Executive Summary
Cisco Prime™ for IP Next Generation Networks (NGN) provides end-to-end management of the Cisco® Carrier Routing System (CRS) and Cisco optical transport devices and offers the following benefits:

- **Quick** deployment of new services (just hours from planning to deployment, instead of days)
- **Easy** operation with reactive and proactive assurance (reactive assurance with fault management to isolate root causes, and proactive assurance with performance management for trending of key performance indicators)
- **Integrated management** of IP plus optical technologies that can also fit in a separate management domain, creating a “virtual” separation of the domain through user profiles

What Is the Value of Cisco Prime for Managing Cisco CRS and Optical Devices?
Cisco Prime for IP Next Generation Networks delivers integrated service lifecycle management capabilities for Carrier Ethernet, Unified Multiprotocol Label Switching (MPLS), and packet optical transport networks. This comprehensive solution centralizes and automates service design, fulfillment, assurance, and performance analysis to help lower costs while meeting high customer expectations. By delivering these capabilities, Cisco Prime for IP NGN helps service providers make business and IT transitions quick and efficient — including the convergence of optical and IP technologies.

The convergence of optical and IP is the one of the most significant transformations on the horizon. Service providers today are working with siloed networks: one infrastructure for IP services and a separate infrastructure for optical services. With costly redundancies, it is far from efficient in terms of network resource utilization, management complexity, power and cooling costs, and the ability to help quickly enable new services. As a result, many service providers are looking to use multilayer network convergence to improve total cost of ownership and take advantage of innovations that help enable greater service velocity, better capacity planning, improved provisioning, and greater resiliency. Cisco optical solutions lay the foundation for this convergence.

Cisco optical networking products include core, edge/access, and dense wavelength division multiplexing (DWDM), supporting provider, carrier, and enterprise solutions. Cisco’s comprehensive optical transport portfolio helps cost-effectively deliver voice, video, and data solutions.

The Cisco Carrier Routing System offers industry-leading performance, scalability, advanced services intelligence, environmentally conscious design, and system longevity for core networks. Each model uses Cisco IOS® XR Software, a unique self-healing, distributed operating system.

Cisco makes use of both CRS and its optical transport devices to help enable IP and optical convergence. For example, Cisco IP over DWDM (IPoDWDM) for IP NGNs efficiently manages traffic growth through the Cisco CRS and the Cisco ONS 15454 MSTP. By enabling the convergence of service providers’ IP and DWDM core networks, the solution helps increase service flexibility and reliability while lowering operating expenses (OpEx) and capital expenditures (CapEx). In addition, the integration of IP and DWDM intelligence in Cisco IPoDWDM solutions allows service providers to manage both IP and transport services as a single system.

Another component of Cisco’s IP and optical convergence platform is the Cisco 100 gigabit (100 Gb) solution, of which the Cisco ONS 15454 MSTP and CRS-3 are key components.

Cisco Prime provides end-to-end management of the Cisco CRS and Cisco optical transport devices and IP over DWDM to drive efficiencies. By helping enable service providers to design, fulfill, assure, and analyze the performance of services that run on networks that include Cisco CRS and optical devices, Cisco Prime helps to lower total cost of ownership (TCO), starting with driving down the cost of implementation and continuing with reduced cost of management. Cisco Prime also helps to accelerate the time to value of differentiated services and new hardware deployments.

For service providers with separate IP and transport infrastructures that want to maintain the separation of management functions, Cisco Prime can allow each organization to maintain separate control over its environment. These customers can still use the shared network service context to help ensure that each group understands its role.
What Problems Does It Help Solve?

Fixed and mobile service providers face many challenges including increasing cost pressures, higher bandwidth demand, and cost-efficient scaling of capacity — all while managing complex networks and delivering more sophisticated and differentiated services across metro, national, and international networks.

Service providers are looking to improve network TCO with:

- Increased service velocity in order to increase time to revenue
- Improved availability and resiliency — at no cost
- Simplified planning and forecasting (not having to pay today to utilize some number of months from now)
- Simplified, automated end-to-end management
- Improved operations with network awareness

To meet these needs, carriers have turned to the Cisco CRS, Cisco optical transport, and Cisco Prime for IP NGN.

What Are the Benefits of Cisco Prime for Managing Cisco CRS and Optical Transport Devices?

- Improves operational efficiency through the use of intuitive GUIs, automated discovery of physical and logical information for the Cisco CRS and optical devices, and visibility of the network topology
- Reduces average mean time to repair through comprehensive fault management across networks and technologies and collection of performance data
- Automates end-to-end configuration and provisioning tasks, allowing network operator to rapidly accelerate the time to value of DWDM devices
- Speeds deployment of new images and promotes error-free upgrades with automated management of Cisco IOS XR packages and optical devices through built-in image and software maintenance upgrade (SMU) management
- Provides complete Cisco CRS and optical device management including single-click upgrades and configuration management
- Provides fast, easy, actionable information reporting for networks with Cisco CRS and optical equipment with visibility to network and traffic behavior for network optimization and service assurance
- Helps enable prevention of service disruptions through utilization of threshold-crossing alerts
- Promotes effective capacity planning with historical views of Layer 1–3 performance metrics
- Brings new equipment and services online faster and more cost-effectively with “day-one” support and simplified deployment for fastest time to value
- Helps ensure efficient capacity utilization and meet service-level agreements (SLAs) using powerful visualization and performance measurement capabilities
- Eliminates “swivel chair management” through an intuitive, centralized GUI that provides rapid visualization, diagnosis and alarm management

The Cisco Prime for IP Next Generation Network suite of products offers advanced integration with key Cisco hardware and third-party devices and is extensible over any transport medium. The solution also increases efficiency with seamless transition among its components.

- **Cisco Prime Central** tightly integrates all components of the Cisco Prime for IP NGN suite through a centralized management interface providing a single view of integrated operator workflows
- **Cisco Prime Provisioning** accelerates service deployments by providing automated resource management and rapid, profile-based provisioning capabilities
- **Cisco Prime Performance Manager** provides actionable performance metrics for Cisco and multivendor networks and components to facilitate assurance and capacity planning
- **Cisco Prime Optical** manages the converged IP and optical network from access to core, supporting both legacy time-division multiplexing (TDM) and DWDM technologies for efficient delivery of high-quality next-generation services
- **Cisco Prime Network** provides comprehensive assurance and device management for heterogeneous IP networks and services deployed across metro, national, and international networks

Why Cisco?

Cisco offers industry-leading solutions delivered through a unique combination of people, processes, tools, and partners to empower service providers to deploy equipment and services faster, optimize operations, maximize performance and reliability, and achieve high levels of customer satisfaction. For more information on how Cisco Services can extend network intelligence and the power of your business, see Cisco Technical Support Services or Cisco Advanced Services.

For more information on Cisco Prime, visit [www.cisco.com/go/prime-sp](http://www.cisco.com/go/prime-sp) or contact [ask-prime-sp@cisco.com](mailto:ask-prime-sp@cisco.com).