Cisco ONS 15454 Series Multiservice Provisioning Platforms

Cisco ONS 15454 Enhanced DS3 Interface Cards

Table Of Contents

Data Sheet

Data Sheet

**Cisco ONS 15454 Enhanced
DS3 Interface Cards**

**DS3 services remain one of the most popular service interfaces
requested by service providers. The Cisco ONS 15454
Enhanced DS3 Interface Cards are a quick and cost-effective
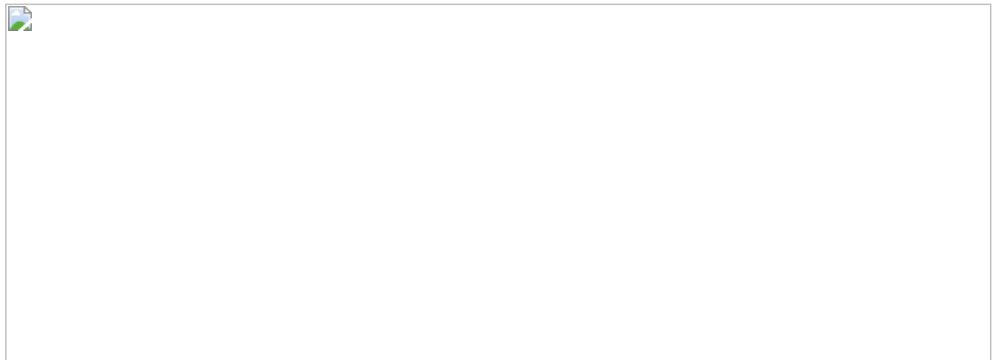solution for DS3 service requirements.**

DS3 services have continued to be popular with service providers not only
because the service is a significant source of revenue, but also because DS3
services meet the following needs:

•⎯High bandwidth—Accommodates bandwidth-intensive applications such as
video-conferencing

•⎯Channelization—Businesses can choose to partition their DS3 into multiple
channels to simultaneously transport multiple calls or lower-speed applications.
By channelizing their DS3, customers can use it to aggregate many of their
transport needs onto one circuit, optimizing their network and saving money

•⎯Flexibility—Using network management software, service providers can
dynamically change their DS3 network cross-connections from the convenience
of their network operations center (NOC) or from the central office (CO)

•⎯Reliability—DS3 service is virtually error-free and exhibits high availability

•⎯Simplicity—DS3 is a mature and well-tested interface that is simple to
design and implement; the service is widely deployed in businesses and is well
known and trusted by data and telecommunications service decision-makers

•⎯Data integrity—DS3 provides an environment for secure and accurate
information transfer

Cisco ONS 15454 can concentrate a large number of edge DS3 traffic streams
into one large "pipe" before handing them off to core switches and routers. (See
Figure 1.) This capability not only dramatically reduces the number of ports
required on core switches, but also greatly reduces the cost and complexity in
the edge by providing a high port fan-out and distribution network.

The Cisco ONS 15454 DS3 Card, with Enhanced Performance Monitoring ,
gives service providers improved network visibility, providing them a means of
early facility failure detection. It also allows service providers to continue to
provide the highest levels of service availability through service guarantees.

Figure 1 DS3 Aggregation

The new Enhanced DS3-12E and the DS3N-12E cards can be installed in any of the Cisco ONS 15454 shelf assembly's 12 multiservice interface slots. Both the DS3-12E and the DS3N-12E cards provide 12 Telcordia compliant, GR-499-CORE DS3 interfaces that operate at 44.736 Mbps over a single 75-ohm 728A (or equivalent coaxial span). The DS3-12E card can be provisioned as a working or protect card in a 1:1 protect scheme or as working card in 1:N protection scheme. The DS3N-12E can operate as a working or as a protection card in either 1:1 or 1:N protection schemes. The DS3N-12E can protect up to five working DS3-12E or DS3N-12 cards. Other than the protection capability, the DS3-12E functions in the same manner as the DS3N-12E.

In addition to providing electrical DS3 equivalents, the enhanced DS3 cards allow greater performance monitoring capabilities than the previous generation DS3(N)-12 cards. The DS3-12E and DS3N-12E detects several different logic bits that may be in error within a DS3 frame, allowing the Cisco ONS 15454 to identify a degrading DS3 facility caused by upstream electronics (such as DS3 framer). In addition to providing Bipolar with Three-Zero Substitution (B3ZS) error monitoring on the facility, the DS3-12E and the DS3N-12E provide the following enhanced feature set:

- Provisionable framing format M13, C-bit, or unframed

- Auto recognition and provisioning of incoming framing

- P-bit monitoring

- C-bit parity monitoring

- X-bit monitoring

- M-bit monitoring

- F-bit monitoring

- Far-end block errors (FEBE) monitoring

- Far-end alarm and control (FEAC) status and loop code detection

- Path trace byte support with TIM-P alarm generation

Additional specifications of the Enhanced DS3(N)-12E are listed in Table 1.

Table 1 Technical Specifications

Parameter	DS3 Interface
Facilities per card	12
Card protection capability	1:1 or 1:N (N is less than 6) N card installed in slots 3 or 15
Working facilities per shelf	144 max. unprotected DS3s using the DS3-12E 120 max. using two groups of 5 working DS3-12E and one DS3N-12E 72 max. using the DS3-12E with 1:1 protection
Data rate	44.736 Mbps, +/- 20ppm
Line build-out	0 to 225 ft 226 to 450 ft
Connectors (accessed through rear EIA panels)	75-ohm Bayonet Nut Connector (BNC) or Sub Miniature Connector (SMB)
Media	Unbalanced coax
Loopback modes	Terminal and facility
Facility protection	Protected (1:1 or 1:N, N is equal to or less than 5) Unprotected (0:1)
Card level indicators: Red "Fail" LED	Hardware problem

Green "ACT/STBY" LED	Card ready to carry traffic
Yellow "SF" LED	Signal failure for Loss of Signal (LOS), Loss of Frame (LOF) or high Bit Error Rates (BER)
BER Measurements	10^{-3}
Dimensions	Single width 12.65 x .716 x 9 in. (H x W x D)
Power consumption DS3-12E DS3N-12E	23W 26W
Temperature Operating Storage Humidity Operating Storage	-40° to 149°F (-40° to 65°C) -40° to 185°F (-40° to 85°C) 5 to 95%, noncondensing 5 to 95%, noncondensing
Compliance	AIS TR-TSY-000191, GR-499-CORE, GR-253-CORE, ANSI T1.107.1988
Minimum required system software	ONS 15454 Release 3.0 or greater

Product Name	Description
15454-DS3-12E	DS3 card, enhanced performance monitoring
15454-DS3N-12E	DS3 card, 1:N protection (N is less than 6), enhanced performance monitoring

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