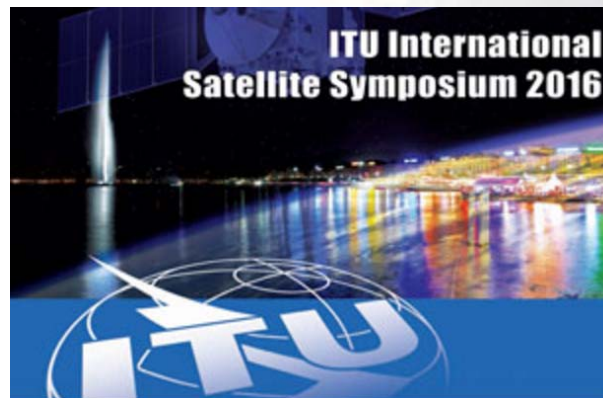




OneWeb

ACCESS FOR EVERYONE

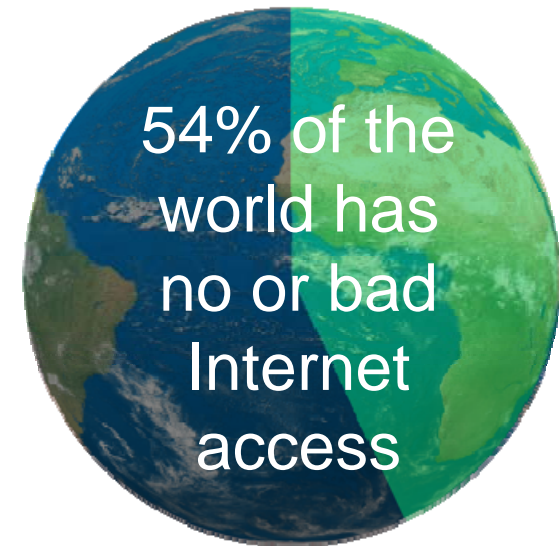


OneWeb Global Access

Tony Azzarelli, VP Regulatory and Policy

The Unconnected and Underserved world

World Average	53.6%
Developing Countries	65.9%
Developed Countries	18.7%



- Figures based on International Telecommunications Union's estimates for 2015

OneWeb is here to help bridge the Digital Divide

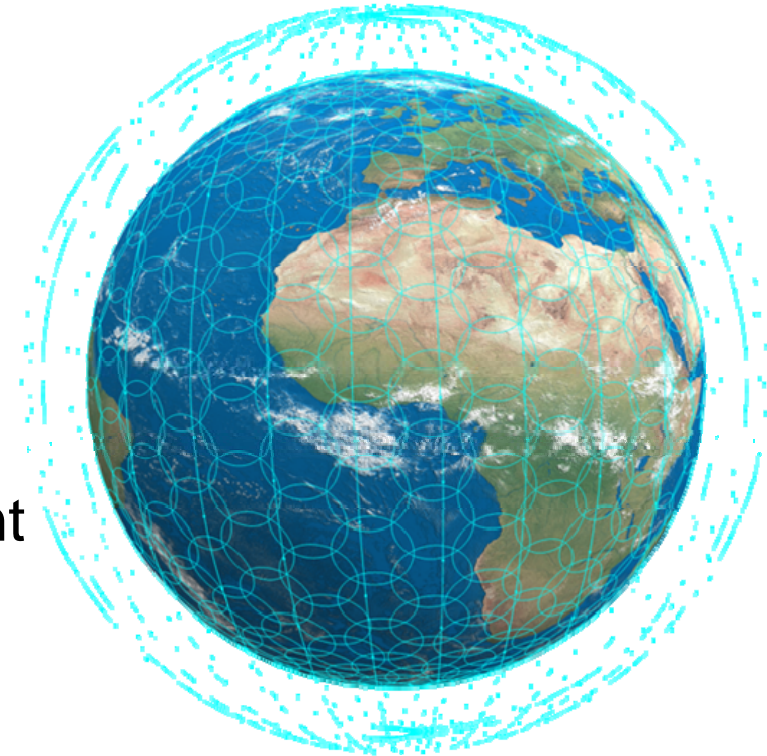
- **Fiber** has prohibitive costs to deploy in rural areas
- **Satellite** provides “coverage” and is “cost effective”
- **OneWeb** broadband quality comparable to terrestrial

Speed	Download up to 50 Mbps Upload up to 25 Mbps
Volume	10 to 150+ GB per month
Latency	about 50 ms round trip
Coverage	High elevation angles (> 50 degree)

World Class Group of Partners and Shareholders



OneWeb's Global Constellation

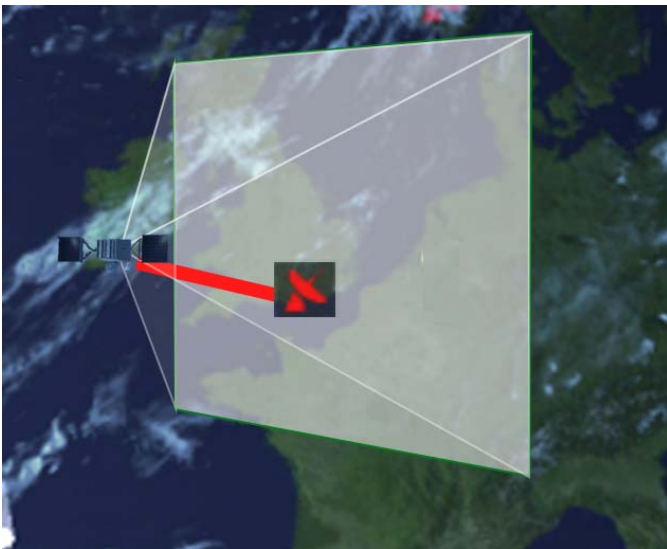


- 648 satellites by 2020 - initial deployment
- Low Earth Orbit - 1,200 km
- 18 orbital planes
- Ku-band and Ka-band spectrum

OneWeb coverage

OneWeb satellite coverage

- Service Area: 1080x1080km
- Satellite Capacity: Up to 7.5 Gbps



OneWeb global coverage



Satellite Broadband (including fempto cells)

Schools



Small & Medium Enterprises



- Kiosk
- Ekocenters
- Community centers



Homes



Cellular Backhaul (macro-cells)



Connecting Roads & Trains



Maritime Platforms – Ships and Oil & Gas



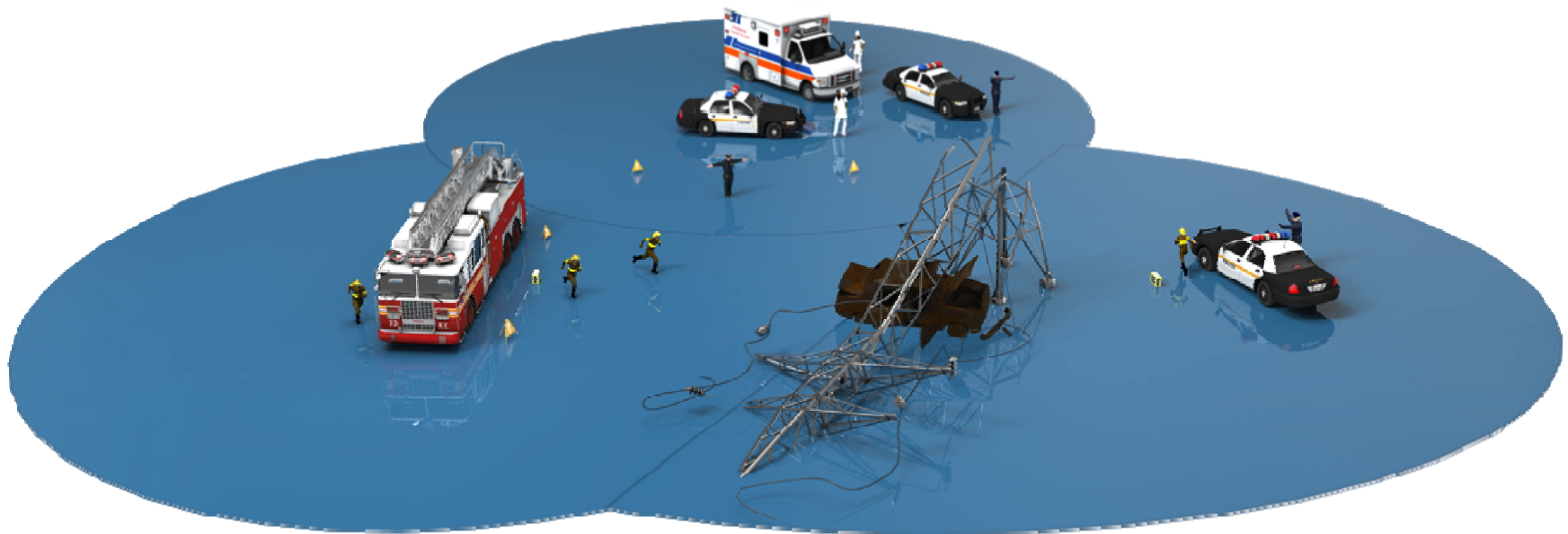
Aviation



First Responder – Emergency Services



Public Protection and Disaster Relief (PPDR)

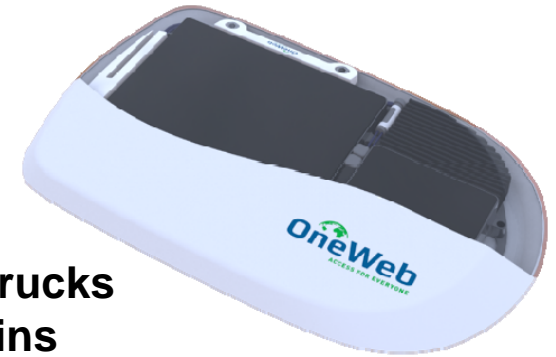


Satellite Terminals

Aero terminal by Rockwell Collins



Terminal Trucks and Trains



Terminals for premises or Fixed locations

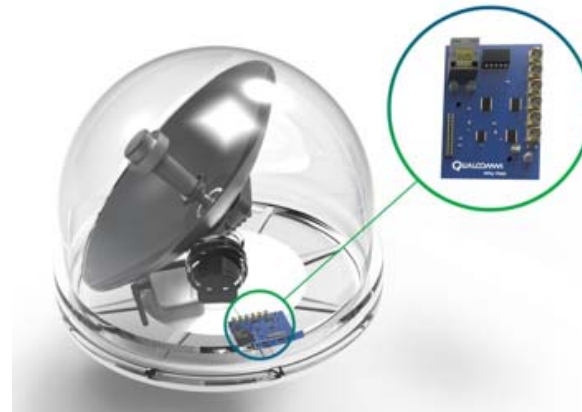


Terminal for Ships

Qualcomm Chipset



Low power and fast chipset



OneWeb Ground Network



- 50-70 gateway sites around the world
- 500+ antennas

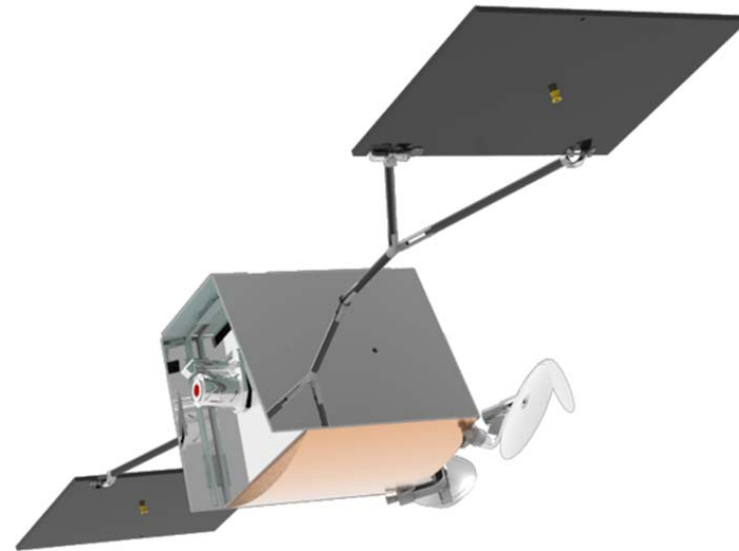


OneWeb Satellite Manufacturing

Joint Venture



Manufacturing
Small, low cost and
quick to build satellites



Launchers - Arianespace

- 21 Soyuz + options
- Pilots launch end 2017
- Constellation deployment from 2018-2019



Launchers – Virgin Galactic

39 Virgin Galactic launches
Immediate access to space
Direct orbit insertion



OneWeb is Taking Responsible Measures

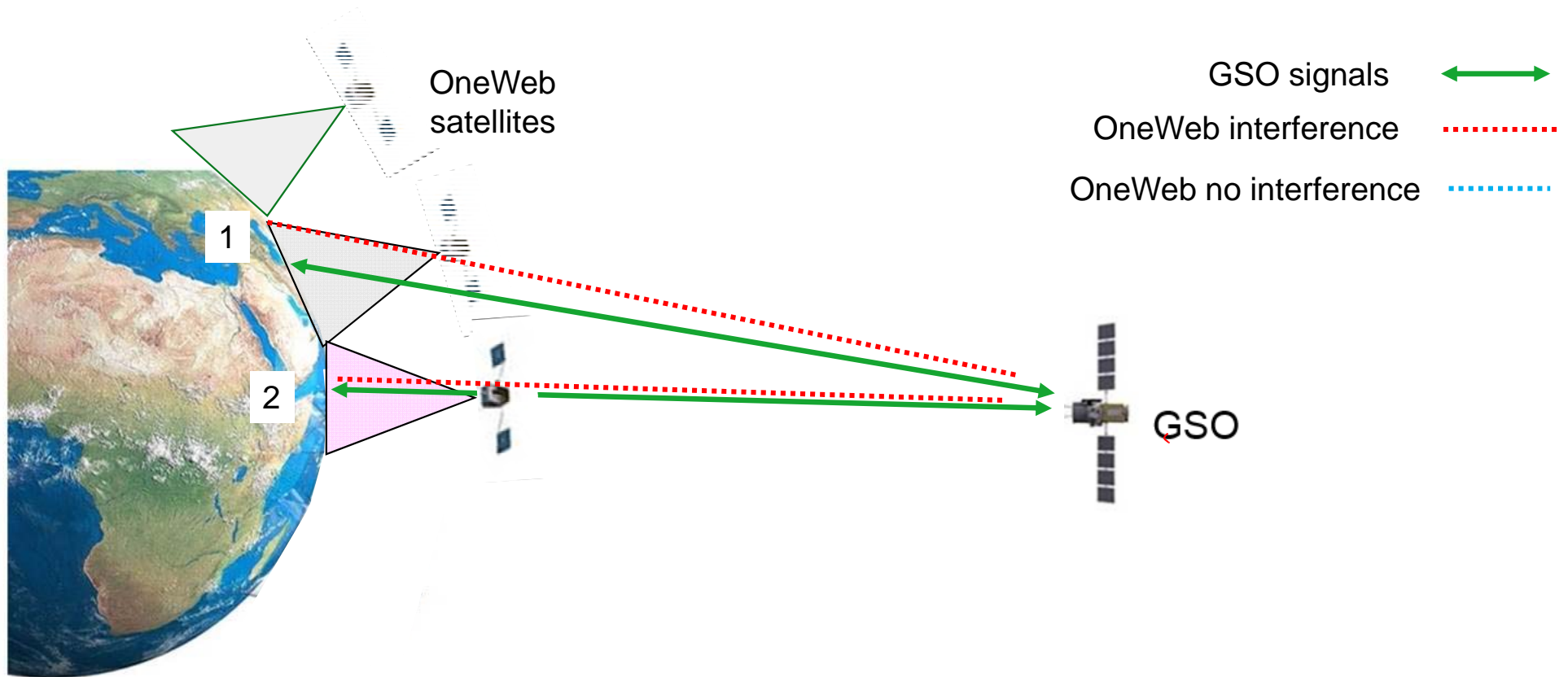
- Clean space - minimizing debris
- Ensuring protection of GSOs – EPFD limits
- Cyber security – protecting its links

Protection of GSO systems

- **ITU Radio Regulations Art 22** EPFD limits protect GSO systems
 - OneWeb meets the EPFD limits by avoiding in-line interference
 - Allowance 10% of Unavailability (=100% - Availability)
 - For example:
 - If Availability is 99.9% then Unavailability is 0.1%
 - EPFD compliance means that 10% of 0.1 unavailability = 0.01%
 - Then Availability 99.9% drops to 99.89%

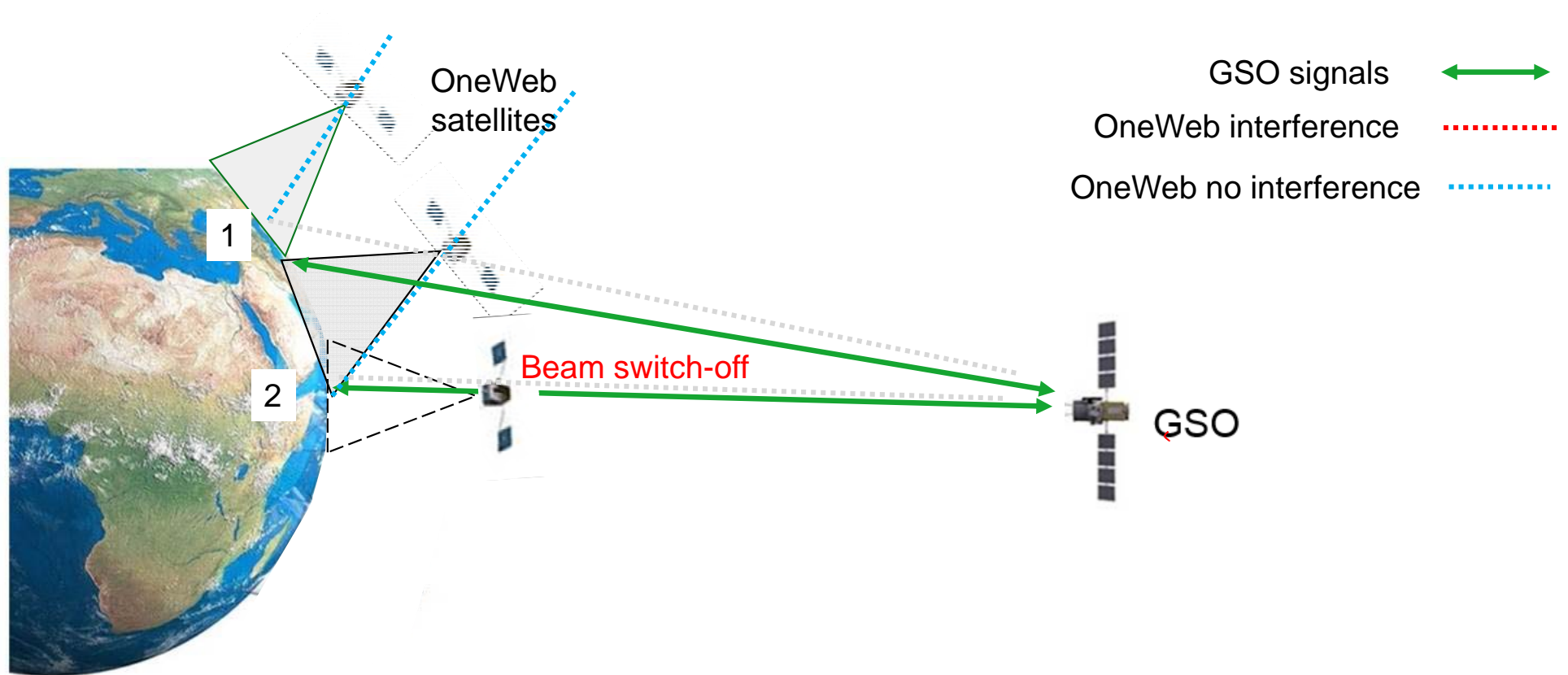
Novel Techniques to Protect GSO

- **Without doing anything**



Novel Techniques to Protect GSO

- With “progressive pitching” the satellite (patent pending)





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