



Cisco Unified Computing System and VMware vSphere 5 At-a-Glance

Increasing Your Competitive Edge

In today's economic climate, organizations are searching for new ways to reduce operating costs; simplify the deployment and management of computing, networking, and storage resources; and help ensure that applications are always available—all while expanding services to their customers and end users. VMware vSphere 5 and the Cisco Unified Computing System™ (Cisco UCS™) are crucial elements of an elastic utility that can truly deliver all the computing power and associated infrastructure that client organizations need to maintain customer satisfaction with increased efficiency.

VMware vSphere is a leading virtualization platform for building cloud infrastructures that helps enable users to run business-critical applications with confidence and respond more quickly to their business. VMware vSphere accelerates the shift to cloud computing for existing data centers while also underpinning compatible public cloud offerings, paving the way for the hybrid cloud.

Cisco UCS is the first converged data center platform that combines industry-standard, x86-architecture servers with networking and storage access in a single system. The system can be programmed using unified, model-based management to simplify and accelerate deployment of enterprise-class applications and services running in bare-metal, virtualized, and cloud-computing environments. The system's converged I/O infrastructure uses a unified fabric to support both network and storage I/O, while the Cisco® Fabric Extender Architecture (FEX Architecture) extends the fabric directly to servers and virtual machines for increased performance, security, and manageability.

Industry leaders Cisco and VMware combine Cisco UCS with VMware vSphere software to bring outstanding support for virtual environments, enabling rapid application and infrastructure deployment with heightened security, availability, and performance. The reduced complexity of Cisco UCS, coupled with extensive management integration with VMware vCenter, leads to increased business agility, greater return on investment (ROI), and lower total cost of ownership (TCO).

New Cisco UCS and VMware vSphere 5 Capabilities

VMware Auto Deploy

Cisco UCS allows VMware vSphere 5 administrators to boot servers over IP networks using inexpensive, shared storage resources with VMware Auto Deploy or with standard iSCSI. This approach contrasts with manual hypervisor installation on a server's local storage or dedicated SAN volume. Cisco UCS takes VMware Auto Deploy a step further by enabling administrators to boot multiple VMware vSphere servers with policy-enforced configuration from a single VMware vCenter host profile, eliminating the time-consuming and error-prone task of manually associating individual servers with a host profile. These unique capabilities are achieved by integrating Cisco UCS service profiles with VMware Auto Deploy and vCenter host profiles. Cisco accelerates virtual machine I/O while enabling transparent VMware vMotion. The Cisco UCS virtual interface card (VIC) supports VMware vSphere 5's enhanced VMDirectPath capability to deliver enterprise-class virtual machine network connectivity in hardware without sacrificing workload mobility. The VIC sends virtual machine I/O directly to the Cisco UCS fabric interconnect, which offloads virtual machine traffic

switching and policy enforcement. The VIC interoperates with VMDirectPath to participate in the VMware vMotion process of moving a virtual machine with its full I/O state to another physical hypervisor. The VIC completes the solution by integrating with VMware vCenter to enforce each virtual machine's network properties (VLAN, port security, rate limiting, and quality of service [QoS]) as it migrates between hypervisors.

VMware vCenter Orchestrator Plug-in for Cisco UCS Manager

The VMware vCenter Orchestrator (vCO) plug-in for Cisco UCS Manager helps organizations accelerate and simplify management of their cloud infrastructure by automating the provisioning of Cisco UCS servers. With 90 out-of-the-box actions and workflows, the plug-in adds management of computing hardware to VMware vCO, thereby enabling automation of the entire physical and virtual stack.

No other platform vendor offers a VMware vCO plug-in that manages the physical infrastructure, and that is because Cisco UCS is the only converged system whose configuration is entirely programmable through an open standards-based XML API.

Extended Memory

Cisco Extended Memory Technology increases virtual machine density while eliminating the need to upgrade to 4-socket servers when a larger memory footprint is needed. This feature gives customers the new capability to balance CPU and memory resources to best (and most cost effectively) accommodate the workload at hand.



Cisco Extended Memory Technology works by making four physical DIMMs appear to the Intel CPU as a single DIMM. When used in conjunction with 8-GB DIMMs, the technology gives the CPU the impression that it is accessing a single 32-GB DIMM, with up to 384 GB available in a single 2-socket server. No other vendor can match this memory footprint in a 2-socket server. Alternatively, a cost-effective memory footprint of 192 GB can be created using 4-GB DIMMs. When this solution is combined with VMware memory management techniques, companies can increase consolidation ratios beyond those otherwise available on 2-socket servers.

Cisco Data Center Virtual Machine Fabric Extender

Cisco and VMware are the first in the industry to provide visibility and control of network links all the way to the virtual machines themselves. No other solution allows virtual machine traffic to be managed and secured just as if each virtual machine were connected to the network by a physical link. Consider how this approach works in practice. In traditional environments, virtualization makes network problems more difficult to troubleshoot because the network tends to obscure individual virtual machines. Not so with Cisco Data Center Virtual Machine Fabric Extender (VM-FEX), through which the virtual network can be managed just

like the physical one. If a rogue virtual machine sends out a lot of traffic, you can simply shut down the link as part of troubleshooting the problem.

The tight integration of Cisco UCS Manager and VMware vSphere increases virtual machine mobility by moving network profiles along with virtual machines, so that no human intervention is needed to maintain the same security and QoS regardless of where a virtual machine lands. Cisco Data Center VM-FEX technology is available in Cisco UCS.

Make the Move Today

Moving to the Cisco UCS and VMware vSphere 5 solution has never been easier. Organizations can deploy virtual machine-aware networking throughout the data center using the Cisco Nexus[®] 1000V Switch and achieve hardware-accelerated performance as they migrate to Cisco UCS, with Cisco Data Center VM-FEX technology implemented through Cisco VICs. The Cisco Nexus 1000V Series Switches deliver highly secure, multitenant services by adding virtualization intelligence to the data center network. The alliance between Cisco and VMware delivers innovative, secure, high-performance solutions designed to simplify infrastructure while increasing virtualization benefits.

Why Cisco and VMware?

Cisco and VMware are market-leading, innovative companies with a long history of supporting virtualization of data center resources. With the vision and capabilities of these two companies combined into a joint solution, customers now have powerful allies in the design and implementation of their next-generation data centers. Together, Cisco and VMware deliver a standards-based, cohesive, unified environment that easily scales to increase the competitiveness of the business while increasing ROI and reducing TCO.

For More Information

Visit <http://www.cisco.com/go/vmware>.