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Ms Aileen Chia
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Re: Facebook's Response to the IDA's Consultation Paper on the Singapore's Internet Protocol Transit and Peering Landscape

We would like to thank IDA for the opportunity to participate in this industry and public consultation pertaining to local IP Transit and Peering arrangements and IDA's IP Transit and Peering study.

Facebook agrees with IDA's preliminary view from the study findings that IP Transit and Peering arrangements should be left to commercial decision-making, in order to maintain a diverse and agile ISP retail marketplace.

Facebook's office was set up in Singapore with the recognition that the country positions itself as an ICT hub in Asia, with good infrastructure and a competitive market for essential domestic fibre. As Facebook provides its users with high bandwidth-demanding cloud, content or real-time interaction applications as a social networking service, we welcome the study finding that it is important for IDA to continue to understand these developing business models and adapt the regulatory framework accordingly.

Many internet platforms are striving to meet increasing demand for their services and improve overall performance for people around the world by making significant investments in existing and new infrastructure, which often requires building and deploying the equipment necessary to house and deliver services to users. These investments contribute to supporting and alleviating the burden on existing telecommunications networks by sponsoring and building up significant amounts of new capacity.

The Internet serves as an economic engine fueling the development of new marketplaces, industries, businesses, and services. Internet service and content providers are driving economic growth, creating jobs, and shaping the digital economy. We believe that the regulatory environment should be adapted to foster these benefits by eliminating regulatory burdens (such as licensing requirements or increased taxes) and reducing critical bottlenecks in the network where they exist to create a more open and inclusive, and therefore attractive investment environment.

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We look forward to discussions with the IDA to take forward our common objectives in encouraging more diversity and growth for the Internet ecosystem.

Please find our views and comments to the six questions raised in IDA's consultation paper, appended to this cover letter.

Sincerely,

Gavin Chua

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Question 1: The findings from the IDA study on the current market conditions in the Singapore Internet services market.

Facebook's view and comments:

The findings by the IDA generally match with what Facebook is experiencing in the Singapore Internet services market. Facebook agrees with IDA's preliminary view from the study findings that IP Transit and Peering arrangements should be left to commercial decision-making, in order to maintain a diverse and agile ISP retail marketplace.

Question 2: Whether the current conditions for IP Transit and Peering have resulted in any negative impact on competition, or if it has hindered the ability of ISPs, ICPs or CDNs to offer services?

Facebook's view and comments:

Thus far, Facebook has not experienced any issues in relation to IP Transit and Peering. With regards to SGIX, Facebook's broader industry observation is that pricing is not always competitive especially when SGIX is benchmarked with other Internet Exchange providers, as some of them have been able to offer competitive rates to international networks. If SGIX maintains a competitive rate, it could be a good diversity option for networks to connect to and in turn improve the peering connectivity within Singapore.

Question 3: Whether the quality of ISPs' service offerings is negatively affected by today's IP Transit and Peering landscape?

Facebook's view and comments:

Peering infrastructures are well established in Singapore and as such, Facebook is able to peer with most of the major network operators and ISPs in Singapore. Facebook has observed that the majority of the Internet traffic stays within Singapore without tromboning to neighboring countries such as Malaysia or Hong Kong.

Question 4: Whether the cost of IP Transit as a proportion of other operating costs has fallen or has increased significantly for Operators?

Facebook's view and comments:

Facebook has no comment on this as this question is meant for Operators.

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Question 5: Whether there are other factors that IDA should consider in assessing the local IP Transit and Peering landscape?

Facebook's view and comments:

Further study could be undertaken to examine the different peering experiences of various content networks. Other factors for consideration are the constraints upon further investments in key components of the Internet. These include the availability of data center facilities, subsea cable landing station access and use, backhaul facilities as well as land and power.

Ideally, these investments contribute to supporting and alleviating the burden on existing telecommunications networks by sponsoring and building up significant amounts of new capacity, and prevent users of various content networks from experiencing longer latency and a poorer experience. More can be done to consider how to create an open and embracing regime to encourage international cable construction with greater physical diversity.

Without all of these, a content network may decide to serve Singaporean users from neighboring countries because of high data center, power and subsea connections costs or regulatory and commercial barriers to new construction. As a result, users of the content network in Singapore may experience longer latency and a poorer experience. Further study may be beneficial in determining whether the concentration of control over these critical components may affect future investment in compute and storage power.

Question 6: What are the possible areas in the local IP Transit and Peering landscape that would require regulatory intervention, and why?

Facebook's view and comments:

Singapore is an interesting ICT infrastructure hub. As such we believe that the regulatory environment should be adapted in order to encourage significant potential investments. IP transit and peering need not require further regulatory intervention, especially settlement-free peering. Facebook's broader industry observation is that the unregulated Internet peering model has been working exceptionally well for the past two decades or so and was in fact a key driver of the Internet boom.

As IDA may be aware, the subject of "peering regulation" has been widely discussed in a number of peering forums (e.g. the Global Peering Forum and European Peering Forum). The majority of the peering managers believe that if peering is to be regulated, it will slow down the peering activations between networks. At present, most of the peering negotiations are done via handshake and in some cases, a simple peering

request via an email and peering sessions (public peering) can be established within minutes.

Requirement for a settlement-free peering agreement is not common. If peering is regulated, every peering session would most likely require a new agreement or an amendment to the agreement. This will significantly slow down the peering activation process. As a result, peering links will be congested, leading traffic to trombone internationally. This may have a knock-on effect on other networks in other countries, as the latter are not expecting such high traffic and will significantly impair the experience of internet users in that country.