



Stretching for the Cloud

DoD's cloud goals have fallen short. Metrics-based insights can elevate those aspirations.

The conversation about whether to move to the cloud is effectively over. The benefits are clear and proven many times over. The challenge now is getting applications to the cloud – quickly and securely.

At the Defense Department, this can be a tricky endeavor given the sensitive nature of the mission. What's more, as one of the federal government's largest departments, DoD has many component agencies, each of which has apps that need to be migrated in a move to the cloud. To mitigate these problems, agencies can assess the performance of apps for cloud readiness before they move.

DoD's umbrella Cloud Strategy, released December 2018, characterized the cloud as "a fundamental component of the global infrastructure that will empower the warfighter with data and is critical to maintaining our military's technological advantage." Yet, there is no single, overarching cloud architecture or standards that dictate what migrations must look like.

The Cloud Strategy and DoD's Digital Modernization Strategy, released last June, call for an enterprise cloud environment composed of General Purpose and Fit for Purpose clouds for niche capabilities. Until now, according to the strategy, "DoD has not had clear guidance on cloud computing, adoption and migration to provide unifying guidance or a coherent plan." The shortcoming has led to "disparate efforts with siloed teams, disjointed implementations with limited capability [and] siloed data."

Sami Begg, sales engineering manager for the federal market at AppDynamics (AppD), says efforts are underway to correct the problem. One is a strategic

front through which the department has worked on standards for procurement and security compliance purposes – basically applying in the cloud requirements already in place for DoD's on-premises IT functions. In addition, individual programs are experimenting with cloud at military services and other DoD agencies.

"The more technical efforts have been the ones where they're trying things out, but they may or not comply with standards, and then the standards-building efforts are so high-level, they're not operationalized," Begg said. "You have these two different parallel efforts going on all over the place."

A recent attempt to advance cloud efforts at DoD is the Joint Enterprise Defense Infrastructure, which the department is tailoring as a contract vehicle, rather than a cloud solution. JEDI has been protested by Amazon Web Services after DoD's award of the \$10 billion contract to Microsoft and its future currently is unclear.

DoD's sprawling organizational structure hinders cloud adoption in other ways, too, said Larry Frazier, principal business architect for federal strategy and planning at Cisco.

"There are different entities, different authorizing officials, different risk acceptance by these different military departments," Frazier said. "They each have different ways of accepting risk and assessing some of this migration strategy, and because there's no set standards in the way the local-area network is divided and connected to the wide-area network or how they're going to access through these different requirements, I think that is why the requirements will always differ from a standard agency."

A Clear Picture

DoD's lack of clarity into its current state contributes to its challenges in the cloud, Begg said. Officials know how many servers they have, but they don't necessarily have a clear understanding of the applications that run on them or the extent to which they are critical to the mission being supported.

A branch of the Army could have 500 applications, but what are they and how many of them are being maintained only because they are legacy apps? "There's no understanding whether the application is being used or can be consolidated into another one that is in use," Begg said. "If we don't know what there is today, how do we plan to migrate it to something that we want to get to tomorrow? How do we even plan for what tomorrow should look like?"

AppD's software, deployed on servers where applications are doing the bulk of the work, provides a holistic view of application, system, database and end user activity. As transactions are executed, the software captures this information to see how the app is performing, to create baselines of what's normal and to identify deviations from them in real time and alert when necessary.

The AppDynamics solution assists with cloud migrations in several key ways. To highlight one, when deployed before a migration, AppDynamics can determine the performance of the application before moving to the cloud and therefore establish a performance baseline. The Air Force used AppD for LeaveWeb, the application used by the service's personnel to log leave time. Initially, AppD was applied to the application where it ran in a data center. Later, when it moved to the cloud, it was used to compare performance once in the new environment so performance improvements could be made.

"As soon as you migrate something into production, you want to watch it minute to minute to make sure users aren't going to have a poor experience, and if they start to, how do you respond quickly?" Begg said of AppD's capacity to monitor applications that have moved.

Consider a common migration tactic used at DoD called "lift and shift." Typically, an agency takes everything that was on-premises and moves it to the cloud without any refactoring. "That almost always fails on the first try because you don't have the insights into the application," Begg said. "The systems are too complicated to simply unplug and then plug back in somewhere else." Inevitably, managers must break everything into components and decide what to move.

With insights provided by AppDynamics, IT managers could avoid the inefficient process of moving everything, retreating and regrouping in order to get the application

performing optimally in the cloud. What's more, insights ahead of a move can enable managers to prioritize applications and determine what's ready to move and what should remain on-prem, or what apps aren't needed at all. Agencies could potentially save millions of dollars a year by identifying and terminating contracts to maintain inefficient or redundant applications.

DoD's Defense Information Systems Agency integrated AppD with its command-and-control platform and views it "as a necessity rather than just another add-on capability tool," Frazier said. "Because of what AppD provides with relevant data and information to DISA's information team, it gives them the means and time necessary to triage any outages in an application, and so because of that, it really enables the warfighter."

As a result, AppD becomes a cost-saving need that fits into DoD's budget as an operational expenditure – not a one-off solution. "Whenever we talk about DoD's cloud efforts, we can't get away from that talk about costing efforts," Frazier said. "It's more than a technology discussion. It's become a business discussion as well."

A Way Forward

The need for clear, real-time insights into application performance is a common denominator within DoD, especially given the directive to move to the cloud. Such visibility enables IT managers to better plan for cloud migrations, including prioritizing or even "sunsetting" some applications. What's more, having real-time insight into application performance, they can better respond to the needs of the warfighter and all mission stakeholders, ensuring a better user experience. This results in a strong return on investment and timesavings, especially the benefit to DoD of accelerating their move to the cloud.

About AppDynamics

AppDynamics enables federal 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. These data-derived insights enable federal organizations to see the entire application in real-time; act quickly to identify and fix the root causes of potential problems and fine-tune an application; and know critical trends in the application over time to understand how that application is contributing to agency mission goals in specific terms.

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