PUBLIC SECTOR

Engineering successful public sector cloud migrations

At a recent panel discussion, technology leaders in the US federal government discussed their experiences in overseeing cloud migration for some of the largest agencies and departments in the nation. In the session, titled "The cloud transforming everything," these CIOs and CTOs shared their hard-won wisdom about how to overcome concerns and objections; how to make a business-needs case for cloud migration; how to attract the right workforce; and how to develop a set of strategies for gradual, efficient cloud migration in an environment known for its resistance to change. What follows is an edited version of this discussion, led by Wayne Bobby, Infor's vice president, US Federal.

"The best way to overcome resistance is to tie the cloud migration to business needs."

Sanjay Koyani

Cloud migration at the federal level

Wayne Bobby, Infor vice president, US Federal: I expected the transition to the cloud to be much slower than it was. What surprised you most about the shift from legacy systems to the cloud in federal agencies?

Sanjay Koyani, executive director for innovation, Office of the Chief Technology Officer (CTO), US Department of Health and Human Services (HHS): The HHS has a workforce close to 80,000 people and our budget is over $1 trillion. The mission of this agency is profoundly important, and technology is a key enabler. In determining which legacy systems to move to the cloud first, HHS divisions assess priorities, business needs, and user requirements. HHS then works to assess where integration, consolidation, and collaboration can occur. It requires a lot of coordination and engagement; however, it's essential because the outcomes will affect people nationwide. Given that strategy, we continue to evolve our process for moving to the cloud.

David Shive, chief information officer, US General Services Administration (GSA): Our mission at the GSA is supporting other agencies with their missions. We are acquisitions professionals; we were Amazon™ before Amazon was a thing. The work of the GSA gets interesting when we consider the fact that we are helping to protect borders and land on Mars. We are a midsize agency, and our size makes us a little more nimble and agile. We can spin-up business quickly to meet a need. That agility allows us to try things out and take initial risks. We do it first, and then new technology can be scaled out to other organizations through shared service.

We were first, for example, to have the Internet on every desktop, and first to invest in the cloud. We have seen such good results with the cloud that our primary mission right now is doubling down on that investment to build the ecosystem to support new technology.

> "The very first aim has to be making people's interactions with government positive. If the public sector can engineer a customer experience for digital natives... we've won half the battle.
>
> **David Shive**

Anticipating and overcoming obstacles

Wayne Bobby: Earlier this year the US federal government adopted the Modernizing Government Technology Act (MGT) to provide centralized funding and promote working capital funds (WCF) for federal agencies. Have you looked at using that, or does each agency tap its own resources to get the transformation underway?

Mason McDaniel, chief technology officer, US Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF): We have looked at it, and I think it's an excellent idea that many agencies can benefit from. The ATF is not looking to use MGT funds, though, for two main reasons. First, the US Department of Justice already has a working capital fund that we are making use of. Second, the ATF had already cut our IT costs so much, and had accumulated so much technical debt, that our focus of modernization is on stabilizing and improving the functionality that we have, not on lowering costs. When agencies use MGT funds, it comes with repayment terms, so you use the money to modernize and lower your operating costs, and then use those cost savings to repay the MGT fund. Of course, we will save money where we can, but that is not the focus of our modernization work; so we can't promise savings that would let us repay the fund.

Wayne Bobby: You have taken a strategy to be very aggressive about moving to the cloud and digitally transforming the ATF. What resistance have you seen and where are you now?

Mason McDaniel: As a law enforcement agency, it's really difficult to make a case for funding IT infrastructure. It's hidden. It's easy to understand the direct mission impact of buying bulletproof armor, or ammunition, or cars. There is a general suspicion of putting law enforcement data in the cloud, so we had to explain how it can be more secure than where we are today. We've also had to face a general skepticism of cost savings as a reason to go to the cloud. So, instead of making the cost-savings argument, which would be the normal paradigm, we put it in business terms. I provided a litany of ways in which the technical debt we had accumulated over 15 years of not investing in our infrastructure is putting our agency's mission at risk. I explained why, if we don't do this, the mission would stop, or would significantly suffer.

Mark Failor, technical director, CACI International: We've seen a big drop-off in objections. The government is gravitating more and more toward the cloud. Right now, they are focused on the infrastructure. Particularly in the US Department of Defense, they seem to want to consume all the data they have been accumulating for many years. And they seem to want open source, non-proprietary tools. They want to be able to consume their legacy data. Right now, they are still producing Statistical Analysis System (SAS) reports that are made of aggregated data, printed on paper, and shown to leaders. I can see them using artificial intelligence (AI) to create more solutions in the future. For example, AI could detect fuel supply issues and automatically drive fuel to a ship that is showing up "yellow" in the system.

Sanjay Koyani: We found that the best way to overcome resistance is to **tie the cloud migration to business needs**. At the HHS, we worked hard to identify the true business needs that could be met by migrating to the cloud. For example, some functions at HHS—like specialized processing of medical imagery or DNA sequencing—make sense to keep on-premises due to current investments made and security controls in place. However, in these instances, the HHS is exploring how it might burst into a virtual cloud environment to accommodate highly accessed systems with long wait times. The key is making sure to understand and document needs, costs, and options.

> **"Talk to stakeholders early in the process about changing from peaks of massive investments to a slightly elevated layering of investment over time... All the best organizations operate on this model."**
>
> **David Shive**

Wayne Bobby: So, what fears still exist? Is security one of them?

Mason McDaniel: The dominant, remaining fear is of being locked into a specific vendor who could raise rates dramatically—or worse still—go out of business. So, it's a combination of accepting that some amount of lock-in exists with any IT implementation, and also taking measures to help reduce that lock-in and set up our systems to be more portable. Regarding going out of business, let's be honest, it's more likely that the ATF would go out of business than it is that Amazon Web Services™ (AWS®) or Microsoft® would. You have to educate people about the real risks and rewards of migrating to the cloud.

And yes, concerns about security are on everyone's minds. As the public sector's capabilities and needs have changed, so has the security strategy. The federal government is not known for being good at letting go of control. Many people were comfortable with running our own data centers, so convincing them that data should be hosted by a company was a difficult process. The key is helping people understand that it's generally possible to achieve better security with cloud providers than it is in government data centers. We seem to be over that hump now.

Preparing a workforce for the challenges of migration

Wayne Bobby: The tech industry is often seen as the province of young professionals, and yet less than 10% of the federal workforce is under 30 years of age. How did you build the age of the workforce into the cloud migration strategy?

David Shive: Any enterprise that deploys in the cloud without the staff to support it is likely to fail. You need a workforce transformation to solve this problem, and that involves challenging the common belief that it's hard to hire talent into federal government. As a prospective employer, the government is going to lose if it focuses on salaries. But if government focuses on the mission, on the meaningful nature of the work, they can get people to rally around that cause.

Millennials are not known for being as motivated by title, salary, and upward mobility. They tend to ask whether they can draw a straight line between their work and positive outcomes for people in their circles. If the government can draw that line, it can pull in people from the private sector.

For that reason, the very first aim has to be making people's interactions with government positive. If the public sector can engineer a customer experience for digital natives who want immediate outcomes, we've won half the battle. We're engaging with younger customers—and a younger workforce—that have a close connection with the digital ecosystem and modern technologies.

Wayne Bobby: What mindsets did leaders in federal government have to change to enable efficient migration?

Mason McDaniel: There used to be a project mindset—the idea that you do it once, hand it off to someone, and then you're modern. That outlook creates massive modernization projects, after which everyone is idle for a while and the development team leaves. Then, technical debt accumulates, and there's another big modernization expense years later. The better alternative to that pattern is a continuous improvement mindset, which results in ongoing, permanent capabilities that evolve with changing needs.

Five questions to consider as you plan your migration strategy

1. What business or constituent needs will the cloud meet better than our legacy systems?

2. Would a hybrid approach work best for us initially, and if so, which systems do we keep on-premises for now?

3. How do we fund the migration?

4. How do we prepare our workforce to manage the transition?

5. How do we make the case to our shareholders and build their feedback into our plan?

Mark Failor: Another problematic mindset is thinking in terms of apps only. A more productive approach is to consider the platform and infrastructure, rather than just thinking about applications. Some apps are built in, so you may need to ask if the app you want is workable in the stack you have.

David Shive: Policy has morphed over time to keep up with changing capabilities and changing needs. We needed a strategy to reflect the 21st century mission of government. Toward that end, one of our tasks has been raising the acumen of those who buy technology. It's important to be sure they can deploy, deliver, and maintain the technology.

There was at one time a fairly closed, top-down, heavy handed approach to technology policies at the federal level. Now, FederalRegister.gov and GitHub® invite comment from media, industry partners, and citizens; and the enterprise incorporates that feedback on how to roll out and architect the policy. The new approach is to invite the audience to review and comment on policy.

Advice from federal agents of change

Wayne Bobby: What advice do you want to share with other public sector enterprises in the early stages of the cloud migration?

David Shive: Talk to stakeholders early in the process about changing from peaks of massive investments to a slightly elevated layering of investment over time. This can be a huge sea change for an enterprise. It involves a shift in how you consume technology, with a goal of continuous delivery and continuous improvement. All the best organizations operate on this model.

Sanjay Koyani: Take a holistic, long view. Leaders should ask whether they have the right acquisitions workforce, whether it makes sense from a cost sustainability standpoint to take a hybrid approach, and whether there is a strategy and workforce in place for maintaining the systems long term.

Mark Failor: Migrating to the cloud is not a race. Slow and steady still works. When you're developing a strategy, there needs to be a lot of conversation about what you want, what your standards need to be, and about what kind of portability you'll need to ensure that data can move. That can be especially challenging when there are directives with no funding and no schedule attached. But if you have the right conversations, if you deploy only when you have a plan and workforce in place, you will start to see an ecosystem forming in the cloud.

Learn more ›