



The Unfulfilled Promise of Cloud – and What Agencies Can Do About It

MARKET TRENDS REPORT



Introduction

We've been hearing about the promise of the cloud for the past decade — a promise that included slashing IT costs, eliminating hardware upgrades, expediting IT deployment and capitalizing on technological innovation.

Yet for all its advantages, and despite direct mandates from the White House, such as the [Cloud First Policy](#) enacted in 2010, the [2018 Cloud Smart Strategy](#) and [Modernizing Government Technology Act](#), that promise is largely unfulfilled. According to a recent [IDC report](#), **80% of the IT decision-makers surveyed have migrated applications or data that were part of a public cloud back to an on-premise or private cloud environment.**

So what happened? And why haven't more organizations seen the cost, ease and agility benefits of the cloud?

To better understand these issues, GovLoop partnered with Cisco, a leader in IT, networking and cybersecurity solutions for government, for this report. In the following pages, you'll learn more about the true value of cloud, and the obstacles that may prevent government from achieving it. We'll also dive into best practices for taking better advantage of cloud and hear about the criticality of data visibility and workloads from Walter Maikish, Director, Civilian Operations, and Wayne Valentine, Senior Manager, Systems Engineering, both at Cisco.

By the Numbers

50%

IT decision-makers plan to move 50% of applications installed in public clouds to either a private cloud or non-cloud environment in the next two years.

Source: [IDC's 2018 Cloud and AI Adoption Survey](#)

13%

Cloud computing is a major factor in government technology occupation growth, which is projected to expand 13% from 2016 to 2026. Source: [Federal Cloud Computing Strategy](#)

59%

A survey of government respondents found it would be possible to run 59% of their activities on cloud-based platforms. The average gap between current and potential cloud usage is 35%. Source: [The Center for Digital Government](#)

22%

National governments spend 22% of their budgets on cloud. Source: [Gartner](#)

THE CHALLENGE

Complex Interdependencies and Infrastructure

The adoption of cloud services in the public sector has accelerated in the past decade, with technology and mandates such as Cloud Smart helping government on its path. The cloud is a critical component of several government initiatives, including artificial intelligence (AI), the Internet of Things (IoT) and IT modernization.

Cloud infrastructure and platform services enable agencies to store, share and process data. When implemented correctly, cloud services can help governments save money, increase security and improve citizen experiences.

If cloud can offer organizations so much, why are organizations in many cases moving workloads out of the cloud back on premise?

The true challenge comes down to the devil being in the details – and the realization that cloud wasn't a simple silver bullet for government workloads.

Agencies face challenges in several areas when it comes to taking full advantage of the cloud: performance, complexity, security, data sovereignty and user experience.

These are delicate and complex areas, Cisco's Valentine said, and agencies didn't necessarily pay full attention to them in their eagerness to move workloads to commercial clouds, limiting their ability to take full advantage of cloud's potential.

"In some cases, agencies misunderstood the interdependencies of the applications they moved to the cloud, with respect to the relative location of dependent resources – on-premise, in the same commercial cloud, in a different commercial cloud or a combination of the three – where data resides, the interactions required to execute workflows, and more," Valentine said. "Now they are rethinking how to better enable cloud adoption. And in order to get there, they are having to retrench, and in some cases, bring some of those applications back on prem."

The reality today is that the move to the cloud must be much more deliberate and targeted.

Agencies must think in a much more structured fashion about what can move to commercial clouds, what would benefit from moving to the cloud and which moves would be of low value but high burden.

Clearly, there's a lot to consider when it comes to an agency's move to cloud, but in most situations, the pros outweigh the cons. So, how can government agencies move forward with cloud adoption thoughtfully and strategically?

The answer lies in improving two critical areas: the visibility of data and workloads across on- and off-premise environments, including cloud, and the network infrastructure to ensure optimal end-user experience.

"Visibility will bolster an agency's ability to improve end-user experience, to reduce complexity, to understand what's needed from a security perspective and ensure data sovereignty. The right visibility lets you see, in real-time, the actual underpinnings of your applications, how they are performing and why."

Walter Maikish
Director, Civilian Operations, Cisco

THE SOLUTION

Improving Visibility and the Network

To realize the true potential and possibility of cloud, agencies must invest in better visibility across workload and data hosting environments.

“Visibility will bolster an agency’s ability to improve end-user experience, to reduce complexity, to understand what’s needed from a security perspective and ensure data sovereignty,” said Cisco’s Maikish. “The right visibility lets you see, in real-time, the actual underpinnings of your applications, how they are performing and why.”

Agencies need seamless visibility across the full spectrum of their data- and application-hosting environments. This will give teams insights into the performance, availability and interrelationships among the workloads and components that make up their systems or applications, regardless of where they are hosted. This helps agencies quickly pinpoint

application and infrastructure issues and take proactive measures to maximize end-user experience.

Finally, many agencies may have overlooked the need to architect the network to support highly distributed applications and the ability to collect, store and process data where needed – across cloud environments or at the edge. Cloud didn’t replace the need for sound and modern network architectures, it increased the need for them – it made them even more critical.

To fulfill the promise of the cloud and prepare for emerging technologies such as AI and machine learning (ML), agencies need a network that can support it, the right visibility into their workloads, and a holistic, strategic approach to cloud adoption.

BEST PRACTICES

Achieving the True Potential of Cloud

I. Understand your application footprint and map dependencies.

Application discovery is the first step in identifying the full inventory of the applications and components running across your environments. Collecting information about the applications and their interdependencies in the existing environment is critical to understanding if and how an application should be migrated. Dependencies must be mapped from multiple perspectives:

- Customer’s business process mapping (business processes to applications)
- Application-to-server dependency mapping
- Infrastructure physical dependency mapping
- Application transport mapping (flow characteristics over the network)

Correlation of the gathered data provides a holistic view into the complex data center and cloud environment. This understanding gives confidence when planning for migration.

2. Rationalize your applications.

Application rationalization is necessary to identify the best cloud model across all environments, but first agencies must conduct a detailed analysis that assesses the maturity and readiness of each application, based on sound architectural, security, financial and operational requirements. This analysis must also provide an understanding of how using cloud services to deliver an application or a service will affect the mission and the people.

3. Profile to determine what business and mission functions can benefit the most from being hosted in a cloud environment and/or leveraging cloud services.

Identify simple applications that are suitable for a cloud environment, and which can be consumed in a Software-as-a-Service model (ex., Microsoft Office 365 suites). Gain confidence and transformation best practices with low-risk environments first.

4. Assess your network's readiness.

- **Create the right infrastructure.** Legacy IT and aging infrastructures can make it difficult to take full advantage of the cloud. Adopt an infrastructure that provides a powerful, flexible and highly secure way to enable various technologies and services — quickly and cost-effectively.
- **Standardize technologies and processes across your on-premise and commercial cloud environments.** When different groups use a diverse set of applications across multiple environments, complexity results. Network and security policies should be created once and applied across all environments.
- **Gain real time visibility into the performance of your applications and services across all environments.** Ongoing cloud adoption success depends heavily on knowing how your cloud-hosted application has performed in the past and how it is

doing at present. These metrics create a framework that lets organizations define strategies moving forward and ensures a smooth path for continued cloud improvement.

- **Look to TIC 3.0 for guidance.** [Trusted Internet Connections \(TIC\) 3.0](#) proposes increased cloud security flexibility for federal agencies and the opportunity to use modern security capabilities. The recently revised policy will remove cloud barriers and accelerate federal cloud transformation.

5. Adopt a Zero Trust model that extends from the cloud to the edge.

A strategic move to the cloud requires you to put security above everything, embed it everywhere and integrate it throughout the operations of every environment. Although network segmentation and visibility remain critical, agencies must also extend their Zero Trust approach to their workforce, workloads and entire workplace.

6. Assess your operating model.

Realizing the value of cloud adoption requires an evolution of your operating model. IT will need to shift the way it delivers capabilities in order to increase the value of the services that end-users receive. Cloud adoption is also driving new roles and responsibilities. Therefore, it is critical that employees have the proper training and are ready to assume the new roles and responsibilities required for successful cloud adoption.

Consider the right deployment and consumption model mix for your agency. Agencies are using multi-cloud deployment models (private, commercial, community and hybrid) to deliver best-fit services for their users and help drive application rationalization for their organizations. The pressure on IT to manage complexity, keep costs down and meet business needs also continues to increase. Leveraging managed services can help IT optimize and manage traditional IT environments and free resources to more quickly transition to new technologies and adopt cloud services.

How Cisco Helps Agencies Prepare for and Optimize the Cloud

Cisco brings together technology, advanced services and strategic partnerships to help agencies leverage and deliver cloud services to meet mission needs. In particular, Cisco offers a full suite of solutions designed to help agencies move past the complexities of cloud adoption and into a space where they can take full advantage of its potential. Here is how Cisco can support agencies' cloud adoption journey:

→ Through solutions that enable a Zero Trust architecture based on a “verify and never trust” approach to better protect agencies’ networks, infrastructure and data from growing digital threats, in today’s connected world. They include:

- **Cisco Identity Services Engine** – an intent-based policy and compliance solution that offers a network-based approach for adaptable, trusted access everywhere, based on context.
- **Cisco Cloudlock** – a cloud-native cloud access security broker that helps protect agencies’ cloud users, data and apps through a simple, open and automated approach using application programming interfaces.
- **Cisco Umbrella** – a solution that leverages deep threat intelligence to keep employees safe from malicious online destinations and suspicious callback activities, protecting users anywhere and anytime they access the internet.
- **Cisco Tetration** – a solution that offers holistic workload protection and allows IT to identify security incidents faster, contain lateral movement and reduce the attack surface across multi-cloud environments by enabling a Zero Trust model using segmentation.

→ Through solutions that enable IT to monitor, correlate, analyze and act on application and mission performance data in real time, regardless of where the application is hosted (on-premise or in a commercial cloud). One example is:

- **Cisco AppDynamics** – Application Performance Monitoring – a solution that enables the auto discovery and dependency mapping of applications, provides a unified real-time view of application performance and user experience, and a consistent baseline of technical and business metrics across on-premise and commercial cloud environments.

→ Through solutions that enable developers, IT operations and mission owners to gain the insights they need to make mission-critical decisions and strategic improvements. For instance:

- **Cisco AppDynamics** – a solution that leverages AI and ML to offer automated insights that allow agencies to avoid mission-impacting performance issues before they occur and perform automated root-cause analysis.

To learn more about how Cisco’s Cloud Ready Network can help your organization, [click here](#) to download their latest whitepaper.

Conclusion

Agencies today understand that they need more holistic strategies, a refreshed network architecture and visibility across all their environments to realize the full value of cloud adoption. No single cloud or deployment model will meet an agency's mission need. Today, applications and their developers play a more critical role than ever. Organizations must continuously innovate and find the right people, processes and solutions to simplify the complexities of today's multi-cloud world.

Cisco, with its full suite of solutions, can enhance the visibility of your data and workloads before determining whenever to move them to the cloud. This visibility can help your agency avoid the common pitfalls of cloud to realize its full potential.



ABOUT CISCO

Cisco designs and sells broad lines of products, provides services, and delivers integrated solutions to develop and connect networks around the world. For over 30 years, we have helped our customers build networks and automate, orchestrate, integrate, and digitize IT-based products and services. In an increasingly connected world, Cisco is helping to transform businesses, governments, and cities worldwide.



ABOUT GOVLOOP

GovLoop's mission is to "connect government to improve government." We aim 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 connect and improve government.

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