Lesson 3

Working with Active Directory Sites

Fill in the Blank

Complete the following sentences by writing the correct word or words in the blanks provided.

1. The amount of time that it takes for a change to be replicated to all domain controllers in an environment is called \_convergence\_. P63

2. The default \_\_cost\_\_ of any new site link is 100. P.68

3. Intersite replication uses \_\_compressed\_\_ traffic to reduce the impact to bandwidth on corporate WAN links. P. 60

4. The KCC creates a(n) \_\_ dual counter-rotating ring\_\_ to allow replication to take place in the opposite direction in the event that a single domain controller in the replication topology fails. P.64

5. The purpose of the KCC is to create a(n) \_\_replication topology\_\_ between multiple domain controllers within a site as well as between sites. P.63

6. By default, all Active Directory site links are \_\_transitive\_\_. P.68

7. When Active Directory detects a replication conflict in which two objects have been modified nearly simultaneously, the first attribute that Active Directory will use as a tie-breaker is the version ID P.62.

8. Active Directory will designate a(n) \_\_bridgehead server\_\_ within each site to manage intersite replication activity. P. 63

9. The minimum \_\_frequency\_\_ that you can assign to a site link is 15 minutes. P. 68

10. Within a single site, domain controllers will use \_\_change notification\_\_ to inform other DCs that intrasite replication needs to take place. P\_.64

Multiple Choice

1. The KCC is responsible for calculating intrasite replication partners. During this process, what is the maximum number of hops that the KCC will allow between domain controllers?

1. 2
2. 3
3. 4
4. 5

 The built-in algorithm used by the KCC ensures that any Active Directory site is no more than three hops away from any other Active Directory site. If sites are added to Active Directory, the KCC can create additional connection objects to maintain this “3 hop” rule. P. 64

2. Replication that occurs between sites is called \_\_\_\_\_\_\_\_\_\_\_\_ replication.

a. Local

b. Remote

c. Intersite

d. Intrasite

 Intrasite replication takes place between domain controllers within a single Active Directory site. Intersite replication takes place between domain controllers contained within different Active Directory sites. P\_.60

3. Company XYZ is a national company with locations in Detroit, Minneapolis, Phoenix, and Dallas. There are two connections between Detroit and Minneapolis. The first is a T-1 link and the second is a 128-Kbps link. When setting up the site links for replication, what should you do to ensure that the 128-Kbps link is used only if the T-1 is unavailable?

 a. Set a cost of 1 for the T-1 and a cost of 5 for the 128-Kbps link.

 b. Set a cost of 5 for the T-1 and 1 for the 128-Kbps link.

 c. Leave the costs at their default value of 100.

 d. Change the schedule manually to disallow replication on the 128-Kbps link until it is needed.

 When selecting between multiple site links connecting the same two sites, the KCC compares site link costs and selects the one with the lower cost. Only if that site link is not available will it use the site link with a higher configured cost. P. 69

4. You are the administrator for a network that has several sites. There is a site link from the main headquarters to each remote site for file transfer and replication purposes. You have been asked to create five new users on the network, and several of the users need immediate access to network applications. When asked by your manager how long replication of these new accounts will take, what is your response?

 a. Replication occurs every 180 minutes by default.

 b. Replication occurs at 15-minute intervals.

 c. Replication occurs as soon as the account is added.

 d. Replication occurs only between 12:00 am and 6:00 am.

 The default replication interval for intersite replication is every 180 minutes, which can be modified to take place as frequently as every 15 minutes. P. 69

5. Given the scenario in question 4, how long would it take for other DCs within the headquarters site to replicate the accounts belonging to the new users?

 a. Replication occurs every 180 minutes by default.

 b. Replication occurs at 15-minute intervals.

 c. Replication occurs within 15 seconds of the account being added.

 d.Replication occurs only between 12:00 am and 6:00 am.

 Urgent replication within a single Active Directory site takes place almost immediately; therefore, DCs within the same site are brought to a consistent state as quickly as possible. P. 64

6. What mechanism is used by an Active Directory domain controller to indicate that it has unreplicated changes to communicate to its replication partners?

 a. Preferred bridgehead servers

 b. Change notification

 c. Site link bridges

 d. Intersite replication

 Active Directory domain controllers use change notifications to notify their replication partners that they have changes available. The replication partner pulls those changes to update their own copy of the Active Directory database. P. 64

7. When would you disable automatic site-link bridging within Active Directory Sites and Services?

 a. When you need to configure intersite replication

 b. When you wish to configure different costs for your site links

 c. When your physical network is not fully routed

 d. When you wish to control the hours during which intersite replication will occur

 By default, the KCC assumes that all Active Directory sites are fully routable and can replicate with one another. If you want to change this default behavior, clear the Bridge All Site Links checkbox within Active Directory Sites and Services.

8. To optimize client authentication and location of resources, which kind of object should each Active Directory site contain?

 a. Site links

 b. Costs

 c. Connection objects

 d. Subnets

 Active Directory sites use TCP/IP subnets to map client computers to the appropriate site for selecting the appropriate domain controllers and other Active Directory−aware resources. By configuring Active Directory sites with the appropriate subnet information, clients will authenticate to domain controllers located in the same site to conserve bandwidth and improve performance. P. 60

9. Which of the following naming contexts are replicated across an entire Active Directory forest?

 a. Configuration and Schema

 b. Schema and DomainDNSZones

 c. Configuration and ForestDNSZones

 d. Schema and ForestDNSZones

 The Configuration and Schema NCs are replicated to every domain controller in an Active Directory forest. DomainDNSZones replicates to every DC in a particular domain that is configured as a DNS server; ForestDNSZones replicates to every DC in a forest that is configured as a DNS server. P. 64

10. When creating a site link, you can configure it to use which of the following protocols?

 a. TCP/IP or RPC over IP

 b. RPC over IP or SMTP

 c. SMTP or TCP/IP

 d. SMTP or CIDR

 The two available protocol choices when configuring a site link are RPC over IP for high-speed reliable links or SMTP for unreliable links. Remember that SMTP cannot be used to replicate a Domain naming context. P. 69

Case Scenarios

Scenario 3-1: Adding a New Site to a Network

Your company is located in the United States and it has just added a location in Canada that will need to become part of your Active Directory network. Your network designer has provided you with the following configuration information regarding the new location servers and the connections that have been procured.

Three new servers will be installed in the Canada facility with the following specifications:

* Server 1: 2.4-GHz processor with 2 GB RAM will be installed as a domain controller.
* Server 2: 2.0-GHz processor with 1 GB RAM will be installed as a domain controller.
* Server 3: 2.0-GHz processor with 2 GB RAM will be installed as an application server.

Two links between the United States and Canada facilities will be available. They are as follows:

* A T-1 link for the primary connection
* A 256-Kbps link for a backup connection

Bandwidth should be used during the day mainly for file transfers and email. Any network maintenance that requires bandwidth should be done only between 11:00 pm. and 4:00 am on weekdays. Weekends are available anytime for maintenance procedures.

Sketch a design that will meet the previous requirements and consider the following questions:

1. Should you configure a bridgehead server at the Canada facility? If so, which server would you recommend?

 Yes, Server 1.

2. What will you configure the costs for on each link?

 Configure a lower site link cost for the T-1 link than for the 256 Kbps link. For example, you might configure the T-1 site link with a cost of 10, while the 256Kpbs line has a cost of 100.

3. What should the replication schedule and interval be set for?

 Configure the replication schedule so that it will only replicate changes between 11 PM and 4 AM on weekdays, and at all times on weekends. Configure the replication interval for a reasonable amount such as 30 minutes.

Scenario 3-2: Improving Replication Efficiency

You are the administrator for a mid-sized company network that consists of Windows Server 2003 domain controllers. The five sites you have are not fully routed, and there have been some problems replicating Active Directory data. You know your budget will not allow you to add additional links or purchase additional equipment. What can you do to improve the efficiency of replication within your network?

Disable automatic site link bridging and configure one or more manual site link bridges to manage replication