Dave Bowen

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By Michael J. Keegan

Driving IT Coordination and Innovation at the FAA

On a daily basis, 8,000 commercial and 18,000 private aircraft operate close to 50,000 flights per day in U.S. airspace. Doing this safely and efficiently involves the Federal Aviation Administration (FAA) maintaining the world's largest air navigation and communications infrastructure, which relies significantly on advances in information technology (IT). "Our mission," says Dave Bowen, Assistant Administrator for Information Services and chief information officer (CIO) at the FAA, "is quite simply to provide the safest air transportation in the world. We do this extraordinarily well. We are running record low accident rates and we continue to work to bring down those rates." Bowen explains that the FAA basically regulates everything flying in a chunk of airspace covering 15 percent of the world's surface area. "We operate in 24 million square miles of airspace, including the Continental United States, Alaska, about halfway over the Atlantic, and another 15 million square miles of airspace over almost the entire Pacific Ocean." The agency does this with an annual budget of about $16 billion, along with 43,000 employees and another 30,000 contractors.

"I act as the primary advisor to the FAA administrator on all IT matters," notes Bowen. "I'm responsible for all IT policy in the agency: research and development, cyber-security, oversight of IT investments, oversight of privacy initiatives, records, directives, and enterprise architecture, including applications and infrastructure." His organization is comprised of four offices charged with leading various initiatives under each of these operational areas. Many of these efforts dovetail with several core challenges Bowen has identified: driving IT benefits and coordination in a federated IT model, deploying cyber-security technology across the agency, and expanding oversight of IT investments and reporting.

"From a strategic standpoint, we're trying, within a federated environment, to work together to mimic a highly centralized and highly standardized kind of environment obtaining the benefits of standardization, consolidation, economies of scale, cost effectiveness, efficiencies, and speed of response," explains Bowen. He notes that the federated model allows lines of business to really focus on what their mission is and how best IT can support it. "It also has certain limitations. We tend to grow things differently, with much redundancy, duplication, and lack of efficiency." He has made it his focus to modernize and standardize the FAA's IT applications and infrastructure using the acquisition process. All IT acquisitions over $250,000 require his signature and approval. "This has given me visibility on what [FAA components] are buying across the agency, helping us reduce duplication, and leverage our purchasing power more," declares Bowen. The FAA also uses a CIO council composed of line of business CIOs, who have established operating principles that govern how investment decisions are made on an enterprise-wide level. "We discuss what we're going to standardize and how standardized it's going to be. Having made the first set of decisions, we then identify roles and responsibilities. For enterprise-wide applications, we take one line of business and establish that as the managing partner. Through discussion and collaboration, the managing partner provides that application across FAA, using performance metrics and service level agreements," explains Bowen.

As part of this enterprise-wide approach, the FAA has also pursued data center optimization. "There's a big push by the Office of Management and Budget (OMB) to inventory data centers and develop a plan to consolidate. We've actually

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had this initiative underway now for about two years," says Bowen. With about 164 data centers, Bowen recognized that the FAA was running out of space and power, and was spreading its resources thin, so he began focusing on data center consolidation before the OMB mandate. "We've seen significant benefits. I certainly applaud OMB's efforts to curtail the number of facilities. There are going to be greater efficiencies, reduced operating costs, more standardization, greater opportunities for disaster recovery, increased server utilization, and certainly better security," declares Bowen.

Securing the FAA networks has taken on even greater emphasis. Today, rapidly evolving technology increases organizations' IT vulnerability footprint. Malicious attacks on computer systems and networks are occurring at unprecedented rates. Every radar network, link, and every phone line that makes the FAA system work could be potential targets. "Our networks are a favorite target of malicious cyber activity. We're logging about 7 million cyber alerts per day and over 2,000 of those require further investigation each and every day. Having strong walls at the boundaries is no longer enough. You need to have protection inside the networks," acknowledges Bowen.

Despite the recent economic downturn, the forecast for future air travel demand remains high. The current air traffic control system is not scalable or flexible enough to keep up with the future demand. This will result in delays and congestion. FAA facilities and infrastructure are also aging; its surveillance and navigation technologies date from the 1950s. Many of these issues are being resolved by deploying a new air traffic control system. "We call it the Next Generation Air Transportation System or NextGen," explains Bowen. "It's basically a transformation of our air management system. It impacts airspace, aircraft, procedure design, airport improvements, air-to-air communications, air-to-ground communications, weather integration, collision avoidance, new technology implementation, and even our air traffic control facilities. It's very broad—not a single initiative, but a series of programs and procedures already underway."

According to Bowen, funding for NextGen is just over $1 billion for FY2011. "Benefits include fuel savings for carriers, reduced noise around the airport, reduced carbon footprint, improved airport operations, on time arrivals and departures, and lower infrastructure operating costs." By 2018, NextGen will reduce total flight delays by about 21 percent, providing $22 billion in cumulative benefits to the traveling public, aircraft operators, and the FAA. During this same period, it is expected to save more than 1.4 billion gallons of fuel from air traffic operations alone, cutting carbon emissions by nearly 14 million tons. Bowen underscores that safety is foundational to NextGen. "In fact, it gives us the ability to improve our safety record."

The apparent Next Gen success rests on the FAA's efforts to improve program management throughout the agency. After some 14 years, the FAA achieved a significant accomplishment when it was removed from the Government Accountability Office's high risk list of federal programs. "Getting off the high risk list would provide evidence of improvement in our program management efforts and give the Congress and the taxpayers confidence in our ability to deploy the NextGen programs," notes Bowen. "I think in the upcoming years we're going to have budget challenges. We'll need to do the best we can to save money, and at least be able to put funds back into things that add more value to our mission," notes Bowen. ◘

To learn more about the FAA and its information technology strategy, go to www.faa.gov/about/office_org/headquarters_offices/aio/

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