



Figure 1: <https://www.starlink.com/map>.

Coming soon: True Satellite Broadband

Is your business resilient enough to not only weather the change, but to thrive in it?



Introduction

When we talk about satellite connectivity, we are all well familiar with the VSAT (Very Small Aperture Terminal) technology and even more familiar with the famous ~600ms latency and borderline broadband data throughputs, not even to speak about CPE cost and high monthly charges compared to the likes of FTTH & 4G/LTE Mobile connectivity.

VSAT makes use of the GEO Synchronous Orbit Satellites which are about 35,000 km above Earth's surface, introducing a latency of about ~600ms. Technology companies are starting to use the LEO (Low Earth Orbit), that is about 550km from Earth's surface, to deploy communication satellites, which only have about 20ms of latency and much higher data throughputs.

Players in Namibia

In Namibia we have a handful of players offering VSAT-based voice and data services. This is typically aimed at remote locations where 3G mobile coverage is yet to reach. The VSAT players in Namibia include Telecom Namibia, Paratus, MTC, Africa Online, NTvsat and GlobalTT. When comparing the VSAT offering to the terrestrial based options, it is about 5 to 10 times more expensive in both CPE and monthly subscription.

Today, Namibia has no LEO Satellite broadband companies, however Starlink, the global leader in the area, has announced its planned entry into the market. Other global players include OneWeb, L3Harris Technologies, Honeywell International Inc, Airbus, Planet Labs, The Boeing Company, Lockheed Martin Corporation, Thales Alenia Space, Kepler Communications, Northrop Grumman and Amazon's Project Kuiper. Currently the focus with LEO Satellite broadband is focused on the Americas, Europe and India.

The good, the bad, the ugly

The main benefit of LEO Satellite connectivity remains coverage: where mobile communication has limitations, LEO provides access anywhere, even the most remote locations, in the sky, on the ocean. With low latency and much higher data throughput, it truly competes with the likes of 3G/4G and some FTTx option in terms of Quality of Service delivered. Analysis from Ookla speed test (Figure 1), shows that LEO based Satellite

connectivity still struggles to deliver the uplink speed.

The challenge remains high CPE cost, as the monthly subscription fees are expected to be around two to three times that of its terrestrial competition.

Reason for delays in rolling out across Africa might be linked to Regulatory approvals pending. For example, ICASA in South Africa said SpaceX must obtain an individual electronics communications service (IECS) license and individual electronics communications network service (IECNS) license to operate as an ISP in South Africa.

Another challenge for Satellite broadband is that due to the low Earth orbit, the field of view is much smaller, as a result, in order to provide continuous coverage, a "constellation" of satellites are required.

Lastly, astronomers express frustration at the interference in their research from the satellites blocking their unrestricted view of the night-time sky.

Low-earth orbit (LEO) satellites are said to be the technology to revolutionize the internet. With more than a third of the world still offline, this satellite constellation can help connect the unconnected and bridge the digital divide that's leaving remote and rural communities behind.

World Economic Forum

Future of LEO Satellite Broadband

LEO based Satellite broadband is less than two years old and already some very interesting trends are observed:

1. OneWeb has signed a partnership agreement with Airtel Africa to deliver high speed connectivity to services to government and enterprise customers across 14 African countries. Commercial service rollout is expected to start in 2023.
2. The major, potentially disruptive trend is Mobile companies (e.g. T-Mobile) partnering with Starlink to provide truly universal coverage by pairing Starlink satellite constellation with the Mobile network. In other words, using these LEO Satellites to act as Base Stations with direct communications to users' mobile handsets (smartphones). This true satellite-to-cellular service will provide nearly complete coverage almost anywhere a customer can see the sky and is called **"Coverage Above and Beyond"**. The invitation is open to other carriers who share this vision to collaborate and advance the roaming opportunity for truly global connectivity.
3. Starlink is offering a "Starlink Aviation" solution, providing air travelers with high quality internet for the duration of their flights.

In summary: the major big trend is agreeing on partnerships to build these future Technology ecosystems together.

What is Starlink?

"Starlink is a satellite internet constellation operated by SpaceX, providing satellite Internet access coverage to 40 countries. It also aims for global mobile phone service after 2023. SpaceX started launching Starlink satellites in 2019. As of September 2022, Starlink consists of over 3,000 mass-produced small satellites in low Earth orbit, which communicate with designated ground transceivers. In total, nearly 12,000 satellites are planned to be deployed, with a possible later extension to 42,000. Starlink provides internet access to over 500,000 subscribers as of June 2022." -starlink.com

A typical Starlink CPE can be seen in Figure 2, measuring only 575mm wide, 511mm high and 41mm deep.



Figure 2: Standard Starlink CPE (575x511x41mm)

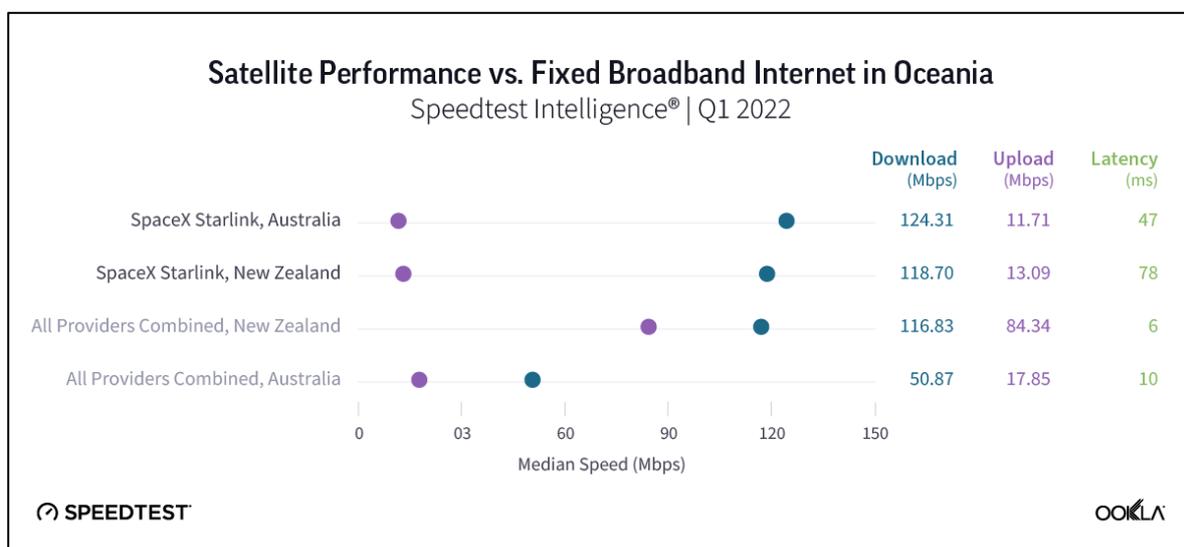


Figure 3: Starlink vs Fixed Broadband speed test by Ookla shows Starlink outperforming fixed players in Australia and New Zealand in the downlink, but not in uplink speeds and latencies.

What this means for Namibia?

In UK, the regulator Ofcom is backing LEO based Satellite connectivity to deliver broadband to “difficult to reach areas” as well as drive innovation.

Will the Local Regulator and Telcos follow a similar Ofcom approach, driving the opportunity or is it seen as a threat? A critical success factor is if the regulators will address LEO based Satellite technology **in time** with respect to policy and legislation.

What it will mean for Namibia is simple: It will disrupt the internet connectivity playing field in Namibia, opening the market for even more competition. The question is: Is your business resilient enough to not only weather the change, but to thrive in it?

On a positive note, we have to ask ourselves whether this is not the solution to address the Universal Service obligation? This technology is important for the people of Namibia, as it will open further opportunities and support the development of new Digital economies.

LEO based Satellite connectivity will open opportunities for ISPs and Telcos to partner and generate solutions together in a Technology ecosystem environment.

For Namibian Telco operators, LEO based satellite communication will open new markets, including Maritime, Aviation, Remote Vehicles and IoT.

Imagine all the possibilities that can be created and realized when we here in Namibia could get everybody connected to a quality network.

Imagine that Namibia can lead the innovation in new technologies and support our neighboring countries to drive development throughout Africa.

New business always creates new opportunity which directly translates to new job opportunities for Namibians. Companies cannot do this alone, they need partnerships and they need talented people to drive success.

The Deloitte Value Proposition

We at Deloitte are passionate about Technology and the value it delivers to people. Moreover, our focus is to help our clients, the TMT industry here in Namibia, also derive value from new technology.

The challenge firstly is to timely identify topics and technology that will form part of the future and secondly, help you, our client, determine the value that can be derived for both your organization and your customer base.

We are in the midst of another space race with participants competing not to reach the Moon or Mars but to connect the world's unconnected and under connected populations. - Deloitte TMT Predictions

How do we do just that? By engaging us to structure a project. Whether your aim is to help us define a potential Partnership Strategy / Partnership operating Models / Feasibility studies / Customer and Marketing / Deep dive market study / Business process management, we can put a team of global experts together to address and solve these question that keep you awake at night.

Don't hesitate to contact us to open the discussion, expect to meet value through innovation and excellence.

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