

Intricate networks push forward as capacity prices drop and technology advances

Increasingly complex networks are arising amid declining capacity prices, improved satellite and software technology and the promise of 5G connectivity.

The interchangeability of satellite and terrestrial networks with a concomitant decrease in standalone setups is pointing the industry to adopt new business models. Satellite companies are exploring the orchestration of networks, and technology services are emerging to guide the sector.

Hybrid, multi-transport solutions are the business model that is expected to emerge to meet the needs of consumers, enterprises and machines for connectivity, **Hughes Network Systems** EVP Paul Gaske told Connectivity Business. Other influences like AI and machine learning are expected to help optimise these increasingly complex networks.

Satellite trend spotting

Several trends are combining including increasing demand for data and the emergence of integrated networks, business strategies and the technology to capture it.

In December Australia-based **Speedcast International** announced that it is commissioning connectivity services for an unnamed iron ore producer in the remote western part of the South Pacific nation. The satcoms provider will deliver 130Mbps service to optimise mining operations and support crew welfare at the 300-plus worker site. A spokesperson for the company was unable to comment before this report was published.

It is understood that satellite operator **SES** (EPA:SESG)

is providing MEO satellite connectivity as part of the project to **Mount Gibson Iron** (ASX:MGX) in part to benefit from low latency. The client is now considering expanding its global information technology footprint.

As a related issue, standalone satellite networks have “virtually ceased to exist”, Gaske said. He added that “pretty much every” satellite network is integrating with terrestrial systems to deliver connectivity.

“Our HughesNet service acts as a last-mile interconnection to the internet for our subscribers, and that means we are highly integrated with an extensive terrestrial network,” he said. “Similarly, our cellular backhaul implementations are highly integrated connections between the [radio access network] and the core. Today, we support more than 10,000 cell sites across Africa, Asia and Latin America with satellite backhaul.”

A **Northern Sky Research** forecast calls for capacity revenues from data-driven use cases to have grown at double-digit rates in the 2019-29 period. It notes that the industry must embrace 5G by crafting strategies aligning with telco requirements and invest in technologies that seamlessly integrate into the data-driven ecosystem.

This trend is happening amid changing dynamics in supply and demand that are washing over satellite connectivity. It entails a decline in satellite capacity pricing offset by an increase in volume and efficiency improvements.

Amid the pandemic and follow-on economic crisis, the picture is mixed, World Teleport Association executive direct Robert Bell said. Though selected segments such as aviation and cruise connectivity are down, the market overall is seeing an increase in demand. The networks business of SES in H1 2020 had a 7% increase in revenues on an underlying basis compared with the same period a year ago.

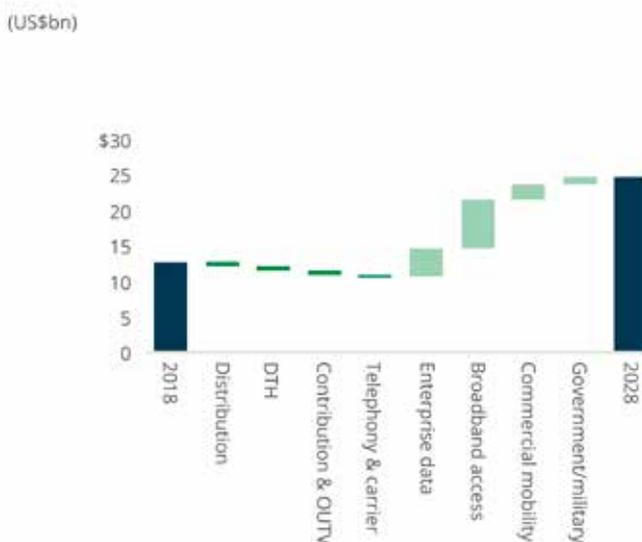
Hughes Network Systems has not changed the pricing of its HughesNet service plans recently, Gaske said. Demand has been robust throughout the company’s service areas across Brazil, Chile, Colombia, Ecuador, Mexico, Peru and the US.

Over the last three years, satellite capacity prices have fallen 32-57% across different applications and regions. Prior to the pandemic Northern Sky Research said they are expected to drop 10-18% annually through 2021.

From its perspective as a global equipment supplier, however, Hughes Network Systems has seen capacity pricing steadily decline over the last several years.

And improved satellite technologies are pushing connectivity in the same direction because they increase the efficiency, including

Satellite capacity drivers forecast



Source: Northern Sky Research (NSR)

HTS satellites with spot beams, NGSO satellites and software-defined satellites.

Even video is benefitting, as satellite operators can offer “extremely narrow” connectivity for television, Bell said. This would be extremely valuable for countries with distinctive cultural identities compared with a connectivity stream that reaches dozens of nations.

Hughes has a Ka-band HTS fleet across the Americas and is anticipating the launch of its **Maxar Technologies** (NYSE:MAXR)-built Jupiter 3 satellite. The announced launch date was 2021 as the coronavirus looms over plans.

“We know our core markets across the Americas very well and so we know where to place the capacity,” Gaske said.

5G will most likely have an impact on the MSS market, which is largely being implemented using L- and S-band frequencies, he said. A big market opportunity will be for IoT where MSS-based systems will enable truly global IoT network coverage.

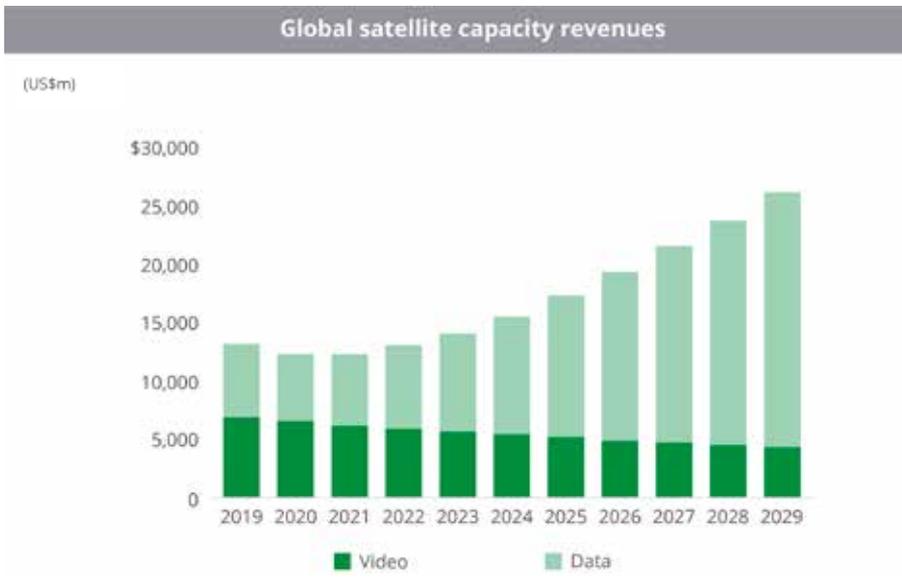
Orchestration, virtualisation and cloudification

These trends are pointing to what is being called the orchestration, virtualisation and cloudification of services. This means standardised service arrangements as part of 5G will make satellite networks user-friendly, easy to install and pervasive.

Satellite, teleport and technology companies are focused on these ideas to make sophisticated technology easy to install and use, Bell noted. The IT crew of US-based **Carnival Cruise Line** recently installed connectivity for a fraction of the cost and time, though connectivity for that sector is down amid the pandemic. Cruise lines still need connectivity even in a down market.

Last November, **Intelsat** announced its proof-of-concept SD-WAN over satellite access demonstration project. It is aimed at enabling customers to implement and manage remote site connectivity across network providers, network types (terrestrial and space) and SD-WAN technology vendors through a single portal.

SES announced a bit

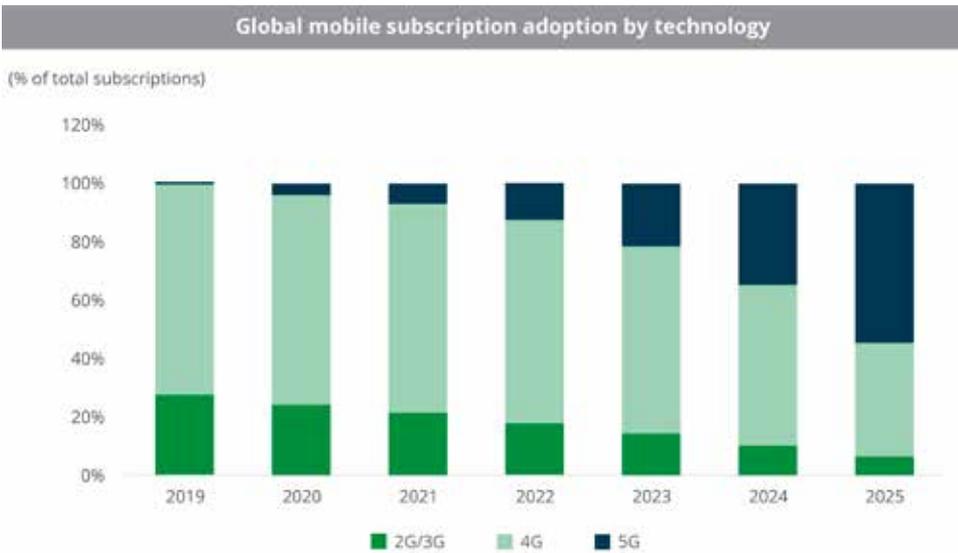


Source: Northern Sky Research (NSR)

earlier in the year that it is partnering with US-based **Kythera Space Solutions** to develop Adaptive Resource Control (ARC), a software solution. ARC will enable the control and optimisation of power, throughput, beams and frequency allocation across **O3b Networks’** mPower satellite constellation’s space and ground assets. The aim is to provide efficient delivery of low-latency, satellite-based data services.

And US-based network management systems company **Isotropic Networks** is creating its Datadragon bandwidth management tool to integrate hybrid networks, develop network slicing concepts and optimise resources at the application level.

Technology providers are trying to get in on the game, including US-based bandwidth efficiency and link optimisation company **Comtech EF Data Corp**, Belgium-based technology company **Skyline Networks** and Singapore-based engineering group **ST Engineering** (SGX:S63). In late August ST Engineering announced that **Paratus**, an African telecommunications group that provides satellite connectivity, has deployed its iDirect modems to provide connectivity to mining ships based in Guinea, Africa.



Source: ABI Research