TelstraClear Limited

Submission to the Commerce Commission 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"

16 December 2004

PUBLIC VERSION

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2 EXECUTIVE SUMMARY

1. These proceedings are for the implementation of the Commission's recommendations in the Unbundling Report. Those recommendations were forged in a consultation process that lasted over a year to determine the form of unbundling the Commission believed appropriate for the New Zealand market.

2. TelstraClear does not seek to enlarge or modify the terms of the designated services recommended by the Commission and has drafted its application to fit within the service descriptions, access conditions and access principles now incorporated in the Telecommunications Act 2001 ("the **Act**"). The Commission has already addressed a number of key policy issues through its design of the designated services and for this reason, factors such as "cherry picking" and Telecom's investment incentives in the NGN do not need to be reconsidered if the Requested Services fall within the terms of the Act.

3. Telecom's UBS Offer does not meet the requirements of the designated services or the statutory objective to promote competition for the long term benefit of end-users. Telecom's UBS Offer would not allow TelstraClear to provide a retail product that could compete with Telecom's services, such as in supplying online gaming services, and would not allow TelstraClear to innovate beyond the current limited Telecom Jetstream product set.

2.1 Service Description

4. The Requested Services meet the service descriptions under the Act. TelstraClear submits that its requested bitstream access service does not have real time capability. The description of the bitstream service in the Act focuses on the network capability of the wholesale bitstream service, not the manner in which the end-user experiences the downstream service. While the Requested Services support interactive services, they fall short of standards required to support carrier grade VoIP, which is a reasonable proxy for real time capability, and are of a poorer standard than would be expected of a NGN.

2.2 Access Conditions

5. TelstraClear submits that there is a national market for the Requested Services, evidenced by the fact that Telecom, despite facing some competition in

limited areas, continues to price both retail Jetstream and wholesale UBS on a uniform national basis.

6. If the Commission does not accept this submission and wishes to apply a geographical sub-division of the national market, TelstraClear submits that it should use Telecom's own geographical network sub-division for the provision of the Requested Services – Unbundled Regional Service Areas (**URSAs**) - and not the Exchange Service Areas (**ESAs**) originally used by the Commission for the purpose of calculating the costs and benefits of regulation in the Unbundling Report. The wholesale bitstream service description means that access seekers cannot connect at the local exchange level.

7. No matter whether a national, URSA or ESA market sub-division is adopted by the Commission, empirical evidence demonstrates that Telecom continues to face limited competition in the relevant markets throughout New Zealand, including in the 5 Auckland/Wellington ESAs. Economic analysis shows competition will continue to be limited if regulated access is not provided to the Requested Services.

2.3 Access Principles – Price Terms

8. Determining the correct retail-minus avoided cost in accordance with the pricing principles in the Act requires the Commission to select the appropriate retail plan from the suite of different retail plans Telecom currently offers. TelstraClear submits that the Commission should select a lower bandwidth retail plan containing less of the embedded avoidable costs of backbone and international capacity included in higher bandwidth retail plans.

9. TelstraClear submits that data-caps and per-megabyte pricing should not be taken into account in determining the retail baseline for retail minus services as these either reflect a particular retail strategy by Telecom or reflect "capacity savings" not relevant to the bitstream access service.

10. TelstraClear also submits that the appropriate retail plan should be one for residential users to ensure that the bitstream access service is equally capable of supporting competitive retail services for both residential and business end-users.

11. TelstraClear is currently undertaking benchmarking of wholesale bitstream discounts applicable in comparable jurisdictions.

12. TelstraClear also submits that the charges for support services like OSS should be calculated in accordance with the general principles set out in the draft

Number Portability Determination so that each operator should be responsible for its own costs in the provision of OSS interfaces. OSS costs, like number portability costs, are incurred in order to enable customer churn/competitive provision of services and thus generate industry-wide benefits shared by all consumers.

2.4 Access Principles – Non-Price Terms

13. TelstraClear submits that the non-discrimination Standard Access Principles ("**SAPs**") require Telecom to ensure equality of treatment between its own retail business and its wholesale customers.

    a. *OSS.* Telecom should provide an automated wholesale OSS interface that allows order, transfer, provision, change and cancellation of wholesale services in an equivalent manner to that Telecom provides to its own retail business. Such a system would be required to provide significantly more functionality than Telecom's proposed eOR system.

       That being said, TelstraClear also acknowledges that the development of appropriate OSS interfaces is a process which will require some time to get right. TelstraClear's requested terms and conditions seek to address its concerns regarding the general approach Telecom has taken in the development of these systems and allow TelstraClear to better co-operate with Telecom in the creating the required interfaces.

    b. *KPIs.* TelstraClear has also requested reporting of Key Performance Indicators to allow the Access Seekers and the Commission to better monitor Telecom's application of the non-discrimination SAPs. It is international best practice to require incumbents to report on their relative performance in this way (eg UK, Australia).

    c. *SLAs.* TelstraClear's requested Service Levels will ensure equality of treatment between Telecom's own retail operations and its provision of services to wholesale customers. If Telecom does not accept the requested Service Levels as reasonable in light of the statutory requirements in the SAPs, the Commission should require the preparation of an objective study as outlined in the annexed PwC report.

14. TelstraClear has become aware of an ongoing problem with the reassignment of customers from Telecom's Jetstream products to a competitor's retail product provided using Telecom's present UBS Offer. After reassignment, the customers' Jetstream services are terminated but there may be significant

delay before connection of the competitor's services. TelstraClear has accordingly requested the Commission direct that the disconnection of the retail Jetstream service and the connection of the bitstream service should, to the extent feasible, be simultaneous.

3 SCOPE OF THIS DETERMINATION

15. Following over a year of consultation on the regulation of different forms of unbundling, the Commission recommended the designation of the two services for which TelstraClear now seeks access:[1]

    a. access to, and interconnection with, Telecom's PDN (**bitstream access service**); and

    b. access to Telecom's PDN backhaul (**backhaul service**) (collectively "**the Requested Services**").

16. These present proceedings are about implementing the Commission's recommendations in the Unbundling Report. TelstraClear does not seek to enlarge or modify the terms of the designated services recommended by the Commission and has drafted its application to fit within the service descriptions, access conditions and access principles now incorporated in the Act.

17. In response to TelstraClear's application, Telecom argued that the Requested Services were contrary to the Commission's Unbundling Report as TelstraClear's access[2]:

    a. would lead to "cherry picking", deterring Telecom's investment incentives; and

    b. require the provision of a "business grade quality of service [that] would enable access seekers to share the benefits of the future features of Telecom's NGN".

18. First, the Commission has already considered these issues at length in the Unbundling inquiry. As a result, the Commission has designed the Requested Services to address these issues. The Commission should take care not to further dilute the commercial functionality of services it has already specifically tailored to meet concerns of the kind Telecom seeks to raise again.

19. Second, TelstraClear submits that, as a matter of fact, requiring Telecom to provide the requested access to the Requested Services will not result in the

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1 Commerce Commission, Section 64 Review and Schedule 3 Investigation into Unbundling the Local Loop and the Fixed Public Data Network: Final Report, December 2003 ("the Unbundling Report").

2 Letter from V Oakley (Telecom New Zealand) to O Borthwick (Commerce Commission), 18 November 2004.

type of "cherry picking" of which Telecom has complained. TelstraClear competes for *all* customers to whom it is economically viable for it to provide service. TelstraClear does not "cherry pick" only the high spend customers. As Professor Ordover comments in his statement at Annex C:

> "*The fact that some areas (and customers) have been addressed while others have not, should in no way be automatically labeled "cherry picking" behavior. A new entrant, like TelstraClear is starting essentially from scratch and does not have a legacy of ubiquitous connections to customers that were built up during the period of government protected monopoly. An entrant simply acts rationally when it first connects profitable customers and rolls out the network up to the point at which further expansion becomes unprofitable on an incremental basis. The problem is not one of "cherry picking" but rather is a challenge for regulatory policy in addressing those barriers to expansion*."[3]

20. Third, Telecom has misunderstood the Commission's Unbundling Report when it states that the Commission has "recognised in the past that designating a business grade quality of service would enable access seekers to share the benefits of the future features of Telecom's NGN."[4] Telecom cites paragraph 804 of the Unbundling Report in support of this statement:

> *"The Commission has modeled the bitstream access service based on Telecom's current JetStream products. In terms of potential dynamic efficiency gains, the Commission distinguishes between the effects of designating access to:*
>
> *(a) An ADSL bitstream access service which does not incorporate the future features and functionality of Telecom's NGN network such as video over DSL services; and*
>
> *(b) Business grade quality of service bitstream service that would enable access seekers to share the benefits of the future features of Telecom's NGN."*

21. TelstraClear's current application is not for access to Telecom's NGN. It is TelstraClear's understanding that Telecom has yet to deploy that network, at least in the access network layer. TelstraClear's current application is for access to a broadband local access service over Telecom's presently deployed network.

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[3] Ordover Report, Annex C, page 15.

[4] Telecom New Zealand *Response to TelstraClear's Application for Determination*, dated 18 November 2004, para7.

22. Telecom's concerns regarding designated access and its NGN investment could only be relevant if Telecom believed that the term "NGN" included the existing range of Internet based services that can be offered over the present network, which would be unduly broad for three reasons:

a. It is contrary to an international understanding of what can be classified as "NGN". The ITU working definition of NGN is as follows:

> *"A Next Generation Network (NGN) is a packet-based network able to provide services including Telecommunications Services and able to make use of multiple broadband, QoS-enabled transport technologies and in which service related functions are independent from underlying transport-related technologies. It offers unrestricted access by users to different service providers. It supports generalised mobility which will allow consistent and ubiquitous provision of services to users."* [5]

b. It is inconsistent with Telecom's own description of the differences between today's Jetstream and tomorrow's NGN. As described by Telecom's Chief Technology Officer ("**Telecom's CTO**") at the Unbundling Conference,[6] Telecom sees that difference coming down to the ability of the NGN to prioritise packets by service class which current DSL services cannot do:

> *"Telecom is implementing a Multi-services packet based network of the future…*[7]
>
> *…in order to make the multi-service delivery over a single access provide the quality required by customers, we must implement Quality of Service differentials across the Private IP Network…* [8]*"*
>
> *"If we look more closely at the logistical functions provided by the DSLAM in the Fast Internet scenario initially, we find that the DSLAM simply aggregates all of the traffic from the multiple input ports and directs it to a single virtual circuit. This virtual circuit is effectively designed for best efforts traffic only. This model applies to all Jetstream type traffic depending on the Telecom network today … **to***

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5 From www.itu.int/ITU-T/studygroups/com13/ngn2004/working_definition.html.
6 10-14 November 2003.
7 Milner script, para 49, www.comcom.govt.nz.
8 ibid, para 62.

date, there is no QoS differentials applied to any of the traffic flowing through any of the DSLAMS.[9]***"***

c. It is contrary to the Commission's own view of the meaning of "NGN" in the Unbundling Report. In the Unbundling Report the Commission clearly distinguished between the "ADSL bitstream service" it recommended for regulation and "**future** NGN functionality". The Commission stated at para 735 that:

> *"since only existing ADSL bitstream services (as opposed to future NGN services) may be subject to regulation … the potential dynamic loss of unbundling this ADSL bitstream service, and therefore the effect on the incumbent's investment incentives, are likely to be minimal".*[10]

23. As figure 1 illustrates, most of the services which Telecom's CTO identified as NGN services cannot be provided or provided to a reasonable quality level using the bitstream service requested by TelstraClear:

Figure 1: NGN vs Bitstream Capabilities

NGN Service Identified by Telecom CTO	**Is the NGN service capable of being supplied over TCL requested bitstream service?**
Multiple voice services	No, at best one limited quality VoIP call
Video telephony	Very poor quality
Video conferencing	Very poor quality
Remote working	Limited, because of 128Kbps up channel speed constraints of file transfer. Would not support customer-sited web-servers or games servers.
Fast Internet access	Yes
Interactive game	Yes, but limited multiple consoles capability
Broadcast quality video	No (6-8 Mbps per channel required)
Video on demand	No (as for broadcast quality video). "Trickle down" video possible where content cached at set top box
Security services	Possible, but customer may want higher availability time than DSL currently delivers (i.e. at "lifeline" standard of PSTN).
Home control services	Possible, but customer may want higher availability time than DSL currently delivers.
Provide the above services simultaneously over the same connection	No, requires QoS Multiple service provision is likely to be key differentiator of NGN over current DSL services.

[9] ibid, para 85, emphasis added.
[10] Unbundling Report, para 734.

24. Accordingly, the bitstream service requested by TelstraClear does not involve access to the NGN and does not require "features or functionality" of the NGN nor features or functionality that are close enough to those of the NGN such as to constitute an investment threat to the NGN. The bitstream service requested by TelstraClear is very much a "here and now" DSL service.

4 GUIDING PRINCIPLES FOR THIS DETERMINATION

25. The Commission is required by section 19 of the Act to consider the promotion of competition for the long term benefit of end-users in making access determinations. In achieving the implementation of its Unbundling recommendations, consistently with that objective, TelstraClear submits the Commission should consider:

    a. the access terms that are required to ensure there is an equality of competitive opportunity between Telecom retail and access seekers in the downstream supply of retail DSL services; or

    b. if the determination is not made on the requested terms, the negative competitive impacts of Telecom's Unbundled Bitstream Service (**UBS**) offer.

4.1 Non-discrimination

26. TelstraClear submits that the Commission is required to adopt access terms consistent with SAPs in order to "promote competition for the long term benefit of end-users" under section 18 of the Act. The most relevant SAP to these proceedings is the third SAP, which requires that:

> *"the access provider must provide the service on terms and conditions (excluding price) that are consistent with those terms and conditions on which the access provider provides the service to itself".*

27. TelstraClear's application squarely raises the issue of how to interpret and apply the SAPs which the Commission has not had to address in previous determinations. The Commission stated in its Access Determination Guide:

> *"Generally, competition and efficiency will be promoted through minimising discrimination in the terms and conditions of service. For this reason, the Commission is required to have regard to ensuring that the non-price terms and conditions of access **are no different** to external businesses as they are to internal businesses"* [11] *(emphasis added).*

28. Accordingly, the SAPs require that competing service providers be able to provide downstream retail services that are equal in quality, subject to the same conditions, and provided within the same provisioning time intervals as

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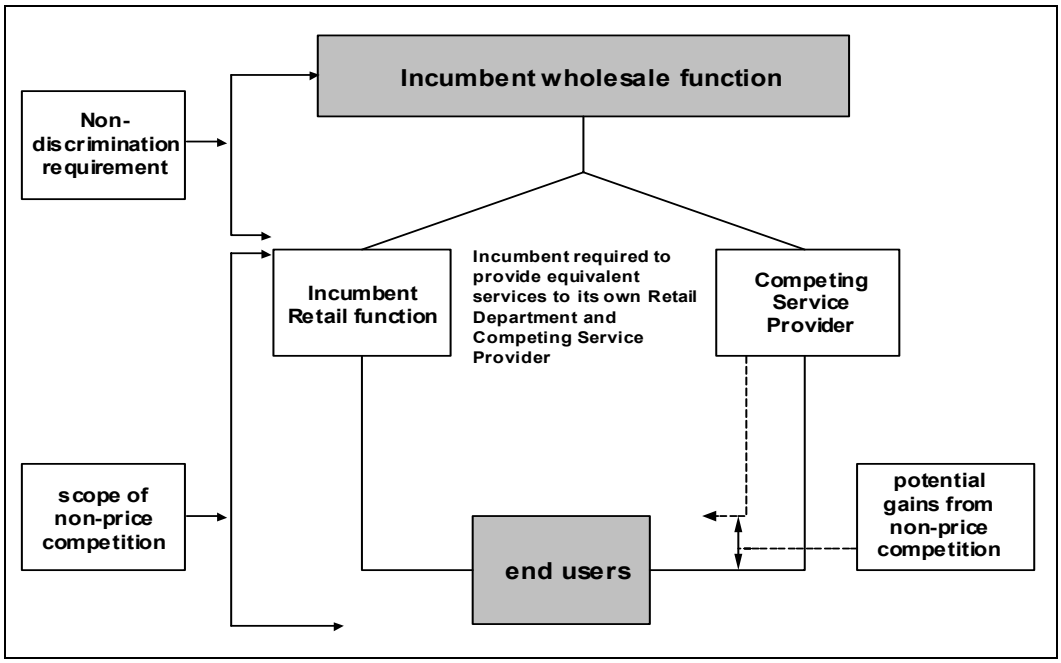
[11] Commerce Commission, A Guide to the Role of the Commerce Commission in Making Access Determinations under the Telecommunications Act, 28 May 2002, para 90

the services offered by Telecom's own retail functions. For this to work, an incumbent must be obligated to implement key operational processes, which will include ordering, provisioning, fault management and billing, in an efficient, cost effective and non discriminatory manner. This process is illustrated in figure 2.

Figure 2: Wholesale/Retail Distribution



29. As the Commission noted in the context of number portability systems.[12] the importance of equivalent and efficient inter-operator processes is explained by the economic theory of "raising rivals costs"[13]. Beard, Kaseman and Mayo examine input "sabotage", defined as "the intentional degradation of the quality of inputs sold by the dominant firm to unaffiliated downstream providers." They observe that:

> "*Sabotage occurs when the upstream dominant firm artificially increases the unit costs of unintegrated downstream rivals by degrading input quality or imposing other cost-increasing, non-price terms of sale. Unlike an input price increase, sabotage per se produces no additional revenue*

[12] Draft Determination on the multiparty application for determination of "local telephone number portability service" and "cellular telephone number portability service" designated multinetwork services, 6 December 2004, para 68.

[13] Scheffman sums up "raising rivals's costs" as "a set of strategies used by producers to increase their sales at the expense of rivals." Scheffman, D.T. "The Application of Raising Rivals" Costs Theory to Antitrust" (1992) 37 Antitrust Bulletin 187.

directly but can increase profits indirectly by eroding the competitive position of rival downstream sellers". [14]

30. The existence of regulatory controls on input pricing can incent the input supplier to engage in sabotage. Beard, Kaserman and Mayo conclude:

> "*On balance, then, sabotage can be a profitable strategy for a forward integrated dominant input supplier when regulation limits the ability of the firm to extract full rents from its dominant position. Sabotage is always profitable when the input price cap is severe, an ironic finding given economists' general penchant for supporting prices closer to incremental costs.*"[15]

31. If Telecom is required to make wholesale services available to TelstraClear at determined prices, Telecom will have incentives to:

    a. degrade the quality of those wholesale services provided to TelstraClear;

    b. raise the costs to TelstraClear of complementary services provided to TelstraClear such as customer reassignment, fault remediation, etc; and

    c. impose unrealistic requirements/costs for implementation.

32. Clearly, in enacting the SAPs, Parliament anticipated the risk that determination of prices for designated access services may result in delay or degradation of the quality of those services or their complements that are supplied to the rival. A vigilant regulatory posture is necessary, as "… enforcement efforts are unlikely to be fully successful in preventing sabotage as quality degradation is difficult to monitor and may be mistakenly attributed to exogenous and/or random occurrences."[16]

33. As TelstraClear will discuss in the balance of this submission, TelstraClear submits that non-price terms on which it has requested determination are in keeping with Telecom's non-discrimination obligations to provide non-discriminatory access under the Act.

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[14] Beard, T.R. Kaserman, D.L. and Mayo, J.W. "Regulation, Vertical Integration and Sabotage" (2001) 49 Journal of Industrial Economics 319 at 327.

[15] Beard, T.R., Kaserman D.L. and Mayo, J.W. "Regulation, Vertical Integration and Sabotage" (2001) 49 Journal of Industrial Economics 319 at 329.

[16] Beard, T.R., Kaserman, D.L. and Mayo, J.W. "Regulation, Vertical Integration and Sabotage" (2001) 49 Journal of Industrial Economics 319 at 331.

4.2 Telecom's UBS Offer

34. TelstraClear submits that the Commission is required by section 18(1) of the Act to consider the likely impact on the promotion of competition if the Commission decides not to require Telecom to provide TelstraClear with access to the Requested Service on the requested terms.

35. TelstraClear believes that, based on the past history of negotiations with Telecom, if the Commission does not set detailed terms of supply, TelstraClear will only be able to acquire wholesale services from Telecom on terms equivalent or substantially similar to Telecom's current UBS offer. For the reasons set out below, provision of services on the terms of Telecom's current UBS offer will not promote competition in the retail market for asymmetric broadband Internet access services.

36. The Commission has already noted that the Telecom UBS offer is significantly different from the regulated service as it:

> "*contains features that might differ from those the Commission might set following an application [for determination].*"[17]

37. The Commission has already identified one obvious point of variance between what Telecom is required to make available under the Act (and which TelstraClear now seeks) and Telecom's UBS Offer:

> "*Telecom's service is … at this stage limited to one speed configuration, whereas the regulated service includes all downstream speed variants capable of being supported by the network.*"[18]

38. TelstraClear submits that access on the terms of Telecom's UBS Offer will not "promote competition for the long term benefit of end-users" as required by section 18(1) of the Act for the following reasons:

    a. Telecom's current UBS offering will not allow TelstraClear to match the current Telecom Jetstream and XTRA service offering, as set out in figure 3 below; and

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17 Commerce Commission Statement on Unbundled Bitstream Service, 10 September 2004.
18 Commerce Commission Statement on Unbundled Bitstream Service, 10 September 2004.

Figure 3: Capabilities of Jetstream compared to UBS and TCL Bitstream

Service requiring real time network capability	**Can Telecom Jetstream provide?** [19]	**Can Telecom proposed bitstream service provide?**	**Can TelstraClear proposed bitstream service provide**
VOD	X	X	X
Video Streaming	At higher speeds and using trickle down	X	At higher speeds and using trickle down
Audio Streaming	✓	X	✓
Carrier VoIP	X	X	X
Interactive Games	✓	X	✓

b. Telecom's UBS offering would not allow TelstraClear to innovate beyond the current Telecom Jetstream product set. If TelstraClear obtained access to the Requested Services, it would provide customers with the following innovations:

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[19] The Telecom retail service can provide functionality, such as gaming, without some of the service characteristics TelstraClear has requested for wholesale bitstream, such as interleaving being "off". However, the service characteristics requested by TelstraClear for the wholesale bitstream service will allow access seekers to provide higher quality or more innovative downstream services, such as gaming applications with features on at a quality level which end users are likely to regard as more attractive. As discussed in section 5.1 the service characteristics requested by TelstraClear do not make the wholesale bitstream service a real-time service but involve tradeoffs against other characteristics which the Telecom retail service may have, such as reliability. Customers, therefore. will have choice.

[20] **[TCLRI]**

[20] [ ][TCLRI]

5 IMPLEMENTATION: REQUESTED SERVICE MATCHES THE SERVICE DESCRIPTION IN THE ACT

5.1 TelstraClear's Requested Service is within the service description in the Act

39. It is TelstraClear's position that, upon a robust and fair technical interpretation, the Requested Service is within the service description for bitstream.[21] A bitstream service conforming to the cumulative service parameters requested by TelstraClear:

    a. provides the quality of service reasonably required to support interactive services, such as gaming services. Telecom XTRA currently advertises its Jetstream Swift and Jetstream Plus retail services as "the ultimate gaming experience";

    b. does not provide a quality of service required for carrier grade VoIP in conformity with ITU standards, which is a reasonable proxy for "real time network capability"; and

    c. provides a quality of service which is substantially poorer than the standard that would be expected of a Next Generation Network, as illustrated by the standards which apply on TelstraClear's own NGN and to international standards currently being developed for NGNs.

40. An assessment by AAS of TelstraClear's service request against the wholesale bitstream, service description, which is set out at Annex B, concludes:

> *"In our view, the technical parameters requested by TelstraClear for the unbundled bitstream service do not constitute the parameters that would be required to deliver a real time service (such as telephony that meets the ITU-T recommendations) and do not rely upon a network having real time capability".*[22]

5.2 Telecom's objections to TelstraClear's service request

41. Telecom is misconceived in its view that TelstraClear's application is "at odds" with the Commission's decision to limit regulation to Internet grade services rather than ADSL business grade services.

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21 Added to Schedule 1 of the Act by the clause 6(c) of Telecommunications (Fixed Public Data Network) Order 2004.

22 Amos Aked Swift (NZ) Ltd, Report "Technical Aspects of Internet Access" ("AAS Report"), Annex B, section 7, page. 12.

42. First, the terms "business grade" and "Internet grade" do not form part of the statutory service description. The statutory wording instead distinguishes between "real time network capability" and "non-real time network capability".

43. Second, it is technically incorrect and conceptually misleading to assume that "business grade" services are synonymous with "real time network capability". As the annexed AAS Report comments, the distinction between "Internet grade" and "business grade" services as it appeared in the Unbundling Report is:

> *"unhelpful, as it describes the user of the access rather than the access itself. Both residential consumers and businesses will want access to a variety of services, each of which will have its own set of requirements of the access to provide reasonable performance. Accordingly, it cannot be assumed that residential end users' requirements can be met with Internet services that have a lower service grade than those provided to business end users. For example, the service grade required to support gaming services used by residential end users will support business applications, and vice versa."* [23]

5.3 Interpreting the Service Description

44. The bitstream service description focuses on the network capability of the bitstream service itself, not on how the end customer perceives the downstream retail service which is being provided using the service. What is central to the interpretation and application of the service description and its components is how, if or whether the downstream service actually relies on upstream real time network capability.

45. Today's 'standard' Internet available as a tool for use by the general public offers an increasing variety of services of growing sophistication. There are services offered over the Internet that may appear, at the customer level at least, to offer a broad facsimile of real time services, or what is perceived to be substitutes for real time services, but which in fact are not.

46. First, some services provided over the Internet are "near real time" services providing interactive capabilities, such as various interactive services and gaming services. Internet users will be unable to point and shoot at moving targets on their screens if the send and receive messages do not occur in reasonable proximity to each other, but that does not make the service real

[23] AAS Report, Annex B, section 3.2., page 6.

time. Therefore, it is important in applying the statutory service description not to confuse real time network capability with interactivity.

47. Second, there are services that involve two-way communication but offer poor quality connections due to the underlying network capability not being real time. VoIP services, for example, can be offered even over dial-up Internet connections. Hence, the fact that a bitstream connection is used by an end user to conduct a conversation with another person does not make it a service that relies on real time network capability.

48. If broadband Internet access services were to be made not capable of supporting interactive and lower grade two way services, it would be necessary to degrade the Internet as we know it:

> *"To stop these services, it would be necessary to intervene in the ordinary functioning of the Internet – such as by introducing packet delay. In other words, the Internet would no longer be the Internet"*[24].

49. Third, using the basic principles of statutory interpretation, the reference to the phrase "any function that relies on" should be read as meaning that in the absence of ("but for") real time network capability the function could not be offered. A downstream service that can be provided using real time network capability also may be useable without real time network capability, although at a lower service quality. The question, therefore, is usually not whether a particular service can be used over the bitstream service but whether the service is of a quality level only achievable by real time network capability. Again, VoIP is an example.

50. Therefore, the real time access limitation:

    a. must be assessed on the basis of the technical parameters of the bitstream service and not on the basis of the downstream services; and

    b. is essentially an issue of service quality at the network level.

5.4 Assessing "real time network capability"

51. In an IP environment, whether the network capability is real time is all about how fast and predictably packets travel in the round trip between the end user and the device (or person) to which he or she is connected.

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[24] AAS Report, Annex B, section 3.3, page 7.

52. Essentially, the parameters that determine the degree to which a service requires real time network capability are:

a. Latency;

b. Jitter; and

c. Packet loss and pack loss.

53. Depending on the service being used, these 3 parameters, both individually and collectively, can all affect the delay in packets being transmitted between two points of connection and, therefore the quality of the end user experience.

54. "Latency" refers to the delay (with respect to time) between a single packet leaving a point and arriving at a destination.[25] "Jitter" refers to the deviation from a specified latency.[26] "Packet delay" refers to the delay (with respect to time) between a single packet leaving a point and arriving at a destination. "Packet delay variation" refers to the deviation from a specified packet delay.

55. A high latency effectively means that a service cannot support real time capability. However, it is possible to use a service with a high but fixed latency (i.e. low jitter) to deliver services that appear to be in real time (such as streamed video and audio, but not voice over Internet Protocol).

56. When jitter is high, even what is referred to as "near-real time services" may only be delivered with difficulty given the unpredictability of the high jitter in the flow of the packets between points on the network. This will be the case even if the latency is low. High latency, as a "known" factor, can be managed, but jitter cannot.

57. The cumulative effect of both the latency and jitter will determine the total delay of the delivery of the packets that is relevant to whether a service is one that relies on real time network capability. If, for example, there is 50 milliseconds (**mS**) of latency and 20 ms of jitter, the total maximum latency is 50 + 20 = 70mS.

58. Generally, the relationship between latency and jitter and real time network capability is best seen in the representation in figure 4 below:

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[25] Latency is more accurately termed as IP Packet Transfer Delay or IPTD.

[26] Jitter is more accurately termed IPDV or IP Packet delay variation.

Figure 4: Impact of Latency and Jitter on Real time Services

	High latency	**Low latency**
High jitter	Non-real time	Non-real time
Low jitter	Non-real time	Real time

59. Thus, only if both the jitter is low and latency is low is a service likely to be able to be used to provide real time network capability as the service provided becomes more predictable and there is less delay and packet loss. Further as AAS notes in its annexed report, "[h]igher levels of jitter tend to have more effect on real time services such as VoIP than latency because jitter involves unpredictability in packet management, for which real time services have a low tolerance."[27] So, not only must latency and jitter both be low individually and cumulatively, but jitter will need to be lower than latency before the network capability can be regarded as real time.

60. Telecom's CTO described the limitations of current Internet protocol networks in delivering real time services as follows:

> "*However, good as [the] attributes of the Internet protocol are, they have some distinct limitations. Some types of communication don't like to arrive at the end destination out of order. Others don't like to have packets dropped on the way to the end destination, even if they are resent. Others don't like being stored for a period in a buffer while being processed by the TCP protocol. In particular, voice is an application that doesn't respond well to any of these anomalies. Voice is a real time communications service ... Other applications such as video, citrix, SAP, etc. are all impacted by one or more of the anomalies identifies for voice. This means that we must implement a Quality of Service regime over the top of the basic IP packet layer".*[28]

61. As noted above, Telecom's CTO identified a QoS system as one of the prime differentiations between current DSL services and the future NGN.

5.5 International Standards for VoIP as benchmark for real time network capability

62. TelstraClear submits that a reasonable benchmark for real time network capabilities is the internationally accepted network standards required to

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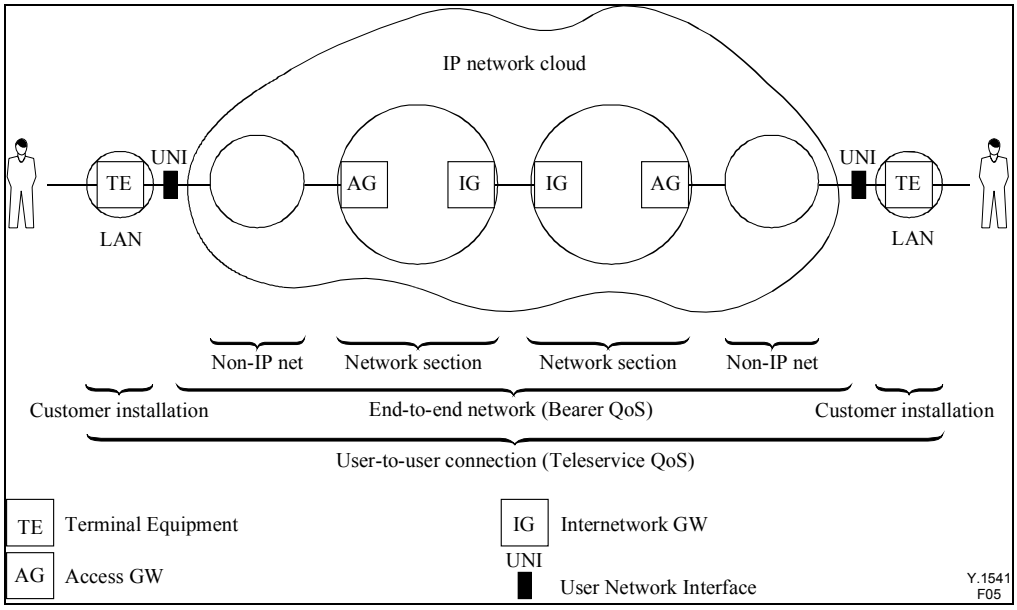
[27] AAS Report, Annex B, section 4, page 7.
[28] Milner script, paras 29 and 30,

support connections directly between people. VoIP at this service level is described as "carrier grade" VoIP because it is equivalent to real time switched voice services over the PSTN.

63. ITU-T Recommendation G.114 provides general recommendations for the one way transmission delay of a telephone circuit. It recommends a one-way transmission time not exceeding 150 mS. Delays in excess of this figure will introduce service degradation beyond acceptable levels for users. This recommendation refers to the end-to-end delay (i.e. the mouth-to-ear delay). The bitstream service requested by TelstraClear corresponds to the "non-IP net" segment in figure 5:

Figure 5: Mouth-to-Ear Pathway for VOIP Call



64. For example, the coder-decoders (codecs) at each end of the circuit typically contribute 80 mS of delay, leaving a maximum of 70 mS of delay in the entire network to deliver a satisfactory (by ITU standards) voice circuit. This figure represents cumulative jitter and latency. For example, if 60 mS of latency was incurred, this would leave 10 mS of latency, 50 mS of latency would allow 20 mS of jitter and so on.

65. Voice services are particularly sensitive to jitter, and it is generally accepted that jitter by itself should not exceed 20 mS, 30 mS at the outside.

66. TelstraClear requested a service with up to 50 mS network latency and up to 50 mS jitter. In the presence of maximum jitter, the total latency would be given by 80 mS (equipment latency) + 50 mS (network latency) + 50 mS (jitter)

= 180 mS, which already exceeds the ITU standard for carrier grade voice service without any additional latency in the TelstraClear network and the called party connection.

5.6 Other Requested Service Parameters

67. The other service parameters requested by TelstraClear, such as higher bandwidths, rate shaping and interleaving off at TelstraClear's option, do not alter, individually or collectively, the conclusion that the Requested Service does not amount to real time network capability. This is because real time services depend on the two way transmission of packets and the limited upchannel speed of 128 kbps "throttles" the bitstream service to levels that cannot support carrier grade services. Quality of service improvements in the down channel will not overcome this upchannel limitation.

68. Higher bandwidth in a channel can reduce latency and jitter in that channel because there is a "fatter" pipe for the packets to travel down, but it is not economically feasible to throw enough bandwidth at end users to compensate for the inherent packet delay problems of the Internet which make real time services impracticable (the higher bandwidth would have to be made available in both the up channel and the down channel). As Telecom's CTO commented at the Unbundling conference:

> "*Now there are those who say that QoS can be simply managed by providing more bandwidth. This is indeed true, however, in a multiservice environment this solution is very expensive to deliver. It is much more economical, particularly in the residential market to provide QoS differentiation and support a regime of performance guarantees*."[29]

69. Turning to interleaving, it is a packet management strategy that separates the instruction packets (Forward Error Correction or FEC) from the packets carrying the end user's content (the payload packets). Having interleaving on makes a connection more reliable (and thus extends the geographic range of reliable DSL service), but has a penalty of higher latency (because the end user device or server has to wait longer for the FEC so it can reassemble the packets in the right order and determine what packets have been lost). Having Interleaving off makes a connection less reliable, but has the advantage of lower latency important for gamers and for use in real time applications. Turning off interleaving improves service quality for gaming applications.

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[29] Milner script, para 63.

70. As the AAS Report states, the issue of whether interleaving is on or off is "not equivalent to the dividing line between non-real time and real time network capability."[30] Turning interleaving off will decrease latency but by itself this will not reduce latency and jitter to such an extent that the network capability becomes real time. Improving the down channel packet speeds does not overcome inbuilt latency and jitter in the restricted 128 kbps upstream channel.

71. Telecom argues that turning interleaving off is not technically feasible. However, TelstraClear believes that the Telecom DSLAMs will allow interleaving to be turned on or off on an individual line basis. TelstraClear recognises that there is a trade-off which TelstraClear (not Telecom) faces in deciding whether to turn interleaving off: without interleaving, TelstraClear's customers located at distances beyond 4 kms from the Telecom exchange may experience a degree of service degradation. However, as noted by AAS:

> *". . . customers in the same service area for which Telecom leaves interleaving on would be unaffected because each customer is served over dedicated copper pairs. The trade off between lower latency with interleaving off and lower service reach is one TelstraClear could make without adversely impacting Telecom and its customers."*[31]

72. Figure 6 summarises the comparative requirements of different services for bandwidth, latency and jitter. The combination of service parameters requested by TelstraClear is pitched at the interactive service layer and below, not at the multimedia/VoIP layer.

Figure 6: Network Requirements for Downstream Services

	Bandwidth	**Latency**	**Jitter**	**Loss**
Multimedia/VoIP	Medium	Moderate	**Important**	Moderate
Interactive	Low	**Important**	Moderate	**Important**
Data Transfer	**High**	Unimportant	Unimportant	Moderate
Web browsing	**High**	Unimportant	Unimportant	Moderate

[30] AAS Report, Annex B, section 4.2, page 8.
[31] AAS Report, Annex B, para 4.2, page 8.

5.7 Policy considerations of Commission and how this service request does not conflict with them

73. The primary reason for the Commission carving out real time network capability was to protect the investment incentive for Telecom's NGN.[32] Therefore, it is relevant to compare the service parameters requested by TelstraClear with the service parameters to which NGNs operate and the emerging international NGN standards. As is noted in the AAS Report, "*typically, NGNs would operate at performance standards that are higher than the international VoIP standards*."[33] As discussed below, the NGN service levels are likely to be 3 or more times as stringent as the service parameters requested by TelstraClear.

74. First, as discussed above, one of the defining characteristics for a NGN is the capability to manage QoS by assigning different priorities (and therefore end user charges) to packets depending on the need for higher service levels, such as to support real time capability. As Telecom's CTO has stated, the Telecom Jetstream service, and the bitstream service which is unbundled from it, do not currently support that capability and TelstraClear has not requested it.

75. The ITU has defined the QoS classes for NGN in ITU-T recommendation Y.1541[34], as set out in figure 7. Only the two top classes are described as "real time" and a distinction is made between "real time" and "interactive".

Figure 7: Guidance for IP QoS classes[35]

QoS class	Applications (examples)	Node mechanisms	Network techniques
0	Real-time, jitter sensitive, high interaction (VoIP, VTC)	**Separate queue with preferential servicing, traffic grooming**	Constrained routing and distance
1	Real-time, jitter sensitive, interactive (VoIP, VTC).		Less constrained routing and distances
2	Transaction data, highly interactive (Signalling)	**Separate queue, drop priority**	Constrained routing and distance

32 Commerce Commission, Section 64 Review and Schedule 3 Investigation into Unbundling the Local Loop and the Fixed Public Data Network: Final Report, December 2003 ("the Unbundling Report"), para 806, page 198.

33 AAS Report, para 3.2, page 5.

34 ITU-T Recommendation Y.1541 05/2002 "*Internet protocol aspects – Quality of service and network performance*" ["ITU-T Recommendation Y.1541 05/2002"]. Developed by ITU-T Study Group 13 as part of the ITU-T's Series Y: Global Information Infrastructure and Internet Protocol Aspects

35 ITU-T Recommendation Y.1541 05/2002,Table 2

QoS class	Applications (examples)	Node mechanisms	Network techniques
3	Transaction data, interactive		Less constrained routing and distances
4	Low loss only (short transactions, bulk data, video streaming)	**Long queue, drop priority**	Any route/path
5	Traditional applications of default IP networks	Separate queue (lowest priority)	Any route/path

76. Work is now underway to define service parameters for these classes in terms of latency, jitter etc. The provisional service parameters are set out in figure 8, which are measured on an end–to-end basis between end user devices. In the figure, IPTD is IP Packet Transfer Delay (latency), IPDV is IP packet delay Variation (jitter); IPLR is IP Packet Loss Ratio and IPER is IP Packet Error Ratio.

Figure 8: Provisional IP network QoS class definitions and network performance objectives

Network performance parameter	Nature of network performance objective	QoS Classes					
		Class 0	Class 1	Class 2	Class 3	Class 4	Class 5 Unspecified
IPTD	Upper bound on the mean IPTD	100 mS	400 mS	100 mS	400 mS	1 s	U
IPDV	Upper bound on the 1 – 10–3 quantile of IPTD minus the minimum IPTD	50 mS	50 mS	U	U	U	U
IPLR	Upper bound on the packet loss probability	1 × 10–3	1 × 10–3	1 × 10–3	1 × 10–3	1 × 10–3	U
IPER	Upper bound	1 × 10–4					U

77. As illustrated above in figure 5, the maximum packet delay that can be attributed to the access network component (i.e. the bitstream service) is only a proportion of overall delay permissible for the service class set out in the above table. In the worked examples in Appendix III to the ITU Recommendation, the "Non-IP net" (which is equivalent to the bitstream service) is assumed to have an average IPTD of 15 mS to enable the real-time Class 0 to be achieved.[36]

[36] As part of the ongoing work on NGN, ITU-T SG13 (and equivalent work in other standards bodies) looked at means of further describing and allocating delay in packet-based networks. The ITU-T drew on work in ETSI to develop the "E-Model" as a computational model for use in

78. These ITU standards are comparable to the service parameters on TelstraClear's own network. TelstraClear has already deployed an NGN. Our network can support different service classes and the range of video, data and entertainment services that Telecom is proposing to deploy. Separate standards are set for interactive services and multimedia services, which include voice and higher grade video services, such as video conferencing. The latency, and, in particular, the jitter standards are substantially stricter than the service parameters that TelstraClear has requested for the bitstream service.

Figure 9: TelstraClear NGN Performance Levels- Contains TelstraClear designated Restricted Information

[

][TCLRI]

5.8 Summary

79. As AAS concludes:

> "*The service requested by TelstraClear is capable of supporting interactive gaming services provided over the Internet and, without the service requirements for latency and jitter of the order requested by TelstraClear, the bitstream service could not support gaming. Equally, the service requested by TelstraClear is not capable of delivering ITU standard voice service over IP and are considerably less stringent than would be required for an NGN. We note in particular that jitter at a maximum of 50 mS is significantly higher than would be tolerable for real time services*."[37]

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transmission planning (described in recommendation G.107 and extended by recommendation G.108). Recent work has produced a further document looking at the application of this model to NGN type networks. In this work, several examples have been developed for voice calls, such as two VoIP terminals interconnected via a packet-based network that complies with ITU-T Recommendation Y.1541,05/2002 Class 0. These examples provide for a delay in the local access network component of an NGN only 5 Ms: ITU-T Recommendation G108, Amendment 2 (03/2004) "New Appendix II – Planning examples regarding delay in packet-based networks"

[37] AAS Report, Annex B, para 5, page 10.

80. The differences between an ADSL access service with real time network capability and the service requested by TelstraClear are illustrated by figure 10:

Figure 10: Differences between Real Time Service and TCL Requested Services

A. Requested Service Characteristics	**B. If Real time service – service would comprise of:**	**Significant differences between A & B**
Total packet delay of no more than 100 mS	Total packet delay of no more than 70 mS, with a lower packet delay for top QoS NGN classes of no more than 40-50 ms	The additional delay permitted under the TCL service request is outside the tolerance levels for carrier grade VoIP and real time NGN services
Jitter up to 50 mS	Jitter of no more than 40 ms for carrier grade VoIP and for top QoS NGN classes of no more than 8-20 ms	Jitter, even more so than total delay, is substantially above levels that real time services would tolerate
< 0.1% loss	< 0.1%	Essentially no difference between non-real time and real time as higher % loss would be unacceptable for non-real time.

6 MARKET DEFINITION AND MARKET POWER

81. The Unbundling Report did not definitively resolve the market definition and market power issues, otherwise the access condition for the Requested Services would have expressly excluded the Auckland Central, Mt Wellington, Manukau City, Courtney Place and Wellington ESAs (**the 5 Auckland/Wellington ESAs**). TelstraClear notes here that the purpose of the Commission's investigation in the present proceedings is not the same as the inquiry in the Unbundling Report. Whereas previously the Commission considered these issues to determine whether the benefits of regulation outweighed the costs for the purposes of recommending regulation under section 64, the Commission is now required to determine if the access conditions in Schedule 1 of the Act at Subpart 1 of Part 2 are met.

82. The Unbundling Report also considered the degree of access competition broadly for all downstream customer and product markets for the purposes of assessing a wide range of possible regulated access services, including LLU, line sharing and bitstream.[38] However, in the present proceedings the Commission must consider whether Telecom faces limited competition in the market for the specific designated service – namely asymmetric bitstream access as defined and limited by the Act. The scope for access competition is likely to be less in the wholesale bitstream access market than the broad assessment made in the Unbundling Report, since the designated access service will only facilitate the provision of services to a subset of customers, namely SMEs and residential customers.

83. In addition, the service delivery methodology for Telecom's UBS offer also indicates that the Commission's exclusion of the 5 Auckland/Wellington ESAs in the Unbundling Report should be reviewed as a part of these implementation proceedings. The Commission adopted a geographical market definition based on ESAs in the Unbundling Report because the provision of the unbundled local loop would have involved access seeker equipment being installed in Telecom's local exchange.[39] However, as defined by Telecom, the delivery of Telecom's wholesale bitstream service has not been based on the Telecom ESA and is based instead on Telecom's 34 Unbundled Regional Service Areas (**URSAs**), which are the "catchment" areas for Telecom's ATM switches. As a result, TelstraClear submits that it is the URSAs, not the ESAs, that are relevant for the consideration of access

[38] Unbundling Report, para 432.
[39] Unbundling Report, paras 358-362.

competition in the wholesale bitstream market if a national market definition is not accepted by the Commission.

6.1 National Markets

84. While TelstraClear and some other entrants have deployed network in limited areas, demand side factors, as illustrated by Telecom's market behavior, clearly indicates that the market for bitstream services is a national market:

a. Telecom has proposed national pricing for UBS, including within the 5 Auckland/Wellington ESAs; and

b. Telecom's published pricing for the downstream retail Jetstream services consistently has been and continues to be, on a national basis. The only competitor related factor reflected in Telecom's published pricing is whether the end user acquires toll services from Telecom or another operator. Telecom's existing and new Jetstream plans are set out in Annex G.

85. As a mass market (residential and SME) product, the principal marketing channel for Jetstream is mass media. Telecom markets the service on a uniform basis nationwide.

86. TelstraClear, of course, does not have national pricing because it does not have a national network. In areas where TelstraClear has network, TelstraClear's pricing for comparable services where available sits below the Telecom national published pricing which applies uniformly across areas in which TelstraClear has network and does not have network. For example, TelstraClear's retail pricing for residential customers is as follows:

Figure 11: TelstraClear Broadband Pricing

TelstraClear Product Name	Download/ Upload Speeds (kbps)	Plan Traffic Allowance	Price to Customers	Additional Usage Charges
HighSpeed 1G	2048/512	1GB	$39.95 excl. cable modem rental	$4.95 per 100 MB
HighSpeed 5G	2048/512	5GB	$59.95 excl cable modem rental	$9.95 per 500 MB
LightSpeed 10G	10240/1024	10GB	$139.95 excl cable modem rental	$14.95 per 1000 MB

87. Woosh Wireless is also offering lower published prices in its service areas than Telecom's nationwide published pricing for comparable services:[40]

Figure 12: Woosh Wireless Broadband Pricing

Plan	Download speed	Plan traffic allowance	Price	Additional usage charges
Woosh everyday	250 Kbps	10,000 Mbyte	$54.95	nil[41]
Woosh express	250 Kbps	1,000 Mbyte	$39.95	nil[42]

88. Professor Ordover considers that this pricing evidence points to a national market:

> *"It is my understanding that Telecom charges a single, national price for its retail asymmetric broadband access (Jetstream) services, the retail, downstream version of its unbundled bitstream service. I also note that Telecom has chosen to offer its commercial Unbundled Bitstream nationally, again at a single price. Given the elements of our analysis, that means that – from the standpoint of market definition – there is only one national market for retail asymmetric broadband access services and that Telecom's profit-optimizing national price for Jetstream services reflects the aggregate of competitive constraints operating on its Jetstream services."*[43]

89. Ofcom recently defined a national market in the UK for broadband Internet access, driven largely by BT's national pricing for retail asymmetric broadband access services.[44] Ofcom found that while BT had a market share of only 30-35% in areas where competing operators delivered comparable broadband Internet access services, BT had made a commercial decision to continue to price on a national basis, for reasons similar to those outlined by Professor Ordover. Ofcom stated that:

> *"it is appropriate to define a national market … where a single national pricing constraint holds. …. Where operators offer a service (with cable companies being limited to the geographic reach of their product offerings) that service is priced on a nationally averaged basis. This need not necessarily be the case and it could be argued that the expectation would be that operators would charge geographically de-averaged prices to reflect the*

40 The higher pricing of the Woosh services would seem to reflect the higher data caps compared to Telecom's basic service.
41 Speed can be reduced to dial-up once exceed download limit.
42 Ibid.
43 Ordover Report, Annex C, page 19.
44 Ofcom, "Review of the Wholesale Broadband Access Markets" – Final Explanatory Statement & Notification, November 2004, Chapter 2.

differential competitive conditions …. Therefore, this pricing data indicates that the appropriate geographic market definition is a national market. Moreover, all operators advertise on a national basis, providing further support to the conclusion that the market is national."[45]

90. Telecom clearly faces limited competition in this national market:

a. It is the only operator that can offer broadband asymmetric Internet access services to substantially all of the customers across the national market;

b. It is able to leverage advantage from its ubiquitous telephony network in offering Jetstream and telephony bundles across the national market; and

c. Telecom's national published price for Jetstream services has not varied over at least the last 12 months. Similarly, the Average Modal Price for Jetstream in non-metropolitan markets (as defined in the Wholesale Determination, Decision 497 dated 12 May 2003) has remained constant since the first DSPL was published in July 2003 using the Telecom billing information for April 2004. As this geographic area represents substantially most of the market and a substantial proportion of all customers, this suggests that Telecom does not face significant price competition in the national market.

91. Telecom's apparent failure to respond to pricing from competitors in the limited geographic areas in which they have deployed network also says much about Telecom's own assessment about the level of competitive threat it faces, including in those areas. Telecom apparently has calculated that it has more to lose in moving away from national pricing than it does from losing actual and potential customers in those areas where customers can sign up with competitors at their lower prices:

"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

[45] Ibid, page 21.

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. Such competitive response would reflect barriers to entry and expansion that keep competitive carriers from offering effective competition in the rest of the five "competitive" ESAs and in "non-competitive" ESAs."[46]

6.2 Limited Competition in Sub-National Markets

92. If the Commission rejects a national market, our view is that the relevant sub-national markets are Telecom's URSAs[47], for the reasons discussed below. The following discussion is in terms of the level of competition in ESAs. However, as URSAs are larger geographic areas than ESAs, the conclusions we draw in relation to limited competition in ESAs are applicable to the state of competition in URSAs.

6.2.1 Areas other than the 5 Auckland/Wellington ESAs

93. The Commission's previous determination in the Unbundling Report was that there was limited competition in the wholesale markets for bitstream access and PDN backhaul services in the Unbundling Report with the exception or the 5 Auckland/Wellington ESAs identified in that Report.[48]

94. TelstraClear does not believe there has been significant change in these markets in the 11 months since the Commission's Unbundling Report so as to invalidate the Commission's previous findings on the state of competition in these areas. As noted above, the Average Modal Price ("AMP") for Jetstream has not changed in non-metropolitan markets since the first DSPL issued 14 months ago.

6.2.2 The Present State of Competition in the 5 Auckland/Wellington ESAs

Residential Customers

95. TelstraClear submits that the evidence presented below demonstrates that even in the 5 Auckland/Wellington ESAs, Telecom continues to face limited competition.

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[46] Ordover Report, Annex C, page 19.

[47] Refer pages 24 and 25 of Telecoms Unbundled Bitstream Service (UBS) User Guide dated November 2004 for map showing geographical area of Telecoms URSAs. (http://www.telecom.co.nz/binarys/ubs_user.pdf)

[48] Unbundling Report, para 759.

96. Each of the 5 Auckland/Wellington ESAs include large numbers of residential customers. TelstraClear estimates that in all cases barring Mt Wellington, over 70% of the buildings in the ESAs are residential. The Mt Wellington ESA is the exception. It is a small ESA which appears to only include buildings with businesses.

97. The "concentration of network competition" in the 5 Auckland/Wellington ESAs which was the basis of the Commission's assessment that these ESAs were competitive provides little, if any, competitive choice to residential customers in the Auckland ESAs. While TelstraClear has residential network in the Wellington ESAs, TelstraClear's network in the other ESAs is a business network. TelstraClear does not, and TelstraClear believes other entrants with fixed network in these ESAs do not, connect residential customers to its business network[49]. Individual residential customer connections to these fibre-based networks would not be economically justifiable given the limited revenue from individual residential households. Accordingly, if the regulated bitstream service was not made available in these ESAs, a substantial number of residential customers miss out on the benefits of a choice between competitive suppliers of DSL services.

98. In the following analysis, TelstraClear has excluded residential buildings from its calculation of its market penetration from network deployment. If all buildings were included (business and residential), TelstraClear's market share would be significantly lower overall.

SME Customers

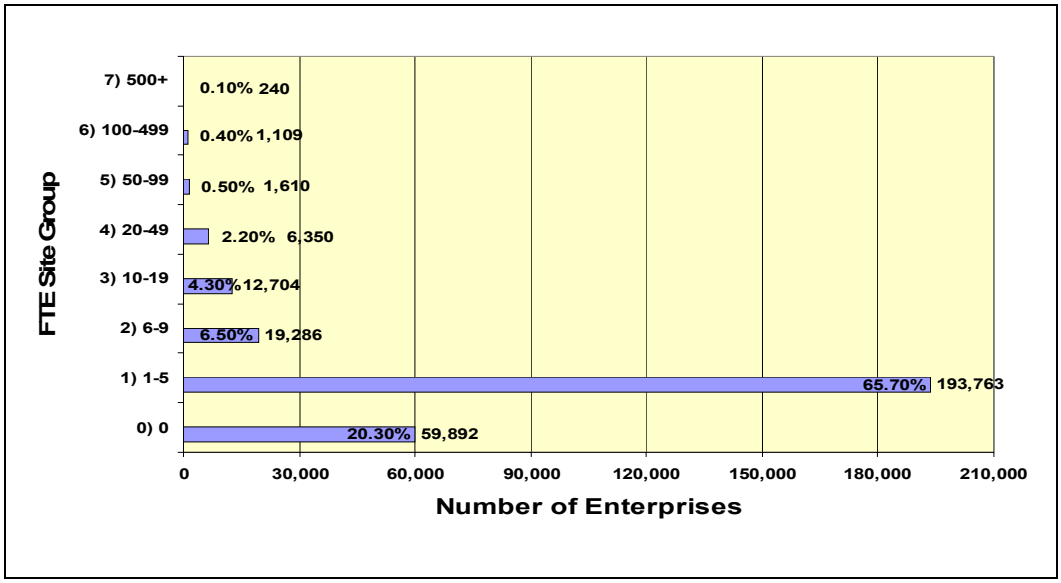
99. In relation to business customers in the 5 Auckland/Wellington ESAs, TelstraClear notes that the New Zealand economy is marked by a high proportion of small and medium sized enterprises ("**SMEs**"):

    a. 86% of enterprises employ 5 or fewer full time equivalent staff; and

    b. 96.8% of enterprises employ 19 or fewer full time equivalent staff.

[49] The Commission recognised in the Wholesale Determination that residential network should not be taken into account in assessing business markets and vice versa: see para 324.

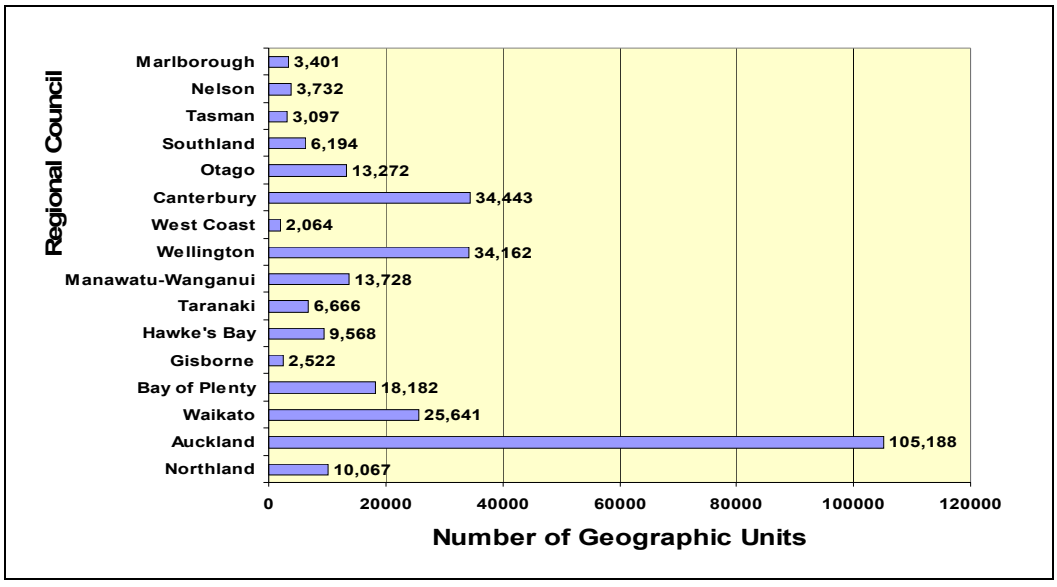
Figure 13: Number of Enterprises by Size, as at February 2003



Source: Ministry of Economic Development[50]

100. Most SMEs are located in major business centers like the 5 Auckland/Wellington ESAs. The figure below demonstrates that enterprises employing 19 or fewer full time equivalent staff are concentrated in the major business centers around New Zealand. The highest numbers of these enterprises are located in Auckland, Wellington and Canterbury though most regions have a similar proportion of SMEs.

Figure 14: Number of businesses with 19 or fewer FTE by Regional Council area

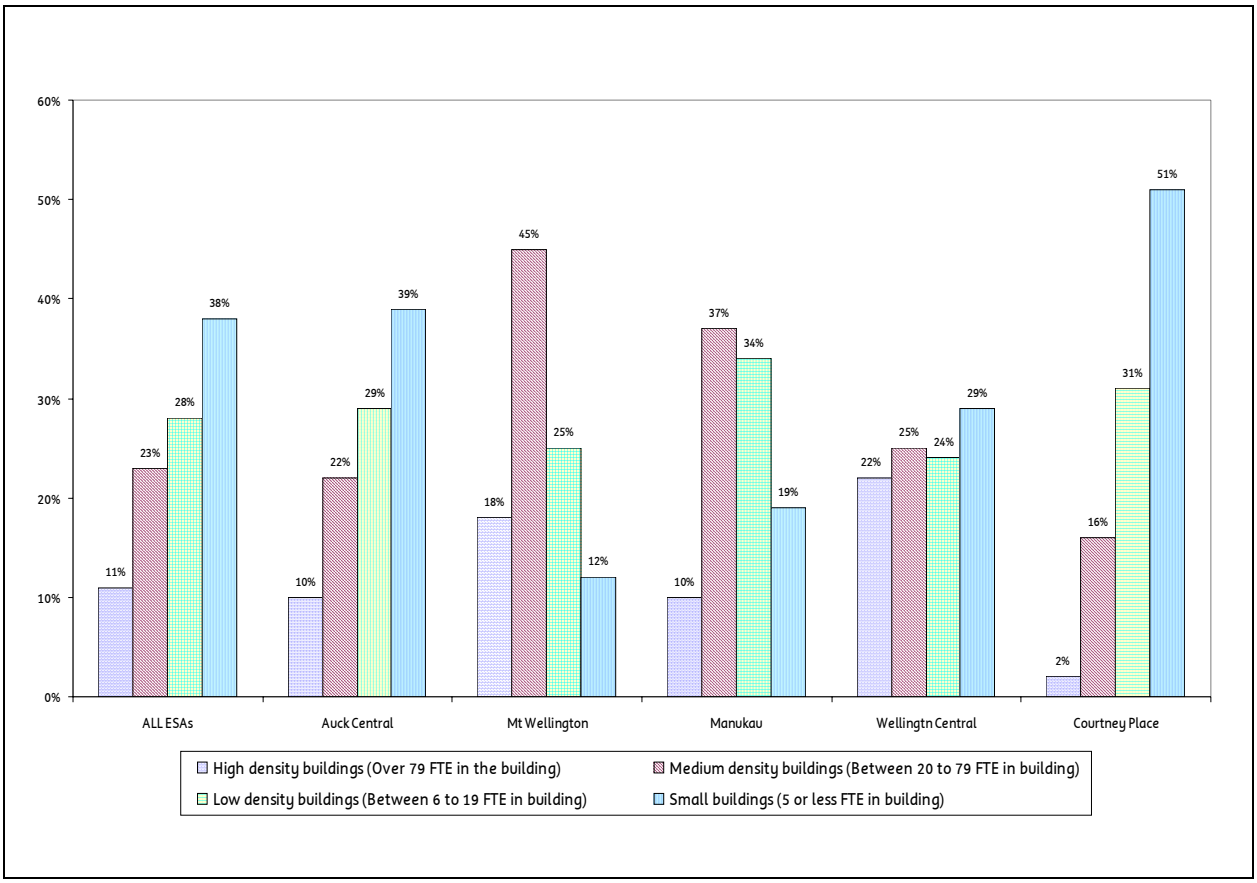


Source: Ministry of Economic Development

[50] http://www.med.govt.nz/irdev/ind_dev/smes/2004/2004-03.html#P80_5807

101. TelstraClear has undertaken some analysis to divide the buildings occupied by business customers in the 5 Auckland/Wellington ESAs[51] into four categories to demonstrate the concentration of business customers within buildings in these areas. The following figure shows that, as would be expected given the New Zealand wide data discussed above, there are a high proportion of low density/small buildings in the 5 Auckland/Wellington ESAs that are occupied by SMEs. In this analysis we are using the same Full Time Employees ("**FTE**") cut-off for SME as the Ministry of Economic Development. This cut off bears no reflection to how SMES are defined from a telecommunications spend perspective. That cut-off point is difficult to measure, but would be easily more than 2 times higher than the measure used by the Ministry of Economic Development.

Figure 17: Commercial Buildings in Auckland/Wellington ESAs by number of FTEs



[51] TelstraClear has estimated the boundaries of the 5 Auckland/Wellington ESAs for the following analysis. TelstraClear is not presently aware of the exact boundaries drawn by Telecom or assumed by the Commission for these areas.

102. The bar charts above show the buildings containing business customer's, banded by the different building size categories[52] as a proportion of the total number of buildings containing businesses in that ESA. The above information does not tell us how many businesses are in a building. Rather, it indicates how concentrated businesses are in the 5 Auckland/Wellington ESAs. Note however that in all cases barring Mt Wellington there are 19 or less FTEs in over 50% of the buildings in the ESA. These low density/small buildings make up an average of 66% of all buildings in the 5 Auckland/Wellington ESAs. This means that on average, 66% of buildings are occupied solely by SMEs or small branches of corporate customers. Given the national predominance of SMEs as discussed above, it is also reasonable to assume that there is a large proportion of SMEs in the other larger buildings (high density buildings with over 79 FTEs may be occupied by 4 or more SMEs).

103. The following pie charts show the proportion of commercial buildings that TelstraClear directly connects for each of the four density categories in each of the 5 Auckland/Wellington ESAs. [53]

[52] The buildings have been banded based on the number of Full Time Employees (FTEs) for all of the businesses located at a building to indicate the size and number of buildings. This information has been collated using Universal Business Directories (UDB) data which UBD believes contains 85% of all active businesses in New Zealand. The number and size of buildings have been collated based on all businesses in the ESA where FTE data available from UBD, Refer Annex F for TelstraClear's ESA boundary assumptions.

[53] Refer Annex A for more detailed breakdown.

Figure 18: TelstraClear direct connect buildings by category and as a proportion of total building by category - Contains TelstraClear designated Restricted Information

[

] [TCLRI]

104. Taken as a percentage of buildings in the 5 Auckland/Wellington ESAs TelstraClear connects [ ] [**TCLRI**] of high density commercial buildings which in turn make up 11% of commercial buildings in the ESAs. This means that TelstraClear's market penetration through direct connection to high density commercial buildings (the segment where TelstraClear has performed strongest) is [ ][**TCLRI**] of all commercial buildings.

105. The limited competitive pressure that TelstraClear can bring to bear on Telecom is even more apparent in relation to small commercial buildings. TelstraClear connects [ ]**[TCLRI]** of all small commercial buildings which in turn make up 38% of all commercial buildings in the ESAs. TelstraClear's market penetration from direct connect of small buildings is only [ ]**[TCLRI]** of all commercial buildings.

106. Of course, TelstraClear's actual market share through direct connection in the 5 Auckland/Wellington ESAs is lower than the possible competition depicted above in the market penetration figures. The diagrams above show what

proportion of buildings TelstraClear connects, not how many customers TelstraClear has in the buildings that it connects. Even if TelstraClear connects to a building to supply a customer TelstraClear is highly unlikely to be successful in converting all the businesses in that building to TelstraClear customers (if that building is occupied by more than one customer).

107. The figures above also demonstrate that TelstraClear has not been "cherry picking" high profit customers in areas where it is able to offer services through deployment. As the pie chart below shows, TelstraClear has directed its efforts relatively equally between the different categories of commercial buildings, connecting buildings that may contain SMEs as much as buildings which may contain large corporate customers. Despite this, TelstraClear's market share for customers in low density/small commercial buildings remains low. The disparities in market shares in different categories of commercial buildings connected are, at least in part, due to the large proportion of SME customers in low density/small commercial buildings.

Figure 19: TelstraClear Portion of Buildings connected by TelstraClear by building density (All 5 Auckland/Wellington ESAs) - Contains TelstraClear designated Restricted Information

[

][TCLRI]

108. Finally, the Commission reached the view that the 5 Auckland/Wellington ESAs were competitive because of the presence of multiple networks and not because of the presence of a single alternative supplier to Telecom, such as

TelstraClear. While TelstraClear's competitive reach on the above data is limited in these ESAs, it is likely to be significantly greater than that of the other entrants, individually or collectively. Therefore, the proportion of buildings (and of customers) falling within the "concentration of network competition" in all probability is much less than TelstraClear's own reach.

6.2.3 URSAs

109. As set out above, if the Commission does decide to adopt sub-national markets, the more appropriate geographical boundary for those markets is URSAs given that the service description of bitstream does not allow TelstraClear or other access seekers to connect at the ESA level.

110. The 5 Auckland/Wellington ESAs are included in the geographical area of 4 of Telecom's 34 URSAs, as follows:

Figure 20: Mapping the 5 Auckland/Wellington ESAs to URSAs

URSA Name	ESA name	Relative Customer Bases between ESAs and URSAs	Additional areas included in the URSA
Auckland Central	Auckland Central	Same	N/a
Eastern	Mt Wellington	URSA includes significantly more SME and residential customers, and a substantially larger geographic area	Also covers the following areas: • Panmure • Glenn Innes • St Heliers • Mission Bay • Kohimarama
Counties	Manukau	URSA includes significantly more SME and residential customers, and a substantially larger geographic area	Also covers the following areas: • Manurewa • Papakura • Pukekohe • Waiuku • Takanini • Clevedon
Wellington Central	Wellington Central and Courtney Place	URSA includes significantly more SME and residential customers and a significantly larger geographic area	Also covers the following areas: • Miramar • Lyall Bay • Karori • Island Bay

111. It is clear from the Telecom map in Annex F that for 4 of the 5 Auckland/Wellington ESAs, the geographical areas of the URSAs are substantially bigger in terms of customer coverage and geographical area, than the individual ESAs.

112. As demonstrated in the section above, the 5 Auckland/Wellington ESAs already face limited competition. That competition is even more limited when the entire URSA is taken in account as:

a. the URSAs cover a larger geographical area compared with 4 of the 5 ESAs. TelstraClear's network thus reaches significantly less of the total geographic area in the 4 URSAs compared with the total geographic area of the 5 ESAs; and

b. the URSAs have a wider customer base than the ESAs, including significantly more residential customers (both as a proportion of total customers and in absolute numbers), who are not economically feasible to connect to alternative network facilities.

6.3 Economic Analysis

113. One of the factors the Commission will need to consider in determining whether there is limited competition in the 5 Auckland/Wellington ESAs is whether there is the prospect for further competition to develop in the future.[54] TelstraClear submits that there is unlikely to be an increase in competition in the 5 Auckland/Wellington ESAs for asymmetric broadband Internet access services unless Telecom is required to provide regulated access to the Requested Services in these areas.

114. Although TelstraClear has already deployed network in the 5 Auckland/Wellington ESAs, its current market penetration remains low particularly in the largest market segment: low density/small buildings occupied by a total of 20 or less FTEs (as discussed above).

115. The factual evidence demonstrating limited competition in the 5 Auckland/Wellington ESAs illustrates Professor Ordover's economic analysis of the substantial barriers which entrants continue to face after they enter

[54] In the TelstraClear 2003 Wholesale Determination, the Commission stated that "potential competition" would be important to determining whether competition is limited in a market: Commerce Commission Determination as the TelstraClear Application for Determination for "Wholesale" Designation Access Service, May 2003 at para 301.

geographic markets, set out in his statement at Annex C. He describes the issue to be addressed as follows:

> "*..the central question is whether there are features of the telecommunications market such that even after entering into a market the entrants continue to face significant barriers to expansion and thus are competitively disadvantaged vis-à-vis the ubiquitous incumbent. Put another way, is it the case that network roll out is incremental, and so is it only a matter of time before entrants deploy their networks across the whole of a geographic area and offer a real choice to all or substantially most of the customers in that area or is it the case that at current market conditions entrants may not be able profitably to deploy ubiquitous networks? The economics of fixed line telecommunications network deployment suggest that ubiquitous roll out is not simply a matter of time, especially in geographic areas which are characterized by a mixed population of large and small customers and large and small density buildings. As noted above, this seems to be particularly the case in New Zealand CBDs.*"[55]

116. Professor Ordover concludes that it is only appropriate to extrapolate from the entry of competitors into part of a market that the whole market is competitive where "the *un*served customers can, in principle, be served at (incremental) cost that is materially no different from that incurred to serve those customers that *are* served."[56] He proposes testing this by modelling how far the current retail price would have to increase, in SSNIP increments of 5%, before it became economic for entrants to service the unaddressed portion of the market. This would allow the barriers to expansion in the market to be mapped.

117. As a practical illustration of Professor Ordover's views, TelstraClear modelled the increase in Jetstream pricing which would be required to justify connecting SMEs which are not economic to connect based on their local and toll telephony spend[57], as an extension to work previously presented to the Commission in the Wholesale proceedings.. The Commission found in the Wholesale Determination that Telecom continued to face limited competition

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55 Ordover Report, Annex C, pages 10-11.

56 Ordover Report, Annex C, page 3.

57 Jetstream is, in a sense, an "add on" to the telephony service as the end user must take the line service to get Jetstream (whether or not the end user acquires the two services in a retail bundle from Telecom).

for SME telephony services in metropolitan markets, which cover much of the 5 Auckland/Wellington ESAs.[58]

118. For the purpose of the Wholesale proceedings, Network Strategies produced a report[59] modelling the cost of connecting a SME customer with 3 voice lines, and dial-up Internet to a local access network. TelstraClear asked Network Strategies to use that model, but to replace the dial up connection with the equivalent of a Jetstream Go service, and show the percentage price increase required to make that customer economic to connect. All other assumptions remained the same, except that rather than a 100m customer drop, a 30m customer drop was used, and it has been modeled based on 5 year cashflow.

119. Based on a 5 year cashflow, the IRR for a business customer with 3 voice lines and one DSL line was negative **[ ]TCLRI** for the low call revenue scenario. To achieve a positive IRR of **[ ]TCLRI** over the same period of time, TelstraClear would have to increase the price of its broadband service by **[ ] TCLRI** over the current price of Jetstream, from $26.62 to **[ ] TCLRI** per month. Under the high call revenue scenario, the IRR is negative **[ ] TCLRI**. To achieve a positive IRR of **[ ] TCLRI** over the same period, TelstraClear would have to increase the price of its broadband service to **[ ] TCLRI** above the price of Jetstream, from $26.62 to **[ ] TCLRI**.

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[58] This continues to hold true: the AMP for Telecom's 'no strings' SME business line charges have not materially changed over the last 14 months. This suggests that Telecom does not consider it faces a significant competitive threat, which is consistent with the discussion above.

[59] Viability of Network Extensions, sensitivity analysis, Network Strategies, 5 March 2005.

7 PRICE TERMS

120. The Act specifies a retail-minus avoided costs principle for the pricing of the wholesale bitstream access service and a LRIC-based pricing principle for the related backhaul product.

7.1 Access Charges

121. The exercise of applying the avoidable cost approach to unbundled services such as bitstream has similarities to the approach the Commission took to resale of retail services, but it also has important differences. The differences are more likely to drive the discount[60] than the similarities.

122. There are two sets of avoidable costs with an unbundled bitstream service:

a. the retail costs that an efficient operator in Telecom's position avoids, which are much the same as those avoided in the case of resale services, although the customer support costs tend to be higher for more complex services such as DSL than for simple services such as telephony and should produce a discount which is larger than 16%; and

b. the costs of the network functions and capacity (and any bundled ISP costs) which are part of the retail end-to-end service but not part of the wholesale unbundled service. These avoided costs, particularly for international capacity, are likely to result in discounts that are substantially above the 16% discount, representing avoidable retail costs, applied by the Commission to end resale services. International benchmarking of retail-minus discounts is not straightforward due to differences between wholesale and retail product specifications in different countries. TelstraClear is currently working with Network Strategies to assess applicable discounts in comparable countries. However, we comment in general below on the issues related to applying the initial pricing principle.

123. The issues which TelstraClear believes the Commission will need to address in applying the initial pricing principle to bitstream are:

a. whether there should be separate pricing for bitstream services used to supply downstream business and residential end users;

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[60] The Initial Pricing Principle outlined in the Act specifies benchmarking discounts applied in comparable countries where wholesale bitstream services are priced on a retail-minus basis.

b. whether retail level data caps should be taken into account in calculating the wholesale price; and

c. which Jetstream retail price(s) should be used as the starting 'price' that the discount representing avoidable costs will be applied to.

7.1.1 Segmented End User Pricing

124. TelstraClear believes that the wholesale price for bitstream should not differ depending on whether the retail asymmetric broadband Internet access customer is a business customer or a residential customer (which, as occurred in the Wholesale Determination, would be as defined from time to time by Telecom's retail business).

125. Bitstream, as an unbundled service, is an upstream input to an end- to-end service provided by the access seeker. The use that the access seeker makes of that input should not govern the price the access seeker pays for it.

126. Price discrimination (tailoring prices/plans to different classes of end users) is a retail strategy for Telecom's retail business and the comparable retail functions in each access seeker. Requiring wholesale prices to reflect Telecom retail customer definitions conforms the entire market to Telecom's strategy for customer segmentation. This will limit the scope for pricing innovation: for example, New Zealand has a large proportion of home-based businesses and TelstraClear may choose to draw the residential/business divide differently to Telecom.

127. The costs of the wholesale bitstream service for the access provider also would seem to be substantially the same whether the end user is a residential or business customer. Costs are more likely to be driven by the customer's level of usage: some residential customers, such as those who are heavy users of gaming services, will consume more bandwidth than those SMEs which use their connection for email and occasional web browsing. In any event, as discussed below, variations between bandwidth consumption mainly impact core network and international capacity that do not form part of the bitstream service.

128. The residential/business "line of business" restriction, of course, applies to wholesale services supplied under the Wholesale Determination. However, those wholesale services are end-to-end services and the "line of business" restriction prevents on access seeker engaging in simple arbitrage by supplying Telecom telephony services to business customers at the lower residential price, adding no value of its own. This concern does not arise in

relation to the wholesale bitstream service because, as an unbundled product, significant investment is required by the access seeker to use the service and there is scope for it to innovate and add value. The access seeker is not simply "re-badging" Telecom services to exploit Telecom downstream pricing differentials.

7.1.2 Data Caps

129. TelstraClear believes that data caps and per megabyte pricing should not be taken into account in the calculation of the wholesale price, whether directly by mirroring them in the wholesale price or indirectly by reflecting them in the level of wholesale discount.

130. First, the data caps and per megabyte prices that Telecom sets reflect its retail pricing strategy. While the "tight link" approach might make some sense in setting wholesale prices for resale of Telecom end-to-end retail services, taking a similar approach to setting pricing for unbundled wholesale services undermines much of the value and purpose in unbundling the retail services. While the wholesale service may be unbundled technically, it would remain tightly bound to Telecom's retail pricing strategies.

131. Second, one of the Commission's major concerns in deciding to recommend bitstream regulation was New Zealand's high broadband prices compared to other countries. As shown in a report provided by Network Strategies in the Unbundling proceedings, a major driver of the uncompetitiveness of Telecom's pricing was the fact that Telecom set data caps on retail services, whereas many suppliers in other countries did not, and even amongst those operators with data caps, Telecom's were low[61].

132. Third, any "capacity savings" as a result of a data cap strategy are likely to be realised in capacity that does not form part of the bitstream access service. The likely impact of data caps is as follows (see figure 19):

    a. as there is a separate pathway from each end user to the DSLAM, data caps are not relevant to this component of the bitstream services;

    b. some additional capacity may be required in the link between the DSLAM and the ATM switch. However, as AAS state, "this link will, in

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[61] Network Strategies Reports included as Annex B1 and Annex B2 to TelstraClear's submission dated 27 May 2003 in response to the Commission's Issues Paper entitled "Telecommunications Act 2001: Section 64 Reviews into Unbundling the Local Loop Network and the Fixed Public Data Network", April 2003.

general, be provided over a high-capacity fibre optic system and we would expect the costs incurred to provide this additional capacity to be relatively small in proportion to the total service costs";[62]

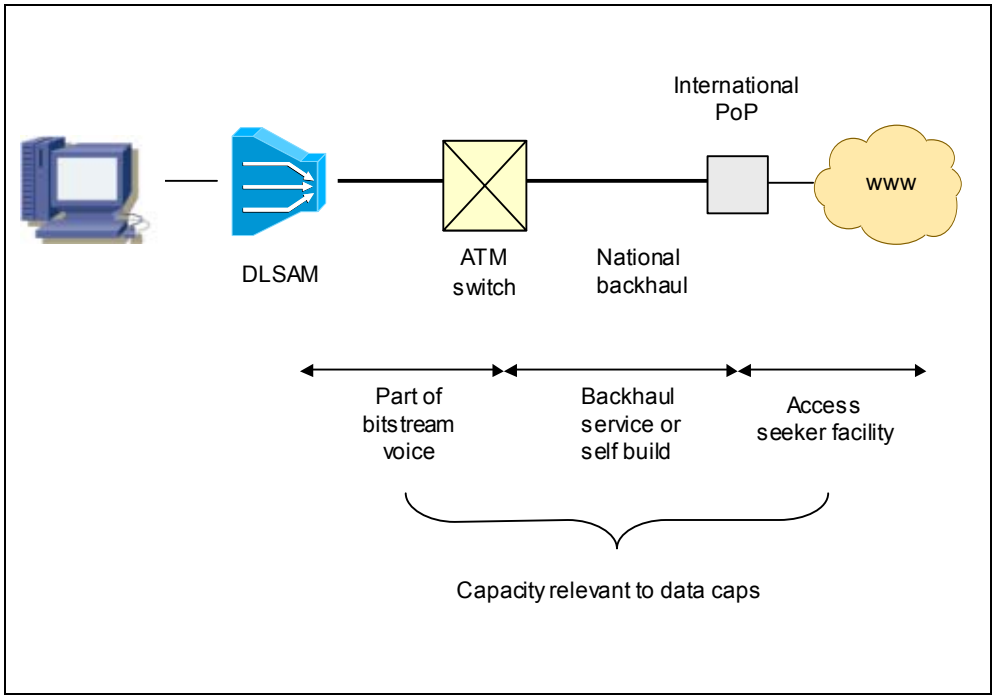
c. any additional capacity required in the backhaul, which is a separately provided designated service, would be reflected in the wholesale pricing of that service or is provided by the access seeker's own core network; and

d. the access seeker separately provides the international capacity. TelstraClear's own experience in providing similar services over its own network is that international capacity is the most sensitive to higher usage demands from end users, and therefore is more likely to be affected by any data caps applied to end users.

133. Hence, data caps as a strategy to manage core network or international capacity demands is properly a matter for the provider of the core network or international capacity component, being either Telecom retail or the access seeker.

[62] AAS Report, para 3.1, page 5.

Figure 19: Impact of Data Caps on Network Capacity



134. The impact of data caps can be seen from figure 20, which compares pricing for a pair of residential services that have the same download speed but have different data caps. For example, doubling the data cap for the full speed service (Home 500 to Home 1000) increases the price by 40%. This suggests an increment of $20 per 500 Mbs, which backed out of the Home500 product, suggests a base price of $29.00, or 29% of the Home1000 retail price. While these full-speed services are no longer offered to new customers by Telecom, a comparison of Telecom's new low end residential plans results in a broadly similar retail price after an adjustment is made to deduct traffic-related charges.

Figure 20: Impact of Data Caps on Retail Price

Full speed		**256 Kbps/128Kbps**	
Product	**Retail price**	**Product**	**Retail price**
Home 1000 (1 Gb)	$69.00	Jetstream Explorer (3Gb)	$39.95
Home 500 (500Mb)	$49.00	Jetstream Go (1 Gb)	$29.95
Increment for each 500 mb	$20.00	Incremental for each 1GB	$5.00
Retail price less traffic usage related charge	$29.00	Retail price less traffic usage related charge.	$24.95

7.1.3 Which Telecom Retail Price?

Which Retail Plan?

135. The issue of which Telecom retail Jetstream plan to use as the baseline against which to apply the wholesale discount arises for the following reasons:

a. Telecom has a range of residential and business retail pricing plans reflecting different data speeds and the monthly traffic limit offered; and

b. TelstraClear has requested an unrate-shaped service – to facilitate innovative retail services being offered to consumers - that will have data speeds that do not correspond to a Telecom retail Jetstream service.

136. As with data caps, Telecom's differential retail pricing for services with different data speeds reflects its retail marketing strategy and the higher utilisation by those services of costs of capacity in the backhaul and international segments that do not form part of the bitstream access services. While higher retail charges are justified for services with higher data speeds, they are not justified for bitstream access services that exclude backhaul and international capacity.

137. It follows that if the wholesale discount is applied against higher speed retail services (and services with higher data caps) the discount would have to be higher to reflect the greater proportion of backhaul and international capacity costs that are embedded in the retail price.

138. A preferable approach would be to apply the same logic in selecting the appropriate Telecom retail plan to use as the base line for the wholesale price for the unrate-shaped service TelstraClear has requested. As AAS states in its report, the higher speeds at which the unrate-shaped service will run should not have a significant impact on costs in the network components used in the bitstream service:

> *"The equipment used to provide ADSL access circuits is capable of up to 8 Mbps (in the downstream direction to the customer), depending on the length and the condition of the copper cable pair over which it is working. A speed lower than that maximum technically feasible can be offered to users by rate shaping. Higher speeds (up to the technically feasible maximum) can generally be achieved at no additional cost at the DSLAM.*
>
> *….If the contention ratio (the ratio between the sum of the data speeds going into the DSLAM to the total bandwidth coming out of the DSLAM to the back haul network) is decreased, then the bandwidth from the DSLAM to the ATM network will need to be increased. At large network nodes and*

sites where high capacity DSLAMs are installed, this is generally not an issue. High speed back haul connections at E3 (34 Mbps), STM-1 (155 Mbps) and for some systems upgradeable to STM-4 (620 Mbps) are possible, generally over fibre optic transmission systems."[63]

139. The above logic would suggest a lower speed retail plan should be chosen.

Which retail price point?

140. The Xtra ISP charges are split out separately in Telecom's retail Jetstream plan pricing and should not be included in the baseline retail price.

141. Telecom also has two retail prices for the access component of its retail Jetstream services, a lower price which applies when the end user takes Telecom's retail toll services and a higher price when they do not. TelstraClear proposes that the Commission should use the lower price. The bitstream service description does not specify that the retail price used as the base line price must be a standalone price, and although the lower price forms part of a bundled offering, it is nonetheless a separately stated retail price.

142. The pricing differential that Telecom applies reflects its retail marketing strategy to sell more retail services by providing customers with an economic incentive to buy bundles (the toll prices are the same within and outside the bundle). That may be a rational retail strategy for Telecom's downstream business (subject to competition law issues). However, it is not appropriate that access seekers should pay a dominant vertically integrated incumbent a higher wholesale price for a regulated service by reason of the downstream retail pricing strategies of that incumbent, which are designed to meet and beat competition from the access seekers using the regulated access service.

143. It is also unlikely that the retail pricing differential between the standalone Jetstream price and the bundled Jetstream price reflects economies of scope in supplying the service in a bundle. The $10 discount is equivalent to a third of the monthly access charge for the lowest speed Jetstream service and, as other gauges of the discount's size, is equal to the XTRA ISP charges paid by Jetstream customers and over 6 hours of toll calls per month (at Telecom's AnyTime rates)[64].

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[63] AAS Report, para 6, page 11. AAS noted that there may be difficulties increasing capacity at mini-DSLAMs located in rural and remote areas. TelstraClear would be prepared to negotiate special arrangements for these DSLAMs.

[64] This equates to more than three two hour capped calls at $2.75 per call.

144. The Commission is legally entitled to select the retail Jetstream price from within a bundle as the base line price for calculating the wholesale discount. The initial pricing principle expressly states that the relevant "retail price [is] as imputed by the Commission having regard to any comparable services". The "unpicking the bundles" designated service, which involves the Commission deriving a retail price from bundled pricing, also uses the term "imputed".

145. The Commission's ability to impute a retail price is consistent with there not being a "like for like" comparison between the unbundled bitstream service and the end-to-end retail services. The retail price has to be adjusted for a number of reasons, as set out above, to get to the appropriate base line.

146. Accordingly, TelstraClear proposes that:

a. the Commission should select a single Telecom Jetstream plan to use as the base line against which to apply the wholesale discount for bitstream services (whether or not the Commission accepts TelstraClear's views on rate shaping);

b. the Commission should select a lower bandwidth service as the baseline retail tariff because this tariff will reflect less of the embedded higher backbone and international capacity costs which are avoidable costs for the bitstream service. Hence, the lower speed plans are more likely to represent an appropriate base case. This would reflect that the bitstream service, as essentially a "tail" service for each individual customer, is relatively insensitive to differences related to speed and data usage; and

c. As there should be no differential pricing between residential and business end users, the Commission should select one of the lower priced residential plans, rather than a business plan. This will ensure access seekers do not face a price squeeze in competing for residential customers;

d. The baseline retail price should reflect the access component of the Jetstream plan pricing and exclude the separately specified Xtra ISP charges; and

e. The baseline access price should be the price that applies if toll services are purchased from Telecom.

147. There is no current Jetstream plan that meets all of the criteria of lower speed, residential and uncapped usage. There are uncapped business Jetstream plans, but these have relatively high retail prices and would be an unsuitable base for wholesale bitstream services used to supply residential end users. The closest plan is the Jetstream Go, although the retail access price applicable when tolls are also purchased from Telecom needs to be adjusted to back out the retail data cap, which can be calculated by comparing the Jetstream Go pricing against similar 256 kbps residential services with higher caps (see figure 20). The additional advantage of Jetstream Go is that it has the same up channel speed as the wholesale bitstream service:

Figure 21: Proposed Baseline Retail Price

Up channel speed	Down channel speed	Data cap	Deduction for traffic	Adjusted retail price
128 kbps	256 kbps	1 GB	$5	$24.95

148. Allowances then need to be made for the two sets of avoidable costs outlined above: retail level costs of the kind identified in the Wholesale Determination and avoided network elements. Figure 22 below summarises the above logic and indicates the level which TelstraClear believes the wholesale price should approach.

Figure 22: Avoidable Cost for the Wholesale bitstream service

Price Elements	Deductions	Imputed Price
Jetstream Go 1GB 256/128 kbps		$49.95
Retail Deductions		
Xtra ISP	$10	$39.95
Tolls discount	$10	$29.95
Traffic Usage Charges (est. via comparison with Jetstream Explorer 3GB 256/128 kbps plan)	$5	$24.95 imputed retail price[65]
Less GST	$2.77	$22.18 (gst excl)
Avoidable costs		
Avoidable Retail Costs (marketing/sales/bad debt/customer support)	>16%	<$18.63 (gst excl)
Avoidable Network Costs (network monitoring/traffic metering/national backhaul/international bandwidth)	?%	<<$18.63

[65] See figure 21.

7.2 Connection Charges

149. In principle, a connection charge should be paid by the access seeker if the end user was not previously connected to a Jetstream service or a bitstream service supplied by another operator. Telecom will need to, as with a newly installed retail Jetstream service, physically jumper the end user's line to the DSLAM at the local exchange.

150. However, TelstraClear notes that Telecom has been consistently offering new customers free connection for its residential and business Jetstream products over the last 18 months. See for example, offers in May and September 2003 and February and August 2004.[66] Telecom's widespread practice, as noted above, suggests that Telecom is logically recouping connection charges through other retail revenue, including the other Jetstream retail charges from which the wholesale charges are calculated. To avoid over recovery, TelstraClear, therefore, proposes that the retail price for the connection service should be calculated using the best (lowest) retail price in any 3-month period. This would ensure that the wholesale price was calculated against a price that more truly reflected Telecom's actual retail connection charges than a published price that in practice is not applied or only intermittently applied.

7.3 Service Transferal[67] and Churn Charges

151. In its commercial UBS offer, Telecom proposes that access seekers pay two charges when an end user converts from a Jetstream service to UBS:

a. a reassignment charge of $13.75 plus GST; and

b. a churn fee of $73.92 plus GST, totalling $99 incl. GST.

As the end user has already paid an installation charge to Telecom when the Jetstream service was originally connected, TelstraClear anticipates that it will not be able to recoup these proposed inter-operator charges from the end user. Amortised over a 12 month period, these charges are equivalent to nearly a third of the $29.00 basic Jetstream price and therefore would offset a

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[66] See Telecom Wholesale Informers for details of these offers: http://www.telecom.co.nz/content/0,3900,203436-202766,00.html.

[67] In its UBS commercial offer, Telecom uses the term "reassignment fee". This term is more appropriate in the retail/resale context. To distinguish between the two processes, TelstraClear uses the term "Service Transferal Fee".

substantial proportion of any wholesale discount. On Telecom's proposed UBS pricing, TelstraClear's margins would be better reselling Jetstream than using bitstream because the high churn charge offsets the cheaper UBS access charges offered by Telecom.

152. Telecom's justification for the churn charge seems to be that it will ensure that competitor activity is on winning new customers and extending penetration, rather than cannibalising Telecom's existing retail Jetstream base. While this may be a legitimate incentive strategy in a provider's own distribution channels, it is not appropriate for a vertically integrated incumbent to apply to pricing for an upstream bottleneck product which it controls. The practical effect is to divide the market and to lock in its existing base, including the base acquired during the period of monopoly supply.

153. Accordingly, the Commission should determine that Telecom cannot charge the proposed "churn" fee.

154. Turning to the service transferral or reassignment charge, TelstraClear believes that this charge, and not a new connection charge, should apply in the following situations:

a. an end user supplied by Telecom with a retail Jetstream chooses instead to subscribe to a retail ADSL service provided using a wholesale bitstream service supplied by Telecom to TelstraClear[68];

b. an end user resupplied with a Telecom wholesale Jetstream service by TelstraClear or another reseller chooses instead to subscribe to a retail ADSL service provided using a wholesale bitstream service supplied by Telecom to TelstraClear; and

c. an end user supplied by another access seeker with an ADSL service provided using a Telecom wholesale bitstream service chooses instead to subscribe to a retail ADSL service provided using a wholesale bitstream service supplied by Telecom to TelstraClear.

155. The wholesale arrangements between the parties have traditionally distinguished between "new connections" and "reassignments" and charges for the latter have been lower than charges for the former, in recognition that Telecom faces less costs when a service is already in place. Although the

[68] Reference to "a retail ADSL service provided using a wholesale bitstream service supplied by Telecom to TelstraClear" includes a retail service provided by a third party operator in a downstream chain of supply from TelstraClear: see section 9.1.

wholesale bitstream is an unbundled service, Telecom should also face less costs with a transfer than in the case of providing a bitstream service to customer premises not previously supplied with a retail or wholesale DSL service:

a. If the end user is currently supplied with a retail or wholesale Jetstream service the service reconfiguration that needs to occur at the DSLAM can be done electronically (as compared to a new connection where physical jumpering is required); and

b. If the end user is currently supplied with a DSL service by another access seeker using a bitstream service supplied by Telecom, transfer mainly involves changing the billing name of the wholesale customer in Telecom's billing systems, which would be a minimal cost.

156. The service transferal charge should be calculated on a TSLRIC basis, assuming the level of automated OSS which would be expected of an efficient wholesale supplier. This would be consistent with:

a. the Commission's view in the Wholesale Determination that charges for support services should be set at TSLRIC;[69] and

b. the approach taken in other countries.

157. It is important to ensure that there is no double counting of costs in setting the service transferal charge; if there is an OSS charge and that charge covers operational costs, it is likely that a substantial proportion of the costs associated with service transfer will already be included.

7.4 OSS Charges

158. TelstraClear requests that the Commission determine that:

a. Each party should be solely responsible for meeting its own costs of OSS, including the establishment and operational costs of electronic OSS, to support bitstream services; or

b. Alternatively, Telecom's OSS should be allocated across all Telecom retail and wholesale lines, including telephony lines over which Jetstream services currently are not provided but which are or are planned by Telecom to be DSL capable.

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[69] Unbundling Report, see around para 820.

159. TelstraClear submits that the reasons the Commission gave in its draft Number Portability determination for requiring that each operator should meet its own set up costs for number portability are broadly applicable to allocation of the set up costs of wholesale OSS systems:

Figure 23: Allocation Principles for operators set up Costs

Commission's reasons in draft Number Portability Determination[70]	**Relevance to Wholesale OSS costs**
"operator specific costs are incurred in order to enable number portability (ie they are not related to an individual customer's decision to port his number) and thus facilitate customer switching which in turn generates industry-wide benefits shared by all consumers".	Efficient processes for bitstream services similarly will benefit all downstream broadband customers, including those who remain Telecom Jetstream customers through enhanced competition on price and non-price terms which would not occur but for the regulated supply requirement.
Consequently, the Commission expects these costs to be recovered by all operators from all end users.	While the focus of discussion of wholesale costs in the past has been on Telecom's wholesale costs, and although number portability is a multi-operator service and wholesale is a Telecom only obligation, the costs and benefits are not one way. TelstraClear must incur its own costs to interwork with Telecom's systems. Telecom also benefits from efficient inter-operator systems because they facilitate winback by Telecom. As with the number portability where Telecom's porting flow – at least for fixed numbers – may be a net outflow during the initial period, as competition grows as a result of regulated wholesale services, service transfers from Telecom and to Telecom are more likely to come into balance.
"[these set up costs] are incurred roughly in proportion to operators' market shares.	The same applies to inter-operator processes required to support wholesale.
"This rule [i.e. each operator bears its own costs] provides a strong incentive to minimise costs."	The same applies to wholesale – see discussion in section 4.1 of raising rivals costs through inefficient processes, which is a particular risk where pricing for the primary service is set as a margin from retial charges.
"[this rule] maintains competitive playing field with new entrants, as they will incur these costs in the	"Companies seeking to enter the market using resale – even if they are as efficient or more so than the incumbent – would be prevented from doing so because they effectively would be forced to incur

[70] Draft Determination on the multi-party application for determination of 'local number portability service' and 'cellular telephone number portability service" designated multinetwork services, 6 December 2004, para 86.

Commission's reasons in draft Number Portability Determination[70]	Relevance to Wholesale OSS costs
same manner as incumbents".	both their own long-run retail costs *and* also defray a portion of the incumbent's avoidable (in the long-run) retail costs as a component of the wholesale rate. Not only does the potential for a price squeeze deter competitive entry, it may also perpetuate whatever inefficiencies exist in the incumbent's current operations, because the incumbent is insulated from competitive pressures"[71].

160. Applying similar principles, a number of state regulators in the US have determined that the incumbent should bear all of the costs of implementing electronic OSS:

a. The Oregon regulator ruled that the costs of modifying OSS to accommodate local exchange competition are not caused by the new entrant requiring the resale product, but are instead incurred to make competitive entry possible:

> "*Competition onset costs…are not caused by new entrants but rather result from the passage of the Act and prior decisions by the Commission…The social benefits of local exchange competition will inure to the public at large, not merely to customers who obtain services from new entrants."*[72]

b. The Rhode Island regulator refused to allow the incumbent to recover OSS development costs because these costs were an inevitable and necessary cost of participation in competitive markets:

> "*The nature of such costs is important as it will govern the determination of whether particular OSS costs should be recoverable from other parties, or simply remain part of the costs that all firms must incur as a result of the passage of the 1996 Act and the transition to competition".* [73]

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71 Ordover – Klick statement annexed to TelstraClear's 22 October 2004 submission in response to the Commission's issue paper entitled "Avoided and Actual Costs Saved: Application of the Final Pricing Principle".

72 *In the Matter of the Investigation into Compliance Tariffs filed by U S WEST Communications Inc. Advice Nos. 1661,1683,1685, and 1690; In the Matter of the Investigation into Compliance Tariffs filed by GTE Northwest Inc., Advice Nos. 589, 599 and 611*, Order No. 00-316; UT 238; UT 139, 2000 Ore. PUC LEXIS 122, June 19, 2000 (entered), (Oregon PUC).

73 *In re: Review of Bell Atlantic-Rhode Island TELRIC Study*, Docket No. 2681, 2001 R.I. PUC LEXIS 23, April 11, 2001 (effective), (Rhode Island PUC).

c. The New Hampshire regulator found that OSS development costs were not allowed to be recovered by the incumbent since these costs had already been recovered from its local customers:

> *"Having found that Bell Atlantic's OSS development costs have already been recovered, we deny further recovery of those costs since allowing recovery of costs that have already been recovered from the customer base would be the very model of backward-looking regulation".* [74]

161. If the Commission rejects the approach of Telecom bearing its own costs of implementing electronic OSS, it should allocate Telecom's OSS costs across all retail and wholesale lines (as the Commission did in its cost benefit analysis in its Unbundling Report[75]). This approach has been taken by a number of US state regulators:

a. The Nevada regulator required that any recovery of start-up costs must be "in a competitively neutral manner".[76] The burden of proof that the proposed recovery mechanism is competitively neutral rests with the incumbent.

b. The Tennessee regulator has ruled that all carriers – both incumbent entrant alike – should pay a recurring rate per loop spread over the life of the OSS to recover OSS costs.

> *"The Authority found that the recovery of OSS costs as a non-recurring rate could potentially be a barrier to market entry by telecommunications providers. Additionally, all carriers' customers, both ILECs and CLECs, receive the benefit of OSS and should bear a portion of those costs".*[77]

c. The Massachusetts regulator ruled that some OSS costs should be shared between incumbent and new entrants, but the incumbent was not entitled to recover hardware costs. Computer hardware costs are historical in nature and therefore do not comply with FCC's principles

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74 *Bell Atlantic – Petition for Approval of Statement of Generally Available Terms Pursuant to the Telecommunications Act of 1996,* Order No. 23, 738, 2001 N.H. PUC LEXIS 132; 210 PUR 4th 363, July 6, 2001, (New Hampshire PUC).

75 Unbundling Report, para 286.

76 *In re: filing of Sprint of Nevada's Unbundled Network Element Cost Study,* Docket no. 98-6005, 199 Nev. PUC LEXIS 42, May 11, 1999, (Nevada Public Service Commission).

77 *In Re: Petition to Convene a Contested case proceeding to establish permanent prices for inter-connection and unbundled network elements,* Docket No. 97-01262, 1999 Tenn. PUC LEXIS 149, November 3, 1999, (Tennessee Regulatory Utility Commission).

requiring the use of "forward-looking" computer prices to determine cost. However, the incumbent was allowed to recover software maintenance expenses which are recurring and forward-looking. The ILEC was required to bear a portion of the OSS because the incumbent benefited from improvements to the OSS through improved operating efficiency:

> *"…the record shows that Verizon benefits in a number of ways, including when it utilizes the OSS functionality to win back customers from CLECs".* [78]

162. Oftel also concluded that system set up costs should be recovered from all BT retail customers and wholesale customers (in the form of a surcharge on all lines) as all end-users will benefit from the introduction of the wholesale line rental services. [79] Per-line administrative costs would be recovered from wholesale customers alone, for reasons similar to the Commission's approach to per-line costs.

> *"It is BT that is primarily in a position to determine the costs of system setup, as well as per operator and per line costs. Recovery of at least some of these costs from BT is required if BT is to have an incentive to minimise these costs.*
>
> *This could be achieved by spreading system set-up costs, per operator and per line costs over all BT retail customers and WLR SPs."*[80]

163. In considering how to deal with OSS costs (and other costs of wholesale) in an initial determination, it is also relevant to consider how those costs would be addressed in a final determination. The Act defines avoided costs saved as "the difference in the access provider's costs between supplying the service on a wholesale basis only and supplying the service on both a wholesale and retail basis, including a share of retail specific fixed costs".[81] It is clear from this definition that avoided costs saved compares Telecom supplying the service on a wholesale and a retail basis (factual) with Telecom supplying the

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78 *Investigation by the Department of Telecommunications and Energy on its own Motion into the Appropriate Pricing, based upon Total Element Long-Run Incremental Costs, for Unbundled Network Elements and Combinations of Unbundled Network Elements, and the Appropriate-Cost Discount for Verizon New England Inc.*, D.T.E. 01-20, 2002 Mass. PUC Lexis 41, July 11, 2002 (Massachusetts Department of Telecommunications and Energy).

79 Oftel publication, 'Wholesale Line Rental: Oftel's conclusions – statement', 11 March 2003, paragraph 7.17, <www.oftel.gov.uk/publications/whole_line/2003/wlr_1_0303.htm>Oftel 7.17.

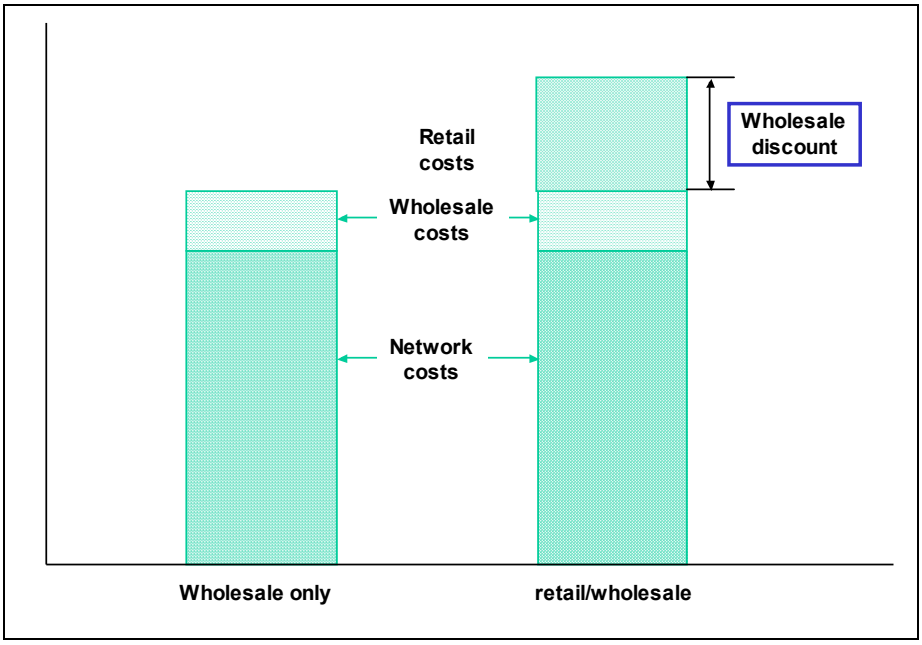
80 Oftel publication, 'Wholesale Line Rental: Oftel's conclusions – statement', 11 March 2003, paragraph 7.20, <www.oftel.gov.uk/publications/whole_line/2003/wlr_1_0303.htm>7.20

81 clause 1, Schedule 1 sub part 1 of the Act.

service on a wholesale-only basis (counterfactual). Therefore, wholesale supply is **common** to both the factual and the counterfactual.

164. It follows from using a factual/counter-factual where wholesale supply is common to both scenarios that the costs of wholesale supply are not relevant to the calculation of the wholesale discount because the costs of the systems and processes required for a wholesale business will be incurred under both scenarios and logically cannot be part of the costs difference between the two. This is illustrated in figure 24.

Figure 24: Treatment of Wholesale Costs under Avoided Costs Saved



165. Even if TelstraClear is wrong in its view that costs of wholesale should be completely excluded, it does not follow that those costs should be solely recovered from wholesale customers. If Telecom is hypothesised as exiting the retail market, Telecom would be supplying both wholesale customers such as TelstraClear and a notionally independent Telecom Retail on a wholesale basis. Therefore, the fixed costs of wholesale would be incurred across all customers to whom the service is supplied and not just end users supplied by access seekers.

166. It also cannot be assumed that electronic OSS costs are a net cost for Telecom. The relevant standard for any wholesale costs is the costs that an efficient operator would avoid, not the actual costs that Telecom avoids. The implementation of electronic OSS access for wholesale services will achieve significant savings over manual processes which Telecom currently uses for wholesale services.

167. Finally, if Telecom's OSS costs (and other costs of wholesale) are to be allocated, the allocation should not only be across current retail and wholesale DSL lines but across all DSL capable lines. In the Unbundling Report the Commission, for the purposes of the CBA, applied OSS costs across all "broadband enabled lines".[82] All customers with DSL capable lines are potential beneficiaries of enhanced competition in DSL services made possible by regulated bitstream access. As current DSL customers represent a minority of lines, loading OSS contributions onto them would work against the Commission' s objective to promote higher broadband uptake because higher charges to recoup the disproportionate contribution by early adopters would be a price barrier to more consumers taking up the service.

7.5 Moves, Adds and Changes (MACs)

168. Telecom does not currently charge TelstraClear for MACs related to Jetstream. We consider that this should also be the case for wholesale bitstream access.

169. TelstraClear notes that Telecom also does not charge its retail customers for some MACs, such as when a customer changes Jetstream plans (which may involve changes in the rate shaping for that customer to increase or decrease downstream speeds). If there is no separate retail charge, it is not appropriate to require a wholesale charge because Telecom's costs are already being recovered through the other Jetstream retail charges from which the wholesale charge is derived.

170. If the Commission determines that TelstraClear and not Telecom should undertake rate shaping for bitstream services, a MAC process to change end user speeds will not be required. To the extent that the Telecom retail prices recoup its costs of retail MACs involving rate shaping, those costs will need to be treated as avoidable and factored into the wholesale discount.

7.6 Support Service Charges

171. Consistent with the Commission's approach in the Wholesale Determination,[83] support services should be provided at charges which recoup only the incremental costs of Telecom providing those services.[84]

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82 In the Unbundling Report, the Commission applied OSS costs across all "broadband-enabled" lines for the purposes of the costs benefit analysis: para 256.

83 Decision 497, dated 12 May 2003.

84 TelstraClear Section 20 Application dated 4 November, para 16.1(c).

7.7 Backhaul

172. Telecom's UBS offering prices backhaul on the basis of the number of customers which are connected to the bitstream service for which the backhaul is used.

173. While backhaul is an aggregation of the usage of individual customers, usage can significantly differ between customers depending on their own profile, such as whether they are light residential users, heavy residential users or SMEs, different time of day usage profiles and the concentration of types of users within a particular URSA. Pricing backhaul on a flat per customer basis may be appropriate where the user population is relatively homogenous or predictable in its usage patterns, but can be a too rough and ready measure of requirements for and the costs of backhaul capacity in other circumstances. Acquiring backhaul on a bandwidth basis also gives the access seeker more flexibility in relation to contention ratios out the back of the DSLAM, and therefore some influence over service quality.

174. On the other hand, TelstraClear also recognizes that a per customer pricing approach to backhaul can reduce the costs of backhaul as a barrier to entry for smaller ISPs and in less densely populated areas by providing a more gradual ramp-up of costs than the requirement to buy a large step or block of bandwidth at the outset, before the access seeker has tested the market and been able to build up a customer base.

175. TelstraClear requests that the Commission determine that access seekers should have the option of backhaul pricing on a per customer basis or on a suitable increment of bandwidth. This will allow access seekers to select the most effective solution.

8 OSS, KPI AND SERVICE LEVELS

176. This section deals with the following non-price terms and conditions requested by TelstraClear:

a. a structured, transparent pathway to electronic OSS between Telecom and TelstraClear;

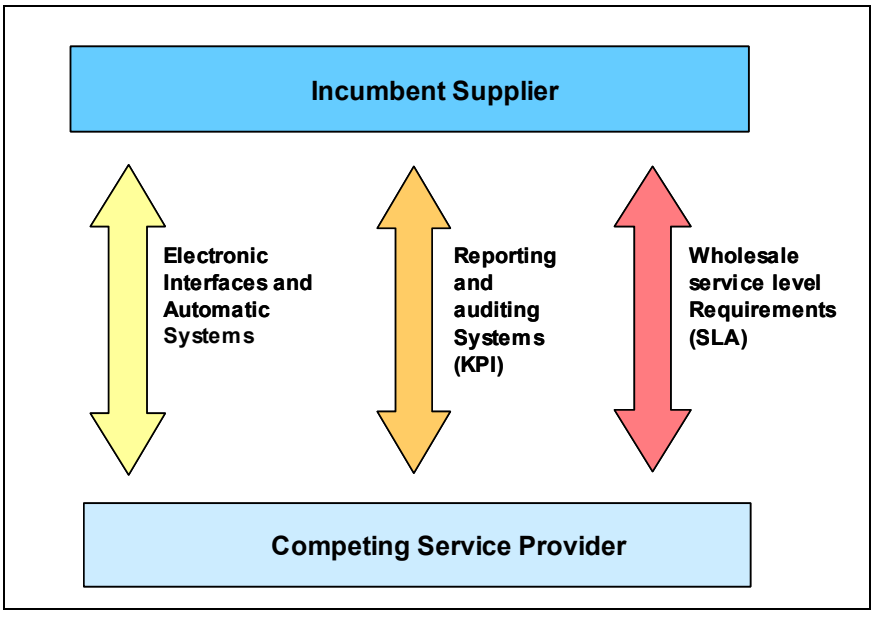
b. monitoring and reporting on Telecom's relative performance in supplying bitstream services to TelstraClear and supply of the comparable component of its retail Jetstream service to itself; and

c. committed service levels and penalties for non-compliance.

8.1 Tools to Implement SAPs

177. To enforce requirements of non-discrimination, regulators in other countries have adopted a combination of three related approaches to ensure that a competitive regime can develop with minimal interference. These three complimentary approaches are illustrated in Figure 25.

Figure 25: Regulatory Approaches to Wholesale Services



178. Rather than adopt a single approach, most jurisdictions have adopted a combination of these three approaches to ensure that the incumbent provides equivalent resale services and related operational processes to competing service providers on a non-discriminatory basis.

179. KPIs and service levels are often adopted at an early stage of the development of wholesale services while wholesale automated systems are being developed, as KPIs and service levels ensure that competing service providers can offer downstream services to their customers with some degree of certainty. As automated systems for wholesale services come online, these automated systems:

a. significantly increase the speed, efficiency and delivery of the incumbents wholesale services to competing providers; and

b. by removing or limiting manual intervention ensure that the services are provided on a non-discriminatory basis.

180. A report from PriceWaterhouseCoopers ("**PwC**"), set out at Annex E, describes how these tools are currently used in Australia and sets out a methodology which could be used to design a similar approach appropriate to New Zealand conditions.

8.2 Automated Wholesale Interface

181. Well-designed automated wholesale systems should allow competing service providers to:

a. order, transfer, provision, change and cancel wholesale services in an equivalent manner to the incumbent's own retail department. The use of automated wholesale systems, in comparison to manual processes, significantly decreases the time frames for the performance of ordering and provisioning wholesale local services. For example in the US Qwest's service levels for order confirmations that are submitted and responded to using fully electronic automated wholesale systems take 1-2% of the time that order confirmations using manual processes take[85];

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[85] For example in the US Quest service levels for:
(i) the average time to accept orders (refer (PO-5) that are submitted and confirmed fully electronically are based on 20 Minutes in comparison to 24 – 48 hours where a manual process is involved; and
(ii) the average time to reject orders (refer (PO-3) that are submitted and rejected fully electronically are less than 18 seconds in comparison to 12 – 24 hours where a manual process is involved.
Details of service levels and timeframes for order rejections and confirmations are setout in Qwest's Service Performance Indicator Definitions (PID), 14 State 271 PID Version 6.0. For details please refer PO-3 and P0-5, Qwest IOWA SGAT Seventh Revision, Exhibit B, February 18 2004. This document is available online at Qwest wholesale site (March 2004) <http://www.qwest.com/wholesale/clecs/sgatswireline.html>

b. report and monitor the status and resolution of any faults that occur in wholesale lines in an equivalent manner to the incumbent's own retail department. In order for this to occur competing service providers must be able to submit a fault report to the incumbent using the automated wholesale systems, monitor the status and resolution of the fault reports in the automated wholesale system and conduct real time line diagnostic tests for their customers;

c. if site visits are necessary for installation, repair or maintenance of the wholesale lines, to arrange site visits in real time in an equivalent manner to the incumbent's own retail department. To ensure that competing service providers are not disadvantaged in comparison to the incumbent's own retail department (and to maximise efficiency) competing service provider should be able to use the automated OSS systems to provide their customers with a choice between free appointment slots, select one of those free slots, have the appointment formally booked and confirmed and if necessary have the appointments changed;

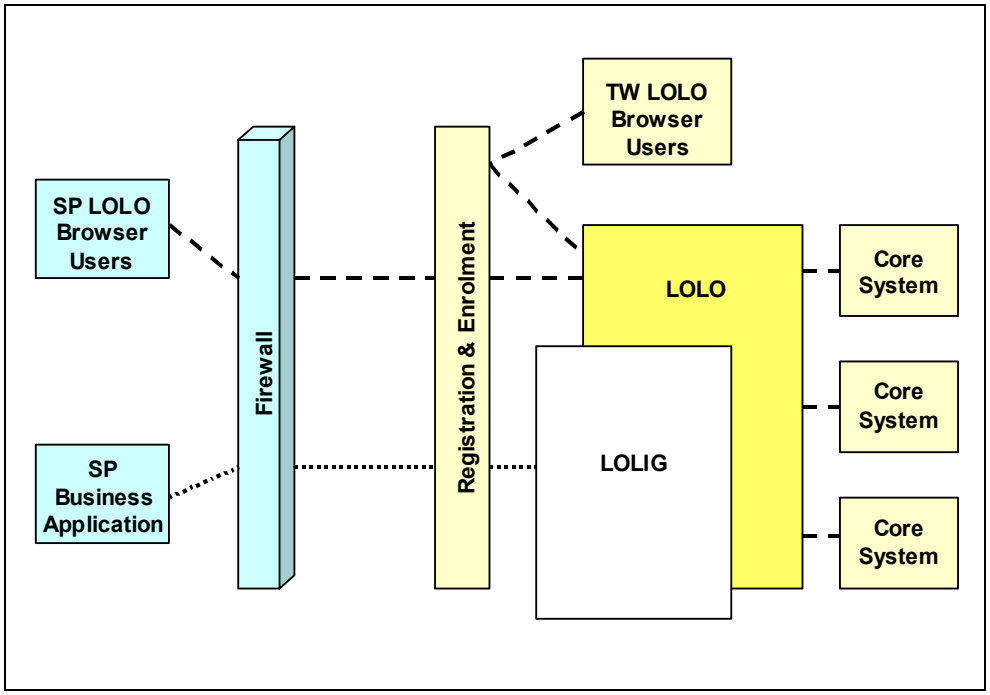
d. promptly get access to service records and related material to verify customer's current service suite and to confirm conflicts (such as when the customer calls to report faults); and

e. promptly exchange and verify billing information for their customers in an equivalent manner to the incumbent's own retail department.

182. In Australia, Telstra has progressively introduced electronic OSS for wholesale services, including the supply of layer 2 DSL services:

a. LINX-Online Ordering (**LOLO**): This system allows service providers to place, vary, cancel and track orders electronically, including for layer 2 DSL services. As depicted below, LOLO access is available in two configurations, a web browser, and a B2B application (Linx Online Interaction Gateway) which allows wholesale customer OSS to interwork with Telstra OSS; and

Figure 26: LOLO Architecture



a. LINX-Online Service (**LOLS**), which provides a web interface to Telstra's fault management and field workforce management systems. LOLS will be launched commercially in the first quarter of 2005, including for DSL services (the DSL module is currently under development and will be piloted in early 2005). Wholesale customer service representatives can use the browser interface to access Telstra OSS while an end user is on the phone. A B2B interface is planned to be developed over the next 12-18 months to allow wholesale customers to directly correct their own fault systems to the Telstra fault assurance systems.

183. Electronic OSS are also required in other countries, including the US[86], Canada[87] and the UK[88].

184. Telecom is introducing a web interface called "eOR" for wholesale customers. The eOR system currently only allows the initial order to be placed electronically, and all other intercarrier processes required to support supply of wholesale processes are still done through largely manual processes, such as order variations, fault reports and booking service appointments. There is no real time interworking between Telecom OSS and TelstraClear OSS. The

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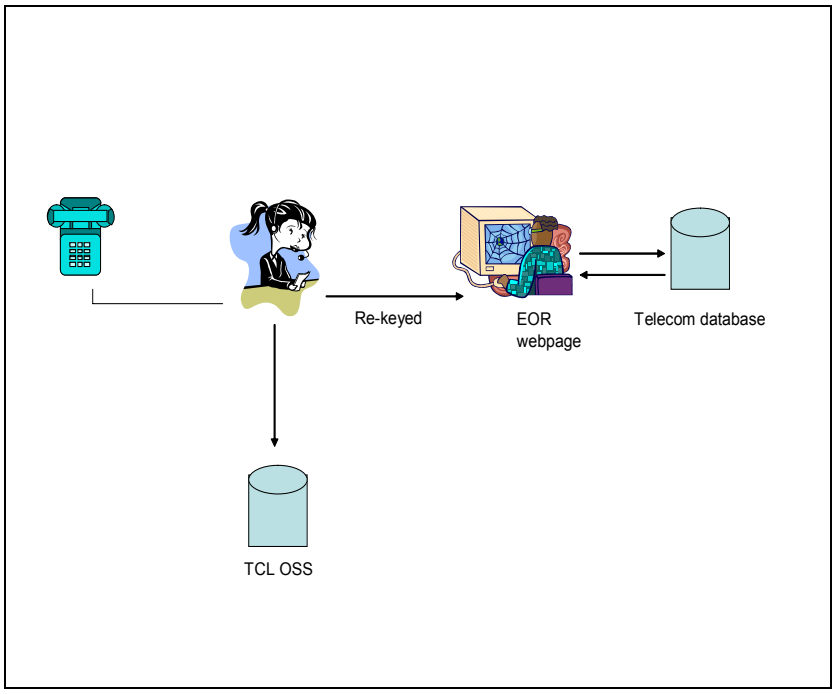
86 Based on non-discrimination obligation, Code 49 of the Federal Regulations is available online (as at March 2004) at http://www.access.gpo.gov/cgi-bin/cfrassemble.cgi?title=200347

87 Canadian Data Interchange Guidelines, March 2000 ~ Version 2.1 citing Telecom Decision CRTC 97-8, Local Competition, 1 May 1997.

88 OFTEL's Wholesale Line Rental Statement dated 11 March 2003.

major shortcoming of eOR is that it does not allow interfacing of TelstraClear OSS: eOR is little more than a web page which TelstraClear has to manually post or pull down information. As depicted in figure 27 below, because TelstraClear cannot electronically "feed" its order requests into the Telecom OSS through eOR, TelstraClear has to double key all orders (once into its own ordering system and again on to the eOR web page), which raises costs and increases the risks of human errors leading to order rejection (in turn further raising cost and delaying service connection for customers). The lack of a B2B capability also means that responses and messages from Telecom cannot be "fed" directly into the TelstraClear systems but TelstraClear service personnel have to access the web page to find out if responses have been received.

Figure 27: current eOR architecture



185. The eOR system represents a step back for TelstraClear from the electronic processes which recently have been established between TelstraClear and Telecom for some interoperator processes for some services. Reassignment for residential resale services has been largely automated and the TelstraClear OSS and Telecom OSS can communicate, double keying and double handling Internet in the use of the eOR interface. The parties are currently working to extend this two way electronic process to reassignment reversal or "winback" to Telecom.

186. TelstraClear believes that the eOR interface could be modified to establish a basic B2B function within the next six months. This would involve exposing and modifying the web services which currently lie behind the eOR html

interface. This would not deliver an electronic interface which is equivalent to the electronic interface available to Telecom retail, but it would achieve significant efficiencies and reduce time delays in key inter-operator processes.

Figure 28: compares eOR to LOLO/LOLS:

Function	eOR		LOLO/LOLS	
	online	B2B	Online	B2B
Ordering				
Pre-order service qualification (is the line DSL capable)	×	×	✓	✓
Initial order	✓	✓	✓	✓
Variation of order	✓	×	✓	✓
Tracking of order	✓	×	✓	✓
Reassignment back to incumbent retail arm (reassignment reversed)[89]	×	×	✓	✓
Reassignment between two service providers	×	×	✓	✓
Service visit inquiry and appointment booking	×	×	✓	✓
Order fulfilment	×	×	✓	✓
Order cancellation	✓	×	✓	✓
Service changes				
Orders for moves, adds and changes	✓	×	✓	✓
Service visit inquiry and booking of appointments for MACs	×	×	✓	✓
Faults[90]				
Fault logging	×	×	✓	×
Online fault testing (e.g. line testing of fixed lines)	×	×	✓	×
Fault tracking	×	×	✓	×
Service visit inquiry and booking appointments for Faults	×	×	✓	×
Notification of fault clearance	×	×	✓	×
Modification of fault details	×	×	✓	×

187. TelstraClear acknowledges that the development of electronic OSS interfaces takes time and the solution must be appropriate to local conditions, including

89 TelstraClear and Telecom are currently extending the current limited electronic processes to reassignment reversal although this will not be part of eOR.

90 Currently being finalised for deployment in Australia.

the scale of the wholesale job flow. TelstraClear also acknowledges that eOR, even with its significant limitations, is a step towards more efficient inter-operator processes. However, TelstraClear's concerns are as follows:

a. we do not know what is Telecom's end vision for electronic OSS interfacing. The high level functional specifications for electronic OSS interfaces have not been defined. In particular, Telecom has not told us what inter-operator processes are to be eventually converted from manual to electronic and whether eOR will evolve into a B2B platform;

b. Telecom has not given us a "roadmap" for getting to its vision for electronic OSS. TelstraClear needs to build systems on its side of the eOR interface, both interim solutions to work around eOR's restricted electronic capabilities and to modify our own OSS as the eOR interface expands;

c. the process for the development of eOR's functionality and its specifications is largely a "black box" to us. TelstraClear recognises that the eOR system is Telecom's and not a common industry system. However, as a wholesale customer, we have views, experience and requirements that should be taken into account in the eOR development work. Best practice IT design requires close involvement by the main users in the functional specification writing; and

d. there is no mandated timeframe within which Telecom must achieve electronic OSS (and incremental implementation along the way). Telecom can set its own pace.

188. The OSS-related non-price terms TelstraClear has requested seek to address these concerns.

8.3 Key Performance Indicators (KPI)

189. The KPI approach involves external reporting and auditing of the incumbent's systems and services to objectively determine the level of services provided by the incumbent to its own retail department and to competing service providers. This ensures that in the event that discrimination in favour of the incumbent's own retail department does occur it will be readily apparent from the reported KPIs and steps can be taken to rectify the discrimination by the relevant regulatory authority or the competing service provider.

190. In Australia, Telstra will be required to report to the ACCC its comparative performance in supplying layer 2 DSL services to wholesale customers and the

equivalent service to itself from August 2005.[91] This required identification of the component in the end-to-end retail service which was equivalent to the wholesale layer 2 DSL service as it is an unbundled service. The ACCC's record keeping rules defines the retail time interval for order fulfilment as commencing from logging of the retail order in the Telstra system to completion of 'exchange jumpering" of the retail service, which is defined as:

> *"the physical process, conducted in the local Telstra exchange, of connecting a jumper cable or cables from the voice/data splitter on the main distribution frame to a port on the DSLAM in order to allow an ADSL service to be provided on a pair."* [92]

191. The same process of "exchange jumpering" has to be undertaken for wholesale layer 2 services, which allows the comparison of wholesale and retail processes. The time from lodgement of the order in the Telecom system to when the exchange jumpering is completed would represent a reasonable measurement of performance for activation times between the retail Jetstream Services and bitstream in New Zealand. This should be the activation of the DSLAM port. This would be for new ADSL services supplied to a customer location which previously has not been connected to an ADSL service, i.e. new activations and not transfers or reconnections where the jumpering has already taken place.

192. PwC believes, based on its own direct experience in Australia and overseas, that it is feasible to apply KPIs between retail end to end service and the equivalent wholesale services:

> *"PwC has previously reviewed the end-to-end processes of a vertically integrated incumbent operator's retail and wholesale processes for the ordering, provisioning and assurance of specific telecommunications services. This approach [can] demonstrate the equivalence of service at each stage in the incumbent's supply chain for wholesale and retail services … PwC considers that this approach can also be used at vertically integrated incumbent operators that do not have separate processes for the delivery of wholesale and retail service. The approach also facilities the identification of*

91 PwC, Discussion Paper, Annex E,, Establishment and Measurement of Service Level Agreements for Wholesale Supply December 2004, pages 2-3.

92 Non-price Terms and Conditions, Key Performance Indicators, Record Keeping and Reporting Rules, section 151 BU, Trade Practices Act, September 2004, clause 3.

the comparable components of a wholesale and retail service (e.g.: Basic Access or ADSL) if the entire end-to-end process is not directly comparable."[93]

8.4 Service Levels

193. Under this third approach key steps in the supply process have specified service levels. If the incumbent fails to meet the agreed service levels then the SLA sets out the level of compensation for the competing service provider. Initial service levels are normally developed prior to the commencement of wholesale services (as there needs to be something to measure the incumbent against), however it is common for these to be reassessed in light of operational experience over time. SLAs also represent a reasonable interim solution before full electronic OSS interworking is introduced, after which point in the operators' interconnected systems interwork in real time and therefore SLAs become less relevant.

194. While KPIs and SLAs can both be used to monitor performance, the draw backs with using the KPIs by themselves are that:

a. KPI reporting and service level reporting are both by their nature retroactive (as reporting will always be after the fact);

b. but unlike service levels, KPIs "float" against retail service performance and so the wholesale customer has no predictability or certainly about performance of the wholesale service on which it can develop its own downstream service commitments; and

c. unlike service levels, KPIs are only a reporting tool and there are no immediate consequences for the access provider in not providing an equivalent service. This means that the access seekers has to fund "out of its own pocket" any downstream compensation which it offers to end users although the service commitment breaches are attributable to the access provider's failure.

195. For this reason, proactive SLAs are often adopted at an early stage of development of wholesale services as these service levels allow competing service providers to offer downstream services to their customers with some degree of certainty. However, as noted above, once automated wholesale systems are implemented then KPIs and service level tend to be used to monitor and control those elements of wholesale services that can not be

93 PwC Report, Annex E, page 3.

automated (such as onsite visits and fault repair) and to periodically check that the automated wholesale systems continue to operate on a non discriminatory basis.

196. Current experience with Telecom's provisioning of bitstream illustrates the limited value of SLAs in the absence of incentives to ensure compliance, particularly where interoperator processes are highly manual as will be the case in New Zealand in the short term. TelstraClear has been informed by other access seekers currently using Telecom's UBS service that average service times are substantially longer than Telecom's SLA timeframes. IHUG has provided TelstraClear with a summary of their provisioning issues, as set out in Annex D. Figure 29 summarises IHUG's its experience with UBS provisioning (the Telecom UBS SLA for provisioning is 10 working days).

Figure 29: An Access Seeker's experience with UBS provisioning

Month	Average turn-around for New Applications	Max turn-around for New Applications	Average turn-around for Transition Applications [94]	Max turn-around for Transition Applications
October	25 days	64 days	20 days	63 days
November	15 days	40 days	19 days	38 days

197. TelstraClear has based its proposed service levels on its assessment of Telecom's current retail provisioning processes. If Telecom considers that the service levels are not consistent with the SAPs, a study along the lines outlined in the PwC report would provide an objective way of setting appropriate service levels (and KPIs). Using an external verification process for these non-price terms is not unlike the external audit process currently used for calculating Average Mobile Price for residential and wholesale resale services.

[94] Transition Applications represent customers with an existing Jetstream service (either provided by Telecom retail or IHUG under the partnership program with Telecom) wishing to be supplied by IHUG's retail product provided using Telecom's present UBS Offer.

9 OTHER NON-PRICE TERMS

9.1 Wholesale Resupply

198. The supply terms should not prevent TelstraClear resupplying bitstream services to its own wholesale customers, either expressly or indirectly such as by defining the TelstraClear customer as an end user.

199. TelstraClear has a significant wholesale business. Aggregating the wholesale services requirements of other competitors with its own realises economies of scale in dealing with Telecom which TelstraClear and its wholesale customers would miss out on if those wholesale customers dealt individually with Telecom. For example, smaller wholesale customers are able to utilise TelstraClear's inter-operator systems and points of presence with the Telecom network rather than face the fixed costs of building their own to directly work with Telecom.

9.2 Partial Month Billing and Transfer

200. TelstraClear requests that the Commission determine that the following terms apply when a transfer to or from TelstraClear does not coincide with the relevant billing period:

a. in the case of a transfer to TelstraClear, the customer should pay the retail charge on a pro-rata basis from the commencement of the retail billing cycle to the service transfer date and TelstraClear should pay the wholesale charge on a pro-rata basis from the service transfer date to the end of the wholesale billing cycle; and

b. in the case of a transfer away from TelstraClear, the converse should apply.[95]

201. Allowing Telecom to charge for a full retail billing cycle and a full wholesale billing cycle in the above circumstances:

a. involves Telecom double recovering its costs;

b. is inconsistent with the avoidable costs principle because Telecom is no longer incurring costs at the retail or wholesale level (as the case may be) after the service transfer; and

95 TelstraClear Section 20 Application dated 4 November, para 16.2(g).

c. is a barrier to switching.

9.3 Co-ordination of Jetstream Disconnection and Wholesale Cutover

202. TelstraClear has become aware of difficulties in the service transferral process which has resulted in customers being without broadband services for substantial periods of time.

203. TelstraClear understands that Telecom disconnects any Jetstream services supplied to the end user by Telecom promptly after receiving a bitstream service request. There then can be a substantial gap before Telecom connects the Wholesale bitstream service. Customers are understandably unhappy about the "broadband black out" they face, often made worse by the access seeker's inability to provide a definite connection date because Telecom cannot provide it with a date. Examples of problems IHUG's customers have experienced are included in the IHUG paper attached as Annex D.

204. These difficulties illustrate the importance of both SLAs and KPIs. However, these measures will not entirely address the customer disruption caused by these problems with service transferral process. Accordingly, TelstraClear requests that the Commission direct that the disconnection of the end user's retail Jetstream service and the connection of the bitstream service should occur simultaneously. As the line has already been physically jumpered to the DSLAM at the exchange when the Jetstream service was originally installed, the process of converting from Jetstream to bitstream should be largely electronic.

9.4 No minimum number of Handover Points

205. While Telecom offers 34 handover points for UBS connection nationally (URSAs), Telecom's UBS offer requires that the access seeker either connect at each of the 34 URSA gateways or acquire a national backhaul service to trunk back traffic from all URSAs to a single point of presence such as in Auckland. Although an access seeker may be able to use its own network to connect to some of the URSAs gateways, it faces an "either/or" choice. The practical effect is to raise the access seeker's costs because it is unable to utilise its own existing network capacity and must buy Telecom capacity. Telecom's policy also reduces incentives for access seekers to deploy backbone network and opportunities for provision of competing backhaul services.[96]

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[96] TelstraClear Section 20 Application dated 4 November, para 16.3(c).

206. Telecom's "either/or" requirement creates, in effect, a bundle of the backhaul service and the bitstream service, defeating the purpose in the Commission defining two separate designated services.

207. TelstraClear has handover points within reach of some of the 34 URSA gateway locations, but even for those it will not always be feasible for TelstraClear to establish a point of presence for bitstream services (or UPC). While ATM transmission standards predominate in the Telecom core network, TelstraClear's core network utilises the more advanced Gig E transmission standard (to which Telecom is likely to migrate over time). So that it can connect at an URSA gateway, TelstraClear must acquire and deploy its own ATM equipment, which creates an ATM front end on its transmission network which can "talk" to the Telecom network. TelstraClear then does the conversion to Gig E within its own network. Thus, while TelstraClear may have physical network close to an URSA gateway, the bitstream (and UPC) traffic passing through that gateway may not justify the investment in the ATM equipment at that location.

208. Accordingly, there should be no minimum number of Handover Points required (other than one) before TelstraClear is permitted to order backhaul services for individual routes to URSAs.

209. As well as being no minimum number of Handover Points, TelstraClear should be able to specify which bitstream services are backhauled to each identified Handover Point. An example might be that TelstraClear decides to have a Handover Point in Christchurch for all bitstream services in the South Island, while having Handover Points at all the major locations in the North Island.

9.5 Aggregated traffic

210. TelstraClear should be able to use backhaul services, to the extent technically feasible, to carry aggregated traffic from the wholesale bitstream services and any other services TelstraClear acquires from Telecom, whether pursuant to a determination of the Commission or an agreement between the parties.[97]

211. TelstraClear anticipates acquiring backhaul from gateway locations at which it picks up traffic both from bitstream services and UPC services which it acquires from Telecom. Sharing capacity between these different services will allow TelstraClear to realize economies of scope and scale in backhaul purchases from Telecom.

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[97] TelstraClear Section 20 Application dated 4 November, para 16.3(b).

212. Although the backhaul service description requires backhaul to be used for bitstream, it does not require backhaul to be only used for that purpose. Although the Commission cannot require the provision of backhaul in the absence of bitstream, it does not follow that the Commission cannot require, as one of the terms of use of the backhaul service, that it can carry other traffic, including from non-designated services.

9.6 Co-mingling

213. The Commission stated in the Unbundling Report that it anticipated that collocation would not be required for bitstream. However, TelstraClear anticipates that it may need to collocate ATM equipment at a few of the Telecom URSA gateways where it does not have a facility nearby. As Telecom upgrades its backbone to Gig E, TelstraClear's requirements for colocation will fall away as the parties' networks will be able to interconnection on an inspan or virtual PoI basis.

214. International best practice, and current practice in New Zealand, is that collocation should be on a commingling basis, as the Commission recognized in the Unbundling Report[98]. This approach reduces costs, ensures more efficient utilisation of the incumbent's exchange and can be managed to ensure that the incumbent's security is not prejudiced.

9.7 Static IP addresses

215. TelstraClear is seeking the ability to allocate its IP addresses to its downstream customers by way of a static IP address. The lack of the ability to implement static IP addresses for individual customers will impair TelstraClear's ability to offer a range of IP services and will increase its operational costs.

216. If there is not a requirement for static IP addresses, DSL end users are allocated IP addresses on a dynamic basis each time that they log on to a DSL service. Dynamic allocation allows an operator to utilizes a smaller block of IP addresses to serve a given customer base. For simple Internet services, such as web surfing and email, dynamic IP addressing is transparent to the end user because the operator keeps track of the IP addresses and sends requested content to the address which is relevant from time to time. It is also a hang-over from dial-up access where dynamic IP addressing is standard.

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[98] Unbundling Report, para 270, p70.

217. Static IP addressing means that a specific end user keeps the same IP address over time. This allows for virtual private networks to be provided without the risk that the end user's address will change. Static IP addresses also make it easier for a customer to run its own web server.

218. Static IP addresses also simplify the operator's charging and billing processes. Usage is measured per IP address. It is much easier to match a customer to an IP address if the IP address does not change. Otherwise, the pool of IP traffic has to be reconciled by address and time of day against the constantly changing IP addresses. The reconciliation issues with dynamic IP addresses will be more complex where the DSL service is provided as an interconnected service which will involve the access seeker having to reconcile IP usage data from the access provider against dynamic IP addresses.

219. The ability of the access seeker to allocate static IP addresses is consistent with the nature of the bitstream service. The bitstream service provides a "tunnel" (using the layer two tunnelling protocol, L2TP) through which the customer's data stream flows directly to their ISP provider and is not managed by Telecom. In this situation, the customer's ISP, the access seeker of the Telecom UBS service, provides the user with their IP address. It should be entirely within the control of the access seeker as to which IP address they assign to the user and whether they allocate the IP address on a dynamic basis when the user needs one (i.e. when they connect) or on a static basis.

220. It is important that the Commission enshrine this principle (that the access seeker is free to provide their users with IP addresses as and when they see fit) in the non-price terms of the wholesale bitstream service so that there can be no opportunity for Telecom to impose an IP addressing regime of its own on the access seeker.

9.8 Geographic Availability and new Product Launches[99]

221. Telecom should make available wholesale bitstream services in any Telecom network area where at least 35 individual ADSL services have been requested by end users (whether subscribers to the Telecom retail services or services offered by Telecom wholesale customers). This would provide access seekers with the opportunity and incentive to drive DSL penetration into new areas. Otherwise, the marketing priorities of competitors of Telecom Retail are, in effect, set by Telecom.

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[99] TelstraClear Section 20 Application dated 4 November, para 16.2(f).

222. Telecom also should provide TelstraClear with not less than 90 days' advance notice of the expected completion of upgrading of Telecom network in an area to support ADSL services and wholesale bitstream services should be made available no later than the date on which Telecom first commences to provide retail ADSL services in an area (including by way of a "soft launch"). This is consistent with the equality of access principle because it ensures that Telecom Retail does not have an unfair head start in a new service area and is able to lock up the important early adopter population.

223. If the Commission decides not to require Telecom to provide a bitstream service to the maximum DSLAM speed and to allow TelstraClear to rate shape, TelstraClear requests that the Commission determine that:

a. Telecom must make available to TelstraClear a bitstream version of any new Jetstream service which Telecom launches (where the bitstream service would meet the service description requirements);

b. Telecom must make new bitstream's service available to TelstraClear no later than the date on which Telecom launches the new retail service (including by way of a "soft launch"; and

c. Telecom must inform TelstraClear at the same time that it informs its own retail division or give TelstraClear at least 90 days prior notice of its intention to launch the new retail service and provide at the same time a technical description of the new bitstream service.

224. Ofcom identified product development and new product launches as one of the major areas to which the non-discrimination principle should apply:

> *"it is important to recognise … that equality of access must be maintained throughout product development, and on an-going basis. Therefore, we define equivalence as also applying to product development and in-life product management. By these we mean:*
>
> - *product development and introduction into service: equality in the ability of BT's wholesale customers to influence the prioritisation of new product developments, and in these customers' awareness of changes in products; and*
>
> - *in-life product management: equality in the ability of BT's wholesale customers to influence and/or be aware of changes in products that*

arise through the lifecycle of the products; such as provisioning, fault management and billing."[100]

9.9 The Term

225. The term of the supply terms:

a. The commencement date shall be the date of the determination;

b. The expiry date, subject to sub-paragraph (c) shall be 24 months from the date of the Commission's initial determination of this Application (initial determination); and

c. If either Telecom or TelstraClear has made a price review application in respect of the initial determination, the expiry date shall be the later of 24 months from the date of the Commission's initial determination or 12 months from the date of the Commission's final price review determination.[101] This clause avoids the lacuna which arose as a result of expiry of the Wholesale Determination and the Interconnection Determination before the Commission could complete its price review determination.

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100 Strategic Review of Telecommunications, Phase 2 Consultation Document,18 November 2004 (Ofcom Strategic Review Paper).Annex G, para G7.

101 TelstraClear Section 20 Application dated 4 November, para 16.4.

10 CONCLUSION

10.1 Way forward – common areas with IHUG

226. TelstraClear acknowledges that the IHUG application has a narrower scope than the TelstraClear application and that finalisation of the IHUG application should not have to await finalisation of the TelstraClear application. However, if the IHUG application does proceed ahead of the TelstraClear application, the issues which are common to both applications must be addressed together. This means the common issues must be addressed in the IHUG proceedings.

227. TelstraClear believes, both as a matter of law and of good policy making, the common issues cannot be addressed sequentially because this may lead to inconsistent outcomes. While, as a general proposition, the Commission's determination in one bilateral determination may not necessarily bind the Commission in another bilateral determination, the situation is very different here. The common issues have arisen in two applications filed within a day of each other, the disputes between each applicant and Telecom arise from the same course of conduct by Telecom and the applicants will enter the market and compete against Telecom (and each other) within the same timeframe using the same designated service which is the subject of their applications. Differential regulatory outcomes risk distorting competition.

228. Figure 32 sets out TelstraClear's view whether issues raised in the TelstraClear submission are common to the IHUG application. In some cases, the parties have asked for substantially the same thing. In other cases, while IHUG may have framed its service request more narrowly than TelstraClear, essentially the same legal, technical, economic and policy issue are involved and determination of the IHUG service request could, in TelstraClear's view, affect or pre-determine the TelstraClear service request:

Figure 32: Common Issues between IHUG and TelstraClear

Issue	IHUG	TCL
Services Requested		
Bitstream	✓	✓
Backhaul	✗ Not requested as already agreed with Telecom.	✓
Is Telecom required to offer higher download speed than current offer of 256 kbps?	✓ IHUG specifically requests downstream speed of 2Mbit/s,and complains generally of Telecom providing higher downstream speeds for its retail services	✓ Speed to maximum capacity of the DSLAM, which is up to 8 Mbit/s
Should Telecom be required to offer speeds for bitstream service which are not offered for retail services?	✓ There is no retail version of the 2Mbit/s services requested by IHUG (which as IHUG notes, means it is necessary to determine which is the most Jetstream service to use as a pricing base.)	✓ Speed to maximum capacity of the DSLAM, irrespective of whether this delivers of downstream speed which is higher than the Telecom retail Jetstream services.
Should Telecom be required to provide a non-rate shaped service?	✗ But see comment in TCL column	✓ TCL should have ability to rate shape Resolution of the IHUG requests for services with down

Issue	IHUG	TCL
		load speeds higher than Telecom retail services raises substantially the same issues as TelstraClear's rate shaping request. Telecom would use the same technical capability to adjust the "throttling" of the DSLAM to a different speed for IHUG than Telecom makes available to its retail end users as Telecom would use not to impose any "throttling" on the TelstraClear services: that is, Telecom programs the 2 Mbit/s service speed into the DSLAM for the IHUG service but programs no speed for the TelstraClear service.
Telecom should provide wholesale services at same time as provide retail service	✓	✓
No usage limits	✓	✓
Market Definition		
Is there a national or sub-national market for bitstream?	✓ Requested on a nationwide basis. IHUG says that TCL does not provide comparable service in TCL network areas (which would include the 5 Auckland/Wellington ESAs).	✓ National market or in the alternative URSAs
What is the geographic market for backhaul?	✘	✓ National market or in the alternative, markets to supply URSAs in which Telecom has to supply bitstream

Issue	IHUG	TCL
Are there separate customer markets? (ie residential and business)	Not specified but implication is that market is not segmented because IHUG seeks a wholesale price not differentiated between residential and business customers.	No customer segmentation
Competition		
Telecom faces limited competition on nationwide basis in bitstream	✓	✓
If Telecom does not face limited competition, Commission should exercise its discretion to require supply because of Telecom's efforts to undermine regulatory regime	✓	✘ TelstraClear did not expressly apply, but any factors that justify the exercise of the discretion in IHUG's favor are likely to be applicable to TelstraClear, particularly given the evidence discussed above in relation to TelstraClear SME penetration in the 5 Auckland/Wellington ESAs. Exercising discretion in favor of one access seeker but not another would create regulatory distortions.
Price Terms		
Base retail price	✓ Use the Telecom retail price for Jetstream 2Mbit/s/192kbps further discounted for the inferior nature of the wholesale product.	✓ Use Jetstream Go, with traffic charge component removed.
Wholesale discount	✓	✓

Issue	IHUG	TCL
No per megabyte charge	✘ IHUG accepts the current terms of Telecom's commercial offer and does not seek changes beyond those in their application.	✓
Service transferral charge	✘ IHUG accepts the current terms of Telecom's commercial offer and does not seek changes beyond those in their application.	✓
No charge for OSS interface	✘ IHUG accepts the current terms of Telecom's commercial offer and does not seek changes beyond those in their application.	✓ Telecom and TCL meet own costs
Support services	✘ IHUG accepts the current terms of Telecom's commercial offer and does not seek changes beyond those in their application.	✓ TSLRIC
MACs	✘	✓

Issue	IHUG	TCL
	IHUG accepts the current terms of Telecom's commercial offer and does not seek changes beyond those in their application	TSLRIC
Non-price terms		
Electronic interfaces	✗	✓
Static IP addresses	✗	✓
Part billing cycle	✗	✓
Service levels, rebates and reporting	✗	✓
Term	✓ 12 months	✓ 24 months or 12 months from a price review determination

10.2 How non-common issues should be addressed

229. TelstraClear proposes that the issues that are not common between the TelstraClear and IHUG applications should be resolved in accordance with the following timeframes:

Figure 33:

Stage	Date
Cross submissions	28 January 2005
Draft determination	11 February 2005
Submissions on draft determination	4 March 2005
Cross submissions (if needed)	18 March 2005
Conference	31 March 2005
Final determination	15 April 2005

ANNEX A: DATA FROM THE 5 AUCKLAND/WELLINGTON ESA'S

High Density Buildings

(Over 79 Full Time Employee equivalents)

Contains TelstraClear designated Restricted Information

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][TCLRI]

Medium Density Buildings

(Between 20 and 79 Full Time Employee equivalents)

Contains TelstraClear designated Restricted Information

[

][TCLRI]

Low Density Buildings

(Between 6 and 19 Full Time Employee equivalents)

Contains TelstraClear designated Restricted Information

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][TCLRI]

Small Buildings

(5 or less Full Time Employee Equivalents)

Contains TelstraClear designated Restricted Information

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][TCLRI]

ANNEX B: AAS REPORT :

"Technical Aspects of Unbundled Bitstream Services"

ANNEX C: ORDOVER REPORT

"Market Definition And Competition Assessment for Wholesale Bitstream Access in New Zealand"

ANNEX E: PRICEWATERHOUSECOOPERS REPORT

"Establishment and Measurement of Service Level Agreements for Wholesale Supply"

ANNEX F: TELECOM UNBUNDLED REGIONAL SERVICE AREA (URSA) MAPS

Annex F contains maps of 4 of the URSAs which contain the 5 Auckland/Wellington ESAs. In each case the yellow area on the map depicts the geographical area of the URSA which is additional to the relevant ESAs included in that URSA.

ANNEX D: IHUG UBS PROVISIONING ISSUES

Delays in Customers being provisioned

A majority of our customers' complaints are surrounding the turn-around time for the UBS Applications

Month	Average turn-around for New Applications	Max turn-around for New Applications	Average turn-around for Transition Applications [102]	Max turn-around for Transition Applications
October	25 days	64 days	20 days	63 days
November	15 days	40 days	19 days	38 days

The delays in provisioning have resulted in call volumes increasing in our Contact Centre with customers wanting to know when their account will be activated.

Customers experiencing disconnection during transition

We were informed that customers will only experience a fifteen minute to four hour delay with being transitioned. The actual time our customers are experiencing is anywhere between twelve to twenty four hours. We have had some cases of customers being offline for up to a week.

Lack of Ports

A number of our customers are experiencing delays in getting connected or when transitioning due to ports not being available. This has been a constant problem in the last month with a number of customers.

Work on Telecom Exchanges

A number of customers are being left without a connection as they have been disconnected during transition from i-ubs to ubs and during this period some work is being done on the exchange with no ETA, so the customer is left with no connection.

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[102] Transition Applications represent customers with an existing Jetstream service (either provided by Telecom retail or IHUG under the partnership program with Telecom) wishing to be supplied by IHUG's retail product provided using Telecom's present UBS Offer.

Examples

Customers Name	Phone Number	Telecom Account Number	Issue
			Customer's application was submitted to Telecom on 7th October 2004 and was not completed until 10th December 2004.
			Customer has been offline since 22nd November due to lack or Ports available and fault in Telecom's system.
			Customer's application has been completed but has been offline since 10th December due to lack of ports.
			We were given an RFS date of 20th October 2004 but customer was not up and running until 13th December due to lack of ports.
			Customer is being transitioned from i-ubs to ubs and work needed to be done on his exchange so he will not be reconnected until work is complete and no ETA could be given.

ANNEX G: TELECOM JETSTREAM PRICES

Telecom's existing retail Jetstream Plans are as follows:

Existing TCNZ Res Narrowband Plans[103]	Speed	Traffic Limit	Total Cost if Tolls with Telecom	Total Cost without Tolls with Telecom
JetStream Go 1GB	256/128 kbps	1GB	• $29.95 Access + $10Xtra ISP = $39.95 • Traffic throttle to 64 kbps after 1GB	• $39.95 Access + $10Xtra ISP = $49.95 • Traffic throttle to 64 kbps after 1GB
JetStream Explorer 3GB	256/128 kbps	3GB	• $39.95 Access + $10Xtra ISP = $49.95 • Traffic throttle to 64 kbps after 3GB	• $49.95 Access + $10Xtra ISP = $59.95 • Traffic throttle to 64 kbps after 3GB
JetStream Plus	2048/192 kbps[104]	10GB traffic limit and flat rate	• $59.95 Access + $10Xtra ISP = $69.95 • Traffic throttle to 64 kbps after 10GB	• $69.95 Access + $10Xtra ISP = $79.95 • Traffic throttle to 64 kbps after 10GB

Telecom's existing business Jetstream plans are as follows:

Existing TCNZ Business Xtra JetStream plans[105]	Download Speed	Monthly Data Allowance	Monthly Fee (ex GST)	Excess usage charge(/MB) ex GST
Xtra JetStream 600	Full Speed (Up to 50 times faster than dial-up)	600 MB	$79.11	18c
Xtra JetStream 1200	Full Speed (Up to 50 times faster than dial-up)	1200 MB	$137.78	17c
Xtra JetStream 1800	Full Speed (Up to 50 times faster than dial-up)	1800 MB	$193.78	16c
Xtra JetStream 3000	Full Speed (Up to 50 times faster than dial-up)	3000 MB	$309.78	14.3c
Xtra JetStream 5000	Full Speed (Up to 50 times faster than dial-up)	5000 MB	$475.78	12.5c
Xtra JetStream 10000	Full Speed (Up to 50 times faster than dial-up)	10000 MB	$905.78	10.7c
Xtra JetStream 20000	Full Speed (Up to 50 times faster than dial-up)	20000 MB	$1617.78	9c
Upload speed for Xtra Venture plans are 128kbs. Full speed is a download speed of 2-8 MBs and upload speed of 600kbs. (Up to six times faster than dial-up) * Download speed may be reduced to a maximum of 64 kbs once 10GB is reached.				

The Jetstream plans that Telecom recently introduced on 24 October 2004 also continue with the pattern of national pricing:

[103] Current plans that existed prior to 24 October 2004.
[104] Prior to 24 October 2004 the speeds applicable to this plan were 256/128 kbps.
[105] Current plans that existed prior to 24 October 2004.

New TCNZ Narrowband Plans	Speed	Traffic Limit	Total Cost if Tolls with Telecom	Total Cost without Tolls with Telecom
JetStream Everyday 1GB (Residential)	1024/192 kbps	1GB	• $34.95 Access + $10Xtra ISP = $44.95 • Traffic throttle to 64 kbps after 1GB	• $44.95 Access + $10Xtra ISP = $55.95 • Traffic throttle to 64 kbps after 1GB
JetStream Swift (Residential)	2048/192 kbps	10GB	• $59.95 Access + $10Xtra ISP = $69.95 • $0.02 per MB after 10GB	• $69.95 Access + $10Xtra ISP = $79.95 • $0.02 per MB after 10GB
Venture 1GN (Business)	256/128 kbps	1GB	• $59.95	N/a
Venture 3GB (Business)	256/128 kbps	3GB	• $79.95	N/a
Venture Flat Rate (Business)	256/128 kbps	Unlimited	• $99.95	N/a
Xtra JetStream 30000	Full Speed (Up to 50 times faster than dial-up)	30000 MB	• $2400.00	N/a