nims
Next Gen Interactive Multimedia Application and Services

Project NIMS
Industry Dialogue on NIMS - Connect Requirement

30 November 2010

iDA SINGAPORE

mda Media Development Authority

DISCLAIMER

This Industry Dialogue on NIMS-Connect Requirement document ("**Document**") is furnished for the purpose of soliciting industry views and feedback on the proposed measure discussed in this Document.

IDA, MDA and/or their advisors do not make any representation or warranty, express or implied, in relation to the accuracy or completeness of the information contained in this Document, or other written or oral statements about the proposed measure which are otherwise communicated or made available to the prospective participants. IDA and MDA may discontinue and/or modify any of the processes and update, amend, delete and/or supplement any of the information outlined in this Document at any time.

All media and documents (if any) submitted by the participants in response to this Document shall become the property of IDA and MDA. However, intellectual property in the materials originating from the participant and contained in the documents submitted by the participant shall remain vested in the participant.

Nothing in this Document and the related dialogue process is intended to create or impose any binding legal obligations whatsoever on IDA or MDA, whether expressed or implied, and whether contractual or otherwise. Without prejudice to the generality of the foregoing, nothing in this Document and the related dialogue process shall bind IDA or MDA to adopt any particular course of action or policy approach, including in relation to the exercise of their statutory powers.

This page has been intentionally left blank.

Index

1 INTRODUCTION TO PROJECT NIMS

1.1 Project NIMS Objectives

1.1.1 Project NIMS – Next Generation Interactive Multimedia, Applications and Services – is a joint initiative by IDA and MDA to develop a strategy to build up capabilities, infrastructure and the industry ecosystem in the area of interactive multimedia, applications and services ("NIMS Ecosystem"). IDA and MDA recognise the changing trends of video consumption and the immense potential of interactive multimedia, applications and services, particularly interactive IPTV. TV-viewing is morphing from the traditional one-way distribution of video into a two-way interactive entertainment-communication experience. Interactive IPTV services can ride on the pervasiveness of the new ultra-high speed Next Generation Nationwide Broadband Network ("Next Gen NBN") that Singapore is deploying to realise their potential.

1.1.2 Project NIMS was launched to address the issue of delivering interactive video-based services (interactive multimedia, applications and services) by the industry, the community and the Government.

1.1.3 Project NIMS seeks to achieve the following desired outcomes:

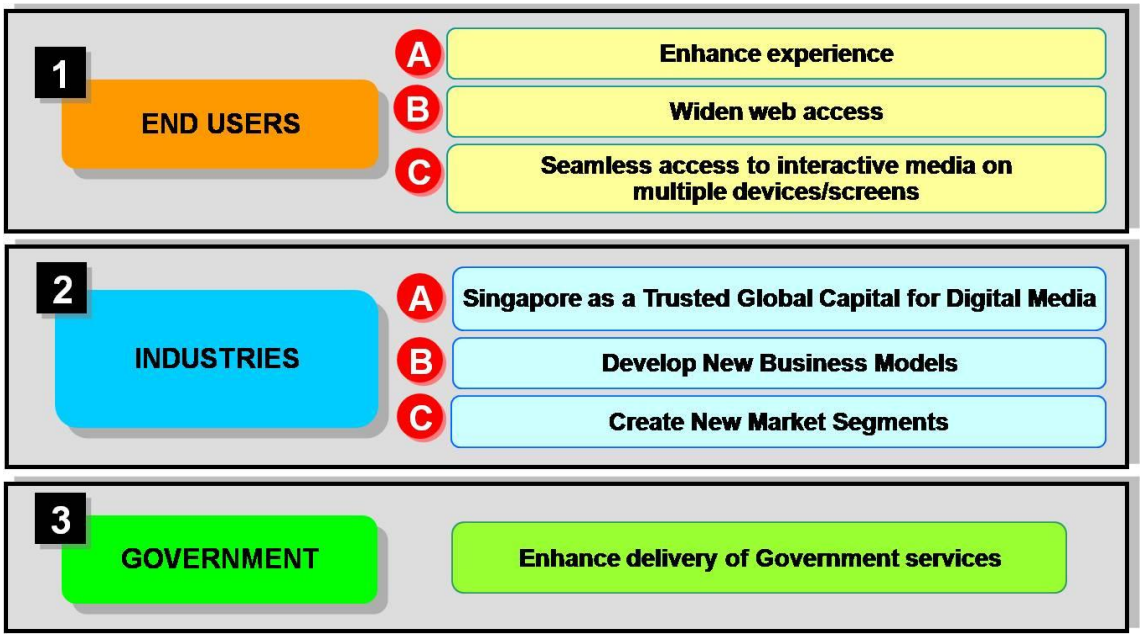

Figure 1 - Project NIMS desired outcomes

2 RECAP AND SUMMARY OF RESPONSES FROM ID 1B

2.1 Recap of ID 1B

2.1.1 Arising from the feedback received from the Industry Dialogue on Adoption of NIMS Standards ("ID 1A"), an outcome-based approach as opposed to a standards-based approach was adopted for Project NIMS. The subsequent Industry Dialogue on

Outcome-Based Approach ("ID 1B") focused on articulating the principles and rationale behind the four specified desired outcomes of Project NIMS, which are:

(a) **Multi-RSP Support** - the ability for a consumer to access multiple IPTV retail service providers ("RSPs") through a common featured set-top box ("NIMS CF STB") instead of having to acquire multiple set-top boxes ("STBs") to access a variety of IPTV RSPs' services.

(b) **Common Applications and Services Environment** - an environment where developers would need to write their applications only once, as such applications are capable of being mass-deployed to NIMS-compliant STBs, i.e. NIMS CF STBs. Such an environment would foster new and innovative interactive multimedia, applications and services.

(c) **Embracing Options for Delivery** - the NIMS CF STB will be capable of supporting three dominant delivery options: Over-the-Top ("OTT"), Digital Terrestrial Transmission ("DTT") and end-to-end managed delivery over IP networks. Minimally, the components necessary to support these three delivery options should be built into the NIMS CF STB so that they can be activated when necessary to provide a wider range of delivery options for IPTV and other kinds of RSPs to deliver their content and services to end-users. For example, DTT support can be enabled through hardware extensions to the NIMS CF STB.

(d) **Carriage of T-Government Services** - to enhance the delivery and experience of Government services for the public good. As the TV continues to be an important medium for information dissemination, it is IDA's and MDA's view that the Government should have a means of delivering applications and services over the TV platform. In particular, maximum reach is a necessary condition for such T-Government services, particularly the critical ones.

2.1.2 ID 1B also recapped the technical specifications of NIMS CF STBs. Please refer to Annex A for more details about the design principles and the process for the development of technical specifications for NIMS CF STBs.

2.2 Summary of Responses

2.2.1 **Multi-RSP Support:** Most respondents were supportive of this outcome, explaining that this outcome would ensure that more RSPs can participate and leverage on the common and open access platform. Respondents opined that this would increase the vibrancy of the IPTV ecosystem in Singapore.

2.2.2 **Common Applications and Services Environment:** Respondents expressed support for this outcome as it would attract a vibrant IPTV ecosystem with more interactive applications and services. Moreover, respondents were of the opinion that, going forward, interactivity would be a key element of the viewing experience and should be leveraged upon. Interactivity would create a differentiated experience, providing end-users with an enriched experience. Respondents suggested that the

common environment should include highly stable firmware update functionality for STBs. Respondents also suggested that the common environment should be extended to the mobile platform as well, allowing content and applications to be displayed on mobile devices.

2.2.3 **Concern over support for multiple delivery options:** Most respondents were supportive of IPTV managed network as a delivery option. However, most respondents highlighted concerns over OTT and DTT. Respondents cited that OTT support would add cost and complexity to the NIMS CF STB. In addition, support for unmanaged OTT services will likely cause a diversion of revenue streams from the NIMS Ecosystem. Some respondents expressed that T-Government services should not be delivered over OTT due to the lack of quality of service parameters. With regard to DTT, respondents opined that it may not be suitable given Singapore's urban landscape. Further, in view of the fact that consumer devices would likely support DVB-T natively going forward, support for DTT on the NIMS CF STB would not be necessary.

2.2.4 **Importance of T-Government Services:** Most respondents viewed this outcome as important and useful. Some respondents suggested that further clarity be provided by specifying critical and non-critical services as well as the scope and extent of the must-carry obligation for critical T-Government services.

3 OUTCOME OF SUCCESSFUL NIMSCO RFP

3.1 NIMSCo RFP to Catalyse Development of NIMS CF STB

3.1.1 Taking into account the feedback received from previous industry dialogue documents, IDA and MDA have premised the NIMS Platform Operator Request for Proposal ("NIMSCo RFP") issued on 6 October 2010 on an outcome-based approach. Adopting a non-prescriptive approach allows industry players the flexibility to propose solutions that meet the specified desired outcomes.

3.2 Open Access NIMS Platform through the NIMSCo RFP

3.2.1 The key objective of the NIMSCo RFP is to select an operator to design, finance, build, and operate a platform for the delivery of interactive video-based services ("NIMS Platform") over the Next Gen NBN, and provide services on a wholesale basis to RSPs upon non-discriminatory and non-exclusive terms. The open access nature of the NIMS Platform has been adopted as a key design principle as it levels the playing field, allowing benefits of the NIMS Platform to be made available to all industry players. This would foster innovation and increase business opportunities for industry stakeholders. This would in turn benefit consumers through the availability of an increased variety of content, applications and services from multiple RSPs over the NIMS CF STB.

3.3 Industry to Propose IPTV Standard through NIMSCo RFP

3.3.1 The operator selected to design, finance build and operate the NIMS Platform pursuant to the NIMSCo RFP ("NIMSCo") will adopt a standards-based approach for all critical components of the NIMS Platform and will select the IPTV standard to be

implemented on the NIMS Platform ("NIMS Standard"). The NIMSCo will also establish a certification program to certify STBs as being compliant with the NIMS Standard and capable of functioning as NIMS CF STBs on the NIMS Platform. The NIMS CF STB will also be configured to enable the carriage of content from premium content providers to consumers, through the implementation of content security features and other solutions e.g. digital rights management.

3.4 Achieving Mass Adoption of NIMS CF STBs through NIMSCo RFP

3.4.1 Currently, the local IPTV market is experiencing some degree of fragmentation as each RSP has chosen to adopt an operator-specific platform and STB. If left unaddressed, this situation would result in consumers having to choose between RSPs or having multiple STBs within the home.

3.4.2 As such, another key objective of the NIMSCo RFP is to drive the mass adoption of NIMS CF STBs, in order to ensure that such devices constitute a significant portion of STBs in the IPTV market. To this end, the selected NIMSCo will be incentivised through financial support from the Government to introduce NIMS CF STBs to penetrate the market.

4 CONTEXT OF THIS INDUSTRY DIALOGUE EXERCISE

4.1 ID 1A and ID 1B: Platform Capability and NIMS CF STB

4.1.1 IDA and MDA have actively engaged the industry through the previous two industry dialogue documents. In ID 1A, the industry was consulted on the standards that should be adopted for the NIMS CF STB. It was eventually decided that instead of working towards specifying standards, the focus should be on (a) remaining technologically neutral; (b) facilitating a range of implementation options through broader forms of outcomes; and (c) industry collaboration to allow for greater scope in addressing evolving requirements. Following the feedback obtained from ID 1A, an outcome-based approach was adopted for Project NIMS.

4.1.2 In ID 1B, the industry was consulted on the outcomes that Project NIMS should achieve. The four proposed outcomes were (a) Multi-RSP support; (b) Common Applications and Services Environment; (c) Embracing Options for Delivery; and (d) Carriage of T-Government Services. (Please refer to paragraph 2.1 for a more detailed articulation of each proposed outcome.)

4.2 ID 1C: Connection by RSPs to NIMS CF STBs

4.2.1 Following the launch of the NIMSCo RFP, which seeks to appoint the NIMSCo to put in place the open access NIMS Platform and achieve mass adoption of NIMS CF STBs, IDA and MDA are in the process of considering regulatory options to enhance the value proposition that NIMS CF STBs would bring to consumers.

4.2.2 In this Document, IDA and MDA are seeking industry's feedback on the extent to which there may be a need to recommend technical standards for compliance by NIMS CF STBs and whether RSPs should be required to ensure that their services can be received by such NIMS CF STBs. Similar to the approach adopted for ID 1A

and ID 1B, IDA and MDA are considering the need and impact of regulatory intervention on industry players, and have not predetermined the need for such intervention at this stage. For example, if the policy outcome described below is achieved through industry collaboration or technological developments, the need for regulatory intervention may not arise since the desired consumer benefits have already been realised.

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.

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**.

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.

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.

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.

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.

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.

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.

8 ADMINISTRATIVE INSTRUCTIONS FOR INPUTS TO THIS DOCUMENT

8.1 Submission of Views and Comments

8.1.1 All views and comments on the matters discussed in this Document should be submitted in writing in both hard and soft copies (Microsoft Word Format), and should reach IDA by **12 noon, 23 December 2010**. Respondents are required to include their personal or company particulars, correspondence address, contact number and email address in their submissions.

8.1.2 IDA and MDA will make all or parts of any submissions made in response to this Document public, and disclose the identity of the source. Any part of the submission which is considered commercially sensitive must be clearly marked and placed as an annex to the comments raised. IDA and MDA will take this into account in their review.

8.1.3 All comments should be addressed to:

Patrick Pang
Deputy Director (NGN Programmes Office)
Infocomm Development Authority of Singapore
8 Temasek Boulevard
#14-00 Suntec Tower Three
Singapore 038988

Please submit your softcopy via e-mail to broadband@ida.gov.sg and hardcopy to address above.

8.2 Clarifications about this Document

8.2.1 Respondents can direct clarifications or queries to broadband@ida.gov.sg by 12 noon, 10 December 2010. To facilitate a prompt response by IDA and MDA, respondents are requested to send their clarification emails with the subject header – "Clarifications on Industry Dialogue on NIMS-Connect Requirement".

ANNEX A

NOTE: Please note that the information provided below is based on the "Project NIMS Common Featured Set Top Box Functional Requirement (Draft Version 0.3)" document released on 2 July 2010. This information may be updated in future releases of the Project NIMS Common Featured Set Top Box Functional Requirement document.

Design Principles of the NIMS CF STB

1. IDA and MDA recognise the need to provide sufficient flexibility for IPTV RSPs to innovate their service offerings to differentiate themselves from their competitors in the market. IDA and MDA have incorporated the feedback of industry participants received during Phase 1 of the Joint IDA-MDA Project NIMS Industry Dialogue (conducted pursuant to the document released by IDA and MDA on 11 August 2009) in the design of the NIMS CF STB.

2. The proposed NIMS CF STB comprises three (3) functional areas. At the core of the NIMS CF STB, there is a set of features that are common across all NIMS CF STBs. This set of features, which we would call "NIMS Common Features", would be the basic features necessary for the NIMS CF STB to be technically compatible with the systems of multiple IPTV RSPs. Examples of these include video format and secure content protection.

3. Besides the set of common features, IDA and MDA have also proposed a set of "NIMS Optional Common Features" for operators to consider including in their NIMS CF STB. This set of optional features would be standardised across NIMS CF STB to support nationwide applications. These could include, for example, home automation communications standards and CEPAS-compliant payment mechanisms.

4. The final functional area would contain "Operator-Specific Features". IPTV RSPs can include features that are unique to them within their NIMS CF STB, for example, video recording functionalities and function-rich remote controls to differentiate themselves from their competitors.

5. Refer to Figure 2 below for a conceptual illustration of the functional areas of the NIMS CF STB. More details can be found in the "Project NIMS CF STB Functional Requirements" documents. Companies and/or entities that wish to obtain a copy of these documents can submit their requests to broadband@ida.gov.sg, with the subject header – "Request for Functional Requirements document for NIMS Common Featured STB."

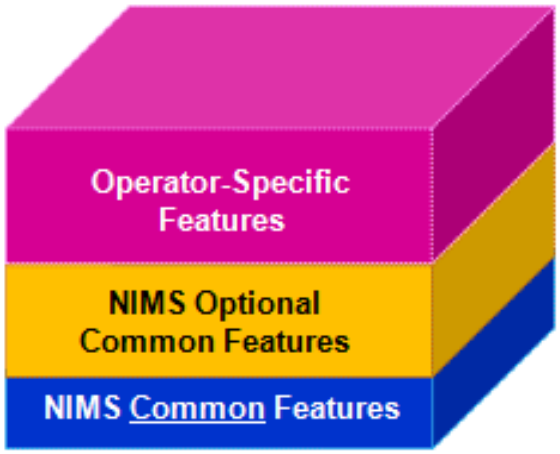

Figure 2 - Functional areas of NIMS CF STB

Developing Technical Specifications for the NIMS CF STB

6. In order to achieve the vision of a NIMS CF STB, a set of technical specifications needs to be developed. The establishment of the technical specifications for the NIMS CF STB would be achieved through the following stages:

(a) Stage 1 – Draft functional requirements for industry comments

IDA and MDA released three (3) draft functional requirements for the NIMS CF STB for industry comments on 18 December 2009, 22 March 2010 and 2 July 2010 respectively. Please refer to paragraph 5 of this Annex A for details on how to obtain a copy of these documents. IPTV RSPs, content providers, standards bodies, industry forums, equipment manufacturers and solutions providers were invited to provide comments to the draft functional requirements. IDA and MDA have incorporated relevant industry comments into the draft functional requirements.

(b) Stage 2 – Recommendation by NIMS Panel

Concurrently with the development of the high level functional requirements for the NIMS CF STB, IDA and MDA have established the NIMS Panel. The NIMS Panel is co-chaired by IDA and MDA, and comprises industry representatives.