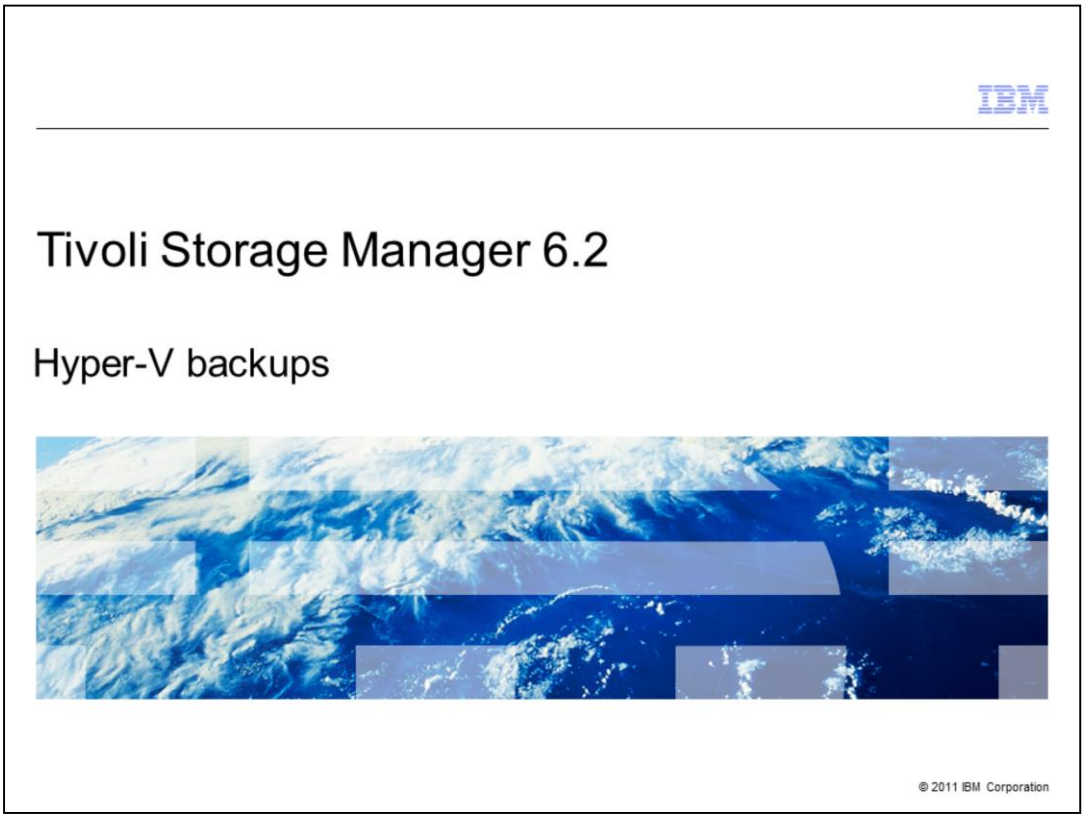
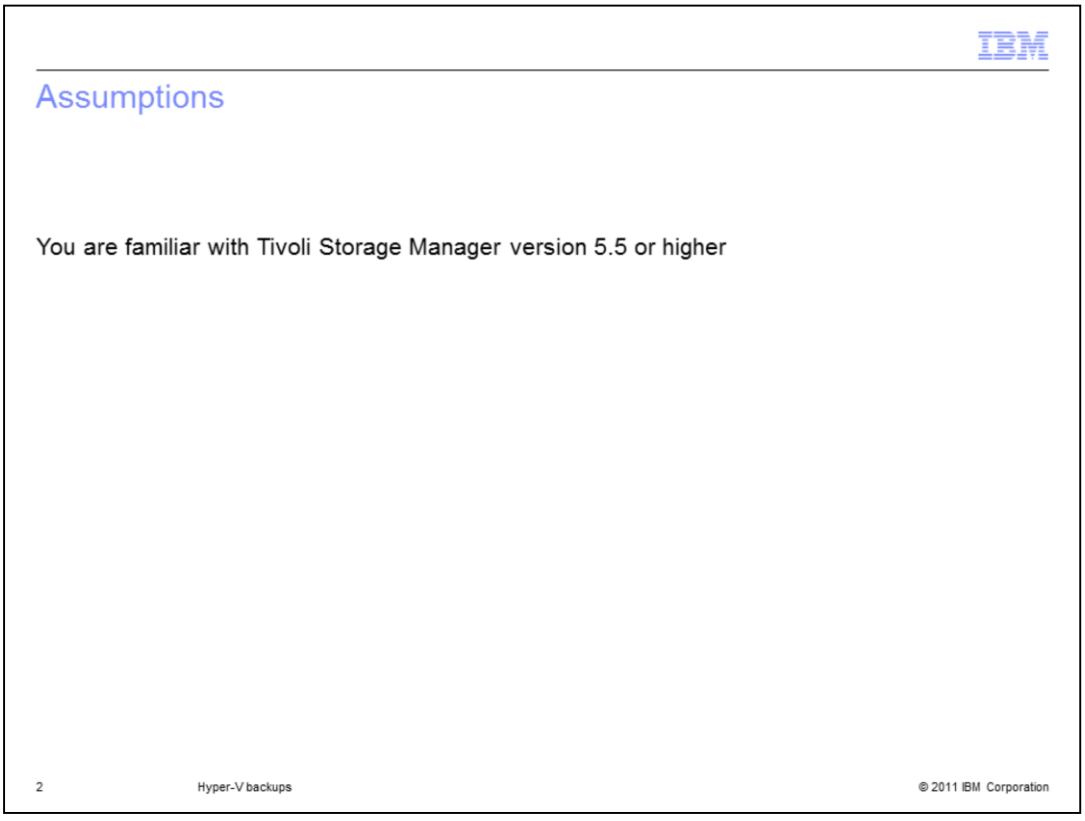
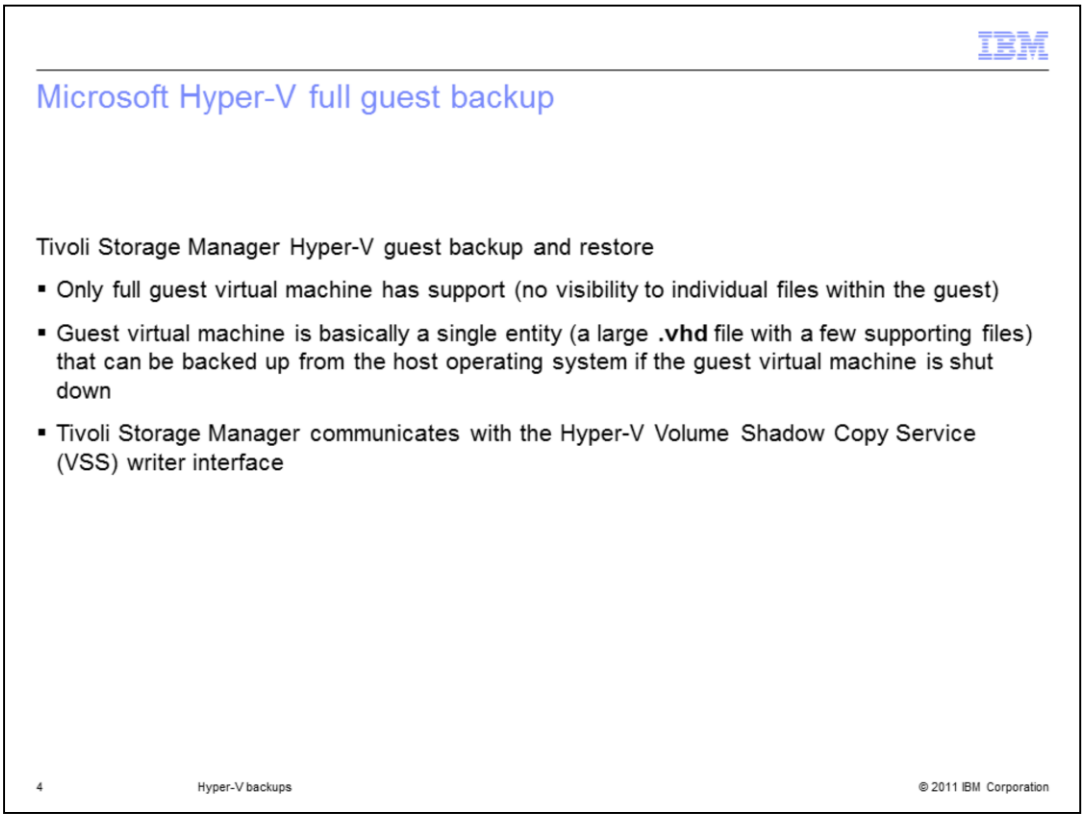



Welcome to the IBM Education Assistant module for Tivoli Storage Manager version 6.2 Hyper-V backups.

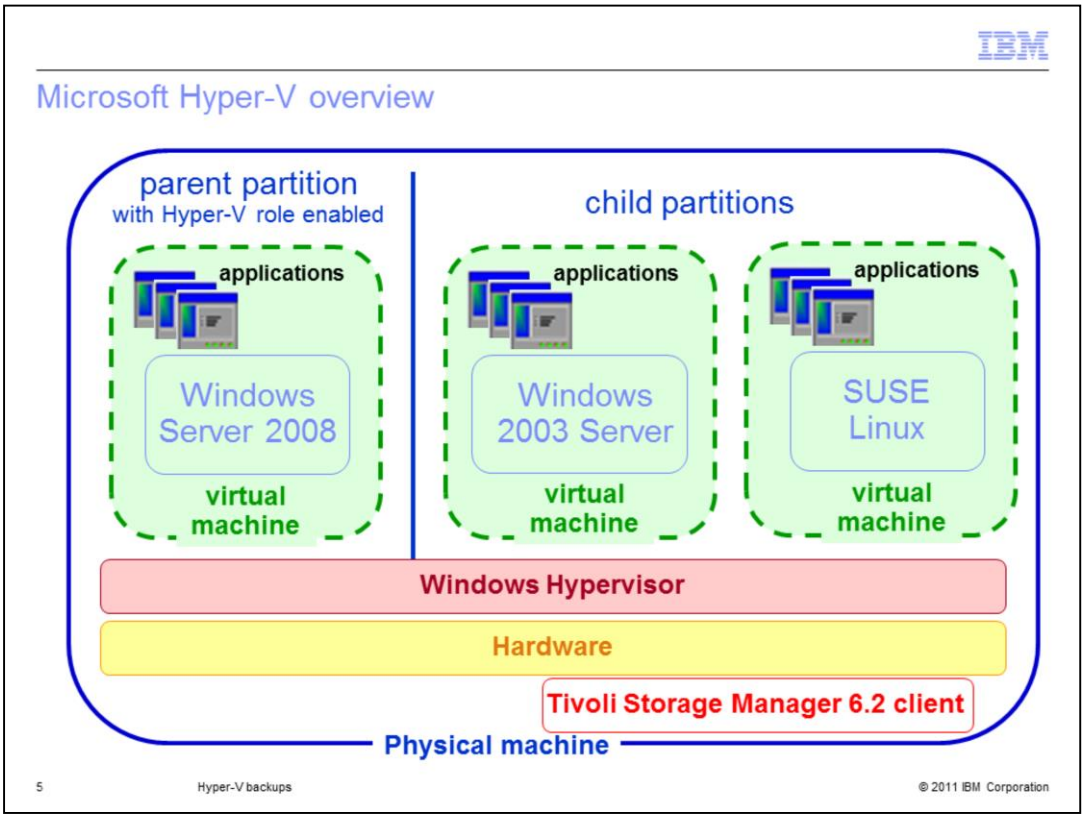



You are familiar with Tivoli Storage Manager version 5.5 or higher.

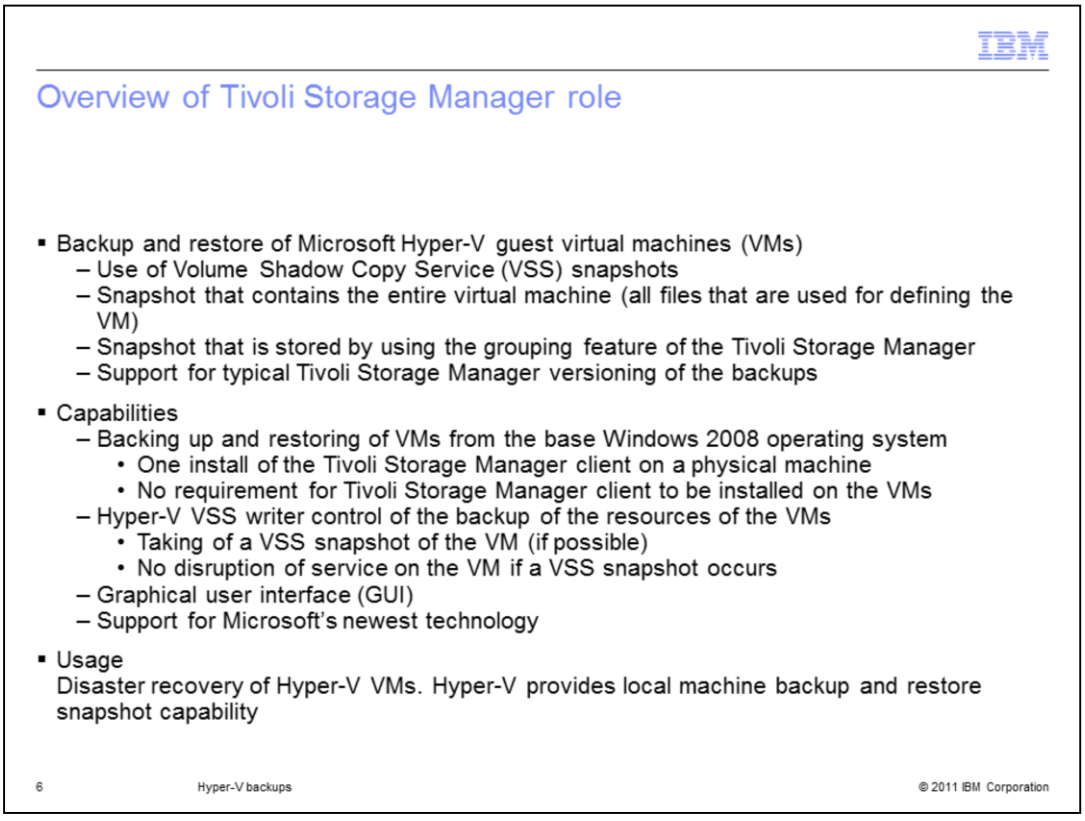

When you complete this module, you can perform the following tasks: Explain the Microsoft Hyper-V full guest backup process. Describe the Tivoli Storage Manager Hyper-V guest backup and restore.



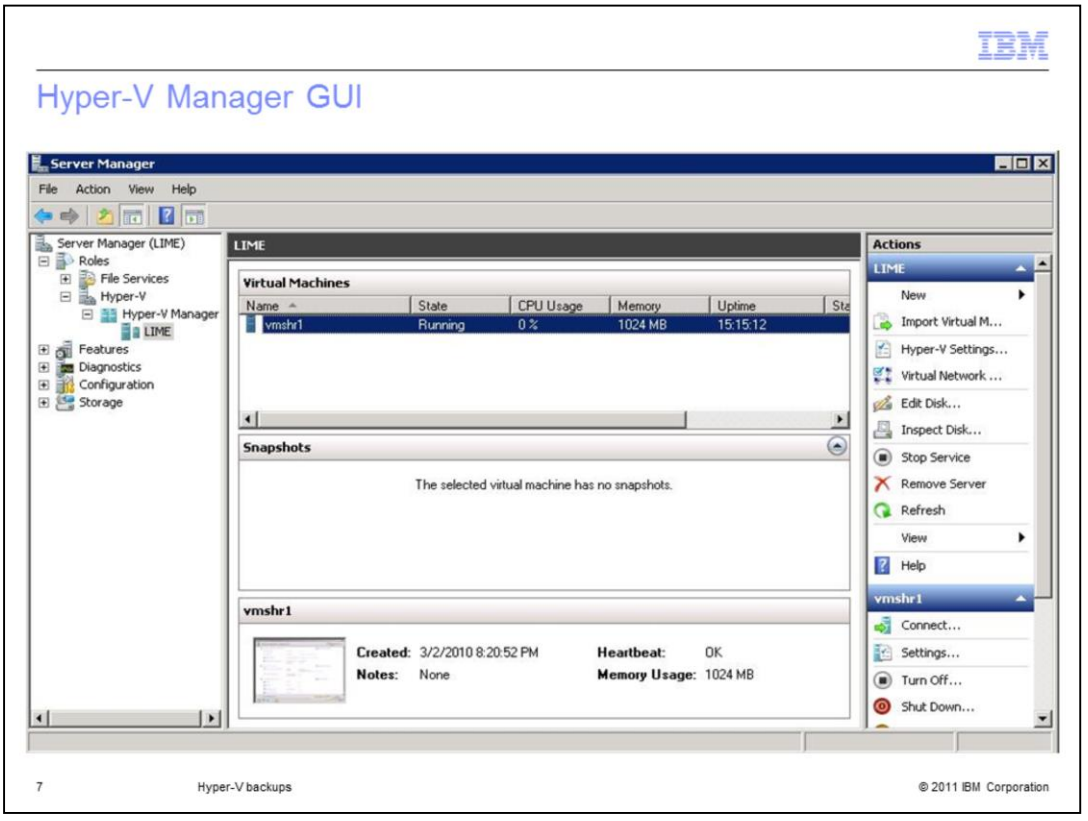

The latest addition to the Tivoli Storage Manager virtual machine backup capabilities is the backup and restore of Microsoft's Hyper-V virtual machine. This is a full virtual machine backup, using Volume Shadow Copy Service, or VSS, to create a snapshot. You use VSS to create a snapshot of the running guest virtual machine. Tivoli Storage Manager sends commands to a Hyper-V VSS writer interface. The writer propagates the requests to all internal VSS writers (Exchange, SQL-Server, and more). Tivoli Storage Manager does not interact with the internal writers directly. This ensures the integrity of the guest virtual machine and all internal VSS applications. A Windows Server 2008 Core installation has a limited subset of functions. You can include the Hyper-V role but not the graphical interface, so you have command-line administration only. The Tivoli Storage Manager command-line client supports the Server Core implementations, including Hyper-V functions. Windows VSS is used for creating snapshots of the Hyper-V guest virtual machine while they run. The Tivoli Storage Manager Hyper-V support is built on top of the existing Tivoli Storage Manager VSS support. The VSS snapshot awareness is propagated to applications, such as Exchange within the guest virtual machine.



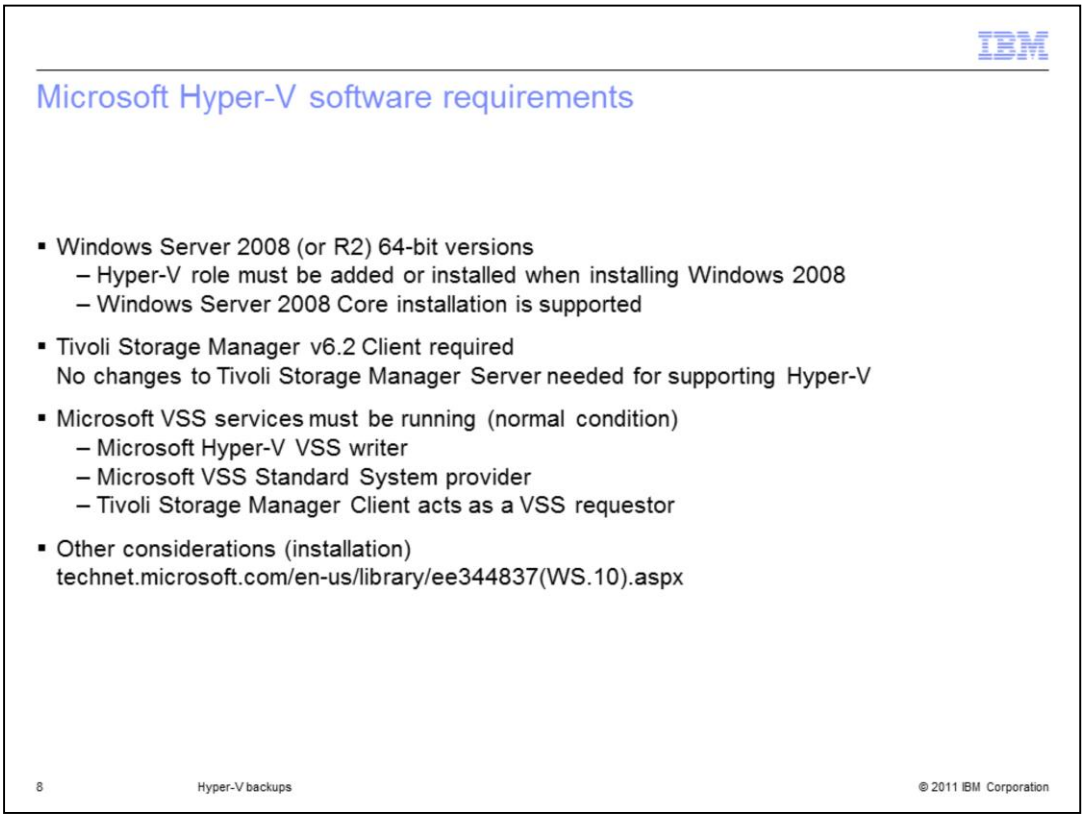

The Hypervisor layer is an interface to hardware. It is isolated from all other layers, such as virtual machines (VM), and base operating systems. The base Windows Server 2008 operating system, known as the parent partition, has the Hyper-V role enabled. The guest virtual machine operating systems, known as the child partitions, can be Windows operating system (both 64 and 32 bit) and Linux. The virtual machines do not share memory, therefore, do not corrupt other VM or base operating systems on Windows 2008. With the Server Core Installation option, you have a command-line interface only. There is no Hyper-V GUI. It is more secure and has less overhead for the Windows 2008 parent partition. The Cluster Shared Volumes (CSV) option for Windows Server 2008 R2, has a clustered environment that all nodes access the CSV simultaneously. The environment allows for live migration to standby node without downtime for virtual machines, using a failover cluster. With this option, volumes are mounted as mount points. The Cluster Shared Volumes are supported only with the Hyper-V role. Tivoli Storage Manager's implementation of VSS is enhanced to support Hyper-V guest virtual machine backup where Cluster Shared Volumes are involved.



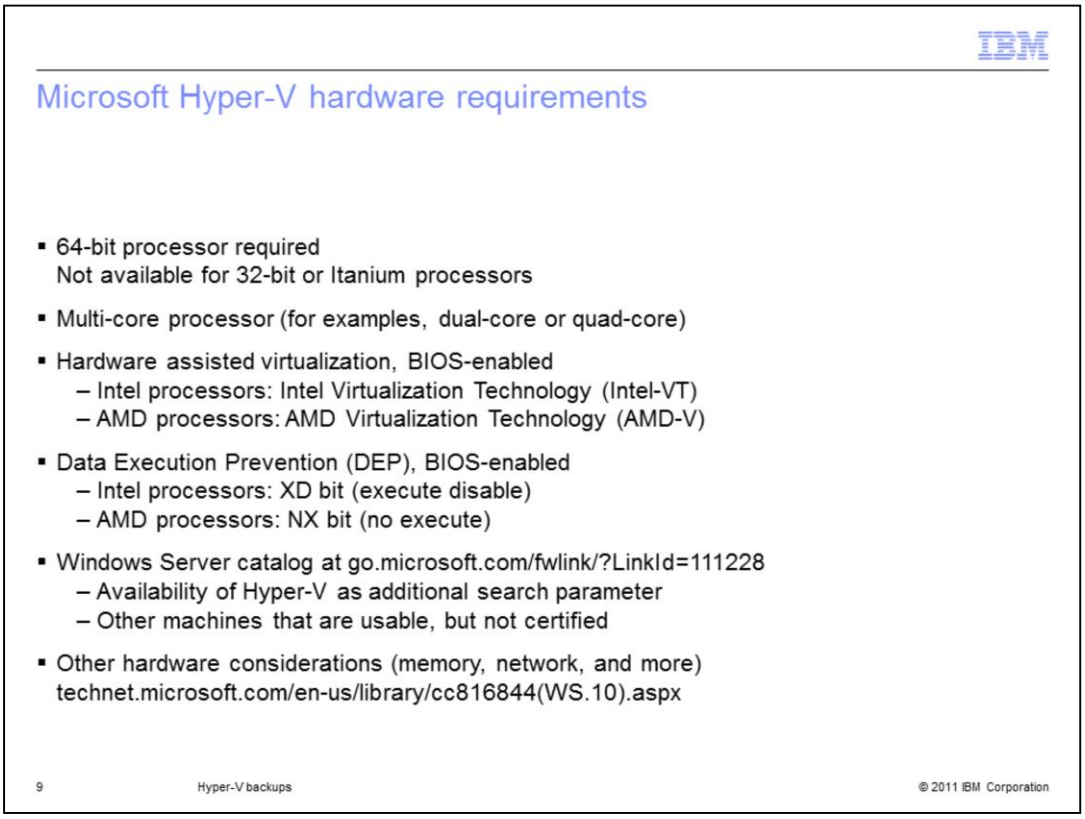

With Tivoli Storage Manager 6.2, you can back up your Hyper-V virtual machines with or without using the Hyper-V GUI. The backup is like a Tivoli Storage Manager node data snapshot backup that you obtain by using Volume Shadow Copy Service. When backing up a Hyper-V virtual machine, the Hyper-V VSS writer controls the backup to Tivoli Storage Manager. You need to have only one Tivoli Storage Manager client installed on each physical machine, not on the virtual machines. The Hyper-V graphical user interface is a separately installed component.



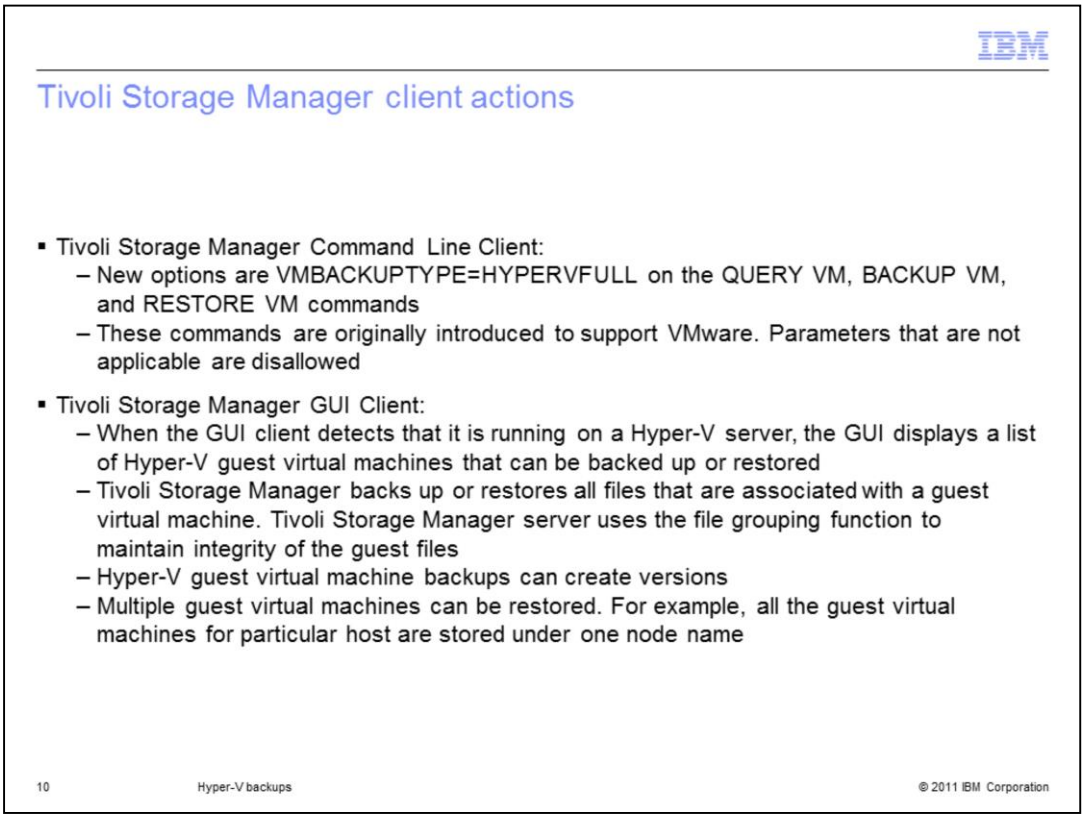

The slide shows a screen capture of the Hyper-V GUI. The left side has a navigation tree. When a role is selected, the center pane displays the virtual machines for that role. The right pane has actions that you can take to manage your Hyper-V virtual machines.




To back up Microsoft Hyper-V virtual machines, you need Windows Server 2008 with the Hyper-V role added and Microsoft VSS services running. You also need the Tivoli Storage Manager 6.2 backup-archive client installed on the physical machine. The Microsoft installation guides have more details.

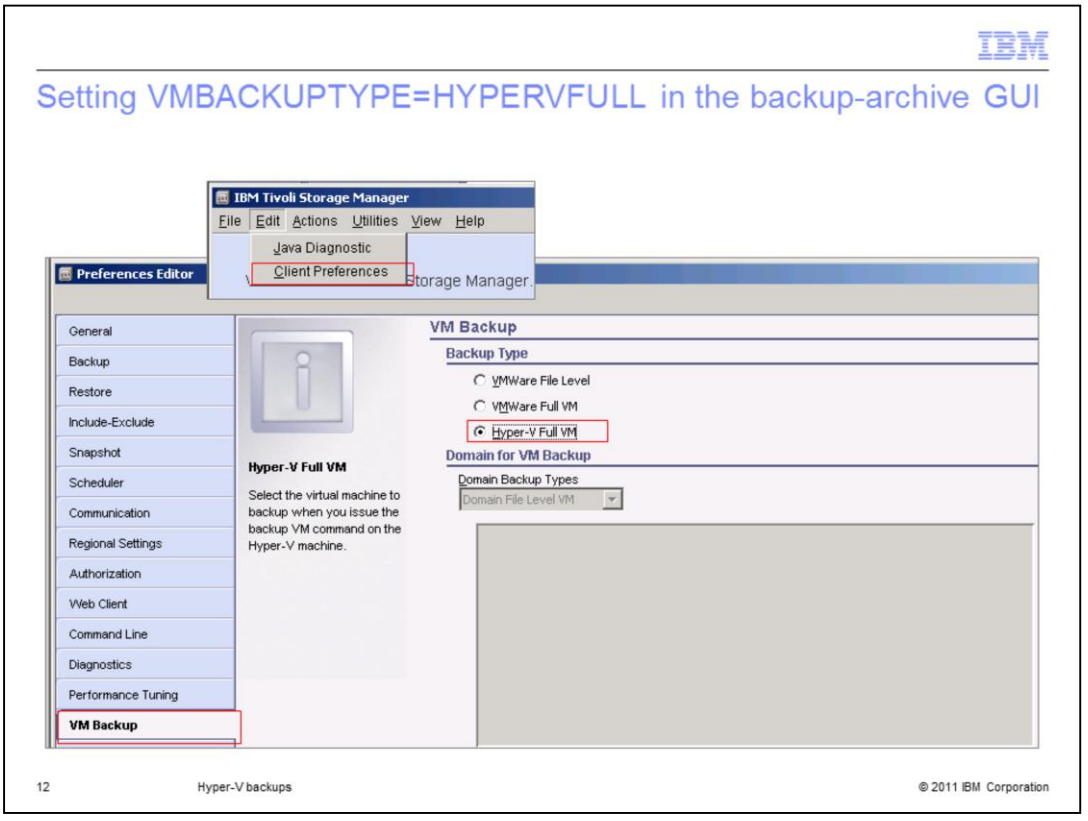



The physical machine must have a 64-bit, multi-core processor with hardware-assisted virtualization enabled. Refer to the Microsoft installation guides for more details.

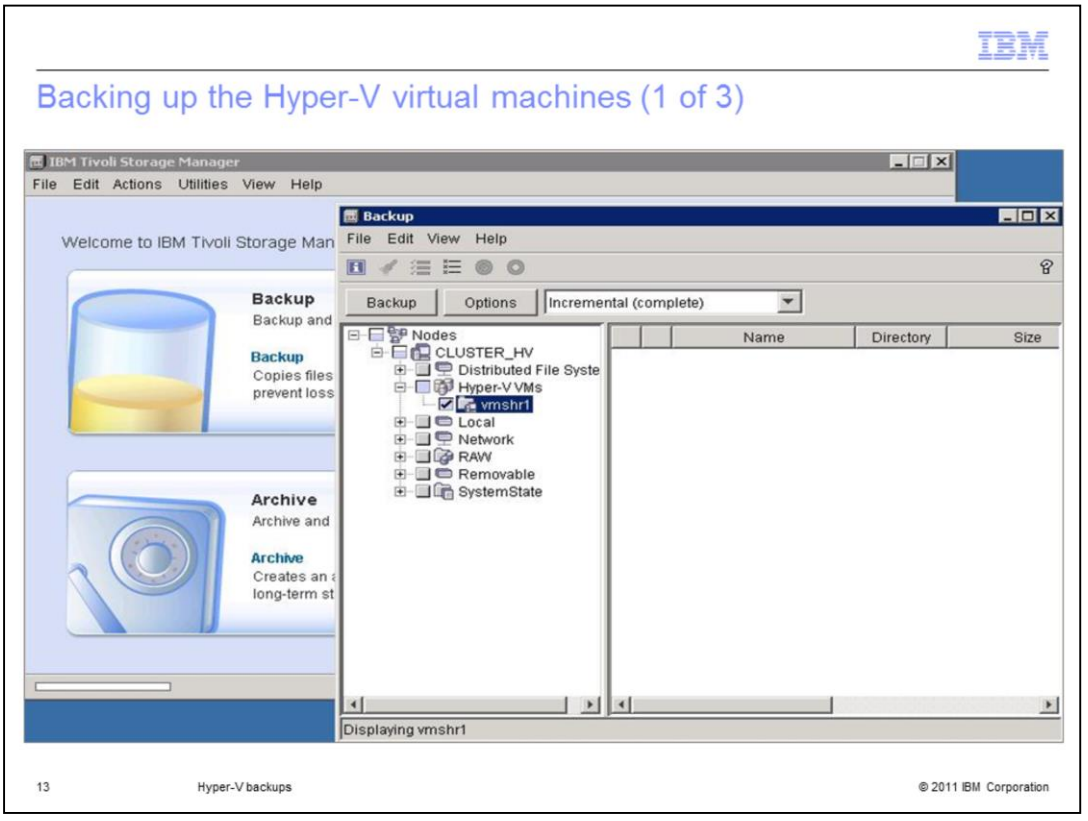



The Tivoli Storage Manager backup-archive client is enhanced to support the backup and restore of Hyper-V guest virtual machines. The backup and restore of Hyper-V guest virtual machines use the same TSM commands as VMware (VCB): QUERY VM, BACKUP VM, RESTORE VM. The option of -vmbackuptype=HYPERVFULL can be specified in **dsm.opt**. If it is not specified, VMware (VCB) is the default virtual machine backup type.

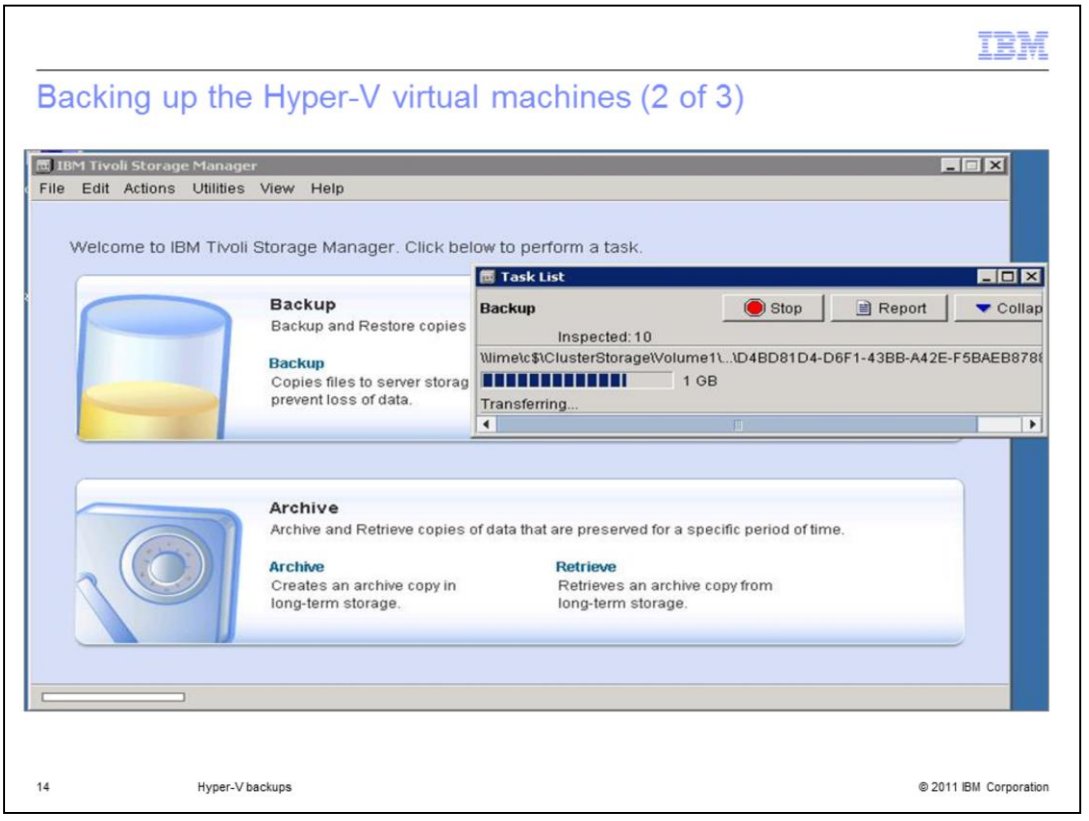

The slide shows some examples of using the command line for Hyper-V backups: To initiate a full backup of all virtual machines that are defined on the HYPER-V host system, issue dsmc backup vm –vmbackuptype=hyperfull command. To display a list of virtual machines that are defined on the Hyper-V host system, add the –vmlist=? option. To back up only a specific virtual machine, add the virtual machine name to the command.



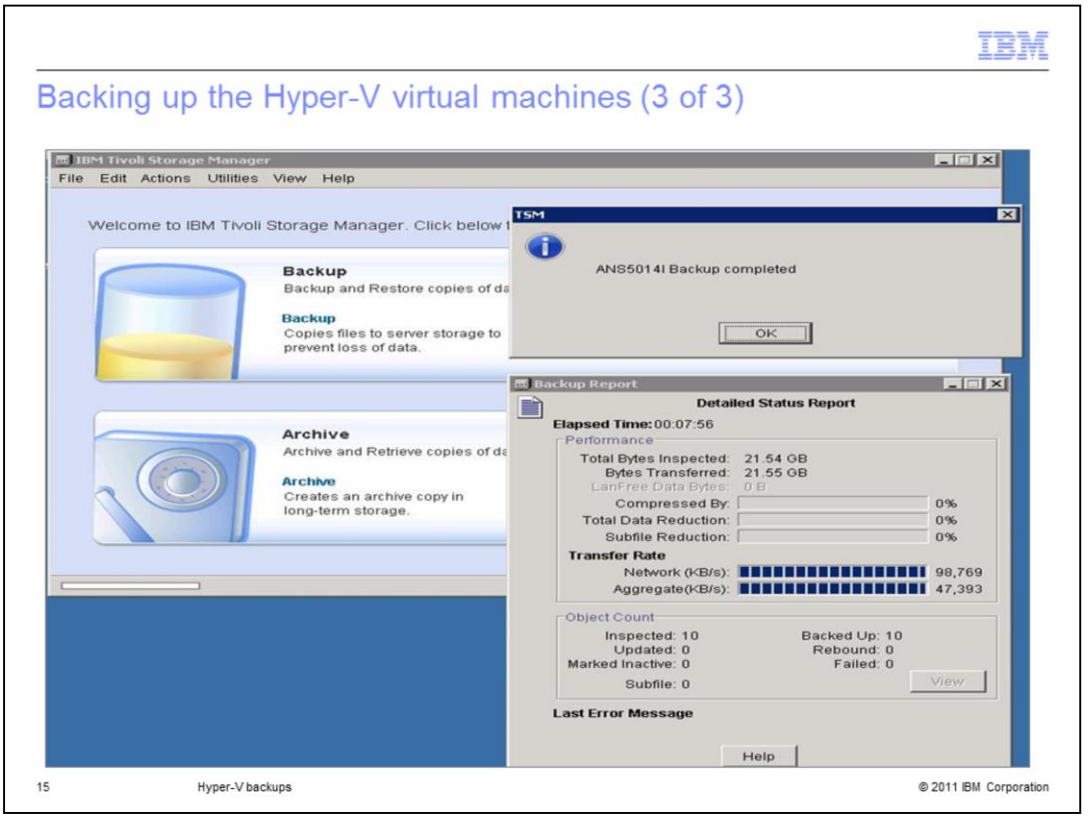

1. Open the backup-archive GUI.
2. Select **Edit** > **Client Preferences** from the menu.
3. In the Preference Editor window, select **VM Backup** from the menu on the left.
4. Select the **Hyper-V Full VM** option, and click **Apply**.



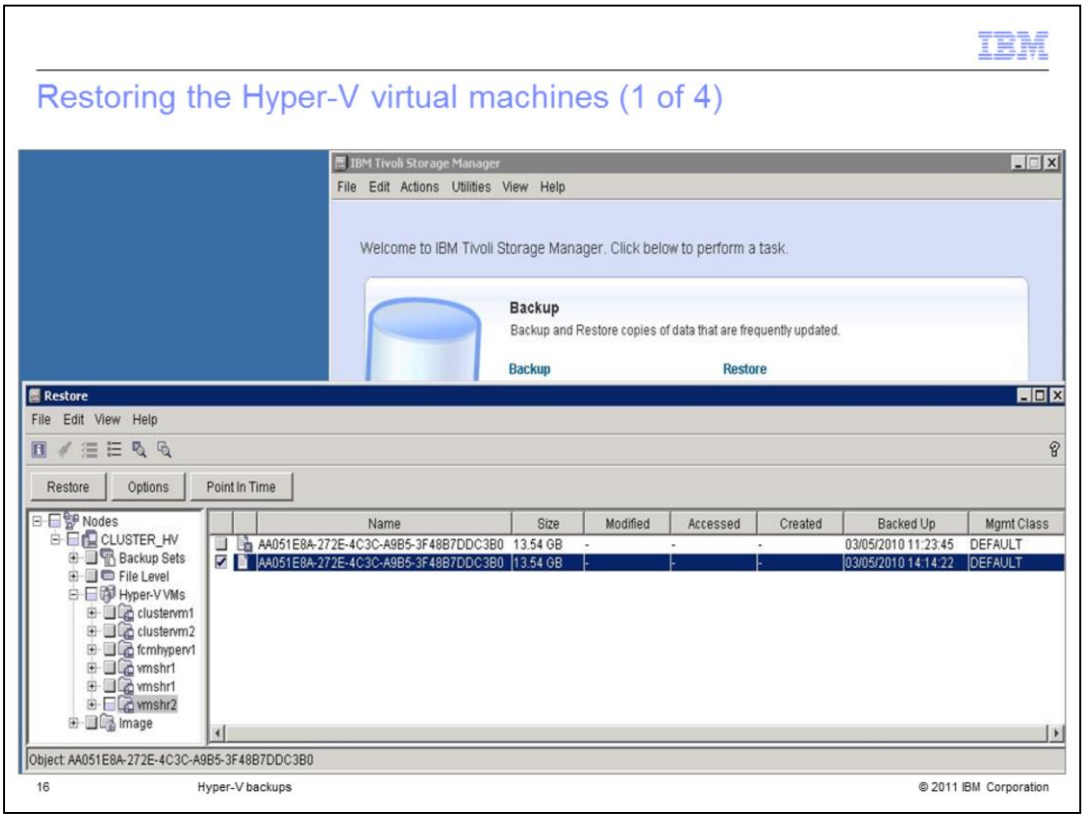

To use the Tivoli Storage Manager backup-archive GUI, select **Backup**. Expand the navigation tree to list the Hyper-V virtual machines, and select the virtual machine to back up. Click the **Backup** button.



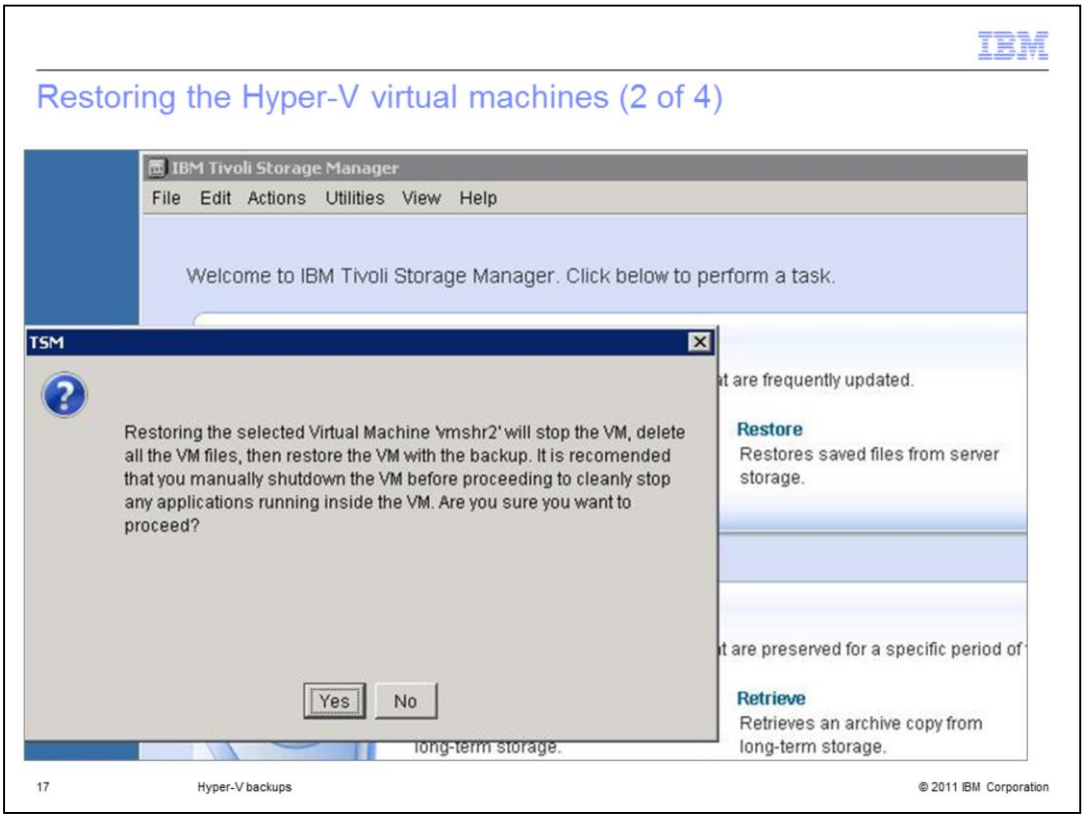

The Task List window shows the progress of the backup.



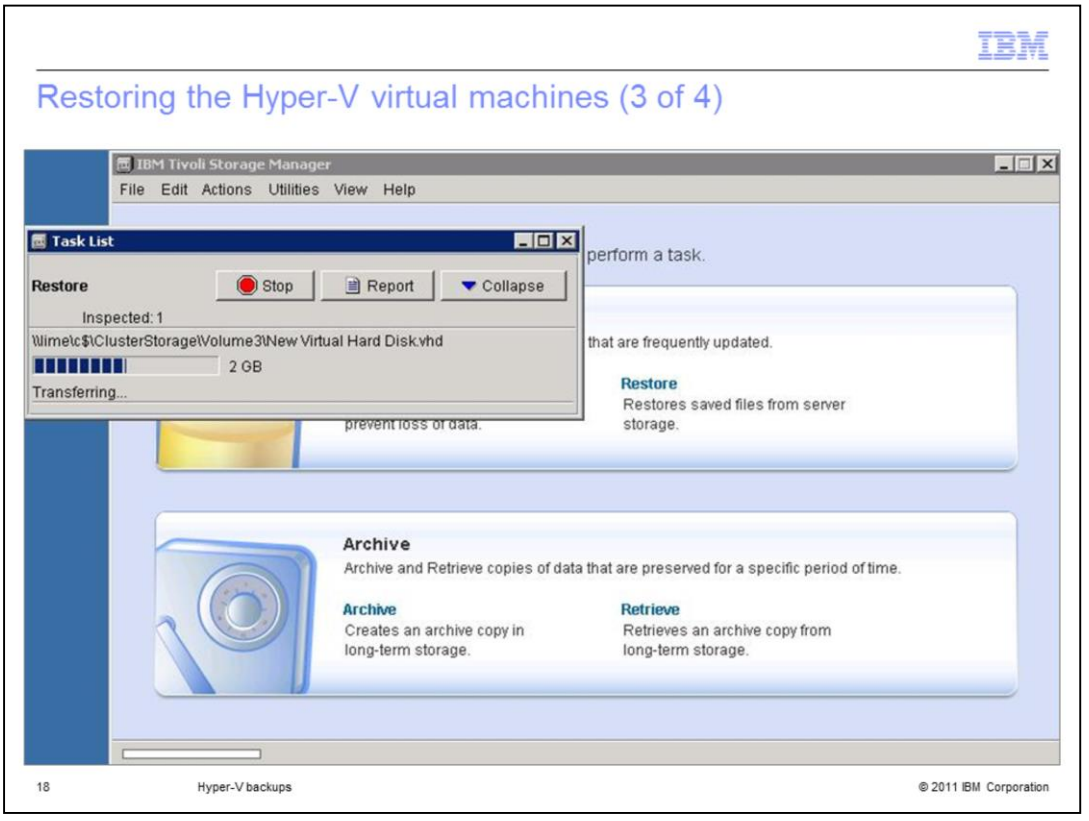

Review and close the Detailed Status Report.



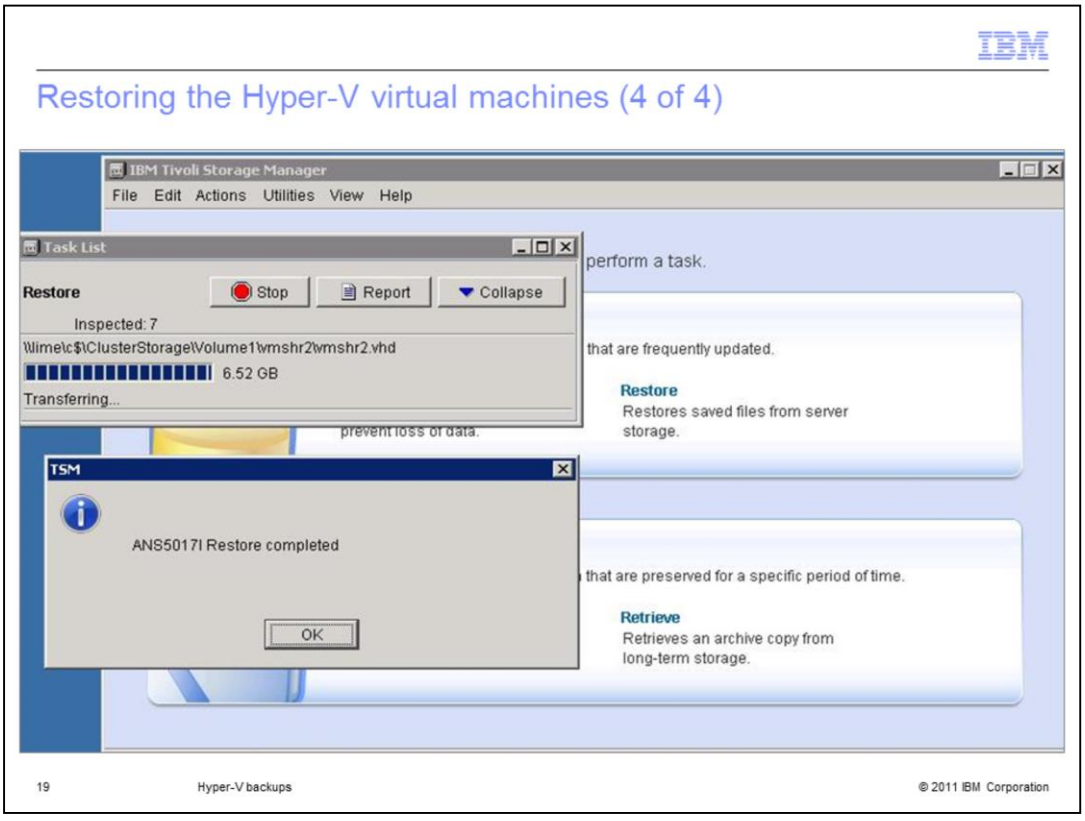

To restore a Hyper-V image with the backup-archive GUI, select **Restore**. Navigate to the snapshot of the image to restore. Click the **Restore** button.




A warning message opens if your Hyper-V machine is running, with a recommendation to manually shut down the virtual machine before proceeding.




The Task List window shows the progress of the restore.




Review and close the Detailed Status Report. This is how to perform a Microsoft Hyper-V backup and restore with the Tivoli Storage Manager 6.2 backup-archive client.


Now that you have completed this module, you can perform the following tasks:

- Explain the Microsoft Hyper-V full guest backup process
- Describe the Tivoli Storage Manager Hyper-V guest backup and restore

IBM

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