

**Overview**

The ability to evaluate the needs of an organization and then design and implement network solutions is a valuable skill in today's connected workplace. This event provides recognition for FBLA members who demonstrate an understanding of and ability to apply these skills.

This is a team event composed of two or three members. This event consists of two parts: an objective test and a performance. The objective test is taken collaboratively by the team members and the top ten (10) teams scoring the highest on the objective test will advance to the final round and participate in the performance component.

**Competencies**

The topics listed below are prioritized, listing the most important content areas of the tests.

*Objective Test Competencies*

- Price, product, place, and promotion
- Channels of distribution
- Legal and social aspects of marketing
- Advertising media
- E-commerce
- International marketing
- Marketing research
- Ethics

*Performance Competencies*

- Analyze the computing environment and needs
- Demonstrate an understanding of the case
- Explain, discuss, describe recommendations
- Communication skills
- Critical thinking/problem solving
- Ability to work as a team

**Procedures/Tips**

- Review the event guidelines in the *CMH* since guidelines may change.
- Review the Competitive Events Tips in the front of the book.

**Web Site Resources**

- [http://www.ptwebmaster.com/networking\\_essentials\\_for\\_small\\_.htm](http://www.ptwebmaster.com/networking_essentials_for_small_.htm)
- <http://searchnetworking.techtarget.com/>
- <http://www.webopedia.com/TERM/N/network.html>
- <http://whatis.techtarget.com/>

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### Network Design Sample Questions

1. Because you need extraordinary computing power, you decide to add 32 processors to your new server. Which of the following Network Operating systems can handle these 32 processors with no additional software?
  - a. Novell Netware 5.1
  - b. Windows 2000 Advanced Server
  - c. Windows NT 4.0 with SP 6A
  - d. Unix Server
2. RAID 1 is also known as
  - a. disk striping with parity.
  - b. disk striping with error checking.
  - c. disk striping.
  - d. disk mirroring.
3. In a Windows 2000 domain, what would you create to logically and administratively group your users and other objects?
  - a. groups
  - b. mnemonics
  - c. folder
  - d. organizational units
4. The process of flooding a network with useless traffic is referred to as a
  - a. DoS.
  - b. trojan horse.
  - c. mass emailing worm.
  - d. virus.
5. What is the default subnet mask for a Class B address?
  - a. 0.0.0.0
  - b. 255.255.0.0
  - c. 255.0.0.0
  - d. 255.255.255.0
6. Which Internet access technology is a point-to-point link that sends digital signals over the standard POTS phone lines installed in most homes, is inexpensive, and is starting to become more readily available in all areas?
  - a. Frame Relay
  - b. T1
  - c. ATM
  - d. DSL
7. Which of the following is a standard interface for Frame Relay?
  - a. X.25
  - b. DSL
  - c. T1
  - d. ISDN
8. Given the IP address of 129.192.1.1, this would indicate what kind of network?
  - a. Class D
  - b. Class B
  - c. Class A
  - d. Class C

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9. What is the correct definition of a RADIUS server?
    - a. It provides authentication about the point-to-point connection for dial-up users and return parameters including IP address, gateway, and DNS server.
    - b. It provides terminal services emulation ability for all remote clients.
    - c. It provides Proxy services to all remotely connected clients.
    - d. It provides a firewall with wireless authentication based on X.500 standards.
  10. You have a network with both Windows NT 4.0 servers and Novell Netware 5.1 servers and Windows NT 4.0 workstation clients. Which protocol is the best choice to allow the clients to access either server?
    - a. File and Print Sharing for Netware (FPNW)
    - b. Novell Client for Windows NT X
    - c. Gateway Services for Netware (GSNW)
    - d. Client Services for Netware (CSNW)
  11. A user calls you complaining that she is unable to access an application that is used for teaching purposes. The data is stored on a Windows 2000 file server, but the application is installed locally. The network uses DHCP. What would the next logical step be?
    - a. check the server logs
    - b. verify that the user is logged on correctly
    - c. established what has changed
    - d. log on to the system using the administration account
  12. After a lunch break, a user cannot log onto the network. The user's workstation is a Windows XP system with a 100BaseT connection. The user was able to successfully log on before lunch. What should you ask the user first?
    - a. Is the Caps Lock key off?
    - b. Is the network cable securely plugged in?
    - c. Are you using the correct username?
    - d. Are you using the correct password?
  13. A user calls to report that he cannot access a particular Windows 2000 file server. After a few questions, you discover that he's never accessed this server before. What should be the next step in troubleshooting this problem?
    - a. determine whether the user should have access to the file
    - b. reboot the sever to reinitialize the permissions
    - c. set the file permission so that the user can access the file
    - d. reset the user's password
  14. What does OTDR troubleshoot?
    - a. network activity
    - b. a fiber optic cable
    - c. a server hard disk
    - d. an Ethernet 100BaseT cable
  15. Which of the following ports is correct?
    - a. TFTP uses port 69
    - b. POP3 uses port 20
    - c. HTTP uses port 105
    - d. SMTP uses port 110
  16. A user is having problems logging on to a server. Each time he tries, he receives the error "Server not found". No other users have reported a problem. Which of the following is the best explanation for the problem?
    - a. The server is down.
    - b. The protocol configuration on the workstation is incorrect.
    - c. The users' Caps Lock key is on.
    - d. The network switch is down.

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17. The FAT32 file system uses what kind of file and directory permissions?
- NTFS
  - None
  - NTFS32
  - LDAP
18. As a network administrator, you have a server with RAID 5 installed. What is one disadvantage regarding this redundancy?
- The drive is relatively slow writing data.
  - The drive is relatively slow reading and writing data.
  - This RAID is the best performing RAID possible.
  - The drive is relatively slow reading data.
19. You receive a phone call from a user to change a password. You're not near a server, but you have access to a computer in your domain. What utility could you use to reset the password remotely?
- remote desktop
  - attrib
  - remote user
  - ChgPwd
20. Which of the following procedures is critical for recovering for a catastrophic disaster?
- create backups and develop offsite plan
  - create an "image" of server so it can be rebuilt
  - have virus definitions up to date
  - have necessary network boot disks available
21. What is the purpose of having a server cluster?
- Servers can be better secured if they're all clustered together.
  - It is easier to manage the servers if they are clustered together.
  - It is easier to control climate if all servers are clustered together in one room.
  - They cluster and provide failover services if another server fails.
22. How does a backup method know if a file has changed since the last backup?
- backup databases
  - archive bits
  - backup indexes
  - backup logs
23. The term "ACL" typically applies to what device?
- fiber optic cable
  - network card
  - hub
  - router
24. When configuring a switch, you realize you need to add a second switch. What kind of cable is commonly needed to connect one switch to another in order to gain additional network ports?
- firewire cable
  - crossover cable
  - parallel cable
  - serial cable
25. When configuring a network switch for the first time, you're likely to use
- a telnet port.
  - a parallel port.
  - a USB port.
  - a console port.

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26. You are configuring a "Red Hat" Linux firewall and do not want to accept connections that are not explicitly defined by you. Which security setting would you use?
- a. high
  - b. no firewall
  - c. medium
  - d. mild
27. In Windows XP, automatic configuration makes it easy to move your mobile computer from your home network to the local area network in your office, without the need to manually reconfigure
- a. DHCP settings
  - b. Alternative settings
  - c. TCP/IP settings
  - d. DNS server settings
28. What is the primary difference between FTP and TFTP?
- a. TFTP transfers only text files.
  - b. TFTP transfers only binary files.
  - c. FTP is a connection-based protocol.
  - d. FTP is used to transfer files.
29. What ports are meant by "well known" ports?
- a. 1-9999
  - b. 1-1024
  - c. 1-10000
  - d. 1024-9999
30. Which of the following protocols is used in thin-client computing?
- a. RAS
  - b. ICA
  - c. PPTP
  - d. PPP

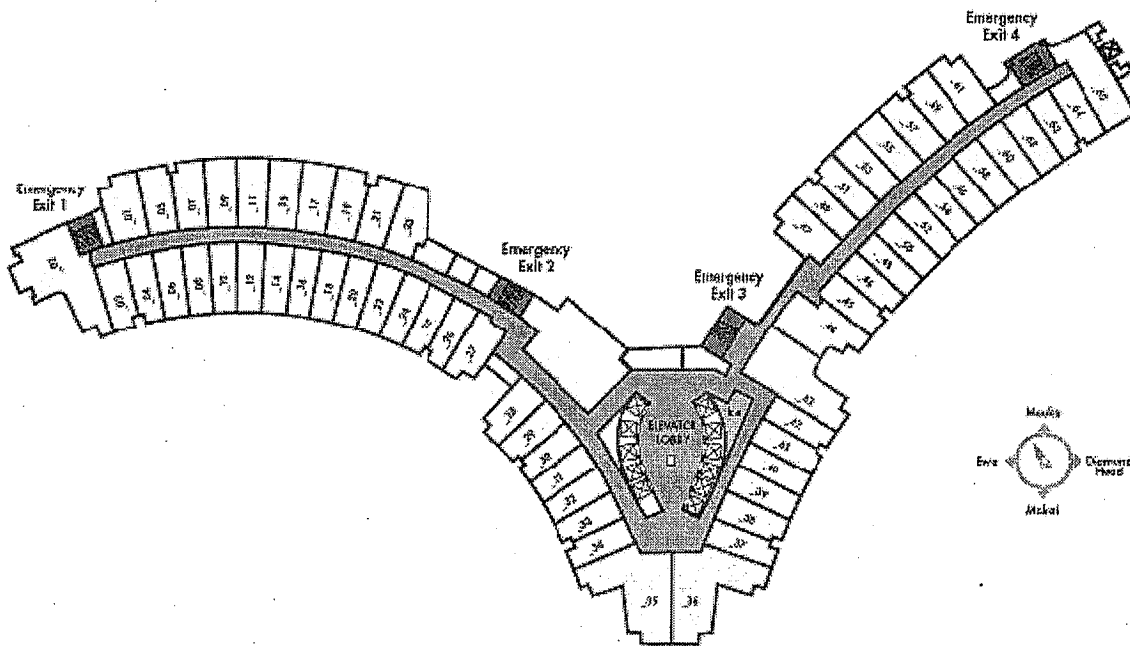
## Network Design Case Study

### Performance Indicators

- Described the situation
- Resolved problem
- Used correct terminology
- Presented an effective strategy
- System appropriate for size of business
- Technology is currently available
- Future needs are considered
- Meets the needs of the company
- Voice quality and diction
- Professional and poised
- Self-confident and assertive
- Demonstrates the ability to effectively answer questions

### Background Information

While attending your FBLA NLC, you have been asked by the Tech-tel Hotel chain in Hawaii to compete to design network services for a new hotel being constructed in Orlando, Florida. As a part of the process, you must submit a proposed design for a single floor of the hotel to compete for the bid. The following figure shows the floor plan for the first floor of guest rooms in the hotel.



Tech-tel is well known for their technical prowess among business travelers. The hotel chain expects that your bid will encompass the most prevalent technologies to provide compatibility for the majority of their guests as well as provide some services never before seen in a hotel chain. The winning project bid will provide for extreme technical convenience for hotel guests as well as provide a reasonable budget for the project. The winning bid may require that you specify these costs into categories of absolute requirements and one or more groups of features specifying cost estimates for adding these optional features to the total design.

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### **Case Study Situation**

You have been asked to provide the following requirements to the hotel architect committee:

- Number and desired location of any wireless access points.
- Required networking hardware.
- Required server(s).
- Any wiring requirements.
- Number, location, and voltage of power outlets for use by a single location of said equipment.
- Required other equipment to provide unique and usual business services to hotel guests.
- Cost estimates for equipment.
- Any space requirements to house any technologies should that be required.

You have been also asked to give a brief summary of the technologies selected and any pertinent configuration information to establish your expertise and win the project bid.

Your design should incorporate the following design elements:

- The use of standard technologies.
- The use of reputable equipment and vendors with good quality and reputation.
- Standard features and optional packages for the design.
- Network security.
- Discussed network connections to the other floors but not necessarily any centralized equipment
  - keep to the equipment for this floor of the hotel.

### **Other Useful Information**

You may need the following information about the hotel and your proposal:

- The average room width in the hotel is 14 feet. The maximum size is in the corner suites with a width of 35 feet.
- The approximate length of a single wing of each floor is 425 feet.
- Hotel builders believe their materials will permit the transmission of radio waves. However, you should include in your estimates some signal loss due to room wall construction materials to be on the safe side.
- Labor for and wiring costs will be covered by the hotel overall budget.

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**Marketing Answer Key**

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|-------|-------|-------|
| 1) D  | 11) B | 21) B |
| 2) B  | 12) D | 22) C |
| 3) C  | 13) A | 23) A |
| 4) C  | 14) D | 24) A |
| 5) C  | 15) A | 25) C |
| 6) C  | 16) D | 26) B |
| 7) D  | 17) C | 27) D |
| 8) D  | 18) A | 28) A |
| 9) D  | 19) D | 29) C |
| 10) C | 20) B | 30) A |

**Network Design Answer Key**

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|-------|-------|-------|
| 1) A  | 11) C | 21) D |
| 2) D  | 12) A | 22) B |
| 3) D  | 13) A | 23) D |
| 4) A  | 14) B | 24) B |
| 5) B  | 15) A | 25) D |
| 6) D  | 16) B | 26) A |
| 7) A  | 17) B | 27) C |
| 8) B  | 18) A | 28) C |
| 9) A  | 19) A | 29) B |
| 10) C | 20) A | 30) B |

**Networking Concepts Answer Key**

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|-------|-------|-------|
| 1) A  | 11) D | 21) B |
| 2) A  | 12) A | 22) D |
| 3) D  | 13) D | 23) A |
| 4) C  | 14) D | 24) C |
| 5) B  | 15) B | 25) B |
| 6) D  | 16) B | 26) C |
| 7) D  | 17) A | 27) C |
| 8) A  | 18) A | 28) C |
| 9) C  | 19) D | 29) C |
| 10) D | 20) C | 30) B |

**Parliamentary Procedure Answer Key**

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|-------|-------|-------|
| 1) A  | 11) D | 21) A |
| 2) B  | 12) B | 22) C |
| 3) D  | 13) D | 23) D |
| 4) C  | 14) B | 24) B |
| 5) B  | 15) A | 25) B |
| 6) D  | 16) B | 26) C |
| 7) A  | 17) A | 27) C |
| 8) D  | 18) C | 28) A |
| 9) C  | 19) D | 29) D |
| 10) B | 20) D | 30) D |

**Personal Finance Answer Key**

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|-------|-------|-------|
| 1) A  | 11) A | 21) C |
| 2) B  | 12) D | 22) B |
| 3) A  | 13) D | 23) C |
| 4) A  | 14) B | 24) A |
| 5) C  | 15) B | 25) D |
| 6) B  | 16) B | 26) C |
| 7) A  | 17) C | 27) B |
| 8) D  | 18) B | 28) A |
| 9) A  | 19) D | 29) A |
| 10) D | 20) B | 30) C |