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8 December 2006

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Dear Mr Haire

PUBLIC CONSULTATION PAPER – REVIEW OF DIRECT AND INDIRECT INTERCONNECTION ARRANGEMENTS BETWEEN TELECOMMUNICATION LICENSEES

We refer to IDA's public consultation on the above released on 3 November 2006.

StarHub is pleased to submit its comments in the enclosed Paper. Please note that the section marked as a separate Annex contains StarHub's confidential submission, which is not to be published without the prior written consent of StarHub.

We look forward to working with IDA to ensure that interconnection arrangements remain robust and efficient, catering to future market developments and needs.

Yours sincerely
StarHub Ltd

Tim Goodchild
Head (Regulatory)

PUBLIC CONSULTATION PAPER –

REVIEW OF DIRECT AND INDIRECT INTERCONNECTION ARRANGEMENTS BETWEEN TELECOMMUNICATION LICENSEES

Submission by StarHub

8 December 2006

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1. Introduction

StarHub welcomes the opportunity to make this submission as part of the review of direct and indirect interconnection arrangements between telecommunication licensees.

This submission is based on StarHub's seven years of practical experience in direct and indirect interconnection.

2. Statement of Interest

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.

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 TAS on 5 May 1998. StarHub Ltd and StarHub Mobile Pte Ltd launched their commercial PBTS and PCMTS services on 1 April 2000.

StarHub Ltd acquired CyberWay Pte Ltd (now StarHub Internet Pte Ltd) for the provision of Public Internet Access Services in Singapore on 21 January 1999. In July 2002, StarHub Ltd completed a merger with Singapore Cable Vision Ltd (now known as "StarHub Cable Vision Ltd"), resulting in it becoming a wholly-owned subsidiary of StarHub Ltd. SCV holds a FBO licence and offers cable TV services.

StarHub Online Pte Ltd ("StarHub Online") was incorporated on 11 February 2005. StarHub Online holds a SBO licence and offers broadband services.

This submission represents the views of the StarHub group of companies ("StarHub"), namely, StarHub Ltd, StarHub Mobile Pte Ltd, StarHub Internet Pte Ltd, StarHub Cable Vision Ltd and StarHub Online Pte Ltd.

3. Detailed Submission

StarHub sets out its detailed submission on the points raised by IDA in its consultation as below:

Question 1

What are your views on the current direct and indirect interconnection arrangements? Do direct or indirect interconnection arrangements have any impact on technological and economic efficiencies? Please explain your views.

StarHub strongly believes that licensees should be allowed to commercially negotiate their interconnection arrangements on a bilateral basis, except in those circumstances in which interconnection with a Dominant licensee is involved. This approach is entirely consistent with IDA's established principle of relying on market forces and industry self regulation.

StarHub would note that the Code strongly encourages licensees to enter into Interconnection Agreements through commercial negotiations¹. The Code also recognizes that IDA cannot rely solely on market forces to ensure that Dominant licensees enter into Interconnection Agreements, as Dominant licensees may have little incentive to interconnect with other licensees.

StarHub submits that it would be eminently sound to continue this policy, so that Interconnection Agreements with Dominant licensees continue to be reasonable and non discriminatory (through the setting of terms in the Reference Interconnection Offer). Nevertheless, licensees should be allowed to choose whether they wish to interconnect directly or indirectly with Dominant licensees.

StarHub would note that mandating that all licensees must interconnect directly would require licensees to incur substantial costs. Licensees would have to ensure that their interconnect gateway switches are equipped with sufficient ports and capacity to handle the new direct links. Besides catering for interconnection with existing licensees (including FBOs or SBOs who offer 15xx services), licensees would have to cater for interconnection with any future licensees, such as IP Telephony or WBA operators.

In addition, if direct interconnection was mandated, licensees would need to maintain and manage multiple interconnect links with each of the licensees it is directly interconnected to. As many licensees will lack the resources and technical sophistication to manage such links, mandating direct interconnection could create a barrier to entry into the market.

¹ Section 6.1.2 of the Code of Practice for Competition in the Provision of Telecommunication Services 2005 ("Code")

It is important to note that licensees today are free to choose to interconnect directly with all other operators in the market. The reality is that most operators prefer a combination of direct and indirect interconnection, depending on the volume, nature and direction of their traffic.

Indirect interconnect arrangements can have commercial and technical advantages for licensees (particularly for new entrants), as they allow licensees to manage their resources more effectively, as they only need to transit their traffic through a single licensee. A licensee who chooses indirect interconnection can bundle its traffic and deliver through the same interconnect links and will not need to invest in a high capacity interconnect gateway switch to cater for more ports. Licensees are then able to channel their resources into more effective uses, and to offer better commercial services to their end users.

StarHub therefore strongly believes that, if Dominant licensees are involved, regulatory intervention is necessary to ensure that interconnection takes place in a timely and transparent manner. In such cases, licensees should have the ability to choose whether they interconnect on a direct or indirect basis. However, if no Dominant licensee is involved, regulatory intervention will not be necessary, and licensees should be free to resolved their interconnect arrangements through commercial negotiation.

IDA should therefore allow licensees to decide on the most appropriate mode of interconnection, as they deem fit, taking into consideration their needs, requirements, and technical feasibility.

Question 2

What is the competitive impact of the current direct or indirect interconnection arrangements? Would the adoption of direct and/or indirect arrangements have an impact on the type of services you would offer to your customers now and in the future, and the prices charged for these services? For instance, whether direct and/or indirect interconnection arrangements would affect the quality of service, user experience, compatibility or signaling issues, risk of service outages, etc. In addition, would the impact be similar for all licensees and services?

The current regime gives licensees the ability to structure their networks as they see fit. If a licensee feels that direct interconnection does not suit its needs and requirements, that licensee can always choose to effect interconnection via an indirect interconnection through a third-party. The existing regime is therefore pro competition and allows licensees to choose the interconnect arrangements that best meet their needs.

However, mandating direct interconnection may reduce the competitiveness of the market, as it may force licensees to establish expensive and inefficient interconnect arrangements. StarHub therefore believes that non-Dominant

licensees should be free to negotiate the forms of interconnection that best meet their own requirements.

Regardless of the form of interconnection (direct or indirect), as long as non-Dominant licensees have the ability to negotiate the mode of interconnection that is best suited to their unique needs and requirements, there should be no material impact to the licensees' service offerings. However if licensees are mandated to directly interconnect with other licensees, this could cause licensees to expend resources on interconnection that would otherwise be channeled into more efficient uses. In the worst case, licensees might be left with no choice but to pass on these additional costs to their end users.

StarHub has entered into both direct and indirect interconnection arrangements with various licensees. StarHub has not experienced any degradation in service quality or user experience from its direct and indirect interconnection arrangements. In fact, how licensees interconnect with each other is transparent to end-users. It is up to the licensees to decide how best to utilize their own resources and which mode of interconnection best suits their needs and requirements.

Based on our experiences, we do not believe that there are significant differences between direct and indirect interconnection in regard to any increased risk of service outages. The risk of outage is determined by the physical routing design and topology, and not by whether interconnection is direct or indirect. A licensee who establishes multiple indirect interconnect arrangements will still be able to route its traffic even if one of the interconnect links fails.

Question 3

Would the current direct and/or indirect interconnection arrangements be appropriate for emerging players, services and industry trends, such as IP Telephony, new mobile data offerings, etc? Please explain your views.

While the current interconnection regime allows non-Dominant licensees to commercially negotiate their terms of interconnection among themselves, licensees do have to ensure that the Interconnection Agreements fulfill the Minimum Interconnection Duties as specified in the Code².

We therefore believe that the current interconnect arrangements give new entrants (such as IP telephony and WBA licensees) significant benefits. These new entrants are given flexibility and choice as to how they interconnect, and they are free to decide how best to structure their networks. A new entrant might decide that, given their traffic profile, it is commercially and technically efficient to interconnect directly with SingTel, and rely on indirect arrangements for the other operators. A different new entrant, with a different traffic profile, might want to establish direct interconnect arrangements with SingTel, StarHub and M1.

² Section 5.4 (Minimum Duties for Interconnection Agreements) of the Code.

The current interconnection arrangements are still applicable and relevant for emerging players or services, as these arrangements give flexibility and choice. There are already sufficient regulatory safeguards in place to protect licensees, through the Minimum Interconnection Duties that licensees are required to fulfill.

Therefore StarHub submits that non-Dominant licensees should continue to be allowed to negotiate their interconnect terms commercially to ensure that they remain relevant and meet future needs.

Question 4

What are the specific criteria that you will consider in deciding whether to establish direct or indirect interconnection arrangement with another licensee? Please explain each identified criterion in detail, and how the satisfaction/dissatisfaction of that criterion would affect the final decision to opt for direct or indirect interconnection arrangement.

There are no specific criteria in deciding whether StarHub Ltd adopts direct or indirect interconnection with another licensee as such decisions are determined through commercial negotiations.

Typical factors that operators will take into account in such negotiations are: (i) the volume of traffic; (ii) the direction of traffic; and (iii) the type of interconnect services required.

Question 5

In your negotiation with other licensees for direct or indirect interconnection arrangements, were there difficulties encountered in reaching an agreement? If yes, please explain in detail what these difficulties were and how they were resolved. Would regulatory intervention have been necessary? If so, what should be the regulatory approach or solutions?

StarHub Ltd has not encountered any difficulties in negotiating interconnect arrangements with other non Dominant licensees. As for interconnection with the Dominant licensee, StarHub relies on the RIO which is a mandated Interconnection Agreement.

However, StarHub has observed that a number of licensees do not appear to have a full understanding of the implementation requirements of Interconnection. Some of the licensees who after obtaining their access codes from IDA, are not clear what they need to do to enable their access codes in other licensees' networks.

This lack of familiarity can slow down the process of establishing an interconnection agreement. StarHub's recent experience with the IP Telephony licensees suggests that IDA can play an important role educating new licensees the requirements of interconnection.

However, we do not believe that this lack of familiarity requires regulatory intervention and we instead submit that IDA should continue to allow non-Dominant licensees to commercially negotiate interconnection arrangements.

Question 6

Should IDA harmonise the requirement for all licensees to be responsible for the provision and costs of interconnection links on their side of the point of interconnection? Should IDA prescribe that all licensees, including mobile operators, either share the costs of interconnection links on a 50:50 basis, or fully bear the costs of interconnection links, which only convey their own traffic? Please explain your views.

StarHub strongly believes that IDA should not "harmonise the requirement for all licensees to be responsible for the provision and costs of interconnection links on their side of the point of interconnection." StarHub would note the following points:

- IDA has already mandated that non-Dominant licensees should resolve their interconnection agreements via commercial negotiations. In line with this mandate, StarHub has entered into numerous direct and indirect interconnection agreements. If IDA is to "harmonise" link arrangements, and presumably overturn existing agreements, it will be necessary for parties to renegotiate the terms of those agreements;
- It would be inappropriate for IDA to intervene in commercial negotiations between non-Dominant licensees, particularly where there is no market failure to correct; and
- Such a step is inappropriate, given that traffic flows, traffic volumes, and service types will vary for each arrangement.

It is therefore appropriate for IDA to continue to mandate that all non-PSTN licensees who seek to interconnect with PSTN licensees shall bear the cost of the interconnect links. For interconnection between other licensees, it is appropriate for link arrangements to be commercially negotiated. However the principle of "cost causality" should be retained, so that the party responsible for generating additional costs should be responsible for bearing those costs.

Question 7

Are there any other considerations relating to this review that IDA should consider, over and above those mentioned in the above questions?

StarHub would respectfully raise three points for IDA's further consideration:

- Firstly, StarHub would highlight the importance of considering the impact of changing the interconnect regime on the industry overall. This is particularly important given the very significant investments licensees have made in existing interconnect arrangements.
- Secondly, StarHub also believes that it is important for IDA to consider the impact on the industry's flexibility if interconnect arrangements are mandated. Under the existing interconnect regime, a licensee may wish to establish itself as a Transit Operator for new entrants, allowing them to indirectly interconnect with third party licensees. This will allow new entrants to establish interconnection arrangements to multiple licensees without a need to incur substantial investments in interconnect gateway switches and interconnect links. However, if IDA mandates direct interconnection for all licensees, it will remove any incentive for licensees to establish themselves as Transit Operators.
- Finally, we would note that, regardless of the forms of interconnection arrangements that are implemented, it is important to maintain some form of contractual relationship between the licensee that originates the traffic and the licensee that terminates the traffic. This is to ensure that the licensees' rights and interests are maintained, and that the interests of customers are protected.

4. Conclusion

While direct interconnection arrangements can allow licensees to better manage their traffic, it can also result in licensees having to incur higher costs, due to the need for greater capacity on interconnect gateway switches and more interconnect links. Indirect interconnection, on the other hand, can allow licensees to save costs and better manage their resources. StarHub therefore submits that it would be inappropriate for IDA to mandate direct or indirect interconnection arrangements.

The existing interconnect regime has proven to be effective and this can be seen from the number of interconnect arrangements that are in place currently. There is no indication that there is a "market failure" in the existing interconnect framework. StarHub therefore believes that the existing regime should be maintained. In particular, StarHub submits that:

- for interconnection with Dominant licensees, regulatory intervention is still needed (to ensure that arrangements are timely, reasonable, and non-discriminatory); and
- for interconnection between non-Dominant licensees, regulatory intervention should not be required. Rather, the terms of interconnection should be commercially negotiated between the parties (provided they meet the Minimum Duties of Interconnection).

StarHub respectfully submits that retaining the existing interconnection regime will provide stability for the industry, and will continue to facilitate growth.

StarHub is grateful for the opportunity to comment on this important issue.