

Which networks for home services ?

Orange Labs

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Research & Development

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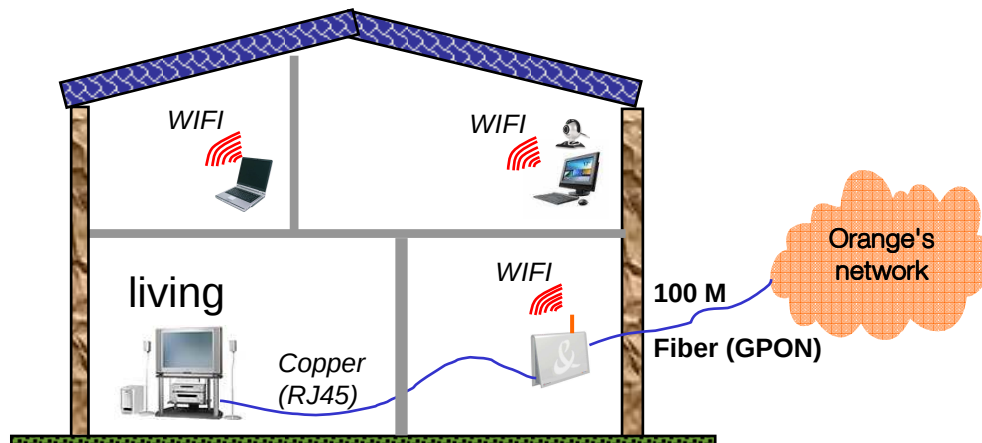
unrestricted



agenda

- section 1 VHBB for Orange
- section 2 Pilot and pre deployment
- section 3 New customer expectations
- section 4 Home network is the future bottleneck
- section 5 Possible shapes out
- section 6 Conclusion

Very high broadband : what does it mean for Orange?



Home network

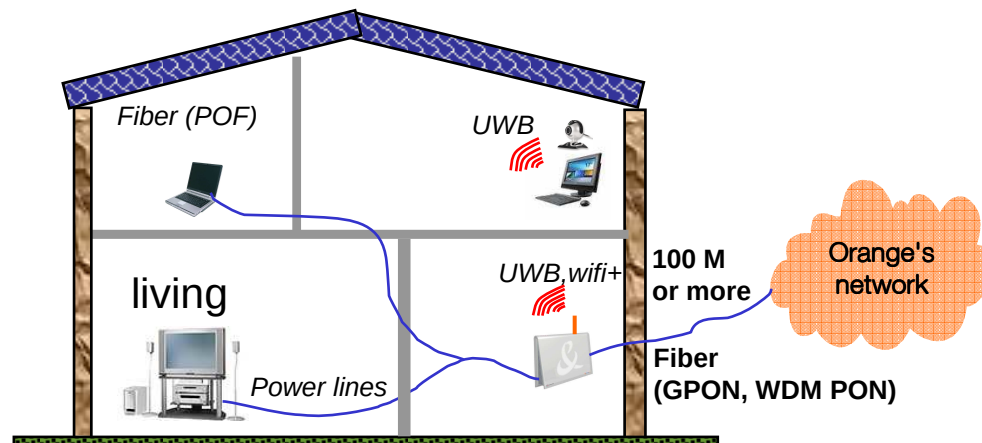
- WIFI allows house coverage (2,4 GHz, 50 Mb/s)
- PLT over electrical network

Access network

- Orange chose GPON Technology for the following reasons :
 - Civil engineering optimization
 - Less fiber in the pipe
 - Cost (OPEX, CAPEX)



Tomorrow : More bandwidth



Home network

- UWB (3.1 to 10 GHz, 480 Mb/s then 960Mb/s), WIFI n (100 Mb/s) POF, next generation PLT

Access network

- PON allows bandwidth growth (WDM PON, next generation TDM PON)

Pilot and Pre deployment (1/2)

June 06 : Launch of a Customer pilot in Paris

- All included Tripleplay Offer to test services:
 - Internet 100 Mbps symmetrical access
 - Orange TV, included simultaneously 2 HDTV streams on TV and 1 stream on PC
 - unlimited VoIP to mainland France
 - Fiber optic livebox
- 1000 customers
- Coverage : 5 cities in the Hauts-de-Seine and 6 districts in Paris

Lessons learned from 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

techno

our technology choices (GPON, FTTH livebox) proved effective

we learned how to best leverage our working relationships with industrial partners

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first consumer box to have been upgraded for 100 Mbps symmetrical throughput

France Telecom is 1st major incumbent to deploy GPON unrestricted

Pilot and Pre deployment (1/2)

March 07 : Launch of FTTH offer and pre deployment

- Tripleplay Offer with “a la carte” options:
 - Internet 100Mb (up to 100Mbps download & up to 10Mbps upload)
 - Orange TV
 - Unlimited VoIP to mainland France
 - Options : multiscreen TV, HD Time control, symmetrical 100 Mbps...
 - Fiber optic livebox
- Coverage: pre deployment in some areas in Paris, Hauts-de-Seine and 10 major French cities in 2008



After 2006 pilot successful completion, pre-deployment in 2007-2008, Orange imagines now new services

New VHBB Customer expectations and new service trends

Customer VHBB needs

- Simultaneity of the application
- More bandwidth for more services
- Quality
- Enhanced
 - Convergence & service continuity between devices in the HN and extended home
 - Easy of use
 - Confort
 - Security (data integrity, ...)

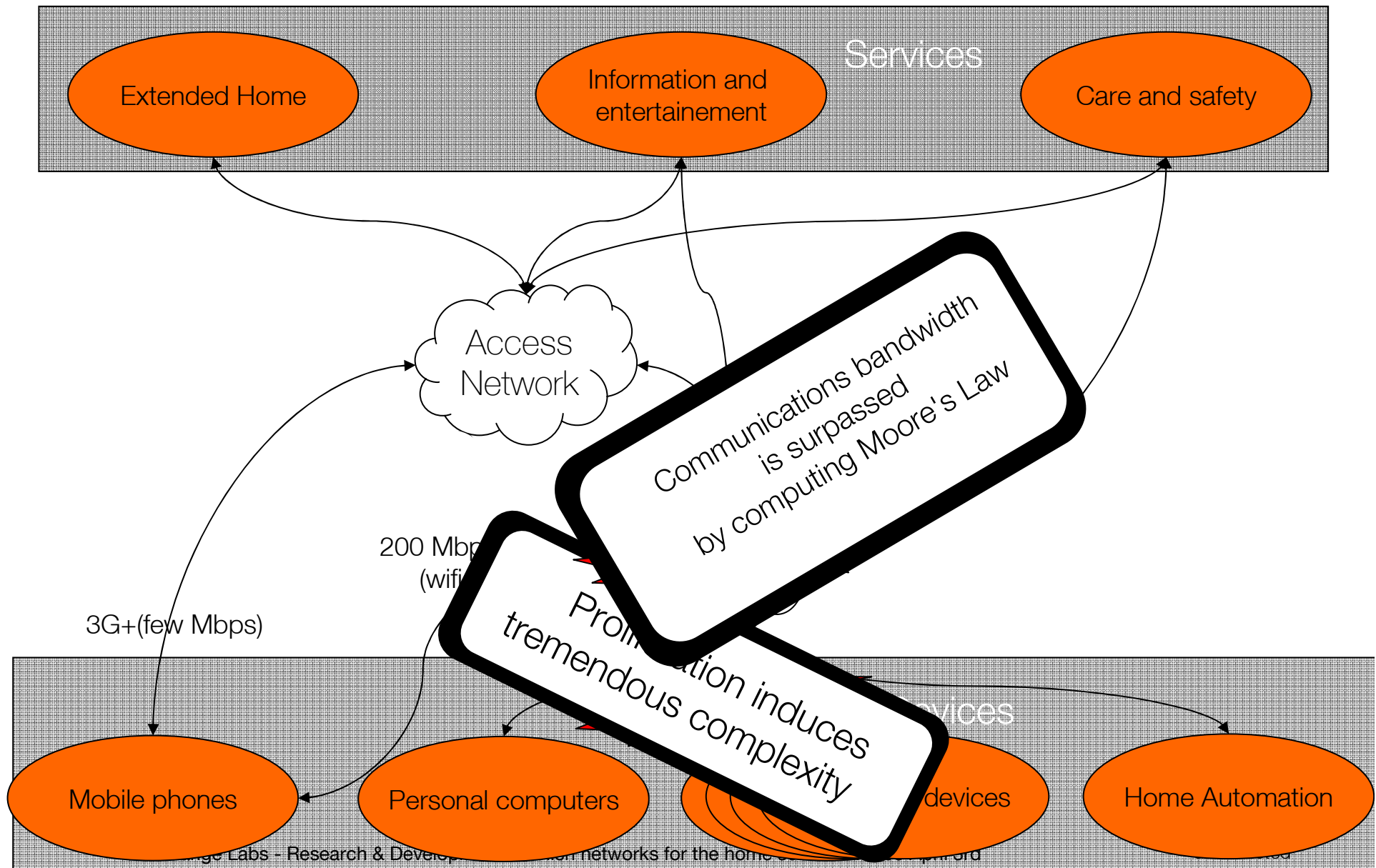


New service trends

- Increasing number of connected devices (Multiplication of applications, Multiplication of PCs, Multiplication of TVs, game consoles, ...)
- Improvement of video, sound, quality enriching content and games : HD television, HD VOD on TV or on PC, HD phone, UGC...
- Care and security : storage/back up, distant PC support (with fluent control)
- Sustainable development substituting telecommunication to travels : HD Videoconference, numerical contents without packaging
- Community communications : Circulation of heavy home generated content between members, selfTV
- Remote games/software : Intelligence is in the network (no installation in local)

The sum of all services requires very high broadband in the home network and in the access network

Home Network is THE future bottleneck



From SOA to the definition for the future home network

- "Network of **connected** devices that enables **smart** home **UltraBroadBand** services to the end users".
- A service is a composition of key applications, driven by computing technologies.

	Home Network perspective	Key technology	State of the Art	Market Acceptance ?
Services	Composition of services	Computing applications (video, gaming, storage)	1 Tbytes @home	Move from triple play to multiple play
Smart	Intelligent Composition of services	Intelligence for composition and adaptation of services	Amigo, Aware Home (Georgia Tech), IBM pervasive, MS Easy Living ...	Too complex scenarios wrt existing customer expectations.
Connected	Discovery, interaction,	Base Middleware	Service discovery : SLP, UPnP, WS-Discovery ... Interaction : RMI (Java), SOAP(control, used in UPnP) ... SIP/IMS Target framework : C# or Java	Many point-to-point protocols. No unified and accepted framework.
UltraBroadBand	Gbps, low latency : Network	Wireline and wireless Hybrid	Wifi, UWB, (wireless) optics, L2 convergence	Race to the Gbps is launched. No convergence between connectivities.

Possible shapes for the future : rationale



Home and SOHO Services

North Interface

- Intelligent service composition
- Complexity management against device proliferation

Middleware

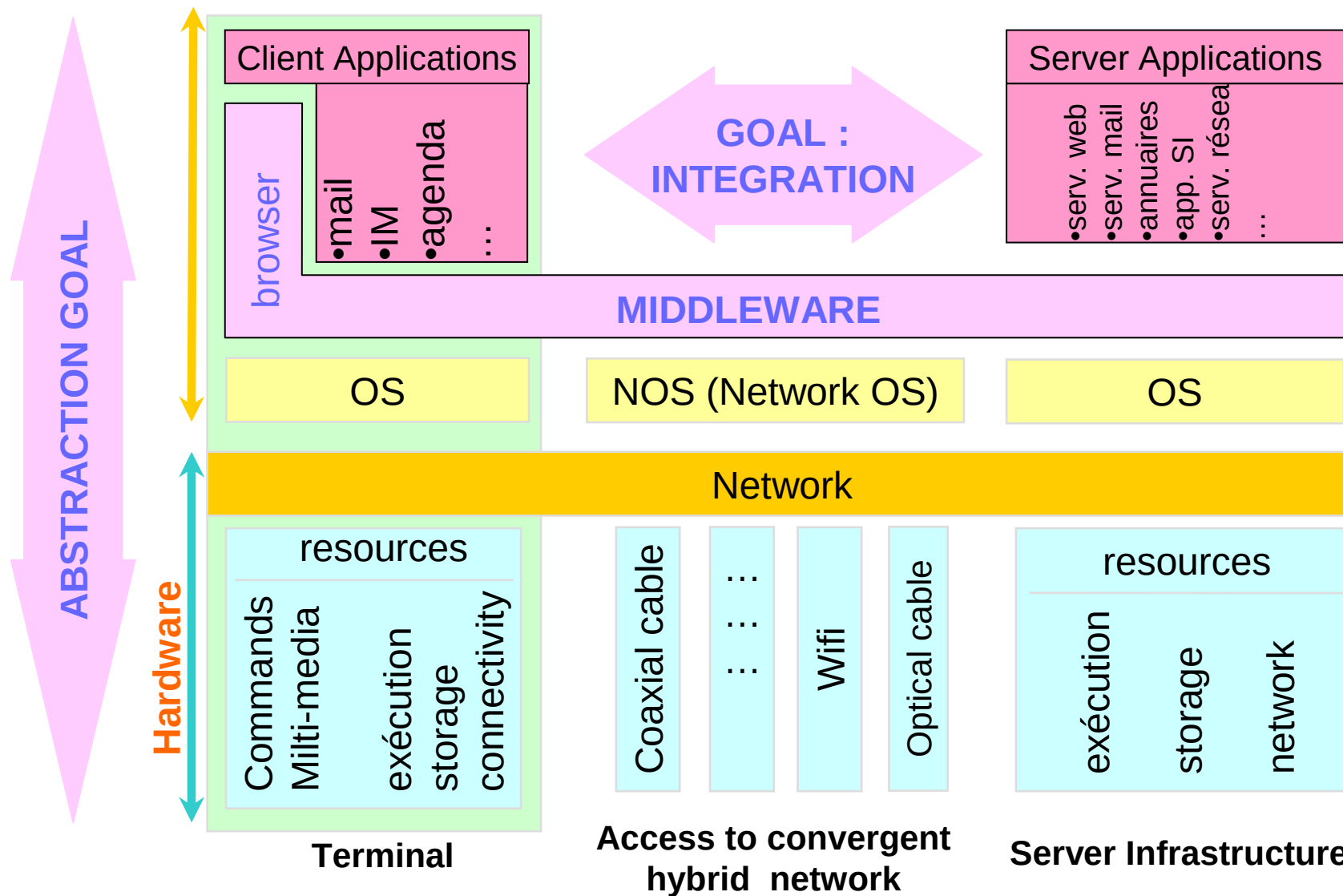
Standardised South interface



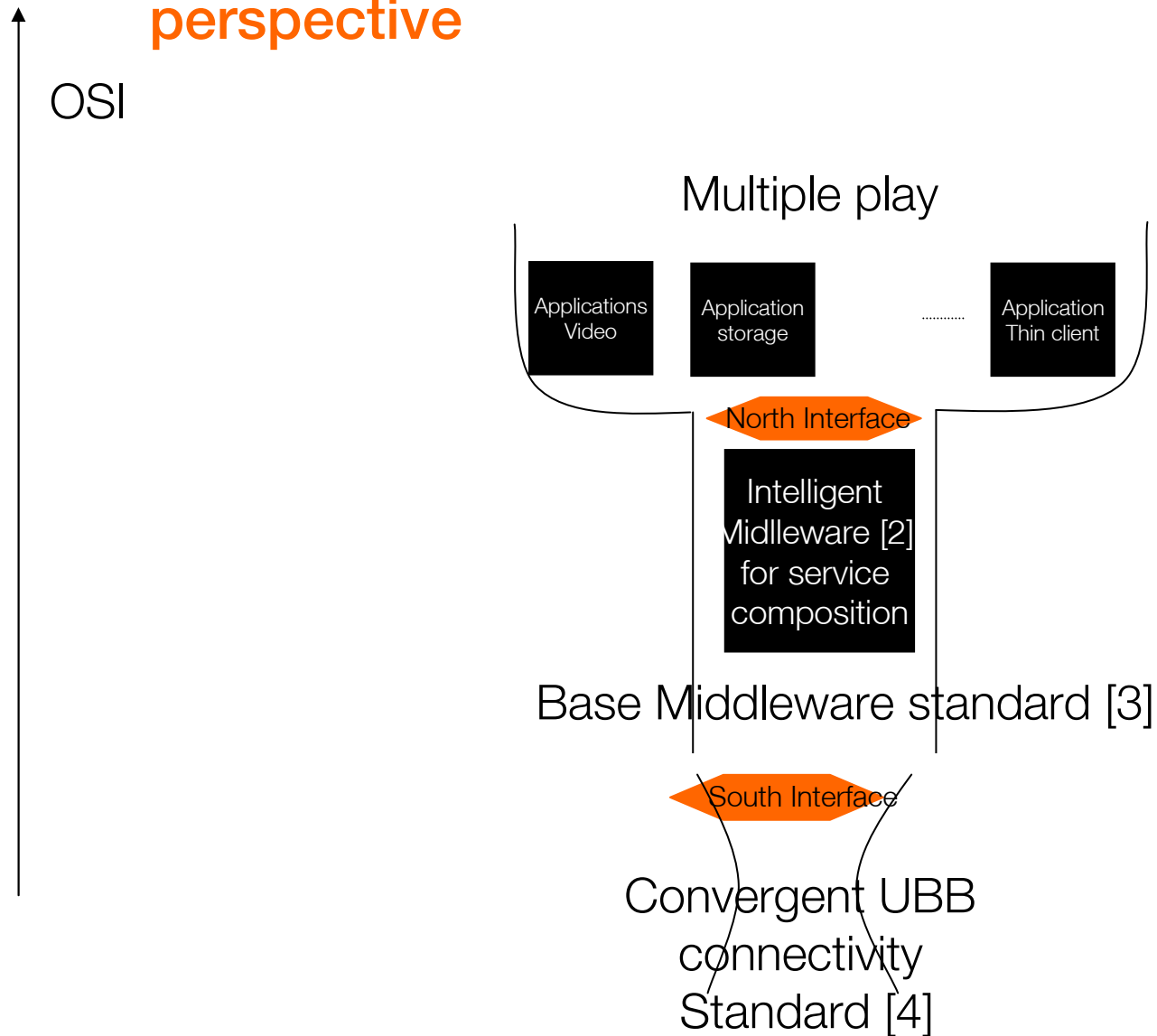
**Convergent Hybrid
home Network**

Network

Where is Middleware ?



Possible shapes for the future : Global perspective



Conclusion

- New UBB services are faced to several obstacles :
 - Home network is the future bottleneck in terms of complexity and QoS bandwidth
 - Extreme heterogeneity of middleware protocols
 - No convergent connectivity standard
- France Telecom /Orange Labs sets out a number of initiative to tackle these new challenges :
 - Imagine future intelligent services
 - Simplify base middleware
 - Standardise connectivity convergence
- and calls for further open innovation to these approaches so that to make UBB home networks a brilliant business

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