LEO and Use Cases

14 December 2023, Ankara, Türkiye

EUTELSAT GROUP

Eutelsat and OneWeb combine to become Eutelsat Group.

A global leader in satellite connectivity and the world's first integrated GEO-LEO operator.

The network

Satellites

36 +4 in Sept '23
Geostationary

634
Low Earth Orbit

Spectrum

Diversified resources in

C, Ku- and Ka-bands

>3.5Ghz of globally harmonized premium spectrum rights for

Ku- and Ka-band

Operations centres

6
Teleports in Rambouillet (France), Turin and Cagliari (Italy), Madeira (Portugal) and Iztapalapa and Hermosillo Sonora (Mexico)

2
Network and Satellite Operations Centres in London (England) and Virginia (USA)

One team

Staff

1100+
based all over the world (mainly in France, Italy and Mexico)

600+
based all over the world

Nationalities

c.47

c.50

Gender

Female **34%** Male **66%**

Female **22%** Male **78%**

Offices

21
Amman, Beijing, Cologne, Dubai, Istanbul, Johannesburg, London, Madeira, Madrid, Mexico, Miami, Moscow, Panama, Paris (HQ), Rio de Janeiro, Rome, Singapore, Tampa, Turin, Warsaw and Washington D.C.

6
Alaska, London, Florida, Virginia, Toulouse and Sydney Australia

US Gov

EUTELSAT AMERICA CORP
team based **Washington D.C.**

OneWeb Technologies
team based in **Texas**

Network capabilities

Space Core Value

Responsible & sustainable

Responsible & sustainable

Innovation

Eutelsat Konnect VHTS
Pioneering VHTS technology to deliver high-speed broadband

GEN 1
Innovative satellite design with **>7Gbps per satellite** and **revolutionary beam technology**

Roadmap

Eutelsat Quantum
Spearheading a new generation of software driven satellites

GEN 2
Satellite constellation in design and planned to enable **faster speeds and denser coverage for less cost**

Customer focus

Route to market

B2B
Business to business

B2B
Business to business

Key products

Video Eutelsat satellites deliver more than 6,500 TV channels to over 274 million homes with over 2,000 HD channels and 22 Ultra HD channels

GEO Connectivity

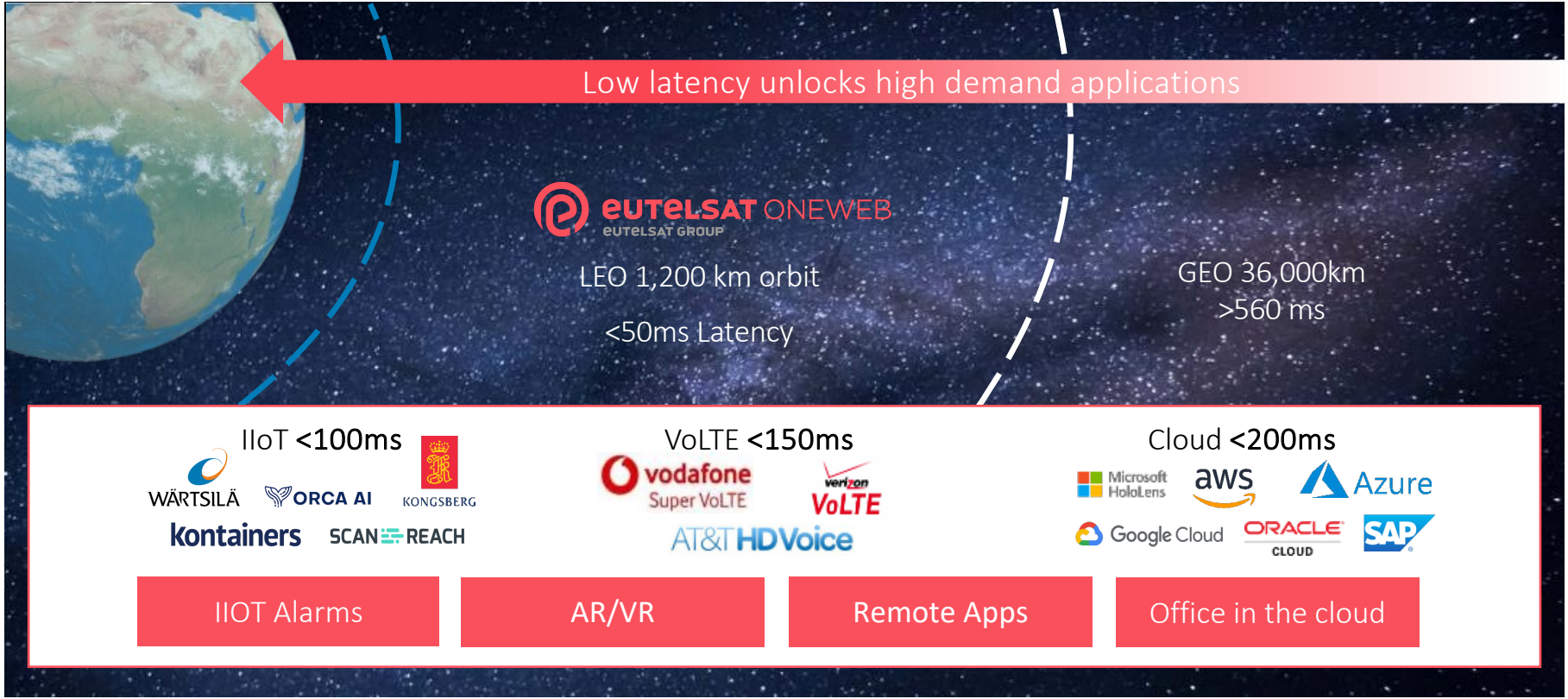
LEO Connectivity

Key markets

Enterprise, Government, Maritime, Aviation, Telecoms (Cellular backhaul)

Enterprise (Cellular backhaul and community broadband)
Government, Mobility
Aviation, Maritime and Land)

LEO Advantages



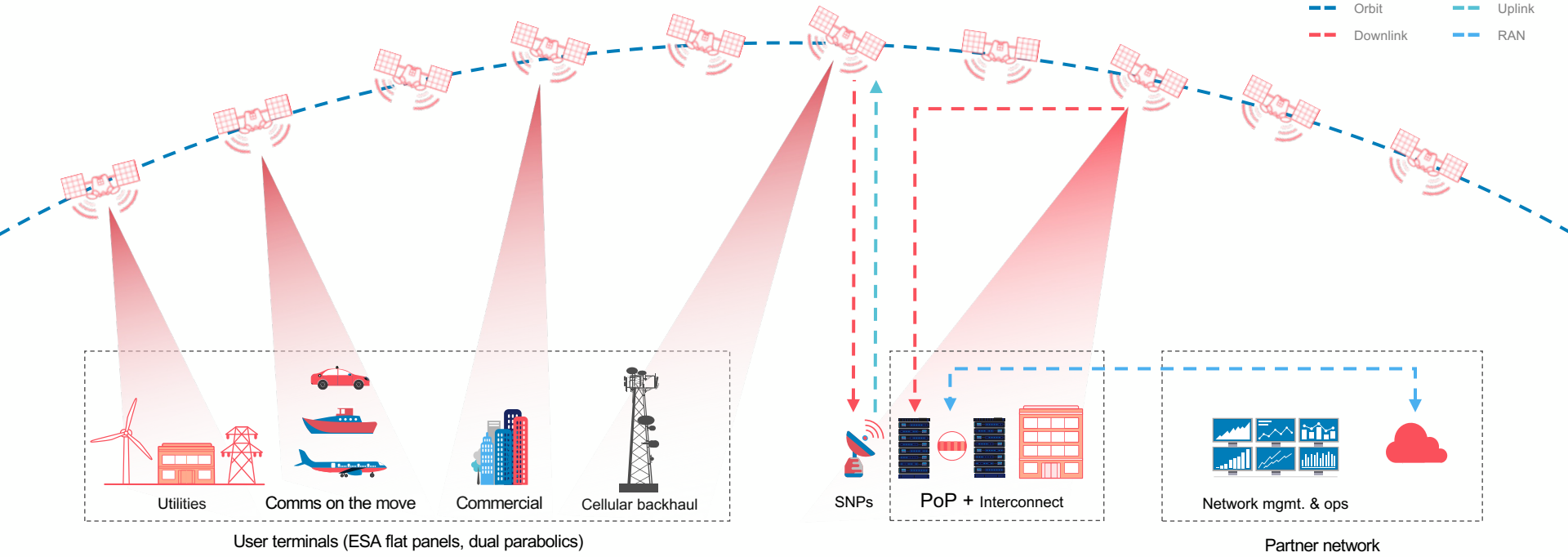
Major LEO Players

	eutelsat ONEWEB eutelsat GROUP	STARLINK	amazon project kuiper	SES O3b mPOWER	TELESAT	GUO WANG
Number of satellites	648	4409	3236	11	298	6080
Frequency bands	Ka Ku	Ka Ku	Ka	Ka	Ka	Ka
Orbit	1200	550	600	8062	1000	600 1145
Key Customer Segments	B2B/B2O: MNOs Enterprise Government Aero Maritime Land	End Customers Government	End Customers Enterprise Backhaul Aero Maritime Land	Backhaul Trunking Government Aero Cruise ships	Backhaul Government Enterprise Aero Maritime Land	Belt & Road Diplomacy

Eutelsat-OneWeb LEO Satellite Key Characteristics

- 5 years minimum lifetime in LEO orbit (@1200 km)
- Satellite carries 2 TTC omni antennas, 2 Ku-band antennas, and 2 Ka-band antennas
- Electric Propulsion (Significant orbit raising capability)
- High flexibility in orbit parameters
- Compliant with post-mission disposal regulation
- Payload capabilities up to 100 kg
- Min 250 Watts EOL

Closer look: LEO communications architecture



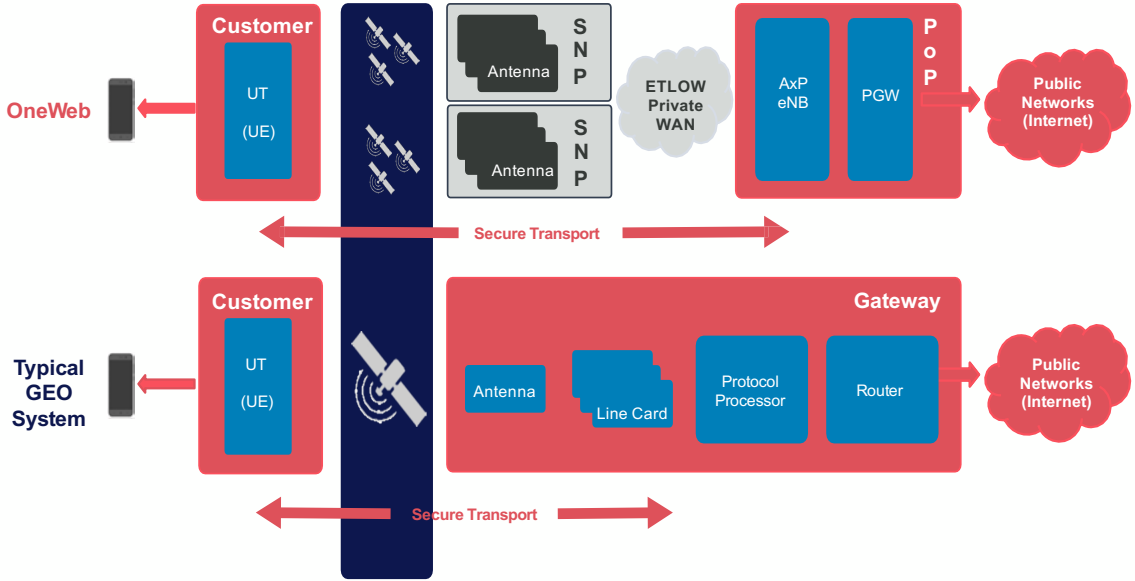
Gateway role: GEO vs LEO

LEO: The heart of the radio network is located in central “Points of Presence” (POP) and not in the satellite gateway (SNP).

ETLOW uses the location of the UT to guarantee that all traffic from each UT is routed to the correct AxP. This traffic is encrypted using the USIM key and not visible to the satellite nor any SNP it passes through.

National controls on the traffic can be placed both in the POP and at the interconnect (e.g. at the Customer Network)

GEO: Traditional satellite systems process all the traffic, including encryption, signaling, and user identification in the “gateway” node. The connection between the RF equipment and the traffic processor cannot run securely over long distances.



User Terminals

- Telco
- Enterprise
- Maritime
- Aviation
- Government

ETLOW Use Cases

Securing business continuity

Problem

- Service interruption due to various reasons.
- Impossibility to predict the services restoration time
- Absence of contemporary infrastructure and technical staff at the remote locations.

Solution

- LEO communications provide continuity and resiliency of communications independently from location
- Low latency (around 70 ms) and high throughput of 150 Mbps allow to use traffic-heavy systems and applications.
- Connectivity via low earth orbit satellites can provide backup or hybrid SD-WAN connection/
- Absence of necessity to have constant technical support of ground user segment

ETLOW Use Cases

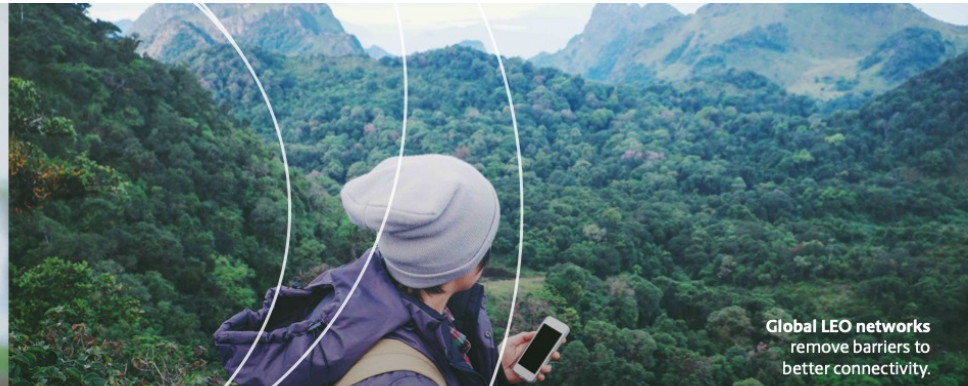
Cellular Backhaul

Problem

- Construction of terrestrial networks in remote or rural areas to increase network coverage can have high costs (up to 20% of TCO).
- Long distances and terrain (mountains, forests, lakes, rivers) can be a barrier.
- A low density of population and socio-economic factors influence the average revenue from BTS.
- Impossibility to launch new technologies.

Solution

- LEO satellite connectivity provides a cost-effective price.
- Speed of deployment of satellite solutions allows to increase coverage areas in maximum possible time
- Low latency and high throughput allow to deploy base stations capable of supporting 3G/4G and even 5G.



ETLOW Use Cases

Supporting healthcare

Problem

- The contemporary healthcare industry generates a significant volume of patient data that shall be accessible both locally and via the cloud.
- Absence of infrastructure, highly qualified personnel, and access to modern services.
- Continuity of processes is a significant challenge for the providers of healthcare services.

Solution

- LEO connectivity provides the possibility to receive healthcare services independently from location.
- Primary or backup communications channel between regional institutions and headquarters
- Low latency and high throughput allows to support essential, data-heavy systems and solutions and meet the requirements of telemedicine applications.

ETLOW Use Cases

Supporting first responders in emergency situations

Problem

- First responders demand assured levels in connectivity no matter where they are operating
- They require resilient and aggregated systems of communications (voice and data) to be in connection with the command and control center
- Fixed communications infrastructure could be damaged or destroyed as a result of natural or man-made disasters.

Solution

- LEO backed communications can be deployed rapidly at any location.
- No limitations related to terrain or location of communication systems.
- Low latency and high throughput allow to support almost any systems and solutions.

Dmitriy Vetlugin, Market Access Advisor

dvetlugin@oneweb.net