The Future Direction of FAA Aviation Weather Heading to 2035

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Federal Aviation Administration



Weather Roadmap





Weather Roadmap 2

NAS Enterprise Architecture Infrastructure Roadmaps Version 16.0



FAA Aviation Weather Strategy: Weather Radars



Weather Radar Evolution – Recommendations and Next Steps

- Evaluate candidate weather radar network configurations and operational benefits
- Assess radar technology alternatives for both high-resolution and airport weather radar and perform cost-benefit analyses to identify the most effective combinations and architectures
- Provide recommended updates to the appropriate NAS EA Infrastructure Roadmap(s)



FAA Aviation Weather Strategy: Surface Sensors



Enhanced Surface Observations – Recommendations and Next Steps

- Assess concepts-of-operations supported by new sensors and estimate benefits
- Interview manufacturers (e.g., Lockheed Martin, Vaisala) to assess performance, cost, infrastructure requirements, supportability for candidate sensors
- Interview Tech Ops to assess communications, prime power, site- and second-level maintenance needs
- Provide recommended updates to the appropriate NAS EA Infrastructure Roadmap(s)



FAA Aviation Weather Strategy: Air Observations

The Air Obs strategy will require *changes* to *all Aviation Weather functional areas* plus *automation integration*



Air Obs Strategy Evolution – Recommendations and Next Steps

- Evaluate downlink alternatives, ground infrastructure and costs
- Determine requirements for airborne sensors and assess
 technology alternatives
- Develop agency Air Obs CONOPS
- Recommend updates to the appropriate NAS EA Infrastructure Roadmap(s)



Sensing &

Observing



FAA Aviation Weather Strategy: **Processing and Dissemination**

Goal: Enhance FAA weather information Generating/Processing and Accessing/Disseminating systems and capabilities through consolidation, optimization and modernization efforts, leveraging *cloud services, agile development, service-based* architectures and DevSecOps practices

Processing and Dissemination – Recommendations and Next Steps

- Use lessons learned from *Cloud Services for Aviation Weather* (CSAW) and Terminal Precipitation on the Glass (TPoG) efforts to inform NWP and CSS-Wx cloud migration plans
- Leverage *MITRE Enterprise Cloud Adoption Framework* in AJM-33 • plans to migrate CSS-Wx and NWP into the Cloud
- Assess feasibility and costs of moving weather sensor data (observations, radar) into the cloud, as well as costs to extract aviation weather information
- Perform analyses to determine which *aviation weather products and* • services are best suited to be transitioned to a microservices architecture in the context of the Automation Evolution Strategy





Key Takeaways

- Actively and Consistently Coordinate and Collaborate with internal and external stakeholders
- Seek Out and Implement Improved Technology and Processes
 - Consider transitioning appropriate aviation weather to the cloud since most are Essential or Routine
 - Develop APIs that lead to external (private sector) development of web-based applications
 - Embrace service-based architecture approach
- Smartly Retire Legacy Systems
 - Focus on retirement of legacy systems while identifying and implementing systems based on new capabilities/technologies



