

## عطاء رقم 43/ل ر/2021

توريد وتركيب وتشغيل أجهزة لربط المباني في الجامعة بالشبكة الرئيسية  
(كلية الصيدلة – مجمع الشهيد معاذ)

## معلومات عامة:

- هذا العطاء غير ممول من أي جهة مانحة.
- جميع البنود في هذا العطاء سيتم توريدها وتركيبها وتشغيلها في حرم جامعة مؤتة الرئيسي.
- يجب توريد جميع الأجهزة المشمولة في هذا العطاء ضمن صناديق مغلقة (Sealed) من الشركة المصنعة.
- هذا العطاء قابل للتجزئة بحيث تكون جميع البنود الجزء الواحد جزء واحد لا يتجزأ.

**Part #1: Network and Servers Monitoring Solution:**

- Network Performance Monitor, OpManager or equivalent.
- NetFlow Traffic Analyzer, NetFlow Analyzer or equivalent.
- On-Site training must be included.
- Local and vendor support for 3 years.
- **Implementation and configuration is part of scope of work.**
- **Only (PRTG, ManageEngine and SolarWinds) are acceptable.**

\* Note: Mu'tah University already has:

- 1- Number of devices to monitor:
  - Edge Switch: 320
  - Core Switch: (one Redundant, total 2 devices)
  - Aggregation Switch: 22 (Redundant, total 44 devices)
  - Firewall: 2 (Redundant, total 4 devices)
  - UPS: 25
  - Servers: 60
  - All devices included in this tender.
- 2- Two uplinks (main and backup links).
- 3- Number of interfaces to monitor (Total): 900-1000

## Part #2: Networking:

### 2.1. Active Components:

#### 2.1.1. Aggregation Switches Qty (2)

- 24 X 10G Fiber Ports fully loaded (10G MM SFP+ transceivers).
- 2 X 10G Fiber Ports fully loaded (10G SM SFP+ transceivers).
- Each Switch should have at least (2) Stacking Ports.
- Should be stackable switch and support up to at least (2) switches in the stack.
- Switch Capacity: not less than 600Gbps
- Throughput: not less than 250 Mbps (wire speed)
- MAC Addresses: not less than 32000
- Support at least 4000 VLANs.
- Support for Layer 3 for both IPv4, IPv6 routing protocols such as RIP v1&v2, OSPF and multicast routing.
- Internal redundant power supply
- Support QoS and SSH
- Support Web GUI Management
- Min. 5 Years warranty with vendor support.
- On-Site Training must be included.
- All required licenses during warranty time must be include

#### 2.1.2. Access Switches Qty (12)

- 24 RJ-45 Giga Ethernet, Support PoE+ (Min. 370 Watt power budget).
- Each Switch should have at least 2 X 10G Fiber Ports fully loaded with 10G MM SFP+ transceivers.
- Each Switch should have at least 2 Stacking Ports.
- Support Stacking for at least 2 Switches.
- Switch Capacity: not less than 125Gbps
- Throughput: not less than 95 Mbps
- MAC Addresses: not less than 16000
- Support both IPv4 & IPv6.
- Layer 3 switch (Static route & RIP) and support OSPF in the future.
- Support QoS and SSH.
- Support Web GUI Management.
- Min. 5 Years warranty with vendor support.
- On-Site Training must be included.
- All required licenses during warranty time must be included.

### 2.1.3. Transceivers: Qty (2)

- **Juniper** 10G SM SFP+ to be installed in existing EX 8208 Core Switches.

### 2.1.4. Stack (cascading ) cable 1m: Qty (4)

## 2.2. Passive Components

### 2.2.1. Cabinet: Qty (1)

- 21U, 600x600, **Wall Mounted**
- Glassdoor 5mm, Removable steel side panels.
- 2 Fans included
- 1 x 6 way PDU (220v, 13A)
- Welded frame, reliable structure.
- Material: Steel.
- Cable entries on both of top cover and bottom panel

### 2.2.2. Cabinet: Qty (2)

- 12U, 600x600, **Wall Mounted**
- Glassdoor 5mm, Removable steel side panels.
- 2 Fans included
- 1 x 6 way PDU (220v, 13A)
- Welded frame, reliable structure.
- Material: Steel.
- Cable entries on both of top cover and bottom panel

### 2.2.3. Cabinet: Qty (10)

- 9U, 600x600, **Wall Mounted**
- Glassdoor 5mm, Removable steel side panels.
- 2 Fans included
- 1 x 6 way PDU (220v, 13A)
- Welded frame, reliable structure.
- Material: Steel.
- Cable entries on both of top cover and bottom panel

### 2.2.4. UTP LSZHCAT6 Cable: Qty (29 Box)

- U/UTP 4 pairs Cat 6, LSZH.
- 250 MHz Frequency or above.
- Comply with ISO 11801 or TIA/EIA-568
- Flame Retardant Sheath (FR)
- The cable must support 1G.

### 2.2.5. UTP Patch panel: Qty (14)

- 24 x RJ45 female Cat 6 (fully loaded), unshielded.
- Comply with ISO 11801 or TIA/EIA-568 Cat6.
- **Optional:** Staggered-port design to provide more space between ports.
  - Straight (**V-Shape is not acceptable.**)
  - Below image is for design clarification only.



### 2.2.6. Cable Organizer (Cord Guide): Qty (14)

- 1U, Metal, Box type
- Strong Material.

### 2.2.7. Patch cord “3 Meter”: Qty (182)

- U/UTP 4 pairs Cat 6, LSZH.
- 250 MHz Frequency.
- Comply with ISO 11801 or TIA/EIA-568
- Molded boots, Provide flexibility.

### 2.2.8. Patch cord “0.5 Meter”: Qty (182)

- U/UTP 4 pairs Cat 6, LSZH.
- 250 MHz Frequency.
- Comply with ISO 11801 or TIA/EIA-568
- Molded boots, Provide flexibility.

### 2.2.9. Double Data Outlet : Qty (139)

- Shall include two Cat6 RJ-45 unshielded Jack.
- One faceplate with two holes for Module Jack.
- 2 x RJ45 Module Female.
- Category 6 connector shall comply with ISO 11801 or EIA/TIA 568.

### 2.2.10. Single Data Outlet: Qty (27)

- Shall include one Cat6 RJ-45 unshielded Jack.
- One faceplate with one holes for Module Jack.
- RJ45 Module Female.
- Category 6 connector shall comply with ISO 11801 or EIA/TIA 568.

**2.2.11. MM Fiber cable : Qty (550 Meter \ Per meter)**

- OM3 Multimode type.
- Cable shall include at least 8 fiber cores.
- Termination for at least 8 cores.
- Cable shall be metal free.
- Cable shall have rodent protection feature.
- Flame Retardant Sheath (FR).
- Cable shall include glass armor.
- Low Smoke Zero Halogen (LSZH) Sheath.

**2.2.12. MM Fiber Patch Panel (24 cores) : Qty (4)**

- OM3 Multimode type.
- Shall be spliced box type.
- 19"/1U, extractable,
- Must use SC Duplex Adapters.
- Must Include Pigtail OM3 2 meter length with QTY as number of cores.
- Must include spliced tray & cover to hot splicing inside the Patch Panel.
- Must have two-cable entry.

**2.2.13. MM Fiber Patch Panel (8 cores) : Qty (10)**

- OM3 Multimode type.
- Shall be spliced box type.
- 19"/1U, extractable,
- Must use SC Duplex Adapters.
- Must Include Pigtail OM3 2 meter length with QTY as number of cores.
- Must include spliced tray & cover to hot splicing inside the Patch Panel.
- Must have two-cable entry.

**2.2.14. SM Fiber Patch Panel (12 cores) : Qty (2)**

- OS2 Single mode type.
- Shall be spliced box type.
- 19"/1U, extractable,
- Must use SC Duplex Adapters.
- Must Include 12 Pigtail OM3 2 meter length.
- Must include spliced tray & cover to hot splicing inside the Patch Panel.
- Must have two-cable entry.

### 2.2.15. MM Fiber Patch Cord: Qty (20)

- SC-LC Patch Cord OM3 2 Meter.
- LSZH sheath.

### 2.2.16. SM Fiber Patch Cord : Qty (4)

- SC-LC Patch Cord OS2, 2 Meter.
- LSZH sheath.

## 2.3. Professional Services:

- UTP & Fiber Cabling (Installation and Termination).
- Fiber Termination for at least 8 cores.
- All UTP connectors' termination.
- Cables organization and Labeling on both sides.
- Testing using Fluke for all connections as following:
  - o All connections must be test from end-to-end
  - o Testing reports must be provided.
  - o Calibrating of Fluke must be from the mother company.
  - o Testing results must comply with at least the minimum standards for tested components.

## Part #3: UPS

### 3.1. UPS Cabinet: Qty (1)

- Size (WxD) must be suitable for UPS to fit in.
- Glassdoor.
- Removable steel side panels.
- Two Fans included.

### 3.2. 3.19.2 KVA UPS: Qty (1)

- 2 KVA
- Battery (v/Ah)12v 7ah
- Backup time half load Min. 20 Minutes
- Input Voltage 220-240VAC
- Input Power Factor>98%
- Input Freq.: 50/60 Hz Support overload & short circuit protection.
- Output Freq. : 50/60 Hz (AutoDetect)
- Output Voltage: 220–240VAC
- Ethernet card with RJ45 Port
- Support SNMP Protocol compatible with 3rd party Management software.
- Rack type model, with rack mount kit.
- Installation and configuration must be included.
- Min.5 Years with vendor support

## Part #4: Technical (Local & Vendor) Support

- Mutah University have two redundant wireless LAN Aruba controller (7210).
- Offer should include 5 years of Vendor and local support
- Awarded company must conduct immediate health check.

## Part #5: Wireless Solution:

- **Mutah University already has:**
  - ✓ Two redundant wireless LAN Extrem controller (WiNG NX-5500).
  - ✓ Two redundant wireless LAN Aruba controller (7210).
- **Any offer solution must be compatible with the upper two controllers (just Access Points and its licenses without controller).**

### 5.1. Indoor Access Points: QTY (24)

- Support 802.11a/b/g/n, and 802.11ac Wave 2
- POE Power input.
- AP must transmit on both 2.4GHZ and 5GHZ.
- AP must support wireless deployed controller-based deployment mode.
- AP must comply IEEE 802.11 standard with the following
  - o Beam-forming.
  - o 20-MHz, 40-MHz, and 80-MHz channels
  - o Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx)
  - o 802.11 Dynamic Frequency Selection (DFS)
  - o IEEE 802.11ac Data rate 867 Mbps or more in 5 GHz band.
  - o IEEE 802.11n Data rate 300 Mbps or more in 2.4GHz band.
- AP must be equipped with an integrated Antenna with the following specifications to support transmitted frequency as: -
  - o 2.4 GHz, gain Min. 3 dBi,
  - o 5 GHz, gain Min. 3.5 dBi,
- AP must be equipped with the following interfaces: -
  - o 1x10/100/1000BASE-T autosensing (RJ-45), Power over Ethernet (PoE)
- Support of load balancing between Access Points.
- Support for coverage Self-healing of failed AP's.
- Should support Wireless mesh deployments.
- All needed software, licenses must be included.
- Mount kit must be included.
- Warranty & Support not less than 5 years.

## 5.2. Outdoor Access Points QTY (2)

- Support 802.11a/b/g/n, and 802.11ac Wave 2
- POE Power input.
- Access Points should be at least MIMO 3\*3 on 5 GHz Radio
- AP must transmit on both 2.4GHZ and 5GHZ.
- AP must support wireless deployed controller-based deployment mode.
- AP must comply IEEE 802.11 standard with the following
  - o Beam-forming.
  - o 20-MHz, 40-MHz, and 80-MHz channels
  - o Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx)
  - o 802.11 Dynamic Frequency Selection (DFS)
  - o IEEE 802.11ac Data rates 1.3 Gbps or more in 5 GHz band.
  - o IEEE 802.11n Data rates 300 Mbps or more in 2.4GHz band.
- AP must be equipped with an built-in antennas with the following specifications to support transmitted frequency as: -
  - o 2.4 GHz, multiple antenna gain 3 dBi or more
  - o 5 GHz, multiple antenna gain 3.5 dBi or more
- AP must be equipped with at least one 1Gig interface.
- Should support Wireless mesh deployments.
- WPA/WPA2/TKIP/AES security should be supported.
- Supports IP66.
- Mount kit must be included.
- All needed software, licenses must be included.
- Warranty & Support not less than 5 years.

## General terms & conditions:

- The proposal should include the following:
  - o Contract Drafts for support including:
    - Response time for problem call.
    - Response time for problem solving.
    - Response time for solving software/configuration support call.
    - Response time for (hardware/software) failure.
    - Actions that will be taken during (hardware/software) failure.
    - Response time for failed hardware
    - preventive Maintenance
  - o BoQ, Prices and comply sheet must be provided, considering the following:
    - Unit price must **NOT** include any tax, The tax must be added to the total of each item.
    - Detailed BoQ for all Items must be part of the technical proposal.
    - Detailed compliance sheet must be part of the technical proposal.
    - Prices for training and installation should be separated and clear.
    - All required licenses during warranty time must be included.
  - o A letter from vendor to guaranty that support service for each proposed product and all its components (Hardware, Software and Licenses) will be available for min. 5 years after warranty ends including all updates, upgrade, fixes and security patches.



- The bidder must be:
  - o **Authorized certified partner** by vendors for all components included in the project.
  - o **Must have their own team certified staff with at least (3) certified staff for each product. Mutah university have the right to interview the implementation team.**
  - o An official document of authorization or partnership must be included within the proposal. Otherwise, the offer will be excluded.
  - o Familiar with similar projects, and have a reference list for similar projects.
- For all required training, each training must be conducted for minimum two persons prior to the deployment.
- All training material for the provided courses must be original and provided during the training.
- For all required training, Instructor must be professional certified for the product he will train (not necessarily trainer certified).
- At least one of Mutah University staff must participate in the installation and configuration process.
- All item's warranty must be supported by the vendor for the required support period, including licenses and warranty for all devices, hardware and software components including any software upgrade, update, security patches and fixes and must support hardware replacement within next business day.
- During the warranty period, the company should provide all required spare parts free of charge.
- Switches and WIFI vendors should be recognized as a leader as per last Gartner Quadrant Report for the "Wired and Wireless LAN Access Infrastructure"
- All connectivity between new devices and all connected devices are bidder responsibility.
- Installation, Configuration, labeling, Testing and all needed cabling should be included.
- Products and all its components (Hardware, Software and Licenses) must **NOT** be end-of-life, end-of-sale or end of support.
- Dates of (end-of-life, end-of-sale and end-of-support) for each proposed product and all its components (Hardware, Software and Licenses) must **NOT** be announced yet.
- Bidder must provide reference sites where similar devices were installed; the reference information must include the device model, date of installation and contact person details.