MPLS Traffic Engineering—Overload Avoidance Support for IS-IS

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The MPLS Traffic Engineering—Overload Avoidance Support for IS-IS feature enables users to ensure that specific routers will be included in Constrained Shortest Path First calculations, even when the routers indicate through IS-IS that they are overloaded.

History for the MPLS Traffic Engineering—Overload Avoidance Support for IS-IS Feature

Release	Modification
12.0(22)S	This feature was introduced.
12.2(28)SB	This feature was integrated into Cisco IOS Release 12.2(28)SB.

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Feature Overview

Occasionally you may want a router in an IS-IS network to not carry traffic. For example:

- A test router in a lab that is connected to a production network.
- A router configured as an link-state packet (LSP) flooding server (on an nonbroadcast multiaccess (NBMA) network, for example) in combination with the mesh-group feature.
- A router that is aggregating virtual circuits (VC), being used only for network management.
- A router that is experiencing a memory shortage, making its routing table inaccurate or incomplete.

This new feature is implemented through a single command, **mpls traffic-eng path-selection overload allow**. For the reader's convenience, we have also included information about an older command, **set-overload-bit** (which had already been fully documented in the *Cisco IOS IP Configuration Guide and Command Reference*), because the new command's function is so closely tied to that older command

To isolate any such router, you turn on the **set-overload-bit** command (described in detail on page 5). Doing so will allow other routers to ignore this router in their SPF calculations. No paths through this router will be seen by other routers in the IS-IS area. (Nevertheless, IP and Connectionless Network Service (CLNS) prefixes directly connected to this router still will be reachable).

Now, you can selectively override the overload bit with respect to Multiprotocol Label Switching (MPLS) LSPs by using a new command: **mpls traffic-eng path-selection overload allow.** This command enables the operator to include an overloaded node in CSPF.

Prerequisites

Your network must support the following Cisco IOS features in order for this command to have any effect:

- MPLS
- IS-IS

Command Reference

This section documents modified commands only.

- **mpls traffic-eng path-selection overload allow**
- **set-overload-bit**

mpls traffic-eng path-selection overload allow

To ensure that Label Switched Paths (LSPs) will not be torn down because of routers whose Intermediate System-to-Intermediate System (IS-IS) overload bit is turned on, use the **mpls traffic-eng path-selection overload allow** command in global configuration mode on the LSP's headend router. To disable this override, use the **no** form of the command.

mpls traffic-eng path-selection overload allow {**head** [**middle**] [**tail**] | **middle** [**tail**] | **tail**}

no mpls traffic-eng path-selection overload allow {**head** [**middle**] [**tail**] | **middle** [**tail**] | **tail**}

Syntax Description

head	Allows LSPs to originate at the head-end router even when, on that same router, the overload bit has been turned on.
middle	Tells the head-end router to allow LSPs to transit midpoint routers that have their overload bit turned on.
tail	Tells the head-end router to allow LSPs to terminate at tail routers that have their overload bit turned on.

Command Default

No default behavior or values.

Command Modes

Global configuration

Command History

Release	Modification
12.0(22)S	This command was introduced.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.

Usage Guidelines

The command is always configured on the *head node* of the LSP you want to affect.

You must specify which nodes along the LSP are to ignore the overload bit—head only, middle only, tail only, or some combination of head, middle, and tail.

When you want a combination of locations, you must specify them in this order: head first, then middle, then tail. No other order will work.

Examples

The following example allows ingress and egress LSPs to be set up on routers whose overload bit is turned on:

```
Router(config)# mpls traffic-eng path-selection overload allow head tail
```

The following example removes the override of the IS-IS overload bit on this node:

```
Router(config)# no mpls traffic-eng path-selection overload allow head tail
```

Related Commands

Command	Description
set-overload-bit	Configures a router to signal other routers not to use it as an intermediate hop in their SPF calculation.

set-overload-bit

To configure the router to signal other routers not to use it as an intermediate hop in their shortest path first (SPF) calculations, use the **set-overload-bit** command in router configuration mode. To remove the designation, use the **no** form of this command.

set-overload-bit

no set-overload-bit

Syntax Description

This command has no arguments or keywords.

Command Default

The overload bit is not set.

Command Modes

Router configuration

Command History

Release	Modification
11.2	This command was introduced.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.

Usage Guidelines

This command forces the router to set the overload bit (also known as the hippity bit) in its nonpseudonode link-state packets (LSPs). Normally, the setting of the overload bit is allowed only when a router runs into problems. For example, when a router is experiencing a memory shortage, it might be that the link-state database is not complete, resulting in an incomplete or inaccurate routing table. By setting the overload bit in its LSPs, other routers can ignore the unreliable router in their SPF calculations until the router has recovered from its problems.

Examples

The following example configures the set-overload bit:

```
router isis
 set-overload-bit
```