

SUPERVISOR: Prof. TAM MAN KWAN, P.h.D., B.H., B.B.S., J.P. PRINCIPAL: Mr. WONG KIN SAN 校監: 譚萬鈞教授·太平紳士 校長: 黃建新先生

Tender No.T2023028

Date: 12th June, 2024

Firm Name: Address:

Dear Sirs,

#### <u>INVITATION TO TENDER</u> <u>Tender for build up, provide and maintain a WiFi and ITED service and network</u> <u>through subscription mode, and maintain all support level and services of existing</u> <u>WiFi services and ITED network (36 MONTHS)</u>

1. You are invited to tender for the service of the stores or services as specified in the enclosed tender schedule. If you are not prepared to accept a partial order, please state this clearly on the tender schedule.

2. Your sealed tender, <u>in duplicate</u>, should be clearly marked on the envelope:

## Tender for build up, provide and maintain a WiFi and ITED service and network through subscription mode, and maintain all support level and services of existing WiFi services and ITED network (36 MONTHS)

The envelope should be clearly marked with tender no. and addressed to the principal, No.2 Kan Hok Lane, Tiu Keng Leng, Tseung Kwan O and arrive not later than 12:00 noon on 4<sup>th</sup> July, 2024. Late tenders and information will not be accepted. Your tender will remain open for 90 days from the "Closing Date", and you may consider your tender to be unsuccessful if no order is placed with you within these 90 days. You are requested to note that unless Part II of the tender form is completed, the tender will not be considered.

3. If you are unable or do not wish to tender, it would be appreciated if you return the tender form with reason to the above address at your earliest convenience.

4. Tenders will be accepted on an 'overall' /'group'/'itemised' basis.

If you have any enquiries, please contact Deputy I.T. and Innovation Development Master Mr. Tam Ka Meng or Chief I.T. and Innovation Development Master Mr. Tsang Ming Hong. Address: No. 2, Kan Hok Lane, Tiu Keng Leng, Tseung Kwan O Tel. No.: (852) 27066969 Fax. No. : (852) 27069906

> Yours sincerely, Wong Kin San Principal



## Tender for build up, provide and maintain a WiFi and ITED service and network

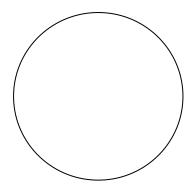
## through subscription mode, and maintain all support level and services of existing

## WiFi services and ITED network (36 MONTHS)

## **Tender Schedule (to be completed in duplicate)**

Tender No.T2023028(Columns 4 to 6 to be completed by Supplier)			upplier)		
(1) Item No.	(2) Description / Specification	(3) Quantity Required	(4) Unit Rate (HK\$)	(5) Total Amount (HK\$)	(6) Delivery Offered
	Please see the Appendix Part X & Part Y				

We / I understand that if we / I fail to supply the stores or services as offered in our / my tender upon accepting school's order, we are / I am prepared to pay the price difference to the school if such stores or services are obtained from elsewhere.



**Company Chop** 

Name of Supplier: \_\_\_\_\_

Name and Signature of Person authorized to sign Tender:

Name (in block letters): \_\_\_\_\_\_ Signature: \_\_\_\_\_

Date:



## Tender for build up, provide and maintain a WiFi and ITED service and network

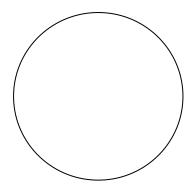
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Name and Signature of Person authorized to sign Tender:

Name (in block letters): \_\_\_\_\_\_ Signature: \_\_\_\_\_

Date:



# **Tender Form for Services**

Tender for build up, provide and maintain a WiFi and ITED service and network

#### through subscription mode, and maintain all support level and services of existing

#### WiFi services and ITED network (36 MONTHS)

School name and address : Man Kwan QualiEd College No. 2, Kan Hok Lane, Tiu Keng Leng, Tseung Kwan O Tender No. : T2023028 Tender closing date : 4<sup>th</sup> July, 2024 at 12:00 noon Release Date : 11<sup>th</sup> July, 2024

## PART I

The undersigned hereby offers to undertake the service as described in the tender schedule within the period of time as specified therein from the date of a firm order placed by the school at the price or prices quoted in the tender schedule including labour, materials, all other charges and in accordance with the details provided by the school. In so doing, the undersigned acknowledges that all items not otherwise specified shall be provided in accordance with such details; tenders shall REMAIN OPEN FOR 90 DAYS after the Closing Date; and the school is not bound to accept the lowest or any tender and reserves the right to accept all or any part of any tender within the period during which the tenders remain open. The undersigned also warrants that his Company's Business Registration and Employees' Compensation Insurance Policy are currently in force and that the service which his Company offers to undertake will not cause any damage to the school's premises.

## PART II RECONFIRMATION OF TENDER VALIDITY

With reference to Part I of this tender document, it is reconfirmed that the validity of tender offered by this company remains open for 90 days from 4<sup>th</sup> July, 2024.



## PART III

According to "Prevention of Bribery Ordinance", without authorization or acceptable reasons, any acceptance of interest (including commission) from suppliers and / or contractors by school staff or any interest (including donations) provided by suppliers and / or contractors to school staff during procurement process is regarded as an offence.

The undersigned also agrees to accept the fact that once the validity of tender is reconfirmed, the pre-printed clause specified in the Company's tender forms in regard to this nature shall NOT apply.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 2024

Name (in block letters):

Signature: \_\_\_\_\_\_ in the capacity of \_\_\_\_\_\_

(state official position e.g. Director, Manager, Secretary)

Duly authorized to sign tenders for and on behalf of:

whose registered office is situated at \_\_\_\_\_

Telephone No.: \_\_\_\_\_ Fax No.: \_\_\_\_\_



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Tender for build up, provide and maintain a WiFi and ITED service and network

#### through subscription mode, and maintain all support level and services of existing

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Duly authorized to sign tenders for and on behalf of:

whose registered office is situated at \_\_\_\_\_

Telephone No.: \_\_\_\_\_ Fax No.: \_\_\_\_\_



# Letter to Suppliers / Contractors regarding Offering Gifts to School Staff

## Offering Gifts to School Staff

I am writing this letter to inform you that our school has formulated a clear policy on the solicitation and acceptance of gifts by staff in their official dealings.

In order to maintain a team of clean and honest school staff, it is stipulated in our school policy that no staff shall solicit or accept gifts, money or any other form of advantages in their course of duty without the special permission of the School Management Committee.

Our staff has understood the policy in which any breach will result in disciplinary action and the school is ready to report all offences to the Independent Commission Against Corruption (ICAC).

We therefore earnestly request your support to our commitment of managing our school in a fair and just way. Should any member of our staff approach you for an advantage, please report to me immediately.

> Yours sincerely, Wong Kin San Principal



SUPERVISOR: Prof. TAM MAN KWAN, P.h.D., B.H., B.B.S., J.P. PRINCIPAL: Mr. WONG KIN SAN 校監: 譚萬鈞教授·太平紳士 校長: 黃建新先生

Tender No.T2023028

Date: 12th June, 2024

Firm Name :	
Address :	

## Statement of Expression of No Interest for the tender

Our company will not tender for <u>build up</u>, <u>provide and maintain a WiFi and</u> <u>ITED service and network through subscription mode</u>, and <u>maintain all support</u> <u>level and services of existing WiFi services and ITED network (36 MONTHS)</u>

Please explain the reason(s) :

	/
Company Chop	

Name of Supplier :	
Name and Signature of Person authorized to sign T	ender
Name (in block letters) :	Signature :
Date :	



SUPERVISOR: Prof. TAM MAN KWAN, P.h.D., B.H., B.B.S., J.P. PRINCIPAL: Mr. WONG KIN SAN 校監:譚萬鈞教授·太平紳士 校長:黃建新先生

To: Man Kwan QualiEd College

Dear Sir/ Madam,

Non-Collusive Tendering Certificate for the project "Tender for build up, provide and maintain a WiFi and ITED service and network through subscription mode, and maintain all support level and services of existing WiFi services and ITED network (36 MONTHS)" (Tender No. T2022028)

- 1. We represent and warrant that in relation to the Tender:
  - (a) Our bid was developed genuinely, independently and made with the intention to accept the Contract if awarded;
  - (b) Our bid was not prepared with any agreement, arrangement, communication, understanding, promise or undertaking with any person (including any other tenderer or competitor) regarding:
    - i) prices;
    - ii) methods, factors or formulas used to calculate prices;
    - iii) an intention or decision to submit, or not submit, a bid;
    - iv) an intention or decision to withdraw a bid;
    - v) the submission of a bid that does not conform with the requirements
    - of the tender;
    - vi) the quality, quantity, specifications or delivery particulars of the products or services to which this tender relates; and
    - vii) the terms of the bid,

and we undertake that we will not, prior to the award of the Contract, enter into or engage in any of the foregoing.

- 2. We understand that in the event of any breach or non-compliance with any warranties or undertakings in this certificate, the Procurer may, at its discretion, invalidate our bid, exclude us in future tenders, pursue damages or other forms of redress from us (including but not limited to damages for delay, costs and expenses of re-tendering and other costs incurred), and/or (in the event that we are awarded the Contract) terminate the Contract.
- 3. Under the Competition Ordinance, bid-rigging is serious anti-competitive conduct. We understand that the Procurer may, at its discretion, report all suspected instances of bid-rigging to the Competition Commission (the "Commission") and provide the Commission with any relevant information, including but not limited to information on our bid and our personal or corporate information.

Company	Name:	
Tenderer S	Signature:	
Tenderer	Name:	
Tenderer	Position:	
	Date:	

#### 1. Introduction

The Contractor is invited to

- Build up a WiFi network in Man Kwan QualiEd College (The College); and
- Provide and maintain a WiFi service and ITED network through subscription mode, and maintain all support level and services of existing WiFi services and ITED network.

#### 2. Background

The School will **enhance** / **top up** the IT infrastructure so as to set up the necessary WiFi environment in the school premises (full WiFi coverage in ALL classrooms and its open areas) for supporting e-learning. Regarding the enhancement of WiFi infrastructure, we would like to hire a contractor to design, build, operate and maintain the whole infrastructure; and to pay for the service through a subscription model.

#### 3. The Whole Design

The quoted price should include installation, setup, configuration and maintenance fee.

#### 4. User Requirements

This section specifies the user requirements of the School's WiFi and ITED network. The Contractor shall be capable of supporting the requirements set out below.

#### 4.1. Standard Provision (to be amended according to the School's requirement)

- WiFi Internet Connectivity using IEEE 802.11a/b/g/n/ac/ax network in standard classrooms. The number of classrooms to be covered is listed in **Part Y**.
- Number of Concurrent Connection commensurate with the maximum number of students, say 40, in a class with at least 10 Mbps upload / download bandwidth per connection.
- Authentication Method Use Hong Kong Education City accounts for authentication to save the effort for device registration.
- Session Control allow multiple devices per user account to be authenticated using Hong Kong Education City.
- Internet Content Filtering Service based on filtering profile commonly adopted by most schools and managed by vendors.

- Existing Network Facilities can rely on any existing network facilities and cabling of the School. The Wi-Fi network shall be integrated into the school existing network. Contractor should provide maintenance service within contract period in case existing cables, LAN ports are re-used.
- Hardware configuration School must have fully administrative right to configure Access Point controller and firewall setting.
- **Managed Service** operate the Wi-Fi network using managed service model, provide end-to-end service with single point of contact including configuration, provisioning of service, proactive monitoring, maintenance and regular reporting.
- Service Level Agreement ensure at least 99.7% availability of the WiFi service, support four-hour response time and four-hour service recovery with active monitoring, helpdesk support with support hours from Mon to Sat 8:00 am to 6:00 pm, and provide monthly monitoring reports for the School.
- Contract End Arrangement All provisions of trunks, conduits, cables, LAN ports and power points shall be considered as fixture of the School and become the property of the School.

#### **4.2.** Add-on Service (to be aligned with Part Y)

- WiFi coverage to include ALL special rooms and open areas
- Authentication Method user account system being used by school, etc.
- Session Control allow multiple devices per user account or other arrangement to be authenticated using Hong Kong Education City accounts
- WLAN system access control specific request on mac address filtering
- MAC Address Monitoring The lists of filtering and filtered mac addresses are to be monitored by the School.
- Internet Content Filtering Service specific request on content filtering
- Integration of networks system integration with existing network with secure design.
- Internet addresses subscription & configuration for internet access to school internal resources.
- **Broadband Network** –Contractor shall provide 3 x 1Gbps or above broadband service with at least 16 fixed IP on each broadband circuit.
- Monitoring specific request on monitoring of WiFi network by School
- Redundancy increase the availability of the WiFi service
- Support hours longer support hours and shorter time recovery
- Contract End Arrangement The Contractor shall remove all provisions of trunks, conduits, cables, LAN ports and power points according to the instruction of the School. Contractor can remove the network equipment such as switch, routers, and access points. The Contractor shall reinstate and make good the concerned area of the School to the satisfaction of the school management after removal of the hardware.

### 4.3. ITED Network maintenance and access switch 36 months subscription

- A. School would like to enhance the switches at the following location:
  - (i) Server Room

1 unit of 48-ports LAN switch with installation and configuration with 10Gbps uplink to the core switch (3 years warranty)

(ii) Computer Room

5 units of 16 ports LAN switches with installation and configuration, all of which will be

connected with the LAN node of all desktops and with 1Gbps uplink to the core/access switch at server room (3 years warranty).

(iii) Meeting Room at Library

1 unit of 24 ports of PoE switch with installation and configuration with 1Gbps uplink to the access switch at 1/F hub room.

All those switches should be in non-Asian brand. All those cables should be in Cat 6.

Specification (48 ports LAN switch)		
Description	48x 10/100/1000 Ethernet ports, 4x 10G SFP+ uplinks	
Gigabit Ethernet ports	48	
Uplink interfaces	4 SFP+	
PoE+power budget		
Fanless	Ν	
Dimensions (WxDxH in inches)	17.5 x 10.73 x 1.73	
Console ports		
RJ-45 Ethernet	1	
USB mini-B	1	
USB-A port for storage and Bluetooth console	1	
Memory and processor		
СРИ	ARM v7 800 MHz	
DRAM	512 MB	

#### B. Specification/requirements of the Access Switches

Flash memory	256 MB
	Performance
Forwarding bandwidth	88 Gbps
Switching bandwidth	176 Gbps
Forwarding rate(64—byte L3 packets)	77.38 Mpps
Unicast MAC addresses	16000
IPv4 unicast direct routes	542
IPv4 unicast indirect routes	256
IPv6 unicast direct routes	414
IPv6 unicast indirect routes	128
IPv4 static routes	16
IPv6 static routes	16
IPv4 multicast routes and IGMP groups	1024
IPv6 multicast groups	1024
IPv4/MAC security ACEs	600
IPv6 security ACEs	600
Maximum active VLANs	256
VLAN IDs available	4094
Maximum STP instances	64
Maximum SPAN sessions	4
MTU-L3 packet	9198 bytes
Jumbo Ethernet frame	10,240 bytes
Dying Gasp	Yes
MTBF in hours (data)	1,452,667
MTBF in hours (PoE)	856,329
MTBF in hours (Full PoE)	856,329

Specification (16 ports LAN Switch)			
Description	16x 10/100/1000 Ethernet ports, 2x 1G SFP uplinks		
Gigabit Ethernet ports	16		
Uplink interfaces	2 SFP		
PoE+power budget			
Fanless	Y		
Dimensions (WxDxH in inches)	10.56 x 10.69 x 1.73		
	Console ports		
RJ-45 Ethernet	1		
USB mini-B	1		
USB-A port for storage and Bluetooth console	1		
Ме	Memory and processor		
СРИ	ARM v7 800 MHz		
DRAM	512 MB		
Flash memory	256 MB		
	Performance		
Forwarding bandwidth	18 Gbps		
Switching bandwidth	36 Gbps		
Forwarding rate(64—byte L3 packets)	26.78 Mpps		
Unicast MAC addresses	16000		
IPv4 unicast direct routes	542		
IPv4 unicast indirect routes	256		
IPv6 unicast direct routes	414		
IPv6 unicast indirect routes	128		
IPv4 static routes	16		
IPv6 static routes	16		
IPv4 multicast routes and IGMP groups	1024		
IPv6 multicast groups	1024		

IPv4/MAC security ACEs	600
IPv6 security ACEs	600
Maximum active VLANs	256
VLAN IDs available	4094
Maximum STP instances	64
Maximum SPAN sessions	4
MTU-L3 packet	9198 bytes
Jumbo Ethernet frame	10,240 bytes
Dying Gasp	Yes
MTBF in hours (data)	2,165,105
MTBF in hours (PoE)	706,983
MTBF in hours (Full PoE)	\

Specification (24 ports PoE Access Switch)		
Description	24x 10/100/1000 Ethernet PoE+ ports and 195W PoE budget, 4x 1G SFP uplinks	
Gigabit Ethernet ports	24	
Uplink interfaces	4 SFP	
PoE+power budget	195W	
Fanless	Y	
Dimensions (WxDxH in inches)	17.5 x 11.76 x 1.73	
	Console ports	
RJ-45 Ethernet	1	
USB mini-B	1	
USB-A port for storage and Bluetooth console	1	
	Memory and processor	
CPU	ARM v7 800 MHz	
DRAM	512 MB	
Flash memory	256 MB	
	Performance	
Forwarding bandwidth	28 Gbps	
Switching bandwidth	56 Gbps	
Forwarding rate(64—byte L3 packets)	41.67 Mpps	
Unicast MAC addresses	16000	
IPv4 unicast direct routes	542	
IPv4 unicast indirect routes	256	
IPv6 unicast direct routes	414	
IPv6 unicast indirect routes	128	
IPv4 static routes	16	
IPv6 static routes	16	

IPv4 multicast routes and IGMP groups	1024
IPv6 multicast groups	1024
IPv4/MAC security ACEs	600
IPv6 security ACEs	600
Maximum active VLANs	256
VLAN IDs available	4094
Maximum STP instances	64
Maximum SPAN sessions	4
MTU-L3 packet	9198 bytes
Jumbo Ethernet frame	10,240 bytes
Dying Gasp	Yes
MTBF in hours (data)	2,026,793
MTBF in hours (PoE)	698,220
MTBF in hours (Full PoE)	698,220

#### C. Cabling

In addition, contractor shall install Cat. 6 cables for the following location/areas:

- (i) 5 x Cat. 6 cables from server room to Room 602 Computer Room
- (ii) 1 x Cat. 6 cable from 1/F hub room to Meeting Room of Library
- (iii) 1 x Cat. 6 cable from new Switch at Server Room 603
- (iv) 1 x Cat. 6 cable from hub room to Room 309

#### 1. <u>Keep Hardware Maintenance of ITED Switches (3 years)</u>

Contractor should provide hardware maintenance for the following:

- (i) Cisco Catalyst C3650-48TQ x 1 unit
- (ii) Cisco Catalyst \_C2960X-48P x 5 units
- (iii) Cisco Catalyst C2960X-24P x 1 unit
- (iv) Cisco Catalyst 3650 24 Port PoE 2x10G Uplink IP Base x1
- (v) Cisco Catalyst 2960-X 24 GigE PoE 370W~ 2 x 10G SFP+~ LAN Base x1
- (vi) US16XG x1

#### 4.4. Deliverables

- 4.4.1. The Contractor is required to provide the following deliverables for the WiFi network design:
  - Master Activity Plan
  - Network Configuration Report and Network Diagram
  - Network Test Plan and Network Test Result Report
  - Operation Manual for End User
  - User Acceptance Test Plan
  - Exit Plan
- 4.4.2. The Contractor is required to provide the monthly monitoring report with the following items:
  - Network Health Report
  - Network Usage Report
  - Reporting of security incidents
  - Reporting on trend and statistics of incident and their analysis
  - Reporting of the failure rate for all equipment with detailed fault analysis
  - Problem log and incident log for critical failure of the network
  - Statistical report on the type and no. of calls
  - Summary of the outstanding enquiry for the month-to-date

#### 5. Technical Specification

#### 5.1. WiFi network

- 5.1.1. The Wireless LAN (WLAN) System of the WiFi network shall support simultaneous dualoperation-mode, that is, FAT Access Point (AP) and THIN AP are both supported together with WLAN Controller. WLAN Controller shall be capable of fully centralized provisioning, configuration and monitoring all APs functionalities; physical controller on premises is required.
- 5.1.2. The thin client WLAN AP shall be a high performance wireless network access device, which shall be connected with the Power over Ethernet (PoE) Access Switches via Structured Cabling System. Appropriate type of connection cables between WLAN APs and the antenna shall be provided.

- 5.1.3. The WLAN APs shall be WiFi 6 standard or above, support 2.4 GHz (4x4), 5 GHz (4x4) and provide uplink speeds of 2.5 Gbps. The Contractor shall design the WLAN System to provide the coverage for the required wireless coverage place. The received signal strength measurement from the WiFi Service at the WiFi client device (such as tablet PC or notebook computer) is no worse than -68 dBm. The Contractor shall provide certificate or test report to illustrate that the WiFi client device for testing satisfies the power emission requirement.
- 5.1.4. The WLAN APs should support CleanAir technology (or similar feature) enhanced with 80MHz channel support, which delivers proactive, high-speed spectrum intelligence across 20-, 40-, and 80-MHz-wide channels to combat performance problems due to wireless interference.
- 5.1.5. The WLAN AP shall support DHCP, PoE, WPA2, IEEE 802.1x and certificate authentication.
- 5.1.6. The WLAN System shall support automatic channel selection, protocol filtering, multicast/broadcast storm filtering and load balancing.
- 5.1.7. The WLAN system shall allow multiple devices per user account to be authenticated using Hong Kong Education City accounts.
- 5.1.8. Each WLAN AP shall be able to support at least concurrent 40 users connecting to the network simultaneously. In no circumstance shall the speed of data transmission symmetrically fall below the data rate requirement at any place or any corner or any highly congested area within the areas being covered. In case the transmission speed is below the said data rates, the Contractor shall be responsible for all remedial measures to rectify or configure fine-tuning of antenna or even increase the quantity of the WLAN AP at Contractor's own costs in order to meet the data rate requirement as mentioned in the Specification. A complete set of catalogues with brand and model shall be submitted and highlighted for reference. The catalogues shall show all the features and technical specifications of the products and systems.
- 5.1.9. The system shall provide bandwidth control per user basis.
- 5.1.10. The WLAN shall allow different authentications by using Service Set Identifiers (SSIDs).
- 5.1.11. The SSIDs shall be able to be set hidden from searching by WiFi devices. The devices have to manually set SSID to make connection.

- 5.1.12. Individual APs shall be allowed to be assigned by more than one SSIDs.
- 5.1.13. Antennas of APs shall be capable of detecting user locations in real time for direction switching while devices in motion.
- 5.1.14. The DHCP server shall support at least 30 queries/sec.
- 5.1.15. The WLAN system shall suspend the session of the user once the session control is expired and the suspension time shall be configured by the school.
- 5.1.16. The Contractor shall in provision of the service comply with non-interference requirements of and shall not cause interference prohibited under the Telecommunication Ordinance (Cap 106) or any other laws or regulation of Hong Kong.
- 5.1.17. The WLAN System shall provide termination of idle sessions and control of the duration features.
- 5.1.18. The WLAN System shall provide Wireless Client roaming when users moving from the WiFi signal coverage area of one AP to another AP within the School.
- 5.1.19. The coverage of the designated area of the School shall be fully covered.
- 5.1.20. The Contractor shall allow costs in their quotations to provide sufficient quantity and its cabling work required, including but not limited to supply and install the Fiber optics, Cat 6 cable, Conduit, cable patch panel, cable faceplate, Cable patch cord.
- 5.1.21. The Contractor shall provide complete set of WLAN Systems which consist of Wireless AP, Connection Cable, Authentication System, Wireless LAN Controller, PoE Switch, horizontal UTP Cat 6 cable/OM3 Fiber, patch cable UTP Cat 6 / OM3 Fiber Optics, any required licenses and all associated accessories.
- 5.1.22. The WLAN System shall be certified by OFCA and copy of certificates issued by OFCA shall be attached to the proposals.
- 5.1.23. The Contractor shall ensure that there is no interference between WLAN APs due to limited non-overlapping channels assignment when the WLAN AP is installed. The Contractor shall be responsible at his own costs for providing solution to eliminate the interferences including but not limited to reassignment of the non-overlapping channels, adding extra APs with lower transmission power and/or replacement of the WLAN AP.

- 5.1.24. The WLAN System shall support Web GUI management.
- 5.1.25. FTP service shall not be allowed in the WiFi network (to avoid exchanging credential and files in plain text without any encryption).
- 5.1.26. The WLAN System shall support IPV6 addressing method.
- 5.1.27. The Contractor can make use of existing PoE switches for AP connection but need to keep them under maintenance until the contract ends (i.e. 3 years).
- 5.1.28. The WLAN System deployed shall be non-Asian brand

#### 5.2. Core Switch

- 5.2.1. The Core Switch would be responsible for connecting all PoE access switches in typical floors for WLAN AP.
- 5.2.2. The Core Switch shall be capable of providing the required bandwidth, QoS, and policybased routing to carry all sorts of information including video, voice, data, image, etc.
- 5.2.3. The Core switch shall not be the same equipment as the Broadband Router or Firewall. A separate core switch must be provided.
- 5.2.4. Each Core Switch shall provide a Gigabit Ethernet connection to each PoE Access Switch on typical floors.
- 5.2.5. The Core Switch shall support Layer 2 and Layer 3 switching and capable of providing the wired speed performance.
- 5.2.6. The Core Switch shall support basic IP unicast routing protocols, Static route, Routing Information Protocol (RIPv1, RIPv2), inter VLAN routing.
- 5.2.7. The Core Switch shall support Internet Group Management Protocol (IGMP) snooping and multicast and unicast storm control, Spanning-Tree Protocol.
- 5.2.8. The Core Switch shall support WebGUI Management, Access Control Lists (ACLs), DHCP Interface and SNMP.
- 5.2.9. The Core Switch shall support VLANs including support for IEEE 802.1Q and IEEE 802.1p.

#### 5.3. PoE Access Switch

- 5.3.1. The Access Switches shall be deployed to provide high performance interconnectivity between the Core Switches and the WLAN APs on typical floor.
- 5.3.2. The Access Switch shall consist of 8/12/24/48 x 10/100/1000Base-T Ethernet ports, with minimum of 1 x 1000Base-T / 1000Base-SX SFP Gigabit Ethernet uplink ports connected with the Core Switch.
- 5.3.3. The Access Switch shall be used for connecting the WLAN APs. The Contractor shall determine the Maximum power loading of the devices to be connected with the PoE Access Switches. The Contractor shall provide additional PoE Access Switch(es) if the total power loading summed up from the PoE devices exceeds the maximum power loading capacity of the PoE Access Switch.
- 5.3.4. The Access Switches shall support VLAN configuration.
- 5.3.5. The Access Switches shall be at wired speed.
- 5.3.6. The Access Switches shall be provided sufficient port density to meet all the required links.
- 5.3.7. The Access Switches shall support PoE and shall conform to IEEE 802.af / IEEE 802.3bt standard, which delivers power over single copper UTP cable for WLAN AP.
- 5.3.8. The Access Switches shall support Internet Group Management Protocol (IGMP) snooping and multicast and unicast storm control, IEEE 802.1D Spanning-Tree Protocol.
- 5.3.9. The Access Switches shall support Virtual local area network (VLANs) including support for IEEE 802.1Q and IEEE 802.1p.
- 5.3.10. The Access Switches shall support WebGUI Management, Access Control Lists (ACLs), DHCP Relay and SNMP.

#### 5.4. Firewall

- 5.4.1. The performance of the Firewall shall not be degraded with 100% Internet bandwidth utilization.
- 5.4.2. Network Address Translation (NAT) is required.

- 5.4.3. Access control Policy is required.
- 5.4.4. The configuration settings of the appliance shall be allowed to export to files for backup and restore for rapid recovery and shall control all incoming and outgoing Internet traffic, serving as the sole entry and exit point between the Internet and the WLANs in all locations.
- 5.4.5. The configuration settings of the appliance shall support blocking specific network ports, including ports of Transmission Control Protocol (TCP) and User Datagram Protocol (UDP). Blocking denial of service (DoS) attacks and malformed packet attacks shall also be configured
- 5.4.6. The firewall policy should be applied to control network traffic such that public users should be prohibited to access the internal network segments of the School.
- 5.4.7. The router policy should be applied to shape the guest user VLAN traffic to designated bandwidth requested by School to preserve the e-learning in class which is the primary purpose of School Wi-Fi.
- 5.4.8. The firewall should consist 18 x GE RJ45 (including 1 x MGMT port, 1 X HA port, 16 x switch ports), 8 x GE SFP slots, 4 x 10GE SFP+ slots, NP6XLite and CP9 hardware accelerated, 480GB onboard SSD storage and support 3x1Gbps broadband service after enabling all UTP features.

#### 5.5. Service Requirements

- 5.5.1. The Contractor shall be responsible for the total project management and shall assign a person to act as the single contact point to the School regarding all related activities of the contract. This single contact point cannot be transferred to a sub-contractor. Contractor should formally inform the School in writing if there is a change of contact point.
- 5.5.2. The project manager of this project shall be the staff of the contractor for at least 6 months. The contractor shall prove the employment of the project manager by providing supporting documents during tender submission.
- 5.5.3. The project manager shall attend the project meeting before completion of the project.

- 5.5.4. The Contractor shall provide rack/cabinet or use existing school rack if there is available rack space. All switches/firewall shall be properly installed into wall mounted cabinet or rack.
- 5.5.5. Cables shall be labelled with connected port and its device id.
- 5.5.6. All the equipment shall be labelled with an identifiable id.
- 5.5.7. The placement of cables, cabinets, racks and appliances shall be shown on the network diagram.
- 5.5.8. Switches and/or other appliances shall be properly installed into cabinet/rack with appropriate ventilation.
- 5.5.9. Cable length shall not be excessive nor too short in which preventing door opening or closing.
- 5.5.10. 13A power cord(s) shall be bundled with appliance(s).
- 5.5.11. Cable shall be properly set up onto appropriate cable management guide.
- 5.5.12. Contractor should make sure that the actual environment is suitable for the installation and operation of equipment with the School agreement in advance, and make necessary suggestions, if any.

#### 5.6. Service Level Requirements

- 5.6.1. The Contractor shall provide incident/problem report to the School within 5 working days after each incident and the resolution taken.
- 5.6.2. The Contractor shall derive mechanism, including forms and reference tables for measuring and recording the Service Level Measures, to ease the administration and monitoring by the School.
- 5.6.3. Advanced notice by at least 2 weeks shall be given to the School prior to all scheduled maintenance. At most 4 scheduled maintenances per year are excluded from the calculation of Service Levels. No more than 1 hour service interruption or an agreed time slot is accepted for each scheduled maintenance.

5.6.4. Service Level, expressed in percentage, is the ratio of actual available time to the scheduled available time for the WiFi network of the School and is calculated according to the following formula:

Service Availability Level = (Schedule Uptime within the month– Unscheduled Downtime within the month) / Scheduled Uptime within the month, where

Scheduled Uptime: The duration, in unit of minutes, for the WiFi network of the School is scheduled to be available for the month. The duration will exclude the scheduled downtime, which is defined as duration agreed between the School and the Contractor during which the service may be made purposefully unavailable to users.

Unscheduled Downtime: The amount of time, in unit of minutes, for unscheduled maintenance of hardware or software of the Contractor that are unavailable due to their malfunctioning excluding the causes by failure of hardware supplied by the School or the environmental causes not under the Contractor's control.

#### 5.7. Service Level Rebates

- 5.7.1. The Service Rebates to the School operate as liquidated damages for the performance fallen short of the target service levels over a period of one month. The service measures stipulated in 5.6 will be used to determine the Service Rebates in Service Availability (S1) and Service Resumption Time (S2).
- 5.7.2. The application of the Service Level Rebates adjustment to the monthly charge will commence with effective from the acceptance of the reliability test.
- 5.7.3. For each month, the Service Rebates for different service measures (S1, S2) will be calculated as below if the Contractor cannot meet the target Service Levels for the Wi-Fi network of the School under the availability agreed:

# Failure Hour x [(Yearly Subscription Fee) / (365 x 24)] x 2

where Failure Hour: The unscheduled downtime or the time to resume the network due to the failure of hardware or software which is provided by the Contractor. Failure Hour is calculated in the increment of 0.5 Hour.

5.7.4. The Service Rebates of the Wi-Fi network of the School, if any, will be paid by crediting the invoice of the following month.

#### 5.8. Helpdesk Service

- 5.8.1. The Helpdesk Service shall maintain dedicated hotline, including phone, email, instant messaging and fax, for enquiries and complaints.
- 5.8.2. The Helpdesk Service shall answer enquiries and complaints originated from the School not only concerning the Service, as well as remote re-configuration of existing firewall, switches, virtual machines, active directory and PC/files management.
- 5.8.3. The Helpdesk Service shall operate 24hours from Mon to Sat, and 9am to 5pm with operators providing tier 1 remote re-configuration services as stated in 5.8.2.
- 5.8.4. The Helpdesk Service shall maintain call logs on enquiries and complaints. The information shall be included but not be limited to date, time, description of issues, contact information, and follow-up actions. The Contractor shall observe and comply with Personal Data (Privacy) Ordinance in handling all information relating to these enquiries and complaints.
- 5.8.5. The Contractor shall provide the following information concerning the Helpdesk service related to the implementation of the Service:
  - Detailed information of the helpdesk office, such as address, phone number, fax number; and
  - Facilities, computer systems and equipment provided in the helpdesk office, such as private branch exchange (PBX), keyline telephone system (KTS), interactive voice response system (IVRS) and voice recording system.
- 5.8.6. The Contractor shall provide helpdesk staff with the necessary tools, including but not limited to hardware and software, related training for supporting the Service.
- 5.8.7. The Contractor shall not make use of the Helpdesk Service to transmit any message or conduct any activity which is not connected with the provision of the Service. The School shall have the full discretion to determine whether any such message or activity is in breach of this provision. The Contractor shall forthwith stop transmitting such message or conducting such activity and refrain from doing it further once the School has notified the Contractor in writing or verbally of its determination.

#### 5.9. User Acceptance Test

- 5.9.1. The Contractor shall conduct tests with the School before the service is officially accepted and subscription started. Tests shall include User Acceptance Test for reliability and performance of the hardware and software, and also the monitoring, operation support and all other aspects related to the Service Level Agreement of the Service. At least 14 school working days of trial period is expected for service monitoring after testing.
- 5.9.2. The contractor will be required to perform test making reference to the User Acceptance Test and System Test documents proposed by Education Bureau. They include the types of testing to be performed, the requirements to be tested, the testing environment, testing tools and pass/fail criteria as reference to the Contractor.
- 5.9.3. The Contractor shall upon request by the School arrange briefings to the School and/or Responsible Parties of the School, with briefing materials, prior to the User Acceptance Test when required.
- 5.9.4. The Contractor shall provide detailed acceptance test plan and a step by step testing procedure with expected results against the requirements set out in this specification.
- 5.9.5. The Contractor shall provide, configure and set up the proper software and hardware for the School to carry out the User Acceptance Test.
- 5.9.6. The Contractor shall be required to carry out tests to demonstrate that the equipment and system meet the specification and other contractual requirements. The Contractor shall also be responsible for the timely preparation and compilation of all test schedules, test procedures and test reports.
- 5.9.7. The Contractor shall follow the agreed standards as laid down in this specification for the testing methods and procedures.
- 5.9.8. The Contractor shall submit a schedule of site performance and commissioning tests at least 3 working days prior to the commencement of the scheduled commissioning date.
- 5.9.9. Special tools, test equipment, test objects and simulators required for the demonstration of either bench or commissioning tests shall be made available by the Contractor at no extra charge to the School.

- 5.9.10. All test equipment used by the Contractor shall be properly and periodically calibrated. Measuring standards used in calibration shall be traceable to international or national measurement standards, or to an industry recognized manufacturer's reference, subject to approval of the School.
- 5.9.11. Calibration procedures and results shall be documented and signed by certifying body where applicable. The Contractor may be requested to show evidence of calibration of test equipment by submission of copies of these calibration records prior to conduction of any tests.
- 5.9.12. The Contractor shall submit the User Acceptance Test report within 3 working days. The acceptance of the installation will only be granted after receiving a satisfactorily UAT report from the Contractor.
- 5.9.13. All equipment to be installed may be subject to inspection and bench testing. The Contractor shall meet the cost of deliveries for bench test. Notwithstanding, the Contractor shall have carried out the tests in accordance with the requirements and procedures stipulated in this specification and submitted the associated test reports for inspection.

#### **5.10.** Termination of Service

- 5.10.1. The School reserves the right to terminate all or part of the Service at any time with written notice of 10 working days in advance if:
  - The Contractor fails to meet the target service levels under Service Level Requirements for two consecutive months, or three months in total within the committed subscription period;
  - The School suspects that unauthorized activity has occurred or is occurring in relation to the Service;
  - The provision of the Service will cause the School to be in breach of any applicable law;
- 5.10.2. The Contractor shall provide to the School and implement the Exit Plan in accordance with:
  - The Contractor shall provide to the School an Exit Plan with feasible arrangements before the committed subscription contract date;

- If the School considers the Exit Plan as not satisfactory, it will notify the Contractor with comments. The Contractor shall revise the Exit Plan by taking into consideration of the School's comments and provide to the School within five (5) working days after the date of receiving the School's comments. If the Exit Plan has been considered as not satisfactory for three or more times, the School shall have the right to terminate this Contract by giving 10 days' notice in writing;
- Detailed exit procedures, disengagement timetable and actions to be taken by both the Contractor and the School for smooth termination of all or any part of the Service;
- The Exit Plan shall aim at enabling the School or its authorized parties to perform in substitution for the Contractor and to eliminate or minimize any disruption or deterioration of the Service. The Exit Plan shall contain, but not limited to the following information:
  - Detailed exit procedures, disengagement timetable and actions to be taken by both the Contractor and the School for smooth termination of all or any part of the Service;
  - Any information that is necessary for the School or a new service provider to continue the provision of the Service;
  - Details of the Contractor's personnel and other resources that will assist the School or the School's authorized parties during the handover;
  - All provisions of facilities such as trunks, conduits, cables, LAN ports and power points, shall be considered as fixture of the School venues and shall become the property of the School. The Contractor shall remove or keep those provisions according to the instruction of the School. Contractor can remove the network equipment such as switch, routers, and access points.
- The Contractor shall be responsible for the implementation and execution of the Exit Plan and shall ensure that the exit plan is carried out in a timely and orderly manner.

#### 6. Schedule of Work

**6.1.** The Contractor shall provide the service according to the following schedule for WiFi Implementation by phases. For details please refer to Section 1,2, 3 and 4 of Part Y.

Phase	Items	Starting Date	Ending Date	Service fee
Ι	Build up of ITED and	On or before 15	15 August	0
	WiFi network	July 2024	2024	
II	Subscription of service	1 September 2024	31 August	Quoted
			2027	price

#### 7. Delay of Schedule

- **7.1.** If the Contractor fails to provide any part of the WiFi service which shall be ready for use in the School within 60 days after the target Ending Date specified in 6.1 of Schedule of Work then notwithstanding anything else contained in this Contract the School shall be entitled to terminate this Contract with forthwith by giving written notice to the Contractor and to recover from the Contractor the amount of all damages and loss suffered by the School resulting from such failure, including without limitation to any damages and loss resulting from the termination of related service orders.
- **7.2.** Within one (1) week of the termination of this Contract, the Contractor shall collect its own Hardware and Software at his own cost after the contractor has removed the School Data in the Hardware.
- **7.3.** The Contractor shall reinstate and make good the concerned area of the School to the satisfaction of the School after removal of the hardware.

#### 8. Terms of Payment

**8.1.** The payment will be paid monthly in arrears.

#### 9. Price Proposal

- **9.1.** The Service Provider is required to provide a breakdown on the service charges for each of the service items as set out in the Price Proposal at **PART Y PRICE SCHEDULE**. Failure in complying with this requirement will render the quotation disqualified.
- **9.2.** Please note that due to resources constraint or other operational considerations of the School, the School has the absolute discretion to accept the whole of the Services or just part of the Services as listed out by items in the Price Proposal.
- **9.3.** Set up cost will not be considered as a part of the cost in subscription mode.

#### **10. Invitation for Tender**

- **10.1.** Tenders are invited for the execution of the whole of the Services as described in this document. Tenders for part but not all of the Services will not be considered.
- **10.2.** Please provide <u>**TWO**</u> sets of Tenders documents for processing of the Tenders.

#### **11. Tender Preparation and Submission**

**11.1.** The Service Provider is required to submit the following information and document.

- Price Schedule
- Proposed AP location mark on the Floor plan
- Proposed Network infrastructure show on the Network Diagram
- Implementation Plan
- WLAN system certificates issued by OFCA
- Product information including technical and descriptive literature and catalogues. Information provided by the manufacturer shall be able to substantiate that the products offered meet the mandatory Technical Specification.

#### 12. Selection and Payment

School is looking for a contractor based on the following criteria, detailed assessment criteria.

- Proposed pricing
- Proposed solution
- Equipment and services level
- Case reference
- Other useful information

#### **13.** Briefing Session/Site Visit

13.1 To facilitate the Service Provider to propose the quotation, a briefing session is arranged as follows. The Service Provider must attend the briefing session and carry out WiFi survey with appropriate tools.

Date:18 JUNE 2024 Time: 10:00 am Venue: Man Kwan QualiEd College

#### 14. Enquiry

For enquiry, please contact Mr. Tam Ka Meng (kmtam@mkqc.edu.hk), Mr. Tsang Ming Hong (mhtsang@mkqc.edu.hk) of the School or by phone at 27066969.

# **PART Y - PRICE SCHEDULE**

# 1. Price details for Standard Provision

Item	<b>Standard Provision</b> (For details, please refer to PART X)	Applicable (Y/N) (If not, please provide details)	3 years		School's choice on confirmation
			Monthly price	Annual price	
1	需提供 ITED 及 Wireless Network (WiFi)				
	Subscription period				
	36 months, starting from 1 Sep 2024				
2	ITED LAN Port 位置,能連接學校 Network (603				
	各 Server), 包括最少有				
	● G/F 校務處及其中房間內各同事座位,、影印				
	機室、校務處門禁系統、社工室 A, 社工室				
	B, Tuck Shop				
	● 1/F教員室(所有同事位)及其門禁系統、影印				
	機室				
	● 圖書館內所有電腦、及其內的影印機室、及				
	門禁系統				
	● 2/F HALL, 209 & 210 及其門禁系統				
	● 3/F HALL, 309 (藝術室)				
	• 4/F 413				
	● 6/F 601、602(電腦室內所有電腦)、603、閉				
	路電視系統、605(校園電台)、608(未來教室				
	內所有電腦及上網設備)、609(校園電視				
	台),及全層門禁系統				
	● 701 及其門禁系統,709,710				
	• $R01 \cdot R05 \cdot R06$				

Item	<b>Standard Provision</b> (For details, please refer to PART X)	Applicable (Y/N) (If not, please provide details)	3 years		School's choice on confirmation
			Monthly price	Annual price	
4	<ul> <li>Number of Concurrent Connection</li> <li>Item 3 範圍內,除下列特別指明地點外,全部都</li> <li>需可同時讓 40 個流動上網裝置使用及上下載網速</li> <li>不少於 10Mbps,特別指明地點如下:</li> <li>109 Teacher's Room, 209, 210, 需可同時讓</li> <li>120 個流動上網裝置使用及上下載網速不少</li> <li>於 10Mbps</li> <li>113(創藝影院),需可同時讓 80 個流動上網裝</li> <li>置使用及上下載網速不少於 10Mbps</li> <li>Hall 需可同時讓 200 個流動上網裝置使用及上下載網速不少於 5Mbps</li> </ul>				
5	<ul> <li>Broadband service</li> <li>provide at least 3 x 1000Mbps Internet connection at school for the ITED and Wi-Fi service</li> <li>provide 16 IP address for each broadband</li> </ul>				
6	<ul> <li>SSID &amp; Authentication Method</li> <li>Support Multiple SSID co-exist through an AP</li> <li>Different SSID can have different authentication method</li> <li>Authentication method : Support MAC address filter (School can have the ability to add(by csv file)/edit / remove MAC address permit / deny to Wi-Fi connection)</li> <li>Authentication method : use IEEE 802.11a/b/g/n/ac/ax standard or above based authentication and Hong Kong Education City single sign-on services</li> </ul>				

Item	<b>Standard Provision</b> (For details, please refer to PART X)	Applicable (Y/N) (If not, please provide details)	3 years		School's choice on confirmation	
			Monthly price	Annual price		
7	<ul> <li>Session Control</li> <li>Internet Content Filtering Service</li> <li>Integration of networks</li> <li>Monitoring of WiFi network</li> <li>WiFi Service Recovery</li> <li>Support hours</li> <li>Reporting</li> <li>Contract End Arrangements (Requirement as stated in Part X)</li> </ul>					
8	包所有現有有線(ITED)網絡的硬件(及其所有配件)保養維修及軟件設定,如合約期內損壞需包括 更換其裝置或設備,及在期間提供暫時代用裝置 或設備,而不另收費。 現有有線(ITED)網絡的硬件如下: (i) Cisco Catalyst C3650-48TQ x 1 unit (ii) Cisco Catalyst C2960X-48P x 5 units (iii) Cisco Catalyst C2960X-24P x 1 unit (iv) Cisco Catalyst 3650 24 Port PoE 2x10G Uplink IP Base x1 (v) Cisco Catalyst 2960-X 24 GigE PoE 370W~2 x 10G SFP+~ LAN Base x1 (vi) US16XG x1					
9	以租用方式新增下列 SWITCH: 602 室(5 x 16 por,包拉5條 603 至 602 CAT6 LAN 線工程)、 603(1 x 48 port,)、1/F 輔導室(1 x 24 port,包拉1 條 1/F 機房至 1/F 輔導室 CAT6 LAN 線工程),包 括所有硬件及其配件的保養維修及軟件設定					

Item	<b>Standard Provision</b> (For details, please refer to PART X)	Applicable (Y/N) (If not, please provide	3 years		School's on confirm	choice nation
		details)	Monthly price	Annual price		
10	包租用所有無線(WIFI)與無線網絡的硬件(及其所有配件)保養維修及軟件設定					
11	所有 Set up 及/或 重建工程需於 2024 年 8 月 14 日 或之前完成					
12	必須出席 Briefing Session/Site Visit (Requirement as stated in Part X 13.1),否則不會被考慮					
	Total in HK\$					

## 2. Wi-Fi.HK Service

Wi-Fi coverage area of Wi-Fi.HK :	Please specify
Will you provide free Wi-Fi.HK service (Y/N)?	Y/N (to be input by Contractor)

## 3. Details of equipment to be proposed in the Buildup of WiFi network in the School

Items	Quantity	Model
On Site WiFi Controllers		
Access Points		
Router		
Firewall		
Core Switch		
Access PoE Switches		
LAN Cables		
Others (please specify)		

4. The Tenderer to provide details of the sub-contract service involved in the proposal for the project implementation, service operation and maintenance in the format listed below

Name of Sub- Contractor	Sub-contract service	Roles and responsibility

5. The Tenderer to provide case reference of past deployment in WiFi100/WiFi900 with Sub-Contractors details in the format listed below

Name of School	Name of Sub- Contractor	Sub-contract service	Roles and responsibility

6. Existing LAN and WiFi Network Diargram and Floor plan (provided by the School) is attached.

