Perspective Setorial de HSPA Evoluido

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Ericsson Brazil
New Mobile Broadband Module C3607w
A wider vision: Everything Connected

Today

- **LTE**
  - Max performance
  - Launch 2009

- **WCDMA / HSPA**
  - Mass market
  - 0.4 billion

- **GSM / EDGE**
  - Largest coverage
  - 3.5 billion

Towards 100% penetration

2014 Vision

- 2014
- > 6 billion
- 50 billion

Source: Informa & Ericsson
Handheld Internet
Mobile internet overtakes fixed

Handheld Internet larger than fixed
900 million smartphones
$29.5 Billion from mobile apps
600 million social network users

Source: Gartner, Canalys, The Economist, Morgan Stanley, Ericsson

Smartphone sales up 16% in a downturn
RIM, Apple, Android up 80%

2009
2013
2020

Voice and Internet in one device

Mobile Broadband Outlook for the Americas, Rio de Janeiro, 26 April 2010
China Unicom
WCDMA/HSPA Mobile Broadband live

- Commercial launch in 285 cities
- World’s largest HSPA network
  - More than 100 000 sites

- Targeted subscriber growth
  - 8 million end of year
  - 150 million 2014
Fixed Broadband in the UK

Headline speed of UK residential broadband connections

- >8 Mbps: 14%
- >2 up to 8 Mbps: 57%
- Up to 2 Mbps: 29%

Average downlink speeds (Mbps)
- UK: 4.1 Mbps
- Rural: 3.3 Mbps
- Urban: 4.6 Mbps

Average Uplink speeds: 0.43 Mbps
Mobile Broadband Outlook for the Americas, Rio de Janeiro, 26 April 2010

Wireless data revenue growth

**Results**

- **Vodafone:** +18%
  - 7.6m PC connectivity users (+63% YoY)
  - 25% smartphones in sales mix, 20-60% increase expected FY2010/2011

- **MTN, South Africa:** +21%

- **Softbank Mobile:** +13%

- **Telstra:** +31%

- **Excelcomindo:** +19%

- **American Móvil:** +49%

- **AT&T:** +26%

- **Telefonica, Spain:** +47%

**Data revenue growth (YoY)**

- MTN, South Africa: +39%, +61%, +76%
- Vivo: +76%
- América Móvil: +49%

**Sources:**

Financial reports and analyst presentations from the respective companies.

**Double digit growth**
2349 HSPA enabled devices from 230 suppliers

- 1014 Phones, media players, cameras, Ebook readers (43%)
- 1063 PC with embedded HSPA, PC cards, USB modems (45%)
- 272 Routers and femtocells (12%)
Quality of service control
In commercial operation

- Control Network load
  - Lower priority for abusers in loaded cells

- Premium subscriptions
  - Higher data rates for prioritized users

Tailor user experience with higher revenues
Attractive HSPA Latency
Faster user experience with lower latency

Latency below 30 ms in commercial networks
HSPA Evolution
Peak rate in Mbps

The successful staircase

Peak rate (Mbps): 7 → 21 → 28 → 42 → 84 → ...
28 Mbps
Myths and Facts of MIMO

• Myth: MIMO only works with OFDM
• Fact: MIMO works in HSPA

• Myth: MIMO requires new antennas
• Fact: Old antennas shall be re-used

• Myth: Legacy UEs kill MIMO deployment
• Fact: No problem with Ericsson MIMO

MIMO now in mass deployment
MIMO COMMERCIAL OPERATION
No IMPACT ON LEGACY HSPA PERFORMANCE

Good coverage

Median
MIMO: 26 Mbps
64QAM: 14 Mbps
HSPA7.2: 6 Mbps

MIMO, legacy HSPA devices & voice on same carrier
MIMO COMMERCIAL OPERATION

No IMPACT ON LEGACY HSPA PERFORMANCE

Indoor coverage
RSCP: -98 dBm

Median
MIMO: 8.2 Mbps
64QAM: 7.2 Mbps
HSPA7.2: 6.0 Mbps

20-35% cell edge gain

MIMO, legacy HSPA devices & voice on same carrier

Mobile Broadband Outlook for the Americas, Rio de Janeiro, 26 April 2010
Breaking HSPA speed record
16 December 2009

HSPA breaks speed record

Received: 1.2 Gbits
Current: 49.3 Mbits/s
Average: 41.2 Mbits/s
Max: 41.9 Mbits/s

Sent: 84.5 kbits
Current: 7.36 bits/s
Average: 1.1 kbits/s

Live at MWC

Breaking 3G speed record again

December 17, 2009, 10:20 (CET)

- World-first 42Mbps HSPA achievement on commercial products
- Increases speed for every user, enables true "instant access"
- Made possible only by software upgrade

Mobile broadband with HSPA continues to evolve. In a world with a continuous demand for faster speed, industry leaders are keen to upgrade networks in order to offer a better user experience. Australian operator, Telstra, made history by becoming the first operator in the world to offer a mobile broadband service with a peak data rate of 42 Mbits/s. This achievement was made possible through a software upgrade, which allowed the network to handle higher data rates without requiring any hardware changes. The success of this initiative demonstrates the potential of HSPA in providing high-speed mobile broadband services to consumers.
Multi Carrier performance

Data rate (Mbps)

Relative distance to base station

Higher speed throughout cell area

Mobile Broadband Outlook for the Americas, Rio de Janeiro, 26 April 2010
Multicarrier HSPA with MIMO

56 Mbps
World's first with 84Mbps

FEBRUARY 5, 2010, 11:53 (CET)

- New world record of 84Mbps HSPA technology
- To be showcased at Mobile World Congress in Barcelona February 15-18
- Operator 3 Scandinavia first to choose 84Mbps HSPA

Growth of data traffic in mobile networks continues, driven by access to other devices. Wireless access to data services...
All segments in one network

- Mass-market Phones, Smartphones, USB/PC cards & m2m
- Volume PCs, MIDs, USB & PC cards
- High-end Smartphones
- High-end PCs, USB & PC cards

Voice & data, high to low-end – all in one network
Mobile Traffic Growth
HSPA is the engine

Source: Ericsson

HSPA growth outpaces mobile data traffic growth
Mass Market Broadband with HSPA

Metropolitan city
- 5000 inhabitants / km²
- 3 mobile operators
- Each operator: 5 sites/km²

Site capacity per operator
333 GB / day
- 3 sectors x 3 carriers
- 7 Mbps / sector-carrier
  (~1.5 bps/Hz spectral efficiency)
- 12 hours / day

Every site shared by 3 operators

Each inhabitant can consume 1 GB per DAY
RAN backhaul
Move to Ethernet microwave and fiber

Source: Ericsson
Thanks!

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