WiMAX: Enabling Mobile Broadband

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Global Public Policy
Intel Corporation

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Agenda

- Background on Intel
- Mobile WiMAX status
- Mobile WiMAX Products
- IMT-Advanced
- Conclusion

Background on Intel

Intel Corporation

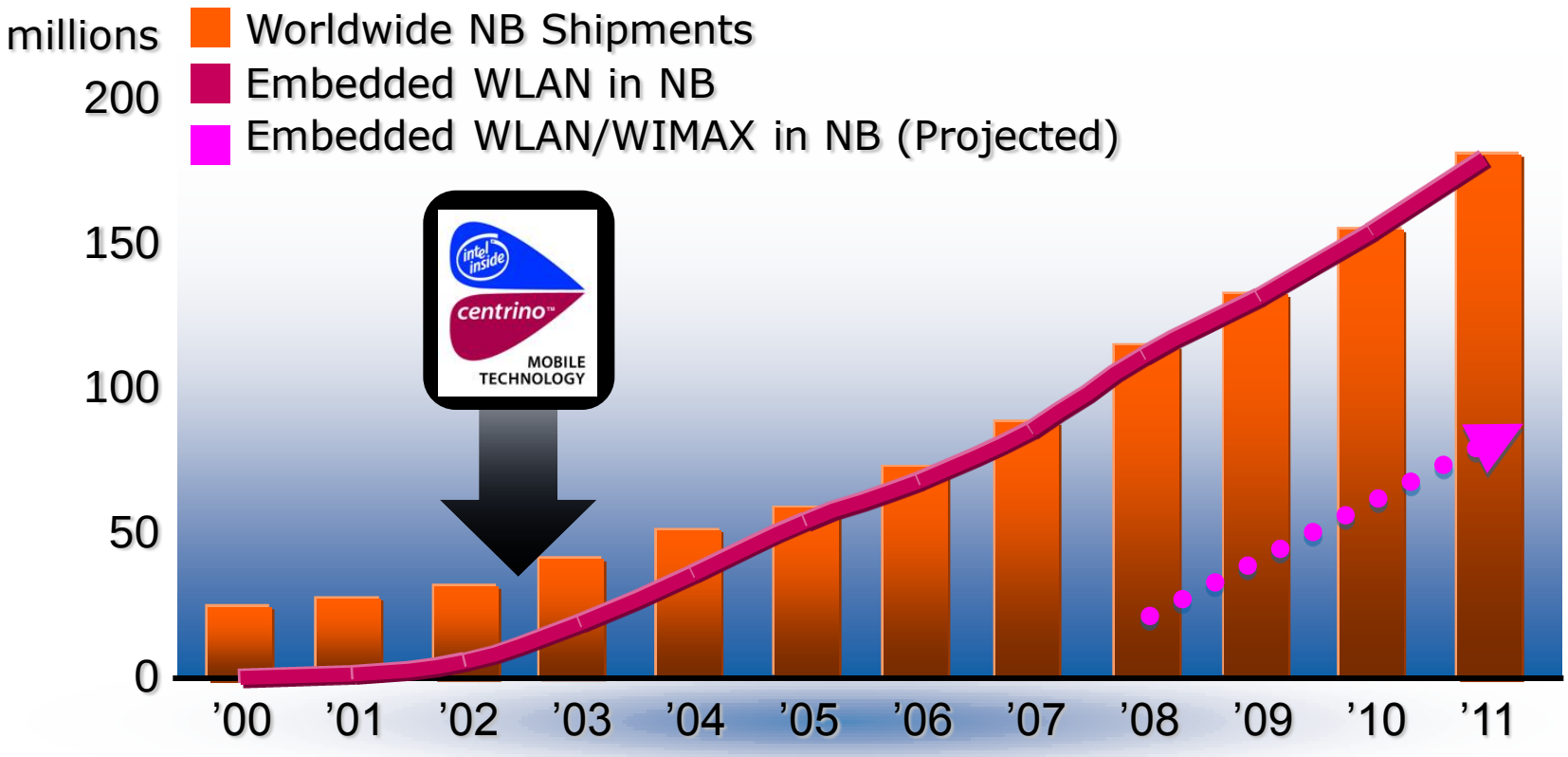
- Founded in 1968
- Produced the world's first microprocessor in 1971
- World's largest semiconductor manufacturer
- A leading manufacturer of computer, networking, and communications products
- www.intel.com

Broadband Spectrum Policy

- Intel strongly supports Technology & Service Neutrality:
  - Flexibility to allow licensee to choose any appropriate broadband wireless technology

- Licensing arrangements
  - Allowing market forces to decide ratio of paired/unpaired spectrum
  - Access to sufficient spectrum
  - Support secondary markets (spectrum trading)

PC Ecosystem Changed The World Once… Together, We Can Do It Again



Goal: Everywhere Wi-Fi today, Wi-Fi / WiMAX Tomorrow

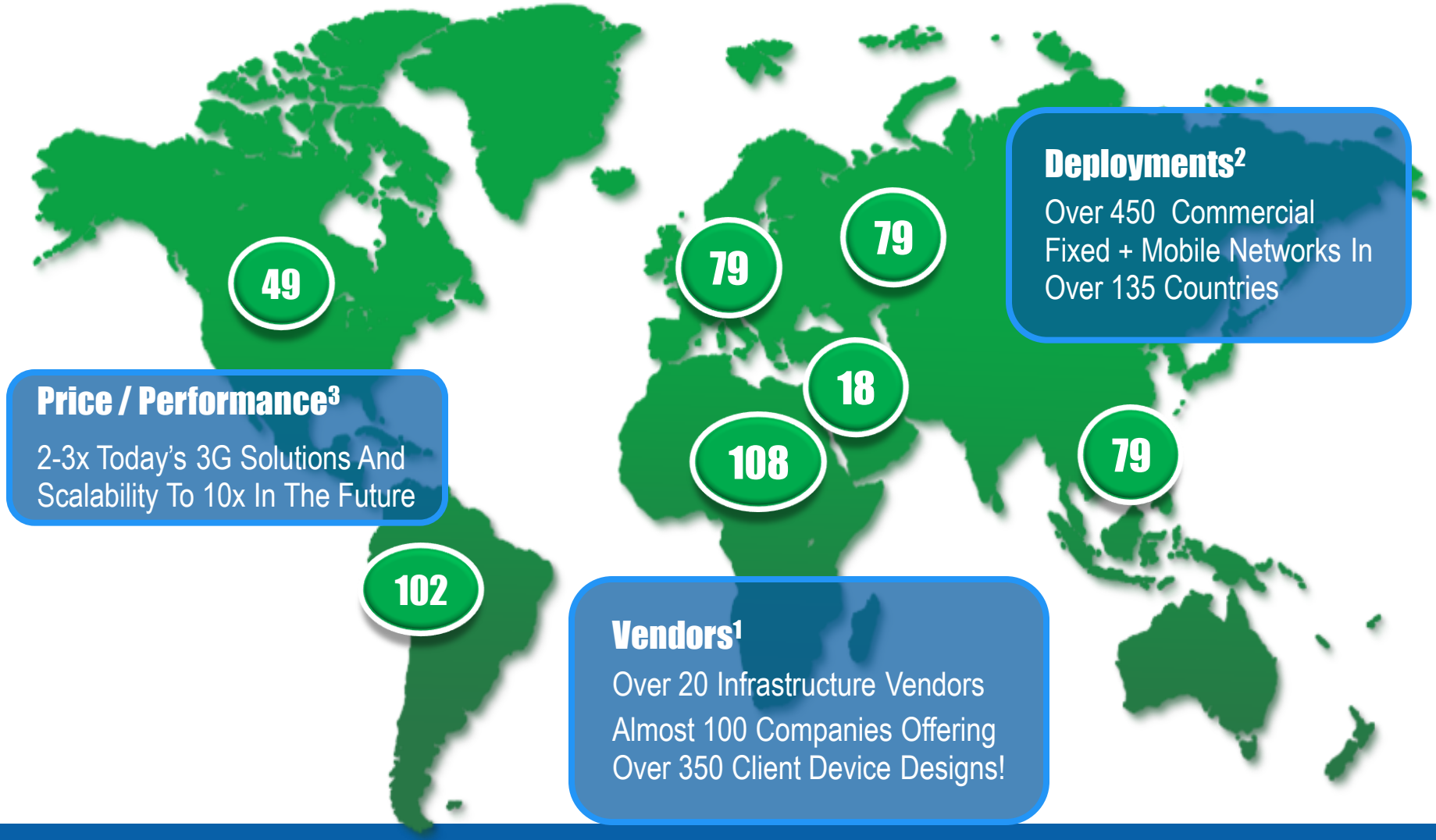
*Source: ABI Q1'07, Intel Estimates

Mobile WiMAX Status

Spectrum Bands

- Mobile WiMAX (IEEE 802.16e) products commercially available today:
  - 2.3-2.4 GHz,
  - 2.5-2.69 GHz,
  - 3.4-3.6 GHz
- Other bands under development including "digital dividend"

WiMAX Global Momentum Continues to Build



Deployments[2]

Over 450 Commercial Fixed + Mobile Networks In Over 135 Countries

Price / Performance[3]

2-3x Today's 3G Solutions And Scalability To 10x In The Future

Vendors[1]

Over 20 Infrastructure Vendors

Almost 100 Companies Offering Over 350 Client Device Designs!

1. Infrastructure: ABI Research, 2009; Client devices: Orr Technologies, 2009.
2. Informa Telecoms & Media, 2009
3. 2-3x based upon actual network performance in Korea, US, Russia, Taiwan & Japan; 10x per IEEE 802.16m Systems Requirements Document

USA

"We actually welcome the use of heavy bandwidth data applications that conventional 3G network operators may discourage or simply can't support."

Scott Richardson, Chief Strategy Officer, Clearwire


WiMAX-Ready LAPTOPS

Clear MODEM


Clear USB MODEM

Clear Voice ADAPTER

Clear Mobile Broadband ENTERTAINER

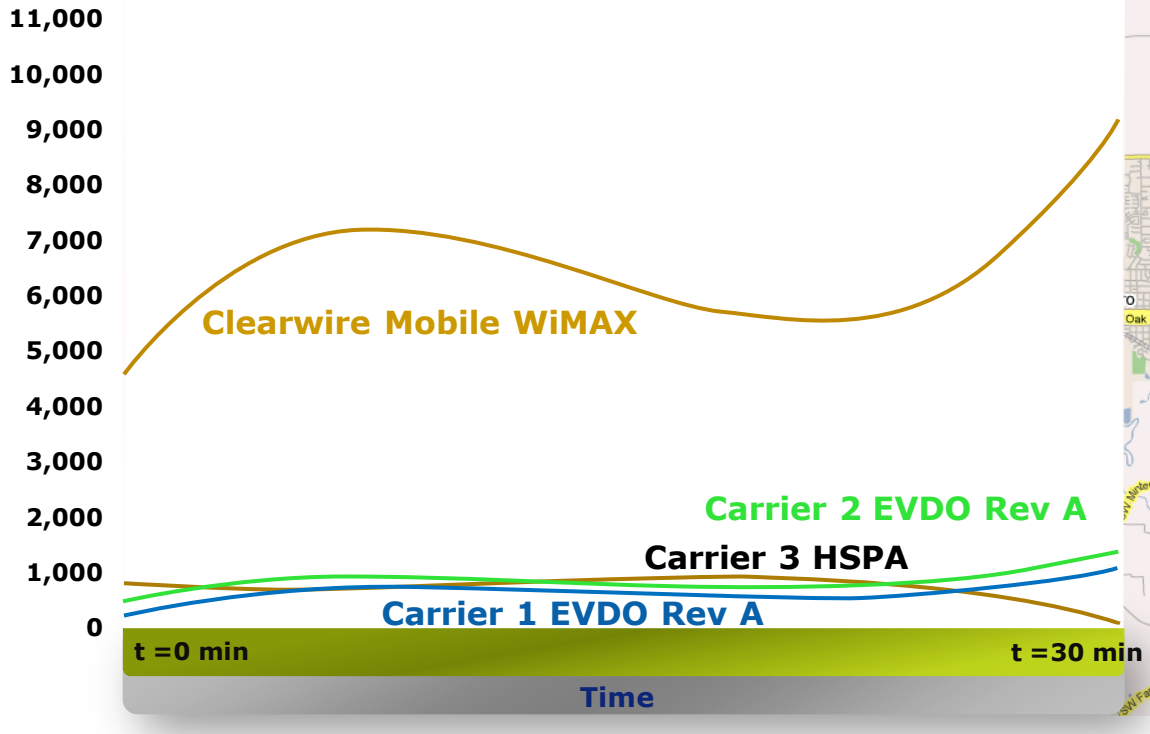
Clear SPOT

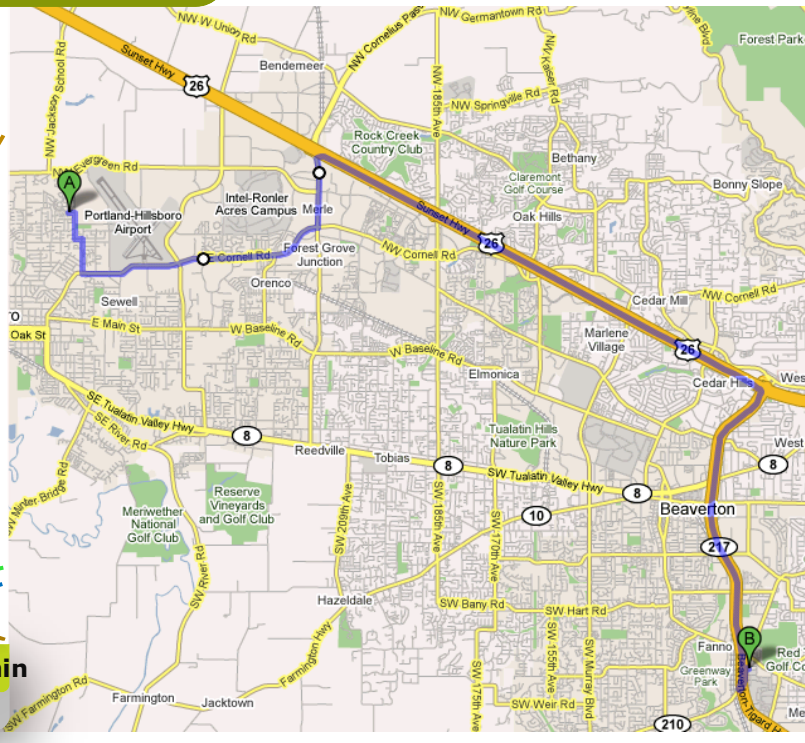
- Over 40 notebook models from 6 manufacturers
- Plug in your Clear access device and surf, often in less than 60 seconds
- Targeting coverage in over 80 markets by end of 2010
- Consistent (typical) download speeds of 2-4 Mbps

Clear:
Actual Mobile user experience in Portland

	CLWR 802.16e	Carrier #1 EVDO - A	Carrier #2 EVDO - A	Carrier #3 HSPA
Peak Rates	19 Mbps	2.4 Mbps	2.5 Mbps	1.9 Mbps
Mean Rate	6.5 Mbps	0.7 Mbps	0.9 Mbps	0.9 Mbps
Mean Latency	83 ms	168 ms	201 ms	354 ms

Location: Portland, OR
Drive route: 17 miles
Drive time: 30 min
Average Vehicle Speed: 35 mph
Max Vehicle Speed: 55 mph

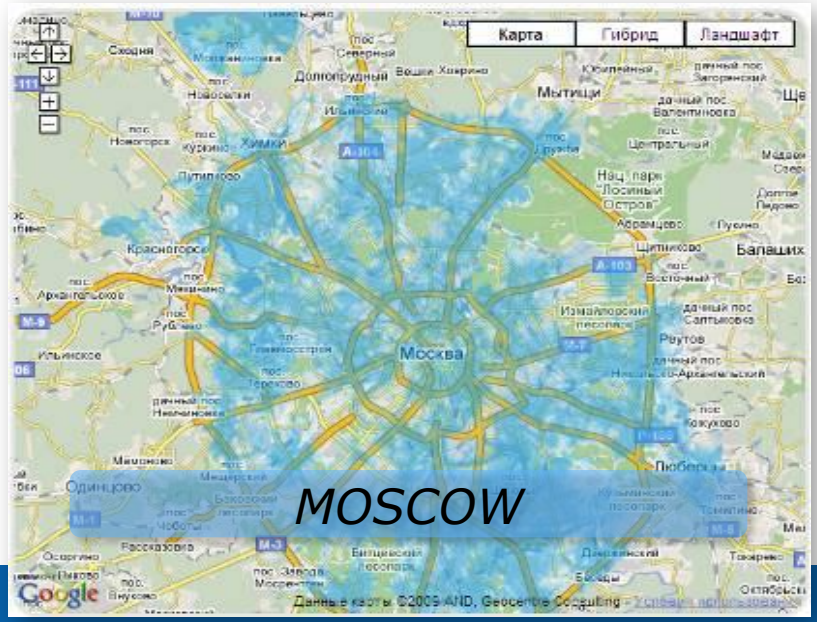




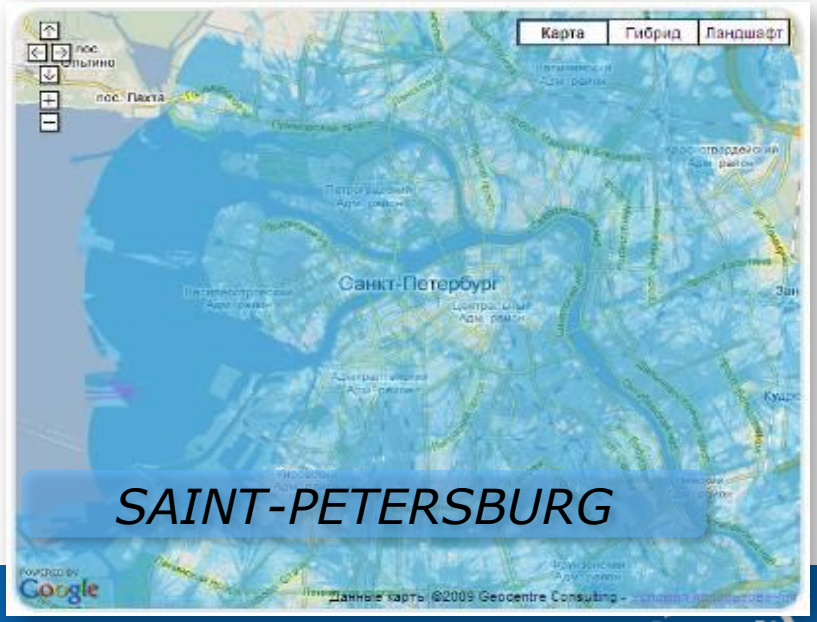
Source: Intel – CLWR test.
Note: Drive tests were conducted at off-peak hours to minimize loading effects

Russia

- Targeting over 40 of the largest cities in Russia
- Carrying over 500TB of traffic per month TODAY
- 2,000 new subscribers per day
- Average subscriber is consuming 9.5GB per month!
  - Twice that of DSL/Cable subscribers
  - Twice that of typical monthly data limit set by incumbent operators (5GB)
- HTC GSM / WiMAX dual mode handset

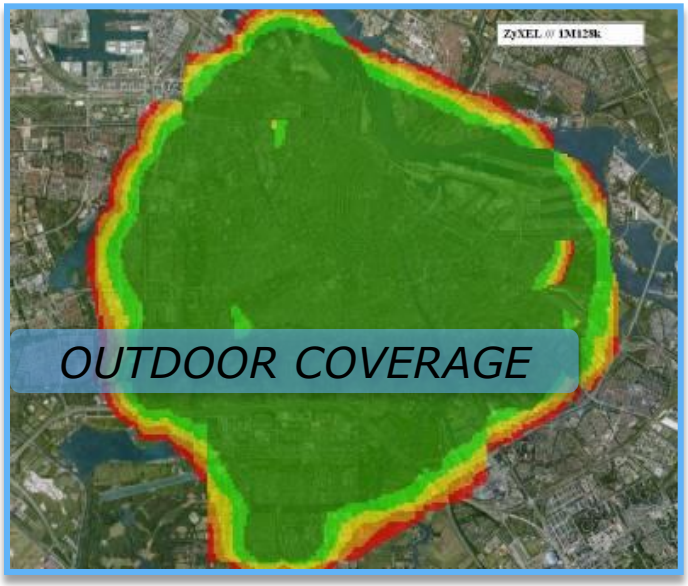


MOSCOW



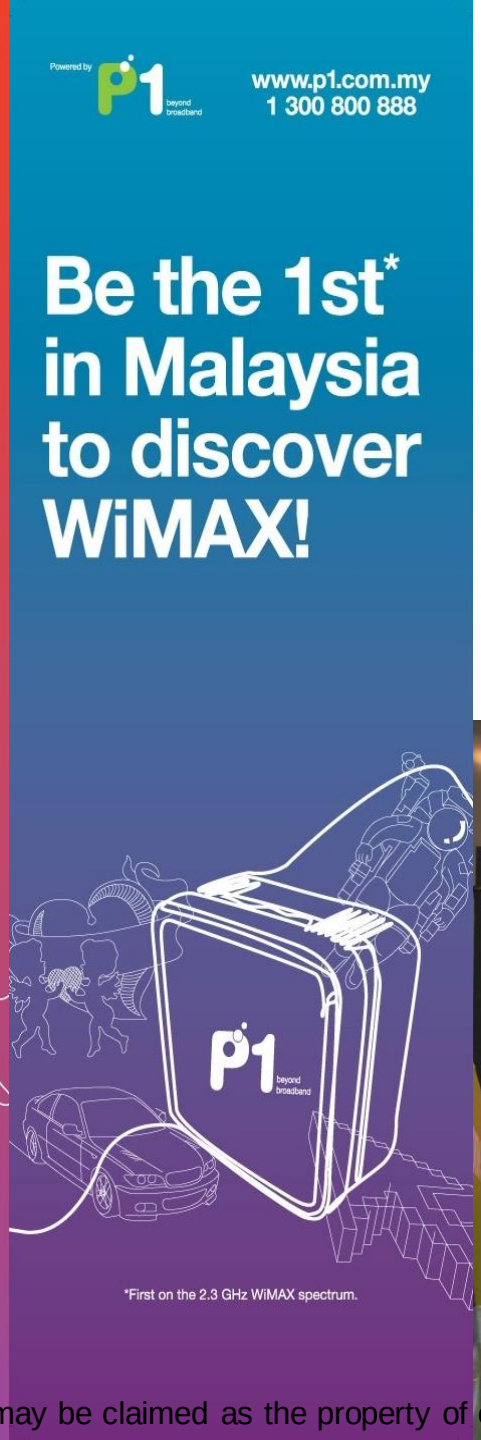
SAINT-PETERSBURG

Netherlands



- First Mobile WiMAX network live in Europe
- World's first 3.5GHz carrier
- Installed over 100 base stations in 2 months; over 170 today
- Nationwide coverage expected in 3 years
- 8 Mbps downlink rates

Malaysia



Packet One

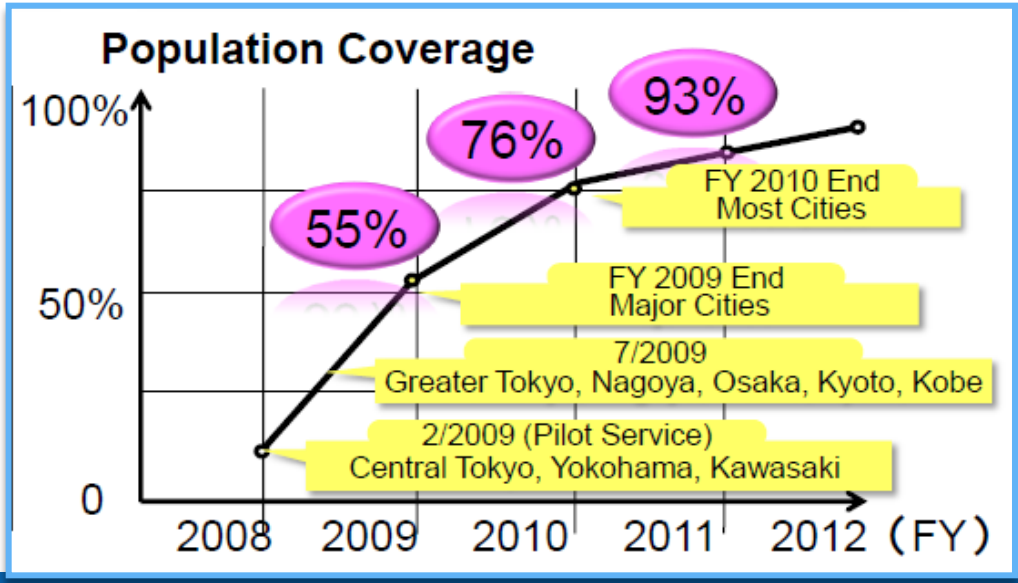
- Over 500 new subscribers / day
- World's largest 2.3 GHz deployment outside of So. Korea
- Wireless@KL provides free access to over 70,000 users
- 30% of new broadband subscribers choosing P1

Japan

Faster and Cheaper:

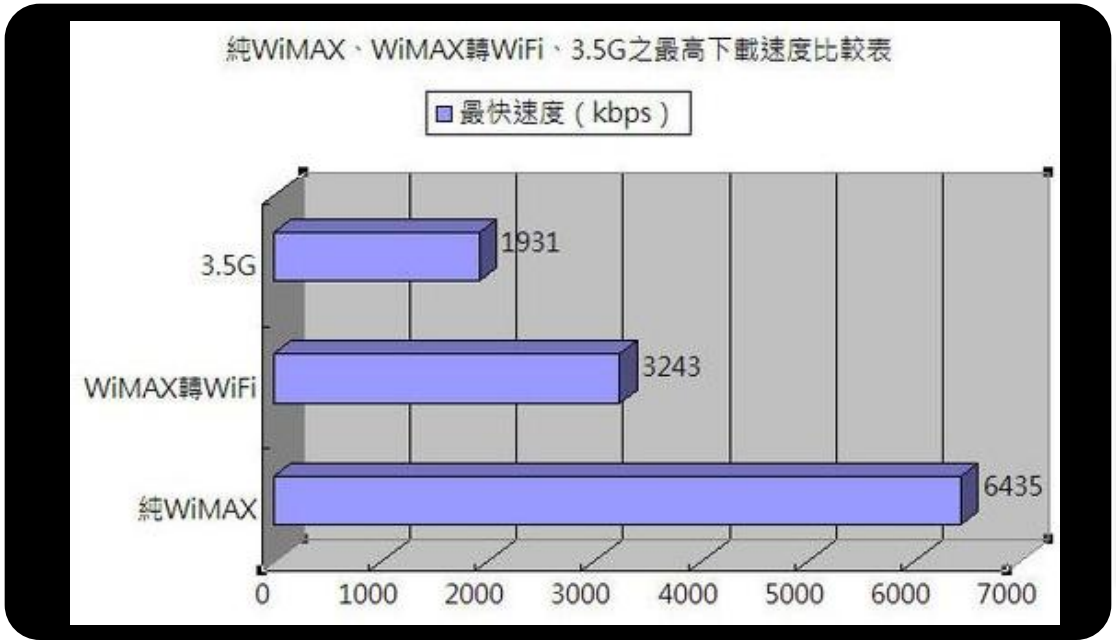
Live speed tests on notebooks have reached about 16 Mbps down and 4 Mbps up, as simple, flat-rate pricing undercuts all current HSPA offers

- 13 PC manufacturers announced plans to offer embedded WiMAX notebooks
- Launched with 3 major electronics retailer MVNOs
- Unique railway and mobile application service offerings



Taiwan

- Pre-commercial network shows 3x the performance of HSPA*
- 30 MHz of spectrum in 2.5 GHz
- Start in Taipei and then expand into northern Taiwan

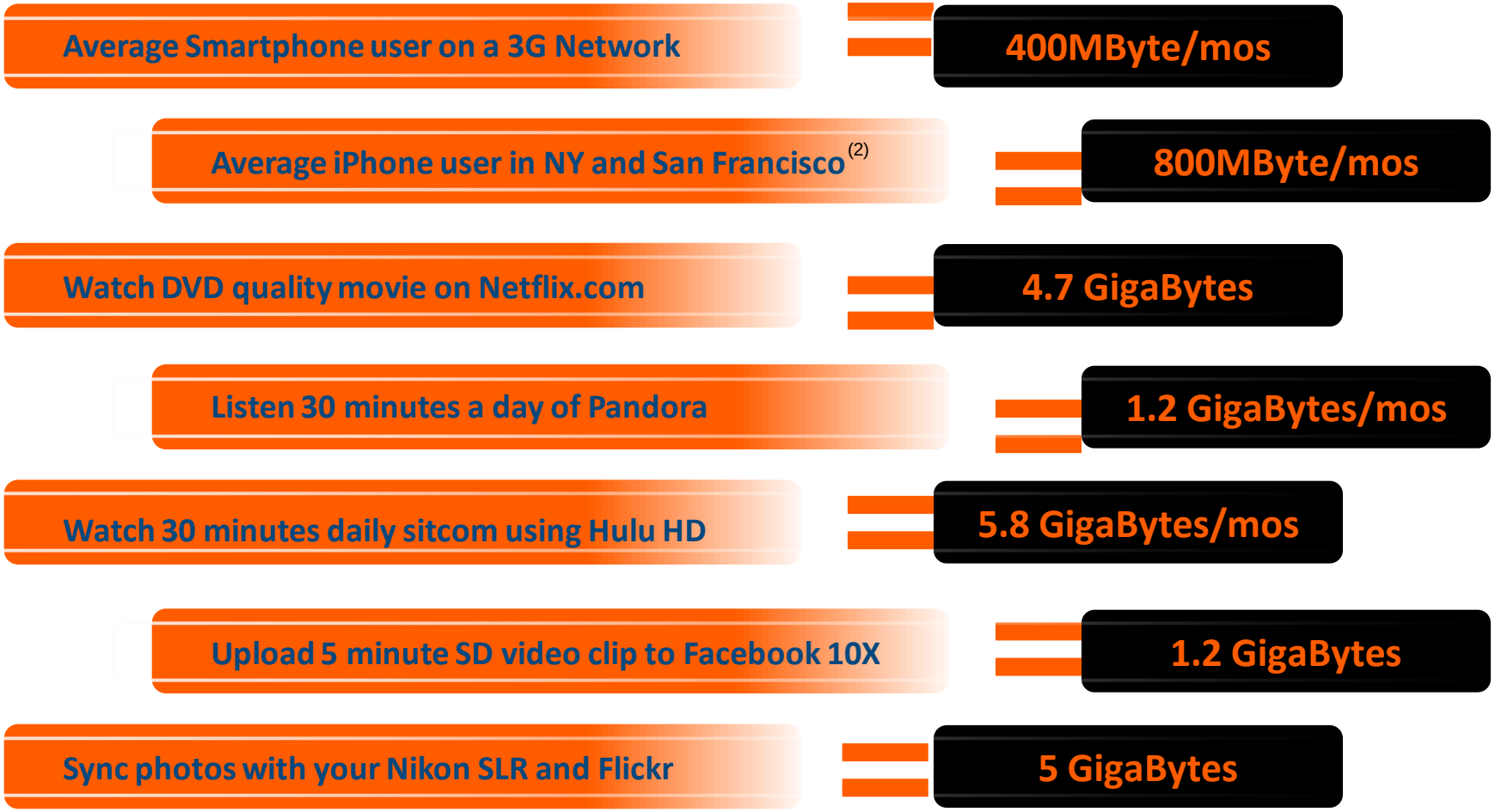


* http://taiwan.cnet.com/crave/0,2000088746,20138755,00.htm

India

- Phase 1: Serve over 250,000 subscribers across 80,000 villages
- Phase 2: Serve 675,000 villages and ~ 1.1 million subscribers
- E-governance, telemedicine, distance education, e-travel, e-chaupal, e-legal services, and e-media access
- Plan to cover all urban India – 3 states already launched via franchisees

New Applications Drive Bandwidth Consumption



Mobile WiMAX Products

A Diverse Offering of WiMAX Devices Available NOW

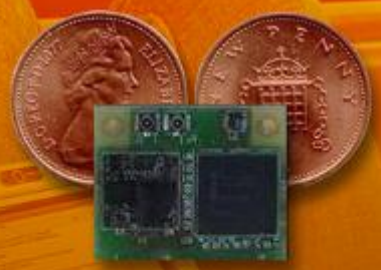
Intel WiMAX Products & Designs

WiMAX/Wi-Fi
Combo Modules

Intel® WiMAX/WiFi Link 5050 Series

1st integrated Wi-Fi + WiMAX module

WiMAX
MIDs



Approx indication of size

Intel® WiMAX Connection 2400

Highly integrated two chip solution
Small size & low power

* Internal code names for projects in development. Product names and plans are preliminary and subject to change.

WiMAX Embedded Laptops & Netbooks

16 PC OEMs Have Announced Plans to Embed Intel's WiMAX Modules

U.S.A.
40 certified models from 6 OEMs
20+ models available in U.S. Channels NOW

Japan
14 OEMs committed to embed WiMAX

Russia
30+ Models Available from 6 OEMs

Scaling to over 100 models by EOY 2009

IMT-Advanced

- IEEE 802.16e products already delivering Mobile Broadband

- IEEE 802.16m submitted for inclusion in IMT-Advanced
  - Self-evaluation shows meets IMT-Advanced requirements for all 4 test environments
  - Widespread participation in development of standard
  - Demos at ITU Telecom World

Summary

- Intel supports technology and service neutrality
  - Allows market forces to determine which technologies to deploy
- Mobile WiMAX is here today
  - Delivering high speed mobile broadband
  - Momentum continuing to build
- Mobile WiMAX products commercially available today
  - Intel delivering embedded products
  - Over 100 notebook models by end of year
- IEEE 802.16m submitted for inclusion in IMT-Advanced
  - Looking forward to continuing development of IMT-Advanced standards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