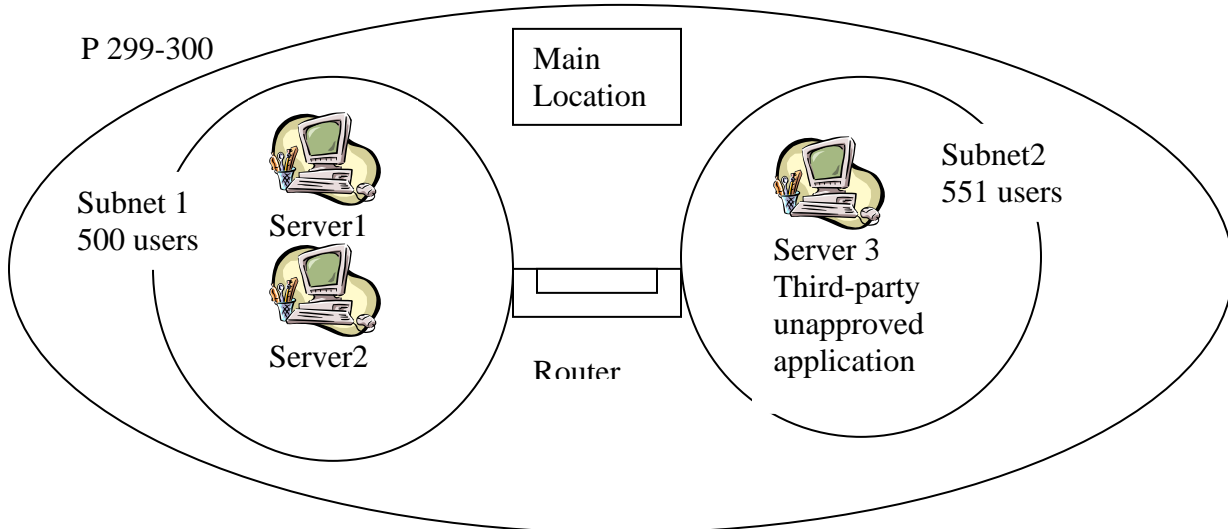


FBLA

NETWORK DESIGN TEST

Windows OS will often be abbreviated to Win. (i.e. Win98, Win2000, WinNT, WinXP, etc.)

P 299-300



1. The following list of services were discussed as possibilities for the main location. Currently, no remote locations are ready to connect to the main network location. Which service is needed for the main location only?
 - a. WINS
 - b. NAT
 - c. Proxy Server
 - d. RADIUS
 - e. RRAS
2. How many servers are needed to provide the users in the main network location with the services selected in the previous question?
 - a. One
 - b. Two
 - c. Three
 - d. Four
3. Based on the network configuration shown above, which of the currently available servers is it best to load the WINS, DNS, and DHCP services?
 - a. Server 1
 - b. Server 2
 - c. Server 3
 - d. No current server will work

P 231-7

Case

2BadProgrammers currently has 10 offices and headquarters in Chicago, IL. Its branch offices are located in the following cities:

Los Angeles, CA	New York, NY	Houston, TX
Miami, FL	Indianapolis, IN	Boston, MA
Salt Lake City, UT	Nashville, TN	Redmond, WA
Aspen, CO		

The branch offices are not currently connected to headquarters in a WAN.

2BadProgrammers wants to improve communications among branches. All “paperwork” must be approved through headquarters, but faxes and mail are too slow and expensive.

2BadProgrammers is also starting a research and development (R&D) department that is considered a highly secure area where only specific employees are allowed. The R&D department will have its own building that will be on the other side of Chicago from the headquarters.

Currently 2BadProgrammers has an Internet presence as 2BadProgrammers.com. The company currently hosts its own Web servers in the IT department at headquarters. Eventually 2BadProgrammers wants to connect all offices through the Internet. Sales people at all offices need access to the network not only from home, but also from various remote locations. Some sales personnel have Internet access at home, and some do not.

4. Your Win2000 network uses Active Directory. The R&D office needs to authenticate users to their accounts in Active Directory. What protocol can be used to implement a retina scanner at the R&D office, but be authenticated at headquarters?
 - a. IP
 - b. IPX
 - c. PPP
 - d. EAP
5. What is the economical way to connect 10 offices located through the U.S.?
 - a. Connect the sites directly using multiple links for redundancy.
 - b. Connect all offices through the internet using VPNs.
 - c. Each site will use a direct-dial connection to the nearest site and create a “linear” links between all of the sites.
 - d. Use a dial-on-demand connection from each site to headquarters.
6. The IT manager wants to set up the VPN on the RRAS server at headquarters on clustered server for redundancy. The IT manager also wants this implemented for sharing the VPN traffic to improve performance. This implementation will work for redundancy and performance.
 - a. True
 - b. False

7. The IT manager wants to increase performance for the remote clients. She wants to implement DHCP on the RRAS server to reduce network traffic on the dial-in clients. This implementation will improve performance.
 - a. True
 - b. False
8. For best performance and security, which of the following offices should not have a RRAS server for remote users to connect to?
 - a. Headquarters in Chicago, IL
 - b. Aspen, CO
 - c. Salt Lake, UT
 - d. Redmond, WA
 - e. R&D in Chicago, IL

P 190 – 3

2BadProgrammers currently has 10 offices with headquarters in Chicago, IL. The branch offices are located throughout the U.S. The branch offices are not currently connected in a network.

2BadProgrammers wants to purchase a Web-based application for the branch managers to place orders and to see upcoming price specials. There is no current WAN connectivity at this time. 2BadProgrammers want to connect all branches through the Internet while still remaining isolated for security. All branches will have access to not only resources on the Internet, but also to the Web-based application that is located at the headquarters in Chicago. Access to the Web-based application must be available 24 hours a day, 7 days a week.

9. If eight branch offices had multiple connections to the Internet, with each being a different network media and speed, which routing protocol would be the best choice?
 - a. IPX/SPX
 - b. RIP for IPX
 - c. IGMP
 - d. OSPF
10. Which of the following is a routing protocol that could be used for this situation?
 - a. NetBEUI
 - b. RIP for IP
 - c. TCP/IP
 - d. RIP for IPX
 - e. IPX/SPX
11. If demand dial connections were used to connect all branch offices and only static routes were used instead of routing protocols, this design would improve performance.
 - a. True
 - b. False

P193

12. If a 2BadProgrammers branch had four connections to the Internet and OSPF were being used, which would be the chosen route?
- a. 28.8Kbps link
 - b. 56Kbps link
 - c. 2-56Kbps multilink
 - d. 2-28.8Kbps multilink

P167-72

Case

Y2K Co. is located in San Remo and has 400 users. It would like to expand its presence in the Internet but knows that this presents a security risk to its network. The company is looking for ways to secure and improve its Internet connections.

Currently each user has his or her own connection to the Internet through a 56Kbps modem. Each user has a static IP address. The company is having difficulty controlling Internet connections and is wondering if this can be controlled.

Y2K Co. decides to simplify and centralize the connection to the Internet. Proxy Server has been suggested as a way to centralize the connect to the Internet and also provide control over the user's connections.

The company would like to create a Web site for the company and host it from its own network.

Since the network has been upgraded to Win2000 the company would like to take advantage of the new security features for Internet connection. The company would like to know which of these services is best for their network situation.

13. A private Web site in support of the project has been established in the company's main office. It is critical that the site be available at all times for external Internet access. What services are needed at the main office to ensure this happens?
- a. Set up a proxy server array.
 - b. Implement NLB with additional Web servers.
 - c. Use active caching.
 - d. Integrate Proxy Server with Active Directory.
14. Packet filtering is enabled for the Web proxy service. As an added security precaution, the network administrator would also like to set up packet filtering for the WinSock proxy service. What needs to be done to enable this service?
- a. Enable packer filtering in Internet Services Manager.
 - b. Packet filtering is not available for WinSock proxy service.
 - c. The WinSock proxy service uses domain filters instead.
 - d. Do nothing. Packet filtering needs to be enabled on only one service.
15. What changes need to be made to the network to add a proxy server?
- a. Load a Web proxy client on the user's computers.
 - b. Add routers to the network.
 - c. Assign a private range of IP addresses to the internal network.
 - d. Do nothing. The network is ready in its current state.

16. How much hard disk space will be needed on the Proxy Server to adequately provide the clients with caching services?
- 100MB
 - 250MB
 - 350MB
 - 500MB
17. The company has just won a large contract for a project. Information regarding the project is available on a private Web site that can be accessed from the Internet. The site contains a W3eb application that users from the company need to use over the Internet. How can this be set up?
- Set up a Socks proxy client software on each client.
 - Run the WinSock proxy client script on each client.
 - Configure each client as a Web proxy client
 - Do nothing. No configuration is needed.
18. Y2K Co. has decided to set up a Web site and host it at the main location. What service needs to be set up to allow this?
- Packet filtering
 - Domain filtering
 - Reverse proxying
 - Network load balancing
19. Internet performance is still too slow and is causing delays in work performance. Most of the users are connecting to the project site and downloading secure pages. How can performance be improved?
- Add another proxy server with a separate Internet connection.
 - Chain a downstream proxy server to the array.
 - Use CARP as the caching protocol.
 - Change passive caching to active.

P141-6

Case

2Bad Programmers currently has 10 servers that are set up for their various data storage and network services, such as SQL, Exchange SMS and various application and file servers. There are

50 Win95 stations

50 Win98 stations

20 WinNT stations

75 Win2000 Pro workstations

10 Network printers

The network is not subnetted at all. The network is using a Class A address.

2Bad Programmers proposes no network changes other than a Win200 server with two interface cards, one connected to the LAN and one connected to the Internet. There are 25 IP addresses that must be reserved on the private network for servers, network printers, and some future additions of servers and network printers.

There is no WAN connectivity at this time nor is there any proposed.

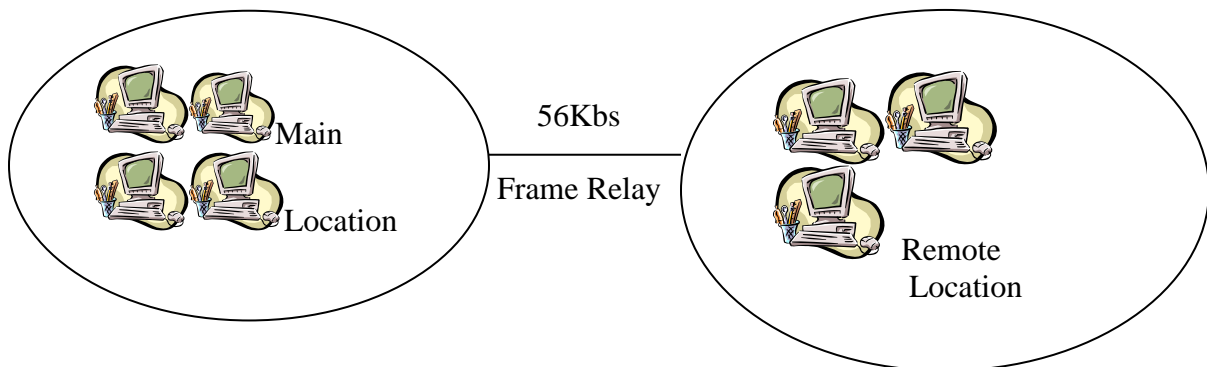
2Bad Programmers has leased the following IP address from the InterNIC: 38.187.128.40. The company's domain name is 2BadProgrammers.com. 2BP will not host its own Web site. Any Internet connections from 2BP will be used strictly for Internet access by the employees.

No new IP addresses will be leased from the InterNIC. All employees need access to the Internet. No company policy is currently in place to specify which browser type is preferred. No individual security settings are required. Sales personnel must be able to access customer Web sites and to send email to customers and perspective clients. Internet access performance is not an issue, although security is a major concern. The private network must remain secure at all times.

20. What would be the main reason to implement NAT?
- To confuse the administrator
 - To hide public addresses from the private network
 - To improve Internet performance
 - To hide private addresses from the public network
21. In the scenario, which services must be installed on the Windows 2K Server that will provide NAT?
- Routing and Remote Access
 - DHCP
 - FTP
 - DNS
 - WINS
22. In this case study, can the IP address for the private interface be assigned by a DHCP server?
- Yes
 - No
23. In the case study, if the NAT server were connecting to a branch office instead of the Internet, which of the following protocols could be used?
- IPX/SPX
 - NetBEUI
 - TCP/IP
 - AppleTalk
24. In the proposed network, NAT can forward DNS requests to which of the following?
- DNS server on the public network
 - WINS server on the public network
 - Your boss's Windows 98 laptop
 - WINS server on the public network
25. To implement security features on the Windows 2000 NAT server in the case study, what option can be used?
- IP addresses
 - Filters
 - Subnet mask

- d. A lock with no key
26. In this case study, the design will improve public network performance?
- a. True
- b. False

P 254-9



27. The server at the main location have upgraded to Win2000 and also upgraded to domain controllers using Active Directory. One Active Directory domain has been created. Based on the above figure where is the best place to locate the RADIUS server?
- a. Remote Location
- b. Main Location
- c. Off Site
- d. Contracted to a third party ISP
28. Which service will need to be loaded on the RADIUS server?
- a. NAS
- b. CHAP
- c. IAS
- d. POP
29. Remote users from home will be using Win98 and WinNT 4.0 Workstation. What authentication encryption protocols are needed for users to securely authenticate with the RADIUS server?
- a. CHAP
- b. MSCHAP
- c. MSCHAP version 2
- d. EAP
- e. SPAP
30. How many realms will this network be using?
- a. 0
- b. 1
- c. 2
- d. 3

31. How can the connection through the Internet from the remote users to the RADIUS clients be secured?
- Authentication encryption
 - A screened subnet
 - A firewall
 - A VPN
32. Now that a connection exists, what is the best way to increase security to that only specified users can access the network and only during work hours?
- A remote-access policy
 - Turn off the service during off peak hours
 - A screened subnet
 - User profiles
33. The ISP needs help deploying the RADIUS service. It has servers that use WinNT4, Win2000, and Novell Netware 5.x. Which servers can be used as a RADIUS client?
- None
 - WinNT4
 - Win2000
 - Novel Netware 5.x
 - Any will work
34. The ISP chose to use Win2000 for its RADIUS clients. What service needs to be installed in order to set up the RADIUS clients?
- Remote-access policy service
 - RRAS
 - IAS
 - NAS
35. The RADIUS servers were set up at the main location of the private network. Now the ISP is setting up the RADIUS clients. How should they set up the shared secret? (Choose the best answer)
- Make it a combination of upper-and lowercase letters as well as nubers and special characters
 - Make it at least 16 characters
 - Make it identical to the shared secret on the RADIUS server
 - Make it difficult to guess

76-80

2BadProgrammers currently has two subnets. One subnet is for the IT department. All servers are located on the IT department subnet so that the server can be kept in a locked and restricted room, and for backup and restore purposes. The other subnet is composed of the rest of the 2BadProgrammers network. This subnet has roughly 600 TCP/IP devices (computers, printers, etc.) 2BadProgrammers would like to isolate the sales department on its own subnet.

There is no WAN connectivity at this time however, the traveling sales force should be able to dial in remotely to the sales subnet.

The IT department has its own addressing scheme for its subnet. The current DHCP server is a member server that is also hosting an SQL database.

The IT department needs to keep all servers containing data in the locked server room. If a server does not need to be backed up during the daily backup routine, it can be outside the server room.

The IT department's subnet is isolated from the rest of the network by an older router that does not support BOOTP. New equipment will be purchased to isolate the sales department.

The sales department needs to be accessible to sales reps so that they can enter orders and check on order status when out of town. The department needs to be isolated from the rest of the network to minimize traffic. Any servers it may use for external accessibility will not store any data. The sales department consists of 75 employees, who are currently part of the main subnet.

2BadProgrammers is registered as 2Bad.com. 2BadProgrammers does not currently sell merchandise on its Web site.

36. Implementing the least number of server, how many DHCP servers and relay agents are needed?
- a. 1 DHCP server, 1 relay agent
 - b. 1 DHCP server, 2 relay agents
 - c. 2 DHCP servers, 1 relay agent
 - d. 2 DHCP servers, 2 relay agents
37. In the current configuration with all of the required scopes, what is the least number of DHCP server that can be implemented to support this design?
- a. 1
 - b. 2
 - c. 3
 - d. 4
38. If there were no specifications on server security, which option would not be available for setting up redundancy on the DHCP servers?
- a. Subnet the network.
 - b. Install a second DHCP server.
 - c. Use the 80/20 rule.
 - d. Cluster the DHCP server.
39. 2BadProgrammers currently uses a Unix server as the DNS server. Without replacing the Unix server how can you enable a DHCP server to work with the DNS server?
- a. Enable dynamic DNS updates for systems that do not support dynamic updates.
 - b. Unplug the Unix server.
 - c. Make the Unix server a secondary DNS server to the Win2000 DNS primary server.
 - d. Do nothing.
 - e. Do a and c.

40. If all computers in the 2BadProgrammers network are running Win2000, and the laptops (not being upgraded) for the sales department are running Win98, what can be done to enable different configurations for local and remote users?
- a. Employ user options.
 - b. Employ Multicast scope.
 - c. Disable DHCP.
 - d. Employ vendor options.
 - e. Do a and d.
41. If, to improve performance, the DHC server were moved to the non-IT and non-Sales subnets and a DHCP Relay Agent were placed on the It Subnet, Would this new design be functional?
- a. Yes
 - b. No
42. In the current configuration, how does DHCP Relay Agent contact the DHCP server for a lease?
- a. Through broadcasts.
 - b. By querying the DHCP server using its IP address.
 - c. By submitting a specialized packet to the router.
 - d. By getting an address from its own assigned scope.
43. The president of 2BadProgrammers wants to have a monthly or quarterly update sent over the network to all employees at once by video. What options would be used?
- a. User options.
 - b. Multicast scopes.
 - c. Gateways.
 - d. Vendor options.

P 34-8

44. What purpose does the protocol NetBT serve on a network?
- a. To allow TCP/IP to Use NetBIOS.
 - b. To allow TCP/IP to use Sockets.
 - c. To allw TCP/IP to access the Internet.
 - d. To Tunnel through the Internet.
45. Which server is not required on a Win2000 network when using Active Directory?
- a. WINS
 - b. DNS
 - c. Sockets
 - d. TCP/IP
46. Which protocol(s) can be used to create a VPN on a Win2000 network?
- a. L2TP
 - b. DES
 - c. PPTP
 - d. A and B
 - e. A and C

47. Which service can now communicate with and update DNS?
- a. VPN
 - b. NAT
 - c. RRAS
 - d. DHCP
48. The networking changes in Win2000 most affect which layer of the OSI model?
- a. Application
 - b. Presentation
 - c. Session
 - d. Transport
 - e. Network
49. Which VPN protocol uses a proprietary encryption protocol?
- a. IPSec
 - b. PPTP
 - c. L2TP
 - d. DES
50. For which of the following would NAT not be used on a network?
- a. To provide IP addressing services to client computers.
 - b. To provide remote access to client computers accessing the network.
 - c. To provide name-resolution services to client computers.
 - d. To protect client computers trying to access the Internet.
51. Which routing protocol is not supported by Win2000?
- a. IP
 - b. EGP
 - c. OSPF
 - d. RIP
 - e. IPX
52. The hierarchical name space used on the Internet is called what?
- a. DNS
 - b. Dotted decimal notation
 - c. WINS
 - d. NAT
 - e. INS
53. Which service uses more than one network interface to protect an internal network from an external one?
- a. NAT
 - b. DNS
 - c. WINS
 - d. Proxy Server

Electro-Goodies is a manufacturer of hi-tech equipment, based in Carson City, NV. It has a manufacturing plant in Indianapolis, IN, and a distribution facility in Frankfurt, KY. The corporate offices in Carson City have 150 hosts. The manufacturing plant in Indianapolis has 300 hosts, and the distribution center has 250 hosts. The network infrastructure was designed in 1995 and needs upgrades. You have been assigned to design the proposed upgrades, utilizing as much of the existing equipment as possible.

Current WAN

Electro-Goodies is currently using WinNT servers at all locations. The client workstations are currently running Win95 and WinNT workstations.

The hubs and switches at all locations are auto-sensing 10/100. The network cards in client and server machines have been replaced in the past year and are also 10/100. The current hub switches and routers will effectively support 200 hosts per subnet.

Electro-Goodies has doubled in size since its network's installation in 1995. Projected growth over the next five years is 20 percent.

Proposed WAN upgrades

Electro-Goodies management staff would like to upgrade its network to provide fail over redundancy of its WAN links and to provide better security for sensitive data transferred between locations. It also wants your design to take into consideration a realtime job management database that is located in the Carson City office and is accessed through WAN Links.

Most of the hosts are 166 MHz Pentium computers with 16MB of RAM and a 1.6GB hard drive. Management has approved the upgrade of all client machines to PIII class machines with 128 MB of RAM and 12 GB hard drives. All clients and servers will be upgraded to Win2000.

The decisions you make for the upgrades should incorporate the current network state and the expected five-year growth plan with the most economical solutions.

Current WAN Connectivity

The locations have 168 Kbps fractional T-1 connections from Carson City to Indianapolis and from Indianapolis to Frankfurt. The routers have been replaced in the past year and are QoS aware.

Proposed WAN

The Carson City site should have a failover 128 Kbps ISDN connection with the Indianapolis office. The Indianapolis office should have a failover ISDN connection with the Frankfurt office. The connections should be dial-on-demand, since the provider bills Electro-Goodies a monthly carrying fee for the service. If the connection is used, Electro-Goodies will be charged for the connection time. Your solution should take this into account and provide automatic connection and disconnection, should the failover link be used. All clients and server will be upgraded to Win2000.

Electro-Goodies current password policies will be duplicated on the Win2000 servers.

Current Internet Positioning

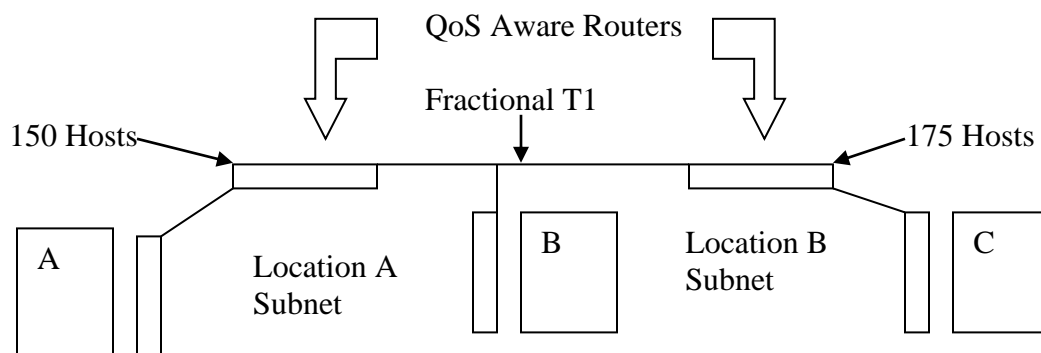
Electro-Goodies currently accesses the Internet from all locations using a single leased IP address at the Indianapolis location. This location has an IP Proxy and firewall to protect the network and provide access.

A Web-hosting firm hosts the company Web site. The firewall server at the Indianapolis site provides all remote employees with a Web-based email client for remote access to email.

Eventually, Electro-Goodies would like to host its own site and provide remote users with Web-based access to the job database.

54. Considering Electro-Goodies needs which subnet mask will provide the proper amount of logical network segments and give the maximum amount of available hosts using a Class C network address?
- a. 255.255.255.0
 - b. 255.255.248.0
 - c. 255.255.0.0
 - d. None of the above.
55. Which of the following options will provide failover redundancy for the WAN connections listed?
- a. The ISDN router/modem will need to be configured to dial out if it sensed that the fractional T-1 became disabled.
 - b. You need to add the IP address of the router for the fractional T-1 and the ISDN connection as default gateways.
 - c. You need to set the cost metric of the fractional T-1 to 1 and the cost metric of the ISDN router/modem to 40.
 - d. A and B.
 - e. B and C.
56. What could you implement to secure communications between the hosts at all locations?
- a. IPSec
 - b. QoS
 - c. DHCP
 - d. SNMP
57. Which predefined security level should you implement on your Win2000 hosts?
- a. Client
 - b. Server
 - c. Secured Server
 - d. 128-bit triple DES
58. What configuration(s) will need to be made to the routers to allow IPSec to be seamlessly routed through the network?

- a. Enable Port 21 to accept SMB packets
 - b. Enable IPsec ESP Protocol ID 50 (0x32)
 - c. IPsec Header Traffic Protocol ID 51 (0x33)
 - d. B and C
 - e. Do nothing – If routers support RIP for IP, then no configuration is necessary.
59. What best describes the type of addressing scheme for the network?
- a. Public
 - b. Secured
 - c. QoS enabled
 - d. Private
60. When would a host at the Carson City location be able to establish a QoS session with a host at the Frankfurt location?
- a. When the router at the Carson City location cached a reservation for bandwidth
 - b. When routers at Carson City and Indianapolis had cached a reservation for bandwidth
 - c. When routers at Carson City, Indianapolis and Frankfurt had cached a reservation for bandwidth
 - d. When the request was returned to the sending host at the Carson City location
61. On which WAN links could the increased TCP/IP window size be employed?
- a. On any T1 connection where the QoS ACS resides
 - b. On the T1 connection where the QoS does not reside
 - c. On any ISDN connection
 - d. None of the above



- I. New Subnet with QoS ACS Server
- II. None
- III. QoS ACS Server

62. Based on the diagram above, place the QoS ACS server in the most logical place.
- a. I in A, II in B, III in C
 - b. II in A, III in B, I in C

- c. III in A, I in B, II in C
 - d. I in A, III in B, II in C
 - e. II in A, I in B, III in C
63. On which server should the IPSec Secure Server be located?
- a. At location A
 - b. At location B
 - c. At location C
 - d. None of the above
64. The attenuation for 10Base5 lines begins at:
- a. 100 meters
 - b. 185 meters
 - c. 500 meters
 - d. 2 Kilometers
 - e. 10Base5 lines are not affected by attenuation
65. Which system will not support Win2000?
- a. PII 233MHz, 10GB HD, 32 MB RAM
 - b. PIII 500MHz, 20GB HD, 128 MB RAM
 - c. Pentium 133MHz, 2GB HD, 16 MB RAM
 - d. 486DX, 1GB HD, 32 MB RAM
66. The Internet began in _____ as a result of research from _____.
- a. 1945, World WarII
 - b. 1958, NASA
 - c. 1964, IBM
 - d. 1969, ARPA
 - e. 1983, CERNA
67. Which of the following is the greatest bottleneck to networking?
- a. V.92 Modem
 - b. NIC
 - c. CPU
 - d. RAM
 - e. Hard Drive
68. PnP is the standard that applies to:
- a. Protocol packets.
 - b. Expansion slots.
 - c. Programs developed before 1993.
 - d. Programs developed after 1993.
 - e. Peripherals connected to a computer.
69. 10BaseFL refers to:
- a. Connectors on the motherboard.
 - b. NICs that transmit an analog signal on copper wire.
 - c. NICs that transmit digital signals on a copper wire.

- d. NICs that transmit an analog signal through Fiber Optic cable.
 - e. NICs that transmit digital signals through Fiber Optic cable.
70. The speed of a standard CD ROM player is:
- a. 150 RPM
 - b. 200 RPM
 - c. 300 RPM
 - d. 400 RPM
 - e. 600 RPM

- | | |
|-------|-------|
| 1. a | 48. c |
| 2. a | 49. b |
| 3. a | 50. b |
| 4. d | 51. b |
| 5. b | 52. a |
| 6. b | 53. a |
| 7. b | 54. b |
| 8. e | 55. e |
| 9. d | 56. a |
| 10. b | 57. c |
| 11. a | 58. d |
| 12. c | 59. d |
| 13. b | 60. c |
| 14. d | 61. d |
| 15. c | 62. a |
| 16. c | 63. d |
| 17. b | 64. c |
| 18. c | 65. d |
| 19. a | 66. d |
| 20. d | 67. a |
| 21. a | 68. e |
| 22. b | 69. e |
| 23. c | 70. a |
| 24. a | |
| 25. b | |
| 26. b | |
| 27. b | |
| 28. c | |
| 29. b | |
| 30. b | |
| 31. d | |
| 32. a | |
| 33. e | |
| 34. b | |
| 35. c | |
| 36. a | |
| 37. a | |
| 38. a | |
| 39. e | |
| 40. e | |
| 41. a | |
| 42. b | |
| 43. b | |
| 44. a | |
| 45. a | |
| 46. e | |
| 47. d | |