

**GHULAM ISHAQ KHAN INSTITUTE  
OF ENGINEERING SCIENCES AND TECHNOLOGY**

**Tender documents**

**For**

**SUPPLY OF COMPUTER AND IT EQUIPMENT**

**No. GIKI/PO/C/IT-503/14  
9 December 2014**

The Ghulam Ishaq Khan Institute (GIK) of Engineering Sciences and Technology, located at Topi, District Swabi is a seat of excellence in higher engineering education and research. Sealed bids are invited from reputed firms/suppliers for supply Computers and IT Equipment:

1. **Specification of items:**  
Detail of the items, for which rates are required are given at Annexure-A
2. **Date for submission of the quotation:**  
Bids in sealed envelopes, on prescribed tender documents should reach to the Procurement Department, GIK Institute Topi before 3:30 pm on 24 December 2014. Write our inquiry No. GIKI/PO/C/IT-503/14 on the top of the envelope. Open bids will not be accepted.
3. **Tender opening date and venue:**  
Tenders will be opened by the Procurement Committee in the presence of bidders at 4:00 pm on the same date (24 December 2014) in the Conference Room of H. U. Beg Administration Block, GIK Institute, Topi - 23640, District Swabi, Khyber Pakhtunkhwa.
4. **Price / rate:**  
Please quote unit price for each item on **FOR Islamabad** basis, inclusive of all taxes, transportation, installation etc.
5. **Validity of the price:**  
Bids should remain valid for two months from the submission date of bids.
6. **Bid Security:**  
You are required to enclose the call deposit of Rs.50,000 (refundable) through demand draft/pay order payable on account of GIK Institute, Topi with your bids document.
7. **Mode of Payment:**  
Payment will be made through cross cheque subject to deduction of taxes, as per law, within 15 days after acceptance of materials / equipment.
8. **Delivery period:**  
Please mention the delivery time after placing the Purchase Order for each item.
9. **Penalty clause:**  
If you fail to supply the material in the above specified period, GIK Institute reserves the right to blacklist you for future business or forfeit the security money of 0.32% per day of the contract value or may impose any other financial penalty as deemed fit.
10. **Installation / Commission of the equipment:**  
Equipment will be installed / commissioned by the trained engineer (s) of supplier / contractor at GIK Topi, free of charge / are including in the cost.
11. **Warranty:**  
Please indicate the warrantee period and terms & conditions of the warranty.
12. Please sign and stamp each page of the tender/bid document; otherwise, it will not be considered / accepted.

13. Bidders having minimum 3 years experience of said work to the reputable organization/institute/company etc are must.
14. Incomplete forms will not be acceptable and will not be considered in any case, and will be rejected.
15. In case of any dispute the decision of the GIK Institute will be final and binding on you.
16. Bids, will be accepted only, for the specifications given in the Tender (Annexure-A).

**For further information:**

Director (Procurement) GIK Institute, Topi,  
District Swabi. Ph: 0938 281026 (Ext:2500/2213), Email: [latif@giki.edu.pk](mailto:latif@giki.edu.pk)

## To be filled by the bidders

1. **Name of bidders:** -----
2. **Address:** -----  
-----
3. **Phone:** ----- **Mobile** -----
4. **Fax No.** ----- **E-mail:** -----
5. **NIC Tax No.** ----- **Sales Tax No.:** -----
6. **Branches (if any):** i. -----  
ii. -----  
iii. -----
7. **Type of Business:** i. -----  
ii. -----  
iii. -----
8. **Facilities:** i. List of technical staff with qualification and experience  
ii. Authorization of distribution / dealership -----  
iii. Any other: -----
9. **Monthly Turn Over:** -----
10. **Previous Experience** (name of organization where said or like equipment supplied/installed/  
commissioned):  
i. ----- ii. -----  
iii. ----- iv. -----  
v. ----- vi. -----  
vii. ----- viii. -----

Please enclose any supporting document

**Name and signature:** - -----

**Date:** -----

**Seal:**

S.#	Name of Items	Qty. Required
<b>Rack Mounted Servers</b>		
<b>1</b>	<p style="text-align: center;"><b>Rack mounted Dell Power Edge R420 with following specs:</b></p> <ul style="list-style-type: none"> <li>• <b>TPM motherboard</b></li> <li>• Dual - Intel® Xeon® E5-2470 v2 2.40GHz, 25M Cache, 8.0GT/s QPI, Turbo, 10C, 95W, Max Mem 1600MHz</li> <li>• Broadcom 5720 dual port Gigabit Ethernet without TOE and iSCSI offload</li> <li>• Chassis with up to 4, 3.5" Hot Plug Hard Drives</li> <li>• 16GB (4x 4GB) RDIMM, 1333 MHz, Low Volt, Single Rank, x4 Bandwidth</li> <li>• 3.5" Chassis with up to 4 Hot Plug Hard Drive</li> <li>• 4x 600GB 10K or 15K RPM Near-Line SAS 6Gbps 3.5in Hot-plug Hard Drive</li> <li>• SAS HBA 6Gbps External Controller Card</li> <li>• PERC H310 Integrated RAID Controller, Mini-Type</li> <li>• Heat Sink, PowerEdge</li> <li>• DVD ROM</li> <li>• Dual Hot Plug Power Supplies</li> <li>• SAS Cable for 3.5" in Hot Plug Chassis SAS Cable for 3.5" in Hot Plug Chassis</li> <li>• Jumper Cord 12A 4M C13/C14 (APCC countries except ANZ)</li> <li>• Sliding rail</li> <li>• RAID 1 for H310/H710 2 SAS/SATA/SSD HDDs</li> <li>• iDRAC7 Express</li> </ul>	<b>01</b>
<b>2</b>	<p style="text-align: center;"><b>Rack Mounted Dell PowerEdge R720 Intel Server:</b></p> <ul style="list-style-type: none"> <li>• Dual - Intel® Xeon® E5-2680 v2 2.80GHz, 25M Cache, 8.0GT/s QPI, Turbo, HT, 10C, 115W, Max Mem 1866MHz</li> <li>• 2.5" Chassis with up to 8 Hard Drives</li> <li>• 4 x 32GB LRDIMM, 1866MT/s, Standard Volt, Quad Rank, x4 Data Width</li> <li>• Memory Configuration Type = Advanced ECC</li> <li>• RAID Controller = PERC H310 Integrated RAID Controller</li> <li>• 4 x 1.2TB 10K RPM SAS 6Gbps 2.5in Hot-plug Hard Drive</li> <li>• iDRAC7 Express</li> <li>• Broadcom 5720 QP 1Gb Network Daughter Card</li> <li>• Risers with up to 6, x8 PCIe Slots + 1, x16 PCIe Slot</li> <li>• Dual, Hot-plug, Redundant Power Supply (1+1), 1100W</li> <li>• C13 to C14, PDU Style, 12 AMP, 6.5 Feet (2m), Power Cord</li> <li>• Power Saving Dell Active Power Controller</li> <li>• ReadyRails™ Sliding Rails With Cable Management Arm</li> <li>• Bezel</li> <li>• Internal Optical Drive = DVD+/-RW, SATA, Internal</li> <li>• Electronic System Documentation and OpenManage DVD Kit for R720</li> <li>• VMware ESXi 5.5 U1 Embedded Image on Flash Media</li> </ul>	<b>02</b>

- Internal Dual SD Module with 2GB SD Card
- Systems Management Upgrades with Auto Discovery Enabled
- 3 Year Pro Support and NBD On-site Service

## Core Full Layer 3 Switch for Data Center with Deployment Rack

### Core Switch for Data Center with Deployment Rack

42 U rack, Compatible with switch (Must be of same Brand)

#### **Basic Switch Specifications:**

1. **Switch:** Chassis based Modular Switch- With Full Layer III features
2. **I/O Slots:** 8 or more
3. **Management Module:** Redundant Management( N+1)
4. **Power Supply:** AC Redundant Power Supply( N+N)
5. **Interface Support:** Copper, FE, SX, LX & XFP
6. **10GbE Support:** YES
7. **40GbE Support:** YES
8. **Backplane switching capacity:** 2 Tbps or above
9. **Forwarding Capacity:** 600 Mpps or above
10. **Copper Ports Required:** 48 x 100/1000 Mbps Ports
11. **Fiber Ports Required:** 24 x SFP Ports with compatible Original SFP's
12. **XFP-10G and 40G interface:** 24 x 10G and 24 x 40G Provision (Provide the relevant 40G module specs along with compliance)
13. **Layer II Features:** Full Layer II features (Detail Attached)
14. **Layer III Features:** Full Layer III features (Detail Attached)
15. **IPv6 Support:** YES
16. **Routing Protocols:** RIPv1/v2, OSPF, BGP, Multicast, IPv4 and IPv6, IPv4 and IPv6  
**Note: IPv6 support must required**
17. **General Routed Protocol:** •
  - IPv6 addresses on the interfaces
  - IPv6 debugs
  - IPv6 Access Control Lists (ACL) to management ports
  - IPv6 Web management using HTTP/HTTPS
  - IPv6 logging
  - Name-to-IPv6 address resolution using IPv6 DNS server
  - IPv6 Ping
  - IPv6 Traceroute
  - IPv6 Telnet/SSH
  - SNMPv3 over IPv6
  - IPv6 RADIUS

3

1

○ **IPv6 SNTP**

**18. ACL, Security, High Availability, Link Aggregation, QOS, Multicast etc. :**

Please review the attached document.

**19. Warranty:** 03 Years onsite warranty and support IOS updates

**Detailed Switch Specification:**

**Layer 2 Switching**

- Maximum MAC addresses per system: 32,000
- Jumbo frames: 9,216 bytes
- Number of VLANs: 4,096
- VLAN Spanning Tree (VST) instances: 253
- Port-based VLAN
- MAC-based VLAN
- GARP VLAN Registration Protocol (GVRP)
- Voice VLAN
- Physical port redundancy: Redundant trunk group (RTG)
- Compatible with Per-VLAN Spanning Tree Plus (PVST+)
- Routed VLAN Interface (RVI)
- IEEE 802.1AB: Link Layer Discovery Protocol (LLDP)
- LLDP–Media Endpoint Discovery (LLDP-MED) with VoIP integration
- LLDP-MED-based granular PoE negotiation
- IEEE 802.1D: Spanning Tree Protocol
- IEEE 802.1p: Class-of-service (CoS) prioritization
- IEEE 802.1Q: VLAN tagging
- IEEE 802.1s: Multiple Spanning Tree Protocol (MSTP)
- Number of MST instances supported: 64
- IEEE 802.1w: Rapid reconfiguration of Spanning Tree Protocol
- IEEE 802.1X: Port access control
- IEEE 802.1ak: Multiple Registration Protocol

- IEEE 802.3: 10BASE-T
- IEEE 802.3u: 100BASE-T
- IEEE 802.3ab: 1000BASE-T
- IEEE 802.3z: 1000BASE-X
- IEEE 802.3ae: 10 Gigabit Ethernet
- IEEE 802.3af: Power over Ethernet
- IEEE 802.3x: Pause frames/flow control
- IEEE 802.3ad: Link Aggregation Control Protocol (LACP)
- IEEE 802.3ah: Ethernet in the First Mile

### **Layer 3 Features**

- Maximum number of Address Resolution Protocol (ARP) entries: 8,000
- Maximum number of IPv4 unicast routes in hardware: 10,000
- Maximum number of IPv4 multicast routes in hardware: 4,000
- Routing protocols: RIPv1/v2, OSPF, BGP, IS-IS
- Static routing
- Routing policy
- Bidirectional Forwarding Detection (BFD)
- Layer 3 redundancy: Virtual Router Redundancy Protocol (VRRP)

### **Layer 3 Features: IPv6**

- Max number of Neighbor Discovery (ND) entries: 1,000
- Max number of IPv6 unicast routes in hardware: 1,000
- Max number of IPv6 multicast routes in hardware: 1,000
- Routing protocols: RIPv6, OSPFv3, ISIS, BGP4+, PIM, MLD, MLDv2
- Static routing

### **Security**

- MAC limiting
- Allowed MAC addresses, configurable per port



- Dynamic ARP inspection (DAI)
- IP source guard
- Local proxy ARP
- Static ARP support
- DHCP snooping

### **Access Control List (ACLs)**

- Port-based filter (PACL)—Ingress and egress
- VLAN-based filter (VACL)—Ingress and egress
- Router-based filter (RACL)—Ingress and egress
- Filter entries in hardware per system: 1,400
- Filter counter for denied packets
- Filter counter for permitted packets
- Ability to add/remove/change filter entries in middle of list (filter editing)
- L2-L4 filters
- 802.1X port-based
- 802.1X multiple supplicants
- 802.1X with VLAN assignment
- 802.1X with authentication bypass access (based on host MAC address)
- 802.1X with VoIP VLAN support
- 802.1X dynamic filter based on RADIUS attributes
- 802.1X supported EAP types—MD5, TLS, TTLS, PEAP
- MAC authentication (RADIUS)
- Control plane DoS protection

### **High Availability**

- Nonstop active routing (NSR)—OSPF v2, RIP v2, BGP, ISIS, IGMP v1, v2, v3

- Nonstop bridging (NSB)—ESWD, xSTP, LACP, LLDP/LLDP-MED
- Nonstop Software Upgrade (NSSU)
- Redundant, hot-swappable power supplies
- Redundant, field-replaceable, hot-swappable fans
- Graceful Routing Engine switchover (GRES) for Layer 2 hitless

forwarding and Layer 3 protocols on Routing Engine failover

- Graceful protocol restart—OSPF, BGP
- Layer 2 hitless forwarding on Routing Engine failover
- Online insertion and removal (OIR) uplink module

### **Link Aggregation**

- 802.3ad (LACP) support
- Number of link aggregation groups (LAGs) supported: 64
- Maximum number of ports per LAG: 8
- LAG load-sharing algorithm, bridged or routed (unicast or multicast) traffic
- IP: S/D IP
- TCP/UDP: S/D IP, S/D port
- Non-IP: S/D MAC
- Tagged ports support in LAG

### **QoS**

- Layer 2 QoS
- Layer 3 QoS
- Ingress policing: 1 rate 2 color
- Hardware queues per port: 8
- Scheduling methods (egress): Strict priority (SP), shaped deficit weighted round-robin (SDWRR)
- 802.1p, DSCP/IP Precedence trust and marking

	<ul style="list-style-type: none"> <li>• Layer 2-4 classification criteria: Interface, MAC address, Ethertype, 802.1p, VLAN, IP address, DSCP/IP Precedence, TCP/UDP port numbers, etc.</li> <li>• Congestion avoidance capabilities: Tail drop</li> </ul> <p><b>Multicast</b></p> <ul style="list-style-type: none"> <li>• IGMP: v1, v2, v3</li> <li>• IGMP snooping</li> <li>• PIM-SM, PIM-SSM, PIM-DM</li> </ul> <p><b>Troubleshooting</b></p> <ul style="list-style-type: none"> <li>• Debugging: CLI via console, telnet, or SSH</li> <li>• Diagnostics: Show and debug command, statistics</li> <li>• Traffic mirroring (port)</li> <li>• Traffic mirroring (VLAN)</li> <li>• Filter-based mirroring</li> <li>• Mirroring destination ports per system: 1</li> <li>• LAG port monitoring</li> <li>• Multiple destination ports monitored to one mirror (N:1)</li> <li>• Maximum number of mirroring sessions: 1</li> <li>• Mirroring to remote destination (over L2): 1 destination VLAN</li> <li>• IP tools: Extended ping and trace</li> </ul>	
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**Next Generation Firewall**

<b>4</b>	<p><b><i>High end Next generation Firewall having back log analysis of 3 months minimum.</i></b></p> <p><b><i>Features:</i></b></p> <ul style="list-style-type: none"> <li>• Avoiding the use of Open proxies inside Campus</li> <li>• Avoiding the vulnerability exploitation for Web, Proxy, email, database and storage servers.</li> <li>• Web URL Filtering for http and https traffic including SSL inspection.</li> <li>• Controlling Inside and outside traffic of Datacenter for viruses, intrusion and DOS – DDOS.</li> <li>• Provide detail reports of the internet usage per IP and user base.</li> <li>• Provide forensic support for indecent internet usage report by Deep Packet Inspection (DPI).</li> </ul>	<b>1</b>
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- Bandwidth 96 mbps to 250 mbps [ for 5 years future need ]
- No. of total users 3000 – 8000 [for 5 years]

## Detailed Firewall Specs

### Technical Specifications:

#### Hardware

- 10-GbE SFP+ Interfaces Min 2 required
- 10/100/1000 Interfaces (RJ-45) Min 4 required
- GbE SFP or 10/100/1000 Interfaces Min 4 required
- Management Interface – Min 2
- 

#### System Performance

- Firewall Throughput at Least 19 Gbps
- Firewall Latency at Max 7 $\mu$ s
- Firewall Throughput (PPS) 25 Mpps or more
- Concurrent Sessions (TCP) 6.5 Million or more
- New Sessions/Sec (TCP) at Least 180000/sec
- Firewall Policies 9000 or more
- IPS Throughput 5 Gbps or more
- Virtual Domains 9 or more
- Unlimited User Licenses Required
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#### VPN Features required:

- IPSec VPN Throughput 7 Gbps or more
- Gateway-to-Gateway IPSec VPN Tunnels 1800 or more
- Client-to-Gateway IPSec VPN Tunnels 45000 or more
- SSL-VPN Throughput 1 Gbps or more
- Concurrent SSL-VPN Users 9500 or more
- DES (56-bit), 3DES (168-bit), AES encryption
- MD5 and SHA-1 authentication
- Prevent replay attack
- Remote access VPN
- Redundant VPN gateways

#### Routing

- Static Routing
- OSPF: Instances per Device 50 or more
- OSPF: Routes Filter-based Forwarding
- Equal-cost multipath
- Reverse Path forwarding
- Policy based routing

## **Firewall Features**

- Detect Network Attacks
- DoS and DDoS Protection
- TCP Reassembly for Fragmented Packet Protection
- Brute-force attack mitigation
- SYN Cookie
- Zone-based IP Spoofing
- Malformed Packet Protection
- WAN Optimization
- Link Balancing
- Server Load Balancing

## **Users & Device Identity Control.**

- Local User database
- LDAP, RADIUS & TACACS+
- Single Sign On: Windows, Novel, Citrix, Terminal Server agent
- 2 factor authentication support
- User & Device based policies

## **High Availability**

- Active/Passive, Active/Active
- Low Impact Chassis cluster upgrade
- Configuration Synchronization
- Session Synchronization for Firewall and IPSec VPN
- Session failover for routing change
- Link & upstream failure detection

## **Administration**

- Root admin, admin, and read-only user levels
- software upgrades

## **UTM Features**

- ATP (Advance Threat Prevention)
- Antivirus
- Web Filter (HTTP/HTTPS)
- Application Control
- Data Leak Prevention
- IPS
- State full protocol signatures
- Attack detection mechanisms: State full signatures, protocol anomaly detection (zero-day coverage), application identification
- Attack response mechanisms: Drop connection, close connection session packet log, session summary, email, custom session
- Attack notification mechanisms: Structured syslog

	<ul style="list-style-type: none"> <li>• Worm protection</li> <li>• SSL encrypted traffic inspection</li> <li>• Simplified installation through recommended policies</li> <li>• Trojan protection</li> <li>• Spyware/adware/key logger protection</li> <li>• Other malware protection</li> <li>• Protection against attack proliferation from infected systems</li> <li>• Reconnaissance protection</li> <li>• Request and response side attack protection</li> <li>• Compound attacks - combines state full signatures and protocol anomalies</li> <li>• Create custom attack signature</li> </ul> <p><b>Management</b></p> <ul style="list-style-type: none"> <li>• Local Management Web-based, Secure Shell Access, SSH</li> <li>• Product Certifications</li> <li>• ICSA Lab, NSS Labs, EAL 2+, EAL 4+, FIPS 140-2</li> </ul> <p><b>Power Supply</b></p> <p style="text-align: center;"><b>1 + 1</b></p> <p><b>Reporting</b></p> <ul style="list-style-type: none"> <li>• Retention 3 months</li> <li>• Graphical Summary Reports</li> <li>• Network Event Correlation</li> <li>• UTM &amp; Traffic Summary Reports</li> <li>• Built-in Report Templates</li> <li>• Import/Export Templates</li> <li>• Comprehensive alert builder</li> <li>• View logs in real-time or historical</li> <li>• Granular inspection with the log details pane</li> </ul> <p><b><i>Please note above are minimum requirements</i></b></p>	
<b><i>Please note above are minimum requirements</i></b>		

S.#	Name of Items	Qty. Required
5.	UNIFI AP-Outdoor.(UAP-Outdoor) Supports802.11nMIMO with speed 300 Mbps and range 183 m (600ft), (Nos.)	15
6.	UNIFI AP-PRO (UAP-LR) Indoor AP-Long RangeSupports802.11nMIMO with speed 300 Mbps and range 183 m (600ft), (Nos.)	30
7.	Nano Station M5UBNT Model NSM5 with 5Ghz frequency, (Nos.)	5

8.	UBNT AIR MAX Omni Antenna 2.4 GHz 2x2, Dual Polarity MIMO. Model : AMO-2G13, (Nos.)	3
9.	HP V1910-24G Switch 24 RJ-45 auto-negotiating 10/100/1000. 4 SFP 1000 Mbps ports. Supports a maximum of 24 autosensing 10/100/1000 ports plus 4 1000BASE-X SFP ports, or a combination HP Life Time Warranty, (Nos.)	2
10.	24 Port Unmanaged Gigabit Switch(Rack Mounted Switch-For 9U Rack), (Nos.)	5
11.	Molex Original CAT-6 UTP cable (Role)	5
12.	AMP original RJ-45 Connectors, (Nos.)	500
13.	9U Rack With FAN, Power sockets and Proper Lock (Nos.)	5
<b>Branded Computers</b>		
14.	<ul style="list-style-type: none"> <li>• Dell OptiPlex 9020MT</li> <li>• Core i7, 4790, 4.60Ghz</li> <li>• 8 GB/100 DDR3 RAM,</li> <li>• 1 TB SATA Hard Disk Drive,</li> <li>• Intel HD Graphics, DVD RW, Keyboard, Mouse, Power Cable,</li> <li>• Dell LED E2014H 20 inches Black widescreen</li> </ul> <p><b>Or Equelant</b></p>	10
15.	<ul style="list-style-type: none"> <li>• Dell OptiPlex 9020MT</li> <li>• Core i7, 4th Generation</li> <li>• 8 GB/100 DDR3 RAM,</li> <li>• 1 TB SATA Hard Disk Drive,</li> <li>• DVD RW, Keyboard, Mouse, Power Cable,</li> <li>• Dell LED E2314 LCD Monitor</li> </ul> <p><b>Or Equelant</b></p>	60
<b>AVR</b>		
16.	<p>AVR to regulate Industrial Grade CNC Machines. Therefore, on ST-60 <b>IS NOT FEASIBLE</b> for the cause (Detail mentioned in 2).</p> <p>(2) Industrial machines like CNC have high power motor currents. The motor current varies according to the work piece and workload. The load on the machine can vary from project to project, as a result the <b>loading on the machine is dynamic in nature</b> (as is SICOM Traders Model: ST-360) and the current rating varies unpredictably.</p> <p><b>(3) The start-up current rating of the application at the Industrial CNC Manufacturing facility at FME is at least 92kVA. The models available in the market are either for 80kVA or 100kVA. Thus, it is requested that AVR of at least 100kVA (NOT 60kVA) rating may considered while looking for quotations.</b></p> <p>(4) Moreover the following may be made very clear while accepting a</p>	

quotation:-

- i. The warranty period may be properly explained, with transparent terms and conditions of claim.
- ii. The details of the installation charges.
- iii. The terms and conditions for the after sales services.

Regards