Arctic Connectivity

In a world increasingly inter-connected, cloud-based and data-driven, LeoSat Enterprises is launching a constellation of up to 108 low-earth orbit (LEO) communications satellites providing the first commercially available, enterprise grade, extremely high-speed and secure data service worldwide.

Using optical inter-satellite links and operating in polar orbits at an altitude 5 x closer to earth than MEO and 25 x closer than GEO, LeoSat has many advantages when it comes to throughput, latency and true global coverage. As such, LeoSat offers a unique data network solution with the highest performance offered by any existing or planned system, including fiber.

Combining the Speed of Fiber with the Ubiquity of Satellite

The LeoSat system is being developed in conjunction with Thales Alenia Space, a company with unmatched expertise in designing and manufacturing low earth orbit constellations. The high-throughput satellites (HTS) will form a mesh network interconnected through laser links, creating an optical backbone in space which is about **1.5 times faster** than terrestrial fiber backbones, thus creating a paradigm shift in the use of satellites for data connectivity – rather than a gap filler or last resort where no terrestrial alternative is available. LeoSat will offer a **highly secure** and ubiquitous service that can rival and often beat fiber in terms of latency.

New Opportunities for Multiple Market Segments

The system has been designed to solve essential communications and connectivity issues and meet the ever-growing demand to move large quantities of data quickly and securely around the world in sectors such as **oil & gas, maritime, telecommunications, multi-national enterprise** and **government services** market by filling the space between satellite and fiber. The key attributes of the LeoSat service can be used for a number of applications, for example, to provide the only native **4G and 5G satellite** backhaul to the cellular industry, give banks secured networks with their foreign offices, provide enormous uploading bandwidth required for oil & gas exploration or allow Internet access to passengers on cruise ships. LeoSat will not only provide a competitive advantage in the existing satellite services market, it will help to expand these markets by enabling new opportunities through previously unavailable levels of performance with true worldwide reach. In addition, data security is assured as it stays on the LeoSat satellite network for the entire route, making it much less susceptible to monitoring, hacking or even disruption.

Constellation for Connectivity in the Arctics

Data communications to and from the Polar regions is challenging and expensive. Building cable networks is hardly feasible from an economic perspective and satellites communications using the traditional GEO arc comes at low speed, high costs and operational challenges. For bulk data there is no viable solution and all too often the data needs to be physically carried out to its destination. In particular, for data-intensive activities such as research, this causes serious delays and additional costs. With LeoSat's satellites in polar orbits, the Arctic regions can now **benefit from increased bandwidth** for a range of broadband communications services and **connect to any location anywhere in the world** with extremely low latency.

System Overview

The Most Advanced Commercial Satellite System Ever Built

The LeoSat satellite constellation uniquely provides customers with **symmetric, very high-speed, low latency and highly secure communications** between locations anywhere on earth, completely independent of existing terrestrial networks.

This system which consists of up to 108 satellites orbiting at approximately 1,400 kms, is being developed together with Thales Alenia Space, the leading satellite manufacturer with unmatched expertise in developing and manufacturing constellations. Each satellite in the LeoSat constellation utilizes **optical inter-satellite links** (ISLs) to connect to the satellites around it, creating fiber-like symmetric connectivity with speeds of up to 1.6 Gbps and even 5.2 Gbps where needed. Customers use their LeoSat terminal to connect to the nearest satellite from where the data is routed onwards by On Board Processors (OBPs) through LeoSat's space-based optical backbone until the data reaches the destination satellite which connects with the customer's destination terminal. Contrary to bent-pipe HTS solutions, gateways are not a pre-requisite for LeoSat to operate its network. For customers, this unique use of technology allows for premise-to-premise connections with no terrestrial touch-point in-between and sets a new bar for high-speed networks.

Satellites

Each satellite in the constellation supports:

- 10 Ka-band steerable antennas, each providing up to 1.6 Gbps of symmetrical data connectivity
- Two steerable high-performance antennas, each providing up to 5.2 Gbps of symmetrical data connectivity
- 4 optical inter-satellite links

Availability

- 2019 Launch of two Early Birds offering GigaByte Store and Forward Services
- 2021 Start of launch of the constellation offering real-time, point-to-point connectivity with coverage growing from the Poles to the Equator on completion
- 2022 Full Worldwide Service Available

For more information on LeoSat Enterprises, please visit our website or follow us on social media

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