

Triple Play Convergence from Fixed to Mobile

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Telecoms rule book

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Service provider chapter

- Silos
- Convergence
- Networks
- Customers

Vendor chapter

- Products
- Solutions
- Selling
- Partnerships

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Fixed, Mobile, ISPs are redefining their business

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Competition, deregulation, Internet, consumer electronics, have given end-users bargaining power

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Convergence trends in Telecoms

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Impact of Convergence on Telecom within the Next 3 Years

Convergence Area	Percent of telecom execs saying "very strong" or "strong"
Device convergence (consumer electronics converging with traditional telecom)	~75%
IP/IT network convergence (next generation network architecture)	~65%
Convergence of telecom and broadcast media and content services	~55%
Access technology convergence (fixed, wireless, mobile)	~45%
Voice and data convergence (VoIP, voice as an application)	~35%

Source: IBM Institute for Business Value Analysis, Feb 2005

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Chapter 1

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This Year's "must read"

Triple Play

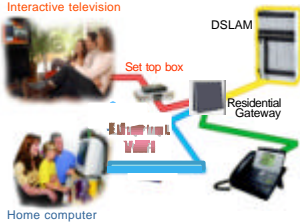
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Better TV – not just TV over IP, it's IPTV

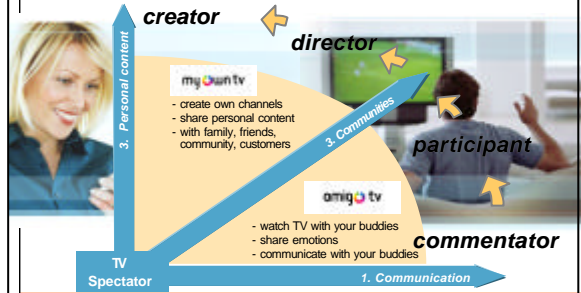
Interactive television



1. Every TV in the house has digital quality video
2. VoD and DVR serving every TV in the house
3. Any TV can have multiple video windows (up to 4)
4. Faster digital channel changes (.25 versus 2.0 seconds)
5. Multimedia services (Program Guide, music, web, images)
6. Interactive and community TV

2.5 million users by the end of 2005

Adding three new dimensions to the TV experience

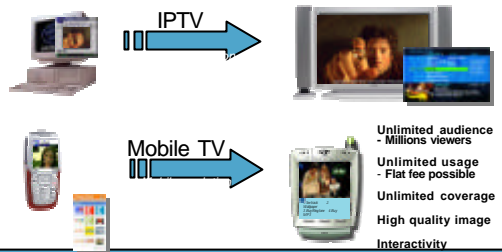


Chapter 2

The next wave Mobile TV



Extending IPTV lessons to Mobile TV



Mobile TV spontaneously perceived as a natural evolution

The need for both Broadcast and Unicast

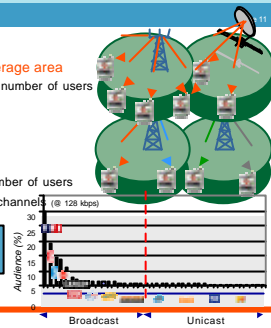
Broadcast: dedicated network

- Common radio bearer for all users in coverage area
- Limited number of TV channels but unlimited number of users
- 5 MHz OFDM carrier: 20 channels (@ 128 kbps)

Unicast: mobile network

- Dedicated radio bearer per user
- Unlimited offer of TV channels but limited number of users
- 5 MHz OFDM carrier: 60 users / 60 different channels (@ 128 kbps)

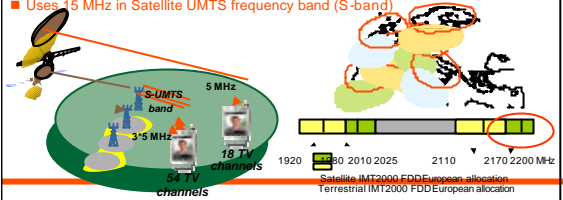
20 channels cover typically 80 %



"DVB-H+" for universal Mobile TV service

DVB-H standard extended to satellite

- High power geo satellites for Europe-wide coverage
- One beam per area, several beams per satellite
- Low power repeaters in urban areas offer urban indoor coverage and more capacity
- Uses 15 MHz in Satellite UMTS frequency band (S-band)



Satellite Mobile Broadcast: regulatory aspects

Satellite-based Mobile Broadcast

Hybrid system: Satellite + Complementary Ground Component
 Uses satellite frequencies in the 2 GHz range (MTU + Mobile Satellite Service - MSS band)

Helps European Mobile Industry and Broadcasters meet consumer demand
 Strong appetite for unlimited TV/Video/Multimedia experience
 Ubiquitous coverage means true mobility
 Easy integration in Mobile networks

Satellite-based Mobile Broadcast meet EU Policy objectives

Inclusive solution: Everywhere, for Everyone
 Efficient spectrum use
 Stimulates European innovation and the Internal Market through a Europe-wide initiative
 Helps implementing the European Space Policy
 Enables wide scale security policies: e.g. population alert

A Europe-wide regulatory framework enabling Satellite-based Mobile Broadcast services to take-up is needed:
 CEPT and EU current joint activities to set-up an harmonized framework @ 2GHz by mid -2006
 EC role is KEY to achieve a fully consistent and innovation-enabling regulatory framework

Creating a mobile TV mass market

