



NTT's Comments on the Industry Dialogue on NIMS – Connect Requirement

NTT supports the Singapore Government in their desire to maximize the effectiveness of IPTV deployment.

NTT believes that the use of ITU-T standards has the potential to accelerate the launch of IPTV services and raise user-satisfaction. Many manufacturers already rely on these standards. To that end, NTT recommends that ITU-T be accepted by Singapore.

5 DESIRED POLICY OUTCOME OF PROPOSED MEASURE

5.1.1 The desired policy outcome is for end-users to be able to receive the widest possible spectrum of content and service offerings available in the market, thus maximising the value and potential benefits of the NIMS CF STBs being deployed to consumers.

5.1.2 From the consumer perspective, the scenario envisaged above would be highly desirable. Consumers would enjoy increased convenience by virtue of being able to subscribe to a wide range of RSPs in the market without the need for additional STBs.

5.1.3 As it would be easier for consumers to receive a wide range of content and services from multiple RSPs on the same STB, consumers may be more inclined to take up subscriptions from multiple RSPs. Each consumer will be provided greater flexibility to obtain his/her desired content, applications and services from a single NIMS CF STB.

If the end-user could enjoy many services from several RSPs through a single STB (the CF STB), he/she would be released from the bother of having to configure several different STBs. A multiuse STB is also essential from the ecological viewpoint, or in the sense of conserving energy. Moreover, the deployment of CF STB compliant with an international standard such as ITU-T, would give rise to low-cost STB and lower the entry barriers to newcomers in the pay-TV market.

6 OBLIGATIONS PERTAINING TO NIMS CF STBS AND RSPS TO ACHIEVE DESIRED POLICY OUTCOME

6.1 “NIMS-Connect Requirement“

6.1.1 To achieve the policy outcome detailed in paragraph 5, IDA and MDA envisage that there may be a need to recommend **technical standards for compliance** by NIMS CF STBs.

6.1.2 Further, there may also be a need to require **RSPs who are Nationwide Subscription TV licensees (“Nationwide RSPs”) to ensure that the services which they provide over the Next Gen NBN can be received by consumers on the NIMS CF STBs, in a non-discriminatory manner.**

NTT agrees with IDA’s and MDA’s policy on the recommendation of a technical standard. Requiring non-discriminatory services on a CF STB compliant with an international technical standard would result in stable linear TV or Video distribution services with the same quality regardless of time and place.

7 IMPLEMENTATION CONSIDERATIONS

7.1 Scope of Measure

7.1.1 It is envisaged that the proposed measure will be applied on all NIMS CF STBs and Nationwide RSPs providing IPTV services over the Next Gen NBN. IDA and MDA do not intend for the proposed measure to affect proprietary STBs or niche subscription TV licensees. In any event, should niche RSPs be inclined to reach a wider audience, they would be able to use the NIMS CF STBs to reach their desired audience. IDA and MDA are also cognisant of the fact that there are RSPs that serve only particular industry segments (e.g. hospitality, healthcare, education). It is not IDA’s and MDA’s intention for the proposed measure to be extended to such RSPs.

7.1.2 IDA and MDA also do not intend for the proposed measure to affect Nationwide RSPs to the extent that such Nationwide RSPs are delivering content, applications and services over legacy telecommunications networks (e.g. ADSL, cable), and not over the Next Gen NBN.

NTT agrees that the proposed measure is to be applied to all CF STBs and RSPs, and believes that proprietary functions could be implemented as options. Following the measures application to all NIMS CF STBs, there could arise new types of RSPs, including niche service providers or those who want to implement proprietary functions on the NIMS CF STB.

NTT understands that public services would be the most suitable to be initially provided via CF STBs since they represent a big opportunity for encouraging new



IPTV subscribers. Anyone who has a CF STB will be eager to receive educational and healthcare services through the CF STB.

The ITU-T specification H.762 is recommended for CF STB. The specification could be implemented on any device such as STB, TV set, or PC.

In applying the proposed measure, the most important thing is to maximize user benefit, and deploy truly practical CF STBs on the NGNBN.

7.2 Repurposing of Content, Applications and Services

7.2.1 IDA and MDA envisage that the proposed measure would require the full suite of existing content, applications and services provided by Nationwide RSPs to be configured in a manner which is NIMS-compliant and made available to any end-user with a NIMS CF STB, upon the request of that end-user. Where necessary, some degree of repurposing of content, applications and services would be required of Nationwide RSPs to make these content, applications and services available on NIMS CF STBs, insofar as the NIMS CF STBs are able to technically support these services or features.

7.2.2 IDA and MDA are aware of the potential technical challenges that Nationwide RSPs may face in order to achieve the objective of the proposed measure e.g. for applications which operate on proprietary technologies acquired by the RSP to differentiate their service offerings. As such, IDA and MDA may allow Nationwide RSPs to apply for exemptions for content, applications and services for which the repurposing process would pose significant technical challenges. IDA and MDA shall assess each such application on its own merits.

7.2.3 IDA and MDA envisage that these technical challenges will be mitigated as the capabilities of NIMS CF STBs are upgraded over time.

NTT agrees with the IDA's and MDA's drawing board to require RSPs to be compliant with a NIMS standard. If possible, grant funding from the government would accelerate the deployment of the CF STB.

7.3 Technical Implementation

7.3.1 IDA and MDA reiterate that the intent of the proposed measure is to ensure that consumers are able to receive the widest range of content and applications through NIMS CF STBs. IDA and MDA will however allow the industry to propose the most efficient technical solution as long as the objective is achieved.

7.3.2 IDA and MDA understand that for the NIMS CF STB to receive services from



Nationwide RSPs, these Nationwide RSPs will need to have a NIMS-compliant video headend / backend system. Nationwide RSPs should also ensure that the key areas of the technical implementation of their infrastructure are NIMS-compliant e.g. an operator and service discovery protocol which enables consumers to discover and access content from multiple RSPs.

7.3.3 While the NIMSCo will be providing NIMS-compliant services on an open access basis that will enable end-to-end delivery, Nationwide RSPs are not required to procure services from the NIMSCo in order to comply with the proposed measure. Nationwide RSPs may choose to build their own NIMS-compliant infrastructure or buy any required service components from the NIMSCo or other service providers that operate NIMS-compliant infrastructure as they deem fit.

NTT proposes ITU-T compliant systems for IPTV and related equipment in Singapore. ITU-T is an internationally recognized standard organization, and Singapore is already one of the very supportive members. The Interoperability Test (IOT) under ITU-T has been performed in countries including Singapore, and there are many manufacturers who provide ITU-T compliant systems. ITU-T is also one of the standards recommended by the NIMS project. The specifications of ITU-T satisfy NIMS requirements and would contribute to the emergence of abundant services in Singapore. Moreover, new services other than IPTV, such as e-publishing, would be delivered through NIMSCo in the near future.

7.4 Commercial Viability

7.4.1 IDA and MDA recognise that for NIMS CF STBs to receive content, applications and services from Nationwide RSPs, it would be advantageous for open and transparent commercial arrangements to be available from the party that manages the NIMS CF STB. For example, it is envisaged that the NIMSCo RFP will put in place a neutral NIMSCo that would be able to provide open and transparent commercial arrangements to RSPs intending to connect to the NIMS CF STB.

7.4.2 In view of the significant number of NIMS CF STBs that will be deployed via the NIMSCo RFP, IDA and MDA envisage that RSPs would be able to lower the capital outlay required to acquire customers by leveraging on the NIMS CF STBs that are already deployed.

NTT supports the basic idea of STB procurement by end-users where NIMSCo



provides the CF STBs. This, however, is not the only way to provide CF functionality. Home appliance manufacturers are likely to place IPTV ready equipment into the market, such as TV sets and PCs. To that end, ITU-T specifications are recommended as a well-established and practical standard. Once again, H.762 is exactly suitable for the CF STB.

7.5 Support for RSP Competition

7.5.1 The NIMS CF STBs will be designed in such a way as to allow Nationwide RSPs to present their respective content and service offerings in their entirety, preserving their unique end-user experience. This would allow Nationwide RSPs to continue to distinctly brand themselves, and differentiate themselves from other services providers in the market. Further, Nationwide RSPs would also continue to retain billing relationships with individual customers.

NTT agrees with IDA's and MDA's vision on the need to support existing services of RSPs and their own brands to the greatest degree possible.

The mechanism of Service Discovery is indispensable in order to maintain each RSP's uniqueness and differentiation from other services. NTT suggests referring to ITU-T H.770 which covers Service Discovery.

7.6 Support for RSP innovation

7.6.1 The proposed measure does not preclude the possibility of Nationwide RSPs deploying NIMS CF STBs with operator-specific hardware and software capabilities to allow such Nationwide RSPs to continue to innovate and introduce new services and applications. Nationwide RSPs will therefore retain the flexibility to compete effectively in the market through service innovation.

NTT agrees with the concept of CF STBs that support operator-specific functions since new service creation would be easier if there were strong tie-ins with other devices.