

Network Global Strategy

Fixe/mobile convergence
and IMS

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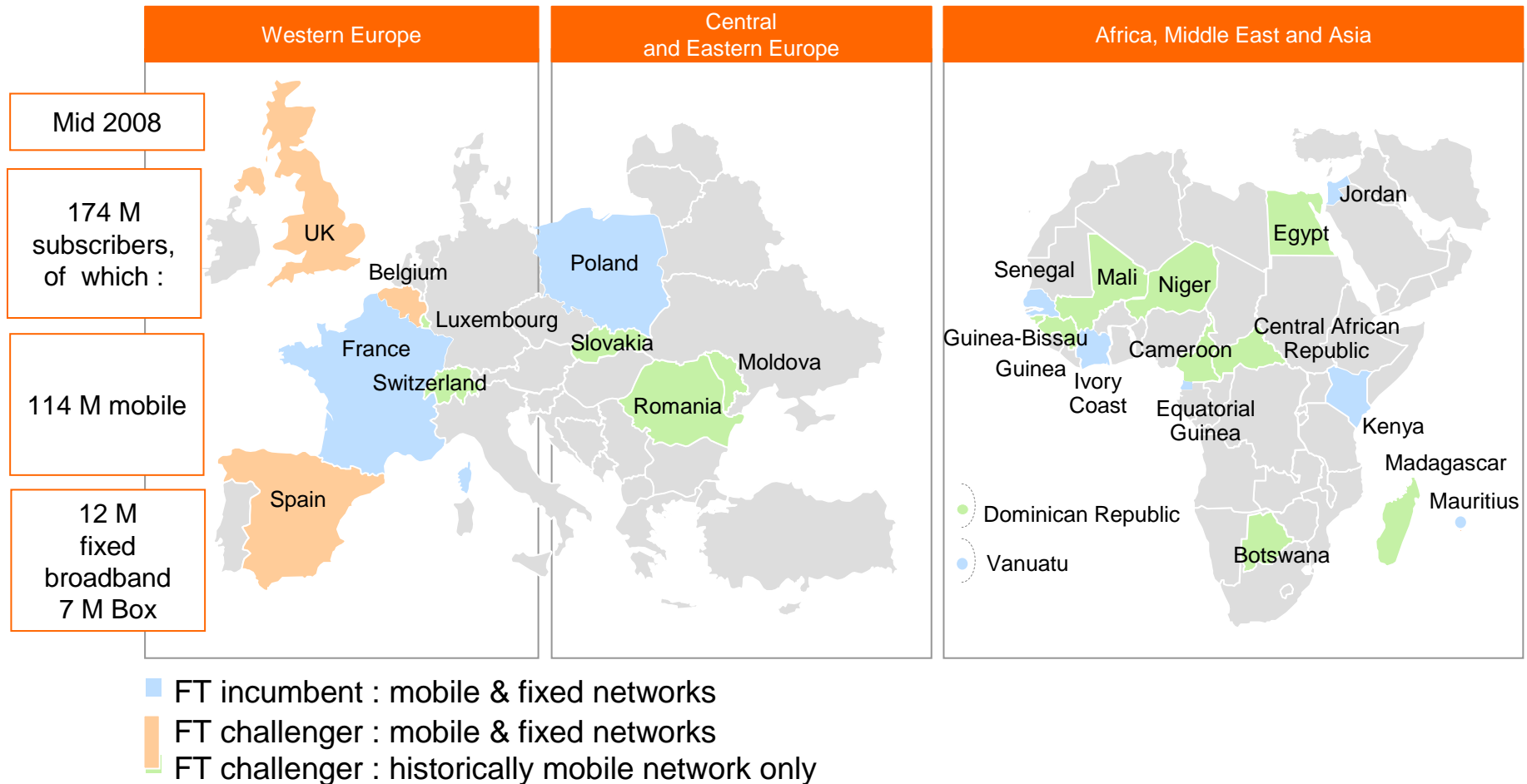


NETWORKS 2008

Budapest October 2, 2008



FT group is serving consumers in 27 countries



→ also serving corporate customers worldwide

Key figures of Orange networks and services

Technical innovations

DSL : VOIP services via H323 (2006), SIP (march 08),
migrating to IMS (roll-out on going in Spain)
+ mpeg4 video services

5M customers over H323
> 1M over SIP

FTTH : 100Mbit/s yet available in several large cities
in France and in Slovakia

3G (since 2005) and 3G+ : more bandwidth
HSDPA already deployed,
HSUPA and HSPA under deployment
preparing for LTE

Mobile & broadband convergence :
UNIK, Orange Windows Live,
Fixed/Mobile IP centrex (roll-out on going in France)

agenda

1 Services and demand

2 Illustration of network strategy

impact of changes in customer demand

factors

impacts on IT and Network

- customers demand more bandwidth for internet down load, HD TV
- volumes increase much faster than revenues



- set up scalable architectures
- deploy higher capacity and lower unit cost networks

- customers demand same services across terminals with consistent user experience



- services must be independent from access network

- diversifying customer usage requires partners



- make flexible and open networks to allow 3rd party application
- development to flourish

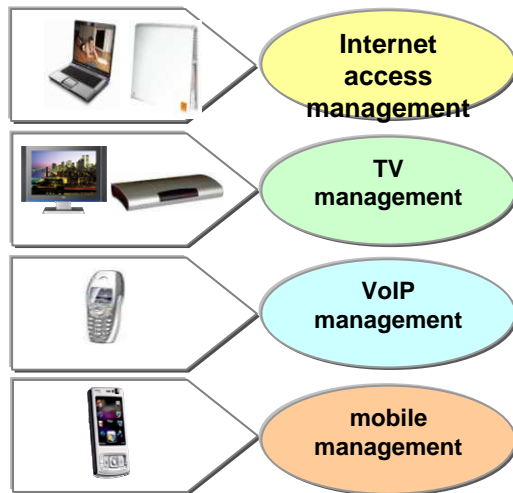
- Web 2.0 : internet users are becoming co-developers and content providers



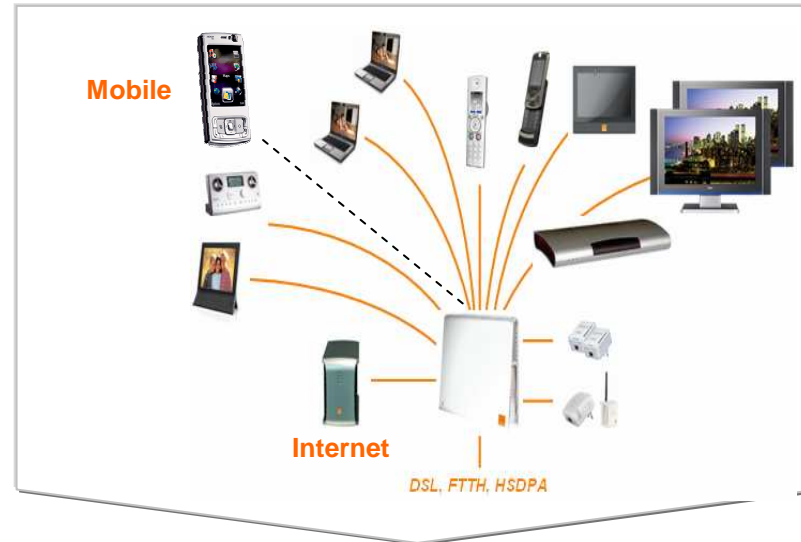
- provide monetizable building blocks (Telco 2.0)

Next generation device management

before



Now :
convergence of remote device management



Base of devices managed by mid 2008 :

- > 60 millions mobile
- > 7,2 millions livebox
- 1.6 million set top boxes

- agile delivery of new services, with consistent configuration process on both mobile and internet ecosystem
- control of QoS
- efficient home customer care of home network
- accurate knowledge of device behaviour and fleet inventory

Significant adoption of broadband results in an increase in traffic

- **mobile traffic/data volumes increase through :**

increasing data-centric applications

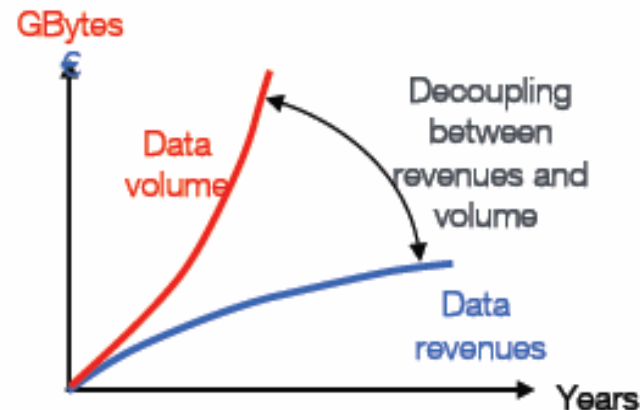
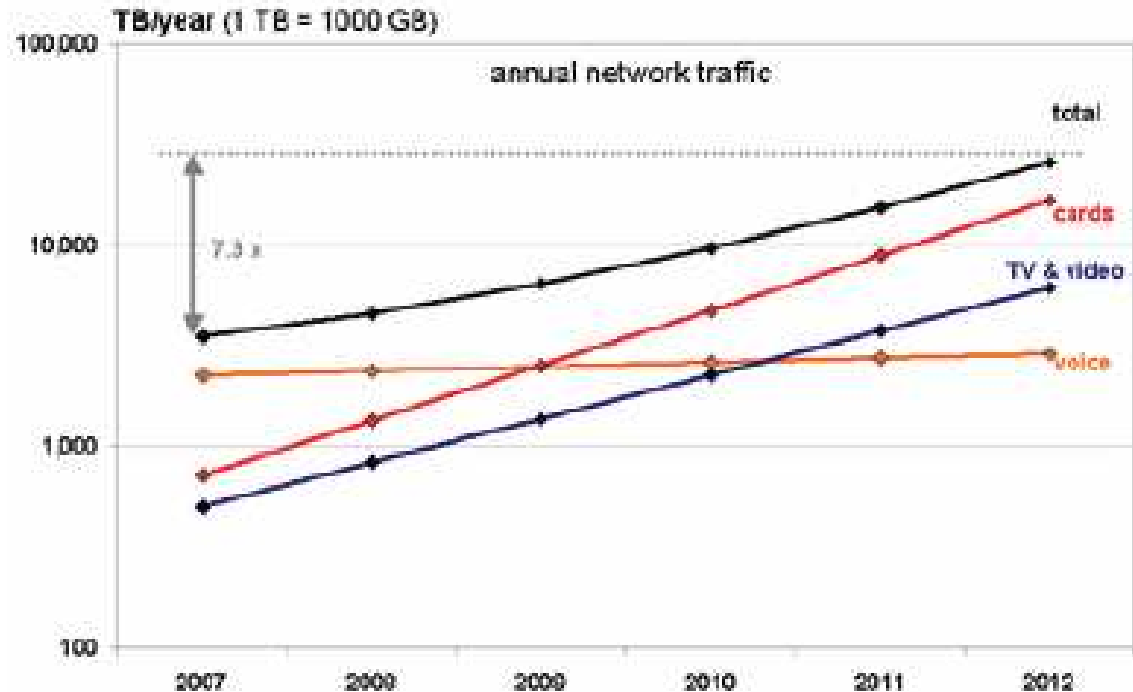
increased adoption of mobile devices such as smart phones, video-enabled handsets, mobile broadband access, etc

- **fixed broadband traffic volumes may explode via wider video adoption**

peer to peer, internet TV

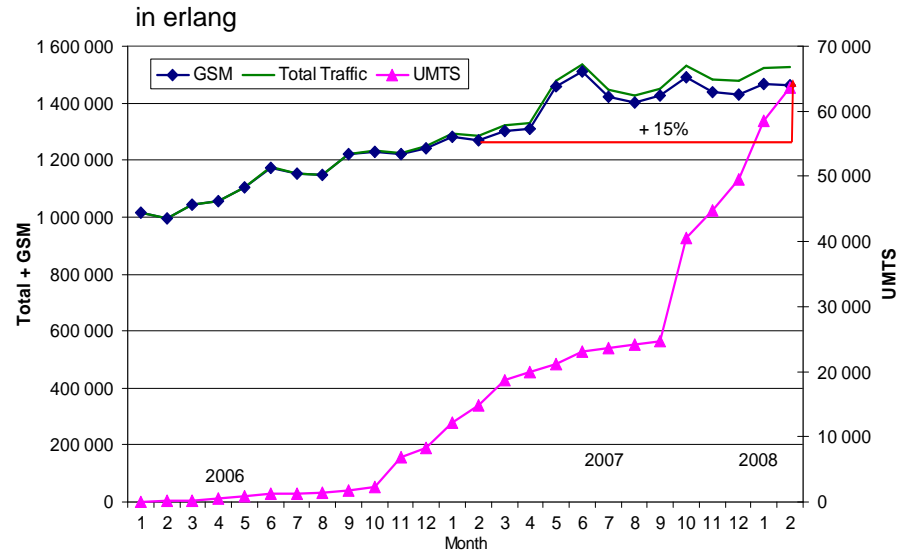
- **...while revenues do not follow the same pattern**

requires proactive and creative network solutions in the most cost-effective way

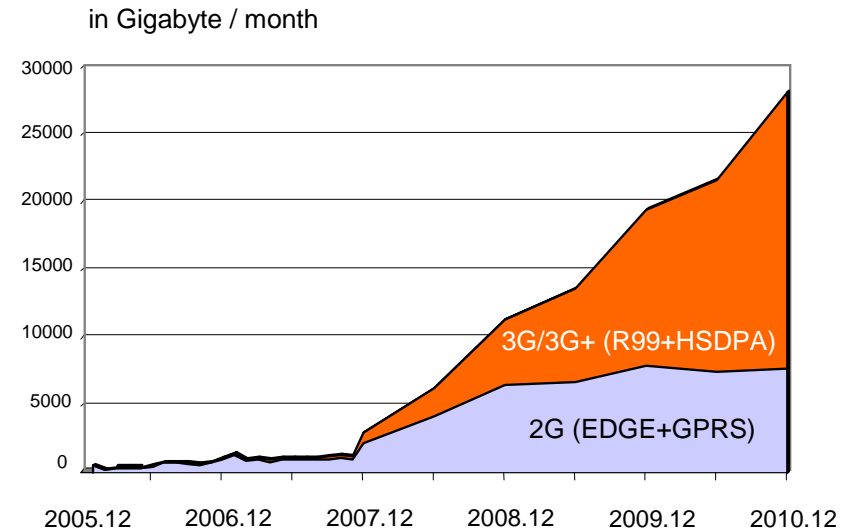


next generation wireless access: broadband roadmap

voice traffic : 3G vs. 2G



data traffic : 3G / 3G+ vs. Edge / GPRS



3G

- introduction of 3G shows dramatic increase in data traffic
- achieve backhauling capacity extensions thanks to scalability of Gigabit Ethernet, IP and WDM

3G+

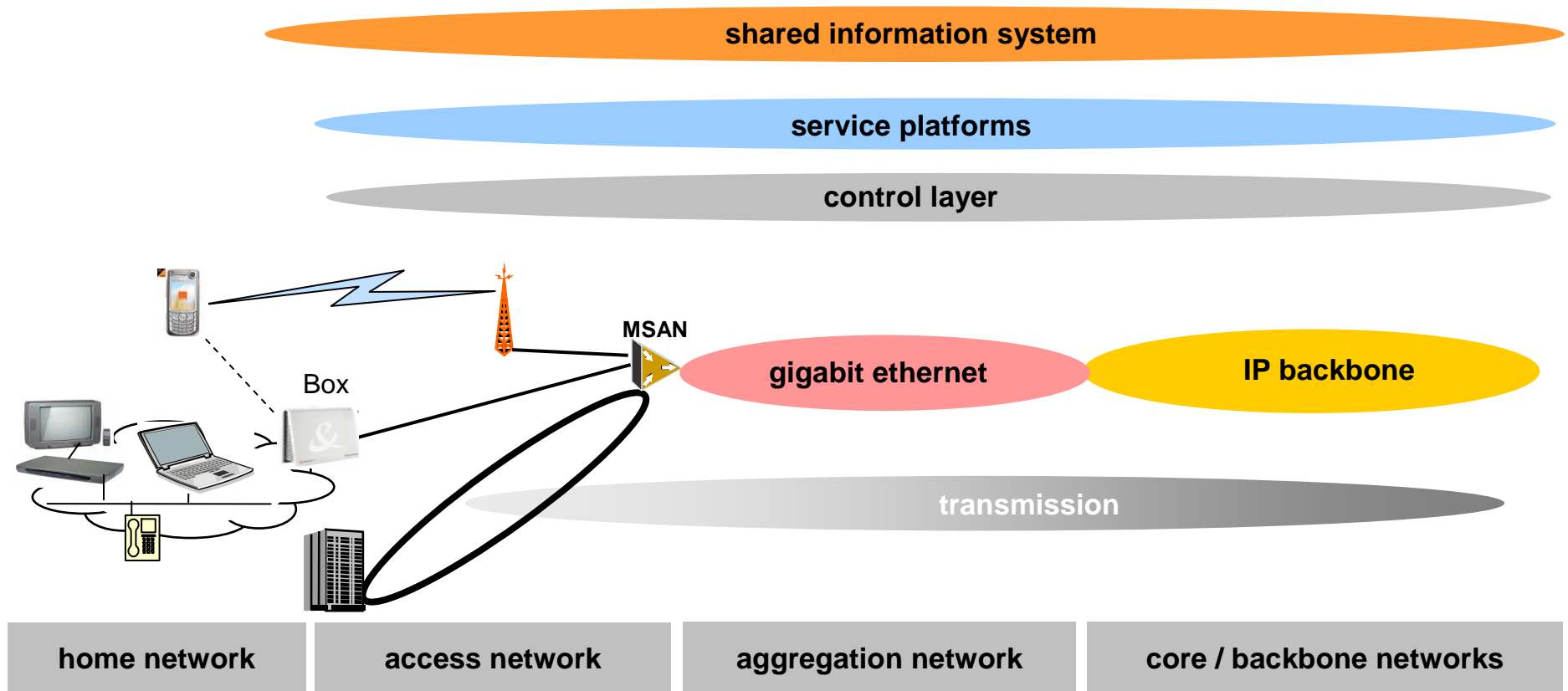
- HSDPA delivered in top cities with up to 7.2 Mbps downlink (14.4 Mbps in 2009)
- improved uplink performance with HSUPA, with up to \approx 2 Mbps (> 5 Mbps in 2009)
- latency also improved, enhancing overall customer experience

agenda

1 Services and demand

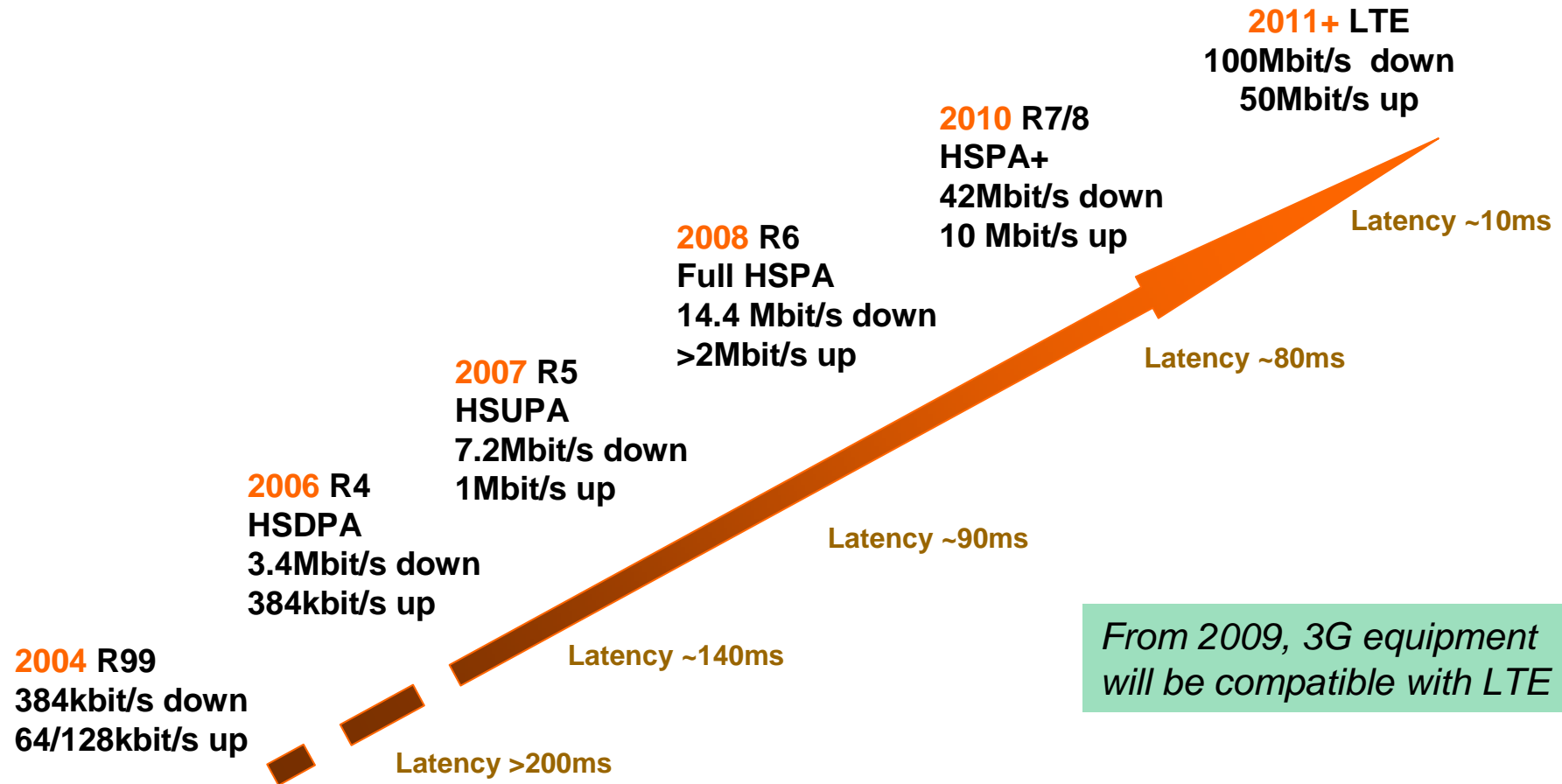
2 Global network strategy

Target network architecture



➔ simplified vision of target architecture domains

Access peak rates and capacities are constantly evolving



- while new spectrum opportunities appear (such as refarming GSM band for UMTS, digital dividend ie analog TV frequencies ...)

LTE : a promising technology

- LTE should efficiently support
 - VoIP,
 - web-browsing, FTP, video-streaming,
 - and advanced services (e.g. real-time video, push-to-x ...)

- LTE
 - follows the trend initiated with HSPA and goes further
 - provides with a new radio access technology, based on OFDMA, offering higher rates
 - is PS-domain only

- Inter-working with 3G and 2G (VOIP and Voice circuits)
 - breaking duration during handover between LTE and other 3G is less than 50 msec
 - between LTE and GSM in less than 150 msec

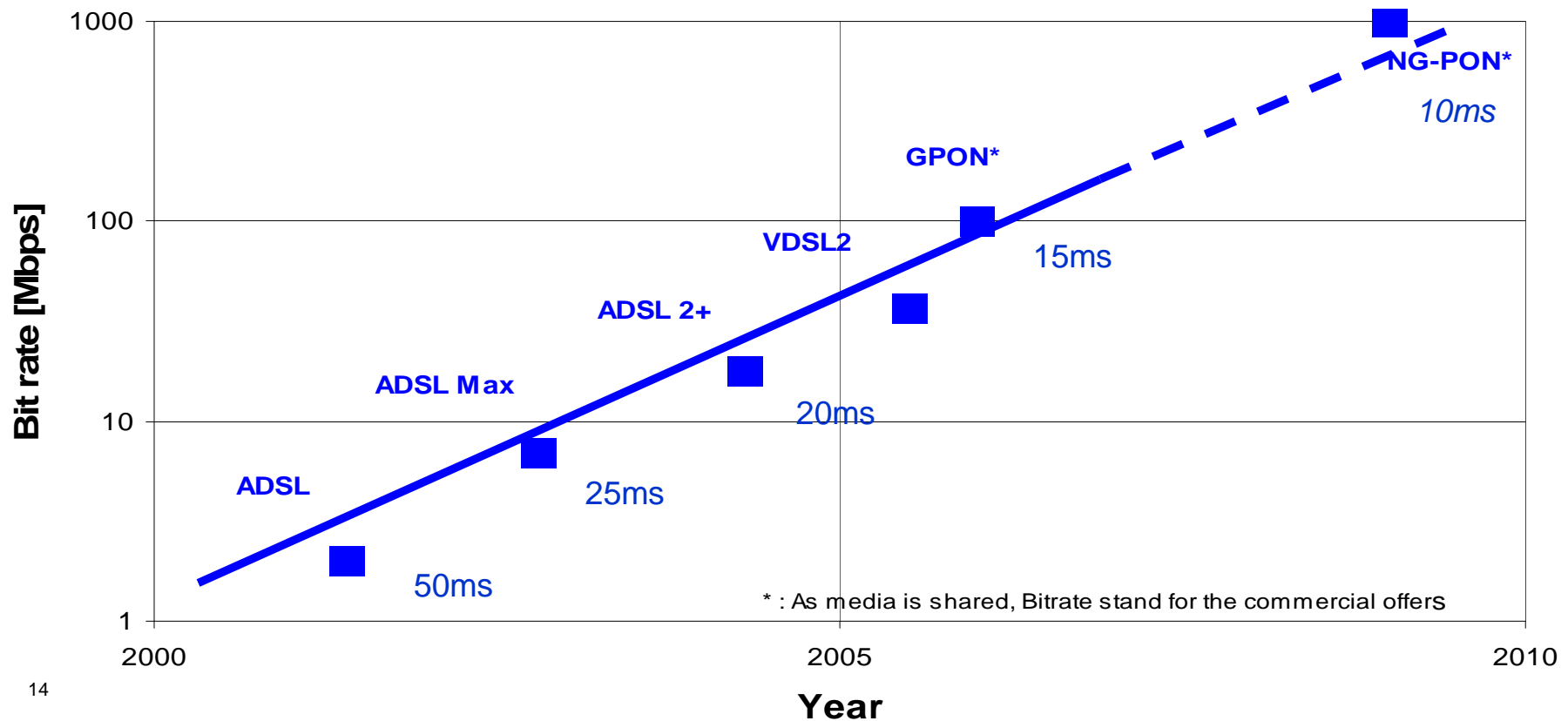
LTE : benefits and road map of LTE

- Benefits of LTE
 - An increased spectrum efficiency and more capacity for simultaneous users in the same cell
 - Performance optimized for low mobility, good performance at 120 km/h, functional at 350 km/h
 - Improved 'always-on' experience, with low latency and feel of fixed access networks) (look

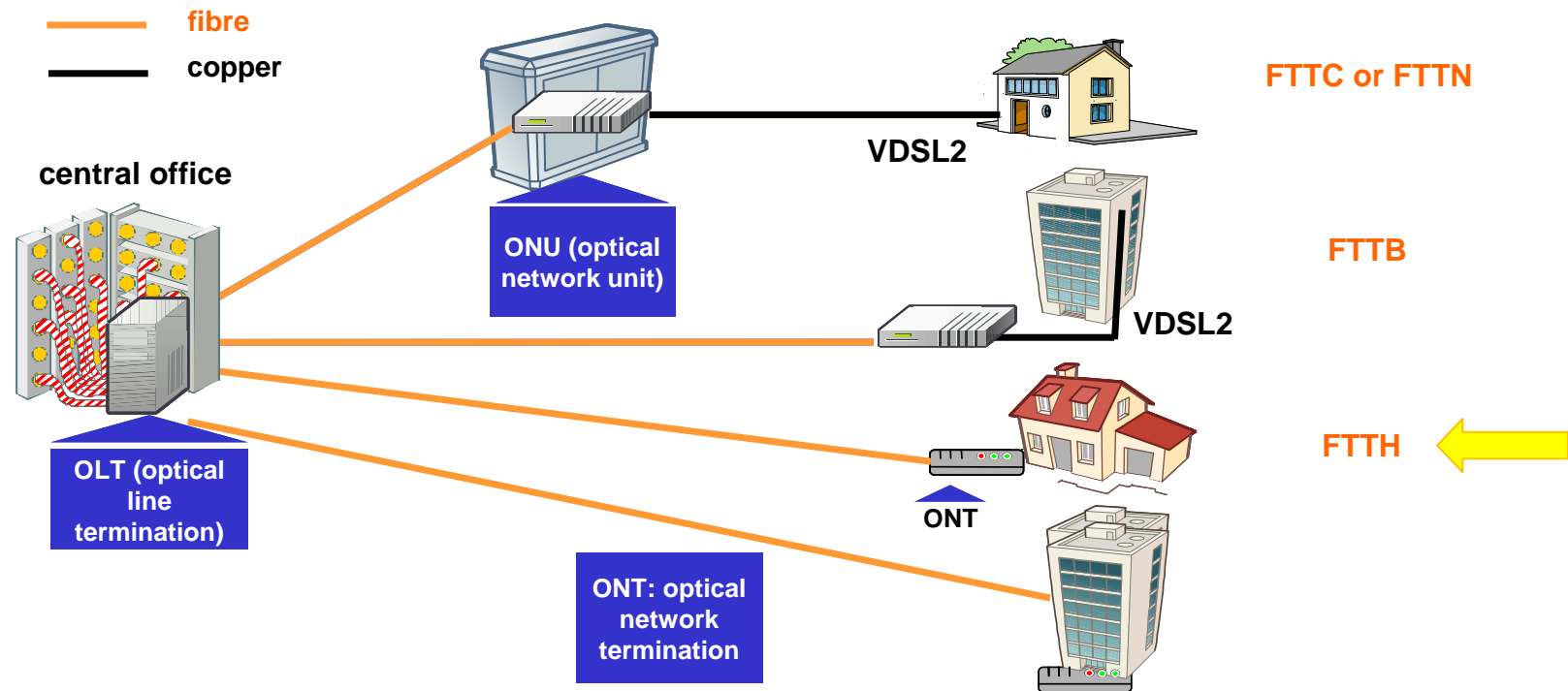
- Roadmap (cf LSTI = LTE-SAE Trial Initiative > 25 key telcos)
 - 10/2008 : proof of concept OK
 - 2009 : test of inter operability and field trial of LTE
 - HSPA+ and LTE will coexist in the network
 - Beyond 2010: possible deployment ?

Fixed access : needs more throughput , driving to optical fibre technologies

- The ADSL technology (max 24 Mb/s DL and 1 Mb/s UL) is sufficient until some point but
- It will then be necessary to deploy VDSL (max 55 Mb/s DL and 15 Mb/s UL) or optical fibre particularly to support higher UL throughputs and HD TV (with regulatory issues)



Next generation wireline access: fibre roadmap



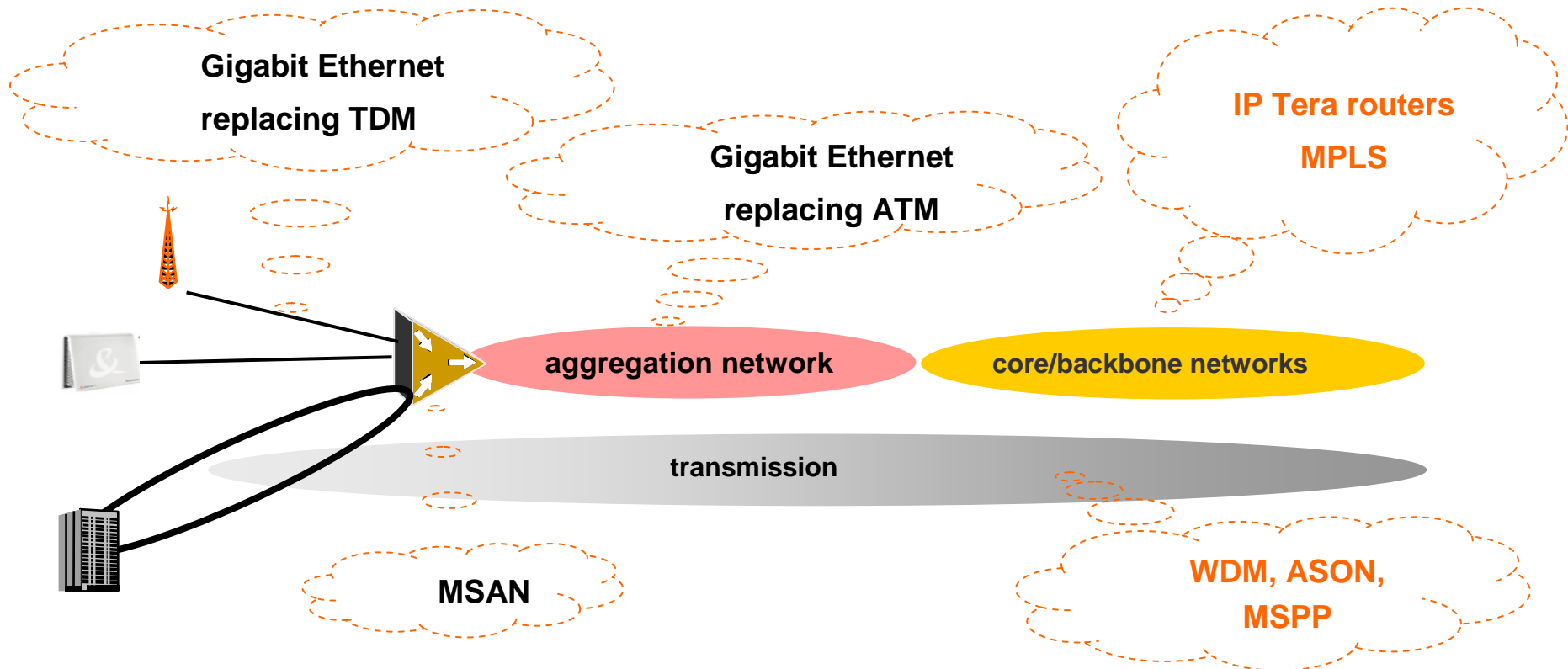
choice of technology

- choice of fibre to the home vs. to the cabinet (plus VDSL) depends on country and considered areas within country
- GPON chosen by France Telecom when deploying FTTH

deployment

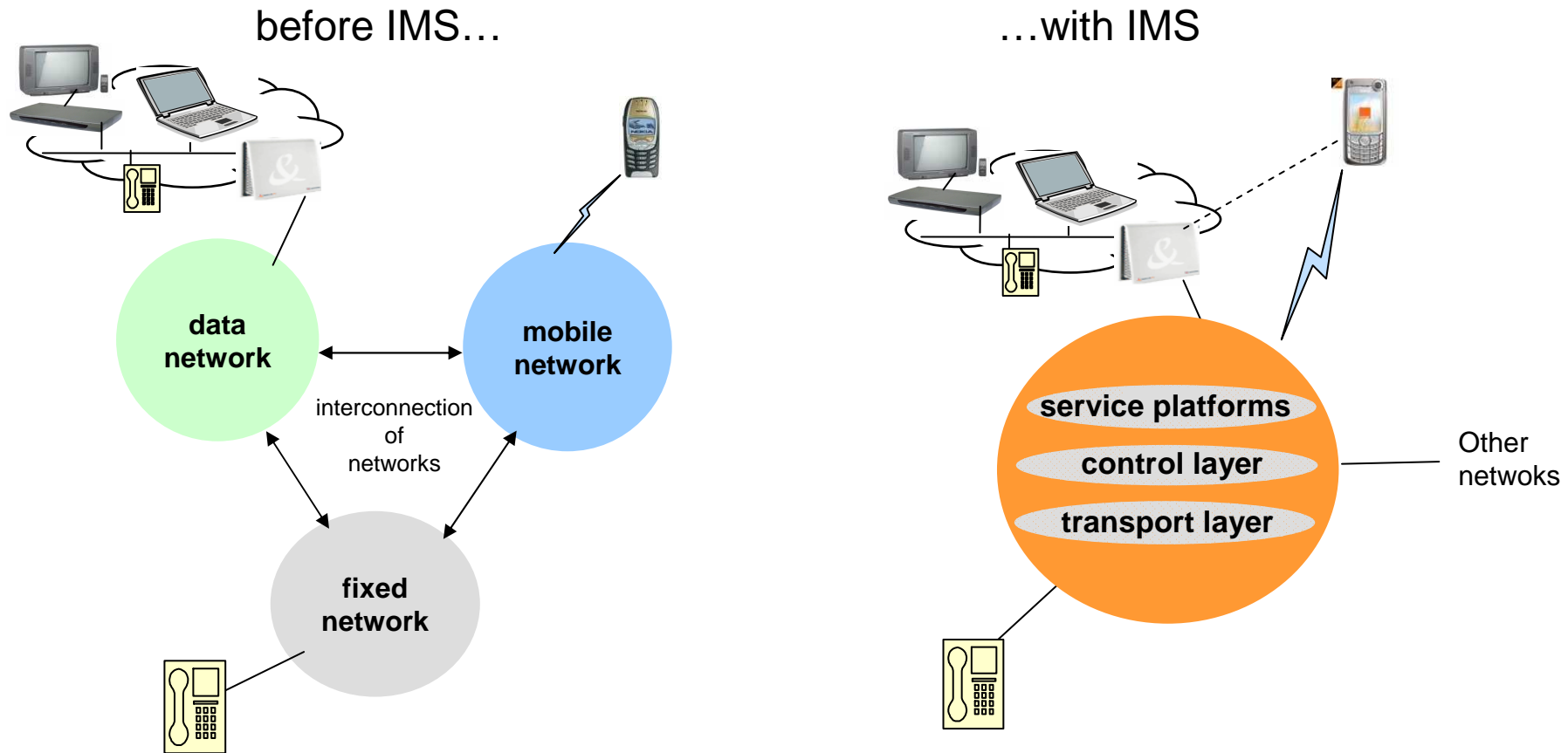
- **France:** pre-deployment until end of 2008 in 10 cities, with full deployment predicated upon regulation
- **Slovakia:** deployment started in selected areas
- **Spain:** ongoing pilot ; **Poland:** technical trial starting

Impact of changes in technology



- ➔ DSLAM has evolved from a pure High Speed Internet node to a MultiService Access Node (MSAN) in order to offer triple play
- ➔ Gigabit Ethernet, IP and WDM enable to transport higher bandwidth without disruption in CAPEX levels.
- ➔ The traffic increase and the evolution towards flat tariffs push to increase the backhaul capacity in cost-effective manners

Core network : with IMS transport layer and control layer will become common to fixe and mobile



- ➔ IMS becomes mature : VOIP and business services already offered with IMS
- ➔ IMS facilitates introduction of new services and paves the way for fixed-mobile convergent offers
- ➔ But NGN R4 still up to date for voice mobile core network

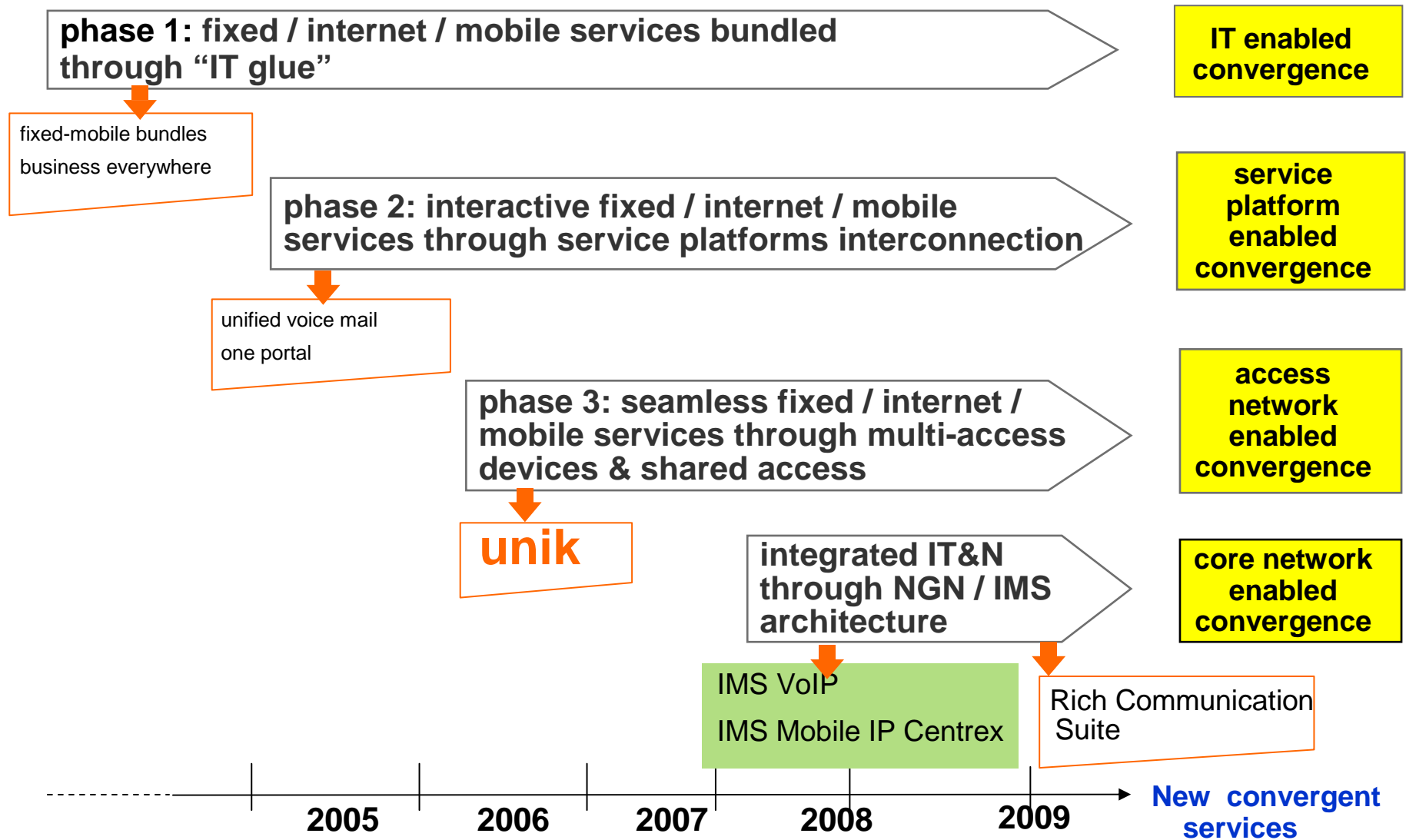
IMS is today a standardized architecture for the evolution of fixed, mobile and convergent networks & services

Origin

IMS is the most suitable solution for the evolution of networks and services

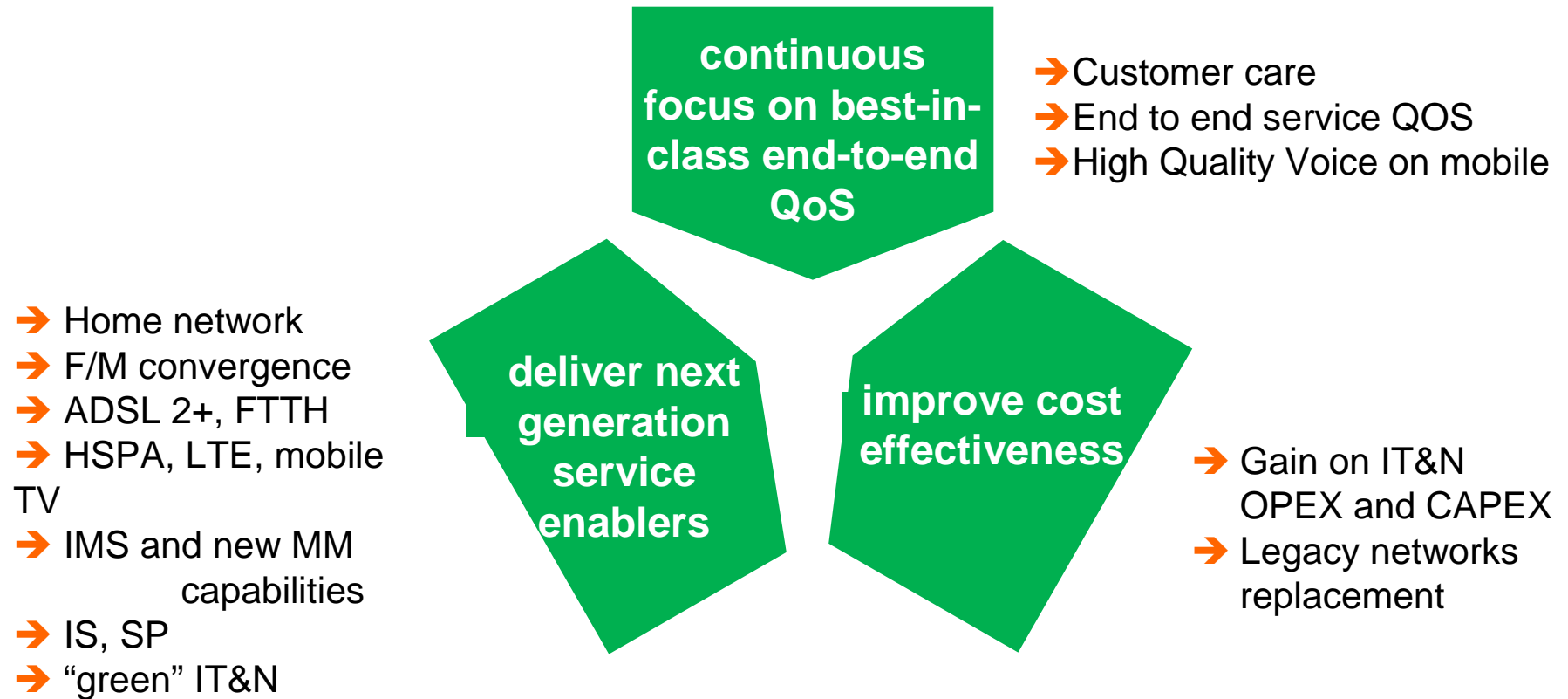
- ❖ IMS is a powerful standardized control architecture
- ❖ Based on mobile standard initiative (3GPP)
- ❖ Including the requirements of the fixed networks (TISPAN)
- ❖ **It allows deployment of mass market VoIP**
- ❖ **It proposes now a PSTN replacement alternative**
- ❖ **It allows interoperability and roaming between operators' networks**
- ❖ **It provides a convergent architecture for all types of accesses**
- ❖ **It will support the development of enriched multimedia services combining voice and data thanks to session management, roaming, nomadism, presence, SIP addresses**
 - ❖ with standardized enablers for applications : location, API to integrate 3rd parties applications, etc.
 - ❖ May be an answer to MM services over Internet

The approach towards full fixed-mobile convergence : a long way



Conclusion : a global convergent strategy

including customer devices, access, aggregation, core network, network and service control, IT



Legacy networks : PSTN, TDM SDH (gain opex but needs to manage migration of customers on service and/or network base)

Cost model is changing (services and network with quite unlimited bandwidth , voice evolving from circuits to data, flat rates, etc)

Thank you

