



Pricing evolution

**Submission to nbn's
consultation paper by
Vodafone Hutchison Australia**

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Vodafone Hutchison Australia (VHA) welcomes the opportunity to provide input into nbn's access pricing review. The decision to undertake a more fulsome assessment of the pricing regime is a pleasing recognition by nbn that change is needed.

The nbn was established to upgrade Australia's broadband capability to provide faster speed services and to allow greater use of data hungry technology. Unfortunately the current pricing regime is severely curtailing the ability of the telco industry to offer these services to Australia and we are falling behind our international peers as a result. Only 13 per cent of customers using the nbn are on 100 Mbps plan.¹ By contrast, in New Zealand, 66% of mass market fibre plans are now 100Mbps or greater in the areas where this capability is offered.²

We cannot overstate the need for urgent action. The current pricing regime is distorting RSPs' incentives to efficiently use the nbn's infrastructure. The pricing model discourages appropriate capacity dimensioning, leading to congestion and sub-optimal end-user experiences on the nbn. Evidence of these problems is already emerging from Telecommunications Industry Ombudsman (TIO) complaints – for example, fault issues for nbn's services (e.g. slow data speeds, unusable services and dropouts) constituted 38.5% of all the internet and landline issues recorded in 2015-16, a figure that was much higher than nbn's share of internet and landline services.³ The nbn's apparent reliance on market dynamics to resolve this problem is misplaced – the pricing regime encourages an equilibrium with under-dimensioning of CVC capacity and is likely to perpetuate the existing problems.

The pricing regime is the central reason why nbn could fail to achieve its full potential. It is undermining nbn's long term viability. Significant change must occur now.

This assessment is not new. The telecommunications industry has been requesting a shift in access pricing for more than five years. If nbn does not make a small number of important, but relatively simple changes, the entire nbn project is at risk of failure and the potential of nbn's \$50bn-plus investment will not be realised:

- The Australian telecommunications market will continue to focus on selling slow speed broadband products, effectively wasting billions of dollars of public investment;
- Because of the significant disincentives to adequately dimension CVC capacity, the speed performance of the nbn will continue to be a source of customer frustration, increasing the levels of complaints caused by under dimensioning of broadband services on the nbn;

¹ NBN Co.'s half-year fiscal results June to December 2016.

² <https://www.chorus.co.nz/file/75722/256542.pdf> page 6.

³ <http://annualreport2016.tio.com.au/#Complaints and the National Broadband Network>



- nbn's ARPU will grow slowly, putting the nbn's ability to deliver a sustainable rate of return at risk. Concurrently, because of growing margin pressure on RSPs, the prices that consumers and business will pay for higher speed broadband services will increase, reducing the opportunities for nbn to improve the economic productivity of the nation; and
- The incentives to bypass nbn's infrastructure will grow, again limiting the viability of nbn.

Many of the changes advocated by the industry should not financially impact the nbn. Indeed, we believe a restructure to nbn's pricing will improve nbn's long term viability. The nbn must shift its dependence on revenue growth from increased demand for CVC capacity by RSPs, which it expects will be driven by end-user traffic growth. Instead, nbn's revenue growth should come from incentives for the industry to sell nbn's faster speed tiers, and the rebalancing of AVC and CVC pricing for RSPs.

Later in this paper we put forward a pricing proposal that better strikes the balance between delivering nbn an appropriate rate of return and encouraging the market to better promote higher-speed broadband services.

nbn's distorted two-part pricing construct

By way of background, the two main sources of revenue for the nbn are the charges for the:

- **Access Virtual Circuit (AVC):** Each premises is served by a single AVC which is effectively the underlying broadband subscription to access that particular premises. The four main services currently sold by nbn to RSPs as an unlimited broadband link are: 12/1 mbps, 25/5mbps, 50/20mbps and 100/40mbps being the four speeds offered most frequently offered in the market; and
- **Connectivity Virtual Circuit (CVC):** The CVC aggregates all the AVCs of a Customer Serving Area (CSA) and carries this traffic through to the Point of Interconnect (PoI) to a RSP. Like the AVC, the CVC is also sold on a bandwidth basis. Because the CVC aggregates the traffic of end users in an area, the greater the use, the more CVC bandwidth is needed to service each CSA. That's why the CVC charge is effectively a proxy for a usage charge.

It is important to recognise that the nbn pricing model has been created by nbn. It is not the only pricing construct that is possible. The two part AVC/CVC pricing construct was notionally established by nbn to give RSPs 'flexibility' to offer end users different speed capabilities. We believe this aspect of nbn's pricing construct is not as crucial as delivering a consistent customer experience and industry incentives to offer high-performing services.



The AVC/CVC two-part pricing construct of the NBN⁴ can be an economically efficient pricing construct and, in principle, provide users with a means of distinguishing between different levels of quality. We believe those differing levels of quality can be consistently delivered and customers' willingness-to-pay for higher quality services would be above the cost of delivering it. In theory, if reliable information on quality is available to end-users, an RSP-specific dimension pricing arrangement would allow for RSPs to operate in different usage segments in a way that would optimise benefits to the Australian economy. However, the conditions necessary for economically efficient use of two-part pricing have not been met – consumers do not have reliable information on the future performance of broadband services they require. While the information challenges can be overcome by industry, the primary problem with the current regime is that CVC pricing leads to retail pricing for high quality services that is above the amount most consumers are willing to pay for those high quality services. As such, if nbn's pricing is not promptly addressed, it may jeopardise Australia's standing as a high-performing broadband nation notwithstanding the nbn's significant investment in fixed infrastructure.

The key issue is that the relative price of the AVC and CVC is weighted too heavily towards a reliance on the CVC price. Currently, the average cost per user of a CVC charge is about half the cost of the AVC per user per month. Because usage is increasing, the cost of CVC per end user is increasing significantly, creating a margin squeeze for the industry.

As a consequence, VHA observes there is significant resistance within the industry to promote the higher-speed services that NBN offers. This is in large part due to the (ironic) concern that higher speeds encourages more data use and therefore higher costs. This has resulted in much greater market activity at the 12/1mbps and 25/5mbps product level, particularly compared to other countries such as New Zealand.

By comparison, New Zealand's "Ultra Fast Broadband" project, provides flat rate charges for each of the speed tiers offered rather than variable charges depending on guaranteed capacity, and the differences in pricing are relatively modest as the speed tiers increase. This pricing model is clearly more attractive for New Zealand RSPs to offer faster speeds than it is for Australian RSPs.

⁴ The NNI cost is a quite small component



AVC pricing needs to create an incentive to sell higher speeds

As mentioned above, there are four AVC bandwidths that are the main speeds used in the market. The pricing per month is as follows:

Speed	Price per month
12/1	\$24
25/5	\$27
50/20	\$34
100/40	\$38

The current AVC pricing does not offer sufficient incentive to RSPs to sell nbn's higher-speed tiers. Adjustments should be made to AVC pricing to overcome the large price hikes between the different speed tiers, particularly given the \$7 per month increase from the 25/5mbps and 50/20mbps speeds. Specifically, nbn should tilt the incremental price to reduce the relative price of speed for its higher tier services (see below for Vodafone's proposal on AVC pricing).

CVC pricing is putting a brake on speed

The most significant problem in nbn's pricing is excessively high CVC pricing. It is effectively a 'speed tax' on the industry that is resulting in the unfortunate outcome that the industry is penalised for:

- **Promoting higher speed tiers:** The faster the AVC, the greater the need for adequate CVC dimensioning. This means that CVC costs ought to be higher for faster speeds. Because the relative revenue share of AVC and CVC is weighted too heavily towards a reliance on the CVC price, there continues to be a margin squeeze (even with the recent CVC price changes) for the reasons set out previously.

In our assessment, this means the margin for a 12/1mbps service is broadly one and a half times that of a 100/40mbps services. This is a counter-productive outcome for the nbn as it means RSPs' incentives to sell the higher speed tiers are severely curtailed.

In a bid to address these problems, nbn introduced a new discounting approach (RSP-specific CVC Dimension Based Pricing) that came into effect on 1 June 2017. We are strongly of the view that the new pricing regime will not overcome the significant imbalance in nbn's pricing between AVC and CVC pricing. It is our assessment that despite the so-called 'Dimension Based



Discounts', CVC costs per end user will increase by 10% per annum driven by peak hour usage growth. This will inevitably make the higher speed tiers unviable.

- **Dimensioning CVC bandwidth to avoid congestion at peak periods:** It does appear that because of the high CVC costs, some RSPs are maintaining minimal or negligible headroom for spurts in usage at peak periods, which in turn deteriorates customer experience. This undermines nbn's success; as on one hand, NBN is perceived to be a 'high speed network,' while on the other hand, customers' experience leaves much to be desired in terms of quality/speed.

This is evident from the upsurge in consumer complaints⁵ about the NBN connections to the TIO. In 2015-16, complaints pertaining to Fault issues i.e. slow data speeds, unusable services and dropouts for NBN services constituted 38.5 % of all the internet and landline issues recorded in 2015-16. Fault issues for NBN services increased 147.8 % from 2014-15.⁶

While the CVC pricing must be reduced, there are good reasons to maintain the CVC component in some form. Firstly, it encourages nbn to make timely investments in capacity, coupled with clear signals as to where the additional capacity is most required. Secondly, it provides RSPs with an economically feasible way to develop flexible, tailored solutions for customers in different market segments.

The nbn pricing construct is delivering suboptimal outcomes

The industry should be supported for encouraging end-users to use more of the nbn's infrastructure. Unfortunately, the current pricing regime does the opposite. If traffic growth continues, the higher-speed tiers of the nbn service will be unviable without significant retail price increases. The alternative is that RSPs are forced to under-dimension their networks, increasing the risk of congestion and contributing to a higher dissatisfaction and end user frustration. This in turn leads to the emergence of bypassing technologies. Both outcomes would be a significant failure for the nbn project.

Indeed there are indications that these outcomes are already emerging. Higher speed services are not actively promoted and peak period congestion is a common occurrence for many end users. This is a suboptimal outcome for all stakeholders and could irreparably compromise the nbn initiative:

1. **Consumers and the Australian economy are not benefiting from the faster speeds NBN can deliver:** The disincentives in nbn's pricing to sell faster speed services is a big contributor to the relatively low take-up of higher speed services. Around 83 percent of NBN customers

⁵ <http://annualreport2016.tio.com.au/>

⁶ http://annualreport2016.tio.com.au/#Complaints_and_the_National_Broadband_Network



are on plans with download speeds of 25Mbps or less, while only around 13 percent of customers are on the highest performance 100Mbps plan.⁷ In contrast, in the areas where New Zealand offers 100mbps services, around 66% of mass market fibre plans are now 100Mbps or greater.⁸

- 2. There is a 'blame game' about speed performance that is causing significant end user frustration and confusion:** The significant variability of CVC dimensioning between RSPs is creating significant end user frustration and dissatisfaction. nbn has on occasion, asserted that dimensioning policies are the sole concern of the industry and therefore nbn is not responsible for this aspect of speed performance. The reality is that nbn's high CVC price is a big driver of under-dimensioning.
- 3. In the medium-term and long-term, the nbn business model will struggle:** VHA recognises that nbn needs to achieve an Average-Revenue-Per-User (ARPU) that recovers its long-term costs. However, an excessive reliance on CVC revenue to achieve this will impact the viability of the industry and diminish incentives to utilise the faster speed services of the nbn. This will result in a poorer financial outcome for the nbn.

Unless urgent changes are made to nbn's pricing model and the nbn is able to maximise its returns and improve its business case through other methods, this situation is not likely to significantly improve. In fact, nbn's business case may well deteriorate if consumers cannot access an uncongested service at a reasonable price during peak periods.

VHA's Proposal

Reform of nbn access pricing is urgently needed. While crucial changes are necessary the solution is relatively straight forward:

- 1. Adjust the AVC price to provide incentives to promote faster speed services:** The current price increments unintentionally penalise RSPs who sell faster speeds. This needs to be adjusted.
- 2. 'Rebalance' AVC and CVC charges:** The CVC price should be significantly reduced and the AVC price increased in a way that would minimise impacts to nbn, the industry or consumers.
- 3. There should be minimum levels of CVC dimensioning that reduce the chance for unacceptable congestion:** This could be via a tiered approach, e.g. Contention ratio required per incremental 100k customers in the base, so as not to penalise smaller RSPs. nbn is well-placed to develop an informed view on minimum levels of CVC dimensioning but we would

⁷NBN Co.'s half-year fiscal results June to December 2016.

⁸<https://www.chorus.co.nz/file/75722/256542.pdf> page 6.



suggest that, on current end user average usage, dimensioning below a ABHT of 849 Kbps means that the typical speeds achieved would be inadequate.

- 4. Phase out the 12/1 Mbps service via a price glide path:** In tandem with the above, the nbn should consider phasing out lower-speed plans and instead use a suitable glide path that considers and protects the interests of subscribers on unexpired contracts. It is VHA's view that it is time to announce the retirement of the 12/1 Mbps speed tier from the nbn offering. The nbn should encourage the market to shift to higher-speed plans and higher quality services. Grandfathering the 12/1 Mbps speed tier can be accompanied by a limited period protection for end-users on that level through a staggered rise in prices.

The proposal to phase out the 12/1 Mbps service is consistent with the Government's commitment to ensuring people in Australia have access to reliable high speed broadband. In particular, the Government is proposing the Statutory Infrastructure Provider (SIP) obligations to ensure that all Australians have access to superfast broadband services (25 Mbps or better).⁹

For nbn's consideration, VHA presents an illustrative proposal that makes these adjustments which we believe would cause minimal impact to nbn ARPU and set-up nbn's pricing for long term success.

We propose a 'rebalance' in the pricing of AVC and CVC that results in a substantial reduction in the CVC price. The reduction in ARPU associated with the fall in the CVC price can be compensated with an increase in the AVC price. The price increase for AVC should be proportionately the highest in the 12/1 Mbps product level and in parallel effort should be made to migrate the end-users from 12/1 Mbps plans to 25/5 and 50/20 Mbps plans.

Under this option VHA proposes the following:

- 1. Halve the price of CVC across all dimension discount tiers:** Note that this important change would result in improved CVC dimensioning policies by industry and this ARPU increase would mitigate the impact on nbn's finances of the price reduction.
- 2. Increase AVC prices to maintain overall ARPU:** As mentioned above, increases to AVC price should consider the fact that the CVC price reduction will result in greater CVC dimensioning.
- 3. Adjust the incremental increase of the AVC pricing to better encourage higher-speed tiers:** The small gap between speed tiers has proven to be very useful in New Zealand.
- 4. Progressively increase the 12/1 Mbps price towards the 25/5 Mbps price** to encourage the grandfathering of this service.

⁹ See <https://www.communications.gov.au/what-we-do/internet/telecommunication-reform-package> for details.



- 5. Put in place a minimum spend of CVC capacity** to put a floor on industry capacity performance. We suggest that RSPs be required to dimension to at least 849 Kbps and that there be a mechanism to progressively increase this requirement. As well as ensuring more consistent customer experience it has the added benefit of improving nbn's ARPU.

By way of a working example:

AVC price list:

12/1	25/5	50/20	100/40
\$34	\$34	\$37	\$39

CVC Effective Price List per DBD Tier kbps:

DBD Tier kbps	CVC Effective Price
399	\$8.75 Remove
549	\$8.38 Remove
699	\$8.13 Remove
849	\$7.88
999	\$7.50
1149	\$7.13
1299	\$6.75
1449	\$6.38
1599	\$6.00
1749	\$5.63
1899	\$5.38
2049	\$5.13
2199	\$4.88
2349	\$4.75
2499	\$4.63
2649	\$4.50
2799	\$4.38
2949	\$4.25
3099	\$4.13
3100 and Above	\$4.00



Conclusion

A shift in nbn pricing that promotes minimum serviceable CVC dimensioning during peak periods and encourages product uptake towards higher-speed plans, would create a win-win-win situation. Consumers will benefit from a better end user experience derived from larger guaranteed bandwidth, the IRR for the nbn would improve from sale of higher capacity and the RSPs would have greater flexibility in designing attractive product offerings at higher speeds. This will enhance the nbn's business case and improve Australia's competitiveness in the global market.

It is also desirable that the redesigned pricing construct should provide greater certainty for price reductions as usage grows. The proposed scheme anticipates a shift in the bulk of the base / end users from 12/1 Mbps to higher product levels of 50/10 and 100/40 Mbps. Coupled with the trend of rising data consumption of Australians, it can be expected that the demand in 5 years' time could be several multiples of what it is today. In such a paradigm, the re-modelled pricing should present tangible reductions in wholesale costs for RSPs with increase in usage.

Nbn's questions on VHA's proposed price change	VHA Comment
<p>Question 6: How does the proposed design provide extra value to each party, and does this value change over time?</p>	<ul style="list-style-type: none"> - For nbn, current ARPU is maintained and growth comes from higher speed tier take up. - RSPs would be able to increase CVC dimensioning for the overall same per end-user cost, resulting in improved end-user experience. - There is greater margin incentive and ARPU growth for RSPs as end-users take up higher speed tiers.
<p>Question 7: Do you expect the proposed design to materially change the mix of speed tiers and data caps your organisation's customer's purchase, and if so, what do you expect it to change to?</p>	<p>There would be higher utilisation of the higher speed tiers.</p>
<p>Question 8: Which challenges would the introduction of a new nbn pricing construct present to your organisation?</p>	<p>None.</p>
<p>Question 9: What would the impact to your organisation be if the nbn's pricing construct simply remained the same, and under which circumstances would your organisation find this outcome preferable?</p>	<p>The industry would be forced to sell the increasingly problematic 12/1 Mbps, increasing the chance of customer confusion and dissatisfaction.</p> <p>The industry would curtail the utilisation of the higher speed tier services.</p> <p>The industry would face increasing margin squeeze limiting our ability to meet the needs of our customers.</p>