REPLICATION

Setting up DFS-R requires a number of steps but the level of difficulty is not high. However, it is important to remember the reasons for replicating folders and how it will help to resolve certain bandwidth issues.

WHY DFS-R?

In our ongoing example with the professional servers, we have used two offices for the company LaCie. There is a 5big Office+ in New York and two 12big Rack Storage Servers in Paris. For improved data organization, the administrator created:

- Shared Folders based upon department and office location (Accounting, Marketing, etc.; Americas and Europe)
- A Namespace, LaCie_Files, to act as a single virtual network drive. All users, no matter the office location, mount only one network drive, LaCie_Files, as opposed to numerous Shared Folders. Rather than searching haphazardly through many mounted drives, users can easily find the Shared Folders that contain the data required for their department.

The data is now easy to manage but the administrator has noticed a growing problem with network transfer rates. He knows that users from Paris require documents stored on the 5big Office+ in New York (5BIGSTORAGE). As well, users in New York must access files from both of the 12big Rack Storage servers (12BIGNETWORK-1 and 12BIGNETWORK-2) in Paris. The high demand for data on WAN servers highlights a common problem with bandwidth. There are no bandwidth issues when files are accessed on the LAN servers.

Т	ahle	05	_ Δ	ΙΔΝ	or	$W\Delta N^{2}$	Server	Status	hv	Branch	Office
I	able	05	- A	LAN	01	VV/AIV:	JEIVEI	Status	IJУ	Dianch	Unice

LaCie Server	New York	Paris
5big Office+ ("5BIGSTORAGE")	LAN	WAN
12big Rack Storage Server-1 ("12BIGNETWORK-1")	WAN	LAN
12big Rack Storage Server-2 ("12BIGNETWORK-2")	WAN	LAN

Windows Storage Server allows the administrator to set up DFS-R on all the servers. Data is replicated as follows:

- 12BIGNETWORK-1 data will be available on 5BIGSTORAGE and 12BIGNETWORK-2
- 12BIGNETWORK-2 data will be available on 5BIGSTORAGE and 12BIGNETWORK-1
- 5BIGSTORAGE data will be available on 12BIGNETWORK-2 and 12BIGNETWORK-1

Individual servers do not have priority once the initial replication is complete. When a user in Paris seeks a document that was created in New York (WAN), he will open a replicated version stored on a server in Paris (LAN). The DFS-R optimizes data availability by replicating on a regular basis, which means that users will always have access to the latest versions of the files via their LAN.

DFS-R SETUP

Table 06 - Initial Replication

Server	Replication
12big Rack Storage Server-1 ("12BIGNETWORK-1")	Receives replicated data from the Shared Folder Accounting Americas.
5big Office+ ("5BIGSTORAGE")	Original server location for the Shared Folder <i>Accounting Americas</i> .
Both servers	After the initial replication, new and updated data stored on <i>Accounting Americas</i> will be replicated in both direction.

For DFS-R to work, the administrator must add the Target folders to the servers that will receive the replicated files. Select the Target folder that you wish to replicate. In our example, we will choose the Target folders, *Americas* and *Europe*.

- 1. To begin, go to Start > Administrative Tools> DFS Management > Namespaces > Domain [lacie.com] > Target folder [Americas].
- 2. Right-click on the Target folder [Americas] to select Add Folder Target....



3. Select Browse...

New Folder Target		×
Folder:		
Americas		
Namespace path:		
\\lacie.com\LaCie_Files\Accounting\Americas		
Path to folder target:		
		Browse
Example: \\Server\Shared Folder\Folder		
	ОК	Cancel
		//

4. Select the server that will receive the replicated files. For this step, the administrator chooses 12BIGNETWORK-1 to receive data stored on 5BIGSTORAGE.

Browse for Shared Folders		
<u>S</u> erver:		
12BIGNETWORK-1		<u>B</u> rowse
Show Shared Folders		
Shared folders:		
New Shared Folder	ОК	Cancel

- 5. A Shared Folder must be created on the receiving server as a match for the original folder. That is, a new Shared Folder to receive replicated data from 5BIGSTORAGE to 12BIGNETWORK-1.
- 6. Click New Shared Folder...
- 7. While it is possible to give this folder any name, the administrator uses the same name as the original Shared Folder to avoid confusion. Confirm the permissions.

Create Share	×
Server name:	
12BIGNETWORK-1	
Share name:	
Accounting Americas	
Local path of shared folder:	
	Br <u>o</u> wse
Shared folder permissions:	
O All users have read-only permissions	
• All users have read and write permissions	
C Administrators have full access; other users have rea permissions	ad-only
C Administrators have full access; other users have rea permissions	ad and write
C Use custom permissions: Customize	
ОК	Cancel

- 8. Click **BROWSE...** to choose a local path for the Shared Folder.
- 9. The administrator chooses the "d" partition for data. Click **Make New Folder** to enter the name of the Shared Folder. Select the new folder and click **OK**.



10. Click **OK**.

Create Share	x				
Server name:					
12BIGNETWORK-1					
Share name:					
Accounting Americas					
Local path of shared folder:					
D:\Company Shares\Accounting Americas Browse					
Shared folder permissions: All users have read-only permissions All users have read and write permissions All users have read and write permissions Administrators have full access; other users have read-only					
Administrators have full access; other users have read and write permissions					
C Use custom permissions: Customize					
OK Cancel					

11. The Shared Folder on 12BIGNETWORK-1 is now ready to receive replicated data. Select it and click **OK**.

Browse for Shared Folders	
<u>S</u> erver:	
12BIGNETWORK-1	<u>B</u> rowse
Show Shared Folders	
Sh <u>a</u> red folders:	
Accounting Americas Accounting Europe LaCie_Files Marketing Europe	
New Shared Folder OK	Cancel

12. Note the path to the new Shared Folder. Click **OK** to enter the *Replicate Folder Wizard*.

New Folder Target		×
<u>F</u> older:		
Americas		
Namespace path:		
\Vacie.com\LaCie_Files\Accounting\Americas		
Path to folder target:		
\\12BIGNETWORK-1\Accounting Americas		<u>B</u> rowse
Example: \\Server\Shared Folder\Folder		
	ОК	Cancel

13. A *Replication* window will appear, asking if you wish to keep the two folders synchronized. In this case, it is the Shared Folder on 12BIGNETWORK-1 and the original folder on 5BIGSTORAGE. Click **Yes**.

Replicatio	on	×
	A replication group can be used to keep these folder targets synchronized. Do you want to create a replication group?	
	<u>Y</u> es <u>N</u> o	

14. The *Replicate Folder Wizard* appears. Note that the fields contain the information from the earlier steps. Clck **Next>**.

췀 Replicate Folder Wizard					
Replication G	roup and Replicated Folder Name				
Steps:	The wizard will create a replication group that contains the servers that host the folder targets. Beview the supported group and folder pamer, and edit them if				
Replication Group and Replicated Folder Name	roider targets. Neview the suggested group and folder names, and ealt them if necessary.				
Replication Eligibility					
Primary Member	Heplication group name:				
Topology Selection	lacie.com/lacie_files/accounting/americas				
Hub Members	Replicated folder name:				
Hub and Spoke Connections	Accounting Americas				
Replication Group Schedule and Bandwidth					
Review Settings and Create Replication Group					
Confirmation					
	For more information about DFS Replication, see <u>DFS Management Help</u> .				
	< Previous Next > Cancel				

15. The wizard will list the folder based upon the name provided. Click **Next>**.

ବ Replicate Folder Wizard		
Replication Eli	igibility	
Steps: Replication Group and Replicated Folder Name Replication Eligibility Primary Member Topology Selection Hub Members Hub and Spoke Connections Replication Group Schedule and Bandwidth Review Settings and Create Replication Group Confirmation	The wizard has evaluated the folder targets to determine whether they can participate in DFS Replication. See the Eligibility column below for details.	
	For more information about DFS Replication requirements, see <u>DFS Management Help</u> .	
	< Previous Next > Canc	3

16. Choose the server that has the Shared Folder with the data. 5BIGSTORAGE is considered the Primary member at this stage since it holds the data we wish to replicate. Once the replication is finished, both Shared Folders will be equal, each containing the same data. Select the Primary member and click Next>.

ବ Replicate Folder Wizard	
Primary Memb	per
Steps:	Select the server that contains the content you want to replicate to other
Replication Group and Replicated Folder Name	Tonde targets. This server is known as the printary member.
Replication Eligibility	Primary member:
Primary Member	5BIGSTORAGE
Topology Selection	
Hub Members	If the folders to be replicated already exist on multiple servers, the folders and files on the primary member will be authoritative during initial replication.
Hub and Spoke Connections	
Replication Group Schedule and Bandwidth	
Review Settings and Create Replication Group	
Confirmation	
	For more information about the primary member and authoritative content, see DFS Management Help.
	< <u>Previous</u> Cancel

 Full mesh will replicate data in all directions between the servers in a replication group. This is the ideal choice for our example since data added to 12BIG NETWORK-1 will be automatically replicated onto 5BIGSTORAGE, and vice-versa. Click Next>.



18. Select how the replication should occur, continuously or on a fixed schedule. The administrator may also select the amount of bandwidth to assign the replication. Click **Next>**.

Replicate Folder Wizard	
Replication G	roup Schedule and Bandwidth
Steps: Replication Group and Replicated Folder Name Replication Eligibility Primary Member Topology Selection Replication Group Schedule and Bandwidth Review Settings and Create Replication Group Confirmation	Select the replication schedule and bandwidth to be used by default for all new connections in the replication group.
	< <u>Previous</u> <u>N</u> ext > Cancel

19. Review the settings and click **Create**.

🍄 Replicate Folder Wizard	
Review Settin	gs and Create Replication Group
Steps: Replication Group and Replicated Folder Name Replication Eligibility Primary Member Topology Selection Replication Group Schedule and Bandwidth Review Settings and Create Replication Group Confirmation	You selected the following settings for the new replication group. If the settings are correct, click Create to create the new replication group. To change a setting, click Previous, or select the appropriate page in the orientation pane. Replication group gettings: Folder: Vacie.com\LaCie_Files\Accounting\Americas Replication Group Name: Iacie.com\laCie_files\accounting\americas Domain of Replication Group: Iacie.com Replication Group Members (2): 12BIGNETWORK-1 5BIGSTORAGE Replicated Folder Name: Accounting Americas Replicated Folder Paths: 12BIGNETWORK-1: D:\Company Shares\Accounting Americas Primary Folder Target: 5BIGSTORAGE
	< Previous Create Cancel

20. The *Confirmation* window will appear once the replication is complete. Click **Close**.

🍄 Replicate Folder Wizard			
Confirmation			
Steps:			
Replication Group and Replicated Folder Name	You have successfully complet	ted the Replicate Folder Wizard.	
Replication Eligibility			
Primary Member	lasks Errors		1
Topology Selection	Task	Status	
Parlianting Course Schoolde	Create replication group.	Success	
and Bandwidth	Create members.	Success	
Powiew Settings and Create	Croate roller security.	Success	
Replication Group	Create replicated folder.	Success	
Confirmation	Update folder properties.	Success	
Commution	Create connections.	Success	
	I		
			-
			Close

21. A notification window provides details on the *Replication Delay*.



22. There are now two replicated folders in New York and Paris. Please note the green arrow above the *Americas* Target folder. It means that data is being replicated.



23. The administrator will now add a third server to the replication group. For some companies, additional servers may be located at other branch sites. For this example, the administrator is providing greater flexibility to the network by replicating onto 12BIGNETWORK-2. The steps are a bit different now that the replication group has been created. Right-click on **Americas** and select **Add Folder Target...**.



24. In the *New Folder Target* window, the administrator may choose how to replicate data to the third server. For the full replication, choose **Full mesh** to all members. Click **Browse...** to create the Shared Folder on 12BIGNETWORK-2.

New Folder Target	×
<u>F</u> older:	
Americas	
Namespace path:	
Vacie.com/LaCie_Files/Accounting/Americas	
Path to folder target:	
	<u>B</u> rowse
Example: \\Server\Shared Folder\Folder	
Add this folder target to the replication group by using the following to	opology:
Single bi-directional connection to:	
	
Full mesh to all members	
C Custom connections:	
C <u>u</u> stomize	
For help on replication topology, click here.	
OK	Cancel
	11

- 25. Click **Browse...** or type the name of the server.
- 26. In the *Browse for Shared Folders* window, click **Show Shared Folders** to see the current folders on the third server.

Browse for Shared Folders		
<u>S</u> erver:		
12BIGNETWORK-2		<u>B</u> rowse
Show Shared Folders		
Shared folders:		
Common Resources Europe Creative Services Europe LaCie_Files		
New Shared Folder	ОК	Cancel

27. Click New Shared Folder.

28. In the *Create Share* window, write the name of the Shared Folder in the *Share name* field.

Create Share	×
Server name:	
12BIGNETWORK-2	-
Share name:	
Accounting Americas	_
Local path of shared folder:	
Browse	
	_
Shared folder permissions:	
C All users have read-only permissions	
All users have read and <u>write permissions</u>	
C Administrators have full access; other users have read-only permissions	
C Administrators have full access; other users have read and write permissions	
C Use custom permissions: Customize	
OK Cancel	

29. Click **Browse...** to create the path to the 12BIGNETWORK-2.

30. Type the name of the Shared Folder for the third server. Click **Make New Folder** to enter the name of the Shared Folder. Select the new folder and click **OK**.

Browse For Folder	×
Select a folder	
12BIGNETWORK-2	
🕀 🖳 主 🛃	
🖃 🖳 🖳 d\$	
🖃 퉲 Company Shares	
🕀 📔 Common Resources Europe	
🕀 📄 Creative Services Europe	
Accounting Americas	_
🕀 🌗 Software Development Europe	-
Eolder: Accounting Americas	
Make New Folder OK Cance	

31. In the *Create Share* window, confirm the Shared Folder settings and click **OK**.

Create Share	×
Server name:	
12BIGNETWORK-2	
Share name:	
Accounting Americas	
Local path of shared folder:	
d:\Company Shares\Accounting Americas	r <u>o</u> wse
Shared folder permissions:	
 All users have read-only permissions All users have read and write permissions 	
 Administrators have full access; other users have read-on permissions 	ly
 Administrators have full access; other users have read an permissions 	id write
C Use custom permissions: Customize	
ОК	Cancel

32. In the *Browse for Shared Folders* window, click once on the newly created Shared Folder. Click **OK**.

Browse for Shared Folders		
<u>S</u> erver:		
12BIGNETWORK-2		Browse
Show Shared Folders		
Shared folders:		
Accounting Americas Common Resources Europe Creative Services Europe LaCie_Files Software Development Europe		
<u>N</u> ew Shared Folder	ОК	Cancel

33. The Shared Folder has been created. In the *New Folder Target* window, confirm the settings and path before clicking **OK**.

New Folder Target	X
<u>F</u> older:	
Americas	
Namespace path:	
\Vacie.com\LaCie_Files\Accounting\Americas	
Path to folder target:	
\\12BIGNETWORK-2\Accounting Americas	Browse
Example: \\Server\Shared Folder\Folder	
Add this folder target to the replication group by using the following to <u>Single bi-directional connection to:</u>	opology:
Full mesh to all members	
C Custom connections:	
Customize	
r or help on repression topology, circk rere.	
ОК	Cancel

34. The replication *Progress* window will appear.

orking: Check DFS Replication member validity.		Close
		<< <u>D</u> etails
asks Errors		
Taale	Statue	
IdSK	Julius	
Validate shared folder.	Success	
Validate shared folder. Validate path.	Success Success	
 Validate shared folder. Validate path. Check DFS Replication member validity. 	Success Success In progress	
 Validate shared folder. Validate path. Check DFS Replication member validity. Commit changes. (1 items) 	Success Success In progress Not started	

35. The Shared Folder is now replicated on three servers.



36. To view the servers in the replication group, go to **Start > Administrative Tools > DFS Management > Replication > Domain [lacie.com]\Shared Folder [Accounting Americas]**.

Pres Management						
Eile Action View Window Help						_8×
DFS Management lacie.com (lacie_files\accounting\americas (lacie.com)						
E 🏭 Namespaces	Memberships Connections Designated Folders Delegation					
	Cartere					
Americas	6 entries					
Europe	State Sending Member	Sending Site	Connection Status	Receiving Member	Receiving Site	Schedule Type
Common Resources Creative Services	□ Sending Member: 12BIGNETWORK-1 (2 items)					
E Marketing	12BIGNETWORK-	Paris-Site	Enabled	12BIGNETWORK-2	Paris-Site	Replication Group Schedule
Software Development	12BIGNETWORK-	Paris-Site	Enabled	5BIGSTORAGE	NYC-Site	Replication Group Schedule
lacie.com\acie_files\accounting\americas	Sending Member: 12BIGNETWORK-2 (2 items)					
	12BIGNETWORK-	Paris-Site	Enabled	12BIGNETWORK-1	Paris-Site	Replication Group Schedule
	12BIGNETWORK-	Paris-Site	Enabled	5BIGSTORAGE	NYC-Site	Replication Group Schedule
	Sending Member: 5BIGSTORAGE (2 items)					
	5BIGSTORAGE	NYC-Site	Enabled	12BIGNETWORK-1	Paris-Site	Replication Group Schedule
	5BIGSTORAGE	NYC-Site	Enabled	12BIGNETWORK-2	Paris-Site	Replication Group Schedule

37. Repeat the steps to enable DFS replication for additional Target folders.