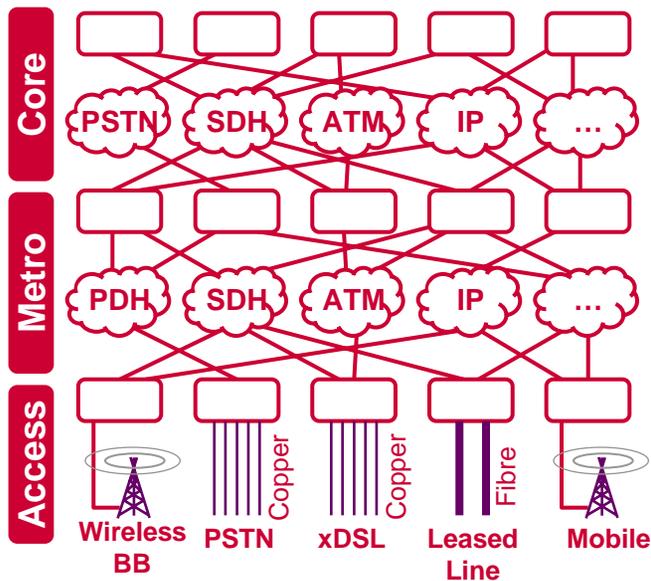IEEE CQR 2006

Next Generation Networks:
An Ofcom perspective
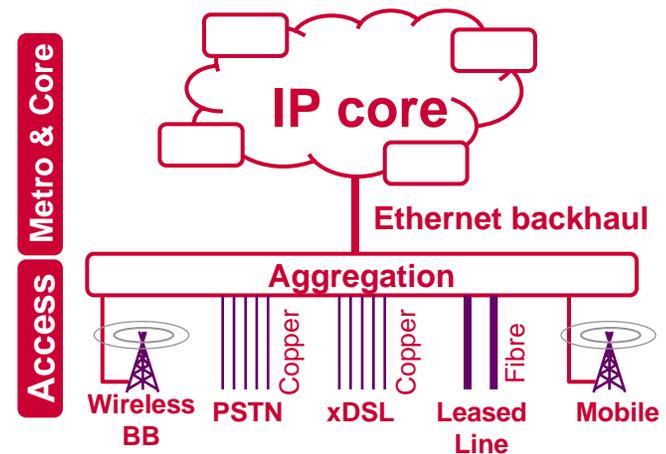
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What is a Next Generation Network ?

Today's Telecom Networks

- Multiple service-specific access nodes
- Multiple service-specific core networks

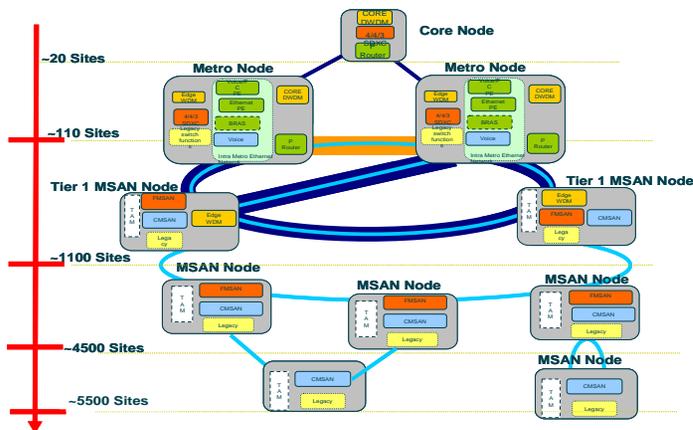**Next Generation Networks**

- Converged access nodes aggregate traffic from multiple access services
- A converged IP-based core network carries this traffic
- Service intelligence is decoupled from network transmission

UK deployments

BT's 21st Century Network

IP-based mobile networks

- 2G/3G - Vodafone, O2, Orange, T-Mobile, H3G

- Various providers using other spectrum – WiFi, DECT etc

Competing fixed NGNs

Several UK altnets have alternative access networks (cable, fibre MANs). Others are extending their networks to end-users by purchasing wholesale service from BT (LLU, bitstream access). All are providing voice and data services over converged IP-enabled broadband networks.

There are also a number of VoIP providers who will deliver voice services over whatever broadband service already happens to be in place

These models differ in the their approach to network engineering, but raise broadly similar issues from a consumer perspective

Ofcom's approach to NGN regulation

Industry interaction
- 'NGN UK' has been established to provide a commercial vision
- And ensure detailed regulation follows rather than leads the market
- But within a clear regulatory framework (i.e. not forbearance)
- 'NICC' is responsible for technical interoperability standards

Competition framework
- BT Undertakings protect against foreclosure (Sept 2005)
- BT Undertakings establish ground rules for unbundled access to 21CN
- Ex ante competition rules derive from common European framework
- Market reviews of key economic markets over the next ~18 months

Consumer protection
- Consumer protection measures are set out in General Conditions
- All communications providers must comply with these
- We will review them during 2006, in light of NGN-related concerns
- But we aim to avoid providing detailed guidance on network design
- Planning a series of consumer workshops

Protecting consumers

- The deployment of NGNs raises a variety of consumer protection issues, for example:
  - Potential service disruption during network migration
  - Management of end-to-end QOS over interconnected NGNs
  - Network resilience for lifeline services
  - Provision of emergency call location data
  - Numbering transparency
  - Number portability
  - New forms of abuse (SPIT, identity theft…)
- Key regulatory questions:
  - Do we understand the problem ?
  - Can we leave it to industry to resolve, on the basis that industry has the incentive and the expertise to do so ?
  - Where the incentive doesn't exist within industry, how do we intervene in a manner which best exploits industry expertise ?

Some positive opportunities

- There are some areas where the deployment of NGN s provides us with an opportunity to address historic concerns regarding PSTN networks, for example…

- The implementation of Number Portability in the UK ('Onward Routing') has poor resilience to a failure of the donor operator. We expect that NGNs will map telephone numbers onto IP addresses in a manner that is resilient to a failure of individual network nodes. This should result in an improved solution for Number Portability.

- We currently have a mechanism for prioritising calls to key individuals in the event of a major emergency (the 'Government Telephone Preference Service'). But this service only guarantees dial-tone, not an end-to-end connection. And it does so by denying service to all other subscribers. As a result it is rarely used. The deployment of NGNs is an opportunity to provide an enhanced version of this service.

Some major concerns…

- But there are also some major concerns, for example in relation to the way in which emergency calls are provided over IP-based networks.

- There is an ongoing debate as to whether providers of VoIP services should be formally required to provide an emergency calls service. The current regulatory regime has some perverse incentives, in that the provision of an emergency calls service automatically triggers a number of other regulatory obligations. This issue needs to be addressed, in order to ensure the widespread availability of emergency calls services.

- There is also a debate as to what degree of network resilience should be associated with lifeline services delivered over IP networks. We are considering how we can incentivise the use of 'best practice', whilst still leaving operators with the flexibility to design their networks in the most effective manner.

- And there is an ongoing debate as to how best to ensure that accurate location data is provided to emergency call centres…

Regulatory approach

- Ofcom has a responsibility to address consumer protection concerns that arise from the migration to NGNs. But we must also allow operators the flexibility to design their networks in the most effective manner.

- Where operators don't have the incentive to address consumers concerns, we still need to find ways of exploiting their expertise. We hope to resolve most consumer protection concerns by working with the telecoms industry, in groups such as NGNuk and NICC.

- There may be a need for some changes in the regulatory framework, and we will consider these as part of our review of General Conditions, planned for later this year.

- Its not all bad. The move to NGNs creates opportunities to improve resilience of services on an end-to-end basis, reducing the impact of physical failures. We should exploit these opportunities.

- The ability to deliver reliable services on an end-to-end basis depends not just on the design of individual networks, but also on the availability and adoption of appropriate interoperability standards. This is a key area of work.

Questions ?

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