

International Forum Osiptel 30 Years: Past and Future of Telecommunications in Peru



Panel 2: 5G and new generation solutions to improve the quality of services and reduce the connectivity gap

Hughes in Peru

4+ Years Reaching the Unconnected

97%

homes covered

1710

districts

+300

jobs

3

Distributors, 2 call
centers

+4M

Hughes Express Wi-Fi
connections, 1200
retailers

***65%**

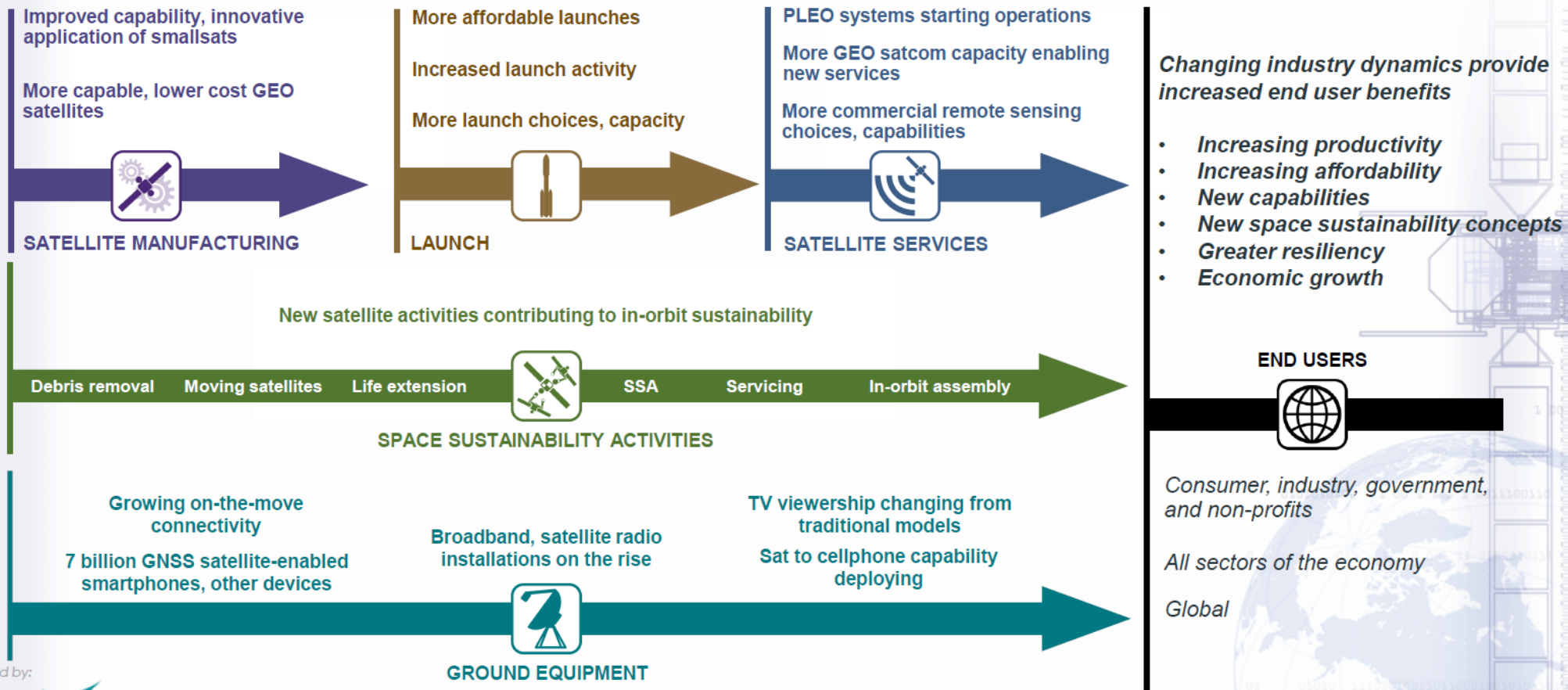
access to internet
for the first time
with Hughes



Increasing Affordability and Productivity, New Capabilities

Changing Industry Dynamics

SIA★



Prepared by:

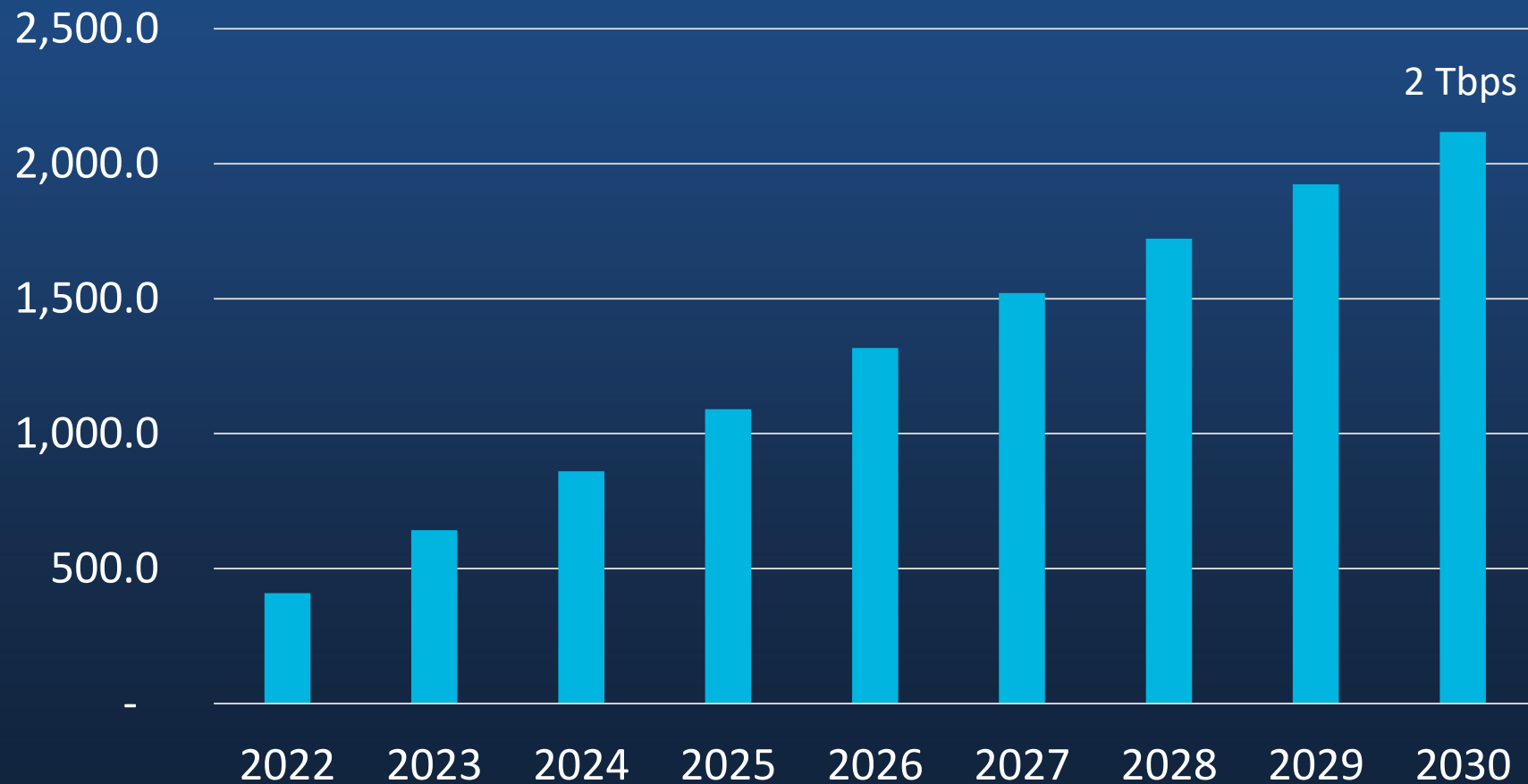
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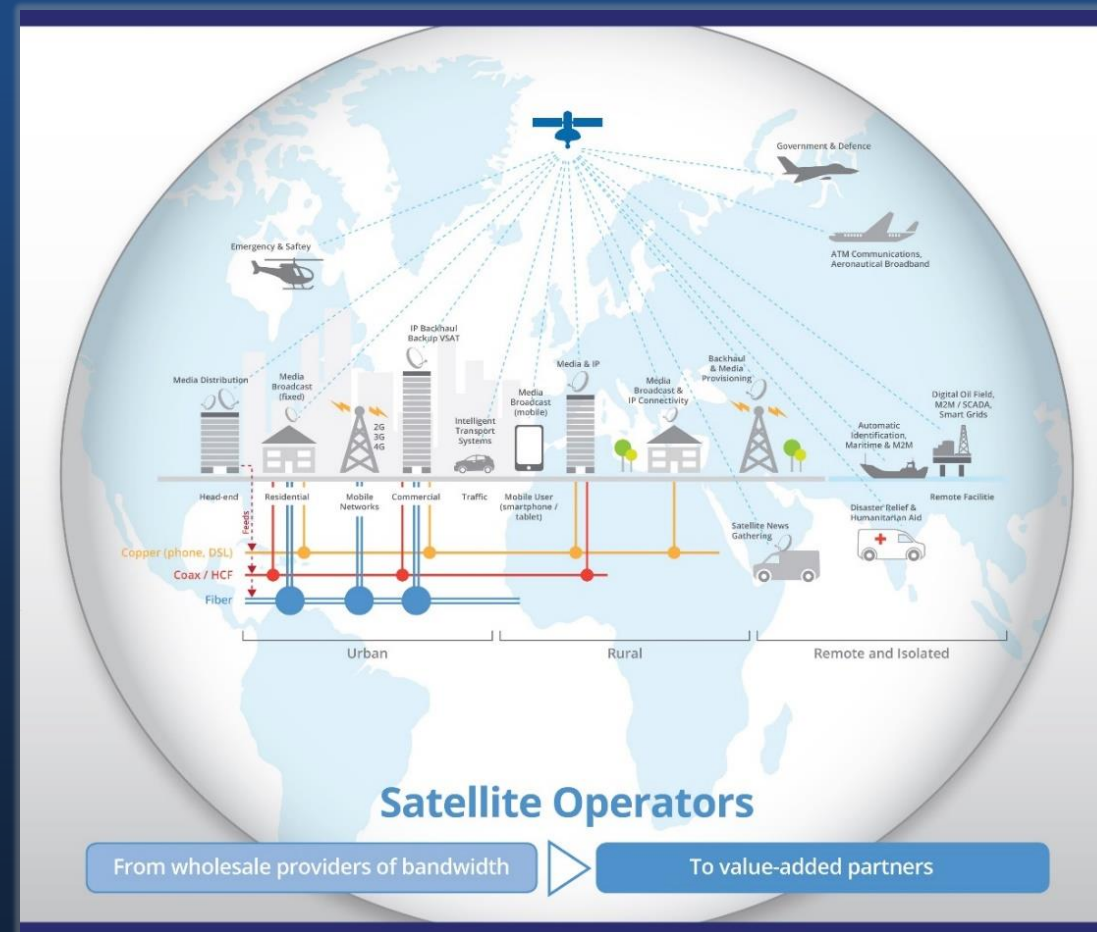
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5

Satellite Capacity Demand: Latin America (Gbps)



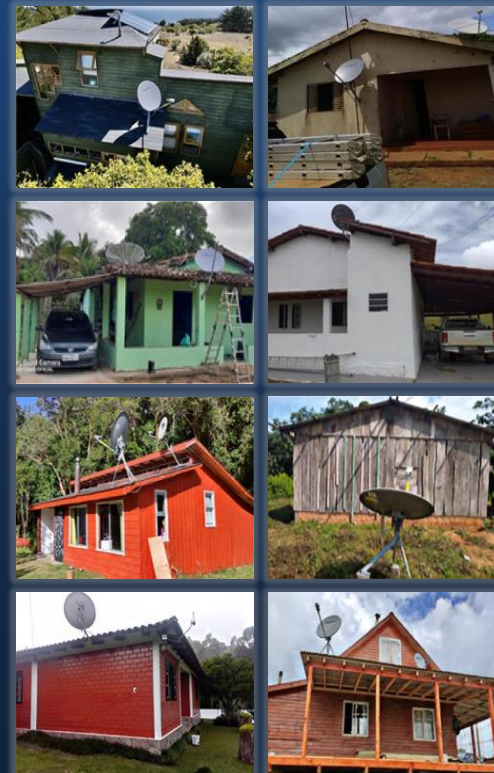
Satellite and 5G: Ubiquity, Resilience, and Reliability



Direct-to-Home Satellite Internet

Subscribers in rural and remote areas

Developed a distribution and payment network to overcome Installation, servicing and payment challenges



Community Wi-Fi Hotspots

Affordable broadband for lower income segments

Developed a network of retailers to host and sell Express Wi-Fi service



Cellular Backhaul over Satellite (CBoS)

Satellite backhaul in areas that are impossible or prohibitively expensive to reach using traditional terrestrial means, such as fiber, cable or microwave

High Performance

- With 200 Mbps+ throughput per terminal with acceleration

High Efficiency

- Integrated 4G/LTE optimization, saving up to 60% of satellite bandwidth

Powerful Features

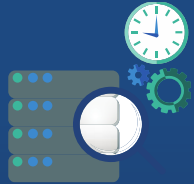
- Including 4G/LTE acceleration, IEEE 1588v2 timing, and built-in GPS

Advanced Enhancements

- Such as 650 ms latency round trip, 10 ms jitter, outdoor packaging and lower power consumption



Robust Solutions for Disaster Preparedness and Response



911 and critical network backup



Emergency connectivity

For first responders, government workers,
and citizens in need

Ranked on Fortune's list of companies that are
changing the world for helping to connect Puerto
Rico in the wake of Hurricane Maria



Multi-Orbit and Multi-Transport



Hughes Fusion Technology

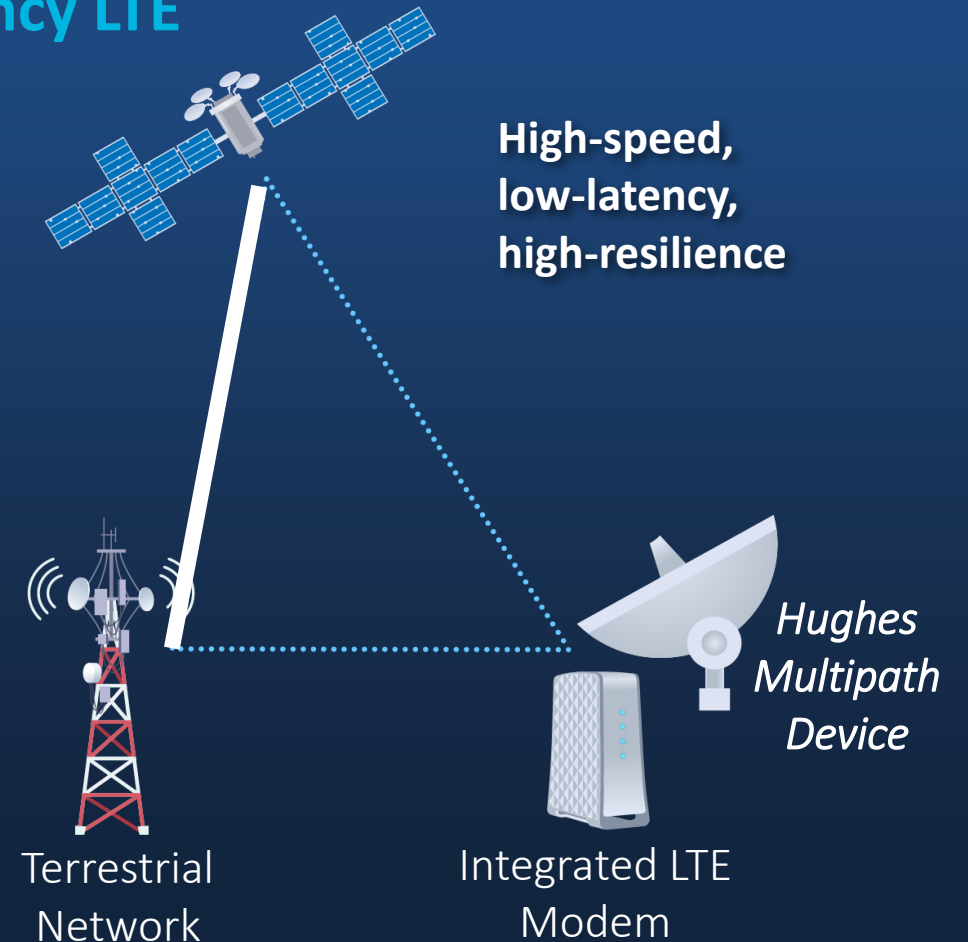
Combining high-capacity satellite with low latency LTE

Enabling high resiliency (dual path)

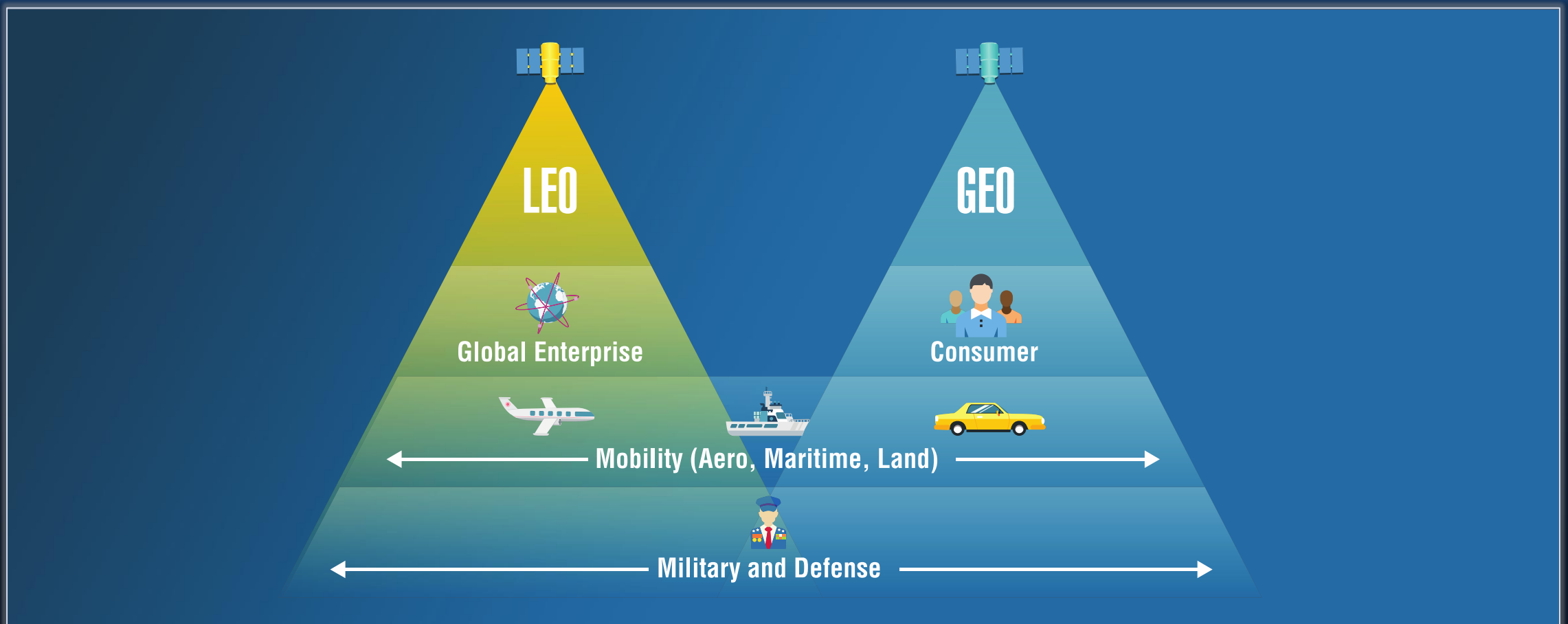
Increased Performance

Enhanced Connectivity

High Availability



LEO and GEO are Complementary



HUGHES[®]
An EchoStar Company

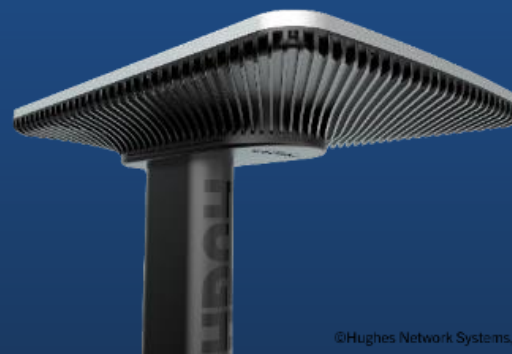


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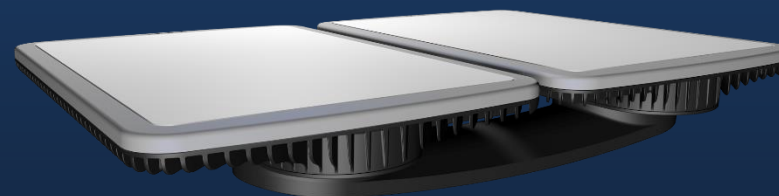
FORO INTERNACIONAL
PASADO Y FUTURO DE LAS
TELECOMUNICACIONES
EN EL PERÚ

- Fleet with 648 satellites
- LEO, 1,200 Km altitude
- 30 times closer than GEO
- Latency 50 – 100 ms

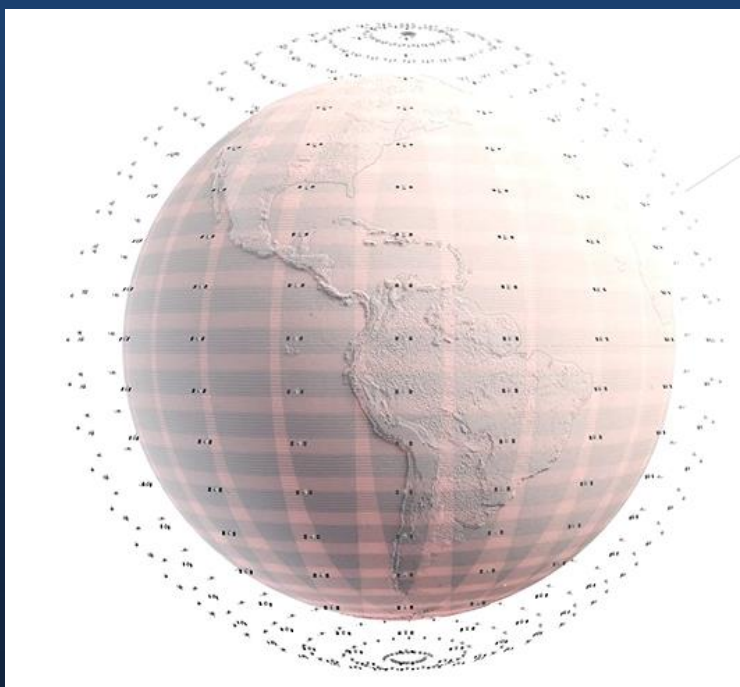


©Hughes Network Systems, LLC

- Low profile with no moving parts
- 195/32 Mbps speeds
- Fixed or mobile



- Hughes ESA technology
- Built for the OneWeb system
- 10,000 terminals to be delivered



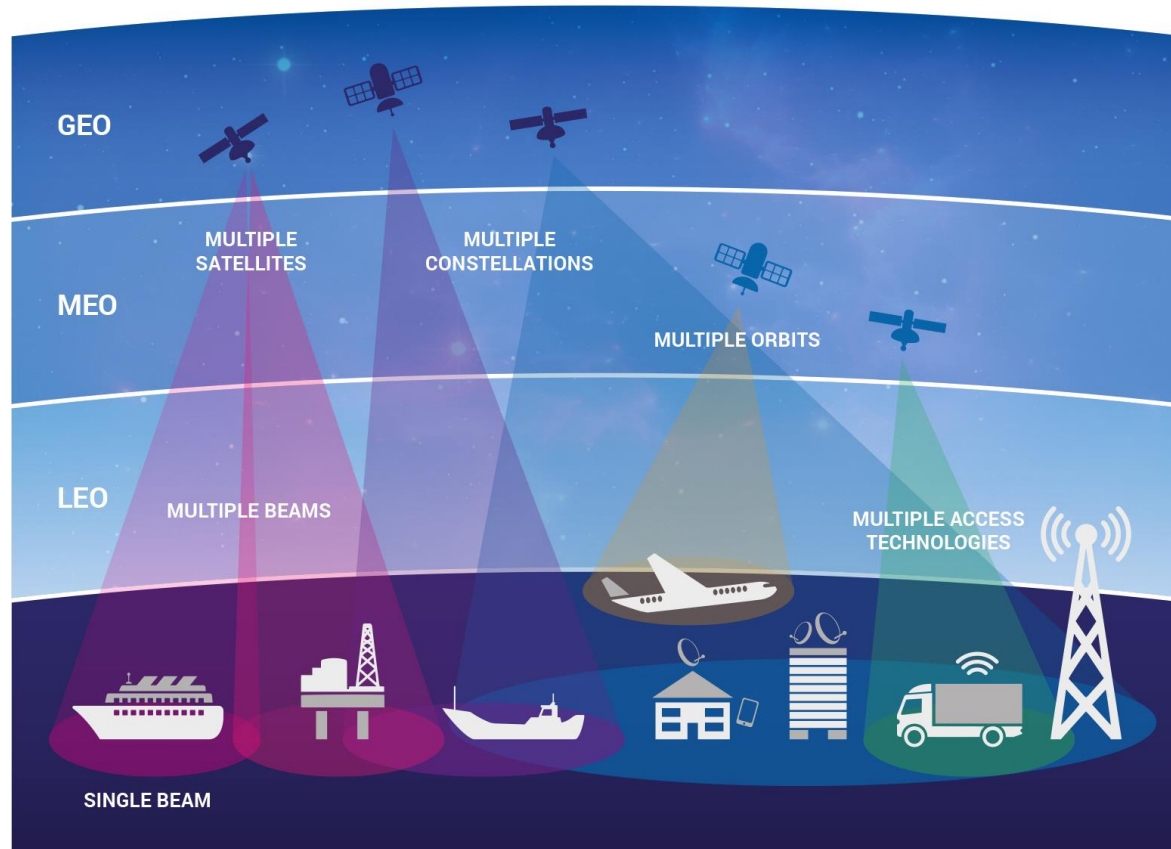
Hughes In-Flight Wi-Fi



Open RAN

Open RAN decreases the country's dependence on proprietary technology, while promoting the security, resiliency, upgradability, speed, and cost advantages of Open RAN deployments

Unlike traditional networks that use closed end-to-end technology and equipment systems provided by a single vendor, Open RAN enables diversity and competition in the supplier community; as a result, carriers can choose from a wide range of vendors to construct different parts of their network



NTN: D2D Enabling the Networks of Tomorrow

- Universal Connectivity: Not just about basic broadband
- Extending benefits of 5G and beyond
- Enabling vertical industries
- Optimising networks
- Spectrally efficient
- Supporting multiple use cases
- 5G will leverage multiple orbits and work with multiple technologies

The Essential Role of Satellite: Today and Tomorrow

Thank You!