

VMware[®] Infrastructure 3.0.2
Update 1 for Dell[™] PowerEdge[™]
Systems
Deployment Guide

Notes and Notices



NOTE: A NOTE indicates important information that helps you make better use of your computer.



NOTICE: A NOTICE indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

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Overview

This document helps you to deploy VMware® Infrastructure 3.0.2 on Dell™ PowerEdge™ systems and provides information specific to Dell servers and storage systems, recommended configurations, best practices, and additional resources. VMware Infrastructure consists of the VMware ESX Server software and VirtualCenter. The document covers the following:

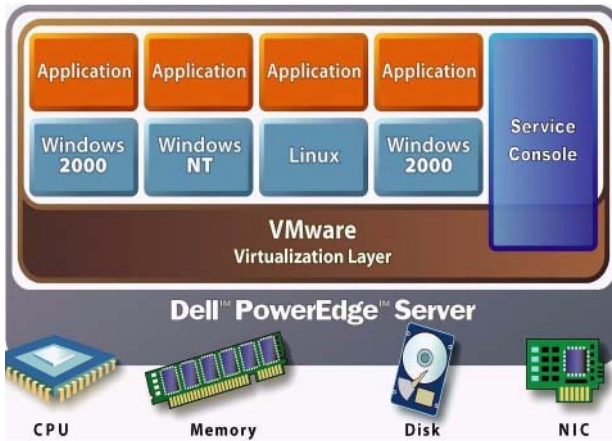
- **Introduction** — provides a brief overview of the VMware ESX Server and VMware VirtualCenter products and technologies.
- **What's New** — provides information about additional supported hardware and updated software in this release.
- **Licensing** — provides a list of licensing options available to you.
- **Dell-Supported Configurations** — provides a list of qualified and supported ESX Server and VirtualCenter configurations.
- **Installing ESX Server and VirtualCenter** — provides guidelines for installing the ESX Server software and VirtualCenter.
- **Installing Dell OpenManage™** — provides references to install and use Dell OpenManage Server Administrator and software components.
- **Additional Resources** — provides references to additional documentation.

Introduction

VMware Infrastructure consists of the ESX Server software and VirtualCenter. VMware ESX Server allows multiple operating systems to run simultaneously on a single physical server. These operating systems, referred to as *virtual machines*, can be created and managed faster than possible with conventional systems, since the virtual machines do not interact directly with the physical hardware. Each of these virtual machines run in a resource-isolated, secure environment. Operating systems like Microsoft® Windows®, Linux, Novell® NetWare®, and Sun™ Solaris with their associated applications can be installed on these virtual machines.

Figure 1-1 provides a typical example of the deployment of VMware ESX Server on a Dell PowerEdge Server.

Figure 1-1. VMware ESX Server Architecture



VirtualCenter is a management application that monitors and manages virtual machines and ESX Server hosts. With VirtualCenter, you can create, start, stop, and migrate virtual machines across the entire physical data center. Advanced features such as VMware Distributed Resource Scheduling (DRS) and VMware High Availability are available with VirtualCenter 2.0.x.

What's New?

This release includes the new generation of VMware Infrastructure for the new PowerEdge systems and storage systems.

Supported New Hardware

- **Servers:** PowerEdge 1950-III, PowerEdge 2950-III, PowerEdge 2900-III, PowerEdge R900, PowerEdge M600, and PowerEdge M605
- **Storage Systems:** Dell PowerVault™ NX1950 for Internet SCSI (iSCSI) storage only, and PowerVault MD1000
- **Processors:** Intel® Xeon® 5400 and 7300 series processors

Supported New Software

- Dell OpenManage 5.3.1

Licensing

VMware Infrastructure 3.0.2 is available in three editions: Starter Edition, Standard Edition, and Enterprise Edition. The Standard and Enterprise Editions are available through the Dell Original Equipment Manufacturer (OEM) channel and also through Dell Software and Peripherals (S&P). The Starter Edition is available only through S&P.

Table 1-1 describes the features available in these editions.

Table 1-1. Licensing Features

Features	VMware Infrastructure—Starter	VMware Infrastructure—Standard	VMware Infrastructure—Enterprise
ESX Server	X	X	X
VirtualCenter Agent	X	X	X
SAN Connectivity		X	X
Virtual SMP™ (symmetric multiprocessing)		X	X
VMotion™			X
DRS			X
High Availability			X
Consolidated Backup			X
Physical CPU Licensing	Not Applicable	2 CPU or 4 CPU	2 CPU or 4 CPU
Dell Offering	S&P	OEM, S&P	OEM, S&P
Software Subscription	Not Applicable	1 to 3 years	1 to 3 years

NOTE: The Starter Edition can have a maximum RAM of 8 GB.

Activation Code and License Key

To access your VMware software and the Software Subscription Services, you must register your software within 30 days of purchase at www.vmware.com/code/dell with the activation code of the license activation card that is included with your copy of VMware ESX Server. You must exchange each activation code for a license key to install the software and receive proper subscription services. If you have multiple activation codes, you can either register all the codes with one license administrator or multiple activation codes with different license administrators.



NOTE: If you have purchased a 4 CPU license, you receive two 2 CPU software license activation codes. You require both the activation codes for product registration and activation.

Downloading the Software

You can download the VMware Infrastructure 3.0.2 software at www.vmware.com/download/vi. If you want to download and run VirtualCenter, you must first purchase a VirtualCenter license.

Optional Media

You may order the media for your VMware Infrastructure or VirtualCenter software on PowerEdge systems from the Dell website at www.dell.com.

Dell-Supported Configurations

The following section describe the various Dell-supported configurations of VMware ESX Server and the hardware requirements for each configuration.

Dell-Supported ESX Server Configurations

Table 1-2 and Table 1-3 list the current Dell-supported ESX Server configurations. For more information on legacy server support, see the *Systems Compatibility Guide for ESX Server 3.x* on the Dell site at www.dell.com. For more information on supported network and Fibre Channel adapters, see the *I/O Compatibility Guide for ESX Server 3.x* on the VMware site at www.vmware.com/support/pubs.

Table 1-2. Dell-Supported ESX Server Configurations

Hardware Requirements	PowerEdge 1950-III	PowerEdge 1955	PowerEdge 2900-III	PowerEdge 2950-III	PowerEdge 2970
Processors	Two dual/quad-core Intel Xeon 5100/5300 /5400	Two dual/quad-core Intel Xeon 5000/5100 /5300	Two dual/quad-core Intel Xeon 5100/5300 /5400	Two dual/quad-core Intel Xeon 5100/5300 /5400	Two dual-core AMD Opteron™ 2200
Memory (Min/Max)	1 GB/32 GB	1 GB/32 GB	1 GB/48 GB	1 GB/32 GB	2 GB/32 GB
Storage Adapter for Internal Disks	PowerEdge Expandable RAID Controller (PERC) 6/i Integrated, SAS 6/iR Integrated	Serial-attached SCSI (SAS) 5/iR Integrated, SAS 6/iR Integrated	PERC 6/i Integrated, SAS 6/iR Integrated	PERC 6/i Integrated, SAS 6/iR Integrated	PERC 5/i Integrated
Storage Adapter for External Disks	PERC 5/E, SAS 5/E, PERC 6/E	NA	PERC 5/E, SAS 5/E, PERC 6/E	PERC 5/E, SAS 5/E, PERC 6/E	PERC 5/E, SAS 5/E, PERC 6/E
Networking	Two integrated network ports, All supported peripheral Network Ethernet Cards (NIC)	Two integrated network ports, All supported NIC daughter cards	Two integrated network ports, All supported peripheral NICs	Two integrated network ports, All supported peripheral NICs	Two integrated network ports, All supported peripheral NICs
Fibre Channel HBA (required for SAN Connectivity only)	All supported Fibre Channel HBAs	All supported Fibre Channel daughter cards	All supported Fibre Channel HBAs	All supported Fibre Channel HBAs	All supported Fibre Channel HBAs
Dell Remote Access Controller (DRAC) (highly recommended)	DRAC 5	Dell Remote Access Controller /Modular Chassis DRAC/MC	DRAC 5	DRAC 5	DRAC 5

Table 1-2. Dell-Supported ESX Server Configurations (continued)

Hardware Requirements	PowerEdge 1950-III	PowerEdge 1955	PowerEdge 2900-III	PowerEdge 2950-III	PowerEdge 2970
Internal Storage	Up to two 3.5" or four 2.5" SAS disks	Up to two 2.5" SAS disks	Up to eight 3.5" SAS disks (up to ten disks with Flexbay option)	Up to six 3.5" or eight 2.5" SAS disks	Up to six 3.5" or eight 2.5" SAS disks

Table 1-3. Dell-Supported ESX Server Configurations

Hardware Requirements	PowerEdge R900	PowerEdge 6850	PowerEdge 6950	PowerEdge M600	PowerEdge M605
Processors	Two/four dual/quad-core Intel Xeon 7200/7300	Two/four single/dual-core Intel Xeon MP processors with 1 MB L2 cache or Intel Xeon 7000/7100	Two/four dual-core AMD Opteron 8200	Two dual-quad-core Intel Xeon 5100/5300 /5400	Two dual-core AMD Opteron 2200
Memory (Min/Max)	1 GB/64 GB	1 GB/64 GB	2 GB/64 GB	1GB/32 GB	1GB/32 GB
Storage Adapter for Internal Disks	PERC 6/i Integrated, SAS 6/iR Integrated	PERC 4e/Di (for small computer system interface [SCSI] disks) and PERC 5/i Adapter (for SAS disks)	PERC 5/i Integrated	SAS 6/iR Integrated	SAS 6/iR Integrated
Storage Adapter for External Disks	PERC 5/E, SAS 5/E, PERC 6/E	PERC 5/E, SAS 5/E	PERC 5/E, SAS 5/E, PERC 6/E	N/A	N/A

Table 1-3. Dell-Supported ESX Server Configurations (continued)

Hardware Requirements	PowerEdge R900	PowerEdge 6850	PowerEdge 6950	PowerEdge M600	PowerEdge M605
Networking	Four integrated network ports All supported peripheral NICs	Two integrated network ports All supported peripheral NICs	Two integrated network ports All supported peripheral NICs	Two integrated network ports; All supported NIC daughter cards	Two integrated network ports; All supported NIC daughter cards
Fibre Channel HBA (required for SAN Connectivity only)	All supported Fibre Channel HBAs	All supported Fibre Channel HBAs	All supported Fibre Channel HBAs	All supported Fibre Channel daughter cards	All supported Fibre Channel daughter cards
DRAC	DRAC 5	DRAC 4	DRAC 5	iDRAC (always included)	iDRAC (always included)
Internal Storage	Up to eight 2.5" or five 3.5" SAS disks	Up to five 3.5" SAS/SCSI or eight 2.5" SAS disks	Up to five 3.5" SAS disks	Up to two 2.5" SAS disks	Up to two 2.5" SAS disks

Notes About Supported Configurations

- I/O modules supported with the PowerEdge M1000e blade chassis for PowerEdge M600 and M605 blades include PowerConnect M6220 Ethernet Switch, Dell Ethernet Pass-Through Module, Brocade M4424 SAN I/O Module, and Dell 4Gb Fibre Channel Pass-Through Module.



NOTE: The Dell Ethernet Pass-Through module supports 1-Gb Ethernet links only.



NOTE: To use an Ethernet or a fibre channel pass-through module, you require the use of redundant external switches.

- A fibre channel switch is required for storage area network (SAN) connectivity. Direct-attached fibre channel is not supported in this release.
- iSCSI storage is supported with Microsoft software iSCSI initiator provided with VMware ESX Server or the iSCSI initiators in the guest operating systems.

- PowerVault MD1000 storage array is supported to provide external storage to a maximum of two ESX hosts in a split configuration. Features that require shared storage among ESX hosts, such as VMotion, high availability, and DRS, are not supported with the PowerVault MD1000 storage array. A maximum of two PERC 5/E or PERC 6/E adapters are supported in a single PowerEdge system.
- PowerVault MD3000 and PowerVault MD3000i storage arrays are not supported with this release.
- TCP Offload Engine (TOE) is not supported in this release.
- PowerVault NX1950 is supported only as an iSCSI storage device. It is not supported as a NAS storage device.
- Dell Network Attached Storage (NAS) using Microsoft Windows Storage Server 2003 on PowerEdge 2950 and PowerEdge 2900 systems are not supported.
- New instructions for virtualization technology enhancements on Intel Xeon 54xx series are not used by VMware ESX Server in this release.
- SATA Optical Drive (CD/DVD) on Dell PowerEdge PE2900-III system is not supported in this release.
- Trusted Platform Module (TPM) is not supported in this release.
- Serial ATA (SATA) hard drives are not supported in this release.



NOTE: For more information on the NIC and Fibre Channel HBA supported with ESX Server 3.0.x, see the *I/O Compatibility Guide for ESX Server 3.x* on the VMware support website at www.vmware.com/support/pubs.

Dell-Supported VirtualCenter Configurations

VirtualCenter is an application that runs on Microsoft Windows Server® 2003. VirtualCenter is supported on all PowerEdge systems that support Windows Server 2003. Table 1-4 lists the Dell-supported VirtualCenter configuration.

Table 1-4. Dell-Supported VirtualCenter Configuration

Resource Class	Requirement
Server	PowerEdge system
Memory	2 GB minimum
RAID controller	Dell PowerEdge Expandable RAID Controller

Table 1-4. Dell-Supported VirtualCenter Configuration (continued)

Resource Class	Requirement
Storage	Internal or external physical disks
Network	Two integrated network ports
Operating system	Windows Server 2003 SP1 or later

Related Documentation

- For the latest Dell-qualified configurations of the ESX Server software and VirtualCenter, see the Dell and VMware Alliance website at www.dell.com/vmware. Click on **Resources**→**Support Documents**.
- For Dell|EMC-qualified storage configurations of the ESX Server software and VirtualCenter, see the *EMC[®] Support Matrix (ESM)* on the EMC site at www.emc.com/interoperability.
- For additional, non-qualified Dell configurations, see the *Storage/SAN Compatibility Guide for ESX Server 3.x* and *I/O Compatibility Guide for ESX Server 3.x* on the VMware documentation site at www.vmware.com/support/pubs.
- For more information on legacy server support, see the documentation available on the Dell and VMware Alliance website at www.dell.com/vmware.
- For more information on different licensing configurations, see the *Installation and Upgrade Guide* under *VMware Infrastructure 3* on the VMware documentation website at www.vmware.com/support/pubs.

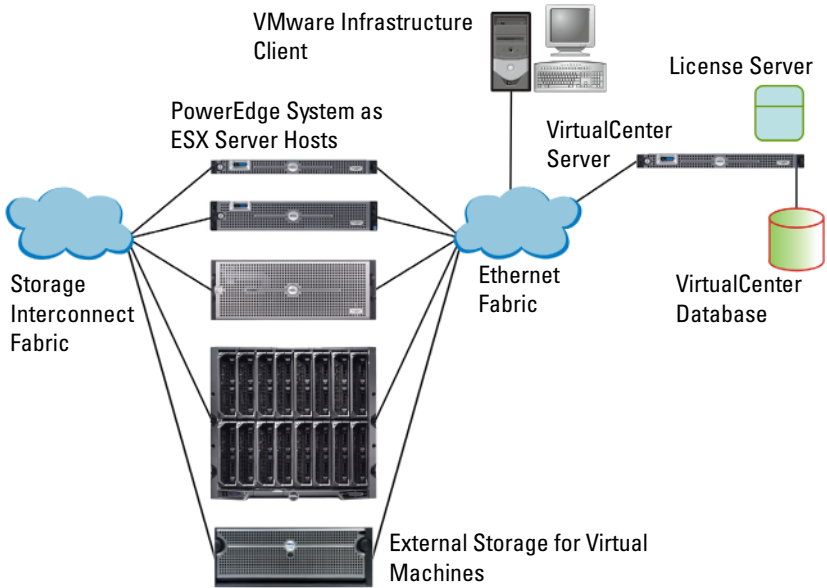
VMware Infrastructure Architecture

VMware Infrastructure consists of the following components as shown in Figure 1-2:

- **ESX Server** — allows multiple operating systems to run simultaneously on a single PowerEdge system.
- **VirtualCenter server** — manages multiple ESX Servers and runs on Windows Server 2003. VirtualCenter is optional and is required for advanced management capabilities such as VMotion, DRS, and high availability.

- **VirtualCenter database** — stores all the configuration data about a VMware Infrastructure. It is recommended that you use a professional database such as Microsoft SQL Server™ or Oracle™ for the VirtualCenter database.
- **License server** — authorizes ESX Server hosts and VirtualCenter server as per the purchased license keys and licensing agreement. It is recommended to install the license server on the VirtualCenter host. The license server can also reside on a separate host. License server is required when using Served Licensing Scheme but is not required for host-based licensing. For more information on the different licensing configurations, see the *Installation and Upgrade Guide* under *VMware Infrastructure 3* on the VMware support site at www.vmware.com/support/pubs.
- **VMware Infrastructure client** — installs on a system running a supported Windows operating system and is the primary tool to manage an ESX Server host by directly connecting to it or through the VirtualCenter server.
- **Virtual machine storage** — stores virtual machine configuration and virtual disk files. The virtual machine can either be an internal storage local to the ESX Server or an external storage that can be shared by multiple ESX Servers. Advanced features such as VMotion, High Availability, and DRS require that the virtual machines disk and configuration files are stored on external shared storage.
- **VMware Infrastructure Web Access** — a Web interface for managing virtual machines and accessing remote consoles.

Figure 1-2. VMware Infrastructure Components Using Dell PowerEdge Systems and Storage Systems



Before deploying VMware Infrastructure, follow the guidelines given below:

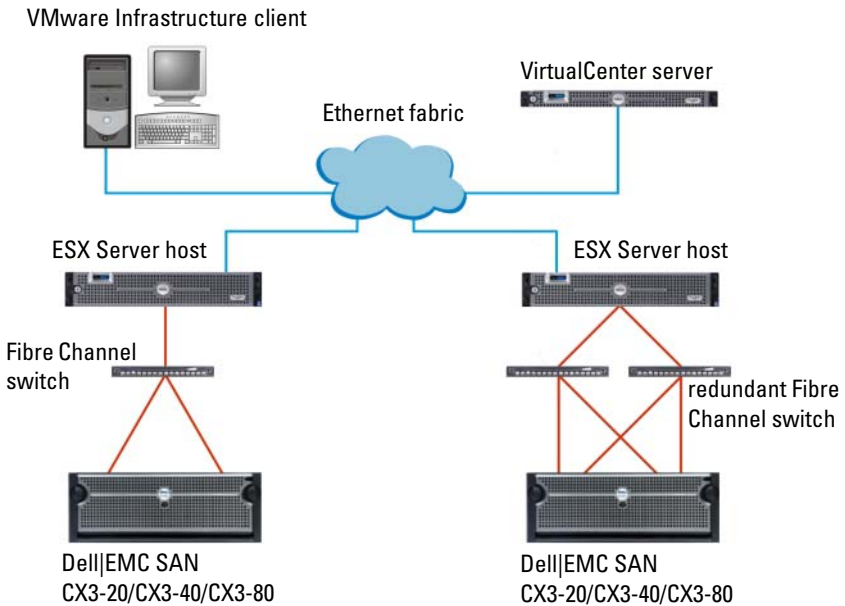
- For upgrade instructions, see the *Installation and Upgrade Guide* under *VMware Infrastructure 3* on the VMware support site at www.vmware.com/support/pubs. This guide provides details on different upgrade options and specific steps that need to be followed for a successful upgrade.
- Determine the kind of licensing mode that best suits the deployment environment and then design the licensing infrastructure accordingly.
- Determine the kind of storage (local SCSI/SAS, iSCSI, or Fibre Channel SAN) for hosting virtual machines that best suits the deployment environment and then design your storage infrastructure accordingly.
- For Fibre Channel storage, determine the number of logical unit numbers (LUNs), size of LUNs, RAID level of the LUNs, and the number of storage groups.

- Determine the number of virtual machines that will run on the ESX Servers and their corresponding workloads.
- Size the resource requirements for the virtual machines, such as the microprocessor requirements, memory size, and networking. For more information on general sizing and scaling studies, see the Dell and VMware Alliance website at www.dell.com/vmware. Click on **Resources**→ **White Papers**. For articles on performance and sizing, see the VMware documentation website at www.vmware.com/support/pubs.
- Gather the required network information, such as IP addresses, network masks, and gateway addresses. In ESX Server 3.0.x, Service Console, and VMkernel network interfaces require unique and valid IP addresses, network masks, and gateway addresses.
- Determine the most appropriate local disk partitioning scheme for ESX Server. For more information, see "Recommended Disk Partitioning for the ESX Server Software" on page 19.
- If you are using DRS or High Availability feature, determine the hosts that will be a part of such a cluster and allocate shared storage accordingly.
- Determine appropriate networking configuration for Service Console, virtual machines, and VMkernel. You can use Virtual local area networks (VLANs) to efficiently isolate traffic.

The following section describes recommended configurations for VMware Infrastructure 3.0.2 deployment.

Figure 1-3 illustrates typical VMware Infrastructure configurations using Fibre Channel SAN. If you use Fibre Channel storage, you can have a single Fibre Channel HBA connected to a Fibre Channel switch that in turn provides paths to both storage processors (SPs) on the Fibre Channel storage unit. It is recommended that you use two Fibre Channel HBAs on the ESX Server host connected to separate Fibre Channel switches that provide redundant paths to SPs on the storage unit. This provides maximum protection against a single failure at the HBA, Fibre Channel switch, or SP level.

Figure 1-3. VMware Infrastructure Configurations With Dell PowerEdge Systems and Dell|EMC Fibre Channel SAN



For information on typical configurations using PowerEdge 1955 blade servers, see *Deployment of VMware Infrastructure 3.x on Dell PowerEdge 1955 Blade Servers* available on the Dell and VMware Alliance website at www.dell.com/vmware. Click on **Resources**→ **Support Documents**.

Installing ESX Server and VirtualCenter

This section describes the important guidelines for installing VirtualCenter 2.0.x and ESX Server 3.0.x software on PowerEdge systems. For step-by-step installation instructions and requirements, see the *Installation and Upgrade Guide* for ESX Server 3.0.2 and VirtualCenter 2.0.2 under *VMware Infrastructure 3* on the VMware Support site at www.vmware.com/support/pubs.

Installing the VirtualCenter Software

To install VirtualCenter:

- Install license server if required.
- Create a new database to store VirtualCenter data.
- Install the VirtualCenter server.
- Install the VMware Infrastructure client.

For more information about installing or upgrading VirtualCenter, see the *Installation and Upgrade Guide* under *VMware Infrastructure 3* on the VMware support site at www.vmware.com/support/pubs.

Installing the ESX Server Software

The section describes the procedure to install ESX Server on the Dell PowerEdge system.

Before Installation

BIOS Setup

Ensure that the BIOS of the PowerEdge system is configured with the following settings:

- Enable the Virtualization Technology (VT) feature, if available in the PowerEdge system. VT feature is required to run 64-bit virtual machines on Intel platforms.
- Disable demand based power management feature, if available in the PowerEdge system. This feature is not supported with the ESX Server software.
- Set the universal serial bus (USB) controller to **USB on with BIOS support**. This enables support for USB devices both during and after the ESX Server boot process.

Configuring Boot From SAN

ESX Server 3.0.2 Update 1 supports Boot from SAN with both QLogic and Emulex Fibre Channel adapters. For more information about configuring ESX Server to boot from SAN, see the *SAN Configuration Guide* under *VMware Infrastructure 3* on the VMware support site at www.vmware.com/support/pubs.

RAID Configuration

Before installing the ESX Server software, ensure that the physical disks are configured with the required RAID configurations. Use the appropriate RAID level depending on the number of local physical disks. RAID 0 is not recommended since it does not provide data redundancy.

Recommended Disk Partitioning for the ESX Server Software

The following table lists the recommended disk partitioning for the ESX Server software. When installing the ESX Server software, choose the **Manual Partitioning** option and use the information in Table 1-5 to create the disk partitions.

Table 1-5. Suggested Disk Partitioning Within the ESX Server

Mount Point	Type	Recommended Size	Notes
swap	swap	544 MB	The value is for the Service Console only and <i>not</i> for the ESX Server software
/boot	ext3	100 MB	Holds the boot kernel image
/	ext3	10 GB	Holds the Service Console and ESX Server kernel
/var	ext3	4 GB	Holds the log files
(none)	vmkcore	102 MB	Holds the core dump file for the VMkernel
(none)	vmfs3	Remaining	Holds the configuration and disk files for the virtual machines

NOTE: It is recommended that you set the root (/) partition size to a minimum of 10 GB.

After Installation

After installing the ESX Server software, connect to the ESX Server host using VMware Infrastructure client and perform the following steps:

- Name the local virtual machine file system (VMFS) partition. This improves usability and enables easy identification.
- Create one or more virtual switches for virtual machines and VMkernel, and bind the physical adapters accordingly. Virtual switches for Service Console and virtual machines are created by default during ESX Server installation.

Post Installation Procedure for PowerEdge 6850

ESX Server running on PowerEdge 6850 using PERC 5/i Integrated controller may have shared interrupt lines between the USB controller and PERC. To avoid any performance impact due to the shared interrupts, configure the ESX Server software to avoid loading the USB drivers.

To achieve this, perform the following steps:

- 1** Configure the USB controller setting in the PowerEdge 6850 BIOS to **USB on with BIOS support**.

This enables support for USB devices both during and after ESX Server boot process even if USB drivers are not loaded by the ESX Server software.

- 2** Remove the following USB module aliases from the `/etc/modules.conf` file by running the following commands:

```
alias usb-controller usb-uhci
alias usb-controller1 ehci-hcd
```

- 3** Save the `/etc/modules.conf` file and reboot the system.

For more information on shared interrupts in ESX Server, see the knowledge base article 1290 on the VMware support site at www.vmware.com/support/kb.

Tips for Configuring VMotion

To use the VMotion feature, follow the important guidelines given below:

- You need to set up a Gigabit Ethernet migration network and a VMkernel port group between all ESX Servers that you will configure for VMotion.
- Create consistent network labels for each of the network port groups to which the virtual machines are attached.

For more information on VMotion configuration setup see the VMware support site at www.vmware.com/support/pubs.

For VMotion compatibility across PowerEdge systems, see the *VMotion and 64-bit VM Compatibility with Dell PowerEdge Servers* located on the Dell and VMware Alliance website at www.dell.com/vmware. Click on **Resources** → **Support Documents**.

Installing ESX Server on PowerEdge 1955 Blade Servers

The PowerEdge 1955 blade server has a configuration limitation of two network ports if a fibre channel daughter card is installed. For best practices of configuring the two network ports and achieving redundancy between the LOMs (LAN on Motherboard) in PowerEdge 1955, see *Deployment of VMware Infrastructure 3.x on Dell PowerEdge 1955 Blade Servers* located on the Dell and VMware Alliance website at www.dell.com/vmware. Click on **Resources**→ **Support Documents**.



NOTE: The PowerEdge M600 and M605 systems do not have a configuration limitation, as they can be configured with four network ports in addition to two fibre channel ports.

Fibre Channel Environment Setup With the ESX Server Software

To set up a Dell|EMC SAN, follow the steps below:

- 1 Install and setup the Dell|EMC Fibre Channel storage system.
- 2 Configure zoning at the Fibre Channel switch level.
- 3 Create RAID groups.
- 4 Create and bind LUNs to RAID groups.



NOTE: When creating the LUNs, select **Auto Assign** to assign the LUN to the SP. This is highly recommended for better load balancing.

- 5 Use Naviagent to register the servers (hosts) connected to the SAN.
- 6 Create storage groups and assign ESX Servers and LUNs to each of them.

For more information about SAN environment configuration, see the *SAN Configuration Guide* for ESX Server 3.0.2 and VirtualCenter 2.0.2 under *VMware Infrastructure 3* located on the VMware support website at www.vmware.com/support/pubs.

For more information about setting up the storage device, and creating LUNs, RAID groups, and storage groups, and installing Naviagent, see the *EMC Navisphere Manager: Administrator's Guide* located on the media shipped with your EMC CX-series storage system.

Installing and Using Dell OpenManage

For information on installing and using the Dell OpenManage management suite, including Dell IT Assistant and DRAC, the known issues and the uninstallation steps, see the Dell and VMware Alliance website at www.dell.com/vmware. Click on **Resources**→**Support Documents**.

Additional Resources

Product Documentation Resources

- Complete and current documentation for Dell-qualified VMware configurations is located on the Dell and VMware Alliance website at www.dell.com/vmware.
- EMC Support Matrix (ESM) on the EMC website at www.emc.com/horizontal/interoperability.
- *VMware ESX Server 3.0.2 and VirtualCenter 2.0.2 Installation Guide*, Administration Guide, Scripting User's Manual, technical resources, and knowledge base are on the VMware support website at www.vmware.com/support/pubs.

Technical Support Resources

- VMware Support website at www.vmware.com/support
- Dell hardware support at www.dell.com/support
- Dell deployment and professional services at www.dell.com/services

Discussion Forums

VMware discussion forums at <http://vmware.com/communities/content>

Knowledge Base

VMware Knowledge Base articles at www.vmware.com/support/kb

Dell Wiki

Information about Dell technology in customer environments at www.delltechcenter.com.