HyperOne

2021 Regional Telecommunications Review Submission

Digital Infrastructure in Australia

Over the next 10 years Australian workers will increasingly require access to high speed, reliable digital communications. Australia's data usage is expected to grow exponentially with the number of network connected devices expected to reach more than 264 million by 2023 (up from 148 million in 2018)[1]. However, there is currently a notable difference in the growth rate of data usage in our cities compared to our regions, which is directly caused by the lack of digital infrastructure servicing these communities. By building new world-class infrastructure and delivering faster, more reliable and resilient connectivity in regional Australia, thousands of new jobs will be created.

Investment in improved communications infrastructure will significantly boost productivity in existing industries such as agriculture, mining, defence and freight as well as attracting investment in emerging industries including satellite, space and advanced manufacturing. Improved connectivity will also enable more Australians living in regional, rural and remote communities to participate fully in the digital economy and improve health, education and community services critical to improving overall living standards.

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[1] Cisco Cisco Annual Internet Report 2020, ,https://www.cisco.com/c/en/us/solutions/executive-perspectives/annual-internet-report/air-highlights.html#

Service Reliability - Australia's Digital Divide

One of the largest factors contributing to Australia's digital divide is the poor state of connectivity and service reliability outside urban areas. The age and architecture of our national fibre backbones and the lack of access to services in regional areas creates a barrier to higher broadband speeds and greater digital connectivity. The scale of this problem is significant, as demonstrated by Telstra's Australian Digital Inclusion index[2], which consistently shows far higher levels of inclusion for those in capital cities, relative to the rest of the country. In many areas, mobile and broader connectivity services are simply unavailable or unreliable and competition is virtually non-existent, with effectively one provider to choose from.

The federal government has made important strides in alleviating some of these issues by partnering with telcos on the construction of new mobile towers through its mobile blackspot program. However, the proximity and prevalence of mobile towers is only part of the challenge. The lack of capacity and unfavourable architecture of the existing national backhaul fibre networks is inhibiting connectivity solutions and holding back industry and broader community development opportunities in regional Australia.

The existing national backhaul fibre networks are in most cases more than 20 years old, predating 3G, 4G and 5G mobile networks, as well as cloud computing, video streaming and the Internet of Things**.** These national fibre backbones were built with a focus on long-haul intercapital capacity to predominantly support legacy analogue phone calls. They also lack the capability to break out in regional and remote communities to meet the data and connectivity requirements today and into the future. As a result, frustratingly, businesses and households in regional and remote communities drive over fibre networks everyday but cannot access them to meet their digital needs. Constructing new, reliable, high capacity backhaul with the appropriate network architecture to facilitate connectivity in regional areas is critical to cater for the changing telecommunications and digital demands of regional Australians.

2 Australian Digital Inclusion Index, 2020, https://digitalinclusionindex.org.au/the-index-report/report/

What is HyperOne?

HyperOne is Australia's first hyperscale national fibre optic network and the country's largest ever privately funded digital infrastructure project. HyperOne is a $1.5 billion infrastructure project that will create more than 10,000 jobs across the country during construction. Where possible, preference will be given to local suppliers and labour to ensure the benefits of the project are spread across Australia and remain in regional communities. It will be built by Australians for Australians.

It will be the country's first true national fibre backbone and the first new backhaul network built in almost two decades. It will connect every state in Australia with 20,000+ kms of new fibre to be built - capable of carrying over 10,000 terrabits per second - more traffic than every other national backbone ever built in Australia's history combined. Critically for regional Australia, the network will deliver up to 2,000 connection points or "on ramps and off ramps" linking thousands of Australians to critical digital infrastructure and providing access to high speed fibre for the first time. This will make a significant difference to communities that until now have been overlooked because the cost of the upgrades to existing networks have been cost prohibitive.

HyperOne will significantly increase the reliability and resiliency of digital services in regional Australia especially Northern Australia with this new backhaul capacity. The on and off ramps will provide critical backhaul capacity to regional and remote communities, better enabling telecommunication providers, access networks and other critical digital infrastructure such as mobile, satellite and laser to improve access, reliability and affordability of connectivity solutions for households and businesses.

HyperOne compared to existing telecommunication networks, a snapshot:

	Existing Network(s)	HyperOne
Build Date	• **1990-2003**	• **2022-2024**
Capacity / Regional connectivity	• **Limited capacity left in the network to meet the growing data needs of Australians** • **Lack of break out points in regional and remote communities**	• **Up to 10x fibre capacity of existing networks** • **Up to 2,000 off-ramps for regional / remote communities**
Network	• **Old and disjointed with limited diversity** • **Lacks resilience required to protect our data now and in the future**	• **A true national backbone for every state and territory** • **Multiple layers of redundancy** • **Establishes Australia as a stable and secure interconnection point in Asia**
Ownership	• **Foreign and domestic**	• **100% Australian owned**
Vertical Integration / competition	• **Largely owned by telcos** • **Limited competition in regional areas - often only served by one or two providers**	• **Independent - a new neutral backhaul network will better enable competition, increasing access and affordability**

Regional Development: HyperOne to unlock $22b in Economic Benefits

Research undertaken by Deloitte Access Economics found HyperOne will deliver a direct $3 billion[3] contribution to Australia's gross domestic product and help unlock $22.6 billion in broader economic growth by supporting digital productivity gains and the development of new and existing industries, especially in regional areas that are currently under-serviced by existing infrastructure.

According to Deloitte, HyperOne has the potential to support the adoption of emerging technologies in key regional industries, increasing efficiency and attracting new investment to regional areas. In particular, it identifies agriculture and resources as two sectors that could benefit substantially from the greater connectivity the network will bring - opening up the potential for improved automation and robotics to drive down costs and support business growth.

Another potential area for growth is Australia's Space Sector, which is expected to generate $12 billion in revenue by 2030 and support 30,000 jobs, according to Deloitte. Much of this growth is expected to be in regional Australia - particularly with the need for ground stations and launch facilities in areas with clear skies and low levels of background light pollution. This growth, of course, is reliant on the availability of critical digital infrastructure - that will be provided by HyperOne.

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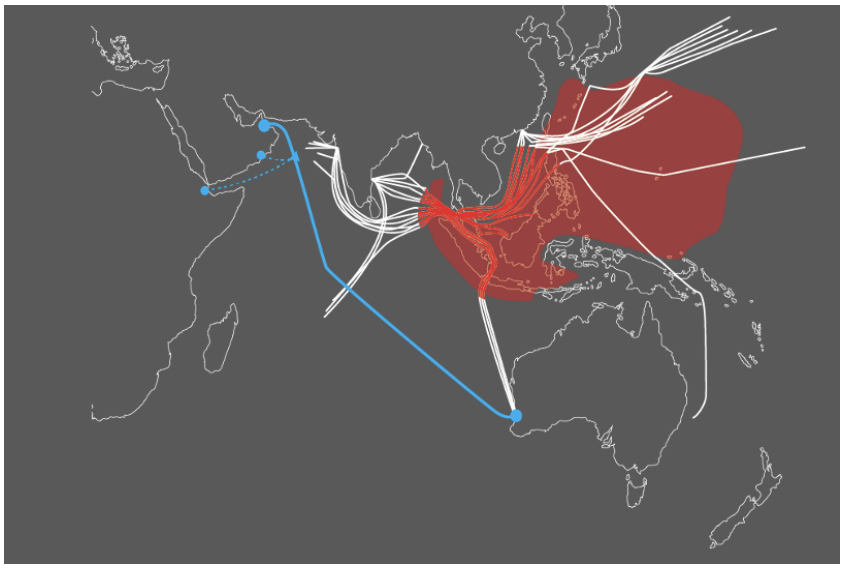
[3] Deloitte Access Economics, Economic Impact of HyperOne, June 2021

Darwin: A Critical Data Hub for Asia Pacific



From an international perspective, Australia has an opportunity to cement its position as a secure, stable and capable interconnection point in the greater Asian region. At present, the overwhelming majority of submarine cable connections to Asia pass through two points: the South China Sea (for connections to the Americas) and the Malacca Strait (for connections to Europe, the Middle East and broader Asia) - which each have their distinct challenges from geopolitical risk to operational risks posed to the cables from being on busy shipping and fishing routes.

HyperOne will more than double the number of locations international cables can land in Australia, enabling our country to become an alternative route for traffic to and from Asia and significantly increasing the diversity of global internet infrastructure. Under this opportunity, data could travel from the Americas to Australia's east coast or Northern Regions, or from EMEA to the West Coast, and utilise HyperOne's secure, low latency network to Northern Australia /Darwin before being transmitted on to Asia.

This would establish Darwin not only as a major interconnection point for Asia, but potentially also as one of the region's leading data hubs with an abundance of clean energy and an opportunity for the establishment of a new digital hub in the region following Singapore's moratorium on new data centres. This will be a game-changer to attract investment, jobs and growth in Northern Australia.

Emerging Technologies - unparalleled Network Protection through *FiberSense*

In an age where geopolitical tensions are constantly being played out online, the security of digital assets like fibre networks has never been more important. HyperOne is partnering with an emerging Australian business *FiberSense* to deliver an unparalleled level of security.

FiberSense's patented technology provides real time insights and absolute awareness on the status of the physical fibre asset, and of anyone trying to physically interfere, intercept or touch the cable and the surrounding infrastructure across the entire route. This will yield an unprecedented level of protection for the network and its customers and contribute to Australia's national cyber security efforts.

This technology has numerous applications beyond security, including real time detection of natural disasters, water leaks or unauthorised activity near critical infrastructure such as gas pipelines. It can also be used to deliver real time insights on transport infrastructure, particularly roads where the technology can isolate the speed of vehicles, congestion, accidents and other incidences and be synced with traffic monitoring and alert systems to promote greater road safety.

Conclusion: Backhaul fibre infrastructure is critical to improve regional telecommunications

As highlighted in the Committee's Issues Paper, Australians living in regional communities are increasingly reliant on telecommunications and digital infrastructure to improve their livelihoods and living standards. However this is constrained by the lack of access, reliability and affordability of digital connectivity including mobile, broadband and fixed voice services available to these communities.

As outlined in this submission, regional economies continue to be held back by inadequate digital infrastructure, with a backhaul fibre network being a critical pillar within this. This is manifesting in regional industry being challenged in its local and global competitiveness due to an inability to implement new technologies reliant on digital infrastructure ore importantly this is challenging liveability in many areas which is in turn a significant detractor to further investment and economic and population growth

The HyperOne network will alleviate these issues for communities along its 20,000km route. The significant uplift in capacity offered by this project will allow service providers to offer high speed and lower latency connectivity more cost effectively. This will further support the expansion of regional economies and the growth of new and existing industries.

We thank the Regional Telecommunications Independent Review Committee for the opportunity to provide this submission and look forward to reading your findings.