

# Regulatory Challenges of an All IP World

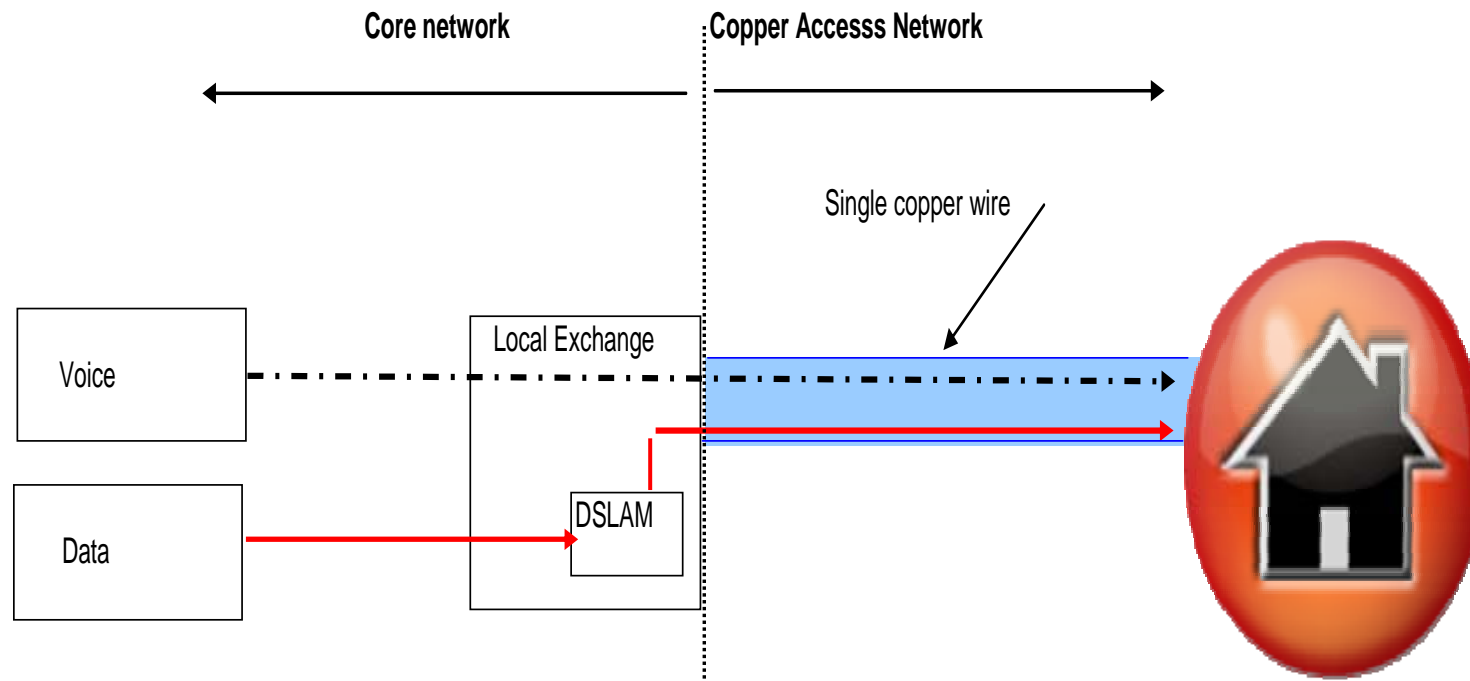
Dr Ross Patterson  
Telecommunications Commissioner

# Current PSTN World

- Networks developed as public government networks then privatised
- Vertically integrated operator providing a total package of network and the services carried over it.
- Interconnection and access terms and conditions developed retrospectively with incumbent in position of advantage
- Originally designed to carry voice only
- Data delivered separately over copper

# Current PSTN Network

## Public Switched Telephone Network



# Next Generation Network (All IP Network)

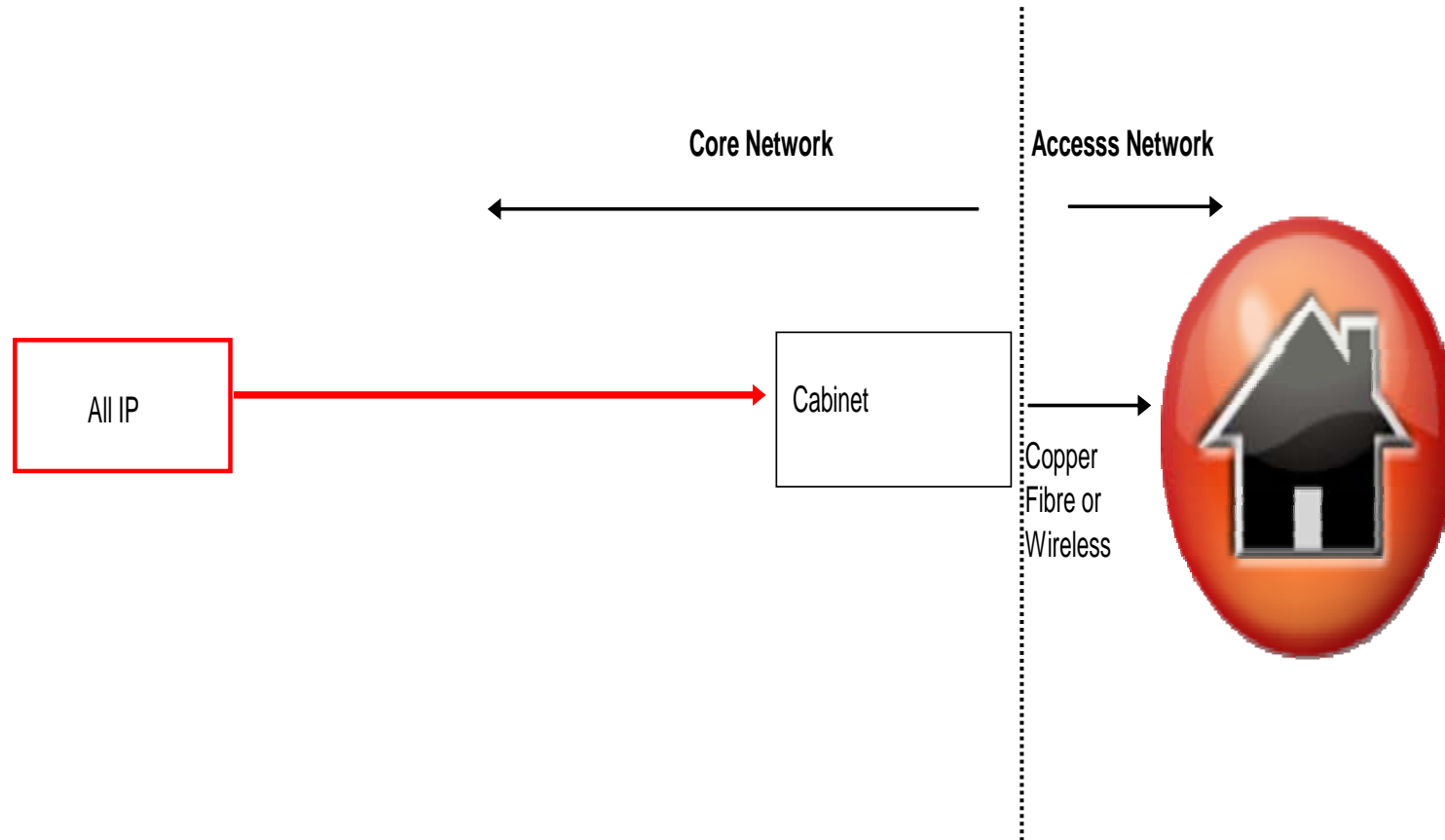
## **Core Network**

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

## **Access Network**

Fibre rollouts into the local loop either to the cabinet (FTTN) or the street (FTTC/FTTP).  
(Collectively NGAN)

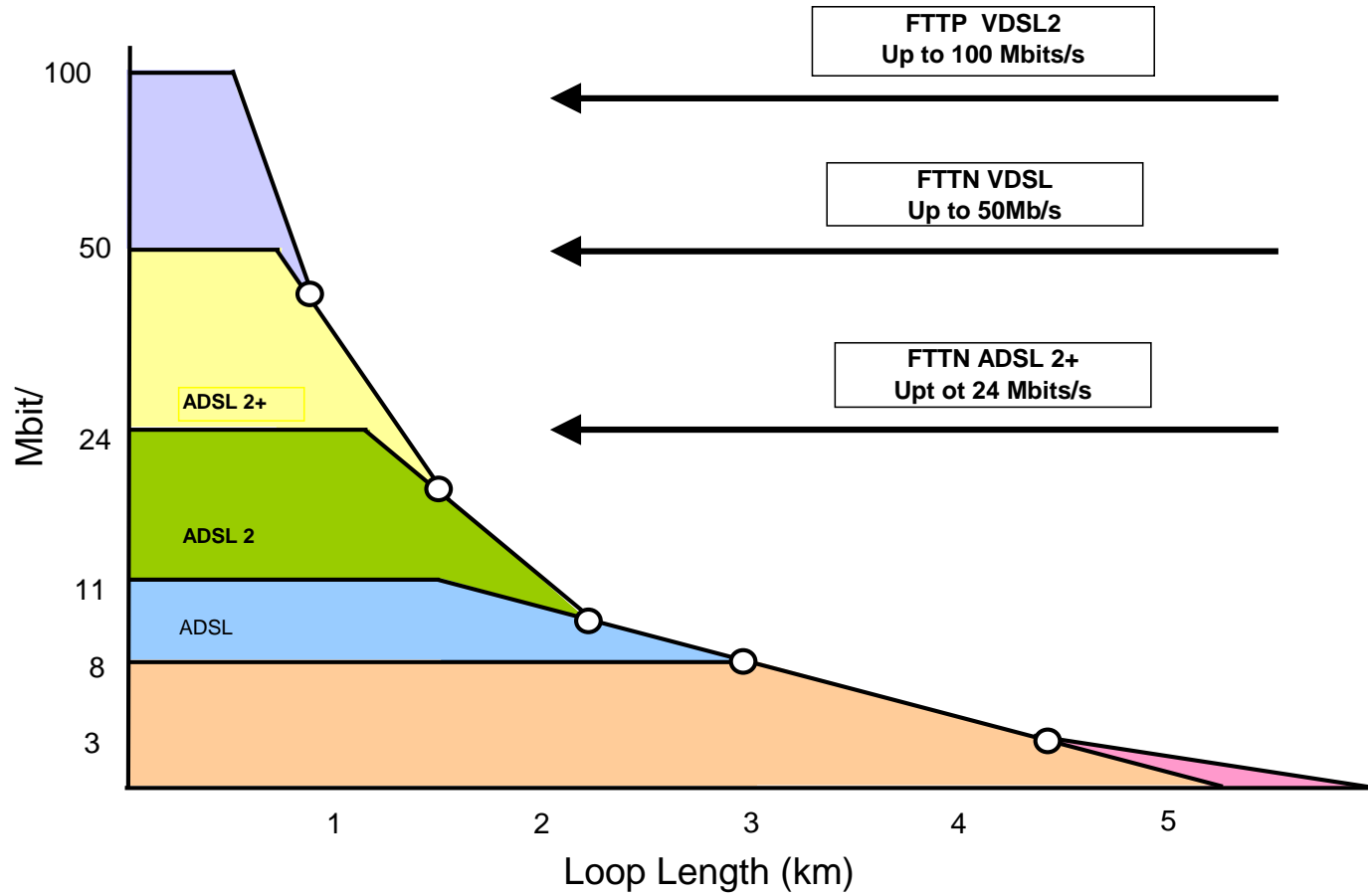
# All IP Core and Access



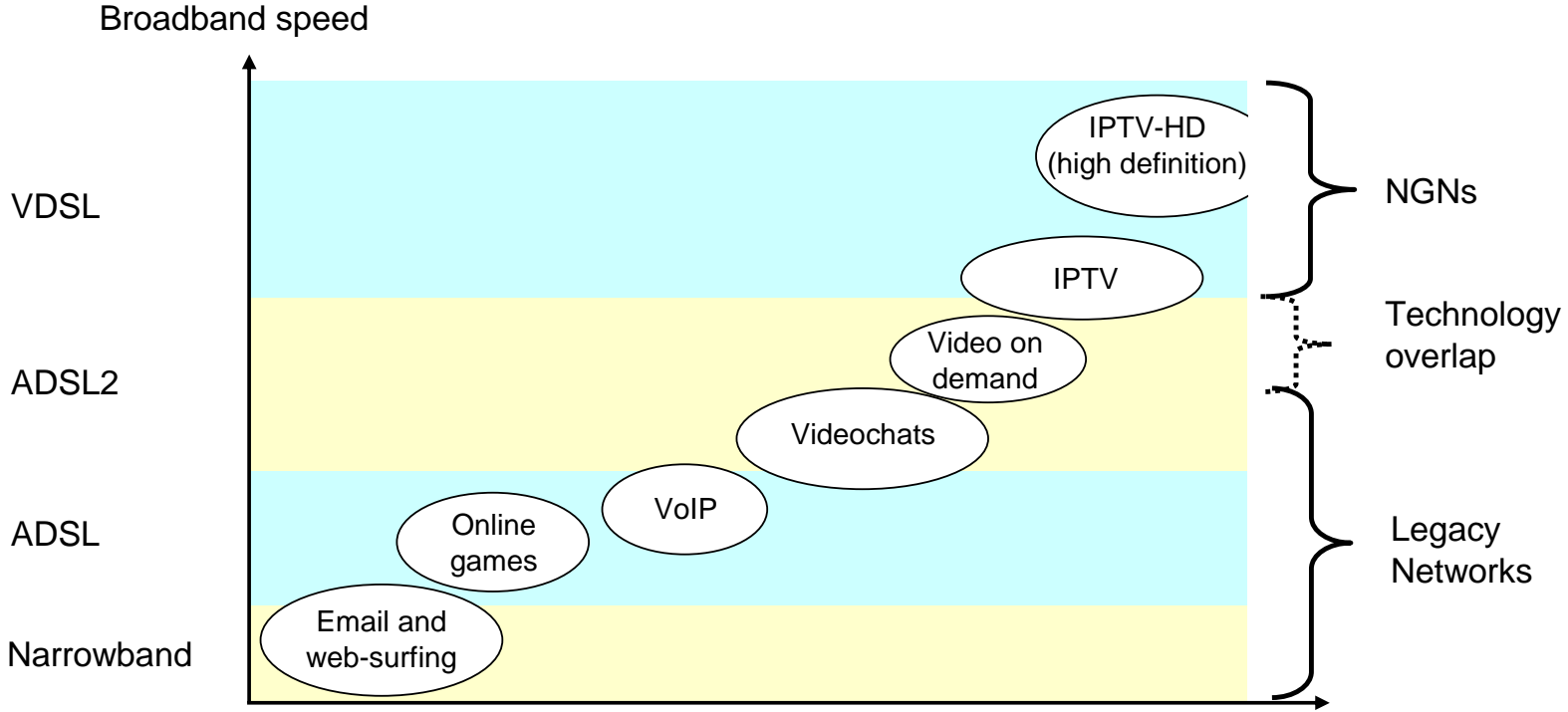
# All IP Model

- Single platform – multiple networks, multiple services.
- Packet based services – voice, data, video
- Increased availability of bundled consumer packages
  - triple play (voice, broadband, television) and quadruple play (voice, broadband, mobile, television)
- Increased consumer choice of services, convenience and innovation
- Increased penetration of fibre into the access network results in the boundary between the core and access network shifting.
- Opportunity for all industry to address access and interconnection issues as networks are evolving

# DSL Speeds



Potential new services enabled by high-speed broadband



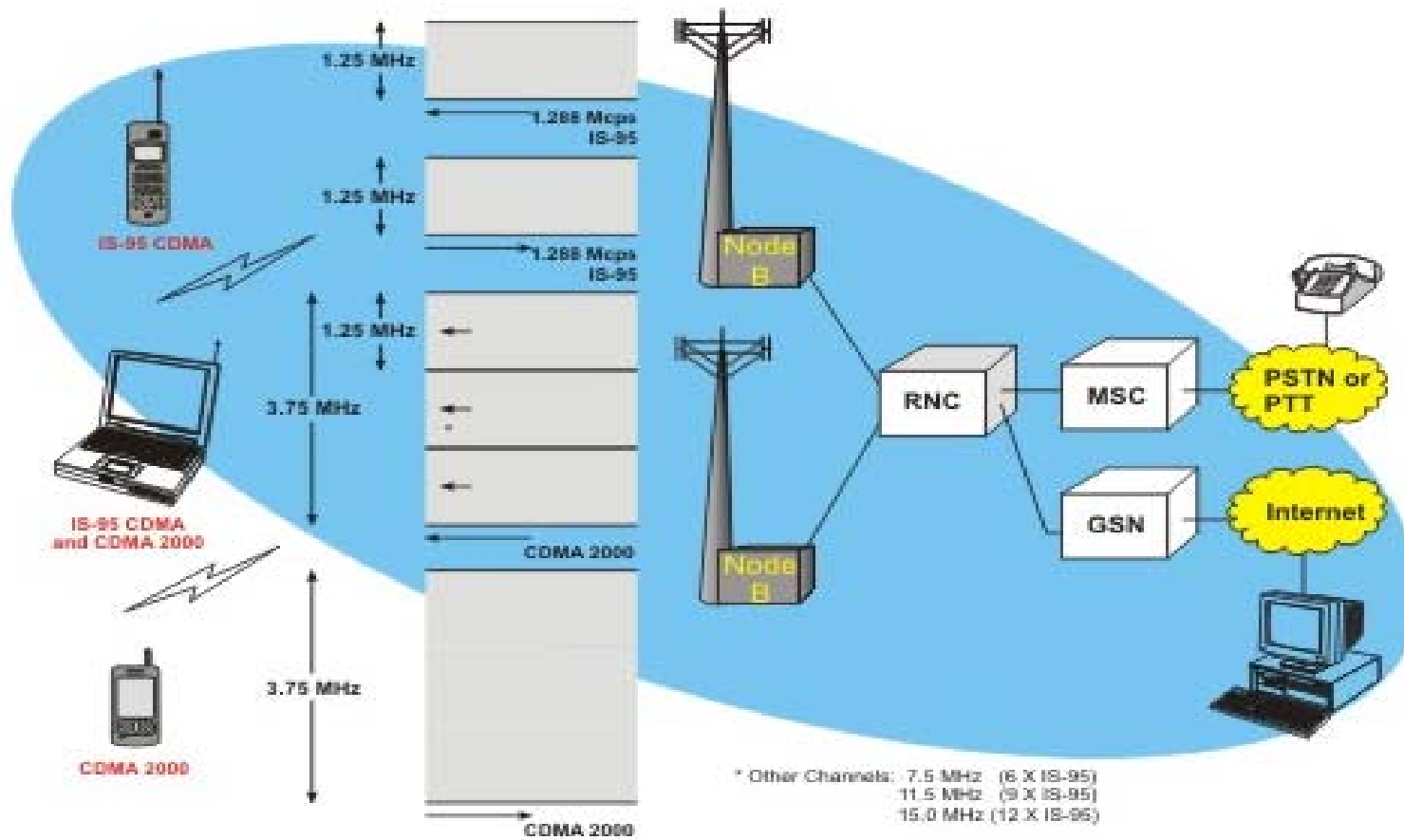
Source: Oxera

# 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”<sup>1</sup>
- Ministry of Culture and Heritage Discussion document
  - *Review of regulation - the Implications for regulatory policy of the convergence between broadcasting, telecommunications and the internet*

• <sup>1</sup> Source: Ofcom: “What is convergence? A submission to the Convergence Think Tank, UK Feb 2008

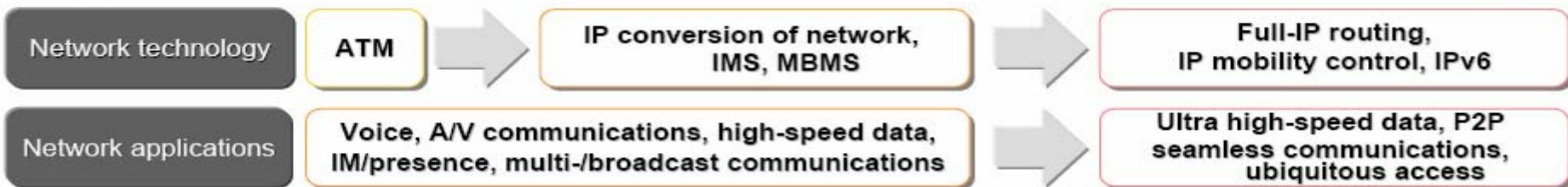
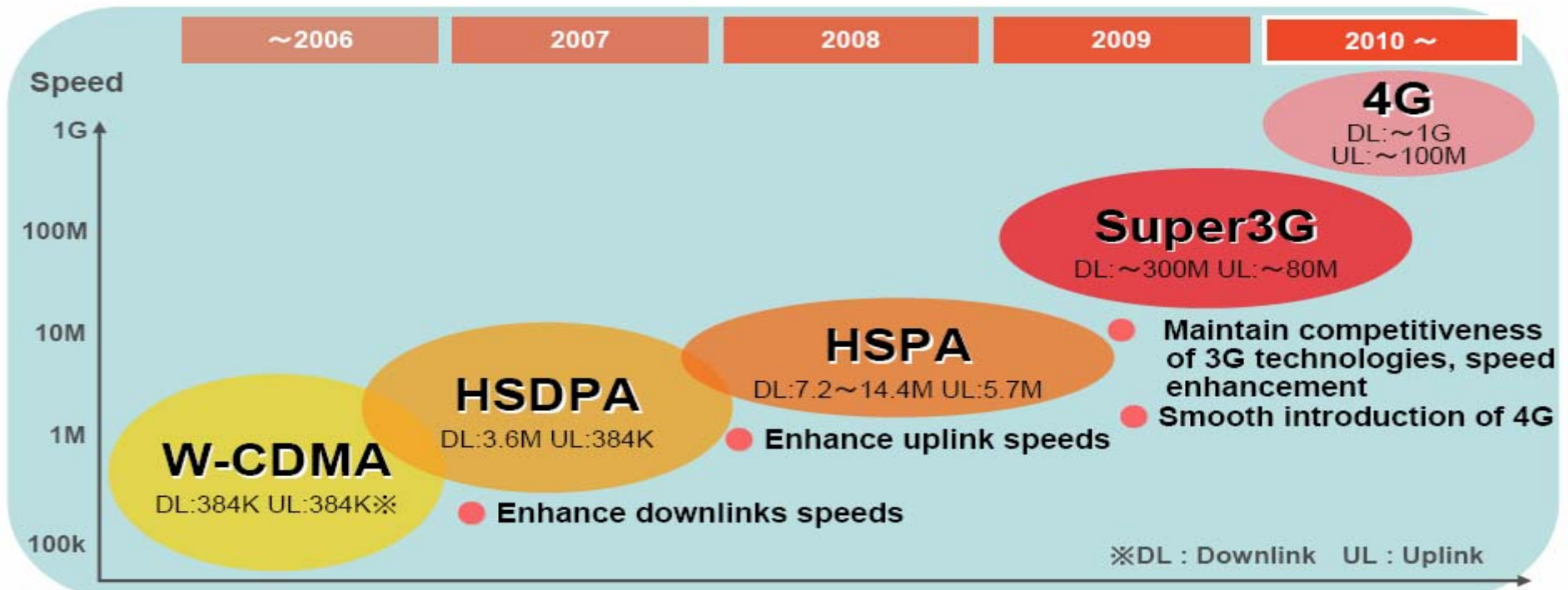
# Mobile Network



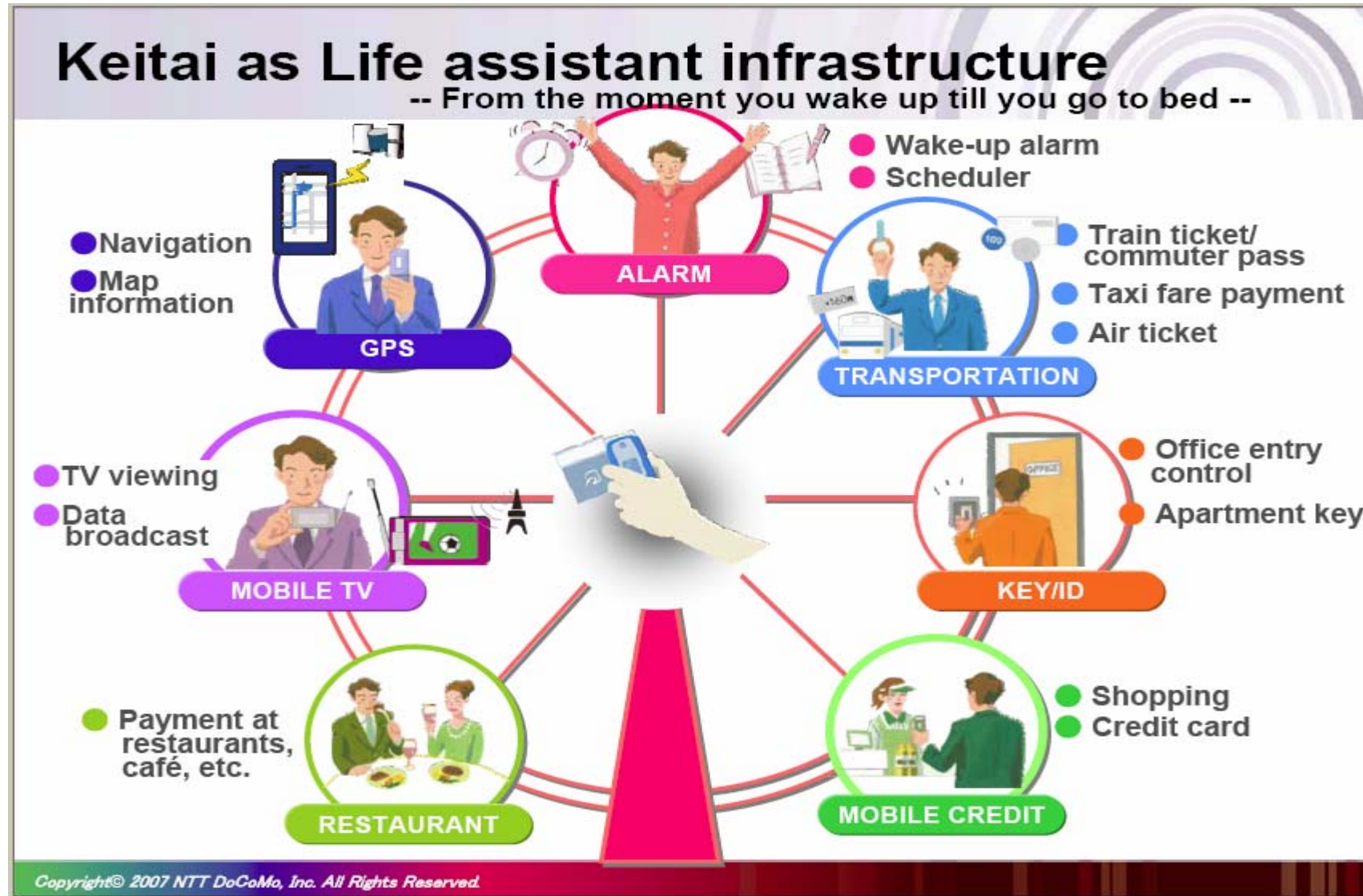
# Mobile Network

- Separate network
- Difference device and different number to PSTN
- Voice and data
- IP network W-CDMA/GSM

# Phased Evolution from 3G to 4G



# The Consumer Experience



# IP Network Regulatory Challenges

Issues in principle the same

- Interconnection to the core
  - Quality of Service a key issue
  - Inter-operability issues
    - Architecture, quality of service, packet priority, filters protocols,
  - Pricing model
    - PSTN caller pay model v internet receiver pay model
- Access to the NGAN
  - As fibre penetrates deeper into the network infrastructure access gets more challenging.
  - That a new enduring economic bottleneck is not created

# International Debate

## Ofcom (UK)

- Facilitated NGNUK industry body
  - addressing IP interconnect architecture, Commercial model and interoperability issues
- Consulting industry on regulatory framework policy for next generation access

## OPTA ( Netherlands)

- Required MDF migration be addressed with SLU

# International Debate

## ARCEP (France)

- public consultation on FTTH July 2007
- Consideration of access to Paris sewers

## The Federal Network Agency - (Germany)

- IP Interconnection Key issues paper published Feb 08
- Requirements around access to duct

## International Telecommunications Union

- Technical standards working group since 2003

# The NZ Position

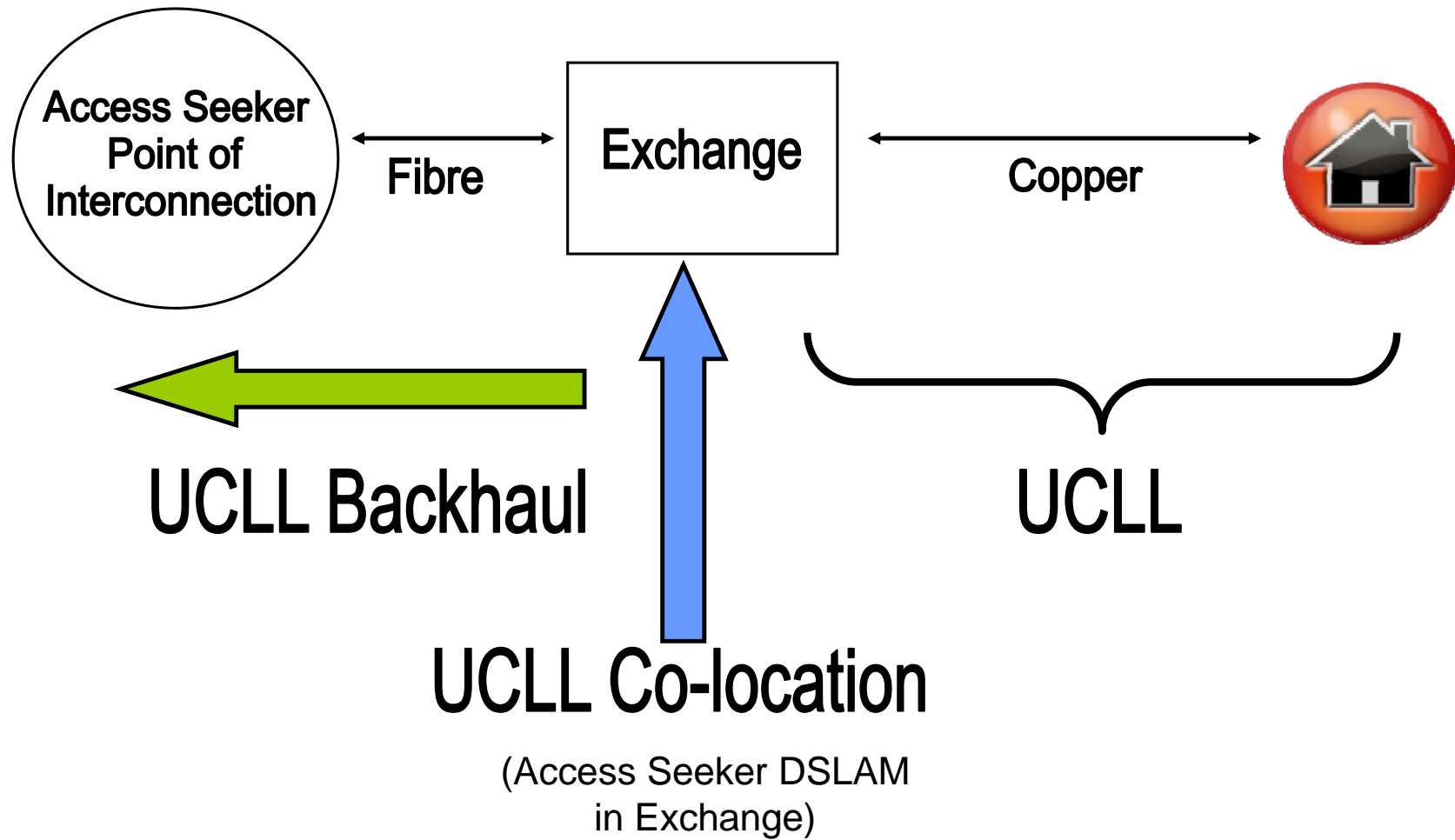
PSTN issues have been dealt with.

Core network

- Commission Interconnection determination decision 477 – 2002

Enduring economic access bottleneck

- Commission UCLL and UBA determinations 2007

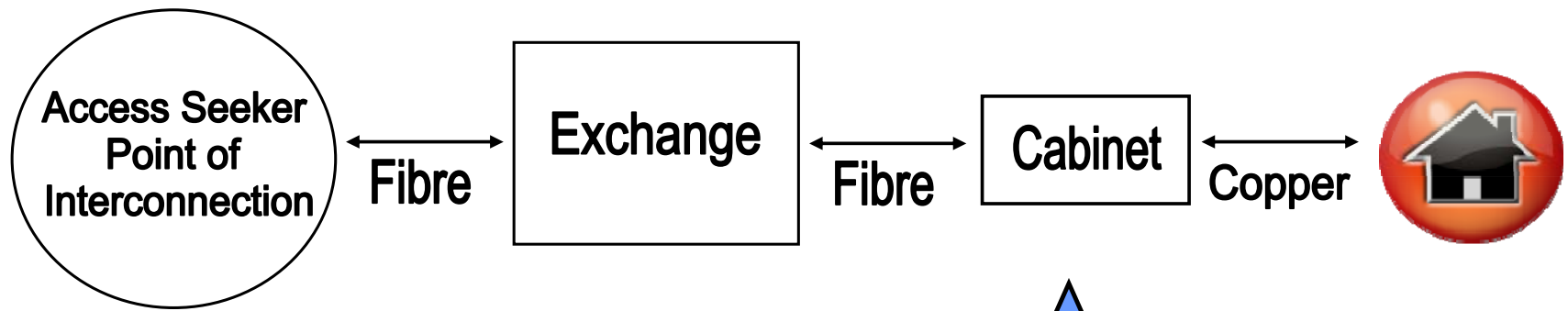


# The NZ Position

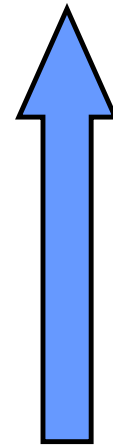
NGAN issues are with us now

- not a hypothetical future

- Telecom cabinetisation announcement
- Sub loop determination process



**Backhaul**



**Sub-Loop**

## **Sub-Loop Co-location**

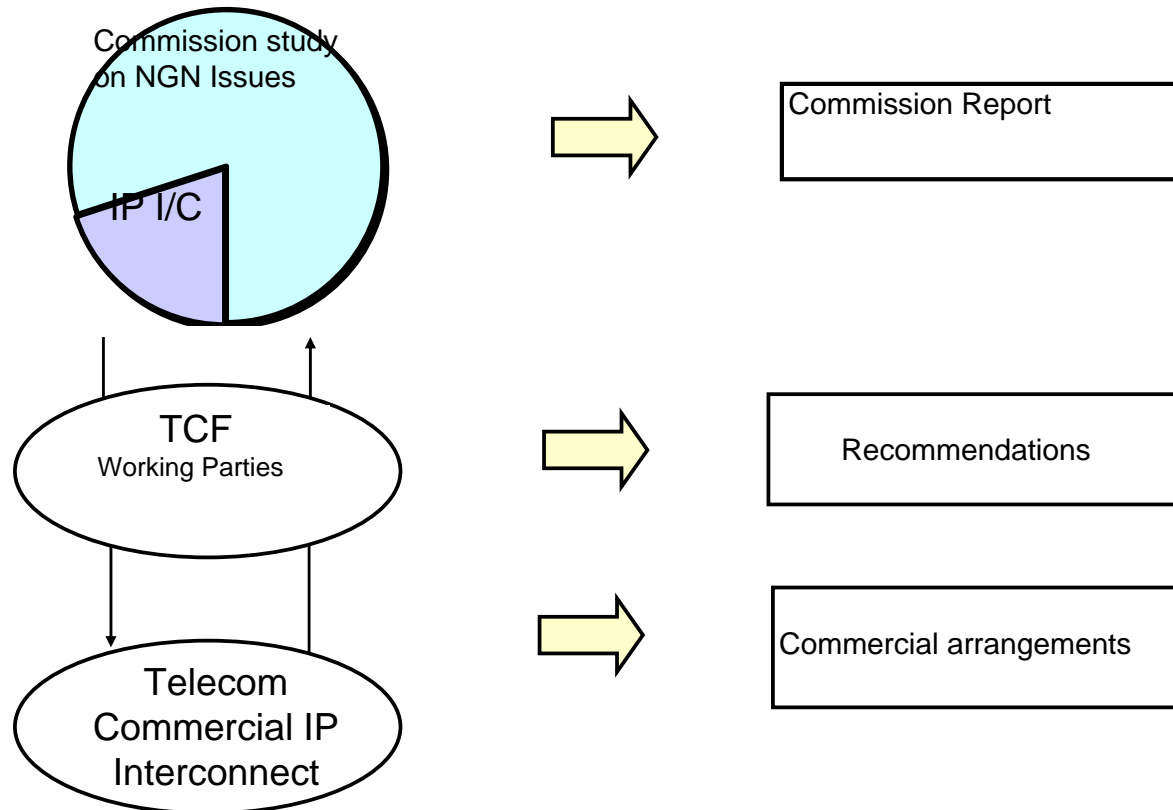
(Access Seeker equipment  
in Cabinet)

# Where to next

## Future NGN industry consultation

- IP Interconnection issues on this years agenda. Not easy issues
  - international work on technical standards underway for past 3 years
  - no country yet developed robust and agreed commercial models but NZ can piggy back on much of the existing international work
- Industry engagement in developing robust commercial and operational model.
- Commission's Statement of Intent provides for a section 9A Study of NGN Issues commencing April 2008
- Future access to duct, bitstream products from the cabinet, access to fibre all issues that will be on access seekers agendas

# NGN Study



# Once we have done all this?

- Competition issues are likely to shift from infrastructure access to service competition
- Challenge as geographic location of service providers can be anywhere— application of international law?
- Gives rise to issues around content, digital rights management
- Consideration of Organisational arrangements to address convergence