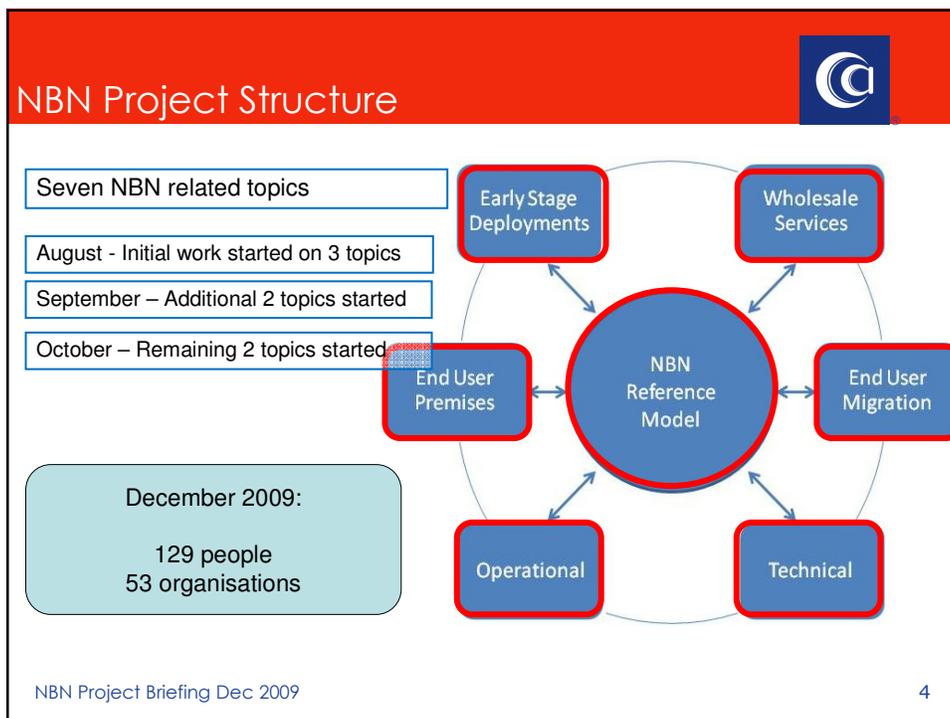


 NBN Project Briefing
Architecture Reference Model
Paul Brooks

December 2009



NBN Project Structure

Seven NBN related topics

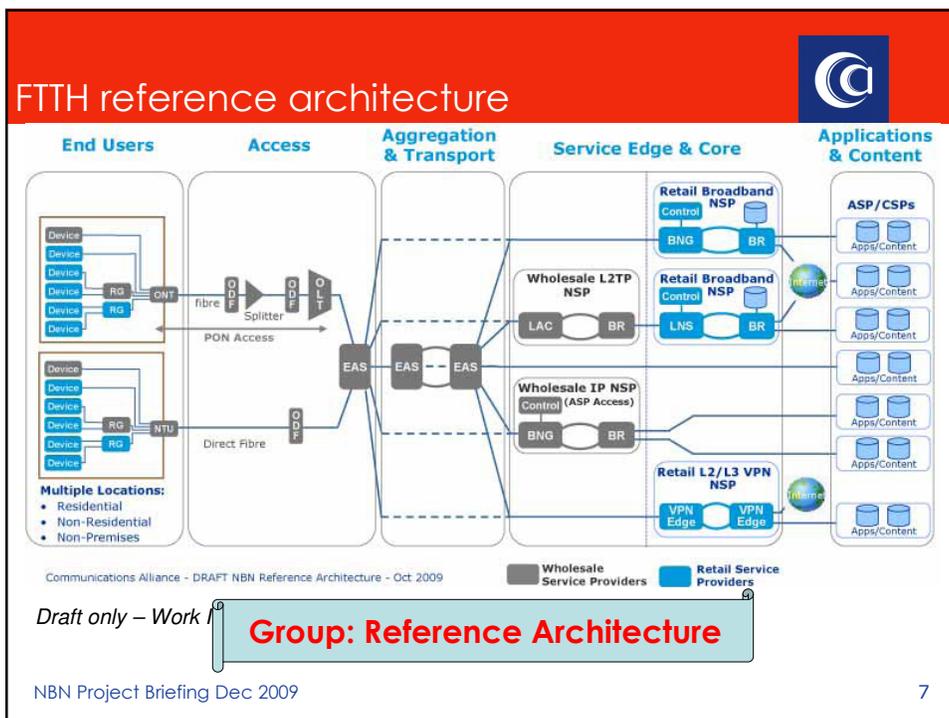
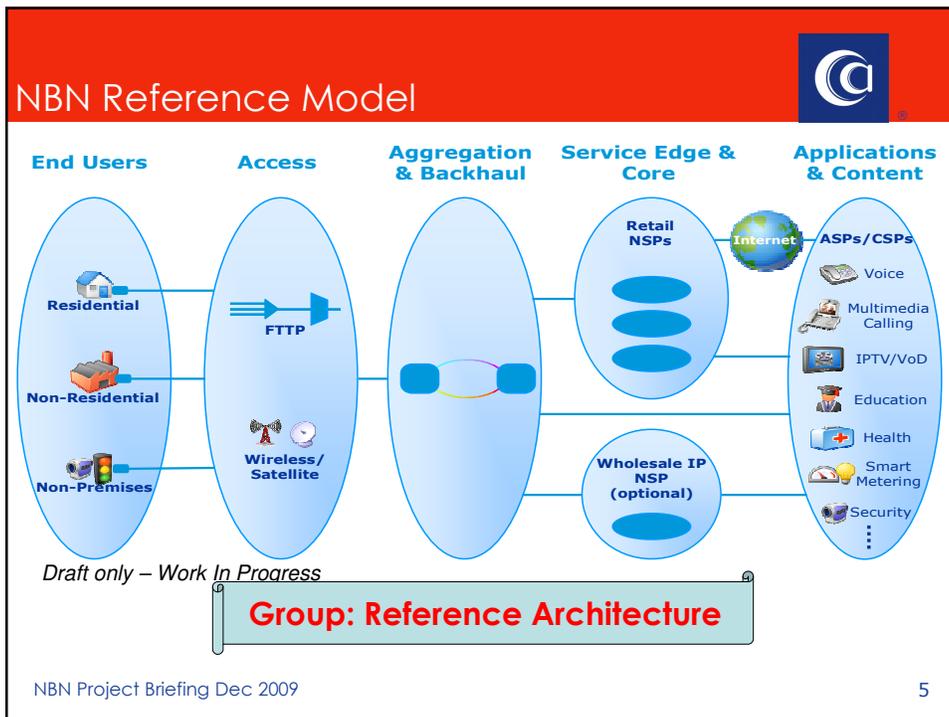
- August - Initial work started on 3 topics
- September – Additional 2 topics started
- October – Remaining 2 topics started

December 2009:
129 people
53 organisations

NBN Reference Model

- Early Stage Deployments
- Wholesale Services
- End User Migration
- Technical
- Operational
- End User Premises

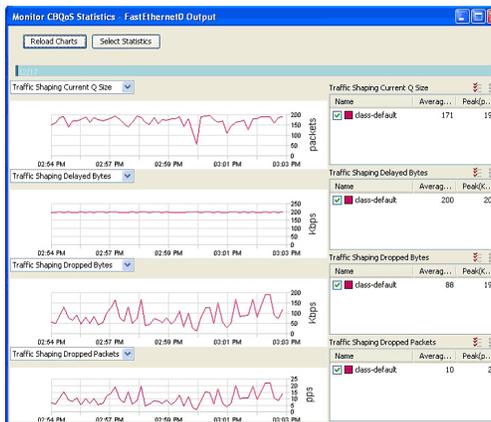
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Services - Not just about speed

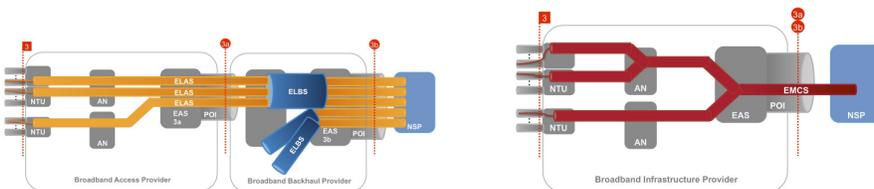


- Latency
- Traffic Shaping
- QoS queuing
- Encryption
- IPv6
- Data, Voice, Video



Group: Wholesale Services

Nov 2009 – Wholesale Ethernet



- ELAS – Ethernet Line Access Service
- ELBS – Ethernet Line Backhaul Service
- EMCS – Ethernet MultiCast Service

Service Provider Concerns



- **Where** can service providers 'plug in' – "5/50/500 issue"?
- **How?** Which interface standards?
- How can service providers **innovate** services?
- Will a subscriber be able to connect to **multiple service providers simultaneously** (NOT all through one ISP)?

Group: Reference Architecture

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Customer Issues – CPE access



- In the NGN world, the CPE and "Home Gateways" becomes vitally important
 - **Interoperability** – will subscribers have choice of CPE (Pay TV Set Top Box ?)
 - **Reliability** of critical services – especially when installed by the subscriber (no "LifeLine" telephone power?)
 - **Security** – beyond outside cabling, increasingly difficult to secure smart CPE



Group: End User Premises

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Construction Standards – “Greenfields”



- Conduit, “pit and pipe”
- Connectors, Splicing, Optical Budget
- Developer and Approval authority checklists



Group: Early Stage Deployments

International Standards



- Ensuring the Australian architecture is aligned with international precedents and standards



Group: Technical

Who fixes service faults?



- Carrier ≠ CSP ≠ ISP ≠ TSP (VoIP?)
- Subscriber wants **SPOC** for ordering adds/moves/changes
- Providers want **automated** flow-through systems
- **Subscriber** wants one finger to point, but...
 - Who takes responsibility to troubleshoot a problem?
 - Who wears the TIO investigation?



Group: Operational

Transition



How will we migrate from here to there?



Group: End User Migration

NBN Service Model

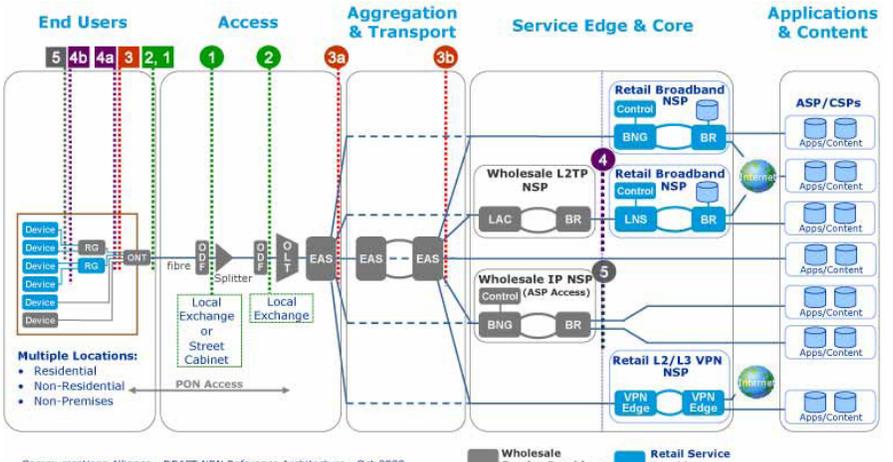
- Customer Choice
 - “At each service delivery location, the network must enable multiple services to be active in parallel and operating simultaneously, each connected through the access network to different wholesale or retail service providers.”
 - “Each active service may be connected to different physical devices within the customer premises, and each device within the premises may distribute the service into one or more in-premises networks.”

Draft only – Work In Progress

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NBN Reference Model

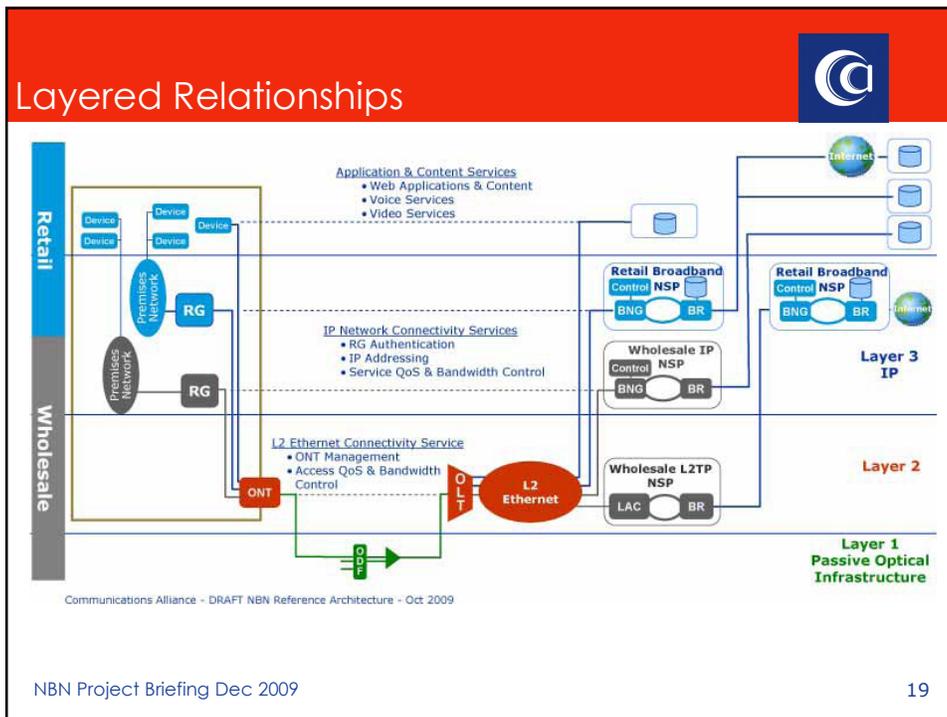
FTTP Options for Points of Interconnect



The diagram illustrates the NBN Reference Model architecture, divided into five main sections: End Users, Access, Aggregation & Transport, Service Edge & Core, and Applications & Content. It shows the flow of traffic from multiple locations (residential, non-residential, non-premises) through various network layers including Local Exchange, EAS, and various NSPs (Retail Broadband, Wholesale L2TP, Wholesale IP, Retail L2/L3 VPN) to ASPs/CSPs. A legend at the bottom identifies Wholesale Service Providers (grey) and Retail Service Providers (blue).

Group: Reference Architecture

Communications Alliance - DRAFT NBN Reference Architecture - Oct 2009 18

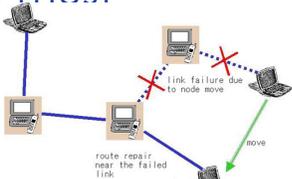


Further Considerations

- Every NBN Project document must consider –



Sustainability



Robustness



Security



IPv6



Future Proofness

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Example ONTs – the NBN fibre boundary



- Probably Multi-port
- POTS, Data, Video?

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More ONTs



Note – 4 ethernet ports,
no POTS/Video on this
one – enables gateways
inside the house

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Multiple Services > Multiple CPE



Figure 13 A wiring cupboard requires more space than you might think

FTTH Council AsiaPacific - 2005

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A glimpse of the future?



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Multiple Services > Multiple CPE



- Future NBN-connected wiring cupboard??



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Thankyou

<http://www.commsalliance.com.au/Activities/national-broadband-network>

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