

Cisco IP Solution Center 4.2

A Family of Intelligent Network Management Applications for Managing MPLS and Metro Ethernet Networks

Product Overview

Cisco® IP Solution Center is a family of intelligent network management applications that help reduce overall administration and management costs by providing automated resource management and rapid profile-based planning and provisioning capabilities that accelerate deployment of Multiprotocol Label Switching (MPLS) and Metro Ethernet technologies. Cisco IP Solution Center also helps reduce operational costs by providing automated workflow-based troubleshooting and diagnostic capabilities for MPLS VPNs. The applications can operate as standalone applications or as a suite; functions include provisioning and automated diagnostics for MPLS VPNs; ATM, Frame Relay, and Ethernet over MPLS VPNs; ATM and Frame Relay transport over Layer 2 Tunneling Protocol Version 3 (L2TPv3) VPNs and Metro Ethernet VPNs; and planning and configuration of MPLS Traffic Engineering.

Cisco IP Solution Center delivers complete lifecycle management, from creating the IP service to real-time VPN and MPLS Traffic Engineering tunnel provisioning, activation, troubleshooting, and diagnostics. Cisco IP Solution Center provides the provisioning, planning, and automatic diagnostics tools that accelerate deployment and time to market of IP services. Simultaneously, it simplifies management of multiple technologies by providing an integrated management product (Figure 1).

Figure 1. Intelligent Management Applications for Managing MPLS and Metro Ethernet Networks



Cisco IP Solution Center provides a flexible application set for managing MPLS and Metro Ethernet technologies in service provider and large enterprise networks. It offers a scalable and reliable architecture for large-scale operations, providing a four-tiered system, Web-based GUI, and open APIs to help integrate IP services operations into existing service provider operations support systems (OSSs). Open APIs enable service providers to easily integrate MPLS and Layer 2 VPN services into their OSSs and management infrastructures. Integration with Cisco fault-management products, Cisco Info Center, and best-in-class performance-management products from independent software vendors (ISVs) are available. For additional information, please contact your Cisco Systems® sales representative.

Applications

Cisco IP Solution Center intelligent network management applications include MPLS VPN Management, Layer 2 VPN Management, and Traffic Engineering Management. These applications can operate alone or together as a suite.

Cisco IP Solution Center MPLS VPN Management

The Cisco IP Solution Center MPLS VPN Management application empowers enterprises and service providers with improved provisioning of VPN and IP quality of service (QoS) through automation of these functions, provides investment protection to Cisco IOS[®] Software and line card upgrades in the network, and helps ensure accuracy of service deployment through service configuration and functional audits.

This application can also work with the Cisco MPLS Diagnostics Expert product for VPN post-provisioning check. The Cisco MPLS Diagnostics Expert is an automated, workflow-based network management product that troubleshoots and diagnoses problems in MPLS VPN deployments. For more information about this product, visit: <http://www.cisco.com/go/mde>.

Cisco IP Solution Center Layer 2 VPN Management

The Cisco IP Solution Center Layer 2 VPN Management application gives enterprises and service providers improved provisioning of VPN, Metro Ethernet, ATM, and Frame Relay QoS through automation of these functions, provides investment protection to Cisco IOS Software and line card upgrades in the network, and helps ensure accuracy of service deployment through service configuration and functional audits for Metro Ethernet VPNs, Any Transport over MPLS VPNs, and ATM/Frame Relay transport over L2TPv3 VPNs.

Cisco IP Solution Center Traffic Engineering Management

The Cisco IP Solution Center Traffic Engineering Management application simplifies visualization, configuration, and management of MPLS Traffic Engineering tunnels on a network. It integrates the configuration of Cisco MPLS Traffic Engineering features (Autoroute Announce, Auto-Bandwidth, DiffServ-Aware Traffic Engineering, and Fast Reroute [FRR]) into a single management tool. Uniquely, it also is able to compute and configure primary tunnels to meet user-specified constraints, and to compute FRR bypass tunnels for network element protection (node, links, or shared-risk link groups [SRLGs]), helping to ensure bandwidth availability during normal and element failure conditions.

For further details on each of these applications, please visit their respective data sheets, available at: <http://www.cisco.com/go/isc>.

Features and Benefits

The Cisco IP Solution Center family of intelligent network management applications provides the key features required for the activation and assurance of Layer 3 and Layer 2 VPNs, Any Transport over MPLS (AToM), and Metro Ethernet services. Table 1 provides details on features and benefits in Cisco IP Solution Center 4.2.

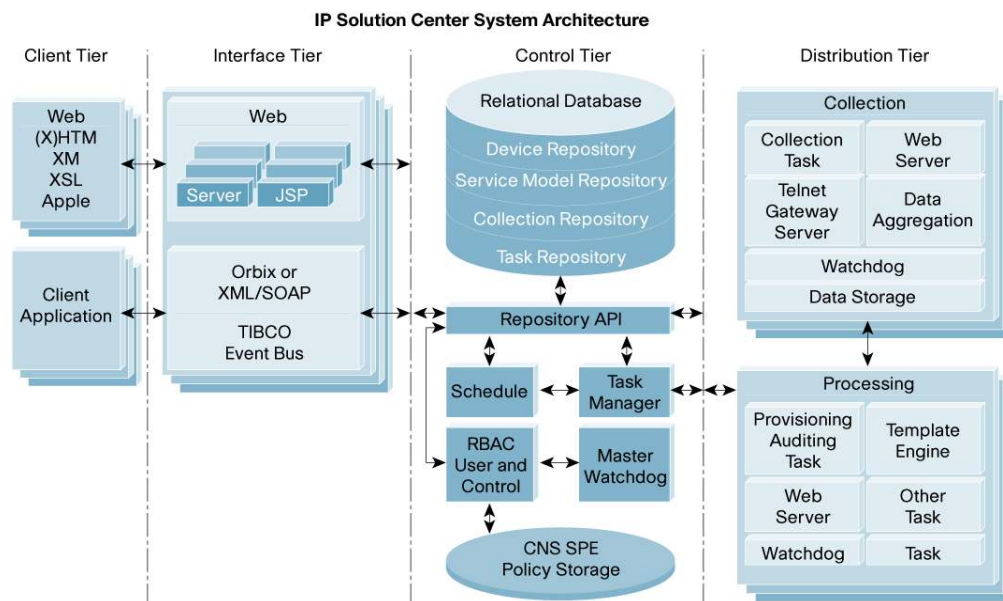
Table 1. Feature and Benefits of Cisco IP Solution Center 4.2

Feature	Description	Benefit
Tracking of Layer 3 and Layer 2 resources	Manages resources such as Border Gateway Protocol (BGP) autonomous system, regions, customers, customer sites, access domains, service provider administrative domains, virtual routing and forwarding (VRF) names, IP addresses, VLAN IDs, pseudowire virtual circuit IDs, route distinguishers, and route targets.	Automation of resource management reduces cost of previously manual and time-consuming tasks and helps ensure accuracy.
Rapid profile-based provisioning	Allows service operators to define Layer 3 and Layer 2 VPN provisioning parameters in a service policy; uploads the network-element configuration to calculate the change in configuration needed for successful service activation.	Helps control operational costs by accelerating service deployments. The use of service policies for service activation greatly reduces the service operator's tasks—the only parameters required for service activation have already been captured in the service policy. By uploading the configuration prior to applying it, Cisco IP Solution Center helps ensure that the service activation configuration will be successfully and rapidly applied and will not collide with the existing configuration.
Recognition of incorrect service configuration	Provides post-provisioning validation of the service design in order to determine if the Layer 3 and Layer 2 VPNs are active and functional.	Reduces the time it takes to troubleshoot network outages due to incorrect service configuration by verifying that the commands for a service are present on the network elements and the links involved or VPN is working correctly.
Investment protection for Cisco IOS Software and line cards	Provides comprehensive platform and Cisco IOS Software support.	Reduces time to market of new services and lowers the cost of upgrading customer OSSs due to upgrades in platforms, software versions, and line cards by providing extensive support of the latest Cisco hardware and Cisco IOS Software versions.
Bandwidth protection planning and activation	Identifies placement of FRR backup tunnels to protect critical network elements. Installs backup tunnels to protect against link, node, or SRLG failures.	Supports strict SLAs and high availability of voice and video traffic. Provides a cost-effective alternative to lower-layer protection. Highly efficient use of bandwidth allows more traffic to be supported on the network without redundant network investment.
MPLS Traffic Engineering tunnel placement, repair, and network grooming	Generates MPLS Traffic Engineering tunnel paths that meet user-specified constraints, including bandwidth, affinity, and delay, and proposes fixes to meet user-specified constraints for new tunnel demands. Global re-optimization of primary tunnel placements improves network utilization.	Enables efficient core network planning and cost savings. Bandwidth upgrade costs can be delayed or reduced up to 60–90 percent. Flow-through provisioning provides major time and cost savings—the user is required only to specify the high-level tunnel requirements for a set of tunnels—and dramatically simplifies planning and managing a traffic-engineered network.
Automated workflow-based troubleshooting and diagnostics of MPLS VPN deployments	This functionality is provided by the Cisco MPLS Diagnostics Expert and is based on analysis of network failure scenarios across MPLS access, edge, and core networks. The Cisco IP Solution Center MPLS VPN Management application can work with the Cisco MPLS Diagnostics Expert for VPN post-provisioning check.	The Cisco MPLS Diagnostics Expert significantly reduces the operational cost to manage and maintain an MPLS network. In addition, its ability to reduce mean time to repair (MTTR) helps increase network availability.
Carrier-grade infrastructure for large deployments	Provides the following system features: <ul style="list-style-type: none"> • 4-tiered distributed architecture • Thin Web-based GUI client • Role-based access control (RBAC) • API—Extensible Markup Language (XML) over HTTP northbound interface • Data backup and restore 	Provides a 4-tiered system consisting of client, interface, control, and distribution tiers. RBAC provides access control to service providers that want to implement strict operational processes. Backup and restore capabilities protect data against OS crashes, file corruption, disk failures, and total machine failure.

Product Architecture

Cisco IP Solution Center is a distributed, four-tiered architecture for maximizing scalability, redundancy, and robustness. This architecture facilitates large-scale installations as well as standalone, appliance-based installations (Figure 2).

Figure 2. Distributed, Four-Tiered Architecture



The four tiers of this architecture are client, interface, control, and distribution; they provide the modular framework that is the foundation of a scalable, carrier-class system.

Client Tier

The client tier is composed of a standard Web-based client application and a client application for programmatic access to Cisco IP Solution Center servers.

Interface Tier

The interface tier consists of Web servers and application servers. Multiple Web servers can be deployed to increase parallel access to the system. In addition, a standard load balancer can be installed in front of the Web servers to load-balance browser traffic to the system. The distributed Web server design increases the scalability of user-interface access to the system.

Control Tier

The control tier consists of the Cisco IP Solution Center Repository (a relational database) and the task scheduling and distribution system. This is the Master server, and is the “nerve center” of the infrastructure; it provides control, monitoring, and distribution of the remaining tiers of the system. Cisco IP Solution Center takes advantage of a Sybase relational database management system (RDBMS) or Oracle database as a data store, allowing users Structured Query Language (SQL) query access for information. Cisco IP Solution Center uses the Cisco Security Policy Engine (CNS SPE) for authentication and authorization of end users’ roles and privileges.

Distribution Tier

Distribution tiers are composed of provisioning servers and collection servers. Multiple provisioning servers can be created to increase the parallelism of computationally intensive tasks. In most cases, multiple provisioning servers facilitate faster processing of multiple, simultaneous provisioning jobs. The collection servers, on the other hand, are responsible for device configuration collection, service-level agreement (SLA) data collection, and usage data collection. Multiple collection servers can also be created to aid in scalable, parallel data retrieval from the network.

Summary/Conclusion

The benefits of using Cisco IP Solution Center to deploy and manage MPLS and IP services range from faster time to market and improved network quality to reduced operational costs and lower total cost of ownership. The comprehensive set of intelligent management applications helps service providers to minimize initial investments by taking full advantage of existing infrastructures and devices. By providing a single infrastructure for all existing and future IP services, Cisco IP Solution Center allows service providers to reduce the training costs and time to market for new services.

- The easy-to-use provisioning tools of Cisco IP Solution Center enable rapid deployment and fast time to market of IP services. Automated, real-time provisioning eliminates many operator errors, shortens service startup times, and lowers the cost of provisioning.
- Automated workflow-based troubleshooting and diagnostics of MPLS VPN deployments provided by the Cisco MPLS Diagnostic Expert product help reduce the operational cost to manage and maintain an MPLS network.
- Cisco IP Solution Center's exclusive planning features for MPLS Traffic Engineering networks support discovery, auditing, and planning of MPLS Traffic Engineering tunnels. It delivers Cisco Bandwidth Protection, which, through the intelligent placement of FRR bypass tunnels, helps ensure connectivity and bandwidth to meet stringent SLA requirements for voice and video traffic. Efficient MPLS Traffic Engineering planning supported by Cisco IP Solution Center has been shown to dramatically reduce network costs – 50 to 60 percent – by taking advantage of the unique search algorithm in Cisco IP Solution Center.
- Cisco IP Solution Center features APIs and OSS interfaces to facilitate integration of IP services operations into existing service provider OSSs.

Product Specifications

Product specifications for each of the intelligent network management applications are found in the respective application's data sheet at Cisco.com, and in more detail in the Installation Guide at <http://www.cisco.com/go/isc>.

System Requirements

The server, client, and Web browser system requirements can be found in the Installation Guide at <http://www.cisco.com/go/isc>, under Technical Documentation and Tools. Please refer to this and the Product Documentation Guide for more detailed information on setting up and configuring this product.

Ordering Information

Cisco IP Solution Center family of applications and the Cisco MPLS Diagnostics Expert are available for purchase through regular Cisco sales and distribution channels worldwide. To place an order, visit the [Cisco Ordering Home Page](#).

Cisco IP Solution Center ordering and licensing options are described in the Cisco IP Solution Center 4.2 product bulletin at:

http://www.cisco.com/en/US/products/sw/netmgts/ps4748/prod_bulletins_list.html.

Cisco MPLS Diagnostics Expert product bulletin is available at: <http://www.cisco.com/go/mde>.

For More Information

For more information about the Cisco IP Solution Center and its family of intelligent network management applications, visit the following Cisco.com locations or contact your local account representative.

- Cisco IP Solution Center Overview: <http://www.cisco.com/go/isc>
- Cisco IP Solution Center MPLS VPN Management: <http://www.cisco.com/en/US/products/sw/netmgts/ps5332/index.html>
- Cisco IP Solution Center Layer 2 VPN Management: <http://www.cisco.com/en/US/products/sw/netmgts/ps5331/index.html>
- Cisco IP Solution Center Traffic Engineering Management: <http://www.cisco.com/en/US/products/ps6163/index.html>
- Cisco MPLS Diagnostics Expert: <http://www.cisco.com/go/mde>



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