



Success Story

Telstra swiftly supplies Emergency Communications using TeleDyne High Performance Modems



KEY HIGHLIGHTS

Industry

Telecommunications & Media

The challenge

Need for durable, high performance 3G Modems facilitating satellite telecommunications in extreme environments.

The solution

Implement Teledyne Paradise Datacom Quantum Satellite Modems.

The Results

- Reduction of satellite bandwidth requirements by over 50%
- Flexible and reliable modem platform adaptable to current and future requirements
- Robust coding and modulation standard for satellite transmission
- Intuitive diagnostic toolset
- Innovative and effective customization of specifications
- Superior technical support and responsiveness to customer needs

CUSTOMER PROFILE

Telstra is Australia's leading telecommunications and information services company, and pride themselves in helping their customers improve the ways in which they live and work through connection.

The company's international business operations are leading suppliers of managed network services, as well as international data, voice and satellite services, to numerous countries within Asia, Europe and the Americas.

Telstra owns one of the most technologically advanced IP backbone networks in the world, and provides access to over 1,400 points of presence in 230 countries and territories across the globe.

Active in China since 1989, Telstra provides managed network and international

Being the leader comes with certain obligations, such as Australia's Universal Service Obligation (USO). The USO is designed to ensure that all people in Australia, regardless of where they live or work, have reasonable access, on an equitable basis, to standard telephone services.

Telstra is the designated provider for USO, and is responsible for fulfilling this obligation throughout all of Australia.

In areas of the country where no other standard telephone service exists, whether by Telstra or another carrier, Telstra must by law provide their services, and thereby implement the needed infrastructure.

That's a tall order for Australia's population, currently over 23 million people, concentrated on the east and west coasts, large tracks in the outback and within its Indigenous communities.

connectivity solutions, as well as leadership in China's online advertising markets.

“There are a number of companies we service in mining and gas exploration that benefit from the Teledyne Paradise modems.”

Ron Facciol
Manager, Telstra Satellite Division

THE CHALLENGE

Throughout Australia's extremely diverse geography - ranging from snow-capped mountains, deserts, and tropical forests - Telstra must establish a reliable telecommunications infrastructure.

In areas where permanent telephony infrastructure does not exist, satellites are typically used as a temporary measure to supply basic communications.

Ron Facciol is the Manager of Telstra's Satellite Division. This division plays a critical role in providing telephony services for the following:

- Mining and gas exploration industries
- Trunking and backhauling services to many of the Australian islands and territories
- Telephony services for emergency crews during extreme situations

Operating in remote campsites, mining and gas exploration personnel often work in isolated conditions without existing telephony infrastructure. We needed a way to provide telephone coverage for the

workers to communicate with their families, said Ron.

Likewise, when the country experiences massive fires and flooding, we needed a reliable - and quickly deployable - method to provide temporary telecommunication services to the emergency crews handling those situations.

We needed to have a mobile solution for these telephony services where we could incorporate satellite technology in a cost effective, reliable and timely manner.

So the idea was born to create a knock down mobile network station that could be quickly transported and deployed to remote areas.

Ron explained that they also needed an alternative method, other than land travel, to get the mobile asset, or infrastructure, in place - as with fires and flooding, roads could become quickly inaccessible. So the mobile solution needed to be compact enough to transport via aircraft.

An integral component to that mobile design was to find and

incorporate a modem that would both efficiently and reliably interpret satellite signals - and be robust enough to withstand extreme weather conditions.

A major cost in deploying satellite solutions is the amount of bandwidth used. So part of Ron's challenge was to also find a modem that would use only the satellite bandwidth needed, therefore reducing bandwidth costs.

In summary, Ron needed a satellite modem that would:

- Utilize the latest coding and modulation standard technology
- Reduce bandwidth used and therefore the cost of the bandwidth
- Accept satellite transmission delays
- Support fully provisioned IP Quality of Service
- Provide remote Link-Diagnostic tools, eliminating need for external analyzers and other test equipment
- Perform efficiently and reliably in extreme weather conditions such as desert heat

THE SOLUTION

While creating Telstra's transportable mobile network base station, called the Satellite Cell on Wheels (SatCOW), Ron and his team set out to find and incorporate a modem that would support all of their requirements.

Through ViaSat, a U.S. provider of satellite and other digital communications products, Telstra was introduced to the Teledyne Paradise Datacom satellite modems.

When Colin Mackay, VP of Engineering, and Tavechai Mektavepong, General Manager South Asia, both of Teledyne Paradise Datacom learned of Telstra's modem requirements, they in turn recommended their Quantum Series Satellite modems due to their versatility and ability to meet Telstra's requirements.

The Quantum Series Satellite modems use programmable logic for all major modem functions, resulting in a flexible modem platform that easily adapts to future demands.

They also provide a robust feature set and configuration flexibility, allowing the user to purchase only what they need, enabling additional features when desired.

The Quantum modems set new levels of usability by providing an unrivalled set of diagnostic

tools including built-in spectrum and constellation monitors.

"Great features in themselves don't guarantee a great quality of service. For that reason we have focused strongly on tightly integrating all of our IP features with powerful traffic management tools that help users deliver, and prove they deliver, the quality of service specified in their Service Level Agreements (SLAs)."

*Colin Mackay, VP of Engineering
Teledyne Paradise Datacom*

And most importantly for Telstra, this modem's optional DVB-S2 feature provides highly efficient and robust coding and modulation standard for satellite transmission that can significantly reduce satellite bandwidth requirements compared with legacy standards.

First, the Teledyne Paradise Datacom technical team worked together with Ron's group to make adjustments to the Quantum modem software allowing the equipment to accept satellite transmission delays.

Also a concern was the extreme heat these modems could be subjected to out in the Australian desert. Once again the Teledyne team jumped in and designed a kit for the

modems enabling protection from extreme conditions.

The Teledyne Quantum modems selected for the SatCOW also needed to be able to prioritize voice over the data. While working through the details of the prioritization process, the Teledyne team was quick to develop a patch providing the desired solution.

Ron explained that they started testing with lower volumes of traffic, and then ramped up to peak levels. When at peak capacity they started to experience problems with the voice calls. Teledyne again swiftly stepped in and developed a patch that was both quick and easy to deploy, and "magically" solved the problem. Ron commented that he and his team very much appreciated Teledyne's responsive and effective support.

After working out a few of these engineering issues with the folks at Paradise, Telstra received a stable product that provided all their requirements.

"The folks at Paradise were tremendously sensitive to our feedback and they realized it was helping them in a way to come up with a better product" commented Ron.

The choice was clear. The Teledyne Paradise Datacom modem technology, reliability and flexibility, coupled with dedicated, knowledgeable

Teledyne support was "the solution" for Telstra's Satellite Division.

"Technical challenges were there, but with the help of folks we have at Teledyne Paradise, we've managed to resolve them and as a result have a good product."

Ron Faccioli, Manager, Telstra Satellite Division

THE RESULTS

The great success of the SatCOW program has enabled communications when no other options were available - helping to save lives and unite families.

One of the largest deployments of the SatCOW was during a fire in the Victoria seaside town of Warrnambool. Seven SatCOW units were deployed and setup within hours, when the town's exchange burned down, destroying over 50,000 exchange lines and some 13,000 other services, as well as a large portion of the mobile infrastructure. The role of Telstra's satellite services was to coordinate the restoration efforts - which with the help of the deployed SatCOWs was made possible.

These days Telstra's Satellite Division has well over 100 Teledyne modems successfully deployed supporting their satellite solutions.

The Teledyne Paradise Datacom modems and support team have, and continue to provide, Telstra with:

- A flexible and reliable modem platform adaptable to both their current and future demands
- Robust coding and modulation standard for satellite transmission
- Reduction of over 50% in satellite bandwidth requirements resulting in substantial cost savings and increased bandwidth availability
- Intuitive diagnostic tools
- Excellent technology support
- Customization of specifications
- High degree of customer responsiveness

"This suddenly meant we needed far less bandwidth to carry the same volume of traffic, and with the bandwidth we did have we could carry far more traffic."

Ron Faccioli, Manager, Telstra Satellite Division

In addition to the success of the modems within Telstra's Satellite solutions, Ron explained:

"The Teledyne Paradise modems have also allowed us to grow our business within the mining and gas exploration industries - which are not part of the USO. Previously, business in this sector was not significant, but now it is."

CONCLUSION

When asked if Ron would recommend the Teledyne Paradise modems to others, he responded:

"Absolutely. As my group handles domestic satellite in Australia, Telstra Global, a larger group based in Hong Kong, handles telephony and data circuits. We've already recommended the Paradise modems to them as well."

Ron and his team are extremely happy with the value and performance of the Teledyne Paradise modems, as well as the excellent support provided by the Teledyne organization.

Teledyne Paradise Datacom, LLC, a division of Teledyne Microwave Solutions, is a leading supplier of satellite modem and RF products, as well as subsystems to satellite communications technology users worldwide.

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