



*International Civil Aviation Organization*

**The Seventh Meeting of the Asia/Pacific Aeronautical Information Services –  
Aeronautical Information Management Implementation Task Force  
(AAITF/7)**

Ha Noi, Viet Nam, 13 – 16 March 2012

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**Agenda Item 4: AIS-AIM Updates**

**DIGITAL NOTAMS IN THE UNITED STATES**

(Presented by the United States of America)

**SUMMARY**

This paper presents a summary of the current state digital NOTAMs in the United States.

This paper relates to –

**Strategic Objectives:**

A: *Safety – Enhance global civil aviation safety*

**Global Plan Initiatives:**

GPI-18 Aeronautical information

**1. INTRODUCTION**

1.1 As part of AIM modernization, the United States has created digital NOTAM entry capability and is updating its policy to be consistent with ICAO standard and recommended practices.

1.2 The policy updates have occurred in multiple increments over time so to avoid confusion by stakeholders. Formal notification of ICAO compliant NOTAM format is planned for the end of 2012. It is estimated that implementation of new NOTAM policy will become effective in 2014, allowing one full year for stakeholder notification.

**2. DIGITAL COLLECTION**

2.1 Supporting data to create NOTAM scenarios and event specifications is first being collected for aerodrome NOTAMs. Aerodrome digital NOTAM entry capability has been deployed at 50 aerodromes across the United States.

2.2 Tower-light outage NOTAM entry capability is expected to be deployed by the end of 2012. Approximately 21% of US NOTAMs are tower-light outage reporting.

2.3 Navigational Aid (NAVAID) condition digital NOTAM entry capability is expected to go into test by mid-2012. This capability will be deployed within the FAA Technical Operations directorate.

2.4 Initial capability to support the submission of digital Procedure NOTAMs is also expected to occur by mid-2012. This will be a particular challenge due to the large volume of published instrument procedures in the United States.

2.5 A detailed description of digital NOTAM status in the United States is discussed in the presentation accompanying this paper.

**3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) note the information contained in this paper and accompanying presentation;  
and
- b) discuss any relevant matters as appropriate.

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# Aeronautical Information Management



Federal Aviation  
Administration

## Digital NOTAMs



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Quality Manager

Aeronautical Information Management

March 2012

AAITF7 Meeting

# Discussion

- **Challenge**
- **Context**
- **Actions**
- **Result/Status**

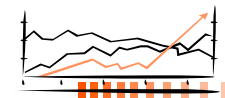
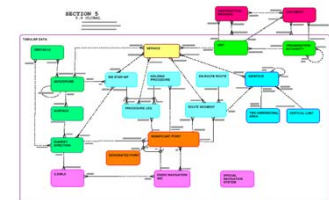
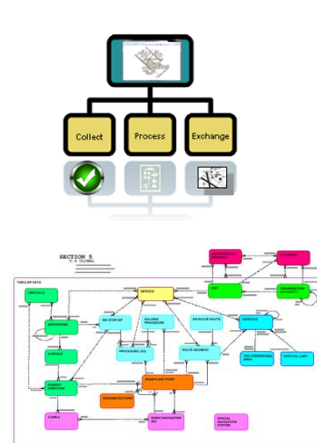


# Challenges

- **Infrastructure Costs**
  - Hardware and Software
  - Life-cycle cost (Next, Next/Next)
- **Lots of NOTAM messages**
  - Inconsistent formatting and usage
- **NOTAM Formatting**
  - Domestic (out of date policy)
  - International (not ICAO compliant)
- **Operational Costs**
  - Complexity and numbers are increasing
- **Customer expectations**
  - Digital Distribution and Fusion
  - Distribution to the cockpit

# Context

- **Collection/Processing**
  - Analog collection by phone/fax
  - Limited automation
- **Infrastructure**
  - Legacy automation developed for decades
  - Patchwork hardware and software
  - Expensive
- **Policy**
  - Out-of-date domestic policy
  - Non-conforming International crossover NOTAMs
- **Management**
  - Heavy dependence on outside contractors
    - Only the developers understand the code



# Actions

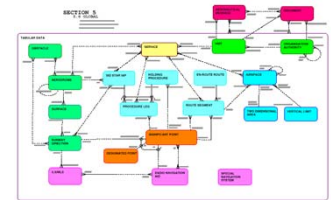
- **Collection/Processing**

- Simplified Concept of Operation
  - Direct collection from originator
  - Collect core data from originator and have the software construct the NOTAM sentence



- **Infrastructure**

- Hardware replacement
- Software
  - Digital Capture (NOTAM Manager) as a layer over legacy services
  - Use Open architecture services
  - Upgrading legacy software to newer versions and adding SOA-based interfaces



- **Policy**

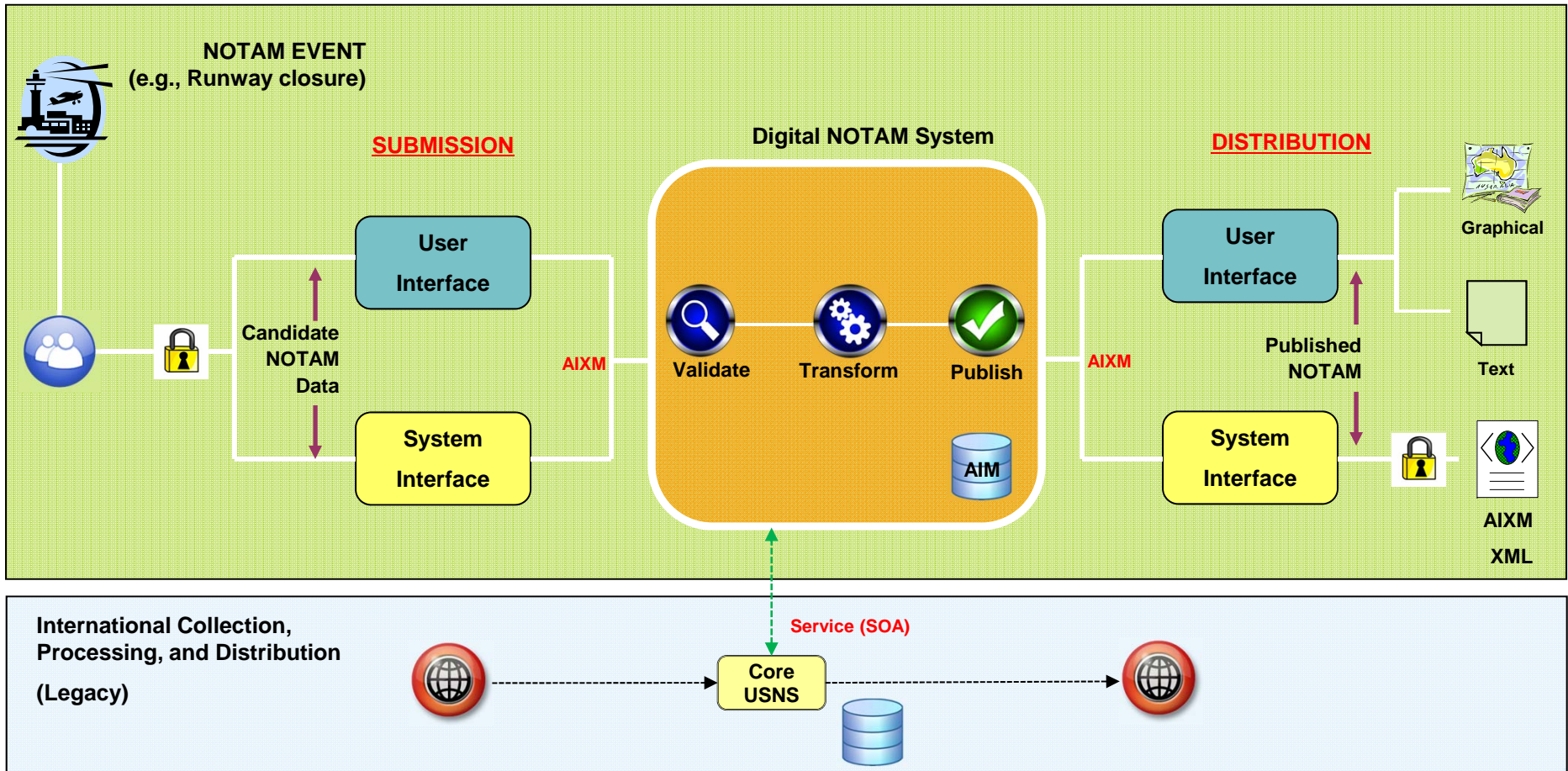
- Develop a draft ICAO-compliant NOTAM policy
- How do you converge old legacy formats to an ICAO-compliant version?
  - Maturing the policy through a series of changes to domestic formatting
  - NOTAM sentence



- **Management**

- Use services and separate knowledge from code (next/next)

# Simplified Architecture





# NOTAM Manager

US Digital NOTAM System - Mozilla Firefox

US Digital NOTAM System | NOTAM Search: Air Traffic Control Appl...

Federal Aviation Administration | Demo System | Digital - AIM | NOTAM - Manager | Shaelynn Hales | OCT 18 2010 MON 2321 UTC

NOTAM Manager | Feature Manager | User Administration | My Profile | Preferences | Feedback | Help | Logout

New | Cancel NOTAM | Replace | Copy | Edit | Delete | Error Check | Save as Draft | View Change Log | Submit | Refresh

**Filters**

Airports

ALL ( 2 / 3 )

- Aerodrome ( 1 / 1 )
- Apron/Ramp ( 0 / 1 )
- Obstruction ( 1 / 0 )
- Runway ( 0 / 1 )
- Taxiway ( 0 / 0 )

Status

- All (10)
- Active (2)
- Activation In Progress (5)
- Cancelled (0)
- Cancellation In Progress (0)
- Draft (3)
- Error Activating (0)
- Error Cancelling (0)
- Expired (0)
- Activation Faxed (0)
- Cancellation Faxed (0)

**NOTAM Summary** Page 1 of 1

Keyword	Designator	Condition	Number	Start Date UTC	End Date UTC	Status
Aerodrome	ACY	Fighting (ARFF) Availability	-	09/20/2010 14:31	09/20/2010 10:32	Draft
Aerodrome	ACY	Free Form	-	09/01/2010 18:18	09/01/2010 20:10	Activation In Progress
Apron	FAM RAMP	Closure	-	09/12/2010 20:23	09/27/2010 00:01	Draft
Aerodrome	ACY	Free Form	-	09/13/2010 17:42	09/15/2010 12:12	Activation In Progress
Obstacle		Free Form	-	09/16/2010 19:52	12/16/2010 18:50	Activation In Progress
Apron	COMMERCIAL RAMP	Free Form	-	09/21/2010 14:54	09/23/2010 15:00	Activation In Progress
Runway	4	Free Form	-	10/04/2010 17:03	12/03/2010 13:20	Activation In Progress
Runway	13/31	Closure	-	10/11/2010 11:00	10/14/2010 11:30	Draft
Obstruction		Tower Light Outage	10/108	10/12/2010 20:10	10/27/2010 16:12	Active
Aerodrome	ACY	Beacon Status	10/130	10/18/2010 21:28	10/20/2010 12:00	Active

**NOTAM Details**

**NOTAM Status: ACTIVE**

**Domestic: IACY 10/130 ACY AD ABN OTS WEF 1010182128-1010201200**

ICAO Format	Plain Text
10/130 NOTAMN <b>Q)</b> KZDC/QLBAS/JV/NBO/A /000/999/3927N07434W005 <b>A)</b> KACY (ACY) <b>B)</b> 1010182128 <b>C)</b> 1010201200 <b>E)</b> AD ABN UNSERVICEABLE	<b>Issuing Airport:</b> (ACY) Atlantic City Intl <b>NOTAM Number:</b> 10/130 <b>Effective Time Frame</b> <b>Beginning:</b> Monday, October 18, 2010 2128 (UTC) <b>Ending:</b> Wednesday, October 20, 2010 1200 (UTC) <b>Affected Areas</b> <b>Airport Beacon:</b> ACY <b>Airport Beacon Status:</b> Out of Service

Created by Gary Prock, (Tel: n/a; Fax: n/a; Radio: n/a)

Active filters: Keywords = ALL, Status = All [10 Records] Connected to NOTAM Manager | Page 1 of 1



# Policy



- **Clean up a backlogged requests**
- **Migrate to ICAO contractions**
  - Define exceptions
- **Standardize scenarios**
  - Roles and responsibilities
  - Formalize and promote NOTAM sentences
    - Defines specification for automation building the NOTAM
- **Review series and numbering issues**
  - Minimizing reuse of numbers
- **Require end-dates**



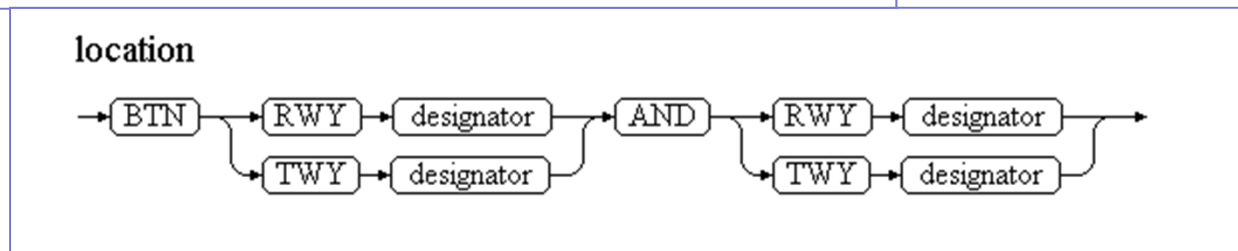
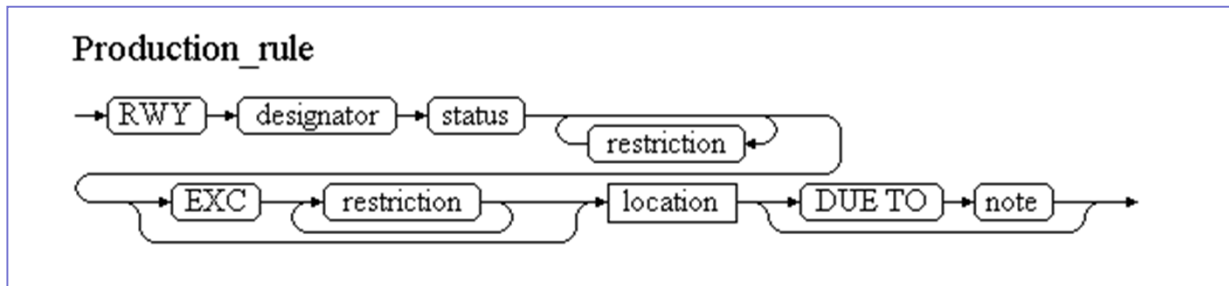
# Scenarios/Event Specifications



- **What is a scenario?**
  - A scenario describes the NOTAM condition or event that is being reported
  - A scenario is applied to a feature (Runway...)
  - The purpose is to capture the rules that are specific to each category of aeronautical information events



# NOTAM Sentence in EBNF\*



!SFF 10/002 SFF RWY 3L/21R CLSD EXC 15 MIN PPR 132.5 WEF 0810061600-0810062000

!DCA 10/069 3W3 RWY 10/28 CLSD TRANSIENT AIRCRAFT

!SEA 10/060 SEA RWY 16R/34L CLSD EXC FLIGHT CHECK

!LWC 10/015 LWC RWY 19 CLSD TKOF WEF 0810251500-0810252000

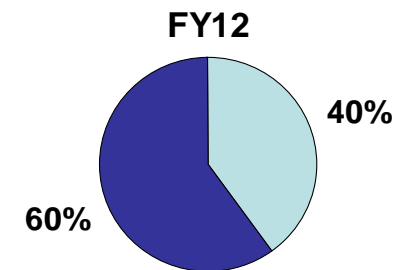
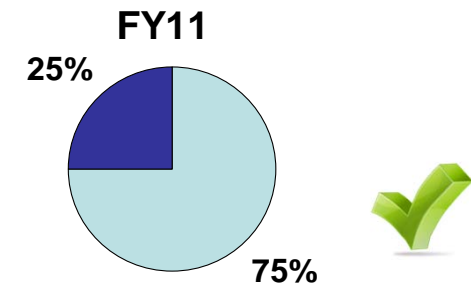
\* Extended Backus-Naur Form (see: [http://en.wikipedia.org/wiki/Extended\\_Backus%E2%80%93Naur\\_Form](http://en.wikipedia.org/wiki/Extended_Backus%E2%80%93Naur_Form))

# Results/Current Status



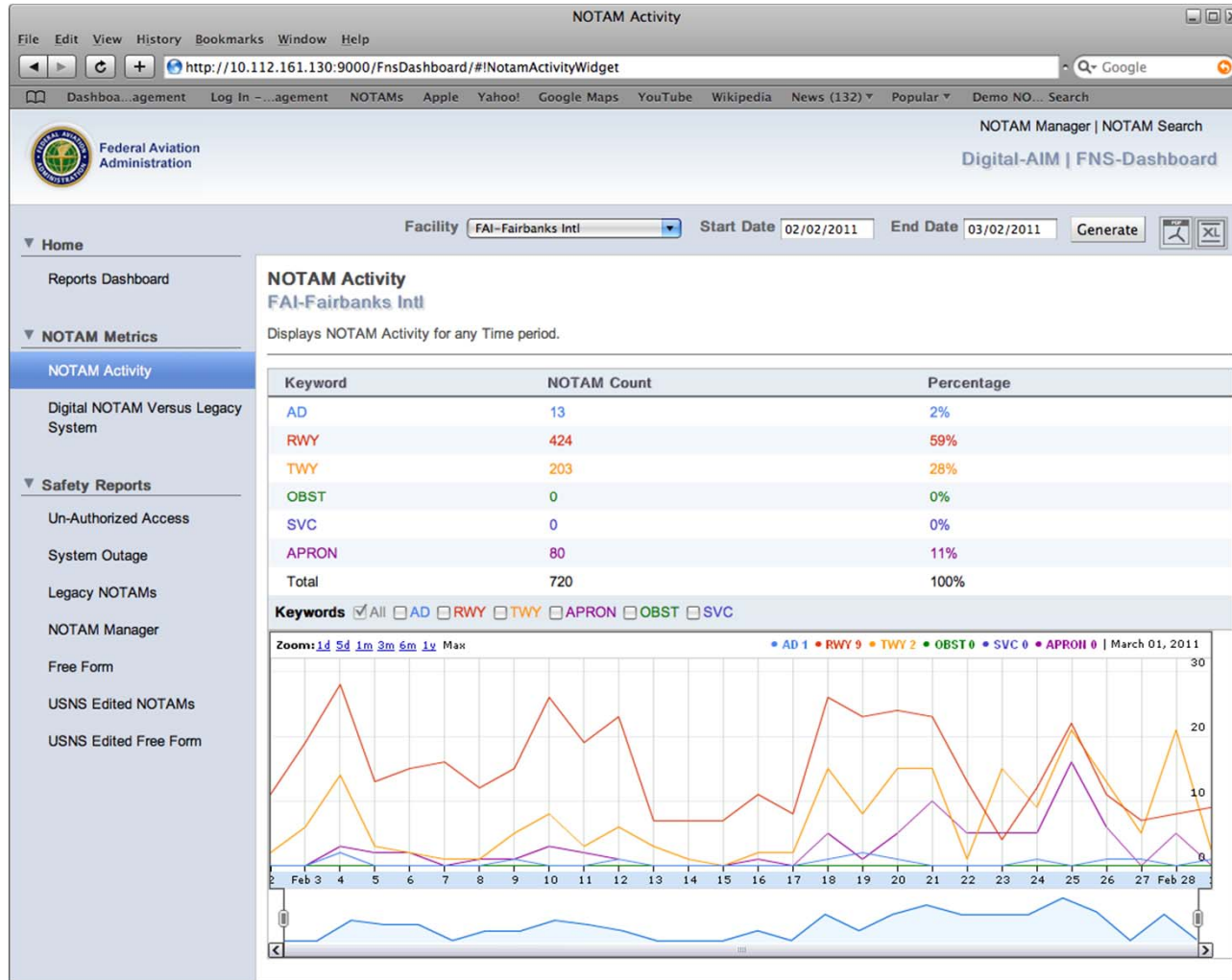
- **Digital Collection**

- By end of January 2012, we will have activated 50 airports
- We expect to bring Tower-Light NOTAM providers on by end of year
- We expect Technical Operations NOTAMs to go into test this summer
- Initial capability to support submission of Procedure NOTAMs this summer

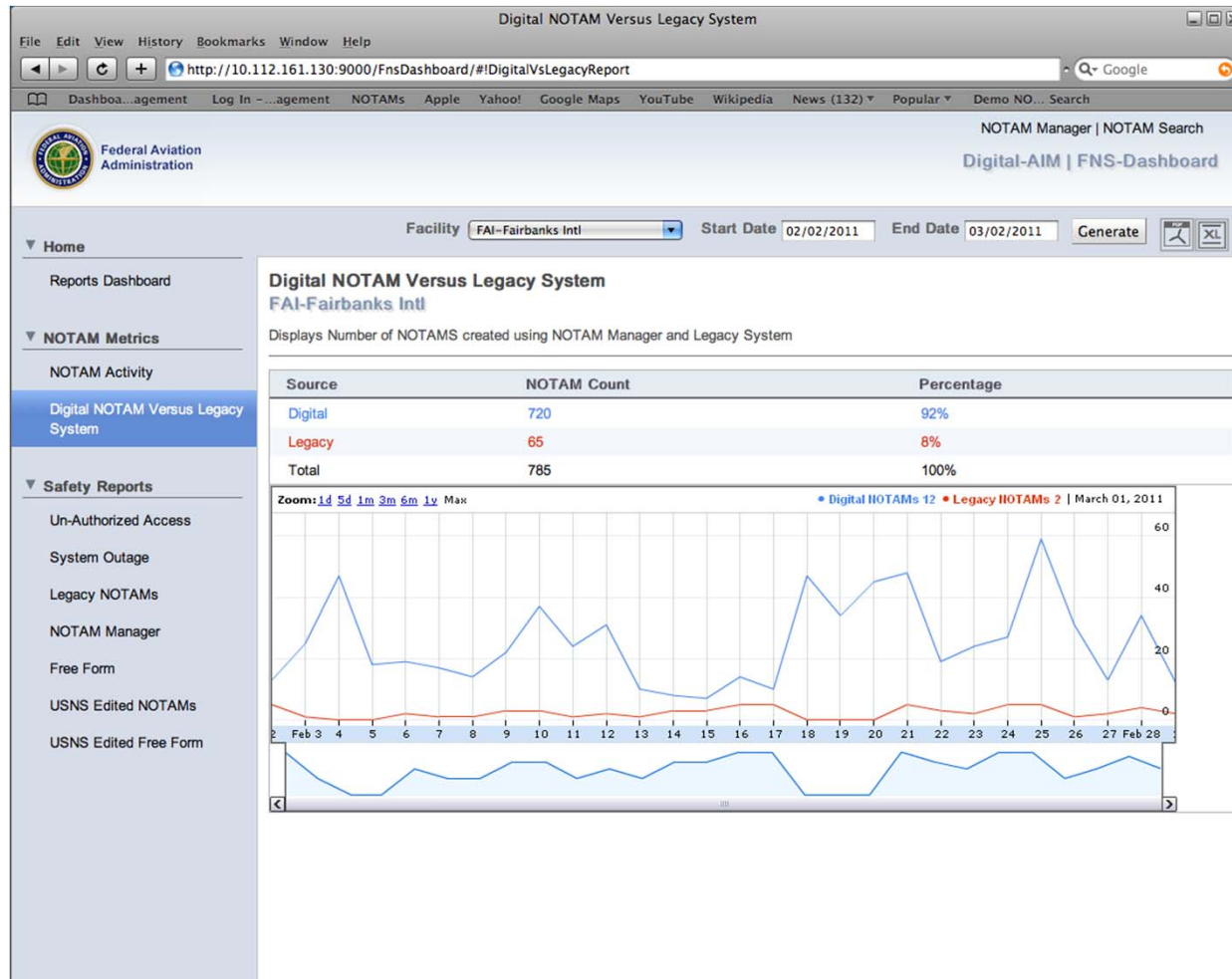


Legacy Digital

# Dashboard



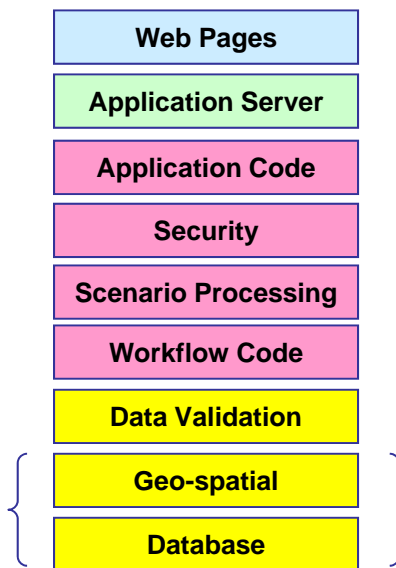
# Dashboard/2



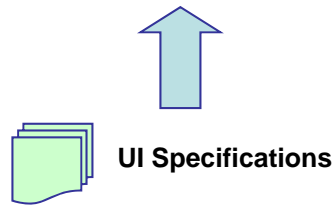
# Application Evolution



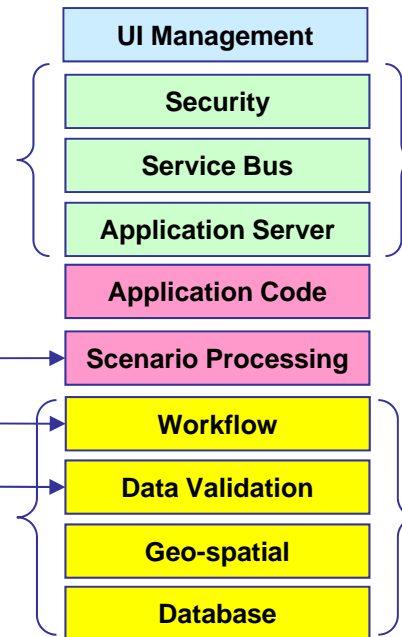
## Legacy



## Products



## System Monitoring



## Modernized

COTS services



Open-architecture services

Separate the Business Knowledge and Rules from commodity services to allow “Best of Breed” substitution of services and platform





# Policy



- **FAA has done multiple updates to domestic format**
  - Sentence
  - End dates
  - Contractions
  - Keywords
  - Field Conditions
- **FAA will release a draft of its ICAO-compliant format later in 2012**
  - Notification by end of 2012
  - Estimated implementation of new policy spring 2014

# Thank You!



# For Further Information...



- **FAA NOTAM System**
  - <http://notams.aim.faa.gov/>
  - [fns@faa.gov](mailto:fns@faa.gov)
- **Barry Davis, FAA**
  - Aeronautical Information Management
  - [barry.c.davis@faa.gov](mailto:barry.c.davis@faa.gov)
  - 202-267-9400
- **Glenn Sigley, FAA**
  - NOTAM Services
  - [glenn.sigley@faa.gov](mailto:glenn.sigley@faa.gov)
  - 202-267-9400