

## Cisco ONS 15327 Multi-Service Provisioning Platform Release 3.4

The Cisco ONS 15327 SONET Multi-service Provisioning Platform (MSPP) is a versatile, carrier class optical metro edge and access platform for service providers and enterprise customers. The ONS 15327 SONET MSPP delivers supercharged SONET, integrated optical networking, unprecedented multi-services on demand, and radical economics, all in a compact, three-rack-unit footprint. The ONS 15327 SONET MSPP is a modular and scale-able platform that can deliver services from DS1, DS3, 10/100 Ethernet to Gigabit Ethernet services over OC-3 to OC-48 networks. The ONS 15327 is based on, and interoperable with, the industry leading ONS 15454 platform and providing an edge access complement to the ONS 15454 that can also can provide a smaller, more economical alternative to the ONS 15454.

Figure 1  
G1000-2 Gigabit Ethernet Card



With the introduction of a new two-port Gigabit Ethernet (GigE) card, model G1000-2, for the ONS 15327 Optical Transport Platform, service providers can now deliver Gigabit media flexibility without building an overlay network or redesigning their existing SONET infrastructure. The unprecedented TDM capabilities of the ONS 15327, combined with evolutionary Gigabit Ethernet capabilities, enables service providers to deliver on the key market differentiators needed to ensure their success.

The ONS 15327's point-to-point, line-rate, Gigabit Ethernet interface provides high-speed affordable transport and lowers networking costs for WAN Transport. Using the ubiquitous, low cost Gig-E interface, new service types are enabled over shared transport facilities (multiple circuits per fiber). Service Providers may offer flexible service types (Gold, Silver, Bronze) and may easily increase capacity via remote software provisioning.

The G1000-2 is a Gigabit Ethernet (GE) line card for the ONS 15327 provides layer 1 transport of Ethernet encapsulated frames (IP or other layer 3 protocols) across SONET. The G1000-2 card incorporates two (2), Small Form-factor Pluggable (SFP) slots, in a single slot design, with each G1000-2 card having access to an aggregated maximum capacity of STS-48c (2.5 Gbps) to the SONET network. The line card performs Gigabit line rate forwarding with very low latency of all Ethernet frame types (uni-cast, multi-cast and broadcast). It supports jumbo frames up to 10 kilobytes providing extremely flexible support of Ethernet services.

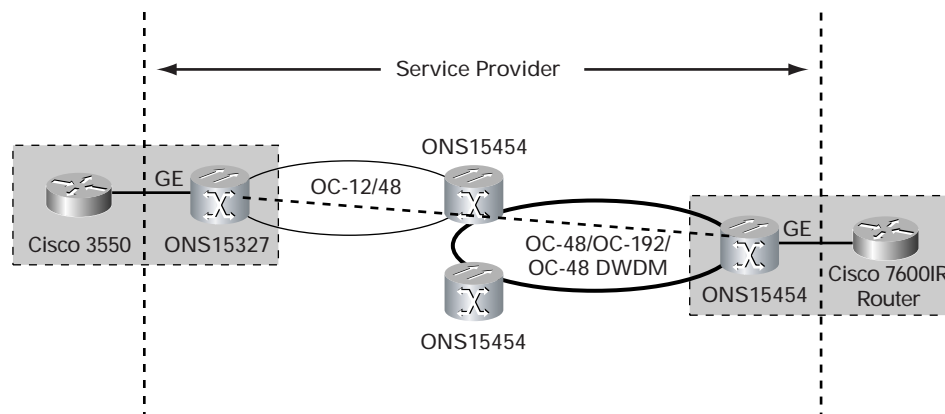
The G-Series card supports the following “Carrier Class” Ethernet transport features:

- *Network Protection*—GE circuits can be provisioned for operation with or without SONET protection. Configuring a G1000-2 circuit over Unidirectional Path Switched Ring (UPSR), Bi-directional Line Switched Ring (BLSR), Path Protected Mesh Network (PPMN), or linear 1+1, network failures are protected with sub-50msec restoration times.
- *Client Interface Protection*—The GE client interface can be protected via a interconnected device supporting the Gigabit Etherchannel protocol. Although designed to provide higher throughput links, Gigabit Etherchannel with more than one G1000-2 card can be leveraged to provide 1:1 G1000-2 card as well as client interface protection for an additional level of end-to-end circuit survivability.
- *Low Latency Transport*—Latency is minimized through efficient mapping of Ethernet frames to SONET payload.
- *Hitless Ethernet Circuit Provisioning*—No traffic hits (<50msec) are observed on active circuits when provisioning other circuits.
- *Hitless Protection Switching of Common Cards*—No traffic hits are observed when common cards switch from the working card to the protect cards, whether manually forced or the result of a common card failure.
- *Hitless Software Upgrades*—Upgrading the platform software to a future release will not impact Ethernet traffic provisioned over a G-series card.
- *Flexible Provisioning Options*—The G1000-2 is fully provisionable via CTC or the widely used TL1 commands.
- *Element Management*—Supported by a proven element management system, Cisco Transport Manager (CTM)

### Application Examples

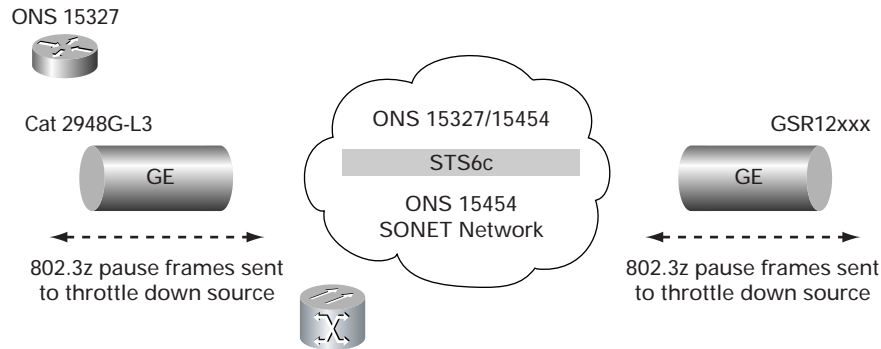
The G1000-2 addresses the growing market demand for router or Ethernet switch extension via Gigabit Ethernet transport. Developed based on, and interoperable with the industry leading ONS 15454/G1000-4 the 15327/G1000-2 solution will enable network operators to deliver multiple 1,000 Mbps client interfaces for transporting high-capacity customer traffic between two sites over reliable, point-to-point SONET circuits.

Example 1  
Ethernet Aggregation



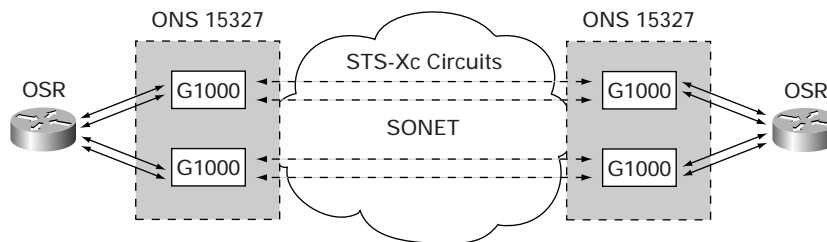
Example 2  
Flow Control

This example depicts the flow control capability of the G1000-2 configured with a point-to-point 300 Mbps Ethernet private line service (for example). Symmetric flow control and frame buffering are employed to prevent Ethernet frame loss by smoothing out the bursty 1 Gbps traffic feeding into the STS-6c (~300Mbps) transport circuit. The G1000-2 card does not react to pause frames.



Example 3  
Gigabit Etherchannel

In this example, the Gigabit Ethernet link aggregation protocol is leveraged to provide very a very high bit-rate interconnect between the Cisco OSR7600 and the Cisco Catalyst 6513 routers through the ONS 15327 Gigabit Ethernet based SONET network. This application enables a logical 4 Gbps circuit comprised of 4 parallel Gigabit Ethernets. These circuits may be protected via SONET providing a ultra-reliable network architecture or unprotected to provide network bandwidth savings.



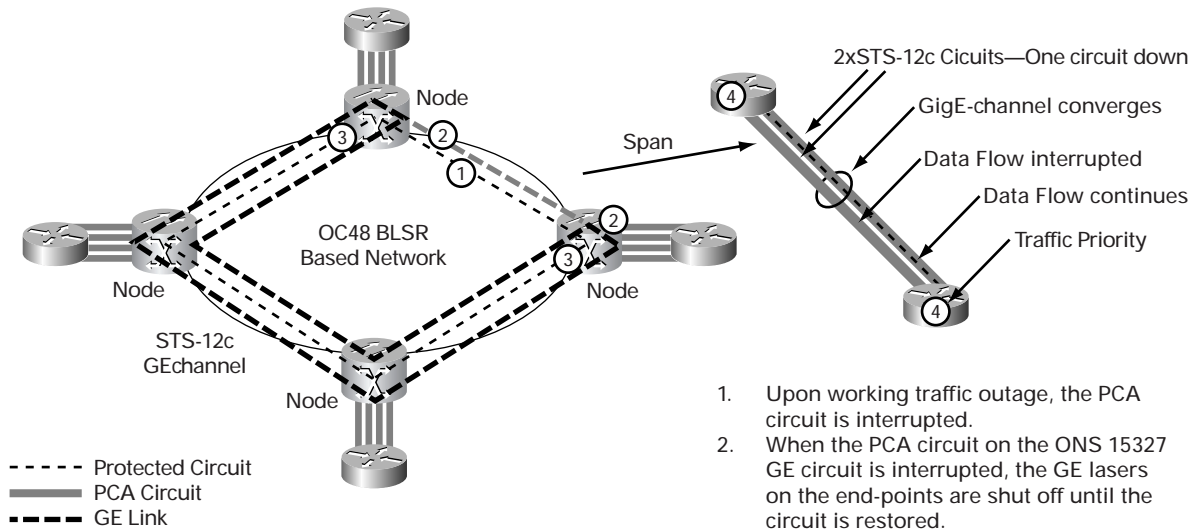
Protection Channel Access (PCA)

Telcordia standard GR-1230-CORE release 3.4 software enabled feature, which allows access to protection bandwidth on 2-Fiber BLSR/MSPR Networks. PCA channels are “lower-priority” as it is pre-empted in the event of a network event requiring protection of working channels. Use of PCA lowers overall network cost per bit by leveraging untapped network bandwidth and sharing network costs across a larger service base.

Service Providers can target applications and new product offerings selling generic private line circuits with lower SLAs at appropriately lower price point. Solution selling through a combination of higher level protocols with a mix of protected and PCA circuits and transport of service provider's or enterprise internal traffic.

Application Example

Optimized Layer 1 + Layer 2 + Layer 3 + PCA Solution



1. Upon working traffic outage, the PCA circuit is interrupted.
2. When the PCA circuit on the ONS 15327 GE circuit is interrupted, the GE lasers on the end-points are shut off until the circuit is restored.
3. If a carrier loss is received on an ONS 15327 GE port, the system notifies far end to shut down far-end GE lasers.
4. When the L2 device determines a link is down, it switches all Ethernet traffic to the active link based on 802.1P priority until GE circuits are fully restored.

System Requirements

The following table outlines the ONS 15327 system requirements to support the release 3.4 hardware and software features

Table 1

ONS 15454 System Requirements for Release 3.4 operation

System Component	Required
Shelf Assembly	15327-SA
Timing Card/Cross-connect Card	15327-XTC-14 15327-XTC-28-3 15327-XTC-14-T 15327-XTC-28-3-T
System Software	Release 3.4 or greater

Availability & lead times

Release 3.4 hardware and software is orderable now.

It is anticipated that the First Customer Shipment (FCS) of release 3.4 hardware and software will occur in early October 2002.

During the first 3 months after FCS lead times will be approximately 3-6 weeks, after this initial period it is anticipated that the lead time will standardize and be generally available approximately 1-2 weeks after order booking.

## Ordering Information

The Cisco ONS 15327 Release 3.4.0 hardware and software products may be ordered from your sales representative or through the Cisco Networking Products Marketplace online order entry tool.

Product ordering information for the new release 3.4 hardware, software and documentation is as follows:

Table 2

Ordering Information

Product Name	Description
<b>Hardware</b>	
15327-G1000-2	2 Port Gigabit Ethernet
15327-G1000-2=	2 Port Gigabit Ethernet
15327-SFP-LC-SX	1000 Base SX LC, SFP
15327-SFP-LC-SX=	1000 Base SX LC, SFP
15327-SFP-LC-LX	1000 Base LX LC, SFP
15327-SFP-LC-LX=	1000 Base LX LC, SFP
<b>Documentation &amp; Software</b>	
15327-DOC3.4.0CD=	Sys. Doc. Rel. 3.4.0 English, CD
15327-DOC3.4.0CD	Sys. Doc. Rel. 3.4.0 English, CD
15327-DOC3.4.0PP=	Sys. Doc. Rel. 3.4.0 English, Paper
15327-DOC3.4.0PP	Sys. Doc. Rel. 3.4.0 English, Paper
15327-R3.4.0SW/CD	Rel. 3.4.0 AE Feature Pkg., CD
15327-R3.4.0SW/CD=	Rel. 3.4.0 AE Feature Pkg., CD
SF15327-R3.4.0	Rel. 3.4.0 SW, Pre-loaded on XTC
15327-LIC-R3.4.0	15327 Upgrade License for R3.4.0

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