

Broadband's Role in Economic Development:
Focus on the User Community in Hong Kong

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The Demand for Broadband

- Fast Internet, Web browsing, file downloading, etc
- Fast data services and file transfers, mostly for the business market
- Video-conferencing, mostly for the business market
- Pay TV, video-on-demand and other entertainment services such as gaming
- Home networking functions, such as remote monitoring and control
- E-commerce functions tailored to business and consumer markets

Household Penetration of PCs

Homes: with PCs with PCs connected to Internet

2000	49.7% (64.2%)*	36.4%
2001	60.6%	48.7%
2002	62.1% (73.3%)*	52.2%
•	67.5%	60.0%

– **2003 Dialup = 1.08m**

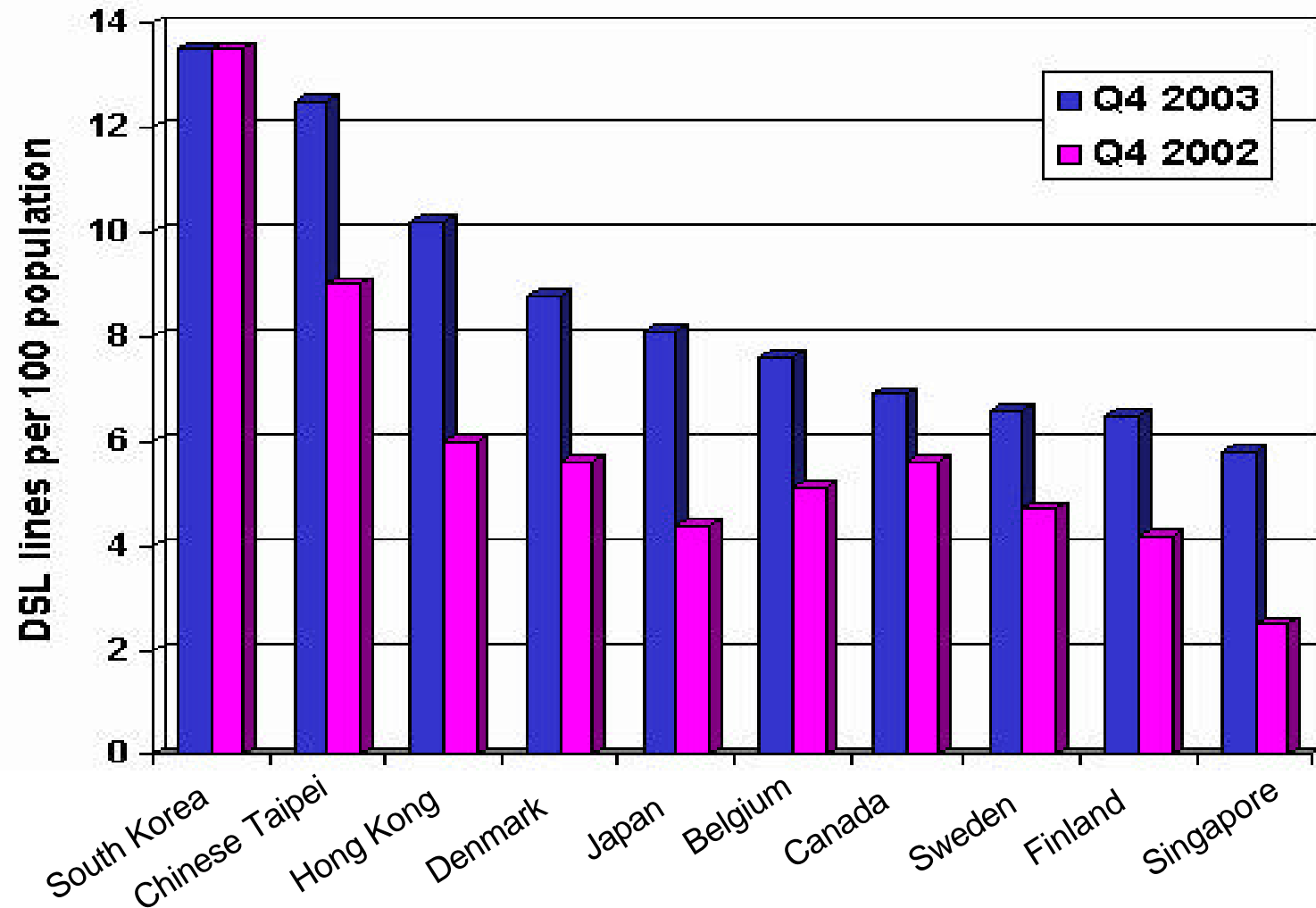
– **2003 Broadband = 1.23m**

Source: Thematic Household Survey, Report 15, Census and Statistics (2003)

* TRP estimates, see below.

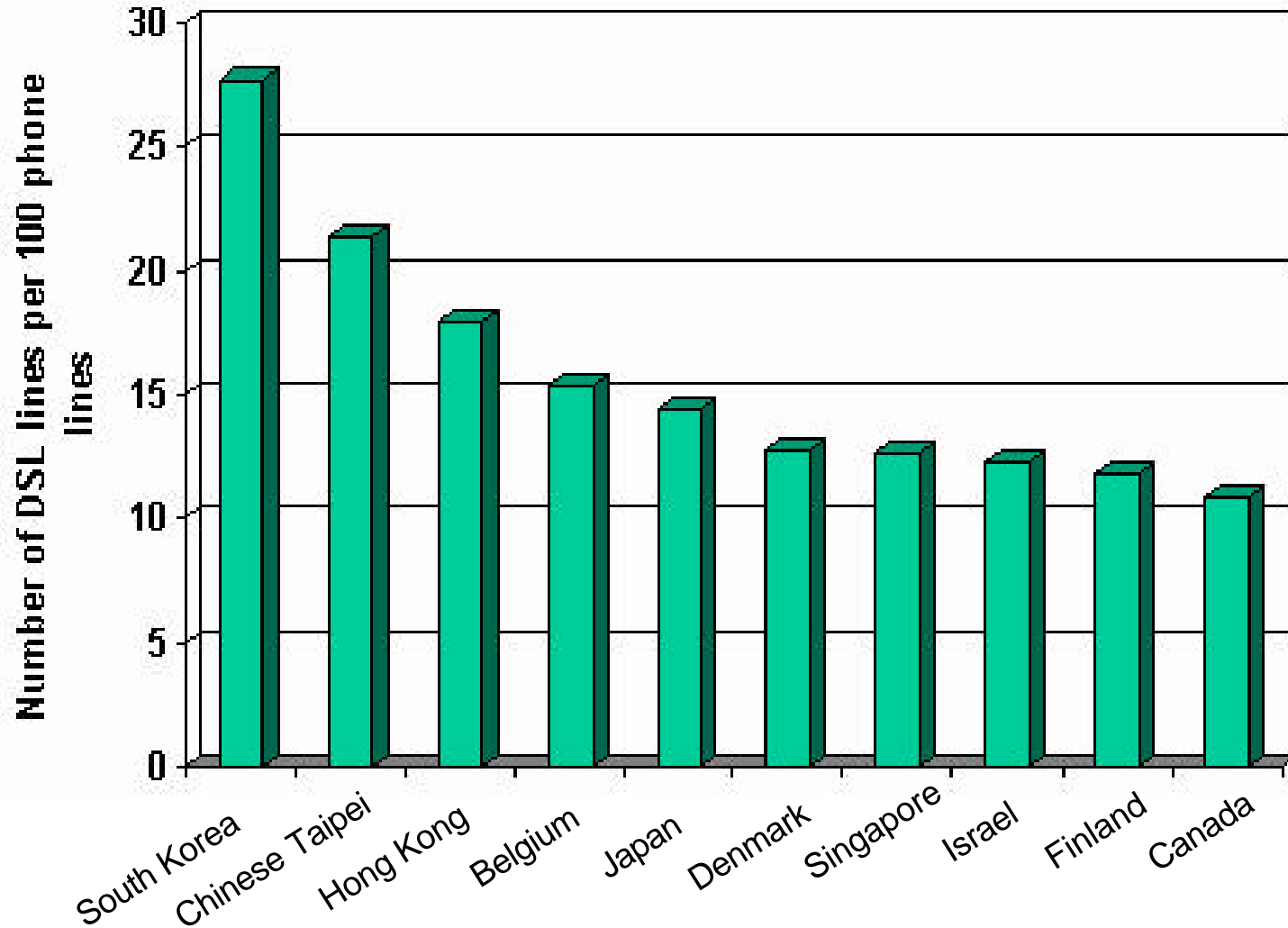
DSL lines per 100 population

Source: Point Topic Ltd



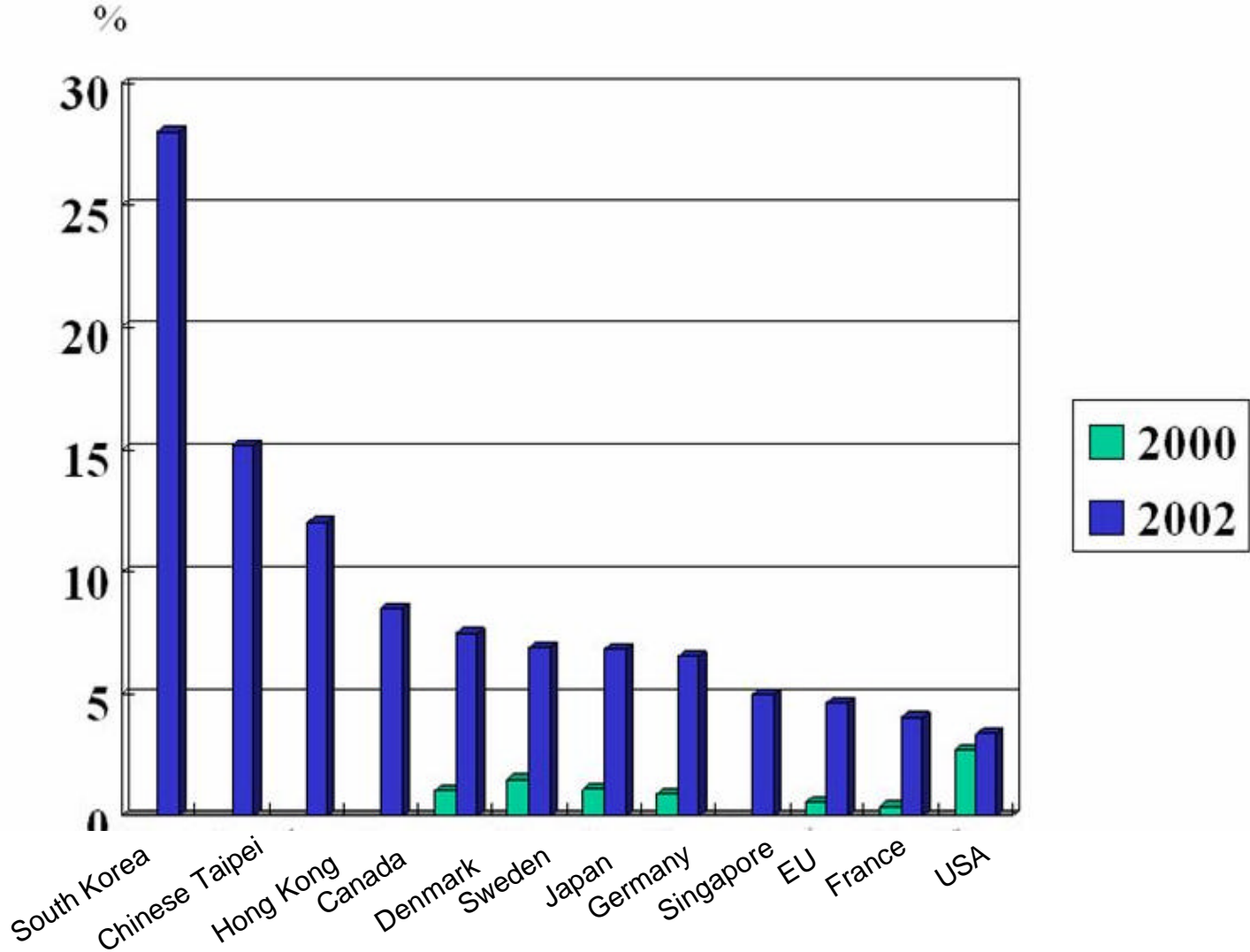
DSL lines per 100 phonelines

Source: Point Topic Ltd



DSL connections as a percentage of telephone lines

Source: Point Topic Ltd



Business PC Penetration

Business establishments with PCs

	Large	Medium	Small
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2002	92.0%	78.2%	47.9%
2001	93.4%	79.2%	45.7%
2002	94.6%	76.6%	50.7%
2003	94.2%	87.7%	50.0%

Note: 200k-300k SMEs in Hong Kong

Source: Thematic Household Survey, Report 15, Census and Statistics (2003)

Business Internet Penetration

Business establishments with
PCs PCs connected to the Internet

2000	51.5%	37.3%
2001	49.7%	37.2%
2002	54.5%	44.2%
2003	54.8%	47.5%

Note: 200k-300k SMEs in Hong Kong

Source: Thematic Household Survey, Report 15, Census and Statistics (2003)

Internet Penetration by Size of Business

Business establishments with PCs connected to Internet

	Large	Medium	Small
2002	77.9%	63.1%	33.8%
2001	86.0%	64.2%	33.8%
2002	82.6%	66.1%	40.5%
2003	85.1%	78.2%	43.0%

Source: Thematic Household Survey, Report 15, Census and Statistics (2003)

User Concerns

- Performance and Stability = two major concerns expressed by HKTUG
 - Is 10Mbps really 10 Mbps or only 56kbps? – especially when bandwidth is shared
 - Dropped calls in case of higher bandwidth mobile cellular networks?
 - Outage issues if network is down – not frequent in HK
- SLAs widely used for larger business users
- Discounts widely used for large business users – but also for smaller users willing to negotiate special rates
 - Note: charges of unfair competition, mis-representation, etc.

Fixed Line Broadband Markets

- Choice of technologies - speeds
 - B-ISDN
 - asymmetrical ADSL
 - symmetrical VDSL
 - metro-Ethernet
 - HFC
 - FTTB
 - MPLS (multi-protocol layered service) for international transmission

PCCW offers FTTB, VPN, local loop xDSL, (retails through an ISP)

HGC offers NGN over FTTB, VPN, local loop VDSL, metro-Ethernet and Powerline

NWT offers NGN over FTTB, VPN, local loop metro-Ethernet, VPN

HKBN offers NGN over local loop metro-Ethernet and LMDS

Wharf T&T offers NGN over FTTB, VPN

HK Cable TV offers iCable up to 10Mbps shared bandwidth

Third and Fourth Generation Broadband

- Third and Fourth Generation Broadband
 - 2.5G and now 3G mobile services
 - WiFi (WLAN)
 - VoIP, VoBB, Fixed-Mobile convergence
 - VoIP (over ATM or NGN) – PCCW and Wharf both gazetted services; HK Cable experimenting with VoIP capabilities
 - VoBB (over NGN) e.g. HGC's Vfone flat-rate videoconferencing service
 - IP telephones (over NGN or PC/Internet)
 - SMS and email between fixed and mobile phones, etc
- Digital TV– note: 20-30 Mbps needed for High Definition TV
 - Digital Terrestrial Transmission (DTT) by 2006
 - 100% HK Cable TV digital by May 2005
 - Yes TV over (HGC) VDSL
 - Now Broadband over (PCCW) ADSL
 - TV Plus (HK) Corp Ltd over satellite (SMATV)
 - XTV (Galaxy) over satellite (SMATV)

Wireless Development Centre seeking international collaboration

Opened at CyberPort December 2003 @
<http://www.hkwdc.org/aboutkwdc.html>



Outstanding Issues

- Second networks (2Ns) have 46% broadband market share, of which cable = 30%
- Over 90% homes *passed* by BB networks in Hong Kong – when will all buildings be linked up?
- Role of ISPs
 - PCCW's Netvigator ISP has largest market share
 - Non-PCCW affiliated ISPs < 10% market share
 - Retail market competitive
 - Margin squeeze in the wholesale market
 - ISPs like SONET, HKNet, others, have to offer BB with VAS (web-hosting, data-management, bundled services, etc) to make a market
- Questions:
 - Facilities-based competition or services-based competition the way forward
 - Should the retail market be regulated? Tariff ceilings? Regulated ULL? Commercial ULL?
 - Should the wholesale market be regulated, e.g. tariffed prices?
 - How long should regulation remain in place?
 - How does regulation affect the incentive to invest?
 - How to stimulate the uptake of services over BB? Is there a need to do so?
 - Different ways forward for different economies?

The End – Thank You

