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Why Nutanix Hyperconverged Infrastructure and VMware Run Great Together

NUTANIX

Introduction

Why do Nutanix hyperconverged infrastructure (HCI) and VMware run great together? It's simple. It was designed that way from the very start. When Nutanix set out to simplify IT infrastructure by pioneering the HCI market. Nutanix was the first to deliver robust, easy-to-deploy, fully converged server-storage solutions for VMware virtualization and end-user computing environments.

Building on its leadership in HCI, Nutanix is now helping customers buy, deploy, manage, and scale applications and data to achieve exceptional hybrid multicloud value. Today, Nutanix remains widely known for its commitment to open systems and gives customers the freedom to choose the right technologies for their unique requirements.

Nutanix HCI software supports the most popular hypervisors in the industry, including VMware® ESXi™, Microsoft® Hyper-V™, and the license-free AHV® hypervisor from Nutanix. More than 10,000 Nutanix customers run ESXi with the Nutanix platform, which is a testament to our ongoing commitment to interoperability and the value that VMware users achieve with Nutanix.

Nutanix HCI brings an advanced yet simplified distributed systems architecture to your VMware environment, enabling the modernization of your entire infrastructure while continuing to leverage familiar VMware interfaces and integrations.

This eBook explains how customers jointly leverage Nutanix and VMware to benefit from higher performance and availability, easy scalability, faster time-to-value, and unmatched cost-effectiveness.

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Move Beyond Traditional Storage

VMware is the virtualization standard in many organizations. However, relying on traditional SAN-based infrastructure for application mobility or for supporting large business-critical applications limits the flexibility and agility of your VMware environment.

Modern businesses rely on a wide variety of applications and workloads, each with their own unique requirements and importance to the business. In a traditional three-tier environment, this often means creating dedicated silos of infrastructure that are optimized to solve specific problems.

For example, you may use dedicated infrastructure for VDI deployments to prevent issues such as boot storms or recompose operations to avoid a negative impact on critical database workloads. This results in fragmented environments, prevents resources from being shared or easily repurposed, and makes it difficult to achieve economies of scale, hampering productivity and slowing down projects.

While your VM layer is a distributed pool of resources, your storage layer remains an isolated silo that has to be accessed across the network. Each server running VMs is connected to a centralized storage array, typically with at least two storage controllers in an active-active or active-passive configuration.

In this configuration, all storage I/O must travel from the hypervisor across the IP or Fibre Channel storage network and through one or both storage controllers before reaching the actual storage devices. Scalability becomes a major issue. As you add more workloads, more storage I/O will flow through the same storage controllers, ultimately leading to storage contention issues.

Storage arrays are typically large, expensive purchases and require extensive planning to avoid under or over-buying. This planning process consumes large amounts of staff time, makes it difficult to react quickly to new initiatives, and is often imprecise due to the large time-frames involved.

In most IT environments, the hypervisor, servers, network, and storage are all managed and operated by separate teams. So, this siloed approach can also hamper business agility and complicate troubleshooting.

> Nutanix is a very flexible, cost effective, and extremely scalable platform. It not only enables us to meet all of our current project goals, it is very easy to modify the configurations to meet future needs as well.
>
> Jon Walton,
> CIO, County of San Mateo, California.

Nutanix Improves and Simplifies VMware Environments

When you replace your traditional SAN infrastructure with Nutanix HCI, you are trading in complexity for simplicity. Nutanix HCI converges the entire datacenter stack – compute, storage, storage networking, and virtualization.

Nutanix HCI doesn't rely on traditional SAN, NAS or expensive storage network interconnects. Instead, it combines commodity datacenter server hardware with locally attached storage, all powered by a distributed software layer that enables enterprises to size their workloads precisely and to scale easily as needed.

Here's How it Works:

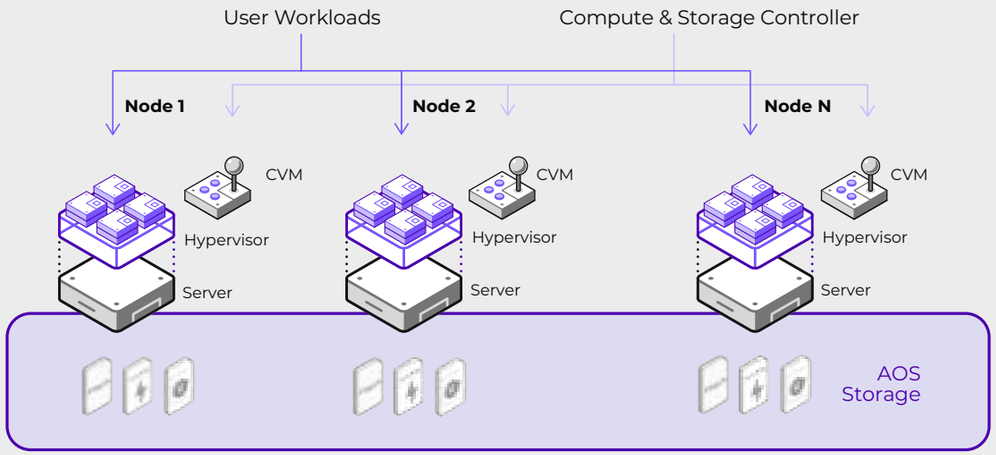
As you can see in the diagram, you still have a three-node cluster. But now, each server has local disks. These disks may be NVMe, SSD, spinning disks, or a combination of each. You can also mix and match hybrid and all-flash nodes in the same cluster.

There's no storage array in this environment. Instead, Nutanix has a virtualized storage controller – known as a controller VM or CVM – running on each node in the cluster. Now, all storage management is VM-centric with I/O optimized at the VM virtual disk level, distributing all operating functions across the cluster for superior performance and resilience.

What's more, the storage fabric uses AI algorithms to automatically tier data across the cluster to the appropriate class of service based on usage. This provides consistent and predictable high performance by ensuring that your most frequently accessed data is available in memory or flash on the local node, while also preventing hot spots or resource contention. And because it's virtualized, the CVM can interoperate with VMware vSphere, Microsoft Hyper V, and Nutanix AHV.

Nutanix HCI provides storage services for VMs running on the VMware ESXi hypervisor and integrates seamlessly so VMware administrators can manage their VM workloads with vCenter.

AOS Eliminates the Need for Centralized Storage



True Scale-out

Instant and Linear Scale of Performance

All Resources Self-heal

Dynamic Data Placement

Granular Meta-data

Data Locality

Flexible Fault Tolerance

Efficient and Simple

Optimizes Availability

Very Efficient in Dealing with Failures Due to Design

No Silos of Management

Resilient & Protected Data

Writes Always Replicated (RF2,RF3)

User Data Always Protected and Rebuilt on Failures

One Platform for All Your Workloads and Use Cases

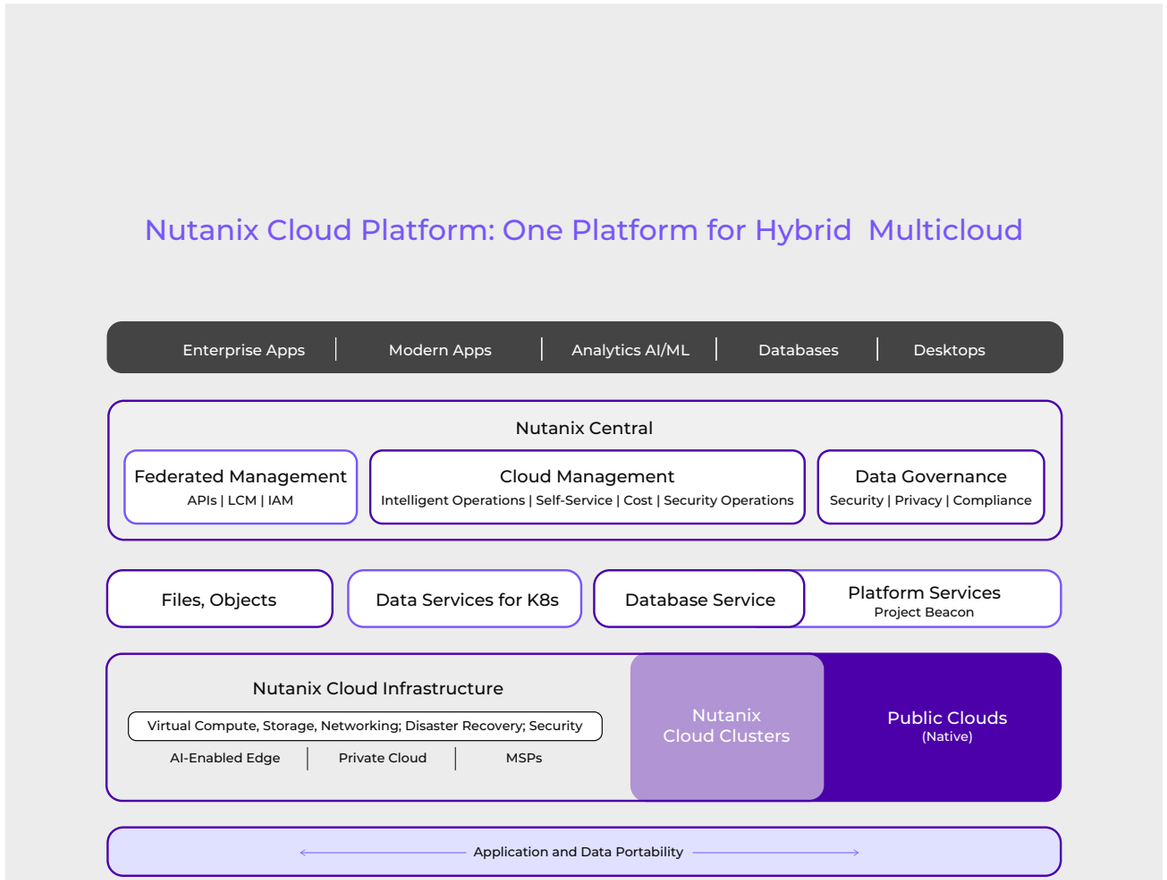
Nutanix HCI is not just for modern cloud-native apps and remote offices. Our advanced distributed systems architecture enables Nutanix HCI to run the most resource-intensive workloads in your datacenter, including finance applications and enterprise resource planning (ERP). Perhaps that's why more than half of our customers confidently and reliably run their mission-critical applications on HCI.

With Nutanix HCI, you can modernize your entire infrastructure, not just pockets of it – and maximize performance, agility, resource efficiency, and cost for all your workloads.

With Nutanix HCI, You Can:

- **Scale** Horizon and Citrix desktops predictably and easily, optimized with data locality and shadow clones.
- **Virtualize** distributed databases like Hadoop, SAS, and MongoDB without SAN bottlenecks.
- **Run large SQL databases** with optimized performance.
- **Simplify** provisioning, operations, and lifecycle management of cloud-native workloads.
- **Run big data workloads** like Hadoop, SAS, and MongoDB.
- **Store** files and objects without the need for dedicated infrastructure.

Nutanix also makes it simple to get started. Many of our customers roll out HCI deployment in phases, targeting strategic portions of their infrastructure – using vCenter to administer VMs on HCI and in legacy environments powered by SAN storage.



The Benefits of Simplicity Are Many

Nutanix HCI is engineered with distributed systems technologies developed for massive-scale cloud infrastructure and is designed to be simple to use and highly automated to dramatically reduce manual administration.

The combination of cloud engineering and consumer-grade design enables Nutanix HCI to power global IT infrastructure deployments with incredible cost efficiency and administrative agility.

Unprecedented Openness
Simplicity is nothing without flexibility. Nutanix also offers a level of choice that is unprecedented in the industry. From the hardware customers want to run to the hypervisor and virtualization they require for their workloads – everything from procurement model and license duration to their choice of cloud is up to our customers.

Unmatched Resiliency
Advanced distributed data processing, replication, encryption, and automated self-healing means your data is better protected than ever before. Applications stay up and running, regardless of underlying hardware and software failures, including during patching and upgrades.

Predictable Performance At Any Scale
If you need more storage performance, capacity or compute power, you can simply scale the cluster out by adding more nodes. To ensure performance as you scale, data is written on the local node (and elsewhere for data protection), so read requests rarely cross the network. This results in consistent and predictable performance, no matter the size of the cluster, while minimizing network congestion.

Simplified Management of Your Entire Environment
Eliminate management silos, automate day-to-day operations, simplify monitoring and remediation, and anticipate capacity needs – all through a single pane of glass. With Prism, you'll easily handle most management tasks with a single click inNutanix and VMware environments.

Comprehensive Security
Security is integrated into every layer of the Nutanix HCI stack, making it easy to protect your organization's digital assets from theft or ransom. Nutanix augments VMware's own security posture by providing built-in tooling like automated baseline compliance and key management, ensuring a total infrastructure solution for hybrid multicloud environments.

Zero-Downtime Upgrades
Another benefit of having the storage controller run as a VM is that it can be upgraded independently of the hypervisor. Rolling upgrades can be performed with the Nutanix Life Cycle Manager (LCM), which automatically maps dependencies and orchestrates patching of everything from firmware to BIOS up through the hypervisor and HCI software.

As each host is upgraded, VMs migrate to other hosts in the cluster temporarily, or if only the HCI software is being upgraded the hypervisor temporarily gets its storage from another node in the cluster, so there's zero impact to your VMs.

Nutanix is simpler to deploy, manage, upgrade, reallocate, and refresh. And because it's a subscription service, it's also simpler to purchase.

More Than HCI

Nutanix is a Complete Enterprise Cloud Framework

When you purchase Nutanix HCI, you're investing in a complete, integrated framework designed to simplify IT by making infrastructure invisible no matter what and where it is.

- **Nutanix Unified Storage™ solution** with Nutanix Files™, Nutanix Objects™ and Nutanix Volumes™ enables customers to manage and protect their structured and unstructured data wherever it resides – on-premises, at the edge, and in the public cloud.
- **Nutanix Database Service** eliminates database management complexity by up to 90% by bringing one-click simplicity and transparent operations to database provisioning and lifecycle management.

Nutanix Database Service enables the ultimate in database freedom, allowing customers to develop, provision, clone, and refresh databases to any point in time in any environment, whether private, public or hybrid multicloud.

- **Integration with non-Nutanix VMware environments.** Nutanix software solutions are designed to integrate with VMware environments, including VMware clusters not running on Nutanix. AI-driven capacity planning, application administration and self-service, and infrastructure monitoring are a few examples of a growing portfolio of integrated capabilities.
- **Nutanix Cloud Platform** makes hybrid multicloud mobility and interoperability a reality with a single point of control for all of your applications and data across public, private and, hybrid multiclouds.

And because HCI is a foundational component of the Nutanix software solution, customers can accelerate their hybrid multicloud journey with the agility to run applications in a given cloud based on the economic, compliance, performance, availability, and security criteria that matter most.

Proven Solution With High Customer Satisfaction

Net Promoter® Score (NPS) is an industry-recognized measurement of customer satisfaction and loyalty. Nutanix is proud to have a seven-year average NPS score of 90.

> HCI is becoming a de facto standard for data-intensive services like data protection, backup, and disaster recovery, and is increasingly a primary platform for deploying modern hybrid cloud infrastructure.
>
> Lucas Mearian,
> Infrastructure Analyst, IDC

Nutanix with vSphere Solves Your Problems Today, While Setting You Up for Your Hybrid Multicloud Future

Nutanix HCI integrates seamlessly with VMware vSphere to bring cloud economics, automation and simplified operations to your datacenter. But what happens when your next application is a better fit for the public cloud?

The same HCI platform that formed the foundation for your private cloud can help you move and manage apps in the public cloud, too. Connect to AWS in less than an hour, lift and shift apps, enable bursting and disaster recovery in the cloud, and launch your hybrid multicloud future with Nutanix.

- **Simplify Operations and Maximize Resiliency** – Benefit from tried-and-true vSphere capabilities for all of your workloads without the complexity and fragility of a SAN-based infrastructure.
- **Improve Agility and Flexibility** – Shorten planning cycles, provision workloads more quickly and repurpose infrastructure as needed, enabling your organization to respond faster and easily to changing business needs.
- **Optimize Infrastructure Investments** – Bring cloud economics to your VMware deployments with just-in-time scalability, self-service provisioning and subscription licensing.
- **Make Hybrid Multicloud Management a Reality** – Take advantage of true public and private cloud interoperability and mobility with HCI, a foundational building block of the Nutanix Cloud Platform.

Test drive Nutanix today.

Experience the simplicity and agility of hybrid multicloud combined with on-premises performance, security and control without the hardware, setup or costs. Test drive Nutanix HCI with our quick and easy guided tour. Or visit www.nutanix.com/vmware to learn more.

Test Drive

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