

SWIM Users Forum #16

October 12, 2017

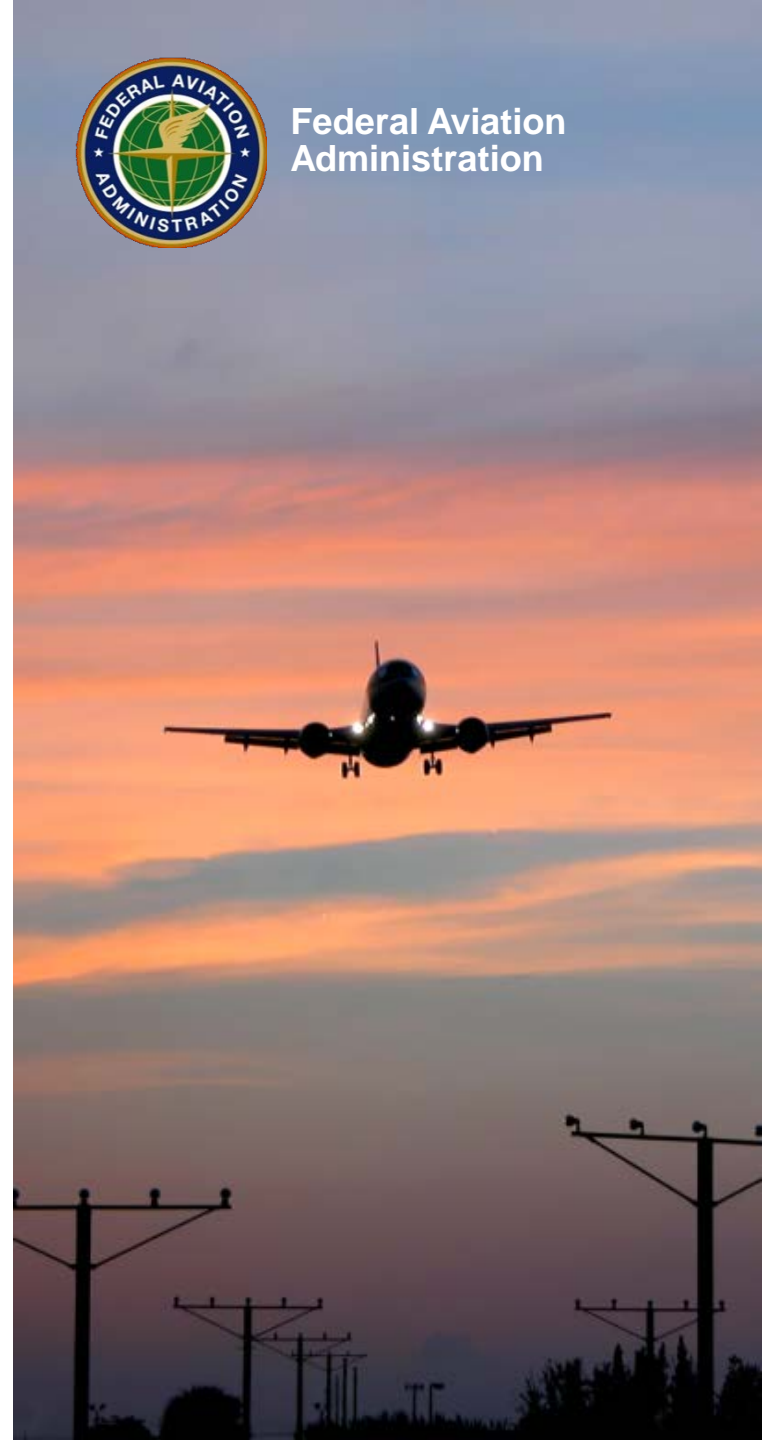
Washington, DC

Hosted by:

The SWIM Program Office



Federal Aviation
Administration



Today's Agenda

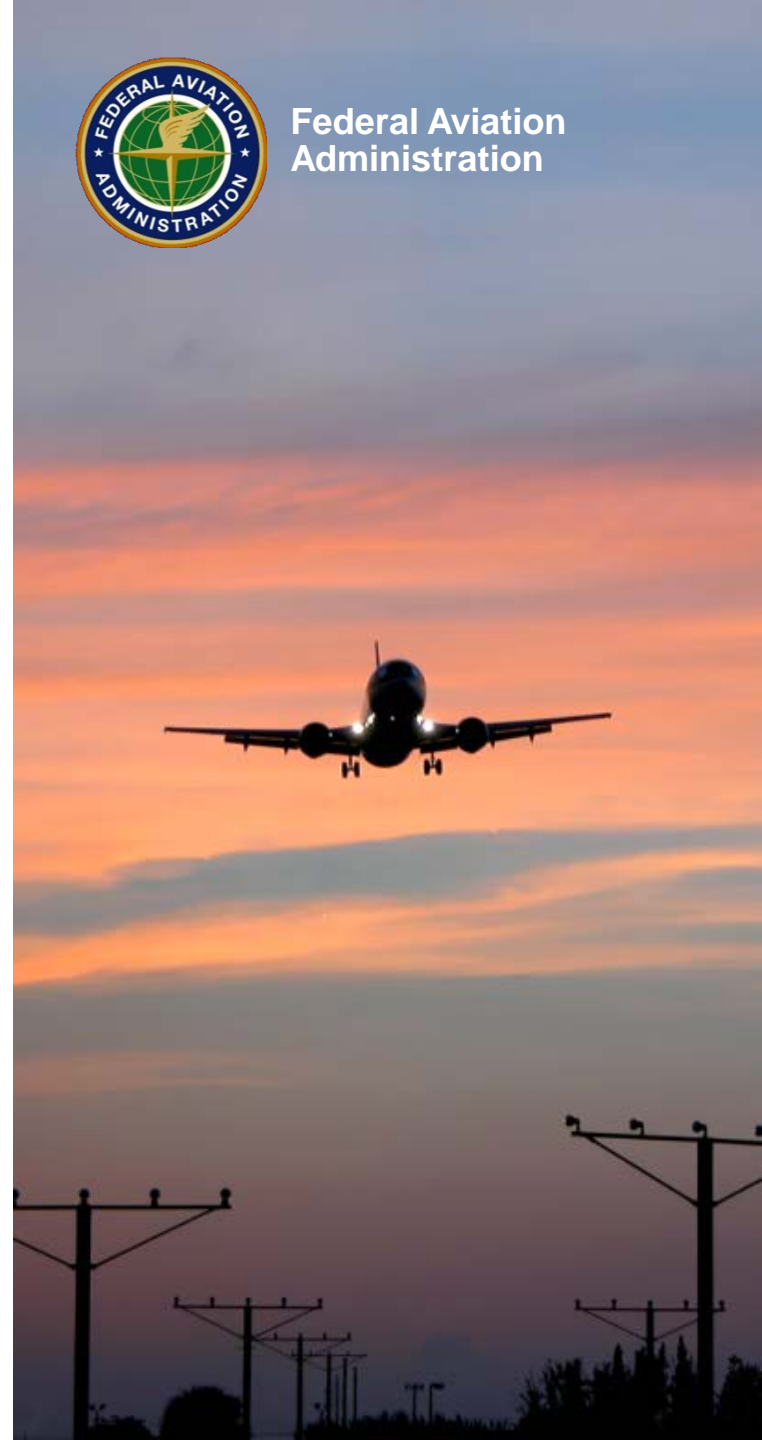
- **Program Updates**
 - SFDPS: Beacon Codes
 - STDDS Update
- **SWIM Enterprise Control Center**
- **Visit us during ATCA (Oct. 16-18)**
- **Voice of the User**
 - Real-time SFDPS and STDDS Data: HaloLens and Mixed Reality for Enterprise Technology



STDDS Update



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STDDS R3.3.0.3 Patch

- In R3.3, parts of SMES CAT10 messages are intermittently published incorrectly
- No schema change necessary
- Key-site at Y90 yesterday (11-Oct-2017)
- Deployed to all remaining sites within ~6 months



STDDS FIXM

- **STDDS data in FIXM format to be available in early 2018**
- **4 STDDS messages will be available in FIXM**
 - SMES CAT11 position report (msgType=AT)
 - SMES CAT10 MLAT report (msgType=ML)
 - SMES CAT10 ADSB report (msgType=AD)
 - TAIS TerminalAutomationTrackAndFlightPlan (msgType=FP)
- **FIXM schema versions**
 - FIXM Core Release v4.0.0, with
 - US v4.1.1 FIXM Extension
- **Documentation available**
 - FIXM Mediated STDDS Data Overview.pdf
 - Found in Documents section at [STDDS website](#)
- **Contact EES Project Lead if interested**



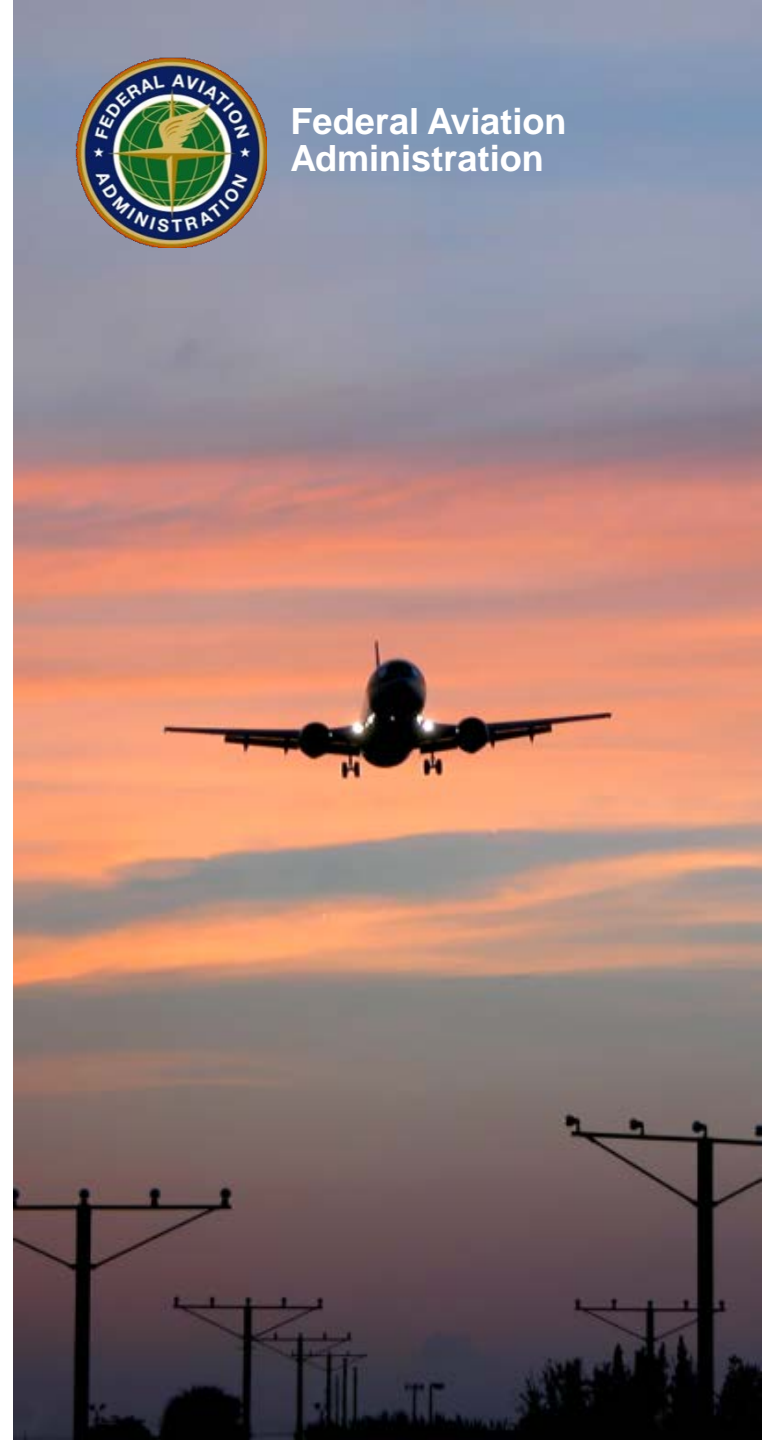
SWIM Flight Data Publication Service (SFDPS) and SWIM Terminal Data Distribution Service (STDDS)

Beacon Code Suppression

**SWIM Capabilities Team
October 12, 2017**



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Agenda

- Beacon Codes
- Issue with Premature Beacon Code Usage
- SWIM Solution
- SWIM Notification on Beacon Codes
- SFDPS Messages – What not to Publish
- STDDS Messages – What not to Publish
- Q&A



Beacon Codes

- Beacon codes are used to correlate flight plans to surveillance system (such as radar) tracks
- Flight plans are assigned beacon codes by automation when submitted
- Pilot enters the beacon code (aka 'squawk code') into a transponder
- The code is used by flight data processing systems to associate a target with its flight plan

Issue With Premature Beacon Code Usage

- Premature beacon codes refer to beacon codes used before coordination with ATC
- At smaller non-towered airports, pilots can take off without any ATC contact
- Some pilots are incorrectly using SWIM beacon codes prior to ATC contact
- Premature use of a squawk code can cause loss of proper separation between two radar targets
- Premature use of beacon codes published in non-active flight plans are the source of the problem

SWIM Solution

- Suppress distribution of beacon code information in messages published for non-active flight plans to consumers external to the NAS
- Fixes will be available in 2018 for SFDPS and STDDS
- Prior to the release of any fixes, consumers will be notified if changes are required on their end

SWIM Notification on Beacon Codes

- The SWIM Program Office is distributing a notification instructing consumers not to use or publish beacon code information for non-active flights
- This includes publication on web pages or any other means accessible by pilots
- Please look for the notification (from swim@faa.gov) in your inbox



SFDPS Messages – What not to Publish

- Beacon code information in messages from the En Route Flight Data Publication Service for non-active flights should not be published
- Non-active flights are those that contain ‘PROPOSED’ for the **flightState** element in Simple XML messages or **flight/flightStatus/@fdpsFlightStatus** attribute in FIXM messages
- List of messages from SFDPS containing beacon codes:

Message Name	XML element
FH, AH, HU, NU, NP, DBRTFPI, BA, RE	beaconCode_04a
FH_FIXM, AH_FIXM, HU_FIXM, NP_FIXM, NU_FIXM, DBRTFPI_FIXM, BA_FIXM, RE_FIXM	Flight.enRoute.beaconCodeAssignment.CurrentBeaconCode



STDDS Messages – What not to Publish

- Beacon code information from the STDDS Terminal Automation Information Service (TAIS) TATrackAndFlightPlan (FP) messages should not be published if the flight plan is not yet active
- A **FlightPlanStatusType** of 'Pending' or 'Passive' in the message indicates the flight plan is not yet active
- Beacon code information in FP message to be suppressed:

Message Name	XML Element
TerminalAutomationTrackAndFlightPlan (msgType = FP)	record.flightplan.assignedBeaconCode

Any questions?

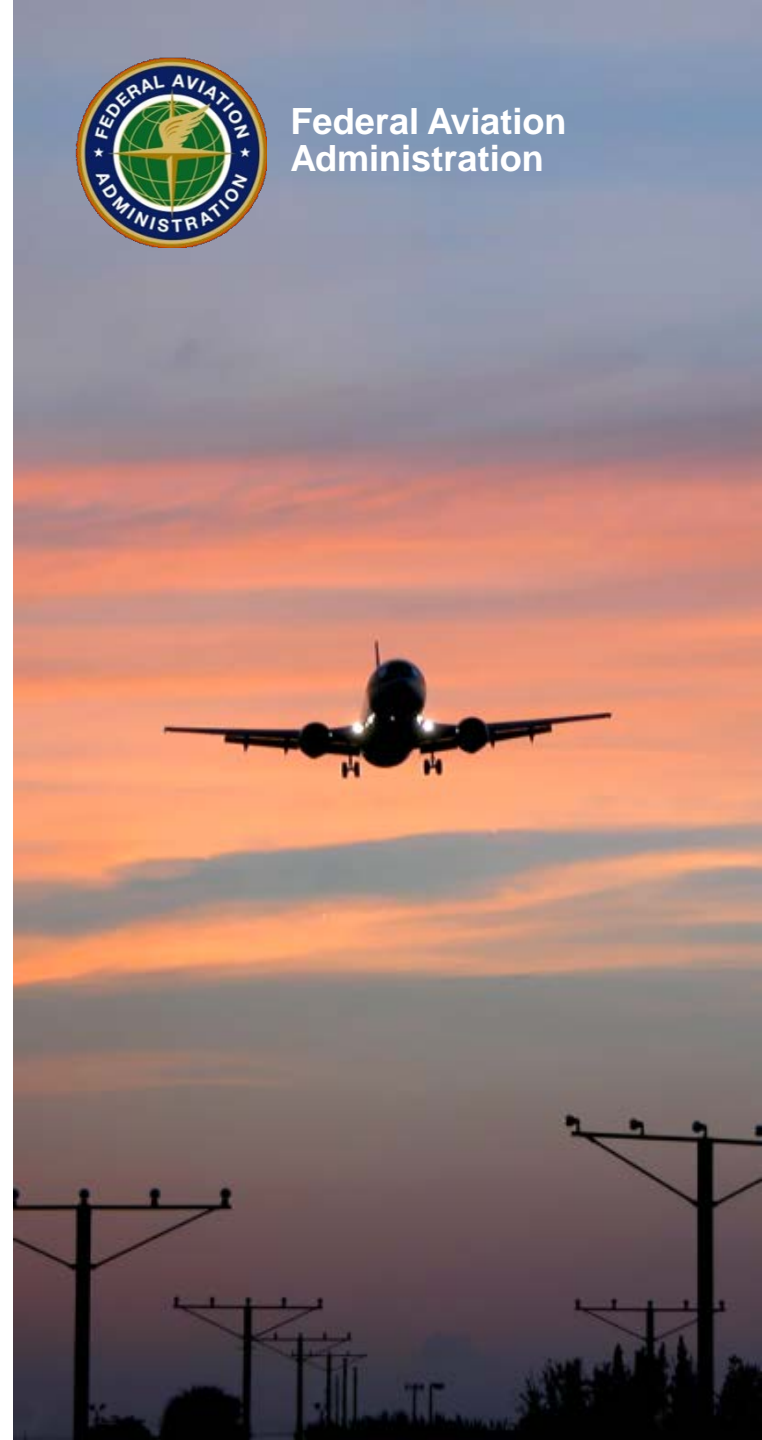


SWIM Enterprise Control Center

Mitch Mitchell
October 12, 2017



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NASEO

NAS SECURITY AND ENTERPRISE OPERATIONS

SWIM

Enterprise Control Center

Enterprise Control Centers

SWIM Enterprise Control Center (SECC)

Voice and Data Comm Enterprise Control Center (VECC)

Navigation and Surveillance Enterprise Control Center (NECC)

Each ECC is an independent control center.

The ECC's are Tier 1 help desks and are responsible for monitoring, troubleshooting, coordinating, and reporting scheduled and unscheduled interruptions associated with enterprise-related systems.

Enterprise Control Centers

PURPOSE / RESPONSIBILITIES

- Oversight of SOA (Service Oriented Architecture) services used by internal and external users. Provide NAS management for enterprise services at the national level within their scope of responsibility.
- Primary interface to vendor help desk/SOC
- Serve as single point of contact for internal and external customers.
- Create RMLS Event Manager tickets.
- Perform coordination with internal stakeholders and notification to external users of enterprise level service events.
- Coordinate with OCC/SOC on District owned equipment as it affects enterprise services.

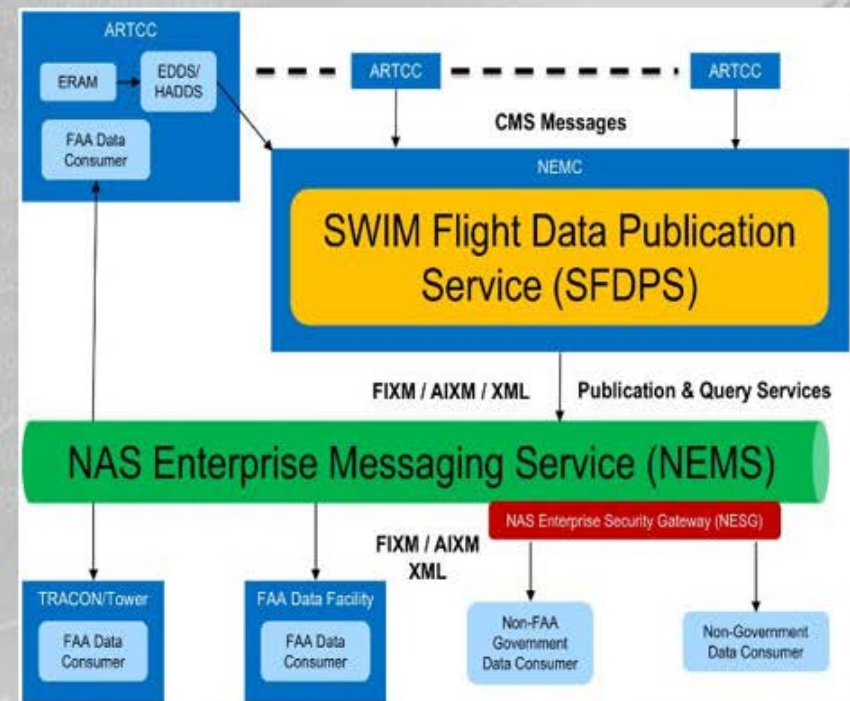
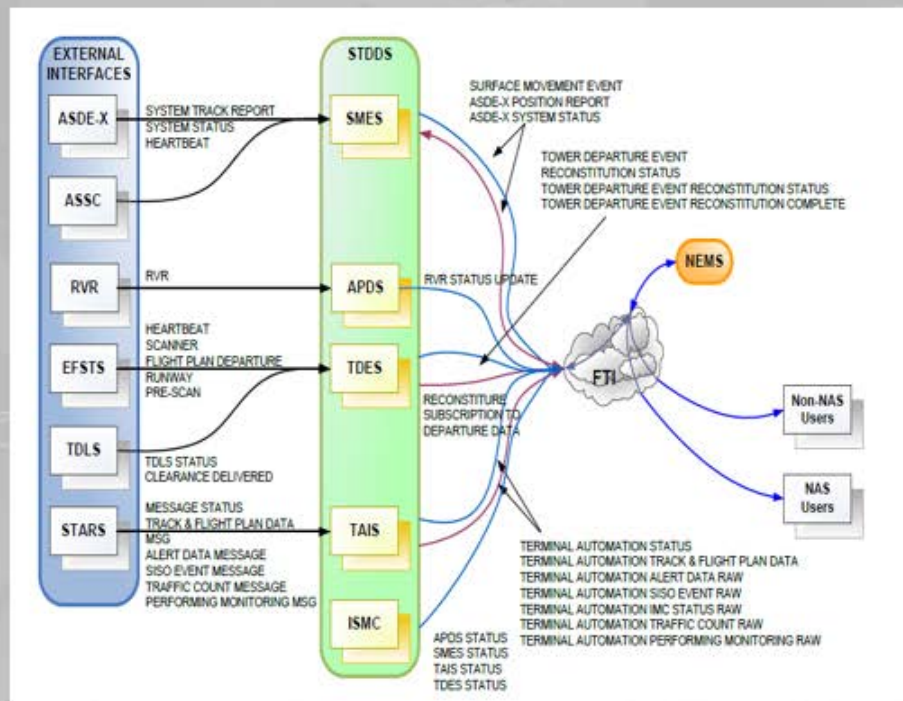
SWIM Enterprise Control Center

- System Wide Information Management (SWIM) Services (SECC) Enterprise Control Center, located in Hampton, GA.
- The SECC is responsible for all services provided through the SWIM infrastructure, such as Network Enterprise Management Center infrastructure, [SWIM Flight Data Publication Service](#) (SFDPS), and [SWIM Terminal Data Distribution System](#) (STDDS) services.
- The SECC is the point of contact for all SWIM consumers and producers.

SWIM Enterprise Control Center

SWIM Terminal Data Distribution System (STDDS)

SWIM Flight Data Publication Service (SFDPS)



ECC Services

SECC Coordination	VECC Coordination	NECC Coordination
ASDE/ASDES (FL)	DCNS	CLT WAM (FL,RE)
FDRS (FL)	CPDLC (FL,RS)	ADS-B, TIS-B, FIS-B (near future)
RVR (FL, RE)	TIMS/TMUS (FL,RS)	
TDLS (FL)	DCGW	
TDLS D-ATIS only (FL)	NVS (near future)	
TDLS PDC only (FL)		
STARS (FL, RS)		
TARS (FL)		

NEMC/ECC Call Tree

855-322-6362

Option 1 (Atlanta NEMC)

Flight Management Coordination (Sub Option 1)	Weather Coordination (Sub Option 2)	Teamlead Coordination (Sub Option 3)
		ASOS/AWOS

Option 2 (Salt Lake City NEMC)

Flight Management Coordination (Sub Option 1)	Weather Coordination (Sub Option 2)	Teamlead Coordination (Sub Option 3)
		ASOS/AWOS

Option 3 (Enterprise Services)

SECC Coordination (Sub Option 1)	VECC Coordination (Sub Option 2)	NECC Coordination (Sub Option 3)
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Questions?

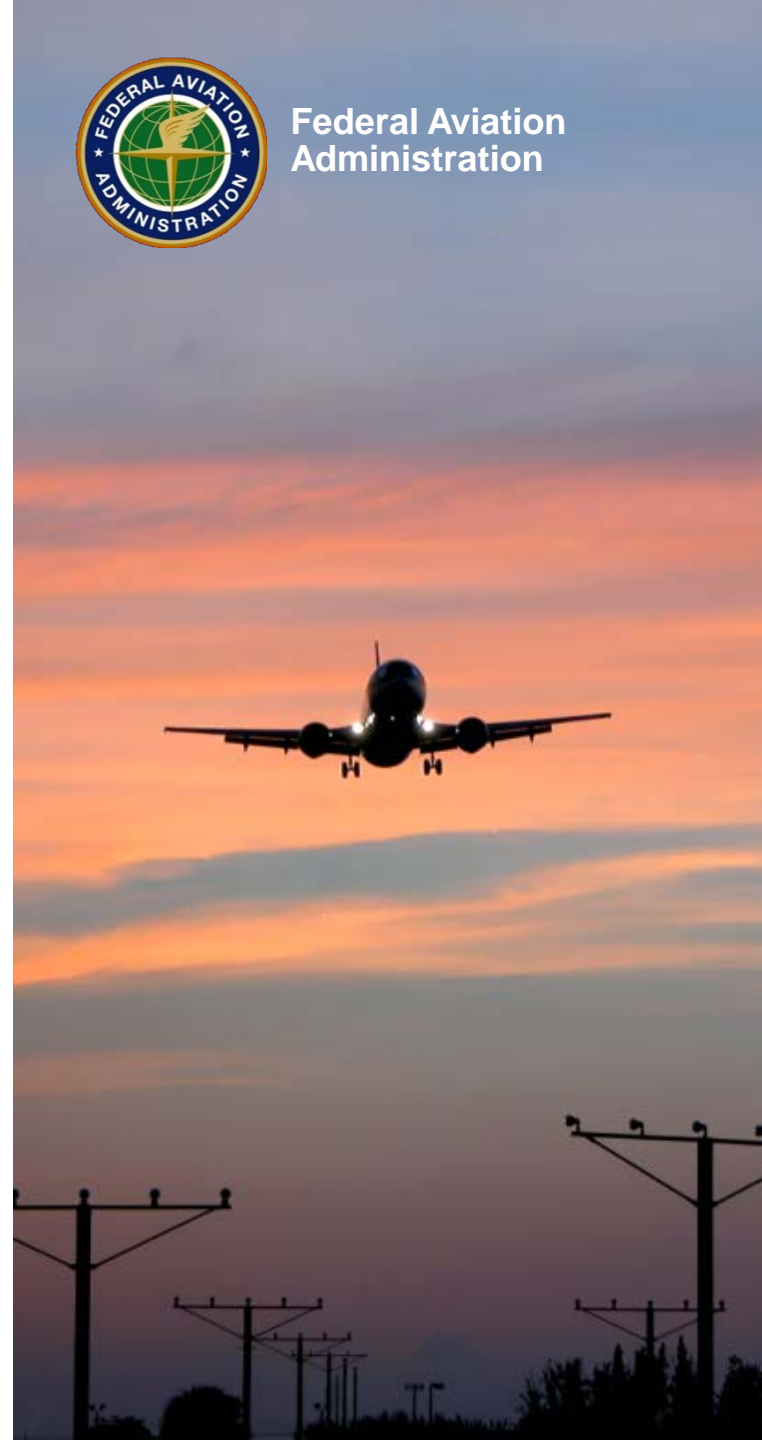


Coming Up...

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Visit us during ATCA #SWIM2017



- **The 62nd ATCA Annual at National Harbor, Md., Oct. 16-18**
 - Demos from the SWIM Program Office
 - Meet the SWIM Leadership Team
- **Panels in the Main Hall on 10/17:**
 - *Solve for X: Big Data + X = NextGen Success*
 - Focusing on NextGen and NAC priorities and big data's role in fulfilling them
 - Speakers: Natesh Manikoth (FAA), Mark Denicuolo (FAA), Melynda Eden (Unisys), Josh Gustin (FAA), Scott James (Noblis), Henry Sowell (Hortonworks)
 - *SWIMming in Data at Home and Abroad*
 - Focusing on SWIM's evolution, challenges from an ANSP and industry perspective, benefits at ICAO, and innovations
 - Speakers: John Bernard (Harris), Nadine Alameh (Snowflake Software), Jeri Groce (FAA), Bill Murphy (IATA), Rob Goldman (Delta Airlines)



Real-time Display of SWIM Data

Scott James

Victoria Li & Kai Peng

October 12, 2017



For the best of reasons



Noblis 2017 Summer Intern Program

Each summer, Noblis holds an intern program introducing prospective technologists to real world problems. This year, using Noblis internal funding and direction*, two of our interns, Victoria Li and Kai Peng, explored possible uses for real-time SWIM data.

These are the results of their 10-week program

**The SWIM Program Office did not provide any resources for this effort, and the purpose of the demo is to share what can be done with the data made available to the public.*

Real-time Display of SFDPS and STDDS Data

Victoria Li

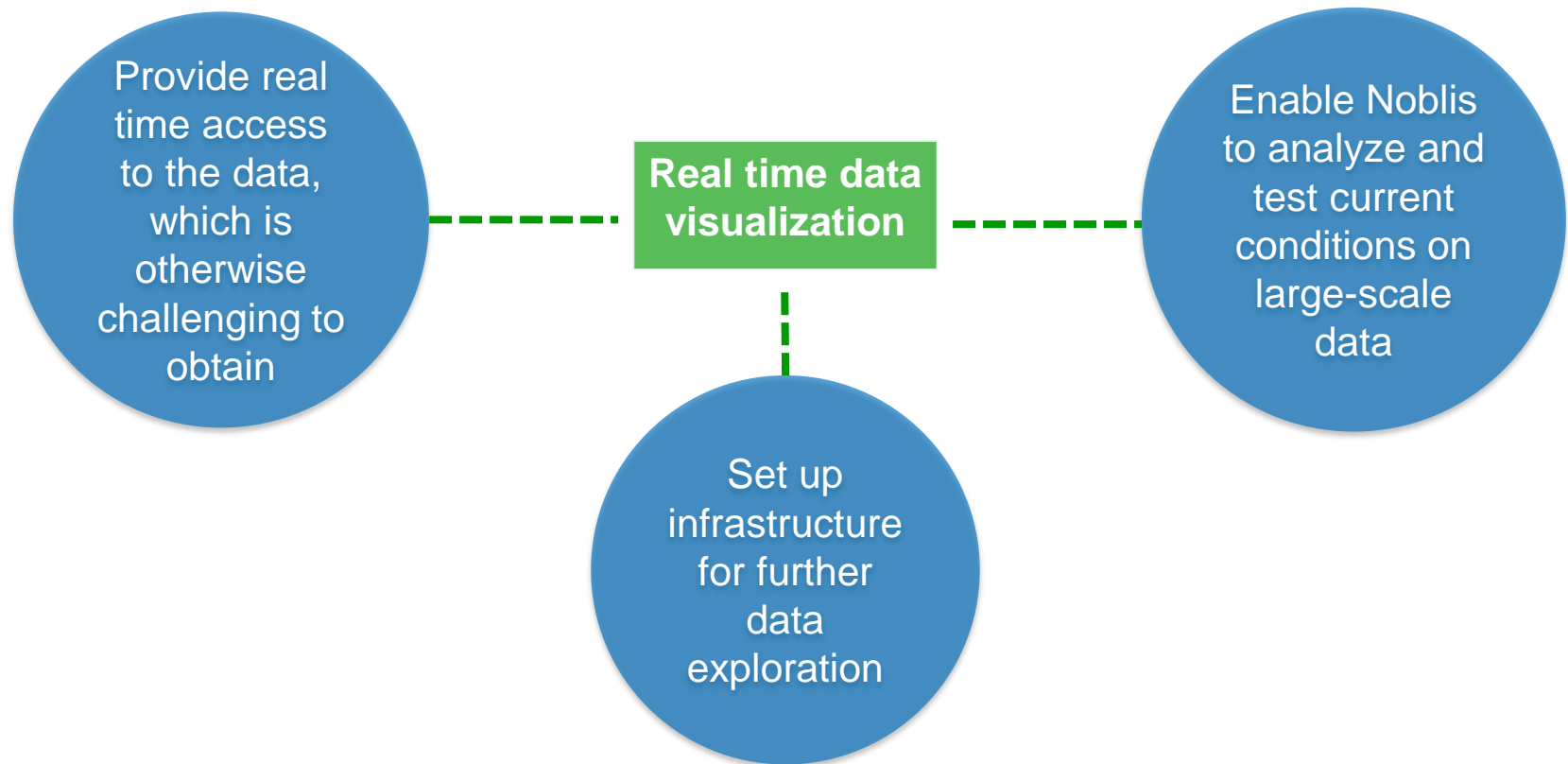
Scott James



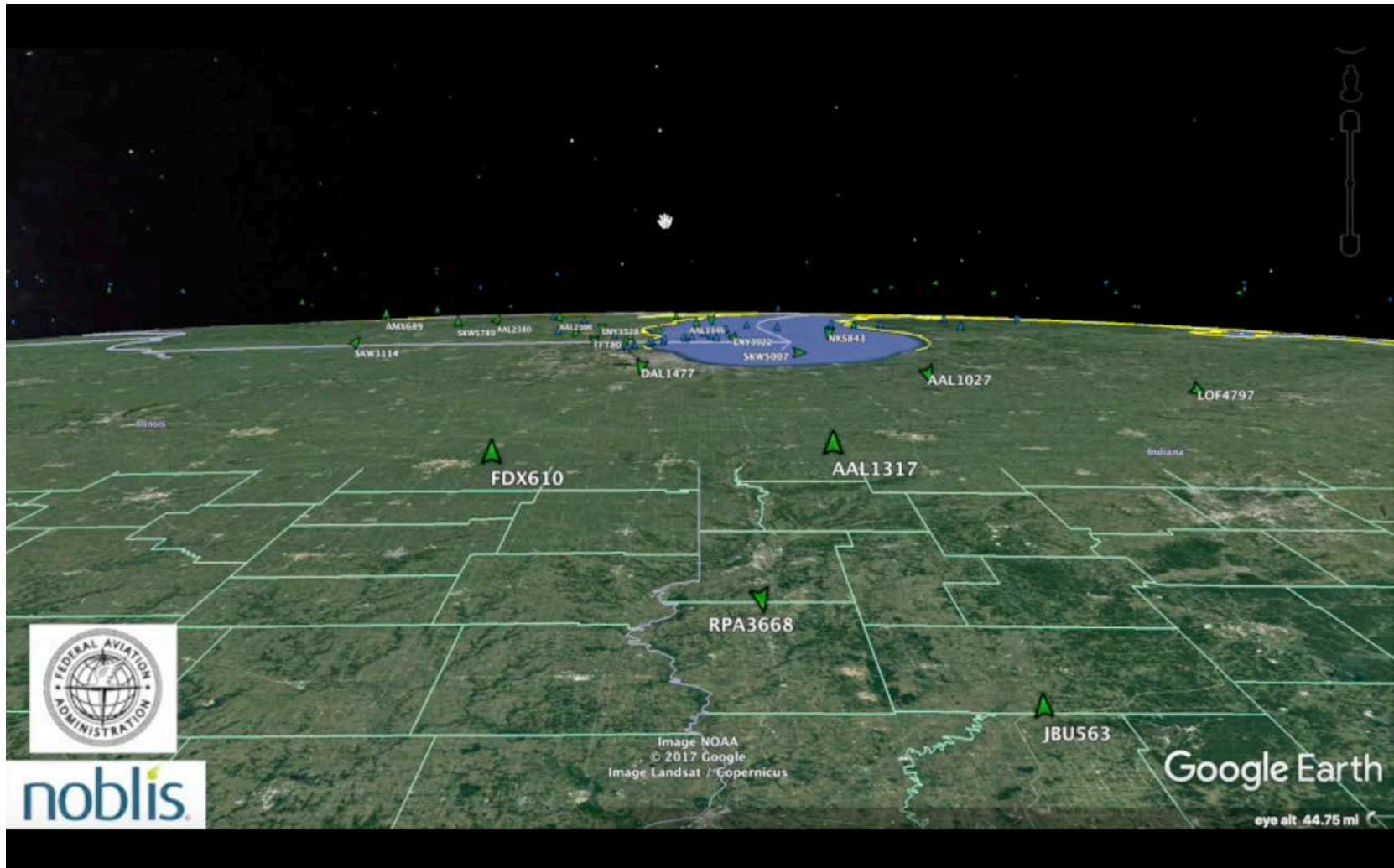
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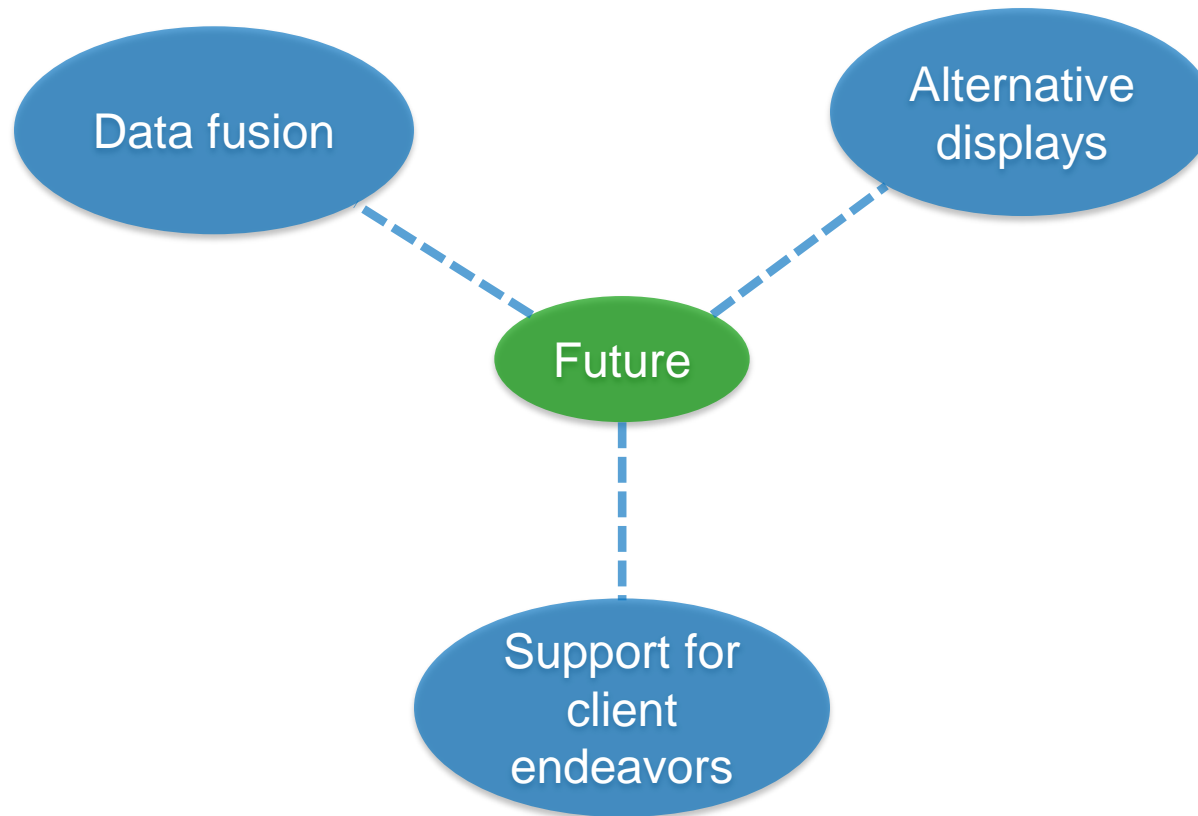
Objective



Footage of Real Time Display



Future Possibilities



HoloLens and Mixed Reality for Enterprise Technology

Chia-Hua “Kai” Peng
Scott James



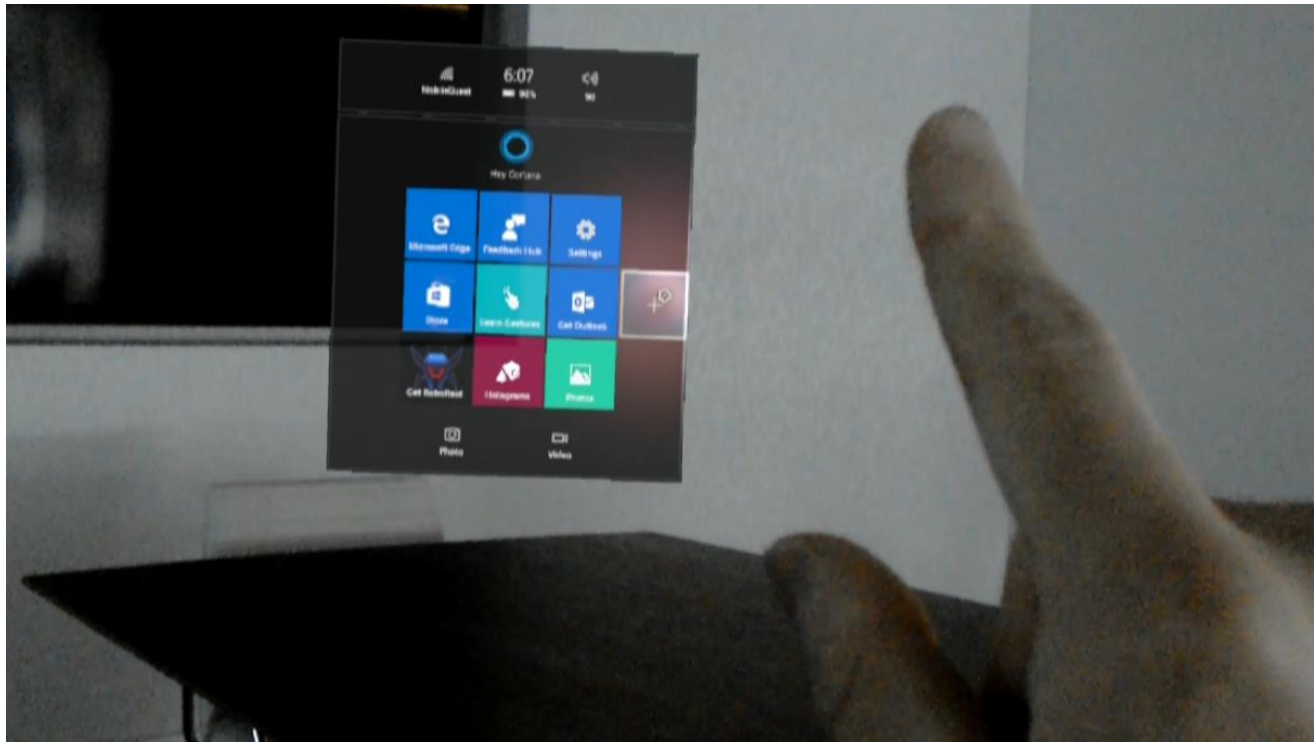
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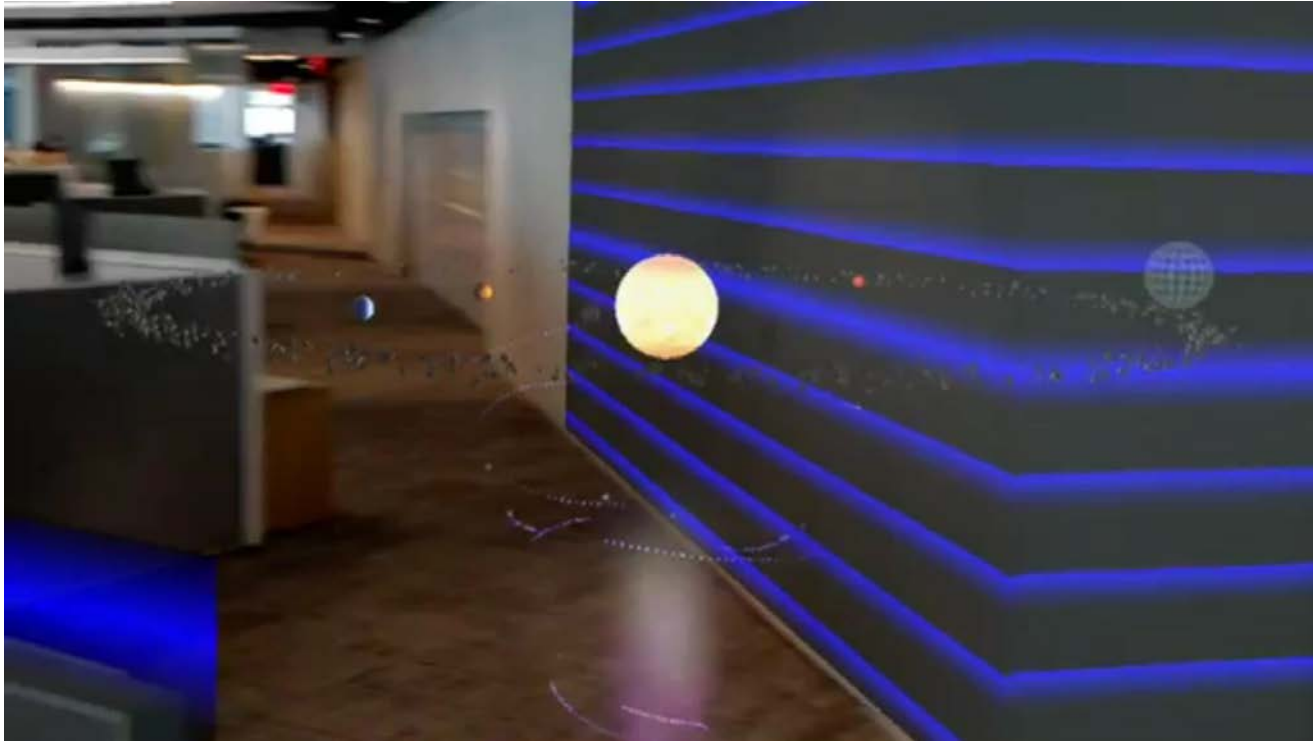
What is HoloLens?



What is HoloLens?



What is HoloLens



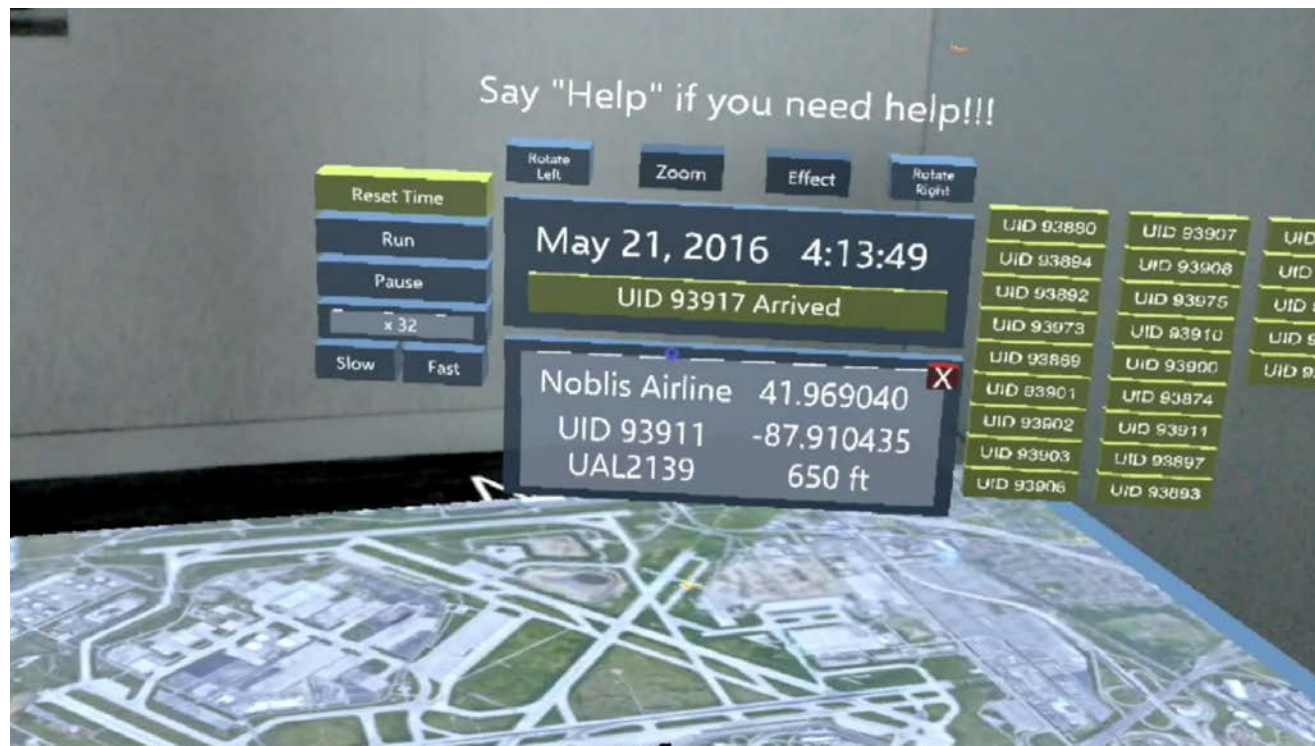
Purpose of the Intern Project

- Build a Mixed Reality application to show how we can **visualize complex problems** using the Microsoft HoloLens
 - Demonstrate application of Mixed Reality to current **client** problem
-

HoloLens Display



The Virtual UI



Use Your Voice and Gesture



Ground Traffic



The Air Traffic



Any Questions?

