

# SYSTEM WIDE INFORMATION MANAGEMENT (SWIM)

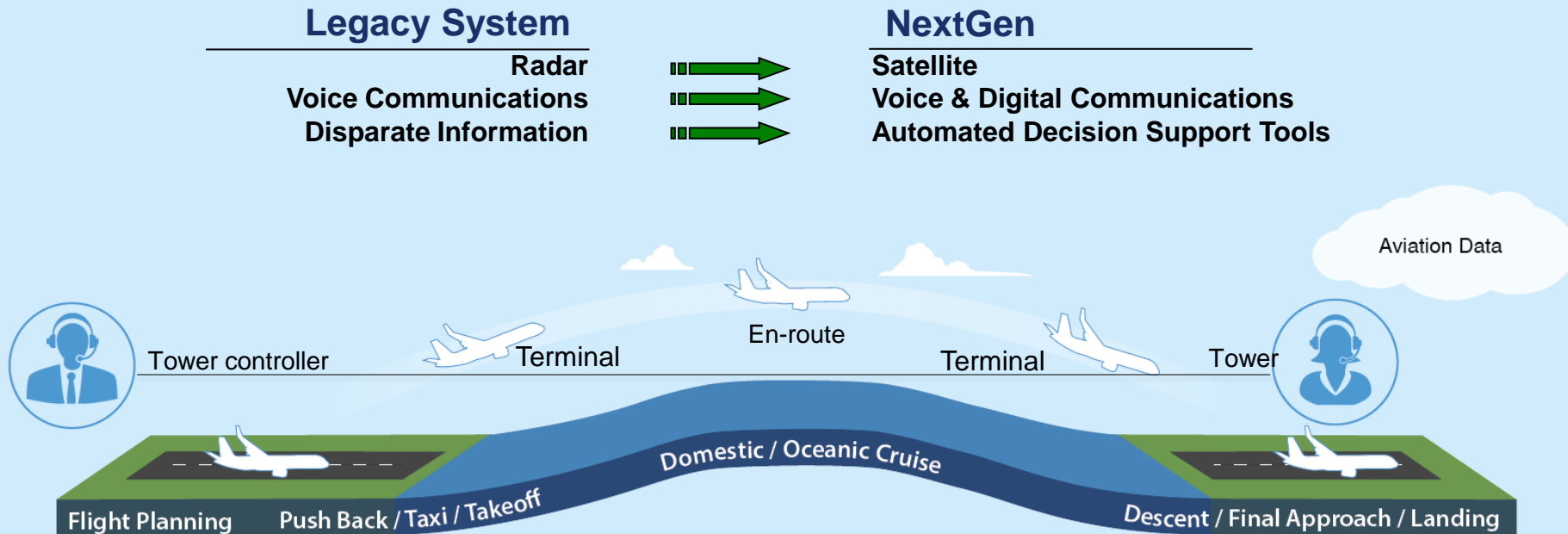


**Presented to:** National Defense Industrial Association  
Systems Engineering Division

**Presented by:** Jim Robb,  
SWIM Program Manager

**Date:** March 16, 2015

# Delivering NextGen Major Investments



## NextGen

Automatic Dependent Surveillance-Broadcast (ADS-B), **System-Wide Information Management (SWIM)**, DataComm, National Airspace System (NAS) Voice System (NVS), Terminal Flight Data Manager (TFDM)

## Foundational

En Route Automation Modernization (ERAM)  
Terminal Automation Modernization/Replacement (TAMR)

# WHAT IS SWIM?

System Wide Information Management (SWIM) is the infrastructure that allows members of the Aviation Community to access the information needed to facilitate an innovative and efficiently run National Airspace System (NAS).

## What is SWIM doing for the Aviation community?

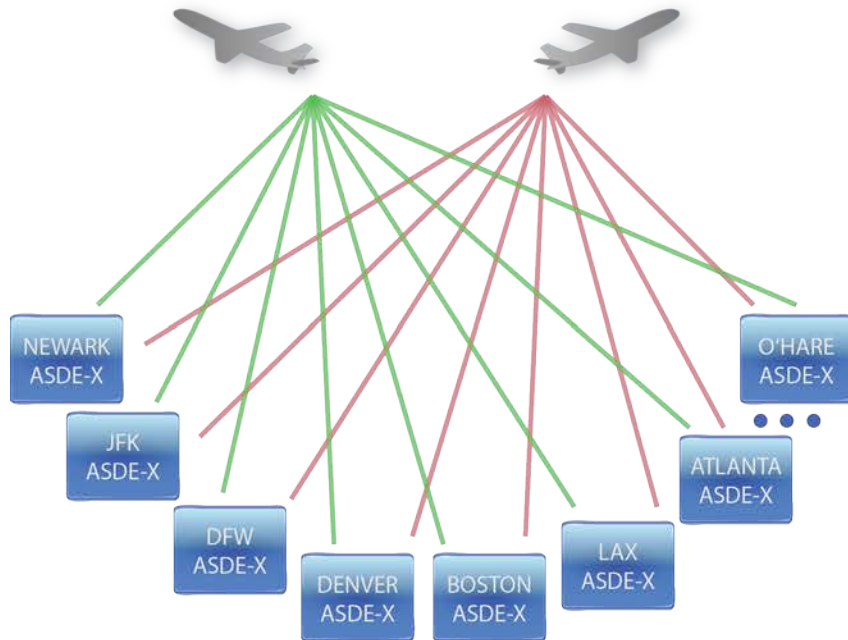
SWIM makes it possible to have access to real-time, relevant information so users can respond faster, more accurately, creating collaboration opportunities with industry.



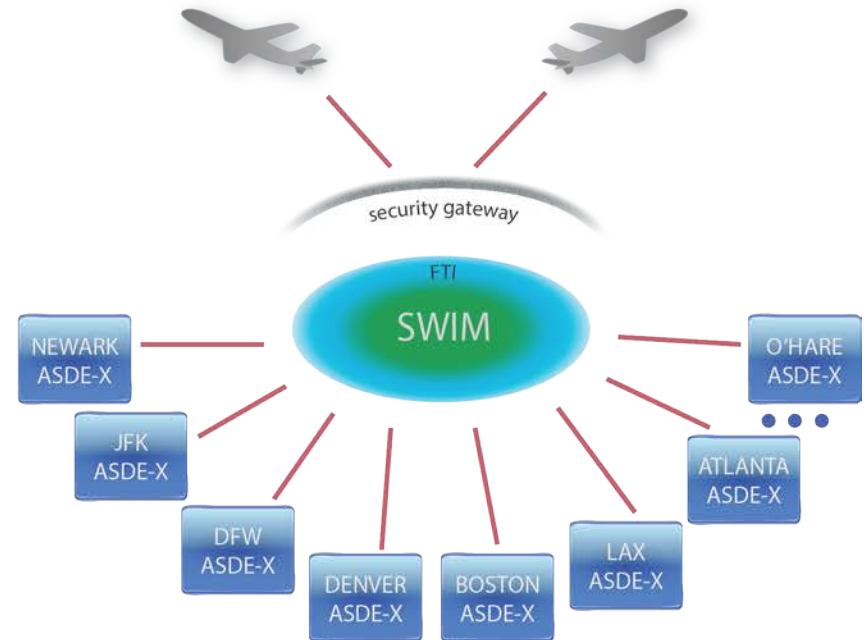
**FAA**

Next**GEN**

# SWIM: Information Access to Transform the Aviation Community

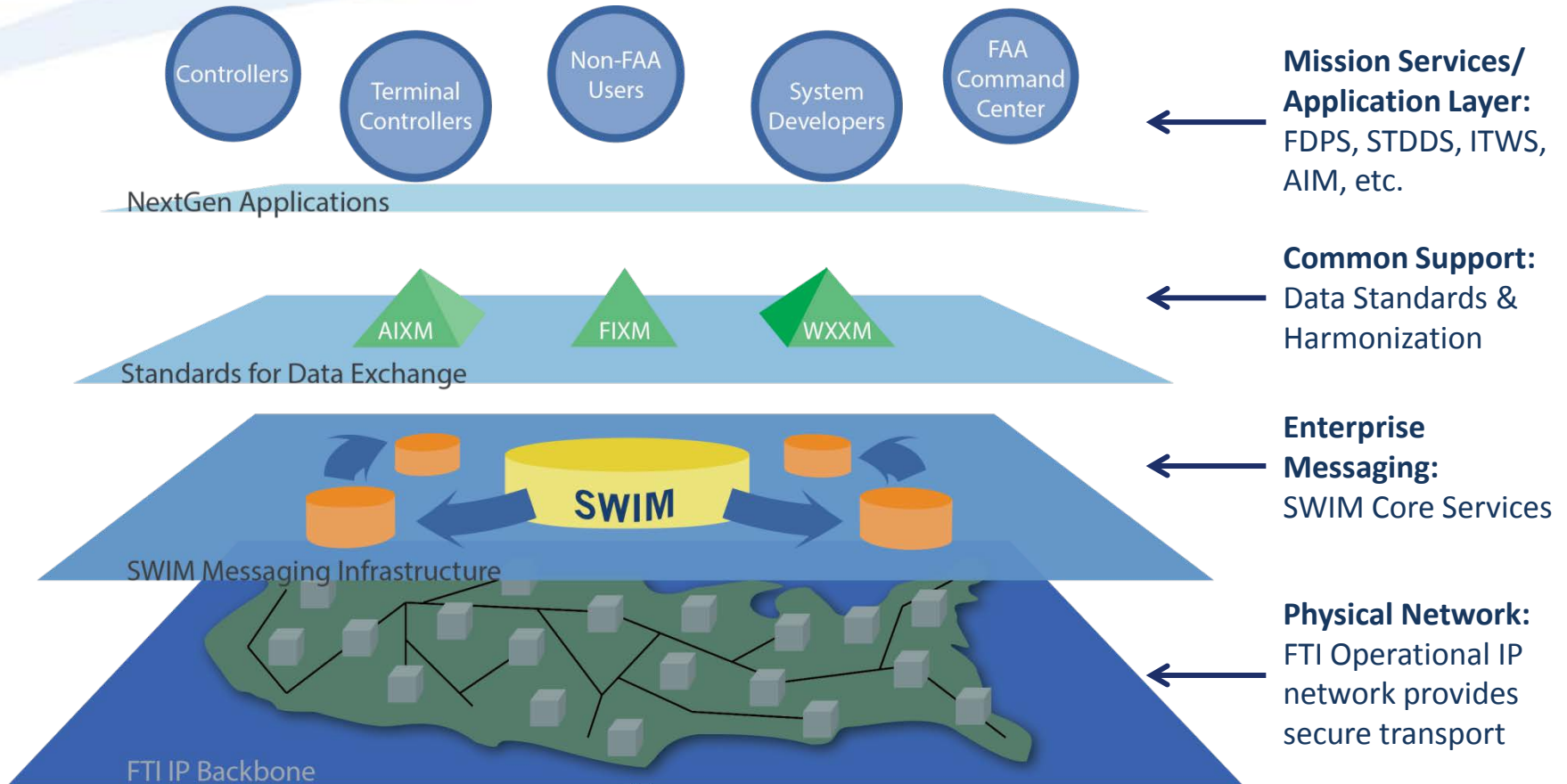


**Legacy operating environment:**  
Point-to-point connections



**SWIM operating environment:**  
Data Exchange  
(Published once, consumed by many)

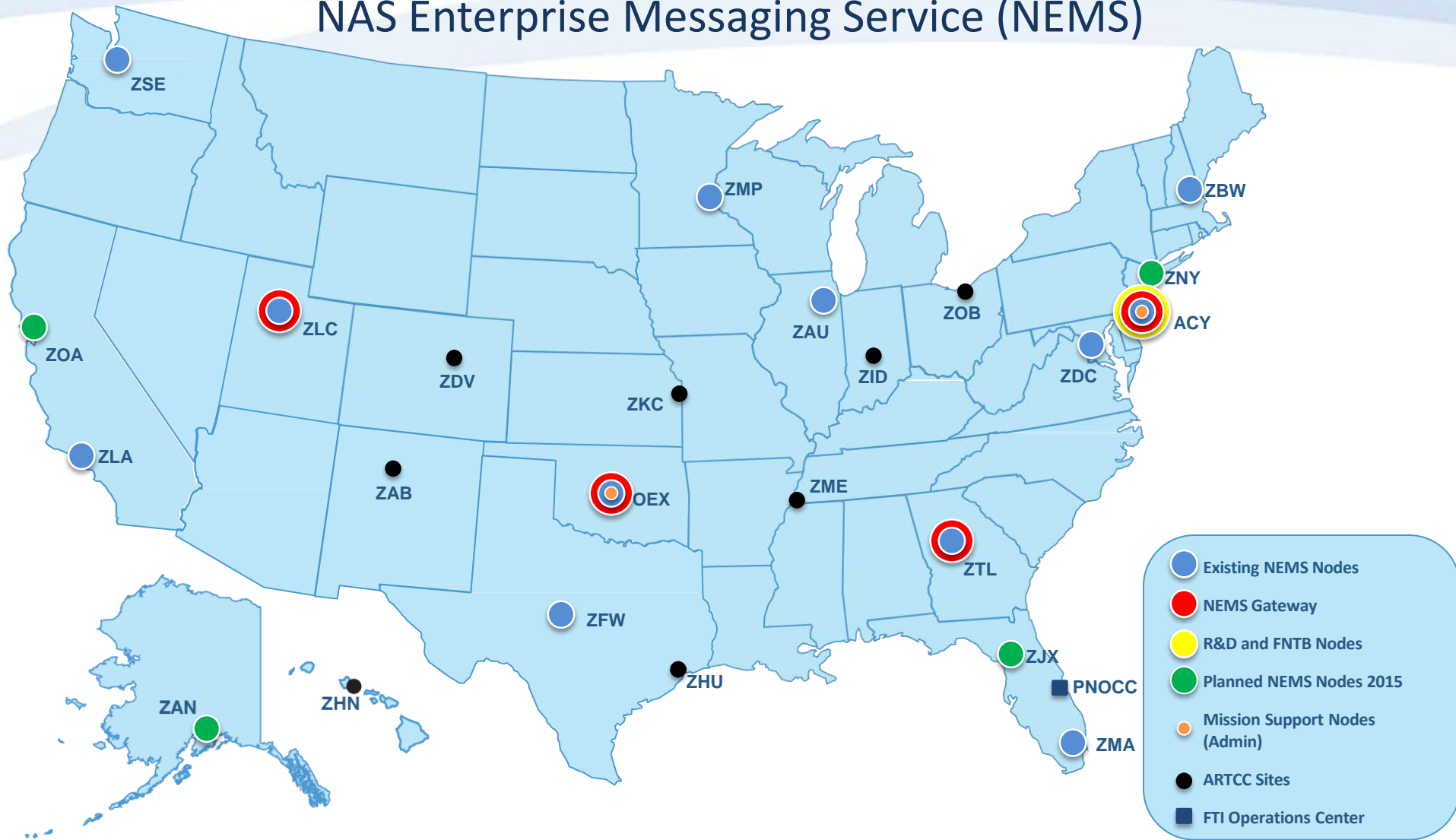
# NextGen Information Sharing Architecture



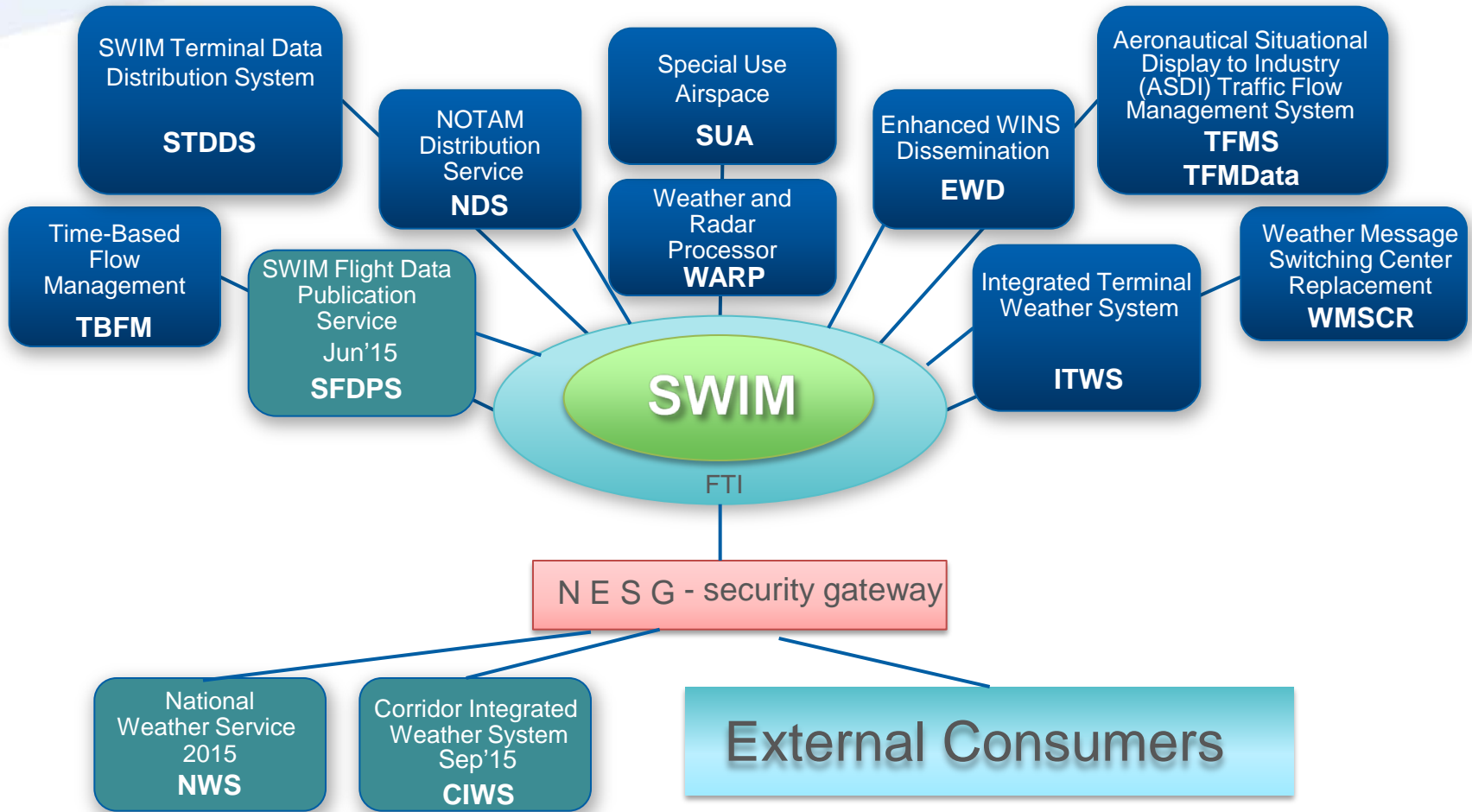


# SWIM Infrastructure Deployment

## NAS Enterprise Messaging Service (NEMS)



# Status of SWIM Services



# SWIM Product Portfolio

## Aeronautical Data

### Aeronautical Information Management (AIM) Special Use Airspace (SUA) Data Exchange: Provides notification and status regarding airspace

- ✓ SUA data, dynamically provided in the Aeronautical Information Exchange Model (AIXM) standard
- ✓ AIXM SUA definitions

### Notices to Airmen (NOTAM) Distribution Service

- ✓ Digital NOTAMs AIXM 5.1

## Flight and Flow Data

### Time Based Flow Management (TBFM): Provides metering information

- ✓ Scheduled Time of Arrival (STAs)
- ✓ Estimated Time of Arrival (ETAs)
- ✓ Meter Reference Elements (MREs) Assignments
- ✓ Airport configuration information
- ✓ Satellite airport configurations

### Traffic Flow Management System (TFMS): Provides flight data and flow information

- ✓ Flow Constrained Area (FCA) / Flow Evaluation Area (FEA)
- ✓ Airspace Flow Program (AFP)
- ✓ Aeronautical Situational Display to Industry (ASDI)
- ✓ Ground Delay Program (GDP) / Unified Delay Program (UDP)
- ✓ Ground Stops (GS)
- ✓ Reroutes
- ✓ Advisories
- ✓ Collaborative Trajectory Options Program (CTOP)

### SWIM Terminal Data Distribution Systems (STDDS): Collects and publishes data from 100+ airports

- ✓ Airport Surface Detection Equipment, Model X (ASDE-X) streaming data service and Runway visibility data
- ✓ Runway Visual Range (RVR) Data
- ✓ Surface Movement Events (SME)
- ✓ Tower Departure Events (TDE)

### SWIM Flight Data Publication Service (SFDPS)\*: Provides flight data and updates to clients for filed and active flight plans

- ✓ Flight Plan information
- ✓ Flight Amendment Information
- ✓ Converted Route Information
- ✓ Cancellation Information
- ✓ Departure Information
- ✓ Aircraft Identification Amendment Information
- ✓ Hold Information
- ✓ Progress Report Information
- ✓ Flight Arrival Information
- ✓ Flight Plan Update Information
- ✓ Expected Departure Time Information
- ✓ Position Update Information
- ✓ Tentative Flight Plan Information
- ✓ Tentative Aircraft identification Amendment Information
- ✓ Tentative Flight Plan Removal
- ✓ Tentative Flight Plan Amendment Information
- ✓ Track Information
- ✓ Drop Track Information
- ✓ Interim Altitude Information
- ✓ Automated Radar Terminal System (ARTS) Flow Control Track/Full Data Block Information
- ✓ Beacon Code Reassignment
- ✓ Beacon Code Restricted Flight Plan Data Bank (FDB) Fourth Line Information
- ✓ Point Out Information
- ✓ Inbound Point Out Information
- ✓ Handoff Status

### Airspace Data Publication Service\*: Published by SFDPS

- ✓ Sector Assignment Status
- ✓ Route Status
- ✓ Special Activities Airspace (SAA)
- ✓ Altimeter Setting

### Operational Data Publication Service\*: Published by SFDPS

- ✓ Traffic Count Adjustment
- ✓ Instrument Approach Count Adjustment
- ✓ Sign In Sign Out
- ✓ Beacon Code Utilization
- ✓ Geographic Beacon Code Utilization

### General Information Message Publication Service\*: Published by SFDPS

- ✓ General Information



\*Service in development and on-ramping process





# SWIM Product Portfolio (cont.)

## Weather Data

**Integrated Terminal Weather System (ITWS) Data Publication:** Provides specialized weather products in the terminal area

- |  |  |
|--|--|
| ✓ Airport Lightning Warning                                | ✓ Tornado Detections Wind Profile                          |
| ✓ Configured Alerts  | ✓ Anomalous Propagation (AP) Indicated Precipitation       |
| ✓ Forecast Accuracy  | ✓ AP Status  |
| ✓ Forecast Contour   | ✓ Gust Front Estimated Time to Impact                      |
| ✓ Forecast Image   | ✓ Hazard Text 5nm  |
| ✓ Gust Front TRACON Map                                    | ✓ Hazard Text Long Range                                   |
| ✓ Microburst TRACON Map                                    | ✓ Hazard Text TRACON                                       |
| ✓ Precipitation 5nm  | ✓ ITWS Status Information                                  |
| ✓ Precipitation Long Range                                 | ✓ Microburst Automatic Terminal Information Service (ATIS) |
| ✓ Precipitation TRACON                                     | ✓ Runway Configuration                                     |
| ✓ Storm Motion (SM) Storm Extrapolated Positions (SEP) 5nm | ✓ Storm Motion 5NM   |
| ✓ SM SEP Long Range  | ✓ Storm Motion TRACON                                      |
| ✓ SM SEP TRACON  | ✓ Terminal Weather Text Special                            |
| ✓ Terminal Weather Text Normal                             | ✓ Wind Shear ATIS  |
| ✓ Tornado Alert  |  |

**Corridor Integrated Weather System (CIWS) Data Publication\*:** Provides specialized 3D storm related weather information in the Enroute area

- |  |                                       |
|--|---------------------------------------|
| ✓ Vertically Integrated Liquid (VIL) Mosaic (1km resolution) | ✓ VIL Forecast Contours (Std. Mode)   |
| ✓ VIL 2-hr. Forecast   | ✓ VIL Forecast Contours (Winter Mode) |
| ✓ Echo Tops Mosaic (1 km resolution)                         | ✓ Echo Tops Forecast Contours         |
| ✓ Echo Tops 2-hr. Forecast                                   | ✓ Growth & Decay Contours             |
| ✓ Satellite Mosaic   | ✓ Forecast Accuracy: Echo Tops        |
| ✓ Storm Info: Echo Top Tags                                  | ✓ Forecast Accuracy: Std. Precip      |
| ✓ Storm Info: Leading Edges                                  | ✓ Forecast Accuracy: Winter Precip    |
| ✓ Storm Info: Motion Vectors                                 |                                       |

\*Service in development or on-ramping process

## Weather Message Switching Center Replacement (WMSCR)

**Publications:** Provides NWS textual aviation weather products

- |   |                      |
|---|----------------------|
| ✓ Transmission of voice Pilot Reports (PIREPs) to WMSCR | ✓ Altimeter settings |
| ✓ Stored PIREPs   |                      |

## Enhanced Weather Information Network System

- |  |  |
|--|--|
| ✓ Current Icing Product (CIP)  | ✓ Airmen's Meteorological Information (AIRMET)     |
| ✓ Weather Research and Forecasting-Rapid Refresh (WRF-RR) Model Data | ✓ National Convective Weather Forecast (NCWF)      |
| ✓ North American Mesoscale (NAM)                                     | ✓ National Convective Weather Diagnostic (NCWD)    |
| ✓ Model Data   | ✓ Aviation Routine Weather Report (METAR)          |
| ✓ Global Forecast System (GFS)                                       | ✓ Significant Meteorological Information (SIGMET)  |
| ✓ Model Data   | ✓ Collaborative Convective Forecast Product (CCFP) |

## Weather and Radar Processor (WARP) Publications

- |  |  |
|--|--|
| ✓ WARP Maintenance and Sustainment Services (WMSS) | ✓ Next Generation Weather Radar (NEXRAD) |
|--|--|



# SWIM Service Planning

Program	Discovery	Architecture, Requirements	Qualification (Data Arch, Design, HSV test)	Operations Rollout / Cutover
Terminal Automation Modernization and Replacement (TAMR)	In Progress	In Progress	TBD	Sep'15
Data Comm Network Services (DCNS) Monitoring Service	In Progress	In Progress	TBD	2015
NAS Information Display System (NIDS) Consumer	In Progress	In Progress	TBD	2015
Aeronautical Information Management (AIM) Segment 2	In Progress	In Progress	TBD	2015+
Common Support Services – Weather (CSS-Wx)	In Progress	In Progress	TBD	2015+
Terminal Flight Data Manager (TFDM)	In Progress	In Progress	TBD	2015-16
NAVLean	In Progress	In Progress	TBD	2015-16



# Current SWIM Consumers

Consumer	Data Type / Subscription
<b>Airlines</b>	
American Airlines	ASDE-X / LGA, BOS, MIA
Delta Airlines	ASDE-X / LGA
FedEx	ASDE-X / MEM
JetBlue	ASDE-X /all airports
United Airlines	ASDE-X / all airports
USAIR	ASDE-X / PHX, DCA

<b>Airports, FAA Facilities, &amp; FAA Programs</b>	
Atlanta Airport Authority	ASDE-X / all airports
San Francisco (SFO) Airport Authority	SFO Airport Surface Surveillance Capability (ASSC) data
Southern California TRACON	ASDE-X / San Diego, Los Angeles, Long Beach airport data
CIWS	WMSS NEXRAD /all radar sites
CRCT	ASDE-X / LGA, EWR, JFK
OASIS	HWDS / all products
WARP	Enhanced WINS

Consumer	Data Type / Subscription
<b>Research &amp; Development</b>	
Kent State	CIWS / all products
MIT - Lincoln Labs	ASDE-X / all airports, WMSS NEXRAD
MITRE	ASDE-X / all airports
Volpe	ASDE-X / all airports

<b>Industry</b>	
Alliance	ASDE-X / MEM, ATL, JFK
ARINC	CIWS / all products
Lockheed Martin	ASDE-X/ ATL, CLT, MSP, DTW, BOS, IAD, LAS
MOSAIC ATM	ASDE-X / LGA, JFK, BOS, ATL, PHL, EWR, ORD, IAD, CLT; ITWS / all products
Passur	ASDE-X / all airports / STDDS
Rockwell Collins	CIWS / all products
Sabre	ASDE-X / all airports; ITWS / all products
Sensis	ASDE-X / ATL, JFK
Veracity	ASDE-X / LGA



# How to become a user of SWIM services

- Getting started...
  - ✦ Email your request to:  
[9-AJM-312-EnterpriseEngineeringServices@faa.gov](mailto:9-AJM-312-EnterpriseEngineeringServices@faa.gov)
  - ✦ Contact Jim Robb, FAA Manager
    - Enterprise Infrastructure Services Team, AJM-312
    - Phone: 202-267-8357 (desk), 703-622-8563 (cell); e-mail: [Jim.Robb@faa.gov](mailto:Jim.Robb@faa.gov)
- Two things are needed:
  1. Establishing an IP service connection to an FAA network security gateway; and
  2. Ensuring your application follows the FAA's governance policies and standards for producing/consuming SWIM data products

Take advantage of FAA-published user documentation

- Listed on the next slide →



# FAA Documents Available to SWIM Consumers\*

- FTI OPIP User Guide (for External Connections)
- SWIM User Guide
- SWIM Jump-start Kit

\*Available on:

[www.faa.gov/NextGen/SWIM](http://www.faa.gov/NextGen/SWIM)





# Questions



# Contact Information

Jim Robb, SWIM Program Manager

email: [jim.robbs@faa.gov](mailto:jim.robbs@faa.gov)

Chris Pressler, SWIM System Engineer

email: [chris.pressler@faa.gov](mailto:chris.pressler@faa.gov)

Linda Chen, SWIM Flight Data Publication Service Lead

email: [linda.chen@faa.gov](mailto:linda.chen@faa.gov)

Jeri Groce, SWIM Terminal Data Distribution System Lead

email: [jeri.groce@faa.gov](mailto:jeri.groce@faa.gov)

Loe Lahoud, Implementation Lead

email: [joseph.lahoud@faa.gov](mailto:joseph.lahoud@faa.gov)

