



INSIDER  FEATURE

FBI CIO's Mission: Modernize

When he joined the FBI from Lehman Brothers, Chad Fulgham inherited an obsolete IT infrastructure and major project on the brink of failure. Two years later, agents have BlackBerrys and SharePoint, but the work isn't finished.

By Kim S. Nash | [Follow](#)

CIO | Jan 27, 2011 7:00 AM

Five years and \$405 million into the FBI's effort to create an all-digital case-management system for its special agents, it's clear how far the Sentinel project has slid off the rails. According to the inspector general at the Department of Justice, many promised functions remain undelivered and defective code inhibits the use of some of the pieces of the system that are already in the FBI's hands.

But FBI CIO Chad Fulgham insists Sentinel, which he inherited when he joined the bureau in December 2008, isn't doomed—even though independent reviewers estimate it could take another eight years to complete, at an additional cost of \$453 million. To save it, the former Lehman Brothers IT executive is battling what he calls "old guard" thinking and a federal bureaucracy that he says is "nuts."

Sentinel is a big problem, but it's just one of several Fulgham faced when he arrived. He was surprised to also find outdated technology, 200 open IT positions and a convoluted federal purchasing process.

Like any new CIO, in government or the private sector, Fulgham had to assess what was working and what wasn't, triage immediate problems and build relationships with colleagues who could support his long-term agenda. Congress and various government oversight groups want action, just as a corporate CEO and board of directors would, observes Charlie Feld, CEO of the Feld Group, an IT turnaround consultancy.

Feld, who has been CIO at Delta Airlines, Burlington Northern-Santa Fe railroad and Frito-Lay, says that upon starting a new job, a CIO carries the most political capital he'll have for the next two years. And he

needs to spend it “even if it pisses people off,” Feld advises. “Senior executives can take bad news. They just can’t take not knowing or continuous streams of bad news that build uncertainty.”

In the past two years, Fulgham has drawn heavily on his political capital, using his corporate experience to bring the latest IT-management techniques and new technologies to the FBI. This includes collaboration software, mobile applications and a modern network infrastructure. Nowhere has Fulgham spent more of his political capital, however, than on his remediation plan for Sentinel. With support from FBI Director Robert Mueller, Fulgham has restructured parts of the original project agenda. He has, for example, traded traditional sequential software development for agile methods and will replace a Sun Solaris platform with virtualized Red Hat Linux servers.

He also hopes that throttling further participation by contractor Lockheed Martin will get Sentinel done, within budget, by September. That’s when Mueller’s 10-year term ends. “When we release this, FBI will declare victory on Sentinel,” Fulgham says.

The inspector general, however, calls Fulgham’s plan optimistic, noting the FBI’s inexperience with agile development. Delays, these overseers warn, are apt to pile up as the bureau changes course. The most difficult phases of the project are ahead, they say.

Fulgham, 36, doesn’t flinch. FBI agents and staff, he says, “love what we’re doing. But the old guard that’s used to doing things one way,” as Fulgham calls his critics, “they’re not exactly happy with the Chadster.”

No More Boondoggles

FBI technology hasn’t ever been much to brag about. The agency has failed to build a fully electronic case-management system since coming up with the idea 11 years ago, with efforts so far costing taxpayers at least \$575 million, plus an inestimable toll in less-efficient crime fighting. After the 9/11 terrorist attacks, critics faulted the FBI and intelligence agencies for not sharing information effectively. Technology failures were a core problem.

There have been some improvements: FBI employees can process some forms digitally, for example, and the CIOs of the largest intelligence agencies meet regularly to devise ways to share information and trade project advice. But lacking a fully digital case-

management system means FBI agents still spend a lot of time shuffling paper. Sentinel's electronic workflow would speed up and improve analysis of case notes and evidence, as well as facilitate better coordination with fellow law enforcers.

"We must make sure agents and analysts have the technology tools they need to do their jobs. I won't accept any more techno-boondoggles," Sen. Barbara Mikulski (D-Md.) said in an interview. Mikulski chairs the Senate subcommittee that oversees the FBI's \$8.3 billion budget.

In 1995, while corporate CIOs were building distributed applications running on PC servers and diving into Web technology, the FBI launched a system for managing case files and evidence—the Automated Case System (ACS)—that used green-screen, mainframe software. By 2000, the FBI was planning to replace ACS as part of a larger modernization project called Trilogy. Within Trilogy, the Virtual Case File was to have been a set of applications that eliminated paper forms that agents had to fill out by hand, route around the office in file folders and store in metal drawers.

After 9/11, Mueller accelerated Trilogy and got approval from Congress to create a CIO position. But in the next three years the bureau went through four CIOs, seeking the right fit in terms of experience and management style. In 2005, the FBI canceled the Virtual Case File amid reports from the Government Accountability Office that the bureau wasn't watching its contractors well enough and couldn't account for 1,200 pieces of missing equipment worth \$7.5 million. Worse, the GAO said, the unfinished project, which to that point had cost \$170 million, was poorly designed and relied on custom code that would be difficult to maintain.

The FBI began planning Sentinel in 2006, awarding a six-year, \$451 million contract to Lockheed Martin. In Senate hearings last April to review the FBI's fiscal 2011 budget request, Mikulski recalled the agency's checkered IT past, telling Mueller she was concerned that now Sentinel was in jeopardy of becoming "technojunk," just as Virtual Case File had.

"When you have a project that goes over four or five years," Mueller responded, "some forms of delays are, I wouldn't say inevitable, but need to be identified and addressed and contained. I think we've done it here."

Fix Something Fast

Before joining the FBI, Fulgham was a senior vice president at Lehman Brothers, directing its worldwide identity management, messaging and unified communications teams. He helped to manage projects using well-known agile principles, such as short development cycles with frequent prototyping. He also worked directly with vendor developers to speed projects along.

In 2008, as Lehman collapsed into bankruptcy, Fulgham interviewed for the FBI CIO position. Then-CIO Zalmi Azmi was set to leave in November after five years in the job. Fulgham had doubts about Sentinel. Corporate IT executives learn to avoid such megaprojects because they have high failure rates, he says. "From the outside," he recalls telling Mueller, "we don't think you can pull it off."

He took the job anyway. Fulgham spent his first few months at the bureau examining its IT procedures and infrastructure, although it didn't take him long to find out that more than Sentinel needed fixing. On his first day, his PC wouldn't boot. Nor was his BlackBerry configured. On his second day, he turned on his PC to reveal that the standard desktop image at the FBI was Windows 2000 with Corel WordPerfect 8. "I really was disheartened," he says.

But he saw the chance to make fast improvements that played to his strengths. At Lehman, he had planned and implemented unified communications tools from Microsoft for 28,000 employees worldwide. One project integrated Microsoft Communicator instant messaging, voice-over-IP (VoIP) and desktop videoconferencing tools with Cisco's Call Manager and Unity to give Lehman employees one dashboard for managing their communications. At IBM Global Services and JPMorganChase before that, he had led teams responsible for securing networks and mitigating security risks.

Accordingly, he spent much of his first year replacing the FBI's 1990s-era ATM and frame relay network with revamped cryptography and new Cisco gear that supplies 45 times the bandwidth to 800 local offices nationwide. More than 27,000 agents, analysts and other employees got BlackBerry smartphones. RSA identity-management tools from EMC let authorized FBI employees use those BlackBerrys to access the secure National Crime Information Center database of criminal records while working in the field.

Meanwhile, 30,177 desktops and laptops were replaced and almost 100,000 are being upgraded to Office 2007. Unified communications software, also from Microsoft, includes SharePoint for collaboration via instant messaging and document sharing. The so-called next-generation workspace sports 24-inch monitors and advanced cameras and headsets for peer-to-peer VoIP videoconferencing.

Helping to smooth the rollout of these new technologies was a reorganized IT staff. Fulgham filled the open positions, embedded IT staff in user groups and established a chief marketing officer position to advertise new features and capabilities to FBI employees.

The modern infrastructure has already improved coordination and workflow, he says. In October, the bureau arrested 133 public officials and others involved in a massive corruption case in San Juan, Puerto Rico. One thousand agents and staff fanned out across the island in the largest single operation in FBI history. The takedown was coordinated in real time using SharePoint and the other new UC and mobile tools, he says.

After the raids, Mueller demonstrated the new technology to Attorney General Eric Holder. "I had smile on my face like the Cheshire cat," Fulgham recalls.

Tackling Trouble

Such quick IT wins can supply a new CIO with the momentum needed to set a troubled project right, says Brad Brown, director in the IT practice at McKinsey. And when it's time to tackle the problem project, Brown advises CIOs not to halt the whole thing, if possible. Instead, find one piece that can be finished right away while senior leaders work with the CIO to dissect the larger project plan.

That approach accomplishes two things, he says. First, keeping at a clearly defined task that is important to the project prevents the organization from falling into chaos. Second, delivering that piece improves morale and gives the team a success to build on. "You're trying to build trust at the same time you're making change," he says.

The CIO must emit self-confidence and confidence in the organization, he adds. "If a project's in trouble, there's angst. People look for a lifeline and a way forward."

Fulgham's call to action came in late 2009, when Lockheed missed its first major deadline under his watch, then had trouble resolving problems with electronic forms it had built. Immediately, Fulgham demanded regular demonstrations of the in-progress code for senior executives from both Lockheed and FBI. He also began quarterly meetings with Lockheed CEO Robert Stevens and Linda Gooden, the executive vice president of Lockheed Martin Information Systems and Global Services, along with Mueller and other FBI leaders. Having top executives in those meetings escalated the issues, he says, "so they could see firsthand what my customers would see."

When trouble continued, Fulgham issued a stop-work order to curtail Lockheed's remaining work on Sentinel. He also directed Lockheed to correct defects in the pieces of Sentinel it delivered in 2009 and 2010. Among them, according to the inspector general, was a security setup that could allow a user to create a fake identity to electronically sign documents, which resulted from a disagreement between Lockheed and the FBI about how to interpret a digital signature requirement.

Meanwhile, Fulgham formed plans to switch to agile development, which required a smaller team than the group of 200-odd Lockheed personnel assigned to Sentinel. Fulgham instead wanted developers who were intimately familiar with the key products Sentinel would use, including Microsoft search, Oracle databases, EMC document-management software and Adobe document-creation tools.

Fulgham dialed the vendor CEOs, including Steve Ballmer at Microsoft and Joe Tucci at EMC, to explain his plight and enlist their help. "Not many people turn down phone calls from the FBI," Fulgham notes. "They were ecstatic because they weren't able to make their products successful" in Sentinel the way the project had been managed.

A fresh team of about 50 vendor developers and support staff, along with the bureau's own IT staff, now deliver a piece of Sentinel every two weeks. Fulgham and others at the FBI see demos every other Friday. Fulgham's point man on Sentinel, CTO Jeff Johnson (with whom Fulgham worked at Lehman for four years) sits with the developers. Some pieces of Sentinel now have been successfully rolled out, such as a module for writing interview reports and sharing case leads.

