



Network Manager
nominated by
the European Commission



Centralized Flight Plan Management Service

EU-Latin America and Caribbean Aviation Partnership Project
Network Manager, EUROCONTROL

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Overview

- 1) EUROCONTROL
- 2) The Network Manager Function
- 3) Network Operations and Supporting Services
- 4) NM- LATAM Cooperation

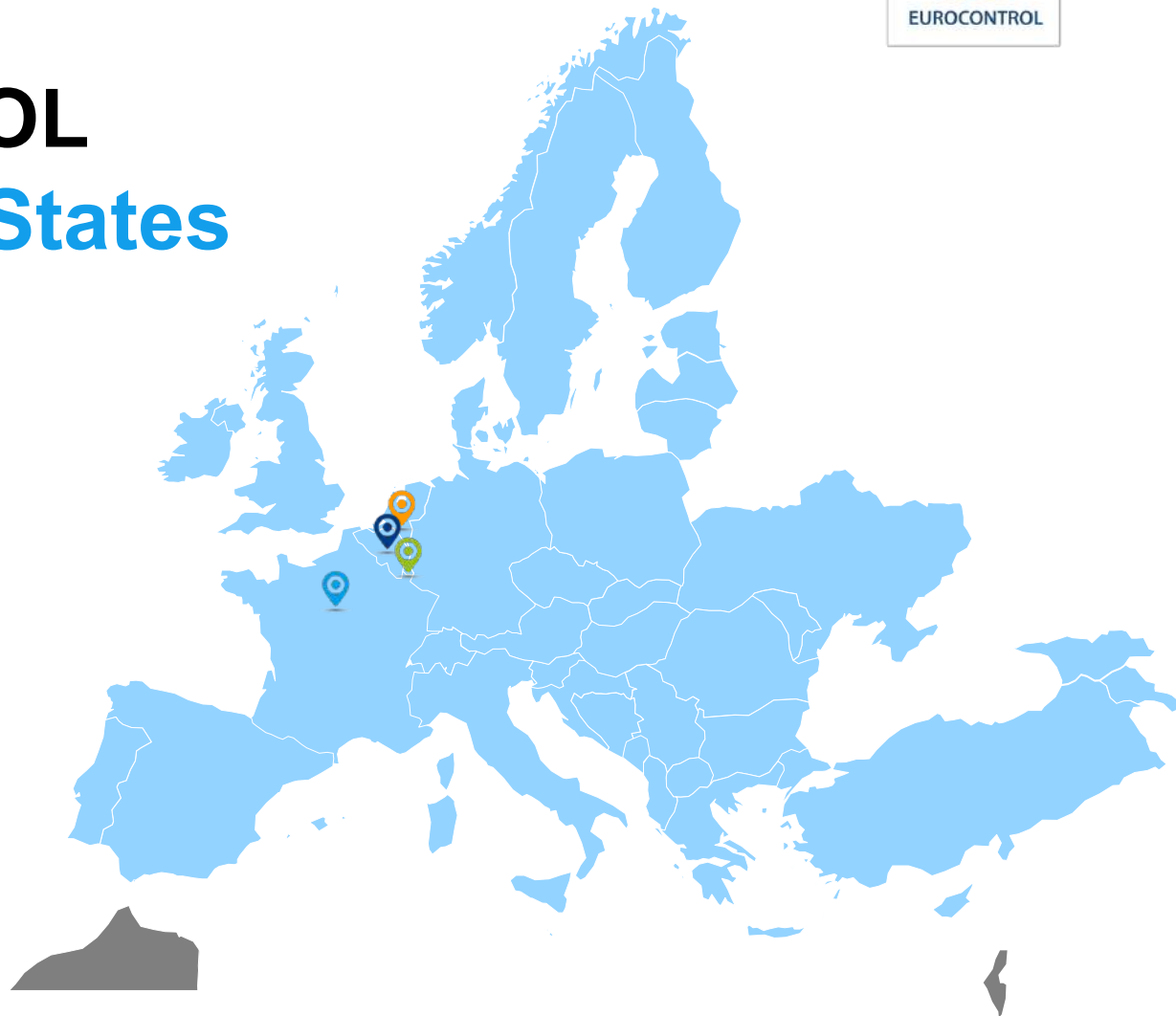
EUROCONTROL

41 x Member States

+ Morocco and Israel

EUROCONTROL Office Locations

-  **BELGIUM**
Brussels (HQ & ATM Network)
-  **NETHERLANDS**
Maastricht (MUAC ANSP)
-  **FRANCE**
Brétigny-sur-Orge (Research Centre)
-  **LUXEMBOURG**
Luxembourg (Training Centre)



EUROCONTROL's **CENTRAL ROLE** For European Aviation



Air Traffic Network Manager for all of Europe –
11 million flights 2019

ATC Billing Service - €10 billion p.a.

Maastricht Air Navigation Service Provider

Civil-Military coordination

Air Traffic Expert support to EU bodies

Pan-European

EUROCONTROL Legal Framework



**EUROCONTROL Convention 1960
(Amended 1981)**

**Multilateral Agreement relating to
Route Charges 1981**

**Revised Convention 1997
- Not yet in force**

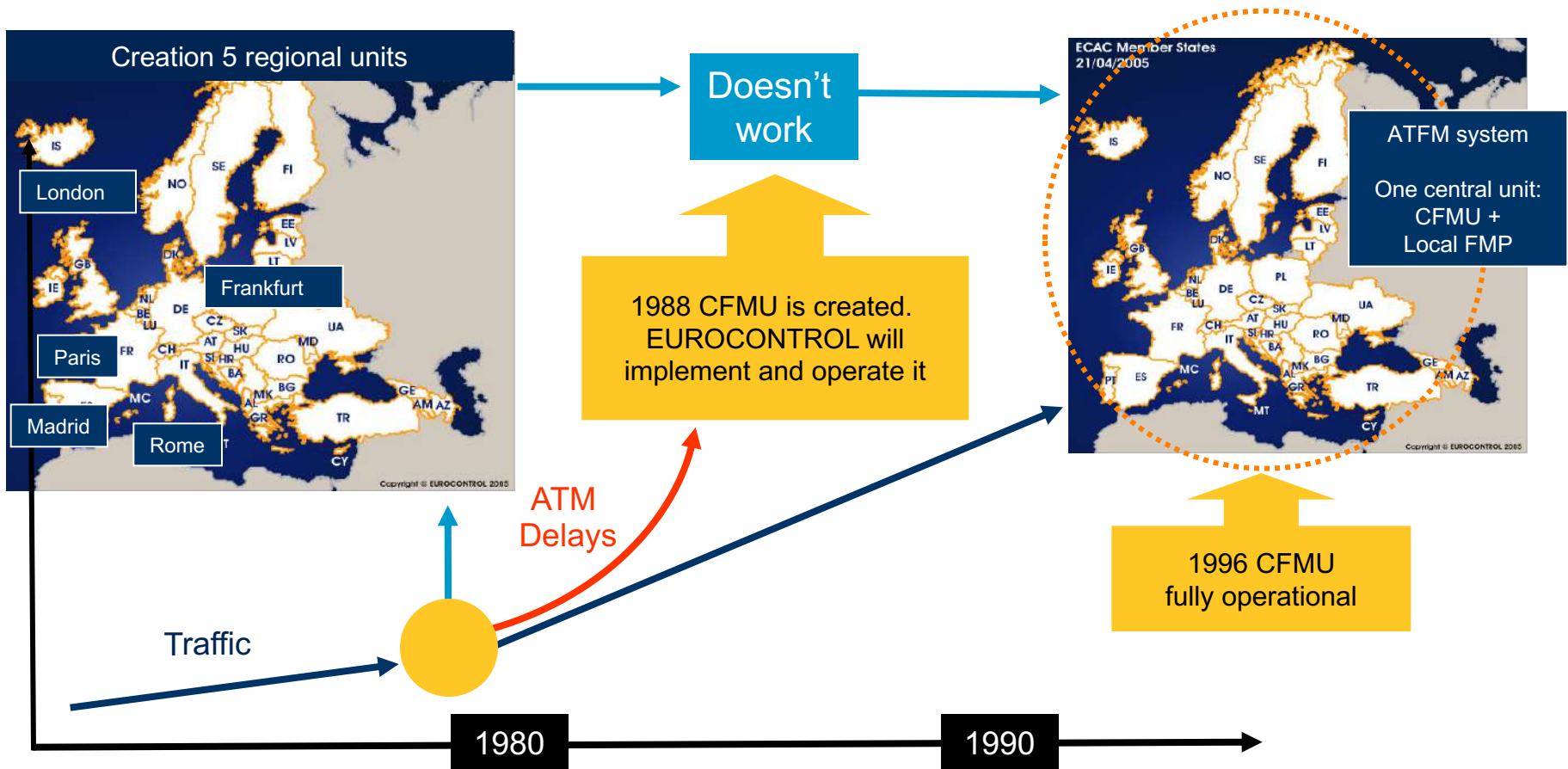
**EU Accession Protocol 2002
- Not yet in force**

Document Classification: Green

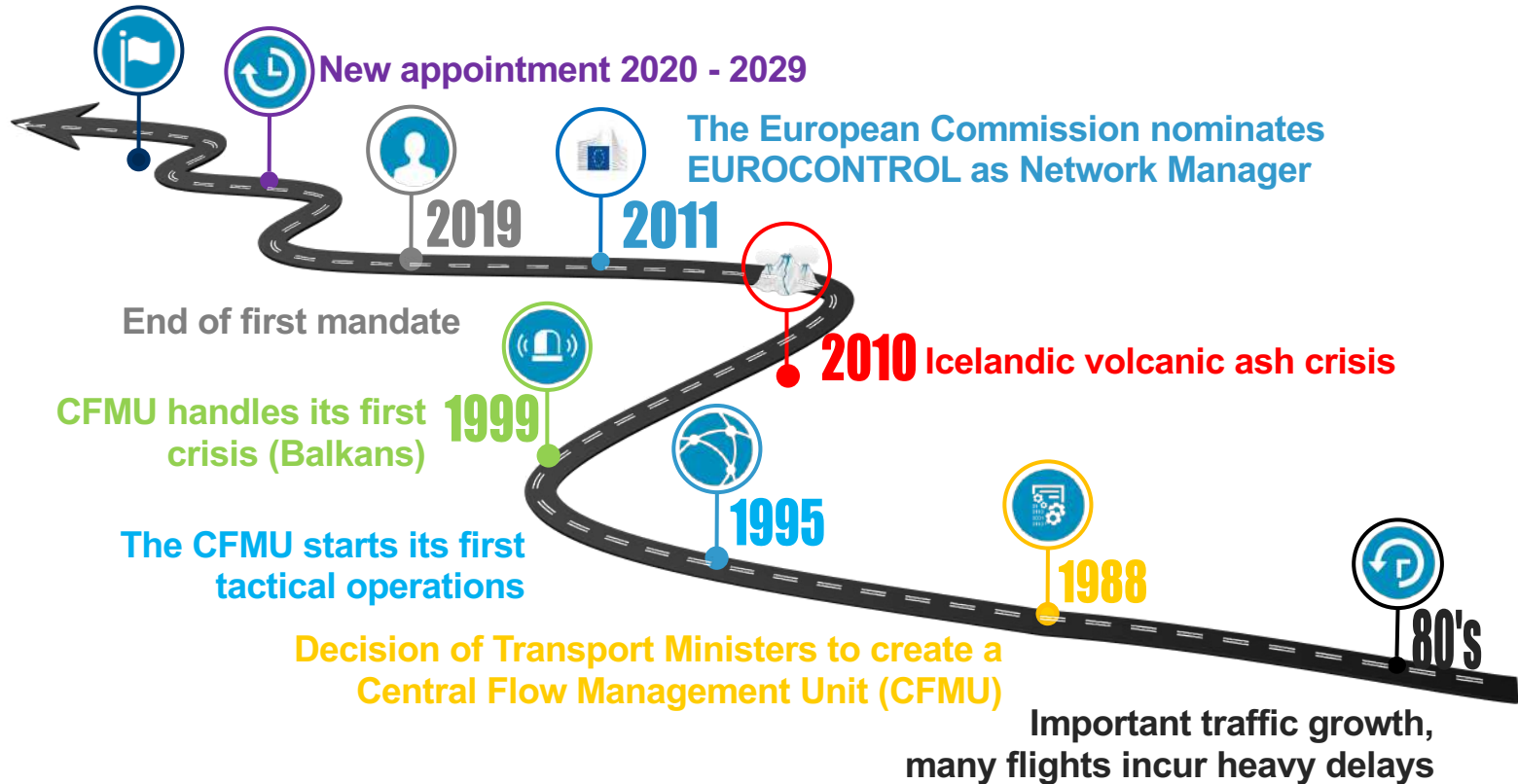


Back in the 1980s

Major European ATM crisis → Creation of CFMU



The story about Network Manager



ICAO DOC 7030 Provisions Flight Planning and ATFM



The Network Manager

EUROCONTROL is nominated as Network Manager to perform the following functions:



Network Operations Services



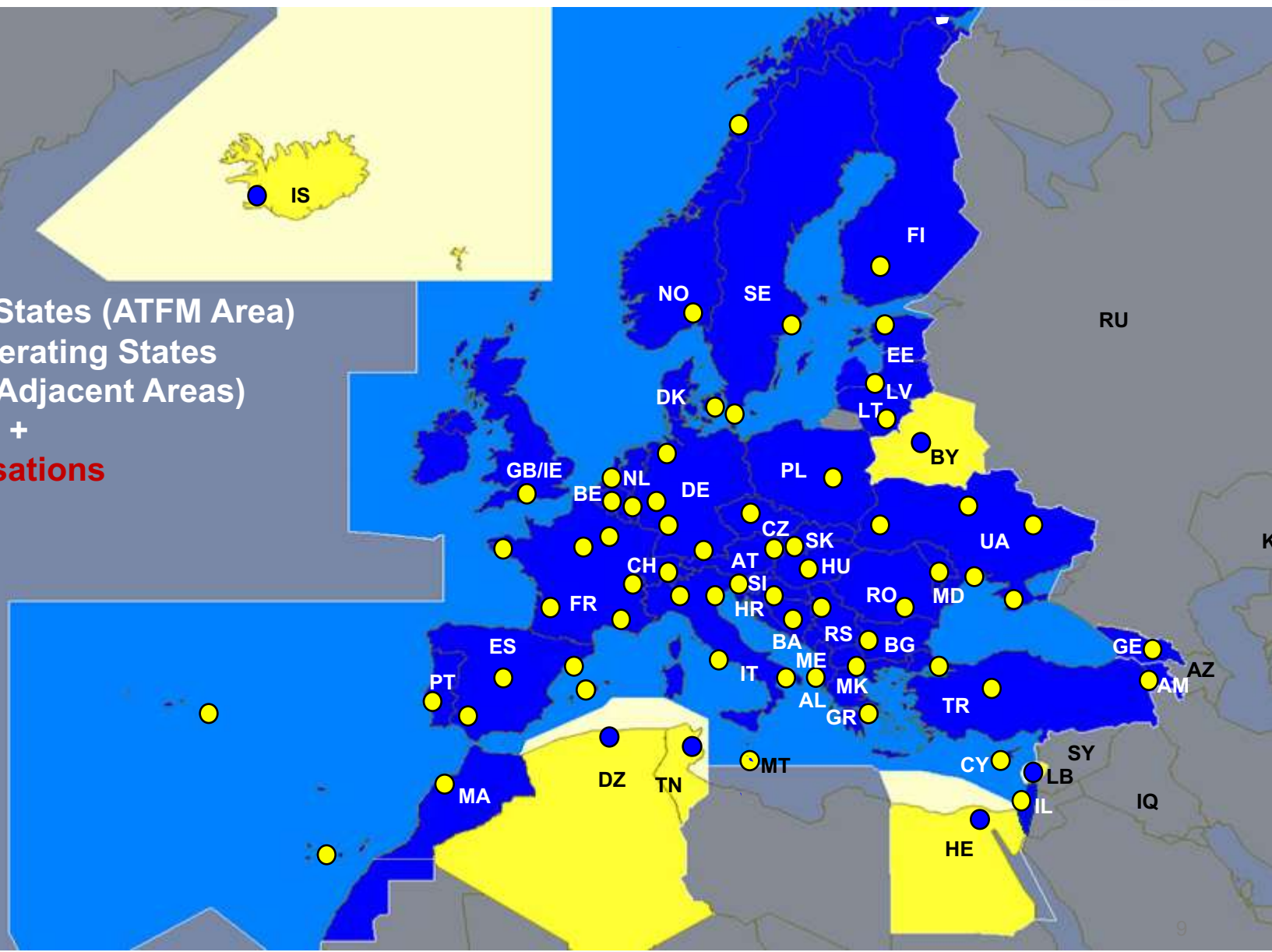
■ 43 NM States (ATFM Area)

■ 6 Cooperating States (ATFM Adjacent Areas)

+

AO Organisations

- IATA
- IACA
- ELFAA
- EBAA
- IAOPA
- AEA
- ERA



The EUROPEAN Network Operations Concept



Unique collaboration of all ATM stakeholders

Network Operations Services



Flight Plan
Management

Air Traffic Flow
& Capacity
Management
(ATFCM)

Airspace Data
Management



Airspace Data at the Network Manager

- Fundamental enabler to deliver Flight Planning and ATFM Services
- Airspace data management
 - Maintains routes, points, SID, STAR, RAD, CDRs, Aerodromes, restrictions, sectors, etc., as published and agreed with the states
 - Supports states in simulations of major airspace changes and evaluation of network impact
 - Airspace design optimisation in support of states
 - Civil – Military coordination at European level in the use of the airspace, with the aim of improving flight efficiency
 - European Airspace Use Plan published at D-1 16:00 and subject to updates
 - Support in planning of major military exercises
- Airspace data
 - Coordinated with NMOC
 - Used by NM internal systems
 - Published to external users

Network Operations Services



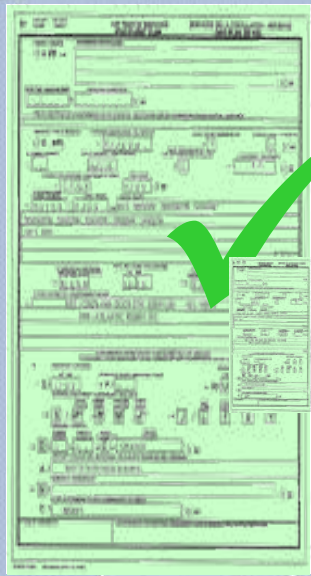
Flight Plan
Management

Air Traffic Flow
& Capacity
Management
(ATFCM)

Airspace Data
Management



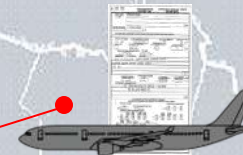
Flight Planning in Europe **with NM IFPS**



One FPL for all NM area

- Full acknowledgement process
- Dynamic re-processing
- Highly automated (>99%)

NM IFPS



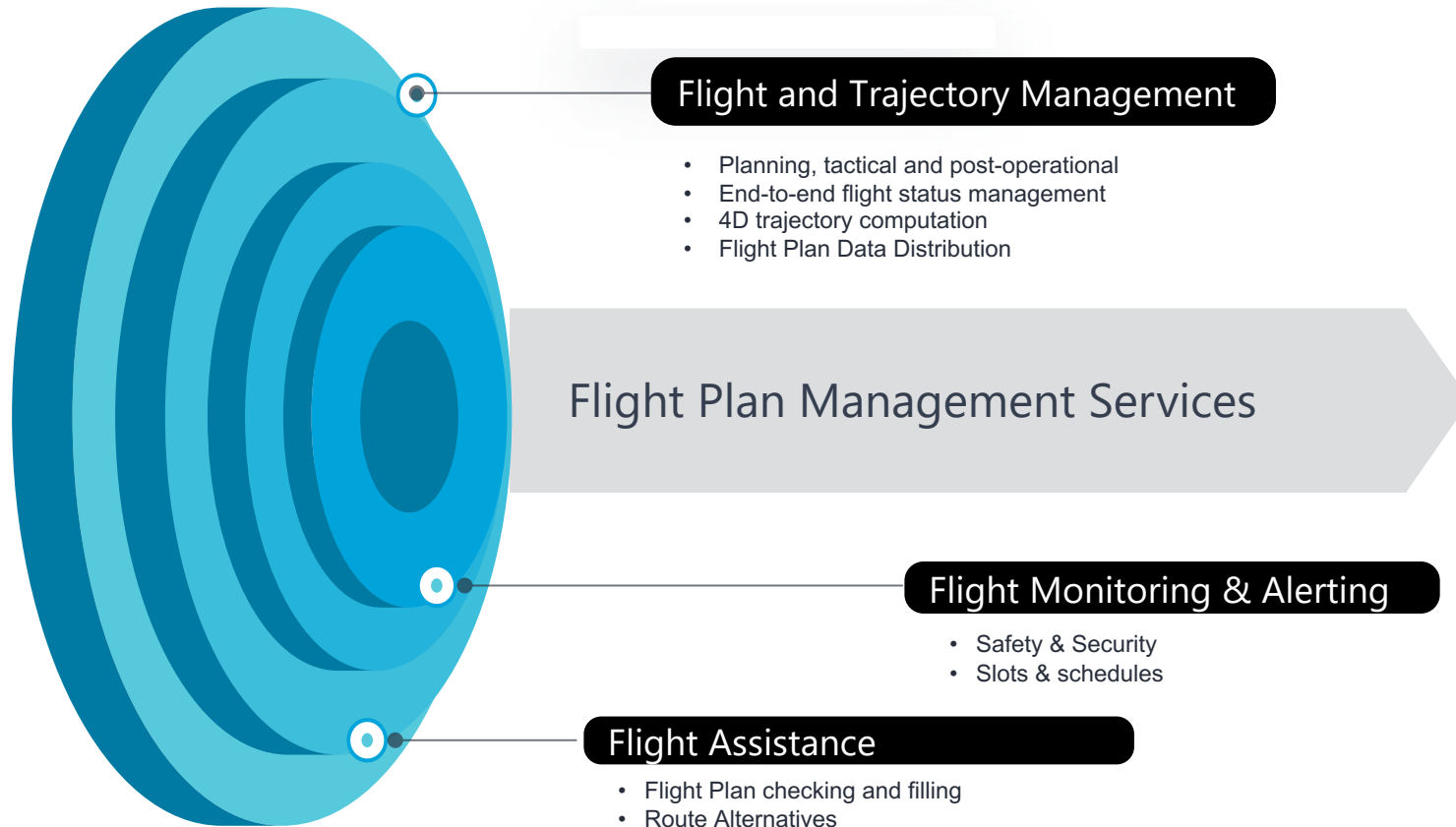
1 Flight Plan processed every 3 sec

Above **90000** Flight Plan messages/day

Flight Plan Management Service

- European central flight plan management
 - All IFR, GAT traffic within, exiting or entering the EUROCONTROL area of responsibility must file a flight plan (FPL) to EUROCONTROL/NM
 - NM validates and distributes the FPL to all concerned units
 - NM uses flight plan data to assess the demand and perform flow management
- **Unique regional model in the world since 1995**
- Interest from other regions to have similar model (Asia, Middle East)
- Benefits
 - Single access for AOs
 - Uniform rules
 - Single consistent flight plan for all ATM stakeholders
 - No need to validate FPL at each ANSP

Flight Plan Management Services



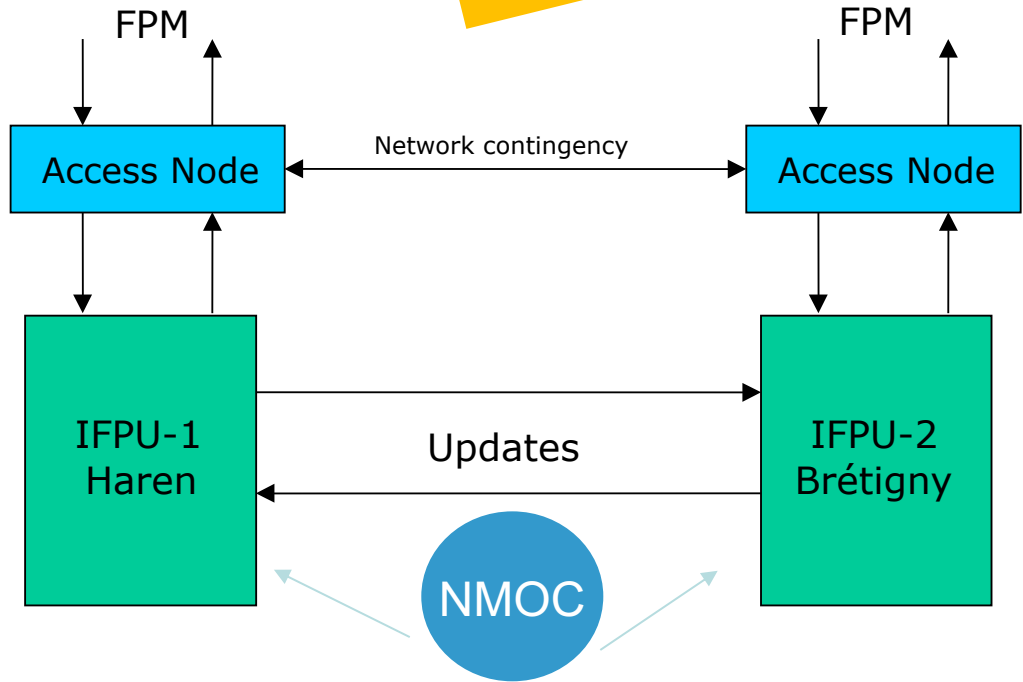
Flight Plan Management Services

Flight and Trajectory Management



Contingency

No FPL is lost



Supports immediate failover

Supports distributed processing and master/replica (single queue)

Operating in distributed configuration till recently; now operating in master/replica for human resource optimisation

Other Flight Planning Services

Flight Assistance

Flight Planning Assistance

01

Flight Plan Preparation & Filing

02

Flight Plan Route Alternatives

Specific Services

01

Alternatives Validation, Trial & Filing

02

Compute Alternatives with predefined criteria

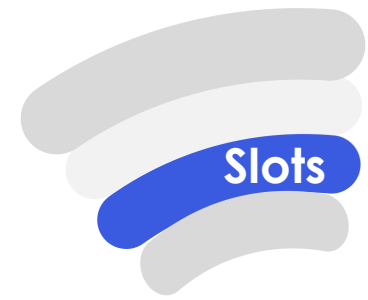
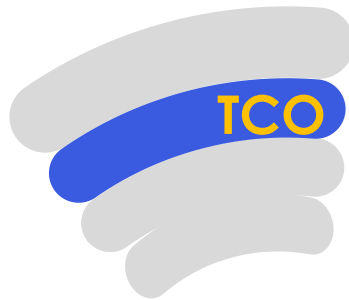
03

ATFM Evaluation of Alternatives

Other Flight Planning Services

Flight Monitoring & Alerting

- Monitoring and alerting of flight plans/schedules/intentions
- Safety & Security & Airport Slots
- Alert relevant National Authorities



Flight Plan and Flight Data Evolution

FF-ICE/1

- 4D Trajectory
- GUF1, FIXM filing and distribution
- Planning service
- Trajectory negotiation

- Integration of aircraft Trajectory in NM systems

- Use PBN and other CNS capabilities in flight planning and flow management



Flight Plan and Flight Data Evolution

- **Benefits (for airlines)**
 - Process simplification – 21st century!
 - Less flight plan rejections
 - Full automation
 - Airline preferences (routes)
 - Awareness of constraints – better planning
 - Better use of resources
 - Better use of CNS capabilities of aircraft

Network Operations Services



Flight Plan
Management

Air Traffic Flow
& Capacity
Management
(ATFCM)

Airspace Data
Management

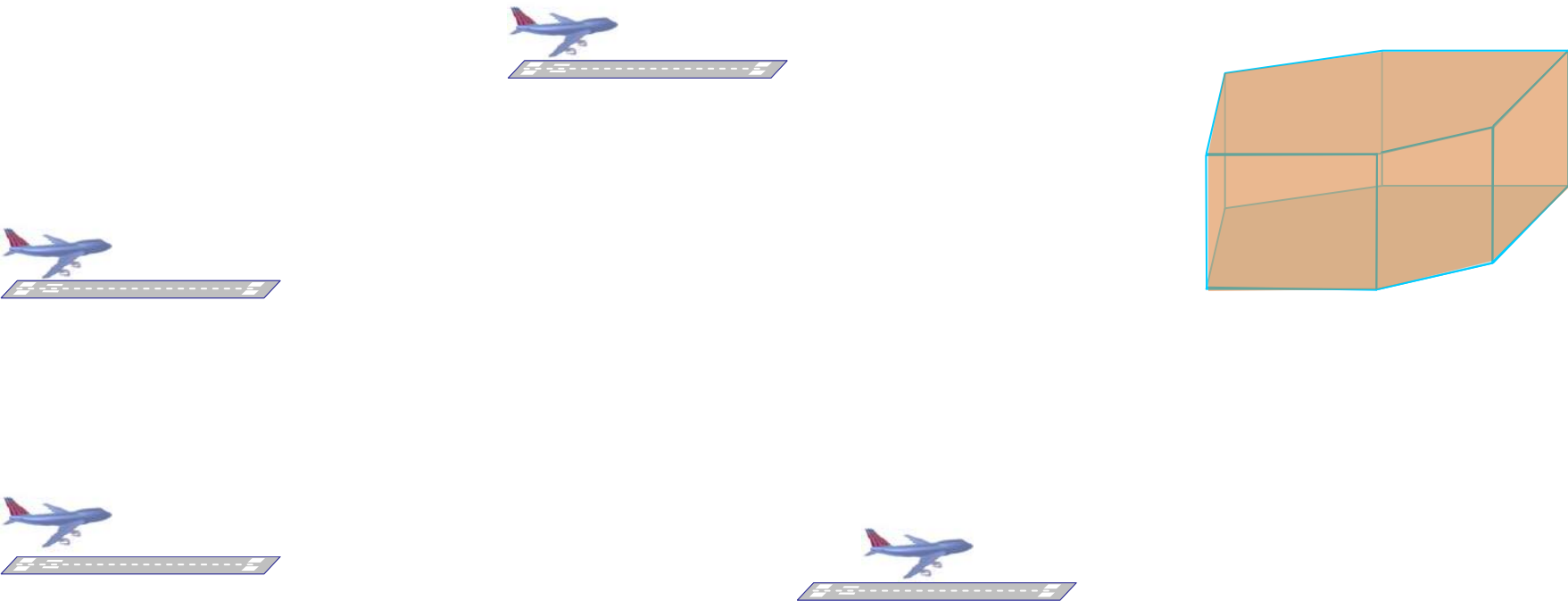


Air Traffic Flow & Capacity Management

- The objective of ATFCM is:
 - Safety: avoid ATC overload
 - Optimize the usage of available capacity
 - Minimize delays
 - Improve flight efficiency
 - Guiding objective: equity/transparency between all airspace users



Air Traffic Flow & Capacity Management

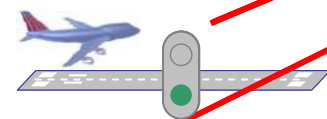
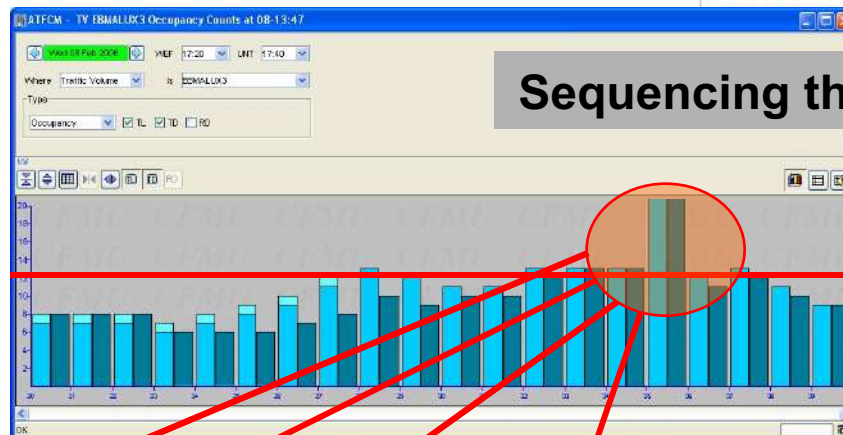


Air Traffic Flow & Capacity Management



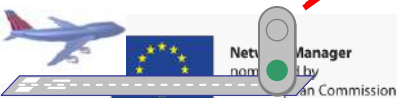
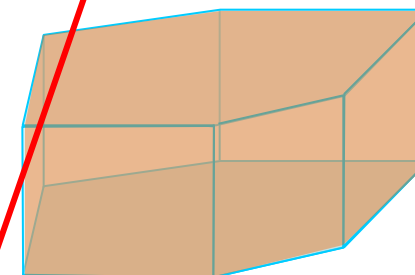
Avoiding congestion
- Safety Issue

Sequencing the traffic



Benefits:

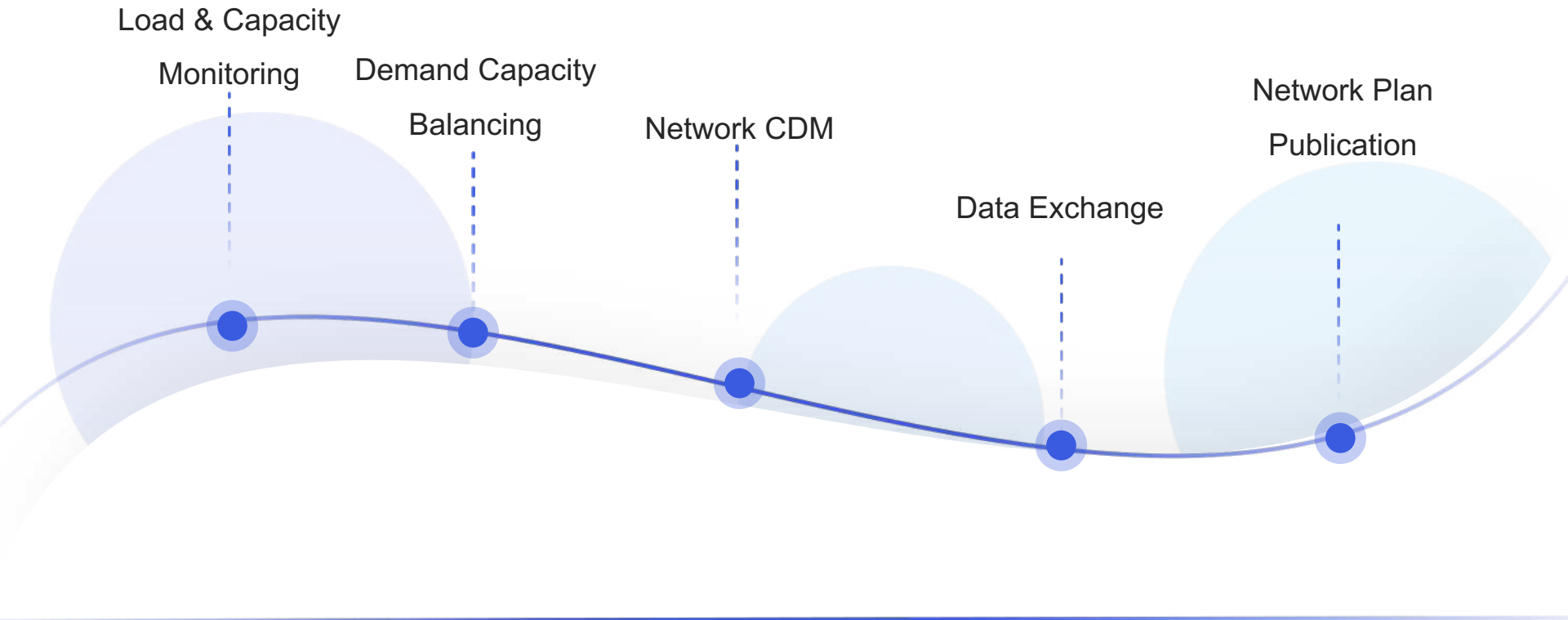
- Safer
- Fuel savings
- Less CO₂ emission
- Delay reduction



Network Manager



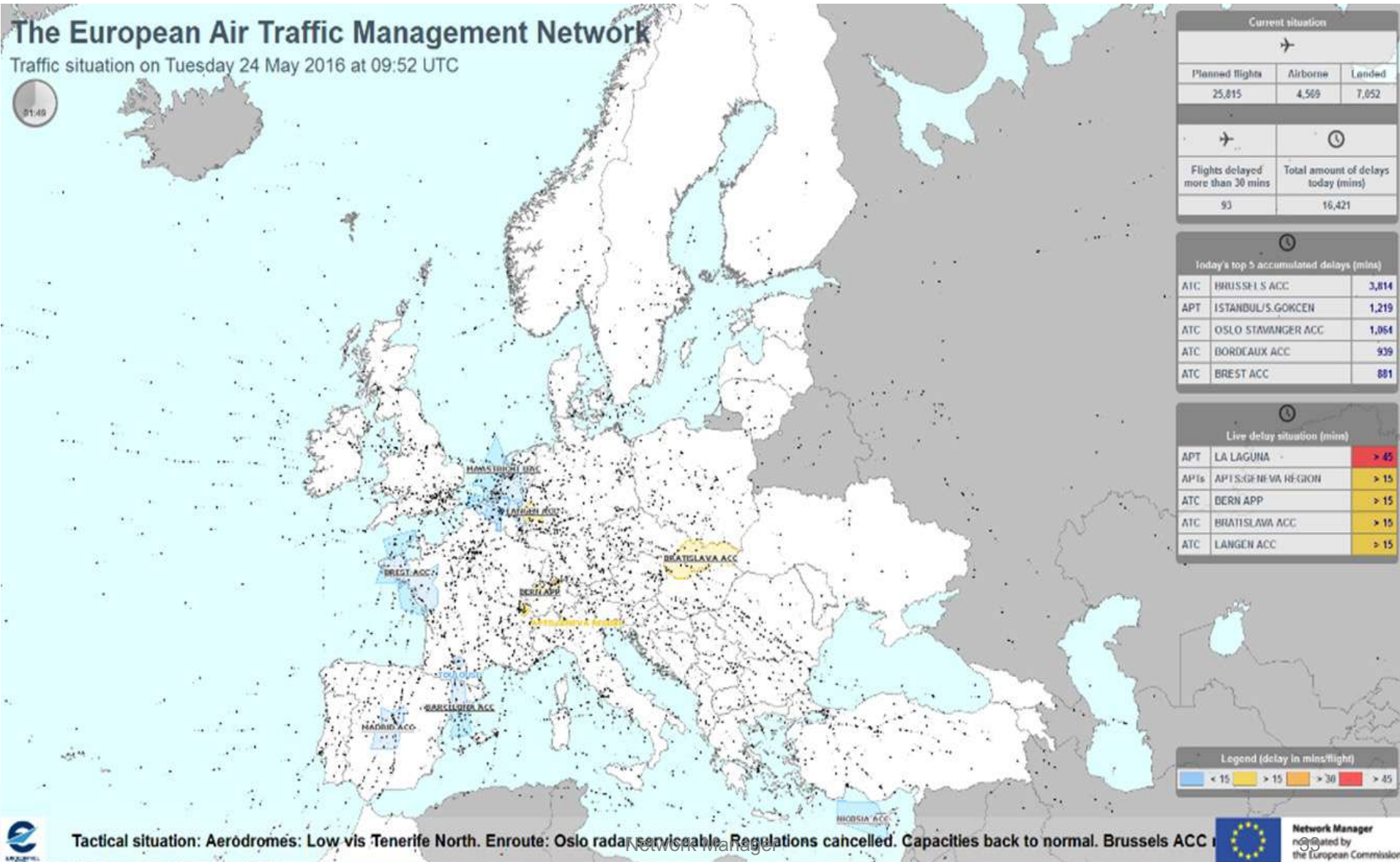
Air Traffic Flow & Capacity Management



Overview

- EUROCONTROL
- Network Manager Function
- Network Operations and Supporting Services
- **NM- LATAM in the context of a Centralized Flight Plan Management Services**

Ensuring all actors have accurate data



The vision for Global ATFM – A set of interlinked operational ATFM regions



Possible Future Cooperation

- **EUROCONTROL NM could support LATAM by providing different levels of service (including documentation and training)**
 1. Expertise on the deployment of the services
 2. Central flight plan distribution and archiving service/system; or
 3. Full Flight Plan Management service/system
 - Flight plan distribution and archiving
 - Flight Plan validation, trajectory computation
 - Flight plan assistance
 - Flight Plan alerting and monitoring
 - Replies to FPL originators on specific requests
 - Requires full LATAM airspace data availability