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**Designing a Microsoft Windows 2000
Directory Services Infrastructure**

Exam 70-219

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Case Study #1, CONTOSO, LTD

Background

Contoso, Ltd is a military and aerospace research company that has approximately 16,000 employees.

You have been asked to provide consulting services for the design and implementation of the company's

enterprise Active Directory.

The company's primary business since 1953 has been military research. However, in 1997 the company

purchased an aerospace company and added aerospace research to its business. Although the corporate

offices for both companies have been consolidated, a separation between divisions still exists. There are

separate chief information officers (CIOs) for the military and aerospace divisions. The two CIOs report

to the chief executive officer (CEO) of Contoso, Ltd., and have equal authority. The CIOs have

complete autonomy in most areas of IT. Each CIO has his own budget.

The CIOs have agreed to consolidate their efforts in some areas. The military division CIO is

responsible for providing IT services to corporate departments such as human resources and accounting.

The military division CIO is also responsible for providing an enterprise wide messaging infrastructure.

The military division incurs all costs for supporting and maintaining the messaging infrastructure. A fee

for each mailbox is assigned and internally charged against the aerospace budget on a quarterly basis. In

return, the military division CIO provides a guaranteed uptime of 99 percent to the aerospace.

The headquarters office for Contoso, Ltd., is located in New York. Approximately 3,700 employees

work at headquarters. Executives from both divisions work in the headquarters office.

Contoso, Ltd.,

also has locations in the following cities:

Military Division:

- Boston (2,500 users)
- Atlanta (1,300 users)

Aerospace Division

- Seattle (5,800 users)
- San Francisco (1,200 users)
- San Diego (700 users)

Existing Environment:

Contoso, Ltd., has a single registered domain name of Contoso.com hosted on a UNIX DNS server. Currently, the A (host) records for all UNIX-based devices and web servers are statically registered on the DNS server.

The military division currently provides e-mail services to the entire company.

WAN Architect Interview

I manage the entire WAN. Atlanta, Boston, and Seattle have T1 lines to New York. San Francisco and San Diego have T1 lines to Seattle. There is a 56-Kbps connection between San Francisco and San Diego for redundancy. We have a single connection to the Internet in New York. A firewall provides protection between our network and the Internet connection. All of my WAN equipment is stored in secure data centers in each location

Aerospace Division CIO Interview

We currently outsource our messages application to the military division. They have guaranteed us an uptime of 99 percent, but it seems like e-mail is always down. My primary network administration team is located in Seattle. There are technical people in each location to provide on-site support for users in my division.

Business Requirements**Military Division CIO Interview**

We have had many problems in the past maintaining a stable messaging infrastructure. We plan to migrate to Microsoft Exchange 2000 to take advantage of the clustering technologies provided. We hope to be able to provide a service level of 99.995 percent after the migration is complete.

Aerospace Division CIO Interview

My responsibility is to the users in the aerospace division. I cannot afford to depend on another division to provide my network operating system (NOS) services. I have been told that I must continue to outsource our e-mail services to the military division. I have been assured that e-mail services will be upgraded soon to increase reliability and that I will gain control over my users' mailboxes. My office is in New York and I want to ensure that I have the fastest possible logon speed.

Aerospace Division IT Manager Interview

Because the military division domain contains the corporate departments, we must have access to resources in the military division domain. One important application that we must be able to access at all times is a Microsoft SQL server database located in New York. There are currently no resources that the military division needs to access in our domain. All of our user and client computer accounts, including those of our CIO, will be located in our domain. One problem that we have had several times in the past is that the UNIX DNS server has gone offline. When that happened, we were not able to access many of these important resources. We plan to store some sensitive information, such as employee payroll numbers, in Active Directory. We want to limit view access of this type of information to specific individuals. We plan to limit view access for all objects to Active Directory to authenticated users only. We also plan to create groups that will have view access to this sensitive information.

Technical Requirements

Both CIOs have already agreed to the following design decisions. There will be two forests in the Contoso, Ltd., enterprise. One forest will contain the military division and the other will contain the aerospace division. Both of these forests will contain an empty root domain. A joint budget has already been allocated, and your consulting company will be providing the Active Directory design for both divisions. A metadirectory synchronization program will be installed in New York.

Aerospace Division IT Manager Interview

The military division has agreed to allow us to manage certain properties of our e-mail accounts directly.

I will be creating two accounts in my root domain for this purpose. These two accounts will be allowed to modify these certain mailbox properties.

Military Division IT Manager Interview

Currently, a local site administrator is responsible for managing all user and computer accounts for each

site. With the implementation of Active Directory, we will be changing the way we administer accounts.

The existing site administrators will continue to manage resources. However, new teams for each

department will be created in New York. These new department-based teams will manage the user

accounts in each department.

Redundancy of our root domain controllers is extremely important to me. I want to ensure that if there is

a disaster, we have an off-site copy of this root domain. A network file share located in New York

contains all human resources documents for the entire company. We will need to provide access to these

documents to everyone. We also have human resources staff located in Seattle who will need to update these documents. Because the documents are large, we want to provide local copies of the documents in Seattle. We currently plan to use DFS and to replicate this share to a DFS server in the aerospace domain. I am concerned about how we will be able to provide a single directory to our e-mail users.

Case Study #1, CONTOSO, LTD (9 Questions)

QUESTION NO: 1

Which factor or factors in the company's forest design decision will increase the administrative overhead of managing its enterprise NOS environment? (Choose all that apply)

- A.** Providing a single enterprise directory
- B.** Duplication in planning teams for directory deployment
- C.** Directory management duplication
- D.** Complexity relating to the separation of users and resources in different forests
- E.** Initiation of separate design processes

Answer: C, D

Explanation:

Since there will be no automatic replication between forests internal to Active Directory, an outside package is required to keep the forests in sync. This will be done by using a metadirectory synchronization package. Even in this situation, some care must be taken when running multiple forests. The complexity of users and resources in the different forests relate to having to establish and maintain trusts between various domains. There may even be more issues to deal with since Contoso expects to make changes to and add to the Active Directory Schema.

Incorrect Answers:

A: There really isn't a single enterprise directory, since each forest will have its own separate enterprise directory, and keeping them synchronized can only be done by a 3rd party package.

B: Planning and initial implementation is a one time up front action. This in itself does not add to the administrative overhead since it is not ongoing. It is overhead, but extra overhead to design and implement the system which is the cost of conversion.

E: Having separate design processes, one for each forest is also the overhead of system implementation/conversion, and is a one-time cost. It would not be considered administration overhead since it is not ongoing. When we talk about administration overhead, we are talking about ongoing maintenance of the system.

QUESTION NO: 2

**Which technical factor or factors influenced the company's forest design decision?
(Choose all that apply)**

- A. Network Address Translation (NAT) devices are separating domain controllers
- B. None: the decision was not influenced by technical factors
- C. Bandwidth is not sufficient to support a single forest
- D. Firewalls are separating the domain controllers
- E. The company wants to eliminate trusts between domains
- F. DNS service cannot resolve name throughout the forest

Answer: B

Explanation:

Lets look at the early part of the case study, specifically: “However, in 1997 the company purchased an aerospace company and added aerospace research to its business. Although the corporate offices for both companies have been consolidated, a separation between divisions still exists. There are separate chief information officers (CIOs) for the military and aerospace divisions. The two CIOs report to the chief executive officer (CEO) of Contoso, Ltd., and have equal authority. The CIOs have complete autonomy in most areas of IT. Each CIO has his own budget.” Nowhere in the case study have any technical excuses been offered. The case study states: “Both CIOs have already agreed to the following design decisions. There will be two forests in the Contoso, Ltd., enterprise.” without any reason. However, it is obvious that from day one of the acquisition, the IT departments had never been combined, and continued to operate as separate and distinct entities. So, from the information provided, it appears that the reason for two forests is based on keeping the status quo on the current corporate culture.

Incorrect Answers:

A: There has not been any specific information that NAT was being used, and if it were added to the network, would not justify the breakdown into two forests.

C: The forest design is not based on bandwidth requirements. A single forest can handle a bandwidth issue by using multiple sites.

D: The only firewall mentioned was the Internet connection. If firewalls were placed between domain controllers, it would not make a difference on how many forests were made. With proper configuration, one forest would work fine.

E: This was not provided as a technical requirement. However, even though by default two way transitive trusts exists between domains in the same forest, they can be changed. Based on the original configuration, we will need to maintain some of the trusts, and having two forests

actually make the administration more complex.

F: There should be no DNS issues, as long as the Unix DNS server can support SRV records, and optionally dynamic updates. The number of forests selected will work fine with DNS, whether it be one forest with two domains or two forests with one domain.

QUESTION NO: 3

You need to create a trust design for Contoso, Ltd. Which trust relationship or relationships should you create?

- A.** Two-way transitive trust between the military division forest root domain and the aerospace division child domain
- B.** Two-way transitive trust between the military division child domain and the aerospace division child domain
- C.** One-way trust where the military division forest root domain trusts the aerospace division child domain
- D.** One-way trust where the military division child domain trusts the aerospace division child domain
- E.** One-way trust where the military division child domain trusts the aerospace division root domain
- F.** One-way trust where the military division forest root domain trusts the military division child domain
- G.** One-way trust where the military division child domain trusts the military division child domain

Answer: D, E

Explanation:

Let's see that the aerospace IT Division Manager said: "Because the military division domain contains the corporate departments, we must have access to resources in the military division domain. One important application that we must be able to access at all times is a Microsoft SQL server database located in New York. There are currently no resources that the military division needs to access in our domain. All of our user and client computer accounts, including those of our CIO, will be located in our domain."

This says that Aerospace users need resources in the Military domain, but user accounts will remain in aerospace domain, so we need Military to trust Aerospace. Military does not access resources in

Aerospace, so no trust needed where Aerospace trusts Military.

So, to recap, we need a one-way trust where military trusts aerospace. However, since inter-forest trusts are NOT transitive, we must link the actual child domains where the accounts and resources reside.

Now, let's look again at a different Aerospace Division IT Manager statement: "The military division has agreed to allow us to manage certain properties of our e-mail accounts directly. I will be creating two accounts in my root domain for this purpose. These two accounts will be allowed to modify these certain mailbox properties". Since the mailbox properties for Exchange 2000 will reside in the Military Forest, we will also require a trust relationship between the Aerospace Forest root and the Military child.

It is one-way, again Military trusts Aerospace, but it is Military child that trusts Aerospace root.

Incorrect Answers:

A: Since the military and aerospace domains will be in different forests, you cannot have transitive trusts. And there is also no two-way trust; to get a two-way trust, you would need to implement two one-way trusts, one in each direction.

B: Since the military and aerospace domains will be in different forests, you cannot have transitive trusts. And there is also no two-way trust; to get a two-way trust, you would need to implement two one-way trusts, one in each direction.

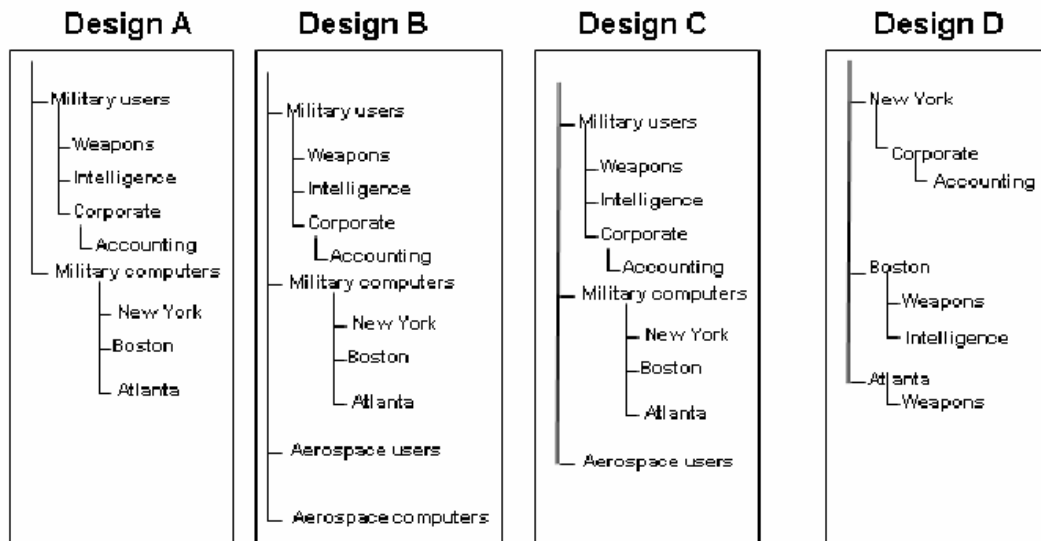
C: This is another issue of not having transitive trusts between forests. If I point to the root domain, and not the child domain, the trust will not traverse through the root to the child. The trusts must be between the actual two domains, in this case a child-child connection.

F: Having a trust between the Military child & Military root is actually redundant, since both domains are in the same forest and already trust each other in an implied transitive two-way trust. Adding this trust does not add anything of value to make the solution work.

G: This isn't even valid to have a domain trust itself?

QUESTION NO: 4

You need to create an Organizational unit design for the military division Contoso, Ltd. Design options are shown in the exhibit.



Which design should you use?

- A. Design A
- B. Design B
- C. Design C
- D. Design D

Answer: A

Explanation:

Let's look at what the military IT Division Manager said: "Currently, a local site administrator is responsible for managing all user and computer accounts for each site. With the implementation of Active Directory, we will be changing the way we administer accounts. The existing site administrators will continue to manage resources. However, new teams for each department will be created in New York. These new department-based teams will manage the user accounts in each department."

The existing site managers will manage resources, so we need to make the computers, a resource, a separate OU for each site. This allows us to delegate each site administrator to their respective site OU for resources. Since user management will be centralized, we only need a users OU for all users, regardless of site.

Incorrect Answers:

B, C: The Aerospace users and computers would not be specified in the Military Forest.

D: This OU configuration makes delegation of computer resources to the local site admin difficult.

QUESTION NO: 5

You need to evaluate the technical factors that will affect your trust model for Contoso Ltd. You need to decide which technical factors will require you to create trust relationships. Move the appropriate technical factor or factors to each trust relationship. (Use only factors that apply. You might need to reuse factors. Move at least one factor to every trust relationship.)

Trust	Technical Factor
Collapse ■ Military division root trusts aerospace division root ■ Military division root trusts aerospace child domain ■ Aerospace division root trusts military division root ■ Aerospace division root trusts military division child domain ■ Military division child trusts aerospace division root ■ Military division child trusts aerospace child domain ■ Aerospace division child trusts military division root ■ Aerospace division child trusts military division child domain	SQL Server user authentication Access to human resources department Windows 2000 user account property administration Trust relationship not required Administration of the Exchange properties on Windows 2000 user accounts Exchange 2000 mailbox authentication

<<Move

Remove>>

Answer:

You need to evaluate the technical factors that will affect your trust model for Contoso Ltd. You need to decide which technical factors will require you to create trust relationships. Move the appropriate technical factor or factors to each trust relationship. (Use only factors that apply. You might need to reuse factors. Move at least one factor to every trust relationship.)

Trust	Technical Factor
Collapse ■ Military division root trusts aerospace division root Trust relationship not required ■ Military division root trusts aerospace child domain Trust relationship not required ■ Aerospace division root trusts military division root Trust relationship not required ■ Aerospace division root trusts military division child domain Trust relationship not required ■ Military division child trusts aerospace division root Administration of the Exchange properties on Windows 2000 user accounts ■ Military division child trusts aerospace child domain SQL Server user authentication Access to human resources department Exchange 2000 mailbox authentication ■ Aerospace division child trusts military division root Trust relationship not required ■ Aerospace division child trusts military division child domain Trust relationship not required	SQL Server user authentication Access to human resources department Windows 2000 user account property administration Trust relationship not required Administration of the Exchange properties on Windows 2000 user accounts Exchange 2000 mailbox authentication

QUESTION NO: 6

**What are the technical ramifications of the company's forest design decision?
(Choose all that apply)**

- A. Authentication between the military and aerospace division will no longer be provided by Kerberos
- B. There will be no native global catalog of objects between the military and aerospace divisions
- C. The military and aerospace divisions will not be able to share resources
- D. A user will not be able to log on to that user's client computer by using an e-mail style user principal name (UPN)
- E. There will be no automatic transitive trusts between the military and aerospace divisions

Answer: A, B, E

Explanation:

Kerberos operates within a forest, but tickets are not generated for inter-forest authentication. Global catalogs are not shared between forests, each Global Catalog will be unique and only carry information for its forest. Since the military and aerospace domains are in different forests, only explicit (by hand) trusts can be established, and those trusts are similar to the old Windows NT trust relationships.

Incorrect Answers:

C: Resource sharing will be possible, since trusts can be established, it is just that the trusts are not automatic.

D: The user should still be able to access their computer using a UPN.

QUESTION NO: 7

You need to create a domain name structure for Contoso, Ltd. Which domain names should you use? (Each correct Answer: presents part of the solution. Choose two)

A. mil.contoso.com

military.mil.contoso.com

B. adm.contoso.com

military.adm.contoso.com

C. adm.contoso.com

military.adm.contoso.com

email.adm.contoso.com

D. aerospace.local

corp.aerospace.local

E. mil.contoso.com

military.mil.contoso.com

email.mil.contoso.com

F. aero.contoso.com

aerospace.aero.contoso.com

G. military.local

corp.military.local

Answer: A, F

Explanation:

A: This provides a root domain and child domain for military.

F: This provides a root domain and child domain for aerospace.

Incorrect Answers:

B: Actually this is a little arbitrary, but I picked mil instead of adm since even through the corporate administration is in the military forest, it is not pure administration. Using mil vs. adm appears to be a little more generic.

C: The e-mail domain throws this off. The e-mail domain is the Exchange Server 2000 mail

domain, which is internal to Exchange Server, and not a Windows 2000 Domain within the forest.

D, G: As an **Answer:** pair, this would have been an alternate choice. It would be better than the A, F choice in that there would be one less level in the domain name. Local is usually used to isolate the internal domain names from the external domain names. Although this isolation was the original naming recommendation by Microsoft, Microsoft has backed off of the recommendation that these names (internal vs. external) be different. This decision was based on the problems encountered by having the names different as well as the confusion this causes. Also, there is nothing in the case study that leans us towards isolation of the domain naming structure.

E: The e-mail domain throws this off. The e-mail domain is the Exchange Server 2000 mail domain, which is internal to Exchange Server, and not a Windows 2000 Domain within the forest.

QUESTION NO: 8

What are the two most important business considerations for the company's forest design decision? (Each correct Answer: part of the solution. Choose two)

- A.** The possibility that domain controller will be located in unsafe physical locations
- B.** Security concerns between divisions
- C.** The hosting of Exchange 2000 by the military division
- D.** Accountability for quality of service
- E.** The lack of central IT authority

Answer: D, E

Explanation:

There have been some problems with uptime. Now even though the uptime issues that were mentioned only related to e-mail, we have to be safe to assume that there is some mistrust between the two entities as to whether service levels can be reached and maintained. The two entities each have a central IT staff (or will have), but there is no CENTRAL IT staff for Contoso, Ltd that services everyone. The two divisions have always been autonomous, and it looks like the Windows 2000 Active Directory conversion isn't going to change that part of the corporate culture.

Incorrect Answers:

- A:** Issues about physical security of the domain controllers can be handled in a single forest environment, without having to split into multiple forests.
- B:** Security issues can be addressed by having multiple domains. The only time the security concerns may be of issue is when the Enterprise Admin function has to be invoked to perform some operation. Then, there would be an issue of who owns the root domain.
- C:** Multiple forests make the administration of Exchange 2000 more difficult, so using multiple forests isn't really a benefit for anyone.

QUESTION NO: 9

You need to create a DNS design of Contoso, Ltd. Move the appropriate tasks to the appropriate server or servers. (Use only tasks that apply. You might need to reuse tasks.)

DNS server	Task
Collapse ■ UNIX DNS server hosting constoso.com ■ Military division root zone DNS server ■ Aerospace division root zone DNS server ■ Military division child domain zone DNS server ■ Aerospace division child domain zone DNS server	<< Move Remove >> - Create a secondary zone of the military division root domain - Configure forwarding to the aerospace division root DNS server - Configure forwarding to the military division root DNS server - Create a delegated subdomain for the military division child domain - Create a secondary zone of the aerospace division root domain - Create a delegate subdomain for the aerospace division root domain - Create a delegate subdomain for the military division root domain - Create a delegate subdomain for the aerospace division child domain

Answer:

You need to create a DNS design of Contoso, Ltd. Move the appropriate tasks to the appropriate server or servers. (Use only tasks that apply. You might need to reuse tasks.)

DNS server	Task
Collapse ■ UNIX DNS server hosting constoso.com - Configure forwarding to the military division root DNS server - Configure forwarding to the aerospace division root DNS server ■ Military division root zone DNS server - Create a delegated subdomain for the military division child domain ■ Aerospace division root zone DNS server - Create a delegate subdomain for the aerospace division child domain ■ Military division child domain zone DNS server ■ Aerospace division child domain zone DNS server	<<Move Remove>> - Create a secondary zone of the military division root domain - Configure forwarding to the aerospace division root DNS server - Configure forwarding to the military division root DNS server - Create a delegated subdomain for the military division child domain - Create a secondary zone of the aerospace division root domain - Create a delegate subdomain for the aerospace division root domain - Create a delegate subdomain for the military division root domain - Create a delegate subdomain for the aerospace division child domain

Explanation:

This scenario allows the UNIX DNS server to forward the appropriate requests to the proper forest, letting the DNS servers in the forest resolve the queries. Delegating from the root the child subdomain, allows the DNS servers in the child domain to service the child domain. This should make it easy to incorporate Active Directory Integrated Zones, and if required, secure active directory integrated zones.

Case Study #2, Tailspin Toys

Background

Tailspin Toys is a medium-sized manufacturer of corporate marketing product. The company designs and manufactures products such as glasses, clothing, and hats that are customized with a company name or logo. The company specializes in manufacturing unusual items for large companies. Tailspin Toys plans to acquire Wide World Importers, one of its clothing suppliers. Wide World Importers is located in Atlanta. The supplier is well known and has an Internet presence on its own domain. Wide World Importers will operate independently of Tailspin Toys

Existing Environment

The headquarters for Tailspin Toys are located in Detroit. There are two separate company locations in Detroit. One location contains the IT center and the other location contains the headquarters office. The IT center has 100 employees, and the headquarters offices have 2,000 employees. The company employs 20,000 people in nine manufacturing facilities in the United States, two facilities in Europe. Of these 20,000 employees, 15,000 use computers. The company operations are located in the following regions:

East (3,000 users)

- Boston-regional headquarters
- New York
- Pittsburgh

Midwest (3,000 users)

- Chicago-regional headquarters
- Cincinnati
- Cleveland

West (5,000 users)

- San Diego-regional headquarters
- Las Vegas
- San Francisco

Canada (1,000 users)

- Toronto-regional headquarters
- Montreal

Europe (2,000 users)

- Frankfurt-regional headquarters

- Berlin

Mexico (1,000 users)

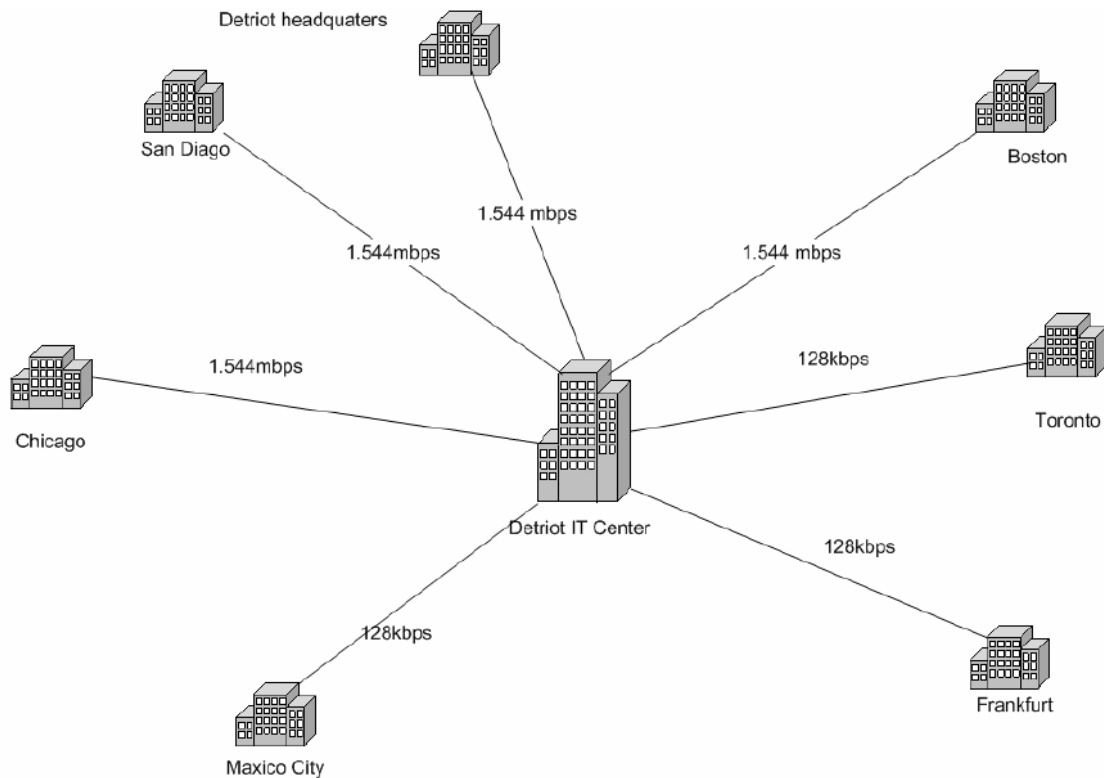
- Mexico city

Tailspin Toys conducts training in Cleveland for all its employees and for employees of Wide World

Importers. During training, employees need access to their local sales and manufacturing information.

Offices that connect to the IT center in Detroit are shown in the network diagram. Click the exhibit

button and then click the Network Diagram tab.



In addition to the offices and connections shown in the network diagram, the following offices have

128-Kbps connections:

- Pittsburgh to Boston
- New York to Boston
- Cincinnati to Chicago
- Cleveland to Chicago
- Berlin to Frankfurt
- San Francisco to San Diego
- Las Vegas to San Diego
- Montreal to Toronto

Bandwidth usage on the connections between the IT center and headquarters and between the IT center and San Diego is approximately 50 percent on each connection. Bandwidth usage on the connection between San Diego and San Francisco is approximately 50 percent. All desktop client computers run Windows NT workstation 4.0. The portable computers run either Windows 95 or Windows 98. There are three Windows NT 4.0 domains, which are named SPINNA, SPINEU, and SPINENG. Company computers in all locations in North America are in SPINNA. Company computers in Frankfurt and Berlin are in SPINEU. There is a two-way trust between SPINNA and SPINEU. All locations use Windows NT server 4.0 for DHCP, WINS, and DNS. The DNS server in the IT center currently acts as the primary name server for all existing zones of Tailspin Toys. This DNS server resides on a BDC for the SPINNA domain. The

BDC is located in the IT center. Each company office except those in Europe have a domain controller

for the SPINNA domain and a separate application server. The European offices have domain controllers for only the SPINEU domain. The engineering department is in Mexico City. Because of security concerns, users in the engineering department have their own domain. This domain is named SPINENG. The engineering department administers all user accounts and resources for its domain. SPINNA trusts the SPINENG domain. There is a technical support staff at each regional headquarters. In addition, there are local administrators at all locations. Local administrators perform local network and account administration. The IT center in Detroit provides technical support to the manufacturing facility in Mexico City.

Business Requirements

Chief Information Office (CIO) Interview

The Montreal office will be permanently closed in the near future. Many other users from the Montreal office will be transferred to Toronto. Although the Montreal office is scheduled to close during the Windows 2000 upgrade, it might not close until after the upgrade is complete. Sales personnel in all regions need access to the resources located in the manufacturing facilities in all regions. There are too many technical support personnel who have administrative rights to the domains. I want to decrease technical support at the IT center in Detroit. I also want to have a common naming standard that will accommodate future growth plans.

Technical Requirements

All client computers will be upgraded to Windows 2000 Professional. Before the Windows 2000 implementation the 128-Kbps connection between the IT center and Frankfurt will be replaced by a 1544-Mbps line. There are no plans to upgrade the 128-Kbps connection between the IT center and Toronto or between the IT center and Mexico City. Wide World Importers will be connected to the Tailspin Toys IT center by a 256-Kbps line. Tailspin Toys wants every user to be able to log on to a local computer and access local network resources even if a WAN connection is lost. Tailspin Toys wants to continue using the existing security

policies for Europe and North America.

Domain administration for Tailspin Toys will be centralized in two technical support centers. One center will be located in the IT center in Detroit and a second center will be located in Frankfurt. The technical support staff at each regional headquarters will continue to be responsible for basic tasks. Support for Europe that takes place after European business hours will be performed by the North

America support center. Each support center will also be responsible for granting the staff at each

regional headquarters access to resources as needed.

The engineering domain will be consolidated into the na.tailspintoy.com domain to provide better

uptime. The users and resource in the engineering department will be integrated into

Active Directory as

normal users and resources. The engineering department has user needs and practices that are different

from those of other departments. Therefore, the engineering department needs to retain the ability to

administer its own user accounts and resources.

A software development company is creating human resource software for Tailspin Toys.

The software

will be integrated with Active Directory. This software will add additional attributes to user objects.

Wide World Importers is also developing similar software. Both software solutions will be implemented

independently. In addition, Wide World Importers has 20 inventory and distribution applications that

need to be used by Tailspin Toys employees.

Tailspin Toys has registered tailspintoys.com domain name. Wide World Importers has registered the

wideworldimporters.com domain name.

Group Policy can vary among regions and locations. Technical support staff in each region needs to be

able to change policies at each location, but all will share some common settings.

CIO Interview

To reduce replication traffic on the connection between Frankfurt and the IT center, I want one domain

for North America and a different domain for Europe. To keep Wide World Importers administratively

separate from Tailspin Toys, we need to put them in separate Active Directory forests.

(The Active

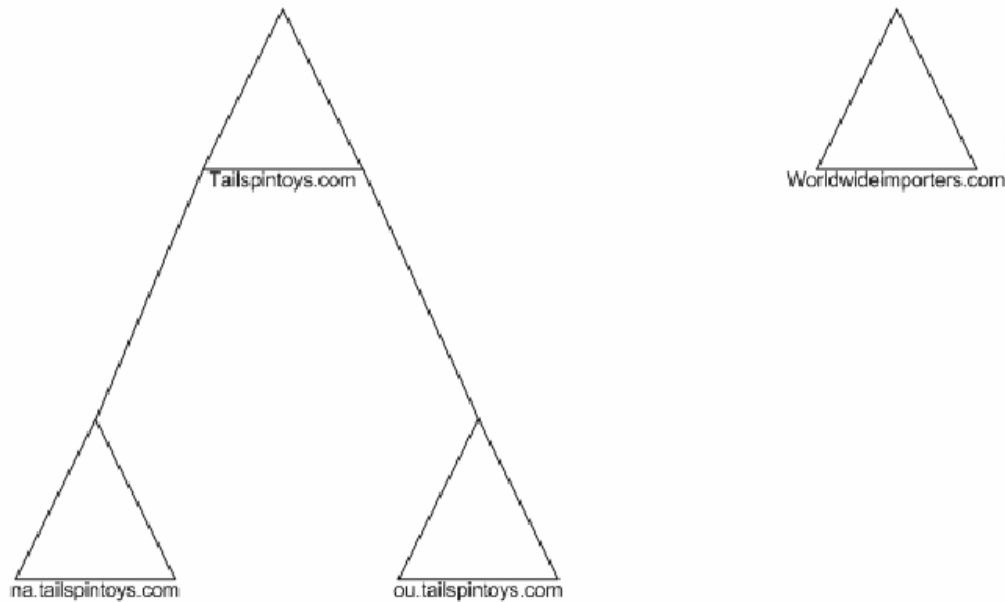
Directory forest diagram is displayed in the exhibit. Click the exhibit button and then the Active

Directory Forest tab)

I want every employee to have a smart card that must be used for all interactive logon authentications. I

also want to take advantage of the added security of Active Directory integrated DNS zones where possible.

However, I want to keep the DNS structure as simple as possible.



Case Study #2, Tailspin Toys (12 Questions)

QUESTION NO: 1

You need to decide which domain controller to upgrade first. Which factor has the most influence on your decision?

- A. The empty root domain strategy used by the new forest for Tailspin Toys
- B. The planned upgrade of the WAN connection between the IT center and Frankfurt
- C. The current DNS server placements
- D. The statement by the CIO that there will be two forests; one for Tailspin Toys and one for Wide World Importers

Answer: B

Explanation:

Well, the first Domain Controller to be upgraded has to be a PDC, because we are talking domain controller upgrade. We have three domains for Tailspin Toys, and we will end up with three active directory domains. One of those domains will be the empty root, and

then we will upgrade SPINNA and SPINEU and eliminate SPINENG. So, the question comes down to which PDC to do first, SPINNA or SPINEU?

When we look at the size of the domains (in terms of users), we have 2,000 users in the SPINEU domain, and over 15,000 users in the SPINNA domain, which includes the users in headquarters. When choosing account domains to convert, it is usually advisable to convert a smaller domain first. There are

many reasons for this, but basically if something goes **Incorrect**, the smallest amount of users will be

affected. Conversion, and recovery from failure will be smaller since the user account database will be

smaller (with less users).

The empty root domain will need to be created first, and it will reside at IT headquarters. It will, by

default, have a global catalog. When the first SPINEU domain controller is upgraded, it can ALSO be

made a Global Catalog Server. So, although we upgrade SPINEU first, it will actually be the 2nd domain

in the forest. As a result, we have now added traffic – cross domain replication traffic of Active

Directory. Even though we can control the intervals of replication, and replication is compressed

between sites, this is still additional traffic that is being imposed across the link. Since IT headquarters

will provide help desk support after hours, more bandwidth may be required as service calls initially

increase due to the newness of the system and the changes. Finally, since Active Directory heavily relies

on DNS, with the DNS servers located at IT headquarters, there can be an expected increase in traffic for

DNS resolution.

Incorrect Answers:

A: The empty root strategy does not affect upgrading. Since the root is empty, it will not contain

any user counts other than the minimal set of administration users. The root domain will most

likely be built from scratch, and not done via an upgrade.

C: This could be considered a toss-up. DNS placement is important, since Active Directory is more

DNS intensive. We know that we can't use the current DNS servers, since the DNS servers are

on a BDC, meaning we are running Windows NT 4.0 DNS, which does not support SRV records. We also are mandated to use Active Directory Integrated Zones. If we start off by using

integrated zones, then the DNS placement can be controlled to NOT matter as much. But

because of other traffic considerations, such as replication traffic, network bandwidth has to be

considered more important because performance is usually a high factor.

D: The number of forests really does not become a consideration. We are choosing domain s to

convert, and whether the three domains are in different forests or the same forest, there are other considerations that determine the appropriate domain to tackle first.

QUESTION NO: 2

Move each administrative group to the container object or objects to which it needs administrative access. (Use only groups that apply. You might need to reuse groups.)

Container Object	Administrative Group
Collapse ■ tails Pintoys.com domain ■ na.tails Pintoys.com domain ■ eu.tails Pintoys.com domain ■ Regional Organizational Units ■ Engineering Organizational Units	North America Administrators Engineering Administrators Mainframe Administrators Europe Administrators Regional Administrators

<<Move

Remove>>

Answer:

Move each administrative group to the container object or objects to which it needs administrative access. (Use only groups that apply. You might need to reuse groups.)

Container Object	Administrative Group
Collapse ■ tailspintoys.com domain North America Administrators ■ na.tailspintoys.com domain North America Administrators ■ eu.tailspintoys.com domain Europe Administrators ■ Regional Organizational Units North America Administrators ■ Engineering Organizational Units North America Administrators	North America Administrators Engineering Administrators Mainframe Administrators Europe Administrators Regional Administrators <<Move Remove>>

Explanation:

Tailspintoys.com domain

North America Administrators (This is an empty root domain, it will be maintained at IT Headquarters.)

Na.tailspintoys.com domain

North America Administrators. (North American administrators will administer the na.tailspintoys.com domain)

Eu.tailspintoys.com domain

Europe administrators. (Europe administrators will administer the Europe domain)

Regional OUs.

North American administrators. (These are domain Admins. Each location is an OU in the domain)

Engineering OUs.

North American Administrators. (Engineering will be absorbed into the NA domain, and administered by the North American Administrators.

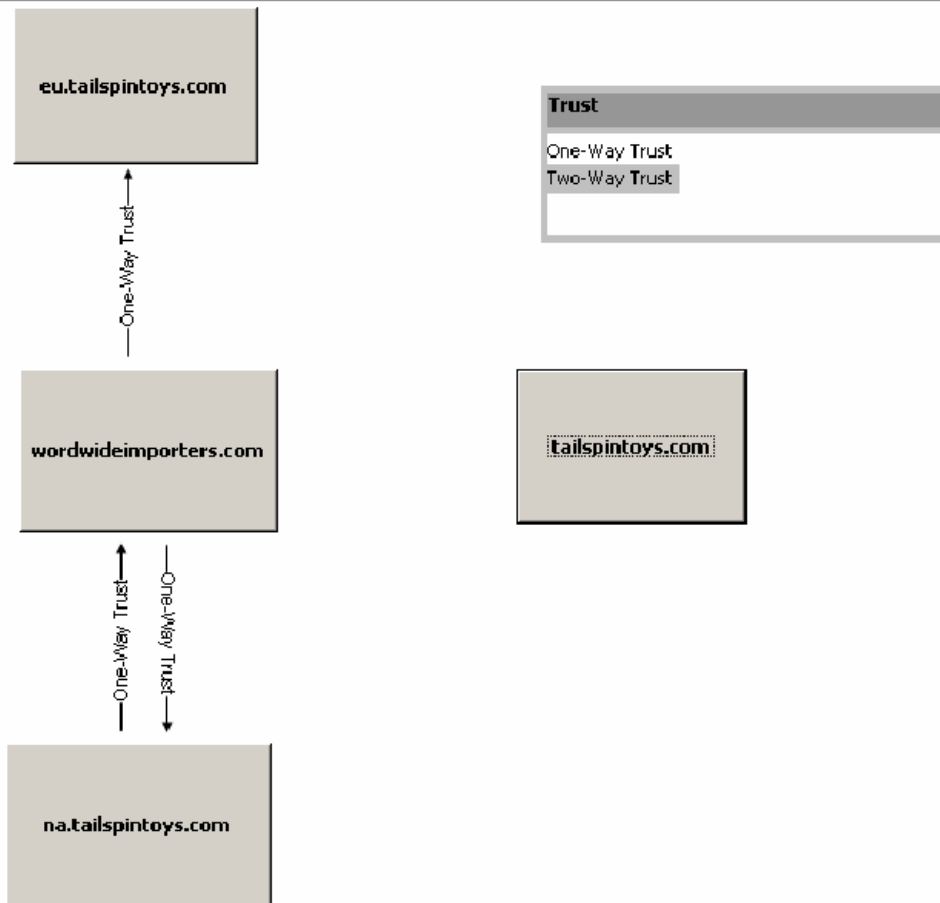
QUESTION NO: 3

You want to give employees of Tailspin Toys and Wide World Importers the access to resources they need. Use the domains and trusts provided to create a diagram showing the trusts you should create. (Use Only domains and trusts that apply.)



Answer:

You want to give employees of Tailspin Toys and Wide World Importers the access to resources they need. Use the domains and trusts provided to create a diagram showing the trusts you should create. (Use Only domains and trusts that apply.)



Explanation:

First, we have this statement: “Tailspin Toys conducts training in Cleveland for all its employees and for employees of World Wide Importers. During training, employees need access to their local sales and manufacturing information”, which tells us that WWI employees need to access resources at WWI from TT, and the user accounts are at WWI. So, from TT, we need a trust relationship in which TT trusts WWI – because the accounts are at WWI. Second, we have this statement: “World Wide Importers has 20 inventory and distribution applications that need to be used by Tailspin Toys employees”, which tells us the resources are at WWI, but the user accounts are at TT, so WWI has to trust TT. So, why do we need trusts? The original trusts, such as the trusts between SPINNA & SPINEU are no longer required. Since the upgraded versions will both be part of the same forest, two-way transitive trusts will already be in place. What we don’t have are any implied trusts between World Wide Importers (WWI) and Tailspin Toys (TT). Na.tailspintoys.com domain will house the training, so a one-way trust is needed where: Na.tailspintoys.com domain->worldwideimporters.com

Now, since trusts between forests are not transitive, we need an explicit trust for each Tailspin Toys Domain, as such:

Worldwideimporters.com-> Na.tailspintoys.com domain

Worldwideimporters.com-> Eu.tailspintoys.com domain

We then make two observations:

1) Since the root of tailspin Toys is empty and not used, there will be no trusts attached to that root.

2) Trusts between forests can only be ONE-WAY. To get an effective two-way trust, you have to setup two ONE-WAY trusts, one in each direction.

QUESTION NO: 4

How many global catalog servers should you include in your design for the Tailspin Toys.com forest?

- A. 5
- B. 6
- C. 15
- D. 16

Answer: D.

Explanation:

There are 16 locations including the two sites in Detroit. There should be one global catalog server at each site.

Incorrect Answers:

A, B, C: There should be one global catalog server at each of the 16 sites.

QUESTION NO: 5

Where should you place the PDC emulator role holder for eu.tailspintoys.com?

- A. Detroit IT center
- B. Berlin
- C. Cleveland
- D. Detroit headquarters

Answer: B.

Explanation:

Let's see what the CIO had to say: "To reduce replication traffic on the connection between Frankfurt and the IT center, I want one domain for North America and a different domain for Europe".

What does this tell us? The CIO does NOT want to spread the domains across the Frankfurt-IT Center

data link, regardless of the T1 upgrade. Also, suppose we used the Detroit IT center, Cleveland, or Detroit HQs location – then that still means that we are imposing traffic across that T1 link. Also, we would be required to add Domain Controllers for Europe at the designated North America location. In order to keep that traffic off of the T1, and also not induce any additional Domain Controllers, the PDC should be located at either Frankfurt or Berlin. Since Berlin was the only choice in the **Answers**, Berlin is the best choice of location.

QUESTION NO: 6

You need to design the Tailspin Toys DNS structure. Arrange the tasks you should perform to achieve your goal. Place the task you should perform at the top of the list, and the continue listing task in the order in which you should perform them.

Tasks

- ▲ Make all tailspintoys.com domain controllers DNS servers
- ▼ Create an Active Directory integrated zone at tailspintoys.com
- Make all eu.tailspintoys.com domain controllers DNS servers
- Create an Active Directory integrated zone at eu.tailspintoys.com
- Make all na.tailspintoys.com domain controllers DNS servers
- Delegate the na.tailspintoys.com domain
- Delegate the eu.tailspintoys.com domain
- Create an Active Directory integrated zone at na.tailspintoys.com

Answer:

You need to design the Tailspin Toys DNS structure. Arrange the tasks you should perform to achieve your goal. Place the task you should perform at the top of the list, and the continue listing task in the order in which you should perform them.

Tasks

- ▲ Make all tailspintoys.com domain controllers DNS servers
- ▼ Make all na.tailspintoys.com domain controllers DNS servers
- Make all eu.tailspintoys.com domain controllers DNS servers
- Create an Active Directory integrated zone at tailspintoys.com
- Delegate the na.tailspintoys.com domain
- Delegate the eu.tailspintoys.com domain
- Create an Active Directory integrated zone at na.tailspintoys.com
- Create an Active Directory integrated zone at eu.tailspintoys.com

Explanation:

Explanation:

Step 1: We make all domain controllers DNS servers.

Step 2: We create an Active Directory integrated domain at tailspintoys.com.

We must create the zone for the domain before we delegate it. In reality we would have to create not only the tailspintoys.com zone, but the na.tailspintoys.com and eu.tailspintoys.com zones as well at tailspintoys.com before we delegate them. Those two last steps are not listed in the scenario however..

Note: All domains (or subdomains) that appear as part of the applicable zone delegation must be created

in the current zone prior to performing delegation.

Step 3: We delegate the na.tailspintoys.com and eu.tailspintoys.com domains.

Step 4: Finally we create the zones for the subdomains at na.tailspintoys.com and eu.tailspintoys.com domains.

Note: There is more than one correct order.

Reference: Windows 2000 Server documentation. To create a zone delegation

Incorrect Answers

We must delegate the domains before we create the zones. We cannot swap step 3 and step 4.

QUESTION NO: 7

You need to create Forest design for the Tailspin Toys intranet. Move each element to the appropriate forest or forests. (Use all elements. You might need to reuse elements.)

Organizational Unit Level	Organizational Unit
 ■ Top-level Organizational Units ■ Second-Level Organizational Units	Sales Midwest Mexico East Region Europe West Engineering Manufacturing Canada
<<Move Remove>>	

Answer:

You need to create forest design for the Tailspin Toys intranet. Move each element to the appropriate forest or forests. (Use all elements. You might need to reuse elements.)

Organizational Unit Level		Organizational Unit
		
■ Top-level Organizational Units - East - Midwest - West - Canada - Mexico - Europe ■ Second-Level Organizational Units - Manufacturing - Engineering - Sales - Region	<<Move Remove>>	Sales Midwest Mexico East Region Europe West Engineering Manufacturing Canada

Explanation:

East, Midwest, West

Each of the regions will be a separate top-level organizational unit.

Canada, Mexico, Europe

Each of the countries will be a separate top-level OU. Europe should have be top-level OU.

Manufacturing, Engineering

Mexico city has Manufacturing and Engineering department, so Mexico City will have two subordinate

OU's, one Manufacturing and the other Engineering.

Sales

Most likely all top-level OUs would require a sales department which should be implemented as a second-level OU.

Region

At least within the European OU there would be prudent to have a region child OU.

QUESTION NO: 8

Which type of administrative model will result from the upgrade?

- A. Centralized IT management and centralized administration
- B. Centralized IT management and decentralized administration
- C. Decentralized IT management and centralized administration
- D. Decentralized IT management and decentralized administration

Answer: C.

Explanation:

Lets look at the technical requirement, which says: “Domain administration for Tailspin Toys will be centralized in two technical support centers. One center will be located in the IT center in Detroit and a second center will be located in Frankfurt. The technical support staff at each regional headquarters will continue to be responsible for basic tasks”. This appears that administration will be centralized, but certain IT management will still be controlled by the regions, so some of it is decentralized.

QUESTION NO: 9

You need to design the Tailspin Toys site structure. You want to give costs to your site links to provide for better site coverage. Move the appropriate site links to the appropriate costs. (Use all site links. Use each site link only once.)

Site Link Cost	Site Link
Collapse 10 20 150 300	IT-Frankfurt IT-Chicago San Diego-San Francisco IT-Toronto IT-San Diego Chicago-Cincinnati IT-Mexico-City Frankfurt-Berlin <<Move Remove>>

Answer:

You need to design the Tailspin Toys site structure. You want to give costs to your site links to provide for better site coverage. Move the appropriate site links to the appropriate costs. (Use all site links. Use each site link only once.)

Site Link Cost	Site Link
Collapse 10 20 - IT-Frankfurt - IT-Chicago - IT-San Diego 150 300 - San Diego-San Francisco - IT-Toronto - Chicago-Cincinnati - IT-Mexico-City - Frankfurt-Berlin	<< Move Remove >> IT-Frankfurt IT-Chicago San Diego-San Francisco IT-Toronto IT-San Diego Chicago-Cincinnati IT-Mexico-City Frankfurt-Berlin

Explanation:

10

20

IT-Frankfurt (1.544Mbps)

IT-Chicago (1.544Mbps)

IT-San Diego (1.544Mbps)

150

300

San Diego-San Francisco (128Kbps)

IT-Toronto (128Kbps)

Chicago-Cincinnati (128Kbps)

IT-Mexico City (128Kbps)

Frankfurt-Berlin (128Kbps)

Logic: Assigning the highest cost to the lowest speed. The difference between 128Kbps and 1.544Mbps

is almost 1:12, so allowing for proportional steps, I used 20 for 1.544Mbps, which leaves 15 steps. Now

I could have used 10 & 150, but by using 20 & 300 this leaves the cost of 10 for even faster

communications in case we add a T3 or something later.

Note that before the Windows 2000 implementation the 128-Kbps connection between the IT center and

Frankfurt will be replaced by a 1544-Mbps line.

QUESTION NO: 10

You need to design the UPN naming standard for Tailspin Toys. Which factor is the most important?

- A. The tailspintoys.com schema will be modified
- B. The tailspintoys.com forest is a multidomain forest
- C. Smart cards must be used for interactive logon authentication
- D. The engineering domain will be collapsed into na.tailspintoys.com

Answer: D

Explanation:

Since the engineering domain will be folded into the na.tailspintoys.com domain, it is possible that userids may conflict if the same userid was used for two different people, where the two users were in two different original domains.

Incorrect Answers:

- A: Fields will be added to the schema, but that does not change. Modify, nor affect the UPN.
- B: The UPN restrictions do not span the domain, so having duplication in different domains is not an issue.
- C: Smart cards do not rely on the UPN, they use certificates for the logon.

QUESTION NO: 11

You need to decide where to locate domain controllers for the tails Pintoys.com, eu.tails Pintoys.com, and na.tails Pintoys.com domains. Move the appropriate sites to the appropriate domain or domains. (Use only sites that apply. You might need to reuse sites.)

Domains	Site
Collapse ■ na.tails Pintoys.com ■ eu.tails Pintoys.com ■ tails Pintoys.com	<< Move Remove >> - Detroit IT center - Toronto - Chicago - San Francisco - San Diego - Cleveland - Frankfurt

Answer:

You need to decide where to locate domain controllers for the tailspintoys.com, eu.tailspintoys.com, and na.tailspintoys.com domains. Move the appropriate sites to the appropriate domain or domains. (Use only sites that apply. You might need to reuse sites.)

Domains		Site
Collapse		
■ na.tailspintoys.com - Detroit IT center - Toronto - Chicago - San Diego - Cleveland - San Francisco ■ eu.tailspintoys.com - Frankfurt ■ tailspintoys.com - Detroit IT center	<<Move Remove>>	- Detroit IT center - Toronto - Chicago - San Francisco - San Diego - Cleveland - Frankfurt

Logic: Technical Requirements say: "Tailspin Toys wants every user to be able to log on to a local computer and access local network resources even if a WAN connection is lost." This implies that every site will have domain controllers.

So, we separate each site into NA and EU. Finally, we have the issue of the root domain, which will need domain controllers, so we drop them in the Detroit IT center.

QUESTION NO: 12

Which two factors are reasons to collapse the engineering domain into an organizational unit in na.tailspintoys.com? (Each correct Answer: presents parts of the solution. Choose two)

- A. Reduction of administration costs
- B. The existence of engineering department administrators
- C. Easier group policy administration
- D. Trust between SPINNA and SPINENG
- E. Redundancy concerns for engineering department users

Answers: A, C

Explanation:

With one less domain to manage, there are less administrative costs. If we maintained the separate domain, then there is a domain to manage, with separate domain controllers just for that domain. In Mexico City you would need domain controllers for the

na.tailspintoys.com domain to support the manufacturing users in Mexico City plus the domain controllers for Engineering. Having the Engineering in a separate OU, allows easier Group Policy administration, as well as making it easier to delegate tasks.

Incorrect Answers:

B: Engineering administrators can still manage user accounts under the OU level.

D: If the Engineering domain were part of the forest, then the trusts would be there anyway,

E: Redundancy was not an issue. Security was the issue of concern. And the OU still allowed security to continue to be handled the same way.

Case Study #3, Northwind Traders

Background

Northwind traders is a holding company for several automotive components companies. One of these subdirectories, Contoso, Ltd., manufacturers air-fuel management parts. Another company is named Fabrikam, Inc., and manufacturers electrical systems for cars. Litware, Inc., manufactures seat belts. Northwind Traders plans to continue to evaluate the market and purchase other automotive components companies to complement its current holdings. Northwind Traders has approximately 200 employees, all of whom are at the headquarters in Denver. Contoso, Ltd., has 20,000 employees, Fabrikam, Inc., has 12,500 employees, and Litware, Inc., has 8,000 employees.

You have been hired as a consultant to help Contoso, Ltd., install a Windows 2000 network

Existing Environment

Contoso, Ltd., has its headquarters in Atlanta. Contoso, Ltd., has manufacturing facilities and the

indicated number of computer users in the following cities:

- Detroit-6,500 users
- Phoenix-500 users
- Atlanta (at different location from headquarters)-6,500 users

Fabrikam, Inc., has its headquarters in Cleveland. Fabrikam, Inc., has manufacturing facilities and the

indicated number of computer users in the following cities:

- Detroit-5,000 users
- Buffalo-5,000 users
- Houston-2,000 users

Litware, Inc., has a manufacturing facility in Nashville. The Litware, Inc., headquarters are located at

the manufacturing facility

Contoso, Ltd., has one Windows NT domain. There are currently administrators at all three company

locations. These administrators have full administrator access to the domain. Contoso, Ltd., has grown

substantially over the past year, and communication issues are causing a number of administration

problems

Client computers at Contoso, Ltd., are currently running a combination of Windows 98, Windows NT 4.0 workstation, and Windows NT 4.0 server. All the servers are running Windows NT 4.0 server. Most of the client computers are running on single processor, 200-MHz Pentium computers with 32 MB of RAM. Some computers are 400-MHz Pentium III computers with 64 MB of RAM

Business Requirements

Contoso, Ltd., Chief Information Office (CIO) Interview

We have decided that we want to design a totally new solution that uses Windows 2000. With Windows

2000 we want to start our design with all new accounts and a new domain structure. Our existing

domain is fairly small and has been developed haphazardly. As a result, we do not want to migrate or

upgrade from the old environment.

We are worried that a move to Windows 2000 and Active Directory will require more highly trained and

skilled administrators. We want to minimize the number of administrators as much as possible to keep

our costs down. To help manage our growth, I want the Active Directory design to include an empty

root domain for any forest or forests created.

To help coordinate our products, we frequently share data with the Fabrikam, Inc., engineers. This helps

both companies market and sell our products.

One of the benefits we hope to achieve with the move to Windows 2000 is increase security.

Contoso, Ltd., Chief Executive Office (CEO) Interview

Currently, we have manufacturing facilities only in the United States. Within the next two years, we

plan to double in size. We plan to expand into Europe and possibly Asia, which are totally unexpected

markets for us. I see our update to Windows 2000 and Active Directory as a means to help us facilitate

our growth and better communicate with our staff at different locations, as well as with other Northwind

Traders subsidiaries.

Fabrikam, Inc., Chief Executive Office (CEO) Interview

There has recently been a change in upper management. This change was needed because of some bad

business choices that resulted in extremely poor revenues, we need to reduce our expenses as much as

possible. We plan to close our Houston plant within the next six months. We will probably scale back some of our existing manufacturing capabilities at the other two locations. We need to find ways to cut our short-term costs whenever possible.

Technical Requirements

Contoso, Ltd., will connect the manufacturing locations of the three company locations to headquarters

by 128-Kbps lines. Because normal business traffic will use most of the available bandwidth, the

company wants to minimize Active Directory replication traffic as much as possible between the locations.

The headquarters location of Northwind Traders and the headquarters locations of every Northwind

Traders subsidiary will be connected by 56-Kbps lines. These lines will be leased, and no replication

traffic will be allowed over the lines. Security of transmitted data is very important.

A central help desk will be set up for Contoso, Ltd., users to all if they have problems.

The help desk's

primary job will be to gather information about the problem and escalate it to third-tier administrators

located at company headquarters. To help reduce the number of problems handled by the administration

staff, the help desk will be given permission to reset user's passwords. Local administrators will be

responsible for local client computer maintenance.

To increase security, Contoso, Ltd., wants every employee to be given a smart card to use with the logon

process, secure e-mail, and EFS. Several Northwind Traders subsidiaries have expressed a desire to

increase security by using smart-card technology. Northwind Traders wants to create a certificate

hierarchy in which Northwind Traders controls the root certification authority.

To facilitate EFS, there will be an EFS recovery agent established. A different recovery agent will be set

up for every location.

Where possible, all computers will run Windows 2000 Professional, Windows 2000 Server, or Windows

2000 Advanced Server. Contoso, Ltd., wants to use Group Policy to control client computer access and user desktops.

Contoso, Ltd., has identified 25 existing applications that will still need to run in the new environment.

The application compatibility tool was used to run these applications in the Windows 2000 environment.

Two of these legacy applications used by some members of the engineering staff could not be converted.

These two applications will need to be run on Windows 95 or Windows 98 client computers. The

remaining applications have been tested and will run on Windows 2000 computers

Case Study #3, Northwind Traders (10 Questions)

QUESTION NO: 1

How many domain controllers should Contoso, Ltd., deploy?

- A. 4**
- B. 8**
- C. 10**
- D. 16**

Answer: C.

Explanation:

Contoso has 4 sites: Manufacturing facilities in Atlanta, Detroit and Phoenix and headquarters at a

separate site in Atlanta. Each of the four sites should have a minimum of two domain controllers for

fault tolerance making a total of 8 domain controllers. We also require two DCs for an empty root

domain. This gives us a total of 10 DCs.

Incorrect Answers:

A: This will provide no fault tolerance with only one DC per site.

B: We need 2 DCs for the empty root domain plus 2 DCs for each site.

D: This suggests more DCs than necessary.

QUESTION NO: 2

Which security feature or features does Contoso, Ltd., need to implement in order to send and receive data to and from Northwind Traders? (Choose all that apply)

- A. EFS**
- B. IPSec**
- C. NTLM v2**
- D. Kerberos**
- E. Certificate-based authentication**

Answer: B, E.

Explanation:

Northwind Traders want to implement a certificate hierarchy for secure logons. IPSec should be used to secure data transfers to and from Northwind Traders.

Incorrect Answers:

A: EFS is used for encrypting data on NTFS volumes.

C: This is used by downlevel clients for authentication in an NT domain.

D: This is the default authentication mechanism for Windows 2000. However, in this scenario, we are using the increased security offered by Certificate-based authentication.

QUESTION NO: 3

What should the scope of your Active Directory design include?

A. Only Northwind Traders and Contoso, Ltd.

B. Northwind Traders and all subsidiaries

C. Only Contoso, Ltd. and Fabrikam, Inc.

D. Only Contoso, Ltd.

Answer: D.

Explanation:

From the 'background' paragraph in the scenario: You have been hired as a consultant to help Contoso, Ltd., install a Windows 2000 network

Incorrect Answers:

A: The scenario specifically states: You have been hired as a consultant to help Contoso, Ltd., install a Windows 2000 network

B: The scenario specifically states: You have been hired as a consultant to help Contoso, Ltd., install a Windows 2000 network

C: The scenario specifically states: You have been hired as a consultant to help Contoso, Ltd., install a Windows 2000 network

QUESTION NO: 4

Contoso, Ltd, needs to plan and implement its new Windows 2000 environment. Identify the tasks the company needs to perform to achieve its goal. Move the tasks from the Tasks pane to the Ordered List of Tasks pane, and arrange them in the appropriate order (Use only tasks that apply)

Ordered List of Tasks	Tasks
▲▼	Upgrade the existing Windows NT 4.0 domain Create any new user and computer accounts that are necessary Create new Windows 2000 empty root domain Switch the root domain to native mode Migrate existing user and group accounts into a new Windows 2000 domain or domains Create a new Windows 2000 domain or domains for users, computers, and other objects Switch the new Windows 2000 domain or domains for users, computers, and other objects to native mode
<<Move Remove>>	

Answer:

Contoso, Ltd, needs to plan and implement its new Windows 2000 environment. Identify the tasks the company needs to perform to achieve its goal. Move the tasks from the Tasks pane to the Ordered List of Tasks pane, and arrange them in the appropriate order (Use only tasks that apply)

Ordered List of Tasks	Tasks
▲▼ Create new Windows 2000 empty root domain Switch the root domain to native mode Create a new Windows 2000 domain or domains for users, computers, and other objects Create any new user and computer accounts that are necessary Switch the new Windows 2000 domain or domains for users, computers, and other objects to native mode	Upgrade the existing Windows NT 4.0 domain Create any new user and computer accounts that are necessary Create new Windows 2000 empty root domain Switch the root domain to native mode Migrate existing user and group accounts into a new Windows 2000 domain or domains Create a new Windows 2000 domain or domains for users, computers, and other objects Switch the new Windows 2000 domain or domains for users, computers, and other objects to native mode
<<Move Remove>>	

Explanation:

Create a new Windows 2000 empty root domain. Contoso CIO: "I want the Active Directory design to include an empty root domain for any forest or forests created"

Switch the root domain to native mode. This will allow for the use of universal groups. Create a new Windows 2000 domain for users, computers and other objects. The existing NT domain is haphazard in design so should not be upgraded. Instead, a new Windows 2000 domain should be created.

Create any new user and computer accounts that are necessary. Contoso CIO: "we do not want to MIGRATE or upgrade from the old environment."

Switch the new Windows 2000 domain for users, computers, and other objects to native mode. Native mode domains make it easier to centralize administration. This is a requirement in this scenario.

QUESTION NO: 5

Which administrators should belong to schema Admins group for the Contoso, Ltd., forest? (Choose all that apply)

- A. Northwind Traders corporate administrators
- B. Fabrikam, Inc., headquarters administrators
- C. Contoso, Ltd., headquarters administrators
- D. Litware, Inc., headquarters administrators

Answer: C.

Explanation:

Contoso CIO: We want to minimize the number of administrators as much as possible to keep our costs down. In the technical requirements, it says that administrators are located at company headquarters.

Incorrect Answers:

A, B, D: Contoso administrators operate independently from the administrators at the other companies.

QUESTION NO: 6

Place the holders for operation master roles for the Contoso, Ltd, forest in the appropriate sites. Move the appropriate roles in to the appropriate sites. (Use only roles that apply. Use roles only once.)

Site	Operation Master Role
Collapse - Atlanta Headquarters - Phoenix - Detroit - Atlanta Manufacturing - Denver	<< Move Remove >> Schema Master Two Domain Naming Masters Three PDC Emulators One Infrastructure Master Two Infrastructure Masters Two Schema Masters Two PDC Emulators Four PDC Emulators Domain Naming Master One RID Masters Four RID Masters One PDC Emulator Two RID Masters Four Infrastructure Masters Three Infrastructure Masters Three RID Masters

Answer:

Place the holders for operation master roles for the Contoso, Ltd, forest in the appropriate sites. Move the appropriate roles in to the appropriate sites. (Use only roles that apply. Use roles only once.)

Site	Operation Master Role
Collapse - Atlanta Headquarters - Schema Master - Domain Naming Master - Two Infrastructure Masters - Two RID Masters - Two PDC Emulators - Phoenix - Detroit - Atlanta Manufacturing - Denver	<< Move Remove >> - Schema Master - Two Domain Naming Masters - Three PDC Emulators - One Infrastructure Master - Two Infrastructure Masters - Two Schema Masters - Two PDC Emulators - Four PDC Emulators - Domain Naming Master - One RID Masters - Four RID Masters - One PDC Emulator - Two RID Masters - Four Infrastructure Masters - Three Infrastructure Masters - Three RID Masters

Atlanta Headquarters:

Explanation:

At the Atlanta Headquarters we have one forest containing two domains. One empty root domain and

one domain for all the users and computers etc.

There is one schema master and one domain naming master for the whole forest.

There is one infrastructure master, one RID master and one PDC emulator for each of the two domains.

QUESTION NO: 7

Which action has the most potential to affect the security of client computers in the infrastructure of Contoso, Ltd.?

- A. Setting up recovery agents for EFS support
- B. Setting up IPSec on client computers for transfer of information between subsidiaries
- C. Granting help desk personnel permission to reset user passwords
- D. Setting up application compatibility

Answer: D.

Explanation:

Application compatibility is forcing some machines to remain at Windows 98, which does not support

EFS or Smartcard technology. If IPSec was needed, that too is not supported. So, setting up application compatibility means that the workstation cannot be locked down, since most of the required security features require Windows 2000 Professional.

Incorrect Answers:

A: Setting up the recovery agent does not affect the security of the clients, unless the recovery agent is breached. Otherwise, the recovery agent does not come into play unless/until someone else needs to decrypt files due to loss of keys

B: Setting up IPSec will take some work to setup, but will add to the security of the clients, protecting the data across the network. The case study does not indicate that this much protection will be put into place for client computers.

C: Having the help desk do password resets does provide a temporary exposure where one person may have a password for a short period of time. With proper configuration to force the user to change the password on next logon, the exposure can be limited and not have a large affect on security.

QUESTION NO: 8

Which type of certificate hierarchy should Northwind Traders and its subsidiaries use to provide the highest possible level of security?

- A.** Create an enterprise certification authority for Northwind Traders. Create a subordinate enterprise certification authority for Northwind Traders and each subsidiary
- B.** Create a stand-alone root certification authority for Northwind Traders. Create a subordinate stand-alone certification authority for Northwind Traders and each subsidiary
- C.** Create a stand-alone certification authority for Northwind Traders. Create a subordinate enterprise certification authority for Northwind Traders and each subsidiary
- D.** Create an enterprise certification authority for Northwind Traders. Create a subordinate stand-alone certification authority for Northwind Traders and each subsidiary

Answer: A.

Explanation:

Northwind Traders will have the root CA. We are using active directory domains so we can use Enterprise CAs. We need a subordinate Enterprise CA at each subsidiary using certificates from the enterprise root CA at Northwind Traders.

Incorrect Answers:

B: We need enterprise CAs at each subsidiary to authenticate domain users.

C: We need enterprise CAs at each subsidiary to authenticate domain users.

D: We need enterprise CAs at each subsidiary to authenticate domain users.

QUESTION NO: 9

You need to decide where administration tasks should be performed. Move the appropriate tasks to the appropriate locations. (Use all tasks. You might need to reuse tasks.)

Location	Task
Collapse ☐ Detroit ☒ Phoenix ☐ Atlanta Headquarters ☒ Atlanta Manufacturing	Schema Changes Password Resets Hardware Changes Software Installation User Creation Site changes <<Move Remove>>

Answer:

You need to decide where administration tasks should be performed. Move the appropriate tasks to the appropriate locations. (Use all tasks. You might need to reuse tasks.)

Location	Task
Collapse ■ Detroit - Password Resets - Hardware Changes - Software Installation ■ Phoenix - Password Resets - Hardware Changes - Software Installation ■ Atlanta Headquarters - Password Resets - Schema Changes - Hardware Changes - Software Installation - User Creation - Site changes ■ Atlanta Manufacturing - Password Resets - Hardware Changes - Software Installation	- Schema Changes - Password Resets - Hardware Changes - Software Installation - User Creation - Site changes <<Move Remove>>

Explanation:

Detroit:

Password resets. (should be done locally to ease administration).
 Hardware changes. (should be done by local Admins)
 Software installation. (should be done by locally to reduce WAN traffic)

Phoenix:

Password resets. (should be done locally to ease administration).
 Hardware changes. (should be done by local Admins)
 Software installation. (should be done by locally to reduce WAN traffic)

Atlanta Headquarters:

Password resets. (should be done locally to ease administration).
 Schema changes. (should only be done at HQ)
 Hardware changes. (should be done by local Admins)
 Software installation. (should be done by locally to reduce WAN traffic)
 User Creation. (should only be done by HQ Admins)
 Site Changes. (should be managed by HQ Admins).

Atlanta Manufacturing:

Password resets. (should be done locally to ease administration).

Hardware changes. (should be done by local Admins)

Software installation. (should be done by locally to reduce WAN traffic)

QUESTION NO: 10

Which type of IT management should be used for Contoso Ltd?

- A. Centralized IT Management and Centralized Administrator.
- B. Decentralized IT Management and Decentralized Administrator
- C. OutSourced IT Management and OutSourced Administrator
- D. Centralized IT Management and Decentralized Administrator.

Answer: A

Case Study #4, LITWARE, Inc

Background:

Litware, Inc manufactures various silicon components that are used in consumer electronics. The headquarters for Litware, Inc., are located in New York. Branch offices are located in San Jose, London, New Delhi, Bangkok, and Sydney. Manufacturing facilities are located in San Jose and Bangkok. The company has decided to deploy Active Directory, and you have been selected to create the design.

There are 5,000 employees at the head quarters in New York. The Sydney office has 3,500 employees.

There are approximately 500 to 800 employees in each of the other offices.

Each of the six offices is contained in one of two regions. The west region includes offices located in the following cities:

- New York
- San Jose
- London

The east region includes offices located in the following cities:

- Sydney
- Bangkok
- New Delhi

Existing Environment

Windows NT 4.0 Domains

Litware, Inc., has eight Windows NT 4.0 domains. There are two account domains, one in the east

region and one in the west region. There are six resource domains, one in each office.

The two Windows NT 4.0 account domains are maintained by separate IT departments.

The users in

these account domains are managed by one of the two help desk organizations. The east help desk is

located in Sydney, and the west help desk is located in New York. IT departments in each office are

responsible for their respective Windows NT 4.0 resource domains. These resource domains currently

trust both the east and west account domains.

Network Infrastructure

The New York headquarters campus contains two buildings that are approximately one mile apart and are connected by a 5-Mbps microwave connection. Building1 contains data center, which has the connections to the external WAN connections. Building2 has a smaller data center that contains file and print servers for the building. The WAN topology for Litware, Inc., is shown in the exhibit. Click the exhibit button.

E-Commerce Division

The e-commerce division employees are located in Building1 of the New York campus. The ecommerce division has already built an Active Directory forest named litwareinc.com. The litwareinc.com forest resides outside the Litware, Inc., firewall. The litwareinc.com forest hosts the user accounts that are used by end users of the e-commerce web site. User accounts of the e-commerce division employees are located in the west Windows NT 4.0 account domain. The external forest currently trusts the west account domain.

Business Requirements

Chief Executive Office (CEO) Interview

The global components market is highly competitive. Our employees must be able to collaborate with each other 24 hours a day and we cannot allow anything to interfere with this capability. We do a significant amount of research and development in all locations. Security is very important to me. I have appointed a corporate security office who reports directly to me to help maintain consistent security throughout the enterprise. During the next one to two years, we anticipate a sense of mergers, partnerships, and acquisitions. We need to be ready to incorporate these new entities into our organizational and managerial structure, and into our infrastructure. We must be able to easily restructure our organization, administration, and online data to take advantage of new resources without interrupting the design and manufacturing processes.

There is also the possibility that we will sell parts of the business. One group that I have considered selling in the past is the e-commerce division. We were in negotiations with a company that wanted to acquire this division. The divestiture did not make sense at that time, but there is a small possibility that we may sell this division within the next five years. The URL associated with this division's web services is extremely well known. If we do sell this division, I think it is likely the purchasing party would want control over the DNS name litwareinc.com. We are currently in the final stages of purchasing a state-of-the-art manufacturing facility in Chicago from a company named Contoso, Ltd. This acquisition should be complete in two to four months.

Chief Information Office (CIO) Interview

We anticipate many changes to the company organization during the next few years. We will be reorganizing entire divisions, incorporating unknown client and network operating systems and infrastructures, and adding large number of new users as we acquire new companies. I have appointed IT managers for the east and west regions. The IT manager for the west is located in New York. The IT manager for the east is located in Sydney. These two managers report to me. I have delegated to the managers complete decision-making power over the resources and users in their respective regions.

This division of control must not hinder the performance, security or availability of computer-based resources in the enterprise. When users access resources, these resources must be presented quickly, and logon times must be as fast as possible. We cannot afford to have any computer downtime. I am concerned about the acquisition of the Contoso, Ltd., manufacturing facility. This facility is already running Windows 2000 and is logging on to the Contoso.com forest used by the entire company of Contoso, Ltd. We plan to connect the Contoso, Ltd., manufacturing facility to the New York office by a 256-Kbps fractional T1 connection. Engineering design teams are located in all six offices. These teams collaborate to create, test, and modify new and existing component designs. This collaboration requires creating, accessing, and modifying a variety of documents and document formats that are on servers located throughout the company. Many of these engineers travel to other locations throughout the world for extended periods of time.

Technical Requirements

Corporate Security Office Interview

We have seen an increase in both internal and external attempts to breach the security of our network. We do not know if these attempts come from individuals who are simply testing their skills, or whether they are attempts at organized industrial espionage. Nevertheless, we are not taking risks. Security must be one of the primary considerations in the design of all operating systems and services. I plan to publish a mandatory security policy document requiring a minimum password length of 10 characters and a password expiration of 30 days. Additionally, all domain controllers in the enterprise will be physically secured. I am also concerned about someone gaining physical access to our network and using a packet-capturing device to analyze traffic. To help mitigate this risk, I want all communications that takes place between domain controllers to be encrypted.

CIO Interview

I am concerned about the bandwidth between Sydney and New York. Many of the resources that the people in the east region access are located in New York. This connection has an average utilization rate of 80 percent. The engineering department has a primary server named Corpeng and a share named Engdocs. This share contains thousands of documents that all engineers must have access to at all times.

I want to

ensure that all engineers can access these documents from a local server as quickly as possible. Administration of the organizational units needs to allow for the east and west help desks to continue to manage their respective user accounts. Each resource domain owner needs to be granted rights to continue to manage the computer resources and permissions. Our corporate policy states that all user accounts must be maintained only by help desk. Within the new Active Directory forest, I want to ensure that Litware, Inc., resource domain owners are not allowed to create or delete users under any circumstances. In addition, these resource domain owners should be granted the rights to manage Group Policy that will be applied to computers located in their sites.

I plan to create a global administrators team. The primary function of this team will be to act as the service owner of the entire forest. The team needs to have the ability to manage every object in Active

Directory and audit the actions of the help desk and site administrator groups.

I want flexibility in the forest design and the ability to transfer ownership of the forest without disrupting the users. Our primary data center, which includes the majority of my staff, is located in Building1. I want to ensure that in the event of a power outage in Building1 we can still provide all forest-wide operations.

West IT Manager Interview

We need to delegate authority for passwords resets and the management of file and printer resources to

our eight major departments: research and development, design, manufacturing, marketing, finance,

sales, IT, and human resources. At each branch office, each department's IT staff needs to have the

ability to manage the resources only within that one branch.

I want to ensure that, during the day, the link between the New York buildings is used in the most

efficient manner possible. It seems that when password requirements are too complex, users are more

likely to write them down. I think this is a larger security risk than allowing shorter passwords. For this

reason, I plan to mandate a minimum password length of four characters. The IT manager in the east

believes that password security can be maintained through strict corporate policies and end-user training.

He has decided to enforce a policy that requires passwords to be at eight characters.

Case Study #4, LITWARE, Inc (11 Questions)

QUESTION NO: 1

You need to analyze the data access patterns for the engineering department and make recommendations. You want to meet the CIO's technical requirements for providing access to the engineering documents. Which action or actions should you perform? (Choose all that apply)

- A. Configure replicas to replicate automatically
- B. Configure Group Policy for engineers to map to the `\\Corpeng\Engdocs` share
- C. Configure replicas to replicate manually
- D. Configure Group Policy for engineers to map to the `\\LocalServer\Engdocs` share
- E. Configure Group Policy for engineers to map to the `\\DomainName\Engdocs` share
- F. Deploy DFS replicas to each site

Answer: A, F.

Explanation:

In the CIO's statement, he says that the documents should be available from a local server. The best way to do this is to configure DFS replicas at each site and have them replicate automatically.

Incorrect Answers:

B: This would map a drive to a single server containing the documents.

C: The DFS replicas should replicate automatically.

D: This would map a drive to a single server called localserver. The statement requires that the documents should be available from a local server. This means a local server at each site so DFS is needed. The documents are on a server called corpeng.

E: This would map a drive to a single server called domainname. The statement requires that the documents should be available from a local server. This means a local server at each site so DFS is needed. The documents are on a server called corpeng.

QUESTION NO: 2

You need to create a security model for the organizational unit that will contain the Sydney resource. You want to support the technical requirements of the CIO. Which right or rights should you grant to the Sydney IT staff? (Choose all that apply)

- A. Create and manage computer objects
- B. Create and manage user objects
- C. Create organizational unit objects
- D. Create and manage domain local group objects
- E. Create and manage their own GPOs

Answer: A, D, E.

Explanation:

The IT staff for each branch office should be able to manage computer objects and manage their own GPOs for their OUs. Each resource domain owner needs to be granted rights to continue to manage the computer resources and permissions. To manage permissions, they should be able to manage user groups.

Incorrect Answers:

B: Only the helpdesk staff should be able to create user accounts.

C: There is no need for the IT staff to create child OU objects.

QUESTION NO: 3

According to the CIO's technical requirements, which IT group should create and maintain global groups?

- A.** east and west IT managers
- B.** site administrators
- C.** east and west help desks
- D.** global administrators team

Answer: D.

Explanation:

The CIO plans to plan to create a global admin team who will be able to manage all objects. This group would have the capability to create and maintain global groups.

Incorrect Answers:

A: The east and west IT managers should manage their local users, not global groups.

B: Only the IT managers should be able to manage user groups.

C: The helpdesk staff should be able to manage user accounts but the IT managers need to manage groups so they can assign permissions to resources.

QUESTION NO: 4

Which business or technical factor has the most influence on the number of internal forests that you include in your design?

- A.** Lack of physical security of domain controllers
- B.** Separation of IT management between east and west
- C.** General lack of trust of the central IT group
- D.** Reduction of administrative overhead
- E.** Possibility that the e-commerce division might be sold
- F.** Domain trust requirements between the internal e-commerce domain and the external ecommerce domain

Answer: E.

Explanation:

If the e-commerce division is sold, it is likely that the litwareinc.com domain name will be sold with it so we should make another forest with another root domain.

Incorrect Answers:

A: The DCs could be locked in secure rooms. This does not affect the forest design.

B: IT management tasks can be delegated with the use of organizational units. This does not affect the forest design.

C: There is no central IT group.

D: Administrative tasks can be delegated with the use of organizational units. This does not affect the forest design.

F: Trusts can be created either inter-forest or intra-forest. This does not affect the forest design.

QUESTION NO: 5

You need to create a site design for Litware, Inc. How many sites should you create to support the intranet in the New York campus buildings?

- A. One
- B. Two
- C. Three
- D. Four

Answer: B.

Explanation:

The WAN link is a microwave link. Now it could be building to building, or an uplink via satellite. Assuming building to building, even at a mile apart, there is going to be some propagation signal delay, and microwave and satellite links do take an occasional hit by bad weather. The West IT Manager says: "I want to ensure that, during the day, the link between the New York buildings is used in the most efficient manner possible." In order to keep the traffic down, multiple sites are needed to restrict the replication traffic across the 5Mbps link.

Incorrect Answers:

A: We need a site for each location so we can schedule replication over the WAN link.

C: There are buildings at two locations in New York therefore we need two sites.

D: There are buildings at two locations in New York therefore we need two sites.

QUESTION NO: 6

Which business or technical factor has the most influence on the number of internal domains that you include in your design?

- A. Separation of IT management between east and west
- B. Need for the creation of an empty forest root domain

- C. Possibility that the e-commerce division might be sold
- D. General lack of trust of the central IT group
- E. Lack of physical security of domain controllers

Answer: A.

Explanation:

The east and west divisions require different password policies. These policies must be applied at the domain level so separate domains are needed.

Incorrect Answers:

B: We do need an empty root domain, but this doesn't have the most influence on the total number of domains needed.

C: The fact that the e-commerce division might be sold (along with the domain name) causes the need for a separate forest, not just a separate domain.

D: There is no central IT group.

E: The DCs could be locked in secure locations. This does not affect the number of domains required.

QUESTION NO: 7

You need to create a domain design for Litware, Inc. Move each group of employees and resources to the appropriate domain that you will create. (Use all groups. Use each group only once.)

Domain	Group
Collapse [-] adm.litwareinc.com forest [-] corp.adm.litwareinc.com domain [-] west.adm.litwareinc.com domain [-] east.adm.litwareinc.com domain [-] ecom.adm.litwareinc.com domain [-] ecom.litwareinc.net domain [-] contoso.com forest [-] adm.litwareinc.net forest [-] corp.adm.litwareinc.net domain [-] west.adm.litwareinc.net domain [-] east.adm.litwareinc.net domain [-] ecom.adm.litwareinc.net domain [-] contoso.com domain [-] ecom.litwareinc.com forest domain [-] ecom.litwareinc.net forest domain [-] contoso.com forest domain	Employees and internal servers and computers in the e-commerce division Employees and resources from the newly acquired Contoso, Ltd, manufacturing facility Employees and computers in the west region except the e-commerce division employees Employees and computers in the east region << Move Remove >>

Answer:

You need to create a domain design for Litware, Inc. Move each group of employees and resources to the appropriate domain that you will create. (Use all groups. Use each group only once.)

Domain	Group
Collapse	
- adm.litwareinc.com forest ■ corp.adm.litwareinc.com domain ■ west.adm.litwareinc.com domain ■ east.adm.litwareinc.com domain ■ ecom.adm.litwareinc.com domain ■ ecom.litwareinc.net domain ■ contoso.com forest - adm.litwareinc.net forest ■ corp.adm.litwareinc.net domain ■ west.adm.litwareinc.net domain - Employees and computers in the west region except the e-commerce division ■ east.adm.litwareinc.net domain - Employees and computers in the east region ■ ecom.adm.litwareinc.net domain ■ contoso.com domain - ecom.litwareinc.com forest domain - Employees and internal servers and computers in the e-commerce division - ecom.litwareinc.net forest domain - contoso.com forest domain - Employees and resources from the newly acquired Contoso, Ltd, manufacturing facility	Employees and internal servers and computers in the e-commerce division Employees and resources from the newly acquired Contoso, Ltd, manufacturing facility Employees and computers in the west region except the e-commerce division employees Employees and computers in the east region <<Move Remove>>

Comments:

Employees and internal servers and computers in the e-commerce division: ecom.litwareinc.com. The ecom.litwareinc.com is the external domain for the ecommerce department. Employees and Resources from the newly acquired Contoso.com manufacturing facility: Contoso.com forest domain. Contoso Ltd already have a domain and forest so it would be easier to establish an external trust to the Contoso.com domain in the Contoso forest. Employees and computers in the west region except the e-commerce employees: west.adm.litwareinc.net. We have a domain each for the west and east. This is because the west and east divisions require different security policies. Employees and computers in the east region: east.adm.litwareinc.net. We have a domain each for the west and east divisions. This is because the west and east divisions require different security policies.

QUESTION NO: 8

You need to create forest design for the Litware, Inc. intranet. Move each element to the appropriate forest or forests. (Use all elements. You might need to reuse elements.)

Forest	Element
 Collapse ☐ adm.litwareinc.com forest ☒ adm.litwareinc.net forest ☐ ecom.litwareinc.com forest ☒ ecom.litwareinc.net forest ☐ contoso.com forest	This forest will not be in the new design Employee user and computer account in the east region Employee user and internal computer accounts in the e-commerce division Employees user and computer accounts from the newly acquired Contoso, Ltd, manufacturing facility <<Move Remove>>

Answer:

You need to create forest design for the Litware, Inc. intranet. Move each element to the appropriate forest or forests. (Use all elements. You might need to reuse elements.)

Forest	Element
Collapse ☒ adm.litwareinc.com forest This forest will not be in the new design ☒ adm.litwareinc.net forest Employee user and computer account in the east region ☒ ecom.litwareinc.com forest Employee user and internal computer accounts in the e-commerce division ☒ ecom.litwareinc.net forest This forest will not be in the new design ☒ contoso.com forest Employees user and computer accounts from the newly acquired Contoso, Ltd, manufacturing facility	This forest will not be in the new design Employee user and computer account in the east region Employee user and internal computer accounts in the e-commerce division Employees user and computer accounts from the newly acquired Contoso, Ltd, manufacturing facility Move Remove

Explanation:

“The e-commerce division has already built an Active Directory forest named litwareinc.com.”

“If we do sell this division, I think it is likely the purchasing party would want control over the DNS name litwareinc.com.” The e-commerce division along with the litwareinc.com domain will be sold.

QUESTION NO: 9

You need to recommend a solution to meet the corporate security office’s technical requirements for domain controller traffic. What should you do?

- A. Configure an IPSec policy for all domain controller IP addresses
- B. Publish a certificate to each domain controller and configure SSL
- C. Configure SMTP replication between domain controllers and use the secure S/MIME protocol
- D. Deploy VPN servers at each site and configure router-to-router VPN tunnels

Answer: A.

Explanation:

We should use IPSec to encrypt the network communication between DCs.

Incorrect Answers:

B: SSL is used for the web and email encryption.

C: SMTP is used between different domains for replication traffic, and does not carry the entire suite of replication traffic. Server to server non-replication traffic would not be protected, so SMTP would not be enough. A mechanism is needed to control and protect all traffic between domain controllers, and SMTP only protects a very small piece.

D: Deploying VPN servers at the sites would only have value if the domain controllers were communicating with each other over a public network. This has not been indicated, nor implied. The security manager said “I am also concerned about someone gaining physical access to our network and using a packet-capturing device to analyze traffic.”

Which means that he fears someone on the inside getting a hold of the physical network wire and tapping in. A VPN tunnel isn't going to help here, since the tunnels are usually set up between networks, and there can be multiple domain controllers on one single network. You would need VPN tunnels between each and every Domain Controller, which is more complex than using other means to secure the IP traffic.

QUESTION NO: 10

You need to create a domain controller deployment strategy. You need to ascertain the minimum number of domain controllers that you should deploy on the intranet in the New York campus buildings. Move the appropriate number to the appropriate building. (Use only numbers that apply. You might need to reuse a number)

Building	Number of Domain Controllers
Collapse - Building 1 - Building 2	one two three four five six <<Move Remove>>

Answer:

You need to create a domain controller deployment strategy. You need to ascertain the minimum number of domain controllers that you should deploy on the intranet in the New York campus buildings. Move the appropriate number to the appropriate building. (Use only numbers that apply. You might need to reuse a number)

Building	Number of Domain Controllers
 ■ Building 1 - six ■ Building 2 - two	one two three four five six <<Move Remove>>

Explanation:

The West IT Manager says: “I want to ensure that, during the day, the link between the New York buildings is used in the most efficient manner possible.” – that means keeping unnecessary traffic down during the day. This could mean reduction or total elimination of replication traffic, and reduction or total elimination of logon processing across the links. With total elimination of the domain replication traffic during the day, if each building were a separate site, the replication can be scheduled. Intersite replication is also compressed, and replicated (by default) at longer intervals between replications. Even though the link between the buildings appears to be fast, (5Mbps), this may not really be a fast link, although it is about 3 T1 lines combined. There are 5,000 employees in NY, and we are not given an indication of how they are split between the buildings. The Link is a Microwave link, which usually has heavy propagation delays and might not be reliable in bad weather. The CIO says: When users access resources, these resources must be presented quickly, and logon times must be as fast as possible.”, which means that performance has to be fast, and this also implies availability. Given the above analysis, the proposed design is having each NY building as a separate site. Since we have not been given a budget restriction, the minimum number of Domain Controllers at a site, based on Microsoft teaching, is 2. This provides backup at the site, so that if a Domain Controller goes down, there is at least a backup. If both go down at the same time, then logon requests will have to go over the network. Although not an issue in this question, let me add that for a more complete solution, these two

domain controllers would also be DNS servers and Global Catalog servers, to even further reduce the traffic over the 5Mbps Microwave Link.

Building 1 is set to six. We get this using the rule that as long as the finances allow, two Domain Controllers per Domain, Per Site.

We are told that the e-commerce division employees are in Building 1. Lack of other information, it can be assumed that the e-commerce servers are located in Building 1. So, we need a minimum of 2 DCs for e-commerce, and 2 DCs for the West Domain. But we also said that because of different password requirements, we need a different domain for East & West. Since we need to access the East from the West, and since the WANs come into New York Building 1, we also need a pair of domain controllers

for the East Domain, which will have a site in the New York Office.

So the tally is (for building 1)

2 DC – West Site

2 DC – East Site

2 DC – E-commerce Forest

QUESTION NO: 11

Which type of IT management should be used for contoso. ltd?

- A. Outsourced IT management and Outsourced administration.
- B. Centralized IT management and Centralized administration.
- C. De-centralized IT management and De-centralized administration.
- D. Centralized IT management and De-centralized administration.

Answer: D

Case Study #5, HIABUV TOYS

Background:

Hiabuv Toys is a medium-sized manufacturer of corporate marketing products. The company designs personalized clothing, glasses, hats, and many other marketing products. It specializes in manufacturing unique items for large companies.

The company is acquiring one of its clothing suppliers. This supplier is named Wide World Importers. The supplier is well known and has an Internet presence on its own domain. This domain is named ideworldimporters.com. Wide World Importers will operate independently of Hiabuv Toys.

Problem Statement:

Hiabuv Toys reports that there are too many IT administrators in the domain. Mainframe administrators with minimal experience have administrator rights to the domain. The company wants to decrease technical support costs by performing all technical support at an IT center in Detroit.

Organization:

Headquarters:

Hiabuv Toys headquarters is located in Detroit. There are two separate locations in Detroit one for IT

and one of the corporate offices. The IT center has 100 employees, and the corporate offices have 2,000 employees.

Manufacturing Facilities:

The company employs 20,000 people in nine manufacturing facilities in the United States and in two facilities in Canada. Of these 20,000 employees, 9,000 use computers. Manufacturing facilities are also being built in Europe and Mexico.

Geography:

The company is divided among the following regions:

East 3,000 users:

- Boston, Massachusetts -regional headquarters
- New York, New York
- Pittsburgh, Pennsylvania

Midwest 3,000 users:

- Chicago, Illinois -regional headquarters
- Cincinnati, Ohio
- Cleveland, Ohio

West 2,000 users:

- Oklahoma City, Oklahoma -regional headquarters
- Las Vegas, Nevada
- San Francisco, California

Canada 1,000 users

- Montreal, Quebec
- Toronto, Ontario -regional headquarters

The Montreal office will be permanently closed in the near future. Many of the users from this office

will be transferred to Toronto. Although the Montreal office is scheduled to close during the Windows

2000 implementation, it might not close until after the implementation is complete.

Hiabuv Toys is opening offices in Europe. A sales office was recently opened in Frankfurt, Germany.

Manufacturing facilities are also being built in Mexico. These facilities can be used by all sales regions.

The Company is also planning to open manufacturing facilities in Europe.

Existing IT Environment:**WAN:**

Pittsburgh and New York connect to Boston by means of 56-Kbps lines. Boston connects to the IT

center by means of a 1.544-Mbps line.

Cincinnati and Cleveland connect to Chicago by means of a 56-Kbps line. Chicago connects to the IT

center by means of a 1.544-Mbps line.

San Francisco and Las Vegas connect to Oklahoma City by means of a 56-Kbps Oklahoma City

connects to the IT center by means of a 1.544-Mbps

Europe, Toronto, and Mexico also connect to the IT center 56-Kbps line. Detroit headquarters connects to the IT center by means of a 1.544-Mbps Montreal connects to Toronto by means of a 56-Kbps line. Bandwidth usage is minimal.

Client Computers:

All of the desktop client computers run Windows NT Workstation 4.0. The portable computers run either Microsoft Windows 95 or Windows 98.

Network:

There are three Windows NT 4.0 domains: HIABNA, HIABEU, and HIABENG. All locations in Canada, Mexico, and the United States are in HIABNA. Frankfurt is in HIABEU. There is a two-way trust between HIABNA and HIABEU. All locations use Windows NT Server 4.0 for DHCP, WINS, and DNS. Each location also has a BDC and a separate application server. However, Frankfurt has a PDC and a BDC for only the HIABEU domain. There is not a HIABEU BDC in North America.

Because of security concerns, users in the engineering department have their own domain. This domain is named HIABENG. The engineering department also provides administration for this domain. They administer all user accounts and resources. HIABNA trust the HIABENG domain. On the HIABNA domain, passwords expire after 45 days. On the HIABEU domain, passwords expire after 30 days.

Each manufacturing facility currently uses a mainframe computer to process orders and quotes that must be processed quickly. The mainframe computer uses only TCP/IP.

Network Roles:

Each of the regional headquarters has a technical support staff. The office in Mexico is managed from the IT Center in Detroit. The locations without network administrators have mainframe administrators.

These mainframe administrators also help with domain administration. The mainframe administrators respond to support calls for basic issues and add and remove user accounts. However, their knowledge is usually limited to basic account administration.

Envisioned IT Environment: WAN:

Before the Windows 2000 implementation, the 56-Kbps connection to Europe will be replaced with a 1.544-Mbps line.

However, there is no plan to upgrade the 56-Kbps connections to Canada and Mexico. Wide World Importers will connect to Hiabuv Toys by means of a 256-Kbps

Hiabuv Toys wants to continue using the existing IT administrative structure and security policies for Europe and North America.

Network Roles:

Hiabuv Toys will create two new technical support centers: a North American support center and a European support center. Each region will have a small IT staff that will be responsible for basic support such as password resets and account lockout resets. Tasks that require higher levels of administrative access or more advanced skills will be performed by the European or North American support centers.

Support for Europe that takes place after European business hours will be performed by the North American support center.

Each support center will also be responsible for granting the staff at each region access to resources as needed. However, the North American and European support centers want complete control of their own resources. The engineering department will remove its domain during the Windows 2000 implementation. The users and resources in this department will be integrated into Active Directory as normal users and resources.

Software:

A software development company is in the process of creating human resources software for Hiabuv Toys. This software will be integrated with Active Directory, and it will enable employee management for all of Hiabuv Toys. This software will add additional attributes to user objects. Wide World Importers is also developing similar software. Both software solutions will be implemented independently.

Internet:

Hiabuv Toys has registered hiabuvtoys.com. Wide World Importers has registered wideworldimporters.com.

Client Computers:

Client computers will be upgraded to Windows 2000 Professional.

Policies:

Each region should be created in Active Directory as a separate entity. Group Policy can vary among regions and locations. Technical support staff in each region need to have the ability to change policies at each location.

Case Study #5, HIABUV TOYS (11 Questions)

QUESTION NO: 1

You must decide how your Active Directory design will be affected by the factors that influence Hiabuy Toys business strategies. Move each business factor to the Active Directory design component that it most influences. (Use all business factors. Use business factors only once.)

Active Directory Design Components

Collapse

☐ Active Directory design considerations

- ☒ Site design
- ☒ Domain design
- ☒ Organizational unit (OU) design
- ☒ Forest design

Business Factors

Hiabuy Toys is acquiring Wide World Importers. The European offices will operate independently of the North American offices. The Montreal office will be permanently closed. Manufacturing facilities are being built in Germany. IT support tasks will be performed at the North American and European technical support centers.

<<Move

Remove>>

Answer:

You must decide how your Active Directory design will be affected by the factors that influence Hiabuy Toys business strategies. Move each business factor to the Active Directory design component that it most influences. (Use all business factors. Use business factors only once.)

Active Directory Design Components	Business Factors
Collapse Active Directory design considerations Site design Manufacturing facilities are being built in Germany Domain design The European offices will operate independently of the North American Organizational unit (OU) design IT support tasks will be performed at the North American and European technical support centers. The Montreal office will be permanently closed Forest design Hiabuy Toys is acquiring Wide World Importers	

<<Move
Remove>>

Explanation:

There is a site for every location so office to be built in Germany will affect the site design. IT support tasks will be performed in different locations. This will affect the OU design because you can delegate control of OUs. The Montreal office will be closing. If there was an OU for Montreal, it would be easy to move resources to another OU in another location. Hiabuy toys is acquiring Wide World Importers. This will affect the forest design because the two companies will have a separate web presence. The European offices will operate independently of the North American offices. This will affect the domain design because the offices will use different security policies.

QUESTION NO: 2

You must integrate Europe and North America in Active Directory. What should you do?

- A. Create one forest for Hiabuv Toys. Create a subdomain for each site.
- B. Create one forest and one domain for Hiabuv Toys. Name the domain hiabuvtoys.com. Create a Europe Organizational Unit (OU). Locate this OU in hiabuvtoys.com.
- C. Create one forest for Hiabuv Toys. Create one subdomain each for Canada, the United States, Mexico and Germany.
- D. Create one forest for Hiabuv Toys. Create one domain for Europe and one domain for NorthAmerica.

Answer: D.

Explanation:

We have one forest with one domain for Europe and one domain for North America.

Incorrect Answers:

A: You don't need a domain for each site.

B: We need a domain for Europe, not an OU.

C: Canada, Mexico and Germany aren't domains.

QUESTION NO: 3

Which factor or factors should you consider when designing the domain naming strategy for Hiabuv Toys? (Choose all that apply)

A. The company wants to have an Internet presence.

B. Local administrators will perform basic account administration.

C. The company wants to implement separate security policies for Europe and North America.

D. The WAN line to Europe will be upgraded.

Answer: A, C.

Explanation:

A: The domain naming strategy is influenced by the internet presence of the company.

C: Some security policies, account policies for example, can only be applied at domain level. Security policies should therefore be considered when designing a DNS strategy.

Incorrect answers:

B: This affects the site design. Sites do not affect DNS naming.

D: This affects the OU design. OUs do not affect DNS naming.

QUESTION NO: 4

What should you do to prepare for the transfer of employees from the Montreal office to the Toronto office?

A. Create separate domain for Montreal and Toronto.

Move the user accounts to the Toronto domain when the Montreal domain is removed.

B. Create separate forests for Montreal and Toronto.

Move the user accounts to the Toronto domain when the Montreal domain is removed.

C. Create separate Organizational Units (OUs) for Montreal and Toronto.

Move the user accounts to the Toronto OU when the Montreal OU is removed.

D. Create separate Organizational Units (OUs) for Montreal and Detroit.

Move the user accounts to the Detroit OU when the Montreal OU is removed.

Answer: C.

Explanation:

The Toronto office will probably not close until the implementation of Windows 2000. In the domain

for North America different OUs will be created for the different locations. The Move command of Windows 2000 allows for the easy moving of resources between OUs. We simply move the users from the Montreal OU to the Toronto OU.

Incorrect Answers:

A: Montreal and Toronto are not domains.

B: We don't need separate forests or domains.

D: The users should be moved to Toronto, not to Detroit.

QUESTION NO: 5

Which server roles should you implement for Hiabuv Toys?

A. One schema operations master, one domain naming master, one RID master, one PDC emulator, one infrastructure operations master.

B. One schema operations master, one domain naming master, two RID masters, two PDC emulator, two infrastructure operations master.

C. One schema operations master, one domain naming master, three RID master, three PDC emulator, and three infrastructure operations master.

D. One schema operations master, one domain naming master, four RID master, four PDC emulator, four Infrastructure operations master.

Answer: B.

Explanation:

We have one forest so the root domain will have a schema operations master and a domain naming master. We have two domains. Each domain will have a RID master, a PDC emulator and an infrastructure master.

Incorrect Answers:

A: This describes one domain.

C: This describes three domains.

D: This describes four domains.

QUESTION NO: 6

After the Windows 2000 implementation is complete, which domain name or names should you use in the internal DNS for Hiabuv Toys? (Choose all that apply)

A. europe.hiabuvtoys.com

B. boston.hiabuvtoys.com

C. oklahoma.hiabuvtoys.com

D. northamerica.hiabuvtoys.com

E. chicago.hiabuvtoys.com

Answer: A, D.

Explanation:

We are creating two domains for Hiabuv Toys. One in Europe and one in North America.

Incorrect Answers:

B, C, E: They use the names of locations in America.

QUESTION NO: 7

Engineering users want to be able to continue their own resources after the Windows 2000 implementation. What should you do enable this goal?

- A.** Create a domain for the engineering department.
Create an engineering Organizational Unit (OU).
Grant the engineering department complete administrative control of its OU.
Move computer and user objects into the domain.
- B.** Create a domain for the engineering department.
Locate this domain on the same level as the North American domain.
Grant the engineering department complete administrative control of its domain.
Move computer and user objects into the domain.
- C.** Create a separate Organizational Unit (OU) for the engineering department.
Locate this OU in the North American domain.
Grant the engineering department complete administrative control of its OU.
Move computer and user objects into the OU.
- D.** Create a separate forest for the engineering department.
Grant the engineering department complete administrative control of this forest.
Move computer and user objects into the forest.

Answer: C.

Explanation:

The Engineering department is now in the North America domain. By creating an OU for Engineering, we can delegate control of that OU to the Engineering department.

Incorrect Answers:

- A, B:** They suggest having a domain for the engineering department.
- D:** It suggests having a forest for the engineering department.

QUESTION NO: 8

After the Montreal office is permanently closed, how many sites should you use for the hiabuvtoys.com domain tree?

- A.** 12
- B.** 13
- C.** 14
- D.** 15

Answer: C

Explanation:

We must count the sites:

USA will have 11 sites: Boston, New York, Pittsburgh, Chicago, Cincinnati, Cleveland, Oklahoma City, Las Vegas, San Francisco, Detroit Corporate office, Detroit IT. Note that there are two separate locations in Detroit one for IT and one of the corporate offices. One site should be used for each. Canada will have one site at Toronto. The Montreal site will be closed. Furthermore there will be one site in Mexico, and one in Frankfurt. This gives us a total of 14 sites.

Incorrect Answers:

A, B, D: They suggest the wrong number of sites.

QUESTION NO: 9

You must decide whether to place Europe in Active Directory as domain or as an Organizational Unit (OU). Which factor should most influence your decision?

- A.** Geographic distribution of locations.
- B.** Available WAN bandwidth.
- C.** The company's plans for expansion in Europe.
- D.** The current and proposed IT administrative structures and security policies in Europe.

Answer: D.

Explanation:

We need a separate domain for Europe because Europe has a different security policy to North America. **A, B, C:** These would influence the site design.

QUESTION NO: 10

You must design the site topology for the Hiabuv Toys. Which factor or factors should have the most influence on your design? (Choose all that apply)?

- A.** Number of locations.
- B.** Cost of WAN bandwidth.
- C.** The existing DNS naming structure.
- D.** Number of departments.
- E.** Available WAN bandwidth

Answer: A, B, E.

Explanation:

A: There is a site for each location.

B: The cost of WAN bandwidth would make impact on the replication strategy. Replication depends on the location of sites. With expensive WAN bandwidth replication could be less frequent.

E: With sites, you can schedule replication according to the available bandwidth.

Incorrect Answers:

C: The DNS naming structure affects domains and not sites.

D: The departments affect the OU design, not the site design.

QUESTION NO: 11

Which strategy should you use to integrate Wide World Importers to Hiabuv Toys in Active Structure?

A. Create a forest for hiabuvtoys.com.

Integrate WideWorldImporters.com into existing forest.

B. Create a forest for hiabuvtoys.com.

Create a second forest for WideWorldImporters.com.

C. In HiabuvToys.com create a subdomain for Wide World Importers.

D. When the acquisition of Wide World Importers is complete.

Register one new domain name.

Answer: A.

Explanation:

WideWorldImporters.com will become a domain in the existing forest.

Incorrect Answers:

B: We only need one forest.

C: Wide World Importers will have a separate tree in the forest.

D: The Wide World Importers already own a domain name.

Case Study #6, GENERAL BUSINESS CONSULTANTS (GBC)

Background:

General Business Consultants is an international company that specializes in developing equipment for ticketing and access control for ski resorts. The company's turnstile-gate technology uses smart-card reading units. These units can unobtrusively access information from the smart cards to authenticate users. The units can also add or subtract values from the cards. For example, the units can track the number of times a user skis a particular ski run. The units can read the cards from a distance, so that users can simply pass by the units with the cards. Monetary amounts can also be added to or subtracted from the smart-card account, so that the card can be used to purchase items. General Business Consultants now wants to expand its scope to serve the informational needs of ski facilities and all of the customers that it serves.

The company recently acquired a large amount of investment money. It will use this money to support an aggressive project to make itself the premier information-service provider to the most prestigious ski resorts in the world. The purpose of this project is to build a large membership of individuals who have common interests and active lifestyles and provide them with new and unique services. General Business Consultants will customize its services to meet the specific needs of each resort by promoting each independently. However, General Business Consultants will also provide a benefit

known as the Passport that any member can use at any resort served by the General Business Consultants infrastructure. The Passport will provide many services to members. General Business Consultants also intends to use its membership list to promote products.

Problem Statement:

General Business Consultants currently has only turnstile smart-card tracking equipment located at ski resorts. The company must acquire the technical expertise to develop a new IT system that will support its new mission. It has concluded that Windows 2000 and Active Directory will be important components of its success.

General Business Consultants plans to implement its goals in three phases. Phase 1 will occur during the next 12 months. During this phase, the company will build the member Web site. During this phase, the company will also install at one resort location a resort employee IT system that will be integrated with the member Web site. The company will test this system, and then install the system at five additional resorts. The goal is to have the global member IT system and the six resort IT systems operational within 12 months. Phase 2 will occur during the following year. During phase 2, General Business Consultants plans to add 14 more resort locations and achieve a total membership of more than 1 million. Phase 3 will occur during the following year. During this phase, the company plans to double the number of resort locations and members.

General Business Consultants intends to gain recognition in the market by using the newest technologies. The company is willing to take risks if the ideas are feasible and will provide services that will promote customer loyalty and company recognition.

Business Goals:

Members will be able to purchase tickets for ski lifts and reserve rental equipment from their home computers or at the resorts. Individual user details will be stored so that ski sizes, the quality of equipment, and other details will need to be entered only once. When customers arrive at the resort, they will not need to wait. All equipment will be prepared and stored in a locker. Provisions will also be made for the storage and transport of customer-owned equipment to any resort served by General Business Consultants.

General Business Consultants does not want its customers to have to wait for any services at the ski resorts. Customers will be able to purchase tickets for ski lifts online or from kiosks. As part of the membership, General Business Consultants will issue smart cards attached to stretchable cords. At the ski resort members will be able to use the cards to open their lockers. They will also use the cards to gain access to the ski lifts and to make restaurant reservations. Members who are staying at the resort will use the cards as keys to their rooms and will not need to register with the resort. Points will also be accumulated for services that are purchased. These points will be used to earn gifts and awards. Members using the smart card for purchases at the ski lodge or store will receive discounts. Three membership classifications will be available. Premier, Active Skier, and Standard Higher membership levels will receive increased discounts.

Members will also have voice mail and e-mail services. Computers for these services will be located in each room and at many locations in the lodge and on the slopes. When members pass the ski lift

turnstile, it will make a sound if they have any new e-mail or voice mail messages. At the top of the lift, they can retrieve their messages. This service will provide a convenient way for members to locate other skiers and communicate with them. Additionally, family or friends at home who know a member's account ID will be able to send voice mail or e mail to that member. Reports of current ski lift usage will be broadcast on the Web sites and on displays in the lodge. Resorts will have the option of instituting a premium classification for access to the lifts. Members in this classification will never need to wait to get on the lifts. Members who share account IDs will be able to add the IDs to their family list or friends list. This will make it convenient for members of a household to make reservations for the entire family, or for individuals to see which of their friends are skiing on any given day. Members will be eligible for discount packages, and will be able use their smart cards at any of the resorts served by General Business Consultants. Members will also have the ability to add medical information to their cards. All Ski Patrol team members will have wireless smart-card readers.

Envisioned IT Environment:

General Business Consultants will design and construct global services to support two interrelated

components. One component will be for members, and the other component will be for resorts.

Members will be able to access the member component from the Internet or from any resort. This resort

component will be used to support each resort and its unique internal business and employee needs.

The company's headquarters is located in Denver, Colorado. Headquarters employee 55 people. The

company has installed a high-speed connection to its IT center in San Jose, California.

The IT center is

connected to the

Internet by means of 45-Mbps DS-3 lines. General Business Consultants does not plan to create a

separate employee domain.

The General Business Consultants phase 1 design includes implementation of the member system and

resort employee systems at the following locations:

- Austria
- California
- Canada
- Colorado
- Switzerland
- Vermont

New members will be able to enroll for General Business Consultants services at each resort. They will

also be able to complete application forms on the Internet. The member will be affiliated with one resort,

but will be able to use services from any other.

The LANs at the resorts will be upgraded to the highest feasible bandwidth. Each resort will have a connection to the Internet. The connection speeds will vary, depending upon services available. Each resort will have a VPN tunnel to the servers that are located in San Jose. During phase 2, General Business Consultants will open a European office to manage the resorts in Europe. As the company grows during phase 3, it is anticipated that General Business Consultants will have business and IT management centers in each country in which participating resorts are located.

Interviews:

GBC Chief Information Officer (CIO):

There are two major components of our plan: members and resorts. These components will be constructed at the same time. The members component will provide services to skiers. The resort component will provide services to the resort businesses and their employees. Active Directory will be crucial to both components of the plan. The schema for the directory serving the members will need to be modified so that the new functionality will be supported. For development and security, the server hosting the members' schema master will be located at our headquarters in Denver. Members accessing General Business Consultants services from any resort will have the same functionality. To achieve the fastest response time, all logon requests must avoid using the WAN line. So even if members travel from one resort to another, their logon processes will be performed locally and will not require a WAN transmission. Local resort employees will be able to update member records registered only at their own resort. Requests for changes to records for members of other resorts will be sent to the General Business Consultants staff. Consequently, it needs to be easy to move a member's user object from one resort to another. In case of possible server failure, a fault-tolerance design will be implemented at each resort so that local services will continue to run even if one server fails. We must avoid performing directory replication during times of peak usage.

Servers at the IT center will include one domain controller that has a global catalog and one domain controller that has the infrastructure operations master. Both the member network and the resort must support wired and wireless devices. These devices can be connected and automatically assigned IP addresses. For security, other applications must be able to access the devices by means of their DNS names. To help each resort automate its internal operation, we will provide a turnkey system that integrates Active Directory and advanced Windows 2000 functionality into each location. The design will ensure that employee information for one resort will not be visible at another.

Resort Manager:

The design for the General Business Consultants resort infrastructure will provide some great services to employees at my resort. Our employees will access the system for services that include e-mail, human resources information, training and safety programs, the purchase of supplies, equipment inventory and maintenance, and staff scheduling. Employees will be able to access the system from a variety of client computers and kiosks. The kiosks will be computers that run Windows 2000 Professional and have touch-screen displays. Both smart-card authentication and password authentication will be used for employee security. Specific employees will be assigned the responsibilities of issuing smart cards and updating member records. Our resorts typically employ people in the following positions: ski lift operator, ski patrol member, maintenance worker, kitchen worker, restaurant worker, front desk attendant, business administration specialist, equipment specialist, instructor, emergency staff member, salesperson, marketing specialist,

and manager. Each position will have specific access privileges. We also want to customize the desktop settings for each position.

The resort is organized into five departments: hotel, restaurant, operations, maintenance, and business administration.

Because each resort is independently owned and managed, each one will want to be able to add

applications that might uniquely change the directory schema. In addition, the resorts do not want any external companies or any other resort to have the authority to change user permissions for their employees. Nor do we need to have our internal domain replicated by means of our WAN line. Our email addresses need to be unique for each resort. Currently, each resort has its own Web site. Each resort Web site is registered under its own domain. The DNS services for our top-level DNS domain will continue to be managed by our external Web presence provider. We do not want our internal-operations Active Directory to rely on our external DNS server. The home page of our resort's Web site will include a variety of information records to our resorts. We will provide a link from our Web site for members who want to update their records. This link will take our members to the member Web site that is hosted by generalbusinessconsultants.com

Case Study #6, GENERAL BUSINESS CONSULTANTS (GBC) (12 Questions)

QUESTION NO: 1

You must decide how your Active Directory design will be affected by the factors that influence the business strategies of General Business Consultants. Move each business factor to the appropriate component in your Active Directory design. (Use all business factors. Use each business factor only once.)

Active Directory Design Components	Business Factors
Collapse ■ Forests ■ Sites ■ Number of domains ■ Organizational unit (OU) ■ Security groups membership	All member logon requests must avoid using the WAN line There are many employees positions at each resort Each resort must have independant control Directory replication cannot be scheduled during times of peak usage Resort administrative control is divided among five departments It must be easy to move a member's user object from one resort to another resort.
	<<Move Remove>>

Answer:

You must decide how your Active Directory design will be affected by the factors that influence the business strategies of General Business Consultants. Move each business factor to the appropriate component in your Active Directory design. (Use all business factors. Use each business factor only once.)

Active Directory Design Components	Business Factors
Collapse Forests - Each resort must have independent control Sites - Directory replication cannot be scheduled during times of peak usage - All member logon requests must avoid using the WAN line Number of domains - It must be easy to move a member's user object from one resort to another resort. Organizational unit (OU) - Resort administrative control is divided among five departments Security groups membership - There are many employees positions at each resort	All member logon requests must avoid using the WAN line There are many employees positions at each resort Each resort must have independent control Directory replication cannot be scheduled during times of peak usage Resort administrative control is divided among five departments It must be easy to move a member's user object from one resort to another resort.
	<<Move Remove>>

Explanation:

“Each resort must have independent control.” affects the forest design because this will enable them to

run programs that modify the schema.

“Directory replication cannot be scheduled during times of peak usage” affects the site design because you can schedule replication over site links between sites.

“All members logon requests must avoid using the WAN Line” affects the site design because by default, a client computer will look for a domain controller within the same site.

“It must be easy to move a member’s user object from one resort to another resort” affects the domain

design because users because it is not easy to move objects between domains.

“Resort administrator control is divided among five departments” affects the OU design because each department can be represented by an OU.

“There are many employee positions at each resort” affects the Security Group membership because it is easier to manage users by placing them in the appropriate groups.

QUESTION NO: 2

Which General Business Consultants business need or needs should you implement by using Group Policy objects (GPO's)? Choose all that apply?

- A. Automatically assigning IP addresses to wireless devices.
- B. Updating the software on kiosks.
- C. Configuring user logon requests to avoid using WAN line.
- D. Configuring the desktop settings for the resort employees.

Answer: B, D.

Explanation:

You can use Group Policy to assign desktop settings for the resort employees. You can also automate the software installation process by using Group Policy to assign software updates to the Kiosk computers.

Incorrect Answers:

- A: This would be done by a DHCP server.
- C: This is a site and global catalog issue.

QUESTION NO: 3

You need to choose the top-level Organizational Unit (OU) that will support resort's internal business requirements. Which top-level OU should you use?

- A. Job positions
- B. Resorts
- C. User, computer, printer, kiosk, file share objects.
- D. Departments

Answer: D.

Explanation:

Each department is represented by an OU.

Incorrect Answers:

- A: This would affect the group design.
- B: Each resort is a forest, not an OU.
- C: These are all parts of Active Directory. They do not have their own OU.

QUESTION NO: 4

You are deciding how you should support the requirements of the General Business Consultants members, resort employees, and resort departments. You need to decide which technology are the most appropriate to meet the requirements of each group. Move each technology to the most appropriate group. (Use all technologies. Use each only once.)

Groups	Technology
Collapse Groups ■ Resort employees ■ Members ■ Resort departments	intrasite replication intersite replication delegated administrative rights unique schema
<<Move Remove>>	

Answers:

You are deciding how you should support the requirements of the General Business Consultants members, resort employees, and resort departments. You need to decide which technology are the most appropriate to meet the requirements of each group. Move each technology to the most appropriate group. (Use all technologies. Use each only once.)

Groups	Technology
Collapse Groups Resort employees intrasite replication Members intersite replication unique schema Resort departments delegated administrative rights	intrasite replication intersite replication delegated administrative rights unique schema
<<Move Remove>>	

Explanation:

The members domain is spread across multiple sites so it uses intersite replication. The members domain has a unique schema. The resort domains also have a unique schema but they are not listed here. The resort employees need intrasite replication because each resort domain is in its own site. The resort departments are represented by OUs which enables you to delegate administrative rights.

QUESTION NO: 5

You need to configure replication for General Business Consultants. Which two steps should you take? (Choose Two)

- A. Create intersite links on the member domain controllers that are located at each resort at the San Jose IT center.
- B. Set the interval to 180 minutes.
Set the schedule to 1:00 A.M to 6:00 A.M local time at each resort.
- C. Create inter-forest RPC connections between the resort and member forests.
- D. Set the interval to 60 minutes.
Set the schedule to 11:00 A.M to 4:00 P.M local time at each resort.
- E. Create an intrasite links between the member and resort domain controllers that are located at

each resort.

Answer: A, B.

Explanation:

To configure replication we need to create site links. We need to create intersite links between the GBC domain controllers at each resort and the IT center.

When the links have been established we can set the schedule for the replication. It's a good idea to schedule replication outside of working hours when the lines are less busy.

Incorrect Answers:

C: There is no such thing as an interforest connection.

D: The replication is scheduled during working hours.

E: There is no replication between the resort and member domains.

QUESTION NO: 6

You need to design a DNS domain, and a forest structure that meets the internal needs of the resorts. What should you do?

A. Create a DNS zone named generalbusinessconsultants.

Use this zone as a delegate to the resort's Internet domain name.

Assign this name to the Active Directory forest root.

B. In the generalbusinessconsultants.com domain, create a subdomain that has the same name as the resort. Use this zone as a delegate to generalbusinessconsultants.com. Assign this domain name to the Active Directory forest root.

C. Create a DNS zone that has the same name as the resort. Use this zone as a delegate to generalbusinessconsultants.com. Add this domain name to the generalbusinessconsultants Active Directory forest

D. Create a DNS zone named ad as a subdomain of the resort's existing Internet domain name. Assign this domain name to the Active Directory forest root.

Answer: D.

Explanation:

Each resort has an external Internet domain name. This external domain is hosted by an ISP. We need to create a subdomain of this Internet domain and use this as our Active Directory root domain.

Incorrect Answers:

A: The resorts each have their own name so they don't want to use the GBC name.

B: suggests creating a subdomain at GBC. Each resort has it's own domain.

C: The resorts are independent. We don't want to delegate control to GBC.

QUESTION NO: 7

Resort employees must be able to update member records. Which trust relationship should you configure between the member domain and each resort domain?

- A. One-way trust where resort trusts member.
- B. One-way trust, where member trusts resort.
- C. Two-way trust, where member trusts resort
- D. Default trust

Answer: B.

Explanation:

The members user accounts are located in the GBC headquarters. The resort employees will be logging on at the resorts domains. We must make an explicit one-way trust from the resource domain, the members domain, to the accounts domains: the resort domains.

Incorrect Answers:

- A: The resorts are independent so they don't need to trust the members domain.
- C: The resorts are independent so they don't need to trust the members domain.
- D: There is no default trust between forests.

QUESTION NO: 8

You must decide to how many Windows 2000 Server computers you need to host the domain controllers and global catalog servers for phase 1 of General Business Consultants implementation plan. What is the minimum number of servers that you should use?

- A. 15
- B. 20
- C. 25
- D. 27
- E. 33

Answer: D.

Explanation:

We have 6 domains. One for each resort. We should have 2 domain controllers in each domain for fault tolerance. Each of the 6 resort sites contains two domain controllers for the members domain.

One server at the IT headquarters is the schema master.

Another server at the IT headquarters is a global catalog server.

Another server at the IT headquarters is the infrastructure operations master because this can't be on the

same server as the global catalog.

This gives us a total of 27 servers.

Incorrect Answers:

A, B, C, E: They each suggest an incorrect number of servers.

QUESTION NO: 9

How many forests should you create for phase 1 of the General Business Consultants implementation plan?

- A.** 1
- B.** 2
- C.** 6
- D.** 7
- E.** 13

Answer: D.

Explanation:

We have a forest at each of the 6 resort locations and 1 at the company headquarters making a total of 7.

Incorrect Answers:

A, B, C E: They suggest the wrong number of forests.

QUESTION NO: 10

You must implement DNS services for one of the resorts. Which set or sets of steps should you perform? (Choose all that apply)

- A.** Install Microsoft DNS Server on two servers.
Configure a subdomain of the resort's Internet domain.
- B.** Install Microsoft DNS Server on two servers.
Configure a subdomain of the generalbusinessconsultants.com zone.
Integrate DNS into Active Directory.
- C.** Install Microsoft DNS server on two servers.
Use these servers for the generalbusinessconsultants.com zone that is integrated into Active Directory.
- D.** Upgrade the resort's existing DNS Services to support Active Directory SRV records.
- E.** Migrate the resort's top-level domain to Microsoft DNS Server.

Answer: A, C.

Explanation:

You should always configure at least two DNS servers for fault tolerance. Each resort has an internet domain name hosted by an ISP. We need to create subdomains of these internet domains to use for our Active directory root domains.

Each resort has a site which is part of the members domain. We should install two DNS servers at the resort for the members domain so resolution requests avoid using the WAN line and for fault tolerance.

Incorrect Answers:

B: Each resort is independent of GBC so they don't want to have subdomains of the GBC zone.

D: The DNS servers will already support SRV records so they don't need upgrading.

E: The top level domain is hosted by an external ISP.

QUESTION NO: 11

You must decide how many forests General Business Consultants should use. Which business or technical factor or factors should influence your decision ? (Choose all that apply)

A. It will not be necessary for employees of one resort to access information about employees of another resort.

B. Both smart-card authentication and password authentication will be used for security.

C. Directory replication cannot be scheduled during times of peak usage.

D. Each resort will want to be able to add applications that might uniquely change the directory scheme of its internal operating domain.

E. The resorts do not want the General Business Consultants or any other resort to have authority to change user permissions for their employees.

F. Membership will exceed 2 million.

G. All member logon requests must avoid using the WAN line.

Answer: A, D, E.

Explanation:

There can only be one schema in a forest. Each resort wants to use applications that modify the schema.

For this reason, each resort must have its own forest.

Each resort can be in a different forest because employees do not need to access information from other resorts.

Different forests for each resort would ensure that enterprise administrators in one resort cannot change permissions in another resort.

Incorrect Answers:

B: Smart card authentication issue is a protocol issue and so has nothing to do with forests.

C: The Directory Replicator doesn't affect the forest design.

F: A single forest can have many million members.

G: The WAN line affects the site design.

QUESTION NO: 12

How should you design domain and forest structure for the members?

A. In the generalbusinessconsultants.com forest, create a separate Active Directory tree for each resort.

B. Add a DNS zone named members to each unique resort DNS name. Create a separate Active Directory forest for each resort.

C. Add a DNS zone named members to each unique resort DNS name. Create a separate Active Directory tree in each resort forest.

D. Use generalbusinessconsultants.com for the forest root and single domain.

Answer: D.

Explanation:

We have a single forest and domain for the members. This domain is spread across each resort site.

Incorrect Answers:

A: Each resort has it's own forest.

B: Each resort is independent of the members domain.

C: Each resort is independent of the members domain.

Case Study #7, A. DATUM CORPORATION

Background:

A. Datum Corporation manufactures various silicon components that are used in consumer electronics.

Design teams are located at six offices that are dispersed worldwide. These teams collaborate to create, test, and modify new and existing component design. This collaboration requires creating, accessing, and modifying a variety of documents and document formats that are on the servers located throughout the company.

Geography:

The headquarters for **A. Datum Corporation** is located in New York. Branch offices are located in San

Jose, London, New Delhi, Bangkok and Sydney. Component designers work in all offices. The San Jose

and Bangkok offices are manufacturing facilities. The New York and Sydney offices have 2,500 employees each. Each other office has 500 employees. Each of the six offices is located in one of the two regions. The regions are defined as follows:

- Western Region
 - o New York, New York.
 - o San Jose, California.
 - o London, England.
- Eastern Region
 - o Sydney, Australia
 - o Bangkok, Thailand
 - o New Delhi, India

Network Infrastructure:

The San Jose and New York offices are connected by means of a 256-Kbps fractional T1 line. The New York and the Sydney offices are connected by means of a 128-Kbps fractional T1 line. The connections between New York and London, between London and New Delhi, between New Delhi and Bangkok and between Bangkok and Sydney are 64- Kbps fractional T1 lines. The connection between the New York and London offices is heavily utilized during New York s business hours. The connection between Sydney and Bangkok is heavily utilized during Sydney s business hours. All locations have a 155-Mbps ATM backbone. All client computers are connected to their local backbone by means of a switched 10-Mbps or 100-Mbps Ethernet.

Business Plan and Requirements:

Chief Executive Officer (CEO):

The global components market is highly competitive. Our employees must be able to collaborate with each other 24 hours per day, and we cannot allow anything to interfere with this capability.

During the next one to two years, we anticipate a series of mergers, partnerships, and acquisitions. We need to be ready to assimilate these new entities into our organizational and managerial structure, and into our infrastructure. We must be able to easily restructure our organization, administration, and online data to take advantage of new resources without interrupting the design and manufacturing processes.

We might begin selling parts of business during the next one to two years.

Chief Information Officer (CIO):

We anticipate many changes to the company organization during the next few years. We will be organizing entire divisions, assimilating unknown client and network operating systems and infrastructures, and adding large number of new users as we acquire new companies. To maintain control, we have divided between the New York and Sidney offices the responsibilities of all IT operations and IT infrastructure management. However, New York office makes final decisions regarding the infrastructure designs. The New York office is responsible for the Western Region, and the Sidney office is responsible for the Eastern Region. This division of control should not hinder the performance or availability of computer based services when users access network resources, these resources should be presented quickly. We cannot afford to have any computer down time our computer. Our mission for the next year is to have all services available and for those to start as quickly as possible.

Security Officer:

We have seen an increase in attempts to breach the security of our network. We do not know whether these attempts are being made by individuals who are simply testing their skills or whether they are attempts at organized industrial espionage. But, we are not taking risks. Security must be one of the primary considerations in design of all operating systems and services. We are implementing strict security policies and procedures at all facilities. The Eastern and Western regions will individually manage policies. Because of an existing security policy, and to ensure that the users are minimally affected, the Eastern Region will require password resets every 30 days and a minimum password length of four characters.

The Western Region will require password resets every 45 days and minimum password length of six characters.

Network Operation Officer:

We need to delegate authority for password resets and the management of file and printer resources to our eight major departments: research and development, design, manufacturing, marketing, finance, sales, IT, and human resources. At each branch office, each department s IT staff should have the ability to manage the resources only within that one branch.

Chief Financial Officer (CFO):

We work hard to associate **A. Datum Corporation's** name with a highly recognizable and positive image.

Although our e-commerce business is successful, we might sell that portion of the business. Because it

will be possible that we will sell the name with a portion of the business, we need to take actions to ensure

that the sale of the name will not effect internal operations. If we sell the e-commerce business,

www.electrik.com will be included as a part of the sale.

Existing IT Environment:

All locations have three Windows NT 4.0 domains: one account domain and two resources domains.

The Western Region locations use Windows NT 4.0 DNS Server for name resolution.

The Eastern

Region currently uses a UNIX-based DNS service that supports the use of SRV records but that does not

support dynamic updates.

Each facility has several Windows NT 4.0 computers.

Case Study #7, A. DATUM CORPORATION (7 Questions)

QUESTION NO: 1

Which two A. Datum Corporation business factors should influence your active directory naming strategy? (Choose Two)

- A. Possible sale of A. Datum corporation name.
- B. 24-hour global collaboration
- C. Organizational unit (OU) hierarchy
- D. Number of users at each facility
- E. LAN topology
- F. Growth plans

Answer: A, C.

Explanation:

A: Once you create a domain, you cannot rename it without demoting all domain controllers, thus dismantling the domain. Therefore, you need to use a domain name, that you can use permanently.

C: Often you have to decide whether to implant entities as either subdomain or OUs. These design decisions affect the active directory naming strategy.

Incorrect Answers:

B: This has nothing to do with AD design.

D: A domain can have millions of objects.

E: The LAN technology would affect site design which is separate to AD design. The design of sites is based on physical network connectivity. AD design is a logical grouping of domains, OUs etc.

F: One of Microsoft's main selling points for Windows 2000 Active Directory is that it is easily scalable. A single domain can support millions of objects, and domains can be easily be added to the AD structure.

QUESTION NO: 2

Which A. Datum Corporation business factor necessitates a multiple domain active directory design?

- A.** Regional control of security.
- B.** Delegation of resource management.
- C.** Available bandwidth between some branch offices.
- D.** Requirement for localized version of operating systems.
- E.** Individual infrastructure management control at the New York and Sydney offices.

Answer: A.

Explanation:

Security policies must be applied at domain level so if different security policies are required, you'll need multiple domains.

Incorrect Answers:

- B:** This is also an OU delegation issue.
- C:** The bandwidth affects the site design.
- D:** The operating system doesn't affect the number of domains.
- E:** This would affect the OU design for reasons of delegation.

QUESTION NO: 3

You are considering the following domain hierarchy for A. Datum Corporation:

- **Adatum.com**
- **East adatum.com**
- **West adatum.com**
- **Bangkok east adatum.com**
- **newyork.west.adatum.com**
- **New Delhi east adatum.com**
- **sydney.east.adatum.com**
- **london.west.adatum.com**
- **sanjose.west.adatum.com**

There is a one-to-one relationship between sites and locations. A domain is associated with only one location. Additionally, adatum.com and west.adatum.com will be managed in the New York location.

How should you design the server services at the New York location?

- A.** One schema operations master, one domain naming master, three domain controllers, two global catalog servers and two PDC emulators.
- B.** One schema operations master, one domain naming master, six domain controllers, two global catalog servers and three PDC emulators.
- C.** One schema operations master, one domain naming master, one domain controllers, six global catalog servers and three PDC emulators.
- D.** One schema operations master, two domain naming master, two domain controllers, two global catalog servers and two PDC emulators.

Answer: B.

Explanation:

We have one forest root which contains one schema operations master and 1 domain naming master.

There are two child domains at the New York location. We need 2 DCs in the two domain and 2 more in the root domain. Each of the three domains (including the root) will have one PDC emulator. The two child domains need GCs.

Incorrect Answers:

- A:** There are not enough domain controllers.
- C:** It only has one domain controller. We have three domains.
- D:** We only have one forest so only one domain naming master.

QUESTION NO: 4

A. DATUM Corporation is considering using the domain names listed below in a design that uses only the default Windows 2000 trusts. Identify the Kerberos referral path that is traversed when a user in newyork.west.adatum.com accesses resources located in sydney.east.adatum.com. Move the appropriate domain names to the trust path list, and arrange them in the correct order. (Use only domain names that apply.)

Trust Path List	Possible Domain Names
▲ ▼	adatum.com west.adatum.com east.adatum.com newyork.west.adatum.com sanjose.west.adatum.com london.west.adatum.com sydney.east.adatum.com bangkok.east.adatum.com newdelhi.east.adatum.com
<<Move Remove>>	

Answer:

A. DATUM Corporation is considering using the domain names listed below in a design that uses only the default Windows 2000 trusts. Identify the Kerberos referral path that is traversed when a user in newyork.west.adatum.com accesses resources located in sydney.east.adatum.com. Move the appropriate domain names to the trust path list, and arrange them in the correct order. (Use only domain names that apply.)

Trust Path List	Possible Domain Names
▲ ▼ newyork.west.adatum.com west.adatum.com adatum.com east.adatum.com sydney.east.adatum.com	adatum.com west.adatum.com east.adatum.com newyork.west.adatum.com sanjose.west.adatum.com london.west.adatum.com sydney.east.adatum.com bangkok.east.adatum.com newdelhi.east.adatum.com
<<Move Remove>>	

Explanation:

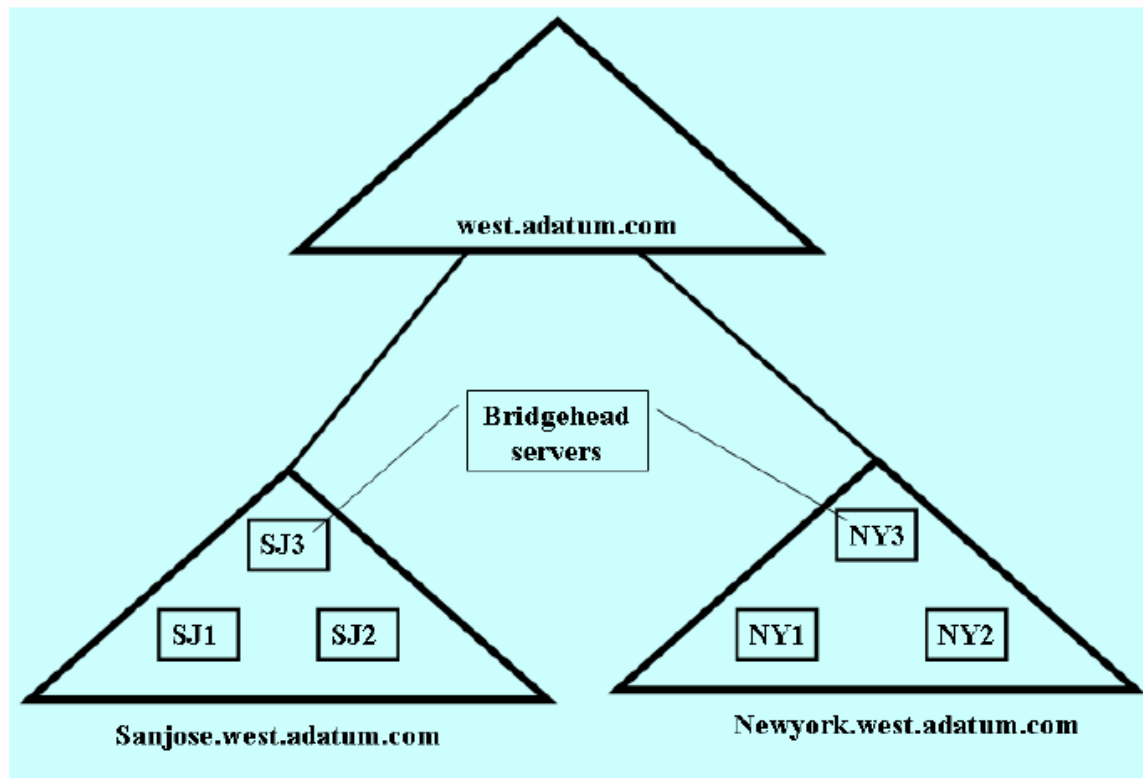
We are starting at the newyork.west.adatum.com domain. The trust path goes up to the parent domain until it reaches the root domain then it goes down through the child domains until the lowest child domain is reached. The parent domain of newyork.west.adatum.com. is west.adatum.com. The parent

of west.adatum.com (and the root) is adatum.com. The other child of adatum.com is east.adatum.com. The child of east.adatum.com is Sydney.east.adatum.com.

QUESTION NO: 5

A proposed site design for A. Datum Corporation is shown in the exhibit. The servers are named SJ1, SJ2, SJ3, NY1, NY2, and NY3. SJ3 and NY3 are bridgehead servers. You want to create a new user on NY1. You must identify the steps for default replication of that user to every domain controller. Identify the the replication steps required, and arrange them in the correct order. (Choose only replication steps that apply)

Ordered List of Replication Stages	Possible Replication Steps
▲▼	Create the user NY1 notifies its replication partner or partners NY1 sends data to SJ3 NY2 and NY3 begin pull replication from NY1. NY3 notifies its replication partner or partners NY3 sends data to SJ3 SJ1 and SJ2 begin pull replication from SJ3 SJ3 begins pull replication from NY3 SJ3 notifies its replication partners
	<<Move Remove>>



Answer:

A proposed site design for A. Datum Corporation is shown in the exhibit. The servers are named SJ1, SJ2, SJ3, NY1, NY2, and NY3. SJ3 and NY3 are bridgehead servers. You want to create a new user on NY1. You must identify the steps for default replication of that user to every domain controller. Identify the the replication steps required, and arrange them in the correct order. (Choose only replication steps that apply)

Ordered List of Replication Stages

▲ Create the user
▼ NY1 notifies its replication partner or partners
NY2 and NY3 begin pull replication from NY1.
SJ3 begins pull replication from NY3
SJ3 notifies its replication partners
SJ1 and SJ2 begin pull replication from SJ3

<<Move

Remove>>

Possible Replication Steps

Create the user
NY1 notifies its replication partner or partners
NY1 sends data to SJ3r
NY2 and NY3 begin pull replication from NY1.
NY3 notifies its replication partner or partners
NY3 sends data to SJ3
SJ1 and SJ2 begin pull replication from SJ3
SJ3 begins pull replication from NY3
SJ3 notifies its replication partners

Explanation:

The replication Steps should include the following numbered tasks in this order:

1. Create the user.
2. NY1 notifies its replication partner or partners.
3. NY2 and NY3 begin pull replication from NY1.
4. SJ3 begins to pull replication from NY3
5. SJ3 notifies its replication partner or partners.
6. SJ1 and SJ2 begin pull replication from SJ3.

When a user is created on NY1, NY1 will notify it's replication partners (NY2 and NY3) about it so

they can pull the information from NY1. This is called Notify-Pull and it is used for Active Directory replication within a site.

At the scheduled intrasite replication interval SJ3 begins to pull replication from NY3. SJ3 and NY3 are

the Bridgehead Servers so all intersite replication goes through these two servers.

Finally we have a intersite notify-Pull event within the San Jose site:

SJ3 notifies it's intersite replication partners which are the local Domain Controllers SJ1 and SJ2.

SJ1 and SJ2 will then pull the information from SJ3.

Note: Active Directory replication is always a one-way pull replication; the domain controller that needs

updates (target domain controller) contacts a replication partner (source domain controller). The source domain controller then selects the updates that the target domain controller needs, and copies them to the target domain controller.

QUESTION NO: 6

You are designing A. Datum Corporation's organizational Unit (OU) hierarchy. Which business factors should have the most influence on you design? (Select all that apply)

- A. 24-hour global collaboration
- B. Departments
- C. Regional security differences
- D. Number of users per facility
- E. WAN topology
- F. Internet presence
- G. Growth plans

Answer: B.

Explanation:

Most OU structures are based on departments. This allows for easy delegation of control and easy moving of users between OUs if they join a different department.

Incorrect Answers:

A: This would affect the domain design.

C: This has nothing to do with OU design.

E: The WAN topology affects the site design and the security differences affects the domain design.

F: The number of users isn't a design consideration in Windows 2000.

G: Windows 2000 AD is easily scalable. Domains and OUs can be added without changing the existing AD structure

QUESTION NO: 7

A. Datum Corporation decides to enter into a joint venture with one of its vendors. This venture will result in the creation of a third company that will require its own Internet presence. System administration duties for the new companies will be shared equally by A. Datum Corporation and the vendor. A. Datum Corporation and the vendor currently have separate active directory forests. Which modifications should you make to active directory to support the joint venture requirements?

- A. Create a new domain for the new company, and then move both of the existing root domains under the new root domain.
- B. Create a child domain in the vendor's forest.

- C. Create a new tree for the new company.
Create this three in A. Datum Corporation's forest.
- D. Create a new forest for the new company.

Answer: D.

Explanation:

The new company will require an internet presence so it needs a new forest so it can have an external DNS root domain.

Incorrect Answers:

- A: You can only have one root domain in a forest.
- B: The new domain must be a root domain so it can't be a child domain.
- C: The new company needs an external root so it needs its own forest.

Case Study #8, TREY RESEARCH

WINDOWS 2000 UPGRADE PROJECT:

Your company is asked to provide consulting, development and integration services for a company named Trey Research. As a part of this project you will implement Windows 2000. All client computers that currently run Windows will be upgraded to Windows 2000 Professional. Wherever possible, the Windows NT 4.0 domain controller environment will be fully upgraded to Windows 2000 Server.

Background:

Trey Research is a military research company that operates from several locations in the United States.

Most of the company's business comes from the contracts from the United States government and

military. Its headquarters and primary IT center is in Washington, D.C.

The company is distributed as follows:

- Research Facilities
- Boston, Massachusetts
- Denver, Colorado
- San Diego, California
- San Francisco, California
- Seattle, Washington
- St. Petersburg, Florida
- Washington, D.C.

The Denver, San Diego, San Francisco and Seattle facilities were originally a separate company named

Parelli Aerospace. These facilities became a part of Trey Research when they were purchased in 1997.

These facilities still use the Parelli Aerospace name and Parelli Aerospace still maintains its identity as a

separate company. Trey research is likely to acquire another company in the near future.

Problem Statement:**Chief Executive Officer (CEO):**

Because we are primarily a military research contractor working on a variety of classified projects, our primary concern is security. We purchased Parelli Aerospace in 1997, but in many respects it still operates as a separate company. We are attempting to eliminate duplicate work within the two companies as much as possible. We are also in the process of developing common operating practices. For purposes of shared research, we allow government and military customers to access some of our data. When we bought Parelli Aerospace we needed to restructure our entire security network structure. We need to be able to support our growth plans without needing to perform this type of restructuring again.

Chief Information Officer (CIO):

In some cases, to avoid the need to replace the existing hardware, we will use other operating systems rather than Windows 2000. Rather than built more than one directory service, we want an integrated directory service. To work towards accomplishing the goal, we will be migrating Microsoft Exchange Server 5.5 to Exchange 2000 Server. All account administration currently needs to be performed from our IT centers. We want to remove this limitation. We also want a security infrastructure that will not be need to be restructured when the accounts database reaches 40 MB.

Our current arrangement of trust relationship is cumbersome to manage. The current Windows NT 4.0 domain structure requires several domains for delegation of administration. We eventually want to have a global IT facility that uses the common software, standards, and procedures. The consolidation will begin during the Windows 2000 up-grade but we do not expect to complete it during the upgrade. We want the IT facilities to be controlled from one location as necessary. However, we also want to be able to delegate certain tasks without necessarily needing to create domains for them. We are concerned that MS Windows 95 and Windows 98 do not offer security at the client computer level. We want to increase our control and continue to standardize our client computers and applications in all departments. We want to standardize our security and management environment throughout the company as much as possible. We must minimize the disruption caused by Windows 2000 upgrade, and the upgrade must not compromise our security.

History:

Trey research has a diverse server environment. The company uses mainframe, UNIX, Novell, Macintosh, Banyan VINES and Microsoft servers.

The current Windows NT domain structure was configured in 1997, after the purchase of Parelli

Aerospace, in an attempt to integrate the IT structures of the two companies. The network based on

Windows NT was configured as a coexisting server structure, and migration and interoperability were

gradually implemented. Since then, all service packs up to Service Pack 7 have been applied to

Windows NT 4.0. The goal of this migration is to finally remove all of the remaining Banyan VINES and Novell servers.

Existing IT Environment:

General:

The trey research uses 25,000 personal computers.

The distribution of users is shown below:

- Boston 2,900
- Denver 4,200
- San Diego 1,900
- San Francisco 3,600
- Seattle 2,400
- St. Petersburg 2,600
- Washington, **D.C.** 7,400

There are currently two Windows NT account domains. All user accounts are in these domains. There is

one resource domain in each of the seven geographic locations. There are account domains in

Washington, **D.C.**, and San Francisco. BDCs are distributed throughout the company as needed. At the

Washington, **D.C.**, location, there are two domain controllers running custom applications that will not

run on Windows 2000. During the upgrade process, these domain controllers will remain on computers

that run Windows NT Server 4.0. These domain controllers will be migrated at a later date.

Network Infrastructure:

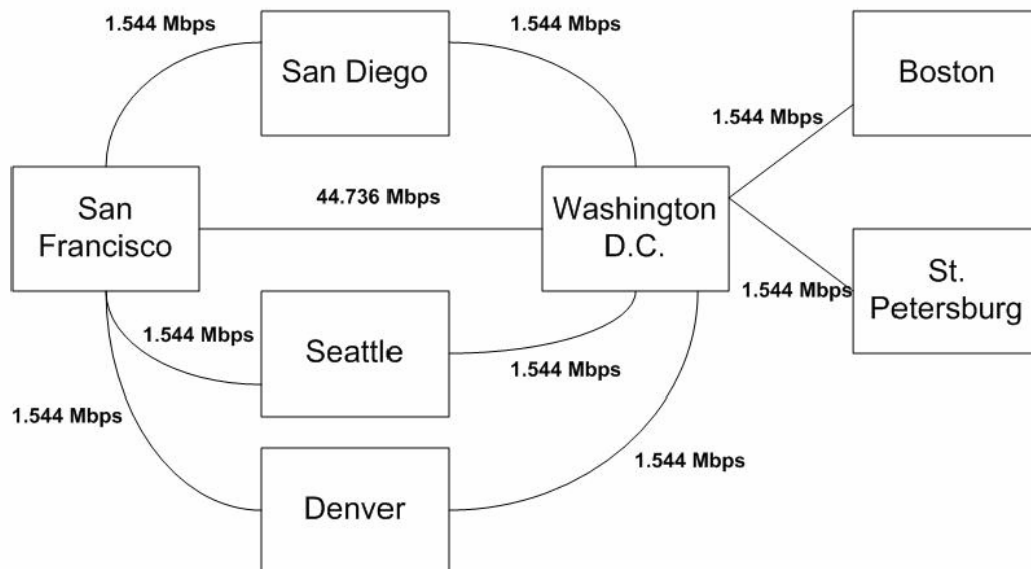
There is a 44.736-Mbps line from San Francisco to the primary IT center in Washington, **D.C.** This line

is used primarily for business applications. The 44.736-Mbps line has an average available bandwidth of 35 percent.

There are 1.544-Mbps lines from Washington, **D.C.**, to Denver, Boston, St. Petersburg, Seattle and San

Diego. There are also 1.544- Mbps lines from San Francisco to San Diego, Denver and Seattle. The

WAN links will be upgraded if more bandwidth is needed. The Trey Research WAN topology is shown in the exhibit.



Each location has one internal DNS server to manage the current UNIX environment. The current internal implementation of DNS does not support SRV records, dynamic up-date, Unicode characters, or incremental zone transfer. The IT staff members who currently maintain DNS servers manage both the UNIX environment and Windows NT Server environment. The external DNS systems for both the treasury research Web site and the Parelli Aerospace Web site are currently hosted on third-party ISP servers. The DNS modifications required for Windows 2000 will be designed to use the existing internal DNS structure.

IT Structure:

The primary IT center is in Washington, **D.C.** There is also a major IT center in San Francisco. In many ways, the San Francisco research facility operates as an independent business unit. Since 1997, the IT department has been creating an increasingly centralized IT structure. All account management is performed in Washington, **D.C.**, and San Francisco. All Windows 2000 operations masters will remain in their default locations. The departments that must be supported by the IT infrastructure include the following:

- Administration

- Financial
- Human resources - managed as a single group by IT
- Management
- Public relations
- Real estate
- Information technology (IT)
- Sales and marketing
- Research
- Aerospace
- Biological
- Chemical
- Electrical
- Mechanical

Policies and application specifications are defined at the Washington, **D.C.**, and San Francisco IT

centers. These two locations also provide telephone support for each department.

Additionally, there is

an IT department at each geographic location. These local IT departments report directly to the global

technical support center. At the local offices, the IT staff is divided by departments and departmental

responsibilities.

Security:

Currently, the two domains have different security policies for password length and complexity, and for

account lockout. These policies will not be changed after the Windows 2000 upgrade project is

completed. Accounts will be created at the Washington, **D.C.**, and San Francisco facilities. The rights

for resetting passwords and changing attributes will be delegated to local IT administrators.

IT administrators give these users rights by adding global groups to local groups.

There will be four levels of administrators for day-to-day operations:

- Enterprise administrators will be a small group contained in a separate top-level domain to manage the entire organization.

- Domain administrators will be granted rights to the entire domain.

- Branch administrators will be granted rights for operations at the physical locations.

- Departmental administrators will have localized rights based on their specific roles.

The departmental and branch administrators of resource domains are not granted administrative rights

for the corresponding account domains.

Group Policy Goals:

Group Policy will be centrally managed from Washington, **D.C.**, as much as possible.

Initially, Group

Policy will be designed to redirect folders to minimize logon time, to define logon scripts, to set security, and to allow specific software to be made available for installation in departments where users have the ability to install software.

Case Study #8, TREY RESEARCH (9 Questions)

QUESTION NO: 1

Which upgrade plan should you use for Trey Research ?

A. Create a Windows 2000 root domain.

Migrate all domains into this root domain.

B. Upgrade the two account domains configuring new as single root domain.

Migrate the resource domain to Windows 2000.

C. Upgrade existing Windows NT 4.0 domains to Windows 2000 in place.

D. Upgrade the resource domains to Windows 2000

Upgrade the two account domains, and then consolidate the resource domains into the account domains.

E. Create a root domain.

Upgrade the two account domains to Windows 2000, upgrade the resource domains, and then

consolidate the resource domains into the account domains.

Answer: E.

Explanation:

When upgrading Windows NT domains to Windows 2000, the account domains must be upgraded first.

After upgrading the account domains, the resource domains can be upgraded. When all the resource

domains are Windows 2000, they can be consolidated into the account domains. We need two separate

domains because the two companies require different password policies.

Incorrect Answers:

A: We need one root domain with two subdomains.

B: It doesn't mention consolidating the domains.

C: It doesn't mention consolidating the domains.

D: It mentions upgrading the resource domains first.

QUESTION NO: 2

You need to design a Group Policy hierarchy that should be applied to a user in the human resources depart for technical staff at the Boston Research facility. In which order should you apply the Group Policy objects (GPO's)?

- A.** Domain GPO, Boston site GPO, Human resource GPO, Boston organizational unit (OU) GPO.
- B.** Domain GPO, Boston site GPO, Boston organizational unit (OU) GPO, Human resources GPO.
- C.** Boston site GPO, Domain GPO, Boston organizational unit (OU) GPO, Human Resources GPO.
- D.** Boston site GPO, Domain GPO, Human resources GPO, Boston organizational unit (OU) GPO.

Answer: C.

Explanation:

Group policies are applied in the following order. Site, domain, OU, (Child OUs). In this scenario we have a top level OU for each location and child OUs for the departments.

Incorrect Answers:

- A:** The domain GPO is applied before the site GPO.
- B:** The domain GPO is applied before the site GPO.
- D:** The department OU is applied before the location GPO.

QUESTION NO: 3

How should you implement the administration of group policy?

- A.** Enable domain administrators to create Group Policy objects (GPOs) to link GPOs to domains and sites and to edit domain level and site level GPOs.
Enable department administrator at each location to link and edit GPO's that apply to their departmental organizational units (OUs).
- B.** Enable domain administrator to create Group Policy objects (GPOs) to link GPOs to sites, domains and organizational units (OUs), and to edit domain-level and site-level GPO. Enable departmental administrator at each location to edit GPO's that apply to their departmental OU's.
- C.** Enable domain administrator to create Group Policy objects (GPOs) to link GPOs to sites, domains and organizational units (OUs)
Enable depart administrators at each locations to edit GPOs that apply to their departmental OU and to edit site-level GPOs.
- D.** Enable domain administrators to create link, and edit domain-level Group Policy objects (GPOs).
Each depart administrator at each location to create link, and edit site-level and departmental

organizational unit (OU) level GPOs.

Answer: A.

Explanation:

The domain administrators should be able to create and edit GPOs at the site and domain level. Department administrators should be able to create and edit GPOs that apply to the department GPOs.

Incorrect Answers:

B: It doesn't mention the ability to create new GPOs for the department OUs. It only lets them edit existing GPOs.

C, D: It lets department administrators edit site level GPOs.

QUESTION NO: 4

You must decide how many domains you create for Trey Research. What is the most important that you should consider when deciding whether to create more than one domain?

- A.** The use of two company names on the Internet.
- B.** The requirement that different companies have different account lockout policies.
- C.** Interoperability of the existing Banyan Vines, UNIX and Novell services.
- D.** Plans to acquire another company.
- E.** The use at one of the locations of applications that will modify the schema.

Answer: B.

Explanation:

Logon policies must be applied at domain level. If you need different logon policies you need different domains.

Incorrect Answers:

A: Different company names don't affect the required number of domains.

C: The operating system doesn't affect the domain strategy.

D: There are no plans to acquire another company.

E: If you need different schemas, you need different forests.

QUESTION NO: 5

You upgrade the Trey Research Client Computers and Domain Controllers to Windows 2000 as planned. You must now choose the locations for the server services. Move each service to the appropriate location or locations (Use all the server service. You might need to reuse server services)

Locations	Services
Collapse Locations ■ Washington DC ■ Boston ■ San Francisco	Global Catalog DNS RID Master Schema Operations Master Infrastructure Operations Master PDC emulator Domain Naming Master
<<Move Remove>>	

Answer:

You upgrade the Trey Research Client Computers and Domain Controllers to Windows 2000 as planned. You must now choose the locations for the server services. Move each service to the appropriate location or locations (Use all the server service. You might need to reuse server services)

Locations	Services
Collapse	
Locations ■ Washington DC - Domain Naming Master - Schema Operations Master - RID Master - Infrastructure Operations Master - PDC emulator - Global Catalog - DNS ■ Boston - Global Catalog - DNS ■ San Francisco - RID Master - Infrastructure Operations Master - PDC emulator - Global Catalog - DNS	Services - Global Catalog - DNS - RID Master - Schema Operations Master - Infrastructure Operations Master - PDC emulator - Domain Naming Master
<<Move Remove>>	

Explanation:

Washington is the root domain so it needs a Schema master, Infrastructure master, RID master, PDC emulator, and a RID master. San Francisco is a domain so it needs a RID master, Infrastructure master, PDC emulator and DNS.

Furthermore a global catalog server would improve performance. Boston is a site. All sites need a Global catalog server and a DNS server to boost performance.

QUESTION NO: 6

You need to grant permission to a set of resources that are managed one three domain controllers the Washington DC facility. You need to grant permission to users at all facilities. What should you do?

- A. Create a domain local policy and local domain policy and grant this group access to resources. Create one global group in the appropriate domain and add this group to the users who need access to resources. Create a universal group, add the global group to universal group. Add a universal group to the domain local group.
- B. Create a domain local group in local domain and grant this group access to resources. Create one global group in the appropriate domain and add this group to the users who need access to resources. Add Global group to domain local group.
- C. Create a local group on each resource server i-e in Washington DC and grant these groups access to the resources.

Create one global group in the appropriate domain or domains and add this group the users who need access to resources.
Add the global groups to local groups.
D. Create a local group on each resource server i-e in Washington DC and grant these groups access to the resources.
Grant each local group to access to the resources in its respective server.
Create one global group in appropriate domain or domains.
Add this group to the users who need access to resources.
Create a universal group, add the global group to universal group, add the universal group to domain local group.

Answer: B.

Explanation:

You should create a domain local group and grant permissions to the group. Users should be placed in global groups and the global groups added to the domain local group.

Incorrect Answers:

- A:** There is no such thing as a domain local policy.
- C:** They use local groups instead of domain local groups.

QUESTION NO: 7

Which change must you make to DNS to prepare for implementation of Windows 2000?

- A.** Provide DNS services that will support SRV records.
- B.** Move the DNS service that hosts the records for the company Web sites from the third-part servers to internal servers.
- C.** Remove the DNS service from all UNIX servers, and install Microsoft DNS Server.
- D.** Provide DNS services that will support incremental zone transfer.
- E.** At each location, install an additional instance of DNS service.
- F.** Remove the DNS service from all UNIX servers, and install Active Directory integrated DNS Server.

Answer: A.

Explanation:

For Windows 2000, we need DNS servers that support SRV records. These are necessary so that client computers can locate domain controllers.

Incorrect Answers:

- B:** This is unnecessary.
- C:** MS-DNS server doesn't exist.
- D:** Instrumental zone transfer doesn't exist.
- E:** Additional DNS servers won't work without SRV records.

F: Active directory integrated DNS server require Windows 2000 computers. We haven't installed them yet.

QUESTION NO: 8

How should you implement DNS naming strategy for Trey Research?

- A.** Move the internal DNS to the Windows 2000 Server computers.
Use a single domain named treyresearch.com.
- B.** Configure parallel DNS infrastructure, one for the existing UNIX environment and one for Windows 2000. Use treyreasearch.com as the root domain.
- C.** Use MS-DOS Server to define the Windows 2000 domain as child domain of Trey Research.
- D.** Move the internal DNS to the Windows 2000 Server computers.
Use two domains named treyresearch.com and parnellaerospace.treyresearch.com
- E.** Upgrade the existing DNS infrastructure.
Use a single domain named treyresearch.com.
- F.** Upgrade the existing DNS infrastructure
Use three domains named treyresearch.com, corp.treyresearch.com, and parnellaerospace.treyresearch.com.

Answer: F.

Explanation:

Parelli and Corp.TreyResearch should be child domains of Trey Research.com.

Incorrect Answers:

- A:** It suggests a single domain.
- B:** It suggests two domains.
- C:** A MS-DOS server doesn't exist.
- D:** It suggests two domains.
- E:** It suggests a single domain.

QUESTION NO: 9

How should you design the DNS for Trey Research?

- A.** Upgrade the existing UNIX DNS service.
On this service, configure the zones required for Windows 2000.
- B.** Upgrade the existing UNIX DNS service.
Add servers that run Microsoft DNS Server as Active Directory integrated secondary zones.
- C.** Use Active Directory integrated zones in Microsoft DNS Server to replace the UNIX DNS service and to host the domains required for the implementation of Windows 2000.
- D.** Use Active Directory integrated zones in servers that run Microsoft DNS Server, and run DNS zones that are separate from and parallel to the UNIX DNS servers.

Answer: A.

Explanation:

We need to upgrade the UNIX dns service to support dynamic updates and SRV records. Then we can install the Windows 2000 domain controllers and implement active directory integrated zones.

Incorrect Answers:

C: We haven't got any Windows 2000 domain controllers yet.

D: We haven't got any Windows 2000 domain controllers yet. These are required for active directory integrated zones.

B: You can't run MS DNS on a UNIX server.

Case Study #9, PROSEWARE CORPORATION

Background:

Overview:

ProseWare Corporation was founded in 1990 as an employment agency for temporary employees. The company supports media companies' needs for freelance writers, reporters, and graphic artists. In 1998, ProseWare Corporation expanded its scope to include a broader range of information workers (IWs) and to support a broader range of companies. ProseWare Corporation's new mission is twofold. This mission is to become a leader in supporting the individual needs of highly qualified freelance IWs and to provide the best service to corporate customers seeking temporary employees.

Information Worker Service:

ProseWare Corporation recruits consultants, freelance workers, and independent contractors worldwide.

The company refers to these individuals as information workers (IWs). The company provides the IWs with personal and groupware tools such as e-mail, discussion groups, and scheduling resources to help make them more productive. Next the company evaluates and markets their skills. Then finally the company helps them work with the employers they serve by making it easy to share information with these employers. If an IW is assigned to a position with an employer who has network connectivity to ProseWare Corporation. This special access to shared resources is granted. This special access allows IWs to conveniently share work with employees of the companies that employ them.

Corporate Customer Service:

ProseWare Corporation works with a group of leading technology and services companies that need temporary employees. ProseWare Corporation makes it easy for companies to browse through its online

list of workers and find the right worker for the job. In addition, ProseWare Corporation makes it easy for its corporate customers to initiate contract processes and for employees of the corporate customers to conveniently share information with temporary employees.

Organization:

Currently, ProseWare Corporation has approximately 300 full-time employees. They are evenly

distributed among its four offices in New York, Chicago, Atlanta, and Los Angeles. The Chicago office is the company headquarters.

ProseWare Corporation has the following departments:

- Business administration
- Human resources
- Information technology (IT)
- Marketing
- Consulting

The consulting department provides project management and communication services to the corporate customers. In the consulting department, experts are assigned to support each information worker (IW)

occupational role. These experts hire the IWs, evaluate their skills, manage their security certification clearances, and monitor their assignments with corporate customers. Corporate customers occasionally hire these consultants for temporary assignments.

ProseWare Corporation organizes its information into the following groups: employee, recruiting, IW, accounting, corporate customers, and projects.

The company provides services to more than 20,000 IWs. Approximately 20 percent of these workers

are currently employed in temporary positions acquired by ProseWare Corporation.

ProseWare Corporation wants to increase the number of its full-time employees to 450 during the next

two years. During the next two years, the company also wants to double the number of IWs and increase the percentage of IWs that are actively employed.

Existing IT Environment:

The internal WAN consists of 1.544-Mbps lines that connect New York, Atlanta, and Los Angeles to the headquarters in Chicago. The connection to New York operates at 30 percent utilization, the connection to Atlanta operates at 20 percent utilization, and the connection to Los Angeles operates at 50 percent utilization. The connection to the Internet is in Chicago. The company's external Web site is hosted by a

third party.

The network consists of one master domain and one separate resource domain at each of the company's

four locations. The master domain contains all employee user accounts and is named PW_MASTER.

PW_MASTER has its PDC and a BDC in Chicago and BDCs located in New York, Los Angeles, and

Atlanta. Each location has a resource domain. The PDCs and BDCs for these resource domains are

located at the associated offices. Each location also has a second BDC located at the Chicago office. The

resource domains are named CH_RES, NY_RES, LA_RES, and AT_RES. The PW_MASTER and

LA_RES PDCs also run WINS. Currently there are no DNS or DHCP service running.

Currently, the information workers (IWs) do not access the internal WAN. The IWs only access

resources on the Windows NT and UNIX Web servers that are hosted by the ISP. E-mail service for IWs

is hosted by a UNIX POP3 server.

Proposed Corporate-Customer Connectivity:

Currently, 50 percent of ProseWare Corporation information workers (IWs) are working at approximately 20 large companies. ProseWare Corporation has at least one full-time employee permanently located at ten of these companies to manage IW services. Two corporate customers are willing to configure trust relationships between their own WANs and the ProseWare Corporation WAN. Therefore, approved IWs will be able to place files on the ProseWare Corporation servers, and employees of these two corporate customers will be able to access the files conveniently.

Project Goals:

Information Worker Management:

ProseWare Corporation wants corporate customers to be able to directly acquire and manage information workers (IWs). The IT system will need to feature highly flexible tools for searching, scheduling, estimating costs, and deploying resources. (AD)

Establishing Trust:

Many of the services that information workers (IWs) will provide to ProseWare Corporation corporate customers will be performed remotely. Because little or no personal contact will occur, establishing trust will be difficult. In an attempt to solve this problem, ProseWare Corporation will use video conferencing whenever possible. The company will provide membership access to national video conference centers.

When bandwidth allows, the company will also provide support for video conferencing from IW home offices. To further increase trust, IWs enrolled in the Virtual Office service will be granted a higher level of security clearance.

Information Worker (IW) Virtual Office:

ProseWare Corporation currently provides Web-based administrative tools such as time-sheet reporting,

invoicing, and payroll services. It also offers the following standard and deluxe services to its information workers (IWs):

- Standard-This service level is free and provides e-mail, 5 MB of file storage, and access to the job database.
- Deluxe-IWs pay a monthly fee for this service level. This level includes all standard services and provides group-rate insurance plans and stock options.

As part of this project, ProseWare Corporation will offer a premium service level named IW Virtual

Office. IWs will pay an additional charge for this service level. This level will provide 50 MB of file

storage, project team rooms, personal scheduling tools, contact management, access to discussion

groups, and advertisement space on the ProseWare Corporation Web site, with links to personal

portfolios. ProseWare Corporation intends to use Public Key Infrastructure (PKI), Microsoft Outlook

2000, and Microsoft Exchange 2000 to support this functionality.

Each IW is classified as one of the following occupational roles:

- Business
- Information technology (IT)
- Management
- Media creation
- Sales
- Training

To support the corporate customers need for confidentiality, IWs will be classified into one of several levels of security clearance. Depending on work history and credentials, they can attain higher security levels.

Project Requirements:

ProseWare Corporation intends to upgrade the client computers of all permanent employees to Windows

2000. The company will hire external workers to perform the upgrade. The company also wants to

consolidate and upgrade the existing Windows NT domains, implement Active Directory, and upgrade

Microsoft Exchange 5.5 to Exchange 2000.

Each ProseWare Corporation office currently operates as a small independent business.

However, most

information sharing is contained within each department, regardless of location. The administration of

user accounts and resources should be restructured to support this organizational system.

For security management, the company wants the root of its internal forest namespace to be a subdomain of its public domain. This domain is named proseware.com. For fault tolerance, at least two servers should host domain controllers in each domain. In addition to the internal network, ProseWare Corporation intends to use Public Key Infrastructure (PKI), Active Directory, and Exchange 2000 to implement the information worker (IW) Virtual Office service. Permission changes made to IW resources should not need to be replicated to the other ProseWare Corporation offices, although all employees need to be able to search the complete global catalog containing employees and IWs. Initially, all 20,000 IWs will be imported into Active Directory as contacts. When IWs subscribe to the Virtual Office service, they will be supplied with Microsoft Outlook 2000, migrated to Exchange 2000, and entered into Active Directory as users. IW users will access ProseWare Corporation internal network through the Chicago Internet connection by means of VPN. To support the anticipated high security levels, IWs subscribing to the Virtual Office service will require stronger password policies than ProseWare Corporation employees. These policies include longer passwords and PKI certificates. The design must support smart cards and consistent logon procedures regardless of domain. All users will use username@proseware.com for authentication. ProseWare Corporation also wants to create extranet connections and trusts. Initially, ProseWare Corporation will configure extranet connections and trusts with two of its corporate customers. IWs with appropriate credentials will be able to store documents on servers at ProseWare Corporation. Corporate customer employees will be able to access these documents easily. The two corporate customers who are configuring trust relationships with the ProseWare Corporation WAN have already installed Active Directory domains. Users at these companies will want to be able to view appropriate ProseWare Corporation file shares in their own global catalogs. These two corporate customers do not want IW user accounts to appear on any of the access control lists in their forests.

Chief Information Officer (CIO) Interview:

There are lots of creative individuals in the IT field. They will install services just to see how the services work. Because of this tendency, we often have many more services running than we need. I want to regain top-level administrative control. I also want to be able to delegate administrative tasks. Because I want to keep our initial design as simple as possible, I want to use only services that are absolutely necessary. Because we will use video conferencing, I want to be able to control the quality of service provided to specific users. I also want to be able to control domain replication. In addition, because we might lose a WAN link to our remote locations, employee logon processes should not require the WAN connection. I will control all schema changes, site policies, and additions of new domains. I also want to assign selected individuals to administer employee and information worker (IW) accounts and resources and to have full domain rights to these objects. The IT support staff at each location is responsible for all of the normal daily work, including the daily administration of users, resources, and permissions. I have better things to do with the resources I have. I want the new design to be structured so that this work is delegated to individuals in each department.

Case Study #9, PROSEWARE CORPORATION (9 Questions)

QUESTION NO: 1

You must decide how your Active Directory design will be affected by the factors that influence the business strategies of ProsaWare Corporation. Move each business factor to the appropriate component in your Active Directory design. (Use all business factors. Use each business factor only once.)

Active Directory Design Componets

Business Factors

Collapse

☐ Active Directory design components

- Forest structures
- Site structures
- Domain structures
- Organizational Unit (OU) structure
- Explicit trust relationships

<<Move

Remove>>

Classification of information works (IWs) into occupational roles and administration of IWs by proseWare Corporation employees
 unique authentication requirements of information works (IWs)
 availability of information works (IWs) share from the corporate customer domains
 existing WAN connectivity and utilization rates
 division of ProsaWare Corporation into departments
 schema modification policy

Answer:

You must decide how your Active Directory design will be affected by the factors that influence the business strategies of ProsaWare Corporation. Move each business factor to the appropriate component in your Active Directory design. (Use all business factors. Use each business factor only once.)

Active Directory Design Componets

Business Factors

Collapse

☐ Active Directory design components

- Forest structures
 schema modification policy
- Site structures
 existing WAN connectivity and utilization rates
- Domain structures
 unique authentication requirements of information works (IWs)
- Organizational Unit (OU) structure
 division of ProsaWare Corporation into departments
 Classification of information works (IWs) into occupational roles and administration of IWs by proseWare Corporation
- Explicit trust relationships
 availability of information works (IWs) share from the corporate customer

<<Move

Remove>>

Classification of information works (IWs) into occupational roles and administration of IWs by proseWare Corporation employees
 unique authentication requirements of information works (IWs)
 availability of information works (IWs) share from the corporate customer domains
 existing WAN connectivity and utilization rates
 division of ProsaWare Corporation into departments
 schema modification policy

Explanation:

The WAN connectivity (speed of the links) affects our site design. This is why we have a site for each location.

The information workers need to be able to log on to the domains.

The proseware corporation is divided into departments which are represented by OUs.

IWs are divided into occupational roles and placed into departments.

Employees are divided into departments according to their job role. Departments are represented by OUs.

There is only one schema per forest. Modification to the schema dictate how many forests you need.

Proseware has only one need to modify the schema (Exchange 2000) so we only need one forest.

The trust relationships are affected by the need for customers to access IW shares in the Proseware network.

QUESTION NO: 2

How many forests and domains should you create for Proseware Corporation?

- A. One forest and three domains.
- B. Two forests and three domains.
- C. Three forests and five domains.
- D. Four forests and four domains.

Answer: A.

Explanation:

We have three domains in one forest. These are corp.proseware.com, pw_master.proseware.com and one resource domain. The proseware.com domain is an external domain hosted by an ISP.

Incorrect Answers:

B, C, D: They all suggest more than one forest.

QUESTION NO: 3

Which Proseware Corporation planned upgrade will require you to modify the schema?

- A. The two corporate customers will want to be able to view the Proseware Corporation file shares in their global catalog.
- B. Microsoft Exchange Server 5.5 will be upgraded to Exchange Server 2000.

- C. Smart cards and public key infrastructure (PKi) certificates will be implemented.
- D. The existing Windows NT domain will be consolidated and upgraded.

Answer: B.

Explanation:

Upgrading Exchange server will modify the schema.

Incorrect Answers:

- A: This affects domain trust relationships.
- C: Security certificates don't modify the schema.
- D: We don't have a schema until we upgrade the NT domain.

QUESTION NO: 4

You need to migrate ProsaWare corporation's existing Windows NT domains into Active Directory. Move the tasks needed to achieve this goal to the migration plan, and arrange them in the correct order. (Use only tasks that apply.)

Ordered List of Tasks	Possible Tasks
	Use a clean install to create an Active Directory root domain. Create a new NT 4 domain and add to this domain user accounts for each IW. Migrate the Windows NT domain to Windows 2000. Create an explicit transitive trust relationship between the employee domain and the corporate customer domain. Upgrade the PW_MASTER PDC to Windows 2000, creating a Windows 2000 domain containing all employee user accounts. Attach this domain to the root domain. Move users from the PW_MASTER domain to the resource domain at their location. Upgrade the PW_MASTER PDC to Windows 2000, and create the Active Directory root domain. Upgrade each resource domain's PDC to Windows 2000, creating a separate child for each location. Upgrade all of the BDCs of each Windows NT 4.0 domain to Windows 2000 domain controllers. Upgrade the Windows NT 4.0 resource domain PDCs to Windows 2000, designating each as a child domain of the employee domain. Create new organizational units (OUs) in the employee domain. Move the computer security groups into the new OUS. Decommission the child domains.

Answer:

You need to migrate ProsaWare corporation's existing Windows NT domains into Active Directory. Move the tasks needed to achieve this goal to the migration plan, and arrange them in the correct order. (Use only tasks that apply.)

Ordered List of Tasks	Possible Tasks
▲ ▼ Use a clean install to create an Active Directory root domain. Upgrade the PW_MASTER PDC to Windows 2000, creating a Windows 2000 domain containing all employee user accounts. Attach this domain to the root domain. Upgrade the Windows NT 4.0 resource domain PDCs to Windows 2000, designating each as a child domain of the employee domain. Create new organizational units (OUs) in the employee domain. Move the computer security groups into the new OUs. Decommission the child domains. Upgrade all of the BDCs of each Windows NT 4.0 domain to Windows 2000 domain controllers.	Create a new NT 4 domain and add to this domain user accounts for each IW. Migrate the Windows NT domain to Windows 2000. Create an explicit transitive trust relationship between the employee domain and the corporate customer domain. <<Move Remove>> Move users from the PW_MASTER domain to the resource domain at their location. Upgrade the PW_MASTER PDC to Windows 2000, and create the Active Directory root domain. Upgrade each resource domain's PDC to Windows 2000, creating a separate child for each location.

Explanation:

1. Use a clean install to create an Active Directory root domain.
2. Upgrade the PW_Master PDC to Windows 2000, creating a Windows 2000 domain all employee user accounts. Attach this domain to the root domain.
3. Upgrade the Win NT 4 resource domain PDCs to Windows 2000, designating each as a child domain of the employee domain. Create new OUs in the employee domain. Move the computer security groups and other security groups into the new OUs. Decommission the child domains.
4. Upgrade all of the BDCs of each NT 4 domain to Windows 2000 domain controllers. First we need a clean install. When upgrading to a Windows 2000 domain, the account domain must be upgraded. The first machine to be upgraded must always be the PDC. Once the PDC has been upgraded, we have a Windows 2000 domain. The BDCs can be upgraded later.

The third step is to upgrade the resource domains then migrate them into the first domain. Once all the domains have been upgraded and restructured (merged), we can upgrade the remaining

BDCs.

QUESTION NO: 5

Which task or tasks must you perform to implement the required Windows 2000 design for Proseware Corporation? (There are eleven choices. Choose all that apply)

- A.** Create two explicit one-way trust relationships. Configure these trusts so that Proseware Corporation Information Worker (IW) domain trusts a domain in each of two customer forests.
- B.** Create two-way trust relationships. Configure these trusts so that a domain in each of two corporate customer forests trusts the Proseware Corporation Information Workers (IW) domain.
- C.** Create shortcut trust between the employee and the Information Workers (IW) domain.
- D.** Create sites and intersite replication schedules for New York, Atlanta, and Los Angeles.
- E.** Install domain controllers in New York, Atlanta and Los Angeles.
- F.** Configure DNS and global catalog services in New York, Atlanta and Los Angeles.
- G.** Set replication schedules between Proseware Corporation and the corporate customers forests.
- H.** Integrate DNS into active directory.
- I.** Move the infrastructure operations master that is on the domain controller to a domain controller that is not hosting a global catalog.
- J.** Create transitive trusts between Proseware Corporation and two corporate customers forests.
- K.** Request the Proseware Corporation file share objects be added to the corporate customers global catalog.

Answer: A, D, E, F, I, K.

Explanation:

- A:** The customers need to access Proseware data.
- D:** Each location should be a site so we can control replication over slow links.
- E:** This will enable users to log on to local domain controllers.
- F:** The global catalog servers will enable people to log on without using the WAN links.
- I:** These two OM roles should run on separate machines.
- K:** This will enable the customers to be able to browse through Proseware shares.

Incorrect Answers:

- B:** Proseware workers should not be able to access customer networks.
- C:** We need explicit trusts and not shortcut trusts.

G: Proseware info doesn't get replicated to the customers networks.

H: This is no immediate need of Active Directory DNS.

J: Transitive trusts are two way. We only need one way trusts.

QUESTION NO: 6

Which requirements should affect your domain migration strategy?

- A. Maintaining Information Worker (IW) accounts and passwords.
- B. Maintaining employee accounts and passwords.
- C. Protecting the current domain structure.
- D. Schedule for employee client computer upgrades to Windows 2000 Professional.

Answer: B.

Explanation:

Maintaining employee accounts is critical when migrating domains. If they were lost they would need to be recreated.

Incorrect Answers:

- A: IW accounts will not be migrated. They have access through the trust relationships.
- C: We know the domain structure. It was designed before the migration.
- D: The upgrade of client computers doesn't matter. The servers will be upgraded first.

QUESTION NO: 7

How many sites should you create for Proseware Corporation?

- A. 1
- B. 2
- C. 4
- D. 6

Answer: C.

Explanation:

We have 4 sites. These are New York, Chicago, LA and Atlanta.

Incorrect Answers:

A, B, D: They suggest an incorrect number of sites.

QUESTION NO: 8

Which step or steps should you take to design DNS structure and the Active Directory Domains? (Choose all that apply)

- A. Create a subzone for each Proseware Corporation location.
- B. Create a forest root named proseware.com
- C. Create a forest root named corp.proseware.com
- D. Create a subzone for running any necessary child domains of the proseware.com tree.

E. Create a subzone for running any necessary child domains of the corp.proseware.com tree.

Answer: C, E.

Explanation:

The Proseware.com domain is hosted by an ISP so we need a subdomain to use as our AD root domain. We have a child resource domain of the corp.proseware.com domain so we need a DNS subzone for it.

Incorrect Answers:

A: We don't need a subzone for each site.

B: Proseware.com is hosted externally by an ISP.

D: We need a zone, not a subzone for our AD root domain.

QUESTION NO: 9

What should you use as the top-level organizational units (OUs) for ProseWare Corporation employees?

A. employee, recruiting, information worker (IW), accounting, corporate customers, and projects

B. business administration, human resources, information technology (IT), marketing, and consulting

C. New York, Chicago, Atlanta, and Los Angeles

D. user objects, computer objects, printer objects, and file share objects

Answer: B

Explanation: The question is asking about the Proseware Corporation employees. The scenario states that these employees are divided into the following departments:

ProseWare Corporation has the following departments:

- Business administration
- Human resources
- Information technology (IT)
- Marketing,
- * Consulting.

Case Study #10, FABRIKAM, INC

Windows 2000 Upgrade Project:

Your company is asked to provide consulting, development, and integration services for a company

named Fabrikam, Inc. As a part of this project, you will implement Windows 2000. All client computers

that currently run Microsoft Windows 95 will be upgraded to Windows 2000

Professional. The domain

controller environment will be fully upgraded to Windows 2000 Server.

Background:

Fabrikam, Inc. manufactures and supplies plastic containers to manufacturers of personal grooming products. The company has three offices in the southern United States. These offices are located in Dallas, Atlanta, and Phoenix. The company headquarters is in Dallas. The following departments are located in the Dallas office:

- Accounting
- Administration
- Graphics
- Human resources
- IT administration
- Maintenance
- Manufacturing
- Manufacturing design
- Purchasing
- Quality control
- Sales and marketing

In both Phoenix and Atlanta, there are offices for the following departments:

- IT administration
- Manufacturing
- Maintenance
- Quality control
- Sales and marketing

The company currently operates two eight-hour shifts for manufacturing and one shift for administrative and clerical functions.

Problem Statement:

Chief Executive officer (CEO):

The benefits derived from IT administration are not worth the money that we spend on it. Our suppliers and customers want to be able to link to our network for inventory updates, for pricing, and for billing. Currently, many of our processes are paper based. This practice causes all of the associated difficulties related to paper handling and data entry. Another consequence of this practice is that our data is not as current as we want it to be. We want to automate and consolidate the sites that employees need to access to find employee information and to input information.

Chief Information Officer (CIO):

Currently, all account administration must be performed in Dallas. With the exception of account administration, there is no centralized management of client computers. Internet mail is not currently available within the company. The existing Windows NT 4.0 domain structure necessitates several domains for the delegation of administration. We want to create accounts at headquarters. However, we want departmental IT staff members at the Dallas and Atlanta locations to be able to reset passwords and make other modifications to the accounts. We do not want to give the Phoenix or Atlanta IT staff full administrative control. We are concerned that Microsoft Windows 95 does not offer enough security at the client computer.

level. The amount of traffic on the existing WAN connections between Atlanta and Dallas and between Phoenix and Dallas averages 75 percent saturation during business hours. All IT maintenance will be performed during a four-hour period during nonbusiness hours. We try to schedule traffic during the evening hours whenever possible. I need to justify the cost of every improvement we make to the IT infrastructure.

History:

The Windows environment was most recently upgraded in early 1997. It was upgraded to Windows NT

4.0 and Microsoft Windows 95 from NetWare 3.12 and Windows 3.1. All service packs were applied to

Windows NT 4.0 when they were released. The upgrade in 1997 caused several problems with

connectivity, validation, and permissions. Because of these problems, some employees are not able to

work. These problems were associated with the specific consulting organization that performed the

upgrade. Nevertheless, employees still remember the problems and recall them whenever upgrades

are suggested. Consequently, the company is sensitive about the duration of downtime during upgrades.

Existing IT Environment:**General:**

Fabrikam, Inc., employs approximately 10,000 people. The company uses approximately 5,000

computers. Of these computers, 3,750 are in Dallas, 750 are in Atlanta, and 500 are in Phoenix.

The existing manufacturing environment is controlled by UNIX-based computers. There are currently

four Windows NT 4.0 domains: a global account domain in Dallas that contains all user accounts, and

resource domains in Dallas, Phoenix, and Atlanta.

Network Infrastructure:

There are 56-Kbps lines from Dallas to both Phoenix and Atlanta. IT administrators are concerned about

the amount of available bandwidth but cannot justify upgrading the links at this time.

Because of these

concerns, traffic is scheduled for evening hours whenever possible. SAP is used for inventory

management. The SAP Server is Located in Dallas.

The existing Web site is hosted by a third party. The fabrikam.com domain is registered.

It is hosted by

third-party Web servers, but it does not host any interactive Web pages. At each location, there is an

internal BIND DNS server to manage the UNIX environment. The UNIX DNS structure is completely self-contained and functions as its own root. The Windows 2000 support staff must easily be able to gain access to the DNS that supports Windows 2000.

The company currently has no connection to the Internet.

Client computer Environment:

Employees in the manufacturing design department use UNIX-based computers for design processes.

For e-mail and word processing, they use computers that run Windows. The computers used by the

manufacturing department use a terminal-emulation program to communicate with the UNIX systems

that control the manufacturing process.

Most of the employees use computers that run Microsoft Windows 95. Most of the Windows 95

computers run on Pentium 166-MHz MMX hardware platforms that have 16 MB of RAM and 2.1-GB

hard disks. Fabrikam, Inc. uses Microsoft Office 97 as its standard office suite.

Department-specific

applications are installed locally by on-site administrators.

Each of the manufacturing department's computers is used by more than one employee.

The company

wants server-stored profiles and documents to be available from local servers to each manufacturing

department user at each of the manufacturing department's computers.

IT Infrastructure:

The primary IT center is in Dallas. IT management is performed in Dallas whenever possible. The sales

and marketing, manufacturing, human resources, purchasing, administration, quality control, and

maintenance departments each use unique software. The technical support staff needs specific expertise

to be able to supply support for each of these departments. Consequently, each department has its own

technical support staff. The IT policy for each department is defined and managed in Dallas. Most of the

departmental support staff is located in Dallas, although some support staff members at the local offices

report directly to the departmental IT managers in Dallas. The departmental support staff at the local

offices will need delegated authority to perform basic administration.

Security:

In the master account domain, grouping of users for resource access is performed by means of global

groups. This grouping is performed by the IT administrators in Dallas. For local resource access, local

groups are created on the local servers. These groups are created by the local IT administrators.

Administrators grant these users rights by adding global groups to local groups.

Local administrators of resource domains are not granted administrative rights for the Dallas domain.

Group policy goals:

Group Policy will be managed from Dallas for both company-wide policy and departmental policy.

Initially, Group Policy will be designed to redirect folders, to define the desktop settings, and to allow

department-specific software to be made available. Security groups will not filter Group Policy objects

(GPOs), with the exception that most Group Policy will not apply to technical support staff.

Case Study #10, FABRIKAM, INC (14 Questions)

QUESTION NO: 1

Which goal is accomplished as a direct result of the upgrade to Windows 2000 Active Directory?

- A. Online availability of data for vendors and customers.
- B. Automated paper-based business processes.
- C. Reduction of the total cost of ownership of IT systems during the first year after the upgrade.
- D. Increased control and increased capability to standardize applications and computer configurations throughout the company.
- E. Increase security for existing client computers.

Answer: D.

Explanation:

By having one domain, you can create a single domain group policy which would standardize applications and configurations.

Incorrect Answers:

A: The number of domains doesn't affect online availability.

B: Only applications would affect paper based business processes.

C: The total cost of ownership would be the same with multiple domains.

E: The security will be increased by installing Windows 2000. The number of domains doesn't affect this.

QUESTION NO: 2

How many domains should Fabrikam, Inc., have at the end of the upgrade project?

- A. One domain for each location.
- B. One domain for Atlanta and Phoenix, and one domain for Dallas.
- C. One domain for the entire company.
- D. Four domains corresponding to the Windows NT 4.0 domain structure.

Answer: C.

Explanation:

We have only one domain with 3 sites.

Incorrect Answers:

- A: We only need one domain, not 3.
- B: We only need one domain, not 3.
- D: We only need one domain, not 4.

QUESTION NO: 3

You need to create a design that will allow you to grant permissions to a set of resources that are on three servers in the Dallas office. You need to grant these permissions to the users throughout the entire company after the upgrade. What should you do?

- A. Create local groups on each resource servers that is in the Dallas location, and grant these groups access to the resources.
Create one global group for the domain or domains, and add the members who need to gain access to the resources. Add the global groups to the local groups.
- B. Create a domain local group in the domain in which the resources exist, and grant this group access to the resources.
Create one global group for the domain or domains and add the members who need to gain access to the resources. Add the global groups to the domain local groups.
- C. Create a domain local group in the domain in which the resources exist, and grant this group access to the resources.
Create one global group for the domain or domains and add the members who need to gain access to the resources. Create a universal group. Add the global groups to the universal group. Add the universal group to the domain local group.
- D. Create a local group on each resource server that is in the Dallas location, and grant these groups access to the resources.
Grant each local group access to the resources on its respective server.
Create one global group for the domain or domains, and add the members who need to gain access to the resources.
Create a universal group. Add the global groups to the universal group.

Add the universal group to the domain local group.

Answer: B.

Explanation:

You should always assign permissions to domain local groups. Global groups should contain users and be placed in domain local groups.

Incorrect Answers:

A: You would use domain local groups in a domain. You wouldn't use local groups on every server.

C: You don't need to use universal groups when you have only one domain.

D: It uses local groups (should be domain local groups) and universal groups which are unnecessary.

QUESTION NO: 4

The database administrator for the human resources department attempts to upgrade the SAP application that will integrate with Active Directory and new classes. The installation fails. What is the most likely cause of this failure?

A. The administrator trying to install the application is not in the Domain Administrators group for the local domain.

B. The administrator trying to install the application is not in the Schema administrators group.

C. The administrator trying to install the application is not in the Enterprise administrators group.

D. The service account for the application is not a part of the Enterprise Administrators group.

E. The administrator trying to install the application does not have permissions to create Group Policy Objects (GPOs).

Answer: B.

Explanation:

The application will modify the schema. Only the schema Admins group has permission to do this.

Incorrect Answers:

B: A domain admin does not have permission to modify the schema.

C: An enterprise admin does not have permission to modify the schema.

D: An enterprise admin does not have permission to modify the schema.

E: We are not trying to create a GPO, we are trying to modify the schema.

QUESTION NO: 5

How should you design DNS to support Windows 2000 for Fabrikam, Inc?

- A.** Add new DNS servers that run the latest version of BIND.
- B.** Use the existing DNS servers, and upgrade them to support dynamic update.
- C.** Install Microsoft DNS server on Windows 2000 computers, and integrate DNS into Active Directory.
- D.** Use the existing DNS server, and upgrade them to support SRV records. To support secondary zones, add additional DNS servers that run Windows 2000.

Answer: C.

Explanation:

We can use Windows 2000 DNS because we have windows 2000 domain controllers and an Active directory domain.

Incorrect Answers:

- A:** We do not need BIND servers when we can use Windows 2000 DNS.
- B:** Windows 2000 DNS supports dynamic updates.
- D:** We don't need BIND servers with Windows 2000 DNS servers.

QUESTION NO: 6

Which Windows 2000 site domain should you implement for Fabrikam, Inc?

- A.** Upgrade the WAN lines to 1.544 Mbps. Create one site each for Dallas, Atlanta and Phoenix.
- B.** Continue using the existing WAN line. Create one site that contains all three locations.
- C.** Continue using the existing WAN lines. Create one site each for Dallas, Atlanta and Phoenix.
- D.** Upgrade the WAN lines to 44.736 Mbps. Create one site that contains all three locations.
- E.** Upgrade the WAN lines to 1.544 Mbps. Create one site that contains all three locations.

Answer: C.

Explanation:

We have one site for each location because of the slow WAN lines. With 3 sites we don't need to upgrade the links.

Incorrect Answers:

- A:** We don't need to upgrade the WAN lines.
- B:** We need separate sites for each location because of the slow links.

D, E: We don't need to upgrade the WAN lines.

QUESTION NO: 7

How should you design the sites and site links for Fabrikam, Inc? (Choose one of the following five Answer choices)

A. Create one site each for Atlanta, Dallas and Phoenix. Create SMTP site link between Atlanta

and Dallas and between Dallas and Phoenix. Between Atlanta and Phoenix, schedule the links to replicate from 12:00 midnight to 2:00 a.m, Dallas local time. Between Dallas and Phoenix, schedule the links to replicate from 3:00 a.m to 5:00 a.m Dallas local time.

B. Create one site each for Atlanta, Dallas and Phoenix. Create SMTP site link between Atlanta

and Dallas and between Dallas and Phoenix. Between Atlanta and Dallas and between Dallas

and Phoenix, schedule the links to replicate between 2:00 a.m to 4:00 a.m, Dallas local time.

C. Create one site each for Atlanta, Dallas and Phoenix. Create IP site links between Atlanta and

Dallas and between Dallas and Phoenix. Between Atlanta and Dallas, schedule the links to

replicate from 12:00 midnight to 2:00 a.m Dallas local time. Between Dallas and Phoenix,

schedule the links to replicate 3:00 a.m to 5:00 a.m, Dallas local time.

D. Create one site each for Atlanta, Dallas, and Phoenix. Create IP site links between Atlanta

and Dallas and between Dallas and Phoenix. Between Atlanta and Dallas and between Dallas

and Phoenix, schedule the links to replicate between 2:00 a.m to 4 a.m, Dallas local time.

E. Create one site that will contain all three locations.

Answer: D.

Explanation: We have one domain with 3 sites. With 3 sites we can schedule replication out of hours.

Incorrect Answers:

A: It uses SMTP site links. We need IP site links.

B: It uses SMTP site links. We need IP site links.

C: The schedule times are different for the two site links. This could cause replication to take up to 2 days.

E: You need separate site links between sites.

QUESTION NO: 8

Which upgrade path should you use for Fabrikam, Inc.?

A. Create a new root domain.

Upgrade the three Windows NT 4.0 resource domains to Windows 2000.

Upgrade the Windows NT 4.0 account domain for Dallas to Windows 2000.

Consolidate all the accounts into the root domain.

B. Upgrade the four Windows NT 4.0 domains to Windows 2000.

Upgrade these domains in place

Re-establish the previous two-way explicit trust relationships.

C. Upgrade the Dallas account domain.

Use this domain as the root domain.

Separately upgrade the three Windows NT 4.0 resource domains to Windows 2000.

Consolidate these three domains into one domain.

D. Separately upgrade the four Windows NT 4.0 domains to Windows 2000.

Upgrade these domains in place.

Re-establish the previous two-way explicit trust relationships.

Answer: C.

Explanation:

When upgrading domains, you must upgrade the account domain first. The first domain to be upgraded

will become the root domain.

Incorrect Answers:

A: We don't need to create a new root domain.

B: The domains need to be merged into one domain.

C: The domains need to be merged into one domain.

QUESTION NO: 9

You want to implement Windows 2000 to minimize the impact of replication on WAN traffic for Fabrikam, Inc. What should you do?

A. Use IP site links for replication. Optimize the replication schedule.

B. Define policies and procedures so that only global groups are included in universal groups.

C. Use SMTP site links for replication. Optimize the site link schedule.

D. Define Group Policy Objects (GPOs) only at the domain and organizational unit levels

E. Reduce the number of attributes replicated by the global catalog.

Answer: A.

Explanation:

You need to configure site links to connect the three sites. The main purpose of Active Directory sites is that you can schedule the replication between them. There are two types of site links, IP and SMTP. SMTP site links are used when the WAN connections are slow and unreliable. Two problems with

SMTP site links are that they use up to 80% more bandwidth than IP links, and they cannot be used when the sites are in the same domain. For this reason, we must use IP site links.

Incorrect Answers:

B: Although this is recommended, it will not reduce replication traffic as much as the scheduling of site links.

C: SMTP site links use up to 80% more bandwidth than IP links, and they cannot be used when the sites are in the same domain. For this reason, we must use IP site links.

D: Group policies will still be replicated to all domain controllers whether they are domain or OU policies.

E: This would only have a negligible impact on the amount of replicated data.

QUESTION NO: 10

Where should you locate the server services for Windows 2000?

A. In Dallas, locate a schema operations master, a domain naming master, an infrastructure operations master, a RID master, a PDC emulator and a global catalog. In both Atlanta and Phoenix, locate one of each of the following: a RID master, an infrastructure operations master, a PDC emulator and a global catalog.

B. In Dallas, locate a schema operations master, a domain naming master, an infrastructure operations master, a RID master, a PDC emulator and a global catalog. In both Atlanta and Phoenix, locate RID master, a domain naming master, a PDC emulator and a global catalog.

C. In Dallas, locate a schema operations master, a domain naming master, an infrastructure operations master, a RID master, a PDC emulator and a global catalog. In both Atlanta and Phoenix, locate one infrastructure operations master and one global catalog.

D. In Dallas, locate a schema operations master, a domain naming master, an infrastructure operations master, a RID master, a PDC emulator and a global catalog. Locate one global catalog in Atlanta and one global catalog in Phoenix.

Answer: D.

Explanation:

The Dallas domain will become the root so it will have all 5 operations master roles. Every site should have at least one global catalog to reduce logon times.

Incorrect Answers:

A: There is only one infrastructure operations master in a forest.

B: There is only one RID master and PDC emulator in a domain.

C: There is only one infrastructure operations master in a forest.

QUESTION NO: 11

How should you design the implementation of Group Policy for the Fabrikam, Inc., sales department?

A. Create domain-level Group Policy objects (GPOs) for company-wide policies. Set sales-specific

policies in the top-level sales organizational unit (OU). Use site-level GPOs to set location-specific policies as necessary.

B. Create domain-level Group Policy objects (GPOs) for company-wide policies. Set sales-specific

policies in the top-level Atlanta, Dallas, and Phoenix organizational units (OUs)

C. Create domain-level Group Policy objects (GPOs) for company-wide policies. Enable the No

Override setting for the domain level GPOs. Set sales-specific policies in the top-level sales

organizational unit (OU). Use site-level GPOs to set location-specific information as necessary. Enable Block Inheritance for the GPO that is in the sales OU

D. Create domain-level Group Policy objects (GPOs) for company-wide policies. Enable No Override for the domain-level. Set location-specific policies in the top-level Atlanta, Dallas, and Phoenix or organizational unit (OU). Set department-specific policies in the top-level Atlanta, Dallas, and Phoenix organizational unit (OU). Enable Block Inheritance for the GPO that is in the sales OU.

E. Create one domain-level group policy object (GPO) for sales. Grant read only and apply group policy permissions to only the sales department security group.

Answer: A.

Explanation:

The scenario states that no filtering should be used for policies. Domain level GPOs for company wide

policies fulfills the requirement to centralize GPOs where possible. Applying sales GPOs to top-level

sales OU will apply the policy to all the sales users and no one else. Each location is a site so we should

set location specific policies by applying GPOs at the site level.

Incorrect Answers:

B: Applying sales GPOs to top level location OUs will apply the sales policies to all departments at

each location. The policies should affect sales users only.

C: Using No override on the domain GPO will force the policy on all users. The sales policy won't be able to overwrite the settings.

D: Using No override on the domain GPO will force the policy on all users. The sales policy won't be able to overwrite the settings.

E: This uses filtering on the policy. It also enforces the same settings to all sales users at all locations.

QUESTION NO: 12

What is the most critical decision you have to make before you implement your Active Directory?

- A.** The name of the first domain
- B.** The number of domains
- C.** The number of users
- D.** The type of DNS machine.
- E.** Are aliens real

Answer: A

Explanation:

The name of the first domain is the most critical decision because this cannot be changed later on. This

is because the names of any child domains are affected by the name of the first domain.

Incorrect Answers:

B: Domains can be added as required. There is no limit on the number.

C: There is no limit on the number of users in a domain.

D: The DNS machine can easily be changed.

E: Don't be silly.

QUESTION NO: 13

Which is the most important step if you upgrade Fabrikam Inc. to Windows 2000?

- A.** Find out how many sites you need
- B.** Find out where to place the schema-operation-master
- C.** Find out how many Domains you need
- D.** Make the OU-structure

Answer: D

Explanation:

It is important to design the Active Directory structure. The most important part of this is how you will

organize the company into OUs.

Incorrect Answers:

A: Sites can easily be created after the domain and OU structure is in place.

B: The default location is the first upgraded DC but it can easily be moved at any time.

C: Domains can easily be added at any time.

QUESTION NO: 14

Which design decision is most critical to resolve before you begin upgrading Fabrikam, Inc., to Windows 2000?

A. The locations of the operations masters.

B. The name of the first domain to be installed.

C. The number of sites.

D. The number of domains to install in the forest.

E. Whether to use the existing DNS or to upgrade to Microsoft DNS Server.

Answer: B

Explanation: This is similar to question 12. When upgrading a domain to a Windows 2000 domain, the most important decision to make is the name of the first domain. This is the only thing that cannot be changed after the upgrade.

Incorrect Answers:

A: The operations master roles will be on the first Windows 2000 domain controller. These can be moved as required after the upgrade.

C: You can add sites as required after the upgrade.

D: Domains can be easily added to the forest, after the upgrade.

E: This is an important decision. You need to decide if the existing DNS structure will meet your requirements. However, if you find it doesn't meet the requirements, you can install a Microsoft DNS server as part of the upgrade process.

Case Study #11, ADVENTURE WORKS

Adventure Works is a company that manufactures and sells outdoor adventures products throughout the

United States. The company's headquarters are located in Seattle. Adventure Works has facilities around

the world. The company employs approximately 28,000 employees worldwide.

Adventure Works also has a division that provides adventure tours. This division is marketed as

TestKing, Ltd., and has offices located around the world.

Adventure Works is composed of the following divisions:

- Corporate--20,000 employees
- Retail--1,340 employees
- TestKing, Ltd., tour services--700 employees
- Internet consumer services (ICS)--500 employees
- Manufacturing--5,200 employees

The corporate division includes the following departments:

- Executives
- IT
- Customer service (CSV)
- Accounting
- Facilities management

The retail division consists of 117 stores located in cities throughout the United States.

The

manufacturing plant is located in Mexico City. The tour services offices are located in 158 shopping

mall in the United States, Europe, and Australia.

All corporate division departments except the customer service department are located in Seattle. The

customer service call center is located in Denver. The ICS division and high-level managers from all

divisions are located in Seattle. The tour services division has logistics and management staff located in

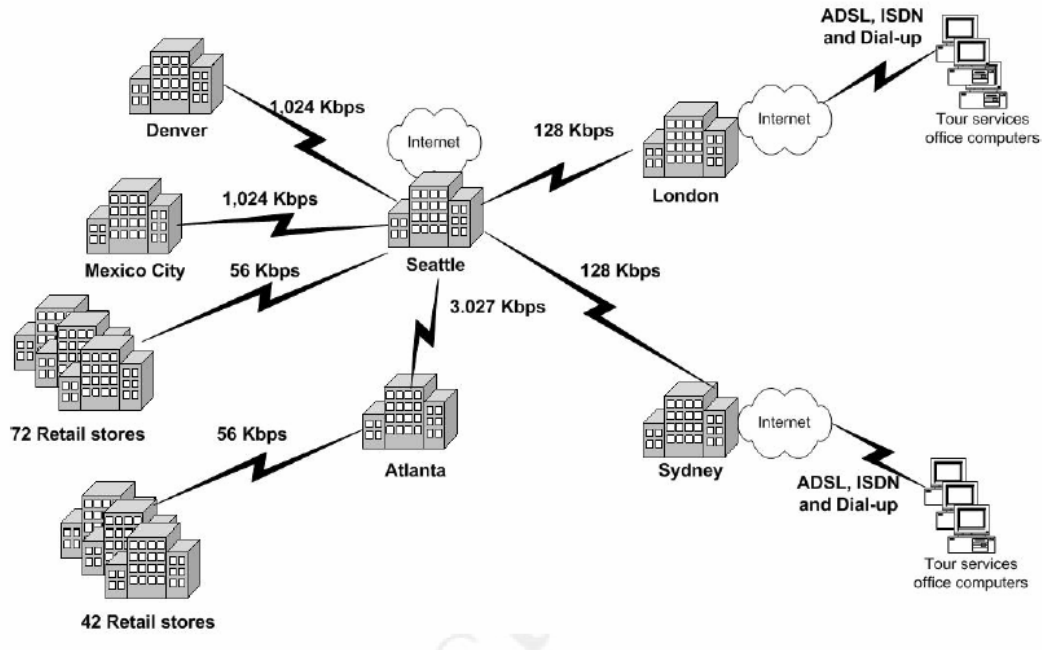
Seattle, London, and Sydney.

The ICS division maintains an e-commerce Web site where consumers can purchase Adventure Works products.

Existing Environment

WAN Infrastructure

The existing WAN infrastructure is shown in the exhibit.



Adventure Works has four WAN consolidation points in the following locations:

- Seattle data center
- Atlanta data center
- London regional office
- Sydney regional office

Seattle and Atlanta are connected by two 1.544-Mbps lines. The London and Sydney regional offices are connected to Seattle by 128-Kbps lines.

All stores are connected to one of the United States data centers by 56-Kbps lines that run at an average utilization rate of 80 percent. Seventy-two of the retail stores are connected to the Seattle data center.

The remaining stores are connected to the Atlanta data center.

The client computers in the tour services offices in the United States, Europe, and Australia connects to

VPN servers located in their respective regional offices of Seattle, London, and Sydney.

The customer service call center is connected to the Seattle data center by a router-to-router VPN. The

Denver call center has a 1,024-Kbps line to the Internet and a firewall to provide protection. The firewall is configured to block all ports other than those necessary for a VPN tunnel.

The manufacturing plant in Mexico City is connected to the Seattle data center by a 1,024-Kbps line.

A few of the larger stores have ISDN backup that is configured on their routers to enable them to connect to the Mexico City manufacturing plant.

The Seattle data center and the London and Sydney regional offices have connections to the Internet.

IT Department Organization

Adventure Works has one chief information officer (CIO). The CIO and the IT staff are located in Seattle. The administration of all users in the company is centralized in Seattle. The CIO has dedicated a separate group of these administrators to each business division. Each of these groups reports to one of three IT managers who report to the CIO. These managers are the corporate IT manager, the retail IT manager, and the manufacturing IT manager. Computer resources are administered by separate groups of IT administrators. Each of these IT administrators is responsible for a Windows NT 4.0 resource domain. All IT resource administrators report to their corresponding IT managers. All other IT administrators report to the corporate IT manager.

Windows NT 4.0 Domain Model

There is a single account domain named Adventure. This domain has a PDC located in Seattle and several BDCs located in every location except the tour services offices in shopping malls. Currently, there is an Adventure account domain controller in the cash office of each retail store. Windows NT 4.0 resource domains have been created to support the resources for specific groups. The following resource domains contain the client computers and servers for specified groups:

- NT_Sea (Seattle site)
- NT_CS (customer service division)
- NT_Acct (accounting department)
- NT_Aus (tour services for Australia)
- NT_Euro (tour services for Europe)
- NT_US (tour services for the United States)
- NT_Manu (manufacturing division)
- NT_Store (retail store division)

All resource domains have a one-way trust with the Adventure account domain.

DNS Infrastructure

Adventure Works has two publicly registered domain names: adventure-works.com and testkingonline.com. A UNIX DNS server located in a second subnet (also known as DMZ) in Seattle maintains the primary zone file for both adventure-works.com and testkingonline.com. This DNS server is the only DNS server in

the enterprise that is allowed to access through the firewall to the Internet. The adventure-works.com

zone contains several host records that are needed for the Web services provided by the ICS division.

Another UNIX DNS server located on the corporate intranet in Seattle holds a private root of adventureworks.

loc that contains host records for internal resources. This DNS server has private root hints that

point to the external UNIX DNS server.

Tour Services

Each location supporting tour services had a dedicated client computer and two or three employees.

These employees use the shared client computer and Terminal Services to connect to their respective regional offices.

These regional offices contain resources that must be available to all tour services division employees.

In addition, the ICS division accesses data from these resources to find out the latest schedules and

available activities. The ICS division then publishes this information on the company Web site.

Business Requirements

Chief Executive Officer (CEO) Interview

We will be selling the TestKing, Ltd., tour services division sometime next year. I want to deploy Active

Directory in this division before we sell it. I also want to ensure that this divestiture will happen as

smoothly as possible for the new company.

We have seen an extremely high turnover rate among employees who work in our stores.

CIO Interview

For the most part, the existing structure of the IT organization is working well. The IT managers seem to

work well together and communicates on a regular basis. I want to continue to manage all users centrally

from Seattle with separate IT groups dedicated to administering each business division.

The

management of resources will be done by the existing model. The IT administrators dedicated to

administering resources should have the ability to manage only their resources and the Active Directory

groups required to control access to their resources.

I will also be creating an administration team named Global Admin that will be responsible for auditing

and overseeing Active Directory administration of all uses and computers worldwide.

Employees in this

group will be the only people in the enterprise who have enterprise or domain administrator rights.

These employees will report directly to me.

Although minimizing cost is important to me, it is even more important to ensure that we provide our

end users with a stable and secure infrastructure.

Many of the groups in the corporate division work with sensitive information, but the information in the

accounting department is very sensitive, and I want to ensure that it is not compromised.

Every forest in your environment will have an empty root domain, and all root domain controllers will

be located in the Seattle data center.

Facilities Manager

We have recently rebuilt our data centers in the United States. These data centers require access through

biometric devices to gain access to the physical facilities. The manufacturing plant located in Mexico

City has had several incidents in which machines were stolen. Approximately three months ago, one of

our expensive server class machines that we used as a BDC disappeared. I have been notified that I will

be getting the budget for new secure facilities for the plant. However, this budget will not be available for

another one or two years.

Technical Requirements

General Requirements

- All divisions use resources located in Seattle.
- The retail stores and ICS must have access to an inventory system located in the Mexico City manufacturing plant.
- The retail stores need to be able to log on to the domain even if the WAN connection is unavailable.

CIO Interview

After we have completed the enterprise deployment of Active Directory, we will be deploying Microsoft

Exchange 2000.

I want to ensure that no matter which division an employee is in, that employee will be able to log on to

the domain by using that employee's primary client computer and a UPN of *username@adventureworks.*

com.

My staff has already begun the forest design for our enterprise. At this time, I have two recommendations from my staff. (Forest design recommendations are shown in the exhibit.

Forest Design Recommendation 1

Forest name Member

adm-ics.adventure-works.com ICS users and resources

adm-csv.adventure-works.com Customer service department users and resources
adm-tours.adventure-works.com All tour services offices users and resources
adm-accounting.adventureworks.

com Accounting department users resources
adm-retail.adventure-

works.com Retail stores users and resources
adm-manu.adventure-

works.com Manufacturing plant users and resources
adm-

corp.adventure-works.com All other divisions and departments users and resources

Forest Design Recommendation 2

Forest name Member adm-corp.adventure-works.com All Adventure Works users and resources

One of the individuals who recommended the single global forest pointed out that a single forest would

make it easier to deploy Exchange 2000 and reduce hardware and administrative costs. I hope that you

will not be able to independently evaluate our requirements and recommend your own Active Directory

design that is most appropriate for your environment. I will also want to ensure that your design adheres

to published best practices for Active Directory design.

We had an immediate requirement for Active Directory to support the executives in Seattle. We have

already created a forest named adm-corp.adventure-works-com with a child domain of corp.admcorp.

adventure-works.com. The executives have already been migrated to this new domain, and I do not

want to migrate them again.

Case Study #11, ADVENTURE WORKS (8 Questions)

QUESTION NO: 1

You need to identify the tasks that are required to support the DNS infrastructure for the Adm-Corp forest. Move the appropriate tasks to the appropriate servers. (Use only tasks that apply. You might need to reuse tasks.)

DNS Servers	Tasks
Collapse ■ UNIX DNS server in screened subnet ■ adm-corp.adventure-works.com DNS server ■ corp.adm-corp.adventure-works.com DNS server	<<Move Remove>> Configure forwarding to the UNIX DNS server in the screened subnet Create a delegated subdomain of adm-corp.adventure-works.com Configure forwarding to the corp.adm-corp.adventure-works.com DNS server Create a secondary of adm-corp.adventure-works.com Configure root hints to Internet root servers Configure forwarding to the adm-corp.adventure-works.com DNS server Create a delegated subdomain of corp.adm-corp.adventure-works.com

Answer:

You need to identify the tasks that are required to support the DNS infrastructure for the Adm-Corp forest. Move the appropriate tasks to the appropriate servers. (Use only tasks that apply. You might need to reuse tasks.)

DNS Servers	Tasks
Collapse ■ UNIX DNS server in screened subnet - Configure root hints to Internet root servers - Create a delegated subdomain of adm-corp.adventure-works.com ■ adm-corp.adventure-works.com DNS server - Create a delegated subdomain of corp.adm-corp.adventure-works.com - Configure forwarding to the UNIX DNS server in the screened subnet ■ corp.adm-corp.adventure-works.com DNS server - Configure forwarding to the UNIX DNS server in the screened subnet	<<Move Remove>> - Configure forwarding to the UNIX DNS server in the screened subnet - Create a delegated subdomain of adm-corp.adventure-works.com - Configure forwarding to the corp.adm-corp.adventure-works.com DNS server - Create a secondary of adm-corp.adventure-works.com - Configure root hints to Internet root servers - Configure forwarding to the adm-corp.adventure-works.com DNS server - Create a delegated subdomain of corp.adm-corp.adventure-works.com

Explanation: The scenario states, “A UNIX DNS server located in a second subnet (also known as

DMZ) in Seattle maintains the primary zone file for both adventure-works.com and testkingonline.com. This

DNS server is the only DNS server in the enterprise that is allowed access through the firewall to the Internet.”

We need to delegate authority for the adm-corp.adventure-works.com zone to a DNS server in the admcorp.

adventure-works.com domain. We would do this on the DNS server that hosts the adventureworks.

com zone. This will enable us to create the adm-corp.adventure-works.com domain.

We should configure root hints to the Internet root servers on the UNIX DNS server in the screened

subnet as this is the only server with access to the Internet; therefore, all external DNS traffic will pass through this server.

We need to delegate authority for the corp.adm-corp.adventure-works.com zone to a DNS server in the

corp.adm-corp.adventure-works.com domain. We would do this on the DNS server that hosts the admcorp.

adventure-works.com zone. This will enable us to create the corp.adm-corp.adventure-works.com

domain. We should configure forwarding on the adm-corp.adventure-works.com DNS server to the UNIX DNS server in the screened subnet as this is the only server with access to the Internet; therefore, all external DNS traffic will pass through this server.

We should configure forwarding on the corp.adm-corp.adventure-works.com DNS server to the UNIX DNS server in the screened subnet as this is the only server with access to the Internet; therefore, all external DNS traffic will pass through this server.

QUESTION NO: 2

Which two business or technical factors significantly affected your forest design? (Each correct answer presents part of the solution. Choose two)

- A. The general lack of trust of the central IT department.
- B. Bandwidth limitations.
- C. Physical security concerns.
- D. Sensitive information in the accounting department.
- E. Divestiture of business unit.
- F. The firewall between the customer service division and headquarters.

Answer: D, E.

Explanation:

D: "Many of the groups in the corporate division work with sensitive information, but the information

in the accounting department is very sensitive, and I want to ensure that it is not compromised." A

separate domain will make the accounting department more secure.

E: "We will be selling the TestKing, Ltd., tour services division sometime next year. I want to deploy

Active Directory in this division before we sell it. I also want to ensure that this divestiture will

happen as smoothly as possible for the new company." A separate forest will make it easier for

another company to take over TestKing Ltd.

QUESTION NO: 3

You need to evaluate the correct domains in which to place retail store employees. Move employees to the appropriate domains. (Use both groups of employees. Use each group of employees only once.)

Domains		Retail Store Employees
Collapse - adm-corp.adventure-works.com forest - corp.adm-corp.adventure-works.com domain - retail.adm-corp.adventure-works.com domain - seattle.retail.adm-corp.adventure-works.com domain - atlanta.retail.adventure-works.com domain - adm-retail.adventure-works.com Forest - retail.adm-retail.adventure-works.com domain - adm-us.adventure-works.com forest - seattle.adm-us.adventure-works.com domain - atlanta.adm-corp.adventureworks.com domain	<<Move Remove>>	Retail store employees connected to the Atlanta data center Retail store employees connected to the Seattle data center

Answer:

You need to evaluate the correct domains in which to place retail store employees. Move employees to the appropriate domains. (Use both groups of employees. Use each group of employees only once.)

Domains	Retail Store Employees
Collapse [-] adm-corp.adventure-works.com forest [-] corp.adm-corp.adventure-works.com domain [-] retail.adm-corp.adventure-works.com domain - Retail store employees connected to the Atlanta data center - Retail store employees connected to the Seattle data center [-] seattle.retail.adm-corp.adventure-works.com domain [-] atlanta.retail.adventure-works.com domain [+] adm-retail.adventure-works.com forest [-] retail.adm-retail.adventure-works.com domain [+] adm-us.adventure-works.com forest [-] seattle.adm-us.adventure-works.com domain [-] atlanta.adm-corp.adventureworks.com domain	<<Move Remove>>

Explanation: "Although minimizing cost is important to me, it is even more important to ensure that we provide our end users with a stable and secure infrastructure. Many of the groups in the corporate division work with sensitive information, but the information in the accounting department is very sensitive, and I want to ensure that it is not compromised."

QUESTION NO: 4

You need to evaluate the domain controller requirements in Seattle. Which domain controllers are required in Seattle to support all forest other than the Adm-Corp forest? (Choose all that apply)

- A. There are no other forests in the enterprise.
- B. There are no other forests that require domain controllers in Seattle.
- C. One domain controller to support one or more root domains.
- D. Two domain controllers to support all root domains.
- E. Three domain controllers to support all domains.
- F. Four domain controllers to support one or more root domains.
- G. Five domain controllers to support one or more root domains.
- H. One domain controller to support one or more child domains.
- I. Two domain controllers to support one or more child domains.
- J. Three domain controllers to support one or more child domains.
- K. Four domain controllers to support one or more child domains.

L. Five domain controllers to support one or more child domains.

Answer: G

Explanation: "Although minimizing cost is important to me, it is even more important to ensure that we provide our end users with a stable and secure infrastructure.

Many of the groups in the corporate division work with sensitive information, but the information in the accounting department is very sensitive, and I want to ensure that it is not compromised. Every forest in your environment will have an empty root domain, and all root domain controllers will be located in the Seattle data center."

QUESTION NO: 5

You need to create an organizational unit design for the corp.adm-corp.adventure-works.com domain. Move the appropriate organizational units or groups to the appropriate locations in the organizational unit structure provided. (Use only organizational units and groups that apply. Do not reuse organizational units or groups.)

Organizational Unit Structure

Collapse

Adventure Organizational Unit

Users Organizational Unit

Service Accounts Organizational unit

Groups Organizational Unit

Resources Organizational unit

Organizational Unit and Groups

<<Move

Remove>>

Organizational unit containing corporate division users

Organizational unit containing retail division users

Organizational unit containing tour services division users

Organizational unit containing ICS division users

Organizational unit containing manufacturing division users

Organizational unit containing corporate division computers

Organizational unit containing all CSW department computers

Organizational unit containing all accounting department computers

Organizational unit containing all tour services division computers

Answer:

You need to create an organizational unit design for the corp.adm-corp.adventure-works.com domain. Move the appropriate organizational units or groups to the appropriate locations in the organizational unit structure provided. (Use only organizational units and groups that apply. Do not reuse organizational units or groups.)

Organizational Unit Structure	Organizational Unit and Groups
Collapse - Adventure Organizational Unit - Users Organizational Unit - Organizational unit containing corporate division users - Organizational unit containing retail division users - Organizational unit containing tour services division users - Organizational unit containing ICS division users - Organizational unit containing manufacturing division users - Service Accounts Organizational unit - Groups Organizational Unit - Resources Organizational unit - Organizational unit containing corporate division computers - Organizational unit containing all tour services division computers	<<Move Remove>> - Organizational unit containing all CSV department computers - Organizational unit containing all accounting department computers

Explanation: All users should be in the users OU. Both the “Organizational unit containing CSV department computers” and the “Organizational unit containing accounting department computers” computers are already covered in the “Organizational unit containing corporate division computers”

QUESTION NO: 6

You must decide which user and computer accounts to place into each forest in your design. Move each division or department to the appropriate forest or forests. (Use all answer choices. You might need to reuse answer choices.)

Forest	Division or Department
Collapse ■ adm-csv.adventure-works.com ■ adm-tours.adventure-works.com ■ adm-tours.testking.com ■ adm-accounting.adventure-works.com ■ adm-retail.adventure-works.com ■ adm-manu.adventure-works.com ■ adm-corp.adventure-works.com	This forest will not be created Tour services users and client computers Corporate division users and client computers other than accounting and customer service Customer service department users and client computers Accounting department users and client computers ICS division users and client computers Retail division users and client computers Manufacturing division users and client computers

Answer:

You must decide which user and computer accounts to place into each forest in your design. Move each division or department to the appropriate forest or forests. (Use all answer choices. You might need to reuse answer choices.)

Forest	Division or Department
Collapse ■ adm-csv.adventure-works.com Customer service department users and client computers ■ adm-tours.adventure-works.com Tour services users and client computers ■ adm-tours.testking.com This forest will not be created ■ adm-accounting.adventure-works.com Accounting department users and client computers ■ adm-retail.adventure-works.com Retail division users and client computers ■ adm-manu.adventure-works.com Manufacturing division users and client computers ■ adm-corp.adventure-works.com Corporate division users and client computers other than accounting and customer service	This forest will not be created Tour services users and client computers Corporate division users and client computers other than accounting and customer service Customer service department users and client computers Accounting department users and client computers ICS division users and client computers Retail division users and client computers Manufacturing division users and client computers
	<<Move Remove>>

Explanation: "Although minimizing cost is important to me, it is even more important to ensure that we provide our end users with a stable and secure infrastructure. Many of the groups in the corporate division work with sensitive information, but the information in the accounting department is very sensitive, and I want to ensure that it is not compromised." "We will be selling the TestKing, Ltd., tour services division sometime next year. I want to deploy Active Directory in this division before we sell it. I also want to ensure that this divestiture will happen as smoothly as possible for the new company."

QUESTION NO: 7

You need to design the minimum required configuration of domain controllers located at the retail stores. Which configuration should you use?

- A. One uniprocessor PIII 500 MHz 512 MB RAM.
- B. One dual processor PIII 500 MHz 1 GB RAM.
- C. One quad PIII Xeon 2 GB RAM.
- D. None. No domain controller is required.

Answer: A

Explanation: "...there is an Adventure account domain controller in the cash office of each retail store."

Logic: There is no need for anything higher then the minimum for Windows 2000 to run the DCs

QUESTION NO: 8

You need to design a domain structure for tour services division users and computers. Move each group of user and computer accounts to the appropriate domain or domains. (Use all groups of user and computer accounts. Use each group of user and computer accounts only once.)

Domains	Tour Services User and Computer Accounts
Collapse - adm-corp.adventure-works.com forest - corp.adm-corp.adventure-works.com - tours.adm-corp.adventure-works.com - adm-tours-testking.com forest - tours.adm-tours.testking.com - us.adm-tours.testking.com - australia.adm-tours.testking.com - europa.adm-tours.testking.com - adm-tours.adventure-works.com forest - tours.adm-tours.adventure-works.com - us.adm-tours.adventure-works.com - australia.adm-tours.adventure-works.com - europa.adm-tours.adventure-works.com	- United States Tour Services Computers - Europe Tour Services Users - Australia Tour Services Users - Australia Tour Services Computers - United States Tour Services Users - Europe Tour Services Computers <<Move Remove>>

Answer:

You need to design a domain structure for tour services division users and computers. Move each group of user and computer accounts to the appropriate domain or domains. (Use all groups of user and computer accounts. Use each group of user and computer accounts only once.)

Domains

Tour Services User and Computer Accounts

Collapse

- adm-corp.adventure-works.com forest
 - corp.adm-corp.adventure-works.com
 - tours.adm-corp.adventure-works.com
- adm-tours-testking.com forest
 - tours.adm-tours.testking.com
 - us.adm-tours.testking.com
 - australia.adm-tours.testking.com
 - europa.adm-tours.testking.com
- adm-tours.adventure-works.com forest
 - tours.adm-tours.adventure-works.com
 - us.adm-tours.adventure-works.com
 - United States Tour Services Computers
 - United States Tour Services Users
 - australia.adm-tours.adventure-works.com
 - Australia Tour Services Computers
 - Australia Tour Services Users
 - europa.adm-tours.adventure-works.com
 - Europe Tour Services Computers
 - Europe Tour Services Users

<<Move

Remove>>

Explanation: "Although minimizing cost is important to me, it is even more important to ensure that we provide our end users with a stable and secure infrastructure. Many of the groups in the corporate division work with sensitive information, but the information in the accounting department is very sensitive, and I want to ensure that it is not compromised." Logic: Based of Forest Design 1 from the Case Study Exhibit

Case Study #12, CONSOLIDATED MESSENGER

Background

Consolidated Messenger was founded 1980. It's a temporary employment agency that supplies writers,

reporters, and graphic artists to large media companies.

In 1998, Consolidated Messenger extended its temporary employee services to include a broader range

of freelance knowledge workers. Consolidated Messenger recruits consultants, freelance workers and

independent contractors from Canada, India, the United Kingdom, and the United States.

The company

provides employee services such as health insurance, saving plans, and contract services to its temporary workers.

Consolidated Messenger recently initiated a strategy to become a leader in providing virtual office

services to freelance workers. The company has also started providing services to corporate partners to help them integrate temporary employees into their work forces.

Existing Environment

Organization

Consolidated Messenger has 300 full-time employees. Employees are evenly distributed among its four offices, which are located in New York, Chicago, Atlanta, and Los Angeles. Company headquarters are in New York.

The company has the following departments:

- Business administration
- Human resources
- Information technology (IT)
- Marketing

Names of more than 20,000 temporary workers are in the company database.

Approximately 20 percent

of these workers are currently employed in temporary jobs obtained through Consolidated Messenger.

Consolidated Messenger provides temporary workers with e-mail services and Web-based tools such as time-sheet reporting and invoicing.

Consolidated Messenger organizes information into the following groups: employee, recruiting,

temporary workers, accounting, corporate partners, and projects.

Technical Infrastructure

The internal WAN consists of 1.544-Mbps lines that connect Chicago, Atlanta, and Los Angeles to the headquarters in New York. The connection to the Internet is in New York. An ISP hosts the company's external Windows NT and UNIX Web sites and applications within a protected perimeter network (also known as a DMZ). Consolidated Messenger's e-mail service is hosted on a UNIX POP3 server.

Temporary workers and company employees use the e-mail suffix of @consolidatedmessenger.com.

The temporary workers do not access the internal network.

The Windows NT domain architecture includes the CM_Master domain, which contains all employee user accounts. The CM_Master PDC is in New York, and BDCs are in the other company locations. In addition, each office has its own resource domain. There are no DNS or DHCP services currently installed.

Business Requirements

Project Objectives

During the next two years, Consolidated Messenger wants to accomplish the following goals:

- Triple the number of temporary employees in its resource pool.
- Provide new support services to the temporary workers.
- Increase the number of job placements obtained by Consolidated Messenger.
- Provide secure connection services between the temporary workers and the customers they are working for.
- Increase the company's revenue by 50 percent.

CMVO

The company will establish a premium service level named Consolidated Messenger Virtual Office

(CMVO). Temporary workers will pay a monthly fee for this service level. CMVO will provide 50 MB

of file storage, Web-based project-team rooms and conferencing facilities, personal scheduled tools,

contact management, and group-rate insurance plans.

Many temporary workers will work off-site. To improve productivity, Consolidated Messenger will

provide services so that temporary workers can securely share project information and collaborate with

their customers. Services will include document discussion and annotation, video conferencing, and

instant messaging.

Corporate Partners

Consolidated Messenger will provide services to its corporate partners that will allow them to search and

browse through a list of workers to find the right worker for the job, estimate project costs, initiate

contracts, set up virtual offices to support collaboration and information-sharing between temporary and

full-time employees, and make payments.

Placement Department

A new placement department will be established to administer and manage all temporary workers. One

administrator will be assigned to each occupational role. Each administrator will evaluate skills, find

placements, manage security clearances, monitor assignments, and grant permissions to appropriate

project folders. Temporary workers subscribing to CMVO will be classified into one of three levels of

security clearance. The security clearance level will depend on work history and credentials. Workers

will also be classified into one of the following occupational roles:

- Business
- IT
- Management
- Media creation
- Sales
- Training

Technical Requirements

Internal Initiative

Consolidated Messenger will upgrade all client computers of all permanent employees to Windows

2000. The company will also deploy Microsoft Exchange 2000 Server internally.

The company wants to minimize the administrative overhead of Microsoft Internet Explorer proxy settings. The company also wants a clear distinction between internal and external resources.

CMVO Initiative

Initially, the account details of all 20,000 temporary workers will be imported into Active Directory as

contacts. When a temporary worker subscribes to the CMVO service, the contact object will be deleted

from Active Directory, reentered as a user object, and assigned an Exchange 2000 mailbox. The Active

Directory design needs to include custom data fields to store the comprehensive profile of each

temporary worker.

The ISP will use BIND 4.1 to manage the consolidatedmessenger.com zone and records.

Consolidated

Messenger will lease additional rack space in its perimeter network at the ISP for new servers to support

the CMVO. The various Web and application servers will have different security templates. All domain

controllers supporting the CMVO will be in the perimeter network. A separate dedicated circuit will

connect the New York office to the perimeter network.

Temporary workers will access Consolidated Messenger's services at the ISP by means of a VPN

connection. To support the anticipated high security levels, temporary workers subscribing to the

CMVO service will require stronger password policies than those policies used by employees. The

design also needs to include plans for Microsoft PKI certificate deployment.

Temporary worker details will be profiles in Active Directory. An ADSI Web-based application will be

developed to support a variety of queries and reports.

Chief Information Officer (CIO) Interview

Each Consolidated Messenger office currently operates as a small independent business. After the project is complete, all computers will be centrally managed by the IT department. A representative from each department will administer the department's user accounts and permissions. All existing Windows NT domains will be consolidated into one Windows 2000 domain. There will be one domain administrator. For physical security reasons, all operations masters that support our internal needs will reside in the New York office. To create a fault tolerant environment, I want at least two servers for every domain. For maximum flexibility, I want to include an empty root domain in any forest we create. Sufficient bandwidth is available. I want changes to Active Directory to be replicated frequently. In addition, I do not want the loss of a WAN connection between offices to prevent employees from logging on. Our initial focus will be providing compelling reasons for two of our large corporate partners to enter into a premier service level agreement to establish secure connections between Consolidated Messenger and their companies. The two corporate partners already have Active Directory domains. The anticipated workflow is as follows:

- An employee in our placement department will set up a procedure for secure, convenient access to the project folder.
- Temporary workers with appropriate credentials will save documents in project folders on Consolidated Messenger servers.
- Corporate partner employees will search for Consolidated Messenger files shared in their companies' directories.
- Corporate partner employees will be able to access the documents located in the appropriate project folders without being prompted for credentials.

For security reasons, I do not want temporary workers to be able to view or access any resources in our employee domain or in domains of our corporate partners.

Case Study #12, CONSOLIDATED MESSENGER (13 Questions)

QUESTION NO: 1

Which security requirement or requirements are needed for the planned PKI authentication to the remote access server? (Choose all that apply)

- A. The client computer must be a member of the Active Directory domain.
- B. Active Directory must be a certification authority.
- C. A root authority certificate must be stored in the trusted root store on the client computer.
- D. The remote access server must support EAP authentication.

Answer: C, D.

Explanation:

C: The certificate needs to be stored on the trusted root store of the client computer so that the clients trust the remote access server.

D: The remote access server must support EAP authentication to securely authenticate the remote clients.

Incorrect Answers

A: Client computers do not need to be a member of the Active Directory domain with PKI.

B: Active Directory is a logical structure, not a physical server. Certificate Services needs to be installed on a Windows 2000 server.

QUESTION NO: 2

Which site or sites should you include in your design? (Choose all that apply)

- A. Three for New York.
- B. One for Atlanta.
- C. One for Los Angeles.
- D. One site that contains Los Angeles, Chicago, and Atlanta.
- E. One for New York.
- F. One for all of Consolidated Messenger.
- G. One for Chicago.
- H. One for each partner.
- I. One for each domain.
- J. One for each department.
- K. One at the perimeter network.

Answer: B, C, E, G, K

Explanation: You should create one site for each of the four office locations and the perimeter network.

QUESTION NO: 3

Which requirement presents the greatest design difficulty?

- A. Providing a stronger password policy for temporary workers.
- B. Locating all operations masters supporting the company's internal needs at the New York office.
- C. Locating the DNS consolidatemessenger.com zone and records supporting the company's Web resources at the ISP.
- D. Providing a common e-mail suffix for employees and temporary workers.
- E. Allowing a representative for each department to administer department user accounts and permissions.

Answer: C

Explanation: Interfacing Active Directory DNS with the ISP's UNIX with Bind 4.1 would be the most difficult to implement because Bind 4.1 does not support SRV records.

QUESTION NO: 4

Which event presents the greatest risk to Consolidated Messenger's project?

- A. Corporate partners refuse to modify their schema for Consolidated Messenger.
- B. The new domain jeopardizes existing Windows NT and UNIX Web application servers.
- C. Corporate partners refuse to establish security agreements and trusts with Consolidated Messenger.
- D. The ISP refuses to upgrade its version of BIND.

Answer: D.

Explanation: The ISP is using BIND 4.1. This would need to be upgraded to a version of BIND that supports SRV records before the domain upgrade can begin.

Incorrect Answers

- A: The schema of the corporate partners is not relevant.
- B: The new domain will have no effect on the web application servers.
- D: Upgrading the domain is the first step before creating trusts with corporate partners.

QUESTION NO: 5

Which namespace entries should you use for your domain design? Move the appropriate entries to the appropriate domains. (Use only entries that apply.)

Windows 2000 Domain		Namespace Entry
Collapse ■ Corporate Administrative Root ■ Corporate Employees ■ Temporary Workers ■ Partner	<<Move Remove>>	- consolidatedmessengeradm.com - adm.consolidatedmessenger.com - consolidatedmessengeremployees.com - emps.consolidatedmessenger.com - consolidatedmessengercmvo.com - cmvo.consolidatedmessenger.com - consolidatedmessenger.com - partner.consolidatedmessenger.com - cmvo.isp.consolidatedmessenger.com - consolidatedmessengerpartner.com

Answer:

Which namespace entries should you use for your domain design? Move the appropriate entries to the appropriate domains. (Use only entries that apply.)

Windows 2000 Domain	Namespace Entry
Collapse - Corporate Administrative Root - adm.consolidatedmessenger.com - Corporate Employees - emps.consolidatedmessenger.com - Temporary Workers - cmvo.consolidatedmessenger.com - Partner	<<Move Remove>> - consolidatedmessengeradm.com - consolidatedmessengeremployees.com - consolidatedmessengercmvo.com - consolidatedmessenger.com - partner.consolidatedmessenger.com - cmvo.isp.consolidatedmessenger.com - consolidatedmessengerpartner.com

Explanation: You do not need to create a subdomain for your corporate partners.

QUESTION NO: 6

Which requirement or requirements necessitate modification of the Active Directory schema? (Choose all that apply)

- A. Implementing of PKI for temporary workers.
- B. Supporting the publication of project file shares in the domain.
- C. Reducing administration of Internet Explorer proxy settings for employees.
- D. Implementation of Exchange 2000.
- E. Supporting the comprehensive profile of each temporary worker.

Answer: D, E.

Explanation: D: Implementing Exchange 2000 will necessitate modification of the Active Directory schema.

E: "The Active Directory design needs to include custom data fields to store the comprehensive profile of each temporary worker." These custom data fields will be added to the schema.

QUESTION NO: 7

You need to design a top-level organizational structure for Consolidated Messenger's internal requirements. Which two top-level organizational units should you create? (Each correct answer

presents part of the solution. Choose two)

- A. Atlanta, Chicago, Los Angeles, New York
- B. Business Administration, Placement, Human Resources, IT, Marketing
- C. Computers
- D. Client Computers, Servers
- E. Accounting, Corporate Partners, Employees, Projects, Recruiting, Temporary Workers
- F. Users

Answer: B, D

Explanation: We need to manage accounts by departmental delegation. All computer accounts are managed centrally from the main office.

QUESTION NO: 8

You need to analyze the impact of migration alternatives. Identify the condition associated with each alternative. Move each condition to the appropriate alternative or alternatives. (Use only conditions that apply. You might need to reuse conditions.)

Alternative	Condition
Collapse ■ Upgrade the CM_Master PDC and change the ■ Upgrade the CM_Master PDC and retain the NetBIOS name ■ Create a new Windows 2000 domain named Employee and use ADMT 2.0 to import objects.	Client computers must be rejoined to the domain. Existing user security principals and properties will be retained. SID histories of the users should be removed after the migration. New passwords will need to be assigned to existing users. <<Move Remove>> If there is a problem during the migration, users will be able to log on to the old account.

Answer:

You need to analyze the impact of migration alternatives. Identify the condition associated with each alternative. Move each condition to the appropriate alternative or alternatives. (Use only conditions that apply. You might need to reuse conditions.)

Alternative	Condition
Collapse ■ Upgrade the CM_Master PDC and change the Existing user security principals and properties will be retained. ■ Upgrade the CM_Master PDC and retain the NetBIOS name Existing user security principals and properties will be retained. ■ Create a new Windows 2000 domain named Employee and use ADMT 2.0 to import objects. New passwords will need to be assigned to existing users. If there is a problem during the migration, users will be able to log on to the old account. SID histories of the users should be removed after the migration.	Client computers must be rejoined to the domain. Existing user security principals and properties will be retained. SID histories of the users should be removed after the migration. New passwords will need to be assigned to existing users. If there is a problem during the migration, users will be able to log on to the old account.
<<Move Remove>>	

Upgrade the CM_Master PDC and change the NetBIOS name:

“Existing user security principals and properties will be retained.” When upgrading a domain, the clients aren’t affected.

Upgrade the CM_Master PDC and retain the NetBIOS name:

“Existing user security principals and properties will be retained.” When upgrading a domain, the clients aren’t affected. The NetBIOS name makes no difference as the clients computer accounts have a SID that is associated with each client computer.

Create a new Windows 2000 domain named Employee and use ADMT 2.0 to import objects.

“New passwords will need to be assigned to existing users.” ADMT (active directory migration tool) cannot migrate passwords. “If there is a problem during the migration, users will be able to log on to the old account.” When a user account is migrated with ADMT, it has two SIDs: one for the new domain and one for the old domain. The SID from the old domain will enable the user to log on to the old domain.

“SID histories of the users should be removed after the migration.” When a user account is migrated

with ADMT, it has two SIDs: one for the new domain and one for the old domain. The SID from the old domain will enable the user to log on to the old domain. If the migration is successful, the SID from the old domain (the SID History) can be removed.

QUESTION NO: 9

Apply the appropriate trust relationships.

Apply the appropriate trust relationships.

**Partner
Domain**

**Employee
Domain**

**Adm (Root)
Domain**

**CMVO
Domain**

Trust

Transitive
 Shortcut
 Explicit One-Way NTLM
 Explicit Two-Way NTLM
 Explicit One Way
 Kerberos

Answer:

Employee Domain--Explicit one-way Kerberos-----|

| V

Partner Domain Explicit one-way NTLM--Adm (Root) Domain Explicit one-way
Kerberos--CMVO
Domain

QUESTION NO: 10

Which project result provides the greatest benefit to Consolidated Messenger?

- A. Reduced administration of client computers.
- B. Greater access to temporary worker profiles.
- C. Necessity for employees to log on only once.
- D. Reduced WAN traffic to remote locations.
- E. Reduced administration of user accounts.

Answer: B

Explanation: The greatest benefit from this project is the expanded user profiles with easy access for corporate partners.

QUESTION NO: 11

Which two tasks are necessary to support your site architecture? (Each correct answer presents part of the solution. Choose two)

- A. Decrease interval times
- B. Disable site bridging.
- C. Configure bridgehead servers.
- D. Create SMTP link between all sites.
- E. Disable the KCC generation of inter-site replication topology.
- F. Create IP links between all sites.
- G. Increase interval times.
- H. Create connection objects.
- I. Configure schedules for each link.
- J. Configure costs for each link.

Answer: A, F.

Explanation: There is sufficient bandwidth and the CIO wants increased replication and users to still be able to login even when there is a loss of WAN connections. Replication should occur as quickly as possible so we should decrease interval times.

QUESTION NO: 12

You need to design the top-level organizational structure for the temporary workers. Which toplevel organizational unit or units should you create? (Choose all that apply)

- A. Atlanta, Chicago, Los Angeles, New York
- B. Computers
- C. Canada, India, United Kingdom, United States
- D. Business Administration, Human Resources, IT, Marketing
- E. Servers
- F. Partner1, Partner2
- G. Assignments, Placement, Security Clearance, Skills
- H. Users
- I. Business, IT, Management, Media Creation, Sales, Training
- J. Security Level1, Security Level2, Security Level3

Answer: I, J

Explanation: You want to create the top-level organizational structure for the temporary workers by security clearance and then by occupational.

QUESTION NO: 13

Which consideration affect the number of Windows 2000 components you need to create? Move each consideration to the appropriate component. (Use all considerations. Use each consideration only once.)

Windows 2000 Component	Consideration
Collapse ■ Forests ■ Domains ■ Trusts ■ Sites ■ Organizational Units ■ DNS Namespaces	An efficient employee login process The number of corporate customers who have premier service level connectivity. The goal of preventing temporary workers from viewing or accessing any resources in Consolidated Messenger's employee domain and any resources in domains of corporate partners. Administration of each department's user accounts and permissions by a representative of that department.

Answer:

Which consideration affect the number of Windows 2000 components you need to create? Move each consideration to the appropriate component. (Use all considerations. Use each consideration only once.)

Windows 2000 Component	Consideration
Collapse ■ Forests ■ Domains ■ Trusts - The number of corporate customers who have premier service level connectivity. - The goal of preventing temporary workers from viewing or accessing any resources in Consolidated Messenger's employee domain and any resources in domains of corporate partners. ■ Sites - An efficient employee login process ■ Organizational Units - Administration of each department's user accounts and permissions by a representative of that department. ■ DNS Namespaces	<<Move Remove>>

Explanation: Sites are used for replication and efficient employee logins. Trusts are used to allow access to resources. OUs are used delegate administration.

Case Study #13, Hanson Brother

Background

Hanson Brother is a medium Sized manufacturing company that produces car and truck tires . The company employs 25,000 people of these employees 10,000 use computers. The company head quarters are located in St. Louis.

Existing Environment

Hanson Brother has 10 factories in the United States. All Factories in the United States are connected to the St. Louis headquarters by means of 56 kbps lines. These factories are located in the following

Cities:-

- Atlanta
- Chicago
- Cincinnati
- Dallas
- Detroit
- Houston
- Kansas City

- Phoenix
- St. Louis
- Toledo

Hanson Brother also has two factories in Mexico. The factories employ 2000 people. 5 hundred on these employees use computer. These factories are located in the following cities: -

- Juarez
- Mexico City

There are four engineering centers in the company. The engineering centers are located in the factories in the following cities.

- Chicago
- Detroit
- Huston
- St. Louis

Each Engineering center has its own Server that is maintained separately from the factor administration server. Each engineering network is connected to each factory network by fiber-optic cables.

The Company Headquarters build is in a separate location from the factory St. Louis.

There is an IT group located at the company Headquarters in St. Louis. This group is responsible for the technical

support issue that occur at Headquarters. This Group is also responsible for server issues that occur at

the factories and that require the attention of a highly skilled staff member.

Each factory has its own IT group that is responsible for client computer and user issues.

The IT group

at each factory can set its own standards for client computers. However, the local IT group must ensure

that standard applications, such as Microsoft office, are installed on every client computers.

Hanson Brothers owns a division in France that manufactures specialized racing tires.

This division is

named Fabrikan Inc, and it has two factories. These factories are located in the following cities.

- Nice
- Paris

Fabrikan, Inc employs 700 people in Paris and 400 people in Nice. Fabrikam Inc has its own IT groups.

These is a central IT group located in Paris and a local IT group in Nice Fabrikan Inc. and Hanson

Brothers do not use the same standard applications.

Each of the factories in France connects to the St. Louis headquarters by means of a dial-up connection

is unreliable.

Each location had a LAN that operates at 100 Mbps. There is a Netware 3.12 Server at each engineering center. A UNIX server located at the St. Louis headquarters manages production applications.

Some Hanson Brother and Fabrikam. Inc client computer gain access to the Unix server by using Telnet

and statically assigned IP addresses.

Hanson Brothers has registered the name Hanson Brothers.com Fabrikam Inc has registered the name

Fabrikam.com

Business Requirements

Hanson Brother has just acquired a new division. IT is a company named Contoso Ltd.

All of the

approximately 10,000 employees of Contoso, Ltd has three factories located in the following cities.

- Denver
- Indianapolis
- Milwaukee

The headquarters for Contoso. Ltd are in Denver. Technical support will be provided to Contoso Ltd by

the IT group inc St. Louis. Contoso ltd will follow the same policies as the rest of Hanson Brother.

Contoso Ltd has registered the name contoso.com

Chief information officer (CIO) interview

Employees in the engineering department frequently travel between engineering center locations and

need user accounts on every Netware server. These employees share engineering drawings with other

engineers at each of the factories. We think that the existing portable computers will be able to run

windows 2000. As a result, we will not need to upgrade that hardware. To make sure that we make the

best use of limited resources, we do not want to load any unnecessary protocols on the portable computers.

Network usage on the WAN connections between the engineering center and the headquarters in St.

Louis can be high during work hours. We want to limit replication traffic and any other traffic between

those sites during the business hours of 7:00 am to 6:00 pm.

For political reasons, every country will be in its own domain. I want to keep the AD information as upto-date as possible between St. Louis and Paris. I want replication to occur hourly between those two sites. All other replication intervals should be kept on the default settings. To keep changes to a minimum for my Administrators, I want to keep the primary DNS name server on the computer it run on today. The computers can be upgraded to the latest version of UNIX, if necessary, I do not want to have a lot of changes to the existing DNS structure, it possible. I want to have secure dynamic DNS updates where possible. Also, if the local domain controllers are unavailable, I want to make sure that the hub site at headquarters provides the login authentication. Because Contoso, Ltd., already have usable data center at its headquarters, we want to use it as a backup data center for St. Louis. To keep the changes in the environment to a reasonable amounts, we are going to keep existing messaging platform of Microsoft Exchange 5.5 Perhaps after this upgrade is finished, we will consider Migrating to Exchange 2000

Technical Requirements

Before the windows 2000 upgrade the network will be upgraded as follows.

- Denver and st.louis will be connected by a 256 kbps line.
- Factories with engineering centers will be connected to st.louis by 1.544 Mbps lines.
- Factories without engineering centers will be connected to st.louis by 256 kbps lines.
- The factories in Milwaukie and Indianapolis will be connected to Denver by 56kbps lines
- Mexico city will be connected to st.louis by a 56 kbps line.

- Mexico city will be connected to Juarez by a 56 kbps line
- Paris will be connected to st.louis by a 56 kbps line
- Nice will be connected to st.louis by a 56 kbps line
- Paris will be connected to Nice by a 256 kbps line

Fabrikam Inc want to minimize use of the connection between Paris and st.louis and between Nice and St. Louis.

Each location will be configured as a separate site

Client computer will be replaced with windows 2000 professional computers. All NetWare servers will

be replaced with windows 2000 server will be replaced with windows 2000 server computers. The

company wants to minimize interruptions to normal access during the upgrade.

Inventory- tracking

applications and distribution applications on the Unix server will be migrated to MS SQL Server.

However, other production functions will remain on the Unix Server. The Unix server runs the latest

Version of Bind and currently acts for all the company's DNS zones.

IT Staff at each location will continue to be responsible for client and Server computer support,

However the IT group at headquarters wants & increase its control over all computers at each location.

As part of this Control, the IT group at headquarters will Control the following Settings; Screen Savers, Desktop backgrounds, Password change intervals, Desktop icons, the Run command, logon scripts.

These policies will be uniform through out all divisions of the company local administrators will be able

to grant divisions of the company. Local administrators will be able to grant deviations from the policies

for only logon scripts and desktop icons. local administrators will not be able to create or manage.

Group Policy Objects (GPOs) but will only be able to link existing GPOs to the resources that the local

administrators administer. A Small group of GPO administrator will have responsibility for creating and maintaining all GPOs.

Hanson Brother will allow Fabrikam, Inc to administer its own user and resources.

Fabrikam, inc dos

not want to be affected by any group policies defined by Hanson Brother administrators.

Fabrikam, inc

will create and maintain its own GPOs.

Case Study #13, Hanson Brother (8 Questions)

QUESTION NO: 1

You want to allow necessary access to the Netware Server during the upgrade. What should you do?

- A.** Load Gateway Service on at least one server in every site.
- B.** Load Gateway Service on at least one server in each of the site that have an engineering center.
- C.** Load Gateway Service on only one server in the central headquarters site.
- D.** Load Gateway Service on more than one server in the central headquarters site.

Answer: B

QUESTION NO: 2

Which permission or permissions need to be assigned to the local IT staff at each factory in the United States? (Choose all that Apply)

- A. Administrative Control of the local Server.
- B. Administrative Control of the local Site object in Active Directory.
- C. Administrative Control of the local domain controllers.
- D. User password resets.
- E. Creation of Local Organization unit GPO's
- F. Administrative control of client computers.

Answer: A, B, F

Incorrect answers:

- C: Administrative control of local Domain Controllers is done by ST Louis (HQ).
- D: User password resets is handled by STLOUIS HQ.
- E: Create of local organization unit and GPO's - local admins cannot create or manage GPO's.

QUESTION NO: 3

Which type of Administrative mode will this upgrade implement?

- A. Centralized IT Management and Centralized administration.
- B. Centralized IT Management and De-centralized administration.
- C. De-centralized IT Management and Centralized administration.
- D. De-centralized IT Management and De-centralized administration.

Answer: D

QUESTION NO: 4

How Many site links should you create?

- A. 4
- B. 14
- C. 17
- D. 21

Answer: D

QUESTION NO: 5

You want to ensure that the DNS Infrastructure meets the company's requirement. What should you do?

- A. Create one zone for the forest. Place the Primary name Server in St. Louis and Secondary Server at all other Sites.
- B. In the Root domain, Create an Active Directory Integrated zone for all domains in the forest.
Place a root domain controllers at all Sites.
- C. Create one zone for each domain. Place the Primary name Server in St. Louis and Secondary

Server for appropriate zones at all other Sites.

D. Create one Active Directory Integrated zone for each domain. Ensure that a domain controller for the appropriate domain resides at each site.

Answer: A

Explanation: You cannot have the Primary Integrated zone on a Unix Server.

QUESTION NO: 6

You need to decide which consideration has the most impact on the design of certain technology. Move the appropriate consideration to each technology. (Use only considerations that apply. Use each consideration only once?)

Q6. You need to decide which consideration has the most impact on the design of certain technology. Move the appropriate consideration to each technology. (Use only considerations that apply. Use each consideration only once?)

Technology

- ☐ DNS
- ☐ Domain
- ☐ GPOs
- ☐ Active Directory Sites

Consideration

- Use of Exchange 5.5
- Company Guidelines
- LAN & WAN Design
- Number of Users
- Use of Existing Servers
- Reduction of Administrative Overhead

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Answer:

Q6. You need to decide which consideration has the most impact on the design of certain technology. Move the appropriate consideration to each technology. (Use only considerations that apply. Use each consideration only once.)

Collapse

Technology		Consideration
■ DNS - Use of Existing Servers ■ Domain - Company Guidelines ■ GPOs - Reduction of Administrative Overhead ■ Active Directory Sites - LAN & WAN Design	<Move Remove>>	- Use of Exchange 5.5 - Number of Users

QUESTION NO: 7

You need to configure setting on site links. Move the Appropriate setting to each site link. (Use only setting that apply. You might need to reuse settings).

Q7. You need to configure setting on site links. Move the Appropriate setting to each site link. (Use only setting that apply. You might need to reuse settings).

Replication Interval of One Hour

Collapse

Site	Site Link Setting
☒ St. Louis- Chicago	of 500
☐ St. Louis- Paris	Replication Interval
☐ St. Louis- Cincinnati	Cost of 50
	Cost of 200
	Replication Interval of One Hour
	No Schedule Limit
	Replication Interval of Three Hour
	Schedule Limit of Off Hours Only

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Remove>>

Answer:

Q7: You need to configure setting on site links. Move the Appropriate setting to each site link. (Use only setting that apply. You might need to reuse settings).

Collapse

Replication Interval of One Hour

Site	Site Link Setting
- St. Louis- Chicago - Cost of 50 - Schedule Limit of Off Hours Only - St. Louis- Paris - Cost of 500 - Replication Interval of Three Hour - St. Louis- Cincinnati - Cost of 200 - Replication Interval of Three Hour	- Cost of 500 - Replication Interval - Cost of 50 - Cost of 200 - Replication Interval of One Hour - Schedule Limit - Replication Interval of Three Hour - Schedule Limit of Off Hours Only

<<Move Remove>>

QUESTION NO: 8

Place the holders for single operations master roles in the site that best meet the company need. Move the Appropriate roles to the appropriate sites. (Use only Roles that apply. You might need to reuse Roles).

Q8. Place the holders for single operations master roles in the site that best meet the company need. Move the Appropriate roles to the appropriate sites. (Use only Roles that apply. You might need to reuse Roles).

Collapse

Site	Site Operational Master Role
■ St. Louis ■ Paris ■ Nice ■ Denver ■ Milwaukee ■ Chicago ■ Detroit ■ Mexico City ■ Juarez	- Relative ID Master - Domain Naming Master - PDC Emulator - Infrastructure Master - Schema Master

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Answer:



Case Study #14, Wingtip Toys

Background

You have been hired as a consultant to provide windows 2000 Migration and services for a company

named wingtip Toys, All client Computers and domain Controllers will be Upgraded to windows 2000.

Wingtip Toys manufactures and distributes Toys to wholesalers and retailers around the world. The

company has three offices in the United States and a manufacturing plant in Mexico city, the offices are

located in Boston, Chicago, and Los Angeles, The following departments are located in the Boston

office.

- Accounting

- Administration
- Graphics
- Human resources
- IT Administration
- Design
- General Services
- Toy research and testing Lab
- Sales and Marketing

Los Angeles and Chicago specialize in sales and distribution. Both offices have the following department:

- IT administration
- Accounting
- General Services
- Sales and Marketing

The Toy manufacturing and assembly Work occurs at the plant in Mexico city. The plant has following department:

- IT administration
- Human resources
- General Services
- Manufacturing

Existing Environment

General

The Company employs approximately 10,000 people and uses approximately 3,200 Computers. Fifteen hundred of these Computers are in Boston, 700 are in Los Angeles, 500 are in Chicago, and 500 are in Mexico city.

There are Currently Seven Windows NT 4.0 domains These domains Consist of a global Account

domain in Boston that Contains all United States User Accounts; resource domains in Boston, Los

Angeles, and Chicago; and an account domain and resource domain in Mexico city, in resource domains

in Boston, Los Angeles, and Chicago; and an account domain and resource domain in Mexico city, in

addition, there is a dedicated resource domain in Boston that runs an Accounting Application on the

ADC. The management Practices for the Mexico City Account and resource domains are not well documented.

WAN

There are T1 lines from Boston to Los Angeles and Boston to Chicago. The T1 lines reach 75 percent saturation during business hours. The United States routers support BOOTP relay. There is a 56-kbps connection between management is scheduled during evening hours in Boston. There is a T1 connection to the internet. The existing web site hosted by a third party. The Wingtip Toys.com domain registered. In addition, Wingtip Toys has an internal UNIX DNS infrastructure with a primary zone of Wingtip. loc. At all locations there are internal Bind DNS servers Configured with secondary zone of Wingtip Toys. loc To provide name resolution for the UNIX environment. These DNS server are configured with private root hints to the DNS server that hosts the primary zone of Wingtip Toys. loc

Client Computers

The windows environment is Windows NT 4.0 and windows 95. Many of the client computer used by the design and manufacturing departments use a terminal-emulation program to communicate with the UNIX systems that control the manufacturing process. Some departments use DHCP server to assign IP address on their LANs.

The client computer in the toy research and testing lab are window NT 4.0, There computers are configured to support roaming users. The users report that logging on takes a very long time.

IT Center

The primary IT center is Boston, most IT management is performed at that location the sales and marketing, manufacturing, human resources, purchasing, administration quality control, and maintenance departments each use unique software This unique software require specific expertise. To provide this expertise, each department has its own technical support staff

Business Requirements

Chief Executive officer (CEO) Interview

There was an upgrade in 1997 that was disruptive. It caused several problems with connectivity, validation, and permission some employees were not able to work There problems were associated with the specific consulting organization, the company is sensitive about the durations of downtime during

upgrades.

Currently, many of our processes are paper based. This practice causes all the difficulties related to

paper handling and data entry, Another consequence of this practice is that our data is not as current as

we want to be. We want to automate and consolidate the servers that employees need to access to update

documents.

We also need to communicate better. It should be convenient for all employees to share information In

particular, we need to improve communication, we need to improve communications with our Mexico

City manufacturing plant we are constantly making expensive mistakes in orders and designs. If we

keep growing, we might expand our manufacturing to include other countries, which will make improved

communication even more important.

Our customers and suppliers want to be able to connect to our network for pricing, billing, and inventory

updates.

I realize that we need an upgrade However, I want to see a cost/ benefit justification for every

improvement we make to the IT infrastructure.

Technical Requirement

General

Group policy will be designed to redirect folders, to define logon scripts that will be customized for each

department, to define the desktop settings, and to allow department specific software to be made

available.

Active Directory domain replication will be scheduled during a four-hour period during non-business

hours. Users must be able to log on even if there is a WAN failure.

An auditing committee has been formed that include representatives from each department. Each

member must have easy access to a suite of special software.

The existing group wise mail infrastructure will be migrated to Microsoft Exchange 2000.

IT administrators are unsigned about the increasing demands on bandwidth. However, administrators

cannot justify upgrading the connections at this time.

The private root UNIX DNS server will be the only DNS server allowed outside the firewall. It is

important not to disrupt the existing DNS services during the windows 2000 deployment.

Chief Information officer (CIO) Interview

Currently, all United states user accounts are administered in Boston. We want the human resources in

department in Boston to be the only group that can create new united states user accounts.

However, I

want each department to manage its own user permissions, publish and assign software, and provide

technical support to its group. The departmental support staff at each location will need delegated

authority to support the local users and administer their server.

Anne currently manager our windows NT 4.0 account domain in Boston she will

continue to have the

same responsibility. After the upgrade to windows 2000, she will also be responsible for the creation of

organizational units & group policy when it relates to corporate standards. To avoid Trojan horse

attacks, Anne will use the Run As command when possible. Anne will need to develop procedures to

design and test the effect of domain group policy object (GPOS) without affecting users.

For change

management, Anne will be the only responsible for making changes to the PDC emulator.

Many employees in the sales and marketing department use desktop computers in the office. There

employees gain secure access to our network from outside the office by using an internet connection and

a portable computer. There employees need to access the most current marketing documents when they

are not connected to the network. Software must not be installed on portable computers when they are

connected to the network over a slow connects at my document, offline files, and backup of the user

state needs to be enabled.

In any forest are create, I want the added flexibility and control of an empty root domain.

An empty root

domain needs to be included in the design I will be the only person to have enterprise administrator

rights. I need to be able to perform remote management.

Currently, each department purchases and manager its own client computers and provides and user

support with this project, I want to reduce the number of domains, provide efficient central support of

are software, and centralize the administrator. I want to establish standard corporate configurations for

hardware and institute a three- year refresh cycle.

It is extremely important that we improve the way are share information with our manufacturing plant.

However, I want to do things in the right order. Mexico must be included in our design, but phase one of

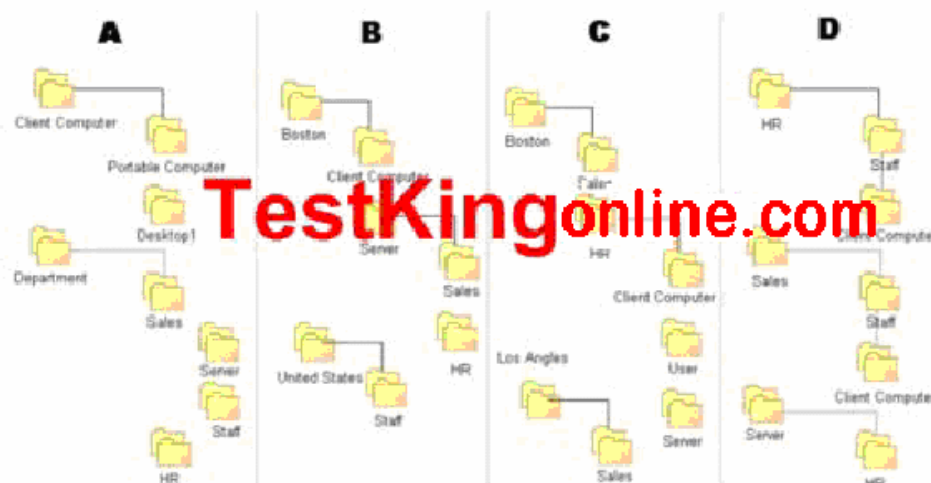
the project will be complete the windows 2000 upgrade in the united states phase two will be Mexico city manufacturing plant.

The plant has very different needs and methods. One important consideration is that the server in this plant are in an office environment rather than a data center. As a result, we do not consider those servers to be physically server. I do not want to take any risks that will jeopardize our united states network operating system environment.

Case Study #14, WingTip Toys (6 Questions)

QUESTION NO: 1

Exhibit:



You are Considering Four different organization unit designs for the United States operations.

The four design are shown in the Exhibit.

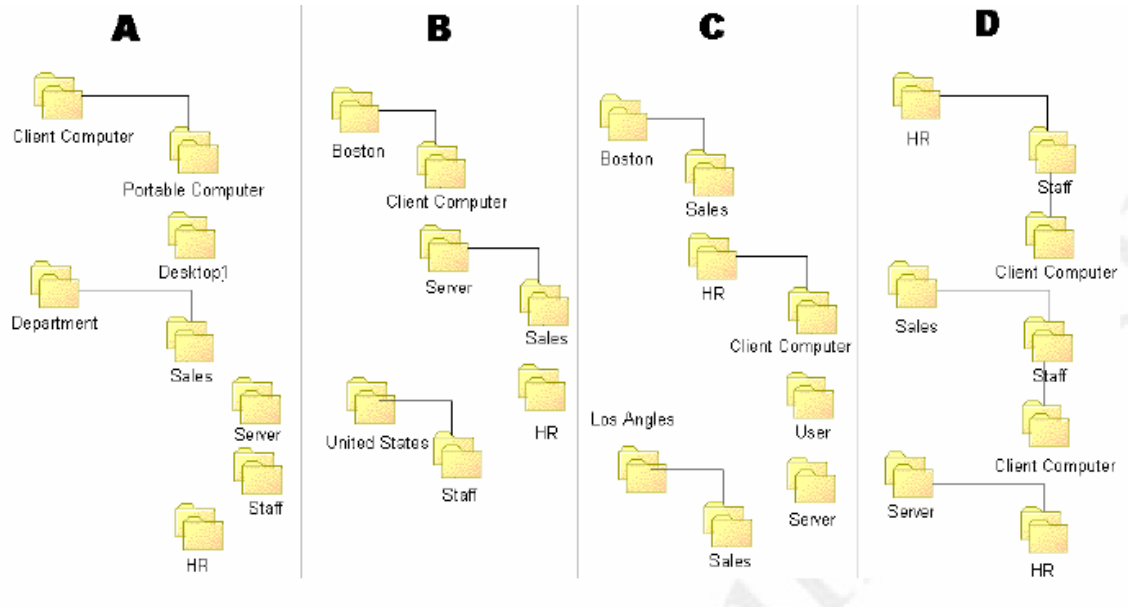
Which Design should you Use?

- A. Design A
- B. Design B
- C. Design C
- D. Design D

Answer:. C

QUESTION NO: 2

Exhibit



*** INCOMPLETE ***

QUESTION NO: 3

Which Procedure or Procedures should Anne Use to test effects of a GPO? (Choose All that Apply).

- A.** Remove the Authenticated users group from the list on the security tab of the GPO. Add a new security group that contains Anne's user account. Grant apply Group Policy and Read permissions to this new group.
- B.** Remove the default Domain Policy link to Anne's user account. Grant apply group policy and read permissions on the GPO to Anne's user account.
- C.** Link the GPO to a top-level organization unit named Test. Move Anne's user object into the Organization Unit.
- D.** Remove all group from the list on the GPO security tab. Add Anne's computer object to the list. Grant Apply group policy and read permissions to the GPO.
- E.** Configure and test the GPO as a local GPO.
- F.** On the GPO, **select Block Policy Inheritance** for the Domain users group. Select No Override on Anne's user account.
- G.** Deny Apply group policy permission to the Domain user group. Grant Apply group policy and read permissions to Anne's User Account.

Answer: G

QUESTION NO: 4

Which Type of Administrative model will WingTip Toys Implement?

- A.** Centralized Administration and De-centralized Management.
- B.** Centralized Administration and Outsourced Management.
- C.** De-centralized Administration and De-centralized Management.
- D.** Centralized Administration and Centralized Management

Answer: A

QUESTION NO: 5

You need to develop a DHCP server plan that will require the minimum Amount of administrative effort. Which action or Actions should you include in your plan? (Choose all that Apply)

- A. Implement DHCP Services on two servers in Mexico City.
- B. Implement DHCP Services on two servers in Chicago.
- C. Implement DHCP Services on two servers in Los Angles.
- D. Implement DHCP Services on two servers in Boston.
- E. Implement DHCP Services on all domain controllers.

Answer: A, D

QUESTION NO: 6

Which Requirement presents the greatest challenge to your design?

- A. Sharing Calendars among Mexico and United States employees in Exchange 2000.
- B. Defining different custom logon scripts for department users at each location.
- C. Preventing department administrator from creating new user objects.
- D. Allowing each department to have full administrative rights to the servers that supports its group.

Answer: C

Explanation: The correct answer should be C which is "Preventing department administrator from

creating new user objects" because in the CIO interview:

"Currently, all US user accounts are administered in Boston. we want the human resources in department in Boston to be the only group that can create new US user accounts. However, I Want each department to manage its own user permissions, publish and assign software, and provide technical support to its group....."

See that? Only the HR department in Boston can create new US user accounts. That's why the "preventing other administrators from creating new user objects" is the greatest challenge to the design.

Case Study #15, Baldwin Museum Of Science

Background

A consortium of separate companies plans to conduct a pilot project. The mission of the consortium is to develop methods and establish standards to protect intellectual property rights, improve the ease of distribution and use of digital material, and help protect the right to privacy of individuals.

The chief executive officer (CEO) of Baldwin Museum of Science has been asked to be the chairman of

the consortium's advisory board. You have been hired by the museum as the directory infrastructure architect to help the CEO establish design specifications and provide technical advice to the pilot project

Existing Environment

All equipment and services for this pilot project will be new. Each company in the consortium will have its own budget.

File Sharing

To ease of making digital copies and sending files to anyone in the world has created a formula for convenient unauthorized use. Nowhere is this apparent than in the widespread sharing of digital music over the Internet. The speed of networks is increasing and the cost of file storage is decreasing. As a result, in the near future, file size will not be a limit to this method of sharing music.

Digital Watermarking and Directory Infrastructure

Digital watermarking technology allows ownership and control data to be imperceptibly embedded in media content such as images, movies, and music. It will be important for the pilot project to combine digital watermarking technology with a highly scalable directory infrastructure that is capable of supporting authentication, authorization, and encryption keys for content developers and consumers.

Business Requirements

The following business requirements must be met:

Protect Intellectual Property Rights

Methods for including an invisible watermark in the digital file must be tested and validated. The watermark will indicate owner, copyright, and metainformation. After a consumer requests a file, the date and the customer's encryption key will be applied during transmission of the file. The encryption key is required in order to view the content. The encryption key can only be used during the allotted time period. For example, if the rental period is one day, the encryption key will not allow access to the file after that day.

Protect Individual Privacy Rights

Methods must be designed to prevent companies from acquiring personal information.
The distribution design must also prevent any group from associating an individual with specific content.

Provide Authentication, Authorization, and Content Distribution

Services

Consumers and devices must be able to authenticate to high-speed and wireless networks.
Consumers will be offered custom menus of content channels. These menus will be based on the capabilities of devices a consumer uses and the consumer's subscription level.

Develop a Revenue Model

There will be the following three-tier service model:

- Content developers, such as movie producers, will create the content.

- Content providers will establish the channels and infrastructure necessary to host a wide range of content.

- Each service provider will enroll subscribers, collect revenue, and sell and support all devices in its assigned city.

A method must be developed to measure the amount of attention the content receives.

This method will

be similar to Web page views, but will need to take into account the anticipated playback duration of the

downloaded content. Content providers and content developers will receive a percentage of the service

provider's subscription revenue. This percentage will be based on the amount of attention the channel

and content receives.

Coordinate a Pilot Project

The pilot project will include the following playback devices:

- Cable-connected televisions

- Cable-connected personal computers

- Wireless video players and optional video glasses

There will be three service providers. Each service provider will provide services to one of the following

pilot cities:

- Atlanta

- Boston

- Seattle

All service providers will offer four membership subscription levels with the cable-connected devices.

The levels will be named Standard, Silver, Gold, and Platinum. All service providers will outsource the

sales and servicing of the cable-connected devices to the same consumer electronics manufacturing company.

Service providers will independently manage their wireless networks and wireless devices. Each service provider will provide services only to subscribers in its assigned city. There will be two content providers named CP1 and CP2. The content providers are competing companies and will provide rich media services to all subscribers. The content providers will install and manage the server infrastructure to host content developers. The content providers will also be responsible for rating the content. The three ratings will be named General, Restricted, and Adult. During the pilot project, each content provider will provide the server infrastructure for 10 content developers. There will be a total of 20 content developers named CD01 through CD20.

Technical Requirements

Wireless Network and Wireless Video Players

In each city, a high-bandwidth, one-way broadcast transmitter will be installed to deliver wireless content. A two-way wireless network consisting of 150 transmitters will also be installed in each city. Fifty of the transmitters will be located in the urban area and will be directly connected to a high-speed backbone. One hundred of the transmitters will be located in remote areas and will have lower-speed point-to-point connections to the service provider's data center. Domain controllers for the urban area will be located in the data center. However, to maximize performance, a domain controller will need to be installed at each of the 100 remote, unattended transmission locations. The domain controllers will support authentication of the wireless video players. On startup, each video player will authenticate with Active Directory. Active Directory will use the video player's serial number to identify the assigned subscription level and any linked profile settings. The wireless devices are based on a Windows 2000 operating system and can be managed by using Group Policy objects (GPOs). The devices can also store content for playback. A consumer can customize settings on a device or use the service provider's Web page and the device's serial number to

customize settings. In addition, by using the same two-way communication that is used for authentication, consumers can receive e-mail, purchase products, and interact with live broadcast programs. Short-range transmitters will be installed in school zones. These transmitters will disable wireless video players from displaying content that is Restricted or Adult.

Cable-Connected Network and Playback Devices

Both types of cable-connected devices will have a persistent, high-speed connection to the Internet.

They will be customized to establish a permanent VPN connection to the service provider's data center and will be able to be managed by using custom Windows 2000 GPOs. The devices will have policies to deploy the trusted root and to support user authentication by means of smart card. Each subscriber level will have a user interface controlled by GPOs. Personalized settings customized by the subscriber will

be stored in a user profile. The systems will be configured to include an interactive logon feature. If the card is removed, the service will return to the Standard subscription level. Separate smart cards can be issued to family members to allow access to different content for adults and children.

Content Providers

Content providers will be responsible for producing channel guides. Content providers are also responsible for assigning permissions to the content that corresponds to subscription levels. Server names will correspond to content ratings. Servers containing General, Restricted, and Adult content will have host names that begin with GEN, RES and ADU respectively. Server names will also have content developer designations and unique numbers. Servers in each rating type will have different security and auditing policies. Content providers will be responsible for adding new content-developer user accounts.

Content Developers

Content developers will need to have full administrative control of the servers hosting their content.

Content developers must be able to add servers and create security groups to manage permissions to support their staff's need to publish to staging servers and replicate the content to their production

servers. Content developers will not be allowed to add new users to the domain or to create or edit GPOs.

Security

All forests will have root domains. The names of the subscribers of each service provider will be confidential and will not be shared with other service providers or content providers. For monitoring purposes, all cable devices will register a DNS record.

Baldwin Museum of Science CEO Interview

The forest and domain design for the service providers has been finalized. (The forest diagram is shown in the exhibit)



We will need to develop a design for the content providers and develop methods for service integration.

Some day, the number of users and devices will be in the millions. This expected growth means that the ability to scale up is an important consideration. However, we understand that this type of system will take many years to implement and that technology will keep advancing to meet the requirements of such a large undertaking. Today, what is important is to completely understand the culture, standards, and relationships needed to make a project of this importance a success.

Case Study #15, Baldwin Museum Of Science (7 Questions)

QUESTION NO: 1

Which technical issue is relevant to your design.

A. Intra-site replication of changes to user object with exceed acceptable performance thresholds.

B. The service providers might not be able to agree to a common schema and configuration policy.

- C. The Authentication between members and content will lack mutual authentication.
- D. Inter-site replication of changes to user object will exceed acceptable performance thresholds.
- E. The cable connected machine account and membership account must be in different forest.

Answer: D

Explanation:

The Service Provider's wireless subscribers have user accounts in the Wireless domain of the SP forest.

There will probably be significant update activity associated with these accounts. This implies significant domain replication traffic. Within the high-bandwidth metro LAN this will not be a problem.

However, the slow WAN links connecting the DCs at the remote transmitter sites to the Service

Provider's data center may become saturated with replication traffic. The SP forest design separated

cable-connected user accounts from wireless user accounts by placing each in a separate domain.

However, if replication traffic will saturate the WAN links to the remote transmitter sites, then it may be

necessary to increase the number of domains in the forest in order to partition the replication traffic.

QUESTION NO: 2

You discover that some users are able to watch videos beyond the time allocated.

What should you do?

- A. Ensure that the maximum tolerance for computer clock synchronization is five minutes.
- B. Set the maximum lifetime for the user ticket on the kerberos policy to one day.
- C. Set the computer group policy refresh rate to five minutes
- D. Enable the user group policy loopback processing mode.
- E. Set the maximum lifetime for the service ticket on the kerberos policy to one day.

Answer: A

Explanation: If the system clock in a cable-connected TV or computer is an hour slow, the user of that

device will be able to listen to the song an hour longer than he should, because the date/time stamp is

generated by the Service Provider's server. This problem can be overcome if the Service Provider's DC

will refuse to authenticate any cable-connected device whose system clock is more than, say, five

minutes slow.

QUESTION NO: 3

You need an Active Directory design for the two content providers. Which forest and domain design should you include in your design?

- A. 1 forest that contain 2 domain.
- B. 1 forest that contain 3 domain.
- C. 1 forest that contain 21 domain.
- D. 2 forest each of which contain 2 domain.
- E. 2 forest each of which contain 11 domain.
- F. 3 forest each of which contain 3 domain.

Answer: D

Explanation: This scenario describes a grandiose scheme which can be simplified as follows: The Service Provider (SP) domains are like Master User Domains. The Content Provider (CP) domains are like Resource Domains. Each SP is a separate company and has his own forest with two user domains, one for cable-connected subscribers, the other for wireless subscribers. Each CP is a separate company and has his own forest with one resource domain. The CP's users are the Content Developers (CD), who are like branch administrators and have complete control over resources in their own OUs. So, given this picture, we have three SPs, each with his own forest. We have two CPs, each with his own forest. Since all forests are required to have an empty FRD, the CP forests each have two domains: the empty FRD and a resource domain.

QUESTION NO: 4

Which trusts will be required in the overall design? (Choose all that apply)

- A. Each service provider will need to establish four external one-way trusts. Each service provider's member and wireless domains will trust the other two service providers' member and wireless domains.
- B. Each content provider will need to establish three external one-way trusts. Each content provider's administrative root domain will trust SP1, SP2 and SP3 administrative root domains.
- C. Each content provider will need to establish three external one-way trusts. Each content provider's content domain will trust SP1, SP2, and SP3 member domains.
- D. Each service provider will need to establish two external one-way trusts.

Each service provider's administrative root domain will trust each content provider's content domain.

E. Each service provider will need to establish four external one-way trusts.

Each service provider's member and wireless domains will trust the CP1 and CP2 content domains.

F. Each content provider will need to establish three external one-way trusts.

Each content provider's content domain will trust SP1, SP2 and SP3 wireless domains.

Answer: C, F

Explanation: Because the CP's content domain is really just a resource domain, and since the SP's

member and wireless domains are really account domains, and since resource domains always trust

account domains, the CP's content domain must trust each SP's member and wireless domains. There are

three SPs, so this means six trusts per CP.

QUESTION NO: 5

You need to create a site design for the complete project.

Which technical requirement or requirements must you include? (Choose all that apply)

A. Each content provider must create sites for Atlanta, Boston, and Seattle.

B. The content providers must create sites for each content developer.

C. Each service provider must create a site for each remote transmission location.

D. The membership user objects and cable-device computer objects must be in different sites.

E. Each service provider must create a single site for the data center and urban area.

Answer: B, C, E

Explanation: We have two sets of sites: those for SPs and those for CPs. In the SP camp, we have one

big site for his data center and high-speed urban network of 50 DCs connected to wireless two-way

transmitters for authentication of subscribers. But, the SP also has to create a site for each of the 100

remote DC/transmitters.

Next, we have the CP. He has a data center too, and it would constitute a site (though this isn't

mentioned in the answers above). He also has 10 CDs (film and record companies) connected to his data

center by WAN links. These CD companies can be scattered around the world, so each one is a separate site.

QUESTION NO: 6

You want to prevent any group from being able to associate an individual with specific content. Which action should you take?

- A.** Place the security groups and user accounts in separate organization units. On organizational units that contain user accounts, remove the List and Read permissions from the Authenticated Users security group. Instruct the content provider to use security groups when applying DACLS.
- B.** On the domain that contains the servers, disable GPO Audit Access. Enable the servers to be trusted for delegation. Instruct the content provider to use the delegated service account when applying DACLS.
- C.** Create an impersonation service account for each user. Instruct the content provider to use the service account when applying DACLS.
- D.** Configure user accounts for DES encryption. Deactivate all subscribers' user class attributes in the forest schema.

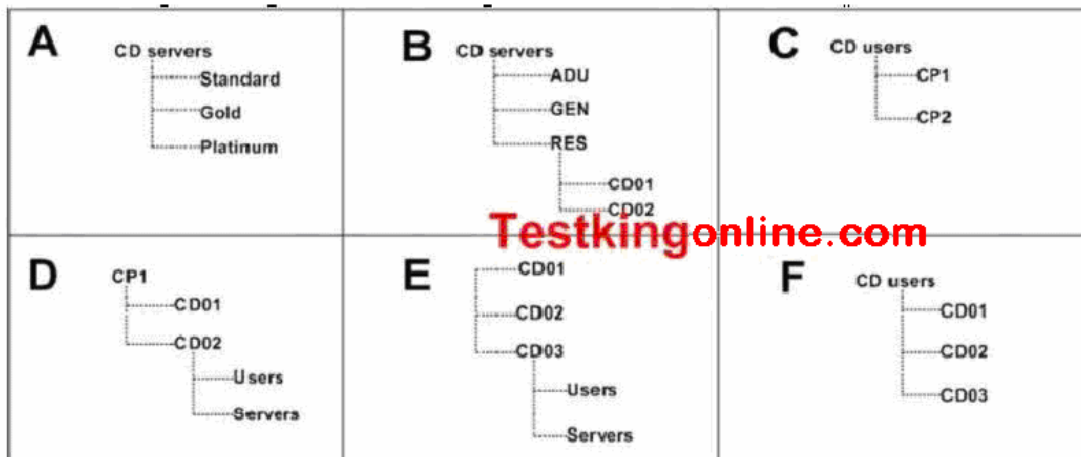
Answer: B

Explanation: There is a neat trick of Kerberos that allows a server service to impersonate a user, not just on the computer on which the service is running, but also on other computers. If both the client's user account and the server computer on which the service runs are "trusted for delegation", the service can request services (like opening and reading files) without impersonating the user (using the user's credentials), but by using its own credentials. The credentials of a service is the account under which it runs. Most services run under the LocalSystem account. However, you can change this and create an account for the service and configure it to run under that account. How does this apply to hiding a subscriber's identity from the CP and CD? The content is stored in files within folders on CD servers with names like RES_CD04. The folders are permissioned with DACLS that give access only to subscribers with the proper credentials. If the DACLS contain the subscriber's user account or a group account of which the subscriber is a member, the subscriber's privacy will be

violated, because his identity (SID) is exposed. However, if the CP DACLs a folder with the service account of the service that handles the subscription level associated with that folder, then the subscriber's identity is hidden. Even if Audit Object Access is enabled on the content server and Audit Read is set on the folder, you won't see anything but Reads by the service account.

QUESTION NO: 7

Alternative top-level organizational unit segments are shown in the exhibit.



Which two organizational unit segments should you use for the content providers? (Each correct answer presents part of the solution. Choose two)

- A. Segment A
- B. Segment B
- C. Segment C
- D. Segment D
- E. Segment E
- F. Segment F

Answer: B, F

Explanation: We need one OU hierarchy for CD users and another for CD servers. CDs cannot access user accounts, but must have full control over servers. Also, we know that the servers are categorized by their content (GEN, RES, ADU) and their CD owner (CD01, CD02, ...).

Case Study #16, Enchantment Lake Corp.

Background:

Enchanted Lakes Corporation is a large, international Advertising agency. The company headquarters are located in New York City. The company has offices throughout the

world. The offices are organized into the following four regions:

North America - 10,000 employees

- New York - Regional & Corporate Headquarters (4000)
- Los Angeles (2000)
- Chicago (1500)
- Detroit (1500)
- Houston (1000)

South America - 6000 Employees

- Sao Paulo - Regional Headquarters (3000)
- Rio de Janeiro (1500)
- Buenos Aires (1500)

Europe - 8000 Employees

- London - Regional Headquarters (4000)
- Paris (1000)
- Nice (1000)
- Frankfurt (1000)
- Munich (1000)

Asia & Australia - 4000 Employees

- Hong Kong - Regional Headquarters (1500)
- Seoul (750)
- Tokyo (750)
- Beijing (500)
- Sydney (500)

Each regional headquarters includes the following departments

- Marketing
- Print Design
- Radio Design
- Sales
- TV Design

Existing Environment:

Members of the sales department travel frequently to customer locations and use portable computers.

When they need to access their resources, they can use a dial-up connection to the nearest regional office.

The design groups share large amounts of data over the WAN. The design groups from each region

access data from other regions.

The New York office is connected to each of the regional headquarters by 1.544 Mbps lines. Additional

connections between offices are as follows:

- All North America locations are connected to New York by 1.544 Mbps lines.
- All Europe locations are connected to London by 256 Kbps lines.
- All Asia & Australia locations are connected to Hong Kong by 256 Kbps lines.
- All South America locations are connected to Sao Paulo by 56 Kbps lines.

Enchanted Lakes Corporation conducts video conferencing among all of the regional offices. The 1.544 Mbps lines are used for these conferences. In North America the company runs streaming video over the WAN. North America uses a master domain model. New York is the master domain. Each of the North America locations is a resource domain. Each region has its own domain. There are two-way trusts between each of these domains and the North America master domain. However the New York headquarters is not involved in domain administration for the regions that are outside North America. All the regions run BIND version 4 for DNS. All the locations use Windows NT workstation 4.0 on the client computers. Many employees use dial-up connections from portable computers that run Windows 98. TCP/IP is the only protocol used on the WAN. Enchanted Lakes Corporation has international, national and local customers. Each region functions as a separate entity within the company. Information exchange occurs between the regions, but administration of the resources is performed within each region. The technical support group at each regional headquarters is responsible for accounts in its region. Every office has off-site support personnel for all hardware and software support. North America users are prevented from installing software or making any changes to their desktops. However, desktop standards in the regions outside North America are not so stringent.

Business Requirements

Chief Executive Officer (CEO) interview

We want to implement video and audio streaming for presentations and international video conferencing. We want to make use of the new features provided in Windows 2000 to better compete with our competitors. We will be able to tighten security and provide flexibility through schema modifications and group policies that we are not able to take advantage of with our existing services. I want to make sure that schema changes are monitored and approved by a committee. I want all sales personnel from every region to have the same access point for all shared information.

Business Requirements

The WAN is heavily used. Video streaming and information sharing need to be optimized to minimize bandwidth usage. Traveling users need to be able to access their files from any location. Each design

group needs access to its data even if the data is in a different region. For example, the print design groups in each region need to have access to all print design information from all regions. The North America upgrade will occur in two phases. During phase one, an empty root domain will be upgraded to Windows 2000. After the Asia and Australia, Europe, and South America domains are added to the forest, phase two will occur. During phase two, all resource domains in North America will be eliminated. To facilitate the migration of the resource domains, the final group structure must be in place before phase two.

DFS redundancy must be implemented wherever possible. To increase the efficiency of sales personnel, Offline Files will be used frequently.

All locations will be located in the same forest. The New York Headquarters will provide most forest wide support including maintaining the DNS structure on its current platform. Each regional Headquarters will provide most domain-wide support, but each location in North America will administer its own resources. The regional Headquarters sites must have backup global catalog servers to provide for redundancy and to reduce WAN traffic in the event that a domain controller fails.

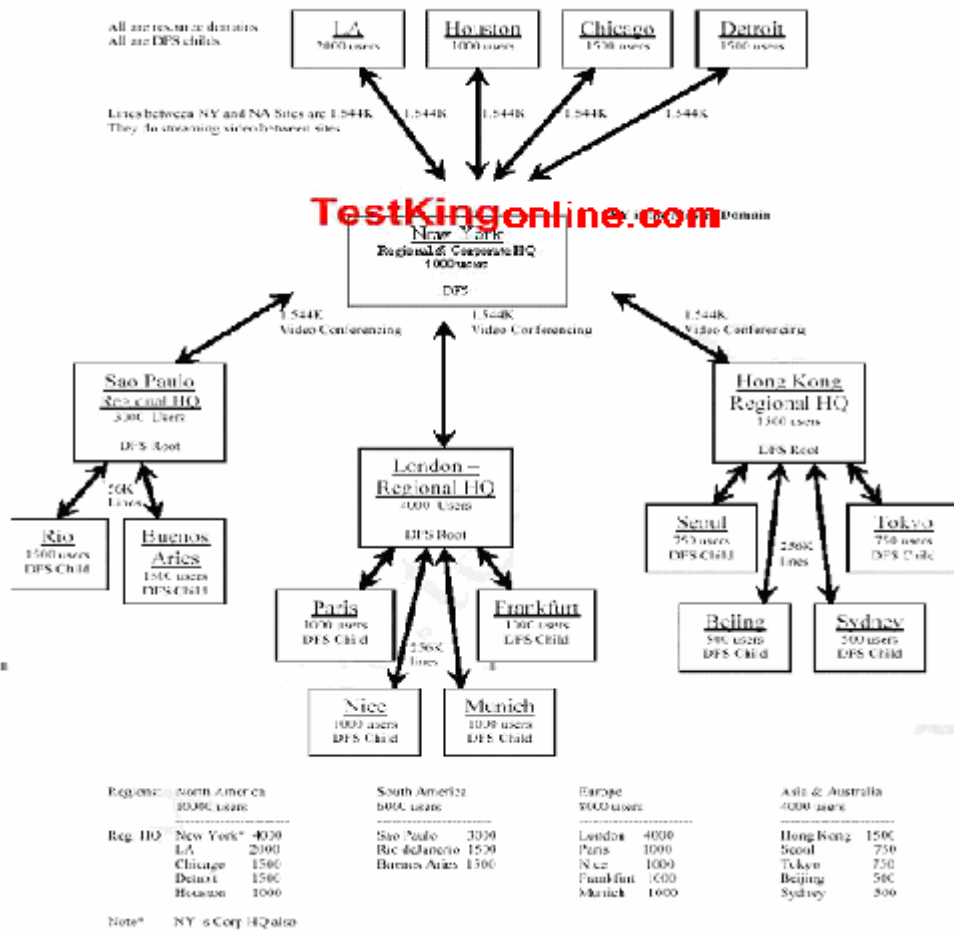
Offices outside North America will be required to use the standard applications, such as Microsoft Office. However, these offices can use any additional applications they choose.

Technical support is currently performed at the New York Headquarters. However, the company has technical support personnel at each location. Therefore, the company wants technical support to be performed by the personnel at each location.

Each regional Headquarters will administer resources, DFS shares, and dial-up services to each location in its region. Technical support staff at each location will perform backups of local data and maintain local file and folder structures. Technical support staff will also be granted permission to reset passwords for all users in their location.

Access to the Schema Admin group must be strictly controlled. Each region will have representation on the oversight committee that monitors and approves all schema changes.

The New York technical support staff wants to lock down the desktops for employees at the New York





Information from scenario

North America upgrade

Phase 1: Create empty domain
 Upgrade all domains to Windows 2000
 Add Asia, America, Europe & South America offices
 Final group structure must be in place before beginning Phase 2

Phase 2: Eliminate all resource domains in North America

DFS and redundancy must be implemented
 Offline files will be used frequently by users
 All locations will have the same forest
 Each location has its own tech support staff

New York: Has max. Forest & file support
 Maintains DNS structure

Each Regional Admin: Administers resources, DFS shares, and e-mail services for each location in its region
 Maintains domain wide support
 Must have backup global strategy

Each Regional Admin: Create & maintain sites for their own domain

North American Locations: Administer their own resources

Each local Tech support: Tech support to be performed at each location

Headquarters. However, the technical support staff at the other locations can create their own desktop policies.

All are resource domains

All are DFS child

Lines between NY and NA Sites are 1.544K 1.544K 1.544K 1.544K 1.544K

They do streaming video between sites

NY is the Master Domain

1.544K 1.544K 1.544K

Video Conferencing Video Conferencing Video Conferencing

56K

Lines

256K

lines

256K

lines

Regions: North America South America Europe Asia & Australia

10000 users 6000 users 8000 users 4000 users

Reg. HQ New York* 4000 Sao Paulo 3000 London 4000 Hong Kong 1500

LA 2000 Rio de Janeiro 1500 Paris 1000 Seoul 750

Chicago 1500 Buenos Aires 1500 Nice 1000 Tokyo 750

Detroit 1500 Frankfurt 1000 Beijing 500

Houston 1000 Munich 1000 Sydney 500

Note* NY is Corp HQ also

London –

Regional HQ

4000 Users

DFS Root

Hong Kong

Regional HQ

1500 users

DFS Root

Sao Paulo

Regional HQ

3000 Users

DFS Root

Rio

1500 users

DFS Child

Buenos

Aries

1500 users

DFS Child

Paris

1000 users

DFS Child

Munich

1000 users

DFS Child

Detroit

1500 users

Chicago

1500 users

Houston

1000 users

LA

2000 users

Frankfurt

1000 users

DFS Child

Nice

1000 users

DFS Child

Seoul

750 users

DFS Child

Tokyo

750 users

DFS Child

Sydney

500 users

DFS Child

Bejing

500 users

DFS Child

Regional Headquarters all have the following departments

Marketing Print Design Radio Design Sales TV Design

Information from scenario

North America upgrade

Phase 1: Create empty domain

Upgrade all domains to Windows 2000

Add Asia, Australia, Europe & South America to forest
Final group structure must be in place before beginning Phase 2
Phase 2: Eliminate all resource domains in North America
DFS redundancy must be implemented
Offline files will be used frequently by sales
All locations will be in the same forest
Each location has its own tech support staff
New York: Has most Forest wide support
Maintains DNS structure
Each Regional HQ: Administers resources, DFS shares, dial-up services for each location in its region
Most domain wide support
Must have Backup Global catalog
Each Regional Admin Creates & maintains sites for their own domain
North America Locations Administer their own resources
Each local Tech support Tech support to be performed at each location

Will perform backups of local data
Maintains File & Folder structure
Resets passwords

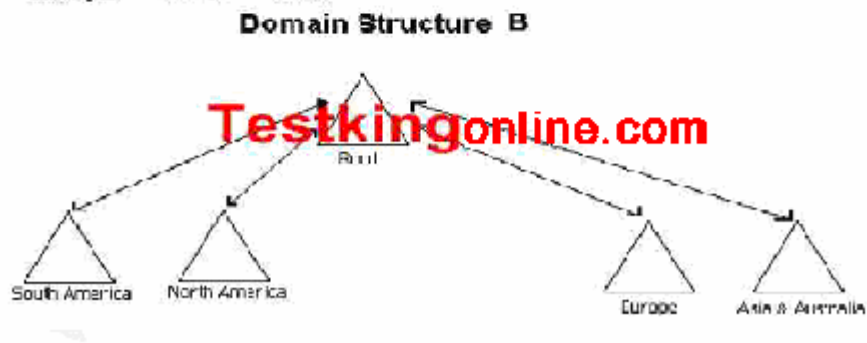
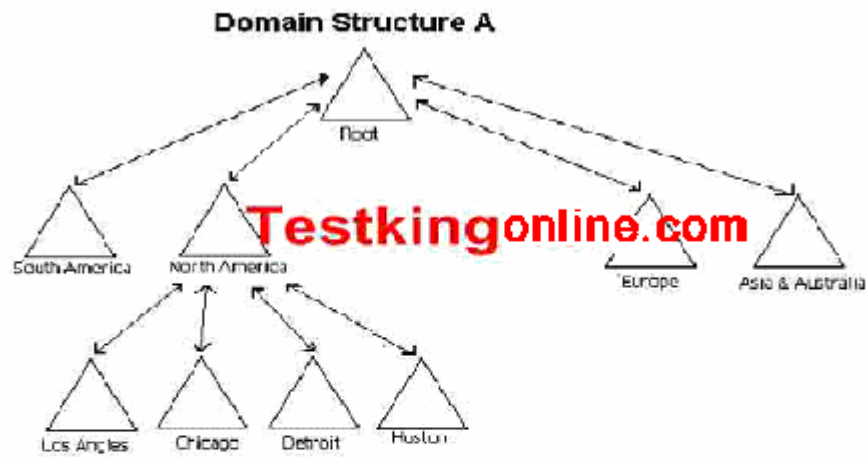
Questions:

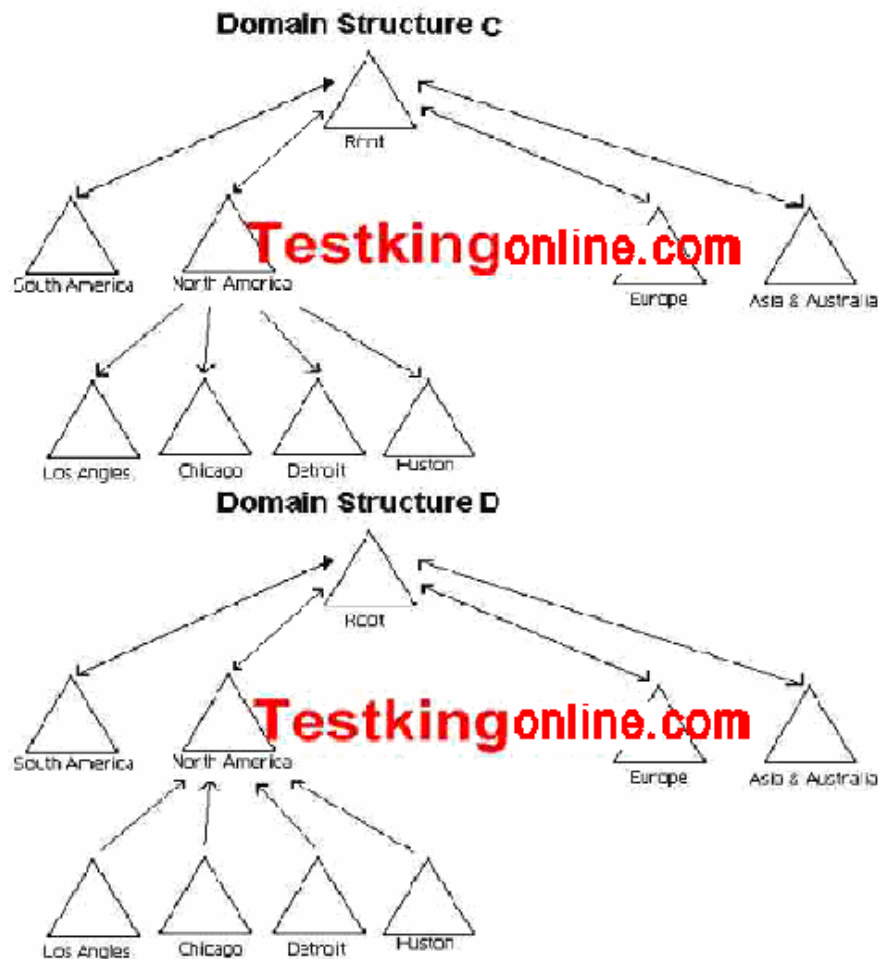
Reason for using empty root domain?
Which administrators can do the following:
Modify & Create Group Policy Corporate
Create Domains Corporate
Modify DNS structure Corporate
Perform Domain backups Corporate
Create / Delete user objects Regional
Reset Passwords Local
Modify file & folder structure Local
Perform local backups Local
Create sites Regional

Case Study #16, Enchantment Lake Corp (9 Questions)

QUESTION NO: 1

Exhibits:





Four possible domain structure are shown in the exhibit. What should the domain structure be at the end of phase one of the upgrade?

- A. Domain Structure C
- B. Domain Structure B
- C. Domain Structure A
- D. Domain Structure D

Answer: D

Explanation: Two facts are conclusive:

- * Resource domains always trust their Master User Domain(s) (MUDs).
- * Windows NT trusts always persist through a domain upgrade.

QUESTION NO: 2

You need to design an organization unit structure of the North America domain. Which organization units should be at the top level?

- A. New York

- B. Huston
- C. Detroit
- D. Los Angeles
- E. Chicago
- F. Marketing
- G. Print Design
- H. Sales
- I. Radio Design
- J. TV Design

Answer: A, B, C, D, E

Explanation: The scenario never mentions tech support or admin being based on function or department. All support teams are based on location.

QUESTION NO: 3

Which factor has the most influence on the company's decision to upgrade the windows 2000?

- A. A Computer advantage must be achieved.
- B. Operating expenses must be reduced.
- C. The Numbers of domain controllers must be met.
- D. International regulation must be met.

Answer: A

Explanation: The CEO runs the company and sets high-level business policy. His first reason for upgrading to Windows 2000 was to implement video and audio streaming for presentations and international video conferencing. Second, he specified using the new features of Windows 2000 "to better compete with our competitors

QUESTION NO: 4

Which factors had the most influence on your decision to have an empty root domain?

- A. It must be possible to transfer forest ownership easily.
- B. Administration in the root domain must be reduced.
- C. Membership in the schema Admin group must be controlled.
- D. Administrative flexibility must be increased.
- E. There must be positioning for future growth.

Answer: C

Explanation: By creating an empty forest root you place control of Schema Admins (and Enterprise Admins) at a level above any child domain. If the NY MUD had simply been upgraded to Windows 2000 and become the forest root domain (FRD), the NY Domain Admins would be the Schema Admins (and Enterprise Admins). By creating an empty FRD, the CIO can populate Schema Admins with administrators from each regional domain.

QUESTION NO: 5

How should you implement DFS?

- A Place a stand alone server in New York.
Create replicas of each child node.
Place one replica of each child node at each location.
- B Place a stand alone server in New York.
Create replicas of each child node.
Place one replica of each child node in each regional Headquarters
- C Create a domain DFS.
Place a root node replica at each location
Create replicas of each child node.
Place one replica of each child node at each location.
- D Create a domain DFS.
Place a root node replica at each regional Headquarters
Create replicas of each child node.
Place one replica of each child node at each location

Answer: D

Explanation: Standalone-based DFS trees are not fault tolerant; domain-based are. To minimize File Replication Service (FRS) traffic on WANs, place the root and root replicas only at the regional HQs, not at every site.

QUESTION NO: 6

At the end of the project, you want each design group to have the necessary access to its data. What should you do?

- A Create one global group in each domain for each design group.
Create a domain local group that has the appropriate permissions to resources in every domain
Place the appropriate design group members in the appropriate global group
Place the global group in the domain local group for the domain in which the global group was created.
- B Create one global group in each domain.
Create one universal group.

Create a domain local group that has the appropriate permissions to resources in every domain

Place all the design group users in the global group.

Place the global group from each domain in the universal group.

Place the universal group in the domain local group from each.

C Create one global group in each domain for each design group.

Create one universal group.

Create a domain local group that has the appropriate permissions to resources in every domain.

Place the appropriate design group members in the appropriate global group.

Place the global groups in the universal group.

Place the universal group in every domain local group.

D Create one global group in each domain.

Create a domain local group that has the appropriate permissions to resources in every domain.

Place all the design group users in the global group

Place the global group from each domain in domain local group for each domain.

Answer: C

Explanation: Use universal groups when users in multiple domains need access to resources in multiple domains (referred to as NxM access). Use global groups when users in multiple domains need access to

resources in a single domain (referred to as Nx1 access).

QUESTION NO: 7

You need to specify the lowest appropriate level of administrators to perform certain tasks. Move each task to the appropriate administrator level (Use all tasks. Use each task only once)

You need to specify the lowest appropriate level of administrators to perform certain tasks. Move each task to the appropriate administrator level (Use all tasks. Use each task only once)

Administrator Level	Tasks
Local Administrator Regional Administrator Corporate Headquarters Administrator	Modify and Create Group Policy Create Domains Modify DNS Structure Perform Domain Backups Create and Delete User Objects Reset User Passwords Modify File Folder Structure Perform Local Backups Create Sites

Answer:

You need to specify the lowest appropriate level of administrators to perform certain tasks. Move each task to the appropriate administrator level (Use all tasks. Use each task only once)

Administrator Level	Tasks
Collapse - Local Administrator - Modify and Create Group Policy - Reset User Passwords - Modify File Folder Structure - Perform Local Backups - Regional Administrator - Perform Domain Backups - Create and Delete User Objects - Create Sites - Corporate Headquarters Administrator - Create Domains - Modify DNS Structure	<<Move Remove>>

QUESTION NO: 8

Which factor has the most influence on the company's decision to upgrade to Windows 2000?

- A A competitive advantage must be achieved
- B The number of domain controllers must be reduced
- C Operating expenses must be reduced.
- D International regulations must be met.

Answer: D

Explanation: Corporate HQs handles all forest support issues, which include DNS structure (scenario), schema changes (under approval of corporate-wide committee), and configuration changes (site topology, add/decommission domains). Regional HQs handle all domain support issues, which include domain backups and creation/deletion of user accounts (scenario). Local admins handle the rest. The only item of debate is the first one: Modify and create group policy. This is part of "administration of resources", which is handled at the Regional level everywhere but in North America, where Local

admins rule (scenario). This is the lowest level of administration of this task in the corporation.

QUESTION NO: 9

You want to specify access to forest-wide groups. Move the appropriate user group to the appropriate forest-wide groups. (Use only groups that apply. You might need to reuse groups.)

Forest-Wide Group	User Group
Collapse - Schema Admins - Enterprise Admins - Site Creation Admins	Corporate Headquarters Administrator Local Administrator Regional Administrator << Move Remove >>

Answer:

You want to specify access to forest-wide groups. Move the appropriate user group to the appropriate forest-wide groups. (Use only groups that apply. You might need to reuse groups.)

Forest-Wide Group	User Group
Collapse - Schema Admins - Corporate Headquarters Administrator - Regional Administrator - Enterprise Admins - Corporate Headquarters Administrator - Site Creation Admins - Corporate Headquarters Administrator	Corporate Headquarters Administrator Local Administrator Regional Administrator << Move Remove >>

Explanation: Corporate HQs handles all forest support issues, including configuration changes, which

are controlled by the Enterprise Admins group. Site topology (maintenance of sites, subnets, site links, site link bridges, preferred bridgehead servers, GC servers, etc.) is controlled by the Enterprise Admins group. Local administrators have no part in either of the three forest-wide groups. Why would they? They're "local".

Case Study #17, State University

Background

State University has approximately 39,000 students, faculty, and staff. State University is located on a single campus.

State University contains the following primary colleges:

- College of Business
- College of Engineering
- College of Science
- College of Distance Learning

The campus IT department has hired you to create an Active Directory design for the entire university to

help improve collaboration and provide single logon functionality for students and faculty. The

following list shows the breakdown of the 96,000 users and contacts that you need to consider when

you design Active Directory:

- Students (users)--28,000
- Faculty (users)--3,000
- Staff (users)--8,000
- Active alumni (contacts)--45,000
- Donors (contacts)--12,000

Existing Environment

The campus IT departments is responsible for providing IT services that affects the entire campus. The

following list shows a few of these servers:

- Human resources (HR) systems
- Student registration
- Student e-mail, Web, and FTP services
- Card keys
- E-mail gateway
- Campus Web server
- Physical network

Each college also has its own IT staff that reports to a dean of that college. These IT staffs have their

own budget and are not part of the campus IT department. Each of these colleges has implemented its own network operating system to serve its needs. Currently, there is no standardization of operating systems, hardware, or naming standards between the colleges. Because of the transient nature of the students, many of the colleges simply create accounts with names such as Studen1, Studen2, Studen3, and so on. These accounts have no passwords and are designed for the students to log on to when they

are in labs. This account management strategy makes it difficult to audit the activities of the students and provide roaming capabilities between classes. Many of the students take classes from different colleges and have numerous accounts throughout the campus.

The colleges generally create personal logon accounts for faculty and staff within the colleges. However, many students are also considered to be staff. As a result, personal logon accounts are issued to them as well. This leads to many accounts that remain enabled after the students have left the university.

Several UNIX servers currently provide FTP, Web, and telnet services for the students on campus.

These servers are referred to as the StudentNet. Each student is allocated 50 MB of space and is allowed to use this space for FTP storage and the creation of a personal Web site.

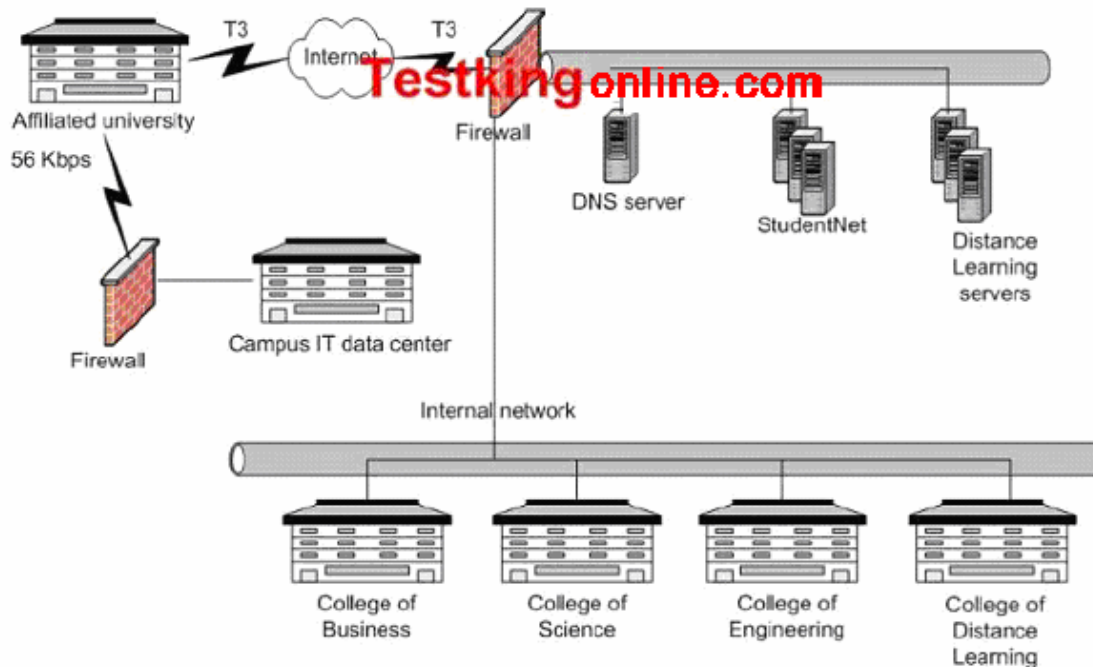
Existing Network Operating Systems

The College of Business and College of Distance Learning currently have their own Windows NT 4.0 domains that contain both the accounts and resources for the colleges. The College of Engineering uses peer-to-peer networking with Windows 95, Windows 98, and Windows NT 4.0 client computers. The College of Science currently runs NetWare 4.0. To support the campus administration staff, the campus IT department uses a Windows NT 4.0 domain

Physical Network

The physical network for the campus has recently been upgraded. The physical network has an ATM backbone that connects each college to the campus IT data center. The network also includes a 100-Mbps LAN in each college. In addition, there is a 56-Kbps connection to an affiliated university that is

located 300 miles from State University. The physical network for the campus is stable and has had very few problems since the upgrade. More information about the network is shown in the network diagram.



The Internal firewall is configured to block all inbound traffic originating from the Internet. Only traffic originating in the screened subnet (also known as DMZ) is allowed inbound through the firewall to the internet network. This traffic is limited to specific ports only. The firewall to the affiliated university is not as restrictive as the State University firewall.

DNS Infrastructure

State University currently has a registered DNS name of stateuniversity.edu. The campus IT department maintains this DNS zone on a UNIX DNS server located in the screened subnet. The following DNS subdomains are hosted on this DNS server:

Campus—This subdomain contains DNS records that support the StudentNet UNIX servers.

Distance Learning.

In addition to the Campus and Distance subdomains, subdomains for each college have been created and delegated to DNS servers controlled by each college. Each of these college DNS servers is configured to forward to the campus IT department DNS server, which is configured with root hints.

College of Distance Learning

The College of Distance Learning provides college courses over the Internet to approximately 5,000 students located throughout the country. The college has a Windows NT 4.0 domain on the internal

network to support the staff and a second Windows NT 4.0 domain located in the screened subnet. All user accounts and computer resources used by the students in the College of Distance Learning are located in the screened subnet and in this second domain.

Business Requirements

Campus IT Department Chief Information Officer (CIO)

Interview

I have recently been hired. My primary task in the next year is to help the colleges provide single logon functionality and collaboration throughout the campus. We need to provide services such as e-mail, scheduling, and prepopulated distribution lists to all users on the campus. Deploying Microsoft Exchange 2000 campus-wide will provide much of the collaboration. I also plan to extend help desk to perform the day-to-day administration of all user accounts on campus. Many of the colleges have expressed an interest in outsourcing the account management function for all campus users to my department, but the colleges still want to be able to maintain administrative control over their computers and servers. We have access to the HR system for staff and faculty and to the student registration database. We also have several other databases that contain information about donors and alumni. We want to automate the creation and delegation of all users and contact accounts based on the information in all these resources. We also want to use this information to populate distribution lists and provide a campus-wide address list that contains all individuals. We have already created an LDAP database that contains a subset of the information that we want to include in Active Directory. We currently have Web applications that use this LDAP database to provide information such as a phone directory for the campus. We want to migrate these Web applications to use

Active Directory as their LDAP source, but I estimate that it will take at least a year before that will be accomplished.

It is extremely important to me that we provide redundancy, security, and disaster recover processes. We

cannot afford to allow any downtime. I have signed an agreement with our affiliated university to

provide us with a location from which we can provide disaster recover services. This agreement allows

us to place a locked cabinet in our affiliated university's secure campus data center. The firewall

between our universities will be configured to allow all traffic between the servers placed in this cabinet

and specific servers on our internal network.

We have decided to deploy Active Directory in a single forest. An administrative root domain and a

single child domain will contain all users and computers in the forest and will be named StateU. We set

a deadline for all colleges that wanted to opt in to this model. At the time of the deadline, the deans of all

colleges except the College of Science had given me their full support and agreed to this model. We will

automatically create user accounts in the StateU domain for all students, staff, and faculty associated

with the university.

We will create an Active Directory control board that will be responsible for making decisions related to

the services of the forest. All requests for scheme modifications and enterprise services will be reviewed

by the board. Decisions will not be made without the approval of the board. I will create a campus

administrators team made up of two individuals from my department who will receive training in

managing the services of Active Directory, and they will report to the board.

The UNIX servers providing FTP, Web, and telnet services for the students will remain in place. These

UNIX servers belong to a Kerberos realm named campus.stateuniversity.edu. I want to enable single

logon functionality between these UNIX servers. I also want to remove all user accounts from this real

and use Active Directory so that we do not have to maintain duplicate accounts in both systems.

College of Science IT Manager Interview

Three years ago, we attempted a project of this type. The campus IT department attempted to provide a

single Windows NT 4.0 domain to locate our users and resources in. This provided to be a mistake. The campus IT department did not have any commitment to redundancy, and we had an enormous amount of downtime. All colleges withdraw from this model and created their own domains. We are extremely understaffed. I recognize the value of centrally managing the users because many of my students attend classes in other colleges as well. Although we will be deploying Windows 2000 and Active Directory, I refuse to make the same mistake twice and completely depend on campus IT. My computer resources will not be located in the campus-wide forest.

College of Business IT Manager Interview

My dean has met with the campus IT department CIO and supports the Active Directory model that the CIO wants to put in place. My dean has directed me to comply with new model. I think the hiring of the new campus IT department CIO was a step in the right direction, and I see the value in the single forest model. However, I still have reservations about allowing central IT to have control over my resources. I like to control that my own domain gives me and would like to have my own domain within the new forest.

College of Engineering IT Manager Interview

We support the Active Directory model proposed by the campus IT department. However, I am concerned about how we will manage user Group Policy objects (GPOs). Under the proposed model, we will not have any delegated administrative control over the organizational unit that will contain all users. I want to create a GPO named COE_StudentsGPO that limits the user settings within GPOs for all students (except my IT staff) who log on to my computers. I understand that there will be a security group named Students automatically generated by campysIT. I will also have a domain local group named COE_IT that I will manage. This group will contain all users that I designate to act as administrators of my resources. A few of the individuals on my IT staff are students, and I do not want them limited by this GPO.

Technical Requirements

Campus IT Department CIO Interview

To help in the automation of user account management, my application development team will create a synchronization script by using ADSI. This script will connect to the appropriate resources and automatically create and delete users and contacts when appropriate. It will also be responsible for provisioning user mailboxes in Exchange 2000. We have already developed schema modifications that need to take place to support this application. These new attributes will be used to automatically populate security groups that can be used by the colleges to apply security and that can be used as distribution lists in Exchange 2000. Many students and staff belong to multiple colleges, and all administration of the user accounts will be provided centrally. For this reason, all users will be created in a single organizational unit. Each college will be given an organization unit and delegated administration of that organizational unit to manage their resources. College IT administrators will not have any access to manage globally populated groups or users. However, we will be creating a Web-based application for these administrators to request changes to the users in their colleges. All DNS servers controlled by the campus IT department will be migrated to Windows 2000 Server computers. A single DNS server will host all records for resources located in the screened subnet. I want to consolidate as many forest and domain services as possible in my data center while still providing redundancy on case of a natural disaster. The Distance Learning IT group will use Terminal Services from their primary client computers to connect to the servers that provide external services in the screened subnet.

Case Study #17, State University (6 Questions)

QUESTION NO: 1

You need to create a DNS design.

Which tasks should be completed on the new Windows 2000 DNS server in the screened subnet?

A. Create a primary zone named campus.stateuniversity.edu.

Create a primary zone named external.stateuniversity.edu.

Create a primary zone named adm.stateuniversity.edu.

Configure DNS with root hints to the Internet.

Create a delegated subdomain named StateU.

B. Create a primary zone named stateuniversity.edu.

Create a subdomain named External.

Create a subdomain named Campus.

Create a delegated subdomain named Adm.

Configure DNS with root hints to the Internet.

C. Create a primary zone named stateuniversity.edu.

Create a subdomain named External.

Create a delegated subdomain named Campus.

Configure DNS with root hints to the Internet.

D. Create a primary zone named stateuniversity.edu.

Create a subdomain named External.

Create a delegated subdomain named External.

Create a delegated subdomain named Adm.

Configure DNS with root hints to the Internet.

Answer: B

Explanation: The best way to migrate the existing zone to Windows 2000 DNS is to copy the UNIX

BIND zone file to the Windows 2000 server's %systemroot%\system32\dns folder and specify this file

when creating the stateuniversity.edu zone. But, this question wants to test your understanding of the process by doing it manually from scratch.

The first thing you must do is create the root zone in State University's namespace, stateuniversity.edu.

Next you create the two DMZ subdomains, External and Campus. Then, you delegate the subdomain

that will become the root of the new campus AD forest, Adm. Finally, you configure the server's

Properties to hold Root Hints to Internet root servers. This server will not itself be a root server,

therefore no root zone is created.

QUESTION NO: 2

You need to justify your domain design for the internal campus IT forest. Which two business or technical factors justify your domain design decision? (Each correct answer presents part of the solution. Choose two)

A. Lack of physical security of domain controllers.

B. Ease of administration by means of the campus IT department synchronization for users.

C. Bandwidth limitations.

D. Single logon considerations with the existing UNIX Kerberos realm.

E. Lack of support for the proposed model from the dean of the College of Science.

F. Lack of support for the proposed model from the IT manager of the College of Business.

Answer: B, D

Explanation: The domain design for the campus IT forest comes down to a choice between one (StateU) or many (one for each College) child domains of the FRD. For example, the COB IT Manager wants his own domain. The ability to sync AD user accounts to the LDAP database allows central admin over user accounts. This allows a single point of admin to handle cases where some users, students especially, were being given multiple user accounts. The single logon with UNIX realm consideration is the best of the remaining choices. The main problem with a single logon is not the UNIX connection, but the multiple user accounts a student is issued when he takes courses in multiple Colleges. To do work in multiple Colleges, he has to execute multiple log on sessions, each with a different user account and password. A single domain and single user account per student solves this problem. To implement a single logon to UNIX, a realm trust must be created, where the UNIX realm trusts the Windows account domain. If a multiple-domain, multiple-user account design were built, the user would still have singlelogon to UNIX, but there would be multiple realm trusts instead of just one. There is no evidence from the scenario that physical security or bandwidth limitations is a concern. The COB IT Manager supports the design, but his concerns will be fully addressed by delegation of control within his own COB OU. The COS wants its own forest. As a result, it will not be included in the new campus forest until pressure is brought from above to convince its IT Manager to join. This will occur after the new design has proven itself to the skeptics.

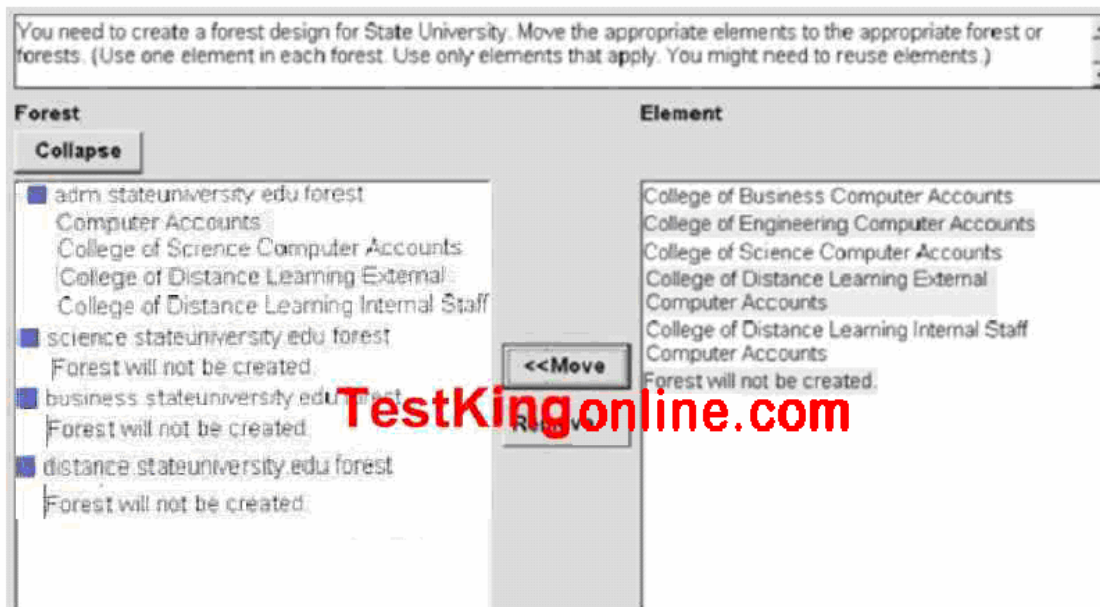
Incorrect Answer:

A: There is not any information about lack of physical security of domain controllers in this case.

QUESTION NO: 3



Answer:



Explanation: The campus IT CIO said, "We have decided to deploy Active Directory in a single forest with an administrative root domain. A single child domain will contain all users and computers in the forest and will be named StateU. ...We will automatically create user accounts in the StateU domain for all students, staff, and faculty associated with the university." This means that only one forest will be created. Therefore, the distance, business, and science forests

above will NOT be created (in your plan), despite the COS IT Manager's refusal to join. (What he does on his own is his business. This question concerns the plan you have been hired to design.) All ELEMENTS, except the last one, must appear in (A). The external Distance Learning students are associated with the university; therefore, these too will be included in the new AD forest. This plan requires that four Windows NT 4.0 domains will be consolidated into one, the stateu.adm.stateuniversity.edu domain. These four are the campus IT data center domain, the COB domain, the CODL internal staff domain, and the CODL external student domain.

QUESTION NO: 4

You must decide on the scope of your Active Directory design. The requirements of which group or groups will you consider when you create your design? (Choose all that apply)

- A. College of Business
- B. Campus IT department
- C. Affiliated university
- D. College of Science
- E. College of Engineering
- F. College of Distance Learning

Answer: B, E

Explanation: Only four groups expressed real requirements: Business, Campus IT, Science and Engineering. We base the AD design on the Campus IT CIO's input mainly, but also consider the valid concerns of the Engineering IT Manager. The affiliated university has submitted no requirements and offered no advice. The College of Distance Learning IT Manager merely praised the plan and pledged support for it. The Campus IT CIO wants single user logon, improved collaboration, directory services redundancy, minimal downtime, and tightened security, and your plan gives him that. The Engineering IT Manager wants to be able to administer GPOs linked to the Master Account OU that will apply only to his staff and students, and your plan gives him that. (This will require that you create empty GPOs for his staff and students and link them to the Master Account OU, then delegate to the Engineering Admins the

ability to edit, but not link, these specific GPOs. You will probably have to do this for the other Colleges as well.)

The Science IT Manager wants redundancy, minimal downtime, and complete self-determination through a separate forest, and your plan refuses him this demand. The Business IT Manager wants his own domain, and your plan refuses him this demand. Now, the writer of this question might say that we did consider these last two requirements, but rejected them, so the correct answer is A, B, D, E. You decide.

QUESTION NO: 5

You need to create a DNS design.

Which tasks should be completed on the DNS server in the administrative root domain of the campus IT forest?

- A.** Create a primary zone named adm.stateuniversity.edu.
Create a primary zone named statue.adm.stateuniversity.edu.
Create a secondary zone at stateuniversity.edu.
Create a delegated subdomain named StateU.
Configure DNS with root hints to the Internet.
- B.** Create a primary zone named campus.stateuniversity.edu.
Create a delegated subdomain named StateU.
Configure DNS as a forwarder to the DNS server in the screened subnet.
- C.** Create a subdomain named Adm.
Create a secondary zone of stateuniversity.edu.
Create a delegated subdomain named StateU.
Configure DNS as a forwarder to the DNS server in the screened subnet.
- D.** Create a primary zone named adm.stateuniversity.edu.
Create a secondary zone of stateuniversity.edu.
Create a delegated subdomain named StateU.
Configure DNS as a forwarder to the DNS server in the screened subnet.

Answer: D

Explanation: Here are the things we must do:

* We must configure this DNS server to use the DNS server in the screened subnet as a forwarder.

* We must configure a primary zone for the forest root domain, which must be a subdomain of the University's registered domain name, stateuniversity.edu. We can't use the name "campus" for this subdomain, as in answer B, because this name is already in use on the screened subnet (StudentNet).

"Adm" will work.

* We must delegate StateU as a subdomain of the forest root domain.

Only answer D does all three. The secondary zone for the namespace root is for performance purposes.

This way we don't send queries through the firewall to the DNS server in the screened subnet unless the

domain is external to the University.

QUESTION NO: 6

You want to ensure a minimum performance level of critical operations master roles and the fastest possible logon speed. You need to select one domain controller for which you will lower the priority of the SRV (service) records. Which domain controller should you select? (Choose only one domain controller that will be deployed)

A. A domain controller in the StateU child domain located in the campus IT data center.

B. A domain controller in the Campus IT forest root domain located in the campus IT data center.

C. A domain controller in the Campus IT forest root domain located in the affiliated university data center.

D. A domain controller in the StateU child domain located in the College of Engineering data center.

E. A domain controller in the Campus IT forest root domain located in the College of Engineering data center.

Answer: A

Explanation: When the LDAP script that syncs user accounts in AD with the LDAP database is

running, it will be doing Add, Change, and Delete transactions on user accounts in the master account

OU in stateu.adm.stateuniversity.edu. This will hit the PDC emulator, RID, and IM operations masters

hard. Because of this, the script will probably be executed on a DC hosting the PDC emulator and RID

operations master roles. Therefore, users logging on to the domain will experience slow response time

when this script is running if they are authenticated by this DC. The campus IT CIO said, "I want to

consolidate as many forest and domain services as possible in my [campus IT] data center". This implies

that all operations masters will be housed in the campus IT data center. Therefore, we want to lower the

priority (increase the SRV priority number) of the SRV records that point to this DC.