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Designing a Microsoft Windows 2000 Directory Services Infrastructure

Version 1

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Case Study No: 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 responsibly 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.

QUESTIONS CONTOSO, LTD.

Q. 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.

Q. 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.

Q. 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.

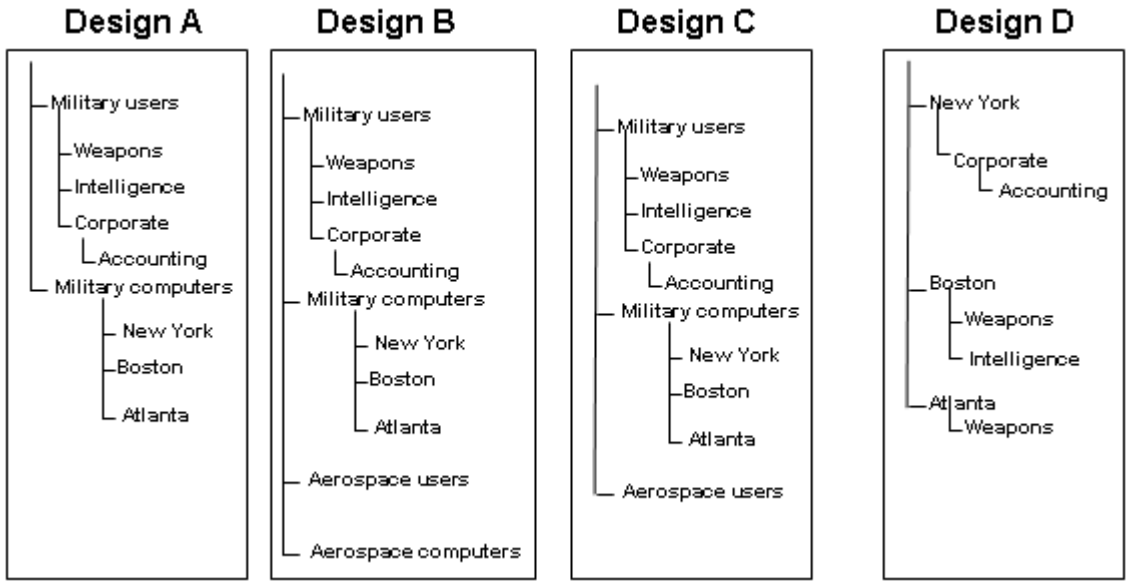
C. This is another issue of not having transitive trusts between forests. If I point to the root domain, and not the child domain, the trust will not traverse through the root to the child. The trusts must be between the actual two domains, in this case a child-child connection.

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?

Q. 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**

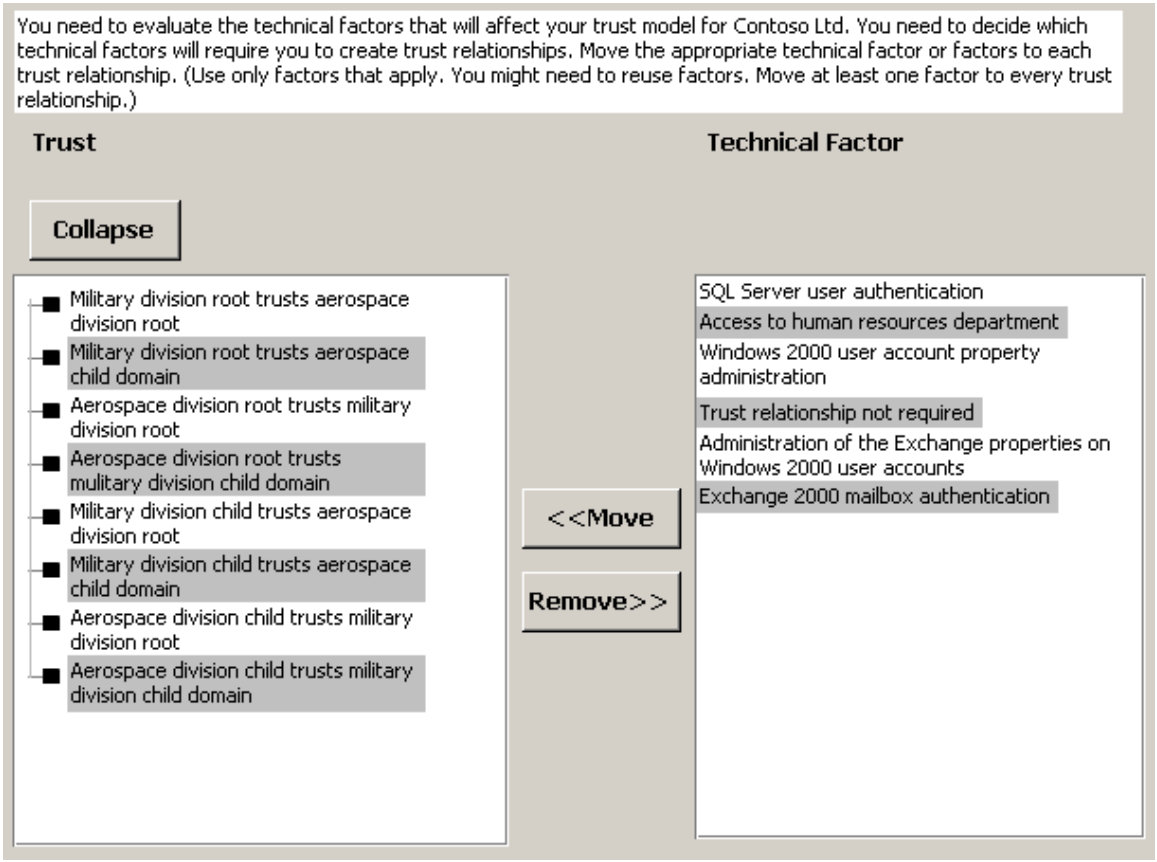
Explanation: Let's look at what the military IT Division Manager said: "Currently, a local site administrator is responsible for managing all user and computer accounts for each site. With the

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."

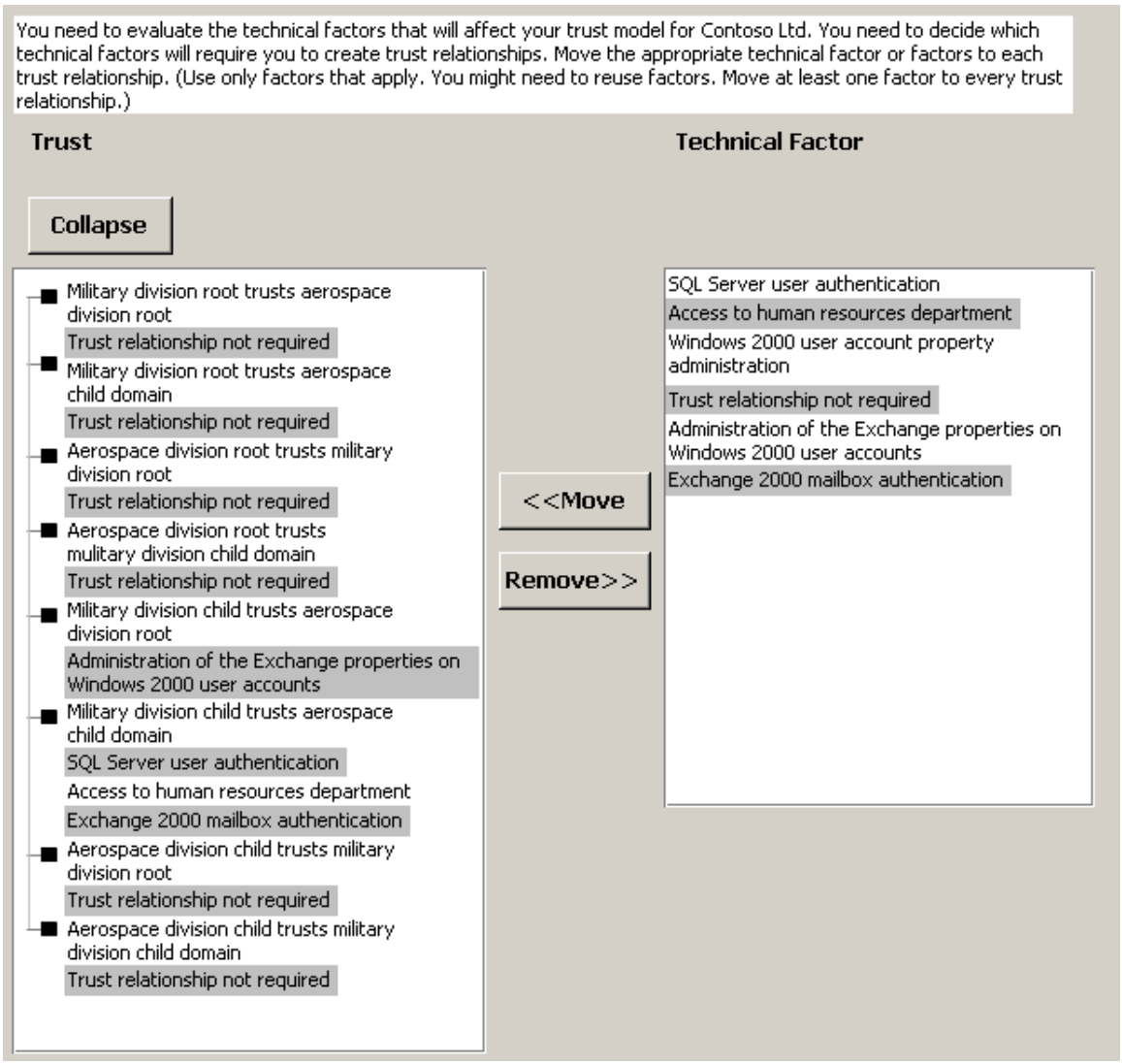
The existing site managers will manage resources, so we need to make the computers, a resource, a separate OU for each site. This allows us to delegate each site administrator to their respective site OU for resources. Since user management will be centralized, we only need a users OU for all users,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

Q. 5



Answer:



Q. 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.

Q. 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 form 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.

Q. 8
What are the two most important business considerations for the company's forest design decision? (Each correct Answe: part of the solution. Choose two)

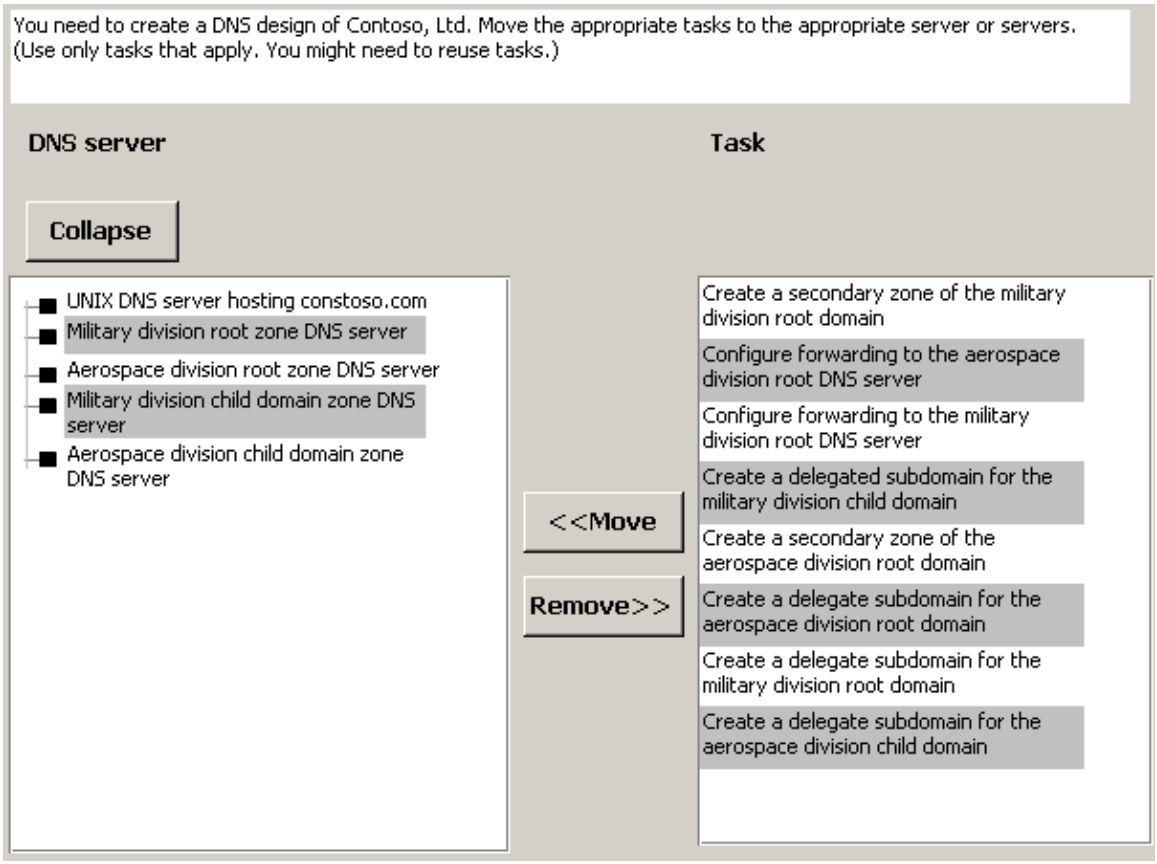
A. The possibility that domain controller will be located in unsafe physical locations
B. Security concerns between divisions
C. The hosting of Exchange 2000 by the military division
D. Accountability for quality of service
E. The lack of central IT authority

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.

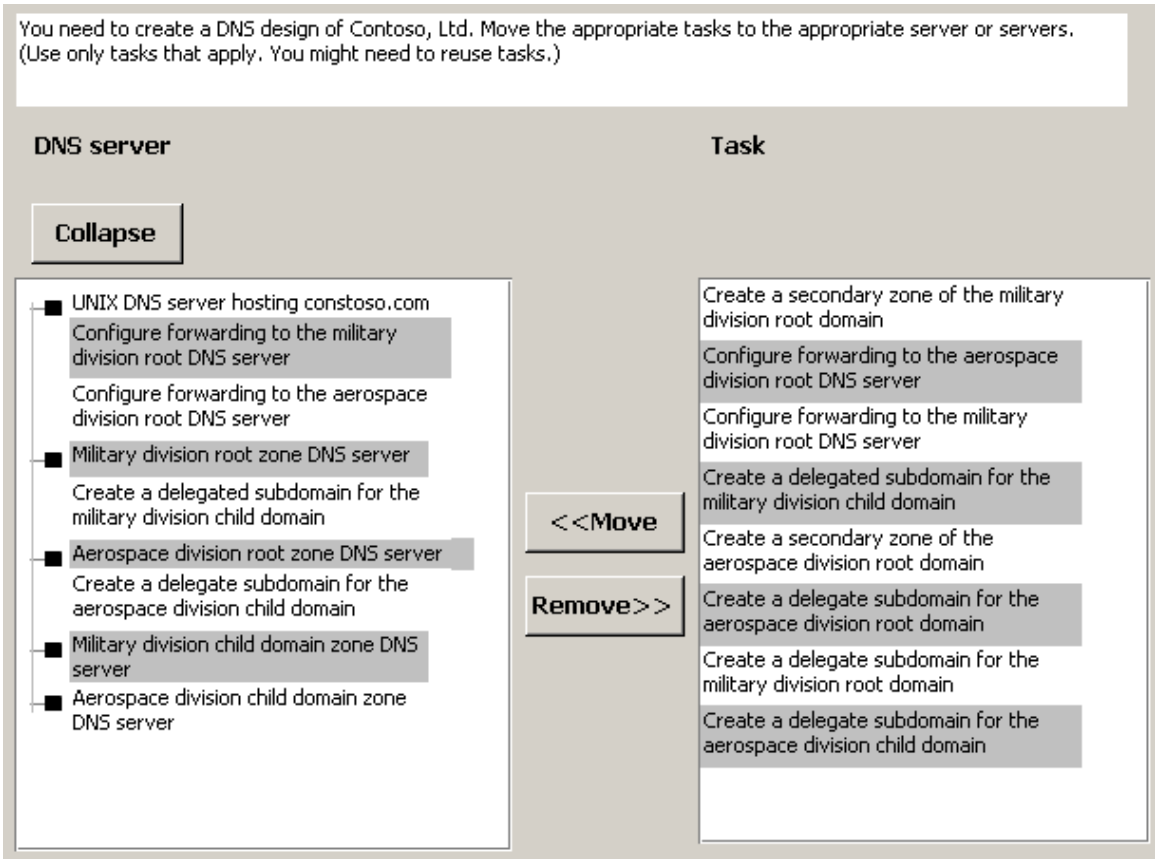
Incorrect Answers:

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.

Q. 9



Answer:



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.

Study Case No: 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

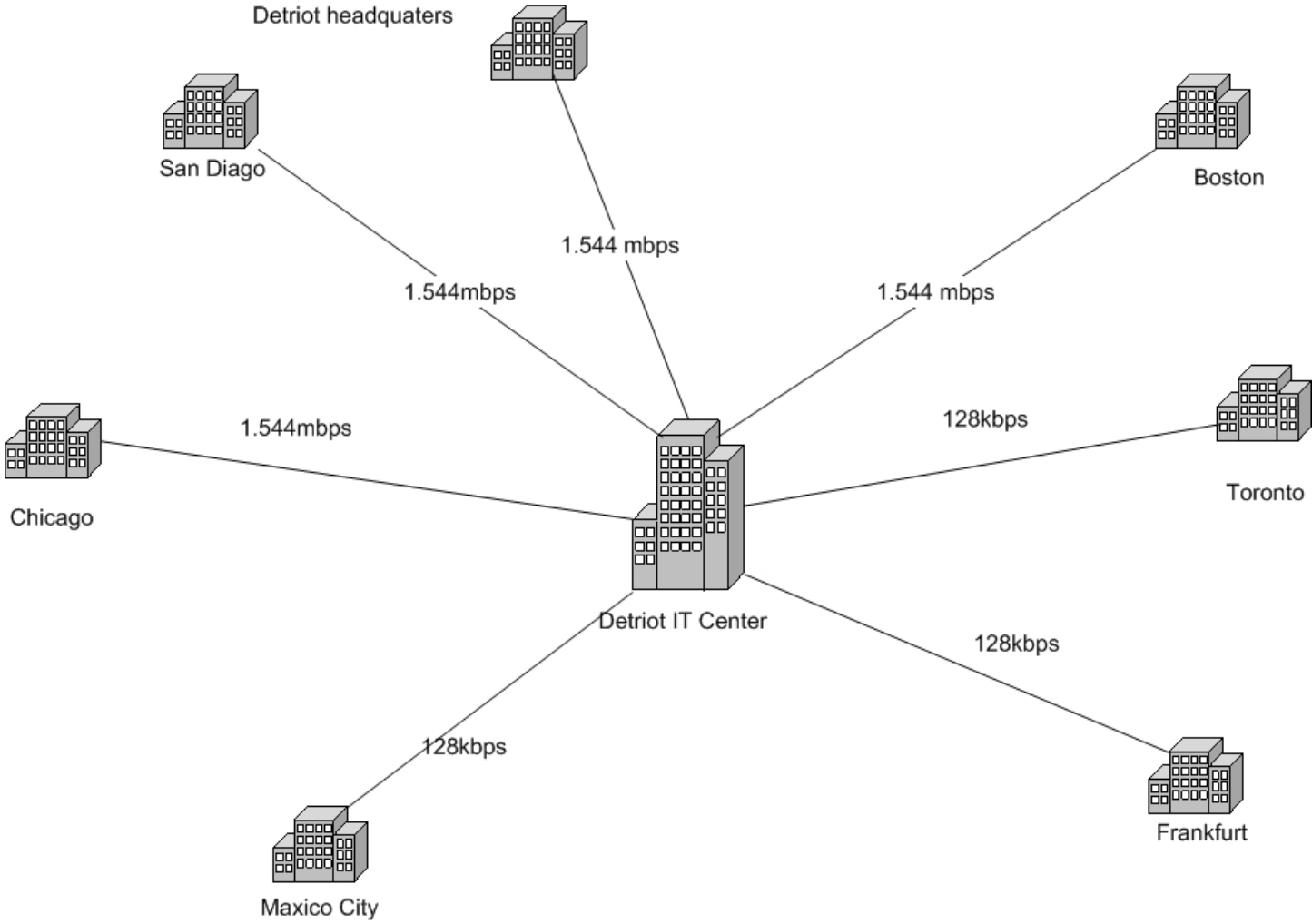
from those of other departments. Therefore, the engineering department needs to retain the ability to administer its own user accounts and resources.

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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San Diago
Boston
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1.544mbps
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1.544mbps
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Chicago
Toronto
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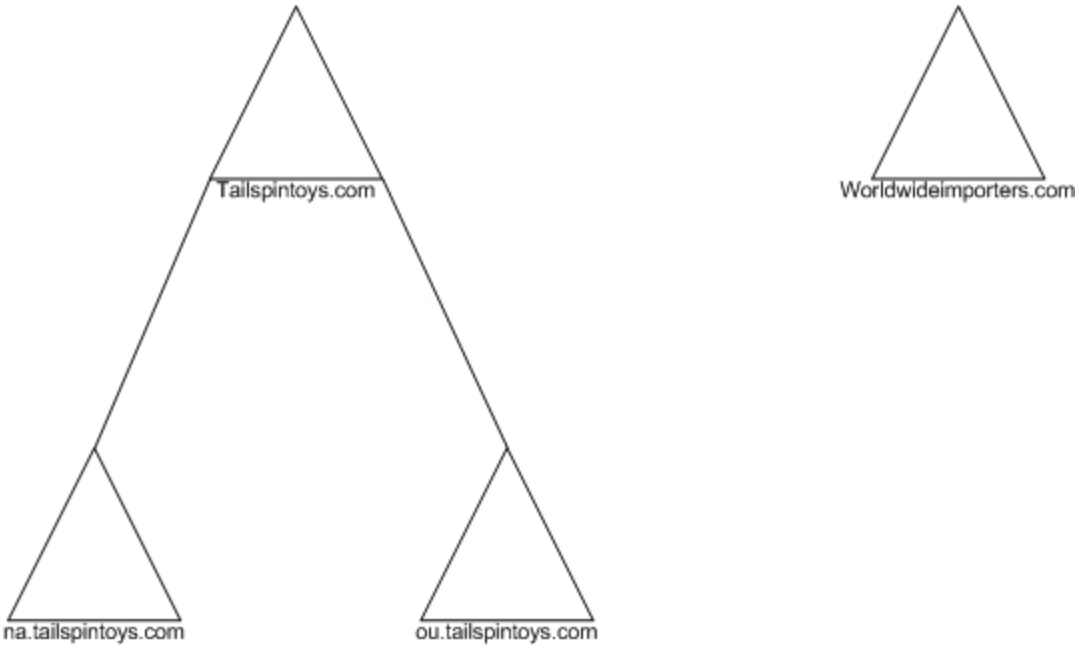
Frankfurt



Questions TailSpins Toys

Q. 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.

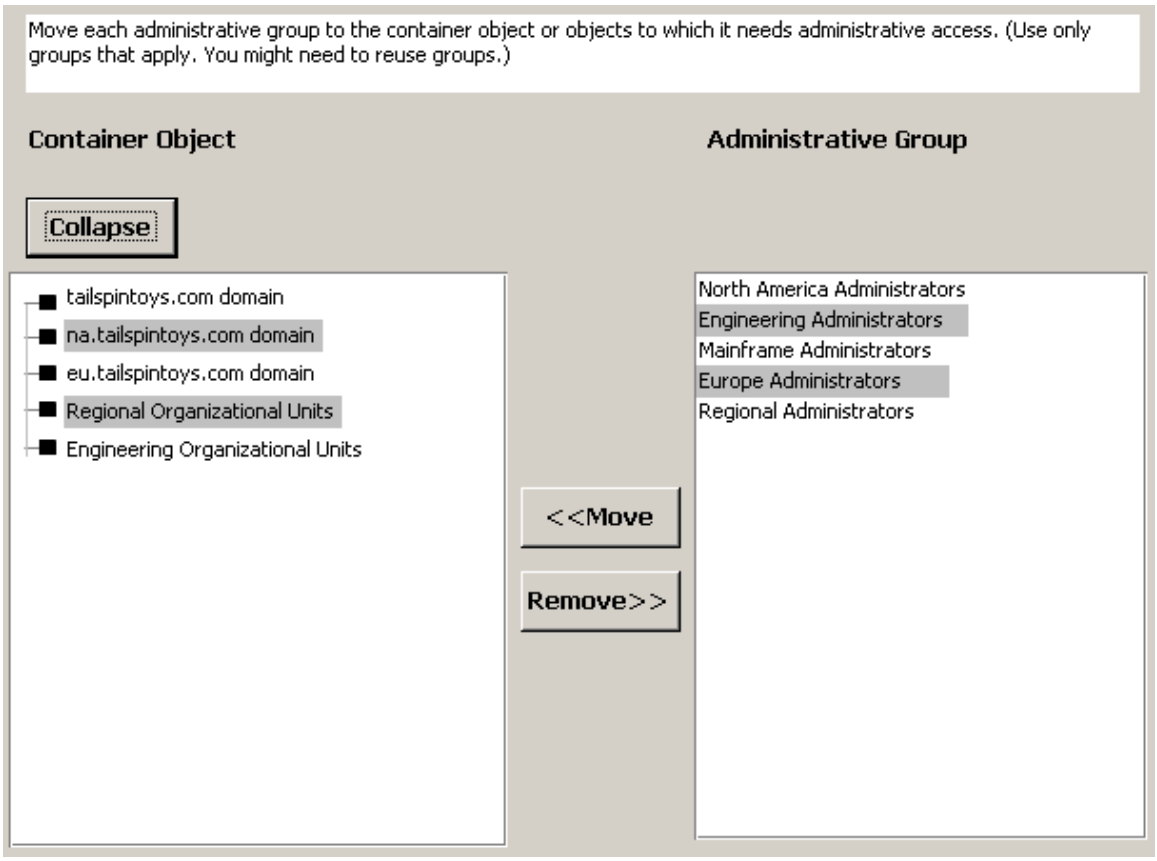
Incorrect Answers:

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.

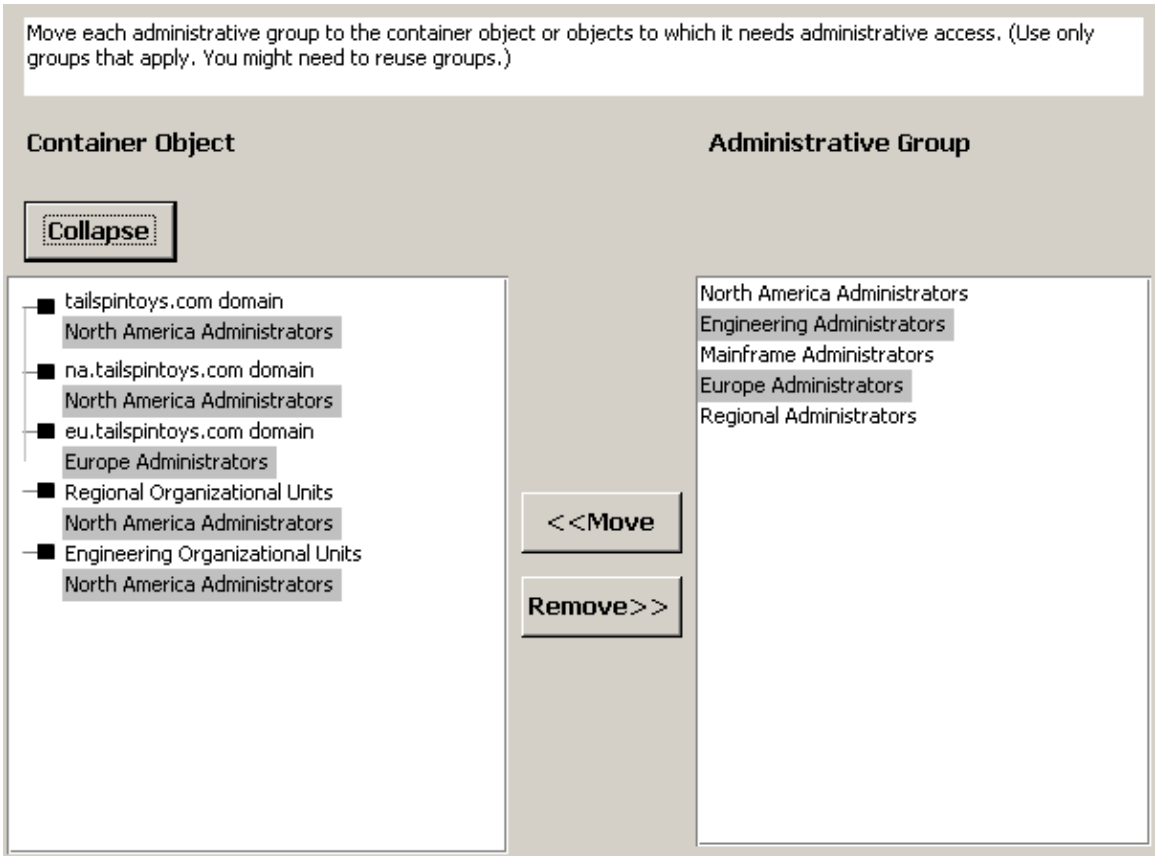
C. This could be considered a toss-up. DNS placement is important, since Active Directory is more DNS intensive. We know that we can't use the current DNS servers, since the DNS servers are on a BDC, meaning we are running Windows NT 4.0 DNS, which does not support SRV records. We also are mandated to 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.

Q. 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
tailspintoys.com domain
na.tailspintoys.com domain
eu.tailspintoys.com domain
Regional Organizational Units
Engineering Organizational Units
<<Move
Remove>>
North America Administrators
Engineering Administrators
Mainframe Administrators
Europe Administrators
Regional Administrators

Answer:



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

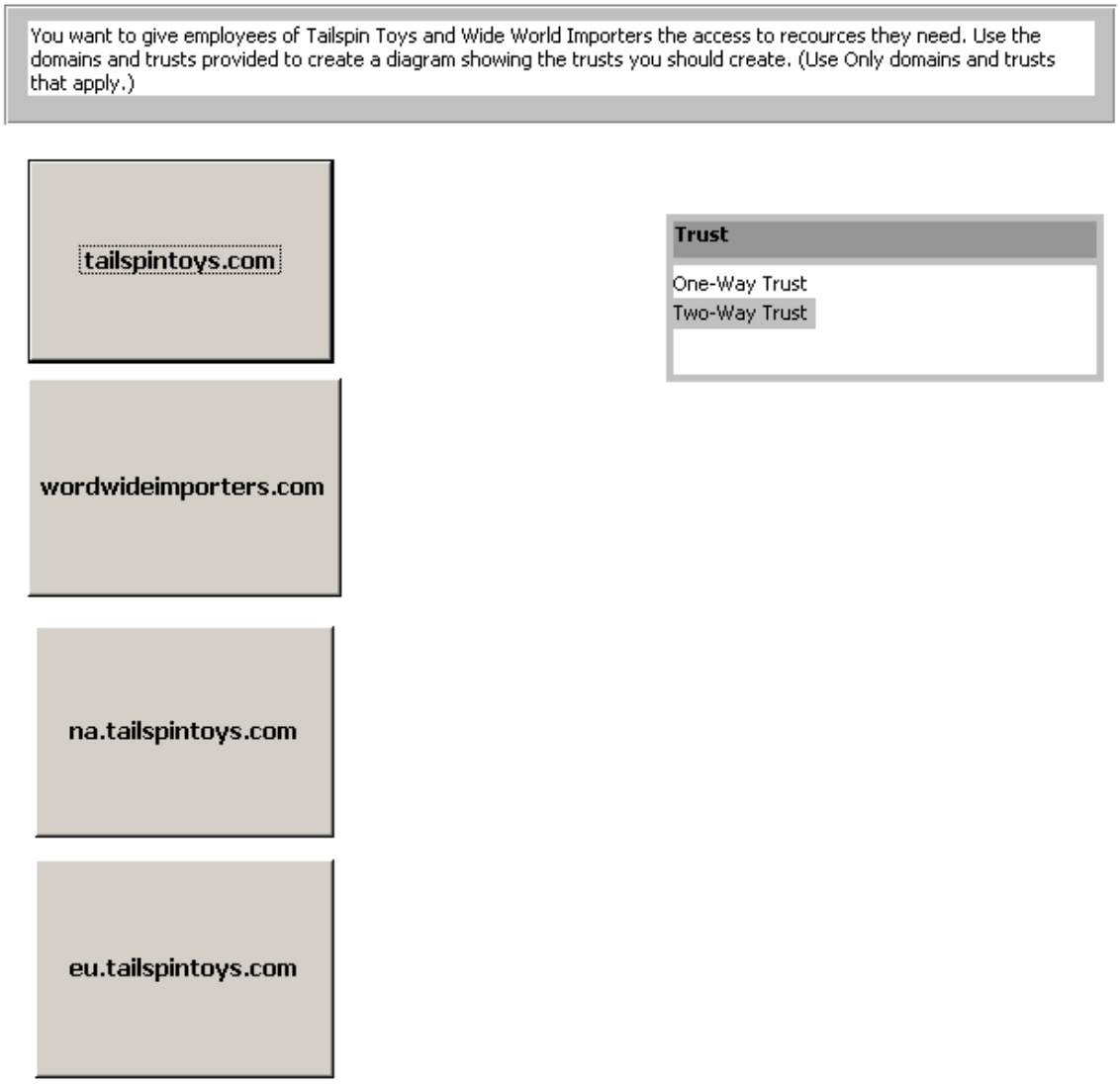
Na.tailspintoys.com domain
North America Administrators. (North American administrators will administer the na.tailspintoys.com domain)

Eu.tailspintoys.com domain
Europe administrators. (Europe administrators will administer the Europe domain)

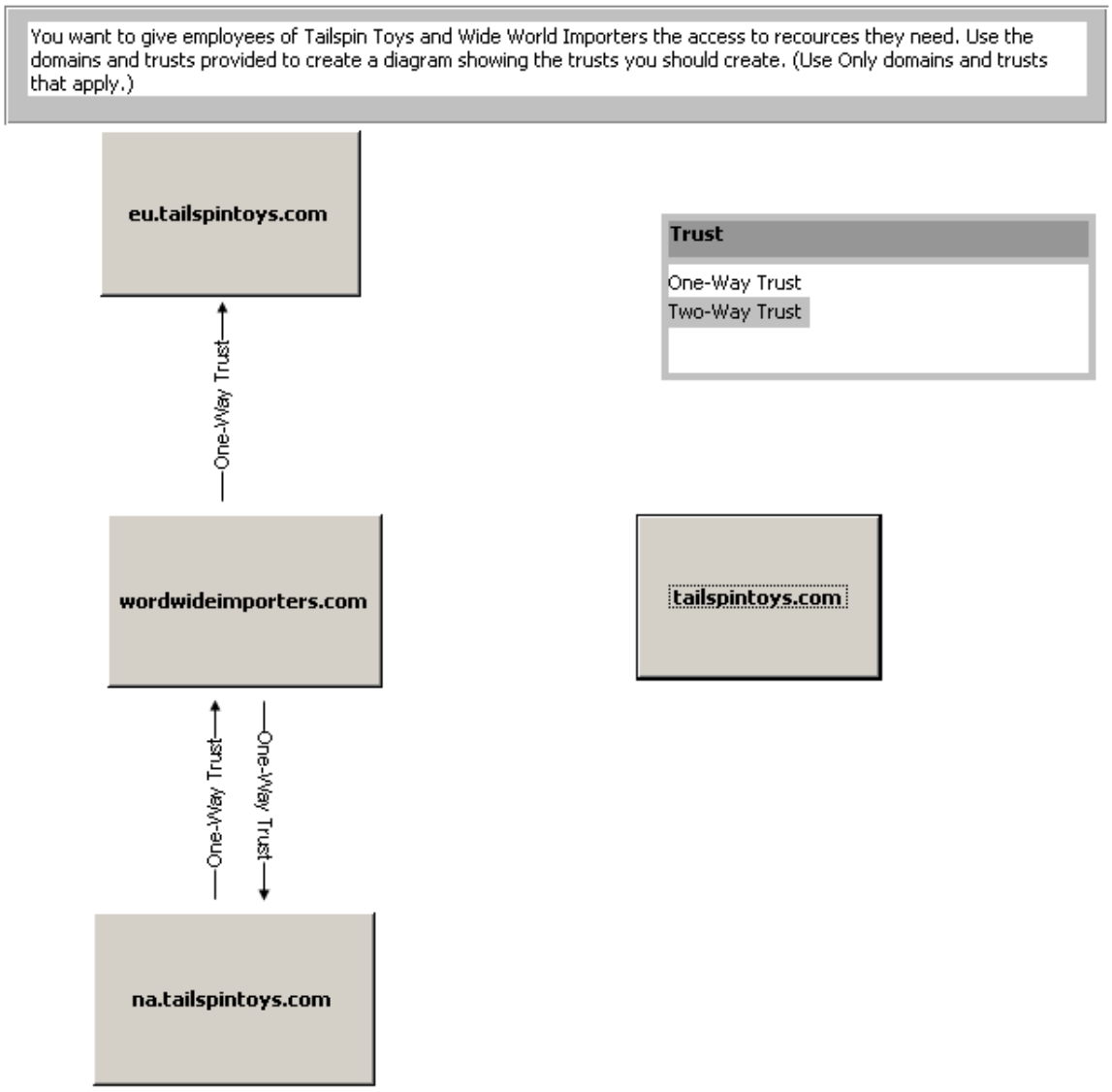
Regional OUs.
North American administrators. (These are domain Admins. Each location is an OU in the domain)

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

Q. 3


You want to give employees of Tailspin Toys and Wide World Importers the access to recources 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.)
tailspintoys.com
wordwideimporters.com
na.tailspintoys.com
eu.tailspintoys.com
Trust
One-Way Trust
Two-Way Trust

Answer:



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.

Q. 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.

Q. 5
Where should you place the PDC emulator role holder for eu.tailspintoys.com?

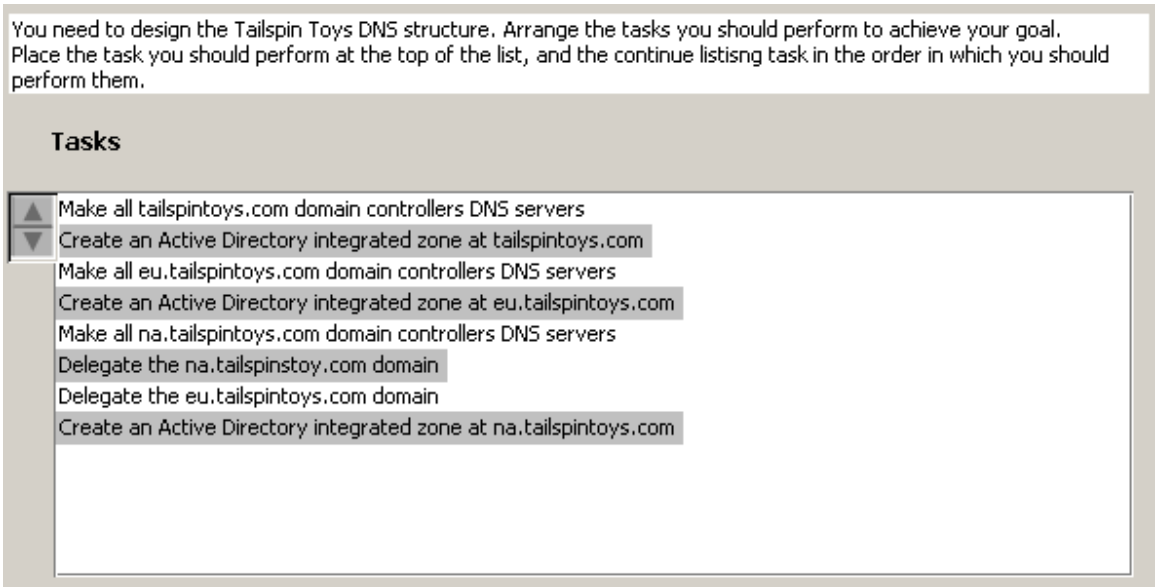
A. Detroit IT center
B. Berlin
C. Cleveland
D. Detroit headquarters

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".

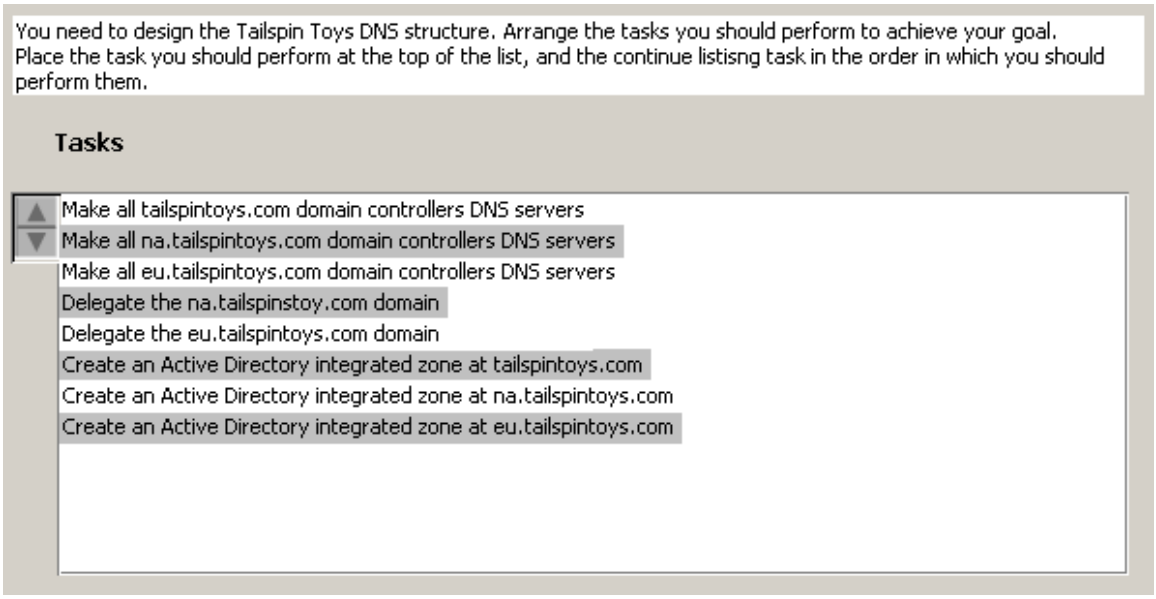
What does this tell us? The CIO does NOT want to spread the domains across the Frankfurt-IT Center data link, regardless of the T1 upgrade. Also, suppose we used the Detroit IT center, Cleveland, or Detroit HQs location – then that still means that we are imposing traffic across that T1 link. Also, we 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 **Answer**s, Berlin is the best choice of location.

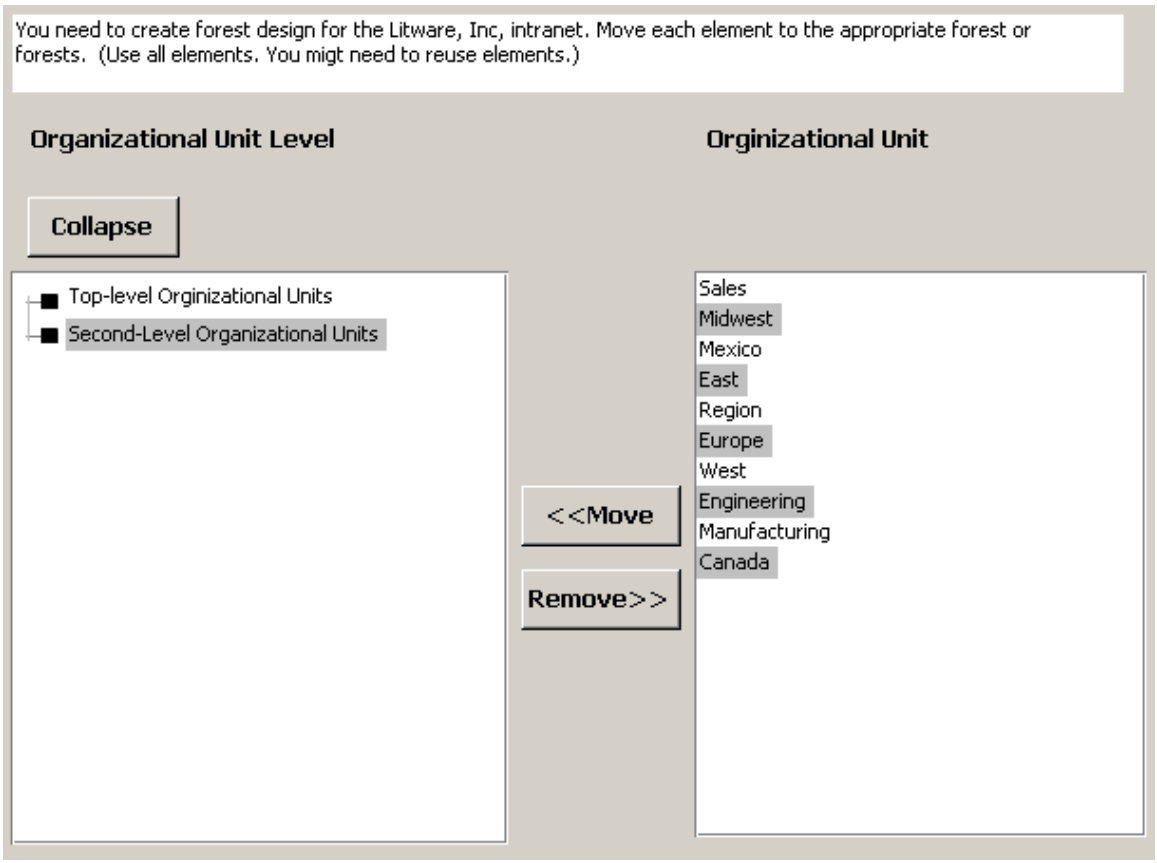
Q. 6



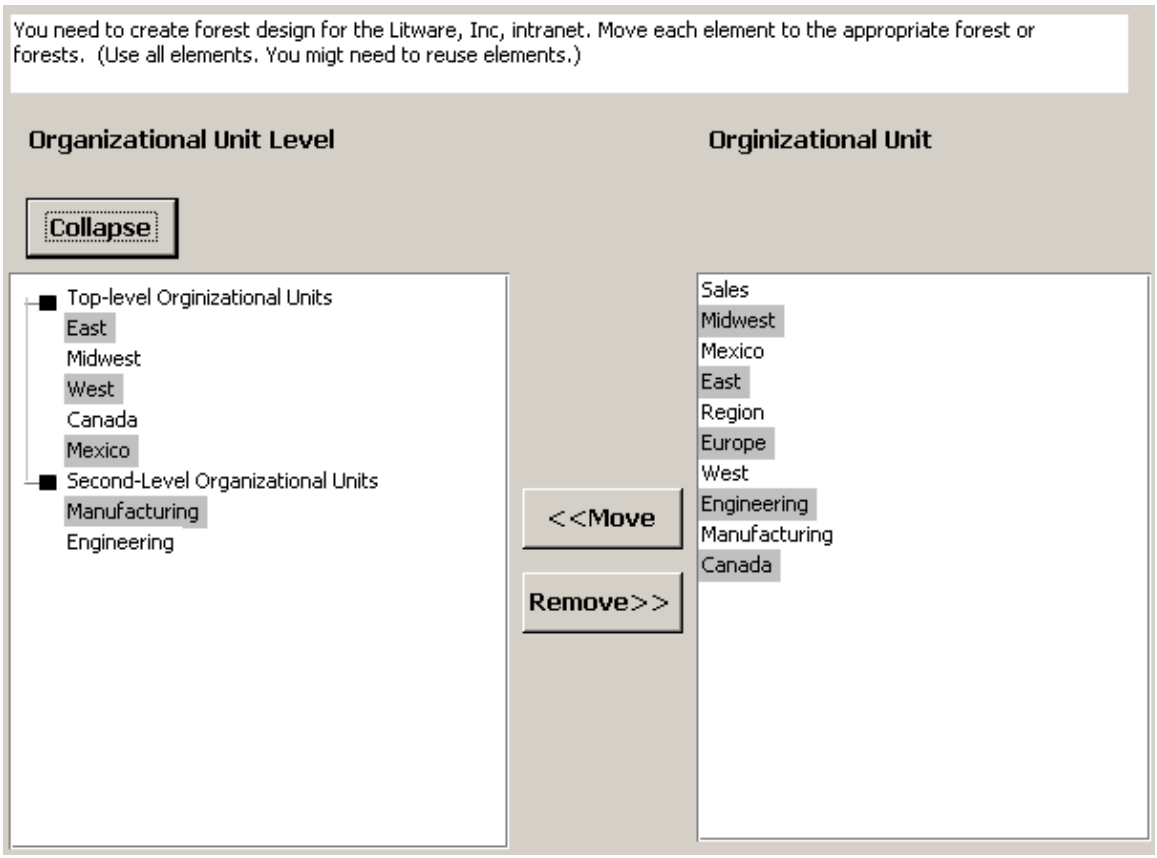
Answer:


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 listisng 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
Delegate the na.tailspinstoy.com domain
Delegate the eu.tailspintoys.com domain
Create an Active Directory integrated zone at tailspintoys.com
Create an Active Directory integrated zone at na.tailspintoys.com
Create an Active Directory integrated zone at eu.tailspintoys.com

Q. 7


You need to create forest design for the Litware, Inc, intranet. Move each element to the appropriate forest or forests. (Use all elements. You migt need to reuse elements.)
Organizational Unit Level
Orginizational Unit
Collapse
Top-level Orginizational Units
Second-Level Organizational Units
<<Move
Remove>>
Sales
Midwest
Mexico
East
Region
Europe
West
Engineering
Manufacturing
Canada

Answer:



Explanation:
Logic: Each of the regions will be a separate organizational unit. Mexico city has Manufacturing and Engineering, so Mexico City will have two subordinate OU's, one Manufacturing and the other Engineering.

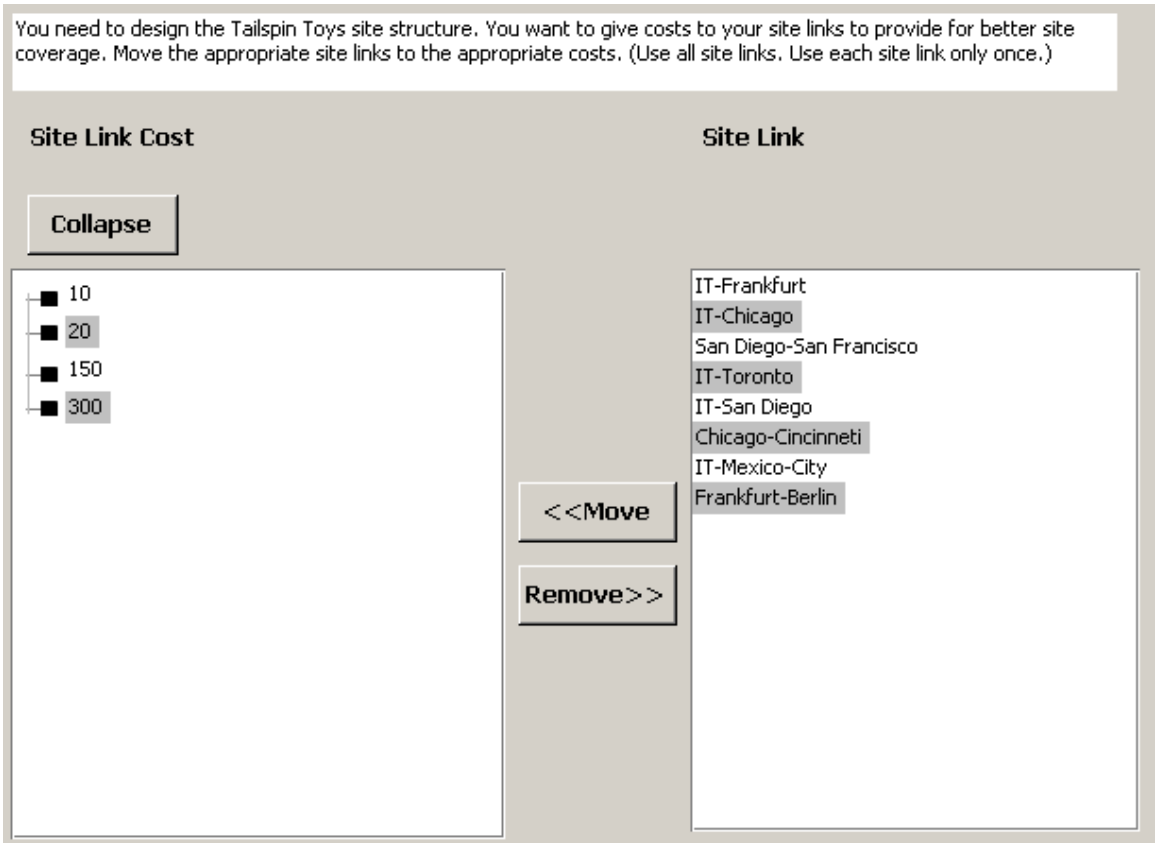
Q. 8
Which type of administrative model will result from the upgrade?

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

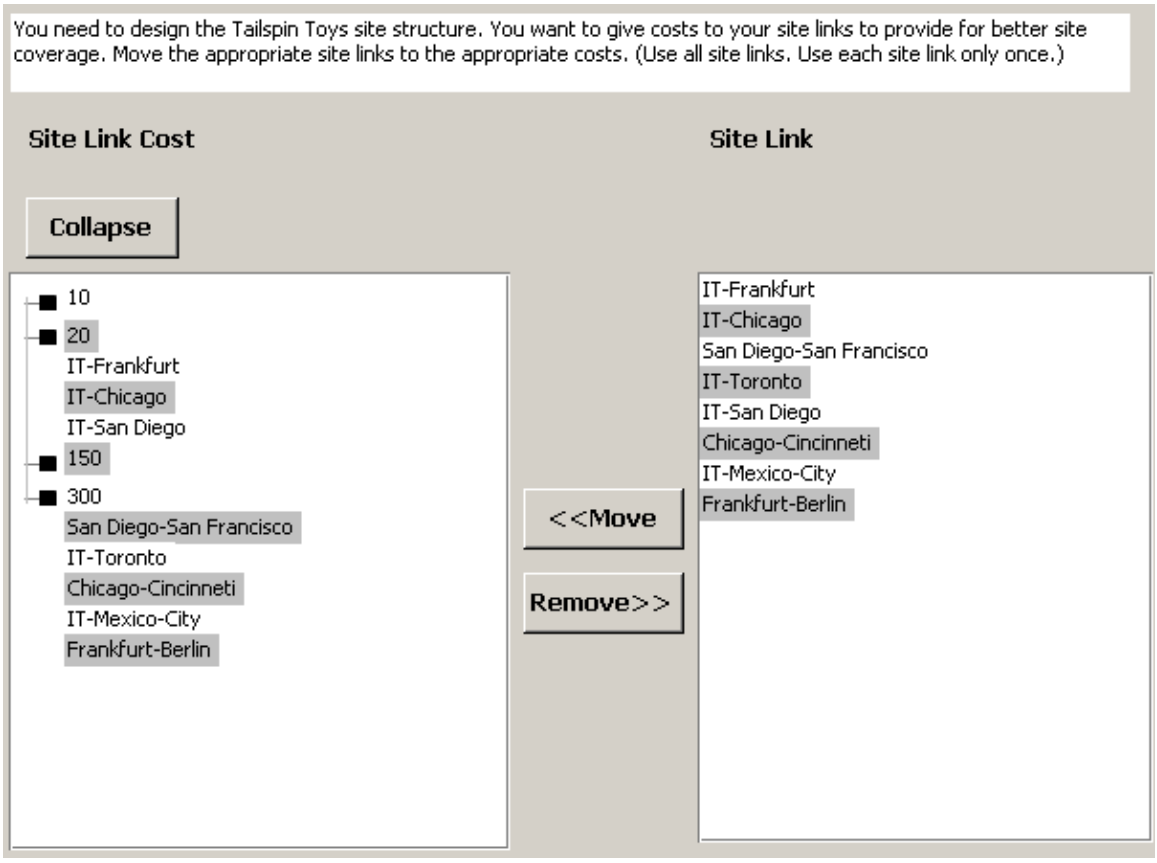
Answer: **C.**
Explanation: Lets look at the technical requirement, which says: "Domain administration for Tailspin Toys will be centralized in two technical support centers. One center will be located in the IT center in

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.

Q. 9



Answer:



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.

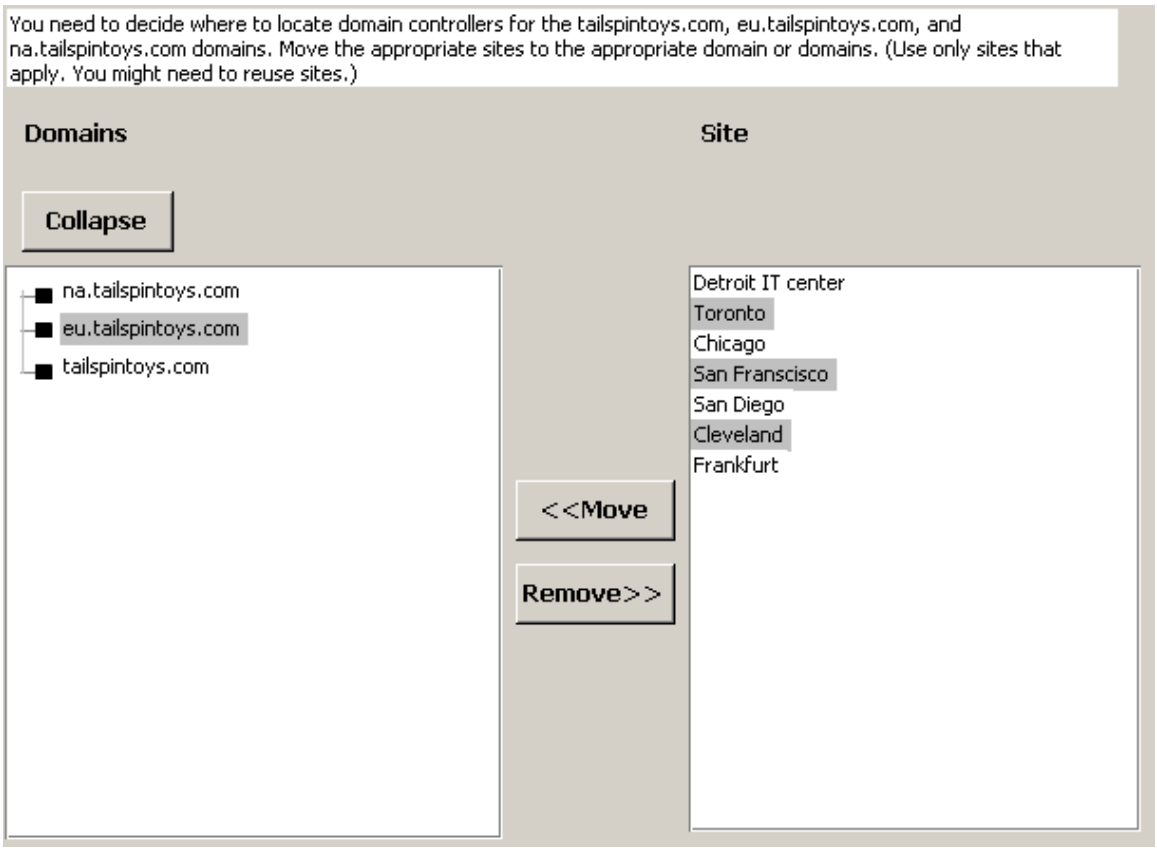
Q. 10
You need to design the UPN naming standard for Tailspin Toys. Which factor is the most important?

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

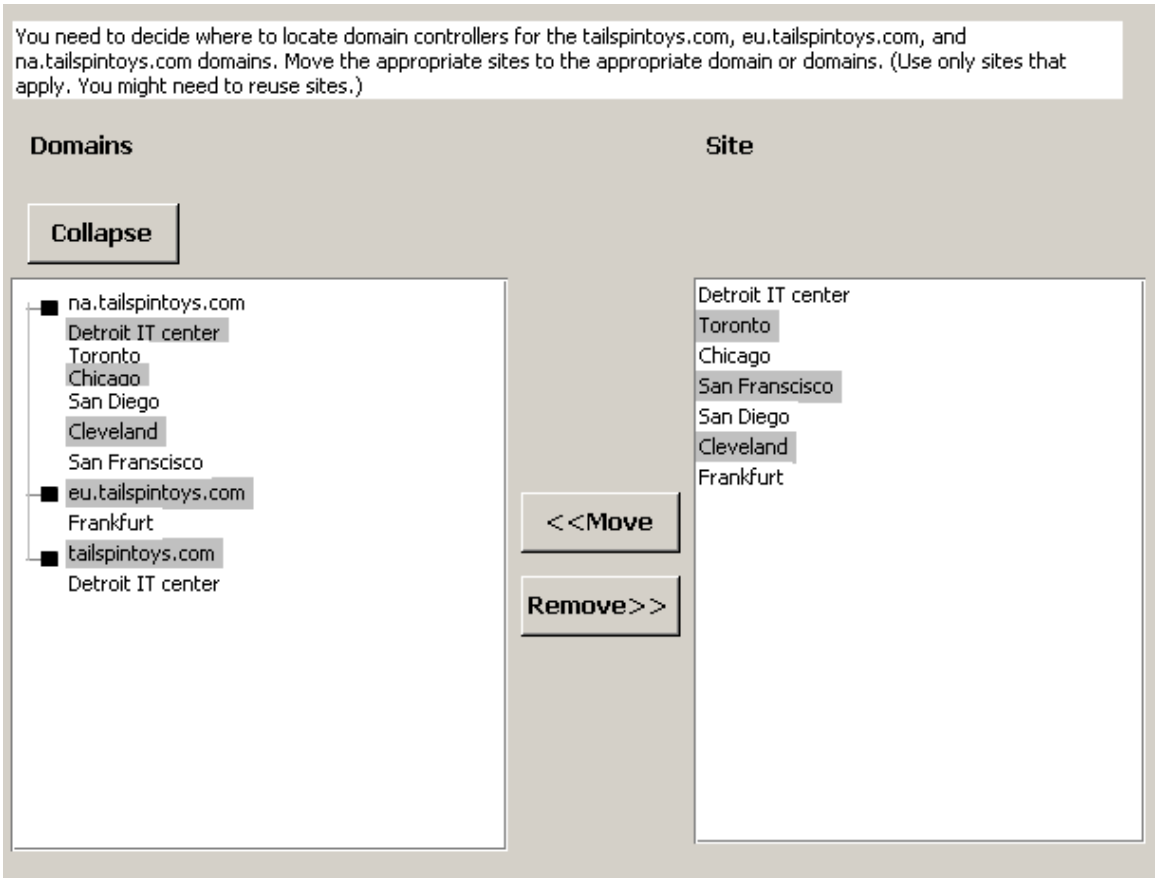
Answer: **D**
Explanation: Since the engineering domain will be folded into the na.tailspintoys.com domain, it is possible that userids may conflict if the same userid was used for two different people, where the two users were in two different original domains.

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.

Q. 11


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
eu.tailspintoys.com
tailspintoys.com
<<Move
Remove>>
Detroit IT center
Toronto
Chicago
San Franscisco
San Diego
Cleveland
Frankfurt

Answer:



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.

Q. 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 No: 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

Questions Northwind Traders

Q. 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.

Q. 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.

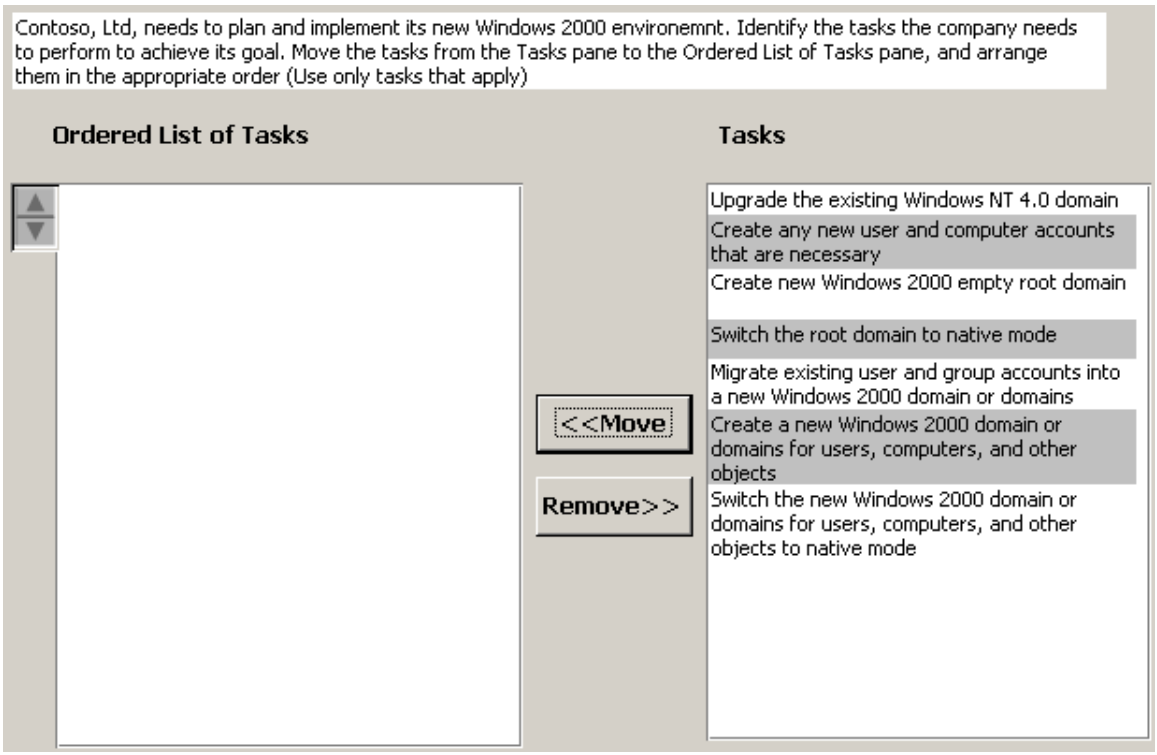
Q. 3
What should the scope of your Active Directory design include?

A. Only Northwind Traders and Contoso, Ltd.
B. Northwind Traders and all subsidiaries
C. Only Contoso, Ltd. and Fabrikam, Inc.
D. Only Contoso, Ltd.

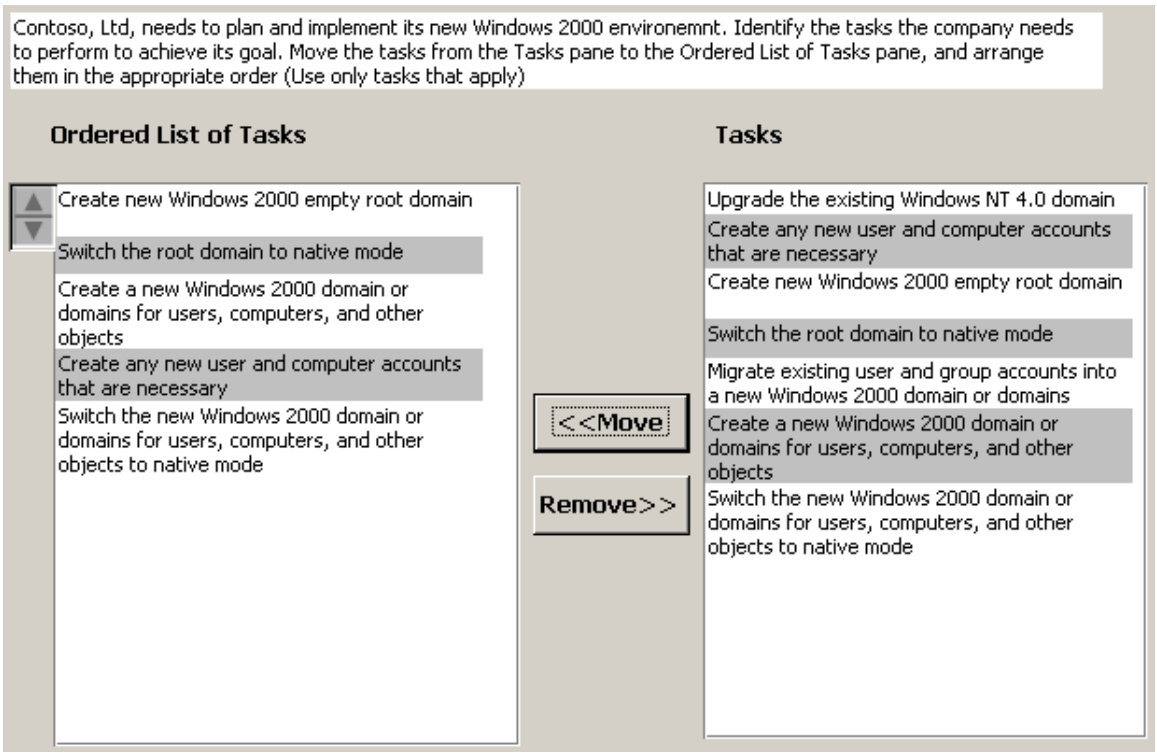
Answer: **D.**
Explanation: From the 'background' paragraph in the scenario: You have been hired as a consultant to help Contoso, Ltd., install a Windows 2000 network

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

Q. 4


Contoso, Ltd, needs to plan and implement its new Windows 2000 environemnt. 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 environemnt. 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.

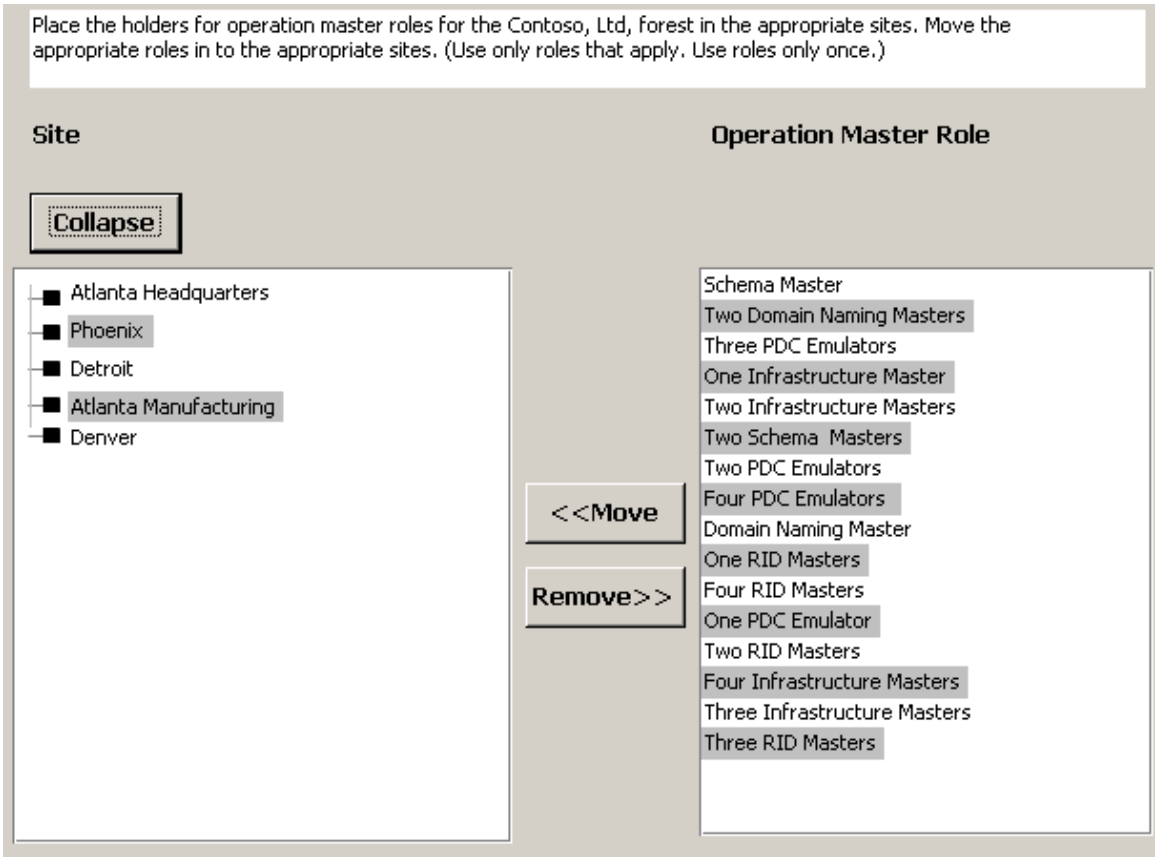
Q. 5
Which administrators should belong to schema Admins group for the Contoso, Ltd., forest? (Choose all that apply)

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

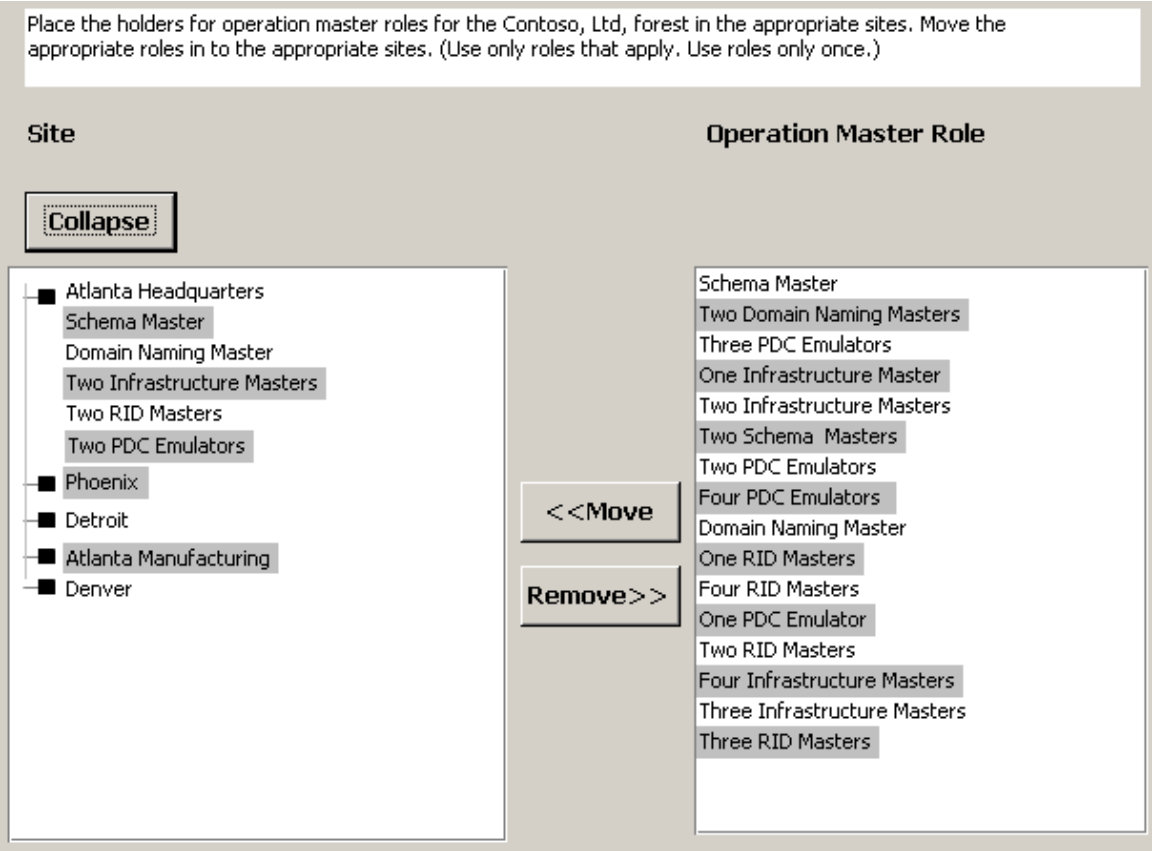
Answer: **C.**
Explanation: Contoso CIO: We want to minimize the number of administrators as much as possible to keep our costs down.
In the technical requirements, it says that administrators are located at company headquarters.

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

Q. 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:



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.

Q. 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.

Q. 8
Which type of certificate hierarchy should Northwind Traders and its subsidiaries use to provide the highest possible level of security?

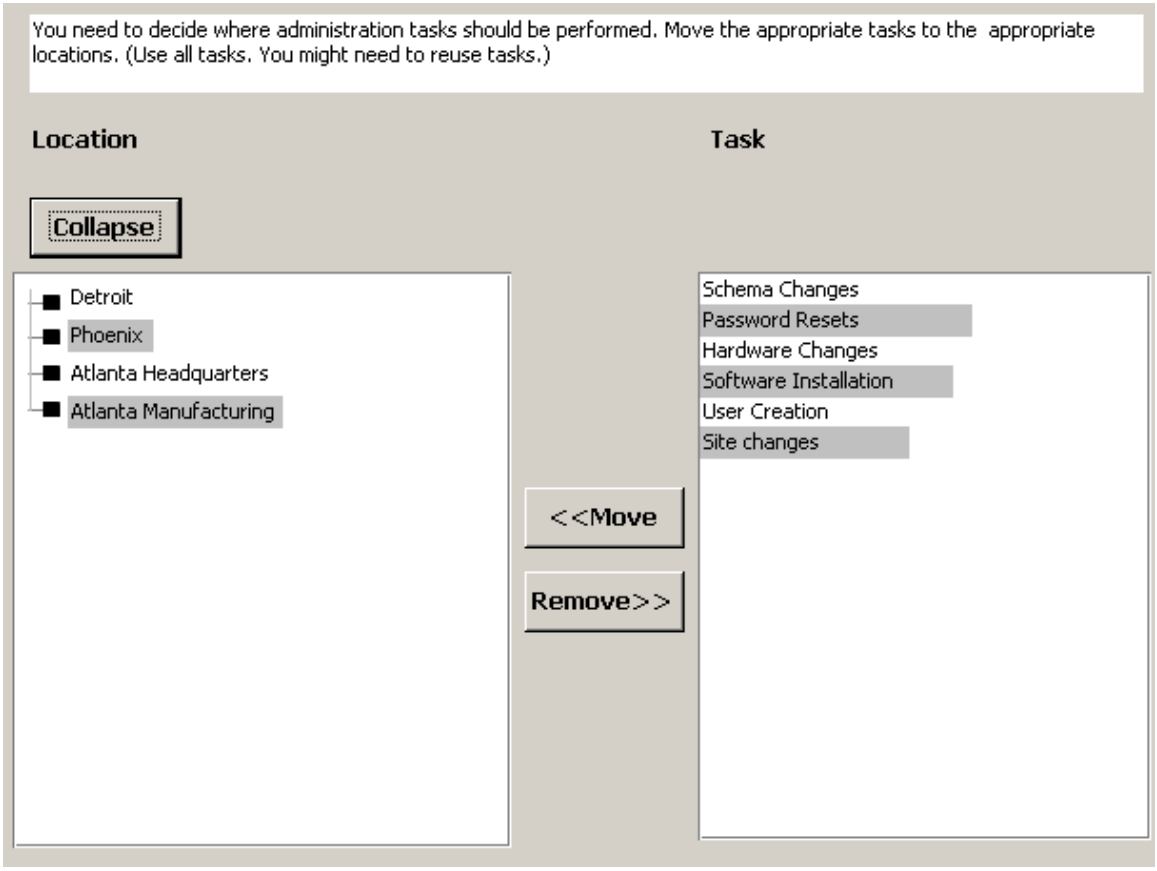
A. Create an enterprise certification authority for Northwind Traders. Create a subordinate enterprise certification authority for Northwind Traders and each subsidiary
B. Create a stand-alone root certification authority for Northwind Traders. Create a subordinate stand-alone certification authority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

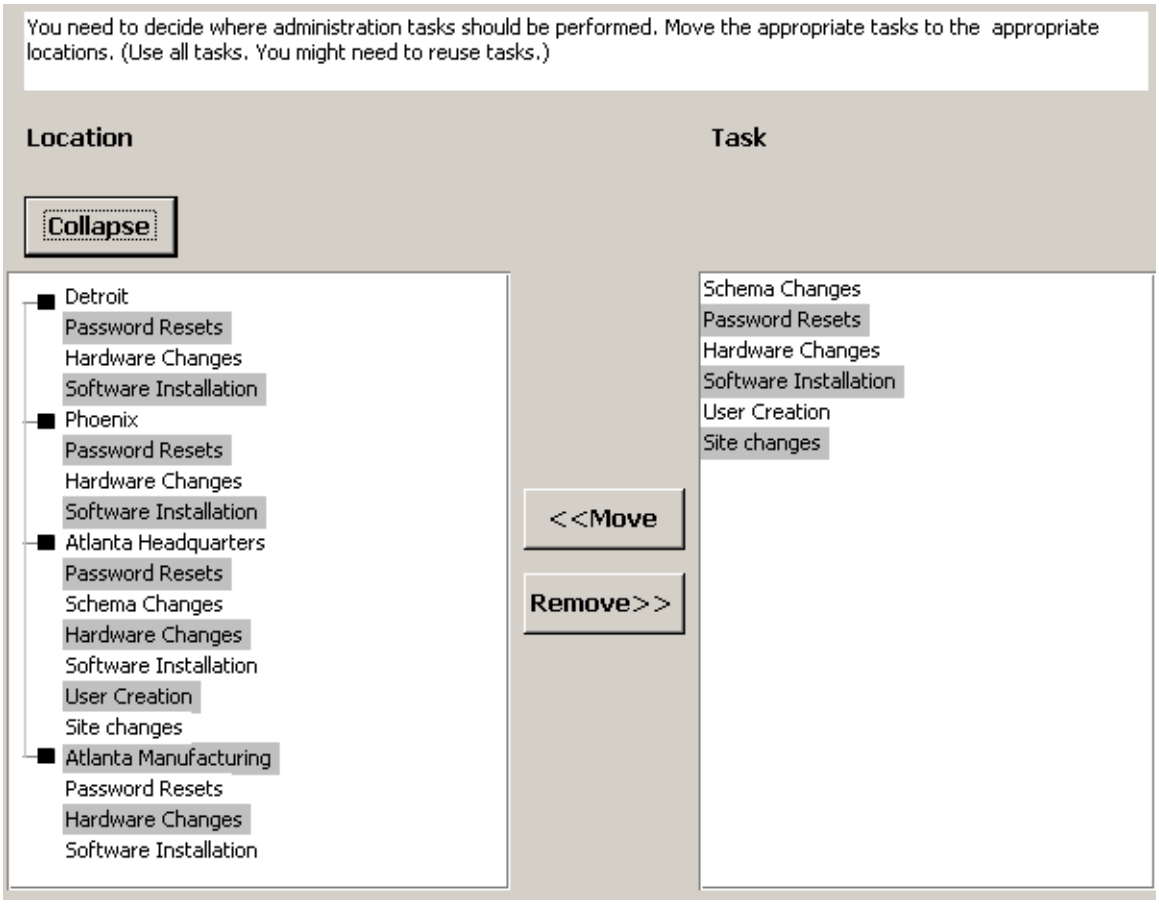
Explanation: Northwind Traders will have the root CA. We are using active directory domains so we can use Enterprise CAs.
We need a subordinate Enterprise CA at each subsidiary using certificates from the enterprise root CA at Northwind Traders.

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.

Q. 9



Answer:.



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)

Case Study No: 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 to 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 e-commerce 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 divesture 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 you 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.

Questions Litware, Inc

Q. 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.

Q. 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.

Q. 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: **A.**
Explanation: The CIO says, "Each resource domain owner needs to be granted rights to continue to manage the computer resources and permissions." Assigning permissions requires being able to manage the global groups.

Incorrect Answers:.
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.
D. The IT managers need to manage groups so they can assign permissions to resources.

Q. 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 e-commerce 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.

Q. 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.

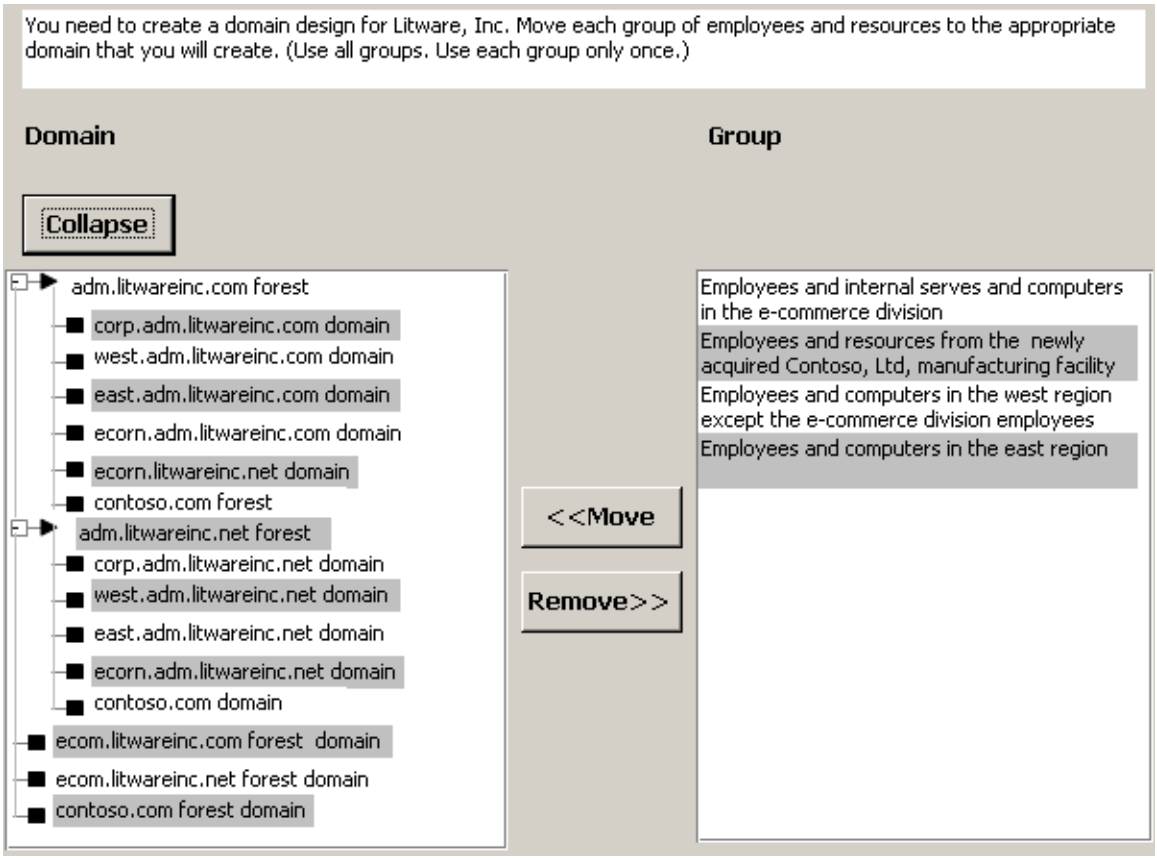
Q. 6
Which business or technical factor has the most influence on the number of internal domains that you include in your design?

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

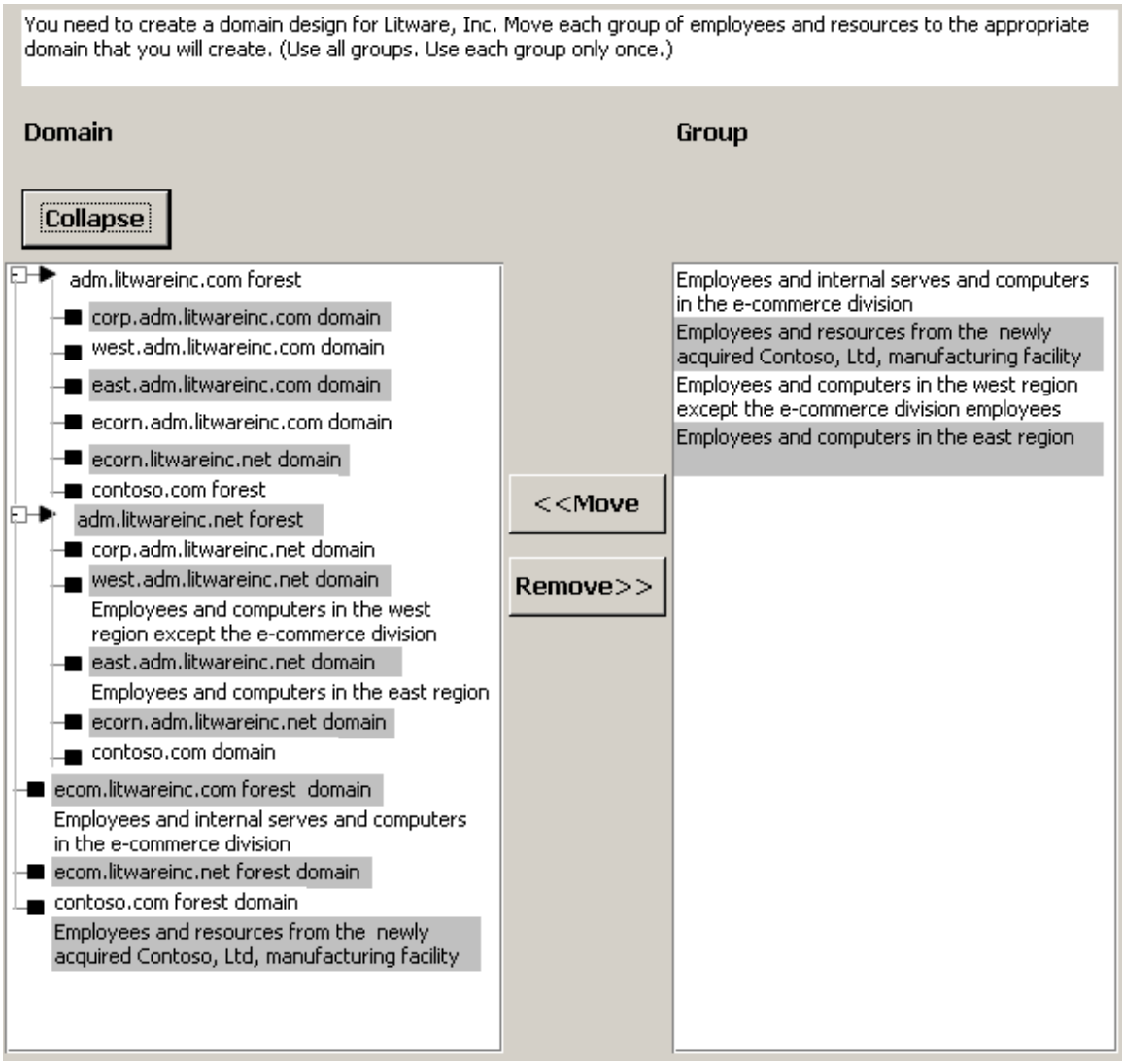
Answer: **A.**
Explanation: The east and west divisions require different password policies. These policies must be applied at the domain level so separate domains are needed.

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.

Q. 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
ecorn.adm.litwareinc.com domain
ecorn.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
ecorn.adm.litwareinc.net domain
contoso.com domain
ecom.litwareinc.com forest domain
ecom.litwareinc.net forest domain
contoso.com forest domain
<<Move
Remove>>
Employees and internal serves 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

Answer:.



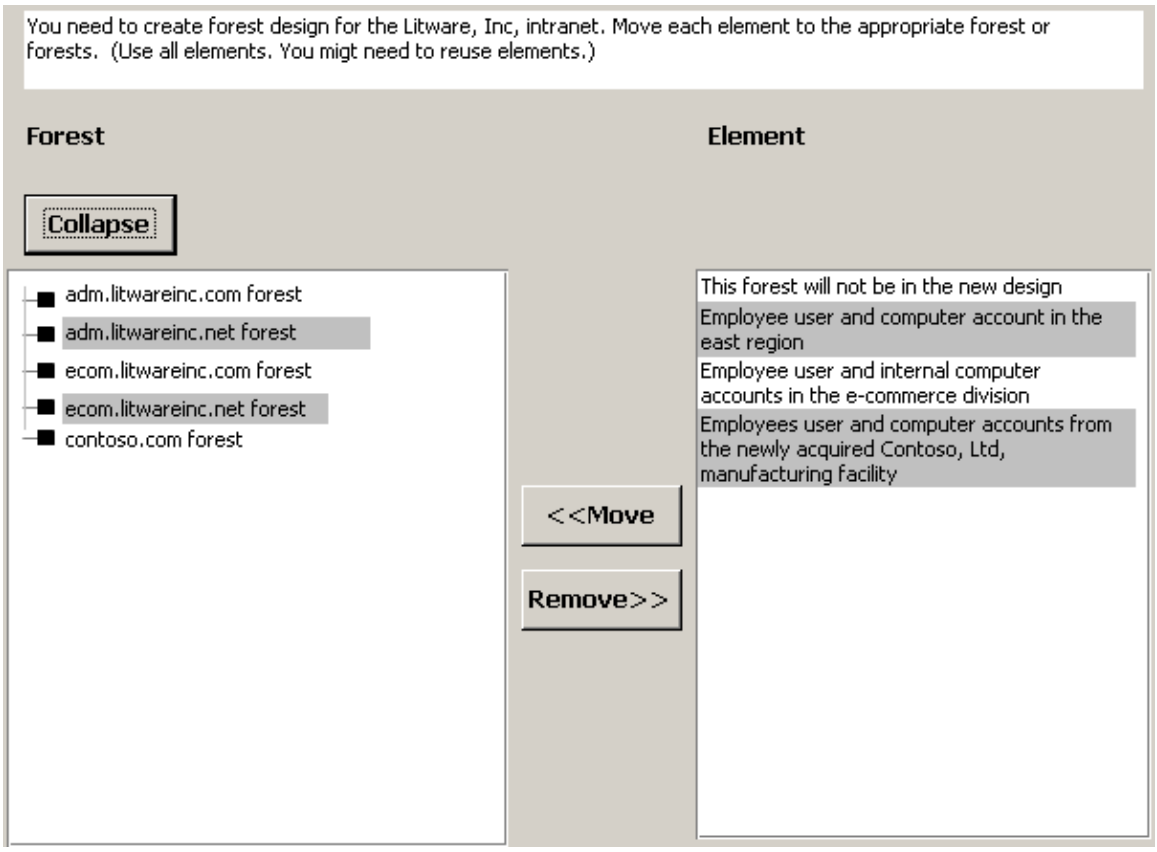
Comments:
Employees and internal servers and computers in the e-commerce division: ecom.litwareinc.com. The ecom.litwareinc.com is the external domain for the ecommerce department.

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.

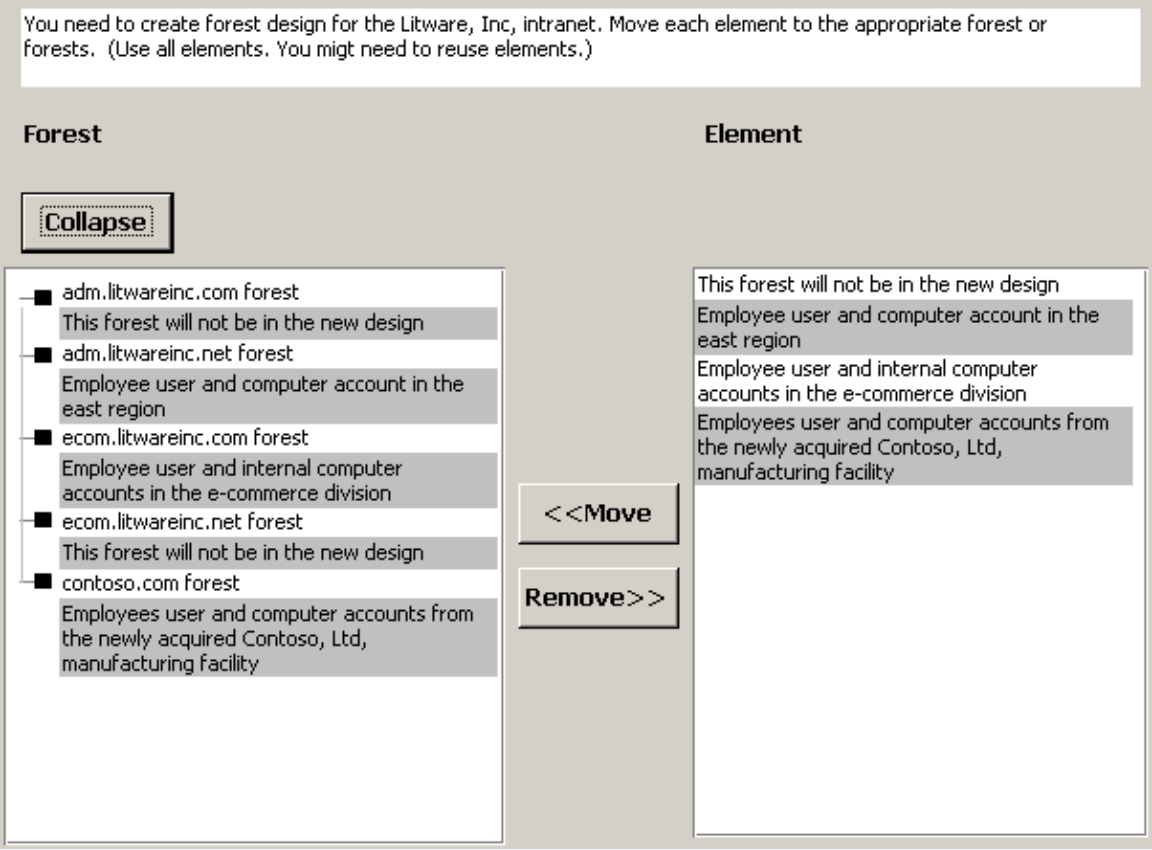
Employees and computers in the east region: east.adm.litwareinc.net. We have a domain each for the west and east divisions. This is because the west and east divisions require different security policies.

Q. 8



Explanation: You need to create a 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).

Answer:



Explanation:
Since the e-commerce venture already created a forest using a tree of the litwareinc.com domain name, creating a new forest based on litwareinc.com will be a problem. And since we will sell off the e-commerce application, we need to keep our new forest separate. For this reason, we make that separation by using litwareinc.net for our new forest.

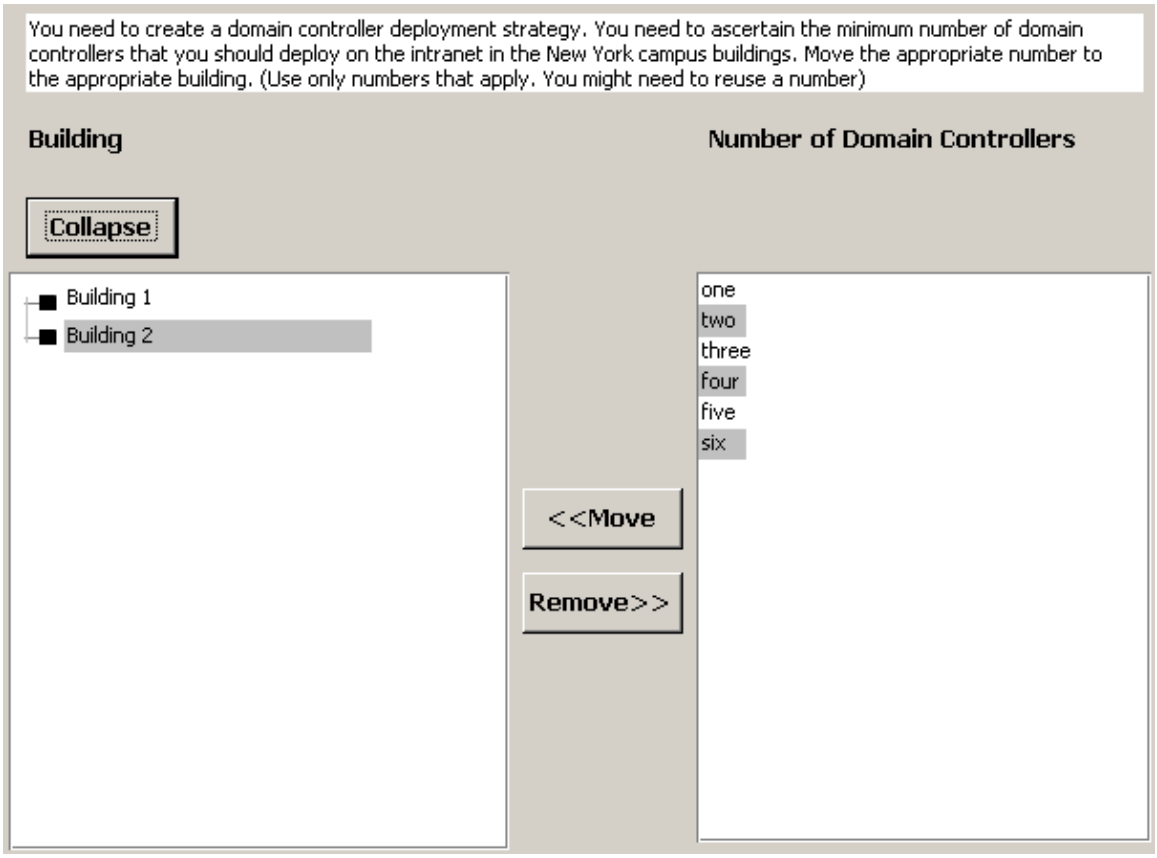
Q. 9
You need to recommend a solution to meet the corporate security office's technical requirements for domain controller traffic. What should you do?

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

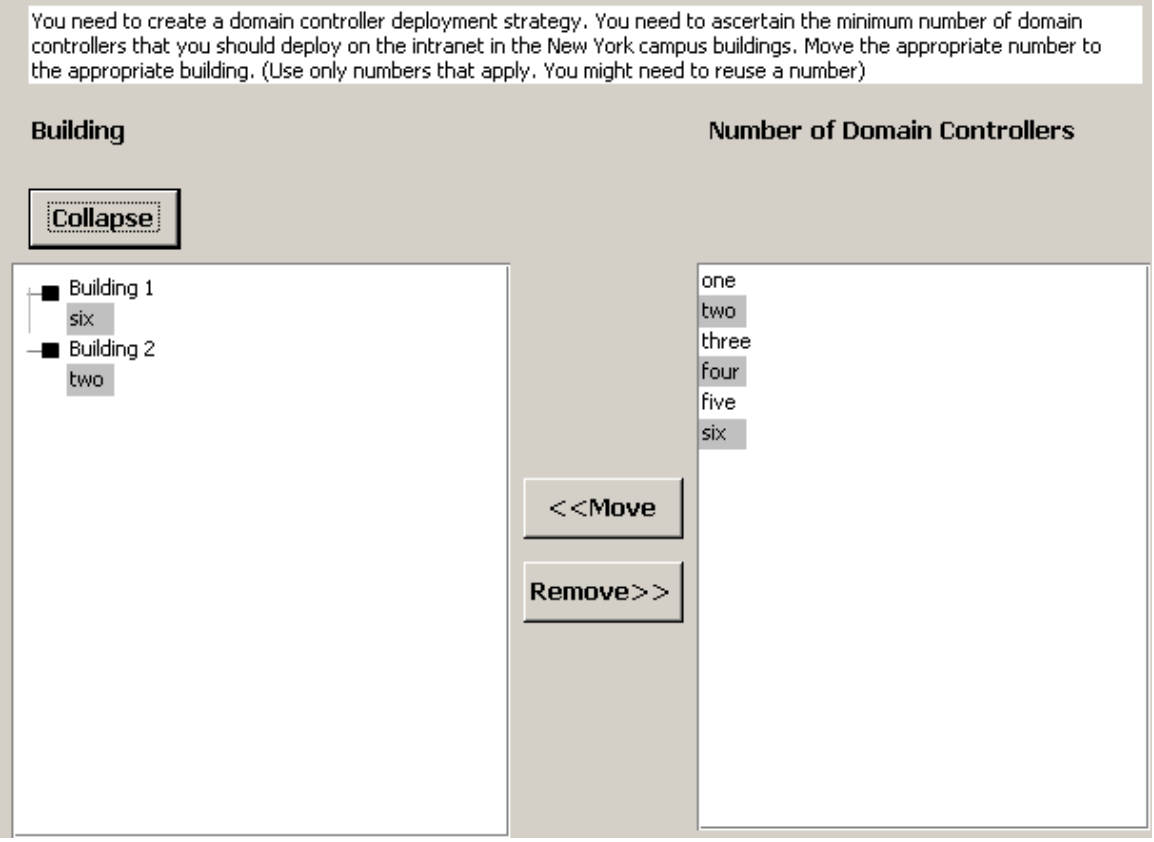
Answer: **A.**
Explanation: We should use IPSec to encrypt the network communication between DCs.

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 of 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.

Q. 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:



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 Mirowave 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

Case Study No: 5

HIABUV TOYS

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

The company is acquiring ne 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 locates 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 an 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 uses 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.

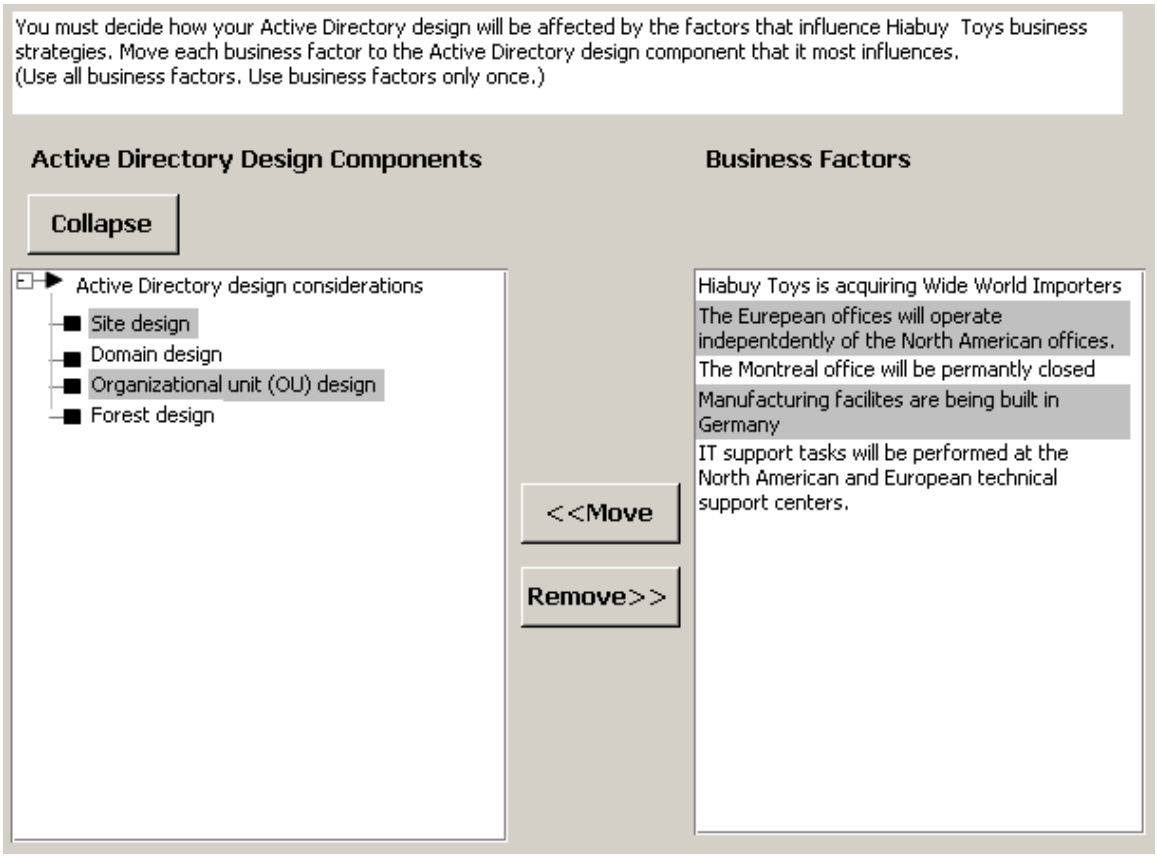
Internet:
Hiabuv Toys has registered hiabuvtoys.com. Wide World Importers has registered wideworldimporters.com.

Client Computers:
Client computers will be upgraded to Windows 2000 Professional.

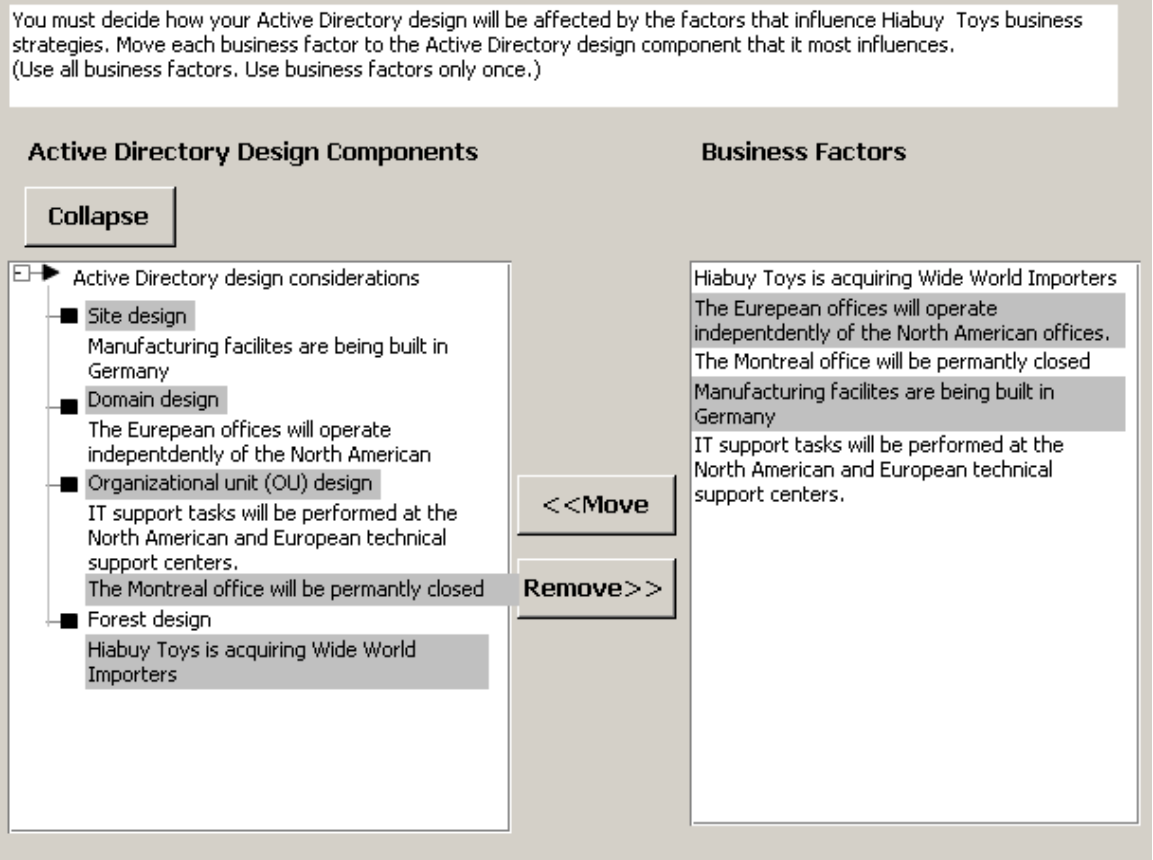
Policies:
Each region should be created in Active Directory as a separate entity. Group Policy can vary among regions and locations. Technical support staff in each region need to have the ability to change policies at each location.

Questions Hiabuv Toys

Q. 1



Answer:



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.
Hiabuv 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.

Q. 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. 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.

A is wrong because you don't need a domain for each site.
B is wrong because we need a domain for Europe, not an OU.
C is wrong because Canada, Mexico and Germany aren't domains.

Q. 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 implement separate security policies for Europe and North America.
B. The WAN line to Europe will be upgraded.
C. Local administrators will perform basic account administration.
D. The company wants to have an Internet presence.

Answer: **D.**
Explanation: The domain naming strategy is influenced by the internet presence of the company.

A is wrong because this affects the domain design, not the domain NAMING design.
B is wrong because this affects the site design.
C is wrong because this affects the OU design.

Q. 4
What should you do to prepare for the transfer of employees from the Montreal office to the Toronto office?

A. Create a separate domain for Montreal and Toronto. Move the user accounts to the Toronto domain when the Montreal domain is removed.

B. Create a 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 for Montreal and Toronto. Move the user accounts to the Toronto OU when the Montreal domain is removed.
D. Create separate Organizational Unit for Montreal and Detroit. Move the user accounts to the Detroit OU when the Montreal OU is removed.

Answer: **D.**
Explanation: Windows 2000 allows for the easy moving of resources between OUs using the Move command.

Answer: A is wrong because Montreal and Toronto are not domains.
Answer: B is wrong because we don't need separate forests or domains.
Answer: C is wrong because Montreal and Toronto are not domains.

Q. 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.

A is wrong because this describes one domain.
C is wrong because this describes three domains.
D is wrong because this describes four domains.

Q. 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. boston.hiabuvtoys.com
B. oklahoma.hiabuvtoys.com
C. chicago.hiabuvtoys.com
D. europe.hiabuvtoys.com
E. northamerica.hiabuvtoys.com

Answer: **D, E.**
Explanation: We are creating two domains for Hiabuv Toys. One in Europe and one in North America.

A, B and C are wrong because they use the names of locations in America.

Q. 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. 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 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.

A and B are wrong because they suggest having a domain for the engineering department.
D is wrong because it suggests having a forest for the engineering department.

Q. 8
After the Montreal office is permanently closed, how many files should you use for the hiabuvtoys.com domain tree?

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

Answer: **C**
Explanation: There will be 9 sites remaining in USA, 1 in Canada, 1 in Europe, 1 in Mexico, 1 in Frankfurt and 1 in Detroit. This gives us a total of 14 sites.

A, B and D are wrong because they suggest the wrong number of sites.

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

Answer: **C.**
Explanation: We need a separate domain for Europe because Europe has a different security policy to North America.

A, B and D are wrong because these would influence the site design.

Q. 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. The existing DNS naming structure.
B. Number of departments.

C. Number of locations.
D. Available WAN bandwidth
E. Cost of WAN bandwidth.

Answer: **C, D.**
Explanation:
C is correct because there is a site for each location.
D is correct because with sites, you can schedule replication according to the available bandwidth.

A is wrong because the DNS naming structure affects domains and not sites.
B is wrong because the departments affect the OU design.
E is wrong because you create sites according to the available bandwidth.

Q. 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. When the acquisition of Wide World Importers is complete. Register one new domain name.
D. In HiabuvToys.com create a subdomain for Wide World Importers.

Answer: **A.**
Explanation: WideWorldImporters.com will become a domain in the existing forest.

B is wrong because we only need one forest.
C is wrong because the Wide World Importers already own a domain name.
D is wrong because Wide World Importers will have a separate tree in the forest.

Case Study No: 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 erved 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.

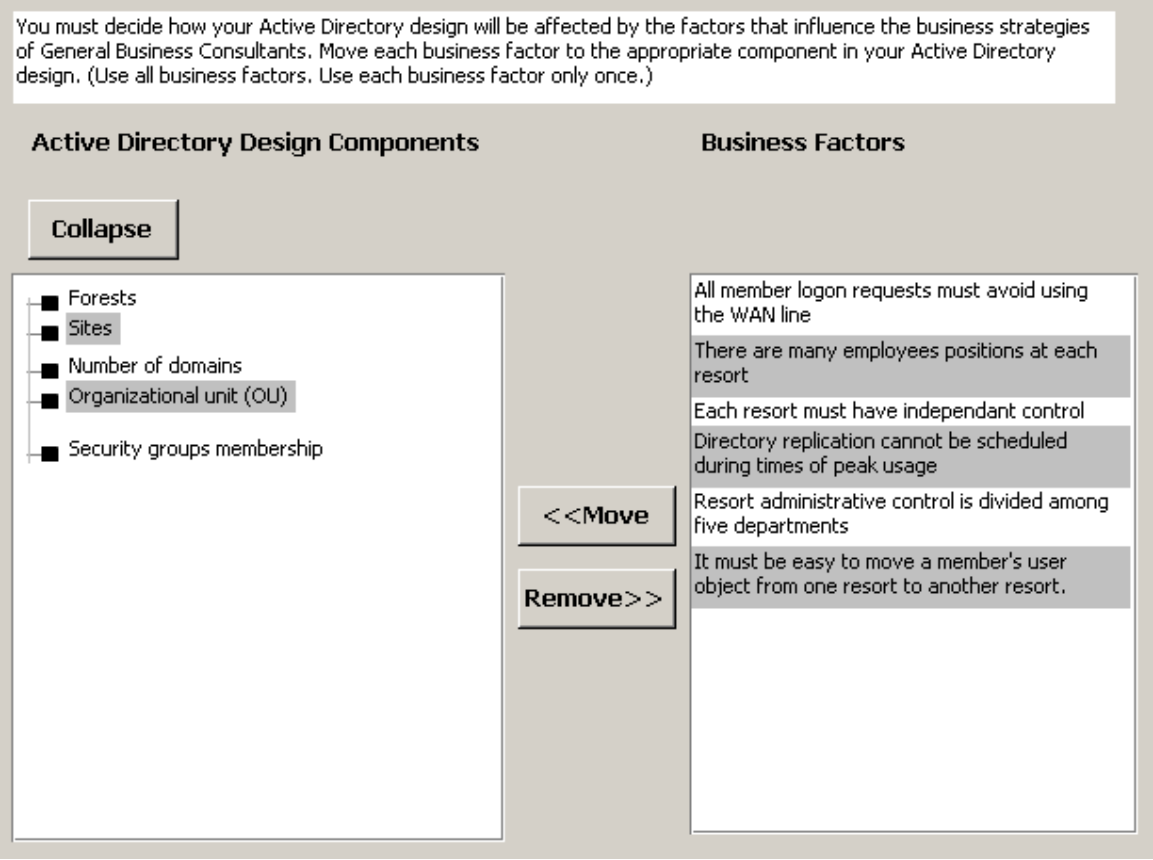
The resort is organized into five departments: hotel, restaurant, operations, maintenance, and business administration.

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 e-mail addresses need to be to unique for each resort.

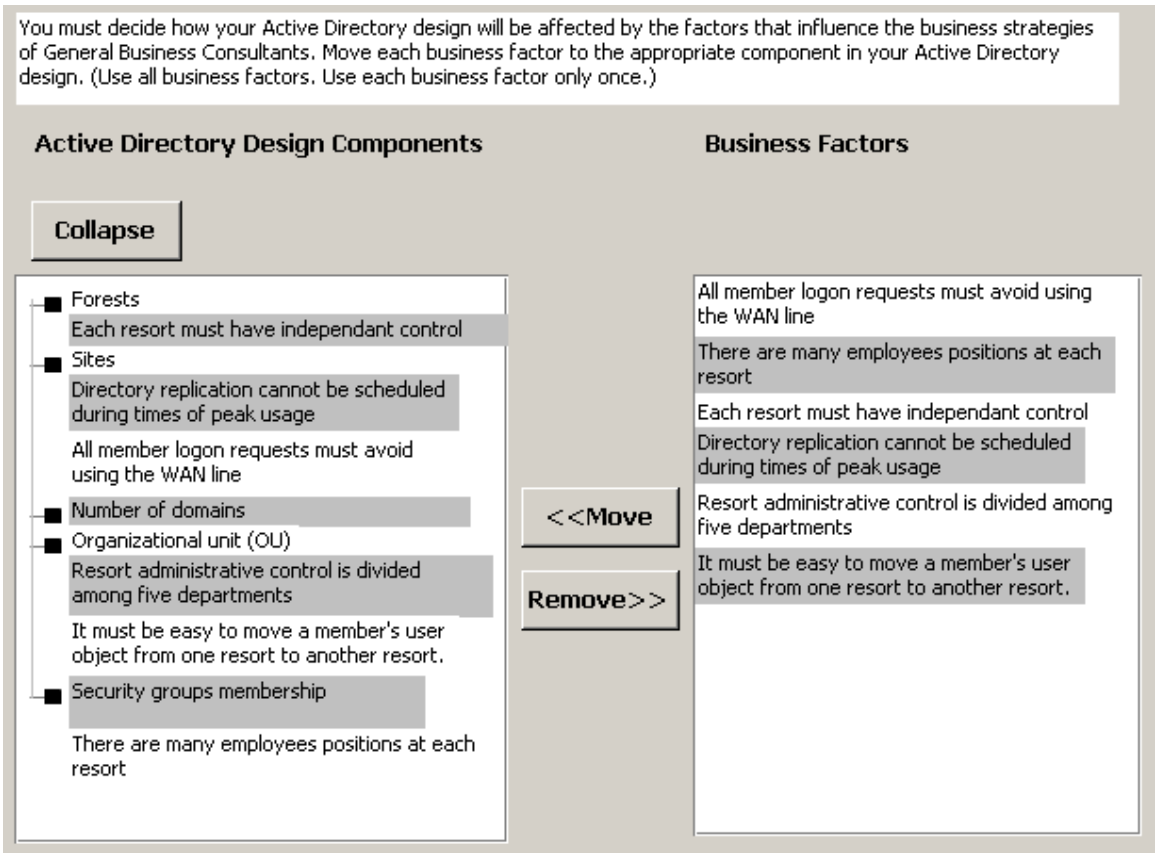
Currently, each resort has its own Web site. Each resort Web site is registered under its own domain. The DNS services for our top-level DNS domain will continue to be managed by our external Web presence provider. We do not want our internal-operations Active Directory to rely on our external DNS server. 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

Questions General Business Consultants

Q. 1



Answer:



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.

"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.

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

"It must be easy to move a member's user object from one resort to another resort" affects the OU design because users can easily be moved between OUs using the MOVE command.

Q. 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. Configuring the desktop settings for the resort employees.
C. Configuring user logon requests to avoid using WAN line.
D. Updating the software on kiosks.

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.

A is wrong because this would be done by a DHCP server.
C is wrong because this is a site and global catalog issue.

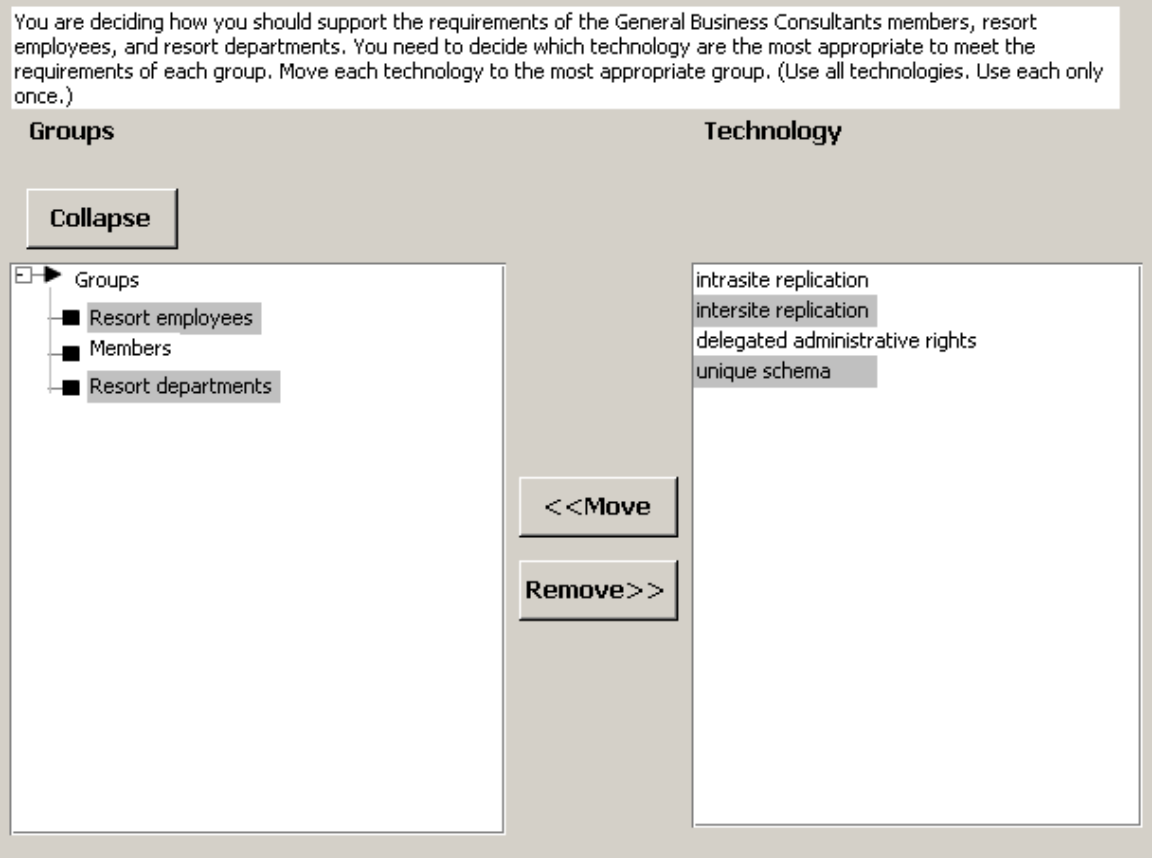
Q. 3
You need to choose the top-level Organizational Unit (OU) that will support resort's internal business requirements. Which top-level OU should you use?

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

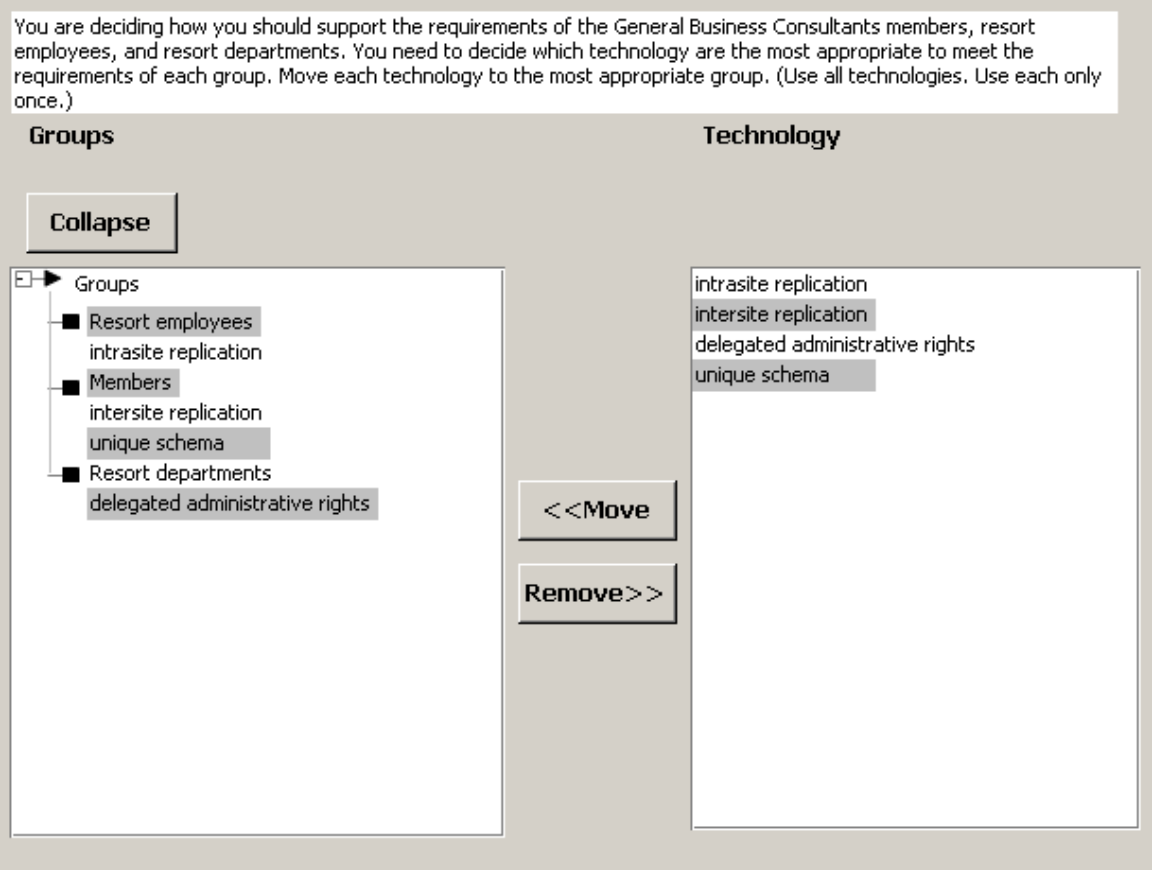
Answer: **C.**
Explanation: Each department is represented by an OU.

A is wrong because this would affect the group design.
B is wrong because each resort is a forest, not an OU.
D is wrong because these are all parts of Active Directory. They do not have their own OU.

Q. 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
<<Move
Remove>>
intrasite replication
intersite replication
delegated administrative rights
unique schema

Answers:



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 it's own site.

The resort departments are represented by OUs which enables you to delegate administrative rights.

Q. 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 Joes IT center.
B. Set the interval to 60 minutes. Set the schedule to 11:00 A.M to 4:00 P.M local time at each resort.

C. Set the interval to 180 minutes. Set the schedule to 1:00 A.M to 6:00 A.M local time at each resort.
D. Create an intrasite links between the member and resort domain controllers that are located at each resort.
E. Create inter-forest RPC connections between the resort and member forests.

Answer: **A, C.**
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.

B is wrong because the replication is scheduled during working hours.
D is wrong because there is no replication between the resort and member domains.
E is wrong because there is no such thing as an interforest connection.

Q. 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 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
B. 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.
C. 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.
D. 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.

Answer: **C.**
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.

A is wrong because the resorts are independent. We don't want to delegate control to GBC.
B is wrong because the resorts each have their own name so they don't want to use the GBC name.
D is wrong because it suggests creating a subdomain at GBC. Each resort has it's own domain.

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

Answer: **C.**
Explanation: The members user accounts are located in the GBC headquarters. The members will be logging on at the resorts so the resort domains must trust the members domain.

A is wrong because the resorts are independent so they don't need to trust the members domain.
B is wrong because there is no default trust between forests.
D is wrong because the resorts are independent so they don't need to trust the members domain.

Q. 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.

A, B, C, and E are wrong because they each suggest an incorrect number of servers.

Q. 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.

A, B, C and E are wrong because they suggest the wrong number of forests.

Q. 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.

B is wrong because each resort is independent of GBC so they don't want to have subdomains of the GBC zone.
D is wrong because the DNS servers will already support SRV records so they don't need upgrading.
E is wrong because the top level domain is hosted by an external ISP.

Q. 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.** Each resort will want to be able to add applications that might uniquely change the directory scheme of its internal operating domain.
- **B.** Directory replication cannot be scheduled during times of peak usage.
- **C.** Both smart-card authentication and password authentication will be used for security.
- **D.** Membership will exceed 2 million
- **E.** All member logon requests must avoid using the WAN line.
- **F.** It will not be necessary for employees of one resort to access information about employees of another resort.
- **G.** The resorts do not want the General Business Consultants or any other resort to have authority to change user permissions for their employees.

Answer: **A, F, G.**
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 it's 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.

B is wrong because the Directory Replicator doesn't affect the forest design.
C is wrong because smart card authentication issue is a protocol issue and so has nothing to do with forests.
D is wrong because a single forest can have many million members.
E is wrong because the WAN line affects the site design.

Q. 12
How should you design domain and forest structure for the members?

A. Use generalbusinessconsultants.com for the forest root and single domain.
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. In the generalbusinessconsultants.com forest, create a separate Active Directory tree for each resort.

Answer: **A.**
Explanation: We have a single forest and domain for the members. This domain is spread across each resort site.

B is wrong because each resort is independent of the members domain.
C is wrong because each resort is independent of the members domain.
D is wrong because each resort has it's own forest.

Case Study No" 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
    - New York, New York.
    - San Jose, California.
    - London, England.
- Eastern Region
    - Sydney, Australia
    - Bangkok, Thailand
    - 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 breech 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 Corporations 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 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.

QUESTIONS A. DATUM CORPORATION

Q. 1
Which two A. Datum Corporation business factors should influence your active directory naming strategy? (Choose Two)

(a) 24-hour global collaboration.
(b) Organizational unit (OU) hierarchy.
(c) Possible sale of A. Datum Corporation name.
(d) Growth Plans.
(e) LAN technology.
(f) Number of users at each facility.

Answer: **B, C.**
Explanation: When designing an AD naming strategy the first thing you need to decide is the name of the root domain because this can't be changed afterwards. If Adatum are selling their name, they can't use that.The OU design is also important. Two common but separate designs are using departments as OUs or locations as OUs or both, in which case you need to decide which one should be your top level.

Incorrect Answers:
A is wrong because this has nothing to do with AD design.
D is wrong because AD is easily scalable so you can easily expand the company.
E is wrong because 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 is wrong because a domain can have millions of objects.

Q. 2
Which A. Datum Corporation business factor necessitates a multiple domain active directory design?

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

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

Incorrect Answers:
A is wrong because the operating system doesn't affect the number of domains.
C is wrong because the bandwidth affects the site design.
D is wrong because this would affect the OU design for reasons of delegation.
E is wrong because this is also an OU delegation issue.

Q. 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?

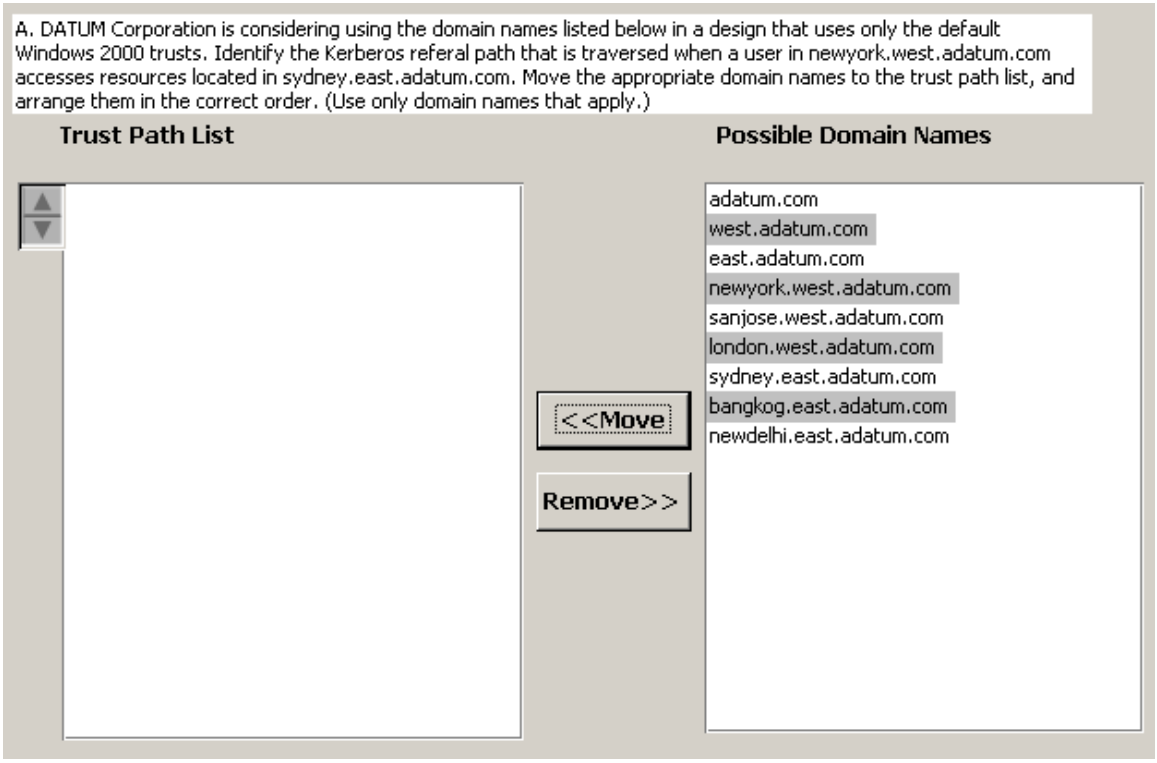
A. One schema operations master, one domain naming master, three domain controllers, two global catalog servers and two PDC emulators.
B. One schema operations master, one domain naming master, six domain controllers, two global catalog servers and three PDC emulators.
C. One schema operations master,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

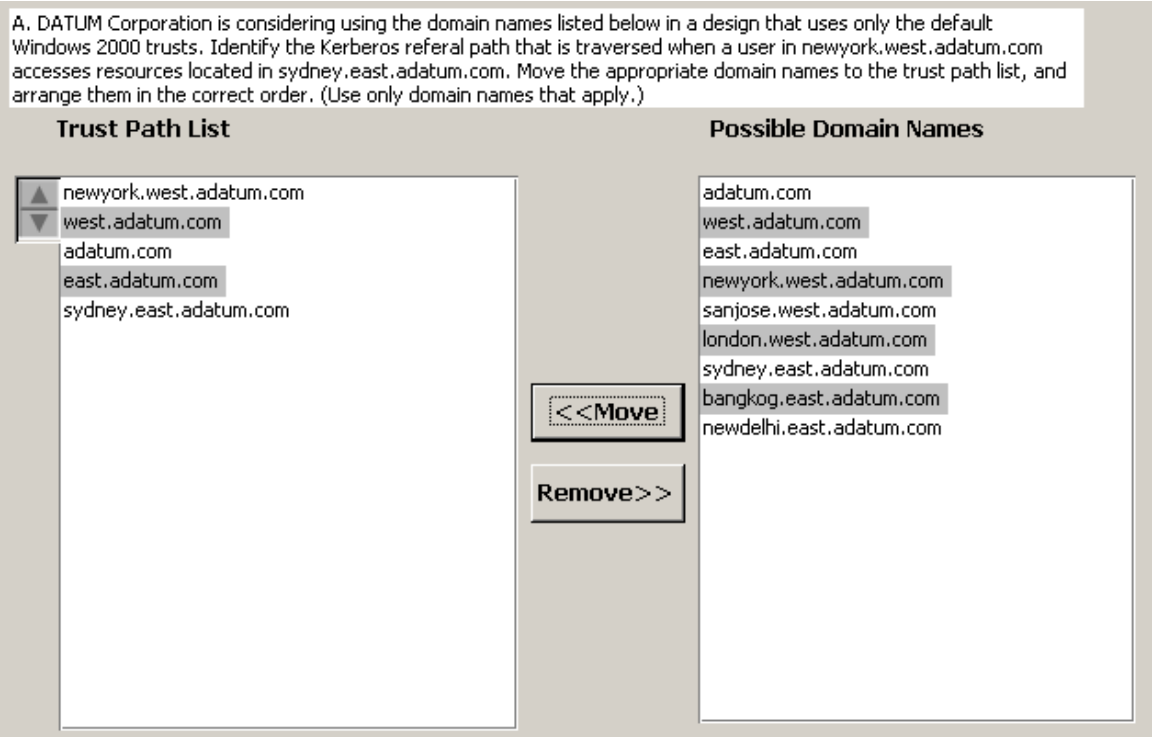
Explanation: We have one forest root which contains one schema operations master and 1 domain naming master. There are two child domains at the New York location. We need 2 DCs in the two domain and 2 more in the root domain. Each of the three domains (including the root) will have one PDC emulator. The two child domains need GCs.

Incorrect Answers:
A is wrong because there are not enough domain controllers.
C is wrong because it only has one domain controller. We have three domains.
D is wrong because we only have one forest so only one domain naming master.

Q. 4

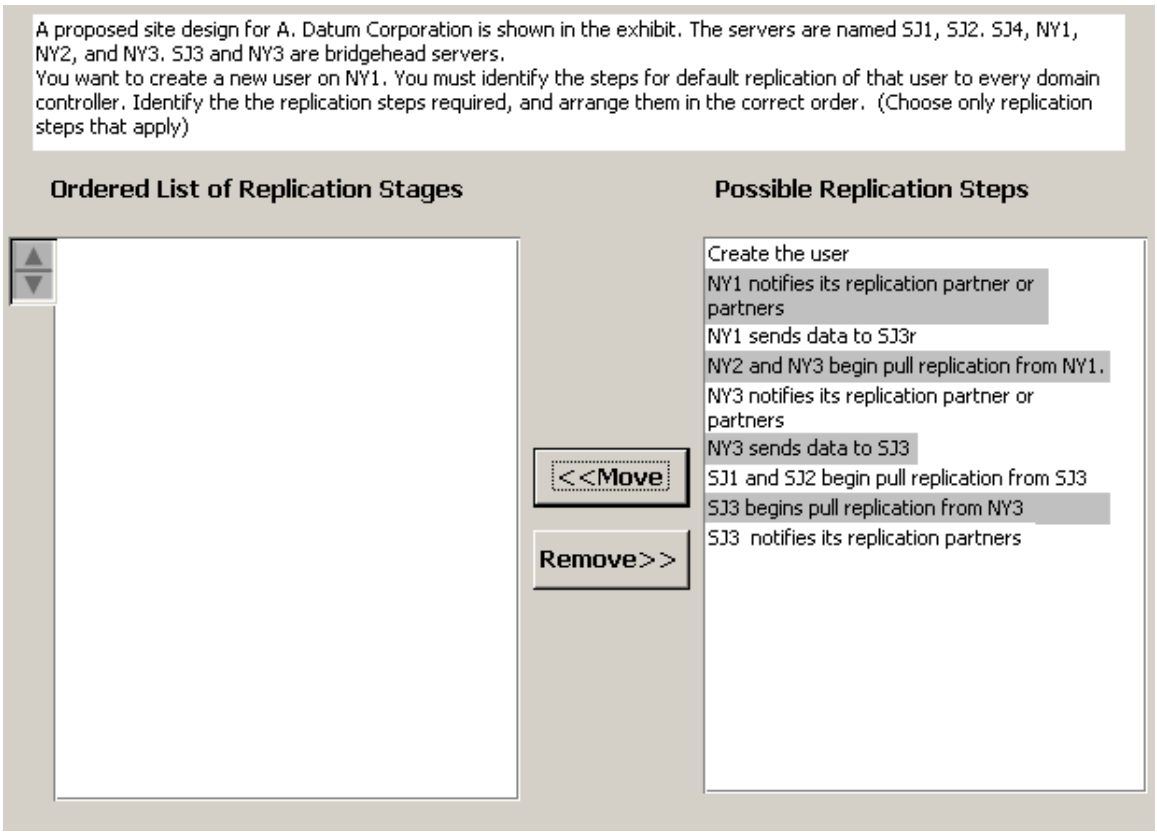


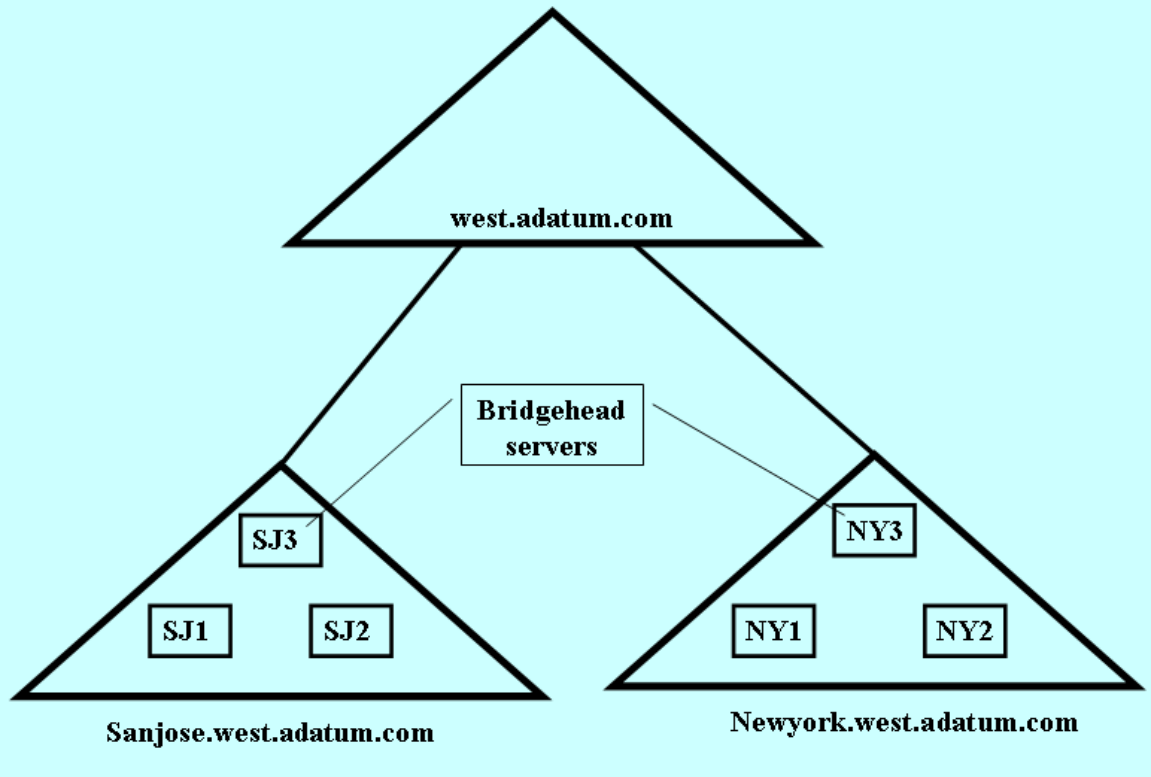
Answer:



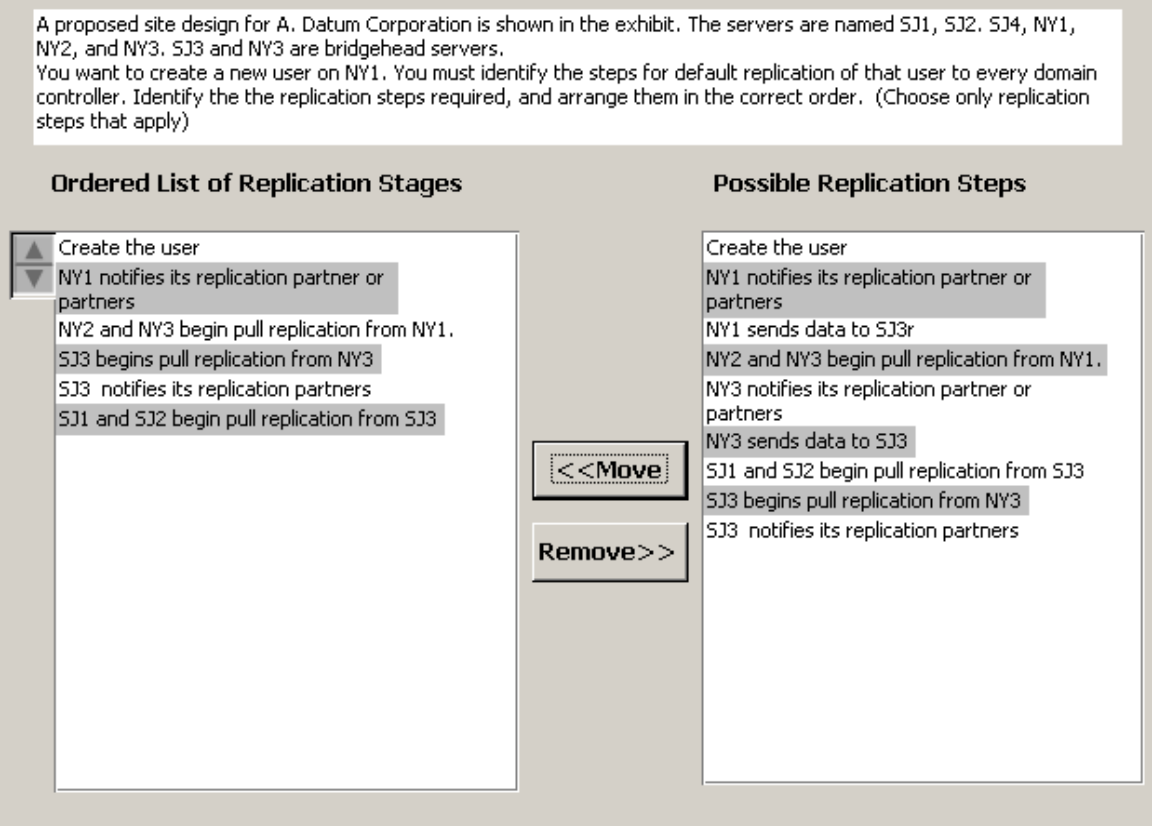
Explanation:
We are starting at the newyork.west.adatum.com domain. The trust path goes up to the parent domain until it reaches the root domain then it goes down through the child domains until the lowest child domain is reached. The parent domain of newyork.west.adatum.com. is west.adatum.com. The parent of west.adatum.com (and the root) is adatum.com. The other child of adatum.com east.adatum.com. The child of east.adatum.com is Sydney.east.adatum.com.

Q. 5


A proposed site design for A. Datum Corporation is shown in the exhibit. The servers are named SJ1, SJ2. SJ4, 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 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
<<Move
Remove>>


west.adatum.com
Bridgehead servers
SJ3
SJ1
SJ2
NY3
NY1
NY2
Sanjose.west.adatum.com
Newyork.west.adatum.com

Answer:



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

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

When a user is created the domain controller tells it's replication partners about it so they can replicate the new user account.

NY2 and NY3 are local domain controllers so they will pull the info from NY1.
SJ3 is a bridgehead server so it will then pull the info from NY3 (also a bridgehead server).
SJ3 will then notify it's replication partners which are it's local DCs, SJ1 and SJ2.
SJ1 and SJ2 will then pull the info from SJ3.

Q. 6
You are designing A. Datum Corporation's organizational Unit (OU) hierarchy. Which business factors should have the most influence on you design?

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

Answer: **A.**
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:
B is wrong because this would affect the domain design.
C is wrong because the number of users isn't a design consideration in Windows 2000.
D is wrong because Windows 2000 AD is easily scalable. Domains and OUs can be added without changing the existing AD structure.
E is wrong because this has nothing to do with OU design.
F is wrong because the WAN topology affects the site design and the security differences affects the domain design.

Q. 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 forest for the new company.
B. Create a new root domain for the new company, and then move both of the existing root domains under the new root domain.
C. Create a child domain in the vendor's forest.
D. Create a new tree for the new company. Create this tree in A. Datum Corporation's forest.

Answer: **A.**
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:
B is wrong because you can only have one root domain in a forest.
C is wrong because the new domain must be a root domain so it can't be a child domain.
D is wrong because the new company needs an external root so it needs it's own forest.

Case Study No: 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 Washing-ton, 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.

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 trey 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.

QUESTIONS TREY RESEARCH

Q. 1
Which upgrade plan should you use for Trey Research ?

A. Upgrade the two account domains configuring new as single root domain. Migrate the resource domain to Windows 2000.
B. Create Windows 2000 root domain. Migrate all domains into the root domain.
C. Create a root domain. Upgrade the two account domains to Windows 2000.Upgrade the resource domain and then consolidate the resource domain in the account domain.
D. Upgrade the existing Windows NT 4.0 domain to Windows 2000 in place.
E. Upgrade the resource domains to Windows 2000. Upgrade the two account domains and then consolidate resource domain into account domain.

Answer: C.
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 is wrong because it doesn't mention consolidating the domains.
B is wrong because we need one root domain with two subdomains.
D is wrong because it doesn't mention consolidating the domains.
E is wrong because it mentions upgrading the resource domains first.

Q. 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 OU GPO.
B. Domain GPO, Boston site GPO, Boston OU GPO, Human resources GPO.
C. Boston site GPO, Domain GPO, Boston OU GPO, Human Resources GPO.
D. Boston site GPO, Domain GPO, Human resources GPO, Boston 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 is wrong because the domain GPO is applied before the site GPO.
B is wrong because the domain GPO is applied before the site GPO.
D is wrong because the department OU is applied before the location GPO.

Q. 3
How should you implement the administration of group policy?

A. Enable domain administrators to create GPO's to link GPO's to domains and sites and to edit domain level and site level GPO. Enable department administrator at each location to link and edit GPO's that apply to their departmental OU.
B. Enable domain administrator to create GPO's to link GPO's to domains and sites 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 GPO's to link GPO's to sites, domains and OU. Enable depart administrators at each locations to edit GPO's that apply to their departmental OU and to edit site level GPO's.
D. Enable domain administrators to create link and edit domain level GPO's. Each depart administrator at each location to link and edit site level and departmental OU level GPO's.

Answer: A, D.
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 is wrong because it doesn't mention the ability to create new GPOs for the department OUs. It only lets them edit existing GPOs.
C is wrong because it lets department administrators edit site level GPOs.
D is wrong because again it lets department administrators edit site level GPOs.

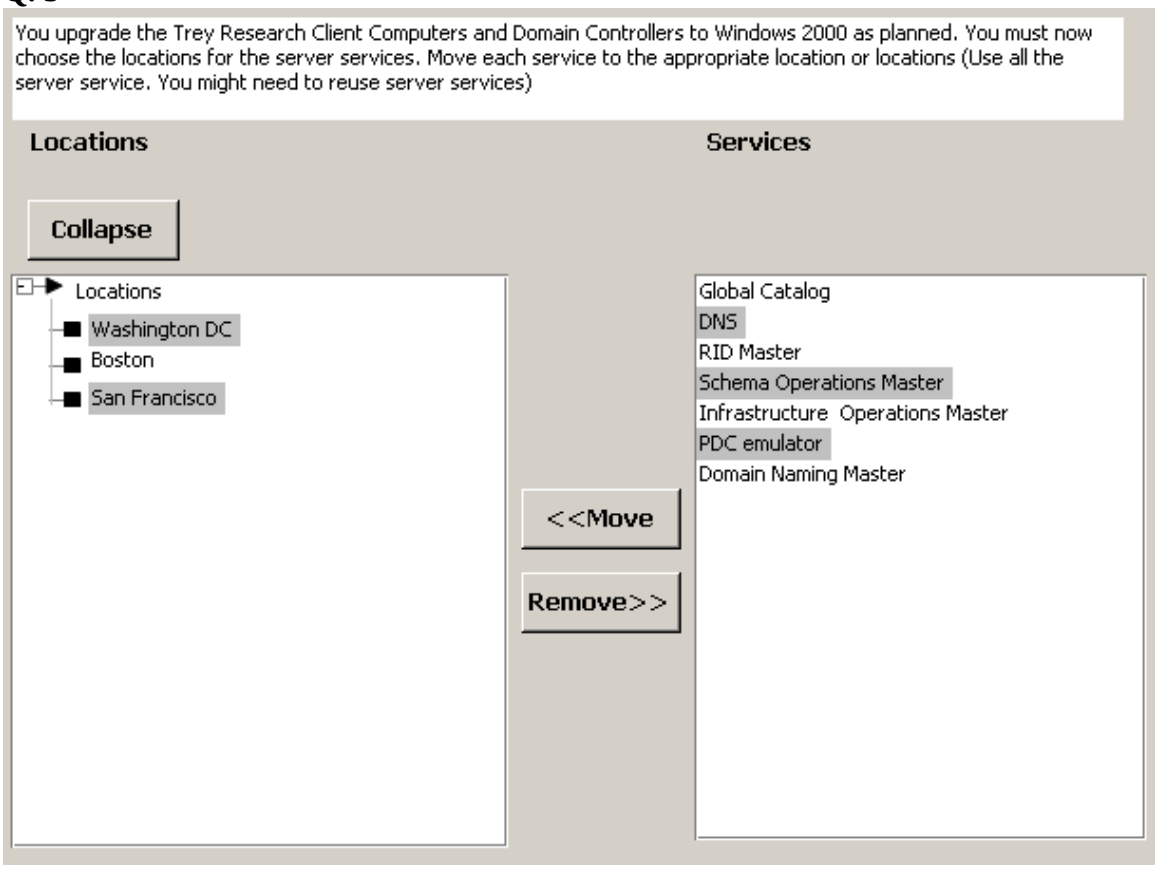
Q. 4
You must decide how many domains you create for Trey Research. What is the most important that you should consider when deciding whether to create more than one domain?

A. The requirements of different companies have different logon policies.
B. The use of one of the locations of applications will modify the scheme.
C. The use of two company names on the internet.
D. The plans to acquire another company.
E. Interpretability for the existing Banyan, Wayne, UNIX and Novel Services.

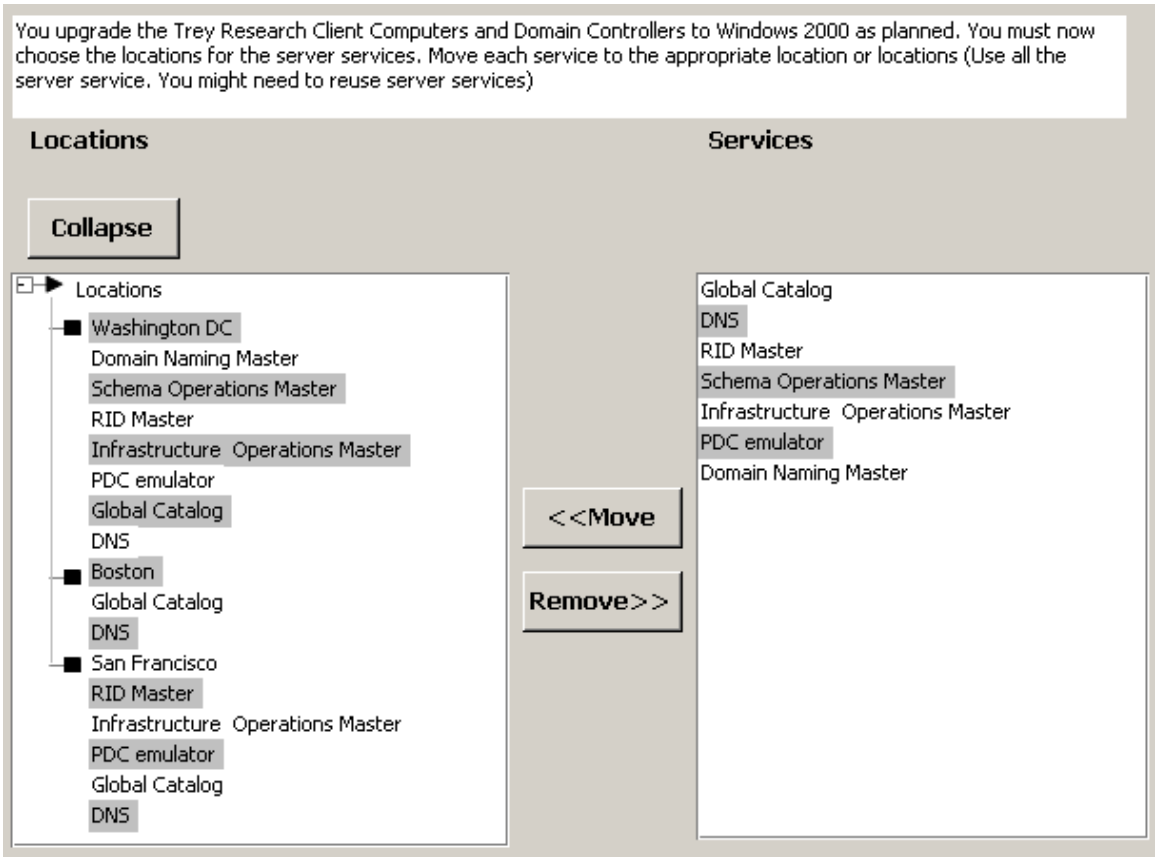
Answer: A.
Explanation: Logon policies must be applied at domain level. If you need different logon policies you need different domains.

Incorrect Answers:
B is wrong because, if you need different schemas, you need different forests.
C is wrong because different company names don't affect the required number of domains.
D is wrong because there are no plans to acquire another company.
E is wrong because the operating system doesn't affect the domain strategy.

Q. 5



Answer:



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 and PDC emulator.

Boston is a site. All sites need a Global catalog server and a DNS server.

Q. 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 is wrong because there is no such thing as a domain local policy.
C and D are wrong because they use local groups instead of domain local groups.

Q. 7
Which change must you make to DNS to prepare for implementation of Windows 2000?

A. Move the DNS Server that host the records for company websites from third party server to internal server.
B. Remove DNS service from all the UNIX servers and install active directory integrated DNS Server.
C. Remove DNS service from all the UNIX servers and install active directory integrated DNS Server and install MS-DNS Server.
D. Provide DNS Services that will support instrumental zone transfer.
E. Provide DNS Services that will support SRV records.
F. At location install additional sets of DNS Service.

Answer: E.
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:
A is wrong because this is unnecessary.
B is wrong because active directory integrated DNS server require Windows 2000 computers. We haven't installed them yet.
C is wrong because MS-DNS server doesn't exist.
D is wrong because instrumental zone transfer doesn't exist.
F is wrong because additional DNS servers won't work without SRV records.

Q. 8
How should you implement DNS naming strategy for Trey Research?

A. Move internal DNS to Windows 2000 Server computer . Use a single domain name Trey Research.com.
B. Upgrade the existing DNS infrastructure. Use a single domain name as Trey Research.com.
C. Upgrade the existing DNS infrastructure. Use three domain names Trey.Research.com and Parelli-AeroSpace and Corp.Trey Research.com.
D. Configure parallel DNS infrastructure. One for existing UNIX environment, one for Windows 2000. Use Trey Research.com as root domain.
E. Use MS-DOS Server to define the Windows 2000 domain as child domain of Trey Research.
F. Move internal DNS to Windows 2000 server Computer. Use two domain names Trey Research.com and Parnell Arrow Space. Trey Research.com.

Answer: C.
Explanation: Parelli and Corp.TreyResearch should be child domains of Trey Research.com.

Incorrect Answers:
A is wrong because it suggests a single domain.
B is wrong because it suggests a single domain.
D is wrong because is suggest two domains.
E is wrong because a MS-DOS server doesn't exist.
F is wrong because it suggests two domains.

Q. 9
How should you design the DNS for Trey Research?

A. Upgrade the existing UNIX DNS Service. On this service configure the zones requested for Windows 2000 .
B. Upgrade the existing UNIX DNS Service. Add service to run Microsoft DNS Server as active directory integrated secondary zones.

C. Use active directory integrated zones in servers that run Microsoft DNS Server and run DNS zones that are separate from parallel to the UNIZ DNS Servers.
D. Use active directory integrated zones in servers that run Microsoft DNS Server to replace UNIX DNS Service and to host domains required for implementation of Windows 2000.

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:
B is wrong because you can't run MS DNS on a UNIX server.
C is wrong because we haven't got any Windows 2000 domain controllers yet. These are required for active directory integrated zones.
D is wrong because we haven't got any Windows 2000 domain controllers yet.

Case Study No: 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 pproximately 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.

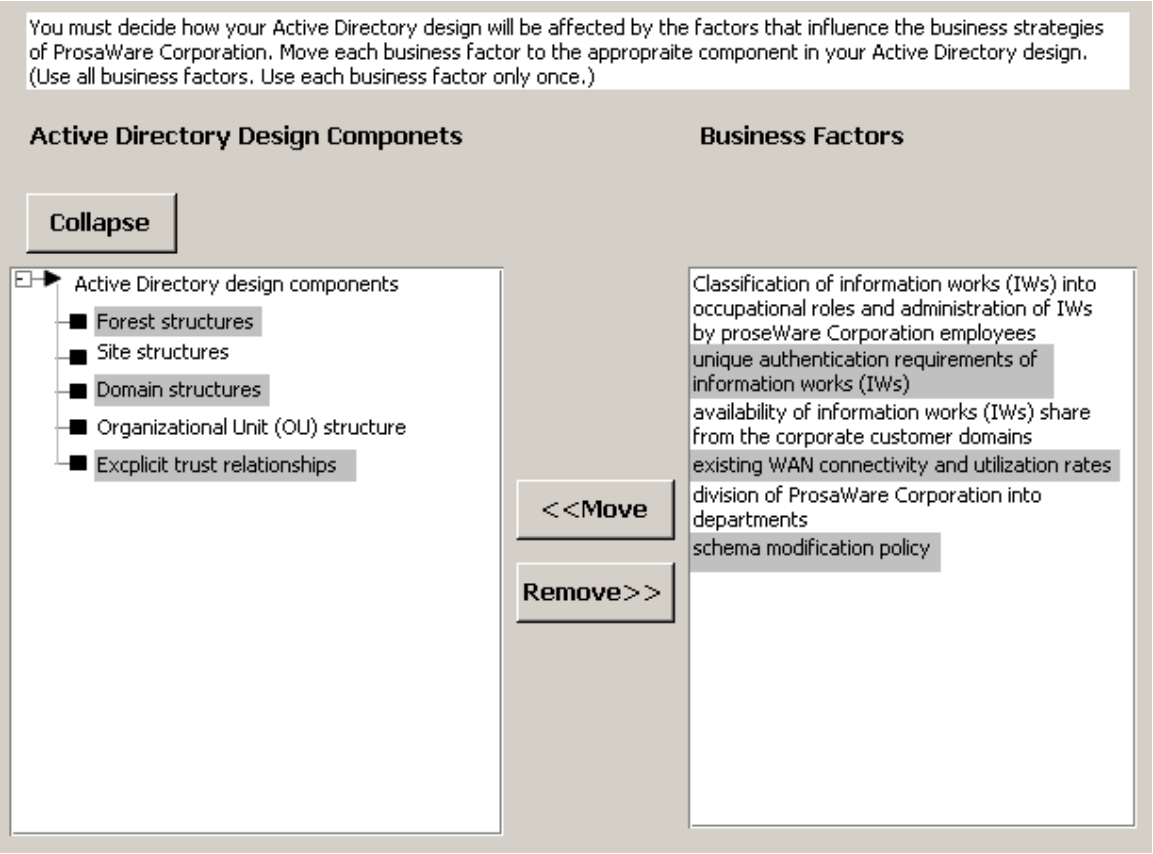
Chief Information Officer (CIO) Interview:
There are lots of creative individuals in the IT field. They will install services just to see how the services work. Because of this tendency, we often have many more services running than we need. I want to regain top-level administrative control. I also want 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.

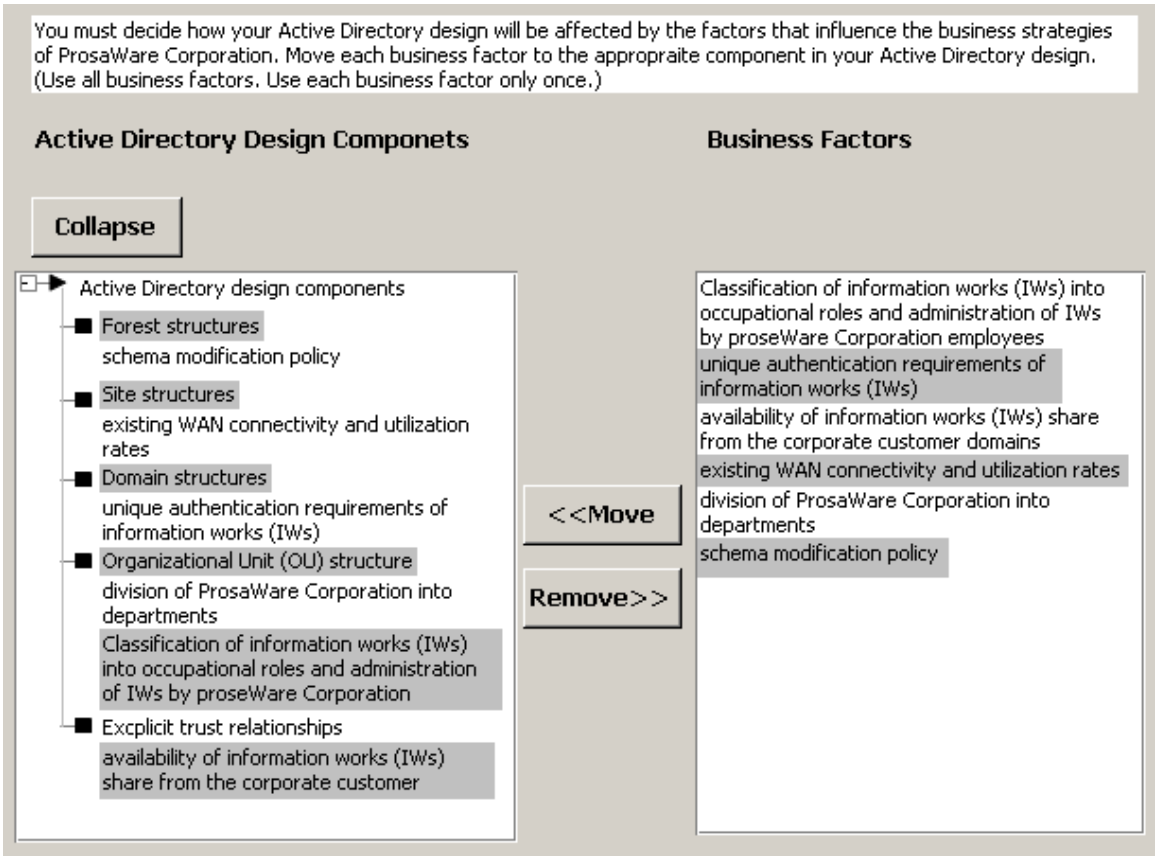
The IT support staff at each location is responsible for all of the normal daily work, including the daily administration of users, resources, and permissions. I have better things to do with the resources I have I want the new design to be structured so that this work is delegated to individuals in each department.

QIESTIONS PROSEWARE CORPORATION

Q. 1



Amswer:



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.

Q. 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 and D are wrong because they all suggest more than one forest.

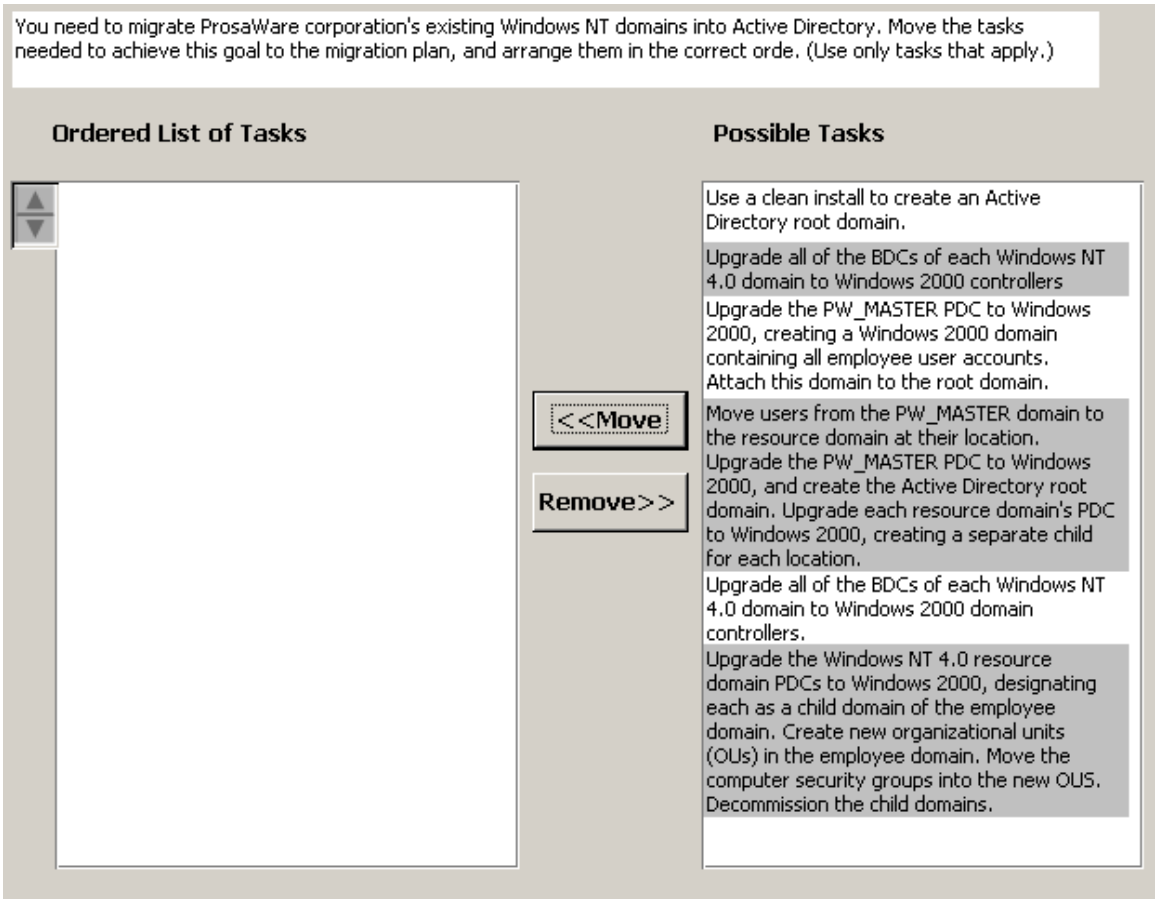
Q. 3
Which Proseware Corporation planned upgrade will require you to modify the schema?

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.

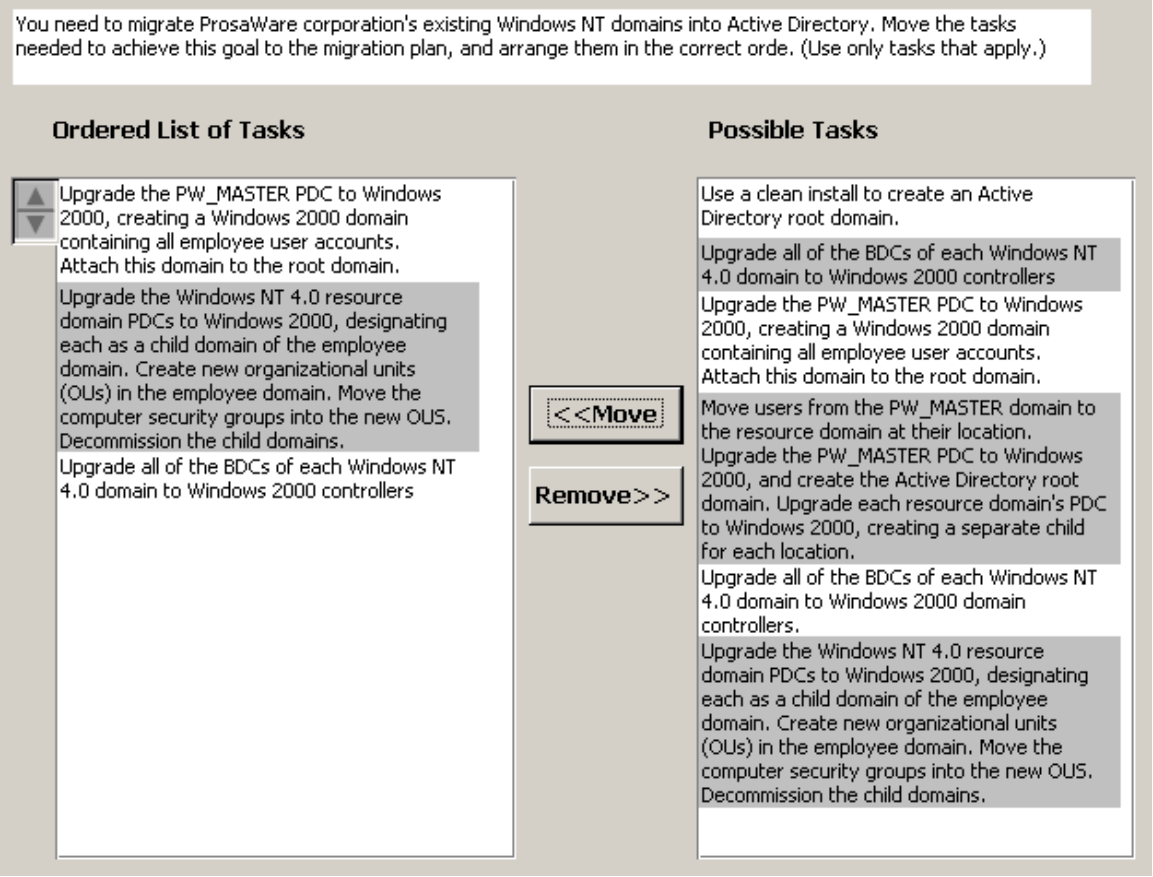
Answer: B.
Explanation: Upgrading Exchange server will modify the schema.

Incorrect Answers:
A is wrong because this affects domain trust relationships.
C is wrong because security certificates don't modify the schema.
D is wrong because we don't have a schema until we upgrade the NT domain.

Q. 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 orde. (Use only tasks that apply.)
Ordered List of Tasks
Possible Tasks
<<Move
Remove>>
Use a clean install to create an Active Directory root domain.
Upgrade all of the BDCs of each Windows NT 4.0 domain to Windows 2000 controllers
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:



Explanation:

A. Upgrade the PW_Master PDC to Windows 2000, creating a Windows 2000 domain all employee user accounts. Attach this domain to the root domain.
B. 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.
C. Upgrade all of the BDCs of each NT 4 domain to Windows 2000 domain controllers.

When upgrading to a Windows 2000 domain, the account domain must be upgraded first. 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 second 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.

Q. 5
Which task or tasks must you perform to implement the required Windows 2000 design for Proseware Corporation? (There are eleven Answer: choices. Choose all that apply)

A. Create two explicit one-way trust relationships. Configure these trusts so that Proseware Corporation Information Worker (IWs) 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 (IWs) domain.
C. Create shortcut trust between the employee and the Information Workers (IWs) 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, H, I, K.
Explanation:
A is correct because the customers need to access Proseware data.
D is correct because each location should be a site so we can control replication over slow links.
E is correct because this will enable users to log on to local domain controllers.
F is correct because the global catalog servers will enable people to log on without using the WAN links.
H. This should be done to provide fault tolerance for DNS.
I. These two OM roles should run on separate machines.
K is correct because this will enable the customers to be able to browse through Proseware shares.

Incorrect Answers:
B is wrong because Proseware workers should not be able to access customer networks.
C is wrong because we need explicit trusts and not shortcut trusts.
G is wrong because Proseware info doesn't get replicated to the customers networks.
J is wrong because transitive trusts are two way. We only need one way trusts.

Q. 6
Which requirements should affect your domain migration strategy?

A. Maintaining Information Worker (IWs) accounts and passwords.
B. Maintaining employee accounts and passwords.
C. Predicting 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 is wrong because IW accounts will not be migrated. They have access through the trust relationships.
C is wrong because we know the domain structure. It was designed before the migration.
D is wrong because the upgrade of client computers doesn't matter. The servers will be upgraded first.

Q. 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 and D are wrong because they suggest an incorrect number of sites.

Q. 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 is wrong because we don't need a subzone for each site.
B is wrong because proseware.com is hosted externally by an ISP.
D is wrong because we need a zone, not a subzone for our AD root domain.

Case Study No: 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 allas, 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 Phoenix 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.

QUESTIONS FABRIKAM, INC

Q. 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 is wrong because the number of domains doesn't affect online availability.
B is wrong because only applications would affect paper based business processes.
C is wrong because the total cost of ownership would be the same with multiple domains.
E is wrong because the security will be increased by installing Windows 2000. The number of domains doesn't affect this.

Q. 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 is wrong because we only need one domain, not 3.
B is wrong because we only need one domain, not 3.
D is wrong because we only need one domain, not 4.

Q. 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 is wrong because you would use domain local groups in a domain. You wouldn't use local groups on every server.
C is wrong because you don't need to use universal groups when you have only one domain.
D is wrong because it uses local groups (should be domain local groups) and universal groups which are unnecessary.

Q. 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 application is not in the Domain Administrators group for the local domain.
B. The administrator trying to install application is not in the Schema administrators group.
C. The administrator trying to install 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 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 is wrong because a domain admin does not have permission to modify the schema.
C is wrong because an enterprise admin does not have permission to modify the schema.
D is wrong because an enterprise admin does not have permission to modify the schema.
E is wrong because we are not trying to create a GPO, we are trying to modify the schema.

Q. 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 is wrong because we do not need BIND servers when we can use Windows 2000 DNS.
B is wrong because Windows 2000 DNS supports dynamic updates.
D is wrong because we don't need BIND servers with Windows 2000 DNS servers.

Q. 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 is wrong because we don't need to upgrade the WAN lines.
B is wrong because we need separate sites for each location because of the slow links.
D an E are wrong because we don't need to upgrade the WAN lines.

Q. 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 is wrong because it uses SMTP site links. We need IP site links.
B is wrong because it uses SMTP site links. We need IP site links.
C is wrong because the schedule times are different for the two site links. This could cause replication to take up to 2 days.
E is wrong because you need separate site links between sites.

Q. 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 is wrong because we don't need to create a new root domain.
B is wrong because the domains need to be merged into one domain.
C is wrong because the domains need to be merged into one domain.

Q. 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 only at the domain and organizational unit levels
E. Reduce the number of attributes replicated by the global catalog.

Q. 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 is wrong because there is only one infrastructure operations master in a forest.
B is wrong because there is only one RID master and PDC emulator in a domain.
C is wrong because there is only one infrastructure operations master in a forest.

Q. 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 fulfils 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.

Q. 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.

Q. 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.