

# SWIM Users Forum #12

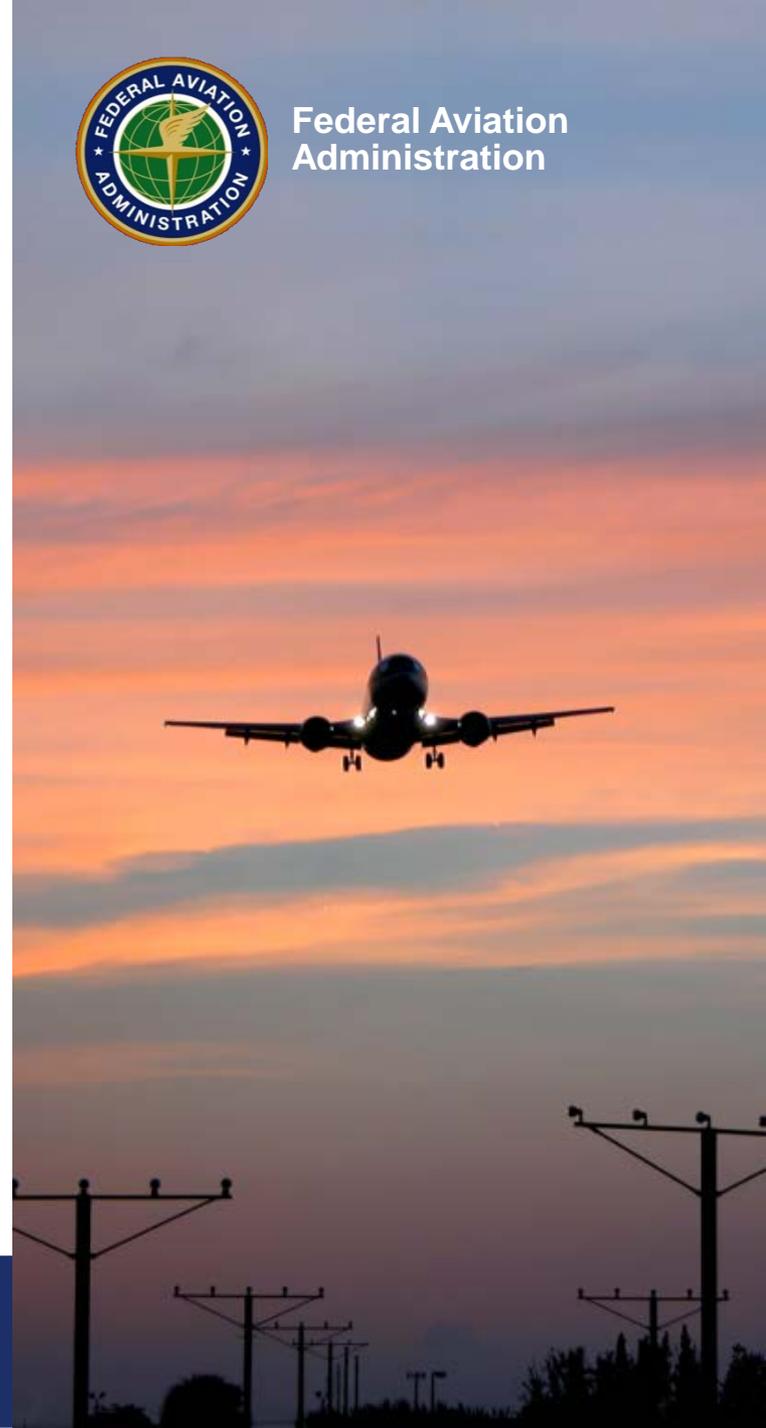
September 8, 2016

Washington, DC

Hosted by the SWIM Program Office



Federal Aviation  
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# Today's Agenda

- **Who to contact for SWIM-related questions, requests, concerns**



- **Voice of the User: FAA's Emergency Operations Network (EON)**
- **Updates: STDDS, SFDPS, Solace Migration**
- **SWIM Availability for External Consumers**
- **SWIM News**
  - A plug from CSS-Wx
  - Upcoming Events (ATIEC, ATCA)

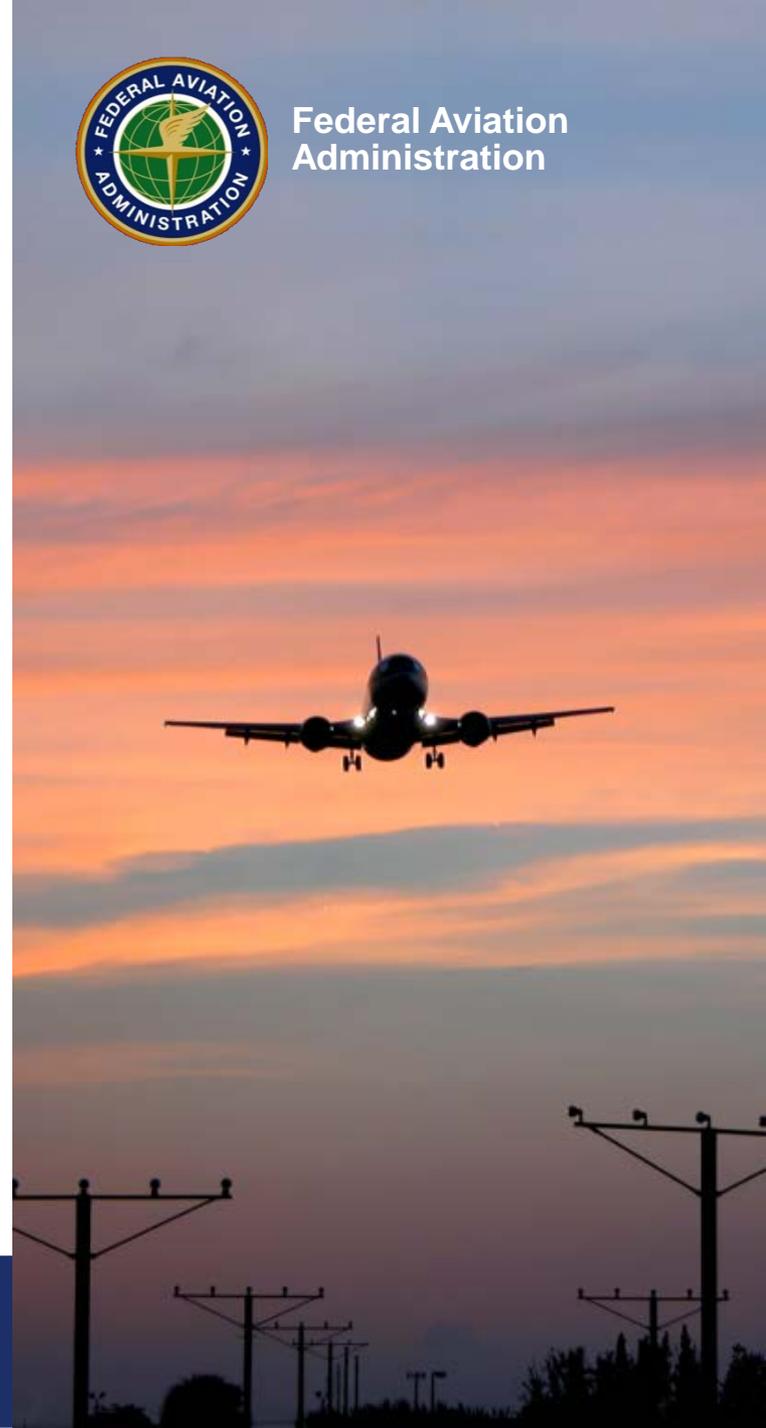
# Best ways to contact SWIM

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# Any questions or concerns re: SWIM, contact us

## [swim@faa.gov](mailto:swim@faa.gov)

- For general questions, feedback, event notices, etc.
- Monitored and accessed by multiple team members, including SWIM leadership, for faster response
- In one business day, you will receive a reply stating your request has been sent to the right POC to take action
- If your request has not been addressed in three business days, let us know
- Regardless of the issue, it will be tracked to help improve and communications (e.g., modify website FAQs, creating future Users Forum topics)

## [Data-To-Industry@faa.gov](mailto:Data-To-Industry@faa.gov)

- For the users who want access to SWIM data
- Addresses the technical questions



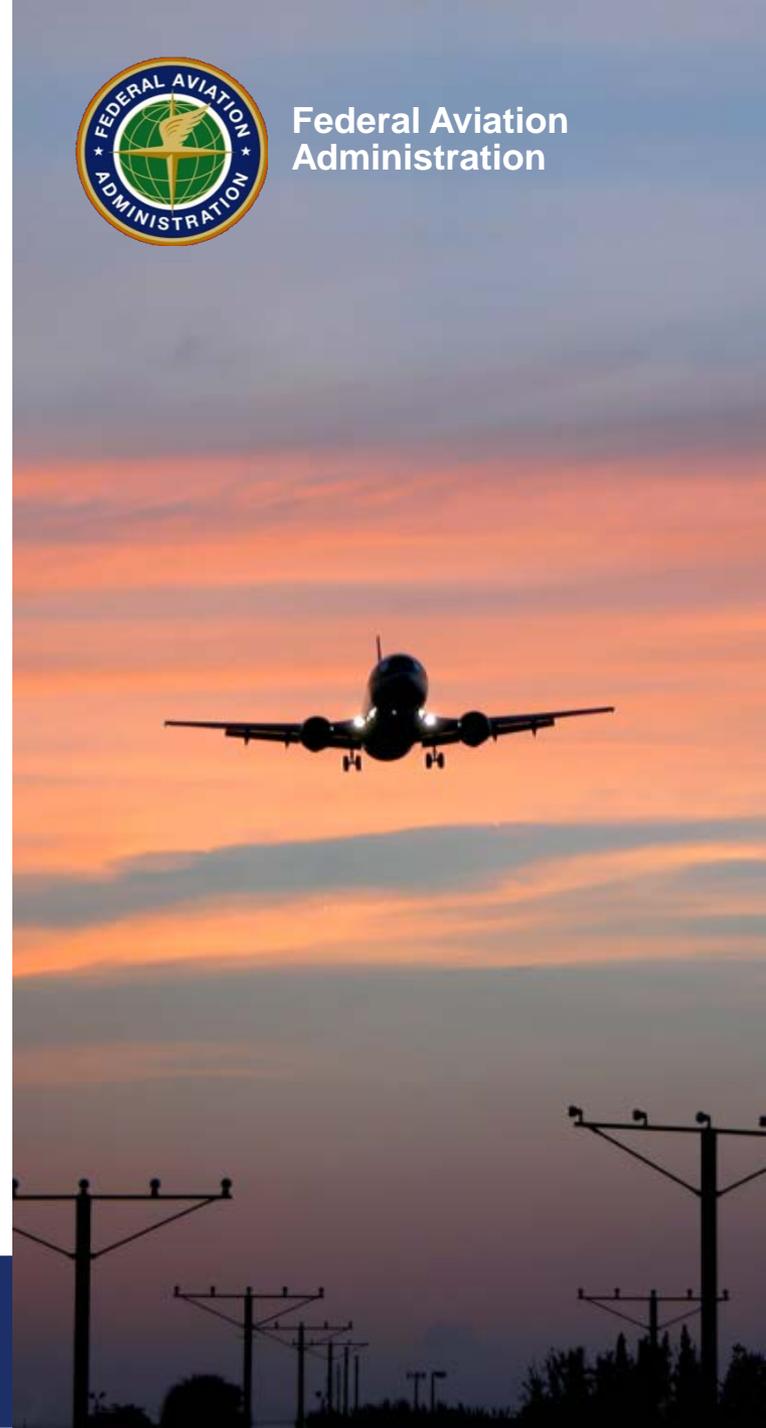
# SWIM Data Consumption

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Emergency Operations Network  
(FAA)



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# EON Progress Update

- SWIM Workshop
- Data Consumption
- Demos



# SWIM Workshop – Volpe (6/21-6/23)

- **Development environment setup**
  - PostGIS / PostGreSQL DB
  - JumpStart Kit /data bundles
- **Sample Data consumption**
  - Traffic Flow Management System (TFMS)
  - SWIM Terminal Data Distribution System (STDDS)
  - En route SWIM Flight Data Publication Service (SFDPS)
  - Notice to Airmen (NOTAMs) web service



# SWIM Data Consumption

- **Onboarding completed for data sets below**
- **EON is now setup to consume:**
  - Surface Movement Event Service (STDDS)
  - Terminal Automation Information Service (TAIS)
  - Traffic Flow Management Data (TFMS)
  - Flight Data (SFDPS)
  - NOTAM Distribution Service (NDS)



# Demo #1

- Used Snowflake's GoLoader software to ingest several minutes of SMES STDDS data into a PostGIS (PostgreSQL) database.
- Use ArcGIS Pro to connect to PostGIS table and reference geometry field so it can be visualized.
- Time-enable the layer so track positions can be visualized temporally



ASDEX.mp4

# Demo #2 - Prototype

- **TFMS Data**

- Flight Plan, Flight Plan Amendments, Flight Schedule

Event Type: Air Carrier

Event Location: LAX

Event Date: 08/30/16 10:17

Flight No.: AAL183

Found matching flights AAL183

Action	Flight No.	Airline	Aircraft Type	Departure Airport	Departure Time	Arrival Airport	Arrival Time
Select	AAL183	AAL	A319	AUS	08/30 14:12Z	LAX	08/30 16:53Z

Close

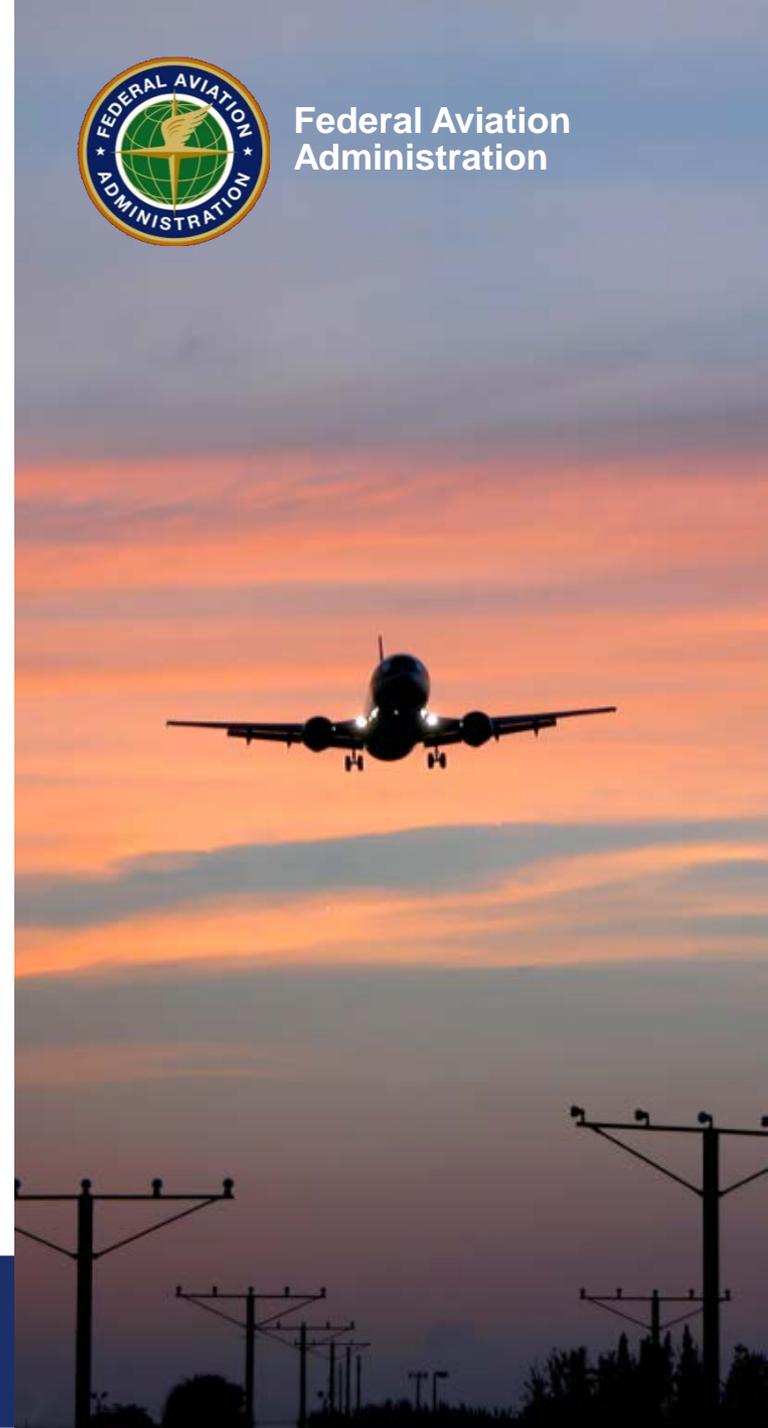
# Transition to Solace

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Alex Murray



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# Transition to Solace

- **SWIM Moving from ActiveMQ/WebLogic to Solace for JMS Fan-Out**
  - Increase performance and availability to external users
- **Two APIs are available**
  - JMS (Java)
  - SMF (Java, DotNet, C)
- **Migrating Current JMS Client**
  - Obtain Solace jar files from JumpStart Kit available on SWIM website
  - Add jar files to current client
  - Update connection properties to use Solace Context
  - Append Solace VPN to username with '@'; e.g. user@TFMS
- **New consumers and those adding more service are required to migrate to Solace.**
  - Migration currently requires requalification in FNTB

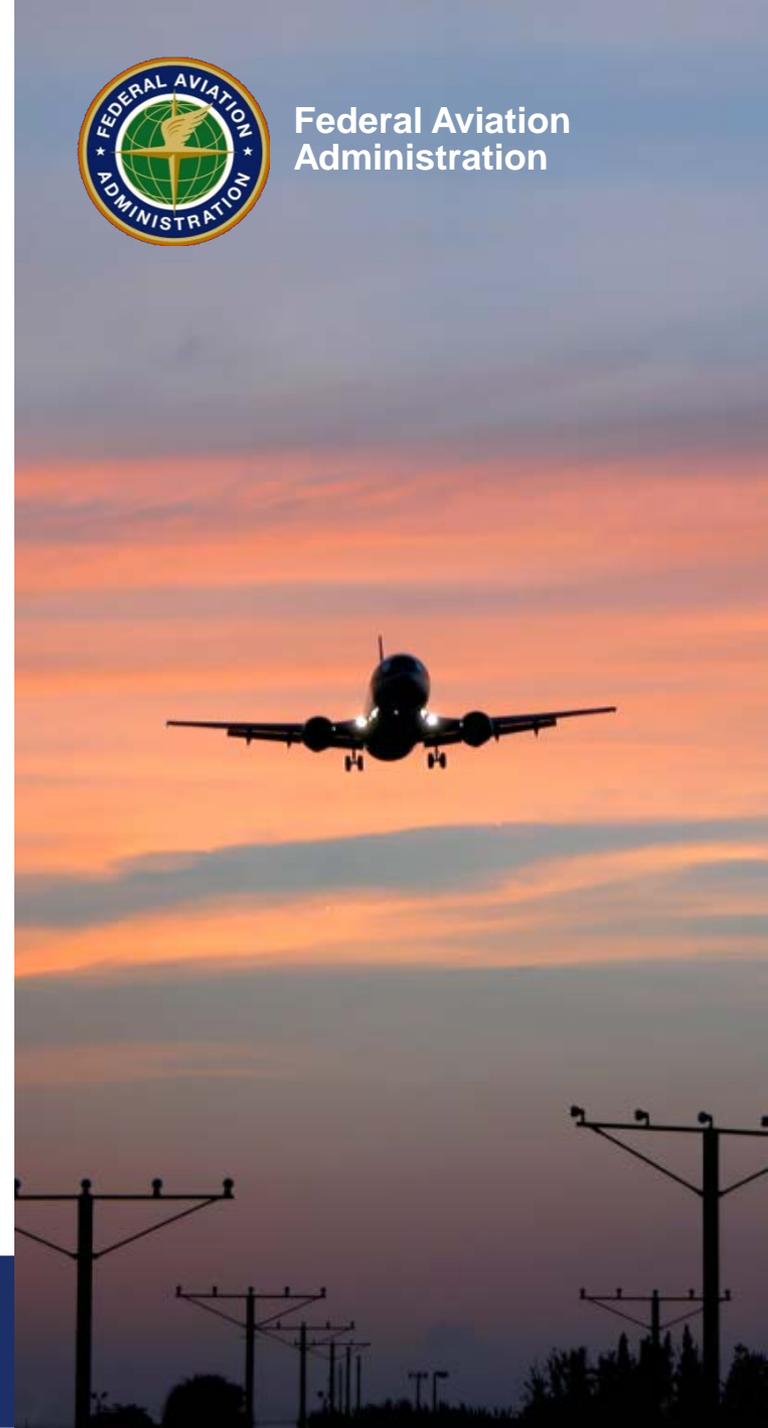


# SFDPS Update

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# SFDPS Users Forum Webinar

- SFPDS users forum webinar on 9/29/2016
- Intended audience: SFDPS current and future consumers
- Purpose is to discuss enhancements in upcoming Release 1.3.0 and share user experiences
- Release 1.3.0 will require changes to client software
- Webinar info
- Date and Time: 9/29/2016, 1 – 3 PM
- Registration  
URL: <https://attendee.gotowebinar.com/register/6006145315936503300>  
Webinar ID: 832-972-139
- An email will be sent to registered SFDPS consumers with the webinar info

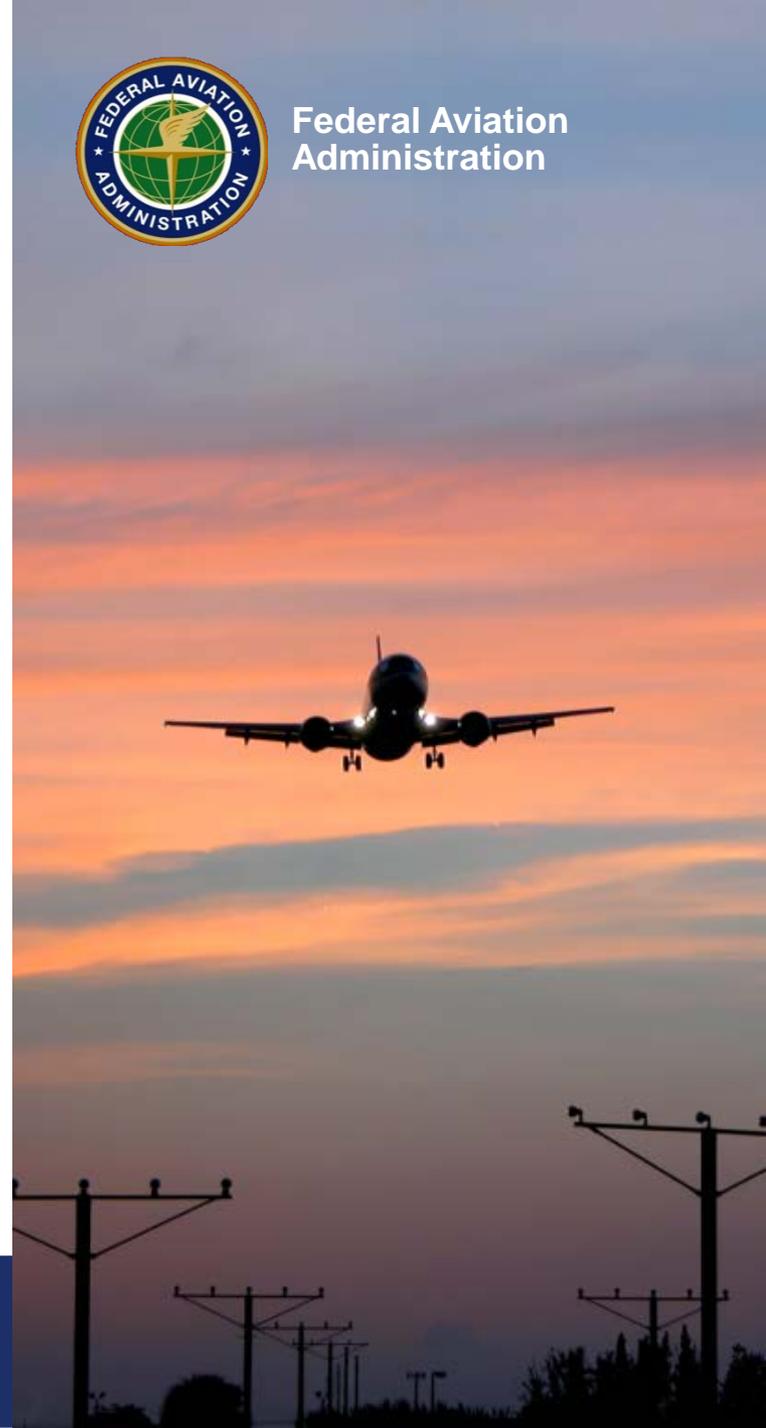


# STDDS Update

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# STDDS Update

- **STDDS R3.2**

- Status

- 32 out of 38 R3.2 sites deployed as of 9/6/2016

- TAIS

- **STDDS R3.3**

- E-mail the FAA your top 5 ASDE-X/ASSC sites, to help prioritize the R3.3 waterfall deployment in 2017

- Early look documentation on NSRR

- STDDS R3.3 data to be published soon on the R&D network

- 1<sup>st</sup> keysite January 2017—Y90



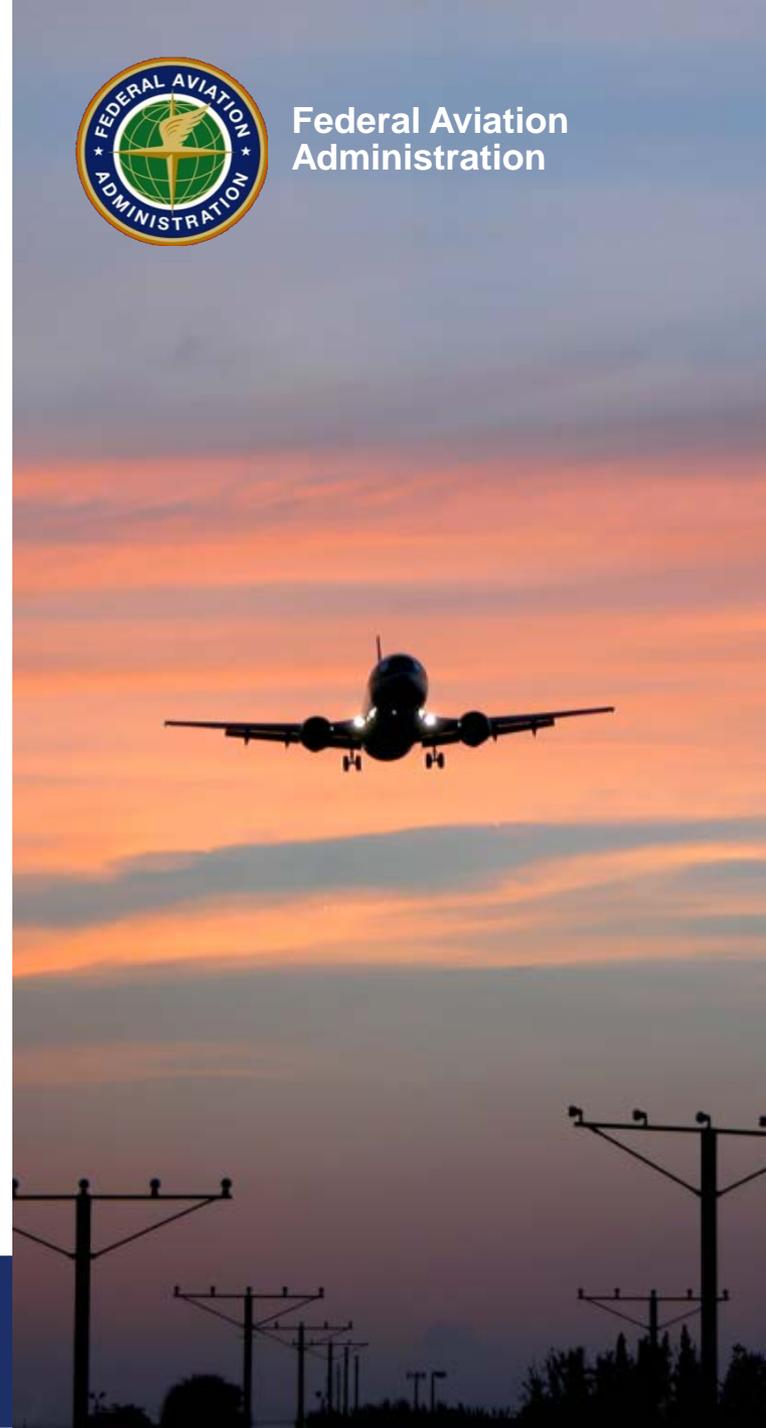
# SWIM Availability for External Consumers

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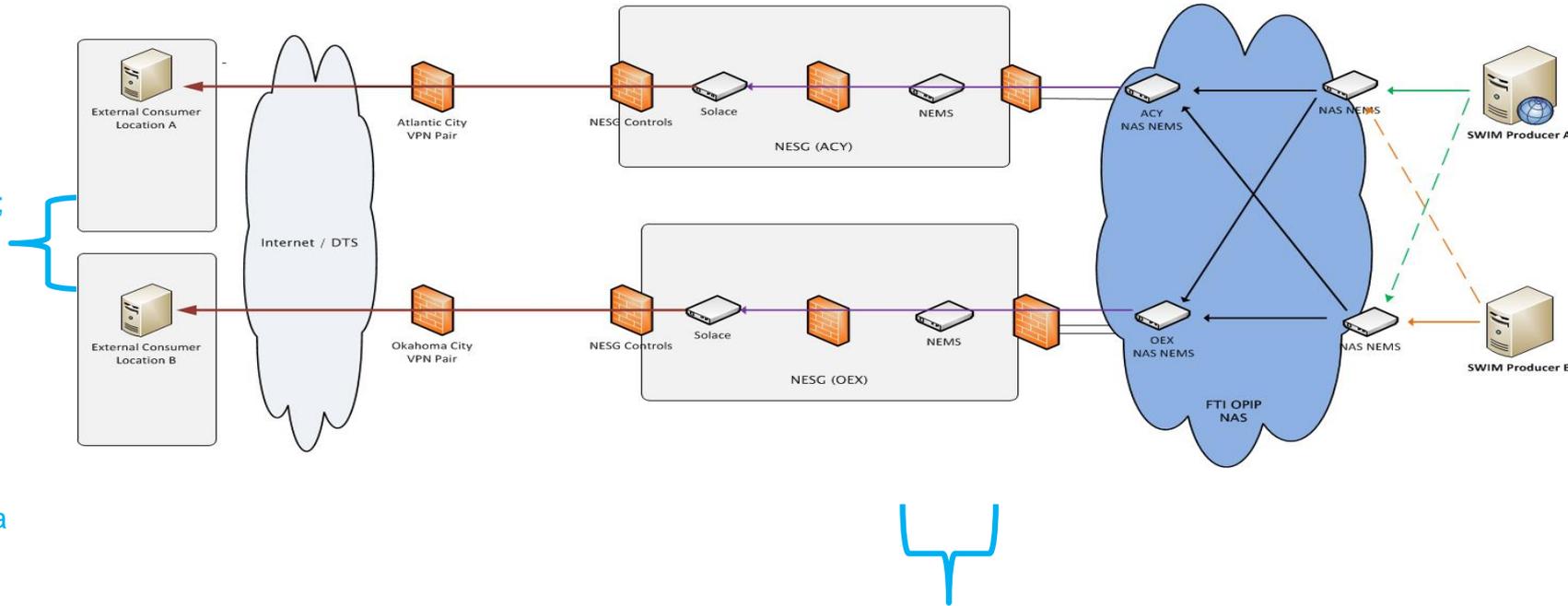
# Topics

- **High Level Data Flows**
  - Solace JMS Consumers
  - Non-Solace JMS Consumers
  - SFDPS Web Services Consumers
  - AIM JMS Web Services Consumers
- **Design Considerations**
- **SWIM Availability Summary**



# High Level Data Flows -- Solace JMS Consumers

Failover will not happen automatically in event of NEMS or NESG failure; consumers are required to implement logic or manual processes to fail to second location if not receiving data from primary location

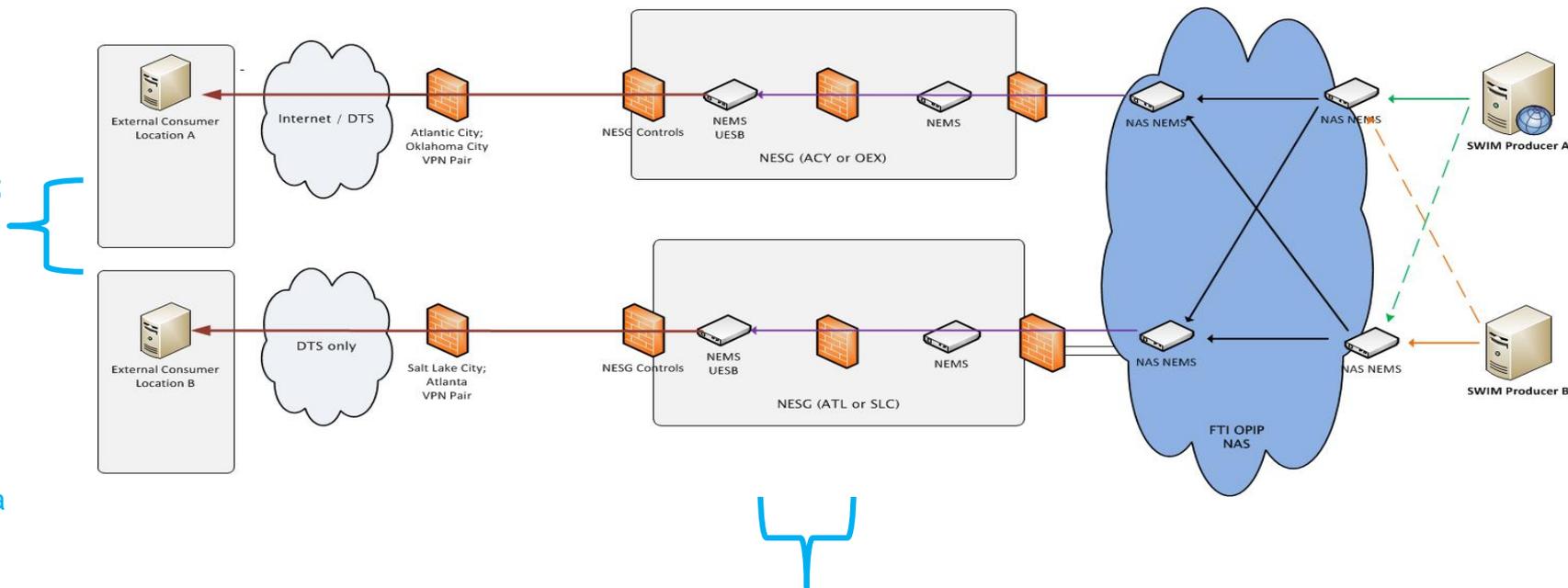


End-to-End Service availability depends on a number of components, controlled by different organizations:

- Data Producer architecture and Data Producer SWIM integration architecture
- FTI OPIP NAS availability
- Internal NEMS availability
- NESG availability
- SWIM components co-located with NESG availability
- Consumer approach to achieving High Availability access to SWIM

# High Level Data Flows -- Non Solace JMS Consumers

Failover will not happen automatically in event of NEMS or NESG failure; consumers are required to implement logic or manual processes to fail to second location if not receiving data from primary location

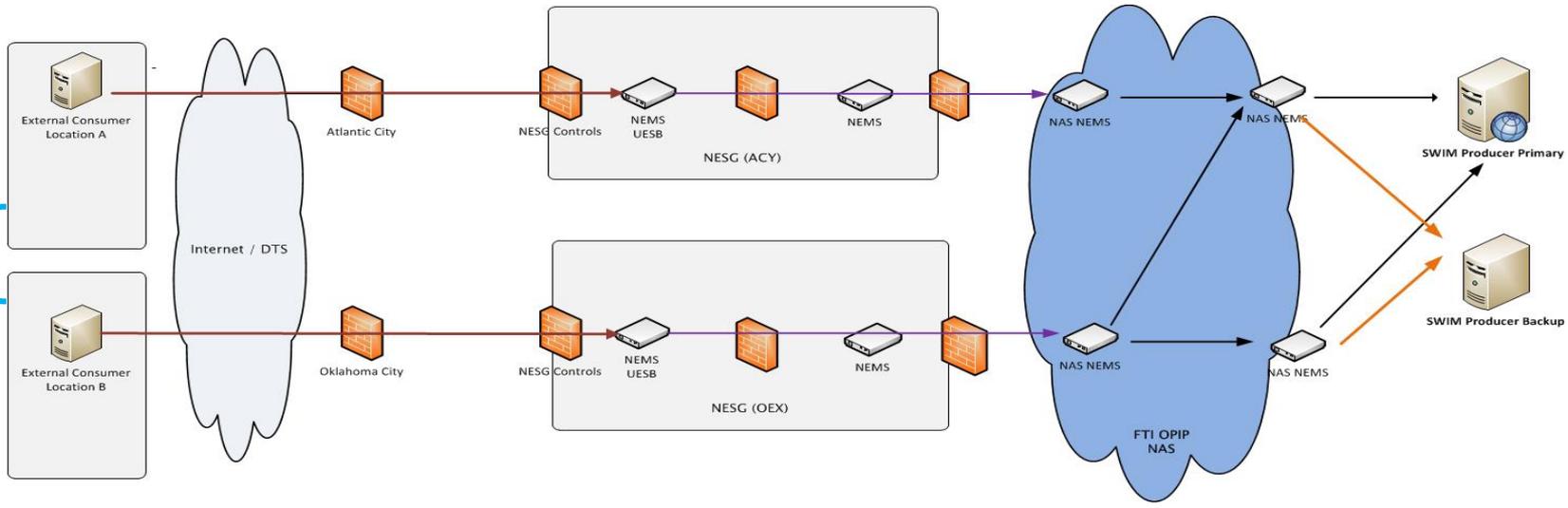


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# High Level Data Flows -- SFDPS Web Service Consumers

Failover will not happen automatically in event of NEMS or NESG failure; consumers are required to implement logic or manual processes to fail to second location if not receiving data from primary location



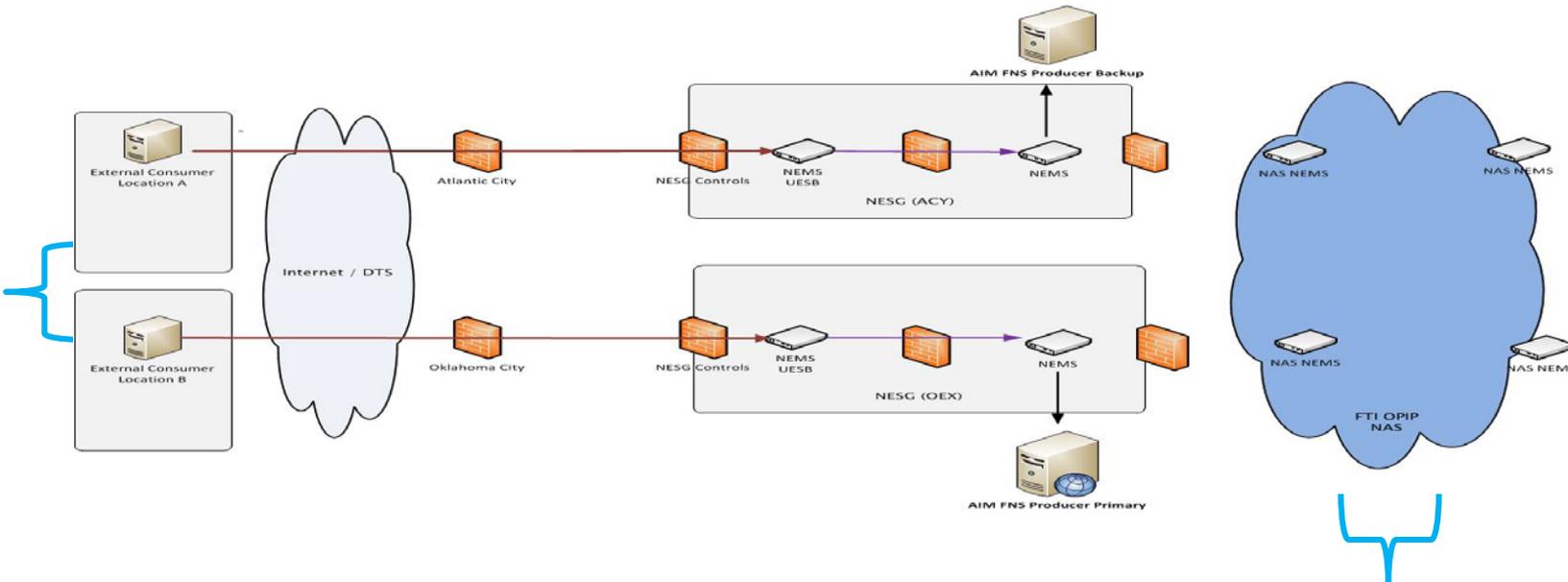
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- SWIM components co-located with NESG availability
- Consumer approach to achieving High Availability access to SWIM



# High Level Data Flows -- AIM FNS Web Service Consumers

Failover will not happen automatically in event of NEMS or NESG failure; consumers are required to implement logic or manual processes to fail to second location if not receiving data from primary location; also requires the AIM FNS Producer to fail to secondary location



End-to-End Service availability depends on a number of components, controlled by different organizations:

- Data Producer architecture and Data Producer SWIM integration architecture
- FTI OPIP NAS availability
- Internal NEMS availability
- NESG availability
- SWIM components co-located with NESG availability
- Consumer approach to achieving High Availability access to SWIM

The AIM FNS Primary Server is located at Oklahoma City and is the only active server; AIM FNS Program must fail over to secondary server which takes approximately 2 hours. Consumers should on-ramp to both Oklahoma City and Atlantic City to be prepared should Oklahoma City server go off-line.



# Design Considerations

## NESGs

- NESGs require maintenance to support security patches, component upgrades, and capacity upgrades
- The FAA may remove an NESG from operations due to a cyber event

## SWIM Components

- Solace components receive data from NEMS components; both Solace and NEMS components require regular maintenance

## Data Producers

- Filtered, non-sensitive data published to SWIM is available at all NESG locations with several exceptions
  - SFDPS – available only at Atlantic City and Oklahoma City via SOLACE
  - AIM FNS Web Services – primary location is Oklahoma City; Secondary is Atlantic City and only available in the event that AIM FNS Producer fails over to Atlantic City (JMS available at all locations)

# SWIM Availability Summary

- **FAA strives to provide minimal interruption but cannot guarantee the availability of data**
- **Many components play a role in the availability of data including**
  - Internet or DTS access
  - NESG components
  - SWIM components
  - Authoritative Source and Data Publisher components
- **All systems require regular maintenance and support resulting in outages**
- **Most systems will undergo capacity and capability upgrades resulting in outages**
- **FAA is working closely with SWIM and NESG vendor to improve overall availability of services**
- **FAA strongly recommends consumers employ an architecture that utilizes multiple NESGs and SWIM interfaces**

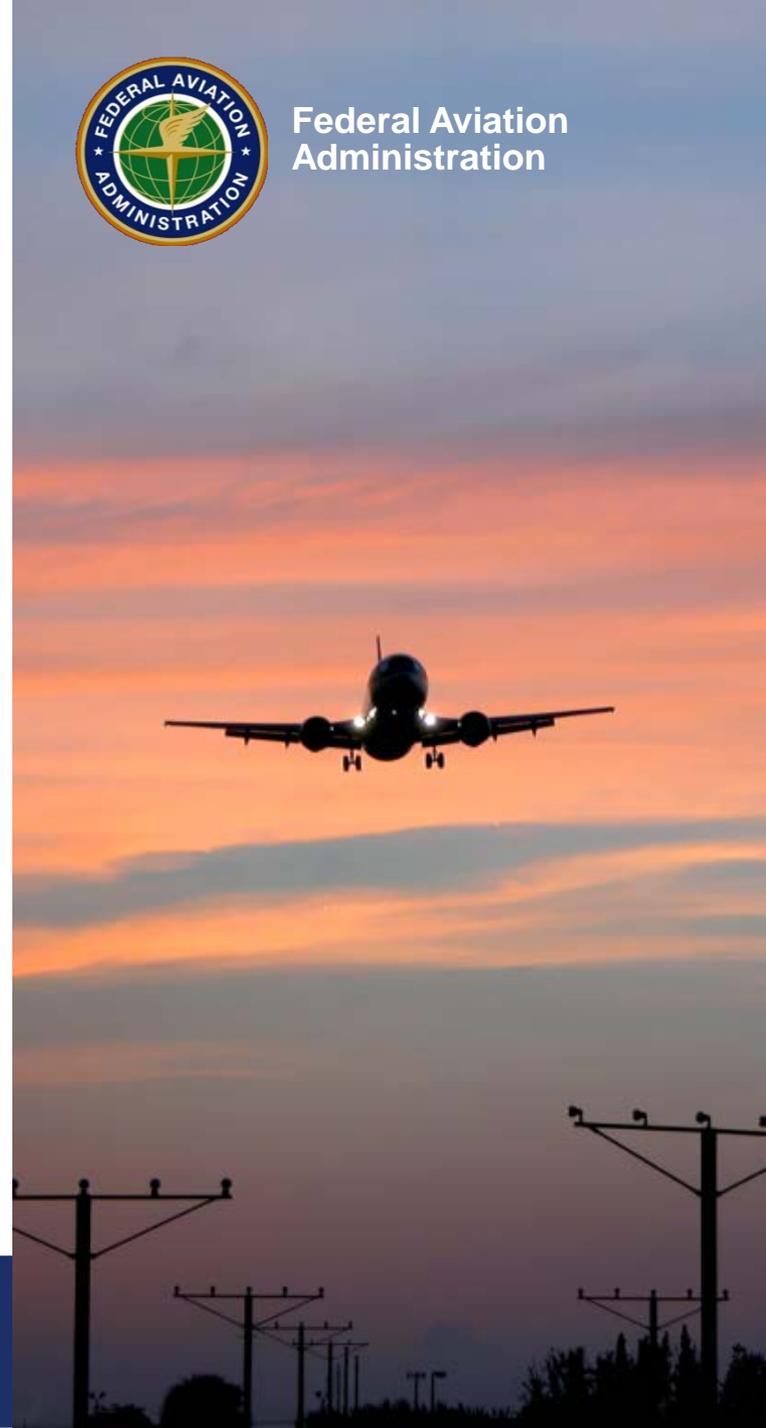


# SWIM News

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# Upcoming Events #SWIM2016

- **Sept. 20-22:** 5th Annual Air Transportation Information Exchange Conference (ATIEC)  
Click [here](#) to view agenda and more info
- **Oct. 16-19:** ATCA
  - National Harbor, Maryland
  - NextGen and SWIM speakers
- **Dec. 8: Next Users Forum**
  - User Briefings: How do you use the data?
  - Email [swim@faa.gov](mailto:swim@faa.gov) if you would like to brief at a future forum

