

# CHAPTER 7

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## **Implement and Utilize Hyper-V**

### **IN THIS CHAPTER**

- ▶ Install the Hyper-V Role
- ▶ Manage Hyper-V Remotely
- ▶ Create Virtual Hard Drives and Machines
- ▶ Monitor Hyper-V Performance
- ▶ Utilize System Center VMM
- ▶ Prepare for New Features to Hyper-V in Windows Server 2008 R2

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## Install the Hyper-V Role

**Scenario/Problem:** Your company has taken on a new initiative to “go green.” Phase 1 of the green initiative requires all development servers from this point forward to be virtual servers. It is perceived that the benefits of virtualization will include the following:

- ▶ Server consolidation
- ▶ Improved server utilization
- ▶ Reduced power consumption
- ▶ Reduced data center footprint
- ▶ Improved flexibility

**Solution:** Windows Server 2008 has an installable role, Hyper-V, that enables you to configure an environment to support virtual servers. There are a variety of specific requirements that you need to keep in mind, including the following:

- ▶ The Windows Server Virtualization role can be installed only on a system that has a 64-bit processor.
- ▶ Hardware must support hardware-assisted virtualization (Intel VT or AMD-V) technology and hardware data execution prevention (DEP).
- ▶ Best practice is to have at least two physical network interface cards (NICs): one for management of the server and one or more for the virtual servers.

**NOTE** Why is there a Windows Server 2008 32-bit without Hyper-V edition available if you can only install the role on a 64-bit server? Although you can only install the Hyper-V role on a 64-bit server, you can install the management tools on both 64- and 32-bit machines. The Windows Server 2008 32-bit edition without Hyper-V does not give you the option to install the management tools.

Essentially, Hyper-V installs a hypervisor on top of your hardware but beneath your virtualized systems. This hypervisor makes it appear to all your virtualized systems as though they are running directly on the hardware, not sharing it with other virtualized systems. There is one parent system (running the full version of Windows Server 2008 or the Server Core version) that maintains the structure of Hyper-V.

**NOTE** What is a hypervisor? A *hypervisor*, also called a *virtual machine manager*, is a program that runs in a layer between your hardware (processor, memory, disk, network) and your OS. It allows you to install multiple operating systems as long as you have enough hardware power to support them. Different hypervisors work in different ways. For example, the VMware hypervisor includes drivers for your software in the hypervisor itself. The Hyper-V hypervisor does not include those drivers but relies on the OS to hold its own drivers, making the Hyper-V hypervisor “thinner,” or smaller in size.

## Install Hyper-V on a Full Installation of Windows Server 2008

To install Hyper-V on a system that is already running the full installation of Windows Server 2008, perform the following steps:

1. Make sure your hardware is configured for Hyper-V in the BIOS:
  - ▶ Security: Execute Disable = On
  - ▶ Performance: Virtualization = On
  - ▶ Performance: VT for direct I/O access = On
  - ▶ Performance: Trusted Execution = Off

**NOTE** Name references in BIOS may differ, depending on the BIOS version. Also, you might need to actually power down your computer, rather than simply restart, for the settings to take hold.

2. Install the Hyper-V update KB950050 and then reboot.
3. In Server Manager click Add Roles and select the Hyper-V role.
4. Note the reminder to configure BIOS settings as well as the links to additional information. Click Next.
5. On the Create Virtual Networks page, select a network adapter to allow for a virtual network connection for the virtual machines, as shown in Figure 7.1. You can always add, remove, or modify your virtual networks later, through the Virtual Network Manager.
6. Review your role settings on the Confirm Installation Selections page and click Install.
7. When the installation is complete, restart your computer by clicking Yes.
8. After the computer restarts, you get a message about whether the installation was successful. If all went well, click Close. If you encounter errors, a good place to start your investigation is the event logs.

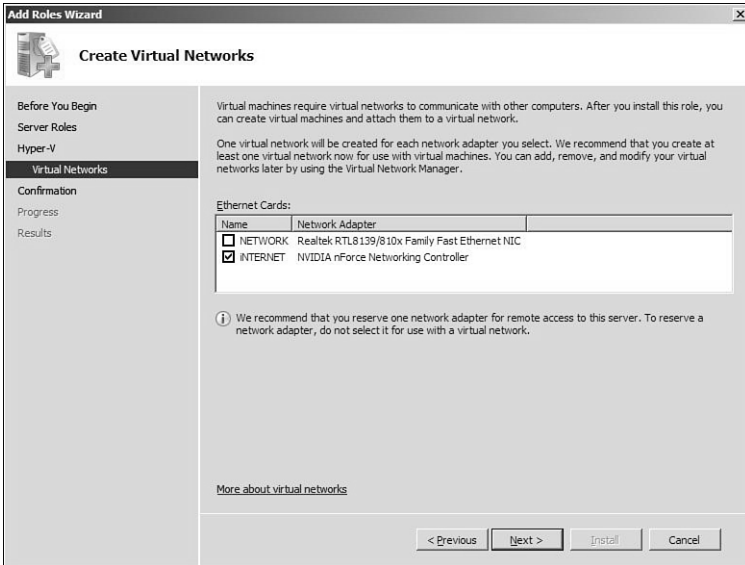


FIGURE 7.1

The Create Virtual Networks page to the Hyper-V installation process.

Now that you have it installed, you can use Server Manager or the Hyper-V Manager (shown in Figure 7.2) to see all the tools you have at your disposal to create and manage virtual machines.

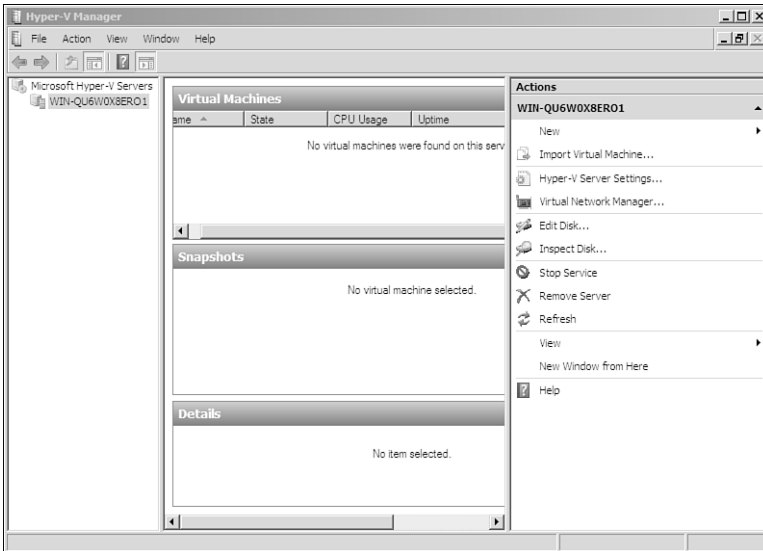


FIGURE 7.2

The Hyper-V Manager, postinstallation.

## Install Hyper-V on Server Core

To really improve server utilization and increase security, you might decide to install the Windows Server Virtualization role on the Server Core edition of Windows Server 2008.

To install on the Server Core edition, you follow these steps:

1. Set the BIOS settings as in the section “Install Hyper-V on a Full Installation of Windows Server 2008.”
2. Check to see if the edition of Windows Server 2008 supports Hyper-V by entering `wmic OS get OperatingSystemSKU`. Windows Server 2008 returns a number, and only a few numbers refer to editions that support Hyper-V:
  - ▶ **12:** Windows Server 2008 Datacenter Edition, Server Core
  - ▶ **13:** Windows Server 2008 Standard Edition, Server Core
  - ▶ **14:** Windows Server 2008 Enterprise Edition, Server Core
3. Ensure that you are running on 64-bit architecture by typing `wmic OS get OSArchitecture`.
4. Install the Hyper-V update KB950050 by typing `wusa.exe <path to file>Windows6.0-KB950050-x64.msu /quiet`. This update reboots the server.
5. Actually install the Windows Server Virtualization Role by entering `start /w ocsetup Microsoft-Hyper-V` and restart the server when you're prompted to do so.

**NOTE** Windows Server 2008 Standard edition includes a license for one free virtual instance, Enterprise edition includes a license for four free virtual instances, and Datacenter edition includes a license for an unlimited number of virtual instances.

At this point, you have installed the Windows Server Virtualization role. This is just a platform to build and manage virtual servers. Now let's look at how to manage this role to build and support virtual servers.

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## Manage Hyper-V Remotely

**Scenario/Problem:** Your infrastructure plan says that all Windows servers utilized for the virtualization project must be run on Server Core. How will you build and manage virtual servers on Server Core?

**Solution:** You need to install the Hyper-V Manager on client machines that are to be used to manage your Windows Server 2008 Hyper-V environment. Only two operating systems support the Hyper-V Manager:

- ▶ **Windows Server 2008:** You can add the Hyper-V Manager feature by using Server Manager. You can find the Hyper-V tools by selecting Remote Server Administration Tools, Role Administration Tools, Hyper-V Tools.
- ▶ **Windows Vista:** The Service Pack 1 KB925627 update package includes the Hyper-V Manager MMC snap-in and the Virtual Machine Console, a tool that enables you to establish an interactive session on a virtual server.

When you have the Hyper-V Manager installed, you can connect to remote Hyper-V servers that you need to administer by clicking the Connect to Server link in the Actions pane.

Hyper-V management leverages Windows Management Instrumentation (WMI) to manage Hyper-V. The Hyper-V WMI enables you to configure/manage all aspects of Hyper-V, such as the following:

- ▶ Configure server settings
- ▶ Build and configure virtual servers
- ▶ Create and manage virtual network switches
- ▶ Manage the state of virtual servers that are running

You can also remotely manage your Hyper-V server via Remote Desktop Protocol (RDP). The Terminal Services Remote application allows you to connect to Windows-based platforms from just about anywhere, which means you can connect to your Hyper-V server and, in effect, administer it locally. Virtual Machine Connection (`vmconnect.exe`) allows you to build and/or connect to the virtual servers that reside on your Hyper-V server. Virtual Machine Connection also uses RDP to establish connections.

**NOTE** The primary supported tools for remotely administering your Hyper-V infrastructure are the Hyper-V Manager and the System Center Virtual Machine Manager (VMM).

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## Create Virtual Hard Drives and Machines

**Scenario/Problem:** Now that you have your Hyper-V server up and running, you are receiving multiple requests from the application team to build some virtual disks and virtual development servers, which the team needs in order to test and deploy a new application.

**Solution:** There are many reasons to create virtual drives. And you can do so before creating a virtual server or system when you have Hyper-V installed and can access the Hyper-V Manager.

## Virtual Hard Drives

You can create virtual drives when you create your virtual machines, or you can instead create them first. One reason for doing so may be to move data that is on a physical drive you are trying to consolidate into a virtual disk.

You have a few options when creating a virtual hard drive:

- ▶ **Dynamically expanding disks:** The virtual machine utilizes only the physical disk it is actually using. When more disk space is needed, the space used on the physical disk expands up to the defined amount of disk for the virtual machine. For example, if you configure the virtual machine with a 100GB drive, and only 25GB is being used, only 25GB of physical disk is used until the virtual machine needs more, up to 100GB. This type of disk is useful if performance is not a top priority, such as when building development or test servers.
- ▶ **Fixed-size disks:** The virtual machine utilizes the full amount of physical disk assigned to it, whether it is being used or not. With this type of disk, if the virtual machine is assigned 100GB and is using only 25GB, it would still utilize the full 100GB of physical disk. Fixed-size disks are typically used for production virtual machines where high performance is needed.
- ▶ **Pass-through disks:** A pass-through disk utilizes external storage without the use of a virtual hard disk. The virtual machine writes directly to the external storage. Some compatible data sources are physical disks, partitions, and LUNs.

**NOTE** Configuring pass-through disks take extra work. This configuration is addressed by the Server Setup/Core Team at <http://blogs.technet.com/askcore/archive/2008/10/24/configuring-pass-through-disks-in-hyper-v.aspx>.

- ▶ **Differencing disks:** You can use a differencing disk if you are going to make a change to a virtual machine and want to have the option to roll back to the virtual machine before the changes are made, if needed. With a differencing disk, all changes are logged on this disk, and the original virtual hard drive is left intact. Therefore, if you need to roll back to a state before the changes, you can remove the differencing disk, and the original, untouched, disk will be used. Snapshots take advantage of this technology. A snapshot is a point-in-time copy of the virtual machine that creates a differencing disk with the file extension .avhd.

To configure these different types of disk, you use the Virtual Hard Disk Wizard. Let's configure a new dynamically expanding virtual disk:

1. Open Hyper-V Manager through Server Manager or from your server's Administrative Tools.
2. In the Actions pane, select New, Hard Disk.

3. On the Before You Begin screen, click Next.
4. The Choose Disk Type screen (shown in Figure 7.3) asks you what type of virtual hard disk you want to create (for example, dynamically expanding, fixed size, differencing). Choose one and click Next.
5. On the Specify Name and Location screen, provide a name and the location for the .vhd file. You can click Browse to select a new location if the default doesn't suit your needs.
6. On the Configure Disk screen, determine the size you require. You will be shown a default size under Create a New Blank Virtual Hard Disk and the maximum you can create. You can also choose Copy the Contents of the Specified Physical Disk if you want to use a physical disk and move the contents to the virtual drive. Make your choice and click Next or Finish.
7. On the Summary screen, confirm your choices and click Finish.

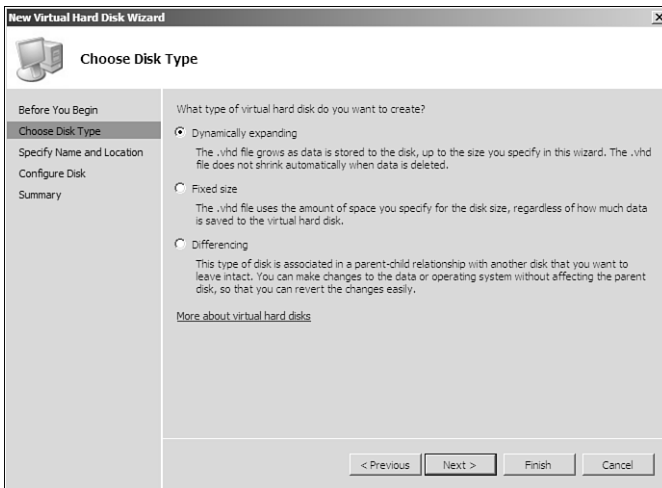


FIGURE 7.3  
The Choose Disk Type screen.

When the disks are created, you can change or work with the disks by clicking the Edit Disk option from the Actions pane. (Note that below that option is the Inspect Disk option.) A wizard appears, and you can choose different options, depending on the type of disk you are editing. First, you need to locate the virtual hard drive, and then you can choose an action. You may be able to perform the following, depending on the disk type:

- ▶ **Compact:** This option allows you to shrink the disk size on a dynamically expanding disk, removing any empty spaces left behind when data was deleted.
- ▶ **Convert:** This option allows you to change a fixed disk to a dynamically expanding disk and vice versa.



- ▶ **Expand:** This option increases the size of either a fixed disk or a dynamically expanding disk.
- ▶ **Merge:** This option merges a differencing disk to the original parent disk.
- ▶ **Reconnect:** If you have chosen to use a differencing disk and the parent disk cannot be found, you are automatically asked to reconnect.

## Create Virtual Machines

Now that you have created the virtual disk, you are ready to build your first virtual machine. You can use the New Virtual Machine Wizard in Hyper-V Manager. To access this wizard, open the Hyper-V Manager and perform the following:

1. From the Actions pane select New, Virtual Machine.
2. On the Before You Begin screen, read the notes about the wizard and then click Next.
3. On the Specify Name and Location screen, provide a name for the virtual machine and then either leave the location set to the default or select the Store the Virtual Machine in a Different Location checkbox and choose a new location. Then click Next.

**NOTE** The location for your virtual machines is set by default under the Hyper-V Server Settings, on the Actions pane.

4. On the Assign Memory screen, determine the appropriate amount of memory to use. Memory is a key factor for virtual systems, which is why you need as much as possible in a system where you plan on adding many virtual machines. When you're done, click Next.
5. On the Configure Networking screen, choose the network adapter that you want to use for that virtual machine. Then click Next.
6. On the Connect Virtual Hard Disk screen, create a virtual hard disk at this time (as shown in Figure 7.4) or choose to use an existing virtual hard disk that you may have already created (as you did earlier in this chapter). You can choose Attach a Virtual Hard Disk Later as well. Make your choices and click Next.
7. On the Installation Options screen (shown in Figure 7.5), choose one of the following:
  - ▶ Install an OS later.
  - ▶ Install an OS from a boot CD/DVD-ROM (which allows you to choose the media as a physical drive or an ISO file).
  - ▶ Install an OS from a boot floppy disk (for a virtual floppy disk, or .vfd file).
  - ▶ Install an OS from a network-based installation server.

When you're done, click Next or Finish.

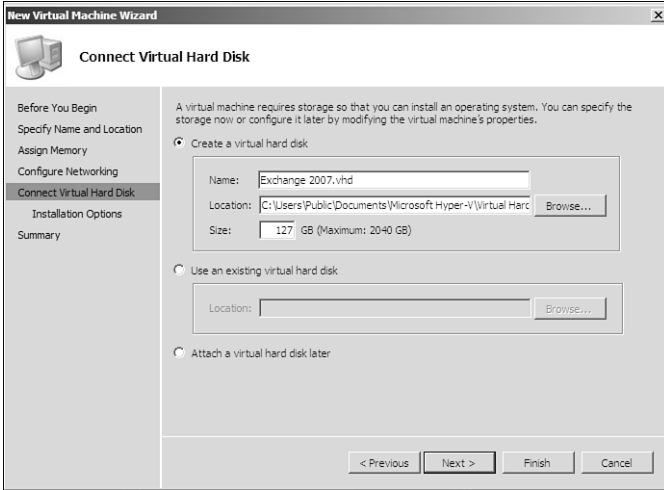


FIGURE 7.4

The Connect Virtual Hard Disk options.

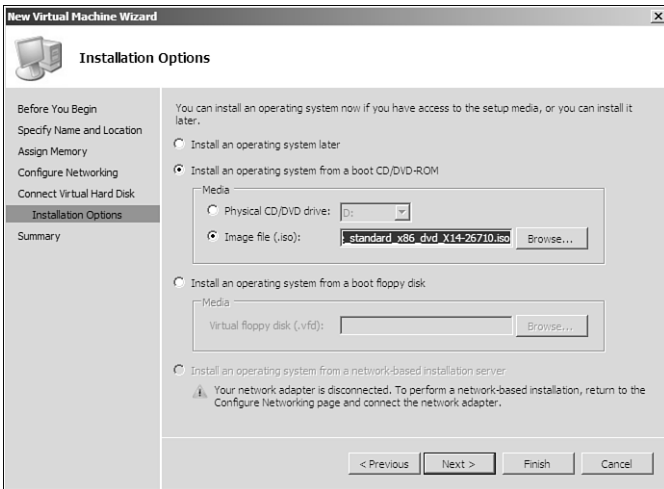


FIGURE 7.5

The Installation Options screen.

8. On the Summary screen, look over your chosen options and then click Finish or the checkbox Start the Virtual Machine After It Is Created and then click Finish.

**NOTE** Microsoft with Hyper-V supports a number of different guest operating systems. The list at the following site includes mostly Microsoft operating systems and various flavors of SUSE Linux: [www.microsoft.com/windowsserver2008/en/us/hyperv-supported-guest-os.aspx](http://www.microsoft.com/windowsserver2008/en/us/hyperv-supported-guest-os.aspx). This isn't to say other operating systems will not work; they just aren't supported—so they might or they might not work.

## Work with the Virtual Machine Connection Tool

You may have worked with a virtual machine tool in the past—maybe VMware or perhaps Virtual PC. If so, you'll find the Virtual Machine Connection tool a very simple tool to work with. If you haven't worked with such a tool, you need to learn a few concepts so that you can work with your virtual machines.

Note in Figure 7.6 that there are menus across the top of the Virtual Machine Connection tool, and there are little buttons as well. The buttons allow you to perform the same tasks that you see from the Action menu. You can use Ctrl+Alt+Delete, Turn Off, Shut Down, Save, Pause, Reset, Snapshot, Revert, and Insert Integration Services Setup Disk (which we discuss in the next section).

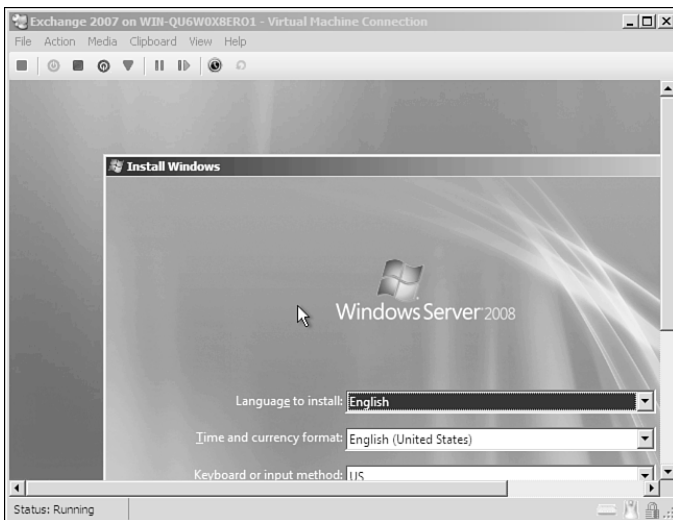


FIGURE 7.6  
The Virtual Machine Connection tool.

**NOTE** If you click in the virtual machine, your mouse initially stays in the window until you press Ctrl+Alt+Left arrow. So don't panic; just click those keys to release your mouse.

For the most part, if you click within the Virtual Machine Connection tool, you are working with your OS the same as you would if it were a real server. We therefore don't need to discuss those options further. However, note that you can make changes to the settings of your virtual machine in a much faster manner by selecting File, Settings.

One of the benefits of running a virtual machine is the ability to reconfigure the virtual hardware for the virtual machine. These are some of the items you can adjust:

- ▶ BIOS settings
- ▶ Processor settings
- ▶ Memory allocation
- ▶ IDE controller settings (add hard drive, CD/DVD drive)
- ▶ Addition and removal of network interface cards (NIC)

The settings for your virtual machine appear in an easy-to-select and easy-to-configure structure, as shown in Figure 7.7. You'll find that many of the settings you might want to configure, such as the amount of RAM assigned to the virtual machine, cannot be configured while the virtual machine is running. You need to power down the OS to make the adjustment. All in all, though, it is still a very fast adjustment to make compared to opening a system and literally having to place new RAM inside it. Now you simply allocate more RAM and turn the virtual machine back on.

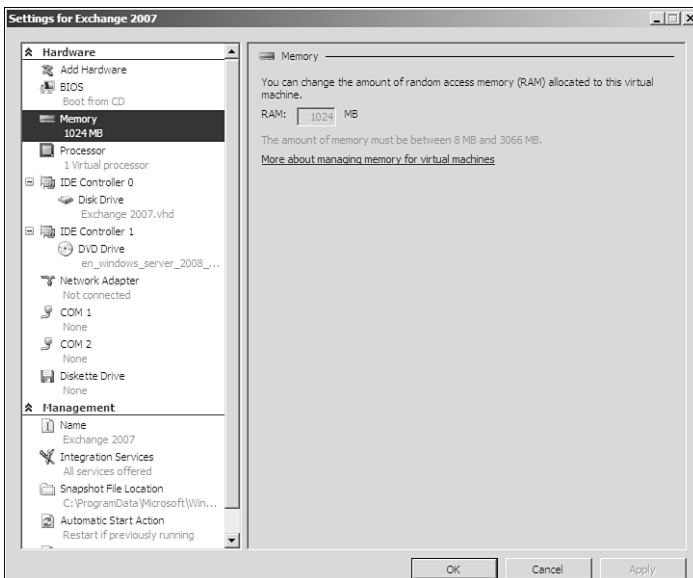


FIGURE 7.7  
Virtual machine settings.

You should also note that there are some icons in the bottom-right corner of the Virtual Machine Connection tool that show you your input methods and security level.

**NOTE** Hyper-V includes the ability to take snapshots of your virtual machines. By doing so, you create a point-in-time image of that system that you can restore at any time in the future to revert to that time. These snapshots can be taken at any time, while the system is running or stopped. This is an excellent way to recover your system in the event that you install something or make a change that is devastating. You simply create the snapshot, make your mistake (if it is a mistake), and restore the snapshot.

As you can see in Figure 7.8, you can use the Hyper-V Manager to monitor and manage your Hyper-V servers, the virtual machines they contain, and the snapshots of those virtual machines.

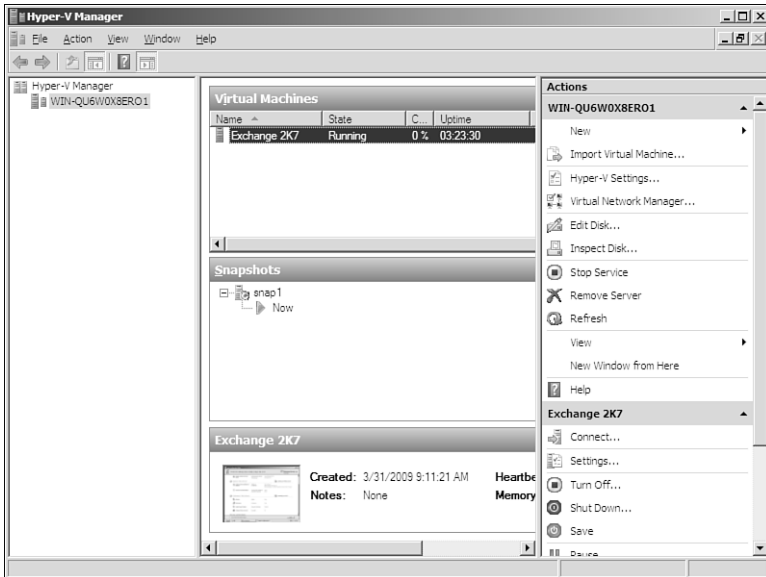


FIGURE 7.8  
Hyper-V Manager.

## Install Integration Services

When your OS is installed in the virtual machine, you might want to install Integrated Services to provide a smoother experience in working with the virtualized OS. This is common in other virtualization solutions.

Integration Services installs drivers and services that allow your virtual machines to have a more consistent state and improve performance. Some of the benefits include the following:

- ▶ Improved desktop experience on the guest, via mouse pointer integration
- ▶ Time synch to keep guest OS time in synch with host OS time
- ▶ Access to the VMBus
- ▶ Use of synthetic devices
- ▶ Automation of start and stop processes
- ▶ VSS integration for live backup of running virtual machines

**NOTE** The difference between a synthetic device and an emulated device has to do with how a virtual guest accesses the device. With synthetic devices, a request is packaged and forwarded to the host OS, over the VMBus, which in turn forwards the request to the needed physical device. Emulated devices emulate the physical hardware; for example, each virtual machine runs the emulation process `vmwp.exe`.

To install Integration Services, perform the following steps:

1. In the Virtual Machine Connection tool, select Action, Insert Integration Services Setup Disk.
2. The AutoPlay dialog appears because typically the system now views the Integration Services application as a DVD drive for you to install or run. Click the link to Install Hyper-V Integration Services.
3. When you are asked to restart your system, click Yes to restart immediately or No to wait until a later time.

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## Monitor Hyper-V Performance

**Scenario/Problem:** In any IT infrastructure, performance of the servers is expected to meet specific thresholds. The same is true for virtual machines. How can you monitor the performance of your virtual infrastructure and use the information you obtain to help troubleshoot any issues you may be facing?

**Solution:** After you have installed the Hyper-V role, the Windows Performance and Reliability Monitor contains 24 specific counters for your Hyper-V environment. You can find detailed information on what counters to look at for specific resource issues at <http://msdn.microsoft.com/en-us/library/cc768535.aspx>. However, keep in mind that performance monitoring of a virtual machine is different from monitoring of a physical machine. Just one example is CPU monitoring. CPU utilization needs to be monitored in three different places:

- ▶ **Virtual Machine:** CPU utilization takes place within the virtual machine. Hyper-V Manager provides CPU utilization details here; in addition, you can look at the %Guest Runtime counter found in the Hyper-V Hypervisor Virtual Processor section.
- ▶ **Hypervisor:** CPU utilization also takes place in the Hypervisor. You can monitor this by using the %Hyper Runtime counter, also found in the Hyper-V Hypervisor Virtual Processor section.
- ▶ **Host Machine:** CPU utilization also takes place at the worker process level on the host machine. You monitor these CPU cycles on the host server.

**NOTE** For information on the Reliability and Performance Monitor see Chapter 12, “Monitor Performance and Troubleshoot.”

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## Utilize System Center VMM

**Scenario/Problem:** Your virtual infrastructure is growing at a very fast pace. You find that within a few months, you are going to have more than 200 virtual machines in your environment, and the count will continue to grow. You need a tool that will help you to stay in control of the virtual infrastructure.

**Solution:** The System Center VMM, a part of the System Center family of products used to manage IT infrastructure, enables you to take control and oversee the virtual infrastructure. It enables you to manage all your virtual machines and physical hosts. If you are familiar with VMware, this tool will compare with V-Center. An overview of some the benefits System Center Virtual Machine Manager are:

- ▶ Is specifically designed for Windows Server 2008
- ▶ Supports Virtual Server and VMware
- ▶ Optimizes performance and resources
- ▶ Maximizes data center resources
- ▶ Enables simple machine conversions
- ▶ Effectively provisions new virtual machines
- ▶ Enables organized placement of virtual machines
- ▶ Enables delegation of virtual machine management
- ▶ Centralizes management
- ▶ Integrates with PowerShell

**NOTE** The following are some of the other members of the System Center family:

- ▶ System Center Data Protection Manager
- ▶ System Center Operations Manager
- ▶ System Center Configuration Manager

These tools and System Center VMM all require the purchase of a license. You can find pricing and licensing information for the VMM at [www.microsoft.com/systemcenter/virtualmachinemanager/en/us/pricing-licensing.aspx](http://www.microsoft.com/systemcenter/virtualmachinemanager/en/us/pricing-licensing.aspx).

Let's take a look at the different components of System Center VMM:

- ▶ **VMM server:** This is the core process that communicates with the host servers.
- ▶ **Virtual machine host:** Hosts can include the following:
  - ▶ Microsoft Virtual Server 2005 R2
  - ▶ Microsoft Windows Server 2008 Hyper-V
  - ▶ VMware ESX
- ▶ **Virtual machine library server:** The library is a catalog of resources that are available to build virtual machines within VMM.
- ▶ **Virtual Machine Manager administrator console:** This is a graphical user interface (GUI) you can use to manage your virtual infrastructure.
- ▶ **Windows PowerShell command-line interface:** You can use PowerShell to automate administrative tasks.
- ▶ **VMM Self-Service Portal:** This is a web-based interface that allows the delegation of building virtual guests in a controlled environment.
- ▶ **Microsoft SQL Server:** This is an information store of the virtual infrastructure that is contained in the Microsoft SQL Server 2005 database.

The following are some useful functions found in the VMM, besides the ability to create new and clone virtual machines:

- ▶ **Convert physical server:** You can convert a physical server to a virtual machine (P2V). This process captures an image of the source physical server's disk and then modifies the OS and drivers to be compatible with Hyper-V emulated devices. You can perform either an online P2V or an offline P2V. The online P2V does not require the source machine to be shut down as it uses VSS to capture the disk information.
- ▶ **Convert virtual to virtual:** This comes into play when (if) you decide to convert a VMware virtual machine to a Hyper-V virtual machine (V2V). There are two steps to performing this conversion:
  1. Copy the .vmx file and all the .vmdk files to the Virtual Machine Manager Library.



2. Run the Convert Virtual Machine Wizard to identify the disk formats and virtual machine specifics and then convert the .vmdk files to .vhd files.

The VMM now prepares the virtual hard disks for the new virtual machine creation.

As you can see, the Service Center VMM can ease your job of managing the virtual infrastructure as it grows. You can even drill down your management to individual virtual machines by performing the following tasks on them:

- ▶ Start a virtual machine
- ▶ Stop a virtual machine
- ▶ Pause a virtual machine
- ▶ Save state/discard state
- ▶ Shut down a virtual machine
- ▶ Connect to a virtual machine

If you have System Center Operations Manager and reporting turned on, you can generate reports via the Operations Manager to get a view of how your virtual infrastructure is doing and what you can do to improve the space. The following are some of the reports that can be generated:

- ▶ **Virtualization Candidates:** This report takes a look at your environment and identifies physical servers that are good candidates for virtualization
- ▶ **Virtual Machine Allocation:** This report provides information on where virtual machines are allocated. This can be used to identify cost centers responsible for funding the virtual machine.
- ▶ **Virtual Machine Utilization:** This report discusses the resource utilization of virtual machines.
- ▶ **Host Utilization:** This report summarizes host utilization figures, such as the number of virtual machines running on the host as well as host CPU, memory, and hard disk utilization.
- ▶ **Host Utilization Growth:** This report discusses the growth on a specified host within a defined time period. Growth is presented in percentage and measures such things as number of virtual machines on the host and resource usage.

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## Prepare for New Features to Hyper-V in Windows Server 2008 R2

**Scenario/Problem:** Microsoft has definitely made great improvements to its virtual technology with Windows Server 2008 Hyper-V. However, it still has a way to go when it comes to supporting virtual machines as well as VMware on ESX hosts. You want to stick with Microsoft products in your environment and need to know if its virtual technology is slated for improvements.

**Solution:** Windows Server 2008 R2 will provide many needed improvements to Hyper-V. The features we can look forward to include the following:

- ▶ **Live Migration:** This will enable guests' machines to move from one host to another without application interruption. It is similar to V-Motion for VMware.
- ▶ **Support for 32 logical processors on a host server:** This is twice the amount currently supported.
- ▶ **Hot add/remove of storage:** R2 will provide the ability to add and remove virtual hard disks without downtime. This ability will be supported only with SCSI disks.
- ▶ **Second-level translation:** You will be able to take advantage of new processor features and lighten the load on the Hypervisor.
- ▶ **Dynamic memory:** The memory pool will be dynamically distributed to virtual machines. Memory can be allocated and unallocated, depending on use, with no service interruption.

With the addition of these features in R2, Microsoft will definitely be putting itself on the same playing field as VMware running on ESX. There will still be some room for improvement, especially on the Linux support side.

In this chapter, we have just touched on all that is offered with Windows Server 2008 Hyper-V. To get more information, take a look at [www.microsoft.com/windowsserver2008/en/us/hyperv-faq.aspx](http://www.microsoft.com/windowsserver2008/en/us/hyperv-faq.aspx).