



International ATFM Activity

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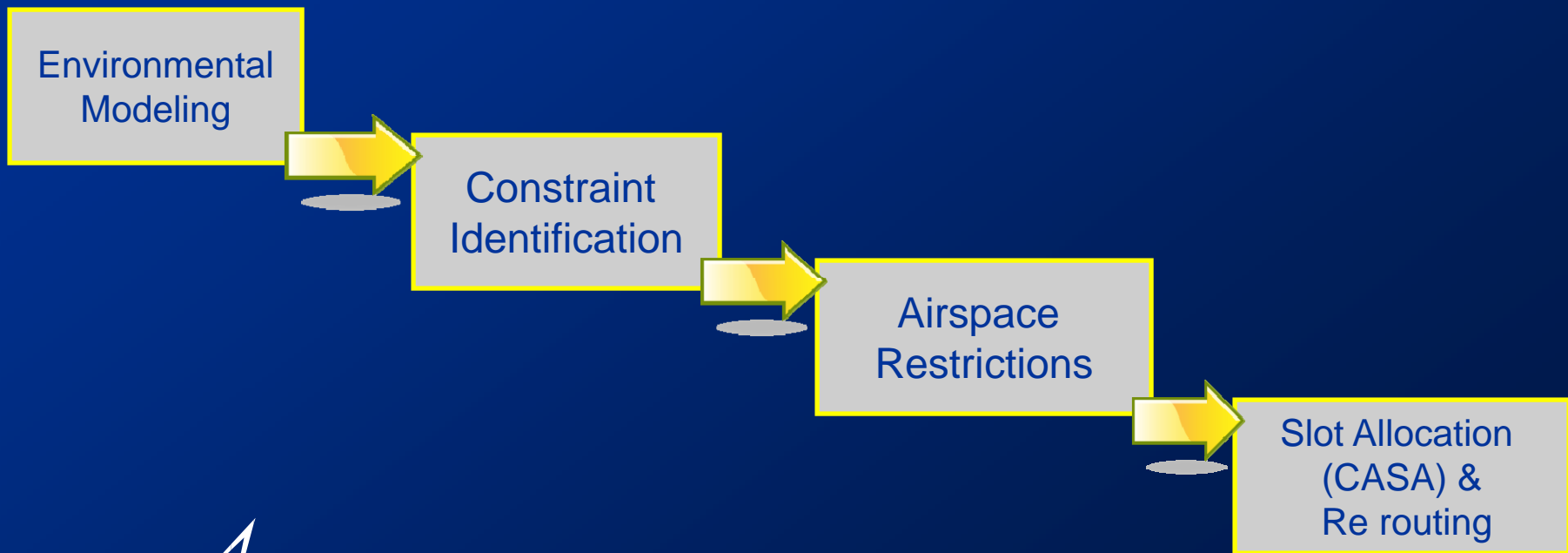
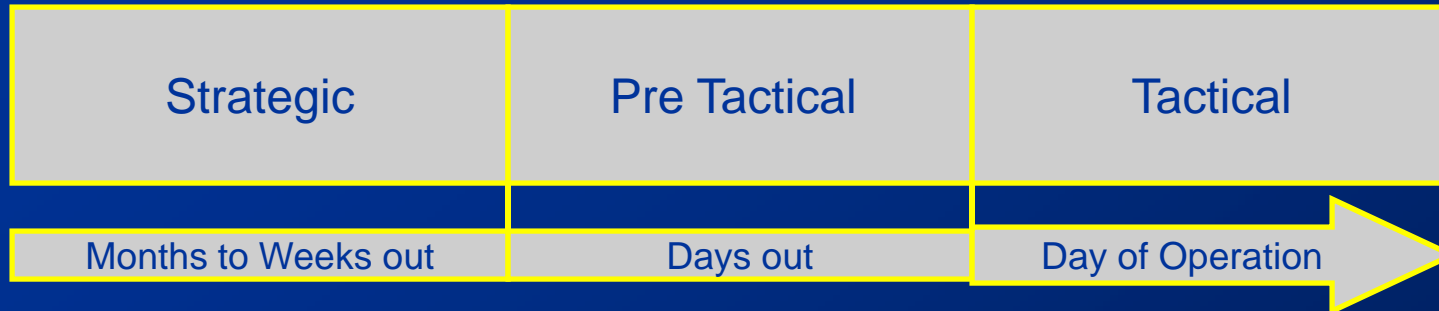


Outline

- **International ATFM Activities**
 - **Eurocontrol's Central Flow Management Unit (CFMU)**
 - **Key differences between CFMU and ATCSCC**
 - **Other initiatives**
- **NextGen and SESAR**
- **Collaborative Air Traffic Management Concepts and Solutions**
- **Conclusions**



EuroControl's CFMU Operations

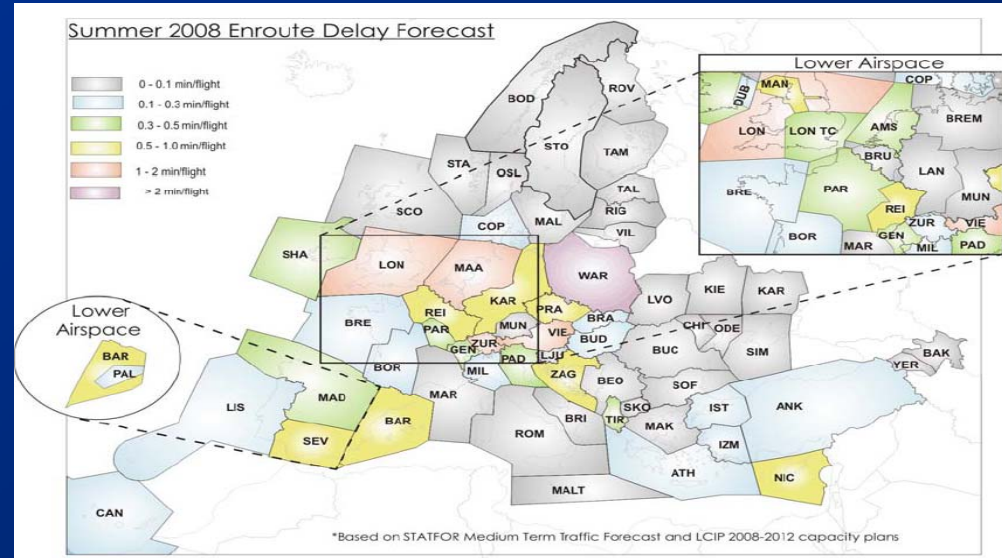


Key Differences Between CFMU and ATCSCC



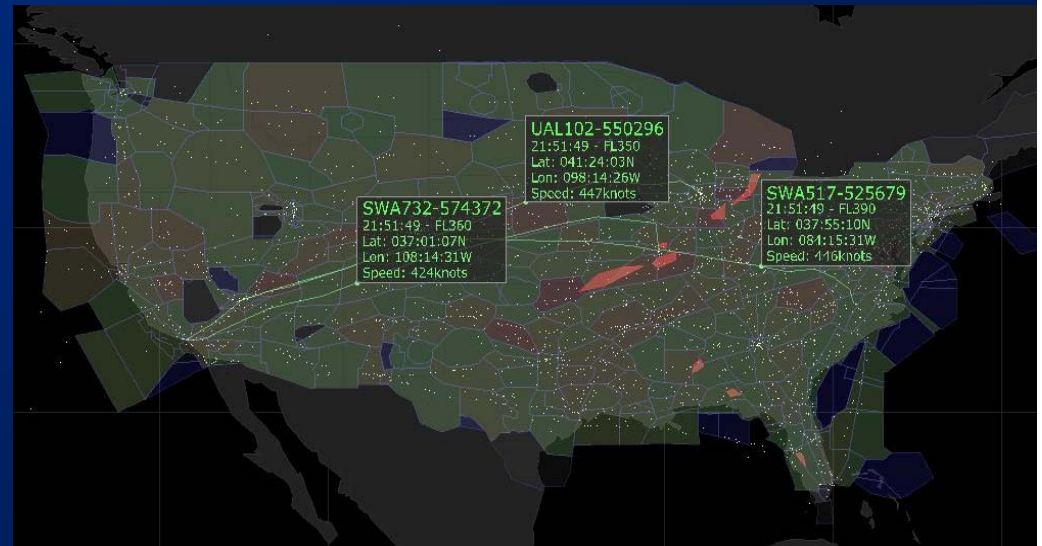
Central Flow Management Unit

- Coordinating capacities across European Nations
- Many countries with independent national systems
- Weather – Fog



Air Traffic Control System Command Center

- Convective Weather
- Number of Operations
- Pop up Traffic – General Aviation and Business Jets





Other Initiatives

- **ICAO – ATM Operational Concept**
 - **ATFM is a key priority**
 - **ATFM task force**

- **IATA – One Sky**

- **Airport Collaborative Decision Making**
 - **Zurich Airport**
 - **Munich Airport**
 - **Amsterdam Airport**

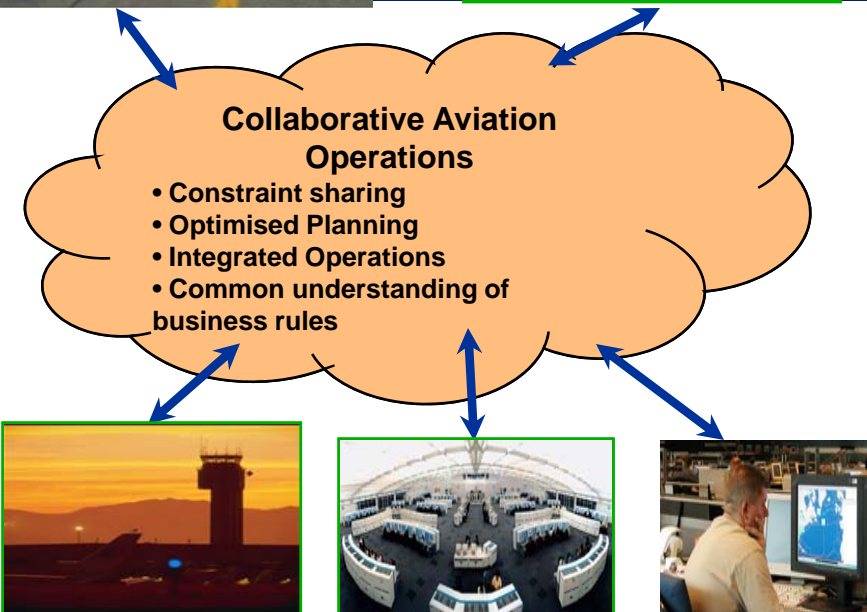


NextGen and SESAR

The strategy driving NextGen and SESAR is:

- **Trajectory Based Operations**
- **Collaborative ATM**
 - User Preferred Trajectories
 - Maximise operators ability to resolve constraints
 - Equitable allocation of resources across stakeholders
 - Traffic Flow Optimization

Collaborative Air Traffic Management





Challenges Ahead

There is a technology gap

- **How do we provide common view of capacity constraints ?**
 - » Environment is uncertain (weather and operational)
- **How are we going to enable user preferred trajectories?**
- **Don't forget traffic growth?**
- **Ensuring equity?**



Future of TFM/CDM in NextGen and SESAR



Many research and development activities are underway around the world

Europe

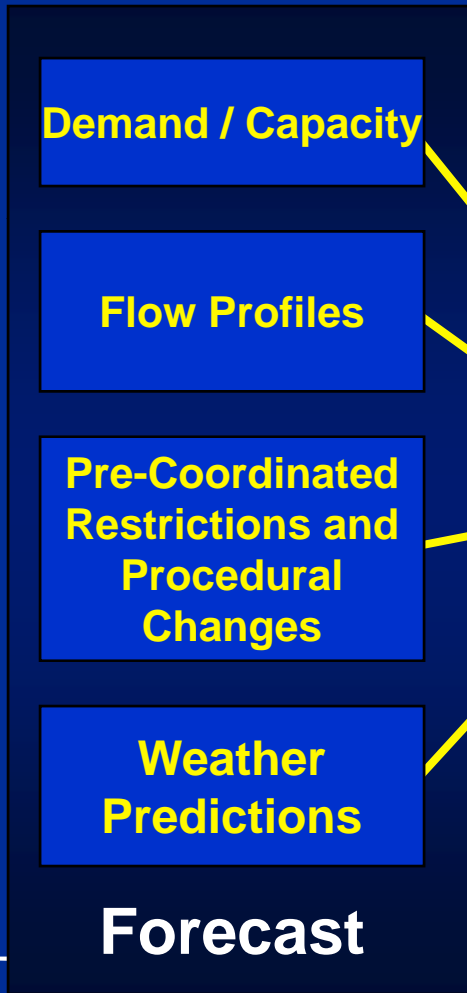
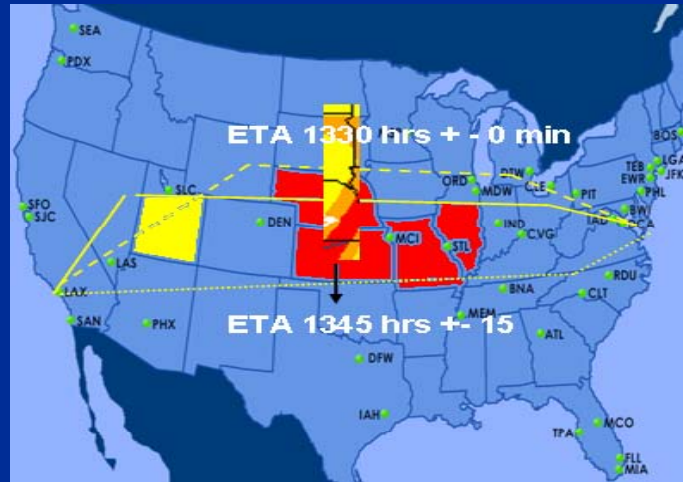
- EuroControl Experimental Center
- National Aerospace Lab (NLR)
- DLR
- AENA

United States

- FAA CDM Working Group
- NASA AMES
- MITRE
- Volpe
- Industry



Example – A Simulation Based Approach

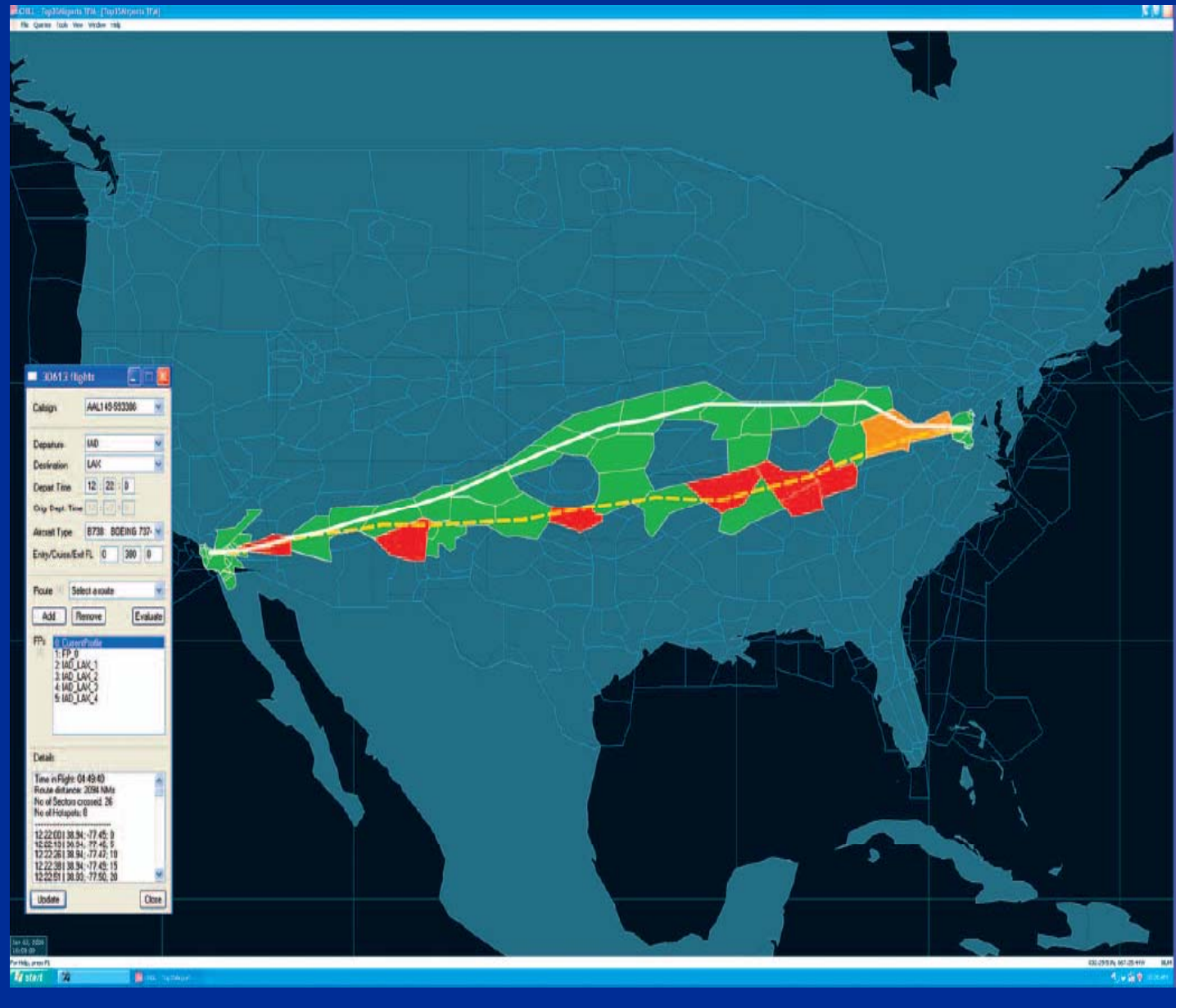


Planning against Constraints



Efficient

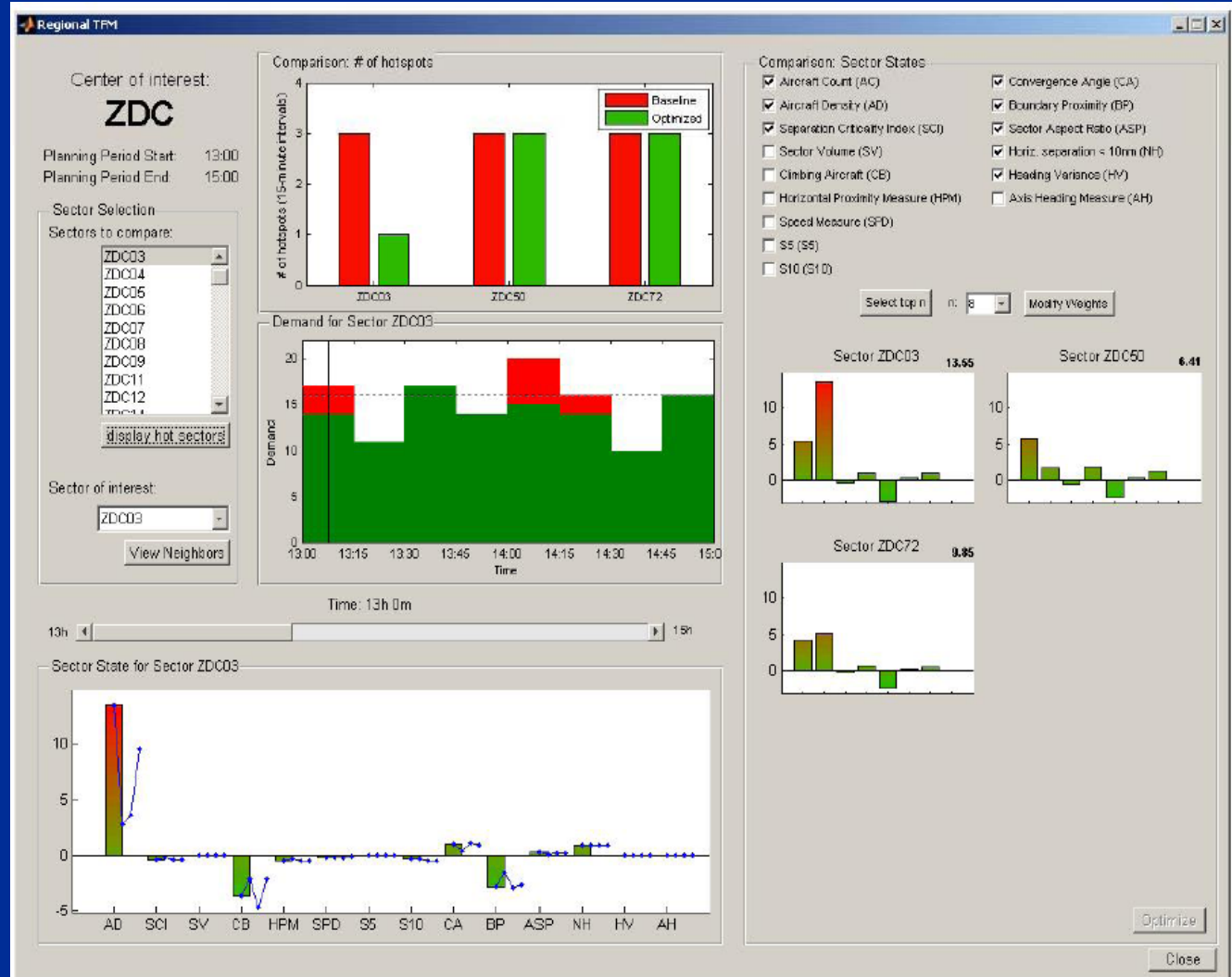
- Flow Planning
- Flight Planning



Managing Traffic Complexity



- Balancing Controller Workload
- Maximising Sector Throughput



Patent Pending

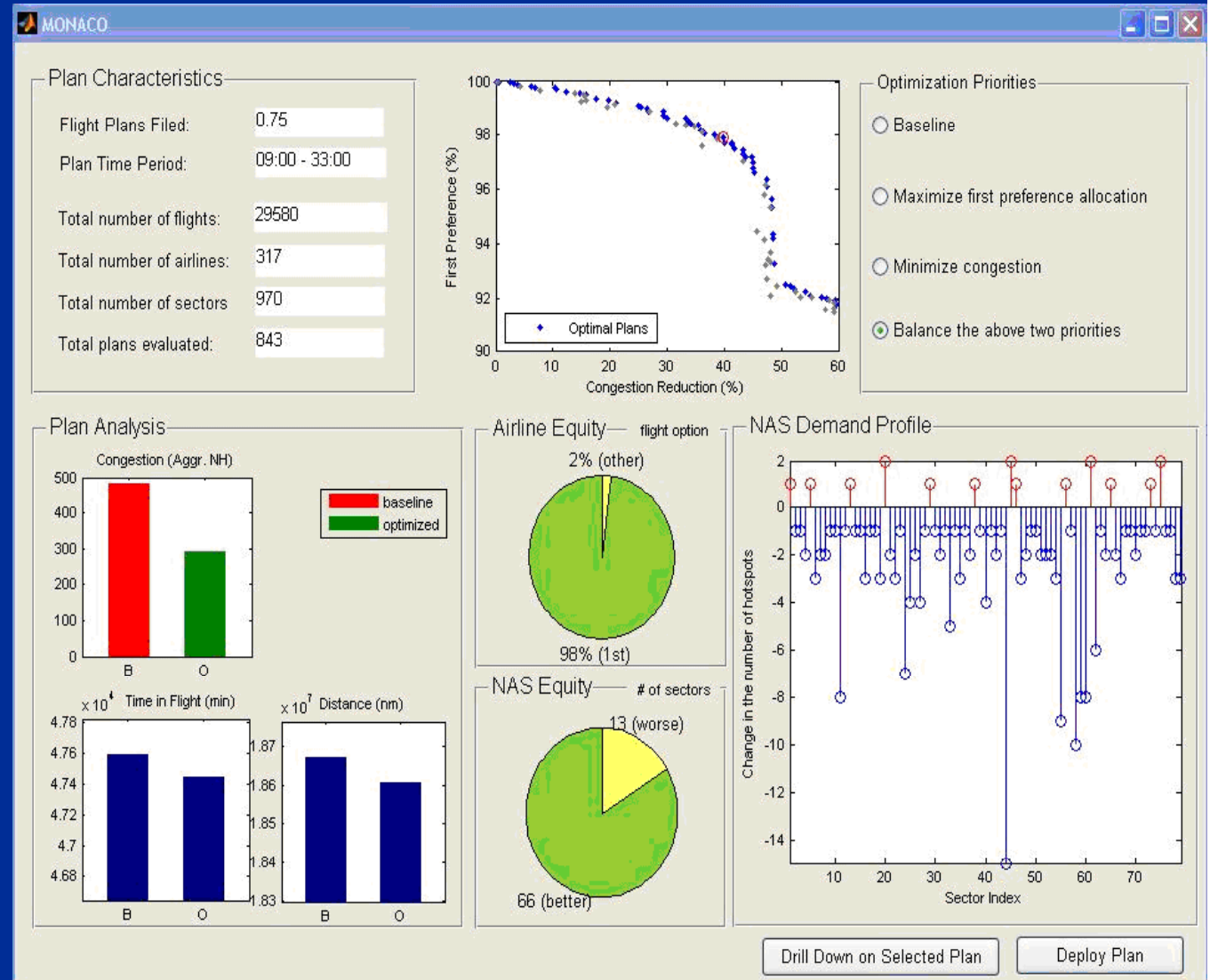




Managing User Preference

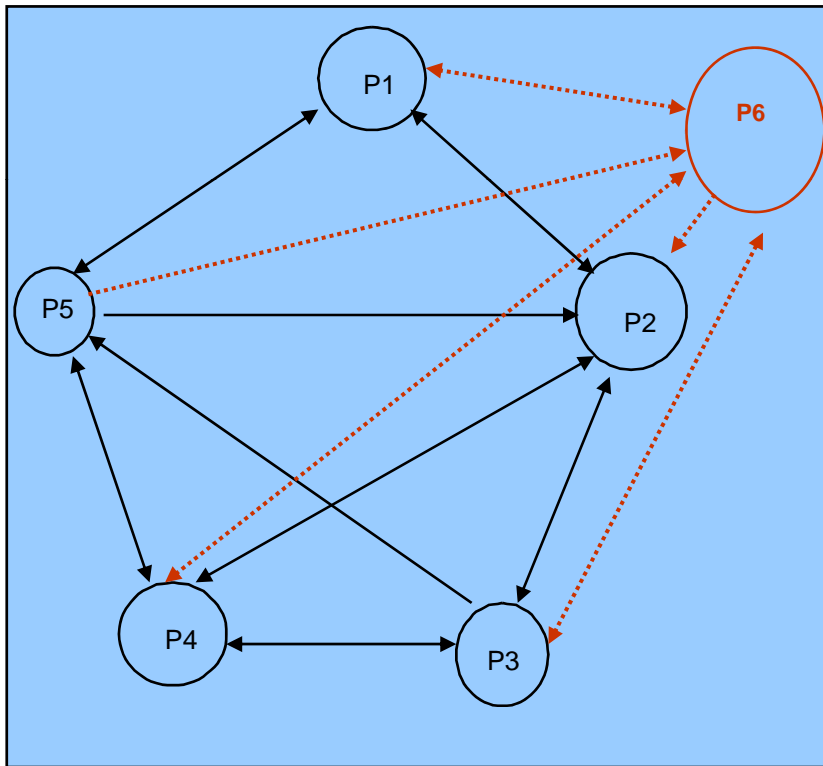
- **Balancing congestion and user preference**

- **Equitable allocation of resources**

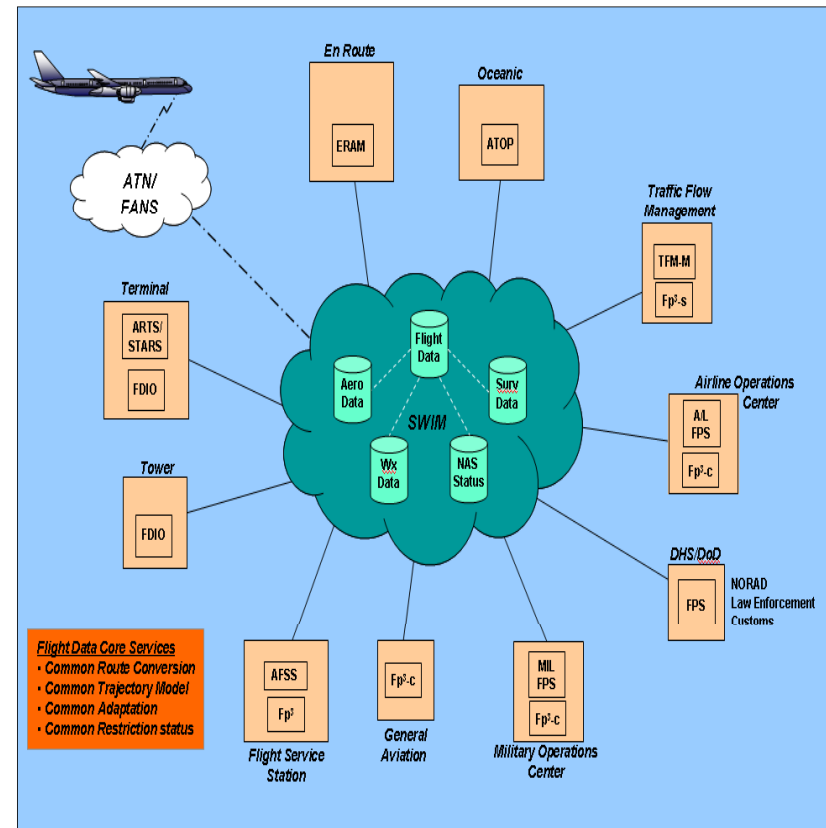


System Wide Information Management (SWIM)

Today's Environment is too Restrictive



Flight Data – SWIM Environment





Concluding Remarks

- **ATFM/CDM concepts around the globe are complimentary**
 - Driven by capacity and fuel efficiency concerns
 - Similar concepts tailored to fit different environments
- **Next Gen and SESAR are OPERATOR driven**
- **Infrastructure like SWIM is a key technology enabler**

Thank You



Discussion

