Accelerating an Information-Driven Aviation Ecosystem

Air Transportation Information Exchange Conference
Gregg Leone, Vice President and Director
Center for Advanced Aviation System Development
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established 1958

not-for-profit

conflict-free environment

science & technology

Part of the ecosystem of federal research centers
Our customers benefit from our breadth of experience

Homeland Security Systems Engineering and Development Institute

Judiciary Engineering and Modernization Center

Center for Advanced Aviation System Development

CMS Alliance to Modernize Healthcare

Center for Enterprise Modernization

National Cybersecurity FFRDC
Daily Flight Demand for All Users in 2025

Source: NASA
Diversity of missions is growing
Future Environment Drivers

- New business models and stakeholders
- Continuous and ubiquitous data exchange
- Increasing use of artificial intelligence
- Expanded autonomous aircraft operations
- Evolving regulatory environment
Real-Time Data from Pilots
- Preferred airborne trajectories
- Departure readiness
- Passenger status
- Aircraft status
- Turbulence encounters
- Weather encounters

Real-Time Data from Operators
- Crew experience
- Crew health measures
- Historical schedule analysis
- Equipage
- Preferred routes
- Departure readiness information
- Launch information

Real-Time Data from Operators
- Connecting modes of transportation
- Purpose of trip
- Customs information
- Luggage information
- Currency exchange needs
- Reservation information

Real-Time ATM Data
- Airport status
- Airport and airspace information
- Letters of agreement
- NOTAMs
- Weather forecasts
- Cross-facility ATC restrictions
- NAS systems status
- Facility staffing and personnel

Real-Time ATM Assistance
- Safety alerts for non-conformance
- Safety alerts for pre-cursors to safety events
- Adaptive routing based on crew experience
- Adaptive rerouting due to weather or airspace blockage
- Traffic management strategies based on facility staffing
- Rapid and collaborative information sharing
- Flexible reconfiguration of NAS resources
How do we get there?
How do we get there?
How do we get there?

NAS Operations Dashboard

MITRE Prototype Pilot App
How do we get there?
Global collaboration and harmonization
Thank You
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