

Cisco MPLS Diagnostics Expert 2.0

Overview

Q. What is Cisco® MPLS Diagnostics Expert?

A. Cisco MPLS Diagnostics Expert is a software application for quickly troubleshooting and diagnosing connectivity problems in IP/Multiprotocol Label Switching (IP/MPLS) VPNs.

Q. What is new in Cisco MPLS Diagnostics Expert 2.0?

A. Table 1 lists the new features:

Table 1. New Features in Cisco MPLS Diagnostics Expert 2.0

New Feature	Description
Forty-percent increase in diagnostics functionality	Detects 20 new failure scenarios and reports 14 new observations. The new failure scenarios and observations are in the areas listed below.
Multilink interface support	Supports troubleshooting over multilink access-circuit interfaces.
Channelized interface support	Supports troubleshooting over channelized access-circuit interfaces.
IP unnumbered interfaces	Supports troubleshooting over IP unnumbered interfaces in the access circuit.
Support for common provider-edge routers	Supports troubleshooting between customer sites where the customer-edge routers are connected to the same provider-edge router.
MPLS Traffic-Engineered tunnel support	Supports MPLS VPN troubleshooting across cores that employ MPLS Traffic-Engineered tunnels.
Access circuit routing-protocol troubleshooting	Supports troubleshooting of routing protocol failures on the access circuit.
Usability improvements	GUI provides auto-completion of the customer-edge interface IP address when it is on a "/30" subnetwork. There is also a search function based on the interface description field, so that the user can find an interface, for example, based on a circuit ID or customer name, which is commonly encoded in the interface description on the router.

Q. How can I evaluate or try out Cisco MPLS Diagnostics Expert?

A. Please contact your local account representative, or send an e-mail to mde@cisco.com.

Q. What are the hardware and software requirements to run an evaluation of the product?

A. For information on hardware and software requirements, please visit: http://www.cisco.com/univercd/cc/td/doc/product/rtrmgmt/isc/4_2/install/sysreqs.htm.

Q. Who can use Cisco MPLS Diagnostics Expert?

A. Cisco MPLS Diagnostic Expert is designed for service providers and for large enterprises with self-managed MPLS networks. Cisco MPLS Diagnostics Expert significantly accelerates diagnostics and troubleshooting, and simplifies tasks for the following four functional roles:

- Cisco MPLS Diagnostics Expert gives first-level customer support organizations an easy-to-use GUI. From only six items of information, the system localizes and diagnoses a network connectivity problem typically in less than 4 minutes (based on tests of the software).
- Network operations center (NOC) teams can dramatically reduce mean time to repair (MTTR) as they respond to MPLS VPN interruptions. When the NOC receives an alarm, generated by one or more traps or syslog messages from the devices, the root cause of the problem is not always clear. Cisco MPLS Diagnostics Expert can be used in this case, provided that at least one affected VPN service is known. The system will run through the

localization and diagnostics algorithm, and return typically within 4 minutes with the probable cause and recommended action.

- Teams that configure, or reconfigure, MPLS VPNs can dramatically improve the ease with which they create and provision MPLS VPNs. One of the most time-consuming activities in service activation is the verification that the newly provisioned service is operational and ready to use. Cisco MPLS Diagnostics Expert can help reduce this time to about a minute, and produce a detailed log that can be attached to the provisioning record.
- Network engineering teams can use Cisco MPLS Diagnostics Expert to verify whether major configuration changes made in the network have affected customer VPNs.

Q. Do I need to buy Cisco IP Solution Center (ISC) for provisioning in order to use Cisco MPLS Diagnostics Expert?

A. No, Cisco MPLS Diagnostics Expert can be purchased and used on its own, or together with other applications in the Cisco IP Solution Center product family.

Q. How does Cisco MPLS Diagnostics Expert work in a multivendor network?

A. Cisco MPLS Diagnostics Expert will isolate an MPLS VPN problem to a specific device, even if that device is not manufactured by Cisco. Note that localization may be impeded if the device does not support the IEEE MPLS Operations, Administration, and Maintenance (OAM) standards. Further problem diagnosis at the device level must be done manually, focusing on that device.

Q. Which problems does Cisco MPLS Diagnostics Expert diagnose?

A. The current product release diagnoses connectivity problems in MPLS VPNs. More than 100 failure scenarios have been identified, and these are evenly distributed across attachment circuit and MPLS edge and core, with approximately one third in each area. The failure scenarios include Frame Relay configuration problems, route target mismatches, and missing MPLS or Cisco Express Forwarding configuration on interfaces. More complicated cases include access lists preventing Label Distribution Protocol (LDP) propagation, and mismatch between route processor and line card Forwarding Information Base (FIB)/Label FIB (LFIB) tables.

Q. How does Cisco MPLS Diagnostics Expert communicate with managed devices? What device instrumentation does it use?

A. It uses the Cisco IOS[®] Software command-line interface (CLI), through either Telnet or Secure Shell (SSH) Protocol. The IETF standardized MPLS OAM mechanisms for Virtual Route Forwarding (VRF)-aware ping and traceroute and Label-Switched Path (LSP)-aware ping and traceroute are used to localize the problem, and then more than 60 different commands are used for diagnostics. The system is not intrusive because it does not issue any commands that modify the configuration.

Q. How much load to the network will the tests run by Cisco MPLS Diagnostics Expert generate?

A. The network load is negligible. The tool will issue less than 10 pings and one traceroute for each diagnostics session.

Q. Can Cisco MPLS Diagnostics Expert be used to troubleshoot complex topologies such as hub-and-spoke, extranet, and Grey Management VPN?

A. Yes. In some cases the problem may have to be broken down into segments, because the current release does not make any assumptions regarding VPN topology (because topology misconfiguration may be the source of the problem).

Q. How does Cisco MPLS Diagnostics Expert compare to other products in the Cisco fault management portfolio?

A. Cisco MPLS Diagnostics Expert complements Cisco and third-party fault management applications. It carries out detailed diagnostics and in most cases reports the exact cause of the connectivity problem. It does not rely on the network elements' capability to detect and report fault symptoms. This means that it solves a completely different set of problems from those supported by Cisco Info Center and CiscoWorks Device Fault Manager. These tools primarily listen to events from the network elements, and then combine these events together to suggest root causes.

Q. Can I add my own failure scenarios?

A. The ability to augment the failure search will be added to the product feature set initially for Cisco Advanced Services and partners, but eventually for customers as well. The current version does not allow modification of the failure search algorithm. New failure scenarios will be incorporated in periodic and frequent enhancements.

Q. Can Cisco MPLS Diagnostics Expert be run periodically to monitor connectivity in my VPNs?

A. Cisco is planning to introduce this feature in a future version. The feature will use IP SLA Network Health Monitor (formerly known as Auto-SAA) to monitor all LSPs carrying VPN traffic. The system will also monitor selected VPNs, either permanently or on a scheduled basis.

Q. Can I launch Cisco MPLS Diagnostics Expert from an alarm in my fault management system (such as Cisco Info Center or Micromuse Netcool/OMNIBus)?

A. The current version does not support a northbound interface (API). This feature is planned for a future version of the product.

Q. Can I use Cisco MPLS Diagnostics Expert to diagnose problems in MPLS networks without MPLS VPNs? For example, either pure MPLS problems or Layer 2 VPN/Any Transport over MPLS (AToM)-related problems?

A. The current version assumes an MPLS VPN connectivity problem as the starting point. Cisco will introduce related tools for diagnosing Ethernet and AToM connectivity problems.

Q. Is there training available for Cisco MPLS Diagnostics Expert?

A. Yes, the following organizations offer training:

- Harbrook Consultants, based in the United Kingdom. Target theaters: Americas and Europe: <http://www.harbrook.net>
- Fastwire, based in Australia. Target theaters: Asia Pacific and the Middle East: <http://www.fastwire.com.au>
- Technology Development Center (TDC), based in the United States. Target theaters: Americas: <http://www.tdcinc.net/index.html>
- Cisco Customer Advocacy Global OSS/NMS Practice provides deployment services for Cisco IP Solution Center. Target theaters: Americas, EMEA, and Asia Pacific. Contact your

local account representative for more information; have them send e-mail to isc-rapidresults@cisco.com.

For More Information

For more information about the Cisco MPLS Diagnostics Expert, visit <http://www.cisco.com/go/mde> or contact your local Cisco account representative or send an e-mail to mde@cisco.com.

Can't find the answer that you are looking for? Please send your questions to mde@cisco.com and include your contact information.



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