Summary

The Singapore broadband market is expected to grow rapidly with the government's plans to build a multi-billion nation-wide ultra high-speed broadband network, with the Government of Singapore committing to provide a grant of up to S$1 billion (US$700 million). The Fiber to the Home (FTTH) network is expected to debut in 2010 and reach nationwide coverage by 2015. Household broadband penetration rate in Singapore reached 86.8% in June 2008. Singapore has 28 Tbps of submarine cable capacity and international telecoms connectivity to more than 100 countries. It will have direct cable connectivity to the U.S. when the Asia American Gateway starts operation in early 2009.

There are excellent opportunities for U.S. vendors and service providers to participate in the new FTTH network and sell hardware, software, and solutions to the Singapore domestic market as well as through Singapore to the neighboring Asian countries. Singapore depends on imports for its broadband needs. It also serves as a major distribution center for companies interested in selling to the region as reflected by re-export data. Over 70% of ICT goods imported into Singapore are re-exported for third-country consumption. Areas of best prospects include equipment, technologies, solutions, services and content related to broadband.

Market Demand

Singapore is one of the most wired countries in the world with a nation-wide network of fiber optic cables. The World Economic Forum's Global Information Technology Report ranked Singapore fifth in the world in 2008 while the Economist Intelligence Unit (EIU) E-readiness Report ranked Singapore sixth in the world in 2007 and 2008. The Government of Singapore plays an important and active role in promoting the adoption of ICT in the country. It was ranked number one in Accenture's e-Government Customer Service Maturity Ranking 2007.

In June 2006, the government announced iN2015 (http://www.in2015.sg/), a 10-year IT masterplan. Most significant was the Next Generation National Infocomm Infrastructure (Nex Gen NII) that includes a Next Generation National Broadband Network (http://www.ida.gov.sg/Infrastructure/20060919190208.aspx). The FTTH network will provide "pervasive and competitively priced ultra high-speed broadband connectivity 1 Gbit/s or more to business users at the workplace as well as to Singaporeans at home, schools and learning institutions, and other premises." The Government of Singapore will partly fund the construction of the nationwide broadband network that will be completed by 2015. Singaporeans are expected to experience high-definition video conferencing, telemedicine, grid computing-on-demand and immersive learning applications on the Next Generation National Broadband Network (Next Gen NBN) by 2010. Business users will have ready access to a robust and pervasive network that can support data-intensive transactions such as real-life high-definition video conferencing and graphics-based data visualization. Small and medium enterprises will be able to tap on grid computing applications and data storage facilities at competitive rates while students can make use of visually immersive and interactive learning applications for a richer and deeper educational experience. The Next Gen NII also called for a wireless broadband network (Wireless@SG) which went online in December 2006 and is available gratis until 2009. There were more than 7,400 Wireless@SG hotspots located around Singapore as of July 2008. (http://www.ida.gov.sg/Infrastructure/20060816192935.aspx).

The IDA announced that the Next Gen NBN will comprise three key industry layers: the Network Company, the Operating Company, and downstream operators such as Retail Service Providers. The Operating Company will sell wholesale bandwidth capacity to Retail Service Providers who in turn will provide next generation services to end-consumers. The Operating Company will play an important role to bring about a competitive and vibrant broadband market by providing Retail Service Providers with open access to Next Gen NBN's active infrastructure. The Retail Service Providers is expected to enjoy competitive wholesale prices which the Singapore government hopes would translate into competitive end-user prices.

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Status on Network Company

The RFP for the Network Company was called on December 11, 2007 and when it closed on May 5, 2008, two consortiums submitted bids to design, build and operate the passive infrastructure layer of the Next Gen NBN. The two consortiums were Infinity and OpenNet. The OpenNet Consortium was led by Axia NetMedia Corporation and its other partners include Singapore Press Holdings Ltd, Singapore Telecommunications Pte Ltd and SP Telecommunications Pte Ltd. The Infinity Consortium was led by City Telecom (H.K.) Limited and its other partners include two of the three mobile operators in Singapore: MobileOne Ltd and Starhub Ltd. On August 20, 2008, it was announced that Starhub will take over as the lead for the Infinity Consortium as City Telecom dropped out of the project. The IDA is expected to announce the results in the third quarter of 2008 and will provide a grant of up to S$750 million (US$577) to the winner.

Status on Operating Company

The IDA issued a RFP on April 7, 2008 to invite interested parties to bid to become the Operating Company (OpCo) of the Next Gen NBN. Eleven companies were pre-qualified to be consortium leads for the bid and they include Alcatel-Lucent, Axia NetMedia, BT Singapore, City Telecom (HK), Deutsche Telekom Asia, MobileOne, Nippon Telegraph and Telephone West, Nokia Siemens Networks, Singapore Computer Systems, Singapore Telecommunications and StarHub. The tender is expected to be awarded by the first quarter of 2009 and the Singapore government will provide a grant of up to S$250 million (US$192million) to the successful bidder.

Broadband Indicators in Singapore, January- June 2008

Broadband Internet Subscriptions	January	February	March	April	May	June
Total Broadband[6]	3,396,000	3,501,100	3,655,800	3,780,900	3,907,400	3,996,600
Total Residential Broadband	892,100	902,900	925,100	940,500	956,700	989,600
Total Corporate Broadband	95,900	94,700	96,400	98,000	105,000	111,000
Total xDSL	485,600	488,400	497,100	502,300	507,300	513,700
Total Cable Modem	397,500	399,200	404,300	406,800	411,900	415,500
Total Leased Line Broadband	3,800	3,800	3,800	3,800	3,800	3,800
Total Wireless Broadband[7]	2,503,800	2,605,000	2,745,400	2,862,800	2,979,000	3,058,000
Total Subscribers using other Broadband Internet Access Platforms	5,200	4,700	5,100	5,200	5,300	5,600
Household Broadband Penetration[8]	78.2%	79.2%	81.1%	82.5%	83.9%	86.8%

Notes:

[6] With effect from April 2007, Total Broadband subscriptions includes retail xDSL, cable modems, leased line Internet, 3G, 3.5G/HSDPA, WiMAX or its equivalent and Wi-Fi hotspots access (including Wireless@SG subscriptions).

[7] Total Wireless Broadband subscriptions is a new indicator that will take effect from April 2007 and will include all retail broadband Internet access subscriptions (for connections above 256Kbps) provided via

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wireless platforms such as 3G, 3.5G/HSDPA, WiMAX or its equivalent and Wi-Fi hotspots (including Wireless@SG subscriptions).

[8] From April 2007, the Household Broadband Penetration rate includes wireless access plans (provided via 3.5G/HSDPA and WiMAX or its equivalent). It excludes subscriptions to 3G and Wi-Fi hotspots. This figure is computed using the total number of residential broadband subscribers on a per household basis.

Source: IDA website, http://www.ida.gov.sg/Publications/20080212114723.aspx

Market Data

According to the latest survey by the IDA, Singapore domestic total infocomm revenue in 2007 grew by 10.3% to S$18.13 billion (nearly US$12.7 billion). The telecommunication services segment which grew 6.2% accounted for 32% of total domestic revenue. The IT services segment garnered the highest growth rate of 51.9%, followed by hardware (25.5%). Survey details can be found at:

http://www.ida.gov.sg/doc/Publications/Publications_Level2/20061205092557/ASInfocommIndustry07.pdf

The building of the Next Gen NBN in Singapore is estimated to cost over S$2 billion (US$1.4 billion). The market for broadband products and services will enjoy rapid growth over the next few years as the Next Gen NBN projects come on stream.

Singapore is dependent on imports and U.S. products are traditionally well received in Singapore. The country also serves as a major distribution center and springboard for companies interested in selling to the region as reflected by re-export data. Over 70% of telecommunications goods imported into Singapore are re-exported for third-country consumption.

Best Prospects

Given the size of the two tenders for the NG NBN, there are excellent opportunities for U.S. vendors to participate in the two projects and/or in supplying to the successful bidders. In addition, the IDA launched the Expressions of Interest (EOI) initiative in July 2007 to gather and assess the level of Retail Service Providers' interest in deploying services on the Next Gen NBN project and to obtain inputs on developing feasible Next Gen NBN services in Singapore. U.S. companies interested to deploy services on Next Gen NBN can register at http://www.ida.gov.sg/Infrastructure/20070716182420.aspx. The IDA publishes a list of EOI registrants on their website to facilitate industry collaboration and networking.
http://www.ida.gov.sg/doc/Infrastructure/Infrastructure_Level2/20070716182420/NGNBNEOIList.pdf

The winning consortium that will build the foundation of the new broadband highway will be required to put in passive infrastructure such as new ducts and high speed cables. Fiber would be required and there are construction works opportunities for vendors with specialized horizontal drilling expertise. The Operation Company of the broadband network would require network switches and transmission equipment while the Retail Service Providers would also purchase set top boxes, routers and switches.

In addition, the current broadband service providers are purchasing solutions to enhance their broadband services.

Key Suppliers

Key suppliers in Singapore's broadband market include all major international vendors. Many have either set up operations in the country or are working with Singapore partners. They include Alcatel-Lucent, Alvarion, Aperto Networks, Fujitsu, Motorola, Nokia-Siemens, Samsung, ZTE, Ericsson, Huawei, Nortel, Cisco, Proxim and Smartbridges. Several new foreign vendors have set up regional offices in Singapore and a key reason was the Next Gen NBN project in Singapore as well as other large scale broadband projects in the region.

Prospective Buyers

Broadband service providers

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Besides the successful bidders of the two NG NBN tenders, there are excellent opportunities for U.S. equipment manufacturers to supply to the current broadband service operators in Singapore. Existing service operators not only have recurring expenditure but are also making new investments in order to compete with existing and new service providers that aggressively roll out multi-play broadband packages with voice, data, video and wireless services.   A list of the existing providers can be found at:
http://www.ida.gov.sg/Policies%20and%20Regulation/20060424172641.aspx
http://www.ida.gov.sg/Policies%20and%20Regulation/20060424160337.aspx

Government
iGov2010 is the Singapore Government's five-year masterplan that leverages infocomm in order to deliver excellent service to its customers and citizens. The Singapore government is expected to purchase broadband products and services in tandem with its plan to use infocomm as a key enabler and infocomm technology as the connector to bring about changes to the way the Government of Singapore works, interacts and serves the public.

Enterprises
There are over 200,000 companies registered to do business in Singapore. They would form a large buyer pool for broadband equipment, solutions, and services. According to the IDA's Business Infocomm Usage Survey 2007, usage of computers among businesses reached 73% in 2007, driven largely by the smaller companies. Penetration rates for companies with less than 10 employees increased from 62% in 2006 to 68% in 2007 while those with more than 200 employees continued to enjoy 100% penetration in 2007. Overall, broadband usage increased to 52% in 2007, with large companies registering 99% penetration rate. Survey details can be found at http://www.ida.gov.sg/Publications/20061205092557.aspx

Consumers
According to the latest 2007 IDA survey, 79% of Singaporean households own at least one computer while the penetration rate for households with school-going children increased to 92%. For the first time since 2000, there more households that had two or more computers than those that own only one computer. Seventy-four percent of households had home Internet access and the top five internet activities were sending or receiving emails, general web browsing, instant messaging, getting information about goods and services and checking account information. In 2007, 95% of households with internet access connected to the Internet via broadband. Survey details can be found at
http://www.ida.gov.sg/doc/Publications/Publications_Level2/20061205092557/ASInfocommUsageHseholds07.pdf

Market Entry
A good way for U.S. vendors to enter the Singapore market would be to work with local distributors and system integrators who are well versed with local conditions. U.S. global telecommunication service providers should consider collaborating with the successful bidders of the NG NBN as well as current service providers in Singapore. Alliances eliminate heavy investment in infrastructure outlay as well as provide immediate marketing reach due to their existing networks. This is an attractive approach which most foreign companies adopt to penetrate and reach customers in Singapore. Many foreign companies also establish representative offices in Singapore or set up operations here to test new equipment and services not only for the Singapore but also for the region.

There is no special legislation in Singapore covering agency agreements. Mercantile laws in Singapore are based on English laws. The contract sets the terms of agreement between vendors and buyers. The parties involved draw up a satisfactory contract that determines the conduct of both parties during the contract period including the terms of cancellation. U.S. firms interested to enter the Singapore and Asian markets might want to consider participating at CommunicAsia and Broadcast Asia, -- the largest ICT show in Asia -- it attracts over 57,000 visitors and more than 2,000 exhibiting companies annually. CS Singapore will actively support and provide value added services to the U.S. exhibitors at the show that will be held from June 16-19, 2009. More information on the two shows can be found at www.communicasia.com and www.broadcast-asia.com.

Market Access & Obstacles
Singapore is generally a free port and an open economy and maintains one of the most liberal trading regimes in the world. There is no duty on the import of broadband products into Singapore. Telecommunication equipment suppliers are required to register their equipment for sale and use in Singapore but the IDA make it an easy process with

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automatic and lifetime licensing at a fee of S$50 (US$35). Details are given in the document entitled "Guide for Registration of Telecommunication Equipment" that is available online at

http://www.ida.gov.sg/doc/Policies%20and%20Regulation/Policies_and_Regulation_Level2/20060421172414/EQRGuide.pdf

Singapore became the first country in Asia, and the third in the world (after the European Union and Canada), to operate a Mutual Recognition Arrangement (MRA) on telecom equipment certification with the United States of America. The MRA provides for direct entry of telecommunications into either market without the need for additional testing and certification. Under the Asian Pacific Economic Cooperation (APEC) Telecommunications MRA implemented between the US and Singapore, products can be tested and certified in the United States for conformance with Singapore's technical requirements. A list of the recognized U.S. testing and certification agencies can be found at: http://www.ida.gov.sg/Policies%20and%20Regulation/20060609145118.aspx.   U.S. suppliers will still require a local representative (dealer) who will be responsible for the import and sale of telecommunication equipment in Singapore.

The IDA is the government regulator authorized to establish standards, codes and regulations to be observed by operators of telecommunications systems and services and to regulate the conduct of telecommunications licensees in the provision of telecommunications systems and services. Information on the various Acts and regulations can be found at http://www.ida.gov.sg/Policies%20and%20Regulation/20060418214814.aspx.

The IDA is also responsible for the management, allocation and use of the radio frequency spectrum. Singapore's spectrum allocation chart and the master spectrum allocation plan can be found at:
http://www.ida.gov.sg/Policies%20and%20Regulation/20060421164253.aspx

The U.S. Singapore Free Trade Agreement (USSFTA) went into force on January 1, 2004. This agreement, the United States' first FTA with an Asian nation, makes Singapore one of the strongest Intellectual Property Rights (IPR) regimes outside of the United States thus giving strong IPR protection to American firms doing business in Singapore. The USSFTA includes state-of-the-art protection for trademarks, including government involvement in resolving dispute between trademarks and Internet domain names; extended terms for copyright protection; strong anti-circumvention provision to prohibit tampering with technologies that are designed to prevent piracy; criminal penalties for companies that use unlicensed software; and protection for encrypted program-carrying satellite signals. The USSFTA also includes special provisions dealing with electronic commerce, competition policy and state enterprises, and customs cooperation. In addition, the agreement contains provisions for transparency and dispute settlement. Information on the USSFTA can be found at
http://www.ustr.gov/Trade_Agreements/Bilateral/Singapore_FTA/Final_Texts/Section_Index.html

Trade Events
CommunicAsia/BroadcastAsia, June 16-19, 2009, Singapore
 http://www.communicasia.com, http://www.broadcast-asia.com

ITU Telecom Asia 2008, September 2-5, 2008, in Bangkok, Thailand
(http://www.itu.int/ASIA2008)

Resources & Contacts
Infocomm Development Authority of Singapore www.ida.gov.sg
Singapore Infocomm Technology Federation http://www.sitf.org.sg/marketplace/bizopp.aspx
Association of Telecommunications Industry of Singapore (ATiS) http://www.atis.org.sg
Market research portal http://www.export.gov/mrktresearch/index.asp

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