



Oxford Falls Teleport, Sydney, Australia. Photo courtesy Telstra ●●●

A race in space to build the 'Network of Tomorrow'

Satellite technologies are becoming more affordable and thus more widespread than ever before, delivering essential services everyday to billions of users. Now is the time for operators and service providers to foster closer relationships with telcos in order to bring to fruition the future of communications.

James Harrison, Acting Managing Director, EMEA, Telstra

Space may not be the final frontier for telecommunications, but it's certainly a hotly discussed topic here on Earth – and for good reason.

As a connectivity and distribution technology, satellite holds great potential for developing new business opportunities, revenue streams and audiences. In fact, many predict space will completely transform the global connectivity landscape.

To fully realize this significant business potential, satellite operators must work together with traditional telcos to meet the growing need for global end-to-end data connectivity, especially as technology applications such as 5G, edge computing and the Internet of Things (IoT) rise higher on companies' priority lists.

The key is offering high-performance and reliable service and a seamless user experience, bringing together the best of terrestrial and satellite connectivity. Companies that are able to effectively combine assets from both worlds – space-based platforms and software-defined terrestrial networks – stand to benefit the most and will play a larger role in forming the 'network of tomorrow.'

THE WAY AHEAD

In the 1960s, satellites first launched into geosynchronous orbits (GEO) about 36,000km (22,000 miles) above Earth. However, their high costs and latency made them more suited to limited applications such as communications and emergency services in remote areas, long-distance backhaul, maritime and military services, and extractive industries (oil, gas, and mining).

The following decades saw continual advancements in satellite technology, with increased launches into lower orbits, including medium Earth orbit (MEO) and low Earth orbit (LEO), as well as decreased the costs for manufacturing, launches and maintenance.

It has got to the point where satellite technology is more attractive, and accessible, to a wider range of companies for an increasing number of applications. Satellite operators are now seeing opportunities to disrupt the communications sector by harnessing the recent space-based advances and expand their global footprint – especially since only half of households worldwide have access to fixed broadband.

Still, they face many barriers to market entry – both technological and economical – and partnerships with telcos are often ideal solutions.



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For telcos, satellite technology presents opportunities for a wide array of use cases, including backhaul for 5G, autonomous vehicles, industrial offshore applications, sensors for telemedicine, maritime and disaster relief, and smart cities. As just one example, industry predictions suggest that about 20 million IoT connections will be made via satellite within the next five years.

A key advantage for telcos comes down to the existing terrestrial assets that they own and have already spent decades building up – including fiber networks, IP backbones, satellite teleports and data centers. These all

present a massive opportunity for satellite operators for using these networks, which carry data from satellites directly to end users, as neutral teleport options. By partnering with one or more telcos, satellite operators can also reduce the cost of and need for additional personnel required to develop, install, and maintain their own terrestrial infrastructure over the long term.

Satellite operators looking to ramp up a global presence quickly may also encounter major regulatory setbacks if they don't have existing relationships with local governments. This is yet another area, where working with telcos to leverage existing government relationships will come in handy.

A GALAXY OF APPLICATIONS

The applications of satellite technology are diverse and expanding and can often contribute to true enterprise transformation. The connectivity required in specific areas will dictate which of the satellite types are used: GEO, MEO or LEO. For example, LEO is likely to play a role in more densely populated areas for back-up alternatives for many situations including mobile backhaul.

While telcos are continually updating and expanding their terrestrial fiber networks – driven by increasing global bandwidth demands – almost half of the world's population still has no access to the Internet.

Also in many areas, especially remote locations, it's not economical for telcos to invest in high-speed fiber networks. Satellite technology can help fill in these gaps and the anecdotal evidence supporting this is growing almost daily.



Gungahra Teleport, Perth, Australia. Photo courtesy Telstra ●●●

By installing a private IP satellite network, an agriculture and livestock company in remote Australia experienced improved connectivity (including Wi-Fi) and greater access to key main offices services (HR, payroll and telephony), as well as data insights back to the stations/sub-stations and main office.

A regional company in Southeast Asia required improved satellite connectivity for one of its locations in remote Papua New Guinea. This location needed to access their company's business applications and was experiencing constant interruptions due to poor connectivity. The customer was able to obtain an end-to-end solution with terrestrial and satellite services across their six remote sites, upgrade their ICT infrastructure and enable video conferencing capability from their remote locations.

But it's also important to remember that satellite is not just for rural connectivity.

While the use of satellite technology for remote services is still a big part of the telco industry, other opportunities are arising.

As prices and latency drop, satellite services are becoming much more competitive with and complementary to terrestrial telecommunications offerings such as those provided by subsea cable systems.

Although MEO and LEO deployments have different requirements to GEO ones – such as a need for tracking antennas and a higher number of more distributed

teleports – co-locating at facilities already owned by an existing company can be a big draw for new providers seeking to establish early points of presence in a market as a faster, lower-cost point of entry than building facilities themselves.

Assets from telcos could also support satellite operators' efforts to open up efficient, adaptive, and flexible transmission pathways to businesses and consumers alike for sending and receiving information and content around the world. In addition to traditional networks, many telcos have established relationships with large enterprises, international governments, major OTT providers, such as Netflix, Content Delivery Networks (CDNs) and cloud players such as Google.

These types of relationships are key elements most satellite operators currently lack, but they are potentially vital in supporting their efforts to establish disruptive commercial deals.

One more reason why working with a telco can open joint ventures and establish a foothold with large enterprises and content providers.

Terrestrial and satellite technologies will continue to advance and give rise to new connectivity model, infrastructures, and services. Yes, there are challenges for each, but also just as many business opportunities. By working together, telco providers and satellite can discover easier pathways into multiple markets worldwide to provide global coverage to more people faster. ●



Working together with telcos can help meet the growing need for global end-to-end data connectivity. Photo Adobe ●●●



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