Accenture Federal Services
DevOps: Taming Cloud Complexity to Design a Better Federal IT Roadmap

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While there is widespread agreement that federal agencies should capitalize more broadly on cloud computing, the best route to wider adoption is still a subject under vigorous debate. Within commercial markets, the idea of aligning development and operations more closely to more effectively leverage cloud computing is gaining steam. Known as DevOps, the idea is to accelerate software delivery while improving cloud effectiveness.

DevOps is a software development and IT management method that integrates software engineering, quality assurance and IT operations to manage a rapid and collaborative application lifecycle. There is significant buzz within the federal IT community over the potential benefits DevOps can provide for agencies and—ultimately—the people they serve.

**Accelerating the Pace of IT**

Federal IT operations require more real-time footing to keep pace with escalating mission demands. Some of the factors driving the need for more dynamic federal IT capabilities include frequently changing mission requirements and asymmetrical threats, the increasing sophistication and expectations of users, and shorter technology cycles.

The challenge that many federal agencies face is that their traditional development environment cannot meet these demands for greater responsiveness and faster delivery. According to research from Accenture Federal Services and MeriTalk, just 13 percent of federal IT managers report that their organizations can deploy new systems as fast as the mission requires.1

Within commercial markets, faster and more iterative software delivery is viewed as a strategy to become more responsive to changing customer and market demands. This “lean startup”2 approach emphasizes shorter but more frequent development cycles to secure regular and consistent feedback from actual users, leading to more effective solutions.

The federal sector is beginning to make inroads toward this approach. The U.S. General Services Administration’s 18F development organization says “delivery is the strategy.”3 Likewise, the U.S. Digital Services Playbook calls for federal agencies to “[s]hip a functioning ‘minimum viable product’ that solves a core user need as soon as possible…”4

**Complexity and Collaboration in the Cloud**

Embracing the cloud is critical to government transformation and delivering public service for the future. The cloud offers the automation, standardization and flexibility to integrate and streamline the full application lifecycle. By provisioning new environments on demand and moving more seamlessly from development to test to production, building and deploying new applications becomes faster and easier.

Federal IT leaders agree: 66 percent believe that their agency should move IT services to the cloud faster to meet mission and constituent needs. And nearly two in three (63 percent) of the survey’s respondents anticipate cloud can provide high availability, reliable performance and secure operations to improve overall service delivery.5
But moving to the cloud can be challenging as existing applications, processes and culture, and policies often do not allow for an easy or quick transition. These top constraints to adoption include infrastructure complexity (42 percent), fear of change (40 percent) and inflexible practices (40 percent) according to survey participants.6

A majority of federal IT leaders (78 percent) believe moving to the cloud could be facilitated through better collaboration. However, only one-tenth would describe the relationship between developers and system administrators as “highly collaborative.”7

Another commonly cited challenge is the lack of tools and automation. While 70 percent believe they could move to the cloud faster if their agency had more automated infrastructure, just 12 percent reported that they have all of the tools to transition to the cloud.8

While many agencies are trying to integrate cloud computing into their existing processes and structures, these efforts are limited by legacy approaches that are often too rigid to support a more dynamic, service-based environment.

Taming Cloud Complexity Through DevOps

As a methodic approach to managing the end-to-end process, DevOps can help federal organizations simplify their transition to the cloud and ensure high quality service across more dynamic environments.

In addition to offering the tools and automation for successful cloud migrations, DevOps can provide a framework for implementing cultural and structural changes that enable more effective collaboration across the application lifecycle.

Only a few federal agencies have capitalized on DevOps to date. Just 5 percent of federal IT leaders report fully implementing DevOps with another 27 percent piloting or planning to deploy within the year.9 While adoption is a major undertaking, early adopters are also reporting significant success.

For example, after spending more than a decade and $3 billion in development to achieve just one successful release, one federal agency shifted to Agile software development for a major modernization effort. The program quickly started producing results with four successful releases in just two years. Beyond accelerating software delivery dramatically, DevOps and automated testing improved software quality with no level 1 or 2 defects reported in deployed software.

Another federal agency implemented DevOps to streamline the migration of new and existing applications to the cloud. Using a common platform helped standardize development across a highly distributed environment and automate deployment. In less than a year, 800 developers have adopted the platform to support more than 700 builds per day.

To support its shift to rapid application development, another agency implemented a cloud-based DevOps platform. By shifting to a standardized, virtualized development environment, new programmers can be brought online immediately and code can be readily shifted from development to testing to production environments. Further, implementing Development-Testing-as-a-Service enabled the agency to adopt a more competitive contracting model.

Next Steps

With a DevOps-powered cloud, federal IT processes can adapt to users’ needs and the organization’s mission.

Federal leaders recognize the scope of changes they must undertake to create a DevOps environment. More than half (55 percent) say training current personnel would aid the implementation of a DevOps-like structure.10 Training should be ongoing and integrated closely with current projects. In addition to training, new tooling is often required to scale and institutionalize these practices.

Strong executive leadership is also required to implement training, influence workplace culture and motivate change. To get started, leaders should seize this opportunity to educate stakeholders on the DevOps imperative, acknowledge the challenges and discuss how they can be mitigated, and create new incentives and expectations of their vision and roadmap for the future of federal IT.

1 MeriTalk: The Agile Advantage: Can DevOps Move Cloud to the Fast Lane? (5/11/15)
3 GSA: Delivery is the Strategy; https://18f.gsa.gov/
4 Play 4: Build the Service Using Agile and Iterative Practices; U.S. Digital Services Playbook; The U.S. Digital Services (8/11/14)
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For More Information

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