NEWTON's TELECOM DICTIONARY

SUPERSEDED

• IP Telephony • LANs & Intranets • Call Centers & Computer Telephony
• Fiber Optics, SONET and DWDM • Satellites
• Voice, Data, Image & Video Networking • Wired
and Wireless Telecom • VoIP • T-1, T-3, T-4, E-1,
E-3 • ISDN & ADSL • Cable Modems • Cellular,
PCS & GSM • Windows 95, 98, NT, NetWare,
Apple, Sun & Unix Networking • Ecommerce

Updated 15th Expanded Edition

by Harry Newton

NEWTON's TELECOM DICTIONARY

Call Control Signal Any one of the entire set of interactive signals necessary to establish, maintain, and release a call.

Call Data Call data refers to any data about a phone call that is passed by a switch to an attached computer telephony system. Call data is usually used by the computer telephony application to process the call more intelligently. Call data may be passed In-Band, over the same physical or logical link as the call — usually via tones, or Out-Of-Band, over a separate link — usually a serial link. Call data may also be passed as part of the data designed to control telephone networks, such as SS7 (Signaling System 7) links. In addition to information about the call, status about the call and even control over the call, can be available as part of the call data link services. Call data almost always includes what number dialed the call (ANI) and/or what number called (DNIS). More complex call data links used for "PBX integration" may also indicate why the call was presented (such as forwarded on busy), tell what trunk the call is coming in on, or to pass message waiting on or off indications, and other functions. Full blown computer telephony links, such as are now being offered by many switching vendors, enhance the call data path, providing additional status information about calls and can even provide a level of call control to the attached computer telephony system. The above definition courtesy of Steve Gladstone, author of a great book called Testing Computer Telephony Systems, available from 212-691-8215.

Call Delay The delay encountered when a call reaches busy switching equipment. In normal POTS telephone service, the delay is considered OK if no more than one and a half percent of the calls are delayed by three seconds during the busy hour.

Call Detail Recording CDR. A feature of a telephone system which allows the system to collect and record information on outgoing and incoming phone calls — who made/received them, where they went/where they came from, what time of day they happened, how long they took, etc. Sometimes the data is collected by the phone system; sometimes it is pumped out of the phone system as the calls are made. Which ever way, the information must be recorded elsewhere — dumped right into a printer or into a PC with call accounting software. See also Call Accounting System.

Call Diverter 1. A device which when connected to a called telephone number intercepts calls to that number and connects them to a telephone operator or prerecorded message. 2. An ancillary device which is connected to a telephone line. The device will, when the called telephone rings, initiate a telephone call on another line to a different telephone number. The calling party may or may not be aware that his call has been diverted to another telephone.

Call Duration The time from when the call is actually begun (i.e. answered) to the instant either party hangs up. Call Duration is an important concept for traffic engineering.

Call Establishment The process by which a call connection is created.

Call Forward Busy When your phone is busy, an incoming call is transferred to another number. That number might be one appearing on your phone system. It might be one at your home in the same city. It could even be in another city. Call Forward Busy can perform the same as Rollover Lines. I use Call Forward Busy to move calls from the first line of my residence to my second line, because my local phone company charges too much for Rollover Lines. (Don't ask why. They don't know either.) You can get Call Forward Busy from central offices, as well as PBXs and some key systems. See also Rollover Lines.

Call Forwarding A service available in many central offices and a feature of many PBXs and some hybrid PBX/key systems which allows an incoming call to be sent elsewhere. There are many variations on call forwarding: Call forwarding busy. Call forwarding don't answer. Call forwarding all calls, etc.

Call forward is a useful feature. For example, you're going to a meeting but you're expecting an important call. Pick up your phone, punch in some digits and all your calls will go to the new number — perhaps the phone outside the meeting room. The big disadvantage is that many people return to their offices but forget they forwarded their calls elsewhere. As a result, they usually miss a whole bunch of important calls. Some electronic phones now have a reminder light or message on them saying "all calls are being forwarded." Some people program their PBXs to cancel all call forwards at noon and at midnight every day. This makes sense.

Call forwarding is used to send calls to voice mail systems. For example, tell your PBX that if your phone isn't answered in four rings, send that call to your voice mail.

If you are getting call forwarding service from a central office in North America, the code to begin call forwarding is 72# and the number you want to be forwarded to. To cancel it, you punch in 73#.

Call Frame Harris' PBX to computer link. Harris' protocol for linking its PBX to an external computer and having that computer control the movement of calls within a Harris PBX. See also Open Application Interface.

Call Guide A paper or screen "cheat sheet" that provides bullet points or actual copy for call center agents to use while they are on the telephone making marketing calls. They provide responses to commonly asked questions or objections in the most effective way. Call guides are excellent training tools as well as monitoring aids for coaches. See Call Guide Routing.

Call Guide Routing The process by which a call center agent navigates through a call guide. The routing may be driven from a computer-based menu or function key or automatically by the computer system based on responses entered into a field.

Call Handoff A cellular phone term. Call handoff happens when a wireless call is transferred to another cell site in mid-conversation.

Call Hold If you hang the phone up, you lose the caller. Call hold — a feature of most phone systems — allows you to "hold" the call, so the other person can't hear you. You can then return to the conversation by pushing a button on your phone, typically the button flashing which shows which line the person is sitting on hold. Call hold is useful when you have someone on another line calling you.

Call Identifier A network utility that is an identifying name assigned by the originating network for each established or partially established virtual call and, when used in conjunction with the calling DTE address, uniquely identifies the virtual call over a period of time.

Call In Absence Horn Alert A cellular car phone feature that sounds your car's horn when you are receiving a call.

Call In Absence Indicator A cellular car phone feature that ensures that power to the cellular phone is not lost if the car's ignition is turned off.

Call In Progress Override A cellular car phone feature that keeps power to the phone during a call even though you've turned off the car's ignition.

Call Letters Certain combinations of letters assigned to radio stations by the FCC. The group of letters assigned the

134

gested, the carrier will deliver the excess frames and bits. Any bits (in frames) above the Bc+Be will be discarded, usually at the point of network ingress-and not very gracefully, I might add. For example, you might have a bunch of LANs at each site. At each site, the LANs to a FRAD, in the form of a Frame Relay-capable router. Each router connects to the public Frame Relay network over a 56 Kbps circuit which terminates in a 56 Kbps port on the carrier's closest FRND. As each PVC has a CIR of 32 Kbps, you be pretty sure that you can transfer data at 32 Kbps, at least on the average over a period of time (e.g., a month). You also can burst above the CIR to the level of the Bc (Committed Burst Size), and with reasonable assurance that the data will get to the destination site. You can burst above the Bc, although all bits in the Be (Excess Burst Size) are subject to being marked DE (Discard Eligible). The DE bits wind up on the switchroom floor in the event that the network is congested and the buffers in the network switches and routers overflow. You also can transmit above the total of the Bc+Be, but those bits in those frames may wind up on the switchroom floor at the ingress FRND. See also Committed Burst Size, Discard Eligible, Excess Burst Size, FRAD, Frame Relay, FRND, Graceful Discard, Measurement Interval, Offered Load, Permanent Virtual Circuit, and Router.
2. An ATM term. Committed Information Range: CIR is the information transfer rate which a network offering frame relay services (FRS) is committed to transfer under normal conditions. The rate is averaged over a minimum increment of time.

Circuit The physical connection (or path) of channels, conductors and equipment between two given points through which an electric current may be established. Includes both sending and receiving capabilities. A circuit can also be a network of circuit elements, such as resistors, inductors, capacitors, semiconductors, etc., that performs a specific function. A circuit can also be a closed path through which current can flow.

Circuit Board Same as a Printed Circuit Board, namely a board with microprocessors, transistors and other small electronics components. Such a board slides into a the slot in a telephone system or personal computer. Also called a circuit card.

Circuit Breaker A special type of switch arranged to open a circuit when overloaded, without injury to itself. A circuit breaker is basically a re-usable fuse. According to APC, a circuit breaker is a protective device that interrupts the flow of current when the current exceeds a specified value. Circuit breakers are calibrated when manufactured to a specific over-current value. Building or equipment wiring may overheat and become a fire hazard if excessive current is passed through such wiring. Circuit breakers or fuses are installed and coordinated with wiring by selecting the appropriate trip value so that if equipment malfunction or user error causes too much current to flow through a wire, the circuit breaker will trip to prevent the wire from overheating. For building wiring and power distribution, the values of circuit panel breakers are specified in America by the National Electrical Code.

Circuit Card Same as a Circuit Board. See Circuit Board.

Circuit Emulation A connection over a virtual channel-based network providing service to the end user that is indistinguishable from a real, point-to-point, fixed bandwidth circuit.

Circuit Emulation Switching CES. Part of the ATM Forum's proposed Service Aspects and Applications (SAA) standard.

Circuit Grooming The practice of directing selected circuit-switched DS-0s (64 kbit/s channels) from many T-1 trunks into a single T-1 (typical application is voice leased lines from a T-1 access line being 'groomed' in a DACS onto a dozen or more T-1s going to other central offices where those channels may again be groomed with other circuits onto T-1 access lines at those sites). Also used to separate voice circuits from data circuits, and for combining then for delivery to service-specific switches in the CO.

Circuit Identification Code CIC. The part of CCS/SS7 signaling message used to identify the circuit that is being established between two signaling points (14 bits in the ISD-NUP).

Circuit Level Gateway A circuit level gateway ensures that a trusted client and an untrusted host have no direct contact. A circuit level gateway accepts a trusted client's requests for specific services and, after verifying the legitimacy of a requested session, establishes a connection with an untrusted host. After the connection is established, a circuit-level gateway copies packets back and forth-without further filtering them.

Circuit Mode 1. An AT&T term for the method of communications in which a fixed bandwidth circuit is established from point to point through a network and held for the duration of a telephone call.
2. An AIN term for a type of switching that causes a one-to-one correspondence between a call and a circuit. That is, a circuit or path is assigned for a call between each switching node, and the circuit or path is not shared with other calls.

Circuit Noise Level At any point in a transmission system, the ratio of the circuit noise at that point to some arbitrary amount of circuit noise chosen as a reference.

Circuit Order Management System COMS. An automated processing system of MCI circuit- and service-related information. Processes hardwire service circuit orders from order entry through scheduling and completion. COMS also provides circuit order data, hardwire customer data, and circuit inventory data to other MCI systems in Finance, Engineering, and Operations.

Circuit Order Record COR. Report generated by the COR Tracking System within NOBIS, indicating circuit installations, changes, and disconnects.

Circuit Provisioning The telephone operating company process that somehow organizes to get you a trunk or other special service circuit.

Circuit Segregation Differentiating between services that are maintained by separate technicians or departments. Can be accomplished through visual and/or mechanical means.

Circuit Switched Digital Capability CSDC. A service implemented by some regional Bell Operating Companies that offers users a 56 Kbps digital service on a user-switchable basis.

Circuit Switching Imagine making a phone call to Grandma. You pick up the phone and dial Grandma. When you finish dialing, the various telephone company switches along the way pick a path for your call and move your call along its way to Grandma. When Grandma answered, you and she are now able to speak. Both of you now have the exclusive and full use of the circuit that was set up between you. You have that circuit until you (or she) hang up, at which time it goes idle until the system of switches grabs it for another "call." That call might be voice, data and video. Circuit switching has one big advantage: You get the full circuit for the full amount of the time you're using it. And for the most part, it's full duplex. Circuit switching has one big disadvantage: Because you get the full circuit for the full amount of the time, you pay for the privilege of tying up that circuit (no one else can use it, even when there are pauses in your conversation). Which means it's expensive.

174

There are basically three types of switching — circuit, packet and message:

Circuit Switching, which I just explained, is like having your own railroad track for your conversation to travel on. It's yours for as long as you keep the connection open. No one else can use it. Once you hang up, the next caller gets to use that track. Virtually all voice telephone calls are circuit switched, though that won't be true in the future. All dial-up modem calls are circuit switched also.

Packet Switching is like having your own railroad cars which you're sharing with other railroad cars on a railroad track. You slice the information you want to send so it fits into the cars, which join other cars to travel on the railroad track to the other end. You get pretty well as many railroad cars as you need. They will travel on different railroad tracks until they reach the station at the other end, where they'll be assembled in the order you sent them and then dropped off at your destination. Packet switching was originally created for sending data, since it's very efficient (and therefore cheap). One railroad track gets to carry a lot of "conversations." (In circuit switching, it only carries one conversation.) It does have the problem that it takes a little time to break up the data "conversations" into many packets, send them on their different ways and then reassemble them at the other end. But for data, that delay is barely noticeable. It can be noticeable, however, in a voice conversation, which is why packet switching hasn't been used much for voice — until recently. (See IP Telephony.) In packet switching, the addresses on your packets are read by the switches as they approach, and are switched down the tracks. The next packet is read to throw the switches to send that packet where it needs to go. The data conversation is sent in packets. Each packet can be sent along different tracks as they are open. The packets are assembled at the other end — typically in the last switching office before the packets reach the distant computer or distant user.

Message Switching sends a message from one end to the other. But it's not interactive, as in packet or circuit switching. Of course, you can reply. But it's not like having a "conversation." In message switching, the message is typically received in one block, stored in one central place, then retrieved or sent in one clump to the other end. Message switching is like the post office, or like email. It can be slow. But it can also be cheap. Message can use a combination of circuit switching and packet switching to get its message through.

Circuit, Four Wire A path in which four wires are presented to the terminal equipment (phone or data), thus allowing for simultaneous transmission and reception. Two wires are used for transmission in one direction and two in the other direction.

Circular Extension Network Permits two or more single-line phones connected to a PBX, each with its own extension, to operate like a "square" key telephone system. An incoming call directed to any non-busy phone in the group will ring at all of the non-busy phones. The first extension to answer will be connected to the incoming call. At any time, a non-busy extension can make or receive calls.

Circular Hunting When calling a phone, the switching system makes a complete search of all numbers within the hunting group, regardless of the location within that group of the called number. For example, the hunt group is 231, 232, 233 and 234, the call is directed to 233. If it is busy, the equipment will search 234, 231, and 232 to find a non-busy phone or line. Essentially it goes around the ring, remembering where it last connected and then goes to the next line or phone in the circle. See also Hunt Group and Terminated Hunt Group.

Circular Mil The measure of sectional area of a wire.

Circular Polarization In electromagnetic wave propagation, polarization such that the tip of the electric field vector describes a circle in any fixed plane intersecting, and normal to, the direction of propagation. The magnitude of the electric field vector is constant. A circularly polarized wave may be resolved into two linearly polarized waves in phase quadrature with their planes of polarization at right angles to each other.

Circulator 1. In networking, a passive junction of three or more ports in which the ports can be accessed in such an order that when power is fed into any port it is transferred to the next port, the port counted as following the last in order. 2. In radar, a device that switches the antenna alternately between the transmitter and receiver.

Circumnaural A type of headphone that almost totally isolates the listener from room sounds.

CIS Contact Image Sensor. A type of scanner technology in which the photodetectors come in contact with the original document.

CISC Complex Instruction Set Computing. PC Magazine defines CISC as a microprocessor architecture that favors robustness of the instruction set over the speed with which individual instructions are executed. The Intel 486 and Pentium are both examples of CISC microprocessors. See also RISC — Reduced Instruction Set Computing. See RISC.

CISPR 22 This is a European Community standard specifying the limits of radio frequency emissions which appliances and other electrical equipment are allowed. The standard indicates the maximum allowable emissions either radiated or conducted via the power cord at various frequencies. Some countries still use the older VDE 0871 emission standards, which are nearly identical. In the USA, the FCC has a similar standard.

CIT Computer Integrated Telephone is Digital Equipment Company's program, announced in October 1987, that provides a framework for functionally integrating voice and data in an applications environment so that the telephone and terminal on the desktop can be synchronized, the call arriving as the terminal's screen on the caller arrives. CIT uses the DEC VAX line of computers. According to DEC, CIT supports both inbound and outbound telecommunications applications. In an inbound scenario, the application may recognize the caller's originating phone number through Automatic Number Identification (ANI) and/or the dialed number through Dialed Number Identification Service (DNIS), match the information to corresponding data base records and automatically deliver the call and the data to the call center agent. In an outbound application, dialing can be automated, increasing the number of connected calls. In either scenario, the telephone calls and associated data can be simultaneously transferred to alternate locations within an organization, adding a new level of customer service to call center applications. Digital made its first CIT announcements at Telecom '87 in Geneva, Switzerland. The CIT product set, consisting of client and server software implementing a variety of switch-to-computer link protocols, and providing a robust applications interface, was first shipped in 1989. The company announced its latest release, CIT Version 2.1, in January 1991. See also Open Application Interface.

Citizens Band One of two bands used for low power radio transmissions in the United States — either 26.965 to 27.225 megahertz or 462.55 to 469.95 megahertz. Citizens band radio is not allowed in many countries, even some civilized countries. In some countries they use different frequencies. CB radios, in the United States, are limited by FCC rule to four WATTS of power, which gives each CB radio a range of sev-

DOCKET ALARM

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts

Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research

With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips

Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS
Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS
Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS
Sync your system to PACER to automate legal marketing.