Cisco Virtualization Solution for EMC VSPEX VMware vSphere 5.1 for 100, 125, and 250 Virtual Machines

Solution Brief
June 2013

In Collaboration with EMC and VMware

Highlights

Choice of Simplified Shared Storage Options

- A range of solutions offer customers shared storage without high initial costs. EMC VNX Series storage is high-performing unified storage that is simplified and efficien and optimized for virtual application deployment. EMC VNX Series storage provides excellent performance, data protection, standards compliance, and ease of management.

Reduced-Cost Approach

- The solution's simplified infrastructure plus outstanding virtual machine density reduces both capital and operating expenses for lower initial costs and reduced total cost of ownership (TCO)

Reduced Risk

- Cisco has engaged the EMC VSPEX program to produce configurations that are presized and prevalidated to reduce risk and accelerate deployment
- The solution is designed to be highly available and reliable, helping ensure continuous application access

Rapid Deployment

- Using Cisco Unified Computing System™ (Cisco UCS®), VMware vSphere 5.1, and EMC VNX Family storage, the solution provides intelligent infrastructure that is ready out of the box

Excellent Performance

- The solution uses a balanced approach to resources, including high-performance Intel® Xeon® processors, 20 Gbps of I/O per server, and EMC VNX Series storage

Cisco has engaged the EMC VSPEX program to deliver presized and prevalidated solutions to simplify virtual server deployment in small and medium-sized businesses.

Cisco® Solutions for EMC VSPEX VMware vSphere support 100, 125, and 250 virtual machines (VMs) respectively. The EMC VSPEX program presizes and prevalidates the solutions so that customers can have confidence that they are purchasing the most appropriate combination of server, networking, and storage devices to support their virtual workloads. Cisco has tested this solution on Cisco Unified Computing System™ (Cisco UCS®) B-Series Blade Servers, however customers also can deploy the solution on Cisco UCS C-Series Rack Servers following Cisco best practices.

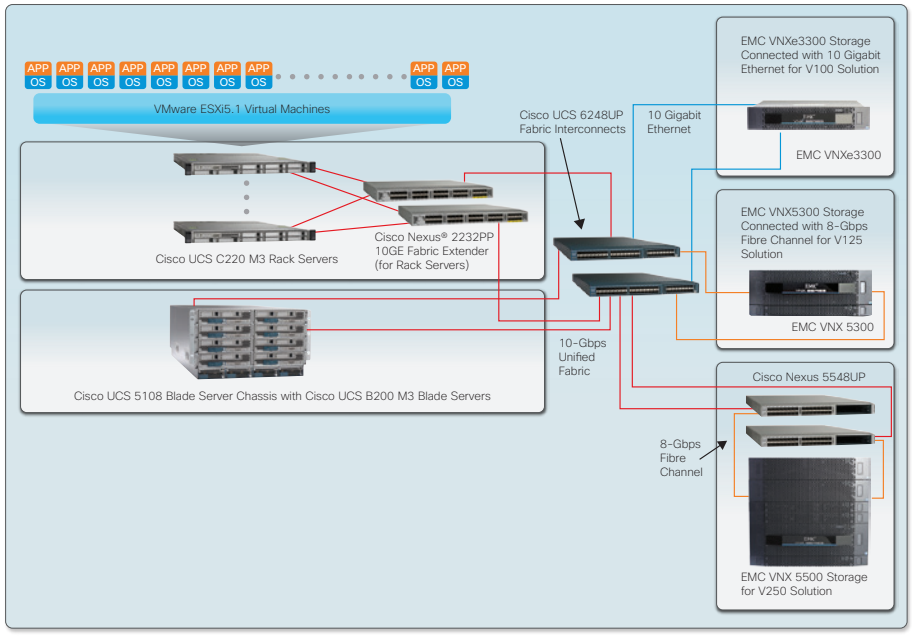

Figure 1. Five Solutions Consist of a Choice of Blade or Rack Servers and Three EMC VNX Family Storage Systems

Table 1. Cisco Solutions for EMC VSPEX VMware vSphere 5.1 for 100, 125, and 250 Virtual Machines

Solution	V100		V125		V250
	Rack Option	Blade Option	Rack Option	Blade Option	
Software	VMware vSphere 5.1 and VMware vCenter				
Computing	4 Cisco UCS C220 M3 Rack Servers, each with: • 2 Intel® Xeon® processors E5-2650 at 2.0 GHz (8 cores) • 64 GB of memory • Cisco UCS Virtual Interface Card (VIC) 1225	4 Cisco UCS B200 M3 Blade Servers, each with: • 2 Intel Xeon processors E5-2650 at 2.0 GHz (8 cores) • 128 GB of memory • Cisco UCS VIC 1240 1 Cisco UCS 5108 Blade Server Chassis	5 Cisco UCS C220 M3 Rack Servers, each with: • 2 Intel Xeon processors E5-2650 at 2.0 GHz (8 cores) • 64 GB of memory • Cisco UCS VIC 1225	5 Cisco UCS B200 M3 Blade Servers, each with: • 2 Intel Xeon processors E5-2650 at 2.0 GHz (8 cores) • 128 GB of memory • Cisco UCS VIC 1240 1 Cisco UCS 5108 Blade Server Chassis	10 Cisco UCS B200 M3 Blade Servers, each with: • 2 Intel Xeon processors E5-2650 at 2.0 GHz (8 cores) • 128 GB of memory • Cisco UCS VIC 1240 2 Cisco UCS 5108 Blade Server Chassis
Networking	• 2 Cisco UCS 6248UP Fabric Interconnects • 2 Cisco UCS 2232PP 10GE Fabric Extenders	• 2 Cisco UCS fabric interconnects • 2 Cisco UCS fabric extenders	• 2 Cisco UCS 6248UP Fabric Interconnects • 2 Cisco UCS 2232PP 10GE Fabric Extenders	• 2 Cisco UCS fabric interconnects • 2 Cisco UCS fabric extenders	• 2 Cisco UCS fabric interconnects • 2 Cisco UCS fabric extenders • 2 Cisco Nexus 5548UP Switches
Storage	EMC VNXe3300 storage with: • 2 storage controllers • Redundant Fibre Channel modules • 15 600-GB SAS drives for virtual desktops		EMC VNX5300 storage with: • 2 storage controllers • Redundant Fibre Channel modules • 3 100-GB flash drives for Fast Cache • 15 600-GB SAS drives for virtual desktops • 2 600-GB SAS drives for expansion		EMC VNX5500 storage with: • 2 storage controllers • Redundant Fibre Channel modules • 3 100-GB flash drives for Fast Cache • 15 600-GB SAS drives for virtual desktops

The three solutions are based on Cisco UCS rack or blade servers, depending on the solution and the customer choice (Table 1). Cisco UCS 6248UP 48-Port Fabric Interconnects integrate the servers into Cisco UCS, and EMC VNX storage is accessed using either Small Computer System Interface over IP (iSCSI), Fibre Channel (FC), or Network File System (NFS), depending on the solution (Figure 1).

100 Virtual Machine Solution

The 100 VM solution supports up to 100 virtual machines using low-cost iSCSI storage that connects through 10 Gigabit Ethernet directly to the Cisco UCS fabric interconnect.

125 Virtual Machine Solution

The 125 VM solution supports up to 125 virtual machines with EMC VNX5300 storage that connects directly to the fabric interconnect through 8-Gbps Fibre Channel without the need for SAN switches.

250 Virtual Machine Solution

The 250 VM solution supports up to 250 virtual machines. The solution uses Cisco UCS B-Series Blade Servers and Cisco Nexus 5548UP® Switches to connect Cisco UCS to enterprise-class EMC VNX5500 storage through a Fibre Channel SAN.

Solution Benefits

These solutions give organizations choice as they more toward a more cost-effective virtual server environment, and they help provide a solid foundation on which to build a virtualized enterprise.

Cisco UCS combines high-performance computing, networking, virtualization, and storage-access resources into a single unified system. Management is provided through Cisco UCS Manager, provides management across both rack-mount and blade servers and integrates with VMware vCenter for transparent provisioning of virtual machines.

VMware vSphere 5.1 software helps organizations consolidate their servers and reduce capital expenses by requiring less computing, networking, and storage infrastructure. It reduces operating expenses because there are fewer components to manage.

EMC VNXe and VNX Family storage solutions provide unified storage that delivers both SAN (FC or iSCSI) and network-attached storage (NAS; NFS) in a single platform optimized for virtualization. The storage solution provides space savings and allows more data to be stored at lower cost. Management of the EMC VNXe and VNX storage solutions is also integrated with VMware vCenter making the addition, management, and monitoring of storage straightforward.

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, 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 VSPEX solutions, please visit http://www.cisco.com/go/vspex.

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