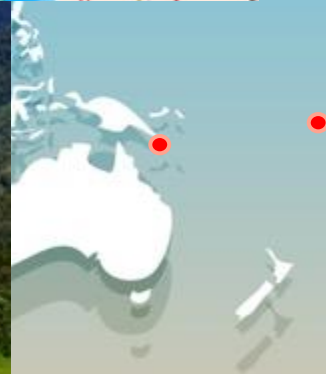




Space Based VHF Communications

Extending Aeronautical Networks Beyond Line of Sight

13th April 2026



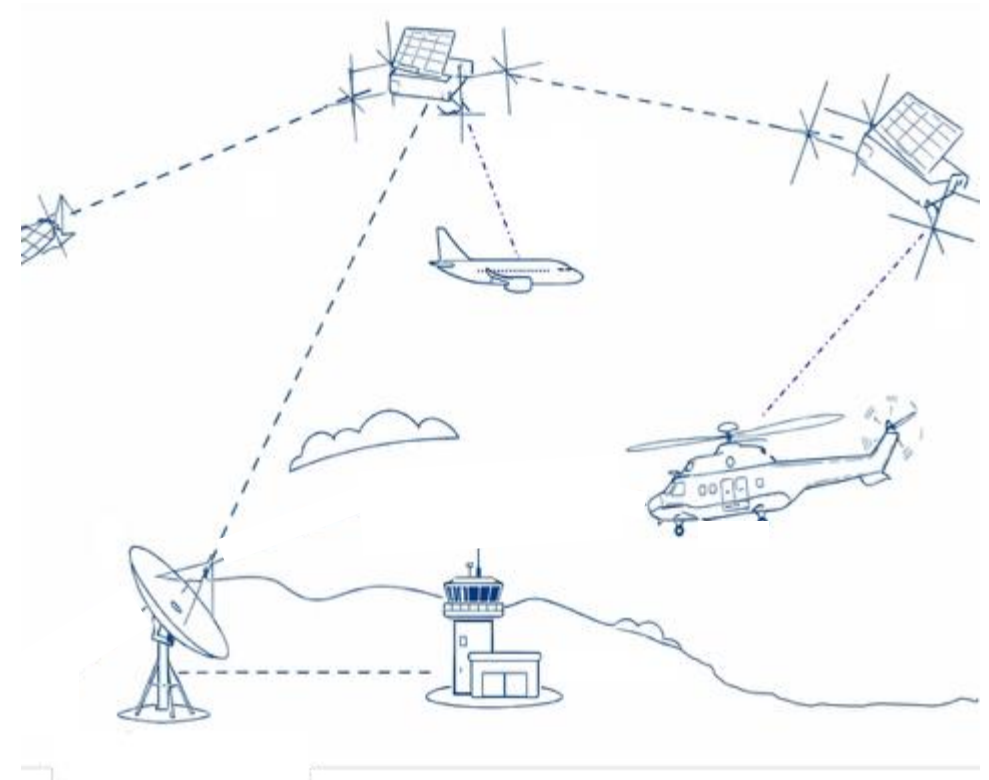
Extending VHF Beyond Line-of-Sight

Key Design Requirements

- Uses existing aeronautical VHF spectrum
- Compatible with current avionics and procedures
- Global, continuous coverage
- Integrated with existing ATM systems and procedures

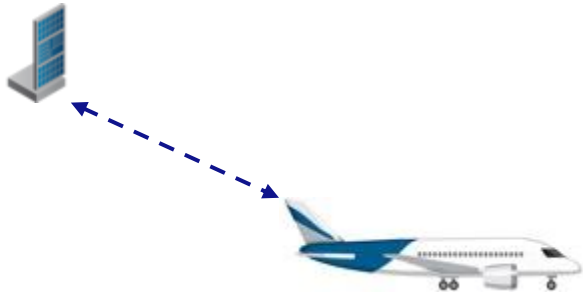
Why This Matters

- Enables consistent communications where none exists today
- Extends the benefits of space-based surveillance
- Supports reduced separation and improved capacity
- Aligns with trajectory-based operations
- Improves communications performance and predictability

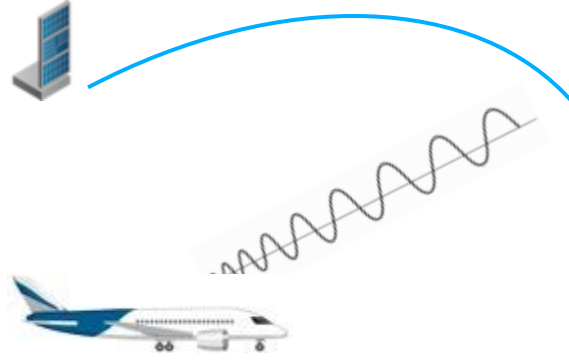


Extend existing VHF communications beyond terrestrial limits using a space-based layer

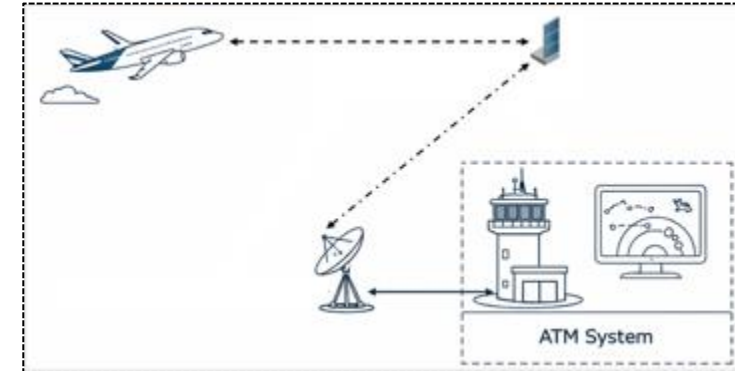
Technical Challenges of Space-Based VHF



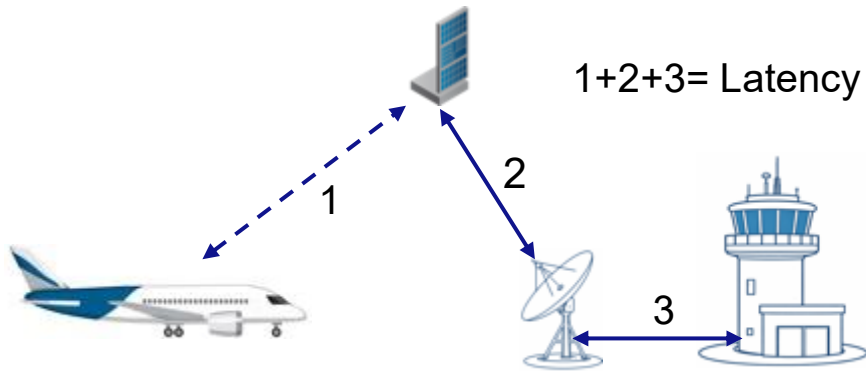
RF Link



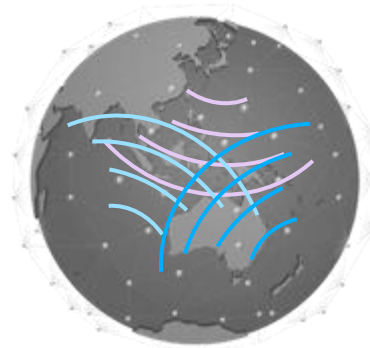
Doppler Shift



ATM Integration



Latency



Frequency Availability /
Interference

All must be solved or
mitigated to ensure
Operational Performance

Addressing the Challenges

RF Link

Aligned to existing SARP's link budgets – validated in testing



Latency

<130ms – meets ATM performance expectations

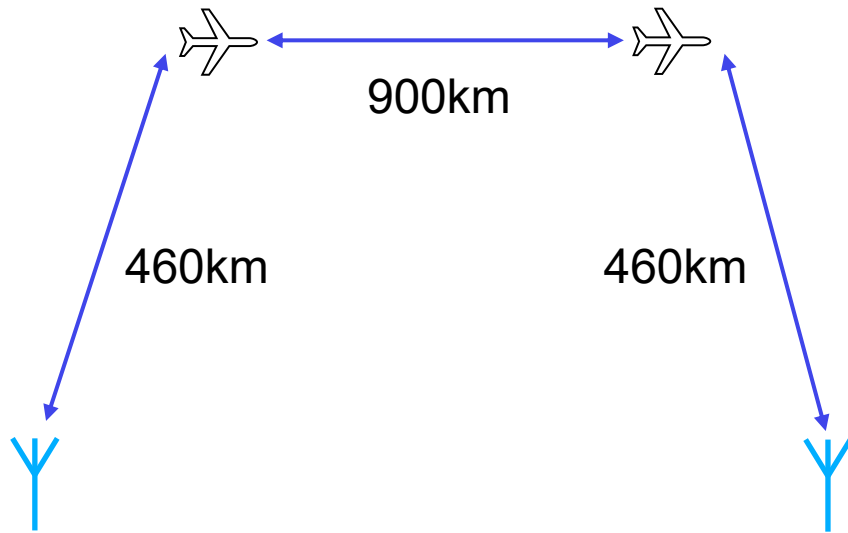


Doppler Shift

Within 25Khz channels constraints – tested and modelled



Frequency Availability / Interference



Currently co-ordinating >1800k



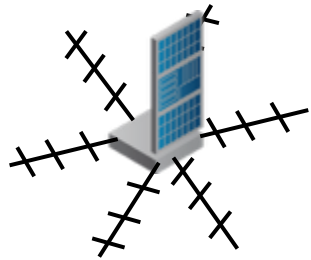
North Atlantic centered on Shanwick FIR



Centered on Fiji

Large footprint requires coordinated spectrum use

Mitigation



6 Directional Antenna's



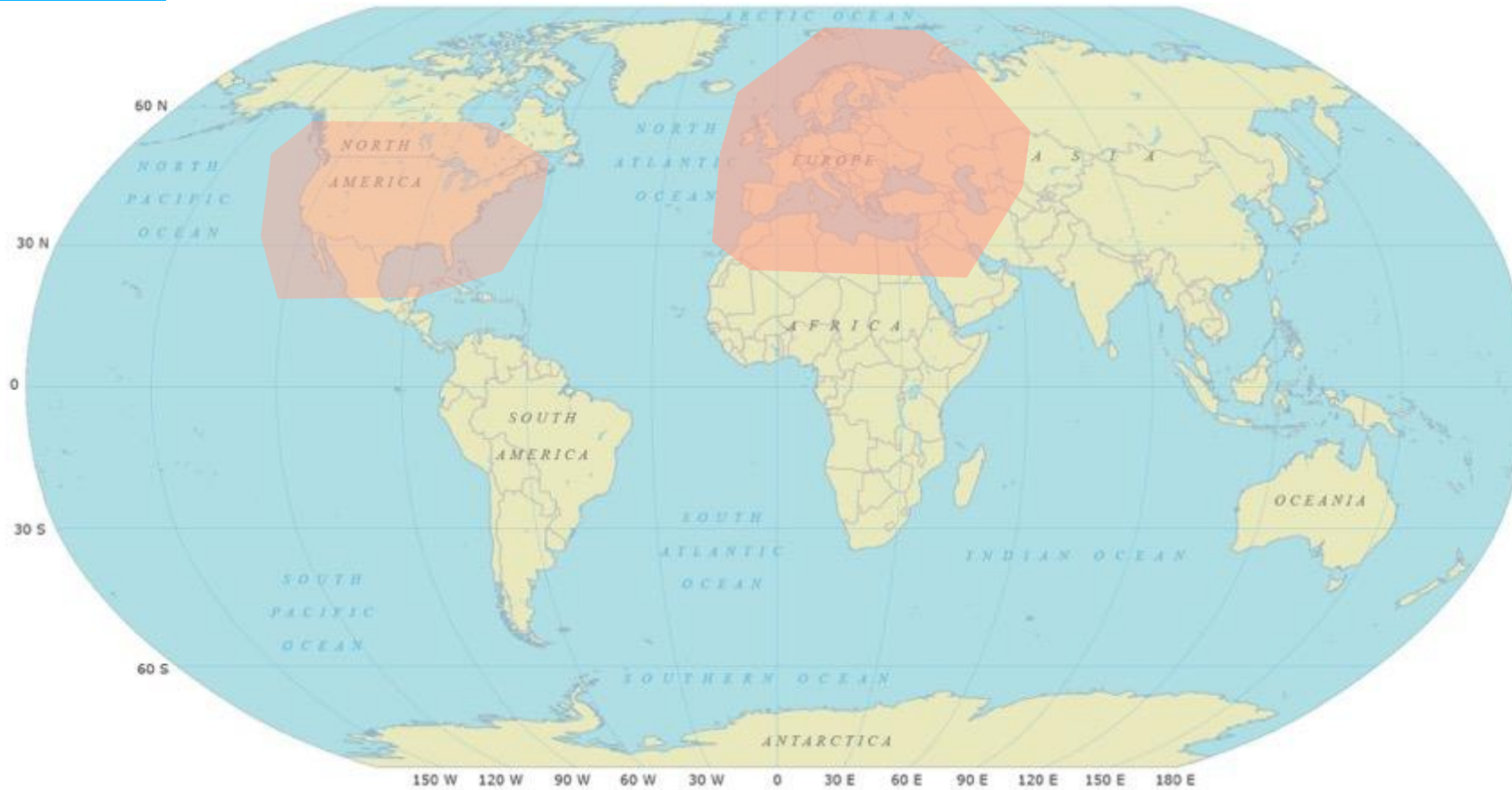
Transmitting to use edge of beam

- Frequency Co-ordination
- Possibility to reduce TX power levels in future

2 Study's have been presented to the Frequency Spectrum Management Panel (FSMP), both state that there are challenges however they can be overcome:

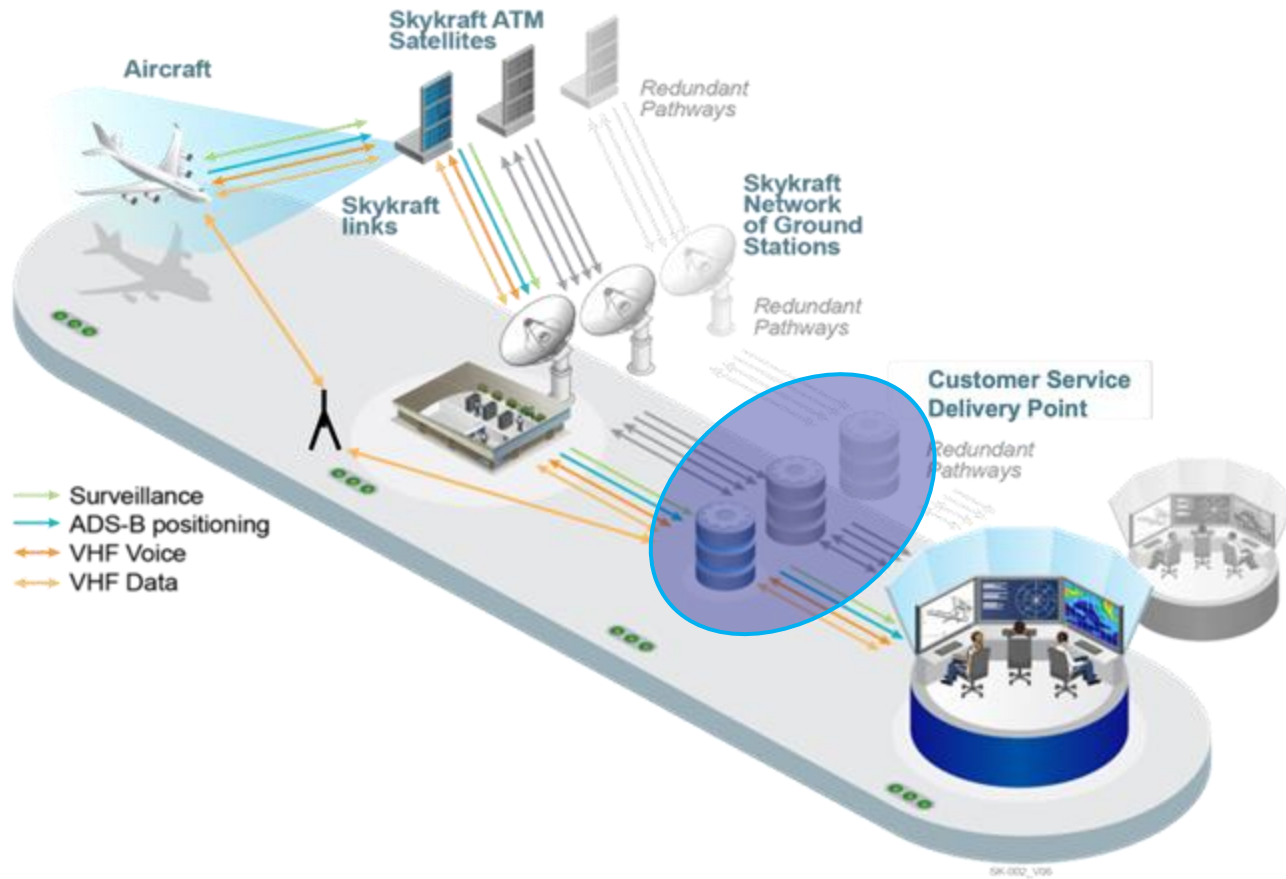
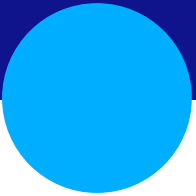
1. Eurocontrol – 'Limited availability can be created by reallocating existing assignments to different frequencies'
2. DECEA Brazil – 'it is feasible to assign frequencies for the exclusive use of SB-VHF systems'

Where Can Space Based VHF be Used?



Global applicability with regional coordination

System Integration



- Delivered via fully customisable Customer Service Delivery Point (CSDP)
 - Voice: ED-137
 - Surveillance: ASTERIX
 - Datalink: VDLm2

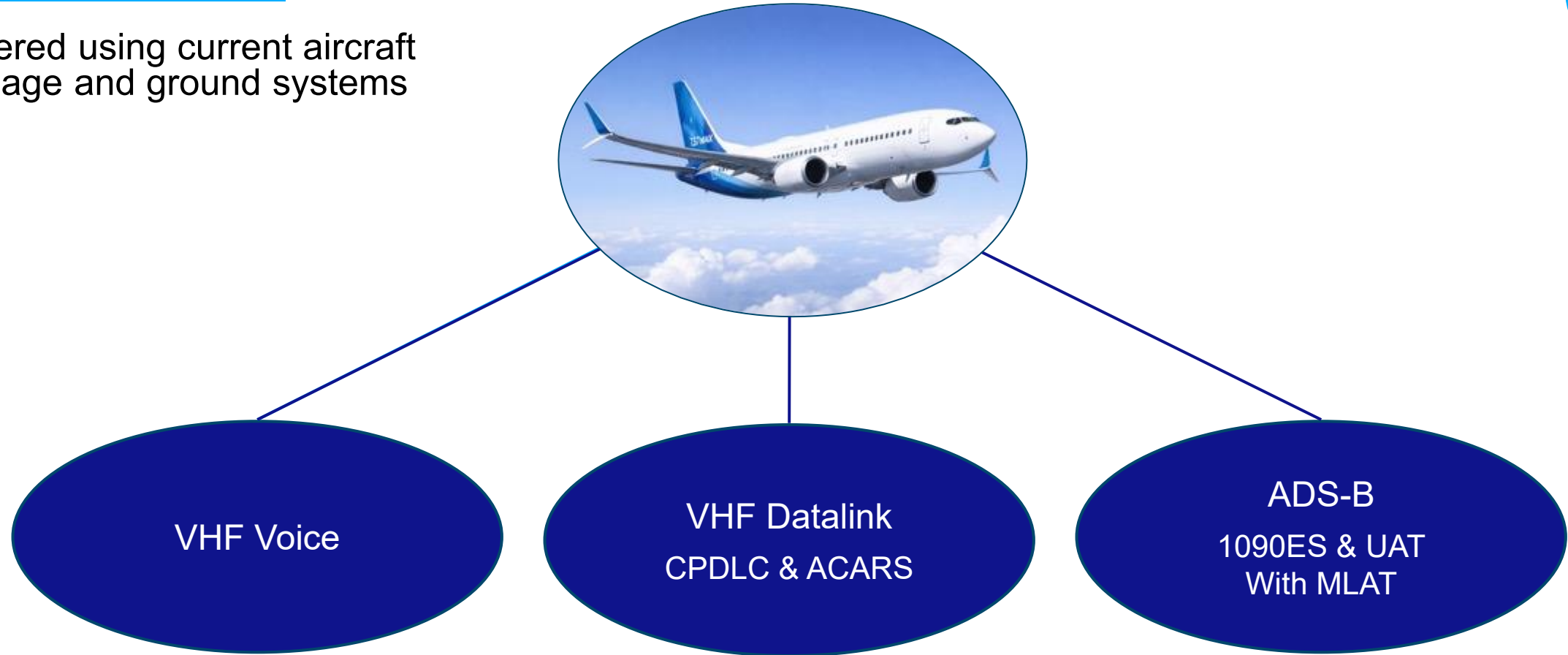
System Integration:

Achieved through a dedicated service delivery interface, enabling voice and data to be provided in formats aligned with each ANSP's existing equipment



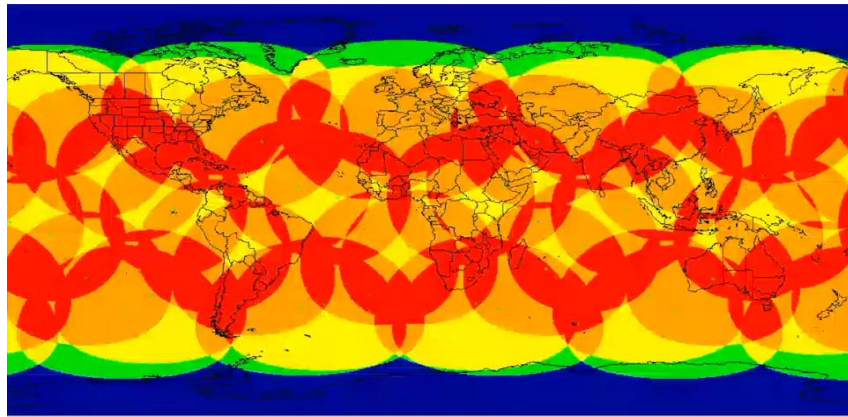
Skykraft's Space Based Services

Delivered using current aircraft
equipment and ground systems



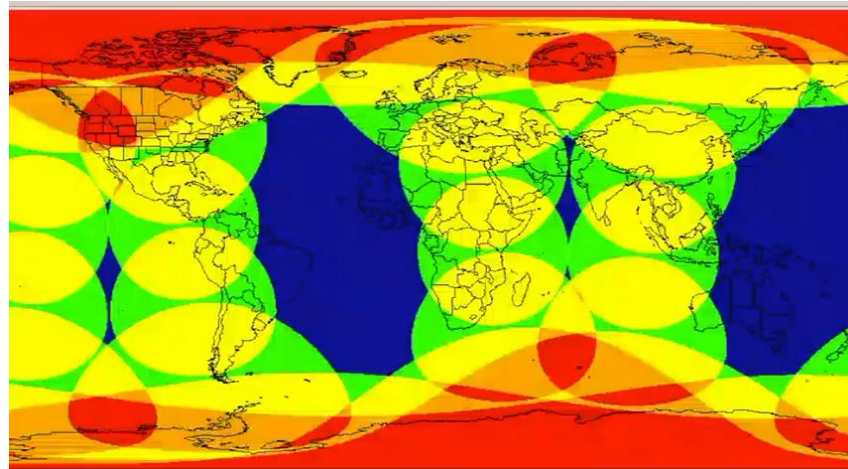
A Single network delivering communications and surveillance

Delivering from Space



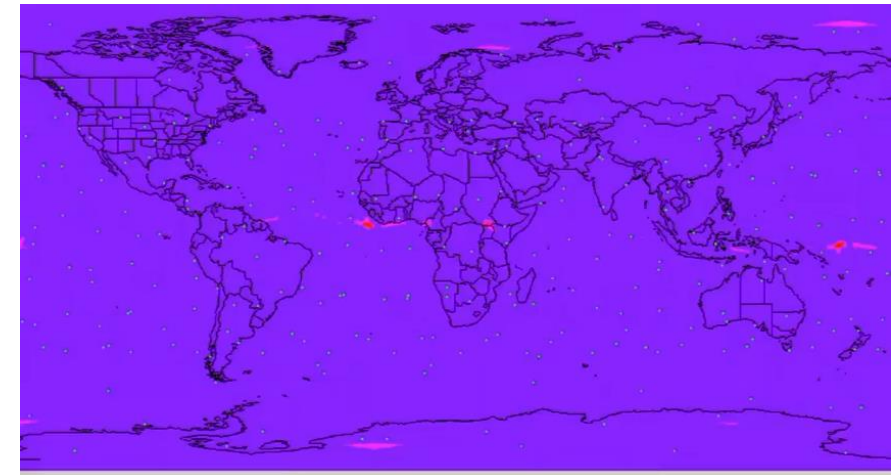
Mid Latitude Coverage

Initial Deployment:
70 spacecraft on 2 launches



Polar Coverage

Polar Deployment:
24 spacecraft



Final Constellation 300 spacecraft

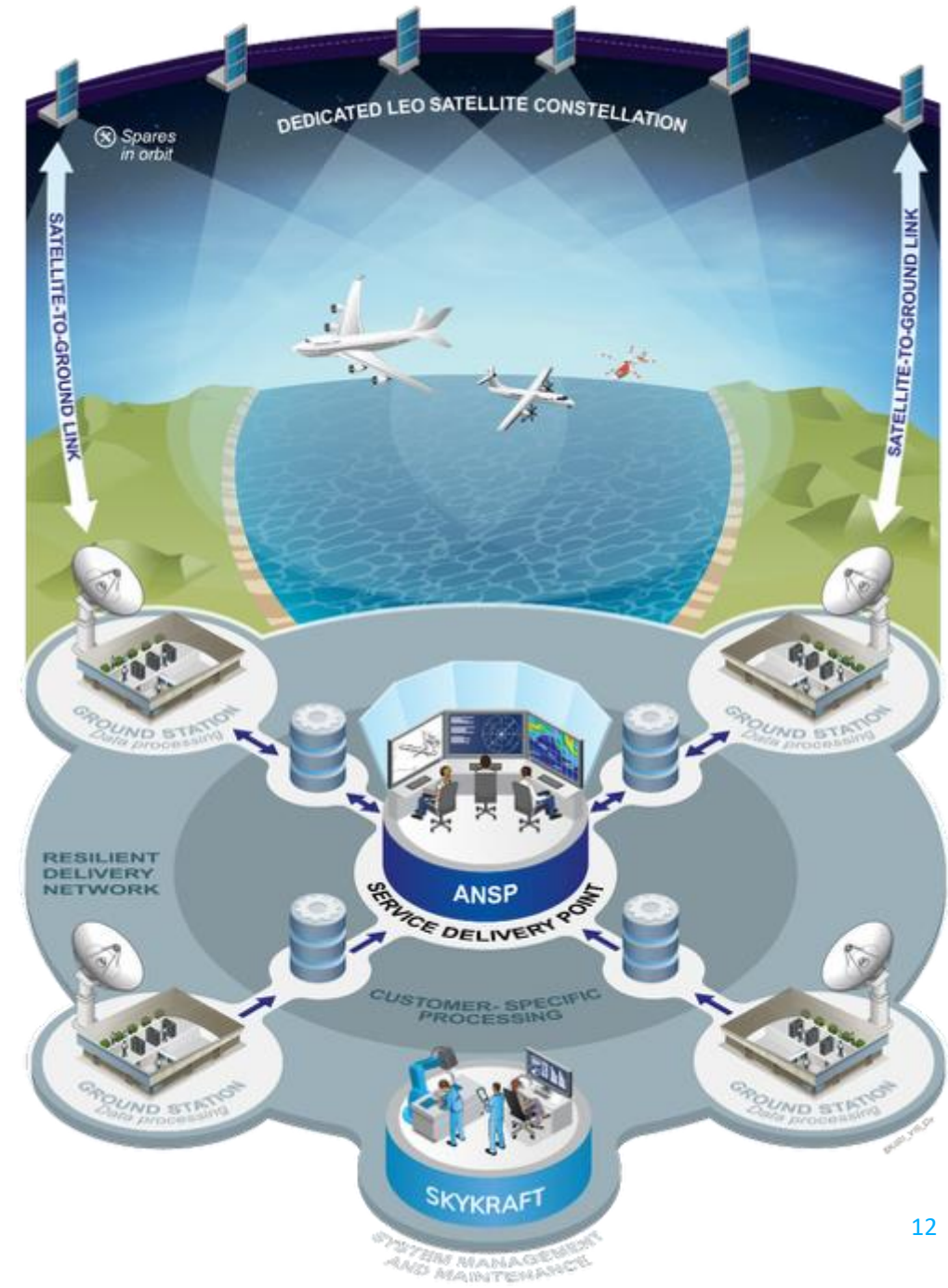


Key: Number of spacecraft in view

A Single Integrated System

Path to Operational Service

- Phase 1 constellation deployment commences Mid 2027 with demonstration late 2027
- Phase 1 constellation deployment complete July 2028
- Initial operationally capable constellation late 2028 / early 2029



A New Global Layer for ATM

Coverage and Access

- **Global Continuous Coverage**
LEO constellation provides overlapping coverage beyond line-of-sight
- **No Airspace Left Behind**
Consistent CNS capability independent of terrestrial infrastructure constraints

Resilience and Safety

- **Resilient by Design**
Multi-satellite diversity and path delivery – no single point of failure
- **GNSS Independent Surveillance**
Multilateration maintains aircraft tracking in GNSS degraded environment

Integration and Deployment

- **Seamless System Integration**
ASTERIX, ED-137, VDLm2—integrates directly into existing ATM systems
- **No Aircraft or Operational Changes Required**
Compatible with current avionics and operational procedures


Path to ICOA SARPs Adoption

- PfA) submission to Air Navigation Commission (ANC) - Mid-late April
- State letter to be issued -October 2026
- ANC final review - Q4 2027
- Council adoption - Jul 2028

Voicing of States support to ANC will be critical to adoption



ICAO

A partial view of the Earth from space, showing the curvature of the planet with blue oceans, white clouds, and brownish-green landmasses. The background is black space.

The Future of the Sky Is Being Built Now,
Come Join Us