NEWTON's TELECOM DICTIONARY

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still make extensive use of PLC as a backup for more conventional copper and microwave transmission systems. A number of manufacturers over the years have developed residential and small business telephone systems which use in-building AC power. The telephone line is terminated by special equipment at the common electrical bus, with the individual sets simply plugging into electrical outlets like a toaster or any other electrical appliance. (Do not confuse this odd approach with the term "Information Appliance," which refers to multipurpose, multimedia terminals used in a convergence (Information Superhighway) context.) Such systems have not been successful.

Recently, several technical developments have resurrected interest in PLC. First, Spread Spectrum technology has been applied to overcome the inherent noise problems associated with data communications over in-building electrical wiring. Second, the EIA's (Electronic Industries Association) CEBus (Consumer Electronics Bus) was adopted industrywide. CEBus essentially is a Home Area Network (HAN), a residential and small business version of a Local Area Network; CEBus makes use of Spread Spectrum. Current commercial PLC applications using Spread Spectrum include control of building environments and managing utility electrical distribution systems. For instance, heating, ventilation, and air-conditioning systems in a commercial building can be managed by a central controller which polls various temperature and humidity sensors scattered throughout the building with communications taking place over the electrical wiring and through the common electrical bus. See Spread Spectrum and CEBus.

Power Line Filter A device which prevents either radio frequency signals or power line surges from passing along a power cable into equipment.

Power Main Surge Protector A surge suppressor designed for use at the main power box of a building.

Power Management Methods used to efficiently direct power to different components of a system. This is particulary important in portable devices which rely on battery power. The life of a battery between charges are extended significantly by powering down components not in use.

Power On See Power Up.

Power Open A new operating system which is planned to run on a new super-powerful PC manufactured by a joint IBM-Apple alliance. The idea of the IBM-Apple alliance is make a super-powerful PC that runs virtually every PC operating system imaginable, including MS-DOS, UNIX, Windows, OS/2, Macintosh. The new, all powerful operating system, would be called "Power Open."

Power Over Ethernet See 802.3af.

Power Product A cellular radio term. A configurable parameter broadcast by the Mobile Data Base Station (MDBS), defining the desired relationship between received signal strength and transmitted power level at any single point.

Power Regulator Equipment that regulates the power delivered to a system. Designed to mitigate transients in the commercial electric power source.

Power Rudeness Ugly behavior enabled by the digital age, such as using beepers in theaters, taking cell calls in restaurants and firing employees by email. This definition from Wired Magazine.

Power Seller A person who make his living buying and selling things on eBay.

Power Spectral Density PSD. A measurement of the amount of power, measured in Watts, that is applied to the spectrum of carrier frequencies (i.e., the frequency or frequencies that carry the information signal) over a circuit in order to achieve a satisfactory level of signal strength at the receiving end of the circuit. Measured in Watts/Hertz, PSD applies to both electrical circuits and radio circuits. Clearly, every carrier frequency involved in a transmission circuit is at some power level. The PSD level is tuned to the specifics of the circuit, in consideration of the frequency or frequencies involved. In an electrical circuit, the circuit specifics can include the gauge (diameter) of the copper conductor, the number of splices, and the circuit length. Given those specifics, the carrier frequency or frequencies also must be considered. As high-frequency signals attenuate (lose power) more quickly than low-frequency signals, they often are transmitted at a higher power level in order to overcome this phenomenon. However, the combination of the higher frequency signal and the higher power level causes the signal to radiate a stronger electromagnetic field, which can have a decidedly negative impact on adjacent pairs in a multi-pair cable. The adjacent pairs absorb the radiated energy, which takes on the form of electromagnetic interference (EMI), or noise. Therefore, a "PSD mask" must be imposed in order to limit the PSD to acceptable ranges. In ADSL (Asymmetric Digital Subscriber Line), for example, PSD masks are imposed on both the upstream and downstream frequencies. Specifically, ADSL T1.413 standards specify that the upstream passband (allowable frequency range)

of 25-138 kHz, with the associated PSD is -38 dBm/Hz; at frequencies above 181 kHz, the PSD is required to be at least 24 dB below -38 dBm/Hz, i.e., at a level of at least -62 dBm/Hz (dBm is decibels below 1mW, or milliwatt). See also ADSL, DB, DBM, and Decibel.

Power Splitter See Power Divider.

Power Supply Most single line phones are powered by the electricity that comes in over the phone line. That's why they'll work when there's a power outage. Single line phones that have gadgetry associated with them, all ISDN phones and all multi-line phones (like key systems and PBXs) require a supply of power, i.e. electricity, in addition to what they get over the phone line. Most phones and phone systems, like computers, these days are ultimately powered by low voltage direct current (i.e. D.C.). To convert the normal 120 or 240 volts AC power that comes in from your local utility to DC at the various voltages and frequencies needed by the components and circuits of the phone or computer system, you need something called a "power supply." That term may refer to something as simple as a $10 transformer or it may be as complicated and expensive as a $20,000 power supply with an uninterruptible power supply replete with wet cell batteries. Power supplies are usually the least reliable part of modern electronic gadgetry. This is because they take the hits from the lousy power the local utility sends in and also because many manufacturers skimp on the quality of their power supplies. A cheap power supply is not evident immediately. It may take time to break down. Whenever you're having intermittent problems with your phone system or computer, suspect the power supply. And, given a choice, buy the best quality power supply you can. See UPS.

Power Synthesizer Power synthesizers actually use the incoming utility power as an energy source to create a new sine wave that's free from power disturbances. They can be as much as 99% effective against power disturbances. Types of power synthesizers include magnetic synthesizers (capable of generating a sine wave of the same frequency as the incoming power - 60 Hz), motor generators (which use an electric motor to drive a generator that provides electrical power), and UPSes.

Power Systems A system that provides a conversion of a primary alternating current power to direct current voltages required by telecom equipment, and may generate emergency power when the primary alternating current source is interrupted.

Power Technology New technologies to create, distribute and clean electricity. A microturbine is a power technology.

Power Up The sequence of things you have to do in order to turn a computer or telephone system on. You can't cut corners starting up electronic equipment. It must be done carefully and in the correct order. Always count to ten after turning something off before turning it back on again. See also Power Down.

Power Vendor One who has a major chunk of a market. Some users believe that a good IS strategy is to buy from a power vendor in the belief that "you can't go wrong buying from AT&T, IBM, Northern Telecom..."fill in the name of your favorite power vendor.

Power, Peak In a pulsed laser, the maximum power emitted.

Powerline Communications Sending voice, video, data — in short telecommunications signals — over copper wire that normally carry high voltage electricity (110 volts AC and higher) for use in home and businesses for lighting, heating, etc.

PPC Pay per call.

PPD Partial Packet Discard. A technique used in ATM networks for congestion control in support of both Classical IP over ATM and Local Area Network Emulation (LANE). Such data is transmitted in the form of packets and frames, respectively, each of which typically is a subset of a much larger set of data such as a file. In the case of Classical IP over ATM, each data packet can be variable in size, up to a maximum of 65,536 octets (e.g., bytes). As the IP data packet enters the ATM switch on the ingress side of the ATM network, it is stored in a buffer until such time as the ATM switch can segment it into cells, each with a payload of 48 octets — there can be a great many such cells for each packet — and act to set up a path and circuit to forward the stream of cells which comprise the original packet. If a given cell is dropped for some reason (e.g., there is not enough buffer space at either the incoming or the outgoing buffer within the switch, the integrity of the original packet is lost. Early implementations of Classical IP over ATM simply forwarded the remainder of the cells associated with that packet. So, the earlier cells made it to the destination device while the later cells didn't. When the cells were reassembled into the packet as they exited the ATM network, the result was an incomplete packet. The higher layer protocols then requested a retransmission of the entire packet. If the ATM network was highly congested, this occurrence was repeated many times, thereby contributing to further conges-