DESIGN, DELIVER AND OPERATE WIDE AREA NETWORK (WAN) WITH QOS GUARANTEES.

VERTEL DELIVERED CARRIER GRADE FIXED WIRELESS AND A FIBRE NETWORK CONNECTING MULTIPLE TV TRANSMISSION SITES ACROSS AUSTRALIA THAT ARE CAPABLE OF RUNNING DATA, VOICE AND VIDEO-APPLICATIONS WITH QUALITY OF SERVICE (QOS) GUARANTEES. KEY OBJECTIVE WAS TO PROVIDE CONNECTIVITY TO REMOTE SITES AND TRUE NETWORK REDUNDANCY VIA CARRIER DIVERSITY.

TXA Australia Pty Ltd (TXA) is a joint venture owned equally by Australia's three commercial metropolitan television networks: Seven, Nine and Ten.

TXA owns and operates TV transmission and retransmission facilities in the five-major mainland metropolitan cities of Australia (Sydney, Melbourne, Brisbane, Perth and Adelaide). It provides TV transmission for broadcasters and markets its infrastructure facilities to access seekers. It also offers project management and technical maintenance services.

The company was formed in 1999 to take over responsibility for the existing analogue television transmission services of the three networks and to upgrade the transmission infrastructure for digital television, which was phased in from January 2001 to December 2013.

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OUR KEY CRITERION WAS SERVICE AVAILABILITY. AT THAT TIME THE MAJOR CARRIERS WERE SUFFERING A LOT OF OUTAGES – WE NEEDED AN ALTERNATIVE WE COULD RELY ON.

THE CHALLENGE

As well as distributing TV content, TXA maintains a large Multiprotocol Label Switching (MPLS) Wide Area Network (WAN) across its many sites to run its Network Monitoring System (NMS). The NMS tracks all of TXA sites to determine if they're broadcasting to air, and if there are any problems. The NMS is core to how TXA runs their network.

In early 2016 it was obvious to TXA that its NMS infrastructure would need upgrading. The existing network had no redundancy and was unable to service some remote locations. TXA implemented a network capacity review to examine its network traffic and future bandwidth considerations such as program monitoring feeds and the need to identify risks and recommendations on network security.

Tim Neall, General Manager of Operations at TXA says, “The key objective was to identify if our existing IT architecture was sufficient for operational efficiency and what we needed to do to was set up the platform for future strategic goals. We identified that we needed a substantial upgrade of bandwidth and capability.”

“We looked at several different options. Our key criterion was service availability. At that time the major carriers were suffering a lot of outages – we needed an alternative we could rely on.”

“In our game, you can’t afford any downtime. The WAN should be as solid as possible. That meant our provider would have to have diversity in its own network, with complete network-independent redundancy. We wanted both fibre and microwave to all our sites, with fail over between them should anything go down.”

OUR APPROACH

TXA looked at several different options, explains Mr. Neall. “We chose Vertel because it could offer us a carrier grade fixed wireless and an in-ground fibre solution. Because our sites are used for TV transmission they are typically on hills and other elevated areas with good line-of-sight, which suited Vertel’s carrier microwave technology. It was the perfect fit.”

He says there was some resistance internally to microwave, based on perceived problems with older microwave technologies. Those were overcome with a full understanding that Vertel’s carrier grade Ethernet is not susceptible to rain fade and many of the other problems associated with traditional microwave.

Vertel’s MEF certified Carrier Ethernet 2.0 network service has guaranteed performance parameters that enable the end-to-end operation of all data, voice and video applications. By using its existing fixed wireless access infrastructure and a fibre core, Vertel could provide the delivery of carrier grade broadband to all TXA’s sites, including those that lack fibre connectivity. For those with fibre, Vertel microwave could provide an extra level of redundancy. Greater reliability is achieved through frequency diversity. Rain attenuation is mainly an issue for higher frequency bands above 10 GHz, but because of this known problem, the

link lengths are matched to the appropriate frequency band to stay within the allowable, non-service affecting attenuation range.

> “WE CHOSE VERTEL BECAUSE IT COULD OFFER US TRUE CARRIER DIVERSITY THROUGH A COMBINATION OF FIXED WIRELESS AND A FIBRE SOLUTION. AS MOST OF OUR SITES USED FOR TV TRANSMISSION ARE TYPICALLY ON HILLS AND OTHER ELEVATED AREAS, VERTEL’S FIXED WIRELESS TECHNOLOGY WAS A PERFECT FIT.”

THE SOLUTION

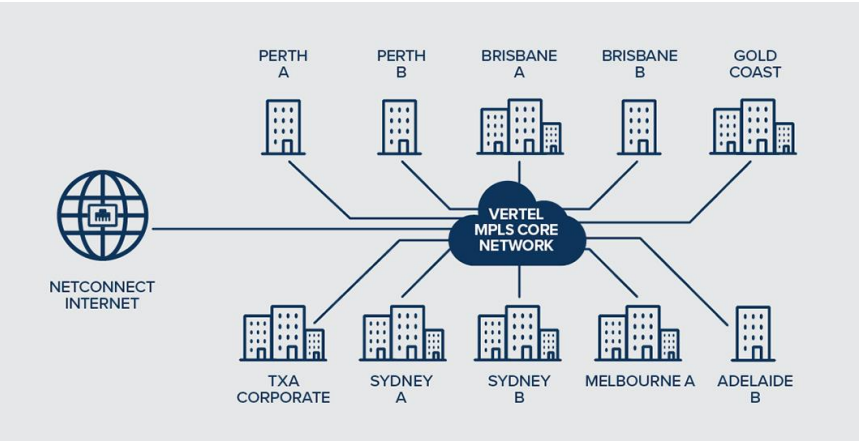
THE SOLUTION WAS VERTEL’S ETHERWAVE E-LAN MESH THAT ALLOWED ANY-TO-ANY LAYER 2 COMMUNCATION BETWEEN ALL OUR SITES COMBINED WITH HIGH CAPACITY INTERNET FEED TO SOME OF OUR SITES.

TXA signed its contract with Vertel around the middle of 2016. The Vertel solution involved a diverse 1+1 configuration consisting of a Vertel Etherwave E-LAN mesh logical architecture, with the main 100MB link in Perth and 10MB in the remaining locations. This solution allows any-to-any Layer-2 Ethernet communication between all sites on the network. Vertel Netconnect Internet was also installed at three sites: Macquarie Park and Artarmon in Sydney and Dandenong in Melbourne.

The network rollout was completed in early 2017. “There were some issues in the migration but that was all on our side,” says Mr. Neall. “On Vertel's side everything went very smoothly. They gave us the support we needed. I couldn't really fault them. It went really well.”

As well as replacing the backbone of the existing Network Monitoring System, the Vertel network has enabled improved functionality in other areas. “Each of the broadcasters has a Master Control Room, which enables them to switch between the main transmissions sites,” explains Mr. Neall. “We used Vertel’s network for that capability as well.”

- RAPID DEPLOYMENT TO REMOTE LOCATIONS.
- QOS GUARANTEED ANY-TO-ANY LAYER2 CONNECTIVITY TO ALL SITES.
- DIVERSE 1+1 CONFIGURATION FOR TRUE NETWORK REDUNDANCY.
- MEF CERTIFIED CARRIER ETHERNET.
- HIGH CAPACITY INTERNET TO 3 SITES.



“We’re also looking to centralise the command and control of our network, including the potential establishment of a NOC (Network Operations Centre), which means we will be able to manage our video feeds much more efficiently. Vertel has given us the path to lay that foundation. It has given us new capabilities, so that we are now considering changing the model of how our networks run and establishing a central operation centre, so we needed to have an upgraded connectivity between all our locations.”

THE RESULTS

Mr. Neall says there are many benefits to TXA from the Vertel system. “Anything would have been an improvement over our previous Stone Age technology. But a couple of things stand out with the Vertel solution.

“Vertel’s responsiveness has been a major advantage to us. If any of our services go down we need to get them back up straight away. It doesn’t matter what the cause – a provider issue, an outage, human error – we need to be able to resolve it immediately. Vertel gives that immediate service, whereas with a major carrier we could be on the phone for hours. That in itself is a huge leap forward for us.”

The Vertel network is separate from the network TXA uses to distribute video, which uses Telstra’s Digital Video Network. But that may change.

“We're building towards getting bigger pipelines on what we've already got with Vertel, so there's an increase in capacity as that comes on line. We’re looking at retransmission of video on our smaller sites where there is an issue in terms of service reliability. Microwave is probably the most cost effective way for us to do that.

> “VERTEL WAS ABLE TO PROVIDE A QOS GUARANTEE EQUIVALENT TO FIBRE AND A MUCH BETTER CUSTOMER EXPERIENCE.”

Timothy Neall
General Manager of Operations
TXA Australia

“The true redundancy capability of the Vertel network is very important to us. It means we have a much higher level of reliability, which is also very important for program delivery. We’ll be considering a few options. The important thing is that we now have a reliable and a future-proof network.

“And because we don't have a dedicated IT resource at TXA, I can now focus on the things I actually should be doing. Maybe that’s the biggest advantage!”

ABOUT US

We are an Australian licensed telecommunications carrier specialising in the design, build and operation of next generation critical communications network infrastructure and associated services. We have over 40 years’ of experience delivering critical network services to Government, Enterprise and Service Provider organisations. We specialise in delivering carrier grade and alternate telecommunications infrastructure in non-metro, regional and remote Australia.

We have offices across the country with a national network operations centre (NOC) in NSW that proactively monitors our networks 24/7/365.

Contact us on 1300 837 835 (1800 VERTEL) or info@vertel.com.au.
Visit us at www.vertel.com.au.

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