



the global connectivity experts™

Future Fiber Architectures and Local Deployment Choices: Architecture Choices and Service Offerings

Nominal vs Effective Bandwidth

- When discussing availability of bandwidth it's easy to confuse nominal (ie. advertised) with effective bandwidth.

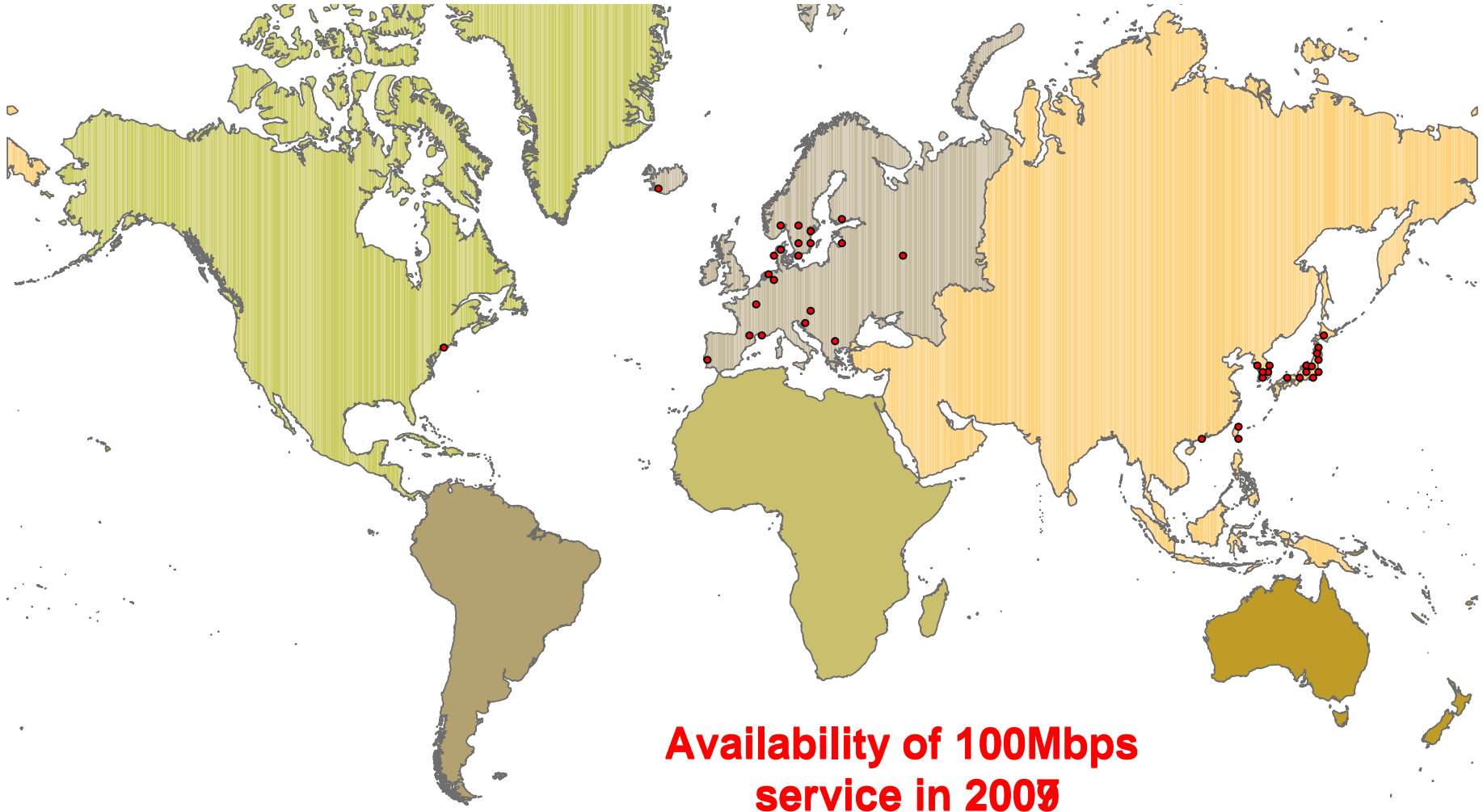
Bandwidth constraints per technology

	End Device	Home Network	CPE	Access Network	Transport Network	Core Network	Peering Transit	Inter-net	Servers
xDSL	LAN Card	WiFi	Chipset	Attenuation (Up to 40Mbps/user)	Backhaul Capacity	None	Commercial Deals	n/a	Server Load
Cable	LAN Card	WiFi	Chipset	Shared Capacity (160Mbps / ~200 users)	Backhaul Capacity	None	Commercial Deals	n/a	Server Load
Fiber EP2P	LAN Card	WiFi	Chipset	None (1Gbps/user)	Backhaul Capacity	None	Commercial Deals	n/a	Server Load
Fiber xPON	LAN Card	WiFi	Chipset	Shared Capacity (2.5Gbps/ 30 users)	Backhaul Capacity	None	Commercial Deals	n/a	Server Load

- In the access part of the network, the least constrained technology is Fiber EP2P followed by Fiber xPON, and XDSL/Cable roughly equal.

Source: Yankee Group 2009

Availability of 100Mbps service

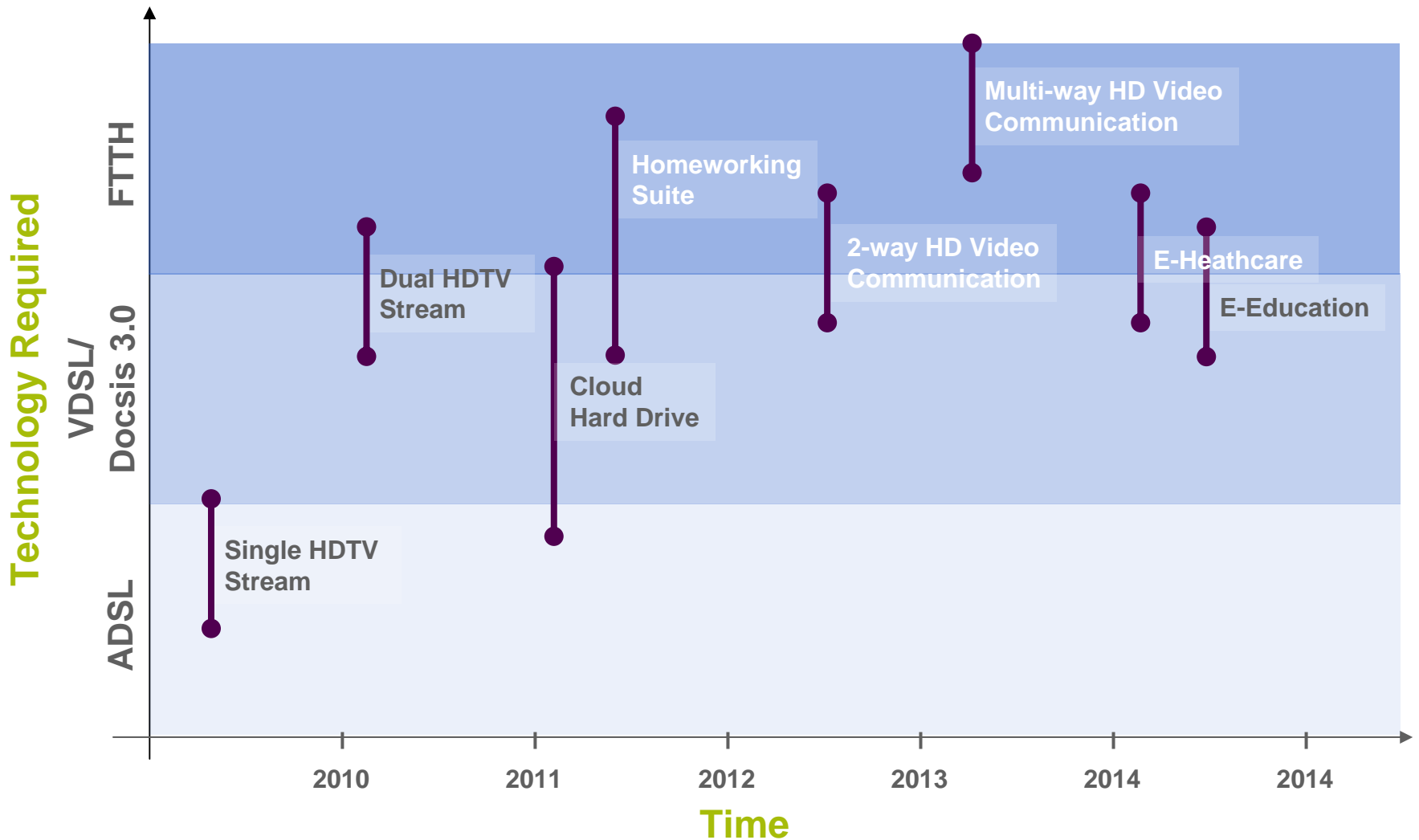


**Availability of 100Mbps
service in 2009**

Availability of 1Gbps service



Tech Requirements of Next Gen Services



Pricing

		download	upload	Price (Local)	Price (Norm. USD)	Services Included
		100Mb/s	50Mb/s	EUR/m 30	31/m	IPTV (150+), HDTV, WiFi, VoIP (free wireline 140 countries) ...
		100Mb/s	10Mb/s	EUR/m 55	82/m	IPTV (100), HDTV
		100Mb/s	100Mb/s	HKD/m 99	17/m	-
 		100Mb/s	100Mb/s	SEK/m 399	43/m	-
		100Mb/s	50Mb/s	JPY/m 5649-7329	49-63/m	-
		101Mb/s	15Mb/s	USD/m 105	105/m	-