L2TP Dial-Out Load Balancing and Redundancy

The L2TP Dial-Out Load Balancing and Redundancy feature introduces the ability to configure a tunnel server with the IP addresses of multiple network access servers (NASs). You can control load balancing, redundancy, and failover for Layer 2 Tunnel Protocol (L2TP) virtual private dialup network (VPDN) calls by assigning each NAS the desired priority settings on the tunnel server. Load balancing occurs between NASs with identical priority settings. When NASs are assigned different priority settings, if the NAS with the highest priority goes down the tunnel server will fail over to a lower priority NAS.

Configuration Information

Configuration information is included in the "Configuring Additional VPDN Features" module of the *Cisco IOS VPDN Configuration Guide*, Release 12.4T, at the following URL:

- http://www.cisco.com/univercd/cc/td/doc/product/software/ios124/124tcg/tvpdn_c/vpc6adht.htm

Command Reference

This section documents modified commands.

- **initiate-to**

initiate-to

To specify an IP address that will be used for Layer 2 tunneling, use the **initiate-to** command in VPDN group configuration mode. To remove an IP address from the virtual private dialup network (VPDN) group, use the **no** form of this command.

initiate-to ip *ip-address* [**limit** *limit-number*] [**priority** *priority-number*]

no initiate-to [**ip** *ip-address*]

Syntax Description

ip *ip-address*	Specifies the IP address of the router that will be tunneled to.
limit *limit-number*	(Optional) Specifies a limit to the number of connections that can be made to this IP address in the range from 0 to 32767.
priority *priority-number*	(Optional) Specifies a priority for this IP address in the range from 1 to 32767. 1 is the highest priority.

Command Default

No IP address is specified.

Command Modes

VPDN group configuration

Command History

Release	Modification
12.0(5)T	This command was introduced.
12.2(15)T	This command was enhanced with the capability to configure multiple Layer 2 Tunneling Protocol (L2TP) network access servers (NASs) on an L2TP tunnel server within the same VPDN group.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.

Usage Guidelines

Before you can use this command, you must enable one of the two request VPDN subgroups by using either the **request-dialin** or **request-dialout** command.

A NAS configured to request dial-in can be configured with multiple **initiate-to** commands to enable tunneling to more than one IP address.

A tunnel server configured to request dial-out can be configured with multiple **initiate-to** commands to enable tunneling to more than one IP address.

Examples

The following example configures a VPDN group for L2TP dial-out. This group can tunnel a maximum of five simultaneous users and has the second highest priority for requesting dial-out calls.

```
vpdn-group 1
 request-dialout
 protocol l2tp
 pool-member 1
!
 initiate-to ip 10.3.2.1 limit 5 priority
```

The following example configures VPDN group 1 to request L2TP tunnels to the peers (NASs) at IP addresses 10.0.58.201 and 10.0.58.205. The two NASs configured by the **initiate-to** commands have differing priority values to provide failover redundancy.

```
vpdn-group 1
 accept-dialin
 protocol l2tp
 virtual-template 1
!
 request-dialout
 protocol l2tp
 pool-member 1
!
 initiate-to ip 10.0.58.201  priority 1
 initiate-to ip 10.0.58.205  priority 100
 source-ip 10.0.58.211
```

In the previous example, you would configure load balancing among the NASs by setting the **priority** values in the **initiate-to** commands to the same values.

The following partial example shows how to set parameters to control how many times a tunnel server will retry connecting to a NAS, and the amount of time after which the NAS will declare itself down or busy so that the tunnel server will try connecting to the next NAS. (Note that the **l2tp tunnel** commands are optional and should be used only if it becomes necessary to change the default settings for these commands.)

```
!
vpdn enable
vpdn search-order domain
!
vpdn-group 1
.
.
.
 request-dialout
 protocol l2tp
 pool-member 1
!
 initiate-to ip 10.0.58.201 priority 1
 initiate-to ip 10.0.58.207 priority 50
 initiate-to ip 10.0.58.205 priority 100
 l2tp tunnel retransmit initial retries 5
 l2tp tunnel retransmit initial timeout min 4
 l2tp tunnel busy timeout 420
.
.
.
```

Related Commands

Command	Description
l2tp tunnel busy timeout	Configures the amount of time that the router will wait before attempting to recontact a router that was previously busy.
l2tp tunnel retransmit initial retries	Sets the number of times that the router will attempt to send out the initial control packet for tunnel establishment before considering a router busy.

Command	Description
l2tp tunnel retransmit initial timeout	Sets the minimum or maximum amount of time that the router will wait before resending an initial packet out to establish a tunnel.
request-dialin	Creates a request dial-in VPDN subgroup that configures a NAS to request the establishment of a dial-in tunnel to a tunnel server, and enters request dial-in VPDN subgroup configuration mode.
request-dialout	Creates a request dial-out VPDN subgroup that configures a tunnel server to request the establishment of dial-out L2TP tunnels to a NAS, and enters request dial-out VPDN subgroup configuration mode.
source-ip	Specifies an alternate IP address for a VPDN tunnel that is different from the physical IP address used to open the tunnel.