*Global Harmonization Through Collaboration*

# Welcome to the Flight Information Exchange Model (FIXM)

EUROCONTROL

**Federal Aviation Administration**

**AIR TRANSPORTATION INFORMATION EXCHANGE CONFERENCE - (FEATURING AIXM, WXXM AND FIXM)**

August 28, 2012 - August 31, 2012
NOAA Auditorium and Science Center
Silver Spring, Maryland

*Presented By:*
  *Midori Tanino  (FAA)*
  *Hubert Lepori  (EUROCONTROL)*

*Date:            August 29, 2012*

# FIXM Welcome!

| TIME | BREAKOUT SESSION | SPEAKER |
|------|------------------|---------|
| 2:00pm - 2:10pm | Welcome! | Midori Tanino *(FAA)* <br> Hubert Lepori *(EUROCONTROL)* |
| 2:10pm - 2:45pm | Introduction to FIXM | Midori Tanino *(FAA)* <br> Hubert Lepori *(EUROCONTROL)* <br> Paul Chisholm *(Airservices Australia)* |
| 2:45pm – 3:30pm | FIXM Engineering Considerations | Ken Howard *(Volpe)* |
| 3:30pm – 3:45pm | Break | |
| 3:45pm – 4:15pm | FIXM Technical Overview <br>    - General Philosophy | Bruce Taylor *(MIT-LL)* |
| 4:15pm – 5:00pm | FIXM Technical Overview <br>    - Developer Session | Bruce Taylor *(MIT-LL)* |
| 5:00pm - 5:15pm | Wrap-up and Q&A | Midori Tanino *(FAA)* |

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# Introduction to FIXM

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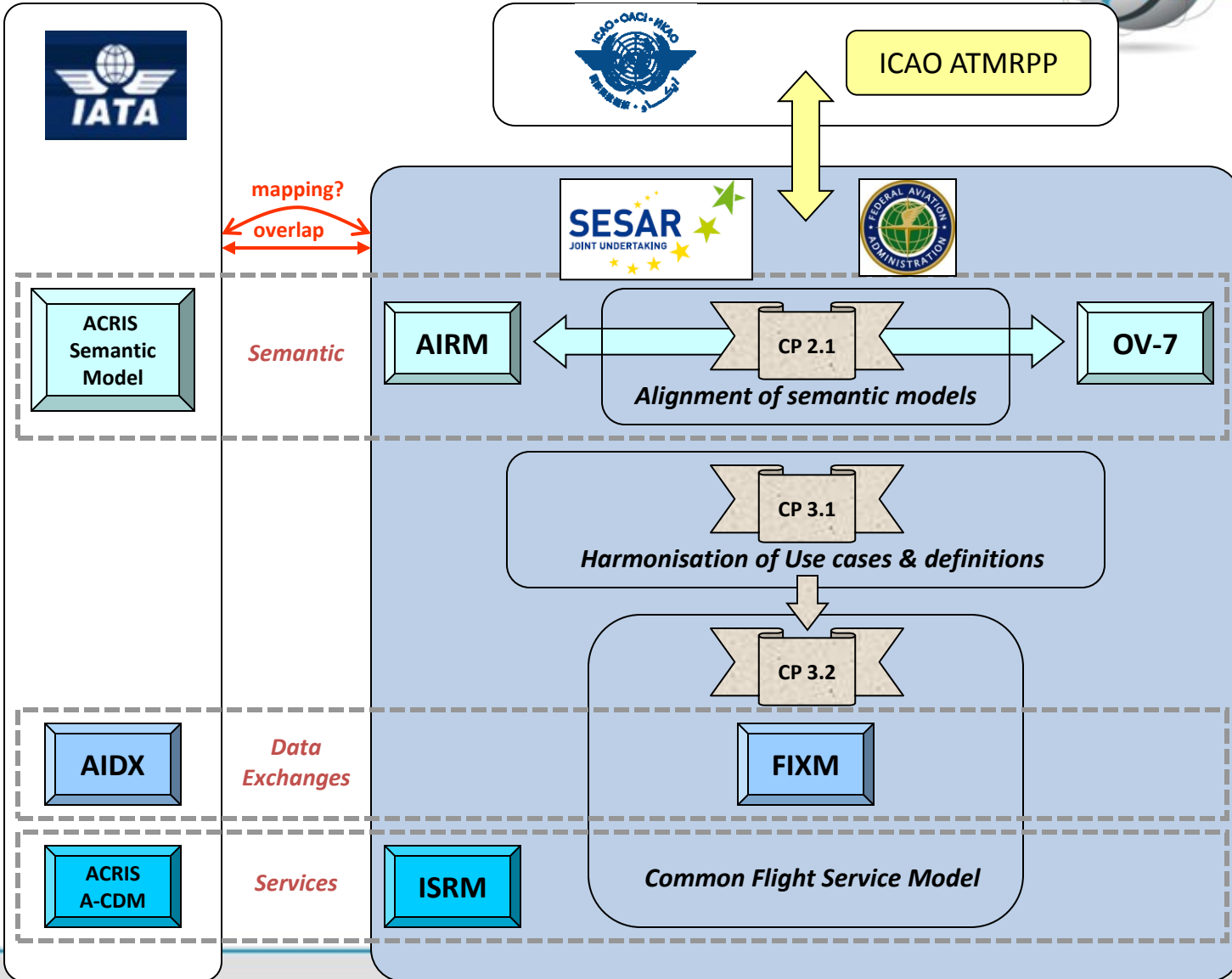
# Introduction to FIXM

**Today's topics:**

- FIXM Overview
- FIXM Roadmap
- Composition of FIXM Team
- International Collaboration / Guidance for Stakeholders / Relationship with ED-133
- An Enterprise Architecture Approach
- Flight Object Demonstrations
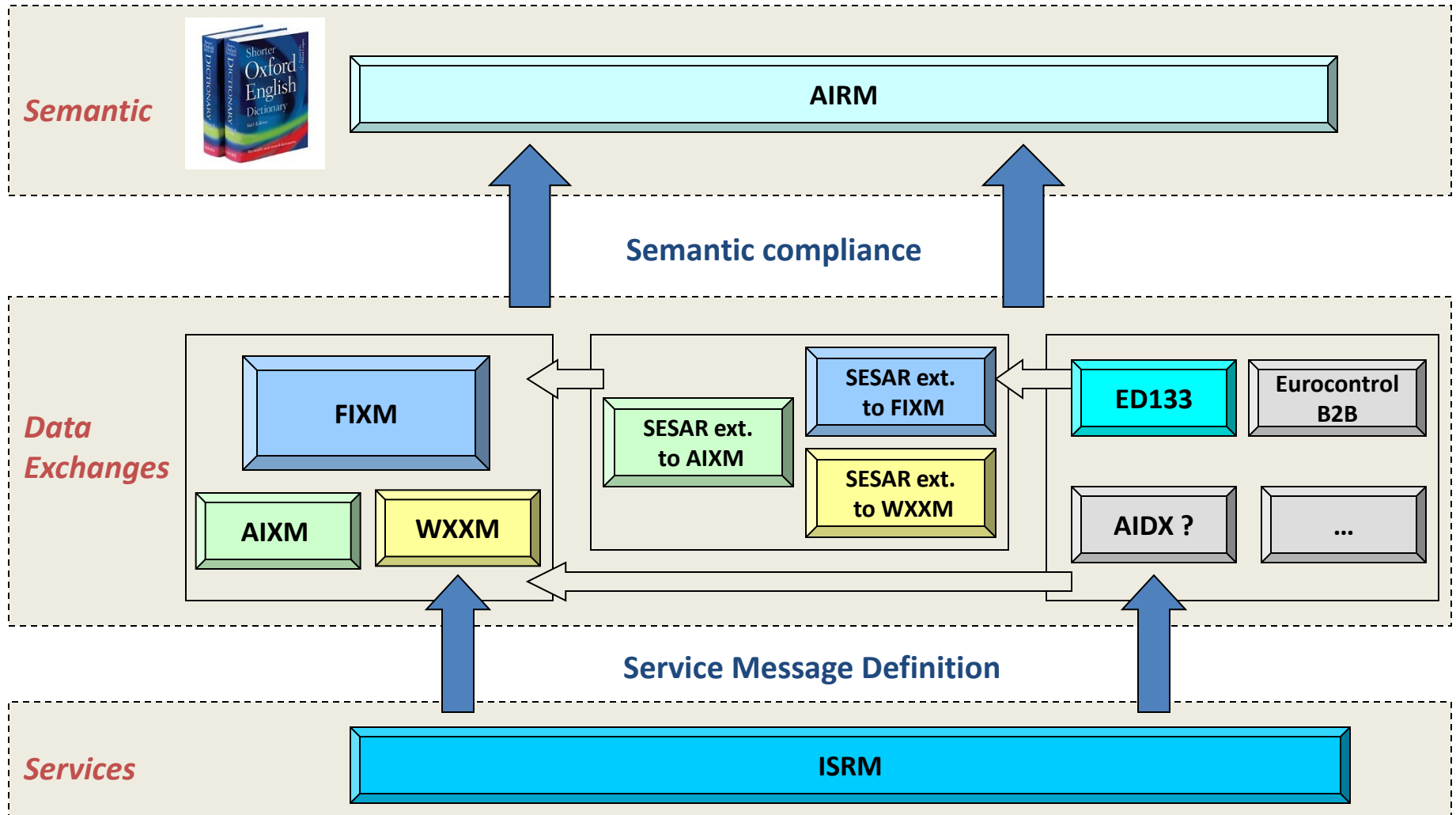- Future Uses of FIXM
- Contact Us!

# International Collaboration

# FIXM, the –XMs & ED133 in the EAEA

**Semantic**

AIRM

**Semantic compliance**

**Data Exchanges**

FIXM

SESAR ext. to FIXM

ED133

Eurocontrol B2B

SESAR ext. to AIXM

AIXM

WXXM

SESAR ext. to WXXM

AIDX ?

...

**Service Message Definition**

**Services**

ISRM

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# FIXM Extensions

- FIXM Extension = Addition to the core FIXM

- FIXM Extensions will be useful to:
  - Capture specific (local) Community of Interest requirements
  - Facilitate the interface between users of different FIXM versions
  - Support the Change Management Process of FIXM

- The concept is endorsed by the ICAO ATMRPP

- Need to manage the risk of proliferation of FIXM extensions

# FIXM Demonstration Projects

# Flight Object Demonstration History

- **International Flight Data Object (IFDO – Task D)**
  - In March 2009, the FAA successfully demonstrated FDO exchange between oceanic Air Traffic Control systems across the Atlantic Ocean (NAV Portugal's Sistema Atlantico-SATL and the FAA's New York ATOP system)

- **Surface Exchange Flight Data Object (SEFDO – Task F)**
  - In November 2009, the FAA successfully demonstrated the potential benefits provided by enabling FDO exchange between Atlantic-based airport surface stakeholders, collaborating ANSP entities, and flight operators

- **Asia/Pacific Flight Object Demonstration (Task K)**
  - In May 2012, the FAA successfully demonstrated the exchange of FIXM-based Flight Object with domestic and Pacific Region stakeholders in a step towards global harmonization of the Flight Object and FIXM

- **Coming in 2014/2015, Mini-Global Flight Object Demonstration**

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# Asia/Pacific FO Demonstration (May 2012)

- **Objective**
  - Implement early version of the Flight Information Exchange Model (FIXM) in a multi-domain environment to support information sharing between NAS domestic and Pacific-based stakeholders
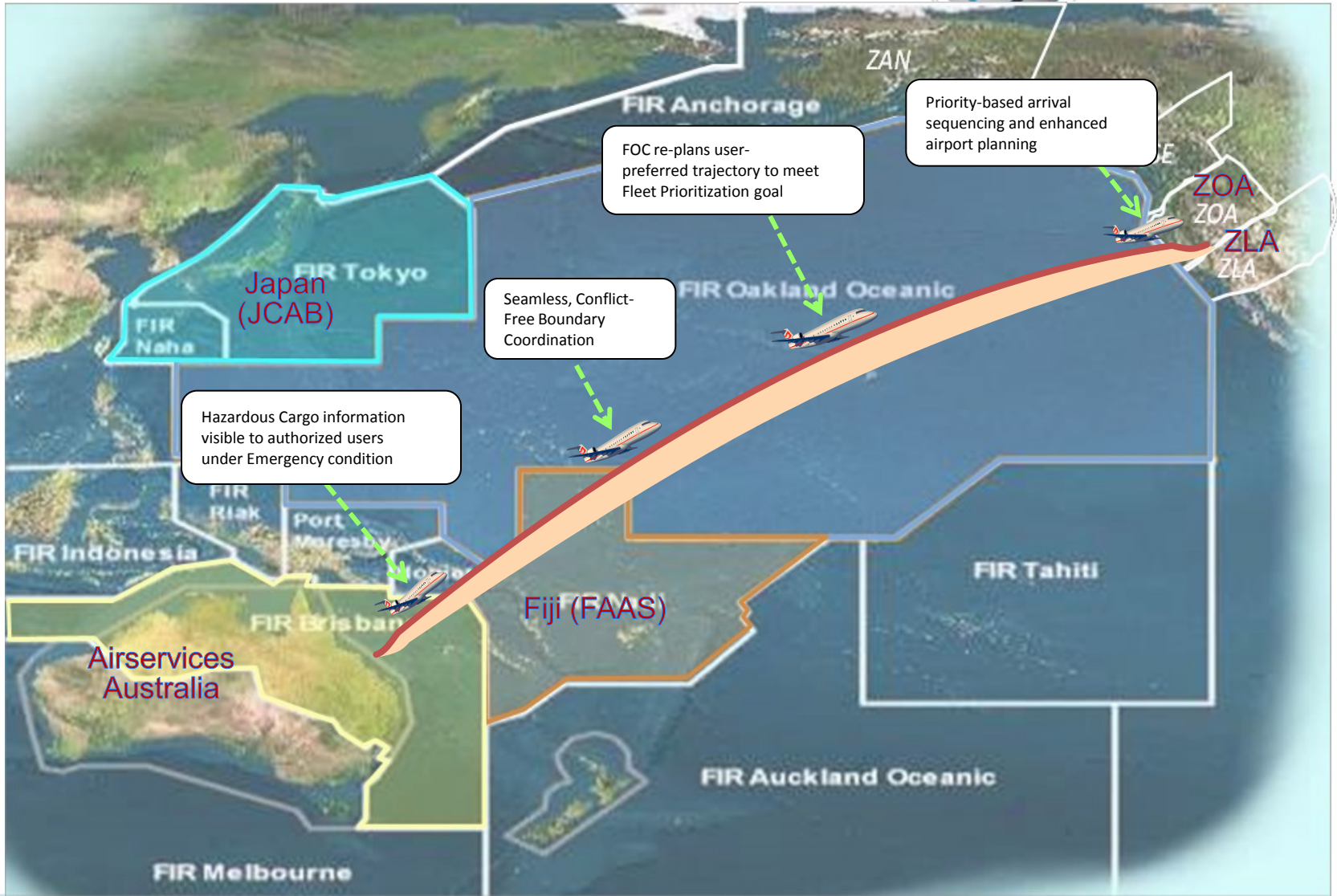
- **Benefits**
  - Step towards achieving global harmonization of Flight Object and FIXM

- **Description**
  - Gate-to-gate scenarios integrating surface, en route, oceanic systems
  - New demo applications emulating potential future FO-enabled systems (e.g., Hazardous Cargo, Fleet Prioritization)
  - Live/recorded  Traffic Flow Management Data Exchange (TFMDE) data from Airservices Australia and JCAB, and live Aircraft Situation Display to Industry (ASDI) data received via SWIM architecture

# Asia/Pacific FO Demonstration



Air Transportation Information Exchange Conference - (featuring AIXM, WXXM and FIXM)

FIR Anchorage

Priority-based arrival sequencing and enhanced airport planning

FOC re-plans user-preferred trajectory to meet Fleet Prioritization goal

Japan (JCAB)

FIR Tokyo

FIR Naha

ZOA

ZLA

Seamless, Conflict-Free Boundary Coordination

FIR Oakland Oceanic

Hazardous Cargo information visible to authorized users under Emergency condition

FIR Riak

FIR Indonesia

Port Moresby

FIR Tahiti

Fiji (FAAS)

FIR Brisbane

Airservices Australia

FIR Auckland Oceanic

FIR Melbourne

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# Key Partnerships for Demo
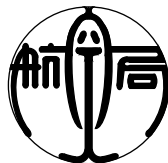
# Pacific FDO Demo Architecture
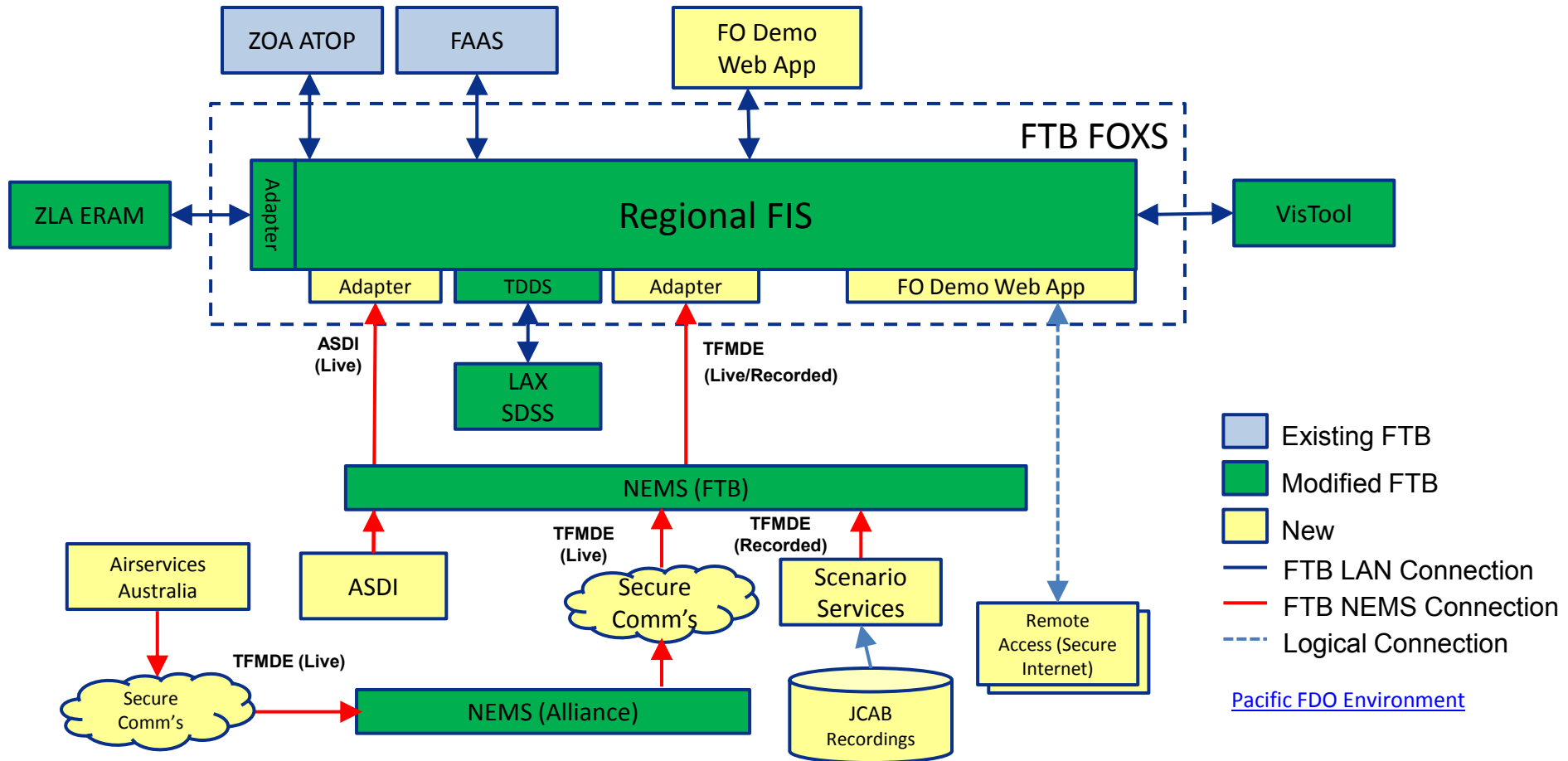
# International Harmonization through SWIM



Air Transportation Information Exchange Conference - (featuring AIXM, WXXM and FIXM)

VPN - Secure Communications Infrastructure

**Airservices Australia**

**Notional Int'l SWIM Enterprise**

**Florida NextGen Test Bed (FTB)**

**FAA**

Flight Data (TFMDE)

NEMS (Alliance)

NEMS (FTB)

FIXM Producers

FIXM Consumers
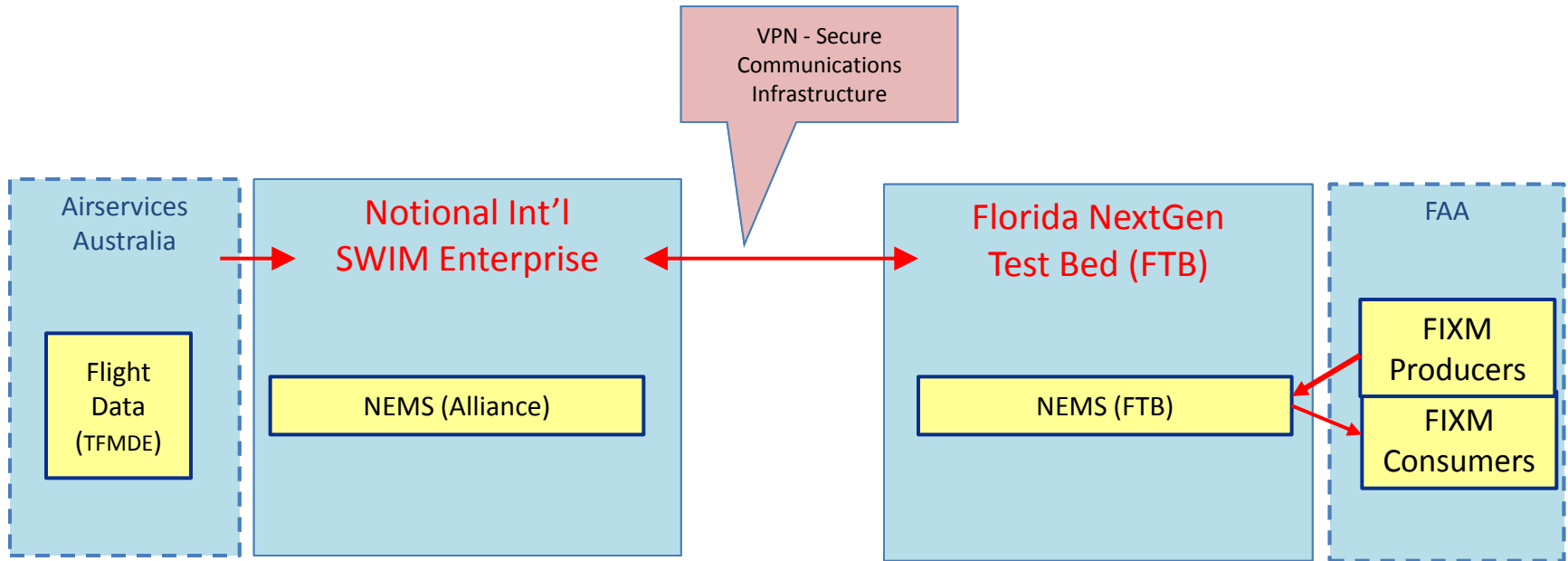
✦ Facilitate a demonstration of an ANSP-to-ANSP interaction through SWIM core services

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*For more information on demonstrations, visit:*

# www.FIXM.aero

## --> Documents

### --> Demonstration

# Future Uses of FIXM
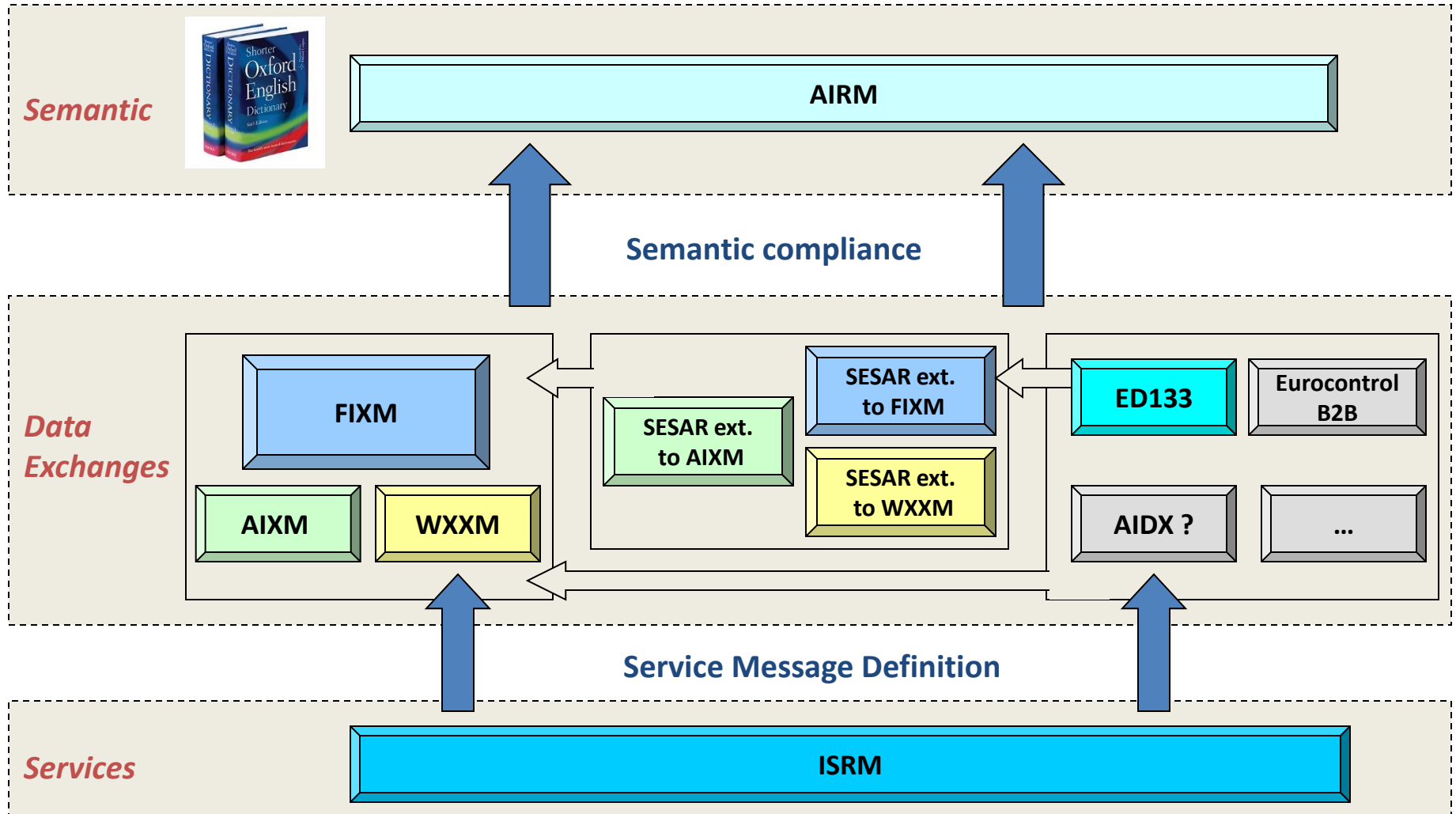
# Airservices Australia ODS (Operational Data Services)

- Project underway at Airservices Australia
- SOA based service delivery platform
- Consolidation of data and services
- Single source of truth
- Single implementation of logic
- Interoperability
- Governance
- Red Hat SOA technology stack (now being merged with FuseSource)
- Project primarily SOA infrastructure
- First service will be delivered by project

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# FIXM within SESAR (future usage)

# Airservices Australia – ODS and FIXM

- Initial service is a Flight Planning Service
- Will replace current NAIPS flight planning service
- FIXM is the data model
- Started with FIXM 0.1.2
- Now migrating to FIXM 1.0 (ICAO 2012)
- Minor extensions
  - Itinerary (eventually in FIXM)
  - SARTIME
- Operational flight planning service by end of 2013

# Airservices Australia – Future Plans

- ODS will become Airservices FOS (Flight Object Server)
- ODS will provide Airservices GUFI service
- Incorporation of further data items:
  - TFM (FIXM 2)
  - Schedules (OAG & Aircraft Operator)
  - Position information (radar, ADS-B, A-SMGCS)
  - Aircraft Operator feeds
  - Airport feeds
- Delivery of Services to Industry
- Roadmap: FIXM & ODS

# FAA – Future Plans

- **Flight Object Exchange Services (FOXS)**
  - Demonstrate FOXS architecture design
  - Work with international counterparts to experiment GUFI service

- **Flight Data Publication Services (FDPS)**
  - FDPS is part of SWIM Segment 1
  - FDPS make ERAM data available to data consumers in a SWIM-compliant manner
  - Special version of FDPS-FIXM based on FXIM 1.0 will be created
  - Special version of FDPS-FIXM will be integrated into FIXM 2.0
    - Some core and some NAS extension
  - Scheduled for implementation in 2015

# FIXM Scope Roadmap

| Version | Target Release | Version Contents |
|---------|----------------|------------------|
| 1.0 | Aug 2012 | • ICAO FP 2012<br>• GUFI<br>• NAS Flight Plan Data<br>• Initial ED-133 element inclusions |
| 1.1 | Dec 2012 | • Hazardous Cargo (Dangerous Goods) |
| 2.0 | Aug 2013 | • ICAO 2012 ATS (15 remaining messages)<br>• TFM (Strategic)<br>• Fleet prioritization, TFM DE, CDM<br>• Airport CDM |
| 3.0 | Aug 2014 | • Surface data (anything not covered in Airport CDM and TFM/CDM elements)<br>• ANSP to ANSP boundary crossing (tactical)<br>• 4D Trajectories (1st package) |
| 4.0 | Aug 2015 | • Security elements (1st package)<br>• Unmanned Aircraft Systems (UAS)<br>• 4DT (2nd package) |

# FIXM Evolution

- **Operational Validation**

- **Technical Validation (OGC)**

- **Integration with broader information management frameworks**

- **Release plan dependent on validation**

# Contact Us!

- Midori Tanino       Midori.Tanino@faa.gov
- Hubert Lepori       Hubert.Lepori@eurocontrol.int
- Paul Chisholm       Paul.Chisholm@AirservicesAustralia.com
- Paul Losee          Paul.Losee@faa.gov

*For more information, visit:*

# www.FIXM.aero

*(to participate in FIXM Discussion Boards and for automatic email notifications, just complete the quick and easy on-line registration!)*