Request for Information (RFI)

Connected Games Rapid Development Platforms

IDA (RFI)-014

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INTRODUCTION

1. In June 2006, the Infocomm Development Authority (IDA) launched Singapore's 10 year infocomm master plan called the "Intelligent Nation 2015" or "In twenty-fifteen", to chart the innovative use of infocomm technologies in the various economic clusters. iN2015 is guided by three main themes, which are Innovation, Integration and Internationalisation.

2. Under the iN2015 master plan, the IDA's vision is to establish Singapore as a digital media and entertainment (DME) capital offering innovative content, services and technologies to the world.

3. One of the key recommendations to achieve this goal is to develop Singapore into a centre for the creation and commercialisation of DME technologies, and making available technologies and platforms for media and entertainment companies to create content and services.

PURPOSE OF REQUEST FOR INFORMATION (RFI)

4. To realise this vision, IDA proposes establishing Connected Games Rapid Development Platforms ("RDP") in Singapore. The aim is to accelerate the development of Connected Games by making available platforms that provide access to technologies and resources for the game development community. Annex A provides an overview of Connected Games. A preliminary concept of a RDP was developed to highlight the necessary components needed to drive development of next generation Connected Games. This concept may be revised following the RFI. The concept is briefly outlined in Annex B.

5. Prospective industry players are invited by the IDA to submit information relevant for building on the concept of RDPs. These proposals will help IDA to obtain information in which it can best develop an industry implementation framework for Singapore to put in place Connected Games Rapid Development Platforms.

6. This RFI seeks to gather comments from the following groups:

    a. **Technology Providers**: Owners or providers of game platforms / technologies, middleware suppliers, enabling software services, are

invited to submit their comments or suggestions in how they can make this rapid development platform possible;

b. **User Groups**: Players from the game development community (i.e. game developers, publishers, independent studios) who may be users of the technology components offered by providers in 6(a) above are invited to submit their comments or suggestions on how they envisage RDPs could be developed to serve their needs.

c. **Operating Company (OpCo)**: Companies or organisations interested to aggregate the resources from various technology providers are invited to submit their comments and suggestions on the possible business models in making this platform possible. Multiple OpCo may be selected depending on the nature of the platform proposed.

SUBMISSION OF INFORMATION

7. This RFI is a mechanism for gathering information and concept proposals for the Connected Games rapid development platform. It does not constitute a procurement process, nor does it create any binding obligations on IDA.

8. The submission, in addition to the information requested in Annex B, should contain details as outlined in the guidelines in Annex C**.**

CONFIDENTIALITY OF INFORMATION

9. The IDA encourages submission of original ideas and will respect confidentiality on proprietary and commercially sensitive information. Companies are to state which parts of the information are proprietary/ commercially sensitive information.

10. However, there may be instances where the ideas or information is already residing with the IDA, overlap with ideas or information submitted by other companies, or are already available in the public domain. In such cases, the ideas will not be considered as proprietary and the IDA reserves the right to use them.

VARIATION

11. The IDA reserves the right to update and/or modify content contained within Annex B: Connected Games rapid development platform Concept including “Information Requested”. Such updates and modifications may be issued as *Corrigendum*.

FORMAT OF SUBMISSION

12. Information must be submitted in English and written in a clear and concise manner.

13. Interested parties are requested to submit in soft copy and in Microsoft Word format.

14. The submission should be typed single-spaced with Arial font size 12. Please leave space for margin of 2.5cm on the left and right, top and bottom.

CLOSING DATE OF SUBMISSION

15. The closing date of the submission is 31 August 2007 at 1700hrs. Please send all submissions to **IDA_RDP@ida.gov.sg** prior to the closing date.

ENQUIRIES

16. All enquiries regarding this request should be sent to **IDA_RDP@ida.gov.sg**.

ANNEX A: CONNECTED GAMES OVERVIEW

Introduction

1. The global video games market, according to PricewaterhouseCoopers (PWC), is expected to increase from US$27bn in 2005 to US$$46bn in 2010[1]. Enjoying a CAGR of 11.4%, this puts the video games market growing faster than other mainstream media sectors, such as Film (5.3%), Music (5.2%) and TV (6.6%).

2. A principal global media industry driver is digital distribution of content and services through online and wireless connectivity[2]. PWC singles out this driver as having "a significant impact on overall spending in the five segments (of filmed entertainment, recorded music, video games, electronic books, and online casino gaming), accounting for 41 percent of total growth in those areas during the next five years."

3. This driver is especially relevant in the video games industry. As a media that is inherently digital – they are created, distributed, and consumed digitally – video games are the earliest adopters of online connectivity amongst the media clusters. Initially used to enable multiplayer capabilities, developers and publishers are using connectivity to deliver new content, functions, and services, ultimately delivering a significantly broader and more engaging interactive entertainment experience.

4. The recent success of Massively Multiplayer Online Games (MMOG), recognition of virtual worlds such as *Second Life*, and adoption of online content delivery platforms such as Valve Software's *Steam* and Microsoft's *Xbox Live Arcade* indicate that consumers are ready to adopt Connected Gaming content and services.

5. All of these events have largely been limited to a niche platform within the video games industry – online PC interactive entertainment – where internet access has been easily available for well over a decade. Yet, there are indications that this trend will begin to spread across the broader video games cluster. For one, this is the first time in history that all of the recently launched generation of video game consoles, either handheld or TV, come with broadband and/or wireless connectivity, out-of-the-box[3].

6. These examples herald wide-spread adoption of Connected Games across the video game cluster and suggest implications beyond the interactive entertainment sector, such as in digital media and lifestyles.

[1] *Global Entertainment and Media Outlook 2006-2010*, PricewaterhouseCoopers LLP, Jun 2006, at 22
[2] Ibid., at 14
[3] Specifically, Microsoft's Xbox360, Nintendo's Wii and DS, and Sony's PS3 and PSP.

Rise of Connected Games

Brief History of Connected Games

7. Although we have seen a recent rise of connectivity use in games, this is not a recent invention. Digital communication technologies and infrastructure have evolved – from terminal-server mainframe architecture to local area network (LAN), form satellite TV to broadband Ethernet, from wired to wireless – game console manufacturers and developers have "played" with these options to create new offerings and revenue streams, with varying degrees of success.

8. Initially, online connectivity enabled simultaneous multiplayer capabilities. However, aspects of modern multiplayer interactions – creating online avatars, moving through virtual spaces, and communicating with other players in-game – can be traced back to 1978 where Richard Bartle and Rob Trubshaw developed *MUD1* on a DEC PDP-10 in 1978[4].

9. Since then, game developers and publishers have been using connectivity to enable more sophisticated features, such as game lobbies, updates and patches, secure electronic game delivery and rental, and connecting gamers to complete online 3D communities.

Connected Games Platforms

10. One view of Connected Games can be segmented by device platforms, as follows:

Game Category	Connectivity	Device Examples	Game Examples
PC	Ethernet, Wi-Fi	PCs, Laptops, UMPCs	World of Warcraft,
Console	Ethernet, Wi-Fi	Xbox360, Wii, PS3	Halo 2, Final Fantasy XI
Handheld Console	Wi-Fi	DS, PSP	Mario Kart DS, Lumines
Wireless Mobile	Cellular, Wi-Fi,	Mobilephones, PDAs,	Bejeweled Multiplayer
Interactive TV	Cable TV	TV Set-Top-Box	Starhub's Playin'TV
Networked Arcade	Ethernet	Arcade Coin-Op Cabinets	Extreme Hunting 2

11. PC and mobile-phone games were the initial adopters of Connected Gaming as they could readily take advantage of their dial-up, internet or cell connectivity. However, today's new generation of consoles and handheld gaming devices – comprising 62% of the entire Video Game market in 2005[5] – are now equipped with broadband and wireless capabilities out-of-the-box.

12. Mobile phones have also seen strong growth and innovation in the gaming space. Initially used for game downloads, developers have begun to utilize the persistent connection through cellular coverage and other wireless

[4] MUD was an acronym for Multi-User Dungeon. See Wikipedia http://en.wikipedia.org/wiki/MUD1
[5] Computed from *Global Entertainment and Media Outlook 2006-2010*, PricewaterhouseCoopers LLP, Jun 2006, at 369

options such as Wi-Fi and Bluetooth, to create compelling distractions such as head-to-head multiplayer, location-based games, and tournaments.

13. Even traditional coin-op arcades are getting wired-up. SEGA, in collaboration with Sammy and NAMCO launched their ALL.NET service in 2004 that allows players to store personal data, compete in tournaments, download new features and advertisements, and software upgrades[6].

Recent Development Trends

14. Connected Games bring about new opportunities in the video games industry, but at the same time, there are clearly challenges in the transition. Some of these factors are as follows.

Opportunities	Challenges
New Content and Services: low-latency, high-bandwidth and always-on connectivity enables more than just multiplayer gaming – it gives access to episodic content, digitally delivers on-demand, and a gateway to virtual communities.	New Infocomm Challenges: truly scalable infrastructure, cross-platform delivery channels, high-density data centres, micropayment facilitation, and integrated development and deployment platforms are required.
New Business Models: direct B2C models such as online rental, ad-driven, and virtual-asset sales will put content creators in direct contact with their consumers allowing a more intimate and customized relationship.	Increasing Cost of Development: next-gen console development is already costly. With Connected Games, access to online-ready engines, middle-ware technologies and digital delivery platforms are increasingly costly and difficult to access.
Increasing Acceptance of Serious Games[7]: Connectivity provides compelling student-centric learning experiences, though enabling student collaborations, delivering multi-media enhanced outdoor experiences, and transporting students in to virtual worlds.	Challenges in Asia: Although promising double-digit growth, Asia is highly fragmented in terms of population, IT-literacy, e-commerce adoption, infrastructure connectivity and content regulation, among others.

Infocomm Development in Connected Games

IDA's Past Video Games Initiatives

15. Since 2004, IDA's key initiatives in the video games industry have been centred on regional deployment of online and mobile games through Singapore. This was evident in our initiatives like *Games Bazaar* (2004-2005), a test-bed online game deployment platform operated by SingTel, HP, and Playworks that provided a subsidized six-month pilot period for online game publishers, and *Games MAP* (2005-2006), a commercial four-country end-to-end deployment platform operated by Pacific Internet and Sun. Collectively, over twenty titles were deployed through these two

[6] See Sega's ALL.NET http://www.segaarcade.com/video/allnet.aspx

[7] Serious Games are games for primarily non-entertainment purposes such as for learning or creating change. Early adopter segments include Education, Healthcare, Military, and Government sectors.

platforms and saw the operators improving their regional game deployment capabilities.

16. IDA also saw the need to groom and develop Game Service Providers (GSPs) who are critical players in the Connected Games value chain. Initiated by IDA, but led and managed by industry players, the Games Exchange Alliance (GXA) is an industry association committed to growing the Singapore games segment. Corporate membership presently stands at 31.

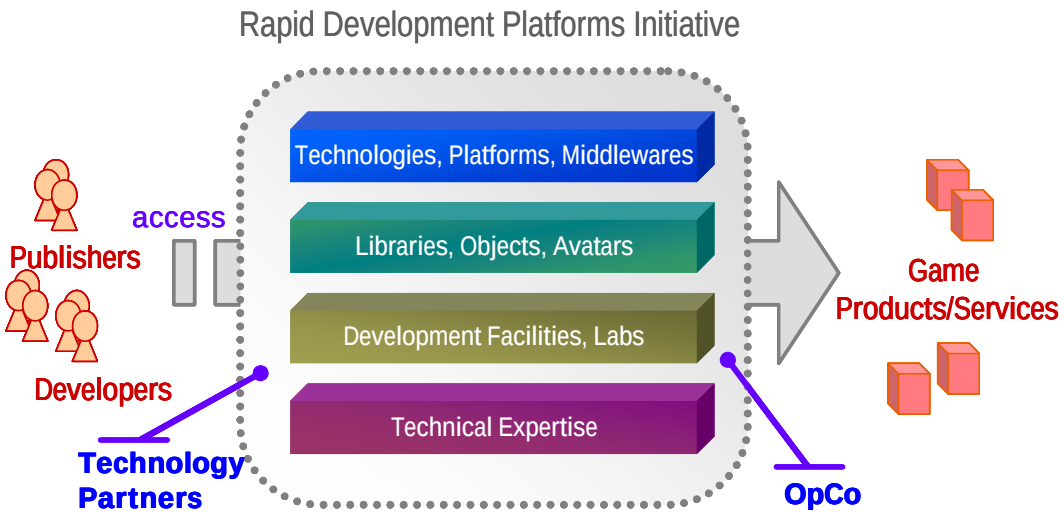
17. Lastly, IDA created international promotion platforms to create mindshare for Singapore and our game companies, and also to secure significant game development and deployment deals. Key milestones included the First IDA-GXA Singapore Games Industry Pavilions held at the Games Developers Conference (GDC 2004) and Electronic Entertainment Expos (E3 2006).

ANNEX B: CONCEPT OF CONNECTED GAMES RAPID DEVELOPMENT PLATFORMS INITATIVE

DESCRIPTION

1 With the proliferation of devices from networked game consoles to portable players, users can now play games on a number of platforms. The plethora of consumption options opens up immediate opportunities for game companies, specifically game developers, to produce products that would allow quicker access to consumers. This requires the ability to develop these connected games within a short development cycle. To support this changing landscape and to realise IDA's 2015 vision articulated for the DME industry, the RDP initiative was developed to advance Singapore as the leading regional centre for Connected Games content and services.

2 RDP is an initiative that enables qualified games companies to accelerate the development of Connected Games by making available technology platforms that provide access to middleware, development labs as well as specific technical expertise to the game development community (hereinafter referred to as the "platform"). Building on the current online and mobile games development efforts, this initiative will further entrench Singapore's capabilities in developing Connected Games that will take advantage of the availability of connected interactive entertainment devices.



3 It is envisioned that this initiative will provide the technology resources for companies to accelerate their creation of content for a wide variety of genre. Players in the game communities with interest in casual, mobile, virtual worlds, as well as serious games development (for health, education, government, corporate learning) could tap on these technology resources.

4 The platform should be designed for easy access by users of these resources. This will allow smaller developers to participate easily in RDP with minimum capital investment.

5 Users of the platform will be able to develop its content and services for various platforms of choice (i.e. mobile, console, PC, handheld).

FEATURES

6 The platform may consists of the following features:

6.1 Access to Technologies: This could include common components such as game engines, physics, rendering, 3D modelling, APIs, SDKs, plug-ins, session support, user management, remote access, etc.

6.2 Access to Libraries: This could include libraries, interactive objects, avatars, terrain, cultural features, vehicles, web / multimedia, etc.

6.3 Access to Facilities: This could include development facilities or labs for user companies to gain access to conduct in-depth technical sessions, testing, prototyping, etc.

6.4 Access to Expertise: This could involve training provided by participating RDP partners for in-depth technical sessions, etc.

OPERATION MODELS

7 The platform can adopt a phased implementation approach. Various models of operation could be proposed. It is possible to have multiple OpCo depending on the nature of the platform or technologies that may be offered.

8 Although not exhaustive, the following illustrates several possible models in making the platform available to the games community.

- **Technology Provider**: This could be owned and operated by the technology owners themselves, making available the technology resources and facilities to the game developer community. There could be multiple providers who would offer various technologies.

- **Operating Company (OpCo)**: It is possible that interested OpCo could serve as the aggregator of multiple technology platforms, middleware resources and providing this as a fee-based model to the developers.

- **Institutes of Higher Learning (IHLs)**: Leveraging on existing labs or centres, IHLs could be the provider of this platform by working with the relevant technology providers.

INFORMATION REQUESTED

This RFI seeks to gather information in the following areas:

9 Core Technology Services: The technology services that should be made available in the platform, the potential users of these services and whether these services are already available (and if so, how they are currently being provided).

10 Design and Delivery: The design and architecture of the platform, the components and enabling capabilities that need to be built, the technologies that are/will be available in the next 2-3 years and the most cost-effective ways to deliver the services to its users.

11 Business Model: As the rapid development platform is aimed at interested game developers, a viable business model taking into account the current and future needs will have to be worked out including how it can be self-sustainable in the long run, and the role of the Government in helping the industry to develop the platform in the initial period. Respondents are invited to provide information and ideas on how they can contribute towards developing services or project(s) for the rapid development platform and the subsequent operating models to run these services, including the potential of having an operator to manage this platform. The platform can be provided by multiple or single operator, depending on the nature of the proposal.

12 Industry's Interest: RFI respondents' interest to participate in the RDP initiative, and the role and capacity that their company is prepared to play (e.g. operator(s), technology providers, user companies etc.).

13 Governance Policies: In addition to business & technical considerations, governance related areas such as trading rules, rights management and standardisation that may need to be addressed. The RFI invites views regarding these areas that may be necessary to ensure this platform can succeed.

14 Industry Participation: In order for the rapid development platform to be successful, industry participation across the digital media value chain (e.g. developers, publishers, content owners, ICT service providers) is important to ensure that both supply and demand aspects of the platform are well sustained. Respondents are invited to provide information on the indicative industry partners that may participate in the mooted services and project(s).

15 Project Resources: Respondents are invited to provide indicative information regarding resources needed to develop the mooted services and project(s). The information sought includes project budgets, manpower requirements and other project resources.

16 Key Performance Indicators: Respondents are invited to provide information on key performance indicators, both quantitative and qualitative, which could be used to measure the success of the mooted services and project(s).

----------END----------

ANNEX C: GUIDELINES FOR SUBMISSION OF RFI

1. **Background Information**

   Please provide the following information about yourself/your company for our record purposes.

   a. Name and Address of Company
   b. Nature of Business, Company Profile and Track Record
   c. Contact Person(s)
   d. Designation(s)
   e. Designated Email(s)
   f. Contact Number(s)
   g. Facsimile Number(s)
   h. Current solutions/products/services offered

2. **Response to RFI**

   Respondents are invited to comment on the areas described below and/or the preliminary concept of RDP. Respondents are also welcomed to comment on other relevant areas pertaining to the development of this rapid development platform. *Respondents may refer to Annex B for an outline of the concept and use that as the basis for comments.*

   For the information submitted, please cite, where applicable, the reference and source of information, and similar offerings that have been implemented or under trial by other providers.

   a. Core Technology Services. The technology services that should be made available in this rapid development platform, the potential users of these services and whether these services are already available (and if so, how they are currently being provided). For example:
      i. What are the services that will be relevant to users and how can these services be offered?
      ii. We have provided examples of services in Annex B, and organised them into Technologies, Libraries, Facilities and Expertise --- what other services can be included and is this way of organising them meaningful to the industry?
      iii. In your model, what platforms would you be supporting (i.e. console, mobile, PC, handheld)?

b. Design and Delivery. The design, architecture, components and enabling capabilities that need to be built, the technologies that are/will be available in the next 2-3 years, and the most cost-effective ways to deliver these services to its users.

   i. Architecture. A possible approach is for the architecture to be one where a set of common technologies (components) is provided centrally by the Operator, and there will be some middleware provided by other 3rd party providers, perhaps fronted by the operator. Can you comment on this approach or suggest ways to deliver services more optimally?

c. Business model. The business model that can be implemented for long term sustainability of the platform. For example:

   i. The main sources of revenue can be through fixed or flexible fee structures. In your model, how will you derive your revenue? How would you keep the operating costs low to spur usage and yet provide exciting features and technologies to attract new developers? How can this platform be operated such that your company and the other participating businesses can benefit?

   ii. How do you think the Government can support the industry in the development of this platform in the initial period?

d. Industry's Interest. Your company's interest in participating in RDP. Under what situations or conditions will your company be interested to take part in the RDP initiative? And in which of the following capacity (please provide more details):

   i. In the development of technology and capabilities;

   ii. As Operator;

   iii. As a provider of one of many services in this platform; or

   iv. As a part of a consortium running this platform.

e. Governance Policies. In addition to business & technical considerations, governance related areas such as trading rules, rights management and standardisation may need to be addressed. The RFI invites views regarding these areas that may be necessary to ensure this platform can succeed.

f. Project Resources. Respondents are invited to provide indicative information regarding resources needed to develop the mooted services and project(s). The information sought includes project budgets, manpower requirements and other project resources.

g. Key Performance Indicators. Your company is invited to provide information on key performance indicators, both quantitative and qualitative, which could be used to measure the success of the mooted services and project(s).

3. **Indicative Costs**

Respondents are invited to provide input on the indicative costs of developing and sustaining this platform. IDA is interested in such information for planning and budgeting purposes.

a. Initial investment cost (indicate for what scope)

b. Subsequent operating cost (indicate for what scope)

4. **Timeframe**

Respondents are invited to provide input on the indicative timeframe in developing and sustaining this rapid development platform.

a. Implementation time required