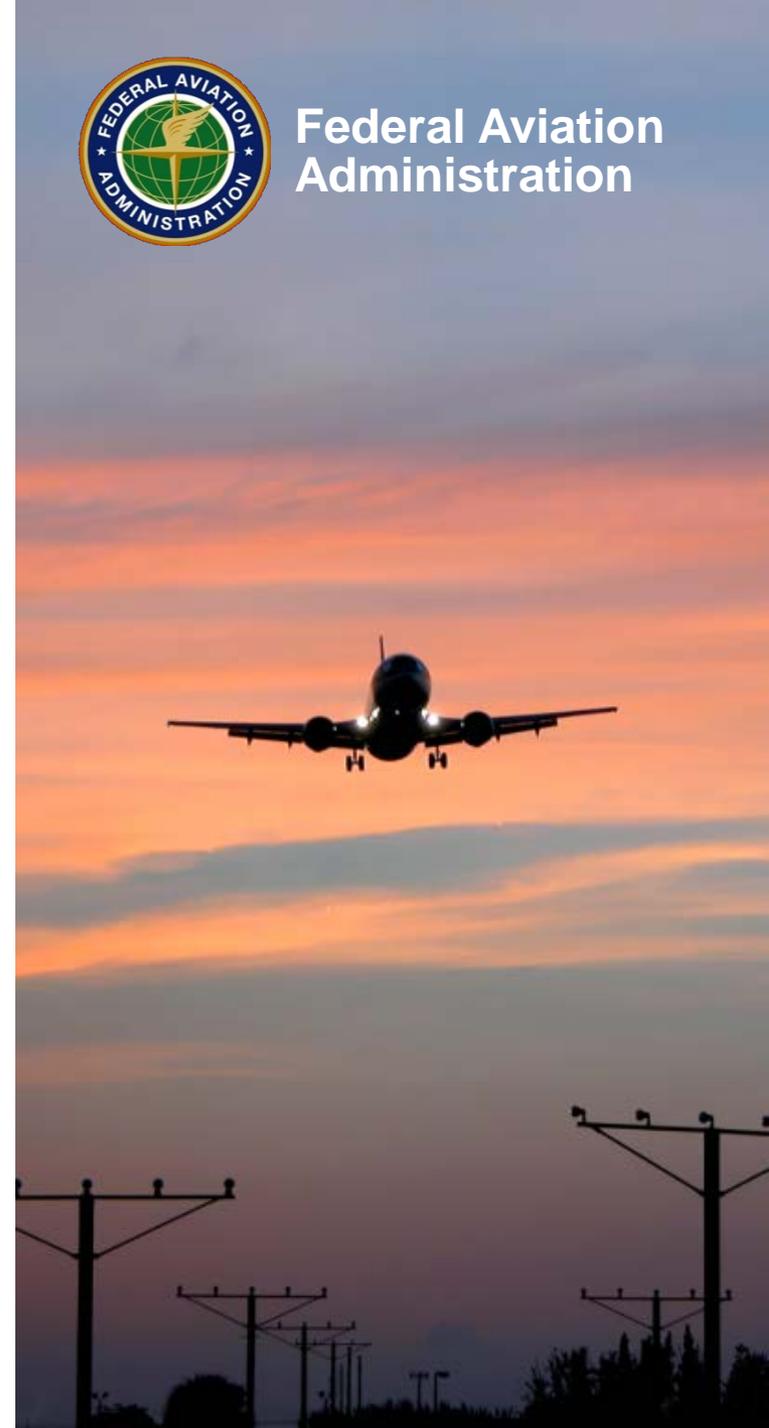


# SWIM Users Forum – Session # 7



Federal Aviation  
Administration

**By:** SWIM Program Office  
**To:** SWIM Consumers  
**Date:** September 10, 2015



# User Forum Logistics

- **Date:**
  - September 10, 2015 - 2:30 pm – 4:00pm
- **Location:**
  - Noblis Lakes Conference Rm – A&B
- **Go-to-Meeting: Please register for “SWIM Users Forum” at SWIM Website:**
- [http://www.faa.gov/nextgen/programs/swim/users\\_forum/](http://www.faa.gov/nextgen/programs/swim/users_forum/)
- **User Forum briefing distributed via invitation & on SWIM website**  
([www.faa.gov/nextgen/programs/swim/user-forum](http://www.faa.gov/nextgen/programs/swim/user-forum))

# Agenda

- **User Forum Overview**
  - Jeri Groce/Chris Pressler
- **Rewind to the August User Forum**
  - ASD Blocking question: Update
- **STDDS Program Updates**
  - Jeri Groce
- **NEMS Mediation Capabilities Overview**
  - Chris Pressler
- **SWIM at ATCA / 90-day Calendar**
  - Jeri Groce
- **Open Discussion – All**
  - Q&A
  - Suggest topics for future User Forums
  - Online survey link at the end of the program



# SWIM Users Forum - Overview

- **Purpose:** Monthly educational forum for SWIM Users to obtain program updates, provide feedback, obtain answers to SWIM related questions or data concerns
- **Scope: SWIM Portfolio of Services**
  - Aeronautical Data
  - Flight and Flow Data
  - Weather Data



# SWIM Users Forum - Overview

- **Forum Participation:**

- NAS and non-NAS consumers

- Airlines, Industry service providers, research & development, FAA Programs, Airports

- **SWIM Resources:**

- SWIM website: <http://www.faa.gov/nextgen/programs/swim/>
- NSRR: <https://swimrep.faa.gov/soa>
- SWIM Help Desk:
  - **1-855-FAA-NEMC** (855-322-6362)  
Option #3, “Enterprise Services” for phone support
  - [NEO-ES@faa.gov](mailto:NEO-ES@faa.gov) for email support

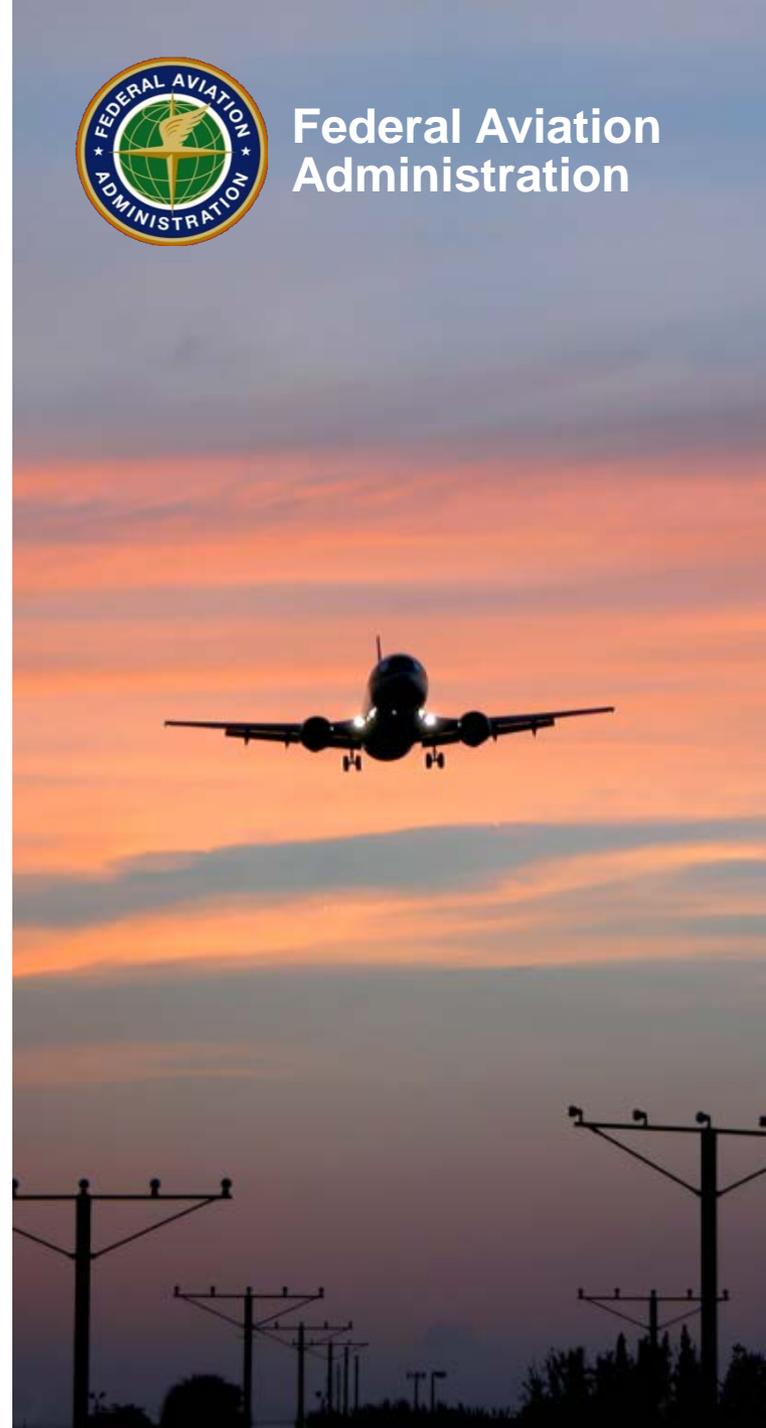


# STDDS Update

Jeri Groce  
STDDS Lead  
[jeri.groce@faa.gov](mailto:jeri.groce@faa.gov)



Federal Aviation  
Administration



# STDDS R3.2 Required User Changes

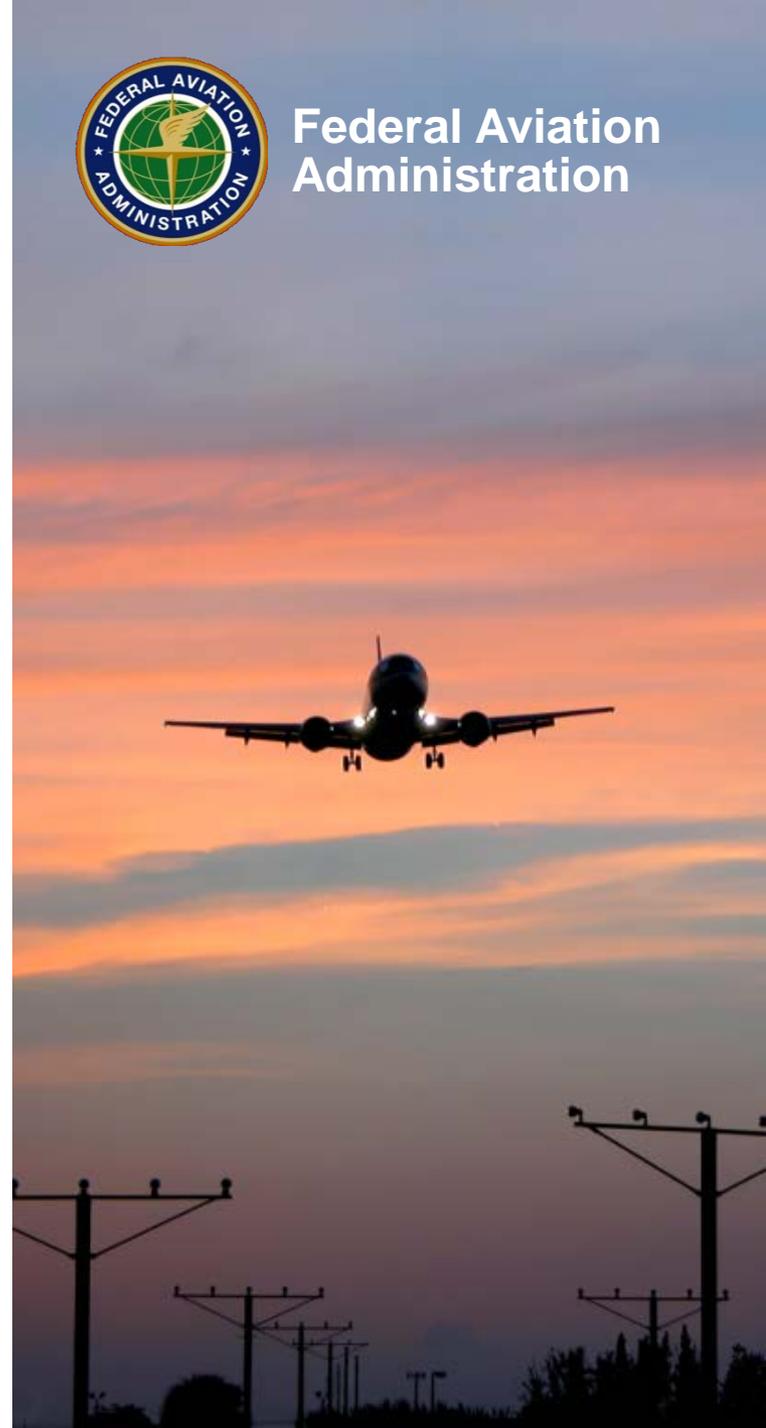
Enhancement	Services	Changes Required
Updated namespaces and “version” property in message header	All	<ul style="list-style-type: none"> <li>• Modify code to handle new namespace</li> </ul>
Change in values for “tracon” message header property	All	<ul style="list-style-type: none"> <li>• If sensitive to TRACON values, new values to expect:               <ul style="list-style-type: none"> <li>• ANC→A11</li> <li>• MCO→F11</li> <li>• MEM→M03</li> </ul> </li> </ul>
SMES altitude provided in full (not truncated)	SMES	<ul style="list-style-type: none"> <li>• If code expects integer value, update to accept real value</li> </ul>
Corrected SMES Fused Height Source	SMES	<ul style="list-style-type: none"> <li>• Code may need updating to align with new values</li> </ul>
Beacon Code Filtering/IFOS File Formats	SMES/ TAIS	<ul style="list-style-type: none"> <li>• Modify code to accommodate beacon code of ANON</li> </ul>

# SWIM NEMS Mediation Capabilities Overview

Chris Pressler  
Lead Engineer, SWIM  
[Chris.Pressler@faa.gov](mailto:Chris.Pressler@faa.gov)



Federal Aviation  
Administration



# NEMS Mediation

- **Mediation performs transformations on SWIM content or on message properties for Consumers.**
- **Provides data to SWIM Consumers as consumers desire**
- **Examples in NAS Operations Today:**
  - RVR Down-Sampled from every 5 sec per airport to every 30 seconds per airport
  - Unbatch TFMS batched messages to enable filtering for consumer
  - Batch certain messages to reduce network bandwidth to consumer
  - Provide a 5 minute delay to FAA specified content
  - Correct URL strings for consumers
- **Examples ordered and in-work:**
  - Mediate the upcoming new TFMS R13 to FIXM 3.0 and AIXM compliant payloads
  - Mediate TBFM 4.3.2 to 4.2.3 for consumers on 4.2.3
  - Mediate STDDS v3.2 to previous version v3.1 for consumers (TFMS, etc.)



# NEMS Enterprise Service Bus provides...

## • Standard Mediation Capabilities

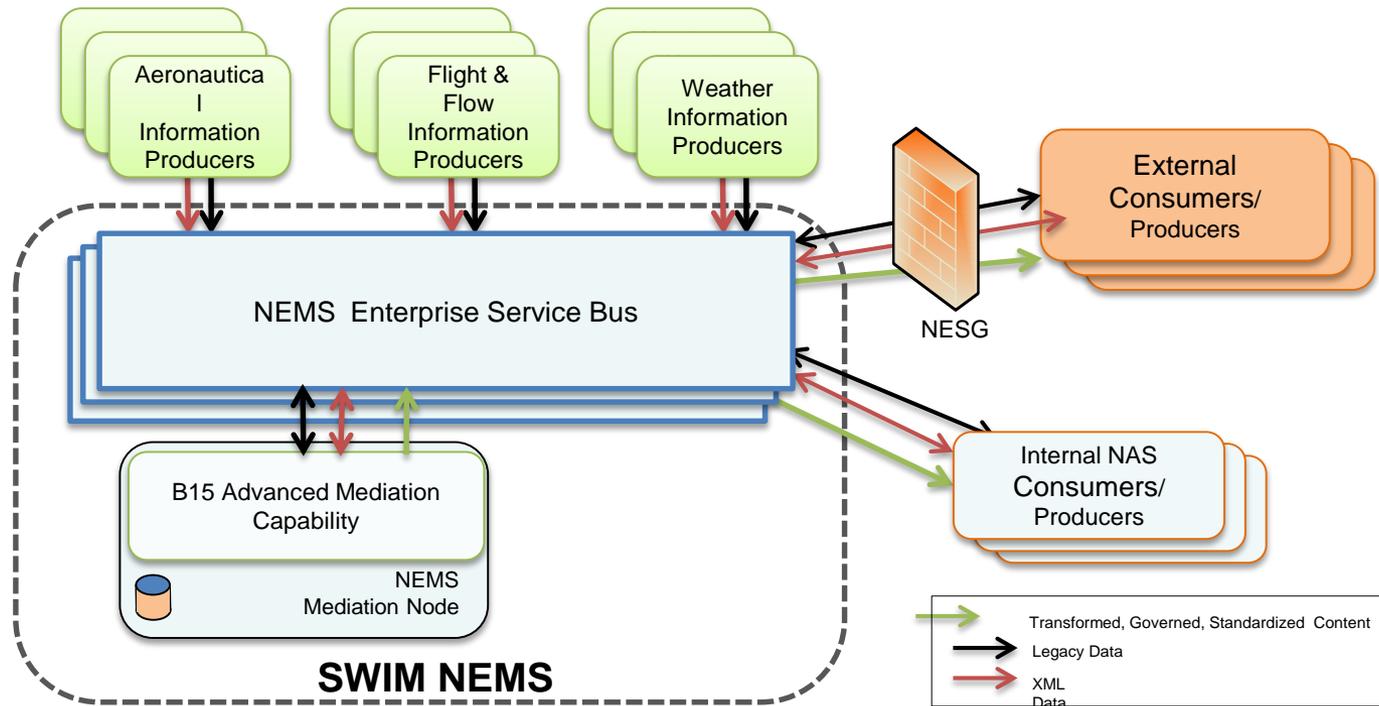
- Transform simple payload values for Consumers
- Batch and unbatch message payloads
- Down sample messages to reduce consumer bandwidth requirements
- Mediate publisher newer version of content to a previous version. To support consumers that cannot transition immediately to a new publisher service version.
- Transforms content schemas to older versions of same publisher service.
- Rapid service, common mediation process per message is 50ms or less.
- Examples:
  - TFMS R13 Flight Data and Flow Information both transformed into format currently published as R10 to provide a seamless and transparent transition for all current TFMdata consumers
  - NEMS will provide both R13 and R10 Flight and Flow to consumers

# NEMS Enterprise Service Bus provides... *cont.*

## • **Advanced Mediation Capabilities**

- Extensive data transformation, protocol mediation, temporal processing, and the application of complex/dynamic business rules to NEMS content requiring delivery of information to consumers in multiple formats.
- Further promotes and enables interoperability and governance for FAA enterprise information sharing at an enterprise level between producers, consumers, and systems that utilize SWIM content in various data formats and protocols.
- Provides content interoperability through transformation of content from legacy data formats into compliance with new FAA NextGen adopted data standards for information exchange.
- Backward compatibility to previous versions for complex content / payloads
- Examples: Mediate TFMS R13 to FIXM 3.0 and AIXM

# SWIM NEMS Advanced Mediation Data Flow



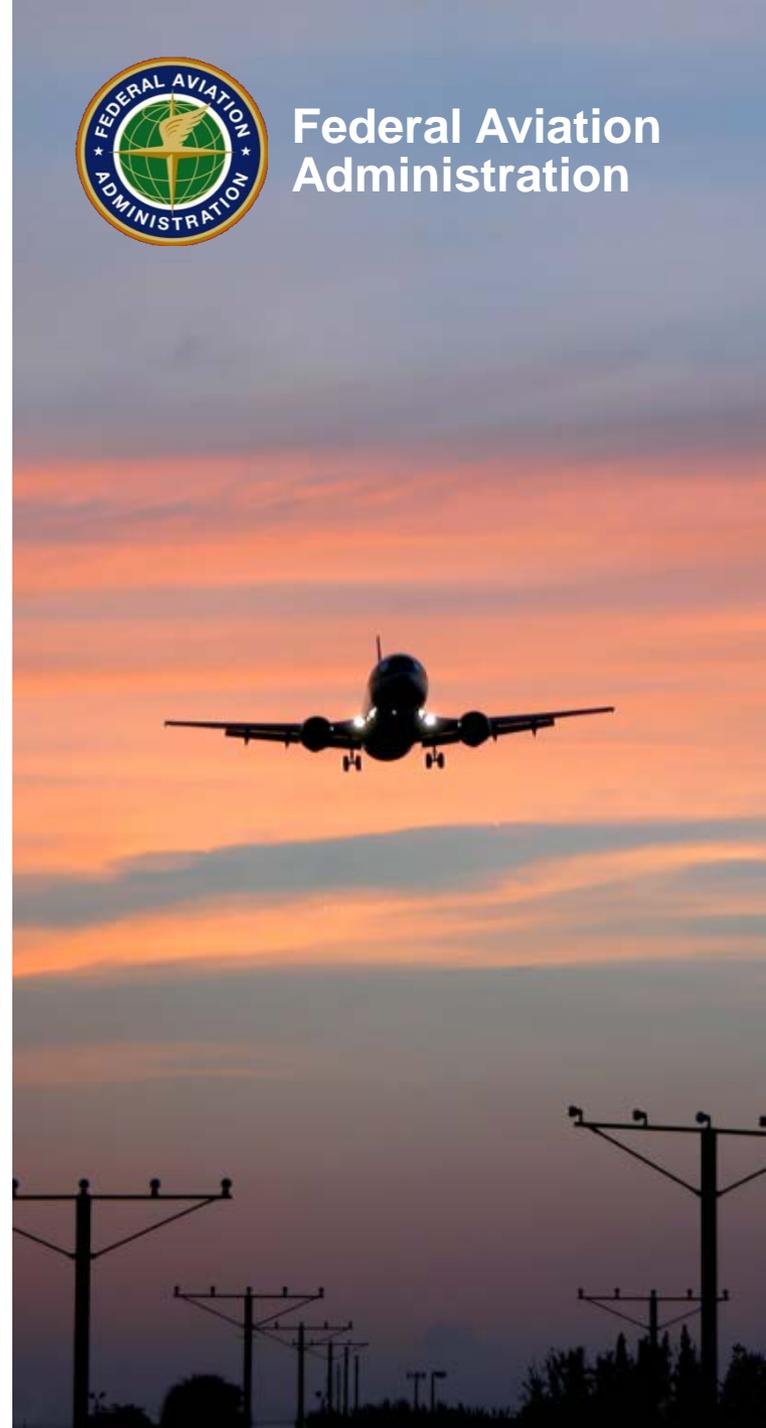
October 2014



# Upcoming Events



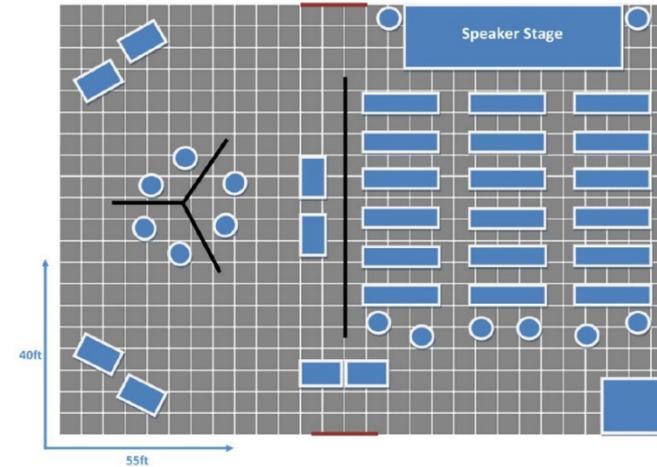
Federal Aviation  
Administration



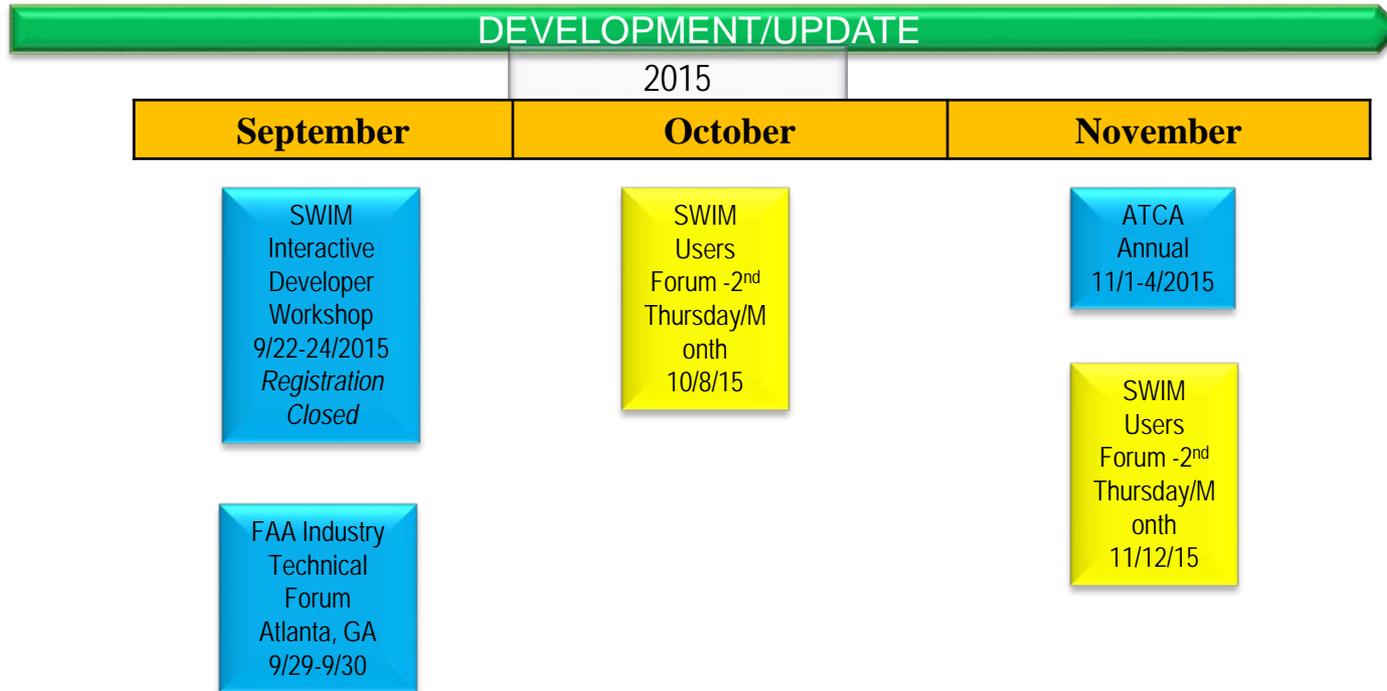
# *SWIM Connect* at the ATCA 60<sup>th</sup> Annual

November 1-4, Gaylord National Resort & Convention, National Harbor, MD

- **Purpose:** Create an interactive forum to connect with SWIM stakeholders & help attendees learn more about SWIM
- Swim Connect Theater will engage attendees through:
  - Guided Live & Recorded SWIM Demonstrations
  - Presentations from FAA Leaders & Industry Champions



# Schedule – 90 days



# Thank you for joining us!

Please take this short survey to let us know how we're doing...

<https://www.surveymonkey.com/r/JGTNVZK>



# Questions



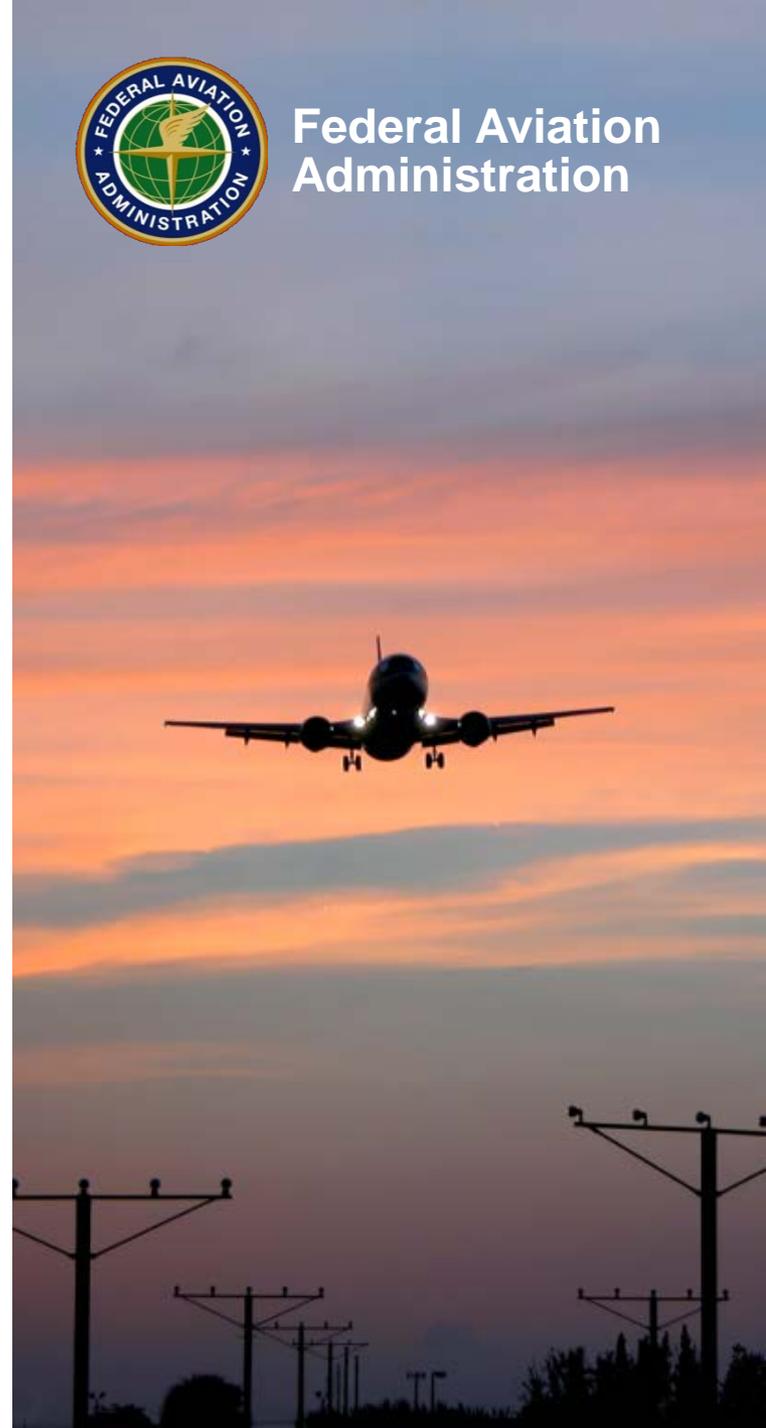
# SWIM NEMS Mediation Capabilities Overview

## *Backup Slides*

Chris Pressler  
Lead Engineer, SWIM  
[Chris.Pressler@faa.gov](mailto:Chris.Pressler@faa.gov)



Federal Aviation  
Administration



# NEMS Mediation

## 1. NEMS Messaging Node Mediation – Standard Mediation

- NEMS supports message payload mediation and format transformation using
  - XQuery: XML to/from XML, non-XML
  - XSLT: XML to XML
- NEMS supports Protocol mediation among the following producers and consumer types
  - WS SOAP over HTTP and JMS
  - WS RESTful over HTTP and JMS
  - WS XML over HTTP and JMS
- NEMS to support other mediation needs such as content delays, sampling, batching, and unbatching of payloads

## 2. NEMS supports Advanced Mediation and Transformation

- Advanced capabilities that require transformation processing capabilities or persistent store and correlation capabilities above the capacity of a standard NEMS messaging node

12/9/2016



# TFMS R10 FIXM / AIXM Use of NEMS

## Advanced Mediation

- TFMS R10 Flight Data messages and Flow Information (some) messages shall be mediated to FIXM 3.0 format using the FIXM US Extension v3.1
- TFMS R10 Flow Information shall be mediated to AIXM 5.1 using Traffic Management Initiative (TMI) AIXM extension.
- Flow Information AIXM and FIXM messages shall be mediated into a FlowInformationMessage wrapper and formatted as a single JMS AIXM/FIXM compliant XML message.
- NEMS shall rebatch the FIXM Flight Data. NEMS will provide the following categories:
  - Category 2 – All and Restricted messages batched by Source Facility
  - Category 4 – All and Desensitized messages excluding London source facility.
- NEMS distributes the FIXM/AIXM messages to authorized, subscribed consumers, same as R10 TFMS messages.
  - By category for Flight Data Messages (category 2 and 4)
  - By sensitivity for Flow Information Messages (A=All, R=Restricted, D=Desensitized)
- Future release will provide the option for consumers to subscribe to individual message types, rather than receive batched message sets.

# Mediation – Message Payload Transformation Scenarios Supported

## 1.XQuery Transformation

a)Non-XML to XML

b)XML to Non-XML

c)XML to different XML ( includes deletion and addition of elements, includes changing of content value

## 2.XSLT Transformations

a)XML to different XML ( includes deletion and addition of elements, includes changing of content value)

12/9/2016

# Mediation – Protocol Mediation Scenarios Supported

## **1.WS SOAP HTTP producer to**

- a) WS RESTful HTTP consumer
- b) WS XML HTTP consumer
- c) WS SOAP over JMS consumer

## **2.WS RESTful HTTP producer to**

- a) WS SOAP HTTP consumer
- b) WS XML HTTP consumer

## **3.WS XML HTTP producer to**

- a) WS RESTful HTTP consumer
- b) WS SOAP HTTP consumer

## **4.WS SOAP over JMS producer to**

- a) WS SOAP HTTP consumer
- b) WS XML HTTP consumer

## **5.WS XML over JMS to WS XML over HTTP consumer** 12/9/2016



# Mediation – Protocol Mediation

## Scenarios Supported and tested as part of B5 Advanced Security

- 1. WS SOAP HTTPS producer to**
  - a) WS RESTful HTTPS consumer
  - b) WS XML HTTPS consumer
  - c) WS SOAP over JMS with TLS consumer
- 2. WS RESTful HTTPS producer to**
  - a) WS SOAP HTTPS consumer
  - b) WS XML HTTPS consumer
- 3. WS XML HTTPS producer to**
  - a) WS RESTful HTTPS consumer
  - b) WS SOAP HTTPS consumer
- 4. WS Soap over JMS with TLS to**
  - a) WS SOAP over HTTPS Consumer
  - b) WS XML over HTTPS consumer
- 5. WS XML over JMS with TLS to WS XML over HTTPS consumer**

12/9/2016



# NEMS Data Service Mediation Examples – TFMS

## 1. NEMS Samples APDS service, RVR data for TFMS as a consumer.

- Down sample the STDDS APES RVR data service from 15 RVR messages per minute to 1 RVR per minute per airport
- Support for 'TFMS Producer' as a consumer of RVR data

## 2. Unbatch all TFMS FlightData Service messages for processing

## 3. Organize TFMS content into 5 categories and re-batch:

- Authorized for all Data
- Authorized for all Data but filtered by source facility
- Users Authorized for filtered data that includes London data.
- Users Authorized for filtered data that does not include London data.
- Users Authorized for filtered data that does not include London data but data is to be delayed by 5 minutes.

## 4. Apply a 5 minute delay to generate TFMS FlightData Category 5

12/9/2016

# Web Services Mediation Example - Enhanced WINS Dissemination (EWD) Weather Data

- **Mediate Web Service URL from Requester Client to NEMS Proxy URL in NAS**
- **Enables the Dynamic Subscription message exchange pattern**

12/9/2016

