CISCO-VIRTUAL-SWITCH-MIB Enhancement for VSS Dual Active Detection

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The CISCO-VIRTUAL-SWITCH-MIB feature allows you to configure the Simple Network Management Protocol (SNMP) to receive messages when the state of the VSS changes to dual-active. This feature is based on the RFC 3418, which defines managed objects that describe the behavior of a Simple Network Management Protocol (SNMP) entity.

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 at the end of this module.

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 CISCO-VIRTUAL-SWITCH-MIB Enhancement for VSS Dual Active Detection

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Cisco Catalyst 6500 Series Virtual Switching System

The Cisco Catalyst 6500 series virtual switching system (VSS) is formed by combining two switches into a single, logical network entity from both network control-plane and management perspectives. The Cisco VSS appears as a single, logical switch, or router to the neighboring devices.

One chassis is designated as the active virtual switch and the other is designated as the standby virtual switch. All control-plane functions and software data path are centrally managed by the active supervisor engine of the active virtual switch chassis. The chassis containing the supervisor engine and acting as the single management point is referred to as the active virtual switch. The peer chassis is referred to as the standby virtual switch.

Special signaling and control information must be exchanged between the two chassis in a timely manner, if the two chassis need to be bound together into a single logical node. To facilitate this information exchange, you need a special link to transfer both data and control traffic between the peer chassis. This link is referred to as the virtual switch link (VSL). It is also used to determine which virtual switch becomes the active virtual switch and which becomes the standby virtual switch.

VSS Dual-Active Scenario

Whenever the virtual switch link (VSL) fails completely, the active supervisor engine discovers the failure of the VSL either through a link-down event or through the failure of the periodic virtual switch link protocol (VSLP) messages sent across the member links to check the VSL link status. From the perspective of the active virtual switch chassis, the standby virtual switch is lost. The standby virtual switch chassis also views the active virtual switch chassis as failed and transitions to active virtual switch state through a stateful switchover (SSO).

In this case, each virtual switch assumes the role as an active virtual switch and controls only its local ports. This scenario is known as a dual-active scenario. Duplication of this configuration can possibly have adverse effects to the network topology and traffic.

To avoid this disruptive scenario, configure the VSL as a multiple-link port channel and spread it across all the available supervisor engines and modules within the chassis. Also run the individual members of the VSL across separate physical paths when possible.

In some circumstances, this configuration may not be possible, and Cisco VSS has different mechanisms to address this dual-active scenario:

- Configuration of the VSL failure-detection feature.
- Detection of a dual-active scenario.
- Action taken to resolve the situation.
- Recovery behavior upon restoring the VSL.

The CISCO-VIRTUAL-SWITCH-MIB Enhancement for VSS dual active detection feature allows you to configure the Simple Network Management Protocol (SNMP) to receive messages when the state of the VSS changes to dual-active. The **snmp-server enable traps vswitch dual-active**command enables the dual-active state change notification. When the VSS changes state to dual-active, the SNMP sends out the cvsDualActiveDetectionNotif notification.

Additional References

Related Documents

Related Topic	Document Title
Cisco IOS commands	*Cisco IOS Master Command List, All Releases*
SNMP commands: complete command syntax, command mode, command history, defaults, usage guidelines, and examples	*Cisco IOS SNMP Command Reference*
Cisco implementation of RFC 1724, RIP Version 2 MIB Extensions	*RIPv2 Monitoring with SNMP Using the RFC 1724 MIB Extensions* feature module
DSP Operational State Notifications for notifications to be generated when a digital signaling processor (DSP) is used	*DSP Operational State Notifications* feature module

Standards and RFCs

Standard/RFC	Title
CBC-DES (DES-56) standard	*Symmetric Encryption Protocol*
STD: 58	*Structure of Management Information Version 2 (SMIv2)*
RFC 1067	*A Simple Network Management Protocol*
RFC 1091	*Telnet terminal-type option*
RFC 1098	*Simple Network Management Protocol (SNMP)*
RFC 1157	*Simple Network Management Protocol (SNMP)*
RFC 1213	*Management Information Base for Network Management of TCP/IP-based internets:MIB-II*
RFC 1215	*Convention for defining traps for use with the SNMP*
RFC 1901	*Introduction to Community-based SNMPv2*
RFC 1905	*Common Management Information Services and Protocol over TCP/IP (CMOT)*
RFC 1906	*Telnet X Display Location Option*
RFC 1908	*Simple Network Management Protocol (SNMP)*
RFC 2104	*HMAC: Keyed-Hashing for Message Authentication*
RFC 2206	*RSVP Management Information Base using SMIv2*
RFC 2213	*Integrated Services Management Information Base using SMIv2*
RFC 2214	*Integrated Services Management Information Base Guaranteed Service Extensions using SMIv2*

Standard/RFC	Title
RFC 2271	*An Architecture for Describing SNMP Management Frameworks*
RFC 2570	*Introduction to Version 3 of the Internet-standard Network Management Framework*
RFC 2578	*Structure of Management Information Version 2 (SMIv2)*
RFC 2579	*Textual Conventions for SMIv2*
RFC 2580	*Conformance Statements for SMIv2*
RFC 2981	*Event MIB*
RFC 2982	*Distributed Management Expression MIB*
RFC 3413	*SNMPv3 Applications*
RFC 3415	*View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)*
RFC 3418	*Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)*

MIBs

MIB	MIBs Link
• Circuit Interface Identification MIB • Cisco SNMPv2 • Ethernet-like Interfaces MIB • Event MIB • Expression MIB Support for Delta, Wildcarding, and Aggregation • Interfaces Group MIB (IF-MIB) • Interfaces Group MIB Enhancements • MIB Enhancements for Universal Gateways and Access Servers • MSDP MIB • NTP MIB • Response Time Monitor MIB • Virtual Switch MIB	To locate and download MIBs for selected platforms, releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

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 CISCO-VIRTUAL-SWITCH-MIB Enhancement for VSS Dual Active Detection

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.

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.

Table 1 Feature Information for CISCO-VIRTUAL-SWITCH-MIB Enhancement for VSS Dual Active Detection

Feature Name	Releases	Feature Information
CISCO-VIRTUAL-SWITCH-MIB - VSS Dual Active Detection Enhancement	15.1(1)SY	The CISCO-VIRTUAL-SWITCH-MIB enhancement for VSS dual-active detection feature introduces the dual-active SNMP trap. The trap must be enabled by the user along with the other vswitch vsl SNMP trap. Enabling the dual-active SNMP trap forces the old active switch to send SNMP trap to the agent only when the old active virtual-switch node detects the dual-active state based on the detection mechanism used. No dual-active trap is required to be sent by the new active virtual-switch node. The SNMP trap is generated when the dual-active state is detected, and the corresponding syslog is sent. But the trap is not received at the trap receiver as all interfaces are shut down except the excluded interfaces, and the trap receiver will not be able to contact the switch in recovery mode. The following commands were introduced or modified: **snmp-server enable traps vswitch dual-active** and **test snmp trap vswitch dual-active**.

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