

PTC'23

*New Solutions
New Applications*



PACIFIC DATAPORT

January 2023 | Pacific Dataport Inc. | Anchorage, Alaska



Solving the Problem: Alaska's Need for Affordable Broadband

- **There is a significant gap between demand and supply of broadband capacity in Alaska. *This gap will continue to widen* over the next decade despite government subsidies and planned terrestrial network deployments.**
 - Over 34% of Alaska's population, mainly in rural areas, has no broadband service.
 - Terrestrial buildout (fiber, microwave, etc.) is not economical in rural Alaska due to:
 - Alaska's vast area
 - Forbidding terrain
 - Restrictive permitting requirements on State and Federal lands
 - Extreme climate conditions
 - The average cost of terrestrial buildout in rural Alaska is more than \$100,000 per mile resulting in high costs for middle mile capacity (fiber and microwave networks).
 - *Established satellite operators have no plans to implement ("GEO") satellites for Alaska.*

The Future of Broadband in Alaska

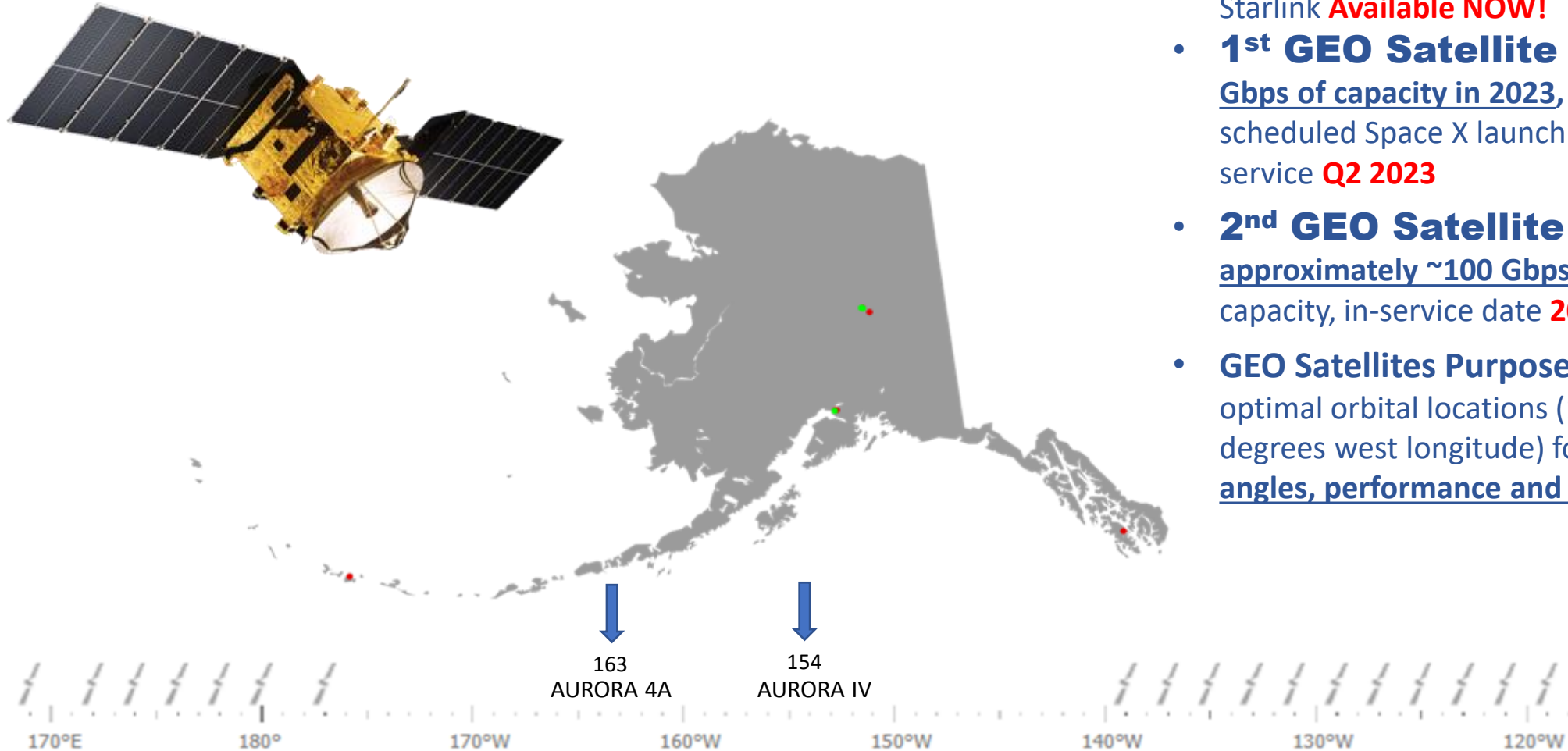
- Pacific Dataport's Satellite Network will offer a new broadband business model
 - Opens the market to tribal entities and entrepreneurs
 - Brings middle mile pricing down considerably and makes residential broadband affordable
- Great opportunity for telecoms that would like to affordably expand into new areas and strengthen existing areas
 - Redundant systems (Multiple GEO satellites and partnerships with multiple LEO providers)
 - Fully Operational in 2023
 - There's really no excuse not to expand into rural areas NOW
- Great opportunity for tribes and tribal consortiums who would like to launch tribally-owned networks
 - Promotes tribal sovereignty
 - Promotes digital equity
 - Tribes own the network and control packages offered
- Hybrid Service
 - Use LEO and GEO in tandem for diverse and redundant service



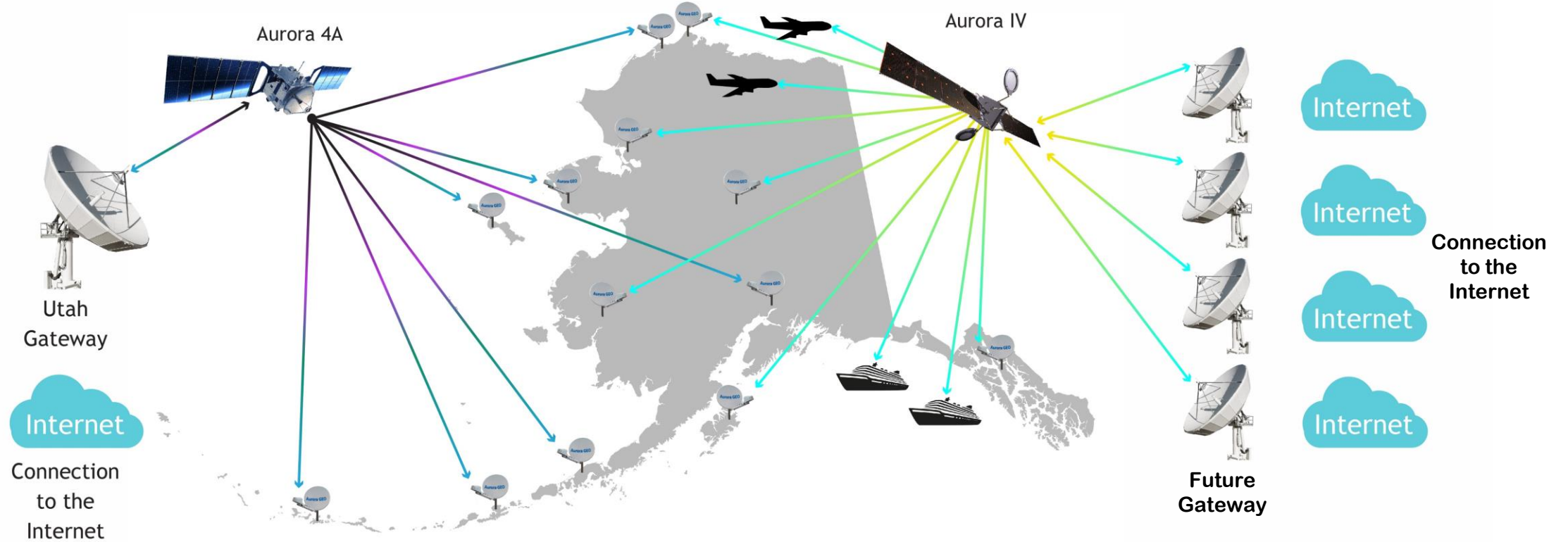
Satellite Networks for Alaska

Highlights:

- **LEO Constellations** – OneWeb, Starlink **Available NOW!**
- **1st GEO Satellite** - Aurora 4A, 7.5 Gbps of capacity in 2023, fully funded, scheduled Space X launch March 2023, in-service **Q2 2023**
- **2nd GEO Satellite** - Aurora IV, approximately ~100 Gbps additional capacity, in-service date **2025**
- **GEO Satellites Purpose Built for Alaska** - optimal orbital locations (154 and 163 degrees west longitude) for improved look angles, performance and availability



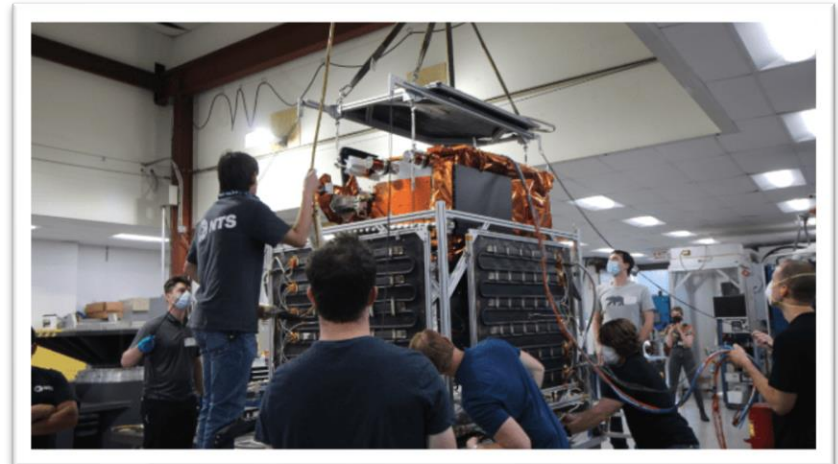
Aurora GEO Ka-Band Satellite Network



- High Speed and High Capacity
- Direct Connection to the Internet (Layer 3)

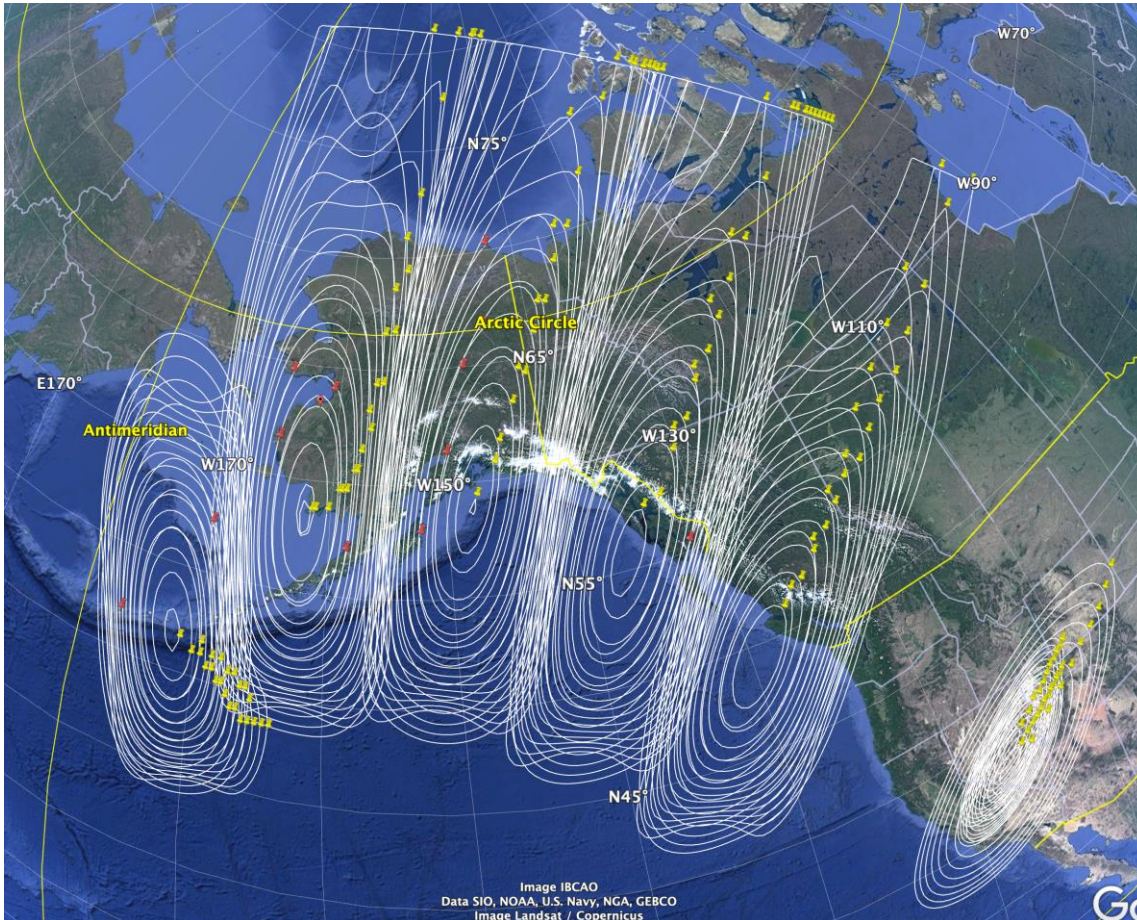
Aurora 4A GEO Satellite Update

- Astranis has completed construction of Aurora 4A (Arcturus)
- 9.4M Gateway Antenna installed in Eagle Mountain, Utah July 2022
- Contracted with Gilat Technologies for hub equipment installed July 2022
- Space X launch scheduled for March 2023
- Target In-Service 2nd Quarter 2023



Aurora 4A GEO Ka-Band Beam Definition

User Beam Designations



Service Characteristics

Beams	5 user + 1 gateway
Total User Bandwidth (MHz)	3,000 FWD; 1,400 RTN
Polarization	Circular
Uplink Saturation Flux Density (SFD, max gain)	-75 dBW/m ²
Fixed Gain Mode (FGM) Adjustment Range	23 dB
Network Topologies	Star, Loop-Back, Mesh
Adaptive Coding and Modulation (ACM)	DVB-S2X; DVB-RCS2

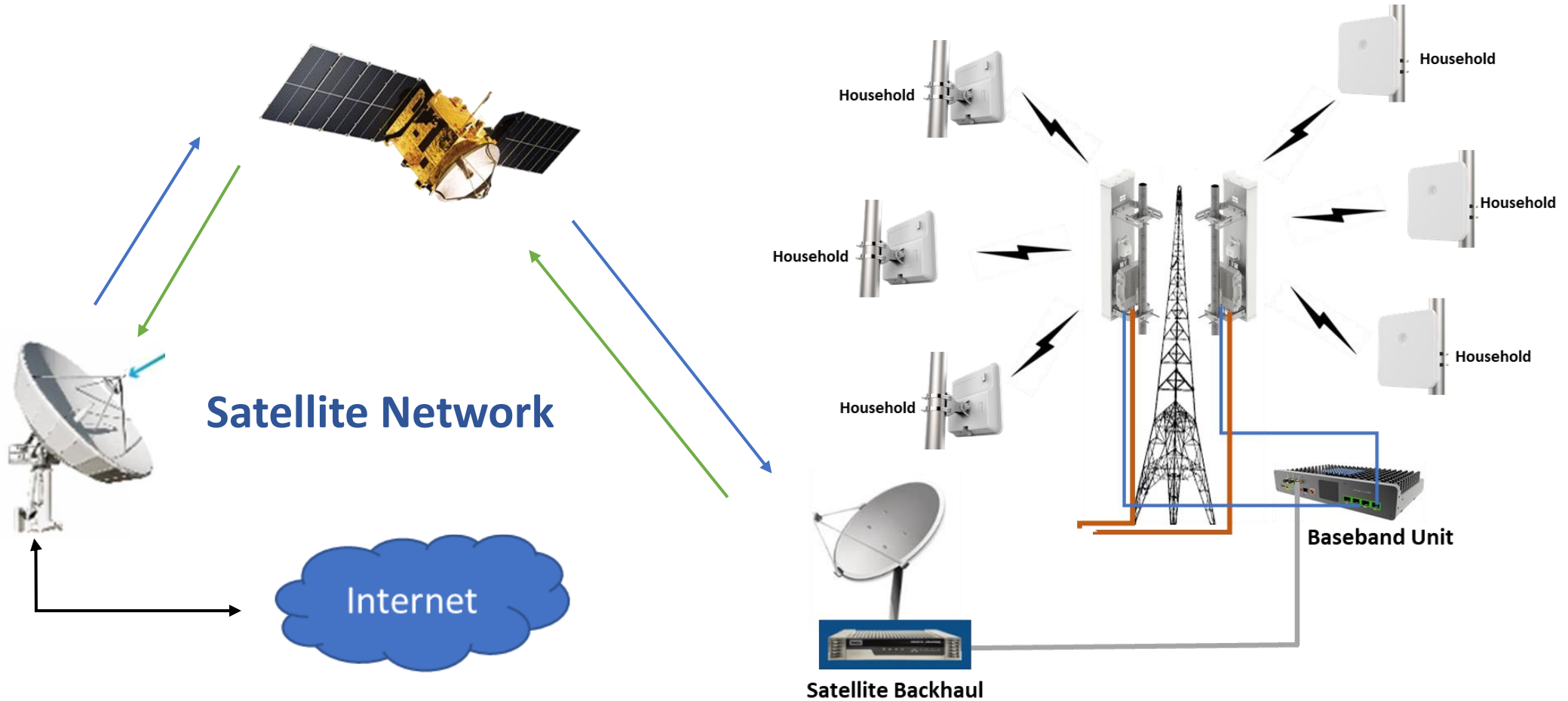
Benefits:

- Provides minimum of 7.5 Gbps of capacity for Alaska
- Triples amount of available GEO capacity in Alaska helping to meet increased demand and lower cost per Mbps



Rural Broadband - Wireless buildout use case

25x3 Mbps minimum service to end user



Access Point Sector Antenna



Subscriber Module



2.5 GHz Tribal Spectrum WISP System





Community Wide Last Mile Options for Rural Tribes!



- Community wide
- Tribal ownership
- Tribal sovereignty
- True broadband
- Competition
- Alternative option



Faster Adoption of New Solutions / New Applications

- **Held Up By:**
 - Government (NTIA) promises that remain unfulfilled to tribes
 - Government bias against satellite using old information
 - Lack of understanding of geography in remote regions
- **Should be based on:**
 - Economics
 - Breadth of coverage
 - Speed to market
 - Above all...Needs to be sustainable

Thank you!

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