Cisco Virtualization Solution for EMC VSPEX with VMware vSphere 5.1 for Up to 1000 Virtual Machines

Solution Brief
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Highlights

Reduced Risk

- The EMC VSPEX program sizes and validates configurations to help ensure interoperability. Cisco® Validated Designs for VMware vSphere further accelerate deployment and reduce risk with pretested configurations.

Availability and Reliability

- High availability and reliability features help ensure continuous application access.

Choice of Shared Storage Options

- Next-generation EMC VNX Series storage systems provide excellent performance, data protection capabilities, and ease of management along with support for standards compliance.

Reduced-Cost Approach

- Excellent virtual machine density reduces both capital and operating expenses, reducing acquisition costs and total cost of ownership (TCO).

Rapid Deployment

- Cisco Unified Computing System™ (Cisco UCS®) with EMC VNX Series storage running VMware vSphere 5.1 software provides intelligent infrastructure with rapid deployment capabilities.

Migration Path to Unified Management

- Cisco UCS B-Series Blade Servers and Cisco UCS C-Series Rack Servers with Intel® Xeon® processors offer a migration path to unified management with Cisco UCS® Manager.

Scalable, validated Cisco® solutions simplify virtualization deployment for medium-sized businesses using VMware vSphere software.

Cisco and EMC offer VSPEX solutions built on Cisco Unified Computing System™ (Cisco UCS®) infrastructure architecture. These presized and validated solutions give customers confidence that they are deploying the right balance of computing, networking, and storage resources to support virtual workloads. Tested following Cisco® best practices, the Cisco Virtualization Solution for EMC VSPEX with VMware vSphere 5.1 software scales to support up to 1000 virtual machines.

Flexible Platform for Virtual Infrastructure

The solution uses Cisco UCS, a platform that combines high-performance computing, networking, virtualization, and storage-access resources into a single unified system that can scale to support virtualization requirements (Table 1). These validated configurations can be upgraded to match your virtual machine, memory, storage, and I/O requirements.

Cisco UCS B-Series Blade Servers, Cisco UCS C-Series Rack Servers, and next-generation EMC VNX Series storage using Fibre Channel or Ethernet technology are integrated with Cisco UCS 6248UP 48-Port Fabric Interconnects (Figure 1). Cisco UCS Manager provides management across both rack and blade servers and integrates with VMware vCenter server for transparent provisioning of virtual machines. In addition, the Cisco UCS Powertool library module for Microsoft PowerShell and Cisco UCS Director offers several provisioning levels and automated management. Cisco Nexus 1000V Virtual Ethernet Modules also can be used.

Solution Components

Figure 1 shows the solution components.

Cisco UCS B200 M3 Blade Servers and Cisco UCS C220 Rack Servers address a range of workloads, from IT and web infrastructure to distributed databases. These Cisco UCS servers harness the power of the latest Intel® Xeon® processors, up to 768 GB of RAM (using 32-GB DIMMs), and up to 80-Gbps throughput connectivity.

Cisco Nexus® 5548UP Switches deliver an innovative architecture to simplify data center transformation by enabling a high-performance, standards-based, multiprotocol, multipurpose, Ethernet-based fabric. They help consolidate separate LAN, SAN, and server cluster network environments into a single Ethernet fabric.

Cisco UCS 6248UP 48-Port Fabric Interconnects provide uniform access to both networks and storage. Typically deployed in redundant pairs, the fabric

interconnects support line-rate, low-latency, lossless 10 Gigabit Ethernet, Fibre Channel over Ethernet (FCoE), and Fibre Channel communication.

Next-generation EMC VNX Series storage systems use flash-memory technology and are optimized for virtual deployments. These systems deliver improved protection and storage efficiency with block-level and file-level deduplication and compression, and EMC FAST Suite enhancements deliver up to four times the performance for online transaction processing (OLTP) and file-based applications. EMC Unisphere Remote software provides centralized monitoring of geographically dispersed EMC VNX systems. Together, these capabilities help EMC VNX systems optimize the cost per I/O operation and the cost per gigabyte of storage capacity.

VMware vSphere 5.1 software supports data center consolidation projects by reducing the number of computing, networking, and storage infrastructure resources required for operation.

Easy Ordering

The solution's computing and networking components are available through Cisco and its partners. Cisco solutions for EMC VSPEX make it easy to quickly deploy a powerful and secure virtualized environment without the expense or risk entailed in designing and building your own custom solution.

For More Information

For more information about Cisco solutions for VSPEX, please visit http://www.cisco.com/go/vspex.

For more information about VMware software on Cisco UCS, please visit http://www.cisco.com/go/vmware.

For more information about Cisco UCS, please visit http://www.cisco.com/go/ucs.

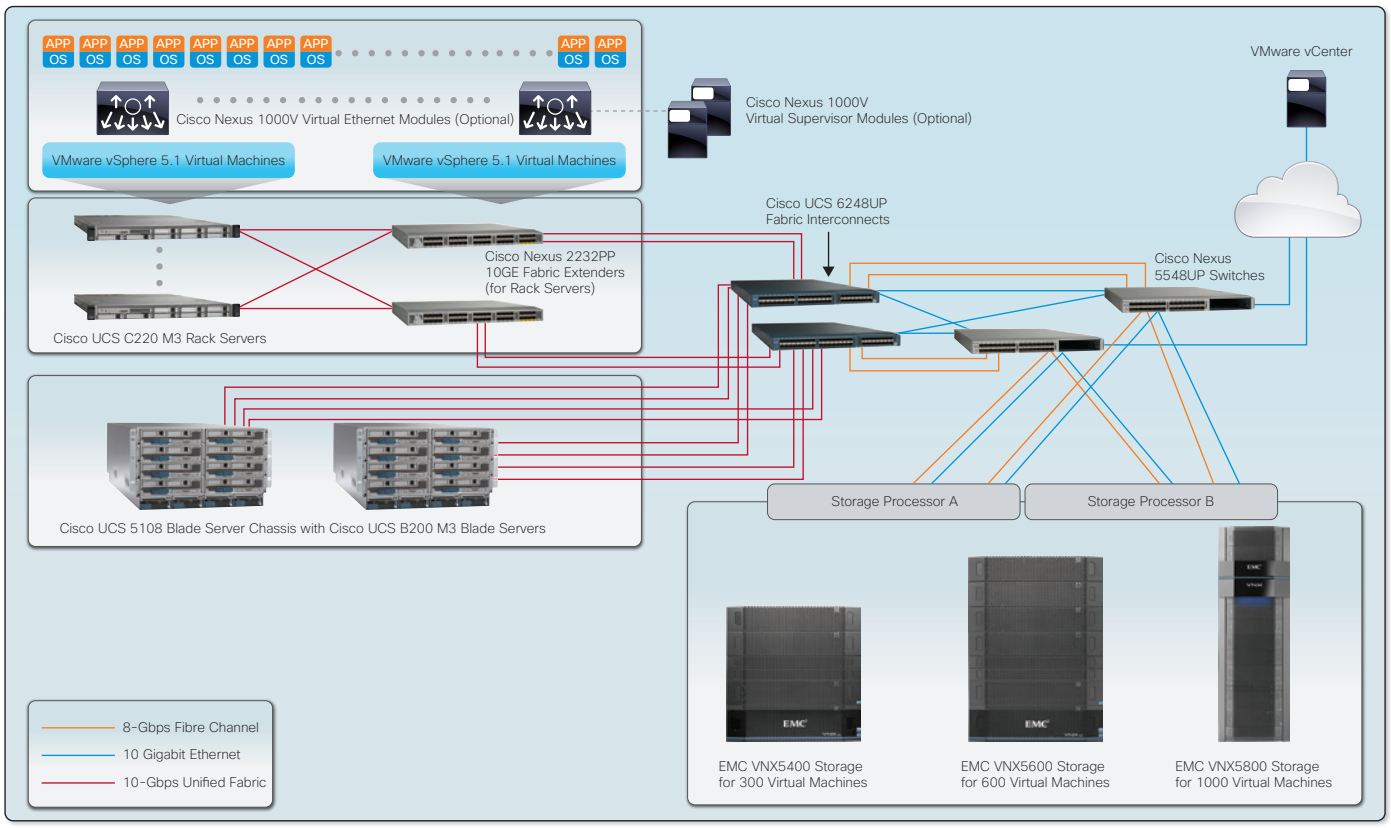

Figure 1. Cisco Virtualization Solution for EMC VSPEX with VMware vSphere 5.1 Configuration

Table 1. Cisco Solution for EMC VSPEX with VMware vSphere 5.1 Components

Solution	300 Virtual Machines		600 Virtual Machines		1000 Virtual Machines	
	Rack Option	Blade Option	Rack Option	Blade Option	Rack Option	Blade Option
Software	VMware vSphere 5.1 software					
Computing	• 6 Cisco UCS C220 M3 Rack Servers, each with 1 Cisco UCS Virtual Interface Card (VIC) 1225	1 Cisco UCS 5108 Blade Server Chassis with: • 6 Cisco UCS Blade Servers, each with 1 Cisco UCS VIC 1240	• 12 Cisco UCS C220 M3 Rack Servers, each with 1 Cisco UCS VIC 1225	2 Cisco UCS 5108 Blade Server Chassis with: • 12 Cisco UCS Blade Servers, each with 1 Cisco UCS VIC 1240	• 18 Cisco UCS C220 M3 Rack Servers, each with 1 Cisco UCS VIC 1225	3 Cisco UCS 5108 Blade Server Chassis with: • 18 Cisco UCS Blade Servers, each with 1 Cisco UCS VIC 1240
Networking	• 2 Cisco UCS 6248UP 48-Port Fabric Interconnects • 2 Cisco Nexus 2232 10GE Fabric Extenders	• 2 Cisco UCS 6248UP 48-Port Fabric Interconnects	• 2 Cisco UCS 6248UP 48-Port Fabric Interconnects • 2 Cisco Nexus 5548UP Switches • 1 Cisco Nexus 1000V Virtual Switch • 2 Cisco Nexus 2232 10GE Fabric Extenders	• 2 Cisco UCS 6248UP 48-Port Fabric Interconnects • 2 Cisco Nexus 5548UP Switches • 1 Cisco Nexus 1000V Virtual Switch	• 2 Cisco UCS 6248UP 48-Port Fabric Interconnects • 2 Cisco Nexus 5548UP Switches • 1 Cisco Nexus 1000V Virtual Switch • 2 Cisco Nexus 2232 10GE Fabric Extenders	• 2 Cisco UCS 6248UP 48-Port Fabric Interconnects • 2 Cisco Nexus 5548UP Switches • 1 Cisco Nexus 1000V Virtual Switch
Storage	EMC VNX5400 Storage System • 2 storage controllers • Redundant Fibre Channel modules • 6 x 200-GB flash drives (FAST VP) • 1 x 200-GB flash drive (hot spare) • 110 x 600-GB SAS drives • 4 x 600-GB SAS drives (hot spares)		EMC VNX5600 Storage System • 2 storage controllers • Redundant Fibre Channel modules • 10 x 200-GB flash drives (FAST VP) • 1 x 200-GB flash drive (hot spare) • 220 x 600-GB SAS drives • 8 x 600-GB SAS drives (hot spares)		EMC VNX5800 Storage System • 2 storage controllers • Redundant Fibre Channel modules • 16 x 200-GB flash drives (FAST VP) • 1 x 200-GB flash drive (hot spare) • 360 x 600-GB SAS drives • 12 x 600-GB SAS drives (hot spares)	

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