WHITEPAPER

Extending Telcos' Horizons in the Enterprise Market

New low orbit satellites to dovetail with telcos' enterprise and government propositions

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Executive Summary

Low earth orbit (LEO) satellites are opening up new avenues of growth for telcos. As they deliver a step change in both the cost and the responsiveness of satellite-based communications, LEO constellations are evolving to meet the needs of specific market segments. While some LEO operators focus on the direct-to-device (D2D) market, others are bringing broadband connectivity to homes or enterprise sites that aren't well served by terrestrial networks. Ottawa-based Telesat, for example, is building a LEO network specifically designed to enable telcos to better serve the enterprise and government markets.

Scheduled for commercial launch in 2027, the Telesat Lightspeed LEO constellation promises to deliver guaranteed, high data rate connections to enterprise and government facilities.

As Telesat is planning to work in partnership with telecoms operators, it is making the new constellation highly compatible with existing terrestrial networks. At the network level, Telesat Lightspeed will comply with MEF 3.0 Carrier Ethernet standards, so that it operates as a Carrier Ethernet network in space.

For enterprises and public agencies, Telesat Lightspeed holds out the promise of high-throughput, low-latency broadband connectivity for remote sites and facilities, as well as individual vehicles, ships, aircraft and equipment, both on-shore and off-shore. That will enable them to harness artificial intelligence (AI) and other cloud-based technologies that are fundamental to their competitiveness. Low latency LEO connectivity could potentially be employed for demanding enterprise use cases, such as the remote control of machinery, remote health, remote education and autonomous vehicles in places beyond the reach of terrestrial networks. During local outages on terrestrial networks, LEO connectivity could provide robust back-up connectivity in urban and suburban areas.

In fact, Telesat plans to provide service level agreements (SLAs) that will allow telcos to support extremely high bandwidth and time-sensitive applications, such as cloud-based services, secure web browsing, virtual private networks (VPNs), 5G mobile backhaul, video conferencing, and gaming with a consistent, high quality of experience. The Telesat Lightspeed architecture will also enable telcos to prioritise satellite network traffic using multiple classes of service, as they do with terrestrial network traffic.

In March 2025, Telesat announced a strategic commercial partnership Orange, a leading telecoms operator in the EMEA region. Orange signed a capacity commitment for Telesat Lightspeed service, which will be integrated into its global portfolio of services for businesses and telecom operators. Orange said the partnership will strengthen its ability to meet customer needs in underserved regions, adding a new secure, reliable, low-latency, seamless connectivity option to its existing multi-orbit portfolio of satellite partnerships.

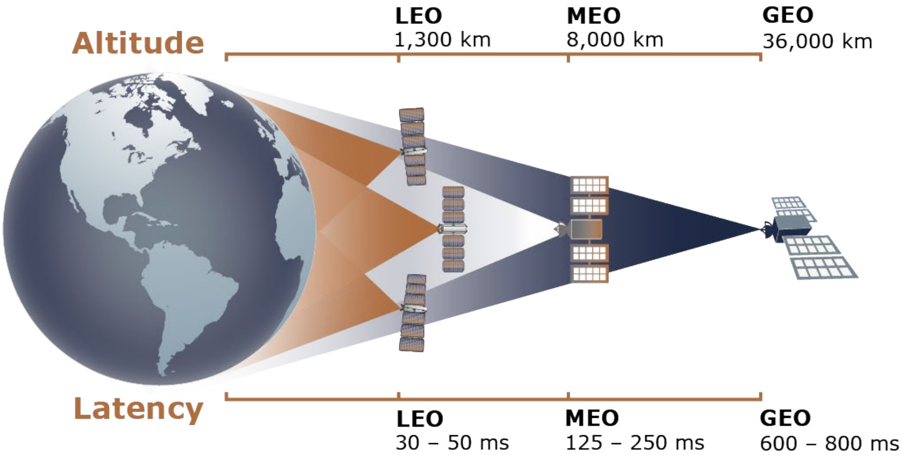
“We are addressing telcos’ demand for a LEO partner that can offer the reliability, flexibility and security required to effectively serve the enterprise and government markets,” says Glenn Katz, Chief Commercial Officer at Telesat. “We are expecting to announce further agreements with other major telcos during 2025.”

Introduction: How LEO systems are evolving

This report explores how telcos can harness advances in satellite technologies to better serve the enterprise and government markets. Low earth orbit (LEO) constellations have transformed the economics and the performance of connectivity from space. Operating 35 times closer to the Earth than traditional telecommunications satellites, LEO constellations have brought about a step change in both the cost and the responsiveness of satellite-based communications.

As the full potential of LEO systems becomes apparent, new constellations are being developed to serve specific segments of the market. Whereas some LEO operators are pursuing the direct-to-device (D2D) market by connecting smartphones and other equipment directly, others are providing direct-to-consumer broadband connections to antennas mounted on residential buildings in rural areas beyond the reach of terrestrial fixed-line or fixed wireless access networks. Meanwhile, Ottawa-based Telesat is building a LEO network specifically designed to enable telcos to better serve the enterprise and government markets.

"You may have a large factory out in the middle of nowhere, for example, that wants edge compute and is trying to do more things in the cloud, but they can't really do that today because of the latency delay, link reliability and the cost," explains Glenn Katz, Chief Commercial Officer at Telesat, which has been operating satellites for five decades. However, with Telesat's planned LEO network, "if you want to put in a gigabit per second circuit, you can do that, which is pretty impressive, and that will continue to grow…this is really just the first generation and we're already talking about a real shift in what you can do over satellite."



He says the forthcoming Telesat Lightspeed LEO satellites will deliver guaranteed, high data rate connections. As a result, Telesat Lightspeed could act as a primary broadband connection for many organisations, while others could use it as back-up connectivity for cases where their terrestrial connectivity fails. In both developed and developing countries, advanced LEO networks could make it feasible for telcos to provide broadband connectivity absolutely anywhere.

LEO antennas are easier to deploy than traditional satellite antenna, adds Manik Vinnakota, VP Products and Customer Experience at Telesat. At the same time, mass manufacturing of satellites, falling launch costs and sophisticated digital technologies are improving the economics for customers. "Instead of being a last-resort technology to extend the reach of terrestrial networks, LEO constellations make satellite networks an attractive way to connect new customers," notes Manik Vinnakota.

As LEO networks become easier to integrate with terrestrial networks, telcos could also benefit from a lower management overhead. Telesat Lightspeed is being designed from the ground up to function in the same way that terrestrial telecom networks function. Rather than asking telcos to simply resell connectivity delivered from space, Telesat is looking to make its satellites an integral and strategic part of telcos' overall enterprise proposition.

To that end, Telesat's LEO constellation is designed to be highly compatible with telecoms networks, removing the need for telcos to have their own satellite engineers. "With other networks, everything is bespoke, as the satellites don't fit into telcos' standardised products or programmes," says Glenn Katz. "But all we're doing is extending their layer 2 Carrier Ethernet network, their backbone network, the last mile over space with the same attributes, and we are following all the telco standards that they have all bought into, so that they can interact with everyone else's last mile, so that they can grow." Telcos will be able to seamlessly integrate Telesat Lightspeed into their existing propositions in the same way that they integrate other terrestrial telecoms networks, he adds.

LEO networks promise to drive market expansion for telcos

For telcos, cost-effective and performant satellite connectivity could be an engine of growth. As a LEO network can cover an entire country or continent, or anywhere on the globe, integrating this connectivity into its portfolio will enable a telco to expand its addressable markets, while also helping it to meet regulatory obligations to provide universal coverage.

LEO connectivity can also enable telcos to evaluate the demand (and willingness to pay) for broadband connectivity in areas that they consider marginal for the expansion of their fibre or cellular networks. In a developed market, for example, LEO connectivity can help a telco assess whether there is a business case for building out terrestrial coverage beyond ~95% of the population. In a developing country, where income levels are low, that figure may fall to ~50% or less.

As well as providing broadband connectivity to homes and enterprise facilities, LEO connectivity can provide backhaul links for telcos' 4G and 5G wireless networks in remote communities and regions. Up to now, the high cost of bringing services to these areas has made it difficult for telcos to comply with government and spectrum license mandates to bridge the digital divide.

Telesat believes LEO satellite constellations can significantly reduce the cost of backhauling data from remote locations and across challenging topographies. Backhaul and trunking services are by far the biggest satellite-related revenue growth opportunity for telecom, according to research firm Analysys Mason.

Enterprise use cases for LEO connectivity

As artificial intelligence (AI) and other cloud-based technologies become fundamental to their competitiveness, businesses can't afford to have unreliable or unresponsive connectivity. For that reason, almost every business that operates beyond the range of terrestrial networks is likely to be interested in high-throughput, low-latency broadband connectivity that can support their digital evolution in a financially feasible way.

Through LEO satellite services, telcos could enable these businesses to harness cloud services, edge computing automation, and other digital technologies across their operations. Satellite solutions will account for 40% of the growth in telco enterprise connectivity revenue between 2024 and 2027, according to research firm Analysys Mason.

Enterprises could use LEO-satellites to connect remote sites and facilities, as well as individual vehicles, ships, aircraft and equipment, both on-shore and off-shore. Many different sectors of the economy could benefit.

With reliable broadband connectivity, agri-tech providers, for example, can efficiently aggregate data captured by sensors in rural and remote locations to improve productivity and crop yields. Similarly, retail businesses can streamline logistics and improve inventory management across locations and between warehouses, retail outlets, and headquarters. Meanwhile, ubiquitous and reliable connectivity would enable oil and gas, and mining companies to harness digital solutions that increase productivity, efficiency and safety in both remote locations and offshore.

With latency levels similar to those delivered by terrestrial networks, LEO connectivity could potentially be employed for demanding enterprise use cases, such as the remote control of machinery, remote health, remote education and autonomous vehicles in places beyond the reach of terrestrial networks. That could potentially open up new avenues of growth for telcos.

"If you want to remotely control equipment and your headquarters is 1,000 km away, it is very likely that the latency you will get [with a LEO connection] will be even better than with a terrestrial network, just because of the architecture, the physics," notes Yanniv Betito, VP, EMEA at Telesat.

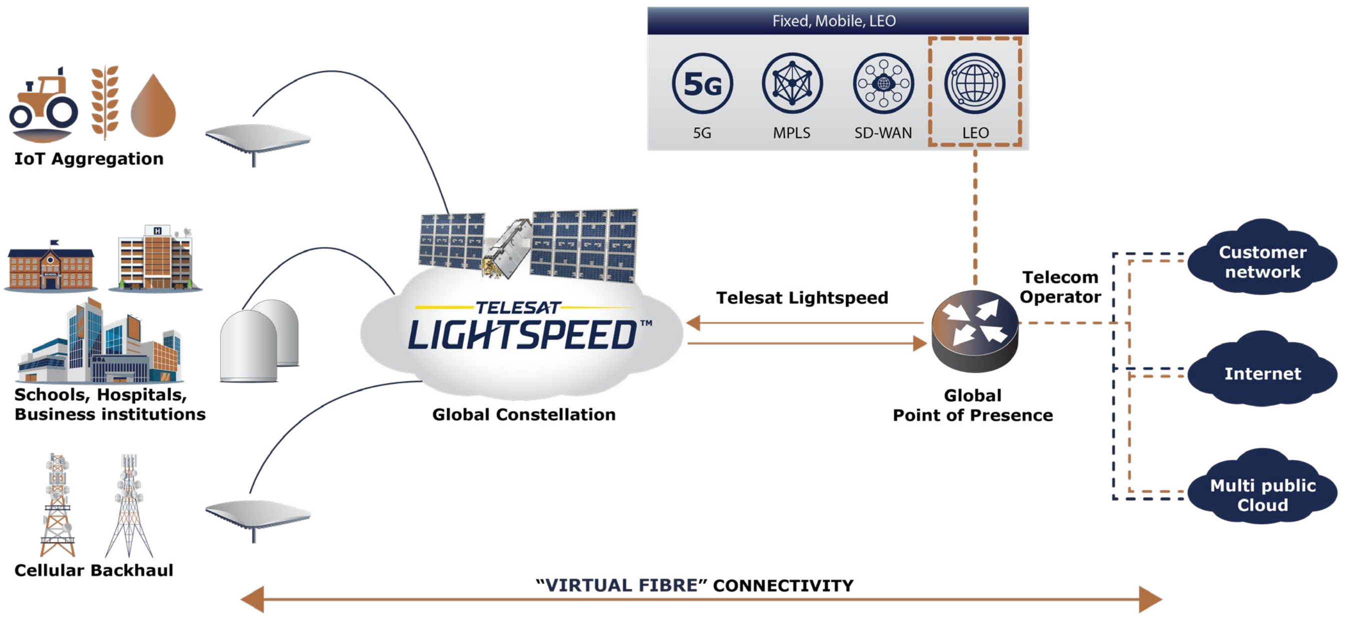
For businesses in urban and suburban areas, LEO connectivity could provide robust back-up connectivity. During local outages, LEO satellite services can quickly restore transport links between terrestrial telecoms infrastructure, as well as serving individual enterprise sites.

Government and public agency use cases

As with enterprises, government agencies and public safety organisations can use LEO services to keep staff securely connected at all times and ensure they can reliably access demanding, mission-critical applications and sensitive information from anywhere.

For security reasons, these organisations may actually prefer to transmit information through a space-based network as there would be no need for the data to touch land between the source and destination endpoints. Governments with embassies and diplomatic staff around the world, for example, could benefit from this capability.

From a public safety perspective, LEO services could also give first responders working anywhere on land, in the air, and at sea real-time access to HD video and advanced situational awareness technologies, as well as more fundamental services, such as voice calls and messaging. This capability will be particularly important in areas where there are no terrestrial networks or they have been compromised. While earthquakes, volcanos, wildfires and other natural disasters can disrupt terrestrial infrastructure, satellite-based services will remain available.



Telesat Lightspeed – designed for enterprise-class connectivity

Telesat says it has designed its new constellation, which is due to be fully up and running in 2027, to be flexible, reliable and secure. Telesat Lightspeed will support both Ethernet and Internet connections, as well as multiple interconnect options (public and private nodes, hardware choices), explains Manik Vinnakota, noting telcos will be able to configure services and endpoints for specific use cases. "They could, for example, use Telesat Lightspeed to provide Ethernet services to backhaul remote sites' traffic to a core network via a private gateway, as well as to bring Internet service to remote schools and hospitals," he adds.

Telcos could potentially employ Telesat Lightspeed services to provide temporary surge capacity for planned events, such as large concerts or sports tournaments, short-term connectivity for back-up during fibre outages or to accelerate revenue by enabling the delivery of connectivity prior to the availability of fibre at a new enterprise site.

As enterprises now depend on reliable connectivity, Telesat plans to support service level agreements (SLAs), guaranteeing availability, data rates, latency, jitter and packet loss that meet specific thresholds. The satellite operator says these performance guarantees will allow telcos to support extremely high bandwidth and time-sensitive applications, such as cloud-based services, secure web browsing, virtual private networks (VPNs), video conferencing, and gaming with a consistent, high quality of experience. The Telesat Lightspeed architecture is also designed to enable telcos to prioritise satellite network traffic using multiple classes of service, as they do with terrestrial network traffic.

On the ground, Telesat's global landing stations will have multiple gateway antennas to connect the satellite network with terrestrial points of presence (PoPs). "Each landing station antenna will always have many satellites in view for uplink diversity, while each landing station will provide redundant fibre links to the PoPs," explains Manik Vinnakota.

In space, Telesat says its satellites' on-board processors and optical inter-satellite links will create a mesh network, while orchestration systems will optimise data routing to avoid weather-induced interference, balance network traffic loads, and provide the fastest data path between the customer and its final destination. Should ground infrastructure be unavailable for any reason, each satellite could deliver traffic to multiple landing stations.

Telesat plans to maintain a high security posture for the Telesat Lightspeed network by aligning to industry security developments and standard agencies. It has, for example, adopted the U.S. National Institute of Standards and Technology (NIST)'s Cybersecurity Framework (CSF) in its entirety for its corporate systems, and has included the CSF controls in the Telesat Lightspeed systems specifications. "Telcos can encrypt their traffic as desired, without impacting performance, and they will also be able to benefit from special security add-ons for government traffic," adds Manik Vinnakota.

Integration with telcos' networks and enterprise offerings

Standards-based

Telesat says the new constellation will support standards-based interoperability with telecoms networks. Telesat Lightspeed will be certified under MEF 3.0 Carrier Ethernet standards, so that it operates as a Carrier Ethernet network in space. "It's the same model telcos are already using to interoperate with other vendors' terrestrial networks, making the space-based network a natural fit with their operations," explains Manik Vinnakota. "And it's essential to enable the blended terrestrial and non-terrestrial connectivity model. When LEO satellite networks and telecom networks are seamlessly integrated, the two networks function as a single, cohesive resource that delivers the required connectivity and performance level to people, machines and systems, as needed, wherever they are."

Through open standards-based integration, Telesat Lightspeed is designed to give telcos network automation and observability across terrestrial and satellite networks. Manik Vinnakota says that marks a major change from the connectivity provided by alternative LEO offerings, which telcos have to manage separately.

Customer portal and APIs

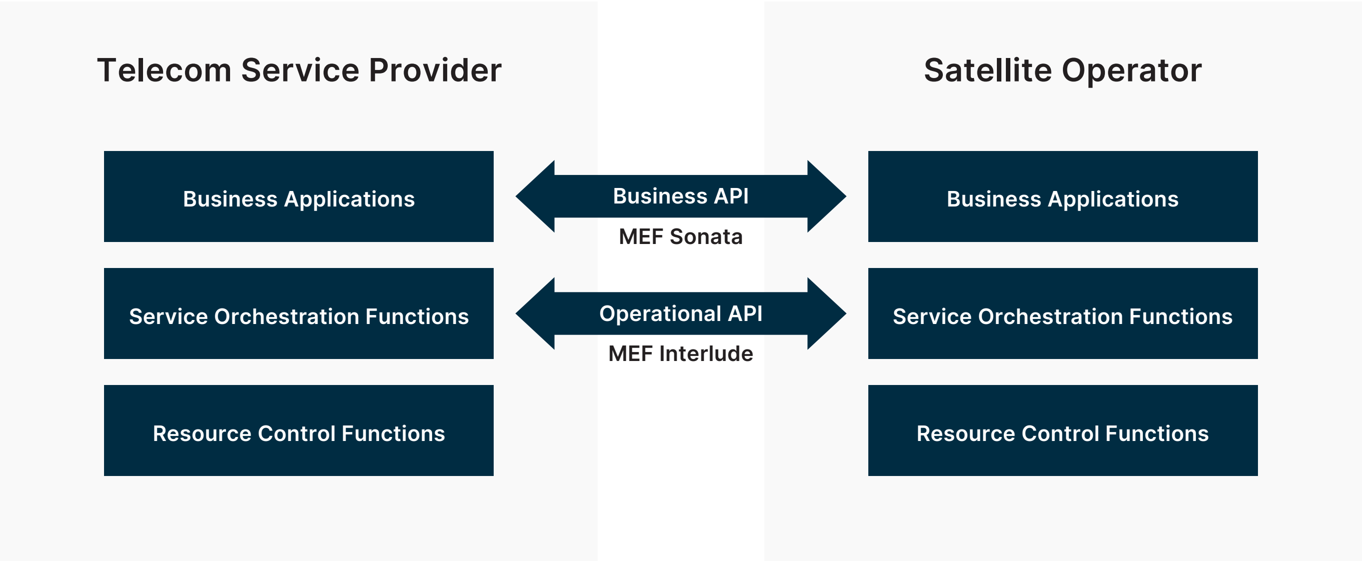
Telesat plans to provide telcos with a customer portal and APIs through which they can manage services for their end-customers, without the need to involve the satellite operator. Through the portal, telcos will have end-to-end visibility of the services and performance they are delivering to their enterprise customers.

Telesat says telcos will be able to pick and choose when to use MEF LSO APIs to manage a task and when to take a different approach. "This will allow them to programme the combined network to meet extremely specific and demanding customer requirements, such as automatically adapting service delivery based on variable capacity needs, time of day, and mobile asset location," explains Manik Vinnakota.

Control of the capacity pool

Telesat intends to give telcos complete and granular control over their Telesat Lightspeed satellite capacity pool and how it is allocated. In practice, that means telcos will be able to choose the overall size of the pool and where coverage is provided. They will also be able to provision services to each site they serve and can prioritise traffic and specify committed and excess data rates, based on multiple classes of service with no need to involve the satellite operator.

"With this kind of management agility, telcos will be able to

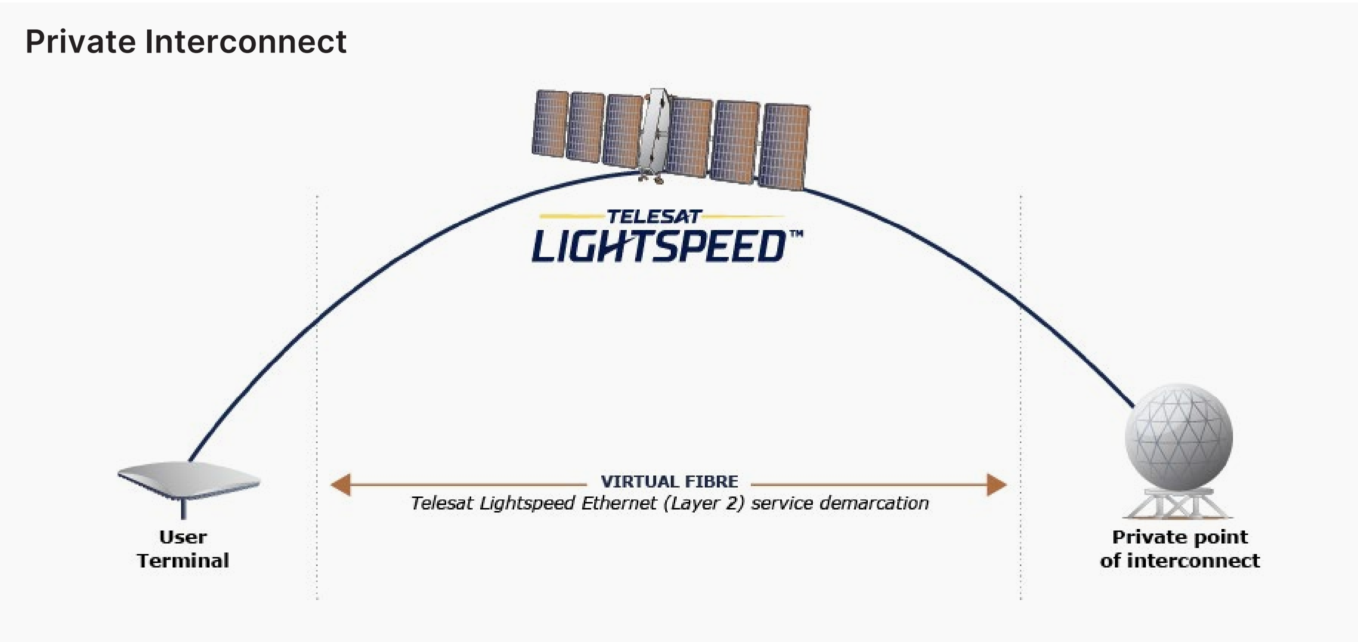


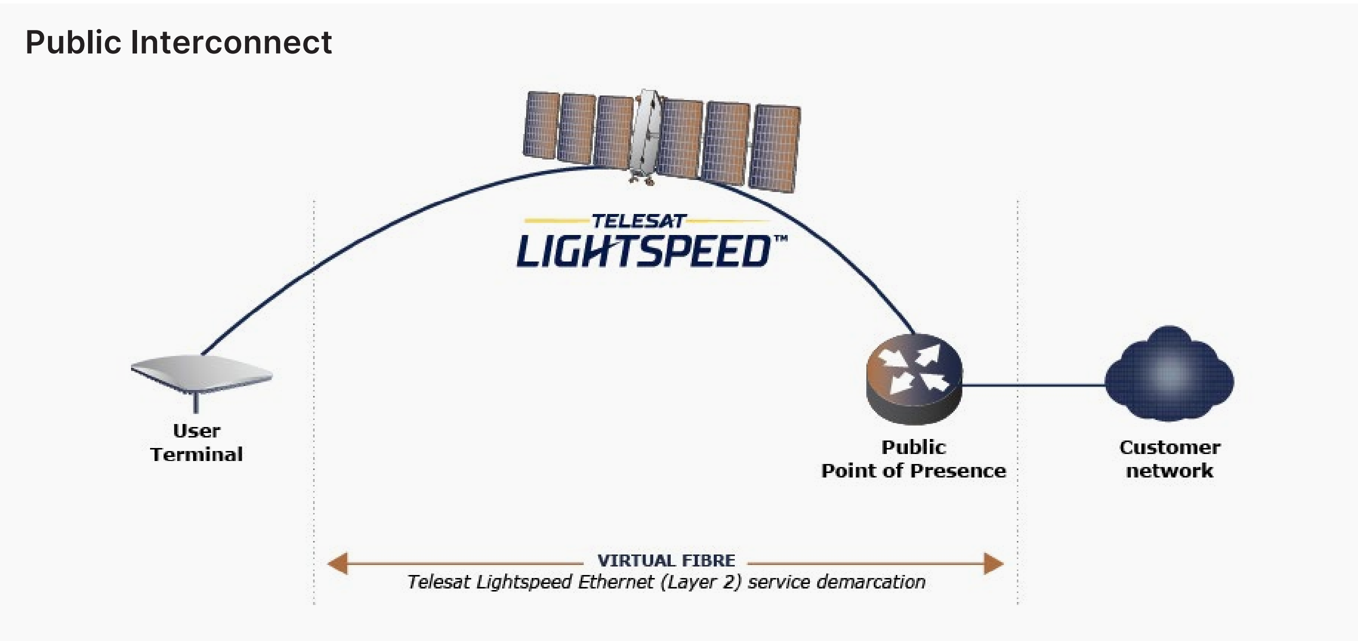
guarantee back-up services and support disaster recovery efforts when terrestrial networks are damaged or unavailable and quickly provide temporary coverage for large-scale events," says Manik Vinnakota.

Telesat is aiming to enable telcos to support 100% private networks and create custom service plans for their customers. As the network will be programmable, telcos will be able to define parameters to optimise their use of terrestrial and non-terrestrial network resources. "With dynamic capacity management and load balancing, telcos will be able to deliver the right connectivity and capacity to each customer, whether they're stationary or moving at high speed," adds Manik Vinnakota.

Public or private interconnections

With Telesat Lightspeed, telecom operators will be able to choose to land satellite data at a landing station and PoP operated by Telesat or at a private landing station. "These options will enable telcos to support government and public safety organisations with mission-critical connectivity needs and mandates that require the use of private communications infrastructure and data centres, as well as meeting regulatory requirements to land traffic in-country," notes Manik Vinnakota.





Early adopters

As with the Government of Canada, which has pre-bought services on Telesat Lightspeed to connect remote areas of the country, telecoms and satellite operators are already moving to secure access to the new constellation's connectivity.

In March 2025, Telesat announced a strategic commercial partnership with Orange, a leading telecoms operator in the EMEA region. Under the agreement, a Telesat Lightspeed landing station will be hosted at Orange's teleport in Bercenay-en-Othe, France, and a PoP will be located in Paris over the Orange Wholesale International Private Line.

Orange also signed a capacity commitment for Telesat Lightspeed service, which will be integrated into its global portfolio of services for businesses and telecom operators. Orange said the partnership will strengthen its ability to meet customer needs in underserved regions, adding a new secure, reliable, low-latency, seamless connectivity option to its existing multi-orbit portfolio of satellite partnerships. "We look forward to expanding our connectivity solutions with Telesat Lightspeed, enhancing the resilience of our network for mobile backhauling, crisis response and remote connectivity," Emmanuel Rochas, CEO Orange Wholesale International, said at the time of the announcement.

Bangladesh's ADN Telecom has also contracted Telesat Lightspeed services to expand its customer offerings. "After a thorough review of next-generation satellite technologies, we believe the Telesat Lightspeed services will provide the most flexible, secure and resilient architecture to power our future offerings," stated Asif Mahmood, Chairman of ADN Telecom. Telesat is expecting to announce further agreements with major telcos during 2025.

Reporting its first half earnings in August 2025, Telesat said its contracted backlog for Telesat Lightspeed services was over CAD $1 billion, which includes an agreement with satellite operator Viasat, which plans to integrate Telesat Lightspeed into its services portfolio for the aviation, maritime, enterprise and defence markets.

Telesat Lightspeed – the back story

Formed in 1969, Telesat is one of the longest-standing players in the satellite sector. Historically, it was the fourth largest GEO satellite provider in the world, but Telesat has not built any new GEO satellites in the past nine years.

Noting that Telesat has always been an innovative business with deep roots in the enterprise sector, Glenn Katz says the company made a bold decision to differentiate itself in the forthcoming market for LEO-based connectivity. "This is a company that saw this inflection point eight years ago and said: I'm not going to be like the others." Rather than building a LEO constellation to serve the D2D or consumer markets, as other satellite operators are doing, Telesat decided to develop a constellation specifically designed to enable telcos to meet enterprises' and public agencies' need for reliable access to cloud-based services, no matter where they are on the planet.

Over the past 56 years, Telesat has accumulated extensive experience of the distinctive challenges and opportunities arising from operating equipment in space. "Sixty years of heritage helps a lot," adds Glenn Katz. "Providing enterprise and government connectivity for decades has given us deep understanding of their networks and desired outcomes."

Next steps for Telesat Lightspeed

With the constellation fully funded, Telesat selected MDA Space as its prime satellite manufacturer and expects to begin launching the satellites at the end of 2026 on SpaceX Falcon 9 rockets. Global services are planned to commence in late 2027.

Manik Vinnakota says telecom operators can begin evaluating the network performance today with the Telesat Lightspeed Network Emulator, which provides a graphical view of the network performance for various different scenarios. "Telcos can simulate services and configurations, assess application performance, pre-plan point of presence (PoP) and user terminal selections, and test encryption technologies," he adds.

Having already achieved market access in multiple countries, Telesat is in the process of securing the remaining regulatory approvals it needs. Although rising geopolitical tensions mean many governments are prioritising technological and digital sovereignty, Telesat believes Telesat Lightspeed will be able to serve most countries across the world.

Even in jurisdictions where governments may prefer to award connectivity contracts to a sovereign satellite operator, Telesat is likely to play a major role providing backup connectivity to public agencies, predicts Yanniv Betito. "The key word here will be diversity, so you make sure that if something happens, you have an alternative source," he explains.

What telcos should look for in a LEO satellite partner

- **Global coverage:** Without dead zones and including polar regions
- **Virtual Network Operator (VNO) capability:** configure custom offerings, dynamic network resource 'slicing' control
- **Open-standards APIs:** enable network automation
- **Enterprise-class SLAs and Zero-trust architecture:** Secure, resilient network backed by service guarantees
- **Service and Interconnect flexibility:** Carrier Ethernet as well as Internet, public and private interconnects; ability to leverage third-party User Terminals

Source: Telesat

Conclusions

For telcos, satellite-based connectivity has been a luxury feature, which generated little in the way of revenue and required a team of specialist staff. But new LEO satellites are set to change that long-standing dynamic. With the deployment of constellations that are specifically designed to be integrated into telecoms networks, satellite connectivity could become an essential part of a telco's offering.

In the enterprise market, in particular, satellite connectivity could be a significant growth engine, enabling telcos to refocus on their core mission of providing robust and reliable connectivity wherever people and organisations need it. LEO satellite networks open up opportunities to offer differentiated and cost-effective satellite services that will appeal to a wide range of organisations that currently face connectivity challenges.

"The most advanced broadband LEO constellations are global mesh networks that function like fibre networks in the sky," says Manik Vinnakota. "These networks become natural extensions of terrestrial fibre and wireless networks for backhaul, taking secure and reliable broadband connectivity wherever telecom operators need it."

TELESAT

Backed by a legacy of engineering excellence, reliability and industry-leading customer service, Telesat (Nasdaq and TSX: TSAT) is one of the largest and most innovative global satellite operators. Telesat works collaboratively with its customers to deliver critical connectivity solutions that tackle the world's most complex communications challenges, providing powerful advantages that improve their operations and drive profitable growth.

Continuously innovating to meet the connectivity demands of the future, Telesat Lightspeed, the company's state-of-the-art Low Earth Orbit (LEO) satellite network, has been optimized to meet the rigorous requirements of telecom, government, maritime and aeronautical customers. Telesat Lightspeed will redefine global satellite connectivity with ubiquitous, affordable, high-capacity, secure and resilient links with fibre-like speeds. For updates on Telesat, follow us on LinkedIn, X, or visit **www.telesat.com**.

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