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Attn: Mr Andrew Haire,
Senior Director (Policy and Competition Development)

By fax (62112116) and by email (Evelyn_goh@ida.gov.sg)

22 October 2004

Dear Sir,

Re: Policy Framework for IP Telephony and Electronic Numbering in Singapore

VoIP is an exciting new technology that has been developed over the past decade. As we understand it, VoIP was introduced by a few Israeli hobbyists in 1995 as PC-to-PC communication. Considerable progress followed with PC-to-phone and phone-to-phone applications emerging. Today, VoIP and its new incarnation, IP Telephony, are embraced by major vendors and are already in operation in major networks around the world.

Therefore, we are pleased to submit our responses to the Public Consultation on the Policy Framework for IP Telephony and Electronic Numbering in Singapore.

We wish to add that although Tan & Tan Partnership does advise clients in the information technology, telecommunications and Internet sectors, our response herein is our own and does not necessarily reflect the views of any of these clients.

Kind regards

Bryan Tan/Tan Min-Liang
Tan & Tan Partnership

Q.1 IDA welcomes views and comments on the potential of and benefits arising from the deployment of IP Telephony; the likely services/applications to be deployed; and the potential demand from businesses and consumers.

IDA further seeks comments on how IP Telephony is likely to change the telecommunication competitive landscape in Singapore.

We think that IP Telephony brings with it the potential of immense benefits as has been witnessed in the development of VoIP over the recent years. As a starting point, it will bring about convergence. This means there will be cost savings in the form of the efficiency of statistical multiplexing against traditional TDM. In addition, there is a simplification – telcos and corporates need only manage one infrastructure instead of two (and indeed one wiring network) and have to deal with fewer network components. Our understanding is that network component makers are steadily rolling out products which handle both voice and data. In organisations, this will also drive efficiency as the same staff handling data will also handle voice. We do wish to highlight for organisations that the adage of putting all your eggs in one basket also applies as this will mean that all communications will ride on a single network and if poorly designed, a single node failure may mean a failure of the entire network.

From a development point of view, the treatment of voice in packet or digital form brings with it easier development of applications. Software-based call handling, unified messaging systems, value-added services such as voice recognition, voicemail and multi-platform messaging are current services which have been easily converted from the voice experience. In addition, features that were previously hardware-based or limited such as last number call, address book and personalized voice mail have been easily adapted for IP Telephony applications.

IDA mentions that IP Telephony is viewed as a killer application for broadband access. We would further mention that IP Telephony may also be a killer application for wireless broadband access. This view is supported by a 2000 Ovum study which predicted that VoIP traffic would increase by an annual rate of 300% between 2000 and 2005.

If IP Telephony is further developed in Singapore, it is possible that the need to rollout further infrastructure especially last-mile connections may be alleviated. Rather, coupled with a sufficient city-wide fibre network sufficient nodes, the offering of IP Telephony may be facilitated. This may have two possible effects on certain segments in the telecommunications industry in Singapore. It may offer a limited competition to the mobile voice service segment and it may offer an alternative to the fixed line voice segment. The impact on the second segment may also have a further impact on universal service obligations.

Q.2 IDA welcomes views and comments on IDA's proposed regulatory approach to be taken to encourage the development of emerging technologies such as IP Telephony in Singapore.

We think that IDA should continue with its policy of test-bedding new applications. This would include granting limited licenses to test such applications in Singapore as well as to grant limited licenses to run commercial trials of such applications in Singapore. This is in line with IDA's legislative-mandated function. Similar to the position used for clinical trials, IDA can then evaluate reports on such testing to determine whether there are relevant concerns before proceeding further. In fact as far as testing is concerned, a class license would be the most appropriate approach as it would be infeasible to over-regulate research.

Q.3 IDA welcomes views and comments on IDA's proposed licensing approach for providing IP Telephony in Singapore.

As defined, IP Telephony involves VoIP with numbering. We therefore think some clarification is required in the distinction between the SBO (Class) and SBO (Individual) licenses. In particular, the terms "service providers that lease transmission facilities from an FBO and operate their own network" is not clear. Do ISDN connections constitute the leasing of transmission facilities? This

will mean invariably, all IP Telephony will be SBO (Individual) licenses. Second, the “operate their own network” requirement which is read conjunctively may be read to mean a company’s internal network, which cannot be so as every SBO would again fulfill this. If it is read to mean an external network, then would the SBO be constituted as an FBO?

Q.4 IDA welcomes views and comments on the proposed phased approach in assigning new number levels to FBO and SBO (Individual) licensees for IP Telephony services. Please provide supporting reasons for the comments and proposals made.

IDA invites views on whether there is a need for IDA to take further measures to ensure that the national numbering resources continue to benefit End Users in Singapore such as requiring IP Telephony service providers to assign level “3” numbers to only users with valid Singapore addresses. IDA also invites views on whether there will be technical issues if IDA were to allocate numbers in blocks of 1,000 instead of the usual blocks of 10,000?

IDA is correct in identifying that national numbers are a resource.

If IDA is unsure about the additional costs taken for a new 4-digit national destination code, then it would be prudent to presently investigate such costs. Then IDA would be in the best position to determine the actual cost of implementing Option C.

We also think that it is illogical to limit the level “3” numbers only for numbers issued by IP Telephony service providers. This will be inconsistent with the number portability issue covered later where for instance, a fixed line customer wishes to convert his line to a IP Telephony service. Further, the distinction between the level “3” numbers and the “6”, “8” and “9” numbers being allocated to FBOs and MVNOs is illogical because it also restricts the FBOs and MVNOs from acceding their customers who want to convert their voice service to their IP Telephony service while retaining their original numbers from doing so.

We think it is too limiting to only allocate level “3” numbers to users with valid Singapore addresses. Again, with IP Telephony, call transferring will be seamless. To illustrate, a Hong Kong company could plausibly obtain various numbers around the region, say in Singapore and Malaysia. These calls are transferred to its call centre in Shanghai. The reason it wishes to do so is to allow its customers in Singapore and Malaysia to dial local numbers which are connected to the call centre seamlessly.

We have no comments on the technical issues involving the size of the number blocks.

Q.5 IDA welcomes views and comments on IDA’s proposed approach to apply the same interconnection framework under the Telecom Competition Code to IP Telephony service providers.

IDA also welcomes views and comments on whether the current interconnection framework is sufficient to address the interconnection arrangements with IP Telephony networks. Specifically, IDA invites views on issues such as interconnection configurations or models that are likely to arise, technical, financial and implementation considerations for interconnection. Please provide supporting reasons for each comment and proposal made.

As a preliminary view, we have no objections as to why the interconnection framework under the Telecom Competition Code should not apply to IP Telephone service providers who will need to connect to the PSTN networks. However, we think that IDA should be flexible enough to step in if the Telecom Competition Code is insufficient or overly onerous.

Q.6 IDA welcomes views and comments on whether there is a need for QoS to be established for IP Telephony. If so, what are the types of QoS needed and the minimum standards to be set?

We do not think that a QoS is appropriate for a service which is heavily dependent on external

factors beyond the control of the service provider or any particular person for that matter. However, as a consumer-protection measure, the IP Telephony service provider should state expected quality of service for the information of the end user. This will constitute a matter of private contract.

Q.7 IDA welcomes views and comments on whether there are issues relating to the provision of emergency services in the context of IP Telephony. IDA further invites comments on the availability of operational solutions to address the issue of emergency calls.

We note that in a recent paper by UK's Ofcom, some level of public access to specified emergency numbers should be provided for.

The question whether a foreign IP Telephony number can reach emergency services in Singapore is irrelevant. It is the same case when a foreign mobile phone user roaming in Singapore can easily reach Singapore emergency numbers. The question is whether a Singapore IP Telephony number can reach a Singapore emergency address. This as identified can be easily routed and rightfully should be provided for.

Q.8 IDA welcomes views and comments on whether there are issues that may pose problems to achieving number portability in future.

We have no comments save that we note that Ofcom has mandated number portability to be provided for.

Q.9 IDA welcomes views and comments on the above differentiation approach. Please provide supporting reasons for each comment and proposal made.

For the reasons stated in our response to Q4 above, we think the differentiation to numbers approach may not be appropriate. Rather, it should be differentiation based on service offered.

Q.10 IDA welcomes views and comments on the potential of and benefits arising from the deployment of ENUM; the likely services/applications; and the potential demand from businesses and consumers.

IDA welcomes views and comments on whether there are other key international developments that IDA should take into consideration when developing the policy framework to implement ENUM in Singapore.

We do not have significant comments save that as ENUM as well as IPv6 are both in development stage, any conflict between the two should be resolved.

Q.11 IDA welcomes views and comments on the allocation of ENUM to only telecommunication service subscribers allocated with telephone numbers.

IDA also invites views on what would be a suitable authentication mechanism and the frequency of re-authentication to ensure that the assignee is still using the assigned telephone number.

We have no comments here.

Q.12 IDA welcomes views and comments on the proposed Registry-Registrar-Registrant approach for registering for ENUM.

We are of the view that a single commercial entity is not an appropriate vehicle for such governmental registry functions. In addition, we note that SGNIC may face possible obstacles under the upcoming Competition Act.

Q.13 IDA welcomes views and comments on the approach to allow End Users to decide whether they want to register for ENUM and the information they want to make publicly available.

While we recognize that privacy is going to be a problem, the partial migration of ENUM may also prove problematic as it means that the registry will be non-exhaustive.

Other comments:

We have no further comments.