Optus Submission

in response to ACCC's discussion paper

Layer 2 bitstream service description

September 2011

Section 1. Introduction

1.1 Optus welcomes the opportunity to participate in the Australian Competition and Consumer Commission (ACCC) consultation on establishing a Layer 2 bitstream service description.

1.2 In general, Optus considers the ACCC's proposed draft service description for the 'Local Bitstream Access Service' sufficiently describes a Layer 2 bitstream service.

1.3 The service description should be comprehensive and should not exclude any quality of service (QoS) level. That is, any service which meets the definition, no matter what level of QoS, should be captured by the declaration.

Section 2. The ACCC's proposed draft service description

Does the draft service description sufficiently describe a Layer 2 bitstream service?

2.1 Under the meaning set out under s152AC of the CCA,

> **Layer 2 bitstream service** means a carriage service that is:
>
> (a) either:
>
> (i) a Layer 2 Ethernet bitstream service; or
>
> (ii) a Layer 2 bitstream service specified in a legislative instrument made by the ACMA for the purposes of this subparagraph; and
>
> (b) a listed carriage service; and
>
> (c) supplied using a line to premises occupied or used by an end-user.
>
> For this purpose, **Layer 2** has the same meaning as in the Open System Interconnection (OSI) Reference Model for data exchange.

2.2 Optus considers this draft service description sufficiently describes a Layer 2 bitstream service to the extent it applies to a Layer 2 Ethernet bitstream service.

2.3 In addition, Optus notes there are a number of other non-Ethernet Layer 2 bitstream services which exist in the bitstream access markets. For example, in Germany the new Remedies Decision of Market 5 (in force since 17 September 2010) has defined two different bitstream product markets at both the Layer 2 and Layer 3 levels. The Layer 2 level is further defined into two access technologies: ATM-bitstream access and Ethernet-bitstream access. [1] Similarly, in the Netherlands wholesale broadband access is both offered as ATM-based as well as Ethernet service.[2]

[1] BEREC, Annex I to the BEREC Report: Next Generation Access – Collection of factual information and new issues of NGA roll-out, Country Case Studies, February 2011, p.99

[2] BEREC, Annex I to the BEREC Report: Next Generation Access – Collection of factual information and new issues of NGA roll-out, Country Case Studies, February 2011, p.203

Is the use of *superfast carriage service* an appropriate method to define the required throughput rate for the service? If not, what is an appropriate method to define the required throughput rate for the service, and why?

2.4 Under the meaning set out under s152AC of the CCA,

> **superfast carriage service** means a carriage service, where:
>
> (a) the carriage service enables end-users to download communications; and
>
> (b) the download transmission speed of the carriage service is normally more than 25 megabits per second; and
>
> (c) the carriage service us supplied using a line to premises occupied or used by an end-user.

2.5 Optus considers the definition of 'superfast carriage service' to represent a minimum throughput speed of 25 megabits per second sufficiently describes a high speed carriage service.

Is the draft service description sufficiently technology neutral to be applicable as technology changes in the future?

2.6 Optus notes that the technology neutrality is not a significant issue given that the CCA already clarifies that the Layer 2 bitstream service description only applies to fixed-line networks.

> *The reference to 'line' in proposed paragraph (c) of the definition of 'Layer 2 bitstream service' makes it clear that that term* ***is not intended to capture services provided through mobile, satellite or wireless networks****. It would not be appropriate to capture these networks because the objective of the provisions is to provide a more level regulatory playing field in relation to superfast carriage services, defined as providing a download transmission speed of more than 25 Mbps, provided over fixed line networks. Moreover, as these technologies do not generally provide the threshold download speed of more than 25 Mbps being applied on a dedicated basis, it has not been considered necessary to capture them.*[3] **[emphasis added]**

2.7 In addition given the Layer 2 bitstream service only applies to Ethernet-based bitstream services and bitstream services as specified by the ACMA, there is sufficient scope under ACMA's power to determine other technology mediums and technical standards relating to Layer 2 bitstream services.

2.8 It follows that the service could be supplied over various transport technologies including (but not limited to) Ethernet over SDH, pure carrier Ethernet and xWDM. To this extent, the service description is sufficiently technology neutral.

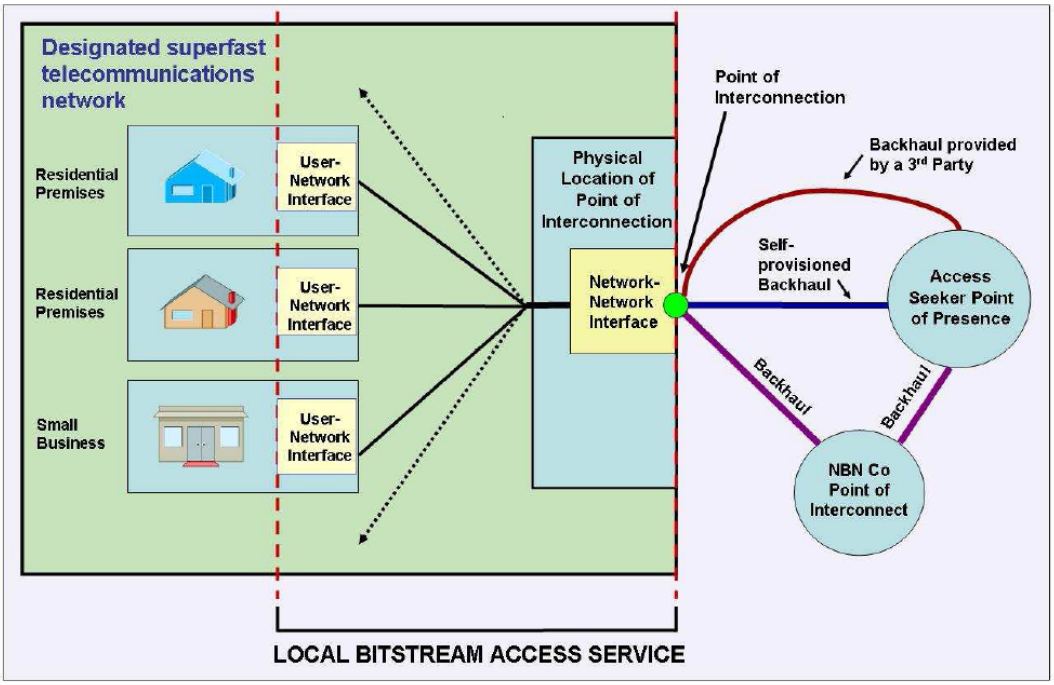
Does the draft service description accurately represent the service depicted in figure 1 above? If not, how should the service description be amended to do so?

2.9 Optus considers the ACCC's draft service description sufficiently describes the relationship for the local bitstream access service depicted below.[4] In addition, this service has parallels with

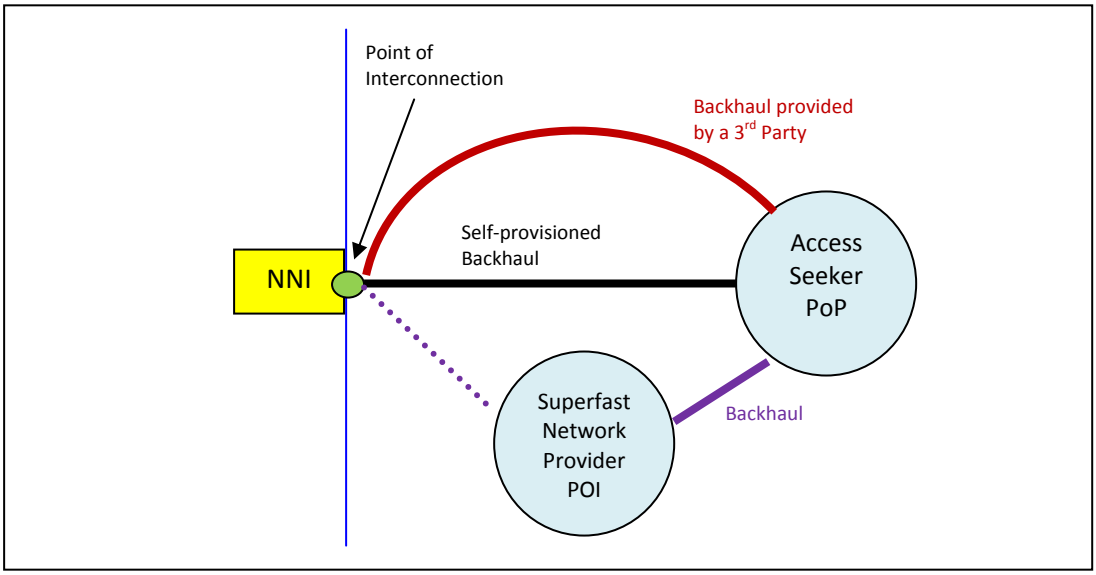
[3] National Broadband Network Companies Bill 2010 Telecommunications Legislation Amendment (National Broadband Network Measures — Access Arrangements) Bill 2011, Revised Explanatory Memorandum, p.167

[4] ACCC, Layer 2 bitstream service description, Discussion Paper, August 2011, p.15

the Ethernet bitstream access service being proposed by NBN Co, including both the physical UNI and NNI network components.[5]



2.10 However in terms of the backhaul access depicted, Optus submits a number of qualifications in relation to the backhaul component. Firstly, the diagram does not need to refer to NBN Co in any way – as such, the term 'NBN Co' should be removed and replaced with 'Superfast Network Provider' (which could be NBN Co or another network provider). Second, the direct connection from the Superfast Network Provider to the NNI should not be included given the provisioned backhaul should always be connected to the NNI via the access seeker PoP. These changes are set out below.



2.11 Optus considers that access seekers should always have the option to source backhaul provided by a competitive provider that is independent of either the Layer 2 bitstream provider, NBN Co

[5] NBN Co Limited, NBN Co Wholesale Access Service: Product and Pricing Overview for Access Seekers, December 2010, p.15

or any other superfast broadband provider. As illustrated in the ACCC's diagram, access seekers should have the option to purchase backhaul from a POI to the PoP that is separate from the Layer 2 bitstream service. It is anticipated that this will be the case provided the POIs for Superfast Networks are located where there is competing independent wholesale backhaul.

Will it be economically viable for Access Seekers to purchase backhaul from a point of interconnection to the PoP separately from the layer 2 bitstream service?

2.12 The economic viability of purchasing backhaul from a POI to the PoP that is separate from the Layer 2 bitstream service will vary depending on the geographic area in which the service is located and the level of competition for backhaul service in that area. In the case of uncompetitive areas, it will depend on the outcome of the current DTCS pricing consultation.

Should a connection protocol be specified in the service description? If so, what protocol?

2.13 Optus considers that it is not necessary to specify a connection protocol. In accordance with the principle of technology neutrality, the service description should not be narrowed in scope to a predefined set of connection protocols which may change over time.

Should a quality of service be specified in the service description?

2.14 Optus considers that it is not necessary to specify a quality of service (QoS) level in the service description. In accordance with the principle of technology neutrality, the service description should not be narrowed in scope to a predefined set of QoS levels. This will ensure that Layer 2 bitstream services will include all bitstream services including (but not limited to) 'best efforts' or 'internet grade' Layer 2 bitstream services.

2.15 In addition, for the avoidance of doubt, the ACCC in its final decision should also clarify that *in any case*, the access seeker will be able to set its own QoS levels on top of what is provided by the access provider (ie. the ability to offer differentiated QoS levels).

2.16 For example, NBN Co's definition of Ethernet recognises the technology's ability to support different grades of quality of service. To this extent, it has defined quality of service (QoS) as follows:

> *QoS refers to a wide range of networking technologies and techniques. The goal of QoS is to provide guarantees on the ability of a network to deliver predictable results. Network performance within the scope of QoS can include availability, bandwidth, latency and error rate.*[6]

2.17 As such, the initial Layer 2 bitstream service offering on the NBN will be based on best-efforts QoS (ie. *"Relaxed performance objective. Best-efforts throughput.* [and] *Availability as Peak Information Rate"*[7]) offered across several bandwidth profiles.

2.18 The IEEE similarly recognises the technology's ability to support different QoS levels, however recognises up to eight QoS levels in its 802.1 standards. As summarised by Transition Networks, the IEEE 802.1p recognises:

[6] NBN Co Limited, Glossary of terms, http://www.nbnco.com.au/glossary.html#qos

[7] NBN Co Limited, NBN Co Wholesale Access Service: Product and Pricing Overview for Access Seekers, December 2010, p.17

There are eight levels (0-7) of priority and consequently eight queues that could be created (see Figure 4). Level Seven represents the highest priority. This will be assigned for mission-critical applications. Level 6 & 5 is designed for delay-sensitive applications such as interactive video and voice. Levels four and below, are suitable for regular enterprise data transfer, as well as streaming video. Level zero is assigned for a traffic that can tolerate all the drawbacks of a best-effort protocol.[8]

2.19 This is also illustrated below.[9]

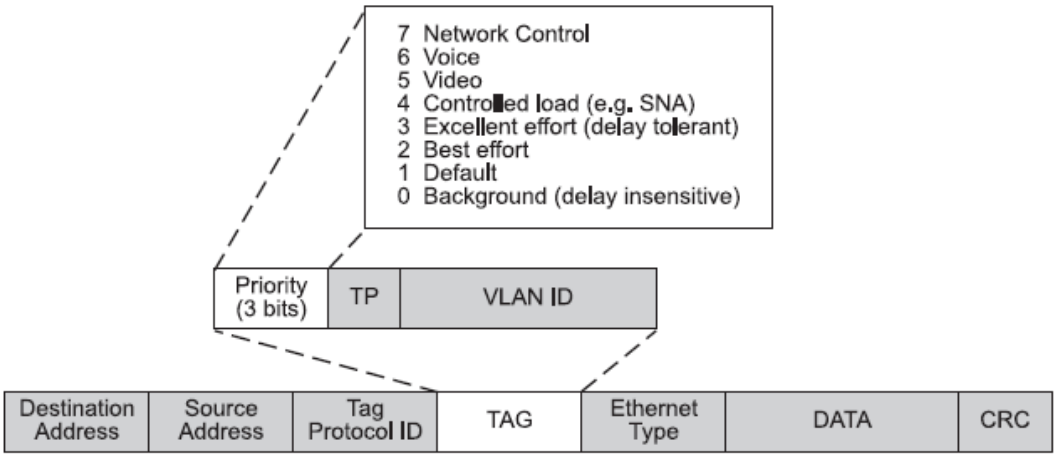


Figure 4: IEEE® 802.1P

2.20 Optus therefore reiterates the service description should be comprehensive and should not exclude any QoS level. That is, any service which meets the definition, no matter what QoS, should be captured by the declaration. In particular, the access provider should not be able to offer a service (with a higher order QoS) and claim that it does not fall within the declaration.

2.21 In addition, the service description should also be sufficiently comprehensive to ensure that the access seeker should be able to offer its own differentiated QoS level (from that provided by the access provider). That is, the access seeker should have control over its own QoS level.

2.22 Optus submits that the ACCC should make a clear statement in its final determination that the service description is comprehensive and applies at all levels of QoS. This would meet the legislative criteria for the promotion of competition by ensuring the end-user has a choice of service provider for any required level of QoS. It would also ensure that the service description remains relevant over time.

[8] Transition Networks, Quality of Service (QoS) in high-priority applications, White Paper, 2003, p.8

[9] Transition Networks, Quality of Service (QoS) in high-priority applications, White Paper, 2003, p.8