

## REVIEW LESSON

MTA Course: 98-366 Networking Fundamentals

Lesson name: Understanding Protocols and Services 3.1\_B

Topic: Understand the OSI model

(One 50-minute class periods)

File name: NetFund\_RL\_3.1\_B

### Lesson Objective

**3.1\_B:** Understand the OSI model. *This objective may include but is not limited to:* OSI model; TCP model; examples of devices, protocols, and applications and which OSI/TCP layer they belong to; TCP and UDP; well-known ports for most-used purposes (not necessarily Internet); packets and frames.

### Preparation Details

#### Prerequisite student experiences and knowledge

This MTA Certification Exam Review lesson is written for students who have learned about networking 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.

#### Instructor preparation activities

- Make copies of Student Activity NetFund\_SA\_3.1\_B

#### Resources, software, and additional files needed for this lesson

- NetFund\_PPT\_3.1\_B
- NetFund\_SA\_3.1\_B
- NetFund\_SA\_3.1\_B\_Key

## **Teaching Guide**

### **Essential Vocabulary**

**frames/packets**—different names for packages of data moving through a network.

**Internet Protocol Security (IPsec)**—a protocol suite for securing Internet Protocol (IP) communications by encrypting and authenticating.

**segments**—bytes assembled into packages for transmission.

**Transmission Control Protocol (TCP)**—the protocol within TCP/IP that governs the breakup of data messages into packets to be sent via IP (Internet Protocol), and the reassembly and verification of the complete messages from packets received by IP.

**TCP/IP model**—a framework for computer network protocols that describes a set of general design guidelines and implementations of specific networking protocols to enable computers to communicate over a network.

**User Datagram Protocol (UDP)**—the connectionless protocol within TCP/IP that corresponds to the transport layer in the ISO/OSI reference model. UDP converts data messages generated by an application into packets to be sent via IP.

## **Lesson Sequence**

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

1. Student prompt (PowerPoint® slide 3):  
Review and discuss the role of the following items in OSI:
  - 1) application
  - 2) presentation
  - 3) session
  - 4) transport
  - 5) network
  - 6) data link
  - 7) physical
2. As time permits remind students of the OSI Networking game from the last session: <http://www.gocertify.com/games/osi-game.shtml>

**Lesson activity (30 minutes)**

1. **Teacher Instruction**  
Use the included PowerPoint presentation to review the TCP model; TCP and UDP; well-known ports for most-used purposes; packets and frames.

**Assessment/lesson reflection (10 Minutes)**

1. Students complete NetFund\_SA\_3.1\_B.
2. Collect student assignment for instructor review.
3. Review student scores and correct misunderstandings.

**Microsoft resources and Web links**

- **Cisco: Intro to Internet**  
*<http://www.cisco.com/en/US/docs/internetworking/technology/handbook/Intro-to-Internet.html#wp1020550>*
- **Microsoft: The OSI Model's Seven Layers**  
*<http://support.microsoft.com/kb/103884>*
- **Microsoft: The ISO Model: Theory and Function of Layered Design**  
*<http://support.microsoft.com/kb/103881/en-us>*
- **Microsoft: TCP/IP model**  
*[http://technet.microsoft.com/en-us/library/cc786900\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/cc786900(WS.10).aspx)*
- **Petri OSI: Concepts**  
*[http://www.petri.co.il/osi\\_concepts.htm](http://www.petri.co.il/osi_concepts.htm)*
- **Webopedia: MTU**  
*[http://en.wikipedia.org/wiki/Maximum\\_transmission\\_unit](http://en.wikipedia.org/wiki/Maximum_transmission_unit)*
- **Webopedia: OSI Layers**  
*[http://www.webopedia.com/quick\\_ref/OSI\\_Layers.asp](http://www.webopedia.com/quick_ref/OSI_Layers.asp)*
- **Wikipedia: OSI**  
*[http://en.wikipedia.org/wiki/OSI\\_model](http://en.wikipedia.org/wiki/OSI_model)*
- **Wikipedia: Protocol**  
*[http://en.wikipedia.org/wiki/Protocol\\_\(computing\)](http://en.wikipedia.org/wiki/Protocol_(computing))*