

# System-Wide Information Management (SWIM)



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Administration

## FAA Plans

**Presented to:** 2008 ICNS Conference

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**Date:** May 7, 2008

# Agenda

- **Program Overview**
- **Segment 1 Status**
- **Segment 2 Plans**

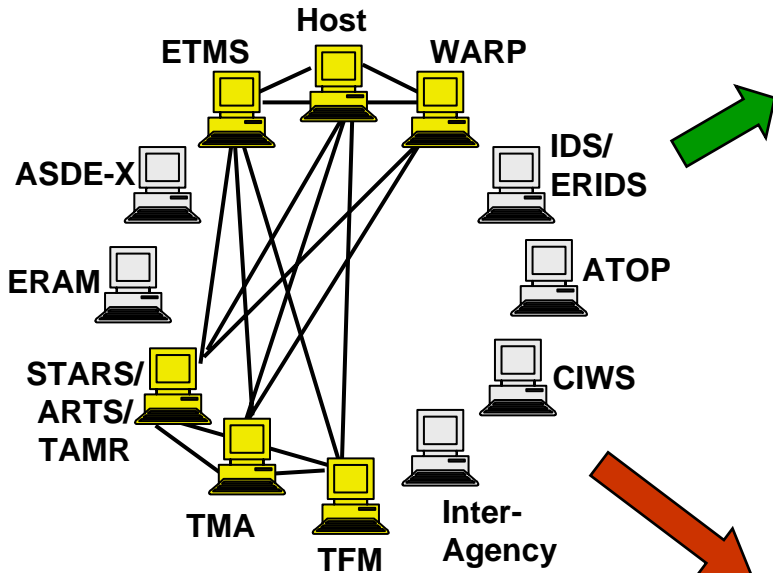
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# The Challenge

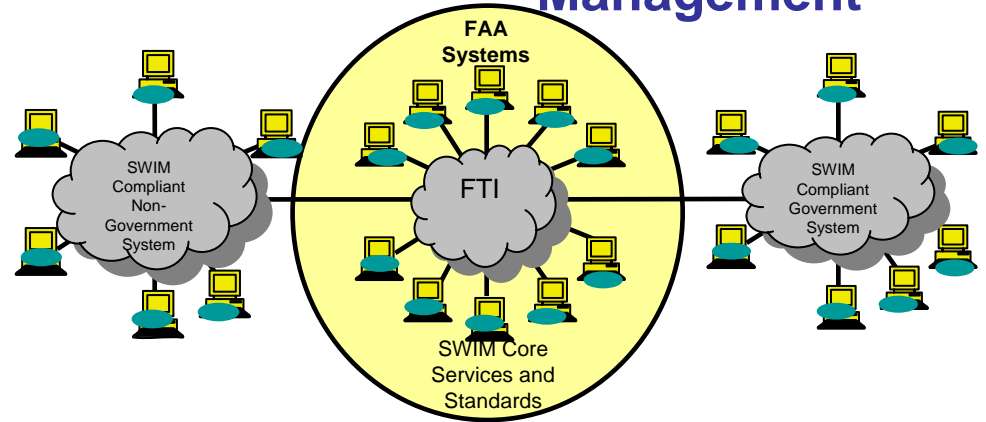
## Today



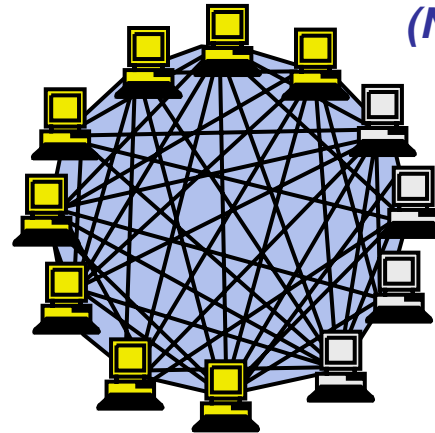
- Existing point-to-point, hardwired NAS
- Unique interfaces, custom designs



## Enterprise Management



## Business as Usual (NextGen without SWIM)



- More unique, point-to-point interfaces
- Costly development, test, maintenance, CM
- New decisions linked to old data constructs
  - Cumbersome data access outside of NAS

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# Program Concept

SWIM is an IT infrastructure program that will operate in the background to provide data to authorized users

## SWIM will:

- Implement a **Service-Oriented Architecture (SOA)** in the **NAS**
- Identify industry standards, best practices, and COTS products for use by other NAS programs
- Provide SOA governance policies and processes

## In order to:

- Ensure interoperability between systems
- Reduce costs of exchanging information
- Reduce time to establish new interfaces
- Increase common situational awareness
- Increase NAS agility

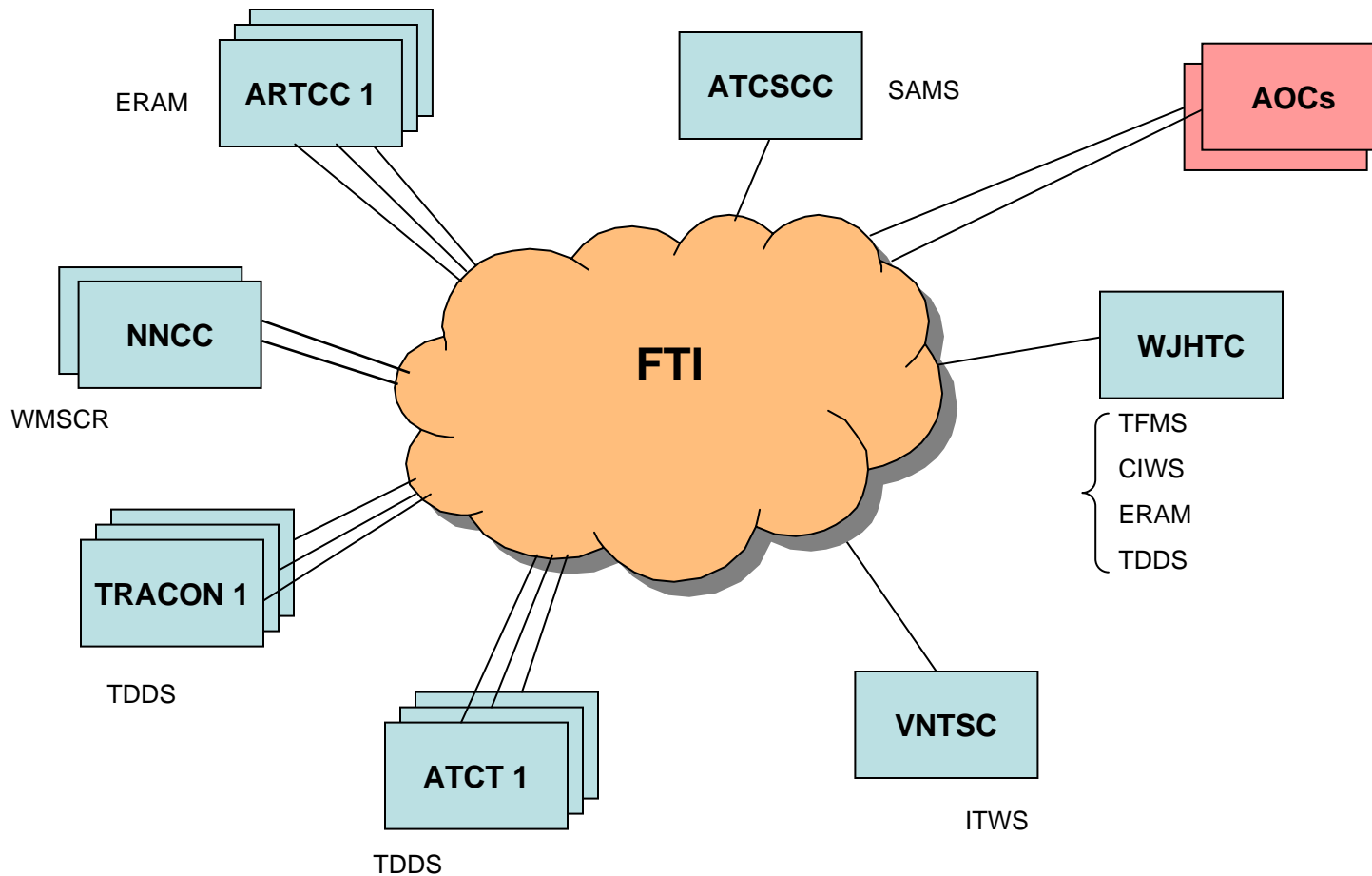


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# Segment 1 Overview



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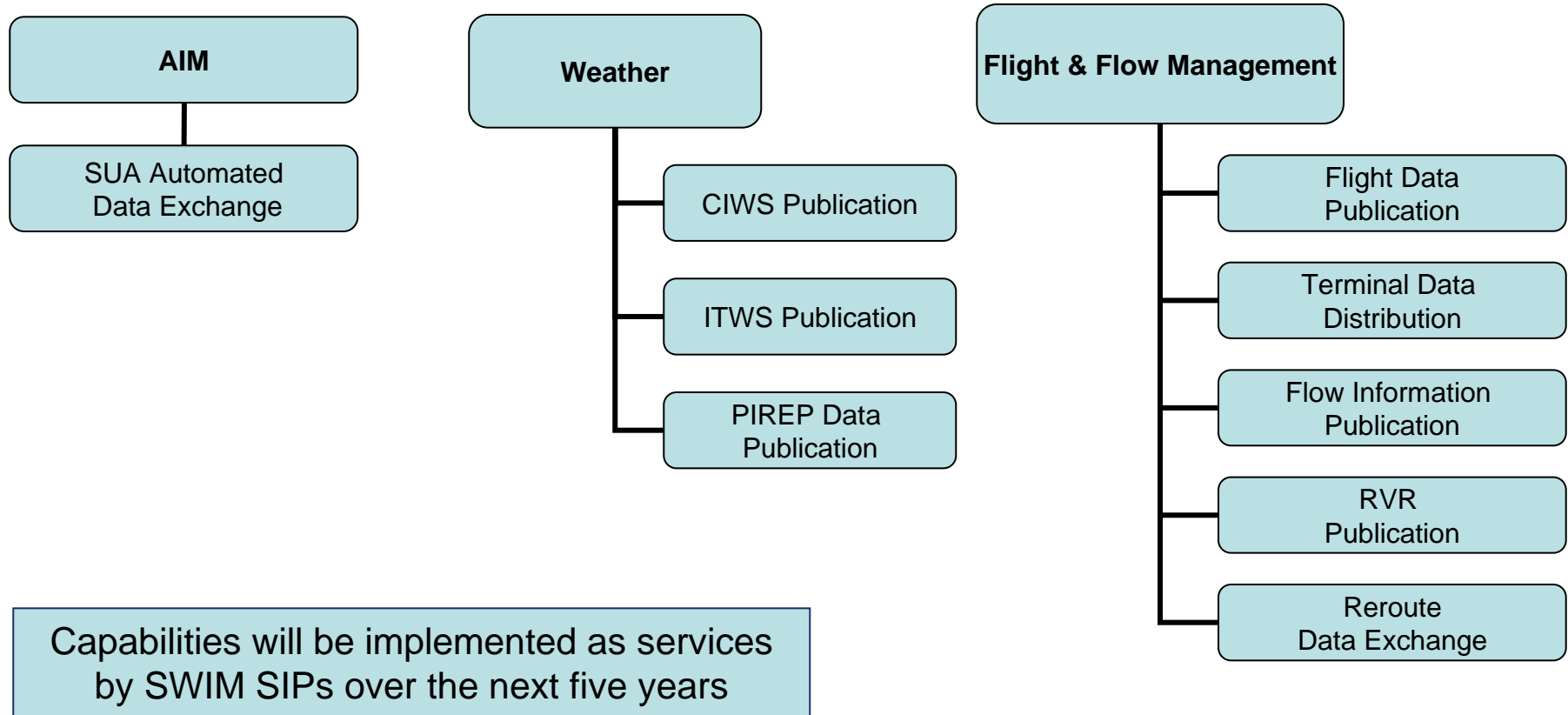
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# Segment 1 Overview

- Nine Segment 1 capabilities were derived from Communities of Interest:
  - Aeronautical Information Management (AIM)
  - Flight & Flow Management (F&FM)
  - Weather
- SWIM will not implement a separate infrastructure for Segment 1
  - SWIM will leverage existing infrastructures, processes, resources, and logistics chains that are part of the program offices implementing the nine SWIM capabilities
  - SWIM Governance will ensure use of common protocols and interfaces, assisted by use of commercial software for some Core Services



# Segment 1 Capabilities

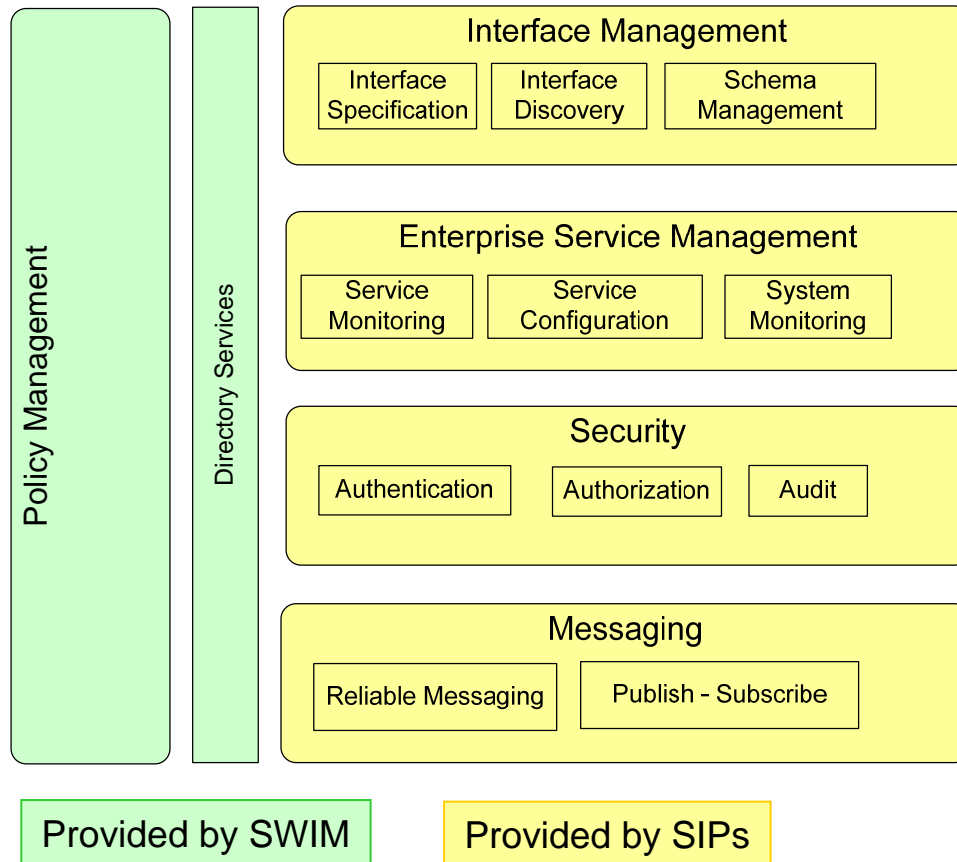


# Program Status

- SWIM is working with SWIM Implementing Programs (SIPs) to finalize SWIM requirements documents
  - SIPs include ERAM, TFM, AIM, Terminal, CIWS, ITWS, and WMSCR
- ITWS and CIWS teams are developing SWIM prototypes for selected weather products
- Evaluating service container software to be provided to SIPs

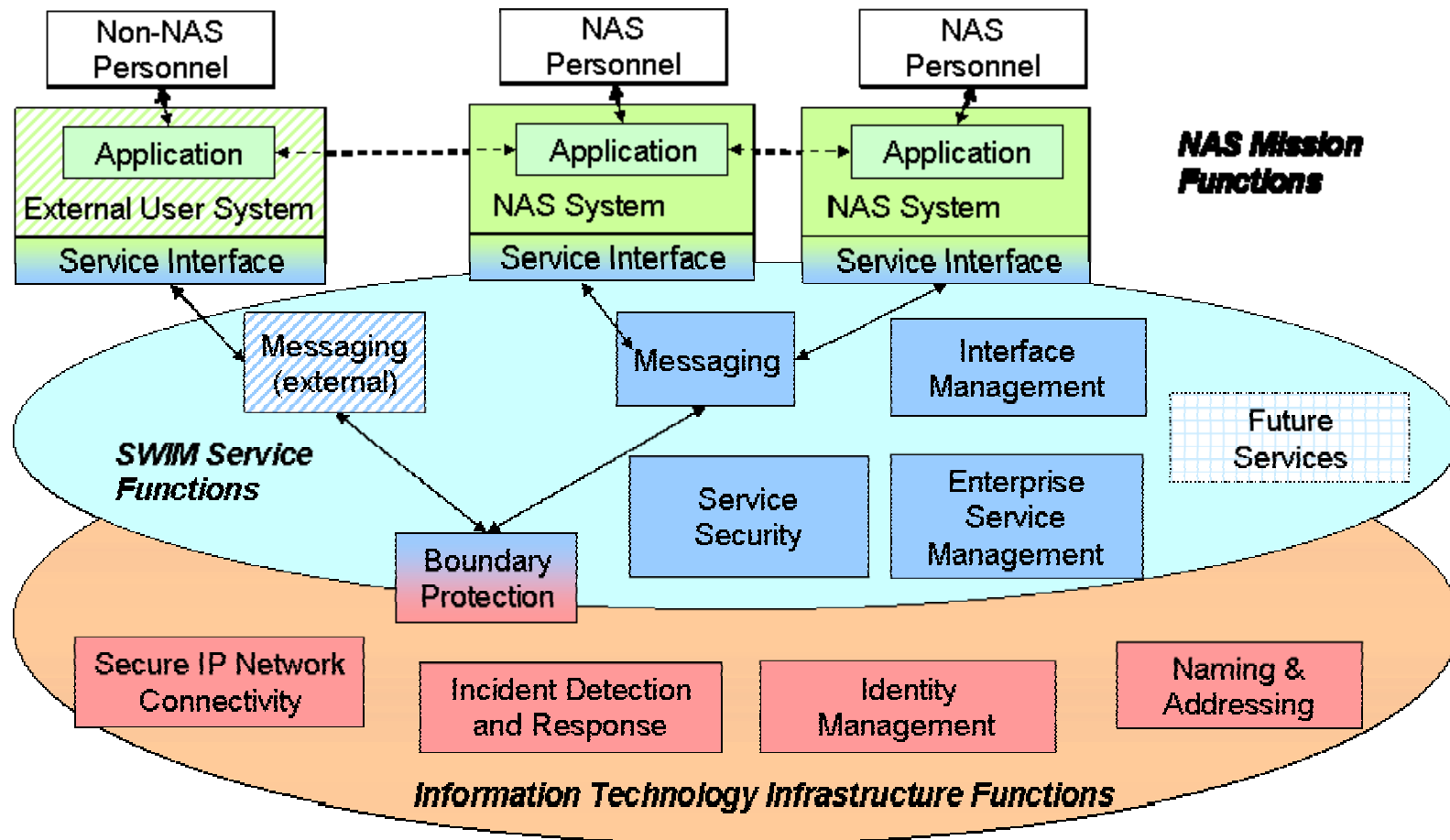


# SWIM Segment 1 Core Services

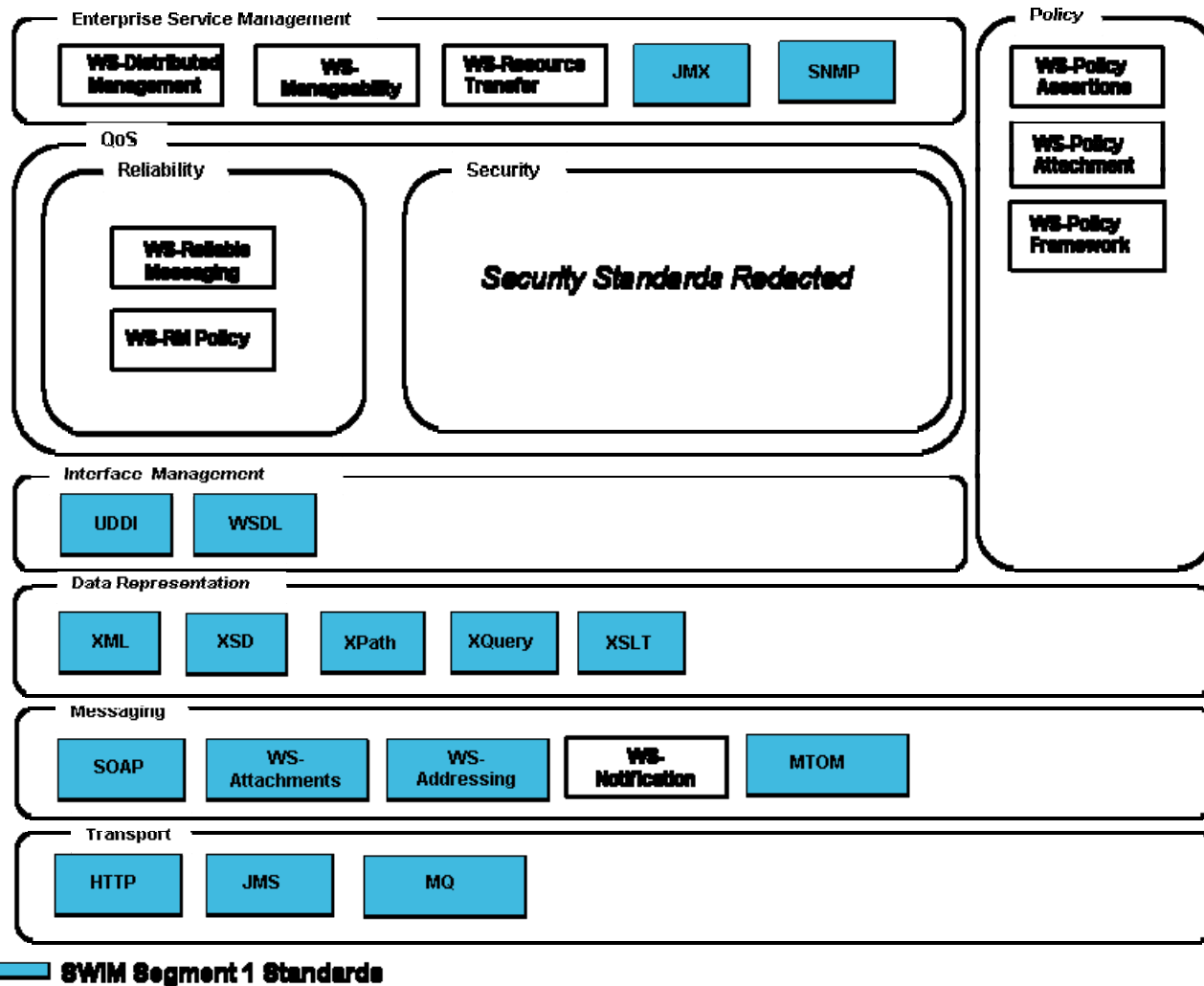


- Core Services will be implemented by participating programs: (1) through use of common commercial software specified by the SWIM Program Office and (2) by development or procurement of software that meets SWIM Program Office mandated standards.
- SWIM Governance ensures all parties adhere to the standards via oversight during software development and test phases

# SWIM Functional Architecture



# Technical Architecture



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# SOA Product Evaluation Candidates

- Service Registry/Repository (design-time)
- XML Gateway
- SOAP Engine
- Message-Oriented Middleware
- Policy Server

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# ITWS/CIWS Prototyping

- Two services were selected for limited prototyping in FY08: ITWS and CIWS
- ITWS Prototype is using the Iona Fuse (open source) service container software on three weather products: Microburst TRACON Maps, Gust Fronts, and Configured Alerts
- CIWS Prototype is using the Mule (open source) service container software on two mosaic weather products: VIL and EchoTops
- Both prototypes are developing a SWIM service that includes client & server software, using SWIM-like standards and products for Core Services.



# ITWS/CIWS Prototyping (cont'd)

- **Schedule**

- Both teams to complete initial efforts by July 2008

- **Products**

- Lessons learned, to be shared with other SIPs, regarding use of service container software
- Assessment of impact of using XML protocols on Wx products, in terms of bandwidth requirements and end-to-end performance

- **Possible Follow-On Work**

- Transmit SWIM-compliant prototype Wx products to airlines via the FAA's external gateway



# Segment 2 Plans – Technical

- Determine operational requirements for information that must be met in FY12-16
- Determine technical requirements needed to meet these operational requirements
- Determine how the Segment 1 architecture must evolve to meet these requirements
  - Ex. Segment 1 federated approach vs. possible future centralized approach



# Segment 2 Plans - Acquisition

- Conduct trade studies on SOA products
- Determine content of Approved Product List for use by other NAS programs
- Determine acquisition strategy that will enable other NAS programs to purchase SOA products needed for SWIM compliance and implementation in their systems
- Prepare for possibility of SWIM infrastructure contract
  - Develop solicitation package to target 2010 award



# SWIM Web Site

***[www.swim.gov](http://www.swim.gov)***

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