WIK-Consult • Report

Study for Vodafone and Spark New Zealand

Coexistence of copper and fibre in the feeder

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1 Introduction

1. During the “UCLL and UBA services final pricing principle” conference held in Wellington, New Zealand on 15. – 17. April 2015 by the Commerce Commission of New Zealand, WIK-Consult has been asked to provide further explanation of the points made in the paragraphs 172 – 176 of its submission, dated 20. February 2015, on the draft UCLL and UBA FPP determination. The Chair asked WIK-Consult to make a careful submission on this topic in case the Commission is making an error as described in the paragraphs referred to.

2. So far we did not receive any new description of Tera’s modelling approach and calculation. Therefore we are still convinced that there are inconsistencies in the UCLL cost calculation and some over recovery of cost. This paper’s goal is to clarify our view, explain the cost allocation we understood from a different point of view than in our original submission in order to assist the Commission to judge if there in fact is over recovery and cross subsidy.

3. We refer to the section 4.2.4 of our February submission, in total consisting of the Paragraphs 163 – 176, all dealing with the overcompensation we identify.

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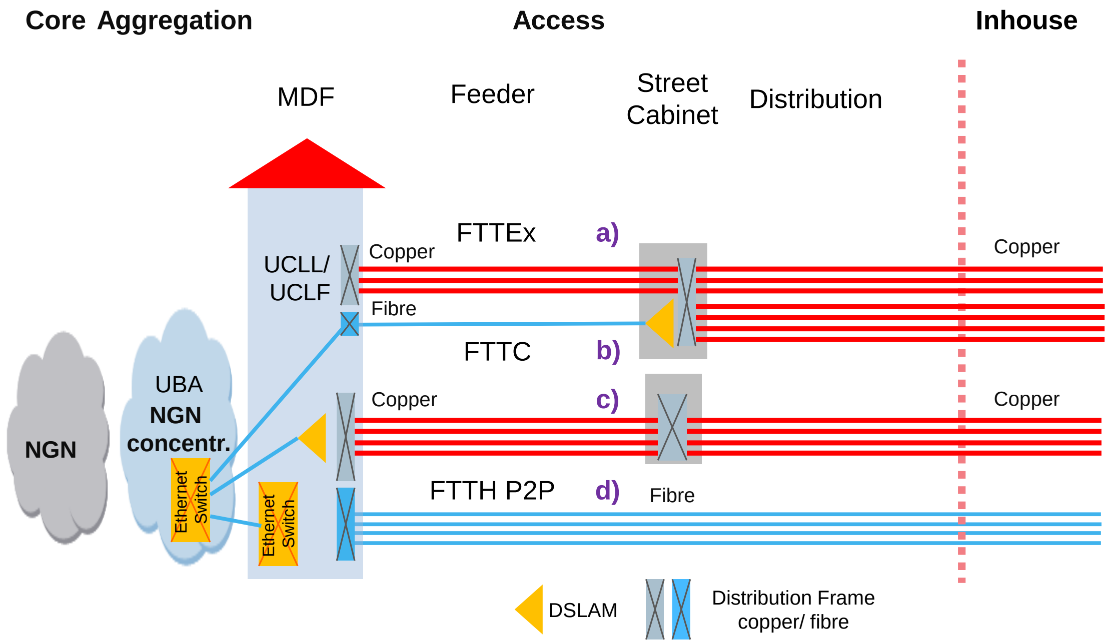
4. Figure 2-1 includes all relevant network elements of a broadband access network, excluding FWA elements. Trenches and manholes are not shown explicitly. This figure is more detailed than those we used in our February submission or those that Tera used in its model documentation.

Figure 2-1: Network elements of the access network during network evolution to broadband access



Source: WIK

5. Initially, the access network was constructed out of copper pairs per end customer access in a point-to-point (P2P) manner (see Figure 2-1, c). Street cabinets have since the beginning been used to optimize the access copper pair aggregation of the distribution segment in the feeder cables, also enabling to add new buildings at a later stage. This architecture is sufficient for analogue telephony or ISDN network access, also allowing for a basic broadband DSL service over a distance of approximately up to 4 km.

6. Increased bandwidth can be achieved by FTTC (Figure 2-1, b)), deploying the DSLAM in an expanded street cabinet, which in addition has to be served by electrical power for the DSLAM and its air conditioning (fan). This reduces the copper line length, but requires a fibre line from the MDF location (local exchange location) to the DSLAM in the street cabinet. Customers not demanding such broadband access still can be served by Point-to–Point copper pairs, passing through the distribution frame of the street cabinet up to the MDF location (see Figure 2-1, a)).

7. Copper unbundling (UCLL, UCLF) can occur at the local exchange (MDF) in case of Figure 2-1 a) (and c)) and for Subloop Unbundling (SLU) at the street cabinet in the case of Figure 2-1 c).

8. The UCLL access network MEA chosen by the Commission is a FTTH P2P fibre network as shown in Figure 2-1, d). It has no intermediate street cabinet and distribution frame. The MEA FTTH P2P which is explicitly and fully supported by WIK. It can be unbundled at the Local Exchange.

9. The UBA MEA instead is an interim network architecture on the migration path towards the UCLL MEA (FTTH P2P). It basically still uses the copper access network based on UCLL and SLU, adding the

   - DSLAMs at the local exchanges and/ or at the street cabinets,
   - Street Cabinet expansions, incl. electrical power connection and air condition,
   - Fibre cables connecting the cabinets with the appropriate MDF location (SLU Backhaul),
   - Fibre lines connection the DSLAMs with the First Data Switch
   - First Data Switches (FDS).

   In a resource consumption based cost allocation all these additional elements and their cost should contribute to the UBA cost increment.

10. In the UBA MEA environment copper and fibre cables of the feeder segment exist in parallel and should share the same trenches, but use different ducts in case of underground deployment. We assume the parallel copper/ fibre feeder infrastructure therefore to be more expensive than a pure copper infrastructure, requiring less ducts and trench width.

11. The UCLL price is defined by the cheaper access network, either copper or fibre. If the price is based on the copper access network cost the cost of the pure copper network is added by the cost of the fibre SLU backhaul lines, as far as we understood Tera's descriptions. Thus the UCLL cost are calculated by the sum of the copper SLU cost (distribution segment), the passive cabinets' cost, the copper feeder <u>and</u> fibre SLU Backhaul cost (feeder segment). Proceeding in this manner mixes UBA caused cost and UCLL cost. So UCLL customers may cross subsidize UBA customers and may contribute to cost already paid by the UBA customers in the UBA increment.

12. If the UCLL price is determined based on the (then cheaper) fibre access infrastructure all fibre lines contribute to the cost, thus a network is assumed serving all customers in a fibre ULL manner. There is no cross subsidy between UCLL and UBA. This is inconsistent compared to the copper based approach described in the paragraph above.

13. Due to the lack of intermediate cabinets in the FTTH topology there is no natural or physical point of subdivision in feeder and distribution segments for identifying the SLU cost. Instead, according to our understanding, for determining the SLU price now the cost of the SLU backhaul is subtracted, thus

leading to a "virtual cabinet" location, if one tries to figure out what this procedure is standing for. This seems strange at least and does not relate to cost causation of SLU lines, it is an artificial number.

14. Proceeding as described above could result in cost under- or over-recovery if the SLU price is paid by third parties addressing the street cabinets with their own fibre infrastructure (instead of using Chorus') (see also figure 4-2 in the original WIK submission of 20.February 2015). This is caused by the fact that there is a virtual cabinet only, not related to the UCLL price and an appropriate cost distribution between the feeder and the distribution segment.

15. The Commission's determination, regarding which access network cost is lower and thus determines the underlying technology, is taken by comparing the fibre access network cost, reduced by the fibre SLU backhaul cost calculated in the copper cost model, with the copper network cost without the fibre SLU backhaul cost. This approach contains significant inaccuracies.

16. Starting from Tera's descriptions we would have expected that the FTTH P2P access network cost would be compared with a pure copper P2P access network cost. It is also an inaccurate comparison because the cost base for determining the UCLL price is different. It is based on the network cost, either without the fibre SLU reduction (in case of fibre) or by adding the fibre SLU backhaul cost. Thus it is inconsistent also.

17. All these inconsistencies could be solved by choosing the same MEA for UCLL and UBA, thus reflecting the fact that there is only one HEO producing both, UCLL and UBA, on the same MEA infrastructure, which should be FTTH P2P + FWA. The UBA would be produced by the fibre access lines, aggregated at an Ethernet switch in the MDF location or directly at the appropriate FDS location. In the latter case the old MDF location may be replaced by a fibre cable aggregation node in order to reflect all MDF locations as scorched nodes.

18. The copper pairs for UCLL and UCLF do not differ, the different use for "telephony only" or for "broadband also" is specified by the service providers, not by the wholeseller Chorus.

19. Thus we support the approach of the Commission to apply one uniform price for it. We do not see any reason for a geographically de-averaged price.

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