

## **APPENDIX 6**

### **DIRECTED MODIFICATIONS TO SERVICE SCHEDULE – L2 VPN SERVICE**

**SERVICE SCHEDULE - L2 VPN SERVICE**

**NUCLEUS CONNECT PTE. LTD.**  
**INTERCONNECTION OFFER (ICO) AGREEMENT**  
**SERVICE SCHEDULE – L2 VPN SERVICE**

**Note:**

**(1) The IDA Directed Modifications within this schedule cover changes required to the paragraphs and whether certain new charges should be allowed or removed. IDA is currently reviewing the remaining new charges proposed by Nucleus Connect and will inform the industry of the outcome of the review at a later date.**

**(2) Unless otherwise specified in IDA's Directed Modifications in the Explanatory Memorandum and other IDA Directed Modifications in other parts of the Direction (including the Service Schedule – L2 VPN Service), Nucleus Connect's proposed modifications to the Service Schedule – L2 VPN Service are approved.**

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## **1. INTRODUCTION**

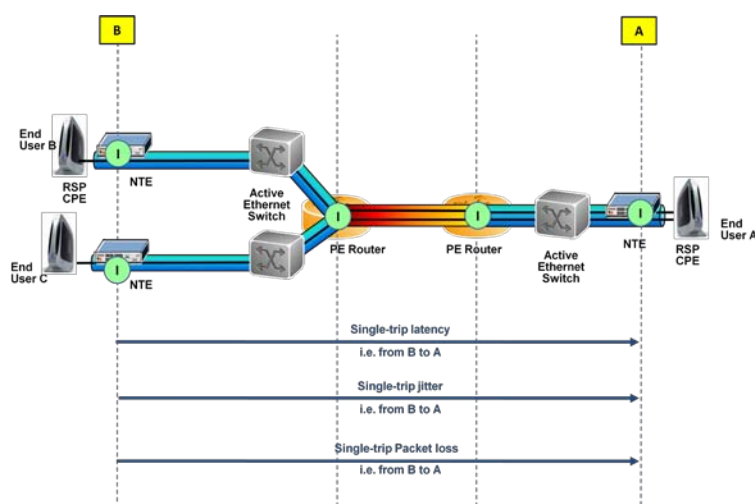
- 1.1 This Service Schedule sets out the terms and conditions under which Nucleus Connect will provide the service known as L2 VPN Service (as defined below) to the Contracting QP.
- 1.2 This Service Schedule comprises the following:
- (a) the provisions herein;
  - (b) subject to paragraph 6, the General 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:
- |                           |  |
|---------------------------|--|
| Approved Project Schedule | has the meaning ascribed to it in paragraph 6.1(d) or 6.1(f), as the case may be;  |
| Class of Service or CoS   | means any of the following class of service: <ul style="list-style-type: none"><li>(a) Class A Real Time (Class A);</li><li>(b) Class B Near Real Time (Class B);</li><li>(c) Class C Mission Critical (Class C); or</li><li>(d) Class D Best Effort (Class D),</li></ul> each of which is prescribed QoS parameters as set out in the tables in paragraphs 4.2(c) and 4.7(d); |

Committed Information Rate (CIR)	means the minimum bandwidth that Nucleus Connect guarantees over the A-B segment of the diagram in the definition of “QoS” for each L2 VPN Connection (or as the case may be, EPL-Gigabit Connection);
Downlink	means bandwidth in the downstream direction (from Aggregation Network to the End-User);
EPL-Gigabit Connection	means a gigabit point-to-point Ethernet private line between two Non-Residential Premises;
L2 VPN Connection	means an end-to-end private layer 2 connection that allows the End-User to establish point-to-point or point-to-multipoint connections between Residential Premises, Non-Residential Premises and NBAP, excluding any EPL-Gigabit Connection;
L2 VPN Service	means: <ul style="list-style-type: none"> <li>(a) a point to point L2 VPN Connection and/or L2 VPN Service Port. A point to multipoint topology can be established by ordering multiple point to point L2 VPN Connections on the same L2 VPN Service Port. All the point to point L2 VPN Connections will be uniquely and logically separated by VLAN (IEEE802.1q or IEEEQ-in-Q). Inter L2 VPN Connections traffic will be switched by the End-User’s equipment; or</li> <li>(b) an EPL-Gigabit Connection;</li> </ul>
L2 VPN Service Port	means the physical port whereby L2 VPN Connection or (as the case may be) EPL-Gigabit Connection will be delivered to the End-User. Multiple point to point L2 VPN Connections multiplexed to a single L2 VPN Service Port is supported for point-to-multipoint topology;
NBAP L2 VPN Service Port	has the meaning ascribed to it in paragraph 6.1;
Peak Information Rate (PIR)	means the maximum bandwidth that each L2 VPN Connection (or as the case may be, each EPL-Gigabit Connection) can reach over the A-B segment of the diagram in the definition of “QoS” in the absence of any sort of traffic aggregation, congestion or multiplexing;

Quality of Service or (QoS) means the service levels committed for ensuring delivery of services over the A-B segment of the diagram below, measured by Jitter, Latency and Packet Loss as set out in the tables in paragraph 4.2(c) and 4.7(d);



Service Port ID means an identification number assigned by Nucleus Connect to a L2 VPN Service Port that has been provisioned for the Contracting QP;

Symmetrical means equal bandwidth for Uplink and Downlink (between the End-User and the Aggregation Network); and

Uplink means bandwidth in the upstream direction (from the End-User to the Aggregation Network).

### 3. COMMENCEMENT

This Service Schedule shall commence with effect from the date that the Contracting QP first places an Order to take up a L2 VPN Service, in accordance with the General Service Terms and Conditions.

### 4. SERVICE REQUIREMENTS

#### Requirements for L2 VPN Connections

- 4.1 The Contracting QP shall place one (1) Order for each L2 VPN Connection. For example, if the Contracting QP wishes to take up two (2) L2 VPN Connections, the Contracting QP shall submit two (2) separate Orders.
- 4.2 When placing an Order for an L2 VPN Connection, the Contracting QP shall be required to:
  - (a) Specify two (2) L2 VPN Service Port types and the addresses of the installation locations, except that where any such installation location is an NBAP, the Contracting QP is required to provide Global Positioning System (GPS) co-ordinates and description of such installation location. The L2 VPN

Service Ports may be new or then existing and if the latter, the Contracting QP shall be required to specify the Service Port IDs in respect of such L2 VPN Service Ports. The L2 VPN Service Port type is either Fast Ethernet ("**FE Service Port**") or Gigabit Ethernet ("**GE Service Port**").

For FE Service Port(s), each L2 VPN Connection will have a Symmetrical PIR of 100Mbps.

For GE Service Port(s), each L2 VPN Connection will have a Symmetrical PIR of 1Gbps.

- (b) Specify the VLAN (IEEE 802.1q or IEEEQ-in-Q) tag permitted to be transparently carried by the L2 VPN Connection. In the case of multiple L2 VPN Connections sharing the same L2 VPN Service Port, the maximum number of VLANs that can be configured per L2 VPN Service Port is sixteen (16).
- (c) Subscribe to only one (1) Class of Service for such L2 VPN Connection and indicate the total Symmetrical CIR it wishes to purchase in blocks of 5Mbps, provided that:
  - (i) the Symmetrical CIR for such Class of Service shall be no more than 100Mbps for FE Service Port, and 1Gbps for GE Service Port;
  - (ii) such Class of Service shall have a minimum Symmetrical CIR of 25Mbps; and
  - (iii) where there are multiple L2 VPN Connections sharing the same L2 VPN Service Port, the aggregate Symmetrical CIR for such L2 VPN Connections shall be no more than 100Mbps for FE Service Port, and 1Gbps for GE Service Port.

The Contracting QP may subsequently from time to time, increase or decrease the Symmetrical CIR of the Class of Service subscribed for such L2 VPN Connection, in blocks of 5Mbps, provided that sub-paragraphs (i) to (iii) above are complied with. Such increase or decrease of Symmetrical CIR shall constitute a Modification for which the Contracting QP shall be required to submit an Order pursuant to and in accordance with the General Service Terms and Conditions.

The table below sets out the performance parameters of the Classes of Services for L2 VPN Connection.

<b>Class Of Service</b>	<b>Jitter</b>	<b>Latency</b>	<b>Packet Loss</b>
Class A Real Time	1ms	8ms	0.1%
Class B Near Real Time	1ms	15ms	0.1%
Class C Mission Critical	4ms	20ms	0.05%
Class D Best Effort	Best Effort	60ms	Best Effort

- 4.3 If the Contracting QP injects traffic into any L2 VPN Connection which exceeds the Symmetrical CIR purchased pursuant to paragraph 4.2(c), the Contracting QP acknowledges and agrees that notwithstanding that Nucleus Connect will endeavour



to deliver such excess traffic, such delivery is not guaranteed. For the avoidance of doubt, the Contracting QP shall not be able to inject traffic into any L2 VPN Connection which exceeds the PIR as set out in paragraph 4.2(a).

- 4.4 Only one (1) Class of Service is supported per L2 VPN Connection. A L2 VPN Service Port can support multiple L2 VPN Connections of the same or different Classes of Service.
- 4.5 The Contracting QP must adhere to Nucleus Connect's QoS tagging scheme when sending or receiving data traffic through any L2 VPN Connection from the relevant L2 VPN Service Port(s). 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.
- 4.6 In relation to any L2 VPN Connection taken up by the Contracting QP, if the Contracting QP wishes to change the then existing L2 VPN Service Port type in respect of such L2 VPN Connection (from FE Service Port to GE Service Port or vice versa), such event shall constitute a Modification for which the Contracting QP shall be required to submit an Order pursuant to and in accordance with the General Service Terms and Conditions.

Requirements for EPL-Gigabit Connections

- 4.7 When placing an Order for an EPL-Gigabit Connection, the Contracting QP shall be required to:
- (a) place one (1) Order for each EPL-Gigabit Connection. For example, if the Contracting QP wishes to take up two (2) EPL-Gigabit Connections, the Contracting QP shall submit two (2) separate Orders.
  - (b) Specify two (2) L2 VPN Service Ports (GE (1Gbps) Service Port for Non-Residential Premise type only) and the addresses of the installation locations. The installation locations shall be Non-Residential Premises only. The underlying access technology for such L2 VPN Service Ports shall be based on AE. If pursuant to the Contracting QP's request, Nucleus Connect is not able to provide such EPL-Gigabit Connection based on AE, Nucleus Connect shall be entitled to reject the Order for the EPL-Gigabit Connection, but shall not impose any charges on the Contracting QP in respect of the rejection of such Order.
  - (c) Specify the VLAN (IEEE 802.1q or IEEEQ-in-Q) tag permitted to be transparently carried by the EPL-Gigabit Connection. Sharing of multiple EPL-Gigabit Connection(s), or EPL-Gigabit Connection and L2 VPN Connection(s) on the same L2 VPN Service Port (GE (1Gbps) Service Port for Non-Residential Premise type only) is not permitted.
  - (d) Subscribe to only one (1) Class of Service for such EPL-Gigabit Connection. Each EPL-Gigabit Connection shall have a Symmetrical PIR/CIR of 1Gbps

The Contracting QP may subsequently from time to time, change the Class of Service subscribed for such EPL-Gigabit Connection. Such changes shall constitute a Modification for which the Contracting QP shall be required to submit an Order pursuant to and in accordance with the General Service Terms and Conditions.

The table below sets out the performance parameters of the Classes of Services for EPL-Gigabit Connection.

<b>Class Of Service</b>	<b>Jitter</b>	<b>Latency</b>	<b>Packet Loss</b>
Class A Real Time	1ms	8ms	0.1%
Class B Near Real Time	1ms	15ms	0.1%
Class C Mission Critical	4ms	20ms	0.05%
Class D Best Effort	Best Effort	60ms	Best Effort

- 4.8 Only one (1) Class of Service is supported per EPL-Gigabit Connection. A L2 VPN Service Port can only support a single EPL-Gigabit Connection.
- 4.9 The Contracting QP must adhere to Nucleus Connect's QoS tagging scheme when sending or receiving data traffic through any EPL-Gigabit Connection from the relevant L2 VPN Service Port(s). 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.

General Requirements

- 4.10 In relation to any L2 VPN Connection/Service Port taken up by the Contracting QP, if the Contracting QP wishes to change the L2 VPN Connection/Service Port into an EPL-Gigabit Connection, the Contracting QP shall:
- (a) place an Order for the Deactivation of such L2 VPN Connection/Service Port, whereupon paragraph 8 of the General Service Terms and Conditions will apply; Provided That no Deactivation Charge or Early Termination Charge will be imposed on the Contracting QP in respect of such Order which was submitted by the Contracting QP to Nucleus Connect before 9 May 2011; and
  - (b) pursuant to paragraph 4.7, place an Order to take up a new EPL-Gigabit Connection/Service Port with an underlying access technology based on AE, whereupon paragraph 5.3 of the General Service Terms and Conditions will apply.

The provisions of sub-paragraphs (a) and (b) shall also apply mutatis mutandis where the Contracting QP wishes to change from an EPL-Gigabit Connection to a L2 VPN Connection.

- 4.11 If, in relation to an Order to take up a L2 VPN Service, the installation location required is a Non-Residential Premises and the Contracting QP indicates to Nucleus Connect in such Order that it does not require OpenNet to provide the cabling and ducting between the FTTB Node and the 1<sup>st</sup> TP for the relevant Non-Residential Building, the Contracting QP shall be responsible for the supply and maintenance of such cabling and ducting. In such event, the Contracting QP acknowledges and agrees that:
- (a) the Contracting QP shall bear the following Charges on a per L2 VPN Service Port basis:
    - (i) ON Charges, except those ON Charges which would be subject to paragraph 4.11(a)(iii), which have been incurred by Nucleus Connect, or which Nucleus Connect has committed to incur, in connection therewith;

- (ii) any Third Party Charges which have been incurred by Nucleus Connect, or which Nucleus Connect has committed to incur, in connection therewith; and
  - (iii) any other third party charges, OpenNet's charges and/or ON 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, in connection therewith;
- (b) the Contracting QP shall provide such cabling and ducting from the FTTB Node and up to and including the 1<sup>st</sup> TP that are of a quality that is fit-for-purpose; and
- (c) the Contracting QP shall make such cabling and ducting from the FTTB Node and up to and including the 1<sup>st</sup> TP, available and ready for Nucleus Connect's use at least three (3) Business Days before the RFS Date in respect of such L2 VPN Service.

For the avoidance of doubt, if the Contracting QP fails to comply with sub-paragraphs (b) and (c) above and due to such failure, Nucleus Connect is not able to provision and activate such L2 VPN Service by the scheduled RFS Date, the Contracting QP shall not be entitled to make any claim under Appendix 1 of the General Service Terms and Conditions, and Nucleus Connect shall be entitled to commence charging the Contracting QP the Monthly Recurring NC Charges set out in paragraph 5.1 on such scheduled RFS Date (and not the delayed date that such L2 VPN Service is in fact activated).

4.12 In relation to any L2 VPN Service taken up by the Contracting QP which will be delivered via (x) an OpenNet's Termination Point (the "**Riser TP**") at the vertical telecommunication riser on the same floor where the relevant Non-Residential Premises is located and (y) a Non-Residential Service Port located in the said Non-Residential Premises, the Contracting QP shall be responsible for the supply and maintenance of the cabling and ducting between the Riser TP and the said Non-Residential Premises. In such event, the Contracting QP acknowledges and agrees that:

- (a) the Contracting QP shall provide such cabling and ducting from the Riser TP and up to the said Non-Residential Premises (including the TP located therein) that are of a quality that is fit-for-purpose; and
- (b) the Contracting QP shall make such ducting and cabling (including the TP located in the said Non-Residential Premises) available and ready for Nucleus Connect's use at least three (3) Business Days before the RFS Date in respect of such L2 VPN Service.

For the avoidance of doubt, if the Contracting QP fails to comply with sub-paragraphs (a) and (b) above and due to such failure, Nucleus Connect is not able to provision and activate such L2 VPN Service by the scheduled RFS Date, the Contracting QP shall not be entitled to make any claim under Appendix 1 of the General Service Terms and Conditions, and Nucleus Connect shall be entitled to commence charging the Contracting QP the Monthly Recurring NC Charges set out in paragraph 5.1 with effect from such scheduled RFS Date (and not the delayed date that such L2 VPN Service is in fact activated).

## 5. CHARGES

The Charges set out in this paragraph 5 are the rates payable by the Contracting QP on a L2 VPN Connection (or as the case may be, an EPL-Gigabit Connection) and a L2 VPN Service Port basis.

### 5.1 Monthly Recurring NC Charges

#### (a) Twelve (12) months' contract term

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

Per End-to-End L2 VPN Connection		Monthly Recurring NC Charge (12 months' contract term)	
		First 25Mbps	Next 5Mbps
Class of Service	Real Time	\$420	\$84.00
	Near Real Time	\$358	\$71.60
	Mission Critical	\$277	\$55.40
	Best Effort	\$215	\$43.00

Per EPL-Gigabit Connection (Symmetrical 1Gbps PIR/CIR)		Monthly Recurring NC Charge (12 months' contract term)
Class of Service	Real Time (Class A)	\$4,500
	Near Real Time (Class B)	\$4,200
	Mission Critical (Class C)	\$3,600
	Best Effort (Class D)	\$3,000

Per L2 VPN Service Port		Monthly Recurring NC Charge (12 months' contract term)
FE (100Mbps) Service Port	Residential Premise	\$25
	Non-Residential Premise	\$100
	NBAP	\$380
GE (1Gbps) Service Port	Non-Residential Premise	\$600
	NBAP	\$930

#### (b) One (1) month's contract term

- (i) Subject to sub-paragraph (iii) below, when the Contracting QP subscribes to a L2 VPN Service which will be delivered through a Non-Residential

Service Port or NBAP Service Port with a Minimum Term of one (1) month, the Contracting QP shall pay NC Charges (“**1-month NC Charges**”) as calculated below:

- 1-month NC Charges = MRC x 3 **[To be reviewed by IDA]**

where MRC means all relevant Monthly Recurring NC Charges as set out in paragraph 5.1(a).

- (ii) Nucleus Connect will commence charging the Contracting QP the 1-month NC Charges on the RFS Date.
- (iii) When placing the Order for such L2 VPN Service, the Contracting QP shall select the date of Deactivation, failing which:
  - (1) such L2 VPN Service will not be Deactivated upon the expiry of the said 1-month term but will continue to remain active until it is Deactivated in accordance with the General Service Terms and Conditions; and
  - (2) the Contracting QP shall continue to be liable to pay the 1-month NC Charges even after the expiry of the said 1-month term until such L2 VPN Service is Deactivated in accordance with the General Service Terms and Conditions.

## 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 NC 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 any Order or Approved Project Schedule by the Contracting QP, the following Charges shall be imposed on the Contracting QP:

- (i) an NC Charge of \$50 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) ON Charges, except those ON 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;
- (iv) any other third party charges, OpenNet's charges and/or ON 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; and

**PARAGRAPH 5.2(A)(V) – MODIFICATION REQUIRED**

- (v) such charges as would be imposed on the Contracting QP pursuant to paragraph 5.3 of the General Service Terms and Conditions, at the time of such Cancellation.

***IDA Directed Modifications: IDA refers Nucleus Connect to IDA's Directed Modifications to Paragraph 5.3 to the General Service Terms and Conditions. Accordingly, IDA directs Nucleus Connect to propose, for IDA's approval, the necessary consequential modifications to this Paragraph 5.2(a)(v).***

- (b) Installation Charge

**PARAGRAPH 5.2(B)(I) – MODIFICATION REQUIRED**

- (i) Without prejudice to paragraph 5.3 of the General Service Terms and Conditions, upon the installation of a L2 VPN Connection (or as the case may be, an EPL-Gigabit Connection) by Nucleus Connect, the following Charges shall be imposed on the Contracting QP on a per L2 VPN Service Port basis:

***IDA Directed Modifications: IDA refers Nucleus Connect to IDA's Directed Modifications to Paragraph 5.3 to the General Service Terms and Conditions. Accordingly, IDA directs Nucleus Connect to propose, for IDA's approval, the necessary consequential modifications to this Paragraph 5.2(b)(i).***

- (a) the following NC Charges:

Description		One-Time Charges
Installation Charge	Residential Premises	\$50
	Non-Residential Premises	\$350
	NBAP	\$1,500

Installation of environmental hardened NTE (at the request of the Contracting QP for Service Port at Non-Residential Premises, or as part of the NBAP L2 VPN Service Port installation)	\$500
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Provided that if it becomes necessary for Nucleus Connect to install an environmental hardened NTE as part of the installation of such L2 VPN Connection, Nucleus Connect shall seek the Contracting QP's prior consent to such installation of the environmental hardened NTE in accordance with the process set out in paragraph 6.1. If the Contracting QP does not provide such consent in accordance with the process set out in paragraph 6.1, the Contracting QP acknowledges and agrees that the Order in respect of such L2 VPN Service shall be deemed to be Cancelled whereupon paragraph 5.2(a) shall apply; and

- (b) if applicable, such other installation Charges as may be set out in the Approved Project Schedule.

(ii) Patching Charge in the NC CO and Co-location Space

- (a) A Patching Charge in addition to the Installation Charge 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 NC CO. This will be charged at \$40 per patch point.
- (b) 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) Express SAP Charge

- (i) Upon the submission of an Order for Express SAP in respect of the following Connection, the Contracting QP shall (in addition to the Charges referred to in paragraph 5.2(b)) pay a NC Charge as follows:

Type of Connection	NC Charge
L2 VPN Service delivered through a Residential Service Port	\$40 per Connection <b><i>[To be reviewed by IDA]</i></b>
L2 VPN Service delivered through a Non-Residential Service Port	\$100 per Connection <b><i>[To be reviewed by IDA]</i></b>

- (ii) If the Contracting QP cancels an Order for Express SAP in respect of the following Connection after Nucleus Connect's acceptance of such Order, the Contracting QP shall pay a NC Charge as follows:

Type of Connection	NC Charge
L2 VPN Service delivered through a Residential Service Port	\$40 per Connection <b><i>[To be reviewed by IDA]</i></b>
L2 VPN Service delivered through a Non-Residential Service Port	\$100 per Connection <b><i>[To be reviewed by IDA]</i></b>

**PARAGRAPH 5.2(D) – MODIFICATION REQUIRED**

(d) Modification Charge

Without prejudice to paragraphs 6.3 and 6.4 of the General Service Terms and Conditions, an NC Charge of \$200 shall be imposed on the Contracting QP upon the submission of a Modification Order by the Contracting QP.

***IDA Directed Modifications: IDA refers Nucleus Connect to IDA's Directed Modifications to Paragraph 6.4 to the General Service Terms and Conditions. Accordingly, IDA directs Nucleus Connect to propose, for IDA's approval, the necessary consequential modifications to this Paragraph 5.2(d).***

(e) Maintenance or Repair

- 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 \$400 per onsite visit or joint investigation (as the case may be) up to the first two hours. Subsequent hour blocks are charged at \$200 per hour.
- The No Fault Found Charge referred to in the General Service Terms and Conditions is \$350 per Fault report.
- In the event that routine maintenance of the NBAP L2 VPN Service Port requires the use of safety gear, equipment and/or escort and access by qualified personnel, such requirement shall be provided by the Contracting QP to Nucleus Connect at the Contracting QP's cost, unless Nucleus Connect is reasonably expected to own and provide the same.

(f) Disconnection

Upon a disconnection of a L2 VPN Service by reason of suspension pursuant to the ICO Agreement, an NC Charge of \$300 shall be imposed on the Contracting QP.

(g) Deactivation

Upon the Deactivation of a L2 VPN Service, the following Charges shall be imposed on the Contracting QP:



- (i) the following NC Charges:

Description	Charges
Deactivation Charge	\$300
Early Termination Charge	100% of remaining contract value

- (ii) ON Charges, except those ON Charges which would be subject to paragraph 5.2(g)(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;
- (iv) any other third party charges, OpenNet's charges and/or ON 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; and

**PARAGRAPH 5.2(G)(V) – MODIFICATION REQUIRED**

- (v) such Charges as would be imposed on the Contracting QP pursuant to paragraph 5.3 of the General Service Terms and Conditions, at the time of such Deactivation.

***IDA Directed Modifications: IDA refers Nucleus Connect to IDA's Directed Modifications to Paragraph 5.3 to the General Service Terms and Conditions. Accordingly, IDA directs Nucleus Connect to propose, for IDA's approval, the necessary consequential modifications to this Paragraph 5.2(g)(v).***

**6. CHANGES FROM THE GENERAL SERVICE TERMS AND CONDITIONS**

**6.1 Paragraph 5.1 of the General Service Terms and Conditions**

For the purpose of this Service Schedule, where the Contracting QP requires the L2 VPN Service Port to be installed at an NBAP ("**NBAP L2 VPN Service Port**"), paragraph 5.1 of the General Service Terms and Conditions shall not apply and the following provisions of this paragraph 6.1 shall apply instead:

**PARAGRAPH 6.1(A) – MODIFICATION REQUIRED**

- "(a) The Contracting QP acknowledges and agrees that in order for Nucleus Connect to provide the NBAP L2 VPN Service Port to the Contracting QP, Nucleus Connect will need to request OpenNet to provide Nucleus Connect with the relevant NBAP connection, which will (if such request is accepted by OpenNet) involve a project study being undertaken by OpenNet (the "**OpenNet Project Study**").

***IDA Directed Modifications: IDA is of the view that the OpenNet Project Study may not be necessary if the Contracting QP does not require OpenNet to provision a NBAP Termination Point. Unless Nucleus Connect can justify otherwise, IDA directs Nucleus Connect to propose,***

***for IDA's approval, modifications to this Paragraph 6.1(a) to clarify that OpenNet Project Study may not be required for all instances. For example, Nucleus Connect may replace the word "will" after the phrase "with the relevant NBAP connection, which" with "may".***

- (b) If the Contracting QP indicates to Nucleus Connect in its Order that it does not require OpenNet to provide the ducting and cabling between the MDF Room (as determined by OpenNet where the NetCo Network ends) and the NBAP TP, the Contracting QP shall be responsible for the supply and maintenance of such ducting and cabling (including, without limitation, securing the necessary access rights and approvals). The Contracting QP shall also submit to Nucleus Connect the proposed cable routing from the MDF Room to the NBAP TP. In such event, the Contracting QP acknowledges and agrees that:
  - (i) the Contracting QP shall provide ducting and cabling from the MDF Room and up to and including the NBAP TP that are of a quality that is fit-for-purpose; and
  - (ii) the Contracting QP shall make such ducting and cabling from the MDF Room and up to and including the NBAP TP, available and ready for Nucleus Connect's use at least five (5) Business Days before the RFS Date in respect of such NBAP L2 VPN Service Port.
- (c) If an Order to take up an NBAP L2 VPN Service Port is not rejected by Nucleus Connect, Nucleus Connect will provide a project schedule (the "**Project Schedule**") to the Contracting QP within ten (10) Business Days from the completion of the OpenNet Project Study stating (i) the period within which Nucleus Connect will activate such NBAP L2 VPN Service Port, (ii) an estimation of Nucleus Connect's, OpenNet's and any third party charges involved and (iii) such other terms and conditions relating to the provision of such NBAP L2 VPN Service Port as Nucleus Connect may specify. In addition, in situations where OpenNet requires Nucleus Connect to agree on certain ON Charges and Nucleus Connect intends to on-pass such ON Charges to the Contracting QP, Nucleus Connect and the Contracting QP shall also agree on such ON Charges before Nucleus Connect proceeds to incur such ON Charges.
- (d) The Contracting QP will be able to raise to Nucleus Connect any terms that are not acceptable to it in the Project Schedule within five (5) Business Days from its receipt thereof, failing which the Contracting QP shall be deemed to have accepted and agreed to the terms in the Project Schedule in its entirety and such Project Schedule shall constitute an Approved Project Schedule.
- (e) If the Contracting QP and Nucleus Connect are unable to reach a mutual agreement on the terms of a Project Schedule within ten (10) Business Days after such Project Schedule is made available to the Contracting QP:
  - (i) the Order which is the subject of such Project Schedule shall be deemed to be Cancelled whereupon paragraph 5.2(a) shall apply; and
  - (ii) such Project Schedule and this Service Schedule shall lapse, unless Nucleus Connect is separately providing L2 VPN Service to the Contracting QP at the time, in which case this Service Schedule shall remain in force.

Nucleus Connect shall not unreasonably reject the Contracting QP's request for extension of the said ten (10) Business Days timeframe to reach a mutual agreement on the terms of the Project Schedule.

- (f) As soon as practicable after the mutual agreement of the Contracting QP and Nucleus Connect to the terms of a Project Schedule (as modified or with such additional terms as the Contracting QP and Nucleus Connect may require), the Contracting QP shall confirm in writing to Nucleus Connect that the Contracting QP agrees to the terms of such Project Schedule in their entirety (and such agreed Project Schedule shall hereinafter be referred to as an **"Approved Project Schedule"**) within the ten (10) Business Days timeframe (or as the case may be, the agreed extended timeframe) referred to in paragraph 6.1(e) above, whereupon the Approved Project Schedule shall be binding on Nucleus Connect and the Contracting QP.
- (g) If the Contracting QP subsequently does not wish to proceed with an Approved Project Schedule, that shall be deemed to be a Cancellation whereupon paragraph 5.2(a) shall apply."

6.2 Paragraph 2 of Appendix 1 of the General Service Terms and Conditions

For the purpose of this Service Schedule, paragraph 2 of Appendix 1 of the General Service Terms and Conditions shall not apply and the following provisions of this paragraph 6.2 shall apply instead:

"The Prescribed SAPs in relation to taking up of new Connections (except Connections provided through the NBAP Service Port) are:

**Standard SAP**

Type of Connection	Standard SAP (from SAP Start Date)
(i) L2 VPN Service (where the Connection provided is delivered through a Residential Service Port); excluding EPL-Gigabit Connection referred to in sub-paragraph (iii) below	6 Business Days
(ii) L2 VPN Service (where the Connection provided is delivered through a Non-Residential Service Port); excluding EPL-Gigabit Connection referred to in sub-paragraph (iii) below	13 Business Days
(iii) EPL-Gigabit Connection	15 Business Days (where there is sufficient network capacity in existing AE access)  45 Business Days (where there is insufficient network capacity in existing AE access)

**Express SAP**

Type of Connection		Standard SAP (from SAP Start Date)
(i)	L2 VPN Service (where the Connection provided is delivered through a Residential Service Port), excluding EPL-Gigabit Connection	3 Business Days
(ii)	L2 VPN Service (where the Connection provided is delivered through a Non-Residential Service Port), excluding EPL-Gigabit Connection	3 Business Days

**Notes:**

- (a) The Contracting QP may submit an Order for Express SAP in accordance with Annex 1-1 of the General Service Terms and Conditions, at the time of its submission of the Order for the relevant Connection.

**PARAGRAPH 6.2 NOTE (B) – MODIFICATION REQUIRED**

- (b) Unless the Contracting QP's Order for Express SAP is accepted by Nucleus Connect in accordance with Annex 1-1 of the General Service Terms and Conditions, the Standard SAP shall apply.

***IDA Directed Modifications: IDA is of the view that above may be read to mean that an Order for Express SAP which is not accepted by Nucleus Connect would be treated as an Order for Standard SAP. IDA understands that this is not the case as in the event that Nucleus Connect rejects the Contracting QP's Order for Express SAP, the Contracting QP will be required to re-submit a new order based on Standard SAP. Accordingly, IDA directs Nucleus Connect to propose, for IDA's approval, modifications to Paragraph 6.2 Note (b) to clarify the above.***

- (c) For the avoidance of doubt, Express SAP shall not be applicable to provisioning and activation of EPL-Gigabit Connections."

# Application Form

## Layer 2 VPN Service (L2 VPN)



ATTN: NUCLEUS CONNECT, ORDER DESK  
FACSIMILE NO. : (65) 6808 2820  
EMAIL: [orderdesk@nucleusconnect.com](mailto: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:	NRIC/PASSPORT/FIN* No. of Authorised Officer (Dr/Mr/Miss/Mrs/Mdm):
	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 <a href="http://www.nucleusconnect.com">www.nucleusconnect.com</a> for instruction to sign up Nucleus Connect's Services)	<input type="checkbox"/> 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 <input type="checkbox"/> Office Hours (9am-5pm, Mon-Fri) <input type="checkbox"/>	Notification Mode: 24 Hours Daily <input type="checkbox"/> Office Hours (9am-5pm, Mon-Fri) <input type="checkbox"/>

### L2 VPN Service Port A (A – end)

<input type="checkbox"/> New Order <input type="checkbox"/> Modification <input type="checkbox"/> Deactivation <input type="checkbox"/> Others (Please specify): _____ Existing Service Port ID (Mandatory field unless New Order): _____ <span style="float: right;"><input type="checkbox"/> Hub port</span>		
<input type="checkbox"/> Fast Ethernet UTP (100MBps) <input type="checkbox"/> Gigabit Ethernet UTP(1Gbps) <input type="checkbox"/> Environmental hardened NTE is required	<input type="checkbox"/> Residential <input type="checkbox"/> Non-Residential <input type="checkbox"/> Non-Building Address Point (NBAP)	
Service Port Installation Location	Address:	Postal Code:

# Application Form

## Layer 2 VPN Service (L2 VPN)



Installation Location not within a addressable room(e.g NBAP)	GPS Co-ordinate: Elevation above floor:	Description:	
Site Contact:	Name:	Contact number:	
<b>L2 VPN Service Port B (B – end)</b>			
<input type="checkbox"/> New Order <input type="checkbox"/> Modification <input type="checkbox"/> Deactivation <input type="checkbox"/> Others (Please specify): _____ Existing Service Port ID (Mandatory field unless New Order): _____ <input type="checkbox"/> Hub port			
<input type="checkbox"/> Fast Ethernet UTP (100MBps) <input type="checkbox"/> Gigabit Ethernet UTP (1Gbps) <input type="checkbox"/> Environmental hardened NTE is required	<input type="checkbox"/> Residential <input type="checkbox"/> Non-Residential <input type="checkbox"/> Non-Building Address Point (NBAP)		
Service Port Installation Location	Address:	Postal Code:	
Installation Location not within a addressable room(e.g NBAP)	GPS Co-ordinate: Elevation above floor:	Description:	
Site Contact:	Name:	Contact number:	
<b>Instructions</b>			
Class of Services option: • Class A (Real Time), • Class B (Near Real Time), • Class C (Mission Critical) and • Class D (Best Effort)		L2 VPN Connection option: • Only 1 Class of Service per L2 VPN Connection • Minimum subscription of 25Mbps per L2 VPN Connection • Total subscribed bandwidth per connection is in blocks of 5Mbps	
<b>Connection Configuration</b>			
Network protocol options	<input type="checkbox"/> L2 VLAN IEEE802.1q <input type="checkbox"/> L2 VLAN IEEE Q-in-Q		
<input type="checkbox"/> L2VPN Connection <input type="checkbox"/> EPL-Gigabit Connection	<b>Class Of Service</b>	<b>Symmetrical CIR Bandwidth</b>	<b>VLAN information</b>
<input type="checkbox"/> New <input type="checkbox"/> Modification <input type="checkbox"/> Deactivation <input type="checkbox"/> Existing Connection ID: _____	<input type="checkbox"/> Class A <input type="checkbox"/> Class B <input type="checkbox"/> Class C <input type="checkbox"/> Class D	Bandwidth : _____	VLAN : _____
<b>Contract Period</b>			
Minimum Term <sup>Ⓐ</sup>	<input type="checkbox"/> 12 Months <input type="checkbox"/> Others (Please specify): _____		
Customer requested RFS date <sup>Ⓐ</sup>			
OpenNet Appointment Date <sup>Ⓐ</sup>	Date:	Slot: AM <input type="checkbox"/> PM <input type="checkbox"/>	
Nucleus Connect Appointment Date <sup>Ⓐ</sup>	Date:	Slot: AM <input type="checkbox"/> PM <input type="checkbox"/>	EVENING <sup>®</sup> (After 5pm) <input type="checkbox"/>
<b>Additional Information</b>			
Requires OpenNet to provide the cabling and ducting between the FTTB Node and 1 <sup>st</sup> TP for the Non-Residential Building: <u>Yes/No</u> *  Others:			

<sup>Ⓐ</sup> Subject to agreement, resource availability and confirmation by Nucleus Connect.

<sup>Ⓑ</sup> If Minimum Term is not specified, the Contracting QP shall be deemed to have selected 12 months.

<sup>Ⓒ</sup> Timeslot is not available on weekends and public holidays

<sup>Ⓓ</sup> NC Multiplier factor / OpenNet Onsite Charges shall apply accordingly.

<sup>Ⓔ</sup> OpenNet appointment is required if there is a installation of a termination point

\*\* When there is a termination point installation, Nucleus Connect's appointment shall be no more than 3 Business Days after OpenNet's appointment date.

<b>Customer Signature</b>
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.

# Application Form

## Layer 2 VPN Service (L2 VPN)



<u>Signature of Authorised Officer</u>	<u>Date</u>	<u>Company Stamp</u>
For Nucleus Connect Use		
<input type="checkbox"/> Application Rejected:	Reason for rejection:	
<input type="checkbox"/> Application Accepted	Service ID/s: _____	Work Order No.:
No. of pages attached (Excluding application forms):	Approval code:	Processed by (Name, Contact, Signature and Date)