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FACTSHEET Information Management (IM)



Background

The FAA's vision for an info-centric National Airspace System (NAS) includes moving toward an agile infrastructure through the evolution of system-wide information management, adopting cloud environments, and deploying efficient architecture designs. IM investigates core components of innovative technologies and architecture patterns to guide FAA programs and inform future decisions within NAS modernization efforts. The Microservice Architecture (MSA) Framework (MSAF) provides the methodology to evaluate and identify systems and services that qualify for transition to microservices. 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 MSAF supports the infrastructure pillar by investigating emerging technologies and innovative architecture configurations as candidates for NAS infrastructure modernization.



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





Project Description

While microservice and cloud-based solutions can take advantage of a wide spectrum of value-added services and options, they also present challenges and risks to be considered during the evaluation and implementation of cloud technology. Application of these technologies requires consideration of a variety of topics and perspectives as they might apply to or impact NAS services. The MSAF provides a methodology approach consisting of activities and analysis requirements for programs to determine if they are appropriate for microservice architectures. In addition to developing the MSAF, IM has investigated numerous considerations and components of cloud and microservice technologies.

Outcomes

- Cloud recommendation reports on FAA systems (e.g., ERAM, NADIN, ITWS, NWP, CSS-Wx)
- MSA recommendation reports for FAA services (e.g., IWXXM-to-TAC conversion, etc.)
- Investigative analysis on consideration for MSAs and cloud usage (e.g., Cloud Availability, Cloud Security, and MSA deployment patterns)
- Updated MSAF 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.



