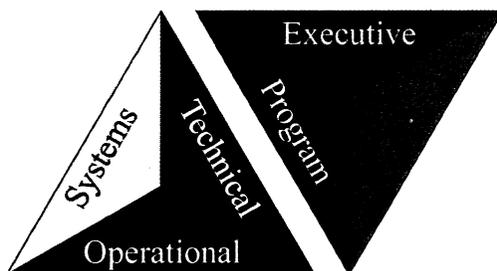


National Airspace System Enterprise Architecture (NASEA)

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Air Traffic Organization  
Technical Operations Services (ATO-W)

System Wide Information Management (SWIM) Architecture — Segment 1  
Version 1.0



Overview and Summary Information (AV-1)

April 23, 2007

Approved By: *D. [Signature]* > 5/16/07 Date:             
NAS Chief Architect, Operations Planning, ATO

*Ackney*

Target Architecture ("To-Be")

## Version History

Version	Publication Date	Primary Author(s)	Description of Change
1.0	April 23, 2007	SETA II	Initial version.

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## **1. Architecture Project Identification**

### **1.1 Name**

This Overview and Summary Information (AV-1) document provides executive-level summary information for the “As-Is” National Airspace System (NAS) information management architecture, including assumptions, constraints, and limitations that may affect related high-level decision processes. This document provides a consistent form that allows quick reference and comparison among various architectures and their associated sub-architectures in the Air Traffic Organization’s (ATO) NAS Enterprise Architecture (NASEA).

### **1.2 Architect and Developing Organization**

The Architect responsible for developing the “As-Is” NAS information management architecture resides in the ATO Operations Planning organization, in the Office of Systems Engineering. The FAA SETA-II Architecture Support Team, under guidance of the Architect, developed the program’s formal architecture and documented it through supporting architecture processes, products, and operating rules.

### **1.3 Assumptions and Constraints**

#### **1.3.1 Assumptions**

In developing the “As-Is” NAS information management architecture, the team assumed that:

- The “As-Is” NAS information management architecture is currently not represented by any NAS Enterprise Architecture Framework (NASEAF) product other than this AV-1.

#### **1.3.2 Constraints**

Development of the “As-Is” NAS information management architecture includes the following required constraints:

- The “As-Is” NAS information management architecture shall be implemented through NASEA product development in conformance with the guidance of the NASEAF.
- The “As-Is” NAS information management architecture, as a subordinate architecture within the NASEA (and the FAA EA), shall support compliance with public laws and policies.
- The “As-Is” NAS information management architecture shall support the FAA Joint Resources Council (JRC) Final Investment Decision process for the System Wide Information Management (SWIM) Program.

### **1.4 Approval Authority**

The approval authority for this architecture within the ATO is the NAS Chief Architect in Operations and Planning division. The FAA JRC is the final approval authority for all subordinate architectures within the overarching FAA EA.

## **1.5 Completion Date**

The completion date for the “As-Is” NAS information management architecture and supporting products is April 23, 2007.

## **1.6 Level of Effort and Projected and Actual Costs To Develop the Architecture**

The Vice President for ATO Technical Operations Services (ATO-W) can provide the level of effort and projected and actual costs for developing this architecture.

## **2. Scope: Architecture Views and Products Identification**

### **2.1 Views and Products Developed**

Only the AV-1 is available to support the current phase of acquisition for the “As-Is” NAS information management architecture.

### **2.2 Timeframes Addressed**

The “As-Is” NAS information management architecture is a representative “As-Is” architecture as of FY 2007.

### **2.3 Organizations Involved**

The ATO organizations that fall within the scope of this architecture are En Route and Oceanic Services (ATO-E), Terminal Services (ATO-T), System Operations Services (ATO-R), and Technical Operations Services (ATO-W).

## **3. Purpose and Viewpoint**

### **3.1 Purpose, Analysis, Questions To Be Answered by Analysis of the Architecture**

#### **3.1.1 Purpose**

The purpose of the “As-Is” NAS information management architecture is to establish a baseline of the current state of the NAS information management environment; this baseline can be used to propose, analyze, and implement solutions that address identified shortfalls.

#### **3.1.2 Analysis and Questions To Be Answered by Analysis of the Architecture**

A focused “As-Is” NAS information management architecture analysis was conducted to identify and understand potential shortfalls inherent in the current information management environment. Subsequently, areas of the NAS were identified that could immediately benefit from an improved information management environment.

Analysis of the “As-Is” NAS information management architecture sought to answer the following questions:

- What are the shortfalls, if any, of the current information management environment?
- What improvements could be made to address these shortfalls?
- What areas of the NAS might benefit from these improvements?

The answers to these questions (see section 6.1 Analysis Results, below) indicate the need to develop a target “To-Be” architecture that would satisfy the information management needs of the NAS.

### **3.2 From Whose Viewpoint the Architecture Is Developed**

The “As-Is” NAS information management architecture is developed from the perspective of those operational areas that ensure that various other NAS operations and systems both produce and receive information and data. The operational areas include the following TBD.

## **4. Context**

The following sections establish the context of the “As-Is” NAS information management architecture.

### **4.1 Mission**

Currently, data exchange is implemented in the NAS in a loosely standardized, dispersed manner. There does not appear to be any specific, NAS-wide approach to implementing data exchange. FAA Order 1375.1D, “Information/Data Management and FAA Data Governance Board,” July 25, 2006, addresses standardization and governance of data elements to assure that data needed by FAA stakeholders are “visible, accessible, understandable, and trusted.” However, the Order does not directly address any current, overall mission regarding how data is exchanged in the NAS. Therefore, a discernable mission of the current NAS information management environment does not appear to be available for use by this architecture. The apparent unavailability of such a mission is a characteristic shortfall to be addressed by efforts summarized in the NASEA Overview and Summary Information (AV-1) document for the System Wide Information Management (SWIM) Architecture.

### **4.2 Objective, Goal, and Vision**

#### **4.2.1 Objective**

Objectives of the current NAS information environment are not available due to its presently undefined mission.

#### **4.2.2 Goals**

Goals of the current NAS information environment are not available due to its presently undefined mission.

#### 4.2.3 Vision

Vision of the current NAS information environment is not available due to its presently undefined mission.

### 4.3 Rules, Criteria, and Conventions Followed

The “As-Is” NAS information management architecture was developed under the following rules, criteria, and conventions:

- Office of Management and Budget planning and budgeting requirements
- FAA Acquisition Management System policy and processes
- ATO Strategic Management Process
- ATO Service and Infrastructure Roadmaps
- NASEAF

### 4.4 Tasking for Architecture Project and Linkages to Other Architectures

The Architect for the current NAS information management tasked FAA SETA-II and system engineering partners to develop this architecture, including a cohesive link between the “As-Is” NAS information management architecture and other related NASEA elements.

## 5. Tools and File Formats Used

The following tools and their associated file formats were used to develop the “As-Is” NAS information management architecture and its related products:

- Microsoft Office® products, various versions

## 6. Findings

Following are the results of the analysis of the “As-Is” NAS information management architecture (mentioned in section 3 above), as well as recommendations.

### 6.1 Analysis Results

There are no NASEAF-compliant products to analyze that relate to the current NAS information management architecture. Nevertheless, analysis of the current NAS information management environment is documented. “The System Wide Information Management (SWIM) Mission Shortfall Statement” identifies the following shortfalls:

- Cost to develop, test, deploy, and support new applications are too high.
- The NAS is not an agile air traffic system.
- Data-sharing in the NAS is labor-intensive.

- Real-time access to common data is lacking in the NAS.
- “The underlying tools” to fully support becoming a performance-based organization “are currently lacking.”

Implementing SWIM can address these shortfalls by reducing cost while providing better service. Implementation can:

- Move systems off point-to-point interfaces and onto Internet Protocol.
- Change system interfaces to network messaging to reduce cost of testing and maintenance.
- Provide NAS interface standards to enable integrating new systems and locations into the NAS, thus avoiding costly customization.
- Provide common interfaces to simplify setting up (and tearing down) virtual connections to new users and applications.

These SWIM concepts can be demonstrated through a “To-Be” SWIM architecture and instantiated “To-Be” architectures representative of various NAS COIs.

## **6.2 Recommendations**

Currently, there is no effort to construct an integrated architecture beyond this AV-1 to represent the “As-Is” NAS information management environment. However, to understand this environment to determine specifically where substantive change would best be implemented, it is important to build such architecture. Therefore, it is recommended that an “As-Is” integrated architecture be built representing the current NAS information management environment and a “To-Be” integrated architecture representing the initial segment envisioned for SWIM. In addition, it is recommended that “As-Is” and “To-Be” architectures be built to demonstrate implementation of the initial segment of SWIM by selected COIs.

## APPENDIX A: REFERENCES

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