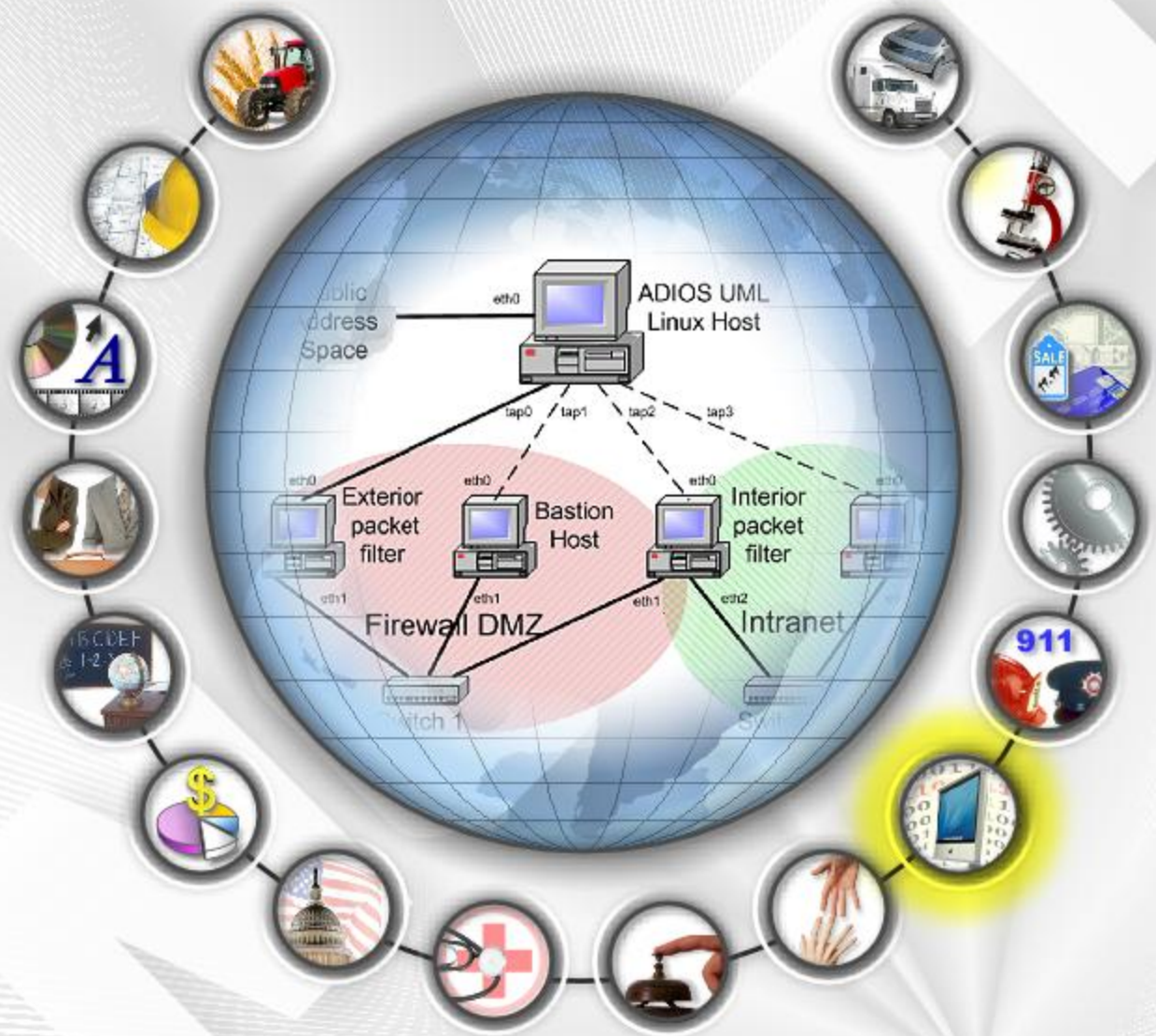




Job Ready Assessment Blueprint

Computer Networking Fundamentals



Test Code: 4414 / Version: 01

“Measuring What Matters”

Specific Competencies and Skills continued:

Network Troubleshooting

- Utilize ping, ipconfig, tracert, and netstat commands
- Utilize a CLI (command line interface)
- Maintain and troubleshoot cabling
- Perform local and remote loopback

Routing and Switching

- Explain the difference between static, dynamic, default, and gateway routes
- Recognize and implement basic router operations and configurations
- Implement basic switch operations and configurations
- Compare and contrast routed vs. routing protocols
- Differentiate between a collision domain and a broadcast domain

Network Terminology

- Demonstrate familiarity with various protocols and architecture terminology
- Identify various network operating systems (e.g., Windows[®], Linux[®])
- Identify various network types

Network Architecture

- Exhibit understanding of various network architectures (e.g., access, core, distribution)
- Exhibit understanding of various LAN, MAN, and WAN topologies

Network Addressing

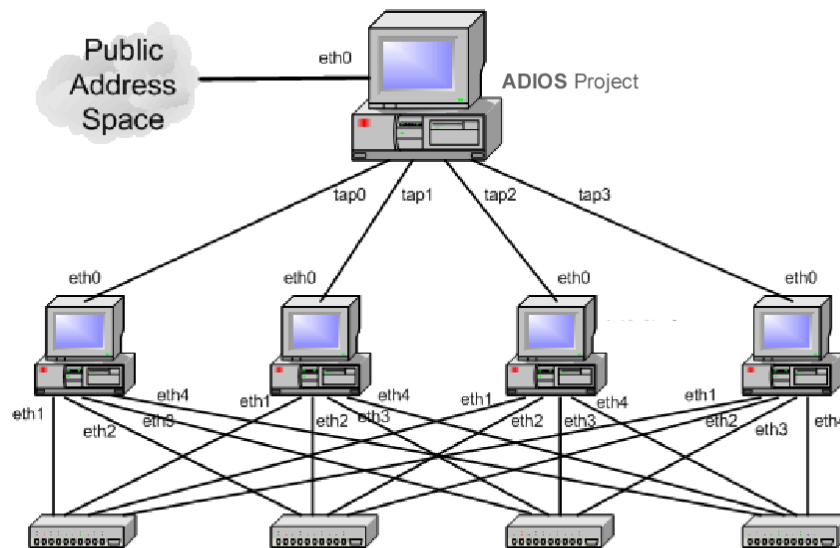
- Exhibit knowledge of IP network addressing (e.g., IPv4 and IPv6)
- Differentiate between classful and classless IP addressing
- Demonstrate understanding of Media Access Control (MAC) addressing
- Convert binary, hexadecimal, and decimal numbering systems
- Create subnets from a network address

Specific Competencies and Skills continued:**Security**

- Identify and troubleshoot basic organizational/acceptable use policies
- Identify and troubleshoot network security attacks and breaches
- Identify and troubleshoot viruses, worms, and other forms of malware
- Install and maintain appropriate firewalls including NAT
- Explain general cryptography concepts

Network Planning and Design

- Exhibit understanding of analysis and planning concepts
- Compare and contrast principles of logical and physical design
- Install, maintain, and troubleshoot physical networks according to design specifications
- Describe various access methods (e.g., ISP, DSL, broadband/cable, satellite, wireless, mobile)
- Explain the principle of virtualization
- Configure DHCP and DNS

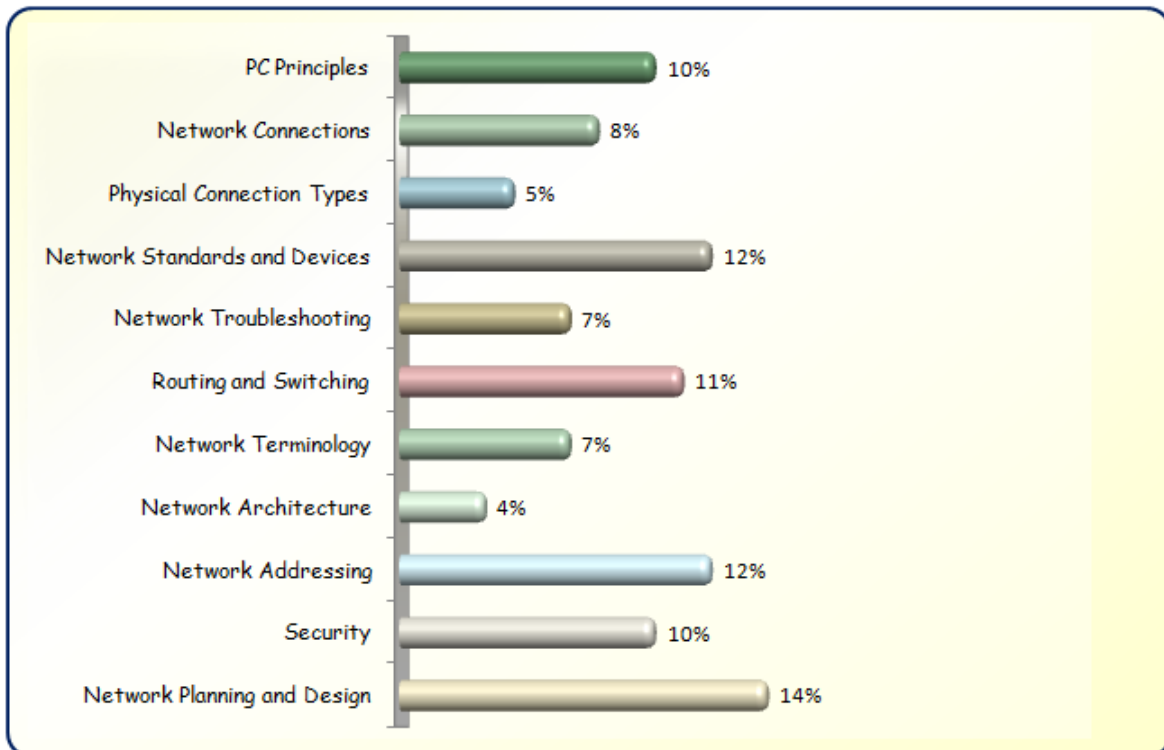


Written Assessment:

Administration Time: 3 hours

Number of Questions: 186

Areas Covered:



Sample Questions:



What component connects the PC to the network?

- A. video card
- B. NIC
- C. CPU
- D. parallel port

A Virtual Private Network (VPN)

- A. uses the public Internet to create a private tunnel to connect two computers
- B. is used to create a Personal Wireless Home Network (PWHN)
- C. uses the data link layer of the TCP/IP networking model to connect calls to a landline telephone
- D. is created when a network technician calls for technical support from customer services

Fiber optic cable allows _____ waves to propagate down its length from end to end.

- A. light
- B. radio
- C. electrical
- D. sonic

IEEE 802.11 standards specify

- A. token ring
- B. wireless networks
- C. FDDI
- D. multicasting

Performing a loopback test on a router can be used to check the

- A. total number of packets sent
- B. total number of packets lost
- C. WAN interface operability
- D. IP address of the LAN interface

Performance Assessment:

Administration Time: 2 hours

Number of Jobs: 2

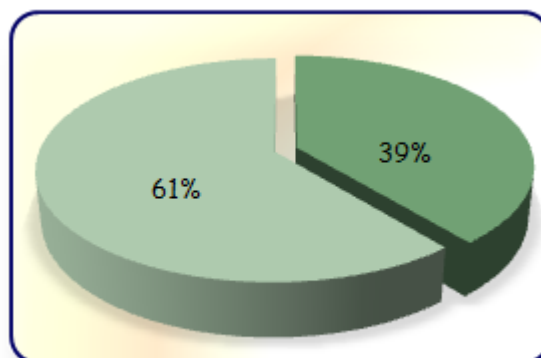
Areas Covered:

39% **Select and Connect Equipment to Set Up a Simple LAN with Two Workstations**

Select the appropriate equipment, create a simple LAN with two workstations, configure IP addresses, record information (first workstation), record information (second workstation), verify IP connectivity using a command line utility, leave IP connectivity results on screen for evaluator review, and time to complete Job 1.

61% **Set Up a Workgroup, Create Users, Create Shares, and Install a Printer**

Name the two workstations; set up a workgroup named NOCTI; create User1 and User2 on both WS1 and WS2; create Private and Public folders/directories at the file structure root of WS1; create a share for the Private folder/directory; on WS1, grant full control permissions on Private folder/directory for User1; create a share for the Public folder/directory; on WS1, grant full control permissions on Public folder/directory for everyone; from WS2, verify User1 access to Private folder/directory on WS1; from WS2, verify User2 access to Public folder/directory on WS1; from WS2, verify User2 is denied access to Private folder/directory on WS1; on WS1, install printer; name printer share WS1_printer; assign only User2 printing rights to printer on WS1; and time to complete Job 2.



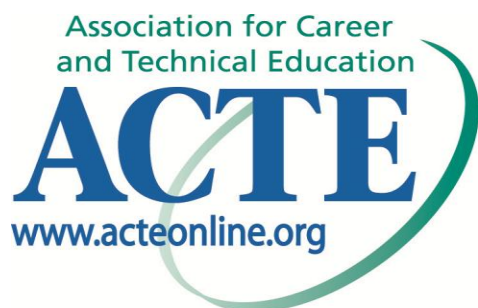
Sample Job: Select and Connect Equipment to Set up a Simple LAN with Two Workstations

Maximum Time: 1 hour

Participant Activity: The participant will select the appropriate equipment and use it to create a simple LAN with two workstations and a switch or hub, assign a private Class C address and subnet mask to the two workstations, record the results for both workstations, verify IP connectivity from each using a command line, verify the network is correctly set up according to specifications, and leave results for the evaluator.



The Association for Career and Technical Education (ACTE), the leading professional



organization for career and technical educators, commends all students who participate in career and technical education programs and choose to validate their educational attainment through rigorous technical assessments. In taking this assessment you demonstrate to your school, your parents and guardians, your future employers and yourself that you understand the concepts and knowledge needed to succeed in the workplace. Good Luck!