



AGENCE POUR LA SÉCURITÉ DE LA NAVIGATION
AÉRIENNE EN AFRIQUE ET À MADAGASCAR
Les routes du ciel, notre métier...

ATFM implementation in ASECNA

**CANSO Ops and Safety Workshop – Lusaka
09th –12th May 2022**

Point XX of the meeting agenda:

Presented by ASECNA



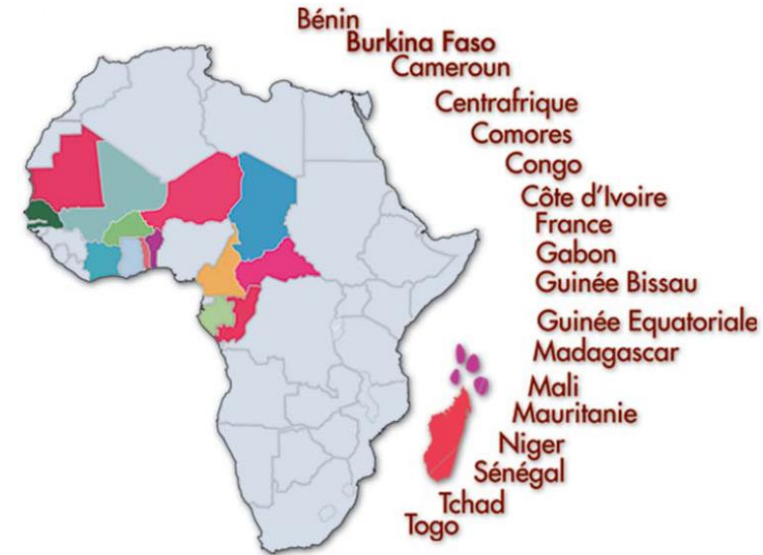
ATFM IMPLEMENTATION IN ASECNA

SUMMARY

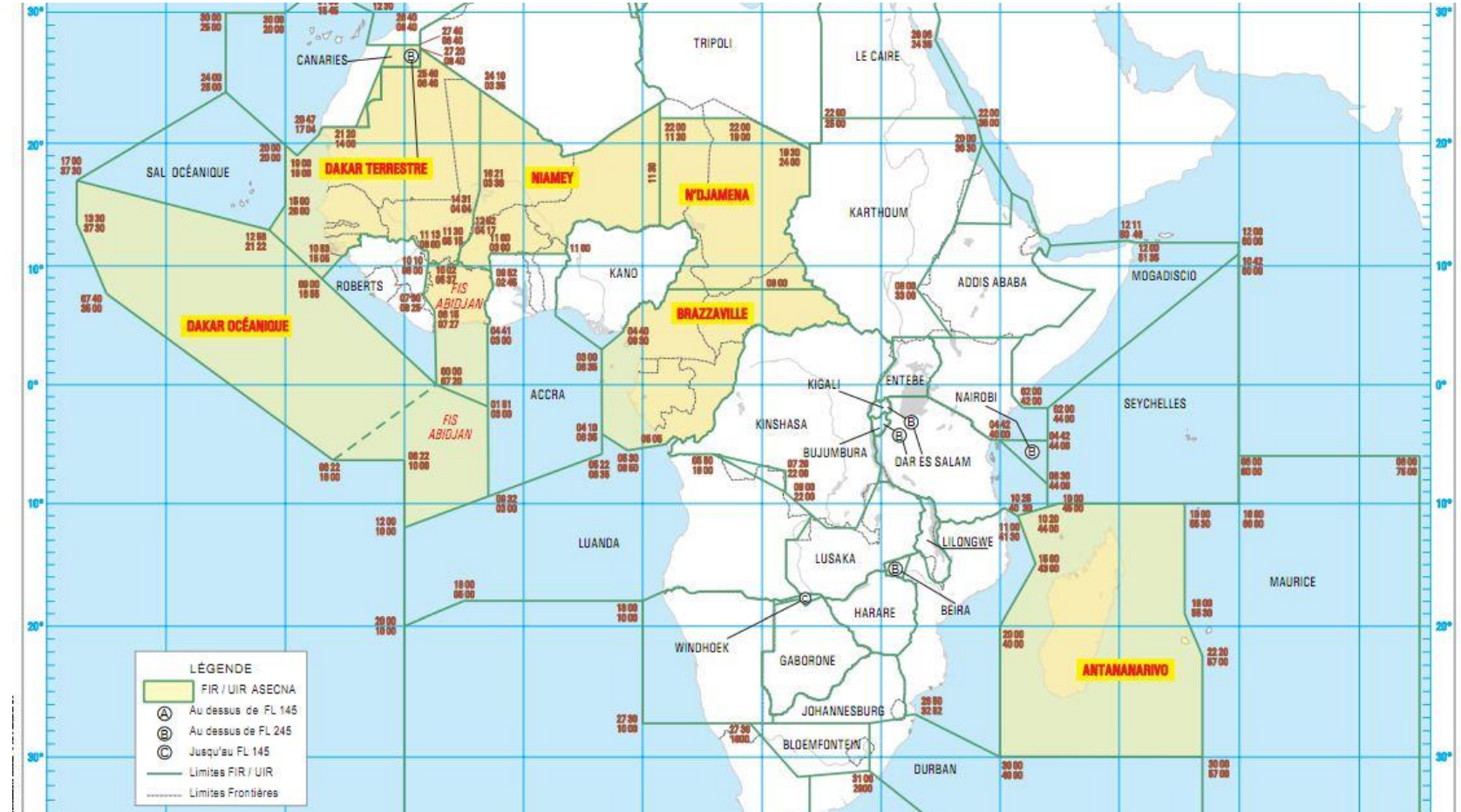
- ❑ ASECNA VISION 2032
- ❑ CONTEXT
- ❑ CONOPS ASECNA AIR TRAFFIC FLOW MANAGEMENT
- ❑ ATFM EXPERIMENTATION IN ASECNA

ATFM IMPLEMENTATION IN ASECNA

ASECNA AT A GLANCE



- ❖ Created December 12, 1959
- ❖ Headquarters: Dakar, SENEGAL
- ❖ 18 Member States
- ❖ Multinational Public Institution
- ❖ 6 FIRs
- ❖ Airspace; 16.1 million square km



ATFM IMPLEMENTATION IN ASECNA

ASECNA VISION 2032

- ☐ Permanently improve our services as State members ANSP
- ☐ Work towards the implementation of an African unique sky
- ☐ Improve our governance through the optimisation of our ressources management

ATFM IMPLEMENTATION IN ASECNA

ASECNA VISION 2032

- ❑ Improve our performance. Respond to the needs of air users. Implementation of innovative services and technologies in order to improve safety and services delivered to customers.
- ❑ Creation of an airspace block (16 Millions Km²) that offers the same high level of performance and security to provide appropriate flights profiles and trajectories. Equipment and services update regarding the region's needs and the GANP orientations
- ❑ Human resources and material management and seizing all the opportunities to mutualise internal and external ASECNA resources

ATFM IMPLEMENTATION IN ASECNA

CONTEXT

- ❑ Air Traffic Flow Management (ATFM) is the process that enables smooth and efficient flow of air traffic in relation to capacity and demand, in-accordance with ICAO Doc 9971: Manual on Collaborative ATFM.
- ❑ ATFM has become a crucial activity to the agency due *to the traffic growth and the research of fuel and CO2 savings in order to limit the impact of air transport on the environment*
- ❑ ATFM is an enabler of the efficiency and effectiveness of air traffic management (ATM). it contributes to **the safety, efficiency, cost-effectiveness and environmental sustainability of an ATM system.**

ATFM IMPLEMENTATION IN ASECNA

CONTEXT

- ❑ Therefore ATFM contributes to the achievement of a seamless airspace as recalled **during the APIRG 21 meeting** "Africa needs to implement seamless traffic management in its airspace to ensure synergistic **implementation of the AFI Single Sky**".
- ❑ In 2018, the African CANSO conference decided to build an ATFM strategy for the AFI region. This plan is also known as as the **'Mombasa CANSO ATFM roadmap'**
- ❑ **This roadmap was conceived to integrate the regional ATFM systems according to the ICAO 7 project of the AAO/SG 2 meeting regarding the aerodrome aspect and was endorsed by the APIRG/22 meeting, held in Accra, GHANA in 2019.**
- ❑ The APIRG recommended a better **awereness on the subject and to harmonise the roadmap with existing AFI regional programmes**

ATFM IMPLEMENTATION IN ASECNA

ATFM ASECNA CONOPS

ATFM PRINCIPLES

- ❑ ATFM contributes to making the air traffic flow quick and sure in ensuring that the ATC capacities are used to their maximum and that the traffic volume corresponds to the declared capacities by the ATS authorities
- ❑ Implementation of the traffic regulation through the concerned aerodromes departure slots following a coordination between users and regulation agents (FMU/FMP, CFMU)
- ❑ Possibility to implement solutions as route or altitude changes for some flights

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ATFM ASECNA CONOPS

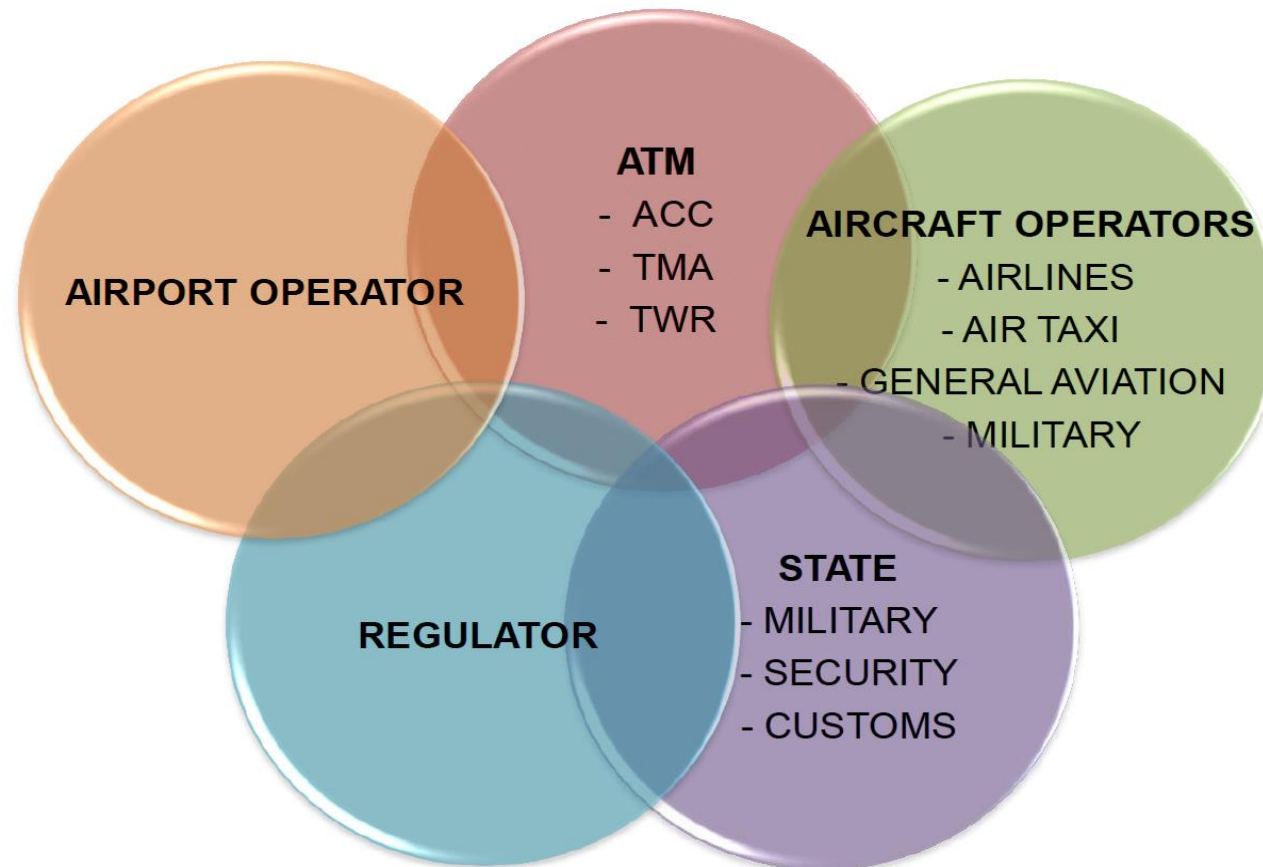
ATFM GOALS

- ☐ Adapt the traffic flow to the capacity through the prevention of overloads and ensuring the traffic flow in safety
- ☐ Limit delays and constraints on the traffic
- ☐ Smoothing the traffic flow: this allows to reduce the ATC workload for them to ensure a better air safety
- ☐ Reduce delays and constraints: this service allows users to facilitate the flights planification, to reduce the operation costs

ATFM IMPLEMENTATION IN ASECNA

ASECNA ATFM CONOPS

The stakeholders (internal and external)



ATFM IMPLEMENTATION IN ASECNA

AFTM ASECNA CONOPS

ASECNA INTERNAL STAKEHOLDERS

Central ATFM Unit (CATFMU)

- ☐ ATFM services implementation begin with the creation of a central air traffic flow management organism: **In Dakar is the air traffic coordination center where a CATFMU is installed;**
- ☐ This Center is the **entry point of all flight plans for traffic toward ASECNA airspaces;**
- ☐ Its role is to **centralise the ATFM service, supervise and coordinate the local ATFM centers (ACC and airports)**
- ☐ It has the mission to internationally **coordinate with the non ASECNA ATFM centers**, to make the traffic projection in all the agency airspaces and to ensure the global ATFM efficiency

ATFM IMPLEMENTATION IN ASECNA

ATFM ASECNA CONOPS

ASECNA INTERNAL STAKEHOLDERS

REGIONAL AND LOCAL ATFM CENTERS

- ☐ They are in charge of regional (ACC) or local (TWR/APP/ Airports) ATFM activities. They exchange information with the CATFMU on the traffic situation and evolution.
- ☐ They gather information from users and relay them to the CATFMU
- ☐ They ensure the link between the CFMU, the ATS organisms and the users. They are the relay between the CFMU and the control centers

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ATFM ASECNA CONOPS

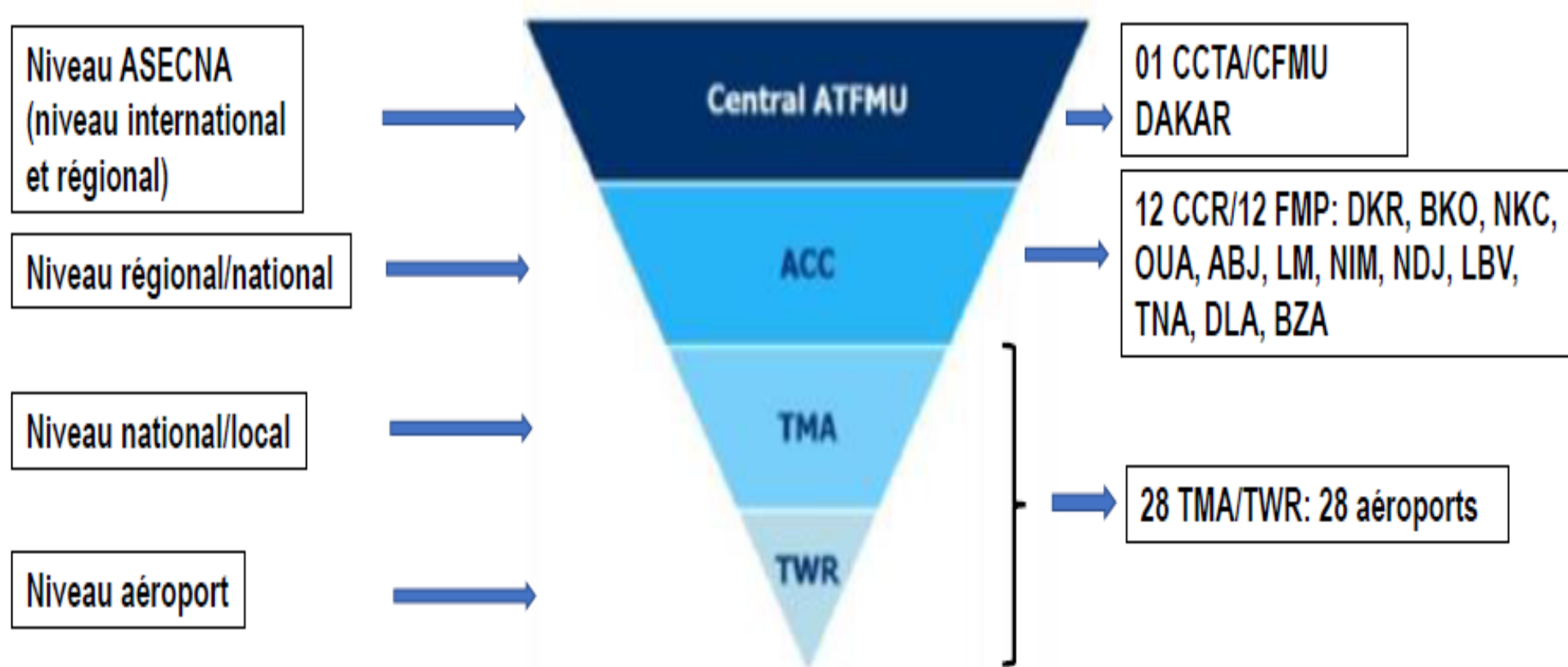
ASECNA INTERNAL STAKEHOLDERS

REGIONAL AND LOCAL ATFM CENTERS

- ❑ ASECNA intends to put in place regulation units. “Flow Management Unit or Position” (FMU/FMP) in each of its 12 ACC, and in some approach centers regarding their airspace configuration. The 12 ACC are: Abidjan ; Antananarivo; Douala; Dakar ; Bamako; Brazzaville; Libreville; Lomé ; Ouagadougou ; Niamey; Ndjamena ; Nouakchott.
- ❑ The concerned approach centers are: Bangui ; Cotonou ; Malabo; Pointe-Noire; Port-Gentil
Yaoundé

ATFM IMPLEMENTATION IN ASECNA

ASECNA INTERNAL STAKEHOLDERS



ATFM IMPLEMENTATION IN ASECNA

ATFM EXPERIMENTATION IN ASECNA

ASECNA engages the ATFM project with some experimentations, mainly with the satellite surveillance data (ADS-B) provider: AIREON

ATFM IMPLEMENTATION IN ASECNA

Tailored Service for FP sharing

- ❑ ASECNA is sharing all flight plans **via AMHS network to Aireon**. Messages from **all 17 ASECNA states are received**.
- ❑ Build up of the **AireonFLOW** product (w/Tailored Results by Flight Plans shared via AMHS Network). Flight plans that fit the matched criteria (ADS-B equipped aircraft, etc.) are then tailored to Aireon's surveillance data based on the ACID match.
- ❑ Aireon's project in Q1 2022 to build out this system and provide the streamed data back to ASECNA. In addition to the streamed data back to ASECNA, **a qualitative analysis will be provided on the flight plan matching**.

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Tailored Service for FP sharing

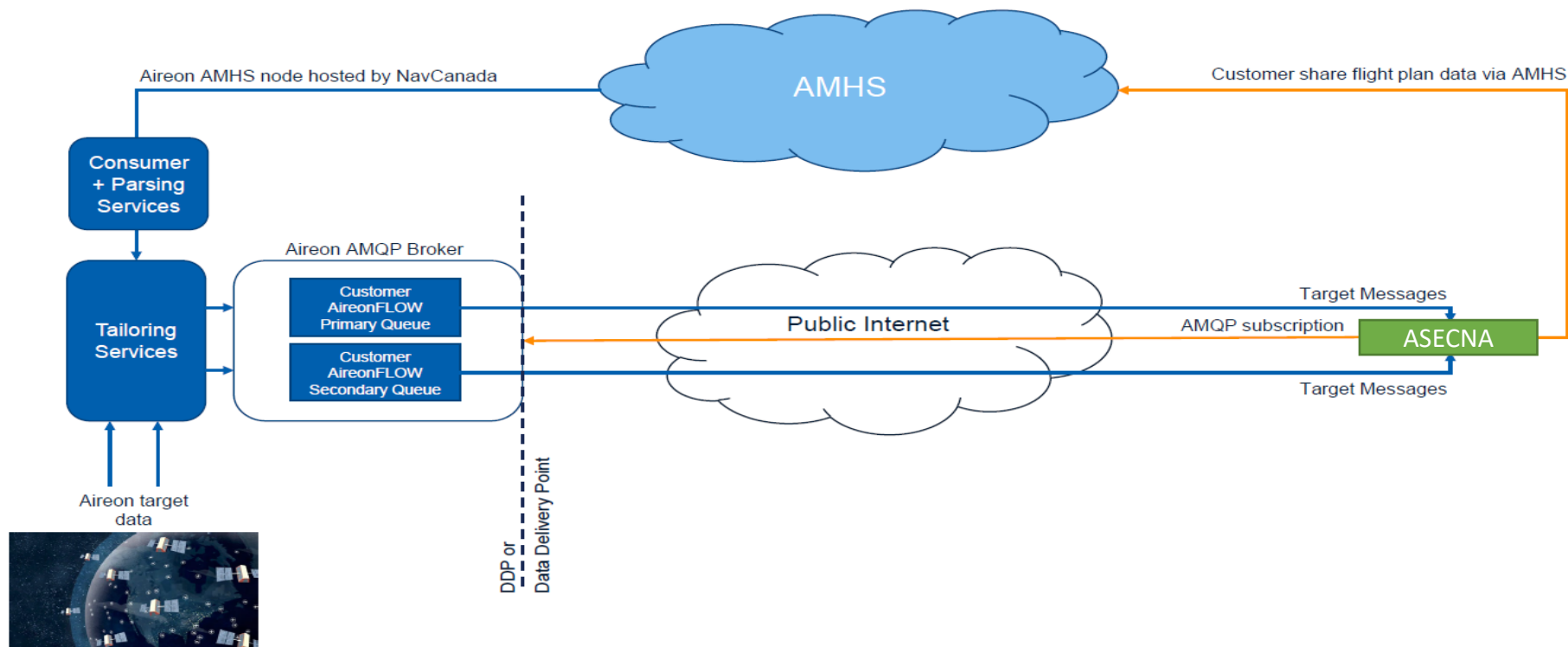
Project roadmap:



ATFM IMPLEMENTATION IN ASECNA

Tailored Service for FP sharing

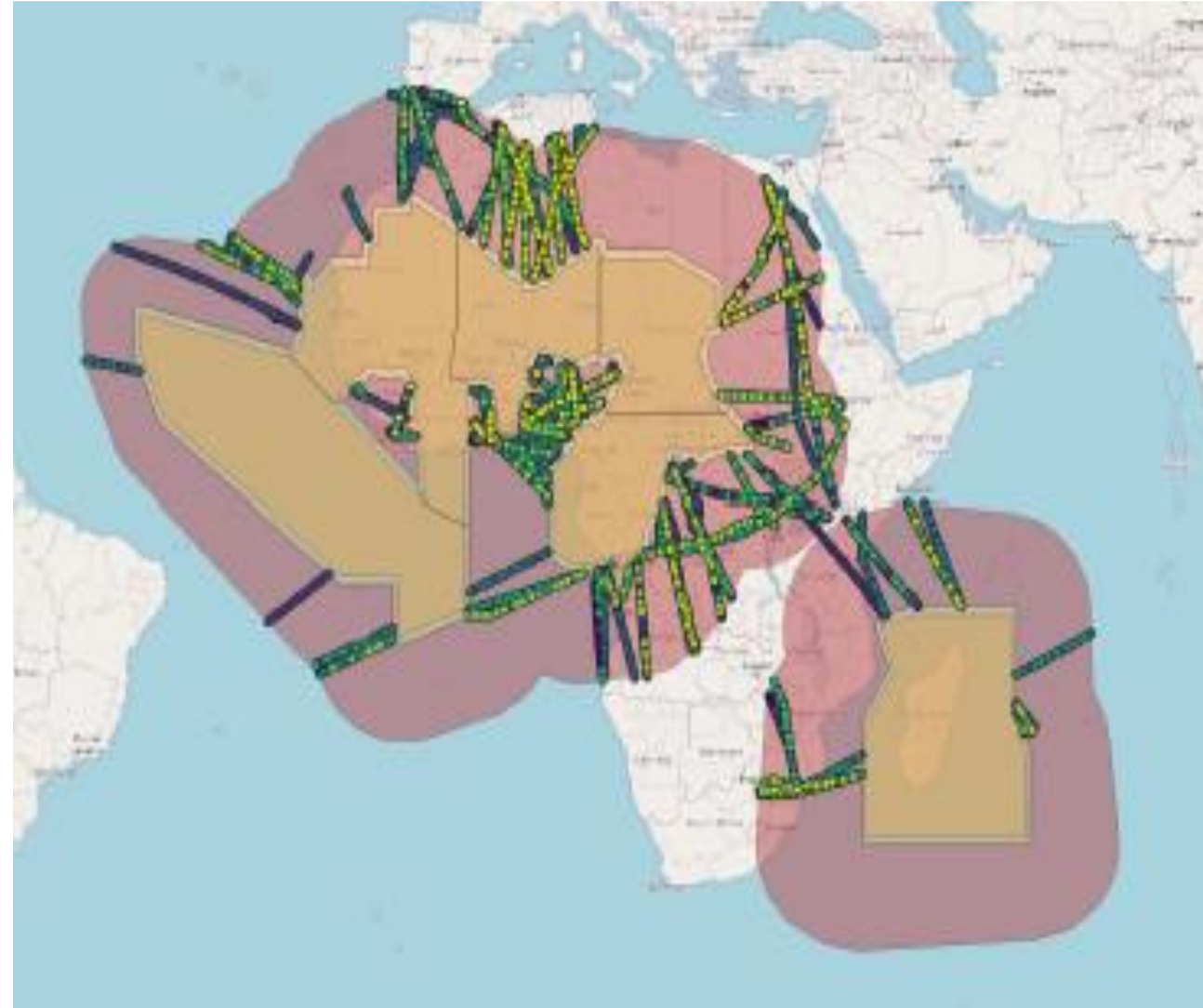
Project Architecture:



ATFM IMPLEMENTATION IN ASECNA

Initial Results:

- **600NM buffer around Area of Interest (Aol)**
- The characteristics of the matched data within the buffer region are:
 - **PoU(60s): 99.6%**
 - **Average update rate: 4s**
- Considering only flights that originated outside of ASECNA Aol:
 - **PoU(60s): 99.6%**
 - **Average update rate: 4s**



CONCLUSIONS & FUTURES ACTIONS

Challenge

- ATFM is an enabler of the efficiency and effectiveness of air traffic management (ATM).
- It contributes to the safety, efficiency, cost-effectiveness and environmental sustainability of an ATM system.
- Its implementation therefore contributes to the creation of a homogeneous airspace.
- Thus, the implementation of ATFM is crucial for the AFI region for the resumption of air traffic growth.

CONCLUSIONS & FUTURES ACTIONS

The meeting is invited to :

- Note the progress made by ASECNA in the implementation of ATFM
- Take into account the specificity of ASECNA, its mode of functioning, its multinational character in the AFI region;
- Urge States, ANSPs and industry stakeholders to adopt and harmonize their roadmap for the implementation of ATFM towards the achievement of a seamless airspace in the AFI Region within the framework taskforce set up by CANSO.

Thank you

Q & A