

Global Harmonization Through Collaboration

“SWIM in the Sky” Aircraft Access to SWIM (AAtS)

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Date: August 30, 2012*



**Federal Aviation
Administration**

**AIR TRANSPORTATION INFORMATION
EXCHANGE CONFERENCE - (FEATURING
AIXM, WXXM AND FIXM)**

August 28, 2012 - August 31, 2012
NOAA Auditorium and Science Center
Silver Spring, Maryland



What is AAtS?



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- Aircraft Access to SWIM (AAtS)
 - Establishes airborne component of ground based SWIM Service Oriented Architecture (SOA)
 - Facilitates exchange of aeronautical information between aircraft and the National Airspace System (NAS)
 - Creates a commonly sourced/shared aviation information environment for collaborative decision making
 - Leverages existing air/ground network services providers' infrastructure and technologies
 - Supports global interoperability/harmonization with similar systems/capabilities

Aircraft Access to SWIM



DMS = Data Management System



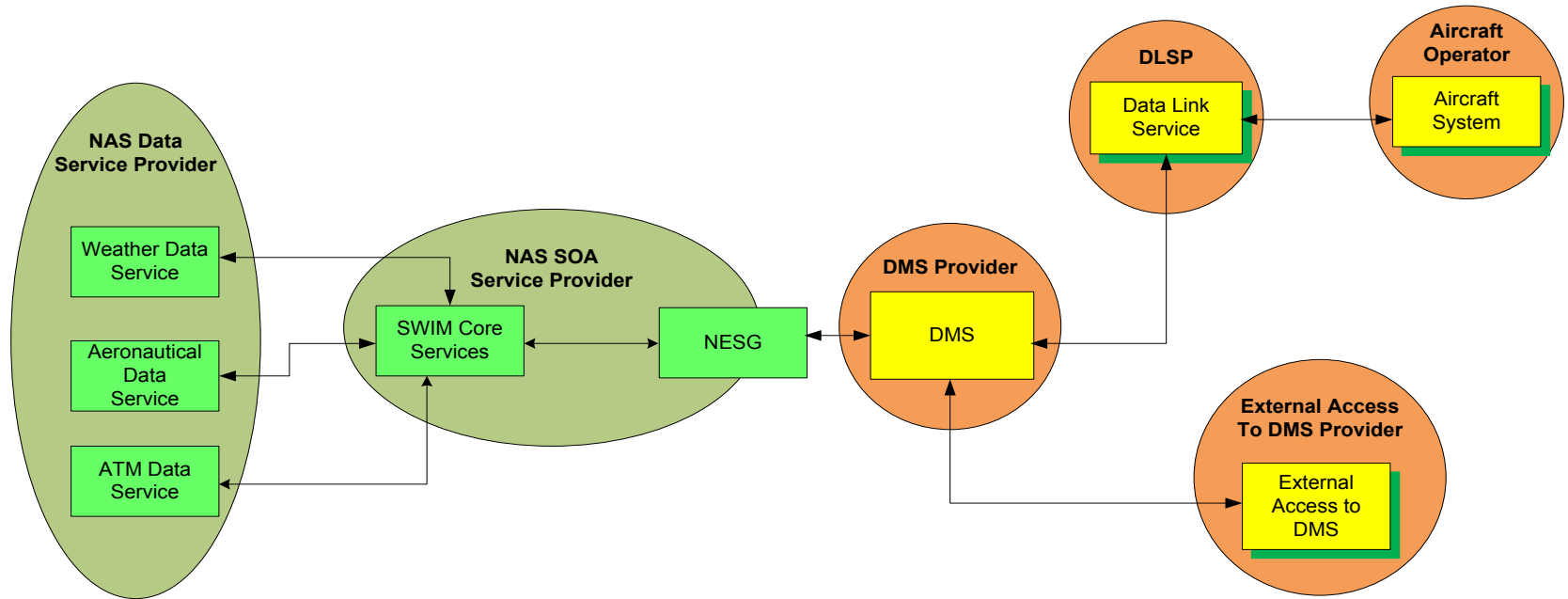
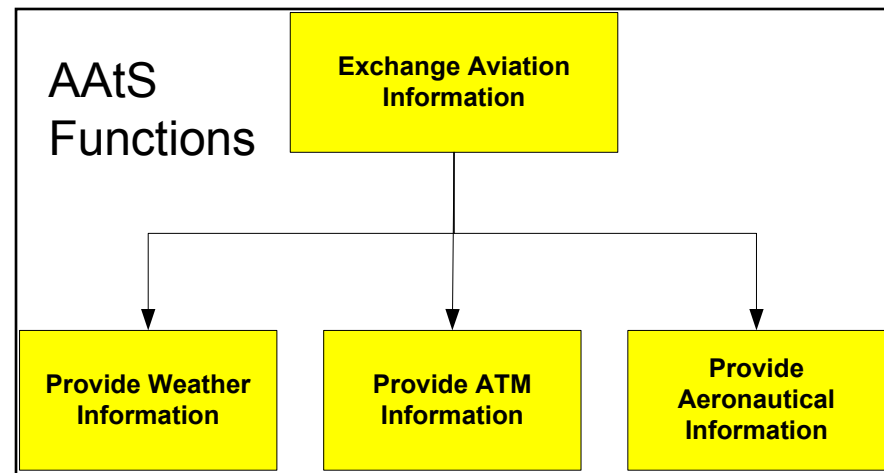
Benefits of AAtS



- Improved situational awareness between flight deck and ANSP during all phases of flight
 - More timely decision making support
 - Improved productivity/reduced workload on the flight deck
 - Enhanced passenger experience (e.g. avoid turbulence)
- Cost Savings / Avoidance
 - Delay mitigation
 - Fuel burn
 - Leverage existing capabilities/technologies

End-to-End System Interface

Exchange of Aviation Information from NAS Service Provider to Aircraft



Note

Green = Systems or services that are out of the scope of AATS
 Yellow = Systems or services that wholly used by AATS initiative
 Yellow with green shadow = Systems or services that are partially within the scope of AATS

Technical Research Areas



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- Bi-directional AAtS services
- Security
- Data priority and preemption of cockpit data over passenger-oriented data
- Onboard wired versus wireless impacts

Other AAtS Activities



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- Open Geospatial Consortium – OWS-9
 - Investigate Areas for Global Interoperability
 - Identify Efficient Air-Ground Data Exchange
 - Investigate Data Filtering Enhancement Methods
 - Investigate Data Validation Areas
 - Investigate Data Provenance and Quality Methods
- AAtS Operational Demonstration Partnership
 - Conducting live airborne operational flight trials, 2013 - 2014
 - Corporate/business aircraft
 - Domestic/commercial aircraft
 - Demonstrating/evaluating AAtS connectivity and data flows
 - Incorporate lessons learned from technical research
 - Initial focus is on one-way communications (ground to air)
 - Later efforts to include two-way communications (bi-directional)

Other Related Activities



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- AAtS is involved and/or coordinating with other similar efforts to deliver information to aircraft
 - Developing operational concepts/technical aspects to create a seamless sharing/exchange information environment between providers and users of NAS information
 - Examples include:
 - RTCA SC-206 – AIS and MET data link (developing recommendations and standards for use by the FAA)
 - AEEC 830 – Air Ground Information Exchange (developing an aviation industry standard)
 - SESAR – SWIM Air Ground (the European version of AAtS)

Questions



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Contact Information



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Back-up Material

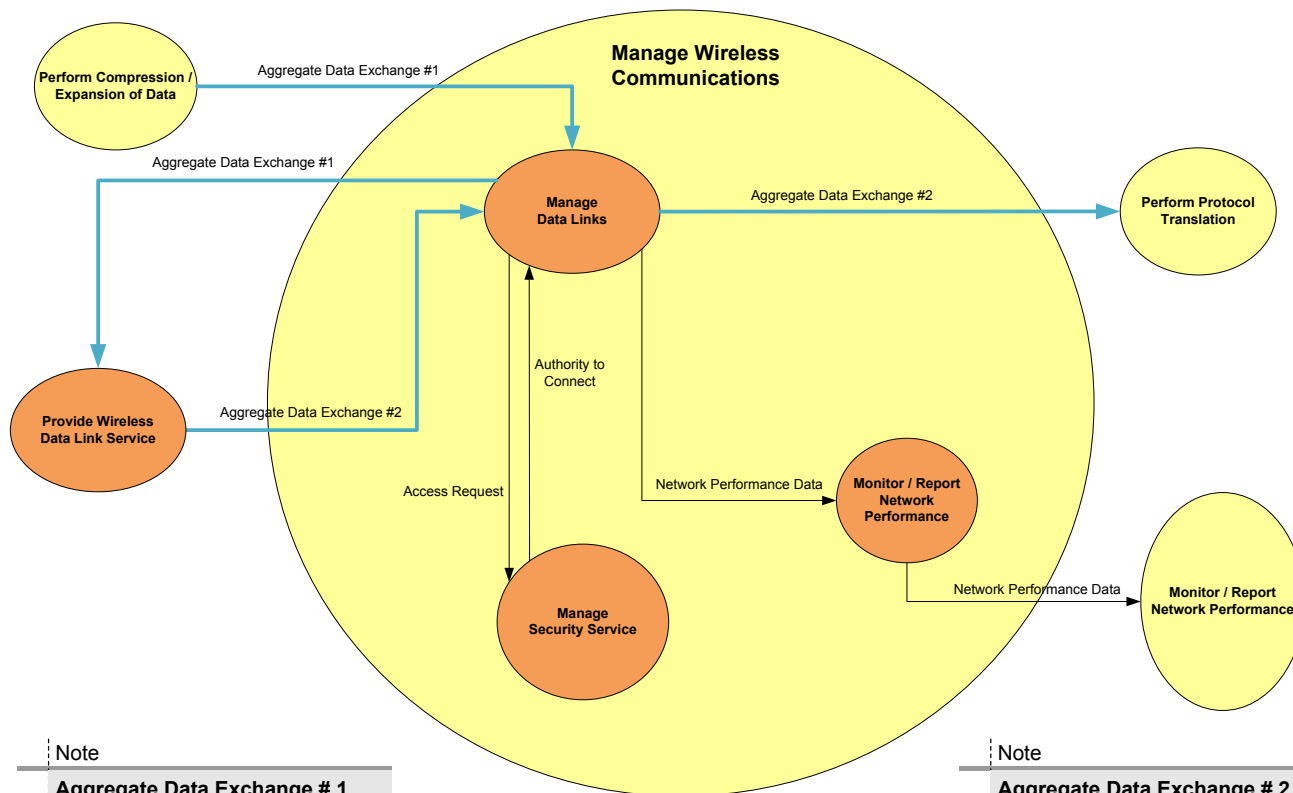
Data Management Service Functionality



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- Manage Applications of Technical Rules
 - Data Synchronization between Ground and Aircraft Users
 - Perform Data Validation
 - Perform Data Filtering
 - Manage Subscription & Data Request Configuration
 - Populate Priority and Security Data Fields
 - Perform Data Provenance
- Manage Communications
 - Manage Secure Communications
 - Monitor / Report Network Performance
 - Perform Protocol Translations
 - Compression and Expansion of Data
 - Manage Wireless Communication

Manage Wireless Communications



Note

Aggregate Data Exchange # 1

- AAtS Data Validation Data
- Aeronautical Data
- ATM Data
- Aircraft Data Request
- Authority to Connect
- Data
- Weather Data

Note: Yellow or Tan = Nodes wholly or partially within the scope of AAtS

Note

Aggregate Data Exchange # 2

- Access Request
- Aircraft Data
- Aircraft Status Sensor Data
- Video Surveillance Data
- Law Enforcement Data
- Weather Observation Data
- Data Request
- Data Request Configuration Data
- Subscription Configuration Data

Data Link Service Functionality



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- Allocate Performance Characteristics of Minimum AAtS Capability
- Manage Wireless Communications with DMS
 - Technologies, Protocols, and Standards



Data Exchange Overview

Note

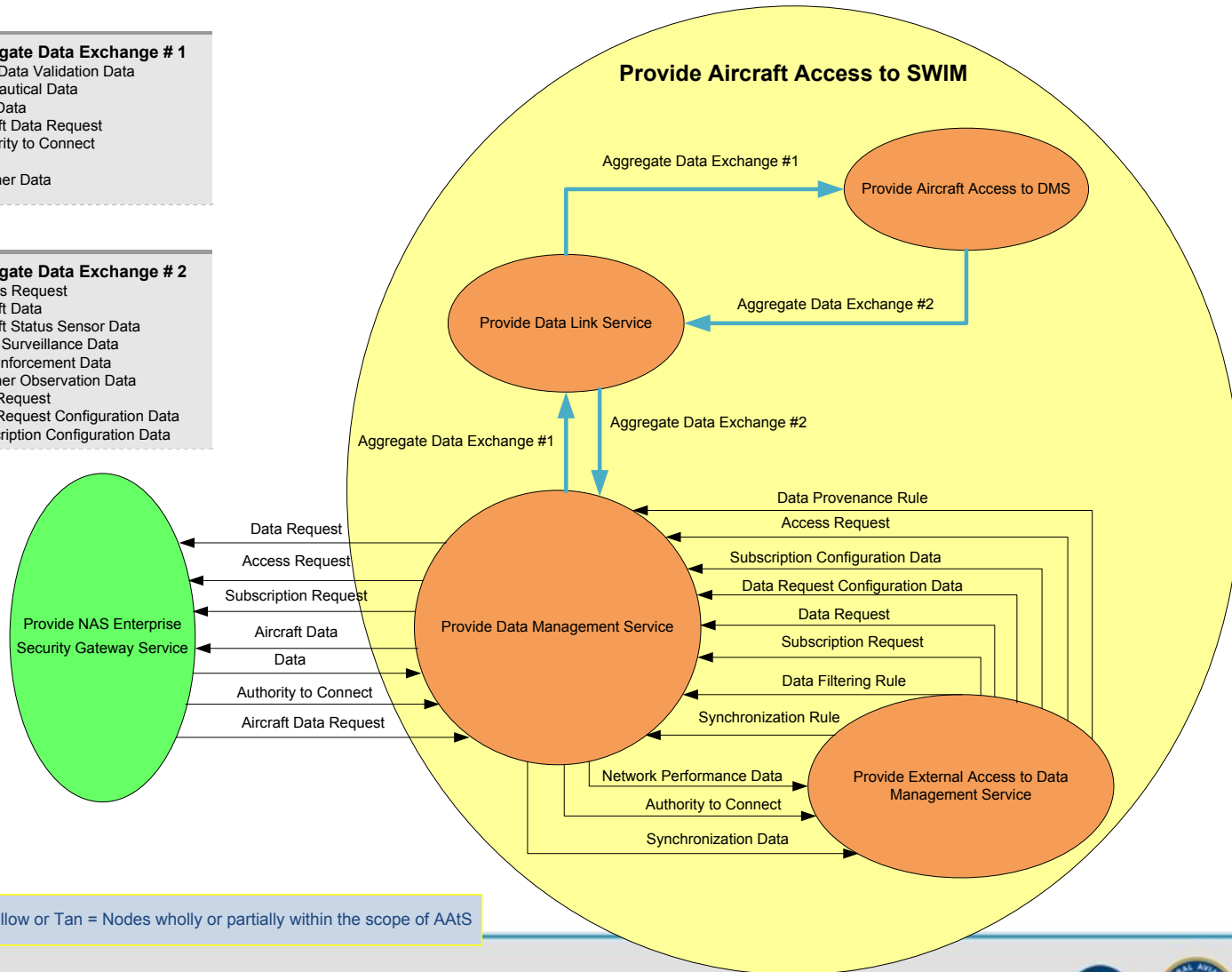
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