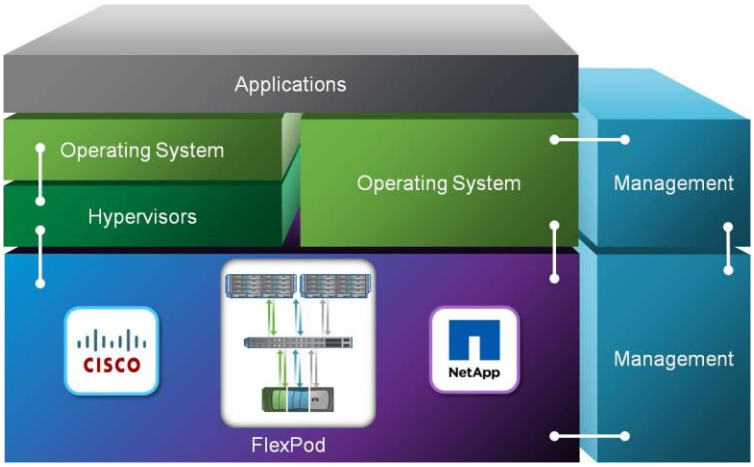
FlexPod At-a-Glance

Introduction

FlexPod is a data center platform from Cisco and NetApp that hosts infrastructure software and business applications in virtualized and non-virtualized environments. The platform has been tested and validated across leading hypervisors and operating systems from Citrix, VMware, Red Hat, and Microsoft and can be managed by the FlexPod ecosystem of software partners (Figure 1).

Figure 1. Figure 1- The FlexPod platform

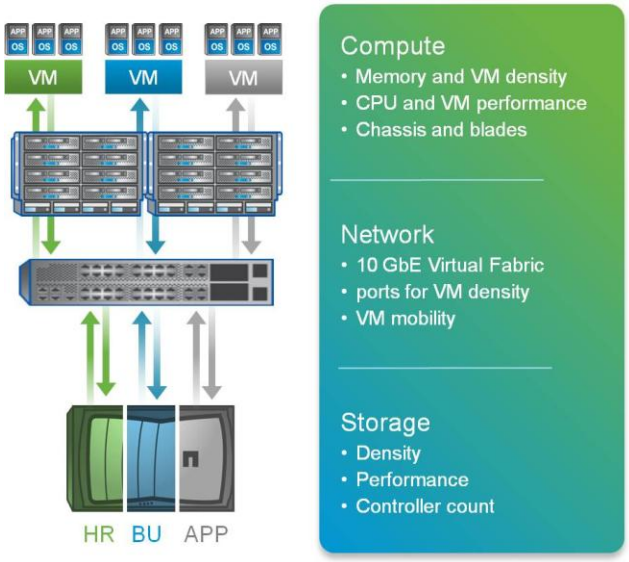


FlexPod Components

FlexPod is built on leading computing, networking, storage, and infrastructure software components. It provides an excellent virtualized data center solution through:

- Validated technologies from industry leaders in computing, storage, networking, and server virtualization
- A single platform built from unified computing, fabric, and storage technologies, with popular and trusted software virtualization
- Integrated components that help enable you to centrally manage all your infrastructure pools
- An open design management framework that integrates with your existing third-party infrastructure management solutions

Figure 2. Figure 2 – FlexPod components



FlexPod business benefits

- Assured deployment: FlexPod is the result of deep technology collaboration between Cisco and NetApp leading to the creation of an integrated, tested, and validated data center platform that has been thoroughly documented in a best practices design guide. The availability of Cisco® Validated Design guides has reduced the time-to-deployment of mission-critical applications by 30 percent. FlexPod is built to run applications concurrently. The platform can support shared workloads by using secure multi-tenant capabilities. More than 120 channel partners worldwide have been trained to provide design and deployment support for FlexPod. FlexPod is aided by a well-defined management framework that allows configuration, monitoring, and scaling through a single pane.
- Business agility with flexibility: FlexPod uses the Cisco Unified Computing System™ (Cisco UCS™) innovations of a unified fabric and programmable interfaces to deliver exceptional scalability and flexibility at the server and networking layers. Pre-integration of NetApp OnCommand and Cisco UCS Manager help ensure that the server, networking, and storage components of FlexPod work in unison. The resulting platform scales up or out without any changes to the architecture. The platform supports all major hypervisors and operating systems.
- Efficiency: FlexPod offers servers with greatly expanded memory capacity, leading to greater virtual machine–based use of each server. The network interconnects support

Fibre Channel and Ethernet traffic to Cisco Nexus® switches on a unified 10 Gigabit Ethernet fabric. For storage, built-in efficiencies such as data deduplication and thin provisioning help lower costs and allow deployment of thousands of virtual machines within minutes. Support for NetApp Snapshot and flash cache results in 75 percent fewer disk drives without compromising performance. FlexPod efficiency is further enhanced with a unified fabric architecture that uses 50 percent less cabling and 50 percent less storage space than traditional data center platform designs, resulting in greatly reduced power, cooling, and data center space requirements. FlexPod also can integrate with existing infrastructure, saving transition and data center downtime costs.

FlexPod deployments

Desktop virtualization

Desktop virtualization benefits IT administrators by reducing maintenance costs, improving security, and simplifying data backup. Enterprises adopting virtual desktop infrastructure (VDI) have to contend with greater deployment and management complexity in the data center. This complexity increases the cost of the solution and has to be amortized over a larger number of desktops.

FlexPod allows organizations to gain the full benefits of the flexibility of VDI solutions from Citrix and VMware at the platform layer.

FlexPod coupled with Citrix or VMware VDI enables organizations to run more virtual desktops per server with fewer network and storage connections. The deployment reduces storage needs by up to 95 percent through NetApp's unique primary storage deduplication. VDI customers can provision thousands of desktops in minutes.

FlexPod comes with a sizing guide that shows how to adapt the solution to meet specific requirements for desktop virtualization, either as a standalone workload or with other workloads if performance and operation requirements permit.

Enterprise applications

FlexPod's shared workload capability supports a wide variety of applications, operating systems, and client needs—without incurring high costs or forcing users to sacrifice capability or performance.

Combining FlexPod with best practices in fault-tolerant data center design results in an environment that achieves five-nines availability for widely accessed, business-critical applications.

Enterprise applications running on Microsoft Windows, Solaris, and UNIX operating systems benefit from FlexPod support for both network-attached storage (NAS) and SANs, many types of databases, and multiple protocols including Network File System (NFS), Fibre Channel Protocol (FCP) SAN, Small Computer System Interface over IP (iSCSI), and Common Internet File System (CIFS).

Microsoft SQL Server and Oracle databases can be consolidated through VMware, along with applications such as Microsoft Great Plains, Microsoft Customer Relationship Management (CRM), Oracle JD Edwards OneWorld Enterprise1, PeopleSoft CRM, SAP BusinessObjects, PHP, Java, .NETServer platform, and many more.

For data protection FlexPod incorporates NetApp Snapshot to capture point-in-time copies of data, Snap Mirror for cost-effective disaster recovery, and SnapRestore for file recovery.

With FlexPod, enterprises can create a virtual infrastructure in which resources for different tenants, clients, business units, or departments are securely isolated without sacrificing service levels. FlexPod enables IT to deliver committed levels of performance while maintaining data security by isolating server, network, and storage layers for each tenant.

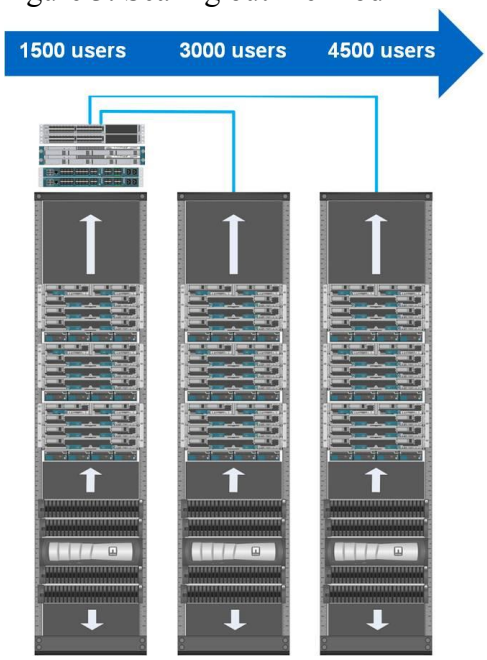
Infrastructure as a service

Public hosted services have to be truly available on demand and elastic, with the capability to consistently meet consumer service-level agreements (SLAs).They must be workload and resource aware. One way to achieve these goals is through a level of abstraction in which all components of the data center are virtualized, not just the computing and memory components. FlexPod delivers this capability through its support for industry-standard virtualization solutions. After a management solution is abstracted and deployed, it must be able to create policies based on workload and data management to help ensure high efficiency and performance. The FlexPod management ecosystem partners deliver this vital capability.

Hosted service delivery data centers have shared resource pools mandating that security and multi-tenancy be integrated into every aspect of operation architecture and processes.

With FlexPod, virtual machines or groups of virtual machines are securely isolated from other virtual machines or groups of virtual machines using virtualization and networking technology. After they are securely isolated, virtual machines are connected to storage systems through a network that is segmented and secured using the Cisco Nexus Family of products. The storage NetApp vFiler units to which they connect are also securely isolated from other NetApp vFiler units using NetApp MultiStore technology, which results in an end-to-end secure, isolated storage system (Figure 3).

Figure 3: Scaling out FlexPod



Cisco and NetApp partnership benefits

- Cisco and NetApp have collaborated on data center innovations since 2003.
- FlexPod customers benefit from the creation of a unified support lab.
- Support needs are resolved through rapid access to Cisco and NetApp technical expertise.
- Planning and deployment expertise is provided by more than 120 certified FlexPod partners throughout the world.

Technology partners

FlexPod's technology innovations have been validated through extensive testing with the industry's leading providers of enterprise solutions:

- VMware: VMWare built on FlexPod
- SAP: SAP built on FlexPod
- Microsoft: Microsoft Exchange on FlexPod

Orchestration partners

FlexPod Management Eco-system partners provide tested and validated FlexPod management solutions. The availability of these solutions results in greater customer confidence and a much shortened FlexPod deployment cycle.

- Cloupia
- CA Technologies
- Gale Technologies

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