Minutes of the Federal Aviation Administration (FAA) SWIM Industry Collaboration Workshop – SWIM Industry-FAA Team (SWIFT) Meeting #7 August 8, 2019 (8:30am – 4:30pm)

United Airlines Flight Training Center
7500 E 35th Ave
Denver, CO. 80238

1. **Doors Open & Registration: 7:30am**
   1.1 The meeting was held at United Airlines Flight Training Center, 7500 E 35th Ave Denver, Colorado 80238 2195 on Wednesday, August 8, 2019 at 8:30am.
   1.2 The seventh meeting of the Federal Aviation Administration (FAA) – SWIM Industry-FAA Team (SWIFT) was called to order by David Almeida, LS Technologies, SWIM SME and Strategist.
   1.3 Representatives from government, the airline Industry, industry vendors and support organizations, and members of the public attended. See Appendix A for more information about attendees.
2. **Introduction/Kickoff: 8:30am**
   2.1. Kickoff – David Almeida (LS Technologies), Susan Pfingstler (United Airlines), Rob Goldman (Delta Air Lines), Josh Gustin (FAA), and Felisa White (FAA)
      2.1.1. Opening remarks; thank you and welcome
      2.1.2. Overview of agenda
         2.1.2.1. Focus on leveraging partnerships with the FAA to expand SWIM implementation within the industry
   2.2. SWIM Program Updates
      2.2.1. SWIFT Stakeholders – All of the organizations have been involved in the SWIFT since day one; a platform for communication between industry and FAA meeting quarterly.
         2.2.1.1. Our process is to communicate, educate, stimulate and collaborate:
            1.) Aligning common terminology – ensure all parties are speaking the same language.
            2.) Enabling Operational Improvements.
            3.) How The SWIFT agenda works – using focus groups, case studies, SWIM producer programs and other special topics.
      2.2.2. Program Updates
         2.2.2.1. 2019 – STDDS R4 was deployed in March 2019.
      2.2.3. SWIM Cloud Distribution Service (SCDS)
         2.2.3.1. SCDS is intended to move some SWIM connections to the cloud. The FAA makes all data available through gateways, since moving some of those connections out to a cloud distribution service.
            2.2.3.1.1. SCDS is very configurable, providing greater flexibility and more effective use of available technologies.

2.2.3.1.2. Acquisition to go live was about 15-16 months – which was extremely fast for FAA investment.

2.2.4. CDM Users on SCDS

2.2.4.1. CDM users are sponsored by an airline and they will stay connected to the gateways due to the type of transactions they have.

2.2.5. NESG vs. SCDS

2.2.5.1. The main difference between NESG and SCDS is the addition of the FAA Cloud Service (FCS), which increases security greatly.

2.2.5.2. NESG will still be active, SCDS is for non-NAS users. Airlines and airline support industry will still be on NESG.

2.2.5.3. If we are an airline can we also connect to SCDS for testing?

2.2.5.3.1. Yes, it's for non-operational use. We would love for airlines to connect and provide feedback.

2.2.5.4. Is there a data dictionary for how to understand SWIM data?

2.2.5.4.1. The focus group will answer that question from an operational context.

2.2.6. Transitioning Users

2.2.6.1. Transitioning users begins with a phased approach. Once that has been completed, additional users can be on-boarded. After the transition period, there will no longer be a waiting period. About 370 users will be transitioning from NESG to SCDS.

2.2.6.1.1. All of these users will be transitioned during this calendar year.

2.2.7. Account Creation

2.2.7.1. Will you do single account creation? Multiple accounts from the same company? Will there be a point person for reach carrier?

1.) We are counting on enterprise to handle who signs up for this interface. As far as FAA is concerned, they are users. We have not received feedback on user login reports.
2.) Maybe the next enhancement does a workflow for user account management.
3.) If we do start to see this, we can tell users what we are seeing; we may want multiple accounts.
4.) SCDS@faa.gov is the email address. The open data policy does not allow us to deny a request(s). As an organization, it's your responsibility to manage those request(s); it would be hard for the FAA to do account management.

2.2.8. Update on SWIFT Focus Groups

2.2.8.1. Question from Alex Murray about the TFMS flight and implications to Request/Reply

2.2.8.2. **ACTION:** Add TFMS Request/Reply to the Use Case Focus Group to show how end-to-end flight would use R/R.

2.2.8.2.1. Tim Niznik wants to be involved.

2.2.9. Special Topic: United Airlines – Leveraging SWIM to Improve Operations (Susan Pfingstler)

2.2.9.1. We have made strong progress on SWIM evolution internally.
2.2.9.1.1. SWIFT has been very helpful to us in identifying what tools we want to use ourselves.
2.2.9.2. There are some issues with lack of insight into TBFM data.
2.2.9.2.1. TFMS/TBFM: We have programs that are sub-able and some that are not.
2.2.9.2.2. Airlines can be fined if they are chronically late.
2.2.9.2.3. We need to figure out how to get access to the system and see if we need to modernize the playbooks. We cannot manage what we cannot measure.
2.2.9.3. Subbing into a metering delay.
2.2.9.3.1. Chronically delayed flight list from RIC to EWR; we need to protect flight segments before this to avoid being chronically late.
2.2.9.3.2. We need to make subs to protect that airframe that go against spirit of DOT rule – subbing mainline flight for Express flight is not in our best interest.
2.2.9.3.3. We cannot see when a combination of GDPs will lead us to make different decisions.
2.2.9.3.4. Cost/Benefit – this is an enormous cost.
2.2.9.3.5. Discussion around TBO and integration of all the systems and their problems.
1.) Multiple systems with parameter; it is unknown how one system influences the others.
2.) We need to have another conversation about this – whether it's TFDM, CDM, TBFM.
2a.) **ACTION:** This will be another meeting with UAL/SWIFT just one-on-one.
3.) Suzanne Koppanen has a few queries to look at post-ops that may help with the playbooks.
2.2.9.4. SWIM offers new opportunities for post-ops analysis.
2.2.9.4.1. We have been consuming data, cloud-based platform to save on data costs.
2.2.9.4.2. At the last SWIFT there was a large discussion about the Fuser. Users want a single stream that is fused where we don't have to create/connect and create our own GUFIs.
2.2.9.4.3. Access to SWIM operational data has enabled new analysis. It is showing more opportunities and minimizes cost/flight time.
2.2.9.4.4. Question from Tim Niznik: Have you identified what SWIM information answers these problems?
1.) We are tracking it through the miles in trail; getting it through a TBFM delay. Through ATD-2 we get a fused feed in and out of CLT, so we are still working on it in and out of IAH.

3. NBAA Case Study: Refining Airspace Restrictions with SWIM

3.1. At the last SWIFT, Ernie Stellings explained some of the operational issues in the BA/GA industry. One of the issues identified was with overflights getting delayed in AFPs.
3.2. AFPs often restrict altitudes up to FL600. Maybe we can change some of those restrictions to avoid capturing overflights or flights that aren't landing in high traffic areas.
3.2.1. There is less demand for AFP airspace meaning less demand for everyone.
3.2.2. We can use SWIM data to identify flights that can be exempt.
3.2.3. We can look at SWIM data to identify flights/routes that are trapped in AFPs unnecessarily.
3.2.3.1. We can use that data to show how systemic the problem is and use those conclusions to change CDM processes.

4. Special Topic: MITRE and NBAA – General Aviation Departure Readiness Time Submission Using Mobile Technology

4.1. If we create a mobile app, any pilot can submit their movement times. BA/GA aren't as connected to submit the data, some of larger private companies can connect, but we wanted to reach those smaller pilots.
4.2. MITRE asked how we can get involved and we got volunteers to be testers.
4.2.1. The goal is to submit accurate intent data for pilots.
4.3. Estimated Off Block Times (EOBT) are the last decision point for the pilots.
4.3.1. There are business services that feed into that decision of when EOBT should be.
4.4. CLT results: Initially, we wanted an app but then found that company security would not allow it.
4.4.1. They started with a text message; you submit time and get back some basic information – runways expected, etc. When pilots submitted EOBT 45 minutes before the EOBT accuracy was +-10min. Stats were about as reliable as air carriers.
4.5. What is the status on LAS?
4.5.1. We will start using it in September 2019.
4.6. What about AADC on OIS?
4.6.1. We thought about creating our own OIS, but IT said no.
4.7. This would generate data back in through SWIM – early intent through GA?
4.7.1. It would be providing readiness times to the system that would feed into metering programs – once TFDM goes live. The vendors will be connected to SWIM and pipe it to FAA for us.

5. Producers Corner: STDDS, SMES and More! (Brian Love, Cavan Solutions)

5.1. SWIM Terminal Data Distribution Service (STDDS)
5.1.1. STDDS has been around about 5 years with publishing for both internal and external users.
5.1.1.1. There are 38 STDDS sites.
5.1.1.2. When STDDS gets updated, it is a rolling update site-by-site so there will be mixed versions getting published during waterfall.
5.1.1.3. STDDS sources data from SFDPS to correlate GUFIs across SMES, TDES, and TAIS to correlate flights.

5.1.2. STARS data has trackID, ASDE-X has trackID, but with R4 we publish the GUFI so the GUFI is the same.
5.1.3. What is point of NASA fuser if you have these GUFIs?
5.1.3.1. The fuser merges all the flight data for SFDPS, TFMS, STDDS.
5.1.4. STDDS R4 added GUFI; that was the main thing. TDES was not available prior to R4 outside of FAA. R5 has no functional change to the schema; it's just a hardware tech refresh which should not affect users. R6 adds enhancements to TAIS, additional TDLS and adding GUFI to CAT10 data.
5.1.5. R5 syncs with additional ASSC sites in Alaska and PDX. Adding additional filtering for the flight tracks – higher altitudes will be included.
5.1.6. TAIS data: What is the difference between TAIS and other track information?
5.1.6.1. SMES is surface movement; TAIS gets data from STARS. STARS also feeds TFMS. TFM data is impacted by STARS, modified by other sources. So TFMS is a specialized service.
5.1.7. R6 enhancements: TAIS fewer repeated data, saves bandwidth. Adding a field with raw flight rules that publish more VFR/IFR sets based on site.
5.1.8. Is there any overlap between DLD and TDES clearances?
5.1.8.1. DLD only publishes to that particular airline. There could be security concerns with TDES.
5.1.9. Will there be any impact on STDDS users on centralization?
5.1.9.1. There should be no impact. A centralized architecture would shorten that deployment from months to days.
5.1.10. SMES: CAT11 is the most useful of the data sets published – this drives the "moving ants" display. Safety Logic Hold Bar can only be decoded based on adaptation data that is not made publicly, so airlines would need to lobby the FAA to get this data to decode the message.
5.1.11. Are there any application code samples in java/python?
5.1.11.1. There are code samples for a consumer client – a jumpstart kit. No examples of parsing/interpreting the data but a jumpstart kit will help.
5.1.12. We publish in FIXM, AIXM, MMIXM.
5.1.12.1. AIXM has been around 20 years.
5.1.13. We support FIXM mediation – can subscribe to SMES and TAIS that way.

6. Special Topic: Widget Case Studies

United Airlines – SWIM-Enabled Web Application (Mike Jagmin)

6.1. Reviewed Field NOTAMS and RVRs to show what was possible with the data.
6.1.1. TFMS data was added with GDPs, GSs. Getting the data directly from SCDS was extremely quick and it can show if a diversion airport will be overloaded.
6.1.2. We are looking to automate as much as we can.
6.1.3. TFDM will give what pieces of the surface are open/closed; it may be better than a NOTAM.
6.1.4. Question from David Almeida: If you roll this out to an operational application, what does that look like?

6.1.4.1. Answer from Mike Jagmin: We use WSI fusion so we can deliver the information via an API and put it on one of the tools we already use and add it as a layer to a flight following the tool.

6.2. We call these "widgets" because they are not ready for operational application.

6.2.1. It starts as the widget and if it has value, you can get it to the production application.

7. What's Next? A Facilitated Discussion on Industry Priorities

7.1. SWIFT Portal

7.1.1. The SWIFT portal is to be a community forum to connect by relevancy.

7.1.1.1. IT can talk to IT, Ops can talk to Ops, etc.

7.1.1.2. We want to think ahead as to what agendas will look like two meetings from now; the topics that are important to you as the community – NOTAMS? TBO?

7.2. Long-term support for Fuser

7.2.1. That is a risk because there is lots of value for that data.

7.2.1.1. What does the model look like for that? Great community/FAA collaboration for a focus group.

7.3. Discussion of the context of data available

7.3.1. What data is the FAA willing to share or not share?

7.3.1.1. Many years ago, ASDE-X data was created as a safety tool. Then, it evolved into a surface tool; operators added to the ramp.

7.3.1.2. The fear was that releasing the data could be used against operators.

7.3.1.3. FAA later realized there was no risk releasing data and everyone was able to benefit.

7.4. CDM Data

7.4.1. The airlines are interested in obtaining this data and want to partner with vendors to process the data.

7.4.2. We have been trying to navigate this for 6 months.

7.4.2.1. The policy says that if we use taxpayer money to make something, we should be allowed to make it public if it's easy to do.

7.4.2.2. CDM policy was an airline policy based on architecture. We are hoping to improve it in the future.

7.5. SCDS Platform

7.5.1. We are looking at how to move where we can extract data directly from the website and not have a connection.

7.5.2. Questions can be sent to SWIM@faa.gov to receive answers for the community.

7.5.3. In addition to looking at the data itself, we should be looking we should be looking at the business rules/logic that are used behind the scenes at the FAA systems.

7.5.3.1. A focus group on business rules; FAA business rules; airline business rules and training rules is suggested.

7.5.3.2. Demand predictions

7.5.3.3. Metroplex

7.5.4. SCDS has eased access for ad hoc things; case studies have demonstrated examples of this.
7.5.4.1. There is a need for the group to address at a technical level how these systems interact; how to manage each entity and what data is required.
7.5.5. Accessing SCDS data – flat file?
7.5.5.1. Can we get access to this type of format?
7.6. Communication Requests
7.6.1. What problem do we want to solve?
7.6.1.1. How do we get demand over a fix?
7.6.1.2. Actionable intelligence
7.7. Mechanisms to send questions anonymously, not "open mic"
7.8. Application of Case Studies in a Real World Context
7.8.1. Visibility into what levers are being pulled into the decisions.
7.8.1.1. Ex: Susan Pfingstler's Use Case.
7.9. Understanding how these systems interact with each other in NAS Operations
7.9.1. A technical briefing on how systems interact with each other; then, how the data is relevant and how AOCs handle it.
7.10. Common Situational "display"
7.10.1. Route closure in ZDC vs. ZJX or ZMA
7.10.2. Restriction page
7.10.3. Route predictability
7.11. SWIM Information Services Roadmap
7.11.1. Met data/systems specifically
7.12. Filtering
7.12.1. Select ability of data
7.12.2. Ingest the data we want
7.12.3. "SQL" for SWIM
7.13. NAS Common Reference (NCR)
7.13.1. Melissa Matthews has requested NCR be added to the agenda as a special topic for the next SWIFT meeting.
7.13.1.1. **ACTION:** Add NCR to the SWIFT meeting agenda for November 7, 2019.
7.13.2. The FAA discussed what they are doing to improve their operations which will improve everyone's experience.
7.14. Potential topics for discussion
7.14.1. David Almeida suggests Flight and Flow Information for a Collaborative Environment (FF-ICE) as a potential topic for discussion due to people's lack of awareness.
7.14.1.1. FF-ICE is an ICAO initiative to change pre-departure flight planning and post-departure function.
7.14.1.2. There is a need for correlated data; FF-ICE.
7.14.1.3. Fix for the near-term (CSS-FD), plan for the long-term (FF-ICE)
7.14.2. Need for correlated data (CSS-FD)
7.14.3. GUFI
7.15. Authoritative Source

7.16. Briefing near-mid-far-term
7.17. Reconstitution
7.18. AIM and International Modernization
7.19. **Bullets Transcribed During Session:**
- 7.19.1. Long term support for FUSER?
- 7.19.2. Quick wins on SWIM w/ SWIM Information
- 7.19.3. Data: How do we get producer systems to provide data they do no?
- 7.19.4. How does SWIFT influence producers' information services?
- 7.19.5. What data is FAA willing to share and which is it not willing to share?
  - 7.19.5.1. What are the drivers?
  - 7.19.5.2. Surface Data
  - 7.19.5.3. CDM Data in this context
- 7.19.6. Frequency of SWIFT Meetings
  - 7.19.6.1. How do we change cadence?
  - 7.19.6.2. Web site?
  - 7.19.6.3. Thinking through persistence of knowledge
  - 7.19.6.4. Wiki
- 7.19.7. Accessing SCDS Data – Flat File?
  - 7.19.7.1. Can we get access to this type of format?
- 7.19.8. Communication Requests: What problem to do we want to solve?
  - 7.19.8.1. Demand over a fix – how do we get to it?
  - 7.19.8.2. Actionable intelligence
- 7.19.9. Voting on ideas/survey
- 7.19.10. Looking at data and Business logic & Business rules
  - 7.19.10.1. Demand predictions
  - 7.19.10.2. Metroplex
- 7.19.11. Mechanisms to send questions anonymously, not "open mic"
- 7.19.12. Application of case study in a real world context
  - 7.19.12.1. Visibility into what levers are being pulled into the decisions – Susan Pfingstler's use case
- 7.19.13. Understanding how these systems interact with each other in NAS Operations
  - 7.19.13.1. Briefing (technical) how systems interact then how the data is relevant and how AOCs handle it
- 7.19.14. Common situational "display"
  - 7.19.14.1. Route closure in ZDC vs ZJX or ZMA
  - 7.19.14.2. Restriction page
  - 7.19.14.3. Route predictability
- 7.19.15. SWIM Info Services Roadmap
  - 7.19.15.1. Met data/systems specifically
- 7.19.16. Filtering

7.19.16.1. Selectability of data
7.19.16.2. Ingest the data we want
7.19.16.3. "SQL" for SWIM
7.19.17. Fix for the near term (CSS-FD), plan for the long term too (FF-ICE)
7.19.18. Pounce on some ideas
7.19.18.1. Need for correlated data (CSS-FD)
7.19.18.2. GUFI
7.19.19. Authoritative Source
7.19.20. Briefing near-mid-far term beefing
7.19.21. Reconstitution
7.19.22. AIM and International Modernization

8. Special Topic: Southwest Airlines SWIM Process Approach Discussion (Josh Griffith – Network Analytics; Doug Buckmaster – SWIM Product Manager)

8.1. Southwest Airlines is transitioning to a scaled agile development process to take the idea of the SWIM concept to use.
8.1.1. The following SWIM information is needed: analysis – data analytics, cost/benefit; development – begin making widgets; and launch – SRM, FAA processes.
8.2. Scaled agile development
8.2.1. We are working to find a way to have continuous development and keep the developers constantly coding.
8.2.1.1. Concept checkpoint 1: weighted shortest job first (WSJF).
8.2.1.1.1. The highest value for the shortest time period are the ones that move through the funnel.
8.2.1.1.2. Either incubate the idea or kill it.
8.2.1.2. Research checkpoint 2: another WSJF, build a business case with EPICS.
8.2.1.2.1. Ex: Moving the EOBT model to production.
8.2.1.2.2. Technology and analytics are working together adding EOBT which will result in fuel savings, cost savings and customer benefits.
8.3. Data from SWIM
8.3.1. There is a lot of value to operate a more precise schedule, including more prediction in every phase of flight.
8.3.2. Benefits we have seen include surface metering and TOS.
8.3.2.1. SWIM will enable us to build the data we need.
8.3.2.2. Once we have the data services, we can have internal and external data hooked up to the enterprise to build mobile apps on top of that, etc.

9. Special Topic: Widget Case Studies cont.

9.1. Jay Zimmer provided a SWIM Widgets Update by showing various visualization of SWIM data.

10. Special Topic: New SWIM Capability – Lost Message Retrieval (LMR) (Alex Murray, Noblis)

10.1. The problem today is that SWIM users cannot recover data they have lost.
10.1.1. The solution is to create a database that users can query to replace missing data due to outages.
10.1.2. Examples of Use Cases: Consumer maintenance, VPN/Network issue, planned/unplanned events, troubleshooting.
10.1.2.1. Each Use Case has the same solution to request data from LMR.
10.1.2.1.1. This capability is only for NESG and NAS users; SCDS users will not have the LMR capability.
10.1.2.2. Messages will come in the same syntax as regular data and users can only get the data they are approved for.
10.1.2.2.1. This is not reconstitution (reconstitution gets data resent from producer system).
10.1.2.2.2. It is only for replacing data that was not consumed or troubleshooting.
10.1.2.3. There will be a jump start kit that will show you how to make the queries.
10.1.2.4. There will be limits to how users get serviced as we don't want to overload the system.
10.1.2.5. This has been planned for availability early 2020; it will be published in the NSRR as a webservice.
10.1.2.6. There is a potential to host this in the cloud in the future for SCDS/ESCS.
10.2. How do customers know they are losing data? Will this service provide metadata? Can I query message counts?
10.2.1. Every user has different subscriptions, so it's very difficult to get different counts for every user.
10.2.1.1. If you suspect you are losing messages, you can contact the help desk and they can tell you.

11. SWIFT Update: Feedback on the Enhanced SWIM Cloud Service (ESCS)
11.1. At the last SWIFT (#6 meeting) in Dallas, we talked about what kind of features the group would want in an Enhanced SWIM Cloud.
11.1.1. There is more of a need for lost messages and playback.
11.1.2. FAA has presented the SCDS portal as a construct within that.
11.2. In November, we will have a SWIM update on the SWIFT portal.
11.3. We are currently looking at what the FAA has gathered for an ESCS and will cross reference that with what the community wants.
11.4. Lost Message Retrieval is available in the gateway and in the NAS.
11.4.1. There may be some way we can add that capability to the cloud.

12. Closeout
12.1. The NASA ATD-2 Workshop currently has 160 registrants.
12.1.1. Register ASAP if you are interested.
12.1.2. There will be 4 tracks at the workshop – 2 full days.
12.2. At the next SWIM Users Forum, we will be discussing SCDS.
12.2.1.1. Go to the website to register for the Forum.

12.3. At the ATIEC Conference we will be discussing information exchange models, focusing more on operations.

Appendix A: SWIM Industry - FAA Team (SWIFT) Meeting #7 Attendees – August 8, 2019

Jeff Agold, Southwest Airlines	David Almeida, LST	Steve Altus, Boeing/Jeppesen
Bernard Asare	Richard Barton, Solace	Ray Bea, ATAC Corporation
Michael Beck, United	Matthew Bellinger, SaabSensis	Bob Bogdan, CSRA
Rachael Bonville, SaabSensis	Douglas Buckmaster, Southwest	Chris Burdick, FAA
Vicki Burford, American Airlines	Pedro Byrne, Spirit Airlines	Ted Carniol, Honeywell
Derek Carpenter, Collins Aerospace	Erin Cobbett, Delta Air Lines	William Cranor, Passur
Kathryn Crispin, American Airlines	Dejan Damjanovic, TFG	Adam Davis, UPS
Dennis Davis, Delta Air Lines	Shawn Engelland, NASA	Steven Ferrell, Red Hat
Bob Flynn, United Airlines	Sherron Goodenough, FlightAware	Alla Gorelik, JetBlue
Christopher Gottlieb, JetBlue	Thomas Green, Collins IMS	Dan Greenbaum, MITRE
Joshua Griffith, Southwest Airlines	Joshua Gustin, FAA	Doug Harvey, L3Harris
Heather Hemdal, ObjectStream	Logan Herrington, Southwest	Rory Hight, Spirit Airlines
Mindy Howard, L3Harris	Pegah Hozhabrierdi, Thales	Don Jackson, Clark Communications
Michael Jagmin, United Airlines	Kevin Johle, Flightskeys	Melanie Johnson, L3Harris
Roger Jones, Delta Air Lines	Aydin Keskin, Palantir	Suzanne Koppanen, FAA
Peter Kosogof, FAA	Denny Kriczky, FAA	Shubh Krishna, LST
Biju Kurian, Objectstream	Connor Landy, Palantir	Jonathan Lester, AvMet Applications
Dan London, SaabSensis	Justin Lonie, FedEx	Brian Love, Cavan Solutions
Marcus Lowther, Metron Aviation	Bill Macey, Southwest Airlines	Ryan Makings, Delta Air Lines
Melissa Matthews, FAA	Brian McGill, IBM/The Weather Company	Wade Morton, Jeppesen
Alex Murray, Noblis	Mohi Murugesu, American Airlines	Tim Niznik, American Airlines
Robert Nursey, Southwest Airlines	Giles O'Keeffe, Metron Aviation	Tom Perkowski, Eagle Cap Software
Susan Pfingstler, United Airlines	Kerry Plumb, LST	Ali Raza, Spirit Airlines
Cheryl Romano, Verizon	Tim Rudolph, FedEx	Philip Santos, FedEx
Raghu Seelamonthula, Honeywell	Lakshmi Seralaathan, American	Garrison Smith, Delta Air Lines
Kwangil Sohn, American Airlines	Adrian Solomon, Thales	Bill Sperandio, Southwest Airlines
Sandra Steele, American Airlines	Ernie Stellings, National Business Aviation Association (NBAA)	Douglas Suarez, Spirit Airlines
Tritana Supamusdisukul, Digital iBiz	Forest Sutton, Boeing/Jeppesen	Damon Thomas, FAA
Daniel Torres, FedEx	Sarasina Tuchen, DOT	Bill Tuck, Delta Air Lines
Eric Van Brunt, Leidos	David Weiler, Collins Aerospace	Felisa White, FAA
David White, Cirium	Kevin Witzberger, NASA	Tak Wong, AlaskaAir
Aaron Wood, Boeing/Jeppesen	Jay Wuich, Boeing/Jeppeen	Jay Zimmer, LST