**Numerics**

1:1 protection

An electrical card protection scheme that pairs a working card with a protect card of the same type in an adjacent slot (DS-1 and DS-3 speeds). 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 to the working card.

1+1 protection

An optical (OC-N) card protection scheme that pairs a single working port/card with a single dedicated protect port/card. All OC-N cards can use this protection type (OC-3, OC-12, OC-48, and OC-192 speeds).

1:N protection

An electrical card protection scheme that allows a single protect card to provide protection for several working cards (DS-1 and DS-3 speeds). 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

Points where network devices can access the network.

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.

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. See also subnet mask.

ADM

(Add/drop multiplexers). Linear ADMs allow signals to be added to a SONET span or dropped from a SONET span. 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.

AIC

Alarm Interface Controller.

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. See also TID.

AIP

Alarm Interface Panel.

AIS

Alarm Indication Signal.

AIS-L

Line Alarm Indication Signal.

AMI

(Alternate Mark Inversion). Line-code format used on T1 circuits that transmits ones by alternate positive and negative pulses. Zeroes 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.

ANSI

American National Standards Institute.

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.
ARP
Address Resolution Protocol.

APSB
Alarm Protection Switching Byte.

ATAG
(Autonomous Message Tag). ATAG is used for TL1 message sequencing. See also CTAG.

ATM
Asynchronous Transfer Mode.

AWG
American Wire Gauge

B

B8ZS
(Binary 8-zero Substitution). A line-code type, used on T1 circuits, that substitutes a special code whenever 8 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.

BIP
Bit Interleaved Parity.

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. Sometimes referred to as a Synchronization Supply Unit.

BLSR
(Bidirectional Line Switched Ring). 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. See also UPSR.
Blue band

Dense Wavelength Division Multiplexing (DWDM) wavelengths are broken into two distinct bands: red and blue. DWDM cards for the ONS 15454 SDH operate on wavelengths between 1530.33nm and 1542.94nm 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. See also MAC address.

Broadcast

Data packet that will be sent to all nodes on a network. Broadcasts are identified by a broadcast address. Compare with multicast and unicast. See also Broadcast address.

Broadcast address

Special address reserved for sending a message to all stations. Generally, a broadcast address is a MAC destination address of all ones. See also MAC address.

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 time-outs.

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 STS path overhead. This byte tells the equipment what the SONET payload envelope contains and how it is constructed. See also SONET.

CAT 5

Category 5 (cabling).

CCITT

Comité Consultatif International Télégraphique et Téléphoniques. (Formerly ITU.)

CEO

Central Office Environment.
CEV
Controlled Environment Vaults.

CLEI
Common Language Equipment Identifier code.

CLNP
Correctionless 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.

CORBA
Common Object Request Broker Architecture.

CPE
Customer Premise Environments.

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. See also ATAG.

CTC
(Cisco Transport Controller). A Java-based graphical user interface (GUI) that allows operations, 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 networks of Cisco 15000-class

D

DCC
(Data Communications Channel). Used to transport information about operation, administration, maintenance, and
provisioning (OAM&P) over a SONET interface. DCC can be located in SDCC or LDCC. See also LDCC and SDCC.

DCN
Data Communications Network.

DCS
Distributed Communications System.

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. Compare
Multiplexing.

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). See also STS, and
VT.

DRAM
Dynamic Random-Access Memory.

Drop
See Destination.

DS-1
Digital Signal Level One.

DS1-14
Digital Signal Level One (14 ports).

DS1N-14
Digital Signal Level One (N-14 ports).
DS-3
Digital Signal Level Three.

DS3-12
Digital Signal Level Three (12 ports).

DS3N-12
Digital Signal Level Three (N-12 ports).

DS3XM-6
Digital Service, level 3 Trans-Multiplexer 6 ports.

DSX
(Digital Signal Cross-Connect Frame). A manual bay or panel where different electrical signals are wired. A DSX permits cross-connections by patch cords and plugs.

DWDM
(Dense Wave 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.

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 in receiver preamplifiers.

EFCA
Electrical Facility Connection Assembly.

EFT
Electrical Fast Transient/Burst.

EIA
(Electrical Interface Assemblies). Provides backplane connection points for the DS-1, DS-3, and EC-1 cards.

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.

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

(Engineered Orderwire). A permanently connected voice circuit between selected stations for technical control purposes.

ERDI

Enhanced Remote Defect Indicator.

ES

Errored Seconds.

ESD

Electrostatic Discharge.

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.

Extended SNCP

(Extended Subnetwork Connection Protection). Extended SNCP extends the protection scheme of a subnetwork connection protection ring (SNCP) beyond the basic ring configuration to the meshed architecture of several interconnecting rings. See SNCP.
Glossary

External timing reference

A timing reference obtained from a source external to the communications system, such as one of the navigation systems. Many external timing references are referenced to Coordinated Universal Time (UTC).

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. See also rising threshold.

FC

Failure count.

FDDI

(Fiber Distributed Data Interface). 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.

FG1

Frame Ground #1 (pins are labeled “FG1,” “FG2,” etc.)

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.

**GR-153-CORE**

General Requirements #253 Council of Registrars.

**GR-1089**

General Requirements #1089.

**GUI**

Graphical User Interface.

**H**

**Hard reset**

The physical removal and insertion of a TCC+ 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 ISO. HDLC specifies a data encapsulation method on synchronous serial links using frame characters and checksums.

**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**

Part of 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.

**IEEE**

Institute of Electrical and Electronics Engineers.

**IETF**

Internet Engineering Task Force.
Glossary

**Input alarms**

Used for external sensors such as open doors, temperature sensors, flood sensors, and other environmental conditions.

**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**

32-bit address assigned to 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.

**K**

**K bytes**

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

**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.

**LCD**

(Liquid Crystal Display). An alphanumeric display using liquid crystal sealed between two pieces of glass. LCDs conserve electricity.
**Glossary**

**LDCC**
Line Data Communication Channel.

**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.

**Line terminating equipment (LTE)**
Refers to line cards which terminate the line signal in the ONS 15454.

**Line timing mode**
A node that derives its clock from the SONET lines.

**Link budget**
The difference between the output power and receiver power of an optical signal expressed in 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.

**Lock Out**
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 with the lock out applied. The lock out overrides other manual switching connections (force, manual, and exercise).

**LOF**
Loss of Frame.

**Loopback test**
Test that sends signals then directs them back toward their source from some point along the communications path. Loopback tests are often used to test network interface usability.

**LOP**
Loss of Pointer.

**LOS**
Loss of Signal.

**LOW**
(Local Orderwire). A communications circuit between a technical control center and selected terminal or repeater locations.

**LTE**
Line Terminating Equipment.
LVDS
Low-Voltage Differential Signal.

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.

Maintenance user
A security level that limits user access to maintenance options only. See also Superuser, Provisioning User, and Retrieve User.

Managed device
A network node that contains an 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.

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.

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 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.
Glossary

**MIME**
Multipurpose Internet Mail Extensions.

**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.

**Multicast**
Single packets copied by the network and sent to a specific subset of network addresses.

**Multiplex payload**
Generates section and line overhead, and converts electrical/optical signals when the electrical/optical card is transmitting.

**Multiplexing**
Scheme that allows multiple signals to be transmitted simultaneously across a single physical channel. Compare Demultiplex.

**Mux/Demux**
Multiplexer/Demultiplexer.

**Muxed**
Multiplexed. See Multiplexing.

**N**

**NE**

(Network Element). In an Operations Support System, a single piece of telecommunications equipment used to perform a function or service integral to the underlying network.

**NEBS**
Network Equipment-Building Systems.

**NEL**
Network Element Layer.
Network number
Part of an IP address that specifies the network where the host belongs.

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
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. In this manual the term “node” usually refers to an ONS 15454.

O
OAM&P
(Operations, Administration, Maintenance, and Provisioning). Provides the facilities and personnel required to manage a network.

OC
Optical carrier.

OOS AS
Out of Service Assigned.

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. See Local orderwire.

OSI
Open Systems Interconnection.

OSPF
Open Shortest Path First.
OSS
Operations Support System.

OSS/NMS
Operations Support System/Network Management System.

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 may encompass several consecutive line segments or segments between two SONET devices.

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(s).

PDI-P
STS Payload Defect Indication - Path.

Ping
(Packet internet grouper). 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.

**PPMN**
(Path-Protected Mesh Network). PPMN extends the protection scheme of a unidirectional path switched ring (UPSR) 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. See also *working card*.

**Provisioning user**
A security level that allows the user to access only provisioning and maintenance options in CTC. See also *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.

**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 SDH operate on wavelengths between 1547.72nm and 1560.61nm.

RES

Reserved.

Retrieve user

A security level that allows the user to retrieve and view CTC information but not set or modify parameters. See also 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.

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 Network Monitoring). Allows network operators to monitor the health of the network with a Network Management System (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

Recommended Standard #232 (ANSI Electrical Interface for Serial Communication).

Rx

Receive.

S

SCI

Serial Communication Interface.

SCL

System Communications Link.

SDCC

Section Data Communication Channel.
**ALPHA DRAFT - CISCO CONFIDENTIAL**

**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. Compare **SONET**.

**SEF**
Severely Errored Frame.

**SELV**
Safety Extra-Low Voltage.

**SES**
Severely Errored Seconds.

**SF**
Super Frame.

**SML**
Service Management Layer.

**SMF**
Single Mode Fiber.

**SNCP**
(Subnetwork Connection Protection Ring). 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**

**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 TCC+ card. It does not initialize the ONS 15454 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, STS), or card (for circuits on DS1 and Ethernet cards). See also STS and VT.

Span
An optical path between two nodes.

Spanning tree
A loop-free subset of a network topology. See also STA and STP.

SPE
(Synchronous Payload Envelope). A SONET term describing the envelope that carries the user data or payload.

SSM
(Synchronous 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 to create a spanning tree. See also 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
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. See also 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-n, where n is a multiple of 51.84 Mbps. See also SONET.

Subnet mask
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. See also IP address mask and IP address.
Glossary

**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.

**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. See also 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.

---

**T**

**T1**

T1 transmits DS-1-formatted data at 1.544 Mbps through the telephone-switching network using AMI or B8ZS coding. See also AMI, B8ZS, and DS-1.

**TAC**

Technical Assistance Center.

**Tag**

Identification information, including a number plus other information.

**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. See also AID.

**TL1**

Transaction Language 1.

**TLS**

(Transparent LAN Service). Provides private network service across a SONET backbone.

**TMN**

Telecommunications Management Network.

**Transponder**

Optional devices of a DWDM system providing the conversion of one optical wavelength to a precision narrow band wavelength. See also DWDM.

**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. See also CTM.

**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. See also Backbone.
TSA
Time-Slot Assignment.

TSI
Time-Slot Interchange.

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.

UDP/IP

UID
User Identifier.

Unicast
The communication of a single source to a single destination.

UPSR
(Unidirectional Path Switched Ring). 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. See also BLSR.

Upstream
Set of frequencies used to send data from a subscriber to the head end.

UTC
Universal-Time Coordinated.

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 wires
Virtual wires route 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.

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. See also Tunneling.

VT
(Virtual Tributary). A structure designed for the transport and switching of sub-DS3 payloads. See also Tributary.

VT1.5
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
VT tunnels allow electrical circuits to pass through ONS 15454 nodes without using ONS 15454 cross-connect card capacity.

W
Watts.

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 See also Protect card.
**X**

**XC**
Cross Connect

**XCVT**
Cross Connect Virtual Tributary.

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