# ETSI
# Technical and Economic Drivers for Convergence

Adrian Scrase

CTO, ETSI

ITU-T Workshop on "Mobile Telecommunications and Fixed/Mobile Convergence – the realities going forward "
12-14 Sept 2005, Kiev, Ukraine

ITU-T

# Contents

- What are the latest trends in Telecommunications?
- Where do these trends lead us?
- What is ETSI planning to do?
- How will this impact on developed and developing countries?
- Conclusions

# Contents

- What are the latest trends in Telecommunications
- **Where do these trends lead us?**
- **What is ETSI planning to do?**
- **How will this impact on developed and developing countries?**
- **Conclusions**

# Trends – Fixed Telecoms

2003 figures. Source: WMRC

| Country | All telecoms revenue (US$bn) | Fixed lines in service (millions) | Fixed line penetration (%) | Fixed line % change y-o-y |
|---|---|---|---|---|
| France | 34.6 | 33.8 | 56.7 | - 0.6 |
| Slovenia | 0.8 | 1.1 | 56.8 | 12.0 |
| Austria | 4.6 | 3.9 | 47.7 | - 0.1 |
| UK | 77.3 | 34.6 | 58.0 | - 0.7 |

# Trends – Mobile Telecoms

2003 figures. Source: WMRC

| Country | Mobile subscribers (millions) | Mobile penetration (%) | Mobile subs % change y-o-y |
|---|---|---|---|
| France | 41.6 | 69.7 | 8.0 |
| Slovenia | 1.8 | 92.1 | 10.0 |
| Austria | 7.3 | 90.3 | 9.4 |
| UK | 54.5 | 91.3 | 7.1 |

# Trends – Internet

2003 figures. Source: WMRC

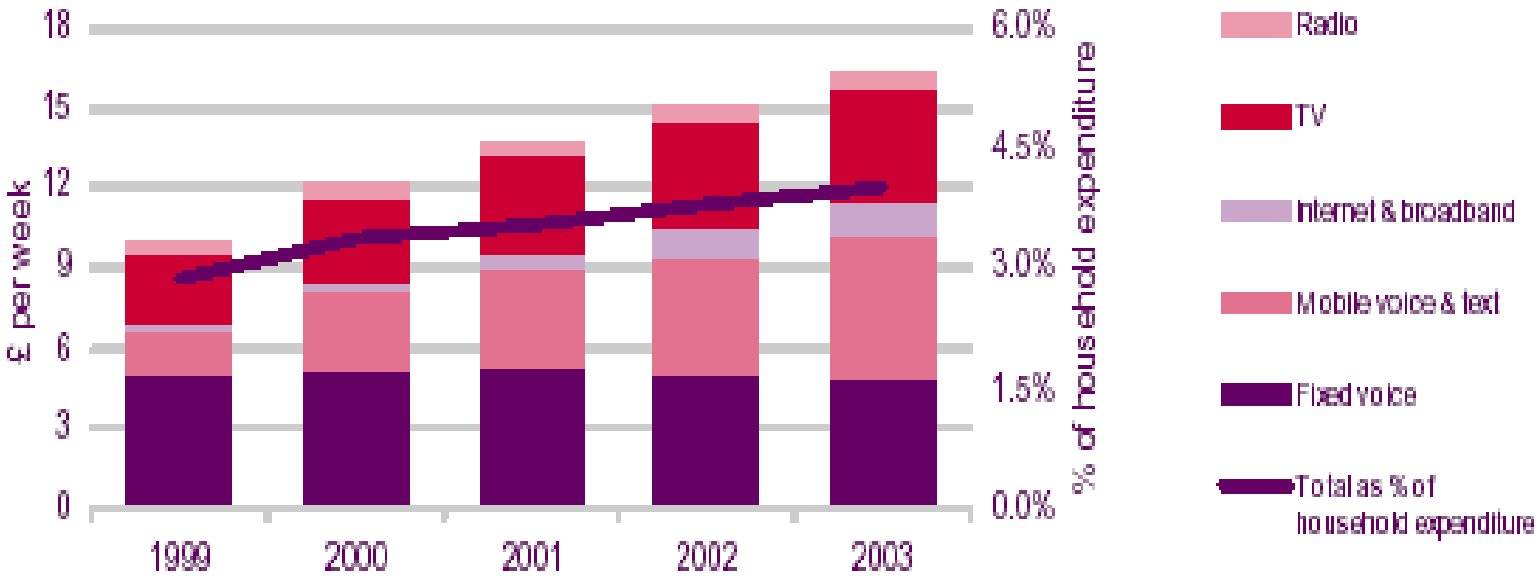
| Country | Internet users (millions) (estimated) | Internet penetration (%) | Internet users % change y-o-y |
|---|---|---|---|
| France | 20.9 | 34.9 | 11.6 |
| Slovenia | 0.8 | 41.9 | 11.3 |
| Austria | 3.5 | 46.2 | 6 |
| UK | 30.0 | 50.3 | 20.0 |

# Trends – Broadband Telecoms

Source: WMRC

| Country | Total broadband subscribers (millions) | | Total broadband subscribers % change y-o-y | |
|---|---|---|---|---|
| | 2002 | 2003 | 2002 | 2003 |
| France | 1.6 | 2.3 | N/A | 43.0 |
| United Kingdom | 1.4 | 2.6 | 294.8 | 92.4 |

# Trends - Household Telecoms Spend




*Source: Ofcom / operators / licensees / BBC*

**"Weekly household expenditure on television and telephony rose from £10.06 to £16.36 from 1999 to 2003, and now makes up 4.0% of total household expenditure."**

***The Communications Market 2004 – Ofcom – August 2004***

# Contents

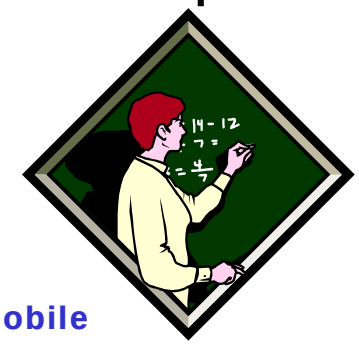
- What are the latest trends in Telecommunications?
- Where do these trends lead us?
- What is ETSI planning to do?
- How will this impact on developed and developing countries?
- Conclusions

# Technology Evolution

- Many countries (developed and developing) are seeing fixed line use reducing, even though penetration rates are not that high.
- Most countries (developed and developing) are seeing mobile use increasing even though penetration is already high.
- Internet penetration is not that high but shows a rapidly growing trend.
- Broadband deployment is growing, especially using xDSL technologies.

# Economic Evolution

- Even if customers have been willing to spend more on communications, the increases are small and certainly not in the fixed network
- Customer spending will not increase dramatically …
- …therefore, Industry must find a cheaper way to deliver telecommunication services
- Mass markets / economies of scale can help achieve this goal …

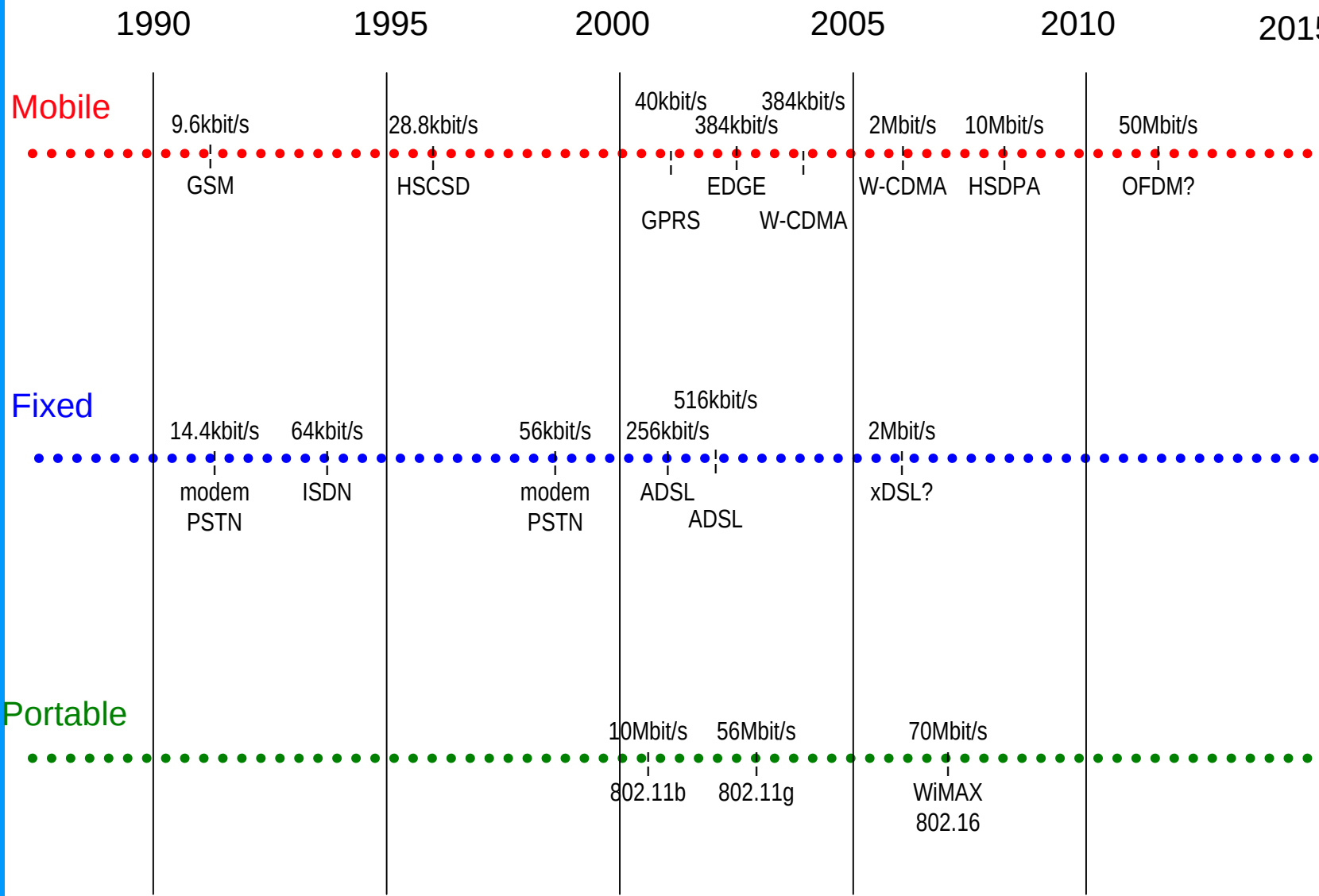


# Customer Expectation Evolution

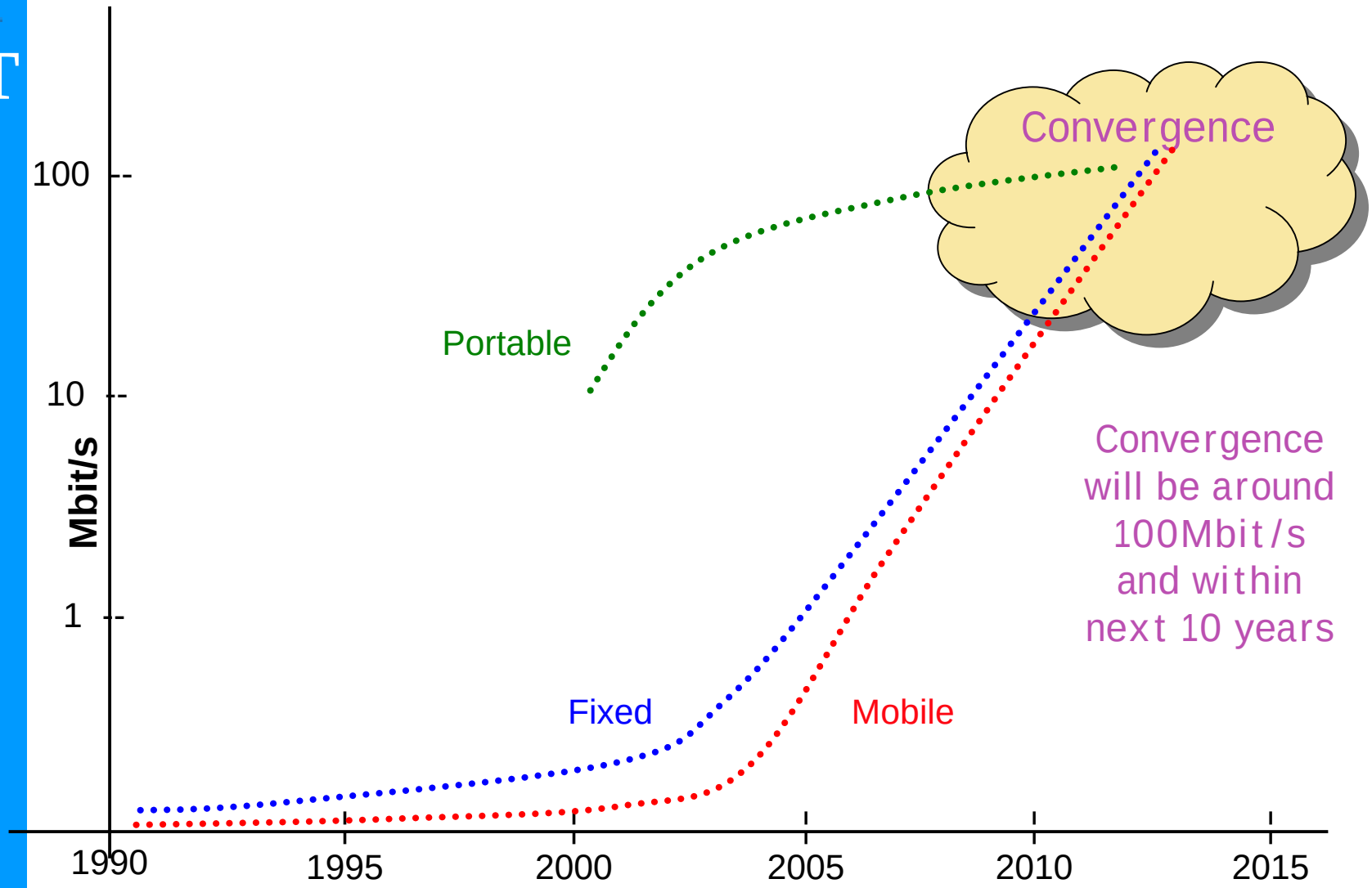
Today's customers expect …

- Mobility
- Portability
- Convenience
- Value for money
- Their preferred facilities and services irrespective of type of network and their geographical location
  - e.g. SMS/F-SMS, MMS/F-MMS

# Customer Data Experience Evolution

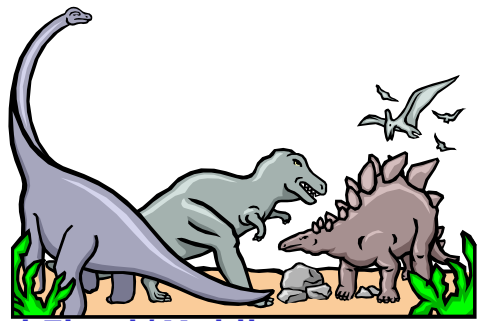


# Converging Customer Experience



# If we stay with the present course…

- Fixed network revenues will decline year on year, and investment for the future will be difficult
- Wireless access to fixed networks will only bring short term alleviation
- Mobile network revenues will increase year on year until saturation is reached



# Contents

- What are the latest trends in Telecommunications?
- Where do these trends lead us?
- What is ETSI planning to do?
- How will this impact on developed and developing countries?
- Conclusions

# Fixed-Mobile Convergence

- ETSI started work on Fixed-Mobile Convergence many years ago (1998)…
- … but the activity was too early …
- Then, fixed networks dominated, not mobile
- Now the world has changed …
  - Mobile dominates …
  - Mobile *broadband* rapidly becoming dominant …
  - Innovative access mechanisms (wired and wireless) have become significant …
  - 802.11b had not even been thought of when ETSI first discussed FMC …
  - Customers are interested in services, not technology

So …

# Mobile-Fixed Convergence

- With mobile dominating …
- … and being the focus of most technological and commercial decisions in our industry…
- … the *mobile platform* is now the one on which the world will converge
- The "fixed" telecom industry will need to adapt…
- *… or die …*

# The Platform for Convergence

- Mobile SIP-based IMS (IP based Multimedia Subsystem) is at the heart of both 3GPP (GSM evolved) and 3GPP2 (cdma evolved) networks…
- … so this is not simply a European view …
- … tomorrow's *entire* multimedia mobile world will be "IMS" based
- SIP (Session Initiation Protocol) based IMS means IP end-to-end
  - Applications and services can be supported seamlessly across all networks
- SIP is also at the heart of the Internet

# Economic advantage of IMS

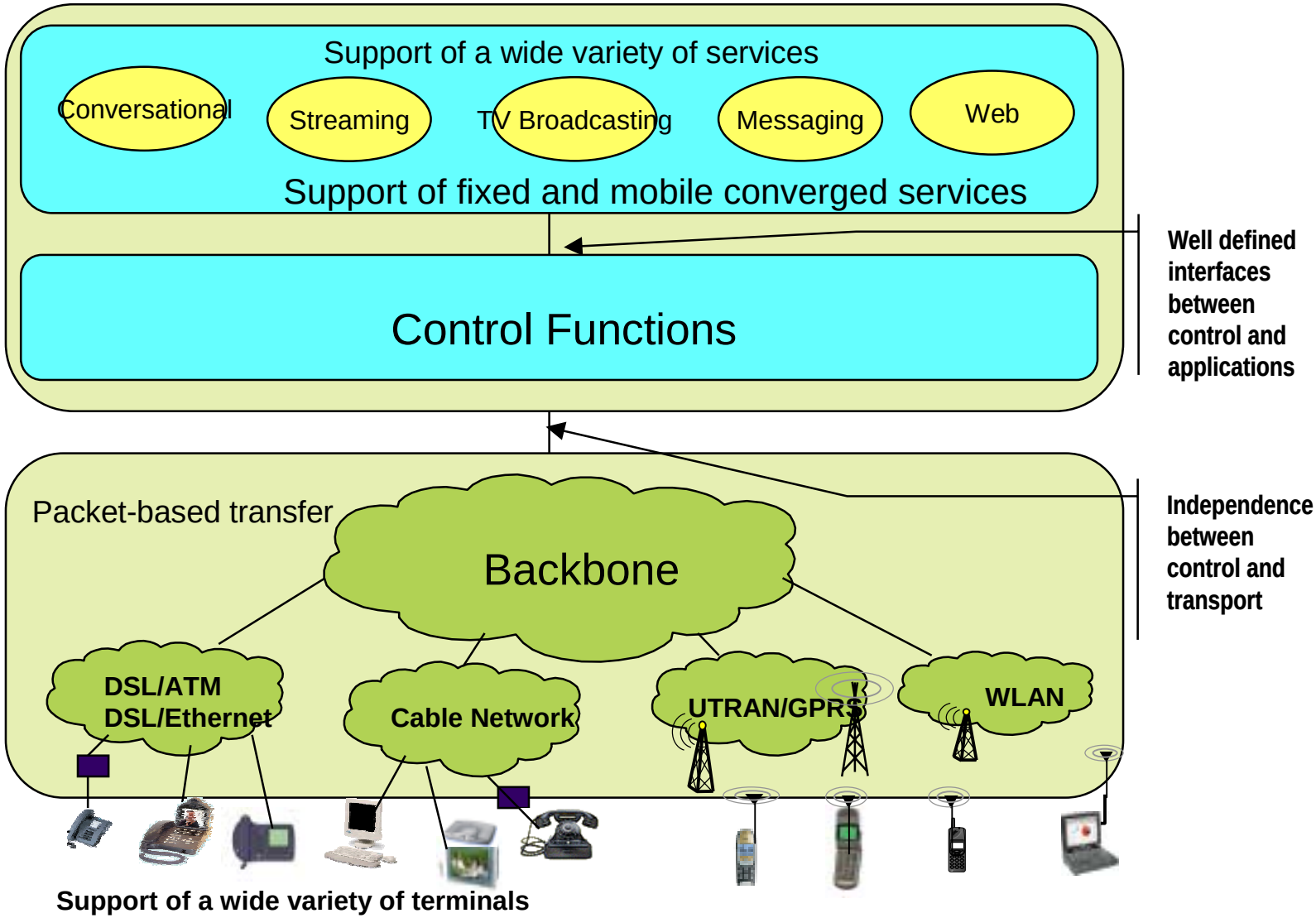
- … for creating a true converged mass market, with enormous economies of scale …

# The ETSI Vision

- Mobile/Fixed Convergence, based on the "IMS"platform
- A multi-service multi-protocol, multi-access, IP based network - secure, reliable and trusted
- Multi-services: delivered by a common QoS enabled core network.
- Multi-access: diverse access networks; fixed and mobile terminals, (Mobile, xDSL, etc)
- Not one network, but different networks that interoperate seamlessly
- Mobility / Nomadicity of both users and devices
- "My communications services"
  - anywhere, any terminal

This leads to a true Next Generation Network (NGN)

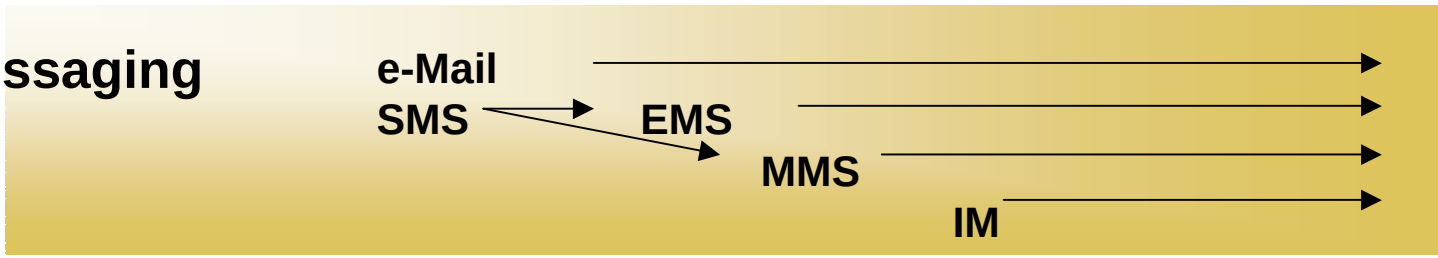
# NGN key assumptions



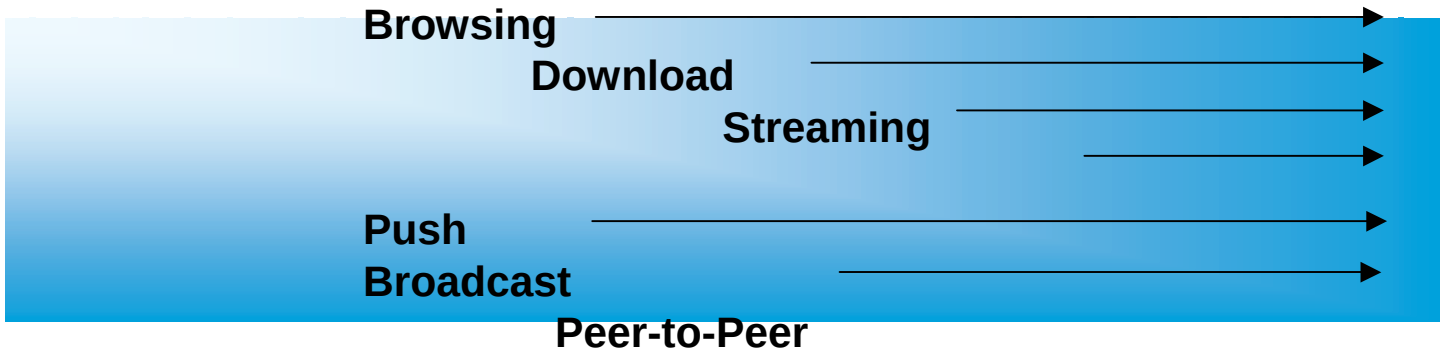
# Converged Service Delivery

ITU-T

## *Person-to-Person – Communication Services*


## *Content-on-demand*



# ETSI decided not to leave things to chance

- Planned convergence, not unplanned collision. A true marriage of mobile and fixed worlds.

This is not a dream, it is already a reality!

- 3GPP and ETSI TISPAN (fixed networks and NGN) are working closely together …
  - … unified work plans …
  - … publicly open joint 3GPP-TISPAN e-mail exploder list

# What is IMS?

- IP Multimedia Subsystem as defined by 3GPP
  - 3GPP IMS standards define a network domain dedicated to the control and integration of multimedia services.
  - IMS is defined by 3GPP from Release 5 onwards (2002)
  - 3GPP2 equivalent of IMS is the MMD (MultiMedia Domain), fully interoperable with 3GPP IMS
- IMS builds on IETF protocols
  - Based upon SIP, SDP, COPs and Diameter protocols
  - 3GPP have enhanced these IETF protocols for mobility
- IMS in short
  - Open-systems architecture that supports a range of IP-based services over both PS and CS networks, employing both wireless and fixed access technologies

# What does IMS provide?

- Services and Control
  - Adds call session control to the packet network (GPRS)
  - enables peer-to-peer real-time services - such as voice, video - over a packet-switched domain
  - scalable common service control (based on SIP) give the ability to manage parallel user services
- Mixed Multimedia
  - Ability to pick and mix various multimedia flows in single or multiple sessions
  - Can handle real-time voice, video, data
- Access Independence
  - Provides access to IP based services independent of the access network (mobile / fixed)

# Why all the excitement?

User Perspective

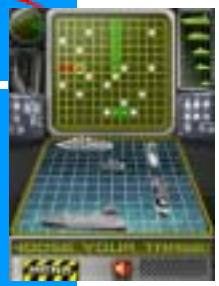
- Imagine starting a voice call on you home phone and transferring it seamlessly do your mobile as you drive to work.
- Imagine sending a multimedia message from your car that later appears on your TV screen.
  Imagine watching a movie on that same TV, pausing it in mid-show and then watching it on a wireless PDA as you relax in the garden.
  Imagine having a cell phone conversation with two or three friends and simultaneously sharing a video of the football match you are attending.
- Imagine that all of the above can be done with a single account, on a single log-in with multiple devices over any number of access networks
- These are only a few examples of seamless multimedia services that what IMS will allow users to access anywhere at any time

# Why all the excitement?

Operator Perspective

- Imagine a network that allows operators to reduce CAPEX though shared functionality and re-use of infrastructure for multiple services
- Imagine a network that allow Operators to reduce OPEX through simplified architecture and re-use of infrastructure for multiple services
- Imagine a network that allows Operators to mix and match services to address specific market segments and enable rapid deployment of new products
- Imagine a network that will allow operators to open up their networks to 3rd parties in order to enhance tailored services to their customers
- Imagine a network based on open interfaces that allows operators the freedom to buy components from many suppliers
- Larger product portfolio, simpler / cheaper networks and more flexible service offerings are only some of the reasons operators are excited about IMS

# Applications and Drivers




- Voice Telephony (VoIP)
- Video Telephony
- Multimedia Streaming
- Web Browsing
- Presence-based services
- Push-to media services, such as push-to-talk, push-to-view, push-to-video
- Group chat
- Instant messaging
- Multiparty gaming
- PIM services, such as calendars and alerts
- Multimedia (Audio/Web/video) conferencing
- Content sharing / data transfer
- ….. And the list goes on
- Push-to-talk is considered by many as the leading driver for early adopters of IMS

# IMS Deployment

- Who is adopting IMS?
  - IMS appeals to carriers, telcos, and service providers of all types (mobile and fixed).
  - Some 200 carriers are already in trials or in the early stages of IMS deployment
  - Early deployment examples include:
    - BT Group plc' have largely announced their 21st Century Network, based upon IMS and SIP infrastructure
    - Telecom Italia Mobile SpA have launched a video-sharing service over its 2.5G and 3G networks
    - In the U.S., BellSouth Corp. is deploying SIP-based infrastructure
- SIP interoperability trials
  - GSMA has organized trials using infrastructure based on the 3GPP IMS standard, handsets provided by Nokia using test applications such as voice instant messaging, video sharing and gaming, employing both 2G and 3G access networks.
  - Trails involved six mobile operators (KPN, Orange, SFR, Telenor, TeliaSonera and Vodafone), four GRX carriers (Belgacom, Cable & Wireless, KPN and TeliaSonera), and three major infrastructure vendors (Ericsson, Nokia and Siemens).

# What about “Wireless Access” ?

- Wireless LAN technology is becoming ubiquitous (802.11b, 802.11g, etc)
- Wireless Access is just one class of access to networks and services
- The networks accessed may be “fixed” or “mobile” and much integration work has already been done
  - See for example the 3GPP integration scenario for WLAN (TR22.934 and TS23.234)
- Wireless Access is easily accommodated in the ETSI NGN vision

# And what about “VoIP” ?

Other Internet based solutions now exist for voice

- For example, what about Skype ?
  - Non-standardised
  - Proprietary
  - Acceptable quality
  - Cheap (free for Internet to Internet)
  - Fast growing volume of users
- How should Industry respond ?
  - Ignore ?
  - Challenge ?
  - Accommodate ?

# Contents

- What are the latest trends in Telecommunications?
- Where do these trends lead us?
- What is ETSI planning to do?
- How will this impact on developed and developing countries?
- Conclusions

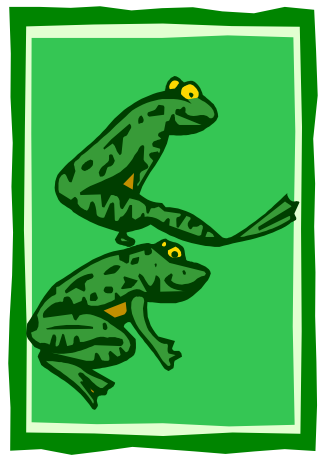
# Impact on Developed Countries

- Clearly identified need to move towards Next Generation Networks
- But, legacy investments must be protected….

- Large installed PSTN customer base will need to be progressively migrated to broadband access, using either fixed or mobile, or both technologies.
- xDSL population are accommodated in ETSI's NGN vision
- Mature mobile population will evolve to high speed (HSDPA) technology for broadband access to IMS based platforms

# Impact on Developing Countries

- Clearly identified need to move towards Next Generation Networks
- Legacy investments are much less of an issue
- Industry can "leap frog" from outdated technology to Next Generation Networks and benefit from the experienced gained by early adopters



# Contents

- What are the latest trends in Telecommunications?
- Where do these trends lead us?
- What is ETSI planning to do?
- How will this impact on developed and developing countries?
- Conclusions

# Conclusions

- Doing nothing is not a sensible option!
- Convergence is inevitable
- A true mass market is essential to obtain economies of scale
- Mobile-Fixed Convergence, not Fixed-Mobile Convergence
- Planned convergence, not unplanned collision

# Conclusions

- SIP-based IMS is becoming the "heart" of all mobile systems world-wide …
- … and should become the heart of all fixed systems too
- Within five years, "Fixed IMS" standardisation will have been completed and …
- … the industry will be ready to deploy and exploit the benefits
- The time to influence the standardization process is NOW !

ITU-T

Thank you for your attention

adrian.scrase@etsi.org

ITU-T

# Helpdesk

**For general enquiries about ETSI activities, deliverables & IT questions**

**Tel:** +33 (0)4 92 94 49 00

**Internet:** helpdesk@etsi.org

**Address:** ETSI helpdesk, 06921 Sophia Antipolis Cedex, France

**www:** http://portal.etsi.org/Helpdesk/home.asp