Research Report:

Cisco FlashStack with Nutanix

Converged Infrastructure for the Hybrid-Cloud Era

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CISCO FLASHSTACK WITH NUTANIX

The enterprise infrastructure market is faced with disruption across multiple fronts. Traditional virtualization platforms face unprecedented disruption, while emerging AI-first workloads demand architectures that seamlessly span on-prem, cloud, and edge environments.

It's against this backdrop that Nutanix, Cisco, and Pure Storage have collaborated to reimagine converged infrastructure with Cisco's FlashStack with Nutanix:

- Addresses three critical enterprise needs: VMware alternatives, AI-ready infrastructure, and modernization without architectural lock-in
- Organizations can achieve up to an 85% reduction[1] in physical footprint and power consumption compared to equivalent three-tier architectures
- As compared with traditional HCI solutions, FlashStack with Nutanix enables independent scaling of compute and storage resources while maintaining HCI-like operational simplicity
- Validated architectures reduce deployment risk and accelerate time-to-value through pre-tested configurations.

This paper examines the Cisco FlashStack with Nutanix, a solution combining Cisco's validated compute platform, Nutanix's cloud-native operating model, and Pure Storage's enterprise flash arrays.

The results show a shift toward modular convergence that preserves operational benefits while eliminating traditional architectural constraints.

THE CHANGING LANDSCAPE OF IT INFRASTRUCTURE

Enterprise infrastructure is in a transformative phase driven by fundamental shifts in both workload requirements and vendor dynamics. Today's enterprises require solutions optimized for hybrid-cloud architectures, delivering benefits beyond traditional data center-centric models. This evolution addresses the reality that applications span boundaries between edge, on-prem, and cloud, each with distinct operational, economic, and performance characteristics.

At the same time, the rise of AI workloads and data-intensive applications creates new performance demands that challenge existing assumptions about infrastructure. AI-first workloads require not just higher compute density, but also the ability to scale storage and compute resources independently based on application-specific requirements.

Legacy approaches to meeting these infrastructure challenges often fall short, facing pressure from three converging limitations that constrain enterprise agility and efficiency:

[1] **Cisco**: https://www.cisco.com/c/en/us/solutions/collateral/computing/converged-infrastructure/pure-storage/simplify-ai-with-flashstack.html

Limitation	Impact	Business Impact
Rigid Infrastructure Stacks	One-size-fits-all constraints	Cannot adapt to diverse workload requirements
Scale-Out Complexity	Management overhead increases	Negates the cost advantages of disaggregated approaches
Operational Silos	Disconnected management planes	Prevents automation and holistic visibility

TABLE 1: IMPACT OF LEGACY ARCHITECTURES

These limitations become increasingly problematic as organizations deploy cloud-native applications, AI workloads, and edge computing, which require architectural flexibility and operational consistency.

CISCO FLASHSTACK WITH NUTANIX

To answer these challenges, Cisco, Nutanix, and Pure Storage have collaborated to deliver FlashStack with Nutanix. The solution combines Cisco's compute and networking infrastructure, Pure Storage's all-flash arrays, and Nutanix's cloud operating system to deliver a full-stack architecture designed to meet the demands of today's IT infrastructure challenges.

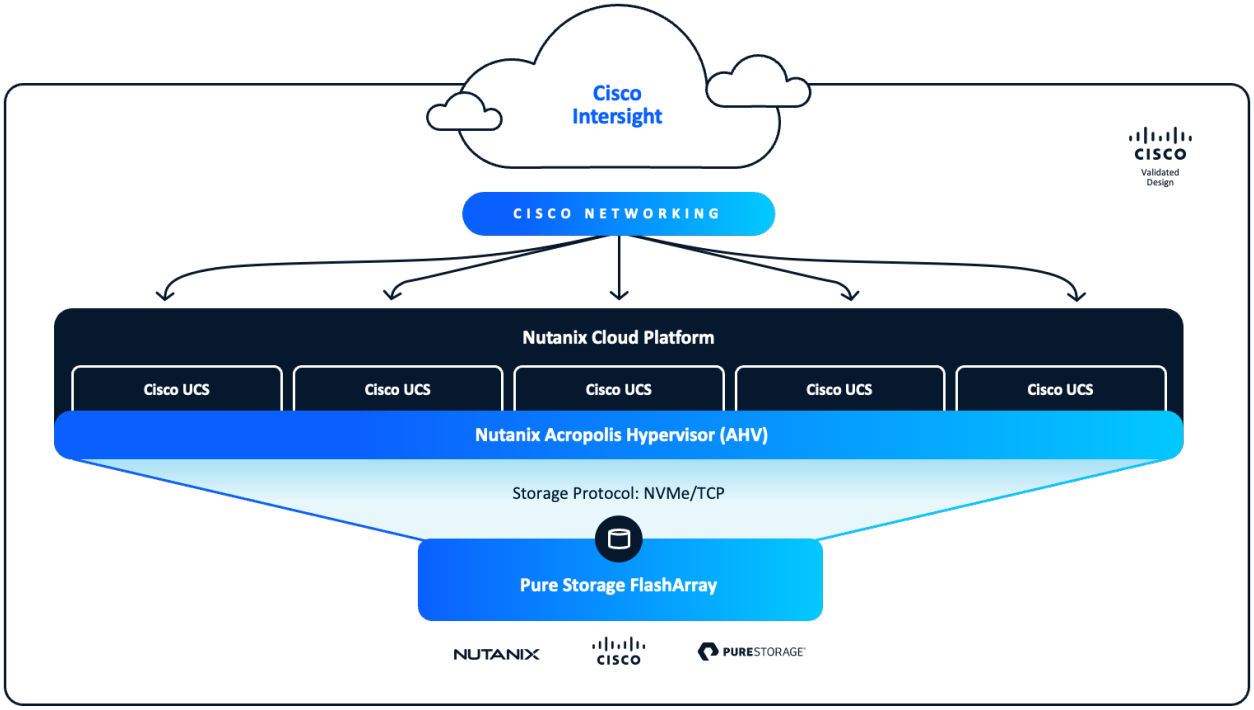

FIGURE 1:CISCO FLASHSTACK WITH NUTANIX

The solution consists of four primary technology layers that integrate through validated architectures and unified management interfaces:

Compute and Networking	Virtualization and Management	Storage
• Cisco UCS servers providing virtualization and application processing. This includes Cisco UCS B-series M5 and M6, C-series M6 and M7, and X-series M7 servers. • Cisco Nexus networking fabric and Cisco's Fabric Interconnects enabling connectivity across the stack • Cisco Intersight for unified infrastructure management and monitoring	• Nutanix Cloud Infrastructure (NCI) software as the operating environment • Nutanix AHV hypervisor for virtual machine management • Nutanix Prism for centralized operations across hybrid environments • Nutanix Flow for virtual networking and micro-segmentation	• Pure Storage FlashArray all-flash systems • NVMe/TCP protocol connectivity for high-performance data access • Pure Storage Evergreen for non-disruptive technology refresh • Native integration with Nutanix management interfaces

TABLE 2: FLASHSTACK TECHNOLOGY LAYERS

The FlashStack architecture implements stateless design principles, providing advantages for flexible and future-proof enterprise deployments. Its architectural approach separates infrastructure identity from physical hardware, enabling operational benefits that traditional converged systems struggle to match:

- **Design Flexibility**: Configure for current needs while preserving future expansion options
- **Investment Augmentation**: Add capabilities without revisiting original architectural decisions
- **Lifecycle Management**: Non-disruptive upgrades, maintaining continuous availability

FlashStack with Nutanix differs from traditional converged infrastructure through its modular integration model. Rather than tightly coupling all components within proprietary enclosures, the solution maintains component independence while providing validated configurations and unified management. This approach delivers:

- **Operational Consistency:** Simplified management through Nutanix Prism and Cisco Intersight eliminates the disconnected administration planes characteristic of three-tier architectures.
- **Architectural Flexibility:** Organizations can scale compute and storage resources independently based on workload requirements rather than maintaining fixed ratios determined by appliance configurations.
- **Validated Integration:** Pre-tested configurations from all three vendors reduce deployment risk and ensure optimal performance without requiring custom integration expertise.

NUTANIX: CLOUD OPERATING MODEL AT SCALE

Nutanix has emerged as a leading alternative to traditional virtualization platforms, offering a cloud operating model that scales across enterprise environments. The company's approach centers on several key operational principles that address the limitations of conventional infrastructure management:

- **Unified Workload Management**: Single-pane-of-glass operations through Nutanix Prism across hybrid environments.
- **Application-Centric Architecture**: Infrastructure adapts to workload requirements rather than constraining applications.
- **Enterprise Resilience**: Built-in disaster recovery, micro-segmentation via Flow, and security orchestration.
- **Workload Flexibility**: Native support for virtual machines, containers, and cloud-native applications.

Nutanix's support for external storage solutions enhances the flexibility of its technology, allowing independent scaling of compute and storage resources. Customers can now grow resources based on specific workload requirements rather than maintaining fixed ratios determined by rigid node configurations.

This flexibility proves particularly valuable for data-intensive applications that require storage capacity to grow independently of compute requirements.

Beyond enabling flexible deployment options, Nutanix's support for external storage also benefits enterprises with significant existing storage Pure Storage investments by providing a modernization path that preserves capital while delivering operational improvements.

Rather than requiring complete infrastructure replacement, these organizations can implement Nutanix's cloud operating model while leveraging existing storage assets. It's a powerful capability enabling:

- **Architectural Flexibility**: Independent scaling based on workload-specific requirements
- **Investment Protection**: Modernize compute layers while leveraging existing infrastructure investments, with the ability to integrate existing Pure Storage arrays and Cisco UCS servers into FlashStack.
- **Competitive Differentiation**: Operational simplicity without traditional HCI scaling constraints
- **Future-Proof Positioning**: Support for AI, analytics, and cloud integration requirements

PURE STORAGE INTEGRATION

Pure Storage's FlashArray provides high-performance storage for the FlashStack solution. Unlike traditional hard disk-based or hybrid-storage solutions, FlashArray delivers enterprise storage capabilities with an architecture optimized for flash memory.

Its purpose-built approach provides several technical advantages that directly benefit converged infrastructure deployments:

- **True Disaggregation**: Clean separation enabling independent compute-storage scaling
- **Industry-Leading Efficiency**: Always-on compression and deduplication without performance penalties
- **Sub-Millisecond Latency**: NVMe-optimized platform with consistent response times
- **Six-Nines Availability**: 99.9999% uptime[2] with non-disruptive hardware and software upgrades

FlashArray's operational capabilities integrate deeply with Nutanix's management plane, allowing seamless administration across both compute and storage resources. This integration extends beyond basic connectivity to include automated workflow orchestration and policy-based management:

- **Integration with Nutanix Prism**: VM-level snapshots, provisioning, and monitoring are accessible through Nutanix's management interface.
- **Comprehensive Visibility**: Unified visibility across both Pure Storage and Nutanix clusters via Cisco Intersight[3].
- **Ransomware Protection**: SafeMode technology provides immutable snapshots integrated with Nutanix security

CISCO SERVERS AND NETWORKING

FlashStack delivers enterprise infrastructure capabilities through validated configurations that address common deployment scenarios while maintaining flexibility for customization.

FlashStack is composed of several elements:

- **Cisco UCS Servers, powered by Intel Xeon Processors**: AI-ready performance with Cisco UCS Fabric Interconnects, which act as the central management and connectivity hub for all Cisco UCS servers by integrating LAN and SAN connectivity into a unified fabric, simplifying cabling and management.
- **Cisco Networking Fabric**: Cisco Nexus switching infrastructure provides the networking connectivity that binds compute, storage, and management components into a cohesive system
- **Cisco Intersight Unified Management**: Cisco Intersight provides cloud-based infrastructure management that extends visibility and control across FlashStack elements. In FlashStack with

[2] **Pure Storage**: https://www.purestorage.com/products/unified-block-file-storage/flasharray-x.html
[3] **Nutanix**: https://www.nutanix.com/press-releases/2025/nutanix-and-pure-storage-partner-to-deliver-greater-customer-choice

Nutanix deployments, Intersight serves as a complementary management plane alongside Nutanix Prism while also providing visibility into Pure Storage's storage arrays.

- **Cyber Resilience**: Integrated XDR and SecOps provider compatibility

Central to the solution are Cisco's UCS servers. Designed specifically for highly parallelized workloads, Cisco's UCS enables administrators to optimize the ratio of compute to I/O to storage, and to scale in small discrete increments rather than massive over-provisioned steps.

A fundamental differentiator of Cisco UCS architecture is its server profile capability, which abstracts server hardware identity into software definitions that can be applied, moved, and managed independently of physical hardware. When a server profile is associated with a server, UCS Manager automatically configures the server, adapters, fabric extenders, and fabric interconnects to match specifications, enabling infrastructure provisioning in minutes rather than days.

This software-defined approach contrasts with traditional server management, which primarily provide remote management and monitoring capabilities but require administrators to manually configure individual servers and maintain hardware-specific settings that cannot migrate between physical systems.

The Cisco UCS servers are powered by the latest generation Intel Xeon processors. Built from the ground up for enterprise-scale workloads, Intel Xeon processors deliver the performance, reliability, and ecosystem support essential for mission-critical deployments.

Intel Xeon processors enable FlashStack to consolidate workloads onto fewer servers and repurpose space, power and budget for AI-ready infrastructure, thereby lowering total cost of ownership[4]. Flashstack provides the flexibility to leverage the latest generation Intel Xeon processors in new Cisco UCS servers, as well as support for prior generation processors to allow the use of existing compute infrastructure.

TYING IT TOGETHER: THE POWER OF CONVERGENCE

The convergence of Cisco, Nutanix, and Pure Storage technologies offers benefits that exceed the sum of individual component capabilities. These benefits result from deep engineering collaboration that optimizes interfaces, workflows, and performance characteristics across the entire stack:

- **Validated Architectures**: Pre-tested configurations eliminating deployment risk
- **Unified Support**: Single-point accountability across the entire infrastructure stack
- **Optimized Performance**: Purpose-built integration maximizing throughput across interfaces
- **Modular Expansion**: Compute-only scaling for licensing-sensitive environments

[4] **Intel**: https://www.intel.com/content/www/us/en/products/details/processors/xeon.html

- **Comprehensive Cyber-Resilience:** Nutanix Flow provides micro-segmentation and disaster recovery orchestration to contain threats and enable rapid recovery; Pure Storage SafeMode offers immutable snapshots and data-at-rest encryption; and Cisco's integrated XDR compatibility enables extended detection and response across the infrastructure stack, providing unified threat visibility and coordinated incident response.

The integrated solution delivers measurable business value through operational improvements and cost optimization that extend beyond the benefits of individual components. These value propositions address common enterprise challenges while enabling new capabilities that support business growth:

- **Accelerated Time-to-Value**: Pre-integrated solutions reduce deployment timelines, unified management across Prism and Intersight eliminates siloed administration, and OPEX consumption models align infrastructure costs with business utilization patterns.
- **Flexible Cost Model**: FlashStack supports both traditional capital purchases and OPEX-based consumption models through Pure Storage Evergreen and Cisco Storage as a Service, providing customers with financial flexibility aligned to their business requirements.
- **Operational Agility**: Platform flexibility supporting evolving requirements without architectural changes

USE CASES AND DEPLOYMENT SCENARIOS

FlashStack with Nutanix addresses three primary enterprise scenarios that deliver significant value to IT organizations that adopt the solution:

Use Case	Driver	Benefits
VMware Migration & Application Modernization	Broadcom pricing changes prompt widespread virtualization platform reevaluation	• Phased migration that preserves existing investments • Equivalent functionality with reduced licensing costs • Improved operational capabilities and cost predictability • Support for legacy applications during modernization
AI and Analytics Workloads	AI adoption requires infrastructure optimized for both training and inference workloads.	• Independent scaling of compute and storage resources • High-performance characteristics for demanding applications • Support for both parallel processing training and low-latency inference

		• Support for AI-optimized Cisco UCS platform configurations with Intel CPU as the host for GPU-accelerated systems.
Edge and Hybrid Cloud Deployments	Distributed computing requirements with centralized operational control	• Operational consistency across distributed environments • Centralized management with local autonomy for latency-sensitive applications • Seamless workload mobility and data synchronization • Support for unique edge location requirements

TABLE 3: FLASHSTACK USE CASES

WRAPPING UP: CONVERGENCE WITH CHOICE

FlashStack with Nutanix brings together Cisco, Nutanix, and Pure Storage to deliver a converged infrastructure solution that addresses the limitations of both traditional integrated systems and disaggregated alternatives. Rather than forcing IT organizations to choose between operational simplicity and architectural flexibility, FlashStack delivers both through validated integration and modular design principles.

The solution enables modernization without lock-in by supporting multiple deployment models, hardware platforms, and operational approaches within a consistent management framework. Organizations adopting the technology can leverage current best practices while preserving the ability to adapt as technologies and requirements evolve.

This flexibility proves particularly valuable in an environment where AI, edge computing, and cloud integration are reshaping infrastructure requirements.

Advantage	IT Value
Modernization Without Lock-in	• Multiple deployment models and hardware platforms supported • Consistent management framework across diverse configurations • Preservation of adaptation capabilities as technologies evolve • Future-proof architecture supporting AI, edge, and cloud requirements • Ability to leverage existing Cisco UCS Servers
Simplification Without Compromise	• Operational benefits of converged systems are maintained

	• Architectural constraints of traditional HCI were eliminated • Single-interface management with unified support • Component optimization for specific workload requirements
Precision Scaling	• Independent control over compute, storage, and networking resources • Resource allocation based on actual application requirements • Elimination of predetermined node configuration constraints • Cost optimization through precise resource matching

TABLE 4: INTRINSIC ADVANTAGES OF FLASHSTACK WITH NUTANIX

FlashStack simplifies operations without compromise by maintaining the operational benefits of converged systems while eliminating the architectural constraints that traditionally limited scalability and customization. IT teams gain simplified management and unified support while retaining the ability to optimize individual components for specific workload requirements.

Most significantly, FlashStack with Nutanix enables organizations to scale with precision by providing independent control over compute, storage, and networking resources based on actual application requirements rather than predetermined node configurations. It's a capability that becomes increasingly important as workload diversity increases and resource optimization becomes critical for both performance and cost management.

IT leaders evaluating infrastructure alternatives should consider this solution's potential to address both immediate modernization requirements and long-term strategic objectives. The combination of proven technologies, validated architectures, and flexible deployment options provides a foundation for infrastructure evolution that can accommodate both current needs and future innovation.

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