

FACT SHEET (June 2011)

(A) NEXT GENERATION NATIONWIDE BROADBAND NETWORK (B) NEXT GENERATION SERVICES

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All New, All Fibre, Nationwide Infrastructure by 2012

Singapore's **Next Generation Nationwide Broadband Network (Next Gen NBN)** is the wired network of the Next Generation National Infocomm Infrastructure (Next Gen NII), a project under the Intelligent Nation 2015 (iN2015) masterplan (www.iN2015.sg). iN2015 seeks to transform Singapore into an intelligent nation and global city, powered by infocomm.

The Next Gen NBN is Singapore's nation-wide ultra-high speed fibre network. A strategic enabler of economic and social growth, the network will prepare Singapore for an infocomm-enabled future and place it at the forefront of broadband development internationally.

Offering pervasive, competitively priced broadband speeds of up to 1Gigabit per second (1Gbps), users will be able to enjoy a richer broadband experience over the Next Gen NBN, at comparable prices to ADSL and cable connection. Businesses, large and small, will also benefit from the ease of access to ultra high-speed broadband, and be able to use infocomm more extensively to boost productivity and competitiveness.

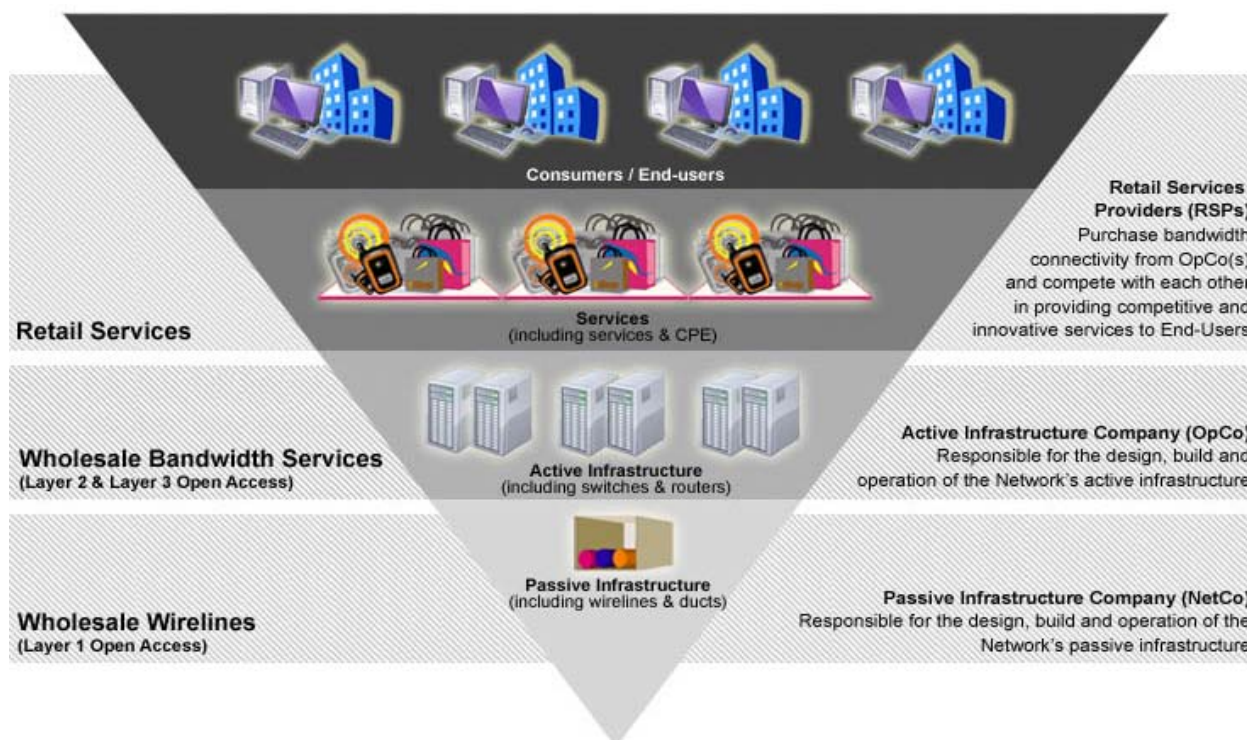
Deployed 70 per cent nationwide as of April 2011, the Next Gen NBN is on track to achieve its target of 95 per cent coverage by mid-2012. There are currently more than six service providers offering over 30 fibre-based broadband access plans, some of which are packaged with value added services such as online storage, video chat and web hosting. Users can also take up a wide variety of Next Gen services, such as Platform-as-a-Service, Storage-as-a-Service and Cloud gaming.

Effective Open Access

The Next Gen NBN comprises three distinct industry layers:

- (a) The Network Company (NetCo) will be responsible for the design, build and operation of the passive infrastructure (such as dark fibre and ducts);
- (b) The Operating Company (OpCo) will commit to offering wholesale network services over the active infrastructure comprising switches and transmission equipment; and
- (c) The Retail Service Provider (RSP) layer will sell services to end users and industry and will be a fully competitive layer, covering markets like Internet access and Voice-over-IP telephony.

For Singapore to fully benefit from the economic opportunities of Next Gen NBN, it is critical that Next Gen NBN provide effective open access to downstream operators. To achieve this, structural and operational separation will be implemented at the NetCo and OpCo layers respectively. This will spur greater vibrancy and competition at the services layer to benefit end-users.



Selection of Next Gen NBN NetCo and OpCo

The Next Gen NBN NetCo and OpCo Request-for-Proposals (RFP) were issued on 11 December 2007 and 7 April 2008 respectively. IDA announced the selection of the OpenNet consortium as the Next Gen NBN NetCo on 26 September 2008. In addition, on 3 April 2009, StarHub was chosen to establish the Next Gen NBN OpCo, which is named Nucleus Connect.

Rollout of Next Gen NBN

In its deployment, OpenNet will make use of existing ducts and other underlying infrastructure to minimise disruption to the public. Under a Universal Service Obligation, which will take effect from 2013, OpenNet is required to fulfil all reasonable requests to install fibre termination points in homes, offices and buildings.

Nucleus Connect is working together with OpenNet on a coordinated nationwide rollout of the network. Nucleus Connect commenced offering wholesale services on 31 August 2010.

Project Milestones

Key project dates are as follows:

Milestones	Timeline
Issue of the Next Gen NBN NetCo RFP	11 December 2007
Issue of the Next Gen NBN OpCo RFP	7 April 2008
Next Gen NBN NetCo RFP Submission Deadline	5 May 2008
Next Gen NBN OpCo RFP Submission Deadline	5 December 2008
Award of Next Gen NBN NetCo RFP to OpenNet	26 September 2008
Award of Next Gen OpCo RFP to Nucleus Connect	3 April 2009
Commencement of Next Gen NBN deployment into homes by OpenNet	5 August 2009
OpenNet commenced Commercial Operations	28 April 2010
Nucleus Connect launched its 2 Central Offices and published Interconnection Offer (ICO)	6 May 2010
Nucleus Connect commenced Commercial Operations	31 August 2010
Next Gen NBN coverage to 60 per cent of Singapore	End-2010
Next Gen NBN nationwide deployment	Mid-2012

Homeowners Encouraged to take up First Offer of Free Installation

Since August 2009, residents in Singapore have been receiving notification letters from OpenNet informing them about the fibre installation. OpenNet is contacting residents progressively in line with its rollout plan of Next Gen NBN. All homeowners are encouraged to

take up OpenNet's one-time free installation offer by responding to OpenNet's notification letters.

The free installation of the first 15 metres of fibre is only available the first time OpenNet offers it to the homeowner. Beyond the first 15 metres, it costs \$33 for every subsequent five metres (all prices before GST).

If the homeowner does not take up the one-time free installation offer, they would have to pay for subsequent installation:

- For apartment blocks: \$220/connection
- For landed property: \$450/connection

Residents may check on the rollout status for their homes at <http://www.opennet.com.sg> or call OpenNet's hotline at +65 6563 4273.

Residents and enterprises in Singapore can also log onto the Next Gen NBN website (<http://www.NextGenNBN.gov.sg>) to learn more about Singapore's Next Gen NBN.

Facilitating Services Delivery, Catalysing Adoption

Beyond infrastructure deployment, IDA has developed an overall strategy that focuses on catalysing the delivery and adoption, and spurring the demand for services on the Next Gen NBN. The strategy aims to achieve impactful services deployment that maximise the economic and social benefits from the new all-fibre network. An important guiding principle of the strategy will be to ensure the direct engagement and involvement of the public, private and people sectors for a comprehensive and inclusive approach.

To boost the ease of delivery and adoption of new services, IDA has:

- Facilitated the setting up of Next Gen Innovation Centres (NGICs) to enable the conceptualisation and test-bedding of innovative next generation services.
- Set up a Next Generation Services Innovation Programme (NGSIP) to quicken the deployment of impactful and meaningful Next Gen services

Next Gen Innovation Centres (NGICs):

The Next Gen Innovation Centres or NGICs are physical centres that will bring end-users from private, people and public sectors to work together with technology and service providers to create next generation services that meet end users' needs. By going to a NGIC, local companies can avoid the costs of acquiring or building their own infrastructure, to better focus on the development and delivery of next generation services that meet market needs. At these centres, RSPs can also get technical and business guidance to conceptualise, develop and prototype next generation services.

Three NGICs have been launched to date. They are Cisco's Enabling Platform Innovation Centre (EPIC), Oracle's Enterprise Fusion Innovation Centre (E-FIT) and IBM's Service Innovation Centre "The Innovation Place" Companies and RSPs with new ideas for innovative

services can tap on these NGICs for the development, and delivery of next generation infocomm solutions and services that meet market needs.

Next Generation Services Innovation Programme (NGSIP):

IDA launched the Next Generation Services Innovation Programme in the second half of 2009 as part of larger efforts to develop a thriving retail services layer that leverages the Next Gen NBN, and to support the deployment of innovative and impactful next generation broadband services for the nation. IDA will engage both local and foreign providers, enterprises and consumers to use Singapore as their centre of excellence for next generation services.

The first Call-for-Proposal (CFP) was launched in September 2009 and IDA received a total of 18 proposals from 12 RSPs and Application Service Providers. IDA has supported proposals for services such as software-as-a service, high definition videoconferencing and remote storage-as-a-service. Several of the services are now commercially available, such as Asiasoft Solution's ScaleNow product (Software-as-a-Service), SecureAge's LockCube (secure Storage-as-a-Service). A second CFP was launched in September 2010 and at the close of this, IDA received a total of 20 proposals from 18 RSPs and Application Service Providers. Three proposals were supported under the second NGSIP CFP in March 2011.

(B) NEXT GENERATION SERVICES

The Next Gen NBN will catalyse the creation of a greater range of innovative Next Gen services for end-users in homes, offices, schools and other outdoor locations. Some of the next generation services that could ride on Next Gen NBN include interactive Internet Protocol TV, telemedicine, immersive learning, multi-user real-time simulation games and real-time grid computing. The Next Gen NBN will enable Singapore to exploit new economic opportunities in the digital age and enhance the vibrancy of its infocomm sector. Here are some of the possible services that Singaporeans can enjoy in the near future.

Fast Upload and Download Speeds

With Next Gen NBN's scalable speeds of up to 1Gbps, uploading and downloading of files will be significantly faster. Users will be able to download content in minutes rather than hours while utilising several high-bandwidth applications simultaneously. Among the many applications that could arise are Software-as-a-Service (SaaS), remote data backup and file restoration, and richer online gaming experiences.

High-Definition Video Conferencing

From telecommuting to keeping in touch with loved ones, the way people communicate from home and office will be transformed with the emergence of high-definition (HD) video conferencing enabled by the Next Gen NBN. With HD video, voice and data communication running on the same broadband bandwidth, users will be able to conduct video conferences that are highly realistic, without the need for hefty investments and bulky set ups.

Leveraging on Cloud Computing

With the Next Gen NBN, businesses are also well placed to make use of technologies such as cloud computing to maintain their competitiveness. Cloud services enable enterprises and end-users to have access to huge computing power, software and data storage on a pay-as-you-use, on-demand basis. Providers of cloud services such as Software-as-a-Service and Storage-as-a-Service offer businesses an alternative to the conventional model of having to heavily invest upfront on expensive infrastructure. Businesses, especially SMEs, can save by tapping on these services without having to incur heavy upfront capital costs in equipment and software licenses, and yet enjoy the flexibility of scaling the applications to support the business growth.

To date, there are more than six service providers offering over 30 fibre-based broadband access plans for both business and residential users, some of which are packaged with value added services such as online storage, video chat and web hosting. Users are encouraged to approach their service providers to find out which plan best suit their needs.

Infocomm Experience Centre

To help consumers and businesses better appreciate the benefits of the Next Gen NBN, IDA has launched the Infocomm Experience Centre (iExperience) to showcase the possibilities and benefits of Next Gen NBN and Next Generation services.

Located at the heart of the city at Esplanade Xchange, the interactive and engaging exhibits are designed to educate visitors via hands-on experience the possibilities presented by Next Gen NBN, including possible Next Gen services that will harness Next Gen technologies to transform our daily lives. It is open from 10am to 8pm daily and admission is free. For more information, visit: www.iexperience.sg

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