Australian
Competition &
Consumer
Commission

Layer 2 bitstream service description
Discussion paper

August 2011

Contents

1 Introduction

This discussion paper commences the Australian Competition and Consumer Commission's (ACCC) public consultation on the declaration of a Layer 2 bitstream service. Subsection 152AL(3C) of the *Competition and Consumer Act 2010* (CCA) requires the ACCC to declare a Layer 2 bitstream service as soon as practicable after the subsection commences. The subsection is expected to commence in October 2011.

The purpose of this discussion paper is to seek industry comment and input on the draft service description. The paper is structured as follows:

- **Section 2** outlines the consultation process for this discussion paper
- **Section 3** provides an overview of the legislative provisions regarding the declaration of a Layer 2 bitstream service
- **Section 4** outlines a number of Layer 2 bitstream type service descriptions from other jurisdictions and NBN Co
- **Section 5** outlines the ACCC's draft service description.

2 Consultation process

The ACCC is seeking submissions from stakeholders on the specific questions raised in this discussion paper and also invites comments on any other matters relating to the service description for the Layer 2 bitstream service.

The ACCC seeks submissions by 5:00 pm on **Friday 16 September 2011**.

All submissions received will be considered public and posted on the ACCC's website. If stakeholders wish to submit commercial-in-confidence material to the ACCC, they should submit both a public and a commercial-in-confidence version of their submission. The public version should clearly identify the commercial-in-confidence material by replacing the confidential material with '[**c-i-c**]'.

The *ACCC-AER information policy: the collection, use and disclosure of information* sets out the general policy of the ACCC and the Australian Energy Regulator on the collection, use and disclosure of information. A copy of the guideline can be downloaded from the ACCC website: http://www.accc.gov.au.

The ACCC prefers to receive submissions in electronic form, either in PDF or Microsoft Word format, which allows the submission text to be searched.

Submissions will be accepted until 5:00pm on **Friday 16 September 2011**. Any submissions received after this time may not be considered.

Please forward submissions to **layer2bitstream@accc.gov.au.**

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3 Legislative background

The *Telecommunications Legislation Amendment (National Broadband Network Measures – Access Arrangements) Act 2011* (NBN Access Arrangements Act) introduced amendments to both the *Telecommunications Act 1997* (Telco Act) and the CCA regarding Layer 2 bitstream services.[1] These amendments set out a regime to regulate the provision of Layer 2 bitstream services to ensure that these services are offered on an open and equivalent access basis.

These amendments commence on a day set by proclamation (or 12 months after Royal Assent if no date is set by proclamation). It is anticipated that these amendments will commence in October 2011.

3.1 Declaration process and access determinations

Under Part XIC of the CCA, the ACCC may 'declare' an eligible service if certain conditions are met.[2] In declaring a service, the ACCC specifies which service offered by an access provider is the declared service and therefore subject to regulation.

An access provider is then obliged to supply that declared service to a service provider (access seeker) on request. When supplying the declared service an access provider must comply with the standard access obligations (SAOs) in section 152AR of the CCA.

Once a service is declared, the ACCC must, within 30 days, commence a public inquiry into making an access determination which specifies terms and conditions of access to that service.[3] The access determination must specify a price or method of ascertaining price for the service.[4] If the access provider and access seeker cannot agree on commercial terms for supply, the access provider must provide the service on the terms set out in the access determination. The access determination acts as a baseline of terms and conditions for supply of the service.

The NBN Access Arrangements Act inserts subsection 152AL(3C) into the CCA which requires the ACCC to declare a Layer 2 bitstream service. This discussion paper seeks industry input on the service description for this Layer 2 bitstream service.

3.2 *Competition and Consumer Act 2010* provisions and the role of the ACCC

Subsection 152AL(3C) of the CCA requires the ACCC to declare a Layer 2 bitstream service as soon as practicable after the commencement of the subsection. Subsection 152AL(3E) provides that the ACCC is not required to hold a public inquiry under Part 25 of the Telco Act. However, unlike other declarations under subsection 152AL(3) of the CCA, the Layer 2 bitstream declaration will not have an expiry date and will stay in force indefinitely.[5] The ACCC, therefore, considers it prudent to consult on the

1 Note that references to the Telco Act and the CCA are references to those acts as amended by the *Telecommunications Legislation Amendment (National Broadband Network Measures – Access Arrangements) Act 2011*.
2 Section 152AL of the CCA.
3 Section 152BCI of the CCA.
4 Subsection 152BC(8) of the CCA.
5 Subsections 152ALA(1), 152ALA(5) and 152ALA(5A) of the CCA.

proposed service description of the declared Layer 2 bitstream service. The reasoning behind having a declaration that does not expire is set out in the Explanatory Memorandum which states that 'it is not appropriate to require the declaration to expire,' and requiring the declaration to stay in force indefinitely 'provides certainty in relation to the enduring nature of this requirement.'[6]

This Layer 2 bitstream declaration will apply only to services supplied using a designated superfast telecommunications network.[7] A designated superfast telecommunications network includes a telecommunications network (except the NBN) used, or proposed to be used, to supply one or more Layer 2 bitstream services, and used, or proposed to be used to supply a superfast carriage service, to residential or small business customers, provided that the network:

- came into existence after 1 January 2011, or
- is upgraded after that time and as a result of the upgrade becomes capable of supplying a superfast carriage service.[8]

A superfast carriage service is defined in subsection 141(10) of the Telco Act as a carriage service that enables end-users to download communications, the download transmission data rate is normally 25 Mbps or higher and the carriage service is supplied using a line to a premises occupied or used by an end-user.[9]

The Explanatory Memorandum makes it clear that a Layer 2 bitstream service is 'not intended to capture services provided through mobile, satellite or wireless networks.'[10]

The ACCC is not able to vary or revoke the Layer 2 bitstream declaration made under subsection 152AL(3C) of the CCA.[11] Further, paragraphs 152BC(3)(h) and (i) would usually allow the ACCC to use an access determination to limit or restrict the application of the standard access obligations (SAOs). However, the NBN Access Arrangements Act inserts subsection 152BC(4A) into the CCA which specifically excludes the operation of paragraphs 152BC(3)(h) and (i) of the CCA for an access determination relating to a Layer 2 bitstream service supplied using a designated superfast telecommunications network.

3.3 *Telecommunications Act 1997* provisions

The NBN Access Arrangements Act inserts provisions into the Telco Act regarding Layer 2 bitstream services. These include the new Parts 7 and 8 which specify that a network capable of supplying a superfast carriage service must not be used unless:

- a Layer 2 bitstream service is available for supply (section 141), and
- the Layer 2 bitstream service is supplied on a wholesale only basis (section 143).

The Layer 2 bitstream service that must be offered under Part 7 is defined as a 'Layer 2 Ethernet bitstream service' or a 'Layer 2 bitstream service specified in a legislative

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6 Revised Explanatory Memorandum, Telecommunications Legislation Amendment (National Broadband Network Measures – Access Arrangements) Bill 2011, p. 174.
7 Subsection 152AL(3D) of the CCA.
8 Section 152AGA of the CCA.
9 The definition is the Telco Act is imported into the CCA in section 152AC of the CCA.
10 Revised Explanatory Memorandum, p. 167.
11 Subsection 152AO(4) of the CCA.

instrument made by the ACMA' supplied as a fixed line carriage service.[12] At this time, the ACMA has not made an instrument defining a Layer 2 bitstream service. The Explanatory Memorandum states that the terms 'Layer 2' and 'Ethernet' are to have their industry standard definitions.[13]

Exemptions by the Minister

The Minister may exempt specified networks, local access lines or owners from the:

- section 141 Layer 2 bitstream provision (section 141A), and/or
- section 143 wholesale only provision (section 144).

The Minister must consult with the ACCC and the ACMA before making exemptions under sections 141A and 144.

The Supplementary Explanatory Memorandum states, that in exercising the powers under section 141A, the Minister could consider the following:

- the size of the network concerned (e.g., premises serviced)
- the proposed duration of the exemption
- the basis on which the exemption would cease
- the impact on investors of having to change to existing plans, particularly where projects are underway, contracts are signed, or negotiations are well advanced and this can be demonstrated
- the relative benefits and disadvantages for end-users, including the period they may need to wait for superfast broadband
- the types of customers predominantly served by the network
- the technological capabilities and adaptability of the technologies involved
- the availability of other wholesale services on the network (networks would also be subject to normal telecommunications regulation, including access regulation)
- significant changes in a carrier's operating environment that would have a demonstrable and material impact on its planned operations, and
- the potential impact on NBN Co's ability to deliver on its national objectives.[14]

The Supplementary Explanatory Memorandum states that in exercising the power of exemption under section 144, the Minister could consider a range of factors similar to those that could be considered in relation to an exemption under section 141A.[15]

3.4 Interaction between the Layer 2 bitstream declaration and exemptions under the *Telecommunications Act*

Once the ACCC declares a Layer 2 bitstream service, carriers and carriage service providers will be required to comply with the Category A SAOs under section 152AR of the CCA. Prior to the commencement of the NBN Access Arrangements Act, the

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12 Section 7 of the Telco Act.
13 Revised Explanatory Memorandum, p. 166.
14 Supplementary Explanatory Memorandum, Telecommunications Legislation Amendment (National Broadband Network Measures – Access Arrangements) Bill 2011, p. 19.
15 ibid., p. 24.

Category A SAOs were known as the SAOs. The Category A SAOs are the SAOs that carriers or carriage service providers other than an NBN corporation must comply with. The Category A SAOs require that an access provider must:

- supply the service to an access seeker on request,
- ensure that the quality and fault handling of the service provided to the access seeker is equivalent to that which it provides itself, and
- allow interconnection.[16]

The ACCC proposes to include a pass through clause in the Layer 2 bitstream service description for Ministerial exemptions given under section 141A of the Telco Act, to make clear that these services are exempt from the SAOs. This will mean that networks, local access lines, and owners that are exempt from the requirements of section 141 of the Telco Act will also be exempt from the Layer 2 bitstream service declaration under subsection 152AL(3C) of the CCA.

[16] Section 152AR of the CCA.

4 Other service descriptions

The regulation of access to wholesale broadband services, provided over both copper and fibre optic telecommunications networks, has been considered in several other jurisdictions. In most jurisdictions a monopoly provider has installed (or is installing) and will retain ownership over the majority of the broadband network.

The communications regulators of each jurisdiction have had to regulate access to wholesale broadband services in a way that encourages the monopoly provider or other providers to continue to invest and innovate while establishing a competitive retail sector.

In most of these cases the relevant regulator or advisory body has settled on a definition or service description of the wholesale service that enables an access seeker to provide differentiated retail offerings to end-users. In Australia, NBN Co will also be offering a similar wholesale Layer 2 bitstream service.

Several of these definitions and service descriptions resemble the Layer 2 bitstream service that the ACCC must declare. The examples below are provided as background on the nature of a Layer 2 bitstream service and the way it can be defined to promote competition through regulation.

4.1 United Kingdom

Ofcom is the communications regulator in the United Kingdom (UK). Ofcom has recently faced the challenge of adapting the existing regulatory framework to reflect the emergence of super-fast broadband. A rise in Next Generation Access (NGA) networks in the two years to 2010 saw super-fast broadband becoming available to over half of UK households.[17]

In October 2010 Ofcom released its 'Review of the wholesale local access (WLA) market' which assessed the state of WLA regulation in the UK and implemented a regulatory model.[18] In the review, Ofcom found that British Telecom (BT) continued to have significant market power (SMP) in the wholesale local access market. They imposed a number of regulatory obligations on BT designed to support investment and competition in super-fast broadband, as well as preserving access to current generation broadband and voice services.

The three aspects to the regulatory model adopted by Ofcom are:

- Virtual Unbundled Local Access (VULA) which will allow competitors to provide services over BT's new NGA network, with a degree of control that is similar to that achieved when taking over the physical line to the customer.
- Physical Infrastructure Access (PIA) to allow competitors to deploy their own NGA equipment between the customer and the local exchange.
- Local Loop Unbundling (LLU) to continue to allow for access on the current generation network.[19]

Ofcom defines the relevant markets as:

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17 Ofcom, Review of the wholesale local access market, Statement on market definition, market power determinations and remedies, 7 October 2010, p. 1.

18 ibid.

19 ibid., p. 1-2.

> Market 4: Wholesale (physical) network infrastructure access (including shared or fully unbundled access) at a fixed location; and
>
> Market 5: Wholesale broadband access. This market comprises non-physical or virtual network access including 'bitstream' access at a fixed location. This market is situated downstream from the physical access covered by market 4 listed above, in that wholesale broadband access can be constructed using this input combined with other elements.[20]

The key characteristics of VULA include:

- Interconnection by the access seeker should occur locally; that is at the first technically feasible aggregation point. In practice this is likely to be in the local serving exchange where the first Ethernet switch is located. (i.e., before backhaul etc.).
- VULA should be a generic access product. It should provide service agnostic connectivity, replicating one of the key features of LLU.
- There should be uncontended access to the connection to the end user.
- The Communications Provider (CP) should have a high degree of access control to allow them to offer differentiated products. The CP should possibly be able to control QoS parameters (to the extent that this would not effect BT's ability to maintain network stability).
- CPs should be able to control Customer Premises Equipment (CPE) and not be restricted by the access provider in doing so.[21]

The Requirement to provide access to a VULA service is a condition imposed by Ofcom on BT under SMP conditions imposed under sections 45, 87 and 88 of the *Communications Act 2003*. It is imposed as follows:

> Condition FAA11 – Requirement to provide VULA
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> FAA11.1 – Where a Third Party reasonably requests in writing Virtual Unbundled Local Access, the Dominant Provider shall provide that Access, which shall include, where also so requested by the Third Party, such Ancillary Services as may be reasonably necessary for the use of that Access. The Dominant Provider shall also provide such Ancillary Services or other Network Access as Ofcom may from time to time direct to ensure the provision of Virtual Unbundled Local Access.[22]
>
> …
>
> FAA11.5
>
> (f) "Local Serving Exchange" means the site of an operational building of the Dominant Provider, where Interconnection is made available by the Dominant Provider to a Third Party for Network Termination Points served by that site for the provision of Virtual Unbundled Local Access;
>
> (g) "Network Termination Point" means the physical point at which a Relevant Subscriber is provided with access to a Public Electronic Communication Network;
>
> (h) "Point of Connection" means a point at which the Dominant Provider's Electronic Communications Network and another person's Electronic Communications Network are connected;
>
> …
>
> (k) "Virtual Unbundled Local Access" means Network Access comprising of a virtual circuit between a Point of Connection at the Local Serving Exchange and a Network Termination

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20 ibid., p. 26.
21 ibid., pp. 125-126.
22 ibid., p. 216.

Point, which circuit provides such specified capacity as is agreed between the Dominant Provider and the Third Party for the Third Party's exclusive use.

4.2 New Zealand

The Commerce Commission of New Zealand (ComCom) can make standard terms of access under the *Telecommunications Act 2001* (NZ) to promote competition in the telecommunications market for the long term benefit of end-users.

The ComCom issued a standard terms determination (the UBA determination) on how Telecom must make its Unbundled Bitstream Access (UBA) service on its copper network available to other operators on 12 December 2007.[23]

The Commerce Commission defines the UBA service in the UBA determination as:

> 2.2 The UBA Service is a DSL enabled service (and its associated functions, including the associated functions of Telecom's operational support systems) that enables access to, and interconnection with, that part of Telecom's fixed PDN that connects the End User's building (or, where relevant, the building distribution frames) to Telecom's first data switch (or equivalent facility), other than DSLAM.[24]

The UBA service is divided into two further service descriptions, basic and enhanced.

The service description of the Basic UBA Service provides that it:

> 3.8.1 is an internet grade service, delivering a point-to-point protocol (PPP) bitstream to the End User and Layer 2 Tunnel Protocol (L2TP) to the Access Seeker;
>
> 3.8.2 is supplied to an End User by a DSLAM in their local exchange or cabinet and bitstream rate limits (if any) are applied at the DSLAM in their local exchange or cabinet; and
>
> 3.8.3 transports Access Seeker's internet traffic from the ETP at an End User's premises to the Handover Point (as described in clause 3.18 below) for the Coverage Area which hosts the DSLAM.[25]

The Enhanced UBA Services are described as follows:

> 4.1 The Enhanced UBA Services enable an Access Seeker to offer its End Users simultaneous delivery of IP traffic and real time grade IP traffic over a single UBA service connection. The Enhanced UBA Services provide connectivity between the External Termination Point (ETP) and the Access Seeker side of the first Ethernet aggregation switch.[26]

The service types available under the Enhanced UBA Services are based on data rate and reliability factors between the External Termination Point (ETP) and the Handover Point, and whether they are provided with or without a Plain Old Telephone Service (POTS).

The Real Time Class of Service (CoS) has priority over the Internet Grade CoS and so allows for a greater range of services that the Access Seeker can provide.

Important to our discussion are the definitions of the points in the networks used in the service description:

> **Coverage Area** – means the geographic area serviced by a given Handover Point

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23 ComCom, Standard Terms Determination for the designated service Telecom's unbundled bitstream access, Decision 611, Determination under section 30M of the Telecommunications Act 2001, 12 December 2007.

24 ComCom, Standard Terms Determination for Telecom's Unbundled Bitstream Access Service – Schedule 1 UBA Service Description – Public Version 12 December 2007 (incorporates clarifications up to 8 July 2010), p. 3.

25 ibid., p. 5.

26 ibid., p. 7.

ETP – is the External Termination Point at an End User's premises or, where there is no termination point external to the premises, the first jack on the premises wiring, or the building distribution frame.

Handover Point – means Telecom's first data switch, or equivalent facility, located in the Coverage Area.

PDN – Public Data network means a data network used, or intended for use, in whole or in part, by the public.[27]

4.3 Malaysia

In Malaysia access to telecommunications infrastructure is regulated by the Malaysian Communications and Multimedia Commission (SKMM). The SKMM regulates an access regime that aims to allow all network facilities providers, network service providers and applications service providers, access to the facilities and services they need on reasonable terms and conditions. This is designed to encourage downstream activities and provide for more choice and value for consumers.[28]

In Malaysia the owner of a network must offer any facility or service that appears on an Access List determined by the SKMM. It must do so in a way which provides the same level of control over the owner's network as it provides to itself.[29]

The SKMM made a determination on access in 2005 which added descriptions for 'Bitstream with Network Service' and 'Bitstream without Network Service' to the Access List. For Bitstream with Network Services the Point of Interconnection (POI) is situated at an Access Seeker's premises (i.e., includes backhaul).Conversely if Bitstream is provided without Network Services the POI is at the Access Provider's premises.[30]

In 2010 a description of High-Speed Broadband (HSBB) Access Services (with and without Quality of Service (QoS) controls) was included on the Access List. This is to provide access to services to be provided under the deployment of a high-speed broadband network.

SKMM is of the view that the access service provided over the high speed broadband network should be provided at Layer 2. This allows Access Seekers to control QoS. New entrants who acquire Layer 2 services are required to make investment in infrastructure such as routers and are responsible for IP addressing.[31]

The descriptions of the Bitstream without Network Service and HSBB Access Service which appear in the determination are:

The **Bitstream without Network Service** is a Facility and/or Service for the provision of Layer 2 connectivity for the carriage of certain communications (being data in digital form and conforming to Internet Protocols) between customer equipment at an end user's premises and a POI at the Access Provider's premises, where:

(i) the Customer's equipment is directly connected to an Access Provider's network; and

(ii) the Access Seeker, but not the Access Provider, assigns the Customer with an IP address.

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27 ibid., p. 1-2.
28 SKMM website: http://www.skmm.gov.my/index.php?c=public&v=art_view&art_id=75.
29 SKMM, Public Inquiry Paper, Review of Access List and Mandatory Standard on Access, 25 September 2008, p. 207.
30 ibid., p. 232.
31 ibid., p. 214.

Bitstream without Network Service includes shared splitting services, interfaces to operational support systems and network information.[32]

The **HSBB Network Service with QoS** is an access and transmission Facility and/or Service for the provision of Layer 2 connectivity for the carriage of certain communications (being data in digital form and conforming to Internet Protocols) between customer equipment at a Customer's premises and a POI at the Access Seeker's premises, where in respect of the service:

(i) the customer equipment is directly connected to an Access Provider's High-Speed Broadband Network;

(ii) the Access Seeker selects the bit rate;

(iii) the Access Seeker selects the QoS Class;

(iv) the Access Seeker selects the Contention Ratio; and

(v) the Access Seeker assigns the Customer with an IP address.[33]

An Access Seeker is given options for Bit Rates, QoS Class and Contention Ratios that they may choose.

The **HSBB Network Service without QoS** is an access Facility and/or Service (including transmission only to the POI) for the provision of Layer 2 connectivity for the carriage of certain communications (being data in digital form and conforming to Internet Protocols) on a best efforts basis and delivered over the High-Speed Broadband Network with a predefined Contention Ratio and delivered to a POI which is co-located with an aggregation router or other aggregation device, and where the bit rate is controlled by the Access Seeker.[34]

This service roughly equates to Bitstream without Network Service provided over the extant network infrastructure.

The SKMM defines the key terms as follows:

'High-Speed Broadband Network' means an IP-based network capable of providing services of at least 10 Mbps. For the avoidance of doubt, High-Speed Broadband Network in this Determination includes but is not limited to the "high-speed broadband network" specified in the Ministerial Direction on High-Speed Broadband and Access List, Direction No. 1 of 2008.

'IP' or 'Internet Protocols' means network-layer (Layer 2) protocol, as defined by the Internet Engineering Task Force, that contains addressing information and some control information that enables packets to be routed.

'MyIX' means the Malaysian Internet Exchange.[35]

"POI" or "Point of Interconnection" means any technically feasible point which demarcates the network of an Access Provider and the network of an Access Seeker (collectively referred to as the 'Interconnecting Networks') and is the point at which communication is transferred between the Interconnecting Networks. An example of a POI is MyIX.[36]

4.4 Body of European Regulators for Electronic Communications

The Body of European Regulators for Electronic Communications (BEREC) was established under the EU Telecom Rules to improve the consistency of

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32 SKMM, Communications and Multimedia Act 1988, Commission Determination on Access List, Determination No. 1 of 2005, p. 10.

33 SKMM, Communication and Multimedia Act 1998, Variation to Commission Determination on Access List (Determination No. 1 of 2005), Determination No.1 of 2009, p. 8.

34 ibid., p. 11.

35 ibid., p. 2.

36 ibid., p. 3.

implementation of the European Union telecommunications regulation.[37] In March 2010 BEREC published a report entitled 'Next Generation Access (NGA) – Implementation Issues and Wholesale Products'. The report looks at implementation issues of wholesale products in an NGA environment and seeks to develop best practice for NGA wholesale services. BEREC utilises a ladder concept in which each rung of the ladder involves a different access point. A higher rung implies the access point is closer to the end-user and involves a greater level of use of a company's own infrastructure.[38]

The ladder consists of the following access products:

- access to the end-user using own infrastructure only,
- access to in-house wiring or equivalent,
- concentration point unbundling,
- cabinet unbundling,
- Main Distribution Frame (MDF)/Optical Distribution Frame (ODF) unbundling,
- bitstream, and
- resale.

Different wholesale products allow the operator to reach the respective access point: leased lines (including Ethernet), dark fibre, duct access or own infrastructure only.[39]

Relevantly, in the report BEREC defines "Enhanced Bitstream products" as follows:

> Bitstream Access is a wholesale product which consists of an access link to the customer premises (over copper or fibre) and a transmission service (e.g. Ethernet) to a defined set of handover points (the access point). It enables alternative operators to differentiate their services by altering a number of technical parameters and/or the use of their own network.
>
> *Access point/level*
>
> In the case of a copper based distribution network bitstream access is composed by a xDSL link (ADSL2+, SHDSL, VDSL2, etc.) from the CPE to the DSLAM/MSAN (located at the cabinet or MDF) and a transport link (backhaul) from the DSLAM/MSAN output port to the alternative operator's hand over point (feeder node). In the case of a fibre based distribution network there is a fibre link from the CPE to the optical termination equipment (like OLT for GPON) (located at the ODF).
>
> ….
>
> In practice, 'bitstream' is access at layers 2 (ATM, Ethernet) and/or 3 (IP). The higher in the layers one goes the more network functionalities are incorporated and the less flexible it becomes for the alternative operators. For example IP, at the network layer, incorporates network routing, while Ethernet, at the lower datalink layer, has P-t-P addressing.
>
> A pure Layer 2 Ethernet based bitstream, similarly to an ATM bitstream, implies a pure transport link between the user data and the access point; on the other hand, an IP-based bitstream involves the SMP-operator's usage of additional functionalities and equipment such as Broadband Remote Access Server (BRAS). A Layer 2 access is more transparent and can allow quite a broad range of functionality options for the alternative operator.[40]

The definitions of the key terms used in the product definition above are:

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37 http://erg.eu.int/

38 BEREC, Next Generation Access – Implementation Issues and Wholesale Products – BEREC Report, March 2010, p. 1.

39 ibid., p. 1.

40 ibid., pp. 36-37.

ATM: (Asynchonous Transfer Mode): Broadband transmission technology which provides the backbone of the world's telecommunication network. ATM breaks information flows into small fixed-length cells of 53 bytes. Cells of any type of traffic – voice, multimedia, data or video – can be interspersed with each other. ATM operates at speeds of 25, 155 and 622 Mbps.

Bitstream: This wholesale product enables alternative operators to differentiate their services by altering a number of technical parameters and/or the use of their own network. This wholesale product consists of an access link to the customer premises (over copper or fibre) and a transmission service, to a defined set of handover points (the access point).

CPE: (Customer Premises Equipment): Communications equipment (modem, telephone, set-top-box, etc.) installed on the premises of the end-user. They are also called provided equipment.[41]

The remaining definitions do not appear in the published report.

4.5 NBN Co Limited

Services supplied by the NBN Co are not impacted by a Layer 2 bitstream declaration.[42] However, it is worth considering the equivalent wholesale service that NBN Co proposes to offer when making the Layer 2 bitstream declaration.

NBN Co is proposing a Layer 2 bitstream product called the NBN Co Fibre Access Service. NBN Co proposes that this service should be defined as follows:

(a) The NBN Co Fibre Access Service (the **NFAS**) is an Ethernet-based, Layer 2 virtual connection on the NBN Co Fibre Network that carries traffic between:

(i) a User Network Interface (**UNI**) on the Network Termination Device (**NTD**) located at or near a Premises; and

(ii) the Network-Network Interface (**NNI**) at the Point of Interconnection (**POI**) associated with the Connectivity Serving Area (**CSA**) in which that Premises is located,

for the purposes of enabling Customer or a Downstream Customer to supply a Carriage Service or Content Service.

(b) The NFAS comprises the following four Product Components:

(i) a **UNI**, being a physical port on the NTD at a Premises;

(ii) an **Access Virtual Circuit** or **AVC**, being Ethernet-based, Layer 2 virtual connection on the NBN Co Fibre Network that carries Customer traffic to a UNI on the NTD at a Premises;

(iii) a **Connectivity Virtual Circuit** or **CVC**, being Ethernet-based, Layer 2 virtual capacity on the NBN Co Fibre Network for the transport of Customer traffic from multiple access virtual circuits within a CSA on an aggregated basis and presented at the NNI at the POI associated with that CSA; and

(iv) a **NNI**, being the physical interface (and associated ports) between the NBN Co Fibre Network and the Customer Network at the POI,

each with the Product Features made available by NBN Co, and selected by Customer, in respect of that Product Component.

…

(g) The boundaries of the NFAS are:

(i) the End User-side of the UNI on the NTD located at or near the Premises to which the NFAS is supplied; and

41 ibid., pp. 65-66.

42 Subsection 152AL(3C) of the CCA.

(ii) the Customer-side of the NNI at the POI that serves the relevant Premises.

(h) The NNI at the POI that serves the relevant Premises is the point at which Customer may connect its backhaul to interconnect the Customer Network with the NBN Co Fibre Network. Customer is required to connect to the NNI at NBN Co's appearance on the NBN Co ODF associated with that NNI.[43]

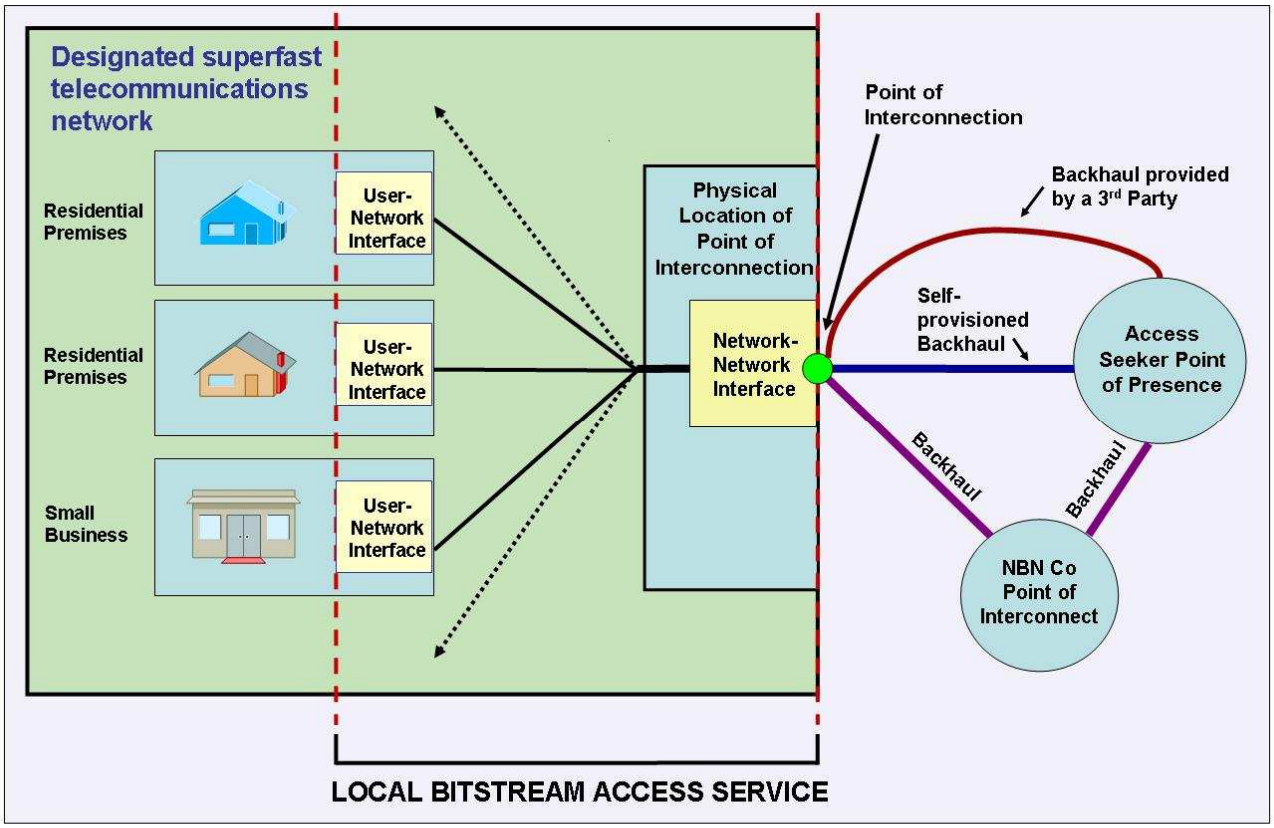
[43] NBN Co Limited, Product Description: NBN Co Fibre Access Service, Release 1.0, pp. 1-2, contained in NBN Co Limited, WBA Product Catalogue, 28 July 2011.

5 Draft service description

The ACCC has developed a draft service description for the service to be declared under subsection 152AL(3C) of the CCA. The ACCC has taken into consideration the fact that the service description cannot be altered or revoked once it is made and that it will not expire.[44] Therefore, the ACCC has drafted the service description in general, technology neutral terms to ensure that it is relevant in the future.

The ACCC is permitted to declare other Layer 2 bitstream services, separate to a service declared under subsection 152AL(3C) of the CCA. The ACCC therefore proposes to call this Layer 2 bitstream service the 'Local Bitstream Access Service' to differentiate it from other Layer 2 bitstream services.

The subsection 152AL(3C) declaration only applies to services supplied using designated superfast telecommunication networks as defined by section 152AGA of the CCA.[45] Therefore, a throughput rate needs to be specified in the service description. Rather than specifying a particular throughput rate in the declaration itself, the ACCC has specified that the service is to be a superfast carriage service, as defined by section 152AC of the CCA which cross references to subsection 141(10) of the Telco Act. This provides for some future flexibility in the service description and may allow for the further developments in throughput rate over time. The ACCC considers that this provides an appropriate balance between certainty and ensuring that the service description remains relevant over time.



[44] See subsections 152ALA(1), 152ALA(5), 152ALA(5A) and 152A0(4) of the CCA.
[45] Subsection 152AL(3D) of the CCA.

The figure above depicts a simplified access network, showing the network connection at the premises, the aggregation of traffic to a point of interconnection and backhaul to an Access Seeker's point of presence (PoP).

The draft service description below describes the service from the end-user premises to the point of interconnection. The service description does not include any backhaul from that point of interconnection to the Access Seeker's PoP.

The ACCC anticipates that Access Seekers will purchase backhaul from the point of interconnection to the PoP as a separate service from the Layer 2 bitstream access to the customer premises. This backhaul may be provided on a competitive basis. Where competitive backhaul is not available, the ACCC is of the opinion that the backhaul service will be the regulated domestic transmission capacity service (DTCS). Therefore, Access Seekers will be able to acquire DTCS to carry their traffic from the point of interconnection to their PoP.

The ACCC proposes to put a pass through clause in the service description so that any Ministerial exemptions under section 141A of the Telco Act have effect.

5.1 ACCC's draft service description

The ACCC's draft service description is set out below. Defined terms are in **bold** to highlight that they are defined terms.

> The local bitstream access service is a point to point service for the carriage of communications in digital form between a **network-network interface** and a **user-network interface** that is
>
> (a) a **Layer 2 bitstream service**; and
>
> (b) a **superfast carriage service**.
>
> This declaration does not apply to services which have been given a Ministerial exemption under section 141A of the *Telecommunications Act 1997*.
>
> **Definitions**
>
> Where words or phrases used in this declaration are defined in the *Competition and Consumer Act 2010* or the *Telecommunications Act 1997*, they have the meaning given in the relevant Act.
>
> **Layer 2 bitstream service** has the meaning given in section 152AC of the *Competition and Consumer Act 2010*
>
> **designated superfast telecommunications network** has the meaning given in subsection 152AGA of the *Competition and Consumer Act 2010*
>
> a **network-network interface** means an interface provided by an access provider at a **point of interconnection** where the access seeker's telecommunications network can interface to the access provider's **designated superfast telecommunications network**
>
> a **point of interconnection** is a physical point of interconnection between two or more networks operated by carriers or carriage service providers
>
> **superfast carriage service** has the meaning given in section 152AC of the *Competition and Consumer Act 2010*
>
> a **user-network interface** means an interface located at a physically defined end-user's premises where the access provider's local access network is present to an end-user

The ACCC seeks industry comment on the draft service description. Specifically the ACCC seeks views on:

1. Does the draft service description sufficiently describe a Layer 2 bitstream service?
2. 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?
3. Is the draft service description sufficiently technology neutral to be applicable as technology changes in the future?
4. 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.
5. Will it be economically viable for Access Seekers to purchase backhaul from a point of interconnection to their PoP separately from the layer 2 bitstream service?
6. Should a connection protocol be specified in the service description? If so, what protocol?
7. Should a quality of service be specified in the service description?
8. Any other matters relating to the drafting of the service description.