Traffic Flow Management in the National Airspace System

System Operations and CDM

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Presented to:
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Presented by:
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FAA
Air Traffic Organization

System Operations

Our Mission

Our continuing mission is to provide the safest, most efficient aerospace system in the world.

Our Vision

We strive to reach the next level of safety, efficiency, environmental responsibility and global leadership. We are accountable to the American public and our stakeholders.

Traffic Flow Management

Traffic Flow Management (TFM) is the process used to balance air traffic demand with airspace capacity

The FAA Challenge

During peak periods there are typically 6,000-7000 aircraft operating in the National Airspace System (NAS); about 55,000 aircraft operations daily.

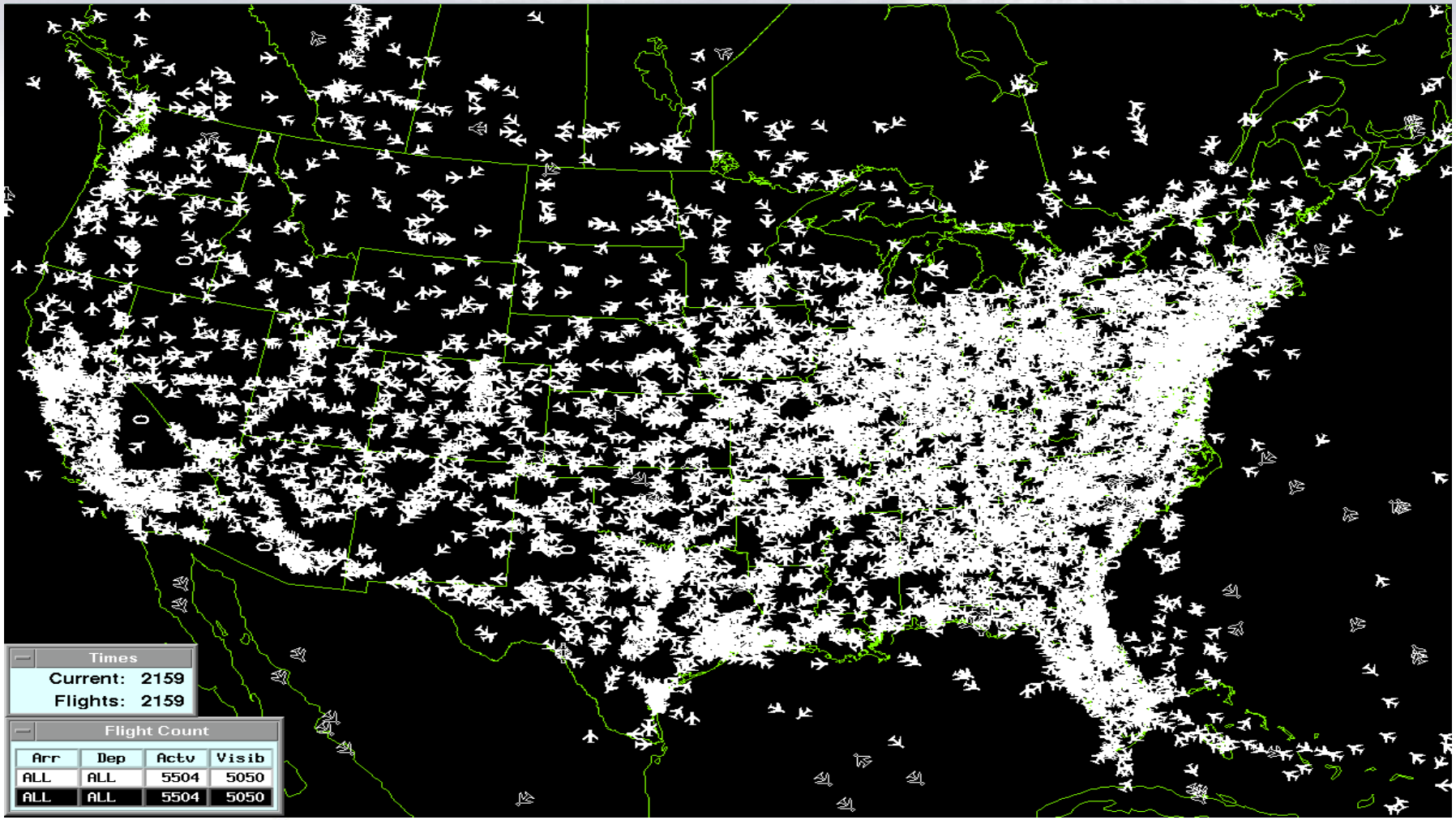

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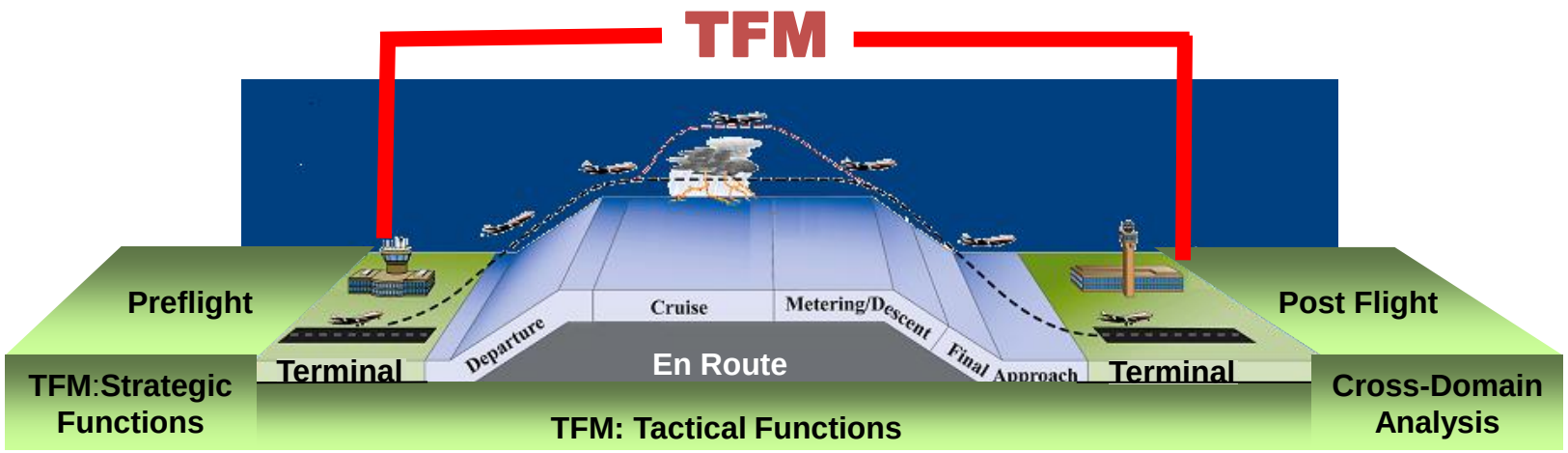
Illustration of Traffic Flow Management (TFM)

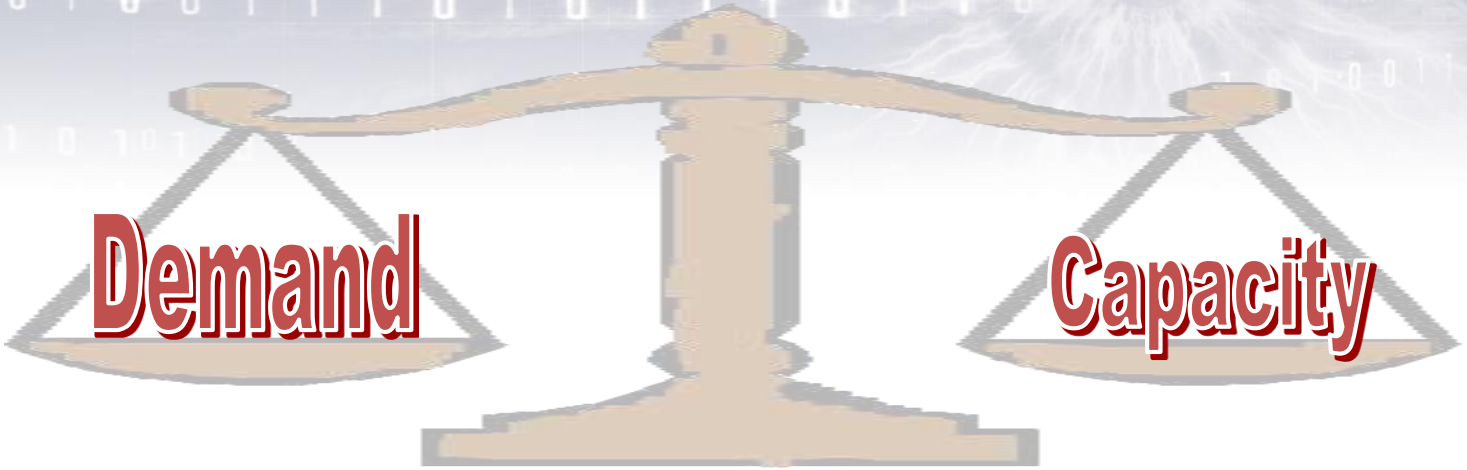
Improved quality of service to our customers

Maximized efficiency and system throughput across the NAS

Identify the problem, evaluate alternatives, select and implement the solution



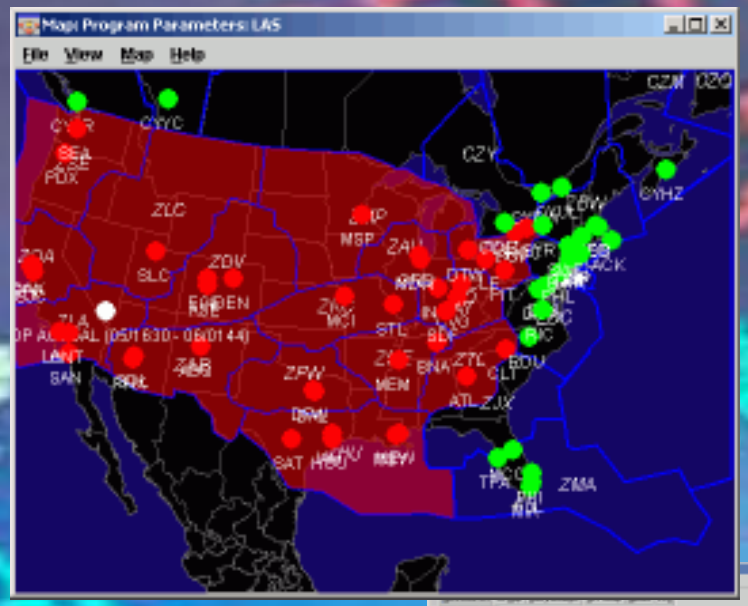
SYSTEM OPERATIONS

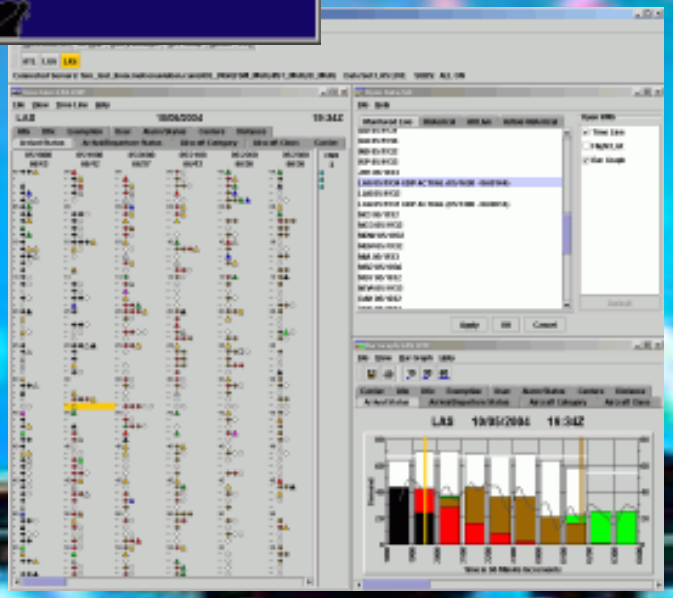


- **Deliver the value and high quality services that our customers want.**
- **Provide safe, secure, and cost effective Air Traffic services**
- **Create a professional workplace for our employees to excel and be innovative**
- **Be accountable for our performance**

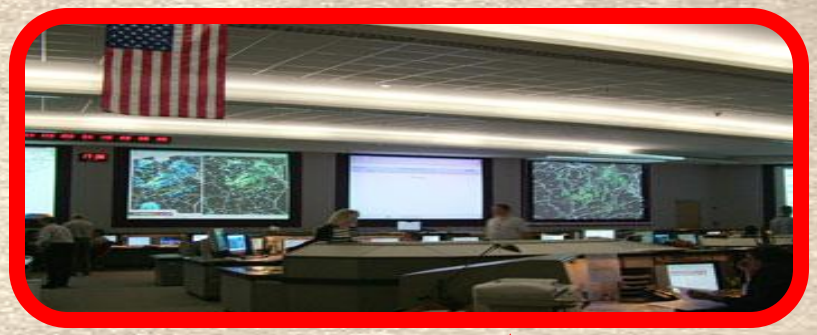
Ensure equity in the delivery of air traffic services

How is Traffic Management different from Air Traffic Control?





The ATCSCC has final approval authority for all national traffic management initiatives



The Traffic Management Hierarchy


ATCSCC
Strategy
ARTCC's & Terminal
TMU's
Tactics
ATCS's
Implementation


How many aircraft are impacted?
What time is the expected impacted?
What tools are available?
What equipment is available?
Have the customers been collaborated with?

Collaborative Decision Making (CDM)

Philosophy

Embraces partnership, combines the talents and experiences of all individuals, and facilitates the harmonization and globalization of the world's airspace system

Process

Sharing data to create a common view of the ATFM system from which to base decisions, and including ATFM stakeholders in the decision-making process

CDM Collaborative Tools

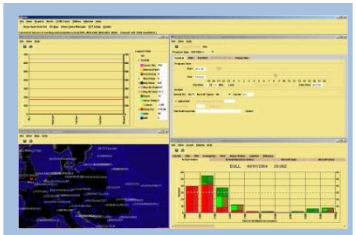
-Integrates Data to Enhance Decisions-

Common Situational Awareness between Stakeholders and ATC allows for integration of data from all sources to make a more informed, "**Better"** decision

- Integration of ATC and Airline Data to provide a "Big Picture"
- Improved Situational Awareness, Enroute & Airport Flow Tools, Real time information & Uniform Reaction to system impacts, Analysis –lessons learned

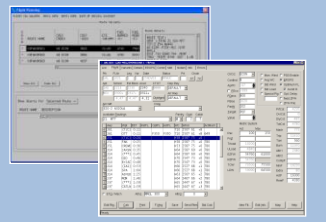
Flight Following, Weather, & Decision Support Tools

Proactive Flight & Weather data Common understanding



Enroute & Airport Flow Tools for flow management

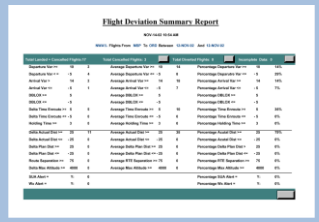
Monitor flows, predict delays, optimize response to impacts



Flight Planning changes, OIS & NTML Mgmt. Tools

Optimized plans

Shared info & responses to System impacts



Event Analysis Tools for Real-time & historical performance

Data & Analysis

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Collaboration with Customers

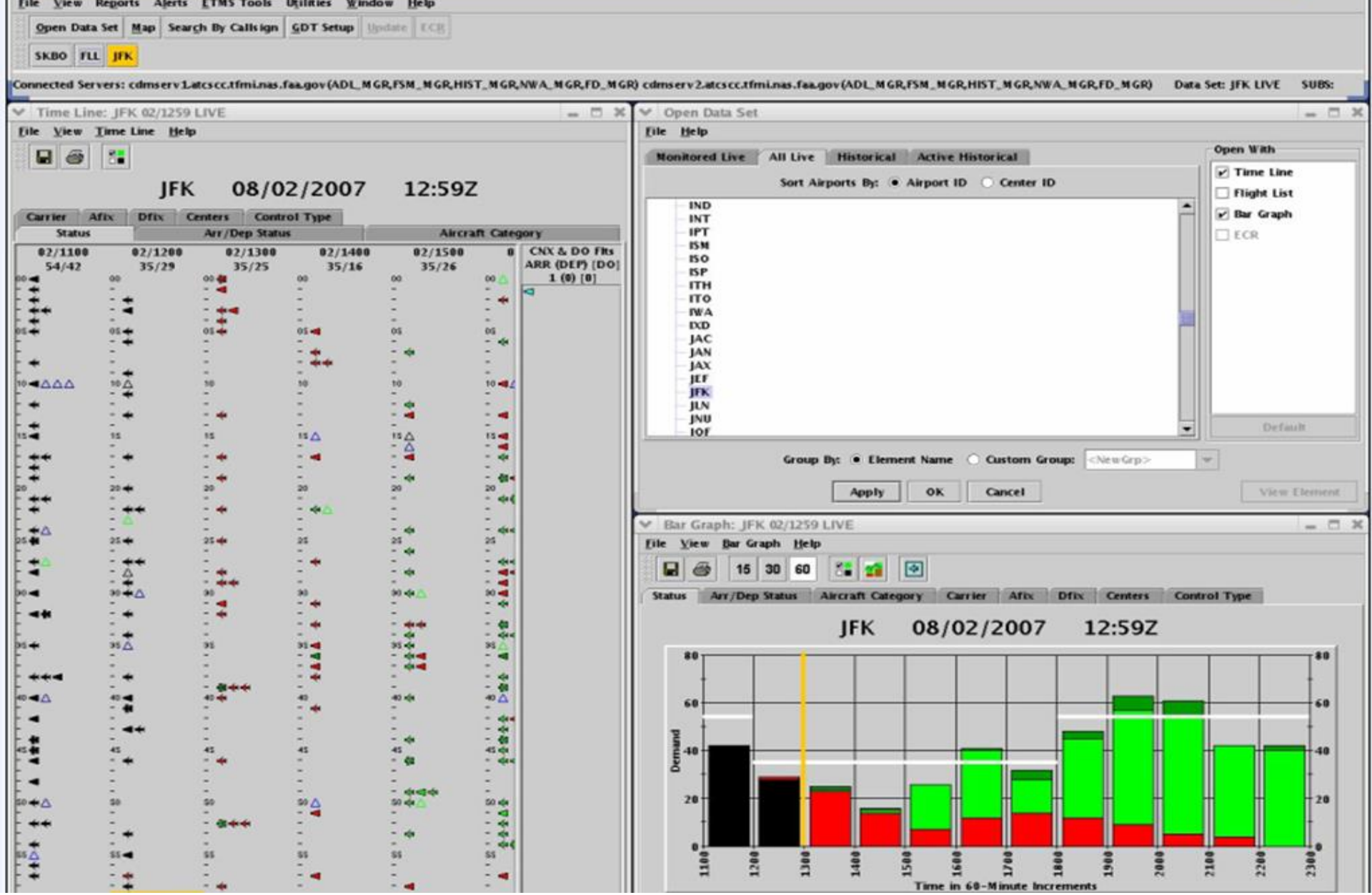
- Operational telcons with facilities and customers prior to implementing TMIs
- Operational strategic planning webinar every two hours
- National System Review conducted daily
- National Customer Forum conducted monthly
- National Airspace System Performance Review conducted annually

Traffic Management Initiatives (TMI)

- TMIs are used to balance demand with capacity (i.e., GDP, AFP, GS)
- Always seek the least restrictive TMI
- Any TMI creates an impact on our stakeholders

Traffic Management Initiatives (TMI)

Altitude – used to segregate different flows of traffic
Miles/Minutes in trail – used to increase spacing between aircraft
Airborne holding – used to ensure aircraft are available to fill the capacity at an airport
Reroutes – routes other than the filed flight plan issued to ensure aircraft operate with the "flow" of traffic
Ground Delay Programs – aircraft are delayed on the ground in order to manage capacity and demand at a specific airport
Airspace Flow Programs – aircraft are delayed on the ground in order to manage capacity and demand for a specific area
Ground Stops – aircraft are delayed on the ground until the ground stop is cancelled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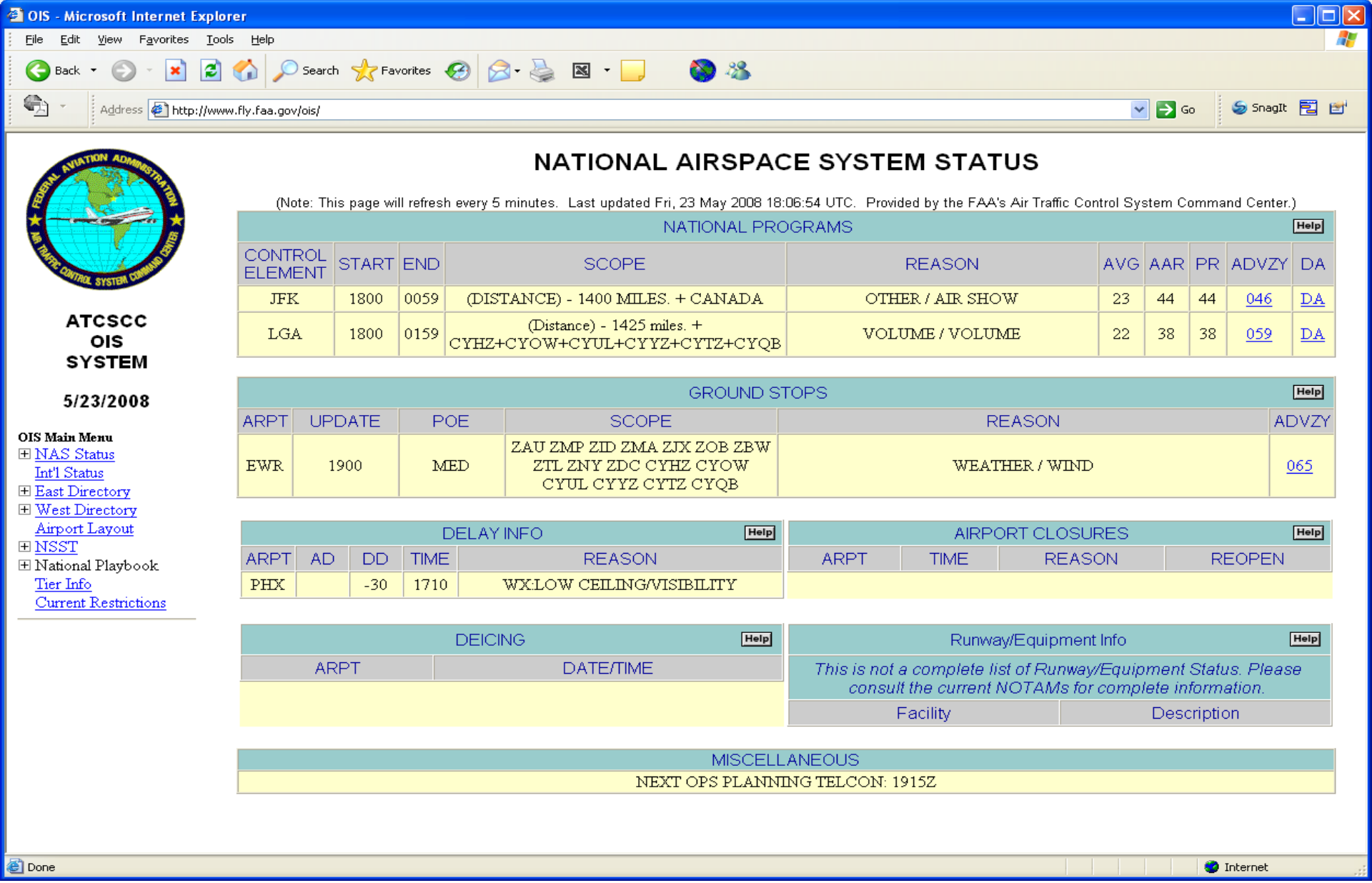
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West Directory
Airport Layout
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National Playbook
Tier Info
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NATIONAL AIRSPACE SYSTEM STATUS
(Note: This page will refresh every 5 minutes. Last updated Fri, 23 May 2008 18:06:54 UTC. Provided by the FAA's Air Traffic Control System Command Center.)
NATIONAL PROGRAMS
Help
CONTROL ELEMENT | START | END | SCOPE | REASON | AVG | AAR | PR | ADVZY | DA
JFK | 1800 | 0059 | (DISTANCE) - 1400 MILES. + CANADA | OTHER / AIR SHOW | 23 | 44 | 44 | 046 | DA
LGA | 1800 | 0159 | (Distance) - 1425 miles. + CYHZ+CYOW+CYUL+CYYZ+CYTZ+CYQB | VOLUME / VOLUME | 22 | 38 | 38 | 059 | DA
GROUND STOPS
Help
ARPT | UPDATE | POE | SCOPE | REASON | ADVZY
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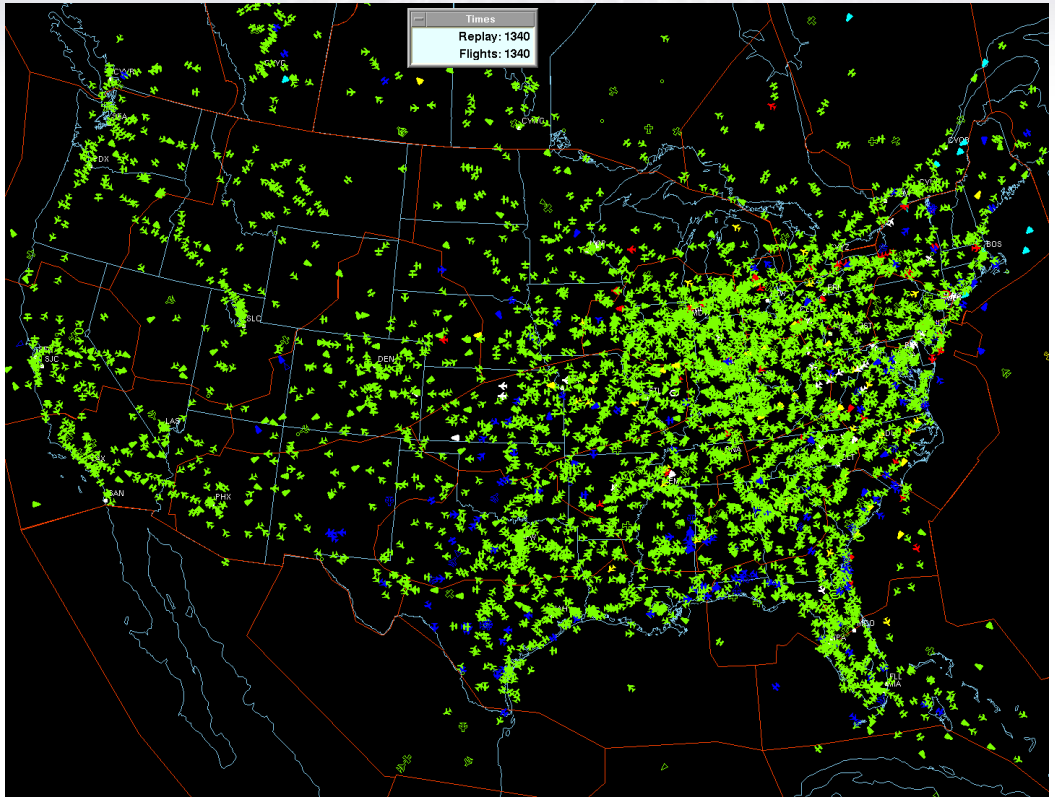
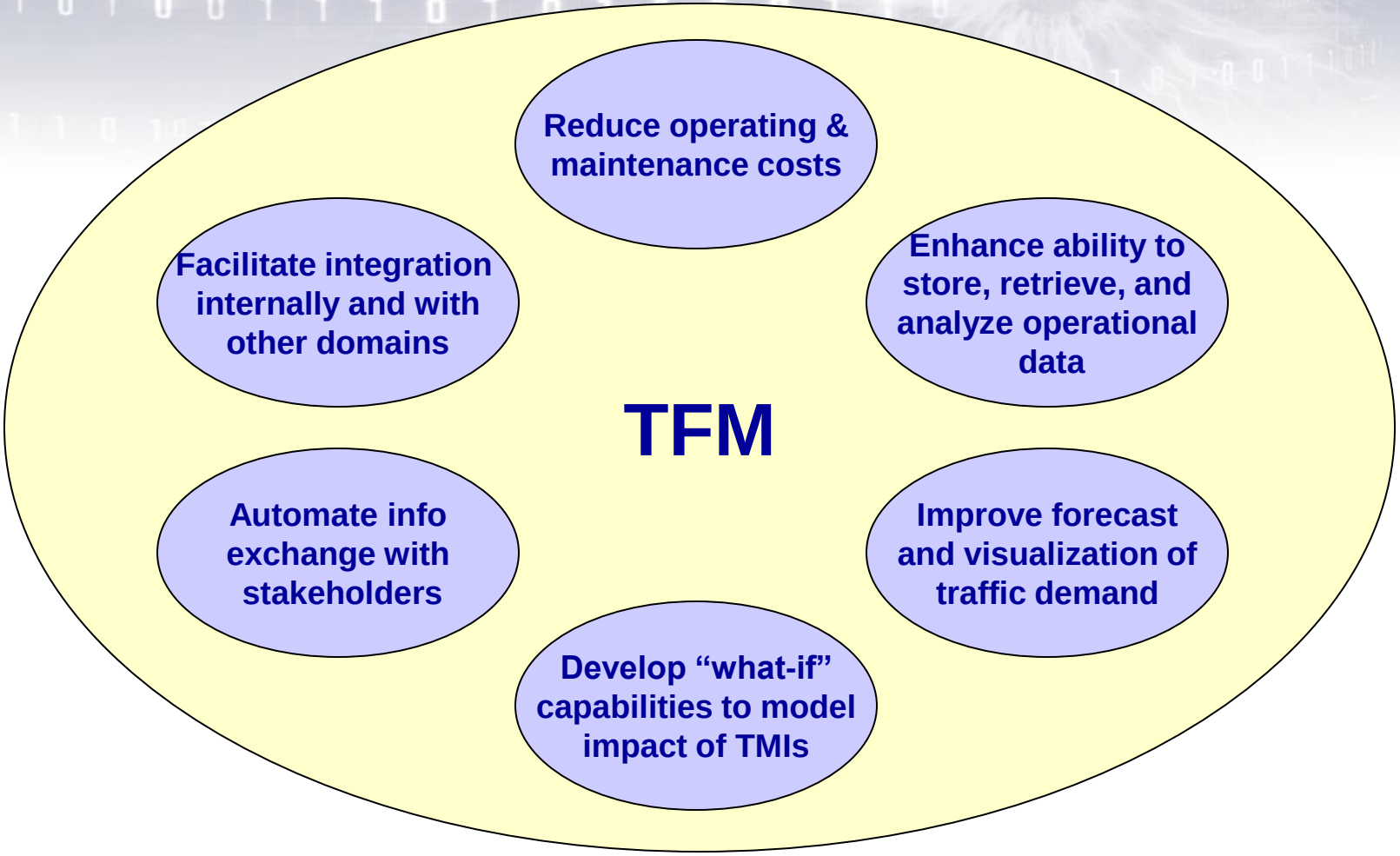
The Benefits and Need for Traffic Flow Management

- The US National Airspace System is again approaching saturation.
- Projections for growth exceed any foreseeable increase in capacity; without intervention, the NAS will be gridlocked.
- Traffic Flow Management (TFM) solutions help mitigate congestion and gridlock; increase the predictability and productivity of the system; and ensure maximum utilization of NAS capacity.



Improvements Enabled by Traffic Flow Management



Additional Enhancements for TFM

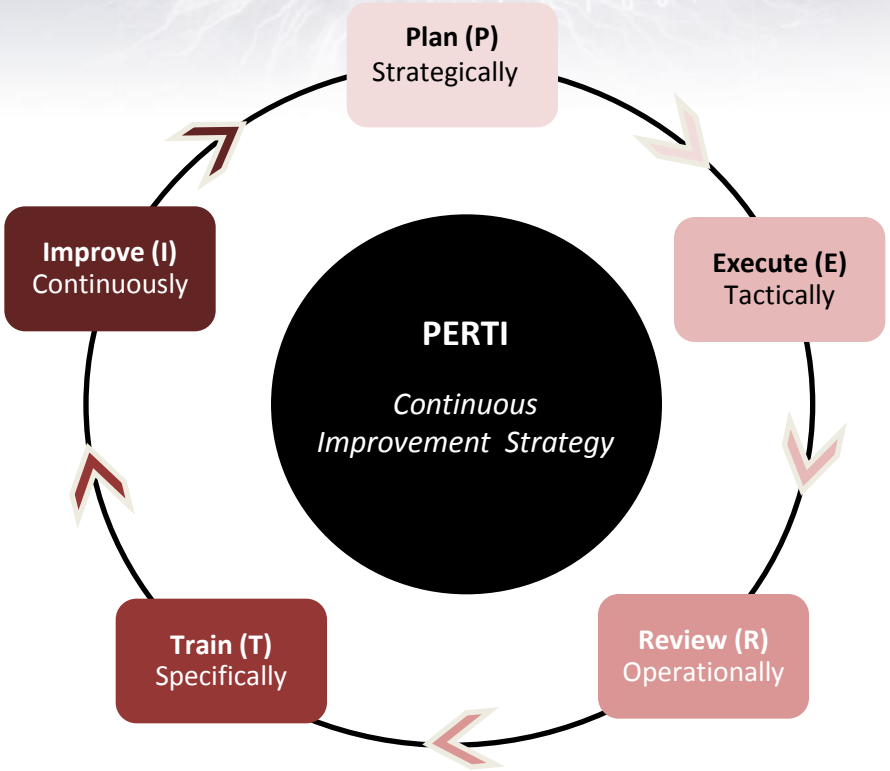
PERTI

- Plan
- Execute
- Review
- Train
- Improve

Program Overview

What is PERTI?

- NAS–wide initiative
- Next phase of the System Operations Continuous Improvement Strategy
- Involves resources, processes, and analytics
- Enables System Operations to become more strategic and proactive to improve current trends



Program Overview

What does PERTI involve?

PLAN

- Expand and align the planning horizon to better prepare for predictable events mitigating impacts

EXECUTE

- Execute the pre-tactical plan to serve as the basis of daily operations

REVIEW

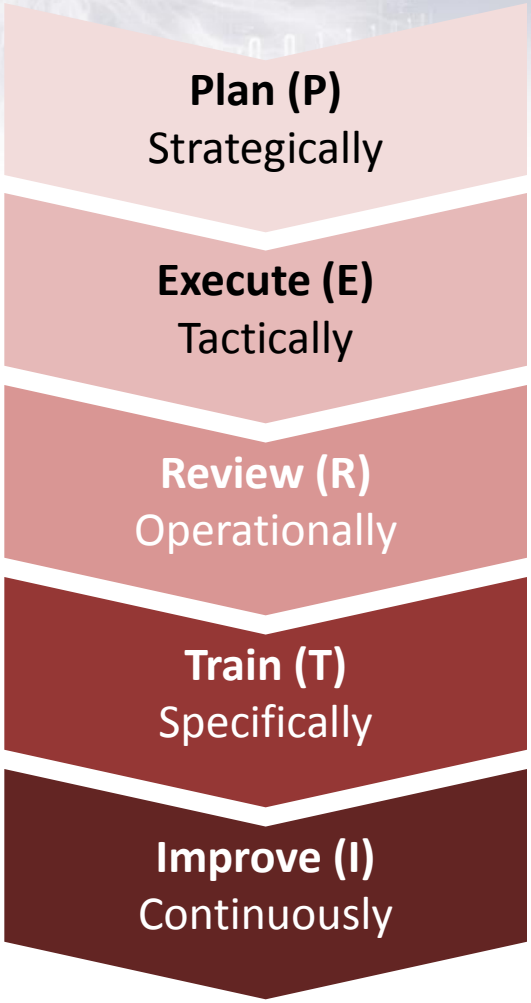
- Develop operational insights using data, metrics, and tools to expand the institutional knowledge

TRAIN

- Use the information gained through the Review process to specifically customize appropriate training on process and systems

IMPROVE

- Measure new capabilities and system performance with key metrics and integrate lessons learned into the operation to continuously refine and improve processes



Program Overview

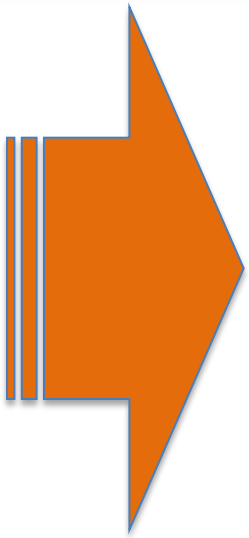
How will PERTI help?

- Provide required resources to enhance strategic planning
- Expand the planning horizon and align strategic processes
- Provide timely collaboration to solve operational challenges
- Provide a mechanism to evaluate new operational capabilities and procedures
- Deliver a review and feedback process to integrate operational insights into training for continuous improvement
- Mitigate impacts of disruptive events (such as severe weather, planned outages, NOTAMs, capacity changes/impacts)
- Better optimize daily available capacity

PERTI

Today

- **Plan**
  - Day of Operation (Occasionally done the day before)
- **Execute**
  - Execute Plan
- **Review**
  - Review only, no training or strategic planning follow up
- **Train**
  - Discrete activity, does not incorporate lessons learned
- **Improve**
  - Lessons learned not used to improve training or strategic planning



Tomorrow

- **Plan**
  - Continuous planning activity beginning 5-7 days prior to the Day of Operation (rolling schedule)
- **Execute**
  - Execute Plan
- **Review**
  - Daily Operational review provides data analytics for future strategic planning and input for training improvements
- **Train**
  - Training based on analytical review of operational data, with the intent to learn from positive as well as negative courses of action
- **Improve**
  - Lessons learned applied operationally via improved training and fine tuning of strategic plans

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Questions?