

## A Strategic Perspective

# A 360 Degree View of Cloud Migration

### Application performance management keeps agencies on track – before, during and after moving assets to the cloud.

It's a given that federal agencies are moving data and applications to the cloud, a pattern of migration mandated by the Cloud First Policy of 2011 and expanded last year with the Cloud Smart initiative.

Less certain is the *what*, *how* and *when* of moving digital assets off-premises, a process that can be overwhelming. Well-intentioned agencies seeking to achieve compliance quickly can overlook critical elements that could simplify the process.

To ensure that nothing goes missing, agencies are turning to application performance management. APM is the process of monitoring software and hardware components to ensure that they're meeting the needs of users and customers.

APM supports the planning phase of the cloud migration life cycle, as well as management of the actual migration and optimization phases. To move applications to the cloud, agencies must understand their complexity. Simple migrations might involve three or four assets, while complex applications can

have thousands of resources that must be moved together.

"Understanding the scope and breadth of your application and all the communications required for it to successfully execute, so it doesn't break when moved, is extremely important to get your arms around during the planning phase," says Sean Applegate, chief technology officer at SwishData, a veteran-owned provider of information technology solutions and services to the federal government. APM can support cloud migration by revealing the complex components an application might require in the cloud.

Another vexing issue associated with moving to the cloud is cost-optimization of applications. Cloud computing can generate cost savings, but there is no guarantee of financial efficiency, especially when agencies "lift and shift" applications without optimizing them for a cloud computing environment.

"Typically, cost-optimization is not tackled until after the migration, but if you tackle it early, that will allow you to save significant costs. There are ways to automate that process so that it's not a manual spreadsheet exercise," Applegate says.



A third step that agencies shouldn't skip is migration modeling, which predicts what an onsite application will look like as it moves offsite. Specialized tools calculate that movement and analyze the challenges.

Fourth, IT administrators often overlook latency and bandwidth considerations that can compromise security. When an agency adopts a major application, such as Microsoft Office 365, improperly configured security devices could allow 50,000 connections per minute through to an application. "You may end up hitting security constraints and need to work with both your carrier and internal security team to adjust those settings during the migration," Applegate said.

Agencies often overlook how new technologies, such as artificial intelligence (AI) and machine learning, can improve application performance in the cloud. Initial moves are often straightforward rehosting without optimizations such as AI applied. Typically, that comes later when agencies rewrite, or refactor, migrated applications. But doing some of that before the migration can go a long way toward making applications more useful immediately.

### Cloud Migration Considerations

- 1 Planning
- 2 Cost optimization of applications
- 3 Migration modeling
- 4 Latency and bandwidth

## Pace of adoption

Several challenges are delaying agencies' adoption of cloud. One is collaboration across departments or agencies. An application shared among agencies, for example, requires collaboration to ensure that a cloud migration undertaken by one agency doesn't have negative consequences for others.

"It's not just understanding your application. You need to understand what moving your full application means for all of the constituents," Applegate said.

Agencies also must ensure network access to the cloud, especially for employees. If it's too slow, it may need to be redesigned, delaying migrations. Additionally, agencies must have adequate capacity for cloud applications in their cloud access point, both in terms of employees getting to the cloud and across cloud networks and for cloud-to-cloud communications.

To overcome these challenges, agencies can again turn to APM and other technologies to measure application performance against service-level agreements and compliance with federal cloud requirements. These can uncover dependencies and capacity.

"As you're beginning to build your migration platforms and test them out early, you can measure [performance] using the same tools you use in production to clearly understand whether you're going to hit your targets," Applegate said. "During the migration we can use those same performance management tools to measure what happens during a change, whether good or bad, and identify any key constraints that occur during the migration or post-migration. This is a pretty common challenge, as things don't usually go perfectly."





To speed networking, agencies can deploy a software-defined wide-area network integrated with a Trusted Internet Connections 3.0 security architecture. Using an optimization appliance can also optimize application data.

## Solutions at work

Applying these methods to migrations have yielded positive results. One large federal agency experienced significant performance challenges after adopting a managed email system for employees. Using Riverbed Steel Central Monitoring, the agency identified more than 20 key performance problems at the application server level – both at the hosting agency and across their infrastructure. As a result, the agency's troubled deployment became a success that has been in place for that past five years.

"Knowing your business transaction types and grouping those logically so you know what your customers' journey looks like and how long it takes is very important," Applegate said. Visibility into digital assets and transparently monitoring them across both the IT team that runs them and the line of business that operates applications is critical to migration success.

**“Understanding the scope and breadth of your application and all the communications required for it to successfully execute so it doesn't break when moved is extremely important to get your arms around during the planning phase.”**

**–Sean Applegate, CTO, SwishData**

## About Swish

Swish is a customer-centric, specialized integrator with an engineering first culture. Swish focuses on IT Modernization, Performance and Cybersecurity solutions. Swish strives to bring value to clients through continuous improvement expertise; robust services, superior engineering and creative solutions.

To learn more, please visit: [www.swishdata.com](http://www.swishdata.com)

1420 Spring Hill Road Suite 600 McLean, VA 22102

**P** 703.635.3324 / **F** 703.852.7904 / **E** [info@Swish.com](mailto:info@Swish.com)

