Report for Chorus

UBA cross-submission paper

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Contents

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1 Response to specific issues raised by Industry parties

As a result of requests from industry parties, the New Zealand Commerce Commission (NZCC) ("the Commission") is currently engaged in a process to set the price of unbundled bitstream access (UBA) using the final pricing principle (FPP). At the same time, the Commission is also engaged in a process to set the price of unbundled copper local loop (UCLL) using FPP.

This document has been written by Analysys Mason for Chorus, and is in response to Industry submissions on the Commission's UBA paper[1]. These papers set out a number of positions, some of which are addressed in this document.

The remainder of this document is divided into a number of sections which cover the following specific issues:

- Network optimisation arguments
- Disaggregation of UCLL inputs
- Should the UBA FPP cost a wireless point to multipoint solution ?

1.1 Network optimisation arguments

Context

In paragraphs 15 and 16 Telecom agrees that the Commission should consider UBA as incremental to the UCLL network, that this is consistent with the UBA FPP.

However in paragraph 18 they say

> the degree to which service can assumed to be based on the existing layer 1 services will depend on the Commission's UCLL price review approach

We disagree. The use of the "existing UCLL services" is essential to maintaining the "build or buy" incentives of UBA access seekers (i.e. the choice of whether to build based on UCLL or buy UBA). This is the economic rationale for the wording in the Act which refers to the costs of UBA being additional to UCLL.

We do not believe that the UBA FPP requires the Commission to design a different copper network. For example, a network designed solely for FTTC in urban areas might be significantly changed. But this is not the correct option to model for the FPP set in the act, because this would be seeking "the TSLRIC of UBA" not "the TSLRIC of the additional costs of UBA plus the price of UCLL".

1 New Zealand Commerce Commission Determining a TSLRIC price for Chorus' unbundled bitstream access service under the final pricing principle Process and issues paper 7 February 2014

Optimisation

In paragraph 21, Telecom say:

> In addition, we believe that the use of appropriate modern equivalent assets in the electronics required to support the UBA service would likely result in significant simplification of the network architecture currently deployed in New Zealand.

Telecom paragraph 24 says:

> 24. Further, substantive efficiencies can be achieved through optimised placement of DSLAM equipment. As noted in paragraphs 94 and 95 of Telecom's UCLL FPP submission, the degree of urbanisation in New Zealand means that some 86% of the population occupies less than 3% of the useable land area with average urbanised area population densities ranging between approximately 250 and 580 people per km2. The implication of this is clear for the economics of UBA.

We agree that like most network unit costs exhibiting local economies of scale, UBA is likely to be cheaper to provide in areas of higher density. However, this of itself says little about optimal UBA network design.

Telecom paragraph 25 says:

> While the actual outcomes would be dependent on the actual UBA FPP cost model ultimately adopted by the Commission, the optimised placement of modern DSLAM equipment within the network could result in as many as 40% of broadband capable lines being collocated with the first data switch (with only electronics costs and no additional transport costs), while approximately the next 50% of those lines would be located within say 25 km of the first data switch by cable distance.

We agree that transport costs will reflect the relative locations of DSLAMs and first data switches. But changing the locations will drive other costs – including costs to access seekers – which must be taken into account. Unpicking this, there appear to be three possible points being made:

- Optimisation of MDF and cabinet location
- Optimisation of DSLAM location
- Optimisation of first data switch location

MDF and cabinet locations

Telecom claim in paragraph 23b

> To base equipment locations on all the existing nodes will embed current inefficiencies in the UBA cost estimate. It's unclear how significant potential node optimisation is.

By accepting a "scorched node" approach retaining the MDF locations, Telecom are accepting those node locations, so to remain consistent their remaining argument appears to be with the cabinet locations.

If UBA is being costed based on the assumption that there is a pre-existing UCLL network, as we have argued above, then as a UCLL access seeker, you have in effect no option but to take MDF and cabinet locations as a given; the locations of the electronics are in effect fixed by the topology of the copper network. This is the decision faced by a UCLL or SLU access seeker: buy UBA or build electronics at the MDF or cabinets. So retaining the cabinet locations (or retaining the number of cabinets) is necessary to avoid introducing a competitive distortion[2].

Secondly, the hypothetical option of redesigning the copper network – for example, relocating the cabinets - so as to better support UBA is inconsistent with the choice of a hypothetical new entrant access seeker (i.e. an operator buying UCLL or SLU) to provide UBA. Such an operator would not have the option of redesigning the copper network because the copper is an input from a third party (Chorus, selling UCLL). [The modelled operator will buy the UCLL and sub-loop unbundled (SLU) STD services as inputs and build the additional components required to supply the UBA STD service. As a result, the HNE must take the termination point of each UCLL line (the MDF) and SLU line (the cabinet) as a given.]

Thirdly, DSL technologies have been designed to make good use of the conditions provided by existing copper loop networks, including typical loop lengths.

Finally, in our UCLL cross-submission paper we noted that Frontier's argument for scorched node keeping the MDF sites (which we characterised as "keep the same service delivery sites") would lead to retaining the cabinet locations in relation to SLU pricing.

DSLAM location

The economics of UBA based on UCLL are determined by the number of lines you can serve from the relevant locations in that copper network (either MDF, or cabinet).

Placing the DSLAM at the cabinet shortens the distance between the end user and the DSLAM electronics. As the speeds supported by a DSL line depend on distance, this placement of the DSLAM at the cabinet increases the speeds available to the end users; this can be true both using the same DSL technology as at the MDF sites (e.g. ADSL2+), improving speeds and increasing the number of customers on long loops able to use ADSL, and for further generations of DSL technology which only offer specific additional benefits over ADSL2+ at short range (e.g. VDSL). This is why Chorus built a cabinetised network; other major telcos across the developed world have also built FTTC/DSL networks in urban and suburban areas including BT, Belgacom, AT&T and DT.

[2] Retaining the cabinet locations is also needed to keep the relative pricing of full loops and SLU correct. Inconsistency here could lead to some parts of the network not being included in the costing.

If Telecom are arguing for UBA to be based solely on ADSL from the MDF site then if the Commission accepts Telecom's arguments, then it will be implicitly deciding to model a service that does not deliver the existing UBA network coverage or speeds, because the cabinetisation improves coverage and speed of lines served from those cabinets.

First data switch location

As noted above, Frontier have argued for not moving the sites at which the service is delivered. Accepting this argument would accept retaining the existing UBA "first data switch" locations as well, as this decision would not move the boundary between the access seekers and the modelled operator.

If (by comparison) you did move the boundary by moving the first data switches, e.g. the modelled operator provided the first data switch at each MDF (or even at each DSLAM, including those at cabinets), then the access seekers would have to reach all the served MDFs and cabinets, which would be "cheaper" only by loading the saved costs onto each access seeker, which is not a real saving.

Our view is that the service definition that you cost should explicitly retain the existing first data switch locations, because modelling the first data switch in a different location might build too many switches and move the handover location in an unrealistic way.

Moving the locations of UBA interconnection in this way may also cause some access seekers more short term cost than others, depending on the extent of their existing connectivity at the MDF sites.

In addition, we understand that these locations were originally selected by an end to end operator seeking to minimise its total costs to provide the retail service, so they were efficiently placed.

1.2 Disaggregation of UCLL inputs

In paragraph 27 Telecom says:

> 27. In the UCLL FPP the Commission faces a choice relating to whether or not to disaggregate the costs of the local network into different UCLL, UCLL and conceivably UBA local access network uplift prices. If the Commission were to maintain the current whole-of-network approach for UCLL this would reduce the complexity of UBA modelling. For example, the Commission could avoid assessing and allocating local access costs, likely limiting UBA modelling to electronics and transport from the local exchange to the first data switch.

The exact rationale of the last sentence is unclear. We disagree with the last sentence; but to explain why, we discuss below why we disagree with the implied logic:

- If Telecom are making an argument that the UCLL price included within the UBA FPP should also be considered to cover the fibre feeder and associated duct and trench costs then we disagree for several reasons:
  - Backhaul from the cabinet to the exchange via a fibre feeder cable, duct and trench is an unavoidable component of the additional costs of the UBA service.
  - The copper feeder loops are not able to provide the required feeder functionality to support cabinet DSLAMs (requiring backhaul speeds in the hundreds of Megabits per second).
  - Cabinet DSLAMs (which may be for example small "pizza box" style integrated units with fixed port capacities) and MDF DSLAMs (which tend to be larger but more modular) can have different unit costs. It is therefore necessary to explicitly model cabinet-based DSLAMs if they are being used.
  - The hypothetical new entrant would also need to buy SLU as an input. The build/buy incentives would then depend on whether the difference in price between UBA and SLU allowed sufficient margin to cover the entire feeder and additional electronics costs. This is the economic rationale for the wording in the Act which refers to the additional costs of UBA. The best way to ensure this incentive is maintained is to model those costs explicitly.

1.3 Timing

Vodafone think that it is not possible to complete a high quality and robust UBA FPP process by 30 November 2014.

In my view, completing a good quality UBA price review process by 30 November 2014 is achievable. The ability to achieve this timeline will depend on the focussed and efficient use of formal consultation, but in Analysys Mason's experience in regulatory processes in other countries draft models of the costs of wholesale broadband access can be developed in 5 months or less (excluding consultation). The Commission's timeline is therefore an achievable one. We have already set out an approach whereby the UCLL FPP modelling can also be achieved in the same timescales[3].

When other countries' fixed core network modelling processes have been more extended than this timescale, this is often either as a result of a wider scope to the modelling (e.g. including costing of additional services such as voice termination and leased lines) or as a result of a larger number of public consultations.

1.4 One model, or two ?

Vodafone argue that

> a single TSLRIC cost model (with a single MEA) should be built for both the UCLL and UBA FPP.

[3] CallPlus describe Chorus' proposed UCLL approach as "top down", but this is inaccurate: it is a hybrid.

This is not in our view either necessary or the most efficient approach, for the following reasons:

- A single model would tie the timing of the UBA process to the UCLL process (noting that we have set out an approach for achieving both by 30 Nov 2014)
- Using a single model would tie the modelled technologies for UCLL and UBA together: it would only be a possible option if the MEA of UCLL was determined to be copper, for reasons of internal consistency in the modelling (e.g. there would be no cabinet electronics in a UBA network based on FTTH P2P).
- Using a single model would make it less straightforward (although possible) to ensure an independent choice of the modelled operator parameters for UBA and for UCLL, even though the competitive dynamics are different for UBA and UCLL so may well merit such distinctions (e.g. scale of typical UCLL access seekers)
- A single model might be made more complex by the need to reflect the different FPPs for UCLL and for UBA; using two models allows the UBA model to concentrate on the key element of the UBA FPP explicitly (the TSLRIC of the additional costs of UBA).

Having a separate UBA model does not impose these restrictions and can be simpler while still maintaining the required level of consistency with the UCLL model (e.g. by using specific inputs to the UBA model such as number of cabinets, cable and trench distances for cabinet to MDF backhaul etc).

1.5 Should the UBA FPP cost a wireless point to multipoint solution ?

We believe that the FPP should not cost a wireless point to multipoint solution, for several reasons.

Wording of the FPP implies xDSL

The final pricing principle for the UBA service is "[t]he price for Chorus's unbundled copper local loop network plus TSLRIC of additional costs incurred in providing the unbundled bitstream access service". We note that that wording is very different to "the TSLRIC of UBA".

This definition allows access seekers using UCLL to use DSL technologies[4] to provide either wholesale services equivalent to UBA, or retail broadband services competing with those offered by those using UBA. It does this by the FPP being based on the price of UCLL and the TSLRIC of the additional costs, and thereby allows NZCC to seek to preserve the investment incentives for access seekers by preserving the margin required to deliver a UBA-equivalent service by building DSLAM infrastructure and renting UCLL. In other words the FPP has been designed to avoid distorting the incentives for access seekers.

Therefore, our view is that it would be inconsistent to base the choice of UBA equipment on some hypothesised technology that was not based on DSL (i.e. the technology used in addition to UCLL, which is by definition copper).

[4] Other technologies such as ISDN and dial-up modems could provide low speed data services using UCLL, but they are inferior to DSL for providing always-on broadband services

Vodafone take the opposite position in paragraph D3:

> In our view, a single (optimised) MEA should be adopted for the cost model for both the UCLL and UBA services.

This is in our view contrary to the FPP.

If one took an alternative view that the additional costs should not be based on a DSL technology, then it would be possible for the TSLRIC of additional costs of UBA to be too low to allow the competitive DSL-based access providers economic space, which we believe would be an error that would have serious consequences for investment incentives in the future.

If wireless were a genuinely competitive technology for fixed broadband, it would be widely used

An operator with access to an existing copper loop network (either their own, or via LLU) does not deploy a FWA network as the lowest forward-looking cost solution.

- Incumbents with high quality copper networks do not deploy point to multi-point FWA except in very specific ultra-rural geographies outside their DSL network coverage (e.g. via a subsidy, HSPA has been used with fixed antennas to provide fixed broadband coverage to approximately 1% of households in Iceland who were outside the coverage of the incumbent copper network).
- The cost-economics of FWA are not good in comparison with LLU. The best way to demonstrate this is to note that entrant ISPs who have successfully launched and profitably operated commercial FWA networks (of whatever point to multipoint technology) in a country with well-functioning LLU are very rare indeed.

This implies to us that the lowest forward looking cost solution is in fact DSL.

Using wireless in rural areas implies a combination of technologies

If a combination of technologies is proposed, we caution that specific additional costs would be caused by such a mix of technologies; retail service providers (i.e. access seekers or their own customers) have a strong preference for a national service, offering the same capabilities and the same provisioning interfaces on a national basis.[5] Any gaps between the different service capabilities in different areas make provisioning, fault finding, staff training, advertising and sales harder. We understand that work is going on at the moment to minimise differences in the interfaces of the LFC networks for this very reason.

Actions taken to make the provisioned service and its interfaces more similar (to avoid pushing these costs on to access seekers) will cause additional costs to be incurred in the modelled

[5] Different provisioning interfaces and processes for different systems will cause additional costs in the access seekers' networks and processes.

operator, and these will need to be taken in to account; the modelled operator would therefore only use a mix of technologies if the cost benefits of so doing were high.

These points do still apply for ultra-rural customers, even where the network does not support such a variety of services. Making the service offered as similar as possible for the access seeker will involve additional costs, especially in the IT systems supporting provisioning, maintenance and billing; these costs could be especially significant given the limited number of customers over which the costs will need to be recovered.

Availability of operating cost data

Modelling DSL is consistent with the technology choice of existing NZ ISP access seekers and Chorus who will be able to supply data on the operating costs; a FWA operator would have operating costs that would be much more difficult to benchmark. This difficulty would be doubly true for a rural-only operator.