Comments and Opinions concerning "Project NIMS Industry Dialogue on Outcome-Based Approach 24 August 2010"

Nippon Telegraph and Telephone Corporation

Comments on Outcome-Based Approach

NTT has supported and contributed to Singapore Government on their activities concerning IPTV deployment and wishes to continue to support as much as possible.

As it is natural for the industry to have different, and sometimes mutually conflicting, opinions among its members, it is almost impossible to adopt all of their opinions. It is often up to the government to prioritize among these different opinions for the general welfare of the industry. The proposed outcome described in chapter 5 would be the evaluation axis for such prioritization. From the point of view of this evaluation axis, fragmentation of market caused by multiple NIMS platforms adopting different standards is undesirable. Therefore it is strongly advisable to adopt one standard for NIMS. For the same reason, adoption of a mongrel "standard" specifically tuned to Singapore by mixing different standards or proprietary specification should be avoided.

Considering the market trends and the size of Singapore, the biggest concern about the Singaporean market is fragmentation, which may result from the propagation of mutually non-interoperable products in the consumer market. Without sound technological guidance, companies may adopt different technologies from others. Such a guidance is the goal of the efforts made by both the NIMS Industry Dialogue and NIMS Panel.

NTT has contributed to these activities and will continue to support them, although the Singapore government's decision not to adopt one single standard for Project NIMS, and to adopt the outcome-based approach for it may have pros and cons, from the industry's point of view. NTT's comments on this approach are in the following section. Our focus is mainly on Chapter 5 and 6 of the original document.

Comments on statements in the document

5 PROPOSED OUTCOMES FOR OUTCOME-BASED APPROACH

5.2 Multi-RSP Support

5.2.1 This outcome envisages the ability for a consumer to access multiple IPTV RSPs through a video-based services delivery platform and an end-user terminal device (e.g. set-top box) instead of having to subscribe to multiple IPTV platforms to access a variety of IPTV RSPs' services. In such a multi-RSP environment, it is envisaged that there will be three (3) distinct entities playing different roles: (a) the 'RSP' who purchases the video-based services delivery platform wholesale services to deliver content and services to consumers; (b) the 'STB Coordinating Party' who coordinates the shared use of set-top boxes amongst the RSPs on the video-based services delivery platform. Such a role can be played by RSPs or could be played by an external neutral party; and (c) the 'Consumer' who is able to receive content and services from the RSPs through the same end-user terminal device. However, it is not sufficient simply to achieve an outcome where the video-based services delivery platforms are capable of supporting multiple RSPs. To ensure that the objective of Project NIMS to encourage a vibrant marketplace for interactive multimedia, applications and services is met, two (2) important principles underpin this outcome of multi-RSP support.

Comments:

NTT completely agrees that supporting multi-RSP with a common platform is an absolute necessity for the success of NIMS and NGNBN; the adoption of a single unified platform for multi-RSP support. NTT believes that such a unification of video delivery functions gives the 'Consumer' more choice in terms of accessing different RSPs through the same CF-STB. Multiple platforms would inconvenience the 'Consumer' since each platform is likely to deploy a different technology. A single platform is indispensable to reduce the Consumer's inconvenience resulting from the deployment of different technologies.

More than one platform, especially those that adopt different specifications, should be avoided. In that situation, the users would be unhappy because whenever they wish to change platforms, the cost of STB replacement would be incurred. A standardized platform also simplifies the monitoring of quality of service by IDA and MDA.

5.2.2 **Principle 1: Competitive Market Environment Conducive to Multi-RSP Support.** The following paragraphs provide a non-exhaustive elaboration of the various conditions that IDA and MDA view as critical to creating this type of competitive market environment that is conducive to a multi-RSP environment.

(a) *Competitive and Attractive Pricing Terms:* A highly vibrant and competitive market generally means more choices and competitive prices. Mandating open access to the video-based services delivery platforms on regulated prices, terms and conditions could be a way of achieving such competition. However, being cognisant of the costs and risks involved in building a video-based services delivery platform, IDA and MDA note that putting in place such regulatory requirements could result in reduced investment incentives. As such, IDA and MDA are of the view that the principle of a market environment conducive to multi-RSP support may be achieved so long as platform services and capabilities are sold on terms that are competitive and attractive to the RSPs.

Comments:

NTT agrees with the necessity of competitive and attractive terms and conditions on the IPTV platform which would lower the entry barrier for RSPs. On the other hand, the platform operator needs to charge for operational expense and OpCo connection fee to RSPs. Governmental support can improve and enable such a vibrant ecosystem as mentioned in the document. The most direct and effective treatment is to supply grant money to the platform operator as intended in the coming RFP.

(b) *Unbundled Offerings:* To provide maximum flexibility to RSPs and to encourage uptake of the video-based services delivery platform wholesale services, platform offerings should be unbundled with multiple interconnection points available. ...

Comments:

NTT agrees that multiple interconnection points will reduce the entry barrier for many small RSPs who may not have the full range of functions needed to support their own services. The abundant interconnection points, however, mean less internal flexibility in the platform system and higher expenditures to maintain those interfaces. This is because the platform provider would face difficulty in upgrading its system. To make matters worse, the increase in maintenance cost would be reflected to the platform usage fee to each RSP and even finally to subscribers.

The number of interconnection points and usage cost of the platform have a trade-off relationship. The platform operator should reach agreement for RSPs on a step-by-step approach.

5.2.3 **Principle 2: Ability to Differentiate Effectively from Competing RSPs.**

(a) *Distinct Brand Identity:* RSPs should be able to retain their individual brand identity and remain distinct (including from a RSP that performs the role of a STB Coordinating Party). Retaining their distinct brand identity includes, but is not limited to, being able to control and manage a unique portal and EPGs.

Comments:

NTT agrees with the importance of corporate branding while noting, at the same time, that fairness to all RSPs is also an important issue. The platform operator should provide equal space for corporate branded entities, such as a unique portal, EPGs and even logo displays, in its interface specification.

5.2.4 If this outcome is achieved, it is envisaged to provide benefits for the STB Coordinating Parties, RSPs and Consumers. The key benefit for Consumers would be the ability to seamlessly and conveniently access multiple RSPs concurrently using the same device. This means that Consumers would be able to access multiple RSPs at the same time. The times when consumers have to switch out their devices are also reduced to only certain circumstances (e.g. when unsubscribing from RSPs that had supplied the existing devices).

Comments:

The success of this outcome relies on a large number of RSPs leveraging the same platform or using CF-STBs. A large number of RSPs would ensure the widest variety of services to end-users. Governmental support to entice RSPs adoption of the same platform is also indispensable.

5.2.5 STB Coordinating Parties benefit from being able to diversify their business to include wholesale offerings. This could mean new revenue and business opportunities. RSPs benefit in the form of lowered cost barriers of entry as they can leverage the STB Coordinating Party's platform and scale up in proportion to the number of subscribers they have amassed, instead of having to sink in significant capital costs to build their own platforms. Both the STB Coordinating Parties and RSPs alike benefit from the opportunity to diversify their offerings (as their subscribers can access content and services from other RSPs on the same platform)

without incurring additional content acquisition or service development costs. Being able to access another RSP's subscriber through the same device also lowers their customer acquisition barriers and increases their chances of attaining a critical mass of subscribers.

Comments:

NTT agrees that the STB Coordinating Parties should be able to capture the benefits of business diversification. The barriers to the entry of small RSPs would be lowered with the CF-STB.

The government might well consider being the STB Coordinating Party or establishing a neutral organization for the Party. If there is no such designated organization, each RSP will be forced to become its own Party. Consequentially, RSPs will have to bear many responsibilities including having to provide STBs. A further concern is that, after the initial RSPs have spent huge sums to spread IPTV, the entry of other STB vendors into the market with later model (i.e. more profitable) STBs after IPTV has widely penetrated the country, the initial RSPs will never be able to recover their investment. This concern is intensified if the STBs the initial RSPs implement have to be function-rich with OTT and DTT as well as IPTV, while the STBs from late-entry STB vendors are less expensive and move profitable (eg. simple STB with only IPTV capabilities).

The "new revenue" will eventually be paid by users. The government should take this into account and consider supporting the STB Coordinating Party.

5.3 Common Applications and Services Environment

5.3.2 **Principle 1: Competitive Market Environment Conducive to a Vibrant Application and Services Landscape.**

(a) *Environment Necessary for Basic Aspects of Interactivity:* The focus of the environment should relate to a commonly accepted application and service environment necessary for basic aspects of interactivity. Such an environment as articulated in the FR Document can be a browser-based declarative application environment ("**DAE**"), which adheres to both the standard web and TV-centric technologies. Some of the basic aspects of interactivity include content overlay interactivity (i.e. provisioning of polling services or displaying of information on top of content) and interactivity bonded to content (i.e. activation of widgets allied to the viewing content). IDA and MDA note that many current implementations of IPTV platforms have enabled or are already seeking to enable a browser-based

environment. Please refer to paragraph 5.2 in the FR Document (version 0.3) for more details on DAE.

Comments:

IPTV services with interactivity is a very important factor for enhancing user experience and enlarging business opportunities as well as for providing effective T-Government services. Also, to ensure the widest spread of such interactive applications in a browser-based environment, application creativity is another important factor. The language used to create such content must be light-weight since STBs have CPUs that are much weaker than those of general PC. Ten times slower than the average laptop is common. However, it should be as easy to learn as HTML and provide the basic functions of javascript. Moreover, it must address the issues raised by TV screens. For example, HTML, which is common in the public Internet assumes scrolling on the screen. However, scrolling is not advisable on TVs from the visual point of view as well as hardware constraints. Therefore, the language used to design browser-based IPTV applications should be able to take such issues into consideration. ITU-T H.762 "LIME" covers all the issues mentioned here.

(b) *Open and Transparent Business Arrangement:* To encourage the development of the vibrant NIMS Ecosystem, additional business arrangements between the IPTV RSPs and application and service providers are required. Therefore, an open and transparent business arrangement that encourages application and service providers to invest would be essential. Such business arrangements would need to balance risks with rewards and not place undue burden on application and service providers.

Comments:

In the browser-based environment mentioned in our comment at 5.3.2(a) above, it is easy to facilitate situations that help application and service providers spread their business among RSPs. As LIME (H.762) makes it very easy to integrate interactive applications and services provided by multiple providers, LIME can facilitate a vibrant ecosystem between RSPs and application and service providers.

5.3.3 **Principle 2: Ability to Differentiate Effectively from Competing RSPs.**

(a) *Distinct Application and Service Offerings*: Operators should be able to continue to offer additional differentiated environments and platforms that would enable many varied applications and services. IPTV RSPs and application and service

providers would then be able to choose from the many environments, beyond the common environment. Additionally, IPTV RSPs will continue to be able to differentiate their application and service offerings from those of other IPTV RSPs.

Comments:

As mentioned at 5.3.2, ITU-T H.762 "LIME" and other ITU-T H. series can help operators provide environments that facilitate differentiation between RSPs and application and service providers. ITU-T H. series enables RSPs and application and service providers to offer their own original interactive services, and also the integration of services if RSPs and application and service providers wish to. One good example is that an experimental system has proven that ITU-T H. series is capable of providing the two existing commercial cable and ADSL video delivery services in Singapore. The ITU-T H. series is ready to accept the migration of the two services into the IPTV ecosystem. Since the services realized on IPTV are the same as the existing services, their differentiation remains unchanged.

5.3.4 It is envisaged that the achievement of this outcome would reduce the cost and barriers of entry for application and service providers to enter the market. For instance, a common environment would reduce the development cost required for multiple environments. ...

Comments:

We totally agree with the notion of the common environment. Such environment is better provided by the platform, rather than the RSPs as the environment would then be common to all RSPs.

5.4 Embracing Options for Delivery

5.4.1 This outcome envisages that IPTV platforms will be capable of supporting the three

(3) dominant delivery options: Over-the-Top ("**OTT**"), Digital Terrestrial Transmission ("**DTT**") and end-to-end managed delivery IP networks. These platforms have been identified in recognition of global trends in the pay TV market. For example, Europe boasts of several collaborative efforts between broadcasters and pay TV RSPs such as Project Canvas in the UK (DVB-T, OTT), HbbTV in Germany (DVB-T, OTT) and SoftAtHome in France (DVB-T, IPTV, OTT). Minimally, the components necessary to support these three (3) delivery options should be built into IPTV platforms so that they can be activated when necessary to provide a wider range of delivery options for

IPTV RSPs to deliver their content and services to end-users. For example, DTT support can be enabled through hardware extensions to the set-top box.

Comments:

While it is possible for the initial STB to provide support for these delivery options, costs will be high and there is no guarantee that the options will become widely adopted. Compliance could be achieved by mandating STB certification by either the government, the platform operator, or the STB Coordinating Party. . Another way is to fund the first fully functional CF-STBs. The CF-STB can, as envisaged, support a wide range of delivery options as described below.

5.4.2 The key principle this outcome supports is the provision of flexibility and choice to IPTV RSPs to deliver their content and services to end-users. With support for multiple delivery options enabled, IPTV RSPs are able to pick the delivery option that best suits their customer needs and business models. The ability to tailor the delivery option to meet one's unique business needs will better facilitate the entry of new IPTV RSPs into the Singapore market.

Comments:

NTT agrees with the need to widen the business opportunities for RSPs. OTT business is still in its infancy. Further and comprehensive discussion is necessary to decide whether it really matches Singapore's needs and benefits its citizens. It is also necessary to investigate and discuss whether an IPTV STB that can receive direct digital broadcasts is the best solution for Singapore.

5.4.3 The following paragraphs provide some details on the three (3) dominant delivery options identified:

(a) *Managed Networks:* In a managed network delivery model, content and services are delivered to the end-user through an end-to-end network that is fully managed by the IPTV RSP. ...

Comments:

IPTV services in a managed network are absolutely necessary for the success of NGNBN. It is one of few network applications that can give NGNBN the opportunity to show its full capabilities. Since it can provide videos of far better quality than unmanaged networks, there is a world-wide consensus that IPTV is the killer application for the managed IP network.

(b) *OTT:* The OTT delivery model refers to the delivery of content and services to

the end-user through the public Internet. ...

Comments:

OTT is a technology to control the end-end quality of services on networks like the public Internet where security and stability are not assured. It assumes a totally different network from what IPTV assumes, which is a managed network.

It is not advisable to mandate the support of all three delivery methods (OTT, DTT, IPTV). OTT especially has no consensual specifications in the industry whereas IPTV has solid specifications accepted by a UN organization. Clear and consensual specifications of OTT must be finalized before starting to consider whether to mandate it or not. Otherwise, the cost of migrating to the ultimate solution that might arise in the future would have a terrible impact on the industry. NIMS has spent months discussing the specifications of IPTV on a managed network. Even IPTV which has solid specifications took a long time. OTT, which does not have any consensual specifications, would need a much longer period to fix its specifications. Therefore, further discussion is necessary as to whether OTT really suits Singapore's context. Standardizing OTT could be considered after concluding this discussion. IPTV Forum Japan has consented to an internet profile which is now in commercial use after years of discussion. Singapore can take similar steps.

(c) *DTT:* DTT refers to the broadcast of digital television on radio frequencies through the airwaves. ...

Comments:

DTT is an important means for disseminating information to the public. However, reception problems are frequent because of the many tall buildings. In large cities in Japan, digital terrestrial airwaves are hard to receive. Since Singapore also has many tall buildings, it is easy to predict that the same problem will occur. IPTV, on the other hand, supports DTT retransmission as a part of its functionalities. Therefore, in reception-poor areas in Japan, reception difficulties have been solved by the retransmission of digital terrestrial broadcasts on the IPTV platform. If you receive DTT through IPTV, the users don't need antennas.

5.4.4 This outcome complements the 'Multi-RSP Support' outcome described in section 5.2 above. With a wider range of delivery options, more IPTV RSPs will be able to make their offerings available to end-users through the same end-user terminal device.

Comments:

It is beneficial to users and RSPs to have a wider range of services.

5.5 Carriage of T-Government Services

5.5.2 The key principle of this outcome is to ensure that critical T-Government services are
delivered to all citizens receiving services from IPTV RSPs. The following paragraphs provide a non-exhaustive elaboration of the various conditions that IDA and MDA view as critical to ensuring delivery of critical T-Government services.

(d) *Non-Discriminatory Feature and Service Offerings:* As a matter of principle, IPTV RSPs should make available all features and services of their platform to T-Government services. Those features and services should be no worse than
those offered to other IPTV RSPs and application and service providers. For example, should video conferencing solutions within the platform be made available to other IPTV RSPs and/or application and service providers, T-Government services should be able to tap on these same solutions.

Comments:

Accessing government services through a network is one of the most promising interactive network applications. Some functions for the services are expected to be common among all RSPs. Such functions should be implemented on the platform rather than on each RSP to raise cost efficiency. Therefore, it is advisable to discuss what services should be implemented on the platform and what on RSP, after specifying the envisaged services that will be provided as T-Government.

6 APPROACH TO ADOPTION OF OUTCOMES

6.1 Approach to Adoption of Outcomes

6.1.1 By setting out the outcomes discussed above, IDA's and MDA's intent is to guide market investments in IPTV platforms that will foster a vibrant NIMS Ecosystem and take into account the interests of end-users. IDA and MDA would like to work with industry players to promote efficient investments in IPTV platforms that will achieve the outcomes as discussed in section 5 above.

Comments:

Governmental support of the platform by means of e.g. procurement, monetary compensation, or regulation is necessary. Reinforcing the platform's financial background ensures the construction of an efficient IPTV platform that delivers

multimedia content with high and stable quality.

6.1.2 For the avoidance of doubt, IPTV platform operators are subject to IDA's and MDA's
regulatory regimes. Under the *Info-communications Development Authority of Singapore Act*, the *Telecommunications Act*, the *Media Development Authority of Singapore Act* and the *Broadcasting Act*, IDA and MDA have broad powers to regulate the telecoms and broadcasting industry. These include the power to (a) establish standards...

Comments:

Regulations on the quality of services would be acceptable to the industry. Such regulations can encourage the entry of many more content providers to the NIMS ecosystem, since they are assured that the network will deliver their content with stable and assured quality. IPTV has unlimited potential for new services and businesses. Therefore it is advisable to keep regulations to the minimum necessary. Some example of the possible services include e-learning, medicine, interactive advertising and network PVR. For more examples and descriptions, refer to ITU-T recommendation H.720.