vi. Willingness of the firm to enter into contract agreement with the M/o NHS, R&C for supply of equipment on the rates tendered by the firm/bidder in its financial bid.
- vii. The weightage of Technical bid will be 60% and Financial bid will be 40%.

2.9. Supply of Stores

- i. The items mentioned in the list are required to be delivered at M/O NHS,R&C within time period mentioned in the tender document.
- ii. The stores are required by the consignee within stipulated date. However, the tender is required to indicate their own guarantee earliest date by which the items/store should be brand new and in original manufacturers packing.

2.10. M/o NHS, R&C Rights Within Provision Of PPRA Rules-2004

- i. M/o NHS, R&C reserves the right to:
 - Award contract to more than one bidder.
 - Accept or reject any or all tenders
 - Increase the quantity of items or may order partial supplies or cancel any or all items.
 - Purchase full or part of the store or ignore/scrap/cancel the tender.
 - Claim compensation for the loss caused by the delay in the delivery or any other damage pointed out at time of delivery or commissioning or installation or during warranty period.

2.11. Payment

The payment for the supplies made by the successful bidder shall be released provided that:-

- i. The invoice is complete, accurate and to the entire satisfaction of the procuring agency/client.
- ii. Supplies are delivered/installed according to the instructions of the M/o NHS, R&C
- iii. Vendor must produce satisfactory inspection with the invoice issued by the M/o NHS, R&C that authenticates the quality conformance, quantity of products delivered and amount of work done successfully.
- iv. 2% performance guarantee is provided with the invoice having validity up to the date of Warranty period.
- v. The payment against a supply order shall be made on the completion of the delivery of supplies including installation, commissioning, etc. as mentioned in the supply order.

2.12. Arbitration

Any disputed situation/condition between the bidder and the procuring agency regarding this bid or any other matter ancillary thereto whatsoever, the same shall be referred to the sole arbitrator i.e. Grievance Redressed Committee of M/o NHS, R&C

The Arbitrator shall give its award within two months from the date on which it enters upon the reference. The provisions of the Arbitration Act, 1940 shall apply to the arbitration proceeding. Reference to arbitration shall be a condition precedent for any other action at law.

2.13. Penalty

For failure to comply with the supply/work order and the liquidated damages will be levied as under:-

- i. 1% of the cost of that items mentioned in the supply order that remain un- delivered/un-finished for each day of non-supply up to maximum of twenty (20) days exceeding the job completion/delivery period.
- ii. If the material is not supplied for 20 consecutive days, M/o NHSR&C reserves the right to cancel the contract and get the full or remaining assignment completed from the other competitive bidders on the equivalent price/amount that will be deducted from the securities deposited by the default firm/supplier.

- 1- Only registered suppliers, who are on Active Taxpayers List (ATL) of FBR, are eligible to supply goods / services to Government departments.
- 2- The payment to the registered persons may be linked with the active taxpayer status of the suppliers as per FBR database. If any registered supplier is not in ATL his payment should be stopped till he files his mandatory returns and appears on ATL of FBR.

2.14. Undertaking

We undertake and declare that

- i. The prices quoted including of all taxes, transportation and cost of installation etc. The quantity of above items can be increased.
- ii. The offered prices must be valid up to **90** days starting from the date of tender opening.
- iii. All products are covered under warranty issued by manufacturer/principal starting from the date of supply/installation and

in case of any defect and malfunctioning we shall be responsible for repair/replacement as per guarantee/warranty.

- iv. The supplier is responsible to arrange replacement/technical support during warranty/guarantee period.

We understand that:-

M/o NHS, R&C reserves the right to accept or reject our bid and we undertake not to question the decision in this regard.

The earnest money submitted by us is liable to forfeiture in case our firm fails to abide by the terms and conditions given in the advertisement referred to above

Signature & Stamp

Of Authorized Agent

3. Technical Specification

A. HARDWARE SPECIFICATIONS

S.No	Item	Qty	Annexure	Lot
1	24 Ports POE SW with 4 x SFP+ Ports and 4 x SFP Transceiver, Single Mode	2	A	
2	48 Ports POE SW with 4 x SFP+ Ports and 4 x SFP Transceiver, Single Mode	2	B	
3	Firewall	1	C	
4	Passive Networking	120 Nodes	D	
5	IP PBX with phone set	1	E	
6	10 KVA UPS	2	F	
7	Wireless Solution/ Access Point	10	G	
8	CCTV Solution	10	H	
9	Bio Matric	3	I	
10	Video Conferencing System	1	J	
11	65 Inch Smart LED	2	K	
12	42 U Data Rack	1	L	
13	MIS System		M	

24 Ports POE SW

Annexure A

General requirements

Switch must be covered with official warranty of the manufacturer on the territory of Pakistan for a period of not less than 1 years

The switch must be equipped with 10/100/1000BaseT ports, not less than 24

The switch must be equipped with SFP ports, not less than 8 (4+4 combo)

The switch must be equipped with SFP+ ports, not less than 4

The switch must support Power over Ethernet IEEE 802.3at (PoE Plus).

The switch must be equipped with out-of-band 10/100BaseT Ethernet port for management

The switch must have the capability of connecting external backup power supply

The switch should work using a modular operating system with the ability to restart an individual process without a full reset switch.

To ensure interoperability between network protocols on the switches should be a single version of the operating system.

The switch must be able to mount in 19" Rack. Required rackmount kit must be included.

Performance

The switch bandwidth must be not less than 128 Gbps

The switch should have non-blocking architecture. All ports must operate on highest possible speed simultaneously

The maximum number of stored MAC addresses in the switching table the switch shall be not less than 16000

The routing table of the switch must store not less 480 IPv4 routes

The switch must support 256 or more Multicast groups

Stacking

The switch must support stacking with other families of switches from the same manufacturer and stack bandwidth must be not less than 40Gbps in ring topology through 10 Gigabit Ethernet ports for a distance up to 40km.

The failure of any switch in the stack should not cause stack outage more than 50ms.

The switch must support the joint failover configuration with another identical switch to connected devices can use the mechanism for combining multiple physical channels (LAG) to two switches with active simultaneous use of all channels; the recovery Time in case of any link failure between switches should not exceed 50ms.

The failover configuration must be supported for two separate switches and two separate stacks of switches.

Ethernet L2

The switch must support the IEEE family protocols: 802.3: 802.3, 802.3ae, 802.3ab, 802.3z.

The switch must support 802.1ad (Q-in-Q) and Selective Q-in-Q protocols

The switch must support High Availability Network Protocols with 50ms recovery time in ring topology with RFC 3619 Ethernet Automatic Protection Switching.

The switch must support ITU-T G.8032 Ethernet Ring Protocol Switching

The switch must support 802.1w, 802.1s, PVST+ protocols

The switch must support Link Aggregation Group (LAG). Number of ports in one LAG must be not less than 8

The switch must support the following mechanisms for traffic balancing in LAG: The combination of the MAC addresses of source and destination;
The combination of IP addresses of source and destination;
The combination of IP addresses of source and destination, and numbers of TCP and UDP port numbers;
The combination of IPv6 source and destination and numbers of the protocols of the 4th layer of the OSI model.

The switch must support CDPv2 protocol for automatic device detection and assigning to correct Voice-VLAN number

The switch must support 802.1AS, 802.1Qav, 802.1Qat, 802.1BA

Routing IPv4/IPv6

The switch must support Policy-based Routing

The switch must support BFD for static routing and dynamic routing protocols OSPFv2/OSPFv3

L2/L3 Multicast

Then switch must support Multicast VLAN registration (MVR) protocol

The switch must support IGMPv1 / v2 / v3 protocols;

The switch must support protocols: IGMPv1 / v2 / v3 snooping (IGMPv1 / v2 / v3 snooping);

The switch must support the protocol PIM Snooping;

User authorization and QoS

Each interface for connecting user devices must support at least 8-x hardware queues.

Access control lists that are configured on the switch port must operate at line speed available on port.

The switch must support the IEEE 802.1x protocol.

The switch should provide dynamic assignment of user access policies L2-L4 on ports

The switch should support intrusion detection mechanism, prevent the spread of worms and viruses, suppression of attacks such as DoS.

The switch must have the ability to track user authentication in Microsoft Active Directory and automatically manage access to network resources without the use of certificates connected devices or additional software.

The switch must be capable of limiting the bandwidth on interfaces for inbound and outbound traffic. Limiting the bandwidth must be in increments of no more than 64 KB / s for 1 Gigabit Ethernet ports.

The switch must be capable of limiting the bandwidth on interfaces for inbound and outbound traffic. Limiting the bandwidth must be in increments of no more than 1 Mb / s to 10 Gigabit Ethernet ports.

Management

The switch must support standard SNMP versions 2c and 3, Syslog.

The switch must support NTP Server and NTP Client;

The switch must support sFlow version 5.

The switch must support the scripting language (scripting) that run directly on the switch. The scripting language should support common command language Python.

The switch must support the scripting language (scripting) that run directly on the switch. The scripting language should support common command \$TCL language.

The switch must support the XML language for a simple embedding procedures for the management switch into external systems

The switch must support the change of configuration parameters upon the occurrence of events such as authentication devices, authenticating users, the offensive certain time, the establishment and breakage of connection on a port and all other events, which detects by the operating system of the switch.

The switch must support ITU-T Y.1731 protocol

The switch must support Cloud Management System

48 Ports POE SW

Annexure B

General requirements

Switch must be covered with official warranty of the manufacturer on the territory of Pakistan for a period of not less than 3 years

The switch must be equipped with 10/100/1000BaseT ports, not less than 48

The switch must be equipped with SFP ports, not less than 8 (2+6 combo)

The switch must be equipped with SFP+ ports, not less than 4

The switch must support Power over Ethernet IEEE 802.3at (PoE Plus).

The switch must be equipped with out-of-band 10/100BaseT Ethernet port for management

The switch must have the capability of connecting external backup power supply

The switch should work using a modular operating system with the ability to restart an individual process without a full reset switch.

To ensure interoperability between network protocols on the switches should be a single version of the operating system.

The switch must be able to mount in 19" Rack. Required rackmount kit must be included.

Performance

The switch bandwidth must be not less than 176 Gbps

The switch should have non-blocking architecture. All ports must operate on highest possible speed simultaneously

The maximum number of stored MAC addresses in the switching table the switch shall be not less than 16000

The routing table of the switch must store not less 480 IPv4 routes

The switch must support 256 or more Multicast groups

Stacking

The switch must support stacking with other families of switches from the same manufacturer and stack bandwidth must be not less than 40Gbps in ring topology through 10 Gigabit Ethernet ports for a distance up to 40km.

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The combination of IPv6 source and destination and numbers of the protocols of the 4th layer of the OSI model.

The switch must support CDPv2 protocol for automatic device detection and assigning to correct Voice-VLAN number

The switch must support 802.1AS, 802.1Qav, 802.1Qat, 802.1BA

Routing IPv4/IPv6

The switch must support Policy-based Routing

The switch must support BFD for static routing and dynamic routing protocols OSPFv2/OSPFv3

L2/L3 Multicast

The switch must support Multicast VLAN registration (MVR) protocol

The switch must support IGMPv1 / v2 / v3 protocols;

The switch must support protocols: IGMPv1 / v2 / v3 snooping (IGMPv1 / v2 / v3 snooping);

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The switch must support ITU-T Y.1731 protocol

The switch must support Cloud Management System

Firewall

Annexure C

Type: Application Layer Throughput: 1.5 Gbps or higher

Threat Prevention Throughput: 600 Mbps or higher

PSec VPN Throughput: 900 Mbps or higher,

I/O interfaces: 7 x 10/100/1000

Storage capacity: 64GB or higher

IPSec VPN tunnels/ interfaces: 1,000 minimum,

SSL VPN concurrent users: 1,000 minimum

New Sessions Per Second: 12,000 or higher

Max Sessions: 64,000 or higher

SSL Decryption

SSH Decryption

SSL Decryption

Subscriptions for three (01) years:

- * Antivirus,
- * IPS/IDS,
- * Threat Prevention
- * URL Filtering
- * Sandboxing
- * DNS
- * SD-WAN
- * Clientless VPN

Hardware Support: 1 Years with warranty and subscriptions

Services: Installation & configuration

Rack mount kit: Yes

- Proposed solution should be available as dedicated custom built hardware appliance
- * Platform should be optimized for layer 7 application-level content processing.
- * The proposed solution should have a built-in security policies optimization tool which facilitates converting legacy Layer 4 port-based security policies to Layer 7 application-based ones
- Platform should capture and store packet captures of traffic relevant to the analysis of detected threats include HTTP, FTP, IRC, TCP
- Solution should have its logs archived locally, and should be downloadable via GUI
- Solution should support update of BEAB
- The solution should support reporting in HTML/Graphical/CSV/PDF Formats or more, Built-in Reporting for Applications, User activities, and Threats (IPS, AV, Anti Spyware) (no external reporting solution)
- Ability to fully forensically analyze identified malware and provide the following information to enterprise staff:
- Full URL trails identifying all of the locations to which the malware attempts to communicate.
- Summary reports of enterprise malware events breaking down malware by type, host, and activity.

- * Ability to create custom userdefined signatures
- * Data filtering: Custom Data Patterns
- Severity information, illustrating how effective, other defences would have worked against this threat.
 - The solution must be able to detect and report malware downloaded by users, or downloaded in the context of a web exploit by using multiple client operating systems with multiple service pack levels.
 - Solution should have the ability to stop data exfiltration from existing malware infected systems.
- * The proposed NGFW should prevent dangling DNS attacks
- Solution should support Local Virtual Machine
- Solution should detect potential malicious network traffic,

- Solution should identify the potentially compromised system
- Solution should perform Dynamic Analysis on the System
- Solution should provide an ability to locate the infected Malware sample
- Solution should perform Static Analysis
- *Solution should be port agnostic for web attacks
- *Generate Anti-Malware signatures
- *Generate DNS (malware domain) signatures
- *Built-in Portal for user authentication and identification
- * Must have separate management (control) plane and data plane to avoid any disruption to traffic processing while managing the box or generating logs & reports .
- * The proposed solution should support L3, L2, transparent and tap mode deployments
- * The proposed solution should be a natively engineered appliance with a single-pass parallel processing architecture for traffic processing
- * The proposed solution should be the leader in the latest Gartner Magic Quadrant for Enterprise Network Firewalls for more than 7 years

Passive Network

Annexure D

Passive Work including ducting, copper/ fiber laying, termination and fluke testing.

- i. Giga Cable UTP CAT6
- ii. CAT 6 Patch Panel
- iii. CAT6 I/O
- iv. Faceplate Single / dual Shutter
- v. Patch Cords CAT 6, 1 meter
- vi. Fiber Backbone Cable for Uplink the network switches.
- vii. Optical Distribution Frame.
- viii. Dura Duct, Pipe and Accessories

PASSIVE NETWORK SPECIFICATIONS

CAT 6 Cable

Cat 6 Cable, UTP, PVC, 4 pairs, 305 meter / Box Gigabit original copper cable Category 6 U/UTP Cable (with cross-shaped separator) offer the possibility to deploy unshielded Category 6/Class E systems when installed with Cat-6 RJ45 Jacks.

- Conductor Diameter: AWG 24 (\varnothing 0.525 +/- 0.015mm)
- Insulation Diameter: PE \varnothing 0.95 +/- 0.05 mm
- Cable assemblies: pairs
- Sheath material: PVC

Mechanical Features:

Maximum cable diameter (mm) 5.40 +/- 0.30

Bending Radius (mm)

Dynamic (installation) / Static (installed) \geq 8x outer diameter / \geq 4x outer diameter

Temperature Range In service / Installation, Transport and Storage -20°C +60°C / 0°C +50°C

Electrical Features at 20°C:

DC Resistance	max 9.38 Ω /100m
Resistance Unbalance	\leq 2 %
Insulation Resistance (500 V)	\geq 5000 M Ω /km
Mutual capacitance	nom. 5.1 nf / 100 m at 1 kHz
Test Voltage (DC, 1 min)	1 kV / 1m
Capacitance Unbalance (pair to ground)	max. 160 pf / 100 m at 1 kHz

<p>Patch Cord</p> <p>Patch cables must be available in either LSOH or PVC jackets. 100 Ohm RJ-45 copper patch cords shall be Category 6. The EMC level should also match – for UTP cables UTP patch cords should be used, for shielded systems shielded patch cords should be used.</p> <p>The copper patch cords must be made from stranded wires for full flexibility. They must comply with ISO 11801. The patch cords must be available in a range of lengths to facilitate easy patch cord management.</p> <p>The copper patch cords should never be hand punched; they should be of factory fitted RJ-45 connectors. The patch cords must be available in a range of lengths to facilitate easy patch cord management</p>
<p>Optical Distribution Frame along with supporting accessories Rack mount with sliding tray pre-loaded with SC Duplex couplers Fluke Testing of Copper Nodes & OTDR testing of fiber links.</p>
<p>Dura Duct Duct, Pipe and accessories 16x25mm, 16x38mm, 40x40mm, 60x60, 1 inch pipe etc.- with Adamjee or equivalent ducting and flexible PVC pipe fiber termination unit/ODF</p>
<p>25 years of OEM performance warranty of Passive system in favor of Heavy Industries Taxila and OEM presence in Pakistan is must. The Supplier must provide a letter from the manufacturer of equipment confirming the legal delivery to the territory of Pakistan, and valid manufacturer authorization letter in favor of Heavy Industries Taxila.</p>

IP PBX

Annexure E

Audio/Video, 8 Lines, 2000 User, Concurrent Calls 300, SRTP Calls 200, 8 VC Room up to 60 Parties

Technical Specifications

Analog Telephone FXS Ports

- 2 ports (both with lifeline capability in case of power outage)

PSTN Line FXO Ports

- 4 ports

Network Interfaces

- Dual Gigabit RJ45 ports with integrated PoE Plus (IEEE 802.3at-2009)

NAT Router

- Yes (supports router mode and switch mode)

Peripheral Ports

- USB, SD

LED Indicators

- Power/Ready, Network, PSTN Line, USB, SD

LCD Display

- 128x32 graphic LCD with DOWN & OK button

Reset Switch

- Yes

Voice-over-Packet Capabilities

- LEC with NLP Packetized Voice Protocol Unit, 128ms-tail-length carrier grade Line Echo Cancellation, Dynamic Jitter Buffer, Modem detection & auto-switch to G.711

Voice and Fax Codecs

- G.711 A-law/U-law, G.722, G.723.1 5.3K/6.3K, G.726, G.729A/B, iLBC, GSM, AAL2-G.726-32, ADPCM; T.38

Video Codecs

- H.264, H.263, H263+

QoS

- Layer 3 QoS, Layer 2 QoS

DTMF Methods

- In Audio, RFC2833, and SIP INFO

Provisioning Protocol & Plug-and-Play

- TFTP/HTTP/HTTPS, auto-discovery & auto-provisioning of Grandstream IP endpoints via ZeroConfig (DHCP Option 66 multicast SIP SUBSCRIBE mDNS), eventlist between local and remote trunk

Network Protocols

- TCP/UDP/IP, RTP/RTCP, ICMP, ARP, DNS, DDNS, DHCP, NTP, TFTP, SSH, HTTP/HTTPS, PPPoE, SIP (RFC3261), STUN, SRTP, TLS, LDAP

Disconnect Methods

- Call Progress Tone, Polarity Reversal, Hook Flash Timing, Loop Current Disconnect, Busy Tone

Media Encryption

- SRTP, TLS, HTTPS, SSH

Universal Power Supply

- Output: 12VDC, 1.5A; Input: 100 ~ 240VAC, 50 ~ 60Hz

Dimensions

- 226mm L x 155mm W x 34.5mm H

Weight

- Unit weight 0.51kg, Package weight 0.94kg

Environmental

- Operating: 32 ~ 104°F / 0 ~ 40°C, 10 ~ 90% (non-condensing); Storage: 14 ~ 140°F / -10 ~ 60°C

Mounting

- Wall mount & Desktop

Caller ID

- Bellcore/Telcordia, ETSI-FSK, ETSI-DTMF, SIN 227 – BT

Polarity Reversal/Wink

- Yes, with enable/disable option upon call establishment and termination

Call Center

- Multiple configurable call queues, automatic call distribution (ACD) based on agent skills/availability/busy level, in-queue announcement

Customizable Auto Attendant

- Up to 5 layers of IVR (Interactive Voice Response)

Maximum Call Capacity

- -Registered SIP devices: supports up to 500 registered SIP devices/users
- -Concurrent SIP calls: Up to 45 or 66% performance if calls are SRTP encrypted

Conference Bridges

- Up to 3 password-protected conference bridges allowing up to 25 simultaneous PSTN or IP participants

Call Features

- Call park, call forward, call transfer, DND, ring/hunt group, paging/intercom etc.

Compliance

- FCC: Part 15 (CFR 47) Class B, Part 68
- CE: EN55022 Class B, EN55024, EN61000-3-2, EN61000-3-3, EN60950-1, TBR21, RoHS
- A-TICK: AS/NZS CISPR 22 Class B, AS/NZS CISPR 24, AS/NZS 60950, AS/ACIF S002
- ITU-T K.21 (Basic Level); UL 60950 (power adapter)

FXS Analog VoIP Gateway:

24 FXS ports, 1 Gigabit network port, 132x48 backlit graphic display with support for multiple languages, 4 SIP server profiles per system, independent SIP account per port

- Technical Specifications

Telephone Interfaces :24 x RJ11 & 1 50-pin Telco connectors

Network Interfaces :1 x 10M/100M/1000Mbps auto-sensing RJ45 port

LED indicators: LAN Link, LAN Activity, Connection Per Telephone Port

LCD display :Backlit 128x32 graphic LCD display with support for multiple languages

Voice-over-Packet Capabilities: Window based carrier grade line echo cancellation, dynamic jitter buffer, modern detection & auto-switch to G.711

Voice Compression G.711, G.723.1, G.726 (40/32/24/16), G.729 A/B, iLBC

Fax over IP T.38 compliant Group 3 Fax Relay up to 14.4kpbs and auto-switch to G.711 for Fax Pass-through, Fax data pump V.17, V.21, V.27ter, V.29 for T.38 fax relay

Telephony Feature Caller ID display or block, call waiting, blind or attended call transfer, call forward, do not disturb, 3-way conference, last call return, paging, message waiting indicator LED (NEON LED) support and stutter tone, auto dial

QoS DiffServ, TOS, 802.1P/Q VLAN tagging

Network Protocols TCP/UDP, RTP/RTCP, HTTP/HTTPS, ARP, ICMP, DNS, DHCP, NTP, TFTP, TELNET, PPPoE, STUN, LLDP

DTMF Method Flexible DTMF transmission methods including in-audio, RFC2833, and/or SIP INFO

Signaling SIP (RFC 3261) over UDP/TCP/TLS

SIP Server Profiles & Accounts Per System 4 distinct SIP server profiles per system and independent SIP account per telephone port

Provisioning TFTP, HTTP, HTTPS, TR069

Security SRTP, TLS/SIPS, HTTPS, 802.1x

Management Syslog, HTTPS, Web browser, voice prompt, TR-069

Universal Power Supply Output: 12VDC, 5A; Input: 100 ~ 240VAC, 50 ~ 60Hz

Compliance

FCC: Part 15 (CFR 47) Class B

CE: EN55022 Class B, EN55024, EN61000-3-2, EN16000-3-3, EN60950-1, RoHS

C-TICK; AS/NZS CISPR 22 Class B, AS/NZS CISPR 24, AN/NZS 60950

ITU-T K.21 (Basic Test Level); UL 60950 (power adapter)

VC IP Phone:

8 lines with up to 8 SIP accounts

Built-in mega-pixel camera for video calling with privacy shutter

Runs on Android 7.0 operating system

Built-in Bluetooth for syncing with mobile devices and connecting Bluetooth headset

Dual-switched auto-sensing 10/100/1000Mbps network ports

Integrated dual-band Wi-Fi (2.4GHz & 5GHz)

Built-in PoE/PoE+ to power the device and give it a network connection

Speakerphone with HD acoustic chamber, advanced echo cancellation & excellent double-talk performance

4-core 1.3GHz ARM Cortex A53 processor with 2GB RAM and 8GB eMMC Flash

7" (1024x600) capacitive 5-point touch screen TFT LCD

TLS and SRTP security encryption technology to protect calls and accounts

IP Phone:

Features:

1 SIP account, 2 line keys, 3-way conferencing, 3 XML programmable context-sensitive soft keys

Dual-switched 10/100 mbps ports
EHS support for Plantronics headsets
Up to 1000 contacts
Call history up to 200 records
Integrated PoE

8-line Carrier- Grade IP Phone

8 lines, 4 SIP accounts
Integrated Bluetooth to connect headsets, sync contacts, calendars and more
EHS support for Plantronics headsets and USB to support Grandstream's GUV Series headsets
Compatible with the GBX20 Extension Module that adds functionality, versatility and flexibility with up to 40 contacts per module and support for up to 160 contacts by connecting 4 extension modules
Full-duplex speakerphone with HD audio to maximize audio quality and clarity
Equipped with noise shield technology to minimize background noise
Dual switched autosensing 10/100/1000 Mbps Gigabit Ethernet ports with integrated PoE
Supports 5-way audio conferencing for easy conference calls
Enterprise-level protection including secure boot, dual firmware images, and encrypted data storage

- Wall mount sold separately
- **Zoom Certified**

UPS

Annexure F

10KVA
True Online Double Conversion
Pure Sinewave UPS
Single Phase IN / Single Phase OUT
Frequency: 50 Hz, +/- 5% Hz
Power factor: 0.9
Power bypass system: Built in maintenance
Frequency: 50Hz, +/-0.5 Hz
Crest factor: 3:1
SNMP / Web browser Connectivity Slot.
USB Port option.
High instantaneous overload Capacity.
Backup time – must be **30 minutes** with Sealed lead Acid Maintenance Free Battery

Wireless Access Points

Annexure G

Indoor AP with 2.03 Gbps wireless throughput and 2 Giga Ports, offers 4x4:4 MU-MIMO technology on the 5G band and 2x2:2 MU-MIMO on the 2.4G band. Self-Power adaptation upon auto detection of PoE or PoE+ with Up to 175-meter coverage, Support 200+ concurrent Wi-Fi clients, Advanced QoS, Anti Hacking secure boot, Embedded Controller

CCTV Solution

Annexure H

4mp IP Camera
NVR 16 Port 4mp Supported
16 TB HDD Surveillance
12 Ports POE Switch
HDMI Cable
Cable Roll

Bio Matric

Annexure I

Biometric Door access with magnetic lock, exitbutton, power supply

LCD Screen

Annexure J

65 Inch Smart LED 4K UHD

Video Conferencing System

Annexure K

The video conferencing system must support PAL/equivalent with PTZ camera. The codec must be based on ITU standards & hardware based. No software-based solution will be accepted.

All components of the Video Conferencing system i.e Codec, Camera and Microphones should be from the same manufacturer.

Full 1080p 60 FPS upgradeable to UHD/4K PTZ camera.

Separate codec and Microphone Array, Cables, and Remote Control.

Video Standards and Resolutions:

It should support H.323, SIP standards for communications.

It should support H.261, H.263, H.264 AVC, H.264 High Profile, H.264, SVC, H.265, RTV

Content Sharing:

It should support content sharing using standard based H.239 & BFCP. It should also support audio from PC used for content sharing, additionally system should support content sharing through iOS, Andriod, wirelessly and at least two sources at same time.

Audio Standards and Features:

It should transmit and receive content both to the far end location at UHD (3840x2160), HD (1920x1080p), WSXGA+ (1680x1050) and all below resolutions

It should support G.711, G.728, G.729A, G.722, G.722.1, AAC-LD or better

It should support 20kHz or better bandwidth with crystal clear audio and stereo sound.

Automatic Gain Control and Automatic Noise Suppression

Keyboard noise reduction and instant adaptation echo cancellation

The system must have 2 IP based microphones of the same manufacturer

Video and Audio Inputs:

1 x HDMI/HDCI and 1 x USB input for connecting main HD camera supporting 4K/UHD/1080p 60fps with 12x optical zoom

1 x HDMI input to share HD content from PC/Laptop

3 x Microphone Input

1 x 3.5mm stereo line-in

Video and Audio Outputs:

2 x HDMI output for connecting main and 2nd monitor/display

1 x 3.5 mm stereo line-out

Other Interfaces:

1 x 10/100/1000 LAN port
3 x USB for software upgrade and connecting external devices
1 x RS-232 mini-DIN 8-pin or equivalent
Bluetooth, WiFi (Multichannel Concurrency)

Camera:

12X Zoom with scalability of enhancing video conferencing
Camera and Codec should be controlled using same remote control

Network Features:

IPv4 and IPv6 support
Auto Gatekeeper Discovery, IP Precedence & QoS with support for H.323 based lost packet recovery.

Security:

Media Encryption (H.323, SIP): AES-256
Authenticated access to admin menus, web interface and telnet API
Local account password policy configuration

Interoperability:

ZOOM, Go-to-Meeting, Chime, Blue Jeans, PexIP, Starleaf, WebEx

42 U Data Rack

800 x 1000 Rack with PDU

Annexure L

MIS System

Annexure M

The company should be able to analyze the requirements of inventory system, student enrollment system ,faculty management system, payroll system, academics, students card system, online enrollment system for students, examination system and results generation system and reports.

Any other requirement.

User Login Based with hosting facility

Database Licensed will be preferred

Website development of www.khunas.gov.pk with APP facility

Please mention the complete module development time in the bid