

WHITE PAPER

Modernize IT Infrastructure for Modern Applications with Nutanix, HPE, and Intel

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Executive Summary

Organizations need to modernize infrastructure in order to accelerate operations. Hyperconverged infrastructure (HCI) technology is a great way to modernize infrastructure. From an infrastructure standpoint, three factors—reliability and high availability, security, and integration with DevOps/developer platform environments—matter most in supporting application requirements. Nutanix with HPE GreenLake and Intel extends the benefits of HCI technology, including improved IT automation and integration, improved scalability, improved productivity of IT staff, and improved hybrid cloud management.

Introduction

For organizations, the speed of digital operations and the ability to transform data into intelligence often determine competitive success. To help the business maximize the value of its data, an organization needs a modern infrastructure that not only keeps pace with the demands of storing and using data, but also frees up personnel from mundane infrastructure maintenance duties.

Organizations need to modernize and simplify on-premises infrastructure in order to accelerate operations while reducing the burden on internal personnel. HCI technology is a great way to modernize infrastructure, which provides organizations the flexibility, scalability, performance, and ability to manage across environments with a single management plane. This results in organizations being able to free up personnel for more strategic tasks and reduce Capex and Opex.

For organizations, the biggest drivers for selecting and deploying HCI technology for business applications are improved IT automation and integration, improved scalability, improved productivity of IT staff, and improved hybrid cloud management.

Nutanix has further extended the benefits of HCI technology with enterprise data services and hybrid cloud capabilities. By using advanced silicon from Intel, Nutanix is able to deliver performance that serves a wider variety of workloads, including mission-critical applications and AI. In addition, Nutanix offers additional operational benefits, along with an option to deploy as a service with HPE GreenLake.

On-premises Modernization Accelerates Digital Initiatives

Research by TechTarget's Enterprise Strategy Group shows that businesses need to prioritize on-premises modernization. The value of HCI, which supports hybrid cloud initiatives, fits well with a cloud operating model and includes a management plane that crosses cloud environments.

The IT infrastructure landscape has transformed. The data center, once the central cog in the IT machine, is quickly becoming only a piece of a larger and more complex environment. Contemporary IT infrastructure is often distributed across multiple locations both on and off premises.

According to an Enterprise Strategy Group research survey, 59% of organizations identify data as their business; 23% of those offer core products and services that are information-based; and 36% offer both tangible and information-based products and services.¹ In addition, 64% of respondents view data-center design as strategic

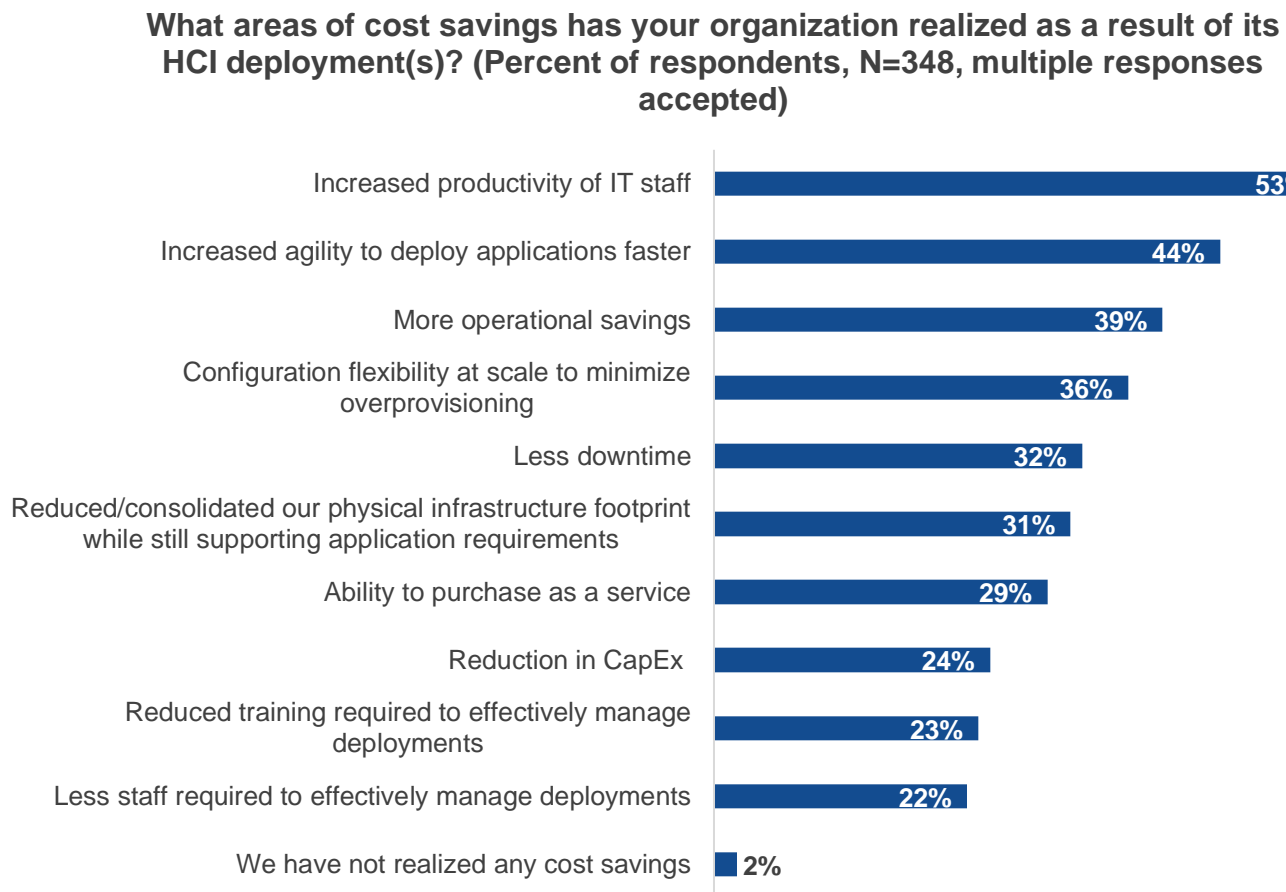
¹ Source: Enterprise Strategy Group Complete Survey Results, [Data Infrastructure Trends](#), September 2021.

and agree that it can lead to a competitive advantage.² The same survey shows that 63% of respondents agree that lack of visibility into specifics on spending for public cloud hinders IT planning.

As part of the increased focus on data-center modernization, 27% of organizations identified increased investment in HCI as one of their top-five initiatives for data-center modernization in 2023.³

Figure 1 shows that users of HCI technology identified multiple operational benefits, including increased productivity of IT staff (53%), increased agility to deploy applications faster (44%), and more operational savings (39%).⁴

Figure 1. Operational Benefits of Hyperconverged Infrastructure (HCI) Adoption



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

As a result of these benefits and technological advances, including those by Intel, users of HCI technology expect to expand adoption to a wider range of applications (see Figure 2).

² Ibid.

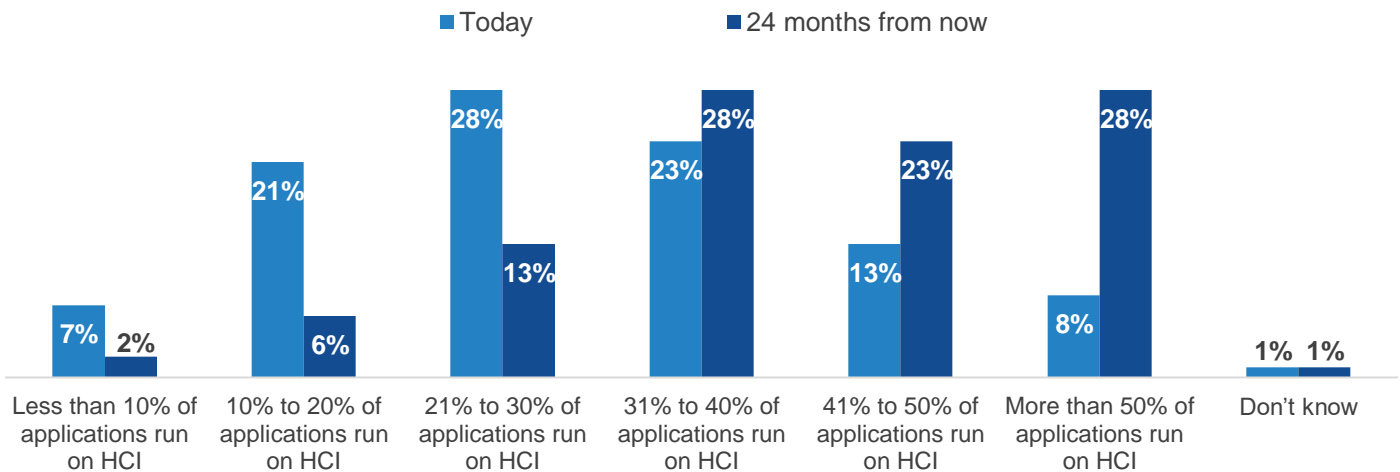
³ Source: Enterprise Strategy Group Complete Survey Results, [2023 Technology Spending Intentions Survey](#), November 2022.

⁴ Source: Enterprise Strategy Group Research Report, [Hyperconverged Infrastructure Trends](#), April 2022.

When it comes to priorities for on-premises data-center investment, organizations most commonly expect to accelerate their spending on HCI (62%), software-defined storage (59%), and object storage (54%).⁵

Figure 2. Benefits of Hyperconverged Infrastructure (HCI) Fuel Increased Usage

Of all the production business applications/workloads used by your organization, approximately what percentage is run on hyperconverged infrastructure technology today? How do you expect this to change, if at all, over the next 24 months? (Percent of respondents, N=348)



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

The Rise of AI and Generative AI Transforms Business and Infrastructure

The rise of AI and generative AI (GenAI) workloads is fueling increased interest in on-premises and edge-infrastructure investment. The fine-tuning of AI to include corporate data, with accompanying security and privacy concerns, is fueling this on-premises investment.

Cybersecurity, AI and machine learning (AI/ML), and public cloud applications are the top technologies on which organizations expect to increase their spending; 63% of organizations with AI initiatives plan to increase their investment in 2023.⁶

Enterprise Strategy Group's research also found that 92% of organizations already have GenAI in production or have plans to deploy the technology within the next year.⁷ In addition, many organizations will utilize an open source, large language model and develop a GenAI solution in house, suggesting AI and analytics skills are in place, or soon will be, to support GenAI.

⁵ Source: Enterprise Strategy Group Complete Survey Results, [Data Infrastructure Trends](#), September 2021.

⁶ Source: Enterprise Strategy Group Complete Survey Results, [2023 Technology Spending Intentions Survey](#), November 2022.

⁷ Source: Enterprise Strategy Group Research Report, [Navigating the Evolving AI Infrastructure Landscape](#), September 2023.

Where AI is deployed hinges on a variety of factors, including the cost of infrastructure and resources (34%), compliance and regulatory requirements (30%), access to technical resources and expertise (29%), and flexibility in resource provisioning and consumption (29%).⁸

Despite AI's ongoing evolution to support a wide range of general business use cases, organizations remain limited by the resources at hand, including budget and skills. However, even if some organizations are limited at first to one physical location, opportunities to expand and scale the deployment beyond that location will rise as teams gain experience with AI's requirements and develop the ability to build best practices. In addition, discrete GPUs are not always required to support AI, or even GenAI, workloads. Intel has integrated an AI accelerator into their three most recent generations of Intel Xeon processors, in many cases enabling existing infrastructure to effectively run AI. This integrated accelerator is designed to support training of small to medium-sized models, fine-tuning of domain or company-specific models, and inference. Most inference workloads run on the CPU today, and a built-in accelerator increases performance and efficiency even further. Also, Nutanix offers GPT-in-a-Box, which is a turnkey software-defined solution that seamlessly integrates GenAI and AI/ML applications into an organization while keeping data and applications under control.

The Need for Sustainability

In addition to modernization and AI initiatives, organizations are also increasing their focus on sustainability. Most organizations have partially implemented environmental, social, and governance (ESG) initiatives. Regardless of their ESG maturity, nearly all organizations see such initiatives as having at least a modest influence on their organization's IT purchasing decisions for products and services. And the motivations for ESG program implementation, which vary by organization, include reducing carbon footprints and increasing sustainability. Enterprise Strategy Group research shows that 87% of organizations stated that they accelerated their infrastructure-replacement timeline as part of an ESG program.⁹

According to Intel, by using accelerators built in to the 4th Generation Xeon Scalable processors, infrastructure is able to achieve a 2.9x improvement in performance per watt. This increased performance density expands what is possible with HCI technology, extending to performance-rich workloads, such as database applications and AI environments.

Nutanix, Intel, and HPE Collaborate to Modernize Data Centers

With Nutanix, businesses benefit from VM-centric and scale-out storage based on Intel Xeon processors for increased performance, efficiency, and reliability. With Nutanix and HPE, businesses benefit from a broad choice of ways to power private, hybrid, and multi-cloud environments. The combination of Nutanix and the HPE ProLiant DX server series with Intel Xeon Scalable processors integrates seamlessly with Nutanix HCI, leveraging Nutanix software for virtualization, database, and software-defined storage.

Nutanix's Any App, Anywhere Technology Simplifies and Accelerates Operations

Nutanix offers enterprise-level HCI capabilities with centralized management spanning on- and off-premises environments, simplifying not only data-center operations, but hybrid cloud operations as well.

⁸ Ibid.

⁹ Source: Enterprise Strategy Group Complete Survey Results, [The Role of ESG Programs in IT Decision Making](#), September 2022.

Enterprise Strategy Group research shows that 88% agree that “leveraging multiple public-cloud providers delivers strategic benefits for our organization.”¹⁰ In addition, 87% agree that “our application environment will become distributed across more locations over the next two years.”¹¹

The Nutanix Cloud platform helps accelerate time to value and delivers the performance, availability, and simplified management that is critical to running applications. Organizations can deploy, run, and scale applications on a single platform with on-premises performance, control, and security. The platform provides choice in hypervisor, choice in clouds to run on, and choice on where licenses can run. The solution also has the following key benefits:

- Resilient, self-healing design that handles disruptions in real time, with no single points of failure.
- Replication to ensure data redundancy and availability if a node or drive fails.
- Capability to deliver millions of IOPs with consistent sub-millisecond response times, including tunable levels of performance through the broad range of Intel Xeon processor options.
- Distributed metadata store that allows AOS Storage to split vDisks into fine-grained data pieces for storage, delivering dynamic and automated data placement and management as well as better performance.
- Ability to support advanced configurations using NVMe drives, after taking advantage of Intel libraries and tools to optimize performance.
- Unification of different data types (file, block, and object) to a single platform, where they can be easily managed as one.

HPE and Intel Infrastructure Expand What Is Possible with Nutanix HCI Software

The HPE ProLiant DX Gen11 server portfolio, coupled with Nutanix HCI, combines the performance of advanced Intel Xeon Scalable processors with flexibility and simplicity. These processors are designed for real-world workloads with built-in accelerators that help boost performance and efficiency across a distributed enterprise, from edge to cloud.

HPE provides improved security via the HPE Silicon Root of Trust firmware technology, which integrates security directly into the hardware of HPE servers. HPE and Intel worked together to make sure the system boots up in a known good state using the Intel Boot Guard, which feeds into the HPE iLO system to help create that chain of trust. This technology provides advanced levels of protection against firmware attacks by imprinting an immutable fingerprint in the silicon during the manufacture of the hardware. If unauthorized changes are introduced, this technology disables the server, so that malicious code never takes hold and the infrastructure is able to be returned to its original state.

HPE GreenLake Further Expands the Operational Benefits of Nutanix HCI

Nutanix HCI with HPE GreenLake enables organizations to spin up cloud-based services from dedicated IT infrastructure inside the organization. Organizations can then deliver applications and data at any scale, as well as provision, update, and perform disaster recovery, while also enabling end-user computing, database management, and big data analytics, among other functions.

¹⁰ Source: Enterprise Strategy Group Research Report, [Multi-cloud Application Deployment and Delivery Decision Making](#), June 2023.

¹¹ Ibid.

Nutanix HCI leverages the flexibility of the HPE GreenLake consumption model so businesses can align IT spending with actual usage, optimize costs, and improve cash flow. Nutanix HCI empowers organizations to enhance user experiences, simplify data management, and drive efficient virtualization. The combination of Nutanix HCI and HPE GreenLake enables businesses to navigate the digital environment with agility and offers tremendous benefits to on-premises infrastructure.

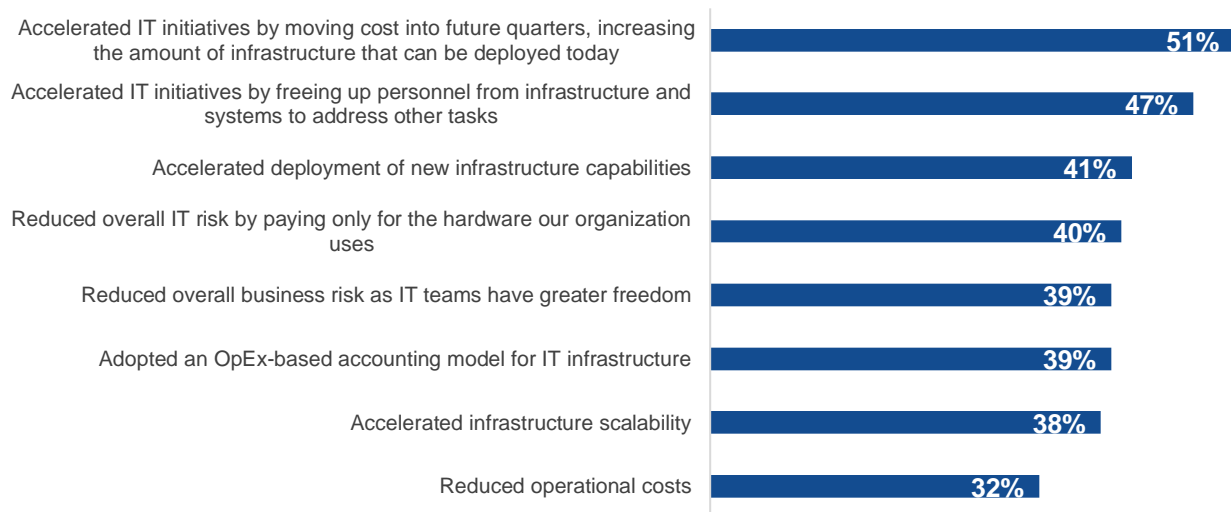
Users of pay-per-use models for on-premises IT were asked what benefits their organization achieved by using a pay-per-use model. As shown in Figure 3, the top-three benefits associated with leveraging pay-per-use models are accelerating IT initiatives by moving cost into future quarters, increasing the amount of infrastructure that can be deployed today (51%), accelerating IT initiatives by freeing up personnel from infrastructure and systems to address other tasks (47%), and accelerating deployment of new infrastructure capabilities (41%).¹²

This research data offers several key takeaways. The top-three responses all relate to accelerating IT. As IT organizations worked to accelerate operations, pay-per-use models for on-premises IT offered real and tangible options to achieve those goals.

Another notable takeaway is that the adoption of the pay-per-use model reduced both IT and business risk. By reducing the amount of budget tied up in existing resources, business and IT organizations have more freedom to adapt when needs change.

Figure 3. Benefits of a Pay-per-use Consumption Model to On-premises Infrastructure

What benefits has your organization achieved by leveraging a pay-per-use model? (Percent of respondents, N=191, multiple responses accepted)



Source: Enterprise Strategy Group, a division of TechTarget, Inc.

¹² Source: Enterprise Strategy Group Complete Survey Results, [Data Infrastructure Trends](#), September 2021.

Conclusion

Organizations need to modernize and simplify on-premises infrastructure in order to accelerate operations. In addition, they need a modern infrastructure that keeps pace with the demands of storing and using data and also frees up personnel from basic infrastructure-maintenance tasks. This includes keeping different types of data on the same infrastructure, which can be a huge benefit and is enabled by Nutanix HCI with HPE GreenLake.

Nutanix, Intel, and HPE partnered to give organizations a broad choice of methods for powering private, hybrid, and multi-cloud environments. They make it easy for users to build cloud infrastructures for any workload with self-service operations, including the economic benefits of the cloud. Organizations can start small and scale as needed with buffered capacity and with the flexibility of Capex or Opex consumption models. Users can deploy applications quickly with a pay-per-use model for improved visibility into usage and costs.

Organizations looking to select and deploy HCI technology for business applications should consider the Nutanix with HPE GreenLake solution powered by Intel Xeon Scalable processors.

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
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