

## TELSTRACLEAR

### Telecom's Assets-based Constraint on Unbundling

#### Key points:

- Telecom is incorrect to allege that the Commission's approach to uPDN, which draws on international regulatory experience, is ultra vires;
- 'Unbundling' takes its meaning from the object which is to be unbundled. As the definition of 'local loop network' focuses primarily on physical assets, unbundling used in that context is largely asset-specific. By contrast, the PDN is defined as an activated system (including because it includes data switches in contrast to the LLN). Accordingly, unbundling the PDN can mean access to **services** which are inputs to downstream retail data services provided over the PDN;
- 'Unbundling' the PDN involves both 'horizontal' and 'vertical' dimensions. On the vertical dimension, the Commission can unbundle the PDN by moving down through the OSI layers (or IP equivalent): e.g. requiring supply at layer 2 rather than at layer 3 or above;
- The horizontal dimension of the PDN is the end to end data pathway between end user premises provided by a retail data service. In this context, 'unbundling' means a requirement to provide only part of that pathway as a wholesale or interconnect service. Hence, the UK and European Commission description of tails as "**partial** private circuits" or "**part** circuits" because they have been unbundled from the end to end retail service;
- Telecom's strained interpretation of unbundling obscures the common purpose justifying unbundling tails from retail data services and unbundling physical loops, being to promote competition by ensuring fair access over the incumbent's bottleneck local network. Data tails, unbundled loops and bitstream services are different ways of unbundling Telecom's local loop from the retail services Telecom provides over it;
- Telecom's concern that access seekers could be given access to individual assets within Telecom's fixed PDN (such as routers) is misplaced. PDN assets are relevant only to the extent that required for provision of access to designated unbundled PDN services.

#### Telecom's position

1. Telecom opposes the Commission's references to the international experience of leased line/partial private circuit (PPC) regulation in the context of its review under section 64(1)(b) of the Act. It states at paragraph 606 of its Response to the draft Report (Response) that:

*'Investigation, designation or specification of any form of regulation other than unbundling, such as asset neutral leased line or partial private circuit regulation, would also be ultra vires, as the investigations are both into whether unbundled access to specific assets should be provided.*

2. At paragraph 619 of its Response, Telecom again asserts that the Commission's use of the concept of overseas leased line/PPC is unlawful, on the basis that:

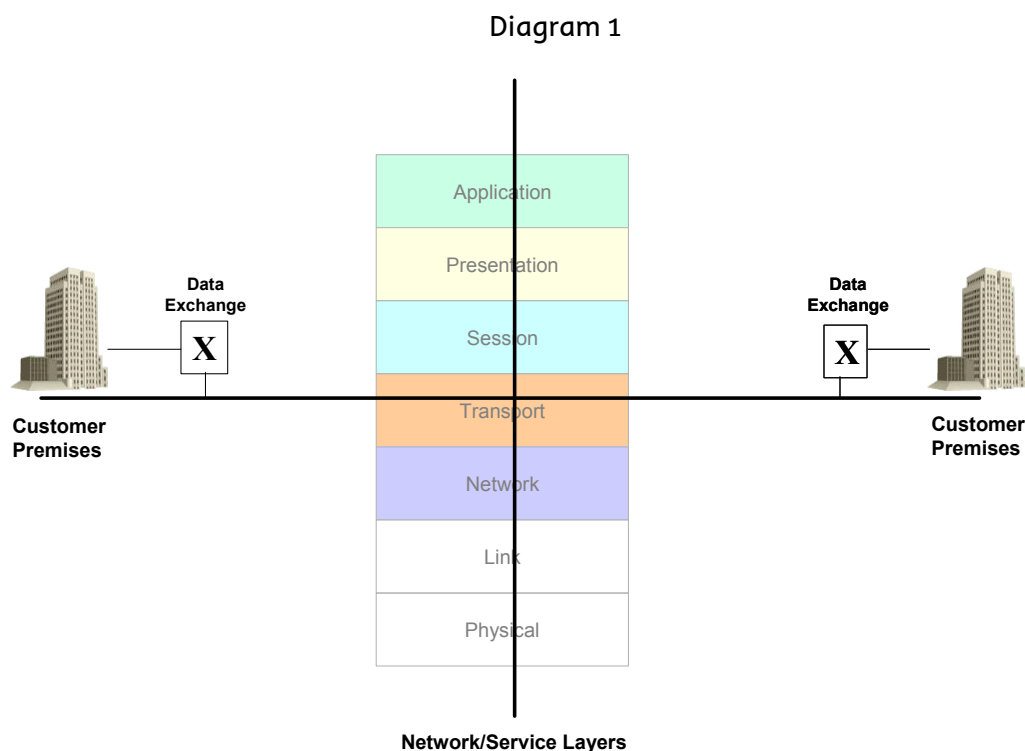
*'(a) the investigation to be conducted is an unbundling investigation. Unbundling is a completely different type of regulation to leased line regulation; and  
(b) section 64 is asset-specific, and has very clear boundaries ... Leased line regulation is by definition asset neutral, and has only notional boundaries (a POI agreed to by the parties). Therefore section 64 cannot be read in leased line terms.'*

3. Telecom's position is that the Commission is limited to a rigidly asset-specific review of which elements of Telecom's fixed PDN are to be made available for lease by competitors. Telecom argues, in effect, that there is something inherent in the concept of unbundling which implies that it relates only to physical assets and not services. Accordingly, Telecom argues, the Commission may not consider 'leased line regulation'; it has scope under section 64(1)(b) only to require Telecom to lease 'Layer 1' assets to its competitors, and it must specify exactly which assets this obligation will relate to.

### **What is Unbundling?**

4. Telecom's position fails to acknowledge the scope of the concept of 'unbundling', which has been reflected in the overseas regulatory interventions to which Telecom refers in its Response. Telecom confuses a form or type of unbundling, LLU, with the broader concept.
5. 'Interconnection' and 'access services' necessarily imply unbundling. An access service is, therefore, less than the whole end-to-end service. By unbundling the retail service into components, the access seeker is able to access some of those components and substitute its own network for other components. The point at which interconnection or access occurs determines the degree of unbundling. Conversely, the extent of unbundling of end-to-end services which may be necessary determines the point at which interconnection or access occurs.
6. In the PSTN environment, interconnection of switched voice calls also involves the provision of originating and/or terminating switched carriage service. These originating and terminating services are unbundled local switching and carriage components of the end to end voice call. If the new entrant can only interconnect at one trunk exchange in each city, the incumbent provides a relatively bundled access service. If the incumbent is required to provide interconnection at the local exchange level, the incumbent must provide a more unbundled access service.
7. Data tails and local data carriage (such as bitstream) are the equivalent of PSTN origination and termination and in the same way are unbundled from the end to end retail service.
8. Refusing to unbundle services allows the incumbent to extend the scope of its bottleneck power. In the extreme case, the incumbent can refuse to unbundle at all and to instead provide only a 'resale' service which is an end to end service.

9. 'Unbundling' encompasses distinct but related concepts that can be best thought of as 'horizontal' and 'vertical' dimensions, as depicted in diagram 1:

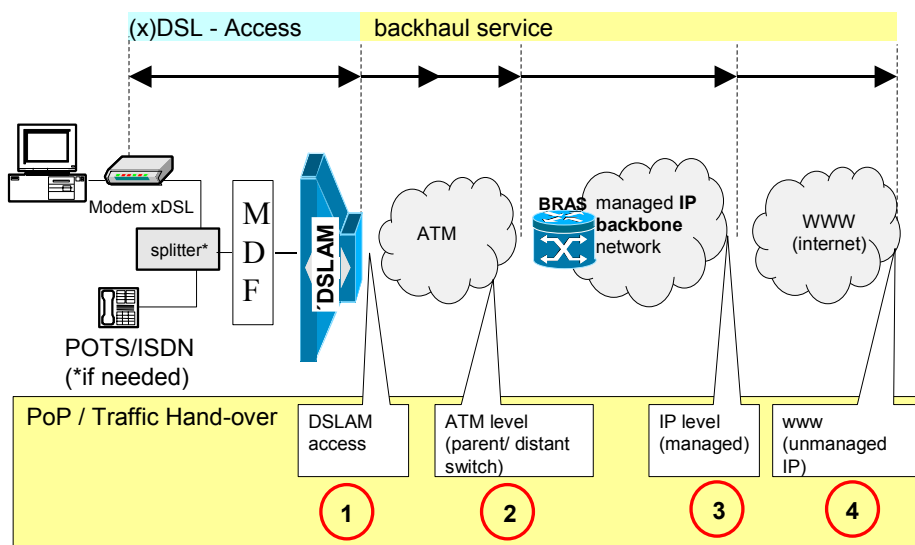


10. The vertical dimension encompasses the layers of physical infrastructure, transport, basic switching and routing, applications and application functionality, which comprise a retail data service and which are expressed in the 7 layer OSI model (and IP equivalent). As an example of 'vertical' unbundling, local loop unbundling "peels back" the top 6 layers to require full asset/infrastructure unbundling at 'Layer 1' (i.e. the physical infrastructure layer) of Telecom's network. But the regulator could decide to unbundle at a point higher in the network layers, such as unbundling levels 1 through 6 from layer 7 (applications) so that an access seeker could use the incumbent's connectivity to provide its own applications or, unbundling further down as TelstraClear has requested, unbundle the layer 2 DSL service from the end to end layer 3 DSL service.
11. Telecom interprets the concept of section 64(1)(b) uPDN 'unbundling' as limited to this vertical dimension- it thus contemplates only the lease to access seekers of specific 'unbundled' assets, and seeks precise specification of which assets such intervention will apply to.
12. However, the concept of 'unbundling' also includes a 'horizontal' dimension, which as also depicted in diagram 1, provides the end-to-end service to the end user. The horizontal dimension of unbundling requires an incumbent operator to 'lift out' or unbundle from the end to end service those parts of the

horizontal pathway that access seekers do not require in order to offer end-to-end connectivity.

13. The horizontal and vertical dimensions of unbundling may be inter-related in the definition of an access services. At paragraph 8.26 of TelstraClear's Response to the Draft Report, TelstraClear included the following diagram of DSL wholesale service options identified by the European Regulators Group :

Diagram 2



14. Interconnection at Point 4 involves some limited horizontal unbundling as the ISP provides content and international connectivity which would be provided by the access provider's own ISP service, but the service is highly bundled and involves virtually no vertical unbundling. As a result, the access provider controls service quality and functionality. Conversely, interconnection at Point 1 involves both a high level of horizontal unbundling (because the point of interconnection is much closer to the customer) and a high level of vertical unbundling (because the service is provided at layer 2 giving the access seeker more control over the service functionality and quality).
15. Both the horizontal and vertical dimensions of unbundling require an analysis of which aspects of an incumbent's services and network must be unbundled and provided to access seekers, in order that they can most efficiently compete with the incumbent's service offerings in downstream retail markets. This analysis should result in an incumbent's 'unbundled' offering including only those 'bottleneck' service/infrastructure elements in which it has market power, thus preventing a vertically integrated incumbent from leveraging its position of market dominance into adjacent or related markets. "

## Telecom's flawed analysis of foreign regulatory intervention

16. In attempting to constrain the Commission's analysis under section 64(1)(b), Telecom misinterprets 'unbundling' regulatory initiatives in other jurisdictions as supporting its interpretation. Telecom itself confirms that no foreign regulatory regime has required 'unbundled' PDN access in accordance with its interpretation of section 64(1)(b)<sup>1</sup>. In TelstraClear's submission, there is no evidence that section 64 was intended to introduce to the New Zealand regulatory regime a form of data unbundling unseen elsewhere; instead, the Commission can legitimately consider the horizontal and vertical aspects of data unbundling evident in other jurisdictions. In the following analysis TelstraClear will respond to Telecom's arguments with specific reference to Telecom's attempts to distinguish Oftel's regulation of leased lines in the UK from the Commission's task under section 64(1)(b).
17. Foreign regulators' consistent approach to data unbundling has been to 'strip out' from the incumbents' end-to-end retail services those aspects of functionality not required by access seekers in order to compete in downstream markets. Oftel's PPC requirements arose from the inability of access seekers to compete with BT in downstream retail markets in the absence of a sufficiently unbundled private circuit variant. Oftel anticipated that its requirements for unbundled PPC products would increase downstream retail competition and provide benefits to end users in retail markets: '*The Director's proposals will encourage the take up of PPCs and allow greater competition in retail leased lines. This should give consumers a choice of more suppliers, greater variety of product offerings and lower prices for leased lines.*'<sup>2</sup>
18. Telecom alleges at paragraph 92(b) of its Response that the UK PPC regulation is '*by definition asset and technology neutral*' (and therefore distinguishable from the supposedly 'asset-specific' exercise to be conducted by the Commission under section 64(1)(b)). Again at paragraph 716, Telecom alleges that PPC regulation is '*defined by reference to the end service that must be delivered (eg transmission capacity at 2 Mbit/s or 34 Mbit/s) as opposed to the assets across which that service might be delivered.*' At section 8.3 of its Response, Telecom sets out its view that the Commission's proposed PDN unbundling is more intrusive than overseas PDN regulation, partly on the basis of EU and UK allegedly 'asset neutral' leased line and PPC regulation.
19. While it is correct that leased line regulation is defined partly by reference to the end service to be delivered, it is not correct that it is 'asset and technology neutral' and therefore somehow able to be distinguished from the concept of unbundling. In order to ensure an appropriate level of equivalence between BT's own retail private circuits and PPCs, several aspects of Oftel's PPC requirements were specific in terms of the technology involved in the provision of PPCs<sup>3</sup>. Indeed the Interconnection Directive (the EC legislation relevant to the PPC Directions), specifically defined leased line services as possibly including '*... systems which allow flexible use of the leased line*

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<sup>1</sup> 'Telecom's Response to the Commerce Commission's Draft Report', 29 October 2003, paragraphs 708(c) and 709

<sup>2</sup> Oftel, 'Phase I Direction to resolve a dispute concerning the provision of partial private circuits', 14 June 2002, paragraph 2.3

<sup>3</sup> See for example Chapter 5 'Determination of Phase I issues', and Annex D 'Technical Annex', of Oftel's Phase I PPC Direction (14 June 2002)

*bandwidth, including certain routing and management capabilities.*<sup>4</sup> Oftel specifically required that BT route PPCs over its MSH (broadband SDH) network in the same manner as it routed its own retail private circuits over that network<sup>5</sup>. Oftel required that BT offer access seekers the ability to request separate routing of routing of PPCs over BT's network, in order to ensure an adequate level of PPC circuit resilience<sup>6</sup>. Telecom's claims in respect of 'technology neutral' PPC regulation are therefore inaccurate.

20. At paragraph 710 of its Submission Telecom states that there is no overseas regulation comparable to the PDN unbundling contemplated by section 64(1)(b):

*'710. Instead, other countries regulate the following two types of data network regulation:*

- (a) Wholesale, service-based, regulation, such as leased lines, partial private circuits, transmission and resale services; and/or*
- (b) Physical and logical asset-based interconnection regulation (such as bitstream access (or ATM interconnection as it is known in the UK)).*

*711. The Commission appears to treat (a) as akin to PDN unbundling, and (b) as akin to bitstream in its Draft Report. This is an error.'*<sup>7</sup>

21. At paragraph 96, Telecom attempts to distinguish s.64(1)(b) unbundling from the UK PPC regulation, describing the latter as '*wholesale service regulation, an entirely different type of regulation to unbundling.*'

22. Telecom's attempted sub-categorisation of relevant UK regulation into different 'types' of intervention is incorrect. Contrary to Telecom's attempt at paragraph 710 of its Response to distinguish Oftel's ATM interconnection and PPC decisions, they were:

- both made in order to address perceived market failure in the relevant downstream markets;
- both referred to Oftel by the relevant access seekers as 'interconnection disputes' under the same statutory provisions<sup>8</sup>;
- both required to be resolved by the UK Director-General of Telecommunications having regard to the same issues, including the need to ensure satisfactory end-to-end communication for users and the principles of non-discrimination<sup>9</sup>; and

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<sup>4</sup> Directive 97/33/EC on Interconnection in telecommunications with regard to ensuring universal service and interoperability through application of the principles of open network provision

<sup>5</sup> *ibid*, paragraph D.7

<sup>6</sup> Oftel, 'Partial Private Circuits: Phase two – a direction to resolve a dispute concerning the provision of partial private circuits', 23 December 2002.

<sup>7</sup> We note that it is incorrect to categorise true 'wholesale' products and resale products as constituting one 'type' of regulatory intervention. In terms of the regulatory policy underpinning their provision, a resale service is a totally bundled product and therefore at the other end of the unbundling spectrum from a genuinely 'wholesale' product (such as a PPC).

<sup>8</sup> Regulation 6(6) of the Telecommunications (Interconnection) Regulations 1997, which at the time implemented in the UK the requirements of Directive 97/33/EC on Interconnection in telecommunications with regard to ensuring universal service and interoperability through application of the principles of Open Network Provision

<sup>9</sup> Regulation 6(1) and 6(8), Telecommunications (Interconnection) Regulations, 1997

- both resolved by way of imposition of requirements upon BT pursuant to those provisions of its operating Licence which require the supply of interconnection and related services<sup>10</sup>.
23. The distinctions Telecom proposes are illogical: interconnection is of no functional utility without a wholesale or access service by which traffic is conveyed to the point of interconnection, and any unbundled (ie non end-to-end) wholesale variant of a retail service requires interconnection with the incumbent's network. Telecom's submission that PPC regulation is of a different 'type' to ATM interconnection is contrary to Oftel's finding that PPCs are interconnection services<sup>11</sup>.
24. Oftel does not draw the distinctions Telecom has attempted to make between the different regulatory interventions to which it refers. Telecom refers (at paragraph 710 of its Response) to 'wholesale, service-based regulation' constituting a different 'type' of data network regulation to interconnection regulation. However, Oftel has explicitly recognised the following regulatory interventions as (among others) all constituting examples of regulated 'access' within the scope of the 2002 Access and Interconnection Directive<sup>12</sup>: local loop unbundling; 'interconnection including partial private circuits and ATM xDSL interconnection'; wholesale ADSL services; co-location facilities and access to OSS/billing systems<sup>13</sup>.
25. The broad scope of unbundling (and the non-existence of the distinction Telecom seeks to make between PPCs and unbundling) is illustrated by European telecommunications legislation. . The 1997 Interconnection Directive provides in recital (10) that:
- '... whereas organisations with significant market power must be able to demonstrate that their interconnection charges are ... sufficiently **unbundled** in terms of network and service elements offered ...' (emphasis added)*
26. The same concepts were incorporated in the European Commission's 1999 review of telecommunications legislation. As Oftel has stated, with reference to the Access and Interconnection Directive (one of the package of Directives resulting from that review)<sup>14</sup>:
- 'Access' includes interconnection, provision of part-circuits suitable for connection between different network elements, provision of wholesale services suitable for use by service providers without their own infrastructure and also access to such*

<sup>10</sup> Oftel's 'Direction to resolve a dispute between BT, Energis and Thus concerning xDSL interconnection at the ATM switch' (21 June 2002) was imposed under Condition 9 of BT's Licence; Oftel's Phase I (14 June 2002) and Phase II (23 December 2002) PPC Directions were imposed under Condition 45 of BT's Licence.

<sup>11</sup> In its December 2002 Statement on National Leased Lines, Oftel concluded that PPCs were within the scope of the Interconnection Directive 97/33/EC. See also paragraphs 5 and 6 of Oftel's Phase I PPC Direction (14 June 2002) which describe PPCs as both interconnection and leased line services.

<sup>12</sup> Directive 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities

<sup>13</sup> Oftel, 'Imposing access obligations under the new EU Directives', 2002, Annex 1

<sup>14</sup> Directive 2002/19/EC on access to, and interconnection of, electronic communications networks and associated facilities

*facilities (for example co-location) as may be necessary for the provision of a service.*<sup>15</sup>

*'Essentially the term 'access' applies to any wholesale service that enables competitors to deliver their own services to customers.'*<sup>16</sup>

27. Oftel states that access obligations may be imposed on operators with significant market power in wholesale markets *'... in order to allow competitors to deliver products to their customers using their own infrastructure and facilities where possible, but making use of those of the SMP operator where this is not feasible.'*<sup>17</sup>

#### **Interpreting Section 64**

28. In TelstraClear's submission, section 64(1)(b) clearly contemplates more than the rigid, asset-specific vertical unbundling advocated by Telecom.
29. First, unlike the definition of Local Loop Network, the definition of PDN includes switches which provide transport and functionality for data services. Elsewhere in its submission, Telecom argues that the exclusion of switches from the definition of Local Loop Network means that it does not include connectivity but only the bare physical assets (and hence in Telecom's view, bitstream is not a form of local loop unbundling). It must follow that if the PDN definition includes the data exchanges the PDN must be more than the physical assets. The PSTN definition, which is very similar to the PDN definition, is used in the Act in manner which suggests an activated network including connectivity, transport and switching functionality, such as the requirement for interconnection with the PSTN in Schedule 1. If the PDN encompasses more than its physical assets, unbundling can mean more than or other than unbundling individual physical assets from the PDN;
30. Second, if subsection (1)(b) intended simply a replication of the vertical asset-specific regulation inherent in subsection (1)(a) local loop unbundling, the specific addition to subsection (1)(b) of a requirement not just for unbundled access but also for interconnection (which is absent from subsection (1)(a), would appear redundant. The use of interconnection implies an activated network (as with interconnection with the PSTN in Schedule 1) and not just physical assets.
31. Third, Telecom's view that PDN is asset specific could make the separate local loop unbundling power redundant. There are three network-related concepts in the Act: PSTN, PDN and LLN. The PSTN and the PDN are both provided over the LLN – hence LLN contains neither a reference to a data switch or a voice switch as that would tie the LLN to one or the other. As set out in diagram [x], the PDN and the PSTN each “ride over” the LLN. An access seeker using LLU can supply either or both PSTN and PDN services, just as the incumbent can.

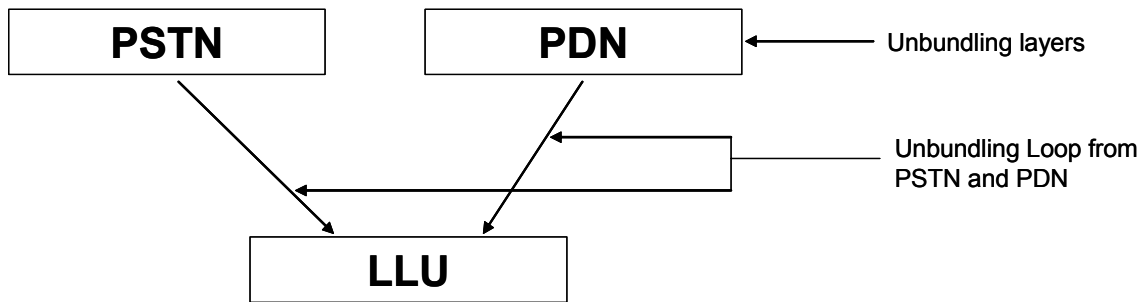
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<sup>15</sup> Oftel, 'Imposing access obligations under the new EU Directives', 2002, paragraph S.2

<sup>16</sup> *ibid*, paragraph 1.10

<sup>17</sup> *ibid*, paragraph 1.9

Diagram 3



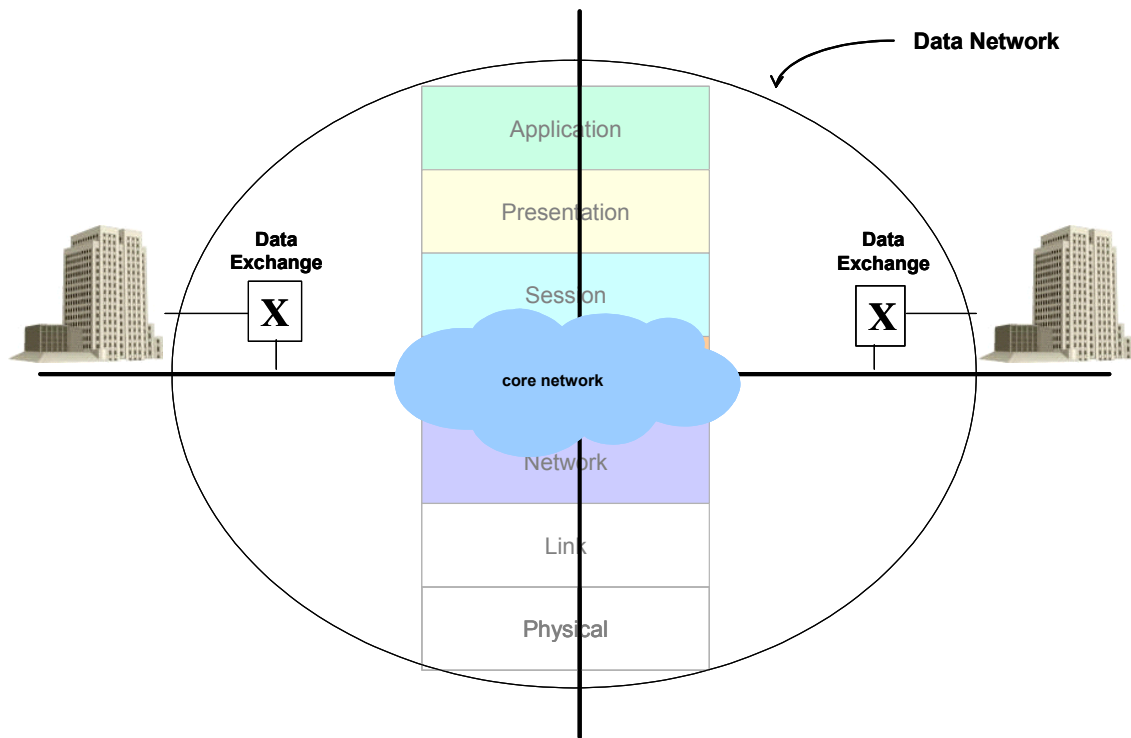
32. In effect, using the OSI model, the LLN is the physical layer or layer 1 of both the PDN and the PSTN. Unbundling occurs in three ways under the Act:

- the LLN can be unbundled from the Telecom PDN and the PSTN;
- the Act already provides for “unbundling” of the Telecom PSTN in Schedule 1. As discussed above, PSTN interconnection involves the provision of switched voice origination or termination which are unbundled components of the end to end Telecom retail switched voice call; and
- the concept of horizontal unbundling inherent in section 64(1)(b) allows the Telecom PDN to be unbundled in much the same way as the PSTN. Data tails and xDSL origination are the data equivalent of switched origination and termination (hence Oftel’s approach discussed above).

33. Telecom’s view that unbundling the PDN was asset specific would mean that there was considerable overlap between unbundling the LLN and unbundling the PDN.

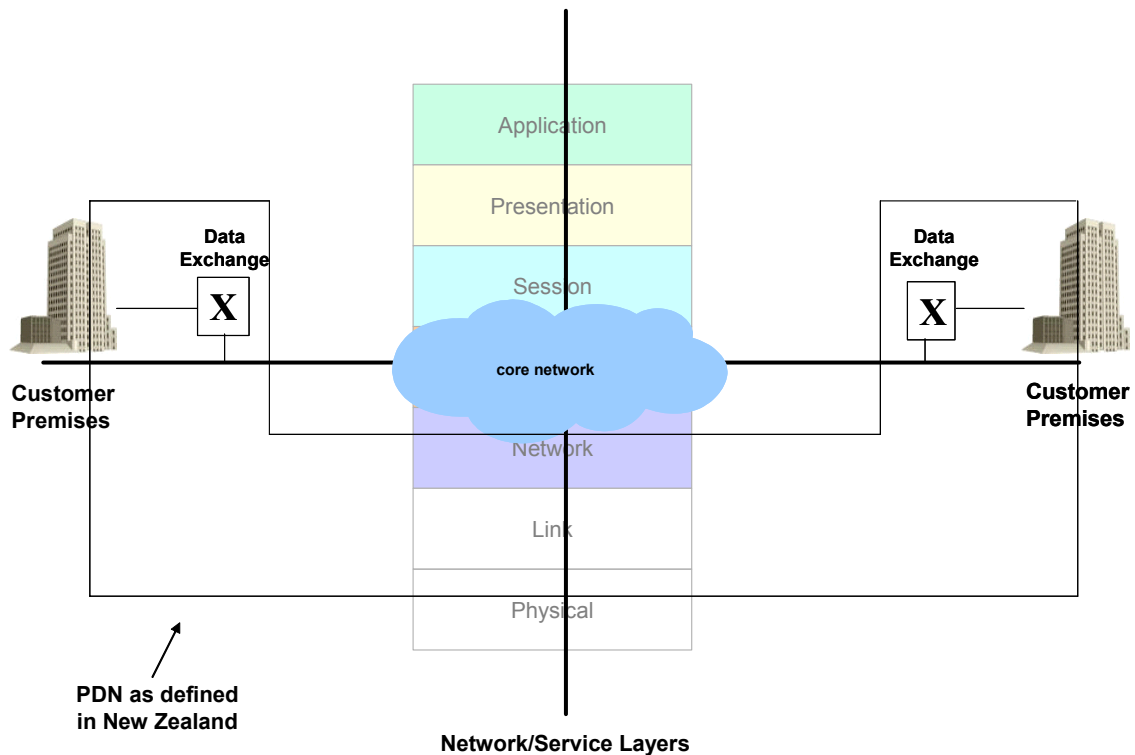
34. The definition of PDN would include the full vertical and horizontal components of Telecom retail services, as depicted in diagram 4:

Diagram 4



35. However, consistent with the approach of addressing Telecom's bottleneck power, the definition of fixed PDN focuses on the network edge. TelstraClear agrees with Telecom that the PDN core is not included in the definition of fixed PDN. As much of the higher level functionality in data services is projected from the network, the practical effect is that the upper layers of the OSI model are probably not included in the fixed PDN definition. Diagram 5 illustrates how the fixed PDN could be mapped against the horizontal and vertical dimensions outlined above:

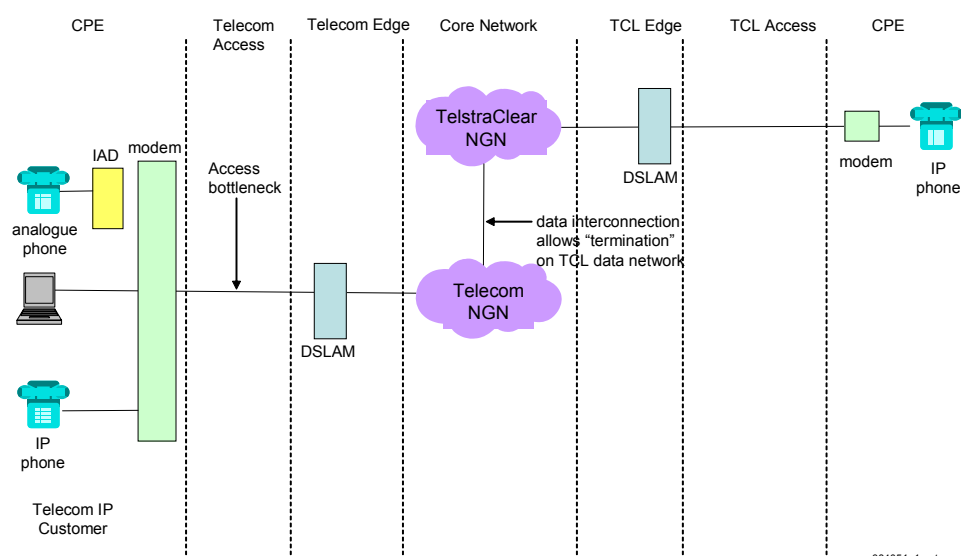
Diagram 5



### Telecom's 14 November Paper

36. Telecom argued at the Conference that the key future issue will be "IP interconnection" and that Telecom proposed to shift data tail wholesale products over time to a "data interconnection model".
37. Oftel would regard bistream as falling within the concept of "data interconnection". However, it does not seem that Telecom was using "interconnection" in that sense, but was referring to "peering" between core networks. To use an analogy from PSTN interconnection, Telecom seems to have been referring to the interconnection of two vertically integrated data networks for the purpose of exchanging data traffic between customers directly connected to each network.
38. Data network interconnection is a key issue which needs to be addressed in the future. But it has no bearing on the separate issue of how each core network (or NGN) connects to customers. The incumbent continues to exercise bottleneck control over the local access network. As in the PSTN environment, interconnection between local networks is crucial to the entry and growth of new local data networks, but it does not address the fundamental issue of the barriers to entry faced by the data network operator building its direct connect network in the first place. As depicted in diagram 6, data interconnection (unless used by Telecom in the same sense as Oftel) does not address the "access gap" which is the focus of this inquiry.

## Access is Different to Interconnection



### Conclusion

39. Commission's analysis in its Draft Report of PDN services as an intermediate input to retail data services<sup>18</sup>, is correct and consistent with overseas regulatory policy. Telecom attempts to impose definitional boundaries in order to constrain the Commission's analysis of section 64(1)(b), and limit its impact. Contrary to Telecom's submission, there is no jurisdictional, interpretative or policy rationale which should prevent overseas regulatory policy and experience from informing the Commission's section 64 analysis, or prevent it from adopting a consistent approach in New Zealand.

### TelstraClear

<sup>18</sup> At paragraphs 412 and 420, for example, of the Commerce Commission's Draft Report, September 2003