27 December 2010

Ms Aileen Chia
Deputy Director-General (Telecoms & Post)
Infocomm Development Authority of Singapore
8 Temasek Boulevard
#14-00 Suntec Tower 3
Singapore 038988

By fax: 6211 2116
By email: IDA_consultation@ida.gov.sg

Dear Ms Chia

CONSULTATION ON NET NEUTRALITY

1. We refer to the above consultation paper that was issued by the IDA on 11 November 2010. StarHub Ltd is pleased to submit our response to the consultation paper.

2. Please do not hesitate to contact me, should anything in this letter require clarification or elaboration.

Yours sincerely
For and on behalf of
StarHub Ltd

Tim Goodchild
Head (Government & Strategic Affairs)

Encl.

CONSULTATION ON NET NEUTRALITY

Submission by the StarHub Group to the
Info-communications Development Authority of Singapore

27 December 2010

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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. Nucleus Connect Pte Ltd, a wholly-owned subsidiary of StarHub Ltd, incorporated on 14 April 2009, is the appointed Operating Company of the Next Generation Nationwide Broadband Network.

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.

StarHub Ltd acquired CyberWay (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 to form StarHub Cable Vision Ltd ("SCV"). SCV holds a FBO licence and offers broadband and cable TV services.

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.

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

1.   Executive Summary

StarHub welcomes the opportunity to provide our comments to IDA's consultation on Net Neutrality.

StarHub would like to highlight the following points:

> ➢ StarHub believes that developments in the local Internet access service market have been healthy, and that concerns over blocking or discriminatory treatment of Internet traffic and content are unfounded.

> ➢ In the international arena, StarHub submits that that a blanket net neutrality obligation is unlikely to be imposed, nor will the blocking of legitimate content or unreasonable discrimination of Internet traffic be tolerated. Most jurisdictions are likely to seek a balanced regulatory framework that seek to protect the openness of Internet, while at the same time allowing ISPs and telecom network operators to manage their network in order to preserve network integrity and investment incentives.

> ➢ StarHub supports IDA's current policy approach towards net neutrality. However, StarHub is concerned by the proposal to require ISPs and telecom network operators to publish an "expected average Internet access speed" indicator. The inclusion of an expected average Internet access speed is very subjective and cannot be estimated with accuracy. We would instead propose the continuation of IDA's residential broadband speed tests.

StarHub is pleased to provide its comments in the following section.

2.   Specific Responses

StarHub is aware of an ongoing debate over the topic of net neutrality in the international arena.   StarHub understands that this debate is mainly triggered by concerns over blocking or discriminatory treatment of Internet traffic and content by ISPs or telecom network operators in favour of their own services, thereby undermining competition and consumer choice.

As correctly noted by IDA in its consultation paper, most of the business models on Internet access services that are currently offered by local ISPs and telecom network operators focus on charging the consumers for access to the Internet. Some ISPs and telelcom network operators also offer bundled content or services over the Internet. However, StarHub has not seen any instances of blocking or discriminatory treatment of Internet content by local ISPs or telecom network operators.

StarHub submits that competition in the local Internet access service market has served the consumers well. Today, local consumers and businesses can already choose from a variety of Internet access service packages in the market, delivered over various wired and wireless platforms. Further, the Internet access service market is facing further competition with the launch of Next-Gen NBN. StarHub would also note that IDA has worked with the industry on various Internet development initiatives, such as the Wireless@SG network, the Singapore Internet Exchange (to enhance Internet connectivity), and programmes that promote deployment and adoption of Cloud Computing.   In addition, local ISPs and telecom network operators have made investment in their local and international networks in order to meet the consumers' demand in Internet access services.

Given the various on-going efforts by the IDA and industry, StarHub submits that developments in the local Internet access service market has been healthy and that concerns over blocking or discriminatory treatment of Internet traffic and content are unfounded.

While there has been an ongoing debate over the topic of net neutrality in the international arena, StarHub is of the view that this is unlikely to lead to any one-sided legislation that fully favours the proponents of net neutrality or the opponents of net

neutrality. StarHub believes that a blanket obligation in regard to net neutrality is unlikely to be imposed, nor will blocking of legitimate content or unreasonable discrimination of Internet traffic will be tolerated.

The topic of net neutrality has been debated extensively in the US, Europe and UK. StarHub would note that in the US, after years of review on net neutrality, the FCC has recently adopted a regulatory framework that seeks to preserve the openness of Internet, providing greater certainty to consumers, innovators, investors and broadband providers, including the flexibility broadband providers need to effectively manage their networks. The key components of the framework are:

i. Transparency: Broadband providers must publicly disclose accurate information regarding the network management practices, performance, and commercial terms of its services sufficient for consumers to make informed choices regarding use of such services and for content, application, service, and device providers to develop, market, and maintain Internet offerings;

ii. No blocking: Broadband providers must not block access to lawful content, applications, services, or non-harmful devices, subject to reasonable network management requirements; and

iii. No unreasonable discrimination: Fixed broadband providers must not unreasonably discriminate in transmitting lawful network traffic over a consumer's broadband Internet access service. Reasonable network management shall not constitute unreasonable discrimination.

In Europe, the European Commission has recently concluded that there is no need for net neutrality laws at this time. The European Commission has stated that it wishes to avoid regulation which might deter investment and efficient use of available resources. The European Commission has recognized that traffic management is essential in order to increase the quality of Internet services, preserve network integrity and open the way to new investments in efficient networks. The European Commission also believes that a healthy competitive environment will allow tackling of potential problems that could undermine net neutrality.

Similarly, in the UK, ISPs are allowed to manage their networks to ensure high quality Internet services, provided that consumers must be informed and aware of what they are buying and of any limitations that are associated with the services.

Therefore, it appears that regulators are seeking a balanced approach towards net neutrality, seeking to protect the openness of Internet and ensure information transparency to end-users, and allowing ISPs and telecom network operators to manage their networks to preserve network integrity and encourage network investments.

In the consultation paper, IDA has summarized its policy approach towards net neutrality as follows:

No blocking of legitimate Internet content	ISPs and telecom network operators are prohibited from blocking legitimate Internet content.
Comply with Competition & Interconnection Rules	ISPs and telecom network operators must comply with IDA's competition and interconnection rules in the Telecom Competition Code.
Provide Information Transparency	ISPs and telecom network operators must comply with IDA's information transparency requirement and disclose to end-users their network management practices.
Meet Minimum QoS standards	ISPs must meet the minimum broadband QoS standards to ensure a reasonable broadband Internet experience for end-users. Reasonable network management practices are allowed provided the minimum broadband QoS are adhered to.
Niche or differentiated Internet services allowed	ISPs and telecom network operators are allowed to offer niche or differentiated Internet service offerings that meet IDA's interconnection, information transparency, minimum QoS and fair competition requirements.

StarHub agrees with IDA's assessment that developments in the local Internet access market have been healthy. In addition, the Internet access market is facing increasing level of competition with the launch of Next-Gen NBN. StarHub believes that IDA's current policy and regulatory frameworks have served the market well, and that these frameworks should continue to facilitate consumers' access to content and services on

the Internet; while at the same time provide flexibility for ISPs, telecom network operators and content providers to manage their networks and differentiate their services.

StarHub also supports IDA's position that ISPs and telecom network operators should not block access or practice discriminatory treatment to legitimate Internet content (save for those sites that are required by the MDA). StarHub also submits that ISPs and telecom network operators should be free to block access to websites that provide pirated content. Such actions are necessary to preserve Singapore's position as an Interactive and Digital Media (IDM) centre, and to ensure action can be taken against the violation of intellectual property rights.

> *IDA's proposal to improve information transparency on the actual or expected Internet access speeds, and issues to consider including potential benefits for consumers, impact on ISPs and the development of the Internet access market, and the extent of information that should be made available.*

IDA has proposed that ISPs, whether providing fixed-line or mobile Internet access services, should inform customers of the "expected average Internet access speed" achievable for their Internet broadband services, on top of the theoretical maximum access speed.

As pointed out by IDA, most ISPs already publish the maximum broadband access speeds for their Internet access speeds. Some ISPs (StarHub included) also publish the maximum broadband access speeds for international sites. IDA has also carried out regular testing on ISPs' fixed broadband performance, and published the results on IDA's website.

StarHub believes that the above measures are already sufficient to allow end-users to make informed decisions of their subscription of broadband Internet access services. As IDA would be aware, an end-user's actual internet surfing experience is influenced by many factors, some which are beyond an ISP's control. For example, an operator will not have full control over the end-to-end transmission of data packets over the internet, given that data packets will have to traverse multiple segments that are controlled by different parties. Customers will also influence the throughput performance through the equipment they used. StarHub has sought to educate its customers on the factors that could affect their Internet surfing experience. StarHub has also provided its customers a speed test utility that allows customers to gauge whether they are experiencing problems in surfing the Internet and to contact StarHub accordingly if so.

The inclusion of an expected average Internet access speed is extremely subjective and cannot be estimated with accuracy, due to the many factors that can influence the

Internet access speed. Requiring operators to disclose expected average Internet access speeds would serve to create even more confusion and disputes with end-users.

The implementation of IDA's proposal will be even more challenging for mobile Internet access services, given that the mobile broadband performance will also depend on the cell location which the end-users are residing in. End-users can experience significantly different performances in different locations, as this performance will be influenced by various operating conditions and physical environment in that cell site (e.g., mobile coverage, mobile traffic). To ensure that end-users enjoy a reasonable mobile broadband experience, StarHub suggests that IDA could work with the mobile operators to implement a similar testing regime as has been implemented for fixed-line Internet access service.

3.   Conclusion

StarHub welcomes the opportunity to provide its comments to IDA's consultation on Net Neutrality.

StarHub submits that developments in the local Internet access service market have been healthy and that concerns over blocking or discriminatory treatment of Internet traffic and content are unfounded.

In the international arena, StarHub submits that that a blanket net neutrality obligation is unlikely to be imposed, nor will blocking of legitimate content or unreasonable discrimination of Internet traffic be tolerated. Most jurisdictions are likely to seek a balanced regulatory framework that seek to protect the openness of Internet while at the same time allowing ISPs and telecom network operators to manage their network in order to preserve network integrity and investment incentives.

StarHub supports IDA's current policy approach towards net neutrality. However, StarHub is concerned over IDA's proposal to provide added transparency to end-users by requiring ISPs and telecom network operators to publish an "expected average Internet access speed" indicator. The inclusion of an expected average Internet access speed is very subjective and cannot be estimated with a fair degree of accuracy. We would instead propose the continuation of IDA's residential broadband speed tests.

StarHub is grateful for the opportunity to comment on this matter.

StarHub Ltd
27 December 2010