Malaysia’s Broadband Initiatives and Future Plans

Economic and Social Commission for Asia and the Pacific
Expert Consultation on the Asian Information Superhighway and Regional Connectivity

24 & 25 September 2013, Manila, Philippines
CONTENT

1. Background
2. National Broadband initiatives
3. High Speed Broadband Project
4. Issues and Challenges
5. Moving Forward
MALAYSIA

29.6 million Population (Q1, 2013)

6,873,000 Household (Q1, 2013)

937.532 billion GDP (Current prices) (Q1, 2013)

749.070 billion GDP (Constant Prices) (Q1, 2013)
National Broadband Plan

- Formation of Cabinet Committee on Broadband (CCB)
  - Broadband Implementation Strategy
- Launching of HSBB services and National Broadband Initiatives (NBI)
- Economic Transformation Program (ETP) and NKEA CCI

MyICMS 886
High speed broadband as the catalyst for broadband development

HSBB PPP Agreement between Government and Telekom Malaysia

ICT GROWTH MOMENTUM

National Strategy Development

2004  2006  2007  2008  March 2010

Implementation & Transformation

Governance and Monitoring
# NATIONAL BROADBAND IMPLEMENTATION STRATEGY

## Supply

<table>
<thead>
<tr>
<th>1</th>
<th>Broadband for General Population (BBGP)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Incentives and facility-based competition based on major technologies (xDSL, WiMAX and 3G/HSDPA)</td>
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<tr>
<td></td>
<td>USP programs roll out (collective and individual access)</td>
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<tr>
<td></td>
<td>Average speed of 2Mbps</td>
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<tr>
<td></td>
<td>Target capitals, industrial areas and development regions</td>
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<tr>
<td></td>
<td>Public Private Partnership (PPP) arrangement for infrastructure roll out</td>
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<tr>
<td></td>
<td>Speed exceeds 10Mbps</td>
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## Demand

<table>
<thead>
<tr>
<th>1</th>
<th>Awareness</th>
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<tbody>
<tr>
<td></td>
<td>Continuous government and private sector awareness initiatives</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>2</th>
<th>Attractiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Enhance and promote e-government, e-education and e-commerce initiatives</td>
</tr>
<tr>
<td></td>
<td>Improve and align online content strategies and activities</td>
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<tr>
<td></td>
<td>Leverage on development of traditional information resources</td>
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<table>
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<tr>
<th>3</th>
<th>Affordability</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Develop initiatives to reduce/improve broadband access costs (PC, subscription etc)</td>
</tr>
<tr>
<td></td>
<td>Widen community access facilities and deployment</td>
</tr>
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THE BROADBAND INDUSTRY IN MALAYSIA IS HIGHLY COMPETITIVE
WITH CONTINUOUS INVESTMENT BY MULTIPLE PLAYERS

Potential industry structure

<table>
<thead>
<tr>
<th>Content and Applications</th>
<th>Access Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content aggregators</td>
<td>WiMax</td>
</tr>
<tr>
<td>Broadcast TV</td>
<td></td>
</tr>
<tr>
<td>Content Developers</td>
<td></td>
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<tr>
<td>Games</td>
<td></td>
</tr>
<tr>
<td>3G/HSDPA</td>
<td></td>
</tr>
<tr>
<td>ADSL (incl. resellers)</td>
<td></td>
</tr>
<tr>
<td>HSBB (incl. bitstream HSBB providers*)</td>
<td></td>
</tr>
<tr>
<td>mitvnetworks</td>
<td></td>
</tr>
<tr>
<td>maxis</td>
<td></td>
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<tr>
<td>TIME</td>
<td></td>
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<tr>
<td>TIME</td>
<td></td>
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<tr>
<td>Packet One</td>
<td></td>
</tr>
<tr>
<td>bizsurf</td>
<td></td>
</tr>
<tr>
<td>REDtone</td>
<td></td>
</tr>
<tr>
<td>Asiaspace Dotcom</td>
<td></td>
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Source: TM analysis
USP Initiatives

1Malaysia Internet Centres (PI1M)
• Launched on 24 March 2010
• Objective: To drive the national broadband penetration rate
• Total Projects Value: more than RM2bil

1,005,000
Distributed
Netbook 1Malaysia

99
Completed
Community Broadband Libraries (CBL)

339
Completed

4,210
completed
Kampung Tanpa Wayar (KTW)
(Wireless villages)

824 towers
completed
Public Cellular Time 3

Data as of Q2 2013
Demand Stimulation Programs

Awareness & Promotion
- Broadband Carnival
- Broadband & ICT Training (Basic computer, content development, hardware & software maintenance & troubleshooting)
- Promotion through mass media

Affordability
- 1Malaysia Netbook Distribution
- Introduction of affordable broadband packages
- NKEA CCI EPP Smart Network

Attractiveness
- Initiative under Economic Transformation Programme (NKEA) Communications Content & Infrastructure: e-Gov, e-learning, e-health, Track and Trace and connecting 1MY
- Portal My1Content to encourage content development and commercialization
- Creative content development by MDeC /FINAS
INCENTIVES FROM GOVERNMENT TO PROMOTE GROWTH

• Investment Allowance Incentives On Capital Expenditure for Broadband Last Mile Service Providers

• Exemption for Sales tax and Import Duty for products not locally manufactured

• Tax Rebate for Individual Broadband Subscription
CHRONOLOGY ON HSBB PROJECT

1. Broadband study by McKinsey
   Q1 – Q2 2007

2. Formation of Cabinet Committee on Broadband (CCB)
   Q3 2007

3. CCB and Cabinet decision on the implementation of HSBB Project
   Q1 – Q2 2008

4. Signing of HSBB Agreement
   16 September 2008

5. Start of HSBB roll out
   Q4 2008

6. Completion of 1.3 million premises passed
   October 2012
CONNECTING MALAYSIA TO HIGH SPEED BROADBAND

Total Project Cost
- Total project cost RM11.3 billion
- Government funding of RM2.4 billion
- TM funding of RM8.9 billion

Project Scope
- end-to-end (access, core and international)
- 1.3 million premises passed by 2012
- speed 10Mbps and above
  - Project timeline 10 years (2008 – 2018)
  - Coverage: Inner Klang Valley, Industrial areas and Iskandar Malaysia)

HSBB PROJECT
- High speed connectivity to Government Offices and IPTA/IPTS
- Broadband package
- Telecenters for specific group
- Development of content platform
- Promotion and awareness program
- Revenue sharing

Regulatory Framework
- Services provided will be based on fair and equitable access
- Open access whereby other service providers can use the HSBB network

TM Undertakings

Revenue Sharing:
- Government will received fix annual amount of RM 50mil. per year starting 2014 until 2017.
- Government also received variable amount starting 2018 until 2025 based on the number subscription achieved by TM
HSBB PROJECT – ROLES AND RESPONSIBILITIES

KPKK
• Provide HSBB fund of RM2.4 billion
• Oversee the planning and implementation of the HSBB Project
• Responsible for the HSBB agreement between Government and TM
• Review and propose programs at the higher level stage

Public-Private Partnership (PPP)

TM
• Roll out HSBB Project as per the agreement
• Provide open access network for other service providers
• Provide relevant information for claim verification

MCMC
• Monitor the implementation of HSBB project as the agreement
• Responsible for HSBB claim verification for TM to get the government fund on a quarterly basis
The ‘last mile’ investment, connecting homes and businesses to the ‘broadband superhighway’, allowing fast speeds over new fibre connections.

A nationwide next-generation network (NGN), acting as a ‘broadband superhighway’ and connecting all of Malaysia.

The link between Malaysia and the world – joining the ‘broadband superhighway’ with other countries through a network of underwater submarine cables.
High speed broadband access
- high speed broadband connectivity to end user through multiple access technology FTTH, ETTH and VDSL2+
- high bandwidth that can support multiple application such as IPTV and video on demand

HSBB Services
- HSBB provide open access network to the other service providers
- Other services provider could use the HSBB network to provide better services to their customer
- HSBB services offered: HSBB Transmission (HSBB-T), HSBB Access (HSBA) and HSBB Connection (HSBB-C)
Many additional applications not yet foreseen.

- Introduction of new high bandwidth applications and explosion of traffic leading to a need for high capacity.
- Main driver for data traffic growth is video and with a disappearance of services distinction between networks.

Bandwidth

E-mail

Browsing

Games

IPTV

UGC

Telecommuting

Bandwidth

HSBB

~2 Mbps

BBGP

Advanced Education

Multimedia post production

E-Health

Videoconference

File sharing

UGC

E-Commerce

E-Govt

facebook

HD Video

E-Health

Telecommuting

Videoconference

File sharing

UGC

E-Commerce

E-Govt

facebook

HD Video

E-Health

Telecommuting

Videoconference

File sharing

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E-Commerce

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E-Health

Telecommuting

Videoconference

File sharing

UGC

E-Commerce

E-Govt
HSBB IMPROVE QUALITY OF SERVICE, BUSINESS AND CONSUMER EXPERIENCES

Consumer examples

**Music, MP3 file**
- File size ~5 MB
- BB: 1.33 minutes, HSBB: 0.33 minutes
- BB: 0.03 Mbps, HSBB: 0.01 Mbps

**DVD-quality movie**
- File size ~2200 MB
- BB: 573 minutes, HSBB: 147 minutes
- BB: 15 minutes, HSBB: 3 minutes

Business examples

**Email with 10 MB attachment**
- File size ~10 MB
- BB: 2.67 minutes, HSBB: 0.67 minutes
- BB: 0.07 Mbps, HSBB: 0.01 Mbps

**Animation post production file**
- File size ~50,000 MB*
- BB: ~9 days, HSBB: ~2 days
- BB: 333 minutes, HSBB: 67 minutes
HSBB IMPROVED GOVERNMENT SERVICES

Infrastructure
- High broadband connectivity to the identified government offices
- High speed broadband connectivity for identified IPTA and IPTS

Services
- Improve the government administration related to document submission, payments and communications
- Improve e-government services efficiency
# HSBB DRIVE LOCAL CONTENT DEVELOPMENT AND GROWTH

<table>
<thead>
<tr>
<th>Development of content platform under TM undertaking</th>
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<tbody>
<tr>
<td>- Digital Marketplace that will allow content sellers (contentpreneurs) and buyers (domestic &amp; global) to connect while providing them a range of content-related managed services</td>
</tr>
<tr>
<td>- Platform for local content to sell their product</td>
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<table>
<thead>
<tr>
<th>Enhancing consumer experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Faster download and upload of high bandwidth content</td>
</tr>
<tr>
<td>- Better experience encourages future transaction and drives industry revenue growth</td>
</tr>
<tr>
<td>- Booming industry growth will drive higher number of local content developers</td>
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<table>
<thead>
<tr>
<th>Improve developer productivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Facilitate knowledge exchange with international developer community through video conferencing, file sharing, etc</td>
</tr>
<tr>
<td>- Faster upload of content</td>
</tr>
</tbody>
</table>
HSBB IMPLEMENTATION FOR FTTH NETWORK

External Infrastructure
- Pole
- Underground
  - Fibre on the surface trunking
  - Fiber in conceal trunking
  - Fibre over the ceiling

Internal Infrastructure

FTTH Installation

Cabinet
- Aerial DP
- Drop Fibre

FTB
- D/S Fibre

Pedestal DP

Surface trunking

Inlet hole
HSBB IMPLEMENTATION FOR VDSL NETWORK

Unit 10
Floor 10
Phone socket
Phone socket
Phone socket
Phone socket

Horizontal Cable
Phone socket
Phone socket
Phone socket
Phone socket

Riser

Floor Copper DP
Floor 2
Phone socket
Phone socket
Phone socket

Floor 1
Phone socket
Phone socket
Phone socket

SDF Room
VDSL
MDF

Copper cable

Fiber cable

TM's equipment
HSBB NETWORK ELEMENT INSIDE CUSTOMER PREMISES
VERIFICATION PROCESS

- **Claim submission**
  - TM submit all the completed project files each quarter within the timeframe

- **Verification**
  - Independent consultant will conduct verification exercise based on sampling method
  - Present the outcome of the verification to the Technical Committee for approval

- **Technical Committee**
  - Consist representatives from Government, regulator and service provider

- **Disbursement of claim**
  - Government will disburse the claim within the agreed timeframe based on approval from Technical Committee
### Sampling Method for HSBB Verification

<table>
<thead>
<tr>
<th>Sampling Rules</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>50% of claim amounts</td>
<td>The samples must amounting to 50% of total claim amounts</td>
</tr>
<tr>
<td>Sample Size</td>
<td>With a confidence level of 95% and confidence interval of 4.2; the number of sample files required was calculated using the formula below: $ss = \frac{Z^2 \cdot (p) \cdot (1-p)}{C^2}$</td>
</tr>
</tbody>
</table>

- $Z = Z$ value (e.g. 1.96 for 95% of confidence level)
- $p =$ percentage picking a choice expressed as decimal (.5 used sample size needed)
- $C =$ Confidence interval expressed by decimal (e.g. .04 =±4)

[http://www.surveysystem.com](http://www.surveysystem.com)
## Work Profile

- Provide summary of the work conducted, project description, project manager, etc

## Network diagram

- Schematic overview of areas covered under rollout

## Relevant form and document

- Equipment delivery details, BOQ, certificate of acceptance, documentation of all purchases conducted, invoices, issuance of materials, requisition of materials

## Plans and maps

- Drawing, diagrams, plans and maps related to the project

## Expenses report

- Documentation of all expenses incurred for the project

## Photos

- Photographs of the ongoing and completed works
HSBB ROLL OUT STATUS

- **98** HSBB Exchanges
- **1,447,614** Ports Installed
- **628,310** HSBB subscribers
- **19** Companies signed up for HSBB Transmission with **249 links (90 Gbps)**
- **4** Major operators signed up for HSBB Access with > **80,000 ports committed**

Fast Subscriptions Growth
>500k subscribers within 3 Years

High Speed Internet
From 5Mbps to 50 Mbps

2010 2011 2012 Jul-13

HSBB Coverage Area
HSBB PROJECT UNDERTAKING

Government Offices
Almost 6000 HSBB port provided for government offices connectivity

IPTA/ IPTS
Enable 83 Higher Education Institutions with High Speed network

Pusat Siber Rakan Muda
27 Internet centers built especially for the youth

Jobs Creations
project tied with 1289 local vendors and 26 foreign vendors

ICT Training Programme
150,000 certificates have been awarded

Local Content Platform
development of a Content Service Delivery Platform, 240 Contentpreneur registered

Broadband Packages
100,000 netbook inclusive with broadband package

Bandwidth Capacity Improvement
Bandwidth Capacity from 682Gbps to 1.74Tbps
New Cable Landing System –Cahaya Malaysia
HSBB HAS RECEIVED RECOGNITION FROM VARIOUS INTERNATIONAL BODY

Amongst the **fastest fibre rollout** in the world — End-to-end infra in 18 months plus IPTV service in 6 months.

**McKinsey & Co**

We need to establish a **world-class broadband infrastructure** to compete with other nations around the world, like Malaysia and other Asian nations.

**Frank Mather**  
European Commission DG

TM’s choice of architecture ... made it one of the **fastest and lowest cost HSBB deployments** in the world

**BT Telconsult**

Tremendous take up – **25,000 new customers a month** and growing

Malaysia is the **fastest growing FTTH market** in South East Asia and is a success story for FTTH globally

**Frank Jaffer**  
President FTTH Council AP
### Snapshot of Malaysian Broadband Landscape

<table>
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<tr>
<th>Metric</th>
<th>Value</th>
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<tbody>
<tr>
<td>Household Broadband Penetration</td>
<td>67.1%</td>
</tr>
<tr>
<td>Cellular Penetration per 100 inhabitants</td>
<td>143.4%</td>
</tr>
<tr>
<td>Total Broadband Subscriptions</td>
<td>6.2 million</td>
</tr>
<tr>
<td>Mobile Broadband Subscriptions</td>
<td>3.2 million</td>
</tr>
<tr>
<td>3G Subscriptions</td>
<td>14.6 million</td>
</tr>
<tr>
<td>Cellular Subscriptions</td>
<td>42.4 million</td>
</tr>
<tr>
<td>Cellular Coverage at Populated Areas</td>
<td>96%</td>
</tr>
<tr>
<td>3G Coverage at Populated Areas</td>
<td>83%</td>
</tr>
<tr>
<td>Internet Users</td>
<td>19 million</td>
</tr>
</tbody>
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![Map of Malaysia with broadband coverage](image)

- **ADSL**: Yellow
- **3G**: Red
- **2G**: Green
- **WiMAX**: Blue
- **Unifi**: Turquoise

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*Source: SKMM MCMC*
DEVELOPMENT OF INTERNATIONAL AND DOMESTIC NETWORK FOR BETTER CONNECTIVITY

*Upgraded additional capacity to 1,062.1 Gbps through HSBB project
GOVERNMENT INVESTMENT FOR INTERNET EXCHANGES
- TO ENCOURAGE DOMESTIC PEERING FOR MORE EFFICIENT TRAFFIC HANDLING AND IMPROVED QUALITY OF SERVICE
ISSUES AND CHALLENGES

End user premises
- objection from building owner to allow fiber installation
- additional fees by building owner
- Skilled workers for FTTH installation

Take Up
- lack of awareness on benefits of broadband
- “Mismatch” of supply target and demand areas

Project Contribution
- Measurement of socioeconomic impact

Fiber rollout
- Non-standard guidelines by local authority

Approval process
- High processing fees and charges
- public complaints on radiation
- Long approval process
MOVING FORWARD

- Expansion of broadband coverage throughout the country
- Extensive promotion and awareness activities on how broadband can transform lives
- Step up local content and application development
- Bundled services
- Expansion of fiber optic backhaul connectivity nationwide and new USP projects
THANK YOU

Malaysian Communications and Multimedia Commission
MCMC Contact Information:
General Line: +603 8688 8000
Facsimile: +603 8688 1000

www.skmm.gov.my