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Challenges and Opportunities from New Fibre Access

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Challenges and Opportunities from New Fibre Access

- Unbundled Copper Loop (UCLL)
- NGN Phase One - Fibre to the Node (FTTN) -
- Cabinetisation
- NGN Phase Two - Fibre to the Premise (FTTP)
-UFB

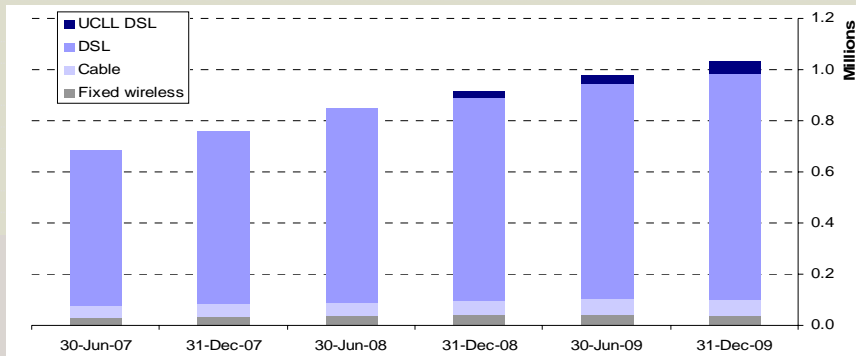


Challenges and opportunities from new fibre access.

Today's forum is to discuss the challenges and opportunities arising in the market from new fibre access and advanced wireless builds.

My focus will be on the fixed network, looking firstly at the impact of local loop unbundling, secondly at the progress of Chorus' cabinetisation programme, and finally the challenges and opportunities of the Government's Ultrafast Broadband (UFB) Initiative.

Fixed Broadband Connections by Technology



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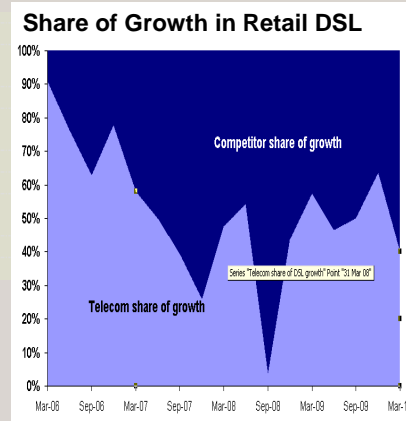
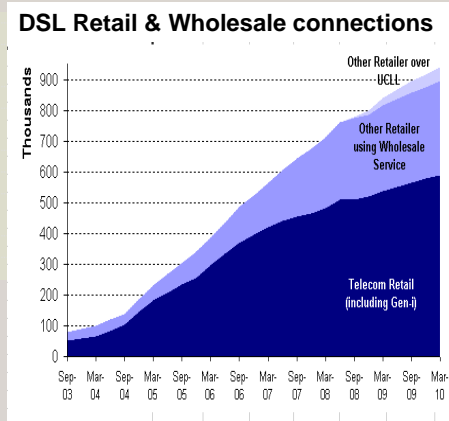
The Commission's Annual Monitoring Report for 2009 was released a couple of weeks ago. For those of you interested in seeing a copy of all of the results in the monitoring report, it is available on the Commission web site.

It shows that since the 2006 reforms competition in the broadband market has increased significantly. Consumer choice and service quality have improved while prices have fallen.

Of particular note for today's Summit is that:

- Broadband uptake has doubled from 480,000 in 2005/6 to just over a million in 2008/2009.
- New Zealand has improved its position compared with other OECD countries from 22nd in 2006 to 18th by 2009.
- Uptake is now at or around the OECD average.
- Broadband speed availability and quality have improved significantly over the period.
- DSL is, as it is in Europe, the predominant broadband delivery technology.

DSL

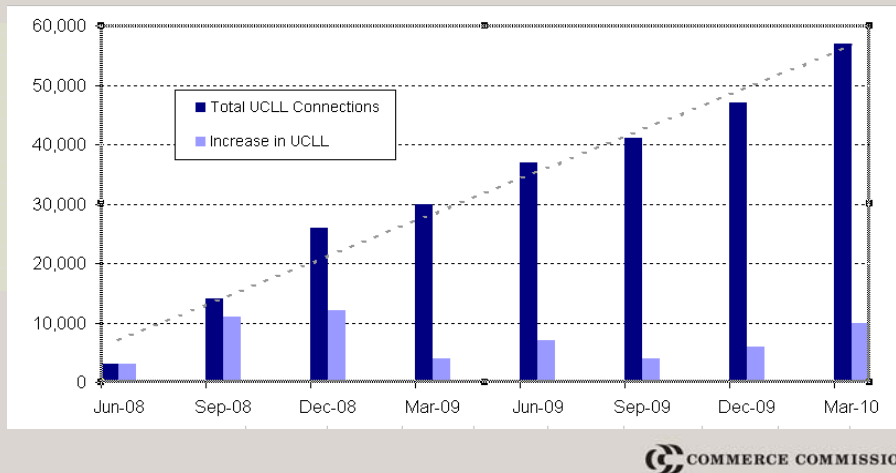


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Competition in broadband has seen alternative operators increase market share from 25% to 40%.

Growth in retail DSL subscriptions has varied over the period in accordance with competitive conditions.

UCLL



UCLL based services were launched in July 2008. By the end of end of the first quarter of 2010 UCLL represented close to 4% of relevant connections, a greater level of uptake than experienced by other countries at this stage of the unbundling process.

This has been achieved in a situation where NZ was the last OECD country to unbundle. There were concerns that unbundling would not be successful as it had been introduced too late, and consequently coincided with the first stage of investment in NGN_(Telecom's FTTN cabinetisation programme)

However, access seekers have adjusted their business models, and despite the challenges of the Chorus FTTN roll out, the business case for UCLL still stacks up.

There has been significant UCLL activity during 2010.

Telstra Clear launched in September 2009 and now provides service from 62 exchanges across NZ.

Call Plus and Compass announced their intention to participate in UCLL during 2010.

This growth has occurred in the face of the of the most aggressive FTTN roll-out in the OECD.

NGN Phase One – FTTN (Chorus Cabinetisation)

•Undertaking Commitment:

80% of all lines capable of delivering 10 Mbps or better by the end of 2011.

To deliver this:

Extending fibre to the node (FTTN).

2,500 Km of fibre, 3600 cabinets to connect 750,000 customers.

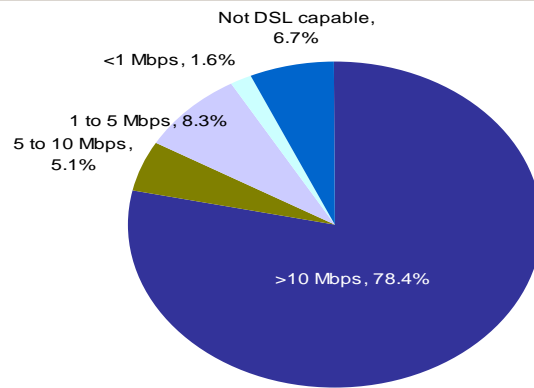
Total build cost in excess of \$NZ0.5 bn

As at 3 May 2010:

1800th cabinet went live. More than 50% of customers connected to these cabinets are within 500m and 90% within 1km of the cabinet

Average broadband speed in upgraded areas 13Mbps using ADSL2+.

Potential DSL Broadband Speeds of Chorus Access Lines



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Chorus reports that 78% of households now have potential DSL broadband speeds of 10 megabits or more.

VDSL

Proposed 12 August 2010 Launch of Telecom Wholesale VDSL2 (WVS) service

Initially available to 15% of customers with potential for up to 60% by end of 2010

Guaranteed minimum 15 Mbps download and 5Mbps upstream. Speeds up to 40 Mbps

Likely to increase available speeds significantly



Source: Wholesale Informer 29-4-2010.

The Commerce Commission confirmed that if Telecom Wholesale uses VDSL technology to deliver the regulated UBA then it must do so on the regulated terms and conditions, including price. However, if Telecom Wholesale uses VDSL to deliver a service with specifications different from the regulated variants (e.g. a higher quality of service that is not covered by the existing regulation), then it may do so on a commercial basis provided Telecom offers the new VDSL services to other telecommunications companies on the same terms as to Telecom's retail units and to the same equivalence standards as applies to the regulated services.

VDSL is an emerging technology which is capable of delivering significant benefits to consumers such as increased speeds and facilitation of the development of innovative new services.

It is important that incentives for investment in new DSL technologies such as this are preserved, so that consumers are able to receive the benefits associated with such innovations.

NGN Phase Two – FTTp
(Ultra Fast Broadband Initiative)

UFB Objective:

To accelerate roll-out of UFB (i.e. 100Mbps/50Mbps) to 75% New Zealanders over 10 years concentrating in the first 6 years priority to business, schools, health services plus greenfield developments and certain tranches of residential areas

UFB Issues outside of the ITP

Demand Initiative

Complementary Measures

Rural Broadband Initiative



While NZ was one of the last OECD countries to unbundle, it is one of the first to implement a nationwide fibre rollout..

The UFB objective of 100Mbps to 75% of New Zealanders over 10 years is to be compared with the objective of 10 Mbps to 80% of lines over two and a half years under Telecom’s cabinetisation undertakings. It’s also interesting to compare Telecom estimated cost of cabinetisation of \$0.5 billion with the Government’s \$1.5 billion funding commitment to the UFB.

The Government Objective will be delivered via a number of mechanisms. In addition to the partnership investment model outlined in the ITP, associated parts of the initiative that fall outside the ITP are:

Demand initiative: government to encourage public sector, particularly health and education, to use fibre network.

Complementary measures : facilitating access to poles and passive infrastructure such as ducts to build UFB.

Rural Broadband Initiative: deals with remaining 25% of the population.

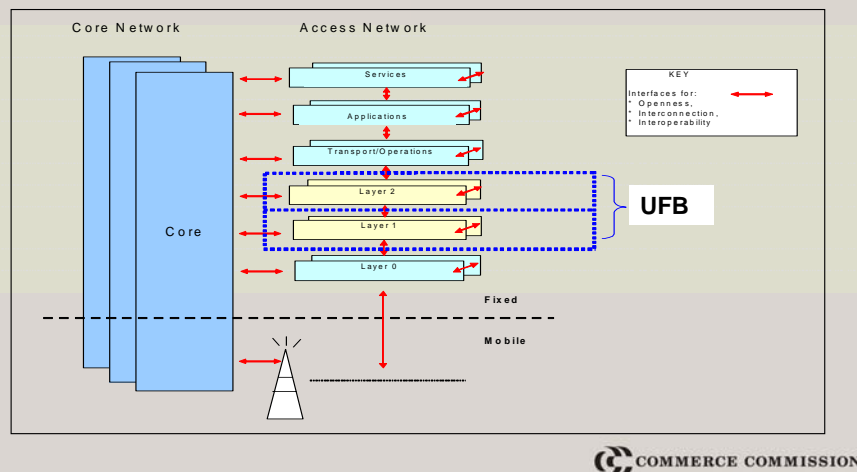
UFB Principles

- Making significant contribution to economic growth
- Not crowding out private sector investment
- Avoid entrenching or lining pockets existing suppliers
- Avoid excessive duplication
- Focus on new infrastructure investment vs preservation of legacy assets
- Ensuring affordable broadband

Delivery of UFB has both competition and investment outcomes, including the objective of 'affordable pricing'. The challenge for CFH is to get the balance right..

When thinking of investment outcomes, we should not forget that the UFB initiative is designed to accelerate fibre investment so that New Zealand can benefit from social returns in health, education, transport (intelligent transportation systems) and electricity (smart grids). These are often referred to as spill over effects, and can be significant.


Layer 1 and Layer 2 (Ultra Fast Broadband)



The New Zealand model is for the mandatory provision of Layer 1 (dark fibre), with optional Layer 2.

While this can be compared with the Australian model which is Layer 2 only, the Australian NBN Implementation study recommends that before the Government divests its interest, the network must be unbundled and a Layer 1 service provided.

It notes that the need to provide for physical unbundling to future proof networks and drive active-layer competition and innovation has been recognised by New Zealand, Japan and Singapore when building their super-fast broadband networks.

Open Access	
LFC's expected to enter into enforceable to operate their businesses in an open and equivalent basis.	ITP Open Access Principles:
Equivalence - all products available to access seekers on equivalent terms and conditions including price.	Any to any connectivity
Open Access Principles - opportunity to establish competitive rules upfront and provide certainty for investors.	Any network technology
	Low cost to change providers
	Equality of access [ITP 13.2]
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The competition objectives of the UFB Initiative are largely dealt with in the requirement that the infrastructure funded by the Government be an open access network.

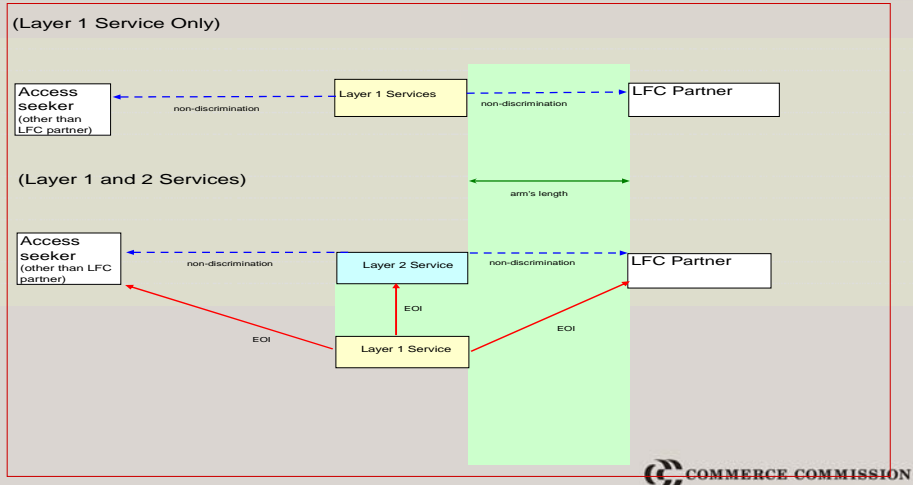
The ITP sets out Open Access principles of non-discrimination, equivalence of access and arms length dealings.

The ITP provides that successful bidders will be required to enter into enforceable open access undertakings; undertakings that will be independently monitored and enforced.

These undertakings establish the competitive framework before investment is made, providing regulatory and investment certainty.

Price will be established through commercial negotiation with CFH.

Open Access: Non Discrimination and Equivalence Requirements



Where an LFC has a Layer 1 business only,

- the LFC must provide non-discriminatory terms of access to all access seekers including the LFC partner, and
- its operation must be at arm's length from the LFC's partners.

Where an LFC offers both Layer 1 and Layer 2 services,

- the Layer 1 business unit must provide the same products and services to all parties on an equivalence of inputs basis.
- both the Layer 1 and Layer 2 business units of the LFC must be at arm's length from the LFC's partner and each other, and
- all layer 2 products and services must be provided to all access seekers including the LFC partner on non-discriminatory terms.

Non discrimination prohibits non-trivial differences in treatment of Access Seekers unless they are objectively justifiable and do not harm competition. It applies to a wider range of behaviour than equivalence, but sets a lower standard

Equivalence imposes a greater obligation than non-discrimination. It requires the price, product and systems used to deliver the product to be the same between access seekers and the LFC and its partner.

Arm's length means that the relationship between the parties do not include elements that the parties would not usually omit, and do not omit elements that the parties would usually include, if the parties were acting independently.

Current Unknowns from the ITP process

Participants:

- Single provider or Multiple providers?
- Nationwide or regional providers?
- Existing Utility company, existing telecommunications company, new players or combination?
- Compliant or non-compliant bid?
- If Telecom is a participant what structure will be adopted?

Challenges

- **Economic**
- **Copper/fibre transition**
- **Applicable standards**
- **Network architecture**



Economic:

How to balance investment and affordability?

Uptake projections? (In Japan there is 90% penetration but only 30% uptake)

Demand side issues and consumer willingness to pay.

Copper/fibre transition:

If Telecom is a partner how will transition be managed?

Impact on LLU access seekers?

If Telecom is not a participant, what impact will the competition from copper bitstream have on fibre pricing?

Challenges: Applicable Standards

TCF UFB Working Party and Timing:

- Layer 1 initial service description developed and provided to CFH
- TCF Layer 2 still in development - aiming 30 July 2010
- BSS/OSS issues in development - aiming for 30 September 2010

IP Interconnection?



Network Standards that will apply are still being developed.

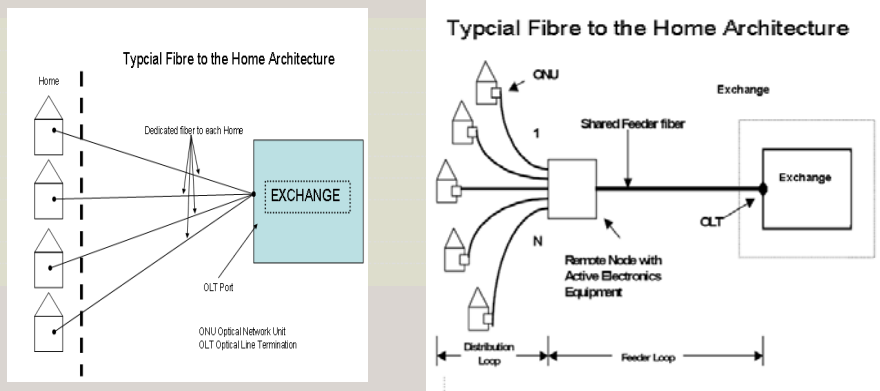
TCF/ UFB Working Groups - CFH under the ITP to facilitate and where appropriate lead work in this area.

Some additional work on Interconnection for Voice is being done.

Timeframes IP Interconnection for UFB are yet to be resolved.

Final bids are expected before standards have been established

Challenges: Network Architecture



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FTTP is typically either Point to Point (P2P) or Passive Optical Network topology. The slide shows P2P on the left, and PON on the right.

While the ITP does not specify which topology/architecture (point to point or PON) bidders were to include in their proposals, it does require that it be **future proofed** and **scalable**.

Many of the issues we faced with local loop unbundling arose because it was never anticipated when the copper was laid in the ground that service providers would subsequently be required to share or unbundle the lines years after they were laid.

While many of the incumbent deployments proposed across Europe over the last decade have focused heavily on PON reflecting in part what was then a significantly higher cost for point to point, recent OECD figures, indicate that the cost differential has reduced and is now relatively small. Groups such as the UK Broadband Stakeholder Group estimate that P2P is 12 % more expensive than PON.

With fibre we are looking at a fifty year life span. As part of the public investment in the network we need to remember the lessons we have learnt from copper. From a competition perspective, P2P architecture/topology provides the most open and flexible architecture with the highest potential bandwidth for future innovation and the most flexibility for competitive collocation.

As the OECD recently noted *'the cost difference between PON-based and point-to-point networks are relatively minor compared with the potential benefits from allowing competitive operators to take over an entire line'*. {OECD 2009 – Broadband networks and innovation}.

The WIK-Consult report to ECTA on the Economic of Next Generation Access noted the *'more future proof and open network, friendly P2P TTH architecture requires less than 10% additional investment than the PON architecture*.