



The Section 9A Backhaul Study

Cross submission | Commerce Commission

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Executive Summary

The study paper and submissions have usefully flushed out the issues, and this means the remainder of the study can focus on the key matters.

All submitters agree that the main routes between centres are subject to some form of competition – there are a number of infrastructure based providers on these routes delivering good price and quality outcomes. However, there are differing views relating to intra-regional routes and this is where competition and investment issues potentially lie.

Chorus argues that the Commission should take a national market view of backhaul – the Commission having previously assessed Commerce Act clearance applications in the context of a national market for retail broadband and some national backhaul. The purpose of the study is to build understanding of the market, and limiting that inquiry through a pre-set market definition phase is unlikely to be helpful.

Nor is it appropriate to simply apply definitions from one legal framework and context in to another. We consider the geographic dimension and competitive conditions that exist for otherwise competitive national broadband markets and regulated regional broadband markets to be substantially different to each other. The geographic dimension of any market determined for the purpose of a merger clearance is without prejudice to an enquiry into a regulated market and subject to different statutory regimes.

In any case, the Commission found a clear distinction between national and regional routes when describing the market in those earlier decisions. This is consistent with what we see today. Heartland Connectivity highlights in its submission the increasing gap, in terms of price and performance, between Chorus rural routes and competitive routes between main centres. Put simply, from a supply and demand perspective the market operates on a regional or route by route basis. Chorus differentiates between routes by offering lower priced and better performing services on specific routes, and purchasers cannot substitute capacity from one geographic location to another.

We agree with Chorus, however, that understanding pricing is key for the study. The study should consider whether prices on intra-regional routes are priced higher than would be expected in a workably competitive market. This could be by updating its understanding of benchmark country price changes, cross check against the implied prices for other Chorus services using the same routes - i.e. Baseband IP and UBA services - or econometric modelling to develop a model to estimate efficient backhaul. The purpose of the analysis being to identify, in the first instance, those links which warrant a more detailed review and can accordingly be high level.

The submissions further highlight that service performance and quality is an important aspect of backhaul services, and that there is a growing gap between service performances offered on regulated services relative to those offered in competitive parts of the market. The competitive market has resulted in a number of service bandwidth options, innovative per access based pricing and a focus on service performance and quality. However, we're not seeing the same innovation occurring in the regulated backhaul space. The study could consider further how the Commission could bring the outcomes we're seeing in competitive services to regulated backhaul. For example, by updating service level arrangements, considering different bandwidth options or per access based pricing as offered for UBA and Baseband IP, and quality.

Introduction

1. Thank you for the opportunity to respond to submissions on the backhaul study paper (**the paper**). We support the Commission study.
2. The submissions have usefully flushed out the key issues for the residual course of the study. All submitters agree that there are a number of infrastructure based operators offering competitive services on national backhaul routes between main centres or core nodes. At the same time as prices have fallen on these routes, there is significant investment in capacity and innovation.
3. However, there are markedly differing views on the competitive conditions on links outside these core routes – generally the intra-regional routes identified in the study paper. The submissions highlight that this is an area where the study could look further, gaining a better understanding of competitive conditions and whether the current regulatory services are supporting efficient outcomes. In this submission we address matters raised by Chorus, and propose next steps relating to intra-regional markets.
4. The Heartland Connectivity and Telco2 submissions highlight the increasing importance of regional backhaul for competitive service providers, and a substantive number of end users rely on the regulated/commercial service¹. For example, we estimate that over 240,000² end users are served from exchanges where Chorus offers only the regulated backhaul service³.
5. The way that service providers consumer backhaul is changing and will change over time – we expect to migrate more customers on to wireless and Baseband IP accesses. However, access to Chorus' intra-regional backhaul service at efficient prices will be increasingly important for competing providers, including mobile network operators, who will want to improve the quality of their regional networks.

The study can usefully focus on intra-region routes

6. The submission highlight that there are differing views on market conditions for intra-region routes, and this is where competition and investment issues could lie⁴.

Chorus competition analysis

7. Chorus argues that the backhaul market should be viewed nationally and as competitive, noting that this would be consistent with the Commissions' Vocus and M2 merger determination⁵ and previous merger decisions⁶. Chorus asks that, if the Commission takes a different view in the study, that it set out the reasons for such a different approach.

¹ Chorus notes that it offers its commercial backhaul service on the same terms and conditions as the regulated UCLL backhaul service. Accordingly, we've considered these services as one for the purposes of this submission.

² Estimate to get a broad understanding of how material the issues might be. Accordingly, we've used Chorus baseband lines served from exchanges where only regulated/commercial backhaul are an indicator of demand.

³ Chorus offers a Commercial Backhaul variant on the same terms and conditions as the regulated service, and we have used these interchangeably in this submission.

⁴ For example, see Vodafone, Heartland Connectivity, UFF and InternetNZ.

⁵ See Part A of Chorus submission. Decision [2015] NZCC 33. See <http://www.comcom.govt.nz/business-competition/mergers-and-acquisitions/clearances/clearances-register/detail/873>.

⁶ List of residual decisions listed at page 11 of Chorus submission.

8. We disagree. There should be no expectation that a s9A study would adopt the same process as that for a merger analysis⁷, and that the Commission would reach the same conclusion in a different context and legal framework. For example, the Commission defines markets to expose competition concerns in the context of the matter before it⁸.

Our approach to market definition

19. Market definition is a tool that helps identify and assess the close competitive constraints the merged entity would face. Determining the relevant market requires us to judge whether, for example, two products are sufficiently close substitutes as a matter of fact and commercial common sense to fall within the same market.

20. We define markets in the way that best isolates the key competition issues that arise from the merger. In many cases this may not require us to precisely define the boundaries of a market. What matters is that we consider all relevant competitive constraints, and the extent of those constraints. For that reason, we also consider products which fall outside the market but which still impose some degree of competitive constraint on the merged entity.

9. Accordingly, we wouldn't necessarily expect the Commission to reach the same conclusion when faced with a different question. The Commission considered the Vocus/M2 application in the context of the applicants' position in the market, i.e. the provision of core backhaul services between main centres. The Commission analysis focused on the impact of bringing these activities today in light of the Commerce Act considerations.
10. Conversely, in the case of the backhaul study, the Commission is looking to understand backhaul market conditions across routes between main centres and intra-region routes, and therefore analysis is focused on the regulatory outcomes being achieved in light of Telecommunications Act considerations. We wouldn't expect the Commission to apply the same market definition construct to different contexts, and would be surprised if it did. The statutory context applicable to a merger clearance and the market context for considering services and markets regulated under the Telecommunications Act are entirely different.
11. In any case, in the earlier merger decisions the Commission was alive to the different market conditions, making a clear distinction between national and regional routes in describing the market. For example, the Commission endorsed the approach proposed by Vocus/M2 which relied on the Commission's earlier 2012 Vodafone/TelstraClear decision. That decision drew a clear distinction between national and regional markets⁹.

Backhaul

9.4 The backhaul portion of the network comprises the national and international links between the core local access networks. Backhaul transmission is a generic term used to describe the transport of data between regional and national data aggregation points. Backhaul generally involves carriage of signals by fibre optic cables rather than by copper cables (but can also involve other media such as microwave links (for example by Kordia) or satellite).

9.5 Regional backhaul is the carriage of users' voice and data signals to and from aggregation points located in about 600 local exchanges throughout New Zealand to and from the 30 major exchanges and other aggregation points in the same region. National backhaul is the longer distance carriage of such

⁷ We also have reservations relating to the usefulness of drawing early conclusions or setting the study in the context of a pre-set market definition (which could only be artificial) – this would inevitably book end useful inquiry.

⁸ NZCC 33, page 5.

⁹ See application and Decision [2015] NZCC 33. See <http://www.comcom.govt.nz/business-competition/mergers-and-acquisitions/clearances/clearances-register/detail/873>.

signals between individual major exchanges and other aggregation points, and from these points to the two Auckland international gateways.

9.6 In order to provide fixed-line services, providers will need access to backhaul transmission. In New Zealand there are a number of different national backhaul networks owned by Chorus, Spark, Vocus, Kordia and Vodafone, which all wholesale access to their individual networks. International backhaul is achieved via the Southern Cross Cable which links Australia, New Zealand and the US.

9.7 Backhaul is also required by mobile network operators to carry their voice and data traffic from their cell phone towers to national mobile switches and from there onto the internet if necessary.

12. The Commission endorsed the approach, noting that the application drew from the earlier decision.

21. In its application, Vocus has relied on the Commission's view of telecommunications markets in *Vodafone New Zealand Limited and TelstraClear Limited*.¹¹

[...]

22. The Commission last considered telecommunications markets in a merger context in *Vodafone New Zealand Limited and TelstraClear Limited* which cleared Vodafone New Zealand to acquire the shares and assets in TelstraClear Limited.

23. We consider that the markets identified in *Vodafone New Zealand Limited and TelstraClear Limited* remain relevant and are appropriate for considering the competitive effects of this proposed merger. We have not identified any significant changes in the telecommunications industry that would alter our assessment of the relevant markets.

13. Vocus and Commission refer to the earlier 2012 Vodafone/TelstraClear decision which drew a clear distinction between national and regional backhaul services¹⁰.

Backhaul

41. Backhaul is a generic term used to describe the transport of data between regional and national data aggregation points. Backhaul generally involves carriage of signals by fibre optic cables rather than by copper cables; although it can also be provided by microwave radio.

42. Regional backhaul is the carriage of users' voice and data signals to and from aggregation points located in about 600 local exchanges throughout New Zealand (for example Karori) to and from the 30 major exchanges (for example Wellington) and other aggregation points in the same region. National backhaul is the longer distance carriage of such signals between individual major exchanges and other aggregation points, and from these points to the two Auckland international gateways.

43. Backhaul is also required by mobile network operators to carry their voice and data traffic from their cell phone towers to national mobile switches and from there onto the internet if necessary.

14. Further, the Commission based its 2015 decision, in part, on data relating to the relative size of providers' networks on these main national transmission routes¹¹.

15. We don't believe the distinction between national and regional markets has been important to the competition assessment of the merger transactions referred to above for the purpose of determining whether a merger is likely to substantially lessen competition. Nor could the previous analysis be used to infer anything about where Chorus market power might lie. If anything, the Commission has recognised in merger decisions that there are differing market conditions

¹⁰ <http://www.comcom.govt.nz/business-competition/mergers-and-acquisitions/clearances/clearances-register/detail/760> The Commission also expands on this around paragraph 293.

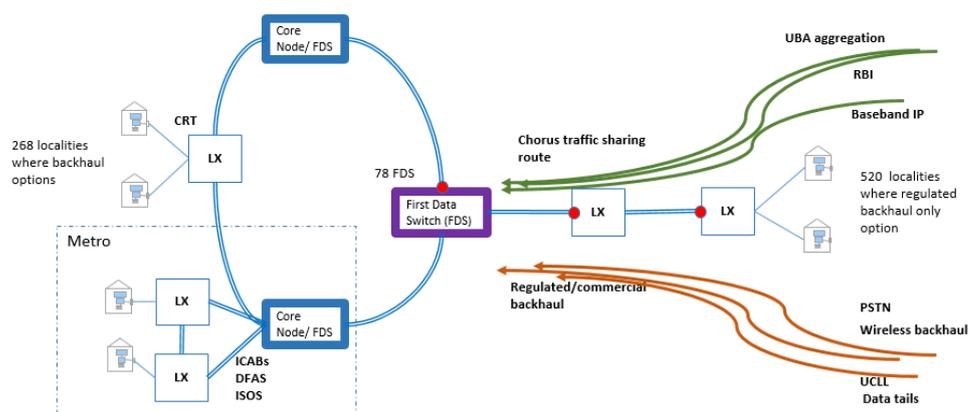
¹¹ See Table 4, page 17 of Vocus' application. This table (which summarises National Backhaul competitors) was adopted by the Commission in its decision, and referenced throughout the decision.

between main routes between centres and other transmission routes. In regulated markets the starting point is that effective competition does not exist. Regulated obligations of supply may only be wound back if the Commission is satisfied that effective competition has developed on each of the already regulated routes. That is an entirely different proposition.

Supply and demand side factors suggest a regional/route by route approach

16. Most submitters agree that the Commission should consider regional or route by route aspects of the market. We agree. In practice, the market operates on a regional or route by route basis. In terms of supply conditions, Chorus differentiates between routes through the targeted geographic availability of different backhaul services. For example, it is not possible to secure CRT prices on intra-regional routes.
17. Conversely, on the demand side, infrastructure based providers cannot substitute capacity from one route to another. We provide services to widespread locations, and where we do not have physical network to complete the offer we buy off other operators, including Chorus. In many cases there is no other option than to purchase capacity from Chorus. Chorus is able to, and has an incentive to, use market power on a regional/route by route basis.
18. Chorus further submits that – even if the Commission were to take a line by link approach – there is credible threat of competition and countervailing power. Chorus suggests that RSPs could over-build regional routes and there is also no suggestion that prices are excessive because they are priced equal to the regulated service.
19. We disagree. Chorus likely has a unique position in the provision of intra-regional routes that give it cost structure that cannot be matched by a new entrant. The cost to deploy transmission is a function of distance, topology and demand over which the costs can be spread. The local exchange is a demand aggregation point, its where traffic from a variety of sourced is aggregated and carried over the transport route to a node higher up the chain, i.e. a UBA First Data Switch.
20. Chorus is uniquely placed to aggregate traffic from backhaul services, and from traffic embedded within access services such as UBA and from RBI services for which is subsidised by the Crown. Accordingly, other operators are unlikely to be able to match Chorus' cost structure on any given intra-regional route simply due to the volume of traffic Chorus can uniquely aggregate. For example, as set out in Figure 1, a competing overbuilding operator could expect to competitively pick up a share of business data, wireless backhaul and PSTN related traffic. However, Chorus UBA (funded through the monthly UBA charge), RBI and Baseband IP related traffic is embedded within access services and is not available to a competing provider.

Figure 1: Demand at a local exchange¹²



21. A number of local exchanges are on national routes, or have access to UFB price regulated or competing transmission providers. However, there are a significant number of exchanges or localities for which there is no alternative to the regulated service. Figure 1 highlights that of Chorus' 788 localities¹³, the regulated service variant is the only option for 520 of these localities (the remaining 268 have different Chorus options). There are competitive operators in some exchanges and, as noted in our submission, we estimate that in practice Chorus is the sole provider to around 400 local exchanges and the prospects of further overbuild to these locations is slim. We know there is no alternative because we face the reality of purchasing transmission services from Chorus every day.

Backhaul is important for end users and competition

22. Chorus and Vodafone query the need for the study. We disagree, backhaul is a significant and important part of the value chain and it is important for the Commission to update its understanding of the technologies and market.
23. To get an idea for the scale of potential issues, we've associated Chorus geographic service options with baseband volumes as a crude indicator of traffic volumes and scale. As set out in Figure 2, this suggests that around 240,000 customers are served from exchanges where Chorus's regulated/commercial backhaul service is the only Chorus option. This is the service for which regulated terms and conditions determine the price and quality of service. This is a significant proportion of the market, with most implications for customers outside main centres where fibre deployment has led to availability of UFB mandated backhaul options.

¹² The interconnect point in the Chorus network is service dependent. For example, backhaul for cell sites and data tails is available from localities (wire centres), UCLL backhaul is available from UCLL capable exchanges, and UBA/Baseband IP from First Data switches, and UFB from UFB POIs. The red dots in Figure 1.

¹³ Localities comprise physical exchanges, and logical exchanges used for backhaul pricing services. In other words, access service aggregation from which backhaul charges can apply. A locality is where backhaul is charged from for cell site and data. However, in some cases where voice cannot be handed over at the locality, it is provided at a host exchange and backhaul is charged from there.

Figure 2: Chorus backhaul options and baseband demand at the local exchange¹⁴

Chorus service options	Service nodes/ localities	End users	
Chorus baseband	788	1,536,602	
Where alternative option offered:		1,295,660	
ICABS exchange	201		1,176,150
At BBIP/UBA First Data Switches	88		531,737
CRT service point	75		339,269
Regulated/commercial service only	520	240,942	

24. Vocus reports that it has extended its network to 200 unbundled exchanges without encountering significant issues. We agree, there will be local exchanges for which there is competitive pricing and options. However, there are a significant number of exchanges outside this footprint.
25. Chorus further note that the concerning backhaul services relate primarily to legacy applications such as voice, and by implication are less important. However, these are the same transmission links that are important for UBA, Baseband IP, mobile backhaul, data services and future RBI initiatives. We expect to increasingly migrate customers off legacy copper accesses on to Baseband IP, fibre and wireless access. The services will continue to rely on backhaul functionality.
26. However you cut this, the nature and role of backhaul is important for the market. The current regulated service (or Chorus commercial service based on the regulated service) is critical in the end to end service customers receive, and failing to consider it properly would leave a material hole in the regulatory framework.

Next steps

27. Chorus note that the nature of these routes is that they are likely to be higher cost than core transport routes and that the current prices are not excessive (as they mirror the regulated rates).
28. We agree with Chorus that understanding intra-region pricing is key for the study – and it should consider whether prices on intra-regional routes are higher than would be expected were the market efficient. Regional route costs are likely to be higher cost – although the extent to which costs are higher than dense urban routes is unclear. For example, while the routes typically have less demand over which to spread costs, as found in the FPP the deployment cost per metre is significantly lower on regional routes. Alternatively, there has been significant growth on regional routes – i.e. UBA and RBI traffic - and unit costs should accordingly have fallen.
29. There are a number of indicators that regulated prices have become disconnected from efficient prices and those you would expect to see in competitive markets:
- a. As noted in the study paper and submissions, prices in comparable jurisdictions have fallen across the board by between 13% and 78%;

¹⁴ Individual alternative options sum to greater than overall because some nodes have multiple options, i.e. ICABS and a FDS site. Not all routes to FDS locations are competitive, in which case the only feasible option is a Chorus Tail Extension Service.

- b. Chorus notes in its submission that wholesale customers ability to switch backhaul providers nationally, gives them countervailing power on regional markets¹⁵. The implication is suggests that, as regional costs are able to be reduced for a national deal, that the regulated price may be over-stated; and
- c. Chorus' submission highlights the availability of lower cost options offered on the same routes as regulated services, suggesting lower more efficient costs. For example, it offers a range of tail extension services on the basis of per access line and distance. These pricing structures – that emulate flexible capacity options – imply lower costs for low volumes and are not available to regulated service customers.

Alternatively, UBA and Baseband IP implicitly include backhaul costs from the local exchange to the First Data Switch. The Commission could compare, for example, implied transport costs of these services with that for the regulated service (for the 220,000 lines which rely on regulated backhaul and for which we have data, we estimate it costs a minimum of around \$7 per line per month if using the regulated service).

30. Further, as set out in our earlier submission, we have seen significant reduction in prices on competitive routes (this has been updated to add a comparison to the ICATS service).

Figure 3: Sample comparison of CRT, retired ICATS and Commercial variant prices¹⁶

Site 1	Site 2	Speed	CRT	ICATS	Commercial
Auckland	Palmerston North	100Mb/s	N/A	N/A	\$12 594.48
		1G	\$2 940.00	\$10 950.00*	\$30 618.24
		10G	\$4 200.00	\$32 350.00*	N/A
		100G	\$31 500.00	N/A	N/A
Gisborne	Napier	100Mb/s	N/A	N/A	\$7 233.00
		1G	\$2 417.69	\$3 550.00	\$17 584.00
		10G	\$3 453.84	\$10 400.00	N/A
		100G	\$25 903.80	N/A	N/A
Rotorua	Taupo	100Mb/s	N/A	N/A	\$4 955.00
		1G	\$705.16	\$1 800.00	\$12 047.00
		10G	\$1 007.37	\$5 150.00	N/A
		100G	\$7 555.28	N/A	N/A
Whangarei	Mangawhai	100Mb/s	N/A	N/A	\$4 407.00
		1G	\$671.33	N/A	\$10 713.00
		10G	\$959.04	N/A	N/A
		100G	\$7 192.80	N/A	N/A

*Auckland-Taupo-Palmerston North

31. As a next step, to decide whether there prices are efficient or as expected, we recommend that the study have a close look whether regulated prices are likely to have departed from efficient prices. There are number of ways of doing this and the Commission could:

- a. Update its understanding of benchmark country price changes;
- b. Seek to cross check against Chorus' implied prices for backhaul services it provides to itself using the same routes, i.e. the implied backhaul cost for the Baseband IP or UBA services. The intra-regional routes carry traffic for regulated services with an implicit price that would inform whether backhaul costs are efficient; and/or
- c. Undertake econometric benchmarking to derive expected prices if the routes had been workably competitive. For example, by applying a broadly similar regression based

¹⁵ See Page 6.

¹⁶ Chorus offers the Commercial Backhaul service on the same terms and conditions as the regulated service.

approach to that recently applied by the ACCC, using NZ data and a lesser level of complexity.

32. The Commission may wish to consider a combination of these options, as none are likely to be definitive. A New Zealand specific high level regression benchmarking model in the local setting could be used in the first instance only to identify those links which warrant a more detailed review through, for instance a section 30R process. Irrespective of the approach, the purpose of any analysis is simply to assess whether there's anything that warrants a closer look through a s30R process. In other words, the analysis seeks to identify whether regulated prices are likely to be efficient, are promoting efficient outcomes.
33. Chorus' Commercial Backhaul service is offered on the same terms and conditions as the regulated service. This linkage would suggest that, while the regulated service is not used, it remains important to understand the costs of the regulated service and it sets the price for Chorus' commercial variant. It may be that, with further study, the Commission concludes that the regulated service is an effective anchor product for commercial variants. In which case, the study could focus on changes to the existing STD rather than address schedule 3 issues as proposed in the study paper.

Service performance and innovation

34. Chorus also submits that there are no service or quality issues that should concern the Commission. Further, it usefully outlines the range of backhaul options available to wholesale customers. We agree that on competitive routes, service and quality are key parts of the commercial arrangements. In the competitive markets we operate in, service performance and SLAs are key attributes of wholesale service offerings.
35. However, Chorus' submission highlights the growing discrepancy between the performance of regulated and unregulated services. Heartland Connectivity sets out its concerns relating to the performance of rural links. We agree. The competitive routes are resulting in a real focus on service innovation and performance, but we're not seeing the same innovation occurring on routes where there is limited competition.
36. The study should attempt to get to the bottom of these service performance and quality differences, and consider how some of the outcomes of competitive market can be applied to routes where competition is limited. We set out in our submission a number of areas where the Commission could look to align the regulated service description and non-price terms with those we're seeing in competitive markets. For example, the study could usefully consider further:
 - a. Innovative per access pricing options similar to that for UBA and Baseband IP;
 - b. Additional handover, bandwidth and dark fibre options. Further, the RSP choice of dark fibre or bandwidth constrained service options should be based on relative economics rather than artificially limited;
 - c. Service level commitments relating to the cost and time to install additional links. Further, repeated activities should be on a fixed rate card where possible; and
 - d. Reduce RSP cost and uncertainty relating to third party fibre access to exchanges for interconnect purposes, i.e. to promote competitive provision of backhaul services.

END
