



Numerics

1:1 protection	A electrical card protection scheme that pairs a working card with a protect card of the same type in an adjacent slot. If the working card fails, the traffic from the working card switches to the protect card. When the failure on the working card is resolved, traffic reverts back to the working card if this option is set. This protection scheme is specific to electrical cards.
1+1 protection	An optical card protection scheme that pairs a single working card with a single dedicated protect card. A term specific to optical cards.
1:N protection	An electrical card protection scheme that allows a single protect card to provide protection for several working cards. If a working card fails, the traffic from the working card switches to the protect card. When the failure on the working card is resolved, traffic reverts to the working card.
10BaseT	Standard 10-Mbps local area network over unshielded twisted pair copper wire.
100BaseT	Standard 100-Mbps local Ethernet network.
100BaseTX	Specification of 100BaseT that supports full duplex operation.

A

access drop	Point where network devices can access the network.
access identifier	<i>See</i> AID.
ACO	alarm cutoff.
active card	A card that is working or carrying traffic. A card provisioned as working can be an active card or, after a protection switch, a protect card can be an active card.
ACT/STBY	Active/Standby.
add/drop multiplexer	<i>See</i> ADM.
address mask	Bit combination used to describe the portion of an IP address that refers to the network or subnet and the portion that refers to the host. Sometimes referred to as mask. <i>See also</i> subnet mask.
ADM	add/drop multiplexer. ADMs aggregate or groom SONET traffic at various speeds. An ADM has three or more nodes.

agent	1. Generally, software that processes queries and returns replies on behalf of an application. 2. In a network management system, a process that resides in all managed devices and reports the values of specified variables to management stations.
AEP	Alarm Expansion Panel.
AID	access identifier. An access code used in TL1 messaging that identifies and addresses specific objects within the ONS 15454. These objects include individual pieces of equipment, transport spans, access tributaries, and others. <i>See also TID.</i>
AIP	alarm interface panel.
ALS	Automatic laser shutdown. A protocol that, in the event a remote link is broken, automatically reduces the optical output power of remote transmitters.
alternate mark inversions	<i>See AMI.</i>
ANS	automatic node setup.
AMI	alternate mark inversion. Line-code format used on T1 circuits that transmits ones by alternate positive and negative pulses. Zeros are represented by 01 during each bit cell and ones are represented by 11 or 00, alternately, during each bit cell. AMI requires that the sending device maintain ones density. Ones density is not maintained independently of the data stream. Sometimes called binary-coded alternate mark inversion.
AMP Champ	Short name for the backplane electrical interface assembly equipped with AMP Champ connectors.
ANSI	American National Standards Institute.
AOTF	Acoustic-Optic Tunable Filter. Wavelength filter used to add/drop specific channels within the MSTP under software control.
APC	automatic power control.
APD	avalanche photodiode.
APS	automatic protection switching. SONET switching mechanism that routes traffic from working lines to protect lines if a line card failure or fiber cut occurs.
APSB	alarm protection switching byte.
ARP	Address Resolution Protocol.
ASIC	application-specific integrated circuit.
Asynchronous Transfer Mode	<i>See ATM.</i>
ATAG	autonomous message tag. Sequential number generated by the system tat is used for TL1 message sequencing. <i>See also CTAG.</i>

ATM	Asynchronous Transfer Mode. The international standard for cell relay, in which multiple service types (such as voice, video, or data) are conveyed in fixed-length (53-byte) cells. Fixed-length cells allow cell processing to occur in hardware, thereby reducing transit delays. ATM is designed to take advantage of high-speed transmission media such as E3, SONET, and T3.
attenuation	The decrease in signal strength in an optical fiber caused by absorption and scattering. Attenuation can be calculated to express the signal loss between two points, or the total signal loss of a telecommunications system or segment.
automatic laser shutdown	<i>See</i> ALS.
automatic protection switching	<i>See</i> APS.
autonomous message tag	<i>See</i> ATAG.
AWG	American Wire Gauge, or arrayed waveguide grating

B

B8ZS	binary 8-zero substitution. A line-code type, used on T1 circuits, that substitutes a special code whenever eight consecutive zeros are sent over the link. This code is then interpreted at the remote end of the connection. This technique guarantees ones density independent of the data stream. Sometimes called bipolar 8-zero substitution.
backbone	The part of the network that carries the heaviest traffic or joins LANs together.
BER	bit error rate. Ratio of received bits that contain errors.
bidirectional line switched ring	<i>See</i> BLSR.
binary-coded alternate mark inversion	<i>See</i> AMI.
binary 8-zero substitution	<i>See</i> B8ZS.
BIP	bit interleaved parity. In ATM, a method used to monitor errors on a link. A check bit or word is sent in the link overhead for the previous block or frame. Bit errors in the payload can then be detected and reported as maintenance information.
bit error rate	<i>See</i> BER.
bit interleaved parity	<i>See</i> BIP.
bit rate	Speed at which bits are transmitted, usually expressed in bits per second.

BITS	building integrated timing supply. A single building master timing supply that minimizes the number of synchronization links entering an office.
BLSR	bidirectional line switched ring. A SONET ring architecture that provides working and protection fibers between nodes. If the working fiber between nodes is cut, traffic is automatically routed onto the protection fiber. <i>Compare with path protection.</i>
blue band	Dense wavelength division multiplexing (DWDM) wavelengths are broken into two distinct bands: red and blue. DWDM cards for the ONS 15454 operate on wavelengths between 1530.33 nm and 1542.94 nm in the blue band. The blue band is the lower frequency band.
BNC	Bayonet Neill-Concelman (coaxial cable bayonet-locking connector).
BPDU	bridge protocol data unit.
bridge	Device that connects and passes packets between two network segments that use the same communications protocol. In general, a bridge will filter, forward, or flood an incoming frame based on the MAC address of that frame. <i>See also MAC address.</i>
broadcast	Data packet that will be sent to all nodes on a network. Broadcasts are identified by a broadcast address. <i>Compare with multicast and unicast. See also broadcast address.</i>
broadcast address	Special address reserved for sending a message to all stations. Generally, a broadcast address is a MAC destination address of all ones. <i>See also MAC address.</i>
broadcast storm	Undesirable network event in which many broadcasts are sent simultaneously across all network segments. A broadcast storm uses substantial network bandwidth and, typically, causes network timeouts.
building integrated timing supply	<i>See BITS.</i>
bus	Common physical signal path composed of wires or other media across which signals can be sent from one part of a computer to another.

C

C2 byte	The C2 byte is the signal label byte in the synchronous transport signal (STS) path overhead. This byte tells the equipment what the SONET payload envelope contains and how it is constructed. <i>See also SONET.</i>
CAT-5	Category 5 (cabling).
C-Band	conventional band. In optical networks, a range of wavelengths between 1535 nm and 1565 nm.
CCITT	Comité Consultatif International Télégraphique et Téléphoniques. Formerly ITU.
CEV	Controlled Environment Vaults.
Cisco Transport Controller	<i>See CTC.</i>

Cisco Transport Manager	<i>See</i> CTM.
CLEI	Common Language Equipment Identification code.
CLNP	Connectionless Network Protocol.
cm	centimeter.
CMIP	Common Management Information Protocol.
COE	Central Office Environment.
collision	In Ethernet, the result of two nodes transmitting simultaneously. The frames from each device impact and are damaged when they meet on the physical media.
concatenation	A mechanism for allocating contiguous bandwidth for payload transport. Through the use of concatenation pointers, multiple OC-1s can be linked together to provide contiguous bandwidth through the network, from end to end.
Coordinated Universal Time	<i>See</i> UTC.
CORBA	Common Object Request Broker Architecture.
correlation tag	<i>See</i> CTAG.
CPE	Customer Premise Equipment.
crosspoint	A set of physical or logical contacts that operate together to extend the speech and signal channels in a switching network.
CTAG	correlation tag. A unique identifier given to each input command by the TL1 operator. When the ONS 15454 system responds to a specific command, it includes the command's CTAG in the reply. This eliminates discrepancies about which response corresponds to which command. <i>See also</i> ATAG.
CTC	Cisco Transport Controller. A Java-based graphical user interface (GUI) that allows operation, administration, maintenance, and provisioning (OAM&P) of the ONS 15454 using an Internet browser.
CTM	Cisco Transport Manager. A Java-based network management tool used to support large Cisco 15000-class networks.

D

data *See* DCC.

communications channel

data *See* DCN.

communications network

DCC	data communications channel. Used to transport information about OAM&P over a SONET interface. DCC can be located in SDCC or LDCC. <i>See also LDCC and SDCC.</i>
DCN	data communications network. An out-of-band network that provides connectivity between network elements and their respective operations support systems (OSS).
DCS	Distributed Communications System.
DCU	dispersion compensation unit.
default router	If the ONS 15454 must communicate with a device on a network to which the ONS 15454 is not connected, packets are sent to this router to be distributed.
demultiplex	To separate multiple multiplexed input streams from a common physical signal back into multiple output streams. <i>Compare with multiplex.</i>
demultiplexer	A device used to demultiplex signals.
demux	An abbreviation used for demultiplex or demultiplexer.
dense wavelength division multiplexing	<i>See DWDM.</i>
destination	The endpoint where traffic exits an ONS 15454 network. Endpoints can be paths (STS or STS/VT for optical card endpoints), ports (for electrical circuits, such as DS1, VT, DS3, STS), or cards (for circuits on DS1 and Ethernet cards). <i>See also STS and VT.</i>
DHCP	Dynamic Host Configuration Protocol.
Digital Signal Cross-Connect Frame	<i>See DSX.</i>
DNS	Domain Name Service.
DRAM	dynamic random-access memory.
drop	<i>See destination.</i>
DS-1	digital signal level 1. A framing specification used in transmitting digital signals at 1.544-Mbps on a T1 facility (in the United States) or at 2.108-Mbps on an E1 facility (in Europe).
DS-3	digital signal level 3. Framing specification used for transmitting digital signals at 44.736 Mbps on a T3 facility.
DSX	(Digital Signal Cross-Connect Frame). A manual bay or panel where different electrical signals are wired. A DSX permits cross-connections by patchcords and plugs.
DWDM	dense wavelength division multiplexing. A technology that increases the information carrying capacity of existing fiber optic infrastructure by transmitting and receiving data on different light wavelengths. Many of these wavelengths can be combined on a single strand of fiber.
DWDM node	An ONS 15454 running Software Release 4.5, or later. <i>Compare with non-DWDM node.</i>

E

EDFA	erbium doped fiber amplifier. A type of fiber optical amplifier that transmits a light signal through a section of erbium-doped fiber and amplifies the signal with a laser pump diode. EDFA is used in transmitter booster amplifiers, in-line repeating amplifiers, and receiver preamplifiers.
EFCA	Electrical Facility Connection Assembly.
EFT	Electrical Fast Transient/Burst.
EIA	electrical interface assembly. Provides backplane connection points for the DS-1, DS-3, and EC-1 cards.
EIA/TIA-232	Electronic Industries Association/Telecommunications Industry Association Recommended Standard No. 232.
electrical interface assembly	<i>See EIA.</i>
electromagnetic interference	<i>See EMI.</i>
ELR	Extended Long Reach.
EMC	electromagnetic compatibility.
EMI	electromagnetic interference. Interference by electromagnetic signals that can cause reduced data integrity and increased error rates on transmission channels.
EML	Element Manager Layer.
EMS	Element Management System.
ENE	end network element.
envelope	The part of messaging that varies in composition from one transmittal step to another. It identifies the message originator and potential recipients, documents its past, directs its subsequent movement by the Message Transfer System (MTS), and characterizes its content.
EOW	express orderwire. A permanently connected voice circuit between selected stations for technical control purposes.
erbium doped fiber amplifier	<i>See EDFA.</i>
ERDI	Enhanced Remote Defect Indicator.
ES	errored seconds.
ESD	electrostatic discharge.
ESH	End System Hello.
ESF	Extended Super Frame.

Ethernet switch	A type of Ethernet LAN device that increases aggregate LAN bandwidth by allowing simultaneous switching of packets between switch ports. Ethernet switches subdivide previously shared LAN segments into multiple networks with fewer stations per network.
ETSI	European Telecommunications Standards Institute.
express orderwire	<i>See EOW.</i>
extended SNCP	extended subnetwork connection protection). Extends the protection scheme of a subnetwork connection protection ring (SNCP) beyond the basic ring configuration to the meshed architecture of several interconnecting rings. <i>See also SNCP.</i>

F

falling threshold	A falling threshold is the counterpart to a rising threshold. When the number of occurrences drops below a falling threshold, this triggers an event to reset the rising threshold. <i>See also rising threshold.</i>
FC	Failure count.
FDDI	Fiber Distributed Data Interface. A LAN standard, defined by ANSI X3T9.5, specifying a 100-Mbps token-passing network using fiber optic cable, with transmission distances of up to 2 km. FDDI uses a dual-ring architecture to provide redundancy.
FE	Frame Bit Errors.
FEC	forward error correction.
FG1	Frame Ground #1 (pins are labeled “FG1,” “FG2,” etc.)
Fiber Distributed Data Interface	<i>See FDDI.</i>
FMEC	Front Mount Electrical Connection.
frame	Logical grouping of information sent as a data link layer unit over a transmission medium. Often refers to the header and trailer, used for synchronization and error control that surrounds the user data contained in the unit.
FSB	Field Service Bulletin.

G

gateway	An electronic repeater device that intercepts and steers electrical signals from one network to another.
GBIC	Gigabit Interface Converter. A hot-swappable input/output device that plugs into a Gigabit Ethernet port to link the port with the fiber-optic network.
Gbps	gigabits per second.

GBps	gigabytes per second.
GCC	generic communications channel.
Gigabit Interface Converter	<i>See</i> GBIC.
GNE	gateway network element.
GR-253-CORE	Telcordia General Requirements #253 Council of Registrars.
GR-1089	Telcordia General Requirement 1089, <i>Electromagnetic Compatibility and Electrical Safety - Generic Criteria for Network Telecommunications Equipment</i> .
GUI	graphical user interface.

H

hard reset	The physical removal and insertion of a TCC2/TCC2P card, also known as reseating a card or performing a card pull.
HDLC	high-level data link control. Bit-oriented, synchronous, data-link layer protocol developed by the International Standards Organization (ISO). HDLC specifies a data encapsulation method on synchronous serial links using frame characters and checksums.
high-level data link control	<i>See</i> HDLC.
hop	A hop is a way to quantify the “length” of a network route to decide which redundant route is selected. Typically, each path segment through a routing network device is considered one hop. For example, if an ENE is connected to a GNE that is connected to a router, the ENE has two hops to the router—one from itself to the GNE and a second from the GNE to the router. To ensure that a certain route is used only when all other routes are exhausted, assign it an unusually high hop count.
host number	The part of an IP address used to address an individual host within the network or subnetwork.
hot swap	The process of replacing a failed component while the rest of the system continues to function normally.

I

IEC	1. InterExchange Carrier. 2. International Electrotechnical Commission.
IEEE	Institute of Electrical and Electronics Engineers.
IETF	Internet Engineering Task Force.
Internet protocol	<i>See</i> IP.
I/O	input/output.

IP	Internet protocol. Network layer protocol in the TCP/IP stack offering a connectionless internetwork service. IP provides features for addressing, type-of-service specification, fragmentation and reassembly, and security.
IPPM	intermediate-path performance monitoring.
IP address	A 32-bit address assigned to a host using TCP/IP. An IP address belongs to one of five classes (A, B, C, D, or E) and is written as 4 octets separated by periods (dotted decimal format). Each address consists of a network number, an optional subnetwork number, and a host number.
ITU-T	International Telecommunication Union–Telecommunication Standards Sector.

J

JRE	Java Runtime Environment.
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K

K byte	Automatic protection-switching byte located in the SONET line overhead and monitored by equipment for an indication to switch to protection.
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L

LAN	local area network. High-speed, low-error, data network covering a relatively small geographic area. LANs connect workstations, peripherals, terminals, and other devices in a single building or other geographically limited area. Ethernet, FDDI, and Token Ring are widely used LAN technologies.
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LBO	line build out. The distance between an external timing device connected to the BITS Out pins and the ONS 15454.
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LCD	(Liquid Crystal Display). An alphanumeric display using liquid crystal sealed between two pieces of glass. LCDs conserve electricity.
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LDCC	Line data communications channel.
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Line Alarm Indication Signal	<i>See AIS-L.</i>
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line build out	<i>See LBO.</i>
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line layer	Refers to the segment between two SONET devices in the circuit. The line layer deals with SONET payload transport, and its functions include multiplexing and synchronization. Sometimes called a maintenance span.
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line terminating equipment	<i>See LTE.</i>
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line timing mode	A node that derives its clock from the SONET lines.
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link budget	The difference between the output power and receiver power of an optical signal expressed in decibels (dB). Link refers to an optical connection and all of its component parts (optical transmitters, repeaters, receivers, and cables).
link integrity	The network communications channel has link integrity if it is intact.
Liquid Crystal Display	<i>See LCD.</i>
local area network	<i>See LAN.</i>
local orderwire	<i>See LOW.</i>
lockout	A method of switching traffic from one card to another, or one span to another (BLSRs), that prevents traffic from reverting to the card or span where the lockout is applied. The lockout overrides other manual switching connections (Force, Manual, and Exercise).
loopback test	Test that sends signals, and then directs them back toward their source from some point along the communications path. Loopback tests are often used to test network interface usability.
LOW	local orderwire. A communications circuit between a technical control center and selected terminal or repeater locations.
LTE	line terminating equipment. Refers to line cards that terminate the line signal in the ONS 15454.
LVDS	Low-Voltage Differential Signal.

M

MAC	Media Access Control.
MAC address	Standardized data link layer address that is required for every port or device that connects to a LAN. Other devices in the network use these addresses to locate specific ports in the network and to create and update routing tables and data structures. MAC addresses are six bytes long and are controlled by the IEEE. Also known as the hardware address, MAC-layer address, and physical address.
ISH	Intermediate System Hello.
Maintenance user	A security level that limits user access to maintenance options only. <i>Compare with Superuser, Provisioning user, and Retrieve user.</i>
managed device	A network node that contains a Subnetwork Management Protocol (SNMP) agent and resides on a managed network. Managed devices include routers, access servers, switches, bridges, hubs, computer hosts, and printers.
managed object	In network management, a network device that can be managed by a network management protocol. Sometimes called an MIB object.
Management Information Base	<i>See MIB.</i>
mapping	A logical association between one set of values, such as addresses on one network, with quantities or values of another set, such as devices on another network.

Mbps	megabits per second.
MBps	megabytes per second.
MetroPlanner	Cisco MetroPlanner is a network design tool that provides a means to construct and test wavelength division multiplexing (WDM) optical networks in a modeled graphical environment.
MHz	megahertz.
MIB	Management Information Base. Database of network management information that is used and maintained by a network management protocol such as SNMP or Common Management Information Protocol (CMIP). The value of a MIB object can be changed or retrieved using SNMP or CMIP commands, usually through a GUI network management system. MIB objects are organized in a tree structure that includes public (standard) and private (proprietary) branches.
MIME	Multipurpose Internet Mail Extensions.
MPO	Multifiber Push-On (connector).
MS	multiplex section.
MS-FERF	multiplex section far-end receive failure.
MSP	Multiplex Section Protection.
MS-SPRing	multiplex section-shared protection ring. SDH ring architecture that provides working and protection fibers between nodes. If the working fiber between nodes is cut, traffic is automatically rerouted onto the protection fiber.
MTS	Message Transfer System
multicast	Single packets copied by the network and sent to a specific subset of network addresses. <i>Compare with unicast and broadcast.</i>
multiplex payload	Generates section and line overhead, and converts electrical/optical signals when the electrical/optical card is transmitting.
multiplex section-shared protection ring	<i>See MS-SPRing.</i>
multiplex	To combine multiple signals so that they can be transmitted simultaneously across a single physical channel. <i>Compare demultiplex.</i>
multiplexer	A device used to multiplex signals.
mux	An abbreviation used for multiplex or multiplexer.
muxed	multiplexed. <i>See multiplex.</i>

N

NE	network element. In an Operations Support System (OSS), a single piece of telecommunications equipment used to perform a function or service integral to the underlying network.
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NEBS	Network Equipment Building Systems.
NEL	Network Element Layer.
network management system	<i>See</i> NMS.
network number	Part of an IP address that specifies the network where the host belongs.
NIC	network interface card
NML	Network Management Layer.
NMS	network management system. System that executes applications that monitor and control managed devices. NMSs provide the bulk of the processing and memory resources required for network management.
node	In this manual, the term “node” usually refers to an ONS 15454. A node is the endpoint of a network connection or a junction common to two or more lines in a network. Nodes can be processors, controllers, or workstations. Nodes, which vary in routing and other functional capabilities, can be interconnected by links, and serve as control points in the network. Node is sometimes used generically to refer to any entity that can access a network.
non-DWDM node	An ONS 15454 running Software Release 4.1 or earlier. <i>Compare with DWDM node.</i>
NSAP	Network Service Access Point.
NSP	Node Service Protocol.
NTD	Node Topology Discovery.

O

OADM	optical add/drop multiplexer
OAM&P	operation, administration, maintenance, and provisioning. Provides the facilities and personnel required to manage a network.
OC	optical carrier.
OCHNC	optical channel network connection.
OOS AS	Out of Service Assigned.
operation, administration, maintenance, and provisioning	<i>See</i> OAM&P.
optical amplifier	A device that amplifies an optical signal without converting the signal from optical to electrical and back again to optical energy.

optical receiver	An opto-electric circuit that detects incoming lightwave signals and converts them to the appropriate signal for processing by the receiving device.
orderwire	Equipment that establishes voice contact between a central office and carrier repeater locations. <i>See also EOW and LOW.</i>
OSCM	Optical Service Channel Module.
OSI	Open Systems Interconnection.
OSNR	optical signal-to-noise ratio
OSPF	Open Shortest Path First.
OSS	Operations Support System.
OTN	optical transport network
output contacts (controls)	Triggers that drive visual or audible devices such as bells and lights. Output contacts can control other devices such as generators, heaters, and fans.

P

passive devices	Components that do not require external power to manipulate or react to electronic output. Passive devices include capacitors, resistors, and coils.
Path layer	The segment between the originating equipment and the terminating equipment. This path segment might encompass several consecutive line segments or segments between two SONET devices.
Path-Protected Mesh Network	<i>See PPMN.</i>
Path Protection	Path-switched SONET rings that employ redundant, fiber-optic transmission facilities in a pair configuration. One fiber transmits in one direction and the backup fiber transmits in the other. If the primary ring fails, the backup takes over. <i>Compare with BLSR.</i>
payload	Portion of a cell, frame, or packet that contains upper-layer information (data).
PCM	pulse code modulation.
PCMCIA	Personal Computer Memory Card International Association.
PCN	Product Change Notice.
PDI-P	STS Payload Defect Indication–Path.
ping	packet Internet grouper. Internet Control Message Protocol (ICMP) echo message and its reply. Often used in IP networks to test the reachability of a network device.
pointer justification	In SONET, the mechanism used to compensate for frequency and phase variations. Pointer justification counts indicate timing errors on SONET networks.
POP	point of presence.

PM	performance monitoring.
PPM	pluggable port module.
PPMN	Path-Protected Mesh Network. Extends the protection scheme of a path protection beyond the basic ring configuration to the meshed architecture of several interconnecting rings.
priority queuing	Routing feature that divides data packets into two queues: one low-priority and one high-priority.
protect card	A card in a protection pair or scheme that is provisioned as a protect card to the working card. If the working card fails, the protect card becomes active. <i>See also</i> working card.
Provisioning user	A security level that allows the user to access only provisioning and maintenance options in CTC. <i>See also</i> Superuser, Maintenance user, and Retrieve user.
PSC	Protection Switching Count.
PSD	Protection Switching Duration.
PTE	path-terminating equipment.

Q

queue	In routing, a backlog of packets waiting to be forwarded over a router interface.
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R

RAM	random-access memory.
RDI-L	Remote Defect Indication–Line.
red band	DWDM wavelengths are broken into two distinct bands: red and blue. The red band is the higher frequency band. The red band DWDM cards for the ONS 15454 operate on wavelengths between 1547.72 nm and 1560.61 nm.
RES	reserved.
Retrieve user	A security level that allows the user to retrieve and view CTC information but not set or modify parameters. <i>Compare with</i> Superuser, Maintenance user, and Provisioning user.
revertive switching	A process that sends electrical interfaces (traffic) back to the original working card after the card comes back online.
ring	Connection of two or more nodes in a logically circular topology. Information is passed sequentially between active nodes. <i>See also</i> switching, ring.
rising threshold	The number of occurrences (collisions) that must be exceeded to trigger an event.
RJ-45	Registered Jack #45 (8-pin).
RMA	Return Materials Authorization.

RMON	(remote monitoring). Allows network operators to monitor the health of the network with an NMS. RMON watches several variables, such as Ethernet collisions, and triggers an event when a variable crosses a threshold in the specified time interval.
RS-232	<i>See EIA/TIA-232.</i>
Rx	receive.

S

SC	Fiber connector, push-pull type.
SCI	Serial Communication Interface.
SCL	System Communications Link.
SCSI	Small Computer System Interface.
SDCC	Section data communications channel.
SDH	Synchronous Digital Hierarchy. European standard that defines a set of rate and format standards that are transmitted using optical signals over fiber. SDH is similar to SONET, with a basic SDH rate of 155.52 Mbps. <i>Compare with SONET.</i>
SEF	Severely Errored Frame.
SELV	Safety Extra-Low Voltage.
SES	Severely Errored Seconds.
SF	Super Frame.
SFP	small form factor plugle
Simple Network Management Protocol	<i>See SNMP.</i>
Simple Network Time Protocol	<i>See SNTP.</i>
SML	Service Management Layer.
SMF	single-mode fiber.
SNCP	Subnetwork Connection Protection. Path-switched SDH rings that employ redundant, fiber-optic transmission facilities in a pair configuration. One fiber transmits in one direction and the backup fiber transmits in the other. If the primary ring fails, the backup takes over.
SNMP	Simple Network Management Protocol. Network management protocol used almost exclusively in TCP/IP networks. SNMP monitors and controls network devices and manages configurations, statistics collection, performance, and security.

SNTP	Simple Network Time Protocol. Using an SNTP server ensures that all ONS 15454 network nodes use the same date and time reference. The server synchronizes alarm timing during power outages or software upgrades.
soft reset	A soft reset reloads the operating system, application software, etc., and reboots the TCC2/TCC2P card. It does not initialize the ONS 15454 application-specific integrated circuit (ASIC) hardware.
SONET	Synchronous Optical Network. High-speed synchronous network specification developed by Telcordia Technologies, Inc. and designed to run on optical fiber. STS-1 is the basic building block of SONET. Approved as an international standard in 1988.
source	The endpoint where traffic enters an ONS 15454 network. Endpoints can be a path (STS or STS/VT for optical card endpoints), port (for electrical circuits, such as DS1, VT, DS3, or STS), or card (for circuits on DS1 and Ethernet cards). <i>See also</i> STS and VT.
span	An optical path between two nodes. <i>See also</i> switching, span.
spanning tree	A loop-free subset of a network topology. <i>See also</i> STA and STP.
spanning-tree algorithm	<i>See</i> STA.
Spanning Tree Protocol	<i>See</i> STP.
SPE	synchronous payload envelope. A SONET term describing the envelope that carries the user data or payload.
SRB	source-route bridging.
SSM	synchronization status messaging. A SONET protocol that communicates information about the quality of the timing source using the S1 byte of the line overhead.
STA	spanning-tree algorithm. An algorithm used by the Spanning Tree Protocol (STP) to create a spanning tree. <i>See also</i> spanning tree and STP.
standby card	A card that is not active or carrying traffic. A standby card can be a protect card or, after a protection switch, a working card can be a standby card.
static route	A route that is manually entered into a routing table. Static routes take precedence over routes chosen by all dynamic routing protocols.
STP	<ol style="list-style-type: none"> 1. shielded twisted-pair. 2. Spanning Tree Protocol. Bridge protocol that uses the spanning-tree algorithm to enable a learning bridge to dynamically work around loops in a network topology by creating a spanning tree. <i>See also</i> spanning tree and STA.
STS	Synchronous Transport Signal. Used generically when speaking of SONET signals.
STS-1	Synchronous Transport Signal level 1. Basic building block signal of SONET, operating at 51.84 Mbps for transmission over OC-1 fiber. Faster SONET rates are defined as STS- <i>n</i> , where <i>n</i> is a multiple of 51.84 Mbps. <i>See also</i> SONET.

subnet mask	A 32-bit address mask used in IP to indicate the bits of an IP address that are used for the subnet address. Sometimes referred to simply as mask. <i>See also</i> IP address.
subnetwork	In IP networks, a network confined to a particular subnet address. Subnetworks are networks segmented by a network administrator in order to provide a multilevel, hierarchical routing structure while shielding the subnetwork from the addressing complexity of attached networks. Sometimes called a subnet.
Subnetwork Connection Protection	<i>See</i> SNCP.
subtending rings	SONET rings that incorporate nodes that are also part of an adjacent SONET ring.
Superuser	A security level that can perform all of the functions of the other security levels as well as set names, passwords, and security levels for other users. A Superuser is usually the network element administrator. <i>Compare with</i> Retrieve user, Maintenance user, and Provisioning user.
switching, span	Span switching occurs when a working span fails. Traffic switches to the protect fibers between the nodes and then returns to the working fibers. Multiple span switches can occur at the same time.
switching, ring	Ring switching occurs when a span switch cannot recover traffic, such as when both the working and protect fibers fail on the same span. In a ring switch, traffic is routed to the protect fibers throughout the full ring.
SWS	SONET WAN switch.
SXC	SONET Cross Connect ASIC.
synchronization status messaging	<i>See</i> SSM.
Synchronous Digital Hierarchy	<i>See</i> SDH.
Synchronous Optical Network	<i>See</i> SONET.
synchronous payload envelope	<i>See</i> SPE.
Synchronous Transport Signal	<i>See</i> STS.

T

T1	T1 transmits DS-1-formatted data at 1.544 Mbps through the telephone-switching network using AMI or B8ZS coding. <i>See also</i> AMI, B8ZS, and DS-1.
TAC	Cisco Technical Assistance Center.
target identifier	<i>See</i> TID.
TBOS	Telemetry Byte Oriented Serial protocol.

TCA	threshold crossing alert.
TCC+	Timing Communications and Control + Card.
TCP/IP	Transmission Control Protocol/Internet Protocol.
TDM	time-division multiplexing. Allocates bandwidth on a single wire for information from multiple channels based on preassigned time slots. Bandwidth is allocated to each channel regardless of whether the station has data to transmit.
TDS	time-division switching.
Telcordia	Telcordia Technologies, Inc., formerly named Bellcore. Eighty percent of the U.S. telecommunications network depends on software invented, developed, implemented, or maintained by Telcordia.
TID	target identifier. Identifies the particular network element (in this case, the ONS 15454) where each TL1 command is directed. The TID is a unique name given to each system at installation. <i>See also AID.</i>
time-division multiplexing	<i>See TDM.</i>
TL1	Transaction Language 1.
TLS	transparent LAN services. Provides private network services across a SONET backbone.
TMN	Telecommunication Management Network.
transponder	Optional device in a DWDM system that provides the conversion of one optical wavelength to a precision narrow band wavelength. <i>See also DWDM.</i>
trap	Message sent by an SNMP agent to an NMS (CTM), console, or terminal to indicate the occurrence of a significant event, such as an exceeded threshold. <i>See also CTM.</i>
tributary	The lower-rate signal directed into a multiplexer for combination (multiplexing) with other low rate signals to form an aggregate higher rate level.
trunk	Network traffic travels across this physical and logical connection between two switches. A backbone is composed of a number of trunks. <i>See also backbone.</i>
TSA	time-slot assignment.
TSI	time-slot interchange.
tunnel	Secure communication path between two peers, such as two nodes.
tunneling	Architecture that is designed to provide the services necessary to implement any standard point-to-point encapsulation scheme.
Tx	transmit.

U

UAS	Unavailable Seconds.
UBIC-H	Universal Backplane Interface Connector-Horizontal. The UBIC-H EIAs provide up to 112 transmit and receive connections through 16 SCSI connectors per side (A and B). The UBIC-H EIAs are designed to support DS-1, DS-3, and EC-1 signals.
UBIC-V	Universal Backplane Interface Connector-Vertical. The UBIC-V EIAs provide up to 112 transmit and receive connections through 16 SCSI connectors per side (A and B). The UBIC-V EIAs are designed to support DS-1, DS-3, and EC-1 signals.
UDC	user data channel.
UDP/IP	User Datagram Protocol/Internet Protocol.
UID	user identifier.
unicast	The communication of a single source to a single destination. <i>Compare with broadcast and multicast.</i>
Universal Backplane Interface Connector-Horizontal	<i>See</i> UBIC-H.
Universal Backplane Interface Connector-Vertical	<i>See</i> UBIC-V.
UPC	Ultra Physical Contact.
upstream	Set of frequencies used to send data from a subscriber to the head end.
UTC	Coordinated Universal Time. Time zone at zero degrees longitude. Formerly called Greenwich Mean Time (GMT) and Zulu time.
UTP	unshielded twisted-pair.

V

VDC	volts direct current.
virtual fiber	A fiber that carries signals at different rates and uses the same fiber-optic cable.
virtual ring	Entity in a source-route bridging (SRB) network that logically connects two or more physical rings together either locally or remotely. The concept of virtual rings can be expanded across router boundaries.
virtual wire	Routes external alarms to one or more alarm collection centers across the SONET transport network.
VLAN	virtual LAN. Group of devices located on a number of different LAN segments that are configured (using management software) to communicate as if they were attached to the same wire. Because VLANs are based on logical instead of physical connections, they are extremely flexible.
VOA	variable optical attenuator.

VPN	Virtual Private Network. Enables IP traffic to travel securely over a public TCP/IP network by encrypting all traffic from one network to another. A VPN uses “tunneling” to encrypt all information at the IP level. <i>See also</i> tunneling.
VT	Virtual Tributary. A structure designed for the transport and switching of sub-DS3 payloads. <i>See also</i> tributary.
VT1.5	A Virtual Tributary that equals 1.544 Mbps.
VT layer	The VT layer, or electrical layer, occurs when the SONET signal is broken down into an electrical signal.
VT tunnel	Allows electrical circuits to pass through ONS 15454 nodes without using ONS 15454 cross-connect card capacity.

W

W	watt.
WAN	wide area network.
working card	A card that is provisioned as an active, primary card. Traffic cards in a protection pair are provisioned as working or protect. <i>See also</i> protect card.
WPP	Wavelength Path Provisioning.

X

X.25	Protocol providing devices with direct connections to a packet-switched network.
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Y

Y-cable protection	Two cards connected together with a Y cable to form a protection group.
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