Unprecedented Support for Virtual Environments with the Cisco Unified Computing System and VMware vSphere

Cisco and VMware: Virtualizing the Data Center

At-A-Glance

Increasing Your Competitive Edge

Virtualization is changing the face of data centers everywhere, bringing increased economy and agility to organizations of all sizes. As business organizations recognize the degree to which virtualization brings a competitive advantage, they are looking for the most advanced, effective, and efficient virtualization solutions that can further increase their competitive advantage.

Industry leaders Cisco and VMware combine the Cisco Unified Computing System™ 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 the Cisco Unified Computing System, 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).

Architecture Designed to Lower TCO and Increase ROI

The Cisco® and VMware solution is optimized for virtualization, combining the power of today's multicore x86-architecture processors with virtualized I/O that provides access to network and storage resources over a low-latency, lossless 10-Gbps unified fabric. Designed as a radically simplified, stateless system, the Cisco Unified Computing System has fewer components to purchase, configure, manage, maintain, power, and cool—leading to increased business agility, greater ROI, and lower TCO. The form-factor-neutral architecture enables organizations to choose the deployment model that best suits their needs: Cisco UCS B-Series Blade Servers are supported today, and Cisco C-Series Rack-Mount Servers have a built-in future migration path to the Cisco Unified Computing System.

Stateless Architecture Increases Resource Utilization

Through a single point of management for the entire hardware stack, organizations can move their servers from the loading dock and into production in minutes, rather than the days or weeks required of traditional servers or blade systems. When business requirements change, server resources can be reconfigured and repurposed with click-of-the-mouse simplicity, with everything from firmware revisions and settings to I/O device configuration managed through Cisco UCS Manager and Cisco service profiles. No other solution supports this degree of just-in-time provisioning.

Increased Consolidation Ratios with Cisco Extended Memory Technology

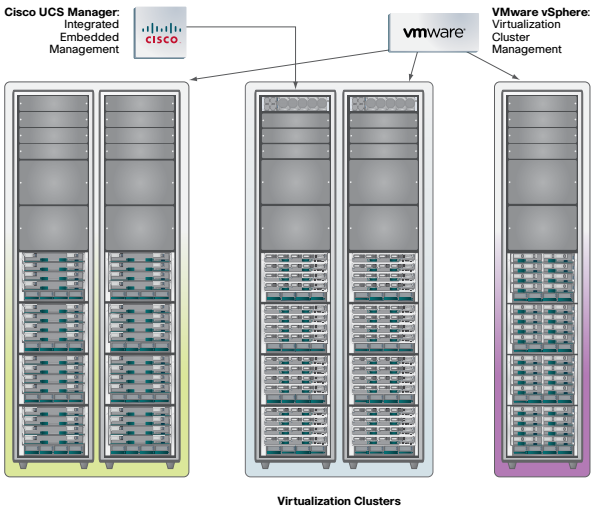
Virtualization requires a large memory footprint, often forcing customers into four-socket servers when they need not more CPU capacity, but more memory. The patented Cisco Extended Memory Technology supports higher consolidation ratios and lower memory costs by supporting large memory configurations using economical 4-GB DIMMs—more than any other vendor can deliver on a two-socket server. The result is fewer systems with fewer CPUs to purchase, power, and license.

Faster Application and Infrastructure Deployment

The Cisco Unified Computing System and VMware vSphere virtualization platform speeds application deployment through flexible resource pools that can quickly adapt to secure applications and improve availability with fewer points of management and less cost, eliminating barriers to virtualization of even the most mission-critical applications (Figure 1).

Integration of the Cisco Unified Computing System and VMware vSphere provides click-of-the-mouse simplicity augmented by role- and policy-based management that fosters better communication between administrative domains while automating and streamlining application and infrastructure deployment. Cisco service profiles deploy consistent and accurate server configurations in minutes, while Cisco UCS virtual interface cards (VICs) are configured dynamically to support the I/O requirements of both the VMware vSphere hypervisor and individual virtual machines with up to 30 percent more network throughput and less overhead for interfaces, cables, transceivers, and upstream ports.

Figure 1. Cisco UCS Manager and VMware vCenter Software Coordinate the Managment of Virtualization Clusters



While VMware vSphere Dynamic Resource Scheduler (DRS) manages utilization across a virtualization cluster, VMware vSphere Dynamic Power Management (DPM) reduces data center power consumption, powering off unneeded server resources automatically. VMware vSphere High Availability (HA) can be implemented more efficiently, with fewer standby resources needed. The Cisco Unified Computing System's 10-Gbps unified fabric supports the bandwidth requirements of VMware vSphere Fault Tolerance (FT) without the need for additional network resources.

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Exceptional Security for Virtualized Applications

In typical virtualized environments, security often is sacrificed to simplify network configurations to avoid interfering with virtual machine mobility. In some environments, virtualized I/O further obscures the networking layer, making management of security and isolation of problems even more difficult.

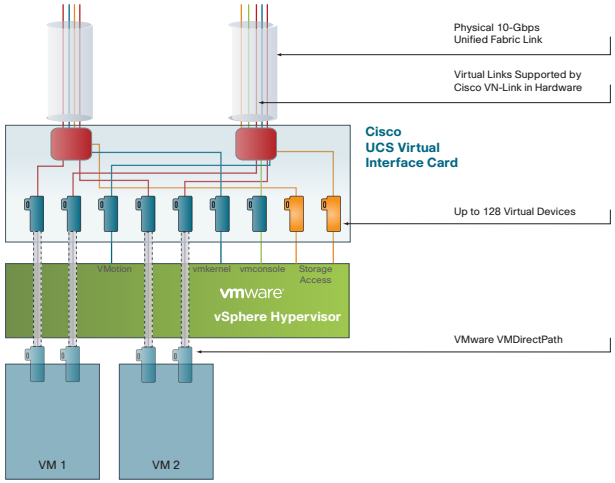
In contrast, Cisco's ground-breaking VN-Link technology and its first hardware-accelerated implementation enables organizations to manage security on a per-virtual-machine basis, making virtual links as manageable as physical links (Figure 2). The integration of Cisco UCS Manager and VMware vCenter increases virtual machine mobility by moving virtual machine network profiles along with virtual machines, securing applications equally regardless of their physical locations. No other solution brings network management directly to virtual machines.

Improved Application Availability and Performance

Cisco VN-Link technology also helps improve application availability and performance by supporting quality-of-service (QoS) management on a per-virtual-link basis. This capability enables VMware DRS to better balance workloads across a pool of resources with enhanced mobility and security, increasing utilization and ROI, all while maintaining service levels. Cisco service profiles and port profiles establish policy-based server and virtual machine provisioning that reduces the chance of configuration errors that can cause application downtime while speeding application deployment.

Cisco VN-Link in hardware eliminates software switching, delivering up to 30 percent greater network throughput and freeing CPU cycles to support a larger number of virtual machines per server. Application availability is further increased by visibility into virtual machines, simplifying the environment and enhancing the capability to troubleshoot problems and manage networks.

Figure 2. Cisco Virtual Interface Cards Implement VN-Link in Hardware and Support the VMware vSphere Hypervisor's I/O Requirements While Simplifying Infrastructure, Improving Performance, and Reducing Costs



Make the Move Today

Moving to the Cisco Unified Computing System and VMware vSphere 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 the Cisco Unified Computing System, with Cisco VN-Link technology implemented through Cisco virtual interface cards. 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.

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