

Aeronautical Information Management



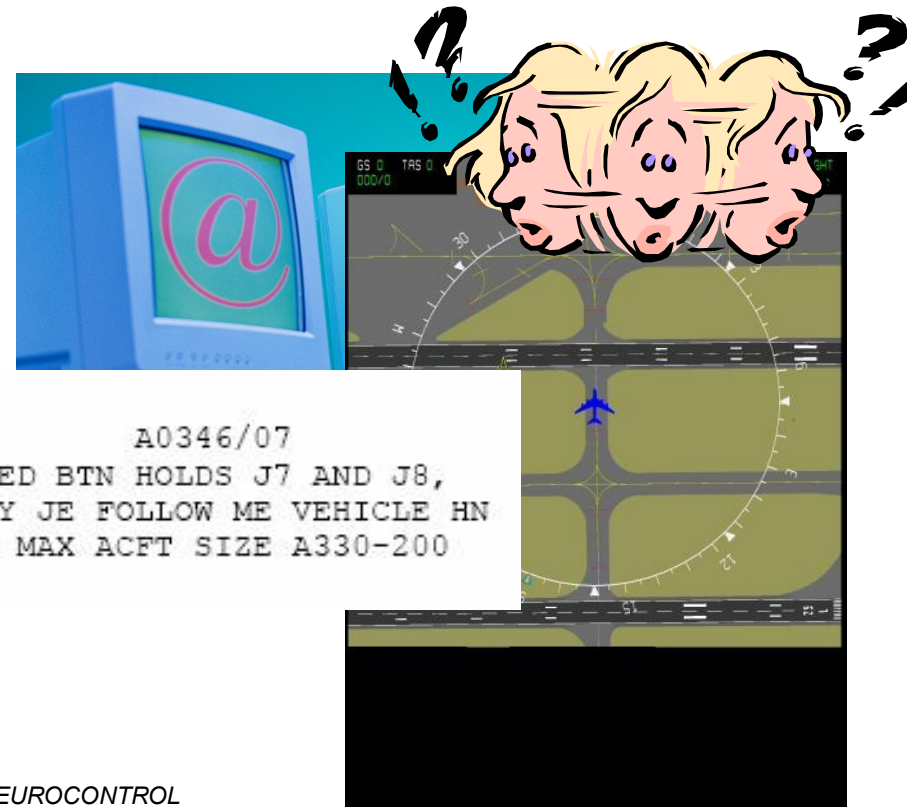
**Federal Aviation
Administration**

The Future: Digital NOTAMs Industry Day

Gary Bobik, AIM Planning and Architecture

Why digital NOTAM?

- **Safety and Capacity**
 - Next Generation ATS (NexGen)
 - **Shared situational awareness**
 - Current situation
 - NOTAM overwrite database
 - Dynamic data over static data



Q)EGTT/QMXLC/IV/M/A/000/999/5321N00216W005
FROM 07/02/07 01:41 TO 07/05/04 17:00
E)DUE WIP TWY F CLOSED AT HOLD F3, TWY J CLOSED BTN HOLDS J7 AND J8,
TEMPO UNLIT DIVERTED TWY BTN HOLD J8 AND TWY JE FOLLOW ME VEHICLE HN
AND LVP. STANDS 15 AND SB1 CLOSED, STAND 44 MAX ACFT SIZE A330-200

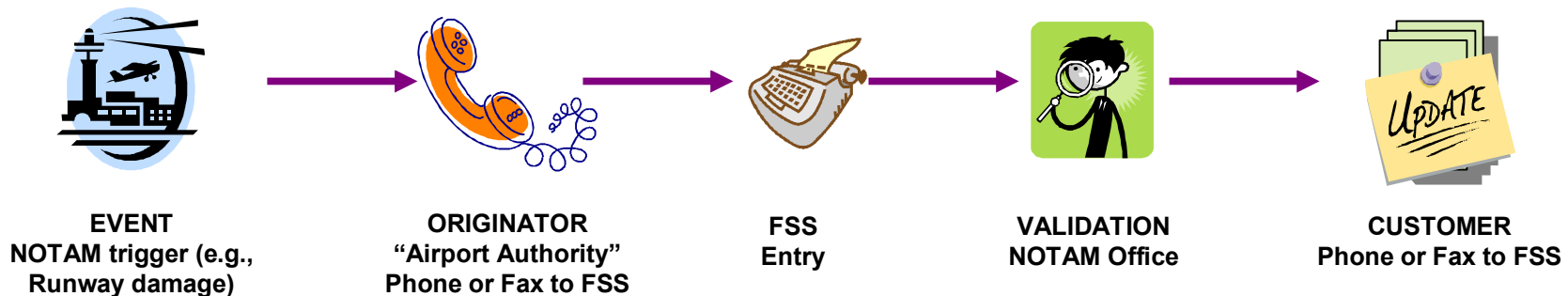
A0346/07

- **Digital NOTAM can help**

Adapted from xNOTAM briefing given at 2007 AIXM User Conference by Eduard Porosnicu, EUROCONTROL

Airport NOTAMs today

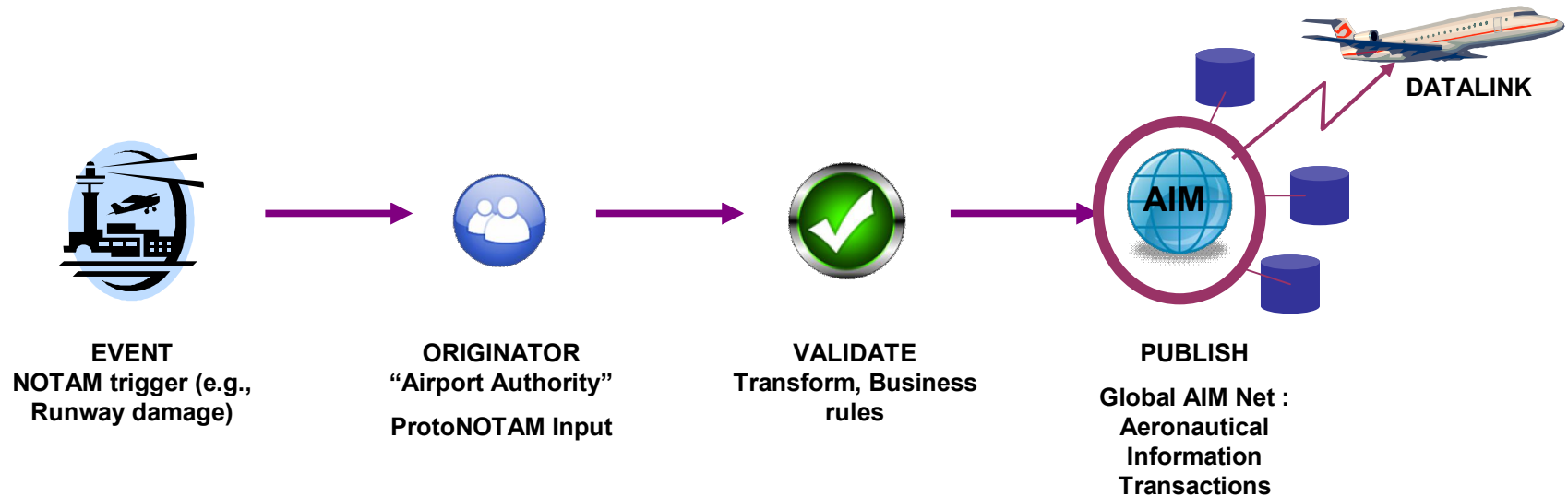
2/20 CLSD WINGSPAN OVR 60 EXC 4 HR PPR 615-350-5000



- **Phone call or fax**
- **Multiple manual interventions**
- **US Distant NOTAMs "D" NOTAMs**
 - Suitable for Runways and Obstacles
- **US Local NOTAMs "L" NOTAMs**
 - Suitable for Taxiways, lighting, other informational messages
 - Doesn't meet safety criteria
 - Not distributed internationally
- **Legacy System Limited**
 - Safety
 - Non-Safety



Testing a Concept of Operations – Overview



Originate NOTAMs at the Source

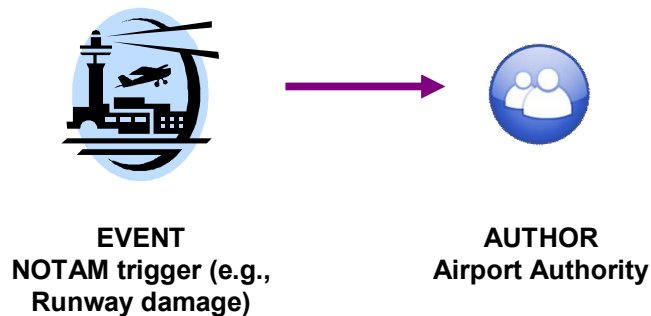
Ensures Data integrity
Ensures Traceability
Allows digital encoding

Validate and Publish by FAA

Integrates permanent and temporary information
Computer readable
Allows electronic distribution to customers

Concept of Operations

PROTO-NOTAM Origination



Originate
ProtoNOTAMs at the
Source

Data integrity
Traceability
Encode digitally

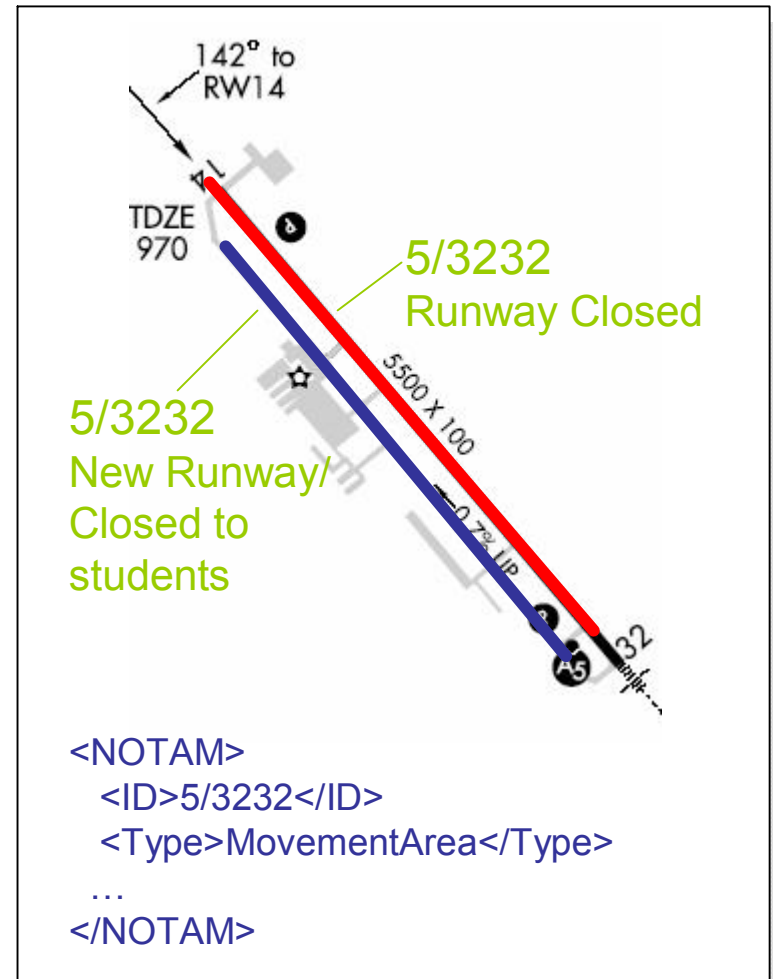
The screenshot shows a "Runway" data entry form with the following fields:

- Runway: 17R/35L
- Runway Operation Status: Closed
- Marking: [empty]
- Modify Runway Length: [empty]
- [empty] ft from Runway direction [empty]

- Minimize free form text
- Pre-populated data entry screens
- Based on NASR data base
- Quality assurance at the source
- Enables direct submission to FAA without manual intervention

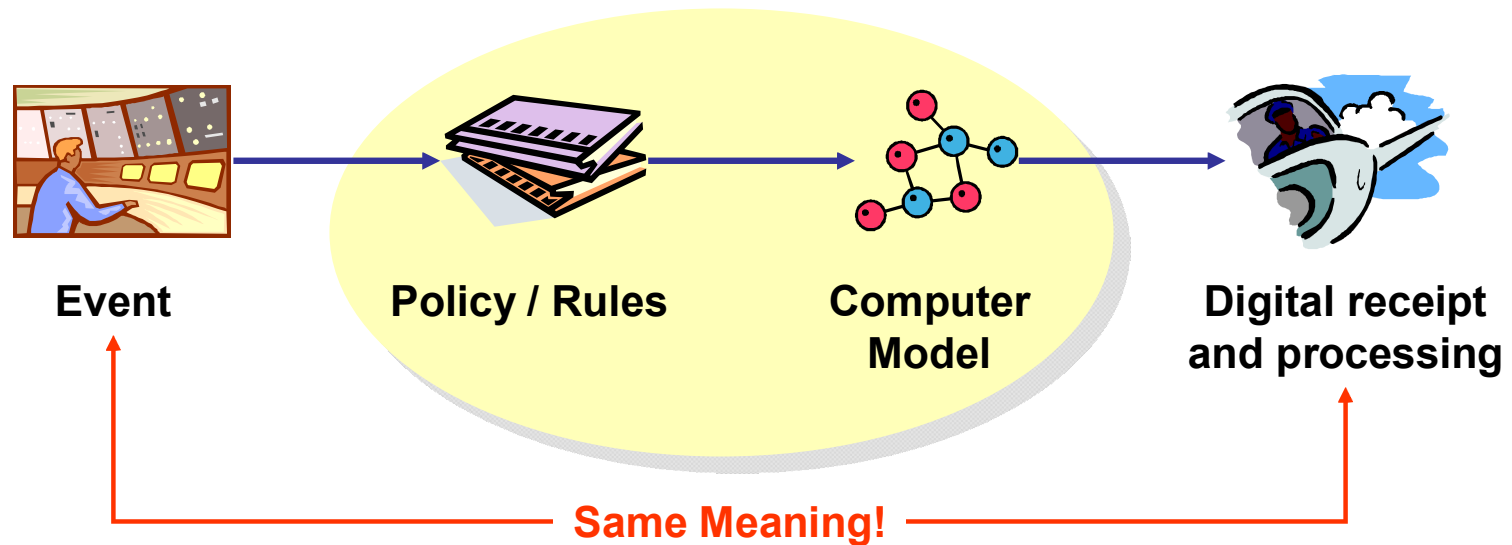
Characteristics of digital NOTAMs

- **Geo-referenced**
 - NOTAM can be located on a map
- **Temporal**
 - Machine interpretable schedule
 - Machine interpretable period of effectivity
- **Linked to static (published) data**
 - Fuses machine interpretable references to published aeronautical data
- **Transformable**
 - The ability to represent a NOTAM as a graphic (map) or text outputs
- **Query enabled**
 - Computer can reliably filter data based on user criteria (e.g., location/time)
- **Electronic distribution ready**
 - Ability to distribute electronically (e.g., AIXM XML, partnership with Eurocontrol)



Challenge

Encoding digitally



Develop business rules for encoding all the different types of events to ensure that a NOTAM is..

1. Clear – no ambiguity
2. Operationally focused
3. Consistently encoded

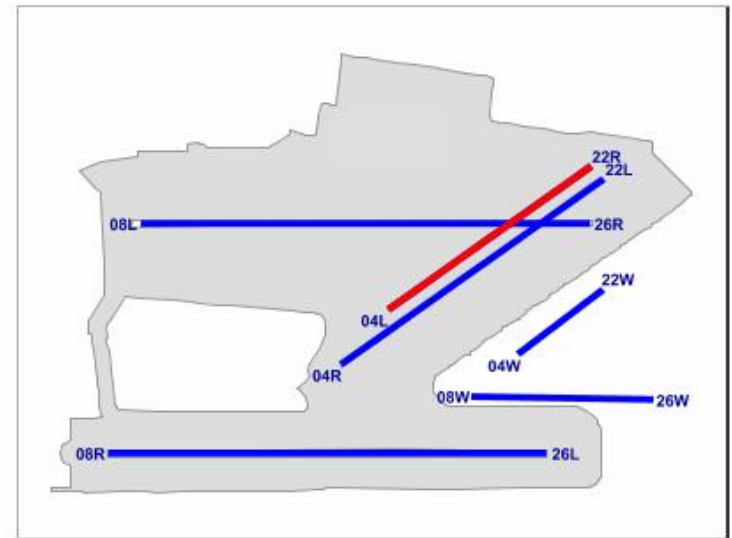
Conceptual Views

!HNL 10/051 HNL RWY 4L/22R CLSD 0400-1600 DLY WEF 0612180400-0612201600

Plain Language NOTAM

Description	
NOTAM Number	10/051
Issue Date	18 Dec 2006 09:00:00 UTC
Airport	HNL (PHNL) Honolulu International
Effective Times	
Beginning	18 Dec 2006 04:00:00 UTC
Ending	20 Dec 2006 16:00:00 UTC
Affected Area(s)	
Runway	04L/22R
Operation Status	Closed
Affected Hours	Start Time 04:00:00 UTC - End Time 16:00:00 UTC
Issuing Authority	Honolulu International

Airport Layout



Plain Language Text



Graphical Output

Sample Prototype – Text Output

Plain Language NOTAM

AIXM compliant message

<u>Description</u>	
NOTAM Number	10/051
Issue Date	16 Dec 2006 09:00:00 UTC
Airport	HNL (PHNL) Honolulu International
<u>Effective Times</u>	
Beginning	18 Dec 2006 04:00:00 UTC
Ending	20 Dec 2006 16:00:00 UTC
<u>Affected Area(s)</u>	
Runway	04L/22R
Operation Status	Closed
Affected Hours	Start Time 04:00:00 UTC - End Time 16:00:00 UTC
Issuing Authority	Honolulu International

AIXM XML

Metadata

Effective Times

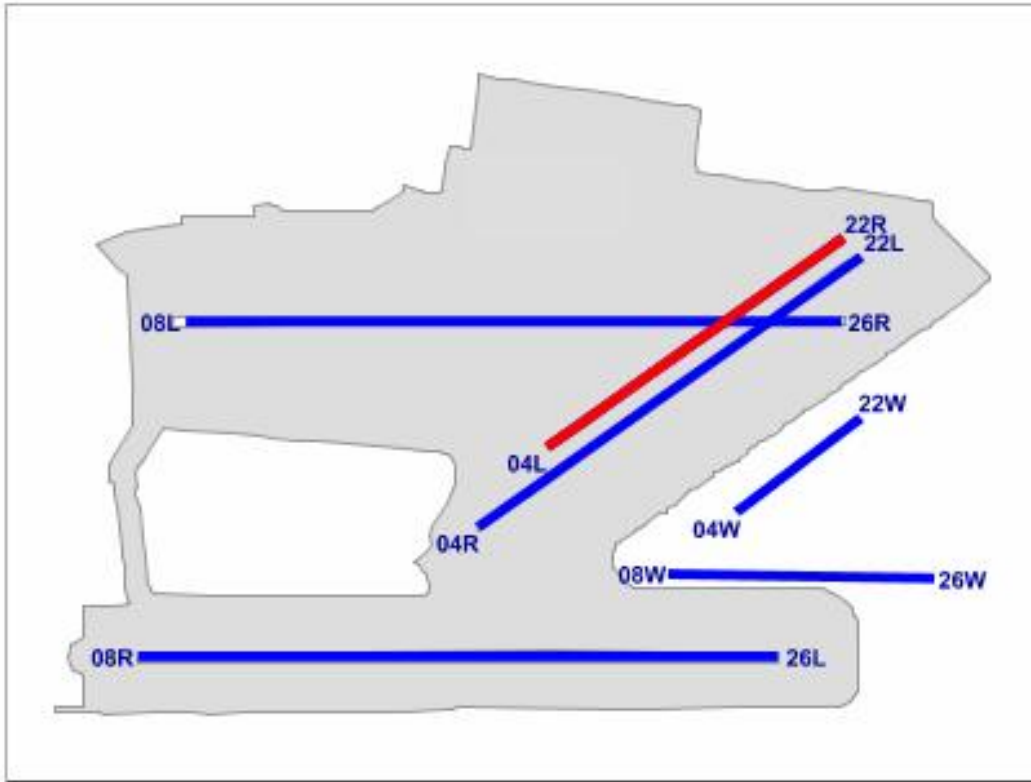
Affected Area



Sample Prototype

Graphical Output

Airport Layout



Honolulu International Airport
Layout

NOTAM affected Runway
RWY (04L/22R) in RED

Example – Plain text and graphical

!ABQ 10/024 ABQ RWY 8/26 W 1000 CLSD

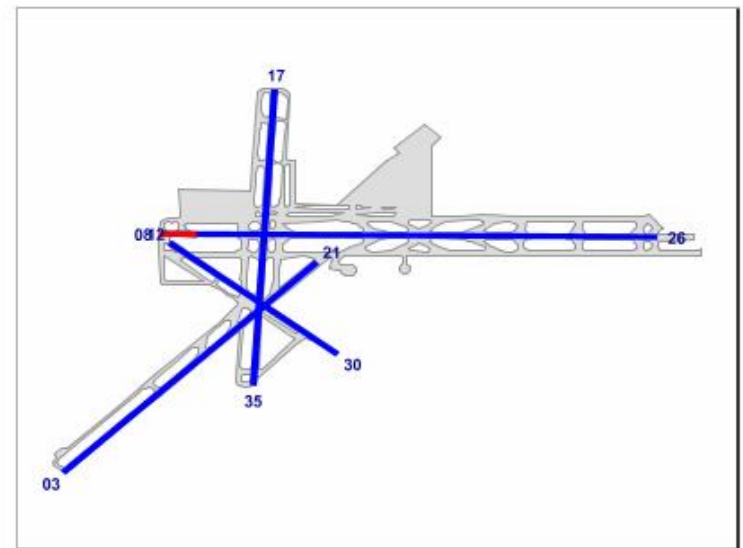
Plain Language NOTAM

Description	AIXM XML
NOTAM Number	10/024
Issue Date	3 Oct 2006 11:00:00 UTC
Airport	ABQ (KABQ) Albuquerque International Sunport
Effective Times	
Beginning	Effective immediately
Ending	Until further notice
Affected Area(s)	
Runway	08/26
Operation Status	Open with Restriction(s)
Length	West 1000 ft closed
Issuing Authority	Albuquerque International Sunport



Plain Language Text

Airport Layout



Graphical Output

Final Thoughts

- **Digital information management is the key to meeting future air traffic system goals**
 - A clear “Chain of Custody”
 - We can transform data into information usable by customers and computer systems
- **Digital Airport NOTAM**
 - Enable digital entry at the source
 - Improve NOTAM management with the customers

