



Wireless Broadband Market Development

Call for Collaboration

Public Document

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1. INTRODUCTION

- 1.1 The Info-communications Development Authority of Singapore (“IDA”) is issuing the Wireless Broadband Market Development Call for Collaboration (“CFC”) to invite interested Operators and Service Providers (“Participants”) to submit proposals (“Proposals”) for the deployment of wireless broadband coverage (“Network”) in Singapore.
- 1.2 At present, individuals and businesses in Singapore are able to enjoy fixed broadband services in their homes and offices respectively. Wireless broadband brings the additional benefit of mobility to the broadband experience. This acts as a complement to the fixed broadband infrastructure. In the future, wireless broadband is expected to provide connectivity for next generation infocomm applications and services. Wireless broadband will therefore be an important part of Singapore’s future infocomm infrastructure.
- 1.3 IDA intends to develop the wireless broadband market in Singapore by accelerating the deployment of infrastructure and catalysing the demand for wireless broadband services. This will introduce the benefits of wireless broadband to the public and lay the foundation for the growth of future wireless broadband services.
- 1.4 To catalyse demand, IDA will initially focus on users that are most likely to benefit from access to wireless broadband in public areas using widely-available data-centric devices such as Notebook PCs and PDAs¹ which have built-in capabilities for wireless broadband access. These people are likely to be “on the move” and need access to data while away from their homes and offices, for example
 - a. mobile workers² working remotely out of the office;
 - b. overseas business travelers who are in-between meetings and need to access data from their corporate offices while in Singapore; and
 - c. students accessing online learning material while out on school field trips.
- 1.5 Working people will benefit from being able to improve their productivity while “on the move”. Students will benefit from being able to learn in more interesting ways out of the classroom. Infocomm companies and operators will benefit by being able to deploy new commercial services to users while they are away from the home or the office.

¹ Based on the IDA Annual Survey on ICT Usage in Households and by Individuals for 2004, there were 440,000 Notebook PC users and 236,000 PDA users in Singapore in 2004.

² For example, sales people, consultants, insurance agents and real estate agents.

2. OBJECTIVES

- 2.1 To realise the various benefits of wireless broadband, IDA is launching the Wireless Broadband Market Development CFC. The objectives of this CFC are to:
- a. accelerate the deployment of wireless broadband by providing coverage in locations where users out of their homes, schools and offices can conveniently access wireless broadband services using data-centric computing devices.
 - b. catalyse the demand for wireless broadband services by increasing the number of wireless broadband users.

3. SCOPE

- 3.1 The CFC invites Participants to submit Proposals to provide public wireless broadband zones at various locations (“Catchment Areas”). These Catchment Areas can be found in three (3) geographic regions (“Regions”) in Singapore:
- a. North
 - b. East
 - c. West

Refer to Annex B for the definition of the three Regions.

- 3.2 Catchment Areas are locations which serve a community of users. Wireless broadband coverage is required for both outdoor, street-level and indoor areas within the Catchment Areas. Typically, Catchment Areas have the following characteristics:-
- a. Accessible to the general public;
 - b. Have a high volume of human traffic; and
 - c. Have a concentration of commercial activities.
- 3.3 More specifically for indoor areas, the following criteria (“In-building Criteria”) shall be used to determine if coverage is required:
- a. Accessible to the general public;
 - b. Common areas of the building (e.g. lobbies, atriums, food courts); and
 - c. Available facilities (e.g. seating) that allow users to conveniently make use of wireless broadband devices.

- 3.4 Primary Catchment Areas are those that serve a large community of users, for example, HDB Town Centres, the Central Business District (“CBD”) and Orchard Road. Participants are required to provide wireless broadband coverage for Primary Catchment Areas. Refer to Annex C for a list of Primary Catchment Areas.
- 3.5 Participants are also encouraged to clearly identify other Catchment Areas (“Secondary Catchment Areas”) deemed commercially viable and submit these as part of their Proposals for consideration.
- 3.6 Proposals are to be submitted based on Regions. Coverage of a Region shall, at the minimum, mean providing wireless broadband coverage for all the Primary Catchment Areas located in the Region.
- 3.7 Participants may submit Proposals to provide coverage in up to three (3) Regions.
- 3.8 Proposals submitted shall be based on the specifications in Section 4 of this document.

4. SPECIFICATIONS

A Operating Model

- i. The Network shall make use of standards-based technologies to support connectivity by widely-available data-centric devices such as Notebook PCs and PDAs which have built-in capabilities for wireless broadband access.
- ii. The Network shall be operated twenty-four (24) hours a day, seven (7) days a week.
- iii. In order to quickly stimulate the demand for wireless broadband, the Participant shall offer a basic tier service ("Basic Services") at the lowest possible cost to the general public, which may include a free of charge access service for one (1) year, and thereafter at a nominal fee that shall be generally affordable to the general public. These Basic Services shall be offered without any condition that the user subscribes to other services offered by the Participant.
- iv. Basic Services shall provide a data service with access or download speeds of at least 512 Kbps.
- v. Basic Services shall be made available for a minimum of two (2) years from the commencement of commercial services.
- vi. Customer support for the Basic Service shall, at the minimum, be provided to resolve issues related to Network connectivity problems and service interruption/degradation.
- vii. In order to develop a sustainable market for wireless broadband, the Participant shall offer paid premium tier services ("Premium Services").
- viii. The Participant shall register each Network user on an opt-in basis and keep proper records of the number of users accessing both Basic and Premium Services.

B Coverage

- i. A Catchment Area shall be considered covered when radio-equipped consumer devices can access the Network at the provisioned service level with no additional hardware required beyond the device's standard wireless interface within its boundaries.

- ii. 95% outdoor, street-level coverage shall be provided for the Catchment Areas in each Region.
 - iii. 90% indoor coverage shall be provided for in-building areas within the Catchment Area that meet the In-building Criteria described in paragraph 3.3 of this document.
- C Usage and Access
- i. The Network shall technically support and allow users open access to services such as, but not limited to,
 - a. Email
 - b. Internet Browsing
 - c. Virtual Private Network (“VPN”) Tunnelling
 - d. Instant Messaging
 - e. Voice-over-IP (“VoIP”)
 - f. Online Games
 - g. Video Streaming
 - h. Video Conferencing
 - ii. The Network shall support the logical segmentation of users into different domains, including the ability to define and manage different profiles for authentication, encryption and other service characteristics based on the requirements of different user groups.
 - iii. Each Participant that has been awarded under the CFC (“Awarded Participant”) shall establish roaming agreements for all Basic and Premium Services with all the other Awarded Participants (“Roaming Agreements”), whether individually or collectively, where the Roaming Agreements will allow all subscribers of all Awarded Participants to gain access to the network of all the Awarded Participants using the same user credentials. The Roaming Agreements may, however, make an allowance for users of any Awarded Participant to use the next available lower service level of the other Awarded Participants if there is no similar service level available in the Region they are roaming into.
- D Network Reliability and Security
- i. The Network shall support fault tolerance mechanisms to mitigate or eliminate single points of failure and ensure reliability of at least 99.9% for the Network. The Participant shall provide details on how this shall be achieved.

- ii. The Network shall be easily scaled and upgraded to support additional users, new applications and new requirements. The Participant shall provide details on how this shall be achieved.
- iii. The Participant shall provide measures to ensure the physical security for all critical network equipment. The Participant shall provide details on these measures.
- iv. The Participant shall provide mechanisms to prevent or mitigate the risk of hackers, spammers and other forms of malicious attacks on or through the Network. The Participant shall provide details on these mechanisms.

5. NETWORK ARCHITECTURE

- 5.1 The Participant shall provide a technical architecture of how the Network will be deployed. This shall include details on how roaming will be achieved. Participants may make reference to the standards-based public wireless LAN architecture proposed and validated by IDA and Intel Corp which is available as Annex D.
- 5.2 The Participant shall describe how they intend to make use of the spectrum (licensed or unlicensed) that is available to them to deploy the Network. IDA will not be issuing any new frequency spectrum for this CFC.

6. BUSINESS PLAN

- 6.1 The Participant shall provide a three (3) year business plan for the operation of the Network in each proposed Region. The business plan shall include
 - a. the types of Basic and Premium Services that will be offered including details on subscription rates, the scenarios under which the services are likely or intended to be used and the payment methods available for users to pay for services;
 - b. the plans to attract users to Premium Services;
 - c. the plans to migrate users to future high-speed wireless services;
 - d. any technology, content or service partners that the Participant intends to collaborate with, the roles of the various parties and any cost and revenue sharing models;
 - e. the expected number of users accessing the Network on a quarterly basis;

- f. the detailed project schedule for the rollout of the Network; and
- g. financial projections for the operation of the Network.

7 PREREQUISITES FOR PARTICIPANTS

- 7.1 A Participant shall be a single company that is incorporated in Singapore.
- 7.2. The Participant shall have the necessary relevant IDA licenses required to operate the Network at the time of deployment.
- 7.3 The Participant shall have to comply with any relevant conditions, rules, regulations required by the appropriate governing bodies for the installation of any equipment on any premises.
- 7.4 The Participant shall provide references of similar projects that have been previously undertaken.

8 TIMELINE AND MILESTONES

- 8.1 The milestones of the CFC are given in the following table:

DATE	MILESTONES
9 Mar 2006 (Thu)	Announcement of CFC
28 Apr 2006 (Fri)	Last Day for Enquiries
5 May 2006 (Fri)	Proposal Submission Date
20 Jun 2006 (Tue)	Award of CFC
18 Aug 2006 (Fri)	Launch of commercial services in Catchment Areas E4 and E9
31 Oct 2006 (Tue)	Launch of commercial services in other Catchment Areas
1 Mar 2007 (Thu)	Completion of Network deployment for all Primary Catchment Areas in all Regions
20 Jun 2007 (Wed)	Completion of Network deployment for all Secondary Catchment Areas in all Regions
31 Oct 2008 (Fri)	Completion of CFC

Table 1. CFC Timeline and Milestones

9 SELECTION PROCESS AND AWARD

- 9.1 An Evaluation Committee will evaluate the submitted Proposals and decide which Participants to support based on the merit of their Proposals.
- 9.2 In assessing the Proposals, the Evaluation Committee will use the following criteria:
- a. Qualification of the Participant to complete the Project;
 - b. Compliance to the Specifications listed in Section 4 of this document;
 - c. Network coverage areas beyond the Primary Catchment Areas;
 - d. Number of users; and
 - e. Amount of funding required by the Participant.
- 9.3 IDA reserves the right to award a Participant to provide coverage for any of the Regions proposed by a Participant. Depending on the quality of the Proposals, IDA reserves the right not to award any Participant.
- 9.4 Short-listed Participants will be required to make a presentation to the Evaluation Committee and answer questions on their Proposals posed by the Evaluation Committee.
- 9.5 Selected Participants will be notified privately by IDA, and the terms of the project, including milestones and funding, will be negotiated and agreed upon among the parties prior to the award of the CFC.
- 9.6 If awarded, the Participant shall receive co-funding support from IDA to provide wireless broadband services within Catchment Areas.

10. PROPOSAL SUBMISSION INSTRUCTIONS AND DATE

- 10.1 Submissions shall be based on the Wireless Broadband Market Development CFC Proposal Form that can be found on the IDA website (www.ida.gov.sg) under Wireless > Call For Collaboration > Wireless Broadband Market Development.
- 10.2 Only complete Proposals will be considered.
- 10.3 Nine (9) hardcopies and one (1) softcopy (on CD-ROM) of the Participant's Proposal must reach IDA no later than 1100 hrs on 5 May 2006 (Fri).

10.4 All proposals must be clearly marked

“Wireless Broadband Market Development Call For Collaboration”

and addressed to:

Infocomm Development Authority of Singapore
8 Temasek Boulevard
#14-00 Suntec Tower 3
Singapore 038988

10.5 Proposals may also be submitted in person at the IDA reception desk on the 14th floor of Suntec Tower 3.

10.6 Enquiries regarding this CFC should be addressed to cfc@ida.gov.sg. You may also wish to contact the following officers for more information:

Mr. John THOMAS
DID: (65) 6211-1332

Mr. FONG Young
DID: (65) 6211-0261

No enquiries regarding this CFC will be entertained after 28 April 2006 (Fri).

ANNEX A – TERMS AND CONDITIONS

The following terms and conditions shall apply to companies submitting Proposals in response to the Wireless Broadband Market Development Call For Collaboration. These terms and conditions are found in Part 1 of the CFC Proposal Form and are reproduced here for ease of reference.

1. Interpretation

The following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires:

“Call For Collaboration” or “CFC” shall mean the invitation to companies to deploy a wireless broadband network.

“IDA” shall mean the Info-communications Development Authority of Singapore, a statutory board created pursuant to the Info-communications Development Authority of Singapore Act (Chapter 137A) with its principal office at 8 Temasek Boulevard, #14-00 Suntec Tower 3, Singapore 038988.

“Network” shall mean the wireless broadband network deployed as a result of this Call for Collaboration.

“Participants” shall mean the companies that have fulfilled the Prerequisites as set out in Paragraph 7 of the Public Document and submitted Proposals in response to the Call For Collaboration, and “Participant” shall mean any one of such Participants.

“Proposal” shall mean the documents submitted by the Participant in response to the Call For Collaboration.

“Project” shall mean the project described in Part IV of the Proposal (i.e. Project Details).

Words importing the singular shall also include the plural and vice versa where the context requires.

2. Validity of Proposal

The Participant shall use its best efforts to ensure that the information as represented in the Proposal is true, accurate and complete at the time of its submission.

3. Documentation

The IDA reserves the right to retain all Proposals submitted without being liable for the costs of such documents, notwithstanding the fact that the Proposals are not accepted at the end of the evaluation.

4. Organisation background and business experiences

The Proposal shall contain information about all Participants' capital resources, manpower resources, assets, production capacity, which information shall be submitted together with the Proposal to enable IDA to ascertain the Participants' capacity to fulfill the Proposal.

5. Additional information

Notwithstanding the provisions in clause 2, from time to time, any of the Participants may be required to furnish additional information with respect to the Proposal, including but not limited to the Project. Such Participant shall use its best efforts to supply the information in a timely manner.

6. Canvassing

The Participant shall not engage in any form of canvassing, and in the event that any canvassing is discovered after the Proposal has been accepted, IDA shall be entitled to rescind the acceptance of the Proposal.

7. Confidentiality

(a) The Participant undertakes not to divulge or communicate to any third party any confidential information howsoever acquired in relation to or arising from this CFC without first having obtained the prior written consent of IDA.

(b) For the purpose of this CFC, all information furnished by IDA shall be deemed confidential unless otherwise indicated.

(c) These obligations of confidentiality do not apply to information that:

- (i) is or becomes publicly available without breach of confidentiality; or
- (ii) is released for disclosure with the written consent of IDA.

8. Copyright

Unless otherwise agreed to in writing, all copyright in any documents relating to the CFC and provided by IDA shall vest in IDA.

9. Demonstration of claimed capabilities

The Participants shall, at the request of IDA, conduct such demonstrations and presentations to substantiate the claims in the Proposal to IDA's reasonable

satisfaction. The costs and expenses arising from or in connection with any such demonstrations and/or presentations shall be borne solely by the Participants.

10. Agreement

In the event the Participant is selected for the CFC, the Participant shall be required to enter into a legally binding agreement with IDA, the terms and conditions of which shall be negotiated and decided between the parties at a later date.

11. Disclaimer

(a) IDA shall have the absolute discretion to accept or reject the submission of any Proposals without being liable to give any reason therefor. IDA reserves the rights to retain the Proposals submitted by all parties without liability for the costs of such documents.

(b) The Participant acknowledges and agrees that itself and all its associated persons, bodies and organisations who participate in the Project and/or the CFC, whether directly or indirectly, do not do so as the servants or agents of IDA, and IDA shall not be responsible for any acts or omissions of them or any of them. The Participant hereby releases IDA, its servants and agents from all liability for personal injury or loss of or damage to property or any loss or damage of any other kind whatsoever which the Participant may sustain by reason of any act or omission of the Participant and its servants and agents or of such persons, bodies and organisations aforesaid their servants and agents.

12. Indemnity

The Participant shall indemnify, keep indemnified and defend IDA against any claim where the Participant's Proposal infringes any third party's (i) patent; (ii) copyright; (iii) trademark; or (iv) trade secret. The Participant shall indemnify, keep indemnified and defend IDA, its officers, directors, and employees against any costs, expenses, or liability directly or indirectly arising out of or relating to any claim from any third party based on IDA's use or possession of the Participant's Proposal.

13. Limitation of liability

IDA shall not have any liability to the Participant under the CFC to the extent that any infringement or claim thereof is based upon (i) any content in the Participant's Proposal; or (ii) the Participant's failure to participate in or to be selected for the CFC for any reason whatsoever.

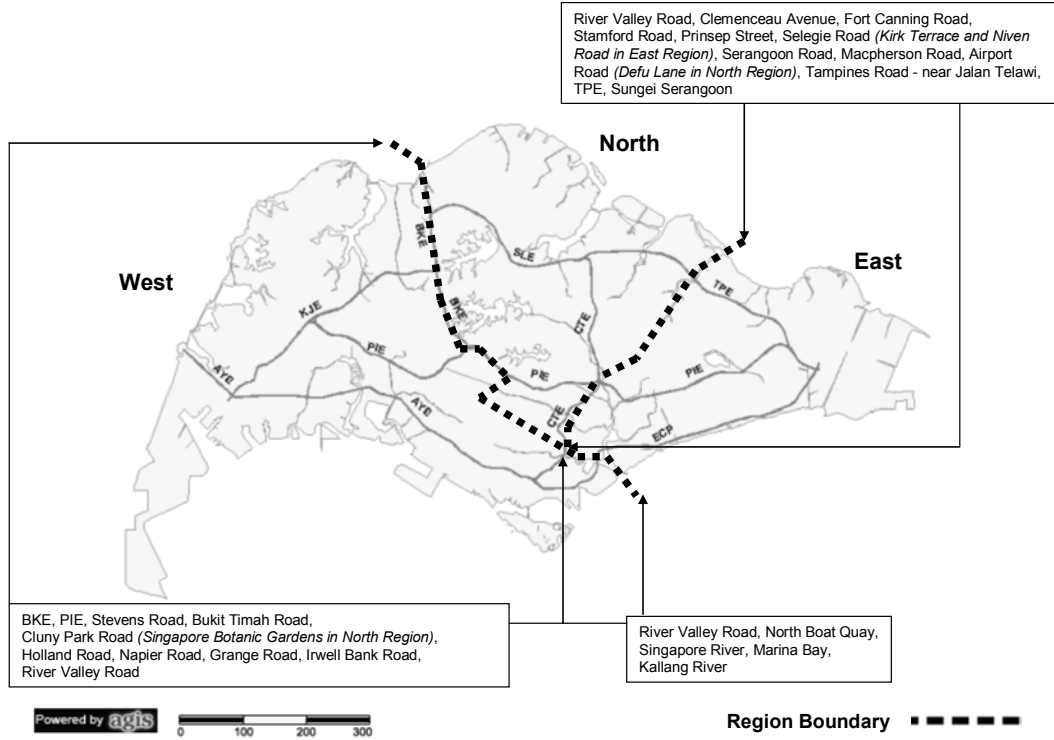
14. Default

(a) IDA may terminate this agreement and withdraw any further funding to the Participant upon thirty (30) days' prior written notice, in the event that: (i) any of the Participants fail to observe any of its obligations herein; or (ii) any of the Participants admit in writing its inability to pay its debts generally as they become due; or make a general assignment for the benefit of creditors; or institute

proceedings to be wound up, or consent to the filing of a winding up petition against it; or be adjudicated by a court of competent jurisdiction as being insolvent; or seek reorganisation or consent to the filing of a petition seeking such reorganisation; or has a decree entered against it by a court of competent jurisdiction appointing a receiver, liquidator, trustee, or assignee in bankruptcy or in insolvency covering all or substantially all of its property or providing for the liquidation of its property or business affairs.

(b) IDA further reserves the right to recover any or all funding disbursed to the Participants in the event this agreement is terminated.

ANNEX B – WIRELESS BROADBAND REGIONS



ANNEX C – PRIMARY CATCHMENT AREAS

Please refer to accompanying PDF document.

ANNEX D – STANDARDS-BASED PUBLIC WIRELESS LAN ARCHITECTURE

Please refer to accompanying PDF document.