National Aeronautics and Space Administration

Overview of Dynamic Airspace Configuration

Karl Bilimoria
NASA Ames Research Center

Airspace Systems Program
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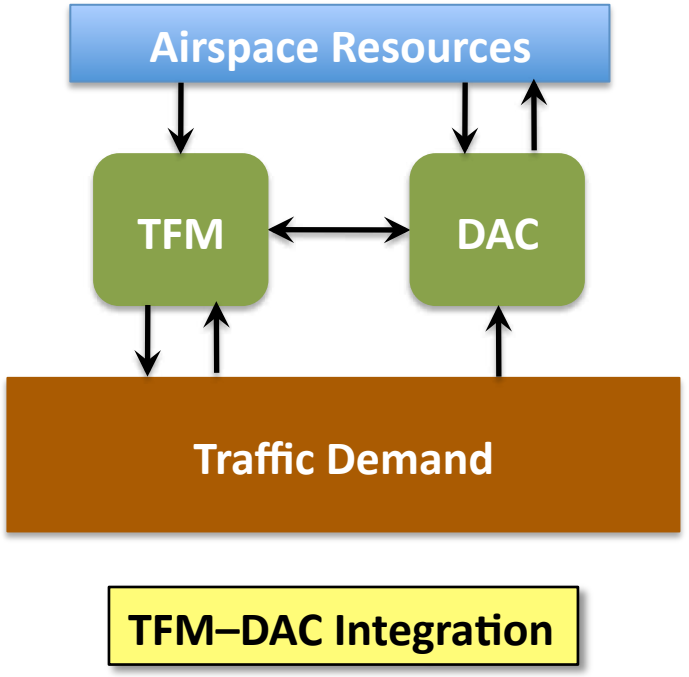
Background

- Dynamic Airspace Configuration and Traffic Flow Management are complementary aspects of airspace supply-demand relationship
  - TFM modifies traffic demand to match available airspace resources
  - DAC modifies airspace resources to accommodate traffic demand

- DAC research areas
  - Restructured airspace
  - Generic airspace
  - Adaptable airspace

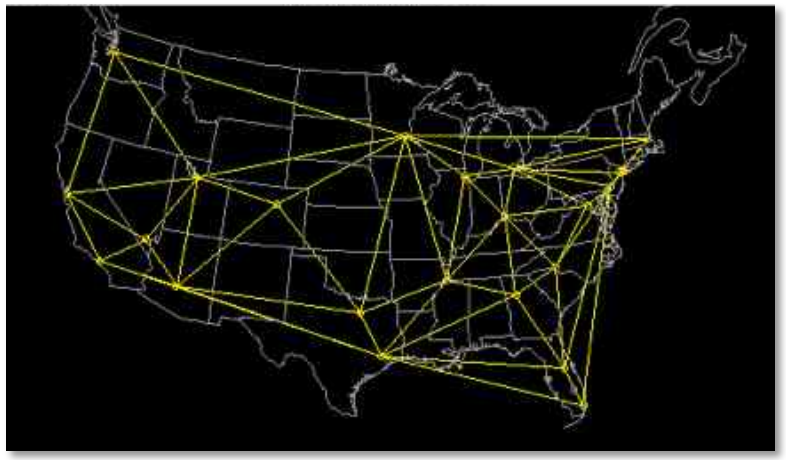


Restructured Airspace

- Design new classes of airspace to provide user benefits

- Segregate traffic with different equipage/characteristics
  - Tube network can give priority to high-equipage aircraft
  - Flexible transition corridors can accommodate new types of vehicles such as unmanned aircraft systems (UAS) and commercial spacecraft

- Key questions
  - What operational concepts can provide system-level benefits?
  - What are the appropriate equipage requirements and mix for tubes?



Tube Network

Generic Airspace

- Simplify airspace control functions to provide staffing flexibility

- Controllers currently need specialized knowledge of sectors
  - Examples: handoff frequencies, flow patterns, crossing restrictions
  - Certified on ~6 sectors in their Area of Specialization

- Key questions
  - How can we remove the need for some specialized information?
  - How should we present necessary specialized information to controllers?

Controller Information Tool

Adaptable Airspace

- Dynamically adjust sector boundaries to accommodate:
  - Time-varying traffic volume/complexity
  - Modified traffic flows due to weather re-routing

- Key questions
  - What are the appropriate criteria for airspace design?
  - When and how should the sector boundaries be adjusted?

- Both questions have algorithmic and human factors aspects

Airspace Design Tool

Presentations

- **Comparing Airspace Design Methods**
  Shannon Zelinski

- **Benefit of Regional Airspace Reconfiguration in the Presence of Convective Weather**
  Jaewoo Jung

- **Airspace Design and Assessment Tools**
  Tom Prevot

- **Flexible Airspace Management**
  Paul Lee

- **The Sector Combining Advisory Algorithm**
  Michael Bloem

Questions?

For more information on DAC research, contact:

Karl Bilimoria

karl.bilimoria@nasa.gov

(650) 604-1638