

How advances in ATFM Equipage is changing ATFM Implementation

**Eighth Meeting of MIDANPIRG
ATFM Task Force
1 November 2023**



Current ATFM ConOps



Different ATFM ConOps



Domestic ATFM

Only Domestic Flights subject to ATFM Measures

- Australia
- Colombia
- Brazil
- India
- New Zealand
- South Africa



Centralised ATFM

Only flights departing and arriving from airports in EUROCONTROL are of Responsibility subject to ATFM measures

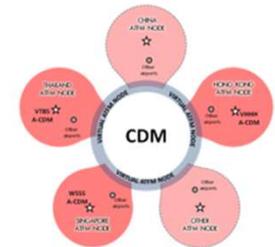
- EUROCONTROL: 41 states
- ASECNA: 18 States



Regional ATFM

Flight from Adjoining countries could be subject to ATFM measures

- FAA
- Canada
- Mexico



Distributed Multi-Nodal ATFM

Each state performs ATFM for their area of responsibility, all states recognize ATFM measures and follow common operating procedures

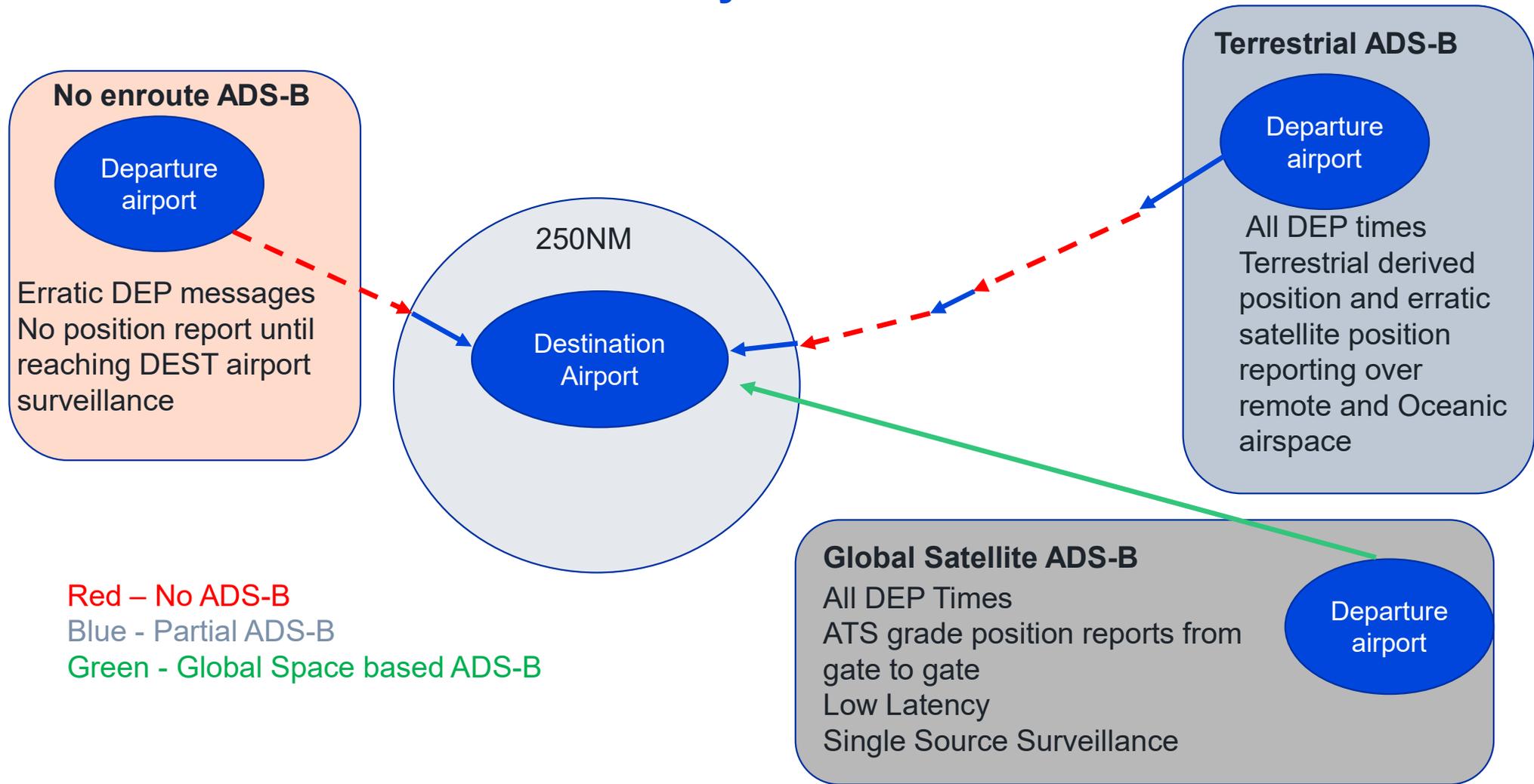
- APAC - 11 States
- MIDEAST – Implementing



Improvements in Demand Prediction Accuracy



Demand Prediction Accuracy

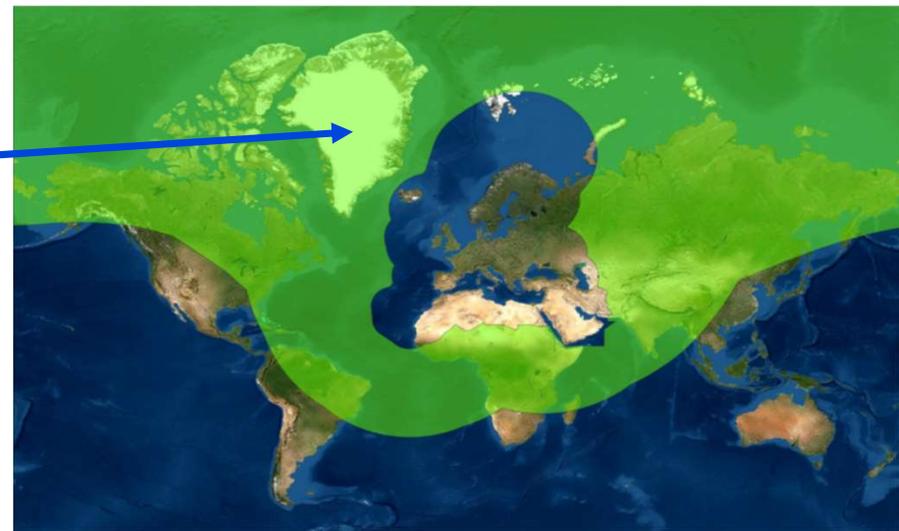


Case Study - EUROCONTROL

- Prior to AireonFLOW ADS-B surveillance coverage was limited to green area



- ADS-B Coverage with AireonFLOW



EUROCONTROL AireonFLOW data coverage



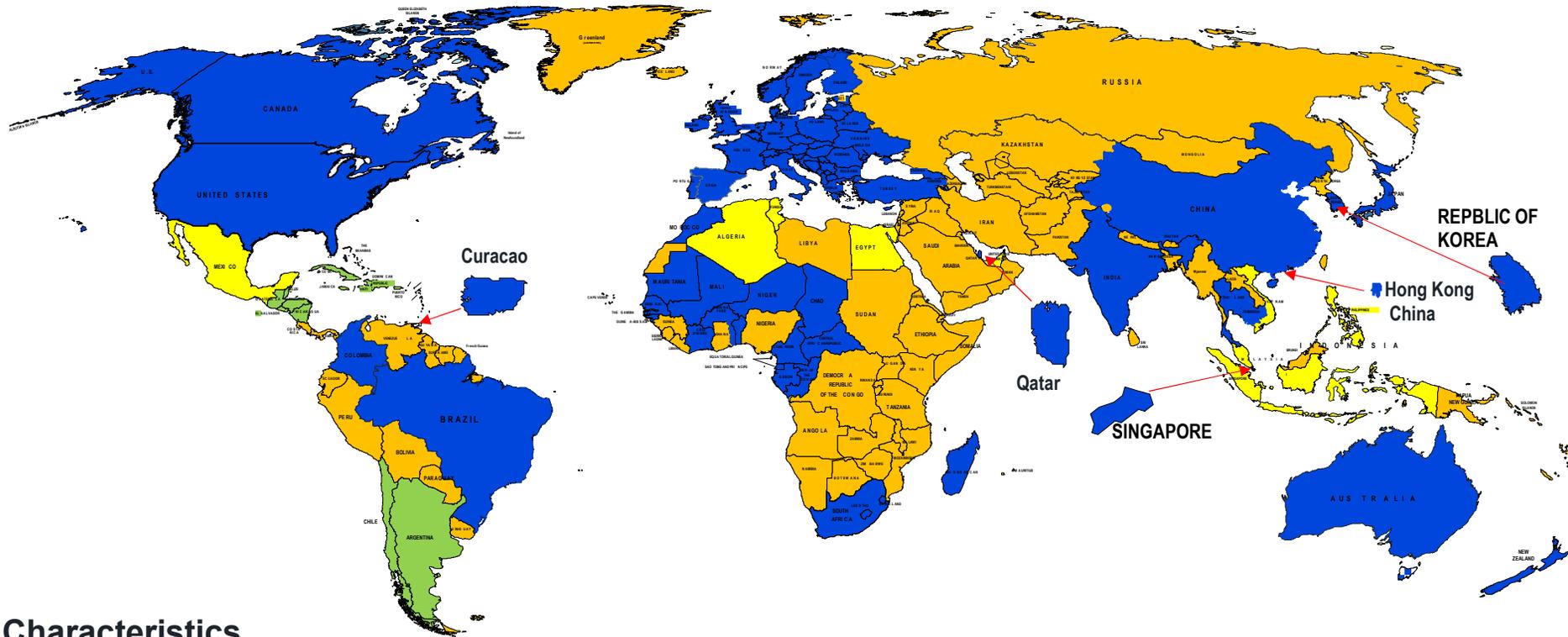
Using AireonFLOW data has led to significant improved accuracy in demand predictions by up to 20% Leading to:

- Enhanced Safety
- Increased Capacity
- Enhanced Efficiency
- Improved Environmental
- Improved Crisis management & security
- Efficient ATM Network
- Benefits to all stakeholders

ATFM Challenges



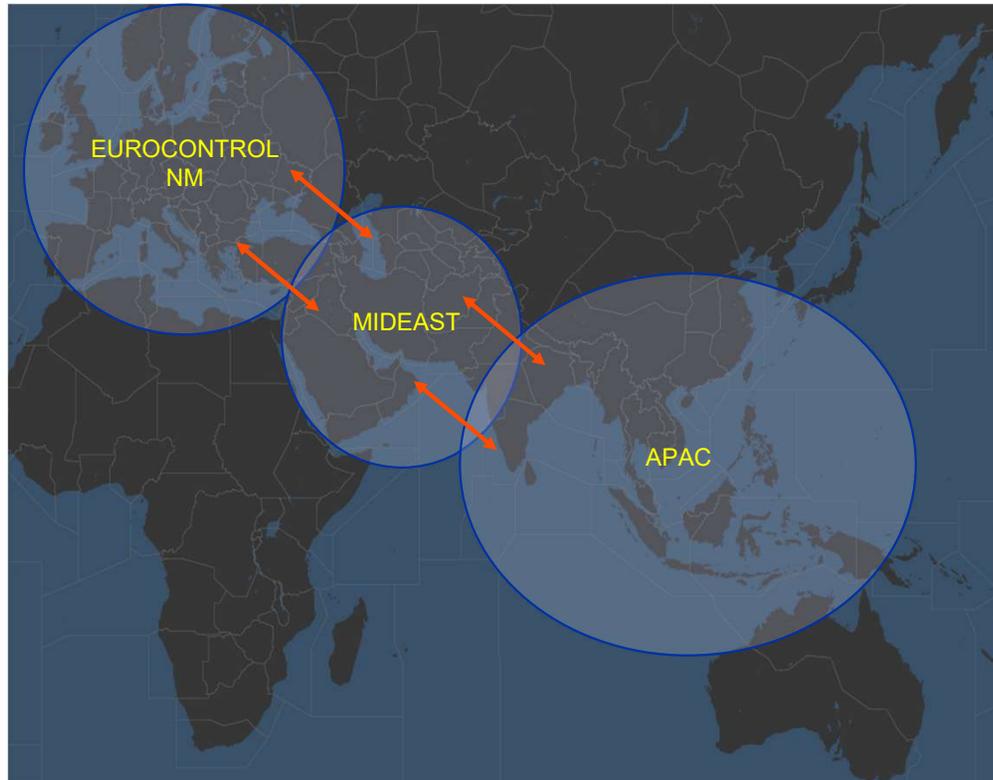
ATFM Global Implementation



Level Characteristics

1	Advanced and Integrated ATFM/CDM Procedures & System
2	Mature ATFM/CDM Procedures and Initial System
3	Initial ATFM/CDM Procedures but No System
4	No ATFM/CDM Procedures or System

Challenge: Inter-regional ATFM



- SWIM Connectivity
- Common Situational Awareness
- Agreement on LR-ATFM procedures



Challenge: No Common Surveillance Data

- Integration of surveillance data complicated
- No inter ANSP sharing of surveillance data
- No common surveillance picture
- Use of inaccurate disparate crowd sourced ADS-B data
- Inaccurate demand predictions for long haul flights

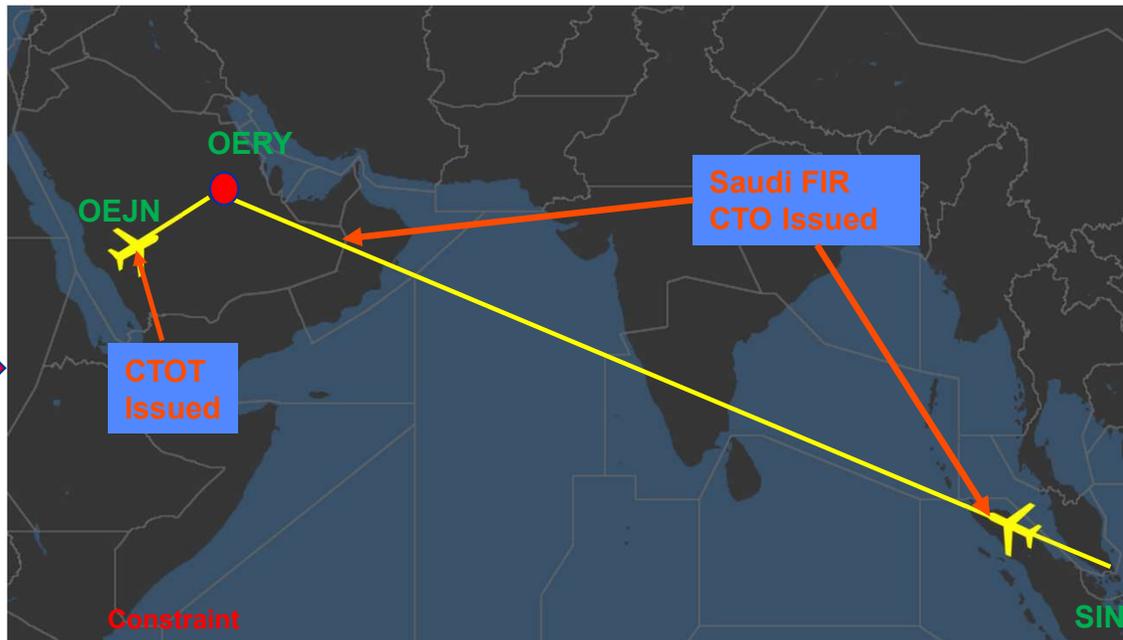


- Spaced based ADS-B
- Global coverage from Gate to Gate
- Data Shared via the internet – easy access for all
- Continual position update ensures accurate ETO and ETAs leading to accurate demand predictions

All Stakeholders will have the same data – Common Situational Awareness



Challenge: Implementation of LR-ATFM



- SWIM Connectivity
- Centralised/Regional ATFM
- Common Situational Awareness
 - Shared OIS
- Cloud Based ATFM Systems
 - ATFM as a service
 - ATFM by Established ANSPs



Challenge: Flights subject to multiple ATFM Measures

Challenge

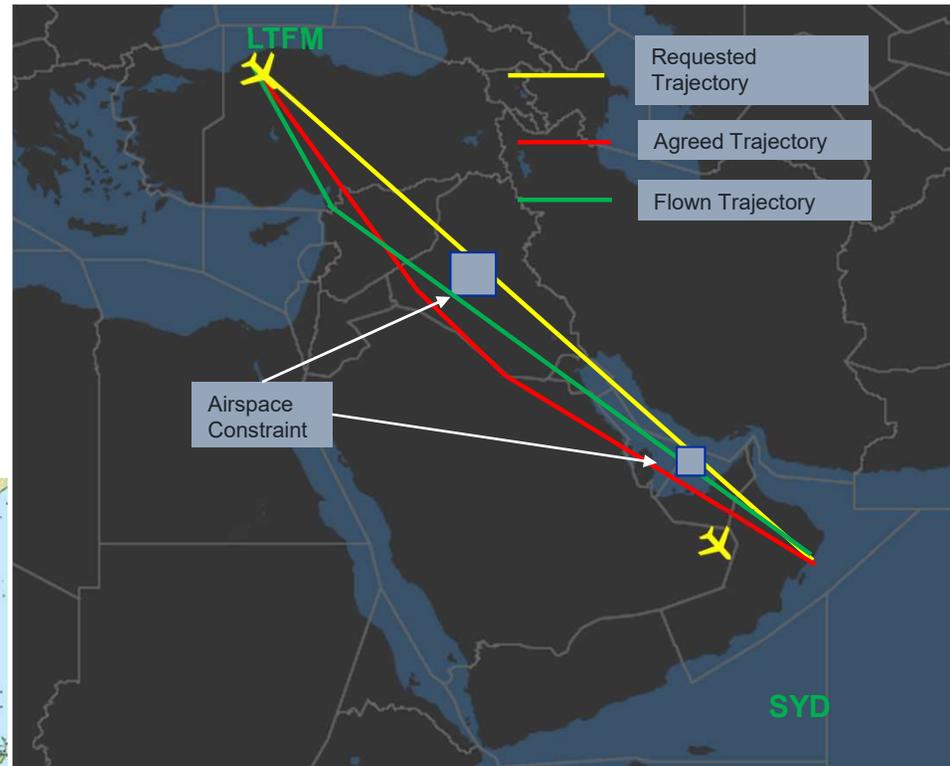
- Multiple ATFM Measures issued
- Different ATFM capabilities



- SWIM Connectivity
- Centralised ATFM
- Cloud Based ATFM Systems
 - Integrated data
 - ATFM as a service
 - ATFM by Established ANSPs
- Common Situational Awareness



Challenge: Implementation of TBO/FF-ICE

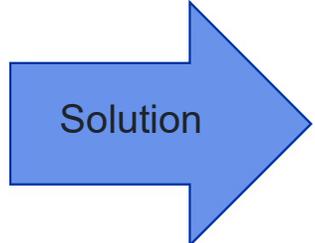


- Cloud Based
- Centralized ATFM service
- ATFM Systems
- ATFM as a service
 - 3rd Party ATFM
- Regional integration



Challenge: Costly ATFM Implementation

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- ANSPs with low traffic demand – occasional requirement for ATFM
 - Costly ATFM Systems
 - Hardware procurement/update
 - Technical Training
 - Limited resources
 - Finance
 - Staff
 - Equipage
 - Not cost effective to implement full ATFM process



Solution

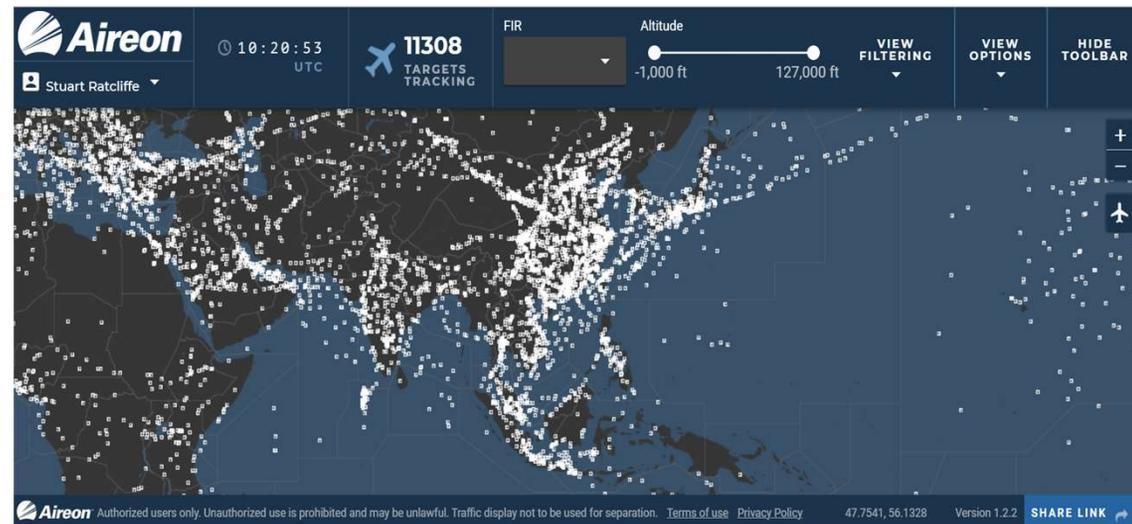
- **Cloud Based ATFM Systems**
- **Enables Software as a service**
 - **Centralised ATFM**
 - **By established ATFM capable ANSPs**
 - **By 3rd Party ATFM service supplier**
 - **Service supplied on as needed basis**



How Technology is making ATFM Implementation easier

- **Global Surveillance Data**

- Single source ATS grade ADS-B surveillance available through internet
- Global position reporting of aircraft from gate to gate leading to:
 - Departure times for all flights
 - Continuous trajectory modelling
 - Accurate ETO and ETA predictions
 - **More accurate demand predictions**
 - Appropriate ATFM measure implementation
- Common situational awareness



How Technology is making ATFM Implementation easier

- **Cloud based ATFM systems**

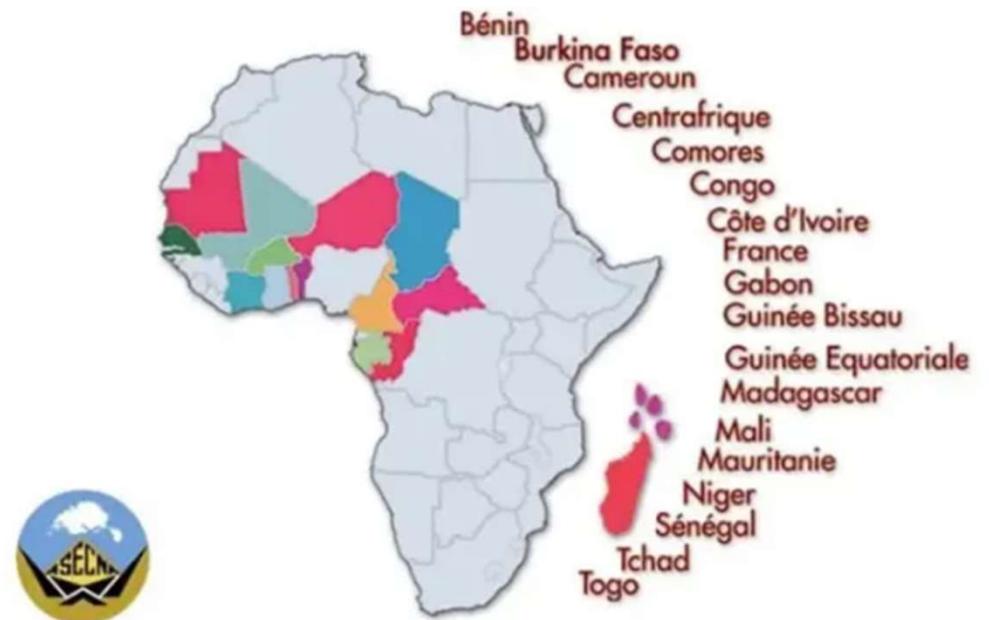
- Requires no hardware installation on site
- No hardware replacement cycles
- Redundancy built into solution
- Ability to operate from any PC connected to internet
- No complicated connections to surveillance sources
- Software releases and patches easily facilitated
- Reduced training and competence required for maintenance staff
- Scalability – Easily scale a solution to accommodate changing needs
- Cost effective - pay for service rendered
- Allows for 3rd Party ATFM as a service



First Cloud Based Centralised ATFM Implementation

- **ASECNA**

- Aireon supplying ATFM for entire ASECNA Airspace
- 18 Countries
- 7 FIRs
- Global ADS-B Surveillance data
- Metron Aviation sub-contracted to Aireon to supply Horizon ATFM system
- Centralised ATFM managed from Dakar Senegal
- All ANSPs and stakeholders' access to system via internet
- Operational on 1 January 2024



Questions

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