



Expression of Interest (“EOI”)

Supply and Installation of Microscopes, Light, Operating for Prince of Wales Hospital, New Territories East Cluster, Hospital Authority

(EOI Ref. : NTEC/P&MM/NF&EA/CBV2627-22772/T002-EOIP)

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Expression of Interest (“EOI”)
for Supply and Installation of Microscopes, Light, Operating
for Prince of Wales Hospital, New Territories East Cluster,
Hospital Authority

1. Purpose

- 1.1 The New Territories East Cluster (“NTEC”), Hospital Authority (“HA”) intends to invite parties (the “Interested Parties”) to indicate their interests and to solicit information/proposals on the Supply and Installation of Microscopes, Light, Operating for Prince of Wales Hospital (“PWH”).
- 1.2 NTEC, HA intends to conduct a pre-qualification exercise to enlist from the interested parties, who may be further invited to submit tender proposals after completion of this EOI exercise. The selected candidate(s) of the tender exercise shall supply and install the equipment to PWH by entering into contracts with the NTEC, HA.

2 Background

- 2.1 The NTEC is planning to procure one set of Microscopes, Light, Operating for PWH.

3. Objectives

- 3.1 The objectives of this Expression of Interest are to:-
 - 3.1.1 invite market feedback, on a noncommittal basis, on the proposed specifications and evaluate to what extent the market can meet the proposed specification;
 - 3.1.2 understand the available source of supply being marketed for Supply and Installation of Microscopes, Light, Operating.
 - 3.1.3 ensure there will be suppliers who are of solid experience and capable to enter contract with NTEC.
 - 3.1.4 conduct a pre-qualification exercise to enlist from the interested parties for further invitation to tender exercise.

4. Qualification Requirement and Criteria for Evaluation

- 4.1 Interested parties may respond to this EOI if they comply with the qualification requirement including the specification of the Supply and Installation of Microscopes, Light, Operating for PWH as listed in Annex 2.

5. Submission Requirements/Proposals

5.1 Interested parties are required to provide to the Hospital Authority the following information and documents:

5.1.1 Particulars of the Interested Party

- (a) Completed application form, as provided in Annex 1, containing basic information of the interested party and its authorized representative together with a declaration.
- (b) Documentary evidence for the compliance of qualification requirements as listed in Annex 2.
- (c) Name and address of the company/business organization.
- (d) Length and nature of business experience including without limitation experience in the performance and/or supply of the products as listed in Annex 2.
- (e) Shareholders/partners of the company/business organization.
- (f) A copy of its Memorandum and Articles of Association or other documents evidencing its business status.
- (g) Copies of the organization's Certificate of Incorporation with the Companies Registry (if incorporated), its current business registration certificate and its application form for registration of business.
- (h) Copies of all current license(s) or permit(s) issued in favour of the interested party by the relevant authorities that are required to legally perform and/or supply the product (if applicable).
- (i) Any other market information that the interested party considers relevant to the Supply and Installation of Microscopes, Light, Operating.
- (j) Supporting documents and/or brochures/catalogue shall be submitted.

5.1.2 Compliance with the Qualification Requirement

Interested parties should explicitly indicate the compliance of the preliminary specifications and provide comment and/or feedback by completing and returning Annex 2 for HA's consideration.

5.1.3 Indicative Price Proposal

Interested parties should also indicate the price of Microscopes, Light, Operating by completing and returning Annex 3.

5.1.4 Equipment Specific Accessories and Consumables

Interested parties shall confirm in Annex 4 if the accessories and consumables used on the offered Microscopes, Light, Operating are specific and have no alternative/compatible.

6. Expression of Interest

- 6.1 Submissions from Interested Parties meeting the above requirements will be considered by NTEC. Submissions or parties not meeting any of the mandatory qualification requirements shall be rejected.
- 6.2 Pre-qualified candidates will be notified separately by NTEC. The pre-qualification does not indicate or imply any commitment for future engagement of any pre-qualified party(ies) by NTEC.
- 6.3 NTEC will issue tender document for the Supply and Installation of Microscopes, Light, Operating to the pre-qualified candidates only and will consider further proposals submitted by such candidates only.
- 6.4 If NTEC considers that a pre-qualified candidate has ceased to be able to meet any of the qualification requirements, NTEC may, at its discretion, disqualify such candidate from submitting further proposal at any time prior to acceptance of the proposal.
- 6.5 This EOI does not constitute an invitation to participate in the tender for the Supply and Installation of Microscopes, Light, Operating, nor does this document or any document made available pursuant to this EOI constitute any contract or agreement of any kind whatsoever with NTEC.
- 6.6 Proposals from interested parties will be considered by the NTEC in compilation of tender document and specifications for the coming tender.
- 6.7 All costs associated with any submission in response to this invitation shall be entirely the responsibility of the interested party(ies). The NTEC reserves the right to accept or reject any Expression of Interest at its discretion and without assigning any reason or explanation.
- 6.8 The NTEC reserves the right to cancel or terminate the process of Expression of Interest and/or "Invitation to Tender" at any time or during any stage of the process without giving the reason for such action. The NTEC shall not be liable to any party for any loss or damage, cost or expense as a result of such action.

- 6.9 All Expression of Interest in triplicate, with the hard copies and soft copies (saved in CD-ROM), in a sealed envelope marked “Invitation for Expression of Interest for the Supply and Installation of Microscopes, Light, Operating for Prince of Wales Hospital (EOI ref.: NTEC/P&MM/NF&EA/CBV2627-22772(2)/T002-EOIP)” must be deposited into the Tender Box situated at the following address **before 12:00 noon on 30 October 2026 (Hong Kong Time)**. Late submission may not be accepted or considered.

Procurement & Materials Management Division
New Territories East Cluster
Room 027A, 3/F, Block D, Shatin Hospital,
29 A Kung Kok Street,
Ma On Shan, Shatin, N.T

(Note: Reference number; Description and Closing Date shall be marked on the envelope for easy identification)

- 6.10 The Closing Time and Closing Date will be extended to 12:00 noon the next working day in Hong Kong (i.e. any day from Monday to Friday which is not a public holiday) under the following situations:
- (i) a black rainstorm signal or tropical cyclone warning signal No. 8 or above or “Extreme Conditions” issued by the Government is still in force between 9:00 am and 12:00 noon on the Tender Closing Date; or
 - (ii) it is announced by the Government between 9:00 am and 12:00 noon on the Tender Closing Date that a black rainstorm signal or tropical cyclone warning signal No. 8 or above or “Extreme Conditions” will be issued in Hong Kong between 9:00 am and 12:00 noon on the Tender Closing Date. For the avoidance of doubt, if it is announced by the Government that such signal will be issued at or before a time that falls beyond 12:00 noon on the Tender Closing Date, there will not be any extension of the Tender Closing Time or Tender Closing Date unless the relevant signal is actually issued and is in force between 9:00 am and 12:00 noon on the Tender Closing Date.

7. Presentation / Demonstration

Interested party(ies) which have submitted “Expression of Interest” may be invited give presentation on their proposals / demonstration on their product in person or by other means after the closing date of this EOI exercise.

8. Tentative Procurement Plan

Following the Expression of Interest exercise, it is anticipated that the tentative procurement schedule will be as follows:

- a) Issuance of Invitation to Tender (4Q 2026)
- b) Evaluation of Tender (4Q 2026)
- c) Award of Contract (4Q 2026)

9. Enquiry

Please write to the designated contact person by email or by post for any enquiries concerning this Expression of Interest exercise as detailed below:

Procurement & Materials Management Division
New Territories East Cluster
Room 027A, 3/F, Block D, Shatin Hospital,
29 A Kung Kok Street,
Ma On Shan, Shatin, N.T
(Attn: Miss. Janice AU – Manager (P&MM))
Tel: 3505 5091
Fax: 3505 5092
Email: aumyj@ha.org.hk

New Territories East Cluster
Hospital Authority
6 October 2026



Application for the Expression of Interest to the Hospital Authority

**Supply and Installation of Microscopes, Light, Operating
for Prince of Wales Hospital, New Territories East Cluster, Hospital Authority**

I. Party

- Name of Party: _____
- Registered Address (No. Street, City, Country and Postal Code):

- Tel. No.: () _____ Fax No.: () _____
- E-mail: _____

II. Representative authorized by the Party

The following information of the Representative authorized by the Party must be provided:

- Name of the Representative authorized by the Party:

- Position of the Representative authorized by the Party:

- Contact Address (No., Street, City, Country and Postal Code):

- Tel. No.: () _____ Fax No.: () _____
- E-mail: _____
- The Representative must have full authority to commit the Party in this Expression of Interest.

III. Declaration

- I declare that to the best of my knowledge and belief:
 - (a) the Party is able to meet all of the basic qualification requirements set out in Hospital Authority's invitation for Expression of Interest; and
 - (b) the information and documents submitted by the Party to the Hospital Authority in response to the invitation are true and correct in all material respects.
- I understand that Hospital Authority reserves the right to accept or reject any Expression of Interest at its discretion without giving any reason or explanation.

Signature: _____

Names: _____

Position: _____

For and on behalf of: _____

Date: _____ Company Chop: _____

- This shall be signed by the "Representative Authorized by the Party" named in Section II above.

Qualification Requirement
Supply and Installation of Microscopes, Light, Operating
for Prince of Wales Hospital
EOI Reference: NTEC/P&MM/NF&EA/CBV2627-22772/T002-EOIP

General Rules and Observations

Unless otherwise stated, each set of Microscopes, Light, Operating offered shall incorporate the following components / requirements / features. Interested parties must indicate below, point by point, whether their offered goods complies fully with the specification. In addition to indicating 'Yes' or 'No' against each item, interested parties must provide details / data / documentary support if necessary. Interested parties should also indicate if they or their subsidiary companies are the exclusive distributor of any of accessories or ancillary systems in the specification. Failure of the interested parties to comply with the foregoing requirement may jeopardize consideration of their offers.

This EOI calls for the Supply and Installation of Microscopes, Light, Operating for Prince of Wales Hospital :-

This EOI exercise will pre-qualify candidate(s) on an overall basis.

Please specify the details of the Microscopes, Light, Operating to be offered and attach the relevant catalogue / brochure:-

To be completed by Interested Party:-

Brand : _____

Model : _____

Manufacturer : _____

Country of Origin : _____

Date of Product Launch : _____

Reference Clinical Installation Site(s) : _____

Delivery Lead Time : _____

Installation Lead Time : _____

We or our subsidiary companies are / are not* the exclusive distributor of any of accessories or ancillary systems in the specification.

**please delete where appropriate*

Company Chop _____

Qualification Requirements
Supply and Installation of Microscopes, Light, Operating
for Prince of Wales Hospital, New Territories East Cluster

<u>Type of clause</u> [M] – Mandatory Requirement [D] – Desirable Requirement [O] – Optional Requirement The product offered shall incorporate the following components / requirements / features.	Interested parties MUST indicate below the extent of compliance of the offered product(s) by filling in “Yes” or “No” and provide the specifications of the offered product(s) point by point against each clause of the Qualification Requirements.
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<u>Clause</u>	<u>Specifications</u>		<u>Yes</u>	<u>No (provide details)</u>
			(Please tick as appropriate)	
	This tender calls for the supply, delivery, installation, and one-year full comprehensive warranty for one set of Microscopes, Light, Operating in Prince of Wales Hospital.	(M)		
1.	General Requirements			
1.1.	Each set of microscopes offered shall be a compact microscope with integrated video system, without external trolleys.	(M)		
1.2.	It shall be equipped with the accessories for second observer in 90° and 180°.	(M)		
1.3.	It shall have touchscreen or functionally equivalent button/knob control panel at the main unit, in order to control the camera, recording, handgrip, light source, system parameter such as light intensity and other features of the microscope.	(M)		
1.4.	It shall be equipped with at least two integrated camera systems.	(M)		
1.5.	It supports simultaneously recording video in two different resolutions.	(O)		
1.6.	The system shall be equipped with two monitors; one for 2D viewing, one 3D monitor for 3D viewing.	(M)		
1.7.	Intraoperative Fluorescence module (Yellow 560 or functionally equivalent) shall be included.	(M)		
1.8.	Intraoperative Fluorescence module (Blue 400 or functionally equivalent) shall be included.	(M)		
1.9.	Intraoperative Fluorescence module (Infra-red 800 or functionally equivalent) shall be included.	(M)		
1.10.	Support to have three fluorescence mode in the same microscope without the need to change filters.	(M)		
1.11.	DICOM upgradability shall be available for future upgrade.	(M)		
1.12.	Intraoperative Fluorescence Application (Flow 800) shall be included	(M)		

<u>Clause</u>	<u>Specifications</u>		<u>Yes</u>	<u>No (provide details)</u>
			(Please tick as appropriate)	
2.	Microscope Optical System offered shall meet the following requirements			
2.1.	<u>Magnification System</u>			
2.1.1.	1:6 zoom	(M)		
2.1.2.	Motorized zoom, or more options	(M)		
2.1.3.	Using apochromatic optics	(M)		
2.1.4.	Magnification range: 1.25x to 21x or wider, with 12.5x eyepiece and/or multiplier.	(M)		
2.1.5.	Upgradable up to 39x magnification, or better	(D)		
2.1.6.	Current magnification displays on screen control or more options	(M)		
2.1.7.	Zoom start value can be defined so the system returns to the user-defined zoom value when startup	(M)		
2.1.8.	Can be adjusted by hand grip and footswitch	(M)		
2.2.	<u>Focusing System offered shall meet the following requirements</u>			
2.2.1.	Wide field eyepieces for eyeglass wearers, with dioptic adjustable setting and adjustable eye cup.	(M)		
2.2.2.	Motorized focusing, or more options	(M)		
2.2.3.	Focus start value can be adjusted so the system returns to the user-defined focus value when startup	(M)		
2.2.4.	Minimum working distance shall be 225mm or less	(M)		
2.2.5.	Maximum working distance shall be at least 600mm or more. Please specify _____	(M)		
2.2.6.	Can be adjusted by hand grip and footswitch	(M)		
2.2.7.	High-speed laser-based autofocus	(M)		
2.2.7.1.	High-speed laser has power less than 1mW	(M)		
2.2.7.2.	High-speed laser has wavelength 645-671nm, or functionally equivalent wavelength.	(M)		
2.2.7.3.	Visual focusing aid with two converging laser spots shall be visible during autofocusing.	(M)		
2.2.7.4.	Automatic adjustment of the working distance to sharpest image	(M)		
2.2.7.5.	If applicable, the laser shall comply EN 60825-1: Safety of laser products, or equivalent standard.	(M)		

<u>Clause</u>	<u>Specifications</u>		<u>Yes</u>	<u>No (provide details)</u>
			(Please tick as appropriate)	
2.2.8.	Field of View: 16mm-143mm or wider, with 10x eyepiece and/or multiplier.	(M)		
2.2.9.	Field of View: 11mm-170mm or wider, with 12.5x eyepiece and/or multiplier	(M)		
2.2.10.	Working distance shall be displayed on screen control or more options.	(M)		
2.2.11.	Automatic re-focus if surgeon reposition the microscopic body. It can be enabled/disabled by user.	(M)		
2.2.12.	Laser-based focus guide spots are shown during repositioning the microscope. It can be enabled/disabled by user.	(M)		
2.2.13.	High depth-of-field mode for better depth-of-field, it can be turned on/off easily on control screen.	(M)		
2.2.14.	Manual control or automatic adaptation of the focusing speed to the magnification. Functionally equivalent design is also acceptable.	(M)		
2.3.	<u>Illumination System offered shall meet the following requirements</u>			
2.3.1.	Illumination intensity can be adjusted.	(M)		
2.3.2.	Light can be turned off anytime to maximize the lamp life	(M)		
2.3.3.	Light intensity adjustment speed can be adjusted.	(M)		
2.3.4.	Main light source shall be at least 300W Xenon lamp or equivalent	(M)		
2.3.5.	Backup light source shall be at least 300W Xenon lamp or equivalent	(M)		
2.3.6.	The light source that shall be power efficient	(M)		
2.3.7.	Manual or automatic lamp exchange shall be available	(M)		
2.3.8.	Remaining lamp life-time or used lamp hour shall be displayed	(M)		
2.3.9.	Display which lamp shall be currently using	(M)		
2.3.10.	Manual control or automatic illuminated field diameter adjustment. Functionally equivalent design is also acceptable.	(M)		
2.3.11.	Manual control or automatic light intensity adjustment based on different working distance. Functionally equivalent design is also acceptable.	(M)		
2.3.12.	Two separate light beams in different angle from the base of microscopic body to reduce shadowing in deep cavities, with electronic shutter to override. Functionally equivalent design is also acceptable.	(M)		
2.3.13.	Light intensity shall be displayed on screen control or more options	(M)		

<u>Clause</u>	<u>Specifications</u>		<u>Yes</u>	<u>No (provide details)</u>
			(Please tick as appropriate)	
2.4.	<u>Tubes and Co-observation offered shall meet the following requirements</u>			
2.4.1.	Binocular tubes using apochromatic optics to minimize spherical and chromatic aberrations for maximum visual clarity.	(M)		
2.4.2.	Integrated beam splitter for lateral and face-to-face co-observation.	(M)		
2.4.3.	Support switching between face-to-face and lateral assistant	(M)		
2.4.4.	For Main Surgeon			
2.4.4.1.	Magnification booster (or magnification multiplier) to provide 40% extra magnification or more	(M)		
2.4.4.2.	Binocular tube with 150° variable angle	(M)		
2.4.4.3.	Binocular tube with foldable mechanism, and joint for retraction and extension.	(M)		
2.4.4.4.	Binocular tube with magnification boost knob (or magnification multiplier) to provide 40% extra magnification or more.	(M)		
2.4.4.5.	Binocular tube with 360° rotation mechanism.	(M)		
2.4.5.	For Lateral Assistant			
2.4.5.1.	Binocular tube with 150° variable angle.	(M)		
2.4.5.2.	Binocular tube with foldable mechanism, and joint for retraction and extension.	(M)		
2.4.5.3.	Binocular tube with magnification boost knob (or magnification multiplier) to provide 40% extra magnification or more.	(M)		
2.4.5.4.	Binocular tube with 360° rotation mechanism.	(M)		
2.4.5.5.	The position of stereo co-observation tube remains fixed when tilting the microscope body in inclination direction, so assistant does not need to reposition the binocular tube when main surgeon shall be tilting the microscope body in inclination direction.	(M)		
2.4.5.6.	The stereo co-observation tube has at least three rotation joints.	(M)		
2.4.5.7.	The stereo co-observation tube allows adjusting the orientation of image.	(M)		
2.4.6.	For Opposite Assistant			
2.4.6.1.	Binocular tube with 180° variable angle.	(M)		
2.4.6.2.	Binocular tube with foldable mechanism, and joint for retraction and extension.	(M)		

<u>Clause</u>	<u>Specifications</u>		<u>Yes</u>	<u>No (provide details)</u>
			(Please tick as appropriate)	
2.4.6.3.	Binocular tube with magnification boost knob (or magnification multiplier) to provide 40% extra magnification or more.	(M)		
2.4.6.4.	Binocular tube with 360° rotation mechanism.	(M)		
2.5.	<u>Microscope Body System offered shall meet the following requirements</u>			
2.5.1.	Motorized movement with adjustable speed, or Electro-magnetic brake for manual movement	(M)		
2.5.2.	Motorized design to automatically move the arms to parking position	(D)		
2.5.3.	Motorized design to automatically move the arms to drape position	(D)		
2.5.4.	Active electronic dampening system or functionally equivalent design to stabilize the microscopic body quickly	(M)		
2.5.5.	Rotation of body: 450° or more	(M)		
2.5.6.	Lateral tilt: at least 45° to left and 45° to right.	(M)		
2.5.7.	Inclination tilt: -30° to +120° or wider.	(M)		
2.5.8.	Centric movement function or equivalent	(M)		
2.5.8.1.	Guided movement of microscope head with the same centre point of field of view	(M)		
2.5.8.2.	The microscope can be in-focus during the movement	(M)		
2.5.8.3.	The movement can be controlled by manual movement by handgrip	(M)		
2.5.8.4.	The side tilt (XY), focus and magnification can be controlled by handgrip	(M)		
2.5.8.5.	The side tilt (XY), focus and magnification can be controlled by foot control panel	(M)		
2.5.9.	Z-Mode			
2.5.9.1.	A special mode to move along the optical axis of the microscope, keeping the center and the size of the visualized anatomical structures	(M)		

<u>Clause</u>	<u>Specifications</u>		<u>Yes</u>	<u>No (provide details)</u>
			(Please tick as appropriate)	
2.5.10.	<u>Memory function or equivalent</u> i) Memory function to remember the position of all six axes of microscope arm and head ii) It allows virtually unlimited position history iii) A photo shall be taken for user to easily review the position iv) User can see the overlay in eyepiece when recall the position history v) User can recall the saved position by handgrip vi) User can recall the saved position by foot control panel vii) The position, focus and zoom are restored after recall viii) An overlay of live and saved photo is overlayed for user to confirm the position has been successfully restored. ix) Tracking device shall not be required for positioning function x) The movement speed can be adjusted	(D)		
2.5.11.	Auto-balance			
2.5.11.1.	Balance all six axes for precise positioning automatically.	(M)		
2.5.11.2.	Support auto-balance in any position and angle unless possible collision can happen	(M)		
2.5.11.3.	It does not need any counter-weight	(M)		
2.5.12.	Electromagnetic brakes are available.	(M)		
2.5.13.	Micrometric movements for tilting and inclination shall be available and can be controlled by the joystick on handgrip and footswitch.	(M)		
2.6.	<u>Microscope Floor Stand System offered shall meet the following requirements</u>			
2.6.1.	Microscope system with 6 electromagnetic brakes.	(M)		
2.6.2.	Provide unlimited range of rotation from the base of the microscope	(M)		
2.6.3.	Casters			
2.6.3.1.	Stand base with 4 freely rotating casters for flexible positioning in all directions.	(M)		
2.6.3.2.	Casters lock shall be available to lock all casters.	(M)		
2.6.3.3.	Cable deflectors on all 4 casters to reduce the chance to roll over the cables on the floor.	(M)		
2.6.4.	USB port shall be provided for data transfer.	(M)		
2.6.5.	Minimum two high speed USB 3.0 ports.	(M)		
2.6.6.	Maximum base dimension shall be 850x850mm or less	(M)		
2.7.	<u>Auto-Draping offered shall meet the following requirements</u>			

<u>Clause</u>	<u>Specifications</u>		<u>Yes</u>	<u>No (provide details)</u>
			(Please tick as appropriate)	
2.7.1.	Sterile microscope drape shall be available for clear viewing in sterile environment.	(M)		
2.7.2.	Each drape shall have a unique RFID tag or functionally equivalent design, to allow easy tracking	(M)		
2.7.3.	Disposable, sterile, individually packed objective lens cover shall be available for quick replacement of objective lens cover if splash occurs on it.	(D)		
2.7.4.	Integrated vacuum system to remove air from sterile drape for fast and easy draping.	(M)		
2.8.	<u>Footswitch and Handgrips offered shall meet the following requirements</u>			
2.8.1.	Footswitch			
2.8.1.1.	One set of wireless or wired footswitch	(M)		
2.8.1.2.	It has 4 functions or more	(M)		
2.8.1.3.	It supports wired connection as backup	(M)		
2.8.1.4.	If wireless footswitch is offered, it shall have low-power indicator if battery requires replacement	(M)		
2.8.1.5.	Indicators of connection mode or connection status, or equivalent	(M)		
2.8.1.6.	Buttons are programmable for different functions based on surgeon's requirement	(D)		
2.8.1.7.	The connection status shall be displayed on the microscope screen or footswitch or more options.	(M)		
2.8.1.8.	The remaining battery shall be displayed on the microscope screen or footswitch or more options.	(M)		
2.8.2.	Handgrips			
2.8.2.1.	One pair of configurable handgrips	(M)		
2.8.2.2.	Each handgrip can be programmable independently for different functions	(M)		
2.8.2.3.	They are able to adjust zoom, focus and light intensity.	(M)		
2.8.2.4.	They provide at least two buttons, one for unlocking three magnetic brakes, and the other for unlocking all magnetic brakes	(M)		
2.8.2.5.	Allows user to choose unlocking 1-2-3 brakes or 4-5-6 brakes.	(M)		
2.8.2.6.	They have minimal exposed cables for easy management and clean up	(M)		
2.8.2.7.	Direct taking pictures and start/stop video capture by handgrip control are supported.	(D)		
2.8.2.8.	Handgrip can return to default factory settings easily by a reset button on configuration screen.	(M)		

<u>Clause</u>	<u>Specifications</u>		<u>Yes</u>	<u>No (provide details)</u>
			(Please tick as appropriate)	
2.9.	<u>Connectivity and Data Injection shall meet the following requirements</u>			
2.9.1.	Data Injection			
2.9.1.1.	Display data to eyepieces	(M)		
2.9.1.2.	Able to connect navigation system and synchronize, display data through the touchscreen and eyepiece.	(M)		
2.9.1.3.	Support injecting video signals to eyepieces	(M)		
2.9.1.4.	Brightness of injected data must be adjustable	(M)		
2.9.1.5.	Support display hairline cross (or equivalent design) at the centre to eyepieces.	(M)		
2.9.1.6.	Support injecting microscopic status:	(O)		
2.9.1.6.1.	Light intensity	(O)		
2.9.1.6.2.	Zoom	(O)		
2.9.1.6.3.	Distance (focus)	(O)		
2.9.1.7.	Convenient switchover using hand or footswitch	(O)		
2.9.2.	Navigation system module			
2.9.2.1.	Connecting to navigation system shall be supported	(O)		
2.9.3.	Remote diagnosis shall be module	(O)		
2.9.3.1.	Allow remote trouble-shooting from authorized service engineer	(O)		
3.	<u>Video Camera System offered shall meet the following requirements</u>			
3.1.	<u>Camera No. 1 (Exoscope system)</u>			
3.1.1.	It shall be in ultra high definition (UHD) resolution or better	(M)		
3.1.2.	Integrated	(M)		
3.1.3.	Horizontal resolution: 1920 pixels or more	(M)		
3.1.4.	Vertical resolution: 1080 pixels or more	(M)		
3.1.5.	It shall be integrated into the microscope with no exposed camera head	(M)		
3.1.6.	It shall be using Complementary metal–oxide–semiconductor (CMOS) sensor.	(M)		
3.1.7.	Automatic and manual shutter	(M)		
3.1.8.	Spot and full image exposure	(M)		

<u>Clause</u>	<u>Specifications</u>		<u>Yes</u>	<u>No (provide details)</u>
			(Please tick as appropriate)	
3.1.9.	Auto brightness control of live video shall be available	(M)		
3.1.10.	It has automatic white balancing function.	(M)		
3.1.11.	Allow adjustment of these parameters.	(M)		
3.1.11.1.	Image brightness	(M)		
3.1.11.2.	Shutter: Auto/Manual	(M)		
3.2.	<u>Camera No. 2 (Exoscope system)</u>			
3.2.1.	It shall be in ultra high definition (UHD) resolution or better	(M)		
3.2.2.	Integrated	(M)		
3.2.3.	Horizontal resolution: 1920 pixels or more	(M)		
3.2.4.	Vertical resolution: 1080 pixels or more	(M)		
3.2.5.	It shall be integrated into the microscope with no exposed camera head	(M)		
3.2.6.	It shall be using Complementary metal–oxide–semiconductor (CMOS) sensor.	(M)		
3.2.7.	Automatic and manual shutter	(M)		
3.2.8.	Automatic control of the exposure time, with manual override shall be supported	(M)		
3.2.9.	Allow automatic exposure control	(M)		
3.2.10.	Brightness control of live video shall be available	(M)		
3.2.11.	It has automatic white balancing function.	(M)		
3.2.12.	Allow adjustment of these parameters:	(M)		
3.2.12.1.	Image brightness	(M)		
3.2.12.2.	Shutter: Auto/Manual	(M)		
3.3.	<u>Video input, output and cables</u>			
3.3.1.	Video input	(M)		
3.3.1.1.	At least one HDMI or DVI or more options	(M)		
3.3.1.2.	Support 1920x1080, or more options	(M)		
3.3.2.	Video output	(M)		
3.3.2.1.	12G-SDI x 2 or more	(M)		
3.3.2.2.	At least one HDMI or DVI or more options	(M)		
3.3.2.3.	Support 3840x2160 and 1920x1080	(M)		
3.4.	<u>Photo-taking</u>			

<u>Clause</u>	<u>Specifications</u>		<u>Yes</u>	<u>No (provide details)</u>
			(Please tick as appropriate)	
3.4.1.	Support saving pictures in JPG format or more options.	(M)		
3.4.2.	2K resolution or better	(M)		
3.5.	<u>Video recording</u>			
3.5.1.	Record video in two different resolutions simultaneously	(O)		
3.5.2.	Record 2D video in 2K resolution or better	(M)		
3.5.3.	Record 3D video	(M)		
3.5.4.	Direct video recording to internal storage shall be supported	(M)		
3.5.5.	It supports voice recording and can be enabled/disabled by user	(D)		
3.5.6.	Microphone shall be embedded in microscope head so surgeon can make direct annotation.	(O)		
3.5.7.	Microphone sensitivity shall be adjustable during video with voice recording	(D)		
3.5.8.	Support volume control during video playback	(O)		
3.6.	<u>Storage</u>			
3.6.1.	Internal hard disk memory: 2TB or better.	(M)		
3.6.2.	External USB 3.0 thumb drive with 64G storage space and external USB 3.0 HD 1TB storage space or better are provided	(M)		
4.	Video Display System offered shall meet the following requirements			
4.1.	<u>Display Monitor with Controls</u>	(M)		
4.1.1.	Full HD or higher resolution.	(M)		
4.1.2.	Minimum 10 inch or larger	(M)		
4.1.3.	Integrated	(M)		
4.1.4.	Single monitor to control the microscope, preview live video and carry out analysis	(M)		
4.1.5.	Display with control, with intuitive graphic user interface to control all functions and display all information.	(M)		
4.1.6.	Indicator for main/emergency illumination and estimated remaining lamp life on screen.	(M)		
4.2.	<u>3D Display Monitor</u>	(M)		
4.2.1.	Full HD or higher resolution.	(M)		
4.2.2.	Minimum 24 inch or larger	(M)		
4.2.3.	Integrated	(M)		

<u>Clause</u>	<u>Specifications</u>		<u>Yes</u>	<u>No (provide details)</u>
			(Please tick as appropriate)	
4.2.4.	Carrier of monitor allows rotation and inclination of the monitor.	(M)		
4.2.5.	3D Monitor	(M)		
4.2.6.	Support viewing using polarized 3D glasses	(M)		
5.	Intraoperative Fluorescence offered shall meet the following requirements			
5.1.	Completely integrated into the microscope system mechanically, optically, electronically including technical controls shall be required.	(M)		
5.2.	Modules, camera and cables are integrated.	(M)		
5.3.	Can be start, move to next stage, and stop by one button using handgrip or footswitch	(M)		
5.4.	For fluorescence-assisted tumor resection	(M)		
5.4.1.	Yellow 560 or functionally equivalent	(M)		
5.4.1.1.	Auto and manual shutter control must be available	(M)		
5.4.1.2.	Image brightness must be adjustable	(M)		
5.4.1.3.	Exposure control: spot and full image	(M)		
5.4.1.4.	It must allow to simultaneously see fluorescence signals and non-fluorescent areas in almost natural-like colors.	(D)		
5.4.2.	Blue 400 or functionally equivalent	(M)		
5.4.2.1.	Auto and manual shutter control must be available	(M)		
5.4.2.2.	Image brightness must be adjustable	(M)		
5.4.2.3.	Exposure control: spot and full image	(M)		
5.5.	For fluorescence-assisted angiographic microvascular surgery:			
5.5.1.	Single button on handgrip to start/stop/move to next step	(M)		
5.5.2.	Record infra-red video in full HD quality or better	(M)		
5.5.3.	Highlight the infra-red signal in eyepiece by visible pseudo colour in an overlay	(M)		
5.5.4.	An advanced display showing times of beginning of fluorescence signal at different time frame using a pseudo color map	(M)		
5.5.5.	Summarize the video into a picture and displays the maximum fluorescence achieved in the tissue	(M)		
5.5.6.	Instant side-by-side comparison of color map image or chart.	(M)		

<u>Clause</u>	<u>Specifications</u>		<u>Yes</u>	<u>No (provide details)</u>
			(Please tick as appropriate)	
5.5.7.	Allow parallel automatic recording of fluorescence video and standard white light video.	(M)		
5.5.8.	Allow playback of both standard white light video and fluorescence video immediately after recording in picture-in-picture mode	(M)		
5.5.9.	Allow immediate short-replay and long-replay after recording, with user override	(M)		
5.5.10.	The fluorescence camera must offer an automatic and manual gain control to reduce the risk of over/under-exposure.	(M)		
5.6.	The Flow 800 offered shall meet the following requirements			
5.6.1.	The system must provide a blood flow assessment tool supporting objective analysis of ICG based video angiography data.	(M)		
5.6.2.	The assessment tool must be fully integrated into the host system, not requiring additional hardware components.	(M)		
5.6.3.	The assessment tool must provide a summary to objectively assess the sequence of the fluorescence appearance in the recorded vessels.	(M)		
5.6.4.	Flow 800 or functionally equivalent	(M)		
5.6.5.	The system must provide a blood flow assessment tool supporting objective analysis of ICG based video angiography data.	(M)		
6.	Surgeon Profile			
6.1.	Some surgeon's microscopic parameters, includes focus (start value), zoom (start value) etc. can be defined so surgeons can recall the parameters easily	(M)		
7.	Patient Data			
7.1.	The system shall automatically create new patient profile when power on.	(M)		
7.2.	The system shall allow sorting patient profile by name, date and data size.	(M)		
7.3.	Patient images can be exported with or without patient information.	(M)		
8.	External UHD 3D Monitor offered shall meet the following requirements			
8.1.	54 3/4-inch (Diagonal 1387.8 mm) or larger	(M)		
8.2.	UHD resolution (3840 x 2160) or higher	(M)		

Clause	Specifications		Yes	No (provide details)
			(Please tick as appropriate)	
8.3.	Aspect ratio: 16:9	(M)		
8.4.	Pixel Efficiency: ≥ 0.9999	(M)		
8.5.	Backlight: LED	(M)		
8.6.	Panel Technology: LCD with IPS	(M)		
8.7.	Luminance: 520 cd/m ² (typical) or higher	(M)		
8.8.	Contrast ratio: 1400 : 1 or higher	(M)		
8.9.	Colors: 1,073,741,824 or larger	(M)		
8.10.	Panel Frame Rate: 50Hz or higher	(M)		
8.11.	Viewing Angle: $> 89^\circ / > 89^\circ / > 89^\circ / > 89^\circ$ or higher	(M)		
8.12.	Inputs			
8.12.1.	HDMI x 1	(M)		
8.12.2.	DVI-D x 1	(M)		
8.12.3.	BNC x 3 or more (3G/HD/SD-SDI)	(M)		
8.12.4.	Other: D-sub 9-pin (RS-232C) (x1), RJ-45 (x1) (Ethernet, 10BASE-T/100BASE-TX)	(M)		
8.13.	Outputs			
8.13.1.	BNC x3 or more (3G/HD/SD-SDI)	(M)		
8.14.	Comply with ITU-R Recommendation BT.2020	(M)		
8.15.	Anti-reflective Panel	(M)		
8.16.	3D/2D operating mode can be set.	(M)		
8.17.	3D signals in both HD and UHD, and SDI (3G), DVI, and HDMI terminals are available in 3D mode.	(M)		
8.18.	Support display formats such as side-by-side, line-by-line, and top & bottom.	(M)		
8.19.	Dual stream shall be also available when accepting an HD 3D signal via SDI, which enables the monitor to connect with a wide range of equipment with 3D output	(M)		
8.20.	Display images from multiple sources quickly and easily from the menu. For example, the monitor can display 3D images in rotation, side-by-side, picture-in-picture (PIP), and picture-out-picture (POP). 3D PIP/POP multi-image display options include two screens with a main 3D/2D and sub 2D picture, or three screens with three 2D pictures.	(M)		

<u>Clause</u>	<u>Specifications</u>		<u>Yes</u>	<u>No (provide details)</u>
			(Please tick as appropriate)	
9.	For the item of PWH, the system shall be equipped with the capability to connect a video endoscope or equivalent micro-inspection tool, either standalone or through a connected endoscopic video system, to the offered microscope for neurology and spinal applications, with image display in Full HD or better resolutions.	(M)		
9.1.	A video endoscope or equivalent micro-inspection tool with the following functionality shall be provided. If an endoscopic video system is required for the connection with the offered microscope, the endoscopic video system shall also be provided to ensure the connection is fully functional: i) It supports hot-plug to the microscope and can be used immediately ii) It must simultaneously provide a straight look and a 90° view without changing optics. iii) The Central Computing Unit, Recorder, User Interface and Monitor of the integrated Micro-Inspection Tool must be integrated into the system. iv) It must be fully autoclavable and machine washable. v) It must use an angled design to ensure a free line of sight through the microscope on the situs. vi) It must use a working distance between 5 mm and 30 mm for Neuro and Spine applications without the need to refocus. vii) It must feature an automatic off mode. viii) The system software must provide a function to digitally align the viewing direction of the integrated Micro-Inspection Tool to the microscope. ix) Direction of view in 45° upwards $\pm 10\%$ x) Shaft Diameter shall be 3.6mm $\pm 10\%$ xi) Shaft Length shall be 120mm $\pm 10\%$ xii) Total Diameter shall be 13mm $\pm 10\%$ xiii) Field of view shall be 100° $\pm 5^\circ$ wide angle view or larger xiv) Illumination shall be 20 – 35 lumen LED or higher xv) It shall be autoclavable xvi) Full HD camera shall be integrated xvii) Length of cable shall be 5M or longer	(M)		

10.	IT Security requirements			
10.1.	The tenderer is required to follow the latest "IT Security Requirements for Quotation/Tender - Procurement of "non-IT" Stand-alone System/Equipment" with details in Appendix I of tender specification.	(M)		
10.2.	If applicable, tenderers shall provide a reliable anti-virus, anti-spyware and anti-hacking solution for the medical equipment/system on offer. The solution provided shall not affect the normal performance of the equipment/system. Details of the solution shall be stated. Tenderers shall regularly update the anti-virus program. Preferably using hospital's virus definition, that is, to connect to hospital network for the daily update of anti-virus program. The successful tenderer is required to follow the latest HA network security policies and guidelines. Tenderers shall propose a security mitigation plan if the OS reaches End-of-Support (EOS) within the equipment lifespan. This includes upgrading the OS and providing any necessary hardware and software to support the new OS. The plan can include server hardening, blocking USB ports, and other security measures to protect the equipment. The cost will be considered covered in the tender price. The successful tenderer shall guarantee there is stable supply of spare parts throughout the committed lifespan of the system offered. Tenderer shall be able to provide refreshment plan for computer hardware during the lifespan instead of replacement of the whole system due to obsolescence of individual computer components.	(M)		

10.3.	<u>Data Security Requirements</u> (a) Encryption of Sensitive Data: The Tenderer must ensure that sensitive data, including but not limited to identifiable patient information, downloaded from the System/Equipment to end-user devices, is adequately protected by encryption of a reasonable and industry-accepted standard. (b) Encryption of Stored Data: The Tenderer shall ensure that sensitive data stored within the System/Equipment is preferably encrypted, adhering to current encryption standards. (c) Encryption of Backup Data: All sensitive data stored in backup storage must be encrypted to maintain confidentiality and integrity. (d) Safeguarding Important Data: The Tenderer is required to ensure that all important data, including knowledge and System/Equipment configuration parameters, is safeguarded and preserved through an effective and reliable backup mechanism. (e) Restrictions on Data Export: The Tenderer must ensure that sensitive data is not exported for any purpose unless prior explicit authorization has been obtained from HA. Failure to comply with this requirement may result in legal consequences. (f) Prohibition on Data Transfer via Portable Media: Unless prior authorization has been obtained from HA, it is strictly prohibited to copy or move data from the System/Equipment to the HA network using portable media such as USB drives or CDs. (g) Logging of Sensitive Data: The Tenderer must ensure that sensitive or personal data is not logged unless operationally necessary. If logging is required, the data must be encrypted or secured with restricted access controls.	(M)		
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10.4.	<u>Network Connectivity and Security</u> (a) Restricted External Access: The Tenderer shall ensure that there are no non-HA (external) network connections to the System/Equipment unless supported by prior authorization and knowledge from HA. (b) Prohibition on Unauthorized Connections: The System/Equipment must not automatically establish any wireless or wired connections without prior explicit authorization from HA. (c) Secure HA Network Connectivity: For Systems/Equipment residing within HA premises, the Tenderer must ensure secure connectivity to the HA network for information exchange, adhering strictly to HA's security requirements, including but not limited to network segregation by firewall. (d) Endorsement and Compliance: Any network connection for the System/Equipment to the HA network must be endorsed by HA and implemented and operated according to HA's policies, procedures, and guidelines. (e) Security Solutions and Updates: The Tenderer must provide reliable antivirus, anti-spyware, and anti-hacking solutions for the medical Systems/Equipment. The solution should not compromise the normal performance of the Systems/Equipment and should be updated regularly, preferably using HA's virus definitions for daily updates. (f) Account Management: The Tenderer shall ensure each user identity (user-ID) for remote support must uniquely identify only one user. Sharing user account with other individuals is strictly prohibited. Any unauthorized use or access may result in consequences, including termination of the user account.	(M)		
11.	Other Requirements			
11.1.	Equipment offered shall comply with the safety requirements of IEC60601-1/IEC61010-1 or equivalent. Full testing report or test certificate of IEC60601-1 or equivalent for the offered model (end-product testing) shall be provided by the supplier upon request	(M)		
11.2.	Equipment offered shall comply with the electromagnetic compatibility (EMC) requirements of IEC 60601-1-2/IEC 61326-1 or equivalent.	(M)		
11.3.	If applicable, equipment offered shall comply with the laser safety requirements of IEC 60825-1 or equivalent.	(M)		

11.4.	If class 3B or 4 laser equipment is offered, the Contractor shall provide the technical specification/datasheet of offered laser protection eyewear(s), including the parameters of Optical Density (OD) and wavelength(s); or the Optical Density against wavelength curve, during acceptance test. The Optical Density(s) and the wavelength(s) shall be correspondingly applicable to the offered laser equipment in accordance to requirements in applicable standards like EN207 or ANSI Z136.3.	(M)		
11.5.	The equipment shall remain operational and within specification throughout the voltage range of 220V $\pm$ 6%, 50Hz $\pm$ 2%, 1-phase A.C. electrical supply.	(M)		
11.6.	Single-phase mains operated equipment shall be fitted with a power plug with strain relief or equivalent protection mechanism, suitable for the site condition. The plug shall comply with relevant standards eg. BS1363 for 13A plug.	(M)		
11.7.	Warranty: The Contractor shall provide at least one-year warranty for the goods supplied, or any part or portion thereof, starting from the date of acceptance of the goods. During the warranty period all services, which include replacement of faulty parts, scheduled and breakdown services by qualified maintenance personnel, shall be provided free of charge. All repair/replacement work shall be fully documented in service reports provided to the hospital. A label or equivalent shall be affixed to the equipment to indicate the last parts replacement date and next replacement due date, if any.	(M)		
11.8.	The Contractor shall provide preventive maintenance service (minimum once per year) to the equipment during the warranty period. Also, the Contractor shall carry out electrical safety test on the equipment at least once every 12 months during the warranty period. The safety standards required shall comply with IEC 60601-1/IEC 61010-1/IEC 62353 or equivalent if applicable. The Contractor is required to submit consolidated corrective and preventive maintenance summary to the ward/department in-charge or his/her delegate in hospital. If the Contractor found a problem during PM of an equipment and determined that the equipment cannot be returned to service (e.g. not safe to use or not in normal operation), the Contractor shall inform ward/department in-charge or his delegate right after maintenance work.	(M)		
11.9.	Maintenance Personnel Maintenance service shall be provided by suitably qualified maintenance personnel. The qualification/competency records/certificates/training records or other supporting documents of maintenance personnel shall be provided upon request.	(M)		

11.10.	Functional Test: For the purpose of this Contract the Goods shall be subject to a functional test for its conformance with the operational and reliability requirements to the satisfaction of the user. In the event that the equipment fails to conform to the above stated requirements, the Contractor is required to carry out appropriate remedial measures and/or any rectification works, including replacement of the entire equipment, where deemed necessary. The date of acceptance of the Goods shall be determined by the Cluster/Hospital based upon the satisfactory completion of such functional test.	(M)		
11.11.	Upon request, the contractor shall submit the latest version of all following documentations issued by the manufacturer in electronic copy for quotation/tender evaluation. Otherwise, letter of confirmation by the manufacturer shall be provided as supporting document of inapplicability of any of following documents: • Operational Manual/Instruction of Use of the offered model(s) • Maintenance Manual/Service Manual of the offered model(s), if applicable • Preventive Maintenance Checklist of the offered model(s), if applicable	(M)		
11.12.	Documentation The Contractor shall submit the documents listed as below in form of at least one hardcopy and one softcopy upon delivery of each equipment. All photocopies shall be properly binded, stamped and certified as true copies of the original by the manufacturer. If the Contractor cannot provide softcopy of documents, the Contractor shall scan and provide the full documents as digital file (e.g. PDF file). The documents shall include, but not limited to, the latest version of: (1) Operation and maintenance (O&M) manual(s), in English or in Chinese complete with procedures of preventive maintenance (PM) and corrective maintenance (CM) and maintenance interval (2) PM checklist(s) endorsed by equipment manufacturer (if PM is suggested by the manufacturer) and (3) Installation manual/method statement (if applicable) to user and hospital administration department. Should any original equipment manufacturer products be included, the documents as specified above shall also be provided.	(M)		

12.	Provision for relocation service The successful supplier is required to provide relocation services for the entire system to the designated location upon the Hospital's request after completion of the new building. Tenderer is requested to quote the price for relocation throughout the lifespan at any time. Tenderer shall quote this as optional item on the price proposal.	(M)		
13.	Special Requirement Tenderers shall declare their offered product(s) the compliance with Radiation Ordinance (Cap. 303 of the laws of Hong Kong) with details in <u>Appendix II –Schedule A</u> .	(M)		
14.	Trade-in and Disposal of Existing Equipment			
14.1.	Sellers are required to quote the trade-in value in HK dollars for the existing equipment item(s) as listed on the Price Schedule. The Authority reserves the right to exercise the trade-in option with the quoted value, which turns in as part payment for the purchase of the new equipment item(s) to be purchased. The trade-in value quoted on the Price Schedule is for reference only and will not be taken for price evaluation.	(M)		
14.2.	The successful seller is required to disconnect, dismantle, clear away and dispose the existing equipment item(s) with no extra cost. Successful seller shall make good the sites to the satisfaction of the Authority free of charge if there is any damage to the installation site and removal passage throughout the process.	(M)		
14.3.	The successful seller shall ensure the removal and disposal of the trade-in item(s) are made in accordance with the relevant legislations (e.g. environmental consideration).	(M)		

Company Chop _____

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		Issue Date	31/07/2026
	IT Security Requirements for Quotation / Tender - Procurement of "non-IT" System/Equipment	Review Date	31/07/2027
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***IT Security Requirements for Quotation / Tender -
Procurement of "non-IT" System/Equipment***

Version	Effective Date
16.0	31/07/2026

Document Number	HAHO-ITD-PD-ISP-007-v16
Author	William WONG, HOIT&HI SM(ISO)1
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Approved/ Endorsed By	ITD
Approval Date	31/07/2026
Distribution List	All HA HOIT&HI Staff / Cluster IT Staff

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Amendment History

Version No.	Date of Amendment	Prepared by	Description
1.0	7/09/2017	Dale Johnstone First draft	ALL
2.0	7/11/2017	Dale Johnstone	Add Appendix C&D
3.0	28/12/2017	Dale Johnstone	Add Appendix E
4.0	13/04/2018	John Tse	Update A.16.3 & A.16.4 in Appendix A
5.0	07/12/2018	William Wong	- Re-format document - Change A.4 Availability in Appendix A - Replace diagram in Appendix B - Add "Privacy Control" in Appendix E
6.0	15/03/2019	William Wong	- Change name in Further Information
7.0	16/12/2019	William Wong	- Update document link "Guidelines on Connecting Medical System Networks (Information Technology Circular 1/2019)" in Reference - Add Note i) & ii) in Appendix A - Add A19.9 in Appendix A
8.0	09/10/2020	John Tse	- Change Medical System networks to External network - Update A.19 in Appendix A - Update Appendix B to "External Network Architecture" - Remove Appendix C and Appendix D - Change Appendix E to Appendix C
9.0	09/12/2020	John Tse	- Update the External Network architecture to indicate building switch is L3 switch - Correct the link for "Guidelines for Cabling System and Network Setup in External Network"
10.0	15/12/2020	John Tse	- Correct the numbering for section 3 - Remove point c) from section 4 (ie. appendix for "Guidelines for Cabling System and Network setup in External network")
11.0	29/12/2020	William Wong	- Update distribution list
12.0	12/7/2021	John Tse	- Restore version 7 until the latest guideline for cabling and network setup is ready
13.0	13/07/2022	Yorky Wong	- Update Reference

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			- Update Further Information contacts - Update A.12.2 and A.20.1 in Appendix A
14.0	15/08/2022	John Tse	- Add the link for “Guidelines for Cabling System and Network Setup in External Network” in References - Update A.19 to align with “One Network for All” strategy - Update Appendix B to “External Network Architecture” - Combine Appendix C and D to Appendix C - Change Appendix E to Appendix D
15.0	21/02/2025	ISO1	- Update Reference - Update clause 5 - Update clause 6 Further Information - Add A.10.7 for logging sensitive data - Update A.11.2 for role-based access control - Update A.13.2 for patch management - Update A.15.1 for network segregation - Update A.18.3 for security compliance - Update A.20.1 for data exchange - Add A.21 for public cloud service - Update A9.1, A9.2, A11.5, A19.4 and A19.9 (a) for reference document viewing arrangement - Consolidate Appendix as Part A, B, C and D with updated checklist
		N5	- Update A.19, Appendix Part B and C for the Layer 2 switch
16.0	27/07/2026	ISO1	- Add A.2.3, A2.4, A2.5 for enhanced confidentiality undertaking and account management of tenderer staff - Add A9.4 for the PC security requirements - Update A10.5 and 10.6 for strengthening data export prohibition for any purpose unless prior authorization has been obtained from HA - Update A16.2, A16.3, A16.4 for connecting media or device which was obtained prior authorization from HA during maintenance support - Update A18.3 and Appendix D for Vendor System Security Compliance Report

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IT Security Requirements for Quotation / Tender –

Procurement of “non-IT” System/Equipment

THE TERMS AND DEFINITIONS BELOW ARE GENERAL REQUIREMENTS WHICH APPLY TO THE ACQUISITION AND INSTALLATION OF “NON-IT SYSTEMS” (SYSTEM)/EQUIPMENT WITH HA.

“NON-IT SYSTEMS”/EQUIPMENT IS TECHNOLOGY BEING ACQUIRED BY HA THAT MAINTAINS IT COMPONENTS BUT WHICH IS NOT NORMALLY PROCURED BY HA INFORMATION TECHNOLOGY AND HEALTH INFORMATICS DIVISION (IT&HID).

THERE MAY ADDITIONALLY BE PROJECT SPECIFIC REQUIREMENTS.

SUBJECT OFFICERS OF INDIVIDUAL PROJECTS ARE ADVISED TO CONSULT HA IT&HID DURING THE TENDER SPECIFICATION PREPARATION STAGE.

SUBJECT OFFICERS SHOULD NOTE THAT PROJECTS HAVE TO RESERVE FUNDING FOR SETTING UP AND ESTABLISHING ANY NETWORK CONNECTIVITY THAT WILL BE PERFORMED BY HA IT&HID.

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1. Purpose

The purpose of this document is to provide model IT security related terms and definitions clauses to be used by HA when preparing and evaluating “Requests for Quotations” and “Requests for Tender” for the procurement of non-IT Systems (“Systems”)/Equipment.

2. References

- (a) Guidelines for Windows Server Hardening
<http://it.home/doc/HAHO-ITD-GL-T03-010.aspx>
- (b) Guidelines for Connecting External Network in HA (Information Technology Circular 1/2019)
<http://ha.home/circular2/IT-2019-01.pdf>
- (c) Guidelines for Connecting External Network in HA
<http://it.home/doc/HAHO-ITD-GL-N02-001.aspx>
- (d) Guidelines for Host Security Hardening
<http://it.home/doc/HAHO-ITD-GL-T02-001.aspx>
- (e) OWASP Top 10 Vulnerabilities
https://www.owasp.org/index.php/Category:OWASP_Top_Ten_Project
- (f) Malicious Code Protection Requirements for Medical Equipment Maintenance
(IT Circular 2/2018)
<http://ha.home/circular2/IT-2018-02.pdf>
- (g) Guidelines for Application Security
<http://it.home/doc/HAHO-ITD-GL-ISO-005.aspx>
- (h) Adopting Security Specifications Standard
<http://it.home/doc/HAHO-ITD-SD-ISO-001.aspx>
- (i) Guidelines for Mobile Device Security
<http://it.home/doc/HAHO-ITD-GL-ISO-003.aspx>
- (j) Guidelines for IoT Security
<http://it.home/doc/HAHO-ITD-GL-ISO-008.aspx>
- (k) Guidelines for Cabling System and Network Setup in External Network
<http://it.home/doc/HAHO-ITD-GL-N05-001.aspx>
- (l) Cloud Security Standard
<http://it.home/doc/HAHO-ITD-SD-ISO-004.aspx>
- (m) Guidelines for Vulnerability Management Process
<http://it.home/doc/HAHO-ITD-GL-ISO-001.aspx>
- (n) Guidelines for Security Patch Management
<http://it.home/doc/HAHO-ITD-GL-ISO-013.aspx>

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- (o) Guidelines for Security Requirements for HA PCs and Notebooks
<http://it.home/doc/HAHO-ITD-GL-ISO-009.aspx>

3. Introduction

Tenderer are reminded that:

- (a) the procurement process shall be considering risks that could be introduced to HA as a result of the selection of a System/Equipment;
- (b) details shall be described in the respective Schedule(s) pertaining to "Statement of Compliance" as to how the System/Equipment proposes to implement security requirements, including product names, product specifications and interconnection diagrams;
- (c) an alternative security solution able to achieve the same or better security protection, shall be proposed where any System/Equipment security requirements are unable to be fulfilled due to product design limitations;
- (d) where an alternative security solution is being proposed details shall be included which describe the alternative security solution in an Appendix to the "Statement of Compliance";
- (e) the security requirements outlined in Clause 5 are critical.

4. Overview

4.1 Scope

The scope of these IT security requirements are applicable to all "Requests for Quotations" and "Requests for Tender" for the procurement of non-IT Systems ("Systems")/Equipment in HA.

4.2 Objective

The scope of this document cover security requirements with terms and definitions for procurement of non-IT Systems ("Systems")/Equipment in HA, including data security, application security, network security, server security, client/desktop security, security incident reporting and vendor maintenance and etc.

5. IT Security Requirements

The IT security requirements for all "Requests for Quotations" and "Requests for Tender" within HA with a view to:

- (a) providing "Terms and Definitions" please refer detail noted in Appendix Part A;

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(b) providing “Network Connection between Vendor Network and HA Network”, please refer detail noted in Appendix Part B;

(c) providing “Failure and Recovery Scenarios in Hospitals for vendor managed L3 network switches”, please refer detail noted in Appendix Part C;

(d) providing “Vendor System Security Compliance Report (Sample)”, please refer detail noted in Appendix Part D (The form can be downloaded from <https://hateams.home/~rndKs>)

Note: Appendix is a clean standalone version that can be directly incorporated into tendering document for procurement process. All clauses stated are required whenever applicable.

6. Further Information

Further information and details concerning IT Security Requirements for Quotation / Tender - Procurement of “non-IT” System/Equipment can be obtained by contacting:

- William Wong, SM(ISO)1, 3906 3577, wongwwl@ha.org.hk
- Jackson Lam, SM(N)5, 3969 3123, jackson.lam@ha.org.hk

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Appendix Details of IT Security Requirements

A. Terms and Definitions

These terms and definitions apply to any System/Equipment requiring access to the HA IT network. Additional terms and definitions appear below in “Connectivity of Vendor Managed Network to HA” (A.19) for System/Equipment operated by the Tenderer on a separate self-contained “vendor” network.

Note:

- i) An alternative security solution able to achieve the same or better security protection, shall be proposed where any System/Equipment security requirements are unable to be fulfilled due to product design limitations;*
- ii) where an alternative security solution is being proposed details shall be included which describe the alternative security solution*

Reference Document:

- (a) Guidelines for Windows Server Hardening
<http://it.home/doc/HAHO-ITD-GL-T03-010.aspx>*
- (b) Guidelines on Connecting External Network in HA (Information Technology Circular 1/2019)
<http://ha.home/circular2/IT-2019-01.pdf>*
- (c) Guidelines for Connecting External Network in HA
<http://it.home/doc/HAHO-ITD-GL-N02-001.aspx>*
- (d) Guidelines for Host Security Hardening
<http://it.home/doc/HAHO-ITD-GL-T02-001.aspx>*
- (e) OWASP Top 10 Vulnerabilities
https://www.owasp.org/index.php/Category:OWASP_Top_Ten_Project*
- (f) Malicious Code Protection Requirements for Medical Equipment Maintenance (IT Circular 2/2018)
<http://ha.home/circular2/IT-2018-02.pdf>*
- (g) Guidelines for Application Security
<http://it.home/doc/HAHO-ITD-GL-ISO-005.aspx>*
- (h) Adopting Security Specifications Standard
<http://it.home/doc/HAHO-ITD-SD-ISO-001.aspx>*
- (i) Guidelines for Mobile Device Security
<http://it.home/doc/HAHO-ITD-GL-ISO-003.aspx>*
- (j) Guidelines for IoT Security
<http://it.home/doc/HAHO-ITD-GL-ISO-008.aspx>*

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- (k) *Guidelines for Cabling System and Network Setup in External Network*
<http://it.home/doc/HAHO-ITD-GL-N05-001.aspx>
- (l) *Cloud Security Standard*
<http://it.home/doc/HAHO-ITD-SD-ISO-004.aspx>
- (m) *Guidelines for Vulnerability Management Process*
<http://it.home/doc/HAHO-ITD-GL-ISO-001.aspx>
- (n) *Guidelines for Security Patch Management*
<http://it.home/doc/HAHO-ITD-GL-ISO-013.aspx>
- (o) *Guidelines for Security Requirements for HA PCs and Notebooks*
<http://it.home/doc/HAHO-ITD-GL-ISO-009.aspx>

A.1 Safety

- A.1.1** Tenderer shall ensure the System/Equipment remains secure and malicious code free in accordance with the terms and conditions of the relevant contract.
- A.1.2** Tenderer shall ensure the System/Equipment when being used for healthcare related patient outcomes does not cause danger, risk, harm, injury, or loss to the safety of an individual.
- A.1.3** Tenderer shall ensure the System/Equipment is protected from being used in a manner relied upon by other System/Equipment that could result in danger, risk, harm, injury, or loss to the safety of an individual.
- A.1.4** Tenderer shall ensure the System/Equipment does not create any non-compliance with regulatory or legal frameworks.

A.2 Confidentiality and Privacy

- A.2.1** Tenderer shall ensure the System/Equipment does not capture, store or process sensitive data and/or any data related to any individual, including personal health information, in a manner that allows the data to be made available or disclosed in an unauthorized manner.
- A.2.2** Tenderer shall ensure the System/Equipment provides appropriate authentication controls on privacy control when allowing any user, protocol or other form of connection.
- A.2.3** Tenderer shall ensure that all its staff and appointed sub-contractors and agents involved in the performance of the Services sign a confidentiality undertaking, declaration form, declaration checklist prior to commencing any work in HA onsite and remote access.
- A.2.4** Tenderer shall ensure each user identity (user-ID) for remote support must uniquely identify only one user. . Sharing user account with other individuals is strictly prohibited.

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Any unauthorized use or access may result in consequences, including termination of the user account.

- A.2.5** Tenderer shall ensure to review on the validity and on-going need for each of the User accounts of System/Equipment annually.

A.3 Integrity

- A.3.1** Tenderer shall ensure the System/Equipment preserves the accuracy and completeness (i.e. integrity) of data and the methods used to process and manage this data.
- A.3.2** Tenderer shall ensure the System/Equipment minimises any potential to cause business disruption if the System/Equipment does not operate as expected/planned.
- A.3.3** Tenderer shall ensure the System/Equipment can be accurately relied upon as a result of its function.
- A.3.4** Tenderer shall provide evidence to HA that any source code associated with the System/Equipment is free of common "OWASP Top 10 Vulnerabilities" [Reference Document (e)].

A.4 Availability

- A.4.1** Tenderer shall ensure the System/Equipment will be accessible and usable when needed.
- Tenderer shall ensure the System/Equipment achieves an overall level of availability with reference to the requirement of Uptime under warranty and maintenance support related clause in the Tender Specifications.
- A.4.2** Tenderer shall ensure any System/Equipment interruption with reference to the requirement of Corrective Maintenance under warranty and maintenance support related clause in the Tender Specifications.
- A.4.3** Tenderer shall ensure the System/Equipment provides adequate System/Equipment resilience facilities, including and not limited to redundant hardware components, enabling any faulty components to be switched over to redundant components if applicable.
- A.4.4** Tenderer shall ensure the System/Equipment is supported by uninterruptable power supply (UPS) for maintaining the committed level of System/Equipment availability if applicable.
- A.4.5** Tenderer shall ensure the System/Equipment minimises any disruption if not performing as expected/planned.

A.5 Compatibility

- A.5.1** Tenderer shall ensure the System/Equipment is able to effectively function together with other System/Equipment.

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A.5.2 Tenderer shall ensure the System/Equipment does not adversely interfere with the effective operation of any other System/Equipment.

A.5.3 Tenderer shall ensure the System/Equipment continues to function correctly following any System hardening and security specification requirements imposed by HA.

A.6 Longevity

A.6.1 Tenderer shall ensure the length of effective service of the System/Equipment (i.e. many years) and all of its components will be sufficient to meet the needs of HA.

A.6.2 Tenderer shall ensure the System/Equipment continues to operate beyond the period of time expected by HA.

A.6.3 Tenderer shall ensure updates for patching of vulnerabilities are maintained throughout the System/Equipment's lifetime expected by HA.

A.7 Technological Substitution

A.7.1 Tenderer shall ensure that within the warranty period/maintenance service contract period (if applicable), System/Equipment upgrades are performed, if there is any, without any charge within the contract period.

A.8 Data Sovereignty

A.8.1 Tenderer shall ensure the data processed or stored by the System/Equipment resides in Hong Kong.

A.8.2 Tenderer shall ensure the System/Equipment does not process or store data outside of Hong Kong.

A.8.3 Tenderer shall ensure the System/Equipment is governed by the laws of Hong Kong.

A.9 System Hardening

A.9.1 Tenderer shall ensure the System/Equipment, where using the Microsoft Windows Operating System, hardens all its components and functionality according to "[Guidelines for Windows Server Hardening](#)" [Reference document (a), which is available for viewing after signing a non-disclosure agreement with hospital].

A.9.2 Tenderer shall ensure the System/Equipment where using the non-Windows solutions are secured according to "[Guidelines for Host Security Hardening](#)" [Reference document (d), which is available for viewing after signing a non-disclosure agreement with hospital].

A.9.3 Tenderer shall ensure the System/Equipment avoids the presence of hard-coded authentication credentials.

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A.9.4 Tenderer shall ensure the PC connecting System/Equipment which meet following security requirements

- (a) Disable default Administrator account, and create another super user account for use instead which should not be granted to end-users
- (b) Enable password-protected screen saver
- (c) File sharing access must not be granted to "Everyone", and should be permitted based on pre-defined access rights if and when needed
- (d) Install endpoint protection software (e.g. MDE) with the latest definition
- (e) Install the latest security patch
- (f) Enable personal firewall for blocking incoming network connections, and disabling vulnerable network services such as LLMNR and NBT-NS
- (g) Install with encryption software for enabling removable media encryption
- (h) Encrypt files and folders containing confidential data, which should be stored in centralized file server instead of local hard disk drive
- (i) Confidential files should only be copied into removable storage devices supporting mandatory encryption
- (j) Enable full disk encryption and power-up password protection for Notebooks

A.10 Data Security

A.10.1 Tenderer shall ensure sensitive data downloaded from the System/Equipment to end-user devices is protected by a reasonable level of encryption.

Note: Sensitive data refers to data including but not limited to identifiable patient information.

A.10.2 Tenderer shall ensure sensitive data stored within the System/Equipment is preferably encrypted.

A.10.3 Tenderer shall ensure sensitive data stored in backup storage is encrypted.

A.10.4 Tenderer shall ensure all important data (knowledge, System/Equipment configuration parameters) stored in the System/Equipment is safeguarded and preserved through an effective backup mechanism.

A.10.5 Tenderer must ensure that sensitive data is NOT exported for any purpose unless prior authorization has been obtained from HA. Failure to comply with this requirement may result in illegal activities.

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A.10.6 Unless prior authorization has been obtained from HA, it is prohibited to copy or move data from the System/Equipment to the HA network using portable media (i.e. USB Drive or CD).

A.10.7 Tenderer shall ensure sensitive or personal data is not logged as much as possible; if there is operational need to log such data, ensure it is encrypted or secured with restricted access control.

A.11 Application Security

A.11.1 Tenderer shall ensure the System/Equipment employs prevalent authentication and authorisation mechanisms at reasonable safety level.

A.11.2 Tenderer shall ensure the System/Equipment supports role-based access control. For example, general user shall be restricted from system administration and setting function, which shall only be performed by authorized users.

A.11.3 Tenderer shall ensure the System/Equipment applies network level encryption.

A.11.4 Tenderer shall ensure the System/Equipment provides comprehensive version control and configuration management mechanisms.

A.11.5 Tenderer shall ensure the System/Equipment conforms to "Guideline for Application Security" [Reference document (g), which is available for viewing after signing a non-disclosure agreement with hospital].

A.12 Malicious Code Protection

A.12.1 Tenderer shall ensure the System/Equipment is protected with the installation of a reputable Anti-Virus program in all servers, PC and Workstation components.

A.12.2 Tenderer shall ensure the System/Equipment is protected with regular updates of the latest virus definitions.

Note: It is highly preferred that Tenderer shall use the same product as HA to have virus definition update automatically.

A.12.3 Tenderer shall be responsible for the on-going support and for keeping the virus definitions and related software up-to-date in all Servers, PCs and workstations.

A.12.4 Tenderer shall ensure virus definitions are updated within 24 hours from the date of release.

A.12.5 Tenderer shall be responsible for the regular scanning of all Servers and PCs in the System/Equipment every three months to ensure that they are not infected by virus, worms and spyware including the on-going support of scheduling and verifying the results of the virus scan.

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A.13 Vulnerability / Patch Management

- A.13.1** Tenderer shall maintain ongoing System/Equipment support, including the installation of the latest security patches for the Operating Systems and related software in all System servers, PCs and workstations.
- A.13.2** Tenderer shall ensure critically affected security patches are updated as soon as practically possible; for non-critical ones, within twelve months from the date of release.

A.14 Restricted External Access

- A.14.1** Tenderer shall ensure that there are no non-HA (external) network connections to the System/Equipment unless supported by prior authorization and knowledge of HA.
- A.14.2** Tenderer shall ensure that the System/Equipment does not automatically establish any wireless connections without prior authorisation and knowledge of HA.
- A.14.3** Tenderer shall ensure that the System/Equipment does not establish any wired connections without prior authorisation and knowledge of HA.

A.15 HA Network Connectivity

- A.15.1** Tenderer shall be responsible, where operational reasons exist, for a System/Equipment residing within HA premises to connect to the HA network for information exchange with HA IT systems, for implementing such network connection in accordance with HA requirements and to ensure all security requirements are strictly adhered to (e.g. network segregation by firewall to ensure security attacks due to the System/Equipment would not directly impact HA).
- A.15.2** Tenderer shall ensure any network connection for a System/Equipment to the HA network is endorsed by HA and implemented and operated according to HA policies, procedures and guidelines.
- A.15.3** Tenderer shall ensure connectivity of the System/Equipment to the HA network adheres to the network diagram as depicted in **Part B**.

A.16 Maintenance Support

- A.16.1** Tenderer shall ensure that when maintenance is performed on the System/Equipment or when accessing the System/Equipment in any remote manner that the tools and software have been confirmed to be free of malicious code.
- A.16.2** Tenderer shall ensure that where maintenance on the System/Equipment needs to be performed, that HA is provided with a level of assurance that the vendor has undertaken proactive actions to ensure their connecting media or device (USB stick, portable media, laptops, iPads, etc.) which was obtained prior authorization from HA. It has been scanned

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for malicious code before and after every time that portable media is used to apply changes/updates to the System/Equipment.

- A.16.3** Tenderer shall bring with them a mobile computer (i.e. laptop) which was obtained prior authorization from HA. It contains the latest version of anti-virus software, complete with up-to-date virus signatures to confirm onsite within HA premises that their media to be connected (i.e. USB) is free of malicious code.
- A.16.4** Tenderer shall ensure portable media (USB stick, CD/DVD, etc.) which was obtained prior authorization from HA. It is scanned (in addition to clause A.16.3) on a HA PC to ensure that the media is not infected by virus, worms and spyware before being used to apply changes/updates to the System/Equipment.
- A.16.5** Tenderer shall ensure the vendor provides HA a completed attestation of compliance to confirm the media or device to be connected to the System/Equipment has been scanned for viruses and found to be free of malicious code.
- A.16.6** Tenderer shall perform technical support on-site unless appropriate remote support arrangement is endorsed.
- A.16.7** Tenderer shall erase the sensitive data in the storage devices of the System/Equipment before taking away the equipment for repairing or disposal.
- A.16.8** Tenderer shall sign and fully comply with a non-disclosure confidentiality agreement during on-site and remote support.
- A.16.9** Tenderer should use different portable media (i.e. USB sticks), which have been scanned for malicious code, for each item of medical equipment they need to apply an update to.
- A.16.10** Tenderer shall where not able to use different individual portable media (i.e. USB sticks) for applying changes/updates to multiple items of medical equipment (see clause A.16.10), repeat Clauses A.16.3 and A.16.4 before proceeding to attach/apply the portable media to the second and subsequent items of medical equipment.

A.17 Decommissioning Support

- A.17.1** Tenderer shall ensure that upon decommissioning of the System/Equipment, data exports and data definitions (sometimes known as data dictionary) are provided for all clinical data, and other data as appropriate, in a data structure and format as required by Hospital Authority.
- A.17.2** Tenderer shall provide assistance, as required, for the successful migration of any data to a new replacement System/Equipment(s) as adopted by Hospital Authority.

A.18 Security Incident Reporting and Compliance

- A.18.1** Tenderer shall ensure the System/Equipment provides health-checking and audit logging capabilities.

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A.18.2 Tenderer shall immediately report to the Hospital management and the HA ITS Call Centre any security incident relating to the System/Equipment.

A.18.3 Tenderer shall monitor its security compliance and comply with HA's regular review process with respect to the requirements stipulated in this document. **Part D** provides a sample of a "Vendor System Network Security Compliance Report" which should be used.

A.19 Connectivity of Vendor Managed Network to HA

A.19.1 For Medical Systems, HA will install External Network data ports next to the equipment for connection with the HA Network, or HA will install External Network Wireless LAN for the equipment that supports Wi-Fi for connection with the HA Network.

(Note: Tenderer shall confirm with HA if External Network data ports can be provided)

A.19.2 The External Network data ports are based on the Institute of Electrical and Electronics Engineers (IEEE) 802.3 standards and support 10BASE-T at 10 Mbit/s (IEEE 802.3i), 100BASE-TX Fast Ethernet at 100 Mbit/s (IEEE 802.3u) and 1000BASE-T Ethernet at 1 Gbit/s (IEEE 802.3ab) connections.

A.19.3 The External Network is an Internet Protocol (IPv4) routable network. It supports the following communication protocols, including Internet Protocol (IP), Address Resolution Protocol (ARP), Internet Control Message Protocol (ICMP), Transmission Control Protocol (TCP) and User Datagram Protocol (UDP). The IP address will be assigned by HA.

A.19.4 In case the tenderer cannot use HA-provided External Network data ports, the tenderer shall set up the network and implement the cabling system according to the "Guidelines for Cabling System and Network Setup in External Network" [Reference Document (k) , which is available for viewing after signing a non-disclosure agreement with hospital].

A.19.5 Other than the provision by HA IT&HI as specified in the tender document, if the tenderer considered the HA IT&HI provision not sufficient/applicable to its proprietary Medical Systems, the tenderer may propose additional installation (in such case the additional installation works shall be carried out by the tenderer according to the "Guidelines for Cabling System and Network Setup in External Network" at its own cost [Reference Document (k)]). HA will not bear any additional charges, and the tenderer shall bear all such related costs which shall have been included in the tender price submitted by the tenderer.

A.19.6 Tenderer shall put their servers in Hospital Data Center as far as possible.

A.19.7 Tenderer shall provide the network diagram to illustrate the network architecture if the tenderer follows A19.4. **Part B.1** illustrates the architecture of External Network for Medical Systems.

A.19.8 Tenderer shall ensure the System/Equipment connecting to the External Network Wireless LAN comply with the following requirements and specifications:

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- (a) Tenderer shall comply with the HA Wi-Fi infrastructure and standard guidelines
- (b) The end devices provided by the tenderer shall support IEEE 802.11a/g/n/ac/ax. For the end devices which support IEEE 802.11ax, they shall be compatible with IEEE 802.11a/g/n/ac
- (c) The end devices provided by the tenderer shall support 2.4GHz channel 1-13 and/or 5GHz channel under U-NII-1, U-NII-2A, U-NII-2C and U-NII-3
- (d) The end devices provided by the tenderer shall support WPA2 with AES encryption and PSK authentication
- (e) The end devices provided by the tenderer shall support DHCP/static IP configuration
- (f) The end devices provided by the tenderer shall support roaming across access points without session drop
- (g) Tenderer shall provide MAC addresses of the end devices for registration and PSK authentication in order to access Wi-Fi network
- (h) Tenderer shall arrange a Wi-Fi connectivity test with users and Hospital/HA IT&HI before the production rollout
- (i) Only 1 common SSID will be provided by HA for all non-IT systems
- (j) Non-IT systems shall use IP addresses as assigned by HA
- (k) IP routable network will be provided for Wi-Fi and wired equipment

A.19.9 For Non-Medical Systems such as Operational Technology (OT), the tenderer shall comply with the following requirements and specifications:

- (a) Tenderer shall set up the network and implement the cabling system according to the "Guidelines for Cabling System and Network Setup in External Network" [Reference Document (k) , which is available for viewing after signing a non-disclosure agreement with hospital].
- (b) Refer to the "Guidelines for Cabling System and Network Setup in External Network" [Reference Document (k), tenderer shall install at least one Layer 2 switch or with resilient when HA requires at the tenderer's cabinet and shall cater for different auto network failover and recovery scenarios according to the network diagrams illustrated in **Part C.1 and C.2**. If Layer 3 switch installation is required, the tenderer shall contact HA IT&HI in advance for consideration.
- (c) Tenderer shall provide the network diagram to illustrate the network architecture. **Part B.2** illustrates the architecture of External Network for Non-Medical Systems.
- (d) HA shall arrange HA Authorized Cabling Contractor to install the backbone cablings and HA Equipment Vendor to install the Gigabit Interface Converters (GBICS) at HA switch in Building Closets for the network connection to the tenderer's switch.

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- (e) HA will not bear any installation and maintenance related charges (except for backbone cabling, i.e. B.4 in **Part B.2**), and the tenderer shall bear all such related costs which shall have been included in the tender price submitted by the tenderer

A.20 Clinical Data Exchange

A.20.1 Tenderer shall ensure seamless electronic data exchange with Hospital Authority corporate systems, complying with Health Level Seven (HL7) version 2.3.1 and above, including support for the HL7 FHIR (Fast Healthcare Interoperability Resources) standard. The data transfer protocols should include MLLP with native HL7, SOAP, or RESTful-based web services with HL7XML, as well as FHIR API interfaces. Additionally, the Clinical Information System (CIS) must have the capability to receive events from and publish events to hospital systems in a timely manner to ensure real-time or near real-time data availability and synchronization. Furthermore, the file server storing clinical report files to be downloaded by the Hospital Authority system must support the SFTP protocol.

A.20.2 Tenderer shall ensure the implementation of electronic data exchange with Hospital Authority corporate systems complies Hospital Authority HL7 Guidelines.

A.20.3 Tenderer shall ensure any electronic message exchange with the Hospital Authority includes reference keys supplied by Hospital Authority corporate systems such as:

- (a) HKID
- (b) Name
- (c) Date of birth
- (d) Sex
- (e) HA case number
- (f) HA system unique patient key

Note: Electronic message exchange is important to ensure high integrity associated with patient identification and automatic mapping to patient records within the Hospital Authority.

A.20.4 Tenderer shall ensure the System/Equipment maintains the existing exchange of patient data with Hospital Authority corporate systems and provides exchange for other data including but not limited to:

- (a) Admit, discharge & transfer, and patient demographics
- (b) Allergy, Adverse Drug Reaction and Alert information
- (c) Clinical order, observations and results
- (d) Multimedia and imagery data

A.20.5 Tenderer shall ensure the System/Equipment automatically updates patient's demographic data upon reception of ADT message.

A.20.6 Tenderer shall ensure ADT information exchanged is in compliance with the latest Hospital Authority HL7 Implementation Guidance.

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A.20.7 Tenderer shall ensure audit logging is provided for all ADT (Admit, Discharge and Transfer) interactions.

A.20.8 Tenderer shall ensure the System/Equipment adopts the preferred Hospital Authority date format.

- (a) For the display of date in frontend screen: DD-MMM-YYYY (e.g. 01-JAN-2014)
- (b) For the display of date-time in frontend screen: DD-MMM-YYYY hh:mm:ss in either 12hr/24hr mode (e.g. 01-Jan-2014 15:30:45)
- (c) For the transfer of date information to HA system: YYYYMMDD (e.g. 20140101)
- (d) For the transfer of date-time information to HA system: YYYYMMDDhhmmss in 24hr mode (e.g. 20140101153045).

Note: This enables user friendliness and system interoperability to be achieved.

A.20.9 Tenderer shall ensure the System/Equipment sends update or delete messages, if necessary, to perform corresponding actions with Hospital Authority corporate systems, with proper authorization mechanism from supervisor and audit trail.

A.20.10 Tenderer shall ensure the System/Equipment provides appropriate feedback to users to indicate the successfulness of message exchange with Hospital Authority corporate systems. (e.g. dashboard system, system alert to users).

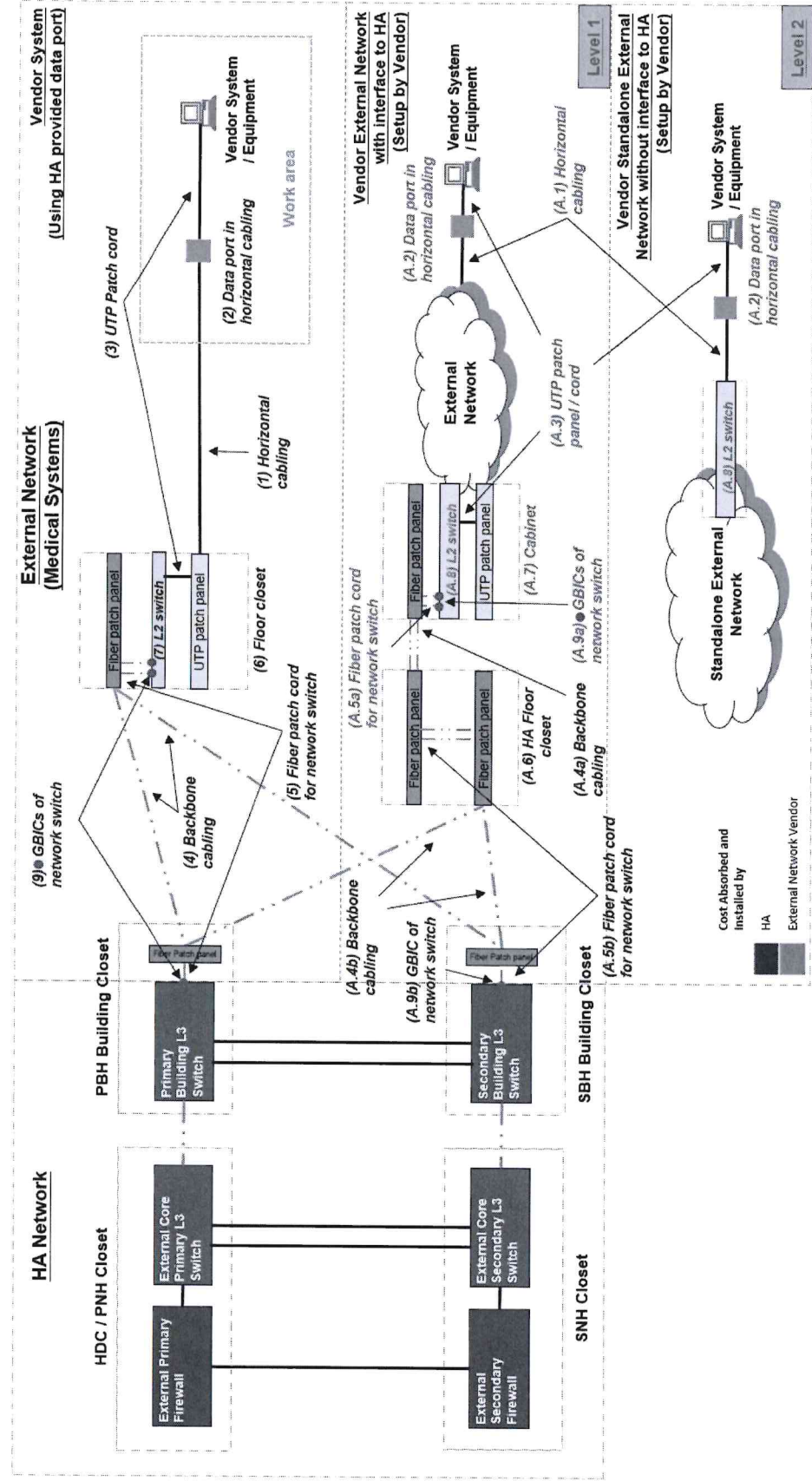
A.21 Public Cloud Service

A.21.1 Tenderer shall ensure the System/Equipment, where using public cloud service (e.g. Software as a Service/SaaS), conforms to "Cloud Security Standard" [Reference document (I), which is available for viewing after signing a non-disclosure agreement with hospital].

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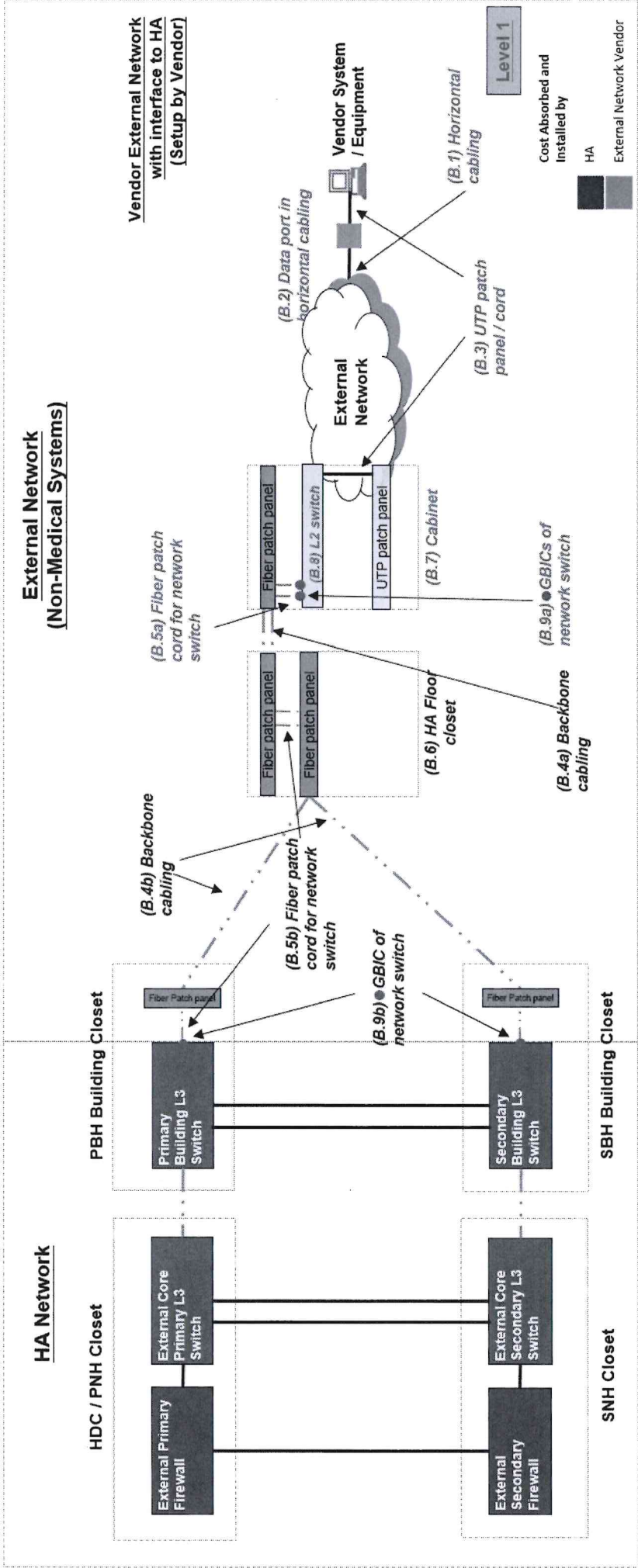
B. External Network Architecture

1) Below diagram illustrates the External Network Architecture for Medical Systems



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2) Below diagram illustrates the External Network Architecture for Non-Medical Systems

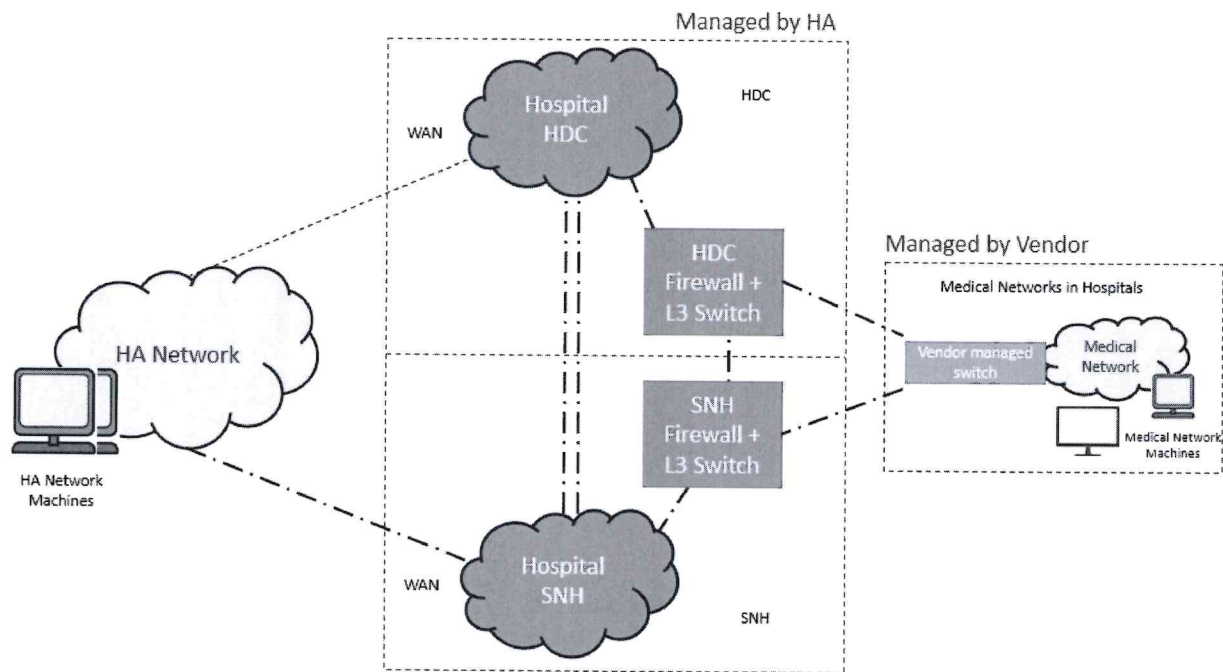


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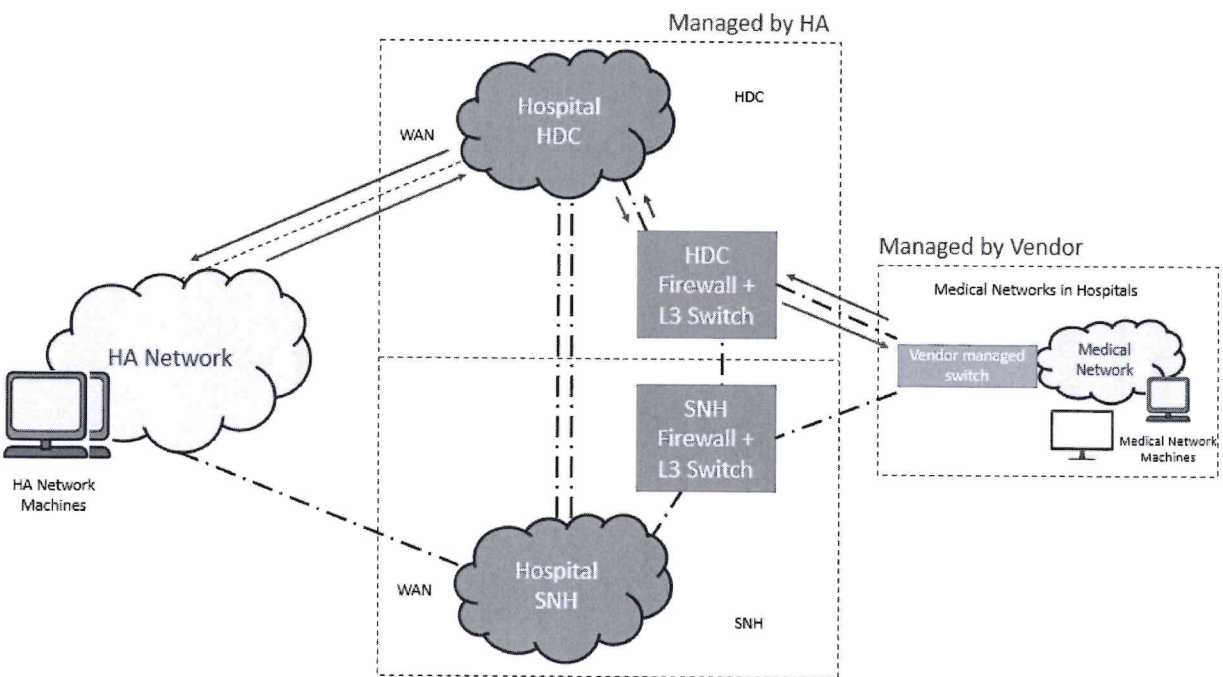
C. Failure and Recovery Scenarios in Hospitals for Vendor Managed Network Switches

C.1 Model A (Single Vendor Managed Layer 2 Switch)

C.1.1 Network Diagram

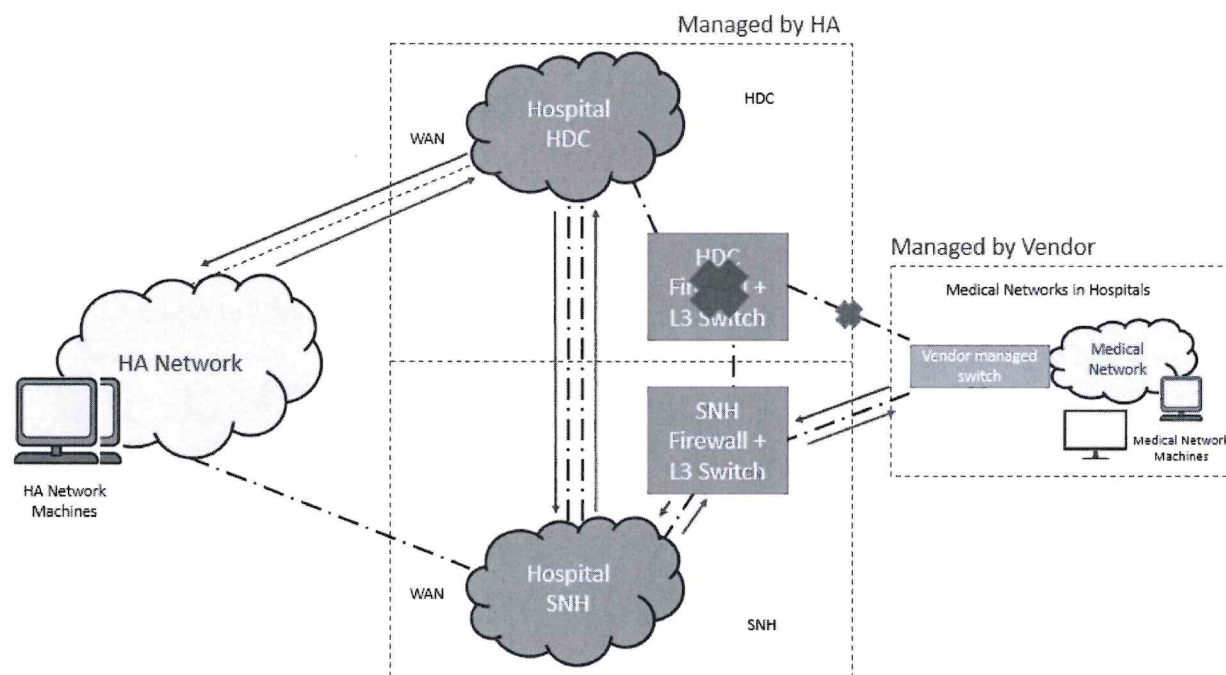


C.1.2 Normal Network Path



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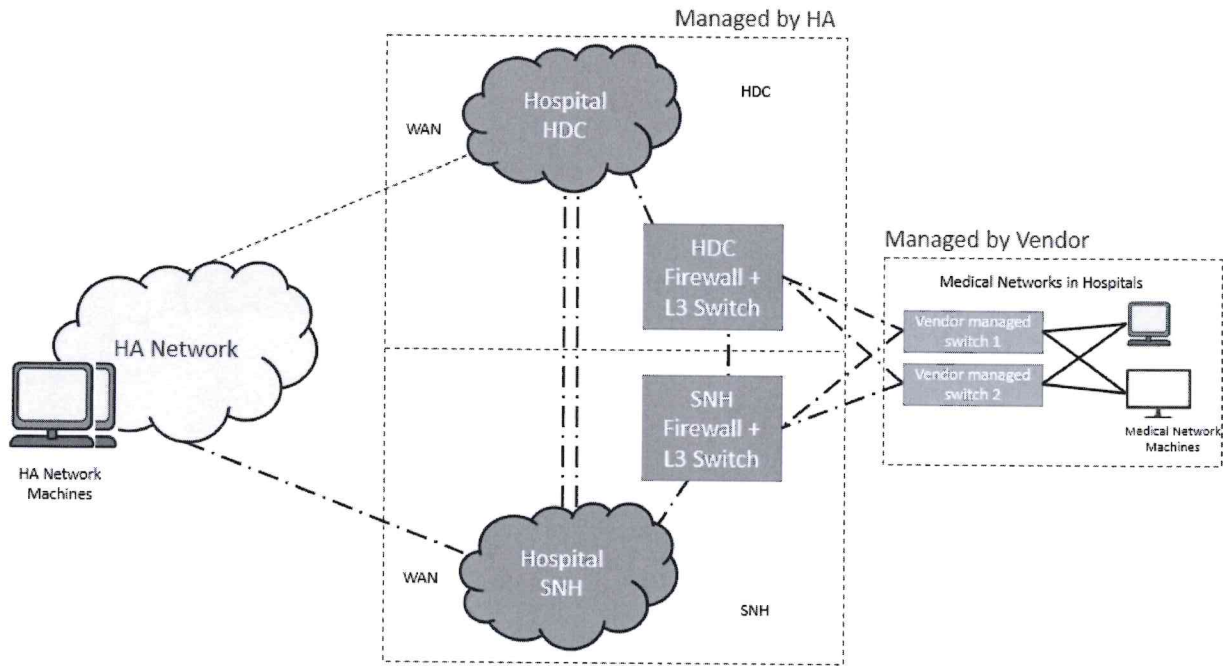
C.1.3 Failure Scenario



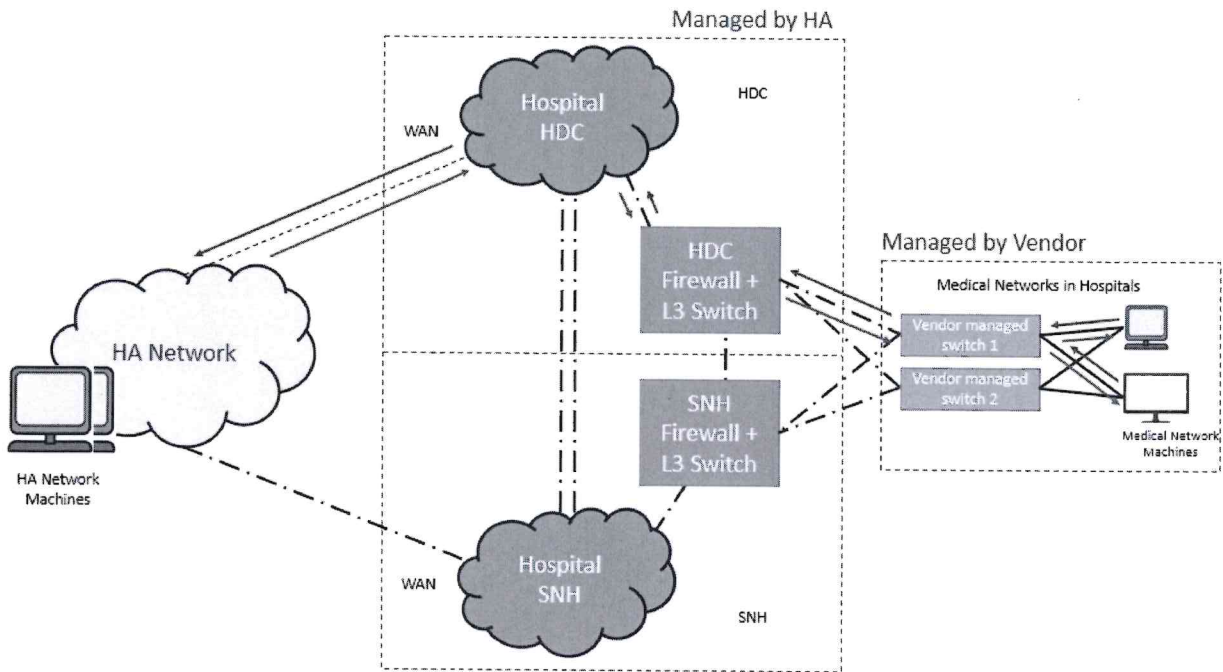
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C.2 Model B (Resilient Vendor Managed Layer 2 Switches)

C.2.1 Network Diagram

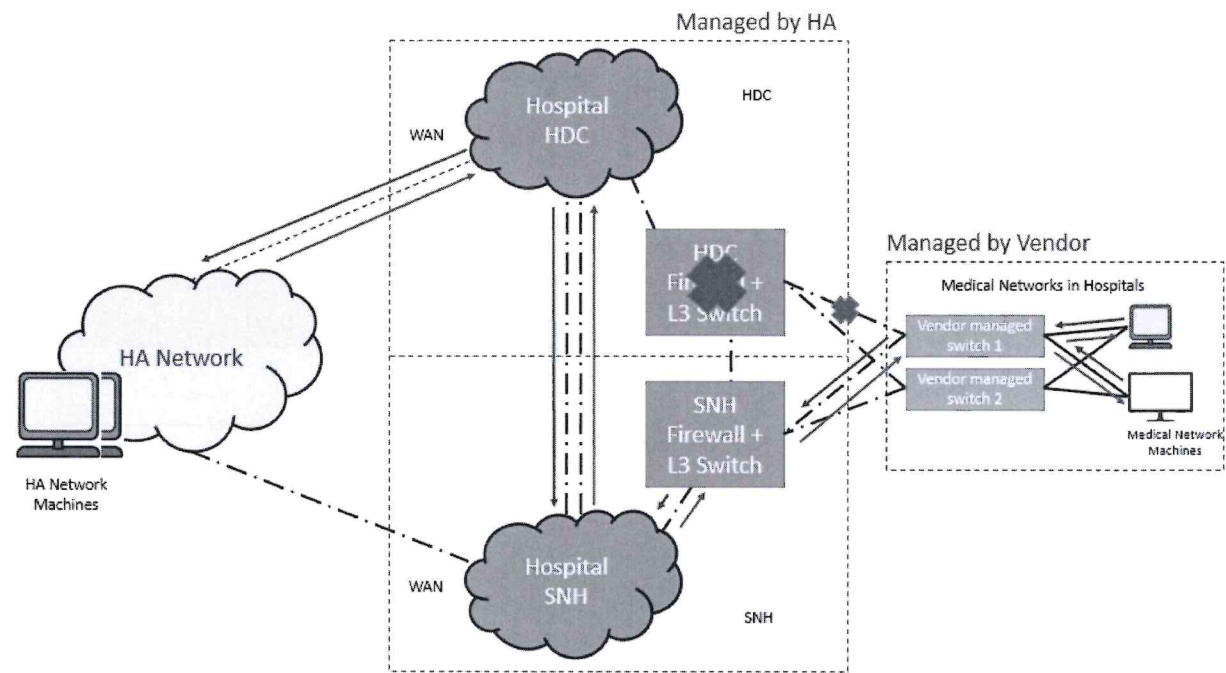


C.2.2 Normal Network Path

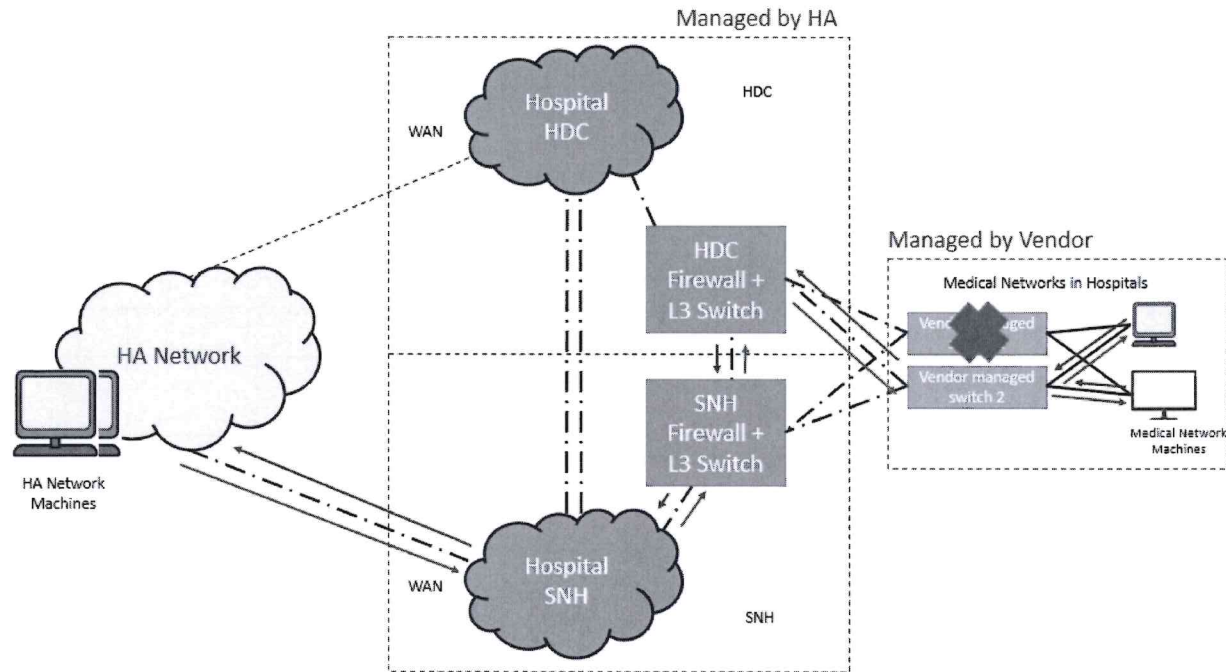


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C.2.3 Failure Scenario B1



C.2.4 Failure Scenario B2



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D. Vendor System Security Compliance Report (Sample)

Hospital: _____ Name of Systems: _____

Installation Location: _____ IP Subnet: _____

Security Requirements for Vendor System/Equipment Installed in HA

Items for Verification with Vendor		Comply (Y/N/NA)	Remark (if "N" or "NA")
A. Data Security (Review in regular basis)			
A1	Confidential data downloaded from the System/Equipment to end-user devices should be encrypted		
A2	Confidential data transferring between the System/Equipment and other HA IT systems should "preferably" be encrypted		
A3	Confidential data stored within the System/Equipment should "preferably" be encrypted		
A4	Confidential data stored in backup storage should be encrypted		
A5	Confidential data must not be exported for any usage unless prior authorisation has been obtained from HA.		
A6	Is the confidential data in System/Equipment and backup being protected from unauthorized access / leakage, including physical security controls? Please specify the controls in "Remark"		
B. Application Security (Review in regular basis)			
B1	The application should support role-based access control		
B2	The application should employ prevalent authentication mechanism at reasonable safety level		
B3	The application should apply network level encryption		
B4	The application should provide health-checking information		
B5	The application should keep audit logs		
B6	Conformance to HA's Guidelines for Application Security		
C. Network Security (Review in regular basis)			
C1	The System/Equipment should not have any network connection to external parties and should not have any unauthorized network connections		

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Items for Verification with Vendor		Comply (Y/N/NA)	Remark (if "N" or "NA")
C2	The System/Equipment network should connect to the network port provided by HA		
C3	The System/Equipment network should use IP addresses as assigned by HA		
C4	Only the authorised network traffic is permitted between the System/Equipment network and HA network		
C5	Formal change request and endorsement process for defining and implementing the network firewall policies		
D. Server Security (Review in regular basis)			
D1	Vendor should implement the server security as described in the Guidelines for Windows Server Hardening and the Guidelines for Host Security Hardening		
D2	Vendor should install into the servers an anti-virus program running with the latest virus definitions		
D3	Vendor should install the latest security patches in the servers		
D4	Vendor should perform a regular scanning in the servers		
E. Client / Desktop Security (Review in regular basis)			
E1	Vendor should implement the security controls at the PCs of the System/Equipment as described in the Guidelines for Security Requirements for HA PCs and Notebooks		
F. Security Incident Reporting (On-going exercise)			
F1	Vendor should immediately report security incidents to Cluster/Hospital management		
G. Vendor Maintenance (Review in regular basis)			
G1	Vendor should erase the data in storage devices before taking away the equipment for repair		
G2	Vendor should perform technical support on-site unless appropriate remote support arrangement is endorsed		
G3	Vendor support staff should sign the non-disclosure confidentiality agreement		
G4	When equipment is required to be taken away for offsite repair, are there ways to remove / erase / protect the confidential data in the equipment form leakage? Please specify the controls in "Remark"		

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Items for Verification with Vendor		Comply (Y/N/NA)	Remark (if "N" or "NA")
H. Privacy Control (Review in regular basis)			
H1	Are there any user authentication controls present in the System/Equipment?		
H2	Is unique user ID being assigned to every user?		
H3	Does the System/Equipment allow setting of complex password such as upper / lower case, alpha, numeric and special characters?		
H4	Does the System/Equipment provide audit trails of user accesses? Please specify the controls in "Remark" .		
H5	Is there any means to synchronize System/Equipment time with a trustworthy time server such as HA time server for accurate system record?		
H6	Perform user account review annually and disable inactive user immediately.		

Assumptions

1. in-direct offline storage should not be used

Full Name of Vendor Staff: _____ **Vendor Company:** _____

Position of Vendor Staff _____ **Company Chop:** _____

Signature of Vendor Staff: _____ **Date:** _____

SCHEDULE A**Compliance with Radiation Ordinance (Cap. 303 of the laws of Hong Kong)**

I/We confirm that:-

- () The offered product(s) contain(s) radioactive substances (RS).
() The offered product(s) do(es) not contain any radioactive substances (RS).

() The offered product(s) is an / are irradiating apparatus(es). (IA)
() The offered product(s) is not / are not irradiating apparatus(es). (IA)

If the offered product is IA or contain any RS, I/we confirm/commit to the following:-

- () I/We have obtained the necessary license from Radiation Board for selling the offered RS/IA product in Hong Kong, or

() I shall/We will obtain the necessary license from Radiation Board for selling the offered RS/IA product in Hong Kong.

Tenderer is required to provide the information of the offered IA/RS product in below space (e.g. type, activity, etc.), if applicable :-

[Please refer to Hong Kong Radiation Ordinance (Cap. 303 of the laws of Hong Kong) for the definition of RS and IA]

() Please tick “✓” where appropriate

Name of Company : _____	Name : _____	Authorized Signature : _____
Company's Chop : _____	Position Held : _____	E-mail Address : _____
Date : _____	Tel. No: _____	Fax No.: _____

Annex 3

Indicative Price Proposal
Section A - Price of the Basic Machine

Item No.	Description	Estimated Quantity	Brand	Model	F.I.S./Hong Kong Price Including Installation		Delivery Lead Time
					Unit Price (HK\$)	Total Amount (HK\$)	
1	Supply and Installation of Microscopes, Light, Operating for Prince of Wales Hospital <i>(Please provide cost breakdown of the components / accessories in separate sheet)</i>	1 Set					
Total Estimated Value (HK\$) :							
Notes: (a) The indicative unit price should comprise only the standard items in the basic machine. (b) All indicative prices of optional items must be quoted separately.							

Company Chop _____

Annex 3

Indicative Price Proposal
Section B – Price of Optional Items

Item No.	Description	Estimated Quantity	Unit Price (HK\$)	Total Amount (HK\$)
1	Relocation service for the entire system (Please refer to Clause 12 of Qualification Requirements)			
2	Please specify:			
3				
Total Estimated Value (HK\$) :				
Notes: (a) The cost quoted for all optional item is for reference only and will not be taken for Total-Life-Cycle-Cost Evaluation.				

Company Chop _____

Annex 3

Indicative Price Proposal
Section C – Price of Post Warranty Maintenance Services

The annual post warranty maintenance services costs of the products, commencing from the expiry of the Warranty Period:-

- (a) **All-inclusive comprehensive** post warranty maintenance services costs inclusive of charges for labour, regular calibrations, preventive maintenance (PM), corrective maintenance (CM) and all spare parts: -

No. of Preventive Maintenance (annually)	Services Costs Per Unit Per Annum (HK\$)				
	1 st year	2 nd year	3 rd year	4 th year	5 th year
With _____ times of PM annually	Free Warranty Period				
	6 th year	7 th year	8 th year	9 th year	10 th year
Response time to fault report to carry out CM: within _____ hours					

Remarks: -

1. Post Warranty Maintenance Cost quoted shall cover basic machine and accessories as offered in Section A of Indicative Price Proposal.
2. Post Warranty Maintenance Cost offered in percentage will not be considered.
3. Annual adjustments with reference to the percentage change in the Consumer Price Index published in the Hong Kong Monthly Digest of Statistics or other basis will not be considered.

Company Chop _____

Indicative Price Proposal
Section C – Price of Post Warranty Maintenance Services

- (b) Post warranty maintenance services costs inclusive of charges for labour, regular calibrations, preventive maintenance (PM), corrective maintenance (CM) and *minor parts/components:-

No. of Preventive Maintenance (annually)	Services Costs Per Unit Per Annum (HK\$)				
	1 st year	2 nd year	3 rd year	4 th year	5 th year
With _____ times of PM annually	Free Warranty Period				
	6 th year	7 th year	8 th year	9 th year	10 th year
* Minor parts/components costing not more than HK\$ _____. Details are attached					
Response time to fault report to carry out CM: within _____ hours					

Remarks: -

1. Post Warranty Maintenance Cost quoted shall cover basic machine and accessories as offered in Section A of Indicative Price Proposal.
2. Post Warranty Maintenance Cost offered in percentage will not be considered.
3. Annual adjustments with reference to the percentage change in the Consumer Price Index published in the Hong Kong Monthly Digest of Statistics or other basis will not be considered.

Company Chop _____

