

Invisible Infrastructure: Simplifying Multi-Cloud and Securing Mission Progress



“To cloud or not to cloud?” became a question of the past with the introduction of the Cloud First mandate. In the race to Cloud First, agencies and departments sometimes did not address the multiplicity of factors that should contribute to environment selection – volume, performance, governance, security, cost control, management tools, etc.

As the Federal government shifts from Cloud First to Cloud Smart, there is growing recognition that one cloud does not – and cannot – fit all. The Office of Management and Budget’s (OMB) Cloud Smart initiative acknowledges that hybrid and multi-cloud environments can be “effective and efficient for managing workloads,” but doing multi-cloud right, remains a challenge.

The shift requires more nuanced, customized approaches to ensure implementation, updates, and scaling will meet agency needs now and in the future. Today, agency leaders are reviewing workloads and evaluating the optimal environment for each based on key factors. Legacy infrastructure, vendor lock-in, shadow IT investments, and workload security requirements create a complex environment. Agencies are tasked with the hard requirement to marry traditional infrastructure and modern public cloud services.

According to ESG Global, 54% of organizations say managing multi-cloud is more difficult than on-premise solutions.¹ To fully realize the benefits of multi-cloud without the complexity, agencies need the proper tools, people, and processes to bridge the gap between traditional infrastructure and a modern, multi-cloud approach.

Push & Pull: From Cloud First to Cloud Smart

Government budgets can change depending on season, projects, and demand. Agencies need a flexible, multi-cloud environment that can expand for a new project without saddling them with the cost of that infrastructure once the project is complete. The capacity and availability of public clouds make the solutions attractive, but managing, moving, and securing the data remain chief concerns. According to a recent IDC survey, 86% of enterprises said they are considering “repatriation” – moving applications from public clouds back to the data center for one or more workloads.² But, pulling applications and data out of public clouds is expensive.

Workloads’ conflicting priorities both push agencies away from a single public cloud approach and pull agencies toward a coordinated Multi-Cloud as-a-Service solution.

- **Cost:** Federal agencies are often surprised and frustrated with the Total Cost of Ownership (TCO), including fixed costs for dedicated servers and SSD drives, as well as operational bandwidth costs. A multi-cloud structure provides flexibility and avoids vendor lock-in, encouraging vendors to stay price competitive
- **Security & Governance:** Some government workloads require a greater level of security and/or accessibility and are better left on-premise
- **Volume:** With new developments in machine learning (ML) and artificial intelligence (AI), agencies are mining insights from large sets of data. But, data-intensive applications in the public cloud can experience unacceptable latency, leading to poor user experience, missed SLAs, and ultimately, negative mission impact
- **Management:** As hybrid environments have become more complex, more manpower is needed to maintain and manage, surpassing the availability of experts in the field. Properly

1 <https://www.esg-global.com/data-point-of-the-week-09-30-19>

2 https://www.cbronline.com/wp-content/uploads/dlm_uploads/2019/05/IDC-The-Power-of-Hybrid-Cloud_Final.pdf

managed multi-cloud solutions will provide a single pane of glass view cutting down on management costs

- **Variety:** Some workloads may require a cloud for high performance computing with specialized computing nodes and hardware; others may need ML functionalities; still others may need a specific program. Multi-Cloud as-a-Service solutions enable agencies to satisfy these workloads without the upfront hardware investment or ongoing maintenance requirements and costs
- **Development:** With DevOps, agencies rely on cloud resources to automate programming. Agencies can develop local containers and applications faster on a local, private cloud, and push out solutions more rapidly to the public cloud

Multi-Cloud Yesterday vs. Multi-Cloud Tomorrow

Across industries, organizations leverage five clouds on average.³ Despite the mission to modernize and migrate to cloud, Federal agencies simply aren't realizing the promise of multi-cloud.

Isolated pockets of cloud were – and still are – created throughout agencies resulting in “cloud sprawl.” To complicate the issue, many agencies initially built their own clouds, but struggled to assemble the separate components of the back-end – basic infrastructure, container structure, operating systems, and tools. Many CIOs attempt to unite the sprawl with disjointed management tools, resulting in a herculean reporting task.

A hyper-converged approach bridges the gap between traditional infrastructure and public cloud services, and lays the groundwork for IT transformation/modernization efforts. It simplifies the inherent complexity of a SAN-based infrastructure that creates silos of storage, networking, servers, virtualization, management, and data servers. By

integrating these components into a simple appliance building block, hyper-converged provides ready, scalable infrastructure across private, public, and edge clouds. Hyper-converged is not an end-point, but rather a fundamental building block on the path to cloud.

Federal IT managers who have implemented a hyper-converged infrastructure are more likely to feel confident in their ability to support next-generation technology (81%) when compared with those who have not (51%).⁴ The DevOps mentality allows agencies to update incrementally, starting smaller with less risk and scaling as needed.

Mind Over Matter: An Actionable Multi-Cloud Strategy

Any multi-cloud environment relies on a strong hyper-converged foundation. This foundation will let agencies take an incremental approach, rather than investing and standing up a single massive lift. The underlying hyper-converged infrastructure will help manage all disparate elements across legacy and modern environments, as agencies move forward with deploying cloud workloads.

When implementing an actionable multi-cloud strategy it is important to start small and start fresh. Smaller projects provide a low-risk opportunity to prove out the project and then scale. These small successes will build the momentum needed to tackle legacy application migration later.

After selecting the workload, agencies must evaluate the environment and identify where current applications and data live to determine the optimal location going forward. For example, agencies that have proprietary government data or data that require a rigorous management scheme should set up an internal cloud, rather than a public cloud. Evaluation can be a big lift and require additional resources that not all agencies can afford.

3 <https://info.flexera.com/SLO-CM-WP-State-of-the-Cloud-2019>

4 <https://www.meritalk.com/study/hyper-converged-without-the-compromise>

Through ViON Cloud Readiness Assessment Services, we deliver a unique ability to assess your targeted applications and systems to determine which cloud environment is best suited for your applications, how to configure your systems optimally in the cloud, and how to estimate costs for running those systems in the cloud – all before migration. ViON Cloud Readiness Assessment Services are delivered in three phases to help you plan your cloud migration:

	Discovery Phase: Discover your IT assets, workload characteristics, and dependencies between compute, networking, and storage environments
	Profiling Phase: Consolidate your workloads into profiles that will identify and build optimal cloud configurations
	Playback Phase: Use synthetic workloads to simulate optimal performance and cost configurations in the cloud

There are many factors to consider when selecting a platform. First and foremost, be proactive to address procurement and accreditation issues. Select a FedRAMP-authorized vendor and avoid a large capital procurement bid. Consider Multi-Cloud as-a-Service, which provides an easier procurement vehicle. Procure, implement, and scale incrementally to achieve success one project at a time and to execute an organized migration from the legacy environment.

Look past implementation to day two operations. Agencies may feel a surge of pressure to move quickly, assuming they are behind on the journey to multi-cloud. While it may be tempting to select the first vendor that can meet your implementation

budget and timeframe, take time to select the solution that continues to be a good fit after implementation. Evaluate the simplicity in the operational effectiveness of the products.

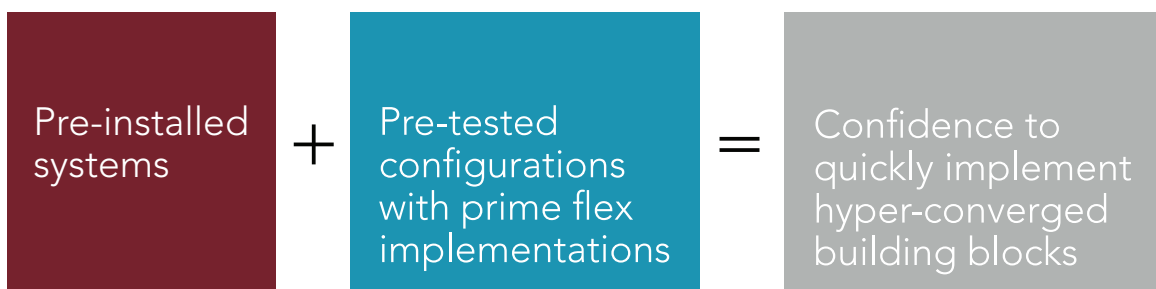
Services-led engagement and expertise is critical; look for the knowledge, the intelligence, and the experience when selecting the technology platform used to implement private cloud and integrate with the public cloud. Expert advisors can help identify what is possible in the cloud, where the industry is going, and what steps should be taken to prepare for future developments.

Agencies also need a strong set of integrated tools to manage public cloud, private cloud, and on-premise environments in a way that is transparent to users and easy for an IT administrator to maintain. Select a vendor that can integrate consoles from the various environments into a single pane of glass view.

After selecting a vendor, agencies need to set up governance in advance of implementation to monitor costs. Agencies need to monitor where things are running within the organization, and what the cost is. Budgeted reports for each department can ensure that teams are aware of how much money they have for the fiscal year and how much money they are putting toward cloud resources.

Empower Confidence in Multi-Cloud Implementation

Current infrastructure efforts require IT needs to be predicted three to five years in advance and successful implementation requires buy-in from multiple teams. To catalyze modernization, agencies need to get IT off the critical path to implementing change.



Fujitsu, Nutanix, and ViON have partnered to provide Nutanix Enterprise Cloud on PRIMERGY, a high performance, reliable solution that makes IT infrastructure practically invisible.

Nutanix Enterprise Cloud on PRIMERGY is a fully integrated turnkey solution with servers, storage, and virtualization along with end-to-end systems and operations management.


Nutanix Enterprise Cloud on PRIMERGY delivers a virtualized cloud environment offering Federal agencies performance, resiliency, and reliability. With a rich set of tools and intuitive interfaces, agencies can efficiently stand up and manage a local private cloud integrated with public cloud – all with a single pane of glass. The fully integrated solution allows agencies to check and remediate compliance policies against National Institute of Standards and Technology (NIST) standards, and it notifies the administrator of needed updates, whether they are software or hardware related.

Fujitsu Server PRIMERGY's Cool Safe technology allows the system to cool more efficiently, even in adverse environments, saving energy costs and providing a higher performance level with capabilities to support multiple virtualized workloads – anytime, anywhere.

To tie the solution together, ViON offers multi-cloud orchestration to manage multiple cloud environments into a single resource. ViON's Multi-Cloud as-a-Service model presents a flexible contract to scale up and down based on season and workload, all with a predictable, manageable operating expense. ViON's Federal experts will help evaluate, advise, implement, and, most importantly, maintain systems.

The promise of cloud is being able to focus IT at the application layer, where users and citizens see the biggest benefit. By making the underlying infrastructure simple, secure, reliable, and cost-efficient, agencies can unlock the cloud's potential.

To learn more about how Fujitsu, Nutanix, and ViON can support your hyperconverged multi-cloud efforts, please visit: [XXX](#)

A man in a white shirt and glasses is standing in a server room, looking at a laptop. The server racks are visible in the background, and the lighting is dim with some red highlights.

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196 Van Buren St. | Herndon, VA 20170 | (571) 353-6000 | vion.com