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**REQUEST FOR COMMENTS ON THE PROPOSED  
ESTABLISHMENT OF A NEUTRAL INTERNET  
EXCHANGE IN SINGAPORE**

**Submission by the StarHub Group**

**30 July 2009**

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## **A. Statement of Interest**

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- 1.1 StarHub Ltd is a Facilities Based Operator (“FBO”) in Singapore, having been awarded a licence to provide public basic telecommunication services (“PBTS”) by the Telecommunications Authority of Singapore (“TAS”) (the predecessor to IDA) on 5 May 1998.
- 1.2 Nucleus Connect Pte Ltd, a wholly-owned subsidiary of StarHub Ltd, incorporated on 14 April 2009, was appointed as the Operating Company of the Next Generation National Broadband Network.
- 1.3 StarHub Mobile Pte Ltd is a wholly-owned subsidiary of StarHub Ltd. StarHub Mobile Pte Ltd was issued a licence to provide public cellular mobile telephone services (“PCMTS”) by the TAS on 5 May 1998. StarHub launched its commercial PBTS and PCMTS services on 1 April 2000.
- 1.4 StarHub Ltd acquired CyberWay (now StarHub Internet Pte Ltd) for the provision of Public Internet Access Services in Singapore on 21 January 1999.
- 1.5 In July 2002, StarHub Ltd completed a merger with Singapore Cable Vision to form StarHub Cable Vision Ltd (“SCV”). SCV holds a FBO licence and offers broadband and cable TV services.
- 1.6 StarHub Online Pte Ltd is a wholly-owned subsidiary of StarHub Ltd. StarHub Online Pte Ltd was issued a licence to provide Public Internet Access Services in Singapore on 22 February 2005.
- 1.7 This submission represents the views of the StarHub group of companies, including, StarHub Ltd, StarHub Mobile Pte Ltd, StarHub Internet Pte Ltd, StarHub Online Pte Ltd and StarHub Cable Vision Ltd.

## B. Introduction

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StarHub welcomes the opportunity to provide our comments on: (i) the Draft Policies and Procedures; and (ii) the Draft Memorandum and Articles of Association of the Neutral Internet Exchange. We have carefully reviewed the draft documents, and our comments are set out below. In our analysis we have focussed on removing any areas of ambiguity from the documents, and on improving the “workability” of the documents.

## C. Comments on Draft Policies and Procedures

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### 1. *Responsibility to Monitor Members*

Section 3.2.5(2)(b) states that:

*“SGIX shall ensure that the Members ... refer any problems, issues and concerns in a timely and appropriate manner so as to enable quick resolution and reduce risk to the operations of SGIX”*

However, this section fails to specify to whom the Members will refer their “*problems, issues and concerns*”. To avoid any uncertainty on this matter, we would suggest that this section be amended to read:

*“SGIX shall ensure that the Members ... refer any problems, issues and concerns to the Management in a timely and appropriate manner so as to enable quick resolution and reduce risk to the operations of SGIX”*

### 2. *Payment and Invoicing Terms:*

Under Section 6.2.2(5) it is stated that:

*“All invoices must be paid within thirty days of issue.”*

Having reviewed this matter carefully, we believe that a payment period of just 30 days may be too short. Any company receiving an invoice from SGIX will need to review and process the invoice, obtain approval for payment, and arrange for payment to be made. It is more common for invoices to be paid within 45 days, and so we would suggest that this clause is amended to:

*“All invoices must be paid within ~~thirty~~forty-five days of issue.”*

In addition, under Section 6.2.2(6) it is stated that:

*“All services are purchased for a minimum period of one month.”*

We understand that the Neutral Internet Exchange will seek to facilitate the entry by new players into the Singapore market, and to encourage peering between smaller operators. However, StarHub would respectfully suggest that a one month minimum period is too short. If parties can sign up for service, establish peering

links, and then terminate service with one month's notice, this could be disruptive to the efficient operation of the SGIX and undermine the interconnectivity in Singapore. We believe that there is a benefit in setting a longer minimum period, so that time and resources are not wasted in establishing peering arrangements with operators who may cease to peer after one month. StarHub would therefore suggest that this Section be amended to:

*“All services are purchased for a minimum period of six months.”*

### **3. Pricing Mechanism:**

As we understand it, it is intended that SGIX's pricing will effectively be fixed for the first five years of operation. During this five year period, SGIX's prices would be fixed at the forecast cost based price, based on the estimated costs and membership of the SGIX in year five. The only exception to this would be if the membership grew faster than had been forecasted, in which case the prices would be allowed to fall.

To avoid any confusion (particularly for new members joining SGIX) we would suggest that this point could usefully be incorporated in Section 6.2.4 of the Draft Policies and Procedures.

### **4. MAC Layer:**

Section 7.2.3 (6) states that:

*“Link-local protocols which shall not be forwarded to SGIX ports includes but is not limited to:*

- a. IRDP;*
- b. ICMP redirects;*
- c. IEEE802 Spanning Tree;*
- d. Vendor proprietary discovery protocols (e.g. CDP, EDP);*
- e. VLAN trunking protocols (e.g. VTP, DTP);*
- f. Interior routing protocol broadcasts (e.g. OSPF, ISIS, IGRP, EIGRP);*
- g. BOOTP/DHCP;*
- h. PIM-SM;*
- i. PIM-DM;*
- j. DVMRP;*
- k. ICMPv6 ND-RA;*
- l. UDLD;*
- m. L2 Keepalives.”*

However, we would note that VLAN trunking protocols and L2 Keepalives are reasonably common protocols. We would therefore submit that (e) and (m) should be deleted from Section 7.2.3 (6).

### **5. Routing:**

Under Section 7.2.5 (5) it is stated that:

*“All routes advertised across the SGIX network shall point to the router advertising it unless an agreement has been made in advance in writing by SGIX and the two Members involved.”*

This clause could be interpreted as meaning that a formal tripartite agreement (with SGIX and the two Members) is required for any private peering arrangement. We respectfully suggest that it is unnecessary to involve SGIX in such arrangements, provided that the two Members have reached an agreement. We would therefore suggest that this clause be amended to state that:

*“All routes advertised across the SGIX network shall point to the router advertising it unless an agreement has been made in advance in writing by ~~SGIX and~~ the two Members involved.”*

**6. *Illegal Traffic:***

Section 8.2.4 states that:

*“Exchange of traffic that is, in the opinion of the Management, damaging or detrimental to the functioning of the SGIX, or to its Members, shall be considered to be non-compliant with this policy.”*

StarHub is keen to ensure that the Draft Policies and Procedures clearly set out the obligations on the parties, to facilitate compliance with those obligations. However, it is unclear what is meant by traffic that is “*damaging or detrimental to the functioning of the SGIX, or to its Members*”. This statement appears to be unnecessarily broad, and could give rise to uncertainty and disputes. We would therefore suggest that the Draft Policies and Procedures give some examples of the traffic in question, to provide clarity to this Clause.

**7. *Disconnection:***

Under Clause 10.2.2 (1), it is stated that:

*“The Member shall have the right to appeal against any of the actions taken by SGIX in relation to its non-compliance.”*

It is unclear from this statement who the Member appeals to. It is also unclear what the timeframe would be for reviewing such appeals. We would therefore suggest that this Section be amended to state:

*“The Member shall have the right to appeal to the Board against any of the actions taken by SGIX in relation to its non-compliance. The Board shall respond to an appeal within 3 weeks of the appeal being presented to the Board.”*

**8. *Notice:***

Clause 11.2.1 entitles a Member to terminate its membership of SGIX, and to disconnect from SGIX, with one month’s written notice. To avoid any confusion on this matter, we would suggest that Clause 11.2.1 be amended to make it clear that the Member would still be liable for all SGIX charges during the notice period.

## D. Comments on Draft Memorandum and Articles of Association

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### 1. *Termination of membership – Articles 13 and 52*

In the first draft of the M&AA, Article 52(b) provided that the termination of any Member, and the alteration of its rights, was subject to the Members' 75% majority approval. However, this provision has now been deleted. Under Article 13, the Board can remove any Member if it finds the Member to be guilty of conduct derogatory to the dignity or injurious to the reputation or interest of the SGIX or it is unsuitable/undesirable for the Member to continue as a Member.

The deletion of the former Article 52(b) gives very wide powers to the Board to remove Members as it deems fit. In order to ensure that this power is not abused, StarHub would respectfully suggest that such removals to be subject to the Board's 75% majority approval, and that Article 13 be amended to provide for this.

### 2. *Appointment of Directors – Article 57*

Article 57 states that only persons employed by a Member at the time of their appointment can be appointed as a director. This leaves open whether a director who ceases to be an employee of a Member would be entitled to retain his position as a director. For the avoidance of doubt, StarHub would suggest that Article 57 be amended to state that, should a director cease to be an employee of a Member, that director would have to resign his directorship.

### 3. *Removal of Directors – Article 64*

Article 53(c) provides that the composition and members of a Board are subject to IDA's approval. However, Article 64 makes no reference to the need for IDA's approval for the removal of directors. For the avoidance of doubt, we would suggest that Article 64 be amended to state that the removal of a director is subject to IDA's approval.

### 4. *Quorum – Articles 24 and 74*

Article 24 provides that 10 Members or 50% of the total number of Members, whichever is lower, shall constitute a quorum for a general meeting. Article 74 provides that 60% of the total number of directors shall constitute a quorum for a Board meeting. However, the more usual quorum requirements for general meetings and board meetings are 2 Members and 2 directors, respectively.

The higher quorum requirements for general and board meetings of the SGIX may restrict the SGIX from functioning as efficiently and expeditiously as it otherwise would. To allow SGIX greater freedom in its operations, StarHub would suggest reducing the quorum for general meetings and Board meetings to 40% of the total number of Members and directors, respectively.