M1'S RESPONSE TO IDA'S CONSULTATION PAPER ON INTERNET PROTOCOL "NO ISLANDING" PRINCIPLE

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PUBLIC CONSULTATION ON INTERNET PROTOCOL ("IP") "NO ISLANDING" PRINCIPLE

1. M1 is a leading integrated communications service provider in Singapore, providing a full range of voice and data communications services over its network. Since 1 Apr 1997, M1 has made significant inroads into the local mobile communications market, gaining considerable brand presence and market share. In 2000, we launched our international telephone services and in February 2005, M1 took the lead in launching 3G services in Singapore. M1 was also the first to launch Singapore's first true island-wide wireless broadband service, M1 Broadband Service, in 2006. We became a full-fledged broadband player with the introduction of M1 Fixed Broadband service in 2008, transforming M1 from a single-play mobile operator to a dynamic multi-play operator, with interests in both the mobile and fixed sectors. In Sep 2010, M1 was the first local operator in Singapore to provide high-speed fibre broadband plans, of up to 1 Gbps, via the Next Generation National Broadband Network ("NGNBN"), and further became the first mobile operator in South East Asia to launch its Long Term Evolution ("LTE") based Next Generation Mobile Network on 20 June 2011.

2. As one of the major Internet Access Service Providers ("IASPs") in Singapore, M1 welcomes this opportunity to submit its views and comments on IDA's proposed IP "No Islanding" Principle in preparation of the IP version 6 ("IPv6") transition.

3. As IDA is aware, IASPs have already deployed or are in the process of deploying transition technologies and upgrading network infrastructure to handle IP version 4 ("IPv4") and IPv6 co-existence. However, such co-existence puts tremendous stress on the underlying network systems, which can potentially introduce challenges on latency, network responsiveness etc. that may compromise service levels. Although in theory, telecom IPv6 performance should equal IPv4 performance, in practice, subscribers may notice the performance of their favourite websites or services lagging if the traffic must pass through gateways using transition technologies or if the applications are ill-equipped to support IPv6's 128-bit addressing scheme. As the Internet is highly "inter-connected" with many "inter-dependencies" among multiple parties involved in the entire value-chain, the issues relating to IPv6 transition are also complex and must be managed from a holistic perspective of the entire ecosystem.

4. The responsibility of ensuring smooth IPv6 transition should be shouldered equally by all stakeholders of the Internet ecosystem i.e. Government, IASPs, Infrastructure Providers ("IPs"), Internet Exchanges ("IXs"), Application Service Providers ("ASPs") and businesses that manage their own networks. First and foremost, public communications could be enhanced to create public awareness such that end-users and small businesses would ensure that they purchase IPv6 enabled devices e.g. computers, wireless access points, smartphones, printers, game consoles etc. This will help drive the demand for IPv6 readiness, which will in turn enable the whole Internet ecosystem to move towards readiness as soon as possible. Initiatives such as endorsement of IPv6 enabled devices

(e.g. issuance of IPv6 ready stickers) would also speed up the deployment and commitment towards the transition. Otherwise, Singapore may face a situation where, in spite of IASPs deploying transition mechanisms, there remain a substantial number of end-users that will experience problems due to devices, applications, IXs, or businesses that do not support IPv6.

5. M1's comments herein should be viewed in light of the above understanding and clarifications.

Regulatory Principle on IASPs

6. As outlined in the Telecom Competition Code (2010), IDA considers market forces to be generally far more effective than regulations in promoting consumer welfare. Therefore, to the extent that markets or market segments are competitive, IDA will place primary reliance on commercial negotiations and industry self-regulation, subject to minimum requirements designed to protect consumers and prevent anti-competitive conduct.

7. M1 submits that sufficient competition is present in the IASP market such that IASPs would have strong commercial incentives to put in place transition mechanisms to allow their end-users to have reasonable access to all legitimate Internet content, regardless of the address type of the end-user (be it IPv4 or IPv6). This is aligned with both IDA's position on net neutrality and policy intent of the IP "No Islanding" Principle. Hence, there should be no need for IDA to prescribe further regulatory requirements to ensure that IASPs provide seamless Internet connectivity during IPv6 transition. Moreover, as highlighted above, the responsibility of ensuring smooth IPv6 transition should be borne equally by all stakeholders of the Internet ecosystem. Applying the IP "No Islanding" Principle to IASPs only will not be effective in achieving IDA's policy intent of ensuring that end-users are not unduly affected by the issues arising from IPv6 transition. It only emphasizes a punitive approach imposed on IASPs without due consideration of the dynamics of the entire Internet ecosystem and its inter-dependencies.

Non-applicability of the IP "No Islanding" Principle to Internet Exchanges ("IXs")

8. M1 considers it contradictory for IDA to impose regulations on IASPs but not IXs to enable "no islanding". M1 recognises that the IXs would also have commercial incentives to put in place transition mechanisms to support their customers (including IASPs) who need to provide seamless Internet connectivity. However, the same reasoning would apply for IASPs. Hence, there is no basis for the proposed asymmetry in the imposition of regulations.

9. Moreover, if IDA still decides to impose the "No Islanding" Principle on IASPs, the same regulation on IXs would simplify the routing of traffic, by effectively removing the need to analyze and identify the address type in use by the end-user, prior to routing. This would enable IASPs to better balance traffic to the Internet, which translates to better overall network performance.

10. In contrast, the non-applicability of the IP "No Islanding" Principle to IXs will induce complexities for IASPs to balance the load of IX traffic, i.e. IASPs need to ascertain the traffic depending on address type and route accordingly. Such inefficient use of network resource could adversely affect end-user experience (e.g. slow Internet access speeds and may potentially compromise both service quality and network reliability). Such routing arrangements would also require the procurement of new technology/equipment, and hence, a more extensive implementation timeline would be required to facilitate the necessary network upgrade.

11. In the event that IDA still decides to proceed with the IP "No Islanding" Principle for IASPs, M1 strongly urges IDA to impose equal regulatory requirements on the IXs to better complement IASPs' capabilities in achieving "no islanding", i.e. all IXs transacting or supplying services to IASPs must provide dual-slack infrastructure interfacing for IASPs. This would help ensure that IPv6 networks are efficiently interconnected with the legacy IPv4 Internet, which is critical in sustaining the Internet environment in Singapore.

Implementation Timeline

12. Taking into consideration the cost of implementation, in terms of upgrading network infrastructure and the fact that most network equipment vendors still lack feature parity between IPv6 and IPv4 products, M1 proposes for a more realistic implementation deadline of **end of 2012** if IDA decides to impose the IP "No Islanding" Principle.