Telco-Satellite Collaboration in the New Space Race

By: Noah Drake

Using a combination of connectivity options such as terrestrial fiber and satellite to deliver content, data or IP is nothing new. What is new and constantly evolving are the technological and economic trends that make such collaborations beneficial to each type of provider.

Whether it's a last-mile option for remote areas or a broadcast service requiring both international and regional delivery, customized hybrid connectivity methods are often the best solution. Customers can mix and match what they need based on their changing production and budget requirements.

Providers can also mix and match their resources, with one taking advantage of and benefiting from the other's unique expertise. In a previous issue of *Pipeline,* Telstra provided thoughts on the mutual benefits of telco and satellite collaboration, how telco providers can be a channel for satellite operators and how satellite service providers can rely on traditional telcos to deliver the network connectivity to their teleports that is crucial for ground station infrastructure.

This article continues that valuable discussion, extending the topic to emerging technology applications such as 5G and the Internet of Things (IoT).

Surging space investment

A recent report from McKinsey & Company noted private-sector funding in space-related companies exceeded $10 billion in 2021, its highest level ever and a tenfold increase over the past decade. Take as an example Omnispace, which recently secured $60 million in equity financing to develop its satellite-based service for 5G and IoT, leveraging partnerships with mobile operators for direct satellite to 5G handsets, known as 3GPP, Rel-17 NTN, or as they describe it, the non-terrestrial component of its "global 5G hybrid mobile network."

Similarly, AT&T announced it is teaming with OneWeb to use its satellite technology as a complement to its existing access technologies. (Full disclaimer: Telstra is also partnering with OneWeb, combining our resources to deliver high-speed, low-latency network connectivity across underserved regions worldwide.)

Collaboration over competition

It's clear from all this activity that many telcos, mobile carriers and satellite providers are coming around to a new way of thinking about their business and their customers' needs, realizing they must change to remain competitive and successful.

The connectivity and digital services resulting from these collaborative efforts are important growth levers and represent significant opportunities from a commercial and financial perspective.

But another result of this collaboration is the ability to change people's lives and work styles—autonomous driving cars, supply chain management, shared infrastructure for disaster response, robotics, and even niche areas within industrial IoT such as maritime, energy or transportation.

While the overall industry outlook is positive, there are still several barriers to even greater collaboration between different providers. One is a lack of agreed-upon standards, a persistent sore spot in the satellite world.

"The terrestrial industry has been pioneering open standards for quite a while now and they have come to be considered just standard operating practices," said Robert Bell of the World Teleport Association (WTA). "This has long been a foreign concept in the satellite world but that's changing. What we're starting to see more and more within the satellite business is the really profound recognition that it's time for this industry to play in the same sandbox as everybody else." He added that's due to major initiatives launched by the leading satellite operators, teleport operators, and efforts by groups like the [3rd Generation Partnership Project (3GPP)](#), which is driving the inclusion of specifications for non-terrestrial transmission in the 5G standards.

Another is matching the right type of satellite to the right application. Customers still need to choose among low earth orbit (LEO), medium earth orbits (MEO) or geostationary orbit (GEO), determining which offers the lowest amount of latency tolerable for specific 5G or IoT applications, combined with a favorable cost per gigabyte to make their use practical.

For example, GEO satellites have been used for many decades for broadcast solutions to deliver content from one event location to many viewers. The fact that there is 300 ms or so of one-way latency has never had an effect on the user experience. There is also a lot of efficiency with a GEO in a point-to-many-point

application. In contrast, in areas where 5G is enabling the Internet of Things, LEO satellites can be complementary in pockets where 5G is poor or yet to be built out. In that case connectivity would switch seamlessly from 5G to the satellite. And for use cases like autonomous driving cars, minimal latency is a must, so in that case GEO fleets wouldn't fit.

Shared service opportunities

There are interesting "shared service" opportunities in which satellite operators can leverage ground stations from a telco, using these facilities for niche applications like disaster relief. A relief organization could turn up a satellite link, get the situational data they need for a period of time to understand the scope, and then proceed to plan out their response. When the situation returns to normalcy, they can take the link down so it becomes available for other uses.

This example is a perfect lead-in to a range of interesting scenarios for telco and satellite collaboration.

One is offering "ground station as a service" to satellite operators. The terrestrial facilities that telcos already own and operate represent a valuable resource—and a new source of revenue. Depending on the satellite operator's desired location in the world—rural and remote or urban and densely populated—connectivity can be at a premium or hard to come by. For satellite operators looking to reach new areas, instead of bearing the cost to build a new hosting facility, why not use the telco's currently existing facilities? Telcos can provide ground services on an OPEX basis at scale to satellite providers in other regions requiring ground stations in APAC.

Then there is teleport co-creation, essentially a one-stop resource for satellite gateway co-creation services, including ground-station construction, data center colocation, fiber connectivity, and fast global network access. Telcos would work closely with satellite operators to co-create and customize teleport infrastructures, with multiple customized uplink stations that cater to every deployment size. After construction is complete, they would also service and maintain the teleports on a regular basis with teams of in-country experts.

Another model positions the telco as a "landlord," selling or renting space to its satellite tenants. Or third party-owned cell towers and ground stations could be owned with their uses leased out to multiple operators at one time. These are just a few different ways in which we see the infrastructure side of the business emerging.

Telco value in an evolving ecosystem

If we're looking at all this in terms of applications like 5G and IoT, these teleport and ground stations are the telco's value in this still-evolving ecosystem. If the satellite operators are successful, then the telco will grow its share of the pie with ground-based facilities and terrestrial services.

The new types of digital initiatives that can be enabled by telco-satellite collaboration are definitely on a course for growth. Exactly when and where this occurs depends on the types of enterprise or network connectivity and services available in a particular region. As satellite delivery models continually emerge and become more formalized, key areas to watch will be the progress made in standardization efforts as well as getting satellite operating costs down to a level where it makes commercial sense for everyone.

The bottom line for any organization interested in growing and being a part of the expanding telecommunications landscape is straightforward. These technologies and applications are the

way of the future and they are something to be seriously considered for long-term growth, especially by those organizations that don't think much about satellite as part of their normal course of operations.

Beyond the economics and technology developments occurring within the marketplace, there's also a mindset shift that needs to occur to fully enable this new and shared space race.

Customers need to be treated as partners, vendors need to be treated as partners and to some degree, competitors need to be treated as partners. Collaboration and partnership are the only way to truly engage in this landscape.

It's less about comparing strengths and weaknesses and more about identifying where you can add value. Telcos and satellite providers need to be asking themselves, "Where does it make the most sense for me to seek out new partnerships?"

If we can enable success within such a traditionally competitive environment as global network connectivity, then when competitors and partners succeed, we all succeed. No single organization is going to be everything to all people. The more quickly we recognize and embrace this reality, the better off we all will be.