The Distributed File System (DFS) technologies offer wide area network (WAN)-friendly replication as well as simplified, highly available access to geographically dispersed files. The Distributed File System role service consists of two child role services:

- DFS Namespaces
- DFS Replication

DFS offers the following benefits:

Shared folders on a network appear in one hierarchy of folders created by a DFS Root with links. This simplifies user access.

Fault tolerance is an option by replicating shared folders. Uses the Microsoft File Replication Service (FRS).

Load balancing can be performed by distributing folder access across several servers.

There are two DFS models as follows:

<u>Standalone</u>

No Active Directory implementation Can implement load balancing, but replication of shares is manual DFS Root cannot be replicated DFS accessed by \\Server_Name.Domain_Name\DFS_Root_Name

Choose a stand-alone namespace if any of the following conditions apply to your environment:

• Your organization does not use Active Directory Domain Services (AD DS).

• You need to create a single namespace with more than 5,000 DFS folders in a domain that does not meet the requirements for a domain-based namespace (Windows Server 2008 mode).

• You want to increase the availability of the namespace by using a failover cluster.

Domain-based

Available only to members of a domain Can implement fault tolerance by Root and Link replication and load balancing, and replication of links and root is automatic

DFS accessed by \\Domain_Name\DFS_Root_Name

Choose a domain-based namespace if any of the following conditions apply to your environment:

• You want to ensure the availability of the namespace by using multiple namespace servers.

• You want to hide the name of the namespace server from users. Choosing a domain-based namespace makes it easier to replace the namespace server or migrate the namespace to another server.

DFS Topology:

The DFS root (a table of contents) Main container that holds links to shared folders Folders from all domain computers appear as if they reside in one main folder DFS links (pointers to shares) Designated access path between the DFS root and shared folders Replica sets (targets (duplicated shares))

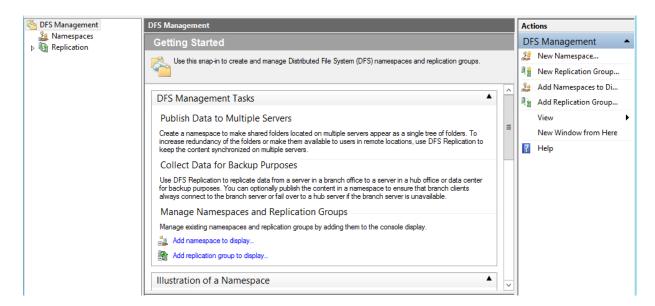
Set of shared folders that is replicated to one or more servers in a domain

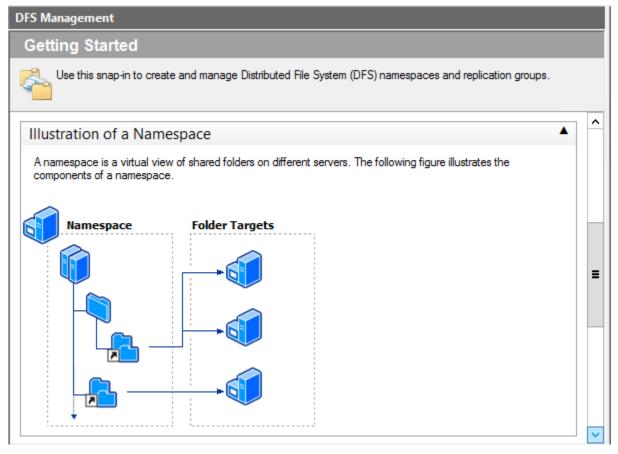
B	Add Roles and Features Wizard	_ D X
E Select server roles Before You Begin Installation Type Server Selection Server Roles Features Confirmation Results		DESTINATION SERVER .TEST Description DFS Replication is a multimaster replication engine that enables you to synchronize folders on multiple servers across local or wide area network (WAN) network connections. It uses the Remote Differential Compression (RDC) protocol to update only the portions of files that have changed since the last replication. DFS Replication can be used in conjunction with DFS Namespaces, or by itself.
	iSCSI Target Server iSCSI Target Storage Provider (VDS and VSS Server for NFS < III	tt > Install Cancel

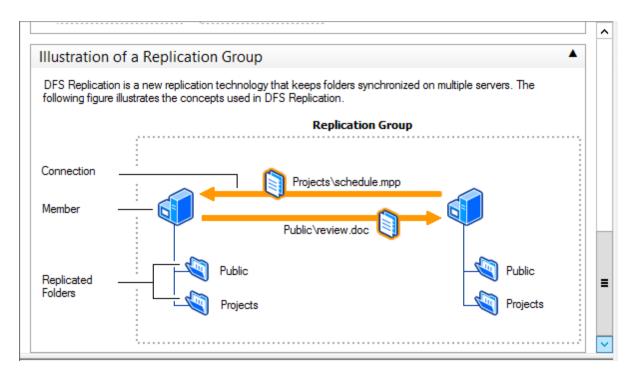
B	Add Roles and Features Wizard	_ □ X
Confirm installat Before You Begin Installation Type	ON SELECTIONS To install the following roles, role services, or features on selected server, o Restart the destination server automatically if required	DESTINATION SERVER .TEST click Install.
Server Selection Server Roles Features	Optional features (such as administration tools) might be displayed on thi been selected automatically. If you do not want to install these optional fe their check boxes.	
Confirmation Results	File and Storage Services File and iSCSI Services DFS Namespaces DFS Replication Remote Server Administration Tools Role Administration Tools File Services Tools DFS Management Tools Export configuration settings Specify an alternate source path	
	< Previous Next >	Install

🌼 Device Setup Manager	Enables the		Manual (Trig	Loc
😳 DFS Namespace	Enables you	Running	Automatic	Loc
🔍 DFS Replication	Enables you	Running	Automatic	Loc
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Active Directory Administrative Center
Active Directory Domains and Trusts
Active Directory Module for Windows PowerShell
Active Directory Sites and Services
Active Directory Users and Computers
ADSI Edit
Component Services
Computer Management
Defragment and Optimize Drives
DFS Management

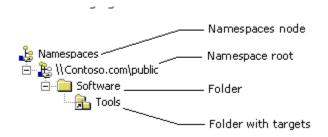






Namespaces node

The following figure shows the elements under the Namespaces node in the console tree.



<u><u></u></u>	New Namespace Wizard	_ D X
Namespace Se	rver	
Steps: Namespace Server Namespace Name and Settings Namespace Type Review Settings and Create Namespace Confirmation	Enter the name of the server that will host the namespace. The server you specify will be known as the namespace server. Server: Browse	
Namespace N	< Previous Next > New Namespace Wizard Name and Settings	
Steps: Namespace Server Namespace Name and Settings Namespace Type Review Settings and Create Namespace Confirmation	Ivame: testdfs Example: Public	
	If necessary, the wizard will create a shared folder on the namespace server. To modify the settings of the shared folder, such as its local path and permissions, click Edit Settings.	

P	New Namespace Wizard	– – X
Namespace	Edit Settings	
Namespace Steps: Namespace Server Namespace Name and Setting Namespace Type Review Settings and Create Namespace Confirmation	Edit Settings X Namespace server:	
		lext > Cancel

6	New Namespace Wizard
Namespace Ty	уре
Steps: Namespace Server Namespace Name and Settings Namespace Type Review Settings and Create Namespace Confirmation	Select the type of namespace to create. ● Domain-based namespace A domain-based namespace is stored on one or more namespace servers and in Active Directory Domain Services. You can increase the availability of a domain-based namespace by using multiple servers. When created in Windows Server 2008 mode, the namespace supports increased scalability and access-based enumeration. Enable Windows Server 2008 mode Preview of domain-based namespace:
	< Previous Next > Cancel

6	New Namespace Wizard
Review Setting	gs and Create Namespace
Steps: Namespace Server Namespace Name and Settings Namespace Type Review Settings and Create Namespace Confirmation	You selected the following settings for the new namespace. If the settings are correct, click Create to create your new namespace. To change a setting, click Previous, or select the appropriate page in the orientation pane. Namespace settings: Namespace name: \\ testdfs Namespace type: Stand-alone Namespace server: Root shared folder: A shared folder will be created if one does not exist. Local path of namespace shared folder: C:\DFSRoots\testdfs Permissions for namespace shared folder: Everyone read only
	< Previous Create Cancel

1	New Namespace Wizard
Confirmation	
Steps: Namespace Server Namespace Name and Settings Namespace Type Review Settings and Create Namespace Confirmation	You have successfully completed the New Namespace Wizard. Tasks Errors Task Status Image: Create namespace. Success
	Close

<u>^</u>		DFS Management		_ D X
🐴 File Action View Window	Help			_ <i>8</i> ×
Management ⊿ 월 Namespaces 월 \\ \testdfs	Numerical Stand-alone namespace Namespace Namespace Servers Delegation	1 Search		Actions
Replication	1 entries			🎢 New Folder
🦓 Domain System Volume	Type Referral Status	Site Default-First-Site-Name	Path /	Delegate Management Remove Namespace fr
				View 🕨
				New Window from Here
				X Delete
				Properties
				Relp
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Creating Links:

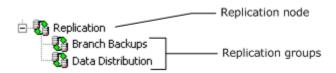
With a bare base DFS structure in place, now head back to DFS Management to add in some pre-created shared folders to it. This will provide a single point of reference to these shares (called Links) for users on the LAN. In the DFS console, right click on the DFS namespace root and select "New Folder" from the drop down menu to create a Link to a pre-created share.

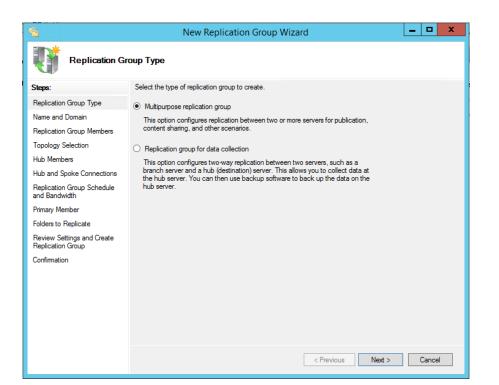
4		DFS Management		_ D X
🗞 File Action View Window H	Help			_ 8 ×
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Search 2015 Management	(Stand-alone name	espace)		Actions
A 2 Namespaces	amespace Namespace Servers De	elegation Search		\\testdfs 🔺
A Replicatio New Folder				😤 New Folder
	ement Permissions	Site	Path /	Delegate Management
Remove Names	pace from Display	Default-First-Ste-Name	\\ \testdfs	Remove Namespace fr
View	•			View 🕨
New Window fro	om Here			New Window from Here
Delete				🗙 Delete
Refresh				C Refresh
Properties				Properties
Help				Help

Namespace Nam	nespace Servers Delegation Search
1 entries Type Ref	New Folder
Ena	Name: docs Preview of namespace: \\ \testdfs\docs Folder targets:
	\\. \testdfs
	Add Edit Remove
	h.

Replication node

The following figure shows the elements under the Replication node in the console tree.

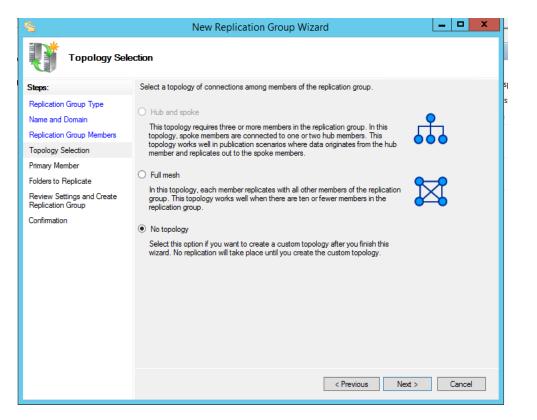




🐴 New Replication Group Wizard 📃 🗖 🗙						
Name and Domain						
Steps: Replication Group Type	Type a name and domain for the replication group. The name of the replication group must be unique in the domain that hosts the replication group.					
Name and Domain	Name of replication group:					
Replication Group Members Topology Selection	repgm					
Hub Members	Optional description of replication group:					
Hub and Spoke Connections	<u>^</u>					
Replication Group Schedule and Bandwidth	v					
Primary Member Folders to Replicate	Domain:					
Review Settings and Create Replication Group	Browse					
Confirmation						
	< Previous Next > Cancel					

<u>*</u>	New Replication Group Wizard					
Replication Group Members						
Steps:	Click Add and then select two or more servers that will become members of the					
Replication Group Type	replication group.					
Name and Domain	Members:					
Replication Group Members	Server	Domain				
Topology Selection	DC DC	TEST TEST				
Hub Members		1231				
Hub and Spoke Connections						
Replication Group Schedule and Bandwidth						
Primary Member						
Folders to Replicate						
Review Settings and Create Replication Group						
Confirmation						
	Add Remove					
		< Previous Next >	Cancel			

6	New Replication Group Wizard					
Topology Selection						
Steps:	Select a topology of connections among members of the replication group.					
Replication Group Type Name and Domain Replication Group Members Topology Selection Replication Group Schedule and Bandwidth Primary Member Folders to Replicate	 Hub and spoke This topology requires three or more members in the replication group. In this topology, spoke members are connected to one or two hub members. This topology works well in publication scenarios where data originates from the hub member and replicates out to the spoke members. Full mesh In this topology, each member replicates with all other members of the replication group. This topology works well when there are ten or fewer members in the replication group. 					
Review Settings and Create Replication Group	○ No topology					
Confirmation	Select this option if you want to create a custom topology after you finish this wizard. No replication will take place until you create the custom topology.					
	< Previous Next > Cancel					



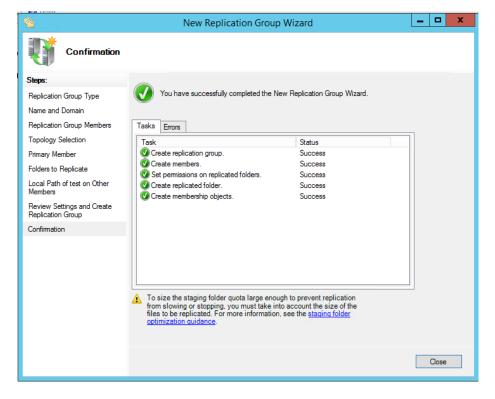
~	New Replication Group Wizard			x		
Primary Member						
Steps: Replication Group Type Name and Domain Replication Group Members Topology Selection Primary Member Folders to Replicate Review Settings and Create Replication Group Confirmation	Select the server that contains the content you want to replicate to other members. This server is known as the primary member. Primary member: DC v i f the folders to be replicated already exist on multiple servers, the folders and files on the primary member will be authoritative during initial replication.					
	< Previous Next >	Ca	ncel			

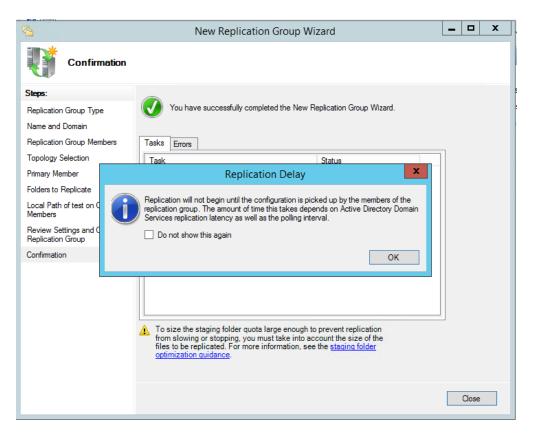
6	New Replication Group Wizard		!	□ X	
Folders to Rep	Add Folder to Replicate ×				
	Member:				
Steps:	DC				
Replication Group Type Name and Domain Replication Group Members	Local path of folder to replicate: c:\test Browse	ions	1		
Topology Selection	Example: C:\Documents	10113	-		
Primary Member	Select or type a name to represent this folder on all members of the replication group. This name is known as the replicated folder name.				
Folders to Replicate Review Settings and Create Replication Group Confirmation	Use name based on path: Itest Use custom name: Example: Documents Permissions >> OK Cancel OK Cancel OK				
	< Previous	Next >	Ca	ncel	
			o x		
<u><u><u></u></u></u>	New Replication Group Wizard				
Folders to Replicate					

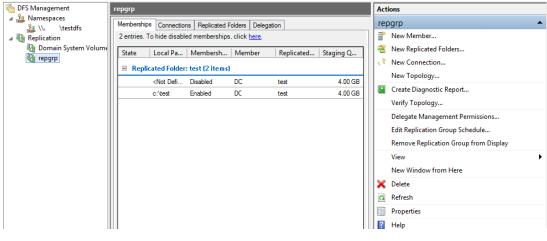
Steps:	To select a folder on th	To select a folder on the primary member that you want to replicate to other members of the replication group, click Add.					
Replication Group Type	members of the replicat	ion group, click Add.					
Name and Domain	Replicated folders:	Replicated folders:					
Replication Group Members	Local Path	Replicated Folder Name	NTFS Permissions				
Topology Selection	c:\test	test	Use existing per				
Primary Member							
Folders to Replicate							
Local Path of test on Other Members							
Review Settings and Create Replication Group							
Confirmation							
	Add	dit Remove					
		Γ	< Previous Next >	Cancel			
		L	VITEVIOUS IVEXU >	Cancer			

6		New Replica	ation Group Wiz	ard	– – X		
Local Patr	n of test on Othe	r Members					
Steps:	To specify the local path of the replicated folder or whether the folder is read-only, select the appropriate member and then click Edit						
Replication Group Type Name and Domain		y member:	DC				
Replication Group Members Topology Selection	8	Primary member local path: c.∵test Member details:					
Primary Member	Member DC	Local Path <not set=""></not>	Membe Disable	rship Stat d			
Folders to Replicate Local Path of test on Other							
Members Review Settings and Create	e						
Replication Group Confirmation							
	Edit	7					
		_					
				< Previous Ne	xt > Cancel		
%	No	w Replication G	oup Wizard		□ x		
• #12#							
Local Path of	test on Other Mer	nbers					
Steps: Replication Group Type	To specify the local p select the appropriate	bath of the replicated for e member and then clic	older or whether the folde k Edit	r is read-only,			
Name and Domain	 Primary memb Primary memb 		DC c:\test				
Replication Group Members Topology Selection	Member details:		0.1031				
Primary Member	Member	Local Path	Membership Stat				
Folders to Replicate	DC	<not set=""></not>	Disabled				
Local Path of test on Other Members							
Review Settings and Create Replication Group		V	Varning	×			
Confirmation	The rep member		bled for all members e	except the primary			
	Do you	want to continue?					
	-		Yes	No			
	Edit						
			< Prev	ious Next > Ca	ncel		

5	New Replication Group Wizard	_ 0 X			
Review Settings and Create Replication Group					
Steps: Replication Group Type Name and Domain Replication Group Members	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 settings:				
Topology Selection Primary Member Folders to Replicate Local Path of test on Other Members Review Settings and Create Replication Group Confirmation	Peplication Group Name: ^ repgip Replication Group Description: Domain of Replication Group:				
	Replicated Fooer name: test Member: DC Path: c.'test Status: Enabled < Previous O	veate Cancel			







階 DFS Management	Replication	1	Actions
A 🏭 Namespaces	Name	Delegate Management Permissions 🛛 🗕 🗖 🗙	plication 🔺
Repication Propietorio Prepigrp repgrp	Domain Syste	Domain: Browse Show Users and Groups Users or groups allowed to create replication groups: User or Group How Permission Is Granted "" OT\Domain Admins Exploit ""OT\Domain Admins Inherited BUILTIN\>dministrators Inherited NT AUTHORITY\SYSTEM Exploit	New Replication Group Add Replication Groups to Display Delegate Management Permissions Disable Topology Verification View New Window from Here Refresh Export List Help
		Add Remove OK Cancel Apply	

