BFD Dampening

The BFD Dampening feature introduces a configurable exponential delay mechanism to suppress the excessive effect of remote node reachability events flapping with Bidirectional Forwarding Detection (BFD). The BFD Dampening feature allows the network operator to automatically dampen a given BFD session to prevent excessive notification to the BFD clients, thus preventing unnecessary instability in the network. Configuring the BFD Dampening feature on a high-speed interface with routing clients improves the convergence time and stability throughout the network.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see Bug Search Tool and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Information About BFD Dampening

Overview of BFD Dampening

Bidirectional Forwarding Detection (BFD) is a mechanism used by the routing protocols to quickly realize the reachability failures to their neighbors. When BFD detects a reachability status change of a neighbor, clients are notified immediately. Sometimes it might be critical to minimize changes in routing tables so as not to impact convergence, in case of any micro failure. An unstable link that flaps excessively can cause other devices in the network to consume substantial system processing resources, and it can cause routing protocols to lose synchronization with the state of the flapping link.

The BFD Dampening feature introduces a configurable exponential delay mechanism to suppress the excessive effect of remote node reachability events flapping with BFD. The BFD Dampening feature allows the network operator to automatically dampen a given BFD session to prevent excessive notification to the BFD clients, thus preventing unnecessary instability in the network. Dampening the notification to a BFD client suppresses BFD notification until the session under monitoring stops flapping and becomes stable.

Configuring the BFD Dampening feature, especially on a high-speed interface with routing clients, improves the convergence time and stability throughout the network. BFD dampening can be applied to all types of BFD sessions, including IPv4/single-hop/multihop, Multiprotocol Label Switching-Transport Profile (MPLS-TP), and Pseudo Wire (PW) Virtual Circuit Connection Verification (VCCV).

You can configure the BFD Dampening feature at the BFD template level (both single-hop and multihop templates). Dampening is applied to all the sessions that use the BFD template. If you do not want a session to be dampened, you should use a new BFD template without dampening for the new session. By default, the dampening functionality is not enabled on a template.

How to Configure BFD Dampening

Configuring BFD Dampening

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **bfd-template multi-hop** *template-name*
4. **interval min-tx** *milliseconds* **min-rx** *milliseconds* **multiplier** *multiplier-value*
5. **dampening** [*half-life-period reuse-threshold suppress-threshold max-suppress-time*]
6. **end**
7. **show bfd neighbors details**
8. **show bfd neighbors dampening**
9. **show bfd neighbors dampened**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.

	Command or Action	**Purpose**
Step 3	**bfd-template** **multi-hop** *template-name* **Example:** Device(config)# bfd-template multi-hop doctemplate	Creates a Bidirectional Forwarding Detection (BFD) template and enters BFD configuration mode.
Step 4	**interval** **min-tx** *milliseconds* **min-rx** *milliseconds* **multiplier** *multiplier-value* **Example:** Device(config-bfd)# interval min-tx 120 min-rx 100 multiplier 3	Configures the transmit and receive intervals between BFD packets, and specifies the number of consecutive BFD control packets that must be missed before BFD declares that a peer is unavailable.
Step 5	**dampening** [*half-life-period reuse-threshold suppress-threshold max-suppress-time*] **Example:** Device(config-bfd)# dampening 2 1000 3000 8	Configures a device to dampen a flapping session.
Step 6	**end** **Example:** Device(config-bfd)# end	Exits BFD configuration mode and returns to privileged EXEC mode.
Step 7	**show** **bfd** **neighbors** **details** **Example:** Device# show bfd neighbors details	(Optional) Displays the listing of existing BFD adjacencies and the dampening information about the BFD sessions if BFD dampening is enabled for the session.
Step 8	**show** **bfd** **neighbors** **dampening** **Example:** Device# show bfd neighbors dampening	(Optional) Displays the dampening information about the BFD sessions configured with BFD dampening.
Step 9	**show** **bfd** **neighbors** **dampened** **Example:** Device# show bfd neighbors dampened	(Optional) Displays the dampening information about the BFD sessions that are currently dampened.

Configuration Examples for BFD Dampening

Example: Configuring BFD Dampening

The following example shows how to configure BFD dampening.

```
bfd-template multi-hop doctemplate
 interval min-tx 120 min-rx 100 multiplier 3
 dampening 2 1000 3000 8
```

Additional References for BFD Dampening

Related Documents

Related Topic	Document Title
Cisco IOS commands	Cisco IOS Master Command List, All Releases
BFD commands	Cisco IOS IP Routing: Protocol-Independent Command Reference
Bidirectional Forwarding Detection	*IP Routing BFD Configuration Guide*

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for BFD Dampening

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

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Table 1: Feature Information for BFD Dampening

Feature Name	Releases	Feature Information
BFD Dampening	Cisco IOS XE Release 3.8S	The BFD Dampening feature introduces a configurable exponential delay mechanism to suppress the excessive effect of remote node reachability events flapping with BFD. This feature also allows the network operator to automatically dampen a given BFD session to prevent excessive notification to the BFD clients, thus preventing unnecessary instability in the network. The following commands were introduced or modified: **dampening (bfd)** and **show bfd neighbors**.

Feature Information for BFD Dampening