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Tech Center Team Turns Thousands of Words into Animation

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For most people, reading a concept of operations document doesn't allow them to visualize how the program works or how it fits into the grand scheme of the National Airspace System (NAS). The animated storyboards team at the FAA William J. Hughes Technical Center in Atlantic City, N.J., solves this problem by providing graphic models of capabilities and functions as another way to communicate, understand, and validate operational improvements in the NAS in a way that documentation alone cannot provide.

Led by Harry Bilicki, an Electronics Engineer in the Office of NextGen, and his team in the Verification and Validation Strategies and Practices Branch, the team's latest project is a visualization of the operational concept of how the Space Data Integrator (SDI) will support commercial integration with the NAS and other NextGen Technologies.

"We've completed 20 storyboards to date," said Bilicki. "The Commercial Space project is unique because the storyboards will show how commercial space operations work today versus how they will operate in the future."



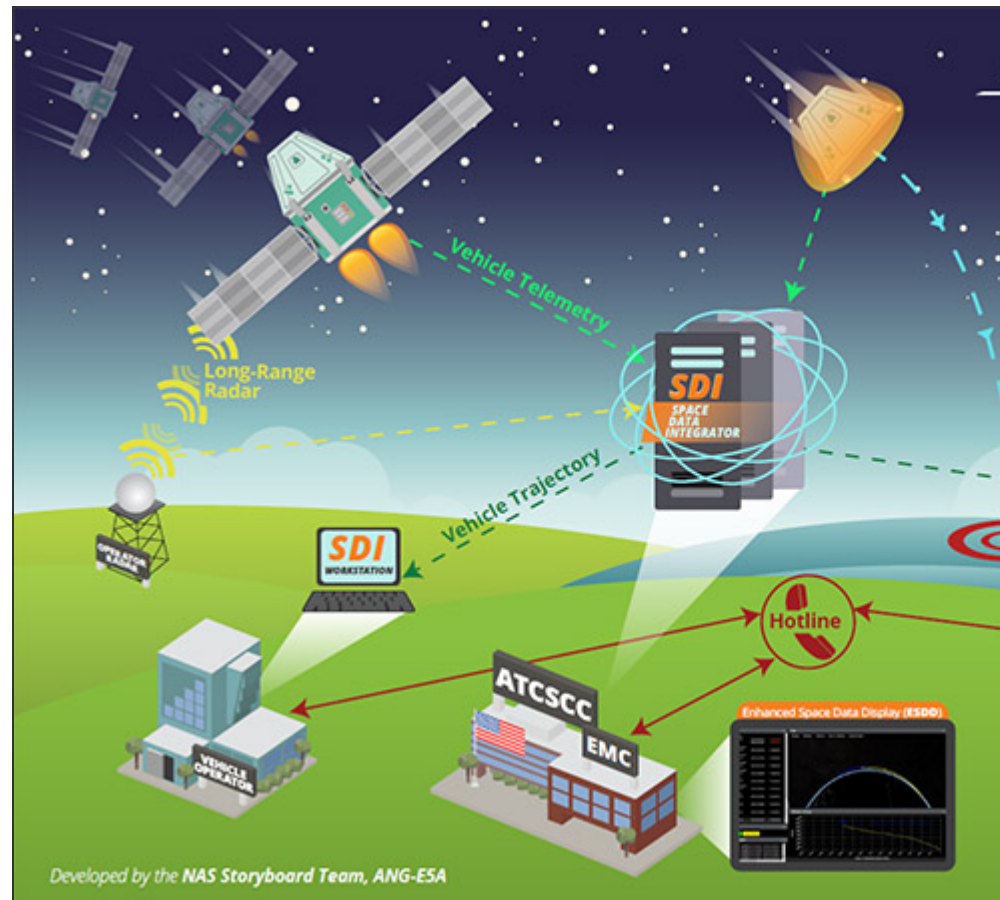
NAS storyboard team from left: Marlo Adams, FAA Storyboard Architect; Mike Ogundoju, FAA Test Standard/Storyboard Architect; Carol Hewitt, Graphic Artist/Storyboard Developer (Art-Z Graphics); Mary Beth Moschouris, Artist/Storyboard Developer & Architect (Veracity Engineering); Harry Bilicki, FAA Engineer/Team Lead; Miguel Jimenez, Web Developer (Hi-Tec Systems); Dave Wriggins, Artist/Storyboard Developer (Veracity Engineering); Pete D'Amico, FAA Engineer/Storyboard Developer & Architect; John Frederick, FAA V&V Standards & Practices Branch Manager (ANG-E5A); and (not pictured) Cuong Nguyen, FAA Computer Scientist/Storyboard Developer.

The SDI automates the process of monitoring space vehicles and distributes data to other established tools in the NAS. SDI receives time-accurate data directly from commercial space launch and re-entry operators, formats them and then routes them to the systems that controllers use to monitor traffic.

“We’ve used storyboards during demonstrations and familiarization briefings. They are extremely helpful in relating commercial space operations concepts to a general audience, who may not be as familiar with Space Data Integrator’s capabilities and operations,” said Dan Murray, Office of Commercial Space Transportation, Space Transportation Development Division manager.

The team, with Mary Beth Moschouris (Veracity Engineering) serving as primary architect and developer, has created a visualization of a re-entry from orbit operation that vividly contrasts the differences in dynamics between a space operation and an aviation operation. This visualization and other animations that are being created by the NextGen

Modeling and Simulation Branch show the current process used by the Joint Space Operations Group (JSpOG) to support launch and re-entry operations, and the future processes that will be developed around the SDI. The NextGen Verification and Validation Strategies and Practices Branch's "as-is" and "to-be" storyboards will assist the program in communicating concepts and demonstrating the benefits of the SDI investment.



https://my.faa.gov/content/dam/myfaa/news/focusfaa/images/Focus_Story_Images/2017/09/01/20170901_01.jpg
The storyboard team created a graphical representation of a nominal reentry for the Office of Commercial Space Transportation (OST).

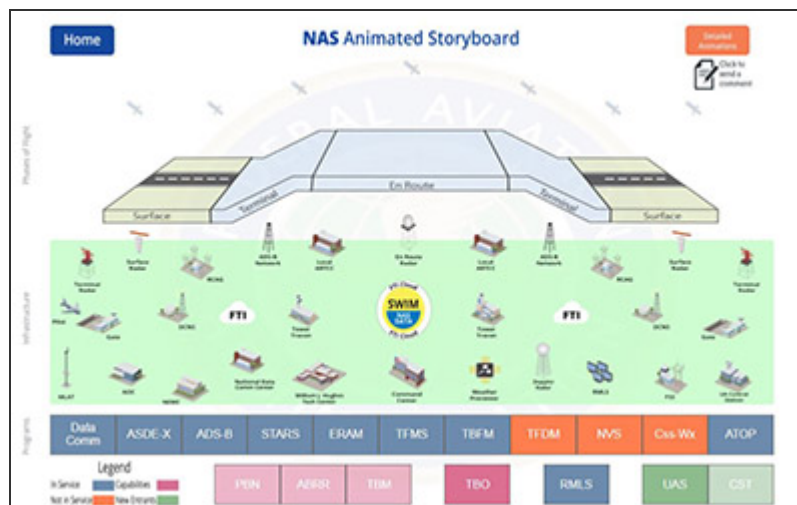
To make a storyboard, lead engineers and animators meet with subject matter experts assigned to the project to ask questions and collect information. The engineers and animators then develop the storyboard of the NAS program or NAS operational improvement as part of the verification and validation process.

The two levels of NAS animated storyboards are the overview and the detailed animation. The overview will provide an animation that runs about 30-60 seconds long, showing how each major program or capability interacts within the NAS. These short animations are enabled by clicking the program or capability button at the bottom of the storyboard canvas.

Once enabled, the animation will sequentially show the major message flow to each NAS facility. Pop-up windows also will be displayed to highlight any important text or display additional information.

The detailed animation button, which is located on the top right-hand corner of the canvas, will provide a more in-depth animation, typically 4-5 minutes in duration, of each program or capability. To enable this feature, clicking the detailed information button will launch a screen with icons supplemented by text for each of the detailed storyboards. Users will click on the icon for the NextGen program or capability they wish to view. Each detailed storyboard will contain the following information:

- A short text description of the program or capability



www.faa.gov/about/office_org/headquarters_offices/ang/offices/tc/library/Storyboard/nextgen.html)

teractive NAS Animated Storyboard.

faa.gov/about/office_org/headquarters_offices/ang/offices/tc/library/Storyboard/nextgen-overview.html)

- A map illustrating where the program or capability is deployed
- A link to the detailed animated storyboard

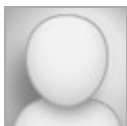
An exit button returns the viewer to the main menu. The storyboard team is continually producing new storyboards as new programs and capabilities are added to the NAS.

Please check the **website**

(https://www.faa.gov/about/office_org/headquarters_offices/ang/offices/tc/library/Storyboard/nextgen-overview.html) for updates. The storyboard team welcomes **comments** (<mailto:harry.bilicki@faa.gov>) .

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3 years ago

I think I speak for the whole team when I say that working under Harry and John has been not only enlightening but also extremely fun. Love this team. Never thought I'd be able to explain how most NextGen programs and capabilities are supposed to work together to shape the future of the NAS, all while meeting amazing people every step of the way.



Chenelle Tyack
3 years ago

That is so neat! Very interesting and innovative. Keep up the great work!



Christine
Demniansky
3 years ago

I am pleased to see this feature on such a dynamic, interesting, and exciting team. I've worked on the same office floor as many of these folks. Over time, I've overheard their excitement and enthusiasm at each aspect of a project. I've seen their dedication to their work. Harry Bilicki has the energy and dynamic personality to keep things in constant motion. John is a leader who is always available to his team. The unique combination of personalities and specialties is well placed for success. Congratulations on your feature here, and on your work. Also, as a former assistant to Modeling and Simulation Branch, I can honestly say, the work they do is mind-boggling. The technical expertise of the members of both these teams is the highest level I've ever encountered. Well deserved recognition!

This page can be viewed online at:

https://my.faa.gov/focus/articles/2017/09/Tech_Center_Team_Tur.html