Minutes of the Federal Aviation Administration (FAA) System Wide Information Management (SWIM) Industry Collaboration Workshop and SWIM Industry-FAA Team (SWIFT) Meeting #20
March 23, 2023

1. **Virtual Session & Registration:**
   a. The SWIFT #20 meeting was held online, via Zoom Meeting conferencing system on March 23, 2023, 12:30pm ET.
2. **Introduction/Welcome:**
   a. Welcoming Remarks – Rebecca Guy (FAA), Josh Gustin (FAA), David Almeida (LS Technologies) and Rob Goldman (Delta)
      i. Ms. Guy and Mr. Gustin opened the welcome portion of the event by recapping the origin of SWIFT. The drivers behind the SWIFT events arose from SWIM Programs and SWIM Service Producers exploring how to apply data to solve common community problems and issues. Mr. Gustin spoke about data access being at the forefront of an info-centric NAS and the aviation world. More updates from Mr. Gustin about data-driven efforts and initiatives will be shared with the community at later dates. The NOTAM presentation later in the event serves as an example of the FAA providing more transparent updates that will serve user needs for data.
      ii. Mr. Almeida shared that SWIFT #20 marks the eighth consecutive SWIFT event exceeding 300 attendees.
      iii. Mr. Goldman shared industry updates and the status of industry operations. Aviation operations are back to full strength (from prior to COVID impacts), with some operations greater than pre-COVID levels. Today, staffing constraints continue to be a challenge that many are working to mitigate. In addition, financial constraints are being worked through to maintain engagement and commitments, which speaks to the need for events like the SWIFT. Mr. Goldman pointed out that while SWIFT and the Automation Evolution Strategy (AES) may be FAA-owned initiatives, they are of great importance to industry. The data exchange between FAA and aviation stakeholders is also key for allowing the systems to effectively operate, integrating all stakeholders. SWIFT, like Collaborative Decision Making (CDM) is proof of academia coming together to solve problems.
3. **General Announcements: TFMS Monthly Webinar and Ops Context Document Updates – David Almeida (LS Technologies)**
   a. Mr. Almeida announced the next TFMS technical meeting is scheduled for April 13th at 1pm EST. This announcement also included the reminder that TFMData R13 is retiring March 31st and R15 Patch 2 deployment is scheduled for March 25th.
   b. Mr. Almeida walked through the Ops Context Document updates for March. The TTP (TFDM SWIM Business service) documents are scheduled for end of March release on the NSRR website (https://nsrr.faa.gov/). Moving forward, the SWIFT Team is planning a refresh schedule of previously released Ops Context Documents to be more in line with the latest Producer Program updates/service releases since prior document publication. Updated document expected release are TBD.
4. **Common Support Services Flight Data (CSS-FD) Program Update – Lucas Curns (FAA) and Steve Bradford (FAA)**

a. Mr. Bradford began the presentation with a brief overview of Flight and Flow - Information for a Collaborative Environment (FF-ICE) and what capabilities are intended to be implemented. FF-ICE Release 1 involves planning prior to flight departure and introduces several services. FF-ICE Release 2 focuses on active flight and the negotiation, creation, management, and delivery of a flight Agreed Trajectory. Mr. Bradford also provided more information for attendees to continue the FF-ICE discussion or review documents offline through ICAO public releases. A QR code was presented which permitted audience access to relevant meetings and documents outlining the FF-ICE concept and additional reading materials.

b. Mr. Curns provided an overview of CSS-FD and presented the Phase 1 and Phase 2 capabilities descriptions. Phase 1 is composed of four distinct capabilities: Flight Data Sharing Framework, Flight Planning and Flight Plan Filing, and User Feedback with ATC Preferences. Phase 2 focuses on preliminary flight planning, management, and additional, expanded integration with other systems (e.g., TFMS/FMDS). Mr. Curns continued with updates regarding the Risk Reduction Activity (RRA) wrap up and the FAA coordination efforts with EUROCONTROL and other international partners for implementing FF-ICE. Details regarding CSS-FD Phase 1 investments, lessons learned and planning activities will be shared at a future SWIFT, but Phase 2 functionality is currently being scoped through engineering analysis. Per Mr. Curns, CSS-FD is targeting an operational date in the 2028 timeframe, the team will continue to update the community.

c. Mr. Curns announced the CSS-FD Microsoft Teams Channel for attendees that are interested in learning more about CSS-FD and Flight Planning through SWIM. The site will be used for announcements and news feeds, document sharing, polls/surveys and lessons learned and industry feedback.

5. **FF-ICE R1 Mandate in Europe & Impact to Stakeholders – Magnus Molbaek (SESAR)**

a. Mr. Molbaek began the presentation detailing EUROCONTROL Member States, Control Centers (ACCs) and SESAR regulatory framework. Here, Mr. Molbaek describes how essential operational changes began with the ATM Master Plan as a vision for EU Digital Sky. Between 2014 and 2021, the framework for SESAR Deployment was developed and consulted with all stakeholders. These activities culminated in the SESAR Deployment workplan. Mr. Molbaek also provided an overview of EUROCONTROL ATM functionality from the SWIM perspective.

b. Mr. Molbaek continued discussing FF-ICE Release 1 from the ICAO vs European perspective. Through ICAO recommendations, FF-ICE R1 services such as flight planning, trial planning and data publication were optional, while flight filing, flight data request and notification services were mandatory. The FF-ICE R1 services mandated in Europe were presented and context around the service providers and service consumers were walked through. Mr. Molbaek continued by describing the geographical scope of the mandate, impacted stakeholders, explained how FF-ICE is implemented and translating flight plans from ICAO 2012 format to the new filing format (eFPL). He walked through the process of distribution of eFPLs to air traffic service units, keying in on the benefits of FF-ICE enabled flight plan formats over ICAO 2012 format.

c. Mr. Molbaek concluded by discussing the status of European deployment of FF-ICE R1 for Airspace Users and Computer Flight Plan Software Providers (CFSPs). This discussion included a timeline depicting the milestones for FF-ICE becoming operational in Europe.

6. **CSS-FD Risk Reduction Activity Overview Update – Cora Buck (FAA)**
    a. Ms. Buck began the presentation describing the intended purpose and desired outcomes of the RRA. The activities sought to ensure the CSS-FD program requirements were iteratively refined through stakeholder engagement and demonstrations. Industry provided feedback on the early prototypes and the four months of hands-on trial and tryout services. Ms. Buck detailed the development sessions and Airspace User engagement meetings, in which four Technical Information Meetings (TIMs) were conducted to test participant connectivity, review user use cases, and gather feedback.
    b. The CSS-FD RRA timeline was shared to provide attendees with insight into various development schedule cycles and the user engagement sessions. Ms. Buck continued to present the RRA Operational View, which displays the interfaces between the SWIM services such as NCR, SFDPS, TFMS, HADDS and other systems in the Volpe Lab. Key participants and activities were highlighted to provide context around how users provided feedback on CSS-FD prototype functionality and overall CSS-FD requirements.
    c. Ms. Buck continued by presenting some user metrics for the RRA Use Cases Trials. These metrics quantify how users filed flight plans, updated plans, cancelled plans, executed trial and flight data requests, and requested constraint data. Overall, the trial and tryout activities demonstrated how constraint data facilitated flight planners in making informative decisions along the filed flight plan.
    d. Ms. Buck concluded with a summary of the RRA reduction to CSS-FD investment risk and how stakeholder buy-in was supported through the trial exercises. Next steps for the RRA team include briefing other programs on the findings, lessons learned and refining the remaining investment through user feedback. Ms. Buck shared that the program would continue collaborating with EU partners to support the SESAR Airspace Users mandate for implementing FF-ICE Release 1.
7. **NOTAM Update – Vinod Vallikat (Raddhi Group) & Melissa Matthews (FAA)**
    a. Mrs. Matthews provided a status update to attendees about the challenges behind the latest temporary NOTAM outage and communicated that the issue is being remedied to mitigate future occurrences.
    b. Mr. Vallikat opened the presentation describing the NOTAM API "Challenge"; a recent effort enacted by the FAA AIM Program Office. This challenge was an FAA and NASA collaborated challenge posed to industry to develop NOTAM APIs. It sought innovative software development approaches from participants across industry and, as a result, 21 challenges were launched. This effort served to leverage industry talent to accelerate the delivery of solution useful to industry. Mr. Vallikat continued the presentation providing background context for NOTAM APIs and the expected benefits for aviation users. This included ease of access, simplicity of integrating into industry operations, querying/filtering capabilities, and merging information from other sources such as published Temporary Flight Restrictions (TFRs) and Special Activity Airspace (SAAs). He also highlighted use cases to depict how end users could leverage NOTAM APIs.
    c. Mr. Vallikat continued by describing the NOTAM API Concept, showing how NOTAMs from Federal NOTAM System (FNS) are distributed. These descriptions were accompanied by examples of the NOTAM API formats and notional API visualizations. The key takeaway was how developers can easily use the API to programmatically bring NOTAM data and geometries into their custom applications.

     d.   Mr. Vallikat concluded with informing attendees how to access API information through the FAA's API Portal page. The Portal provides users with ready access to development resources such as API documentation, access keys and mock service information.

8. **Widget Case Study: Wind Optimal Flight Planning Using CavanReports – Greg Feldman & Tim Myers (Cavan Solutions)**
   a. Mr. Feldman began the presentation with a summary of a case study exploring flight routing options without readily available wind information. This case study demonstrated the use of CavanReports, a cloud-deployed, web-services enabled NAS-wide, data integration and analysis platform. The demonstration of the platform was intended to inform the community about existing capabilities and opportunities for further involvement and immediate use.
   b. Mr. Feldman continued to walk through the case study, highlighting the considerations for flight planning such as baseline route options, flight operator cost analysis, and wind metrics. The study was segmented into two scenarios in which historical dates in February 2023 (with strong jet streams) were selected. After detailing the operational conditions, Mr. Myers presented a live demonstration of CavanReports.
   c. The demo included Mr. Myers selecting user specified parameters, a visualization of route options, option evaluation and the resulting cost estimates for optimal paths. Mr. Myers also input SIGMET constraint avoidance to show the versatility of the platform, and how it supports user decision making.
   d. Following the demo, Mr. Feldman provided an overview of CavanReports conception and history. The solution architecture was proposed to align with NASA's upcoming Digital Information Platform (DIP) reference architecture. Mr. Feldman continued the presentation by walking through CavanReport's data integration with SWIM data sources. He concluded with a summary of the value-added metrics computed by the platform which showcased how SWIM data extended insight into route planning and route optimization.

9. **Widget Case Study: North Atlantic Flight Planning Data Sharing through SWIM – Bernard Gonsalves (FliteX)**
   a. Mr. Gonsalves began his presentation describing the motivation behind the North Atlantic Track (NAT) flight planning challenges. He provided examples of comparisons between the optimized flight tracks and pre-coded routes via a rough benefits analysis (e.g. fuel burn rate, ETAs and operator costs). The problem space highlighted the lack of a central repository for flight data and the inability for track planners to visualize route patterns, flight level occupancy and wind crossings. Mr. Gonsalves remarked that the current workarounds for the case study is a manual process, in which planners must rely on inefficient methods, coordinate with other centers, and interpret expected demand/airspace and en route capacities. He shared that the ability to fuse available SWIM data now provided the missing information for improving flight planning through NAT tracks.
   b. Mr. Gonsalves presented a demonstration of a tool ingesting SWIM Data to visualize the planned vs flown flight tracks. The demo featured views of SIGMET weather, simulations of live aircraft positions for flights departing from JFK and concluded his presentation by referencing the SWIM fusion components used behind the tool.

10. **Ops Issues & Developers & Analytic Focus Groups Updates – Xavier Pratt (LS Technologies)**

    a. Mr. Pratt provided an update to the Ops Issues focus group status and planned upcoming activities. The update highlighted the NY/North Texas case study analysis findings and planned close out of this activity. He restated the invite for the community to participate in the CSS-FD RRA Teams page that is being stood up to support stakeholder engagement. The next steps for the Ops Issues group are to coordinate further outreach sessions with the SWIFT community to validate SWIM flight planning use cases and CSS_FD future client demonstrations.

    b. Mr. Pratt also provided an update for the Developers & Analytics Focus Group. He stated that the TBFM Producer program is planning updates to the SWIM service rollout as well as messages/schema changes that will be reflected in the updates to the Metering Information Service Ops Context Document. The status of this group is currently preparing for the kickoff of a new aviation case study that will explore flight data under the TBO initiative.

11. **Operational Context Study: Flight Data & Trajectory Based Operations (TBO) - John Kelley & Mark Hopkins (LS Technologies)**

    a. Mr. Almeida briefly introduced the motivation behind this case study by first pitching the new "ad hoc" concept to attendees. He announced that moving forward, instead of being generically an "Operations Focus Group", the SWIFT Team will identify a specific issue that's important to the community then address these issues as single topics.

    b. Mr. Kelley began the presentation by walking through a case study that concentrated on operational improvements that airlines can take advantage of by applying the flight data availability and trajectory-based operations concepts. This study will leverage SWIM data and plan for future operations utilizing the advanced tools that CSS-FD will deliver.

    c. Mr. Kelley continued to walk through the concept, describing the current shortfalls of data access today and the interactive planning environment that CSS-FD will enable. He highlighted the expected benefits that CSS-FD will provide and briefly described the Problem Statement that the ad hoc focus group will address.

    d. Mr. Kelley and Mr. Hopkins previewed the use cases to explore. The two scenarios focus on a JFK-MIA flight that includes space launch constraints, intended to show the application of TOS routes, machine learning, SWIM data and FF-ICE principles through utilizing CSS-FD.

    e. Mr. Kelley concluded the presentation with a call to attendees for their participation and engagement to effectively study how SWIM data will enable TBO benefits.

12. **Operational Context Study: Early Planning for Disruption Demo & Close Out – Xavier Pratt & Dao Vu (LS Technologies)**

    a. This presentation was deferred to SWIFT #21.

13. **SWIFT Portal Update – Kevin Dement (Noblis)**

    a. Mr. Dement provided an update to users on the SCDS Certificate Validation, informing that error messages and fixes will be posted on the "Community Forum" under "Common Errors" after SCDS Portal Annual SSL Certificate Renewal.

    b. Mr. Dement also walked through the upcoming SWIFT Portal V4 release, which will allow users to sign data access SAAs and immediately access subscription data, providing a true self-service experience. He concluded the presentation with information on SWIFT Portal best practices around access agreements, data compression and clients per organization restrictions.

14. **Closing Remarks:**

a. Closing remarks were provided by Mr. Gustin, Ms. Calabrese, and Mr. Almeida. At the conclusion of SWIFT #20, Ms. Calabrese thanked attendees for their support and re-affirmed SWIFT #21 will be targeting the September timeframe. Audience feedback on the SWIFT event topics as well as ideas for future Developers Workshops was encouraged. More details on the SWIFT event and the SWIFT Portal can be found via links below:
b. https://www.faa.gov/air_traffic/technology/swim/swift/
c. https://community.swim.faa.gov/
d. https://portal.swim.faa.gov/

15. Meeting Adjourned.