



## **SA**

1. service affecting. Category of conditions that interrupt payload traffic. See also *non-service affecting*.
2. security association. Instance of security policy and keying material applied to a data flow.

## **SAC**

single-attached concentrator. FDDI or CDDI concentrator that connects to the network by being cascaded from the master port of another FDDI or CDDI concentrator.

## **sampling rate**

Rate at which samples of a particular waveform amplitude are taken.

## **SAN**

storage area networking. An emerging data communications platform that interconnects servers and storage at Gigabaud speeds. By combining LAN networking models with the core building blocks of server performance and mass storage capacity, SAN eliminates the bandwidth bottlenecks and scalability limitations imposed by previous SCSI bus-based architectures.

## **SAP**

1. service access point. Field defined by the IEEE 802.2 specification that is part of an address specification. Thus, the destination plus the DSAP define the recipient of a packet. The same applies to the SSAP. See also *DSAP* and *SSAP*.
2. Service Advertising Protocol. IPX protocol that provides a means of informing network clients, via routers and servers, of available network resources and services. See also *IPX*.

## **SAR**

segmentation and reassembly. One of the two sublayers of the AAL CPCS, responsible for dividing (at the source) and reassembling (at the destination) the PDUs passed from the CS. The SAR sublayer takes the PDUs processed by the CS and, after dividing them into 48-byte pieces of payload data, passes them to the ATM layer for further processing. See also *AAL*, *ATM*, *CPCS*, *CS*, and *SSCS*.

## **SAS**

1. single attachment station. Device attached only to the primary ring of a FDDI ring. Also known as a Class B station. Compare with *DAS*. See also *FDDI*.
2. statically assigned socket. Socket that is permanently reserved for use by a designated process. In an AppleTalk network, SASs are numbered 1 to 127; they are reserved for use by specific socket clients and for low-level built-in network services.

## **satellite communication**

Use of orbiting satellites to relay data between multiple earth-based stations. Satellite communications offer high bandwidth and a cost that is not related to distance between earth stations, long propagation delays, or broadcast capability.

**SBus**

Bus technology used in Sun SPARC-based workstations and servers. The SBus specification was adopted by the IEEE as a new bus standard.

**SCA**

subordinate certification authority. CA whose public-key certificate is issued by another (superior) CA.

**scan**

Scan is a nonintrusive analysis technique that identifies the open ports found on each live network device and collects the associated port banners found as each port is scanned. Each port banner is compared against a table of rules to identify the network device, its operating system, and all potential vulnerabilities.

**scan line fix up**

Mechanism used for non-ECM calls meant to eliminate fax failures caused by an excessive number of received page errors because of data loss. If data loss is detected, the data of the current scan line is discarded and replaced with the previous line or white space.

**SCCP**

Signaling Connection Control Part. Trillium software that supports routing and translation and management functions and data transfer without logical signaling connections.

**SCP**

Service Control Point. An element of an SS7-based Intelligent Network that performs various service functions, such as number translation, call setup and teardown, and so on.

**SCR**

sustainable cell rate. Parameter defined by the ATM Forum for ATM traffic management. For VBR connections, SCR determines the long-term average cell rate that can be transmitted. See also *VBR*.

**SCTE**

serial clock transmit external. Timing signal that DTE echoes to DCE to maintain clocking. SCTE is designed to compensate for clock phase shift on long cables. When the DCE device uses SCTE instead of its internal clock to sample data from the DTE, it is better able to sample the data without error even if there is a phase shift in the cable. See also *phase shift*.

**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, designated as STM-1. See also *SONET* and *STM-1*.

**SDLC**

Synchronous Data Link Control. SNA data link layer communications protocol. SDLC is a bit-oriented, full-duplex serial protocol that has spawned numerous similar protocols, including HDLC and LAPB. See also *HDLC* and *LAPB*.

**SDLC broadcast**

See *SDLC broadcast* in the “Cisco Systems Terms and Acronyms” section.

**SDLC Transport**

See *SDLC Transport* in the “Cisco Systems Terms and Acronyms” section.

**SDLLC**

See *SDLLC* in the “Cisco Systems Terms and Acronyms” section.

**SDP**

1. Session Definition Protocol. An IETF protocol for the definition of Multimedia Services. SDP messages can be part of SGCP and MGCP messages.
2. Session Data Protocol. SDP is intended for describing multimedia sessions for the purposes of session announcement, session invitation, and other forms of multimedia session initiation. [RFC 2327]

**SDSL**

single-line digital subscriber line. One of four DSL technologies. SDSL delivers 1.544 Mbps both downstream and upstream over a single copper twisted pair. The use of a single twisted pair limits the operating range of SDSL to 10,000 feet (3048.8 meters). Compare with *ADSL*, *HDSL*, and *VDSL*.

**SDSU**

SMDS DSU. DSU for access to SMDS via HSSIs and other serial interfaces.

**SDU**

service data unit. Unit of information from an upper-layer protocol that defines a service request to a lower-layer protocol.

**SEAL**

simple and efficient AAL. Scheme used by AAL5 in which the SAR sublayer segments CS PDUs without adding additional fields. See also *AAL*, *AAL5*, *CS*, and *SAR*.

**SECAM**

TV system used in France and elsewhere, utilizing an 8 MHz–wide modulated signal.

**secondary**

See *secondary station*.

**secondary ring**

One of the two rings making up an FDDI or CDDI ring. The secondary ring usually is reserved for use in the event of a failure of the primary ring. Compare with *primary ring*.

**secondary station**

In bit-synchronous data link layer protocols, such as HDLC, a station that responds to commands from a primary station. Sometimes referred to simply as a *secondary*. See also *primary station*.

**section**

Portion of a transmission facility, including terminating points between a terminal NE and a regenerator or two regenerators. A terminating point is the point after signal regeneration at which performance is monitored or can be monitored.

**section data communications channel**

A SONET-embedded operations channel that is processed by each STE node in a network. It provides many data channels for maintenance and operations functions, such as orderwire, performance monitoring, and craft/OS data communication channel (DCN) extension.

**Section DCC**

Section Data Communications Channel. In OSS, a 192-kbps data communications channel embedded in the section overhead for OAM&P traffic between two SONET network elements. See also *OAM&P* and *SONET*.

**Secure Shell Protocol**

Protocol that provides a secure remote connection to a router through a Transmission Control Protocol (TCP) application.

**secure state**

System condition in which no subject can access any object in an unauthorized manner.

**security association**

An instance of security policy and keying material applied to a data flow. Both IKE and IPSec use SAs, although SAs are independent of one another. IPSec SAs are unidirectional and are unique in each security protocol. An IKE SA is used by IKE only, and unlike the IPSec SA, it is bidirectional. IKE negotiates and establishes SAs on behalf of IPSec. A user also can establish IPSec SAs manually. A set of SAs are needed for a protected data pipe, one per direction per protocol. For example, if you have a pipe that supports ESP between peers, one ESP SA is required for each direction. SAs are identified uniquely by destination (IPSec endpoint) address, security protocol (AH or ESP), and security parameter index (SPI).

**security management**

One of five categories of network management defined by ISO for the management of OSI networks. Security management subsystems are responsible for controlling access to network resources. See also *accounting management*, *configuration management*, *fault management*, and *performance management*.

**security parameter index**

See SPI. This is a number that, together with a destination IP address and a security protocol, uniquely identifies a particular security association. When using IKE to establish the security associations, the SPI for each security association is a pseudo-randomly derived number. Without IKE, the SPI is specified manually for each security association.

**seed router**

Router in an AppleTalk network that has the network number or cable range built in to its port descriptor. The seed router defines the network number or cable range for other routers in that network segment and responds to configuration queries from nonseed routers on its connected AppleTalk network, allowing those routers to confirm or modify their configurations accordingly. Each AppleTalk network must have at least one seed router. See also *nonseed router*.

**SEFS**

severely errored framing second. A PM parameter that counts out-of-frame seconds.

**segment**

1. Section of a network that is bounded by bridges, routers, or switches.
2. In a LAN using a bus topology, a segment is a continuous electrical circuit that often is connected to other such segments with repeaters.
3. Term used in the TCP specification to describe a single transport layer unit of information. The terms *datagram*, *frame*, *message*, and *packet* also are used to describe logical information groupings at various layers of the OSI reference model and in various technology circles.

**segmentation and reassembly**

See *SAR*.

**selector**

Identifier (octet string) used by an OSI entity to distinguish among multiple SAPs at which it provides services to the layer above.

**sequence number protection**

See *SNAP*.

**Sequenced Packet Exchange**

See *SPX*.

**Sequenced Packet Protocol**

See *SPP*.

**Sequenced Routing Update Protocol**

See *SRTP*.

**serial clock transmit external**

See *SCTE*.

**Serial Line Internet Protocol**

See *SLIP*.

**serial transmission**

Method of data transmission in which the bits of a data character are transmitted sequentially over a single channel. Compare with *parallel transmission*.

**serial tunnel**

See *STUN* in the “Cisco Systems Terms and Acronyms” section.

**server**

Node or software program that provides services to clients. See also *back end*, *client*, and *FRF.11*.

**Server Message Block**

See *SMB*.

**service access point**

See *SAP*.

**Service Advertising Protocol**

See *SAP*.

**service class**

Collection of service types required for a specific service offered. Each service class includes the attributes and values that define the type or quality of service associated with a given class. For example, data connectivity is a service class you might define that includes the service type data-bandwidth.

**service data unit**

See *SDU*.

**service level**

Various levels and quality of services defined for each service type. For example, the service type called quality of sound might have service levels defined for telephone, broadcast, and digital CD.

**service package**

Quality of service that a cable provider offers subscribers. For example, Basic Student, Family Plus, and Internet are possible service packages. Subscribers may choose one or more service packages. A service class is selected for each service package, defining which service types make up the service package.

**service point**

Interface between non-SNA devices and NetView that sends alerts from equipment unknown to the SNA environment.

**service profile identifier**

See *SPID*.

**Service Specific Connection Oriented Protocol**

See *SSCOP*.

**service specific convergence sublayer**

See *SSCS*.

**service tuple**

Service type and level pair. For example, the service tuple data-bandwidth=45 Mbps consists of the service type data-bandwidth and the service level 45 Mbps.

**service type**

A component of a service that cable providers offer subscribers. For example, devices-supported might be a service type defined for the home networking service, indicating the number of computers the subscriber can connect to the cable network from home. One or more service levels is defined for each service type.

**SES**

severely errored second. Second during which the bit error ratio is greater than a specified limit and transmission performance is significantly degraded. A PM parameter is measured on a per-channel basis.

**session**

1. Related set of communications transactions between two or more network devices.
2. In SNA, a logical connection enabling two NAUs to communicate.

**session group**

Logically ordered list of sessions based on priority of the sessions. All the sessions in the session group should be configured to connect the same physical machines.

**session layer**

Layer 5 of the OSI reference model. This layer establishes, manages, and terminates sessions between applications and manages the data exchange between presentation layer entities. Corresponds to the *data flow control layer* of the SNA model. See also *application layer*, *data-link layer*, *network layer*, *physical layer*, *PQ*, and *transport layer*.

**session manager**

Manages all the sessions in a specific client.

**session set**

Collection of session groups.

**SET**

Secure Electronic Transactions. SET specification developed to allow for secure credit card and off-line debit card (check card) transactions over the World Wide Web.

**SF**

Super Frame. Common framing type used on T1 circuits. SF consists of 12 frames of 192 bits each, with the 193rd bit providing error checking and other functions. SF is superseded by ESF but is still widely used. Also called D4 framing. See also *ESP*.

**S-frame**

Supervisory frame. One of three SDLC frame formats. See also *I-frame* and *U-frame*.

**SG**

signaling gateway. Gateway that supports only signaling traffic (no bearer traffic.) For example, a gateway that terminates SS7 A-links is a signaling gateway.

**SGCP**

Simple Gateway Control Protocol. Controls Voice over IP gateways by an external call control element (called a call-agent). This has been adapted to allow SGCP to control switch ATM Circuit Emulation Service circuits (called endpoints in SGCP). The resulting system (call-agents and gateways) allows for the call-agent to engage in Common Channel Signalling (CCS) over a 64-kbps CES circuit, governing the interconnection of bearer channels on the CES interface.

**SGML**

Standardized Generalized Markup Language. International standard for the definition of system-independent, device-independent methods of representing text in electronic form.

**SGMP**

Simple Gateway Monitoring Protocol. Network management protocol that was considered for Internet standardization and later evolved into SNMP. Documented in RFC 1028. See also *SNMP*.

**SHA-1**

Secure Hash Algorithm 1. Algorithm that takes a message of less than 264 bits in length and produces a 160-bit message digest. The large message digest provides security against brute-force collision and inversion attacks. SHA-1 [NIS94c] is a revision to SHA that was published in 1994.

**shadowing**

Form of replication in which well-defined units of information are copied to several DSAs.

**shaping**

See *traffic shaping*.

**shared cable modem**

Single cable modem servicing multiple CPEs is associated with multiple subscriber/accounts and is administered in the User Registrar Admin UI through a neighborhood.

**shielded cable**

Cable that has a layer of shielded insulation to reduce EMI.

**shielded twisted-pair**

See *STP*.

**ships in the night mode**

Capability to support both MPLS functions and ATM Forum protocols on the same physical interface, or on the same router or switch platform. In this mode, the two protocol stacks operate independently.

**shortest path first algorithm**

See *SPF*.

**shortest-path routing**

Routing that minimizes distance or path cost through the application of an algorithm.

**SID**

Service ID. A number that defines (at the MAC sublayer) a particular mapping between a cable modem (CM) and the CMTS. The SID is used for the purpose of upstream bandwidth allocation and class-of-service management.

**Signal path**

Route of a signal channel that carries signaling data.

**signal quality error**

See *SQE*.

**signal unit error rate monitor**

SS7 MTP 2 function that provides monitoring of signal unit events.

**signaling**

1. Process of sending a transmission signal over a physical medium for the purposes of communication.
2. In telephony, a term that refers to sending call information across a telephone connection. This information can be transmitted by many techniques, such as opening and closing a loop to stop and start the flow of DC loop current (used to indicate on-hook and off-hook state and to transmit dial-pulsing of digits), sending of ringing voltage to alert the other side of an incoming call, sending digit information in the form of DTMF or MF tones, or sending call state information on a DS0 timeslot by using robbed-bits.

**Signaling Connection Control Part**

SS7 protocol level that provides connectionless and connection-oriented network services and addressing services. The transport layer for TCAP-based services.

**Signaling Gateway**

It sends and receives PSTN signalling at the edge of IP/ATM network. It backhauls the signalling to a Media Gateway Controller. The Signaling Gateway function may be coresident with the Media Gateway function to process signaling associated with line or trunk terminations controlled by the Media Gateway.

**signaling packet**

Generated by an ATM-connected device that wants to establish a connection with another such device. The signaling packet contains the ATM NSAP address of the desired ATM endpoint, as well as any QoS parameters required for the connection. If the endpoint can support the desired QoS, it responds with an accept message, and the connection is opened. See also *QoS*.

**Signaling System 7**

See *SS7*.

**signal-to-noise**

S/N (also SNR). The difference in amplitude between a baseband signal and the noise in a portion of the spectrum.

**Silicon Switch Processor**

See *SSP* in the “Cisco Systems Terms and Acronyms” section.

**silicon switching**

See *silicon switching* in the “Cisco Systems Terms and Acronyms” section.

**silicon switching engine**

See *SSE* in the “Cisco Systems Terms and Acronyms” section.

**SIM**

1. subscriber identity module. Component of an MS in a GSM network that contains all the subscriber information.
2. Set Initialization Mode.

**simple and efficient AAL**

See *SEAL*.

**Simple Gateway Monitoring Protocol**

See *SGMP*.

**Simple Mail Transfer Protocol**

See *SMRP*.

**Simple Multicast Routing Protocol**

See *SMRP*.

**Simple Network Management Protocol**

See *SNMP*.

**simplex**

Capability for transmission in only one direction between a sending station and a receiving station. Broadcast television is an example of a simplex technology. Compare with *full duplex* and *half duplex*.

**single attachment station**

See *SAS*.

**single in-line memory module**

Module that is commonly used for internal Flash memory.

**single-attached concentrator**

See *SAC*.

**single-mode fiber**

Fiber-optic cabling with a narrow core that allows light to enter only at a single angle. Such cabling has higher bandwidth than multimode fiber, but requires a light source with a narrow spectral width (for example, a laser). Also called monomode fiber. See also *multimode fiber*.

**single-route explorer packet**

See *spanning explorer packet*.

**single-vendor network**

Network using equipment from only one vendor. Single-vendor networks rarely suffer compatibility problems. See also *multivendor network*.

**SINR**

The ratio of the received strength of the desired signal to the received strength of undesired signals (noise and interference).

**SIP**

1. SMDS Interface Protocol. Used in communications between CPE and SMDS network equipment. Allows the CPE to use SMDS service for high-speed WAN internetworking. Based on the IEEE 802.6 DQDB standard. See also *DQDB*.
2. serial interface processor.
3. session initiation protocol. Protocol developed by the IETF MMUSIC Working Group as an alternative to H.323. SIP features are compliant with IETF RFC 2543, published in March 1999. SIP equips platforms to signal the setup of voice and multimedia calls over IP networks.

**Site**

Group of closely related configuration data. It can be the name of a physical location or it can be a name you choose to give to one segment of your overall system.

**SLAC**

Stanford Linear Accelerator Center.

**SLC**

Signaling link code. Code that identifies a linkset.

**sliding window flow control**

Method of flow control in which a receiver gives the transmitter permission to transmit data until a window is full. When the window is full, the transmitter must stop transmitting until the receiver advertises a larger window. TCP, other transport protocols, and several data link layer protocols use this method of flow control.

**SLIP**

Serial Line Internet Protocol. Standard protocol for point-to-point serial connections using a variation of TCP/IP. Predecessor of PPP. See also *CSI* and *PPP*.

**slotted ring**

LAN architecture based on a ring topology in which the ring is divided into slots that circulate continuously. Slots can be either empty or full, and transmissions must start at the beginning of a slot.

**SM fiber**

single-mode fiber. Fiber with a relatively low diameter through which only one mode can propagate.

**SMAC**

source MAC. MAC address specified in the Source Address field of a packet. Compare with *DMAC*. See also *MAC address*.

**SMATV**

satellite master antenna television. Transmission of television programming to a Satellite Master Antenna installed on top of an apartment building, a hotel, or at another central location from where it serves a private group of viewers. The transmission usually is done in C-band to 1.5 or 2 meter dishes.

**SMB**

Server Message Block. File-system protocol used in LAN manager and similar NOSs to package data and exchange information with other systems.

**SMDS**

Switched Multimegabit Data Service. High-speed, packet-switched, datagram-based WAN networking technology offered by the telephone companies. See also *CBDS*.

**SMDS Interface Protocol**

See *SIP*.

**SMF**

single-mode fiber.

**SMG**

Wireless—Special Mobile Group. A standards body within ETSI that develops specifications related to mobile networking technologies, such as GSM and GPRS.

**SMI**

Structure of Management Information. Document (RFC 1155) specifying rules used to define managed objects in the MIB. See also *MIB*.

**SMO**

state machine object.

**smoothing**

See *traffic shaping*.

**SMRP**

Simple Multicast Routing Protocol. Specialized multicast network protocol for routing multimedia data streams on enterprise networks. SMRP works in conjunction with multicast extensions to the AppleTalk protocol.

**SMT**

Station Management. ANSI FDDI specification that defines how ring stations are managed.

**SMTP**

Simple Mail Transfer Protocol. Internet protocol providing e-mail services.

**SNA**

Systems Network Architecture. Large, complex, feature-rich network architecture developed in the 1970s by IBM. Similar in some respects to the OSI reference model but with a number of differences. SNA essentially is composed of seven layers. See also *data flow control layer*, *data-link control layer*, *path control layer*, *physical control layer*, *presentation services layer*, *transaction services layer*, and *transmission control layer*.

**SNA Distribution Services**

See *SNADS*.

**SNA Network Interconnection**

See *SNI*.

**SNADS**

SNA Distribution Services. Consists of a set of SNA transaction programs that interconnect and cooperate to provide asynchronous distribution of information between end users. One of three SNA transaction services. See also *DDM* and *DIA*.

**SNAP**

Subnetwork Access Protocol. Internet protocol that operates between a network entity in the subnetwork and a network entity in the end system. SNAP specifies a standard method of encapsulating IP datagrams and ARP messages on IEEE networks. The SNAP entity in the end system makes use of the services of the subnetwork and performs three key functions: data transfer, connection management, and QoS selection.

**SNI**

1. Subscriber Network Interface. Interface for SMDS-based networks that connects CPE and an SMDS switch. See also *UNI*.
2. SNA Network Interconnection. IBM gateway connecting multiple SNA networks.

**SNMP**

Simple Network Management Protocol. Network management protocol used almost exclusively in TCP/IP networks. SNMP provides a means to monitor and control network devices, and to manage configurations, statistics collection, performance, and security. See also *SGMP* and *SNMP2*.

**SNMP communities**

Authentication scheme that enables an intelligent network device to validate SNMP requests.

**SNMP2**

SNMP Version 2. Version 2 of the popular network management protocol. SNMP2 supports centralized as well as distributed network management strategies, and includes improvements in the SMI, protocol operations, management architecture, and security. See also *SNMP*.

**SNP**

sequence number protection.

**SNPA**

subnetwork point of attachment. Data link layer address (such as an Ethernet address, X.25 address, or Frame Relay DLCI address). SNPA addresses are used to configure a CLNS route for an interface.

**SNR**

signal-to-noise ratio. SNR is the ratio of usable signal being transmitted to the undesired signal (noise). It is a measure of transmission quality. The ratio of good data (signal) to bad (noise) on a line, expressed in decibels (dB).

**SNRM**

Set Normal Response.

**SNRME**

Set Normal Response. Mode Exchange.

**socket**

1. Software structure operating as a communications end point within a network device.
2. Addressable entity within a node connected to an AppleTalk network; sockets are owned by software processes known as socket clients. AppleTalk sockets are divided into two groups: SASSs, which are reserved for such clients as AppleTalk core protocols, and DASs, which are assigned dynamically by DDP upon request from clients in the node. An AppleTalk socket is similar in concept to a TCP/IP port.

**socket client**

Software process or function implemented in an AppleTalk network node.

**socket listener**

Software provided by a socket client to receive datagrams addressed to the socket. See also *socket client*.

**socket number**

8-bit number that identifies a socket. A maximum of 254 different socket numbers can be assigned in an AppleTalk node.

**software generic**

The system operating software release for general availability.

**SOHO**

small office, home office. Networking solutions and access technologies for offices that are not directly connected to large corporate networks.

**SONET**

Synchronous Optical Network. A standard format for transporting a wide range of digital telecommunications services over optical fiber. SONET is characterized by standard line rates, optical interfaces, and signal formats.

High-speed (up to 2.5 Gbps) synchronous network specification developed by Bellcore and designed to run on optical fiber. STS-1 is the basic building block of SONET. Approved as an international standard in 1988. See also *SDH*, *STS-1*, and *STS-3c*.

**SONET multiplexing**

SONET multiplexing byte interlaces the lower-rate payloads, which creates a high-rate synchronous signal.

**source address**

Address of a network device that is sending data. See also *destination address*.

**source MAC**

See *SMAC*.

**source node**

A source node is the originating node of an end-to-end channel or virtual wavelength path (VWP).

**source service access point**

See *SSAP*.

**source-route bridging**

See *SRP*.

**source-route translational bridging**

See *SR/TLB*.

**source-route transparent bridging**

See *SRT*.

**Southeastern Universities Research Association Network**

See *SURAnet*.

**SP**

1. Signaling Processor, Signaling Point.
2. See *SP* in the “Cisco Systems Terms and Acronyms” section.

**SPA**

See *SPA* in the “Cisco Systems Terms and Acronyms” section.

**SPAG**

Standards Promotion and Application Group. Group of European OSI manufacturers that chooses option subsets and publishes these in the “Guide to the Use of Standards” (GUS).

**spam**

Term used to describe unsolicited e-mail or newsgroup posts, often in the form of commercial announcements. The act of sending a spam is called, naturally, spamming.

**span**

Full-duplex digital transmission line between two digital facilities.

**SPAN**

See *SPAN* (Switched Port Analyzer) in the “Cisco Systems Terms and Acronyms” section.

**spanning explorer packet**

Follows a statically configured spanning tree when looking for paths in an SRB network. Also known as a limited-route explorer packet or a single-route explorer packet. See also *all-routes explorer packet*, *explorer packet*, and *local explorer packet*.

**spanning tree**

Loop-free subset of a network topology. See also *spanning-tree algorithm* and *Spanning-Tree Protocol*.

**spanning-tree algorithm**

Algorithm used by the Spanning-Tree Protocol to create a spanning tree. Sometimes abbreviated as STA. See also *spanning tree* and *Spanning-Tree Protocol*.

**Spanning-Tree Protocol**

See *STP*.

**sparse mode PIM**

See *PIM sparse mode*.

**SPC**

Service Platform Card. Provides call processing services, such as tone receivers and conference ports, within the Cisco VCO/4K switch. Available resources include DTMF detection, call progress analysis, MF reception, MFCR2 reception and transmission, tone generation, DTMF and MF outpulsing, and call conferencing.

**SPE**

**1.** synchronous payload envelope. The payload carrying portion of the STS signal in SONET. The SPE is used to transport a tributary signal across the synchronous network. In most cases, this signal is assembled at the point of entry to the synchronous network and is disassembled at the point of exit from the synchronous network. Within the synchronous network, the SPE is passed on intact between NEs on its route through the network.

**2.** system processing engine. A card that acts as a single-board computer and that runs system software applications, such as Cisco ICS 7750 System Manager and Cisco CallManager.

**spectrum reuse**

CATV's most fundamental concept. Historically, the over-the-air spectrum has been assigned to many purposes other than that of carrying TV signals. This has resulted in an inadequate supply of spectrum to serve the needs of viewers. Cable can reuse spectrum that is sealed in its aluminum tubes.

**speed matching**

Feature that provides sufficient buffering capability in a destination device to allow a high-speed source to transmit data at its maximum rate, even if the destination device is a lower-speed device.

**SPF**

shortest path first algorithm. Routing algorithm that iterates on length of path to determine a shortest-path spanning tree. Commonly used in link-state routing algorithms. Sometimes called Dijkstra's algorithm. See also *link-state routing algorithm*.

**SPI**

security parameter index. This is a number that, together with a destination IP address and security protocol, uniquely identifies a particular security association. When using IKE to establish the security associations, the SPI for each security association is a pseudo-randomly derived number. Without IKE, the SPI is manually specified for each security association.

**SPID**

service profile identifier. Number that some service providers use to define the services to which an ISDN device subscribes. The ISDN device uses the SPID when accessing the switch that initializes the connection to a service provider.

**split-horizon updates**

Routing technique in which information about routes is prevented from exiting the router interface through which that information was received. Split-horizon updates are useful in preventing routing loops.

**SPNNI connection**

See *SPNNI connection* in the “Cisco Systems Terms and Acronyms” section.

**spoofing**

1. Scheme used by routers to cause a host to treat an interface as if it were up and supporting a session. The router spoofs replies to keepalive messages from the host in order to convince that host that the session still exists. Spoofing is useful in routing environments, such as DDR, in which a circuit-switched link is taken down when there is no traffic to be sent across it in order to save toll charges. See also *DDR*.
2. The act of a packet illegally claiming to be from an address from which it was not actually sent. Spoofing is designed to foil network security mechanisms, such as filters and access lists.

**spooler**

Application that manages requests or jobs submitted to it for execution. Spoolers process the submitted requests in an orderly fashion from a queue. A print spooler is a common example of a spooler.

**SPP**

Sequenced Packet Protocol. Provides reliable, connection-based, flow-controlled packet transmission on behalf of client processes. Part of the XNS protocol suite.

**SPX**

Sequenced Packet Exchange. Reliable, connection-oriented protocol that supplements the datagram service provided by network layer (Layer 3) protocols. Novell derived this commonly used NetWare transport protocol from the SPP of the XNS protocol suite.

**SQE**

signal quality error. Transmission sent by a transceiver back to the controller to let the controller know whether the collision circuitry is functional. Also called *heartbeat*.

**SQL**

Structured Query Language. International standard language for defining and accessing relational databases.

**SR**

short reach. The distance specification for optical systems that operate effectively up to 3 km (1.8 mi).

**SR/TLB**

source-route translational bridging. Method of bridging where source-route stations can communicate with transparent bridge stations with the help of an intermediate bridge that translates between the two bridge protocols. Compare with *SRT*.

**SRAM**

Type of RAM that retains its contents for as long as power is supplied. SRAM does not require constant refreshing, like DRAM. Compare with *DRAM*.

**SRB**

source-route bridging. Method of bridging originated by IBM and popular in Token Ring networks. In an SRB network, the entire route to a destination is predetermined, in real time, prior to the sending of data to the destination. Contrast with *transparent bridging*.

**SRCP**

Simple Resource Control Protocol. Set of extensions to MGCP to allow the VSC to poll the gateway about its current configuration.

**SRP**

spatial reuse protocol.

**SRT**

source-route transparent bridging. IBM bridging scheme that merges the two most prevalent bridging strategies: SRB and transparent bridging. SRT employs both technologies in one device to satisfy the needs of all ENs. No translation between bridging protocols is necessary. Compare with *SR/TLB*.

**S RTP**

Sequenced Routing Update Protocol. Protocol that assists VINES servers in finding neighboring clients, servers, and routers. See also *RTP (Routing Table Protocol)*.

**SRVTAB**

Password that a network service shares with the KDC. The network service authenticates an encrypted service credential by using the SRVTAB (also known as a KEYTAB) to decrypt it.

**SS7**

Signaling System 7. Standard CCS system used with BISDN and ISDN. Developed by Bellcore. See also *CCS*.

**SSAP**

source service access point. SAP of the network node designated in the Source field of a packet. Compare to *DSAP*. See also *SAP (service access point)*.

**SSCOP**

Service Specific Connection Oriented Protocol. Data link protocol that guarantees the delivery of ATM signaling packets.

**SSCP**

system services control points. Focal points within an SNA network for managing network configuration, coordinating network operator and problem determination requests, and providing directory services and other session services for network end users.

**SSCP-PU session**

Session used by SNA to allow an SSCP to manage the resources of a node through the PU. SSCPs can send requests to, and receive replies from, individual nodes in order to control the network configuration.

**SSCS**

service specific convergence sublayer. One of the two sublayers of any AAL. SSCS, which is service dependent, offers assured data transmission. The SSCS can be null as well, in classical IP over ATM or LAN emulation implementations. See also *AAL*, *ATM layer*, *CPCS*, *CS*, and *SAR*.

**SSD server**

Service Selection Dashboard server. Customizable Web-based application that works with the Cisco SSG to allow end customers to login to and disconnect from proxy and passthrough services through a standard Web browser. After the customer logs in to the network of the service provider, an HTML Dashboard is populated with the services authorized for that user.

**SSE**

See *SSE* in the “Cisco Systems Terms and Acronyms” section.

**SSG**

Service Selection Gateway. Gateway that offers service providers a means for menu-based service selection. End users can select services from the Dashboard menu, and the Cisco SSG can set up and tear down proxy and passthrough network connections based on a selection of a user. The Cisco SSG accounts for the services selected so that service providers can bill for individual services.

**SSL**

Secure Socket Layer. Encryption technology for the Web used to provide secure transactions, such as the transmission of credit card numbers for e-commerce.

**SSM**

Source Specific Multicast. A datagram delivery model that best supports one-to-many applications, also known as broadcast applications. SSM is the core networking technology for the Cisco implementation of the IP Multicast Lite suite of solutions targeted for audio and video broadcast application environments.

**SSN**

Subsystem number.

**SSO**

system security officer. Person responsible for enforcement or administration of the security policy that applies to the system.

**SSP**

1. system switch processor. A card that acts as an Ethernet switch and passes data between all system cards and to any other switches connected to the system.
2. service switching point. Element of an SS7-based Intelligent Network that performs call origination, termination, or tandem switching.
3. Switch-to-Switch Protocol. Protocol specified in the DLSw standard that routers use to establish DLSw connections, locate resources, forward data, and handle flow control and error recovery. See also *DLSw*.
4. Silicon Switch Processor. See *SSP* in the “Cisco Systems Terms and Acronyms” section.

**SSRP**

Simple Server Redundancy Protocol. The LANE simple server redundancy feature creates fault-tolerance using standard LANE protocols and mechanisms. Also called SSRP. See also *FSSRP*.

**STA**

See *spanning-tree algorithm*.

**stack**

See *protocol stack*.

**standard**

Set of rules or procedures that are either widely used or officially specified. See also *de facto standard* and *de jure standard*.

**standby monitor**

Device placed in standby mode on a Token Ring network in case an active monitor fails. See also *active monitor* and *ring monitor*.

**star topology**

LAN topology in which end points on a network are connected to a common central switch by point-to-point links. A ring topology that is organized as a star implements a unidirectional closed-loop star, instead of point-to-point links. Compare with *bus topology*, *ring topology*, and *tree topology*.

**StarLAN**

CSMA/CD LAN, based on IEEE 802.3, developed by AT&T.

**start-stop transmission**

See *asynchronous transmission*.

**startup range**

Range of values (from 65280 to 65534) from which an AppleTalk node selects the network number part of its provisional address if it has not saved another network number.

**stat mux**

See *statistical multiplexing*.

**static route**

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

**statically assigned socket**

See *SAS*.

**Station Management**

See *SMT*.

**statistical multiplexing**

Technique whereby information from multiple logical channels can be transmitted across a single physical channel. Statistical multiplexing dynamically allocates bandwidth only to active input channels, making better use of available bandwidth and allowing more devices to be connected than with other multiplexing techniques. Also referred to as *statistical time-division multiplexing* or *stat mux*. Compare with *ATDM*, *FDM*, and *TDM*.

**statistical time-division multiplexing**

See *statistical multiplexing*.

**STD**

Subseries of RFCs that specify Internet standards. The official list of Internet standards is in STD 1.

**STM-1**

Synchronous Transport Module level 1. One of a number of SDH formats that specifies the frame structure for the 155.52-Mbps lines used to carry ATM cells. See also *SDH*.

**store and forward**

Function whereby a message is transmitted to some intermediate relay point and temporarily stored before forwarding to the next relay point.

**store and forward packet switching**

Packet-switching technique in which frames are completely processed before being forwarded out the appropriate port. This processing includes calculating the CRC and checking the destination address. In addition, frames must be stored temporarily until network resources (such as an unused link) are available to forward the message. Contrast with *cut-through packet switching*.

**STP**

1. shielded twisted-pair. Two-pair wiring medium used in a variety of network implementations. STP cabling has a layer of shielded insulation to reduce EMI. Compare with *UTP*. See also *twisted pair*.
2. Spanning-Tree Protocol. Bridge protocol that uses the spanning-tree algorithm, enabling a learning bridge to dynamically work around loops in a network topology by creating a spanning tree. Bridges exchange BPDUs with other bridges to detect loops, and then remove the loops by shutting down selected bridge interfaces. Refers to both the IEEE 802.1 Spanning-Tree Protocol standard and the earlier Digital Equipment Corporation Spanning-Tree Protocol upon which it is based. The IEEE version supports bridge domains and allows the bridge to construct a loop-free topology across an extended LAN. The IEEE version generally is preferred over the Digital version. Sometimes abbreviated as STP. See also *Bpdu*, *learning bridge*, *MAC address learning*, *spanning tree*, and *spanning-tree algorithm*.
3. signal transfer point. Element of an SS7-based Intelligent Network that performs routing of the SS7 signaling.

**Stratum**

Hierarchical clock reference in the PSTN network, where 1 represents the highest possible quality of clocking.

**Stratum 3**

Precision timing reference that provides a free-run accuracy of plus or minus 4.6 parts per million (PPM), pull-in capability of 4.6 PPM, and holdover stability of fewer than 255 slips during first day. Thorough descriptions can be found in ANSI T1.101-1994 and the Bellcore document GR-1244-CORE.

**stream-oriented**

Type of transport service that allows its client to send data in a continuous stream. The transport service guarantees that all data will be delivered to the other end in the same order as sent and without duplicates.

**Structure of Management Information**

See *SMI*.

**STS-1**

Synchronous Transport Signal level 1. Basic building block signal of SONET, operating at 51.84 Mbps. Faster SONET rates are defined as STS-*n*, where *n* is a multiple of 51.84 Mbps. See also *SONET*.

**STS-3c**

Synchronous Transport Signal level 3, concatenated. SONET format that specifies the frame structure for the 155.52-Mbps lines used to carry ATM cells. See also *SONET*.

**stub area**

OSPF area that carries a default route, intra-area routes, and interarea routes, but does not carry external routes. Virtual links cannot be configured across a stub area, and they cannot contain an ASBR. Compare with *nonstub area*. See also *ASAM* and *OSPF*.

**stub network**

Network that has only a single connection to a router.

**STUN**

See *STUN* in the “Cisco Systems Terms and Acronyms” section.

**SU**

1. signaling unit. Another name for the TransPath product.
2. service unit or signaling unit.

**subarea**

Portion of an SNA network that consists of a subarea node and any attached links and peripheral nodes.

**subarea node**

SNA communication controller or host that handles complete network addresses.

**subchannel**

In broadband terminology, a frequency-based subdivision creating a separate communications channel.

**subinterface**

One of a number of virtual interfaces on a single physical interface.

**subnet**

See *subnetwork*.

**subnet address**

Portion of an IP address that is specified as the subnetwork by the subnet mask. See also *IP address*, *subnet mask*, and *subnetwork*.

**subnet mask**

32-bit address mask used in IP to indicate the bits of an IP address that are being used for the subnet address. Sometimes referred to simply as mask. See also *address mask* and *IP address*.

**subnetwork**

1. In IP networks, a network sharing a particular subnet address. Subnetworks are networks arbitrarily 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. See also *IP address*, *subnet address*, and *subnet mask*.

2. In OSI networks, a collection of ESs and ISs under the control of a single administrative domain and using a single network access protocol.

**Subnetwork Access Protocol**

See *SNAP*.

**subnetwork point of attachment**

See *SNPA*.

**Subscriber Network Interface**

See *SNI*.

**subvector**

Data segment of a vector in an SNA message. A subvector consists of a length field, a key that describes the subvector type, and subvector specific data.

**Super Frame**

See *SF*.

**superencryption**

Encryption operation for which the plaintext input to be transformed is the ciphertext output of a previous encryption operation.

**Super-JANET**

Latest phase in the development of JANET, the UK educational and research network run by UKERNA. It uses SMDS and ATM to provide multiservice network facilities for many new applications, including multimedia conferencing.

**supernet**

Aggregation of IP network addresses advertised as a single classless network address. For example, given four Class C IP networks—192.0.8.0, 192.0.9.0, 192.0.10.0, and 192.0.11.0—each having the intrinsic network mask of 255.255.255.0, one can advertise the address 192.0.8.0 with a subnet mask of 255.255.252.0.

**SURAnet**

Southeastern Universities Research Association Network. Network connecting universities and other organizations in the Southeastern United States. SURAnet, originally funded by the NSF and a part of the NSFNET, is now part of BBN Planet. See also *BBN Planet*, *NSF*, and *NSFNET*.

**survivability**

Capability of a system to remain in operation or existence despite adverse conditions, including natural occurrences, accidental actions, and attacks on the system.

**sustainable cell rate**

See *SCP*.

**SVC**

switched virtual circuit. Virtual circuit that is dynamically established on demand and is torn down when transmission is complete. SVCs are used in situations where data transmission is sporadic. See also *virtual circuit*. Called a switched virtual connection in ATM terminology. Compare with *PVC*.

**switch**

1. Network device that filters, forwards, and floods frames based on the destination address of each frame. The switch operates at the data link layer of the OSI model.
2. General term applied to an electronic or mechanical device that allows a connection to be established as necessary and terminated when there is no longer a session to support.
3. In telephony, a general term for any device, such as a PBX, that connects individual phones to phone lines. See also *PBX* and *PSTN*.

**switch hook**

Plunger or switch where a telephone handset sits when the telephone is on hook, or hung up. When the handset is lifted, the switch hook goes up and the telephone is off hook. Also called hook switch.

**Switch Processor**

See *SP* in the “Cisco Systems Terms and Acronyms” section.

**switched calls**

Normal telephone calls in which a user picks up a phone, hears a dial tone, and enters the destination phone number to reach the other phone. Switched calls also can be private line auto-ringdown (PLAR) calls, or tie-line calls for fixed point-to-point connections. See also *PLAR*.

**switched LAN**

LAN implemented with LAN switches. See also *LAN switch*.

**Switched Multimegabit Data Service**

See *SMDs*.

**Switched Port Analyzer**

See *SPAN* in the “Cisco Systems Terms and Acronyms” section.

**switched virtual circuit**

See *SVC*.

**switched virtual connection**

See *SVC*.

**Switching**

Process of taking an incoming frame from one interface and delivering it through another interface. Routers use Layer 3 switching to route a packet, and Layer 2 switches use Layer 2 switching to forward frames. See also *Layer 2 switching* and *Layer 3 switching*.

**Switch-to-Switch Protocol**

See *SSP*.

**symbol**

Phase range of a sine wave.

**symmetric cryptography**

Branch of cryptography involving algorithms that use the same key for two different steps of the algorithm (such as encryption and decryption, or signature creation and signature verification).

**symmetric key**

Cryptographic key that is used in a symmetric cryptographic algorithm.

**SYN flood**

Denial of service attack that sends a host more TCP SYN packets (request to synchronize sequence numbers, used when opening a connection) than the protocol implementation can handle.

**synchronization**

Establishment of common timing between sender and receiver.

**Synchronous Data Link Control**

See *SDLC*.

**Synchronous Digital Hierarchy**

See *SDH*.

**Synchronous Optical Network**

See *SONET*.

**synchronous transmission**

Term describing digital signals that are transmitted with precise clocking. Such signals have the same frequency, with individual characters encapsulated in control bits (called start bits and stop bits) that designate the beginning and the end of each character. Compare with *asynchronous transmission*, *isochronous transmission*, and *plesiochronous transmission*.

**Synchronous Transport Module level 1**

See *STM-1*.

**Synchronous Transport Signal level 1**

See *STS-1*.

**Synchronous Transport Signal level 3, concatenated**

See *STS-3c*.

**synthetic operation**

Packets sent into the network that appear to be user data traffic but actually measure network performance. Formerly known as a probe. Also referred to as operation.

**sysgen**

system generation. Process of defining network resources in a network.

**system entity**

Active element of a system—for example, an automated process, a subsystem, a person or a group of persons—that incorporates a specific set of capabilities.

**system generation**

See *sysgen*.

**system high**

The highest security level supported by a system at a particular time or in a particular environment.

**system high security mode**

Mode of operation of an information system, wherein all users having access to the system possess a security clearance or authorization, but not necessarily a need-to-know, for all data handled by the system.

**system integrity service**

Security service that protects system resources in a verifiable manner against unauthorized or accidental change, loss, or destruction.

**system low**

The lowest security level supported by a system at a particular time or in a particular environment.

**system services control points**

See *SSCP*.

**Systems Network Architecture**

See *SNA*.

