

# FT networks, services and IS evolution perspectives towards convergence

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# France Télécom vision

# The end of "one usage, one device and one network"



Home



Customers at the center of their communication universe

# A clear vision of the market, a clear-cut strategy for the Group



Offering the customer an integrated communication universe,

whatever the device or network used

polsonal Services Services Expertise in networks and emerging technologies Home **Customer and** usage-oriented know-how **Integrated** innovation strategy Enterprise Services

The integrated operator model: driving development

# The strength of a worldwide integrated operator

#### **STRONG BRANDS**





**S**tp

pages aunes



Presence in 220 countries and territories
125 million customers worldwide
2004 Revenues : €46.16 billion (1)
206,524 employees at the end of 2004
A world leader in telecommunications R&D

#### The leader on its key markets

(1) IFRS standards

# Building the network of an integrated operator



### Converge network architectures to a limited set

Fitting local conditions (network size, local regulations...)
To reduce architecture cost of ownership
To get a common set of network elements

#### A common network per country

To reduce costs (external, operational...)
To take advantage from economy of scale
To enable quick launch of convergent services

#### Take benefit from converging technologies

Common service platforms using standard service enablers
Towards IP/Ethernet technologies
Between fixed and mobile (NGN, IMS, ...)

# Main network directions

# S\_

## Develop High Bit rate access

Increase accessibility, Bit rate, Quality of ServiceAnticipate and support new services development

# Build an optimised network infrastructure for multimedia services and business services

For Residential and Business customers

Based on shared IP network carrying voice , data, and image

### Take quickly advantage from today and future network and IT techniques

To constantly optimise the costs

# Bevelop network Quality of Service from the customer prospective

Robustness, Reliability, Security



## **Broadband access**

# FT broadband strategy directions

#### Beloy DSL offers outside France

Based on LLU when possible

#### Increase broadband coverage in France

Expand DSL offer

Debit max started in 2004: the maximum bandwidth of your line

#### Provide multiservice DSL access

Based upon ATM bandwidth sharing on copper line
 TV on DSL started in Lyon (Dec. 03) and Paris (March 2004)
 Videotelephony started end 2004
 Double play offers TV+internet, Voice+ Internet

#### Increase service reach in already covered areas

Re-ADSL started in 2004

Overage enhancement on remote activity areas (ZAE)

Continue corporate fibre access deployment

# **DSL** market in France



## Market driven by residential Internet access

Provided by ISPs buying wholesale products or using LLU

With a 49% market share for France Télécom (ART estimation 2005)

Ø DSL users

• From : 3.3 millions (end 2003) to 6.1 millions (end 2004) (ART 1/2005)

Local loop unbundling (started in 2002)

● 4 000 shared lines end 2002, 273 000 shared lines end 2003

● 1.495 millions shared lines end 2004 (+95 000 fully unbundled)

• Early April 2005: 1.88 millions shared lines and 152 000 fully unbundled

## Several Sev

Internet + Voice + video (VoIP or POTS voice)

### BSL on enterprise market

A very competitive market, low prices

# Mobile access networks

- Data services available in GSM
   With GPRS
- New access broadband infrastructure
  - Based on UMTS and EDGE
  - UMTS service started in UK and France in 2004







## **Core networks**

# IP backbones

## In France

- S.
- Provide Internet access, VoIP connectivity, enterprise data services
- Two separate cores , one for residential, the other for business services

## IP residential backbone based on around 30 PoPs

- Serves more than 400 edge nodes (BRAS, VoIP nodes...)
- An IP traffic exceeding 100 Gbit/s at busy hour
- A three levels network, meshed at the two upper levels
- Majority of transmission links based on 2.5 and 10 Gbit/s wavelength
- A fully duplicated IP network
  - Duplicated nodes and links
    - To fulfil reliability requirements



## Voice networks

# Fixed voice network context

#### Traffic evolution on existing networks

- Decrease of PSTN traffic
  - STN originated voice traffic decrease (-0.3% Sept 2004/Sept 2003)
  - Internet dial up traffic decrease (-22.6% Sept 2004/Sept 2003)
- Mobile traffic growth (+19.1% Sept 2004/Sept 2003)
- As a whole voice traffic (fixed + mobile) is still growing (+7.2%)
- A fast evolving technical context
  - Fast deployment of broadband DSL access + LLU fast growth
     Appearance of significant competitive VoIP offers
     Accelerating voice PSTN originated traffic decrease
  - FT VoIP service started combined with Internet access
     As a second line service
  - Fixed access solutions appear on GSM networks.
- A part of TDM switches candidate for renewal
  - Installed in the early 80s

# Which technology for conversational services?



## Main requirements

- Get an architecture open to future multimedia services
   Base the architecture on IP connectivity
  - Provide a control architecture able to offer other services
    - External application servers capability
    - Nomadism capability embedded
- Get a robust architecture against voice future uncertainty
  - - VoIP seems to be the solution
  - A common access network for all conversational traffics
    DSLAM as a universal connecting unit
- Take benefit from being an integrated operator
   Share technologies between fixed and mobile
   Take benefit from IMS definition from the mobile side
   Provide standard voice network quality

# Why an IMS based control architecture?

## Take benefit of the 3GPP definition work

- System oriented to SIP session control
- Suitable for conversational services
- Include mobility and centralized user data management
- Possible synergies in product development costs (fixed and mobile)

### IMS architecture seems to be a good basis for:

Controlling IP phones and RGW through SIP protocolControlling DSLAM VoIP gateways (PSTN simulation)

### Setwork convergence?

Restricted to data based applications as long as IMS is not controlling mobile voice connections

Mobile voice control under study by 3GPP

Can be used for Nomadic services in the fixed network



# Network management and IT

# Convergence of networks and IS



### Section 10 Large Telco IS based on IP networking

- IT infrastructure optimisation experience
- Specific skills on security aspects

### Networks becoming IP centric

- Metwork control platforms
  - - Servers, OS, data bases...
  - Limits: real time aspects, scalability in terms of number of users
  - Lifetime decrease
- Service platforms cross the border between network and IS
  - Interact with network and IS
  - Take full benefit of IT technologies (same limits as network control platforms)

### Interest in joining network and IT skills

- Security as a shared topic in an IP context
- Separation of control and transport in future networks
   Paves the way to concentrate call servers on a reduced number of sites
  - (from 100s to 10s) (Data centres ?)
- Time to market decrease
   Through a global approach of services implementation

# Service platforms



### IP and IMS architectures allows for

- Common service platforms shared between several usages
  - Common mail platforms, common voice mail platforms...
  - Application servers in IMS architecture
- Platforms using basic building blocks
  - Identity : a common SSO
  - Address : a common address book accessible from different networks
     Presence....

### Service platforms policy allows for

- Decreasing time to market
   Service development less coupled with network development cycle
- Reducing development costs
  - By sharing them between BUs and countries
- Decreasing cost of ownership
  - By using common IT platforms to support services
- Standardizing FT services look and feel

# Network and IS urbanisms



## More and more to be coordinated

- Need for evolving legacy IS
   To take into account broadband access
   from a voice centric model to a multi-service model
   Need to redefine functions distribution
  - Reed to redefine functions distribution
     Between the three layers (network, SP, IS)
     With the objective of not duplicating functions
    - E.g. content billing located in IS not in each service platform
- Meed to redefine interfaces
  - Taking into account security issues

## Need for sharing common data models

- To get a consistent vision between layers (networks, SP, IS)
- To allow service integration between different networks
- End user information model for example
   Needed for service convergence

# IS and network technology evolution



- Although IP is foreseen as a convergent technology
  - Mono technology network is a target never reached
    - Technologies coexist in networks and IS
      - During a long period due to migration costs to be faced
    - They cooperate to provide specific offers
      - When starting to deploy new technology/offers
      - E.g. Giga Ethernet MAN long distance interconnection via 3G SDH

Coexistence of technologies may be a way to reduce TTM

### IS must be able to face this situation

- Without jeopardizing time to market
  - Capability to get an end to end management of a multi-technology based offer (e.g. Ethernet+ATM)
    - Cooperation of different element managers
    - A unified vision from provisioning and after sales point of view
  - Speed up network technology transition
    - While keeping provisioning capabilities
  - - At service level and end to end
    - Knowledge management based

# New challenges on IS



#### Home network management

- Impact of Triple play services : home gateways deployment
  - Software versions to be managed
    - Base + plug-in
  - Automatic HGW configuration
    - To comply with network/services configuration
    - To fit with home network arrangements

#### Towards self provisioning

- Started on a little scale with voice networks
- IP connectivity up to CPEs will make it more and more common in the future
  - Seed for embedding such capabilities in management architecture
  - Need for multi-channel access capabilities (GSM, Internet browser, Set Top Box)
- Meed for security and trust management

# Conclusions

## Networks and IS are facing disruptions

- Transitioning to IP based networks
- Development of BB access: from copper to fibre?
- Content based services
- Fixed mobile convergence
- IS and networks are to work closer and closer
  - A common urbanism to be developed
  - Common technical architecture for IS, control and service platforms
    - Becomes feasible
- To reach true convergent networks and services
- Need for global cooperation on these issues
  - Important role of standardisation fora

