

## REVIEW LESSON

MTA Course: 10753 Windows Operating System Fundamentals  
Lesson name: Windows Operating System Fundamentals 2.4  
Topic: Understand virtualized clients (One 50-minute class period)  
File name: 10753\_WindowsOS\_RL\_2.4

### Lesson Objective

**2.4:** Understand virtualized clients. *This objective may include but is not limited to:*  
Understanding Windows XP Mode, Remote Desktop, and Remote Desktop Services.

### Preparation Details

#### Prerequisite student experiences and knowledge:

This MTA Certification Exam Review lesson is written for students who have learned about Microsoft Windows operating system 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 “Resources” section at the end of this review lesson.

#### Instructor preparation activities:

- Make copies available of the Student Activity document 10753\_WindowsOS\_SA\_2.4.
- The following software should be downloaded to each workstation or made available by the instructor. Files can be downloaded at <http://www.microsoft.com/windows/virtual-pc/download.aspx> .
  - Windows XP Mode WindowsXPMo\_e-en-us.exe
  - Windows Virtual PC: Windows6.1-KB958559-x64-RefreshPkg.msu (Windows 7 64bit)
  - Windows XP Mode Update: Windows6.1-KB977206-x64.msu (required only if Windows 7 systems are not running Windows 7 SP1)(Windows 7 64 bit)
- The instructor should have access to an existing system running Windows 7 Professional or a virtual machine with Windows 7 Professional with XP Mode installed.

**Resources, software, and additional files needed for this lesson:**

- 10753\_WindowsOS\_RL\_2.4
- 10753\_WindowsOS\_SA\_2.4
- 10753\_WindowsOS\_PPT\_2.4

**Teaching Guide****Essential Vocabulary**

**Microsoft Virtual Desktop Infrastructure (VDI)**—a centralized desktop delivery solution. The concept of VDI is to store and run desktop workloads, including a Windows client, applications, and data in a server-based virtual machine in a data center; and allow a user to interact with the desktop presented onto a user device via Remote Desktop Protocol (RDP).

**Remote Desktop Services (RDS)**—a centralized desktop and application platform solution that uses session virtualization and VDI technologies. RDS is the new name for Terminal Services, and it reflects the expanded role in Windows Server 2008 R2 so that administrators can run the desktop or applications in the datacenter while users can be anywhere.

**virtual desktop**—a desktop enhancement tool that expands the computer's desktop environment through the use of software.

**virtual machine**—essentially a computer within a computer, implemented in software. A virtual machine emulates a complete hardware system, from processor to network card, in a self-contained, isolated software environment, enabling the simultaneous operation of otherwise-incompatible operating systems. Each operating system runs in its own isolated software partition.

**Windows XP Mode**—a separate download that works only with Windows 7 Professional, Ultimate, and Enterprise editions. Windows XP Mode also requires virtualization software such as Windows Virtual PC. Both are available free from the Microsoft website.

**Lesson Sequence****Activating prior knowledge/lesson staging (5 minutes):**

Direct students to answer each question in their notes.

1. What desktop virtualization software is required to use Windows XP Mode? (Windows Virtual PC)
2. What Windows Server2008 R2 server role was formerly called Terminal Services? (Remote Desktop Services, or RDS)
3. What feature of Windows 7 is used to connect to an RDS server? (Remote Desktop Connection)

**Lesson activity (40 minutes):**

1. Teacher instruction (20 minutes; see the “Suggested best practices” section regarding this presentation).
2. Use the included Microsoft PowerPoint presentation to review virtualized clients.
3. Guided practice (20 minutes)
  - a. Students complete 10753\_WindowsOS\_SA\_2.4.

**Assessment/lesson reflection (5 minutes):**

1. In the same notes that they created for the “Activating prior knowledge/lesson staging” at the beginning of the class, direct students to check their initial answers and make any changes if necessary.
2. Instruct students to write and submit any questions they have or any topics about which they would like more assistance.
3. After class, look through the student responses and follow up with any student requiring additional help.

**Resources:**

- **Microsoft: Windows 7 Features: XP Mode**  
<http://windows.microsoft.com/en-us/windows7/products/features/windows-xp-mode>
- **Microsoft: TechNet: Microsoft Virtual Desktop Infrastructure**  
<http://technet.microsoft.com/en-us/edge/microsoft-virtual-desktop-infrastructure-vdi-explained.aspx>
- **Microsoft: Desktop Virtualization**  
<http://www.microsoft.com/virtualization/en/us/products-desktop.aspx>
- **Microsoft: Remote Desktop Services (RDS) Architecture Explained**  
<http://blogs.technet.com/b/yungchou/archive/2010/01/04/remote-desktop-services-rds-architecture-explained.aspx>
- **Microsoft: Windows Server 2008 R2: Remote Desktop Services**  
<http://www.microsoft.com/windowsserver2008/en/us/rds-product-home.aspx>
- **Microsoft: TechNet: Remote Desktop Services Overview**  
<http://technet.microsoft.com/en-us/library/cc725560.aspx>
- **Microsoft: Windows Sysinternals: Desktops**  
<http://technet.microsoft.com/en-us/sysinternals/cc817881.aspx>

**Additional activities (homework or enrichment):**

- Encourage the students to repeat the lab exercise at home using the correct version of Windows 7 to install XP Mode.

**Suggested best practices:**

- Due to limited time, it would be beneficial to have the three files necessary to complete the XP Mode installation available on the student machines.

**Additional notes to the teacher:**

- Virtualization is a great tool for testing purposes as well as demonstration purposes. It does require more hardware to run a virtual machine; however, the cost of dedicated systems for testing purposes far outweighs the cost of a single higher-end machine. Students should be encouraged to obtain their own virtual system for practicing these labs as well as testing issues that they will run into in industry.