

The Journey to Mission Success:

A Briefing on Cloud,
Automation and Applications



Introduction

The last decade has seen a remarkable shift in the way governments operate. And changes won't stop here.

Ten years after the Cloud First mandate, federal agencies are being smarter (in line with the [2019 Cloud Smart policy](#)) about what they move to the cloud and how. State and local governments also continue to invest in the cloud as they see the opportunity to improve mission services.

In this booklet, you'll learn how agencies are leveraging the technology to provide better services to small businesses and veterans and to deliver a better experience for application users – all while keeping their environments secure.

Government and industry experts shared their insights at GovLoop's Briefing Center, "A Deep Dive Into Cloud Computing," a two-hour collection of online trainings. They discussed the role of cloud and automation in 21st-century government, the importance of application performance monitoring, and barriers and solutions to tech modernization. Read on to learn how they scaled, modernized and defied expectations with the help of cloud.

Watch the recorded sessions:

**Automation and the Cloud's
Role in the 21st Century
Government**

**Barriers and Solutions to
Tech Modernization**

Speakers

Sanjay Gupta, Chief Technology Officer of the Small Business Administration

Eddie Tejada, Director of Cloud.gov

Dave Catanoso, Director of the Enterprise Cloud Solutions Office at the Veterans Affairs Department

Frank Konieczny, Chief Technology Officer of the U.S. Air Force

Gregg Ostrowski, Regional Chief Technology Officer for AppDynamics

Why Cloud's a Journey, Not a Destination

Cloud computing's value to government is well established. Whether it is computing power, data storage or other services, cloud provides scores of IT resources on demand. Subsequently, agencies from the federal level down have raced to use cloud for their missions.

But cloud adoption isn't a destination – it's a journey. Now, agencies are finding that launching cloud means their digital transformations have just begun. Ultimately, the agencies that capitalize on cloud the most are those that use it for such emerging technologies as automation.

"If you're at cloud as the destination, you're looking at cloud in the wrong fashion," said Small Business Administration (SBA) Chief Technology Officer (CTO) Sanjay Gupta. "Cloud is an enabler of new solutions, which are required by the business."

"Don't be afraid to experiment," said Eddie Tejada, Director of Cloud.gov, a federal program that assists with cloud adoption. Tejada works for Technology Transformation Services (TTS), a General Services Administration (GSA) component. "Play with different tools and technologies so you're well-versed in the full range of options."

Here are three of the biggest takeaways that Gupta and Tejada shared:

Don't Stop With Technology

According to Gupta, modern governments are more "customer-focused." **Shifting the focus to citizens, however, requires using cloud for more than upgrading technology.**

"Technology plays an important part, but it is also the people and process parts as well," Gupta said. "Cloud helps us accelerate the delivery of services."

There is no denying cloud helps agencies deploy new tools. But agencies also can use those capabilities to improve their workforces and the routines they follow. For example, cloud can deliver virtual training to agencies' teleworking employees.

Automation: The Next Step

Automation involves machines performing simple, manual tasks with little to no human involvement. After adopting cloud, automation is also a valuable component for agencies' mission success.

"Automation is critical when you're talking about modernization," Gupta said. "As a workforce, we can focus on higher-value work and serving our customers."

Consider data entry. Using automation, agencies can free up their employees from endlessly entering information into spreadsheets and enable them to focus on more complex, mission-oriented work.

Streamline Compliance and Security

Every agency protects sensitive citizen data. Consequently, they all have cybersecurity standards they must meet to handle such information.

Unfortunately, security compliance requires energy, funding and time agencies don't always have. Cloud-based automation can reduce these burdens by handling some of agencies' compliance requirements for them.

"If you're replicating this process repeatedly, that's a losing strategy long-term," Tejada said of compliance. "If we don't have this inherited model that allows people to build on existing security practices, it becomes very unstable."

Overall, cloud's agility and flexibility make it a valuable place for agencies to visit. The agencies who use it to keep traveling, however, may reach even better stops over time.

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Sanjay Gupta

Chief Technology Officer, SBA

VA and the Air Force Defied IT Cliches

To be in government IT is to be trapped in an endless cycle of cliches. Often, trusted best practices like “start small” are repeated at government conferences like they’re the IT national anthem – and usually, they’re good advice.

But that’s why the Veterans Affairs Department’s (VA) leap to cloud is so striking. **The VA defied the incremental, “start small” maxim by migrating a major application.**

“We had a reason to migrate one of our biggest, most mission-critical applications right away, and it worked,” said Dave Catanoso, Director of the Enterprise Cloud Solutions Office at VA.

On a panel with Frank Konieczny, Chief Technology Officer (CTO) of the U.S. Air Force, and Gregg Ostrowski, Regional CTO for AppDynamics, the three commented on common challenges they’ve found in cloud transitions and shared their solutions. Here are a few takeaways.

“Modernizing as you migrate is probably the best way to go.”

Gregg Ostrowski

Regional CTO, AppDynamics

Change Your Mindset

Catanoso said VA’s biggest challenge wasn’t the size but speed of innovation that accompanied its cloud transition.

“You have to make a mental change to do that,” he said.

People don’t always trust the cloud, and especially for security, the model is totally different, Catanoso said adjusting to the Federal Risk and Authorization Management Program (FedRAMP) took effort. FedRAMP is a federal governmentwide program that provides a standardized approach to security for the cloud. Although the FedRAMP program vets the security of cloud solutions, VA and other agencies are still responsible for consistent security controls at the application level.

Catanoso said VA’s cloud move was especially testing because of the array of data the organization holds – from health records to benefits information.

Another mental adjustment had to do with payment. Cloud costs come on demand, which means agencies pay for services incrementally based on usage. While this atypical model can save money – though Konieczny says not to count on savings – it also complicates budgeting, because some government budgets are forecasted years ahead.

Rationalize and Modernize

Government program offices own different applications under their umbrellas. Who controls applications, then, poses a problem when moving to the cloud, because no managers want to consolidate their applications, undergo a months-long migration or risk halting productivity.

The Air Force has between 2,000 and 3,000 legacy applications, Konieczny said. And as all have different dependencies, moving an application to the cloud isn’t as easy as sharing a file.

“We have to look at the success factors,” Konieczny said. “So, we have to look at the critical applications we have, and we have to determine whether to move those to an environment that is more reliable.”

In moving to the cloud, the Air Force decided to adopt DevSecOps to assuage security, usability and reliability concerns. DevSecOps is a software methodology that has operations and development teams working closely throughout the application lifecycle, with security embedded early on.

To accompany the new processes, the Air Force acquired collaboration tools.

“Modernizing as you migrate is probably the best way to go,” Ostrowski said.

Adopt Other Emerging Technologies

A major benefit to cloud is interconnectivity. Having all applications and data shared in the same virtual space widens the possibilities for automation and artificial intelligence.

Before having networks patch themselves or automatic threat detection, however, agencies need to get their house in order. They need to shorten approval times and make applications available, Catanoso said. Moreover, moving to the cloud helps lay the foundation for large-scale automation.

Just like humanity is on the cusp of self-driving cars, technology isn't too far from operating autonomously too.

"Having a self-driving data center or application suite that's managing itself is something the market is going to," Catanoso said.

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Director, Enterprise Cloud Solutions Office, VA

What the Experts Want You to Know *That They Wish They Had Known*

The panel experts who started the cloud journey shared some tips, challenges and best practices on the migration process.

Q: What is hardest about moving to the cloud?

Konieczny: Nothing is ever smooth when you first move things out there. And you think you know it, but you don't. That's always been the case. ... So get some expert help when you're doing this, whatever you do, to actually understand the issues that you have.

Gupta: I would say the biggest challenge is a very simple inertia. Inertia to change.

Catanoso: The biggest challenge was overcoming a lot of our own doubts and others' doubts. Is the cloud going to work? Is it going to be secure? Can our apps be migrated? Will they work in the cloud?

Normally when you do a cloud migration, the recommendation is to start with something very small and then move to something a little more difficult... We did it the opposite way. We had a reason to migrate one of our biggest, most mission-critical apps right away, and it worked. ...

Be confident that you can make it work, and have the courage to move forward.

Tejeda: Having that comprehensive knowledge about what is available [and] what the tradeoffs are with different solutions is one of the biggest hurdles as the cloud becomes more sophisticated [and] complex. I think the number of choices that people have is daunting. That's part of what we're trying to do with Cloud.gov. We'll present you a simplified version of a lot of this complexity, because often, it can be overwhelming to think through all the different options.

How to Keep Mission-Critical Apps Running

Only a decade ago, the phrase “There’s an app for that” hit the consumer tech scene, and software flooded the market. Today, customer expectations stay high whether those services come from the public or private sector.

Expectations are so high, in fact, that people may change banks if the application performs poorly, said Gregg Ostrowski, AppDynamics’ Regional Chief Technology Officer.

To meet application expectations, organizations have to fix issues right away. And when you don’t have automation capabilities, it becomes difficult to pinpoint and fix snags in real time.

“Finding that needle in the haystack – what doesn’t work – gets harder. That’s when we need to start thinking about automation,” Ostrowski said.

On average, developers spend a quarter of their workweek fixing bugs that pop up, Ostrowski said. That’s 12 hours they could be using to focus on more purposeful projects. And that’s time that people can’t use the app while developers are resolving the issues.

“[In] running an app that’s mission-critical, you want to make sure that it’s up all the time,” Ostrowski said.

Automation ensures this. In the old world, developers have to reproduce application issues to find a solution. With automation, developers can see what’s happening in and around the app in real time. They can continuously fix bugs while in production, Ostrowski said, which can eliminate human error, therefore lowering risk.

The First Step to Automation

Visibility, however, precedes automation.

Agencies won’t know what to automate before they can see what to automate. And often, they can’t see the application flow in its overall environment (e.g., how the app and infrastructure are tied together).

With application performance management (APM), agencies can gain the visibility they need. APM monitors and manages applications, providing broader visibility of an application’s ecosystem with insights powered by artificial intelligence. They help maintain the agency’s desired level of app performance quickly and automatically, which is especially important for government’s critical services.

Additionally, IT has become more complex that while IT teams can often understand the business side of operations, business can’t understand IT, Ostrowski said.

That’s why organizations need to move in the direction of gaining visibility. APM helps all teams get to the same page on how to resolve application performance issues. It becomes clearer who needs to enter the “war room” to solve problems, and consequently, it helps previously siloed teams work together.

“Understanding the full flow of how that application is used from start to finish reduces silos,” Ostrowski said. “It’s driving that full visibility, so everybody’s on the same playing field.”



How AppDynamics Helps

AppDynamics enables agencies to understand and optimize the connections between application performance, user experience and mission outcomes. In short, AppDynamics provides mission-focused analytics on critical applications.

AppDynamics adopts a top-down approach to performance monitoring by focusing on the end user's experience in conducting a transaction on an application. AppDynamics' platform traces the entire transaction path to aggregate the response times and effectiveness of all required software functions and components needed to deliver an application response to a device or user-initiated request. It presents a far more accurate way of understanding the health of an application than traditional bottom-up approaches that rely on silo-based monitoring solutions.

AppDynamics can be deployed on premises, in a private cloud, or consumed as a service. As of June 2020, AppDynamics has achieved FedRAMP Moderate ATO status.

9 Nuggets to Take Away From the Briefing Center

Migration

- Recognize that cloud migration is not the end destination, but a journey in which agencies continue to modernize.
- Change your mindset around security and cost when it comes to transitioning to the cloud.
- Modernize as you migrate.

Automation

- Leverage cloud's interconnectivity by adopting other emerging technologies, namely automation.
- Incorporate automation capabilities that the cloud unlocks for higher-value work.
- Streamline security and compliance with automation.
- Automate application performance management for happier users and developers.

Applications

- Understand that people have low tolerance for clunky application experiences.
- Application performance management (APM) tools can unveil the whole ecosystem an application works in, from infrastructure to endpoint.



About AppDynamics

AppDynamics, part of Cisco, helps government agencies proactively manage and optimize their applications' performance in real time to advance critical business and mission objectives. Consistently recognized by Gartner as an industry leader in APM, AppDynamics monitors the end-to-end performance of even the most complex, distributed applications in real time and delivers application mapping, dynamic baselining, and code-level diagnostics.

Learn more at appdynamics.com/government.



About GovLoop

GovLoop's mission is to inspire public sector professionals by serving as the knowledge network for government. GovLoop connects more than 300,000 members, fostering cross-government collaboration, solving common problems and advancing government careers. GovLoop is headquartered in Washington, D.C., with a team of dedicated professionals who share a commitment to the public sector.

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