Telesat LEO: In Partnership Connecting Everyone, Everywhere

TELESAT™

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Vice President North American Sales

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Telesat is a leading global satellite operator

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C$911 million
2019 Revenue

C$5.9 billion
2019 year-end assets
17 satellites in-orbit

C$3.3 billion
Contracted revenue
Backlog, 2019

● **Telesat offices**

Privately held by Canada's Public Sector Pension Investment Board & Loral Space & Communications (NASDAQ: LORL)

50+ years of innovation

1962: Telstar 1
1st live TV feed between 2 continents

1996: Telstar 11
1st internet access for ISPs over satellite

2018: LEO1
1st Ka-band LEO operational satellite

1978: Anik B
1st Ku communications satellite;
1st Direct-to-Home TV satellite

2004: Anik F2
1st consumer Ka-band broadband satellite

NON EXHAUSTIVE

Global and diverse customer base

BROADCAST
50% of revenue

dish
Bell
NBC UNIVERSAL
ESPN
CTV
Shaw) Direct
HBO

ENTERPRISE
48% of revenue

Telefónica
HUGHES
vodafone
Claro
Global Eagle
Embratel
Panasonic
BT

CONSULTING
2% of revenue

AIRBUS DEFENCE & SPACE
Telkom Indonesia
ECHOSTAR
LOCKHEED MARTIN
MITSUBISHI ELECTRIC
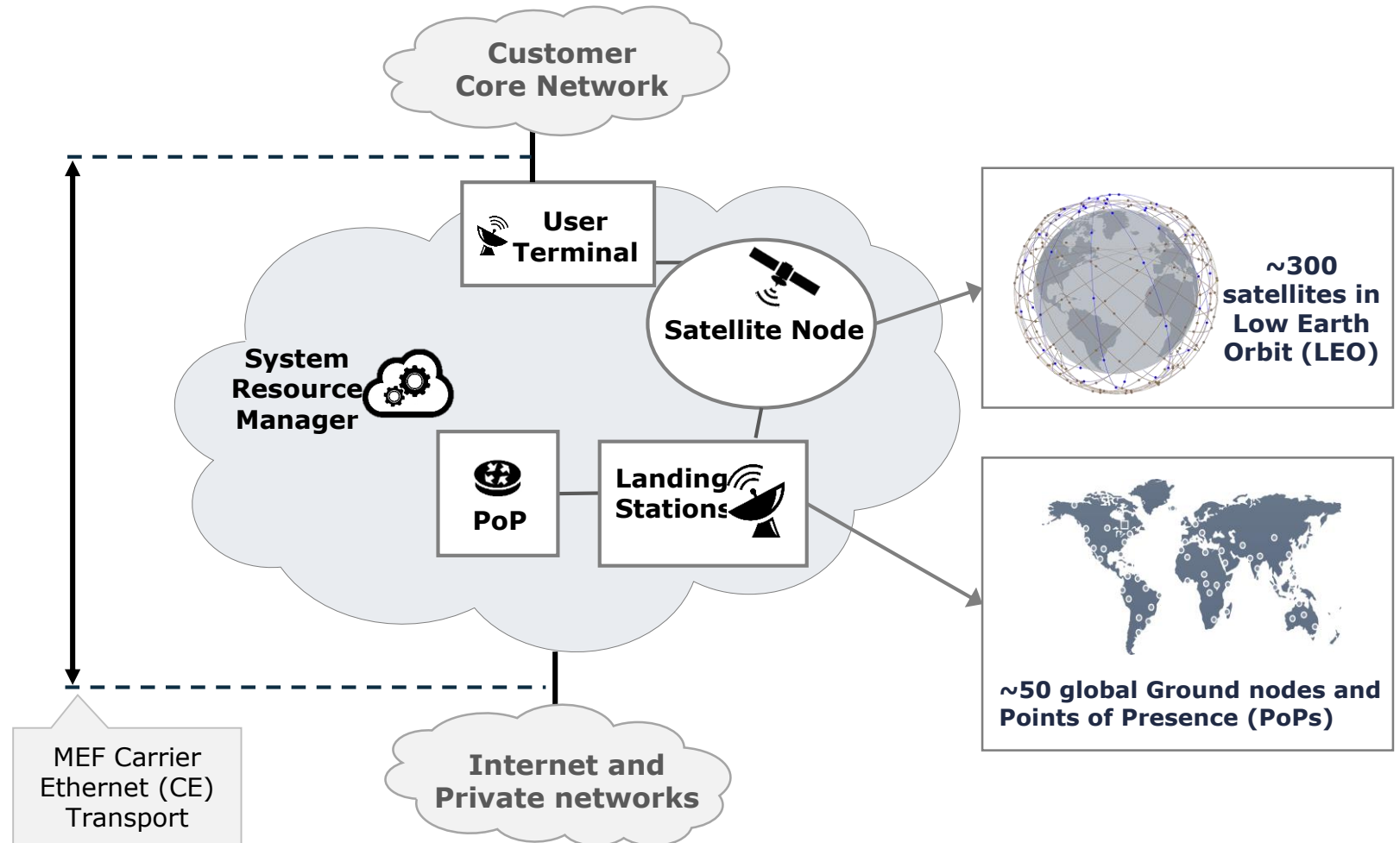Brit Insurance

NON EXHAUSTIVE

Telesat LEO: state-of-the-art global network

State-of-the-art global network

- Access to ~4 GHz Ka-band spectrum

- Satellite orbits (polar + inclined) balance global coverage and capacity density

- Advanced satellites: On-board processing, Direct radiating antennas, Optical inter-satellite links, Programmable network

- Global terrestrial interconnect

Customer Core Network

User Terminal

Satellite Node

System Resource Manager

PoP

Landing Stations

~300 satellites in Low Earth Orbit (LEO)

~50 global Ground nodes and Points of Presence (PoPs)

MEF Carrier Ethernet (CE) Transport

Internet and Private networks

MEF: Metro Ethernet Forum, Global Layer 2 standards body

Essential criteria for satellite broadband constellation

- High Throughput
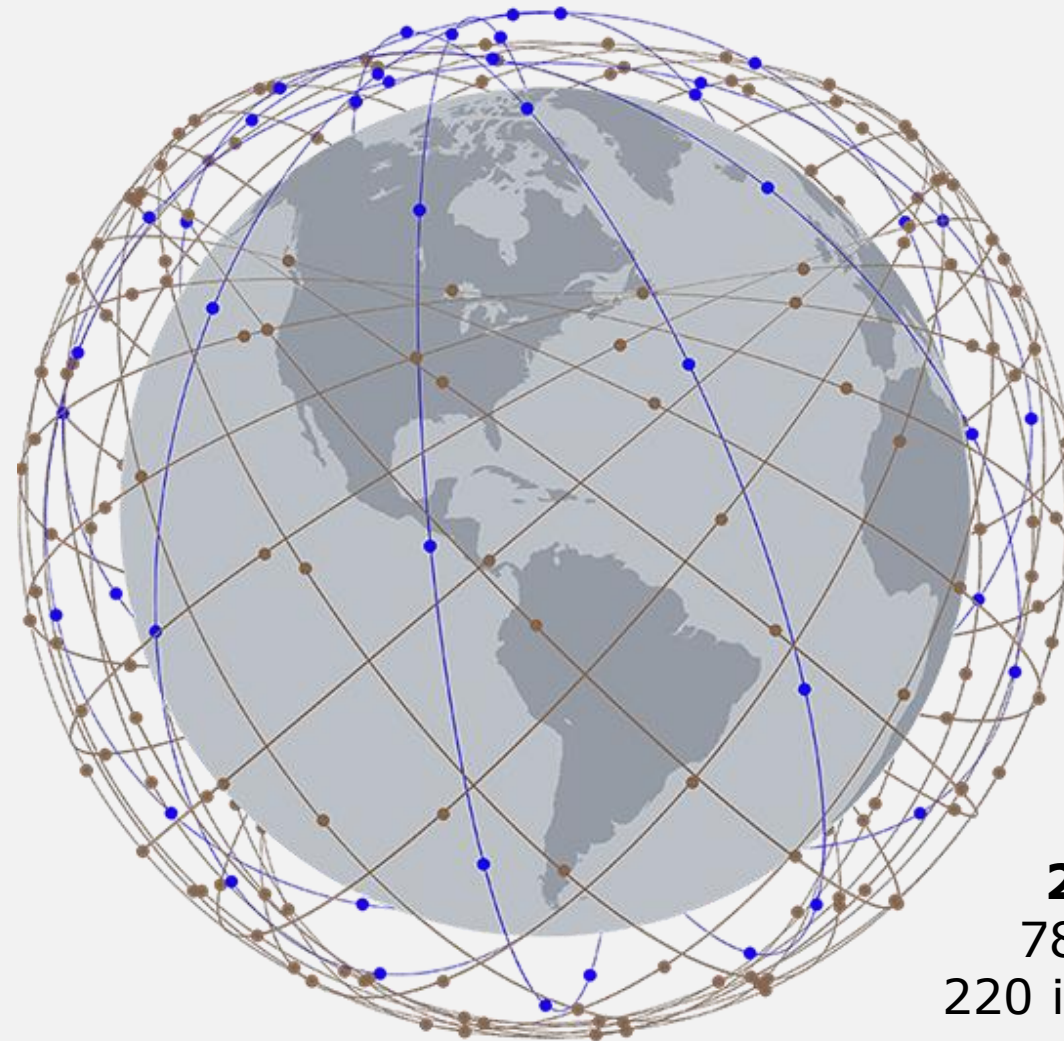- Low Latency
- Low Cost
- Plug & Play
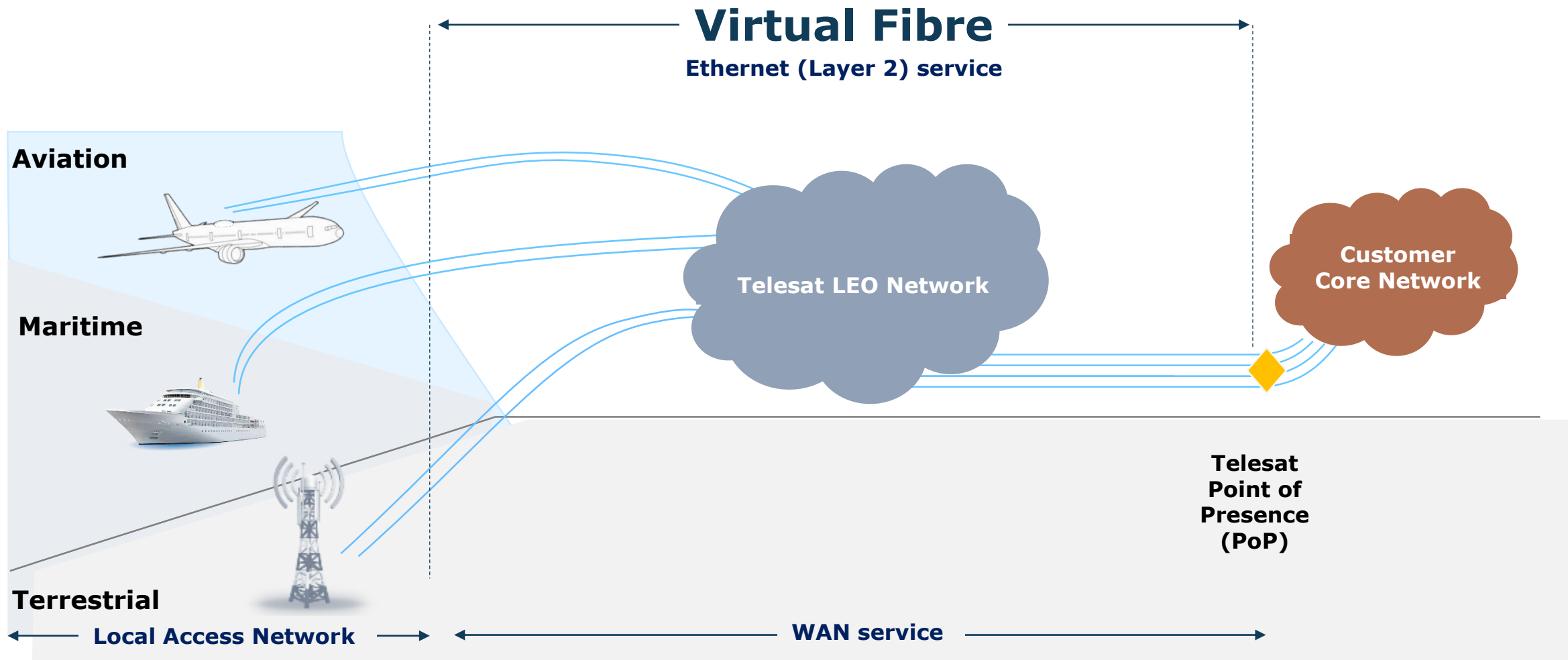- Resilient & Secure
- Flexible Focused Capacity
- Global Coverage
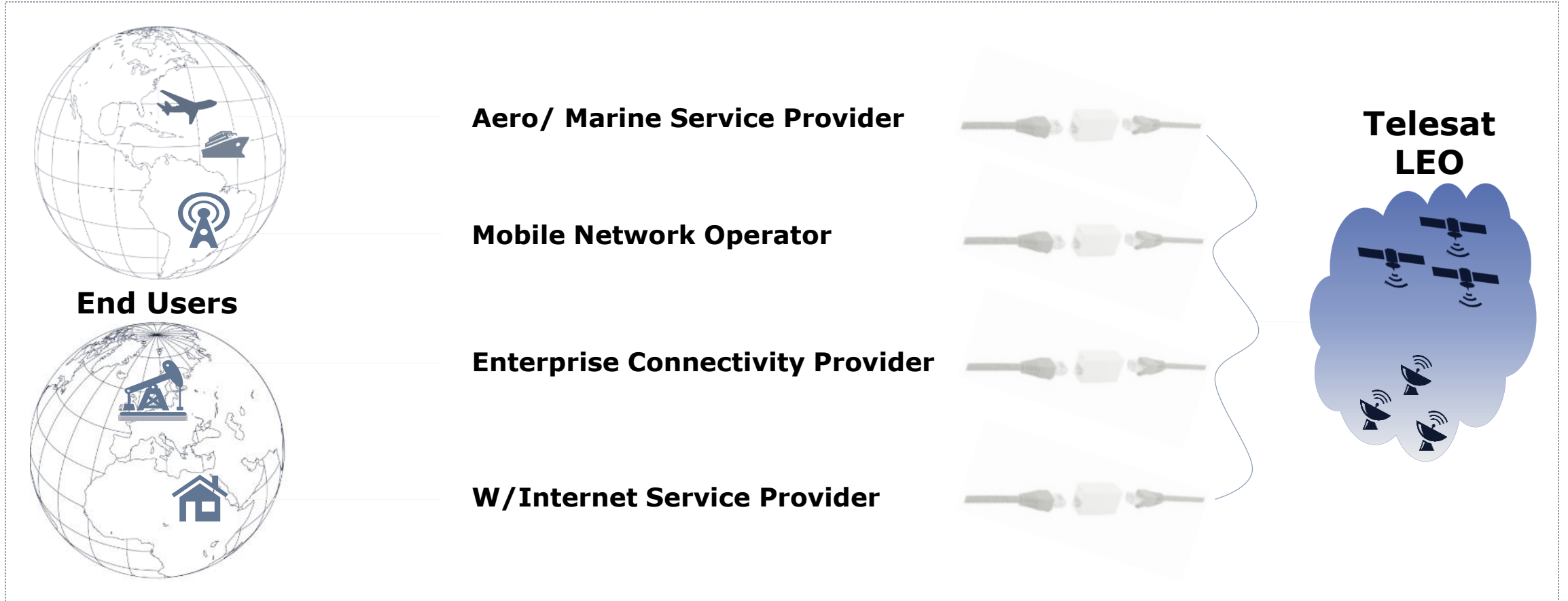
298 satellites
78 in polar orbit
220 in inclined orbit

Inclined Orbit   Polar Orbit

Global local 'Virtual Fibre' service

Virtual Fibre
Ethernet (Layer 2) service

Aviation

Maritime

Terrestrial

Telesat LEO Network

Customer Core Network

Telesat Point of Presence (PoP)

Local Access Network

WAN service

Ethernet Interface

Work along with Service Providers in a wholesale business model

End Users

Aero/ Marine Service Provider

Mobile Network Operator

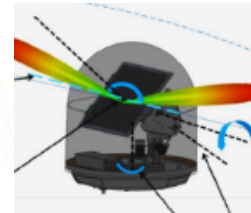Enterprise Connectivity Provider

W/Internet Service Provider

Telesat LEO

User terminals

Mechanically Steered Parabolic Reflector

Electronically Steered Phased Arrays

Hybrid Antennas

Intellian

Sea Tel COBHAM

ThinKom

Ball Aerospace

QEST

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Phase 1 LEO in-service testing, strong ecosystem

First Ever Broadband Link from LEO

In January 2018, LEO Phase 1 satellite launched

World's First 5G Backhaul Demo over LEO Satellite with Vodafone

Tested 4K and 8K video, video calls and web browsing

"Home-like" connectivity tested for maritime

Tests included live video testing and online gaming
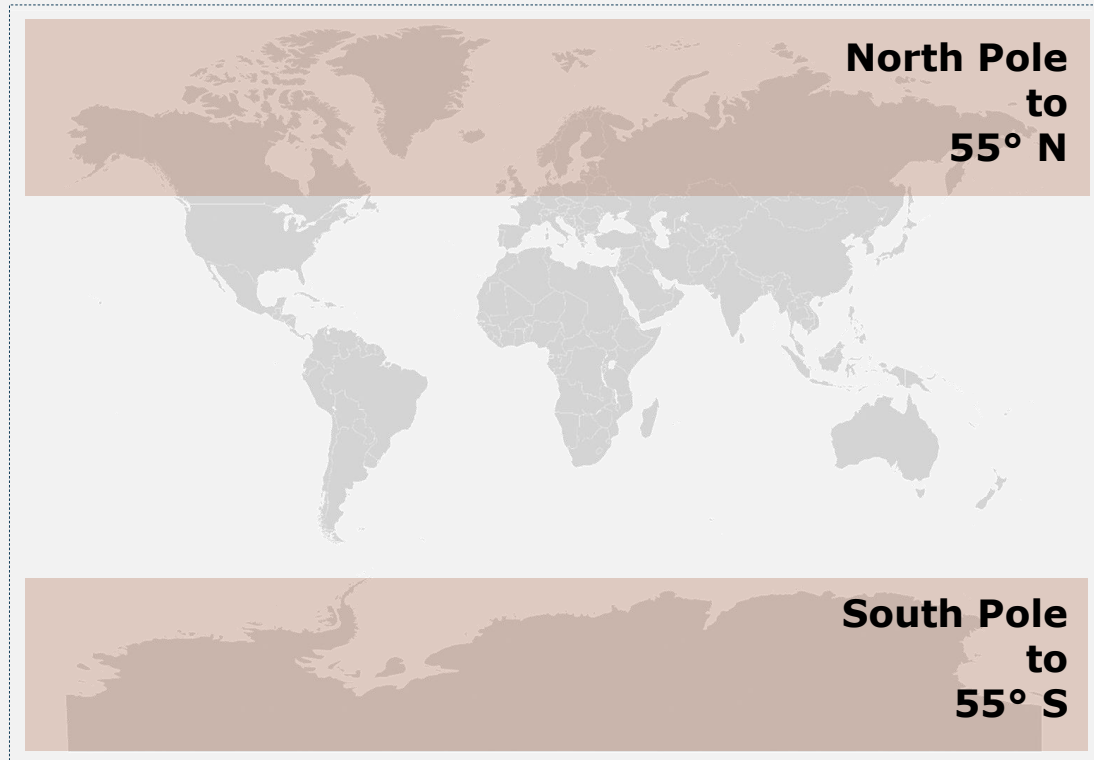
High quality, In-flight connectivity demonstrated

Results showcased multiple high throughput and low latency applications including video conference calls and secure cloud and VPN applications

Telesat LEO

BLUE ORIGIN
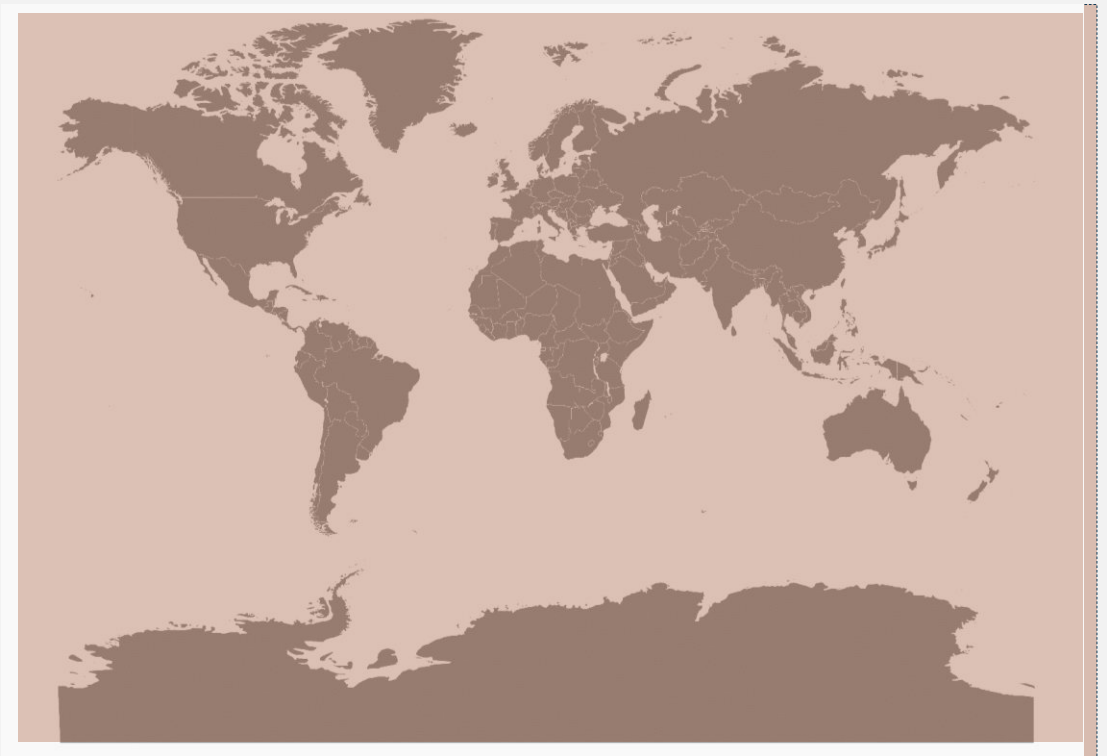
Relativity

Gilat

ThinKom

Newtec

Ball Aerospace

COBHAM

Intellian

MAXAR TECHNOLOGIES

ThalesAlenia Space
a Thales / Leonardo company

AIRBUS DEFENCE & SPACE

LOON

Service launch timeline

Q3 2022
Polar constellation completed

North Pole to 55° N

South Pole to 55° S

Q2 2023
Full global service*

* Global constellation: 198 satellites, followed by extended global constellation: 298 Satellites (Q4-2023)

$1B+ partnership: Government of Canada and Telesat

To bring affordable, high-speed Internet connectivity via Telesat LEO across rural, underserved areas of Canada the Government of Canada is making a $685 Million (CAD) contribution commitment to Telesat LEO

The Telesat LEO Solution

High speed, true broadband experience, enabling a minimum 50 / 10 Mbps service

Cost-effective for ubiquitous coverage, more affordable than fiber-optic and microwave alternatives for remote communities

Learn more
https://www.telesat.com/news-events/government-canada-and-telesat-partner-bridge-canadas-digital-divide-through-low-earth

Empowering Communities
Providing underserved communities with fiber quality broadband
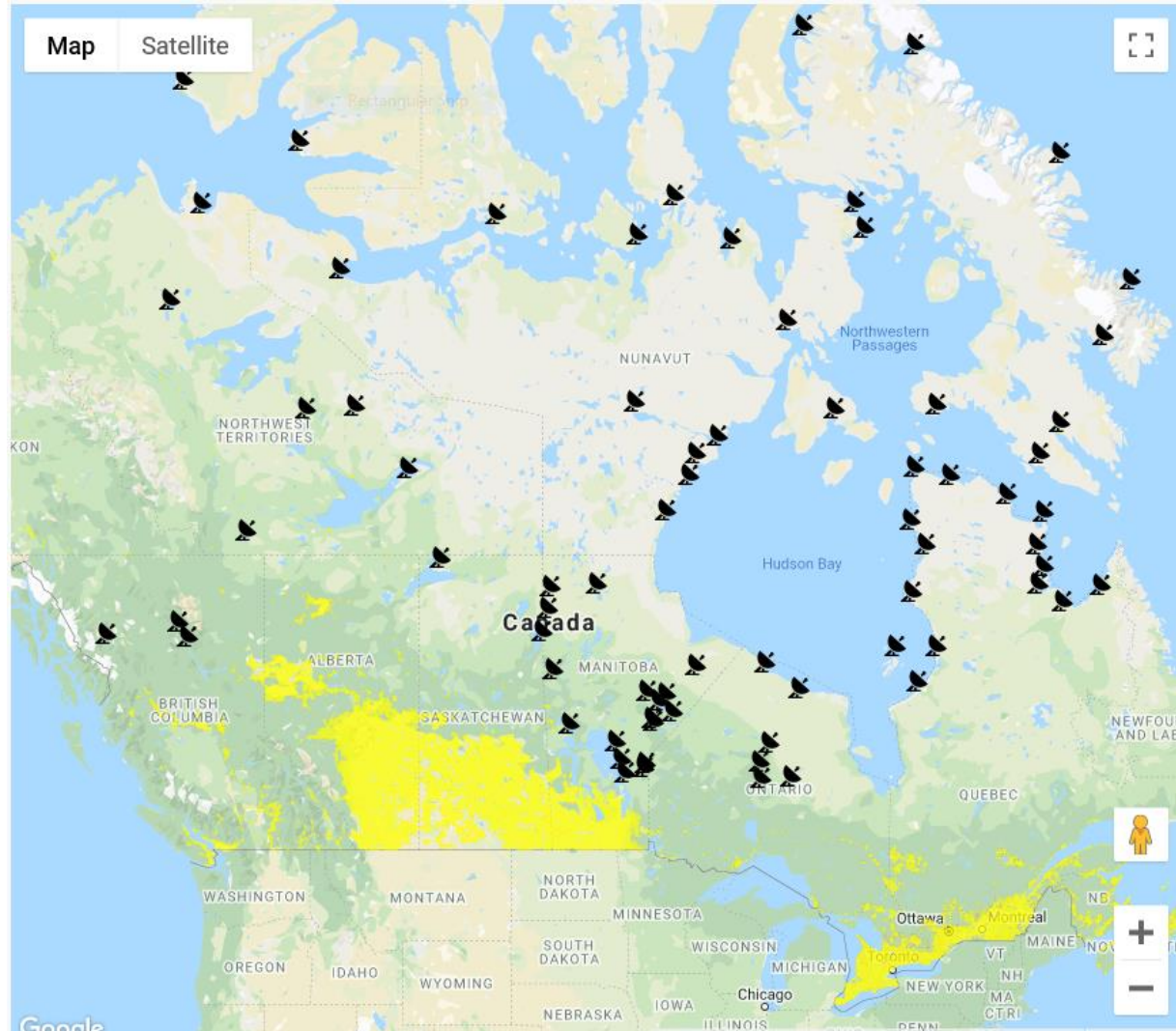
Expanding Healthcare
Real-time access to medical specialists or live e-learning, electronic records or management systems

Creating Opportunities
Judiciary, rural boarder crossings, indigenous services, agriculture etc.

Eliminating the Digital Divide

National broadband internet service availability map

Maps to be updated to identify Eligible Communities

"Eligible Community" means a Satellite Community or a community in Canada without fibre backbone at the time the Telesat and the Service Provider enter into an agreement for services using the Capacity, as identified on ISED's National Broadband Internet Service Availability Map found at: https://www.ic.gc.ca/app/sitt/bbmap/hm.html?lang=eng

*Notes:

Map data date modified: 2020-01-23

For more information, and to download the National Broadband Data shown in the map above, please visit the National Broadband Data Information page (opens in new window).

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www.telesat.com