

LEO

**Hughes Managed Low Earth Orbit
Satellite Service**

A HUGHES EUROPE GUIDE

LEO: RELIABLE ENTERPRISE-GRADE CONNECTIVITY ANYWHERE ON EARTH

One of the most prominent constellations of the night sky, Leo the Lion is visible from pretty much anywhere on Earth. An apt name for the Low Earth Orbit (LEO) satellite technology that brings reliable connectivity to people and organisations in every corner of the globe.



The need is great: despite the “connectivity boost” provided by the Covid crisis, many enterprises still lack the broadband access that is essential to grow their businesses, especially in remote and digitally underserved areas.

For example, a 2022 survey of more than 4,000 businesses in England, conducted by the National Innovation Centre for Rural Enterprise (NICRE), claimed that sub-standard infrastructure in rural areas – particularly the lack of quality broadband in many parts – is making it harder for businesses to be “resilient and bounce back from adversity“. And this is despite the fact that the United Kingdom overall has a comparatively high level of broadband access.

Broadband is “the new electricity” and without it, firms are at a severe competitive disadvantage, just as the absence of electricity put firms in rural areas at a disadvantage compared to their urban counterparts. With broadband connectivity, organisations are in a better position to innovate, scale their business and grow across borders. Without it, they are held back.

There are various reasons why there are regions, even in Europe, that are underserved. It may not be economically viable to provide fibre optic connectivity. Coverage of the Earth’s surface by geo-stationary satellites (GEOs) is highly constrained by the fact that they are positioned close to the equator.

The need to bridge the connectivity gap between countries and regions with and without broadband access has been the driving force behind the development of LEO satellite technology. And the leader in the race to develop and deploy LEO is OneWeb.

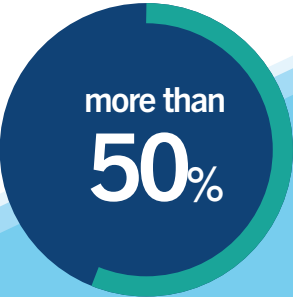
HUGHES AND ONEWEB: THE LEO PARTNERSHIP OF CHOICE

Hughes is an early and major investor in the OneWeb LEO satellite project, so our commitment to its success is 100%.

We are not only a distribution partner for OneWeb but also a technology partner, having engineered, built and deployed OneWeb system gateway electronics and core modules.

These include Hughes Electronically Steered Antennae (ESAs), custom built for the OneWeb network.

OneWeb has invested more than \$5 billion in its LEO network. Operational since 2023, it offers dedicated enterprise capacity. OneWeb has chosen Hughes as its preferred managed services provider.



more than
50%

Incredible as it may seem, more than half of the people in the world have no internet access.

Unconnected and underserved communities are now able to join the global virtual community for the first time, thanks to the OneWeb system and connectivity solutions supported by Hughes Managed Services.

TEN REASONS TO CHOOSE HUGHES

The Hughes Managed LEO Satellite Service delivers enterprise-grade, high-speed broadband internet connectivity to customers anywhere on Earth. It uses the OneWeb satellite constellation and offers significant advantages over other providers.



A low-touch turnkey solution

With a managed network service, you get 24x7 monitoring and dedicated help desk support.



Cybersecurity

Hughes Europe offers comprehensive and multi-layered cybersecurity solutions tailored for distributed enterprises. These advanced solutions are carefully designed to protect your network infrastructure from potential threats and vulnerabilities. What sets our approach apart is the perfect balance we strike to ensure robust protection without compromising system performance or efficiency. By combining cutting-edge security protocols with our deep understanding of business needs, we provide a seamless, secure and high-performance network environment for businesses that want to thrive in today's digital world.



A great customer experience

Thanks to their closer distance to the Earth, LEO satellites can communicate to ground with reduced latency and at lower power than would be required from a geosynchronous orbit. The OneWeb constellation provides broadband access with a latency less than 70ms. Delivering up to 100 Mbps to a terminal, the Hughes OneWeb solution offers a better all-round customer experience than GEO VSAT solutions or terrestrial networks.



Scalability

Hughes Europe can deliver high-performance network connections to growing businesses, whatever cities or regions they expand into next.



Dedicated capacity

Hughes Europe offers its customers dedicated capacity. Moreover, this capacity is 100% dedicated to enterprise service. This means you will not be competing for bandwidth with consumer apps and users.



Priority spectrum

OneWeb has secured 6.0 GHz of KU-Band, a portion of the electromagnetic spectrum that offers numerous advantages such as the avoidance of interference from terrestrial microwave systems and a powerful signal, which means a reduced hardware requirement (e.g., smaller receiving dishes) at the customer site. For added resilience, 3.5 GHz KA-Band is also available.



A comprehensive constellation

A OneWeb satellite can be launched in hours, not days or weeks as in the case of GEOs. The full constellation in service since 2023 comprises 648 LEO satellites plus 48 ground stations for total global coverage (currently excluding Russia and China). Replacements can be launched at very short notice if needed, thereby ensuring no or limited disruption to service.



Affordable, tailored to your needs

Hughes Europe offers a range of service plans to meet the varying needs of businesses large and small as well as national and local government departments.



Easy deployment

Hughes Europe offers everything you need for a managed LEO deployment with a range of lightweight, easy-installation, Electronically Steerable Antennae (ESAs). The high-performance dual parabolic antennae are also available as an option.



Hughes experience

Last but not least, you can rely on Hughes Europe. For more than five decades, Hughes has been at the forefront of satellite technology innovation. Hughes has a long-standing history of designing, deploying, and managing satellite networks serving a range of industries from retail to aviation and government services, as well as delivering broadband to domestic consumers.

That's why Hughes Europe is the partner of choice for OneWeb.

LEO ONEWEB TECHNOLOGY

So what makes all this possible? Cutting-edge OneWeb technology, developed by some of the world's leading telecommunications engineers. Here is a brief summary of the main components in the Hughes Managed LEO Satellite Service network.



Satellites

OneWeb satellites are thirty times closer to Earth than traditional geostationary satellites. They weigh just 150 kg and are roughly the size of a domestic refrigerator. They are easily launched to a drop-off altitude of 450 km, from which they climb to a 1,200 km mission altitude.

Receivers

The OneWeb satellites communicate with Hughes Electronically Steerable Antennae (ESAs) via the KU-Band spectrum. The ESAs are custom engineered for OneWeb service.

HL1100 (Fixed)	HL1120 (Fixed)	HL1200 (Land Mobile) Availability TBD
57x14 maximum Mbps	190x30 maximum Mbps	57x14 maximum Mbps
Service Plan: 57x5	Service Plan: 57x5	Service Plan: 57x5

Dual parabolic option

With a Hughes core module inside, these consist of dual 73 cm receivers (other sizes are in preparation). They deliver high performance with each antenna tracking a satellite to support handover for maximum speed and resilience.

OneWeb gateways

OneWeb gateways typically consist of multiple antennae and a mini data centre, linking OneWeb's LEO satellites to local, national or regional fibre networks and data centres. These are then linked via secure connections to private networks, secure clouds and the public internet.

A NAME YOU CAN TRUST

Our flexible networking solutions combined with our multi-vendor approach means we take modern technology capabilities and identify the right solution to meet our customers' commercial needs. Our long-standing relationships with our customers, which span many years, are testament to our collaborative and quality-focused approach. We deliver our services throughout Europe with offices in the UK, Germany and Italy and offer a single point of contact with a single, aggregated service level agreement for all sites irrespective of size or location. As the European business unit for Hughes, we work in collaboration with our sister business units in North America, South America, India and International to deliver fully integrated solutions on a global scale.

For further details about our products and services contact us today.



\$2
BILLION

Dollars
in revenue



Supporting **425,000**
business and government
sites worldwide



2,100
employees globally



7+ million terminals of all
types delivered in **more than**
100 countries



Deployed **50,000**
SD-WAN sites to date



Customers on
6 continents



5 decades
of networking expertise

WANT TO KNOW MORE? GET IN TOUCH



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About Hughes Network Systems

Hughes Network Systems, LLC (HUGHES) is the global leader in broadband satellite technology and services for home and office. Its flagship high-speed satellite Internet service is HughesNet®, the world's largest satellite network with over 1.3 million residential and business customers across the Americas. For large enterprises and governments, the company's HughesON™ managed network services provide complete connectivity solutions employing an optimized mix of satellite and terrestrial technologies. The JUPITER™ System is the world's most widely deployed High-Throughput Satellite (HTS) platform, operating on more than 20 satellites by leading service providers, delivering a wide range of broadband enterprise, mobility, and cellular backhaul applications. To date, Hughes has shipped more than 7 million terminals of all types to customers in over 100 countries, representing approximately 50 percent market share, and its technology is powering broadband services to aircraft around the world. In Europe alone, where we have been helping our customers to achieve optimal value from their network infrastructure for more than 30 years, we manage 55000 sites, across 28 countries supporting more than 5 billion transactions every year. Headquartered outside Washington, D.C., in Germantown, Maryland, USA, Hughes operates sales and support offices worldwide, and is a wholly owned subsidiary of EchoStar Corporation (NASDAQ: SATS), a premier global provider of satellite operations. For additional information about Hughes, please visit www.hughes.com and follow @HughesConnects on Twitter.

About EchoStar

EchoStar Corporation (NASDAQ: SATS) is a premier global provider of satellite communication solutions. Headquartered in Englewood, Colo., and conducting business around the globe, EchoStar is a pioneer in secure communications technologies through its Hughes Network Systems and EchoStar Satellite Services business segments. For more information, visit echostar.com. Follow @EchoStar on Twitter.