

# CUSTOMER CASE STUDY

## AIR TRAFFIC FLOW MANAGEMENT

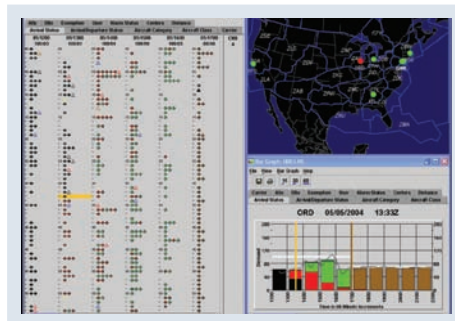
### TRAFFIC FLOW MANAGEMENT

The FAA is one of the largest Air Navigation Service Providers (ANSP) by size and area, managing air traffic for more than 15% of the world's airspace. From the North Atlantic to the South Pacific, the Northern Polar routes to the Gulf of Mexico and Caribbean, the FAA is responsible for more than 24.6 million sq. miles of oceanic airspace and 5.6 million sq. miles of U.S. airspace. The FAA interfaces with more than 18 ANSPs around the world and provides services to roughly 55,000 flights per day and approximately 47 million en route and terminal operations a year.

### THE CHALLENGE

The 1990s saw air traffic increases unseen in the U.S., bringing with it unprecedented delays. There were few tools available for Collaborative Decision Making (CDM) and fewer still for common situational awareness. The FAA found their already limited resources extremely strained. Air traffic controllers had limited and untimely access to delay information around the National Airspace (NAS) and were unable to adequately manage ground operations for congested or weather-impacted airports and airspace. Moreover, with a decentralized database of aircraft route data, there were no systems to identify problems or areas of inefficiencies throughout the NAS.

With technological revolutions across various industries, officials at the FAA sought systems that would aid in information sharing, which in turn would help relieve the congestion that plagued the NAS.



Metron Aviation's Flight Schedule Monitor (FSM) is the backbone of the FAA's Air Traffic Flow Management (ATFM) system.



### RESULTS

ELIMINATED 54 MILLION  
MINUTES OF DELAYS

SAVED 148 MILLION  
LITERS OF FUEL BURN

CUT 455 THOUSAND  
METRIC TONS  
OF CO<sub>2</sub> EMISSIONS

SAVED U.S. \$5 BILLION  
IN OPERATING COSTS



THE SCIENCE OF HARMONIZING AIR TRAFFIC

## THE SOLUTION

For more than 10 years, the FAA has partnered with Metron Aviation to develop a systematic approach to CDM and common situational awareness that has eliminated over 54 million minutes of delays for North American air carriers. Metron Aviation's pioneering research, underlying algorithms and preferred operating procedures have led to the creation of many successful traffic flow management technologies used by more than 100 FAA facilities and 24 participating airlines each day:

- **Flight Schedule Monitor (FSM)** is a decision support tool used to monitor airport capacity/demand imbalances, model traffic flow initiatives and evaluate alternative approaches. FSM is primarily used to implement Ground Delay Programs (GDP), Airspace Flow Programs (AFP) and Ground Stop (GS) strategies.
- **Flight Schedule Analyzer (FSA)** is a web-based analysis tool used to assess the performance of ground delay programs. FSA generates updated HTML reports every five minutes, as new flight information is received.
- **Post Operations Evaluation Tool (POET)** is an analysis system that provides access to near real-time data to analyze the NAS for inefficiencies and identify areas of congestion.
- **Route Management Tool (RMT)** is a database query tool that provides users with access to a centralized database of various types of routing data and pre-coordinated routes during severe weather and constrained resources.
- **Enhanced Substitution Module (ESM)** is an automated flight substitution aid that provides airline dispatchers with resource alerts, delay previews and other tools that support the strategic or tactical cancellation and substitution of FAA-controlled flights.

IN 2006, THE FAA  
INSTITUTED THE  
AIRSPACE FLOW  
PROGRAM, USING  
METRON AVIATION'S  
FSM, WHICH ...

“ WILL TRANSLATE  
TO A SAVINGS  
OF U.S. \$900 MILLION  
OVER THE NEXT  
TEN YEARS. ”

**MARION BLAKEY,**  
ADMINISTRATOR,  
FAA (2002-2007)

## ABOUT METRON AVIATION

Founded in 1995, Metron Aviation provides concept engineering, advanced research, software development, Air Traffic Flow Management (ATFM), Collaborative Decision Making (CDM), surface operations management, airspace design and environmental analysis solutions to the global aviation industry. Metron Aviation fuses advanced science and mathematics with unparalleled subject-matter expertise to turn groundbreaking Air Traffic Management (ATM) research concepts into operational capabilities. Customers include the FAA, NAV CANADA, NASA, ATNS, FedEx, Air Canada, Memphis International Airport, Delta Air Lines, Southwest Airlines, American Airlines, Airservices Australia and many more.



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