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Exam 70-226

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11 case studies are included. They are:

Case Study #1, Northwind Traders

Case Study #2, Coho Vineyard

Case Study #3, Contoso, Ltd

Case Study #4, Trey Research

Case Study #5, Wide World Importers

Case Study #6, A. Datum Corporation

Case Study #7, Tailspin Toys

Case Study #8, Adventure Works

Case Study #9, Graphic Design Institute

Case Study #10, Proseware

Case Study #11, Consolidated Messenger

Affinity information

WLBS port rules for common applications:

HTTP Web servers typically listen on port 80. Affinity should be set to 'None', unless the Web server maintains client state in its memory, in which case set affinity to 'Single' or 'Class C'.

HTTPS HTTP over SSL (encrypted Web traffic) is usually handled on port 443. Affinity should be set to 'Single' or 'Class C' to ensure that the server that has SSL session established always handles client connections.

FTP FTP uses port 21 for control connection from the client and port 20 for return data connection from the server. Create two port rules that cover ports 20-21 and 1024-65,535 with affinity 'Single' or 'Class C' to ensure that both data and control connections are handled by the same server.

TFTP TFTP servers (BOOTP, etc.) use port 69 and can easily be load balanced with WLBS. Affinity should be set to 'None', when creating port rule covering port 69.

SMTP WLBS can be used effectively for scaling high-volume SMTP mailers. In this case you should use port 25 and set affinity to 'None'.

NBT NetBIOS over TCP/IP uses port 139 on the server. Affinity can be set to either 'None' or 'Single', but we recommend 'Single' for maximum compatibility with server applications.

WLBS is Windows NT Load Balancing, which became the NLB (Network Load Balancing) feature. In the questions below you will see references to affinity. Review and understand the affinity examples above.

Case Study 1, Northwind Traders

Background

Northwind Traders has been one of the top three Internet florist Web sites for the past three years. During an average day, the company processes 50,000 orders. However, during the week before Mother's Day (the second Sunday in May), the order volume goes up

dramatically. Last year, the company processed 1 million orders during this week. However, the Web site did not perform well. Northwind Traders estimates that it lost as many as 1 million additional orders.

This year, the company expects traffic on the Web site to be double that of last year.

Northwind Traders wants to make sure that the Web site infrastructure is prepared to handle as many as 4 million orders during the week proceeding this year's Mother's Day.

Performance data gathered during the Mother's Day period last year shows that the following areas were significant bottlenecks:

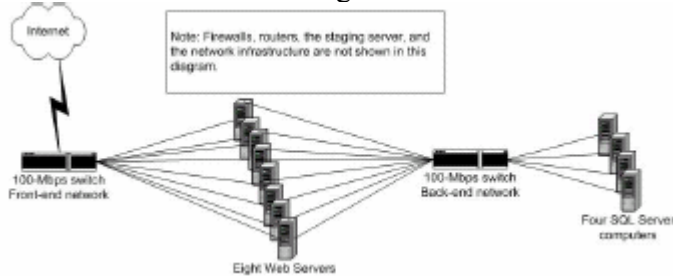
- Access to the product catalog database

- The network connection from the Internet data center to the Internet

- SSL Session initialization

Existing Environment

The company's Web site is currently located in one Internet data center in San Francisco, as shown in the data center diagram.



The Web site has the following characteristics:

Web servers

Eight Web servers each contain four CPUs and 2 GB of RAM. The Web servers are configured in an NLB cluster that has an affinity setting of None.

During peak periods on a typical day, the average CPU use for the Web servers is 40 percent.

During peak periods on a typical day, the average use of the network adapter on the back-end network for each Web server is 25 percent.

Database servers

Four Microsoft SQL Server computers each contain eight CPUs and 4GB of RAM.

During peak periods on a typical day, the average CPU use for the SQL Server computers is 20 percent.

During peak periods on a typical day, the average of the network adapter on the backend network for each SQL Server computer is 50 percent.

Databases

Customer profile and login information is kept in one unpartitioned SQL Server database.

The product catalog is kept in one unpartitioned SQL Server database and is updated nightly.

Shopping cart state is managed in a SQL Server database.

General

All payment-processing traffic is encrypted by using SSL

There is no routing to the Internet from the back-end network.

Business Requirements

The following business requirements must be met for the Mother's Day traffic:

Temporary Internet data centers for the months of April and May

The Web site will be replicated to three new temporary Internet data centers.

Customers will be served by servers nearest their home locations.

The customer base will be divided into four regions of the country: northeast, southeast, Midwest, and west. One Internet data center will be located in each region. The existing San Francisco data center will serve the west region.

In the event of a network outage at one data center, the Web sites will remain available and fully functional at other data center locations for customers in those regions. Customers in the region experiencing an outage can reconnect to a Web site in another region to place an order. However, any shopping activity not completed at the of the outage will be lost.

General

Order response time must be almost the same as on a normal day.

All services of the Web sites must be highly available in the event of network or server hardware failure.

The company's server administrators must be able to fully administer all servers from remote locations.

Security of Web content and user profile information must be maintained at all times.

Technical Requirements

The following technical requirements must be considered

Additional servers

For the months of April and May, Northwind Traders will lease 24 servers to be used as front-end Web servers. These servers each have two CPUs and 512 MB of RAM.

For the months of April and May, Northwind Traders will lease 12 servers to be used as back-end SQL Server computers. These servers each have eight CPUs and 4 GB of RAM.

General

Windows 2000 Advanced Server will be installed on all servers. Microsoft Application Center 2000 will be deployed on all Web Servers.

Necessary network infrastructure services in the new Internet data centers will be provided by the leases Web or database servers.

Only HTTP, HTTPS, and VPN traffic will be allowed through the firewall.

All content staging will occur in the San Francisco data center.

A common method will be used to replicate Web content from staging server to each regional Web site. The replication method must have restart support in the event of a dropped connection.

Questions Case Study 1, Northwind traders

QUESTION NO: 1

You need to design a rollback and recovery strategy for content changes to the Web servers. Which element or elements should you include in your design? (Choose all that apply.)

- A. Create an Application Center Web cluster that includes the two staging servers.
- B. Add a second staging server on one of the new Internet data centers.
- C. Create an Application Center COM+ cluster that includes the two staging servers.
- D. Take one of the staging servers offline until it is verified that the newly deployed content is error free.

- E. Add a second staging server in the west Internet data center
- F. Remove one of the staging servers from the synchronization loop until it is verified that the newly deployed content is error free.

Answer: A, E, F

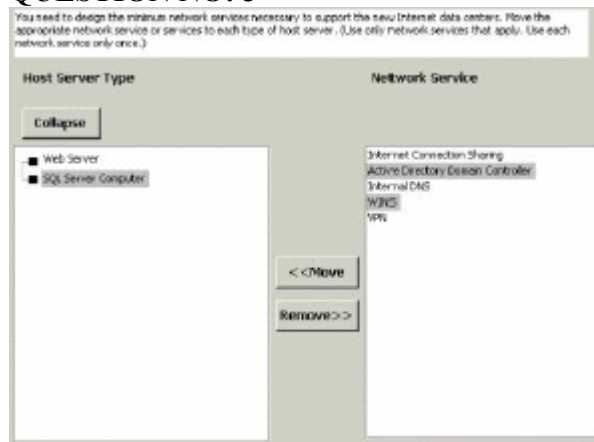
QUESTION NO: 2

You want to optimize the SSL initialization for the Web site. Which two actions should you take? (Each correct answer presents part of the solution. Choose two.)

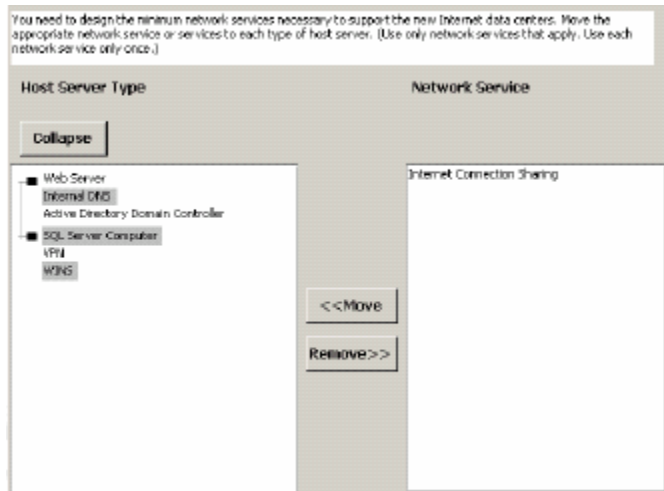
- A. Design NLB clusters to use the affinity setting of None for the Web servers.
- B. Replace SSL encryption with IPSec.
- C. Use HTTP for all Web site traffic
- D. Add SSL hardware accelerator cards to all the Web servers.
- E. Add SSL hardware accelerator cards to all of SQL Server computers.
- F. Add SSL hardware accelerator cards to two Web servers in each NLB cluster. Filter all SSL traffic to those two servers.
- G. Design NLB clusters to use the affinity setting of Single for the Web servers.

Answer: F, G

QUESTION NO: 3



Answer:



QUESTION NO: 4

You need to design a method for the company's server administrators to manage all their servers at the Internet data centers. Which method should you include in your design?

- A. Initiate a direct Telnet connection to each server over the Internet as needed.
- B. Initiate an HTTPS connection over the Internet to each server as needed.
- C. Initiate a VPN connection to a VPN server in each Internet data center over the Internet. Then make a Terminal Services connection to each server as needed.
- D. Initiate an encrypted Terminal Services connection over the Internet to each server as needed.
- E. Include a VPN connection to the Internet data center over the Internet. Then make a Telnet connection to each server as needed.

Answer: C

QUESTION NO: 5

You need to design a scalable architecture for the SQL Server clusters to support the expected increase in volume before Mother's Day. You need to design database integration to support the temporary Web sites at the new Internet data centers. Which three actions should you take? (Each correct action presents part of the solution. Choose three.)

- A. Design a partitioning strategy for the customer profile and login database based on geographic location.
- B. Design a partitioning strategy for the customer profile and login database based on alphabetical order.
- C. Design a partitioning strategy for the product catalog database based on alphabetical order.
- D. Design the Web sites to point back to the existing Web site for all database activity.
- E. Design a replication strategy for the customer profile and login database for all Web sites.
- F. Design a replication strategy for the shopping cart state database within each Web site.
- G. Design a replication strategy for the product catalog database for all Web sites.

Answer: A, E, G

QUESTION NO: 6

You need to design the server infrastructure for the Internet data centers. How should the leased SQL Server computers be deployed? (Choose all that apply.)

- A. Install the leased SQL Server computers in the existing Internet data center. Create four 4-node Cluster service clusters for all databases.
- B. Install the leased SQL Server computers in the existing Internet data center. Combine them with the existing SQL Server computers in a 16-node NLB cluster for all databases.
- C. In each new Internet data center, create a 2-node Cluster service cluster for Customer profile and shopping cart databases.
- D. In each new Internet data center, create a 2-node NLB cluster for the product catalog database.
- E. In each new Internet data center, create a 4-node Cluster service cluster for all databases.
- F. In each new Internet data center, create a 4-node NLB cluster for all databases.

Answer: C, D

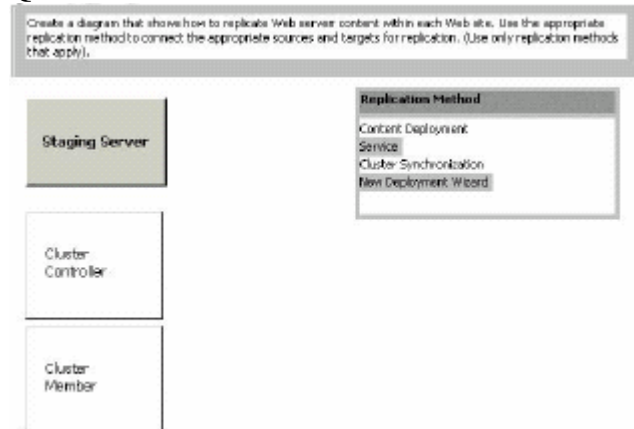
QUESTION NO: 7

You want to reduce the risk of a network bottleneck between the Web servers and the SQL Server computers. Which two actions can you take? (Each correct answer presents a complete solution. Choose two.)

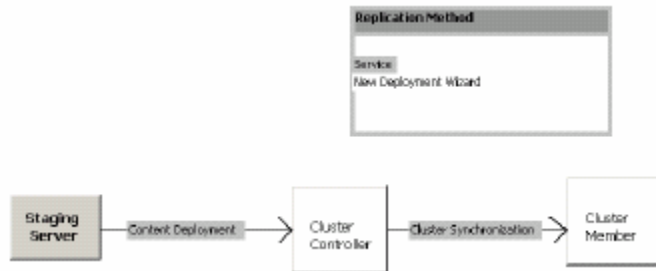
- A. Configure all NLB and Cluster service traffic to occur on a private network.
- B. Place each SQL Server cluster on a separate network segment.
- C. Upgrade the SQL Server computer network adapters and switches to Gigabit Ethernet.
- D. Place each SQL Server node on a separate network segment.
- E. Add an additional 100-Mbps network adapter to each SQL Server computer on the existing network segment.
- F. Configure the SQL Server computers to use a storage area network.

Answer: C, F

QUESTION NO: 8



Answer:

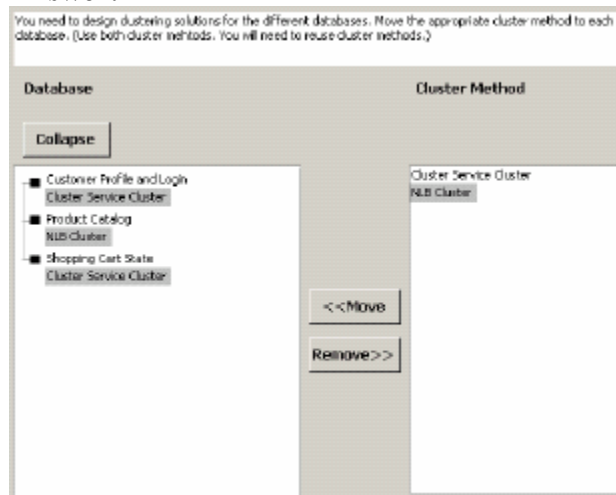


Explanation: The replication method must have restart support in the event of a dropped connection. We therefore use the **Content Deployment**, and not the **New Deployment Wizard**.

QUESTION NO: 9



Answer:



QUESTION NO: 10

You need to design an Internet DNS naming strategy for customers in all the regions to connect to the appropriate Web site. Move the appropriate DNS name to each customer location. (Use only DNS names that apply. You might need to reuse DNS names.)

Customer Location	DNS Name
☒ Northeast ☒ Southeast ☒ Midwest ☒ West	www.northwindtraders.com www.northeast.northwindtraders.com www.southeast.northwindtraders.com www.midwest.northwindtraders.com www.northwest.northwindtraders.com

<<Move
Remove>>

Answer:

You need to design an Internet DNS naming strategy for customers in all the regions to connect to the appropriate Web site. Move the appropriate DNS name to each customer location. (Use only DNS names that apply. You might need to reuse DNS names.)

Customer Location	DNS Name
☒ Northeast ☒ Southeast ☒ Midwest ☒ West	www.northwindtraders.com www.northeast.northwindtraders.com www.southeast.northwindtraders.com www.midwest.northwindtraders.com www.northwest.northwindtraders.com

<<Move
Remove>>

Alert: We wonder if for proper redundancy if ALL four regions should have one for the region AND the main domain name?

QUESTION NO: 11

Use the replication sources, targets, and methods provided to create a diagram that shows how to replicate Web server content to the Internet data centers. (Use only replication sources, targets, and methods that apply.)

Replication Source	Replication Target	Replication Method
Staging Server	Northeast Cluster Controller	Content Deployment Service
West Cluster Controller	Northwest Cluster Controller	Cluster Synchronization
Northwest Cluster Controller	Southeast Cluster Controller	New Deployment Wizard

Answer:

Staging Server -> Content Deployment -> West Cluster Controller
 Staging Server -> Content Deployment -> Midwest Cluster Controller

Staging Server -> Content Deployment -> Southeast Cluster Controller

Staging Server -> Content Deployment -> Northeast Cluster Controller

Explanation: The replication method must have restart support in the event of a dropped connection. We therefore use the **Content Deployment**, and not the **New Deployment Wizard**.

QUESTION NO: 12

You need to design the server infrastructure for the Internet data centers. How should the leased Web servers be deployed?

- A. Install 8 of the leased Web servers in each new Internet data center.
Create one 8-node NLB cluster in each new data center.
Create round-robin DNS entries for each NLB cluster.
- B. Install 8 of the leased Web servers in each new Internet data center.
Create round-robin DNS entries for all 32 Web Servers.
- C. Install all the leased Web servers in the existing Internet data center.
Combine the leased Web servers with the existing Web servers in a 32-node NLB cluster.
- D. Install 8 of the leased Web servers in each new Internet data center.
Create two 4-node NLB cluster in each new data center.
Create round-robin DNS entries for each NLB cluster.

Answer: A

Case Study No: 2

Coho Vineyard

The company has a testing lab that contains eight computers. When these computers were used to stress test the four-member NLB cluster, all connections went to one server.

Business Requirements

Coho Vineyard's strategy is to provide relationship services to four communities of interest. These communities are vineyards, retailers, restaurants, and individual consumers. The following Web features will be included:

- Chat and discussion forums must allow people in the same community to meet and interact.

- Efficient navigation must allow users to find items and accomplish tasks quickly.

- Profiles that can be customized will allow users to focus on what interests them.

- Security of transactions that include purchasing external products and services must be provided.

- Safeguards will protect the privacy of individuals. Users must be able to control which information can be passed to others.

- The initial membership within the four communities must support 20,000 members and 5,000 concurrent users.

- All servers must be highly available.

- The Web site cluster can be managed from a single console.

When a purchase request is made Coho Vineyard will route the request to the appropriate destination for fulfillment. A small fee will be assessed to the seller. All steps of the purchase transactions will be recorded. Users will be able to find and compare wine and vineyard suppliers ranging from grapes and crates to a specific wine in the store closest to them.

Technical Requirements

The following internal systems will be included.

Collaboration: Coho Vineyard plans to use Microsoft Outlook Web Access and Microsoft Exchange 2000 Server as its collaboration infrastructure. Load testing shows that a four-processor server that has 5,000 concurrent users runs at 60 percent utilization.

Accounting: All transaction details will be recorded on the company's mainframe computer at headquarters.

Wine Market: User requests will be queried against production, inventory, and scheduled services. Provisions need to be made to support transaction requests even when all services are not available online.

Partners: A Microsoft BizTalk Server computer will be installed at each trading partner's location.

Microsoft Application Center 2000 will be used to manage the NLB cluster.

All servers will run Windows 2000 Advanced Server.

The following additional design requirements must be met:

Only the firewall will have publicly accessible IP addresses.

It must be possible to ping the front-end adapters of all NLB servers.

Overhead traffic on the production network must be minimized

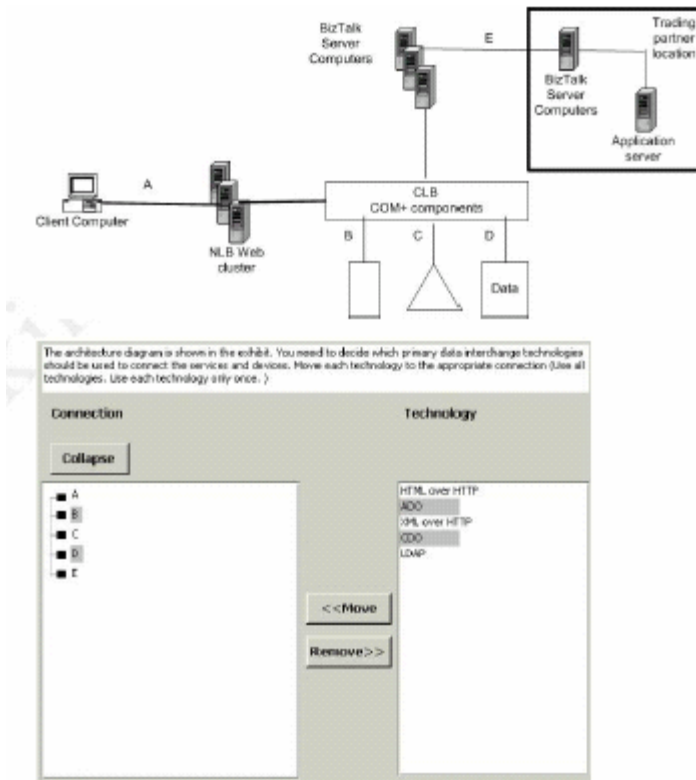
Changes to external firewall configuration of the IPP must be minimized.

The problem with NLB testing must be resolved.

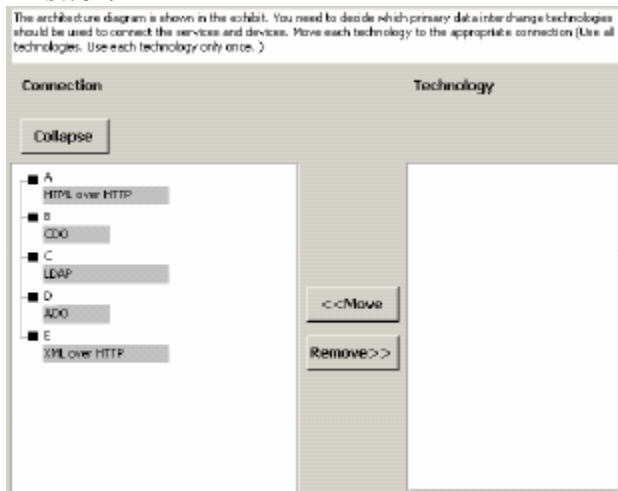
Questions Case Study 2, Coho Vineyard

QUESTION NO: 1

Exhibit:



Answer:



QUESTION NO: 2

What is the most likely cause of the NLB testing problem?

- A. There must be at least 16 devices accessing NLB to properly balance the load.
- B. The affinity setting was set to Class C.
- C. The affinity setting was set to None.
- D. The round-robin DNS server was not configured properly.

Answer: B

QUESTION NO: 3

The front-end network is currently configured as shown in the network diagram. You want to improve performance of the front-end systems. Which action or actions should you take? (Choose all that apply.)

- A. Maintain client state in the NLB cluster.
- B. Redirect the NLB cluster heartbeat to the internal network adapters.
- C. Maintain client state across sessions by using cookies or URLs or both.
- D. Apply a user authentication ISAPI filter to cache the current user token.

Answer: B, D

QUESTION NO: 4

You need to design an infrastructure for Outlook Web Access and Exchange 2000 Server. Which element or elements should you include in your design? (Choose all that apply.)

- A. Install Exchange 2000 Server on a four-node Cluster service cluster.
- B. Install Exchange 2000 Server on a two-node active/active Cluster service cluster.
- C. Create a single partition for all users.
- D. Create two partitions for all users.
- E. Install Exchange 2000 Server on a four-member NLB cluster that will not store user account data.

Answer: B, D

QUESTION NO: 5

Which data should you store in Active Directory? (Choose all that apply.)

- A. accounting transactions
- B. partner X.509 certificates
- C. security groups
- D. event logs
- E. Web SSL keys
- F. wine inventory

Answer: B, C, E

QUESTION NO: 6

You need to ensure user privacy for Coho Vineyard customers. What should you do? (Choose all that apply.)

- A. Configure Microsoft SQL Server Mixed Authentication Mode for client access.
- B. Require IPSec for all traffic between client computers and areas of the Web site that contain user information.
- C. Index all Active Directory attributes.
- D. Encrypt sensitive information stored in the cookies
- E. Restrict access to attributes in Active Directory.

F. Require HTTPS for all traffic between client computers and areas of the Web site that contain user information.

Answer: D, E, F

QUESTION NO: 7

You need to design a remote management and monitoring strategy for Coho Vineyard. Which four elements should you include in your design? (Each correct answer presents part of the solution. Choose four.)

- A. Enable IP forwarding on the Web servers.
- B. Install Application Center on a management server at headquarters.
- C. Install the Application Center Administrative client on a computer at headquarters.
- D. Request the Internet Presence Provider (IPP) to provide an IPSec VPN router connection to the perimeter network (also known as the DMZ) of your Web site.
- E. Add an additional network adapter to all servers on the perimeter network (also known as the DMZ), and create a separate network.
- F. Install Application Center at all trading partner locations.
- G. Request the Internet Presence Provider (IPP) to open ports on the public firewall to support Terminal Services connectivity.
- H. Configure IPSec and network address translation (NAT).
- I. Install Application Center on the Web servers.

Answer: C, G, H, I

QUESTION NO: 8

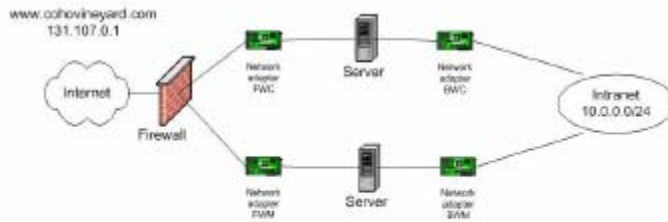
What should you use to improve availability of the Wine Market service?

- A. cookies
- B. SMTP
- C. message queuing
- D. TCP session time-out variables

Answer: C

QUESTION NO: 9

Exhibit:



The network adapters are shown in the NLS cluster diagram. Move the appropriate IP address or addresses to each network adapter. (Use only IP addresses that apply. You might need to reuse IP addresses.)

Network Adapter	IP Address
FWC	10.0.0.100 and 192.168.0.2
BWC	10.0.0.100
PWM	10.0.0.101
BWM	10.0.0.100 and 192.168.0.1
	192.168.0.100 and 192.168.0.101
	131.107.0.1 and 192.168.0.101
	131.107.0.1 and 192.168.0.102
	131.137.0.1
	192.168.0.100
	192.168.0.100 and 192.168.0.102

Answer:

The network adapters are shown in the NLS cluster diagram. Move the appropriate IP address or addresses to each network adapter. (Use only IP addresses that apply. You might need to reuse IP addresses.)

Network Adapter	IP Address
FWC	10.0.0.100 and 192.168.0.2
BWC	10.0.0.100
PWM	10.0.0.101
BWM	10.0.0.100 and 192.168.0.1
	192.168.0.100 and 192.168.0.101
	131.107.0.1 and 192.168.0.101
	131.107.0.1 and 192.168.0.102
	131.137.0.1
	192.168.0.100
	192.168.0.100 and 192.168.0.102

Case Study 3, Contoso, Ltd

Background

Contoso, Ltd., provides commercial and noncommercial real estate buying, selling, and leasing services to a densely populated region. It has more than 100,000 listings and employs approximately 3,000 agents in 120 offices.

The company's Web site provides free and unrestricted access to a complete listing of all real estate properties except properties listed within the previous 24 hours. Those who pay a membership fee gain access to the most current listings. Brokers in the branch offices are responsible for adding new listings, but they often delay adding the new listings.

The company's marketing department recently entered into a contract with another company to add more details to the listing information and to expedite entry of records. A new multimedia service is being introduced. It includes narration and allows users to navigate panoramic views of selected properties.

An advertisement of the new features significantly increased the popularity of the Web site. The number of page views per day increased from 10,000 to 100,000. This activity is anticipated to continue to increase as more listings are enhanced.

Recently, an update to a mortgage calculator program on the Web server created a conflict with the database hosting the user table. The anonymous access to the Web site was unaffected. However, paid member could not access the new listings. The failed service was not discovered for three days, causing embarrassment to the company.

Existing Environment

The company's Internet Web site is hosted at an Internet Presence Provider (IPP) that has redundant 100-Mbps connections to the Internet. The Web site is located on a single network subnet and is contained on a two-node Cluster service cluster. Each server is an active/passive

configuration and has fiber connectivity to RAID 5 storage. Each server is a domain controller

and runs Microsoft Internet Information Server 4.0. Microsoft SQL Server 6.5 is used for the membership database.

The company's headquarters is connected to the Internet by a T1 line. A staging server at headquarters is used to update content to the production Web site. Membership updates are made directly on the Web site's production server. Direct 56-Kbps frame-relay lines connect to all branch offices. The connections have a committed information rate of 32 Kbps.

Tax and title information is hosted on the company's mainframe computer and is updated daily from external sources.

Business Requirements

The company has established an aggressive schedule to enhance the Web site's content and to add features. The following features must be added:

Web site:

Using a method similar to that of a shopping cart, members must be able to accumulate portfolios for properties, and use online tools to explore and analyze the properties.

Popular listings will include multimedia files. After users specify a connection speed, all subsequent content during that session will be delivered at the specified bandwidth.

Information that highlights regional attractions and services must be available to all users.

Tax and title information must be available to members.

Content management

New listings must be processed on the same day they are received.

Content and configuration update procedures must be established, and extensive monitoring must be enforced.

Security

The Web site must include methods for secure payments.

Office employers and the mobile sales force must have secure Internet access to information.

Security, availability, and membership privacy must have the highest priority.

Buyers of homes must have secure access to their loan and purchase documents.

Technical Requirements

The company has established the following technical requirements:

Web sites:

- All server must run Windows 2000

- No single point of failure will be tolerated. However, short delays due to cluster transitions are acceptable.

- Membership records need to maintain a change history. The membership database must be updated in real time. Changes to customer portfolios need to be maintained even if a Web server fails.

- All external confidential communication must be encrypted.

- Employee services must be hosted on intranet Web servers.

- Buyers, tax, and title documents will be stored on the mainframe computer. The connection between the mainframe computer and the Web site must be redundant. All communications must be encrypted. The services supporting the connection must have certificate-based authentication and support immediate changes to the network.

- The headquarters must have redundant connections to the Internet.

- The only publicly available IP address will be the firewall.

- Microsoft Application Center 2000 will be used for health monitoring.

Multimedia

- The multimedia feature will use non-streaming Macromedia Shockwave files. The average size of each file is 2 MB. Currently, only 5 percent of the listings have this feature.

- The design needs to accommodate the fact that 50 percent of the listings will use multimedia feature. Fault tolerance is required.

- Components that support the multimedia and regional attractions features will perform read-only operations on the multimedia files.

Lab testing

- A lab was set up and preliminary testing indicated that more than eight NLB servers running at capacity will saturate a 100-Mbps Ethernet segment. NLB clusters must not contain more than eight servers.

- Load testing of 5,000 users indicated that each connection will use an average of 1 Kbps, not including multimedia downloads.

Questions Case study 3, Contoso Ltd.

QUESTION NO: 1

You want to plan for deployment of the company's frequently used Web pages. Which three elements should you include in your plan? (Each correct answer presents part of the solution. Choose three.)

- A. Set up six Cluster service clusters that have 2 servers in each subnet and a shared SCSI bus.
- B. Set up and test round-robin DNS to forward to each server.
- C. Set up two NLB clusters that have 6 servers in each subnet.
- D. Set up one Cluster service cluster that has 4 servers and shared nothing storage.
- E. Install the servers at the company's network.
- F. Set up and test round-robin DNS to forward to each cluster.
- G. Set up one NLB cluster that has 12 servers.
- H. Install the servers at the Internet Presence Provider's (IPP) network.

Answer: C, F, H

QUESTION NO: 2

What is the minimum configuration necessary to support the storage requirements for the multimedia features?

- A. four 18-GB hard disks in a RAID 0 configuration.
- B. four 18-GB hard disks in a RAID 0 plus 1 configuration.
- C. six 18-GB hard disks in a RAID 0 configuration.
- D. four 18-GB hard disks in a RAID 5 configuration.
- E. seven 18-GB hard disks in a RAID 0 configuration.
- F. seven 18-GB hard disks in a RAID 5 configuration.

Answer: F

QUESTION NO: 3

You need to design a solution to host the membership records. Which element should you include in your design?

- A. Install Active Directory domain controllers.
Install a two-server NLB cluster that has SQL Server on each server.
Relocate the existing SQL Server computer to the company intranet.
Schedule nightly log shipping to each server.
- B. Reconstruct the membership database on an LDAP server.
- C. Install Active Directory domain controllers. Install a two-server Cluster service cluster.
Install a SQL Server in an active/passive configuration to host the membership records.
- D. Install Active Directory domain controllers.
Reconstruct the membership database in the Active Directory domain.

Answer: C

QUESTION NO: 4

You want to design an appropriate end-to-end encryption strategy for Contoso, Ltd. Create a diagram that shows the appropriate encryption type between end points. (Use all end points. Use only encryption types that apply)

Block: Internet Presence Provider (IIP)

Headquarters

Member User

Mobile Worker

Regional Office E-mail Client

Encryption Type:

SSL

IPSec

PPTP

S/MIME

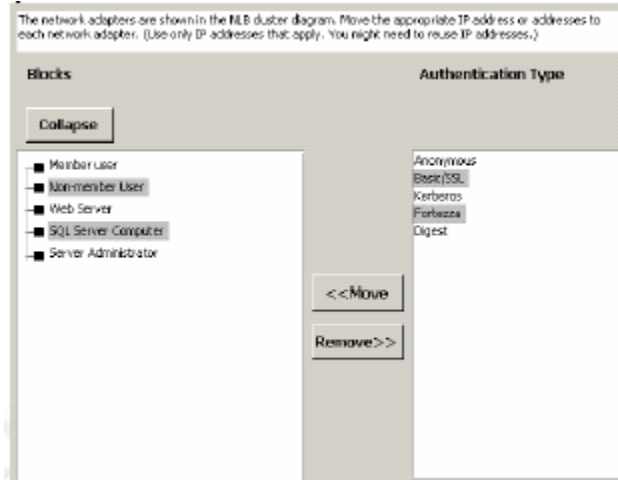
EFS

Answer:

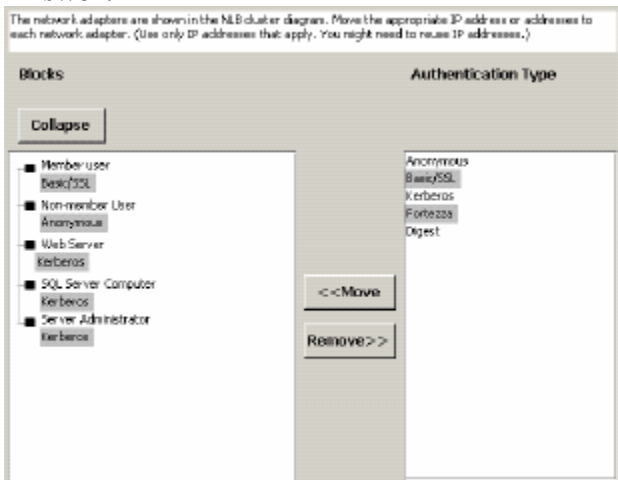
Member User -> SSL -> Internet Presence Provider (IPP)

Mobile Worker -> PPTP -> Internet Presence Provider (IIP)
Internet Presence Provider (IIP) -> IPSec -> Headquarters
Regional Office E-mail Client -> S/MIME -> Headquarters

QUESTION NO: 5



Answer:



QUESTION NO: 6

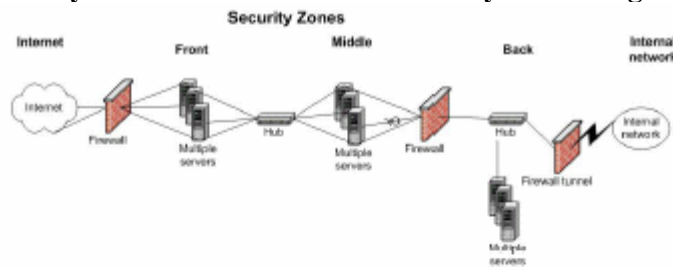
You divide your Web servers into two NLB clusters. You want to use Application Center to add new member servers and deploy content changes from a single staging Web server. How should you design name resolution?

- A. Assign the public IP address to the stager Web site.
- B. Assign the common virtual IP address to the stager Web site.
- C. Assign the All Unassigned property to the IP address of the stager Web site.
- D. Assign the Web cluster controller name to the stager Web site.

Answer: D

QUESTION NO: 7

The security zones are shown in the security zones diagram exhibit.



You need to select the appropriate security zone locations for services. Move the appropriate services to the appropriate security domains. Use all services. Use each service only one).

Zone locations	Services
☐ Internet ☐ Front ☐ Middle ☐ Back ☐ InternalNetwork	Database that stores user session data Mainframe computer Microsoft Management Console Components that perform update operations on confidential records in a database Staging server Multimedia files Round-robin DNS server

Answer:

You need to select the appropriate security zone locations for services. Move the appropriate services to the appropriate security domains. Use all services. Use each service only one).

Zone locations	Services
☒ Internet ☒ Round-robin DNS server ☒ Front ☒ Multimedia files ☒ Middle ☒ Database that stores user session data ☒ Components that perform update operations on confidential records in a database ☒ Back ☒ Microsoft Management Console ☒ InternalNetwork ☒ Mainframe computer ☒ Staging server	

QUESTION NO: 8

You want the Web servers that support multimedia applications to have maximum performance. Which element or elements should you include in your solution? (Choose all that apply.)

- A. Configure components to run local to the Web server.
- B. Configure inbound traffic and intracluster traffic on different network adapters.

- C. Configure anonymous access to COM components.
- D. Configure components to run remote of the Web server.
- E. Adjust greater load weight to the computers that have faster processors.

Answer: B, D

QUESTION NO: 9

You need to design a method to collect the events and performance logs for long-term trend analysis from the NLB member servers. Which element should you include in your design?

- A. Back up the ACLog on the MMC console assigned to monitor the clusters.
- B. Provide a persistent link between the Web servers' managed objects and the CIM repository.
- C. Back up the ACLog on all the cluster members.
- D. Buck up the ACLog only on the cluster controllers.
- E. Configure all the WMI providers to write to a network share that has log shipping enabled.

Answer: C

QUESTION NO: 10

Your Internet Presence Provider (IPP) has peak-bandwidth rate plans. You want to plan for a peak load of 5,000 concurrent users. You estimate a maximum of 100 multimedia views per minute. Which plan should you use?

- A. 0-3 Mbps
- B. 3-5 Mbps
- C. 15-50 Mbps
- D. 50-100 Mbps
- E. 100-300 Mbps

Answer: C

QUESTION NO: 11

You need to support the connection between the headquarters mainframe computer and the Web site. What should you do?

- A. Use EAP-TLS as the Routing and Remote Access authentication method.
- B. Configure Resource Access Control Facility (RACF) on the mainframe computer.
- C. Use CHAP as the routing and Remote Access authentication method.
- D. Use MS-CHAP as the Routing and Remote Access authentication method.

Answer: A

Case Study 4, Trey Research

Background

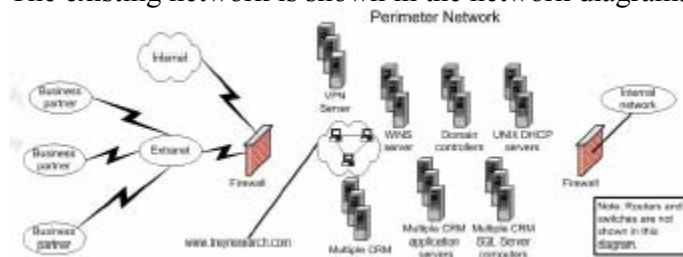
Trey Research is a manufacturer of civilian and military aircraft with more than 100,000 employees in 40 countries. The primary manufacturing plants are in Canada, France, and the

United States. More than 20,000 marketing and sales employees are located throughout the world. Many employees travel frequently to customer locations and trade shows. Trey Research wants to implement a Web-based Customer Relationship Management (CRM) solution to support these marketing and sales activities.

Trey Research has partnerships with five companies to provide sales services in countries where Trey Research does not have a presence. Each of the partners has its own Windows 2000 Active Directory forest in place for its internal company network.

Existing Environment

The existing network is shown in the network diagram.



The largest data center is located in Toronto and includes a perimeter network (also known as a DMZ). On the perimeter network, there are 150 Windows 2000 Server computers and Unix servers that provide a variety of services to remote users. The perimeter network is accessible from Trey Research's internal network, the Internet, and a private communications network, or extranet. Dozens of direct links from trusted sites make up the extranet.

All perimeter network servers are managed by administrators on the internal network. The following services are on the perimeter network:

- Highly available VPN servers

- A dedicated Windows 2000 domain that has a one-way trust to an internal Windows 2000 domain.

- Multiple domain controllers that are also Active Directory integrated DNS servers

- Unix DHCP servers

- WINS servers

- Management servers for event log extraction from all servers on the perimeter network.

Business Requirements

The following business requirements must be addressed by the CRM Web solution.

Connectivity

The CRM Web solution must be accessible from the Internet, extranet, and internal network.

Sales employees must be able to connect to the CRM Web site from any system using a supported browser and without needing to configure software. For example, an employee must be able to connect to the Web site from an airport Internet kiosk.

Growth

The initial CRM Web solution design must provide for three years of growth.

The number of sales and marketing employees, including partners' employees, is expected to remain at the current levels for the next three years.

Security

All communications of sensitive CRM data must be encrypted.

Trey Research has a policy of minimizing business communications over the Internet with business partners.

Trey Research has stringent security policies, including auditing of all user account

creation and maintenance. Only company employees are allowed to have accounts in the internal network domain. Each employee's internal network domain account must allow the employee to authenticate to any Trey Research system.

General

The CRM Web solution must be available 24 hours a day, seven days a week.

The CRM Web solution must use existing perimeter network services where appropriate.

Technical Requirements

The following technical requirements must be considered:

CRM database

The CRM Web solution must store customer data in a single, unpartitioned Microsoft SQL Server database that is updated frequently.

The SQL Server database size is expected to reach 200 GB at the end of the first year, and is expected to grow 50 percent in each subsequent year.

The SQL Server database I/O must not suffer any decrease in throughput in the event of a single failed hard disk.

General

The CRM Web solution will consist of Windows 2000 Web servers, Windows 2000 application servers, and Windows 2000 database servers.

The CRM Web solution must integrate with Windows 2000 for user authentication.

It is estimated that the SQL Server database activity will require a total of eight CPUs and 4 GB of RAM during peak processing periods for the next three years.

Management servers on the internal network will automate extractions of event logs from all CRM servers

Hosts on the perimeter network will use the following networks:

131.107.0.0/16 subnets will be used for external-facing network adapters.

172.16.0.0/16 subnets will be used for internal perimeter network adapters.

10.0.0.0/8 subnets will be used for dedicated heartbeat networks.

The internal network will use multiple subnets.

Questions Case study 4, Trey Research.

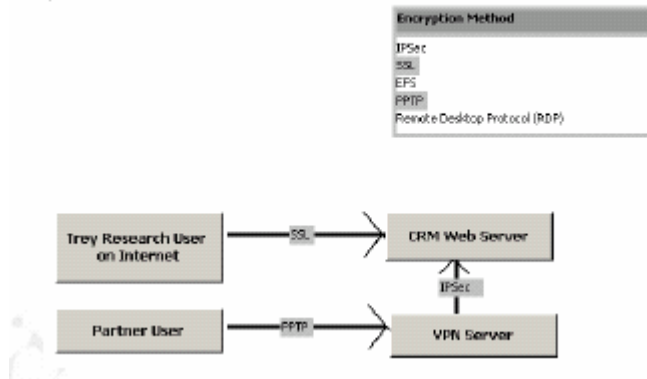
QUESTION NO: 1

You need to design the minimum encryption strategy for Trey Research users and partner users who need to connect to the CRM Web site when they're travelling. Connect the appropriate objects by using the appropriate encryption methods. (Use only objects and Encryption methods that apply. You might need to reuse encryption methods.)

Object	Encryption Method
Trey Research User on Internet	IPSec
Partner User	SSL
VPN Server	EFS
CRM Web Server	FTTP
	Remote Desktop Protocol (RDP)

Answer:

You need to design the minimum encryption strategy for Trey Research users and partner users who need to connect to the CRM web site when they're traveling. Connect the appropriate objects by using the appropriate encryption methods. (Use only objects and encryption methods that apply. You might need to reuse encryption methods.)



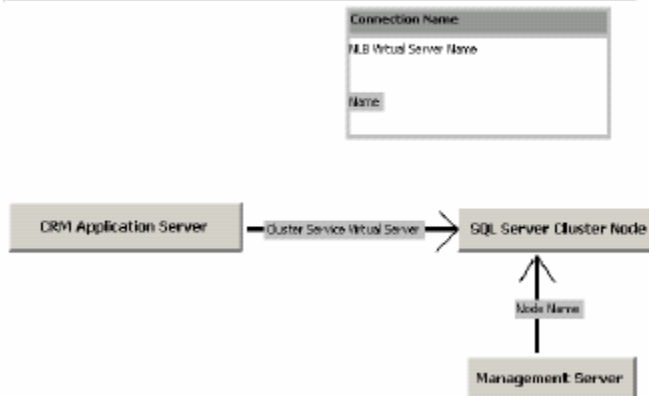
QUESTION NO: 2

You need to design a strategy for connectivity to the SQL Server database cluster. Create a diagram that shows which names to use to initiate a connection to a SQL Server cluster node from a CRM application server and from a management server. (Use only connections that apply).



Answer:

You need to design a strategy for connectivity to the SQL Server database cluster. Create a diagram that shows which names to use to initiate a connection to a SQL Server cluster node from a CRM application server and from a management server. (Use only connections that apply).



QUESTION NO: 3

How should Trey Research sales and marketing employees connect to the CRM WEB site from an Internet kiosk?

A. Establish an HTTP connection and log on by using an individual Trey Research internal network domain account.

- B. Establish and HTTPS connection and log on by using an individual Trey Research internal network domain account.
- C. Establish an HTTPS connection and log on by using an individual Trey Research perimeter network domain account.
- D. Establish an HTTP connection and log on by using an individual Trey Research perimeter network domain account.
- E. Establish a VPN connection and log on by using an individual Trey Research internal network domain account.
- F. Establish a VPN connection and log on by using an individual Trey Research perimeter network domain account.

Answer: C

Explanation: Answer should be B or C because you are using SSL, so you need HTTPS! See statement: All communications of sensitive CRM data must be encrypted. Also, diagram from question 1 says SSL. Since we have a perimeter domain (it says: A dedicated Windows 2000 domain that has a one-way trust to an internal Windows 2000 domain). We would chose "C" and use the perimeter domain account.

QUESTION NO: 4

You need to design the minimum operating system and appropriate cluster method for the CRM SQL Server database servers. Which two elements should you include in your design) Each correct answer presents part of the solution. (Choose two)

- A. Four-node NLB cluster.
- B. Two-node NLB cluster.
- C. Two-node Clusters service cluster.
- D. Four-node Cluster service cluster.
- E. Windows 2000 Advanced Server.
- F. Windows 2000 Server
- G. Windows 2000 Datacenter Server

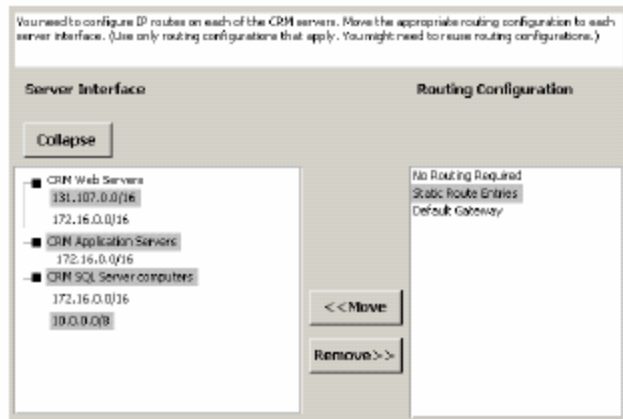
Answer: C, E

Incorrect Answers:

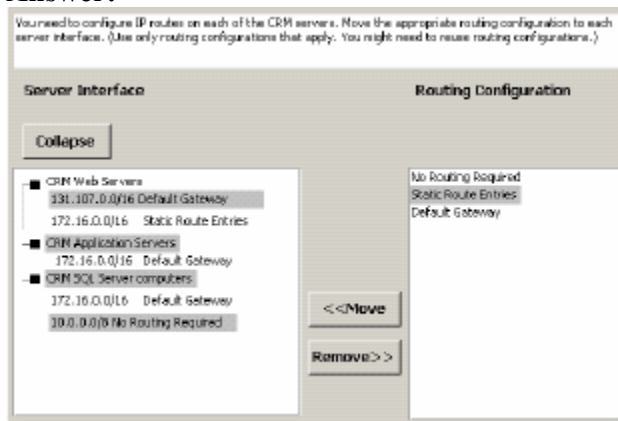
F will not support Service Clusters

G is overkill, unless you need 3 or more nodes in a single service cluster

QUESTION NO: 5



Answer:



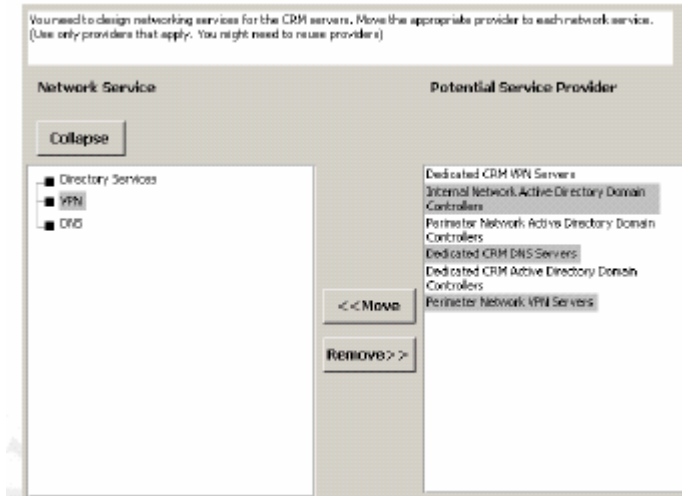
QUESTION NO: 6

You need to design hardware for the CRM SQL Server database servers. What is the appropriate capacity sizing for the CRM Server database servers?

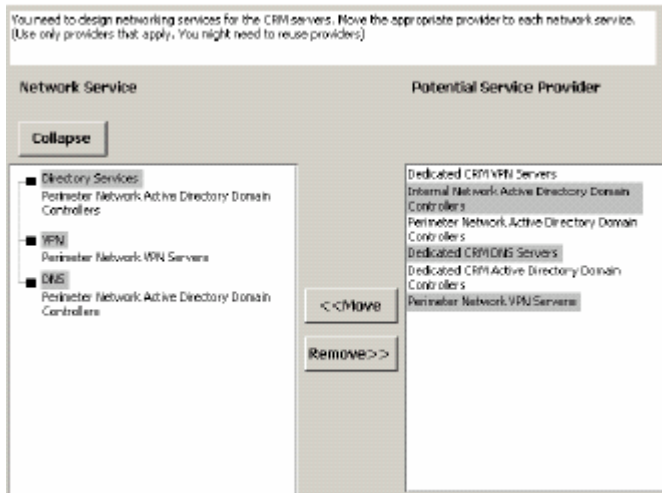
- A. Two servers with four CPUs each and 2 GB of RAM each.
- B. Two servers with four CPUs each and 4 GB of RAM each.
- C. Two servers with eight CPUs each and 2 GB of RAM each.
- D. Two servers with eight CPUs each and 4 GB of RAM each.
- E. Four servers with two CPUs each and 1 GB of RAM each.
- F. Four servers with four CPUs each and 2 GB of RAM each.

Answer: D

QUESTION NO: 7



Answer:



Case Study 5, Wide World Importers

Background

Wide World Importers was established in 1980 and has grown to more than 100 stores in 20 states. The company imports a variety of products from around the world. Some of these products are one-of-a-kind.

The current Web site for Wide World Importers includes a featured-products catalog and a store-finder application. The company has recently hired a consult to redesign the Web site to include the following functionality.

- Online shopping for regularly stocked products.
- Online auctions for one-of-a-kind products sold by Wide World Imports.
- Online auctions for one-of-a-kind products sold by customers of Wide World Imports.

Wide World imports plans to greatly increase the number of regularly stocked products over the next several years. During that time, the company expects the traffic to the Web site to increase rapidly.

Existing Environment

The current Web site for Wide World Imports is hosted by its Internet Presence Provider. (IPP) The infrastructure for the new Web site will be collocated in a large Internet data center that has multiple high-bandwidth connections to the Internet.

Business Requirements

The following business requirements must be met.

- Any customer must be able to register at no charge to buy regular and auction items.
- Auction sellers must pay a membership fee and must be able to update their own information after they authenticate.
- The database for the read-only catalog of regularly stocked products must be able to scale easily to accommodate dramatically increased traffic for temporary periods during peak buying sessions. The database must be updated weekly.
- All servers for the Website must be constantly monitored for availability, performance, and unauthorized access. The monitoring must be automated to take immediate corrective or notification actions.
- All servers must be highly available and load balanced whenever possible
- The entire Web site must be able to scale to accommodate an increase in the number of users without requiring significant code changes.
- If the auction database fails, it must not affect the other Web site activities.
- The company's server administrators must be able to administer the servers remotely.

Technical Requirements

The following technical requirements must be considered.

- Initially, all servers supporting the Web site will have Windows 2000 Advanced Server installed.
- All servers supporting the Web site will be SMP-capable up to a maximum of four CPUs. Each server will have four 800-MHZ CPUs and 2 GB of RAM installed. Each server will contain two 36-GB hard disks. Additional server hardware components can be acquired, if necessary.
- Connection-pooling must be used for connections from Web servers to databases.
- The membership and auction databases will be updated frequently. These changes must be available to Web site customers immediately.

Questions Case Study 1, Wide World Importers

QUESTION NO: 1

You want to maximize network bandwidth for Web site customer's activity. Which element should you include in your design?

- A. Monitor and manage the server clusters as a whole rather than monitoring and managing each individual server.
- B. Add another network adapter to each server. Connect that network adapter to a network segment dedicated to management traffic.
- C. Configure all cluster communications to occur over a network segment separate from customers' traffic.
- D. Configure Terminal Services to end sessions on disconnect for all servers.

Answer: C

QUESTION NO: 2

You need to design a server and a cluster monitoring strategy for the Web-site servers. You want the strategy to require the least amount of administrative effort. Move the appropriate monitoring services and tools to the appropriate server events. (Use only services and tools that apply. You might need to reuse services and tools.)

Server Event:	Monitoring Service or Tool:
☐ Intrusion detection on any front-end Web server. ☒ Disk space full on an individual front-end Web server. ☐ Excessive CPU usage on an individual front-end Web server. ☐ Excessive page file usage on an individual front-end Web server.	System Monitor Health Monitor (Global Monitors) Health Monitor (Local Monitors) Event Viewer

<< Move Remove >>

Answer:

You need to design a server and a cluster monitoring strategy for the Web-site servers. You want the strategy to require the least amount of administrative effort. Move the appropriate monitoring services and tools to the appropriate server events. (Use only services and tools that apply. You might need to reuse services and tools.)

Server Event:	Monitoring Service or Tool:
☒ Intrusion detection on any front-end Web server. Event Viewer ☒ Disk space full on an individual front-end Web server. System Monitor ☐ Excessive CPU usage on an individual front-end Web server. System Monitor ☐ Excessive page file usage on an individual front-end Web server. System Monitor	System Monitor Health Monitor (Global Monitors) Health Monitor (Local Monitors) Event Viewer

<< Move Remove >>

QUESTION NO: 3

The average load for each product catalog database server is shown in the CPU load exhibit.

Exhibit:

Average load for each product catalog database server

CPU 1 95 percent

CPU 2 86 percent

CPU 3 83 percent

CPU 4 87 percent

You need to increase the user capacity for the regular product catalog. What should you do?

- A. Modify processor affinity settings to more evenly distribute the load of the CPUs.
- B. Add another network adapter to each product catalog database cluster server.
- C. Add another CPU to each product catalog database cluster server.

D. Add another server to the product catalog database cluster.

Answer: D

Explanation: The server is running at a high capacity, the only option is to add another server.

QUESTION NO: 4

You need to design a common procedure for server administrators to connect to all Web-site servers for routine server administration. Which connection should you include in your design?

- A. A Terminal Services connection to each server inside the VPN tunnel.
- B. A direct Terminal Services connection to each server.
- C. An SSL connection to each server inside a VPN tunnel
- D. A direct SSL connection to each server.
- E. A direct VPN connection to each server.

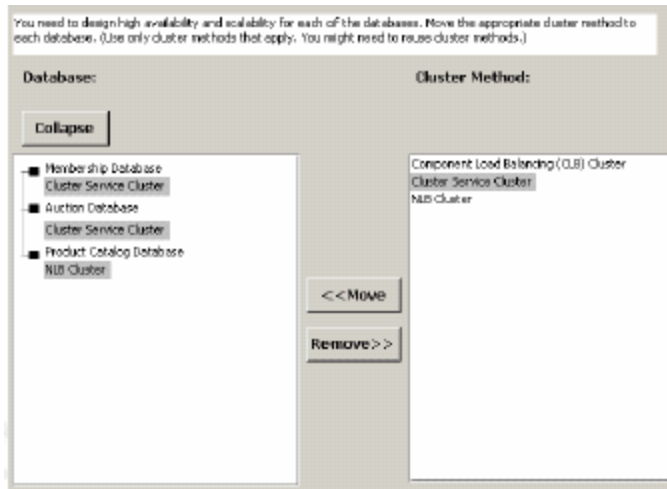
Answer: B

QUESTION NO: 5

You need to design high availability and scalability for each of the databases. Move the appropriate cluster method to each database. (Use only cluster methods that apply. You might need to reuse cluster methods.)

Database:	Cluster Method:
Collapse ☐ Membership Database ☒ Auction Database ☐ Product Catalog Database	- Component Load Balancing (CLB) Cluster ☒ Cluster Service Cluster - MLB Cluster << Move Remove >>

Answer:



QUESTION NO: 6

You need to design the database server infrastructure for the regular product catalog. Which three elements should you include in your design? Each correct answer presents part of the solution. (Choose three)

- A. A staging database server
- B. A cluster service active/passive database cluster.
- C. An NLB database cluster.
- D. A cluster service active/active database cluster.
- E. A database that is partitioned across the database cluster servers.
- F. Replication from the database staging server to the database cluster servers.

Answer: A, C, F

QUESTION NO: 7

You need to design the integration of the Web auction application with the auction database. Which two elements should you include in your design? Each correct answer presents part of the solution. (Choose two)

- A. The servers that contain the auction database must be accessible by name from the Internet.
- B. The servers that contain the auction application must also contain a copy of the auction database.
- C. The auction application must connect the auction database by virtual server name.
- D. The servers that contain the auction application must use the TCP/IP network library.
- E. The auction application must connect in the auction database by physical server name.

Answer: C, D

QUESTION NO: 8

You need to design an upgrade strategy for scaling the capacity of the Web site if the network segment for the product catalog database cluster becomes saturated. Which element or elements should you include in your design (Choose all that apply.)

- A. Split the product catalog database cluster into two clusters on the existing network segment.
- B. Create round-robin DNS entries for each product catalog database cluster.
- C. Use IPSec on the saturated network segment.
- D. Use Token Ring instead of Ethernet for the Web site network.
- E. Split the product catalog database cluster into two clusters on separate network segments.
- F. Add another network adapter to each server connecting the new network adapters to the existing network segment.

Answer: B, E

Case Study 6, A. Datum Corporation

Background

A. Datum Corporation is a large consulting firm specializing in enterprise Windows-based infrastructure and development projects. The company has its headquarters in Seattle, and has five other offices in the United States. There are currently 15,000 consultants. That number is expected to double each year for the next three years. Consultants typically work at the customer's location or home.

The company wants its own Web-based systems to demonstrate the users of the technologies in which it specializes. The following Web-based services will be provided to the company's consultants over the Internet or over the company's internal network.

- Remote e-mail access
- Scheduling
- Time reporting
- Training
- Knowledge management

Existing Environment

A. Datum Corporation's Windows 2000 infrastructure is located in a single data center that has high-bandwidth connections to all office locations and the Internet.

All Web-site servers are initially built with Windows 2000 Advanced Server. The following servers are currently in use or available for use in the data center:

- 10 Web servers available to be used as front-end servers or reverse Web proxy servers
- 6 application servers.
- 4 Microsoft SQL Server computers
- 3 Microsoft Exchange 2000 Server computers that average 80 percent CPU use during peak hours.
- 6 servers that can be used as needed.

Business Requirements

The following general business requirements must be met by the various systems:

- All systems except the training system contain sensitive data that must be protected over unsecure networks.
- When possible, users will be required to sign in only once.
- All systems must be available 24 hours a day, seven days a week.

The following specific business requirements must be met by the e-mail system.

- Remote e-mail users must not need to specify a Microsoft Exchange Server computer when they access e-mail from customers locations.
- Remote e-mail communication must always be secure.

- Full Microsoft Outlook functionality is needed from home and from the office.
- Consultants must be able to access their e-mail from any system by using a browser that supports DHTML.
- The system must be able to maintain accessibility for all users even if Exchange Server hardware fails.

Technical Requirements

The following technical requirements must be considered:

- A. Datum Corporation's customers allow the consultants access to their networks and access to the Internet. However, customers only allow Web proxy servers out of the firewall. Many customers use outbound Web proxy arrays.
- All consultants have DSL or ISDN connections to the Internet from home.
- A reverse Web proxy array must be implemented to improve overall performance. When possible, both external and internal access to the Web site should use the proxy array.
- All servers are on the Windows 2000 Datacenter Server HCL. There are no restrictions on changing the server operating systems to other versions of Windows 2000, if necessary.
- All traffic within the data center is assumed to be secure.

Questions Case Study 6, A. Datum Corporation

QUESTION NO: 1

You need to design authentication methods for remote e-mail users. Which two methods should you include in your design? Each correct answer presents part of the solution. (Choose two)

- A. HTTP with integrated Windows authentication.
- B. HTTPS with integrated Windows authentication.
- C. HTTP with Basic authentication.
- D. HTTPS with Basic authentication.
- E. L2TP over IPSec with integrated Windows authentication.

Answer: D, E

D will be used for OWA (Outlook Web Access) and must be secure (HTTPS)

E will be used for full outlook from home, using a VPN into the data center

QUESTION NO: 2

You need to design name resolution for the URL of the main Web site. Which DNS entry or entries should be used to resolve the URL from remote customers locations? (Choose all that apply)

- A. A single entry on the internal networks DNS servers that resolves to the reverse Web proxy array.
- B. A single entry on the Internet DNS servers that resolves to the reverse Web proxy array.
- C. Individual entries on the internal networks DNS servers for each server in the reverse Web proxy array.
- D. Individual entries on the Internet DNS servers for each server in the reverse Web proxy array.
- E. A single entry on the internal networks DNS servers that resolves to the Web server cluster.

- F. A single entry on the Internet DNS servers that resolves to the Web server cluster.
- G. Individual entries on the internal network DNS servers for each server in the Web server cluster.
- H. Individual entries on the Internet DNS servers for each server in the Web server cluster.

Answer: B, F

B is the external addresses of the Reverse Web Proxy Servers

F is the VPN servers for remote home users

QUESTION NO: 3

You need to design a directory services solution for A. Datum Corporation's Web-based systems. Which element should you include in your design?

- A. Create separate user databases for each system.
- B. Create a single Active Directory forest for access to all systems.
- C. Create separate Active Directory forest for access from the internal network and access from the Internet.
- D. Create a single user database for all systems.

Answer: B

QUESTION NO: 4

Which two types of servers should have DNS entries for name resolution on the Internet? Each correct answer presents part of the solution (Choose two)

- A. SQL Server computers.
- B. Reverse Web proxy server array.
- C. Domain controllers.
- D. Application servers.
- E. Web servers.
- F. VPN servers.

Answer: B, F

B is the external addresses of the Reverse Web Proxy Servers

F is the VPN servers for remote home users

QUESTION NO: 5

You want to design availability and optimum performance for the servers in the reverse Web proxy array. Which element should you include in your design?

- A. An NLB cluster that uses an affinity setting of None.
- B. An active/passive Cluster service cluster.
- C. An NLB cluster that uses an affinity setting of Class C.
- D. An active/active Cluster service cluster.
- E. An NLB cluster that uses an affinity setting of Single.

Answer: C

When using web proxy arrays, there can be multiple addresses, and HTTPS will be used. Affinity C is standard for this configuration

QUESTION NO: 6

You need to design e-mail traffic flow for consultants from customer locations. Create a diagram showing the appropriate connections for access to e-mail from customer offices. (Use only computers and connection types that apply.)

The diagram shows a list of components on the left and a list of connection types on the right. The components are: Consultant's laptop, A. Datum Corporation Exchange Server computer, A. Datum Corporation Web Server, A. Datum Corporation VPN, and A. Datum Corporation Terminal Services Server. The connection types are: HTTPS, HTTP, Remote Desktop Protocol (RDP), L2TP over IPSec, and MAPI.

Answer:

Laptop -> https -> web server -> rpc -> exchange server

This assumes a separate web server since the web proxy is preferred in use. However, even with a web proxy, when the IIS server is also run on the Exchange server, the web server could be eliminated

QUESTION NO: 7

You need to design e-mail traffic flow for consultants who are working from home. Create a diagram showing the appropriate connections for access to e-mail from consultants' offices. (Use only computers and connection types that apply.)

The diagram shows a list of components on the left and a list of connection types on the right. The components are: Consultant's laptop, A. Datum Corporation Exchange Server computer, A. Datum Corporation Web Server, and A. Datum Corporation VPN. The connection types are: HTTPS, HTTP, RPC, and L2TP over IPSec.

Answer:

You need to design the server configuration to support remote e-mail access requirements. Move the appropriate system components to the appropriate server types. (Use only system components that apply. You might need to reuse system components.)

The diagram shows a list of server types on the left and a list of system components on the right. The server types are: Web Servers, Mail Servers, and Exchange Servers. The system components are: NIS, Cluster Service, Windows 2000 Server, Windows 2000 Advanced Server, Windows 2000 Datacenter Server, Internet Information Services (IIS) 5.0, Exchange 2000 Server, and Routing and Remote Access.

Laptop->l2tp over ipsec -> vpn server -> rpc -> exchange server

From home we need full outlook in workgroup mode via a VPN tunnel.

QUESTION NO: 8

Answer:

Web Servers
Operating System
Windows 2000 Advanced Server
Operating System Components
NLB
Applications
IIS 5.0
Mail Servers
Operating System
Windows 2000 Advanced Server
Operating System Components
Cluster Service
Applications

QUESTION NO: 9

You need to design the primary method of e-mail access for consultants from various locations. Move the appropriate e-mail access methods to the appropriate consultant locations. (Use only methods that apply. Use methods only once.)

Consultants Locations	E-mail Access Method
☐ A. Daburn Corporation Offices	☐ Win32 Outlook client software over VPN
☒ Customer Offices	☒ Outlook Express over the Internet
☐ Consultants' Home Offices	☐ Outlook Web Access over the Internet
	☐ Outlook Web Access within a Terminal Services session
	☐ Outlook Web Access over VPN
	☐ Win32 Outlook client software directly over TCP/IP
	☐ Outlook Express over VPN

<< Move >>
Remove >>

Answer:

Corporate Office
Win32 Outlook client Software directly over TCP/IP
Customer Office
OWA over the Internet
Consultant's Home
Win 32 Outlook Client Software over VPN

Case Study 7, TAILSPIN TOYS

Background

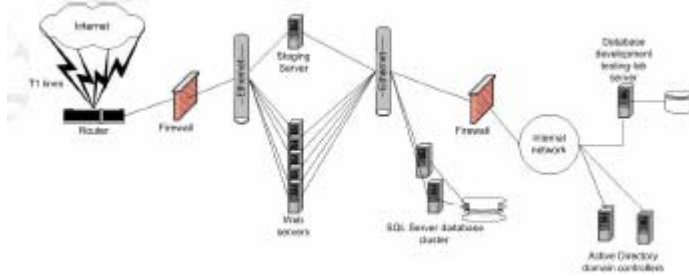
Tailspin Toys specializes in toy airplanes. The majority of the company's sales are of enginepowered remote-control airplanes. The company has been in business for two years and only sells its products online. To attract potential customers, the company maintains several community pages. These community pages allow partners to advertise their activities and host chat rooms.

The busiest times of the year for the company are in May, June, and December. The company's IT management wants to improve performance and made it easier to scale the Web site. Management wants to implement simple hardware or software changes to improve Web site response times.

Existing Environment

The existing systems are shown in the network diagram Exhibit.

Exhibit:



In addition, the existing environment has the following characteristics.

- There are five 1.55 Mbps lines that connect the Website to the Internet through an Internet Service Provider (ISP)
- There is no standard hardware configuration. The BIOS, network adapters, processors, and third-party expansion cards vary from computer to computer.
- The company has established a single Active Directory domain for the internal network and the clustered database servers. The staging server and Web servers on the perimeter network (also known as the DMZ) are stand-alone servers, running Windows Advanced Server.
- The ISP host round-robin DNS entries for each Web server, which allows resolution of the www.tailspintoys.com URL.
- Performance monitoring of the Web servers shows that two Web servers consistently operate above 90 percent CPU usage and that the other two Web servers operate below 20 percent on average.
- The Web site consists of static content and Active Server Pages (ASP)

Business Requirements

The following business requirements must be met:

- All customers must be able to access the same Web site content and applications regardless of the Web server which they connect. Customers traffic should never be directed to a failed server.
- All Web site content and chat room features on the community pages must be accessible by anonymous users with no encryption requirement. However, when a user decides to purchase a product, the Web site must establish a secure connection and authenticate the user.
- In approximately one year, the Web site will be replicated in another Internet data center for disaster recover, redundancy, and load balancing. Any changes to the existing environment must be consistent with this future direction.

Technical Requirements

The following technical requirements must be considered:

- All updates to the Web site, either from Internet or internal network, must first be deployed on the staging server. The data will then be replicated from the staging server to the Web servers on a regular basis.
- The same file permissions used on the staging server must be used on the Web servers.
- The Microsoft SQL Server cluster databases must be replicated to the testing lab every Sunday at 2:00 A.M to support the development environment.
- The security group at Tailspin Toys requires an audit that shows which users made

changes to the Web site, including changes made on the staging server.

- Partners must not have knowledge of the users name used to authenticate them to the staging server.
- The network engineer for Tailspin Toys has allocated a maximum at 50 percent of the potential Internet bandwidth to the Web servers, and an additional 7 percent to the staging server.

Questions Case Study 7, Tailspin Toys

QUESTION NO: 1

You need to design the Web site to allow partners to modify content. How should partners be authenticated?

- A. By providing credentials and Basic authentication over SSL.
- B. By using a client certificate.
- C. By using the local IWAM user account on the staging server.
- D. By providing domain credentials and Windows authentication.
- E. By using IPsec.

Answer: B

QUESTION NO: 2

You need to design a strategy for replication from the Web site database servers to the testing-lab server. You want the testing-lab development environment to be as similar to the production environment as possible. Which statement should include in your design?

- A. Use Windows Explorer once a week to directly copy the database files to the testing-lab server.
- B. Create a Microsoft Application Center 2000 cluster that includes the production and the testing-lab SQL Server computers. Use clusters synchronization to replicate the databases to the testing-lab server.
- C. Perform a database backup one a week on the Web site database servers. Restore the databases to the testing-lab server.
- D. Add the testing-lab server as a passive node to the Web site database server cluster.
- E. Create a Microsoft Application Center 2000 cluster that includes the production SQL Servers computers. Use the deployment wizard to replicate the databases to the testinglab server.

Answer: C

QUESTION NO: 3

You want to equalize CPU usage across the Web servers. What is the most efficient way to accomplish this goal?

- A. Add processors to the two overused servers.
- B. Create and NLB cluster that consists of four servers. Adjust the weighting for each server until the CPU usage is approximately equal.

- C. Remove processors from the two underused servers and add them to the two overused servers.
- D. Limit the number of Internet Information Services (IIS) connections on the two overused servers until CPU usage is approximately equal.
- E. Add duplicate round-robin entries for the two underused servers.

Answer: B

QUESTION NO: 4

You need to design a strategy to protect the SQL Server database cluster servers from unauthorized access. Which element should you include in your design?

- A. Configure the SQL Server database cluster to use a dedicated heartbeat network for cluster communications.
- B. Configure the back-end firewall to allow only HTTPS traffic.
- C. Use SQL Server authentication.
- D. Use integrated Windows authentication on the SQL Server database cluster.
- E. Configure the SQL Server database cluster to use a dedicated heartbeat network for all communications.

Answer: D

QUESTION NO: 5

You need to assess the approximate Internet bandwidth available to the Web servers to find out if it is adequate to meet expected growth. What is the approximate bandwidth available to the Web servers?

- A. 132 Kbps
- B. 992 Kbps
- C. 1,944 Kbps
- D. 3,968 Kbps
- E. 7,936 Kbps

Answer: D

bandwidth : 5 * 1.55 Mbps
 50% reserved for Web servers
 $50/100 * 5 * 1.55 * 1024 = 3968$

QUESTION NO: 6

You need to design a replication strategy for the Web servers that has the least possible impact on production. Which element or elements should you include in your design? (Choose all that apply)

- A. Create a Microsoft Application Center 2000 cluster that includes all four production Web servers and the staging server. Select the staging server to be the cluster controller.
- B. Create a Microsoft Application Center 2000 cluster that includes all four production Web servers. Select one server to be the cluster controller.
- C. Create a Microsoft Application Center 2000 cluster that includes only the staging server.
- D. Use synchronization to automatically replace content from the staging server to the

production Web servers.

- E. Use synchronization to automatically replace content from the cluster controller to the cluster members in the production Web server cluster.
- F. Use the deployment wizard to manually replicate content from the staging server to the cluster controller for the production Web server cluster.
- G. Use the deployment wizard to manually replicate content from the staging server to each production Web server.

Answer: B, C, E, F

The staging server must be in the NLB cluster (separate access & bandwidth, coherency...).

Incorrect Answer:

A, D, G: Does not meet the requirements of the scenario.

QUESTION NO: 7

Your design needs to include plans to distribute traffic to the Web sites after the redundant Web site is established. Which element should you include in your design?

- A. Configure round-robin DNS entries for an NLB cluster at each Web site.
- B. Configure round-robin DNS entries for each Web server at each Web site.
- C. Create a single NLB cluster spanning both Web sites.
- D. Create an ISAPI filter to redirect every other user from the old Web site to the new Web site.

Answer: A

QUESTION NO: 8

You need to design a security strategy for your Web site. Which event or events are significant for intrusion detection? (Choose all that apply)

- A. Successful logons for the anonymous users account to the Web servers,
- B. Failed logons for the anonymous user account to the Web servers.
- C. Successful logons for the anonymous user account to the staging server.
- D. Failed logons for the anonymous user account to the staging server.
- E. Failed logons for individual user accounts to the staging server.
- F. Failed logons for individual user accounts to the staging server.

Answer: B, C, F

QUESTION NO: 9

You need to design a user authentication and authorization strategy for your staging server. Which element or elements should you include in your design? (Choose all that apply)

- A. Assign a customer IPSec security policy that uses certificate-bases authentication to the staging server
- B. Join the staging server to the domain.
- C. Establish Certificate Services in the domain.
- D. Configure certificate-to-account mappings in the Active Directory domain.
- E. Assign the Secure Server IPSec security policy to the staging server.

- F. Install client certificates on the staging server.
- G. Configure NTFS permissions on the staging server.
- H. Require content authors to enroll for a client certificate.
- I. Assign the Server IPSec security policy to the staging server.

Answer: A, B, C, G, H

QUESTION NO: 10

You need to design a file permission strategy and the staging server to a domain.

- A. Use the domain local groups to apply NTFS permissions.
- B. Promote the Web servers and the staging servers to domain controllers in the same domain. Use the domain local groups to apply NTFS permissions.
- C. Use Internet Information Services (IIS) permissions instead of NTFS permissions.
- D. Use only the local groups on the staging server to apply NTFS permissions.

Answer: D

Case Study 8, Adventure Works

Background

Adventure Works is the joint venture of a Hollywood movie studio and a Web portal provider.

The company's plan is to establish an online gaming community. The company plans to make

the following activities available to customers:

- Download and playing games.
- Finding online teams and opponents.
- Joining chat rooms to discuss strategies.
- Viewing videos such as movie trailers and infomercials.

The joint venture agreement provides for profit-sharing and use of the brand names of both companies. Initially, advertising and direct sales of related merchandise will provide a source of revenue. After six months, the company expects to launch a premium subscription service. The company intends to show a profit in two years.

Existing Environment

The web portal provider has a large investment in equipment hosted at a major Internet data center.

Business Requirements

The company will have the following content channels on its Web site. The estimated number

of concurrent users is shown in parentheses:

- Lobby. The www.adventure-works.com URL brings users to the Lobby. Users registration and shopping activities in the Lobby are the Web site's highest priority. Additional activities such as viewing infomercials will be available while users are waiting to join group games. (5,000 users)
- General card, board, and trivia games. (2,000 users)
- Fantasy, role-playing games. (1,000 users)
- Mystery, case-solving and puzzle-solving games. (1,000 users)

Gaming requirements:

- Players will be able to construct and modify their own avatars (animated images) from a library personas.
- All games will be interactive, and most will be multi-user, allowing from 2 to 32 players at one time
- Players will be able to organize in teams. They will be able to communicate by using instant messaging and, in some premium games, by voice and video.

Additional site and service requirements:

- Secure access must be provided to purchase merchandise and to make payments.
- Subscribers will receive a monthly CD.
- Support for member and nonmember access to high-speed and low-speed choices on video broadcasts of movie trailers and infomercials will be available. The estimated peak loads are 4,000 concurrent low-speed streams and 1,000 concurrent high-speed streams.
- Premium content will be available to users who have DSL or cable modem connectivity. Adventure and Fantasy players will need high-speed Internet access.

Technical Requirements

The following technical requirements must be met.

Development

- Once there are enough players in a group, the players are automatically redirected from the Lobby to a common server.
- Game state such as players, location, health, resources, and alliances will be stored on the same server that hosts the game.
- Each player's avatar and personal preferences need to be available before the player starts a game.

Server infrastructure:

- All NLB cluster groups will be configured on switched 100-Mbps network segments. Due the high bandwidth demands, each cluster will be limited to 16 processors.
- The Microsoft SQL Server database is a two-node cluster of two single-processors servers in an active/passive configuration. The front-and-NLB clusters will not communicate directly with the SQL Server database.
- Each server needs to be able to be managed remotely.
- The server design needs to be flexible to accommodate sudden changes in the popularity of a game.

Media services:

- Microsoft Windows Media servers will be used for movie trailers and infomercials. A single-processor server will be capable of a 1,000 concurrent streams at a bandwidth at 20 Kbps or 250 concurrent streams at 80 Kbps.
- New content will first be placed on a distribution server and then synchronized to other servers. The distribution server storage must provide fault tolerance. Both distribution and media services must have the highest possible VO rates.

Questions Case Study 8, Adventure Works

QUESTION NO: 1

The company's front-end network is shown in the network diagram. The only available servers are those shown in the network diagram. You want to use all subnets defined on the switch. Move each server to the appropriate subnets. (Use all servers. Use each server only once.)

Subnet	Server
Collapse 207.46.1.0/24 207.46.2.0/24 207.46.3.0/24 207.46.4.0/24	- Four Single-processor Lobby Clones - One Quad-processor Adventure Clones - One Dual-processor Lobby Clone - Twelve Single-processor General Clones - One Quad-processor Lobby Clone - Six Dual-processor Adventure Clones

Answer:

The company's front-end network is shown in the network diagram. The only available servers are those shown in the network diagram. You want to use all subnets defined on the switch. Move each server to the appropriate subnets. (Use all servers. Use each server only once.)

Subnet	Server
Collapse 207.46.1.0/24 - Four Single-processor Lobby Clones 207.46.2.0/24 - One Quad-processor Adventure Clones - One Dual-processor Lobby Clone 207.46.3.0/24 - Twelve Single-processor General Clones 207.46.4.0/24 - One Quad-processor Lobby Clone - Six Dual-processor Adventure Clones	

QUESTION NO: 2

You need to analyze monitoring and recover strategies for the application on the cluster that hosts the state of an individual game. What will happen if there is an application failure?

- A. The Microsoft Application Center 2000 monitor will trigger a command to remove the NLB members from the cluster. The individual's game will continue after a delay of approximately 10 seconds.
- B. The Microsoft Application Center 2000 monitor will trigger a command to remove the NLB member from the cluster. The individual's game will fail to recover.
- C. NLB APIs will isolate the member and remove it from the group. The individual's game will continue after a delay of approximately 10 seconds.
- D. NLB APIs will isolate the member and remove it from the group. The individual's game will fail to recover.
- E. The service cluster will fail over. The individual's game will continue after a delay of approximate 10 seconds.

Answer: B

QUESTION NO: 3

You need to design the Windows Media servers to host movie trailers and infomercials. Which cluster should you include in your design?

- A. One 16-node NLB cluster on four 100-Mbps Ethernet segments.
- B. Four Cluster service that have four servers in each cluster and shared storage on two 100-Mbps Ethernet segments.
- C. Eight Cluster service clusters that have two servers in each cluster and shared storage on four 100-Mbps Ethernet segments.
- D. Two 8-node NLB clusters on two 100-Mbps Ethernet segments.

Answer: C

QUESTION NO: 4

You need to design an alternative for customers who experience difficulties accessing the media server behind corporate firewalls. Which element should you include in your design?

- A. Configure Windows Media to use different MIME types.
- B. Use HTTP to stream Windows Media.
- C. Use the connection-oriented Media Streaming Broadcast Distribution (MSBD) protocol.
- D. Use UDP on a wide range of ports to stream Windows Media.

Answer: B

QUESTION NO: 5

You want to minimize network congestion. Which action or actions should you take? (Choose all that apply)

- A. Deploy network address translation (NAT) on the Internet-facing firewall.
- B. Enable session coherency in Microsoft Application Center 2000. Never forward the following content types: HTML, HTM, JPEG, JPG, PNG, and TXT.
- C. Change from TCP to UDP when possible.
- D. Add SSL accelerator cards to the servers that host secure sessions
- E. Implement peer-to-peer instant messaging.
- F. Enable session coherency in Microsoft Application Center 2000.
- G. Move on-band network management to out-of-band network management on separate network adapters.
- H. Integrate static game content into the subscriber CDs.

Answer: B, G, H

QUESTION NO: 6

What is the most important factor to be considered when you purchase symmetric multiprocessing (SMP) servers for the company's NLB clusters?

- A. The SMP servers must be able to share the level 2 cache.

- B. Sufficient bandwidth needs to be available on the WAN.
- C. You need to qualify applications that can scale effectively beyond one processor.
- D. The processors in each cluster need to have the same performance to distribute the load equally.

Answer: D

QUESTION NO: 7

Cluster settings are needed for the Lobby clusters. Which setting or settings should you use? (Choose all that apply)

- A. A common external IP address assigned to each cluster.
- B. Class C affinity setting on port 80 and affinity setting of None on port 443.
- C. An affinity setting of None on port 80 affinity setting on port 433.
- D. Single affinity setting on port 80 and an affinity setting of None on port 443.
- E. A dedicated, unique static IP address assigned to each server.

Answer: A, C, E

QUESTION NO: 8

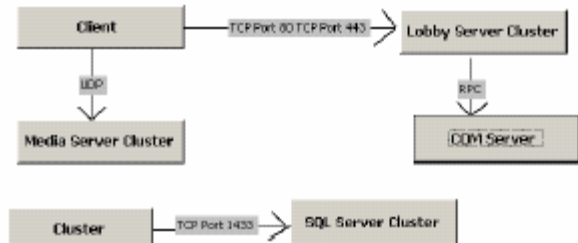
Design a transport protocol strategy for the Adventure Works Web site. Use the transport protocols to connect entities. (Use all entities and all protocols. Use each protocol only once.)

	Encryption Method
Client	UDP
Lobby Server Cluster	TCP Port 80
Cluster	TCP Port 443
SQL Server Cluster	TCP Port 1433
ODM Server	RPC
Media Server Cluster	

Answer:

Design a transport protocol strategy for the Adventure Works Web site. Use the transport protocols to connect entities. (Use all entities and all protocols. Use each protocol only once.)

Encryption Method



QUESTION NO: 9

You want to create a con.... that specifies corrective action if the performance of the SQL Server computer decrease. You do not want to require database administrator tasks. Which element or elements should you include in your plan.(Choose all that apply)

- A. Set up another SQL Server cluster.
- B. Replace or upgrade each server so that it has two processors.
- C. Switch to active/active mode.
- D. Add another node to the cluster.

Answer: B

Case Study 9, Graphic Design Institute

Background

Graphic Design Institute has an enrollment of 10,000 students at one main campus and four branch campus locations. During the past 10 years, many different internal Web sites have been developed independently to meet the needs of various organizations. Some Web sites are hosted on Microsoft Windows NT Server computers and Unix servers in data centers.

Other

Web sites are hosted on departmental servers and desktop computers. Terminal Services provides Microsoft Office applications to all students.

A consultant was hired to identify and classify all Web site applications and design a strategy for an intranet portal for access to all critical applications and Terminal Services. The institute's main intranet Web site includes an online bookstore and streaming media. The existing infrastructure for this Web site will be redesigned to host the portal and some of the critical Web site applications. Institute students and employees will only need to remember the name of the main portal site that will then link them to various applications they previously reached by specific server names. The institute wants to make the best use of limited funding for the project while meeting the key business requirements.

Existing Environment:

The existing Web servers for Graphic Design Institute main intranet Web site are configured as follows:

- There are four identical Windows 2000 Advanced Server computers in round-robin DNS.
 - Each server is on a different 100-Mbps subnet in the main data center.
 - During peak periods, the CPU utilization for each Web server averages 25 percent.
- The existing Microsoft SQL Server database servers in the main data center are configured as follows:

- There are two stand-alone Windows 2000 Server computers that each has two CPUs and 1 GB of RAM. Each server can be expanded to four CPUs and 4 GB of RAM.
- Hosted databases include those for the main intranet Web site and online bookstore. There are many smaller databases for noncritical applications.
- The two SQL Server computers are named SQL Server1 and SQL Server2. During peak periods, CPU use averages 75 percent for SQL Server1 and 50 percent for SQL Server2.
- SQL Server2 is running the FTP Server service. SQL Server2 hosts a nightly transfer of 100 MB of text files from non-Windows computers for bulk-copy processing into the SQL Server databases.

The existing Terminal Services servers are configured as follows:

- There are four identical Windows 2000 Server computers that have individual DNS host entries.
- Each server is on a different 100-Mbps subnet on the main data center.
- Disconnected sessions are left open for reconnection from any client computers for three hours.
- Users are assigned to a specific Terminal Services server. Users authenticate by using a local account on the server. Users have a home directory on their assigned server.
- Users connect by using Terminal Services Win32 client software.
- During peak periods, the CPU utilization for each Terminal Services server averages 55 percent.
- The institute has recently designed and implemented an Active Directory forest for the internal network. All students will eventually have user accounts in the internal network domain.

The existing Microsoft Windows Media servers are configured as follows:

- There are four Windows 2000 Server computers on the same subnet.
- Each server hosts different content. Content is frequently added and updated.
- Each server has two 10-GB hard disks in a RAID 0 partition that has five percent unused space.
- During peak periods, the CPU utilization for each Windows Media server averages 60 percent.

Business Requirements

The central portal solution and the critical applications must meet the following business requirements:

- There must be availability 24 hours a day, seven days a week.
- Failover to surviving servers must be automatic for all services.
- Degraded performance in the event of a failed drive is acceptable.
- The portal and Terminal Services servers must be accessible from the Internet or the intranet without additional software or configuration other than a supported browser and necessary ActiveX controls.
- Internet access is expected to account for 10 percent of the total Web site traffic.

- Authorization level for all services should be decided by a single login when possible.
 - If a disaster at the main data center causes all servers to fail, the main portal pages must be back online within one hour. Other critical services do not need to be back online within one hour. When users attempt to gain access, the Web site will tell them which services are unavailable.
 - The windows Media servers must provide for 50 percent growth in content.
 - New content on the Windows Media servers must be immediately available.
- The following Web applications have been classified as critical:
- The main portal pages.
 - The online bookstore.
 - Virtual institute Windows Media session.
 - User Web-based Terminal Services access to Microsoft Word, Microsoft Excel, and Microsoft Exchange.
 - FTP site for file transfers from non-Windows systems to SQL server2

Technical Requirements.

The following technical information and requirements must be considered:

- The existing Web servers, SQL Server database servers, and Windows Media servers can be upgraded and reconfigured as appropriate.
- The budget includes funding for additional front-end Web servers. The budget does not include funding for any other new servers.
- Web-bases Terminal Services session reconnect is not mandatory.

Questions Case Study 9, Graphic Design Institute

QUESTION NO: 1

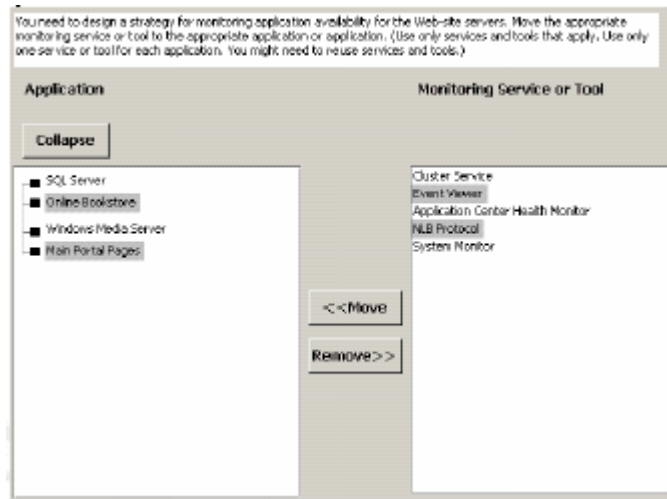
You need to redesign the SQL Server database server environment to meet the high availability requirements. Which change or changes should you include in your design? (Choose all that apply)

- A. Rebuild by using Windows 2000 Advanced Server.
- B. Add a CPU to SQL server2.
- C. Set the automatic load weighting evenly between the two SQL Server computers.
- D. Create a Cluster service cluster that contains the two SQL Server computers.
- E. Upgrade to Windows 2000 Advanced Server.
- F. Add a CPU to SQL Server1.
- G. Create an NLB cluster that contains the two SQL Server computers.
- H. Optimally distribute the databases between the two SQL Server computers
- I. Replace all databases between the two SQL Server computers.

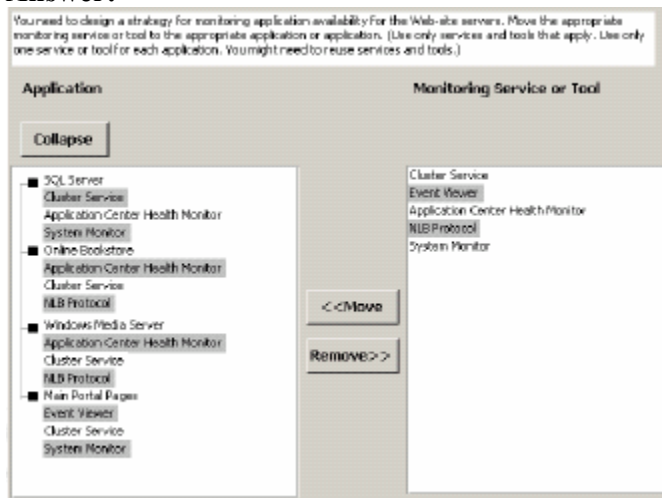
Answer: B, E, F, G, H

Can be also instead of “Upgrade to Windows 2000 Advanced Server” be “Set the automatic load weighting evenly between the two SQL Server computers”.

QUESTION NO: 2



Answer:



QUESTION NO: 3

You need to redesign the Web services environment to meet the availability and disaster recovery requirements. Which four changes should you make to the web servers? Each correct answer presents part of the solution. (Choose four)

- A. Place all of the existing Web servers on the same subnet in the main data center. Configure all the existing Web servers in a single NLB cluster.
- B. Place one new Web server on each of the subnets in the main data center on which the existing Web servers are located. Configure all the Web servers in a single NLB cluster.
- C. Place two new standby Web servers in a branch campus data center. Configure the two new standby Web servers in a new NLB cluster
- D. Place two new standby Web servers in a branch campus data center. Add the two new standby Web servers to the NLB cluster that contains the Web servers in the main data center.
- E. Create custom Internet Information Services (IIS) error pages.
- F. Create a process to modify the DNS host record for the Web site to redirect requests to the standby Web site on the event of a disaster. Set the Time to Live (TTL) for DNS

entries at less than one hour.

G. Create round-robin DNS entries for the main Web site that resolve to both the main data center and the standby Web servers at a branch campus data center. Set the Time to Live (TTL) for DNS entries at less than one hour

Answer: A, C, E, F

QUESTION NO: 4

You need to redesign the SQL Server database environment to meet the high availability requirements. You also want to minimize changes to the code that currently accesses the databases. What should you do?

- A. Design the SQL Server computers to use a Unicast MAC address.
- B. Design the SQL Server computers to use a multicast MAC address.
- C. Create two virtual servers that have the same names as the SQL Server computers
- D. Rename the two SQL Server computers. Create two virtual servers that use the original server names.

Answer: D

QUESTION NO: 5

You need to design directory services for the Web portal. Which element should you include in your design?

- A. Create a role-based user database for portal users.
- B. Create local user accounts for portal users on each Web portal server.
- C. Create user accounts for the Web portal users in the institute's existing Active Directory forest.
- D. Create user accounts for the Web portal users in a dedicated Active Directory forest for the perimeter network.

Answer: C

QUESTION NO: 6

You need to design a method for authorized users to access the portal from the Internet. Which connection method should be used for the authentication?

- A. An HTTPS connection to the Web portal servers.
- B. A VPN client connection to an NLB VPN cluster.
- C. A VPN client connection to a Cluster service VPN cluster.
- D. A Terminal Services Win32 client connection to the Web portal servers.
- E. A VPN client connection to a single VPN server.

Answer: A

QUESTION NO: 7

You need to redesign the Terminal Services environment to meet the net requirements. Which four changes should you make? Each correct answer presents part of the solution. (Choose four)

- A. Update the Terminal Services Win32 client software on the users computers.
- B. Migrate user accounts to an Active Directory domain.
- C. Migrate user home directories to an NLB cluster.
- D. Migrate users home directories to a Cluster service cluster.
- E. Create a single NLB cluster that includes all four Terminal Services servers.
- F. Create two Cluster service clusters for the Terminal Service servers.
- G. Move all the Terminal Services servers to the same subnet.

Answer: B, D, E, G

QUESTION NO: 8

Which change or changes should you make to the Windows Media servers? (Choose all that apply)

- A. Add seven 10-GB hard disks to each server and convert to RAID 5.
- B. Add ten 10-GB hard disks to each server and convert to RAID 5.
- C. Copy all media content to the Microsoft Application Center 2000 cluster controller. Use clusters synchronization to replicate content additions and updates to the cluster members.
- D. Add eleven 10-GB hard disks to each server and convert to RAID 5.
- E. Create a Microsoft Application Center 2000 cluster.
- F. Create a Cluster service cluster that has 120 GB of RAID 5 shared storage that contains all media content.
- G. Schedule each Microsoft Application Center 2000 cluster member to replicate its content daily to all the other cluster members.

Answer: C, D, E

120 GB RAID 5 requires 13 10 GB-hard disk in order to provide redundancy.
Each server contains 2 disks. 11 more are necessary.

Incorrect Answers:

A, B: Too few disks in the RAID 5 volume.

F: An application center cluster, not a Cluster service cluster, is called for.

G: Replication is not useful in this scenario.

Case Study 10, Proseware

Proseware Inc provides editorial services and electronic prepress production services to major textbook publishers. Last year, its eight plants produced more than 200 million books and 500 million magazines. Proseware Inc is undertaking a new mission to streamline the process of delivering content from authors to consumers. The company is focused on expediting publishing, reducing cost, and increasing its use on the Internet.

The company plans to use the Internet for personalized and cross media publishing. Cross media publishing is the publication of personalized content to individuals in many different forms. These forms include printed materials, Web based content, e-mail, subscriptions ebooks, wireless broadcasts to cellular phones and PDAs, streaming and shared audio and video, and emerging display technologies such as e-paper and e-link.

Existing environment

The data center and editorial staff is in Chicago. Print jobs from the data center are

electronically distributed to the company's eight plants over high speed connections. Proseware Inc has contracted with an Internet presence provider (IPP) to hosts its new cross media publishing web site.

Business Requirements

The company plans to have two charter programs, one for publishers and one for consumers. Ten major content providers and more then 100 independent publishers have enrolled in the charter program. Access controls need to be established for both publishers and consumers. The design needs to support multiple writer and editor approved processes. The new website must be able to provide the following services:

- Support as many as 10.000 concurrent users and be able to scale to a total membership of 300.000
- Log and audit activities of publishers and subscribers.
- Support different domain name URLs to allow larger publishers to promote separate identities to there consumers
- Proseware Inc will enter into a special partnership with Lucerne Publishing. Lucerne Publishing is a company specializing in interactive content for children. Lucerne Publishing will independently create and maintain its own applications, but will share the Web infrastructure and membership database owned by Proseware Inc..

Technical Requirements

The following technical requirements must be considered:

Accounts and Domains

- The membership accounts will be managed by using a separate active directory domain. The consumer state will be managed by a Microsoft SQL Server computer.
- Publisher accounts will not share the same global catalogue as the member accounts
- Proseware Inc will need directory services that have a unique schema to support human resources applications. The company also needs a dedicated forest root domain that has stringent security settings and no external trusts.
- Company employees and publishing partners will create content in their respective domains. The contents will be synchronized with the staging servers in a stage domain.
- All Company employees will not run Win2k on their desktop computers.

Web state

- Even if a web session fails, each user state data must be preserved.
- The distance from the cluster service servers and storage device is more than 10 feet. If there is a brief power failure, clusters need to automatically return to there original configuration
- To adjust to changing demands. Web server clones will need to be added to or removed from the NLB clusters. It must be possible to deploy rolling upgrades, including configurations to cluster members, and to centrally monitor the health of pages and all related components. Components will be installed both on the web site on dedicated servers.
- For performance and complexity considerations, the server hosting SQL Server will be dedicated to that application. It must be possible to take a resource group offline without affecting the other cluster operations.
- Lucerne Publishing will create and fully administer its own COM objects.

Content deployment

- Content deployment from staging servers over a Wan must be able to roll back in case of transmission failure

- The redeployment cluster must be able to roll back to its original state.
- Production services must not be interrupted.

Questions Case Study 10, Proseware

QUESTION NO: 1

You want the production environment to support application deployment for Proseware Inc and Lucerne Publishing. Which three elements should you include in your design?

(Each correct answer presents part of the solution. Choose three)

- A. Deploy a common NLB cluster for Proseware Inc, and Lucerne Publishing.
- B. Deploy a separate NLB cluster for Proseware Inc, and Lucerne Publishing.
- C. Deploy a common Cluster Service cluster for Proseware Inc, and Lucerne Publishing.
- D. Deploy a shared NLB cluster for Proseware Inc, and Lucerne Publishing.
- E. Place the application from Proseware Inc and Lucerne Publishing on shared application servers.
- F. Place the application from Proseware Inc and Lucerne Publishing on separate application servers.

Answer: C, D, E

QUESTION NO: 2

Content deployment is shown in the content deployment diagram. Where must all COM+ components be installed? (Choose all that apply)

- A. Component Load Balancing (CLB) cluster servers.
- B. Redeployment testing cluster servers.
- C. Production cluster servers
- D. Management console

Answer: A, B, C

QUESTION NO: 3

You need to design a method for storing the operation system, paging file, applications and data on the database server. Which method should you include in your design?

- A. Use one Raid 1 Drive array for data. Use another Raid 1 drive array for the paging file. Use the Raid 5 drive array for the operating system, applications, and log files.
- B. Use one Raid 1 Drive array for the operating system, applications, and paging file. Use another Raid 1 drive array for the log files. Use the Raid 5 drive array for the data.
- C. Use one Raid 1 Drive array for the operating system, and applications. Use another Raid 1 drive array for the paging file. Use the Raid 5 drive array for the data, and log files.
- D. Use one Raid 1 Drive array for the operating system. Use another Raid 1 drive array for the paging file, applications, and log files. Use the Raid 5 drive array for data.

Answer: B

QUESTION NO: 4

Content deployment is shown in the content deployment diagram. You need to design a method to move new content from Stage1 to Pre1. Which method should you include in your design?

- A. Create an application in Microsoft Application Center 2000, and then deploy the application.
- B. Set up load balancing between servers, and use Xcopy
- C. Set up application synchronization between servers.
- D. Install and use Content Deployment Service.

Answer: D

QUESTION NO: 5

Content deployment is shown in the content deployment diagram. What should you do before you deploy content from Stage1 to Pr1?

- A. Disable automatic synchronization.
- B. Drain Users.
- C. Set load balancing offline.
- D. Create Microsoft Application Center application.

Answer: A

QUESTION NO: 6

The cluster service cluster is shown in the cluster diagram. What is the total number of cluster resource required?

- A. 1
- B. 2
- C. 3
- D. 4

Answer: C

QUESTION NO: 7

The cluster service cluster is shown in the cluster diagram. You need to decide which service should be placed on each service. Move that appropriate service to each device. (Use only services that apply. You might need to reuse services)

Device	Services
☐ Node 1 Local Hard Disk ☐ Node 2 Local Hard Disk ☐ Node 3 Local Hard Disk ☐ Drive Array H:/ ☐ Drive Array I:/ ☐ Drive Array J:/	☐ Windows 2000 Datacenter Server ☐ Quorum Resource ☐ Membership Database ☐ Content Catalog Database

Answer:.

The cluster service cluster is shown in the cluster diagram. You need to decide which service should be placed on each service. Move that appropriate service to each device. (Use only services that apply. You might need to reuse services)

Device	Services
☒ Node 1 Local Hard Disk ☒ Windows 2000 Datacenter Server ☒ Node 2 Local Hard Disk ☒ Windows 2000 Datacenter Server ☒ Node 3 Local Hard Disk ☒ Windows 2000 Datacenter Server ☒ Drive Array H:/ ☒ Quorum Resource ☒ Drive Array I:/ ☒ Membership Database ☒ Drive Array J:/ ☒ Content Catalog Database	☐ Windows 2000 Datacenter Server ☐ Quorum Resource ☐ Membership Database ☐ Content Catalog Database

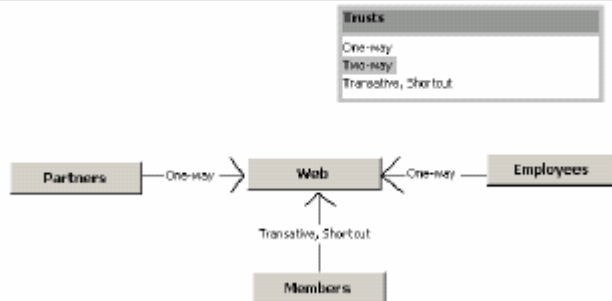
QUESTION NO: 8

Use the domains and trusts provided to create a diagram showing the appropriate trust relationships. All domains are Windows 2000 domains and have a DNS root name of lucernepublishing.com. (Use only domains and trusts that apply.)

Domains	Trusts
Partners Employees Members Web	☐ One-way ☒ Two-way ☐ Transitive, Shortcut

Answer:

Use the domains and trusts provided to create a diagram showing the appropriate trust relationships. All domains are Windows 2000 domains and have a DNS root name of fuernesspublishing.com. (Use only domains and trusts that apply.)



QUESTION NO: 9

Content deployment is shown in the content deployment diagram. You need to design a method to display an application update from Pre1 to the production cluster. Identify the process that you should include in your design. Move the processes from the Processes pane to the Ordered List of Processes pane, and arrange them in the appropriate order. (Use only processes that apply.)

Ordered List of Processes

Processes

- Deploy the application from Pre1 to Prod1
- Resenable automatic synchronization on Prod3 and Prod4
- Bring Prod1 and Prod2 back online for load balancing
- Take Prod1 and Prod2 out of load balancing
- Disable automatic synchronization on Prod3 and Prod4
- Enable Content Deployment Service between Pre1 and Prod1

<< Move

Remove >>

Answer:

Content deployment is shown in the content deployment diagram. You need to design a method to display an application update from Pre1 to the production cluster. Identify the process that you should include in your design. Move the processes from the Processes pane to the Ordered List of Processes pane, and arrange them in the appropriate order. (Use only processes that apply.)

Ordered List of Processes

Processes

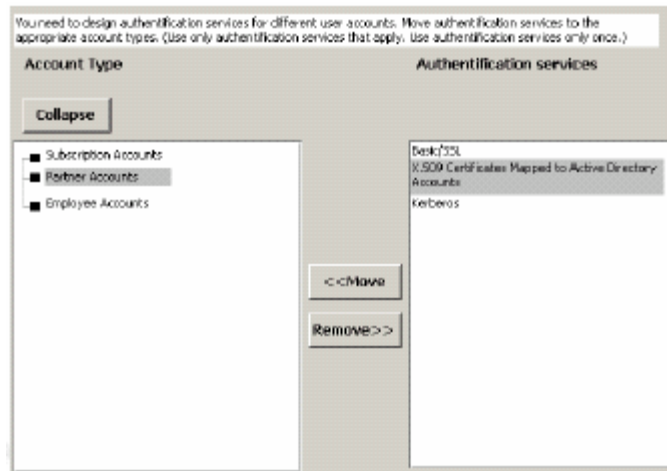
- Take Prod1 and Prod2 out of load balancing
- Disable automatic synchronization on Prod3 and Prod4
- Enable Content Deployment Service between Pre1 and Prod1
- Deploy the application from Pre1 to Prod1
- Resenable automatic synchronization on Prod3 and Prod4
- Bring Prod1 and Prod2 back online for load balancing

<< Move

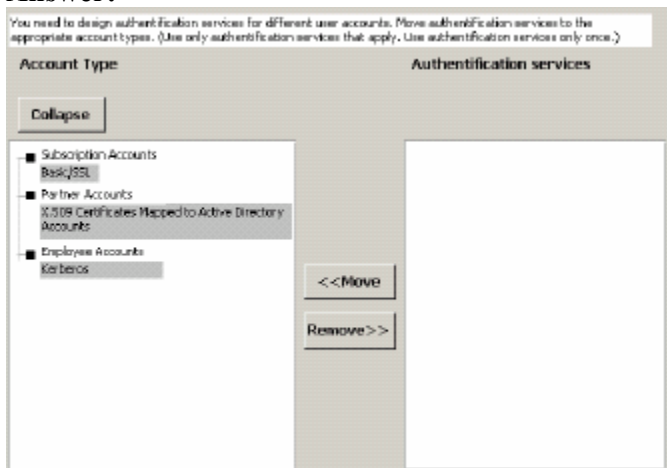
Remove >>

When using content deployment the production services must not be interrupted.

QUESTION NO: 10



Answer:



Case Study 11, Consolidated Messenger

Consolidated Messenger is a newly formed joint venture of a large telecom company, a major publisher of textbooks and a large computer manufacturer. The purpose of the business venture is to become the standard wireless education in element and secondary schools. Development and marketing of an e-book will be central to business. The e-book is a durable computer that has a flat panel display capable of handwriting recognition and wireless communication. The device has a smart card reader.

All equipment supporting the proposed Web solution will be new. The equipment will be located at an Internet data center in San Jose that has two separate connections to the Internet. Business and engineering employees supporting the joint venture will also be located in San Jose.

Business Requirements

The following must be met:

School administrators must be able to create new user accounts and manage security group membership of teachers and students. There must be a method to allow students who have lost or forgotten their smart cards to gain access to their assignments. This method must not comprise account integrity.

Teachers must have access to library of assignments. Teachers will select assignments from the library in the same way that online purchase selects products for their shopping cards. Each teacher will first assemble the work for the class. After teacher approves the work, it will be dispensed to students.

There must be a reliable method for students to download and submit assignments.

Teacher must be able to query and analyze test results by student, class or assignment.

Teacher and student must be able to personalize their home page from a menu of news and interest items.

Consolidated Messenger plan introduce a demo of the e-book prototype. Three-year projection is for 1-million accounts for teacher and students. Number of accounts is projected to double each year after the third year.

Technical Requirements

With smart cards and PIN student will be authenticated with any e-book as well as at home offline. Teacher will be able to make assignments from configured computer that use smart card readers from home or school.

e-book:

- Highly durable

- Uses pen navigation

- Windows 2000 and Internet Explorer application

- Smart card readers

- Capable of two-way wireless computer

- USB for firmware: printing, keyboard and wireless connection opt., has hard disk

e-book gateway hub:

- Gateway connection established by Internet

- Proxy server for caching and security

- Support for proxy array

- A multiple subnet that have more than 500 students

- Wireless transmission

- application based and simple to install support

e-book Web site:

- Uses Windows 2000 solution

- All content stored on Consolidated Messenger web site

- Must be high performed and highly available

- Support 10,000 assignments, contain subjects such as history, science, math and art.

Each assignment will average 100 KB assignment update one each semester.

- Network hops for downloading assignments will be minimized

Use smart card authentication. Active Directory local domain controllers might be required.

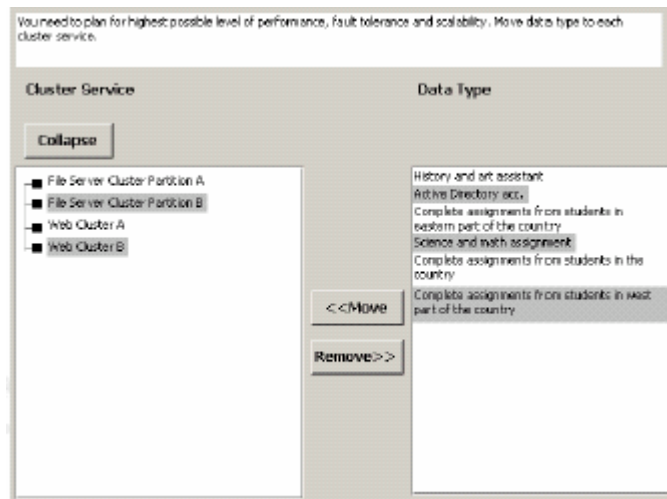
- Internet linkage

- Support flexible hierarchical authorization

- Support secure online purchase (incl. Shopping basket)

Questions Case Study 11, Consolidated Messenger

QUESTION NO: 1



Answer: Unknown

QUESTION NO: 2

Need to define which information will be stored in Active Directory. Which information should be placed in Active Directory? (Choose all that apply)

- A. Event logs
- B. Profile path
- C. User profile
- D. Home work assignments
- E. Shopping transactions
- F. Group membership

Answer: B, F

Explanation: Profile path and group membership (B&F) seem like the only good answers.

Incorrect Answers:

C, D: Why would you add the profile?

QUESTION NO: 3

Which affinity setting should you set in the Consolidated Web site?

- A. None on Web cluster, Single on SSL Web cluster
- B. Class C on Web cluster, None on SSL Web cluster
- C. None on Web cluster, Class C on SSL Web cluster
- D. Single on Web cluster, Class C on SSL Web cluster

Answer: B

QUESTION NO: 4

Want to analyze end-to-end bandwidth requirements. A teacher at new school has 4 classes with 25 students each. He gives all students the same 5 assignments. Each student downloads assignments. Total amount of data sent to school?

- A. 1 MB
- B. 8 MB
- C. 25 MB
- D. 200 MB

Answer: A

5 assignments * 200 kB * 1 download/assignment (since there's a proxy at each school) => 1 MB '

Alert!: The real question is worded differently that would imply that the caching was not a factor.

QUESTION NO: 5

Need to design redundancy for web site. Which element to include?

- A. Configure 2 round-robin DNS for www.consolitedmessenger.com host name
- B. Configure 6 round-robin DNS for www.consolitedmessenger.com host name
- C. Configure 2 round-robin DNS for www.secure.consolitedmessenger.com host name
- D. Configure 4 round-robin DNS for www.secure.consolitedmessenger.com host name
- E. Create a secure cluster and Web cluster that spans 2 subnets
- F. Create a secure cluster and Web cluster on one subnet and secure cluster and a Web cluster on another subnet.
- G. Use IP load balancing that uses dedicated third party outboard box on

Answer: Unknown

QUESTION NO: 6

Need a backup strategy for Consolidated Messenger. Which two elements do you include in procedures?

- A. Routinely back up of staging server
- B. Routinely back up every NLB SSL Web cluster server
- C. Routinely back up data on Cluster service cluster
- D. Routinely back up each school gateway hub.
- E. Routinely back up NLB Web cluster server

Answer: A, C

QUESTION NO: 7

Answer: Unknown