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ACCC CONSULTATION ON:
NATIONAL BROADBAND NETWORK - POINTS
OF INTERCONNECT

SUBMISSION BY COMMUNICATIONS
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1 INTRODUCTION

1.1 About this submission

Communications Alliance members welcome the release of the NBN Co Position Paper on Points of Interconnect (Pols) and the accompanying ACCC Discussion Paper, as the issue of Pol location is a crucial part of the interconnect arrangement design, and could be a major portion of the costs incurred by RSPs in interconnecting with the NBN.

Within this paper Communications Alliance responds to a number of the questions posed by the ACCC with observations that arise from the considerable discussions and public papers developed within the working groups of the Communications Alliance NBN Project. The emphasis in this submission is on the differences between the Position Paper and the assumptions inherent in the Communications Alliance *NBN Reference Architecture - High Level Architecture Options for the NBN* Release 1 paper.

Several of the questions explore issues of an economic or financial nature, or that request responses applicable to a single stakeholder organisation. Communications Alliance members have a variety of cost structures that might be positively or negatively affected by proposals depending on the member – responses to these have been left for members to comment on individually, and the absence of a response within this paper should not be interpreted as an indication that the question is not important.

1.2 About Communications Alliance

Communications Alliance is the peak telecommunications industry body in Australia. Its membership is drawn from a wide cross-section of the communications industry, including carriers, service providers, vendors, consultants and suppliers.

Its vision is to provide a unified voice for the telecommunications industry and to lead it into the next generation of converging networks, technologies and services. The prime mission of Communications Alliance is to promote the growth of the Australian communications industry and the protection of consumer interests by fostering the highest standards of business ethics and behaviour through industry self-governance. For more details about Communications Alliance, see <http://www.commsalliance.com.au>

Communications Alliance has been leading the industry activity on the National Broadband Network (NBN) through its NBN Project. More information on the NBN Project is available from the Communications Alliance website and a dedicated NBN wiki established to facilitate the NBN Project outcomes.

1.3 Qualifying the term 'Backhaul'

The Communications Alliance NBN project has found that the term 'Backhaul' without a number of qualifiers is imprecise, and often yields discussions around the question "What does backhaul mean to you?". The

nature of 'backhaul' depends not only on the location of each end, but also changes considerably depending on the entity that owns the infrastructure, the distance between the endpoints, and the perspective of the stakeholder particularly if they are a provider or acquirer of transmission services.

In the Communications Alliance NBN Reference Architecture the portion of the network responsible for providing this function is termed "Aggregation and Transport". The word "transport" or "transmission" with appropriate qualifiers e.g., long-haul is preferred for this general network and market as it is more generic. The use of the term 'backhaul' within the Communications Alliance NBN Project outputs has been contained to the reference of a specific type of transmission service for the purpose of transporting traffic relating to an access service from a predefined network reference point (e.g. FAN site) to a more centralized network reference point (e.g. POI). The broad range of additional transmission services can thereby be more easily distinguished.

1.4 Timeframe for consultation

The NBN Co Position Paper, proposing a number of statewide Pols located within the major capital cities, is a major departure from the previous position flagged by NBN Co in earlier public presentations and statements. The issue is critically important for the planning – and in many cases for the viability – of service providers.

This new position paper and the ACCC consultation provides for just 13 business days for interested parties to analyse the implications of the changed position, gather and debate the issues, and prepare a considered response, including the day of release and the final deadline for submissions.

Communications Alliance submits that there is insufficient time provided in this consultation to answer these important questions, and in general insufficient time has been provided for industry to fully analyse and understand the options, and respond to this paper and the questions posed within it.

Communications Alliance is concerned that this important consultation and call for input will be rushed, and the input received may not be as comprehensive as would have been possible with a longer time to consult, analyse and respond. We recommend that this paper be regarded as a first stage of a multi-stage process, with further opportunities to be afforded to consult and respond to issues raised in responses from this stage.

2 COMMENTS ON QUESTIONS POSED BY THE ACCC

2.1 Effect on relevant markets

1. To what extent will the number and location of Pols impact competition in the backhaul market in the short term and in the long term?

With every Pol location there are two separate components for RSPs to the 'backhaul' issue – the transmission component from the end-user to the Pol (which is provided by NBN Co), and the component from the NBN Co Pol to the RSPs' PoPs typically located within datacentres in capital cities – this component is sourced by the RSP from providers other than NBN Co. Irrespective of the location of NBN Co Pols, i.e. whether or not they are in the capital cities, RSPs will still need to solve the second transmission component to connect to the Pol.

It is necessary to consider the retail services being provided when analyzing the current use of long-haul transport and other RSP infrastructure. To date, this has largely been characterized by the offering of high speed Internet access. Changes to the retail services or the mix of retail services will cause a reevaluation of the use of infrastructure such as long-haul transport, POP site selection, data centres and peering points. The Communications Alliance NBN Reference Architecture goes some way to highlighting the different characteristics of these types of services and we would be more than willing to arrange more detailed presentation of this material. In summary, it is worth considering for any long-haul transport application, which retail services it will be used for and qualifying it as such. This is especially the case when long-term impacts are being considered.

The proposed highly aggregated Pol structure would result in competition between the intracity and intercity capital transmission routes between NBN Co Pols, and between NBN Co Pols and RSPs' PoPs. This competition on the intercity capital routes and within metro and CBD areas already exists in the market today, and has been recognised by the ACCC, which has exempted many transmission services supplied on these routes from regulation.

During the definition of the Communications Alliance *Wholesales Service Definition Framework - Ethernet* paper¹ the project team unanimously articulated the wish for the access and the transport components of the service to not be forcibly bundled. That is to say, it was the preference of the group to allow RSPs to select whether to merely acquire wholesale access services (ELAS) or a combination of access and transport services (ELBS). The reasoning behind this was to provide the flexibility to meet the needs of RSPs in terms of, but not limited to, differing business models, size and geographic deployment. This approach was recognized as being aligned with international precedents. Specifically in the UK, Ofcom Ethernet ALA technical requirements list as one of the top five functional characteristic "Flexible interconnection and aggregation" for the same reasons as those identified by Communications Alliance. In New Zealand, the definition of the Enhanced Unbundled Bitstream Access (EUBA) and the associated wholesale transport product follow this model.

¹ http://commsalliance.com.au/_data/assets/pdf_file/0016/20725/NBN-Wholesale-Service-Definition-Framework-Ethernet-Release1-Dec-2009.pdf

Offsetting this, in the absence of any other differentiating factor such as price or performance, Poles located close to the majority of RSPs – in the state capitals – could be expected to be used by those RSPs to service the relevant areas as the least cost option to provide connectivity, since it allows the RSP to avoid any extra long-haul transport cost compared to interconnecting locally. This will reduce the market for long-haul transport services to be acquired by RSPs. The traffic from the end users has to be carried by some entity however, and NBN Co itself would instead become the customer for the capacity required to transport the end-user traffic.

The net result of having highly aggregated capital-city Poles is that the existing transmission providers would see their market shift from a large number of potential customers each wanting a relatively small capacity, with a comparatively high rate of ongoing level of comparison, contract renewal and capacity upgrades, to a single very large customer (NBN Co) seeking very large portions of capacity from a small number of potential suppliers.

The opportunities for gaining new business would reduce to the windows provided by the contract renewal period, which is typically a timeframe of multiple years. In a consolidated and highly aggregated scenario, transmission suppliers that do not secure NBN Co as a customer in the initial opportunity may need to wait several years for the opportunity to compete again, and in the absence of non-NBN demand there is an increased risk they may not remain financially viable, creating consolidation and reduction in competition amongst longhaul transmission suppliers.

In addition to the potential stranding or marginalising of efficiently undertaken private sector investments in long-haul transport facilities and a reduction in the level of competition in the supply of long-haul transport services, there will be a potential decrease in retail market competition and the associated benefits flowing through to end users. Telecommunications markets have been characterised by retail service providers leveraging off their own infrastructure, such as long-haul transport, to innovate and provide differentiation on price, quality and services in downstream retail markets. The proposed aggregated POI structure would reduce the scope for such innovation occurring in the future. Having said this, there has been ongoing industry commentary that the high cost of long haul regional backhaul may have acted as a impediment to retail market entry in regional areas.

This assumes that NBN Co acquires transmission capacity for the aggregated traffic demand between the centralized Poles and the remote CSAs from one or more of the competing transmission providers serving the CSA, rather than building its own alternate infrastructure.

Other factors that are affected by the number and location of Poles are the market for redundant path long-haul transport as this will be critical to ensure the Service Level Agreements (SLAs) for future applications such as IPTV and E-Health. The number and location of Poles may affect the ability to support competition for local interconnection in regional areas. Communications Alliance would like to understand further how NBN Co's proposal for a default 14 aggregated Poles and up to 195 optional Poles in CSA would apply and operate to encourage innovation.

*6. Is the emergence of a Layer 3 wholesale sector likely under the NBN?
If so, how will the location of NBN Co's Poles affect this market in the short and long term?*

There are multiple approaches to Layer 3 wholesale which provide various differing characteristics to RSPs and end-users. The Communications Alliance NBN Reference

Architecture² maps out the functions within the network to provide the differing styles of Layer 3 wholesale and is based on the Broadband Forum's standard definitions of Network Service Provider (NSP) and Application Service Provider (ASP) models.

The perceived benefits of a Layer 3 wholesale sector revolve around efficiencies that can be provided for certain RSPs business models. Communications Alliance believes the emergence of a Layer 3 Wholesale sector is not only likely, but already exists. Certain other versions Layer 3 wholesale may or may not emerge.

The Communications Alliance *National Broadband Network Reference Architecture - High Level Architecture Options For The NBN* (NBN Reference Architecture)³ explicitly encourages multiple layers of wholesale services and providers to develop (see Figure 3 from the NBN reference Architecture reproduced below). These non-NBN Co wholesale providers, whether they are providing 'Layer 3' services or other forms of wholesale value-add capabilities – build upon the raw building blocks provided by NBN Co to add more and more capability until a retail service provider takes the aggregate product to the retail market.

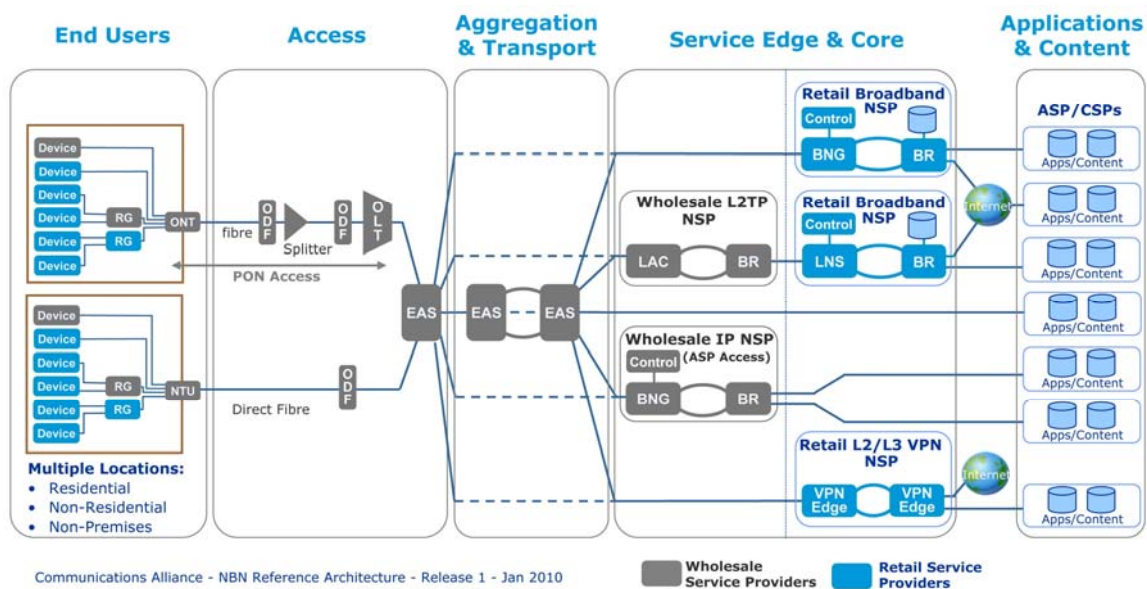


Figure 6 from the Communications Alliance NBN Reference Architecture

This explicit recognition of the important role for wholesale providers is a response to the Government's desire for a rich ecosystem of services, products and competitive providers to develop, combined with the NBN Co's intention "to occupy as small a footprint as possible in the overall value chain"⁴ so as not to compete unduly with the private market.

² http://www.commsalliance.com.au/_data/assets/pdf_file/0012/20730/NBN_Reference_Architecture_Release1_Jan_2010.pdf

³ http://www.commsalliance.com.au/_data/assets/pdf_file/0012/20730/NBN_Reference_Architecture_Release1_Jan_2010.pdf

⁴ NBN Co media release 25 March 2010
http://www.nbnco.com.au/wps/wcm/connect/740b330043a21c7290caf4c5166da634/Product_response_MR_FINAL.pdf?MOD=AJPERES

In the current market wholesale aggregators have already developed to add capability to existing access networks such as wholesale DSL and DSLAM operators and are a significant enabler for small or regional service providers to enter the market and extend their service footprint – examples of wholesale Layer 3 aggregators of other carriers' infrastructure include iSeek Communications⁵ and Vocus Communications⁶.

Following these examples, the emergence of Layer 3 wholesale providers is likely, and indeed many already exist. These existing wholesale providers, and others yet to be formed, can be expected to connect to the NBN to add NBN connections to the existing array of access technologies and partners they currently service, to facilitate heterogeneous networks with locations connected to the NBN and non-NBN network technologies, particularly during the period when the NBN is not yet complete and is geographically patchy. It should also be noted, that Layer 2 and Layer 3 wholesale services can be considered somewhat independently in terms of technical and commercial characteristics, they are not completely independent. That is, the technical and commercial characteristics of the NBN Layer 2 wholesale services will define the structure of the Layer 3 wholesale sector.

Another consideration is the change of interconnect technology. Service providers currently interconnect with wholesale DSL networks using protocols based on L2TP and PPP. The interconnect with NBN Co at the Poles uses a different set of protocols based on Ethernet VLANs. The NBN Reference Model recognizes there will be a market for a wholesale service provider (a "Wholesale L2TP NSP") to build translation systems over the NBN Co product, providing a L2TP/PPP interface to simplify the process of an existing wholesale DSL RSP to transition to providing services over the NBN as well.

However, given that Aggregation and Transport is typically a key part of an end-to-end Wholesale L2TP NSP service offering, the proposed aggregation POI structure may reduce incentives to offer a service and make it harder to differentiate against other Wholesale L2TP NSP operators.

To the question of how the location on NBN Poles might affect the development of this market, we observe that the existing Layer 3 wholesale providers add value to services such as Telstra, Optus and Primus wholesale ADSL access networks, which are already aggregated to capital city Poles, and indicate that there would be demand for such services to utilize capital-city NBN Poles in a similar way.

Given aggregation and transport is typically a key part of a layer 3 offering the proposed aggregated POI structure will greatly reduce incentives to offer a service and make it harder to differentiate against other wholesale IP NSP operators. That said, if long range backhaul costs are considered to be an impediment to market entry in regional areas then an approach to reduce these costs may have a positive effect on regional retail competition.

⁵ http://www.iseek.com.au/?option=com_content&view=category&layout=blog&id=5&Itemid=5

⁶ <http://www.vocus.com.au>

2.2 Location of Poles on the NBN and provision of related services

11. If NBN Co supplies backhaul, should this be on a Layer 2 Ethernet basis or in the form of dark fibre (or both)?

The Communications Alliance *NBN Wholesale Service Definition Framework - Ethernet*⁷ paper provides a description of a Layer 2 Ethernet transmission service termed Ethernet Line Backhaul Service (ELBS). Dark Fibre services have not been considered for this Aggregation and Transport component, but would appear to be viable in certain short range circumstances.

Dark Fibre would be an attractive option compared to a managed transmission service where the total distance of the link is no more than approximately 10 kilometres, which is the planning distance for long-range optical interfaces commonly found in Ethernet transmission equipment (1000Base-LX transceivers). Larger and more expensive equipment with more powerful transmitters and amplifiers can extend the distance to 80 kilometres and beyond (1000Base-ZX transceivers can achieve 70 kilometres on good quality single-mode optical fibre). Longer distances up to around 120km can be covered with even more expensive SDH/OTN/DWDM technologies before intermediate amplifiers are recommended.

Another consideration is path diversity for service assurance. For a dark fibre service to provide security against fibre breakage, the dark fibres must be available on multiple diverse geographic paths between the Pole and the RSP PoP. The RSP's equipment must then have the capability of detecting a fibre break and re-routing traffic through an alternative path, ideally within 50 milliseconds.

Where the total transmission distance of the NBN Co provided 'backhaul' link exceeded roughly 70 kilometres, each RSP using a dark fibre solution would be required to establish an intermediate equipment hut (on each diverse geographic path) containing amplifier and/or regenerator equipment. This is likely to become inefficient, cumbersome and expensive if many providers all wish to establish their own cabinet or building for their equipment, factoring in the provision of operations and maintenance services at the intermediate location, acquiring a facilities site, establishing power, monitoring and possibly backup power facilities, and all the other considerations attached to hosting equipment in a remote site.

In this case it may be more efficient for the RSP to acquire a managed transmission service, such as a Layer 2 Ethernet solution listed, rather than dark fibre. It is likely that, if Dark Fibre is offered by NBN Co, one or more separate wholesale service providers will establish multiplexing and switching equipment on the dark fibres and provide a managed service of some sort to other RSPs, even if NBN Co does not provide such a service itself.

Another option not canvassed by the ACCC is that a provider (possibly NBN Co in this context) builds a DWDM 'managed wavelength' solution instead of a native Ethernet service. This would provide a dedicated optical wavelength to each RSP, which would be a distance-independent solution that would accommodate all common data rates, and multiple transmission standards including Ethernet, SDH and OTN technologies, while

⁷ http://www.commsalliance.com.au/data/assets/pdf_file/0016/20725/NBN-Wholesale-Service-Definition-Framework-Ethernet-Release1-Dec-2009.pdf, pp 12-13, 21-22

effectively providing for efficient sharing of the costs of establishing the intermediate amplifier sites and efficient use of the underlying optical fibre cores.

If NBN Co provides “backhaul” services, further consultation with the industry should be considered before settling on a technology solution, and on the distance ranges where multiple solutions might be provided, as the two options listed by the ACCC are not the only two possible options available.

2.3 Timing and Business Rules for interconnection under NBN Co’s composite approach

12. Under NBN Co’s ‘composite model’, what “business rules” should govern when NBN Co will allow interconnection at the distributed Pols?

13. What should be the process to coordinate the addition of interconnection at the disaggregated Pols?

Communications Alliance submits it is unreasonable to expect respondents to generate optimal business rules and industry-agreed process descriptions in the brief time allotted to this consultation.

Business rules, reference architectures and processes are being successfully developed for other aspects of the NBN within the Communications Alliance NBN Project framework. We believe an industry working group facilitated by Communications Alliance should be established to answer these questions.

The working group would probably include elements of the existing Reference Architecture, Operations, and Wholesale Services working groups working closely with members, non-member RSPs and NBN Co, within the successful model demonstrated within the CA NBN Project.

2.4 Layer 1 Unbundling

16. What are the implications of the number and location of Pols for potential Layer 1 unbundling and home-run network topology for the NBN?

Communications Alliance refers the ACCC to our NBN Optical Access⁸ paper, generated by the Technical working group of the CA NBN Project and the Communications Alliance NBN Reference Architecture (see Figure 6 reproduced below). The Optical Access paper⁹ describes many of the aspects of different forms of optical access networks, including shared-fibre systems such as the Gigabit Passive Optical Network (GPON) technology advocated by NBN Co and most of the greenfields developers, and unshared architectures such as home run architectures.

⁸

http://www.commsalliance.com.au/_data/assets/pdf_file/0010/23410/NBN_Optical_Access_Release1_Jun10.pdf

⁹

http://commsalliance.com.au/_data/assets/pdf_file/0012/20730/NBN_Reference_Architecture_Release1_Jan_2010.pdf

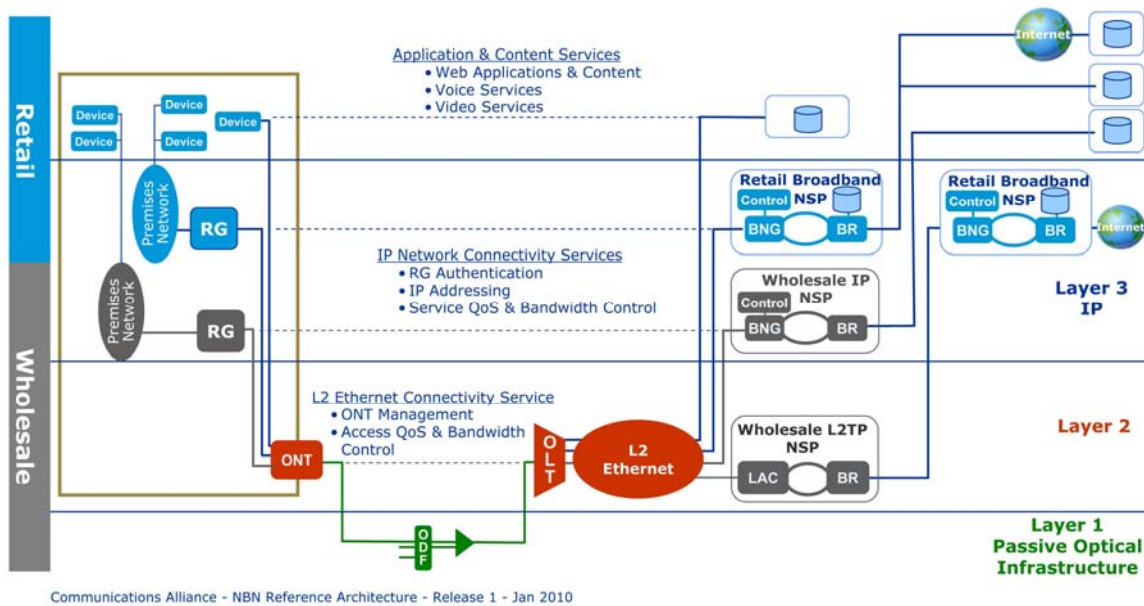


Figure 6 from the Communications Alliance NBN Reference Architecture

We understand 'Layer 1 Unbundling' to be a scenario where an RSP's own equipment lights up one or more dark fibres running between the RSP's equipment (the Optical Line Termination or OLT in the figure above) and the end-user's service location (the Optical Network Termination or ONT in the figure above), in a similar manner to the Unconditioned Local Loop Service (ULLS) for the copper Customer Access Network (CAN).

The RSP's equipment would need to be located within the fibre serving area, such that the optical fibre length did not exceed the optical power budget for the technology employed by the RSP. Chapter 3.2 in the NBN Optical Access paper deals with this topic in depth. In general, this distance depends on the technology employed by the RSP. For home-run fibres, if for example the RSP provided Gigabit Ethernet using 1000Base-LX transceivers they would require two fibres no more than 10 kilometres long, while using 1000Base-BX single-fibre-working transceivers they would need to be within the same 10 kilometre distance, but would require only a single optical fibre.

If the RSP deployed GPON technology, and included splitters within their own equipment at the Pol, then the optical fibres would be limited to roughly the same maximum length as for NBN Co's services provided from their GPON equipment – roughly 20 kilometers or so.

Generalising, for Layer 1 Unbundling and home-run network topology to be available to all fibre connected residences, there would likely need to be even more Pols than NBN envisages in their Option 1 model – each FSA would require a location where RSPs could locate their fibre multiplexers (the fibre equivalent to a DSLAM), possibly multiple such locations within each FSA if the longer optical fibre runs exceed 10 kilometres within the FSA.

The aggregated Pols, more than 10 kilometres from an end-user location, would not be of any utility for unbundled services.

Regarding "wavelength unbundling" and forthcoming WDM-PON standards explored by the ACCC – Communications Alliance notes that commercial systems implementing WDM-PON, providing 1 Gbps symmetric per wavelength, are commercially available

now¹⁰. ITU-T standards have not yet been agreed, however the technology certainly exists today and continues to be developed. However, the distance issues and consequently the very large number of Poles required for effective unbundling are unchanged.

2.5 Uniform National Wholesale Pricing (UNWP)

18. Is NBN Co's definition of UNWP "...that Access Seekers should face the same total wholesale cost from any premises to a designated state capital city point of presence" an appropriate one? If not, what alternative definition would you propose?

Communications Alliance understands the Government has a policy objective that all Australians should have access to broadband services via uniform wholesale pricing irrespective of location and whether or not they are using a fibre, wireless or satellite solution. To reflect this policy objective, NBN Co plans to deliver Uniform National Wholesale Pricing (UNWP) across its network.

NBN Co as a member of Communications Alliance has provided the view that the key benefit of the composite POI approach is that an Access Seeker can serve an end user for the same wholesale price, regardless of their location. This would increase the size of the addressable market and enhance retail competition.

Members have differing views on whether the aggregated 14 POI model will deliver the Government's uniform pricing ambition.

The alternative view held by some Communications Alliance members is that Poles should not determine or be linked to whether or not NBN Co achieves uniform national wholesale pricing. These same members believe the stated composite Pole option only guarantees access to 14 Poles and not access to 200 Poles that may result in reduced competition in the supply of long backhaul services as outlined in Section 2.1.

These same members believe the current definition of UNWP is inappropriate and unrealistic because it is unclear what the definition might include or exclude. Importantly the definition of UNWP can only ever apply in respect of wholesale input costs that an Access Seeker might seek to incur on services acquired from NBN Co. NBN Co is unable to limit or guarantee the number or size of any wholesale cost inputs an Access Seeker might incur from non-NBN Co wholesale component suppliers they might choose to use, in conjunction with the building-block services that NBN Co itself provides, to form a retail service. For these reasons UNWPs can only really be guaranteed on NBN Co's network and not to the entire industry. Some members believe that the UNWP provision should only apply for the access component of the service i.e. not the long- backhaul component.

Some members believe that for the continuing operation of a competitive transmission market, where it exists, to apply and the retention of innovation and product differentiation in the retail markets to benefit end users a greater number of POIs than 14 will need to be guaranteed. Further, to the extent that there is an issue of costs of long-haul transport being too high in regional areas, rather than using the aggregated POI structure and UNWP, this would be better achieved through using other more transparent

¹⁰ <http://www.marketwire.com/press-release/LG-Ericsson-Demonstrates-Live-1Gbps-WDM-PON-at-FTTH-Conference-Expo-1314537.htm>

approaches. For example, capped prices could be set on routes where costs are too high and targeted subsidies applied. There are a number of approaches that might be taken to achieve this outcome.

Some members believe that the definition should be clarified that the uniform pricing is only for components sourced directly from NBN Co – they are Uniform National Wholesale NBN Co Prices – and that non NBN Co wholesalers may charge a different price – possibly less – than the NBN Co pricing for components, even if those components are built upon base services obtained from NBN Co. Further, there will need to clarification over the scope of the service that the Government had intended should be subject to UNWP.

19. To what extent can it be ensured that Access Seekers face the same total wholesale cost in supplying services to end-users across regions independently of decisions about the number and location of Pops? That is, are there alternative ways to the approach proposed by NBN Co of ensuring that Access Seekers face the same total wholesale cost in supplying services to end-users across regions?

It is worthwhile noting that the Communications Alliance NBN project has not taken into account commercial considerations in the work carried out. Nevertheless, it can be said that future proofing and other aspects considered do have a commercial relationship. Also, in considering international experience other regulatory environments have been discussed.

In this regard an element that is related to UNWP is whether this concept is applied with hindsight to a set of wholesale services for use in the delivery of particular retail services that are considered to be of value ubiquitously. Or whether the concept of UNWP should be applied to all current wholesales services and in perpetuity to those that emerge. The former approach is inline with the Ofcom regulatory concept of Anchor product pricing¹¹. The latter may present issues in terms of future proofing and allowing innovation to deliver new wholesale services to support new retail services. These points all highlight that as noted earlier, there is a need to clarify the scope of the service that is subject to UNWP.

Access Seekers face a large variety of wholesale costs, many of which cannot be influenced by NBN Co, or by the location of Pops. Different Internet Service Providers face a variety of wholesale charges and cost models for their upstream Internet connectivity. Telephony Service Providers have wholesale input costs associated with terminating and originating calls, and obtaining ranges of numbers. Some providers run their own billing system, some outsource this to another wholesale provider.

By way of example, an ISP incurs a non-NBN Co cost in providing transmission between their PoP and an upstream Internet carrier – possibly an international carrier. An ISP located within the capital city would pay the same per-user charge to reach the end-user as an ISP located in a regional area, but would have much smaller upstream transmission (another form of “backhaul”) costs to reach the Internet than the regional ISP, who will have to pay more to trunk the aggregated Internet traffic to the nearest capital city to link up with an upstream provider – this transmission would not be provided by NBN Co. Thus this principle still discriminates between city and country ISPs.

¹¹ Section A7:- http://www.ofcom.org.uk/consult/condocs/nga/future_broadband_nga.pdf

2.6 Wireless Services

21. Should the same approach for the number and location of Poles for NBN Co's fibre services be adopted for wireless and satellite services? Why and/or why not?

Communications Alliance notes that NBN Co's product descriptions for satellite and wireless services includes the same virtual-circuit construct that the optical fibre product descriptions do, and that for all three forms of service the interconnect interface between NBN Co and an Access Seeker is identical – namely an Ethernet physical connection with customer services described by VLANs.

In this case, there is no reason why satellite and wireless Poles need be any different to fibre Poles. Indeed, all three services could be transported across a single aggregated Pole interface, with NBN Co splitting out the satellite services, wireless services and optical fibre services by VLAN and routing the traffic to the correct access network.

There appears to be no reason why satellite and wireless Poles need be differentiated from optical fibre Poles. Provided there is no performance degradation in the transmission network between the Pole and the wireless base-station or satellite earth-station, the services should provide identical performance irrespective of whether the Pole is local to the antenna or remote in a capital city.



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