Cisco Prime Optical

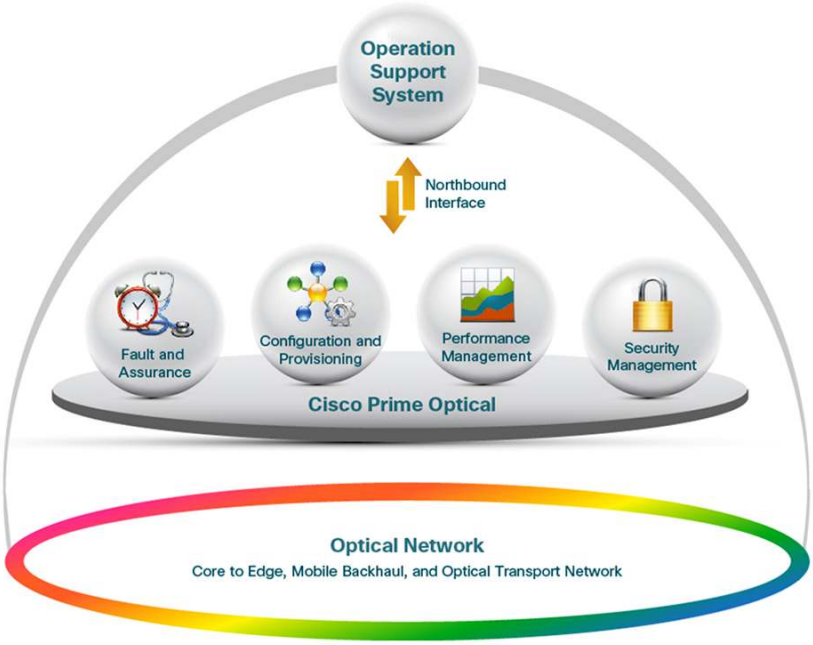
Manage your converged IP and optical networks with scale and efficiency.

Overview

The transition to packet transport networks from time-division multiplexing (TDM) networks introduces various operational challenges for service providers as they continue to manage both capital expenditures (CapEx) and operating expenses (OpEx) while adapting to changing market requirements. To help ensure profitability, business agility, and quality of service (QoS), service providers need a management system equipped to efficiently handle disparate technologies and devices that make up this complex, ever-evolving optical network.

Cisco Prime™ Optical meets these challenges, providing simplified management of the converged IP and optical network from access to core for efficient delivery of voice, video, mobile and cloud services. Through automated and advanced mechanisms for configuration, provisioning, and troubleshooting, it reduces human errors and helps operators efficiently execute end-to-end circuit creation. It also manages every point of the converged network with unprecedented accuracy and scale. (Refer to Figure 1).

Figure 1. Cisco Prime Optical Functions



Cisco Prime Optical is available as a standalone product or as a component of the Cisco Prime Carrier Management suite, which provides comprehensive unified management and service lifecycle capabilities including design, fulfillment, assurance, and analysis.

Features and Benefits

Benefits

- **Business agility:** Accelerates time to market of value-added services including voice, video, and on-demand content delivery through operational scale and efficiency in network discovery, configuration, provisioning, troubleshooting, and change management
- **Service assurance:** Helps enable rapid resolution of network issues through advanced fault diagnostics, real-time service-level agreement (SLA) performance monitoring, and security management
- **Lower total cost of ownership (TCO):** Reduces both CapEx and OpEx through turnkey integration with the other components of the Cisco Prime Carrier Management suite and standards-based interfaces to third-party operations support system (OSS) applications

Features

- An intuitive GUI (consistent across the Cisco Prime Carrier Management suite) that promotes operator productivity and reduces training efforts
  - Converged support for TDM, Cisco nLight™ technology, dense wavelength-division multiplexing (DWDM), and Synchronous Optical Networks Synchronous Digital Hierarchy (SONET/SDH)
- Standards-compliant (CORBA TMF 814 v.3) northbound interfaces (NBIs), facilitating fast and easy integration with third-party OSS software
- Topology maps that display an accurate inventory of both optical and packet network devices and allow detailed drill-down to each device
- Scalability with support for up to 5000 optical network elements (NEs)
- Support for virtual machines, Linux and Cisco Unified Computing System™ (Cisco UCS®)

Detailed Features and Benefits

Table 1 provides details on some of the key features and benefits of Cisco Prime Optical. For further details and information on the latest enhancements to this product, please refer to the Cisco Prime Optical Release Notes, 9.8.

Table 1. Cisco Prime Optical Features and Benefits

Features	Details	Benefits
Architecture		
Oracle embedded database	Ability to store all network information in the embedded database and interoperate seamlessly with Cisco Prime Optical without a separate license.	Reduced CapEx and OpEx
Multitechnology management	One-stop management for TDM, DWDM, and Layer 2 technologies.	Powerful optical domain management for converged technologies in a single view
Operations and Administration		
Central Authentication Service (CAS)	Support for different applications to authenticate to one authoritative source of trust with a single sign-on (SSO) CAS solution.	Ease of operations
Network maps	• Dockable panels displaying topology and properties • Notification bar that alerts users when changes are made to NE attributes and the map must be refreshed • Map views that can be exported as snapshots • Ability to configure the appearance of nodes, groups, and links in a network map • Link utilization visual map	Efficient network diagnostics and planning

Features	Details	Benefits
Layer 1 circuit reports	• Simple and Quick Filter - Facilitates filtering of data based on commonly encountered conditions • Custom View - Helps enable filtering of data based on operator selected conditions • Save Custom View - Saves custom views for future use, either privately or publicly ◦ Public - Contains customized view reports created by a super user ◦ Private - Contains customized view reports created by other users • Manage Custom Views - Helps enable editing and deleting of existing customized views • Auto-Refresh - Allows updating of the data that has been added without a manual refresh	Improved visibility and customization of circuit management
Virtual appliances	Preconfigured optical virtual appliances (OVA) available in open virtual machine format (OVF) for fast and easy deployment	Simplified installation
Audit log	• Extensive filtering options • Customizable views to create, filter, save, copy, and manage audit logs • Configurable audit log settings	Flexibility in extracting useful information from audit logs to troubleshoot and evaluate network issues
Management of unsuccessful installations	Ability to run Cisco Prime Optical even when the previous installation was unsuccessful or incomplete. The uninstaller will remove all changes made to the system.	Easy and error-free upgrades
Network maintenance operations	Support for the link maintenance report, including the following on the optical channel (OCH), OCH client connection (OCHCC), and OCH network connection (OCHNC) trail circuits: • Display of the list of protected circuits • Display of the active path on the link • Performance of the switch operations	Reduced network maintenance complexity
Fault Management		
Optical impairment-aware WSON control plane as part of nLight technology for Cisco ONS 15454 MSTP optimized creation of optical paths	Traditionally, in networks with an Automatic Switched Optical Network (ASON) and a Generalized Multiprotocol Label Switching Transport Profile (GMPLS) control plane, a centralized network management system is responsible for path computations and route selections, based only on topology information while photonic domain knowledge is not taken into consideration. In contrast, the Cisco Wavelength Switched Optical Network (WSON) control plane of Cisco Prime Optical works within a distributed architecture where intelligence is embedded in NEs. It enhances GMPLS capabilities with awareness of wavelength properties and optical impairments, offering dynamic service provisioning on a flexible DWDM network. Cisco Prime Optical introduces extensions to GMPLS that supply path computation with analysis of optical feasibility while providing protocol interoperability with the GMPLS suite. A simplified GUI as well as script-oriented Transaction Language 1 (TL1) User-Network Interface (UNI) allows users to dynamically demand wavelength services across DWDM networks.	• Elimination of the need to collect large amounts of information across the network for path computation, which is a bottleneck and source of errors that are hard to troubleshoot • Rapid restoration of services and improved network robustness to failures using fast reroute (FRR) • Fewer wavelengths and transponders needed in the network through use of reconfigurable optical add-drop multiplexers (ROADMs), which directly translates into tremendous CapEx savings for operators
Circuit table	Ability to launch circuit table from the Alarm Browser window and view the circuits affected by an alarm.	• Ease of operations
High Availability		
High availability with disaster recovery configuration extended to the Linux platform	• Ability to create a disaster recovery configuration, based on Red Hat Cluster Suite and Oracle Active Data Guard (ADG) and flexibility to create an element management system (EMS) capable of withstanding most network disasters with minimal downtime. • Support for local redundancy and automatic failover with the HA configuration on Linux.	• Protection against most network-impacting disasters, with minimal network downtime, providing carrier-class service assurance • Elimination of the need for costly third-party disaster recovery software with Oracle ADG and Red Hat Cluster Suite embedded

Hardware Capabilities

Table 2 lists support for some of the latest platforms, devices, and technologies.

Table 2. Cisco Prime Optical Hardware Support

Cisco® Transport Controller-based NE releases	• ONS 15216 R9.8 • ONS 15216 Passive DCU R9.8 • ONS 15454-M6 R9.8 • ONS 15454-M2 R9.8

100G_LC_C (enhancements to 100G DWDM Trunk Card)	• Y-cable protection support for these cards:
	  ◦ 5x10G TXP
	  ◦ 10x10G MXP
	  ◦ 100G TXP
	• New payloads
	• Create and manage protection group
	• Chromatic dispersion values
	• Tx Shutdown and Tx Power values

Wire Speed Encryption (WSE) card	• Threshold settings • GCC channel and payload support • PPM, TTI, and FEC provisioning • Card mode provisioning
10x10G_LC, 100G_LC_C, and CFP_LC cards	Supported on ONS 15454 M2 and ONS 15454 M6 platforms
AR_XPE card (enhanced version of the AR_XP card)	• ODU0 multiplexing for 1GE and 1GFC payloads • ODU0 payload mapping during OCHCC circuit creation • RMON thresholds for 10GE and 4GFC payloads • Bandwidth utilization panel to show ODU0 slices • ODUK port mapping

100G_LC_C, 10x10G_LC, and CFP_LC cards	• GCC communication channel support
	• Payload support for 10x10G_LC
	• OTU4 payload support for 100G_LC_C
	• Physical PM support on 100G_LC_C
	• FAN-OUT and LOW-LATENCY operating mode for 10x10G_LC
	• The following protection mechanism for the cards:
	  ◦ Y-Cable protection for 1x100G and 2x40G clients for CFP_LC
	  ◦ Y-Cable protection for all supported payloads in 10x10G Muxponder and TXP_10G Transponder mode for 10x10G_LC
	• Proactive Protection Regen tab for 100G_LC_C card

40E-MXP-C card	Supports full transparency muxponder mode

System Requirements

Table 3 lists the system requirements for Cisco Prime Optical. For further details, please refer to the Cisco Prime Optical Quick Start Guide.

Table 3. Supported Platforms and Operating Systems

Platform	Operating System
Sun UltraSPARC-based server	Sun Solaris 10, release 10/09 or later **Note:** Prime Optical 9.8 is the last release to support Solaris
Sun UltraSPARC T Series	
Cisco UCS B series	Red Hat Enterprise Linux (RHEL) 5.7, 5.8 or 6.2, (64-bit OS with or without VMware ESXi version 4.1 or 5.0)
Cisco UCS C series	

About Cisco Prime

The Cisco Prime portfolio of IT and service provider management offerings empowers organizations to more effectively manage their networks and the services they deliver. Built on a service-centered foundation, the Cisco Prime supports integrated lifecycle management through an intuitive workflow-oriented user experience - providing A-to-Z management for evolved programmable networks (EPNs), mobility, video, cloud, and managed services.

Service and Support

Cisco offers a wide range of services programs to accelerate customer success. These innovative services programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco services help you to protect your network investment, optimize network operations, and prepare the network for new applications to extend network intelligence and the power of your business. For more information please visit the Cisco Services page on Cisco.com.

Ordering Information

Cisco Prime Optical is available for purchase through regular Cisco sales and distribution channels worldwide. To place an order, visit the Cisco Ordering Homepage.

For More Information

For more information about Cisco Prime Optical including a complete list of features and product specifications and the latest release notes please visit www.cisco.com/go/primeoptical or contact your local account representative.

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