

Mini Global II Demonstration and Lessons Learned / Observations

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By: Thien Ngo, FAA, Mini Global Project Manager

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Aviation Information World - Forecasting the Future



Mini Global Demonstrations

The Mini Global Demonstrations seek to advance collaborative flight information exchanges utilizing SWIM and established standards amongst operators and ANSPs worldwide

- o Supports ultimate goal of seamless interoperability and harmonization
- o Provides mechanism for ANSPs and operators to support the validation of systems and processes, to enhance efficiencies in their ATM systems



High Level Objectives

- **Demonstrate the exchange and applicability of global exchange models to a broader international community**
 - Utilize FIXM, AIXM, and iWXXM standards
- **Evaluate how these standards used in the ICAO SWIM Manual (Doc 10039) will address multiple disparate international systems**
 - Different levels of maturity
 - Different levels of data model fidelity
 - Recommend updates to FIXM and AIXM Standards
- **Identify and convey potential benefits that can be achieved with the global harmonization of data exchange**
- **Support validation of ICAO Flight and Flow-Information for a Collaborative Environment (FF-ICE)**



Mini Global Demonstration Phases

- **Mini Global I Demonstration (September 2014)**

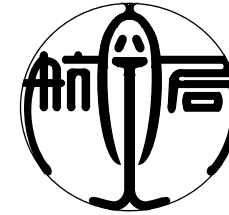
- Aimed to reduce the use of antiquated and proprietary data exchange methods
- Evaluated the effectiveness of the emerging global exchange models amongst international ATM systems
- Technical demonstration with enhanced capabilities to showcase the technology and readiness for regional and inter-regional SWIM implementations

- **Mini Global II Demonstration (April 2016)**

- Focus on operational value to stakeholders by executing real world, complex operational scenarios
- Showcase an implementation solution that aligns with ICAO SWIM Manual (Doc 10039)
- Address observations/lessons learned from Mini Global I



Mini Global II - International Partners



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Mini Global II - Industry Partners



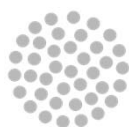
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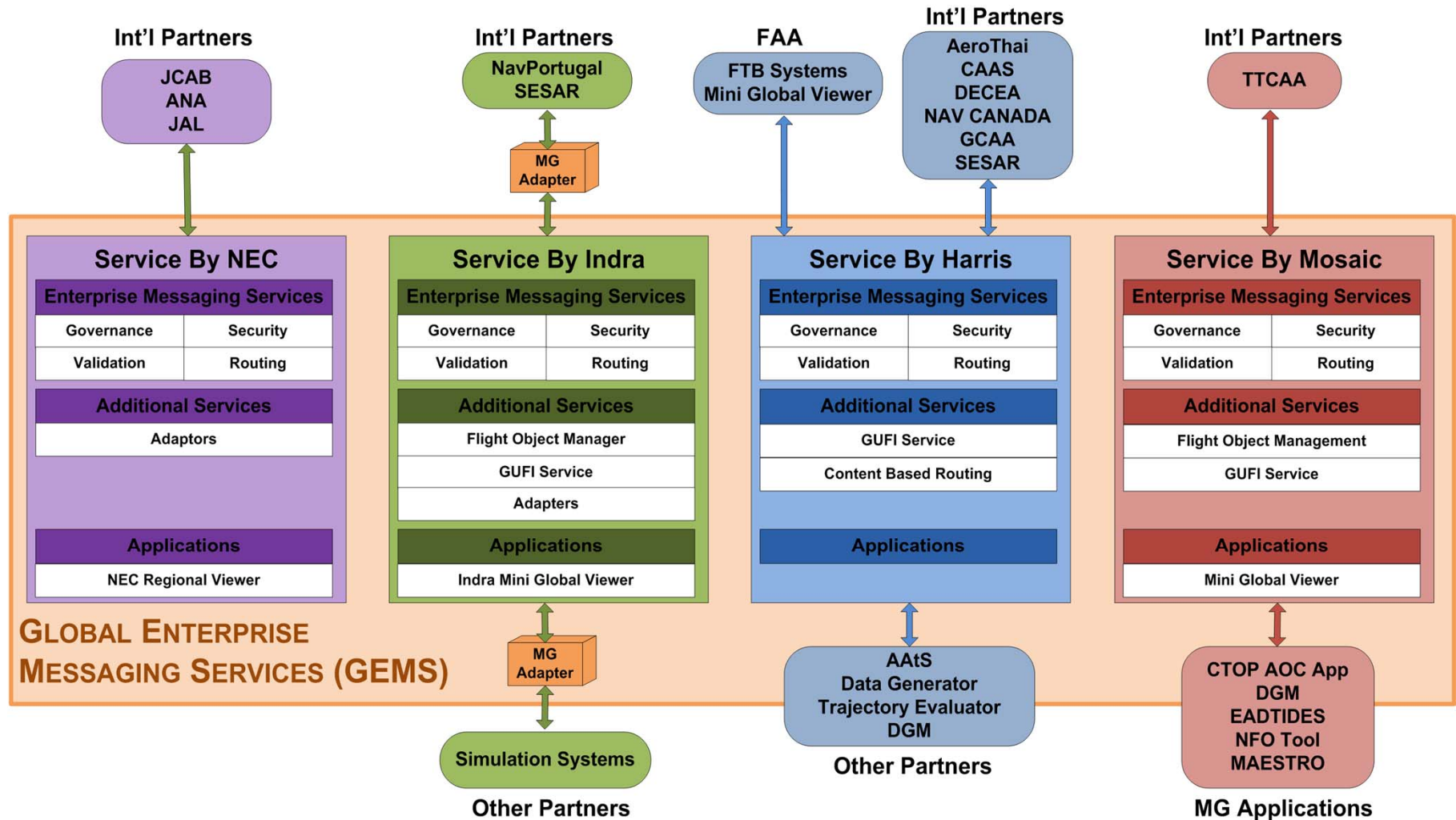


Mini Global II Demonstration Focus

- **Global EMS (GEMS) Interoperability**
 - Integrate regionally diverse EMS service providers
- **Standards/Governance/Business Rules**
 - GEMS WG chartered to address interoperability between EMS providers
- **Extending International Partnerships**
 - Continue to foster new international partnerships
- **Developing and Executing Complex Use Cases**
 - Implement FIXM 3.0.1, AIXM 5.1, and iWXXM 1.0
- **Developing New Applications**
 - Promote development of applications to benefit global aviation
- **Providing Recommendations on Global Exchange Standards**



Mini Global II Environment



Mini Global II Scenarios Overview

Region	Country	ANSP	Scenario(s)
Africa/Middle East	United Arab Emirates	GCAA	ATFM Across FIRS Indian Ocean Transit
Asia	Japan	JCAB	Trans-Pacific Operations Hazardous Weather
	Singapore	CAAS	Trans-Pacific Operations Controlled Data Distribution Traffic Management Across FIRS ATFM Across FIRS Indian Ocean Transit Data Confidentiality with IWXXM
	Thailand	AEROTHAI	Controlled Data Distribution Traffic Management Across FIRS Data Confidentiality with IWXXM
Caribbean	Trinidad and Tobago	TTCAA	Improved Re-Route Capability
Europe	Europe	SESAR	Interoperability Mitigates Constraints
	Portugal	NAV Portugal	Trans-Atlantic Operations
North America	United States	FAA	Improved Re-Route Capability Interoperability Mitigates Constraints Trans-Pacific Operations Trans-Atlantic Operations Flight Planning & Filing Service MGII Applications
	Canada	NAVCANADA	Imporved Point Outs
South America	Brazil	DECEA	Improved Re-Route Capability

Demonstration Data used in Scenarios

- **FIXM Data**

- Flight Plan
- Flight Plan Amendment / Change
- Departure
- Arrival
- Advanced Boundary Information (ABI)
- Current Plan (CPL)
- Coordination (CDN)
- Accept (ACP)
- Airborne Track data
- Surface Track data
- Trajectory Data
- Metering Data
- Dangerous Goods

- **AIXM Data**

- NOTAM for Military Use Airspace
- Special Activity Airspace

- **IWXXM Data**

- METAR
- SPECI
- Terminal Area Forecast (TAF)
- SIGMET for Volcanic Ash

Mini Global II Demonstration

Outcomes / Lessons Learned

- Global need for SWIM is a fact. Interest in collaboration on SWIM has been tremendous.
 - Multiple demonstrations across the globe – North America, South East Asia and Europe
- Globally seamless information exchange is critical in meeting predicted air transportation growth
- Mini Global II demonstrates the use of GEMS model as one implementation of the ICAO SWIM Manual (Doc 10039)
 - Diverse SWIM implementations working together to enhance operations
- “Loosely coupled” infrastructure allows stakeholders to evolve at different rates – while maintaining interoperability
- Discussions on technological improvements without operational context will continue to be challenging



Observations / Lessons Learned on Global Integration

- As a global community we need to discuss several topics at a global level as it impacts all stakeholders
 - Messaging standardization
 - Connectivity
 - Metadata definitions and enforcement
- Business rules should be agreed upon globally and easily accessible to the community
- The use of extensions by ANSPs may create challenges in international data exchange
- Utilization of widely used, mature, open source messaging protocols eases global adaption and communication
- Enhancements to registries are needed to facilitate service discovery and international data exchange

Next Phase (2016 -2018)

- **With the Mini Global II demonstration:**
 - Illustrated operational viability of a globally connected environment
 - Showed value of global collaboration on technical and operational processes, procedures, and standards
- **The next phase:**
 - Build upon results and lessons learned from Mini Global II
 - Utilize the global SWIM environment to validate future operations in ASBU Block 1
 - Critical component of the Block 1 timeframe is the flight information exchange evolution as described in FF-ICE



Questions



Contact Information

Thien Ngo

FAA NextGen Office - Mini Global II Project Manager

202-267-9447

Thien.Ngo@faa.gov

Donald Ward

FAA NextGen Office - International Programs

202-267-0486

Donald.Ward@faa.gov

