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own voice while speaking. The idea is to let you know that the telephone you're speaking on is working. Too much sidetone becomes an echo and is bad. Too little sidetone makes the channel unerringly quiet and people start to think it's busted.

SIDN Security Industry Digital Network.

SIF 1. Standard Image Format. See MPEG.

2. SONET Interoperability Forum. A voluntary industry group established to define and resolve issues of SONET implementation. SIF was formed by Southwestern Bell in 1991; Bellcore and other RBOCs soon joined. SIF now is open to membership of any interested party, including vendors, service providers and end users. SIF works under the umbrella of ATIS (Alliance for Telecommunications Industry Solutions). www.atis.org/atis/sif/index.html See also ATIS.

3. Signaling Information Fields. A SS7 term. See Signaling Information Fields.

SIG 1. Special Interest Group. A SIG is an ongoing discussion group held electronically via PCs. A SIG focuses on one area of interest. Members phone in with their PCs, read messages posted, contribute their wisdom, ask questions, etc. SIGs are ways people get up-to-date accurate information on a subject. SIGs are run on most BBS (Bulletin Board Systems). SIGs are to bulletin boards what on-line services call conferences or forums.

2. Special Interest Group. In this context, a SIG is a voluntary organization which is dedicated to the advancement of a particular technology, standard or technique. Examples include the ATM Forum, CDPD Forum, Frame Relay Forum and SMDS Interest Group.

3. SMDS Interest Group. A defunct consortium of vendors and consultants who were committed to advancing worldwide SMDS as an open, interoperable solution for high-performance data connectivity. On June 16, 1997, the Board of Trustees announced that the group was disbanded, turning over all responsibilities to regional organizations. The Board declared that its mission had been fulfilled.

4. Signaling Transport. See Sigtran.

Sig File Signature File. A file that automatically is appended to every e-mail message you send. The sig file commonly contains your name, title, company, telephone number, fax number, and return e-mail address. See also vCard.

Sigint A military term for signals intelligence, as opposed to humint, which is human intelligence. Sigint is a polite term for reading someone else's mail. Sigint gets information from intercepting and often decrypting voice or electronic communications. In the United States, the National Security Agency (NSA) does sigint and the Central Intelligence Agency (CIA) does humint. There is, of course, a great rivalry between the two agencies as to who can get it right. One former NSA director once scoffed, "The CIA is good at stealing a memo off a prime minister's desk. But they're not much good at anything else." See NSA.

Sign-On To go through the process of beginning a working session between you, your data terminal or PC and a computer system.

Sign On/Sign Off The process of identifying oneself to a machine so as to gain access. In the case of an ACD system this process allows statistics to be kept for this person individually. It also allows for the movement of the person around the system while statistics are accumulated in one logical file.

Signal 1. An electrical wave used to convey information.

2. An alert.

3. An acoustic device (e.g. a bell) or a visual device (e.g. a lamp) which calls attention. To transmit an information signal or alerting signal.

4. Bellcore defines signal as a state that is applied to operate and control the component groups of a telecommunications circuit to cause it to perform its intended function. Generally speaking, says Bellcore, there are five basic categories of "signals" commonly used in the telecommunications network. Included are supervisory signals, information signals, address signals, control signals, and alerting signals.

Signal Bender See Signal Booster and Beam Bender.

Signal Booster By FCC definition a signal booster is a low power relay or repeater.

Signal Computing Signal computing, as it has come to be, refers to the processing of analog signals for transmission over the worldwide telephone system. According to Analog Devices, the core of the Signal Computing concept is the ability to program an open, multi-function chipset with easily upgraded software. The Signal Computing model gives non-traditional audio, video, speech, and communications technology providers opportunities to embrace PC channels. The term, signal computing, picked up steam in mid-1993 when Dialogic announced a new standard called SCSA (Signal Computing System Architecture). In Dialogic's words, SCSA is a comprehensive architecture that describes how both hardware and software building blocks work together. It focuses on "Signal Computing" devices, which refer to any devices that are required to transmit information over the telephone network. Information can be transmitted via data modems, fax, voice

or even video. SCSA defines how all these devices work together.

Signal computing systems combine three major elements for call processing. Network interfaces provide for the input and output of signals transmitted and switched in telecommunications networks. Digital signal processors and software algorithms transform the signals through low-level manipulation. Application programs provide computer control of the processed signals to bring value to the end user.

SCSA is the common set of standards that telecommunication system manufacturers and computing system manufacturers can use to create computer telephony systems. No single company today can create the total solution for all customers. SCSA represents the common ground between the two fields so that manufacturers from each area can safely develop products that will work with other manufacturers.

SCSA's coverage extends from low-level bus and hardware interfaces, like the inter-board switching bus that enables boards from different suppliers to work together, to high-level application programming and software interfaces, so that software designed to work with one set of hardware products, will work with different hardware as well. SCSA has been defined with input from leading computer and switch manufacturers, call processing suppliers, and technology developers. In many cases, SCSA has drawn on existing standards, like the T.611 fax standard endorsed by the European Computer Manufacturers Association, and in other cases SCSA has extended standards to make them more useful for call processing suppliers and users.

Signal Computing System Architecture SCSA is an open hardware and software architecture supported by over 240 companies for developing multi-technology computer telephony systems using standard interfaces. SCSA consists of two independent layers: The SCSA Hardware Model and the SCSA Telephony Application Objects (TAO) Framework. While designed for interoperability, these two layers may be implemented independently of one another. See Signal Computing.

Signal Conditioning The amplification and/or modification of electrical signals to make them more appropriate for transmission over a certain medium — cable, microwave, etc.

Signal Control Point SCP. Computers that hold databases in which customer-specific information used by the "advanced intelligent network" (AIN) to route calls is stored. The AIN refers to a specific architecture — typically promulgated and created by a local or long distance phone company — that provides core capabilities in which customer-specific information held in databases within the network is used to intelligently process calls. An example of an AIN service is an 800 service that routes calls based on where the calls are coming from. The routing information is stored in the SCP, which is typically tied into the Signaling System 7 network. See SCP. For a full explanation of the Advanced Intelligent Network, see AIN.

Signal Converter The equipment which changes the data signal into a form suitable for the transmission medium, or the reverse. The converter can also work with DC/AC current. The signal converter comprises a modulator and/or demodulator.

Signal generator A test oscillator that can be adjusted to provide a test signal at some desired frequency, voltage, modulation, and waveform.

Signal Ground SGD. In RS-232-C signaling, Signal Ground establishes a common reference level for the voltages of all other signals (such as RXD/TXD), except Frame Ground.

Signal Level The strength of a signal, generally expressed in either absolute units of voltage or power, or in units relative to the strength of the signal at its source.

Signal Processing Signal processing is a combination of computer telephony call control and media processing. Call control means moving telephone calls around — answering them, hanging up on them, transferring them, conferencing them, etc. — all the stuff you do on your office phone every day. Media processing means bringing computer power to bear on the media stream, the actual voice, video or data inside the phone call. You might save it to your hard disk. You might want to have your PC software listen for key words in what you saved, for example, the caller's phone number. You might even want your software to try transcribing the conversation into text you could use in your word processor.

See Call Control, Digital Signal Processing, Media Processing and Native Signal Processing.

Signal Processing Component An SCSA definition. An atomic bundle of signal processing functionality which can be allocated to a single group. It can be capable of supporting the functionality of one or more resources or a simple coder.

Signal Processing Element An SCSA definition. That part of a Signal Processing Component which is associated with a single Resource.

Signal Processing Platform A SCSA definition. This is a software component

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that supports a specific hardware package. This is typically an executable program and may control one or more instances of the vendor-specific hardware package. Each SPP may support several different types of signal processing functionality clustered into SPCs.

Signal Repeaters A signal repeater does nothing more than receive a signal and retransmit it. Repeaters are used where the original transmission is very weak, or the transmission is being sent over long distances.

Signal Strength Indicator A display on a cellular radio that lets you know before you call about the relative strength of the cellular transmitter in your immediate area. On most cellular radios, the signal strength indicator has five bars, with five the strongest. It's best to call when you have four or five. Three is marginal. Below three, forget it. Go elsewhere and try again.

Signal Switching Point SSP. See SSP. For a full explanation of the Advanced Intelligent Network, see AIN.

Signal-to-noise-ratio 1. Often abbreviated as SNR or S/N. A measurement of the relative level of noise on a circuit and, therefore, the quality of a transmission, SNR is the ratio of the usable signal being transmitted to the noise or undesired signal. Human beings are fairly tolerant of noise, and within limits, can distinguish content from the "noise," but computer systems are not. If the level of extraneous noise is high in a data communications environment, data packets have to be re-sent. That not only slows down the data transfer, but also reduces the efficiency with which the circuit and network are used. SNR usually is measured in decibels (dB). See also dB.

2. The ratio between useful information and idle chatter to be found on an Internet Usenet newsgroup, bulletin board, or chat room. Often used derogatorily, for example: "The signal-to-noise ratio in this newsgroup is pretty low."

Signal Transfer Point The packet switch in the Common Channel Interoffice Signaling (CCIS) system. The CCIS is a packet switched network operating at 4800 bits per second. CCIS replaces both SF (Single Frequency) and MF (Multi-frequency) by converting dialed digits to data messages. See SCP, STP and Signaling System 7. For a full explanation of the Advanced Intelligent Network, see AIN.

Signals Signal being transmitted are information. They can be spoken words such as a telephone conversation, music, or even computer data. The simplest signal we can send is a sine wave. All sound waves are combinations of simpler sine waves at different amplitudes and frequencies to produce complicated wave forms. Similarly, computer data is a series of ones and zeros which electrically look like a square wave. Square waves, like all other types of waves, can be represented by a combination of sine waves with different frequencies and amplitudes. That a complex wave is the sum of simple sine waves was discovered by the French mathematician Jean Baptiste Joseph Fourier and is called Fourier's Theorem.

Signals Intelligence SIGINT. A federal government term. A category of intelligence information comprising, either individually or in combination, all communications intelligence, electronics intelligence, and foreign instrumentation signals intelligence, however transmitted. Signals intelligence is a polite term for reading someone else's mail. See NSA and SIGINT.

Signaling In any telephone system — inside an office or across the country — some form of signaling mechanism is required to set up and tear down the calls. When you call from your office desk across the country to someone else's desk, many forms of different signaling are used. There's the signaling between your office desk phone and your office phone system. There's the signaling between your office phone system and your local telephone company central office. And there's the signaling between your local central office and the central office you're trying to reach across the country. All forms of these signaling may be different. Simple examples of signalings are ringing of your phone (someone is calling), dial tone (it's OK to dial), ringing (hopefully someone will answer), etc. Originally, telephone systems such as POTS (Plain Old Telephone Service) used in-band signaling to carry signals. With in-band signaling, signals such as DTMF tones (touchtones), are carried in the same circuit as the talk path. Newer signaling (i.e. most of it today) is carried as out-of-band signaling, which uses a separate data network. This is much more efficient. For example, voice circuits need not be allocated for calls that do not complete. Also, this approach allows additional quantities of information to be transferred to support advanced applications such as Caller ID, roaming in wireless systems, and 800 number routing. See Signaling System 7.

Signaling Connection Control Part SCCP. Part of the SS7 protocol that provides communication between signaling nodes by adding circuit and routing information to the signaling message. The ISDN-UP (Integrated Services Digital Network User Part) and TCAP (Transaction Capabilities Application Part) use the SCCP (Signaling Connection Control Part) and the MTP (Message Transfer Part) to transport information. Definition from

Bellcore in reference to its concept of the Advanced Intelligent Network.

Signaling Gateway SG. A software-based device that resolves interface issues between circuit-switched and packet-switched networks. See also MGCP and SCTP.

Signaling Information Fields SIF. In SS7 (Signaling System 7) signaling messages, the SIF is a variable length field which contains all the signaling information. Also included is any routing information in the Routing Label, which the network uses to properly connect the call. Such signaling information might include the Calling Party Number (CPN) subfield, along with the Presentation Indicator (PI). The SIF contains 2-272 octets of data. See also Calling Party Number, Presentation Indicator, and SS7.

Signaling Link Selection Code SLS. The part of a routing label that identifies the SS7 signaling link on which the message should be sent.

Signaling Point A node in a SS7 signaling network that either originates and receives signaling messages, or transfers signaling messages from one signaling link to another, or both. SPs are located at each switch in a Signaling System 7 network. They interface the switch with the Signal Transfer Points (STPs). See Signal Transfer Points and Signaling System 7.

Signaling Point Code A binary code uniquely identifying a SS7 signaling point in a signaling network. This code is used, according to its position in the label, either as destination point code or as originating point code.

Signaling Point Interface SPOI. The demarcation point on the SS7 signaling link between a LEC network and a Wireless Services Provider (WSP) network. The point established the technical interface and can designate the test point and operational division of responsibility for the signaling.

Signaling System Number 1 SS1. A tone supervision system using a 500 Hertz tone modulated at a 20 Hertz rate to signal call requests between switchboards. International equivalent of Bell's 1000/20 manual ringdown signaling. Now obsolete.

Signaling System Number 2 SS2. A two-tone (600/750 Hertz) tone system for dial-pulsing selection information. Never used internationally. Closely akin to early Bell mobile radiotelephone dialing systems. Now obsolete.

Signaling System Number 3 SS3. A single-frequency (2280 Hertz) tone system used on one-way circuits only. Not intended for transit connections involving a third nation. A prime method through the late 1970s. Now obsolete.

Signaling System Number 4 SS4. A two-tone (2040 and 2400 Hertz) system for international transit and terminal traffic. The first truly global "direct dialing" signaling system. Now obsolete.

Signaling System Number 5 SS5. A two-tone (2400 and 2600 Hertz) system combined with multifrequency inter-register signaling for both terminal and transit traffic. Closest international equivalent to North American Bell "DDD trunks using SF supervision." Now obsolete.

Signaling System Number 6 SS6. A common digital data path between two switching machines to negotiate and oversee connection control on transmission facility trunks between the machines. International equivalent of Bell CCIS. Typically a 2400 bps data circuit.

Signaling System 7 SS7. SS7 typically employs a dedicated 64 kilobit data circuit to carry packetized machine language messages about each call connected between and among machines of a network to achieve connection control. International equivalent of Bell DNHR. Permits many ISDN services such as CNID or Random RCF. See below for more specific information:

All phone systems need signaling. According to James Harry Green, author of the Dow Jones-Irwin Handbook of Telecommunications, signals have three basic functions:

1. SUPERVISING. Monitoring the status of a line or circuit to see if it is busy, idle or requesting service. Supervision is a term derived from the job telephone operators perform in manually monitoring circuits on a switchboard. On switchboards, supervisory signals are shown by a lit lamp indicating a request for service on an incoming line or an on-hook condition of a switchboard cord circuit. In the network (i.e. the automated part of the network), supervisory signals are indicated by the voltage level on signaling leads, or the on-hook/off-hook status of signaling tones or bits.

2. ALERTING. Indicates the arrival of an incoming call. Alerting signals are bells, buzzers, whoofers, tones, strobes and lights.

3. ADDRESSING. Transmitting routing and destination signals over the network. Addressing signals are in the form of dial pulses, tone pulses or data pulses over loops, trunks and signaling networks.

In the old days, signaling was mostly MF (multi-frequency) and SF (single frequency) and is

inband. This means that it goes along and occupies the same circuits as those which carry voice conversations. There are two problems with this. First, about 35% of all toll calls are not completed because the phone doesn't answer or is busy, or there are equipment problems along the way. The circuit time used in signaling is substantial, expensive and wasteful. Second, inband signaling is vulnerable to fraud. So the idea of out-of-band signaling came about. It got the name of Common Channel Interoffice Signaling (CCIS) because it used a communications network totally separate from the switched voice network. In North America, CCIS started out as an AT&T packet switched network operating at 4800 bits per second. Each of the packet switches in this network (they are no longer exclusively AT&T's) are called Signal Transfer Points — STPs. CCIS has the following advantages over SF/MF signaling: Fraud is reduced. "Talk-off" is reduced. (Talk-off occurs when your voice contains enough 2600 Hz energy to activate the tone-detecting circuits in the central office.) Signaling is faster allowing circuits and conversations to be set up and torn down (i.e. disconnected) faster. Signals can be sent in both directions simultaneously and during voice conversation if necessary. Network management information is routed over the CCIS network. For example, when trunks fail, switching systems can be told with CCIS data messages to reroute traffic around problem areas.

The older CCIS signaling has been replaced with a newer out-of-band signaling system called ITU Signaling System 7. According to an AT&T technical paper delivered at the International Switching Symposium in Spring, 1987, ITU Signaling System 7 is being required by

telecommunications administrations worldwide (i.e. all the local country-owned telephone companies) for their networks. AT&T continued with the introduction of digital switches and transmission equipment with 56 Kbps and 64 Kbps transmission rates, the International Telegraph and Telephone Consultative Committee (CCITT in French) in 1980 approved the ITU 7 recommendations optimized for digital networks. This new protocol uses destination routing, octet oriented fields, variable length messages and a maximum message length allowing for 256 bytes of data. Addition of flow control, connectionless services and Integrated Services Digital Network (ISDN) capabilities were approved by ITU in 1984. A major characteristic of ITU #7 is its layered functional structure. Its transport functions are divided into four levels, three of which constitute the Message Transfer Part (MTP). The fourth consists of a common Signaling Connection Control Part (SCCP).

The SS7 protocol consists of four basic sub-protocols:

- * Message Transfer Part (MTP), which provides functions for basic routing of signaling messages between signaling points.
- * Signaling Connection Control Part (SCCP), which provides additional routing and management functions for transfer of messages other than call setup between signaling points.
- * Integrated Services Digital Network User Part (ISUP), which provides for transfer of call setup signaling information between signaling points.
- * Transaction Capabilities Application Part (TCAP), which provides for transfer of non-circuit related information between signaling points.

Signaling System 7 provides two major capabilities:

1. Fast call setup, via high-speed circuit-switched connections.
2. Transaction capabilities which deal with remote data base interactions. What this means in its simplest terms and in one simple application is that Signaling System 7 information can tell the called party who's calling and, more important, tell the called party's computer. A scenario: when you call a direct mail order business, Signaling System 7 will send a signal as to which phone is calling. The agent's CRT screen will pop the caller's name and perhaps the caller's most recent buying information. The agent may answer the phone "Good morning, Mr. Newton. Did you enjoy the three khaki pants we sent you last week?..." Signaling System 7 will be an integral part of ISDN. It will enable us to extend full PBX and Centrex-based services like call forwarding, call waiting, call screening, call transfer, etc. outside the switch to the full international network. In effect, with Signaling System 7, the entire network will acquire the "smarts" of today's smartest electronic digital PBX. See also Captain Crunch, ISUP, MTP, SCCP, Signaling System 7 Software Layers and TCAP.

Signaling System 7 Software Layers MTP (Message Transfer Part) Layers 1 through 3: These layers provide complete lower level functionality at the Physical, Data Link and Network Level. They serve as a signaling transfer point, and support multiple congestion priority, message discrimination, distribution and routing.

ISUP (Integrated Services Digital Network User Part): This layer provides the network side protocol for the signaling functions required to support voice, data, text and video services in an Integrated Services Digital Network (ISDN). Specifically, ISUP supports the call con-

trol function for the control of analog or digital circuit switched network connections carrying voice or data traffic:

SCCP (Signaling Control Connection Part): This layer supports higher protocol layers (such as TCAP and IS-634) with an array of data transfer services including connectionless and connection orientated services. SCCP supports global title translation (routing based on directory number or application title rather than point codes), and ensures reliable data transfer independent of the underlying hardware.

TCAP (Transaction Capabilities Application Part): This layer provides the signaling function for communication with network databases. TCAP is an SS7 (and ISDN) application protocol which provides noncircuit transaction based information exchange between network entities. For example, TCAP enables transaction based service applications such as enhanced dial-800 which must exchange information between a pair of signaling nodes in an SS7 network to access remote databases, referred to as Service Control Points (SCPs). Important applications which use TCAP include:

- * 800 number routing.
- * Automated credit card calling which queries the Line Information Database (LIDB) for calling card validation.

* Advanced Intelligent Network call processing (referred to as AIN call "triggers").

TUP (Telephony User Part): This layer provides the telephone signaling function for national and international telephone call control. TUP is primarily used outside of the U.S. in Europe, China, parts of Asia and Latin America, and can control all the various types of national and international connections used worldwide.

Higher Level Application Parts: These layers are highly application specific, which each designed to serve a particular application type. Examples include:

- * GSM MAP (Mobile Application Part): This layer provides inter-system connectivity between wireless systems, and was specifically developed as part of the GSM standard.
- * IS-41: This layer provides similar functionality to GSM MAP. It provides inter-system connectivity between wireless systems and is typically deployed in North American wireless networks. For example, it is widely used to provide interconnection between the analog AMPS (Advanced Mobile Phone System) cellular systems in the U.S.
- * IS-634: This layer provides the interface for Mobile Switching Center (MSC) to base station communications for public 800 MHz cellular networks (i.e., for AMPS).

* INAP (Intelligent Network Application Part): This layer runs on top of TCAP and provides similar functionality to MAP but for a fixed network. Note that INAP is primarily a European standard, developed by ETSI. INAP is part of the CS1, CS2 IN Capability Set, the European equivalent to the AIN specification. While the AIN and CS specifications are similar and can be deployed using SS7 for functions such as call routing, there are some differences which the standards organizations are working to converge.

* 1129/1129+/1129A: These protocols provide a direct connection between the SCP and IP and are variants of the Bellcore 1129 and AIN 0.2 standards. In some cases, SS7 may not be required to implement the direct SCP-IP connection; in other instances, SS7 is used. Using SS7 as the underlying protocol allows any SCP to communicate directly with any IP in the SS7 network. When SS7 is used, the 1129 application layer typically runs on top of TCAP.

Thanks to Natural MicroSystems for an explanation of SS7 Software Layers. See also their white paper, "SS7 and Intelligent Networking Applications." It's on their web site, www.nmss.com

Signaling System 7 Standards SS7 standards are defined in the ITU-TS documents as noted below:

- * Q.700-Q.709
- Messaging Transfer Part (MTP)
 - * Q.710
 - PBX Application
 - * Q.711-Q.716
- Signaling Connection Control Part (SCCP)
 - * Q.721-Q.725
- Telephone User Part (TUP)
 - * Q.730
- ISDN Supplementary Systems
 - * Q.741
- Data User Part (DUP)
 - * Q.761-Q.766
- ISDN User Part (ISUP)



Signaling System R1 / Silicorn Valley

* Q.771-Q.775

Transaction Capabilities Application Part (TCAP)

* Q.791-Q.795

Monitoring, Operations, and Maintenance

* Q.780-Q.783

Test Specifications

Signaling System R1 International equivalent of Bell 2600 Hertz "SF signaling" used in North American DDD trunks. Largely used only in Third World nations.

Signaling System R2 International equivalent of Bell out of band analog carrier system signaling. Uses a tone of 3825 Hertz placed between voice channels of a carrier system. Used primarily in Europe.

Signaling Transfer Point STP. A signaling point with the function of transferring signaling messages from one signaling link to another and considered exclusively from the viewpoint of the transferer.

Signature A short text file that is automatically added to the end of your e-mail or Usenet posts. A signature file usually contains your name (or alias) and e-mail address, and some people like to add pithy quotes; whatever your signature file contains, remember to keep it short.

Significant Hour Any hour that influences the sizing of a trunk group.

Sigtran Signaling Transport. The IETF (Internet Engineering Task Force) "Sigtran" WG (Working Group) is working on a Signaling and Transport protocol to enable over the Internet, or other IP-based network, the same reliability of signaling and control that the PSTN (Public Switched Telephone Network) enjoys. Sigtran is defined in RFC 2719 as "an architecture framework for transport of message-based signaling protocols over IP networks." The work includes definition of encapsulation methods, end-to-end protocol mechanisms, and use of IP's existing capabilities in support of the functional and performance requirements of signaling transport. The ultimate yield of Sigtran is intended to be a protocol stack for the transport of SCN (Switched Circuit Network) signaling over an IP transport protocol. The protocol stack will be implemented in Signaling Gateways (SGs), which serve as the points of interface between the two networks. An SG functions to relay, translate, or terminate SS7 signaling. See also SCTP (Stream Control Transmission Protocol) and www.ietf.org/html.charters/sigtran-charter.html

Silence Management See Silence Suppression.

Silence Suppression A term used in voice compression for transmission whereby silence in the voice conversation is filled with other transmissions — e.g., data, video, imaging, etc. According to AT&T, the average voice conversation is 62% quiet and 38% not quiet (i.e., actual conversation). You can figure that for yourself: One person is speaking at a time. That's 50% of the circuit silent. The person who's speaking doesn't speak continuously. He pauses, takes a breath, thinks, etc. That's another 12%. Thus 62% in silence. A company like Micom in Simi Valley, CA makes a product called Marathon which uses the 62% silence between syllables, words and sentences to transmit data, fax and video. Micom tells me that the typical talk spurt sequence is 300 milliseconds. And it can use very small time (as short as 300 milliseconds) between talk spurts to stuff data, fax or video into and transmit.

Silent Alert A non-audible signal in a pager. Usually a vibrating motor that causes the pager to "shake" silently to alert you to a new message or an incoming call.

Silent Device A Bluetooth term. A device that is in discoverable mode but cannot respond due to other baseband activity is said to be a silent device. The device could also be in non-discoverable mode and would also not respond to an inquiry.

Silent Intrusion Synonymous with Silent Participation.

Silent Mode Many Japanese fax machine sport a "silent mode." People in Japan who have fax machines in their houses use it so they are not awoken in the middle of the night by incoming faxes. In silent mode, your fax machine simply answers incoming calls, grabs incoming faxes into memory, but makes no noise whatsoever. In the morning when you wake up, you see a message on the machine that says "Faxes received." You hit a button and the machine starts to print the faxes it received. According to my friend, Emiko Magoshi, the shortfall of the fax machine at her house is that its memory is limited to accepting only 10 pages.

Silent Monitoring A call center term. The process whereby a supervisor or other qualified person listens in to the calls of an agent from a specially designated room or place away from the agent's work area. The agent may or may not be aware that his call is being monitored. Often the calling user may hear an opening message "This call may be monitored for quality assurance purposes." Typically the supervisor can hear both sides of

the conversation but cannot break in on the line and say anything.

Silent Participation A feature that allows a third party, such as an ACD agent supervisor, to join the call. The joining party can hear the entire conversation, but cannot be heard by either originating party. The feature, sometimes called Silent Intrusion or Silent Monitoring, may provide a tone to one or both devices to indicate that they are being monitored.

Sili Code See CLLI Code.

Silicon A dark gray, hard, crystalline solid. Next to oxygen, the second most abundant element in the earth's surface. Transistor chips are made from silicon, and it is the basic material for most integrated circuits and semiconductor devices. Silicon, a neutral element, is found primarily in raw form as sand. See Semiconductor.

Silicon Alley The area roughly corresponding to Chelsea, SOHO and NOHO in downtown Manhattan, New York. So called because so much of the web and Internet content is written by companies located in this area.

Silicon Avalanche Diode A fast-acting surge protector which features a narrow voltage clamping range.

Silicon Bayou In and around New Orleans, there are a growing number of a high-tech companies. They say their nw high-tech area is called Silicon Bayou. See the next few definitions.

Silicon Bog Ireland.

Silicon Fen The vast flat and marshy lands in and around Cambridge, England, the site of the prestigious university. According to the New York Times, Saturday January 4, 1998, "the area has become home to more than 1,000 high-technology companies that employ at least 30,000 people and produce more than \$3 billion a year in revenues."

Silicon Forest Silicon Forest is the area of Portland/Beaverton/Hillsboro, where Intel has a large presence, as are Tektronix, Triquent, Lattice Semiconductors, Maximum Integrated Circuits, .. See also Silicon Bayou, Silicon Mudflats, Silicon Valley, Silicorn Valley and Sillywood.

Silicon Gulch Austin, Texas because of the concentration of high-tech companies that have located there. See the definitions above and below.

Silicon Mudflats The part of the San Francisco area that is on the Oakland side of the bay and sits between San Francisco and Oakland. That area is home to a bunch of high-tech companies. See also Silicon Bayou, Silicon Forest, Silicon Valley, Silicorn Valley and Sillywood.

Silicon Prairie South Dakota.

Silicon Valley Silicon Valley in Santa Clara County, California, south of San Francisco Bay, is known for its microelectronics innovation. It is one of the two places (the other being Dallas, Texas) where the microchip was invented and produced. There are over 3,000 microelectronic hardware and software firms within a radius of about 30 miles. Silicon Valley owes its good fortune to:

+ The fact that W. Shockley, one of the three inventors of the transistor, being a native of Palo Alto, went there in 1955 after he left Bell Laboratories, to start his own industrial research center;

+ The proximity of technology universities, especially Stanford University;

+ A very active financial market in California and the enterprising attitude of capitalists willing to enter into "joint ventures," often very profitable;

+ The West Coast orientation to Japan.

The above information courtesy of Electronics, Computers and Telephone Switching by Robert J. Chapuis and Amos E. Joel, Jr. See also Silicon Bayou, Silicon Forest, Silicon Mudflats, Silicorn Valley and Sillywood.

Silicon Valley North The Ottawa area in Canada is called Silicon Valley North by the local high-tech press. Local high-tech companies include Nortel Networks, Newbridge Networks, ObjectTime, Corel, Mitel, JDS Uniphase (formerly JDS Fitel) and Cognos. Others with presence here include Cisco, Compaq and Siemens.

Silicone Valley A part of Silicon Valley in Northern California around San Jose which headquarters America's flourishing pornographic industry, which makes the movies (for DVD, VCR, theater and satellite distribution) and web sites. Over 80% of the "actresses" who perform in pornographic movies have had their breasts enlarged. Thus the name, Silicone Valley.

Siliconize Putting all the various components of a system into microprocessor chips. For example, in the fiber business many of the pieces are individual electronic components. Getting many of them converted of them into individual microprocessors is called "siliconize." Doing this saves time and money and improves the final reliability of the entire system.

Silicorn Valley A region in the state of Iowa that is fostering high-tech develop-