



Business

How the new generation of satellites can enhance your business connectivity





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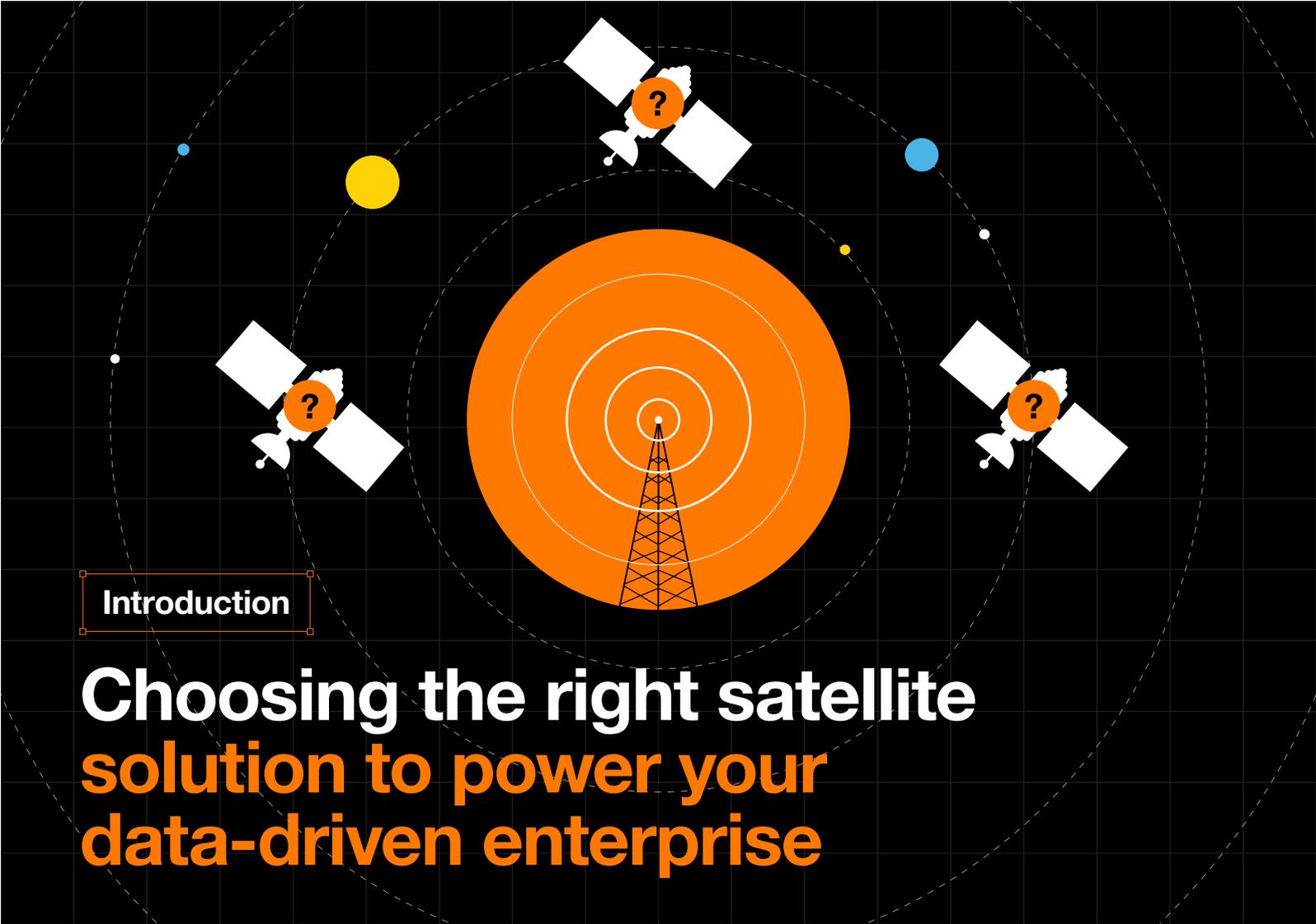
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Introduction

Choosing the right satellite solution to power your data-driven enterprise

In today's hyper-connected world, organizations rely on fast and reliable communications to operate effectively and retain a competitive edge. And now, the wide variety of satellite communications is revolutionizing 24/7, always-on connections for critical corporate communications.

From agriculture and mining to maritime and public sectors, satellites can be a business boost to a host of industries. Applications include enabling business continuity, remote and quickly deployed internet communications, remote monitoring of assets for preventative maintenance, and improving operations and energy consumption efficiencies.

Affordability is transforming the use of satellites in business

Improvements in satellite capacity, data throughput, and launch capabilities have reduced the cost of satellite connectivity, making it viable for multiple business applications. The latest satellites provide organizations with reliable, robust, low latency, high bandwidth communications. The ability to always be connected supports an array of business cases, from supporting banking and insurance companies' remote offices to providing connectivity for remote areas.

In a little over a decade, there has been a 90% reduction in manufacturing costs per Gbps of satellite throughput. This has been achieved through new satellite network technology,

advanced manufacturing processes, software-defined payloads, and spot beam technologies, which transmit to a pinpointed geographic area. At the same time, cloud integration and -as-a-service offerings have reduced ground segment costs, according to the Space Industry Association (SIA).

Increased affordability led to 2,235 satellites being launched in 2022, according to the SIA State of the Satellite Industry Report 2023, and the figure continues to grow. This is being fueled by low earth satellite (LEO) and medium earth orbit (MEO) providers, who need many more satellites to build their constellations and satisfy demand for higher data throughput and lower latency.

Choosing the right satellite service for your business

With the use cases for satellite services varying from business to business and no two organizations being the same, there are essential things that should be considered when selecting a service. In this ebook, we lift the lid on satellite communications and guide you on your journey to finding the right solution that addresses your business challenges.

How satellite can resolve your communications challenges

Pervasive connectivity, where businesses can create, process, and network data from virtually anywhere on the planet, is critical for an ever-increasing number of businesses.

Regardless of the continued growth of terrestrial wireless communications, large parts of the world still do not have access to cellular connectivity due to geography and cost. Satellite communications is a critical enabler in connecting these regions on land or sea.

The satellite telecommunications market is forecast to expand significantly in the next few years and reach \$54 billion by 2028.

By 2028, 80% of enterprises will integrate Low Earth Orbit (LEO) connectivity, creating a unified digital service fabric that provides resilient ubiquitous access and guarantees data fluidity.



There are seven compelling business reasons to adopt satellite communications.

- 1. Satellite communications provide a consistent quality of service** connecting remote areas or locations such as mines, offshore facilities, energy projects, construction sites, and maritime where terrestrial communications networks may be limited or unavailable.
- 2. Satellite communications utilize encryption techniques**, making them a good choice for businesses handling highly sensitive data or operating in high-risk areas. Additional steps can be taken to secure satellite communications, including firewalls on ground stations and enhanced authentication procedures.
- 3. Satellites provide ubiquitous coverage.** Unlike terrestrial communications networks, which may have limited coverage in certain regions, satellite communications have much more comprehensive coverage. This makes it invaluable for multinationals doing business across continents and managing logistics and supply chain management.
- 4. Satellite communications are critical in disaster recovery and business continuity** as a backup when a natural disaster disrupts terrestrial communications. In addition to business, it is invaluable to not-for-profit organizations that deliver aid.
- 5. Satellites give traffic bypass capabilities.** They can provide additional bandwidth to divert traffic from congested areas, providing overflow during peak usage times and redundancy in the case of terrestrial network outages.
- 6. Satellite services can be scaled quickly and cost-effectively** compared to terrestrial alternatives, enabling networks to be built up quickly. This allows for the rapid provisioning of new services.
- 7. Satellite communications have become increasingly cost-effective** for uninterrupted connectivity, providing real-time communication and data exchange where terrestrial communication networks are limited or non-existent.



Communication over satellite: which route to take

Satellite communications supplement existing infrastructures by providing global reach where terrestrial networks are unavailable or not viable. Many different solutions are available.

There are essentially three orbits and multiple offerings in each to consider from a business use perspective.

- Low Earth Orbit (LEO)
- Medium Earth Orbit (MEO)
- Geostationary Earth Orbit (GEO)

LEO satellites

LEOs orbit the Earth at 500 to 1500 km, so the round-trip delay is minimal. They work in interconnected constellations, communicating with ground-based stations to transmit data. If one satellite experiences an issue, other satellites in the network take over, ensuring a continuous, uninterrupted service.

Due to their low orbit, LEO satellites provide services with much lower latency compared to GEO and MEO satellites. This is key to applications requiring real-time communications, such as financial transactions, for example.

The next generation of LEO constellations specifically addresses enterprise broadband internet at lower costs.

Advantages of LEO

- Reduced latency
- High-speed transmission capabilities
- Potential for lower costs as LEO satellites use smaller ground stations

MEO satellites

MEOs orbit the Earth between 5,000 and 12,000 km, between the LEO and GEO range.

More recently, high-throughput satellite MEO constellations have been used for low latency and high-bandwidth data connectivity to service providers, government agencies, and commercial enterprises.

Advantages of MEO

- Provide a balance between the coverage capabilities of GEO and the low latency of LEO satellites

- Predictable low latency, with reduced jitter
- high transmission rate
- Lower number of satellites is required
- Mobile receiving stations

GEO satellites

GEO satellites have been available for over 50 years..

Traditionally, GEO satellites have been used for transcontinental voice, broadcast TV, and weather applications. GEO has been significantly enhanced in the past couple of years by High Throughput Satellites (HTS), which are purpose-built for data but still suffer from latency issues simply because of their distance from the Earth.

GEO satellites are highly reliable and can be used for voice, data, and video-based services for their designated coverage. They use highly directional antennas to cut down interference from surface-based sources and other satellites.

Advantages of GEO

- GEO satellites can provide persistent, uninterrupted coverage over a wide area
- Minimal interference
- Provide a robust platform for critical communication infrastructure

High Throughput Satellite (HTS)

HTS are communication satellites purpose-built for data that offer significantly higher transmission capacity than conventional fixed satellite services (FSS). Traditional satellites usually use a fixed beam covering a set geographic area. HTS, however, deploys multiple spot beams, enabling a much more targeted and effective distribution of bandwidth. This increases data transfer rates and significantly reduces the cost per bit. In addition, HTS provides flexibility in terms of network configuration. Operators can dynamically assign bandwidth to regions based on demand, for example, optimizing resources.

Why is satellite internet right for your business?

Is poor broadband holding your business back and stopping you from reaching your objectives? If the answer is yes, satellite internet could well be the answer you are looking for.

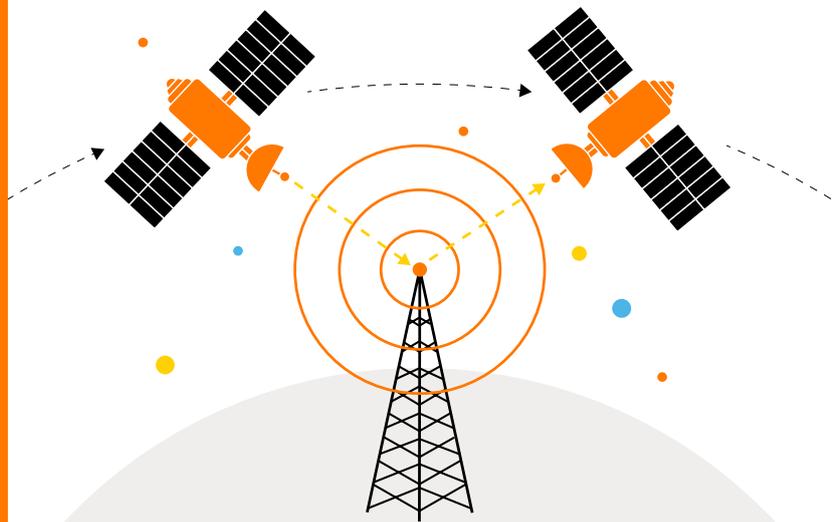
Satellite connectivity can play a critical role in dealing with network outages wherever customers are located. In addition to providing system backup for mission-critical applications, satellite internet can provide emergency response for teams in the field.

Internet speeds have increased significantly in recent years, opening satellite internet to business use cases. Starlink, OneWeb, and other satellite internet providers offering LEO and MEO connections can now reach up to 300Mbps, comparable with fixed lines with full fiber broadband.



An Orange Business satellite expert can work with your IT and IT security teams to find the best solutions based on the following:

- **Different satellite players use different business models;** some sell directly, while others use a partner network. It is, therefore, vital to have an integration partner to ensure satellite connectivity successfully integrates with your current business infrastructure and the technology fulfills its promises
- **Look carefully at security.** A connectivity solution should be delivered on a secure private network instead of public internet
- **Look at the speed and the quality of the connection offered** – does it fit your business needs?
- **Check the SLAs and the support services** provided
- **Finally, always use a trusted partner, like Orange Business,** who can provide you with a multi-path integrated communications infrastructure that aligns with your strategy



How satellites are making a difference in business

Here are some example use cases for satellite services.

Making smart mining a reality

Business challenge: Mining companies must go to increasingly remote locations to find new energy sources and require high-capacity, high-performance communications to streamline and optimize processes and keep workers safe.

Solution: SES and Orange Business have developed a proven partnership to deliver reliable end-to-end connectivity to transform smart mining operations. SES's 03b MEO constellation enables the delivery of carrier-grade low latency (120ms return) connectivity and complements Orange Business VPN GSM LTE/4G and fiber optic networks.

Utilizing this low latency, high throughput satellite technology, mining operations can run latency-sensitive applications such as cloud, video conferencing, surveillance systems, and real-time data transfer for exploration metrics and video.

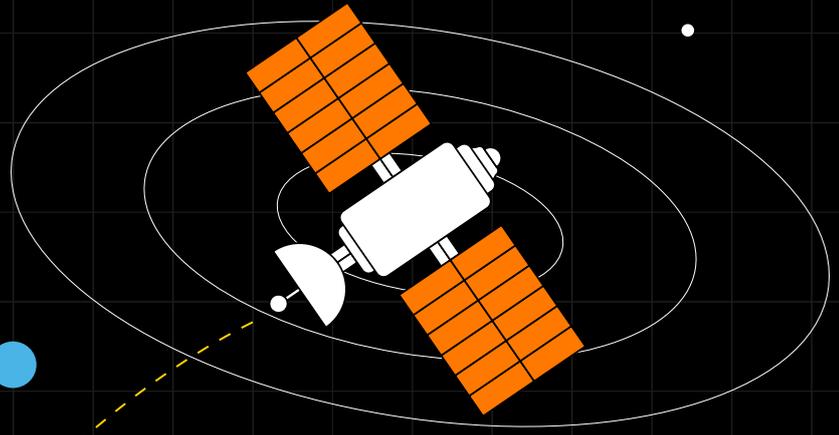
More efficient fleet and logistics management on construction sites

Business challenge: Construction sites can be in remote locations with poor connectivity. It is imperative, however, to maintain effective communications between stakeholders, teams, and suppliers. But often, accessing terrestrial infrastructure is not viable.

Solution: MEO or LEO satellite capabilities can be quickly deployed, eliminating the need for extensive infrastructure development. This saves time and resources, speeding up construction processes.

Unlike traditional communication networks, satellites provide coverage to even the most remote construction sites, providing uninterrupted connectivity regardless of geographical challenges. Satellite connectivity will not be hit by local network failures and temporary infrastructure downtime, which means teams and headquarters are always connected.

Construction sites can use satellites' always-on capabilities to manage various processes.



Why Orange Business for satellite communications?

Orange Business satellite communications enable you to work continuously from anywhere.

We specialize in delivering satellite services and expert consultancy across multiple business sectors and use cases.

We can combine many technologies and networks to help you become a data-driven organization. Orange Business provides satellite services to customers in various industries, powering all kinds of use cases.

Orange Business continually integrates new space offerings into its connectivity portfolio

- 50-plus years of experience in the satellite market and world-class integration skills
- Variety of service offerings with multiple vendors, orbits, and technologies

- Strong relationships with traditional, “New Space,” and “Next Space” satellite operators that extend beyond just providing services to strategic network partnerships
- The largest MPLS BVPN, offering seamless coverage in 220 countries, managing 325,000 MPLS customer sites with 3,000 served by satellites
- End-to-end Evolution Platform with an ‘as a service’ model and customized/ professional services for networking and security
- Modular and flexible connectivity via a broad range of satellite communications that can be integrated with terrestrial technologies such as fiber, LTE, and LoRaWAN to create hybrid network solutions

For further information click here:

Contact Orange Business experts

