



**Federal Aviation
Administration**

ITWS-SWIM Prototype and Segment 1 Status

Presented to: Demonstration and Prototyping
Information Exchange Briefing

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Agenda

- **Description**
- **Key Players**
- **Prototype status**
- **Segment 1 status**
- **SWIM-ing past Segment 1**
- **Net-centric application in Weather**
- **Future Plans**



Description

- **The ITWS-SWIM Segment 1 capability will provide authorized users with access to ITWS weather products**
 - Access through the FTI security gateway (ED-8)
 - Using SWIM-compliant, standards-based service interfaces
- **The Prototype began as a tool to evaluate the Iona Fuse service container**
- **Reiterative prototyping development methodology**
 - The prototype is refined through various stages until it eventually evolves into the desired product



Key Players

- **FAA Aviation Weather Services**
 - Weather Processors Org
 - ITWS Program
- **Development Team**
 - Based at the Volpe Transportation Center



ITWS-SWIM Prototype Status #1

- **As of Oct 30, 2009 the Prototype is providing access to 19 ITWS weather products**
- **Data format**
 - XML
- **Use of standards-based Open Source technology**
 - WSDL contracts and SOAP messages
 - JMS topics (Active-MQ)
 - Supports continuous streaming
- **Supports flexible and dynamic data subscription model and filtering capabilities**
- **Uses a configure-don't-code paradigm that minimizes total lines of code, thereby driving down the costs of development and maintenance**



ITWS-SWIM Prototype Status #2

- **Subscriber clients**

- UPS, Harris Corp\FTI, U.S. Air Force (GiG - Global Information Grid team)
 - Fedex waiting for the VPN interface
- UPS and USAF are both actively consuming the data:
 - UPS has developed their own client software that was demonstrated to UPS management on Oct. 30..
 - USAF GiG - Stayed tuned for their presentation



ITWS-SWIM Segment 1 Status #1

- **Completed all FY09 goals:**
 - Requirements
 - Architecture Design
 - Initial products representing each variety of weather product
- **Other accomplishments**
 - Produced graphical animations of ITWS SWIM products to assist with QA related to product decoding and interpretation



SWIM-ing past Segment 1 #1

- **ITWS, NNEW, SWIM working group developing plan for an ITWS-NNEW provider service adaptor (PSA)**
- **Goals**
 - To develop a prototype ITWS-NNEW PSA that conforms to SWIM and NNEW standards
 - Re-use as much of the ITWS-SWIM Prototype and Segment 1 code as practicable
 - The PSA should be configured to allow for an addition of a Consumer Service Adaptor some time in the future



SWIM-ing past Segment 1 #2

- **ITWS-NEW PSA architecture options**

- Option 1: Origin Server (SIA+GDAS RI) located at each PG site
 - May have issues with certification and ownership
 - Adheres best to NEW baseline architecture
- Option 2: App Server (SIA) located at PG sites. Origin Server (GDAS RI only) located in centralized (TBD) location
 - Could consolidate GDAS RI installations
 - Easier to demarcate between organizations
 - Possible alternative for NEW architecture
- Option 3: Origin Server (SIA+GDAS RI) located at Volpe
 - Possible interim solution ?
 - Adds another latency hop



SWIM-ing past Segment 1 #3

- **Requirements need to define scope of effort.**
- **When and how to implement associated Distribution Servers.**
- **How to handle weather formats used by the various groups.**



Net-centric application in Weather

- Net-centric, refers to participating as a part of a continuously-evolving, complex community of people, devices, information and services interconnected by a communication network to optimize resource management and provide superior information on events and conditions needed to empower decision makers.
- The Net-centric concept is an integral part of the SWIM and NNEW environment
- Example: The Total Weather Workstation
- Will “where” matter



Net-centric application in Weather: ITWS Mobile #1

Test of Concept



iPhone Icon



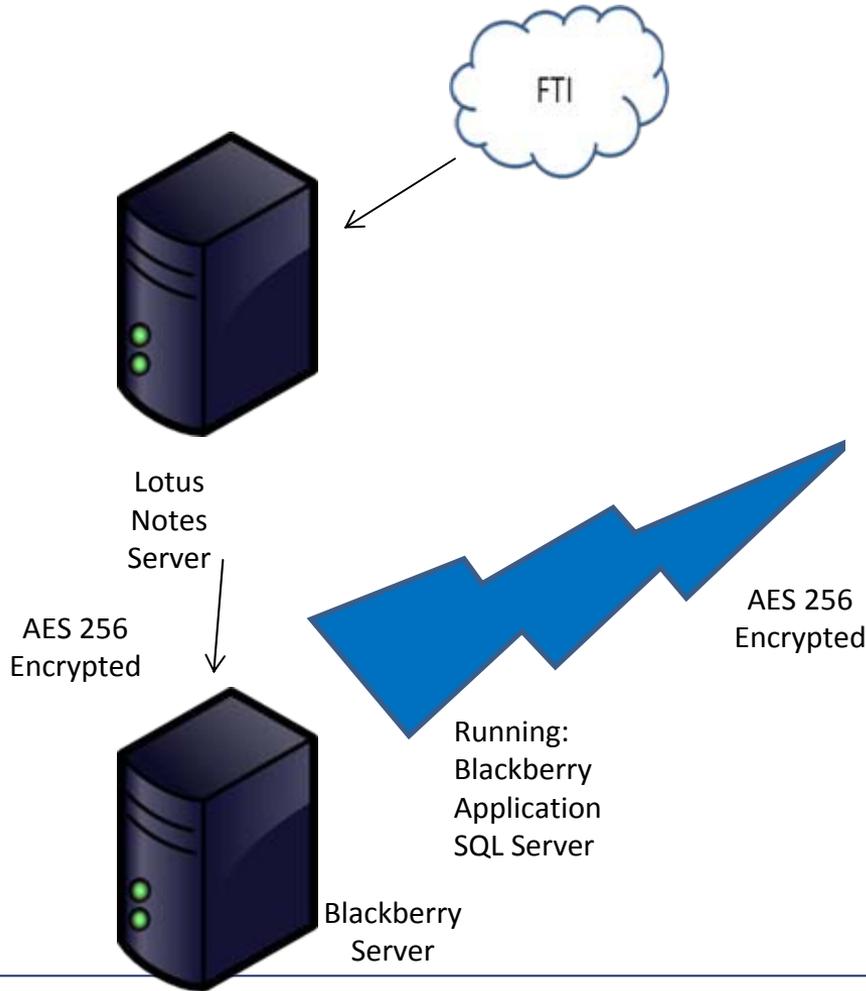
iPhone ITWS
Main



iPhone ITWS
Detail

Net-centric application in Weather: ITWS Mobile #1

ITWS Mobile Access Security Functionality



Security Functionality:

- FAA Owned and configured Blackberry
- ITWS Application Certification
- Only allows users with the proper certificate to access the App
- One-time Passwords emailed to the user
- GPS Functionality can be used to logically block/allow access based on physical location of the device

FAA-Owned
Blackberry with:

- Email
- GPS

Functionality

Test of Concept

Future Plans

- **Deploy the ITWS-SWIM Segment 1 capability**
- **Weather Processors is actively consolidating weather requirements**
- **Develop plan for an ITWS-NNEW provider service adaptor**



Back-up Slides



ITWS-SWIM Weather Products

1. Airport_Lightning_Warning
2. Configured_Alerts_Product
3. Forecast_Accuracy_Product
4. Forecast_Contour_Product
5. Forecast_Image_Product
6. Gust_Front_TRACON_Map_Product
7. Microburst_TRACON_Map_Product
8. Precipitation_5nm_Product
9. Precipitation_Long_Range_Product
10. Precipitation_TRACON_Product
11. SM_SEP_5nm_Product
12. SM_SEP_Long_Range_Product
13. SM_SEP_TRACON_Product
14. Terminal_Weather_Text_Normal_Product
15. Terminal_Weather_Text_Special_Product
16. Tornado_Alert_Product
17. Tornado_Detections_Product
18. Wind_Profile_Product
19. ITWS Status Information

- The gridded products are using a new compressed format (product numbers 5, 8, 9, and 10 from the above list) and are consuming < 1/10 of the bandwidth that they were using during the trial deployment in early July.



ITWS, WARP and CIWS Processing Locations

