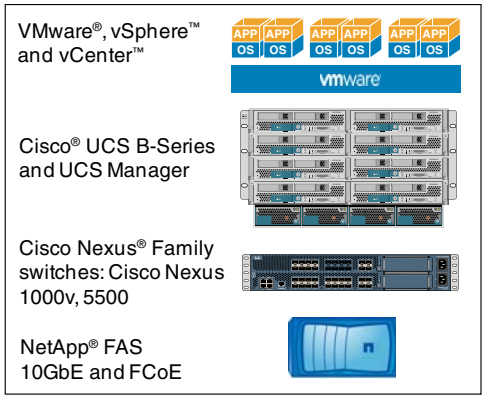
Virtualize Microsoft Enterprise Applications (Exchange, Sharepoint, and SQL Server) on FlexPod for VMware

At-A-Glance

Cisco®, NetApp®, and VMware® have collaborated to create FlexPod™ for VMware (http://www.netapp.com/us/technology/flexpod/), a unified and shared infrastructure solution to simplify data center transformation. It is a validated data center solution built on a flexible, shared infrastructure that can easily scale, be optimized for a variety of mixed application workloads, and be configured for virtual desktops or server infrastructure, optionally in secure multi-tenancy cloud environments. FlexPod components include Cisco Unified Computing System (UCS) (http://www.cisco.com/web/solutions/data_center/unifiedcomputing_promo.html) and Unified Networking (http://www.cisco.com/en/US/products/ps9670/index.html), NetApp Unified Storage (http://www.netapp.com/us/technology/unified-storage/), and VMware vSphere™,

Figure 1 FlexPod for VMware

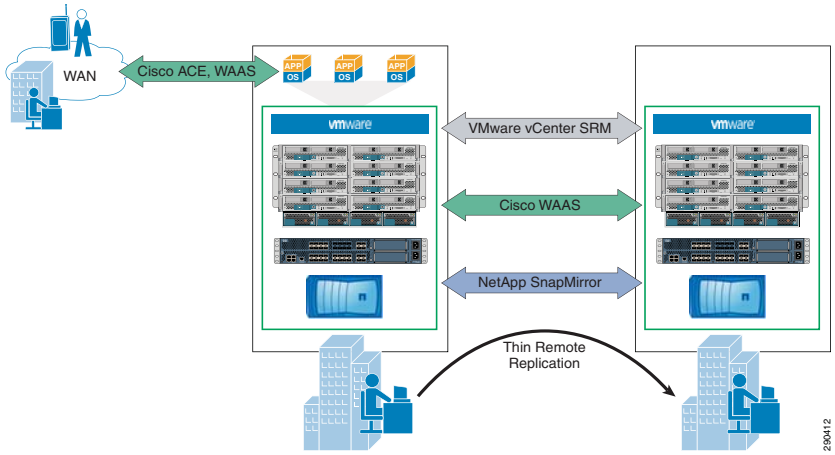


Each of the components in the FlexPod for VMware solution has unique virtualization features. Together, they create a flexible platform that can be scaled to accommodate a variety of enterprise application workloads. VMware vCenter provides a scalable and extensible management platform that supports workflow automation. Cisco UCS Manager provides embedded management of Cisco components and integration with VMware vCenter. NetApp OnCommand Management Suite lets you delegate storage management tasks to server or VMware administrators with tight vCenter integration.

FlexPod add-on components provide additional value for running multiple instances of Microsoft applications on FlexPod:

- Enhanced availability, performance, security, and intra-data center and wide area network optimization for virtualized Microsoft applications leveraging Cisco Unified Networking Services technologies (ACE, WAAS) (http://www.cisco.com/en/US/netsol/ns1097/index.html)
- Very high levels of recovery time objective (RTO) and recovery point objective (RPO) with cost efficient, application-aware backup, granular recovery, and automated disaster recovery (DR) enabled by NetApp SnapManager, SnapMirror, and VMware Site Recovery Manager (SRM)

Figure 2 FlexPod Add-on Components



Value for IT Operations

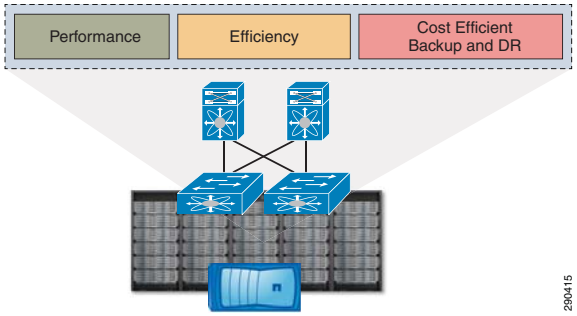
- Cost efficiently host multiple instances for virtualized Microsoft applications on a pre-validated, shared IT infrastructure stack with granular end-to-end QoS, the ability to meet performance SLAs, and centralized management
- Efficiently roll out new instances of virtualized Microsoft applications to achieve business agility
- Flexibility of hosting the virtualized Microsoft applications in a secure multi-tenant cloud environment
- Achieve standardized deployments enabled by detailed Microsoft application focused solution architectures and channel partner enabled deployment services
- Optimized security, mobility, and fully automated, application-aware data protection and DR
- Streamlined response to identify and quickly solve potential issues, enabled by the Cisco, NetApp, and VMware cooperative 24/7 support model

Value for Microsoft Application Owners and End Users

- No change in the way Microsoft applications have to be managed
- Enhanced availability, security, and data protection
- Enhanced performance, particularly for branch office and mobile users accessing Microsoft applications hosted in the data center
- Application-aware load balancing and optimized end-user experience
- More efficient application roll out to meet the ever changing business needs

How FlexPod for VMware Accelerates Microsoft Applications

Figure 3 Microsoft Applications on FlexPod



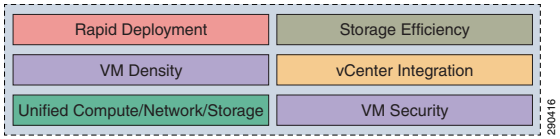
Performance

- VMware vSphere provides a robust and highly-scalable server virtualization platform for Microsoft applications
- High availability and resource optimization with VMware HA/DRS and Cisco Nexus and NetApp storage array level HA
- Cost effectively meet the I/O service level needs for virtualized Exchange, Sharepoint, and SQL Server VMs with UCS I/O virtualization, workload prioritization, and end-to-end 10Gb Ethernet
- Increased availability, performance, end-user experience, and security of virtualized Exchange, Sharepoint, and SQL Server applications with Cisco ACE and WAAS, NetApp Data ONTAP, FlashCache, deduplication, and WAFL write I/O optimization. ACE improves end-user productivity with application load balancing and faster response time. WAAS provides WAN optimization for faster, cost-efficient application delivery to remote users accessing E-mail, uploading/downloading files/folders to Sharepoint sites, etc.

Efficiency

- Dynamic provisioning and scaleout of FlexPod compute and storage resources enabled by UCS Service Profiles and NetApp VSC vCenter plugin.
- Rapid deployment of new instances of virtualized Microsoft applications enabled by the NetApp VSC vCenter plug-in. VSC invokes NetApp FlexClone to create zero-cost, hardware-assisted VM clones in a few minutes.
- Very high VM density per FlexPod enabled by UCS Memory Expansion capability, NetApp thin provisioning, deduplication, and FlexClone. This allows efficient hosting of multiple instances of virtualized Exchange, Sharepoint, and SQL Server VMs on the same FlexPod.
- VMware VAAI integration allows offload of I/O operations from vSphere hosts to NetApp storage (currently for block-based storage), ensuring availability of UCS compute resources to serve application needs.
- Efficiently meet the varying storage requirements for all the virtualized Microsoft applications from the same unified storage array.
- Offload networking tasks for virtualized Microsoft applications to network administration by leveraging the vCenter integrated Cisco Nexus 1000v distributed virtual switch. Nexus 1000v also allows virtualized Microsoft applications to have the same network configuration, security policy, and operational models as in the physical world. The security and port settings for individual VMs are retained with VM mobility across different vSphere hosts leveraging VMware vMotion.

Figure 4 Microsoft Application Efficiency on FlexPod



Cost Efficient Backup and Disaster Recovery

Achieve the desired RPO and RTO with application-aware, hardware-assisted NetApp snapshot backups, fully-automated backup verification, Microsoft VSS integration , and granular recovery (individual Exchange mailboxes and attachments, SQL transactions, Sharepoint files and folders, and VM files).

- Deduplication-aware remote replication of application data with NetApp SnapMirror.
- Reduced network bandwidth for remote replication to the DR site enabled by WAAS.
- Reduced DR cost and optimzed RTO with VMware SRM.
- Zero cost/downtime DR testing with NetApp FlexClone and VMware SRM integration.

Additional Resources

- FlexPod for VMware Deployment Model (http://www.cisco.com/en/US/docs/solutions/Enterprise/Data_Center/Virtualization/flexpod_vmware.html)
- Microsoft Exchange 2010 with VMware vSphere on Cisco UCS and NetApp Storage (http://www.cisco.com/en/US/docs/solutions/Enterprise/Data_Center/App_Networking/Exchange_VSphere_UCS_NetApp.html)
- Enhanced Secure Multi-Tenancy Design Guide (http://www.cisco.com/en/US/docs/solutions/Enterprise/Data_Center/Virtualization/securecldg_V2.html)
- Microsoft Exchange, SQL Server, and SharePoint on VMware vSphere 4, NetApp, and Cisco (http://media.netapp.com/documents/tr-3785.pdf)
- Microsoft SharePoint 2010 on FlexPod for VMware VMwarehttp://www.cisco.com/en/US/docs/solutions/Enterprise/Data_Center/App_Networking/SharePoint_FlexPod.html