A

access control list See *ACL*.

ACL access control list. A list kept by routers to control access to or from the router for a number of services.

antialiasing Algorithm used to smooth lines in a topology layout.

API application programming interface. APIs are supplied as XML schema and CORBA IDL files to customers with Cisco VPN Solutions Center products. After compiling these IDL files to produce language-specific implementation files for the *target language* of your choosing, you can use these APIs to incorporate MPLS-VPN features in third-party client-application source code. The CORBA version is being deprecated form the product and will not be supported in subsequent versions.

Application Programming Interface See *API*.

area Segments and their attached devices. Areas are usually connected to other areas through routers, making up a single autonomous system. See also *AS*. See also *region*.

AS Collection of networks under a common administration sharing a common routing strategy. Autonomous systems are subdivided by *areas* or *regions*. An autonomous system must be assigned a unique 16-bit number by the *IANA*. Specific to BGP for MPLS VPN Solutions.

ASN autonomous system number.

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.

audit SR (TE) Tool for auditing the protection of protected TE elements using all existing backup tunnels and proposed changes.

auto bandwidth / auto-bw A way to configure a tunnel for automatic bandwidth adjustment and to control the manner in which the bandwidth for a tunnel is adjusted.

autonomous system See *AS*.

autonomous system number See *ASN*.

B

backing store Function that stores graphics content when moved to the background and regenerates it when moved to the foreground. This helps avoid superfluous refreshing.

baseline A set of data collected from targets. For example, the latest configuration files for a list of Cisco Routers, or the latest configuration files, IP unnumbered information, and PVC information for a list of Cisco Routers. MPLS VPN Solution software automatically maintains baselines that correspond to: 1) the latest PE configuration files in the Provider Administrative Domain (with one baseline per PAD); 2) the latest configuration files of the customer edge routers (CEs) and provider edge routers (PEs) in the virtual private networks (VPNs) that the customer has defined. MPLS VPN Solution uses these baselines to create audit and topology reports.

BECN backwards explicit congestion notification. This is a concept in Frame Relay networking.

BGP Border Gateway Protocol. An interdomain routing protocol designed for the global Internet. Exterior border gateway protocols (EBGPs) communicate among different autonomous systems. Interior border gateway protocols (IBGPs) communicate among routers within a single autonomous system.

Border Gateway Protocol See *BGP*.

border router A router at the edge of a provider network that interfaces to another provider's border router using the EBGP protocol.

C

CAR Committed Access Rate. CAR is Cisco's traffic policing tool for instituting a QoS policy at the edge of a network. CAR allows you to identify packets of interest for classification with or without rate limiting. CAR allows you to define a traffic contract in routed networks.

CE customer edge router. A CE is part of a customer network and interfaces to a provider edge router (PE). A CE can join any set of virtual private networks (VPNs). Each CE connects a customer site to a PE, obtaining the VPN service for that customer site, and belongs to exactly one customer. Each CE may have many configlets and may be configured by multiple service requests.

CEF Cisco express forwarding. A layer 3 switching technology inside a router. It defines the fastest method by which a Cisco router uses to forward packets from ingress to egress interfaces.

CERC customer edge routing community. A component of a VPN that is configured for either full mesh or hub-and-spoke connectivity. A method (using route-target attributes) of describing how CEs in a VPN communicate with each other. CERCs organize a complex VPN into simpler subgroups. Each CERC belongs to one and only one VPN. CERCs can be used to describe the logical topology of the VPN itself.

CERC membership Relationship between a VRF definition and a CERC. It dictates which *CERC* a *VRF definition* is joining and whether it is joining the CERC as either a hub or a spoke.

CIM Common Information Model from the DMTF. Describes components of a managed environment using an object-oriented modeling approach.

C

CIM-CX Common Information Model - Cisco eXtensions. A DMTF CIM-based model.

CIR committed information rate. This is a concept in Frame Relay networking.

Cisco Service Management See *CSM*.

committed access rate See *CAR*.

configlet A configuration fragment that can be downloaded to a CE or PE to modify its current IOS command-set configuration.

conformant tunnel A well-behaved tunnel that meets the TE management paradigm of ISC. A conformant primary tunnel with zero hold and setup priorities is a managed tunnel.

CORBA Common Object Request Broker Architecture.

CSM Cisco Service Management System. The name of Cisco's large-picture project for service management. Many interdependent products fall within this project.

customer Requests VPN service from a *provider*. Each customer may own many customer sites.

customer edge router See *CE*.

customer edge routing community See *CERC*.

customer network A network under the control of an end customer. The VPN connects the single customer network by connecting the isolated sites.

customer site A set of IP systems with mutual IP connectivity between them without the use of a VPN. Each customer site belongs to exactly one customer. A customer site can contain any number of CEs.

D

data-link connection identifier See *DLCI*.

data model A concrete representation of an information model in terms appropriate to a specific data store and access technology.

dCEF Distributed Cisco expressed forwarding routing. Enables distributed forwarding on versatile interface processors (VIPs).

DHCP Dynamic Host Configuration Protocol.

DLCI data-link connection identifier. A value that specifies a private virtual circuit (PVC) or a switched virtual circuit (SVC) in a Frame Relay network.

D

DMTF Distributed Management Task Force.

DNS Domain Naming System. System used in the Internet for translating names of network nodes into addresses.

document type definition See *DTD*.

Domain Naming System See *DNS*.

double buffer Smooths the lines in the topology display when dragging elements.

DRAM dynamic random-access memory. RAM that stores information in capacitors that must be periodically refreshed.

DSCP Differentiated services code point. A field in the IPv4 ToS byte of the packet header that allows you classify packets into any of 64 classes.

DTD document type definition.

Dynamic Host Configuration Protocol See *DHCP*.

dynamic path A dynamic path is provisioned by allowing the head router to find a path. The **dynamic** keyword is then provisioned to the routers.

dynamic random-access memory See *DRAM*.

E

EBGP exterior border gateway protocol. EBGPs (see *BGP*) communicate among different network domains.

egress Traffic leaving the network or device.

Extensible Markup Language See *XML*.

exterior border gateway protocol See *EBGP*.

F

Fast Re-Route (FRR) protection Provides link protection to Label-Switched Paths (LSPs). This enables all traffic carried by LSPs that traverse a failed link to be rerouted around the failure.

G

Gigabit Switch Router — See *GSR*.

global pool — The bandwidth of TE enabled interfaces is assigned a number of nested bandwidth pools. The global pool represents the total reservable bandwidth out of the total link bandwidth.

grooming — Grooming is a TE tool that works on the whole network to optimize the placement of existing managed tunnels. It is only available when no tunnel attributes have been changed.

GSR — Gigabit Switch Router.

H

hold priority — Priority associated with a Label-Switched Path (LSP) for the tunnel to determine if it should be preempted by other LSPs that are being signaled.

Hyper text Transfer Protocol — See *HTTP*.

HTTP — Hyper text Transfer Protocol. An application protocol running on TCP/IP and the World Wide Web

HTTPS — Secure HTTP. Secure HTTP (HTTPS) provides the capability to connect to the Cisco IOS HTTPS server securely. It uses Secure Sockets Layer (SSL) and Transport Layer Security (TLS) to provide device authentication and data encryption.

I

IANA — Internet Assigned Numbers Authority. Organization operated under the auspices of the ISOC as a part of the IAB. IANA delegates authority for IP address-space allocation and domain-name assignment to the InterNIC and other organizations. IANA also maintains a database of assigned protocol identifiers used in the TCP/IP stack, including BGP autonomous system numbers.

IBGP — interior border gateway protocol. IBGPs (see *BGP*) communicate among routers within a single network domain.

ICMP — Internet Control Message Protocol. Network layer Internet protocol that reports errors and provides other information relevant to IP packet processing.

IDL — Interface Definition Language. Generic language for describing *APIs* for *API* servers. IDL API files must be compiled using an IDL compiler from an approved CORBA vendor to produce language-specific API files in a CORBA-supported *target language*. Using the generated target-language files you can add API-supported features to third-party client-application source code.

information model — An abstraction and representation of the entities in a managed environment - their properties, operations, and relationships. It is independent of any specific repository, application, protocol, or platform.

I

ingress Traffic entering the network or device.

Interface Definition Language See *IDL*.

interior border gateway protocol See *IBGP*.

Internet Control Message Protocol See *ICMP*.

internet-service provider See *ISP*.

inter-switch link See *ISL*.

IPv4 Internet Protocol, version 4. A version of IP that support a 32-bit address space.

IPv6 Internet Protocol, version 6. A version of IP that support a 128-bit address space.

ISL Inter-Switch Link. Provider of internet access and services through single BGP autonomous system.

ISP internet-service provider. Provider of internet access and services through single BGP autonomous system.

L

L2VPN Layer 2 Virtual Private Network.

L2TPv3 Layer 2 Tunnel Protocol Version 3.

link speed factor TE multiplication factor to be applied to the link speed to determine the amount of bandwidth that must be protected.

M

managed tunnel The concept of managed tunnels is at the center of TE planning activities. A managed tunnel is a primary TE tunnel characterized by having a setup/hold priority of zero, a non-zero bandwidth, and a valid explicit path. A non-zero bandwidth is defined to be non-zero Resource Reservation Protocol (RSVP) bandwidth or non-zero maximum auto bandwidth if auto bandwidth is enabled.

manage lock Whenever a task updates the TE database and it might affect the resource and hence the result of a tunnel computation, it locks the system before the update and releases it at completion of the update. Manage lock is a capability provided in the GUI to release the lock under error conditions.

management information base See *MIB*.

M

MCE Management Customer Edge Router. The MCE is a required element in some MPLS VPN topologies. The network management subnet, which consists of the MPLS VPN Solution and Cisco IP Manager workstations on a single local area network (LAN), connects directly to an MCE.

MIB management information base.

MLPPP Multilink Point-to-Point Protocol. Method of splitting, recombining, and sequencing datagrams across multiple, logical data links.

MPE Management Provider Edge Router. The MPE is an element in some MPLS VPN topologies. The network management subnet connect directly to an MCE, which in turn is connected to an MPE.

MPLS multi protocol label switching. An emerging standard based on a Cisco Tag Switching technology.

MPLS TE tunnel multiprotocol label switching traffic engineering (MPLS TE) tunnel. Can be a primary or a backup tunnel.

MPLS VPN multi protocol label switching virtual private network. For MPLS VPN Solution, it is a set of *PEs* that are connected via a common "backbone" network to supply private IP interconnectivity between two or more *customer sites* for a given *customer*. Each VPN has a set of provisioning templates/policies (*CERC*) and can span multiple *Provider Administrative Domains* but has a default provider administrative domain for *RD* and *RT* auto-allocation purposes. CERCs in a VPN break down complex topology into multiple subgroups.

mutilink point-to-point protocol *See* MLPP.

multi protocol label switching See *MPLS*.

multi protocol label switching virtual private network See *MPLS VPN*.

N

network In MPLS VPN Solution, a collection of targets with unique names.

network management subnet Consists of the MPLS VPN Solution and Cisco IP Manager workstations on a single LAN. The network management subnet connects directly to an MCE.

non-conformant tunnel A TE tunnel, which might impact ISC TM's ability to meet bandwidth guarantees. This could be due to unknown bandwidth requirements such as no max bandwidth configured for auto-bandwidth, potential for pre-emption, dynamic paths, etc. A zero priority unmanaged tunnel would also be a non-conformant tunnel.

O

OSS Operations Support System. Network management system supporting a specific management function, such as alarm surveillance and provisioning, in a carrier network.

operations support system See *OSS*.

P

PAD Provider Administrative Domain. Set of all PE devices in one BGP autonomous system. An administrative domain defined by an Internet Service Provider. The network owned by the PAD is called a backbone network. Each PAD includes a route distinguisher and route target and IP address pools. Each PAD can have any number of regions within it. If an ISP requires two AS numbers, it must consist of two provider administrative domains. Each provider administrative domain has regions that have a route distinguisher (*RD*), a route target (*RT*), and an IP address pool from which to automatically generate IP values during provisioning. Each provider administrative domain can have many *region*s.

PE provider edge router. A router at the edge of a provider network that interfaces to CE routers. Each PE belongs to exactly one *region* of a *Provider Administrative Domain* and connects to one or more *customer site*s. Each PE can have many *VRF* definitions and configlets, and each can be configured by many service requests.

permanent virtual circuit. See *PVC*.

projection (topology map) A map projection is a topology function, which maps a sphere onto a plane.

propagation delay The time it takes for traffic to travel along a link from the head interface to the tail interface.

provider A party supplying internet service for its *customer*. See also *ISP*.

Provider Administrative Domain See *PAD*.

provider edge router See *PE*.

provider network A backbone network under the control of a service provider that provides transport services between customer sites.

PVC permanent virtual circuit. This is applicable to Frame Relay and Asynchronous Transfer Mode.

Q

QoS Quality of Service. The mechanisms that give network managers the ability to control the mix of bandwidth, delay, jitter, and packet loss in the network. QoS is not a device feature, it is an end-to-end system architecture.

quality of Service See *QoS*.

R

RD Route Distinguisher. A 64-bit value that is added to an IPv4 prefix to create a unique VPN prefix. Each VRF has an RD.

region A group of provider edge routers (PEs) within a single BGP autonomous system. Provider Administrative Domains are divided into regions just as customers are divided into sites. Each region belongs to exactly one provider administrative domain and can have many PEs. Regions allow a provider to employ unique IP address pools in large geographical regions. Each region is represented in the VPN Inventory Repository by a Region object.

response time reporter Renamed to service assurance agent (SA Agent).

RIP Routing Information Protocol. The simplest Interior Gateway Protocol (IGP) in the Internet.

round-trip time See *RTT*.

route distinguisher See *RD*.

route target See *RT*.

Routing Information Protocol See *RIP*.

RT Route Target. A 64-bit value by which the IOS discriminates routes for route updates in VRFs.

RTR Renamed to Service Assurance Agent (SA Agent).

RTT Round-trip time. The total time required for a packet to traverse a network to its destination and back again.

S

SA Agent Service Assurance Agent. SA Agent provides Round-Trip Time for various protocols: DHCP, DNS, HTTP, ICMP Echo, Jitter, TCP Connect, and UDP Echo.

schema A set of data models that describe a set of objects to be managed.

seed router The TE network discovery process uses a seed router as an initial communication point to discover the MPLS TE network topology.

S

Service Assurance Agent See *SA Agent*.

service level agreement See *SLA*.

setup priority Priority used when signaling a Label-Switched Path (LSP) for the tunnel to determine which of the existing tunnels can be preempted.

site A component of a customer. A collection of one or more customer edge routers (CEs).

SLA Service Level Agreement. Service-Level Agreements (SLAs) are negotiated contracts between VPN providers and their subscribers. An SLA defines the criteria for the specific services that the subscriber expects the provider to deliver. The SLA is the only binding mechanism at the subscriber's disposal to ensure that the VPN provider delivers the services as agreed.

SOAP A lightweight protocol for exchange of information in a decentralized, distributed environment. It is an XML based protocol that consists of three parts: an envelope that defines a framework for describing what is in a message and how to process it, a set of encoding rules for expressing instances of application-defined datatypes, and a convention for representing remote procedure calls and responses.

SNMP Simple Network Management Protocol.

SP Service Provider.

Static route Route that is explicitly configured and entered into the routing table. Static routes take precedence over routes chosen by dynamic routing protocols.

sub pool The bandwidth of TE enabled interfaces is assigned a number of nested bandwidth pools. A sub pool is a bandwidth pool nested inside a global pool. Thus, if for example a primary tunnel reserves bandwidth from the sub pool, it will also reserve the same bandwidth from the global pool.

system path An ISC system generated explicit path (immovable unless the tunnel is set to be reroutable). The first path has to be an explicit path.

T

target Single device from which information may be collected. A target may be a router. Any device (customer edge router, provider edge router, or RMON probe) from which the MPLS VPN Solution software can collect information.

target language *CORBA*-supported programming language to be generated by the *IDL* compiler based on the IDL *API* files. The generated target-language files can then be used to incorporate API-supported features in third-party client-application source code. For a complete list of CORBA-supported target languages, see the Object Modeling Group web site.

TCP Transmission Control Protocol. Connection-oriented transport layer protocol that provides reliable full-duplex data transmission.

TE traffic engineering.

T

TE discovery An ISC task used to populate the repository with the TE network element and data.

TE explicit path A fixed path from a specific head to a specific destination device. Paths are defined between source and destination routers, possibly with one or more hops in between.

TE functional audit A task that checks the Label-Switched Path (LSP) used on a router at a given moment against the LSP stored in the repository.

TE link A link between two TE enabled interfaces.

TE metric Metric used to override the Interior Gateway Protocol (IGP) administrative weight (cost) of a TE link.

TE node A TE enabled node.

TE policy A set of rules established for a tunnel to carry TE traffic.

TE provider The TE provider is a concept designed to allow the network management application to manage many different operators simultaneously, each working on different networks.

TE topology A TE topology provides a graphical representation of the various network elements in a TE network, such as devices, links, and tunnels.

TE traffic admission Also referred to as tunnel admission. It is the first step towards enabling services on TE tunnels by assigning traffic to traffic-engineered tunnels.

TE tunnel See MPLS TE tunnel.

Transmission Control Protocol See *TCP*.

tunnel audit When any type of change to the TE network is required, whether tunnel or resource modifications, a tunnel audit is run to determine what inconsistencies the change might cause, if any.

tunnel placement Tunnel placement is a TE tool for calculating optimal paths for new or changed tunnels in the existing network.

tunnel repair As changes are made to bandwidth requirements or delay parameters of existing TE tunnels, tunnel placement can create inconsistencies. Tunnel repair is designed to address such inconsistencies. The objective of tunnel repair is to try to move as few existing tunnels as possible to accommodate the changes.

U

UDP User Datagram Protocol. Connectionless transport layer protocol in the TCP/IP protocol stack. UDP is a simple protocol that exchanges datagrams without acknowledgments or guaranteed delivery, requiring that error processing and retransmission be handled by other protocols.

unmanaged tunnel An unmanaged tunnel is any tunnel that is not managed. See managed tunnel.

User Datagram Protocol See *UDP*.

V

VCI virtual channel identifier. Used in ATM networking concept.

virtual channel identifier See *VCI*.

virtual LAN See *VLAN*.

virtual path identifier See *VPI*.

virtual private network See *VPN*.

VLAN virtual LAN. Group of devices on a LAN that are configured so they can communicate as if they were attached to the same wire, when in fact they are located on a number of different LAN segments.

VoIP voice over internet protocol.

VPI virtual path identifier.The VPI, together with the VCI, is used to identify the next destination of a cell as it passes through a series of ATM switches on its way to its destination.

VPIM VPN Provisioning and Inventory Manager.

VPLS Virtual Private LAN Service.

VPN Virtual Private Network. A framework that provides private IP networking over a public infrastructure such as the Internet. In MPLS VPN Solution, a VPN is a set of customer sites that are configured to communicate through a VPN service. A VPN is a network in which two sites can communicate over the provider's network in a private manner; that is, no site outside the VPN can intercept their packets or inject new packets. The provider network is configured such that only one VPN's packets can be transmitted through that VPN—that is, no data can come in or out of the VPN unless it is specifically configured to allow it. There is a physical connection from the provider edge network to the customer edge network, so authentication in the conventional sense is not required. A VPN is a private network constructed within a public network infrastructure, such as the Internet. A VPN is a communications environment in which access is controlled to permit peer connections only within a defined community of interest, and is constructed through some form of partitioning of a common underlying communications medium, where this communications medium provides services to the network on a nonexclusive basis.

VPN customer Owner of VPN.

VPN routing/forwarding instance See *VRF*.

VRF definition The configuration information for a VPN routing/forwarding instance (*VRF*) table for *PEs* that share a common route-target (*RT*) signature. In the VPN inventory repository, a VRF definition is a template by which to define a VRF table in a *PE*.

V

VRF VPN routing/forwarding instance. A routing table that is populated with VPN routes. A VRF is an IOS route table instance for connecting a set of sites to a VPN service.

W

WSDL Web Services Definition Language

X

XML Extensible Markup Language.

XML API A programmatic interface to ISC used by OSS systems. The XML API is implement in a SOAP over HTTP format and provides full ISC functionality.

XML Schema A specific format (.xsd) to describe XML structures (for example, metadata).