

CommsDay Summit 2021

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5 May 2021

Good afternoon everybody, and thanks Grahame and the CommsDay team for having me back to speak at the 2021 CommsDay Congress.

I'm very happy to see that Vocus is again the Diamond sponsor of the CommsDay Congress. It's great to be able to be here in person this year and see so many people here in person after a big year of Zoom meetings!

Last October I had the pleasure of talking about the up-and-coming telecommunications revolution in the sky, with developments in new technologies fuelling the deployment and business models of Low Earth Orbit Satellites. And what a six months it has been. While we have only just started to see these products enter the market there has been a lot going on behind the scenes. Today First, I want to talk about how the rapidly developing satellite market is going to change the way Australian telcos deliver services, and how satellite is set to become a mainstream broadband technology in the same vein as 5G or fibre.

I'm going to talk about how Low Earth Orbit, or LEO, satellite infrastructure – which is developing at a pace never seen before – will be increasingly dependent on high-capacity ground infrastructure in order to end users to realise the true benefits of the technology.

And I'm very pleased that I'll be able to announce Vocus' involvement in a revolutionary new Australian-made technology which has been designed to serve this very market.

Finally, I want to talk about how these advances in satellite, which will deliver broadband speeds comparable to fixed line NBN technologies, should allow for a complete reset of government policy regarding regional telecommunications.

So I'll begin by providing an update on the rapidly evolving landscape of the satellite market.

For those of you who were here for my last CommsDay Summit speech last October, you might remember that I'd discussed how emerging technologies like LEO Sats would provide the opportunity to "untie the regional telecoms tangle".

It's hard to believe that speech was barely more than six months ago, given how rapidly the satellite market has evolved in that short space of time.

At the time I mentioned the famous quote by science fiction writer and futurist Arthur C Clarke that says: "Every revolutionary idea seems to evoke three stages of reaction..."

- (1) It's completely impossible.
- (2) It's possible, but it's not worth doing.
- (3) I said it was a good idea all along.

I'd predicted that by October 2021 we'd have reached Stage 3 – a lot of people claiming that this was a good idea all along.

From the responses I received at the time, my measure was that the industry was hovering somewhere between 1 and 2, I even had someone suggest to me that I had the quote wrong and that the third point is "what a great idea, I'm glad I thought of it"

As it turns out I underestimated just how rapidly this technology was developing. Just last month the first Australian trial customers of Starlink, the broadband brand of SpaceX, received their first satellite dishes and connected live services.

Starlink calls the live trial service a "Better Than Nothing Beta". But the tongue-in-cheek name for the beta test really undersells how revolutionary this service is.

Media articles have reported Australian users receiving download speeds of more than 340Mbps, with upload speeds above 40Mbps.

Starlink itself has marketed the trial service as providing download speeds of 50Mbps to 150Mbps, which is again underselling the experience when real-world conditions appear to show the service delivering at the top end of that range – even more than double the top end of the range.

Starlink says the typical latency on the service is 20ms to 40ms, comparable to terrestrial broadband technologies and a giant leap from the 600ms latencies typically seen on GEO Satellite services.

The rooftop dishes come at an up-front cost of \$709 plus \$100 shipping, with a monthly connection fee of \$139 for unlimited data.

Considering that Satellite services typically have very low data caps, and an unlimited 100Mbps fixed-line NBN connection typically retails from between \$90 to \$110 per month, that's pretty competitive.

Now you're probably wondering why an executive from Vocus, a specialist fibre and submarine cable provider, is here talking up LEO Satellite services.

It's because LEO, along with its technology path, represents the perfect technology companion for nationally scaled fibre operators as the best way to deliver last mile fibre like services, creating a timely opportunity for the telecommunications industry to leverage satellite as a core part of its product portfolio.

Until now, Satellite has played a niche role which has provided a passable level of service to users in very remote areas, where any other technology would be economically unviable.

As Starlink's cheeky marketing slogan says, satellite has typically been viewed as 'better than nothing'.

But the arrival of LEO satellites completely changes this. It's not just 'better than nothing'.

It's better than fixed wireless. It's better than fibre to the node and HFC, in many areas. It's better than 3G and 4G, and at the kind of speeds being reported by users of the trial service, it will even be better than 5G. And it's likely to be available in regional areas ahead of 5G too.

And this is going to force Australian telecoms operators, serving both the consumer market and enterprise and government markets, to reconsider the optimal choice of technology for a whole range of customers.

While Australian operators have invested billions in 5G – including the \$650 million spent on millimetre wave spectrum last month – LEO is able to serve many of the same markets that have been touted for 5G.

Home broadband in regional areas without fixed-line is just the beginning.

For example, if you were a prestige car company operating in dozens of countries around the world and you an in-car connectivity requirement for software updates, tracking, and entertainment, wouldn't you prefer a single global contract with a LEO Sat operator – rather than dozens and dozens of local contracts with mobile operators?

It's the same for global companies using mobile connectivity to track assets, or using various monitoring devices, or any number of other use cases.

This isn't to say LEO Sats are going to replace mobile or fixed line networks – of course not. But they will provide a viable alternative in many instances where latency meant satellite could never have been considered.

I should also make it clear that LEO Satellites are not going to make NBN's two Sky Muster satellites redundant overnight either.

Vocus is currently the leading retail service provider of NBN Business Satellite Services. NBN Sky Muster remains the best GEO Satellite product in the market right now, and NBN's recent improvements to products and pricing on business satellite will ensure it remains competitive even as new technologies come to market.

Last year, Vocus was awarded a \$16 million contract from the Bureau of Meteorology. Vocus will serve the majority of BoM sites through our own fibre network, and work with NBN and other network providers to reach sites beyond our own network footprint.

Almost one third of new sites will be provided on NBN's business Satellite Service.

Another key customer win last year was Northern Minerals, where again we utilised the Business Satellite service. Northern Minerals, the only heavy rare earths producer outside of China, operates a 55-person pilot plant at its Browns Range project in northern Western Australia.

As well as addressing their business connectivity requirements, the service has completely changed the way staff are able to live and work.

I use these two examples because while Vocus is a fibre infrastructure company, satellite is increasingly complimentary to our fibre services, particularly in remote areas with challenging economics.

And these examples provide me with the perfect segue to bring me to my second point: that this revolutionary space infrastructure is heavily dependent on high-capacity ground infrastructure.

The business opportunities for Vocus go far beyond reselling satellite services as part of our product set.

The real opportunity is more about what we do on the ground, rather than what they do in the sky.

I mentioned earlier that LEO satellites are capable of offering latencies comparable to terrestrial technologies.

These low latencies are dependent on the deployment of extensive ground infrastructure with high-capacity fibre backhaul, so processing and storage can occur as close to the edge of the network as possible.

This means having ground stations in regional areas close to where the end-users are located, to minimise round-trip time.

By now you should be starting to see why a fibre company is taking such a strong interest in LEO Satellites.

Hopefully many of you were here yesterday to hear our chief operating officer, Ellie Sweeney, describe Vocus' investment strategy over the coming years.

In her speech she made it clear that Vocus' extensive regional fibre network is key asset which we intend to expand and upgrade the capacity of.

But Vocus' extensive regional network is more than just fibre.

Our 15,000 km of fibre around Australia is supported by a network of controlled environment vaults or CEVs. And these CEVs are ideally suited to be upgraded to satellite ground stations all over the country.

Our fibre network provides the foundation to install many more CEVs and ground stations in the future as LEO satellite operators require them.

And while we have the fibre, and we have the CEVs to establish ground stations, we now have another key asset to make our LEO satellite business a reality – the spectrum required to turn these CEVs into ground stations.

Vocus acquired regional licences in the millimetre wave auctions late last year for the sole purpose of enabling connectivity between LEO constellations and our extensive network across Australia.

This trifecta of fibre, CEVs and spectrum makes Vocus the ideal partner for the growing number of satellite operators investing billions into LEO deployments.

And this brings me to my announcement today, which we believe has the potential to dramatically improve the speeds, logistics and economics of LEO Sat deployments in Australia.

Today, I am very pleased to announce that Vocus is a founding partner and shareholder in Quasar Satellite Technologies, a revolutionary new satellite ground station service company which was formally launched just yesterday.

Vocus has a stake in the company and will provide access to our extensive regional fibre network, land access, regulatory support and assistance in going to market with our connections to the satellite industry.

Quasar's technology promises to disrupt the satellite ground station market by delivering "ground stations as a service".

They'll enable this using their electronically-steered phased array technology. This technology emulates the behaviour of a traditional parabolic antenna, but no longer requires the antenna to mechanically track satellites across the sky.

As a result, Quasar's technology is able to connect to hundreds of satellites at once, managing connections through time slots for uplink and downlink activity.

Quasar could allow new LEO satellite fleets to launch far more quickly and cost-effectively as they wouldn't require multiple deployments of ground infrastructure. Rather, several operators could connect to Quasar's ground stations as a service, and focus their energy on launching their space infrastructure instead.

And the market is not only for satellite operators – users such as Government, Defence, and telcos themselves could avoid requirements to build their own ground stations and instead utilise a commercial Quasar service.

Quasar has the backing of Main Sequence, the CSIRO-founded venture capital fund that invests in high-growth tech startups based out of research.

We're very excited about the possibilities.

And one thing which excites me about our work with Quasar is that it's an Australian company, backed by Australian funding, developing a sovereign Australian capability in the modern-day space race.

And sovereignty is a factor which Vocus increasingly sees as a competitive advantage in a market where security is critical to success.

With our proposed acquisition by Macquarie Infrastructure and Aware Super, Vocus will have the support of two of Australia's leading institutions and remain 100% Australian operated.

We've seen an accelerating trend, particularly from Government customers, where the use of sovereign assets is not just a nice-to-have but a must-have.

Yesterday Ellie Sweeney mentioned the Digital Transformation Agency's new Hosting Certification Framework, where the highest level of certification is only granted to providers that allow the Government to specify ownership and control conditions that are not lowered at any time.

And we see this line of thinking playing out across more than just data centres.

Sovereign capability in satellites is already being pushed in Defence and security circles.

Only last month CommsDay reported that the Australian Strategic Policy Institute had urged the federal government develop a rapid production capacity for small satellites and a sovereign launch capability.

In light of this trend, Vocus views our partnership with Quasar as a very important one in a market which values sovereignty and Australian ownership so highly.

The next-generation space infrastructure being deployed by LEO Sat operators will ultimately be dependent on ground infrastructure – Vocus and Quasar will bring a unique all-Australian combination to the table to address that market.

So now I'd like to turn to my third and final point – these rapid advances in satellite technology provide an opportunity to reconsider our regional telecommunications funding arrangements in a way that was never possible before.

In my speech last October I called this the 'regional telecoms tangle', and while that tangle hasn't changed at all, the solution has become clearer than ever.

It's worth quickly reviewing the myriad overlapping funding programs currently in place to deliver regional telecommunications.

The Universal Service Obligation or USO sees Telstra paid around \$250 million a year to deliver a Standard Telephone Service to every premises in Australia, no matter how remote.

This is partially a Government payment of \$100 million a year, and partially via the Telecoms Industry Levy or 'TIL' which collects the remainder of that payment from telcos.

Telstra pays the majority the TIL – effectivity paying itself to deliver the USO.

At the same time, NBN's Fixed Wireless and Satellite networks will be subsidised by commercial operators via the Regional Broadband Scheme, or RBS. The RBS is expected to raise over \$741 million in its first year of operation, with the majority of the RBS paid by NBN to itself.

As a result, Telstra pays most of the TIL to itself to operate the USO, and NBN pays most of the RBS to itself to operate fixed wireless and satellite.

On top of this, Telstra and NBN are also increasingly paying each other through the USO and RBS to operate networks which duplicate each other's footprints.

NBN subsidises Telstra to operate the regional copper network, while Telstra subsidises NBN to operate the Fixed Wireless and Satellite networks.

Combined, the USO and the RBS will raise around \$1 billion annually to cross-subsidise networks serving the same users in the same areas of regional Australia.

On top of this, we've got the Mobile Black Spot Program which subsidises mobile network coverage in many of the same areas that are already subsidised by the USO and RBS, and we've got the Regional Connectivity Program which will subsidise new local telecoms infrastructure in areas which already have NBN Fixed Wireless or Satellite.

Meaning if you're living in a remote area, you can have a home phone supplied by Telstra and subsidised by NBN and other telcos, satellite broadband supplied by NBN and subsidised by Telstra and other telcos, AND a mobile or fixed wireless connection subsidised by the Australian taxpayer – all at the same time.

People living and working in regional Australia should all have reliable telecommunications services. But it is wasteful and inefficient to have four or more subsidy programs all trying to solve the same problem – particularly when the two largest operators cross-subsidise each other!

LEO satellite technology provides us with the opportunity to take a more rational approach to regional telecommunications funding.

When the Government had the Productivity Commission conduct a USO review a few years back, the review found GEO satellites like Sky Muster were unable to replace fixed-line voice services due to high latencies.

But now with LEO satellites capable of 20 to 40 millisecond latencies, there is a strong argument that there is no longer a need for voice services to be delivered the USO copper network.

The entire USO contract, which does not have any broadband component, could be replaced by LEO Sat voice services.

Similarly, while NBN's Sky Muster satellites are delivering 25Mbps broadband and are subsidised via the Regional Broadband Scheme, these services are now competing against commercial LEO Sats offering unlimited data on speeds between 50 and 150Mbps.

Does it make sense for NBN's competitors to be forced to subsidise NBN's loss-making satellite services, when there are better commercial offerings in the market with no subsidies attached at all?

The arrival of commercial LEO satellites raises even bigger questions than just the USO and RBS.

If all regional and remote areas can access 150Mbps broadband via commercial LEO Sats, why should NBN invest one more dollar in its regional networks, which are already incurring heavy losses?

Wouldn't it be more economically efficient to subsidise non-NBN services to ensure they're set at a similar price to metropolitan equivalents, and for NBN to write off the losses?

These are no longer questions that can be left for another day. These are questions which need to be considered here and now, since LEO operators like Starlink now offering commercial services.

The landscape has changed dramatically, and the Government's response should take this into account. The opportunity for reform is too great to miss.

So I'll wrap up by reiterating my three key points today.

First, the rapidly evolving satellite market is changing the way Australian telcos deliver services, now that satellite is becoming a mainstream broadband technology in the same vein as 5G or fibre.

Second, next-generation space infrastructure is dependent on high-capacity ground infrastructure to realise the true benefits of low earth orbit satellite technology. And Vocus' all-Australian partnership with Quasar is ideally placed to meet growing demand in the ground infrastructure market.

And finally, these advances in satellite are delivering broadband speeds comparable to metropolitan fixed-line technologies – allowing us to reconsider the more than \$1 billion in subsidy programs currently in place provide access to connectivity in regional Australia.

Thanks for your attention, and I hope you enjoy the remainder of the conference.