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OneWeb
ACCESS FOR EVERYONE

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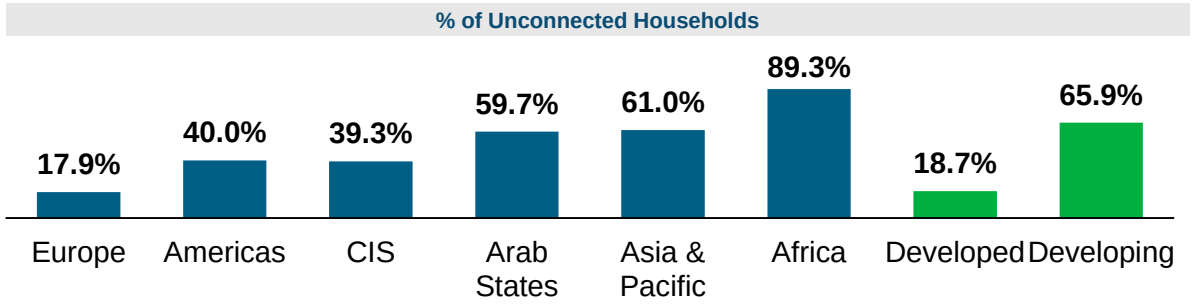
Majority of the World Does Not Have Access to the Internet

- The ITU[1] estimates **over 4 billion people** without internet access globally
- 55 million people lack access to advanced broadband in the U.S. alone
- OneWeb's market entry objectives align with public initiatives and international governments' goals to increase access globally

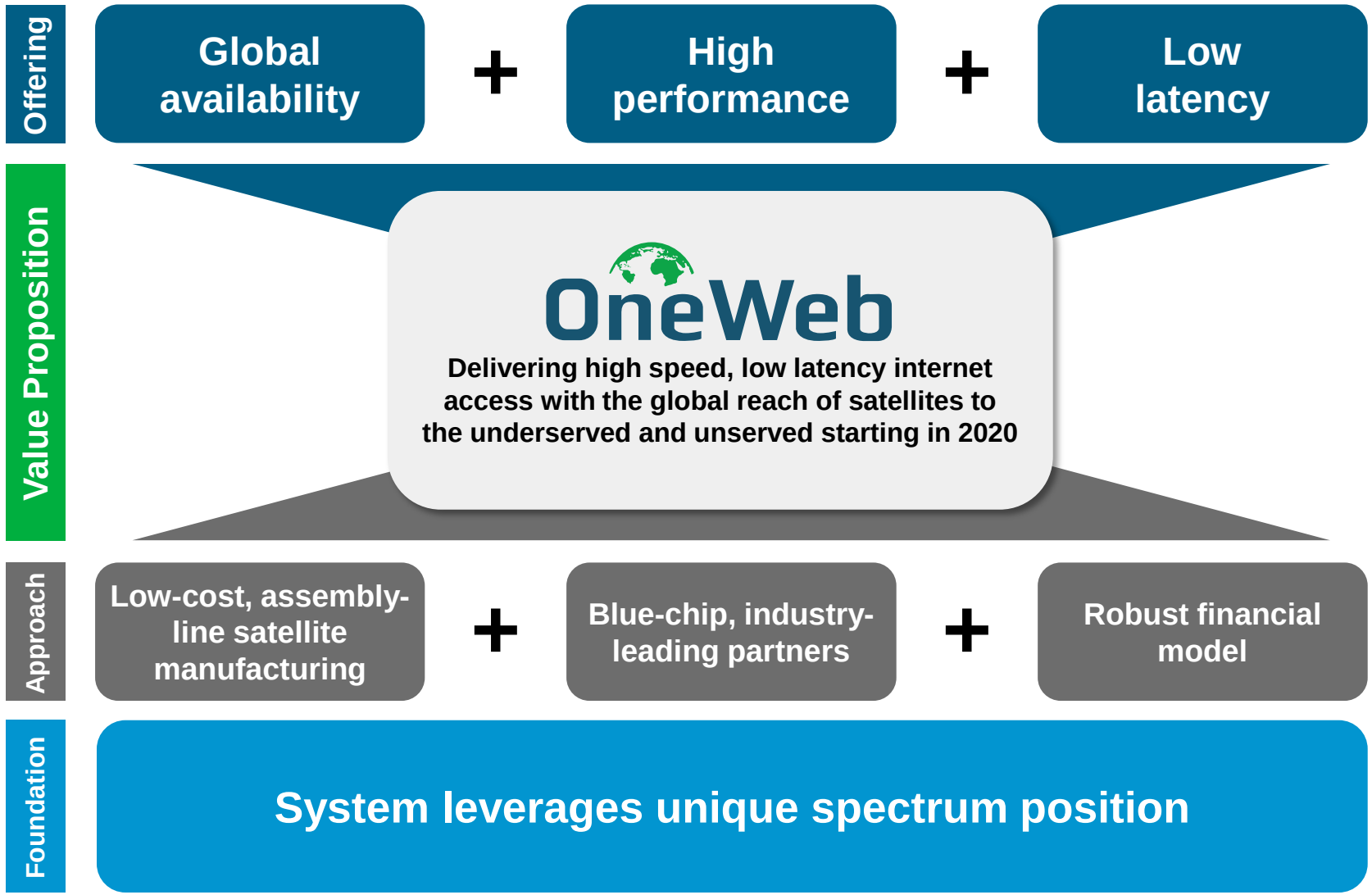


Source: ITU - ICT Facts & Figures, 2015; FCC 2015 Broadband Progress Report.
(1) International Telecommunication Union, an agency for information and communication technologies within the United Nations (UN).

OneWeb Benefits

- Global coverage including Poles
- Seamless mobility
- Low latency
- Small, high-performance user terminals
- Cellular extension, even without towers
- Improved performance in obstructed terrain
- Multiple local distribution options, working with local partners:
  - Direct-to-home, institution, mobile and community models

OneWeb is Expanding Global Connectivity



OneWeb at a Glance

Lowest Latency
< 50 milliseconds

Highest Throughput
400 Mbps Down/Beam
100 Mbps Up/Beam

Smallest High-Performance User Terminals
30cm – 65cm

System Capacity
8 Tbps

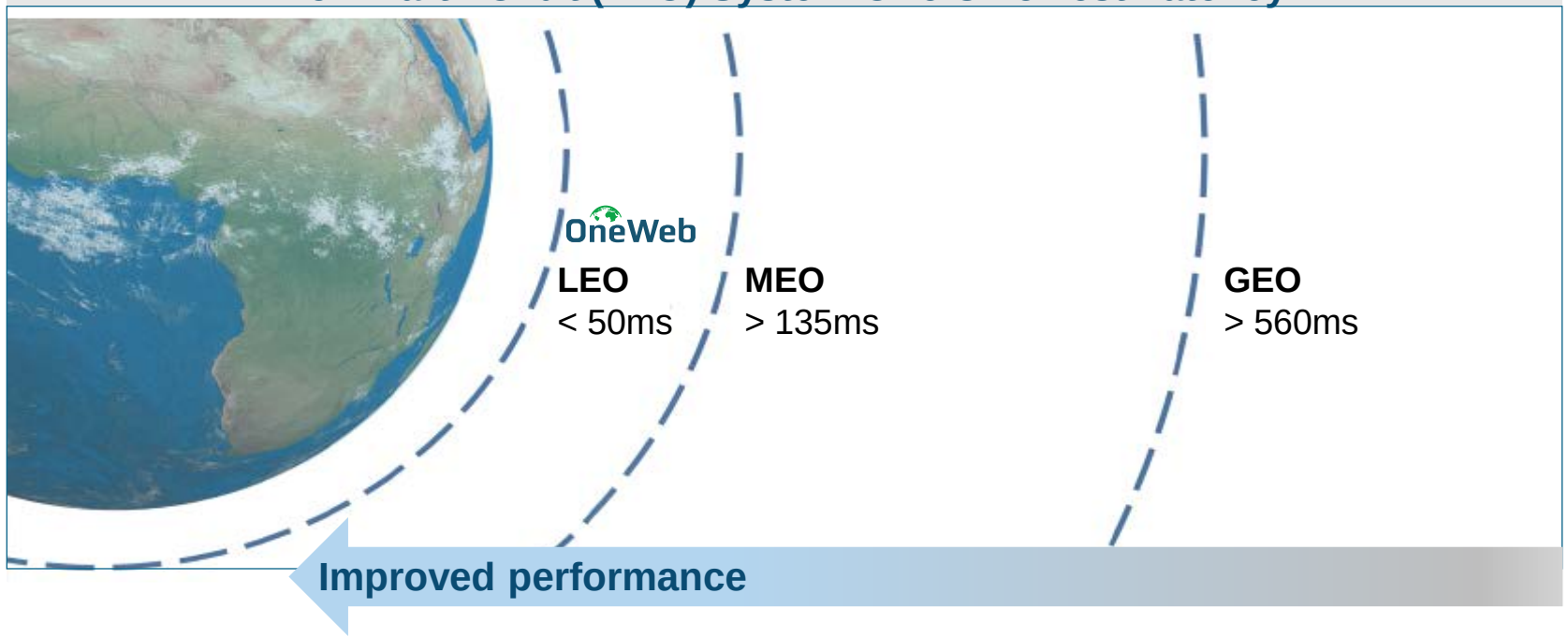
Premium Spectrum
Ku- and Ka-band Rights

Multiple Local Access Options
Wi-Fi, LTE, 5G, Ethernet

Global Constellation
648 LEO satellites (Initial)
882 LEO satellites (Full)

Lowest Satellite Cost
< 1M $ / satellite

Low Earth Orbit (LEO) System Offers Lowest Latency

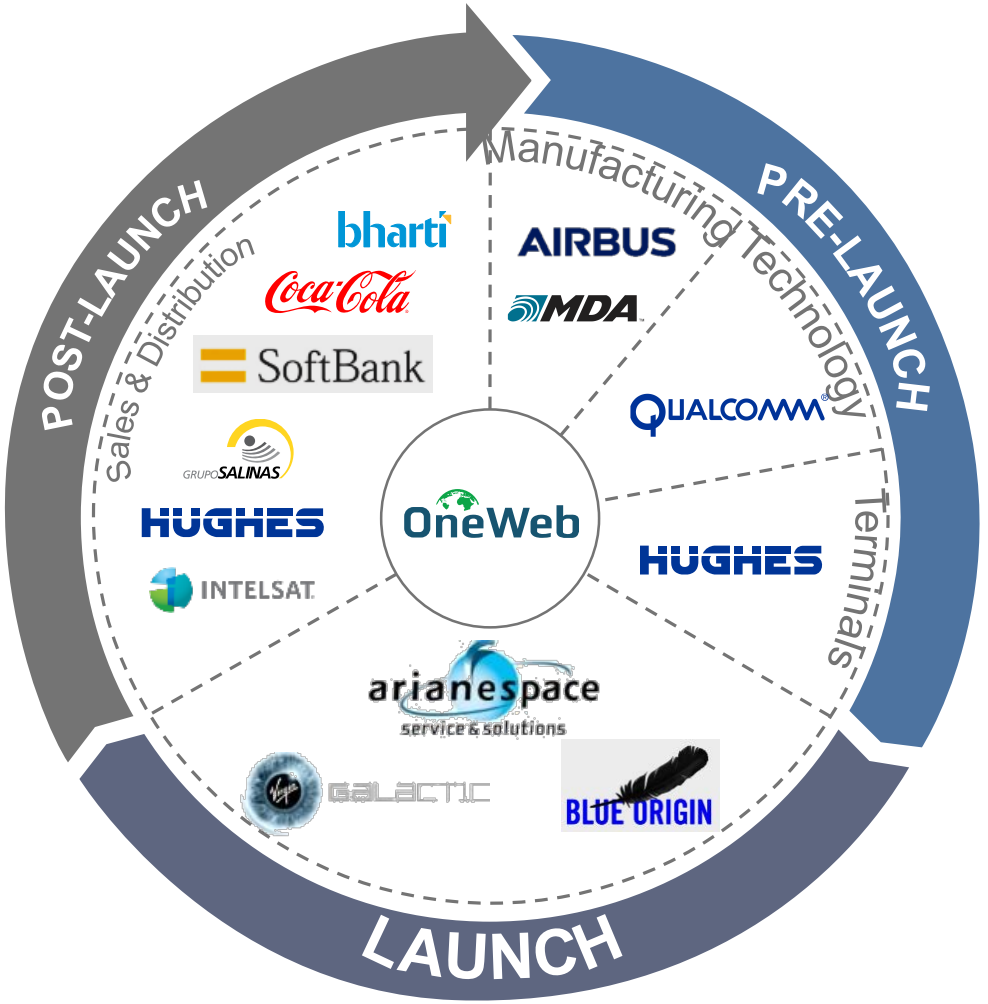


OneWeb's Solutions Serve Multiple Market Segments

Satellite Broadband		**Corporate Small Enterprise**	• Business-to-business (B2B), business-to-market (B2M) communications • Scalable to meet capacity needs
		**Integrated Small Cells**	• Connectivity for smartphone demand • Major growth sector in telecommunications
		**Consumer Residential**	• Direct to home internet and data • Exceptional data speeds
Enterprise		**Maritime**	• On and off-shore communications • Global coverage of shipping routes
		**Aeronautical**	• Low profile antenna • Front and rear-of aircraft services (e.g. media, health monitoring of aircraft)
		**Government**	• First Responder applications • Military applications
		**Oil and Gas**	• Reliable and secure communications • High resiliency, low latency enhances monitoring solutions
		**Connected Car**	• Trusted communications for over-the-air updates • Driver assistance systems and passenger connectivity
Cellular Backhaul		**Macro-cell Satellite Trunking**	• Low cost expansion of mobile networks • Not-spot fill-in

Well Established Partnership Ecosystem

- OneWeb's partners provide key **strategic and commercial relationships** across OneWeb's business operations
- **Strong technology partnerships** support rapid development of the satellite, user terminal and ground systems
- **Key distribution partnerships** support initial go-to-market strategy
- The Company will continue to partner with **new industry leaders** to support deployment and market access of OneWeb's service



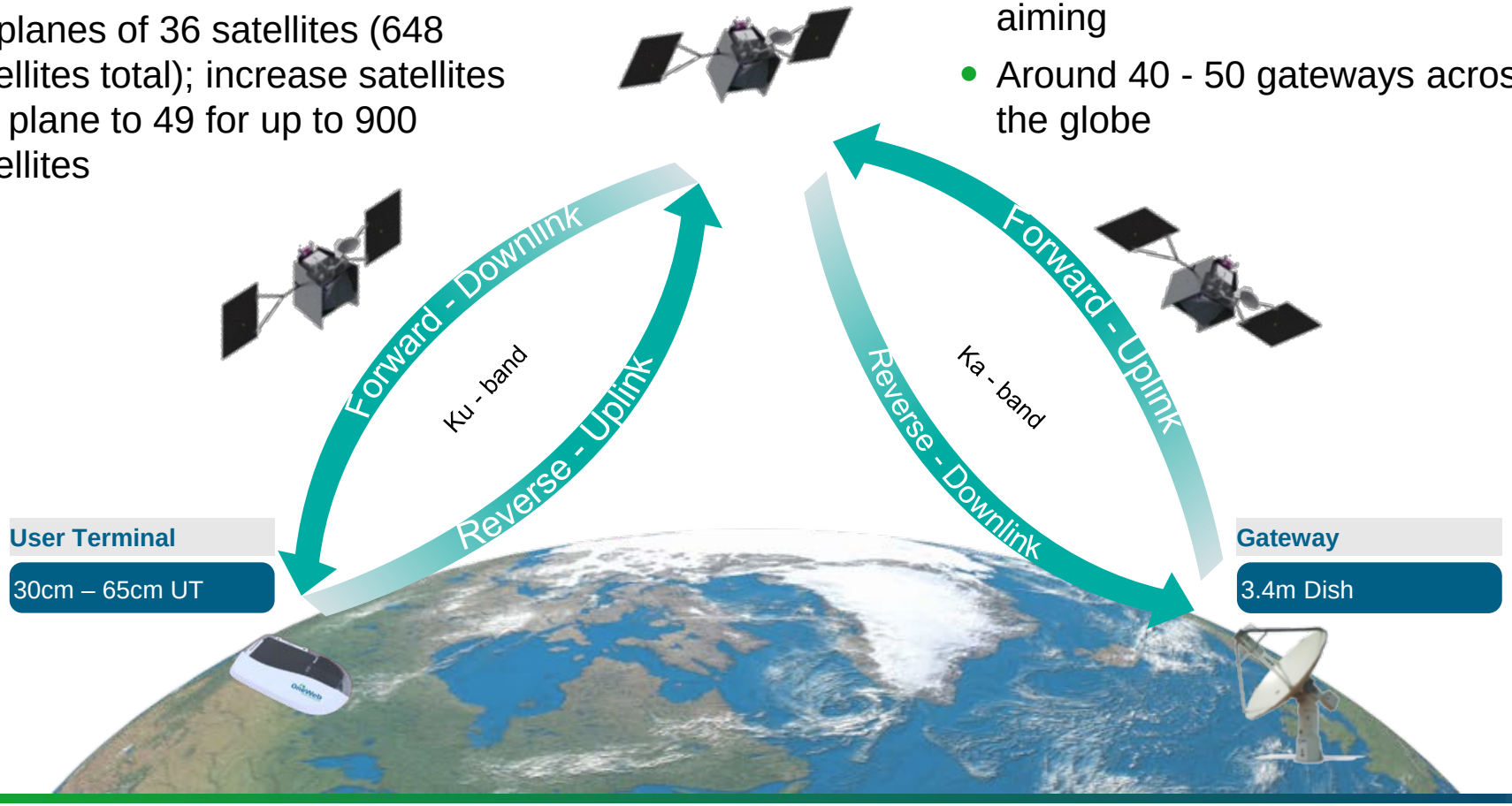
OneWeb - System Overview

Constellation

- Innovative beam technology
- Small, inexpensive satellites using existing technologies
- 18 planes of 36 satellites (648 satellites total); increase satellites per plane to 49 for up to 900 satellites

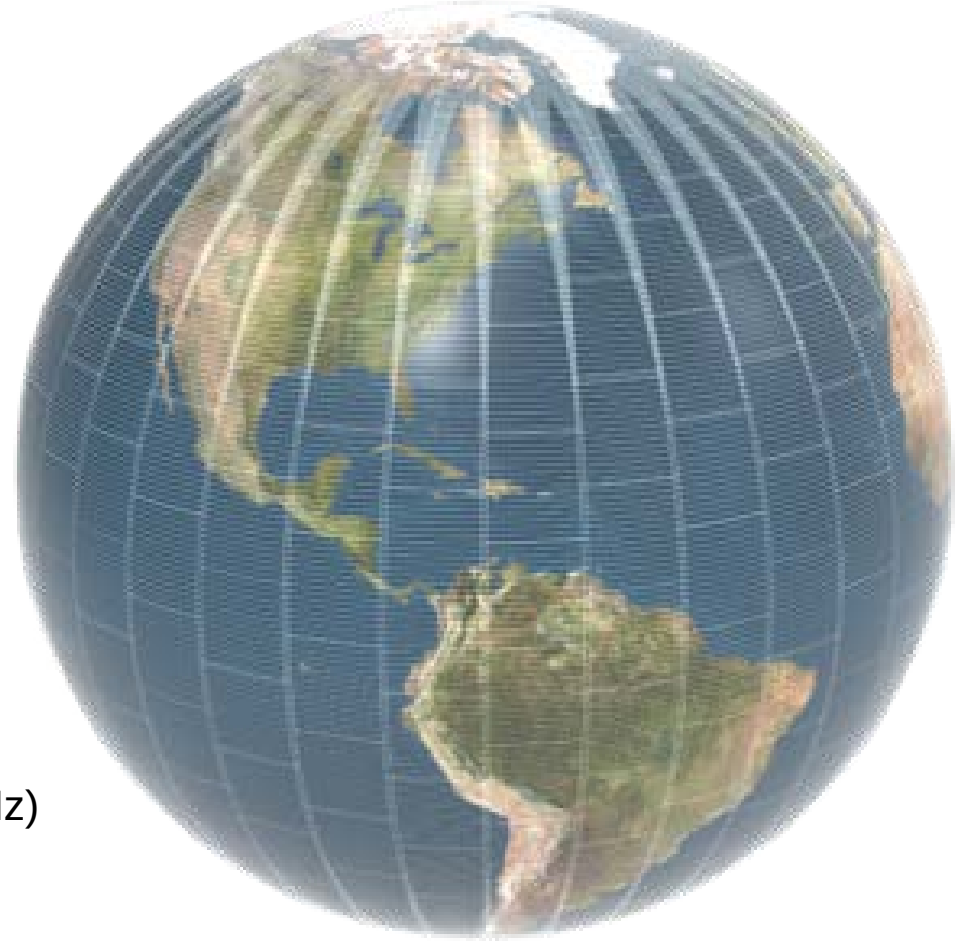
Ground

- Affordable, compact, multi-user access terminals
- Easily installable without position aiming
- Around 40 - 50 gateways across the globe

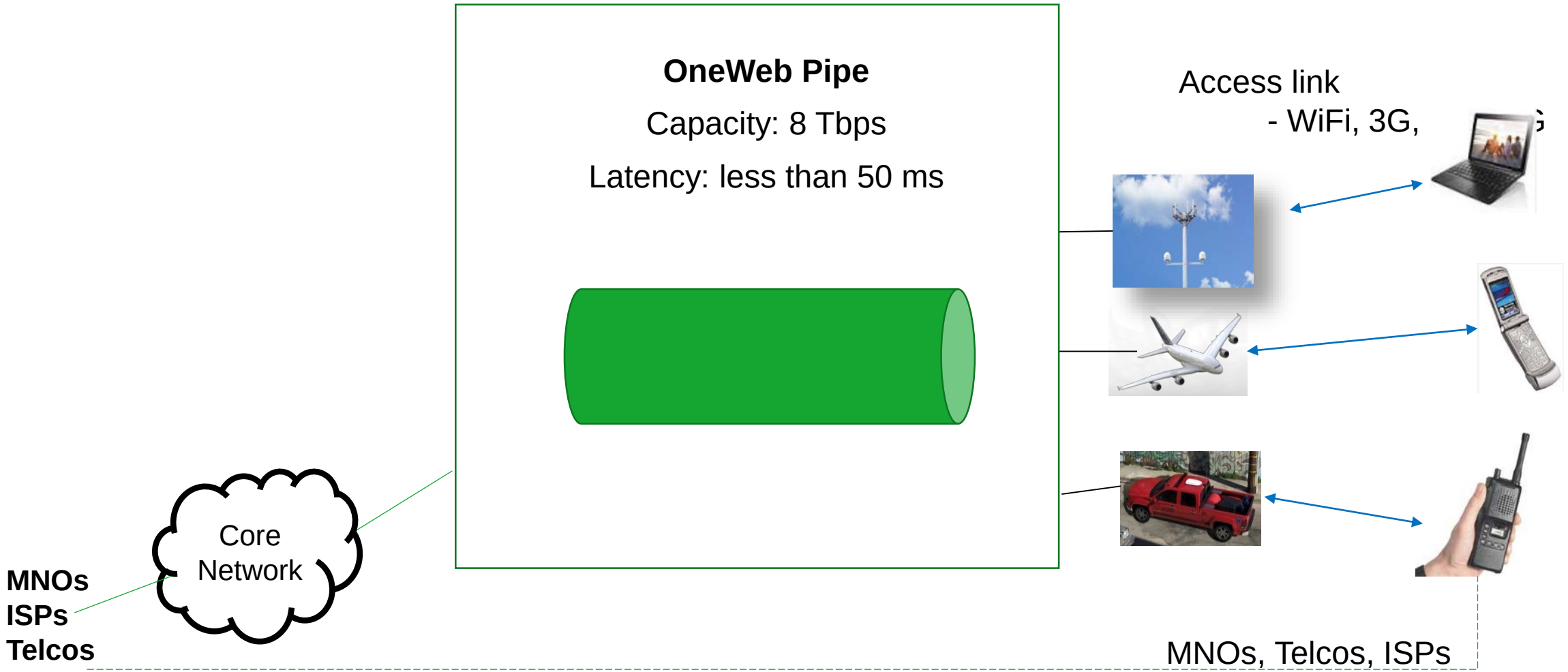


Constellation

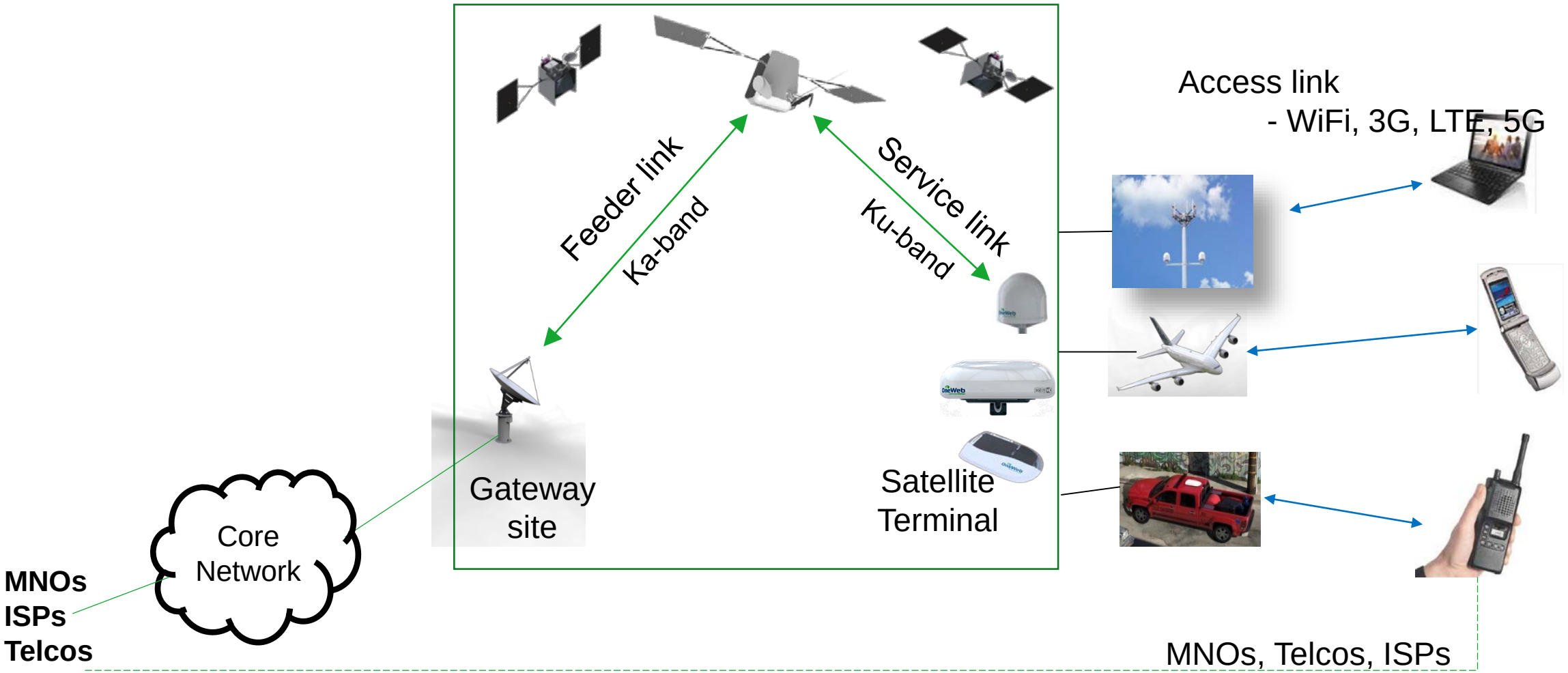
- Global coverage
- 8 Tbps forward capacity
- Les than 50ms latency
- Ground network of 40 - 50 gateways around the globe
- Up to Satellite constellation
- Terminals designs targeting multiple end-user markets
- Provide WiFi/3G/LTE/5G connectivity to user devices
- Operating user terminals at very high elevation angles
- Operating in OneWeb frequencies
  - User links: Ku-band (10.7-12.75 GHz and 14.0-14.5 GHz)
  - Gateway: Ka-band (17.7-18.6 GHz, 18.8-20.2 GHz and 27.5-3 GHz)
- Operating within ITU EPFD limits to protect GSOs



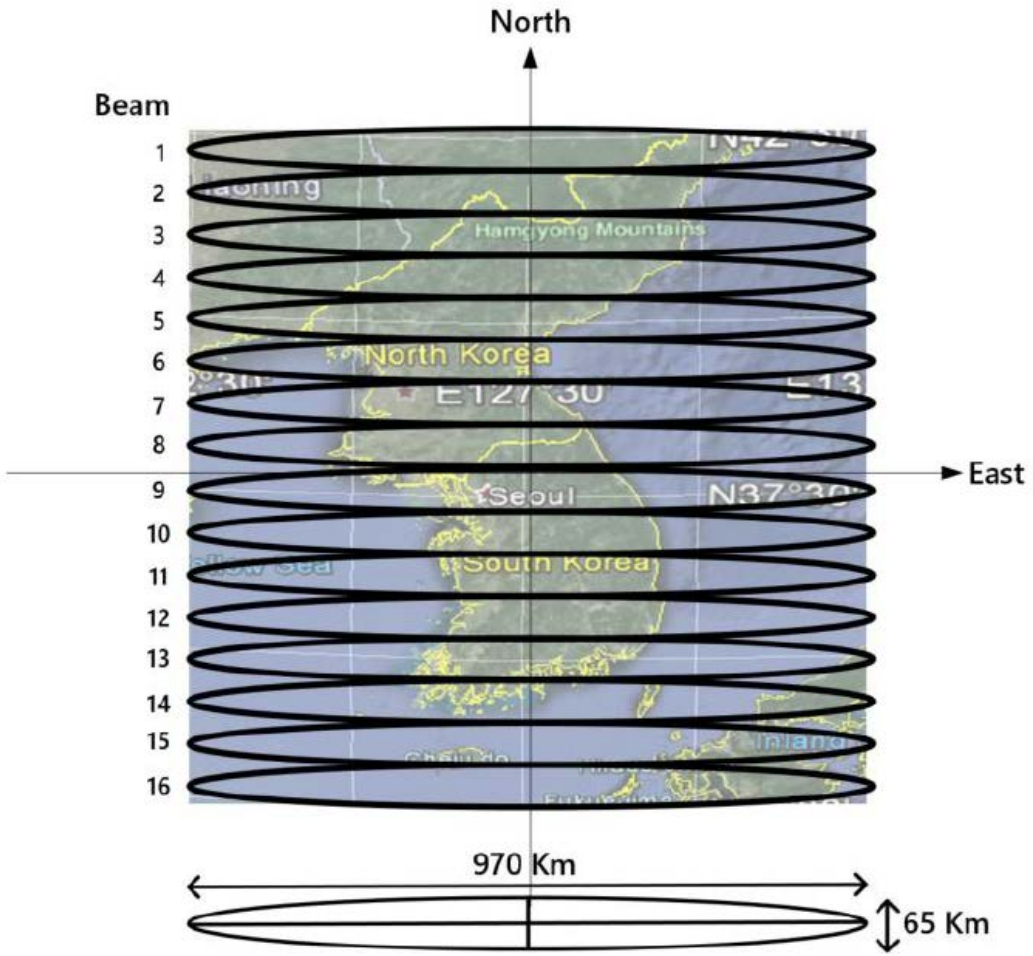
OneWeb Backhaul Architecture



OneWeb Backhaul Architecture



Ku-Band Satellite Coverage Footprint



- North-to-South coverage
- 1000 x 1000 km service area
- 16 beams with frequency reuse
- High elevation angle coverage (average 75 degrees)
- 8 Gbps capacity per satellite
- Latency < 50 ms
- Progressive pitching to avoid in-line interference to GSOs

Gateway Overview

- The initial deployment plan has 40 - 50 Satellite Network Portals (SNPs), which provide coverage for OneWeb's operational area
- Site locations to be synchronized with regulatory considerations
- Leverage Hughes ground system design expertise

Indicative Satellite Network Portal Locations

Not real deployment

OneWeb Equipment

Ku-band FSS allocation

- Terminals are under development
- 0.5 to 1 meter size
- Speeds of over 50 Mbps
- Parabolic / phase array
- Low EIRP < 35 dBW
- High elevation operations

Mobile Applications

Enterprise Applications

Small Cell Applications

Cellular Backhaul Applications

Empowering Communities Without Access

OneWeb Applications and Market Segments

Home / Small Enterprises
IoT / M2M / small cells

Schools and Hospitals

Community Centres

Rural and Remote

Oil and Gas

On-bard communications

Trains and Connect cars

Public Protection and
Disaster Relief

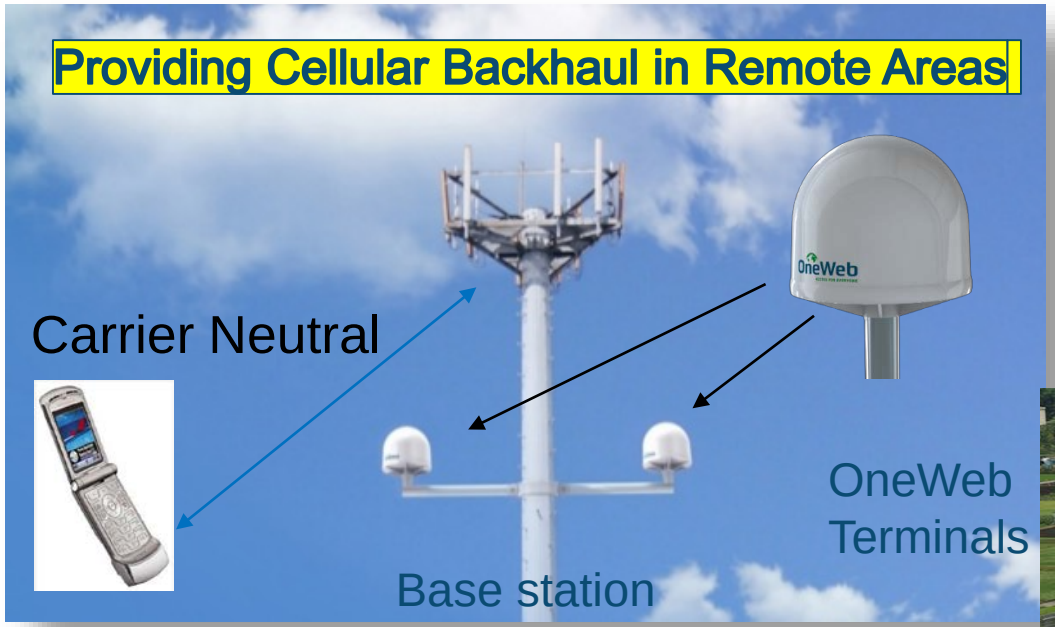
Emergency

Connected cars

Roads / Motorways

Cellular Backhaul

Providing Cellular Backhaul in Remote Areas

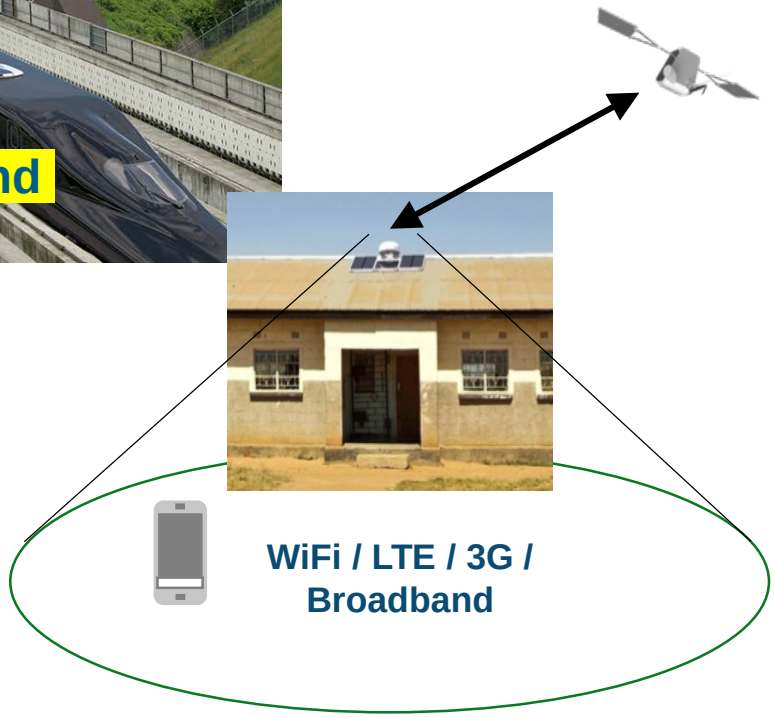


Cellular Backhaul in Roads

Connecting People and Machines in Transit

Connecting people at air and sea

Connecting Workers in Remote Areas



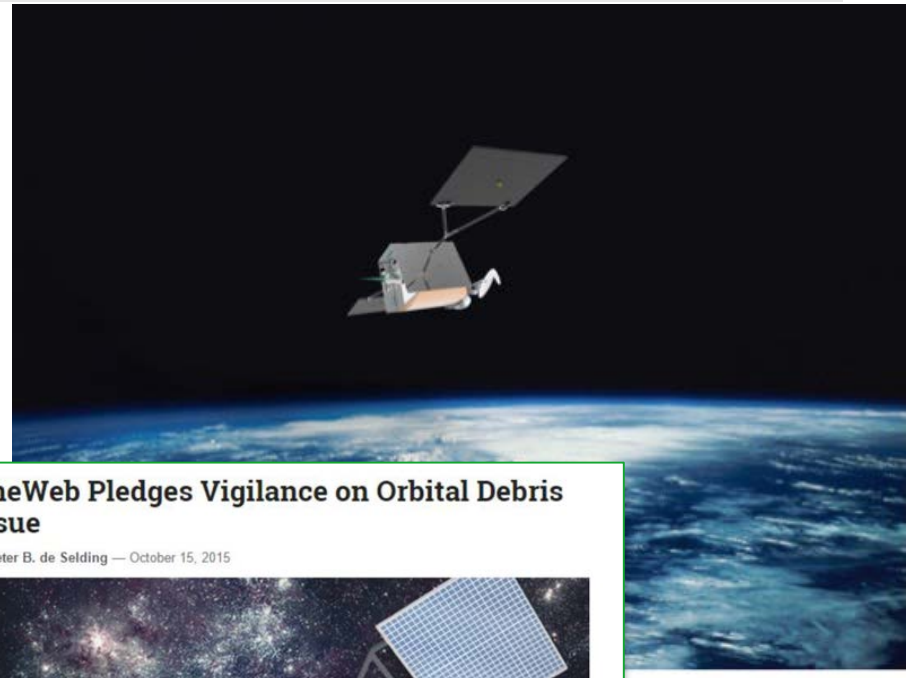
First Responder Communications and Disaster Relief

Clean and Sustainable Space

OneWeb as a vested interest in the success of its activities, and therefore takes risk reduction measures seriously

- **OneWeb leading on space debris mitigation standards for constellations**
  - Involved with the Inter-Agency Debris Committee, UN-COPUOS and many other conferences
- **Proactive and Transparent**
  - Philosophy of openness to government and industry
  - Deorbit system the most reliable part of the spacecraft
- **Plan to limit the increase of object population density in orbit**
  - Develop operation plans to proactively avoid collisions in orbit
  - Decommission/Deorbit satellites more frequently < 5 years
- **Plan to reduce collision risk with own satellites**
  - Separate own orbital planes

Ensuring a Safe and Sustainable Space Environment



OneWeb Pledges Vigilance on Orbital Debris Issue

by Peter B. de Selding — October 15, 2015


Editorial | OneWeb is Looking Proactive on Debris Question

by SpaceNews Editor — October 26, 2015

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The Dream of Affordable Internet Access for Everyone is Getting Closer

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