



Al-Hussein Bin Talal University

**Supply, installation, operation, testing and
training for Data Center reallocation, Core
Switches and Security solutions**

Winter 2018

1- Tender Sheet (RFP) Overview

The purpose of this RFP is to seek quotes to purchase hardware equipment's and Software needed to support the need for the following:

- Data Center Reallocation Project.
- Endpoint & Server Protection Solution.
- Next Generation Firewall.
- Main Core Switch with Top of Rack Switches.
- Backup licensed Software.

This document is an invitation for qualified bidders to offer their solutions and ideas to design, deliver, install, accommodate, and test such project based on latest technologies in this field, all technical details are mentioned in the technical specifications section.

2- General Terms & Conditions

- It will be the bidder's sole responsibility and on his own expenses to understand the site nature and environment and all requirement that are related to the tender or that may influence it's pricing.
- It is the bidder responsibility to deliver, install, configure, test and support the awarded systems with all of its hardware and software components.
- Bidders requiring further information or clarifications may notify AHU in writing at Central Tendering Department within one week from the date of publication the RFP, AHU will respond in writing to any request for information or clarification of the bid.
- Bidder should have enough experience and certified technical staff to do the installation and support. CVs for staff and reference for similar project must also be included in the bidder offer.
- If any Item needed during the installation and was not stated in the offer; then it is the bidder's responsibility to provide it at no cost.
- The bidder must respond to any written or telephone maintenance request by the university within 24 hours from the date of notification. Otherwise, the regulations and instructions in force at the university will be applied.

- The university has the right to exclude or change any of the components of the tender if the price exceeds the specified budget (where it is entitled to increase or decrease 25% of the required quantities).
- Although it will be preferred to award this tender to one bidder as turnkey solutions, for technical justifications it may be awarded in separate lots.
- To assist in the examination, evaluation and comparison of bids, AHU may at his discretion ask the bidder for a clarification of his bid. such clarification shall be in writing and no change in the price or substance of the bid shall be sought offered or permitted.
- The total period of delivery of the project (supply, installation, operation, testing and training) is **16 weeks** from the date of submission of the tender issued by the university.
- The supplier company must provide a guarantee for all items and components of the tender including spare parts and technical support for the submitted programs and updates, and the guarantee must be covered by an official letter from the manufacturer for a period of not less than **Three years**.

3- Evaluations of Offers

These criteria's used to evaluate the offers:

- Compliance with specifications.
- Price.
- Quality of proposed products (Brands).
- Bidder Qualifications (Team CVs & Reference)
- Warrantee, maintenance and technical support.
- Training.
- Installation and testing plan.

4- Requests for Proposal

- The RFP prepared by the bidder as well as all correspondence and documents relating to the RFP exchanged by the bidder and the university and supporting documents and printed literature shall be written in English.

- The offers containing erasures or alterations will not be considered until it is duly signed and stamped by the authorized signatory.
- Bids should be quoted in Jordanian Dinar (JD) only. Where other currencies are used, the bidder must specify the equivalent Jordanian Dinar and the exchange rate used. All applicable taxes must be clearly indicated..

5- Training

- Site Training: during installation and configuration, a knowledge transfer, and a detailed elucidation for every step of work must take place by the company team for AHU technical staff.
- Certified Training: The offer should include professional certified training courses for AHU technical team, it should be delivered by a vendor certified trainer

6- Implementation, Installation and Testing Plan

- The bidder must provide an implementation plan. It must have detailed project schedule.
- Project schedule must take into consideration the work environment of AHU including the periods during which network and service interruption is not possible. These periods include but not limited to student registration period, online exams period, and ordinary working hours.
- All equipment and Software modules must be individually tested as well as the whole systems must be tested entirely.
- The successful bidder must develop reports for all serial numbers of all awarded and delivered devices and to document devices configuration. These reports must be submitted before the final acceptance of the project.
- The successful bidder will have to submit the preliminary plans and other options as required for design of Data Center. The structural plan, data center diagram, cabling diagram and layout plan should be submitted to the university along with 2D and 3D presentation.

- The bidder is required to provide the detail architectural diagram and other required diagrams and illustrations like conceptual plan, electrical layout, airflow plan, network diagram etc.

7- Technical Specifications

- Interested companies may visit site of the data center to gather required information about AHU current network devices, connectivity, licenses, configuration, settings, and capabilities, and to verify the current infrastructure within one week from the date of publication the RFP.
- It will be the bidder responsibility to offer a complete system solution that will achieve all required specs.
- Bidders can quote for multiple options, and AHU has the right to exclude any Item.
- Bidders must provide all SFP/SFP+ SR and fiber patch cords that might be needed for connecting the offered solutions to AHU infrastructure.

7.1 Data Center Reallocation Project

7.1.1 Raised Floor & its accessories

General Specifications	Quantity	Comply Yes/No For each
<ul style="list-style-type: none">▪ High density Wooden core with all needed pedestals and accessories.▪ Nominal thickness not less than 30 mm.▪ Covering HPL, Anti-Static Gaskets.▪ Galvanized steel sheet.▪ Nominal dimensions: 600x600mm (24x24inch).▪ Fire rated for 30 minutes or more.▪ The Height of the raised floor should be 35 cm as a minimum.▪ Steel Perforated panels should be included.▪ US or EEC.▪ Perforated Panels: Supply and install perforated panels for the data center (Quantity 8).▪ Ramp Supply & Install a RAMP for the room	<p>Approx. (65) Seq.m</p> <p>Depends on site survey</p> <p>Per meters</p>	

7.1.2 Precision Air condition (PAC)

General Specifications	Quantity	Comply Yes/No For each
<ul style="list-style-type: none">▪ Min 14 Ton (50 KW) Total cooling capacity.▪ Min 40 KW Gross sensible cooling capacity.	2	

- | | | |
|---|--|--|
| <ul style="list-style-type: none"> ▪ Hot aisle – cold aisle configuration. ▪ Each unit must have two compressors with independent refrigerant circuit (2 circuits with 2 compressors). ▪ Down flow discharge, with suction from the top. ▪ R410 Refrigerant gas. ▪ Total Cooling Capacity and Net Sensible Cooling Capacity should be measures depend on the below parameters, and a full report should be submitted with the technical proposal: <ul style="list-style-type: none"> • Dry Bulb Temperature: 24 C. • Relative Humidity: 50% • Altitude: 1100 Meter • Outside Air Temperature: 40 C. ▪ EC Fans. ▪ Microprocessor Control. ▪ LCD Display is necessary to shows the reading of the cooling and Humidity and all the alarms with log events. ▪ The Unit must be connected via SNMP card with the network for monitoring and to provide alarms. ▪ Self contained electric Humidifier. ▪ Water leakage rope. ▪ Both units to work as auto sequence/auto rotate with full redundancy. ▪ Matching condenser @ 40°C. ▪ Standard Electric heating. ▪ Electronic expansion valve (EEV). ▪ All the pipe kit, power cable and civil work is included along with water filter and drain. ▪ Water Source for Humidifier. | | |
|---|--|--|

<ul style="list-style-type: none"> Installation include all pipe kits, gas filling, water piping, drain and control cable. 		
---	--	--

7.1.3 42U Cabinets

General Specifications	Quantity	Comply Yes/No For each
Cabinet 42U: Free Stand 42U Deep Enclosure with Sides Black (suit the sizes of network devices and servers) Quantity 6, Perforated Doors, cooling fans and fixed shelves for cabinet must be provided.	<u>3</u> for Network Devices <u>3</u> for Servers	
PDU Rack Mounted: Rack PDU, Basic, 16A, 230V, With minimum 6 output connection	20	

7.1.4 Environment Monitoring System (EMS)

General Specifications	Quantity	Comply Yes/No For each
<ul style="list-style-type: none"> Rack mounted controller. Web management and reporting. GUI for mobile and desktop. Monitor the Temperature and Humidity of data center (3 sensors). Monitor water leakage in the datacenter (3 sensors). Keep historical data in a database for analysis and reporting. Put thresholds for the monitored items (high and low) and generate alert if threshold exceeded. 	1	

<ul style="list-style-type: none"> ▪ Include GSM modem to send SMS messages (1 needed). ▪ Capable to send alerts using multiple ways (email & SMS). 		
---	--	--

7.1.5 Fire Fighting System

Specifications	Quantity	Comply Yes/No For each
<ul style="list-style-type: none"> ▪ Repair any problems in the existing fire fighting system and then move it to the new proposed data center room. ▪ Must visit the site to make site survey for that.(it's from bidder responsibility to check the size of the gas cylinder, if it's enough or not because the dimensions of the new proposed room is differs from the current room and change it if needed). ▪ The system shall be delivered to the Civil Defense Department upon completion of its transfer and installation. 	-	

7.1.6 Electrical System

Specifications	Quantity	Comply Yes/No For each
<ul style="list-style-type: none"> ▪ Main Power Cable: Supply and install 4x70mm²+1x35mm² main power cable. 	depend on site survey (Per meters) Approx. 25m	
<ul style="list-style-type: none"> ▪ UPS Cable: Supply and install 5x35mm² for UPS's In/Out. 	depend on site survey (Per meters) Approx. 30m	

<ul style="list-style-type: none"> ▪ PAC Unit Cable: Supply and install 5*25mm2 power cable for UPS PAC units. 	depend on site survey (Per meters) Approx. 30m	
<ul style="list-style-type: none"> ▪ Cable Tray: Supply and install cable tray 20cm trays for power cable. 	depend on site survey (Per meters) Approx. 30m	
<ul style="list-style-type: none"> ▪ Basket Tray: Supply and install cable Basket 20cm trays for power cable. 	depend on site survey (Per meters) Approx. 20m	
<ul style="list-style-type: none"> ▪ MDB: Supply and install main power panel MDB inside the data center to support the UPS's, PAC's, lighting, and others include: <ul style="list-style-type: none"> • Main circuit breaker MCCB 3P 150A. • 2x80A 3PH MCCB for UPS's, 2x60A 3PH MCCB for CRAC (PAC) units & 5x16A 1PH for service and MK. 	1	
<ul style="list-style-type: none"> ▪ PDU: Supply and install sub distribution panel (UPS output), with needed breakers to support up to 8 racks, Fire system, access system, and others as follow: <ul style="list-style-type: none"> • Main breaker 80A 3PH. • 10x32A 1PH Sub Breakers, 5x16A 1PH Sub Breakers 	2	
<ul style="list-style-type: none"> ▪ Industrial Socket: Supply and install 32A, 3pin industrial power socket, with needed 3x4mm2 power cables. 	(minimum 16 under the raised floor).	
<ul style="list-style-type: none"> ▪ MK socket: Supply and install 13A, MK socket with needed 3*2.5 mm power cable. 	4	
<ul style="list-style-type: none"> ▪ Lighting fixture: Supply and install 60x60cm lighting unit LED light. 	Minimum 25	

<ul style="list-style-type: none"> Emergency lighting: Supply and install emergency lighting unit. 	10	
<ul style="list-style-type: none"> Earthing all equipment in the Data Center and connect to the existing earth of the Building. 	1	
<ul style="list-style-type: none"> Supply and install needed UPS, PAC's, lighting power cables. Supply and install of STEEL WIRE CABLE TRAY, Including all necessary bases and accessories, according to 30 cm Width. (to distribute the power cables inside the Data Center). 	-	

7.1.7 Network cabling and PBX Reconnect PBX cables after changing the path.

Specification	Quantity	Comply Yes/No For each
<p><u>Network cabling</u></p> <ul style="list-style-type: none"> Supply and install all data point (faceplate) in any needed location in the data center. Reinstall the fiber and UTP patch panel in the new server room. Reinstall all network components from the old room to the new one, such as: switches, router, etc.. Cable Trays. Labeling the UTP & fiber cables (Structured Cabling). 	-	
<p><u>PBX Reconnect PBX cables after changing the path</u></p> <ul style="list-style-type: none"> Change the path and reconnect the cables of the university PBX (whole cable tray) which pass above the new proposed data center room. Must visit the site to make site survey for that. 	-	

7.1.8 False Ceiling

Specification	Quantity	Comply Yes/No For each
<ul style="list-style-type: none"> Fire rated. Dimensions: 600x600mm. White color. US or EEC. 	Approx. (65) Seq.m Depends on site survey (Per meters)	

7.1.9 Fire door & Access Control

Specification	Quantity	Comply Yes/No For each
<u>Fire door (access door)</u> <ul style="list-style-type: none"> 90 minutes fire retardant. Dimensions: 120*225cm Any accessories need for the access door. 	1	
<u>IP Access door Control (Finger Print + Card)</u> <ul style="list-style-type: none"> Capacity: Fingerprint: 3000 templates, Transactions: 100000 logs. Access Control Interface: 3rd party electric lock, door sensor, exit button, alarm, door bell Display: 3.5in TFT LCD Color Display. Power: 12V DC, 3A. Supported Card Formats: ID card, Mifare Card. Communication: Ethernet, IR, Wiegand Input and Output, RS485, USB Host. Surface mount magnetic lock with bracket. Aluminum Door release button Dimensions:86x86mm, suitable for NO and NC locks. Language: English, Arabic. 	1	

<ul style="list-style-type: none"> ▪ Must be compatible to biostar software. ▪ US, Korea, Japan or EEC. 		
---	--	--

7.1.10 Civil work & Furniture

Specification	Quantity	Comply Yes/No For each
<ul style="list-style-type: none"> ▪ Demolition or construction any partitions/ structure in the proposed Data Center as required in the layout plan (if needed). ▪ Prepare the new room for engineers staff. ▪ Painting the Data Center with suitable paint. ▪ In the data center room the bidder must Prepare a glass cutter specialized for UPS and its panels. 	-	
<ul style="list-style-type: none"> ▪ طاولة خشب (MDF) ملبسه ميلامين ضد التجريح 2*1.2 م (لون بني) عدد 2 ▪ كرسي موظف دوار أجنبي جلد ظهر عادي (لون بني) عدد 14 ▪ كرسي مدير جلد نفخ دوار أجنبي (لون بني) عدد 4 	-	

7.1.11 Personal Computer

Specification	Quantity	Comply Yes/No For each
<ul style="list-style-type: none"> ▪ Processor: Intel Core i7 (last generation) ▪ Motherboard & Chipset: Intel Original chipset & OEM motherboard ▪ Memory: 16 GB DDR4 2666MHz minimum ▪ Hard Drive: minimum 500GB Solid State Drive (SSD). ▪ Monitor: Monitor 23" LED-backlit LCD or higher ▪ Mouse: USB OEM Mouse ▪ Key board: USB OEM Key board ▪ Optical Drive: DVD RW ▪ Graphics: Integrated on Board, 4GB minimum 	6	

<ul style="list-style-type: none"> ▪ I/O Ports: 6 USB (at least 2 in front); 1 Ethernet, (RJ45); 1 VGA out; 1 Stereo line in/out; 1 Microphone line in; 1 Headphone. ▪ Expansion Slots: (2) PCIe x1, (2) PCIe x16 ▪ Power Adapter: AC 120/240 V (50/60 Hz) ▪ Operating System: Support Microsoft Windows & Linux, etc... ▪ Warranty: minimum of 3 years comprehensive onsite Warranty. 		
---	--	--

7.1.12 Multi function colour Printer

Specification	Quantity	Comply Yes/No For each
<ul style="list-style-type: none"> ▪ Printer Type: 4 in 1 color ▪ Printer Functions: Print, copy, scan, fax & email ▪ Printer technology: Laser Color ▪ Feeder: Yes ▪ Media Size Supported: A4 ,A5, A6 ▪ Printer features: Duplex, USB, Ethernet etc.. ▪ Printer Display: 4.3" intuitive touch screen Color Graphic Display (CGD) ▪ Processor Speed: 1200 MHz ▪ Printer Memory: 256 MB ▪ Print Speed Black & colors: up to 25 ppm ▪ Duty Cycle: Up to 50000 pages ▪ Print Quality Black & colors: 600 x 600 dpi ▪ Scanner Type: Flatbed ADF ▪ Scan File Format: PDF, JPG ▪ Scan Resolution: Up to 1200 x 1200 dpi ▪ Scan Speed: up to 25 ppm ▪ Copy Speed: Up to 25 ppm ▪ Copy Resolution: 600 x 600 dpi ▪ Fax Speed: 3 sec per page ▪ Fax Memory: Up to 400 pages ▪ Fax Resolution: Up to 300 x 300 dpi ▪ Printer Connectivity: Ethernet. 	1	

Notes

- Any other component required is considered from responsibility of the bidder without any extra charges on the university.
- All supplied components should have 3 year warranty.

7.2 Supply, implementation & support for endpoint & server protection solution

Specification	Quantity	Comply Yes/No For each
<p>1. The solution must deliver endpoint protection up to 1200 endpoints and server protection for up to 50 servers <u>(3 year license)</u>, with the following Features:</p> <ul style="list-style-type: none">▪ Provide required software license and subscription for components in proposed solution.▪ Endpoint Protection: should be client server based technology, The endpoint protection solution shall provide security protection capabilities to all the physical or virtual desktops, laptops and mobile devices. This solution needs to provide centrally managed and ideally integrated by shared policies across all the platforms to provide a complete secure protection for endpoints.▪ Solution should able to Detects and blocks malicious software in real time, including viruses, worms, Trojan horses, spyware, Adware, and RootKit. Endpoint solution technology should include a behavioral based technology apart from providing the signatures for known threats, vulnerability add heuristic based approach. It should be able to score both good and bad behaviors of unknown applications, enhancing detection and	1200 Endpoint 50 Server	

<p>reducing false positives without the need to create rule-based configurations to provide protection from unseen threats i.e. zero day threats.</p> <ul style="list-style-type: none">▪ The components endpoint protection solution should include the following components:<ul style="list-style-type: none">• Antivirus, anti-malware and anti-ransom ware protection.• Centralized management console.▪ Server Protection: Server protection covers for both virtual and physical servers.▪ The components of server protection solution should include the following:<ul style="list-style-type: none">• Centralized management console.• Virtualization security – protect virtual desktops or servers against zero-day malware and network based attacks.▪ Technical Support & Maintenance: The tenderers shall provide technical support and maintenance services (3 year warranty) which cover below scopes:<ul style="list-style-type: none">• Support & Implementation Scope.• General Technical Support Scope.• Level 2 Support.• Recurring and Upgrades Services.• Training Services.• SLA Requirements. <p>2. The solution must include at least the following specifications:</p> <ul style="list-style-type: none">▪ The suggested solution must provide a single management console for deployment of the antivirus protection systems, configuration of group and individual parameters for		
---	--	--

<p>applications, timely database updates, continuous monitoring of system status and quick response to emergencies.</p> <ul style="list-style-type: none">▪ The suggested solution must support Role Based Access Control to the management server and the ability to assign different access levels to different users like administrator, operator, viewer...▪ Suggested solution vendor must be in the “leaders” quadrant of Gartner’s latest magic quadrant report.▪ The suggested solution must support authentication to allow access to central management console.▪ The suggested solution must provide a single management console to manage all below products/functions:<ul style="list-style-type: none">• Antimalware components• Control components• Firewall and HIPS• Server protection▪ The deployment of the suggested Endpoint solution must support the following:<ul style="list-style-type: none">• Remote installation from the central management server.• Deployment based on active directory.• Deployment via third party software deployment solutions.• Local installation using pre-configured package.▪ Suggested solution must support client operating systems such as window 7, 8, 8.1 ,10, linux etc...▪ Suggested solution must support below Server operating systems:<ul style="list-style-type: none">• Windows Srv 2008 R2,2012, 2012 R2, 2016 including standard, enterprise, core & datacenter editions.• Windows storage server 2012• Windows hyper-v server 2012		
--	--	--

<ul style="list-style-type: none"> • Windows Server 2008, 2012, 2012 R2 Terminal Server <ul style="list-style-type: none"> ▪ Suggested solution must be able to manage all mentioned operating systems and their protection components using single management console. ▪ Comprehensive endpoint visibility which includes graphical reporting, centralized logging, and threshold alerting. ▪ Suggested solution should integrate with Active Directory in terms of pulling existing structure and computers/users and apply the same on the management server. ▪ Suggested endpoint solution must allow the following : <ul style="list-style-type: none"> • Manual scanning • On access scanning • On demand scanning • Compressed File Scanning • Scan Individual file , Folder and drive • Auto clean, Quarantine infected files • Registry guard • Buffer Overflow Protection ▪ Suggested solution should allow block for devices such as: removable devices, CD&DVD, Bluetooth, etc.. ▪ Suggested solution should contains cloud integration for most up to date updates on malware and potential threats ▪ Suggested solution must provide real time dashboard that enables rapid troubleshooting of errors, security events and security issues; graphs and numbers enabling steps required to alert resolution. ▪ Ability to schedule report generation and distribution via emails or save at particular location in HTML, excel and PDF formats. Report customization and filter criteria such as date and time range, specific type of attack, and end point type (server or desktop). ▪ Can exclude specified files / folders from being scanned either in the on-access scan (real-time protection) or during on-demand scans. 		
--	--	--

<ul style="list-style-type: none"> ▪ Suggested solution should support seamless migration from existing antivirus solution and should remove existing Antivirus agent while upgrading. 		
---	--	--

7.3 Next Generation Firewall (Application Firewall, Web Application Firewall (WAF), sandboxing, Advanced Threat Protection, IPS, URL filter, Anti Malware, Zero attack and Traffic Shaping)

- AHU have juniper SRX650 it will be used later as data center firewall and it's from bidder responsibility to configure the new and old firewall.
- The proposed solution should comply all specification, and must support all key features listed below in the table using an independent appliance, integrated or clouded with the NGFW box.
- it's from responsibility of the bidder to make all specification shown below redundant.
- AHU have the right to cancel or remove any feature upon tender submission.

Specification	Quantity	Comply Yes/No For each
<p>Key features of the next generation firewall:</p> <ul style="list-style-type: none"> • Support all features of the traditional firewall such as: stateful, network layer access control, network address translation, logging and high availability. • IDS/IPS. • Antivirus/anti-malware. • Sandboxing. • Web proxy and URL checking. • Reverse proxy • Web application firewall (WAF). • Load balancing. 	-	

specifications of the next generation firewall:

- high availability (redundant) is a must.
- All devices must be rack mountable in standard network cabinets.
- All devices must have redundant power supplies.
- Average CPU usage (control and data) for any device must not exceed 40% (during peak working hours).
- Must provide at least 6 X 1Gbps UTP Ports and 2 X 1Gbps/10Gbps Fiber interfaces (SFP/SFP+).
- Must support client SSL-VPN remote access for multiple operating systems (windows, Linux) and licensed for 100 concurrent users.
- Must have Blocking/allowing feature based on user, subnet, IP, and time based Policies.
- Must have options to prevent downloading files based on file type.
- Must contain URL filtering capability based on updatable database with minimum of 50 different categories.
- Reporting and Logging /Separate Or on- Appliance device Reporting - Analyzer Traffic.
- The device should have the ability to apply rules on specific time of the day (scheduling).
- Must be able to inspect and control HTTPS traffic.
- Must support embedded Antivirus, include advanced Malware Prevention, AntiSpyWare, Antivirus and Sandboxing with real time detection for HTTP, HTTPS, FTP, SMTP, POP3, IMAP,

<p>NNTP and IM for IPv4 and IPv6 traffic.</p> <ul style="list-style-type: none"> ▪ (High Availability) must support both Active-Active and Active-Passive modes, high availability should be offered for each item. ▪ Must have the ability to identify port, protocol (TCP /UDP, source /destination IP address) for all unknown traffic and provide the ability to block them. ▪ Must provide logging/reports archiving feature. ▪ Must have Application control feature for popular applications such as Facebook, YouTube, twitter, google play, iTunes, skype, WhatsApp, TeamViewer...etc. and for P2P applications like Bit Torrent and IM/P2P applications regardless of port/protocol. ▪ Must monitor network, traffic and users events in real-time or browse historical logging for specific events, provides powerful insight into network security threats, performance and user behavior. ▪ Must handle at least 170,000 new sessions per second. ▪ Must support Static routing and BGP. ▪ Must provide NAT and PAT functionality. ▪ IPS Throughput must be at least 7 Gpbs. ▪ Must have WEB2 control feature for all known social networks like Facebook, twitter, google+, etc. ▪ The device should have an internet traffic shaping feature based on traffic type, category and application. ▪ Must be able to classify traffic according to the application based 		
--	--	--

<p>on port number, application signature and behavior.</p> <ul style="list-style-type: none">▪ Network Intrusion Prevention System (IPS) must be integrated with several prevention techniques including Drop-Packet and session reset and also it must have protection for at least 2500 signatures.▪ Must support Web UI (HTTP/HTTPS) and CLI (Telnet / SSH) based Management and SNMPv3 support.▪ Must provide at least 30 Gbps throughput.▪ Must have RADIUS, LDAP Directory Services authentications.▪ Must support VPN with at least the below protocols: DES, 3DES, MD5, SHA-1, SHA-256 authentication, Diffie-Hellman Group 1, Group 2, Group5, Group 14. Internet Key Exchange IKE v1, IKE v2 algorithm, encryption standard AES 128, 192 & 256, Hub and Spoke VPN topology.▪ Application Attacks Prevented like: SQL injection, Cross-site scripting.▪ Must provide web Services Security, Web service signature, XML protocol conformance.▪ Must provide Content Modification, URL rewriting.▪ Must include intrusion signatures, and zero-day attacks.▪ Must support Stateful firewall, DDoS prevention and updatable signature Database▪ Must have dashboard for live monitoring.▪ Must have predefined and customizable reports.		
---	--	--

<ul style="list-style-type: none"> ▪ Must have the ability to isolated execution of software or programs for independent evaluation, monitoring or testing. ▪ 3 years Full license, Support and warranty. 		
---	--	--

7.4 Top of Rack Switches

Specification	Quantity	Comply Yes/No For each
<ul style="list-style-type: none"> ▪ Switch shall provide and equipped with a minimum 24 X 1G UTP ports, 2 X 40G ports & 4 X 1G/10G. ▪ Should be stackable switch and support minimum 8 switches in the stack at least. ▪ Non-blocking architecture. ▪ Switching Capacity : 250 Gbps at least. ▪ Must support at least 16K MAC table entries ▪ Should support Layer 3 routing protocols ▪ 3 Years warranty and support from the mother company and local partner. ▪ Redundant, hot-swappable power supplies.. ▪ Bidder must provide the needed cables, transceivers, or DAC Cable for uplink connectivity with Core Switches via 40G (It's bidder responsibility to consider High available setup with Upper Switches) 	4	

7.5 Core Switches

Specification	Quantity	Comply Yes/No For each
<ul style="list-style-type: none">▪ The offered device should be modular with minimum eight slots or fixed and rack mountable.▪ Each core must support at least 48X1Gbps/10Gbps ports, 6X40G ports. (It's bidder responsibilities to provide Transceivers to connect the two Core Switches).▪ High-speed switching capacity with at least 400 Gbps per slot or at least totally 1.6 Tbps for fixed.▪ Support for Full Layer 3 for both IPv4, IPv6 routing protocols such as RIPv1/v2, OSPF.▪ Must support the following Management options: Telnet, SSH,SNMPv1, SNMPv2, SNMPv3,FTP, SFTP, TFTP and Network Time Protocol (NTP).▪ Must support at least 128K routing table entries.▪ Must support at least 96K MAC table entries.▪ Redundant, hot-swappable power supplies and fan trays.▪ Must support the following security features: Access control list (layer2/layer3),Secure shell (SSHv2),DHCP snooping,IP Source Guard,ARP attack protection, Port security,IEEE 802.1X support,DHCP protection.▪ 3 Years warranty and support from the mother Company and local partner.▪ High availability is a must, where two redundant devices are running in active/active mode, and acting as one logical unit. Each of them separately must be capable to handle all AHU network traffic.	2	

The bidder must provide the price for SFP & SFP+, and the AHU will determine the no. of the SFP & SFP+ needed.

7.6 Backup licensed Software

AHU have a backup solution include Storage Unit (FUJITSU DX200 S3 Base Encl 3.5") , Tape Library (FUJITSU ET LT40S2 RoHS 1xLTO-6HH FC, 24Slot) and Backup Server (FUJITSU PY RX2530 M1 10x 2.5") and want licensed software with the following specs, so it can make backup for all servers needed.

AHU have the following servers, which need to make backup for it.

Server	Quantity
Oracle Databases linux-Redhat	2
Oracle Databases application Windows Server 2012	4
File Sharing – Windows Server 2012	2
Web server - Windows Server 2012	1
DNS Windows Server 2012	1
Active Directory – Windows Server 2012	2
Camera Application servers with 1 storage, 2012	4
Elearning Server linux	1

Specification	Quantity	Comply Yes/No For each
<ul style="list-style-type: none"> ▪ Supports all major UNIX platforms, Windows, Linux and NetWare ▪ Support online backup for Oracle, SQL, Exchange, and Windows Domain controller. ▪ Support LAN-free backup. ▪ Offers policy-based management down to individual file level – ensuring optimum use of storage resources and the fastest restores. ▪ Automatically migrate data from one storage pool to another pool. ▪ “Point in time” checkpoint restarts for both backup and recovery in the event of data corruption. 	-	

- | | | |
|---|--|--|
| <ul style="list-style-type: none"> ▪ Encryption support. ▪ Migrate to different medias as needed. ▪ Ability to restore only versions of files needed. ▪ Sequential and Random storage pools available. ▪ Able to reclaim dead space on local and off-site tapes. ▪ Allows quick client restore from single backup image. ▪ Notification on email, SNMP, syslog. ▪ Ability to write and read multiple data streams to one or more tapes from one or more clients/servers in parallel for optimum performance. ▪ Ability to share the automated tape library between UNIX, windows & Linux. ▪ Support for bar code readers. ▪ Ability to define user groups and grant explicit functional and resources permission. ▪ Ability to browse data before restores it. ▪ Backup all mounted fie systems. ▪ Support All Types of Backup (Full, Incremental, Differential, Progressive Incremental). ▪ Alarms and colored alerts in case of backup failure Support all RMAN functions : <ul style="list-style-type: none"> • Database Data Files backup, restore, and recovery while it is online or offline. • Database Table space backup, restore, and recovery while it is online or offline. • Database full backup, restore, and recovery while it is online or offline. • Database Control File backup and restore. • Database Archive logs backup and apply to database, | | |
|---|--|--|

<p>delete archive logs from source after completion of backup.</p> <ul style="list-style-type: none">• Block level incremental backup of changed database pages.		
--	--	--