

# WiMax Regulations in Asia

WiMax Forum, Beijing, China, November 7-11

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# WiMax Regulations in Asia

- Singapore
- Hong Kong
- Elsewhere in Asia
  - Korea, Taiwan, Japan
  - Thailand, Philippines, Malaysia, Indonesia, India

## WiMax Regulations in Asia

**BWA licensing and general adoption  
a reflection of local market structure  
and conditions**

# Singapore

- Unlimited broadband S\$47.25 a month, 531,400 broadband subscribers, or 44% of households, pales in comparison to South Korea
- Broadband infrastructure market a duopoly: SingTel ADSL and StarHub cable modem
- BWA to increase choice in the market and bring about cheaper Internet access
- 3.5 GHz 'WiMax priority' frequency used by space-to-earth satellite services

# Singapore

- In May 2005 IDA auctioned 140 MHz of frequency spectrum in 25 slots and awarded 6 BWA licenses in 2.3 GHz and 2.5 GHz frequency bands
- Winners were MobileOne, inter-touch Holdings, Pacific Internet, Qala Singapore, SingTel, StarHub
- Service rollout expected in 2006 as license stipulates 2.5 GHz holders must start service within 18 months and 2.3 GHz holders within 36 months
- Regulator collected far less money than the S\$100 million for a 3G license (2001): e.g. MobileOne 4 lots for S\$2.1 million, Pacific Internet 5 lots for S\$2.27 million - potential does not compare to broadband via fiber

# Singapore

- Low entry cost? Possible to cover Singapore 'with just a few WiMax base stations'? Somewhere between a US\$10-30 million build?
- Still a problem of tedious commercial negotiations with building owners to allow rooftop and indoor access, adds to cost
- Challenge of providing broadband access for gaming fans and music and movie downloaders, when usage volumes rise above 2 Meg - shared resource, shared bandwidth

# Hong Kong

- Broadband: #2 in Asia
- Fairly healthy competition in broadband infrastructure market: PCCW, iCable, HK Broadband, Hutchison
- Type II interconnection (Local Loop Unbundling) to end in June 2008, an issue specific to HK
- BWA to plug connectivity gap for FTNS operators that lose last mile access rights to PCCW's local loop and facilitate continuing rollout of broadband in Hong Kong

# Hong Kong

- Late to the dance? UK auctioned the spectrum in 2003, now it is used by a proprietary technology, HK prefers adoption of an open standard
- OFTA will auction 6 licenses in 2nd half of 2006: 15 MHz times 2, paired spectrum, in the 3.4-3.6 GHz band
- If demand is overwhelming then spectrum in other bands will be made available
- Setting up WiMax AP in HK, ~0.5-0.75m HK\$

# Hong Kong

Two-step selection process open to current fixed-line operators and mobile operators as well as new entrants, local or overseas

1. Pass pre-qualification: sufficient financial backing, technical capability - successful bidders will be issued with unified carrier license
2. Open auction with winning bidders required to pay an upfront lump sum - different business climate, spectrum is 'relatively' less scarce

# Hong Kong

- BWA users will be assigned the same numbers as fixed or mobile users; if OTFA decides fixed and mobile services should converge there might not be further distinction between fixed or mobile #s
- Restricted to fixed telecom services initially and expanded to include full mobility services after January 1, 2008, meaning no cell handoff capability before that date - regulator worried that 3G operators might lobby government and fight in court if BWA in breach of contract conditions under which 3G licenses were issued

# Korea

- For a country as wired up as Korea, why WiBro?
- Industrial policy (make use of extensive CDMA experience) and government vision of ubiquitous broadband over a converged network (BcN)
- February 2005, 3 WiBro 2.3 GHz licenses issued to KT, SKT, and Hanaro Telecom for US\$116.5 million each - KT to invest ~200 billion won, initiate service in April 2006, and demo at APEC summit; SKT a defensive measure
- Hanaro declines to pay license fee and pulls out, mistake? Foregoes VOIP play: deploying fixed line quality VOIP handsets with local phone numbers, full mobility, and local call rates, a reason for SKT to buy it out ;-)

# Taiwan

- Like Korea, industrial policy figures: to support local chipset manufacturers, government will offer NT\$1.1 billion in subsidies for WiMax platform technology
- Mobile Taipei (M-Taipei) initiative with greenfield carrier Qware to deploy city-wide mesh WiFi network in 2.4 GHz, trunk traffic on 5 GHz - exclusive franchise enforceable?
- Intel & Ministry of Economic Affairs plan 15 WiMax demonstration areas in 10 cities around Taiwan by 2007; government to invest up to NT\$37 billion in M-Taiwan to integrate WLAN with existing mobile and fixed networks
- Regulatory dark cloud? August 2005 DGT plans to prohibit selling of telephone numbers to WiMax operators to protect 3G operators

# Japan

- Plan to issue 2 new mobile licenses in 1.7 GHz band
- Yozan, a 1.9 GHz PCS license holder, and Airspan are deploying WiMax 'MetroZone' network in Tokyo by end of 2005 at 4.9-5.0 GHz, 'a cheap alternative for mobile people who do not want to be tied to a contract for a fixed line'
- Heisei Denden and Dream Technologies plan WiMax Internet access service in 2006
- MIC holding 'Study Group for Wireless Broadband Promotion' since November 2004 and has invited specific system proposals for consideration when allocating frequencies in the future

# Thailand

- NTC to publish ITS testing guidelines and specifications for use in testing 3G and WiMax technologies, a precursor to drawing up licensing conditions
- AIS, TOT, and True in WiMax tests with Intel on spectrum range 3.4-3.6 GHz. Test locations include Mae Hong Son, Saraburi, and Chiang Mai. Participating companies cannot be charged for trial spectrums.
- Tool to bridge the digital divide and extend broadband services into rural areas

# Malaysia

- Telekom Malaysia Kepala Batas WiMax trial, to help accelerate rate of PC and Internet adoption and lay foundation for Malaysia's d-ASEAN vision
- MCMC notes that spectrum allocation will be a possible challenge arising from WiMax - 'Currently the desired spectrum of 2.5 GHz and 3.5 GHz are already being used for other purposes and technologies, hence [MCMC is] reviewing these issues.'
- NasionCom Holdings collaborating with Deutsche Telekom on WiMax trial in Klang Valley - according to NasionCom's CEO 'WiMax is an unlicensed spectrum and we need not spend money for the license.'

# Philippines

- NTC will recall ('confiscate') idle frequencies from radio and TV operators that have not commercially deployed services specified in their provisional authorities (PA) and eventually reallocate the frequencies to next generation technologies like 3G, WiFi, and WiMax
- Bands to be reallocated include 410-495 MHz; 1,900-1,910 MHz; 1,980-1990 MHz; 2,400-2,483 MHz; 2,500-2,700 MHz; 3,400-3,600 MHz; 5,150-5,350 MHz; 5,470-5,850 MHz; and 10,150-10,650 MHz
- Exception to be made for the 410-495 MHz band that is used by the military and public agencies
- PLDT acquired Meridian Telekoms Inc. (MTI) to invest in WiFi hotspots

# Indonesia

- Government has received requests from 30 companies for BWA licenses but delayed issuing BWA licenses due to unfinished study on frequency arrangement
- BWA providers not allowed to provide conventional telephone service
- 2.5 GHz and 3.5 GHz bands most sought after but conflict with downlink S-band Cakrawala satellite, Ext-C band Palapa-C1, and Palapa-Telkom
- Most likely outcome: secure 2.3 GHz band for BWA
- Indosat M2 claims it would provide Internet access via WiMax in 2006

# India

- TRAI agrees not to require licenses for the use of 3.5 GHz to encourage the use of the spectrum in rural areas by local entrepreneurs - 'de-licensed' so no charges to be paid, unlike GSM and CDMA
- Dishnet DSL to deploy over next 2 years a nationwide WiFi network linked up through WiMax
- Alcatel and C-DOT to invest US\$47 million in WiMax R&D center in Madras, capital of Tamil Nadu state

## Conclusions

- Regulators
- Operators
- Consumers
- Vendors

## Conclusions: Regulators

- Existing WiMax frequency allocations and assignments decided or to be decided soon - important to keep in mind possible future frequency allocations - 700 MHz, 2.3 GHz, 2.4 GHz, 2.5 GHz, 3.5 GHz, 5.8 GHz
- Licensed or unlicensed? So long as it is a cheap license; HK licensed due to interference problem but large, open economies might go unlicensed for rural areas with thin populations > 700 MHz opens up if analog TV goes digital
- Subject to lobbying by both fixed and mobile operators
- Leave door open to technology development for benefit of consumers

## Conclusions: Operators

- Where WiFi consumer driven (USA) WiMax to be driven by operators' business case - backhaul, local loop access, nomadic, and full mobility (3-4-5 years to go?)
- Tech uncertainty - standards setting process crucial
- Business uncertainty - even bigger: whether maximize revenue or cannibalize existing revenue streams?
- Open market, higher pace of innovation? Market driven opportunity where regulator lets economy go in whatever direction (HK) OR national policy (Korea) - contradiction found nowhere else but in Asia
- If more spectrum allocations made, better chance for 'maverick' to enter

## Conclusions: Consumers

- Availability and affordability of WiMax-enabled handset devices, home appliances, consumer electronic gadgets - for example, when do WiMax laptops replace Centrino laptops?
- Convenient, mobile, portable, interoperable, can be used in cars, streets, etc.
- Level of consumer demand often driven by attractiveness of receiving device - Apple iPod - not just compelling content and service

## Conclusions: Vendors

- Supply: standards & mass production - many elements involved: chipsets, etc.
- Demand: either how rapidly operators take up (derived demand from business case - 3G) OR go directly to consumers (retail - iPod)
- WiMax most likely fall on telecommunications end of the market (where it is up to operators to adopt, subsidize, and deploy), not the consumer electronics end