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FIXED SERVICES REVIEW

This Submission has been prepared in response to the open invitation from the ACCC on its intent to review Fixed Services. On 11 July 2013 the ACCC commenced an inquiry into whether to re-declare existing fixed line services. To date, cable broadband infrastructure has not been declared by the ACCC for wholesale access like ADSL2. This Submission seeks to make a case for a public inquiry to declare cable broadband.

23 August 2013

Australian Competition and Consumer Commission
360 Elizabeth Street
Melbourne, VIC 3000

Dear Madam / Sir

Submission – Fixed Services Review Discussion Paper on the Declaration Inquiry

Please find attached my Submission for your consideration.

In the context of the communications sector undergoing massive structural change and being in transition, the recommendation of this Submission is that the ACCC move towards the declaration of the wholesale cable broadband data service under Part XIC of the *Competition and Consumer Act 2010*.

The schedule for the NBN wholesale broadband network completion shall, in part, be dependent on Coalition or Labor Federal Government policy adjustments. It means that superfast 100Mbps download services are many years away unless the cable HFC assets are leveraged for the greater good. It's reasonable to project that services may be available somewhere in the period 2016-21.

In the near-term, a positive declaration will deliver a boom for the RSPs and a productivity boost for Australians.

As you read the Submission, I trust you'll consider the proposition that significant and highly influential market participants and stakeholders have contributed to the cable broadband assets being undervalued as economic assets to deliver better outcomes for end-consumers and Retail Service Providers.

I would be pleased to meet and discuss this Submission with you.

Yours sincerely,

Dermot Cox

M. Marketing (Monash), CPM

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About the Author

Dermot Cox is a 30-year career telecommunications and high technology professional.

His broad experiences span from being country manager for a global vendor; an advocate for community demand generation programs through the Australian Government and the Government of Tasmania; leading market development programs with telecommunications carriers; and leading a multi-disciplinary team for innovative next generation architectures.

In building multi-year business cases, he has been exposed to many technologies such as Cloud, optical transport networks, network-based services, 3G wireless networks, analytics, carrier voice, terabit data, GPON, and cable networks.

Confidentiality

This Submission is made by the Author as a private citizen. It's an independent Submission with no support provided by vendors, access providers, and access seekers. It is understood that the Submission may be used by the Commission in its determination to undertake a public inquiry.

1.0 Executive Summary

The Australian communications sector is commencing a massive industry structural change: it's in transition.

During this transition, all capital assets must be leveraged for optimal outcomes supporting industry participants and promoting better economic efficiency and productivity.

In Australia, no access obligations exist for cable broadband operators as a result of 100Mbps download service or an equivalent or like service, already being declared, including in a generic form.

For industry convenience, the unstated belief has been that ADSL2+ services provide like services to superfast cable broadband.

The Author asserts this is a dated understanding and an undeveloped assessment.

The community of interest associated with fixed infrastructure and wireless infrastructure is well established and mature in Australia, unlike the eco-system for cable broadband which is less well-resourced to undertake stakeholder engagements over an extended period of time. This has distorted policy development.

As an example the 2013 Freedom of Information request disclosed that the ACCC on the 13 February 2009 responded to the 'questionnaire on broadband technologies' from the Secretary, Department of Broadband, Communications and the Digital Economy who was seeking clarification on performance capabilities of various technologies. Within this reply to the Secretary, the ACCC identified that HFC is a high performing broadband technology.

In submissions and appearances to the Senate Select Committee on the National Broadband Network and industry forums, I've vociferously asserted that the Australian HFC networks were capable of delivering wholesale open Ethernet access. Refer to APH papers, Senate Select Committee on the NBN 3 Jul 2009 and 30 March 2010.

Based on the major transformation in the Australian telecommunications industry - which won't deliver 100Mbps services in the metropolitan markets until 2021 and the lack of competitive superfast broadband product - the recommendation of this Submission is that the ACCC move towards the declaration of the wholesale cable broadband data service under Part XIC of the *Competition and Consumer Act 2010*.

A baseline Service Description for the Wholesale Cable Broadband Service has been prepared and is shown in the Appendix.

2.0 Introduction

The Australian communications sector is in a process of a massive transition.

The Federal Government policy to build a fixed wholesale-only network is changing industry structure and industry participant behaviour.

This Submission seeks to complement this Government policy to recognise that the cable broadband network (aka HFC) is a key communications infrastructure that can be leveraged to accelerate the policy effect, promote any-to-any connectivity, promote economic outcomes, and adopt a pragmatic approach to sunken investment in superfast broadband communications infrastructure during the industry transition.

This Submission provides a sample of the Service Description for a declared wholesale, open Ethernet access infrastructure.

It also considers the economic principles for seeking the support of the ACCC to hold an enquiry to that effect.

2.1 *The HFC Networks*

The costs to enable wholesale access to the Optus and Telstra HFC networks is a nominal amount and very well understood investment in OSS/BSS. The payback in this investment must be considered in the likelihood that the NBN network rollout is currently scheduled for completion in 2021 and potentially later than the intended target.

The owners of the major HFC networks (Access Providers) have not undertaken any major construction programs to extend their footprint in many years: focus has been on repair and maintenance programs.

The Submission does not assume that the current HFC networks shall be expanded or deepened to connect MDUs albeit this is very achievable as part of the transitional arrangements for the NBN.

This Submission asserts that the distant timeframe for the completion of the NBN provides a good opportunity for pro-active cable broadband maintenance programs, CMTS modernization, and new drop cables to end-customer premises to be recovered by the HFC infrastructure owners and/or Retail Service Providers.

2.2 *The NBN*

The Corporate Plan envisages that the market size for superfast 100Mbps will grow to a sizable segment of the total broadband market.

Today the segment is dominated by incumbent HFC operators in metropolitan markets. The superfast 100Mbps segment is projected to grow its market share.

The NBN Co provides some forward visibility for FTTP deployments which gives some degree of planning certainty for Access Seekers considering new cable drops should cable is declared.

Subject to cable being declared by the ACCC it's reasonable to assume that Access Seekers will recover their costs – for any new drop cables and passive taps - within one year: unlike an alternate scenario that requires significant network footprint extension with construction activities and capital funding such as that of the DSLAM related investments.

3.0 Model of Service Delivery

The customer PC and associated peripherals are termed Customer Premises Equipment (CPE). The CPE are connected to the cable modem, which is in turn connected through the HFC network to the CMTS. The CMTS then routes traffic between the HFC and the Internet.

Using the CMTS, the cable operator (Access Provider) exercises full control over the cable modem's configuration; the Cable Modem configuration is changed to adjust for varying line conditions and customer service requirements.

3.1 Service Description

A proposed Service Description for the declared Wholesale Open Access for Cable Broadband service is shown in the Appendix.

Principles

Previously, I've suggested that an engineering algorithm called Dynamic Bandwidth Allocation be used to manage services delivery. The key points are:

- The Access Provider (Cable Operator) provides IP bandwidth to Access Seekers (Retail Service Providers) on a point-to-multipoint design – a 'bitstream' approach.
- The Access Provider is responsible for the provision of IP services and IP address management.
- The Access Seeker pays a fee to the Access Provider for each end-customer connected to the network and enjoys the security of a secure virtual network, using IETF Layer2 Tunnelling Protocol (L2TP) for "Native IP" based core networks, to connect their customers to their IP services platforms.
- The Access Provider is the provider of QoS to Access Seekers (Retail Service Providers) and the bundlers of bandwidth and of prepay or post-paid billing usage plans.

Terms and conditions

The proposed Terms and Conditions of access are not included in the service description. For simplicity, this Submission suggests that superfast cable plans are aligned with NBN Co's speed tiers.

One Point of Interconnect per major metropolitan market is proposed for each Access Provider.

For the purposes of network architecture integrity, the cable modems are an essential part of the service experience; they are part of the managed broadband service. For this reason it is necessary that cable modems are part of the service description and are logistically managed by the HFC infrastructure (Access Provider) owner.

4.0 What is the Market

The view of the market for a declared cable broadband service comprises Product Markets, Industry Rivalry, and End-User demand.

4.1 Product Markets

The product dimensions of cable broadband data services are functionally better than the ACCC bench mark for broadband services.

The cable broadband (aka HFC) networks are in well-defined geographic locales within major metropolitan markets. They overlap with ADSL/ADSL2+ product markets. It's this overlap that is often cited as a rationale for absence of any applications to have HFC networks declared.

To date, the ACCC has reasonably considered that cable provides an equivalent service to ADSL especially so compared to ADSL2+. But that was turned on its head when the HFC networks introduced DOCSIS 3 technology.

Today, I assert that cable delivers a better customer experience than ADSL2+.

Cable broadband can deliver better bandwidth through-put performance than ADSL2+ especially for media rich content like streaming HD video or interactive games or for end-customers with extremely high bandwidth demands.

Yes, cable is not a constraint on wholesale ADSL prices; but it opens new product service offers for end-customer that don't have ready access to attractive pricing plans for superfast broadband plans as is evident overseas.

4.2 Technology

The common view of the Australian industry is that the HFC networks are proprietary, vertically integrated and not attractive to end-customers. I refute these, as follows:

- The technology HFC networks are governed by industry standards – open and published;
- The Foxtel Pay TV services and the data services can be separated rather than being solely delivered as a bundled service. This means that all RSPs can access the platform to create new differentiated superfast broadband offers. (Refer to earlier submissions to the Senate Select Committee on the NBN and contributions to industry events and publications which have been circulated for peer review); and,
- End-customers are motivated by differentiated product offers and services outcomes rather than their purchase decisions being determined by technology platforms.

In Australia the ADSL technology is delivered under the ITU G.992.5 (also referred to as ADSL2+ and G.DMT.bis+) which is an International Telecommunication Union standard for asymmetric digital subscriber line (ADSL) broadband Internet access.

The standard has a maximum theoretical download speed of 24 Mbps. Further, this performance is highly dependent on the length of the copper from the DSLAM to the customers' modems: the longer this copper (loop) length then the less likely is the theoretical download speed. This is a major issue in Australia as the local loop length here is longer than many other countries.

The cable DOCSIS 3.0 technology was ratified as ITU-T Recommendation J.222.

Cable broadband does not have the same performance degradation as copper infrastructure: the technology delivers comparable performances across the 6km length from the node to premises.

The DOCSIS standard supports either downstream throughput with 256-QAM of up to 42.88 Mbit/s per 6 MHz channel (Optus), or 55.62 Mbit/s per 8 MHz channel for EuroDOCSIS (Telstra).

Common DOCSIS 3.0 speeds are listed in the table below.

Channel configuration		Downstream throughput		Upstream throughput
Number of downstream channels	Number of upstream channels	DOCSIS	EuroDOCSIS	
4	4	171.52 (152) Mbps	222.48 (200) Mbps	122.88 (108) Mbps
8	4	343.04 (304) Mbps	444.96 (400) Mbps	122.88 (108) Mbps

Speed Tiers

The NBN Co has published its wholesale access speeds to telephone and internet service providers for on-sale to end-customers. They are shown below for convenience.

Tier	Download speed (Mbps)	Upload speed (Mbps)
1	12	1
2	25	5
3	25	10
4	50	20
5	100	40

Source: <http://www.nbnco.com.au/get-an-nbn-connection/wholesale-speeds.html>, accessed 13 August 2013

This Submission suggests that a declared wholesale open access cable service is aligned to these same speed tiers.

4.3 Industry Rivalry

The number of Retail Service Providers (RSPs) and the degree of competitive rivalry between the participants does shape industry participant behaviour and contributes to the diversity of end-customer choices in any given market.

To date, the cable broadband services have only been available to the principal combatants in the major metropolitan markets. This Submission is of the view that these players are more concerned to avoid cannibalisation of existing

ADSL2+ revenues and so discourage switching across platforms by their end-customers.

The competition of the industry participants has been restricted to access to ADSL2+ infrastructures and in turn, declaring ADSL2, has focused competition to price and service differentiation limited by its theoretical capabilities.

In parallel, some RSPs have willingly invested in their own ADSL2+ infrastructure using ULLS (Unconditioned Local Loop Service) in sub-national markets, that is, specific local or community markets where they deemed they'd get a quick return on investment.

The market demand for superfast 100Mbps services market is an emerging segment. Yet, in the absence of access to wholesale open cable broadband the vast majority of the RSPs can't generate new differentiated broadband offers – such as superfast 100Mbps down speed broadband because they are limited to maximum of 24Mbps from ADSL2+. This means that the two largest cable Access Providers have exclusive access to this segment in the major metropolitan markets until the NBN is constructed by 2016-2021.

With just one POI in each cable metropolitan market the magnitude of the investment in systems and transmission is simplified for any aspiring RSPs. This network architecture simplifies investment decision compared with investing in 121 POIs for the NBN especially as the smaller participants seek to build scale leading up to the NBN being broadly available. It's manageable for the smaller RSPs.

4.4 Demand for the service and how the service will be used

As the RSPs gain access to superfast cable broadband, they'll be able to launch their product offers in to the market and compete head-to-head with the Access Providers. So rather than being precluded from offering superfast broadband services they can compete now and build their customer base rather than sitting back waiting for the construction of the NBN.

So, they'll acquire customers in 2014 then seamlessly migrate their customers across to the NBN sometime in the period 2016-21.

5.0 Summary

In summary, the long-term interests of end-customers will be better served by the declaration of cable broadband for wholesale Ethernet access.

The Australian communications industry is in transition and a positive policy adjustment will support Access Seekers in an emerging market for superfast broadband of 100Mbps; a segment that is expected to grow.

In the period leading to the full availability of NBN Co FTTP infrastructure in the major metropolitan markets cable broadband will fill a growing under-served market.

Today, the incumbent Access Providers have little incentive to actively encourage end-customers to switch across to HFC from ADSL2+. Cannibalisation is a major product management issue for Access Providers - it stifles internal initiatives to invest to inspire buyer behaviour.

Declaring HFC will remove an impediment within the Access Providers and transfer investment decisions to the RSPs: they can choose to invest to connect a new customer.

I suggest it's myopic to rationalise that cable doesn't reach a national market: today 7 million Australians are within the existing HFC footprint with a high propensity to buy superfast broadband.

5.1 The Corporate Plan

According to media reports, the Corporate Plan for NBN Co is experiencing a protracted network construction phase.

It seems reasonable to extrapolate that the network construction phase may extend beyond 2021. In the meantime, how will metropolitan end-customers get access to high bandwidth services like those now available from the HFC networks? The answer is already in their streets.

The current wholesale ADSL service means that all Access Seekers are denied access to superfast broadband services such as 100Mbps down and 10Mbps upstream speeds: only Optus and Telstra offer these to their customers in the major metropolitan markets like Sydney, Brisbane, Adelaide and Melbourne.

A limiting factor affecting adoption of superfast cable broadband services is that the Access Providers choose not to fund a drop cable to a non-connected premise: it's not an option.

The recommendation of this Submission is that Access Seekers fund the drop cable and potentially the replacement of the passive tap to make any new physical connections.

5.2 Economic impacts

The ACCC has three economic principles upon which a decision on whether to declare fixed line services are determined.

A synopsis of the current position and the expected future is shown below:

Current	Future
Bottlenecks The major HFC Access Providers do not market wholesale open Ethernet access for superfast broadband services when the industry standards and technology does support such a wholesale model. This limits RSPs to 24Mbps line speeds. Access Seekers willingly invest in new ADSL2+ infrastructure to build competitive capability.	Bottlenecks The major HFC Access Providers offer wholesale open Ethernet access for superfast broadband services to Access Seekers so they can market 100Mbps services. Cable has non-price benefits such as service quality which are relevant to the expected benefits of the NBN infrastructure. RSPs would have a positive incentive to invest in fixed-line infrastructure during the transition period and this investment is unlikely to impact on current investments in wireless networks. Investments in value-added services and transmission shall be complementary to investments in systems to access wholesale cable.
Economic Efficiency End customers are limited to 24Mbps, MDUs are denied access.	Economic Efficiency Enabling wholesale open Ethernet access to Access Seekers will stimulate industry rivalry and deliver better choices to end-customers. Declaration of wholesale cable would encourage the efficient use of existing infrastructure during the transition to the NBN.
Any-to-Any Connectivity Industry standards using Ethernet enables connectivity between all end-customers.	Any-to-Any Connectivity Industry standards using Ethernet enables connectivity between all end-customers.

The Commission is required to have regard to these principles under subs. 152AB of the *Competition and Consumer Act 2010* in accessing the long-term interests of end-users.

6.0 Bibliography

- ACCC, Declaration of the wholesale ADSL service under Part XIC of the Competition and Consumer Act 2010 - Final Decision. February 2012
- ACCC, Fixed Services Review, Discussion Paper on the Declaration Inquiry, July 2013
- ACCC, Final Access Determination No. 1 of 2013 (WADSL)
- ACCC, Telecommunications services — Declaration provisions — a guide to the declaration provisions of Part XIC of the Trade Practices Act. July 1999

Appendix: Service Description

Service description for the Wholesale Cable Broadband Service

The wholesale cable broadband line service (Wholesale Cable Service) is an internet-grade, best efforts point to point service for the carriage of communications in digital form between a point of interconnection and an end-user network boundary that:

- (a) Is supplied by means of DOCSIS technology over a hybrid fibre-coaxial cable that runs from the end-user network boundary to the nearest cable modem termination system (CMTS¹) located at the CATV head-end; and
- (b) Uses a static Layer 2 tunnelling protocol (L2TP) over a transport layer to aggregate communications to the point of interconnection.

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.

In this Annexure:

DOCSIS technology means the protocols, recommendations and standards set out in the ITU-T Recommendation J.222.

Layer 2 has the same meaning as in the Open System Interconnection (OSI) Reference Model for data exchange.

A point of interconnection means an interface that is:

- (a) A physical point of interconnection which allows the interconnection of facilities in accordance with subsection 152AR of the *Competition and Consumer Act 2010*; and
- (b) Located in the same state/territory that the access provider associates with the exchange service area in which the end-user network boundary is located.

An end-user network boundary means the boundary point of the telecommunications network that is:

- (i) Associated with the end-user premise;
- (ii) A cable modem (CM) located at the end-user premises, and
- (iii) Ascertained in accordance with section 22 of the Telecommunications Act.

Note: 1. A CMTS is a device which hosts downstream and upstream ports (it is functionally similar to the DSLAM used in DSL systems).