FlashStack with Nutanix

Validated Simplicity Meets Flexible Modernization



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IT organizations increasingly need to support mixed workloads with different performance, scaling, and operational requirements. FlashStack with Nutanix—a jointly validated architecture from Cisco, Nutanix, and Pure Storage—combines the predictability of converged systems with the flexibility of hyperconverged platforms.

Overview

The infrastructure dilemma

Enterprise IT requirements continue to expand, yet the foundational expectations remain consistent: predictable performance, validated designs, and operational simplicity. At the same time, organizations are supporting a wider mix of workloads—from business-critical databases and enterprise applications to modern, data-intensive, and cloud-native services. Existing infrastructure models each bring strong benefits, but growing diversity in workload needs is increasing the pressure for more adaptable design options.

Workloads are diversifying faster than infrastructure can adapt

Different applications require unique performance characteristics, capacity profiles, and scaling behaviors. A single, fixed architecture can be highly effective for certain workloads but may not deliver optimal efficiency or flexibility across an expanding application portfolio.

Converged and hyperconverged: strong models with different strengths

Organizations have successfully standardized on either converged or hyperconverged infrastructure, each offering meaningful advantages:

- Converged systems provide validated designs, predictable performance, and operational consistency—attributes that remain essential for many enterprise workloads.
- Hyperconverged platforms offer software-driven simplicity, rapid deployment, and integrated scaling—ideal for environments with variable growth patterns or cloud-aligned operating models.

Both approaches continue to deliver value, but relying on them independently can limit the ability to support a broader, more diverse set of workload requirements.

Operational integration is increasingly important

As environments grow, organizations benefit from unified management across compute, storage, and virtualization. Separate operational workflows and tools make it more difficult to maintain consistency, automate lifecycle tasks, and respond quickly to changing business demands.

Evolving requirements

Infrastructure strategies now require the predictability and validation of converged systems combined with the flexibility and modularity of hyperconverged platforms—delivered in a way that preserves operational continuity and simplifies scaling.

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Benefits

Introducing FlashStack with Nutanix

FlashStack with Nutanix is a jointly validated architecture developed by Cisco, Nutanix, and Pure Storage to address the need for flexible, modular infrastructure that supports a wide range of enterprise workloads. The solution brings together compute, storage, and virtualization components from all three companies in a unified design that maintains the consistency of converged systems while enabling new levels of architectural adaptability.

The foundation

Cisco UCS compute

Cisco UCS X-Series, C-Series, and B-Series servers—powered by Intel® Xeon® Scalable Processors—provide the compute foundation for FlashStack with Nutanix. These platforms deliver predictable, scalable performance for enterprise workloads and are managed through Cisco Intersight, which offers cloud-operated lifecycle management, secure onboarding, configuration consistency, and policy-driven automation across UCS environments.

Nutanix Cloud Platform

Nutanix Cloud Platform (NCP) consolidates compute, storage, and networking into a unified software-defined infrastructure. It uses Nutanix Acropolis Operating System (AOS) for distributed storage services, Nutanix Acropolis Hypervisor (AHV) for virtualization, and Nutanix Prism Central for centralized management and orchestration across environments. NCP enables consistent performance and streamlined operations while allowing compute resources to scale independently through Nutanix's compute-only licensing model.

Pure Storage FlashArray

Pure Storage FlashArray provides all-flash, low-latency storage for FlashStack with Nutanix through NVMe/TCP connectivity. FlashArray delivers sustained throughput, industry-leading data efficiency, and operational simplicity while leveraging existing Ethernet infrastructure. It includes enterprise data services such as snapshots, replication, space efficiency, and seamless non-disruptive upgrades.



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The architecture diagram illustrates how FlashStack with Nutanix integrates Cisco UCS® compute, the Nutanix Cloud Platform (NCP), and Pure Storage FlashArray into a unified design. Cisco UCS systems run Nutanix Acropolis Hypervisor (AHV) with Nutanix Acropolis Operating System (AOS) and Nutanix Prism Central for virtualization and platform management, while FlashArray provides external all-flash storage over NVMe/TCP.

The management layer shown in the diagram includes:

- Cisco Intersight® for cloud-operated compute lifecycle management.
- Nutanix Prism Central for virtualization and platform operations.
- Pure Storage Pure1® for storage monitoring, analytics, and proactive support.

These components form a jointly validated architecture that supports independent scaling of compute and storage, coordinated operations across the stack, and consistent performance for enterprise workloads.

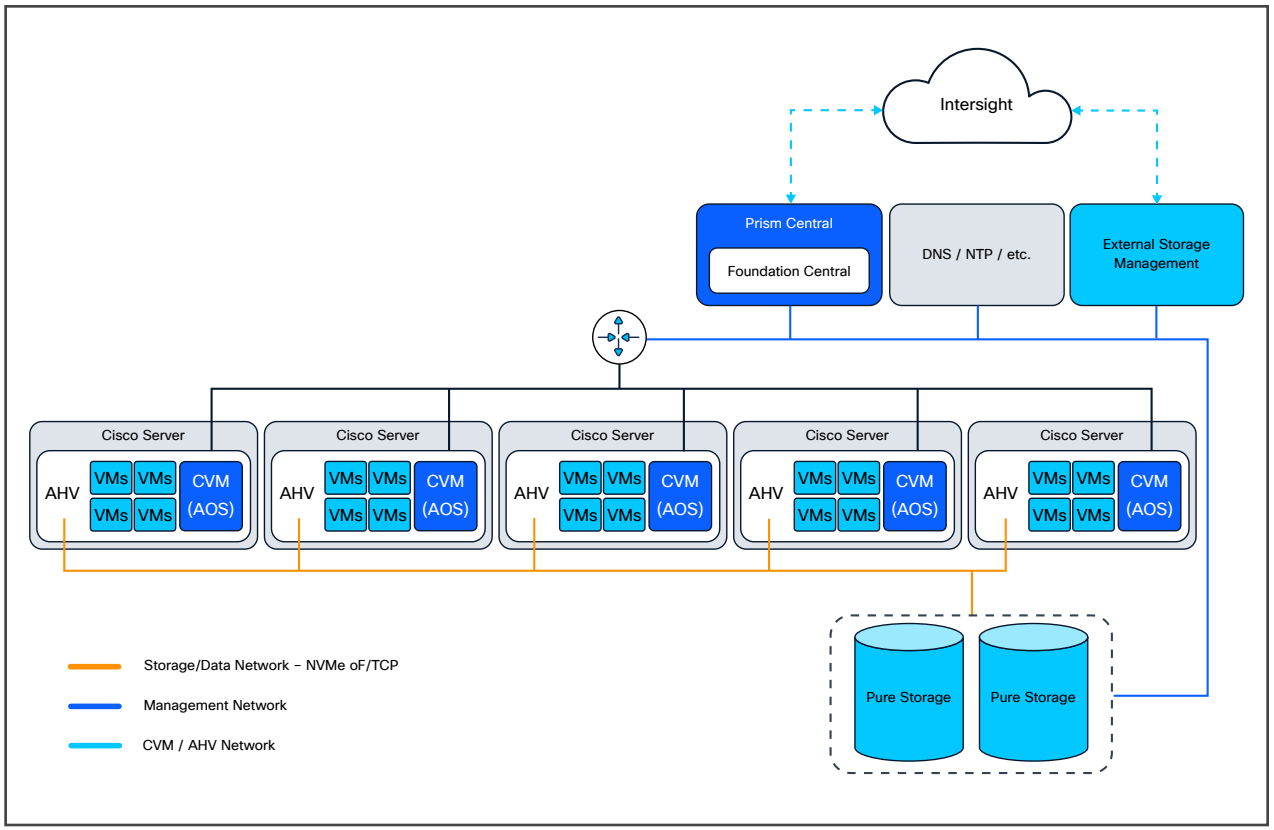


Figure 1. [Need caption]

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Value proposition

Flexible architecture, built on choice

The requirements

Enterprise workloads—databases, business applications, analytics, and cloud-native services—scale at different rates and demand varying combinations of compute and storage resources. Organizations need an infrastructure model that supports this diversity without forcing a choice between converged and hyperconverged approaches.

The solution

FlashStack with Nutanix uses a validated compute-only Nutanix architecture on Cisco UCS with Pure Storage FlashArray as the external storage layer over NVMe/TCP. This disaggregated design enables organizations to adjust compute and storage capacity independently while maintaining consistent operations through integrated management tools.

Key capabilities

- **Validated disaggregated design:** Nutanix compute-only clusters on Cisco UCS with Pure FlashArray as the dedicated storage platform
- **Independent scaling:** capability to add compute or storage resources independently based on workload requirements
- **Operational continuity:** integrated operations across Cisco Intersight, Nutanix Prism Central, and Pure Storare Pure1
- **NVMe/TCP connectivity:** low-latency external storage using standard Ethernet infrastructure
- **Workload-aligned expansion:** capability to scale infrastructure precisely to match performance, capacity, or density demands

Business outcomes

- Align infrastructure growth with workload demand.
- Improve resource efficiency and avoid unnecessary capacity expansion.
- Maintain predictable performance for enterprise applications.
- Modernize infrastructure while preserving established operational practices.

Consistent, secure, and resilient performance

The requirements

Enterprise workloads depend on predictable throughput, low latency, and continuous availability. As data volumes grow and applications scale, infrastructure must deliver consistent performance and resilience without increasing operational complexity.

The solution

FlashStack with Nutanix combines Cisco UCS compute, the Nutanix Cloud Platform, and Pure Storage FlashArray to provide a high-performance, highly available architecture engineered for enterprise reliability. External all-flash storage over NVMe/TCP ensures low-latency data access, while Nutanix AHV and Prism Central maintain workload continuity and operational efficiency.

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Key capabilities

- **Predictable compute performance:** Intel Xeon Scalable Processors in Cisco UCS X-, C-, and B-Series servers deliver consistent performance for mixed enterprise workloads.
- **Low-latency all-flash storage:** Pure Storage FlashArray provides sustained throughput and minimal latency using NVMe/TCP over standard Ethernet.
- **Intelligent workload placement:** Nutanix Cloud Platform balances workloads across compute-only clusters to maintain availability and optimize performance.
- **Enterprise data protection:** FlashArray offers snapshots, replication, space-efficient data services, and nondisruptive operations.
- **High availability by design:** Redundancy is built into the compute, virtualization, and storage layers, minimizing the risk of disruption.
- **Joint validation:** The combined stack is validated to support performance requirements for business-critical databases and data-intensive enterprise applications.

Business outcomes

- Obtain reliable, low-latency performance for critical applications and databases.
- Have continuous availability through built-in redundancy and failover mechanisms.
- Get consistent throughput even as workloads scale or infrastructure evolves.
- Experience stable, predictable performance during maintenance, upgrades, or environmental changes.

Unified and automated operations

The requirements

Managing compute, virtualization, and storage through separate tools creates operational fragmentation, increases administrative effort, and makes it difficult to maintain consistent policies across the environment. Organizations need a coordinated operational model that simplifies lifecycle management across all layers of the infrastructure.

The solution

FlashStack with Nutanix simplifies full-stack operations through coordinated management across Cisco Intersight, Nutanix Prism Central, and Pure Storage Pure1. Each platform manages its respective category —compute, virtualization, and storage—while interoperating through open APIs and joint validation. This consolidated approach improves visibility, streamlines lifecycle tasks, and enables consistent automation across the stack.

Key capabilities

- **Day-1 integration:** Cisco UCS servers include the Cisco Device Connector, which securely registers UCS systems into Cisco Intersight. Once onboarded, Prism Central coordinates with Intersight through API-level integration, supporting unified visibility and lifecycle workflows.
- **Unified visibility:** monitoring and lifecycle management across compute, virtualization, and storage through integrated dashboards and API-level coordination.
- **Policy-based automation:** automated deployment, configuration, scaling, and updates across Cisco UCS, AHV, and FlashArray.
- **Predictive storage insights:** Pure1 provides cloud-based monitoring, performance analytics, and proactive support recommendations.
- **ITSM integration:** native integration with platforms such as ServiceNow to streamline incident, change, and configuration workflows.

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- **Accelerated cluster deployment:** Nutanix Foundation Central enables consistent and guided provisioning of compute-only Nutanix clusters.
- **Automated support workflows:** simplified log collection and coordinated support across Cisco, Nutanix, and Pure Storage.

Business outcomes

- Reduce manual effort and operational overhead.
- Improve consistency across infrastructure layers through unified policies.
- Shorten deployment and scaling timelines.
- Accelerate troubleshooting with integrated monitoring and support paths.
- Enable IT teams to focus on higher-value initiatives rather than routine maintenance.

Technical specifications

Supported Cisco® platforms:

- Cisco UCS C220 M7 Compute-Only Node family.
- Cisco UCS X-Series compute-optimized nodes (Intersight Managed Mode).
- Cisco UCS B200 M5/M6 (validated configurations).

Node hardware requirements

- Minimum total physical CPU cores per node: 24.
- Minimum memory: 64 GB.
- Boot devices: M.2 boot drives with M.2 RAID controller (480 GB recommended).

Management mode:

- Cisco Intersight Managed Mode (IMM).
- Nutanix Prism Central for Nutanix cluster and virtualization operations.
- Pure Storage Pure1 for storage monitoring, analytics, and proactive support.

Storage:

- Pure Storage FlashArray //X and //XL.

Cluster requirements

- Minimum **5 Cisco Compute-Only (CO)** nodes.
- Hypervisor: **AHV only**
- Licensing:
  - **Nutanix Cloud Infrastructure (NCI)** per core
  - **NCI-C (compute-only)** licensing (minimum 2000 cores)
- Nutanix software support:
  - **Nutanix Cloud Infrastructure (NCI)**
  - **Nutanix Cloud Manager (NCM)**
  - **Nutanix Cloud Platform (NCP)**
  - **Nutanix Kubernetes Platform (NKP)**

Networking

- 25 Gb Ethernet recommended (10 Gb supported).
- Required protocol: **NVMe over Fabrics (NVMe-oF) using TCP**.

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Use cases and applications

Business-critical databases

Ideal for transactional and analytical database platforms such as Oracle, Microsoft SQL Server, and SAP environments. FlashArray delivers low-latency access and sustained performance, while Nutanix AHV ensures workload continuity and efficient resource management.

Data-intensive enterprise applications

Well-suited for ERP, CRM, collaboration platforms, and business intelligence applications that demand predictable response times and consistent performance under concurrent load.

Infrastructure modernization

Organizations that are modernizing legacy converged infrastructure can transition to a validated, modular architecture while leveraging existing investments in Cisco UCS and Pure Storage. Compute and storage can be expanded independently to align with workload and capacity requirements.

Hybrid IT environments

Environments that are operating a mix of traditional and modern applications benefit from Nutanix's software-defined operations, Pure Storage's enterprise-class data services, and Cisco Intersight's cloud-operated lifecycle management, which, working together, support consistent operations across on-premises and cloud deployments.

Scalable virtualization platforms

Designed for enterprises that require virtualization at scale with consistent performance characteristics. Nutanix AHV provides an efficient hypervisor footprint, and Cisco Compute-Only nodes allow organizations to expand CPU and memory for growing virtualized environments without adding unnecessary storage.



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Services

Deployment and management

FlashStack with Nutanix provides a streamlined deployment and lifecycle management experience through coordinated tooling across Cisco Intersight, Nutanix Prism Central, Pure Storage Pure1, and Nutanix Foundation Central. The integration of these platforms simplifies day-0 to day-N operations and ensures consistency across the full infrastructure stack.

Day 0: rapid deployment

Nutanix Foundation Central accelerates initial provisioning of Nutanix compute-only clusters.

- Provides guided workflows for node imaging and cluster creation.
- Ensures consistent configuration across multiple Cisco UCS compute-only nodes.
- Supports standardized deployment practices across sites and environments.

This establishes the Nutanix Cloud Platform baseline prior to storage integration with FlashArray.

Day 1: infrastructure integration

Cisco and Nutanix provide built-in mechanisms to streamline infrastructure onboarding and configuration:

- Cisco Device Connector (embedded in Cisco UCS servers) enables secure claiming and registration of compute nodes in Cisco Intersight.
- Nutanix Prism Central provides visibility and configuration management for Nutanix clusters.
- FlashArray integration completes the storage configuration using NVMe/TCP to attach high-performance external storage to Nutanix clusters.
- Once these steps are completed, compute, virtualization, and storage components operate in a coordinated, validated design.

Day 2-N: ongoing operations

Lifecycle operations are simplified through the integration of three management platforms, each managing its domain while interoperating through open APIs:

Cisco Intersight

- Cloud-operated infrastructure lifecycle management.
- Policy-based configuration and consistent Cisco UCS server templates.
- IMM management for environments using Cisco UCS 6400/6500 fabric interconnects.

Nutanix Prism Central

- Centralized operations for AHV and the Nutanix Cloud Platform.
- Capacity planning, performance monitoring, and one-click upgrades.
- VM lifecycle operations and workload placement.

Pure Storage Pure1

- Cloud-based analytics and performance monitoring.
- Predictive insights and proactive support recommendations.
- Storage-fleet visibility across FlashArray deployments.

Additional operational integrations

- ITSM integration (for example, ServiceNow) to streamline incidents, changes, and configuration workflows.
- Automated support-workflows with simplified log collection and coordinated support paths across Cisco, Nutanix, and Pure Storage.

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Why Cisco, Nutanix, Pure Storage, and Intel

FlashStack with Nutanix brings together the complementary strengths of Cisco, Nutanix, and Pure Storage to deliver a jointly validated, modular infrastructure architecture. Each partner contributes core capabilities that are essential to the solution's performance, scalability, and operational simplicity.

Cisco

Cisco provides the compute foundation through Cisco UCS X-Series, C-Series, and B-Series systems, managed through Cisco Intersight.

Key advantages include:

- Consistent, enterprise-grade compute performance.
- Cloud-operated lifecycle management and policy automation.
- Scalable, fabric-based design through Cisco UCS 6400/6500 fabric interconnects.
- Integrated security and hardware-level stability.

Nutanix

Nutanix delivers the virtualization and platform software that powers the compute-only architecture.

Key advantages include:

- Nutanix AHV hypervisor and Nutanix Prism Central for streamlined virtualization operations.
- Nutanix AOS for distributed platform services.
- Nutanix Foundation Central for consistent, guided cluster deployment.
- Software-defined management and workload optimization across the Nutanix cluster.

Pure Storage

Pure Storage provides the external all-flash storage layer using FlashArray with NVMe/TCP connectivity.

Key advantages include:

- Ultra-low latency and high, sustained throughput.
- Nondisruptive upgrades and always-on availability.
- Built-in data protection and space-efficiency features.
- Pure Storage Pure1 cloud-based analytics and proactive support.

Joint value

Together, Cisco, Nutanix, and Pure Storage deliver:

- A fully validated, disaggregated architecture.
- Independent compute and storage scaling.
- Unified and automated lifecycle operations.
- Predictable performance for enterprise workloads.
- A consistent, integrated support and operational model.

This combination enables organizations to modernize at their own pace while maintaining a stable, efficient, and adaptable infrastructure foundation.

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Get started

FlashStack with Nutanix supports several paths to adoption, depending on your starting point. The validated design provides a consistent and modular approach for organizations moving toward a compute-only Nutanix architecture with external all-flash storage.

For existing FlashStack customers

Adopt Nutanix Cloud Platform on Cisco UCS compute while continuing to use Pure Storage FlashArray as your external storage platform. This allows you to introduce Nutanix-operated compute into your environment while preserving your existing investments.

For existing Nutanix customers (compute-only)

Organizations already operating Nutanix compute-only clusters can extend capacity by adding Cisco UCS compute-only nodes and attaching FlashArray as the external storage layer. This provides predictable performance and independent scaling of compute and storage resources.

Note: This applies only to environments already using Nutanix in a compute-only configuration.

For Pure Storage customers

Add Cisco UCS compute-only nodes running Nutanix AHV and Nutanix Prism Central to your existing FlashArray deployment. This delivers a validated virtualization and compute platform with enterprise-grade storage.

For new deployments

Deploy FlashStack with Nutanix as a fully validated architecture from the start. The design offers modular compute-only scalability, consistent operations, and predictable all-flash performance for a wide range of workloads.

Learn more

- Cisco Blog: Redefining Infrastructure Strategy for a Fragmented, Hybrid Future
- Nutanix + Pure Storage Press Release
- Pure Storage FlashStack with Nutanix Solution Blog
- Forbes Analysis: Nutanix and Pure Storage Collaboration

For more information about Cisco Compute Hyperconverged with Nutanix, go to

- https://www.cisco.com/go/computehyperconverged
- https://www.cisco.com/go/nutanix

For information on FlashStack solutions:

- https://www.cisco.com/go/flashstack
- https://www.purestorage.com/flashstack

Contact your Cisco account team to discuss how FlashStack with Nutanix can support your infrastructure modernization goals.

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