



**TelstraClear Limited**

**Comments on Submission by Telecom New Zealand Limited on the  
Commerce Commission's draft determination on the proposed price  
and non-price terms for access to and interconnection with Telecom's  
fixed PDN and access to Telecom's fixed PDN backhaul ("Wholesale  
Bitstream Access")**

**8 June 2005**

**PUBLIC VERSION**

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## 2. EXECUTIVE SUMMARY

### 2.1 Technical Issues

1. The issues of reach, noise and speed raised by Telecom are not unique to an unrate shaped bitstream service but are part of the everyday management of a DSL network. Contrary to Telecom's assertion that overseas operators have limited speeds to 3Mbits to control noise issues:
  - (a) BT plans to offer higher speed wholesale ADSL products (delivering speeds between 2Mbits and 8Mbits dependant on line characteristics),<sup>1</sup> and has also apparently recently "unblocked" its DSLAMs to deliver an unconstrained service;<sup>2</sup>
  - (b) the standard noise profile used for DSL networks show that, on a conservative measure, speeds of 6Mbits can be provided on lines with noise levels of 22dBs or less (about 1.5kms from the exchange) which in a typical network should represent 60-70% of lines, tapering to 3Mbits for lines with a 43dB (approximately 3km from the exchange), without generating cross talk to which materially affects other lines.<sup>3</sup> This declining speed profile is consistent with the provision of an unrate shaped service, which is not, as Telecom implies, intended to guarantee 7.6Mbits to all points in the network, no matter how far from the exchange; and
  - (c) Telecom itself is proposing to deploy ADSL2+ services, which will deliver services of 15-24 Mbps to customers within a kilometre of the exchange.
2. Telecom's submissions that an unrate shaped service will overload DSLAM buffers, DSLAM backplane capacity and ATM link capacity incorrectly assumes that the actual data rate of each bitstream service will be the nominal speed of the port without rate shaping applied (7.6Mbits):

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<sup>1</sup> BT Press Release: 'BT Wholesale unveils further broadband price and product developments', 3 Feb 2005.

<sup>2</sup> [http://www.theregister.com/2005/03/22ntl\\_adsl2/](http://www.theregister.com/2005/03/22ntl_adsl2/).

<sup>3</sup> <http://www.btbroadbandoffice.com/distanceexplained>. While this document only discusses current 2Mb speeds, BT intends to launch higher speeds (2Mbits to 8Mbits depending on line characteristics) before the end of the year.

- (a) TelstraClear will be rate shaping many of the down channels upstream from the Telecom network, which reduces the demands on the Telecom infrastructure; and
  - (b) the actual average and peak throughput of services, even high speed services, is relatively limited given end user patterns of usage. All network operators plan capacity and manage their networks on this basis. Actual data from TelstraClear's cable network shows that the equivalent of a DSLAM serving over [ ] [TCLRI] end-users has a peak total throughput of [ ] [TCLRI]. AAS has recommended, as a conservative measure, a peak rate of 50kbps.
3. Telecom appears to be saying, in effect, that *all* end-users should have limited choices so that *more* end-users can have access to broadband (even if that extended reach is only for "basic broadband"). This ignores the clear international trend towards higher downstream speed services in competitive markets and the importance of higher speeds for new innovative broadband services that the Government seeks to encourage in New Zealand.
4. The technical problems identified by Telecom are manageable through the development of standards in New Zealand to address interference, building on the overseas work which has already been done. Pending agreement on these standards, TelstraClear proposes a conservative service management approach which should more than adequately address Telecom's concerns:
- (a) the noise level on all requested bitstream lines should be tested (service qualification process). The equipment required for service qualification is standard in a large scale DSL network and it would be surprising if Telecom does not have that equipment;
  - (b) if the noise level is at or below 43 dB, the bitstream service should be provided as an unrate shaped service with interleaving "on" in the up channel (to the minimum setting) and in the down channel to a higher setting; and
  - (c) if the noise level is above 43 dB, the bitstream service will be set to a specific line rate (not shaped) by Telecom as determined by the line profile, to the higher of an agreed maximum speed (2-3Mbits) or Telecom's maximum retail speed offered for lines at that noise level. Interleaving would be "off" in both the up channel and the down channel.

## **2.2 Bitstream is Not Resale**

5. Telecom's views, including its proposal for a "workable way forward", appears to be driven by a limited vision of bitstream as a resale Jetstream service without the transmission capacity. Telecom links bitstream speeds to retail speeds, says it cannot develop and measure KPIs unless there are only "minor technical" differences between bitstream and Jetstream and argues that Telecom downstream retail price discrimination practices should be reflected in the upstream wholesale bitstream price.
6. This is not, in TelstraClear's view, what the Commission had in mind when recommending regulation of bitstream as a "third way" between the then prevailing resale only environment, which Telecom argued at the time was sufficient, and full unbundling of the local loop.
7. Telecom has implied that TelstraClear, by standing out of the market until it obtains the terms it wants, is acting unreasonably and will be the cause of Telecom not meeting its wholesaling broadband commitments. However, the terms that TelstraClear has been seeking, such as electronic OSS, KPIs and external auditing, are consistent with best practice in those countries where bitstream has the greatest impact in driving broadband penetration, such as the UK and Australia. Overseas incumbents are also now making high speed or unconstrained bitstream services available. Further, as New Zealand competitors do not have access to alternative forms of LLU over which to provision their own high speed services, an unrate shaped service has a more crucial role to play here in promoting downstream innovation than in other countries.

## **2.3 Downstream Innovation and Pricing**

8. Telecom's argument that a uniform price for the bitstream service will undermine efficient downstream price discrimination and raise prices for low end consumers is, in TelstraClear's view, misconceived:
  - (a) it is not necessarily (or even generally) the case that downstream price discrimination is dependent upon upstream discrimination in the pricing of one of the inputs;
  - (b) whereas price discrimination can be an efficient means for recovering fixed costs, the social welfare benefits of a monopolist's price discrimination in a downstream market are more suspect. Telecom's argument would, upon the onset of downstream competition, effectively substitute a monopolist's downstream price discrimination

for upstream price discrimination in the provision of a bottleneck element;

- (c) Telecom attempts to justify price discrimination (different prices for an identical service) with examples that actually describe a different economic setting, namely product differentiation, that reflects differences in service quality, such as speed. Product differentiation, accompanied by price discrimination, can be consistent with the Ramsey pricing criteria and can also deliver more value and innovation to consumers;
- (d) as access seekers provide the speed (transmission) related elements which largely form the basis of that product differentiation, a range of product- and price-differentiated services is likely to be made available by competitors in the downstream market; and
- (e) stimulating this downstream market dynamic is exactly what the Commission had in mind when it ordered the unbundling of bitstream.

#### **2.4 Markets and Competition**

- 9. Telecom argues that a uniform national price does not indicate a national market where the competition conditions are not consistent across the country. However, if that was so, the expectation would be, as Ofcom notes, “that operators would charge geographically de-averaged prices to reflect the differential competitive condition [in each region]”.<sup>4</sup> Telecom prices on a uniform basis not only between monopoly and non-monopoly areas, but also across the pockets of alternative network, irrespective of the number of competitors and the mix of technologies it faces. Ofcom considers that “regulatory” constraints of the kind Telecom raises were part of exogenous factors which defined markets.
- 10. In any event, whether there is a national market or sub-national markets, Telecom clearly faces limited competition:
  - (a) Telecom wholesale and retail market shares appear to have increased since Decision 497;

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<sup>4</sup> Ofcom Review of Wholesale Broadband Access Markets, 13 May 2004 (Ofcom Broadband market Review) para 2.113.

- (b) As the overseas experience shows, DSL lines are likely to continue to comprise the bulk of broadband lines. In the EU, fixed wireless networks (FWA) represent less than 0.16% of broadband lines and alternative technology lines (which are mostly cable) are growing at half the speed of DSL lines;
- (c) However, unlike in most countries with effective local loop unbundling and wholesale bitstream regimes, Telecom retail services continue to account for most of the DSL lines, [ ] [CCRI] or more. In the UK, the incumbent retail share of DSL has fallen to 35% and in Australia it has fallen to 40%; and
- (d) Bitstream access requirements continue to be applied in countries with competition-based threshold tests for regulation similar to New Zealand's where the incumbent has market shares substantially below Telecom's share, particularly in the pockets of alternative network.

## **2.5 Wholesale Price**

- 11. TelstraClear considers that the Commission's approach of first imputing a retail price for the bitstream access service (the access component of the end-to-end ADSL service) by looking at all of Telecom's retail DSL services and then deducting avoidable costs is an appropriate and pragmatic method of applying the Initial Pricing Principle to determine a wholesale price for the non rate shaped bitstream service.
- 12. However, in TelstraClear's view, the Commission should follow the same approach as overseas regulators in pricing bitstream services and not determine separate wholesale prices for residential and business customers unless the wholesale products differ in a material way, such as in contention. Overseas evidence also shows that, with the rapidly growing demand for faster speeds from residential and SOHO customers, broadband products will increasingly form a chain of substitutable products from which individual customers, irrespective of their designation of residential or business, select according to their individual needs. This is consistent with the transition to a more competitive and complex market in which product differentiation forms the basis of the price discrimination that Telecom says is necessary to efficiently recover fixed costs.
- 13. TelstraClear agrees with Telecom that the regression model used by the Commission to impute the bitstream access price is flawed. However, TelstraClear believes that the alternative regression analysis proposed by

Telecom is also flawed. As Network Strategies' report sets out, as there are insufficient data points, it is statistically incorrect to use regression analysis to account for differences in speed and data cap parameter values for comparable end-to-end retail services. Rather, an arithmetic approach is a more correct way to account for these differences.

14. As Network Strategies' analysis demonstrates, using this approach, the appropriate imputed retail bitstream access price lies somewhere in the range of \$2.66-\$13.74. Wholesale pricing in this range is much more likely to achieve retail price competition at or below the \$30 mark at which the Government believes broadband will "explode" in New Zealand.<sup>5</sup>

## **2.6 Implementation**

15. Telecom's last argument is that if the Commission, despite Telecom's technical concerns, elects to press ahead with the unrate shaped service (or even if it accepts Telecom's offer of a 3Mbits "full speed" service) Telecom will need 6 months or more to implement the service. TelstraClear believes Telecom can and should be held to a speedier implementation. Given the delay which has already occurred (and the impact which it has had on New Zealand's broadband take-up rate), TelstraClear proposes:
  - (a) the parties immediately commence negotiations on the implementation of proposed terms on which they appear to largely agree, such as KPIs and service monitoring. TelstraClear has written to Telecom to make that proposal;
  - (b) if Telecom refuses to do so, TelstraClear believes that the Commission should convene a workshop where these issues can be resolved or identified for decision by the Commission in its final determination;
  - (c) the final determination should specify timeframes and escalation back to the Commission as proposed in the Draft Determination; and
  - (d) the final determination should allow TelstraClear to require commencement of supply before issues such as KPIs are finalised and implemented. This would allow TelstraClear to enter the market with

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<sup>5</sup> Minister Cunliffe, The Line, 16 May 2005.

the basic product while the remaining implementation issues are negotiated or, if not agreed, determined by the Commission.

16. Unless the Commission makes directions along these lines, the implementation of a full bitstream service may not be completed until the end of this year, over a year after TelstraClear's application and two years after the Unbundling Report recommended regulation of wholesale bitstream access.

### 3. INTRODUCTION

17. TelstraClear remains of the view that the Commerce Commission's draft determination issued on 21 April 2005 (**Draft Determination**) will be a substantial and necessary step towards addressing the deficiencies in the Telecom commercial UBS service which have held back competitors entering and competing more effectively by offering innovative new service and price competition.
18. In TelstraClear's view, nothing in Telecom's response to the Draft Determination (**Telecom's Response**) justifies a departure from the key terms of the Commission's Draft Determination. However, to facilitate supply of the unrate shaped services pending agreement on management of interference issues, TelstraClear is proposing that interleaving be left on for unrate shaped services and that a rate shaped service with interleaving be provided on the few lines which are likely to be too noisy to support services above 2 or 3Mbits.
19. TelstraClear's comments in this submission are structured as follows:
  - (a) **Part 4** discusses Telecom's claims that a final determination in the form of the Draft Determination would not be to the long term benefit of end-users of telecommunications services in New Zealand;
  - (b) **Part 5** analyses Telecom's "fair and workable" proposal for wholesale bitstream access set out in Part H of Telecom's Response;
  - (c) **Part 6** considers technical matters raised by Telecom's Response;
  - (d) **Part 7** examines Telecom's submissions in relation to market definition and competition assessment;
  - (e) **Part 8** reviews Telecom's Response on the Draft Determination's application of the Initial Pricing Principle;
  - (f) **Part 9** considers Telecom's Response on non-price terms, including the provision of OSS and the feasibility of service monitoring;
  - (g) **Annex 1** is a table summarising the Draft Determination's findings, Telecom's Response and TelstraClear's comments on Telecom's Response as set out in this document and TelstraClear's comments on other matters not raised in the main body of this document;
  - (h) **Annex 2** is a table setting out TelstraClear's comments on papers lodged by interested parties;

- (i) **Annex 3** is an economic opinion by Professor Janusz Ordober in support of TelstraClear's submissions and critiquing the opinion provided by Professor Jerry Hausman in Annex C to Telecom's Response;
  - (j) **Annex 4** is a report by Network Strategies on the application of the Initial Pricing Principle for wholesale bitstream access; and
  - (k) **Annex 5** is a report by Amos Aked Swift (AAS) on technical issues raised in Telecom's Response.
20. This public version of TelstraClear's submission has had removed from it:
- (a) TelstraClear-designated Restricted Information (**TCLRI**);
  - (b) Telecom-designated Restricted Information (**TCNZRI**);
  - (c) Commerce Commission designated Restricted Information (**CCRI**); and
  - (d) Information that is both Telstra-Clear designated Restricted Information and Telecom-designated Restricted Information (**TCNZRI&TCLRI**).

The material comprising **TCLRI**, **TCNZRI**, **CCRI** and **TCNZRI&TCLRI** was provided to the Commission in accordance with clause 8 of the Commission's Confidentiality Order dated 9 November 2004, and is categorised as financial, cost/price and customer and customer related information.

#### 4. LONG TERM BENEFIT OF END-USERS

- *The Commission and the Minister decided as part of the Unbundling Inquiry that regulatory intervention consistent with the description of wholesale bitstream access now included in the Act would be to the long-term benefit of end-users. The Commission does not, as Telecom suggests, have to make this decision again.*
- *The recent overseas evidence demonstrates the critical importance of competition based on an effective unbundled access regime to achieving the New Zealand Government's objectives for a much higher broadband penetration.*

##### 4.1 The issue of long term benefits has already been decided

21. Many of Telecom's arguments involve a relitigation of whether bitstream access is to the long term benefit of end users:

- (a) Telecom argues that the decision to de-link the wholesale pricing from each Telecom Jetstream retail price will reduce downstream product differentiation, efficient price discrimination and ultimately broadband penetration.

However, in drafting the Initial pricing Principles, the Commission has already decided that separating out the largely traffic insensitive access input from the Telecom retail services requires the avoidable cost discount to be applied to an *imputed* retail price and not an actual retail price.

- (b) Telecom argues that the decision to provide access to the unconstrained service stripped of Telecom's own rate shaping will lead to increased noise, thereby reducing the reach of the service and making broadband services available to fewer customers.

However, the Commission has already decided that it wants to promote greater innovation in the downstream channel speeds, including different and faster speeds to that which Telecom offers.<sup>6</sup> This can only effectively be achieved by an unrate shaped service since

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<sup>6</sup> Unbundling Report, paras 212, 806.

rate shaping a bitstream service which has already been rate shaped by Telecom will only produce a slower service.

- (c) Telecom argues that the decision to require a bitstream service which is technically different to the retail Jetstream services will create insurmountable difficulties in settling and measuring service levels which comply with the Standard Access Principles (**SAPs**).

However, in drafting the service description for wholesale bitstream access the Commission has already decided that the bitstream service should have its own technical characteristics, such as limits on upstream throughput, which are not tightly linked to the retail services.

- (d) Telecom argues that there is little to be gained by mandating an unconstrained service in terms of utility for end users because Telecom can only provide the service to 20% of its lines, so the Commission should stick with the current speeds offered by Telecom in its retail services.

However, again the Commission has already decided that there is long term benefit to end users in encouraging competition based on speed.<sup>7</sup> Even if Telecom's estimate is right (which TelstraClear doubts based on the BT experience, discussed below in Part 6.3), denying the benefits of much higher speeds to as many end users as it is currently possible to achieve cannot be to the long term benefit of end users. The proportion of consumers who will benefit from competition based on higher speed services is only likely to grow as technology continues to push speed higher and reach further, as demonstrated by the ADSL2+ services which incumbents, including Telecom, plan to deploy.

- 22. In any event, as we will discuss in the balance of this Part, TelstraClear considers that Telecom's Response is incorrect in its analysis that a final determination in the terms set out in the Draft Determination would not be to the long-term benefit of end-users for three reasons:

- (a) the terms of the Draft Determination will increase market entry and therefore increase broadband penetration. International evidence

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<sup>7</sup> Unbundling Report, paras 800-806.

demonstrates that broadband growth is accelerated with increased market entry. This is discussed further in Part 4.2 below;

- (b) international evidence also demonstrates the importance of high speed services to mass market broadband end-users. Any reduced service reach associated with higher speeds will be a short-term effect as competition gains traction. This is discussed further in Part 4.3 below; and
- (c) Telecom's economic analysis is flawed when it concludes that a decision on the terms of the Draft Determination will reduce product differentiation and lead to attendant negative effects for consumers. On the contrary, the Commission's decision would increase the choice available to consumers. This is discussed further in Part 4.4 and Annexure 3.

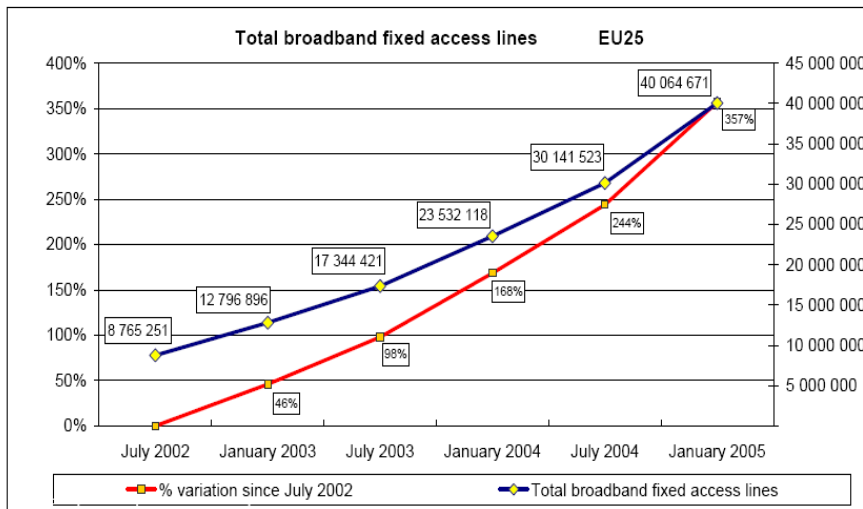
#### **4.2 Broadband Growth Accelerates with Market Entry**

- 23. While New Zealand's international ranking in broadband penetration is a useful benchmark of relative performance, it is more valuable to look underneath that data to understand the impact which regulatory and policy settings may be having on broadband growth.
- 24. Broadband penetration figures for the European Union released on 1 June 2005<sup>8</sup> clearly show that strong broadband growth occurs in retail markets in conjunction with increased competition from new entrants using unbundled wholesale inputs such as bitstream and local loop unbundling. The EU has seen a 357% increase in broadband fixed access lines from July 2002 to January 2005, with growth in the developed Members States (the EU 15 before addition of the new Member States, which are called the EU 10).

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<sup>8</sup> Communications Committee of the European Commission "Broadband access in the EU: situation as at 1 January 2005", 1 June 2005 (**EU January 2005 Broadband Report**).

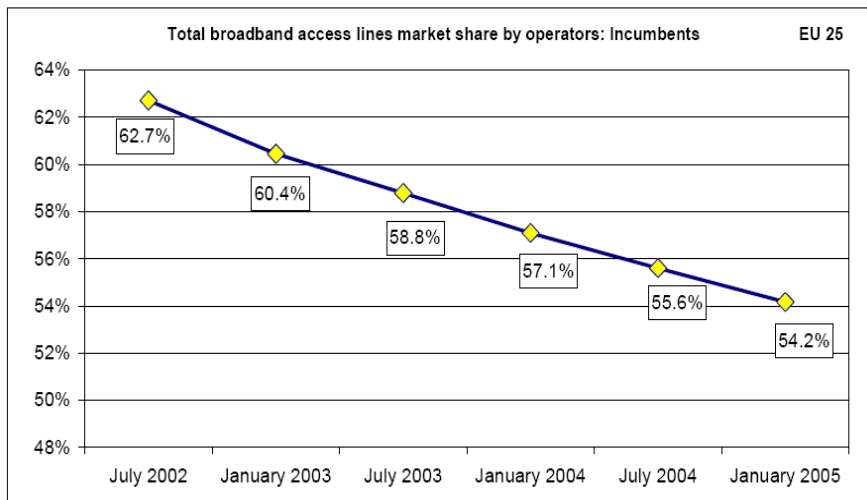
Figure 1: Total Broadband Fixed Access Lines – July 2002 to January 2005



Source: European Commission

25. This remarkable growth has occurred at the same time as new entrants achieved a larger market share for fixed broadband access lines.

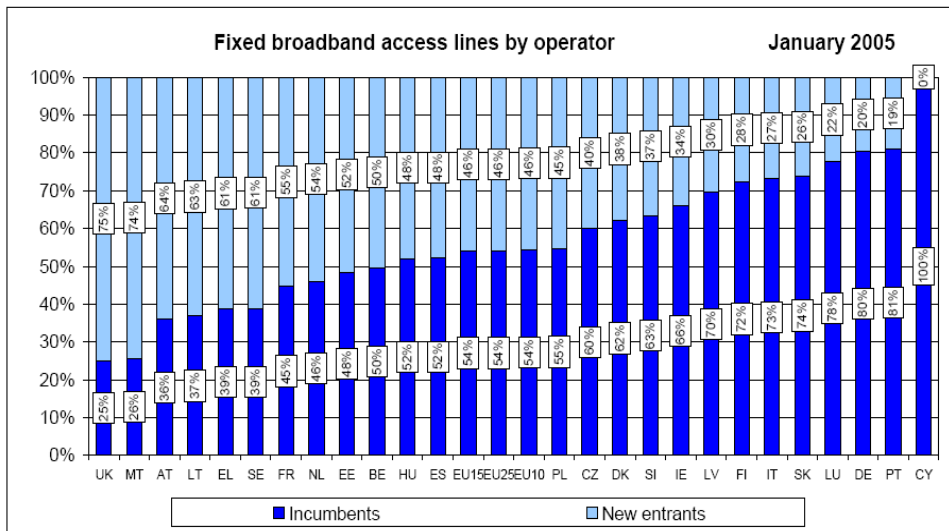
Figure 2: Declining Incumbent Market Share in the EU



Source: European Commission

26. In some EU countries, including the UK and France, new entrants now have a larger share of the fixed broadband access lines than incumbent operators.

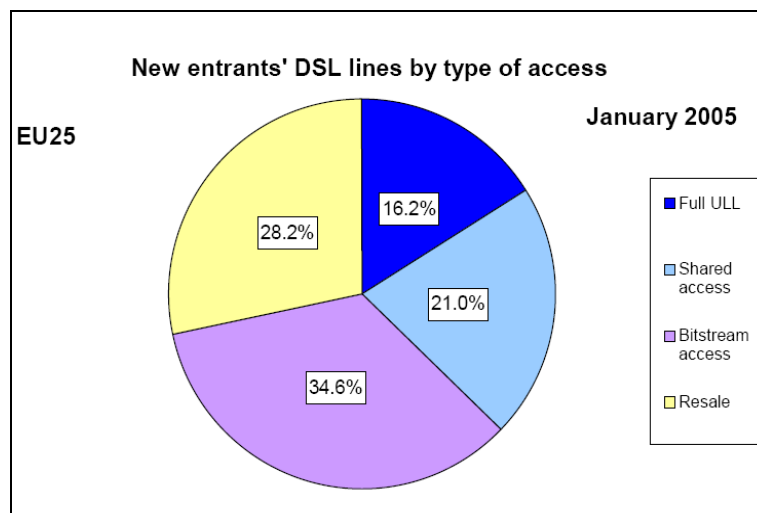
Figure 3: New Entrant and Incumbent Market Shares



Source: European Commission

27. Countries where the incumbents' market share is below 50% are also amongst the countries experiencing the strongest growth in broadband penetration. The UK has had an 856% growth in retail broadband lines since July 2002 while broadband has grown by 923% in France over the same period.
28. Unbundled access has been a critical part of this success story. Over 60% of new entrant retail services are provided by DSL, with the rest mainly provided over cable. Bitstream accounts for 34.6% of all new entrants' DSL lines. A further 37.2% of new entrant lines are provided using other forms of unbundling not available in New Zealand. Resale accounts for the smallest portion of new entrant lines.

Figure 4:



Source: European Commission

### 4.3 Public Policy Priority: Reach or Speed?

29. Telecom's Response argues that allowing TelstraClear to apply its own rate-shaping to lines would not be to the long term benefit of end-users as it will require Telecom to reduce the potential reach of broadband services over its network.<sup>9</sup> Telecom argues<sup>10</sup> that by capping downstream speeds to 3Mbps it can reach:
- (a) an additional 6,800 of farmers (7% of all lines serving farmers); and
  - (b) increase "the number of lines that could be offered basic broadband" across "the country as a whole" by 49,000 lines.
30. While TelstraClear believes Telecom's technical concerns are overstated, we are proposing, as discussed in Part 6, a service qualification process which should be more than adequate to address Telecom's concerns pending development of agreed interference standards. However, underlying Telecom's arguments to constrain speed are important policy issues which are more complex than the purported impact on Telecom's ability to serve farmers.
31. First, Telecom's approach is difficult to square with the principles of "fairness and equity" which Telecom itself says should guide the technical configuration of the service. Telecom's argument is that by limiting product differentiation available to its competitors it can offer broadband to more consumers. In effect, Telecom is saying that *all* customers should have limited choices so that *more* customers can have access to broadband (even if that extended reach is only for "basic broadband"). Put another way, Telecom is arguing that the high tech computer animation business in Wellington should not have a choice of high speed services from different operators so that more farmers can have a low speed broadband service (albeit with no real choice of offerings from competing providers).
32. Second, Telecom is also saying that New Zealand should always prioritise reach over speed. Telecom ignores the clear international trend towards higher downstream speed services in competitive markets and the importance of higher speeds for new innovative broadband services which the

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<sup>9</sup> Telecom's Response, para 31.

<sup>10</sup> Telecom's Response, para 84.

Government seeks to encourage in New Zealand. BT recently announced that it is making its retail broadband product four times faster at no extra cost:

*“The internet is no longer simply about surfing the web or checking email. More and more people are enjoying online gaming, on-demand music and video over the net. BT is bringing applications of the future – such as video telephony – within the reach of all our customers today. Today’s announcement will help businesses maximise the massive opportunities offered by on-line trading and teleworking.”<sup>11</sup>*

33. Third, the trade-off between competition in high speed services and maximising geographic reach is not as clear-cut as Telecom suggests. Competition in higher speed services can lead to increased geographic range in the medium to long-term. Reduced geographic reach of services is mainly due to high levels of noise on lines not originally deployed with broadband service demands in mind. Increased competition in broadband and increased retail and wholesale customer demand for services is providing a strong incentive for overseas incumbents to upgrade their copper networks. Of course, it may remain uneconomic to provide services in some areas and this may be a matter to be dealt with through other regulatory initiatives or government programmes when the shape of this new and rapidly expanding market is better understood.

#### **4.4 Single Input Price Not Inconsistent with Downstream Differential Pricing**

34. Telecom, supported by an opinion from Professor Hausman, argues that a single price for bitstream access will undermine price discrimination in downstream markets and that not permitting price discrimination will result in a massive loss of consumer welfare.
35. In his response at Annex 3, Professor Ordover makes the following points:
- (a) it is not necessarily (or even generally) the case that downstream price discrimination is dependent upon upstream discrimination in the pricing of one of the inputs;

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<sup>11</sup> BT Press Release, “BT makes broadband up to four times faster at no extra cost”, 10 February 2005. Note that while this announcement concerned plans to increase speeds to 2Mbps as standard, BT has also announced that it plans to implement higher speeds by the end of the year.

- (b) whereas price discrimination can be, and often is, an efficient means for recovering fixed costs, the social welfare benefits of a monopolist's price discrimination in a downstream market are far less certain. Professor Hausman's public policy prescriptions regarding the desirability of price discrimination would, upon the onset of downstream competition, effectively substitute a monopolist's downstream price discrimination for upstream price discrimination in the provision of a bottleneck element – here broadband access – that is required by potential downstream rivals;
- (c) Professor Hausman attempts to justify discrimination in the pricing of an input with examples that actually describe a different economic setting, namely product differentiation that reflects differences in service quality, such as speeds of data transmission, in the downstream product. This form of differential pricing can also entail price discrimination and, in fact, can result in “sorting” of customers into different categories based on their willingness to pay for the service or product in question. Product differentiation, accompanied (when necessary) by price discrimination, can be consistent with the Ramsey pricing criteria and can also deliver more value and innovation at least to some consumers;
- (d) there is no reason to assume, as does Professor Hausman, that downstream product differentiation is unsustainable in the event that wholesale broadband access is supplied at a uniform price. Access seekers have to provide the key speed related elements themselves. This suggests that the provision of downstream services entails substantial value added to the provision of broadband access. As a result, product (and price) differentiation likely would be sustainable in downstream markets;
- (e) it follows from the above point that the pessimistic scenario instanced by Professor Hausman, in which different speeds of broadband are not offered, is not plausible. It is more plausible, in fact, that all bitstream market participants will be able to offer a range of product and price differentiated services to the long term benefit of end users. Indeed, upstream price discrimination might well distort the opportunities for downstream product and price differentiation by competitors; and

- (f) stimulating this downstream market dynamic is what the Commission had in mind when it ordered the unbundling of bitstream.<sup>12</sup> The elements supplied by access seekers are the very elements that make feasible speed-based product differentiation<sup>13</sup>. Again, it is speed-based product differentiation to which Professor Hausman refers in seeking to justify differential pricing of an input element that is largely speed independent.

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<sup>12</sup> Unbundling Report, para 754.

<sup>13</sup> Differentiation based on monthly usage limits or service levels is also made feasible by the service elements supplied by the access seeker.

## 5. TELECOM'S PART H PROPOSAL

*The Part H Proposal is a resale variant of Telecom's retail Jetstream services. It is not the interconnection and access service Telecom is required to provide under the Act. It is not what the Commission or access seekers expected when the decision was made to proceed with bitstream access rather than local loop unbundling in New Zealand.*

36. In Part H to Telecom's Response, Telecom sets out what it describes as a "fair and workable" proposal for the provision of wholesale bitstream access in light of what Telecom claims are "substantial workability difficulties" with the terms of access set out in the Draft Determination (**Part H Proposal**).

### 5.1 Telecom's Part H Proposal Requires Strict Scrutiny

37. In previous Commission proceedings, Telecom has offered a last minute "reasonable solution" when the Commission indicated that it intended to make a decision in TelstraClear's favour. There is, of course, nothing wrong with Telecom, at any stage in Commission proceedings, offering what it sees as a commercially acceptable compromise. However, Telecom's consistent pattern of making these offers only at the last stage of proceedings entails significant costs incurred by TelstraClear and the Commission before Telecom can be prompted to outline what it considers to be a commercially acceptable resolution.
38. These last minute offers from Telecom must be subject to strict scrutiny. The reason the parties have reached this point of requiring a determination from the Commission is because they are irreconcilably divided over issues that each considers fundamental to their commercial interests. These issues are usually technically and operationally complex and they are likely to continue to be difficult and controversial in their implementation. The prospect that such a high level offer as Telecom's Part H Proposal could resolve the dispute between the parties is low. TelstraClear has already delayed its market entry by over 6 months while it seeks a determination from the Commission and it is likely to take several more months to finally establish whether the parties could reach agreement based on Telecom's Part H Proposal.

### 5.2 Part H Proposal is not the designated service mandated by the Act.

39. In any event, TelstraClear submits that the Commission should reject Telecom's Part H Proposal as inconsistent with the designated service set out

in the Act. Telecom's offer is little more than "Jetstream resale plus".

40. As set out in TelstraClear's submission dated 28 January 2005, the history of UBS shows that the Commission intended bitstream to be more than a resale variant of Telecom's retail products.<sup>14</sup> In the Unbundling Report, the Commission was mindful of the economic efficiency benefits of service innovation possible if it recommended the designation of a wholesale input like bitstream as opposed to requiring a form of broadband resale.<sup>15</sup>
41. In contrast, Telecom's Part H Proposal maintains a tight link with Telecom's retail broadband products. Telecom proposes that it will itself set the available downstream speeds for new entrants under the Part H Proposal. Entrants would not have the ability to offer different speed and price combinations to those provided by Telecom. Telecom proposes that the Part H Proposal service would be priced based on the speed of the retail service and the other downstream factors around which Telecom builds its retail price discrimination strategy, such as separate residential and business pricing for the same or similar retail services.
42. That the Part H Proposal is a form of resale is made apparent by paragraph (g) of the proposal relating to measurement and reporting. Telecom believes that it can only measure "consistency" by comparing essentially identical services – JetStream plans should be compared with the same speed service provided using wholesale bitstream access and wholesale bitstream access must be shaped to fit the JetStream plans to ensure "consistency":

*"Telecom's current approach to engineering design and traffic management provides a first order demonstration of consistency. This approach will continue under Telecom's proposal for a menu of retail and wholesale bitstream access variants ... Any differences are those which are simply unavoidable (eg: the difference between L2TP and layer 3 or variance between DSLAMs)."*<sup>16</sup>

*"... consistency becomes meaningless if apples and pears are being compared. However, where apples and apples are being compared consistency can be ensured and reported upon. Telecom's fair and*

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<sup>14</sup> TelstraClear Submission dated 28 January 2005, section 3.3.

<sup>15</sup> Unbundling Report, para 212.

<sup>16</sup> Telecom's Response, para 177.

*workable way forward enable [sic] this to occur in a sensible and meaningful way.”<sup>17</sup>*

43. TelstraClear submits that the Part H Proposal may indeed be “workable” as Telecom suggests (and Jetstream resale would benefit from the terms Telecom proposes). However, TelstraClear submits it is **not** the service mandated by the Telecommunications Act 2001 (**the Act**) and devised by the Commission and Minister after long deliberation in the Unbundling Inquiry.
44. The implication from Telecom’s Part H Proposal is that TelstraClear is acting unreasonably by standing out of the market until it obtains terms it wants and that TelstraClear will be the cause of Telecom not meeting its wholesaling commitments. As figure 5 shows, Telecom’s Part H Proposal is however inconsistent with international best practice in the supply of bitstream service:

Figure 5: Telecom’s Part H Proposal

Issue	Telecom Part H Proposal <sup>18</sup>	International best practice
OSS functionality	eOR providing web interface with no capability to electronically exchange data. No firm commitment to implement that functionality within a specified period.	OSS solutions in the UK, US and Australia allow electronic exchange of data directly between incumbent’s and access seeker’s OSS. Telstra’s initial electronic OSS solution had this capability at the outset.
OSS cost recovery	Access seekers pay all of the costs of set up costs and ongoing costs. <sup>19</sup>	Incumbent bears the OSS set up costs in Australia and some US states. Costs are spread across all lines, including the incumbent’s retail lines, in the UK and some US states.
Access service speed	The same speeds offered at retail from time to time, with an additional 3Mbits	BT is moving towards higher speed services and also appear to be moving away from linking wholesale bitstream

<sup>17</sup> Telecom’s Response, para 181.

<sup>18</sup> Where not expressly listed in Telecom’s Part H offer, we have assumed that Telecom is maintaining its position as set out in its previous submissions.

<sup>19</sup> In its First Submission, Telecom stated that TelstraClear should meet all of the reasonable costs of TelstraClear’s proposed OSS solution (para 215). It is unclear whether Telecom proposes that the costs of eOR would be recovered from the industry. TelstraClear considers that recovery of set up costs for OSS systems (including designed to have the functionality requested by TelstraClear) would be inconsistent with the approach the Commission has proposed in the pricing reviews: Commission’s view on “Actual Costs Saved: Application of the Final Pricing Principle for Resale of Telecom Retail Services, 12 April 2005, para 44.

Issue	Telecom Part H Proposal <sup>18</sup>	International best practice
	service which will take Telecom 6 months to implement.	and retail broadband speeds by unblocking DSLAMs to allow unconstrained services. <sup>20</sup> In the UK, access seekers also can separately select ATM link capacity that gives them control over contention and service quality.  Further, in other countries with bitstream access other unbundled services, such as spectrum sharing and LLU, are available. Access seekers desiring higher speeds than the bitstream offering from the incumbent can install their own DSLAMs if they wish to innovate on speed. In the absence of LLU, and given the limited prospects of alternative technologies, unrate shaped bitstream services provide the most viable option for promoting product innovation in downstream markets in New Zealand.
Cost of testing to determine feasibility of unrate shaped service and other parameters such as turning interleaving off	Access seeker bears costs	Telstra and BT absorb costs of network wide testing of wholesale services.  Service qualification based on line attenuation is free in Australia, however noise determination of each individual line is part of the connection/churn charge.
Interleaving	Always on	Interleaving is currently turned “off” in Telstra’s network and BT’s network although BT may turn on as a noise management measure for a limited number of lines. <sup>21</sup>
Customer segmentation of wholesale price	Separate wholesale prices depending on whether wholesale input is supplied to end users in the final market classified by Telecom as retail or business.	Uniform wholesale price for services irrespective of supply in downstream markets.

<sup>20</sup> This also makes upgrading and downgrading end-user line speeds much simpler as it is within the control of the access seeker and does not require further interactions with the access provider.

<sup>21</sup> Telecom’s Response, para 145.

Issue	Telecom Part H Proposal <sup>18</sup>	International best practice
Churn fee	TSLRIC calculated by Telecom as \$NZ 36.42.	Telstra churn charge is currently A\$ 22.50. However, fee covers service qualification process that Telecom is not making available. The availability of electronic OSS has also substantially reduced access seeker costs.
Service availability	Only available outside areas in which there is no fixed network (plus 200ms) and outside metropolitan areas in which there is a FWA network in part of the area.	Available on a nationwide basis in other countries, including in areas of alternative network deployment, notwithstanding that incumbent retail and wholesale market shares are substantially below Telecom's.
Service reporting	Agreed, but wholesale services and processes must be conformed to retail except to the extent unavoidable.	Wholesale-specific KPIs created based on unbundling internal incumbent supply chain to find comparable point: e.g. Telstra's service provisioning timeframes verified by external audit or as being appropriately benchmarked to comparable component of end to end retail process (see PwC Report annexed to TelstraClear's first submission).
Costs of service reporting	Fully recoverable from access seekers	Costs met by incumbent as wholesale cost of business in Australia and UK.
Wholesale price	Separate wholesale bitstream access prices for residential and business and for each retail line speed variant.	Wholesale prices do not vary by end-user type (residential or business). Wholesale prices do vary by speed but overseas incumbents appear to be moving away from this structure with the move to higher speed or unconstrained services. <sup>22</sup>

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<sup>22</sup> Overseas countries also have other wholesale access options in the form of local loop unbundling that provide scope for product innovation and price competition. Further, the requirement in Schedule 1 of the Telecommunications Act that excess profits should be removed when subtracting avoided costs saved when applying the retail minus pricing principle also suggests a different pricing policy approach was intended in New Zealand.

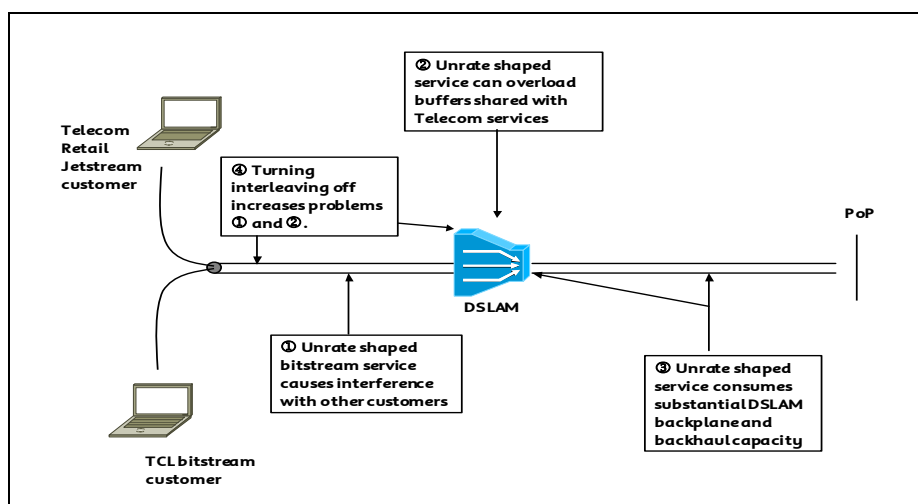
## 6. TECHNICAL ISSUES

### 6.1 Telecom's Technical Concerns

45. Telecom's Response raises a litany of technical issues that it says will arise from the terms set out in the Draft Determination. As depicted in figure 6, these technical issues seem to fall into four categories:

- (a) *Access network*: Telecom argues that an unrate shaped bitstream service will degrade the service provided to other customers, including Telecom's own Jetstream customers, located at some (unspecified) distance from the exchange because the higher power levels required to support unrate shaped service at that distance generate substantial cross talk.
- (b) *DSLAMs*: Telecom argues the unrate shaped service will place capacity demands on the common buffers which support a number of ports for individual services. If the buffers overload in attempting to cope with the unrate shaped service, this will, Telecom says, adversely affect the service levels for other ports. This could include Telecom Jetstream services but also IP services with service quality parameters such as IPVPN services (PON).
- (c) *ATM link*: Telecom argues that the fixed amount of capacity available on the backplane of the DSLAM will be disproportionately consumed by unrate shaped services compared with lower speed services (such as 2 or 3Mbits). Telecom also submits that there will be substantial cost in provisioning sufficient capacity on the ATM link so that TelstraClear services can operate to the full speed. While TelstraClear may decide to rate shape to lower speeds Telecom says that, because Telecom will not know this, it must still plan to the maximum speed.
- (d) *Interleaving*: Telecom says that, while it cannot be certain about the consequences, turning interleaving off is likely to increase the impact of noise and interference and cause packet loss and resynchronisation events. This could, in Telecom's view, exacerbate the problems in the access network and DSLAMs described above.

Figure 6: Telecom's Technical Objections



## 6.2 Putting Telecom's technical concerns in context

46. Telecom has not explained why it has not raised what it claims are “substantial workability difficulties” with wholesale bitstream access prior to these proceedings. The industry, the Commission and the Government spent considerable time and resources consulting, considering and finally determining the wholesale bitstream access service now contained in the Act. The Commission noted at the time that it did “not consider that there are significant practical or technical difficulties involved in an access provider providing access to an ADSL bitstream access service”.<sup>23</sup> Only after the Commission and the Minister have rejected local loop unbundling has Telecom now announced it is only able to offer a bitstream service that remains tightly linked to its retail Jetstream service.
47. In its submission, Telecom appears to see only technical problems, not technical solutions:

*“In general terms, Telecom has produced a very pessimistic document [in Telecom's Response] ... In some places in their submission Telecom take a specific difficult situation and generalise it. We have commented before that acceptance of this type of argument will lead to the adoption of a “lowest*

<sup>23</sup> Unbundling Report, para 808.

*common denominator” service, which we do not believe is desirable. It is certainly not the approach that Telecom takes with its own services.<sup>24</sup>*

48. Telecom has a history of raising a barrage of technical issues in response to commercial challenges from access seekers. In the litigation over interconnection of free Internet services, Telecom argued that managing traffic to the levels required to support the free Internet services would cause major technical concerns that would adversely impact PSTN services, including the ability of customers to make emergency calls. Justice Potter, applying some commonsense to cut through Telecom’s technical objections, said:

*“Telecom claims that the plaintiff’s seek access on their terms, which places at risk the legitimate expectations of other users of the network, the integrity of the network and Telecom’s integrity as a network provider.*

....

*While there are difficulties and no doubt risks for Telecom in managing its network ... Telecom is a company of significant resources and skills in the telecommunications industry. I have no doubt that its projections have anticipated significant future growth in use of the Internet, and the business that will generate ... While dramatic growth and side effects ... no doubt present management problems, I am not persuaded that they are so unanticipated, serious and unmanageable that the Court should decline to intervene....”<sup>25</sup>*

49. As to the technical issues Telecom raises on this occasion, TelstraClear makes the following general observations:

- (a) TelstraClear agrees, at a high level, with much of Telecom’s description of the technical issues, but in practice we do not believe they are as dire, widespread or unmanageable as Telecom makes out. Issues regarding noise, speed and reach are not unique to an unrate shaped bitstream service but reflect the theoretical physics with which any DSL network must comply.

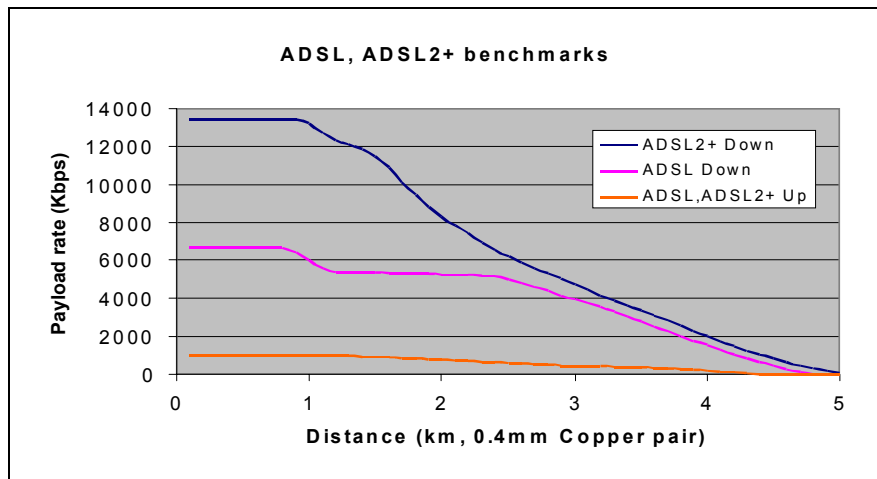
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<sup>24</sup> Annex 5, Section 2.

<sup>25</sup> CallPlus Limited and ors v. Telecom New Zealand Limited, CP131/SW00, 11 April 2000 at paras 50 and 67.

- (b) DSL networks are typically designed to a “worst case scenario”, which will assume the presence of a high speed (usually a full speed) service in a neighbouring cable pair giving rise to a material level of cross talk. The network will be designed to cope with cross-talk in most situations.
  - (c) Speeds will decline further out from the DSLAM as signal strength weakens and interference increases. That being said, DSL technology has proven to be robust in coping with the technical problems Telecom has identified and so any interference problems are likely to be limited to the fringes of the network and some rural areas. There are sensible, conservative service management strategies which can protect service provision to these minority of customers while allowing the majority to benefit from competition based on unrate shaped services.
  - (d) The experience of DSL networks also suggests that the outer limit of higher speed services will continue to expand. Accordingly, any service management measures to address the minority of lines which could be affected by unrate shaped services need to be flexible and adjustable to take account of future developments.
50. Many of Telecom’s technical arguments are based on an incorrect assumption that the unrate shaped service requires Telecom to provide the theoretical maximum port speed of 7.6Mbits to any location on the Telecom access network, no matter how far from the DSLAM. Telecom is not required to “pump up” the power of the DSLAM (and therefore the level of cross talk) to “push out” 7.6Mbits to the edges of the Telecom network.
51. An unrate shaped service only means that the service should be provided to the maximum speed which the line will bear within reasonable noise parameters to avoid undue interference with over services. Over longer lines, the speed of the bitstream service will fall substantially below the theoretical maximum of 7.6Mbits achievable closer to the exchange. Figure 7 illustrates the benchmark performance levels for ADSL services in ACIF Code C559, which shows that minimum speeds of 5 to 6Mbits should be achievable at 2.5km from the exchange. As this represents minimum performance levels, it is likely that the actual performance will be higher.

Figure 7: ACIF Minimum Performance Requirements



52. The technical issues with unrate shaped wholesale services are being managed by overseas incumbents which have extensive rural networks, contrary to Telecom’s assertion that operators in other countries have limited retail and wholesale speeds to 3Mbits and below to manage cross talk issues. BT plans to introduce higher speed services (between 2Mbits and 8Mbits dependant on line characteristics) later this year and has also apparently recently “unblocked” its DSLAMs for its wholesale DSL services:

*“... there is downward pricing pressure on this service and leading competitor BT has recently made the dramatic move of unblocking its DSLAMs. That will mean that for a flat fee BT will allow a DSL connection to go “best effort”, as fast as the wire will allow, given its distance from the public switch, rather than drop everything to a unified 500Kbps.... The incumbent UK telco also said that it would make further cuts to the price of unbundled broadband and set up a new division to provide transparent and equal access to BT’s local loop. For now BT is trying to up the speeds on its existing lines to between 2Mbit/s and 8Mbit/s depending upon line characteristics.”<sup>26</sup>*

### 6.3 Cross-Talk in the Access Network

53. Managing cross-talk is an everyday issue in DSL networks. As AAS notes in the attached report:

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<sup>26</sup> [http://www.theregister.com/2005/03/22ntl\\_adsl2/](http://www.theregister.com/2005/03/22ntl_adsl2/).

*“[a]ll ADSL systems working in a cable will interfere with all other systems working in that cable ... The key question is at what point and under what circumstances will the interference from other systems impact on the performance as seen by the end user?”<sup>27</sup>*

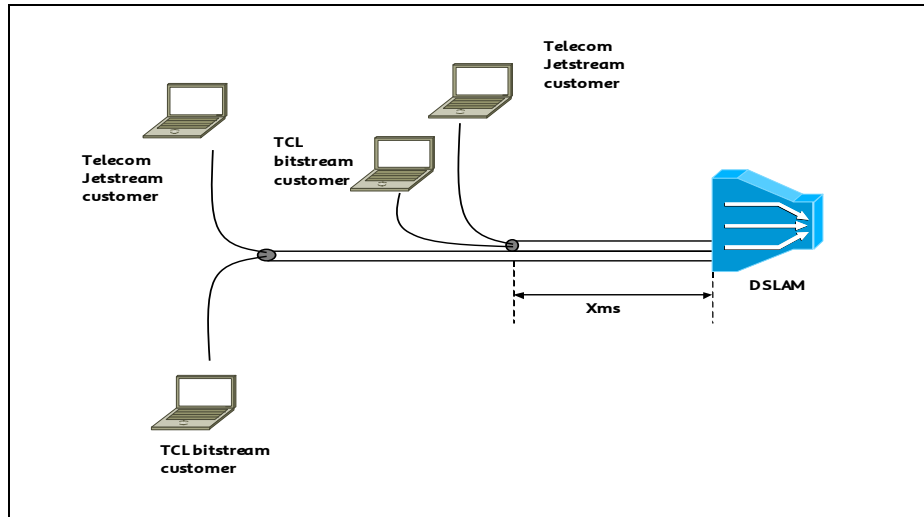
54. As long as the signal between the end user’s modem and the DSLAM is strong enough, superfluous signals, including cross talk from a high speed service in a neighbouring copper pair, will be ignored and the service will continue to obey all coding rules, including the relevant channel speed. However, signal strength will weaken with distance and the slow accumulation of unwanted signals will eventually overwhelm the wanted signal. The modem and DSLAM will attempt to address interference by using less and less of the available spectrum in an effort to secure and keep a strong enough signal, which means that service speeds will fall with distance (or more accurately, accumulated noise). The effects of distance can be ameliorated by boosting the strength of the signal, which requires more power from the DSLAM. This, in turn, can increase the cross-talk generated by that service and therefore, adversely impact other services in neighbouring pairs.
55. So, while TelstraClear agrees with Telecom on the basic physics of the trade off between speed and distance (or noise), in TelstraClear’s view, Telecom fails to put the problems of cross-talk within a proper perspective. As depicted in figure 8, the level of cross-talk caused by an unrate shaped service usually will **not** be problematic in the following situations:
- (a) if the two end user premises served by an unrate shaped bitstream service and a Telecom Jetstream service supplied in neighbouring pairs are located closer to the DSLAM (i.e. less than [X]ms from the exchange). The signal strength of the Telecom retail service will be sufficiently strong to ignore the cross-talk from the unrate shaped bitstream service; and
  - (b) if the end user premises serviced by the unrate shaped service are located at a distance from the DSLAM (i.e. more than [X]ms from the exchange), the unrate shaped service will not adversely affect the provision of Telecom Jetstream services which are closer to the exchange (i.e. less than [X]ms from the exchange). Again, this is

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<sup>27</sup> Annex 5, page 6.

because the signal strength of the Jetstream service is sufficient to ignore the unrate shaped bitstream service, even if the DSLAM is operating at high power levels to “pump” the unrate shaped bitstream service over the longer distance.

Figure 8: Scope of noise related Issues



56. A major flaw in the Alcatel test described in Annex D of the Telecom Response is that it assumes all of the copper pairs in the cable will be of equal length. As illustrated in figure 8, pairs which terminate closer to the exchange can run high speeds at lower power levels and not cause significant cross talk for lines which terminate further from the exchange. Presumably, this is how Telecom will be able to offer ADSL2+ within its network while maintaining reach and speed of “earlier versions of” ADSL services for end users situated further from the exchange. Telecom’s Chief Technical Officer is reported as saying that ADSL2+ will deliver speeds of 15-24 Mbps to premises which are located within a kilometre of an exchange.<sup>28</sup>
57. Potential problems arise only where the end user premises served by the unrate shaped bitstream service and the other Telecom service are located at some distance from the DSLAM (i.e. more than [X]kms from the local exchange). Two questions then arise:

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<sup>28</sup> Dominion Post, 7 March 2005.

- (a) what is the distance from the DSLAM at which the cross-talk from an unrate shaped service is likely to become a real problem (i.e. the value of “X” in figure 8); and
  - (b) beyond that distance point, what is the maximum speed which could be provided without causing material cross-talk problems.
58. Distance is actually only a rough proxy of the achievable maximum speeds on a line. Speed is better understood as a function of the signal to noise ratio. Two lines of the same length can have different noise levels because of the condition of the copper lines, the presence and number of taps or other line devices, and the wiring in the end user premises (which can account for half of the total noise). A better way of assessing the likely line speed is to measure the noise level on the line. As a rule of thumb, for each extra deci-Bell (dB) of attenuation, a line can cope with 1dB less noise to maintain the same performance level.
59. As noted, BT is proposing to introduce higher speed product and to unblock its DSLAMs. BT describes the relationship between noise and speed as follows:

*“Until recently, the ability to order broadband was restricted to premises which were no further than 6km (in terms of cable length) from their exchange. This was judged to be a 'safe' distance where noise levels would be unlikely to affect the provision of broadband service. The only restriction was that lines between about 3.5km and 6km long would not be able to support the higher speed 1Mb and 2Mb services. ... But a series of trials has shown that it is possible to provide broadband on lines with much higher levels of noise, albeit subject to certain restrictions. ... The main restriction on very long lines is again the speed of product you are able to order. Again, it comes down to the level of noise on your line. ... Noise is measured in decibels (dB). As a rule of thumb, lines that have noise of less than 43dB are able to receive all speeds of products (ie 512kbps, 1Mb and 2Mb). When the noise levels go above 43dB you are unlikely to be able to receive the 2Mb service. Once they go above 60dB, there is a possibility that you will not be able to receive broadband at all. However, our trials have shown that these are not hard and fast rules and that lines have to be*

*taken on their individual merits. We will try to provide broadband whenever possible.”<sup>29</sup>*

60. TelstraClear believes that BT test results are likely to be applicable to New Zealand. DSL technology is designed to cope with a range of network conditions. If the state of Telecom’s copper network is not as good as BT’s, there may be some difference in the equation between distance and speed, but we believe that this would be relatively limited.
61. Telecom’s network clearly will support very high speeds in neighbouring pairs closer to its exchanges. Telecom is planning to deploy ADSL 2+ over the next several years. ADSL2+ has reduced noise margins and also has a function called “rate adaptive services” where the DSLAM and modem synchronise dynamically if noise is experienced and the speed therefore moves up and down according to noise without re-synching. This enables ADSL2+ to achieve greater reach and a higher spectrum.<sup>30</sup>
62. While TelstraClear believes Telecom has overstated the cross-talk issues, we are prepared to take a conservative approach until New Zealand standards can be developed to deal with interference issues. As AAS remarks in its attached report, the overseas experience with managing interference in relation to LLU could be applied in developing industry-based solutions for the bitstream service.<sup>31</sup>
63. Accordingly, TelstraClear proposes as follows:
  - (a) the unrate shaped bitstream service would be available on any line with a noise level of 42dB or less (which is more conservative than the BT 43dB Marker discussed above);
  - (b) for lines with a noise level exceeding 42dB, the bitstream service would be rate shaped by Telecom to the higher of an agreed speed or the maximum retail speed Telecom offers on such lines. TelstraClear notes

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<sup>29</sup> <http://www.btbroadbandoffice.com/distanceexplained>. While this document only discusses current 2Mbits speeds, BT plans to introduce higher speed plans (2Mbits to 8Mbits depending on line characteristics) before the end of the year.

<sup>30</sup> Telstra is currently deploying ADSL2+ in its network and will be making available as a wholesale service: re Telstra ADSL2+ investment:  
[http://www.telstra.com.au/communications/media/mediareleases\\_article.cfm?ObjectID=33436](http://www.telstra.com.au/communications/media/mediareleases_article.cfm?ObjectID=33436)

<sup>31</sup> Annex 5, page 5.

that Telecom's Response suggests that Telecom could provide a 3Mbits service on remote lines<sup>32</sup>; and

- (c) the parties would develop standards to manage the cross talk and interference levels, based on overseas models, to allow bitstream services to be provided at rates higher than those which otherwise apply under paragraph (b).
64. TelstraClear's proposal would only require two profiles: the unrate shaped service and the agreed capped rate. While Telecom asserts that it has a shortage of profiles, only an additional two would be required. This is unlikely to be problematic and is less than the number which would be required if Telecom were to deliver on its promise of a comparable wholesale speed profile for each of its retail products.
65. Measuring noise on an individual line is a readily performed function which should be a standard step in qualifying any line for retail or wholesale DSL services. As noted above, distance is too crude a measure by which to qualify lines and will result both in end users outside the zone being ruled out although their lines are clean enough to support DSL services (or higher speeds) and wasted "truck rolls" to customers within the zone whose lines are too noisy. Equipment to measure line noise, therefore, is an essential part of any large scale DSLAM deployment.
66. It would be very surprising if Telecom did not have or was not deploying that equipment. Alcatel, which is Telecom's main vendor, supplies equipment which can perform this function.<sup>33</sup> As this equipment also benefits deployment of retail services, costs should not be solely attributable to wholesale services and, in TelstraClear's view, the wholesale portion should be treated as an onset cost of the wholesale business and, in accordance with the Commission's pricing principles, borne by Telecom.

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<sup>32</sup> Telecom's Response, para 84.

<sup>33</sup> A cross domain manager or XDM (covering PSTN and ADSL) links into another system called NPAMS (Network Plant Assignment Management System) which records copper assignments for FNN (Full National Number). NPAMS in turn uses a system called "CPR" that performs the calculation for line attenuation in dB and noise margin. A service qualification is based on line attenuation and if that passes, a test is then performed on the line for VF noise margin. This must be no greater than 6.5dB to support PSTN simultaneously on the line.

#### 6.4 DSLAM buffers

67. While buffer overload is a theoretical possibility, it is unlikely to happen in practice. Even Telecom itself couches its discussion in very tentative terms:

*“Telecom **does not** have evidence that enables it to be confident that other end users ... **will not** be impacted ...”<sup>34</sup>*

*“if one UBR port experiences severe overload, as **might** occur with unconstrained bitstream ...”<sup>35</sup>*

*“Telecom expects that a similar buffer allocation mechanism will apply for Nokia DSLAMs but at the current time the size of the buffer segment in these DSLAMs is **unclear**.”<sup>36</sup>*

68. First, the buffers in any DSLAM are designed to handle ports within the buffer cluster running at a mix of speeds, including speeds to the maximum capacity of the ports. Manufacturers would not design buffers on the assumption that the operator chooses to supply retail services only at the lower end of the maximum speed capacity of each port.
69. Second, as TelstraClear will be rate shaping the downchannel upstream from the DSLAM, the buffer will not be “hit” with a full 7.6Mbits for each wholesale customer. TelstraClear will have a range of speeds which will partly overlap with the speed range Telecom offers and which the buffers currently handle. Further, as the upchannel is limited to 128kbps, TelstraClear considers that there should be no problem with the buffers.
70. Third, the actual throughput of a full speed service, will usually be substantially below the theoretical maximum speed. As discussed below, TelstraClear’s peak throughput on a CMTS, which equivalent to a DSLAM in its cable network and supports over [ ] [TCLRI] customers, does not typically exceed [ ] [TCLRI].
71. Fourth, the problem of services synchronising at a speed less than the nominal PIR is not unique to unrate shaped services. The problem raised by Telecom is not because the unrate shaped service has been rate shaped to a

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<sup>34</sup> Telecom’s Response, para 89 (emphasis added).

<sup>35</sup> Telecom’s Response, para 90 (emphasis added).

<sup>36</sup> Telecom’s Response, para 93 (emphasis added).

speed lower than the maximum port speed. Rather, any service can synchronise at a speed lower than the nominal speed at which it is supplied. In the case of an unrate shaped service this will be the normal speed to which TelstraClear has shaped the service. DSL services will generally synchronise at a lower speed for a variety of reasons, such as water in the cable. The buffers in the DSLAM therefore will be designed to handle this problem as part of their normal operation.

72. Fifth, a prudent operator would adopt reasonable management techniques to address any risk of buffer overload. Telecom refers to the risks of buffer overload to its higher value IP services such as PON. In TelstraClear's view, it would be poor network management practice to mix "best efforts" broadband services and committed rate or higher quality IP services together within a single buffer, quite apart from the speed issue. Prudent management practice would include:
- (a) using separate DSLAMs for "best efforts" and higher grade services as TelstraClear expects Telecom increasingly will with the introduction of services such as One Office; or
  - (b) using different buffers in one DSLAM for "best efforts" and business grade services; or
  - (c) policing the business grade services at the ATM switch remotely from the DSLAM.
73. Sixth, while TelstraClear does not believe that there will be buffering problems with Telecom's current DSLAMs, we note that Telecom will be introducing ADSL2+ over the next several years which will run at very high speeds and the buffering will need to be able to cope. Telecom's Chief Technology Officer has been reported as saying that ADSL2+ will be provided over the same equipment as ADSL because "it will probably soon be impossible to buy exchange equipment that isn't ADSL2+ capable"<sup>37</sup>.
74. Lastly, any difficulties which do arise with buffers are likely to be largely attributable to slow lines and, as such, the problem is not unique to an unconstrained service. There are 3 separate 'rates' which need to be kept in mind:

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<sup>37</sup> Dominion Post, 7 March 2005.

- (a) the rate the access seeker imposes at its BRAS upstream from the access provider's DSLAM (r1);
- (b) the rate limit which is applied by the access provider at the DSLAM (r2);  
and
- (c) the rate actually achieved for the connection (r3).

If the packets are being delivered from the DSLAM to the modem at a slower speed (r3) than from the BRAS to the DSLAM (r1), the slow line may need to utilise buffer capacity. The access provider limiting the rate at the DSLAM (r2) will have little impact because the faster stream of packets will have already arrived at the DSLAM and packets need to be held in the buffer or discarded. Thus, the same problem will arise with any retail DSL service, whether rate shaped by the access provider or the access seeker, when r1 is significantly less than r3. Of course, the rate limit set at the DSLAM indirectly may help because the upstream rate shaping by the access seeker necessarily will be within the envelope of the DSLAM rate shaping (i.e.  $r1 \leq r2$ ), which may reduce the "gap" between r1 and r3.

- 75. However, any buffer problem will arise mainly in relation to slow lines, TelstraClear's proposal for a rate limited service on noisy lines should allow management of the problem pending agreement on standards. TelstraClear believes its proposal take a conservative approach to address Telecom's concerns.

## **6.5 ATM Link Capacity**

- 76. Telecom argues that unconstrained bitstream services at a 50:1 contention will consume capacity on the DSLAM backplane and capacity in the ATM link at, for example, four times the rate of a 2Mbits service.
- 77. Telecom's calculation is based on the theoretical maximum speed of each line. As AAS remarks, "[a] contention ratio of 50:1 based on raw line speed is clearly extravagant and would not be required in a real world situation".<sup>38</sup>
- 78. AAS also notes that "a reasonably generous average utilisation" would be 25Kbps, which could be doubled to allow for growth in usage, including stimulated by competition in the provision of higher speed services.

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<sup>38</sup> Annex 5, page 7.

TelstraClear's experience of usage on its own HFC network also provides guidance on the ATM link capacity requirements. Figure 9 shows the peak throughput in one of our busiest CMTS, which is equivalent to a DSLAM and supports over [ ] [TCLRI] simultaneous end-users. The peak usage never exceeds [ ] [TCLRI]. Further, [ ] [TCLRI] of TelstraClear's subscribers take the highest speed/usage plan, which provides 10Mbits with a 10GB limit.

Figure 9: Peak Throughput on TelstraClear Cable Network

[

] [TCLRI]

79. It is clear that as TelstraClear and other access seekers will account only for a proportion of the services provided through Telecom DSLAMs, and customers taking higher speed or usage plans will only represent a proportion of those customers, the provision of bitstream on an unrate shaped basis is unlikely to exhaust the backplane capacity of most DSLAMs, which is typically 150-155Mbits.
80. Similarly, the capacity required on the backhaul to support unrate shaped services is likely to be relatively limited and, given the capacity already available on most of those routes, the cost impact will be marginal. Using the AAS rate of 50kbps (which is very conservative), an STM-1 (and therefore an Alcatel ASAM into which the STM-1 plugs) would support 2,304 unrate shaped services, not the 987 that Telecom claims.
81. Telecom attempts to use Ofcom's allocation of ATM link costs to demonstrate that high speed services require high ATM link capacity. However, Telecom's analysis is flawed. First, Telecom assumes that an access seeker exactly

mirrors BT retail's contention ratios (50:1 for 'Home' products and 20:1 for 'Office' products), which under the UK model they are not constrained to do. Second, an ATM Virtual Path rental fee covers the connection from the DSLAM to and through the ATM network. The ATM capacity is therefore separately acquired by the access seeker on an aggregated basis across individual end user paths. By selecting the amount of ATM link/capacity, the access seeker can dimension according to the quality of service it wants to provide to its end users. Third, the BT ATM Virtual Paths are provided on different (higher) classes of service to Telecom's UBS service.<sup>39</sup>

82. The UK ATM Virtual Path product is, as Telecom points out, offered in a range of speeds – from 0.25Mbps to 10Mbps but Telecom incorrectly assumes these options will scale in a reasonably linear manner with individual service speed. The higher speeds of the Virtual Path represents actual, aggregated bandwidth (that is, a 'fatter' pipe) which the access seeker is purchasing across a large number of individual services with their own nominal speeds. The linear price scale, therefore, does not directly imply a higher cost per customer for a higher speed service. In selecting the aggregated bandwidth (speed) it requires for the ATM link, the access seeker will plan, much as the access provider does in its own network, on the basis of the actual throughput of the individual services and not their nominal speed
83. Second, the UK ATM link charges include transmission which would be separately provided as UBS backhaul in New Zealand. BT only offers 9 ATM interconnection points compared to the 34 URSA handover points in New Zealand. Ofcom for the purposes of its margin squeeze test has assumed a virtual path distribution of 10% handover, 10% local, 70% regional and 10% national. This means that more than half of the ATM Virtual Path costs reflected in the "ATM Interconnect costs" attributed to different retail DSL offerings in Ofcom's analysis represent transmission elements across the ATM network that do not form part of the wholesale bitstream access product as determined in New Zealand. The greater transmission involved in the 'handover' product (due to fewer points of interconnect) would further increase this difference.
84. As figure 10 demonstrates, the Virtual Path costs allocated to individual retail

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<sup>39</sup> BT's Virtual Paths are provided at VBR (Variable Bit Rate) or CBR (Committed Bit Rate) grades of service, whereas Telecom's UBS service is provided at a UBR (Uncommitted Bit Rate) grade of service.

DSL service plans by Ofcom (far right column) would far exceed those that relate to the bitstream access component of the New Zealand wholesale service (a portion of the “handover” column). The comparable costs would be a portion of the handover costs, which are themselves higher than the New Zealand equivalent due to the fact that BT offers fewer ATM handover points than Telecom. This demonstrates that Telecom’s approach to net out the backhaul component of the UK ATM Interconnect costs by deducting its average per-end user UBS backhaul charge would not result in a comparable wholesale bitstream access price.

Figure 10: BT ATM Interconnection (Virtual Path) Charges

VP Bandwidth (VBRnrt) <sup>40</sup>	Monthly cost (GBP exc VAT)				
	Handover	Local	Regional	National	Weighted <sup>41</sup>
0.25Mbit/s	24.58	27.08	39.58	49.17	37.79
0.5Mbit/s	34.17	37.50	55.00	67.92	52.46
1Mbit/s	52.92	58.33	85.42	105.83	81.50
2Mbit/s	90.83	100.00	145.83	181.67	139.33

Source: BT Wholesale Price List, Section 44: Wholesale Broadband Services

85. Third, analysis of BT’s wholesale ADSL pricing undertaken by Network Strategies shows that the BT total price for the end user path and the ATM link when calculated on an individual end user basis (i.e., access plus backhaul) are below the Commission’s proposed price for the bitstream access service (see figure 11).<sup>42</sup> This suggests that the ATM capacity charges either are not as significant as Telecom asserts or they are balanced out by a lower charge for the end user pathway than is implicit in the Commission’s charge.<sup>43</sup>

<sup>40</sup> Virtual Paths can be purchased at different classes of service – VBRnrt costs are given by way of example.

<sup>41</sup> By weighting used by Ofcom (10% Handover, 10% Local, 70% Regional, 10% National).

<sup>42</sup> The higher charges for office 1M and office 2M reflect the higher contention ratio. TelstraClear has said that it would be prepared to pay a higher charge for a higher quality service. As the Network Strategies’ benchmarking also includes the full ATM link change, the calculations in figure 12 may overstate the comparable change for the Commission’s bitstream service because backhaul elements are included. The lower figures which would result from removing the backhaul would even more strongly demonstrate that the UK ATM link charges do not support Telecom’s argument for a higher charge for an unrate shaped service based on any extra ATM link capacity which is required.

<sup>43</sup> Especially given that the UK Virtual Path capacity charges represent a higher grade of service. BT has also recently (3 Feb 2005) announced price reductions for its Datastream ADSL service that occurred subsequent to Network Strategies analysis and have therefore not been included.

Figure 11: Model of BT's wholesale services

Product	Bandwidth (kbit/s)		Modelled monthly charge (NZD-PPP)	Monthly usage limit (MB)	Contention ratio
	Downstream	Upstream			
Home 500k	500	256	21.12	Unlimited	50:1
Home 1M	1000	256	25.93	Unlimited	50:1
Office 500k	500	256	28.34	Unlimited	20:1
Office 1M	1000	256	40.37	Unlimited	20:1
Office 2M	2000	256	64.43	Unlimited	20:1

Source: Network Strategies

86. It is also worth noting that Ofcom did not undertake as exacting an analysis of BT's bitstream prices as it might have done in the absence of the alternative of LLU:<sup>44</sup>

*"Ofcom is mindful of the need to avoid promoting inefficient entry. This issue merits particular care given Ofcom's view that ATM interconnection has a valuable but transitional role to play in promoting competition in broadband provision. In the longer term Ofcom expects that local loop unbundling (LLU) is likely to provide the more important basis for the promotion of competition in broadband in many geographical areas. In that context Ofcom is concerned not to set too large a margin now which could distort incentives to invest for Altnets in terms of the choice between using LLU or ATM interconnection, and also more generally incentives for all operators in terms of investment in alternative technologies to ATM. To derive the size of the margin a number of judgments are required ... In making the necessary judgements, Ofcom has taken account of this context, when striking the balance between promotion of competition and reducing the risk of inefficient entry and distorted investment incentives."*

87. TelstraClear has already recognised the capacity constraints of the Conklin

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<sup>44</sup> Ofcom, Direction Setting the Margin between IP stream and ATM Interconnection Prices, 26 August 2004, para 2.6.

DSLAMs. While nearly two thirds of Telecom's DSLAMs are Conklins, they support only 20% of ADSL lines.<sup>45</sup> Telecom is currently upgrading the Conklins to increase capacity, although it would appear that there may still be some constraints. TelstraClear is prepared to agree with Telecom a sensible management strategy, such as limits on the number of unconstrained services per Conklin DSLAM or limiting the maximum speed of wholesale services. Any restrictions should be applied on a non-discriminatory basis across Telecom retail and wholesale services.

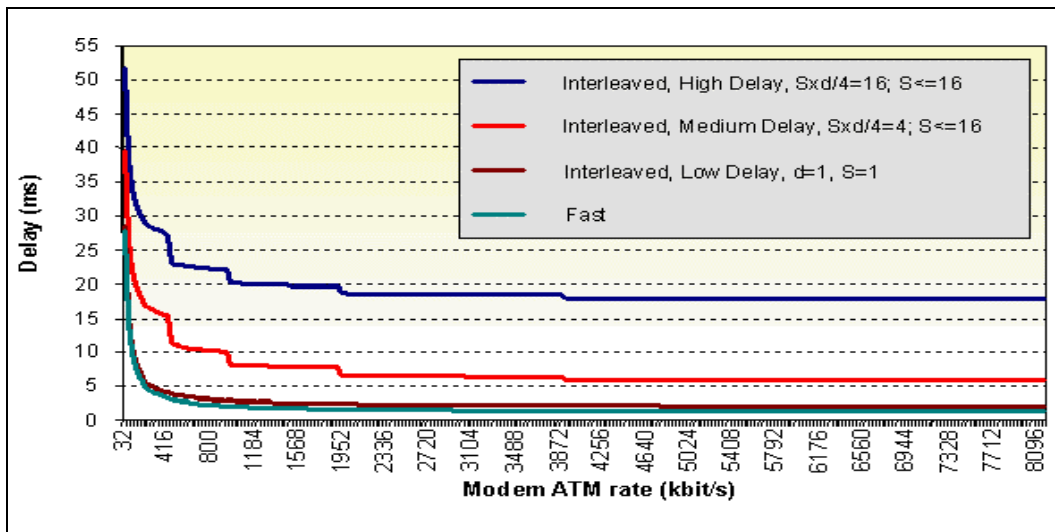
## **6.6 Interleaving**

88. Other network operators, such as BT and Telstra, have successfully managed interference and cross talk with interleaving turned off. However, Telecom clearly regards interleaving as a central plank in their network management strategy.
89. For its part, TelstraClear's concern with interleaving is the delay which it introduces, reducing the scope for innovation in downstream services, such as gaming applications.
90. TelstraClear believes that it may be possible to develop an interim compromise solution which allows Telecom to use interleaving where it matters most but where it has the least effect on TelstraClear's downstream services. As figure 12 shows, interleaving has the most impact in terms of delay for lower speed services and a relatively limited impact of higher speed services because those services are delivering a "fatter" pipe down which more packets can travel at one time.

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<sup>45</sup> Telecom's Response, para 132.

Figure 12: Latency and Interleaving



Alcatel

91. Conversely, interleaving is most useful in managing interference in the case of higher speed services and of limited use for low speed services. High speed services require more power from the DSLAM and generate more cross talk. Applying interleaving to higher speed services reduces their impact on neighbouring services by reducing the noise level. TelstraClear does not require interleaving to be turned off for higher speed services as there is enough downstream speed to avoid delays. However, interleaving has little value for lower speed services, such as 1.5Mbps to 2Mbps, even when those services are provided at a distance from the exchange. These are the services for which interleaving will deliver the most benefit in terms of end-user experience. Common industry standards, such as the ACIF code C559, require copper cable (0.4mm PUIT cable) to support 1.5Mbits out to 56dB and still leave the 6dB margin required for PSTN voice.
  
92. Accordingly, while TelstraClear believes Telecom's concerns about interleaving are overstated, TelstraClear proposes the following compromise approach:
  - (a) for unrate shaped services (i.e. at or below the 42dB level):
    - (i) interleaving would be turned on in the upchannel but the amount of interleaving would be set to a minimum;
    - (ii) interleaving would be turned on "on" the downchannel, with Telecom setting it to an appropriate level;; and

- (b) for the “fallback” rate shaped service (i.e. for lines with noise above 42dB level), interleaving would be turned off in the upchannel and the downchannel.
93. Again, TelstraClear’s proposal would only require two profiles.
94. Telecom asserts that it needs to undertake extensive field testing and that this testing will cost [ ] [TCNZRI], which TelstraClear should pay. TelstraClear believes extensive field testing would be excessive, particularly in light of the costs Telecom claims are involved. Turning interleaving off or operating in a hybrid environment is not a unique, high risk experiment. Overseas incumbents already do this without problems. As Telecom notes, BT which traditionally turns interleaving off, will be turning interleaving on for some of its lines.
95. TelstraClear also disagrees with Telecom’s view that turning interleaving off may cause problems with certain customer CPE, such as Reed Solomon modems. These modems are not New Zealand – specific and are used in other countries where interleaving is turned off, such as the UK and Australia. Further, under TelstraClear’s approach, as interleaving would be left on for higher speed lines, the Reed Solomon decoder would remain on for those lines where noise and errors resulting from turning off the decoder would be a problem.

## **6.7 Defining and Monitoring of KPIs**

96. Telecom says it supports the definition and measurement of KPIs as “good regulatory practice”<sup>46</sup>, but then presents the Commission with a Catch-22: Telecom can monitor the relative service performance of an unbundled bitstream service but only if there are only “minor technical differences” between the retail service and the unbundled element.<sup>47</sup>
97. Telecom says that to compare its retail rate shaped services to the performance of the wholesale unrate shaped service Telecom would need to know the nominal speed of the TelstraClear service and the nature of the rate shaping applied by TelstraClear, and that TelstraClear is likely to be reluctant to provide such information. TelstraClear agrees that this information would

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<sup>46</sup> Telecom’s Response, para 178.

<sup>47</sup> Telecom’s Response, para 177.

be too commercially sensitive to provide for real end user services, but the parties have agreed that service monitoring will be on test lines only.

98. TelstraClear anticipated that it would rate shape the test lines to a number of speeds which matched the Telecom retail speeds to allow Telecom to test relative performance. This provides the apples and apples comparison which Telecom says is needed.
99. If the bitstream service (as rate shaped by TelstraClear) is performing on an equivalent basis for services with directly comparable retail speeds, it is likely that network performance will adjust proportionally for TelstraClear services for which there is not a comparable speed. However, it would be useful to build up a database of the performance of the bitstream service at speeds other than those Telecom offers and TelstraClear proposes that some of the test lines should be tested at these speeds, even though a direct comparison may not be available (and therefore there would be no direct consequences under the KPIs).

### 6.8 Scope for Innovation

100. Finally, Telecom claims that the innovation sought by the Commission through bitstream access is still achievable with its UBS offering.<sup>48</sup> However, as set out in figure 13, the innovations that Telecom identifies are mostly achievable with the current end-to-end Jetstream resale service.

Figure 13: Potential Innovation identified by Telecom

Innovation identified by Telecom	Achieved by resale Jetstream product	Additional features with bitstream service
anti-virus	This is an ISP service that is linked with either the generic mail platform, packet sniffing and/or traffic monitoring link. While requiring an access product, this service can be supplied by resale.	Achievable with resale
anti-spam	This is an ISP service that is linked with either the generic mail platform, packet sniffing and/or traffic monitoring link and has nothing to do with an access product. While	Achievable with resale

<sup>48</sup> Telecom's Response, para 134.

Innovation identified by Telecom	Achieved by resale Jetstream product	Additional features with bitstream service
	requiring an access product, this service can be supplied by resale.	
parental controls	<p>This is an ISP service that is linked with browser applications. It is access independent and relates to the content control mechanisms of the browser or subscription sites that rate/restrict access.</p> <p>For example, some parental control sites make use of software to detect various parameters that incite “adult” content (such as language used on the site) or monitor sites, use a subscription service (such as to Net Nanny),</p>	Achievable with resale
multiple email addresses	This is an ISP service that is independent of access methods.	Achievable with resale
domain names	This is an ISP service that is independent of access methods.	Achievable with resale
web hosting	This is an ISP service that is independent of access methods.	Achievable with resale
customer support	Limited scope with resale.	Under the bitstream service, TelstraClear would have more scope in terms of identifying issues from a customer support environment as there are less Telecom related issues to consider. TelstraClear would have more control of traffic, usage, sites seen and rate-limiting functions as we would control these within our network and due to the point to point nature of the proposed UBS.
roaming	<p>This is an ISP service that is independent of access methods. It has nothing to do with access.</p> <p>Currently the JetStream service allows customers to use any interconnection point that has another JetStream service attached to it. For example, customer A can take their authentication details from their home</p>	Largely achievable with resale. However, using the bitstream service TelstraClear could ensure such traffic by end-users incurred at another location, would not double bill one of the customers.

<b>Innovation identified by Telecom</b>	<b>Achieved by resale Jetstream product</b>	<b>Additional features with bitstream service</b>
	<p>location A to customer B at home location B. Upon entering A's authentication information into B's ADSL modem, A can surf as A at B's location (presuming that B has JetStream).</p> <p>However, in that in this scenario both A and B will be charged for the traffic that is used at B's location in this example: i.e. Customer A receives a bill for the traffic at location B as the authenticator whilst B also incurs the same traffic – even though not authenticated because the connection used his line.</p>	
average rates	This is a rating issue linked with whatever usage metering mechanism, mediation and rating systems employed within a network and is independent of access.	Achievable for end user with resale. However, bitstream service would allow TelstraClear to manage its transmission costs. TelstraClear would not be charged for routing traffic that Telecom does not route itself.
bump packs – pre-pay	This is a rating issue relating to the additional usage/average rates and is independent of access.	As for average rates
uploads not included in usage	This is independent of any access mechanism.	As for average rates.
peak/off peak	As per upload response. This is up to rating systems.	As per average rates

## 7. MARKET DEFINITION AND COMPETITION ASSESSMENT

- *Telecom's arguments do not detract from the simple fact that Telecom applies uniform prices for retail JetStream services, and a single price for commercial UBS services across New Zealand. This tells us that either a national market applies or if sub-national competitive pressures exist as Telecom claims, Telecom is still able to price independently of its competitors.*
- *The Commission has already rejected Telecom's arguments about FWA on several occasions. The most recent EU evidence confirms the Commission's views that FWA is not a significant competitive constraint on the fixed incumbents in broadband markets.*

### 7.1 Geographic Dimension

101. Telecom argues that a uniform national price only indicates a national market where the competition conditions in the market lead to the uniform price. Telecom says that this is not the case with broadband retail Jetstream services and wholesale UBS services because “the competitive constraints quite clearly differ between regions, depending on network rollout, population density, terrain etc”.<sup>49</sup>
102. However, if the competitive conditions differed to a constraining degree, the expectation would be, as Ofcom notes, “that operators would charge geographically de-averaged prices to reflect the differential competitive condition [in each region]”.<sup>50</sup> The expected price variation would not only be between areas with alternative operators and those without, but between the “pockets” of competition themselves. The “competitive intensity” varies between these pockets, with Telecom facing only one competitor in some areas (e.g. Woosh), two competitors in others (e.g. TelstraClear and Woosh) and three or more in limited areas of the business districts of Wellington and Auckland (e.g. TelstraClear, Woosh and Citilink). The number and mix of technologies which Telecom faces, and therefore the cost base of competitors,

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<sup>49</sup> Telecom's Response, para 246.

<sup>50</sup> Ofcom Broadband Market Review, para 2.113. Ofcom also noted that conditions in the UK varied geographically but did not consider that such variations were material enough to lead to sub-national markets. The “gap” between BT's market share in areas where it was the only provider and in the pockets of alternative network (therefore the degree variation in competitive conditions) was much greater than in Telecom's case. In cabled areas, BT broadband market share was 32%: see para 3.32.

also varies between these pockets of alternative network: e.g. wireless-only or cable-only in some areas, and combinations of wireless, cable and fibre in other areas.

103. Yet despite these differences in the competitive conditions, Telecom’s retail Jetstream and commercial UBS prices are the same in each pocket of alternative infrastructure. Telecom moves the prices in each pocket in lock step with each other pocket and with the prices in areas where there is no competition.
104. Telecom explains that its market behaviour indicating a single national wholesale market for bitstream access is the result of “strong regulatory incentives to meet its broadband target commitments to the Government”<sup>51</sup> and “the ambitious broadband wholesale targets Telecom has set”.<sup>52</sup>
105. As Telecom acknowledges, Ofcom rejected a similar argument by BT against a finding of national wholesale ADSL market. Telecom attempts to distinguish the Ofcom decision on the basis that “the regulatory distortion in this case is directly in the market at issue”.<sup>53</sup> Disregarding the pricing constraint in Telecom’s case would be, in Telecom’s view, entirely consistent with Ofcom’s general principle that economic markets are defined absent of regulation”.<sup>54</sup>
106. The type of regulation Ofcom had in mind was the upstream wholesale regulation that Ofcom was authorised to apply if it determined, as a result of its market review, that BT had significant market power in the downstream market. That is, in New Zealand terms, in deciding whether Telecom faced limited competition in retail broadband markets the Commission could not take into account the availability of regulated UBS or resale Jetstream. As Ofcom noted, this avoids circularity in market definition, the assessment of market power and the imposition of remedies:

*“When defining the relevant markets at both the retail and wholesale levels Ofcom assumes that there are no regulations in place at the wholesale level that is being considered. To do otherwise would mean that the wholesale market power assessment would depend on a retail market definition that relied on a wholesale remedy arising from the finding of*

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<sup>51</sup> Telecom’s Response, para 273.

<sup>52</sup> Telecom’s Response, para 268.

<sup>53</sup> Telecom’s Response, para 268.

<sup>54</sup> Ofcom Broadband Market Review, 13 May 2004, page 39.

*wholesale market power. This would be a circular and incorrect approach to market definition. Therefore, the demand side and supply side substitution possibilities at the retail level will be considered only if they are viable in the absence of regulation at the wholesale level being considered.”<sup>55</sup>*

107. The “regulatory constraint” of the type Telecom alleges it faces would be treated by Ofcom as one of the exogenous factors that shape markets. As Ofcom said, “geographically uniform commercial pricing is (and historically has been a fact in the broadband market”.<sup>56</sup> Ofcom considered that “BT’s decision to set national tariffs for its broadband internet access is its own commercial decision (recognising that there may be some external regulatory constraints)”.<sup>57</sup>
108. Ofcom also gave as much weight to the pricing behaviour of entrants as it did to BT’s. Ofcom pointed out that although competitors had limited geographic reach they still priced on a nationally averaged basis, as is the case in New Zealand. Telecom responds that while Ofcom found that the UK competitors also advertised on a national basis, competitors in New Zealand advertise locally and Telecom gives some examples, such as GASP’s billboards along the Hutt Motorway. A geographically limited competitor will select the advertising channel that provides the most cost effective fit with its service area. The UK cable operators are present in many more areas across the UK than competing operators are in New Zealand and their overall level of penetration is high, passing well over 50% of homes. Therefore, advertising in nationally circulated newspapers or on national TV is a viable option for them. It is also highly likely that UK competitors use advertising which is more locally bound, such as Telecom’s examples of billboards beside roads or booths in shopping centres or other public places.
109. Telecom had previously stated that it supplied UBS on a geographically de-averaged basis<sup>58</sup>. However, in its Response, Telecom now concedes in a footnote that it only has de-averaged prices for JetStream resale.<sup>59</sup> If Telecom’s national pricing behaviour for UBS was determined by its retail and

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<sup>55</sup> Ofcom Broadband Market Review, para 2.16.

<sup>56</sup> Ofcom Broadband Market Review, para 2.123.

<sup>57</sup> Ofcom Broadband Market Review, para 2.109.

<sup>58</sup> Telecom Cross-submission, 31 January 2005, para 99.

<sup>59</sup> Telecom’s Response, footnote 137.

wholesale broadband commitments, TelstraClear would expect to see the same influence exerted over resale JetStream pricing. The prices for the unregulated Jetstream resale service (i.e. in metropolitan areas) are materially above the wholesale prices for the regulated Jetstream residential resale service, which would seem counter-intuitive if there was a competitive wholesale market in the areas where Telecom is not regulated.<sup>60</sup> The driving factor for the de-averaged resale prices seems to be presence or absence of regulation and not the presence or absence of wholesale competition.

110. Telecom strongly criticises the Commission on the basis that it has not used the “common pricing constraint” approach in any of its prior telecommunications decisions. However, in the Residential Wholesale proceedings, Telecom itself used a “regulatory pricing constraint” argument, which the Commission accepted. As the Commission will recall, Telecom argued that the Commission should modify the approach it took in Decision 497 to carve out sub-national markets based on the competing networks, and instead reflect the larger metropolitan area across which Telecom feels constrained to offer a uniform price:

*“The difficulty [i.e. of not offering a uniform price despite the lack of alternative network within reach of the end user] arises because of the perception by residential customers, supported by the history of telecommunications in New Zealand and initiatives such as the TSO Deed, that residential access services are a right and that all residential customers should receive this right on an equal basis.*

*As a result of this perception, Telecom does not price differentiate within regional areas even if only part of an area contains competing infrastructure ... Telecom has learnt this lesson about residential customer perception or psyche the hard way. For example, when TelstraClear’s predecessor Saturn entered the Wellington market Telecom’s initial competitive response was to offer a rebate to those customers who could physically connect to the competing network. This led to a great deal of negative publicity for Telecom:*

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<sup>60</sup> Zone 1 pricing has a 6% discount off the standard (without tolls) retail price for residential Jetstream services. With the 16% discount off the AMP based price for zone 2 Jetstream, zone 1 residential prices are [ ] [TCNZRI&TCLRI] above the Zone 2 residential prices. For the Jetstream 600 Full Speed service, there is a 0% discount in Zone 1 and the Zone 1 price is [ ] [TCNZRI&TCLRI] above the Zone 2 price. See DSPL, March 2005.

*“Obviously, it’s a surprise that there’s a different price for Lower Hutt than there is for Wellington, and I’m looking forward to discussing that issue with the executives of Telecom”. Wellington Mayor, Mark Blumsky, The Dominion, May 1998.*

*“... Telecom’s actions are unlikely to win any kudos in the Hutt Valley. In fact, for some residents their actions may be just the motivation to dump their old company and support a new one”. Evening Post, May 1998.”<sup>61</sup>*

111. Telecom, of course, used this argument to support a separate regional market, but that the pricing constraint in that case was regional rather than specific to where the alternative network exists. The point is that Telecom argued, in effect, that the geographic market boundary should be aligned to the reach of an exogenous pricing constraint based on public expectations which it faced. It follows from Telecom’s argument that if the exogenous pricing constraint is national, as Telecom alleges here, the market boundary should be national.
112. There is an alternative plausible explanation of Telecom’s decision to maintain uniform national pricing. As Professor Ordover stated in his opinion annexed to TelstraClear’s first submission, Telecom’s national pricing can be explained as an assessment by Telecom that it has more to lose in responding to competition in pockets of alternative network than it has to gain:

*“Evidently, Telecom views the wholesale UBS and the retail asymmetric broadband access markets as national in scope and prices its Jetstream services accordingly even though it has the flexibility to offer differential pricing. Telecom undoubtedly believes that if it reduces rates to meet competition in some part of its network, customers in other parts may well demand similar reductions. If Telecom cannot confine price reductions to those customers that are subject to effective competition, then its best strategy might be not to reduce the rates (thus keeping them relatively high) throughout its network, even if that means losing some customers in those portions of an ESA where there is actual effective competition.”<sup>62</sup>*

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<sup>61</sup> Telecom Residential Wholesale First Submission, 7 March 2003, paras 80-82.

<sup>62</sup> TelstraClear First Submission, 16 December 2004, Annex C, p 15.

## 7.2 Customer Dimension

113. TelstraClear disagrees with Telecom's view that the wholesale market should be segmented by residential and business customers.
114. There is nothing in the network characteristics of the bitstream service or Telecom's supply of it that materially distinguishes between residential and business customers. The relevant characteristics and costs which typically justify price discrimination between residential and business customers are downstream from the bitstream service, such as national and international backhaul which are relevant to speed and data caps and the customer support functions.
115. Overseas regulators treat bitstream as a generic wholesale input to downstream residential and business markets. Some regulators, such as Ofcom, have also determined that the downstream product market itself should not be segmented by customer type. Ofcom noted that, while there was differentiation in factors such as price and speed between residential and business broadband products, that it needed to take a forward looking view of market definition to capture anticipated changes in the market, including as a result of more competition based on bitstream. Ofcom concluded that residential and business broadband products were likely to converge as residential and SME users demanded more speed and higher quality:

*"It might be argued that since the prices paid by business customers are significantly higher than those paid by residential customers, and if the current prices of residential and business products are assumed to be at the competitive level (in the absence of better information), then a 10% rise in price of the residential product would be unlikely to result in residential customers switching to the business product. This would suggest that residential and business customers would be in different markets.*

*However, Ofcom is conducting a forward looking market definition and there is a potential case to be made that during the course of the period covered by the market review the distinctions between residential and business customers will become more blurred. On the demand side, a chain of substitution may develop between the high quality residential products and lower quality business products.*

*Although currently there are only a few products supplied in the possible product space, it may be that suppliers will not be able to segment the market profitably between residential and business customers over time.*

*The levels of service and speed demanded by residential customers are likely to increase during the period covered by the market review, as residential broadband internet access customers increasingly realise the advantages of higher internet access speeds and as more tailored broadband content is made available to them which benefits greatly from being supplied over a better quality broadband internet access product. Thus, over time, some residential customers are less likely to tolerate delays and are more likely to seek increasing levels of service and speed. In this scenario, new residential products are likely to become available which offer the levels of service and speed closer to the current business products.”<sup>63</sup>*

116. This scenario is consistent with price discrimination being replaced by product differentiation in a competitive market. As Professor Ordover comments in his annexed report:

*“[I]t is important to distinguish between price discrimination and product differentiation. Price discrimination entails charging differential prices for identical products. But product differentiation entails offering different varieties of the same or similar products so as to appeal to specific consumer tastes and preferences.... Producers can use product differentiation as a means for implementing price discrimination .. Sellers can take advantage of the consumers’ self selection by charging higher markups for product options favored by the less price sensitive consumers. Thus, if there is positive correlation between the willingness to pay for the product in question (say a car) and preference for higher quality (say leather versus cloth seats) then differential markups for the differentiated products will follow Ramsey pricing principles (especially when competitive pressures constrain the magnitude of these variety-driven differentials in mark-ups).”<sup>64</sup>*

117. Hence, the erosion of formal residential and business categories in downstream markets does not mean the end of price discrimination. Rather, customers, whether business or residential, will self select from the menu the speed (and usage limit and service level) which best suits their needs. As Ofcom notes, a chain of substitution will emerge linking residential broadband

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<sup>63</sup> Ofcom Broadband Market Review, para 2.101.

<sup>64</sup> Annex 3, page 4.

products and low end business plans.

118. The New Zealand retail market may not develop as quickly in this direction as the UK market (including because the UK already has a highly successful bitstream service). However, Ofcom's reasoning illustrates the risks to downstream innovation and consumer benefit if either:
- (a) the upstream market is segmented into residential and business segments, based on resupply into downstream markets where that segmentation may become increasingly irrelevant; or
  - (b) separate wholesale prices are established depending on whether the bitstream service is resupplied to business or residential end users (whether or not a single unsegmented market is adopted), which may impair the downstream development of higher speed residential products.

### 7.3 Competition Assessment

119. Telecom argues that the Commission places too much emphasis on Telecom's high market shares. Telecom says that "[h]igh market share is only evidence of market power where it appears the market share has not been acquired through pro-competitive activity".<sup>65</sup> Telecom submits that "Telecom's maintenance of market share in metropolitan areas is evidence of Telecom competing effectively for broadband customers".<sup>66</sup>
120. While market share is, of course, only an indicator of market power, at the levels of market share which Telecom has managed to maintain it is a very persuasive indicator. While the growth of broadband services has begun to accelerate, Telecom has been able to hold onto its dominant position:
- (a) as the Commission notes, Telecom's retail and wholesale DSL services account for the vast majority of broadband lines in New Zealand. TelstraClear suspects that DSL growth, as in Europe, is outstripping

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<sup>65</sup> Telecom's Response, para 294.

<sup>66</sup> Telecom's Response, para 296.

growth in other technologies and that Telecom's total share would now be approaching or exceed [ ] [CCRI];<sup>67</sup>

- (b) Telecom says that competition has developed rapidly since Decision 497, but based on the Commission's assessment that Telecom had 77% of broadband lines at the time of that Decision,<sup>68</sup> Telecom has significantly increased its market share; and
- (c) not only does Telecom account for most broadband lines, but Telecom's retail share is 77-80% of those lines. Telecom's retail market share is probably well over [ ] [CCRI].<sup>69</sup>

121. As discussed above, the average incumbent share of retail broadband services across the EU has fallen from approximately 60% to 54.2% over the period since Decision 497. As figure 14 shows, a decision not to impose regulated bitstream access at Telecom's current levels of market shares would clearly be out of step with the approach taken in other regulated bitstream markets.

Figure 14: DSL, Unbundling and Incumbent Market Share in the EU, January 2005

	<b>DSL as percentage of total broadband</b>	<b>Incumbent retail Share for DSL</b>
Belgium	61%	50%
Czech Republic	63%	60%
Denmark	65%	62%
Germany	97%	80%
Estonia	47%	48%
Greece	90%	39%
Spain	75%	52%
France	93%	45%
Ireland	84%	66%
Italy	94%	73%
Cyprus	95%	100%
Latvia	70%	70%
Lithuania	39%	37%

<sup>67</sup> TelstraClear estimate based on Commission's estimate in paragraph 115 of the Draft Determination adjusted for the faster pace of DSL new connections than connections by cable or, as TelstraClear understands from market intelligence, FWA.

<sup>68</sup> Draft Determination, para 116.

<sup>69</sup> TelstraClear estimate based on Telecom's retail share of DSL lines as reported by the Commerce Commission: Release No. 129, 12 May 2005.

	DSL as percentage of total broadband	Incumbent retail Share for DSL
Luxembourg	88%	78%
Hungary	66%	52%
Malta	58%	26%
Netherlands	61%	46%
Austria	53%	36%
Poland	63%	55%
Portugal	49%	81%
Slovenia	63%	63%
Slovakia	74%	74%
Finland	75%	72%
Sweden	64%	39%
UK	68%	25%

Source: European Commission

122. A recent analyst report paints a bleak picture for broadband competition if bitstream regulation is not made as effective as possible:

*“Our Bull Case scenario assumes that TEL captures approximately 90% of the broadband market (including wholesale). We also assume that nearly three quarters of its 1.3 million subscribers are retail. Overall the regulatory environment makes it difficult for a new entrant to make an economic return from broadband. Given the industry structure will resemble a monopoly (or near-monopoly) we assume slightly slower industry growth/take-up than our other scenarios. By 2015 we assume 1.4 million broadband subscribers or 67% penetration. We place a reasonable high probability on this scenario. The economics for a new entrant are not particularly attractive under the current regulatory regime. Our analysis estimates sustainable EBITDA margins of only 20%, based on Layer 2 Bitstream Service targeting higher ARPU customers. Overall the risk of substitution is relatively low given the limited wholesale market and no ULL.”<sup>70</sup>*

123. The Commission has extensively considered the capabilities of FWA in the LLU inquiry and concluded that FWA operators would not be an effective competitive constraint on Telecom over the next 5 years. Although 18 months

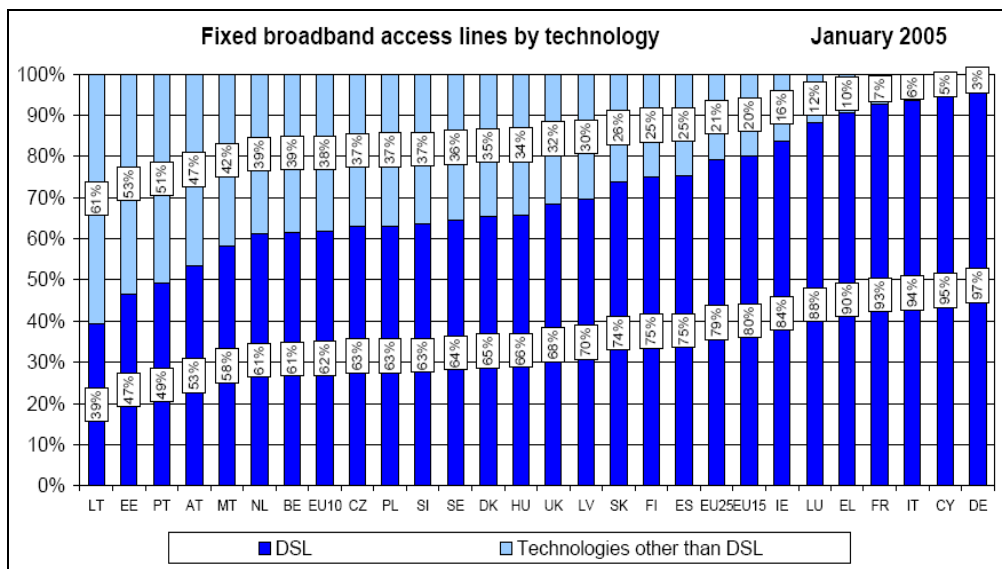
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<sup>70</sup> Citigroup Smith Barney, The Economics of Broadband, page 21.

have passed since the LLU Report, the wireless operators, such as Woosh, continue to account for a very small proportion of the national market and even of the customer population in the areas in which they have deployed network.

124. The latest broadband data from the European Union shows the limited impact which FWA has had there.<sup>71</sup> As at January 2005, broadband lines provided by technologies other than DSL (including cable) represented only 20.9% of total broadband lines. While DSL lines grew by 82% in the year since January 2004, lines provided by all alternative technologies grew by only 37.3%. Figure 15 provides a breakdown of DSL and non-DSL technologies by Member State:

Figure 15: Fixed Broadband Access Lines by Technology

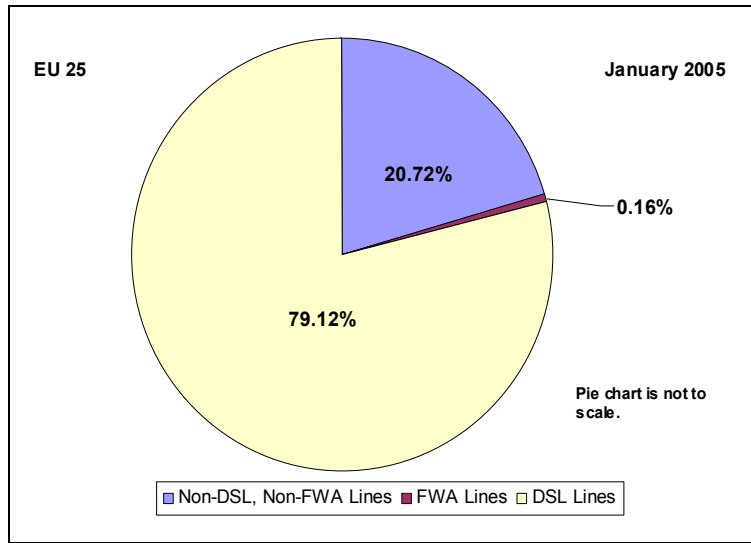


Source: European Commission

125. Most of the broadband lines provided by alternative technologies use cable, fibre or leased lines. As depicted in figure 16, FWA represents less than 0.16% of all broadband lines in the EU:

<sup>71</sup> EU January 2005 Broadband Report, pages 15-18.

Figure 16: FWA as a percentage of total EU Broadband lines



Source: European Commission

126. While FWA currently represents a higher percentage of broadband lines in New Zealand, TelstraClear believes that this reflects the relative under-performance of DSL in general and the problems of launching bitstream in particular. It is likely, as in Europe, that retail and wholesale DSL lines will grow much more rapidly than FWA.

## **8. APPLICATION OF THE INITIAL PRICING PRINCIPLES**

### **8.1 Telecom's Arguments**

127. Telecom argues that the pricing approach adopted in the Draft Determination is contrary to the long-term interests of end-users and potentially inconsistent with the intentions and requirements of the regulatory regime.
128. Telecom states that the retail minus formulation in the Initial Pricing Principle requires the Commission to identify a comparable retail service and impute the retail price.
129. The Commission has proposed a non speed restricted wholesale service but has had regard to *all* Jetstream ADSL services as comparable services in imputing a retail price for this service. Telecom argues that this approach is inappropriate because it moves away from a retail minus to a cost based approach, unreasonably discounts speed as a basis on which comparability is assessed and, in fact, the wholesale service proposed has no comparable retail service.
130. Further, Telecom argues that the Commission, in imputing a single wholesale price for residential users and a single wholesale price for business users regardless of speed, is acting inconsistently with sections 18 and 19 of the Act.
131. Finally, Telecom submits that the regression model used by the Commission is seriously flawed.

### **8.2 The Commission's Approach in applying the Initial Pricing Principle**

132. Telecom contends that no retail Jetstream plans are in any relevant sense comparable to the non speed restricted service the Commission seeks to designate.
133. Telecom argues that to be considered comparable to the bitstream access service a retail service must be comparable across key service specifications, with speed being the fundamental factor upon which high speed Internet offerings are differentiated. While Telecom acknowledges that some of its services in the past were distinguished according to monthly data caps, and were all 'full speed', Telecom states that it is moving away from this structure and speed is now the key product differentiator.
134. In TelstraClear's view, the Commission has proposed a wholesale bitstream service that provides the most scope for service innovation and product

differentiation and will best promote competition in the long-term interests of end-users. This full speed service, as it is unrate-shaped and does not have a monthly data usage cap, does not have a retail service that is equivalent across all parameters. However, all retail Jetstream plans are 'comparable' in the sense that they are ADSL services with the same parameters, albeit with different retail values set for these parameters.

135. The ability to differentiate services on the key parameters – being speed and monthly data limits - depends most significantly upon the provision of national and international transmission, a function provided by the access seeker. This means, when imputing a price for the wholesale bitstream access service, it is not material that these parameters are set at particular values for a service to be 'comparable'. Rather, what is important is that the impact of these different parameters on the retail price can be modeled and accounted for in imputing the full speed, uncapped wholesale bitstream access price.
136. If the retail services were exactly equivalent to the wholesale service there would be no need for the Commission to 'impute' a retail price. Rather, the Commission has to use an appropriate imputation method to impute a price through modeling the speed and data cap parameters. In doing so, the Commission is not determining the cost of the wholesale bitstream service (as Telecom alleges) but rather imputing a retail price for that service by accounting for differences in speed and data caps.
137. A 'tight link' between retail and wholesale services is not required in order for a retail-minus pricing principle to be applied and, as the Commission notes, in order for product differentiation to be promoted through competition this tight link must of necessity be broken.
138. BT has recently announced that it intends to unblock its DSLAMs and is moving towards higher speed wholesale and retail services. BT Wholesale Chief Executive, Paul Reynolds, in announcing proposed wholesale broadband price and product developments stated that:<sup>72</sup>

*“In a highly competitive market all service providers need competitive input prices and flexibility to differentiate their products.”*

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<sup>72</sup> BT Press Release 'BT Wholesale unveils further broadband price and product developments', 3 February 2005.

139. Arguably, New Zealand needs competitive bitstream input prices and a wholesale product that provides flexibility to differentiate end services more so than the UK as here unbundled bitstream access has a greater role to play in the promotion of competition in broadband provision. In the UK, the regulator sees wholesale bitstream (or 'ATM interconnection') as having a 'transitional role', with LLU seen as providing the more important basis for innovation, differentiation and competition.<sup>73</sup>

### 8.3 Price Discrimination

140. The Commission has chosen not to impute a retail price for each variant of Telecom's own Jetstream services. Telecom states that this will make customers worse off as:<sup>74</sup>

*'[a]ccess seekers who are able to obtain bitstream access at a price set regardless of speed will have no incentive to differentiate based on speed but would, on the contrary, have a strong incentive to offer a single package based on as high a speed as possible'.*

141. TelstraClear has summarised Professor Ordovery's economic response in Part 4.4, but it is useful to specifically consider how competitors are likely to behave in downstream markets when using the generic, single priced upstream input. Access seekers will face the same retail customer demand with differing elasticities as Telecom does and also will incur high fixed costs, also as Telecom does. Further, access seekers provide the key (transmission-related) elements of the end-to-end broadband ADSL service that enable speed and usage based product differentiation to occur. Therefore, the same incentives will operate on access seekers as they do on Telecom to differentiate retail offerings and charge differing prices for them. As Professor Ordovery states:<sup>75</sup>

*'Price discrimination in the pricing of the output good does not in general depend on differential prices for the input goods [...] Rather what is necessary for price discrimination in the output markets is the presence of customers with varying degrees of price sensitivities and the absence of arbitrage.'*

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<sup>73</sup> Direction Setting the Margin between IPStream and ATM Interconnection Prices, 26 August 2004, para 2.6.

<sup>74</sup> Telecom's submission, para 354.

<sup>75</sup> Annex 3, para 15.

142. Whether access seekers are able to compete with Telecom at price points that attract more elastic customers is a question of price level, not of structure. TelstraClear's own view is that the higher level of customer support costs required for services of this nature, along with transmission costs incurred mean that an access price would need to be below the level set by the Commission in order to avoid a price squeeze on some retail product offerings. Further, the arithmetic approach proposed by Network Strategies indicates that the correct range for the imputed retail access price is \$2.66-\$13.74. At this level, access seekers would not be excluded from addressing the elastic segment of the broadband market.
143. Hence, TelstraClear believes that a single wholesale access price is likely to ensure the maximum scope for product differentiation and *efficient* price discrimination. Where an incumbent provider faces limited competition, such as Telecom does in the broadband Internet access market, there is no guarantee that the price discrimination practices of that provider are efficient or in the best interests of end users. As Professor Ordober notes:<sup>76</sup>

*'Whereas price discrimination can, and often is, an efficient means for recovering fixed costs, the social welfare benefits of a monopolist's price discrimination in a downstream market are far less certain.'*

144. Competition is the best way to ensure that price discrimination is at an efficient level. TelstraClear notes that competition in the UK is driving down the price premium BT is able to charge business customers and that BT has recently offered new customers 4x BT's standard speed offering for the same price.<sup>77</sup>

#### **8.4 Regression Analysis**

145. Telecom rightly identifies problems with the Commission's regression analysis aimed at establishing the correlation between speed, data cap and end price. However, as Network Strategies points out, Telecom's alternative suggested imputation methodology is also flawed.
146. Currently, Telecom has only provided a solution for imputing the access price of the residential plans as it plans to shortly introduce new business plans

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<sup>76</sup> Annex 3, para 2.

<sup>77</sup> BT Press Release: 'BT Business Broadband up to four times faster for no extra cost', 31 March 2005.

which it says will materially alter the imputation of the access price for business plans.<sup>78</sup>

147. Network Strategies concludes that Telecom's residential imputation approach is fundamentally flawed for two key reasons:

- (a) the regression model is not solvable for a zero data cap; and
- (b) there are insufficient data points to provide a statistically robust estimate of the parameters and thus regression cannot provide inferences about the price for a zero data cap.

148. As Network Strategies points out:<sup>79</sup>

*"While we could explore alternative model equations which would address the first problem, the latter problem compromises any solution for the residential plans which is based on statistical analysis."*

149. Therefore, TelstraClear considers that the arithmetic approach proposed by Network Strategies in our submission on the Draft Determination is the only sound way to impute the price for full speed bitstream access from comparable retail end-to-end prices.<sup>80</sup> This results in a range for the imputed retail bitstream access price of \$2.66-\$13.74. The ceiling price for the range is as per our Draft Determination submission. The reduced floor price is due to the exclusion of the Xtra Venture business and residential plans following the additional information provided by Telecom in its Response regarding its pricing of these plans.

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<sup>78</sup> TelstraClear is concerned that the pricing for such plans may be structured so as to ensure that data caps and speed account for more of the end-to-end retail price so as to raise rival's costs.

<sup>79</sup> Annex 4, page 9.

<sup>80</sup> We note that the pricing principle does not require the Commission to have regard to a comparable service but, rather, *any* comparable service in imputing the bitstream access retail price.

## 9. NON-PRICE TERMS

### 9.1 OSS

150. Telecom states that its “provisioning and delivery processes are “colour blind” as between retail and wholesale orders”.<sup>81</sup> However, Telecom also acknowledges that:

*“[t]he nature of Telecom’s organisation and its current systems require and justify different entry and exit points for provisioning requests from retail or wholesale. However, the treatment of requests **once entered is consistent**, and the wholesale specific processes are constantly being constantly reviewed in order to be as efficient as possible.”<sup>82</sup>*

151. The complaint TelstraClear and other access seekers make is that the front end processes through which wholesale orders must be entered and processed **before** they get to the “colour blind” processes are opaque, highly inefficient and poorly designed. The result is that the end-to-end process for end users supplied by wholesale customers is substantially worse than the end-to-end process for Telecom Retail’s end users, even if some parts of the process are performed on a non-discriminatory basis. CallPlus, which has direct experience of Telecom’s “improved” bitstream processes says in its response:

*“We support the move to look at the operational support issues. Our experience of customers moving to the current UBS service was that operational issues resulted in significant costs being incurred by ourselves in addition to creating a barrier to switching which often resulted in lost sales.... There are no automatic interfaces to the system, meaning that we have to manually enter data into multiple systems thereby driving costs into the business. The time taken to enter an order is unacceptably long. This drives costs into our business which we do not believe Telecom’s retail operation would face... the rejection rate on transactions entered into the system is exceptionally high with many items rejecting on multiple instances.”<sup>83</sup>*

152. TelstraClear agrees with Telecom that “equivalence” cannot be slavishly applied to require exactly “identical” performance. Wholesale front-of-house

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<sup>81</sup> Telecom’s Response, para 386.

<sup>82</sup> Telecom’s Response, para 394.

<sup>83</sup> CallPlus Submission, May 2005, page 6.

systems need to be tailored to the particular requirements of wholesale customers. Therefore, TelstraClear agrees with Telecom that identical systems with Telecom Retail front of house may not be appropriate. The ultimate test must be whether the wholesale customer can deliver services within a comparable time frame and with an equivalent level of customer service compared with Telecom's Retail arm. If that is what Telecom means by "consistency" in discussing SAP3, TelstraClear agrees.

153. Our concern is that Telecom's current wholesale processes are "separate but unequal" with retail systems. Telecom also does not fully accept the logical consequences of its own "separate but equal" approach. Telecom, for example, says:

*"An example of where service is naturally different for a wholesale customers [sic] is the minimum lead time. The wholesale customer needs a period of time after entering its order to confirm the acceptability of the Ready For Service date with its customer. Recently, Telecom has reduced the minimum lead time to 3 days, however noting that this will have no impact on the overall time to delivery from confirmation of the order, which remains consistent between retail and wholesale customers".<sup>84</sup>*

154. Thus, Telecom thinks that the way to address the differences between wholesale and retail customers is to "stop the clock" on its provisioning KPIs while the wholesale customer deals with its end user. However, if Telecom provides the wholesale customer with the ability to access and book the available provisioning times with its end user on line, much as occurs between Telecom's retail service representatives and its own end users, there would be no need to "stop the clock". The interface between the wholesale customer might well be designed and operate differently to the retail systems, but the outcome in providing service to end users would be materially equivalent on an end-to-end basis.

155. As the experience of developing long term number portability in New Zealand demonstrates, the parties are unlikely to agree on how to implement the Commission's high level principle of OSS equivalence without more guidance from and continuing oversight by the Commission. TelstraClear's requests relating to OSS reduce to the following basic terms:

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<sup>84</sup> Telecom's Response, para 391.

- (a) There should be a clear commitment to a solution that provides for the direct electronic inter-working of Telecom's and access seekers' OSS that is scalable to the New Zealand environment. Leaving open the issue of whether the equivalence principle can be feasibly met by manual or electronic processes, as the Commission does in the Draft Determination, is likely to mean the parties do not "get off first base" in designing the full OSS solution (much as occurred with the lengthy threshold debate about whether number portability should be implemented by call forwarding or an IN solution, which literally went on for years). There is enough overseas experience to show that, as with mass market retail services, an electronic solution is the most efficient, competitively neutral approach.
- (b) Telecom should provide, from the outset, an ability to electronically exchange service request information.<sup>85</sup> TelstraClear will be unable to achieve the volumes required to meet the Government's broadband objectives unless there is a rudimentary form of electronic data exchange. This capability does not have to be accompanied by a graphic user interface, such as a web portal, but can be by way of electronic data file exchange, as currently occurs for some services (and which eOR does not provide).
- (c) The parties should be required to agree the specifications, timing and implementation of a fully electronic OSS system. The initial project plan should be agreed within 90 days of the Commission's final determination.
- (d) The Commission should continue to actively oversee the development of the full OSS solution, including to resolve disputes over issues such as timing and required high level functionality.

## 9.2 Term of Determination

156. Telecom implies that if the Commission does not accept its view that the bitstream products should be tightly linked to the Jetstream products, TelstraClear will have to wait 6 months while Telecom develops an unrate shaped service (or even for the 3Mbits service which Telecom offers as "full

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<sup>85</sup> See para 104, TelstraClear Response for list of functions for interim electronic information exchange capacity.

speed”).

157. Telecom’s proposed timeframe is not credible. Telecom already offers its own full speed product. In any event, the “natural” state of DSL services is unrate shaped: Telecom brings an unrate shaped service into existence by removing the rate shaping it applies. There will, of course, be implementation issues, such as the programming of new profiles to support the unrate shaped service (and the rate shaped service proposed by TelstraClear for noisier lines). However, we cannot accept that this will take 6 months.
158. The Commission has identified issues, which need to be agreed within defined periods following the final determination, such as agreeing KPIs. Telecom already says that it agrees with many of the principles identified by the Commission and with the proposed process. That being so, TelstraClear has written to Telecom suggesting that the parties get on with negotiating these issues prior to the final determination.<sup>86</sup> If Telecom refuses to do so, TelstraClear requests that the Commission direct the parties to attend a workshop with the Commission to discuss these matters before the final determination. The Commission has broad procedural powers under the Act and this approach will allow the Commission to more accurately identify the issues which remain in dispute and which it therefore must resolve in these proceedings. Unless Telecom agrees or is directed to discuss these matters with TelstraClear before the final determination, it is likely that TelstraClear will not have entered the market before the end of this year.
159. Finally, it is also not necessary for all of the terms and conditions to be fully implemented before TelstraClear begins supplying services using bitstream. If there is a clear process for negotiation and resolution of issues such as service monitoring and KPIs, we would be prepared to proceed with the service in the absence of finalisation of those terms. Retrospectivity issues should not arise because, by their nature, non-price terms are difficult to apply retrospectively. Accordingly, TelstraClear requests that the final terms provide that TelstraClear may return to request that the Commission direct Telecom to commence supply of the bitstream service pending implementation of all of the terms.

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<sup>86</sup> TelstraClear (Forsyth) to Telecom (Parkes), 3 June 2005.

## ANNEX 1: SUMMARY OF TELSTRACLEAR'S RESPONSE TO TELECOM'S COMMENTS

This table summarises TelstraClear's comments on Telecom's Response in the main document (Parts 1-9) and sets out additional comments on matters not raised in the main document.

Draft Determination	Draft Determination Paragraph No.	Telecom's Response	Telecom's Response Ref.	TCL Comment	TCL Comment Ref.
<p><b>THE FRAMEWORK FOR THE DRAFT DETERMINATION</b></p> <p>The Commission sets out the legislative framework within which it must make its determination, noting that the purpose of Part 2 and Schedule 1 is to promote competition in telecommunications markets for the long-term benefit of end-users.</p>	8-18	<p>Telecom agrees that the decision must be made to the long term in benefit of end-users but argues:</p> <p>(a) The Commission bears the onus and burden of proof as to the satisfaction of these requirements.</p> <p>(b) The Commission's decision will not be in the best interests of end-users as:</p> <p style="margin-left: 20px;">(i) the decision will lead to a single bitstream offering and reduce product differentiation (reduced price discrimination leads to reduced broadband penetration); and</p> <p style="margin-left: 20px;">(ii) an unrate shaped service will reduce service reach and reduce the number of end-users able to obtain broadband services.</p>	Sections B1 and B2	<p>The Commission has already decided that bitstream services are in the long term interests of end users.</p> <p>As Professor Ordover points out:</p> <ul style="list-style-type: none"> <li>• Downstream price discrimination is not dependent on and usually occurs in the absence of upstream price discrimination;</li> <li>• Price discrimination by a monopolist is likely to be sub-optimal. The practical effect of Telecom's argument is to shift its current retail price discrimination, once it faces competition as a result of bitstream, into the upstream bottleneck element where it will be sheltered from competition;</li> <li>• As the access seekers (not Telecom) are providing the speed related elements which form the basis of the price discrimination which Telecom says is efficient, it is likely that product differentiation and associated price discrimination will occur in</li> </ul>	<p>Section 4.1</p> <p>Section 4.4 and Annexure 3</p>

Draft Determination	Draft Determination Paragraph No.	Telecom's Response	Telecom's Response Ref.	TCL Comment	TCL Comment Ref.
				<p>downstream markets. This is exactly what the Commission intended with bitstream access.</p> <p>As BT testing has shown, it is feasible to provide broadband services at much higher noise levels than originally anticipated. Further, technology and investment by Telecom in its copper network as a result of accelerating broadband penetration (through retail and wholesale channels) is likely to reduce the noise and interference problems. TelstraClear proposes a service qualification process to identify the few lines which cannot support unrate shaped service and to limit the service to: e.g. 3 Mbits which Telecom says it can support on remote lines, pending development of agreed interference standards based on international models.</p>	Section 6.2
<b>SCOPE OF THE WHOLESALE BITSTREAM ACCESS SERVICE</b>	19-31				
<p><b>Access Principles &amp; limits on the application of Standard Access Principles</b></p> <p>The Commission accepts that the technical service parameters of the service requested by TelstraClear are consistent with the underlying network supporting Telecom's retail Jetstream services.</p> <p>The Commission accepts that the standard of service TelstraClear requested is consistent with the regulated description</p>		<p>Telecom contests that the technical parameters of the service set out in the Draft Determination are reasonably technically and operationally practicable on Telecom's Network due to:</p> <ul style="list-style-type: none"> <li>(a) increased noise from an unrate shaped service</li> <li>(b) "unfair" allocation of DSLAM resources</li> <li>(c) instability caused by interleaving being turned off.</li> </ul>	Section B4	<ul style="list-style-type: none"> <li>• Contrary to Telecom's assertion that overseas incumbents are limiting wholesale services to 3 Mbits to manage noise, BT has unblocked its DSLAMs;</li> </ul>	Section 6.2

Draft Determination	Draft Determination Paragraph No.	Telecom's Response	Telecom's Response Ref.	TCL Comment	TCL Comment Ref.
for wholesale bitstream.		Telecom further submits that SAP 3 (non-discrimination) requires "consistency". This does not require that there be identical levels of		<ul style="list-style-type: none"> <li>It is unfair and contrary to the long term interests of end users to limit speed available to users with line capability to support high speed to provide low speed services to a few lines. The clear overseas experience is that public policy should be focused on achieving higher speeds for as many customers as possible if the critical mass needed for take off of the information economy is to be achieved. TelstraClear has proposed a solution that allows the twin objectives of maximising speed for most customers while maximising reach for the few customers with high noise lines.</li> <li>The overseas experience shows that interleaving issues can be managed, including in a hybrid environment. As a compromise, TelstraClear is prepared to accept that interleaving remain on for high speed services, which will have limited impact on latency for TelstraClear downstream services, but allow Telecom to continue to use interleaving to reduce power levels and other sources of cross talk from high speed services.</li> </ul> <p>TelstraClear agrees that identical systems between wholesale and retail may not appropriately reflect the</p>	<p>Section 4.3</p> <p>Sections 6.3 and 6.6</p> <p>Section 9.1</p>

Draft Determination	Draft Determination Paragraph No.	Telecom's Response	Telecom's Response Ref.	TCL Comment	TCL Comment Ref.
		services, reporting or provisioning.		different requirements of wholesale customers. However, Telecom's current systems are "separate but unequal": while some components in the end to end processes may be "colour blind", the front end of house systems between Telecom and wholesale customers used to access those "colour blind" processes are inefficient and slow. This means that the wholesale customer cannot match Telecom retail processes.	
<p><b>MARKET DEFINITION AND COMPETITION ASSESSMENT</b></p> <p><b>Introduction</b></p> <p>The Commission outlines general principles of market definition, using the following criteria:</p> <ul style="list-style-type: none"> <li>(a) product dimension</li> <li>(b) geographic dimension</li> <li>(c) functional dimension</li> <li>(d) temporal dimension (not relevant in this case).</li> </ul>	32-44	Telecom submits that the Commission must also consider a "customer dimension" (residential/business).	Section B5, Section D1	<p>No other regulator segments the wholesale market by end user customer segments. All of the relevant criteria, functions and costs which would be reflected in retail pricing which discriminates between residential and business customers are downstream from the access input (and hence are likely to still occur, even if the definitions are not the same as Telecom's).</p> <p>In any event, overseas regulators, such as BT, have recognised that distinctions in downstream markets between residential and business customers are becoming outdated as residential customer demands for speed increase, more people work from home and competition spreads from business to residential customers. This does not mean the collapse of price discrimination between customers as</p>	Section 7.2

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		Telecom argues that, before the Commission defines markets it must engage in a competition assessment at the retail level to determine whether regulatory intervention is to the long-term benefit of end-users. Unnecessary regulatory intervention "is likely to create market inefficiencies and economic disincentives to innovate and invest in new services" (paragraph 205).		Telecom predicts. Discrimination may take the form of self selection by customers based on the value equation of differentiated products, such as speed.  The Commission has already determined that bitstream services will stimulate downstream retail competition and is in the long term interests of end users. Telecom is trying to relitigate settled issues.	Section 4.1
<p><u>Section 64 Local Loop Unbundling Review</u></p> <p>The Commission summarises the results of the Unbundling Inquiry where markets for broadband services were analysed to determine whether access should be granted to Telecom's local loop infrastructure.</p>	45-50				
<p><u>Telecom's commercial unbundled wholesale bitstream service</u></p> <p>The Commission notes that Telecom's UBS offering is offered at a uniform national price throughout New Zealand.</p>	51-52	<p>Telecom points out that wholesale Jetstream services are not offered at a uniform national price.</p> <p>Telecom states that the national UBS price is the result of "the ambitious broadband wholesale targets Telecom has set".</p>	Footnote 137	<p>Telecom does not explain why the "regulatory constraint" of the Government's wholesale targets have led to de-averaging on one wholesale service and not the other.</p> <p>Telecom's strategic and political motivations for pricing on a uniform national basis are less material than the fact that Telecom does choose to price in this way. This is exactly the kind of exogenous factor which Ofcom considered was relevant to market definition. Telecom attempts to</p>	Section 7.1

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				<p>distinguish Ofcom's decision on the basis that Ofcom said regulation should be disregarded for the purposes of market definition, but Ofcom was referring to the need to avoid the circulatory definition of markets by taking into account upstream access regulation when the markets are being defined to determine whether to impose that regulation.</p> <p>Telecom argued a pricing constraint in the Residential Resale proceedings to establish market boundaries beyond the area of competing network.</p>	
<b>Relevant Markets</b>	53-100				
<p><b>Product Dimension</b></p> <p>The Commission examines various local access products to determine if they can be regarded as substitutes for wholesale bitstream access, concluding that:</p>	58-79	Telecom argues that the Commission must first consider the retail market for services before turning to the wholesale market.	Section D3.1	Telecom accounts for over [ ] [CCRI] of the retail broadband lines and its market share is growing, including in areas where there is alternative network. Regulation is still applied by overseas regulators applying similar competition tests as apply in New Zealand although incumbents' market shares have fallen below 50% (e.g. UK, France and Australia). Not imposing access regulation when Telecom has such high market share and the other advantages of incumbency would not be credible.	Section 7.3
<ul style="list-style-type: none"> <li>Cable-based access is in the same market as wholesale bitstream access. The Commission notes that TelstraClear has deployed a limited cable access network in Wellington</li> </ul>		Telecom submits that the retail product market includes ADSL and Co-axial cable.	Section D3.1	Agreed, but cable has a very small base and is not a competitive constraint.	

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and Christchurch but does not provide a wholesale access product over this network.					
<ul style="list-style-type: none"> <li>Fibre-based access offers comparable services to retail ADSL services even though services provided over fibre-based access "tend to be high-speed and symmetrical services". The Commission notes that fibre-based access retail services "appear to be competitively priced against Jetstream plans".</li> </ul>		<p>Telecom submits that the retail product market include Fibre-based services.</p> <p>Telecom agrees that symmetric and asymmetrical services are in the same market.</p>	Section D3.1, Annex A, Question 2.	<p>Agreed, but fibre based operators have announced that DSL services will only be supplied in buildings which are already connected to their networks. The low revenue generated by ADSL services is likely to mean that it will not be economically feasible for these operators to connect buildings for ADSL alone. TelstraClear's first submission showed that most of buildings in Auckland and Wellington CBD were likely to be too small and have too few customers to justify connection.</p>	
<ul style="list-style-type: none"> <li>Despite technical limitations of FWA, a number of suppliers have started offering broadband services using FWA and pricing their services competitively with ADSL. The Commission notes that the technical limitations on FWA may not be relevant as the regulated wholesale bitstream product is "restricted to an internet-grade service".</li> </ul>		<p>Telecom argues that FWA is in the same market as "products supplied over FWA have become a credible option for broadband customers" as price changes in ADSL would lead to demand and supply-side substitution with FWA.</p> <p>Telecom states that it believes the Commission agrees that FWA is in the same retail market as ADSL (paragraph 221).</p>	Section D3.1	<p>Agreed, but TelstraClear agrees with the Commission that wireless is not a competitive constraint on Telecom for the reasons the Commission set out in the LLU Report, the Residential Resale Determination and the Draft Determination. The latest EU evidence shows that FWA has a limited impact, making up 0.16% of broadband lines and alternative technologies, which included cable, grew at half the rate of DSL lines.</p>	Section 7.3
<ul style="list-style-type: none"> <li>Mobile 3G services are not supplied within the same market as Jetstream services. The Commission notes price variables between Telecom's Jetstream and 3G Mobile Broadband plans.</li> </ul>		No comment.			

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The Commission concludes that "the product market can therefore be defined as the market for wholesale broadband access, including copper-based wholesale bitstream, cable, fibre and FWA (but excluding 3G mobile services).					
The Commission rejects Telecom's suggestion that the wholesale market in which wholesale bitstream is provided should be delineated along customer and speed lines. Such delineation based on customer segments may be relevant at the retail level but not for wholesale services like wholesale bitstream. The division of services based on speed is not justified as "it is not clear that there would be a sufficient break in substitutability around any particular service speed to justify a separation of markets in this way".		Telecom does not consider the Commission to have clearly rejected a market definition based on customer segments (residential, business) and requests clarification.	Section D3.4	The upstream market should not be segmented on the basis of Telecom's retail classification of retail and business customers.	Section 7.2
<p><u>Functional Dimension</u></p> <p>The Commission defines the relevant functional dimensions of the market (the level in the production or distribution chain) to be the wholesale level.</p>	80-83	<p>Telecom submits that the Commission has misunderstood the functional level of the market and has thus drawn incorrect conclusions in the geographic dimension of market definition and in its competition assessment.</p> <p>Telecom also submits that the wholesale market is a derived market and the first step in analysing the wholesale market must be an assessment of the retail market.</p>	Section D2	See comment above re the extent of Telecom's current and growing market power in the downstream retail markets.	
<p><u>Geographical Dimension</u></p> <p>The Commission considers the geographical market to be defined through common pricing constraints. The Commission concludes that, given</p>	84-99	<p>Telecom raises three objections to the Commission's definition of a national market for wholesale bitstream access:</p> <p>(a) the definition of the <i>wholesale</i> market for bitstream access is inconsistent with</p>	Section D3.2	If competitive conditions do vary between geographic areas, then as Ofcom notes, the expectation would be "that operators would charge geographically de-averaged prices to reflect the differential competitive	Section 7.1

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<p>Telecom's single national price for wholesale UBS, there is a national geographical market for wholesale bitstream services (with "differing levels of competitive intensity" in the areas where alternative infrastructure has been deployed).</p> <p>The Commission notes that Telecom has claimed its pricing of the UBS service is differentiated by metropolitan and non-metropolitan geographic areas but has provided no evidence to support this. The Commission seeks clarification from Telecom on this point in Consultation Question 3.</p>		<p>previous decisions defining sub-national retail markets for broadband services</p> <p>(b) the Commission has placed undue weight on "common price constraints". Telecom submits that its single national price for UBS is due to "regulatory distortion" and Telecom's "strong regulatory incentives to meet its broadband target commitments to the Government" (paragraph 273). Telecom submits that the Commission's use of "common price constraints" is contrary to the Commission's established principles of market definition through application of a SSNIP test; and</p> <p>(c) there are different demand and supply side substitution possibilities in different parts of New Zealand and this would indicate sub-national (metropolitan and non-metropolitan) markets. FWA has limited market entry abilities in non-metropolitan areas and does not impose competitive restraints outside of that sub-national market.</p> <p>Telecom proposes in Section D3.3 a methodology for defining subnational metropolitan and non-metropolitan retail markets so that any area in which on FWA operator is present should be designated a metropolitan market.</p>		<p>condition [in each region]". The expected price variation would not only be between areas with alternative operators and those without, but between the "pockets" of competition given different number of competitors and the number and mix of technologies which Telecom faces, and therefore the cost base of competitors.</p> <p>Yet despite these differences in the competitive conditions, Telecom's retail Jetstream and UBS prices are the same in each pocket of alternative infrastructure.</p> <p>An alternative explanation for Telecom's uniform national pricing which is more consistent with its market power is that Telecom believes that if it reduces rates to meet competition in some part of its network, customers in other parts may well demand similar reductions. If Telecom cannot confine price reductions to those customers that are subject to effective competition, then its best strategy might be not to reduce the rates (thus keeping them relatively high) throughout its network, even if that means losing some customers in the pockets of alternative infrastructure.</p>	
<p><b>Competition assessment</b></p> <p><u>National wholesale market for the provision of broadband access</u></p> <p>The Commission concludes that Telecom</p>	101-150	Telecom does not clearly state its views on competition assessment if the Commission continues to define a national wholesale market.	Section D5	As Ofcom noted, the definition of a national market and the imposition of access obligations on a national basis is not inconsistent with the presence of	Section 7.3

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faces limited competition in the national wholesale market for the provision of broadband access.		<p>However, Telecom argues that:</p> <p>“Even if the market were national... the Commission must still have regard to the state of competition in the metropolitan areas in order to assess whether regulation gives the best effect to the purpose of section 18 of the Act” (paragraph 196).</p> <p>All other comments on the state of competition assume that separate geographic markets have been defined for metropolitan and non-metropolitan areas.</p>		<p>localised pockets of competition.</p> <p>The clear experience from overseas markets is that, given the limited prospects of alternative infrastructure such as FWA, rapid broadband growth heavily depends on unbundled access, with over 60% of new entrant services in the EU being based on DSL. If areas of alternative network deployment are carved out, it is possible that competition may be more vigorous outside those areas due to the availability of DSL.</p> <p>In any event, Telecom treats the limited competition test as if it meant that Telecom faces no competition at all. Given Telecom's very high market shares which it has been able to not only sustain but grow in the pockets of alternative network, and Telecom's continued uniform national pricing, Telecom continues to face limited competition in those pockets.</p>	
<p><b>Existing Competition</b></p> <p>The Commission notes that:</p> <ul style="list-style-type: none"> <li>• There are competing networks deployed in parts of New Zealand but: <ul style="list-style-type: none"> <li>(a) Telecom's share of wholesale broadband access connections remain significant;</li> <li>(b) Telecom has a large market share for the retail broadband</li> </ul> </li> </ul>	104-134	<p>Telecom accepts that it <u>faces limited competition</u> in retail and <u>wholesale</u> broadband access markets in <u>non-metropolitan areas</u> of New Zealand.</p> <p>Telecom argues that it does not face limited competition in wholesale broadband access markets in metropolitan areas because:</p> <p>(a) Telecom's high market share is evidence that it is competing effectively and is not evidence that it has market power. Telecom claims to have maintained market share by decreasing price and improving its non-price</p>	Section D5	<p>Telecom accounts for over [ ]<b>[CCRI]</b> of the retail broadband lines and its market share is growing, including in areas where there is alternative network. Regulation is still applied by overseas regulators applying similar competition tests as New Zealand although incumbents' market shares have dipped below 50% (e.g. UK, France and Australia). Not imposing access regulation when Telecom has such high market share and the other advantages</p>	Section 7.3

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<p>market even when fixed wireless access is included;</p> <p>(c) FWA may not provide a competitive constraint on fixed suppliers of broadband access in the next two years.</p> <ul style="list-style-type: none"> <li>• Telecom's lower price and high service level retail plans since the Unbundling Inquiry have been released in the context of competitor developments as well as actual and proposed regulatory intervention. Price reductions by Telecom are, at least in part, a response to the threat of regulation.</li> <li>• Barriers to competition exist with Telecom's commercial churn fees being "significantly in excess of the costs Telecom incurs in churning a customer to a competitor".</li> <li>• Telecom's national retail pricing strategy balances any local competitive restraints that may exist from alternative infrastructure deployment. The existence of alternative infrastructure for higher speed and symmetrical services in some areas has not driven the availability of equivalent functionality in Telecom's national service.</li> </ul>		<p>terms,</p> <p>(b) there are increasing numbers of broadband competitors, including FWA and fibre-optic network providers. FWA investments must be based on sound business cases for returns on investment and this suggests FWA will remain competitive in, at least, the short term and will be an effective competitive constraint on Telecom within the next two years; and</p> <p>(c) Telecom's broadband prices have been falling in recent years. This is not because of regulatory constraints in non-metropolitan areas (where the price fall is due to "the significant number of new broadband entrants and aggressive competition by these entrants."(paragraph 311).</p> <p>Telecom also argues that the finding of limited competition in the wholesale market in metropolitan areas cannot be reconciled with increased market entry and expansion of existing networks in metropolitan areas since the finding of effective competition in metropolitan wholesale broadband access market in Decision 497.</p>		<p>of incumbency would not be credible.</p> <p>See above re FWA not being a competitive constraint.</p> <p>While Telecom's retail prices have fallen, they have fallen in lock step across the country, irrespective of the different competitive conditions which Telecom says exist between different geographic areas. This suggests that, if there is not a national market (in which Telecom would necessarily be a dominant operator because of the limited geographic and market presence of alternative providers), Telecom still has market power in all sub-national markets because it prices independently of whether there are any competitors, how many competitors there are and what technology those competitors use (and therefore the competitors' different cost bases).</p>	
<p><u>Potential Competition</u></p> <p>The Commission concludes that new entry may be possible through use of FWA</p>	135-148	Telecom argues that there is potential for competition arising from FWA operators, commenting that there are "incentives for	Section D5	See comment above re the limited competitive constraint of FWA.	

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<p>technology operators but such entry "is likely to be limited in its ability to constrain fixed market participants". This conclusion is based on the Commission's findings that:</p> <ul style="list-style-type: none"> <li>• there are significant barriers to entry for fixed line operators (sunk costs, effect of scale economies/economies of density);</li> <li>• these entry barriers may be reduced for FWA operators but "there are some limitations in terms of FWA-based services being able to compete with fixed broadband services such as ADSL, particularly with respect to increasingly bandwidth-intensive services".</li> </ul>		<p>aggressive competition between existing firms in the markets in the next two years" with a number of new localised entrants predominantly using FWA. There are lower barriers to entry for FWA operators.</p>			
<p><b>APPLICATION OF THE INITIAL PRICING PRINCIPLES</b></p> <p><b>Retail Price Imputation</b></p> <p>The Commission's imputation of a retail price to determine wholesale bitstream access prices is based on findings that:</p> <ul style="list-style-type: none"> <li>(a) the speed of retail services used in the imputation process is not relevant (the cost of supply of wholesale bitstream service not affected by downstream and upstream speeds provided over an individual circuit);</li> <li>(b) separate prices should not be imputed for each customer segment based on Telecom's existing speed and service plans. This would detract from the access seeker's ability to</li> </ul>	151-201	<p>Telecom argues that the Commission's application of the initial pricing principle is "inappropriately cost-influenced" and departs from the retail minus principle.</p> <ul style="list-style-type: none"> <li>(a) Telecom submits that higher speed results in material additional costs (paragraphs 339 to 340).</li> <li>(b) The Commission has erred by using all JetStream products as "comparable" for the purpose of imputation. Different speed specifications of different Jetstream products mean they are not "comparable" with an unrate shaped wholesale bitstream access product.</li> <li>(c) Telecom agrees with the separate</li> </ul>	Section B3, Section E	<p>TelstraClear considers that the Commission's application of the initial pricing principle is consistent with a retail minus pricing principle as defined in the service description and qualified in Schedule 1 of the Act.</p> <p>On Telecom's specific concerns, TelstraClear believes that:</p> <ul style="list-style-type: none"> <li>(a) Higher speed services should not result in material additional costs for the access element as the actual average and peak throughput of services, even high speed services, is relatively limited given end user</li> </ul>	Part 8

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<p>differentiate their service and “reinforc[e] Telecom’s chosen price structure”;</p> <p>(c) however, separate prices should be imputed for residential and business customers as this is “unlikely to hinder materially service innovation or prevent further price discrimination of end-user services”;</p> <p>(d) ISP charges for Xtra should be removed from the input price to determine the imputed price;</p> <p>(e) a percentage discount should be deducted for “calling discounts” attributable to Jetstream when purchasing other Telecom services in conjunction with other Telecom service;</p> <p>(f) costs of modems, routers and installation are presently recovered separately from the retail price and do not have to be deducted from the input price, although Telecom does offer free installation and modems from time to time;</p> <p>(g) national and international transmission charges are to be removed from the input price using a linear regression analysis taking the adjusted monthly line rental (excluding GST) as the dependent variable and the data cap / usage allowance as the independent variable to assess the wholesale</p>		<p>imputation of prices for residential and business customers. (paragraph 341).</p> <p>(d) Imputation of a single price for residential customers and a single price for business customers is not in the best interests of end-users as it ignores price discrimination based on different speed specifications. Customers who place a premium on higher speeds are prepared to pay a higher charge for this service. Imputing one price will lead to new entrants offering of a single retail offering at high speed (disadvantaging customers who may have been willing to pay a lower price for lower speed), undercutting Telecom because new entrants do not need to make a contribution to fixed costs as Telecom does. This will lead to Telecom increasing prices on its low speed plan to recover fixed costs lost to competition in the high speed plans. The Commission bears an onus of proof that the elimination of price discrimination in the imputation process will result in a better outcome than allowing it. Telecom also notes that price discrimination is consistent with best international regulatory practice.</p> <p>Telecom proposes in Annexure F an alternative imputation methodology.</p> <p>Telecom submits that the Commission’s regression analysis flowed in respect to Business JetStream as the Commission has:</p> <p>(a) incorrectly omitted the Venture Flat Rate</p> <p>(b) incorrectly excluded Venture Plans from consideration</p> <p>(c) incorrectly subtracted a “speed premium”</p>		<p>patterns of usage.</p> <p>(b) The Commission’s approach of first imputing a retail price for the bitstream access service (the access component of the end-to-end ADSL service) by looking at all Telecom’s retail DSL services and then deducting avoidable costs is an appropriate and pragmatic method of applying the Initial Pricing Principle to determine a wholesale price for the non rate shaped bitstream service.</p> <p>(c) The Commission should follow the same approach as overseas regulators in pricing bitstream services and not determine separate wholesale prices for residential and business customers, unless the wholesale products differ in a material way such as contention.</p> <p>(d) The same incentives will operate on access seekers as they do on Telecom to differentiate retail offerings – e.g., based on speed – and charge differing prices for them. Price discrimination in downstream markets does not in general depend on differential prices for input goods. Price discrimination only requires customers with varying degrees of price sensitivities and an absence of arbitrage.</p> <p>In TelstraClear’s view, the Commission’s (and Telecom’s) regression analysis is flawed, as there are insufficient data points. As Network Strategies set out, an arithmetic approach is a more correct way to account for differences in</p>	

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bitstream access price alone.		from the derived price.		speed and data cap parameters. Using this method, the appropriate imputed retail bitstream access price lies somewhere in the range of \$2.66-\$13.74.	
<p><b>Benchmarking Avoided Costs Saved</b></p> <p>The Commission adopts previous benchmarking studies of retail avoided costs for wholesale services and applies a 16% discount rate "subject to data updating". Previous benchmarking study is included as Annexure B.</p> <p>The costs of national backhaul and international transmission have already been deducted from the input price, so that these costs are not relevant when calculating avoided costs saved.</p>	195-201	No new submissions. Telecom reports previous submissions that the 16% discount rate is only acceptable to Telecom if there is clear "retail comparability" constraints on the wholesale bitstream access service.	Section E2		
<p>Initial Price payable for Wholesale Bitstream Access – Residential: \$26.19</p> <p>Initial Price payable for Wholesale Bitstream Access – Business: \$25.87</p>		The Commission should specify a methodology, not a particular price. Telecom would re-run the regression each time retail prices changed. No audit should be required. If audit is required, access seekers should contribute to the costs.	Section E3		
<p><b>SUNDRY CHARGES RELATING TO SUPPLY OF WHOLESALE BITSTREAM ACCESS</b></p>	202-219				
<p><u>Reassignment charges</u></p> <p>The Commission finds that Telecom's reassignment charges should be based on the costs Telecom efficiently incurs as a result of transferring customers from retail to wholesale provision. These costs should not include a common cost mark-up because common costs are incurred as a</p>		<p>Telecom supports the proposal to refer matters back to the parties for commercial resolution</p> <p>Telecom argues that it must be allowed to recover part of its common costs (non-variable) or it will be required to subsidise the reassignment charges by increased contribution from non-regulated services.</p>	<p>Section B6,</p> <p>Section F1</p>	<p>It is unrealistic to expect that TelstraClear's commercial team can negotiate a cost based charge when Telecom knows the costs but TelstraClear does not.</p> <p>TelstraClear agrees with the Commission's approach given the inefficient state of Telecom's systems.</p>	

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<p>result of Telecom's wider wholesaling activities.</p> <p>The Commission directs Telecom and TelstraClear to negotiate reassignment costs based on its findings and notes that it will set the charge on request if agreement has not been reached within 30 days of the final determination.</p>				<p>In any event, even if calculated on TSLRIC basis, an offset should be made, consistent with clause 3 of Schedule 1 of the Act, for those inefficiencies and to address the problem of Telecom's systems raising rivals costs (eg double keying to enter the reassignment).</p>	
<p><u>New Connections</u></p> <p>The Commission adopts a retail minus approach to new connection charges, using a 16% discount for avoided costs saved.</p>		<p>Agrees and suggests DSPL type approach to ensure consistency in retail and wholesale. The parties could agree on a mechanism for this.</p>	Section F2	<p>Agree that DSPL type approach is appropriate but the AMP should include all price points including all "special" price discounts or short term promotional prices).</p>	
<p><u>Moves, Adds, and Changes ('MACs')</u></p> <p>The Commission adopts a retail minus approach to MAC charges using a 16% discount for avoided costs saved.</p>		<p>Agrees. Charges at wholesale should be in a way that Telecom charges retail. MAC charges to vary as retail charges vary.</p>	Section F3	<p>Agreed, subject to a rebate to compensate for the inefficient OSS solution (see TelstraClear Submission, 20 May 2005 at Section 6).</p>	
<p><b>NON-PRICE TERMS - WHOLESALE BITSTREAM SERVICE</b></p>	220-301				
<p><b>Speed configuration</b></p> <p>The Commission requires Telecom to provide a non-rate shaped service on the downstream channel to the maximum capacity of each DSLAM. Telecom may apply rate-shaping in respect of the upstream speed at 128 kbps. This will allow access seekers to differentiate their own retail offerings from Telecom's.</p> <p>Telecom has raised questions regarding the stability of a non-rate shaped service with an unlimited downstream capability and</p>		<p>Telecom identifies three problems with an unrate shaped downstream service affecting all users of the copper cable:</p> <p>(a) increased noise from higher downstream services (increased cross-talk, frequency of resynchronisation events and packet loss) OR reduction in reach of service to minimise technical problems associated with noise;</p> <p>(b) potential overload of DSLAM input buffer as customers download traffic at a rate higher than the line speed; and</p>	Sections C1.1, C1.2, C1.4 and C4.	<p>TelstraClear agrees, at a high level, with much of Telecom's description of the technical issues, but in practice they are not as dire, widespread or unmanageable as Telecom makes out. Issues regarding noise, speed and reach are not unique to an unrate shaped bitstream service but reflect the theoretical physics with which any DSL network must comply.</p> <p>DSL networks are typically designed to a "worse case scenario", which will assume the presence of a high speed</p>	Part 6

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the Commission has requested clarification on this point in Consultation Question 6.		<p>(c) reduced "fairness" as increased service on the line may reduce capacity to meet other customer's "defined service characteristics"(i.e. guarantees given by Telecom as to particular service standards).</p> <p>Telecom acknowledges that there are technical solutions to any service instability arising from a high degree of upstream/downstream asymmetry but argues that "a practical maximum of 3Mbps will limit the extent of any asymmetry uses as well as maximising the speed/reach equation"(para 97).</p> <p>Telecom also argues that there are significant capex, opex and lost opportunity costs arising from an unrate shaped bitstream access service and that these costs should be "factored into the consideration of the initial pricing and reflected in the price of the service" (paragraph 103).</p> <p>Telecom argues that, in any event, the network will not support a significant number of services above a maximum of 3 Mbps (without the need to reduce reach). Product differentiation is possible within this 3Mbps limitation by using differentiating factors beyond the first ATM switch.</p> <p>Telecom also argues that a non-rate shaped service "is likely to transgress the clause 6 limits [on reasonable technical and operational practicability and meeting the service demands of existing customers]" (Section C4).</p>		<p>(usually a full speed) service in a neighbouring cable pair giving rise to a material level of cross talk. The network will be designed to cope with cross-talk in most situations.</p> <p>Speeds will decline further out from the DSLAM as signal strength weakens and interference increases. That being said, DSL technology has proven to be robust in coping with the technical problems Telecom has identified and so any interference problems are likely to be limited to the fringes of the network and some rural areas.</p> <p>The experience of DSL networks also suggests that the outer limit of higher speed services will continue being stretched. Telecom's Chief Technology Officer has publicly stated that Telecom will be deploying ADSL2+ in the near future which 15-24 Mbps. ADSL2+ has reduced noise margins and also has a function called "rate adaptive services" where the DSLAM and modem synchronise dynamically if noise is experienced and the speed therefore moves up and down according to noise without re-syncing. This enables ADSL2+ to achieve greater reach and a higher spectrum.</p> <p>That unrate shaped bitstream services are technically feasible is demonstrated by the fact that a number of overseas incumbents are introducing unrate shaped wholesale services.</p>	

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				<p>However, in the interests of trying to address Telecom's concerns, TelstraClear proposes as follows:</p> <ul style="list-style-type: none"> <li>(a) The unrate shaped bitstream service would be available on any line with a noise level of 42dB or less. Interleaving would be left "on" in the downchannel and upchannel, but set at a minimum in the upchannel;</li> <li>(b) For lines with a noise level exceeding 42dB, the bitstream service would be rate shaped by Telecom to the higher of an agreed speed or the maximum retail speed Telecom offers on such lines. TelstraClear notes that Telecom's Response suggests that Telecom could provide a 2 or 3Mbits service across its network. Interleaving would be turned "off" in the upchannel and the downchannel; and</li> <li>(c) The parties would develop standards to manage the cross talk and interference levels, based on overseas models, to allow bitstream services to be provided at rates higher than those which otherwise apply under paragraph (b).</li> </ul> <p>Telecom overstates the impact of the unrate shaped services on the DSLAM buffers and the ATM link because Telecom assumes that the</p>	

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				downchannels will operate at their theoretical speed. This is not correct because TelstraClear will rate shape the service before the channel "hits" the ATM link or the DSLAM. Further, even if the notional speed is very high, in reality the experience of all network operators (and on the basis of which they plan their networks) is that the average throughput (and peak throughput as a margin above that) is much less than the notional speeds. Based on TelstraClear's cable network, a peak throughput rate of 50 kbps per service would be very conservative.	
<p><b>Request for service equivalence</b></p> <p>The Commission requires Telecom to provide the Commission and TelstraClear with quarterly reports on service parameters for the wholesale bitstream service to ensure that service equivalence is achieved with Telecom's design parameters for its Jetstream service. Appendix A sets out the service parameters to be measured. Costs of implementing and maintaining a monitoring system for measuring service parameters are to be borne by Telecom. Telecom has raised questions regarding the stability of a non-rate shaped service with an unlimited downstream capability and the Commission has requested clarification on this point in Consultation Question 6.</p>		<p>Telecom argues that the wholesale bitstream access service set out in the draft determination is not capable of measurement and reporting for consistency as it is not a service Telecom provides to itself (comparing apples and pears).</p> <p>Telecom submits that it is unable to report consistency of its bitstream access service with the services it provides for itself because</p> <p>(a) the performance of an unrate shaped service "is essentially random" (dependent on the maximum speed supported by the copper access cable). The service is thus not comparable with any service Telecom provides to itself,</p> <p>(b) reporting would also require Telecom to know details of rate-shaping etc applied by TelstraClear before Telecom could perform any comparison.</p> <p>(c) turning interleaving off will result in a</p>	Sections C1.3, C2.3, C3.	<p>It has been agreed between the parties that KPIs would be measured on test lines, not on actual customer lines. Accordingly, TelstraClear has no problems with information being shared about speeds and rate shaping applied to the test lines. TelstraClear proposes that some of the test lines would be rate shaped to the speeds comparable to Telecom retail services (allowing the apples and apples comparison) but that the parties also test TelstraClear services rate shaped to speeds different to Telecom retail services (to allow information to be collected about "the pears", although without KPI consequences).</p> <p>See below re compromise interleaving</p>	Section 6.7

Draft Determination	Draft Determination Paragraph No.	Telecom's Response	Telecom's Response Ref.	TCL Comment	TCL Comment Ref.
		<p>“highly unpredictable” service. Statistically reliable information could not be gathered because:</p> <ul style="list-style-type: none"> <li>(i) Telecom does not offer an interleaving off service to itself (not comparing like services); and</li> <li>(ii) Telecom would need to exclude from the information sample the effects of service unavailability due to resynchronisation events.</li> </ul> <p>Telecom argues that the draft determination fails to identify two key parameters for measurement and reporting – sample sizes and test duration. Although Telecom acknowledges that the draft determination sets a sample size of 50 DSLAM, Telecom states that it “does not currently know whether this is a large enough sample size” (para 175).</p> <p>Note that Telecom proposes testing the “common network” for UBS and JetStream. This is the network from the DSLAM to the first ATM Switch (see para 175 and 189).</p> <p>Telecom argues that its commercial UBS and retail Jetstream services are consistent to the extent technically possible. Telecom’s “fair and workable” proposal for bitstream access is accepted by the Commission, it could be made consistent with the commercial UBS product. (Section C3.2).</p> <p>Telecom proposes bi-annual comparative measurement of the lowest and highest specification of UBS services against equivalent JetStream services. Testing would involve measurement of latency, delay variation and</p>		<p>proposal.</p> <p>The parties should be able to negotiate the test details, with a referral back to the Commission if they cannot agree. The involvement of the auditor could facilitate agreement in these issues.</p> <p>TelstraClear agrees in principle with Telecom’s proposed approach in para 184, but these are details which can be directly agreed when developing the testing regime.</p> <p>TelstraClear agrees that the parameters to be measured are jitter, packet loss and latency. Contention ratio would not be measured. A test will consist of a stream of packets from a customer terminal to a measurement point within the network. This particular stream will be unloaded. That is to day, packets will into be sent at greater than 75% of the nominal line rate. This stream must then meet simultaneously the packet loss, jitter and latency requirements. The line from the customer to the DSLAM is inherently uncontended. The testing will establish that a fair service</p>	

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		<p>packet loss as well as TCP throughput. Telecom submits that the Commission's proposed service measurement parameters in Annex A of the draft determination are "flawed" as these parameters cannot be specified independently of each other or the service being provided (paragraph 185).</p> <p>Telecom proposes a 90 day period to allow the preparation of a "base-line report. After that initial audit, Telecom proposes using Agree Upon Procedures "similar to" those used for broadband report (lower costs than full audits).</p> <p>Telecom points to the costs of monitoring and reporting:</p> <p>(a) each DSLAM will require four test ports (one high speed UBS, one low speed UBS, one high speed Jetstream, one low speed Jetstream). These test ports will not be available for commercial use; and</p> <p>(b) administration of test analysis and audit costs.</p>		<p>exists from the customer to the ATM node.</p> <p>The parties should be able to negotiate these issues prior to the final determination and TelstraClear has written to Telecom proposing the parties do so.</p> <p>The costs of testing are a compliance cost of Telecom's to ensure it complies with the SAPs. The costs of testing are absorbed by Telstra and BT.</p>	
Telecom's quarterly reports are to be subject to an external audit by an auditor agreed by Telecom and TelstraClear, or failing agreement within 30 days of the final determination, appointed by the Commission. Direct costs of the audit function to be borne by Telecom and TelstraClear equally.		Telecom supports the proposal to refer the appointment of an auditor back to the parties for negotiation before the Commission intervenes.	Section B6	Agreed but the auditor should be appointed to assist in the development of the KPIs rather than after the KPIs are settled. This will provide an independent perspective and may facilitate agreement.	
<p><b>Interleaving</b></p> <p>The Commission requires Telecom switch interleaving off if requested to do so by TelstraClear for a wholesale bitstream</p>	253-266	Telecom acknowledges that interleaving can be turned on or off on a single port. On the one hand Telecom states that if has not performed testing and is "not...able to predict the impact of an interleaving option on its network" (para 137). On	Section C2, Section C4	TelstraClear believes that it may be possible to develop a compromise solution which allows Telecom to use interleaving where it matters most but where it has the least effect on	Section 6.6

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<p>supported customer. Telecom may impose efficient charges for this at a level approved by the Commission based on its incremental costs.</p> <p>The Commission notes that there is no reasonable technical impediment to individually configuring ports for interleaving and that any consequences of turning interleaving off will be limited to the particular port.</p>		<p>the other hand, Telecom predicts that the impact of an interleaving option will be to make the performance of the bitstream access service unpredictable due to increased noise and interference (increased packet loss and resynchronisation events).</p> <p>Telecom suggests further testing is required.</p> <p>Telecom seeks recovery of costs associated with an interleaving option.</p> <p>Telecom also argues that an interleaving off service "is likely to transgress the clause 6 limits [on reasonable technical and operational practicability and meeting the service demands of existing customers]." (Section C4)</p>		<p>TelstraClear's downstream services.</p> <p>Interleaving has the most impact in terms of delay for lower speed services and a relatively limited impact of higher speed services because those services are delivering a "fatter" pipe down which more packets can travel at one time. Conversely, interleaving is most useful in managing interference in the case of higher speed services and of limited use for low speed services.</p> <p>Accordingly, while TelstraClear believes Telecom's concerns about interleaving are overstated, TelstraClear proposes the following compromise approach:</p> <ul style="list-style-type: none"> <li>(a) interleaving would be turned on in the upchannel but the amount of interleaving would be set to a minimum in the upchannel;</li> <li>(b) interleaving would be turned on for all unrate shaped bitstream services;</li> <li>(c) interleaving would be turned off for rate limited services at the agreed capped level (e.g. 2Mbits or 3Mbits) offered on lines which exceed the 42dB noise level that is technically feasible.</li> </ul>	
<p><u>Usage limits on data downloads</u></p> <p>By common agreement of the parties, the Commission requires that the wholesale bitstream service must be provided without usage limits on data downloads.</p>	267-268	No comment			

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<p><u>Retail / Wholesale concurrency</u></p> <p>The Commission does not require Telecom to provide a wholesale equivalent of new Jetstream services not currently provided. The Commission notes that this requirement was agreed by the parties but finds that it is not required given the Commission's decision that a non-rate shaped downstream service should be provided to the maximum technical capacity of the DSLAM.</p>	269-270	Telecom agrees to retail/wholesale concurrency in line with it's " fair and workable proposal" if the Commission does not require an unrate shaped service.	Section G1.	<p>TelstraClear agrees concurrency is not relevant if an unrate shaped service is required.</p> <p>If the Commission decides not to proceed with an unrate shaped service, concurrency must be re-instated, otherwise Telecom will be able to launch products with downchannel speeds which access seekers cannot match.</p>	
<p><u>Operational Support</u></p> <p>The Commission requires Telecom to provide OSS to TelstraClear "whether manual or automated, such that there is no material difference in provisioning or fault repair in regard to the experiment of retail customers whether the retail services reliant on wholesale bitstream access are supplied to TelstraClear or Telecom".</p> <p>The Commission declines to make detailed determinations regarding OSS or minimum service levels, instead noting that these matters are under consideration by the Telecommunications Carriers Forum (TCF). The Commission expects OSS matters will be either dealt with by the TCF Code or by agreement between the parties. The Commission notes that either party may request the Commission to determine "any residual operational support issues that the parties are unable to agree upon".</p> <p>The Commission finds that the "efficient provision of OSS is an important aspect for</p>	271-279	<p>As a general principle, Telecom supports the Commission granting guidance to the parties on matters to be resolved by commercial negotiation. Based on the Commission's guidance, the parties should agree detailed implementation matters and any other matters relating to churn should be referred to the TCF.</p> <p>Telecom repeats its earlier submissions that:</p> <p>(a) industry wide solutions are preferable to solutions for individual customers;</p> <p>(b) short term implementation of provision has been completed;</p> <p>(c) Telecom already has a wholesale fault management centre;</p> <p>(d) internet based mapping systems exist for wholesale customers; and</p> <p>(e) Telecom's eOR has been deployed on a trial basis and further roll-out is expected in May/June 2005.</p>	Section B6, Section G2.	<p>TelstraClear endorses commercial negotiation over implementation, but given the delay which has already been involved in reaching this point, the Commission should ensure that the requirement to settle implementation measures does not unreasonably delay TelstraClear's entry to the market:</p> <ul style="list-style-type: none"> <li>• TelstraClear welcomes the Commission's maximum time frames for agreement on implementation. The much longer timeframes sought by Telecom (6 months or more after the final determination) are unreasonable;</li> <li>• Telecom itself says that the Draft Determination provides a framework for negotiation. TelstraClear has written to Telecom requesting that the parties immediately commence negotiations on the implementation issues which the Commission has identified, rather</li> </ul>	Section 9.1

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the provision of wholesale services".		<p>Telecom further submits that:</p> <ul style="list-style-type: none"> <li>• It's provisioning and delivery processes are "colour blind" to retail and wholesale orders so that orders are actioned in the order they are received by the wholesale provisioning team and service companies.</li> <li>• Broadband growth has been larger than expected and this has resulted in delay in lead times that are equally shared across retail and wholesale.</li> <li>• SAP3 (non-discrimination) requires services to be "consistent", not "identical". Sometimes wholesale customers do not require the service levels enjoyed by retail. For example, wholesale customers need a longer lead-time for service provisioning and</li> </ul>		<p>than wait for the final determination;</p> <ul style="list-style-type: none"> <li>• If Telecom refuses to do so, the Commission should convene a workshop on these matters. The Commission has broad powers over process and such a direction would assist the Commission identify the matters which remain in dispute and have to be resolved by the Commission in a final determination; and</li> <li>• The final determination should provide that TelstraClear may elect to commence supply of the bitstream service pending implementation of the KPI regime and other similar issues.</li> </ul> <p>The complaint TelstraClear and other access seekers make is that the front end processes through which wholesale orders must be entered and processed before they get to the "colour blind" processes are opaque, highly inefficient and poorly designed. The result is that the end-to-end process for end users supplied by wholesale customers is substantially worse than the end-to-end process for Telecom Retail end users, even if some parts of the process are performed on a non-discriminatory basis.</p> <p>As the submissions of other access seekers such as CallPlus and ihug show, Telecom's eOR is regarded as seriously</p>	

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		<p>delivery in order to confirm details with their customers.</p> <ul style="list-style-type: none"> <li>eOR will automate confirmations in the broadband provisioning process and allow wholesale customers to "enter their order electronically, and have an automatic response, effectively by passing the wholesale provisioning team"(paragraph 393). It also allows on-line order monitoring. However, "the nature of Telecom's organisation and its current systems require and justify different entry and exit points for provisioning requests from retail and wholesale."(paragraph 394).</li> </ul> <p>Telecom has a dedicated wholesale fault management center and no priority is given to handling retail over wholesale reported faults or vice versa.</p>		<p>deficient and even less efficient than the processes it was meant to be replace. It involves a high level of double keying, and therefore inaccuracies and rejections, does not allow responses from Telecom to flow back into the access seekers' OSS, therefore requiring manually intensive processes to query and download data from the eOR page, and is missing key functionality, such as electronic processes for fault reporting.</p> <p>As the experience of developing long term number portability in New Zealand demonstrates, the parties are unlikely to agree on how to implement the Commission's high level principle of OSS equivalence without more guidance from and continuing oversight by the Commission. TelstraClear's requests relating to OSS reduce to the following basic terms:</p> <ul style="list-style-type: none"> <li>There should be a clear commitment to a solution which provides for the direct electronic inter-working of Telecom's and access seekers' OSS which is scalable to the New Zealand environment. There is enough overseas experience to show that, as with mass market retail services, an electronic solution is the most efficient, pro-competitive approach.</li> <li>Telecom should provide, from the outset, an ability to exchange service request information.</li> </ul>	

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				<p>TelstraClear will be unable to achieve the volumes required to meet the Government's broadband objectives unless there is a rudimentary form of electronic data exchange (and which eOR does not provide).</p> <ul style="list-style-type: none"> <li>• The parties work should be required to agree the specifications, timing and implementation of a fully electronic OSS system. The initial project plan should be agreed within 90 days of the Commission's final determination.</li> <li>• The Commission should continue to actively oversee the development of the full OSS solution, including to resolve disputes over issues such as timing and required high level functionality.</li> </ul>	
<p><b>Static IP Addresses</b></p> <p>The Commission determines that Telecom should provide a wholesale bitstream service that does not prevent TelstraClear from providing static or dynamic IP addresses. The cost differential between Telecom providing static and dynamic IP address is minimal.</p>	280-286	Agrees	Section G3		
<p><b>Future wholesale bitstream availability in new areas</b></p> <p>The Commission requires Telecom to deal</p>	287-291	Telecom agrees to treat service requests by TelstraClear on the same basis as requests from Telecom retail. Details should be agreed between	Section G4	Telecom's concerns about not being able to comply with a fixed advance notice period would be addressed by requiring notice either 90 days in	

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<p>with service requests by TelstraClear on the same basis as new JetStream connections, taking into account wholesale as well as retail demand when considering sunk investment in deployment of ADSL to new areas.</p> <p>Telecom must give notice to TelstraClear of any expected upgrade of its network in an area to support ADSL "immediately the operational decision has been made ... and in any event, not later than the earliest date on which Telecom accepts a customer request" to provide ADSL in a new area.</p>		<p>the parties.</p> <p>Telecom notes that it is unable to provide fixed notice for upgrades. Its current Line Check Tools allow for quarterly updates on planned upgrades and this should be sufficient.</p>		<p>advance or the installation of the DSLAM, whichever is longer.</p>	
<p><u>Service Transferral</u></p> <p>The Commission requires that:</p> <p>(a) Refunds are given to JetStream customers churning to TelstraClear for the unusual portion of the customer's JetStream service within the relevant billing period; and</p> <p>(b) TelstraClear be charged for wholesale bitstream access for the churned customer only from the date on which service transfer is implemented.</p>	<p>292-297</p>	<p>Telecom submits that the Commission does not have power under the Act to require it to give refunds to JetStream customers.</p> <p>Telecom notes that its current practice is to "ensure that implementation dates occur on the anniversary of the customer signing up" (i.e. the customer is not transferred until their Jetstream service has been fully used up) (paragraph 402).</p> <p>Telecom submits that its current JetStream billing system does not permit pro rata billing. Rollout of a system which permits pro-rata billing is planned for the last quarter of 2005. Pro-rata billing will be only permitted at that time. To require otherwise would be "a wasteful exercise" (paragraph 403).</p>	<p>Section G5</p>	<p>TelstraClear considers the Commission has ample power under section 30(d) of the Act.</p> <p>Telecom's "workaround" exacerbates the delays end users of wholesale customers face compared to retail end users because Telecom holds back orders to synchronise with the anniversary date. TelstraClear seriously doubts, given the reports from other access seekers of the difficulties in the Telecom wholesale channel, that Telecom can successfully implement this approach as wholesale orders climb.</p> <p>Pro-rata wholesale and retail billing applies in Australia to broadband services.</p> <p>TelstraClear would accept the roll-out of pro-rata billing in the last quarter of 2005 provided Telecom:</p>	

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				<ul style="list-style-type: none"> <li>• agrees pro-rata billing will apply at retail and wholesale;</li> <li>• provides a more definite date;</li> <li>• agrees to reasonable compensation to TelstraClear and end users equal to the part of the month which should have been billed if Telecom is late in making available the pro rata billing.</li> </ul>	
<p><b>Rebates</b></p> <p>The Commission declines to impose service level rebates. The Commission considers such sanctions to be unnecessary because the Commission's determination will be enforceable as a judgment of the High Court in its civil jurisdiction under section 61 of the Telecommunications Act.</p>	298-299	Agrees that rebates should not be imposed, but argues that this is because rebates are beyond the requirements of the SAPs.	Section G6	<p>The SAPs are legally binding and the Commission obviously has power to prescribe terms and conditions which deal with breach of the SAPs. Such rebates form a normal part of commercial terms and conditions, including Telecom's own service contracts with end users. However, TelstraClear is prepared not to press the rebate issue if a robust KPI reporting mechanism can be put in place.</p> <p>Telecom's proposals on the KPIs would not constitute a sufficiently robust reporting mechanism because:</p> <ul style="list-style-type: none"> <li>• Telecom appears to consider that it should come up with the KPIs largely in isolation from TelstraClear;</li> <li>• The auditor should be appointed to assist in the process of preparing the KPIs, not after as Telecom (and the Commission propose); and</li> <li>• Telecom makes the contradictory</li> </ul>	

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				<p>points that the KPIs for the connectivity service need to be the same as the retail services apart from minor technical differences, while the KPIs for the support processes need to reflect the differences between supply to wholesale customers and retail customers. TelstraClear accepts that exact equivalence is not necessarily appropriate, and that it may be necessary to identify an internal benchmark within Telecom. The auditor could fulfil a useful role in assisting the parties develop the KPIs because the qualitative or deductive judgments which may be involved in doing so; and</p> <ul style="list-style-type: none"> <li>• TelstraClear and other access seekers should not bear the costs of the KPI monitoring (TelstraClear agrees to pay half the costs of the auditor provided that the auditor functions in a more transparent and arms length fashion than for DSPL).</li> </ul>	
<p><b>Other non-price terms</b> The Commission requests additional information from the parties regarding the application of the non-price terms of Decision 497 to the wholesale bitstream and backhaul service.</p>	300-301	Telecom is unable to comment as TelstraClear's view has not been clarified. The lack of clarification means further non-price terms "cannot now be added to TelstraClear's application."	Section G7	TelstraClear has written to Telecom suggesting the parties meet to negotiate the balance of the terms which are to apply (either as set of consent terms or separately).	
<b>DATE OF COMMENCEMENT AND EXPIRY</b>	302-306				Section 9.2

Draft Determination	Draft Determination Paragraph No.	Telecom's Response	Telecom's Response Ref.	TCL Comment	TCL Comment Ref.
<p><b>Date of Commencement</b></p> <p>Date of initial determination is the date of commencement.</p>		<p>Telecom requests:</p> <ul style="list-style-type: none"> <li>(a) Forward looking commencement date;</li> <li>(b) Delay in providing final delivery of service/reporting requirements.</li> </ul> <p>Delivery of service will require:</p> <ul style="list-style-type: none"> <li>(a) Eight weeks for roll-out if no network issues arise</li> <li>(b) Three to six months for implementation and testing</li> <li>(c) 90days to prepare baseline report for monitoring and further 30 days for preparation of auditable report.</li> </ul>	Section C8.1	TelstraClear considers that it is not credible that Telecom could take 6 months or more to introduce an unrate shaped service as Telecom already offers such a service and the service basically exists but for the application by Telecom of rate shaping. This is not to understate the implementation issues, but TelstraClear believes that these can be agreed within the timeframes specified in the Draft Determination and that TelstraClear could commence to use the service even if the full terms are not implemented, such as the KPI regime.	
<p><b>Date of Expiry</b></p> <p>Determination to expire 24 months from the date of the Commission's initial determination. The Commission may set a new expiry date in a subsequent price review application.</p>		Telecom agrees to 24 month period but "does not agree with TelstraClear's previous assertions that the Commission should fix a flexible or indeterminate expiry date".	Section G8.2	Agree.	

## ANNEX 2: COMPARATIVE ISSUES TABLE BETWEEN INTERESTED PARTIES AND TCL

Interested Party	Issues Raised	TCL Comment
Business NZ	<p>Object to the Draft Determination on following grounds:</p> <p>(a) Single uniform pricing reduces customer freedom of choice; and</p> <p>(b) It will have negative effect on broadband uptake on SMEs.</p> <p>Price variation depends upon functions, performance and service plans, therefore providing consumers with choice of services to meet needs.</p> <p>Commission's finding in Draft Determination of a single level wholesale price for bitstream effectively takes away consumer choice for varied product.</p> <p>May also lead to low end customers and a larger number of customers generally may no longer be "economic" for Telecom, or any ISP to serve, leading to retail pricing to collapse to a single price.</p> <p>SMEs likely only to require basic broadband package.</p>	<p>Business NZ confuses price discrimination with product differentiation. Business NZ recognizes that differential pricing should apply depending on functions such as performance and speed which is price differentiation. These characteristics are provided by the access seeker through the transmission components. The Commission's purpose in unbundling the retail Jetstream service was exactly to allow the type of downstream differentiation that Business NZ supports.</p> <p>The current price discrimination which Telecom can practice as a dominant supplier means that Business NZ's members pay substantially more for exactly the same service which is provided to residential end users.</p> <p>As the wholesale price is calculated on a retail minus basis, even if calculated from an imputed retail price, it seems highly unlikely that the wholesale price will be below cost. Even Telecom has not alleged that the Commission's proposed access price is below costs.</p> <p>TelstraClear fundamentally disagrees with Business NZ's view of the requirements of SMEs. SMEs can utilize low costs, high bandwidth to remotely use applications which large corporates can host inhouse on their own LANs. As Point Topic set out in the report TelstraClear provided to MED as part of its response to the LLU Report, 1Mbits is now the standard application for SMEs overseas.</p>
CallPlus	<p><b>Q1 - Market Definition</b></p> <p>Given technical and pricing characteristics, FWA, fibre and cable consumers do not consider these substitute products for ADSL.</p> <p><b>Q2 - Product Dimension</b></p> <p>Agrees with Commission that symmetrical and asymmetrical services are not in the same market and are not substitutable services for ADSL services.</p>	<p>TelstraClear agrees that symmetrical services delivered by fibre are not in the same product market. TelstraClear does acknowledge that FWA, asymmetrical services on fibre and cable are in the same market as ADSL, but the providers of services on these technologies are not a significant competitive threat to Telecom.</p> <p>Agree</p>

Interested Party	Issues Raised	TCL Comment
	<p><b>Q3 – Geographic Dimension</b></p> <p>Agrees with Commission that there is a national market as indicated by Telecom’s national price offering.</p> <p>There should be no artificial segregation of the service to create multiple price points.</p> <p><b>Q4 - Competition assessment</b></p> <p>Agrees with Commission that Telecom faces no real competition ion the market. Telecom’s product becoming “increasingly dominant”.</p> <p><b>Q5 and 6 – unrate shaped service &amp; instability concern</b></p> <p>Agrees with Commission that unrate shaped service is possible and that it will not cause instability. Instability will only be caused by network engineering.</p> <p><b>Q7 and 8 – Appendix A KPIs</b></p> <p>Telecom should be able to provide on-line real time reporting of service parameters.</p> <p><b>Appendix A</b> service parameter definitions to be amended:</p> <p><b>Contention ratio</b> – “The ratio of the sum of the end users access downstream bandwidth and the allocated bandwidth between the DSLAM and the network interconnection point (NNI) during the peak busy hour of any day”.</p>	<p>Agree</p> <p>Agree</p> <p>Agree</p> <p>Agree – available in Australia to Telstra Wholesale customers.</p> <p>Agree. Similar definition needs to apply to the upstream channel.</p>
	<p><b>Jitter</b> – “The difference in packet transfer time between the minimum absolute Packet Transfer Delay and the maximum Packet Transfer Delay of any packet of a range of sized packets streamed over 1 minute measurement interval offered at the access rate of the direction”.</p> <p>Clarification needed on difference between “Network Connection Point” and “Network Interconnection Point”.</p>	<p>TelstraClear has sought similar clarifications (see TelstraClear Response to Draft Determination, para 31).</p>

Interested Party	Issues Raised	TCL Comment
	<p>Service equivalence is extremely important but useless without effective measurement or penalty for non-compliance and request Commission to specify the consequences for non-compliance</p> <p><b>Q9 – Interleaving</b></p> <p>Costs to Telecom would be minimal and already borne by provisioning costs.</p> <p><b>Q11 – Decision 497 &amp; Non priced terms</b></p> <p>Support OSS issues &amp; have trialed the eOR system and comment as follows:</p> <ul style="list-style-type: none"> <li>• No automatic interfaces and manual entry of data increases costs and order time too long;</li> <li>• No reporting capability available to manage transactions;</li> <li>• Rejection rate on transactions is “exceptionally high”.</li> <li>• System needs on-line verification and justification for rejections.</li> </ul>	<p>Agree</p> <p>Agree</p> <p>The Commission should give significant weight to CallPlus’ comments on eOR because CallPlus has actual experience of the difficulties of competing against Telecom using eOR. Telecom’s inability to acknowledge and address the issues raised by wholesale customers such as CallPlus illustrate that Telecom, given the nascent nature of a wholesaling mentality within Telecom, is unable to put its self in the shoes of its wholesale customers in designing eOR. Telecom cannot be left to design eOR in a black box without guidance from the Commission.</p>
Federated Farmers	<p>Object to the Commission’ findings on following grounds:</p> <p>(a) unconstrained download speeds &amp; reach; and</p> <p>(b) single pricing</p> <ul style="list-style-type: none"> <li>• unrate shaped service will increase noise and reduce overall reach that can be managed to deliver the broadband service.</li> <li>• The reach of the Telecom network will be compromised and affected customers will be regional or those further from the exchange.</li> </ul>	<p>FF’s concerns are understandable, but an unrate shaped service, based on the BT test experience, will bring the benefits of higher speed services to many farmers without causing loss of service to others.</p> <p>TelstraClear’s proposal for a service qualification approach to identify lines which are too noisy to currently support unrate shaped services provides a reasonable balance between promoting competition in higher speeds for most customers while protecting the few sitting on noisy lines.</p> <p>The overseas experience is that higher penetration is driven by competition between the incumbent’s retail channel and wholesale</p>

<sup>87</sup> Network Strategies Report, Annex 1 to TelstraClear Submission on the Commission’s Draft Determination in the Interconnection Pricing Review, 26 May 2005.

Interested Party	Issues Raised	TCL Comment
	<ul style="list-style-type: none"> <li>Commission should allow other forums to address problems of reach via spectrum management.</li> </ul> <p>Single pricing for service will have impact on economies of scale for Telecom to continue to provide broadband service to regional areas.</p>	<p>suppliers using bitstream. BT and Telstra have achieved most of their scale in broadband services through the wholesale channel. The higher utilization of the copper network, and the risk sharing between retail and wholesale channels, should provide Telecom an incentive to increase its investment in the copper network, which is low by OECD standards.<sup>87</sup></p>
iHug	<p><b>Q1 – Market Definition</b></p> <p>Inappropriate to broadly define wholesale product market for bitstream. Issues such as cost and performance indicate FWA not in same market</p> <p><b>Q2 – Product Dimension</b></p> <p>There are differences between symmetric &amp; asymmetric services and ADSL asymmetric services should not be “arbitrarily constrained further than the natural limitations of the technology”.</p> <p>Difference in value to customers depends on the asymmetry i.e. 128kbps upstream/256 is OK and 1Mbps/256 not suitable.</p> <p><b>Q3 – Geographic Dimension</b></p> <p>Agrees with Commissions national pricing conclusion.</p>	<p>TelstraClear agrees that symmetrical services delivered by fibre are not in the same product market. TelstraClear does acknowledge that FWA, asymmetrical services on fibre and cable are in the same market as ADSL, but the providers of services on these technologies are not a significant competitive threat to Telecom.</p> <p>Agree</p> <p>Agree</p>
	<p><b>Q4 – Competition assessment</b></p> <p>Agrees with Commissions position that Telecom faces limited competition in national wholesale market for broadband access provision.</p> <p><b>Q5 – Unrate shaped instability</b></p> <p>No problems of instability will arise from unrate shaped downstream channel.</p> <p><b>Q6 – Non rate shaped service and OSI</b></p> <p>Unrate shaped service would not effect the provision of data streams at the OSI layer 2 level.</p>	<p>Agree</p> <p>Agree</p> <p>Agree</p>

Interested Party	Issues Raised	TCL Comment
	<p><b>Q7 – KPIs in Appendix A</b></p> <p>Criteria in Appendix A acceptable subject to suggested changes to:</p> <ul style="list-style-type: none"> <li>• Contention ratio to be no worse than 20:1;</li> <li>• Jitter no worse than 100ms; and</li> <li>• Packet loss no worse than 1%</li> </ul> <p>Current Telecom UBS service does not meet the Appendix A parameters and needs to be addressed.</p>	<p>While TelstraClear would prefer a better contention ratio, the Telecom content ratios for business and residential services are reported by Telecom to be 50:1.</p> <p>Disagree. Jitter should be less than 50ms.</p> <p>Agree on packet loss.</p>
	<p><b>Q8 – ITU definitions appropriate</b></p> <p>ITU definitions are appropriate to use for measurement of key parameters.</p> <p><b>Q9 – Interleaving</b></p> <p>Costs should not be recovered by Telecom and are likely to be insignificant.</p> <p><b>Q11 – Decision 497 Non priced terms</b></p> <p>These terms should be detailed in the draft.</p> <p>Assume reference is to Appendix 4 in Decision 497 and are not completely suitable for 2<sup>nd</sup> tier carriers nor do they currently reflect the terms of Telecom Wholesale Services Agreements.</p>	<p>Agree</p> <p>Agree</p>
<p>MediaLab and The University of Waikato</p>	<p><b>Q7 - KPIs in Appendix A</b></p> <p>They do not consider the Appendix A measurements to be appropriate because:</p> <ul style="list-style-type: none"> <li>• Contention ratio - is a design parameter of a network and not able to be directly measured;</li> </ul>	<p>TelstraClear welcomes the MediaLab submission. It shows that there are disinterested parties in New Zealand which could perform a value role in assisting define standards and facilitate agreement on the technical issues.</p> <p>Agree that it is probably better to focus on other criteria, such as jitter, latency and packet loss.</p>

Interested Party	Issues Raised	TCL Comment
	<ul style="list-style-type: none"> <li>• One-way testing - for jitter, latency, loss and throughput are inappropriate and should use round-trip measurements reducing complexity and cost and a more accurate reflection of real world applications.</li> <li>• Hybrid measurements approach – Draft determination uses hybrid of both active and passive measurements , hence 'hybrid' measurement approach. Should use purely 'active' measurement approach because less complex, less costly, same results can still be achieved, enables access seekers or client's to reproduce the measurements and can measure TCP throughput.</li> <li>• Packet Size – Draft only specifies packets of 64 bytes and this is not representative of many common packet sizes used for data transfer and will have very different performance characteristics. Adding extra packet sizes to test methodology is not complex. Recommends: 64, 200 and 1472 byte measurements.</li> <li>• Congestion – measurements and evaluation of performance must be tested on congested lines. 2 sources of congestion need to be considered: User generated and network generated congestion.</li> <li>• Throughput Tests – recommend that TCP throughput is used as basis for throughput measurement. Test length needs to be 3 to 4 times longer than considered in the Draft Determination.</li> <li>• Layer 2 measurement – All tests should be conducted at Layer 3 using IP Protocol as it is at this level that optimum measurements of consistency will be measurable.</li> </ul> <p>ITU definitions not appropriate and IETF definitions should be used.</p>	<p>One way testing is appropriate measuring jitter. We agree that latency is better measured on a two way or round trip basis. Packet loss should be measured on a one way basis but in both directions.</p> <p>TelstraClear believes that it is appropriate to use both active and passive measures. It may be useful to seek MediaLab's further views on this issue.</p> <p>Agree that it would be useful to add additional packet sizes to the baseline 64 byte packet.</p> <p>Disagree. The intention is only to measure the network level congestion and not user generated congestion given this is an access service only.</p> <p>TelstraClear prefers IETF definitions but we can work with the ITU definitions.</p> <p>Agree that should be tested at layer 2 using IPv4, but we disagree with the use of TCP for measurement as some important downstream uses will be based on UDP, such as multimedia and gaming.</p> <p>Prefer IETF definitions, but happy to also work with ITU definitions.</p>
InternetNZ	<p>Supports Commissions draft findings and comments on the following:</p> <ul style="list-style-type: none"> <li>• Real time capability - Quality of 128kbps service, as prescribed in Annex A performance metrics, falls short of acceptable internet</li> </ul>	<p>Agree, see amendments proposed by TelstraClear</p> <p>Agree</p>

Interested Party	Issues Raised	TCL Comment
	<p>quality of service.</p> <ul style="list-style-type: none"> <li>Market definition – Agrees with Commission that there is a national market.</li> <li>Competition Assessment – Agrees with the Commission that Telecom faces limited competition in the market.</li> </ul> <p><b>Initial Pricing Principles</b></p> <p>Telecom still gets monopoly rents.</p> <p>Uniform pricing approach endorsed (assuming no customer segregation).</p> <p><b>Churn Fee should be</b> lower churn fee than \$36.42 and Commission should determine the churn fee.</p>	<p>Agree</p> <p>Agree, should be excluded as required by Clause 3, Schedule 1 of the Act.</p> <p>Agree</p> <p>Agree or Commission provides commercial team with access to Telecom’s view of its costs.</p> <p>Agree</p>
	<p>Agree with unrestrained service. No risk of instability.</p> <p><b>Suggested metrics will not achieve required QoS.</b> Agrees with principle of equivalence with JetStream service but specifically comment on:</p> <ul style="list-style-type: none"> <li>Meeting KPIs 95% of time too much “uncontrolled time”.</li> <li>95% metric does not match the 99.3% service availability metric.</li> <li>Contention ratios: inappropriate to be used.</li> <li>Packet loss metric too high. Should be 1% not 3%.</li> <li>Latency &amp; jitter metric s should be &lt;50ms roundtrip</li> </ul> <p>Agree to allow customer to switch on or off so long as does not interfere with other service providers’ access.</p> <p>Commission’s findings on OSS are likely to result in extensive delays. TCF not reliable to manage OSS given number portability delays. Consider the</p>	<p>Agree</p> <p>Agree</p> <p>Agree</p> <p>See comment on MediaLab.</p> <p>Agree</p> <p>Agree</p> <p>Agree</p>

Interested Party	Issues Raised	TCL Comment
	Commission should: <ul style="list-style-type: none"> <li>• Set clear timetable;</li> <li>• Ability to revert to Commission if lengthy delays; and</li> <li>• Clear indication of the OSS principles to apply</li> </ul>	Agree
TUANZ	Strongly support the Commission’s draft findings. Request Commission to ensure the following remain in the final Determination: <ul style="list-style-type: none"> <li>• national market;</li> <li>• well defined KPIs; and</li> <li>• service provider can control speeds and provide differentiated service</li> </ul>	Agree Agree Agree
Business Roundtable	Oppose single price for wholesale bitstream service because: <ul style="list-style-type: none"> <li>• Does not take account of economic theory of elasticity of demand allowing variable pricing (Ramsey pricing quotation);and</li> <li>• This pricing (or “static efficiency”) does not reflect dynamic efficiency which is required in the broadband market</li> <li>• Also want assurances from Commission as to the stability for an unrate shaped service.</li> </ul>	See response to Business NZ.

### **ANNEX 3: ORDOVER ECONOMIC OPINION**

## **ANNEX 4: NETWORK STRATEGIES REPORT**

## ANNEX 5: AAS REPORT