Common Support Services – Weather (CSS-Wx)
Joint Capability Evaluation (CE)

Federal Aviation Administration

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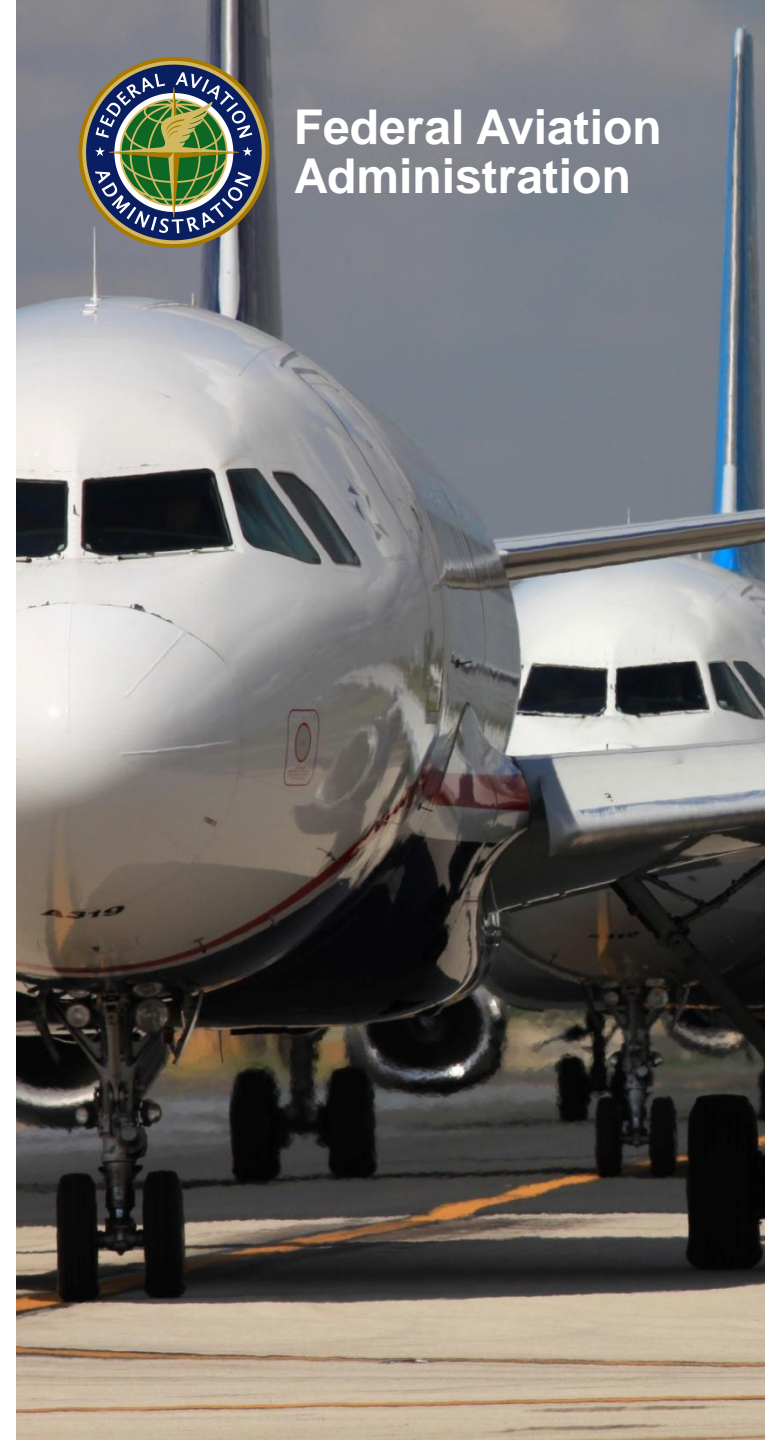
Overview

- **What is CE**
- **Evolution**
- **Joint CE**

Common Support Service – Weather (CSS-Wx)

- **Previously known as NextGen Network Enabled Weather (NNEW)**

- **Provides Wx data dissemination for NAS systems**
  - Standards in accessing weather data
    - OGC web services
  - Aviation weather data standards
    - NetCDF4, IWXXM, WXXM..
  - Provide subset/filter, coordinate reference system conversion

- **Leverages SWIM segment 2 capability**

Capability Evaluation (CE)

- **Prototype new concepts, both IT and operational**
- **Evaluate and fine tune technical approaches**
  - FAA Telecommunication Infrastructure & security
  - Better understand standards and specifications for acquisition
  - Integration with FAA System Wide Information Management (SWIM) middleware and security requirements
- **Demonstrate CSS-Wx/capabilities to Stakeholders in a structured, formal manner**
- **Common milestones for partner organizations**
  - FAA, MIT LL, NCAR, NOAA/GSD, AAtS, WTIC, NIEC, SWIM
- **Inter-agency partnership between FAA and NOAA National Weather Service (NWS)**
- **Use of Reference Implementations**

CE Evolution

- **Annual event FY07 - FY10**
  - Information Technology proof of concept

- **FY10**
  - Stood up FAA R&D domain internal enclave as the CE environment
  - Server virtualization
  - Wx data producers published with CSS-Wx WCSRI and WFSRI

- **FY11**
  - Optimizing network resource
  - Demonstrated integration of a NAS system (IDS-R/NIDS) with CSS-Wx
  - Demonstrated COTS product integration (i.e., FAA EON Google Earth) with CSS-Wx
  - Demonstrated multiple topologies/architectures

FY13: CSS-Wx Joint CE

- **Objective:**
  - Demonstrate NextGen concept of NAS common weather picture enabled by CSS-Wx, SWIM and AAtS components
  - Showcase an end-to-end-source-to-pilot use case with prototyped mobile apps onboard live aircraft continuously updated with live data
  - Collaborative effort between FAA Programs (CSS-Wx, AAtS, WTIC) and NOAA/NWS for NextGen weather

FY13: CSS-Wx Joint CE (cont'd)

- **Two demonstrations events**
  - June 26 CE-1A
    - In NIEC lab, simulated center system and cockpit simulator
    - Both live data and republished-archived-data
    - Recorded WTIC EDR uplink app-test-run on FAA N-47 aircraft flight from April 16
  - July 30 CE-1B
    - Demo with live data onboard N-47
    - Common Wx Picture demo and discussion with live and republished-archived-data in the NIEC lab

Joint CE architecture

Joint CE Architecture

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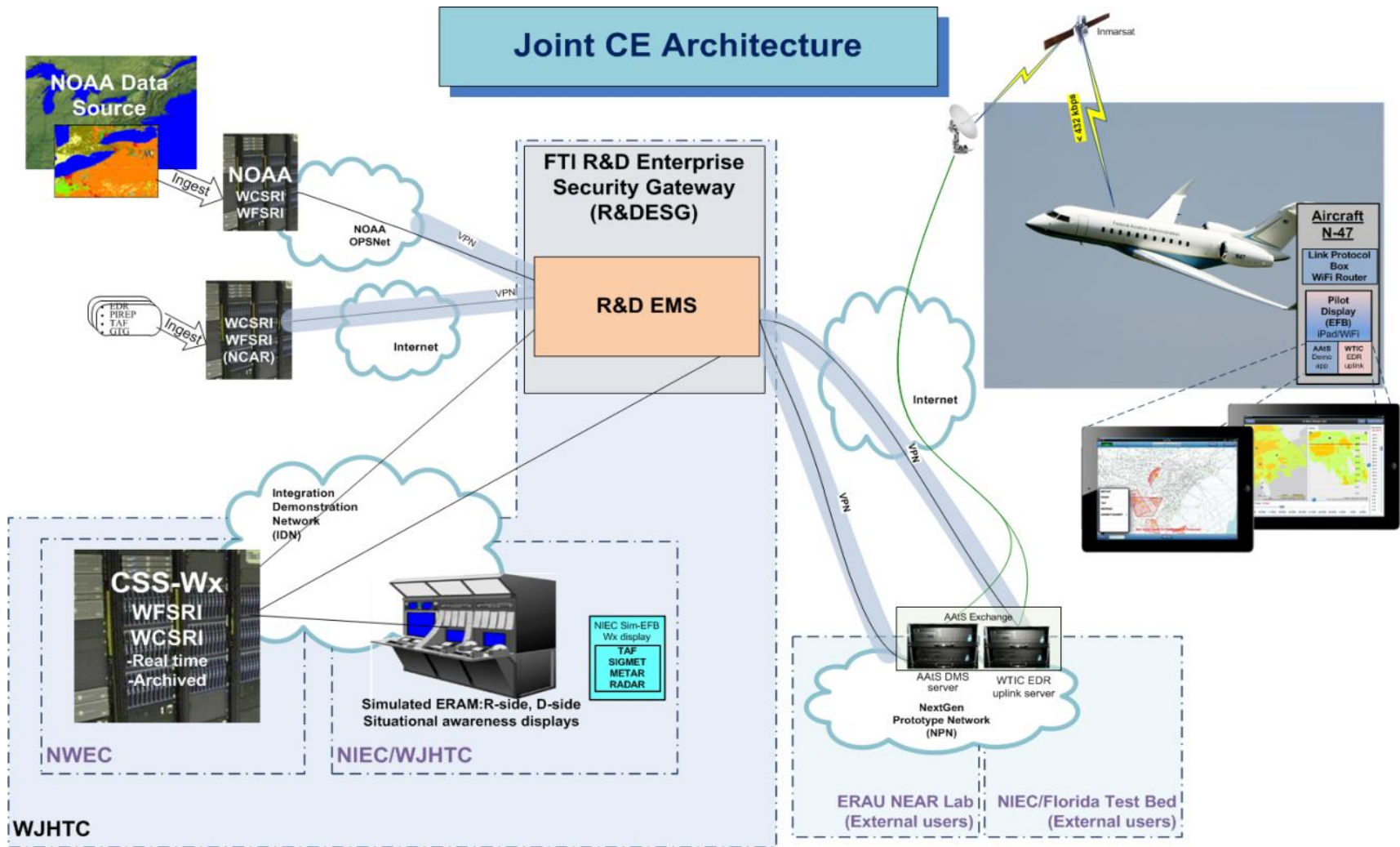
Scenario Sequence: JFK-TPA Flight
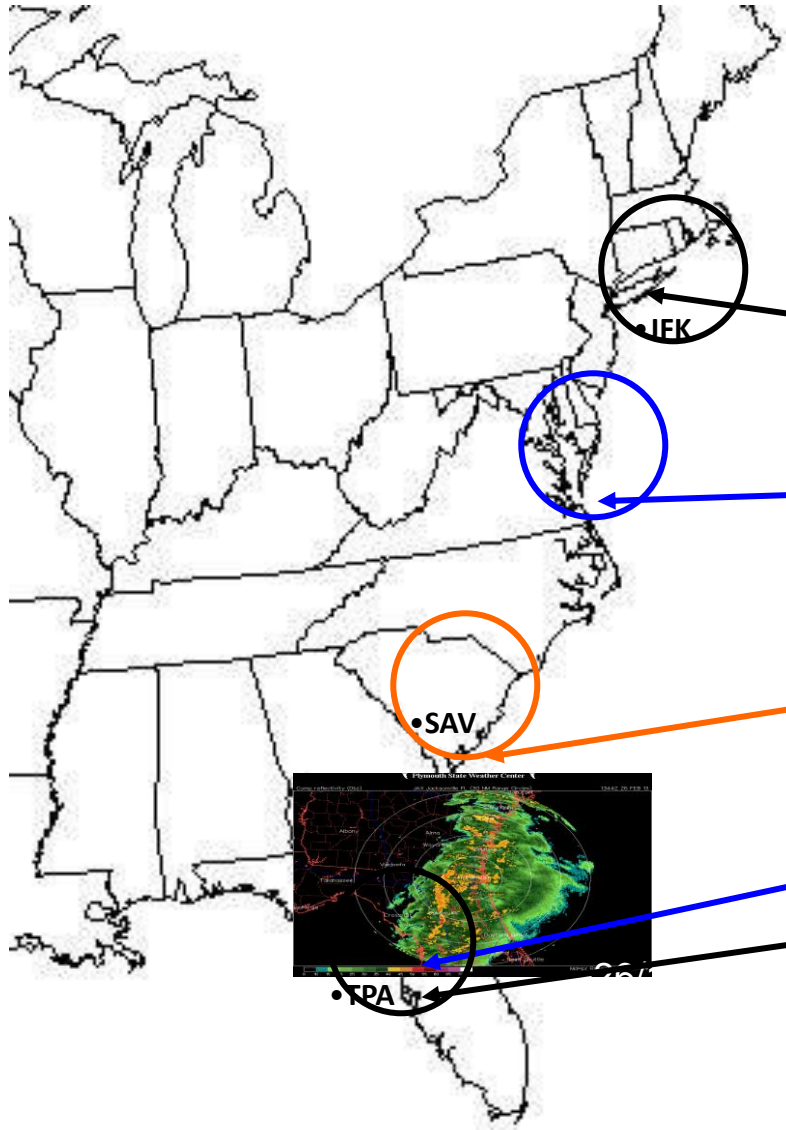
Based on February 26, 2013 archived observations and forecasts Wx data

- 0945Z: Preflight Briefing
- 1045Z: Pre-Taxi Update
- 1145Z: Depart JFK
- 1245Z: Inflight Update #1
- 1345Z: Inflight Update #2
  - Convective Wx Avoidance
  - Inflight Emergency Divert (SAV)
  - Turbulence – Altitude Change
- 1430Z: Inflight Update #3
- 1445Z: Arrive TPA

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More information about CE

- https://wiki.ucar.edu/display/NNEWD/Capability+Demonstrations