

# **Test Report**

## Microsoft Windows 2003 Server Network Load Balancer Setup for SuperGIS Server 3

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#### 1. <u>Summary</u>

SuperGIS Server 3, which supports to cooperate with all load balancers on the market, is able to assist enterprises in creating the load balance mechanism to meet their needs. Meanwhile, the performance and load balance capability of the entire system can be improved so that the website system will be able to achieve the goal of high availability.

Microsoft Windows 2003 Server Network Load Balancer is a solution that can be applied to network load balance. Microsoft Windows 2003 Server Network Load Balancer can gather servers to a cluster and share a virtual IP. All of the requests sent to the virtual IP can be evenly distributed to each server to effectively balance the load of network. Also, the stability of the system can be enhanced, and overload occurring on single server can be prevented.

#### 2. Limitations

The document only illustrates the setup of Microsoft Network Load Balancer for unicast mode and does not attempt to cover all possible configurations.

#### 3. Software Requirements

- SuperGIS Server 3
- Microsoft Windows 2003/2008 Server

#### 4. Hardware Requirements

- More than two network servers
- Each server is equipped with a network interface card at least.

#### 5. Installing and Setting Microsoft Network Load Balancer

Before installing, you need to

- Make the list of the servers you want to use with load balance and write down the computer names or IP. Microsoft Network Load Balancer allows each cluster to support 32 servers at most.
- Obtain a static IP and a subnet mask for the load balancer.
- Install SuperGIS Server 3 on each server.





#### 6. Software Installation

- Login a server which has installed SuperGIS Server 3.
- Right-click Network Connection in Control Panel, choose Open, choose a connection to be the load balance, right-click it, and click Open (figure 1).



Figure 1

• Check Network Load Balancing (figure 2).





📕 Local Area Connection Properties 🛛 📍 🗙							
General Authentication Advanced							
Connect using:							
File and Printer Sharing for Microsoft Networks           Internet Protocol (TCP/IP)           Install							
Description This component provides TCP/IP load balancing functionality.							
<ul> <li>Show icon in notification area when connected</li> <li>Notify me when this connection has limited or no connectivity</li> </ul>							

Figure 2

• Click OK and start to install Network Load Balancer. Then, you can apply the server to create and manage load balancer cluster.

#### 6.1 Create the Cluster

• Create load balancer cluster. Firstly, click Administrative Tools in Start Menu and choose Network Load Balancing Manager (figure 3).



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Figure 3

 Network Load Balancing Manager window appears. Here, you can manage the tasks, like start and stop load balance, create cluster, add and remove server, etc (figure 4).



Figure 4



• Execute Add in Cluster menu to create a new cluster. Then, Cluster Parameters window appears (figure 5).

Cluster Parameters			? ×
Cluster IP configuration			
IP address:	192.168.1.50		
<u>S</u> ubnet mask:	255.255.255.0		
Eull Internet name:			
N <u>e</u> twork address:	02-bf-c0-a8-01-32		
Cluster operation mode			
⊙ <u>U</u> nicast ⊂ <u>M</u> ulticast	☐ I <u>G</u> MP multicast		
Allow remote control			
Remote password:	*****		
Confirm password:	******		
	nok Neuta	Cancel	Halp
<u></u>			help

Figure 5

- Input the IP Address and Subnet Mask of load balancer. (Full Internet Name is not necessary.)
- Choose Unicast.
- Click Next to open Cluster IP Addresses window (figure 6).



IF duuless.	192.1	68.1.50		
Subnet mask:	255.2	255.255.0		
Additional cluster [P ad	ldresses			
IP address		Subnet mask		
			ALC: 11.	
	[	<u>A</u> dd	<u>E</u> dit	<u>R</u> emove

Figure 6

• Click Next to open Port Rules window (figure 7).

U 655	35 Both	Multiple			
				-	Single
		<u>A</u> dd	<u>E</u> dit	<u> </u>	<u>R</u> emove
c directed to a	any cluster II	P address th	at arrives o	n ports 0 t	hrough
across multiple lient IP addre:	e members o sses are use	of the cluster and to assign (	according	to the load actions to	d weight a
		g			-
	c directed to a across multiple lient IP addres	c directed to any cluster II across multiple members o lient IP addresses are use		<u>Add</u> <u>Edit</u> c directed to any cluster IP address that arrives o across multiple members of the cluster according lient IP addresses are used to assign client conne	Add Edit Edit

Figure 7



• There should be an item in the window at least. Choose the item and click Edit. Then, Add/Edit Port Rule window appears (figure 8).

Add/Edit Port Rule 🔋 🗙
Cluster IP address
Port range <u>F</u> rom: 0 ÷ T <u>o</u> : 65535 ÷
Protocols © ICP © UDP © Both
Filtering mode <u>Multiple host</u> Affinity: <u>None</u> Single <u></u> lass C
◯ <u>S</u> ingle host
O <u>D</u> isable this port range
OK Cancel

Figure 8

 In the Filtering mode, choose Multiple host and choose either None or Single. If you use InProc, please choose Single. If your application would be required for failover, please choose None. If you are not sure, please choose Single and you can modify the settings later. Click OK to finish the settings.

#### 6.2 Connect Hosts to the Cluster

- Then, Connect window appears.
- Input the name or IP address of the host you want to connect and click Connect. When the connection is established successfully, you can find the list of network interface cards of the host in the lower part of the window and choose the interface for load balancing. Click Next (figure 9).



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Host:       192.168.1.40       Connect         Connected       Connected       Interfaces available for configuring the cluster         Interface name       Interface IP       Cluster IP         Local Area Connection       192.168.1.40       192.168.1.50	
Connection status         Connected         Interfaces available for configuring the cluster         Interface name       Interface IP         Cluster IP         Local Area Connection       192.168.1.40	
Connected         Interfaces available for configuring the cluster         Interface name       Interface IP         Local Area Connection       192.168.1.40         192.168.1.40       192.168.1.50	_
Interfaces available for configuring the cluster          Interface name       Interface IP       Cluster IP         Local Area Connection       192.168.1.40       192.168.1.50	
Interfaces available for configuring the cluster          Interface name       Interface IP       Cluster IP         Local Area Connection       192.168.1.40       192.168.1.50	
Interface name Interface IP Cluster IP Local Area Connection 192.168.1.40 192.168.1.50	
Local Area Connection 192.168.1.40 192.168.1.50	_

Figure 9

 Host Parameters window shows up. You can set the priority of the host which will be connected. (Unique host identifier cannot be duplicated; it supports 32 unique host identifiers at most.) Click Finish to connect to the host (figure 10).



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lost Parameters		? ×
Interface Local Area Connection		
Priority (unique host identii	ier):	
IP <u>a</u> ddress:	192.168.1.40	
<u>S</u> ubnet mask:	255.255.255.0	
- Initial host state		
Default state:	Started	
<u>R</u> etain suspended s	tate after computer restarts	
	< <u>B</u> ack Finish Cancel	Help

Figure 10

 If you want to connect to other hosts, in Network Load Balancing Manager, right-click the cluster name and choose Add Host to Cluster (figure 11).



Netwo	ek Load Bala	ncing Manage	р.				
Eile Clust	er Host Or	ntions Help	1				
	twork Load Bal	ancing Clusters				02 100 1 50)	
	(192.168.1.5	50)	Host configu	uration information r	or nosts in cluster (i	92.168.1.90J	( Destants
**	<u>A</u> dd Hos	t To Cluster	Host (Interra	scej Cílianal Assa Carra	Status	100.100.1 40	Dedicate
	<u>D</u> elete C	Iluster	- <u>-</u>	G(Local Area Conn	ect Convergea	132.166.1.40	200.200.
	Cluster I	Properties					
	Refresh						
	<u>R</u> emove	From View					
	Control	Hosts 🕨					
	Control	Ports					
			۰I –				
				1			<u> </u>
Log Entry	Date	Time	Cluster	Host	Description		
0001	10/6/2010	3:26:28 PM			NLB Manager sess	ion started	
0002	10/6/2010	5:06:29 PM	192.168.1.50	VM2003R2-ENG	Begin configuration	n change	
0003	10/6/2010	5:06:29 PM	192.168.1.50	VM2003R2-ENG	Waiting for pendin	ig operation 2	
0004	10/6/2010	5:06:47 PM	192.168.1.50	VM2003R2-ENG	Epd configuration	ed (double click for details) chapao	
0005	10/0/2010	5:00:47 PM	192,100,1,50	VMZUUJKZ-ENG	End connyuration	change	
•							Þ
							111

Figure 11

 Please repeat step 5.2 to set the hosts you want to use with Network Load Balance Cluster. As all of the hosts are added, you can find all of the hosts in Network Load Balancing Manager (figure 12).



Natura	k Load Balan	cing Manager								
File Clush	er Host Ont	tions Help								
	work Load Bala	ncing Clusters								
	☐ 4 (192.168.1.50)		Host configuration information for hosts in cluster (192, 168, 1.50)							
				icej Gili ocal Area Conneci	Status	1921C01 AD	255 255			
				G(Local Area Connect G(Local Area Connect	Converged	192.100.1.40	200.200.			
			3U_3W(	a(Local Area Connect	Convergeu	132.100.1.41	200.200.			
<u> </u>							<u> </u>			
Log Entry	Date	Time	Cluster	Host D	escription					
0001	10/6/2010	3:48:51 PM		N	ILB Manager sessi	ion started				
•							F			

Figure 12

• The settings are completed.