FTTH in France

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france telecom

orange™

agenda

1 what we have learned from our customer pilot

2 orientations for 2007-2008

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more bandwidth for more services

HDTV
with interactive programs, on multiple TV sets or PCs

VOD movies and programs
streaming or download

video games
on-line or download

video blogs / online photos
for digital cameras and camcorders

online storage and back-up
data security for consumers and SoHo's

simultaneous and symmetrical usage
powered by the livebox

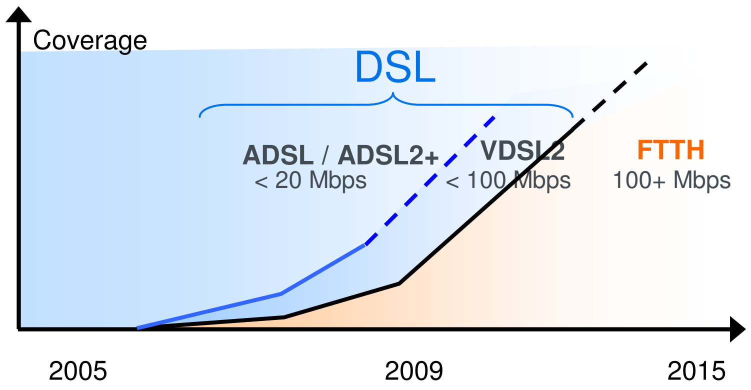
Orange role is to meet customer demand beyond what ADSL-type solutions can provide, for mass market take-off in 2009

FTTH is enabling new usage patterns right now

		fiber access	ADSL access	
		download and upload at 100mbps	download at 8mbps	upload at 1mbps
			copper lines eligibility : 8mbps / 1mbps → around 65% 15mbps / 1mbps → around 25%	
full HD quality movie	**30 Gb**	40min	>8h	>66h
DVD quality movie	**4.8 Gb**	6min 30s	1h 20min	>10h
amateur quality video	**800 Mb**	1min	13 min	1h 40min
20 photos with uncompressed 8M pixels	**480 Mb**	40s	8 min	> 1h
10 MP3 music tracks	**40Mb**	3s	40 sec	5 min

FTTH vs. FTTC (and FTTB)

window of opportunity



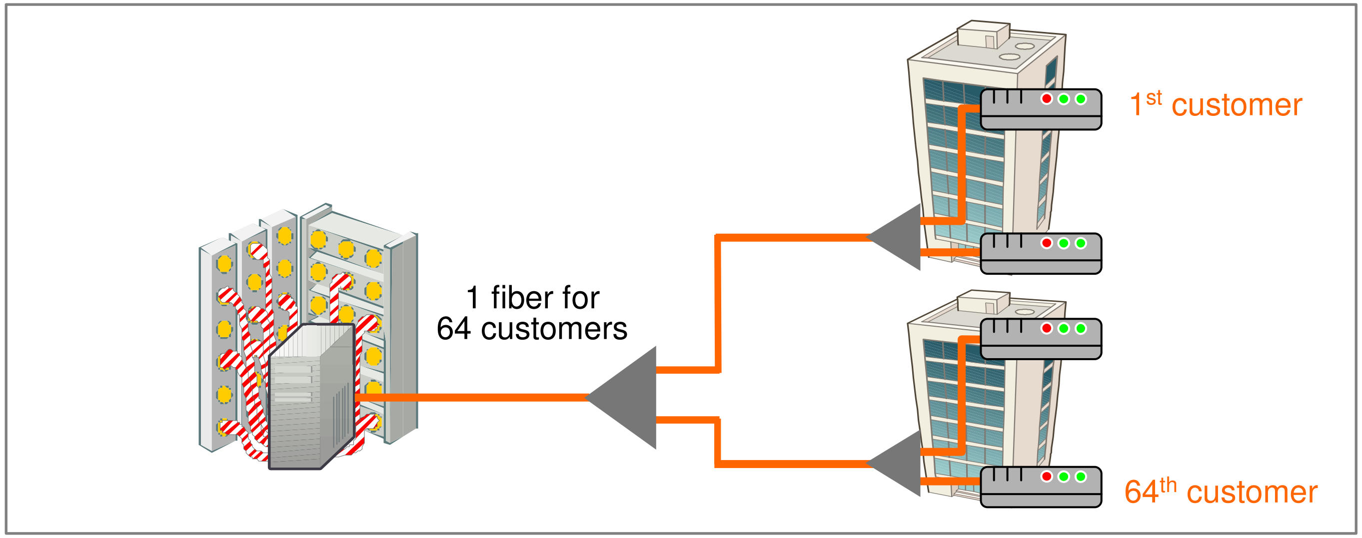
FTTH is the most future proof solution

	FTTC	FTTB	FTTH	
bandwidth / reachability	VDSL speed is 25 to 30 Mbps for a 700 m distance to the street cabinet (average in France)	VDSL speed is 50 to 100 Mbps when fiber terminates at the building	100+ Mbps	With FTTH, reachability is no longer an issue
cost	FTTC is less CAPEX intensive than FTTH, with ~35% less CAPEX in urban areas	FTTB saves on indoor wiring but requires active equipment installation in the building (with syndics' agreement)	FTTH is less OPEX intensive than FTTC since most FTTH active equipment is managed at MDF and a fiber in the sub-loops costs less to maintain than copper	FTTC CAPEX consists mainly of street cabinets, power supply and network equipment, which are not re-usable as part of a FTTH deployment

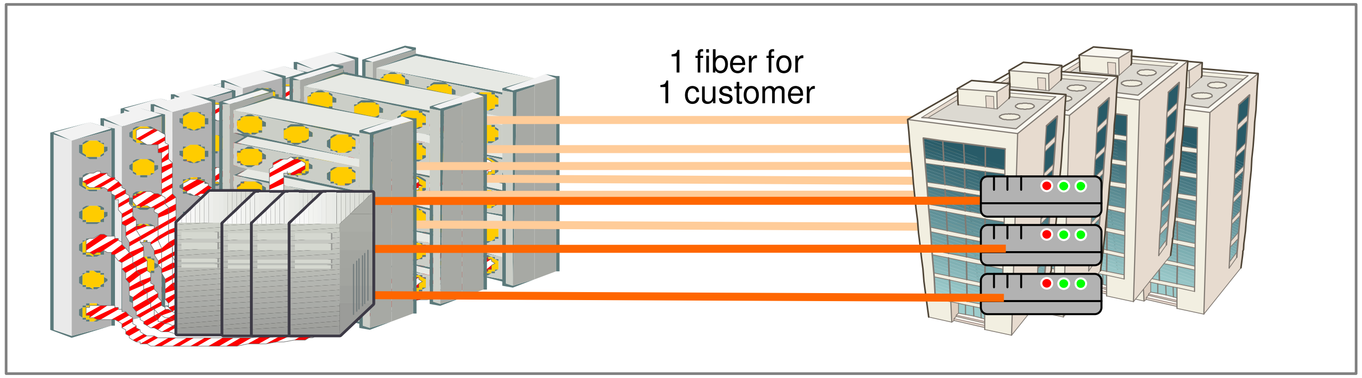
FTTC is less CAPEX intensive than FTTH, but reachability is not sufficient. As very few of FTTC CAPEX can be re-used for FTTH, FTTC is not a 'first step' to FTTH

which architecture should we use ?

point
to
multipoint



point
to point



point to multipoint (on GPON) is the most CAPEX efficient
(lower duct occupancy with less fiber) and saves OPEX at the central office,
with no foreseeable limit in available bandwidth

customer pilot (june 2006 – february 2007)

- 5 cities in the Hauts-de-Seine
  Asnières-sur-Seine
  Boulogne-Billancourt
  Issy-les-Moulineaux
  Rueil-Malmaison
  Villeneuve-La-Garenne

- 6 districts in Paris
  3rd, 4th, 6th, 7th, 13th, 16th

all-included offer

- 100mbps symmetrical Internet access
- simultaneously 2 HDTV streams on TV and 1 stream on PC
- unlimited VoIP
- dedicated Web 2.0 portal
- on-site home installation and services activation
- dedicated hotline

€70 / month

14 000 homes passed
900 agreements with managing agents for collective buildings (“syndics”)
1 000 customers (7% penetration)
less than € 5 m CAPEX

lessons learned from our customer pilot

customers	high level of interest for FTTH symmetrical bandwidth and reliability, with technical support required for mass market adoption main applications are : HDTV, multi-access, photos, video, home working, sharing of user generated content	70% of customers own 2 or more TV sets 30% of customers own a HDTV set
roll-out	key parameters are : lead time to get agreements from “syndics” lead time to connect and install customers on-site pilot helped define end-to-end roll-out processes in various habitations (old or recent apartment buildings, detached houses)	several months to get agreement with “syndics” between 4 and 12 hours for on-site home connection and service activation
technology	our technology choices (GPON, FTTH livebox) proved effective we learned how to best leverage our working relationships with industrial partners	first consumer box to have been upgraded for 100 Mbps symmetrical throughput France Telecom is 1st major incumbent to deploy GPON

deploying a FTTH infrastructure takes time, resources, and the skills of a fixed local loop operator

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towards a pro competitive regulatory environment by EoY 2008

France Telecom believes in infrastructure based competition

Regulation should focus on opening bottlenecks

- The first one, to facilitate the deployment on the public domain, is the access to every available civil engineering infrastructures (trenches, ducts…)
- The second one, to facilitate the deployment of fibre in the buildings, is the sharing of the terminal part of the fibre to the customer's premises

Lively competition in the market of content

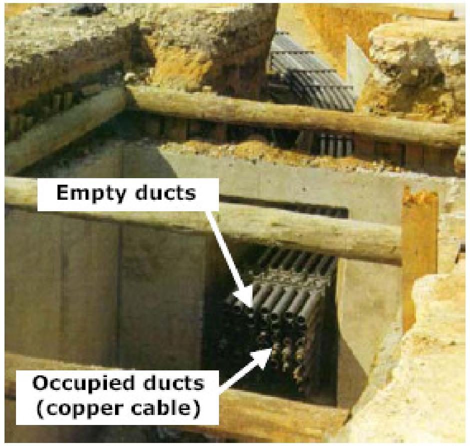
- is needed to ensure a fair access to audiovisual content which are key to the economics of very high speed networks

« We believe that competition on all the value chain including the local loop is possible for FTTH networks, i.e. in concrete terms the deployments of several fibre local loops duplicated by competitors in a significant part of France is not out of reach. »

Intervention by Paul Champsaur, Chairman of ARCEP,

FTTH Council Europe - Annual conference - 27 February 2008 - Palais des Congrès in Paris

first bottleneck : civil engineering



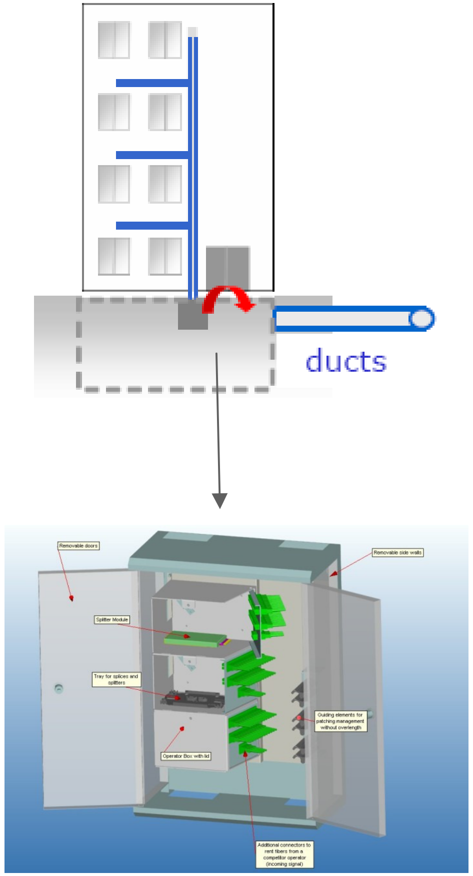
very high speed networks are not viable if a significant amount of civil engineering must be built

operators need to access existing ducts (historical operator, local authorities' cable, accessible sewers networks)

in France, France Telecom has published a non discriminatory ducts offer in dec07 :

> experiments are under way and an improved offer will be released in summer 08
> FT gives access to its IS inventory
> OLO are responsible for studies and roll out
> Appropriate engineering rules and pricing to optimize the available space and usage

second bottleneck: in-building wiring



landlords and building managers will probably refuse to grant access to more than one operator

sharing of the last part of the optical fibre local loop among operators is necessary

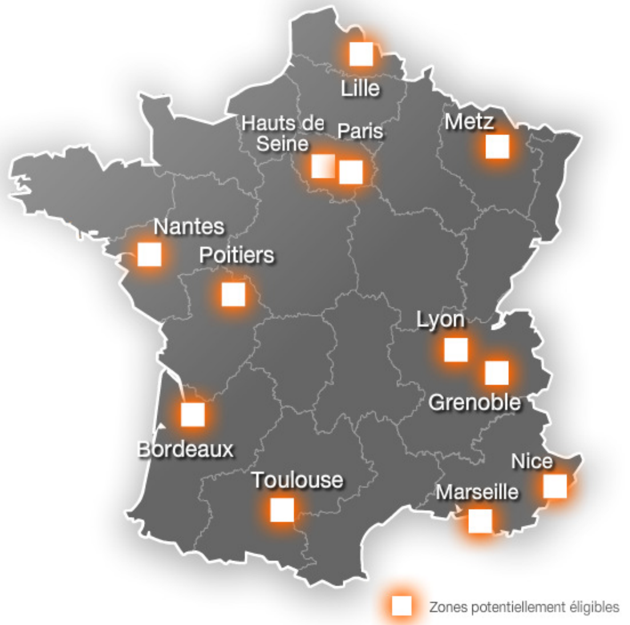
In France, France Telecom is proposing to give access to its in building network at the bottom of the building thru a dedicated device :

> solutions are under normalization for brownfield and greenfield

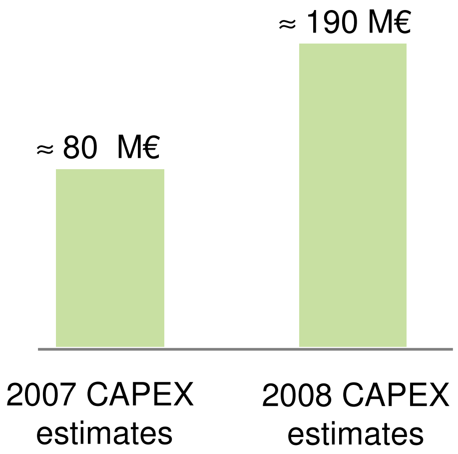
> the government has recently announced law proposals, to require operators to share the last part of their fibre network, under the control of ARCEP

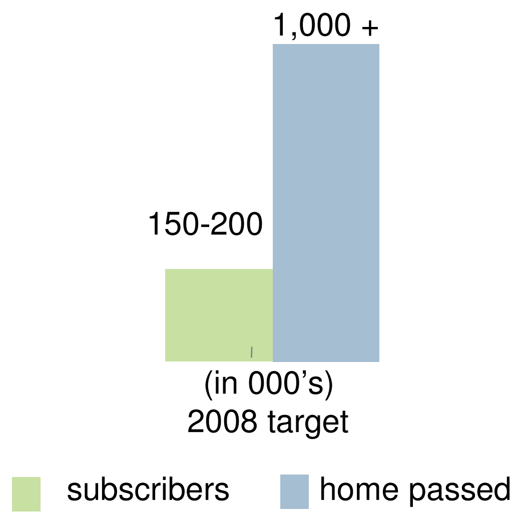
FTTH is now in its phase 2:
pre deployment in 2007 and 2008

offer FTTH in 10 major and medium cities
with pragmatic, focused tactical roll out



	Q2-07	Q3-07	Q4-07
HH connectable	27 000	77 000	146 000
Cust. signed	2 100	3 500	7 300





how we defined the marketing mix for FTTH

insight from marketing research

main customer motivations are **innovation** through 100mbps Internet access, **simplicity** of a triple play offer, a **high level of customer support** and quality of service

there is **segmented** demand for new services, such as HDTV

there is a psychological **price barrier** at €50/month

Orange **brand recognition** and high level of **service** allow for a sustainable **price premium**

competitors' triple play offers with Internet speed > 50mbps

- coming offer starting at €29.90
- cable starting at €49.90

launch of « la fibre » on march 1st, 2007

positioning to competitively meet early stage demand

new offer since march 1st 2007

la fibre

une expérience du très haut débit

€44.90/month*

* 12 month subscription

Internet 100Mb
up to 100mbps download & up to 10mbps upload

Web 2.0 portal,
TV on PC

Orange TV

free access to 45 French and international channels

unlimited voice

to fixed numbers in mainland France

fiber optics livebox

€3/month

options

multi screen TV in order to watch different channels on 2 TV sets — €7/month

HD time control in order to control live TV, record one's preferred programs, watch them anytime and enjoy high definition programming — €5/month

symmetrical 100mbps, a throughput of up to 100 mbps for upload and download, in order to send one's photos, or videos even more faster — €20/month

services

optical connection fees offered until june 2007, including installation of the optical plug and optical line termination

Included TV decoder and optical line termination

free technical and commercial **hotline** (0800 10 75 75)

domestic network installation on sale for €1 until june 2007 (Internet, TV, Phone)

combining entry level pricing, premium options and strong customer support

new services to enhance customer experience

2006 services

up to 100 Mbps symmetric Internet

Web 2.0 portal — including TV over PC

multi-stream TV

High Definition TV and PVR

2007-2008 evolutions

High Definition communication (voice and video)

sharing of user generated content

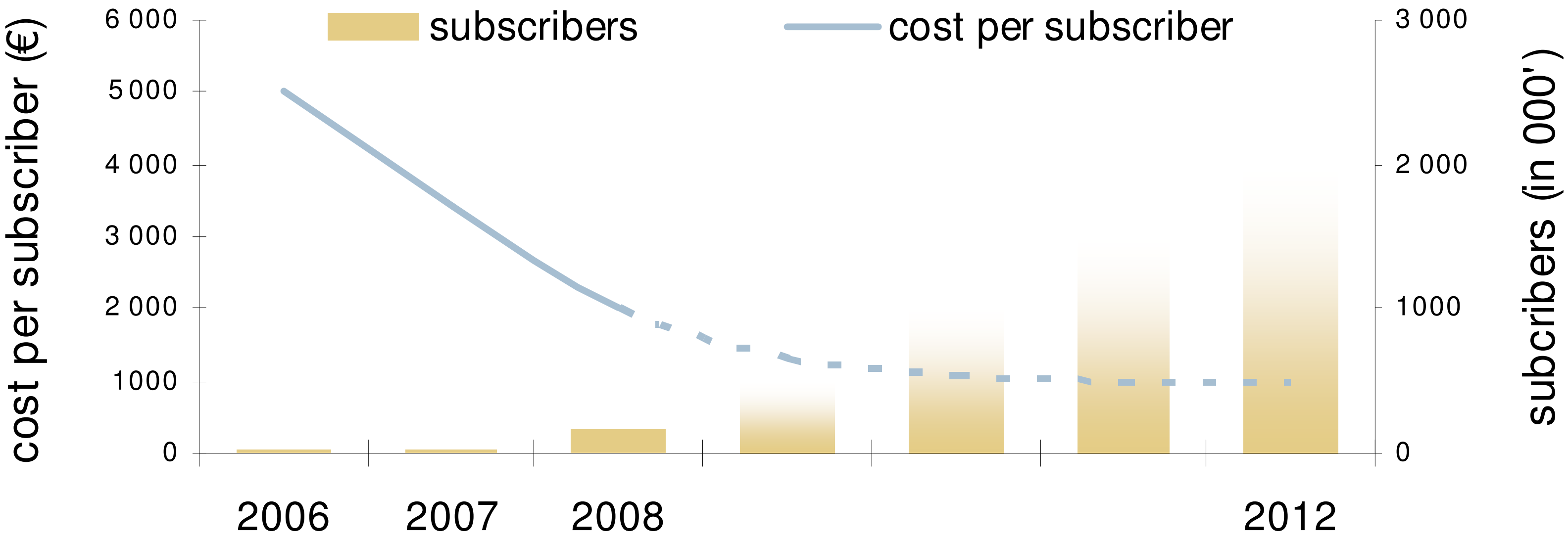
personal broadcast

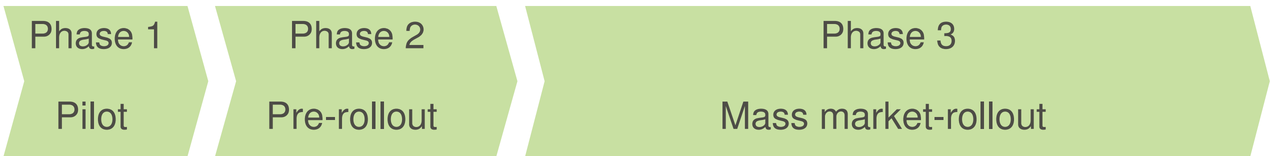
gaming

security : online storage and back-up

convergent services

phase 3 to begin in 2009 : mass market roll out





after 2006 pilot successful completion, pre-rollout is on track in 2007-2008, to be followed by mass market coverage

investment range for phase 3

- at country level, French government issued a very high broadband target of 10 M home passed and 4 M subscribers by 2012
- this target looks plausible to FT, given past ADSL experience and recent FTTH take-off
- assuming FT captures 50% of 4 M subscribers, at an average cost of €1k to €1.5k per subscriber, the total cost ranges from €2 to 3 billion over 2009-2012

a plausible investment range for FTTH is €500 M to €750 M each year on average over 2009 to 2012 (phase 3)

summary

- demand for very high speed access is emerging, and will achieve mass market status in 2009
- we have started to industrialize our roll-out processes
- our selected technology is mature (GPON, FTTH livebox)
- our pricing approach in 2007 is designed to facilitate migration from ADSL while protecting long-term ARPU potential
- new services will further improve customer experience with FTTH
- the set up of a pro competitive regulatory environment will be a key enabler for future roll out