AIM Modernization Program

Aeronautical Common Service (ACS) Prototype

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AIM Modernization Mission

Modernized and improved AI flows through digital data ingestion, management, and distribution tools

SOA platform where services can be developed using web standards and hosted on a centralized infrastructure for delivery to customers as web services

System design leveraging SWIM to support a net-centric enterprise architecture

Delivery of digital NOTAMs, SAA info, and airport/reference data as mission support services through SWIM

Through SWIM

AIM Modernization Overview

- Legacy Description
  - Inputs into multiple systems, manual processes
  - lacks data quality control around the information being conveyed
- Goal - create a common infrastructure and service that will support the data ingestion, management, and provision of AI in the NAS
  - Improve the quality of information by modernizing their workflow and providing updated tools for users
  - Make available other data through adaptation
  - Provide improved system-to-system interfaces to AI utilizing web services using AIXM
  - Provide a single portal human-to-system interface

WHAT IS AERONAUTICAL INFORMATION?

Notices to Airmen (NOTAM): (Segment 1)

- Condition change in the NAS (e.g. Runway closed, ILS OTS)

Central Altitude Reservation Function (CARF): (Segment 1)

- Pre-coordinated reserved routing and altitude for DoD and NASA.
- CARF deconflicts routing

Special Activity Airspace (SAA): (Segment 2)

- Airspace Definitions and Schedules
- Delivered through Aeronautical Common Service
- Reserved airspace for other than normal flight (e.g. MOAs, ATCAAs)

Airport layout information: (Segment 2)

- Airport surveys, runways, navaids, terrain
- Delivered through Aeronautical Common Service

Other: (Future Work Packages)

- Procedures, business rules and constraints defined in letters of agreement (LOA) and standard operating procedures (SOP),
- Business rules, definitions, and status of the NAS "infrastructure" (e.g. airports, airspace, procedures)
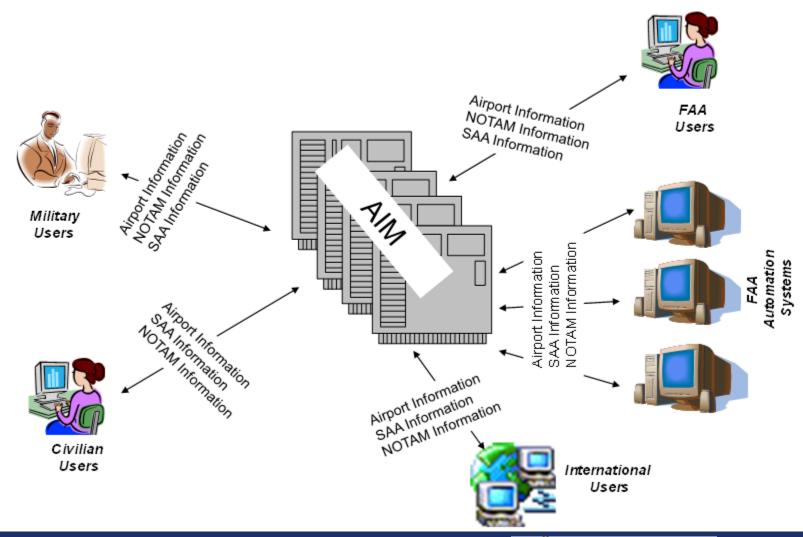- Dynamic AI and status changes

Program Description

- **Digital Data Ingestion:** The development of digital data ingestion capability is essential to AIM Modernization. This includes the exchange of data with authoritative providers using automated tools and systems.

- **Aeronautical Common Services**: The ACS will manage AI data ingestion. It will transform, validate, verify, store, and distribute the resultant AI to users and systems through AIM enterprise web services.
  - The ACS has four main functional capabilities:
    - Business services
    - Data Ingestion
    - Data exchange
    - Data and information management

- **External and Legacy System Integration**: The new AIMM system will establish functional two-way data exchange with other systems using Service Oriented Architecture principles. AIMM Segment 2 will establish and develop a link provide data to NAS consumer systems and users through the SWIM infrastructure.

- **External Web Internet Portal**: The new AIMM system will establish an interface for users outside of FAA NAS systems to relay AI via the public Internet. This web portal will become a "One Stop Shop" for external aviation operations personnel to obtain needed AI.

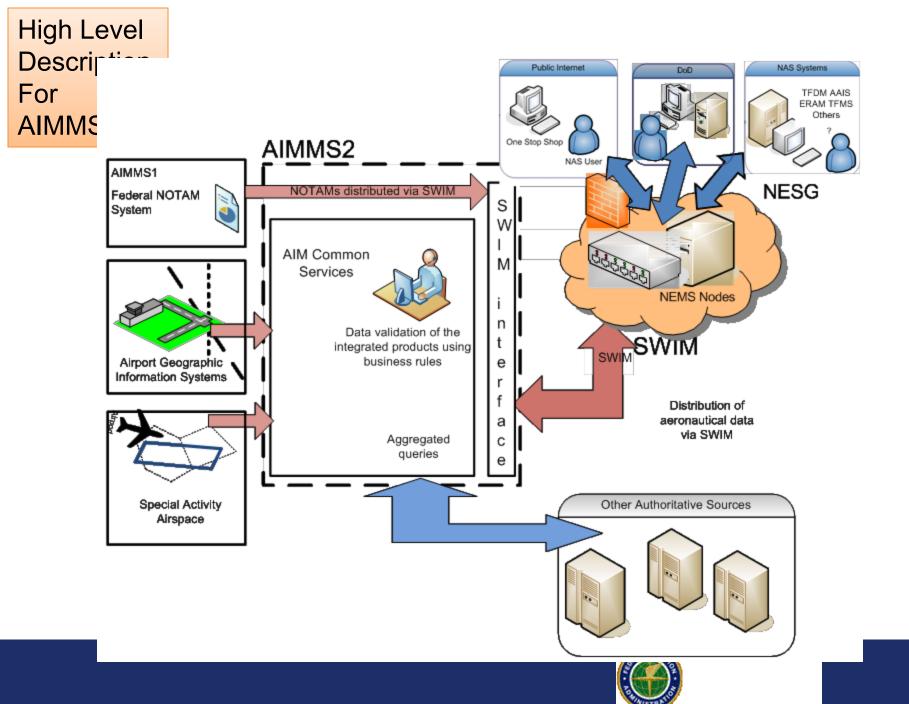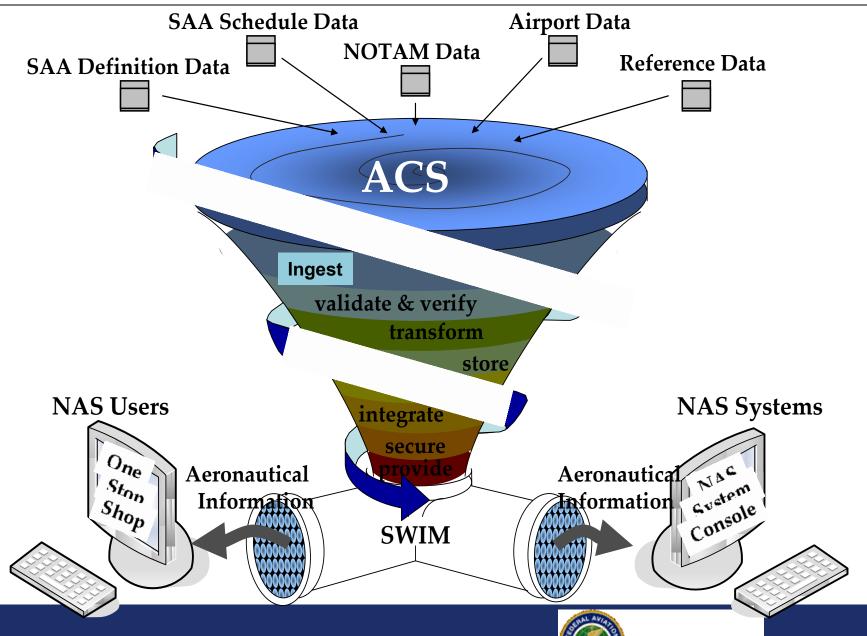# Program Description

Standards Based System Design

- Standards being used
    - OGC Standards and Formats
    - AIXM
    - SWIM
    - Others

- Allows ingestion and dissemination of vector and image information

- Allows COTS to ingest, manipulate, and view the information

- Lowers barrier for interoperability and integration.

High Level Description For AIMMS2

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The Aeronautical Common Service

SAA Schedule Data

SAA Definition Data

NOTAM Data

Airport Data

Reference Data

ACS

Ingest

validate & verify

transform

store

integrate

secure

provide

NAS Users

NAS Systems

One Stop Shop

Aeronautical Information

Aeronautical Information

NAS System Console

SWIM

ACS Prototype

- Prototype designed to demonstrate ability to:
  - Ingest information from multiple sources
  - Integrate (fuse) information together
  - Manage and manipulate information from a single platform
  - Disseminate the information in a way that is meaningful and coherent using a single platform
- Ensure correct requirements/capabilities are captured for supporting services
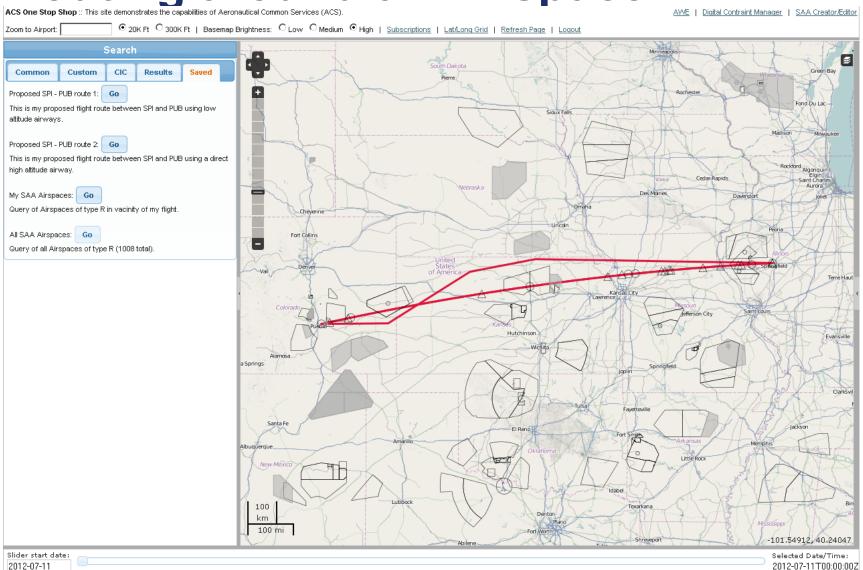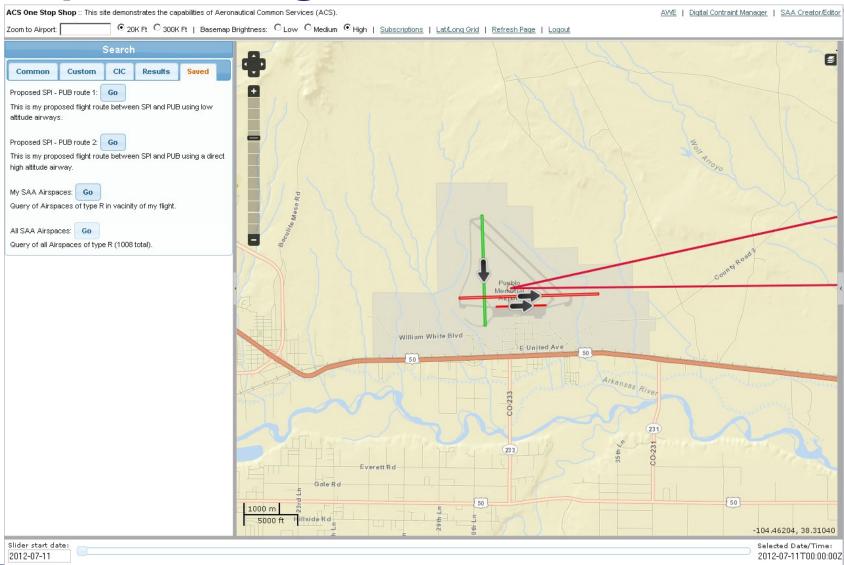- Mature the standards for integrating information

SAA Airspace Schedules

NOTAMS

Routing around an Airspace

Airport Configuration

Common WMS Use Case

NEMS

FROM BUS: Filtered data request
TO BUS: Relevant airport and wx features

TO BUS: Filtered data request
FROM BUS: Relevant airport and wx features

TFDM/NIDS

Common WMS

Common filter request converted to query in DB implementation language, results returned

Airport Features

Weather Data