



IPTV and Telecom Sector:

Policy and Regulatory Considerations



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Note: The views expressed in this presentation are those of the author and do not necessarily reflect the opinions of the ITU. Jaroslav K. Ponder can be contacted at Jaroslav.Ponder@itu.int



Agenda

- **Communication Sector: Trends**
- **What is IPTV?**
- **Is IPTV Challenging?**
- **IP-environment and the ITU**
- **Conclusions**



Trends in the Communication Sector

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Society together!*



Trends: Communication Sector

- **Regulatory Reform**
- **Expansion of infrastructures**
 - Fixed Telecom / Cable TV
 - Mobile / Wireless
 - The Internet
- **Two worlds:** The Internet <-> Telecom
- **Telecom: Migration to the IP environment**
 - Access Networks <-> Core Networks
 - IP-enabled Next Generation Networks
 - Next Generation Network
*Multimedia/ Generalized mobility/ Convergence/ Integrity/
Multi-layer orientation/ Open character*
 - Required investment worldwide > **400 Bill**



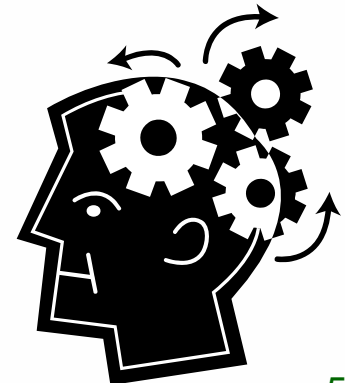
Next Generation Network

- **ITU-T SG 13: Rec. Y.2001**

- A NGN is a **packet-based network** able to provide telecommunication services and able to make use of **multiple broadband, QoS-enabled** transport technologies and in which **service-related functions** are **independent** from underlying **transport-related technologies**.
- It enables **unfettered access** for users to networks and to competing service providers and/or services of their choice.
- It supports **generalized mobility** which will allow consistent and ubiquitous provision of services to users.

- **What is different?**

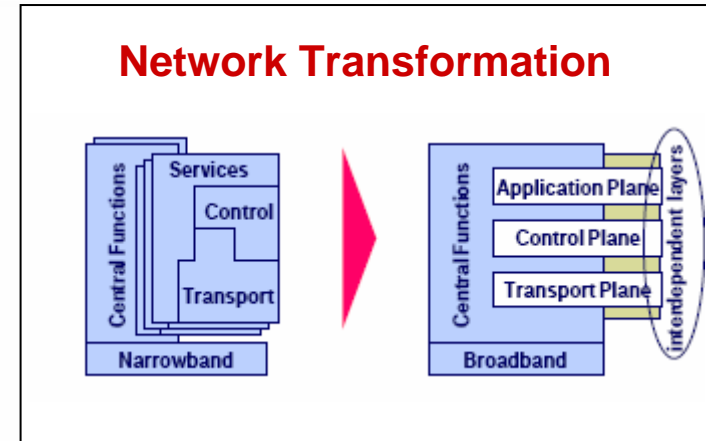
- Multimedia
- Generalized mobility
- Convergence
- Integrity
- Multi-layer orientation
- Open character





What drives NGN development?

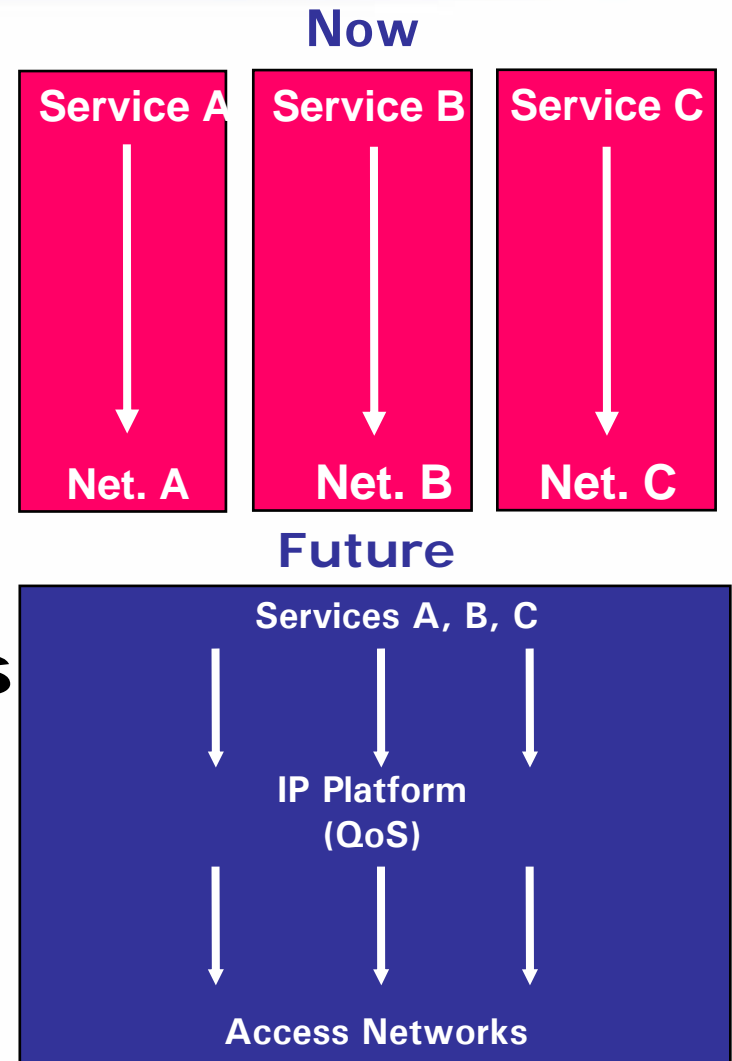
- **Financial performance**
 - Revenue growth
 - Margin protection
 - Reduced OPEX and CAPEX
- **Operational issues**
 - Obsolescence & modernization
 - Reliability, resilience & quality
 - Capacity & scalability
 - Simpler and faster provision of service
- **Competitive issues**
 - New service roll-out/substitution & service differentiation
 - Market share growth & protection
 - Convergence of voice, data and IT enables provision of new offerings in packages





NGN impact

- Convergence
- Market structure
- Market potential
- Business models
- Price strategies
- Sell strategies
- Customer preferences
- Customer protection
- Regulatory model
- What next...





Trends: Communication Sector

- **Fixed-Mobile Convergence**
 - Services layer
 - KT: One Phone / BT: Fusion Phone
 - Hardware layer
 - Siemens / Nokia / Lucent / Alcatel...
- **Service Convergence**
 - N-play services → Content
- **Challenging**
 - VoIP - Voice
 - VoIP - Video
 - VoIP - Velocity



Applications



Digital Dividend



Decision Power



Internet Telephony



New Mechanisms



Next Generation Access Networks

- **Fixed**

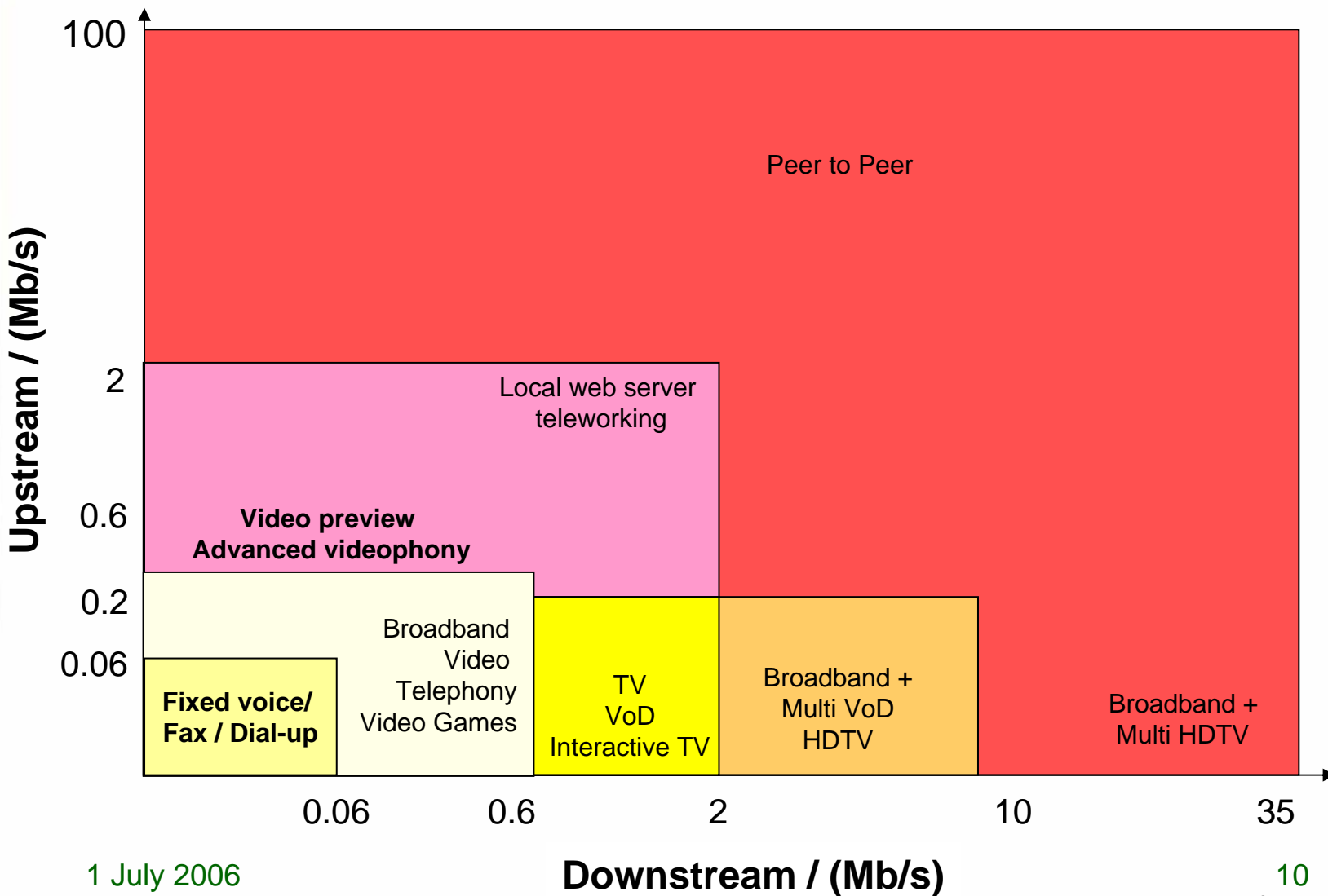
- xDSL
- Cable TV
- PLC
- FTTx

- **Wireless**

- Mobile infrastructures; 2G to 3G and beyond 3G
- WiFi and WiMAX
- Satellite
- Digital broadcast infrastructures
- Wireless Mesh networks



Service Driven Next Generation Access Networks

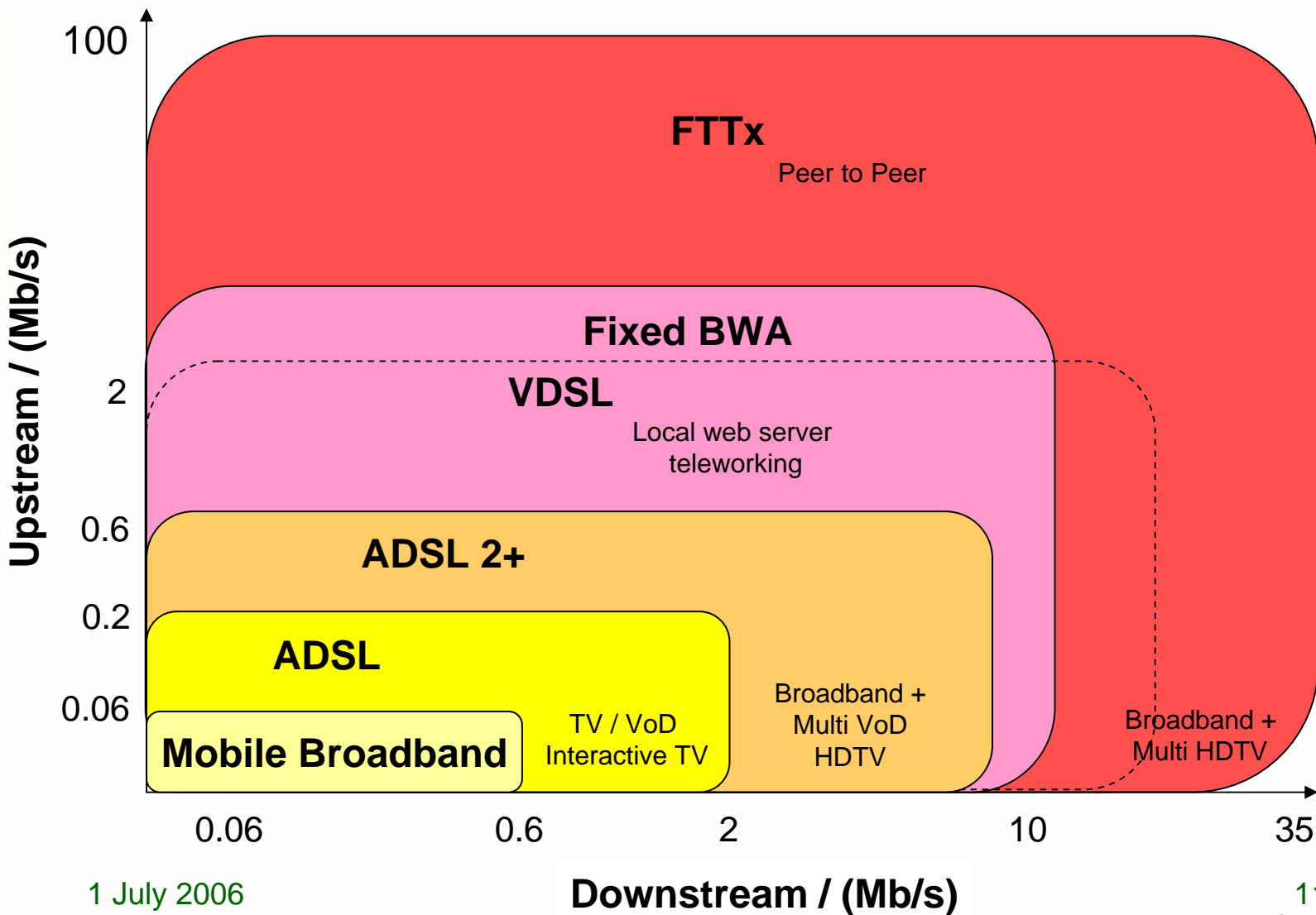


1 July 2006

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Note: Adopted from TPSA



Service Driven Next Generation Access Networks



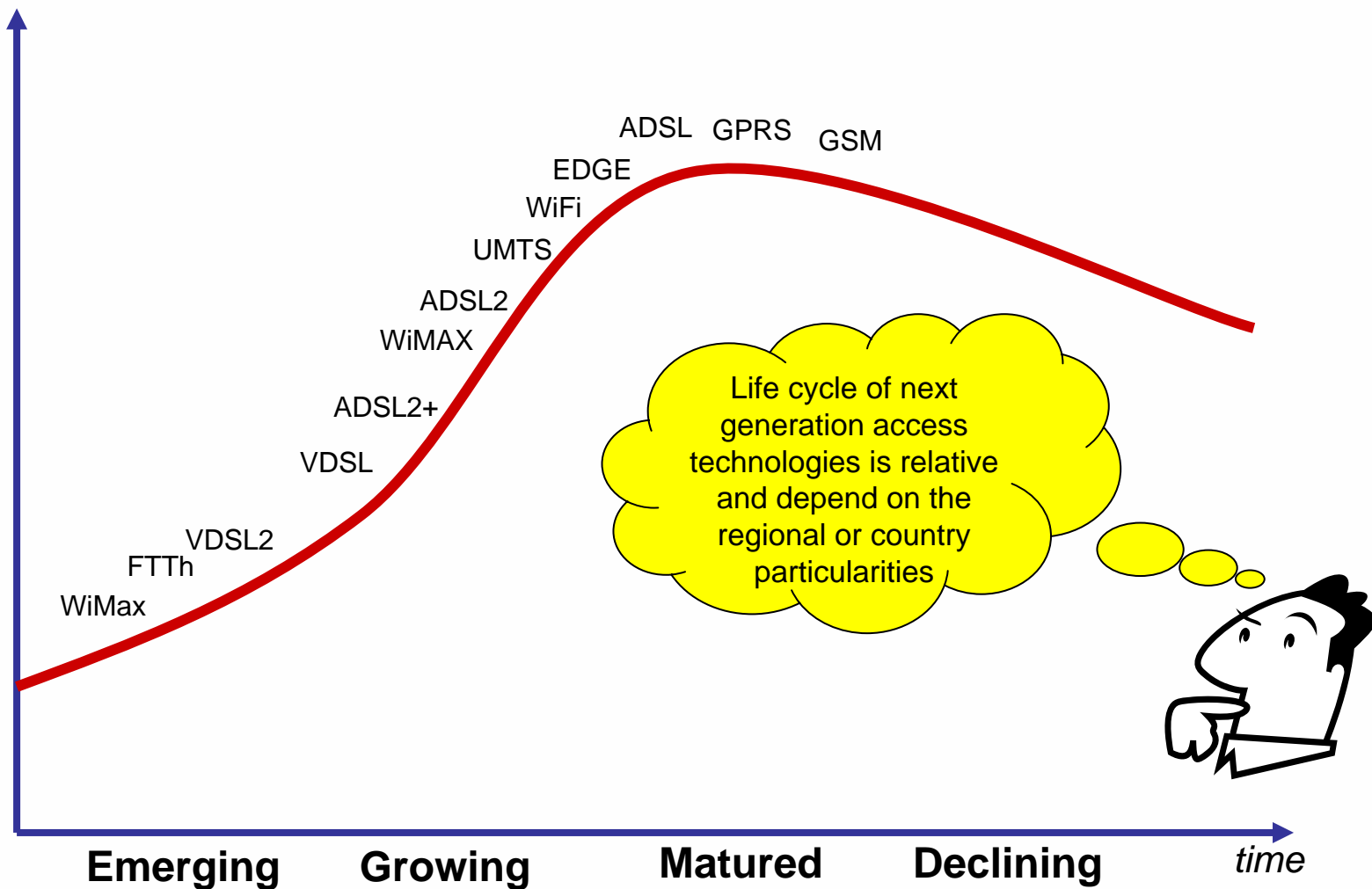
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Note: Adopted from TPSA



Life of Next Generation Access Technologies



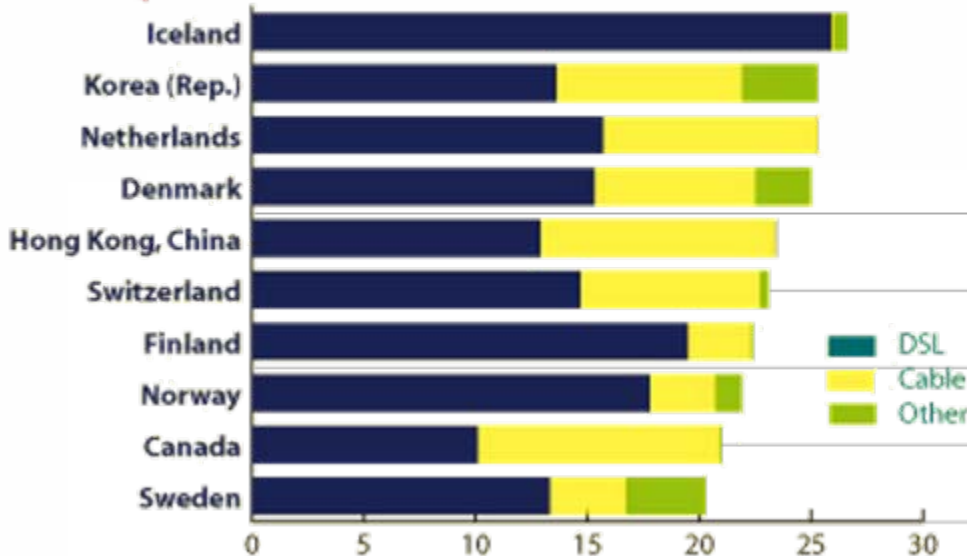


Broadband penetration rates, 2006

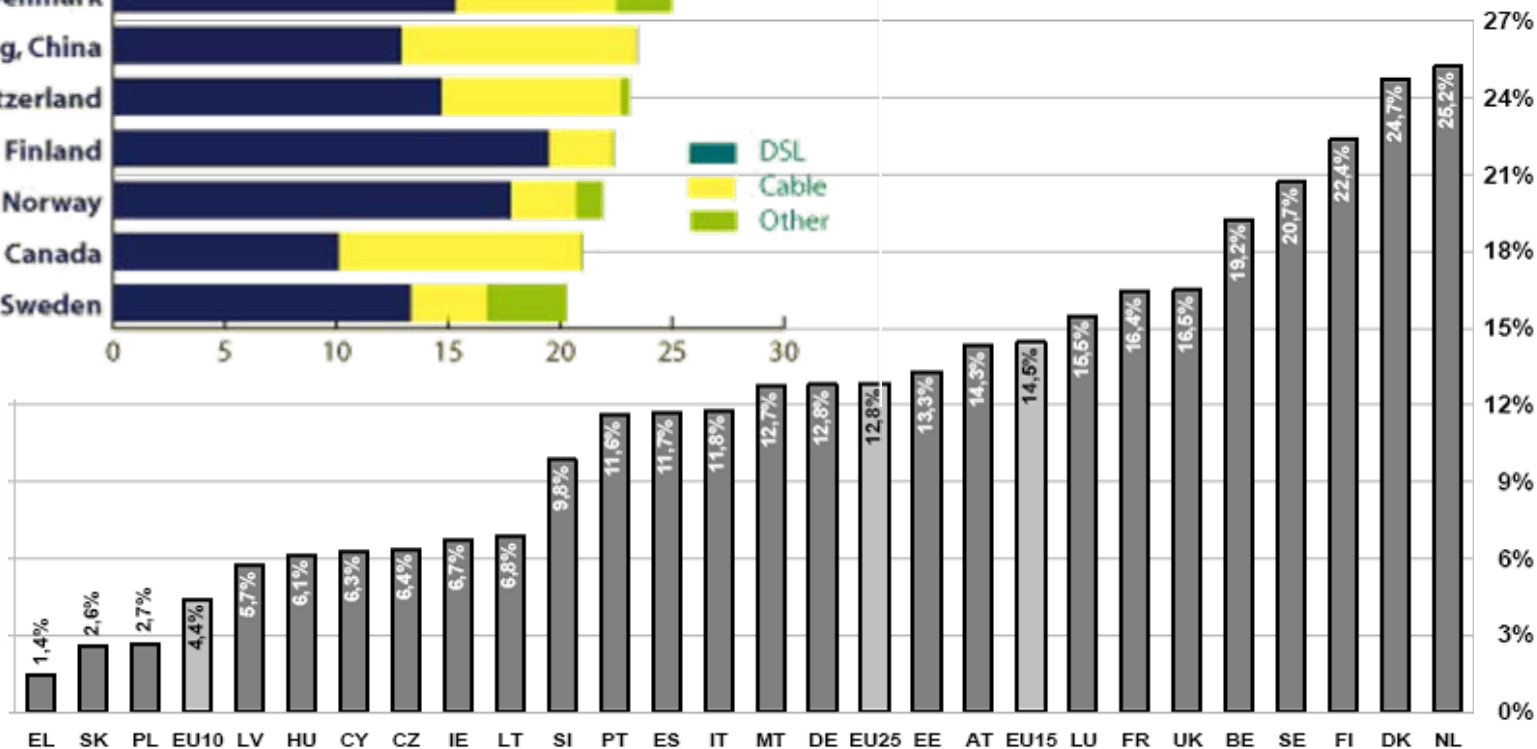


Top 10 Broadband Economies

Total penetration (per 100 inhabitants), by technology



EU Broadband Penetration Rates



Source: Commission services based on data from COCOM

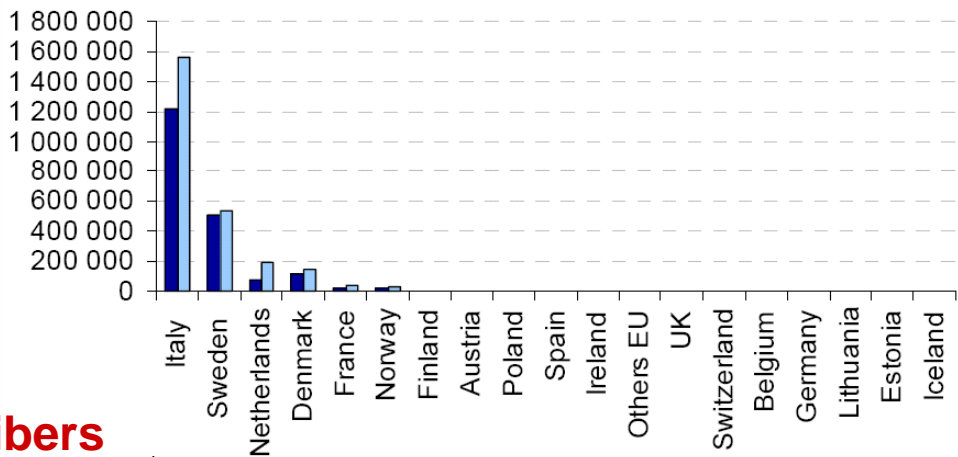
Source: ITU



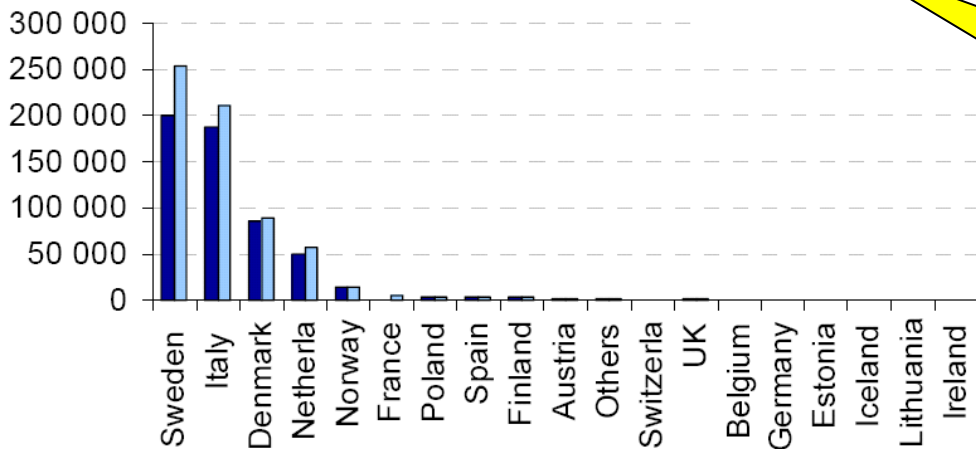
FTTx in Europe (2005)

Few countries started development of FTTx infrastructure.

Home / Building passed



European FTTx subscribers



The customer base is still very small but grows very fast in most of leading economies

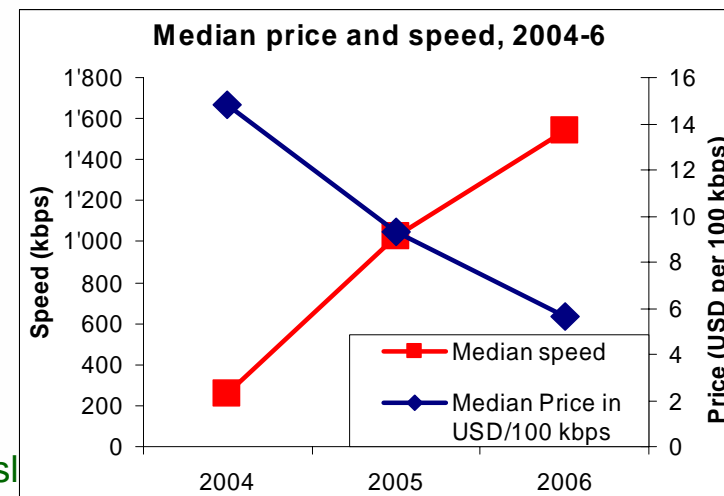
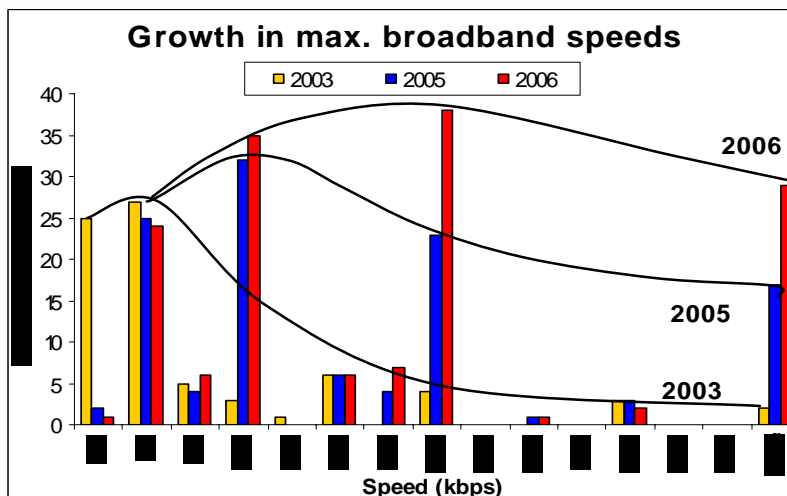
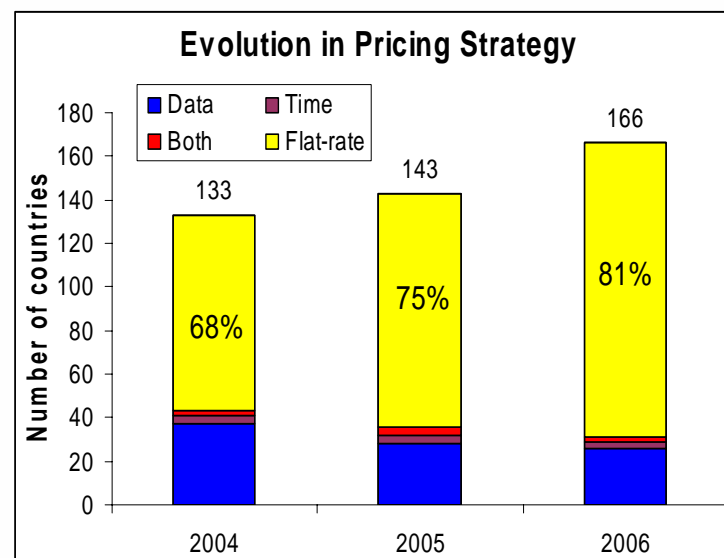
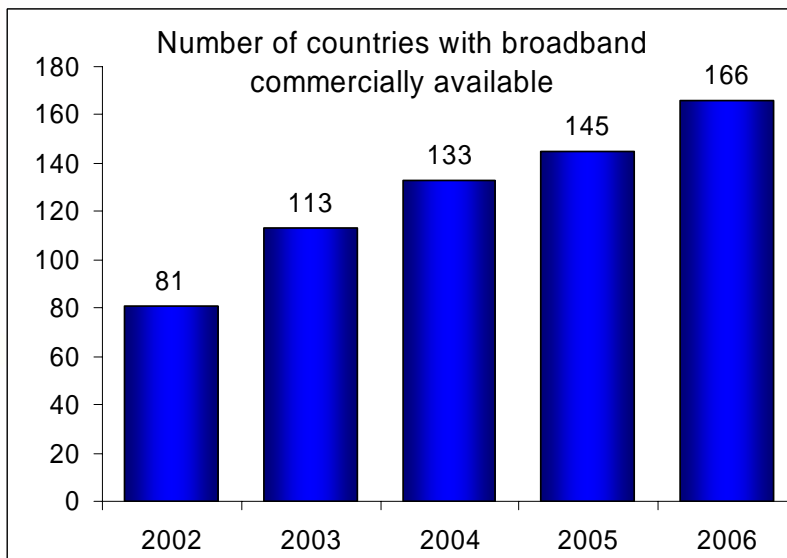
■ June 2004 ■ June 2005

Source: IDATE (2005)

Source: IDATE (2005)



Trends: Communication Sector





Trends: Communication Sector

Broadband prices for the cheapest fifteen economies

<i>Economy</i>	<i>Company</i>	<i>Speed kbit/s</i>	<i>Price per month US\$</i>	<i>US\$ per 100 kbit/s</i>	<i>Change 2005-06</i>
Japan	Yahoo BB	51'200	14.2	0.03	-12.5%
Korea (Rep.)	Hanaro	51'200	40.59	0.08	--
Netherlands	Internet Access Ned.	20'480	27.97	0.14	-81.3%
Taiwan, China	Chunghwa	12'288	22.67	0.18	--
Sweden	Bredbandsbolaget	24'576	56.08	0.23	-6.5%
Singapore	StarHub	30'720	73.17	0.24	-85.0%
Italy	Libero	12'288	37.23	0.30	-73.8%
Finland	Elisa	24'576	85.64	0.36	-51.4%
France	Free	10'240	37.29	0.36	-90.1%
United States	Comcast	4'096	20.00	0.49	--
Germany	Freenet.de	6'016	30.95	0.52	--
United Kingdom	Pipex	8'128	50.89	0.63	-53.6%
Hong Kong, China	Netvigator	6'144	51.17	0.83	-0.1%
Portugal	Sapo	8'128	75.82	0.93	-0.8%
Canada	Bell	4'096	41.26	1.01	-3.93%
Average		18'278	44.33	0.43	-45.5%
Best practice (top 20%)		40'960	27.59	0.10	-46.9%



New Market Structure

Checking box

	Broadc asting/ Satelite	Fixed Telec.	Cable- TV	Mobile Telec.	Wire less	Infr. less s. prov.
Voice		↓	↑	↓	↑	●
Internet		↓	↑	↓	↑	●
Television/ Radio	●	↓	↑	↓	↓	●
Services on Demand (VoD...)		↓	↓	↓	↓	●



N-play economics...

- **To be considered by providers**
 - **Products:** complementary, substitutive or neutral goods
 - **Price:** Reservation prices
 - **Pure** versus **mixed bundling**
- **Bundling Advantages**
 - Reduces the costs
 - Increases demand
 - Locks in customers
 - Improves product performance
 - Differentiates the product offerings
- **N-play services and competition**
 - Exclusion of rivals
 - Cross-Selling
 - Product differentiation
 - Market barriers
 - Market Structure
- **Regulation...**



What is IPTV? IPTV Challenges?

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NGN and IPTV

- **IP-enabled NGNs**

- New technical requirements
- Standardization process

- **IPTV**

- Unicast
- Multicast

- **IPTV**

- Free or Fee Based
- Platforms
 - Internet / Fixed telecom / Cable TV / Mobile / Wireless
- IPTV versus Streaming Video
 - High quality
 - Stored or live



What is IPTV?

- IPTV is defined as the **secure** and **reliable** delivery to subscribers of entertainment video and related services. These services may include, for example, **Live TV**, **Video On Demand** (VOD) and **Interactive TV** (iTV).
- These services are delivered across an access agnostic, **packet switched network** that employs the IP protocol to transport the audio, video and control signals.
- In contrast to video over the public Internet, with IPTV deployments, **network security** and **performance** are tightly managed to ensure a superior entertainment experience, resulting in a compelling business environment for **content providers**, **advertisers** and **customers alike**.



IPTV: Market Trends

- **Beijing RIC Information Consulting (2005): Global**

- 2006: the global revenue of IPTV service → \$8 billion with over 8 million subscribers.
- Users: 2004: 2.19 million → 2008: 20.44 million

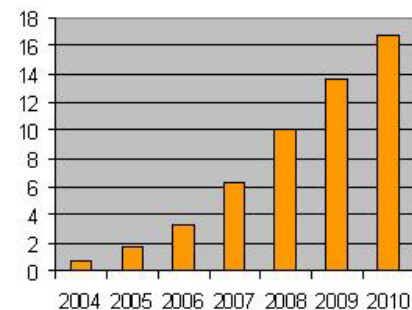
- **21st Century Communications World Forum :**

- 2006: 2-3 Million U.

- **Gartner (2006): Europe**

- 2006: 3.3 million users
- 2010: more than 16 Million Users
- Additional revenues generated will grow from 336 Million to 3 Billion

IPTV Users in Europe



Source: Gartner (2006)



IPTV: Market Trends

- **France**

- 2006: 1,7 mln / Revenues 141 mln Euro
- 2010: 5 mln / Revenues 682 mln Euro

- **UK**

- 2006: 75 tys. → 2010: 1,9 mln.

- **Germany**

- 2006: 47 tys. → 2010: 2,8 mln w
- 2010: Revenues: 465 mln Euro
- Deutsche Telecom / Microsoft / Premiere

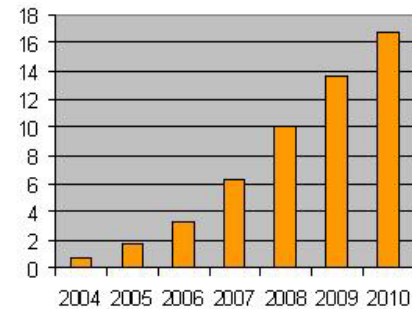
- **Hong Kong's PCCW**

- 30% of the world's IPTV customers – and 61% of Asian subscribers – 2005: 500,000 subscribers
- the churn rate has dropped by half

- **China**

- Subject of special licenses
- Shanghai Media Group (SMG)

IPTV Users in Europe



Source: Gartner (2006)



Who has the interest?

- **Content providers / distributors**
 - Provision directly to the client
 - Bypass of traditional outreach methods
 - New financing mechanisms
 - True margin: Case of mobile industry...
 - Local content
 - Cross media ownership
 - Anti-siphoning
 - From Local to Global Market
 - IPTV fosters globalization: Cross border diffusion of the content
 - IPTV requires new international action



Who has the interest?

- **Telecom Operators**

- New niche by minimal cost
- STB: Digital Home / Approach: From last mile to last meter
- ABC: Access / Box / Content
- N-play services advantages

- **Consumers**

- Personalization
- Interactivity: Two way communication
- Extended number of services
- But...

- **Consumer Protection Issues**

- Awareness and acceptance
- Copyright
- Protection for children.
- Greater consumer literacy
- Ultimately have to be the viewers themselves blocking content they personally were unhappy with



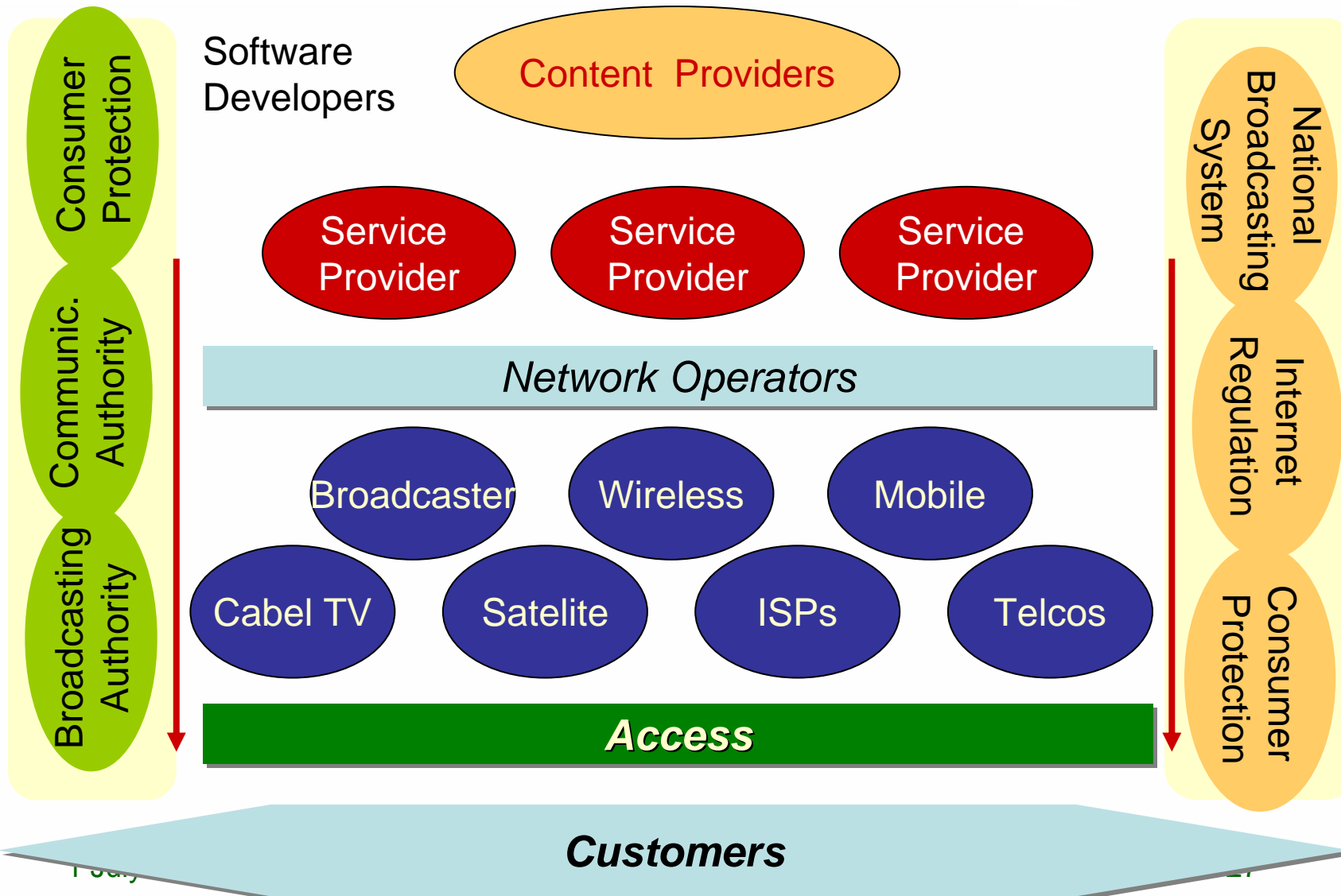
IPTV: Challenges

- **Infrastructure requirements**
 - 6-16 MBit/s for HDTV / Narrow Band TV
 - Bandwidth / Generalized mobility
 - ADSL2+ / VDSL / FTTx / 3G / 4G / WiFi / WiMAX
- **Standardization process (STB)**
- **Compression Methods**
- **Network Neutrality**
- **Value Creation Chain**
 - Margin redistribution
- **Triple-play**
 - Distribution platforms / Interaction
 - Broadcasting / One way communication





IPTV: Who has the power?





What is to expect soon

- **Institutional Implications**
 - Convergence of the regulators
 - Review of the broadcasting systems
- **Incumbents**
 - Significant market power...
 - Economies of scale and scope
 - Collaboration with content providers and distributors
- **New role of software providers**
- **Higher network externalities**

Revenues

Users



IPTV: Regulatory Challenges

- **Definition of IPTV in legal system**
 - IP Hybrid-service
 - Information service
 - Broadcast service
 - Regional licenses: in Case of US on the regional level
- **China**
 - Specific regulation to the IPTV



IPTV: US

- **Cable franchises**
 - SBC versus Information Service
- **April: House Energy and Commerce subcommittee:**
 - National Licenses to offer television service without winning the approval from local communities
- **Interested Parties: Verizon, At&T, Bellsouth...**
- **Challenges:**
 - ISPs: Bandwidth prioritisation
 - Big telecoms: cherry picking and discrimination against lower income areas
 - Verizon und SBC/AT&T intend to invest around 30 Billion shortly



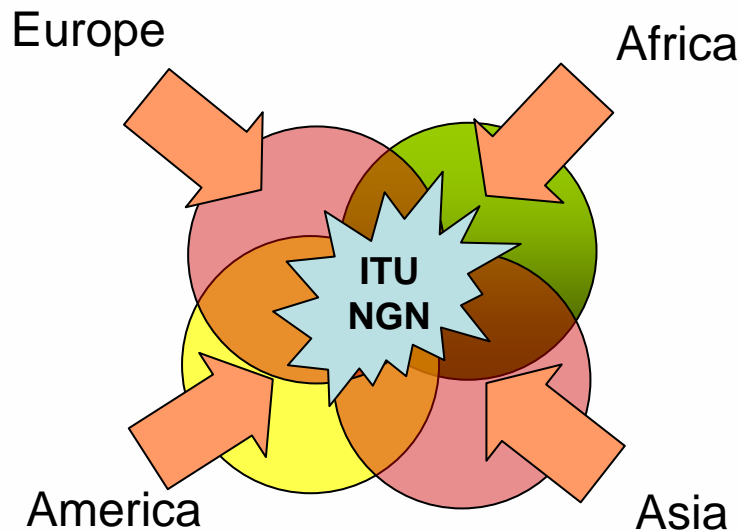
Migration to the IP environment and the ITU

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NGNs as a global issue

Standardization



Challenges

- Multimedia
- Generalized mobility
- Convergence
- Integrity
- Multi-layer orientation
- Open character

ITU-T SG 13: Rec. Y.2001

A NGN is a **packet-based network** able to provide telecommunication services and able to make use of **multiple broadband, QoS-enabled transport technologies** and in which **service-related functions** are **independent** from **underlying transport-related technologies**. It enables **unfettered access** for users to networks and to competing service providers and/or services of their choice. It supports **generalized mobility** which will allow consistent and ubiquitous provision of services to users.



SG: 11, 13, 19, 2, 12, 16, 17



IP-enabled NGNs

A global issue



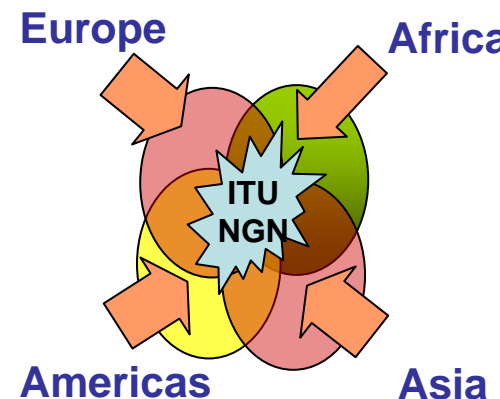
What Rules for IP-enabled NGNs?



ITU Workshop
March 23-24 2006
Geneva, Switzerland

Regulatory considerations

- New and emerging markets
- Interconnection
- Universal Service
- Best Practices...
 - National, Regional, International level



Study
Group 1

- Tariff policies, tariff models and methods of determining the costs of services on national telecommunication networks, including next-generation networks
- Regulatory impact of next generation networks on interconnection
- Strategy for migration existing networks to next-generation networks (NGN) for developing countries

<http://www.itu.int/osg/spu/ngn/>



ITU and IPTV

IPTV Focus Group

- **April 2006: Consultation**
 - More than 100 contributions from diverse stakeholders
 - Architecture and Requirements
 - QoS and Performance Aspects
 - Service Security and Contents Protection Aspects
 - Network and Control Aspects
 - End Systems and Interoperability aspects
 - Middleware and Application Platforms
- **April 2006: Focus Group on IPTV**
 - The mission of FG IPTV is to coordinate and promote the development of global IPTV standards taking into account the existing work of the ITU study groups as well as Standards Developing Organizations, Fora and Consortia.
- **July 2006: ITU Headquarters, Geneva**



Conclusions

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Conclusions

- Telecom sector migrates to the **IP environment**
- **Regulatory environment** has to be defined as soon as possible in order to minimize investment risk
- International **standardization process** has to proceed as fast as possible
- The policy and regulatory changes will be implemented rather in a way of **natural evolution** than drastic revolution
- Innovation dynamics lets implement new **business models** as well as **new sell and pricing strategies**, e.g. triple-, quad-play
- **N-play services** become more and more popular among service providers



Conclusions

- N-play services does not mean **IPTV**
- IPTV is an **emerging technology** that may change the meaning of the communication sector
- IPTV becomes a new driver of the **convergence process**
- IPTV still requires intensive work on **standardization** and **regulation**
- International aspects are crucial for further expansion and require **involvement of international org.**
- **Please do not wait and give your voice to this debate!**



**Thank you very much
for your attention!**

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Resources

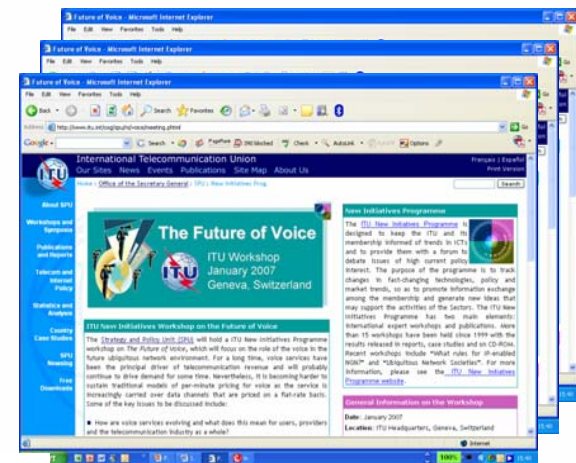
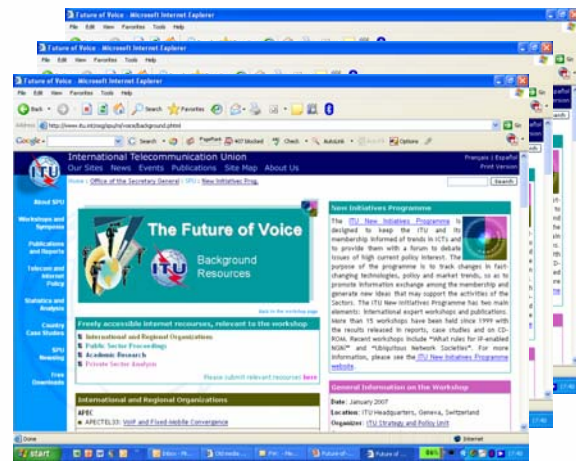
- Full version of this presentation and others focusing on NGN:
www.itu.int/osg/spu/presentations/
- NGN regulatory and policy resources:
<http://www.itu.int/osg/spu/ngn/ngn-policy-regulatory-resources.html>
- ITU activities on NGN:
www.itu.int/spu/ngn
- The Future of Voice:
www.itu.int/spu/voice



ITU New Initiatives Project

- **Concept Paper**
- **Background Materials**
 - Internet Resources
 - Papers
 - Innovation Dynamics in the IP Environment
 - Market Potential of Voice and Next Generation Services
 - Regulatory Trends: New Enabling Environment
 - Regional Investigations
 - Asia
 - Latin America
 - South and Eastern Europe
- **Workshop**

www.itu.int/spu/voice





International Telecommunication Union

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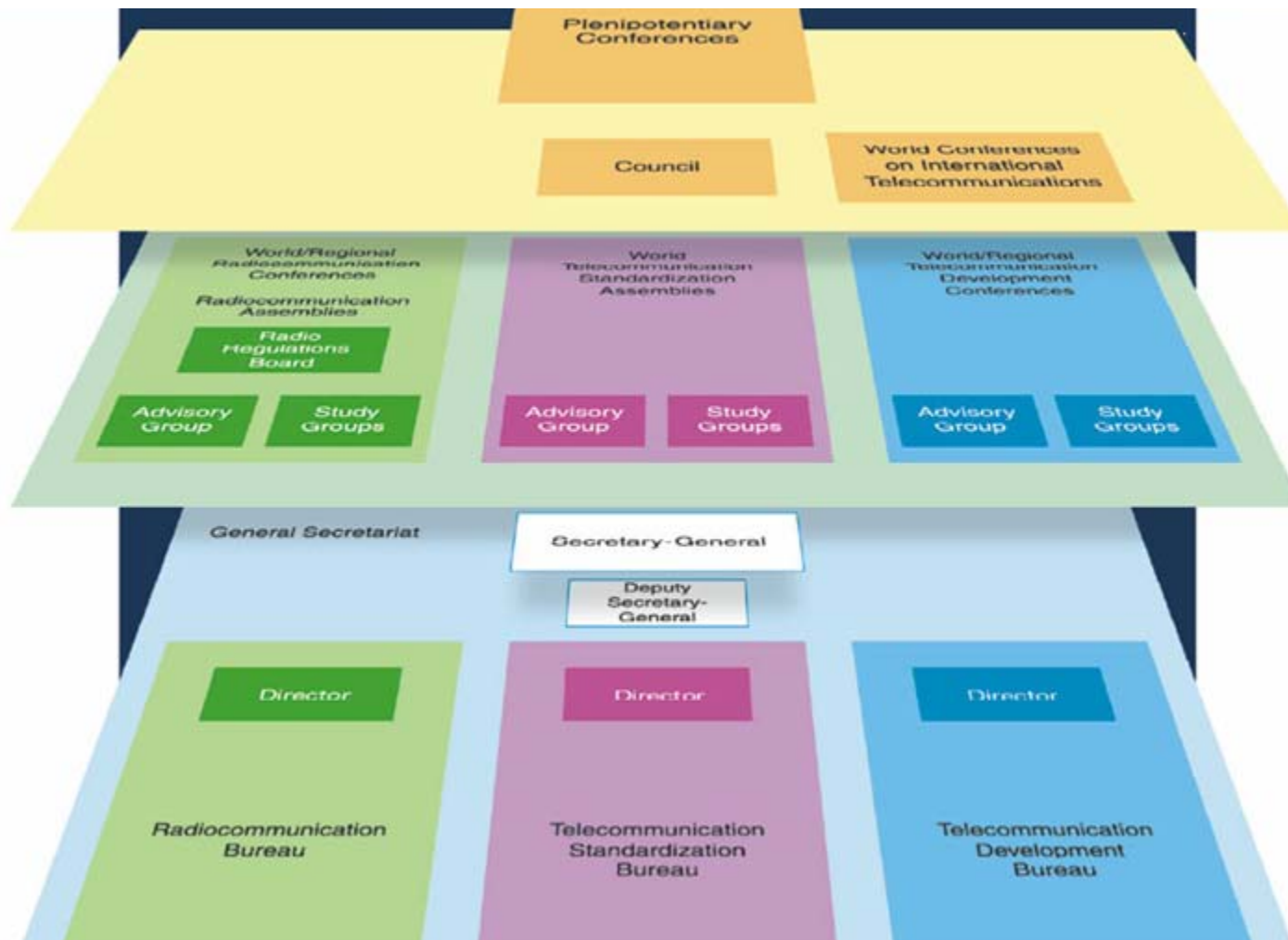


ITU - International Telecommunication Union

- **The oldest specialized UN agency with more than 140 years of experience in communication sector**
- **Headquarters in Geneva plus regional offices**
- **ITU staff: more than 750 from more than 80 countries**
- **189 member states, more than 640 sector members**
- **ITU Agenda for Change**
- **Structure of the ITU**
 - ITU-T – Telecom Standardization
 - ITU-R – Radio-communications
 - ITU-D – Development Bureau



ITU – International Telecommunication Union





ITU's Strategy and Policy Unit (SPU)

- **New Initiatives Programme**
 - Ubiquitous Network Societies (2005)
 - Today's Networks Tomorrow (2005)
 - What Rules for IP-enabled NGNs? (2006)
 - Regulatory Environment for Future Mobile Multimedia Services (2006)
 - The Future of Voice (2007)
- **Many other activities...**