

Convergence and NGNs:

Challenges in an All IP World

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Telecommunications Commissioner

9th Annual Telecommunications & ICT Summit
23 June 2008

Outline

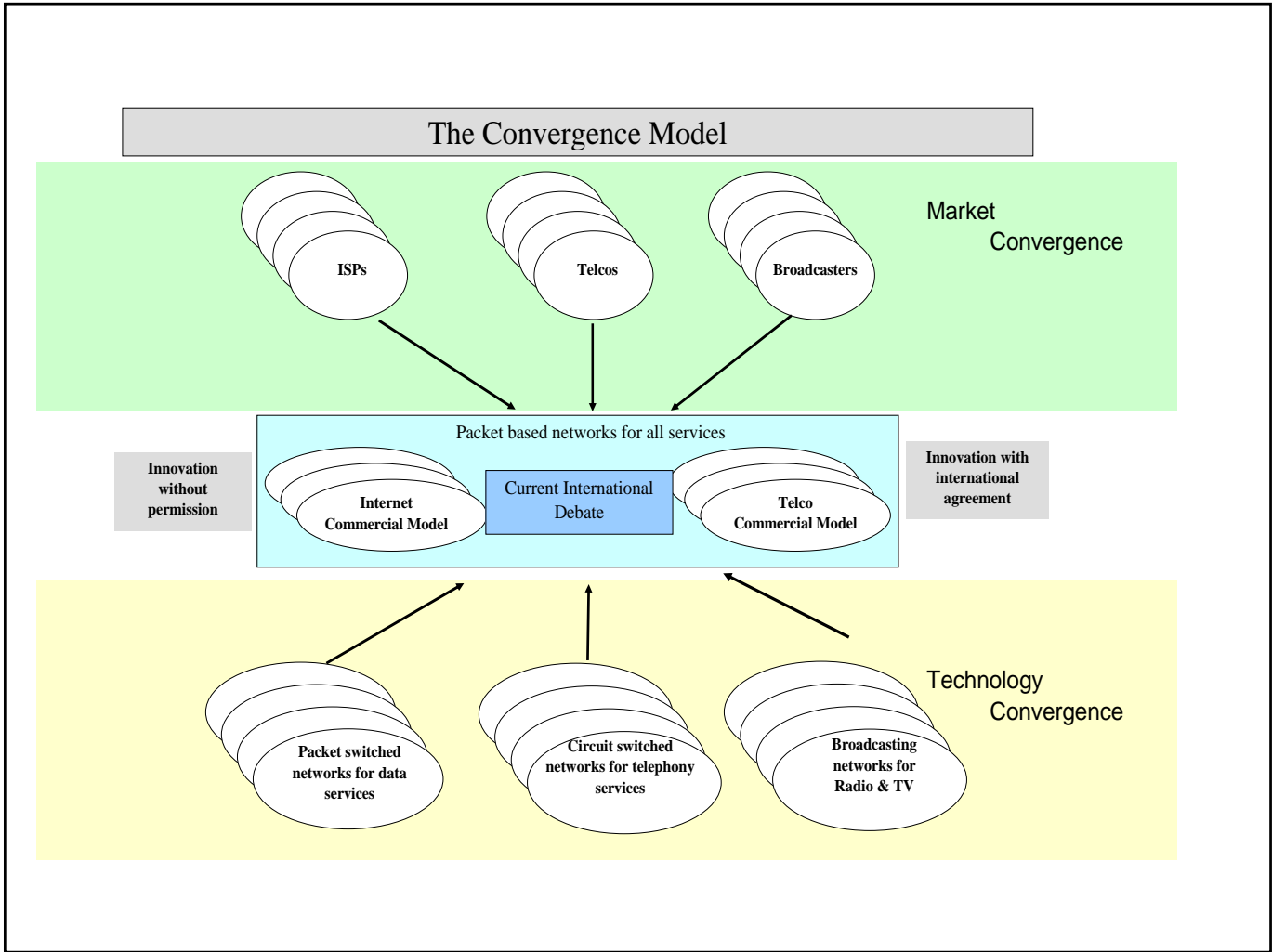
- Convergence
- Next Generation Networks - taking the best from the Internet and Telco Models
- Commission Study

Convergence

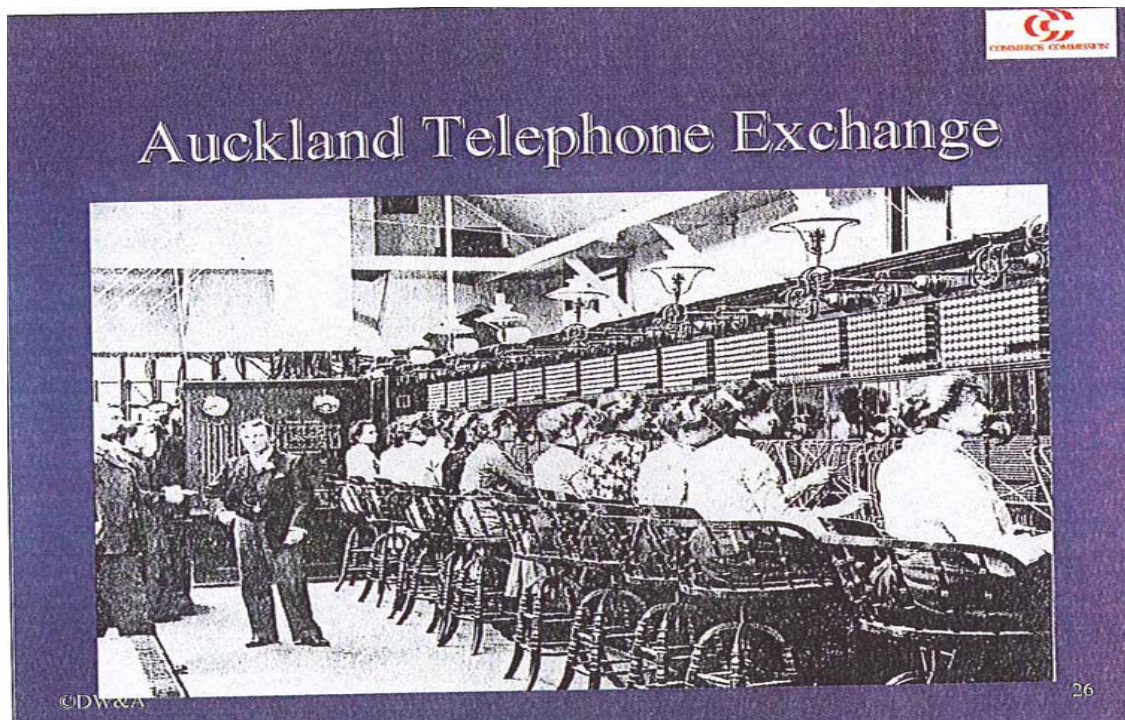
- “The ability of consumers to obtain multiple services or a single service on a single platform or device or obtain any given service on multiple platforms or devices”¹
- ‘In a broadband society, convergence is not a choice but an evolution of the market.’²

1 Ofcom, "What is convergence?" A submission to the Convergence Think Tank, UK Feb 2008

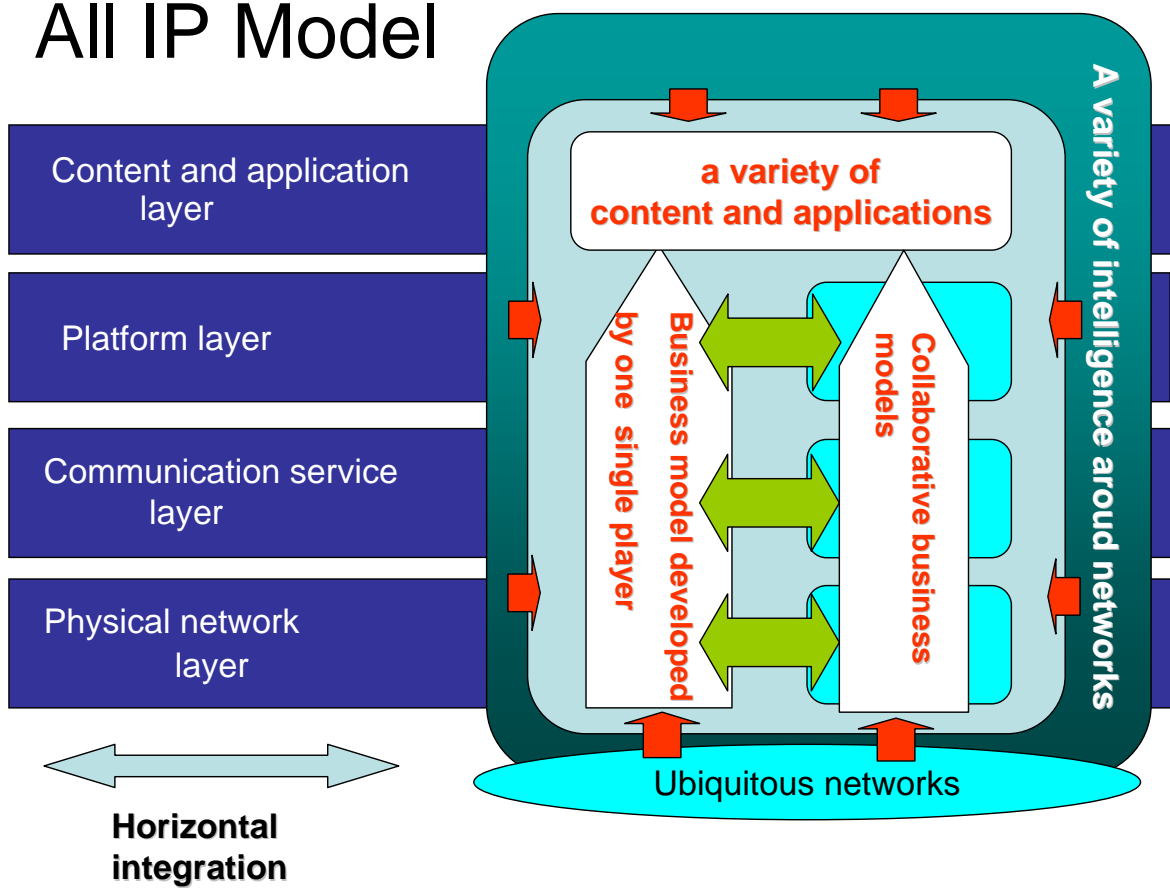
2 "Convergence: The Netherlands for example", Hans Bakker, Director, Regulaid, presentation to MEDA NATP II, July 2007



PSTN World

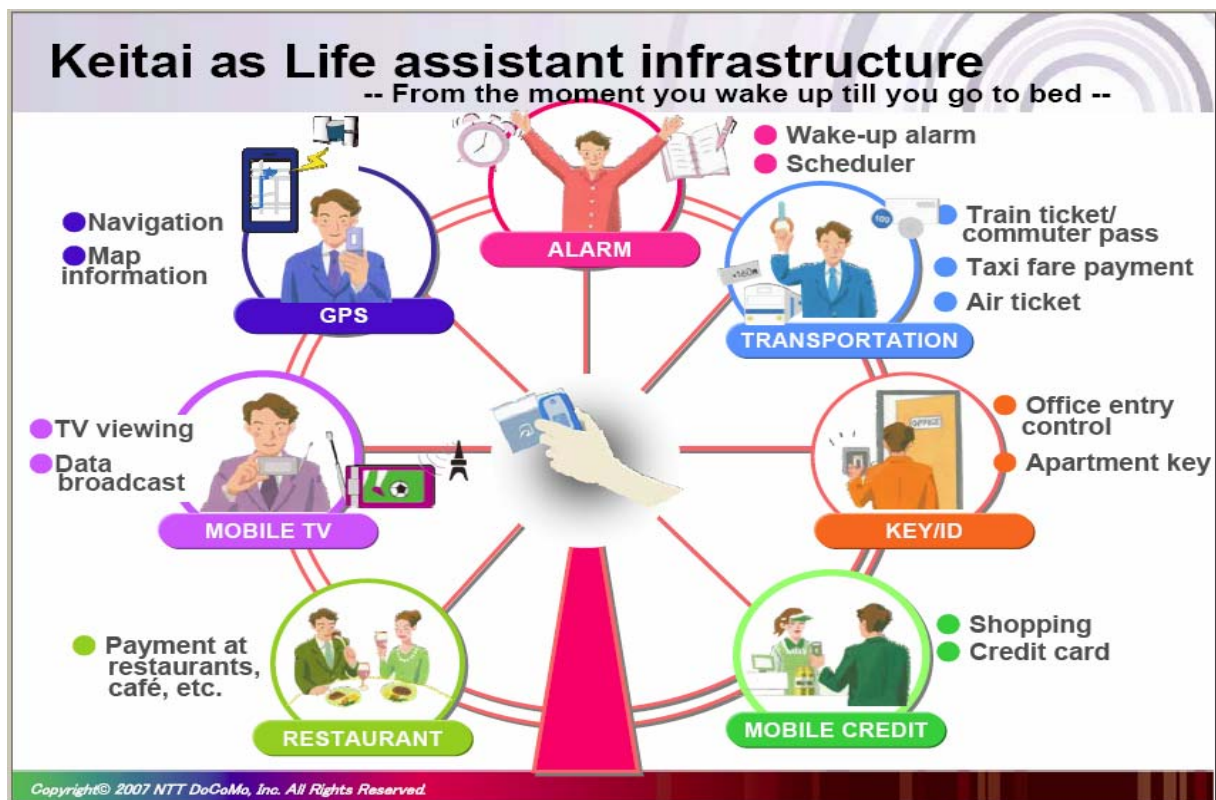


All IP Model

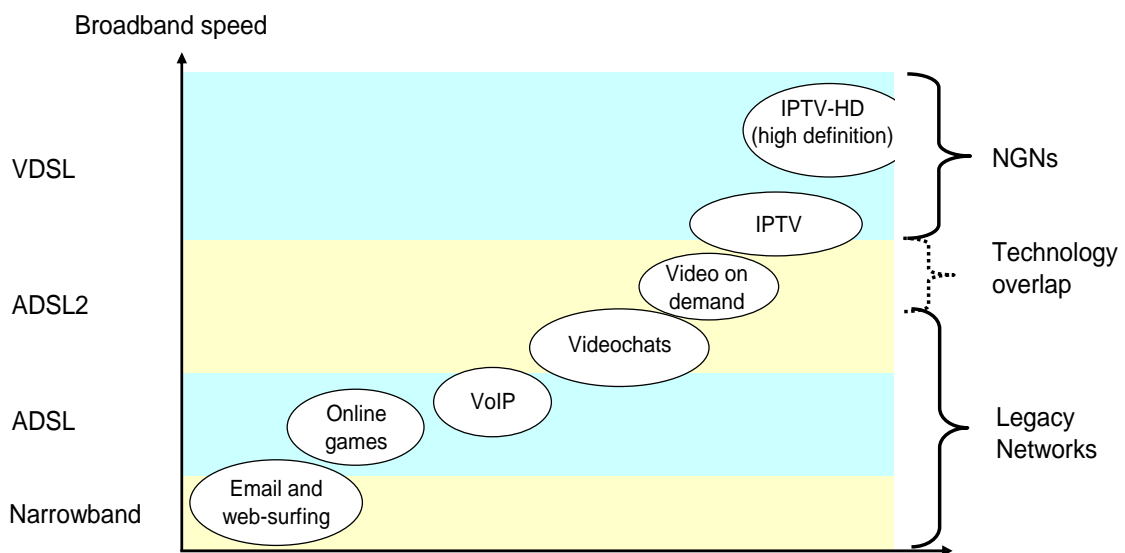


Source: MIC Japan, Broadband Competition Policy in Japan, March 2008

The Consumer Experience

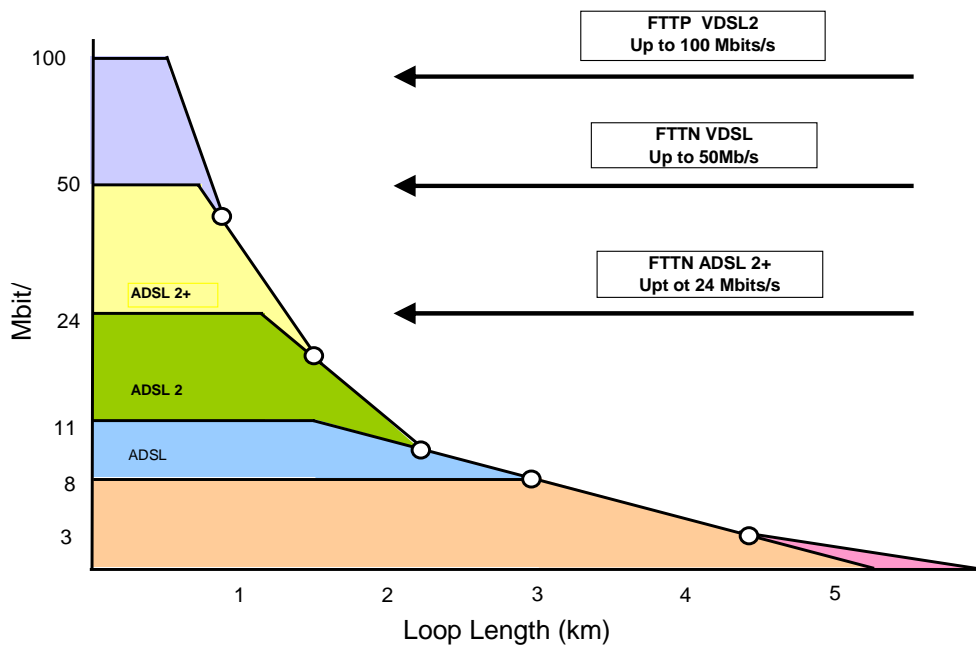


Potential new services enabled by high-speed broadband(DSL over Copper)

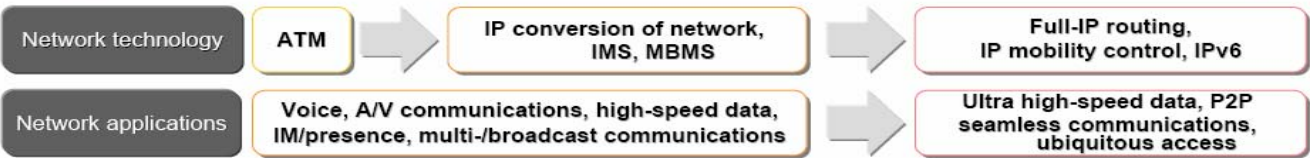
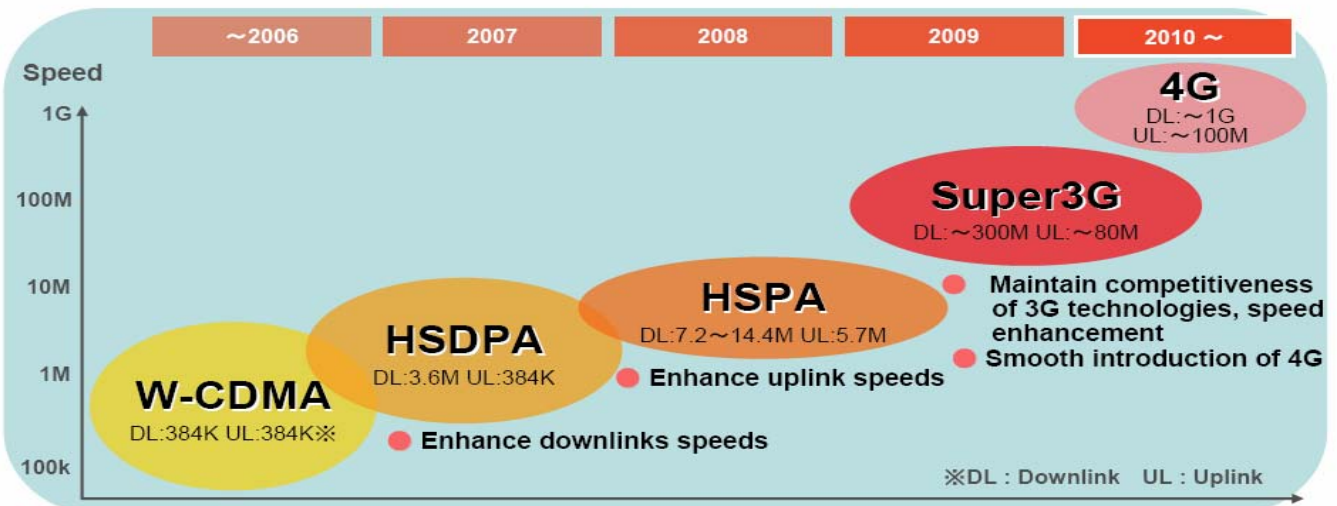


Source: Oxera

DSL Speeds



Phased Evolution from 3G to 4G



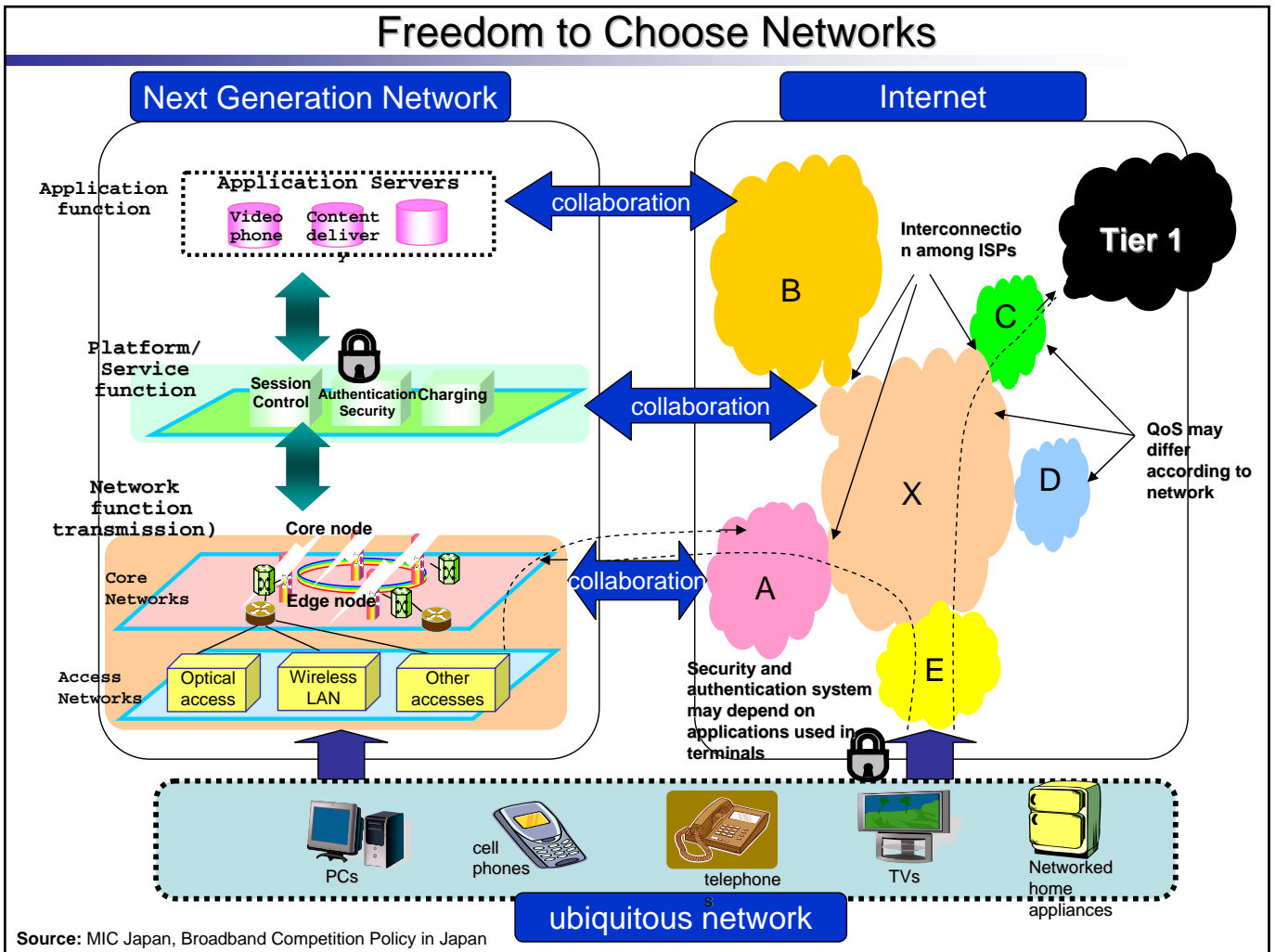
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What is NGN?

NGN is an attempt to take the best from both the telephony world and the Internet world, giving an “order to the chaos” by keeping the level of complexity low for users while increasing user value. From the Internet community standpoint, NGN is in contrast with some of the basic principles of the Internet structure, based on, a dumb “*cheap and cheerful*” core technology allowing constant and spontaneous innovation at the edges

Source: OECD Next Generation Network: Evolution & Policy Considerations, October 2006

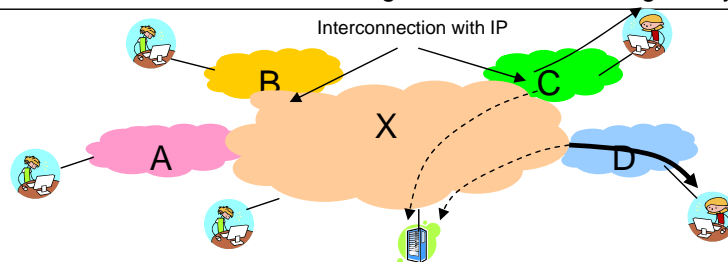
Freedom to Choose Networks



Differences between the Internet and NGNs

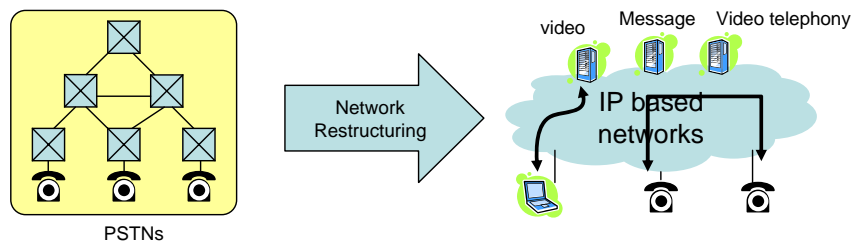
Internet

- No scheme to ensure overall QoS on end-end basis.
- Each Network is interconnected on a multilayer basis and the Internet itself is an open and autonomous network.
- Best effort model to find out best solution through collaboration among anonymous players.



Next Generation Networks

- IP-based networks are to be restructured from legacy PSTN networks.
- Networks are controlled by carriers to ensure QoS and security through the functions of SDP (Service Delivery Platform).



Source: MIC Japan, Broadband Competition Policy in Japan, March 2008

□

Why NGN?

- Equipment costs coming down.
- Lower costs and improved revenue predictions in long run- [reduced complexity, network optimised for reliability and performance]

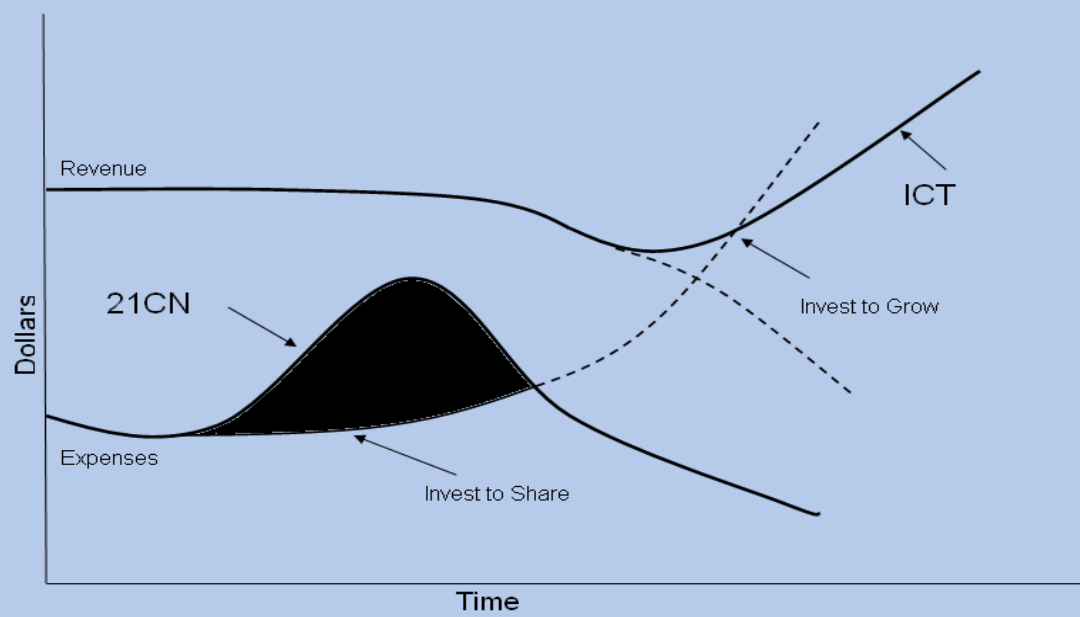
“The fundamental shift for Telecommunications is a shift of focus from hardware devices and billable minutes to software devices and billable services.” J Rangaswami – Director BT Design

“Operational modem speed doubles every 2.1 years and prices are coming down” KPN

Lower Cost

What's Driving NGN Transformation?

The Need for a Better Cost Structure



Source: BT UK: Investment, Innovation and Competition Enabled by Regulation

Commission Study

New powers under S9A

“conduct studies into any matter relating to the telecommunications industry”

- Enables the Commission to take a strategic view of the issues relating to all IP networks
- Facilitating development of market wide understanding of the technical and commercial issues around NGN will enable the appropriate framework to be developed to facilitate both investment, innovation and competition.
- **Should not** be seen by the investment community as a signal that the Commission is considering regulating new infrastructure development.
- Telecom’s cabinetisation and transition from PSTN only a small part of the overall NGN picture.

Your views on the Commission initiative

- “It is great to see the Commerce Commission using its new powers to undertake a more strategic approach to the issue impacting the emergence of such an important development in the evolution of the telecommunications industry” Murray Milner
- TUANZ warmly supports the Commissions intention to commence a study into Next Generation Network Issues...
- Telecom supports the Commission’s decision to commence a proactive, forward-looking study into the potential impacts of the technology and market changes our industry is beginning to undergo.....
- We support the Commerce Commission’s study and a proactive approach as opposed to reactive approaches of the past, so as to encourage more timely competition. ISPANZ

Your views on the Commission initiative

- Chorus welcomes the Commission's intention to conduct a study into NGN issues as a positive and timely step.
- We are supportive of the Commerce Commission's decision to proactively consider the implications of Next Generation Networks (NGN's). InternetNZ
- We welcome the study and believe that it is important for the industry to engage on these issues with the Commission. Vodafone
- TelstraClear supports this initiative and the proposed scope of the review. Proactive industry-wide engagement on NGN issues will ensure that both Telecom and access seekers have certainty around future rights and obligations, and can make informed decisions as migration to an NGN environment occurs.

Next Generation Network

Core Network

The replacement of existing legacy switched core networks with packet-based all IP networks (NGN);
and

Access Network (Collectively NGAN).

- Diverse access technologies:
 - Fibre rollouts into the local loop either to the cabinet (FTTN) or the street (FTTC/FTTP), xDSL
 - WiMax, WiFi, Fixed Wireless, CDMA, GSM, WCDMA

International studies:

- **Netherlands**
OPTA required MDF migration agreement as part of rollout of FTTN by KPN
All IP Next Generation Networks Position Paper
- **Germany**
The Federal Network Agency - (Bundesnetzagentur) – release of IP Interconnection Key issues paper published Feb 08
- **France**
ARCEP - public consultation on FTTH July 2007
- **European Regulators Group**
 - June 2008 released Consultation Document Regulatory Principles of IP/IC/NGN Core
- **UK - Ofcom**
 - Future broadband - Policy approach to next generation access (Sep 07)
 - Promoting higher speed broadband in new build housing developments (April 08)
- **OECD** - Public Rights of Way for Fibre Deployment (April 2008)
Developments in Fibre and Investment (March 2008)
Ministerial Conference in Korea (June 2008) launched papers on policy Guidance on Convergence and NGN

IP Network Challenges: Core

- Interconnection to the core
 - Quality of Service
 - Should there be mandated QoS?
 - If Yes, what standard(s) should apply?
 - Inter-operability issues
 - Architecture, packet priority, tunnelling, filter protocols.

IP Network Challenges: Core

- Are the current Interconnection models still applicable?
 - Bill & keep versus terminating access charges?
 - What is the role of advertising?
 - Will users pay for content that is available more cheaply on the internet? Quality?
 - Security?
 - Emergency calling services?
 - Numbering, naming and addressing
- Is the current regulatory framework still applicable?
- What are the transition issues?

IP Network Challenges: Access

What are the potential competition issues that can result from various access architectures?

- **Wireless NGAN options**
 - Does the current spectrum management model require further liberalisation for a fully market based approach or is it sufficiently flexible?
 - What constraints are there for wireless technologies to provide the last link to end users?
- **Fixed NGAN options**
 - As fibre penetrates deeper into the network infrastructure what access issues arise?
 - Do the current exchange buildings have space to cope with a future that may involve a fibre to every home?
 - What are the appropriate mechanisms for ensuring that new enduring economic bottlenecks are not created?
- **Open Access networks**
 - What are they?
 - Are there competition issues we should be aware of?
- **Access to Passive Infrastructure**
 - Do the cost of deploying some access technologies raise the need to consider more permissive regimes for access to ducts and rights of way?

Access Technologies

“The Prize, in the converged world, is to become the effective controller of the home hub.” David Currie, Chairman, Ofcom, 12 November 2007

- Fibre to the Node (Cabinetisation & VDSL)
- Fibre to the Home
- Fibre to the Curb (Pedestal)
- Wireless Technologies

What we are currently doing

- Consultation Questionnaire
- We want to hear your views
ngn@comcom.govt.nz
- Conference
9 and 10 October 2008
Langham Hotel, Auckland

NGN Conference

- Array of international and local speakers
- Topics will include
 - International perspectives
 - Internet v Telecommunications Model
 - Challenges posed by convergence and transition towards NGN
 - Interest group perspectives
 - Supplier perspectives of different access technologies

