Trends in Communications Technologies

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TELECOM TRENDS

- SERVICES
- BUSINESS MODEL
- SERVICE CONVERGENCE
- NETWORK CONVERGENCE
- TECHNOLOGY ROADMAP
- SUCCESS STORIES
SERVICES

- Broadband data service
- Leased line service.

Terrestrial TV, cable TV

SERVICE INTERGRATION – FULL CUSTOMER EXPERIENCE
BUSINESS MODEL

OPPORTUNITIES IN ICT

- Provide ICT services for business users
- Provide multi-play for individual users
CONSUMER MARKET

- Beyond traditional services such as voice and broadband
- Offer IPTV, portal, payment, marketplace services

PARTNERSHIPS

- Media groups
- School
- Banks
- Content providers

OPERATORS

- Network service provider
  - Communication minutes
- Integrated service provider
  - Consumer spending
BUSINESS MARKET

- Service products to service solutions – especially IT services
- Understand customer’s business process – offer right solutions
- Product provider – solution provider
- Leased lines to businesses - Optimize business process
SERVICE CONVERGENCE

- Meet customer requirements
- Maintain lead in competitive markets

Ubiquitous networks and services in ICT society
SERVICE CONVERGENCE

- Provide users with unified experience
- Replicate various scenarios such as
  - home,
  - on the move,
  - hotspot,
  - office

ANYTIME, ANYWHERE, VIA ANY TERMINAL
NETWORK CONVERGENCE

NETWORK DIVIDED INTO:

- User environment
- Access
- Transport
- BOSS
- Service network

KEY TRENDS - ALL-IP, FMC
Customer experience – same via any terminal, any location any time.
FIXED-MOBILE CONVERGENCE

- **INDUSTRY CONVERGENCE**
  - Telecoms
  - IT
  - Content and media
  - Consumer electronics

- **SERVICE CONVERGENCE**
  - Voice
  - Data
  - Multimedia
  - Content

- **NETWORK CONVERGENCE**
  - Unified service network
  - Unified control network
  - Unified PS bearing network
  - Unified BOSS

- **CONVERGENCE OF TERMINALS**
  - Dual mode terminals
  - Intelligent terminals
SERVICE PERSPECTIVE

- Services provided today –
  - bandwidth leasing
  - voice services

- Cannot meet future consumer demands market competition

- New services
  - MULTI-PLAY – INDIVIDUAL CONSUMERS
  - ICT SERVICES – BUSINESS USERS

- CONSUMERS – IPTV most promising

- BUSINESS USERS – solution design, service hosting, service outsourcing, service consulting, business process outsourcing
TECHNOLOGY ROADMAP

CDMA2000 Evolution Path

- **CDMA2000 1X**
  - DL: 153 kbps
  - UL: 153 kbps (1.25 MHz)

- **CDMA2000 1xEV-DO**
  - DL: 2.4 Mbps
  - UL: 153 kbps (1.25 MHz)

- **EV-DO Rev A**
  - DL: 3.1 Mbps
  - UL: 1.8 Mbps (1.25 MHz)

- **EV-DO Rev B**
  - DL: 6.2 – 73.5 Mbps²
  - UL: 3.6 – 27 Mbps²
  - (2.5 – 20 MHz)

- **EV-DO UMB**
  - Requirement:
    - DL: 140 – 280 Mbps⁴
    - UL: 34 – 68 Mbps (10 – 20 MHz)

WCDMA Evolution Path

- **Rel-99 WCDMA**
  - DL: 384 kbps
  - UL: 384 kbps (5 MHz)

- **Rel-5 HSDPA**
  - DL: 1.8 – 7.2 Mbps
  - UL: 384 kbps (5 MHz)

- **Rel-6 HSUPA**
  - DL: 1.8 – 14.4 Mbps
  - UL: 5.72 Mbps (5 MHz)

- **Rel-7 HSPA+ Phase 1**
  - Target:
    - DL: 14 – 42 Mbps
    - UL: 11 Mbps (5 MHz)

- **Rel-8 HSPA+ Phase 2**

- **LTE**
  - Requirement:
    - DL: 150 Mbps
    - UL: 50 Mbps (20 MHz)

Note: timeline depicts initial commercial availability of each technology. Those introduced beyond 2008 are under standardization and are subject to variability.
Global Subscriber Growth by Technology
During First 19 Quarters of Commercial Service

Quarters After Commercial Launch

Source: CDMA Development Group and Strategy Analytics, June 2006
CDMA2000: The Largest Selection of 3G Devices

More than 1250 CDMA2000 devices have been introduced to the market

Entry level Voice-centric Handsets
Personal Messaging Mobile Phones
Fixed Wireless Phones
PDAs
EV-DO Fixed Wireless Terminals
Interactive Multimedia CE Devices

EV-DO PC Cards
EV-DO USB modems
WorldMode™ Global Roaming Phones
EV-DO PCexpress Embedded Modules for PC Notebooks

956 CDMA2000 1X devices
282 CDMA2000 1xEV-DO devices
81 Manufacturers and vendors
UNIFIED EXPERIENCE

THE 4TH EXPERIENCE

- Broadband
- Video Telephone
- BCMCS
- Mobile Game
- Baby online
- VOD
First CDMA All IP Network

Benefits for LEAP, USA

- Ensure the highest quality: Fully compliant with US standards and FCC mandatory features

Challenges

- High quality network
- Control the budget
- Voice & data service requirement
- Saving transmission

- Softswitch and IP-based BTS
  - Saving 60% on transmission rental
- CDMA2000 1X & EV-DO Rev.A mixed configuration
  - Satisfying different services requirements
MANY THANKS