



OGC Web Services Initiative, Phase 6 (OWS-6)

Aeronautical Information Management (AIM)

**Nadine Alameh, Ph.D.
MobiLaps LLC**

Agenda



- Overview
 - OGC Interoperability Program
- OWS-6 AIM
 - Goals & Architecture
- Presentations and demos from OWS-6 participants
- OWS-6 AIM Lessons learned

OGC's Approach for Advancing Interoperability



- ***Interoperability Program (IP)*** - a global, innovative, hands-on rapid prototyping and testing program designed to accelerate interface development and validation, and bring interoperability to the market

Demo &
Reports



- ***Specification Development Program*** – Consensus standards process similar to other Industry consortia (World Wide Web Consortium, OMA, etc.)



- ***Outreach and Community Adoption Program*** – education and training, encourage take up of OGC specifications, business development, communications programs

OWS-6



- **Schedule**
 - Call for Sponsors: 2/2008
 - RFQ/CFP issued: 7/2008
 - Kickoff: 10/2008
 - Demonstrations: 05/2009

- **Deliverables**
 - 47 Components
 - 30 Engineering Reports
 - 14 Demonstrations

OWS-6 Themes & Threads

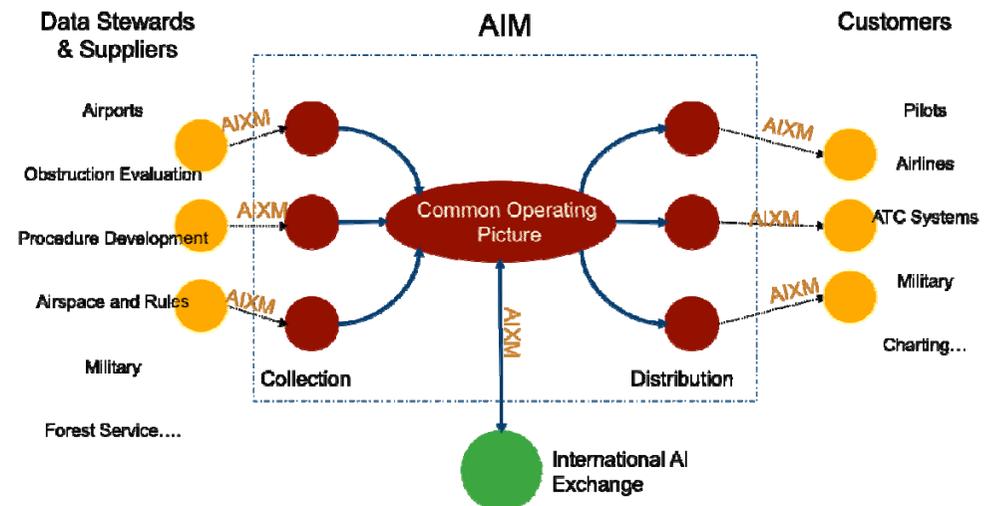
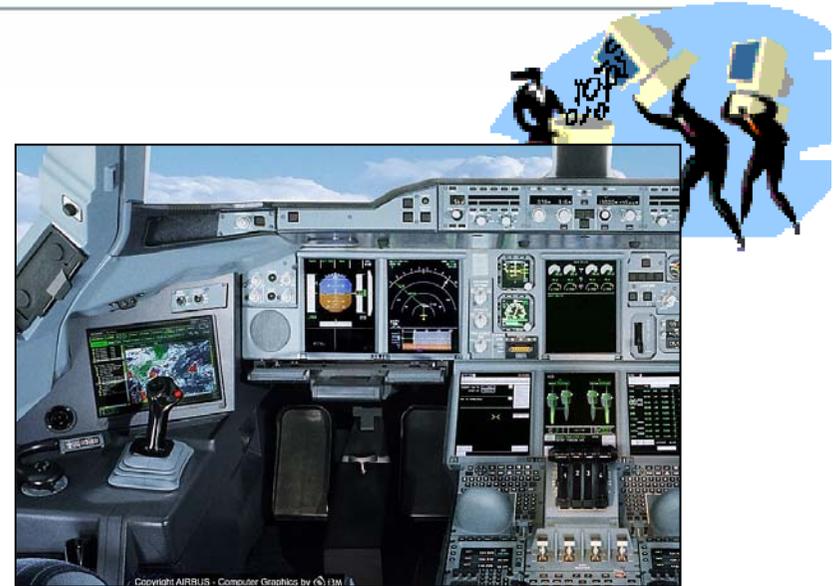


- Cross-cutting Themes
 - Event architecture, alerts, and notifications
 - Security and secured services within and across domains
 - Enterprise-oriented scenarios (gov/mil/large corporation)
 - Refinement of process integration and service chaining
- Threads
 - **SWE (Sensor Web Enablement)**
 - *Imagery services, information models, CCSI, catalog*
 - **GPW (Geo-Processing Workflow)**
 - *Asynchronous workflow, WPS grid processing, GML schema development*
 - **DSS (Decision Support Services)**
 - *WMTS, 3D indoor-outdoor routing / tracking, W3DS, flythrough client, integrated client, ISO 19117/SLD portrayal*
 - **AIM (Aeronautical Information Management – new thread)**
 - *Service orientation, AIXM, notifications, and flight operations*
 - **CITE (Conformance and Interoperability Test & Evaluation)**
 - *Complete WMS 1.3, and DGIWG Profile of WMS*

Aeronautical Information Management (AIM)



- New Thread for OWS-6 sponsored by FAA and Eurocontrol
- Develop and test standards-based service-oriented architecture to support the provision of valuable aeronautical information directly to flight decks and Electronic Flight Bags (EFB)
- Support vision for Aeronautical Information Management
 - Interconnected systems with many actors and many users
 - Need for real-time information used in flight planning, navigation, rerouting, etc
 - Right information at the right time at the right place to the right user
 - End-to-end management of information



Aeronautical Information Exchange Model AIXM 5.0



- Develop and demonstrate the use of AIXM 5.0 in an OGC Web Services Environment
- Evaluate and advance various AIXM 5.0 characteristics in realistic scenario setting



Standards-based data model and exchange format that can satisfy the aeronautical information exchange requirements for current and future aeronautical information applications;
Models temporality

Accommodates ICAO standards and recommendations:
Accommodates industry requirements: ARINC 424/EUROCAE ED-99/
RTCA DO-272

- Uses XML and GML
- Is modular and extensible
- Supports current and future AIM IS requirements
Digital AIPs, automated charting and pubs, integrated digital NOTAMs,
Aerodrome mapping databases and apps
Situational displays, etc

OWS-6 AIM Goals: Right Data, Right Time, Right Place



1. Use and enhancement of Web Feature Service and Filter Encoding specifications in support of AIXM 5.0 features and 4-D flight trajectory filtering,
1. Architecture and demonstration of standards-based Event Alert mechanism to notify users of changes to selected relevant aeronautical information,
1. Prototype of Aviation Client(s) for retrieval, integration and visualization of AIXM and Weather data based on relevant and up-to-date information in relation to a flight



Aviation Clients



EFB



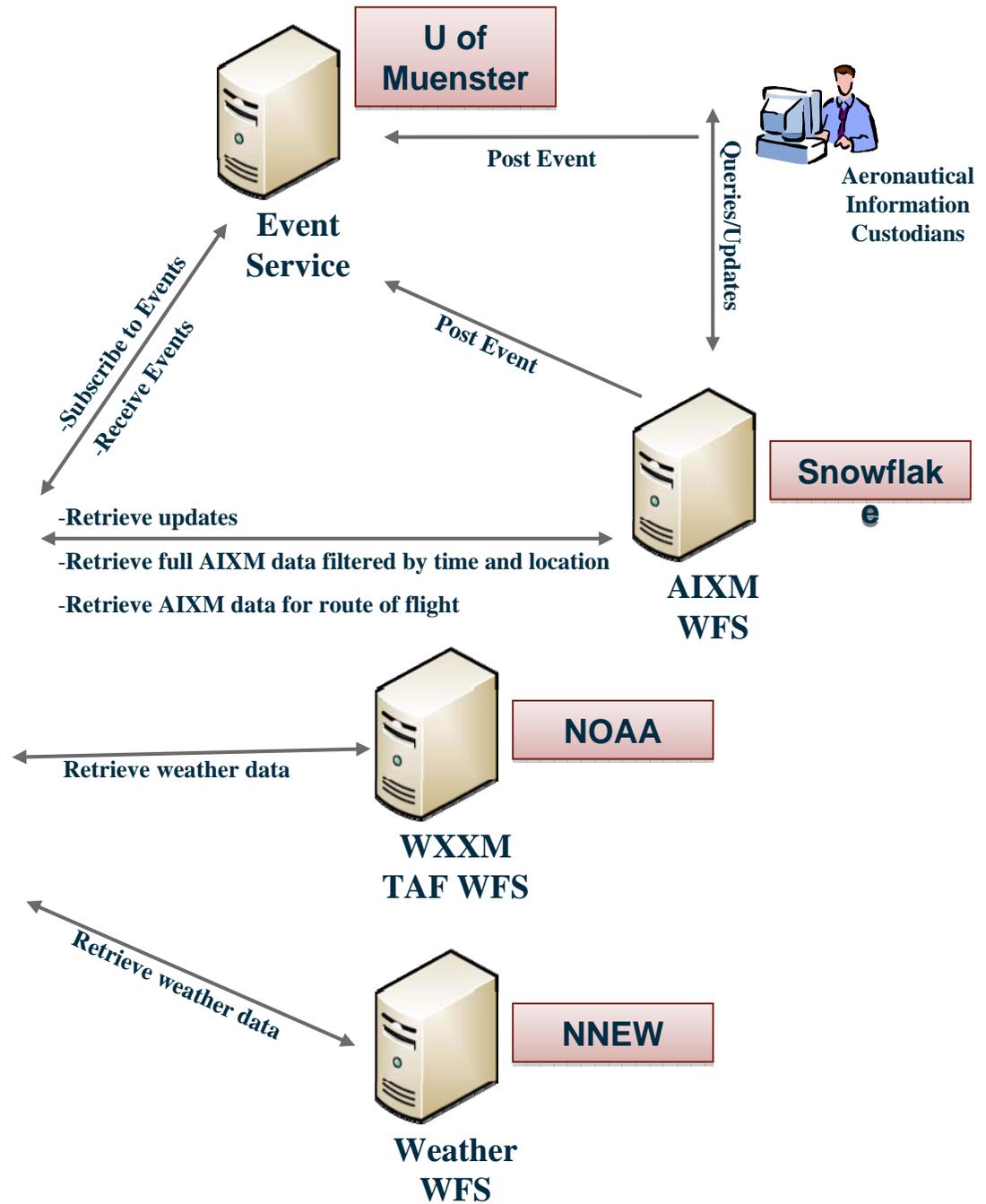
PDA Aeronautical Information User



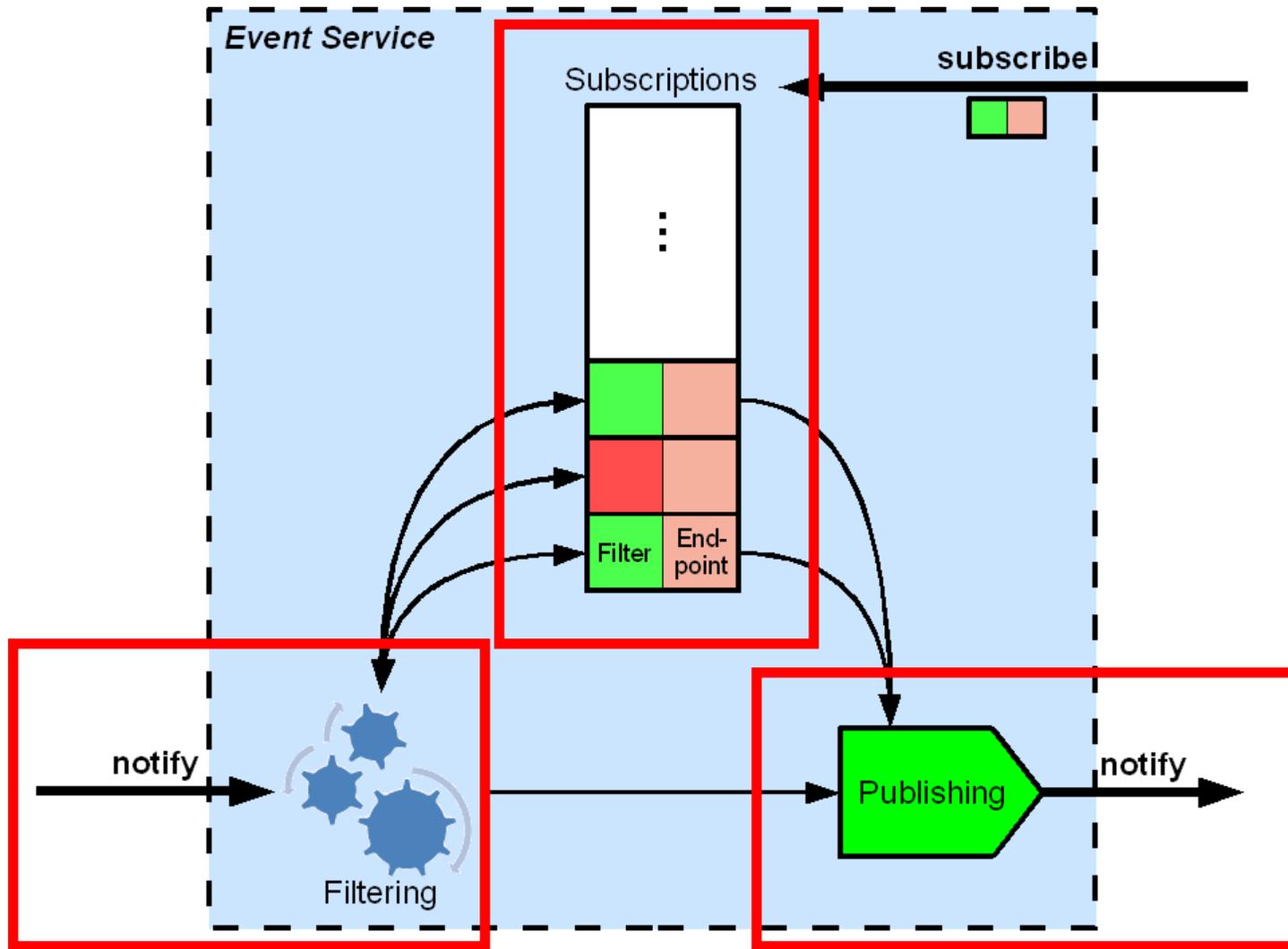
Avionics Systems



- Carbon Project
- Luciad
- PCAvionics
- Lufthansa Systems



U of Muenster Event Service



Demonstration Scenario



North America

Sweden

Pilot notified of bad weather over ILN

Destination Airport
Pilot notified during flight
that airport is closed

ARN/ESSA

- Provides a fictitious, but realistic context for a demonstration of the functionality
- Prompts the exercising of interfaces and the use of encodings that were developed or enhanced within OWS-6
 - Demonstrates the ability of Web Feature Services (WFS) and the Filter Encoding (FE) Specification to distribute aeronautical data in AIXM 5.0 format in response to direct user queries or in response to alerts to a user when specific aeronautical information – as defined by that user – is updated

ternate
stination
rport

ESSP

U (Returned by WFS query)



O

Airport of Departure

DFW
OGC®

CFE

Acknowledgements

Individual	Organization
Brett Brunk, Edna Weitzman, Norman Goodacre, George Banks, Barbara Cordell	FAA (sponsor organization)
Eduard Porosnicu, Dennis Hart, Sam van der Stricht	Eurocontrol (sponsor organization)
Nadine Alameh	MobiLaps (OGC Ipteam)
Nuke Goldstein, Jeff Harrison	Carbon Project
David Woods, Slade Shelton	Fedex
Hans Schoebach, David Burggraf	Galdos
Thomas Everding	Institute for Geoinformatics, University of Muenster
Johannes Echterhoff	International Geospatial Services Institute GmbH
Robin Houtmeyers, Frank Suykens	Luciad
Christian Grothe	Lufthansa Systems
Robert Lee	NNEW
John Schattel, Matthew Peroutka, Chris MacDermaid	NOAA
Todd Sprague	PCAvionics
Daniel Hardwick, Ian Painter	Snowflake
	SIA France (CFE Data provider)
Peter Vretanos	WFS/FE 2.0 Editor

Agenda



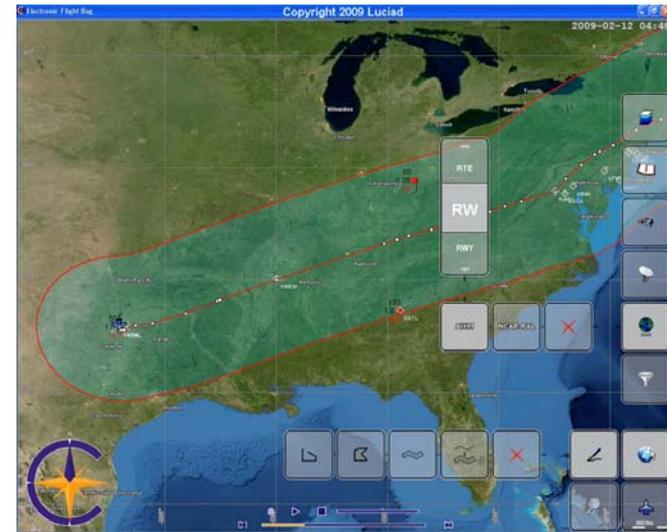
- OWS-6 Server-Side Architecture
 - OWS-6 Server-Side Architecture (Ian Painter, Snowflake)
- OWS-6 Aviation Client Prototypes
 - Carbon Project EFB Prototype (Nuke Goldstein, Carbon Project)
 - Luciad Aviation Client (Frank Suykens, Luciad)
 - MountainScope Aviation Client (Todd Sprague, PCAvionics)
 - LIDO eRouteManual Aviation Client (Christian Grothe, Lufthansa Systems)
- OWS-6 AIM Outcomes and Lessons learned
 - OWS-6 AIM Lessons Learned (David Burggraf & Hans Schoebach, Galdos)

Questions & Comments



Nadine Alameh, Ph.D.
nadinesa@mobilaps.com

Open Geospatial Consortium, Inc
www.opengeospatial.org



OGC[®]

Copyright © 2009, Open Geospatial Consortium, Inc.,