



“Expanding Horizons in Digital Development Statistics”

September 2025

Natalia Vicente
VP Public Affairs, GSOA



Global Association
representing the
entire industry

GSOA provides a platform for
collaboration among member
companies involved in the global
satellite ecosystem and a unified
voice for the industry.



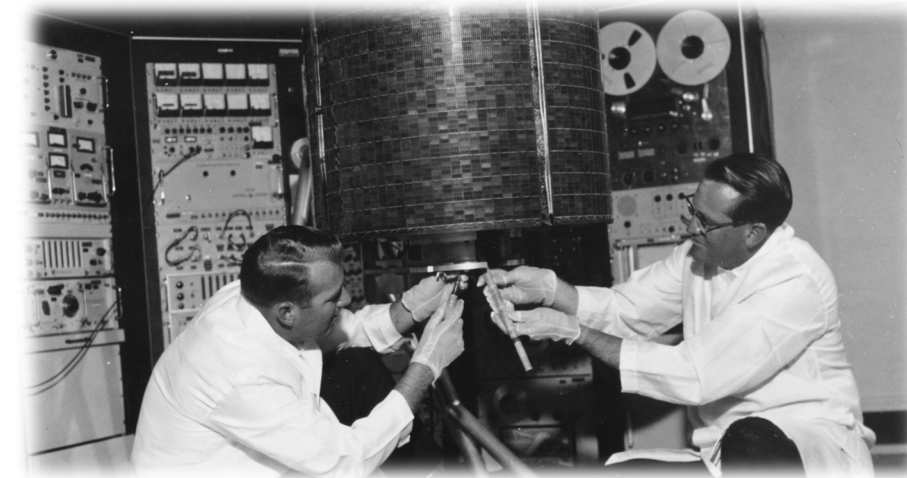
Fundamentals of Satellite



Sputnik 1 (1957)



Telstar 1 (1962)



Early Bird 1 (1965)



Intelsat 33e (2016)



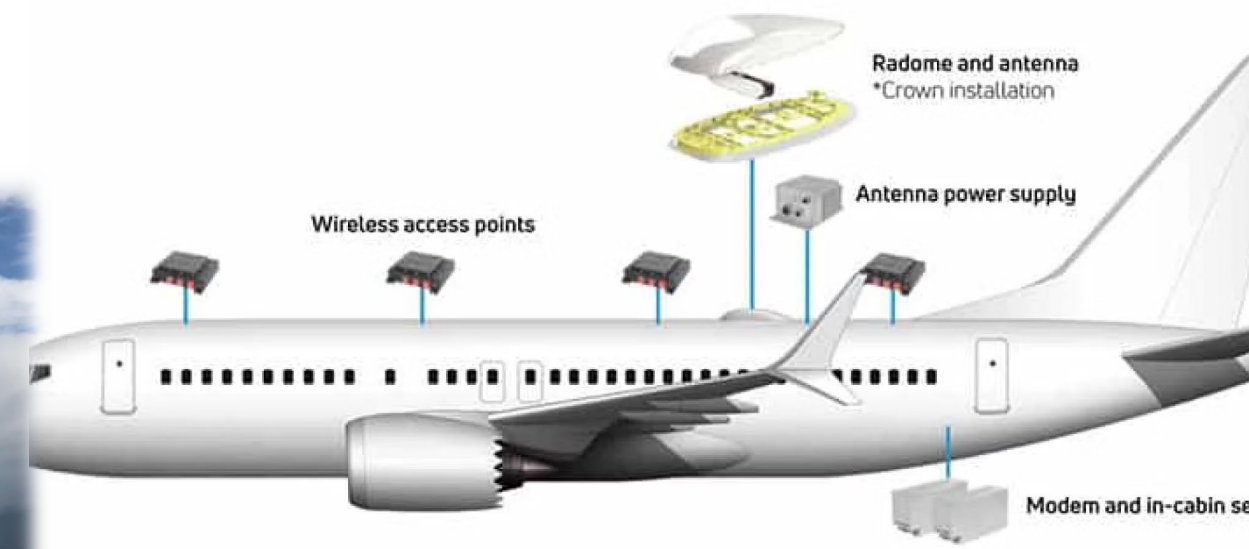
ViaSat-3 (2025)



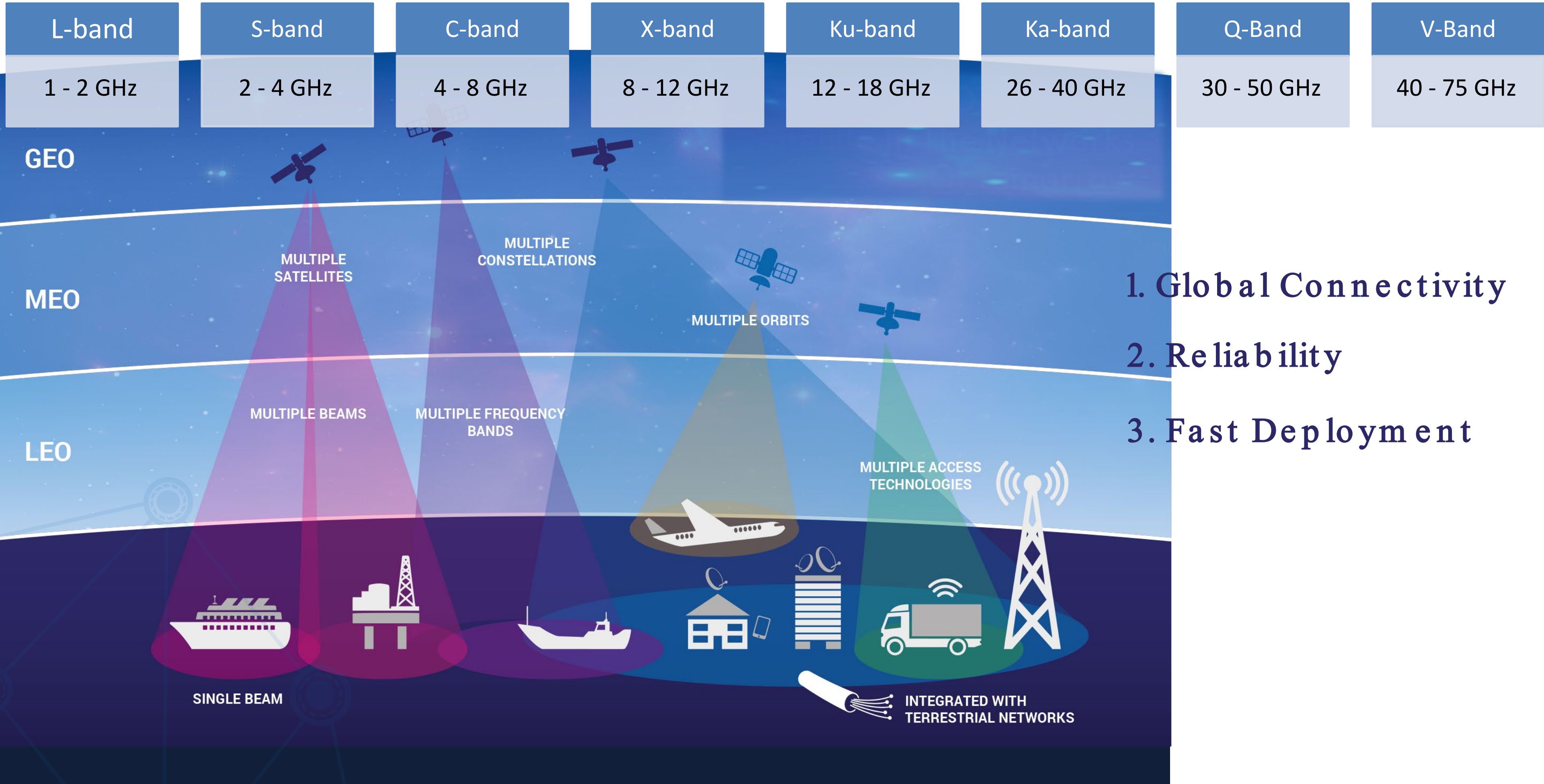
Eutelsat One Web (2024)



Fundamentals of Ground Segment



Overview of satellite communications



BBS – Broadcasting Services



Contribution
links



Special Events



Satellite News
Gathering



DTH TV
Services



Cable Distribution

FSS - Fixed Satellite Service

Broadband connectivity



Cellular Backhaul



Fixed Broadband
residential/enterprise



Trunking

Earth Stations in Motion



Direct to Home Internet

MSS – Mobile Satellite Service



Safety Services
(GMDSS &
GADSS)

D2D



Connected
Cars



IoT

Advances in Satellite Technology

Software-Defined Satellites

Multi-Orbit Systems



Inter-Satellite Links



Life Extension In-orbit Servicing



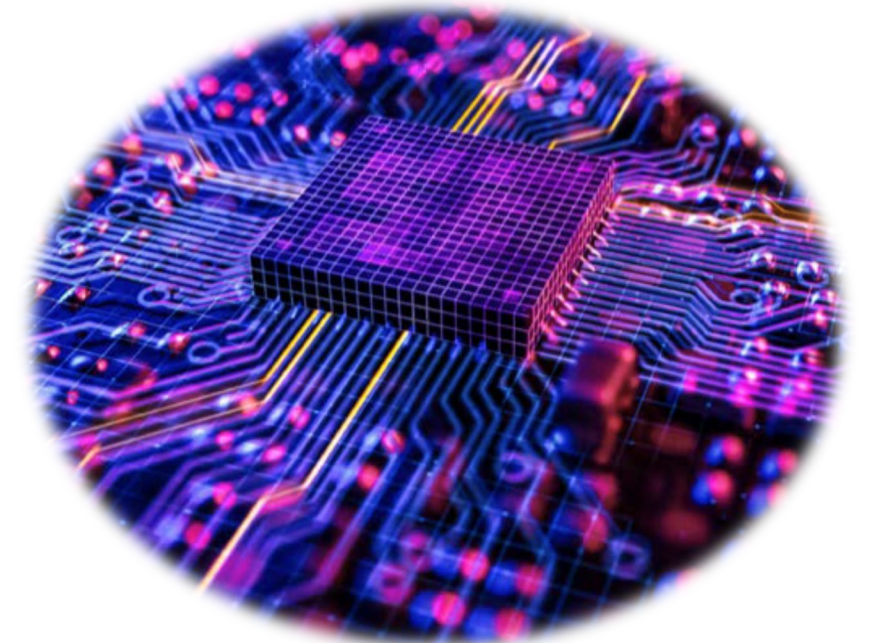
Ground Segment



Artificial Intelligence Machine Learning



Quantum Technologies



Towards a fully integrated ecosystem

Terrestrial Networks

2G & 3G

- › Backhauling can be supported
- › Special satellite phones can roam

4G

- › Interworking between satellite and terrestrial possible at IP level

5G

- › NTN Integrated into 5G for coverage and availability extension

6G

- › TN & NTN unified with 6G

Satellite
innovation

Digital
Demand

Vertical
Applications

Non Terrestrial Networks (NTN)



Aero & Maritime



Satellite IoT



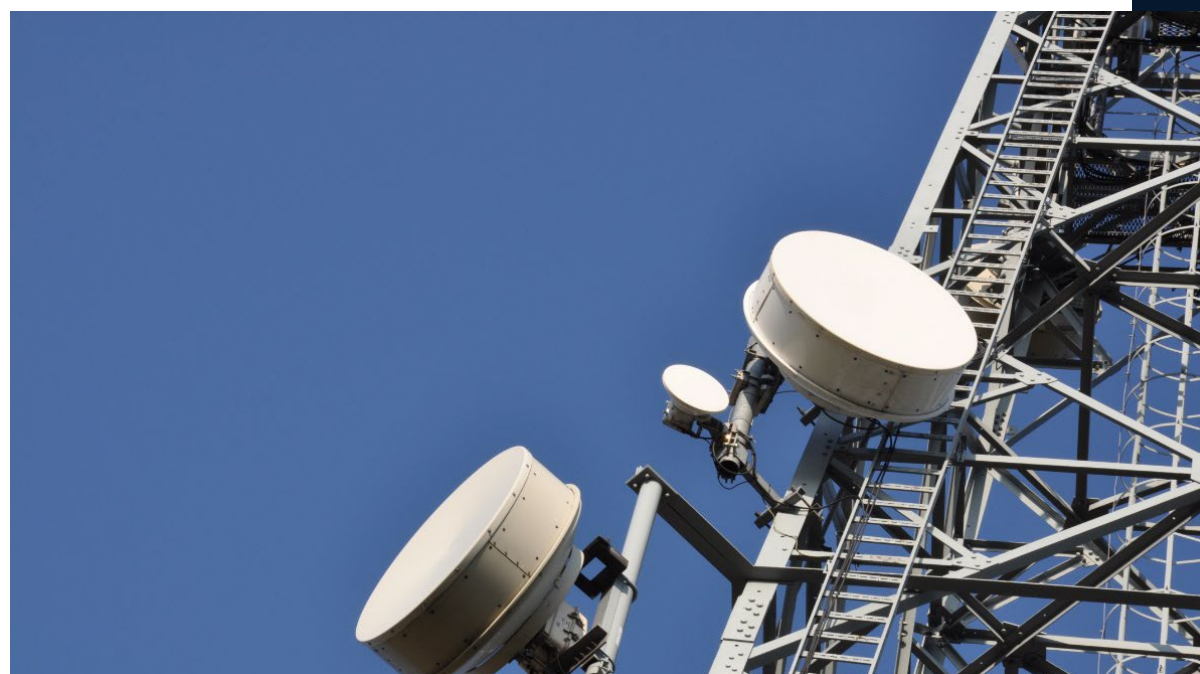
Satellite
Direct - to - Device



Cellular
Backhaul



Connected Cars

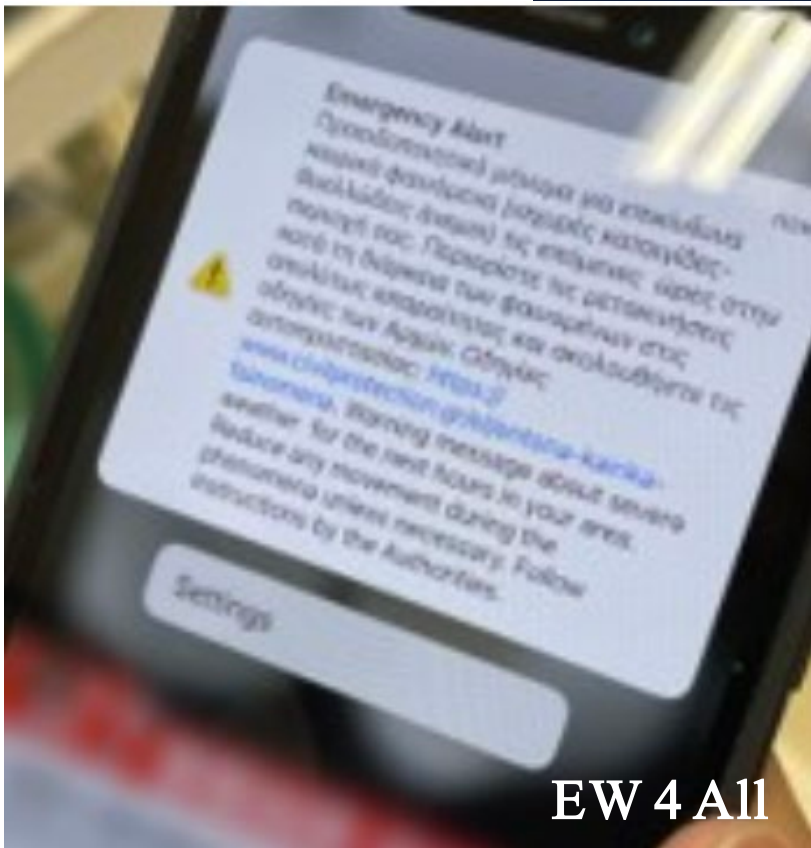


IoT Satellite

Early Warning & Monitoring



Inundaciones y fallas de presas



EW 4 All



Agricultura



Pesca



Detección de terremotos y tsunamis



Incendios



Mobilidad

Two variants of D2D

D2D in MSS bands

- Uses spectrum allocated to Mobile Satellite Service
- Leverages 3GPP Release 17 and later NTN specifications
- Requires no additional regulatory action if MSS authorized
- Support L- and S-Band, and Ka- Ku in future release
- Additional MSS spectrum allocations studies in WRC-27 Agenda Items 1.12 and 1.14

Challenges:

Needs mobile chipset vendors to include those 3GPP bands

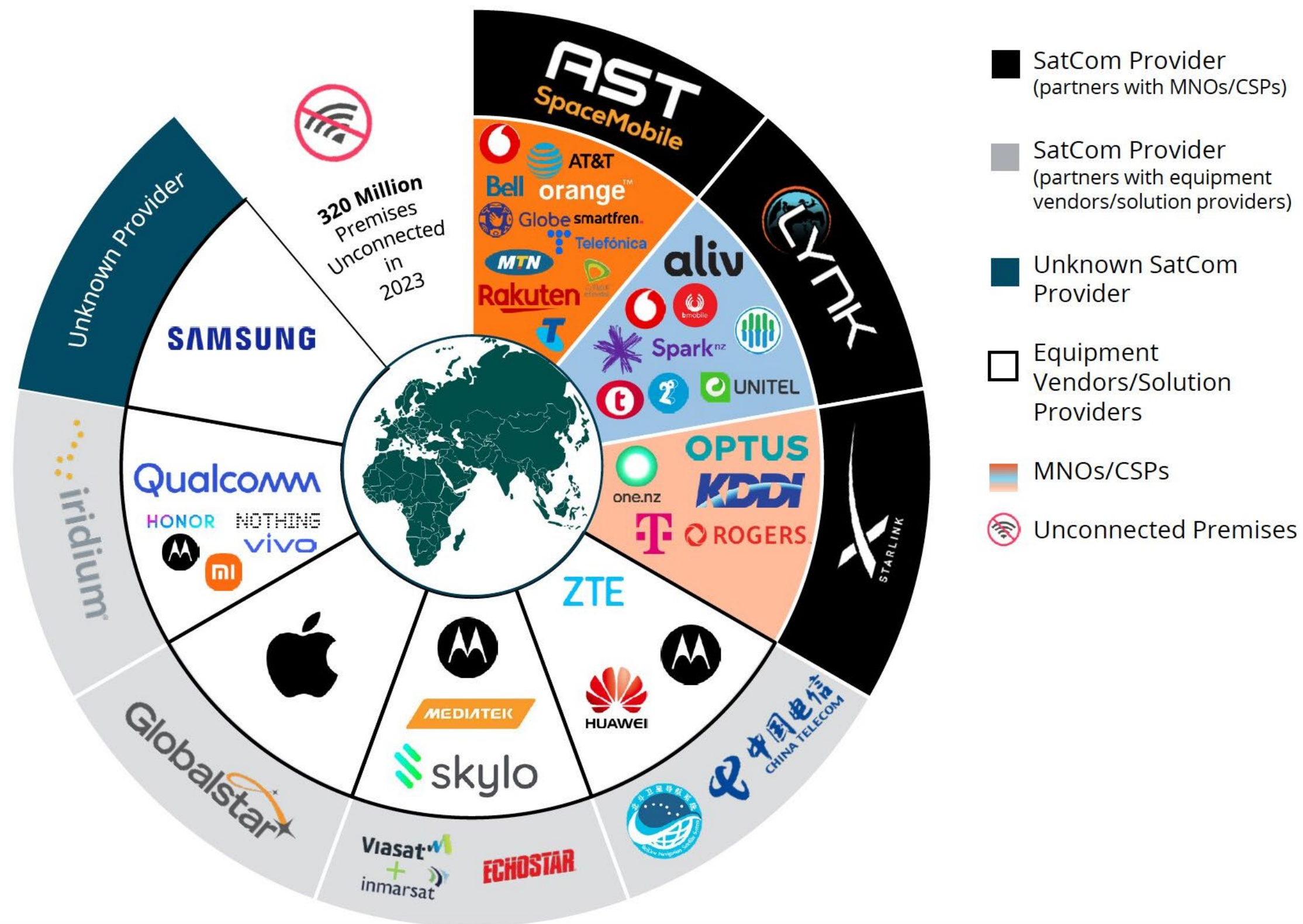
D2D in Terrestrial bands

- Uses terrestrial spectrum
- Can use off-the-shelf mobile handsets
- Requires partnerships with MNOs
- Complements existing mobile coverage
- Using IMT bands < 3GHz
- Coexistence being studied under WRC-27 Agenda Item 1.13

Challenges:

- Interference management between MNOs and satellite operators
International regulatory hurdles (ITU RR4.4)

Existing collaborations between satellites & mobiles



By the end of 2024, up to 3% of the approximately 7 billion active smartphones will support D2D.

Whats next?



Thank you!

 gsoasatellite.com

 info@gsoasatellite.com

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#satellite4life



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