Minutes of the Federal Aviation Administration (FAA) System Wide Information Management

(SWIM) Industry Collaboration Workshop and SWIM Industry-FAA Team (SWIFT) Meeting #19

August 31, 2022

1. Virtual Session & Registration:

1.1. The SWIFT 19 meeting was held online, via Zoom Meeting conferencing system on August 31, 2022, 10:00am ET.

2. Introduction/Welcome:

2.1. Welcoming Remarks – Mark DeNicuolo (FAA), Josh Gustin (FAA), David Almeida (LST technologies) and Rob Goldman (Delta)

2.1.1. Mr. DeNiculo opened the welcome portion of the event by taking a few moments to thank attendees for their continued support of SWIFT, as well as highlighting specific agenda topics he believed would be of particular interest to attendees. Mr. DeNicuolo shared his hope for an in-person SWIFT event soon, as it will be the first face to face event since February 2020.

2.1.2. Mr. Gustin provided opening remarks on FAA wanting to help with usage of TFMS, also that there's a need to get ready and help with transitioning Terminal Flight Data Manager (TFDM) services to SWIM. He also echoed Mr. DeNiculo's optimism for an in-person or hybrid SWIFT event soon.

2.1.3. Ms. Cropf and Ms. Calabrese shared they will provide talking points throughout the session and/or closing remarks.

2.1.4. Mr. Almeida opened the session with a quick photo snapshot of the Developers Workshop event from August 30, 2022, along with providing the objectives behind the SWIFT: using SWIM services to improve NAS operations. He shared that the next SWIFT will hopefully be more focused around vendor widgets.

2.1.5. Mr. Goldman provided insight into the airline organization, the programs that are coming online and tying those to the NextGen Advisory Committee (NAC) for microservices/cloud to potentially advance capabilities faster than the programs. There is an incentive to use these services and bring forth capabilities; the industry gets them faster and informs the program itself. Conversation with the NAC bodes well as they see an opportunity for this through the SWIFT.

3. General Announcement: SWIM Feedback Requested: Service Health and Status - Kristin Cropf (FAA)

3.1. Ms. Cropf walked attendees through the request for feedback on SWIM Services and expressed thanks toward MITRE and LS Technologies for managing the Developers Workshop and Developers Webinar Series lead-up to SWIFT #19.

4. SWIFT Focus Groups Updates: *Ops Issues and Developers & Analytics Groups* - Xavier Pratt (LS Technologies)

4.1. Mr. Pratt walked attendees through the background of Ops Issues Focus Group, pointing out the objectives and process to identify and prioritize items that the group focuses on.

4.2. Mr. Pratt walked attendees through the Next Steps of the Developers & Analytics Focus Group and provided status with some deep dive into the latest discovery on Time Based Flow Metering (TBFM) Metering Information Services (MIS).

5. Special Topic: AES Update and the Developers Workshop Results – Kevin Long (MITRE)

5.1. Mr. Long recapped the activities of the workshop: users were using SWIM Terminal Data Distribution System (STDDS) and SWIM Flight Data Publication Service (SFDPS) or the Common Data Service (CDS) products and fused them together into common stream. The MITRE Team touched on the workshop "pre-work" leading up to the event: registration cut-off, what component access to grant, tracking platform logs, handling, and integrating different data streams. He highlighted plans to share documentation on the workshop setup and the processes for the steps involved.

5.2. Mr. Long also explained how the user pipeline builds helps to accommodate a new service. It demonstrates iterative work, in which platform took the code and deployed it – each API was working together and showcases the modular feel of how these services would come together. An individual developer could see dropdowns with their specific API and needs. The iterative and collaborative aspect shows how they can work together without being pulled at the same time.

5.3. Mr. Almeida confirmed that the workshop experience highlighted how the FAA plans to get the community more involved with data. The API was also built with developers using multiple languages to show the power of modulization.

5.4. Mr. Gustin compared this workshop with the SWIFT #9 February 2020 Developer Workshop session. He stated that this session was more of a success as the event schedule was better paced and more focused on the integration of data/microservices. In Flow Management Data & Services (FMDS), there is discussion about microservices on an info-centric NAS scale; the workshop shows that it can work. The workshop demonstrated that disparate developers and data came together great.

6. Special Topic: TFMS Request/Reply: Ops Technical Training - Chris Burdick (FAA) & James Nicolini (GDIT)

6.1. Mr. Burdick and Mr. Nicolini walked attendees through a few ways to utilize TFMS Request/Reply via vignettes/uses cases:

6.1.1. Vignette #1: Multiple Trajectory Options with Reroute Amendments

6.1.2. Vignette #2: Monitoring Airports

6.1.3. Vignette #3: Monitoring Public TMIs

6.1.3.1. Mr. Burdick walked attendees through Vignette #1 level setting and providing the context for the vignette. Mr. Nicolini shared insight into the scenarios that were used for Trajectory Option Set (TOS).

6.1.3.2. Throughout the presentation there was dialogue between the presenters and audience on the distinction between Collaborative Trajectory Options Program (CTOP) and TOS. Mr. Goldman expressed that TOS is important for Northeast Ops getting air traffic knowledge on where/when a reroute can be accepted and integrated into the traffic manager view.

6.1.3.3. Mr. Nicolini walked through Vignette #2 and #3 sharing insights into what the vignettes are addressing and why.

6.2. Mr. Burdick continued that many of the queries in TFMS Request/Reply are primarily held for Collaborative Decision Making (CDM) members to use – therefore, not to expect the cloud service to have direct VPN access. Request/Reply is a CDM function.

6.3. Additional dialogue ensued around user interests in data fusion amongst services like SFDPS, STDDS and TFMS. SFDPS and TFMS fuses data into a Flight Object: all the information

received from authoritative sources are fused between SFPDS and STDDS flight ID and timings. ERAM provides the data to match Initial Gate Departure Time (IGDT).

6.3.1. Mr. Almeida suggested that the ability to correlate or identify mechanisms to fuse data across multiple feeds for richer data, vs data elements may be worthwhile to explore in the DAFG as an initiative.

6.3.2. Ms. Cropf added that CSS-FD capabilities will attempt to mitigate this issue by leveraging the Global Unique Flight Identifier (GUFI) for flight matching. In addition, there's effort to fuse related data for flight as an object [Flight Object] from all applications is being currently evaluated. Internal FAA conversations are still ongoing.

6.3.3. Mr. Gustin encouraged the community to explore NASA's Digital Information Platform (DIP), as flight matching logic was already examined under the Airspace Technology Demonstration 2 (ATD-2) initiative. The DIP can be the next focus topic for the DAFG group.

6.4. Mr. Burdick and Mr. Nicolini concluded with answering audience questions pertaining to TFMS data elements and sharing the benefits of leveraging Request/Reply for user business operations.

7. Special Topic: Early Planning for Disruptions Case Study Update - Chris Gottlieb (JetBlue), Xavier Pratt (LS Technologies) & Nguyen "Dao" Vu (LS Technologies)

7.1. Mr. Gottlieb began the discussion with his aviation background and the day-to-day duties that his role in JetBlue Operations Management entails. This lead-in set up the discussion for how this case study originally was a spin-off initiative from the February 2020 SWIFT #9 Developers Workshop session - where users created rapid-developed widgets based on access to live SCDS data. Mr. Gottlieb also expressed how the case study can be applied to different airspaces. He concluded that the technology [predictive modeling and analytics] shows what/why/how drivers can change operational conditions.

7.2. Mr. Pratt provided attendees with background and historical context of the case study – providing insight into how the team moved from New York to North Texas airspace and how the approach of the study could be applied other areas of interest depending on the user's needs. He expanded on how SWIM data played a key role in understanding the problem space and how discussions with Ops SMEs helped navigate/pinpoint which SWIM services best addressed the study.

7.3. Mr. Vu walked through the prediction model methodology, modeling approach and findings. He concluded with lessons learned from the perspective of data engineering SWIM data and what users can expect should they chose to replicate the model for other airspaces.

8. NAS Programs: Weather Programs - Douglas Murphy (FAA)

8.1. Mr. Murphy began the discussion providing his background and how he supports Weather Programs at the FAA. During the presentation, Mr. Murphy provided an overview and status of NextGen Weather Systems – which include Common Support Services – Weather (CSS-Wx), NextGen Weather Processor (NWP) and Aviation Weather Display (AWD). He described each service in detail by listing the capabilities, benefits, and timeline/schedule for each service rollout. As Mr. Murphy walked through the types of gridded and non-gridded data products users can expect with the services, he answered questions from the audience regarding specific data messages, service access, and legacy functionality.

8.1.1. He shared that CSS-Wx and NWP are currently in the incremental Agile design/ development/testing phase and will be targeting Key Site Initial Operational Capability (IOC) in 2024.

8.1.2. Mr. Murphy also elaborated on how AWD will replace legacy weather displays, such as Weather and Radar Processor (WARP) Briefing Terminals, Corridor Integrated Weather System (CIWS). For users, this service will provide access to aviation specific weather information from CSS-Wx generated by NWP, National Oceanic Atmospheric Administration (NOAA), other sources situation displays/websites.

8.1.3. Mr. Murphy also presented additional SWIM services such as Integrated Terminal Weather System (ITWS) and Weather Message Switching Center Replacement (WSMCR). ITWS is a current support tool deployed at 114 sites that helps users to integrate weather data from multiple sources. WMSCR is a future SWIM capability (targeting end of 2023) which permits users to submit Pilot Reports (PIREPs).

8.2. Mr. Murphy concluded with discussing future plans to transition PIREP submission over to CSS-Wx.

9. NAS Programs: TFDM - Doug Swol (FAA) & Lidiya Gavrilenko (FAA)

9.1. Mr. Swol began the presentation with a program overview and status of Terminal Flight Data Manager (TFDM). He further elaborated on TFDM and its SWIM-client service TFDM Terminal Publication (TTP). These will serve as the FAA's surface management solution for NextGen and Trajectory Based Operations (TBO). During the presentation, Mr. Swol showcased new capabilities, key benefits, system displays and interfaces that are intended to be delivered with the service. The planned TDFM facility installations were also shared with the community, highlighting configuration [TFDM builds] locations around the NAS. The user services provided will be rolled out between two deployment builds over the next few years:

9.1.1. Build 1 is targeting Key Site installation at Cleveland, OH (CLE) with Final Operation Testing currently in-progress and In-Service Decision (ISD) expected Spring 2023. Operational capabilities include improved electronic flight data exchange, electronic flight strips and runway assignment predictions. For external consumers, Mr. Swol stated this build will include the TTP pub/sub services Airport Information, Flight Data, Flight Delay and Operational Metrics.

9.1.2. Build 2 is undergoing software testing with Key Site Installation expected at Charlotte, North Carolina (CLT); IOC and ISD targeting Spring 2024 and Summer 2024, respectively. Operational capabilities for this build include surface scheduling and metering, runway load balancing and metric reporting/analysis. For external consumers, Mr. Swol stated this build will include the TTP pub/sub services Traffic Management Restrictions and Surface Management Programs.

9.2. Mrs. Gavrilenko presented the TFDM FOS Collaboration Service (TFCS) as the Request/Reply service that handles requests submitted by the Flight Operator System (FOS) group of users. She explained that this service is also part of Build 2, previewed the TFMS Surface viewer display and provided insight into how TFDM handles Time Based Flow Metering (TBFM) departure scheduling.

9.3. Mr. Swol and Mrs. Gavrilenko concluded with a Q&A session from the audience, described SWIM on-boarding activities for new users, and stated the results of the FOS Testbed demo will be shared later.

10. SWIFT Portal Update – Waldo Ford (FAA)

10.1. Mr. Ford provided attendees with a quick recap and status on the SWIFT Portal. He informed attendees of new available features coming to the portal, which include a configurable homepage, alerts, and expectations for user subscriptions and internal auditing. Mr. Ford also informed attendees that the TFMS R14 data feed is now available, while noting that R13 is scheduled to retire March 2023. Key takeaways are that users can expect a more customizable experience with the SWIFT Portal but are cautioned to periodically monitor their subscription status to ensure active/uninterrupted access.

11. Close Remarks:

11.1. Closing remarks were provided by Mr. Gustin, Ms. Calabrese, and Mr. Almeida. At the conclusion of SWIFT #19, Ms. Calabrese thanked attendees for their support and re-affirmed SWIFT #20 details regarding event type, date and time will be shared later. Attendees can still expect to mark their calendars for the November timeframe. Audience feedback on the SWIFT event topics as well as ideas for future Developers Workshops was encouraged. More details on the SWIFT event, SWIFT Portal and the Developers Workshop can be found via links below:

11.2. https://www.faa.gov/air_traffic/technology/swim/swift/

11.3. https://community.swim.faa.gov/

11.4. https://portal.swim.faa.gov/

12. Meeting Adjourned.