



FAA to Create Safety Training Tools 75 Percent Faster with New Collaboration Tools

Overview

Country or Region: United States

Industry: Government—Transportation & Aviation

Customer Profile

Headquartered in Washington, D.C., with 45,000 employees, the Federal Aviation Administration (FAA) is the nation's agency for ensuring the safety of United States air travelers.

Business Situation

The FAA wanted to improve its processes for creating safety training materials. It wanted to speed production time for animated recreations of aviation events so that they could be reviewed more quickly and efficiently.

Solution

The FAA deployed Microsoft® Office Groove® 2007 to help teams produce animations efficiently. Microsoft Office SharePoint® Portal Server 2003 is used to archive and share completed animations.

Benefits

- Faster creation and review of animations
- Easier collaboration across time zones
- Lower project costs
- Better aviation safety training

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Roger Motzko, Runway Safety Program Manager, Air Traffic Organization, Federal Aviation Administration

The Federal Aviation Administration (FAA) is responsible for moving air traffic safely and faster, the FAA tested Microsoft® Office Groove® 2007 through participation efficiently in the United States. When an incident occurs on a runway, the Air Traffic Organization (ATO) division of the FAA re-creates the event in digital animation format. Each animation can take up to 12 weeks to produce due to the challenges of task coordination and information sharing among distributed teams. To work in the 2007 Microsoft Office system Rapid Deployment Program (RDP). Using Groove 2007, the FAA expects to reduce production time for each animation by up to nine weeks, enabling it to analyze events much closer in time to the occurrence and improve learning outcomes. Microsoft Office SharePoint® Portal Server 2003 is being used to share animations with a wide audience within the aviation industry.



Situation

With 35,000 employees, the Air Traffic Organization (ATO) is the largest division of the Federal Aviation Administration (FAA), a United States government organization responsible for the safety of civil aviation. ATO employees include air-traffic controllers, technicians, engineers, and support personnel who work to keep airplanes moving and ensure the safety of air travelers.

In 2001, Roger Motzko, Runway Safety Program Manager at the ATO, implemented Air Traffic Event Forensics, a program for making aviation safer by improving the collective knowledge of air traffic controllers, pilots, and managers and supervisors who monitor air-traffic processes. He does this by developing animated re-creations of air-traffic events for use as educational tools. Using the Macromedia Flash authoring environment, Motzko's team builds animations that are set against the detailed runway map of the airport where the event occurred, and include the original control tower audio recordings of conversations between pilots and air-traffic controllers, synchronized with moving colored dots on the runway that indicate the paths traveled by the airplanes.

Developing each animation was a lengthy process, requiring Motzko's Anchorage, Alaska-based team to collaborate extensively with other employees at FAA headquarters in Washington, D.C. To create an animation, an aviation event first has to be identified and nominated by one of the ten services units of the ATO (for example, Safety, Communications, Terminal Services, or Flight Services). Each nomination is reviewed by the national runway safety program managers of each region of the FAA, and once an event is chosen, is sponsored by the vice president of safety at the FAA. The nomination process alone requires extensive intra-agency communication, involving many different program managers and staff members.

Once an event is chosen, Motzko's team obtains the information it needs to produce the animation, and then manages the review process for each iteration of the animation, until the piece is complete and approved. Without a central location for storing drafts, coordinating reviews, and gathering the input of team members, coordinating efforts across departments that are four time zones apart was a challenge. Motzko's team relied heavily on e-mail and phone calls to request data and information from various departments, such as control-tower audio recordings, draft reviews, comments, creative input, and more.

"Gathering all the pieces necessary to begin creating the animation was a lengthy process in itself," says Shelley Neel, Technical Project Manager at the Federal Aviation Administration. "There was a lot of back and forth in e-mail, and leaving of voice messages to see if people would send the needed data—coordination was a challenge, and the 'ifs' plagued us."

During the review process, sharing large Flash files in e-mail was often a problem due to e-mail server message size limitations. If a file was too large, it would bounce back to the sender, requiring the sender to post the file to a file transfer protocol (FTP) site, adding another time-consuming step to the process. Additionally, the four-hour time difference between Anchorage and FAA headquarters in Washington, D.C. made it difficult for teams to find times to schedule conference calls, further slowing the review process.

The lengthy production process hampered the department's ability to use the animations for educational purposes while the aviation events were still fresh in the minds of the involved parties. "To improve air traffic safety training and for learning to occur, you need to react as close to the event as possible and be absolutely accurate in the

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description of the action,” says Motzko. “That’s when memories are clear, and chances for productive discussions are at their highest.”

From the beginning, Motzko and his team had explored different technology options for boosting collaboration on unique design work across vast geographic distances. Technologies evaluated included Groove® Virtual Office (now part of the Microsoft® Office system) and Microsoft Office SharePoint® Portal Server 2003. “Our testing of these products revealed that the combination of services could revolutionize the way that event forensics and safety information is processed and used,” says Motzko.

In 2006, collaboration was made even more difficult as government budget cuts reduced Motzko’s Anchorage-based team from four people to one, Motzko himself. Without a support staff to manage the animation development and review process, Motzko needed to implement a cost-effective solution for coordinating production tasks.

Solution

In 2005, Neel was asked by Ronald Simmons, Scientific and Technical Advisor at the Federal Aviation Administration, if she knew of a group that could benefit from participation in a Microsoft Rapid Deployment Technology Adoption Program (TAP) to pilot the use of Microsoft Office Groove 2007. Simmons had recently led the implementation of Microsoft Windows® SharePoint Services at the FAA to improve event response, reduce time and cost to create new regulations, and increase internal collaboration and efficiency of communications within the FAA. Simmons was continuing to investigate additional technologies that would help boost dynamic teamwork within the FAA.

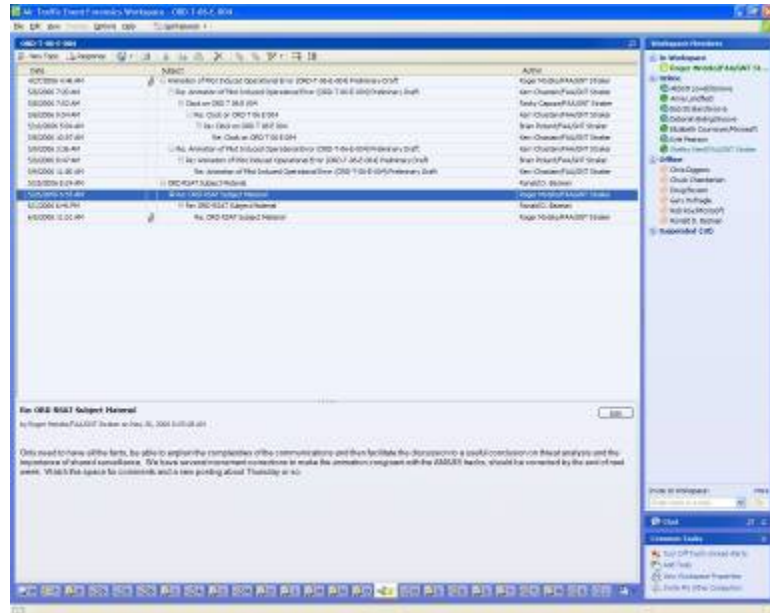
“Air Traffic Event Forensics came to mind,” says Neel. “To speed up the creation of critical aviation learning materials, we needed tools that enabled teams to work together across time zones. Groove 2007 appeared to be a perfect fit for this process.” In March of 2006, with Motzko’s full cooperation, Neel helped deploy a prerelease version of Office Groove 2007 to a group of employees that ranged from as small as 5 to as large as 38 at various times during the course of the project. “The flexibility that Groove 2007 provides, for building and scaling development groups to each task, makes it an extremely powerful tool,” says Neel.

Employees installed Office Groove 2007 to their computers from a CD-ROM. Each participant was sent an e-mail invitation to join the Air Traffic Event Forensics Groove 2007-based workspace. After accepting the invitation, the workspace was automatically downloaded to the hard drive of each person’s computer, and all information in the workspace was synchronized among the computers. “People were collaborating in the workspace almost immediately,” says Neel. “The ease of use is very high. The tabular layout makes it very easy for people to understand how to use the workspace, to see all of the material it contains from one view, and to easily understand what is expected of them.”

One section of the Air Traffic Event Forensics Groove 2007 workspace stores all the data required to produce the animations, including control-tower audio recordings, runway maps, area maps, preliminary sketches of event timelines, and more, involved in recreating a safety incident. Following an aviation event, team members can post the requested materials directly to the shared workspace, without having to send large files in e-mail or upload them to FTP sites.

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Other sections of the workspace are organized by aviation event. A row of tabs at the bottom of the workspace window provides access to materials that need to be reviewed and a link to a threaded discussion of the review. Tabs are named according to an FAA-assigned event tag that is generated for tracking purposes, followed by a number that indicates whether the animation is in the developmental or production stage. The first entry in each of these sections is a posting by Motzko containing an executable Flash file that, when clicked, launches in a separate window, and plays an animation of an event. Motzko's post includes a request to the team to review the animation and provide feedback by posting comments to the thread. Subsequent entries contain the review comments of team members, postings by Motzko of revised drafts, and further review commentaries.

Reviewers can instantly recognize postings they haven't yet read, because Office Groove 2007 marks unread content with small red icons. Once read, the icons disappear. This feature makes it easy for distributed teams to

stay up to date on information in the workspace, and saves individuals time because they can see, at a glance, what information has changed or is new without reading through each posting.

The right side of the workspace contains a chat window, used by team members to discuss issues and comment on the discussion thread in real time. The chat transcripts are also automatically saved, providing a historical record of the team's conversations.

Once the animations are complete and approved, the final versions are transferred to a Microsoft Office SharePoint document library where they are archived for use at in-house training events, as downloads from FAA Web sites, or for burning to CDs to share from FAA booths at aviation safety trade shows or events. Storing the final animations on a SharePoint site also makes the training materials available to a wider audience of employees from many departments, without requiring that they maintain the Groove 2007

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Air Traffic Event Forensics workspace on their computers.

“Our only problem with the Groove 2007 pilot project was keeping up with the number of new users requesting access to the Air Traffic Event Forensics workspace,” says Neel. “It spread by word of mouth. The process was so easy and the project so exciting, everyone wanted to participate. We began to rotate new users in as rapidly as possible.”

Benefits

Using Office Groove 2007 and Office SharePoint, the ATO will be able to produce Air Traffic Event Forensics animations much faster, make it easier for geographically dispersed teams to collaborate, and improve the quality of safety training within the FAA. It will also be able to accomplish all of this at a lower cost to the organization than with the prior solution of gathering information through e-mail, FTP sites, and phone calls.

Faster Creation and Review of Animations

Gathering materials needed to create animations happens much more quickly now because employees can easily post data files to the workspace where they are accessible by all team members. “Particularly in gathering discussion comments, we have reduced production times by as much as 90 percent due to having an intuitive central location for team members to review progress on an event,” says Motzko.

Using Groove 2007 workspaces also speeds the review process and makes it easier for the animator to understand what changes need to be made in each new iteration of the animation because all discussions, tools, and information are accessible from one location.

“The Anchorage office used to be responsible for all the administration of the process,” explains Neel. “They would request the

information, provide it to the animator, get everyone on the phone to hold review sessions, take notes on what was said, transcribe the notes, share the notes, distribute the new drafts, and so on. With headcount in that office now down to Roger Motzko himself, that type of administration is a luxury we can’t afford. It also wasn’t the most expedient way to produce the animations in the first place.”

Office Groove 2007 threaded discussions dramatically reduce administrative time and expense by minimizing the need to transcribe minutes of in-person meetings. All conversations are captured and viewable inside the workspace. The ATO anticipates that using Office Groove 2007 to gather materials and conduct the review process will reduce the production time of animations by up to 75 percent. “Animations can take from 3 to 12 weeks to produce,” says Neel. “With Groove 2007, we expect to be able to complete each animation within three weeks.”

Easier Collaboration Across Time Zones

Because Office Groove 2007 highly secure workspaces exist on the hard drive of each team member’s computer, employees with portable computers can easily work when they are out of the office without needing access to FAA file shares, and in situations with unpredictable network availability. This capability speeds the review process because teams can work continuously, without being restricted to normal working hours, needing to input network access credentials, log on through virtual private networks (VPNs), or otherwise bypass the organizational firewall. For example, Motzko may post a new iteration of an animation at noon, Alaska Standard Time, which is 4 P.M. Eastern Standard Time. Even though, by that time of day, many team members in Washington, D.C. might be leaving the office, they can take the workspace with them on their portable

computers, and review the new version of the animation at home. Once an Internet connection is reestablished, the workspaces are synchronized, and Motzko, still in the middle of his workday, can read new comments in the workspace and begin the next iteration of the animation without waiting for East Coast employees to return to work the next day.

In addition, Office Groove 2007 offline capabilities enable team members who are on the road to review information in transit, and contribute to discussions from hotels, airports, or airplanes—with or without an Internet connection.

Lower Project Costs

Neel believes that using Office Groove 2007 can help the FAA reduce IT and project expenses. “In many situations, project teams can use Groove 2007 and not need a pricey IT staff person devoted to their project. Anyone with manager-level access can create a Groove 2007 virtual workspace on the fly, with no programming knowledge.” She continues, “We now have a great tool for pulling people together for collaboration on short-term projects with very minimal spin-up time. Groove 2007 cuts the project timeframe significantly. Time is money.”

Better Aviation Safety Training

“Air traffic event animations are a reporting of the facts,” says Motzko. “When people can review the facts while the event is fresh in their minds and easily collaborate on event details electronically, we have a better chance at driving the error rate down. Office Groove 2007 helps us get the facts out there faster and improves our feedback loop.”

Neel adds, “Together, Groove 2007 and SharePoint make it easier for us to produce animations and share them with a wider audience, spreading the knowledge we can uncover about aviation incidents, making

runways safer for everyone. Everyone wants to improve processes and solve problems—air-traffic controllers, pilots, technicians on the runways, airport stakeholders, and the airlines. The ability to react as close to the event as possible is a big step forward in our effort to bring about real change.”

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