

LEO satellites are the future of connectivity in the digital economy

By [Theo van Zyl](#)

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In an era where the total data volume from enterprises globally is over 2.02 petabytes and growing at an annual rate of 42.2%, latency has become a buzzword for connectivity. Organisations are demanding high-speed, highly available solutions that can keep pace with their burgeoning data requirements. As data continues to explode, so does the need for connectivity platforms that offer higher data throughput, enabling organisations to transmit and receive data swiftly. Efficient data transfer is a critical component in our cloud-powered, digital economy.



Theo van Zyl, head of wireless at Vox

Enter Low Earth Orbit (LEO) satellites. This multi-orbit solution is frequently employed for high-end communication services such as military and mission-critical networks due to its speed, security, and ability to handle extensive data transfers. LEO satellites orbit approximately 500 to 1,200 km from Earth, compared to Geostationary Orbit (GEO) satellites at 35,000km and Medium Earth Orbit (MEO) satellites between 10,000 and 12,000km.

Thanks to their proximity to Earth, LEO satellites deliver a latency of less than 100ms, significantly lower than the approximately 600ms or more offered by GEO satellites, where most communication solutions reside. LEO also offers a throughput of 250mbps downloads and 20mbps uploads.



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The advantages of LEO extend beyond latency and throughput. Its proximity to Earth allows the system to bypass many geographic conditions and provide global coverage. These networks are uninterrupted and secure, critical factors for data transfer.

No organisation wants to compromise the security of their data for the sake of speedy communication. Fortunately, LEO, designed for some of the most secure organisations and entities worldwide, brings robust security as standard.

LEO is becoming available

Until recently, LEO connectivity wasn't widely available in South Africa primarily because of the cost factor. This is largely since LEO satellites aren't static like their GEO counterparts – they orbit the Earth which means the organisation also needs an antenna that can follow the satellite signal all the time. Another barrier to entry has been that LEO requires hundreds of satellites to provide coverage compared with GEO needing only one or two to cover large areas.

Which introduces the question of cost. Why would the enterprise turn to the LEO network when the cost is significantly higher than that of a GEO network? The answers lie in the keywords of high-speed connectivity with low latency.

It is an ideal solution for organisations lacking access to fibre or wireless technology and it delivers exceptional service delivery and reliability. While the price tag remains high, partnerships with organisations specialising in connectivity solutions are bringing the cost of LEO into a more realistically affordable category.

While the solution remains relatively costly today, increased usage and adoption by data-driven organisations will likely see it become less expensive over time. Once the business has invested in the technology, it also has the option to potentially connect communities and towns with one LEO solution, deploying 4G or 5G connectivity throughout a region or area.

“ This is a useful investment for mining or manufacturing organisations that operate within rural regions and want to drive the upliftment of local communities alongside gaining the connectivity advantage. ”

Taking it deeper into niche industry territory, LEO satellites offer immense value to organisations that want reliable connectivity to drive safety and productivity. Ships out at sea, mining communities, and other critical communication requirements can be met by LEO satellites regardless of where the organisations or facilities are located.

LEO, while still on the cost fringes for some organisations, is gaining traction across enterprises and industries thanks to its ubiquity, security, and high-speed capabilities. It delivers the backup and redundancy that organisations want and need.

It is perfectly positioned for the rising tide of automation and AI, providing the modernising organisation with the connectivity architecture it needs to thrive.

ABOUT THE AUTHOR

Theo van Zyl is head of wireless at Vox