



Q & A

Cisco Optical Solutions Release 6.0

Overview

Q. What is Cisco® Optical Solutions Release 6.0?

A. Cisco Optical Solutions Release 6.0 is a set of features and components that increase the density, scalability, data feature support, and carrier-class reliability of Cisco optical solutions. For the ONS 15454 and ONS 15600, these features include:

Density

- Cisco ONS 15454 56-port DS1/E1 card
- Cisco ONS 15454 48-port DS-3/EC-1 card
- Cisco ONS 15454 Cross-connect/virtual cross-connect switch fabric card with four times the low-order cross-connect fabric. This is also a common card for both the SONET and SDH market.
- Cisco ONS 15454 EC1 capability enabled on 48-port DS-3/EC1 line card

Scalability

- Cisco ONS 15454 12-port, Small Form-Factor Pluggable (SFP)-based multirate card, supporting OC-3, -12, -48 (STM-1, -4, -16)
- Cisco ONS 15454 OC-192/STM-64 card with 10 Gigabit SFP (XFP) client optics, replacing three different fixed-interface client cards (short-reach, intermediate-reach, long-reach)
- Cisco ONS 15600 OC-48 ITU-grid SFP support for the Any Service Any Port (ASAP) line card on the Cisco ONS 15600 Multiservice Switching Platform (MSSP)

Data Feature Support

- Cisco ONS 15454 ML-Series 8-port 100BASE-FX card
- Cisco ONS 15454 8-port Carrier Ethernet card on SDH

Carrier-Class Reliability

- Cisco ONS 15454 Errorless side switching
- Cisco ONS 15454 Bridge and Roll capability for traffic grooming
- Cisco ONS 15454, ONS15327, ONS15310CL, and Cisco ONS 15600 OSMINE certified for release 6.0
- Cisco ONS 15454 and ONS15310CL IP service-level agreement (SLA) – helping enable voice over IP (VoIP) and IPTV performance across IP networks
- Cisco ONS 15454, ONS15327, ONS15310CL, and Cisco ONS 15600 RADIUS support for improved network security

Together, these new features and cards help enable customers to deploy an end-to-end, Carrier Ethernet network for efficient and resilient data services, higher-density TDM (voice) solutions for metro and access networks, and advanced switching and software-tunable bandwidth flexibility and protocol options for core networks.

Q. What are the primary customer benefits?

A. Cisco Optical Solutions Release 6.0 continues increasing port density for all types of services, allows the SP to roll out revenue-enhancing Ethernet services, and enhances the already strong carrier-class features of the Cisco ONS 15454 and 15600. With high-density DS-1/E1 services added to the previously released 48-port DS-3 card, the Cisco ONS 15454 supports the most electrical interfaces in a single chassis that supports 1:N protection. With the flexibility of the multirate optical card, you can provision any optical service simply by inserting the appropriate pluggable optic module. No longer do you have to stock different cards for OC-3/STM-1, OC-12/STM-4, and OC-48/STM-16, plus additional cards of each for intermediate-reach, long-reach, and ITU optics. Now a single card with multiple SFP optics can perform the same function. The Cisco ONS 15454 is the first carrier-class MSPP to offer such density in a single chassis with a single card type.

For the SDH market, Cisco Systems® is now adding support for optimized data services through Carrier Ethernet functionality supporting Generic Framing Procedure (GFP), Virtual Concatenation (VCAT), Link Capacity Adjustment Scheme (LCAS), and advanced Layer 1 and Layer 2 features. The 8-port 10/100 Carrier Ethernet card was announced in Release 5.0 for the SONET market and this capability is now supported in the SDH market.

In the core network, the flexibility of the Cisco ONS 15600 ASAP line card has been improved by adding support for ITU-grid-compliant OC-48 SFP optics. This enables the Cisco ONS 15600 MSSP to connect directly into a DWDM network without the extra cost of transponders.

As a next-generation optical vendor, Cisco provides an integrated network-management system that allows customers to provision, monitor, and manage nodes from the edge to the core network – Cisco Transport Manager.

To help ensure consistent performance and security, carrier-class features such as IP SLA and RADIUS authentication are supported. IP SLA provides SLA measurements (latency, jitter, packet loss) across Metro Ethernet or dedicated SONET/SDH ring (DSR/EPR) and is capable of monitoring multiple classes of services (data, VoIP, etc.) over the same link. RADIUS provides a distributed client/server system that secures networks against unauthorized access. The Cisco MSPP (15310CL, 15327, 15454, 15600) checks with an authentication, authorization, and accounting (AAA) server for logon/logoff. If an AAA server cannot be reached, authentication will revert to a secondary AAA server (up to 10 servers). If the network element is unable to reach any configured AAA servers, it can authenticate users locally. RADIUS covers all network element management services (TL1, EMS, Secure FTP, FTP, Telnet, Secure Shell [SSH] Protocol) with logging of user activity done on the Cisco MSPP.

Q. Is it important to use Cisco Optical Solutions Release 6.0, or can customers wait until Release 7.0?

A. Release 6.0 is important because it provides customer-focused features that give service providers a competitive edge today. To generate new revenue streams and move toward a more efficient converged network (reducing capital expenditures [CapEx] and operating expenses [OpEx]), service providers need the capabilities that Release 6.0 delivers now.

Q. What is the additional cost of the Release 6.0 enhancements for customers who already have Cisco ONS 15454 MSPPs or Cisco ONS 15600 MSSPs installed?

A. The new interface modules for the Cisco ONS 15454 and Cisco ONS 15600 are fully compatible with the current product chassis. Customers will simply need to purchase the line cards and install Release 6.0 system software. The scalable design and capability of Cisco multiservice optical platforms help customers upgrade and enhance their systems much less expensively, with greatly reduced exposure to service-affecting procedures.

Q. What customers have already purchased Cisco Optical Solutions Release 6.0?

A. Customer information is forthcoming.

Q. When will each of these products be generally available?

A. Cisco plans to make Release 6.0 solutions available for order in September, 2005.

Q. What is Cisco's current global optical strategy?

A. Cisco will continue to develop its already robust SDH multiservice transport and Metro DWDM product portfolio for global applications. Ethernet capability will continue to be an important feature of the Cisco global portfolio as international providers plan to deploy "triple-play" services (voice, video, and data) over Ethernet-based infrastructures.

Metro and Regional Network

Q. Are there significant differences between the Cisco Optical Solutions Release 5.0 and the Release 6.0 enhancements to the Cisco ONS 15454? What have you seen with respect to customer demand for this platform?

A. The Release 6.0 high-density 56-port DS-1/E1 and 12-port multirate optical cards further strengthen the Cisco ONS 15454 as the leader in interface aggregation and flexibility by facilitating support for a large quantity of DS-1/E1 interfaces or OC-3, OC-12, and OC-48 interfaces while requiring very few shelf slots. This frees up shelf slots for additional multiservice cards to support revenue-generating services, including Carrier Ethernet line cards, Cisco ONS 15454 ML-Series Ethernet cards with industry-leading Layer 2 and Layer 3 capabilities, or storage area network (SAN) cards.

In terms of traction and customer interest, Cisco optical solutions have been very well received and Cisco has publicly announced several new Cisco ONS 15454 MSPP and Cisco ONS 15454 Multiservice Transport Platform (MSTP) customers. For details, please visit the Cisco pressroom: <http://newsroom.cisco.com/dlls/customer/tech.html#Optical>.

Q. How do I choose among the various Ethernet solutions that are now available for the Cisco ONS 15454 and Cisco ONS 153xx edge platforms?

A. There are essentially two types of Ethernet services: Private Line Ethernet, which is a Layer 1 physical transport option, and switched and routed services where each data packet is switched and aggregated at every point along the network.

Private Line Ethernet service involves a simple mapping of data traffic into SONET/SDH payloads for transport between two locations. Carriers like this point-to-point transport mechanism because it offers a management interface similar to traditional private-line DS-n TDM services. Virtual Concatenation (VCAT), a recent technology innovation, facilitates better bandwidth utilization when creating these point-to-point connections. Link Capacity Adjustment Scheme (LCAS) allows the dynamic resizing of these connections, reducing OpEx. Generic Framing Procedure (GFP) offers a standard mechanism for encapsulating the Ethernet traffic into SONET/SDH, thus promoting interoperability between vendors' Private Line Ethernet products. Cisco markets these Private Line Ethernet solutions as Carrier Ethernet and is proud to introduce 10/100 Private Line Carrier Ethernet solutions across access networks (with the Cisco ONS 15310 Multiservice Platform) and metro networks (the Cisco ONS 15454). Cisco plans to introduce a Gigabit Ethernet card for Carrier Ethernet solutions in early 2006.

Switched Ethernet services are based on Layer 2 technologies and help packet aggregation to occur at each point of the network architecture. As such, efficient multipoint service delivery and oversubscription of network bandwidth can be provided, thus reducing OpEx. Efficient switched services with Resilient Packet Ring (RPR) and enhanced QoS capabilities are facilitated by the Cisco ML-Series line cards for the Cisco ONS 15454 (10/100 and Gigabit Ethernet) and the Cisco 15310 (10/100 Mbps) multiservice platforms.

Core Network

Q. Are there significant differences between the Release 5.0 and the Release 6.0 enhancements to the Cisco ONS 15600 Series? What have you seen with respect to customer demand for this platform?

A. For the Cisco ONS 15600 Series, the ASAP cards provide lower first cost and very low scaling cost. For example, customers may start their networks with one OC-3 ring, one OC-12 ring, one OC-48 ring, one Gigabit Ethernet ring, or any combination of transport services that their customer base requires. The initial or current deployment can be changed to OC-48 or Gigabit Ethernet without additional cost (reducing CapEx) or hands-on maintenance or modification to the Cisco ONS 15600 chassis (for lower OpEx). Customers can make bandwidth selections through software using Cisco Transport Manager. While Release 6.0 is focused more on the Cisco ONS 15454 platform, the flexibility of the Cisco ONS 15600 is enhanced with the addition of ITU-grid SFP support at OC-48 rates, eliminating the need for external DWDM transponders for some applications. Furthermore, the Cisco ONS 15600 benefits from the additional security features added with RADIUS support.

Cisco optical solutions have been very well received and Cisco has publicly announced new Cisco ONS 15600 Series customers.

Eventis: http://newsroom.cisco.com/dlls/2004/prod_031504.html

US Signal: http://newsroom.cisco.com/dlls/2004/prod_040604.html

Taiwan's National Center for High-Performance Computing (NCHC):

http://www.cisco.com/en/US/prod/collateral/optical/ps5724/ps2006/prod_case_study0900aecd8016b052.shtml

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