**Chapter: 18. Software and Hardware Tools**

1. **Understand what network scanners are and how to use each one.**

Network scanners are described as packet sniffers, IDS/IPS software, and port scanners. These devices can help you both troubleshoot and fix your network as well as find and stop hackers in their tracks.

1. **Remember the basic purpose of a packet sniffer.**

The basic purpose of packet sniffers or network analyzers is to collect and analyze each individual packet that is captured on a specific network segment to determine if problems are happening.

1. **Remember the main purpose of IDS/IPS software.**

The IDS detects unwanted attempts to manipulate network systems and/or environment, and the IPS is a computer security device that monitors network and/or system activities for malicious behavior and can react in real time to stop attacks.

1. **What is the purpose of a port scanner?**

A port scanner is just a piece of software designed to search a network for open hosts. Administrators of networks use port scanners to ensure security and bad guys use them to compromise it.

1. **Understand what an OTDR is used for.**

An optical time-domain reflectometer (OTDR)

is an optoelectronic instrument used to test fiber-optic cabling. You can learn the cable’s

estimated length and attenuation (loss in db) and the location of faults.

1. **Understand the difference between cable testers and certifiers.**

Cable testers simply tell you if the cable will function. Cable certifiers run much more sophisticated tests that determine if the cable performs according to specifications called for in the standard.

1. **Understand the value of temperature and humidity monitors.**

These devices can monitor environmental conditions and alert you if either the temperature or the humidity in a server room or area falls below or rises above the prescribed range of safe values.

**Written Lab**

Answer the following questions about software and hardware tools:

1. True/False: An IDS box can find and fix a problem as the attack occurs.

2. True/False: A TDR is used to test fiber connections.

3. True/False: An IDS box will report an attack but not fix it.

4. True/False: An OTDR is used to test fiber connections.

5. True/False: A network analyzer will see every packet on every segment of your network

at the same time.

6. What type of device determines if a cable meets standards specifications?

7. True/False: It is okay to scan the DoD network servers with a port scanner.

8. You need to monitor the temperature of your server room. What device should you use?

9. You want to monitor your UPS systems and make sure they are functioning correctly.

What device should you use?

10. What type of device is used to put an RJ-45 end on a Cat 5e cable?

You can find the answers in Appendix B.

**Review Questions**

You can find the answers in Appendix A.

**1. Which is a tool in the network scanner category?**

A. Packet sniffers

B. IDS/IPS software

C. Port scanners

D. All of the above

**2. What is the purpose of packet sniffers?**

A. Discarding frames

B. Sending transmissions from one port to another port

C. Looking inside every packet on a network segment

D. Stopping malicious behavior on the network

**3. You need to trace cables in multiple pair wiring. What tool will you use?**

A. Toner probe

B. IDS

C. Cable tester

D. Butt set

**4. What tool would you use to both find a break in a fiber-optic connection and test the**

**fiber connectivity on the network?**

A. Multimeter

B. OTDR

C. Butt set

D. Toner probe

**5. You need to create a cable that will connect your host to a wall jack connection.**

Which of the following will you use?

A. IDS/IPS

B. Snips

C. Coax cable strippers

D. Multimeter

**6. Where is the IDS/IPS software typically placed within a network?**

A. Between the internal router and the firewall connected to the ISP

B. Between the printer and the router connected to the ISP

C. Between the computer and the switch configured with VLANs

D. Between the firewall and the router connected to the email server

**7. What is the purpose of a port scanner?**

A. Scan UDP for closed ports

B. Sweep TCP for closed ports

C. Search the network host for open ports

D. None of the above

**8. What is the purpose of wire-map testers?**

A. Check copper cable for crossed pairs only

B. Analyze protocols in software

C. Help find unused protocols and remove them from the network

D. Detect transposed wires, opens, and shorts in twisted-pair cables

**9. Which of the following can check the speed and condition of the signal on a cable, measure the time it takes to send a signal down the wire and back, and find the exact location of a break?**

A. Multimeter

B. TDR

C. Tone generator

D. Event recorder

**10. Which device should be used if you need to determine whether your network meets ISO or TIA standards?**

A. Angry IP

B. Certifiers

C. Nmap

D. Routing table

**11. Which software tool is used to view network traffic at the frame level?**

A. TDR

B. Multimeter

C. Port scanner

D. Packet sniffer

12. Which of the following options is not a function of a TDR?

A. Estimate cable lengths

B. Find splice and connector locations and their associated loss amounts

C. Display unused services

D. Determine cable-impedance characteristics

E. Send a signal down a cable and measure how long it takes to come back

13. Which device would be used to measure voltage?

A. Multimeter

B. OTDR

C. Butt set

D. Toner probe

14. Which device would most likely be used to locate a specific connection in an unlabeled

punch-down block?

A. VOM

B. Certifier

C. TDR

D. Toner probe

15. Which tool would be used to connect wire between two punch-down block blades?

A. Punch-down tool

B. Crimper

C. Snips

D. Strippers

16. Which tool is used to attach an RJ-45 connector to a Cat 5 cable?

A. Punch-down tool

B. Crimper

C. Snips

D. Strippers

17. Which of the following would a technician use a punch-down tool on?

A. RJ-45 connector

B. CSU/DSU

C. 110 block

D. Fiber ST connector

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18. Which device monitors incoming voltage levels and overvoltage thresholds?

A. Repeater

B. Toner probe

C. VOM

D. Surge protector

19. Which of the following tools can test a port on a device?

A. Cable certifier

B. Loopback plug

C. Butt set

D. Toner probe

20. You install new switches in your server room and are now experiencing network

instability and other issues across all servers in the rack. Which device would be

used to alert you of a system overheating?

A. Voltage event recorder

B. Temperature monitor

C. Surge protector

D.