

REVIEW LESSON

MTA Course: 98-365 Windows Server® Administration Fundamentals

Lesson name: Windows Server Administration Fundamentals 2.5

Topic: Understand server virtualization

(One 50-minute class period)

File name: WinServerFund_RL_2.5

Lesson Objective

2.5: Understand server virtualization. *This objective may include but is not limited to:* virtualization modes; VHDs; virtual memory; virtual networks; snapshots and saved states; physical to virtual; virtual to physical.

Preparation Details

Prerequisite student experiences and knowledge

This MTA Certification Exam Review lesson is written for students who have learned about Windows® Server administration fundamentals. Students who do not have the prerequisite knowledge and experiences cited in the objective will find additional learning opportunities using resources such as those listed in the Microsoft® resources and Web links at the end of this review lesson.

Students should have successfully performed a Windows Server 2008® R2 installation.

Students should have successfully created a virtual machine using Virtual PC or Hyper-V®.

Instructor preparation activities

- Make copies of Student Activity WinServerFund_SA_2.5
- If available for demonstration, have virtual machines with Windows Server 2008 R2 installed. Be sure to test the virtual machines. **Note:** Adding Hyper-V as a role may not be supported if the virtual processor does not support virtualization. Screen shots are provided for the process of adding the Hyper-V role. You can demonstrate creating a virtual hard disk in a virtual or live environment.

Resources, software, and additional files needed for this lesson

- WinServerFund_PPT_2.5
- WinServerFund_SA_2.5

Teaching Guide**Essential Vocabulary**

virtual machine—a synthetic software environment in which other programs may run without additional hardware devices. Example: Run Windows Server 2008 R2 within a virtual machine on Windows 7®.

virtual memory—allows for easy expansion of physical memory by configuring hard drive space to act as memory. Applications access memory through virtual addresses, which are translated by special hardware and software onto physical addresses.

Lesson Sequence**Activating prior knowledge/lesson staging (Anticipatory Set: 10 minutes)**

1. Student prompts (see PowerPoint® slide 3): On a sheet of paper, write a definition for server virtualization.
2. Give students a few minutes to respond, allowing them to work until they have finished.
3. As time permits, call on a few students to report to the group with their responses.

Lesson activity (40 minutes)

1. Teacher Instruction (20 minutes)
 - Use the included PowerPoint slideshow to discuss server virtualization.
 - At the end of the slideshow, ask the students to answer the review questions.
 - Show the question and give the students 1 minute to process the question and come up with answers.
 - Finally, have each student share their answers with the whole group.
 - Encourage the students to come up with any other benefits to virtualization such as power consumption.
2. Guided Practice (20 minutes; see “Additional notes to the instructor” section regarding this assignment)
 - Students complete the student hands-on activity WinServerFund_SA_2.5

Assessment/lesson reflection (10 minutes)

1. At the bottom of the student activity, have the students write any questions they have or topics about which they would like more assistance.
2. After class, look through the student responses and follow up with any student requiring additional help.

Microsoft resources and Web links

- **Microsoft: Hyper-V Server System Requirements**
<http://www.microsoft.com/hyper-v-server/en/us/system-requirements.aspx>
- **Microsoft TechNet: BCDEdit Command-Line Options**
[http://technet.microsoft.com/en-us/library/cc709667\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/cc709667(WS.10).aspx)
- **Microsoft TechNet: Hardware Considerations**
[http://technet.microsoft.com/en-us/library/cc816844\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/cc816844(WS.10).aspx)
- **Microsoft TechNet: Hyper-V**
[http://technet.microsoft.com/en-us/library/cc753637\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/cc753637(WS.10).aspx)
- **Microsoft TechNet: Hyper-V Installation Prerequisites**
<http://technet.microsoft.com/en-us/library/cc731898.aspx>
- **Microsoft TechNet: Hyper-V Virtual Machine Snapshots FAQ**
[http://technet.microsoft.com/en-us/library/dd560637\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/dd560637(WS.10).aspx)
- **Microsoft TechNet: Live Migration FAQ**
[http://technet.microsoft.com/en-us/library/ff715313\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/ff715313(WS.10).aspx)
- **Microsoft TechNet: Overview of Hyper-V**
[http://technet.microsoft.com/en-us/library/cc816638\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/cc816638(WS.10).aspx)
- **Microsoft: Virtualization with Hyper_V:FAQ**
<http://www.microsoft.com/windowsserver2008/en/us/hyperv-faq.aspx>
- **Microsoft: Virtualization with Hyper-V: Supported Guest OS**
<http://www.microsoft.com/windowsserver2008/en/us/hyperv-supported-guest-os.aspx>

Suggested best practices

- It is advisable to direct students to use Microsoft® Virtual PC at home to perform these lab activities.
- Ask the students if they can think of any other advantages to virtualization. Encourage them to think about power consumption, reduced support numbers, and disaster recovery scenarios.
- Ask if there are any students presently working in an organization that has been “virtualized.”

Additional notes to the instructor

- The student activity WinServFund_SA_2.5 assumes the students have access to system running Windows Server 2008 R2. If they are using a virtual machine, there may be some issues adding the Hyper-V role to a virtual machine, as the virtual processor must be configured to support virtualization.