Cisco IOS Server Load Balancing: Real Server Configuration

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Introduction

This document describes the configuration of the real servers used with the Cisco IOS® Server Load Balancing (SLB) dispatch mode. The SLB dispatch mode is also known as MAC address−based mode and Loopback address−based mode.

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

Configure the Loopback Address

After you configure the SLB feature on the Catalyst 6000, you must configure each of the real servers with an alias for a unique loopback device or interface. This configuration is necessary to give each machine in the Server Farm the same IP address as the actual Virtual Server. The destination real server can then respond directly to clients with the alias address just as the server responds for its own unique address. This section

provides instructions to configure the loopback address for AIX, Solaris, Windows NT 4.0, and Windows 2000:

Configure the Loopback Address on AIX or Solaris UNIX

Use the **ifconfig lo0 alias VSERVER_IP_ADDR NETMASK 255.0.0.0** command on AIX UNIX to configure the loopback address.

Use the **ifconfig lo0:1 VSERVER_IP_ADDR 127.0.0.1 UP** command on Solaris UNIX to configure the loopback address.

Configure the Loopback Address on Windows NT 4.0

Complete these steps:

1. Select **Start > Settings**.
2. Select **Control Panel**, and double−click **Network**. Alternatively, right−click the Network Neighborhood icon and select **Properties**.

   The Network Control Panel appears.
3. Click **Adapters**, and complete these steps:

   a. Select **MS Loopback Adapter**, and click **OK**.
   b. Insert your installation CD−ROM or diskettes at the prompt.
   c. Click **Finish** to complete installation.

   The Network Control Panel appears again.
4. Click **Protocols**, and complete these steps:

   a. Right−click **TCP/IP Protocol**, and click **Properties**.
   b. Select **MS Loopback Adapter**, and click **OK**.
   c. Clear the selection of **Obtain an IP address automatically**.
   d. Assign the VServer/Loopback IP address, with a netmask of **255.0.0.0**.

Configure the Loopback Address on Windows 2000

Complete these steps:

1. Right−click the My Computer icon, and select **Properties**.

   The System Properties dialog box appears.
2. Select the **Hardware** tab, and click **Hardware Wizard**.

   The Hardware Installation wizard appears.
3. Add the MS Loopback adapter. Complete these steps:

   a. Click **Next**.
   b. Select **Add/Troubleshoot a device**.
   c. Click **Next**.
   d. Allow windows Plug and Play to examine system, and then select **Add a new device**.
   e. Click **Next**.
   f. Select **No, I want to select the hardware from a list**.
   g. Click **Next**.
   h. Select **Network Adapters**, and go to the Microsoft listing.

i. Select **Microsoft Loopback Adapter**, and click **Next**.
j. Click **Finish**.

4. Edit Loopback adapter settings through the Network Connection Wizard. Complete these steps:

   a. You can rename the new LAN connection to "lopback".
   b. Right−click the new connection, and click **Properties**.
   c. Clear the selection of any additionally bound protocols (for example, MS Networking, File & Print sharing, and so on).
   d. Double−click Internet Protocol (TCP/IP).
   e. Clear the selection of **Obtain an IP address automatically**.
   f. Assign the VServer/Loopback IP address, with a netmask of **255.0.0.0**.

Remove the Default Route

On some operating systems, a default route is created in relation to this new loopback alias. You need to remove the default route for IP routing to work properly.

Procedure to Remove the Default Route

Complete these steps

1. Check for an extra route on each real server. On AIX, Solaris, Windows NT 4.0, and Windows 2000, use the **netstat −rn** command.
2. Find your loopback address under the "Gateway Address" Column. If you have an extra route, the loopback address appears twice.

   Here is an example with the **netstat −rn** command, in which the loopback address (9.67.133.158) appears in both the second row and the eighth row:

```
NETWORK Address   Netmask           Gateway        Interface      Metric
0.0.0.0           0.0.0.0           9.67.128.1     9.67.133.67       1
9.0.0.0           255.0.0.0         9.67.133.158   9.67.133.158      1
9.67.128.0        255.255.248.0     9.67.133.67    9.67.133.67       1
9.67.133.67       255.255.255.255   127.0.0.1      127.0.0.1         1
9.67.133.158      255.255.255.255   127.0.0.1      127.0.0.1         1
9.255.255.255     255.255.255.255   9.67.133.67    9.67.133.67       1
127.0.0.0         255.0.0.0         127.0.0.1      127.0.0.1         1
224.0.0.0         224.0.0.0         9.67.133.158   9.67.133.158      1
224.0.0.0         224.0.0.0         9.67.133.67    9.67.133.67       1
255.255.255.255   255.255.255.255   9.67.133.67    9.67.133.67       1
```

3. Examine the Network address in each row, in which the loopback address appears. For the servers to communicate properly, you need a reference to a well−known multicast network address. The multicast network address is in the eighth row of the example. You need to delete the extra default−route, which is the one whose network address begins with the same first digit as the cluster address, followed by three zeroes. In this example, the extra route is in the second row, which has a network address of 9.0.0.0:

   Well−Known Multicast Network Address

```
224.0.0.0        224.0.0.0          9.67.133.158     9.67.133.158     1
```

   Automatically Installed Default Route

```
9.0.0.0          255.0.0.0          9.67.133.158     9.67.133.158     1
```

4. If you find an extra route, you must delete the extra route to allow proper communication with the SLB Virtual Server. Here are the instructions for each platform:

- On AIX or Solaris, use the **route delete −net *NETWORK_ADDRESS CLUSTER_ADDRESS*** command.

  For example, **route delete −net *9.0.0.0 9.67.133.158***
- On Windows NT 4.0 or Windows 2000, issue the **route delete *NETWORK_ADDRESS CLUSTER_ADDRESS*** command at a command prompt.

  For example, **route delete *9.0.0.0 9.67.133.158***

Note: If you use Windows NT 4.0 and Windows 2000, you must delete the extra route every time you reboot the server.

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Related Information

- **Configuring IOS Server Load Balancing with HTTP Probes in the Dispatched Mode**
- **Technical Support & Documentation − Cisco Systems**

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