SERVICE SCHEDULE - QP-EVPL SERVICE PORT

NUCLEUS CONNECT PTE. LTD.

INTERCONNECTION OFFER (ICO) AGREEMENT

SERVICE SCHEDULE – QP-EVPL SERVICE PORT

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1.   **INTRODUCTION**

1.1   This Service Schedule sets out the terms and conditions under which Nucleus Connect will provide the service known as QP-EVPL Service Port (as defined below) to the Contracting QP.

1.2   This Service Schedule comprises the following:

(a)   the provisions herein;
(b)   subject to paragraph 6, the General Service Terms and Conditions and the following Appendices:
(i)   Appendix 1: Provisioning Timeframe;
(ii)   Appendix 2: Service Level Guarantees; and
(c)   Orders submitted by the Contracting QP in relation to this Service Schedule.

1.3   In the event of any inconsistency or conflict between the provisions herein, the General Service Terms and Conditions and Orders submitted by the Contracting QP in relation to this Service Schedule, the order of precedence shall be as follows:

(a)   the provisions herein;
(b)   Orders submitted by the Contracting QP in relation to this Service Schedule; and
(c)   the General Service Terms and Conditions.

1.4   The Master ICO Agreement, including the Annexes, shall apply unless and to the extent amended or supplemented by the provisions of this Service Schedule.

1.5   In this Service Schedule, a reference to a paragraph, unless stated otherwise, is to a paragraph of this Service Schedule.

2.   **DEFINITIONS AND INTERPRETATION**

2.1   Unless otherwise defined herein this Service Schedule, all terms and expressions used herein will be construed to have the same meanings as found in the Master ICO Agreement and the General Service Terms and Conditions. Where a term or expression is defined specifically in this Service Schedule herein, the provisions herein shall prevail.

2.2   In this Service Schedule:

Co- location Service	means an Ancillary Mandated Service provided by Nucleus Connect to the Contracting QP, pursuant to and in accordance with the Service Schedule for Co-location Service;
Downlink	means bandwidth in the downstream direction (from the QP-EVPL Service Port to the Aggregation Network);
IP Multicast Connection	is a Basic Mandated Service offered by Nucleus Connect under the ICO Agreement, being a service to allow the Contracting QP to deliver IP multicast content over the NGNBN using Nucleus Connect's IP multicast technology. An IP Multicast Connection will allow the Contracting QP to deliver its IP multicast content from its QP-EVPL Service Port to Nucleus Connect's Aggregation Layer at an NetLink Trust CO;

Patching Service	means an Ancillary Mandated Service provided by Nucleus Connect to the Contracting QP, pursuant to and in accordance with the Service Schedule for Patching Service;
Service Port	means the physical port which the Contracting QP's or End-User's equipment shall interface to the Nucleus Connect Active Network either at Core or Aggregation Layer for the purpose of multiplexing Ethernet Virtual Connections;
Service Port ID	means an identification number assigned by Nucleus Connect to a QP-EVPL Service Port that has been provisioned for the Contracting QP;
Symmetrical	means equal bandwidth for Uplink and Downlink (between the QP-EVPL Service Port and the Aggregation Network); and
Uplink	means bandwidth in the upstream direction (from the Aggregation Network to the QP-EVPL Service Port).

3.   COMMENCEMENT

This Service Schedule shall commence with effect from the date that the Contracting QP first places an Order to take up a QP-EVPL Service Port in accordance with the General Service Terms and Conditions.

4.   SERVICE REQUIRMENTS

4.1   The Contracting QP shall place one (1) Order for each QP-EVPL Service Port. For example, if the Contracting QP wishes to take up two (2) QP-EVPL Service Ports, the Contracting QP shall submit two (2) separate Orders.

4.2   The Contracting QP acknowledges and agrees that:

(a)   for a QP-EVPL Service Port at the Core Layer, such QP-EVPL Service Port must be connected to a PB-EVC and/or an IP Multicast Connection; and

(b)   for a QP-EVPL Service Port at the Aggregation Layer, such QP-EVPL Service Port must be connected to an AG-EVC and/or an IP Multicast Connection.

4.3   When placing an Order for a QP-EVPL Service Port, the Contracting QP shall be required to:

(a)   Choose one (1) Service Port type which is either a 1 Gigabit Ethernet ("**1GE Service Port**") or a 10 Gigabit Ethernet ("**10GE Service Port**"). The Symmetrical Peak Information Rate for a 1GE Service Port shall be 1Gbps and for a 10GE Service Port shall be 10Gbps.

(b)   Choose any of the following Network Layers:

(i)   Option1: Layer 2 VLAN (IEEE 802.1q and IEEE Q-in-Q)

(ii)   Option 2: Layer 3 IPv4

(iii)   Option 3: Layer 3 IPv6

(iv)   Option 4: Layer 3 IP Multicast (IGMP V2/V3)

provided that the availability of Option 2 and Option 3 above are subject to the Contracting QP having taken up and completed the L3 Virtual Routing Domain Setup Service, which is an Ancillary Mandated Service provided by Nucleus Connect.

(c)   Choose either of the following failover mechanism and protocols (only for QP-EVPL Service Ports within the same Nucleus Connect's CO):

(i)   Option 1: IEEE 802.3ad

(ii)   Option 2: eBGP

The Contracting QP's responsibility is to ensure that the abovementioned failover mechanism and protocols are correctly configured and dimensioned on its equipment.

4.4   The Contracting QP must adhere to Nucleus Connect's QoS tagging scheme when sending or receiving data traffic through the QP-EVPL Service Port. Such QoS tagging scheme requires the use of priority bit value 5 for Class A, priority bit value 4 for Class B, priority bit value 2 for Class C and priority bit value 1 for Class D.

4.5   (a)   Where the QP-EVPL Service Port is located at a NC CO:

(i)   The Contracting QP must procure Patching Services from Nucleus Connect in order to connect the Contracting QP Equipment to the QP-EVPL Service Port.

(ii)   If the Contracting QP Equipment is not co-located at the same NC CO as the QP-EVPL Service Port, the Contracting QP must ensure that its equipment/transmission link used to connect to the QP-EVPL Service Port is able to interface properly with the QP-EVPL Service Port.

(iii)   The Contracting QP must also procure Co-location Services from Nucleus Connect to house the Contracting QP Equipment which is used to provide the transmission link.

(iv)   The inter End-User traffic shall be routed through the Contracting QP Equipment that is connected to the QP-EVPL Service Port.

(b)   Where the QP-EVPL Service Port is located at an NetLink Trust CO:

(i)   The Contracting QP must procure patching services from NetLink Trust in order to connect the Contracting QP Equipment to the QP-EVPL Service Port.

(ii)   If the Contracting QP Equipment is not co-located at the same NetLink Trust CO as the QP-EVPL Service Port, the Contracting QP must ensure that its equipment/transmission link used to connect to the QP-EVPL Service Port is able to interface properly with the QP-EVPL Service Port.

(iii)   The Contracting QP shall be responsible to house its equipment at NetLink Trust's COs.

(iv)   In order for the Contracting QP to deliver its traffic to any other QP-EVPL Service Port located at a NC CO or at another NetLink Trust CO, the routing shall be by Layer 3 IP V4 or IP V6 protocol. The QP-EVPL Service Port at NC CO shall have PB-EVC connections to the relevant NetLink Trust CO. All IP traffic shall still be routed through the Contracting QP Equipment that is connected to the QP-EVPL Service Port located at NC CO and/or NetLink Trust CO.

5.   CHARGES

The charges set out in this paragraph 5 are the rates payable by the Contracting QP on a per QP-EVPL Service Port basis.

5.1   Monthly Recurring NC Charges

Nucleus Connect will commence charging the Contracting QP the Monthly Recurring Charges specified below on the RFS Date.

QP-EVPL Service Port	Monthly Recurring NC Charge
10Gbps Service Port at Core/Aggregation Layer	$3,922.20
1Gbps Service Port at Core/Aggregation Layer	$751.10

5.2   One-Time Charges

The charges set out below are non-refundable once they are imposed on the Contracting QP by Nucleus Connect in the manner specified below. In addition, depending on when the relevant action is preferred by the Contracting QP to be undertaken by Nucleus Connect, the following multiplier factor will be applied to the Charges set out below. For the avoidance of doubt, the multiplier factor to be applied shall be one (1) unless the Contracting QP requests that the relevant action be undertaken by Nucleus Connect on off-working hours during Business Day(s) or on non Business Day(s).

	Period	Time		Multiplier Factor
Business Day	Monday to Friday	Working Hours	9.00am to 5.00pm	1
	Monday to Friday	Off-working hours	Before 9am and after 5.00pm	1.5
Non-Business day	Saturday, Sundays and Public Holidays	Throughout		2

(a)   Cancellation Charge

Upon any Cancellation of an Order relating to QP-EVPL Service Port by the Contracting QP, the following Charges shall be imposed on the Contracting QP:

(i)   an NC Charge of $10 if Cancellation happens before Nucleus Connect's acknowledgement of its receipt of the Order or an NC Charge of an amount equal to the applicable NC Charges as set out

in paragraph 5.2 if Cancellation happens after Nucleus Connect's acknowledgement of its receipt of the Order;

(ii)   NLT Charges, except those NLT Charges which would be subject to paragraph 5.2(a)(iv), which have been incurred by Nucleus Connect, or which Nucleus Connect has committed to incur, at the time of such Cancellation;

(iii)   any Third Party Charges which have been incurred by Nucleus Connect, or which Nucleus Connect has committed to incur, at the time of such Cancellation; and

(iv)   any other third party charges, NetLink Trust's charges and/or NLT Charges agreed pursuant to paragraph 5.2 or 6.3 of the General Service Terms and Conditions which have been incurred by Nucleus Connect, or which Nucleus Connect has committed to incur, at the time of such Cancellation.

(b)   <u>Installation Charge</u>

(i)   Upon the installation of a QP-EVPL Service Port by Nucleus Connect, a one-time NC Charge of $675 shall be imposed on the Contracting QP on a per QP-EVPL Service Port basis.

(ii)   <u>Patching Charge in the NC CO and Co-Location Space</u>

(I)   A Patching Charge in addition to the above one-time NC Charge referred to in sub-paragraph (i) above will be imposed if Nucleus Connect is required to provide Patching Services. Nucleus Connect may be required to provide Patching Services where the installation address is located at the Co-Location Space or the NC CO. This will be charged at $40 per patch point.

(II)   This Patching Service will be provided by Nucleus Connect if required. The Contracting QP will be required to submit a separate Order for this Patching Service.

(c)   <u>Modification Charge</u>

An NC Charge of $40 shall be imposed on the Contracting QP upon the submission of a Modification Order by the Contracting QP.

(d)   <u>Maintenance or Repair</u>

(i)   Nucleus Connect will charge for every onsite visit or joint investigation according to the length of time spent by Nucleus Connect's representative during such onsite visit or joint investigation respectively, if such onsite visit or joint investigation is requested by the Contracting QP. There will be a minimum charge of $600 per onsite visit or joint investigation (as the case may be) up to the first two hours. Subsequent hour blocks are charged at $300 per hour.

(ii)   The No Fault Found Charge referred to in the General Service Terms and Conditions is $214 per Fault report.

(e)   Disconnection

Upon a disconnection of a QP-EVPL Service Port by reason of suspension pursuant to the ICO Agreement, a NC Charge of $60 shall be imposed on the Contracting QP.

(f)   Deactivation

Upon the Deactivation of a QP-EVPL Service Port, the following Charges shall be imposed on the Contracting QP.

(i)   the following NC Charges

Description	Charges
Deactivation Charge	$150
Early Termination Charge	100% of remaining contract value

(ii)   NLT Charges, except those NLT Charges which would be subject to paragraph 5.2(f)(iv), which have been incurred by Nucleus Connect, or which Nucleus Connect has committed to incur, at the time of such Deactivation;

(iii)   any Third Party Charges which have been incurred by Nucleus Connect, or which Nucleus Connect has committed to incur, at the time of such Deactivation; and

(iv)   any other third party charges, NetLink Trust's charges and/or NLT Charges agreed pursuant to paragraph 5.2 or 6.3 of the General Service Terms and Conditions which have been incurred by Nucleus Connect, or which Nucleus Connect has committed to incur, at the time of such Deactivation.

6.   CHANGES FROM THE GENERAL SERVICE TERMS AND CONDITIONS

6.1   Paragraph 6.4 of the General Service Terms and Conditions

For the purpose of this Service Schedule, paragraph 6.4 of the General Service Terms and Conditions shall be deleted in its entirety and replaced with the following paragraphs:

"6.4A   If the Contracting QP submits an Order for the purpose of upgrading the Service Port from a 1 Gigabit Ethernet (1GE) to a 10 Gigabit Ethernet (10GE), such upgrade shall not be treated by Nucleus Connect as a Modification but shall be deemed to constitute:

(a)   an Order for the Deactivation of the QP-EVPL Service Port, whereupon paragraph 8 of the General Service Terms and Conditions will apply, provided that Nucleus Connect will waive any applicable Early Termination Charge payable by the Contracting QP; and

(b)   an Order to take up a new QP-EVPL Service Port using a 10GE Service Port, whereupon paragraph 3 of the General Service Terms and Conditions will apply.

6.4B   If the Contracting QP submits an Order for the purpose of downgrading the Service Port from a 10 Gigabit Ethernet (10GE) to a 1Gigabit Ethernet (1GE),

such downgrade shall not be treated by Nucleus Connect as a Modification but shall be deemed to constitute:

(a) an Order for the Deactivation of the QP-EVPL Service Port, whereupon paragraph 8 of the General Service Terms and Conditions will apply; and

(b) an Order to take up a new QP-EVPL Service Port using a 1GE Service Port, whereupon paragraph 3 of the General Service Terms and Conditions will apply."

6.2 <u>Paragraph 9.10 of the General Service Terms and Conditions</u>

For the purpose of this Service Schedule, the tables in paragraph 9.10 of the General Service Terms and Conditions shall be deleted in their entirety and replaced with the following table:

Specific MTTR per Month	Reduction in Monthly Recurring Charge per affected circuit
≤ 3 hours	No Compensation
> 3 hours but ≤ 5 hours	10%
> 5 hours but ≤ 10 hours	20%
> 10 hours	30%

Application Form
QP Ethernet Virtual Private Line (QP-EVPL)

nucleus connect

ATTN: NUCLEUS CONNECT, ORDER DESK FACSIMILE NO.: (65) 6808 2820 EMAIL: orderdesk@nucleusconnect.com	

Business Customer Information	
Company Details	**Authorised Officer Particulars**
Name of Firm/Company as in RCB:	Name of Authorised Officer as in NRIC/PASSPORT/FIN*. Please underline surname. (Dr/Mr/Miss/Mrs/Mdm):
Registered Address as in RCB:	E-mail of Authorized Officer:
Main Office Contact No.:	Designation:
Main Office Fax No.:	Contact No. (Office):
Business Registration Number (BRN):	Contact No. (Fax):
Account Information (For New Accounts, please refer to www.nucleusconnect.com for instruction to sign up Nucleus Connect's Services)	☐ Account Number:
Customer Reference ID : (This ID is issued by customer for their internal reference of the service that is set out in this application form)	

Billing Details (If different from Business Customer Information)	
Company Name:	Billing Address :
City & Postal Code:	Country:
Contact Person Name (Billing):	Customer Contact Number :
Customer Fax Number:	E-mail:

* Please select where appropriate

Customer Technical Contact	
Installation Contact (for service delivery)	**Operations/Technical Contact (after service delivery)**
Name:	Name:
Telephone (O):	Telephone (O):
Mobile:	Mobile:
Email:	Email:
Notification Mode: 24 Hours Daily ☐ Office Hours (9am-5pm, Mon-Fri) ☐	Notification Mode: 24 Hours Daily ☐ Office Hours (9am-5pm, Mon-Fri) ☐

Instruction
1.   Service Port media type is Single Mode Fiber; 2.   Failover mechanism and protocols are only for QP-EVPL Service Ports within the same NC CO.

Type of Service Port		
☐ New Order ☐ Modification ☐ Deactivation ☐ Others (Please specify): ____		
Existing Service Port ID (Mandatory field unless New Order): ____		
☐ 1 Gigabit Ethernet LX(1Gbps) ☐ 10 Gigabit Ethernet LR (10Gbps) ☐ Others:		
Port Installation Address	☐ Core Layer CO : ____	☐ Aggregation Layer CO: ____
Site Contact:	Name:	Contact number:

Application Form
QP Ethernet Virtual Private Line (QP-EVPL)

Network Layer Configuration		
Failover mechanism and protocols	☐ IEEE 802.3ad	☐ eBGP

Contract Period	
Minimum Term[b]	☐ 12 Months ☐ Others (Please specify): _____
Customer requested RFS date^	_____

Additional Information

^ Subject to agreement, resource availability and confirmation by Nucleus Connect.
[b] If Minimum Term is not specified, the Contracting QP shall be deemed to have selected 12 months.

Customer Signature
We hereby agree to subscribe to the abovementioned services on the terms and subject to the conditions contained in the Master ICO Agreement and the Service Schedule for the abovementioned services, which terms and conditions shall apply upon Nucleus Connect's acceptance of this application. We certify that all information provided by us herein are true, correct and complete. Further, we agree that any cancellation of the abovementioned services may result in a charge to us at Nucleus Connect's prevailing rates.

Signature of Authorised Officer	Date	Company Stamp

For Nucleus Connect Use		
☐ Application Rejected:	Reason for rejection: _____	
☐ Application Accepted	Service ID/s: _____	Work Order No.: _____
No. of pages attached (Excluding application forms): _____	Approval code: _____	Processed by (Name, Contact, Signature and Date)