

Hybrid Cloud: The Gateway to More Modern IT Infrastructure in DoD

MARKET TRENDS REPORT



Introduction

Dana Deasy has a clear vision for modernizing the Defense Department's IT infrastructure — one that involves laying a strong foundation for warfighter capabilities and embracing cloud computing.

In his role as DoD's Chief Information Officer, Deasy wants to develop a modern infrastructure that can manage both classified and unclassified data. He also wants a platform that supports an "<u>enterprise approach to developing cloud-aware applications.</u>"

"The warfighter needs access to intelligence and communication to enable quick decision-making and maintain a competitive edge," <u>Deasy said during a keynote address</u>.

But the gap between DoD's current and future state is where both challenges and opportunities exist. Today, "different DoD components manage many of the department's networks, data centers and clouds," according to a <u>Pentagon news</u> <u>release</u>. "Consolidating these disparate efforts at the enterprise level will enable the CIO to provide greater security and ensure greater reliability of the department's digital infrastructure, while achieving cost savings."

Having the right tools, capabilities and culture to get the job done is the key. Pentagon officials must consider which solutions enable them to consolidate their workloads without cutting off resources and stifling application performance.

For federal agencies, particularly DoD, enterprise-scale hybrid cloud fits that bill. By investing in hybrid cloud, the department can more easily converge its services and operations between multiple clouds, including public and private offerings.

In this report, GovLoop partnered with NetApp, a data management company that specializes in hybrid cloud, to explain the value and benefits of investing in this nextgeneration solution for DoD. We gained insights from Rob Gordon, Deputy Chief Technology Officer, Office of Technology and Strategy, Cloud Infrastructure Business Unit at NetApp, who shares how DoD can avoid the pitfalls that some early cloud adopters faced and how hybrid cloud infrastructure can integrate with its current and future solutions.

BY THE NUMBERS



Ris<u>k (IL4/IL5) data</u>

Source: Defense Information Systems Agency (DISA)

FY I7 DoD Cloud Efforts by Service Model



"When most people talk about HCI, they're talking about hyperconverged infrastructure. Simple deployment. Simple management. NetApp HCI does exactly that and more. When we talk about HCI, I want you to hear 'Hybrid. Cloud. Infrastructure.' Operating like a cloud. Consumed like a cloud. The same experience and services as a cloud. And consistent access to all the innovations of the largest clouds."

Brad Anderson | Senior Vice
President and General Manager Cloud
Infrastructure, NetApp

<u>Source: NetApp</u>

1.5 million computers are in use across DoD

28,000 IT systems and **I0,000** computer networks are in operation through DoD

Source: Government Accountability Office

THE CHALLENGE Navigating Data Silos and Multi-Cloud Environments

DoD is increasingly relying on a complex IT infrastructure to share intelligence data, protect warfighters and meet critical mission goals.

The department requires storage to house the trillions of data points that internal systems, external sensors and DoD personnel generate. DoD also requires computing power to fuel applications for logistics, business needs, cyber operations, as well as networking to connect all the applications and workloads that keep the entire government running.

"In the absence of modern services, warfighters and leaders are forced to choose between foregoing capabilities or slogging through a lengthy acquisition, rollout, and provisioning process," DoD wrote in its <u>draft statement</u> <u>of objects</u> for its \$10 billion Joint Enterprise Defense Infrastructure (JEDI) Cloud contract.

In laying out his vision for the department, Deasy said he wants to leverage the benefits of multi-cloud and a multi-vendor environment, but the department currently operates with multiple clouds that are disparate and disjointed, according to <u>DoD reports</u>.

Another challenge DoD faces is an issue that has plagued both defense and civilian agencies: hiring and workforce training. They need the right talent to work on complex systems and to ensure the success of network modernization and cloud migration projects.

The problem is that replacing employees who either leave for private-sector jobs or new positions elsewhere in government can be a long, drawn-out process. And once new employees come on board, getting them up to speed can take months.

"There shouldn't be this massively long training session on multiple vendor hardware," Gordon said. "We should make that as transparent and as easy as possible."

What DoD and other agencies need is a next-generation solution that goes beyond traditional hyperconverged infrastructure (HCI) to a modern, flexible and cost-effective solution that enables employees to do their jobs more effectively, and without constraints.

THE SOLUTION Enterprise-Scale Hybrid Cloud

Simply put, DoD needs modern technology that makes it easier for warfighters to access data and manage critical applications. Hybrid cloud infrastructure provides those capabilities and dovetails with the department's existing and future cloud computing strategy.

What makes hybrid cloud unique is that it comprises two or more distinct cloud infrastructures (private, community or public) that remain unique entities but are bound together, according to the National Institute of Standards and Technology. The standardized technology that binds the clouds together also enables data and application portability.

"With hybrid cloud, the department can have a system that's self-contained," Gordon said. "This means users will have one point of contact to go to, and the solution does not require multiple types of engineers. It's easy to run, easy to maintain and easy to upgrade."

Hybrid cloud will also give DoD a single view of its computing, storage and network resources. That's an immense value to the mission because users don't have to manage various server racks and components that have to be interconnected.

As with any technology, agencies should be strategic about how they implement new solutions. For some agencies, the evolution to hybrid cloud infrastructure included early investments in first-generation HCI, which consolidates computing, storage and network resources into a single piece of commodity hardware.

When HCI first came on the scene, some early adopters were standing up separate HCI instances and creating even more silos across their IT environments. But as agencies are becoming more educated on the benefits and capabilities of next-generation solutions, they are taking advantage of the benefits that hybrid cloud can offer, particularly flexibility and the ability to scale and meet IT demands departmentwide.

In the next section, we explore best practices for adopting hybrid cloud infrastructure solutions and how DoD can benefit from the technology.

BEST PRACTICES Implementing Hybrid Cloud Infrastructure Across the Enterprise



I. Find a solution that is standardized and easy to deploy.

Look for a solution that is well known in the industry and commonly used across other government IT environments. In other words, don't select a hyperconverged infrastucure provider that uses its own proprietary technology. Why? That creates more complexity for your agency and requires additional training for employees. Instead, look for hybrid cloud vendors that eliminate complexity and specialized training.



2. Don't buy a solution that only solves one-off issues.

Choose a hybrid cloud solution that solves multiple problems instead of looking for a product to solve one problem. To get the most out of your solution, think broadly and consider how hybrid cloud can solve any infrastructure needs you have across the enterprise.

3. Apply controls to your hybrid cloud solution.

You need controls to help manage your each and every cloud workloads and ensure that the quality of services remain high for all of your applications and services. You need to identify a quality level of service that governs your hybrid cloud. For example, you need to have a minimum, maximum and burst control to ensure that any workload running in your hybrid cloud do not impact other services. Work with your data management vendor to determine if the solution allows you to allocate, manage and guarantee performance independently of capacity.

4. Choose a solution that meets current and future needs.



Selecting an agile hybrid cloud solution ensures that the technology can adapt to meet your agency's current and future needs. There are executive orders and programmatic and project changes that agencies have to adhere to, and they need flexible solutions that can support those efforts.

Let's say your agency closes a data center and needs to move resources from one facility to another location. Having an agile hybrid cloud infrastructure can enable those transitions and allow your agency to scale resources up or down. Independent scaling avoids costly and inefficient overprovisioning and simplifies capacity and performance planning.

5. Collaborate with a trusted partner.



The IT workforce is evolving, so having a trusted partner to complement your in-house expertise is vital. When you work with a trusted partner, you can determine the hybrid cloud solution that best meets your infrastructure needs and does not require a heavy lift to implement and use.

Working with a knowledgeable partner, agencies can become service providers. They can supply their sub-agencies with individual personal computing, networking and storage resources when and how they need them. Ultimately, that means agencies are freed up to become innovators — adopting new technologies and even creating their own as dynamics change.

CASE STUDIES

Hybrid Cloud Supports Application Deployment

Mapping and analytics applications are essential to DoD's global mission, but deploying these tools on a new network can create complexities.

One DoD agency in particular sought to simplify that process using NetApp Hybrid Cloud Infrastructure (HCI) to support the entire infrastructure. With hybrid cloud, the agency was able to maintain existing disaster recovery and data-sharing processes. Plus, the agency was able to simplify capacity and performance planning by scaling storage and computing resources independently.

Simplifying DoD Infrastructure With Hybrid Cloud

An existing NetApp customer within DoD wanted to simplify its operations at remote sites, but there were several issues that made the process challenging.

First, the average years of IT experience of ground personnel was one year or less. The agency also had to consider a solution that would allow data to flow between remote sites and its existing architecture at its headquarter site.

To address these concerns, NetApp provided a simple solution that did not require infrastructure expertise on the ground. Setup was a simple browser-based installation with 30 inputs. NetApp was able to help deploy storage, in addition to vSphere — VMware's suite of server virtualization products, and vCenter configuration, a solution that automates configuration management across virtual, physical and cloud environments — in under an hour.

The agency also took advantage of a capability called SnapMirror, which enabled it to replicate and share data across its NetApp platforms.

HOW NETAPP HELPS

With NetApp's Hybrid Cloud Infrastructure solution, agencies can host their data in a public cloud, a private cloud or wherever they choose. Hybrid cloud also gives agencies the ability to innovate by making it easy to acquire resources when new demands arise. For instance, if a department is using DevOps to build a new application for citizens, it can easily acquire the computer and networking tools to get that done.

NetApp is an enterprise-scale hybrid cloud solution ideally suited for customers who are looking to break free from first-generation HCI limitations and go beyond what they are currently doing. NetApp customers can run multiple applications with guaranteed performance to confidently deploy resources across their entire data center.

NetApp's solutions are data ready out of the box for easy access to all your data across any public, private or hybrid cloud. Data Fabric is a software-defined approach from NetApp for data management that enables businesses to connect disparate data management and storage resources. Using NetApp, agencies can streamline data management between on-premises and cloud storage for enhanced data portability, visibility and protection.

Read more at: <u>https://www.netapp.com/us/forms/</u> campaign/evolving-hyperconvergence-with-hybridmulticloud.aspx

Conclusion

Hybrid cloud infrastructure can provide DoD with the flexibility, scalability, security and performance that it needs to meet critical mission demands. That's why it's essential for IT professionals across DoD to understand the benefits of next-generation architectures and how to get started with hybrid cloud.

By embracing solutions like NetApp HCI, IT organizations can transform their data center, driving operational efficiencies and reducing costs. As DoD and other federal agencies adopt cloud solutions, they can also integrate those capabilities with their existing IT investments.

This next-generation infrastructure should be a key consideration as federal agencies seek to modernize, simplify management of applications and provide better access to data.

NetApp[®] ABOUT NETAPP

NetApp is the data authority for hybrid cloud. We provide a full range of hybrid cloud data services that simplify management of applications and data across cloud and onpremises environments to accelerate digital transformation. Together with our partners, we empower global organizations to unleash the full potential of their data to expand customer touchpoints, foster greater innovation and optimize their operations.

For more information, visit <u>www.netapp.com</u>. #DataDriven



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