Configuring Link-State Tracking

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Restrictions for Configuring Link-State Tracking

- You can configure only two link-state groups per switch.

- An interface cannot be a member of more than one link-state group.

- An interface that is defined as an upstream interface in a link-state group cannot also be defined as a downstream interface in the link-state group.

- Do not enable link-state tracking on individual interfaces that will part of a downstream EtherChannel interface.

Related Topics

Understanding Link-State Tracking, on page 2

How to Configure Link-State Tracking , on page 4

Monitoring Link-State Tracking Status

Understanding Link-State Tracking

Link-state tracking, also known as trunk failover, binds the link state of multiple interfaces. Link-state tracking can be with server NIC adapter teaming to provide redundancy in the network. When the server NIC adapters are configured in a primary or secondary relationship, and the link is lost on the primary interface, network connectivity is transparently changed to the secondary interface.

Note An interface can be an aggregation of ports (an EtherChannel) or a single physical port in either access or trunk mode .

The configuration in this figure ensures that the network traffic flow is balanced.

Figure 1: Typical Link-State Tracking Configuration
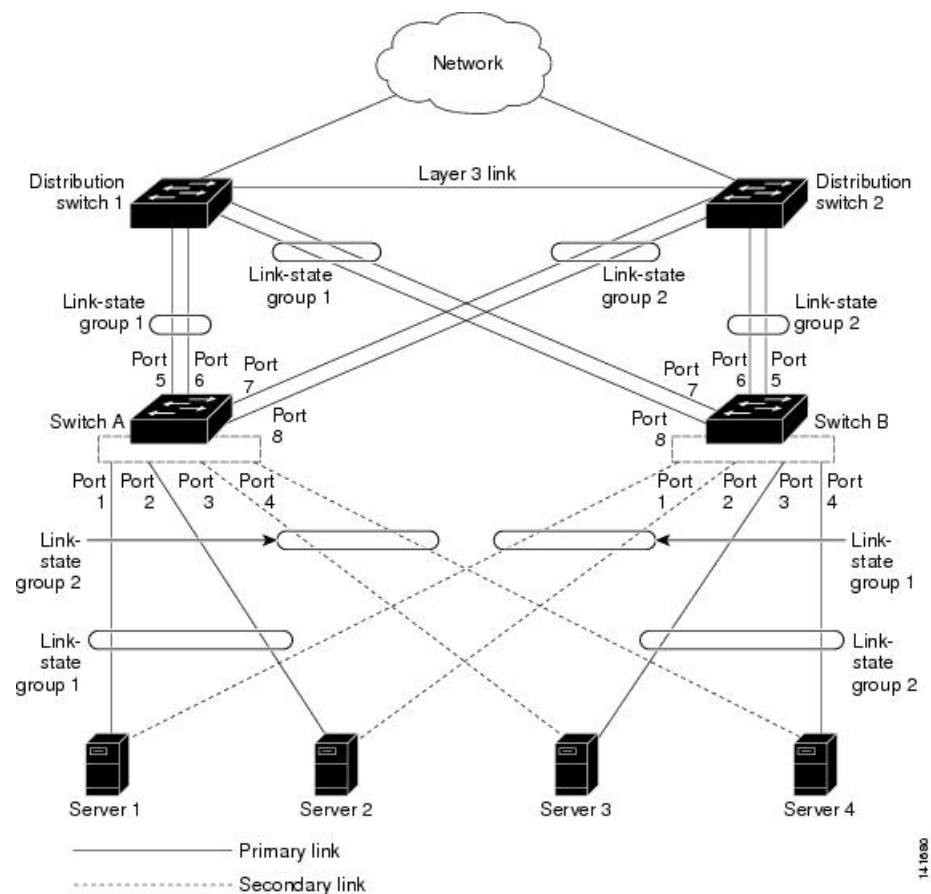
- For links to switches and other network devices

    - Server 1 and server 2 use switch A for primary links and switch B for secondary links.

    - Server 3 and server 4 use switch B for primary links and switch A for secondary links.

- Link-state group 1 on switch A

- Switch A provides primary links to server 1 and server 2 through link-state group 1. Port 1 is connected to server 1, and port 2 is connected to server 2. Port 1 and port 2 are the downstream interfaces in link-state group 1.

- Port 5 and port 6 are connected to distribution switch 1 through link-state group 1. Port 5 and port 6 are the upstream interfaces in link-state group 1.

- Link-state group 2 on switch A

  - Switch A provides secondary links to server 3 and server 4 through link-state group 2. Port 3 is connected to server 3, and port 4 is connected to server 4. Port 3 and port 4 are the downstream interfaces in link-state group 2.

  - Port 7 and port 8 are connected to distribution switch 2 through link-state group 2. Port 7 and port 8 are the upstream interfaces in link-state group 2.

- Link-state group 2 on switch B

  - Switch B provides primary links to server 3 and server 4 through link-state group 2. Port 3 is connected to server 3, and port 4 is connected to server 4. Port 3 and port 4 are the downstream interfaces in link-state group 2.

  - Port 5 and port 6 are connected to distribution switch 2 through link-state group 2. Port 5 and port 6 are the upstream interfaces in link-state group 2.

- Link-state group 1 on switch B

  - Switch B provides secondary links to server 1 and server 2 through link-state group 1. Port 1 is connected to server 1, and port 2 is connected to server 2. Port 1 and port 2 are the downstream interfaces in link-state group 1.

  - Port 7 and port 8 are connected to distribution switch 1 through link-state group 1. Port 7 and port 8 are the upstream interfaces in link-state group 1.

In a link-state group, the upstream ports can become unavailable or lose connectivity because the distribution switch or router fails, the cables are disconnected, or the link is lost. These are the interactions between the downstream and upstream interfaces when link-state tracking is enabled:

- If any of the upstream interfaces are in the link-up state, the downstream interfaces can change to or remain in the link-up state.

- If all of the upstream interfaces become unavailable, link-state tracking automatically puts the downstream interfaces in the error-disabled state. Connectivity to and from the servers is automatically changed from the primary server interface to the secondary server interface. For example, in the previous figure, if the upstream link for port 6 is lost, the link states of downstream ports 1 and 2 do not change. However, if the link for upstream port 5 is also lost, the link state of the downstream ports changes to the link-down state. Connectivity to server 1 and server 2 is then changed from link-state group1 to link-state group 2. The downstream ports 3 and 4 do not change state because they are in link-group 2.

- If the link-state group is configured, link-state tracking is disabled, and the upstream interfaces lose connectivity, the link states of the downstream interfaces remain unchanged. The server does not recognize that upstream connectivity has been lost and does not failover to the secondary interface.

You can recover a downstream interface link-down condition by removing the failed downstream port from the link-state group. To recover multiple downstream interfaces, disable the link-state group.

Related Topics

How to Configure Link-State Tracking

To enable link-state tracking, create a link-state group and specify the interfaces that are assigned to the group. This task is optional.

Procedure

	Command or Action	**Purpose**
Step 1	**configure terminal** **Example:** Switch# **configure terminal**	Enters global configuration mode.
Step 2	**link state track** *number* **Example:** Switch(config)# **link state track 2**	Creates a link-state group and enables link-state tracking. The group number can be 1 or 2; the default is 1.
Step 3	**interface** *interface-id* **Example:** Switch(config)# **interface gigabitethernet2/0/1**	Specifies a physical interface or range of interfaces to configure, and enters interface configuration mode. Valid interfaces include switch ports in access or trunk mode (IEEE 802.1q) or routed ports. **Note** Do not enable link-state tracking on individual interfaces that will be part of an Etherchannel interface.
Step 4	**link state group** [*number*]{**upstream** | **downstream**} **Example:** Switch(config-if)# **link state group 2 upstream**	Specifies a link-state group and configures the interface as either an upstream or downstream interface in the group.
Step 5	**end** **Example:**	Returns to privileged EXEC mode.

	Command or Action	Purpose
	`Switch(config-if)#` **`end`**	

Related Topics

Monitoring Link-State Tracking

You can display link-state tracking status using the command in this table.

Table 1: Commands for Monitoring Link-State Tracking Status

Command	Description
show link state group [*number*] [**detail**]	Displays the link-state group information.

Configuring Link-State Tracking: Example

This example shows how to create the link-state group 1 and configure the interfaces in the link-state group.

```
Switch# configure terminal
Switch(config)# link state track 1
Switch(config-if)# interface range gigabitethernet1/0/21-22
Switch(config-if)# link state group 1 upstream
Switch(config-if)# interface gigabitethernet1/0/1
Switch(config-if)# link state group 1 downstream
Switch(config-if)# interface gigabitethernet1/0/3
Switch(config-if)# link state group 1 downstream
Switch(config-if)# interface gigabitethernet1/0/5
Switch(config-if)# link state group 1 downstream
Switch(config-if)# end
```

Related Topics