

# THALES

## ECOSYSTEM

### ATFM

ACAO/ICAO MID AFTM Workshop

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# A new era in transportation

Aviation is being reshaped by many powerful forces  
which are fundamentally impacting ATM

## New Players



## More Demand



## New Technologies



Complex operational environment requiring **innovative digital solutions**  
and **better collaboration** between all aviation stakeholders  
For **Global Aviation Optimization**

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# Helping you master your decisive moments

## Mastering the critical decision chain

### ← Critical Decision Chain →

Sensing and data gathering

Data transmission and storage

Data processing and decision making

## Harnessing key digital technologies in our verticals



Connectivity, mobility, IIoT



Cyber-security



Big data and data analytics



AI

~€6Bn Invested in digital



LIVE TV™  
AT HOME IN THE AIR

SYSGO  
EMBEDDING INNOVATIONS

Vormetric  
Data Security™

GUAVUS

cortAIX

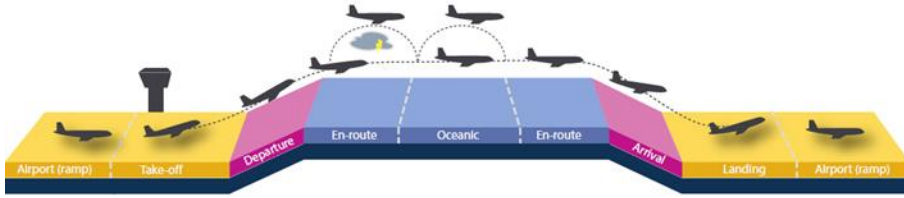
gemalto  
security to be free

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# The Complexity of Stakeholder Collaboration

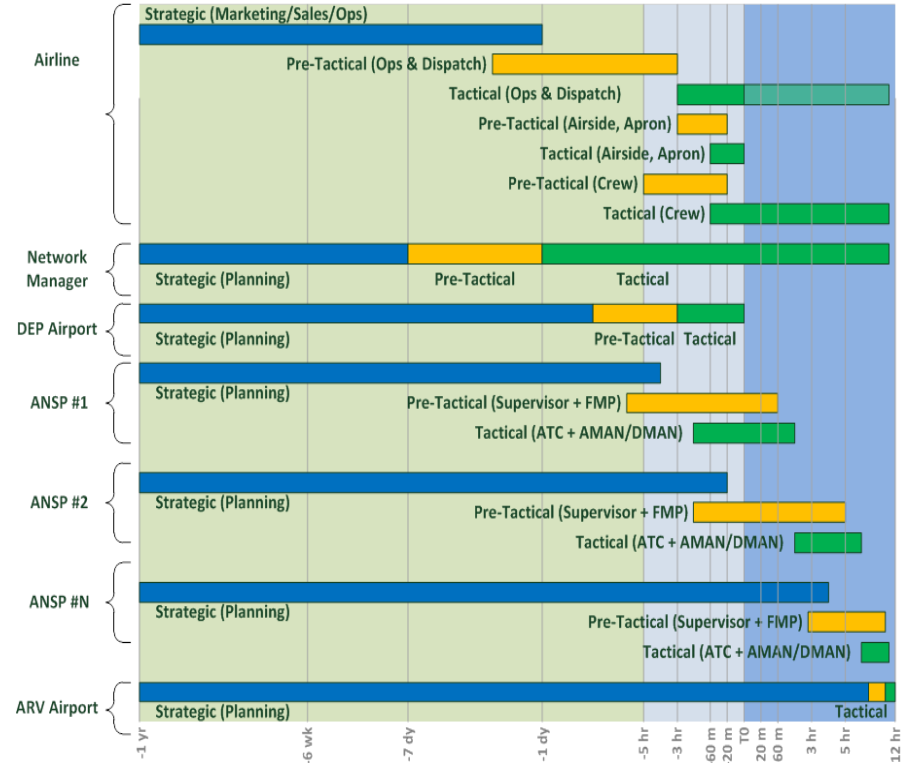


## Complexity Sources

- Different objectives, priorities, processes
- Different planning & decision timelines
- Different regulations, different systems

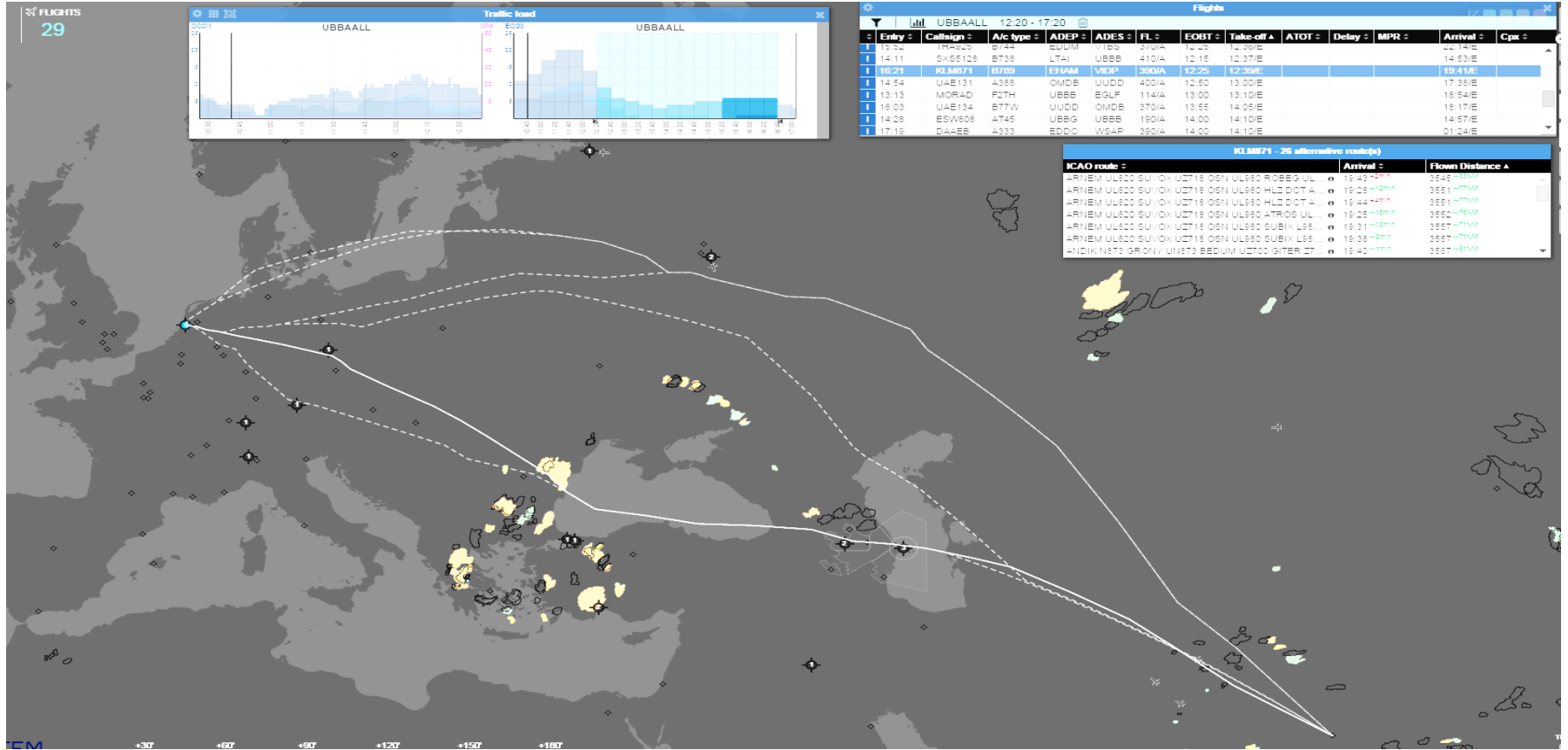
## Solutions

- System Interoperability
- Harmonized regulations, ConOps & processes
- Technical infrastructure enabling collaboration via real-time data exchange



# Airspace Demand Varies Significantly Each Day for the Same Route

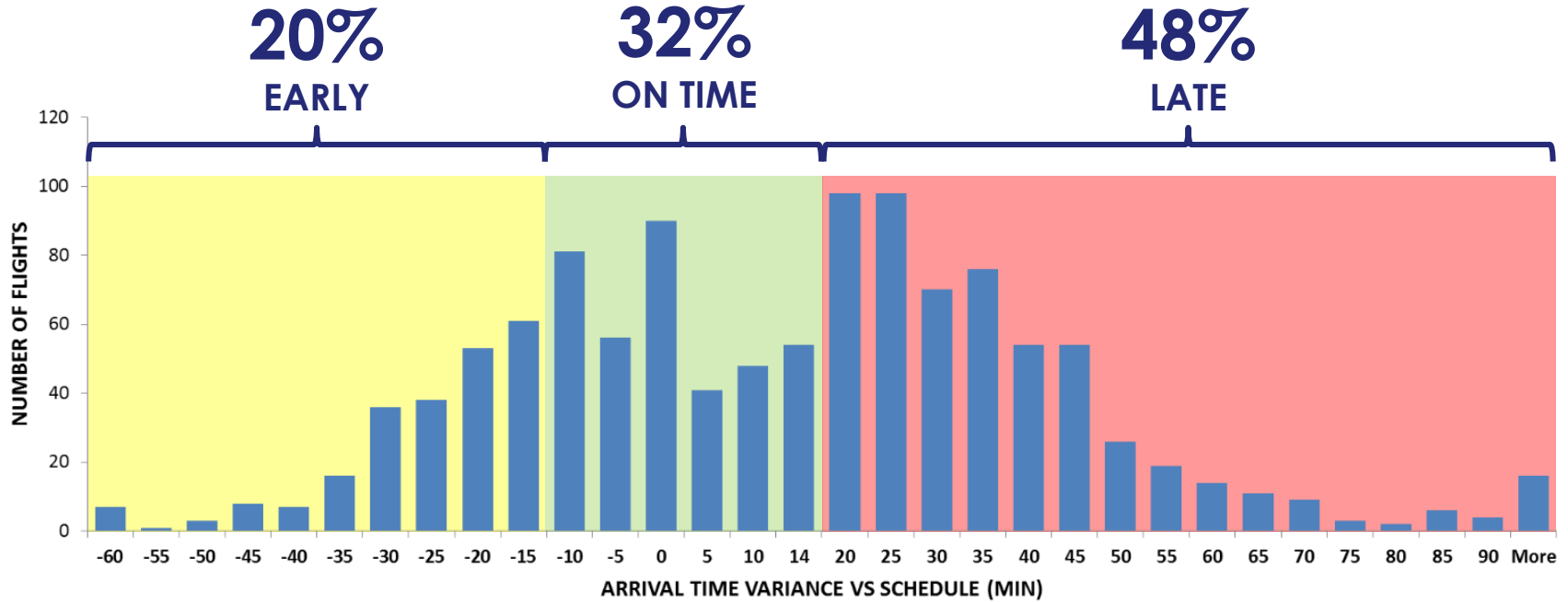
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# Demand on Aviation Resources Can Vary Substantially

## Ex. Airport Demand Variance Can Be Large Due to Flight Time Variance



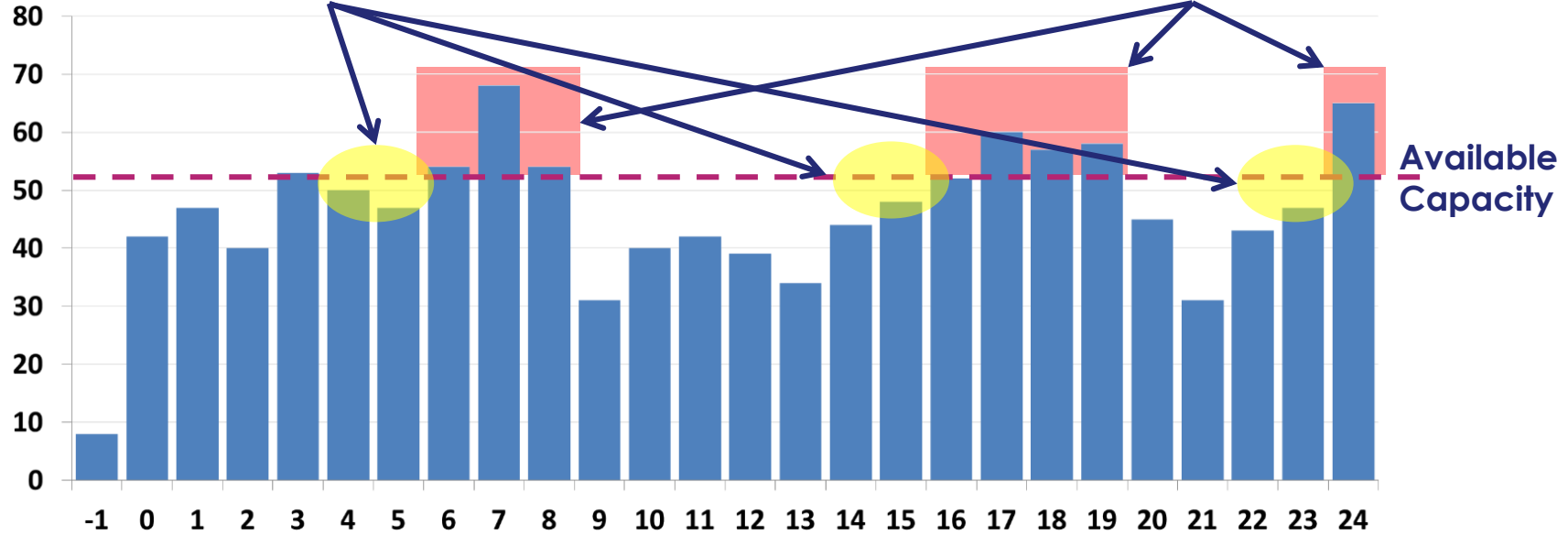
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**Flight Time Variance vs Nominal within the Seasonal Schedule, Schedule “Padding,” Congestion and Routine Operational Issues All Contribute To This Issue**

# Flight Time Variance creates Unexpected Imbalance

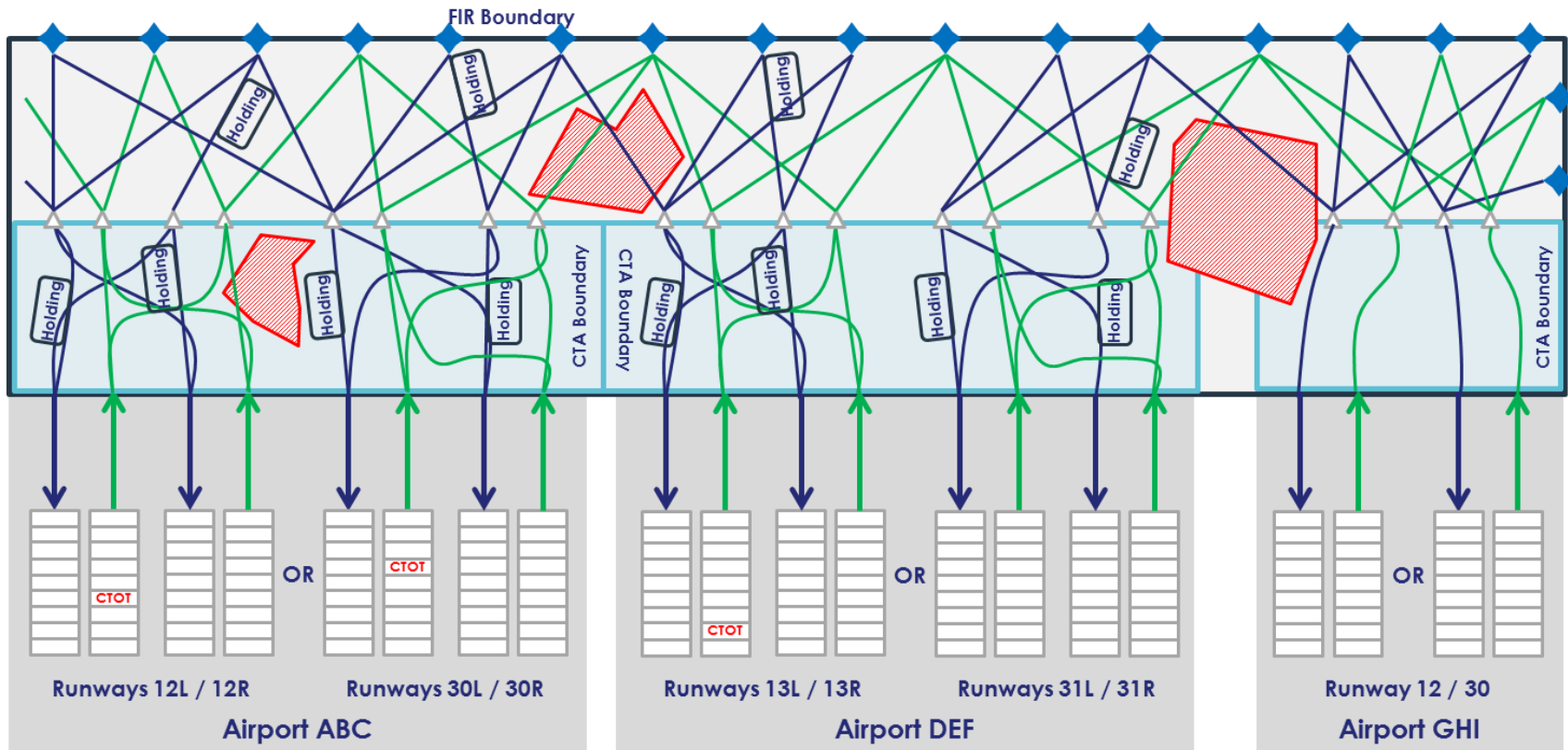
“Lost” Capacity Can Result Without Careful Monitoring & Management of Flows

Localized, unexpected traffic peaks resulting from flight variability which leads to overcapacity



ATFM Should Continuously Assess Demand/Capacity and Provide the Tools Needed to Support the System Stakeholders To Find the Best Solution To Any Imbalance

# Capacity of All Aviation Resources Should Be Measured & Managed



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# ATC's Data Problem...

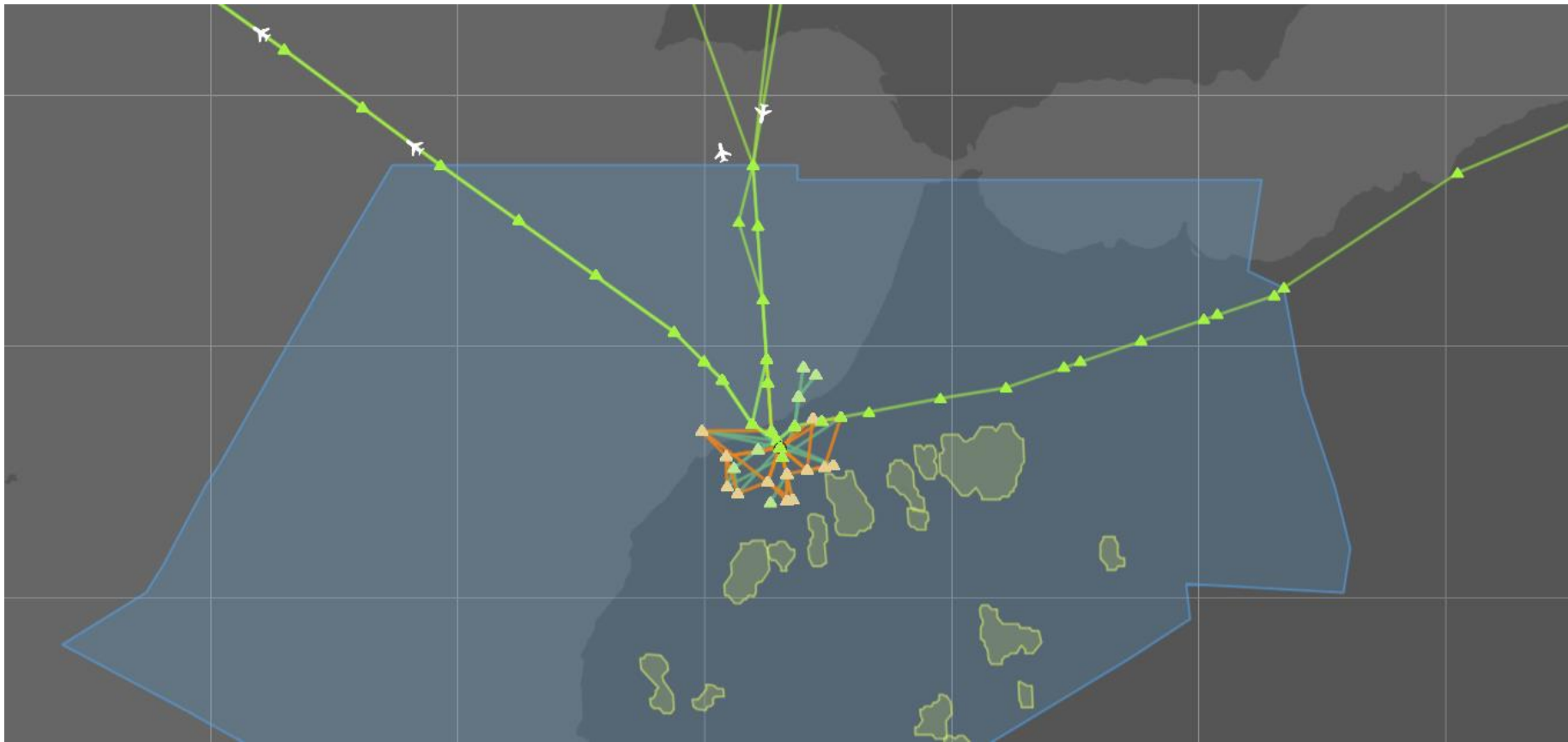
ANSPs Invest Billions Annually to Deliver Critical Data to ATCO's Screens to Ensure Flight Safety

Then Seconds Later, Most of That Data is Flushed Down the Drain Never To Be Used Again



# Leveraging SWIM & Global Data Sources To Enable Optimization

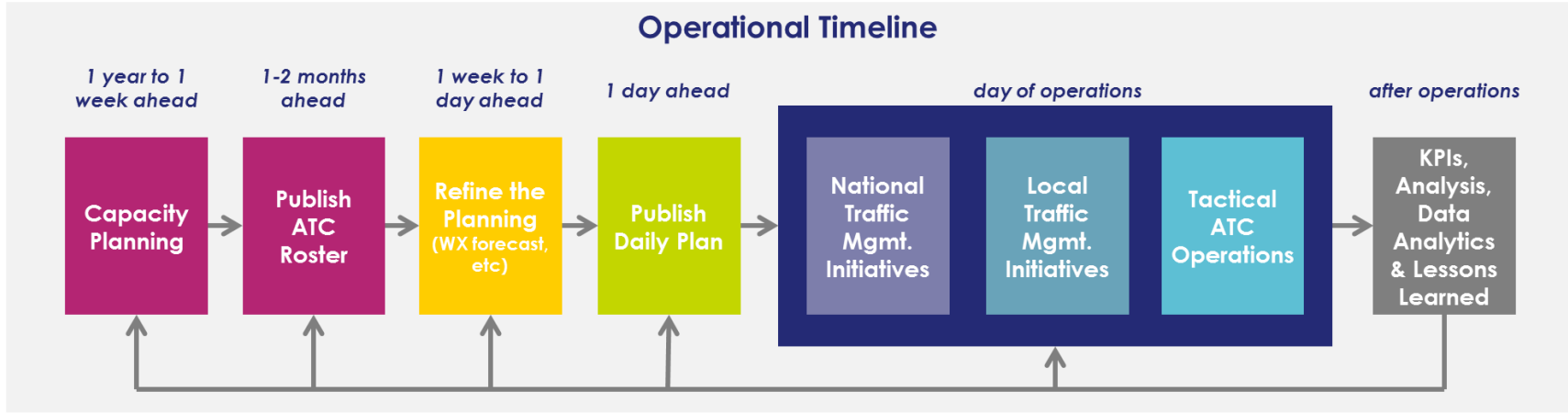
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# The ATC Planning & Execution Lifecycle



## ATFM Use Cases



**Different Tools** are needed for **Different Phases** of the lifecycle but should rely on **Common & Shared Data Sets**

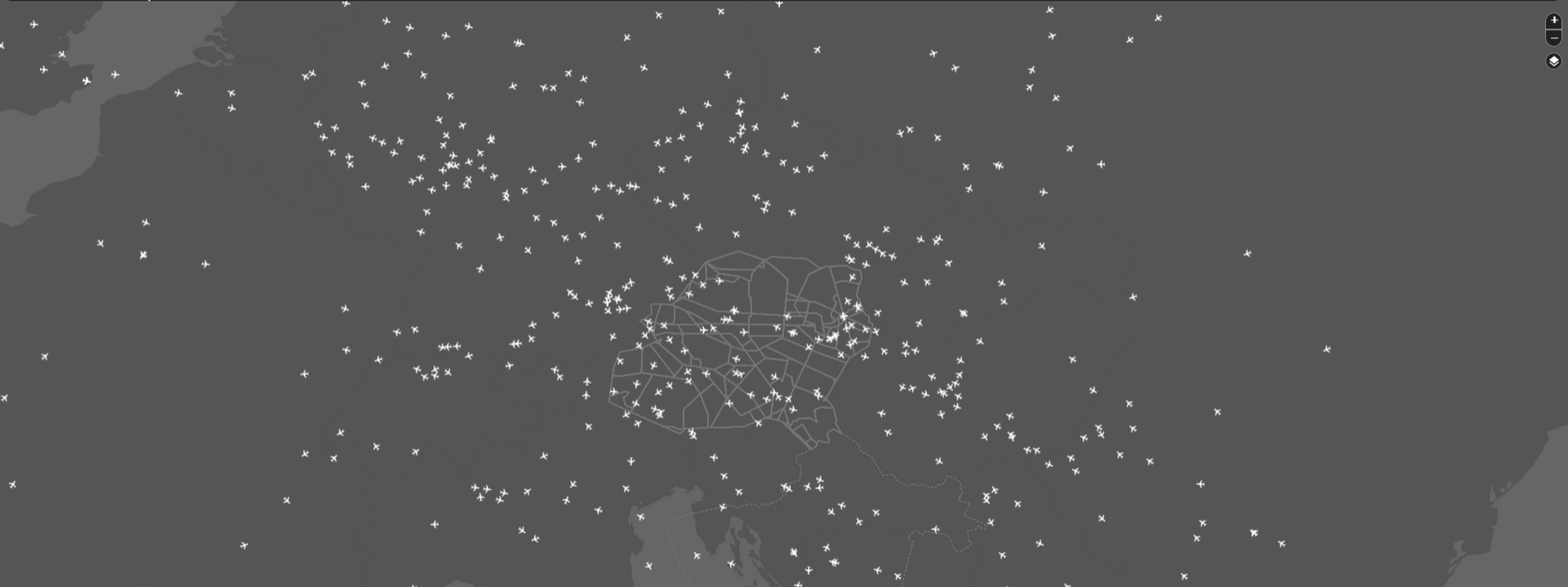
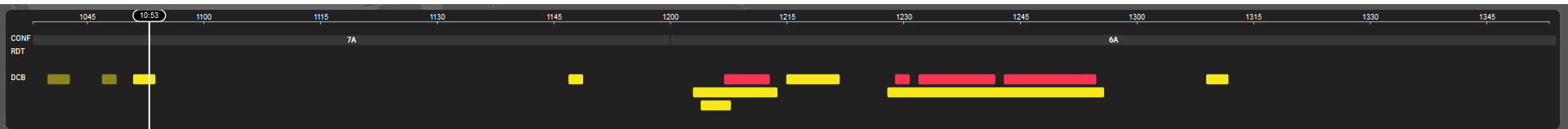
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## ECOSYSTEM

### ATFM

Demonstration:  
Pre-Tactical/Tactical Hotspot Detection & Resolution





**FMP ATFM Tools With Live Traffic and Forecast  
Based on Global Data Sources & Machine  
Learning Predictions**

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Demonstration:  
KPI Dashboard



# Example: KPI Dashboard

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Base / Base Dashboard -

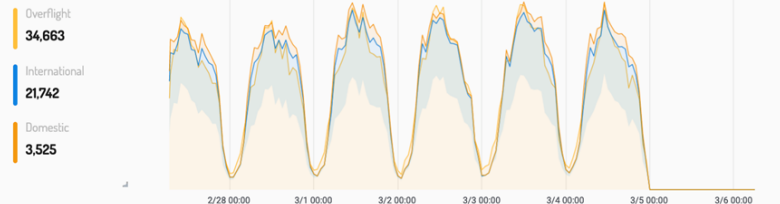
📊 ☆ 🗄 ⚙ 📄 🔍 Last 7 days ↻

DataSource Coopans Airspace All Airline All Airport All Filters +

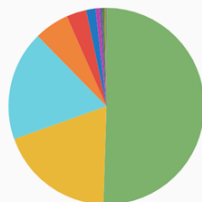
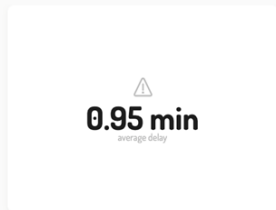
## Summary



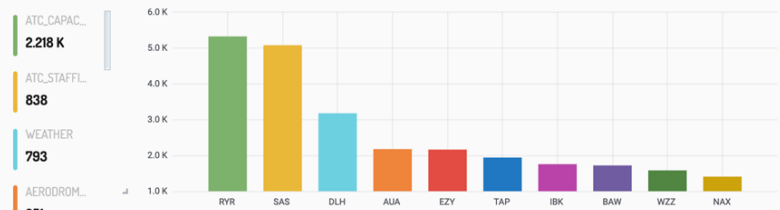
## Hourly type of flights



## Delay



## Airlines repartition



## All delays

11003

## Local regulation

8010

## Other regulation

3007

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*Together we can build the Digital Sky of the Future*