



## NEC's Comments on

### *Project NIMS Industry Dialogue on Adoption of NIMS*

#### *Standards*

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Question 1: IDA and MDA invite views and comments on whether the NIMS CF STB would result in cost savings for an IPTV RSP. Where possible, please provide relevant cost figures supporting your views and comments.

**[Confidential]**

Question 2: IDA and MDA note from industry feedback that current developments in IPTV standards are still nascent. Therefore, IDA and MDA invite views and comments on the feasibility, benefits and risks of a standards-based approach to accelerating the development of a vibrant NIMS Ecosystem.

**NEC believes that standard in IPTV is already matured to be used as real service. In ITU-T, basic functionalities to realize basic services are already fixed, and also selected by Brazilian, Chinese, Japanese and Korean service operators. ITU-T standard is focusing on basic services required for IP-based TV service. For example, in order to deploy IP-based service, it is required to decide the IP-based protocol of service discovery/selection, and the architecture of terminal devices with IP-based network interface. In ITU-T, those are already standardized as H.770, H.721 in turn. And also ITU-T standard is based on DVB and ISDB-T broadcasting standard, so it has strong affinity with terrestrial/satellite TV services.**

**The risk for the standard-based approach is miss selection of the standard; if no other operators/countries select the standard, it causes components cost to be higher, and immature component/ system takes longer time to rollout stable services, and also RSPs are less interested in NIMS ecosystem.**

Question 3: IDA and MDA invite views and comments on how the proposed areas of standardisation will impact the way IPTV RSPs differentiate their NIMS CF STBs, for example by



including optional features as a way to attract new subscribers. Would there be an increase in promotions offering free rental of NIMS CF STBs to encourage end-users to switch STBs?

**One aspect is that because no differentiation is available in the video content under cross-carriage requirement, NEC thinks cost is the most eye-catching driver to switch STBs.**

**The other aspect is that because interactivity will be the key function to achieve differentiated services on IPTV platform, standard approach in the interactivity is important for the NIMS. NEC proposes ITU-T H.762 which has the interactivity, high availability, expandability and highly harmonized with broadcast technologies. Notes that ITU-T H.762 does not require high-end CPU in STB, therefore cost of STB becomes lower. And also because it has high ability in the future enhancement, it is expandable for future services on the NIMS platform.**

**Before discussing how to encourage end-users to switch IPTV RSPs, the government in Singapore needs to consider how to encourage non-NIMS users to join NIMS services which will be operated on Next Gen NBN and NIMS platform. For example, the government may be able to subsidize some parts of STB cost, because some of the government services, such as traffic monitoring and dengue alert, will be implemented in NIMS CF STB as basic features.**

Question 4: IDA and MDA invite views and comments on whether the current approach to standardisation in Singapore should be applied to the Next Gen NBN, taking into consideration the open architecture of the Next Gen NBN. In particular, do you agree with IDA's preliminary assessment that there is a need to provide greater clarity on standards relating to the host layers of the network?

**NEC thinks IDA and MDA should select and mandate the standard of host layers of Next Gen NBN. In particular, IP-based TV service requires service discovery/selection, service control and resource control functions which are related to host layers. ITU-T thinks that the standardization of host layer is also important to guarantee the quality of service and the interoperability between network and terminal device.**

Question 5: IDA and MDA invite views and comments on whether the proposed standardisation efforts should be focused on the IPTV RSPs operating on the Next Gen NBN. Should the proposed standardisation approach similarly apply to future network infrastructure?

**NEC thinks IDA and MDA should select and mandate the standard of future network in order to guarantee the interoperability between network and terminal device.**

**ITU-T is not only IPTV standardization, but ITU-T is working on the standardization of the network and also the future network. That means ITU-T based IPTV and the future network have a mutual adaptation in the future. In order to deploy IPTV services on the future network, it may require secure, QoS guaranteed and reliable network with open interface. ITU-T is now standardizing the network which has those features as NGN.**

Question 6: IDA and MDA invite views and comments on whether the timeline for achieving the Immediate Goal facilitates the implementation plans of IPTV RSPs.

**NEC thinks it is too late to select IPTV standard in 1Q 2011.**

**NGNBN network itself will not attract users because existing network already offers many services including TV with high bandwidth network connectivity. If RSP cannot offer TV service over NGNBN network, it must limit their business, and also limit users to select/consume new services.**

**NEC thinks one standard should be selected in July 2010, and service rollout should be early 2011; existing service providers in Singapore do not wait NIMS standard to upgrade their services. And NIMS should select standard and do the standard-based service as earlier as possible, and then contribute to the standard if some missing parts are found in the standard. That roll should be taken by Singapore as a leader of ASEAN countries.**

Question 7: IDA and MDA invite views and comments on any other options that may be considered to achieve standardisation of IPTV Standards.

**NEC thinks mandatory adoption with one standard is only way to choose a standard. Otherwise, it is not meaningful to do standardization activity, and market will be fragmented if two or more standards are selected or the selected standard is not mandated by IDA and MDA.**

Question 8: IDA and MDA invite views and comments on the feasibility and the benefits and risks of issuing an outcome-based direction. How could such risks be mitigated and/or avoided? Will the inability to capture all players in the NIMS Ecosystem with the outcome-based direction poses a significant problem?

**In outcome-based approach, multiple proprietary technologies will be contributed by each RSP, and then IDA and MDA practically will not be able to keep compatibility between them. That means standard will not selected as IPTV, and market will be fragmented. The standard based approach will remove the entry barriers related to proprietary technologies, and lead many RSPs to the service-oriented competition on NIMS platform. As a result, end-users will be able to subscribe new and well-integrated services with minimum cost.**

Question 9: IDA and MDA invite views and comments on the feasibility and the benefits and risks of adopting the industry opt-in approach. What are some of the factors which would encourage industry players to opt-in? What are some of the reasons why some IPTV RSPs might prefer not to adopt the recommended standards? How could such risks be mitigated and/or avoided?

**In opt-in approach, big operators will not choose standard based approach, if the standard is not mandated by IDA and MDA. Instead it just selects their existing proprietary solutions, because that is easy way to start their services. That means standard will not selected as IPTV, and market will be fragmented. And also the opt-in approach causes small RSPs cannot survive with themselves, because small operators cannot select/deploy their own systems/STBs.**

**NEC thinks opt-in approach means equal to no selection of standard.**

Question 10: IDA and MDA invite views and comments on the benefits and risks of prescribing the standards for IPTV services provided over the Next Gen NBN.

**NEC thinks the benefits to prescribe the standard:**

- **Based on the standard-based NIMS CF STB, RSPs can deploy their service quickly, easily and with minimum cost.**
- **RSPs can concentrate their limited resources on developing attractive and competitive services.**

**NEC thinks the risk to prescribe the standard:**

- **If existent operators already upgraded their platform because of the delay of the selection, it is not meaningful to select standards and also it requires large cost to adopt the standard.**
- **If multiple standards are prescribed, small RSPs need to see what the market goes and it is too difficult to select a standard because of the market fragmentation. And also vendors need to develop components to fit with all standards, which results in the component price because the development cost becomes higher.**

Question 11: IDA and MDA invite views and comments on the proposed approach to mandate adoption of standards based on the basic functions and the technical specifications which will be applied to the NIMS CF STB. What would be the likely costs of implementing these standardized basic functions? If an operator already owns infrastructure, how much of the existing components are likely to be reusable?

**NEC proposes that NIMS selects one mandated standard and TSTC makes a detailed technical standard that includes the all basic functions. All NIMS CF STB must be deployed based on the mandated standard.**

**NEC assumes because basic functions are limited, it not required additional cost for adopting a standard. But if it is required to adopt multiple standards, it will cost to deploy those functions.**

Question 12: IDA and MDA invite views and comments on the likely scenarios in which IPTV RSPs may seek waivers from parts or all of the Mandated Standards.

**If selected standard specify impractical functionalities, such like no vendors is deployed or no operators selected, RSPs may waive to adopt the selected standard even if it is mandated.**

**NEC proposes NIMS should select the standard already selected by operators and have deployed and successfully operated.**



Question 13: IDA and MDA invite views and comments on what additional industry efforts are needed to foster the growth of the IPTV RSPs within the NIMS Ecosystem and what would be various roles that the industry can participate in?

**[Confidential]**