Digital Bridges: The Case of Malaysia

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Digital Bridges Symposium

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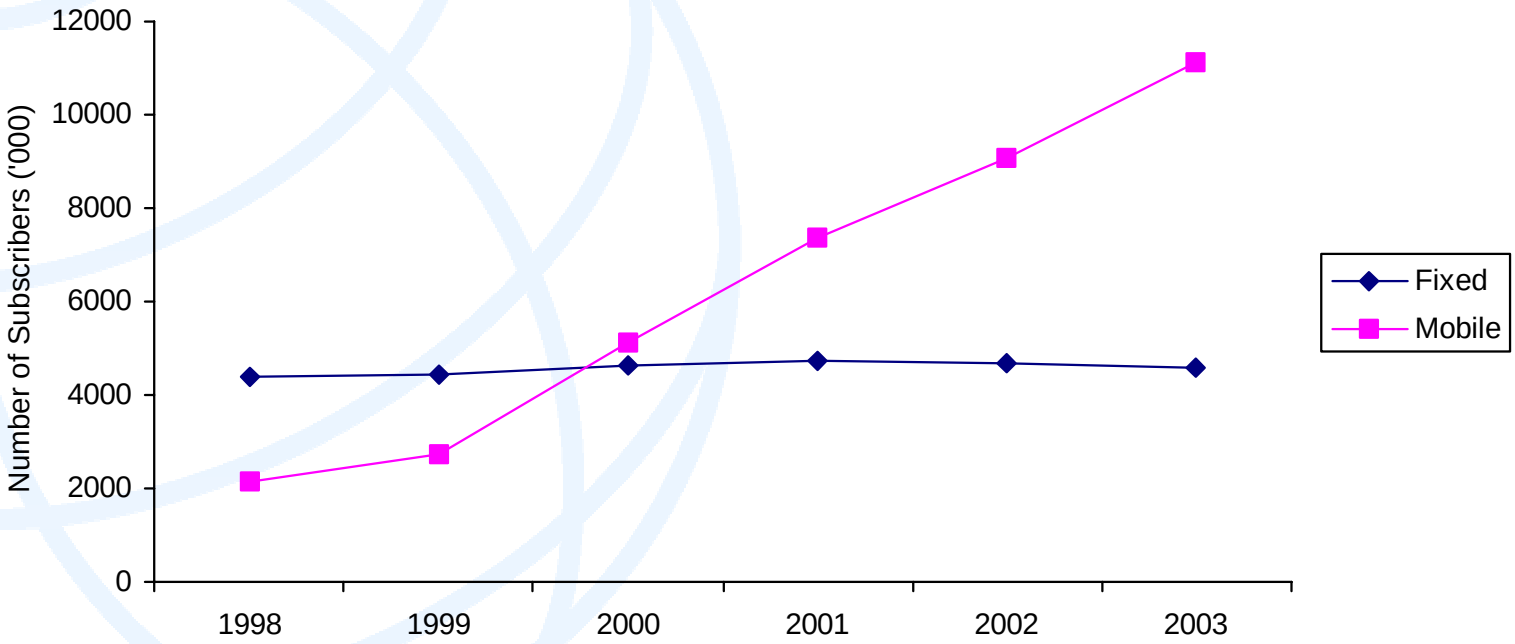
Country Overview

- Landmass: 330’000sq km divided into 2 geographical regions
- 13 states divided into 136 administrative districts
- Population: 25.5 million
- Population density: 74 inhabitants per sq km
- Urbanization: 28.1%
- GNI: US$3’450

Basic Indicators

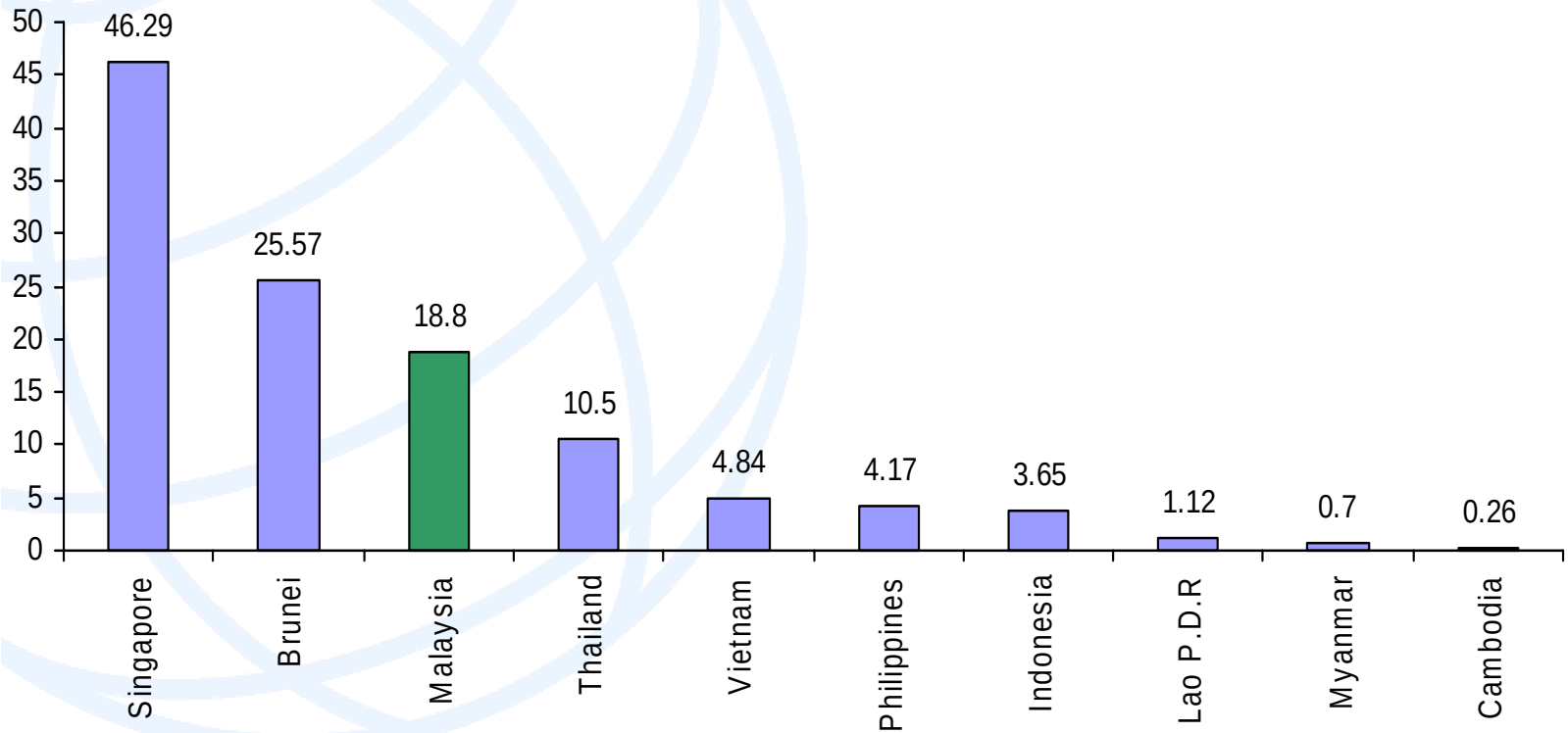
Fixed vs. Mobile



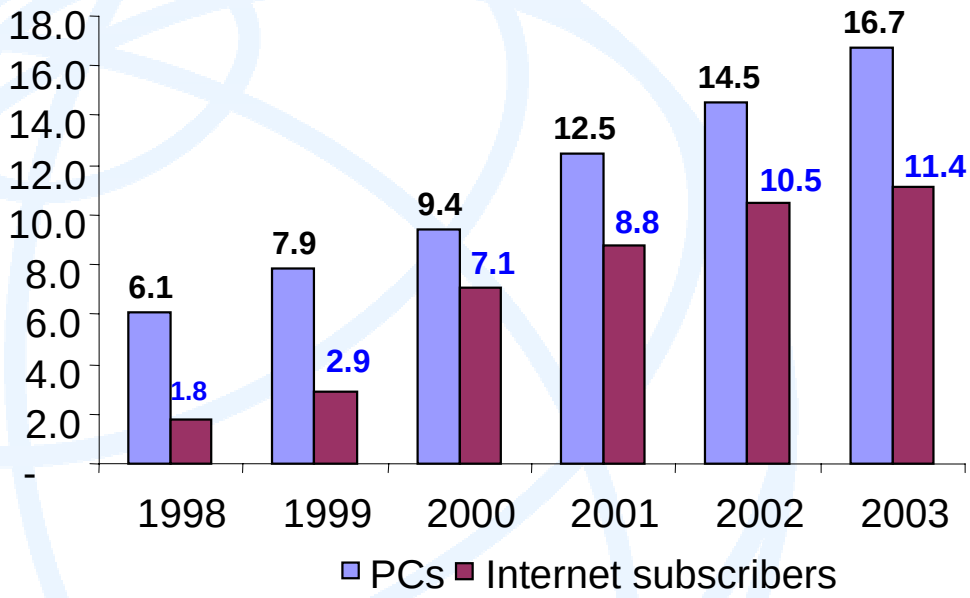
- Fixed line penetration of 18.1 lines per 100 inhabitants
- Mobile penetration of 43.9 per subscribers 100 inhabitants

Basic Indicators

Fixed line penetration, selected ASEAN countries



Basic Indicators

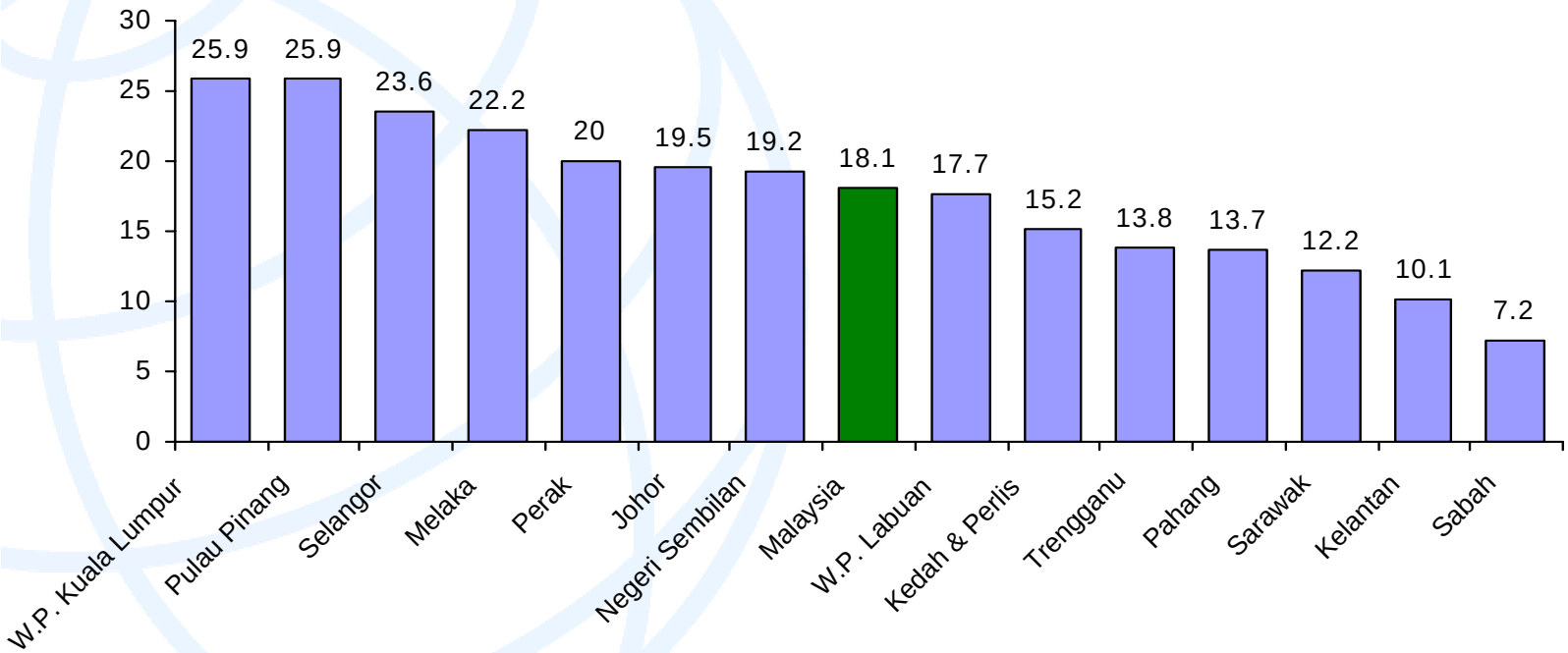


- Dial-up penetration of 11.4 subscribers per 100 inhabitants
- PC penetration 16.7 owners per 100 inhabitants

- Broadband subscribers: 20’000 in 2002, 110’247 in 2003
- Broadband penetration: 0.44 subscribers per 100 inhabitants or 1.98 subscribers per 100 households
- 98% of broadband connections are over xDSL

The Digital Divide

Fixed line penetration by state



- Distribution of fixed lines have followed population density and economic development closely

The Digital Divide

No. of underserved districts by state

State	No. of underserved districts
Sarawak	26
Sabah	22
Kelantan	9
Pahang	8
Kedah	6
Selangor	4
Terengganu	6
Johor	3
Melaka	2
Perak	2
Negeri Sembilan	1
Total	89

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Income and Affordability

Mean monthly household income in Malaysia by strata, 1999

Mean monthly household income (RM)	Urban	Rural	Overall
Top 20 per cent of households	7580	4125	6268
Middle 40 per cent of households	2844	1577	2204
Bottom 40 per cent of households	1155	670	865
Urban: Rural disparity ratio	1.81		

Source: EPU

- Mean monthly rural household income: US$415
- Basic telecommunications charges
  - Monthly line rental at US$6.50; local per minute call at US$0.01; dial-up Internet access at US$0.01 per minute

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Key Efforts

- Government
  - Regulation
  - Government led initiatives
- Private sector
  - Commercial expansion
  - Corporate responsibility

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Regulation

- Universal Service Provision (USP) Fund
  - Oct 2002 USP fund regulations gazetted
    - Proceeds of fund used for reimbursement of CAPEX & OPEX incurred by designated provider for 5 years
    - Designation of provider(s) by tender
  - Flexible requirements
    - Technology neutral
    - Discretion to select sites and timeframe
  - Focus on providing basic telecommunications services on an individual or collective basis depending on district
    - Voice and low data rate services such as fax and dial-up Internet

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Regulation (con't)

- Universal Service Provision (USP) Fund (con't)
  - 2003 pilot phase – 3 districts (2 providers)
  - 2004 second phase – 86 districts (16 providers)
    - RM8 mil (USD 2.1 mil) for CAPEX and RM3 (USD 0.8 mil) for OPEX over 5 years per district
- Licensing
  - Technology-neutral
  - Network Facilities Provider (Last Mile) license
- Spectrum
  - Spectrum refarming for wireless broadband
  - Affordable spectrum e.g. 3G spectrum awards
    - RM30 mil (USD 7.9 mil) payable in installments over 15 years

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Government Initiatives

- Promotion of PC affordability
- Rural Internet Centers Programme (RIC)
  - Use of post offices as RICs for Internet access & training
- USP programme
  - Connecting rural schools, libraries & clinics to the Internet via high-speed connection
- Community Communications Development Programme (CCDP) or “kedai.com”
  - Leveraging on local communities and entrepreneurs
- SchoolNet
  - Connecting 10’000 schools nationwide

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Commercial Expansion & Corporate Responsibility

- Fixed lines
  - Expansion by incumbent Telekom Malaysia (TM)
  - More than 270’000 WLL lines installed, 80% in rural areas
- Mobile
  - Upgrading of urban network to next generation
- Broadband
  - DSL upgrading in urban areas
  - Wireless broadband deployment in urban areas
- Corporate responsibility programmes
  - E.g. Maxis-Shell, TM Net Cyberschool Community Project, etc.

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Technology

- Fibre optic cables
  - Nationwide network with large capacity but linking mostly major towns in Peninsula Malaysia
- Satellite
  - VSAT
    - e.g. VSAT system used in 20 sites for USP pilot projects in Sabah and Sarawak (approx. CAPEX of USD 263’000 and annual OPEX of USD 5’200 per site)
    - Used also in CCDP (kedai.com) to provide high-speed Internet connectivity (128Mbit/s uplink and 384Mbit/s downlink)
  - GMPCS
    - Use of GMPCS handsets for collective access in 4 districts under USP fund programme

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Technology (con't)

- Fixed wireless
  - FDMA
    - Deployment of FDMA WLL by TM between 1999 – 2001
    - 3 locations, 200 customers. Per line cost of approx. USD 920.
  - CDMA
    - Deployment of CDMA WLL (IS-95) by TM in Sarawak on September 2001
    - More than 270'000 CDMA WLL lines added in 2002-2003
    - Operation of 3 dedicated CMDA WLL exchanges
    - Subscriber unit cost of approx. USD 315
  - Fixed GSM
    - Use of fixed GSM by Maxis in Kedah under USP fund programme in 2003
    - Per line cost of approx USD 1'500

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Technology (con't)

- Fixed wireless (con't)
  - OFDM
    - Ongoing deployment of OFDM based system by Time dotCom to connect 14 rural districts in Sarawak
    - Up to 3Mbit/s over 8km but network limited by VSAT backhaul capacity of 256Kbit/s
    - Uses VoIP for voice services over the network
  - Others
    - Planned deployment by TM using proprietary systems developed by CapeWireless
- Copper cable
  - Use as drop wire to connect remote to subscriber units

Conclusion

Observations and remarks

- Need for more private sector led initiatives
  - e.g. by non-telecommunications industries such as mineral extraction, agriculture, etc.
- Focus on basic telecommunications services
  - USP fund programme requires only the provision of basic telecom services. Upgrade path to higher speeds with certain technologies may be difficult
- Low broadband penetration
  - New national broadband plan unveiled
  - Move to include broadband requirements in USP programme

Conclusion

Observations and remarks (con't)

- Continued rural network expansion by incumbent
- Use of transparent, competitive and technology neutral USP programme
  - Leverages on industry expertise and resources
- Low spectrum fees
  - Particularly for 3G spectrum
- Bundling capacity building with high-speed Internet access in government initiatives
- Strong government leadership and support
  - Bridging the digital divide is a clear national priority

Thank You

http://www.itu.int/digitalbridges