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HYPERCONVERGED INFRASTRUCTURE

An Effective and Efficient Path to Federal IT Modernization

Many federal IT managers are faced with managing data centers that experience sub-optimal infrastructure performance, security, availability and scalability challenges. A recent study found the solution to these challenges may be in transitioning from legacy 3-tier architectures to hyperconverged infrastructure. U.S. federal and defense agencies that have adopted this innovative data center architecture are experiencing great results — specifically, an ability to focus resources on application delivery and mission-critical initiatives rather than high-touch hardware infrastructure management. In addition, the study respondents say total cost of ownership is lower, infrastructure performance is better and streamlined procurements make maintenance and management easier.

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> **"Hyperconvergence eliminates silos of infrastructure and allows IT managers to focus on application delivery for mission critical initiatives — which is what the end users most care about."**
>
> **CHRIS HOWARD**
> *Vice President, U.S. Federal, Nutanix*

Executive Summary

On one hand, Federal agencies are pressed to focus resources on Administration priorities such as cybersecurity, data center consolidation and cloud computing. On the other hand, the cost of maintaining and refreshing legacy hardware-centric infrastructure threatens to obstruct progress by soaking up 75% of IT budgets, leaving room to do little more than maintain the status quo.

No one knows better than IT managers that legacy systems are expensive, brittle, inefficient and time consuming to maintain — and that they are an obstacle to successfully addressing Administration priorities. Yet, many are unsure or unaware of the options.

Hyperconverged Infrastructure (HCI) is a promising — and proven — option to consider.

HCI's software-centric architecture natively converges compute, storage, networking and virtualization resources from scratch in a commodity hardware box supported by a single vendor. Some of these turnkey appliances are secure by design, can be deployed quickly (often in 30 to 60 minutes), and they have the ability to run any application and workload at any scale right out of the box. It has already proven itself to be a cost-efficient, reliable, scalable solution in federal agency IT environments. Each of these benefits is important, and agencies interested in adopting HCI should look for vendors who offer all of them in their HCI product.

To help IT managers grappling with the challenges of modernizing their network and wondering if HCI makes sense for their agency, Nutanix commissioned Market Connections to determine the degree to which federal IT managers are using HCI and the impact using (or not using) it has on the pressing needs and challenges agencies face.

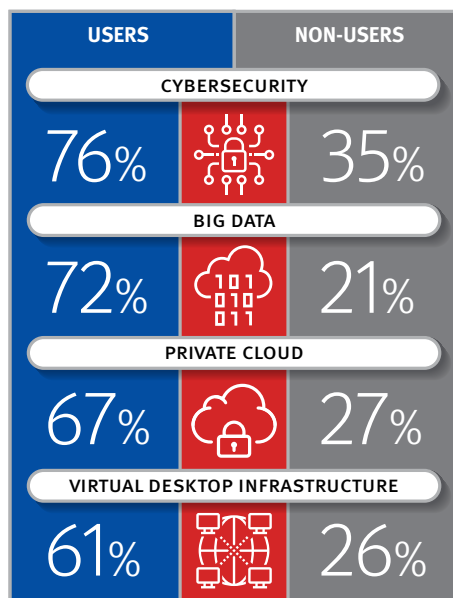## Hyperconvergence in Federal Agencies: What We Found

The study found that more than one-third of respondents (36%) have implemented HCI, or plan to in the near term. Another third (34%) are either not considering it at all, or are not familiar with it. The remainder are interested, but are not sure when they may adopt it.

Of those who do not plan to implement HCI, the top two reasons are acquisition and implementation costs (45%) and that it needs to prove itself for mission-critical needs (40%). Respondents noted that the siloed nature of their infrastructure is an obstacle to adopting new technologies, including HCI. In fact, one study respondent added: "We are so organized in infrastructure/operational stovepipes that hyperconverging is viewed as a threat." Dan Fallon, Director of Systems Engineering, U.S. Federal, Nutanix, confirmed that this is a sentiment he has frequently heard from federal IT professionals.

Hyperconverged Infrastructure Drives Key Federal Initiatives

Users rate their infrastructure effectiveness higher than non-users, in supporting key initiatives

USERS		NON-USERS
CYBERSECURITY		
76%		35%
BIG DATA		
72%		21%
PRIVATE CLOUD		
67%		27%
VIRTUAL DESKTOP INFRASTRUCTURE		
61%		26%

SATISFACTION RATE

HCI users rate their organization's current infrastructure higher on scalability, agility and ability to support new technologies.

USERS		NON-USERS
79%	Scalability of infrastructure	42%
76%	Ability to incorporate new technologies into the environment	39%
76%	Agility in provisioning new capabilities	39%

For those who are unsure of the benefits, or need proof to back a decision to investigate it, the data tells a solid story: While the numbers of those using it, considering it and not considering it are evenly split, the impact this status has on how agencies rate the performance of their current infrastructure varies significantly.

In short: the data shows that HCI delivers exactly what it promises.

Infrastructure Support of Priority Initiatives

Vendors say a key benefit of HCI is its flexibility for incorporating new technologies and architectures. Those federal agencies that have implemented it agree: A significantly greater proportion of respondents that have adopted HCI (55%) note it is very easy to incorporate new technology/architecture into their existing environment, versus only 2% of those who do not plan to implement it.

That 2% number is not surprising considering how difficult it is to incorporate and provision new services and architectures into a traditional 3-tier model. HCI is different: Hyperconverged architectures provide a single pool of compute and storage resources, which allow new applications and technology to be added without the need to re-architect the underlying infrastructure. In traditional environments this re-architecture would require time to design, implement and provision, with the result creating another hardware silo to manage and maintain in the data center. With HCI, the underlying pool of resources can scale to meet the demands of requirements for new technologies. And with one-click provisioning, virtual machines can be created for new applications in a matter of seconds versus the days it takes to provision in a traditional 3-tier environment.

In addition, a significantly greater proportion of respondents that have HCI indicate their current infrastructure is able to support key Administration and agency initiatives. Respondents whose agencies are using HCI are also significantly more satisfied with the features their current infrastructure offers — features that are important for agency modernization and mission readiness. For example, more than three quarters (79%) are satisfied with the scalability of their infrastructure versus 42% of those who are not considering it. In terms of the ability to incorporate new technologies into the environment, 76% of HCI adopters are satisfied with their infrastructure versus 39% of others. Provisioning new capabilities is also an important feature of modern data centers, and again 76% of those using HCI are satisfied versus 39% of those who are not.
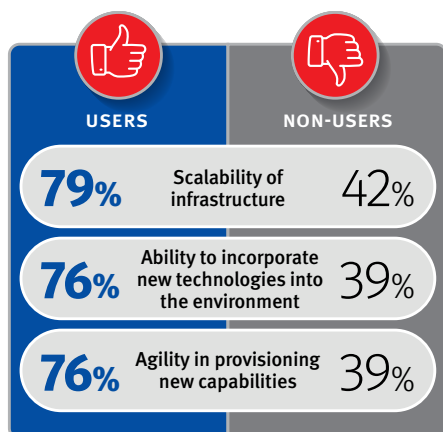
> **"Our clients tell us, and the data supports this, that hyperconvergence delivers predictable high performance for demanding apps. It also lowers CAPEX and OPEX, and reduces hands-on infrastructure management time."**
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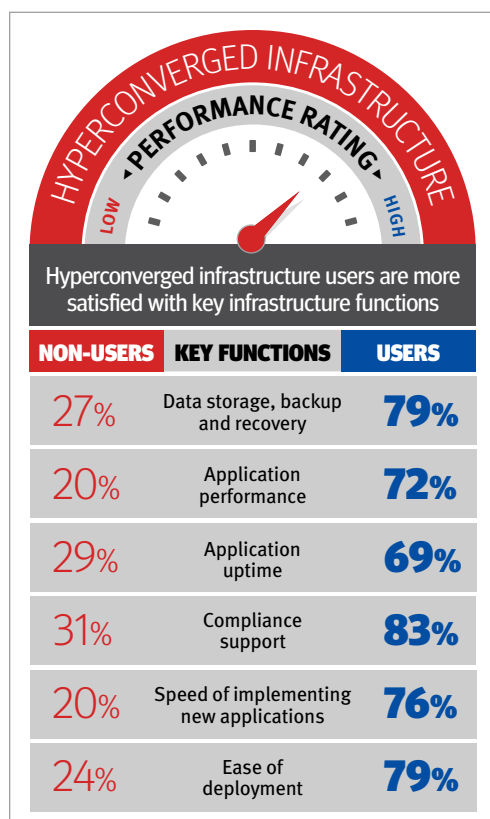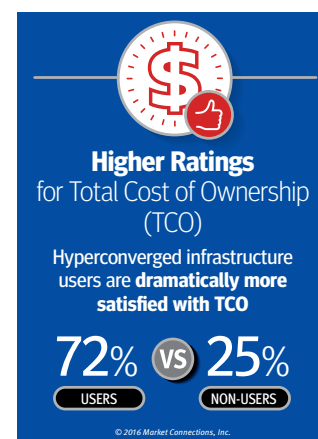> **CHRIS HOWARD**
> *Vice President, U.S. Federal, Nutanix*

Satisfaction with Current Infrastructure Performance

Uptime, operational efficiency and ease of deployment are just a few of the mission-critical challenges IT managers are addressing in their data centers. In addition, a significantly greater proportion of HCI adopters rate performance higher as well. Data storage, backup and recovery is a key performance metric for data centers, and 79% of those adopting HCI are currently satisfied, versus 27% of those not considering it.

In fact, nearly three quarters of respondents who have adopted HCI are pleased with application performance, versus two in ten of those who are not considering it. Uptime, compliance support, speed of implementing new applications and ease of deployment also rate higher.

And satisfaction with total cost of ownership (TCO) mirrors what Howard has heard from his customers: 72% are pleased with the TCO, while only 25% of those not considering HCI are satisfied with the TCO of their infrastructure.

When looking at the benefits HCI promises (using web-scale technologies and architectures to simplify data center infrastructure, while lowering TCO, increasing agility, eliminating guesswork around capacity needs and providing consistent performance), these numbers make sense, says Howard. What perhaps doesn't make sense is why there is still uncertainty about adopting HCI.

Higher Ratings for Total Cost of Ownership (TCO)

Hyperconverged infrastructure users are **dramatically more satisfied with TCO**

72% USERS VS 25% NON-USERS

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Recommendations for Implementation

In recent months, the number of HCI offerings has increased significantly, offering buyers a range of choices. When evaluating and comparing solutions, Federal IT buyers should focus on several must-have features: natively converged compute, storage, networking and virtualization; proven ease of solution deployment; security in the fundamental design; flexibility to work within a heterogeneous IT infrastructure environment, and the ability to run any application and workload at any scale out of the box. Solutions requiring high-touch professional services in order to effectively implement erode the efficiency and cost-effectiveness of a HCI platform. Likewise, solutions where security features are 'bolted on' to the platform, versus being in the fundamental design can't offer the agility in meeting changing Federal security requirements.

One of the other key benefits of adopting HCI is the ability to start small with only what you need. Fallon says HCI is the opposite of "big racks and stacks." He likens it to building a Lego fort — one piece at time, as many pieces at a time as you need.

HYPERCONVERGED INFRASTRUCTURE

PERFORMANCE RATING

Hyperconverged infrastructure users are more satisfied with key infrastructure functions

NON-USERS	KEY FUNCTIONS	USERS
27%	Data storage, backup and recovery	**79%**
20%	Application performance	**72%**
29%	Application uptime	**69%**
31%	Compliance support	**83%**
20%	Speed of implementing new applications	**76%**
24%	Ease of deployment	**79%**

When beginning the transition, Fallon recommends first looking at the whole picture of what is happening in your data center and start where you need to start today. The simplicity and plug-and-play design allows you to start small and buy as you grow.

Acquiring HCI is a different approach than the traditional 3-tier models, which require acquisition of three different silos of technology — forcing buyers to guess capacity requirements for anywhere from three to five years out, and regularly resulting in overpurchasing. As agencies start small with HCI and buy only what they need, when they need it, the dual issues of speculating about the future and overpurchasing go away — ultimately saving precious budget resources while enabling the data center to be more dynamic.

Conclusion

HCI promises to simplify Federal data centers, reduce costs and improve IT resource and service delivery. A HCI solution should make IT infrastructure seem invisible by providing seamless performance that instills the same confidence we have in a light switch to turn on a light or a faucet to turn on water — it just works. Based on the agencies that have adopted it, HCI is delivering on these promises. Performance metrics such as scalability, ability to easily incorporate new technologies, ease of provisioning and application performance are all critical to operating modern data centers, says Howard. Agencies are looking for these performance metrics with each acquisition, and current adopters consistently rate HCI significantly higher than those not using HCI. That's because they have learned first hand that HCI makes the data center work.

This simple solution allows federal IT professionals to focus on more strategic work, such as application delivery and mission initiatives rather than "keeping the lights on." This is what HCI promises. And based on the data, it's delivering exactly that.

About The Study

Nutanix commissioned the hyperconverged infrastructure study to determine the degree to which federal IT managers are using HCI and the impact using (or not using) it has on the pressing needs and challenges agencies face. The blind, online survey of 150 federal IT decision makers represented Defense/Intelligence (47%) and Civilian (including legislative and judicial) (53%) agencies. Nearly two thirds of respondents (60%) evaluate and recommend data center infrastructure and virtualization tools; 58% are on a team that does so; 30% make final decision and 43% manage or implement solutions.

ABOUT NUTANIX

Nutanix is on a mission to make datacenter infrastructure invisible, elevating IT to focus on applications and services that power the agency mission. The Nutanix enterprise cloud platform leverages web-scale engineering and consumer-grade design to natively converge compute, virtualization and storage into a resilient, software-defined solution with rich machine intelligence. The result is predictable performance, cloud-like infrastructure consumption, robust security, and seamless application mobility for a broad range of enterprise applications.

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