Practical LEOsat Deployments – Technologies, Use Cases, and Outcomes

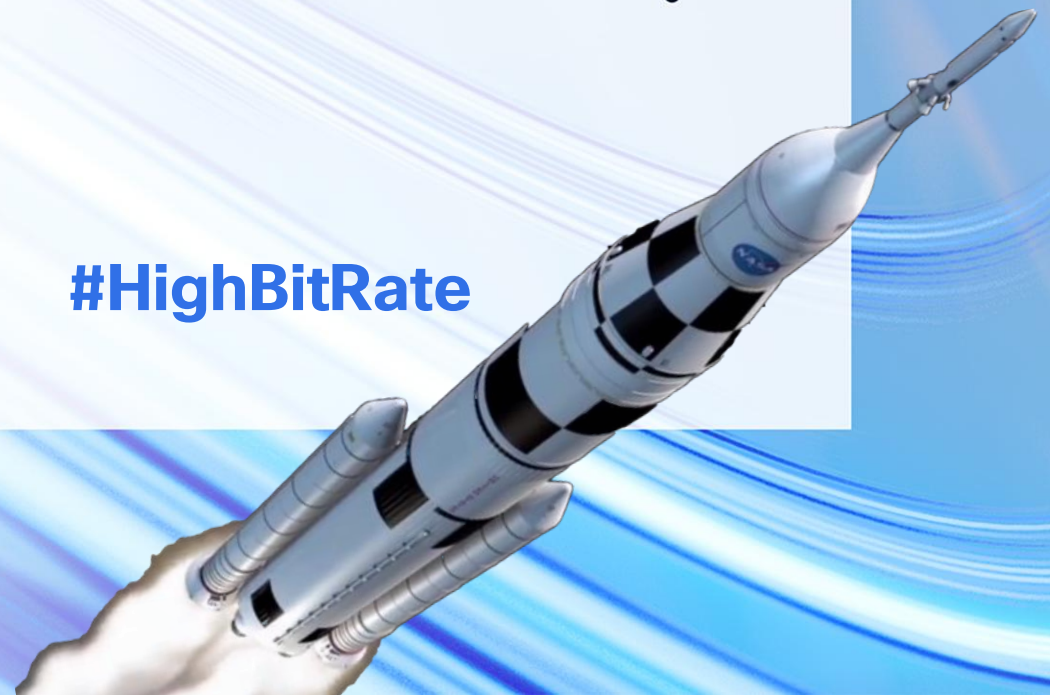
Dave Zacks
Distinguished Developer

Ian Procyk
Technical Solutions Architect

Kemal Šanjta
Principal Internet Analyst

CISCO Live !

#HighBitRate



Session ID: BRKNWT-2505

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How

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4. Enter messages/questions in the Webex space

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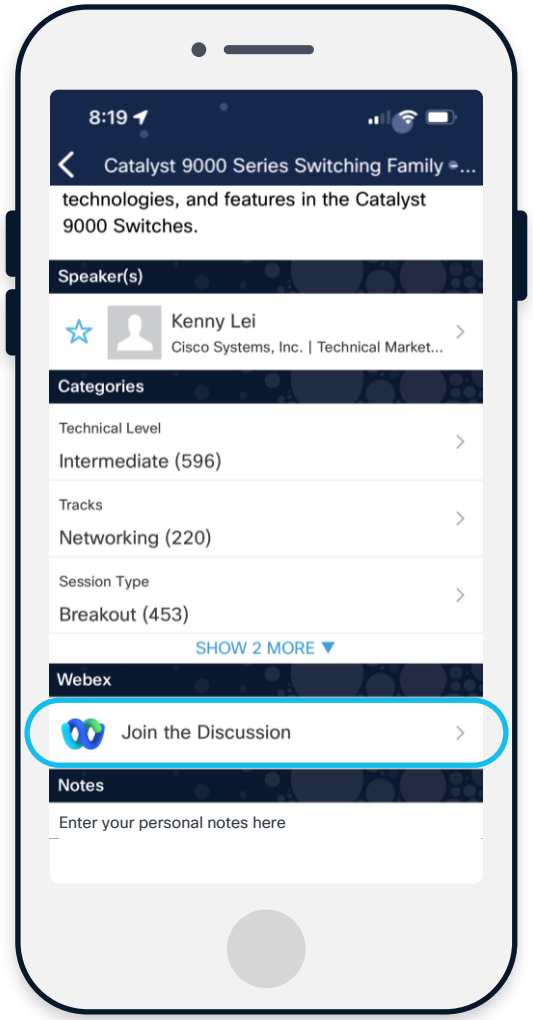

https://ciscolive.ciscoevents.com/
ciscolivebot/**#BRKNWT-2505**

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Agenda

01 Introduction to LEOsats

02 What's Up There?

03 Mobility And Laser ISLs

... Ian presenting from the field
... over Starlink

from as far away as you can possibly be, and still be on the surface of the Earth!!!

04 Deployments – Dave

05 Starlink – Use with Meraki

06 Starlink – Performance Analysis

... Kemal presenting from the field

07 Deployments – Ian

In Dublin, drinking a

? ☺

08 LEOsat Futures

09 Conclusion

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by way of Introduction ...

I am a **Distinguished Developer** in the Cisco Security CTO team, and have been with Cisco for 26 years.

I work primarily with large, high-performance Enterprise network architectures, designs, and systems. I have over 39 years of experience with designing, implementing, and supporting solutions with many diverse network technologies.

I have a strong background in, and focus on, customer requirements, and integrating these into the products and solutions Cisco builds.
I have a special interest in **Flexible Hardware, Fabrics, Assurance and ML/AI.**

Dave Zacks
Distinguished Engineer
dzacks@cisco.com

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by way of Introduction ...

I joined Cisco in 2011 and have remained **focused on wireless technologies** since. I apply over 20 years of field experience helping customers architect, implement and support complex wireless deployments across all verticals.

Internally, I lead the Cisco's Mobility Technical Advisory Group, a global team of wireless specialists helping to ensure that customer's feedback crosses paths with engineering's priorities and new product development.

Before coming to Cisco, I held positions with a start-up IT consulting firm based in Vancouver and the Canadian Coast Guard. I started my career in IT at the University of British Columbia where I was involved in one of the first **large scale WLAN deployments** in the country.

Ian Procyk
Solutions Designer
iprocyk@cisco.com

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Literally on the opposite side of Earth: 19,200km away...

Source: Google Earth

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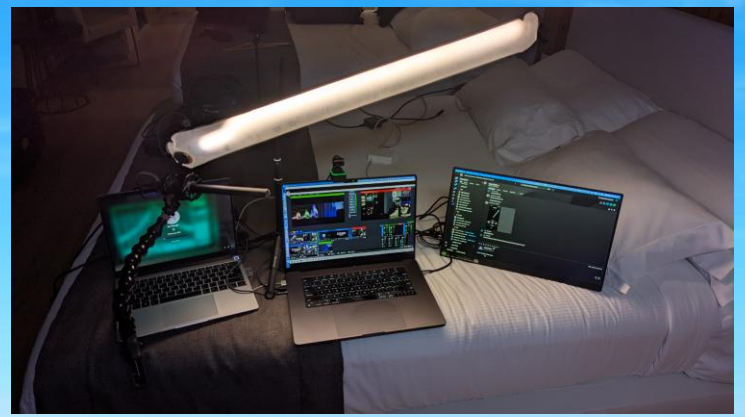
Literally on the opposite side of Earth: 19,200km away...



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by way of Introduction ...

I am a result-oriented engineer focusing on **designing, operating and troubleshooting large-scale networks**. I am a passionate Linux user with a deep understanding of SRE/NRE practices, and have been with Cisco since 2018.

Over the last two decades, I have worked at several large-scale companies applying NRE practices and automating remediation actions.

As a Principal Internet Analyst at ThousandEyes, I **focus on research and providing deep and meaningful insights** into outages through the lenses of ThousandEyes.

Kemal Sanjta
Principal Internet Analyst
kemals@cisco.com

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by way of Introduction ...

I am a Technical Marketing Engineer for the Secure SD-WAN platform and have been with **Cisco** since 2017.

I started my career in the partner / systems integrator space, moving to the end customer and now vendor. Before taking on the TME role, I worked on the customer success team looking holistically at the customer journey and helping customers build simpler, smarter systems.

I take everything I've learned from these roles, **simplifying routing and IPv6 technologies and bring them to life** in the dashboard.

Anthony Belcastro
Technical Marketing Engineer
anbelcas@cisco.com

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We all know

that the future is in the Cloud(s), right?

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but look beyond that...
and you just might conclude that it's in SPACE too!

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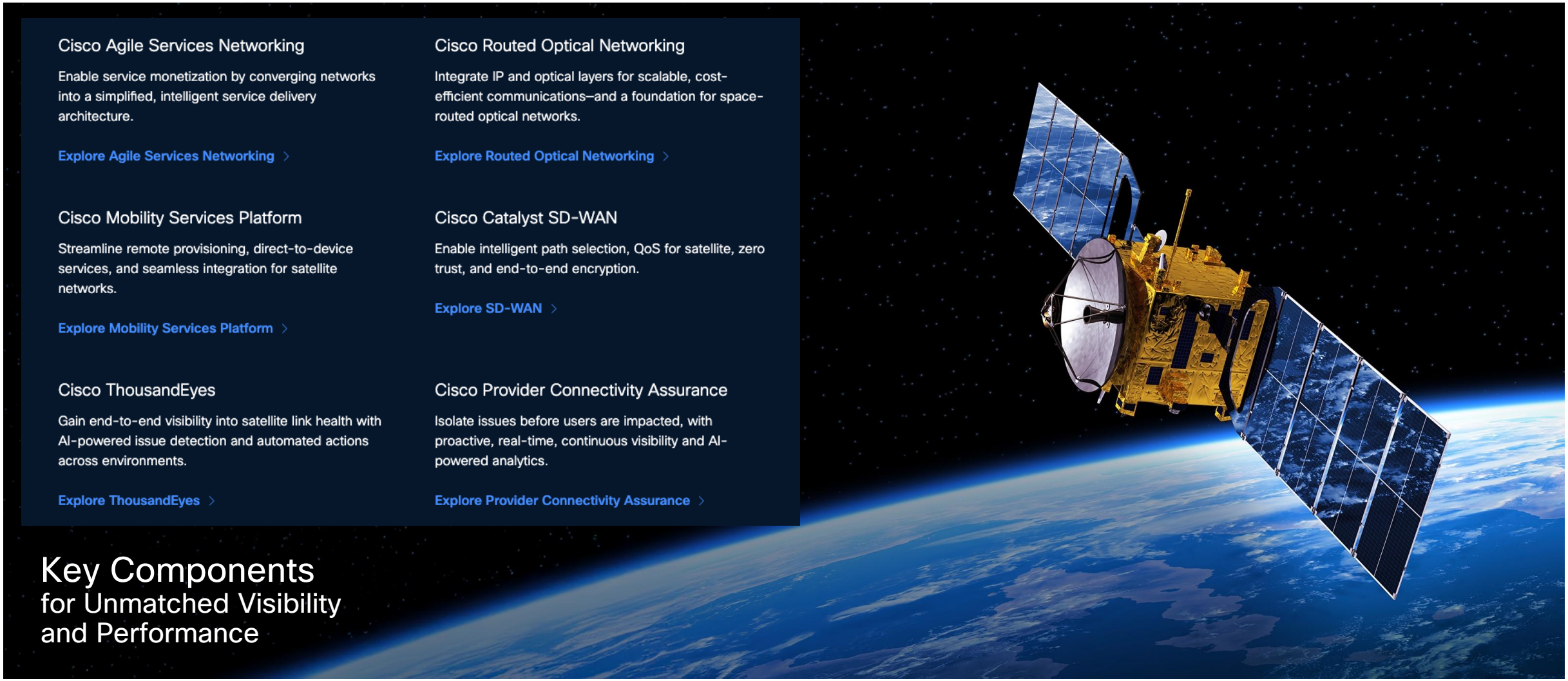
Announcement – Cisco Non-Terrestrial Networking!



https://www.cisco.com/site/us/en/solutions/service-provider/networking/non-terrestrial-networks/index.html

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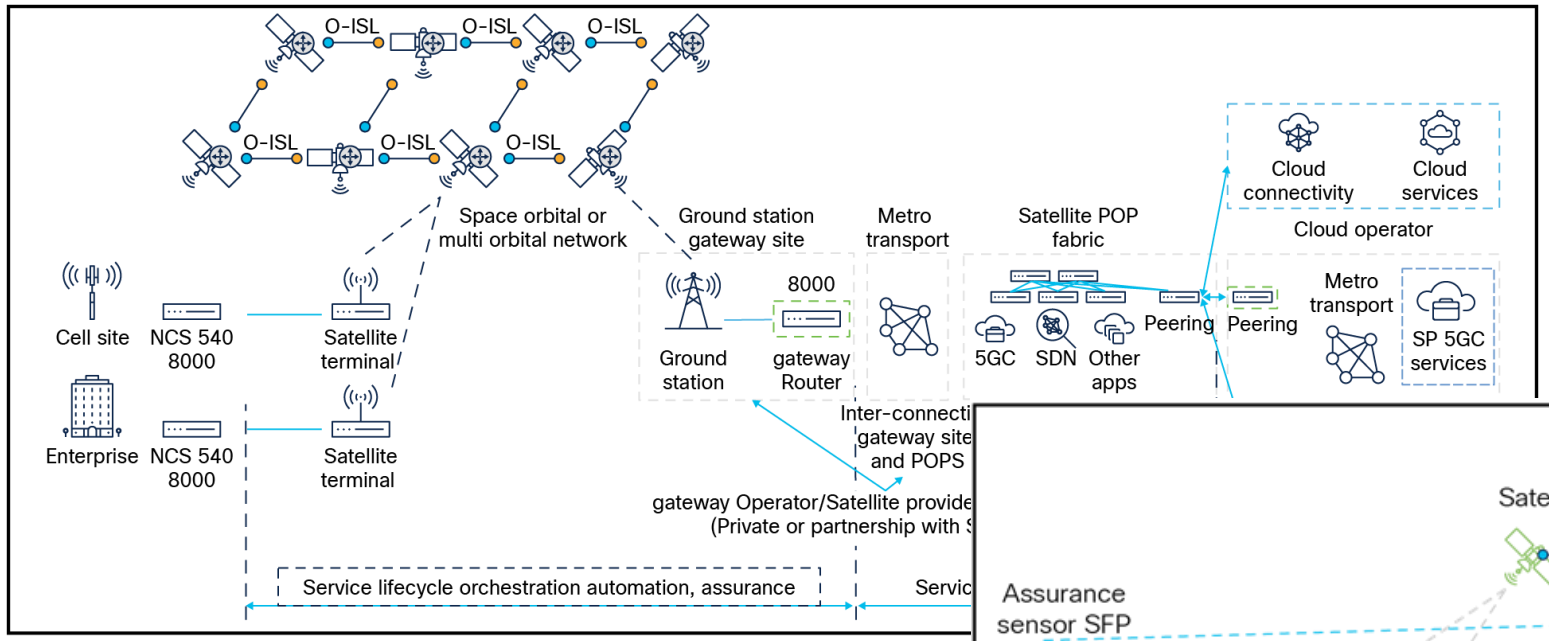
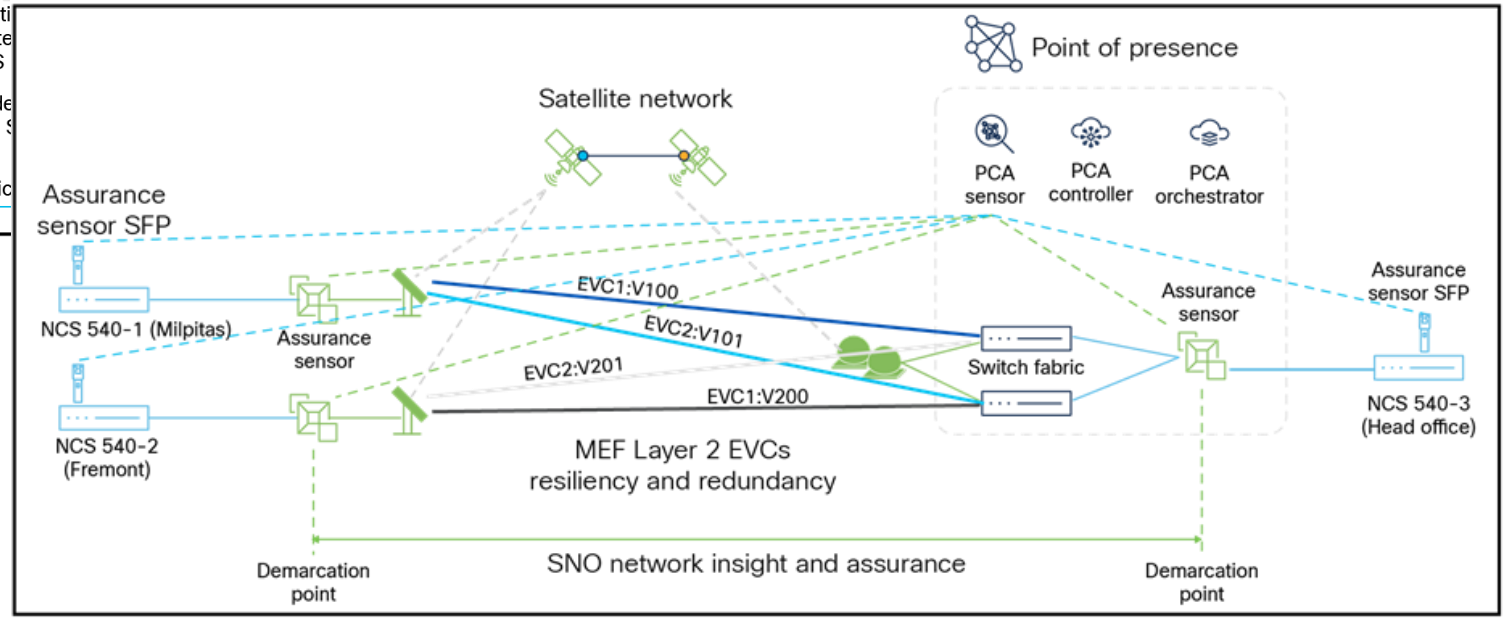
Cisco NTN - Reference Architecture and Technologies





Validated Architecture for Secure, High-Performance LEO Satellite Connectivity White Paper

https://www.cisco.com/c/en/us/solutions/collateral/service-provider/networking/beyond-terrestrial-architecture-leo-satellite-connectivity-wp.html

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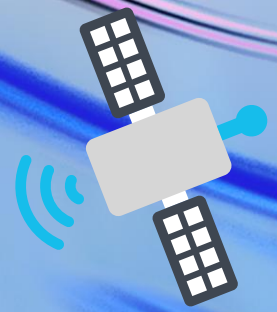
Low Earth Orbit Satellites (LEOsats)

Changing the Game



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Space Launch Economics

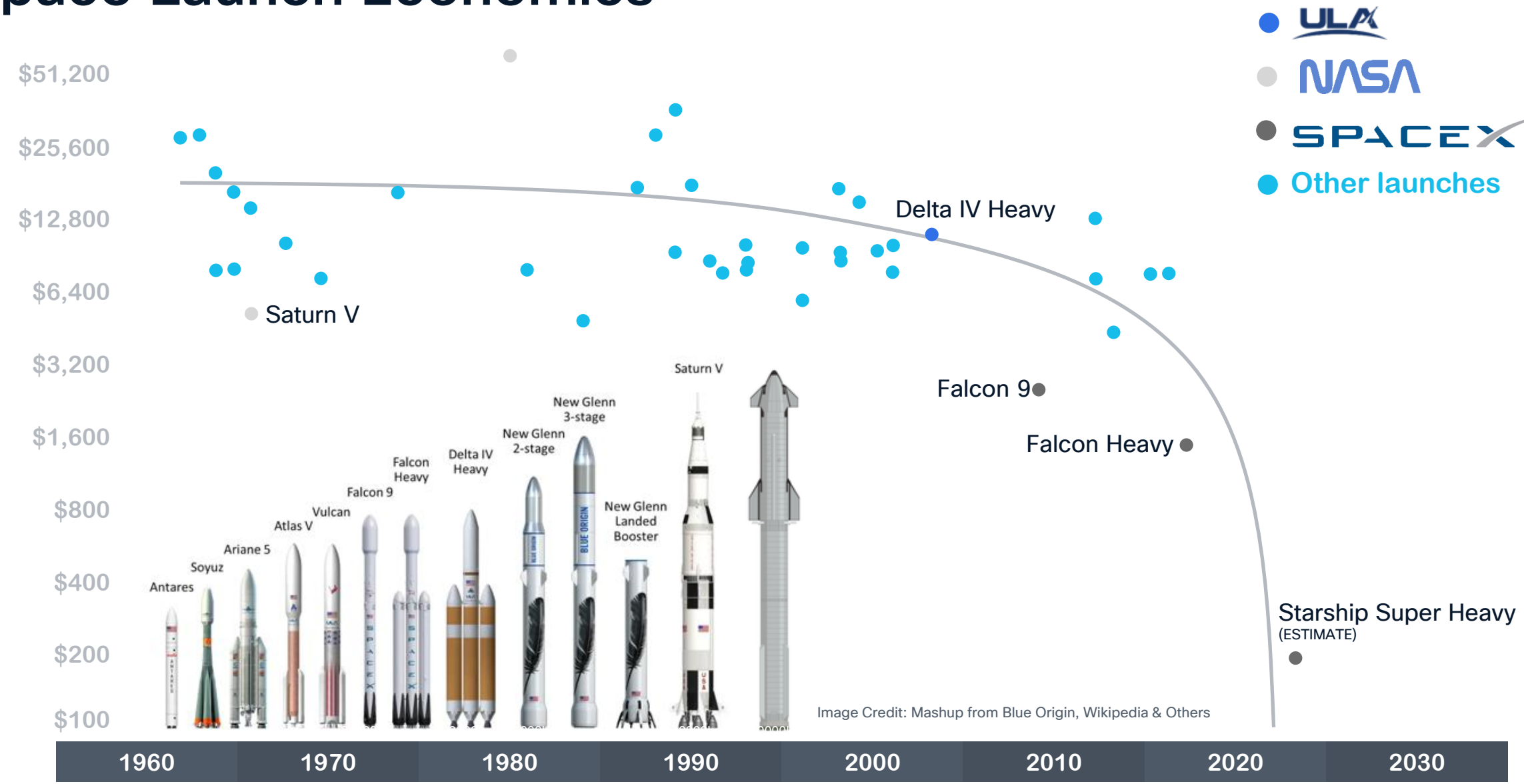

Image Credit: Mashup from Blue Origin, Wikipedia & Others

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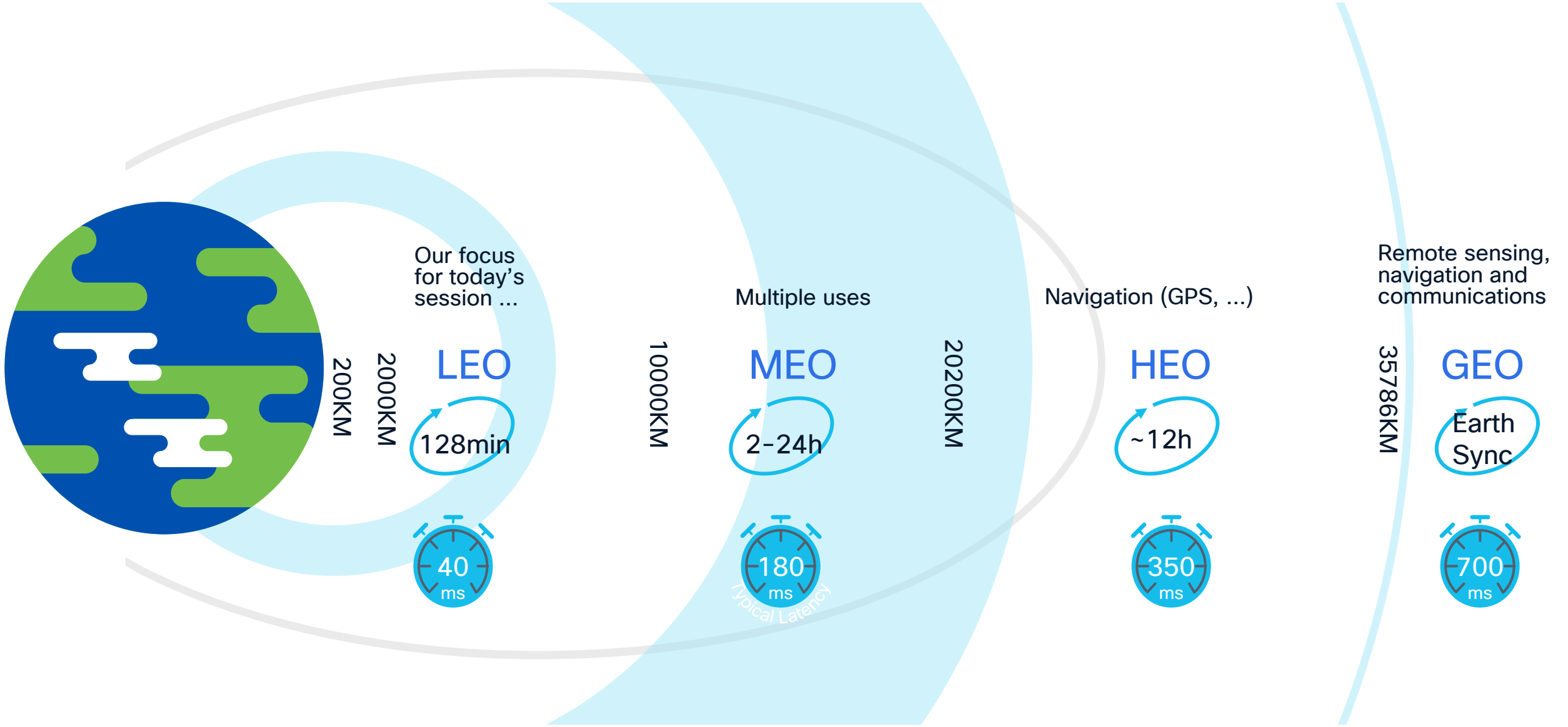
Satellite Orbits



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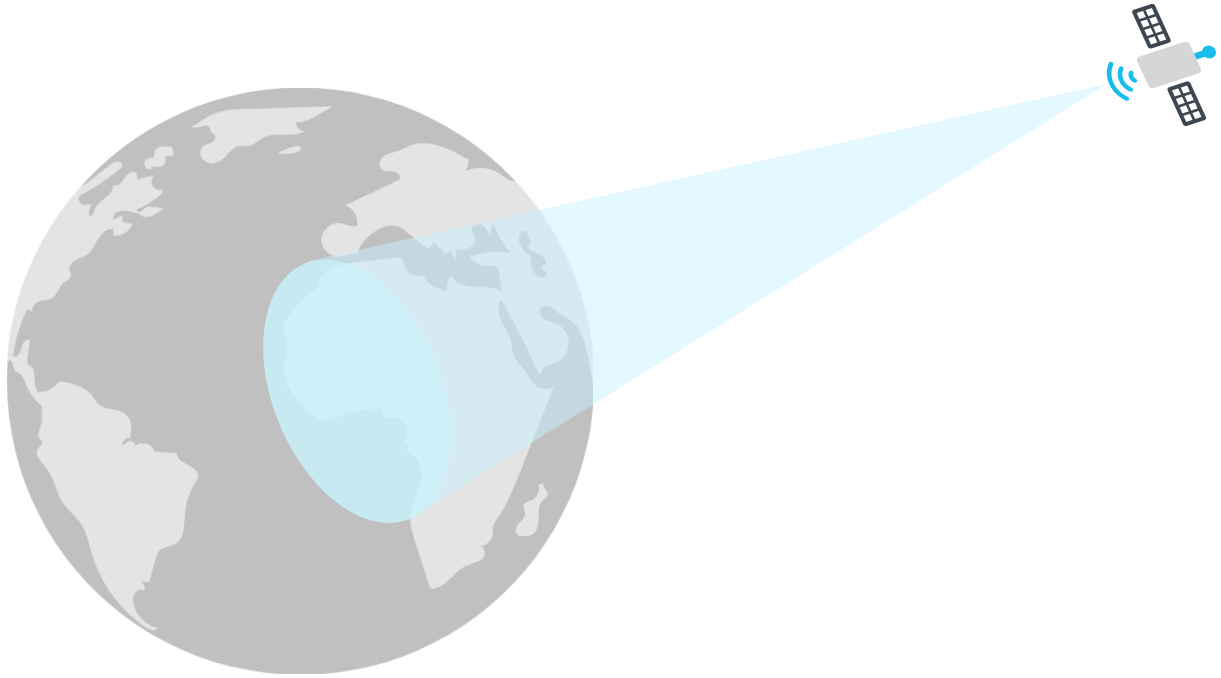
Traditional View of Satellite Communications

Geosynchronous Operation



Geosynchronous Orbit

Rotates in sync with Earth rotation
Around 35,000 km altitude
Static location in the sky from ground observation

Moderate Performance

Throughput: 0-100Mbps max, 5-10Mbps typical
Latency: ~120msec each way
Roundtrip: ~477 msec round-trip latency
Typical: ~600+ msec latency
Large spot coverage due to limited geosync satellites

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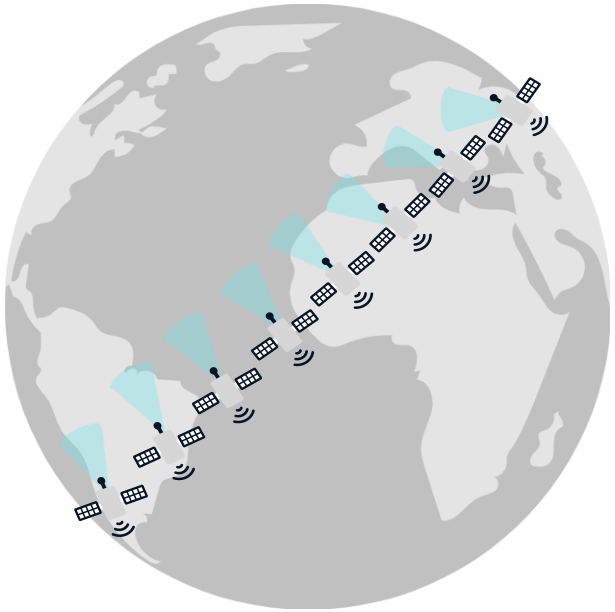
Low Earth Orbit (LEO) Satellite Constellations



Low Earth Orbit Operation

- Located at ~500km altitude (varies)
- Constantly moving from ground observer viewpoint
- Many LEO satellites in constellation
- Starlink = 4,425 in initial planned deployment)

Improved performance

- Throughput~: 200Mbps down, 25Mbps up (Starlink ~8x increase)
- Latency~: 20-40 msec typical, ~10x+ decrease
- Smaller spot coverage due to closer satellite location
- Per-satellite bandwidth of ~20Gbps currently (estimated)
- Aggregate bandwidth of ~80Tbps+ across 4,425 satellites

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Starlink Operational Details

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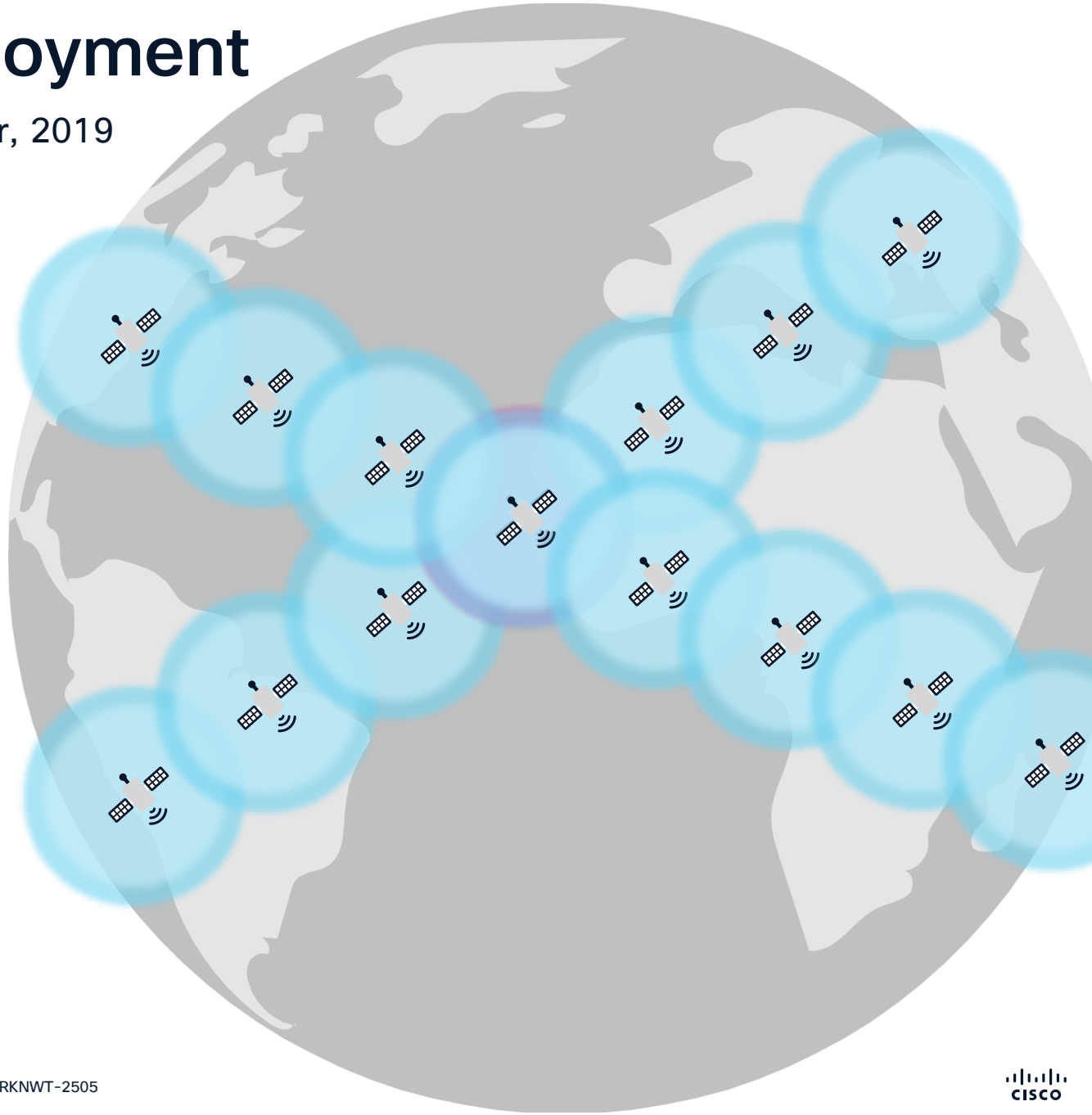
SpaceX Starlink – Initial Deployment

First launch Feb 22nd, 2018 – Operational since November, 2019

2020 Public Testing	**8600+** Satellites in Orbit* (8475 operational)	Available in most locations on Earth
Ka Band 26.5-40 GHz	**4M+** Active Subscribers*	**Ku Band** 12-18 GHz



* As of October, 2025

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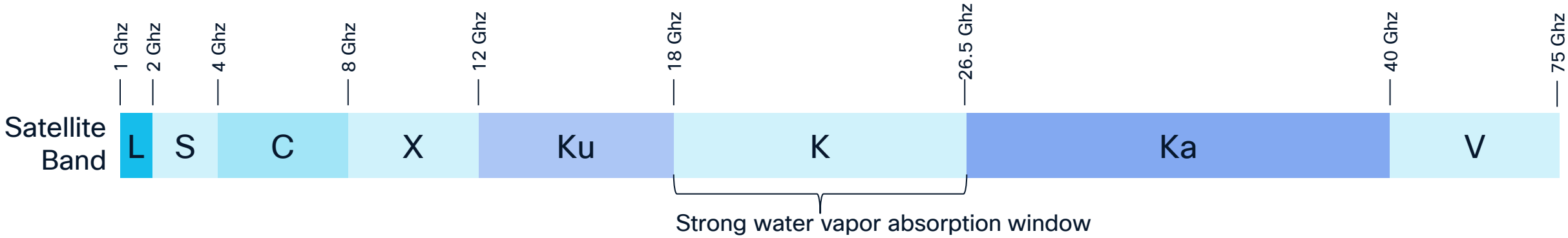
Satellite Bands



Bandwidth

Lower — Higher

Antenna Size

Larger — Smaller

Rain Fade Susceptibility

Less — More

Signal Propagation*

Further — Shorter

Spectrum

Narrower — Wider

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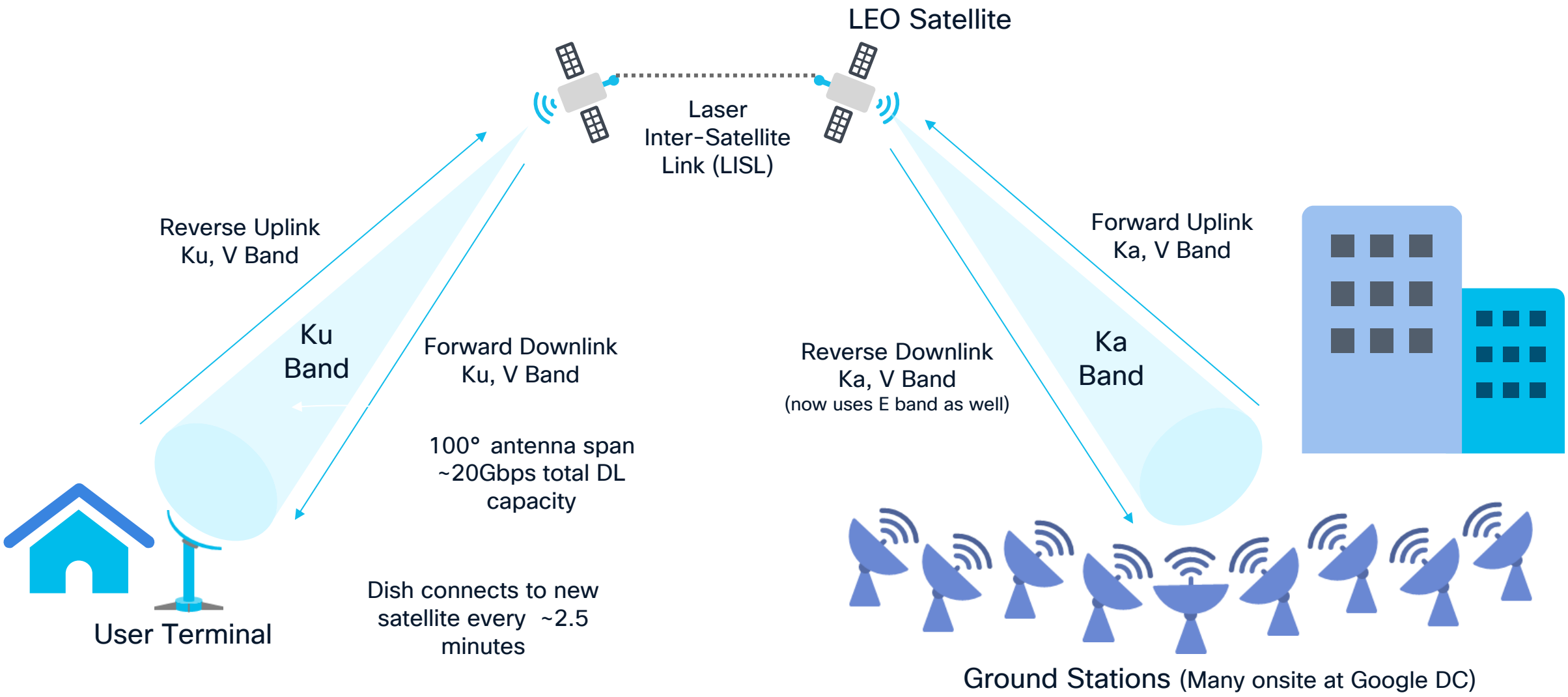
Starlink Operational Architecture



Source: https://www.redorbit.com/spacex-plans-to-reduce-number-of-v-band-starlink-satellites/
Source: https://dgtlinfra.com/elon-musk-starlink-and-satellite-broadband/

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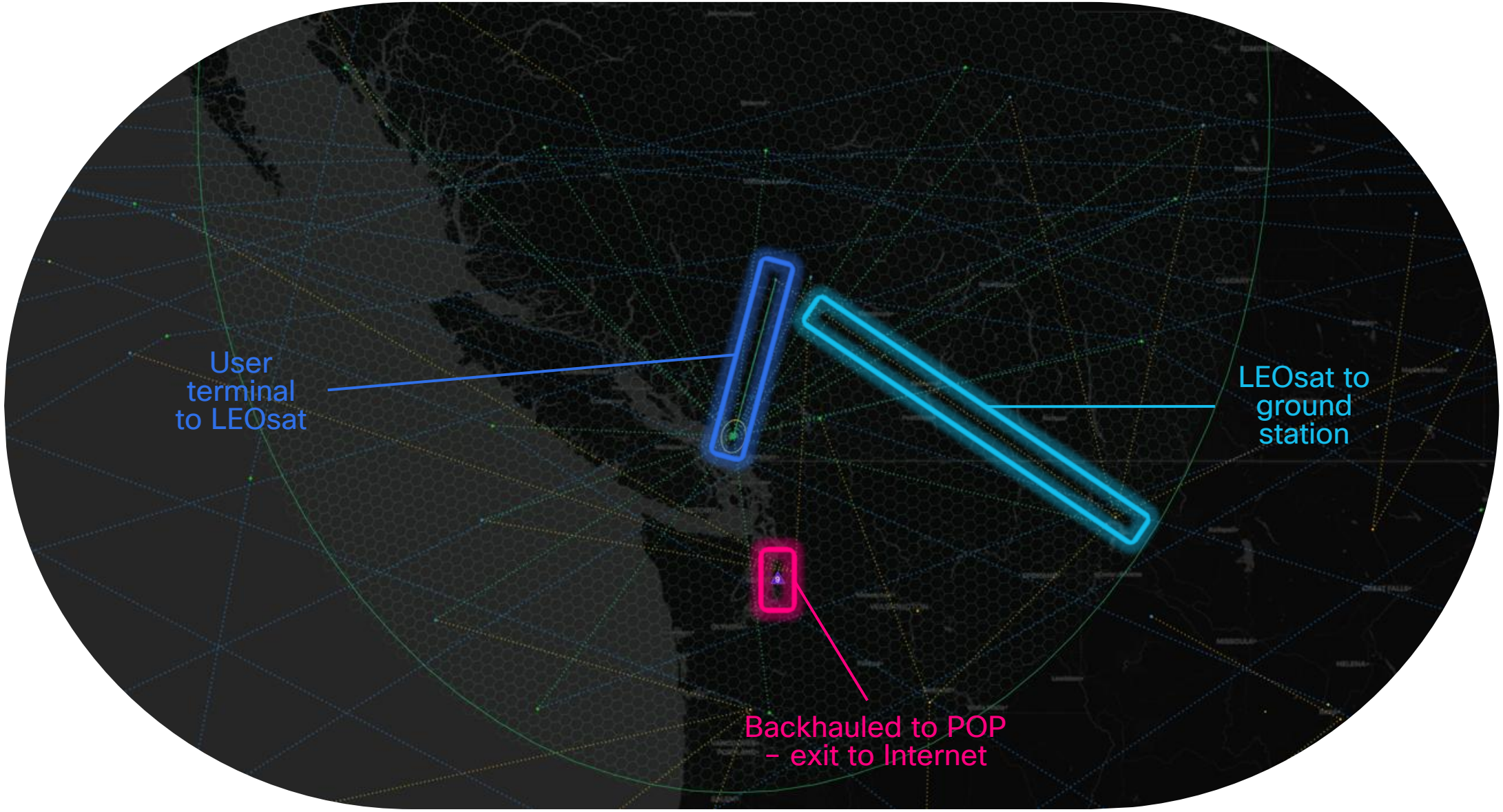
How the LEOsats Move - Example



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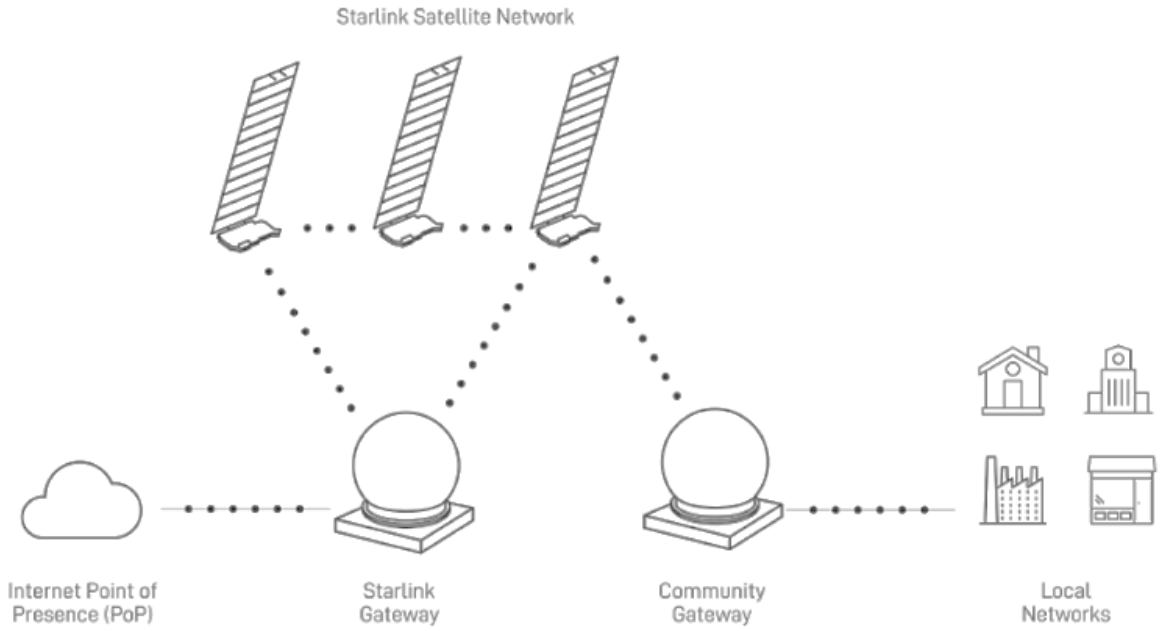
Ground Stations



https://www.starlinkinternet.info/community-gateway

Starlink Community Gateways

With Community Gateways, Starlink satellites are able to deliver fiber-like speeds with local providers distributing connectivity to homes, businesses, and governments using last-mile fiber, fixed wireless and mobile wireless.

The Community Gateway traffic transits through Starlink's global laser mesh network and utilizes our high bandwidth Gateways operating in a dedicated Ka spectrum band.

Photo Credit: Starlink gateways near North Bend (Reddit User: /u/daedalus_j)

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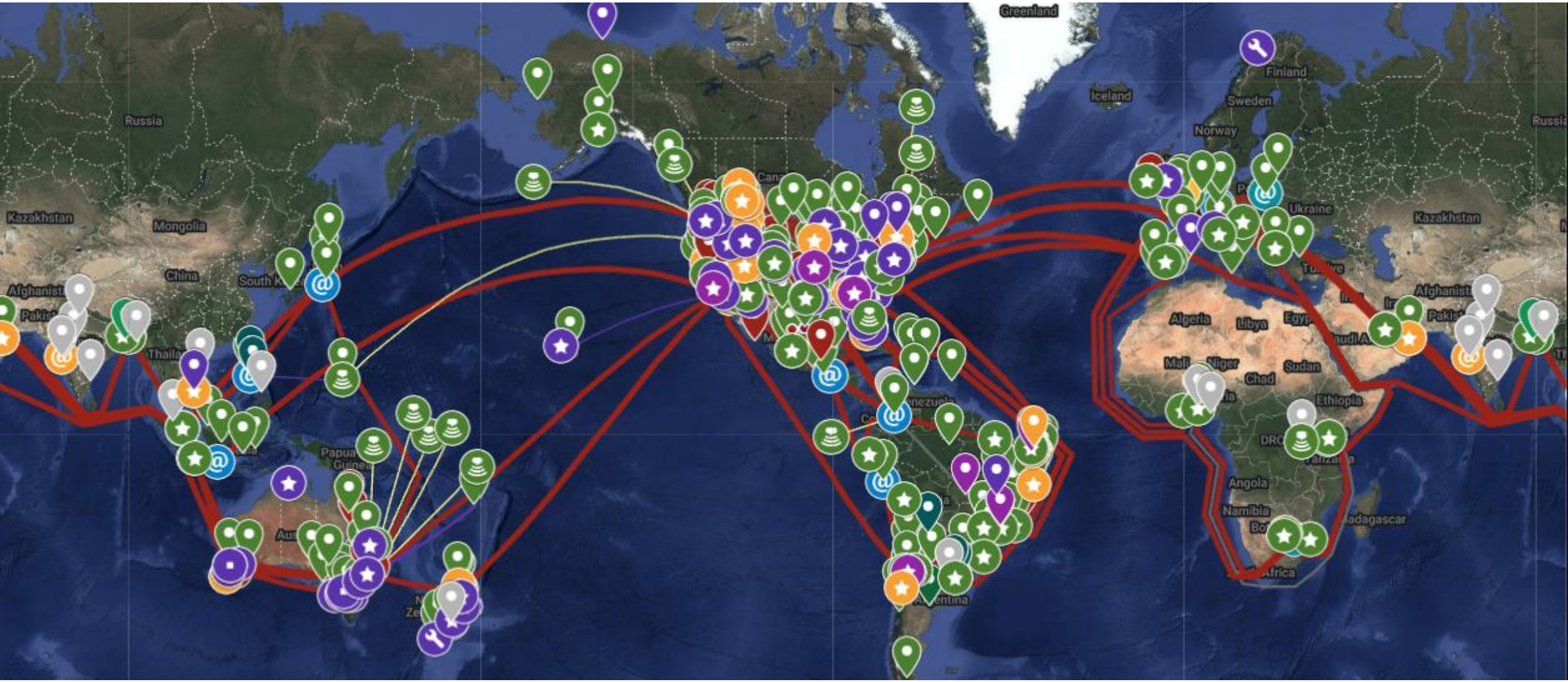
Where are the Ground Stations?



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Reference:
https://www.google.com/maps/d/u/0/viewer?mid=1805q6rleP Y4WZd8QMOaNe2BqAgFkYBY&hl=en_US&ll=26.13806853816 799%2C-103.55980497913222&z=2

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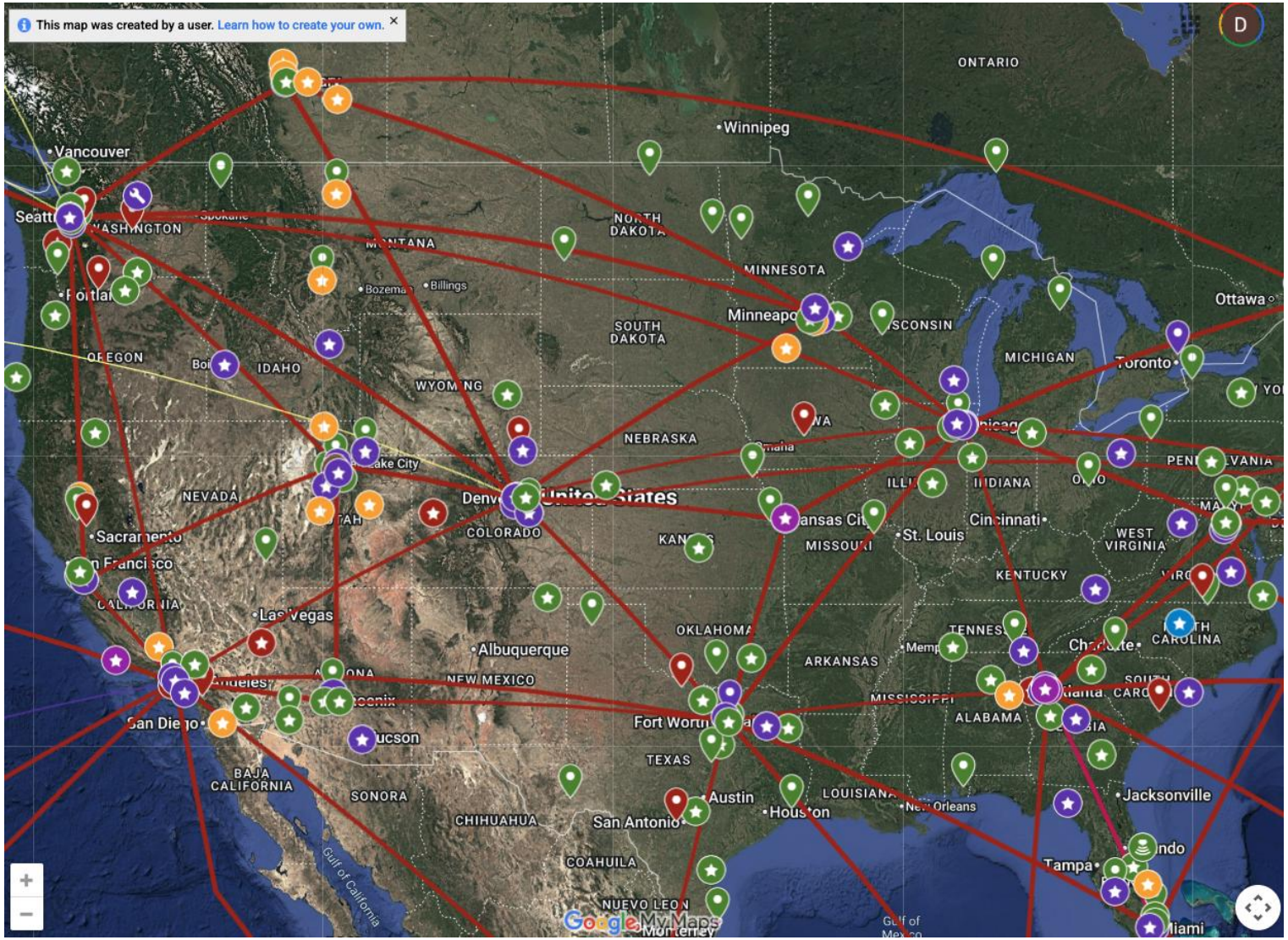
Where are the Ground Stations?



Reference:
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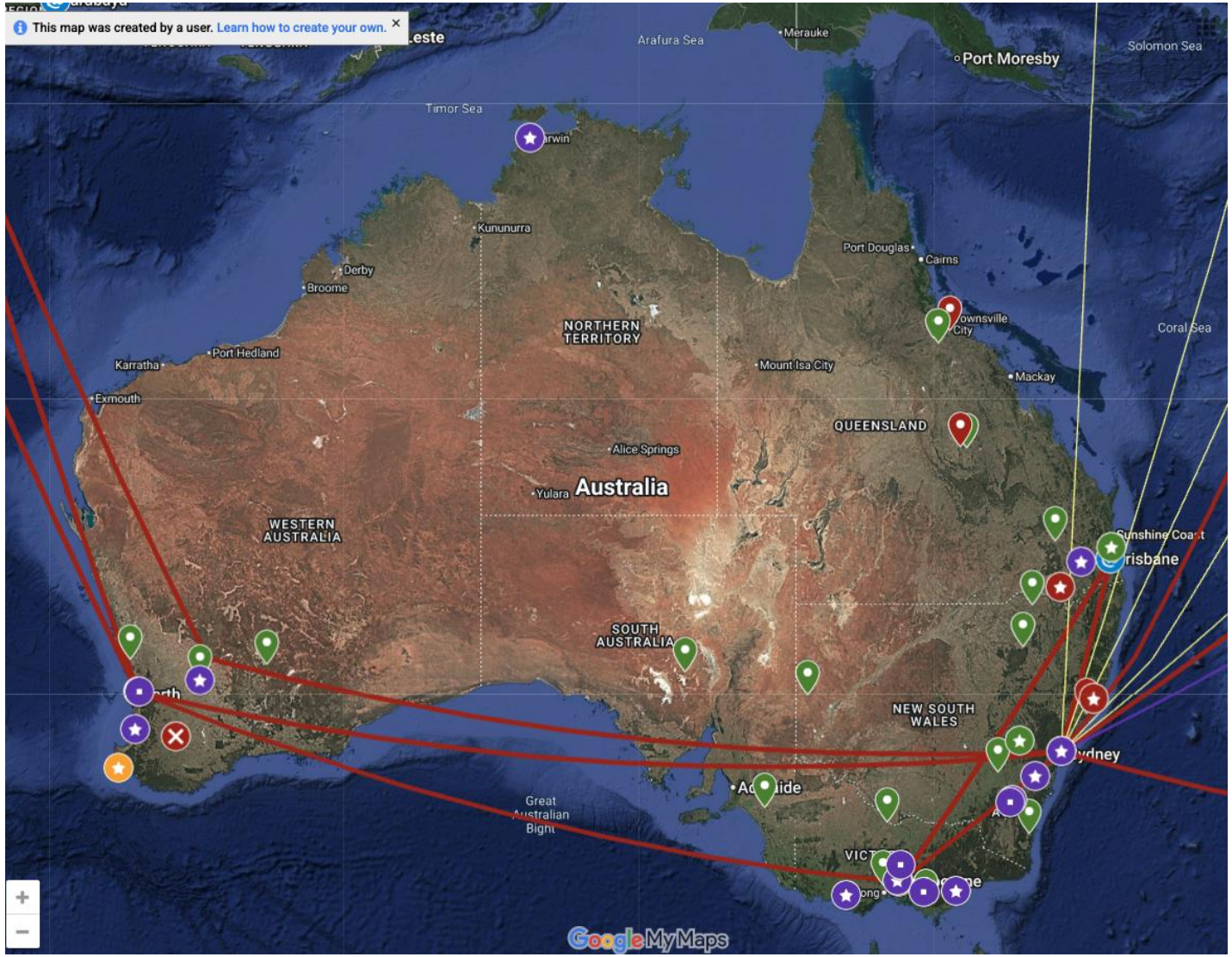
Where are the Ground Stations?



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What’s Up There?

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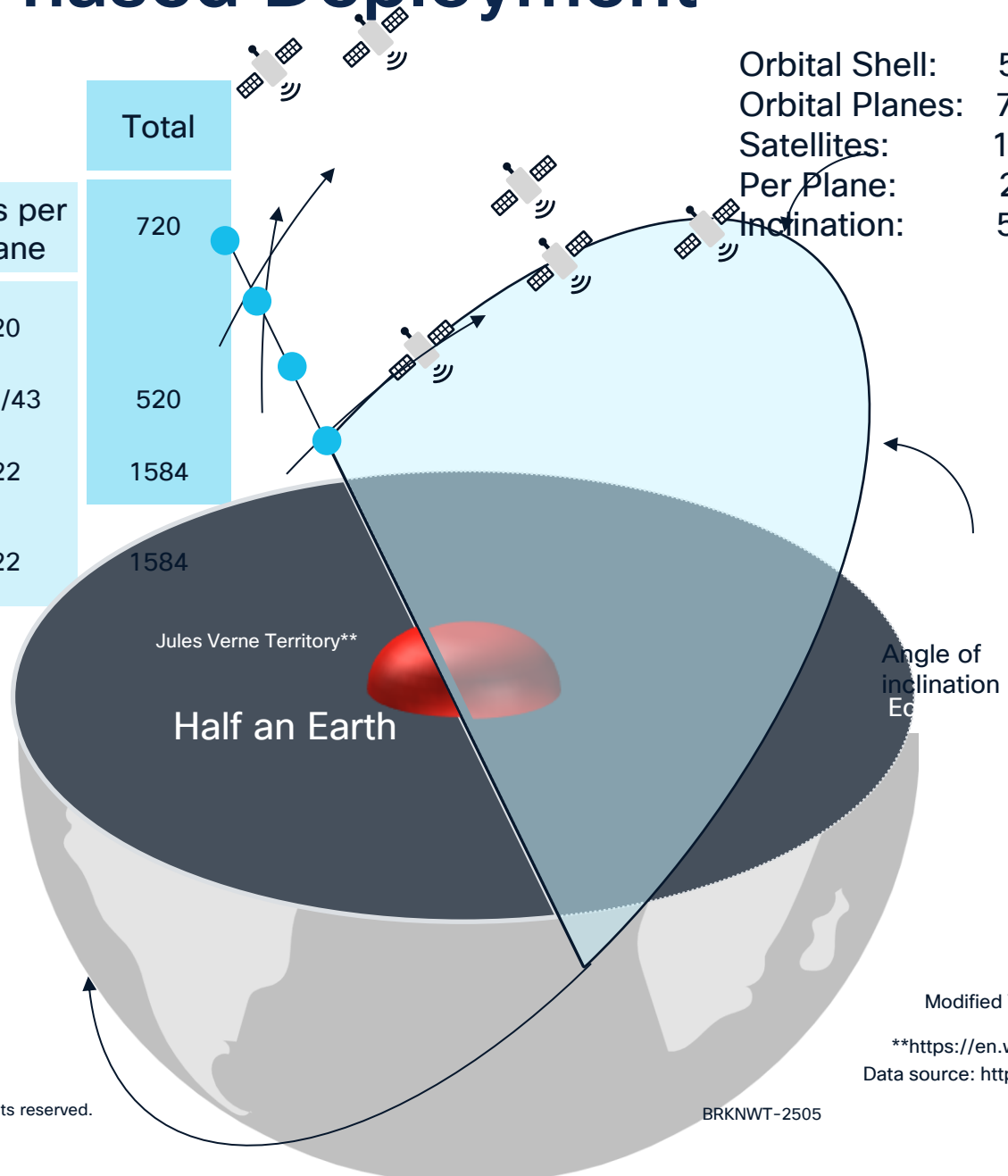
Starlink Phased Deployment

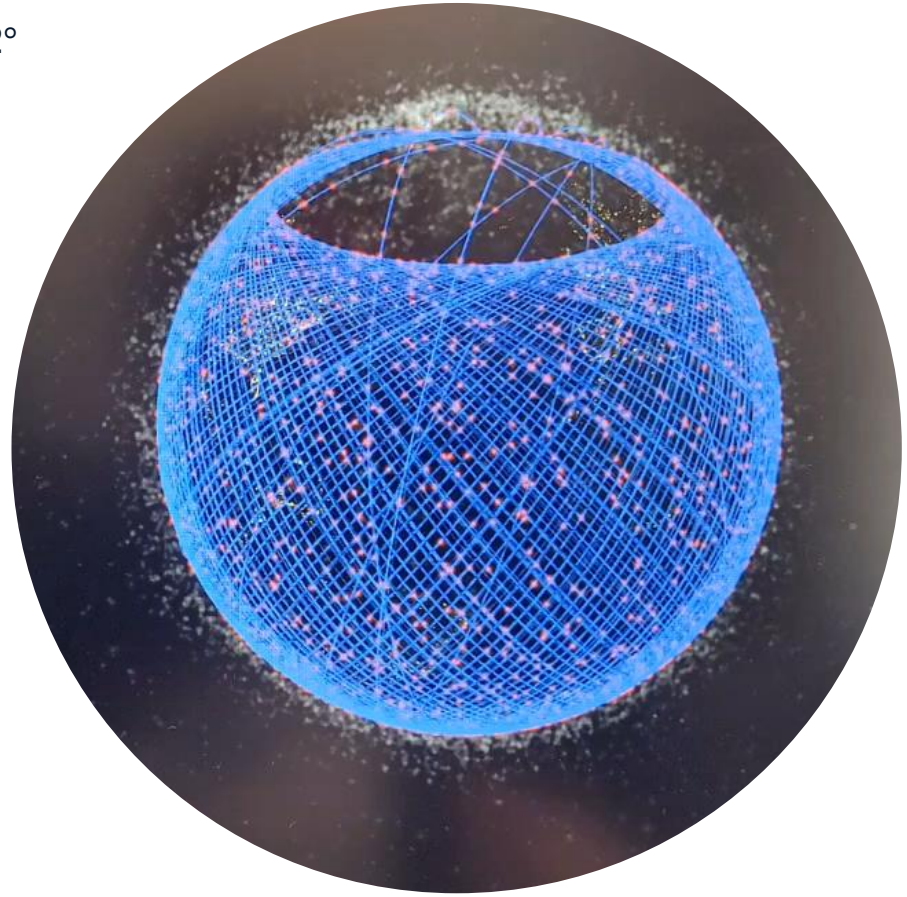
Orbital Shell	Orbital Planes	Sats per Plane	Total
570km 70°	36	20	720
560km 97.6°	6/4	58/43	520
550km 53°	72	22	1584
540km 53.2°	72	22	1584



Orbital Shell: 540km
Orbital Planes: 72
Satellites: 1584
Per Plane: 22
Inclination: 53.2°

Starlink Constellation

as of October, 2025 there are 8600+ satellites in orbit



Modified Video clip: sky.rogue.space

**https://en.wikipedia.org/wiki/Journey_to_the_Center_of_the_Earth

Data source: https://en.wikipedia.org/wiki/Starlink#Constellation_design_and_status

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LEOsat Competitor Space

GeeSpace
240 LEO Planned

Lynk
5110 LEO Planned

Starlink
8600+ LEO Active
(4396 – Phase 1)
(7518 – Phase 2)
~12000 in total by 2027

OneWeb
652 LEO Active
(constellation fully deployed – 600 active, 48 on-orbit spares)

AST SpaceMobile
170 LEO Planned

Space

https://supercarblondie.com/spacex-launches-10000th-starlink satellite/?utm_source=flipboard&utm_content=topic/spacetravel

SpaceX quietly launches its 10,000th Starlink satellite, changing how the world connects

Published on Oct 30, 2025 at 8:42 AM (UTC+4)
by Molly Davidson

Last updated on Oct 30, 2025 at 3:54 PM (UTC+4)
Edited by Kate Bain

Source: https://interestingengineering.com/innovation/Starlink-here-are-6-of-spacexs-biggest-rivals-for-satellite-internet-dominance

TeleSat
15 GEO Active

VIASat
4 GEO Active

Iridium Certus
75 LEO Active

AMAZON Kuiper
3236 LEO planned

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Phased Array Antennas

lan

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Basic Antennas

A basic antenna will transmit the same power in all directions

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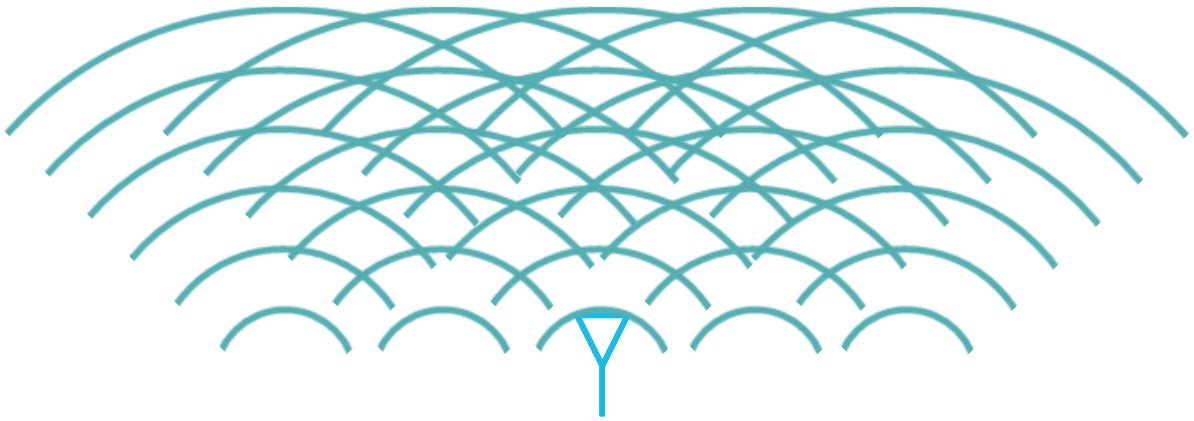
Phased Array Antennas – Multiple Elements

Phased array antennas can contains 100s of antenna elements

As the waves travel outward from the antennas
they constructively and destructively interfere with each other



https://www.ruaviation.com/news/2016/1/14/4629/?h

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Phased Array Antennas – Narrow Beam

Phased array antennas can contains 100s of antenna elements

Through software we can concentrate the beam in one specific direction and cancel out in all other directions

The result is a single composite antenna with a very narrow beam perpendicular to the antenna

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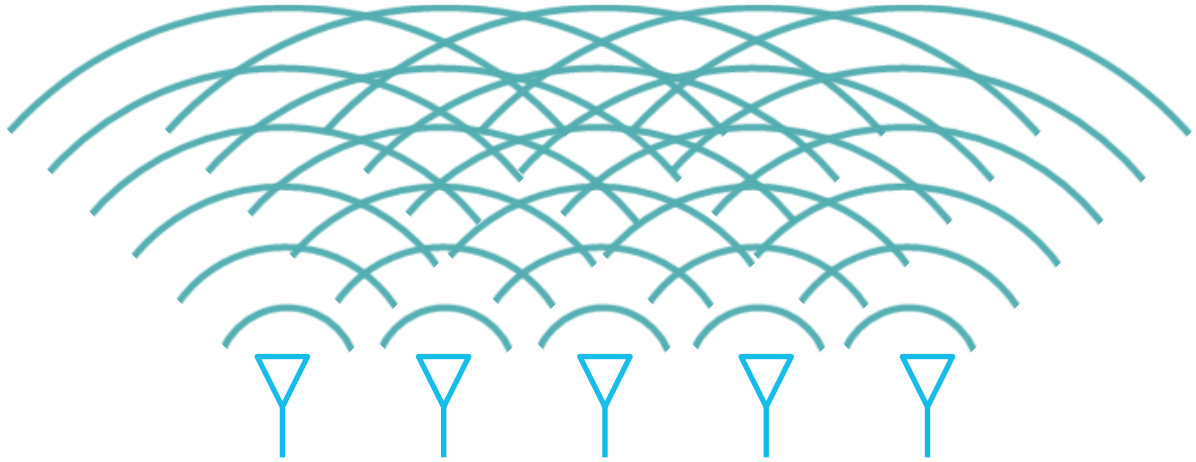
Phased Array Antennas – Controlling Direction

Phased array antennas can contains 100s of antenna elements

By adding a slight delay to each signal



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Phased Array Antennas – Controlling Direction

Phased array antennas can contains 100s of antenna elements

We can change the direction of the beam
to optimally follow the path of the LEO Sat

The result is a single composite antenna with a very narrow beam
perpendicular to the antenna

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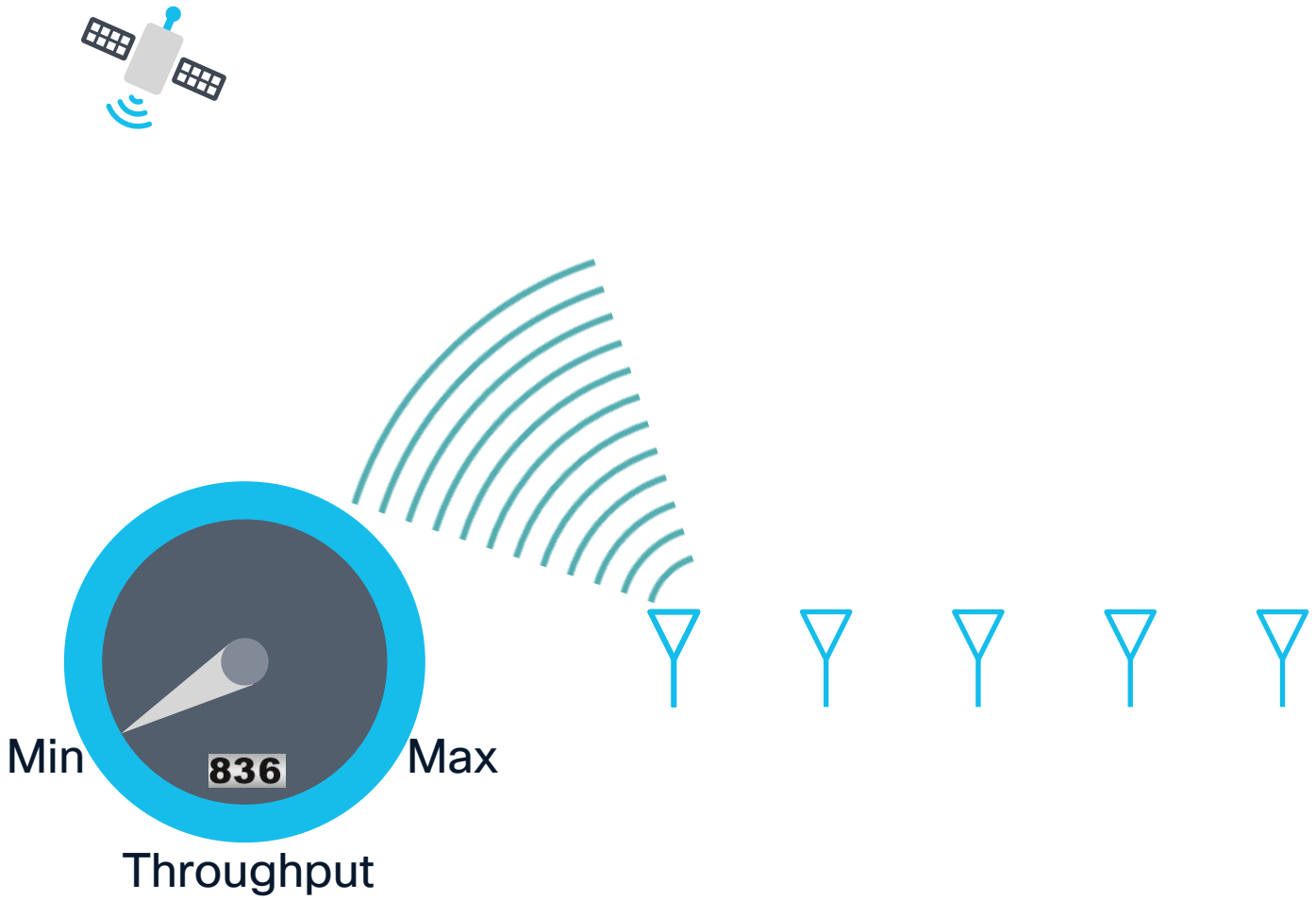
Phased Array Antennas – Throughput

Throughput will vary whilst connecting and as the LEOsat moves across the sky



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The Phased Array in Action

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Mobility Support

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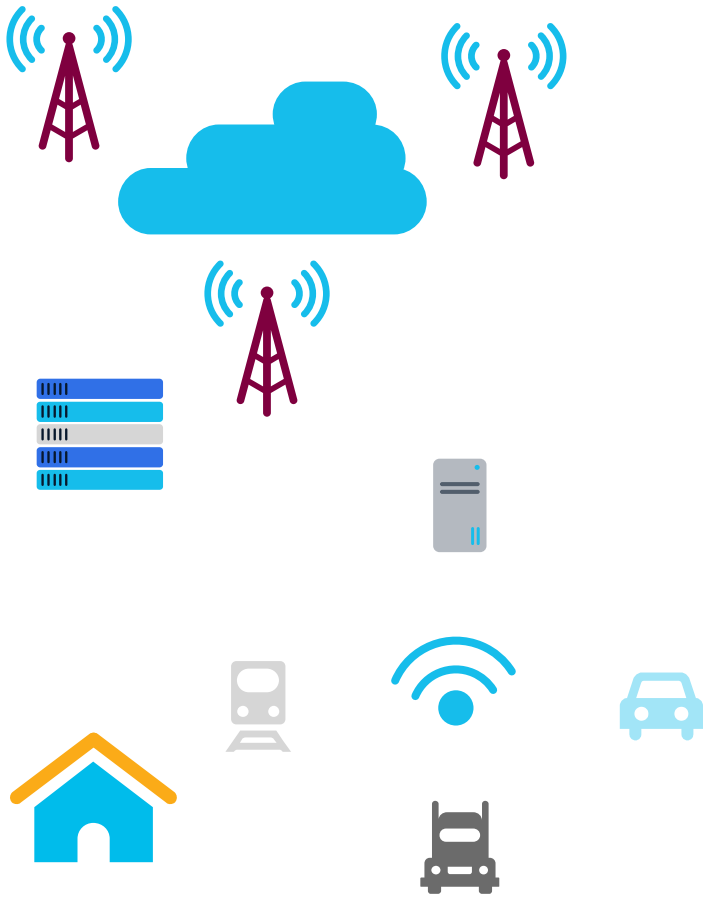
Mobility

Traditional



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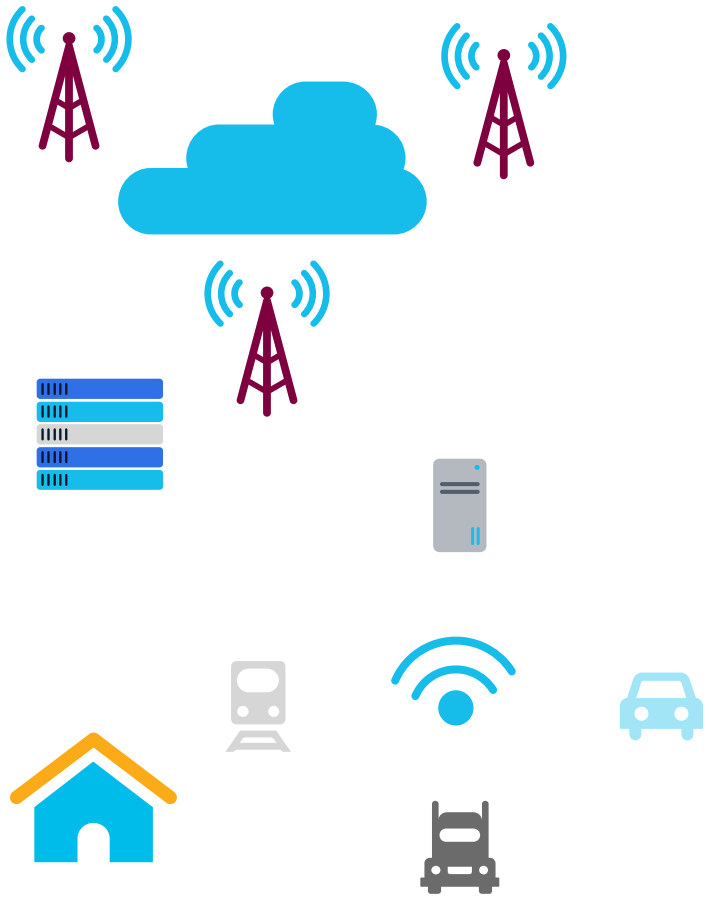
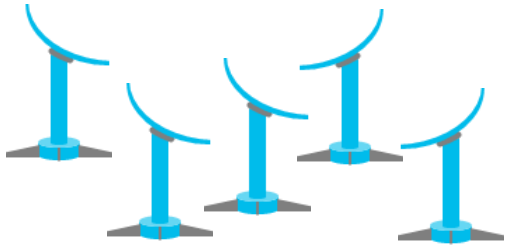
Mobility

Traditional



LEO



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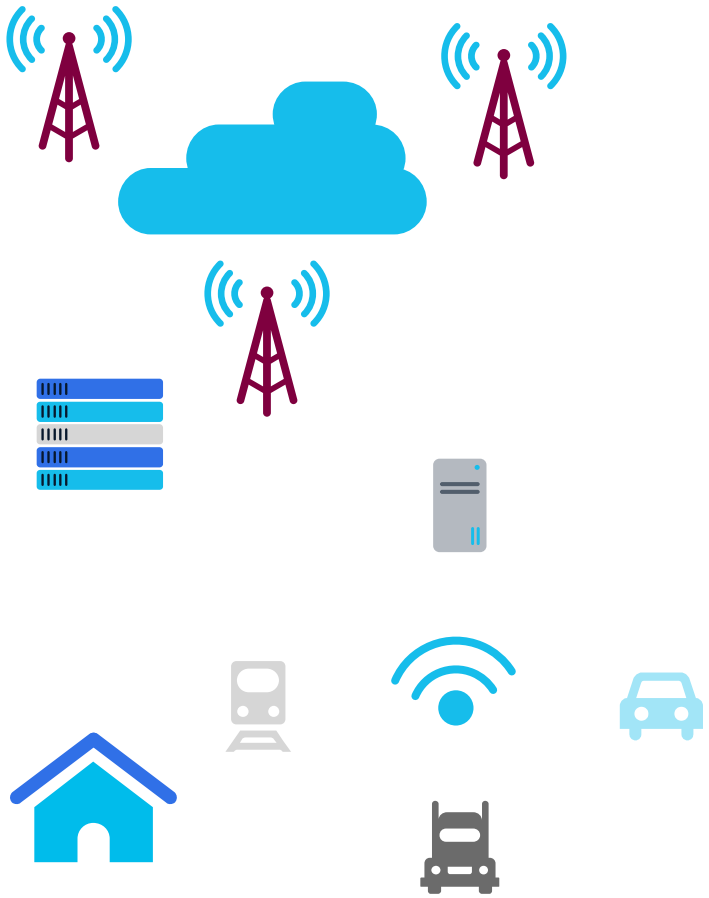
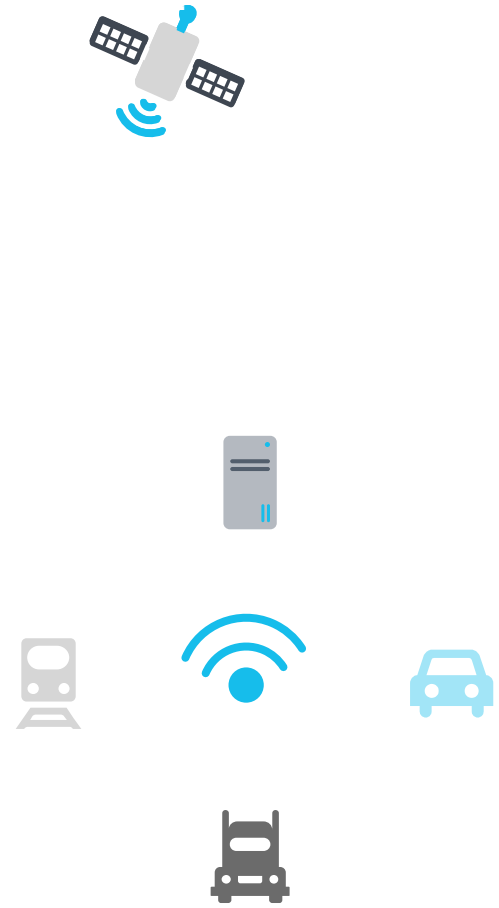
Mobility

Traditional



LEO

LEO Mobility



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Larger Antenna & More Power – Cell Phones

AST Spacemobile
400sqm (Planned)
Several 1000kgs

Starlink Gen2
25sqm
1250Kgs

Lynk
4sqm

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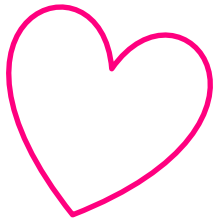
A Marriage Made In Low Earth Orbit

Many partnerships are being formed

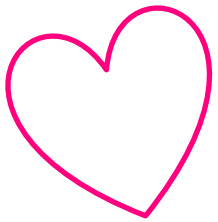
Lynk

Many MNO



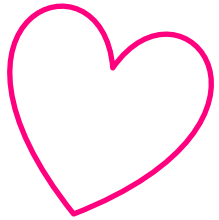
AST SpaceMobile

Many MNO



Starlink

T-Mobile



Apple

Globalstar

Initial offers are texting services and low bw broadband

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Laser Inter-Satellite Links

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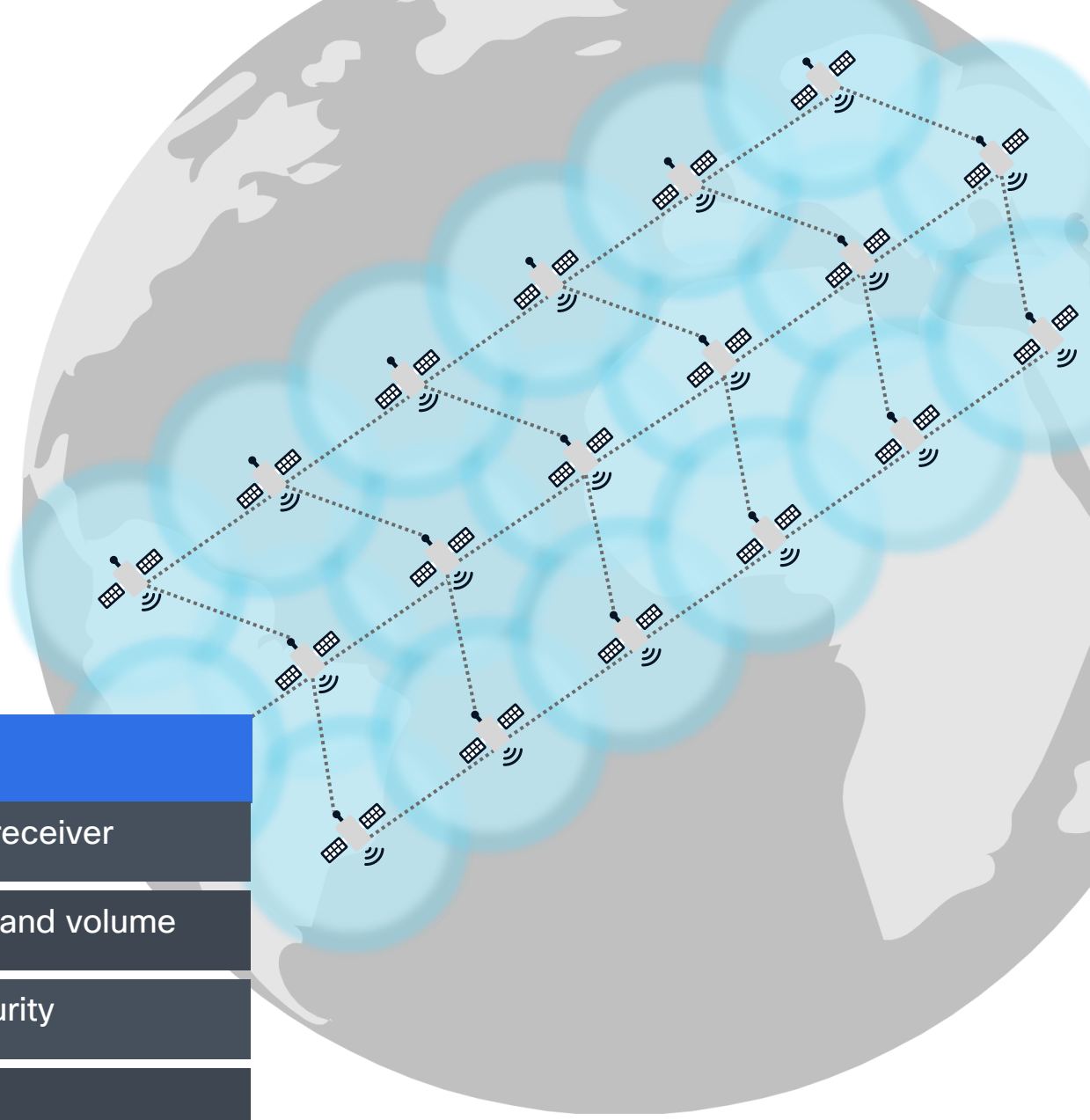
Laser Inter-Satellite Links

Signals in FREE SPACE
REDUCE LATENCY



Advantages of Laser over RF	
Higher Capacity	Up to 10 Gb/s between one laser transmitter & receiver
Antenna Size	Smaller antenna sizes, resulting in lower weight and volume
Narrow Beam	Eliminates interference and provides higher security
Low TX Power	Due to lower beam spread and higher directivity

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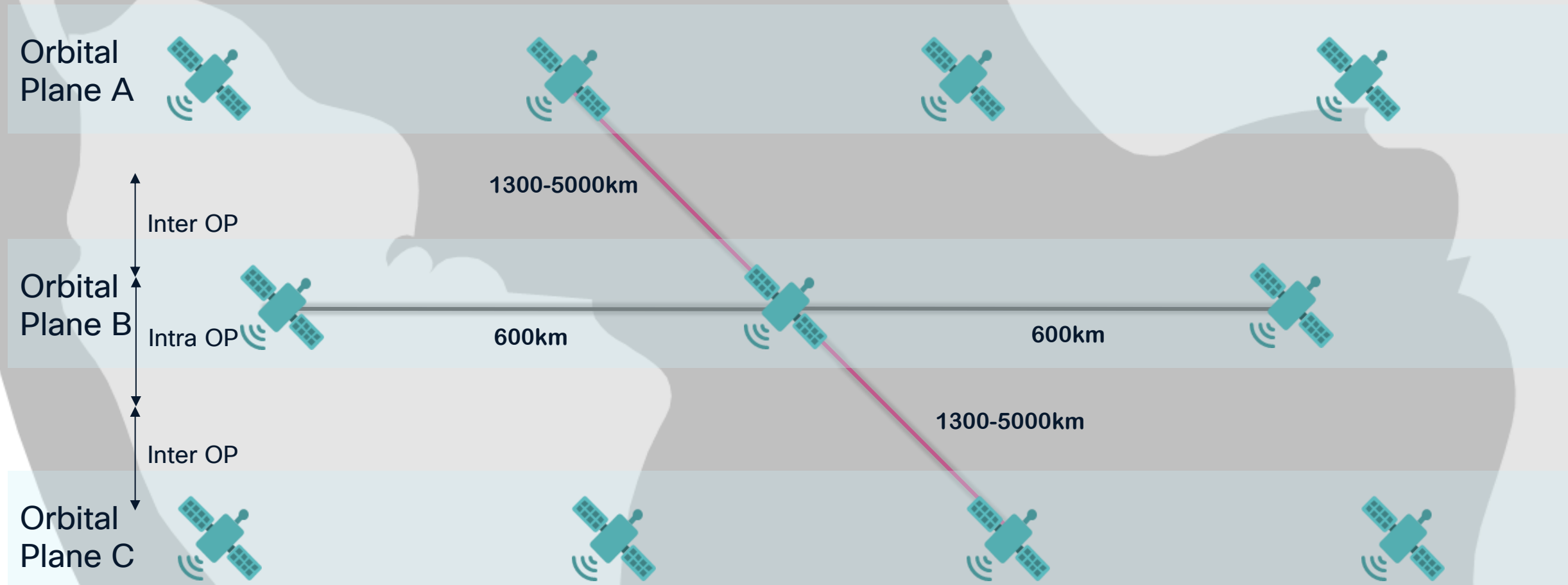
Starlink Laser Inter-Satellite Links



Mesh routing in space

https://arxiv.org/abs/2103.00056

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Starlink Laser Inter-Satellite Links – Fun Facts!

9000 Space lasers deployed

5.6Tbps+ peak throughput

Delivering 42 PETABYTES
of customer data a day (42 million gigabytes)

Laser Link Highlights

Longest link distance	5400 km
Number of acquisitions per day	266,141
Longest link duration	Weeks
Max. data rate	200Gbps
Fastest acquisition	12 seconds
Min. altitude link	122km <<< maintained while de-orbiting a satellite! ☺

Source: PCMag, https://uk.pcmag.com/networking/150673/starlinks-laser-system-is-beaming-42-million-gb-of-data-per-day

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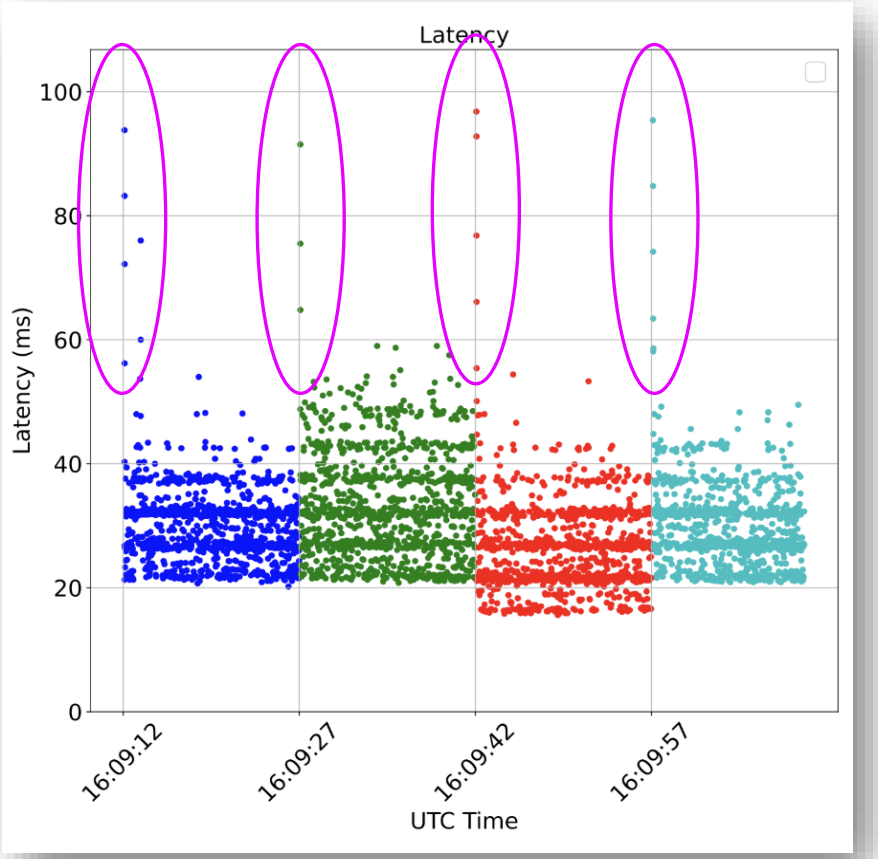
Starlink Satellite Handover 12,27,42,57sec after each min...

https://youtu.be/P7bk84H9bVs?si=b9Btk5S0ikyttCzV&t=628

Very high latency (and some packet loss) on each satellite switchover event ...



https://onlineacademiccommunity.uvic.ca/starlink/

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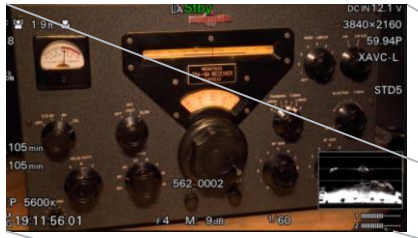
How might this impact a Webex (WebRTC) call?



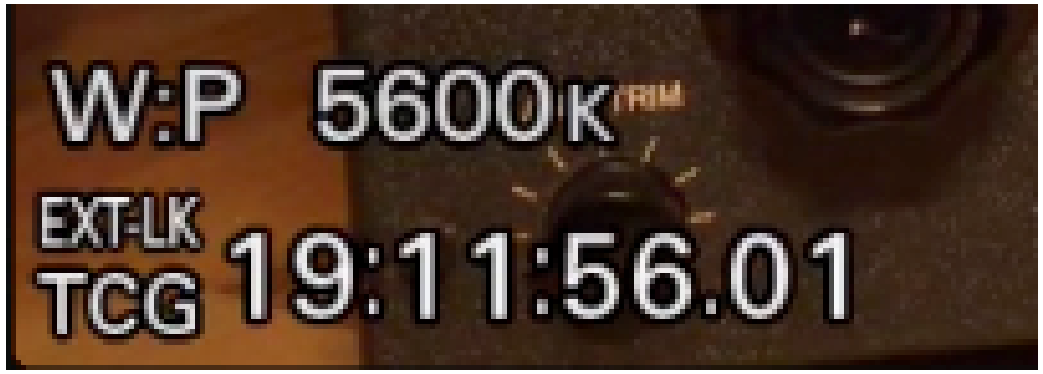
1KHz Test Tone Enabled in camera.

SDI Video + Audio

Camera with External Time Code Input

SDI to UVC Adapter

Linear Time Code Generator Sync'd to NTP



Timecode Embedded In Each Video Frame

Recorded WebEx Call

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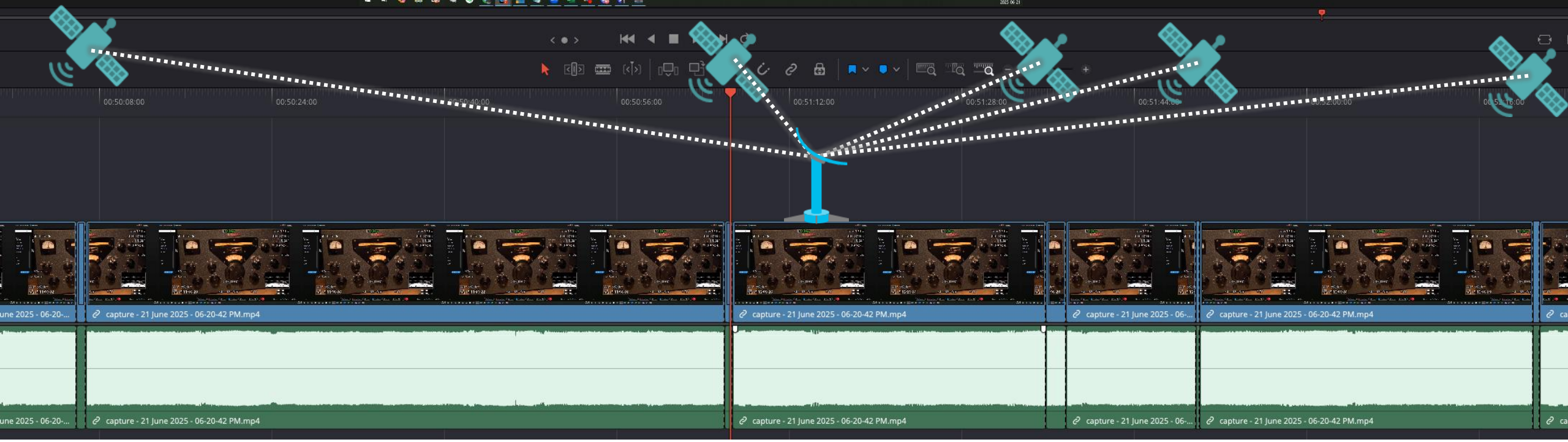
Remember

Starlink Sat Handoff can occur at 12,27,42,57 seconds each minute



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Gaps in audio + jitter in webRTC video occurring at handover points

Loss Events Over the Course of 1hr Test …

WebEx RX Stats

Notice it's having to down-res the video at times.

Jitter report changes at handover intervals…

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What if Dropouts and Downscaling aren't an Option?

SD-WAN & Link Bonding solutions will be required

TECH

CBS 8 San Diego using Starlink technology to steady TV live shots

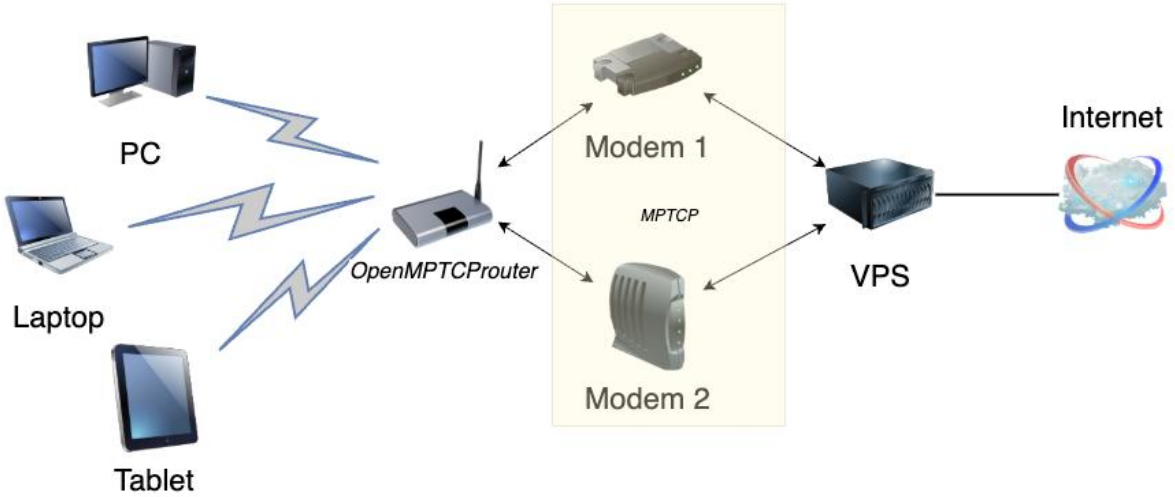
—

CBS 8 San Diego deployed SpaceX Starlink technology to provide seamless connectivity to CBS 8 Studios for transfers, communication, and live television transmission.

Starlink + Dejero Link Bonding "Field Bag"

OpenMPTCProuter

OpenMPTCProuter use MultiPath TCP (MPTCP) to really aggregate multiple Internet connections and OpenWrt.



A simple diagram to describe how OpenMPTCProuter is working.

Open Source Alternative

https://www.cbs8.com/article/tech/cbs-8-san-diego-using-starlink-to-steady-tv-live-shots/509-49844a2e-4ac2-4de3-be1c-8330449122a9

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Real World Deployments

Dave Dave’s Deployment, SD-WAN Demo

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Dave’s Deployment

Dave

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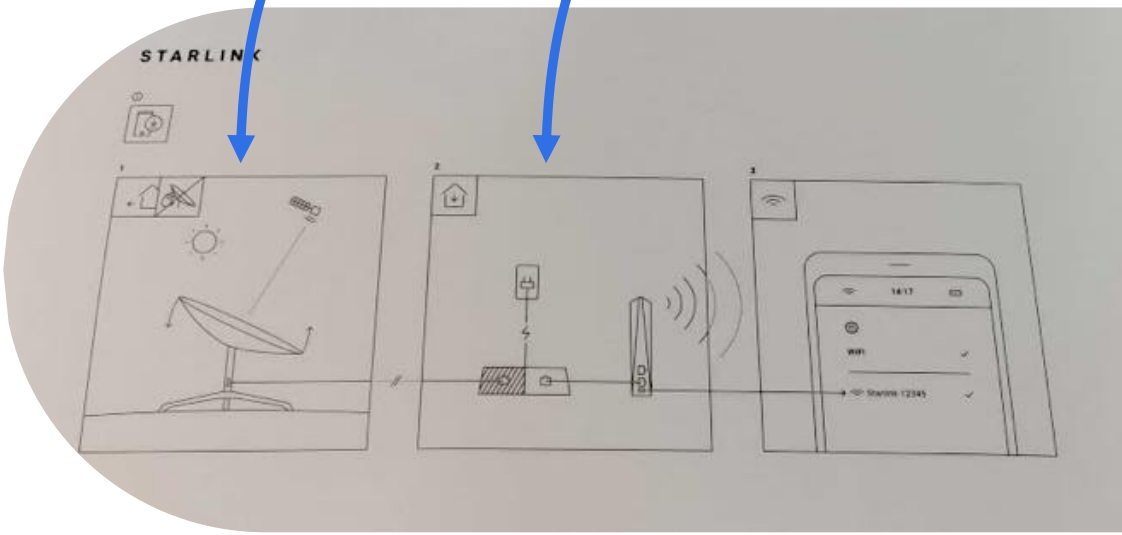
Dave’s Deployment @ Home

“Point at sky” “Turn on power”



Installation Instructions

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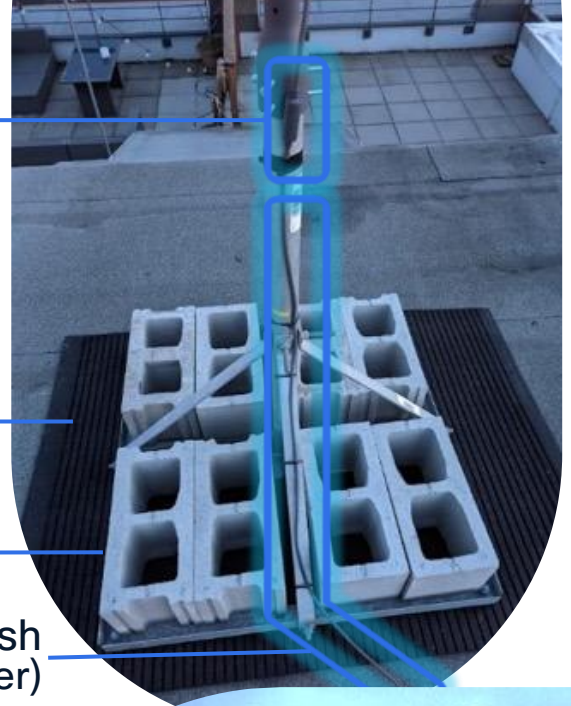
Dave's Deployment @ Home

Of course, there is always more to it than that ...

Finished the initial installation as night fell in Vancouver, BC ...

3D view from roof



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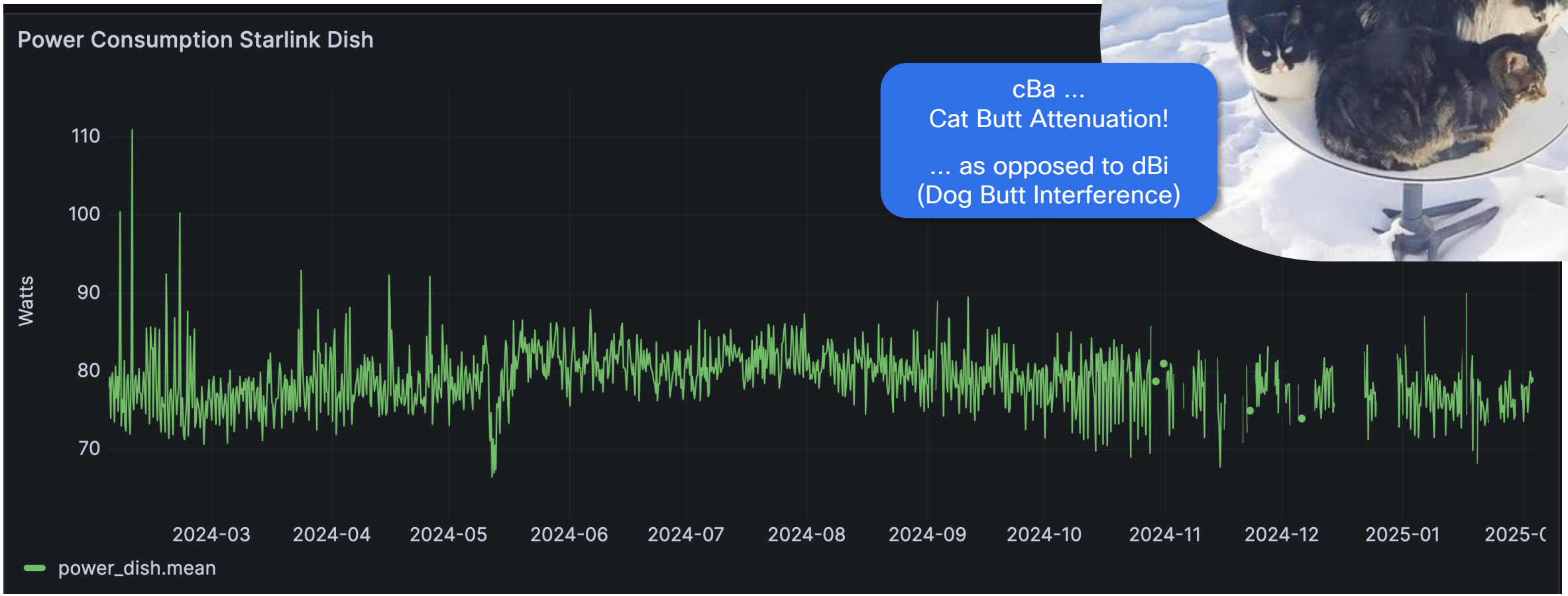
Gen-1 Dish Power Consumption

Gen-2+ dishes are more energy-efficient

cBa ...
Cat Butt Attenuation!

... as opposed to dBi
(Dog Butt Interference)



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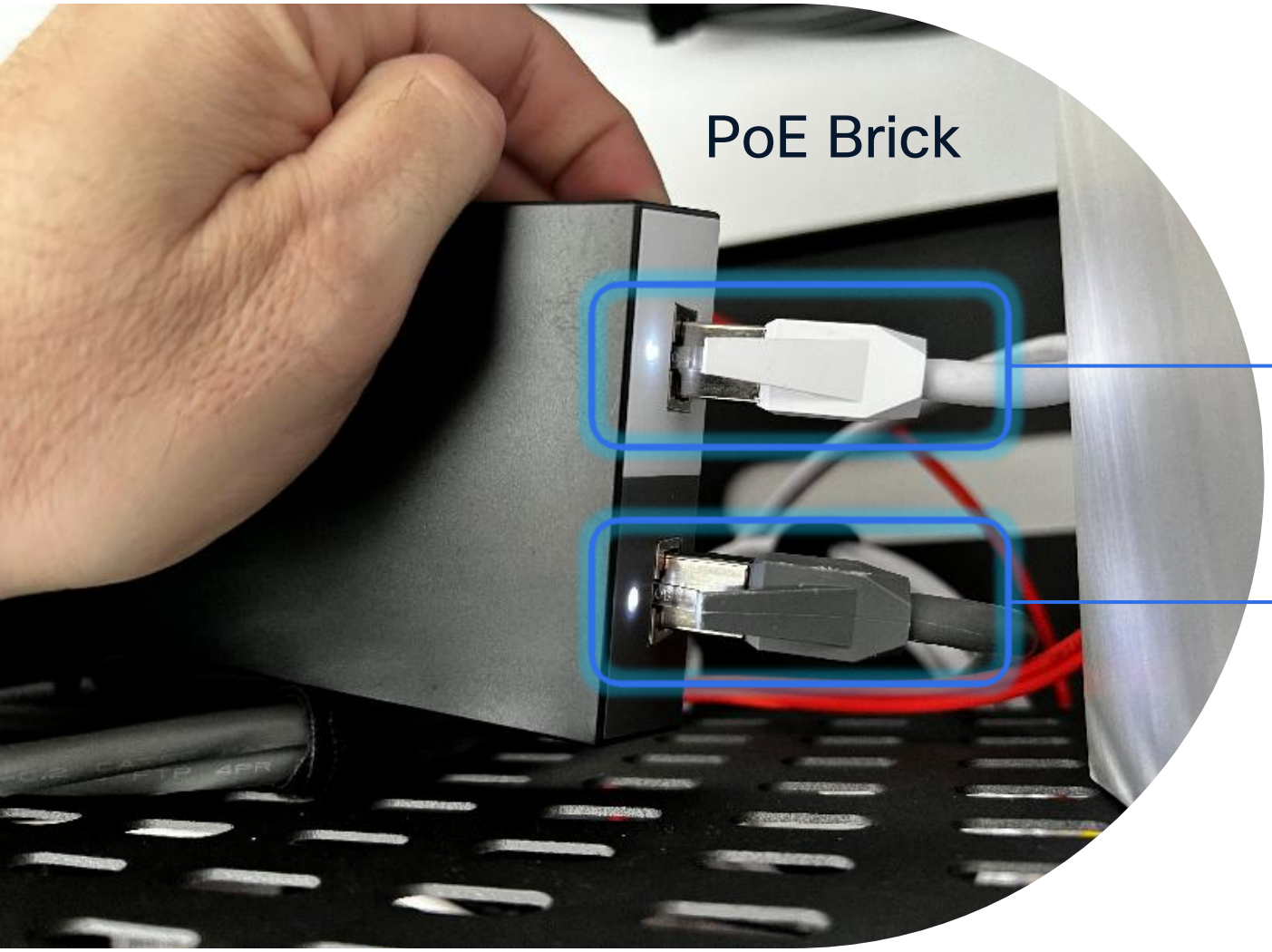
Dave’s Deployment @ Home



White cable – Connection to router (Starlink’s, or your own)

Grey cable – PoE to dish

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Dave’s Deployment @ Home

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Dave's Deployment @ Home

Powering my home office ☺

I have Gigabit via fibre, with Starlink as my secondary / failover / load-share link. But I can make it my primary uplink anytime I want to play. ☺

And I use Starlink as my primary uplink for many of my security camera feeds ...

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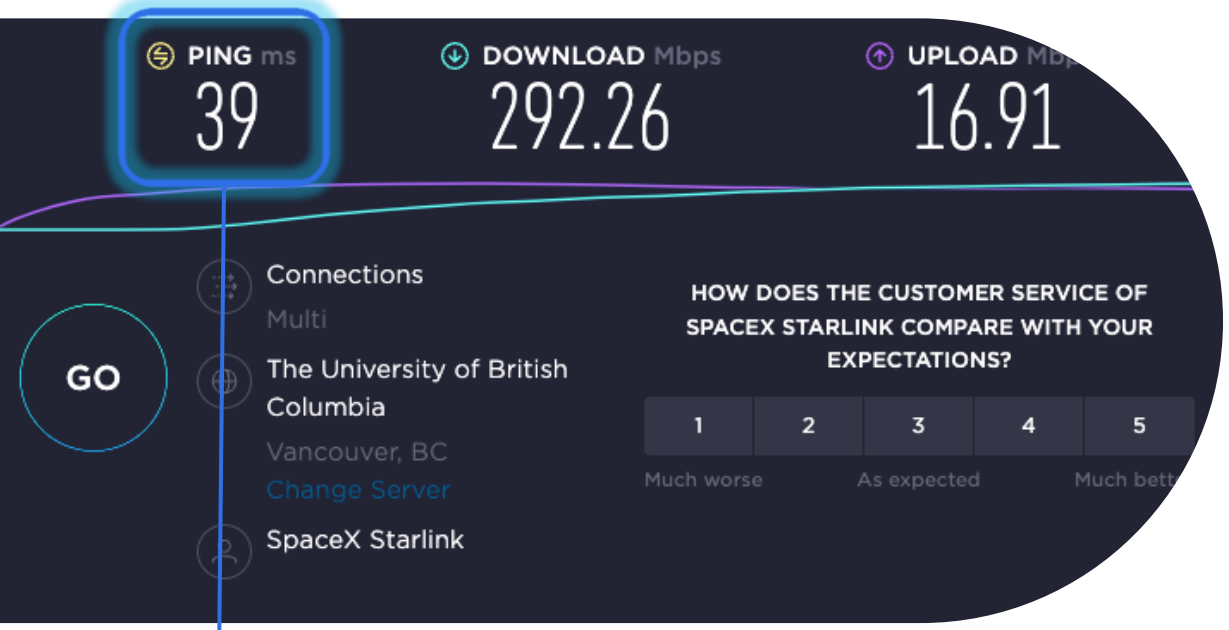
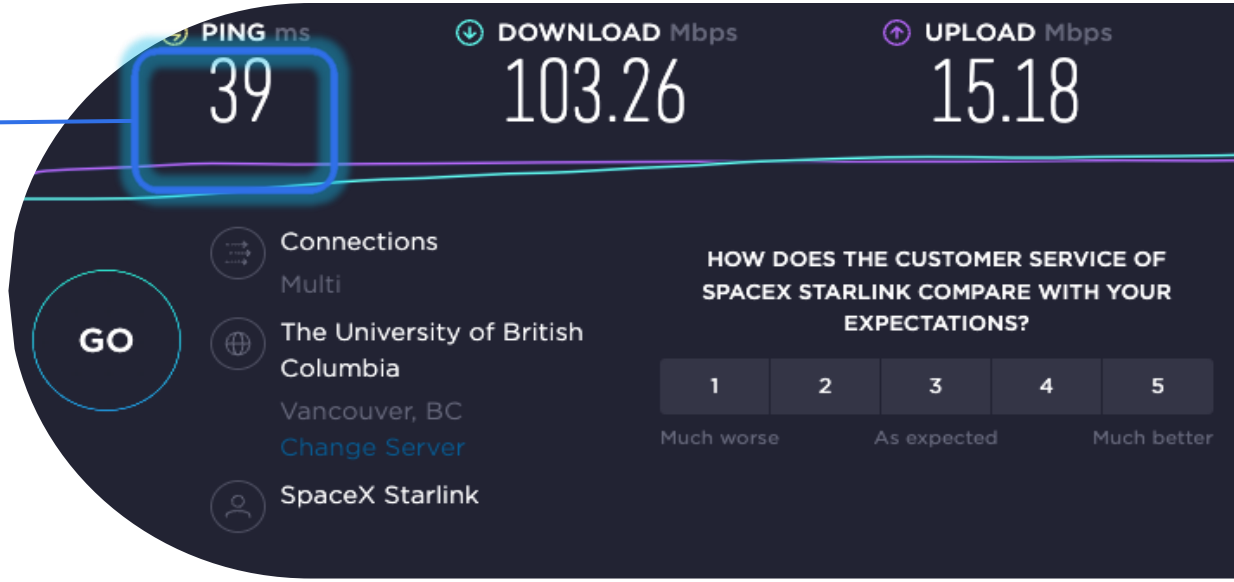
Dave's Deployment @ Home



Typical max speeds I would see ...

Low latency

Average speeds



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SD-WAN and Starlink

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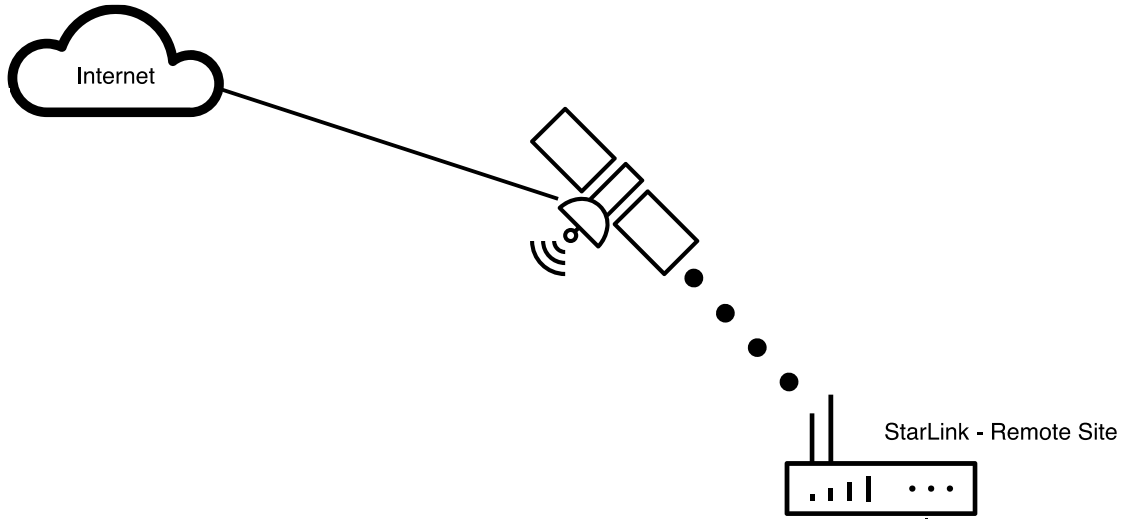
Starlink – SD-WAN Demo



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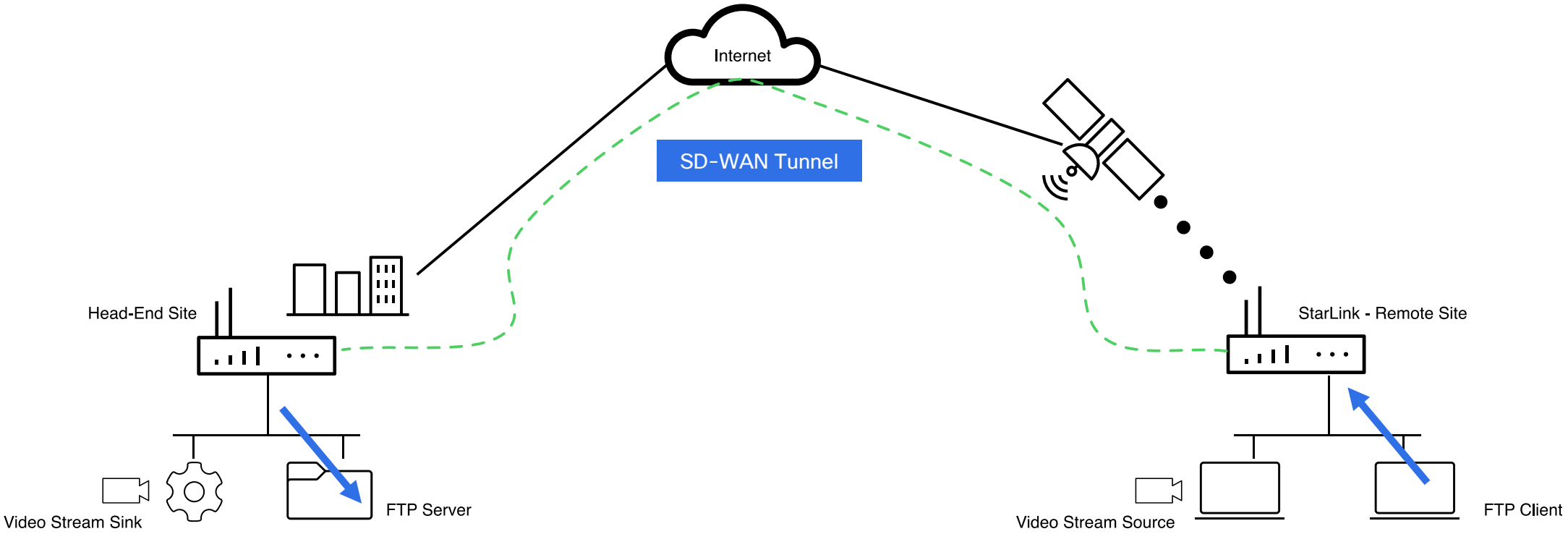
Starlink – SD-WAN Demo



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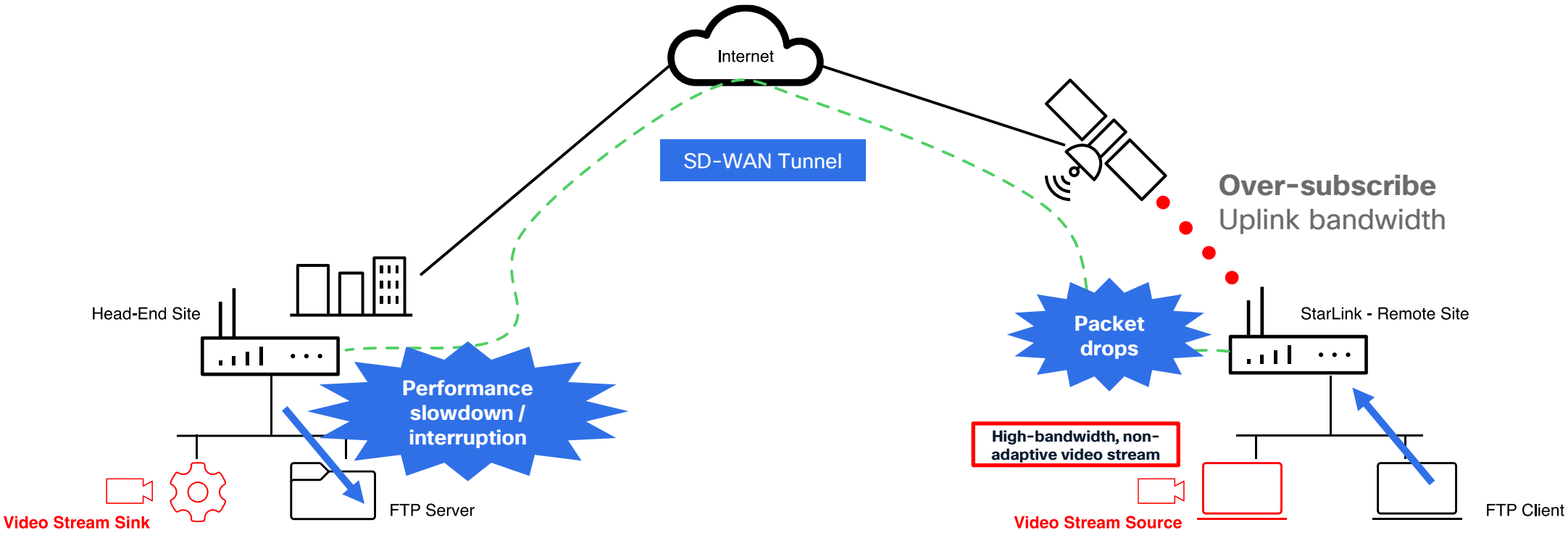
Starlink – SD-WAN Demo



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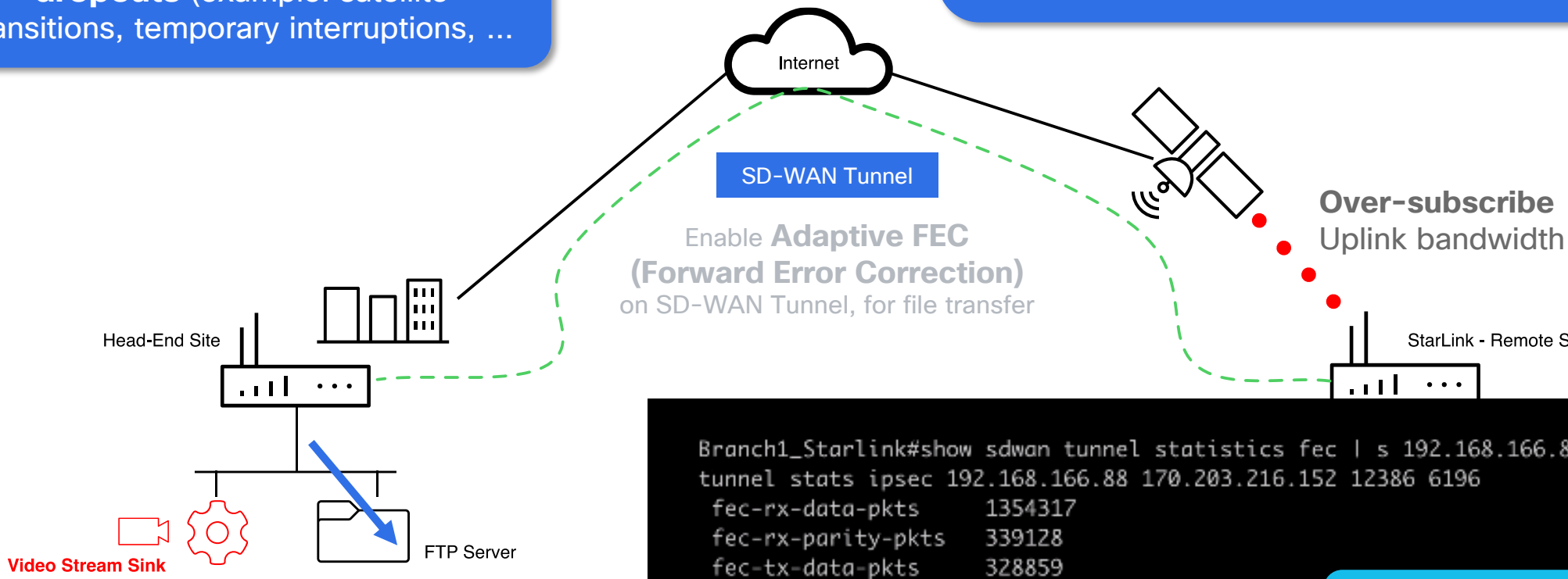
Starlink – SD-WAN Demo

Useful for occasional minor dropouts (example: satellite transitions, temporary interruptions, ...

How FEC works in Cisco SD-WAN

For every 4 data packets, transmit an extra **parity packet**

Any single packet loss within the group of four packets can be **re-built dynamically** from the other packets + parity data




```
Branch1_Starlink#show sdwan tunnel statistics fec | s 192.168.166.88 170.203.216.152
tunnel stats ipsec 192.168.166.88 170.203.216.152 12386 6196
 fec-rx-data-pkts      1354317
 fec-rx-parity-pkts    339128
 fec-tx-data-pkts      328859
 fec-tx-parity-pkts    82213
 fec-reconstruct-pkts  16523
 fec-capable           true
 fec-dynamic           false
Branch1_Starlink#
```

Example of operation

Can be "on-always", or operate as FEC-Adaptive which only kicks in on detecting packet loss

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Starlink – SD-WAN Demo

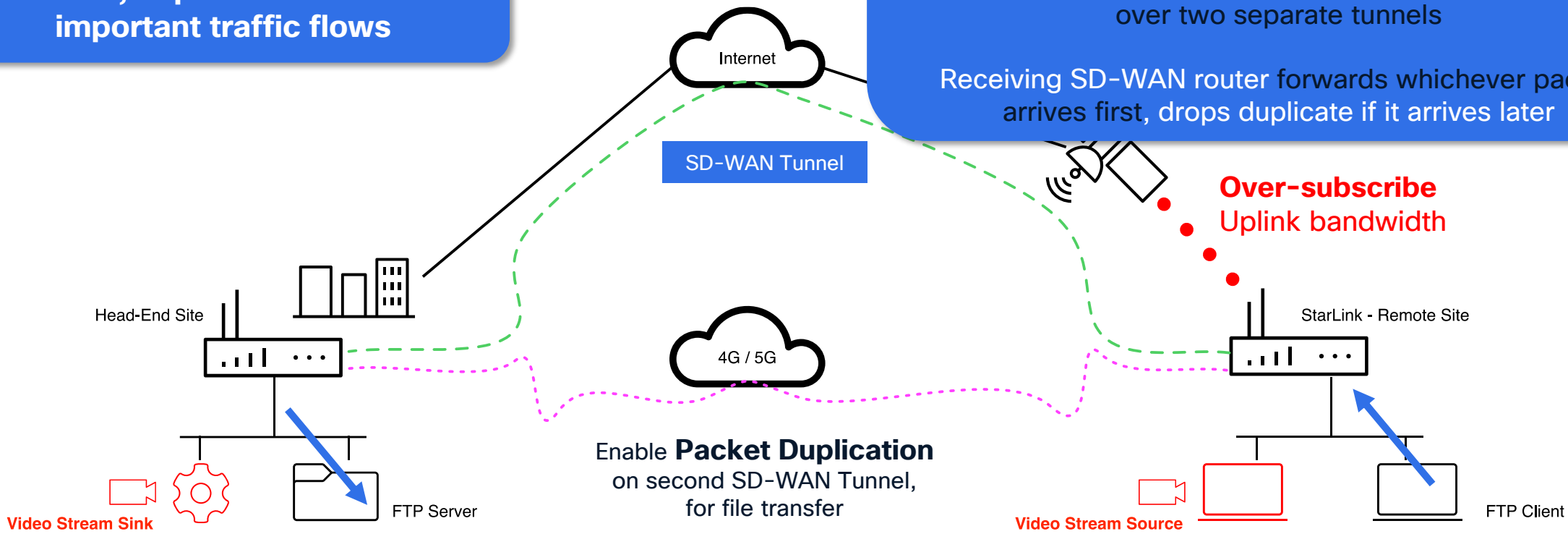
Useful for longer-term possible issues, to protect the most important traffic flows

How Packet Duplication works in Cisco SD-WAN

Designate all, or a portion, of traffic to duplicate

Send copies of matching packets (with sequence numbers) over two separate tunnels

Receiving SD-WAN router forwards whichever packet arrives first, drops duplicate if it arrives later



Operates as "on-always", but can be selective about what traffic is duplicated (via policy)

Demo of operation! ☺

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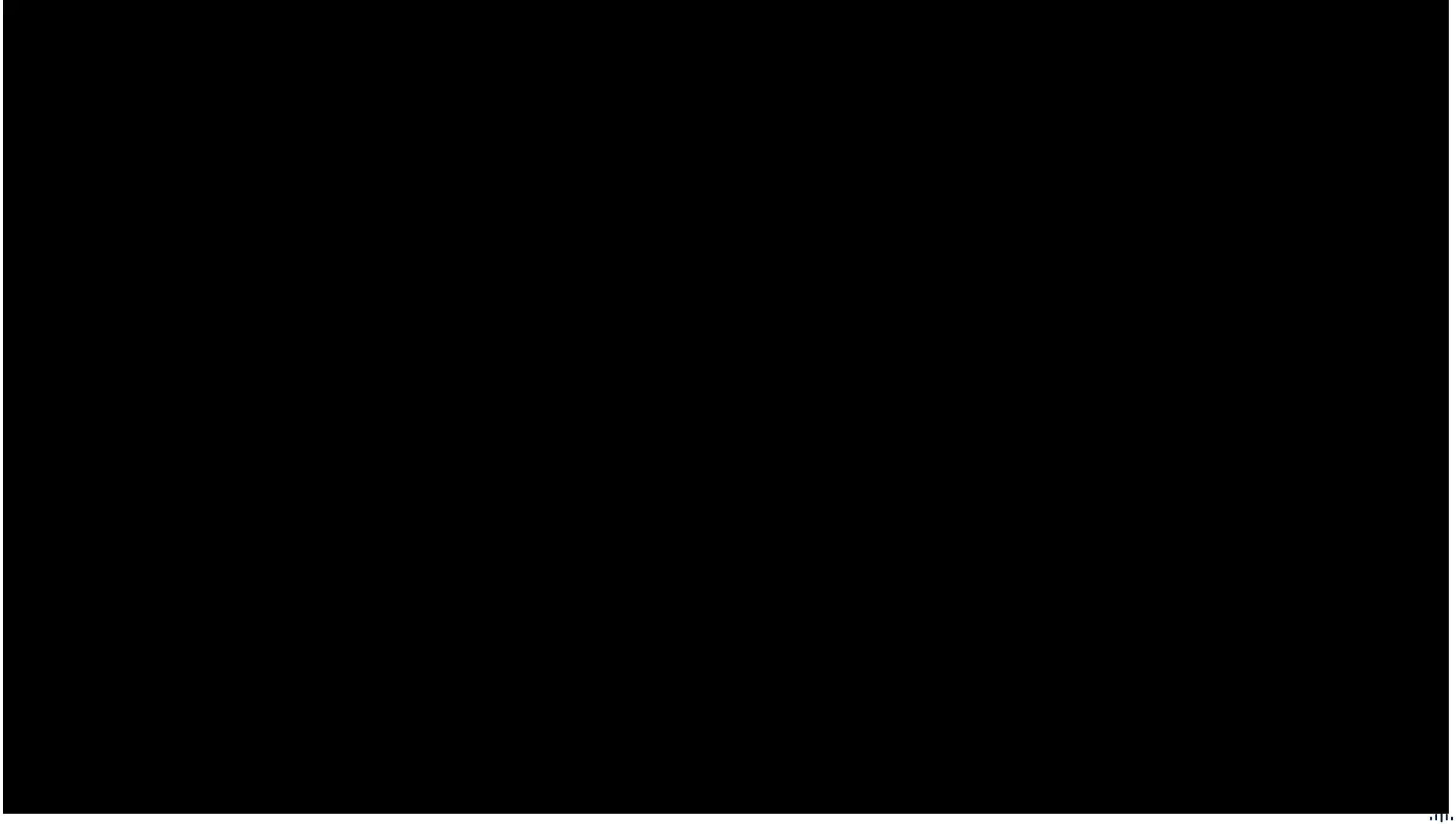

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Starlink – Enterprise / Branch Connectivity

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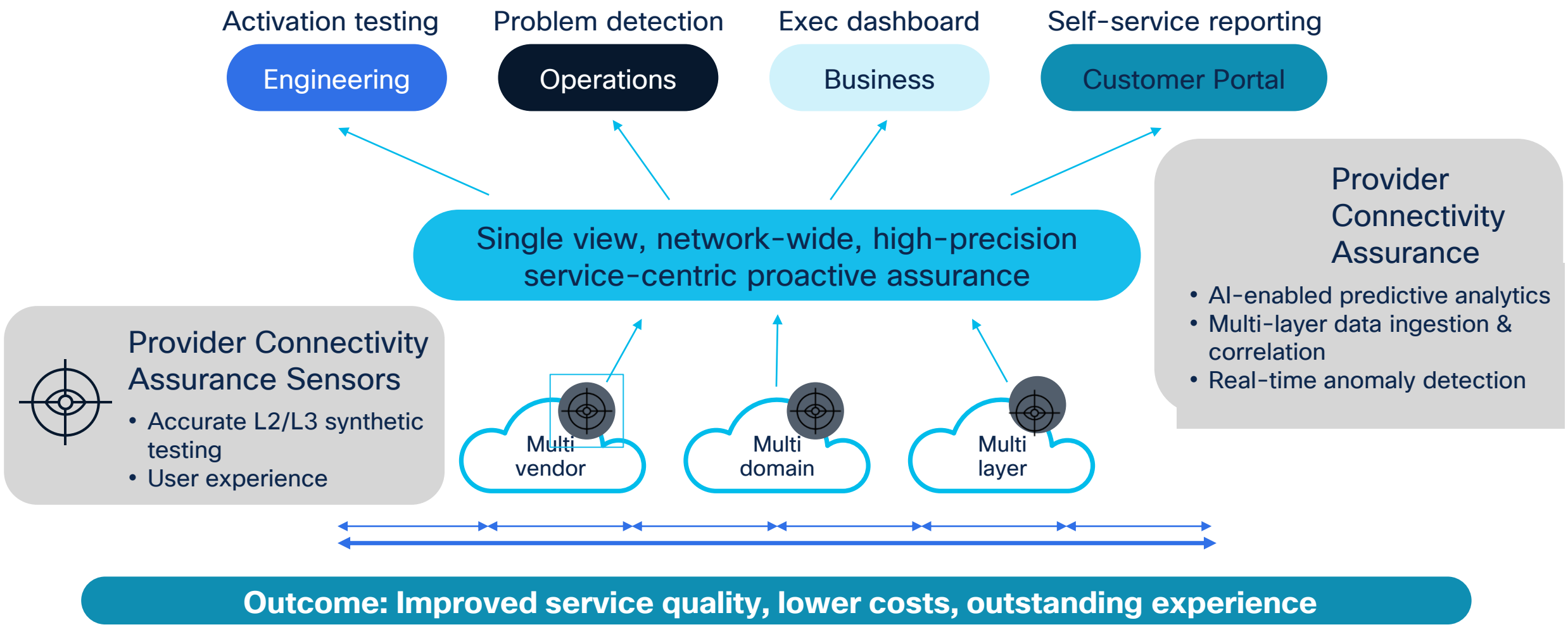
Cisco Provider Connectivity Assurance

Proactive assurance with real-time visibility and unparalleled accuracy for consistently great digital experiences



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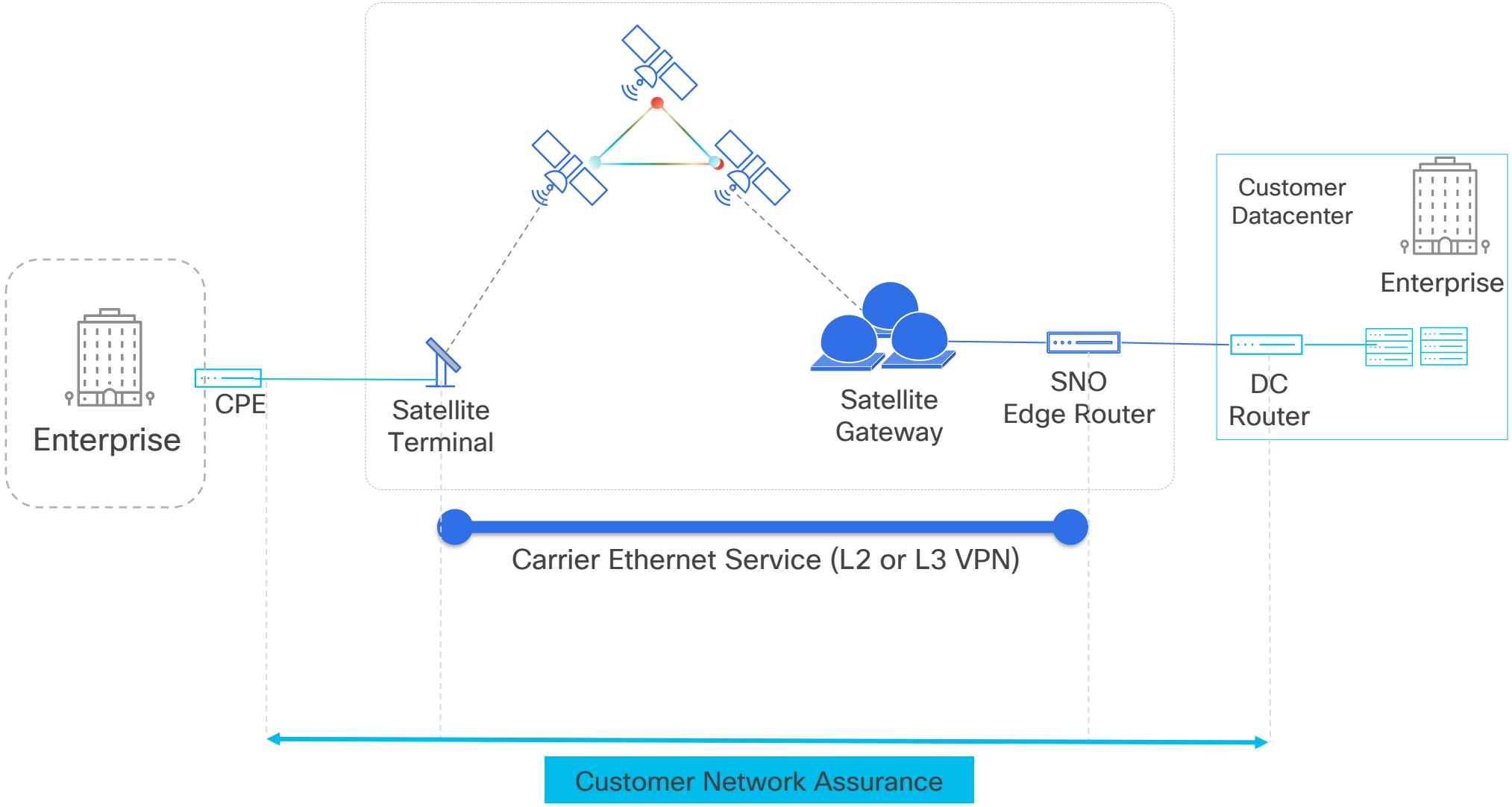
MEF L2 for Enterprise Connectivity

SNO Satellite Network Operator



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MEF L2 for Enterprise Connectivity

Challenge

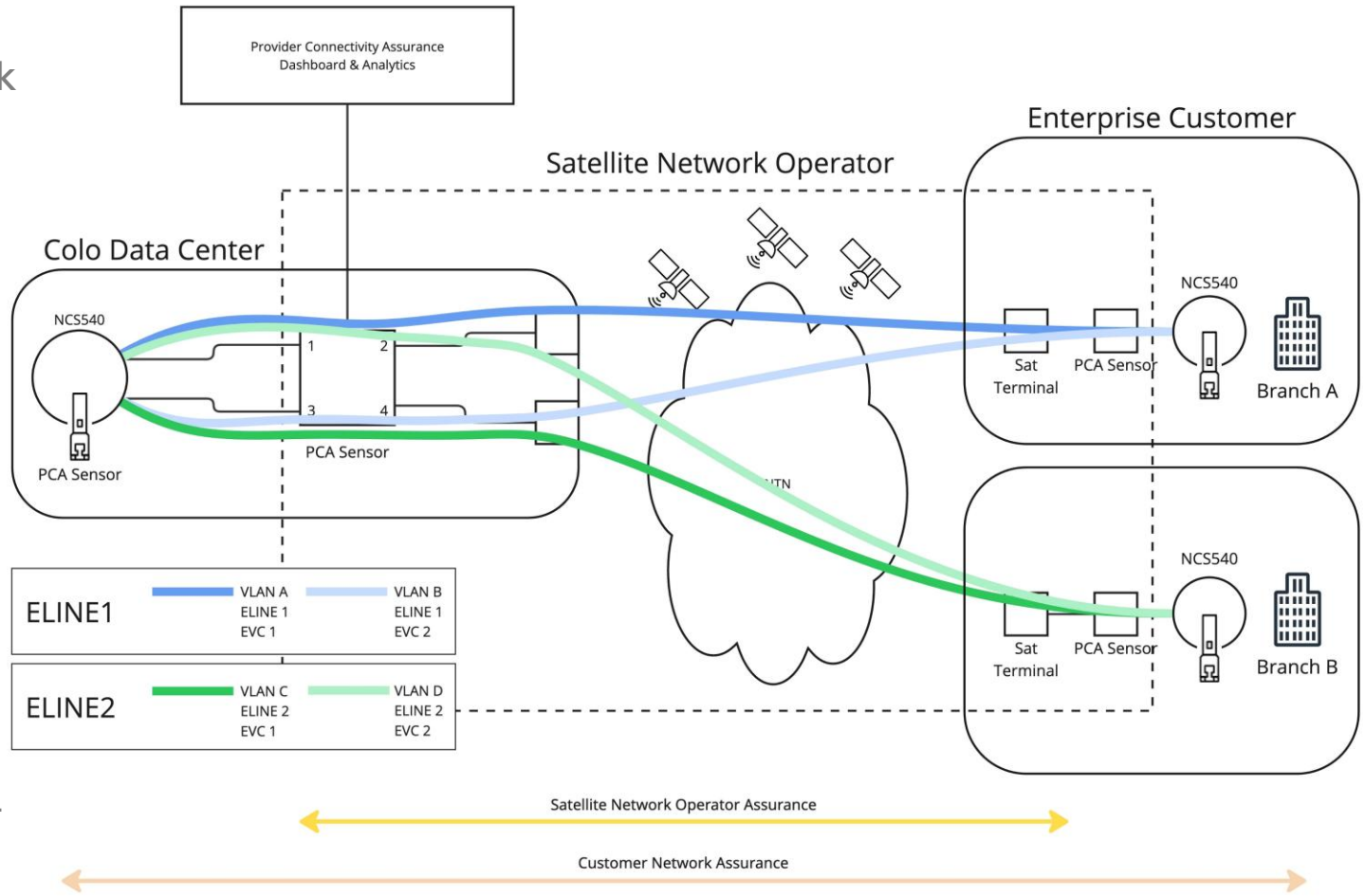
- High Variability of KPI in Satellite links
- Proof of innocence between Satellite Network Operator (SNO) and Customer network
- SLA management and upsell

Solution

- High resolution, proactive insights (latency, packet loss, jitter++) across network
- Compare with SNO terminal metrics in the same dashboards
- The same assurance solution ensures result comparability for both SNO and Customer

Outcomes

- Optimized network configurations for faster, secured, better services
- Additional revenue opportunities for SNOs – Guarantee and Sell SLA visibility
- High Customer satisfaction – Proactive, automated network fault management



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Demo

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Starlink and Meraki

Anthony

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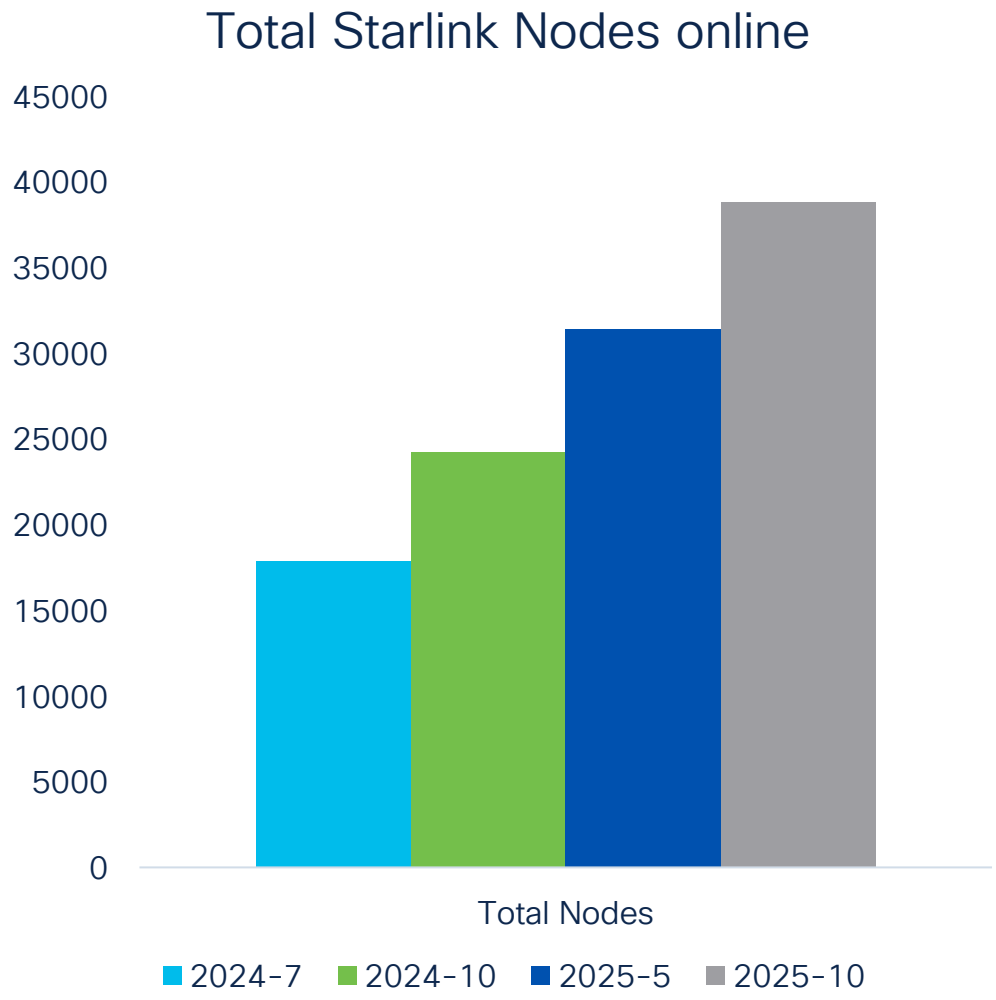
Starlink Nodes

1.7% of all nodes online in the Meraki dashboard are connected to Starlink.

Growth rate steady at approx. 30% per quarter globally



Starlink Nodes

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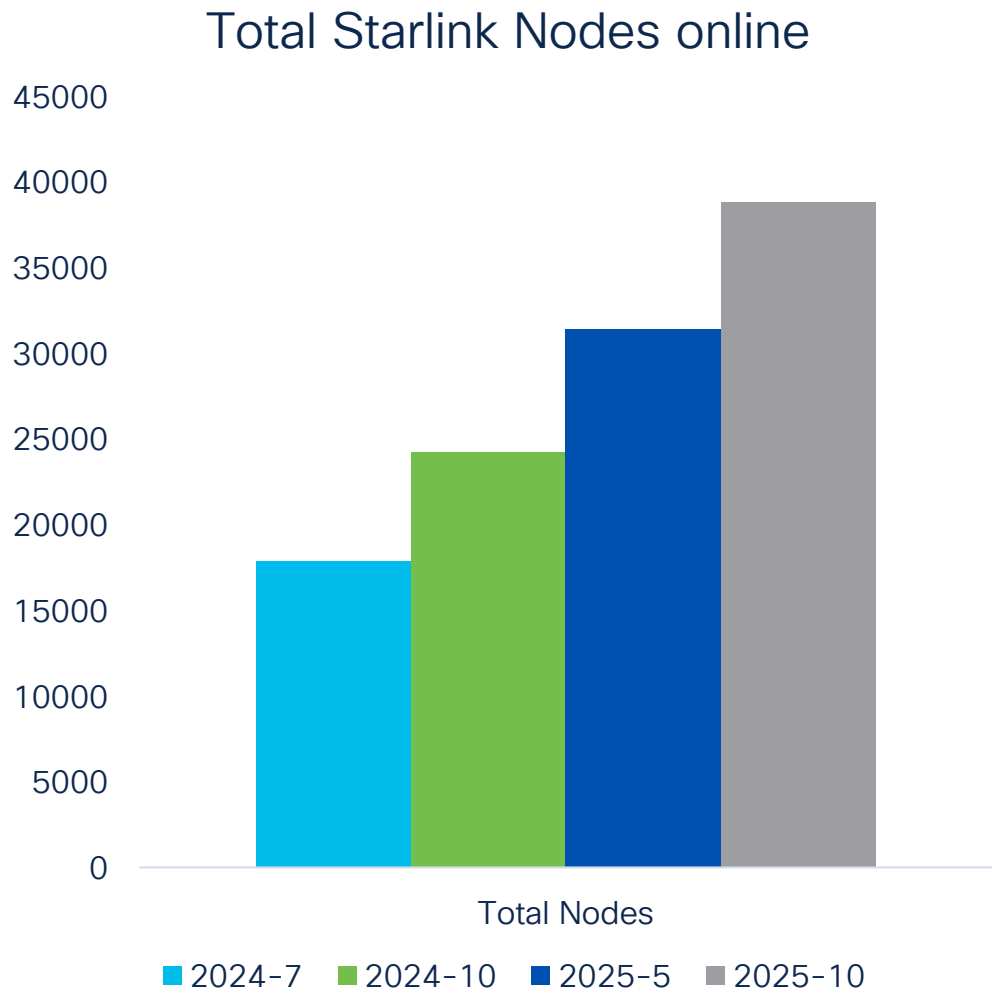
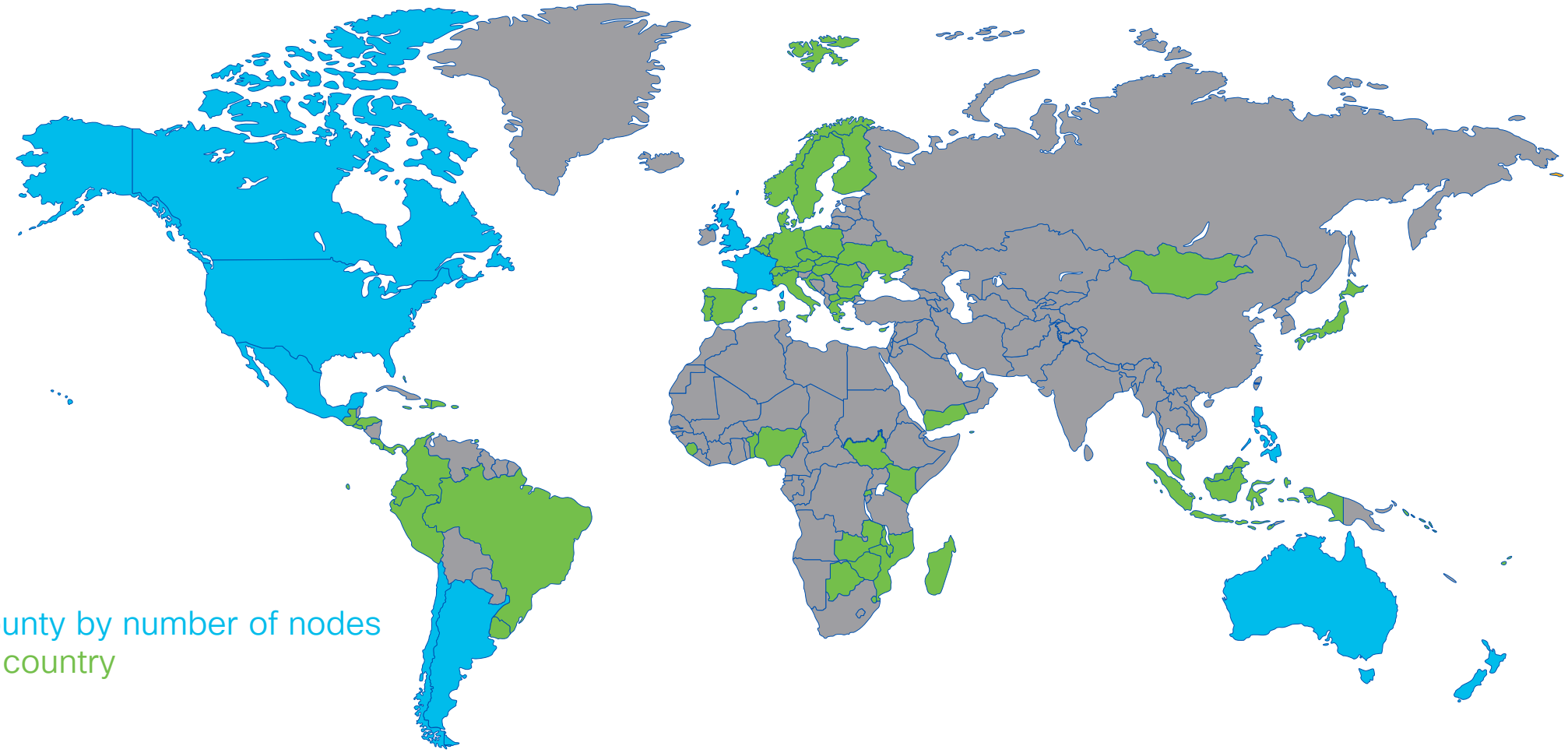


Starlink Globally



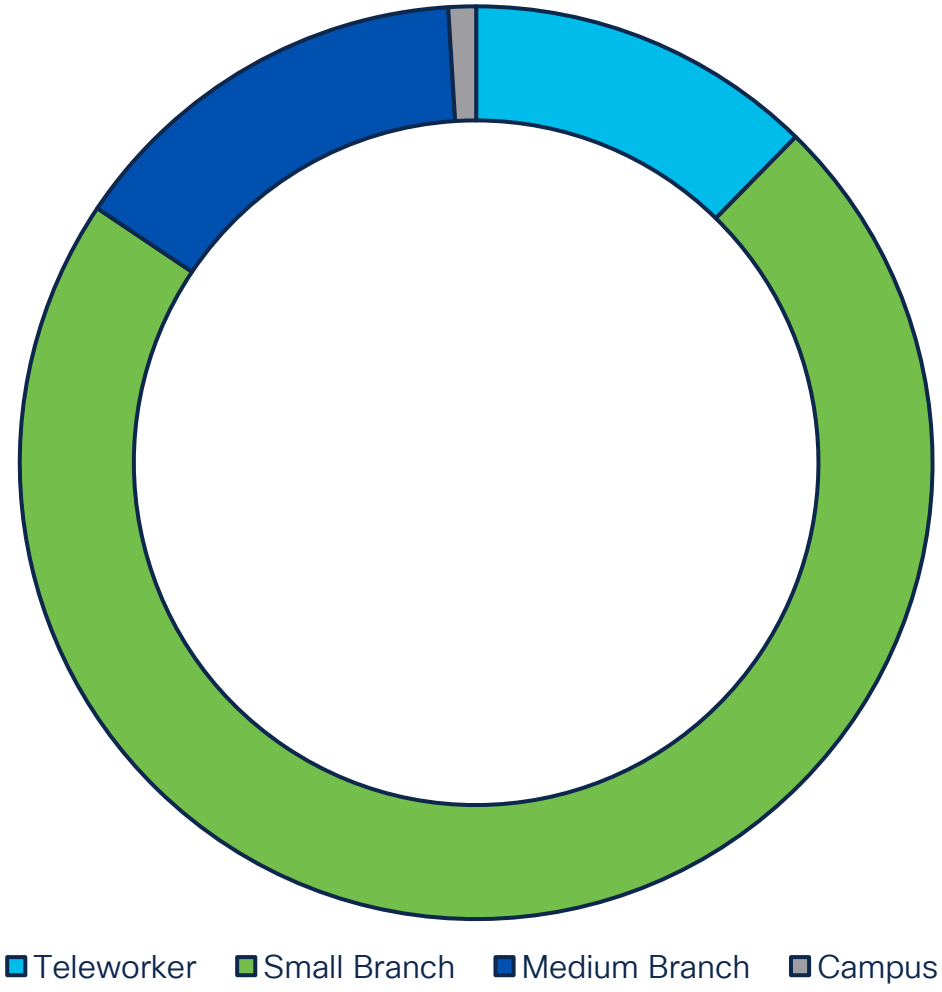
Legend
Top 10 county by number of nodes
Starlink in country

Starlink Sizing

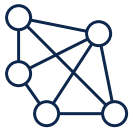
Small branch devices making up 72% of deployments.

Medium branch & Campus grew by 186% & 170% respectively.

20% of small branch users using Starlink + Cellular



Other Notable Tidbits



Starlink Only

62% of nodes with Starlink as only uplink

Negligible change YoY

IPv6

75% nodes IPv6 on WAN

3% using IPv6 on WAN & LAN

Highest Growth Industries

Higher Education - 422%
Media & Entertainment - 164%
Retail & Restaurants - 111%
Hotels & Leisure - 112%

(Changes in YoY)

Do not edit
How to change the design

What is the single biggest challenge you face when managing your Starlink deployments?

ⓘ The Slido app must be installed on every computer you're presenting from

slido

Starlink – Performance Analysis

Kemal

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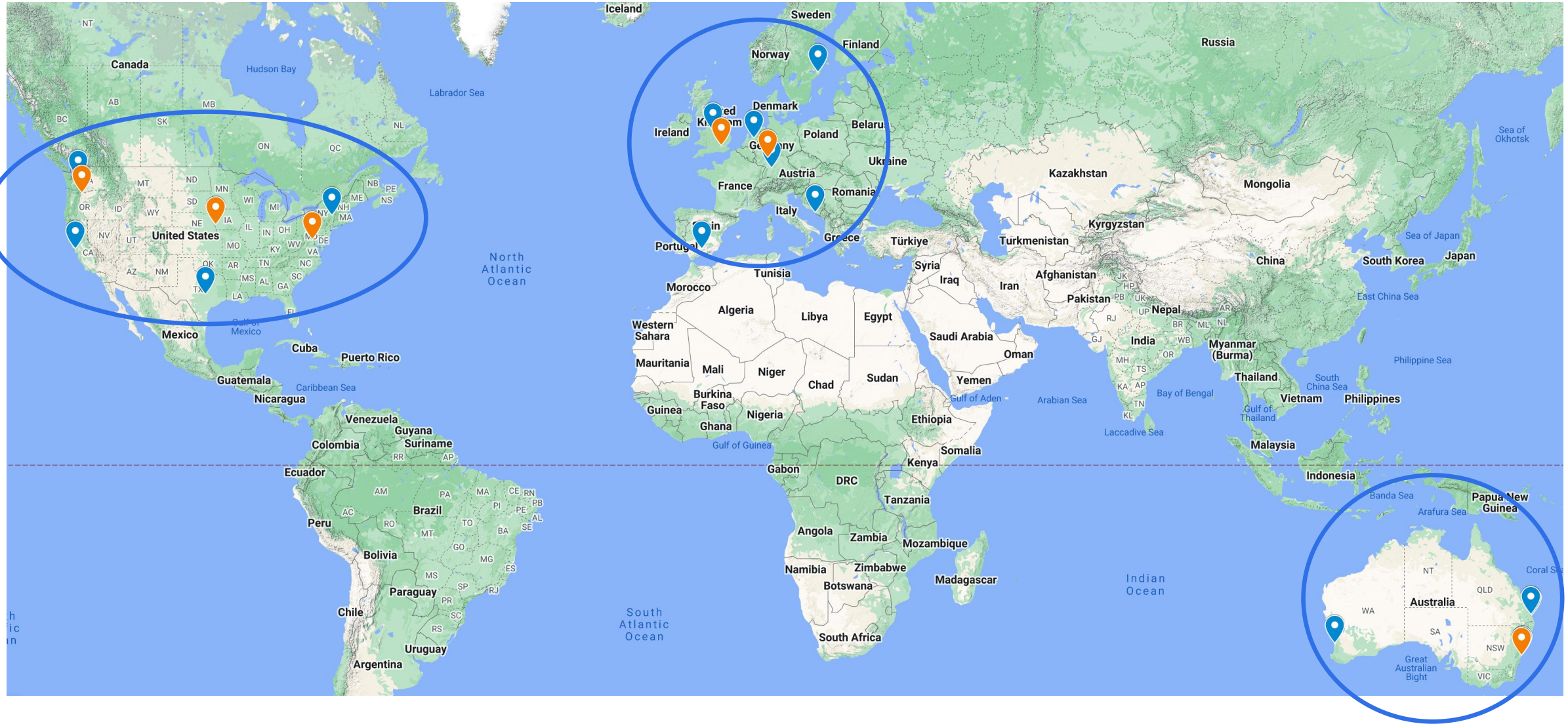
Methodology: Starlink Deployments



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Methodology

4 in United States:

- San Francisco, California
- North Bend, Washington
- Georgetown, Texas
- Selkirk, New York

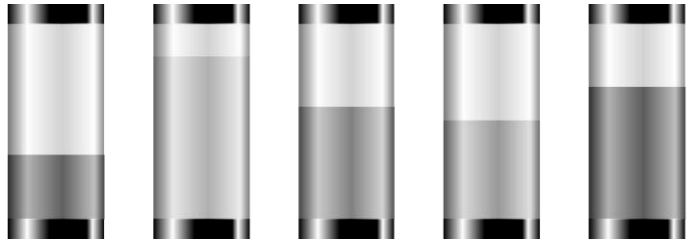
6 in Europe:

- Weinstadt, Germany
- Klek, Croatia
- Bakewell, United Kingdom
- Epe, Netherlands
- Jaen, Spain
- Stockholm, Sweden

5 in Australia:

- Perth
- Erskineville
- Kedron
- Brookvale
- Burpengary

- HP EliteDesk G2 Mini agents (i5, 16GB RAM, 200GB HDD, 1Gbps NIC) provisioned with Ubuntu 22.04 (latest LTS)
- Agent is connected to Starlink router using Starlink Ethernet adapter



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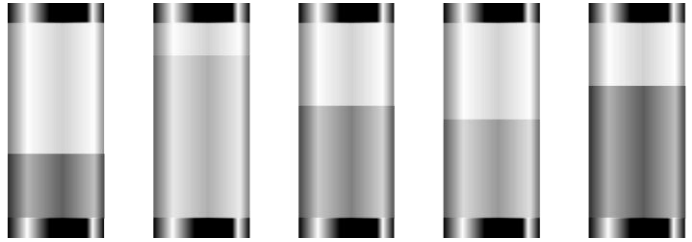
Methodology

- Tested upload/download speeds using Ookla's Speedtest
  - Captured 15 Speedtest measurements per agent (fair use, controlled test number/frequency)
  - Identified average values across 15 measurements
- **Deployed 6 iPerf servers around the globe within GCP**:
  - 3 in United States: US East (Virginia), US Central (Iowa), US West (Oregon)
  - 2 in Europe: EU East (London, UK), EU Central (Frankfurt, Germany)
  - 1 in Australia: AU East (Sydney, Australia)
- iPerf Server locations were selected based on proximity to Starlink POPs

- Each of iPerf servers had 1Gbps+ ingress/egress connectivity (as per GCP instance selection)
- **Sustained throughput measurements using iPerf3:**
  - 7200 data points (2 hours)
  - Tested download/upload separately
  - Each agent deployed behind Starlink tested to/from every iPerf server within the continent
- Tests conducted using TCP



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Important notes on Ookla's Speedtest

- Utilizes a large number of servers worldwide (~15k)
- Based on geolocation, utilizes servers with the lowest latency to the client executing probe
- Tests are short-lived and don't involve large file transfers
- We highlighted average download/upload speeds across 15 measurements
- 15 measurements to ensure fair and optimal use of third-party party service

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cisco

Australia

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Speedtest Results: Australia

Location	Download	Upload	Latency
Perth, Australia	263.917 Mbps	21.997 Mbps	27.950 ms
Erskineville, Australia	196.262 Mbps	24.263 Mbps	23.611 ms
Brookvale, Australia	242.576 Mbps	19.681 Mbps	26.039 ms
Kedron, Australia	164.503 Mbps	11.630 Mbps	29.173 ms
Burpengary, Australia	170.674 Mbps	17.719 Mbps	29.566 ms

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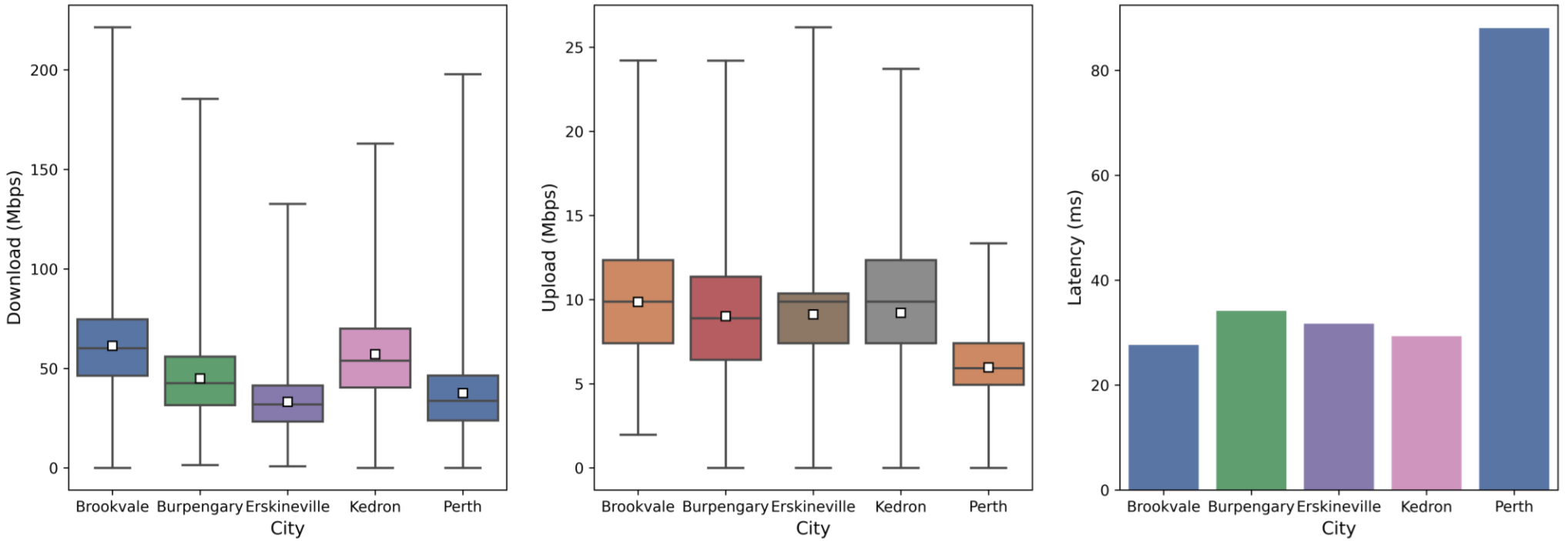
AU East Throughput Measurements



- Brookvale achieved highest Download (61.367 Mbps) and Upload (9.862 Mbps) with lowest latency (27.642 ms)
- Perth, unsurprisingly, had highest latency of 88.038 ms
- Erskineville had lowest Download (33.199 Mbps) while Perth had lowest Upload (5.972 Mbps)

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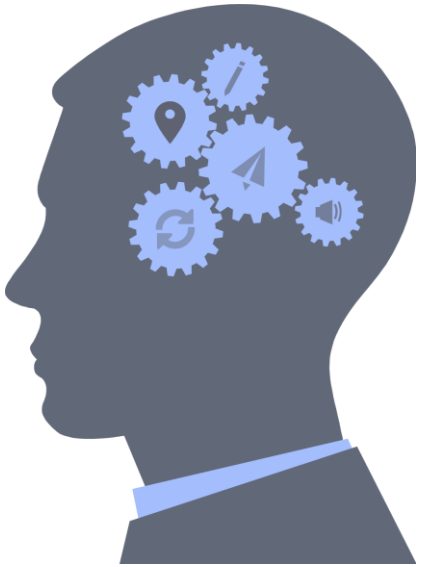
Updated Methodology

- The same methodology with a **“small” configuration change**
- We enabled **BBR:**
  - On Linux agents behind Starlink – tested Upload
  - On iPerf servers (within GCP) – tested Download



Brief refresher on BBR:

- **B**ottleneck **B**andwidth and **R**ound Trip
- **Congestion Avoidance Algorithm** developed by Google
- **Uses latency as an indicator** that the queue at the bottleneck is getting filled through different techniques
- **Less sensitive to packet loss**

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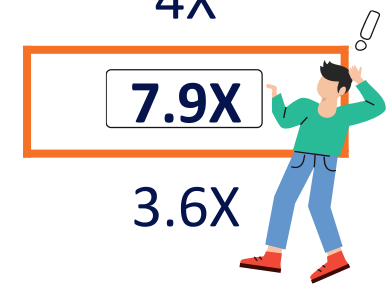
AU East: Difference between BBR and CUBIC

*TCP CUBIC is called "CUBIC" because of its unique congestion control algorithm, which uses a **cubic function** to determine how the TCP congestion window size grows over time. Unlike older congestion control algorithms like TCP Reno or TCP NewReno, which use a linear increase after packet loss (to steadily open up the congestion window), TCP CUBIC's growth pattern follows a cubic curve.*

CUBIC / BBR comparison						
Location	CUBIC Download	BBR Download	Difference	CUBIC Upload	BBR Upload	Difference
Perth	37.610	150.575	4X	5.972	12.988	**2.1X**
Erskineville	33.199	264.460	**7.9X**	9.118	11.320	1.2X
Brookvale	61.367	226.863	3.6X	9.862	13.800	1.3X
Kedron	57.161	158.254	2.7X	9.214	11.566	1.2X
Burpengary	44.947	256.011	5.6X	9.017	13.135	1.4X



Average Download/Upload speeds across 7,200 data points to/from AU East using iPerf

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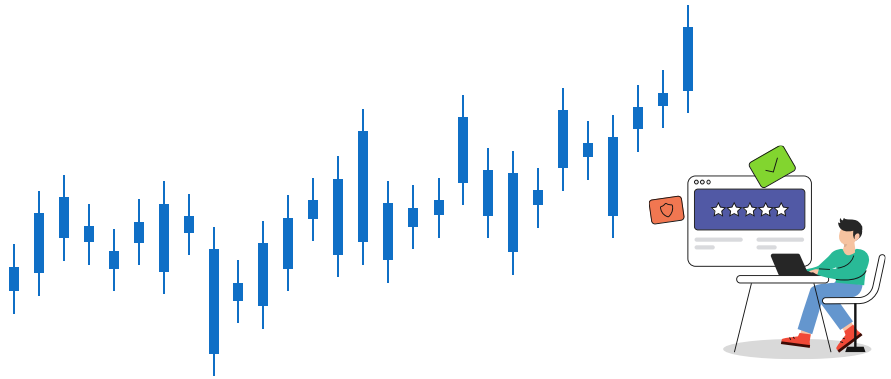
Conclusion



- **Starlink largely delivering on its promise** when it comes to expected vs. delivered speeds per service level
- **Lower latencies** translate to **better performance**
- Research shows that 70% of the content is served using CDN providers, heavily aiding Starlink performance given lower latencies
- Multiple different contributing factors for the discrepancy between Speedtest values compared to sustained throughput measurements

- **Underlying TCP mechanisms play a significant role** in Starlink performance
- Congestion avoidance algorithm **BBR** shows significantly better results:
  - Between **1.4x and 18.4x** difference when it comes to Download
  - Between **1.2x and 3.4x** difference when it comes to Upload
  - **Time to switch to BBR as default congestion avoidance algorithm,** on the major operating systems?

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LEOsat in Disaster Response & Business Continuity

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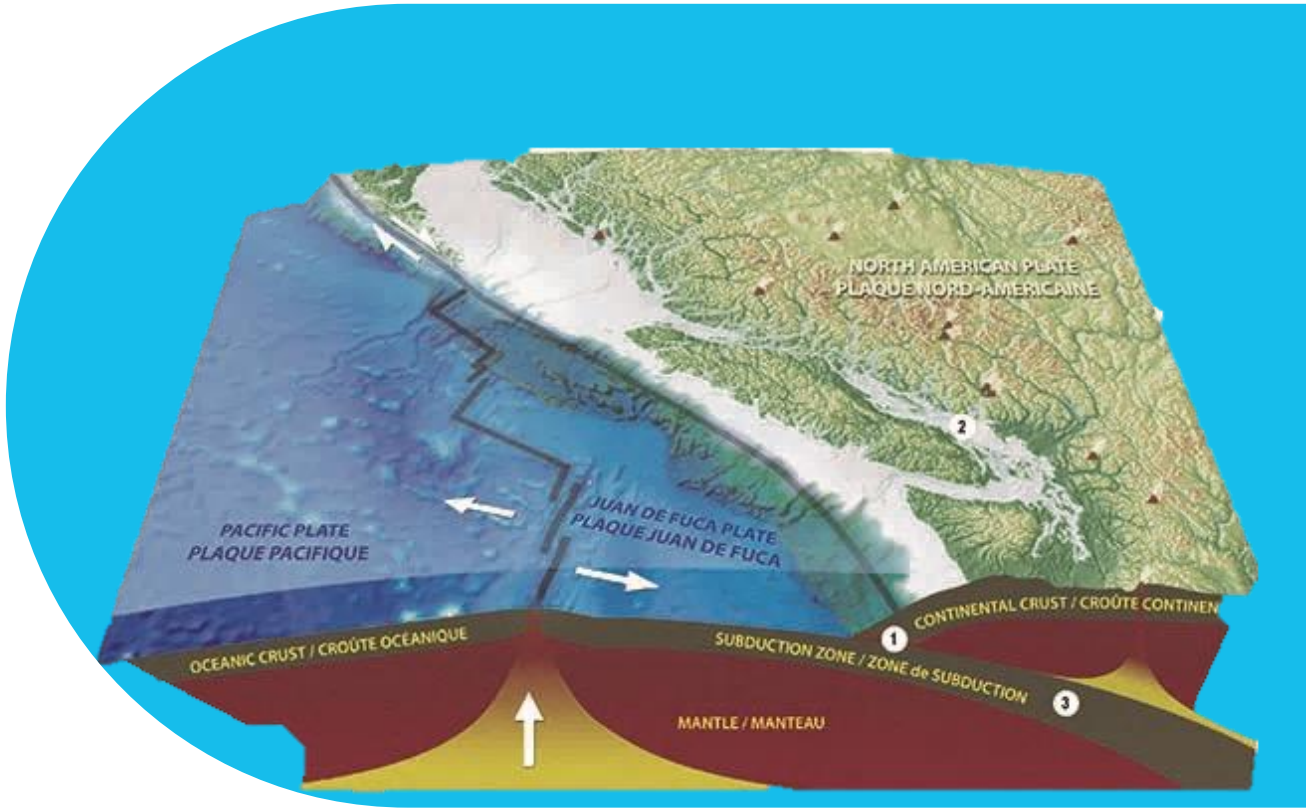
In 1964 all we lost was telephone...

https://upload.wikimedia.org/wikipedia/commons/4/4e/AlaskaQuake-FourthAve.jpg



https://vancouver.ca/home-property-development/understanding-earthquakes.aspx

9.2 Magnitude 1964 Alaska Quake

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Problem Statement

Reliable communications (voice/data) is the backbone of disaster response

Layer 1 issues will prevent fast restoration of many wireline services

Cellular communications impacted due to power and uplink fragility.

Over the last ~15 years agencies have become dependent on cloud hosted services (mapping, e-mail, documentation, video-conferencing etc).

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Taking a page from the construction industry...

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What's On The Tower?

1. Starlink backhaul
2. VHF Repeater
3. 2.4 & 5GHz Wi-Fi (Sectorized)

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An Example Of Radio Over LEOsat ...

https://comms.kenwood.com/en/solutions/system/

System Type	CONVENTIONAL	CONVENTIONAL IP NETWORK	SINGLE-SITE TRUNKING	MULTI-SITE TRUNKING	ENHANCED MULTI-SITE TRUNKING
			NXDN: Type-D TRKG	NXDN: Type-C TRKG P25: PHASE 1/2 TRKG	NXDN: Gen2 P25: PHASE 2 TRKG
No. of Radios					
Trunking	N/A	N/A	DECENTRALIZED CONTROL	CENTRALIZED CONTROL	CENTRALIZED CONTROL WITH SERVER BASED ARCHITECTURE
No. of Sites	SINGLE	UP TO 16 (unicast) UP TO 48 (multicast)	SINGLE	UP TO 48	UP TO 1000
Advantages	COST & CAPACITY BASELINE	COST EFFECTIVE COVERAGE	COST EFFECTIVE CAPACITY	CAPACITY AND COVERAGE	CAPACITY, COVERAGE AND CONTROL

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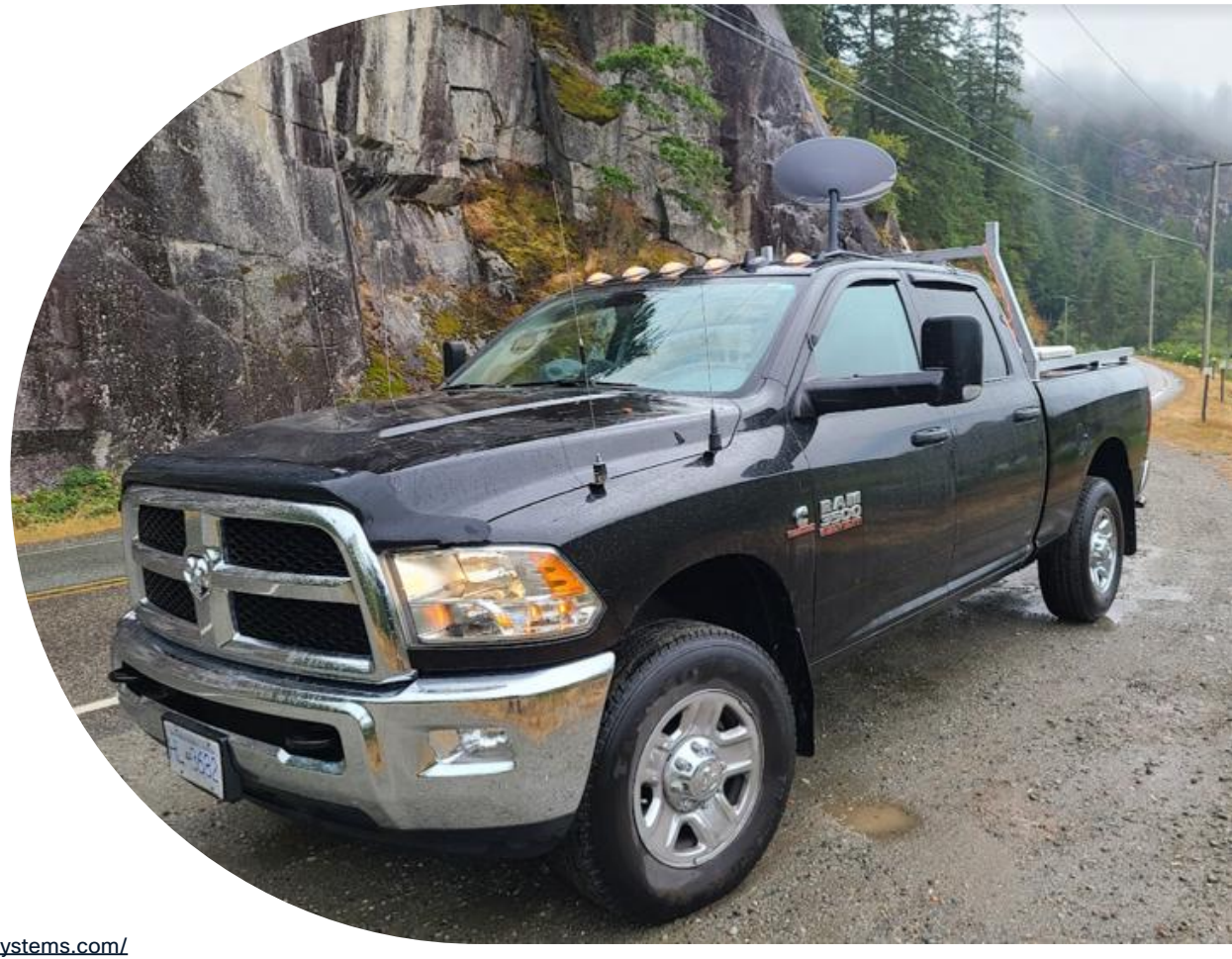
How LEOsats Benefit Public Safety

- **Trivial to setup and operate**
- Highly portable
- Able to work in mountainous terrain vs geo-stationary



https://star-mountsystems.com/

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Concerns within first 24hours of event

- Ease of access = lots of people = bandwidth contention ?
- Will my packets land outside the affected area?

https://www.reddit.com/r/Starlink/comments/kkrh0e/st_johns_nl_canada_Starlink_gateway_photos_and/
https://www.telesat.com/wp-content/uploads/2020/07/teleport-calgary.jpg

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LEOsat Future & Opportunities

Dave

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Starlink and Microsoft Azure Bring You Azure Space

Microsoft teams up with SpaceX to launch Azure Space to bring cloud computing into the final frontier

By Chelsea Gohd October 21, 2020

- Azure Modular Data Centre
- Self-contained
- Deployable Anywhere
- For remote connectivity or expansion of existing

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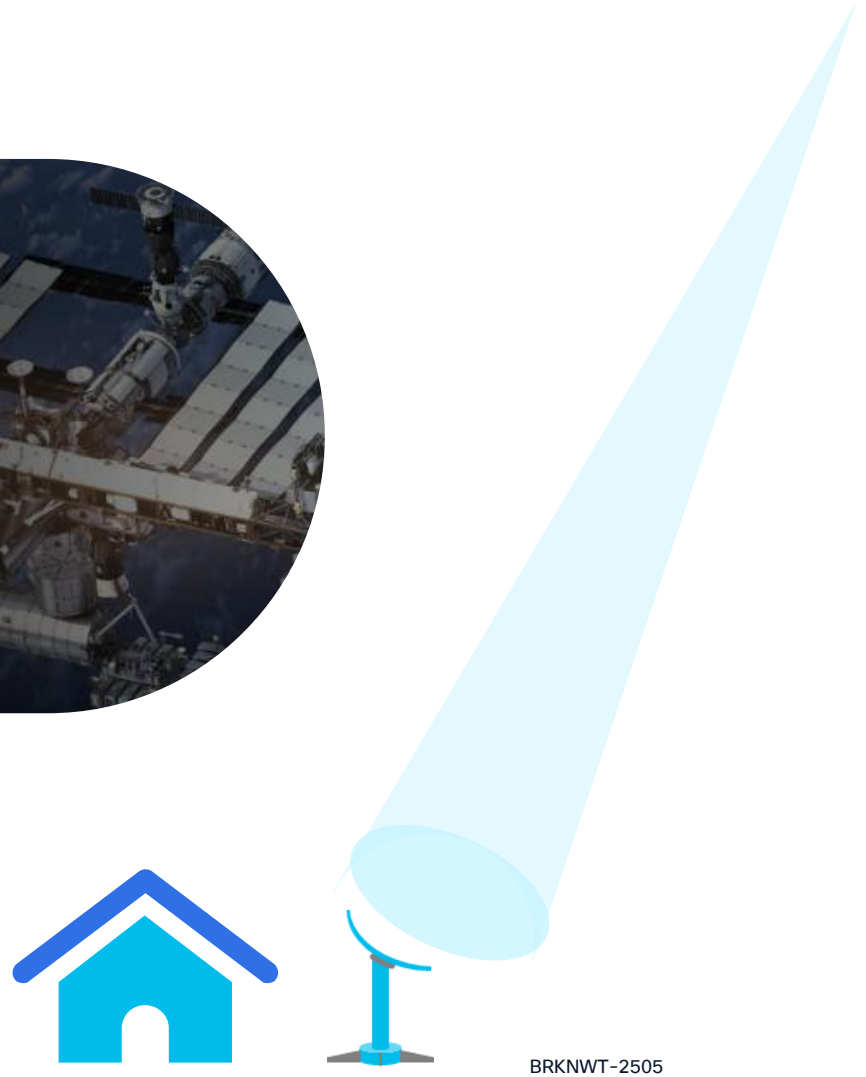
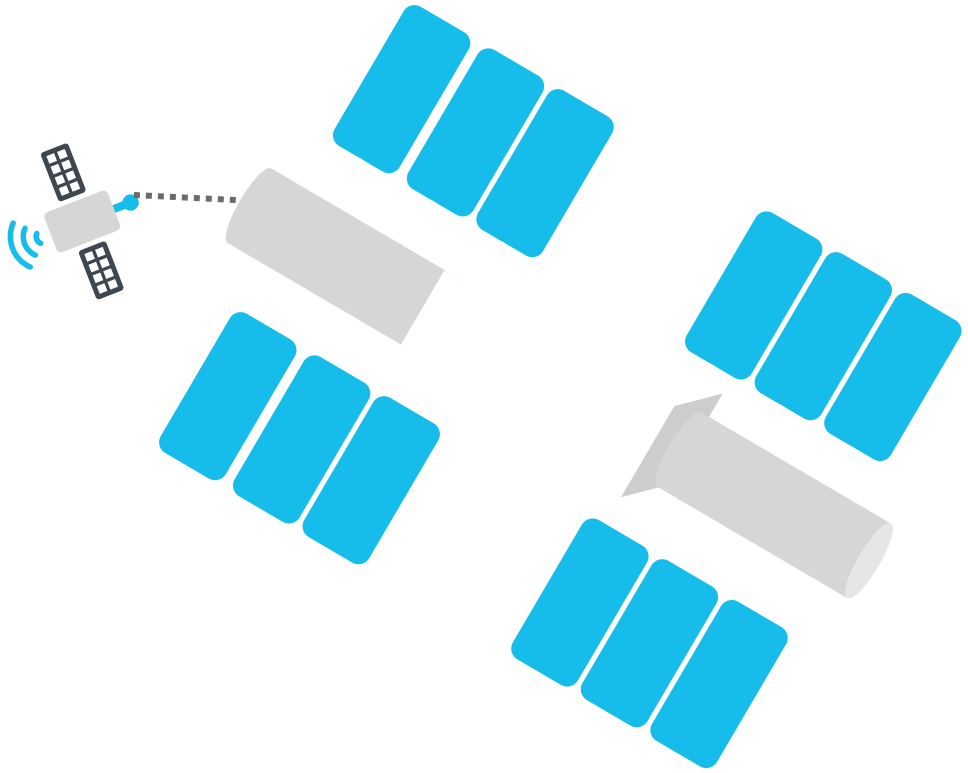
Edge Computing in Space





Possibility: Edge Compute on ISS

What goes up, doesn't necessarily have to come down...

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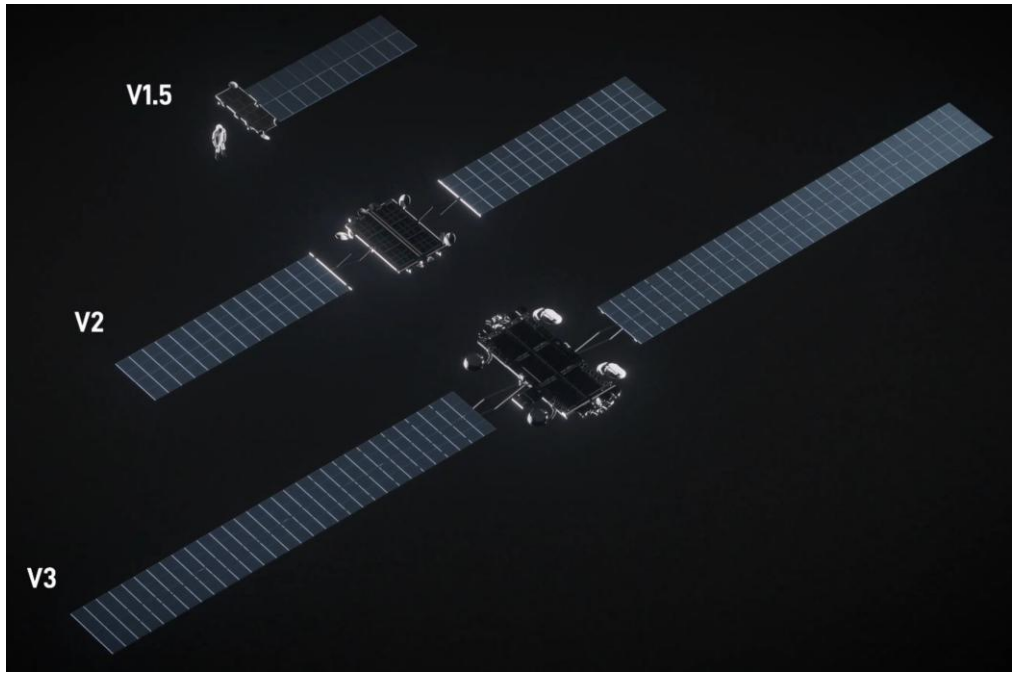
Edge Computing in Space

Elon Musk on data centers in orbit: “SpaceX will be doing this”

“We could see another transformation of what’s done in space.”

ERIC BERGER – OCT 31, 2025 9:40 AM | 280

https://arstechnica.com/space/2025/10/elon-musk-on-data-centers-in-orbit-spacex-will-be-doing-this/



A lot more capacity

SpaceX’s current Starlink V2 mini satellites have a maximum downlink capacity of approximately 100 Gbps. The V3 satellite is expected to increase this capacity by a factor of 10, to 1 Tbps. This is not unprecedented in satellite capacity, but it certainly is at scale.

“Nothing else in the rest of the satellite industry that comes close to that amount of capacity,” Henry said.

Exactly what “scaling up” Starlink V3 satellites might look like is not clear, but it doesn’t seem silly to expect it could happen. The very first operational Starlink satellites launched a little more than half a decade ago with a mass of about 300 kg and a capacity of 15Gbps. Starlink V3 satellites will likely mass 1,500 kg.

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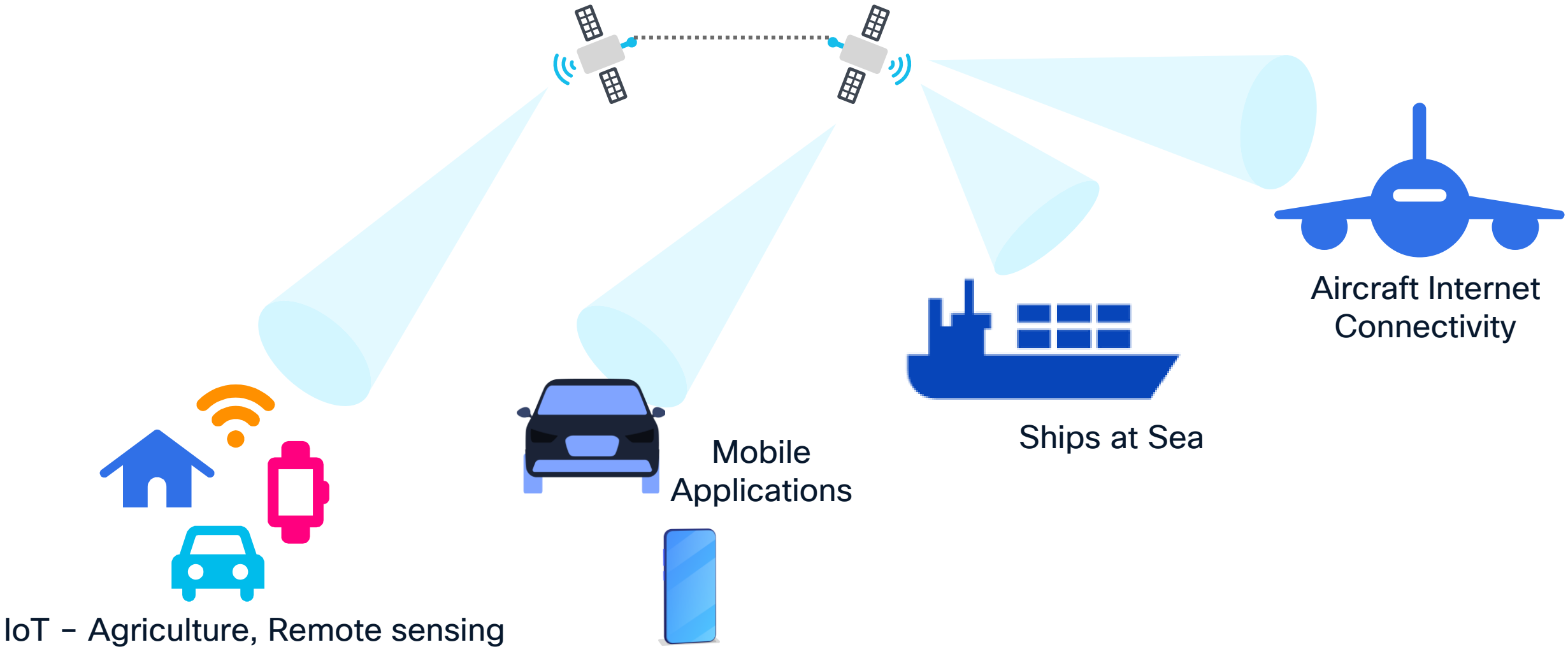
The LEOsat Revolution – Unlimited Use Cases



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The Beginning...

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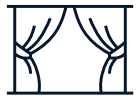

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Thank You

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