

# Building Next Generation Broadband Network (NGBN)

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## Content

- **The value of NGBN**
- **NGBN Challenges**
- **Case Study**

## NGBN is the essential national assets



**"I believe that America should lead the world in broadband penetration"**

**Barack Obama, USA President**



**"Next generation broadband will be critical enabler to build new capabilities and transform our industries"**

**Lee Hsien Loong, PM Singapore**



**"Universal Broadband Access is crucial for Britain's economy"**

**Gordon Brown, UK PM**



**"Just announced biggest ever investment in Australian broadband-really exciting, infrastructure for the future"**

**Kevin Rudd, Australian PM**



**To achieve the target of Vision 2020, economy of Malaysia is required to transform ...**

**DATO' SRI MOHD NAJIB TUN ABDUL RAZAK  
Prime Minister of Malaysia**



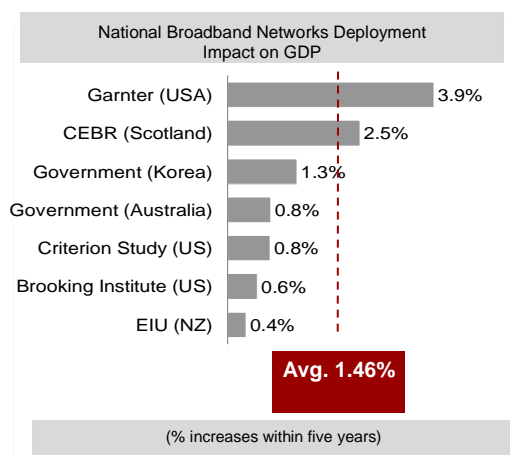
**Appetite for bandwidth is unlimited. It leads to two consequences**

- (1) Fixed network remains competitive
- (2) Strong growth in new services

**Lars Nybergu, President and CEO of TeliaSonera**

## NGBN is valuable for the economy, society and industry.

Government's investment accelerates for the GDP contribution, competitiveness, job creation and social benefit



Source: Booz & Company analysis

### Socio-Economic Benefits







- Innovation
- Labor Productivity
- National Competitiveness
- Resources Utilization
- Social Inclusion
- Lifestyle

•For every **1%** increase in BB penetration, employment rate increased **0.2-0.3%**;

•For every **\$1** Investment in BB, the whole society got **10** times return

•BB helped the manufacturing sector increase **5%**, services sector increase **10%** in labor productivity

## Government strategies to support NGBN

NGBN projects	 Singapore	 Malaysia	 Australia	 Japan	 UK	 Qatar
Investment	S\$1bn	US\$0,7 bn	A\$43 bn	US\$1 bn	€2.1 bn	~QAR1 bn
Gov. Strategies	iN2015	HSBB	NBN	U-Japan	NGA	Q.NGN
Organization	OpenNet (NetCo) Nucleus Connect (OpCo)	TM	NBNCo	NTT	BT	Q.NGN Co
	<b>State Investment</b>	<b>State Investment</b>	<b>State major owner</b>	<b>State Investment</b>	<b>State Subsidy</b>	<b>State major owner</b>

## Three modes of NGBN construction and operation

	State subsidy mode	State major owner mode	Third party construction mode
<b>Government</b>	<ul style="list-style-type: none"> <li>Setup stratagem target</li> <li>Provide policy support</li> <li>Subsection financing allowance</li> </ul>	<ul style="list-style-type: none"> <li>Setup stratagem target</li> <li>Share found public-operated corporation and construct network</li> <li>Insure open access</li> <li>Hold network assets</li> </ul>	<ul style="list-style-type: none"> <li>Setup stratagem target</li> <li>Supervise third party operation</li> <li>Insure open access</li> <li>Provide part of capital support</li> </ul>
<b>Operator</b>	<ul style="list-style-type: none"> <li>Construct network</li> <li>Service innovation and user management</li> <li>Hold network assets</li> </ul>	<ul style="list-style-type: none"> <li>Be absorbed in service innovation and user management</li> </ul>	<ul style="list-style-type: none"> <li>Be absorbed in service innovation and user management</li> </ul>
<b>Third Party</b>	—	—	<ul style="list-style-type: none"> <li>Construct network, bandwidth wholesale</li> <li>Hold network assets</li> </ul>

**Sample:**

- Japan u-Japan plan
- Malaysia HSBB project
- UK BT NGA project

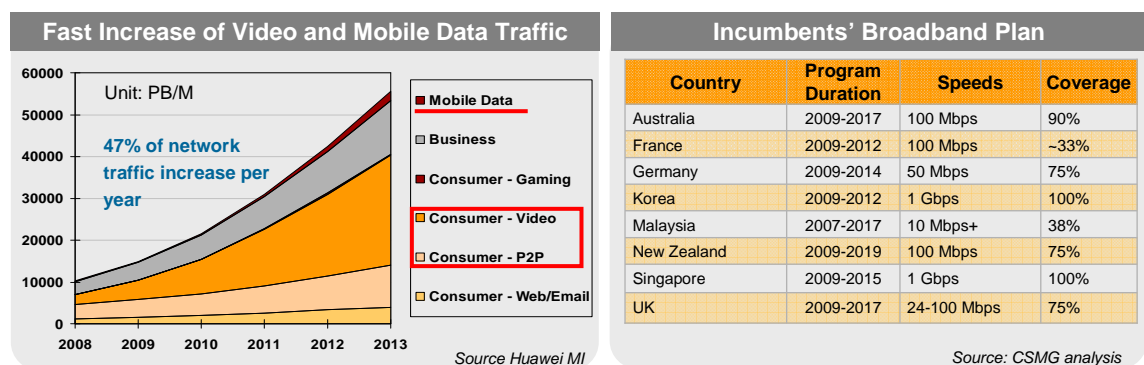
- Australia NBN project
- Qatar Q.NGN project

- Singapore NGNBN project

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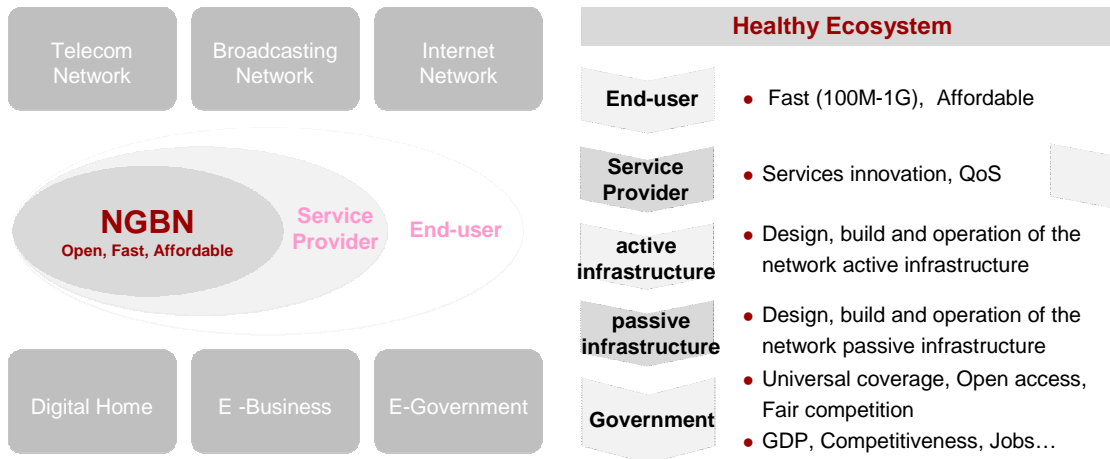
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## NGBN is Coming

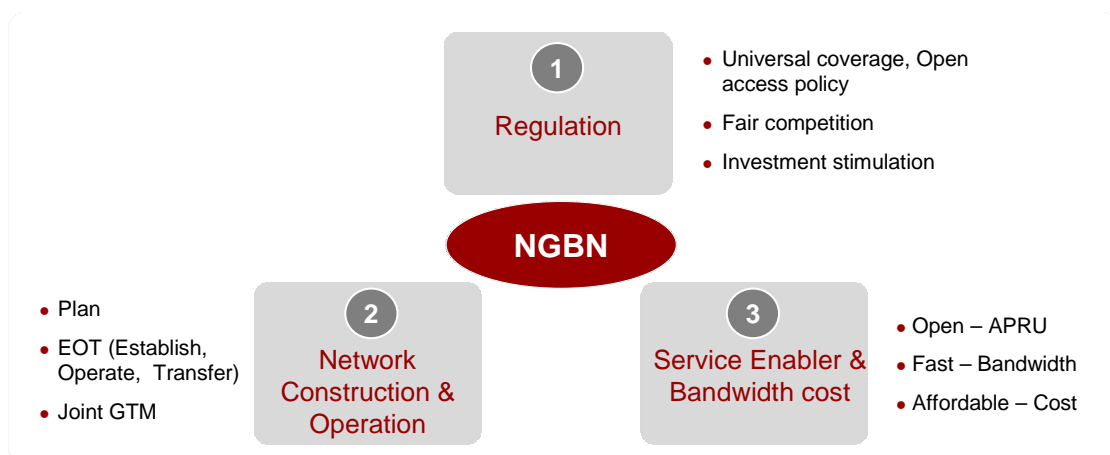


- Video and P2P are major drives of metro and backbone expansion.
- MBB traffic goes up to 66 times in next 5 years, mobile operator also face similar issues
- 20M~100M ultra broadband era is coming in next 3 years.

## Healthy ecosystem realizes the whole NGBN picture



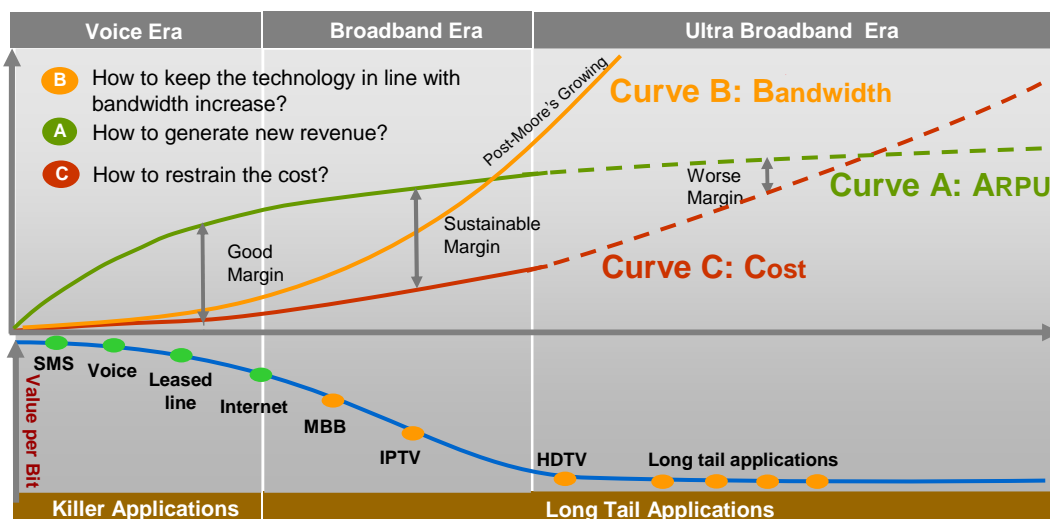
## Key elements of NGBN



# Regulation – NGBN's new challenges

Diversified Net Neutral models	Regulator's considerations	Huawei's Contribution
<p>Retail Service Providers</p> <p>Active Network</p> <p>Passive Network</p> <p>Singapore UK Italy</p>	<ul style="list-style-type: none"> <li>• Infrastructure separation</li> <li>• Open access method (SLU, LLU, Bit stream, Duct sharing...)</li> <li>• Wholesale pricing</li> <li>• Rates of Investment Return</li> <li>• Technology evolution ...</li> </ul> <p><b>How to ensure fair competition and stimulate investment?</b></p>	<ul style="list-style-type: none"> <li> Define and deploy L2 bitstream solution</li> <li> Synchronize fiber open solution with schedule</li> <li> Define physical FTTH open solution</li> <li> Define L2 FTTx open solution</li> </ul>

# "Scissors Gap" is major challenge



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## Case Study: Singapore NGBN Target & Plan



Dr. Lee Boon Yang : Minister of Information, communication and the Arts.

“ New business model, solution and innovation of new service will make Singapore more competitive in international environment, promote economic development and remove the digital divide.”

### NGNBN Target

#### Target Market

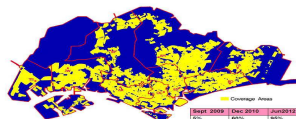
1. Residential 50M -1G
2. Enterprise 100M -1G
3. Public

#### Coverage Plan

Sep 09	Dec 10	Jun 12
5%	60%	95%

#### User development plan by 2015

Residential: 330'000  
Commercial: 80'000



### \$S1bn support from Government

Retail Service Providers	RSP
Active Network	OpCo S\$250m
Passive Network	NetCo S\$750m

Source: IDA Singapore

## NGBN spurs industry development



### Objectives of Singapore iN2015

- #1 in the world in infocomm value adding to economy & Society
- 2x increase in Infocomm value to S\$26bn  
80,000 additional Jobs
- 3x increase in Infocomm export to S\$6bn  
90% home using BB  
100% PC Penetration



### Objectives of China FTTX in 2012

- >80M fiber-optic broadband port
- 8M Bandwidth (bps) in city
- 2M Bandwidth (bps) in rural area
- 100M Bandwidth (bps) in business building
- >150B Investment in FTTX (RMB)
- >50M New added BB users

# Thank you

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