FACTSHEET

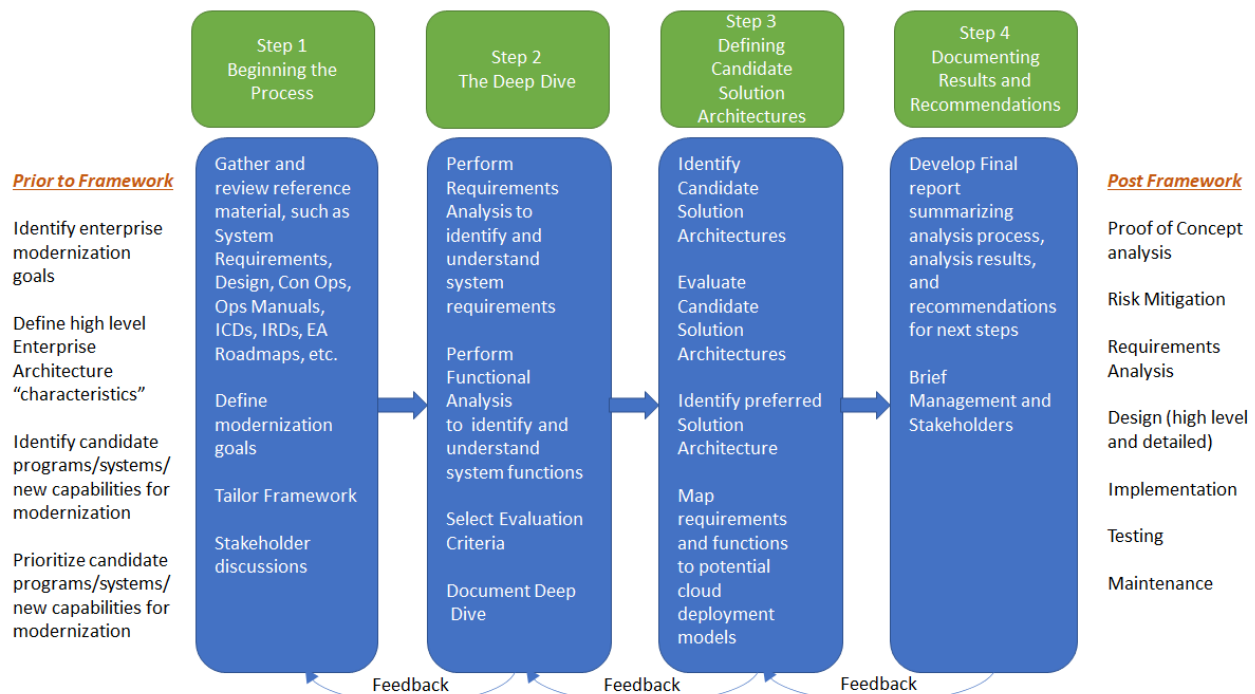# *Enterprise Services Infrastructure Framework (ESIF)*

ICN INFO-CENTRIC NATIONAL AIRSPACE SYSTEM

Background

The FAA's vision for an info-centric National Airspace System (NAS) includes a move toward an agile infrastructure through the evolution of system-wide information management and adoption of cloud-based enterprise architecture. The Enterprise Services Infrastructure Framework (ESIF) provides the methodology to evaluate and identify programs and program components that qualify for movement to the cloud. The FAA's info-centric vision for the NAS builds on the Next Generation Air Transportation System foundation in three key areas, or pillars: operations, supporting infrastructure, and integrated safety management. The ESIF supports the infrastructure pillar by investigating emerging technologies and innovative architecture configurations as candidates for NAS infrastructure modernization.

For the FAA, cloud computing offers the potential to reduce development, implementation, and maintenance costs. As a result, both the agency and aviation stakeholders will realize benefits sooner.

Step 1 Beginning the Process

Step 2 The Deep Dive

Step 3 Defining Candidate Solution Architectures

Step 4 Documenting Results and Recommendations

Prior to Framework

Identify enterprise modernization goals

Define high level Enterprise Architecture "characteristics"

Identify candidate programs/systems/ new capabilities for modernization

Prioritize candidate programs/systems/ new capabilities for modernization

Gather and review reference material, such as System Requirements, Design, Con Ops, Ops Manuals, ICDs, IRDs, EA Roadmaps, etc.

Define modernization goals

Tailor Framework

Stakeholder discussions

Perform Requirements Analysis to identify and understand system requirements

Perform Functional Analysis to identify and understand system functions

Select Evaluation Criteria

Document Deep Dive

Identify Candidate Solution Architectures

Evaluate Candidate Solution Architectures

Identify preferred Solution Architecture

Map requirements and functions to potential cloud deployment models

Develop Final report summarizing analysis process, analysis results, and recommendations for next steps

Brief Management and Stakeholders

Post Framework

Proof of Concept analysis

Risk Mitigation

Requirements Analysis

Design (high level and detailed)

Implementation

Testing

Maintenance

Feedback   Feedback   Feedback

Project Description

While cloud-based solutions provide the ability to take advantage of a wide spectrum of value-added services and options, they also present challenges and risks to be considered during evaluation and implementation of cloud technology. Application of cloud technologies requires consideration of a variety of topics and perspectives as they might apply to or impact NAS services. The ESIF provides a methodology approach consisting of activities and analysis requirements for programs to determine if they are appropriate for cloud-based architectures. The ESIF process has been applied to several FAA programs, including En Route Automation Modernization (ERAM), Time Based Flow Management (TBFM), and Flight Data Input/Output (FDIO).

Outcomes

- Recommendation reports on FAA automation systems (e.g., ERAM and TBFM)
- Recommendation reports on FAA information routing systems (e.g., NADIN, FDIO, etc.)
- Recommendation reports on FAA weather systems (e.g., ITWS, NWP, CSS-Wx)
- Updated ESIF 2.0, incorporated with lessons learned, best practices from previous use cases, and supplemented with support materials

Drivers

- The 2010 Office of Management and Budget (OMB) "Cloud First" Federal Cloud Computing Strategy directed Federal agencies to prioritize cloud solutions for programs.
- The 2019 OMB "Cloud Smart" Federal Cloud Computing Strategy directed Federal agencies to evaluate modernizing applications with cloud native solutions.

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