



NetApp[®]
Go further, faster



Infrastructure Solution

FlexPod for VMware

Accelerate your transition to the cloud with a prevalidated infrastructure solution

KEY FEATURES

- Reduce business risk and time to deployment for all your applications with prevalidated, standardized components and cooperative support and services from Cisco, NetApp, and VMware
- Increase efficiency and decrease costs with a simplified shared, virtualized infrastructure that increases asset utilization and integrates into your existing environment
- Improve IT agility and protect your technology investment with a flexible, unified infrastructure stack that is built for virtualization today and will scale to a fully private or public cloud tomorrow

THE CHALLENGE

Disruptive, inflexible transition from infrastructure silos

Today's IT departments are increasingly challenged by the complexity and management of disparate components within their data centers. Rapidly proliferating silos of server, storage, and networking resources combined with numerous management tools and operational processes have led to crippling inefficiencies and costs.

Savvy organizations understand the financial and operational benefits of moving from infrastructure silos to a virtualized, shared environment. However, many of them are hesitant to make the transition due to potential short-term business disruptions and long-term architectural inflexibility, which can impede scalability and responsiveness to future business changes. Enterprises and service providers need a tested, cost-effective virtualization solution that can be easily implemented and managed within their

existing infrastructures and that scales to meet their future cloud computing objectives.

THE SOLUTION

Unified, pretested, and validated shared infrastructure to simplify your data center transformation

To meet this challenge NetApp and Cisco have collaborated to create FlexPod™ for VMware. FlexPod is a proven, long term data center solution built on a flexible, shared infrastructure that can scale easily; be optimized for a variety of mixed application workloads; or be configured for virtual desktop or server infrastructure, secure multi-tenancy and Cloud environments. FlexPod is a prevalidated configuration that delivers a virtualized data center in a rack composed of leading computing, networking, storage, and infrastructure software components.

FlexPod for VMware

FlexPod differs from other virtualization offerings by providing:

- Validated technologies from industry leaders in computing, storage, networking and server virtualization

vmware



“The Cisco, NetApp, and VMware infrastructure is a game changer. We can run our entire business on an integrated and verified platform that we deployed in our data center in just a matter of hours. This infrastructure is where everybody’s going to be in 2012, but we’re already here.”

Brian Denton
CTO, ExamWorks

- A single platform, built from unified computing, fabric, and storage technologies, that lets you scale to meet the largest data center requirements without disruption or architectural changes in the future
- Integrated components that enable you to centrally manage all your infrastructure pools
- An open design management framework that integrates with your existing third-party infrastructure management solutions

Investment protection with standardized, flexible IT

Together, NetApp, Cisco, and VMware provide a unified flexible architecture that is ready for virtualized environments today, yet is flexible enough to grow at your own pace to a fully private cloud. The Ethernet-based FlexPod framework fits right into your current infrastructure, eliminating the cost of replacing your existing technology.

FlexPod components are integrated and standardized to help you achieve timely, repeatable, consistent deployments and eliminate guesswork from the following areas:

- Resource procurement and planning

- Capacity and data center sizing
- Identification of operations and provisioning requirements

As a result, you can understand and better predict the exact power, floor space, usable capacity, performance, and cost for each FlexPod deployment.

FlexPod for VMware can support a number of mixed workload environments, and it can be optimized for your specific requirements. For example, a base FlexPod configuration can support 1,500 users for these four popular workloads simultaneously: virtual desktop infrastructure (VDI), Microsoft® Exchange, Microsoft SharePoint®, and SQL Server® and it provides sufficient headroom for additional workloads. FlexPod comes with a sizing guide that shows you how to flex the solution to meet your specific requirements for other workload environments.

Scalability for any cloud solution

FlexPod configurations can be right-sized up or out, and then duplicated in modular fashion to fit your specific organizational needs. For example, large enterprises or service providers with mature IT processes and rapid growth expectations can deploy

and scale out one or more FlexPod configurations to meet the following requirements:

- Migration to a shared infrastructure with many applications
- Improved agility to meet growth and key critical business initiatives
- Lower cost per user without sacrificing scalability
- Simplified operating skills and processes and reduced costs
- Evolution to operations that align with ITIL-based standards
- Deployment of dedicated applications that support software as a service (SaaS), VDI, and other cloud environments

Medium-sized enterprises and customers with more moderate growth requirements can use FlexPod as a starting point for virtualization solutions. They can then scale up storage and compute pool capacity or performance within a FlexPod configuration while maintaining centralized management of the infrastructure solution.

Environment Examples

Exchange 2010, Microsoft SharePoint, or SQL Server

Capabilities

- Start with the FlexPod predesigned, simple, validated data center solution to run on a variety of application workloads
- Data center efficiency
- Virtualized shared infrastructure

Virtual desktop infrastructure

- Deduplication of images
- Rapid provisioning through VM cloning
- Array-based data protection

Development/production

- Space-efficient cloning of datasets and VMs
- Data center efficiency
- Dynamic infrastructure
- Add ITSM and vCloud orchestration for self-service portals
- Virtualized shared infrastructure
- Optional to add secure multi-tenancy architecture for secure partitioning and isolation
- Array-based data protection

Internal private IaaS cloud/secure multi-tenancy

- Add secure multi-tenancy architecture for secure partitioning and isolation of workloads
- Add ITSM/orchestration for automated provisioning, workflows, usage metrics, and reporting

Service provider

- Data center efficiency
- Dynamic infrastructure for SaaS, PaaS, and IaaS
- Add secure multi-tenancy for secure partitioning and isolation of client environments

Table 1) FlexPod facilitates a variety of virtualized, cloud environments.

Best-in-class components and features

Leading components from VMware, Cisco, and NetApp include:

- VMware® vSphere™, vCenter™
- Cisco Unified Computing System™ and Cisco Nexus® family switches
- NetApp® FAS and complete bundle

Features include:

- Performance-matched stack
- Step-by-step deployment guide
- Detailed application sizing guide
- Support for multiple classes of computing and storage in a single FlexPod deployment
- Centralized management: VMware vCenter with Cisco Unified Computing System and NetApp FAS plug-ins

FlexPod enables a wide range of virtualization applications and cloud solution environments “out of the box.” You can also add optional software to transform FlexPod into a highly available infrastructure that provides mobility at all layers for nonstop operations. FlexPod can even expand into a secure multi-tenancy environment that enables your shared infrastructure to

be segmented into securely isolated partitions that deliver specific service levels for applications, business units, or customers.

NetApp: unified architecture for extreme efficiencies

Traditional storage solutions for virtualized infrastructures force you to buy separate systems to accommodate different storage needs. NetApp’s multiprotocol unified architecture reduces cost and complexity by meeting all of your storage requirements with a single, highly scalable solution.

You can further enhance efficiencies and save disk space with built-in deduplication, thin provisioning, and rapid cloning technology, which let you deploy thousands of virtual machines within minutes. Optimize performance with your choice of 10 Gigabit Ethernet or Fibre Channel over Ethernet (FCoE) and boost availability with integrated Snapshot™ technology for space-efficient backups and fast disaster recovery.

Innovative NetApp software integrates with major applications so you can automate key storage management, data protection, and security activi-

ties and manage storage from familiar application-centric interfaces. With the most flexible storage for server and desktop virtualization, you can increase storage efficiency and slash hardware and operational expenses in your cloud environment.

Cisco: unified computing for simplified connectivity

The Cisco Unified Computing System (UCS) is a data center platform specifically designed for virtualized environments. The Cisco® United Computing System unites computing, networking, and storage connectivity and virtualization into a single cohesive system. It’s designed to eliminate time-consuming manual integration, reduce total cost of ownership (TCO), and dramatically increase business agility.

The Cisco United Computing System integrates computing resources with Cisco Nexus switches and a unified I/O fabric that provides an intelligent method for identifying and handling different types of network traffic. You can consolidate all traffic onto a single high-performance, highly available 10 Gigabit Ethernet network to greatly simplify network management and reduce costs.

The Cisco® United Computing System Manager interface also provides service profile templates that let you automate large-scale server and application deployments based on pre-defined policies to deliver a stateless computing environment.

VMware: setting the standard for server and desktop virtualization

The powerful VMware virtualization solution enables you to pool server and desktop resources and dynamically allocate them with service-level automation so you can deploy a private cloud and deliver IT as a service (ITaaS). VMware components provide a scalable approach to virtualization that delivers high availability and agility to meet your changing business requirements.

VMware vSphere, the industry's most complete and robust virtualization platform, increases IT efficiency through consolidation and automation, dramatically reducing your capital and operating costs while giving you the freedom to choose your applications, OS, and hardware.

VMware vCenter Standard offers proactive end-to-end centralized management of virtual environments, delivering the visibility and responsiveness you need for cloud-ready applications.

Centralized management

A critical advantage provided by FlexPod for VMware is the built-in cen-

tralized management of the NetApp, Cisco, and VMware technology elements. VMware vCenter provides a central framework for managing FlexPod resources as virtualized data center pools. Both NetApp Virtual Storage Console and Cisco United Computing System integrate with VMware vCenter to enable well-coordinated management across server, fabric, and desktop layers.

NetApp storage integration includes VMware vCenter plug-ins and supports VMware vStorage APIs. This tight integration greatly improves productivity by enabling your virtualization infrastructure administrators to directly perform storage and data management operations using VMware vCenter without requiring storage administrator assistance.

The open FlexPod architecture also provides APIs that enable IT service management using your existing third-party infrastructure management solutions.

Cooperative support for rapid resolution

Our cooperative support model provides a more streamlined response from Cisco, NetApp, and VMware to identify and rapidly resolve problems. Global 24-hours-a-day support provides expert technical support when needed.

Proven partnership

As industry leaders in storage, networking, and server virtualization,

respectively, NetApp, Cisco, and VMware have a powerful global presence and have been working together on a shared virtualized data center vision since 2003. Our collaboration has resulted in more efficient virtualization and cloud computing solutions and numerous jointly validated reference architectures. Together we have helped thousands of mutual customers improve agility and lower costs.

Open delivery ecosystem

You can choose from a broad network of world-class solution delivery partners to implement FlexPod for VMware. These partners understand your business requirements and are all certified and trained on NetApp, Cisco, and VMware as well as complementary technologies to deliver a complete cloud solution that fits your business needs.

Getting started

To learn how FlexPod enables you to build a flexible and efficient shared infrastructure today as your foundation for future-ready IT, contact your local data center partner.

ABOUT NETAPP

NetApp creates innovative storage and data management solutions that deliver outstanding cost efficiency and accelerate performance breakthroughs. Discover our passion for helping companies around the world go further, faster at www.netapp.com.



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