Federal Aviation Administration

SWIM
Segment 2 Definition

Presented to: ICNS

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Date: 5 May 2008

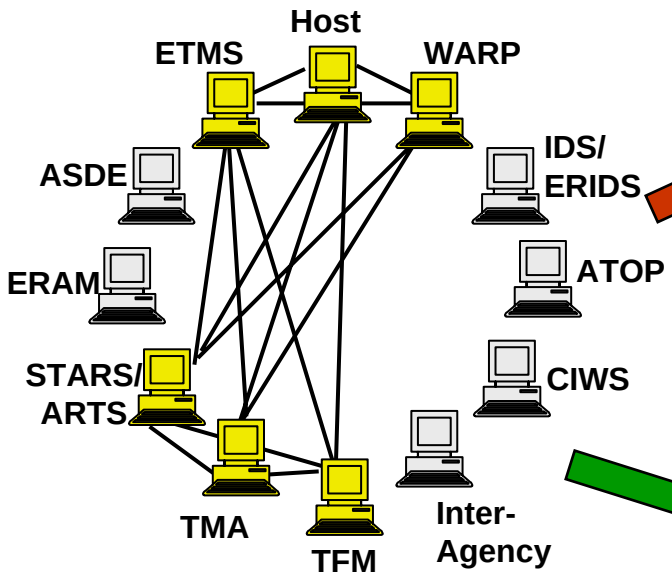
- **Overview/Introduction**
- **Approach**
- **Issues**
- **Conclusions**

Overview/Introduction

- **SWIM Program Intro**
- **Segment Concept**
- **Current Program (Segment1)**
  - Opportunity Based
- **Segment 2 Concept**
  - NextGen Based
  - External/Customer Influenced

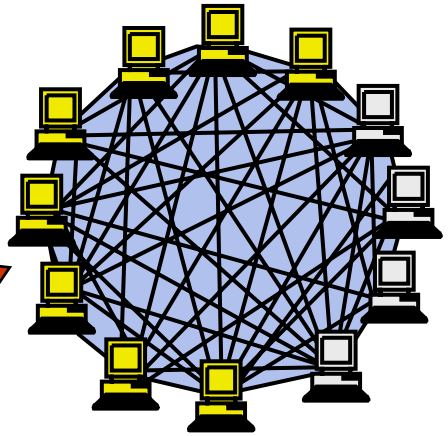
State of the System

Today



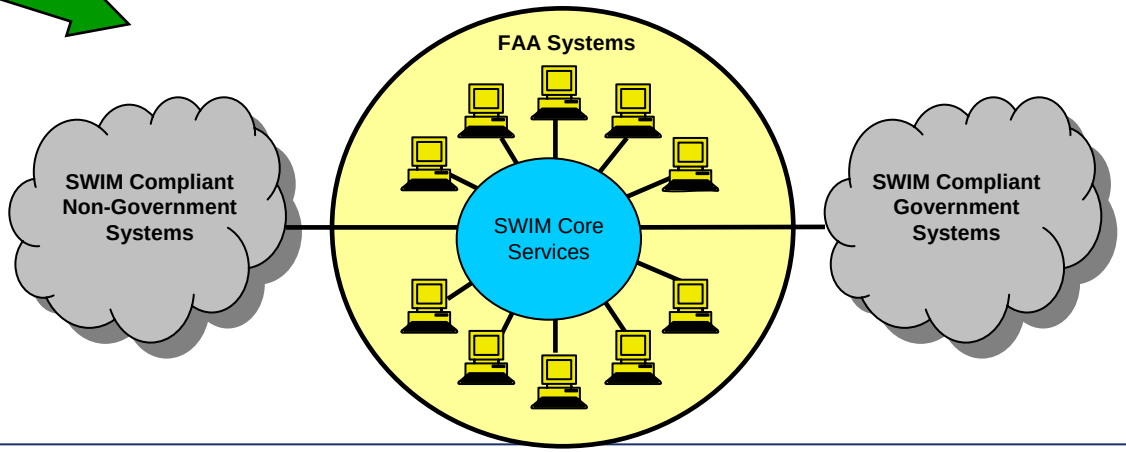
- Existing point-to-point hardwired NAS
- Unique interfaces, custom designs

Business as Usual



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

Enterprise Management



Existing SWIM Program Execution

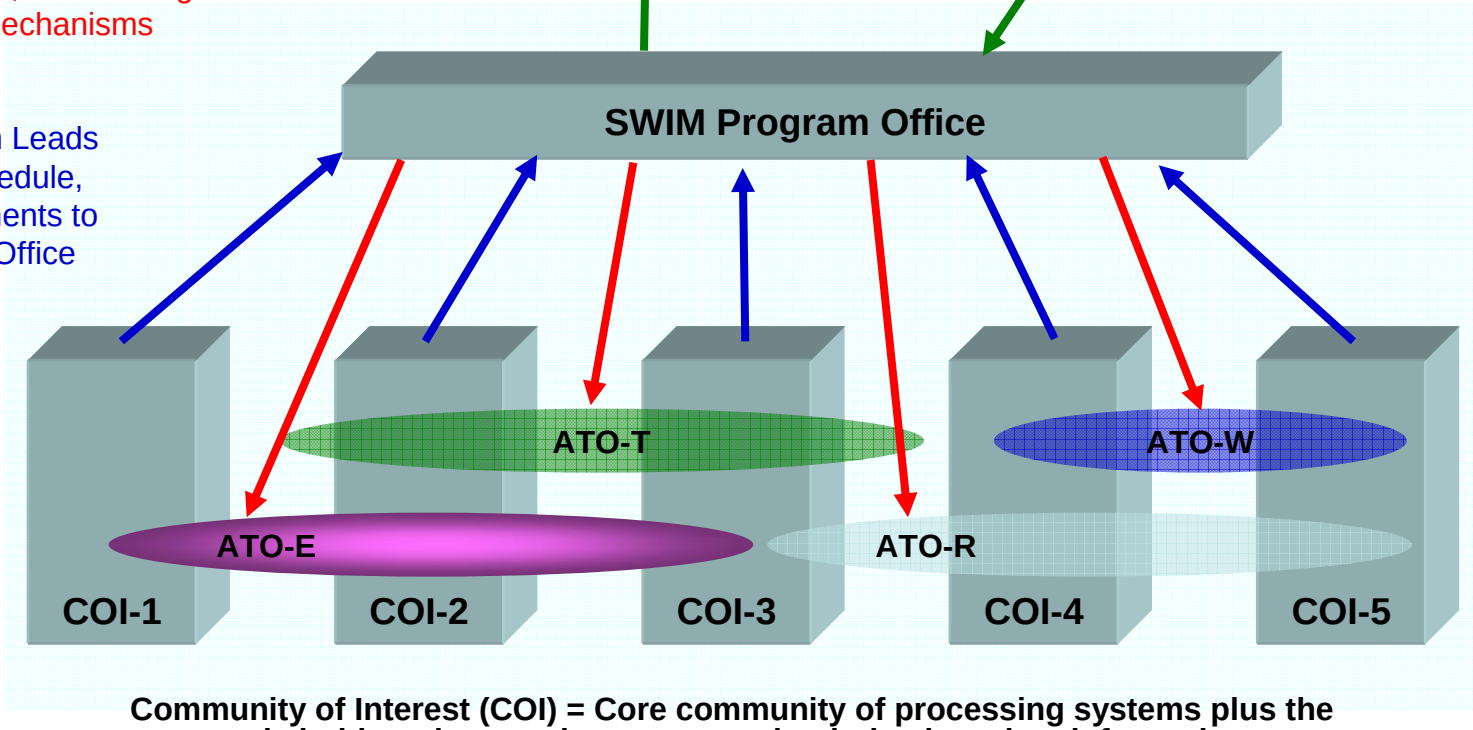
5. SWIM Program Office establishes Service Level Agreements with performing Directorates and/or Service Units w/cost, schedule, metrics, and oversight mechanisms

3. SWIM Program Office performs budget formulation function

4. Fiscal Year funding is appropriated for SWIM and distributed to SWIM CIP Account

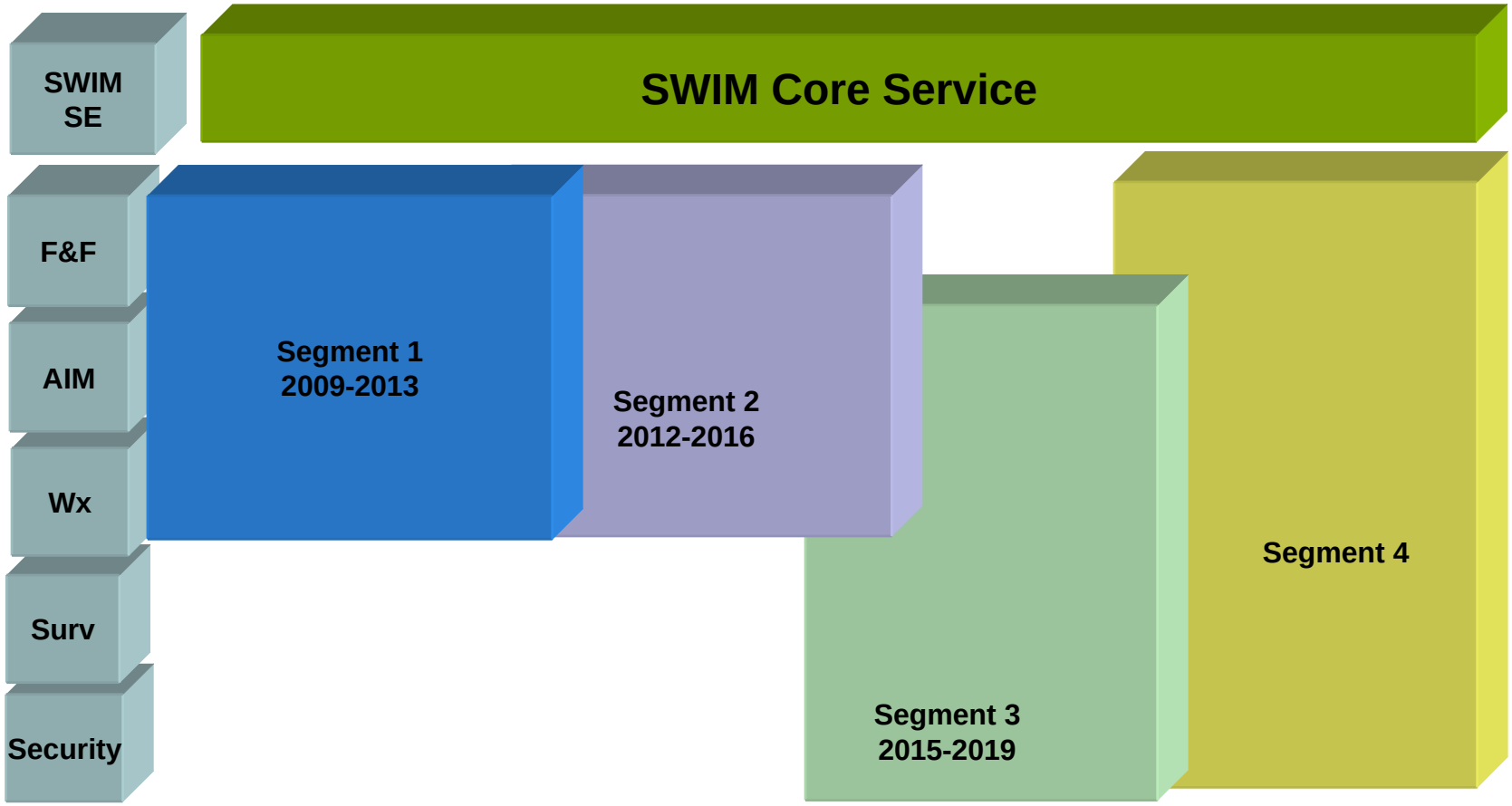
2. COI Integration Leads provide cost, schedule, technical requirements to SWIM Program Office

1. SWIM Program Office establishes and supports COI teams to develop Concept of Use, requirements development, and planning activities. COI teams staffed by front line service units



Community of Interest (COI) = Core community of processing systems plus the stakeholders that require access to the derived product information

SWIM Execution by Segments



Segment 2 Composition

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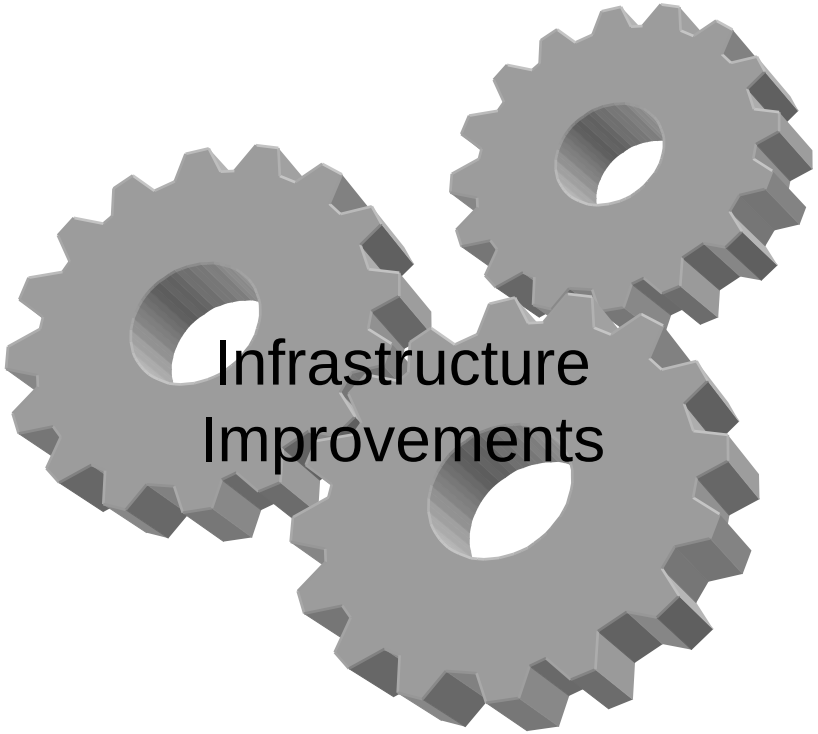
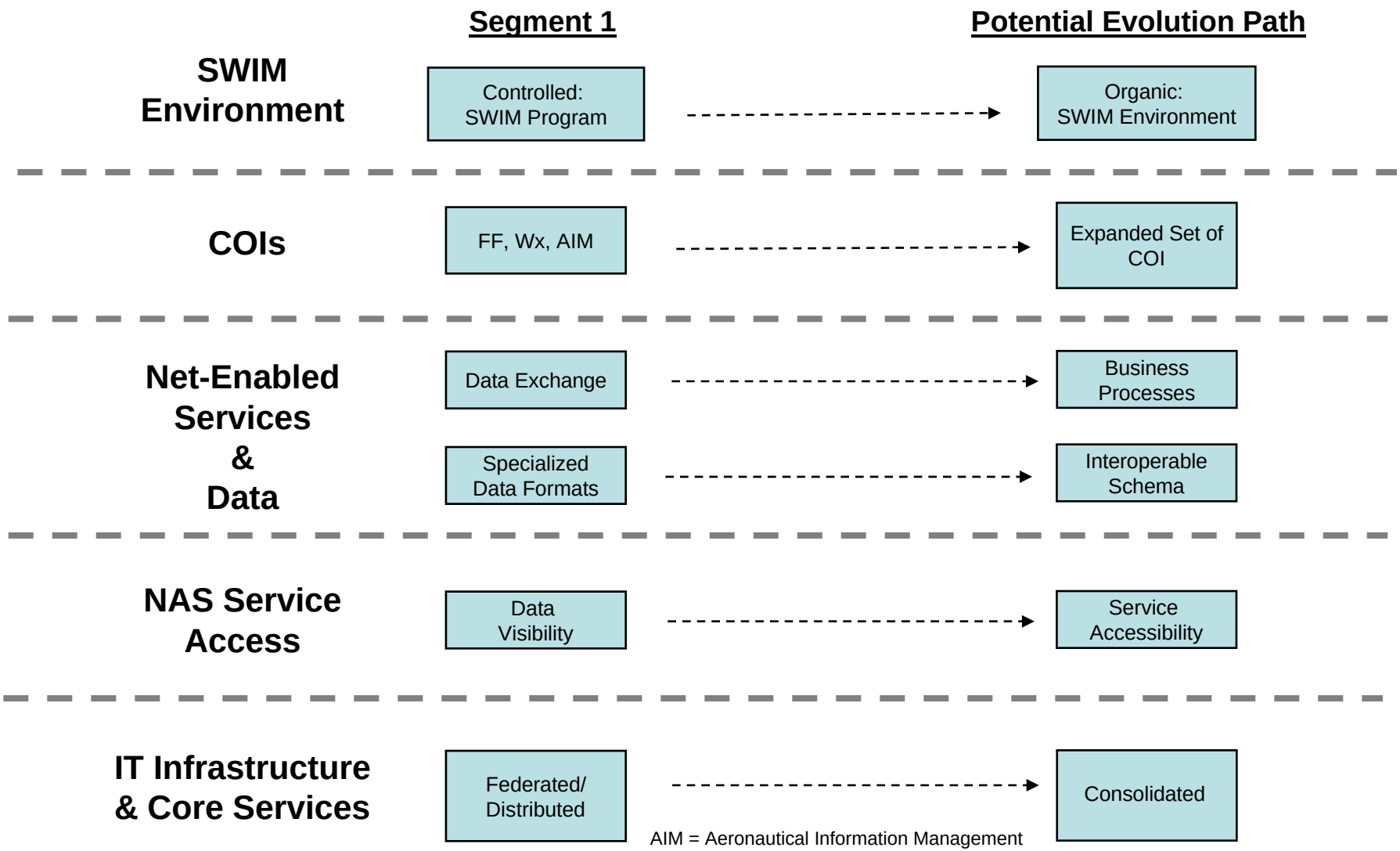


Approach

- **Planning Considerations**
  - Evolution
  - Net Centric Criteria
  - Segment 1 “Leftovers”
  - Net Centric Demos and Prototypes
  - NextGen/JPDO
- **Roles and Responsibilities**
  - Communities of Interest
- **Process**
  - Needs Based
  - Use Case Based
- **Schedule**

Evolution Strategy Examples



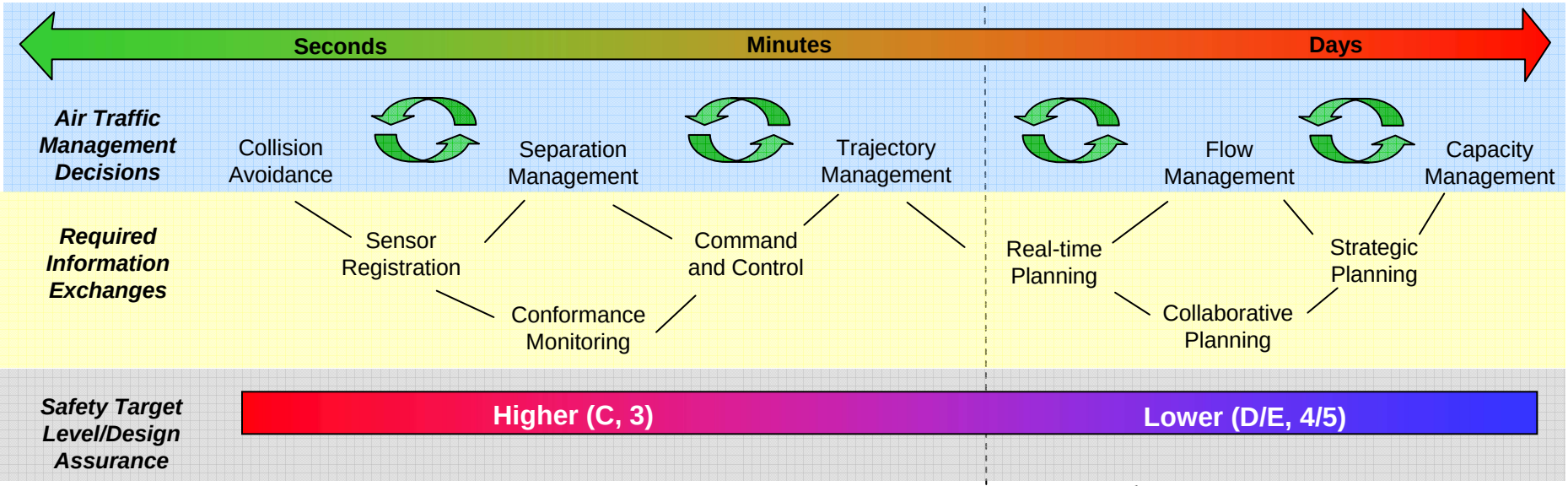
AIM = Aeronautical Information Management
FF = Flow Flight
Wx = Weather

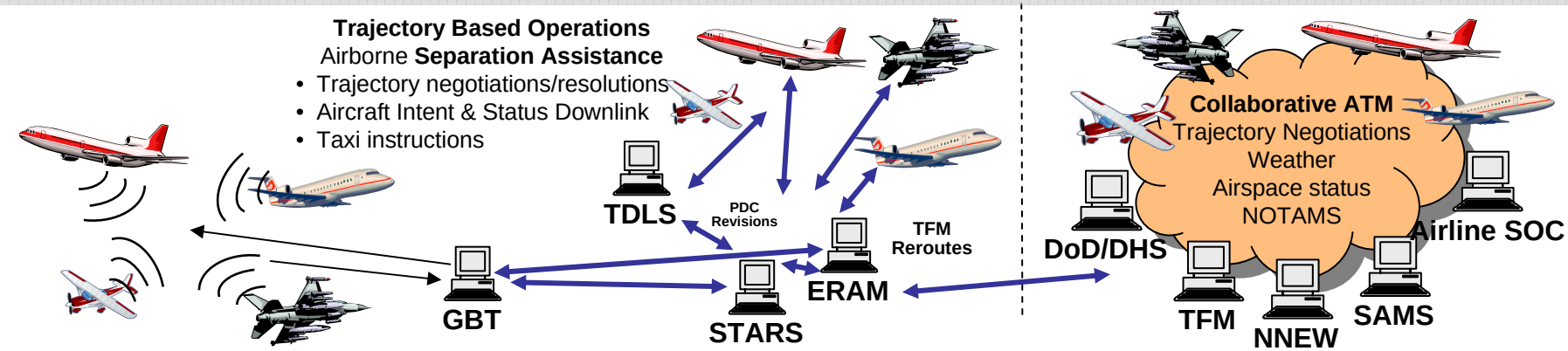
•Courtesy MITRE CAASD

SWIM Suitability

SWIM Suitability Checklist	Concept & Reqs. Definition JRC 1	Initial Investment Decision JRC 2A	Final Investment Decision JRC 2B
Strategic/Service Application Factors			
Description of New Service or Mod	X	X	X
SOA service availability verification	X	X	X
Intended Audience/User Community (FAA)	X	X	X
Intended Audience/User Community (Non FAA)	X	X	X
Type of user information	X	X	X
Frequency of Data Usage (FAA)	X	X	X
Frequency of Data Usage (Non FAA)	X	X	X
Role in NextGen strategic plan	X	X	X
Durability of proposed process	X	X	X
Granularity of service(s)	X	X	X
Reusability of service(s)	X	X	X
Degree of use of SOA infrastructure		X	X
Impact on FAA Users		X	X
Impact on non-FAA Users (DOD, NASA, Airlines, etc)		X	X

ATM Decision Timeframes, Required Information Exchanges, and Required Services and Infrastructure





ADS-B Characteristics

- **Position and intent Broadcasts**
- **L-Band Protected spectrum**
- **Safety Assessment Drives :**
  - High reliability
  - High safety assurance levels
  - Contention broadcast/receive filtering
  - Low latency
- **International usage based on agreements**
- **Standardized controls and displays**
- **FMS integration**

DataComm Characteristics

- **2 way Command and Control exchanges**
- **VHF Band Protected spectrum**
- **Safety Assessment Drives :**
  - High reliability
  - High safety assurance levels
  - Guaranteed delivery
  - Low latency
- **International usage based on agreements**
- **Standardized controls and displays**
- **FMS integration**

Airborne SWIM Characteristics

- **Advisory data**
- **Commercial spectrum, market driven**
- **User defined requirements:**
  - Authentication
  - Reliability
  - Delivery (e.g. best effort)
  - Latency
  - Controls and displays
  - FMS integration
- **International usage based on reach of service provider**

Early Candidates for Future Segments (Segment 1 “Leftovers”)

- **ARTS/CARTS/STARS Flight Data Service**
- **Aviation Digital Data Service (ADDS)***
- **AWOS Data Acquisition Service (ADAS)***
- **Expanded Terminal and Tower Data Service***
- **Flight Service Station Data Service**
- **General Information (GI) Message Distribution Service***
- **Information Display System (IDS) Data Service***
- **NextGen Network Enabled Weather (NNEW) Service***
- **Notices to Airmen (NOTAM) Distribution Service***
- **Surveillance Data Distribution Service**
- **TFM Flight Information Service**
- **TMA Flight Data Service***
- **WARP/WINS NEXRAD Service***

* Indicates a candidate for air/ground SWIM

Demonstrations/Prototypes Coordination

- **Existing or Planned Net-Centric or SWIM-like**
- **TIM Held 23 April**
- **Initial Coordination Focused on Identification of POCs and High Level Definitions**
- **Next Level of Detail**
  - Technical Architectures
  - Specific Operational Capabilities
- **Presentations on swim.gov**

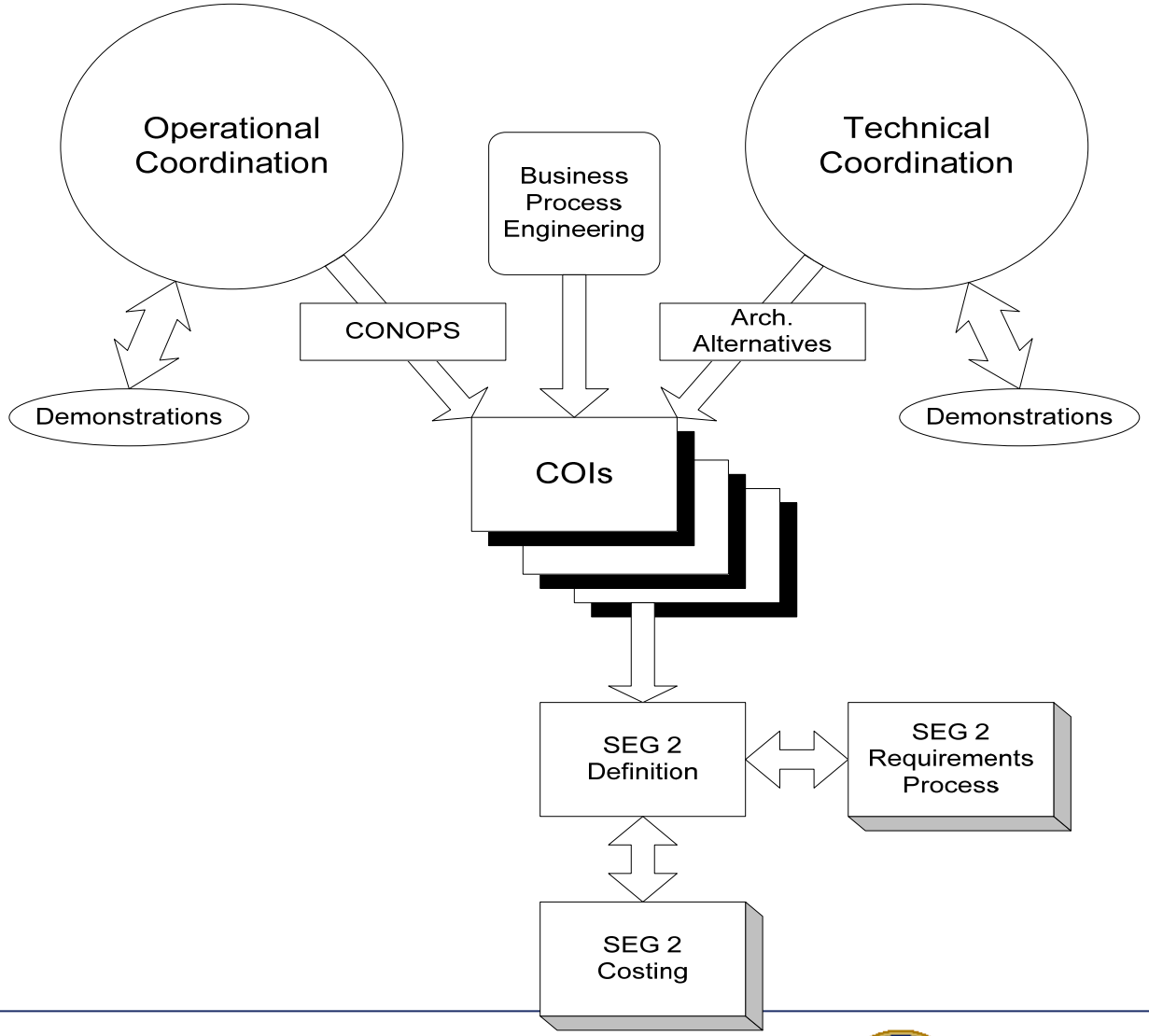
SWIM Communities of Interest

- **Community of Interest = core community of processing systems plus the stakeholders that require access to the derived product information**
- **Based on information needs, not systems**
- **To support SWIM Segment 1, three COIs were identified:**
  - Aeronautical Information Management
  - Flight and Flow Management
  - Weather
- **New COIs may be formed to support future SWIM activities**

Segment 2 Communities of Interest

- **Program Decision: Retain Segment 1 COIs**
  - Aeronautical Information Management
  - Flight and Flow Management
  - Weather
- **Weather COI continues to have Regular Meetings**
  - Needs to resolve responsibilities between Wx COI and NNEW
  - Monthly Meetings with NNEW
  - Full day Technical Interchange with NNEW May 22
- **Mid Term Automation Requirements**
  - Last meeting 28 April
- **Use Case Driven COI Products**

Segment 2 Planning



Operational Coordination

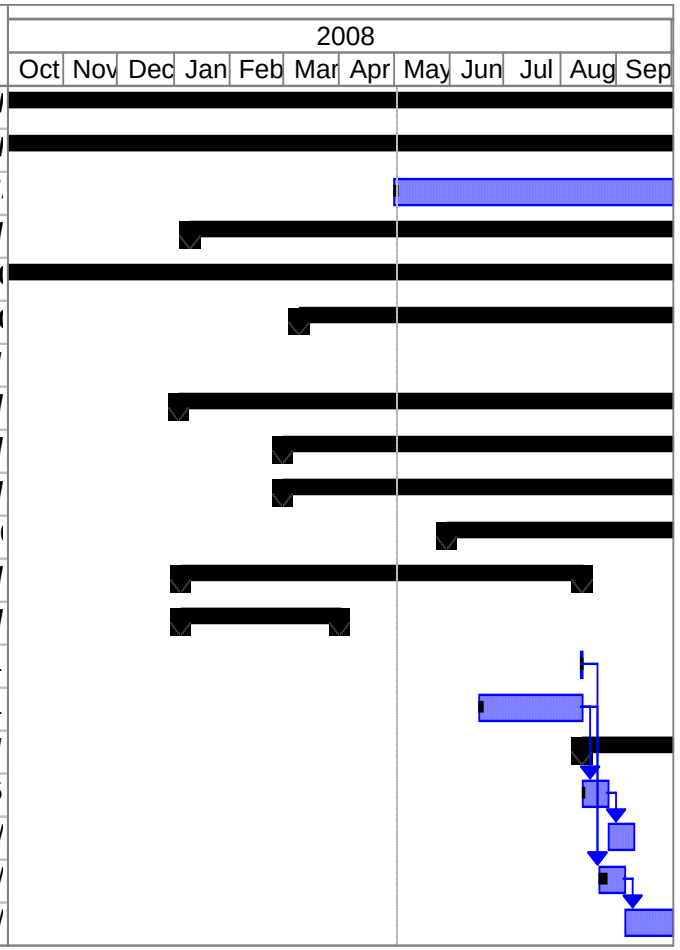
- **ATA**
- **NBAA**
- **AOPA**

Technical Coordination
GEIA Support

- **SOA Best Practices Paper**
  - Segment 1 Architecture Recommendations
  - “All Segments” Process Recommendations
- **Segment 2 Technical Coordination**
  - Action Plan

FY-08 Planning and Prototyping Schedule

ID	Name	Start	Finish
7	**SWIM Planning and Prototyping FY-08**	**Mon 10/2/**	**Wed 6/17/**
8	**Stakeholder Coordination**	**Mon 10/2/**	**Wed 6/17/**
9	SWIM Suit Coordination	Wed 4/30	Wed 6/17
10	**Airspace User Coordination for Operational**	**Thu 1/10/**	**Mon 12/8/**
14	**Industry Analysis for future architecture opt**	**Mon 10/2/**	**Fri 4/3/(**
15	**GEIA Coordination**	**Mon 3/10/**	**Fri 4/3/(**
18	**Alliance Coordination**	**Mon 10/2/**	**Tue 6/19/**
20	**JPDO/OEP Coordination**	**Thu 1/3/(**	**Thu 12/4/**
33	**Concept Exploration/Demonstration**	**Fri 2/29/**	**Thu 2/12/**
34	**Air Ground SWIM Demonstration**	**Fri 2/29/**	**Thu 2/12/**
37	**Centralized Architecture Prototype/Demo**	**Fri 5/30/**	**Mon 1/5/(**
42	**Program Evolution**	**Fri 1/4/(**	**Mon 8/11/**
43	**SWIM Evolution Strategy Template**	**Fri 1/4/(**	**Mon 3/31/**
45	Identify Necessary Segment 2 COI Teams	Mon 8/11	Mon 8/11
46	Segment 2 COI/Requirements Development Pla	Mon 6/16	Mon 8/11
47	**Future Segment/Service Planning**	**Tue 8/12/**	**Fri 1/30/**
48	Develop COI Charters/Rules of Engagement	Tue 8/12/	Mon 8/25
49	Develop COI Instructional Materials	Tue 8/26/	Tue 9/9/
50	Establish Segment 2 COI Teams	Thu 8/21/	Thu 9/4/
51	Initial Segment 2 Operational Capabilities/Archi	Fri 9/5/(	Fri 1/30/



Segment 2 Definition Plan (Outline)

- **Introduction**
  - SWIM Background
  - SWIM Segments Concept
  - Segment Definition Mechanism (JRC)
  - Document Organization
- **Scope**
  - Segment 2 Definition Timeframe
  - SWIM vs NAS Scope Definition
  - SWIM Evolution Discussion
- **References**
  - DOD COI Documents
  - CAASD Evolution Paper
  - JPDO IWP
  - FAA OEP
- **Planning Criteria**
  - SWIM Suitability Criteria
  - Unimplemented Segment 1 Capabilities
  - SWIM Relevant Information Sharing Demos and Prototypes
  - SWIM Related Information Exchange Infrastructures
  - Related Planning Documents
  - Current Trades/Analyses/Prototypes

Outline…cont.

- **Planning Roles and Responsibilities**
  - FAA Organizations
    - SWIM Program Office
    - ATO Operations Planning
    - Lines of Business
  - External Organizations
    - Airspace Users
    - ATM Industry
    - Government Agencies
  - Communities of Interest
- **Planning Processes**
  - Establishment of COI Planning Teams
    - Identification of Segment 2 COIs
    - Identification of COI Memberships
  - Education of COI Planning Teams
    - Explanation of Expected Products
    - Explanation of Recommended Processes
  - Execution by COI Planning Teams
    - Identification of Business/Mission Needs
    - Identification of Operational Concepts

Issues/Conclusions

- **Schedule is tight**
- **Planning while working**

- **Segment 2 will reflect needs of our customers**