

System Wide Information Management (SWIM)

Program Overview and Status Update

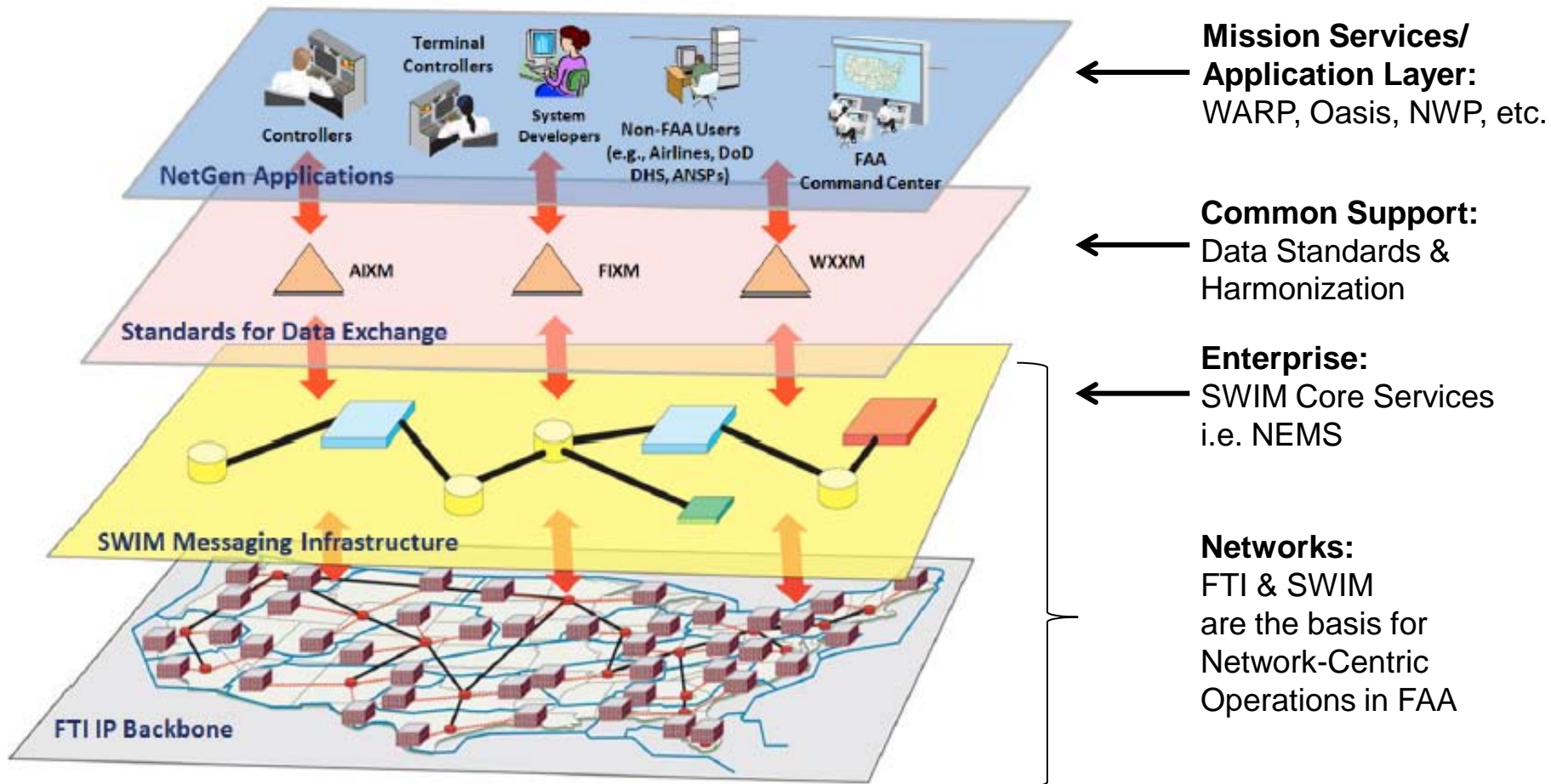
**Presented by: Jim Robb, SWIM
Program Manager
(Acting)**



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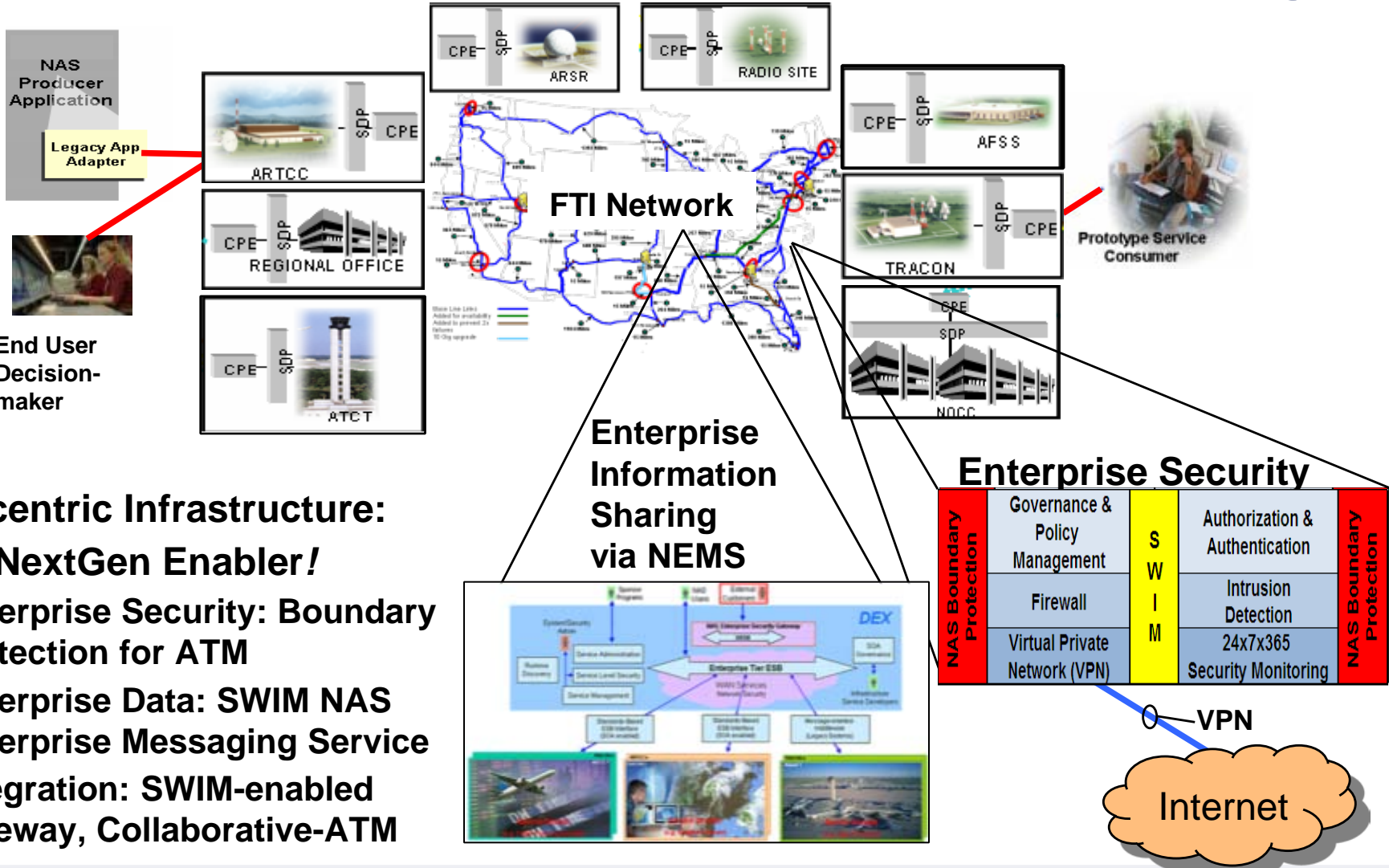


Air Traffic Management Enterprise



Advanced IT Infrastructure is the Basis for Net-centric Operations

Net-Centric Infrastructure: Trusted Information Sharing



Net-centric Infrastructure: Key NextGen Enabler!

- Enterprise Security: Boundary protection for ATM
- Enterprise Data: SWIM NAS Enterprise Messaging Service
- Integration: SWIM-enabled gateway, Collaborative-ATM



Segment 1 Services

Implementation Status/Plan

Operational	2012 completion	2013 completion	2015 completion
Corridor Integrated Weather System (CIWS) Publication	Special Activity Airspace (SAA) Automated Data Exchange (AIM)	Runway Visual Range (RVR) Publication (STDDS)	Flight Data Publication Service (FDPS)
Integrated Terminal Weather System (ITWS) Publication	Reroute Data Exchange (ERAM & TFMS)		Flow Information Publication (TFMS)
Pilot Report (PIREP) Data Publication (WMSCR)	SWIM Terminal Data Distribution System (STDDS)		
Airport Surface Detection Equipment - Model X (ASDE-X)			



SWIM Product Portfolio

Service	Products		
AIM SAA Data Exchange	<ul style="list-style-type: none"> SAA data, dynamically via an improved ATC GUI 	<ul style="list-style-type: none"> SAA data, dynamically provided in the AIXM standard 	<ul style="list-style-type: none"> AIXM SAA definitions
ITWS Data Publication	<ul style="list-style-type: none"> Airport Lightning Warning Configured Alerts Forecast Accuracy Forecast Contour Forecast Image Gust Front TRACON Map Microburst TRACON Map Precipitation 5nm Precipitation Long Range Precipitation TRACON 	<ul style="list-style-type: none"> SM SEP 5nm SM SEP Long Range SM SEP TRACON Terminal Weather Text Normal Tornado Alert Tornado Detections Wind Profile AP Indicated Precipitation AP Status Gust Front ETI Hazard Text 5nm 	<ul style="list-style-type: none"> Hazard Text Long Range Hazard Text TRACON ITWS Status Information Microburst ATIS Runway Configuration Storm Motion 5NM Storm Motion TRACON Terminal Weather Text Special Wind Shear ATIS
CIWS Data Publication	<ul style="list-style-type: none"> VIL Mosaic (1km resolution) VIL 2-hr. Forecast Echo Tops Mosaic (1 km resolution) Echo Tops 2-hr. Forecast Satellite Mosaic 	<ul style="list-style-type: none"> Storm Info: Echo Top Tags Storm Info: Leading Edges Storm Info: Motion Vectors VIL Forecast Contours (Std. Mode) VIL Forecast Contours (Winter Mode) 	<ul style="list-style-type: none"> Echo Tops Forecast Contours Growth & Decay Contours Forecast Accuracy: Echo Tops Forecast Accuracy: Std. Precip Forecast Accuracy: Winter Precip
WARP Publications	<ul style="list-style-type: none"> Harris Weather Data Service Product Set ** WMSS NEXRAD** 		
WMSCR Publications	<ul style="list-style-type: none"> Transmission of voice PIREPs to WMSCR** Stored PIREPs Altimeter settings ** 		
Reroute Data Exchange	<ul style="list-style-type: none"> Pre-departure flight reroute information between Traffic Managers and Air Traffic Controllers 		
STDDS	<ul style="list-style-type: none"> ASDE-X streaming data service (27 Airports) and Runway visibility data** 	<ul style="list-style-type: none"> Surface Movement Events (SME) RVR Data 	<ul style="list-style-type: none"> Tower Departure Events (TDE)
Flow Information Publication*	<ul style="list-style-type: none"> Flow Constrained Area (FCA) Airspace Flow Program (AFP) 	<ul style="list-style-type: none"> Ground Delay Program (GDP) Ground Stops (GSs) 	<ul style="list-style-type: none"> Reroutes Advisories
Flight Data Publication*	<ul style="list-style-type: none"> Flight data 		

* Under Development ** Available via NEMS



NAS Enterprise Messaging Service (NEMS)

- **FAA has contracted with Harris to enhance the Data EXchange Service (DEX) to qualify and add NEMS application integration capabilities and services to the FTI contract**
- **Enhancements implemented with priority based on customer needs**
- **Parallel execution of three Categories of Requirements:**
 - Base Requirements applicable to overall NEMS capabilities (order once)
 - On-ramping Services for Producers & Consumers (order many times)
 - Additional NEMS Infrastructure
 - 16 Internal NAS NEMS nodes (FOC: 20 node architecture)
 - NEMS instances added to the Oklahoma and Salt Lake City NESGs with two way SOA
 - Intra-NEMS network services (additional bandwidth Anchorage (ZAN), Denver (ZDV), Cleveland (ZOB) and Jacksonville (ZJX), intra site connections, load balancers)



On-Ramping Services

Adding a NEMS User (Producer or Consumer)

- **JMS-P: JMS Producer**

- Define content taxonomy, configure messaging, monitoring, failover and application/transport security

- **JMS-C: JMS Subscription Consumer**

- Configure messaging, content catalog access, service monitoring, failover and application/transport security

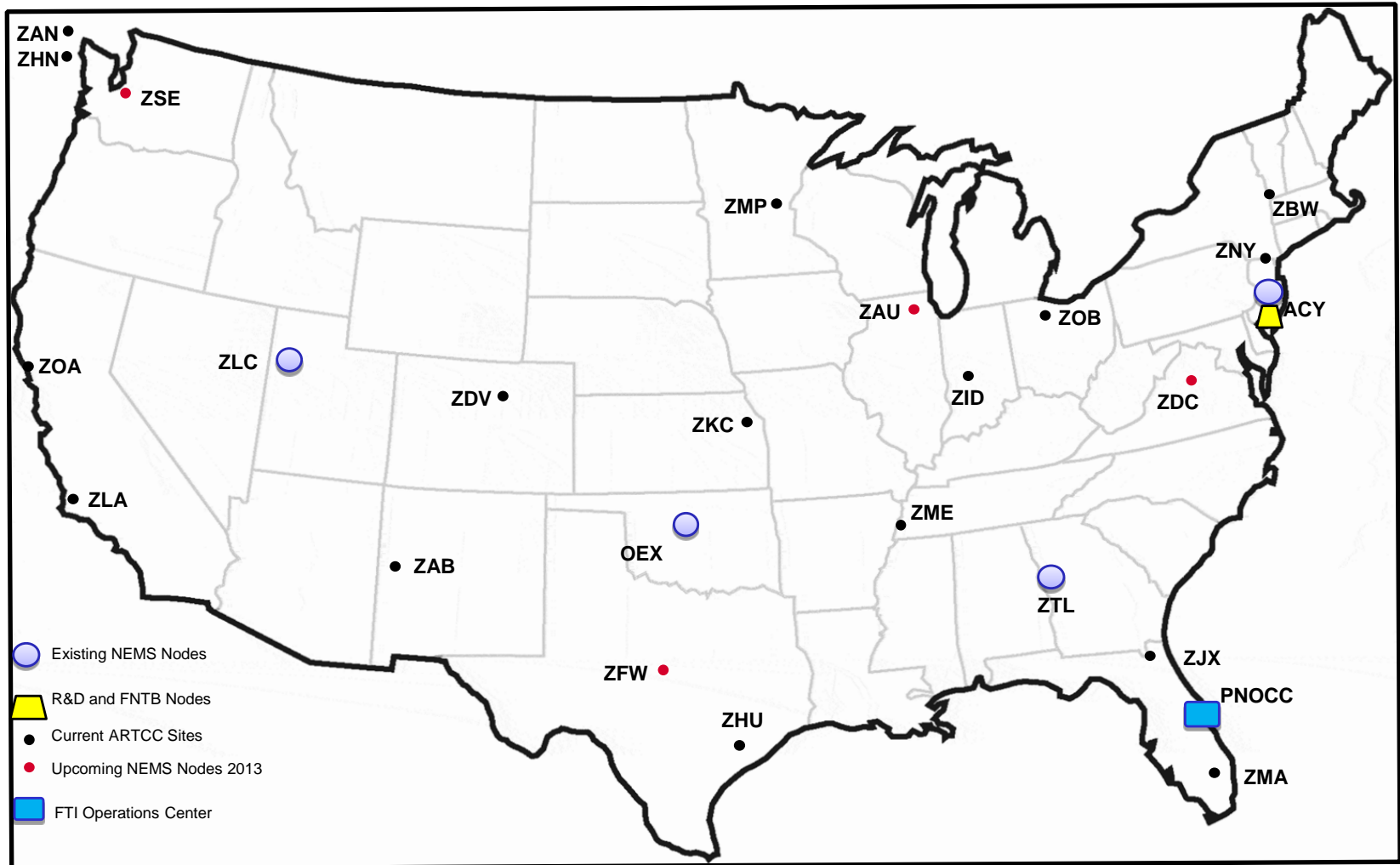
- **WS-P: Web Service Producer**

- Define content taxonomy and deploy proxy, monitoring and application/transport security parameters

- **WS-C: Web Service Consumer**

- Define content consumption and configure for web service access, monitoring, failover and application/transport security parameters

NEMS Systems Footprint



NEMS On-Ramping Activities

Program	Discovery	Architecture, Requirements	Qualification (Data Arch, Design, HSV test)	Operations Rollout/ Cutover
ASDE-X	Complete	Complete	Complete	Complete, adding airports
WMSCR - Phase I	Complete	Complete	Complete	Complete
WMSCR – Phase II	Dec'12 - Jan'13	Feb – Apr'13	Apr – Jun'13	Jul – Sep'13
WMSCR – Phase III	Jun - Jul'13	Aug – Sep'13	Oct – Nov'13	Dec'13
OASIS - Consumer	Complete	Complete	Complete	Complete
WARP	Complete	Complete	Complete	Complete
CIWS - Consumer	Complete	Complete	Complete	Complete
CIWS/CDDS	In Progress – Oct'12	Oct – Nov'12	Dec - Apr'13	May - Aug'13
TBFM - Consumer	In Progress	Jan – Apr'13	May - Jul'13	Aug – Sep'13
NextGEN Integration and Evaluation Capability (NIEC) Lab – R&D Consumer	Complete	Complete	Complete	Complete
STDDS	In Progress	In Progress	July-Dec 12	Jan 13- Feb 14



NEMS On-Ramping Programs

Program	Discovery	Architecture, Requirements	Qualification (Data Arch, Design, HSV test)	Operations Rollout / Cutover
ITWS	Complete	TBD	TBD	TBD
AIM – Modernization Phase II	In Progress – May'12	Jun – Aug'12	Sep – Dec'12	Jan – Mar'13
AIM – SUA (SWIM Segment 1)	TBD	TBD	TBD	TBD
AIM – Digital NOTAMS	TBD	TBD	TBD	TBD
TBFM – Information Sharing Service	In Progress – Nov'12	Dec'12 – Feb'13	Mar – Jun'13	Jul – Sep'13
TFMS – Flow Info. Publication Service	In Progress	Jan – Jul '13	Aug – Nov'13	Dec '13 – May '14
EWINS	Complete	In-Progress – Apr'13	May– Jul'13	Aug - Oct'13
EON (Consumer)	TBD	TBD	TBD	TBD
PDARS (Consumer)	TBD	TBD	TBD	TBD
FDPS – Phase I	Complete	In-Progress – Jun'12	TBD	TBD
FDPS – Phase II	TBD	TBD	TBD	TBD
TFM	In Progress	In Progress	Apr '14	Aug '14
TAMR	In Progress	In Progress	TBD	2014
CSS-WX	In Progress	In Progress	TBD	2015+
TFDM	In Progress	In Progress	TBD	2015-16



Summary

- **SWIM is a key enterprise-level capability required to support the broader sharing of information necessary for NextGen CONOPS**
- **Segment 1 is 80% complete**
- **Segment 2 is underway**
 - Major milestone achieved July 25, 2012 with establishment of NEMS infrastructure
- **Standards and Governance in place to ensure consistent implementation and operation**
- **SOA suitability assessments institutionalized as a standard practice**

Over 60 products with 22 different consumers

Contact Information

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SWIM

NAS Service Registry/ Repository (NSRR)

Presented by: Mark Kaplun, SWIM
Governance Lead



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What is the NSRR?

- **NAS Service Registry/Repository (NSRR) is SWIM's capability for making services visible, accessible, and understandable**
- **NSRR uses a formal registration process to store, catalog, and manage service metadata and artifacts relevant to the services**



Service Registry (very simple explanation)

Service category

108 AUTOMOBILE REPAIRING & SVCE.

Company that provides service



AUTO CLINICS, INC.

Cars, Trucks & Van Repairs

Domestic & Foreign

Major & Minor Repairs

Service functionality or what service does

Computerized 4 Wheel Alignment
Computerized Tune Ups
Shocks * Oil Changes * Computerized Service * Brakes
Maintenance Records & Scheduling * Fleet Service
MD EMISSION REPAIRS & MD STATE INSPECTIONS

How service can be accessed

FULL 12 MONTH OR 12,000 MILE WARRANTY ON ALL REPAIRS

Silver Spring

White Oak

301-585-7557

301-622-6700

Qualities of service

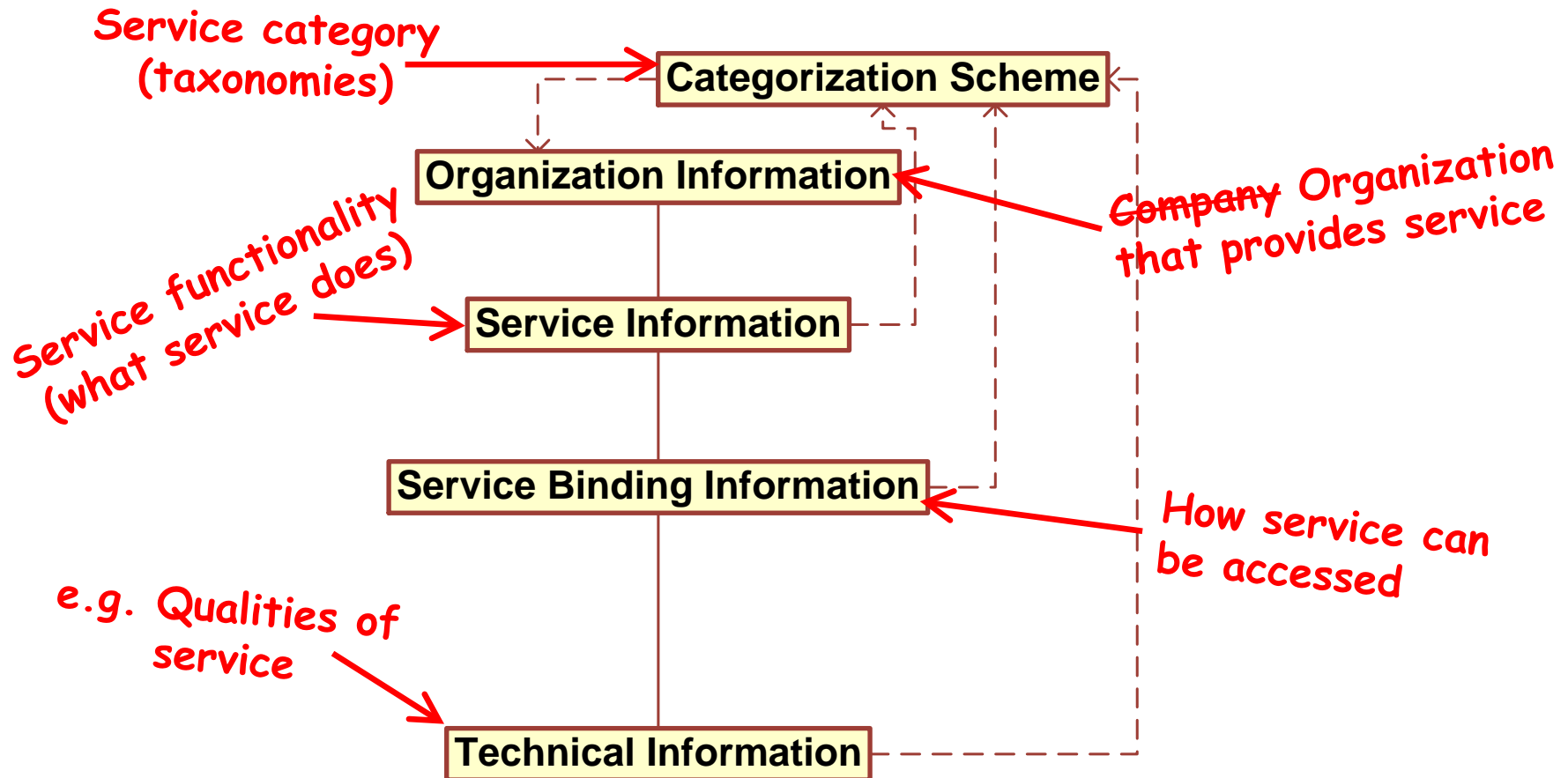
999 Philadelphia Ave.
Silver Spring 20910
Near Silver Spring Metro
Shuttle Service

12132 Tech Rd.
Silver Spring 20904
Off Rt 29
Shuttle Service



Visit us on the Internet: www.murraysautoclinic.com

SOA Universal Description, Discovery, and Integration (UDDI) Registry – Basic Concepts



NSRR is a SOA Registry

Service Properties	
Owner:	FAA_Weather_CIWS (Notify Members)
Version:	1.0 (history)
Service Type:	Business service
Keywords:	CIWS, Non-Gridded Data Sets, Weather, Echo Tops Tags, Leading Edges, Motion Vectors, VIL Forecast Contours (Standard Mode), VIL Forecast Contours (Winter Mode), Echo Tops Forecast Contours, Growth and Decay Contours, Forecast Accuracy: Echo Tops, Forecast Accuracy: Standard Precipitation, Forecast Accuracy: Winter Precipitation, CDDS, OGC, WFS, Web Feature Service, WS-N, Aviation Weather, CONUS, Pub/Sub, Request/Reply
Delivery Channels:	Internet; Virtual Private Network
FAA Service Category:	FAA Service Category Air Transportation Service » Air Transportation Support Service
Service Visibility:	No Restrictions
Prototype:	Yes
Legislative Compliance:	Legislative Compliance Security » FISMA Security » NIST FIPS 200 Security » NIST FIPS 199 Security » NIST SP 800-53

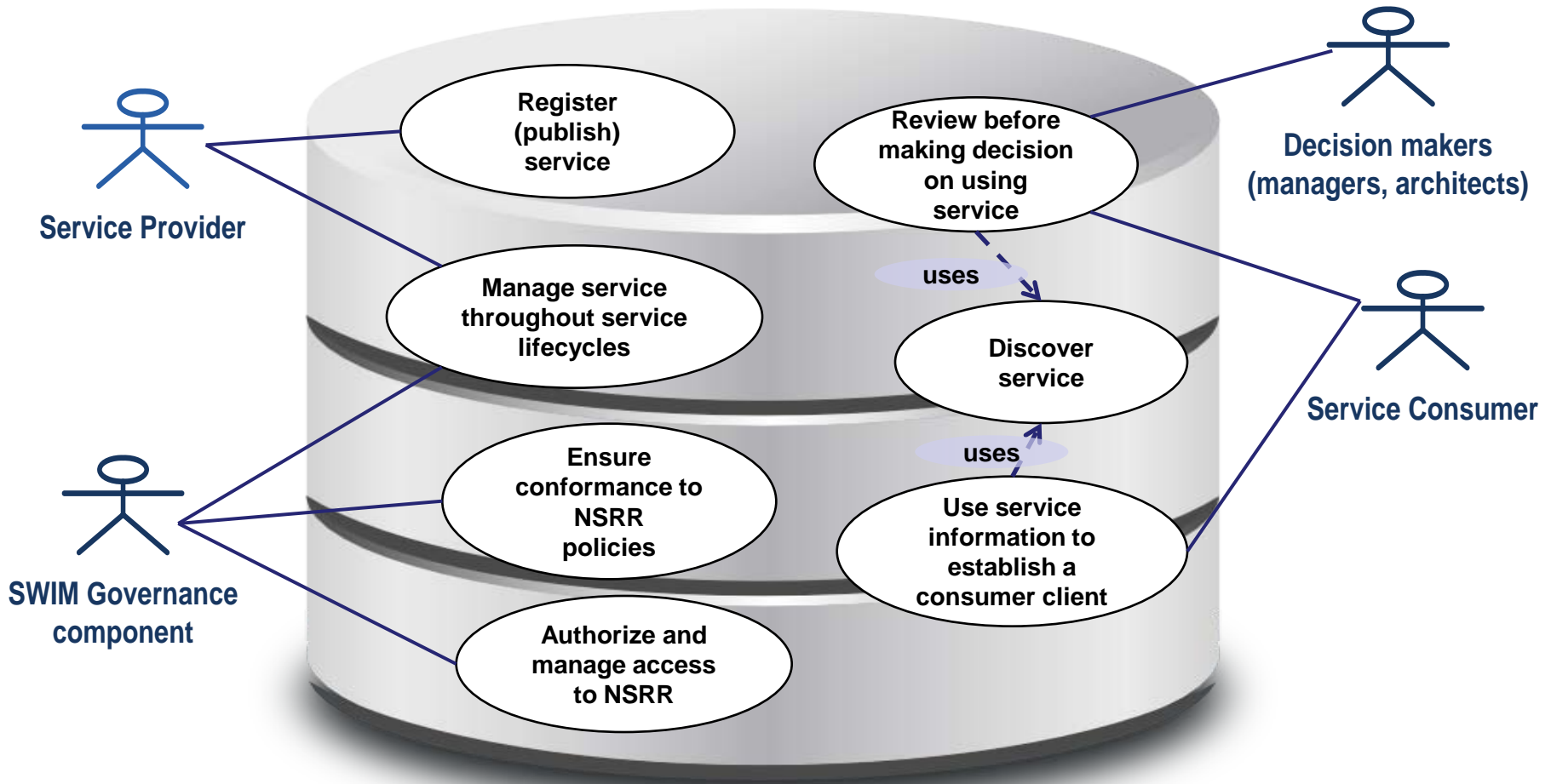
Service name

What the service does

Service categorization (taxonomies)



How NSRR is used



NSRR is also a Repository

- A **Registry** stores information about services along with links or pointers to associated artifacts
- A **Registry/Repository** stores not only the pointers to service related artifacts but also the artifacts itself
- **These artifacts may include:**
 - Data schemas
 - Web Services Description Language (WSDL)
 - On-ramping forms



NSRR Is A Design Time Registry

- **NSRR supports all activities in pre-operational stages of service lifecycle**
 - Ensures that development is performed in alignment with business and IT policies
 - Enforces conformance to automated design-time policies
 - Tracks progressions of services transformations
 - Notifies on selected changes in service metadata and lifecycle status



Summary

- **NSRR facilitates Visibility and Control for insights into NAS SOA-based implementations by providing:**
 - Flexible mechanism for service discovery
 - Automated policies-based way to manage services throughout the services lifecycle
 - Management for services associated artifacts



How to access NSRR

- NSRR web site <http://swimrep.faa.gov/soa/web>
- To create NSRR account:
 - Go to the SWIM Booth in the exhibit hall
 - Go to <http://faa.gov/nextgen/swim> and follow the link “Online NSRR Account Request Form” or
 - Email Marlene Savage at Marlene.Savage@doveltech.com



Contact Information

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System Wide Information Management

Flight Data Publication Service

Presented by: Linda Chen



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What is FDPS?

- **The FDPS project is making ERAM data available through SWIM**
- **Although FDPS stands for the *Flight Data Publication Service*, it includes more than flight data**
 - It does include flight data; for example, both flight plan and track data
 - But it also includes airspace data, such as:
 - Sector status, route status, altimeter settings, (in the future, SAA).
 - And the ability to distribute general information messages
- **Also, FDPS supports request/reply in addition to publish/subscribe**



Potential FDPS Consumers

- **A goal of FDPS is to have the flexibility to support many types of consumers:**
 - FAA internal, operational consumers; for example:
 - TFMS or TMA/TBFM
 - FAA internal, non-operational consumers; for example:
 - Data Archival or Quality Assurance functions
 - External, operational consumers; for example:
 - Airline system operation centers
 - Military and other non-FAA government organizations.
 - International air traffic management systems
 - External, non-operational consumers, for example:
 - Research organizations



What's In the FDPS Data?

- **FDPS data content includes nearly all data available from the HADDS Common Message Set (CMS)**
- **Some examples of FDPS data:**
 - Adapted departure and arrival routes that ATC is intending to apply to a route – before they appear in the clearance route
 - Flight rules and equipment codes extracted from the ICAO flight plan
 - Fixes traversed and times at those fixes whenever a route is filed or changed
 - 12-second track updates
 - Notification on when a flight goes in and out of a hold
 - Active arrival and departure routes



What Are Advantages of FDPS?

- **Data for all ARTCCs will be available through one connection!**
- **FIXM format:**
 - This is the new international XML standard for flight data.
 - All FAA and worldwide systems should eventually migrate to this standard
- **A “cleaned up” data feed will be available, this will:**
 - Eliminate the conflicting and meaningless messages, such as cancellation messages for airborne flights and flight plans from non-controlling centers



What Are Advantages of FDPS?

- **Enhanced data fields will be added:**
 - A global unique flight identifier (GUFI) that can be used to match messages to flights regardless of the originating center
 - Flight plan sequence number so that you know you have the latest data
- **You can customize your data feed using filtering - for example:**
 - Certain message types
 - Certain origins or destinations
 - Certain airline codes



What Are Advantages of FDPS?

- **You can make data requests:**
 - If your system starts up new or recovers from a failure, it can request the full data to immediately repopulate its database
 - If you are not sure you have the latest data for a flight plan or route status, for example, you can request just that data



Preparing For the Future

- **More systems will be distributing data using SWIM and the FIXM format**
 - Ultimate goal: You can get all the data you want (for example, ERAM and TFMS data) in a consistent format through one connection
- **This approach will also someday be used to submit data, such as flight plans**



When Will FDPS be Available?

- **FDPS prototype data feed available: December 2013**
 - This will be in the R&D Enclave
- **Operational deployment target: Summer 2015**





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Contact Information

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SWIM Terminal Data Distribution Service

ASDE-X SD and RVR DF Industry Data

Presented by: Cheryl Jackson



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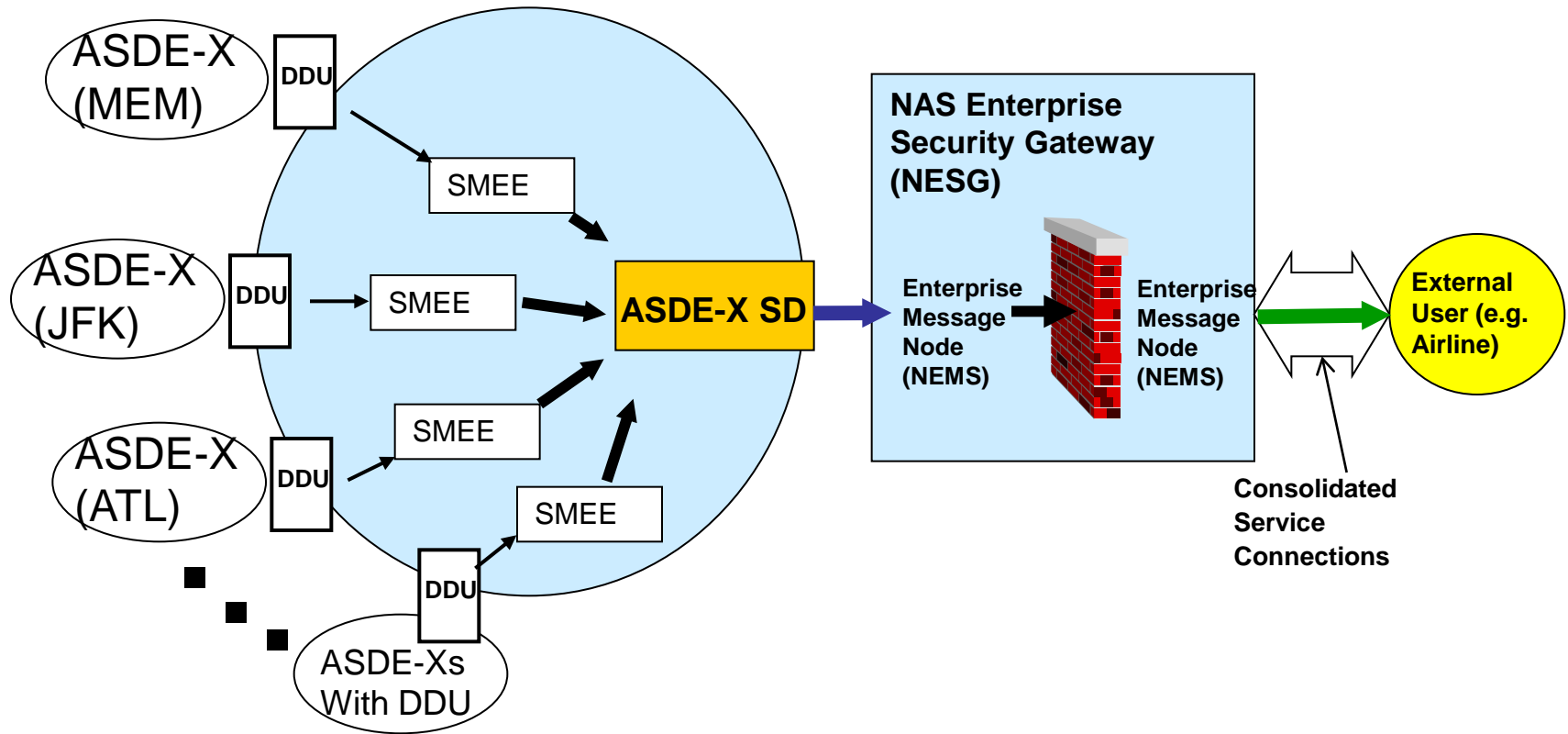


Description of the ASDE-X SD

- **The ASDE-X Service Oriented Architecture (SOA) Distributor (SD) is a centralized system for collecting surface position data from ASDE-X Data Distribution Units (DDUs).**
- **End-users can connect to one or both (for complete redundancy) NAS Enterprise Messaging Service (NEMS) nodes:**
 - Tech Center (WJHTC) in Atlantic City, NJ
 - Atlanta, GA
- **Latest release (R3) deployed Sept. 22, 2012 achieved significant performance improvements with message batching:**
 - 81% improvement in average bandwidth (currently 1,004kbps)
 - 33% improvement in average latency (currently 250ms)



System Architecture



Available Data

- **1 sec updates of Surface Position Data (CAT 11) for aircraft and vehicles within a discrete distance from an airport**
- **Generic Flight Information messages containing a subset of a traditional flight plan (only available from ATL)**
- **Output from ASDE-X SD: XML format via JMS**
- **28 Airports:**
 - ATL, BOS, BWI, CLT, DCA, DFW, DTW, EWR, FLL, IAD, JFK, LAS, LAX, LGA, MCO, MDW, MEM, MIA, MKE, MSP, ORD, PHL, PHX, SAN, SDF, SEA, SLC, STL



Description of the RVRDF

- **The Runway Visual Range Data Feed (RVRDF) provides visibility in feet for a runway's touchdown, midpoint and rollout sections.**
- **Any Class 1 ASDI Industry subscriber with an approved MOA can receive the digital feed data (i.e. direct connect)**
- **Direct connect options for end-users:**
 - FAA FTI ED-8 Gateway service using VPN
 - FAA FTI WAN through the Cisco 3845 router
 - AOCNET WAN
- **RVRDF data in graph and text format is also available at a publicly accessible webpage (<http://rvr.fly.faa.gov>)**



Data Availability

- **Data is provided over a socket as a non-buffered data feed**
 - Only updates received after the connection is established will be sent
 - If an end-user disconnects and then re-connects, they will lose any updates sent during that time
- **Data connection requires authentication through username and password**
- **Interface options established upon connection setup**
 - Update speed (2, 10, or 60 seconds)
 - One or more sites or ALL sites
 - Delta updates



67 RVRDF Airports

RVR Airports						
<u>ANC</u> 6500	<u>ATL</u> 6500	<u>BFI</u> 6500	<u>BNA</u> 6500	<u>BOS</u> 6500	<u>BUF</u> 6500	<u>BUR</u> 6500
<u>BWI</u> 6500	<u>CLE</u> 6500	<u>CLT</u> 6500	<u>CVG</u> 6500	<u>DAL</u> 6500	<u>DCA</u> 6500	<u>DEA</u> 6500
<u>DEB</u> 6500	<u>DFA</u> 6500	<u>DFB</u> 6500	<u>DPA</u> 6500	<u>DTW</u> 6500	<u>EUG</u> 6500	<u>EWR</u> 6500
<u>GEG</u> 6500	<u>GJT</u> 6500	<u>HOU</u> 6500	<u>HPN</u> 6500	<u>IAD</u> 6500	<u>IAH</u> 6500	<u>ILG</u> 6500
<u>IND</u> 6500	<u>ISP</u> 6500	<u>JFK</u> 6500	<u>LAX</u> 6500	<u>LGA</u> 6500	<u>LGB</u> 6500	<u>LMT</u> 6500
<u>MCI</u> 6500	<u>MCO</u> (na)	<u>MDW</u> 6500	<u>MEM</u> 3000	<u>MFR</u> 6500	<u>MIA</u> 6500	<u>MKE</u> 6500
<u>MRY</u> 6500	<u>MSP</u> 6500	<u>MWH</u> 6500	<u>OAK</u> 6500	<u>ONT</u> 6500	<u>ORN</u> 6500	<u>ORS</u> 6500
<u>PAE</u> 6500	<u>PDX</u> 6500	<u>PHL</u> 6500	<u>PHX</u> 6500	<u>PIT</u> 3500	<u>PSC</u> 6500	<u>RDU</u> 6500
<u>SAN</u> 6500	<u>SDF</u> 6500	<u>SEA</u> 6500	<u>SFO</u> 6500	<u>SJC</u> 6500	<u>SLC</u> 6500	<u>SMF</u> 6500
<u>SNA</u> 6500	<u>STL</u> 6000	<u>TPA</u> 6500	<u>VNY</u> 6500			

KEY:					
Values = lowest visibility (in feet) over last 10 minutes.					
6100+	2500-6000	1300-2400	800-1200	0-700	No Data

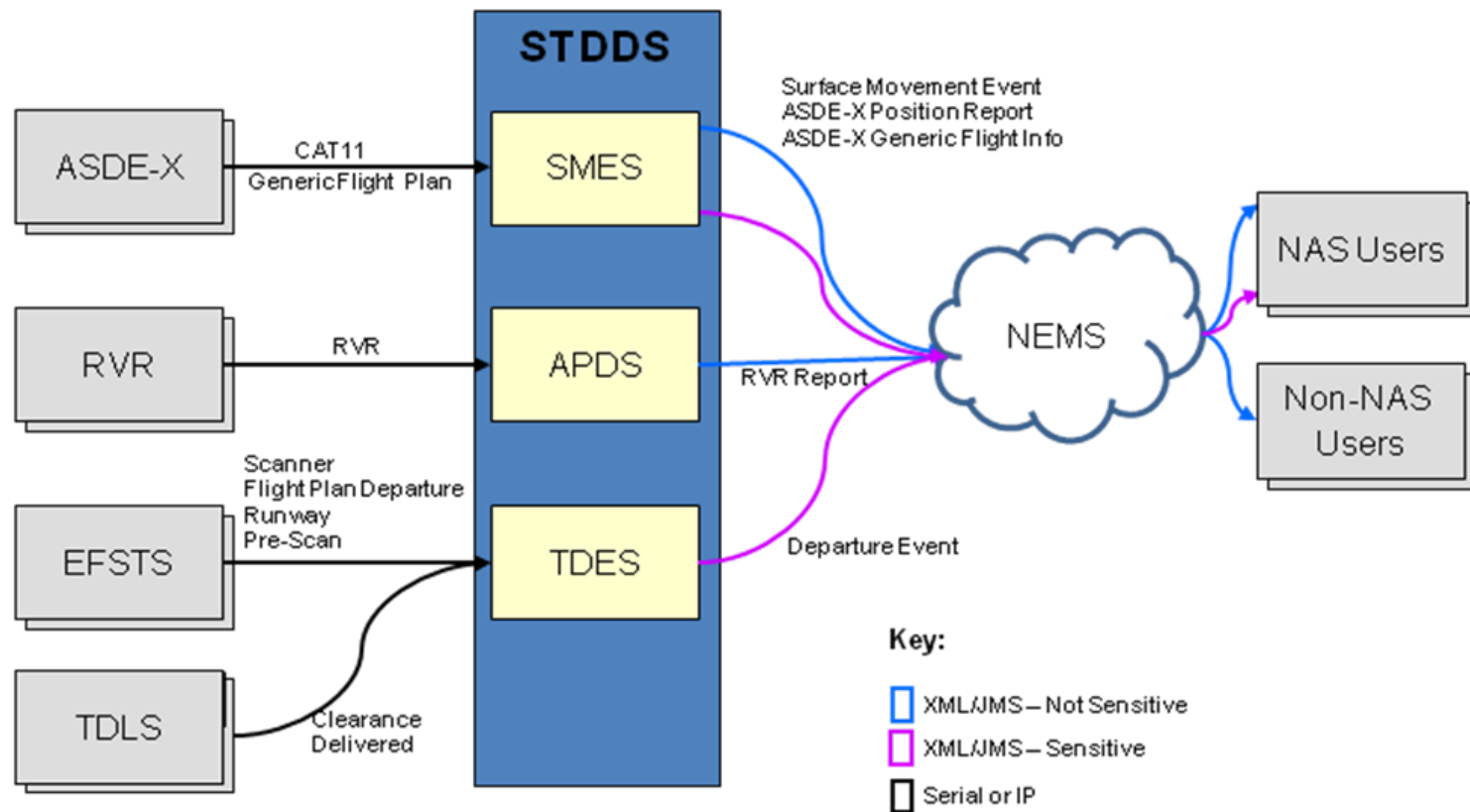


Description of STDDS

- **The SWIM Terminal Data Distribution System (STDDS) provides SOA compliant interfaces for terminal systems to send airport events to the NEMS for subscription by NAS and non-NAS consumers.**
- **All STDDS services will provide data in XML format via JMS**
- **STDDS will subsume ASDE-X SD and RVRDF**
- **Scheduled to be deployed at 39 TRACONS, providing data from over 100 towers.**
- **Deployment is planned to begin in the spring of 2013**



System Architecture



ASDE-X SD Transition to STDDS

- **All 35 ASDE-X sites in the NAS will become available**
 - Additional sites: DEN, HNL, HOU, IAH, PVD, SNA, BDL
- **Richer data:**
 - Position Report (CAT11)
 - Generic Flight Plan (SGF)
 - Surface Movement Events (e.g. spot out, takeoff, landing, spot on) derived from CAT11 data
- **Changes in the XML format are minimal -- limited to the message headers.**
- **Working with NEMS to provide a seamless transition to end-users.**
- **Transition is tentatively planned for FY14**



RVRDF Transition to STDDS

- **Data from more RVR sites (total of 112) in the NAS will become available.**
- **Structured XML data format allows for easier parsing**
- **End-users will need to on-ramp to NEMS and subscribe to APDS topics.**
- **Delta updates are being removed. All other interface options remain the same.**
- **Working on a minimum impact transition plan for end-users**





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Aircraft Access to SWIM (AAtS)

SWIM in the Sky

Presented by: Jon Standley, AAtS
Demo Program
Manager



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What is AAtS?

- **Aircraft Access to SWIM (AAtS)**

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



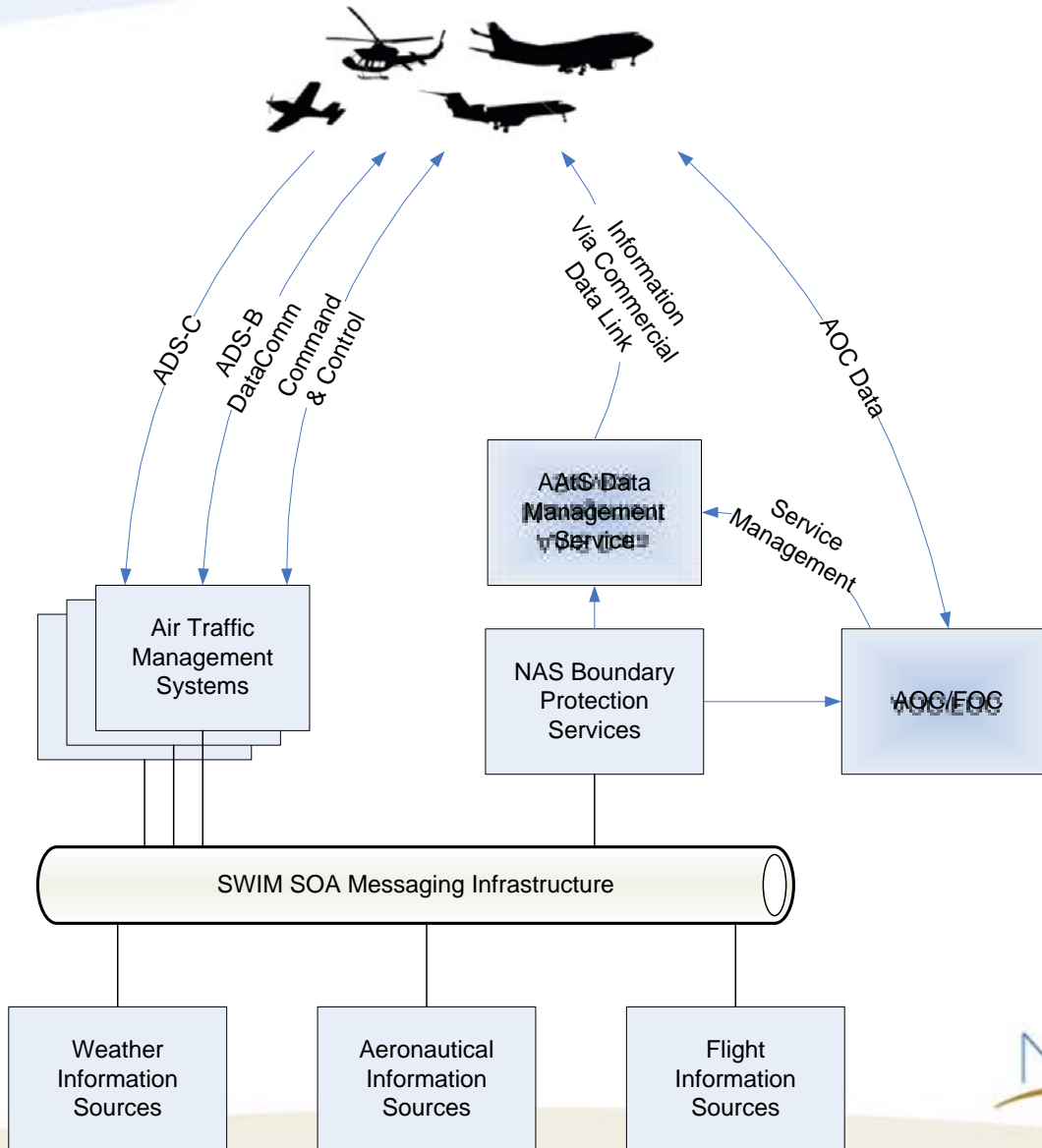
Aircraft Access to SWIM



DMS = Data Management Service



AAtS Logical Relationships



What AAtS Isn't

- A secondary or replacement system to DataComm
 - ✦ AAtS is a support tool only for delivering advisory information to pilots
 - ✦ Improves collaborative decision making by providing common sourced information to all parties
 - ✦ Is NOT used to issue any control instructions to the aircraft
- A TBO execution tool
 - ✦ AAtS is expected to serve as a graphical decision support tool for TBO
 - ✦ Allow pilots to graphically see requested trajectory changes prior to issuance
 - ✦ Pilots will NOT receive trajectory change instructions via AAtS

Expected Benefits of AAtS

- **Improved situational awareness between flight deck, operator, 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



Current AAtS Activities

- **Concept definition:**
 - AAtS Concept of Operations Update (Uplink/Downlink)
 - Revised AAtS Technical Concept to include Uplink and Downlink of Information
- **Technical investigations:**
 - Security aspects, Data priority and preemption, etc.
 - OWS-9 Sponsorship
- **AAtS Operational Demonstrations**
 - Conducting live operational flight demonstrations of information uplink
 - Corporate/business aircraft
 - Domestic/commercial aircraft



Other Related Activities

- **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)

AAtS Implementation Guidance

- **Purpose:**

- Captures uplink of SWIM-enabled information (Ground to Aircraft).
- Describes the process for implementing AAtS concepts
- Provides external user guidance to connect aircraft to SWIM
- Describes **all** functions necessary to support the intended use
 - Not all functions will be in every implementation



AAtS Implementation Guidance

- **Use:**

- Implementation Guidance Document is:

- Not a draft working paper (i.e., can be referenced)
 - Available publicly now in addition to the previous limited release
 - (<http://www.aircraftaccesstoswim.com/sites/default/files/documents/AAtS%20Implementation%20Guidance%20Doc%20V1.0.pdf>)
 - Being reviewed by AEEC 830/839, Data Link Users Forum, and SAI Subcommittee as well as ICAO

- Implementation Guidance Document allows:

- Operators and implementers to begin planning their implementations
 - AVS to plan future guidance work
 - SC-206 to reference the document's concepts

AAtS Implementation Guidance

- **Future:**

- As AAtS concepts evolve:

- Both major and minor changes to this document will be reflected in future versions.
 - Multiple versions will be released as the AAtS effort progresses
 - Example: uplink and downlink information flow concepts in development

- Working with offices within AVS (AIR, AFS)



Points of Contact

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Website: www.aircraftaccessstoswim.com





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Backup Slides



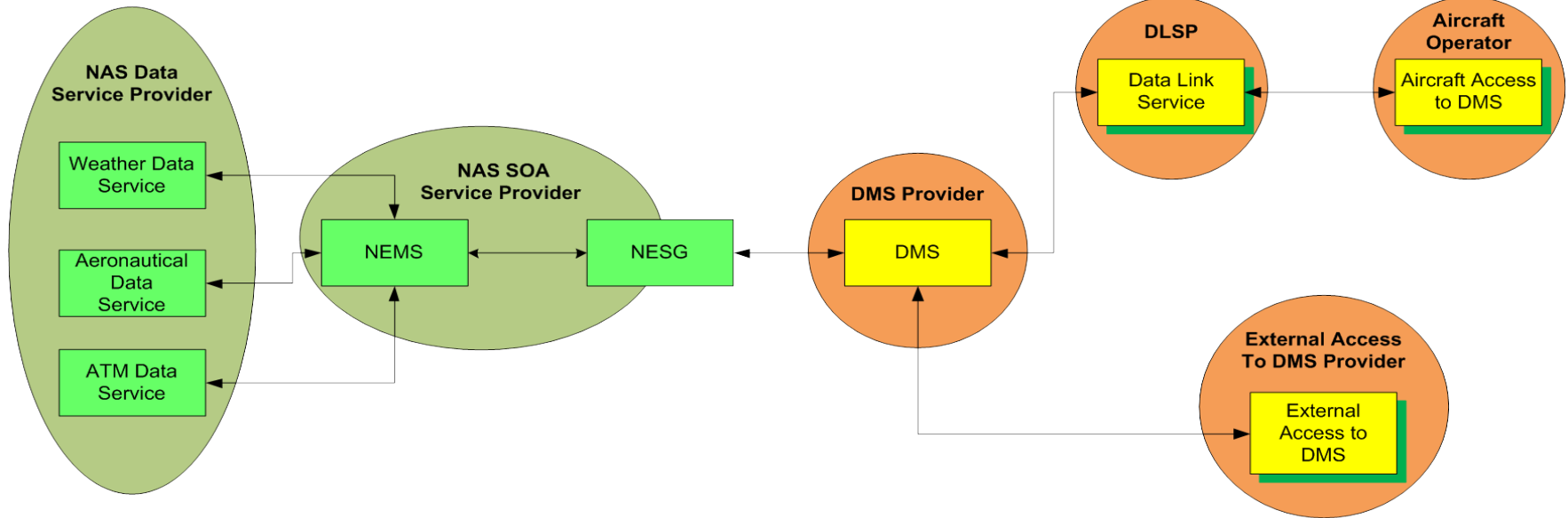
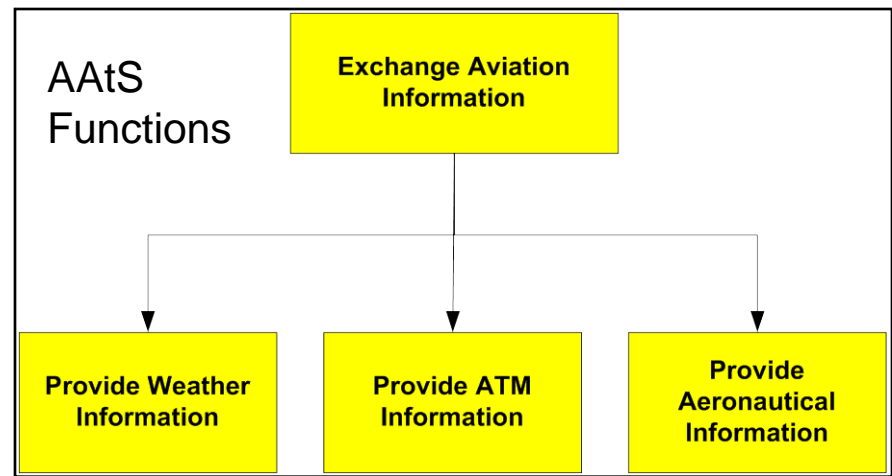
Functional Nodes

Functions

- **Data Management Services (DMS)**
 - A set of functions that manage, filter, validate, and monitor the information flow between SWIM and the aircraft
- **Aircraft Access to DMS**
 - A set of onboard functions that communicate with the DMS in support of the intended use
- **External Access to DMS**
 - A set of functions that allow external users to set rules and parameters, monitor performance, and data synchronization
- **Data Link Service (DLS)**
 - The service that provides the wireless connection between the ground and the aircraft

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



AAtS Functions

Note

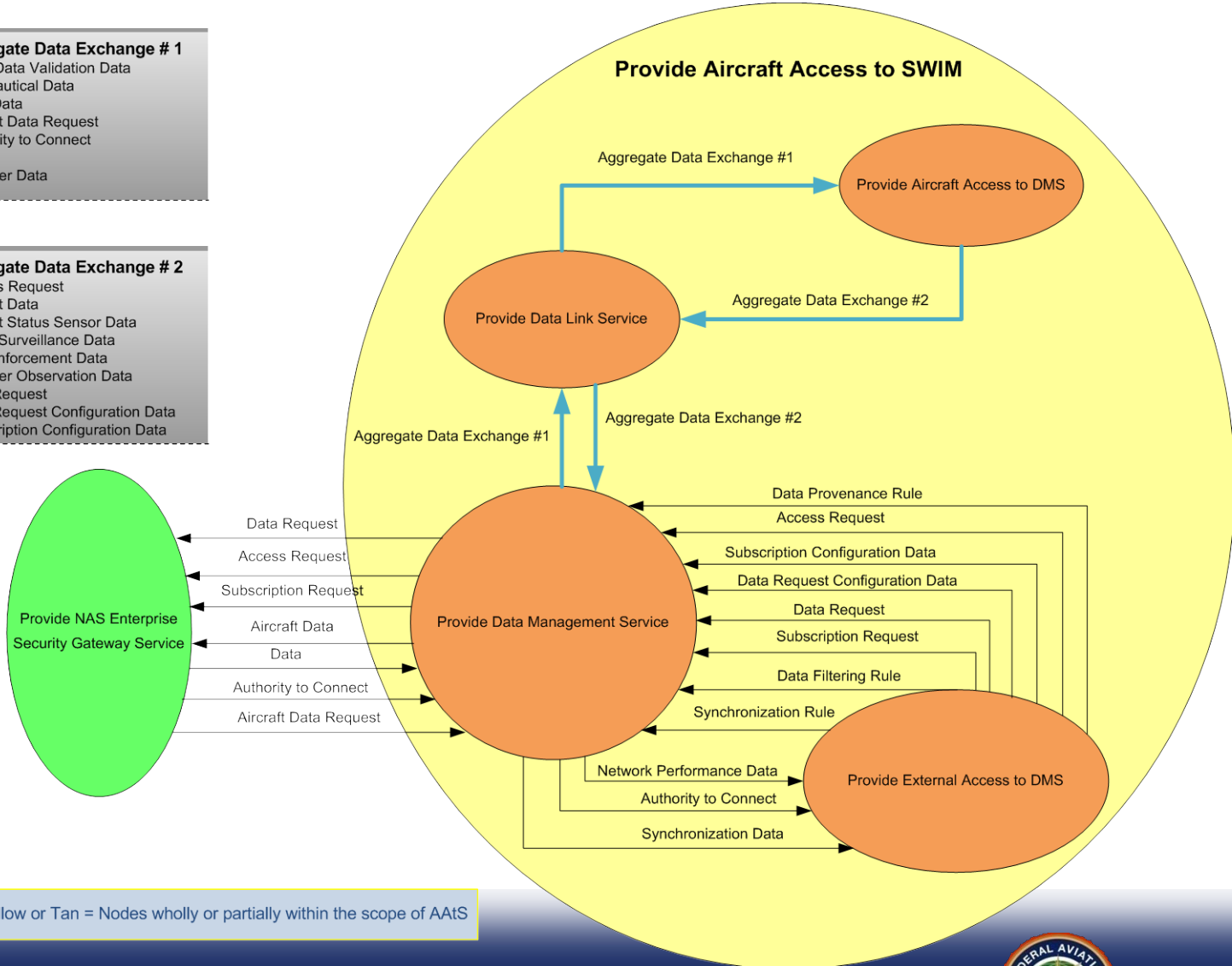
Aggregate Data Exchange # 1

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

Note

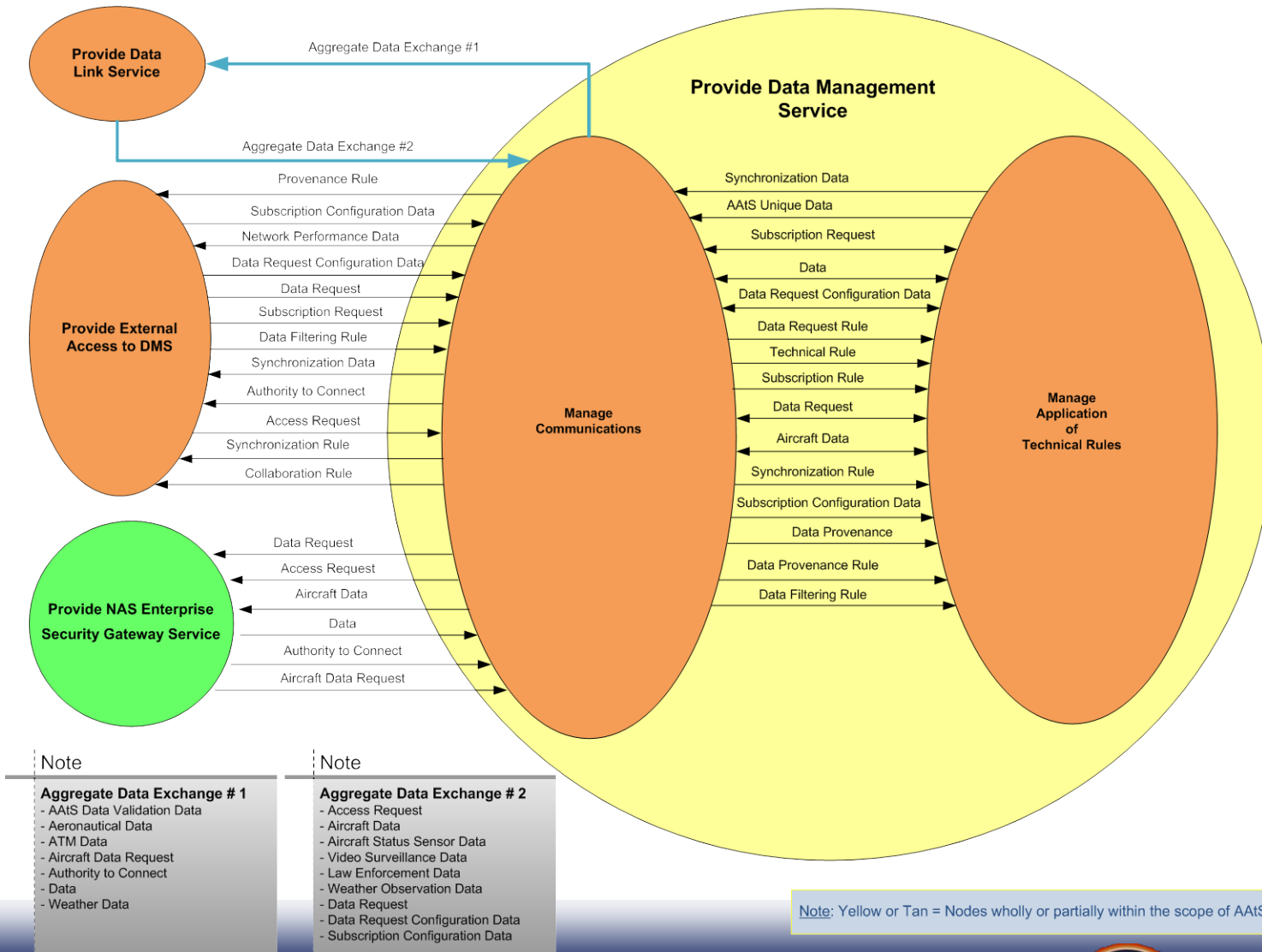
Aggregate Data Exchange # 2

- 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

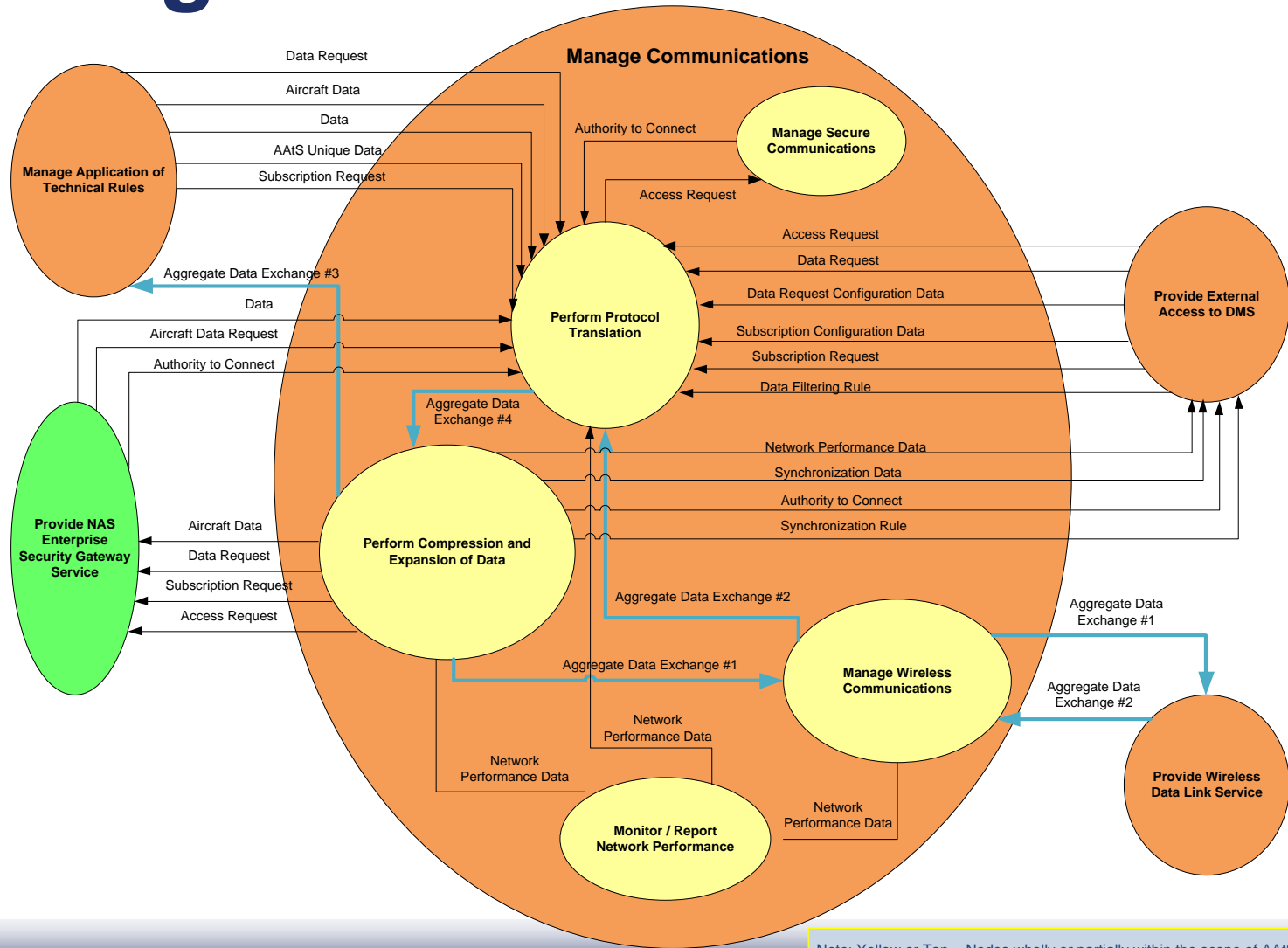


Note: Yellow or Tan = Nodes wholly or partially within the scope of AAtS

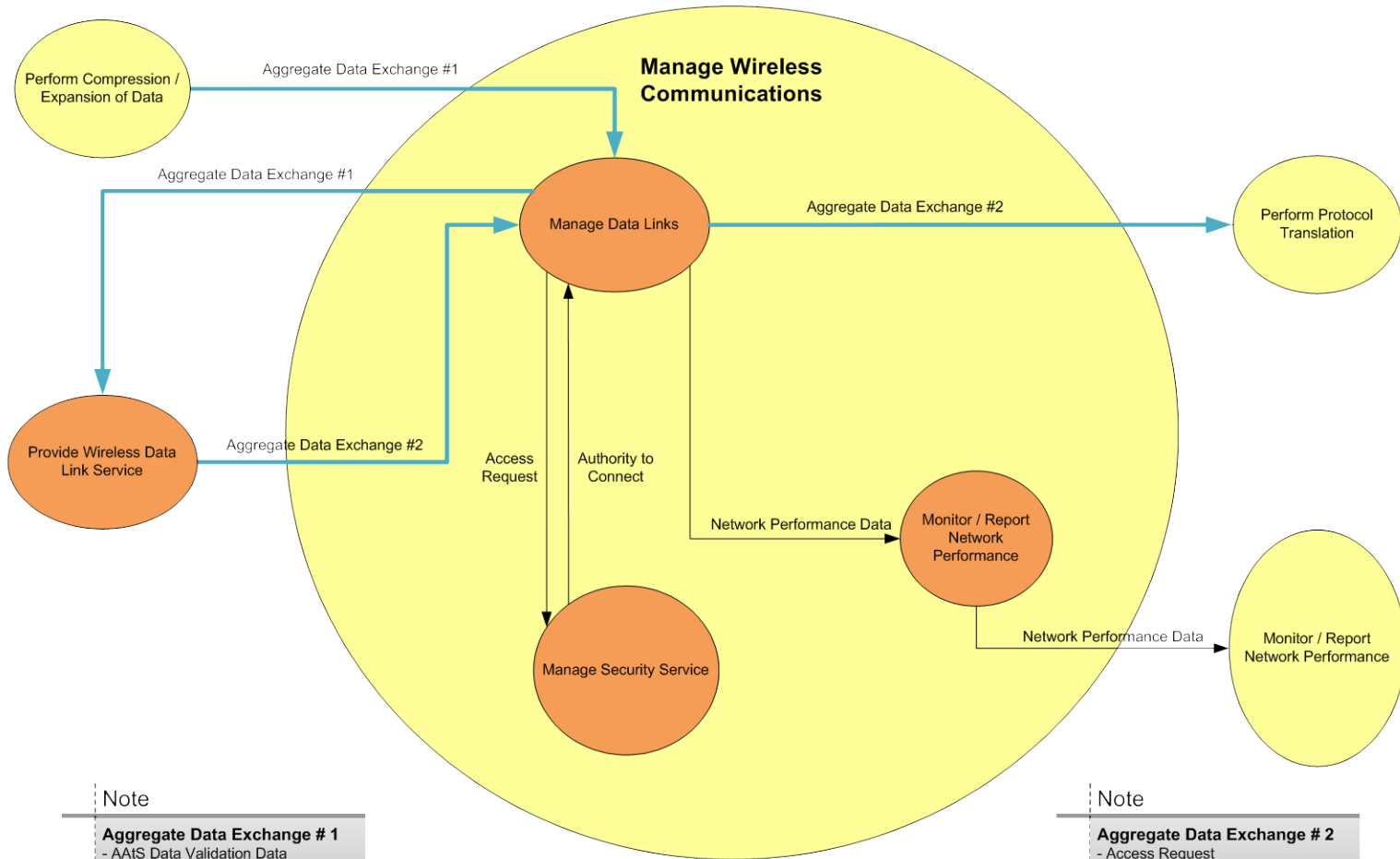
DMS Functions



Manage Comms DMS Functions



Manage Wireless Comms DMS Functions



Note

Aggregate Data Exchange # 1

- AAIS 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 AAIS

Note

Aggregate Data Exchange # 2

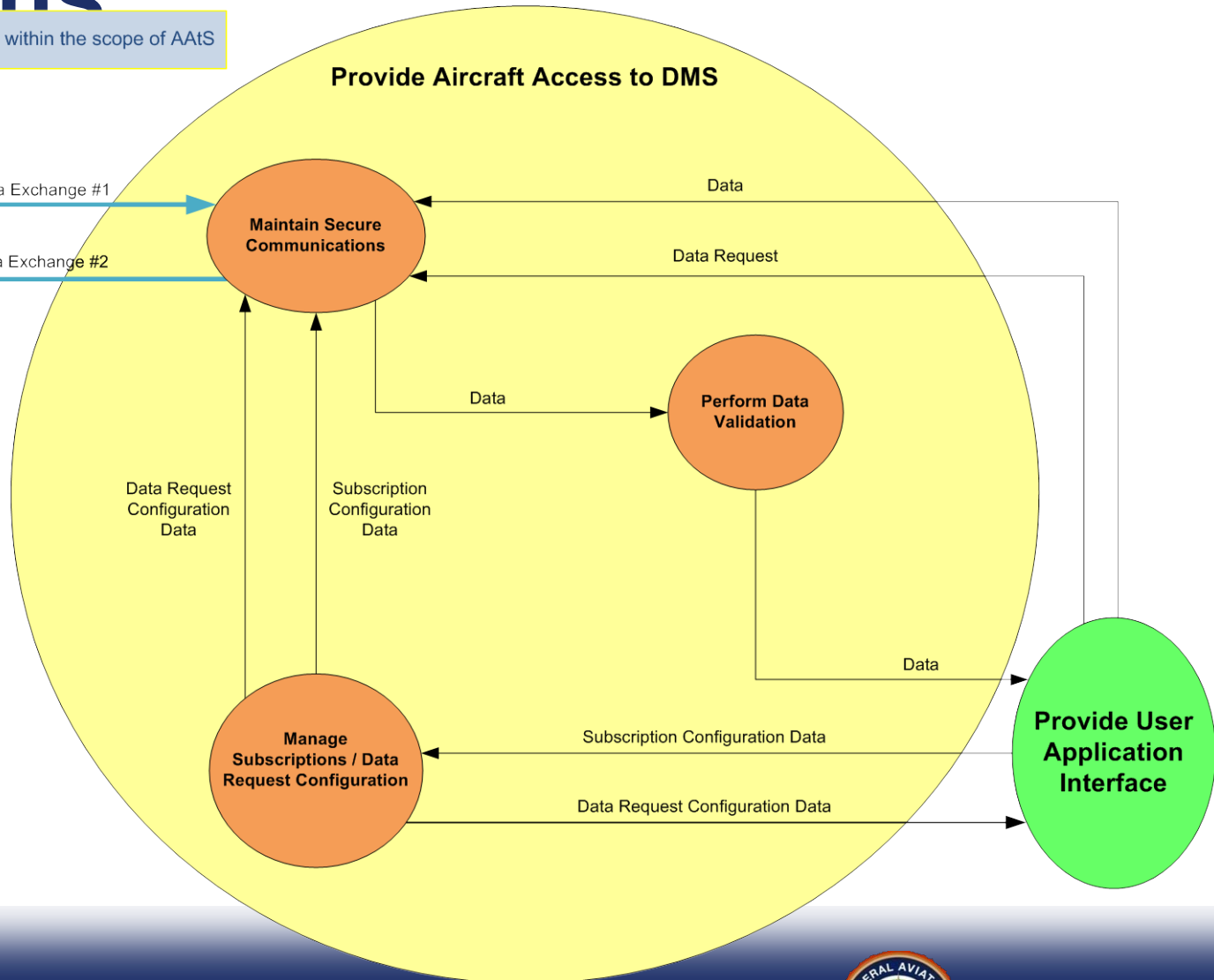
- Access Request
- Aircraft Data
- Aircraft Status Sensor Data
- Video Surveillance Data
- Law Enforcement Data
- Weather Observation Data
- Data Request
- Data Request Configuration Data
- Subscription Configuration Data



Aircraft Access to DMS

Functions

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



Note

Aggregate Data Exchange # 1

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

Note

Aggregate Data Exchange # 2

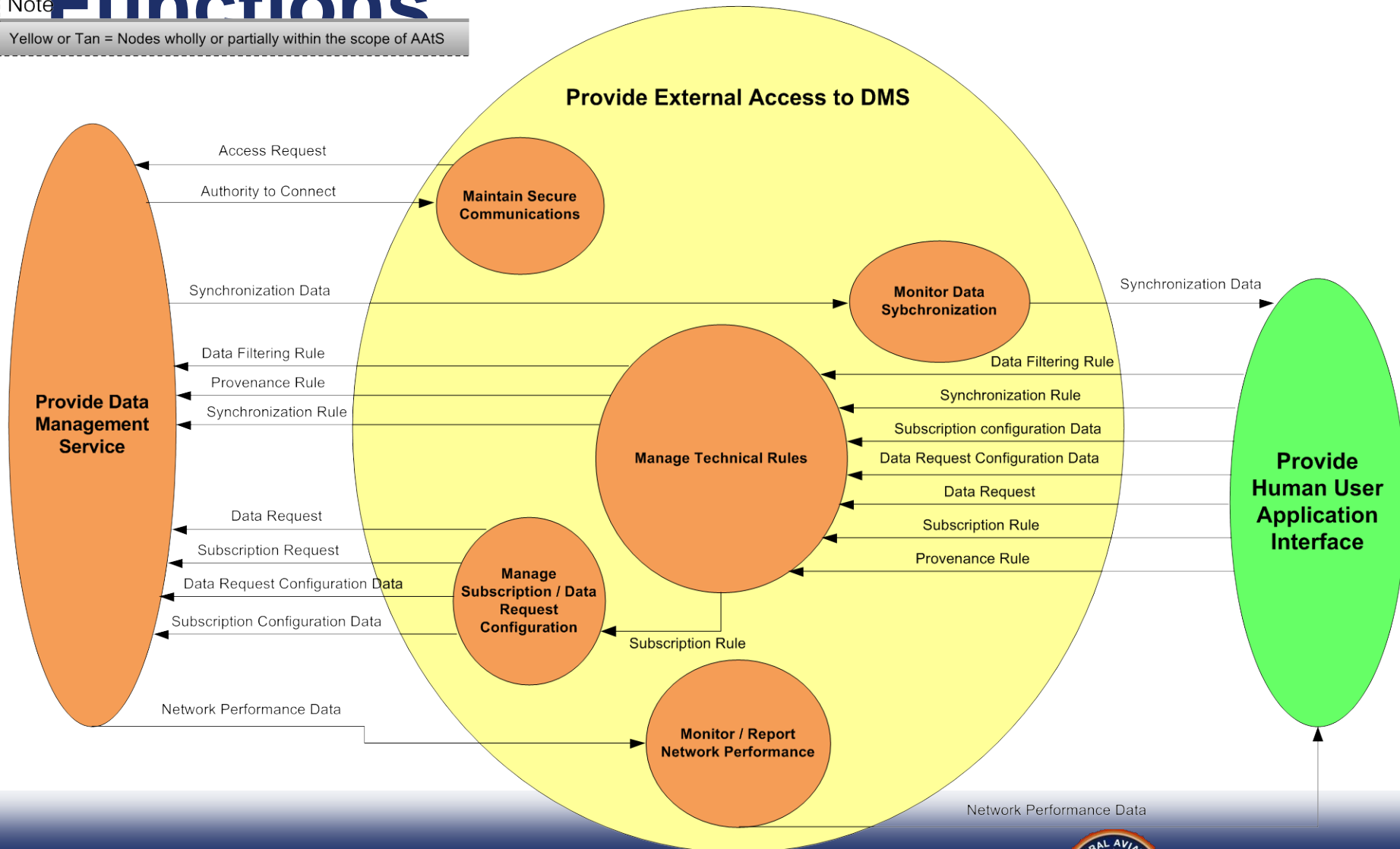
- Access Request
- Aircraft Data
- Aircraft Status Sensor Data
- Video Surveillance Data
- Law Enforcement Data
- Weather Observation Data
- Data Request
- Data Request Configuration Data
- Subscription Configuration Data

External Access to DMS

Functions

Note

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



Aggregate Data Lines Key

Note

Aggregate Data Exchange # 1

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

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

Note

Aggregate Data Exchange # 3

- Aeronautical Data
- Aircraft Data
- Aircraft Status Sensor Data
- ATM Data
- Data
- Data Filtering Rule
- Data Request
- Data Request Configuration Data
- Data Request Rule
- Law Enforcement Data
- Subscription Configuration Data
- Subscription Request
- Subscription Rule
- Synchronization Rule
- Video Surveillance Data
- Weather Data
- Weather Observation Data

Note

Aggregate Data Exchange # 4

- AAtS Data Validation Data
- Aeronautical Data
- Access Request
- Aircraft Data
- Aircraft Data Request
- Aircraft Status Sensor Data
- ATM Data
- Authority to Connect
- Data
- Data Filtering Rule
- Data Provenance
- Data Provenance Rule
- Data Request
- Data Request Configuration Data
- Data Request Rule
- Law Enforcement Data
- Network Performance Data
- Subscription Configuration Data
- Subscription Request
- Subscription Rule
- Synchronization Rule
- Video Surveillance Data
- Weather Data
- Weather Observation Data

To learn more about SWIM...

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It also contains key documentation, including select briefings, the SWIM Newsletter, and the SWIM Q&A

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Highlights

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SWIM publishes the 6th edition of our newsletter

October 11 - SWIM publishes the 6th edition of our newsletter

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Announcements

SWIM Brown Bag #12: LISA: Service Simulation Solutions for Developing Applications in Composite and Cloud Environments - Wednesday January 11, 2012 - 12:00pm-1:00pm FOB10A Rooms 8ABC (telcon information can be found [HERE](#)) (Download slides [HERE](#))

SWIM Brown Bag #13: Progress Software - Wednesday February 8, 2012 - 12:00pm-1:00pm FOB10A Rooms 5ABC

SWIM Brown Bag #14: Securing a SOA Environment - Wednesday March 7, 2012 - 12:00pm-1:00pm FOB10A

Recent News

January 6, 2012 - SWIM Brown Bag #12: LISA - Sametime and Telcon Information for Wednesday January 11, 2012

December 7, 2011 - SWIM Brown Bag #11: Testing - Sametime and Telcon Information for Tuesday December 13, 2011

October 14, 2011 - SWIM Brown Bag #10: REST - Sametime and Telcon Information for Wednesday November 9, 2011

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