Glossary of
Common Terminology and Acronyms

VOIProven

TELEX
Radio Dispatch

Table of Contents

A

Active Hi

Active Hi is a statement that represents which voltage state the listed feature will function in. Active Hi signals at or great than 5Vdc.

Active Low

Active Low is a statement that represents which voltage state the listed feature will function in. Active Low signals near 0Vdc or ground potential.

ADPCM

ADPCM (Adaptive Differential Pulse Code Modulation) is a form of pulse code modulation (PCM) that produces a digital signal with a lower bit rate than standard PCM. ADPCM produces a lower bit rate by recording only the difference between samples and adjusting the coding scale dynamically to accommodate large and small differences. Some applications use ADPCM to digitize a voice signal so voice and data can be transmitted simultaneously over a digital facility normally used only for one or the other.

ADSL

ADSL (Asymmetric Digital Subscriber Line) is a new technology that allows more data to be sent over existing copper telephone lines (POTS). ADSL supports data rates of from 1.5 to 9 Mbps when receiving data (known as the downstream rate) and from 16 to 640 Kbps when sending data (known as the upstream rate).

AGC

AGC (Automatic Gain Control) is a circuit which automatically normalizes the output of an electronic component by boosting or lowering incoming signals to match a preset level so that the output signal level is virtually constant.

ANI

ANI (Automatic Number Identification), A feature in which a series of digits, either analog or digital, are included in the call, thus identifying the telephone number of the caller.

Analog

Analog refers to electronic transmission accomplished by adding signals of varying frequency or amplitude to carrier waves of a given frequency of alternating electromagnetic current. Broadcast and phone transmission have conventionally used analog technology.B

B

Bandwidth

Bandwidth is a measure of frequency range and is typically measured in hertz. Bandwidth is a central concept in many fields, including information theory, radio communications, signal processing, and spectroscopy. Bandwidth is related to channel capacity for information transmission and often the two can be confused. In particular, in common usage bandwidth also refers to data (information) transmission rates when communicating over certain media or devices.

Specifically used in Radio Dispatch products, each VoIP channel requires 50kBit of bandwidth while active. Full-Duplex conversation (audio in each direction) requires 100kBit of bandwidth.

Some radio systems transmit "go-ahead" beeps when it is clear to talk. In order for the console operator to hear the beeps, the system must support full-duplex communication. Full-duplex bandwidth may only be required for the first few seconds of a conversation, due to the brief nature of the "go-ahead" beeps at the beginning of the transmission.

When using a PIB-223, C-6200, or the NI-223 for a telephone connection, 100KBit is required since it is a constant, full-duplex conversation.

BCD

BCD (Binary Coded Decimal) is a system for converting ordinary decimal digits (the numbers 0-9) into 4-bit binary numbers. In BCD, each digit of a decimal number is coded separately as a 4-bit word (sometimes called a "nibble," since 8-bit words are called bytes.) For ease of reading these 4-bit groups are often displayed separated by spaces. The BCD format is founded on the binary number system which is based on powers of 2: this is, the weights of the four bit positions in BCD from right to left, are $2^0=1$, $2^1=2$, $2^2=4$, and $2^3=8$. BCD format is thus also denoted: 8-4-2-1.

C

CDM Mobile

CDM Mobile is in the Motorola mobile radio series.

Channel

Channel, in communications (sometimes called communications channel), refers to the medium used to convey information from a sender (or transmitter) to a receiver.

There are two types of channel communications:

Simplex communication is a name for a type of communication circuit. There are two (contradictory) definitions that have been used for the term. In both cases, the other definition is referred to as half duplex.

Duplex communication system is a system composed of two connected parties or devices which can communicate with one another in both directions. (The term duplex is not used when describing communication between more than two parties or devices.)

Duplex systems are employed in nearly all communications networks, either to allow for a communication two-way street between two connected parties or to provide a reverse path for the monitoring and remote adjustment of equipment in the field.

COR

COR (Carrier Operated Relay) A relay that is usually derived from the squelch circuit of a receiver signaling the presence of a signal at the receiver. This signal tells the repeater controller when a valid signal is present.

Cposi.txt

When the CSoftRuntime program is opened, it looks for the **cposi.txt** file. This file is created each time the CSoftRuntime program is closed. The cposi.txt file records the size and position of the CSoftRuntime program window. In addition to storing the position information, the cposi.txt file also stores the console state at shutdown. This includes information such as the selected channels, mute states, volumes, channel frequencies, and the entries in the call log (without the IRR audio).

CTCSS

CTCSS (Continuous Tone Coded Squelch System) is a series of sub-audible tones which are standard on most new radios. An audible cousin of CTCSS is DTMF. These tones often perform control functions. Some repeaters may require a sub-audible tone before activating, others use it to perform functions such as turning all trunks on and off when a specific tone is present

D

dB

dB (decibel) is a logarithmic measurement unit that describes a sound's relative loudness, though it can also be used to describe the relative difference between two power levels. A decibel is one tenth of a Bel. In sound, decibels generally measure a scale from 0 (the threshold of hearing) to 120-140 dB (the threshold of pain). A 3dB difference equates to a doubling of power. A 10dB difference is required to double the subjective volume

DC Remote

DC Remote, or DC Control, is used inside the two-way radio industry to describe a general type of 4-20 mA remote control device. This name comes from the need for SC circuit continuity between the control point and the radio base station.

DC Control

DC Control is one way to control radio base stations at distant sites. See See "DC Remote" on page 8.

DPL

DPL (Digital Private Line) code is transmitted when the receiving radio is to only receive calls from radios with specific DPL codes, this creates communication groups while operating in Conventional Dispatch mode. DPL is a digital format transmitted along with the carrier, DPL allows for more use and privacy on a frequency. DPL is transmitted at a sub-audible frequency (not loud enough to be heard). Also know as Channel Guard, Quiet Call and CTCSS.

DSL

DSL (Digital Subscriber Line) is a family of digital telecommunications protocols designed to allow high speed data communication over the existing copper telephone lines between end-users and telephone companies.

Decode

In communications, a code is a rule for converting a piece of information (for example, a letter, word, or phrase) into another form or representation, not necessarily of the same type. In communications and information processing, encoding is the process by which information from a source is converted into symbols to be communicated. **Decoding** is the reverse process, converting these code symbols back into information understandable by a receiver.

DB-9

The **DB-9** is a connector that is occasionally found on smaller RS-232 lab equipment. It is compact yet has enough pins for the core set of serial pins (with one pin extra).

Important: Telex connector pinouts vary from the standard DB-9 connectors. See data in the technical manual for specific connector pinout information and application.

CAUTION: The standard DB-9 pin numbers for transmit and receive (3 and 2) are opposite of those of the standard DB-25 connector (2 and 3). Be careful with this when you're determining if a device is DTE or DCE.

The images in Figure 1 show the male and female versions of the DB-25 connector with pin numbers.

TABLE 1. Standard DB-9 Connector Pin Out Data

Pin No.	Name	Notes/Description
1	DCD	Data Carrier Detect
2	RD	Receive Data (RX)
3	TD	Transmit Data (TX)
4	DTR	Data Terminal Ready
5	Gnd	Ground
6	DSR	Data Set Ready
7	RTS	Request to Send
8	CTS	Clear To Send
9	RI	Ring Indicator
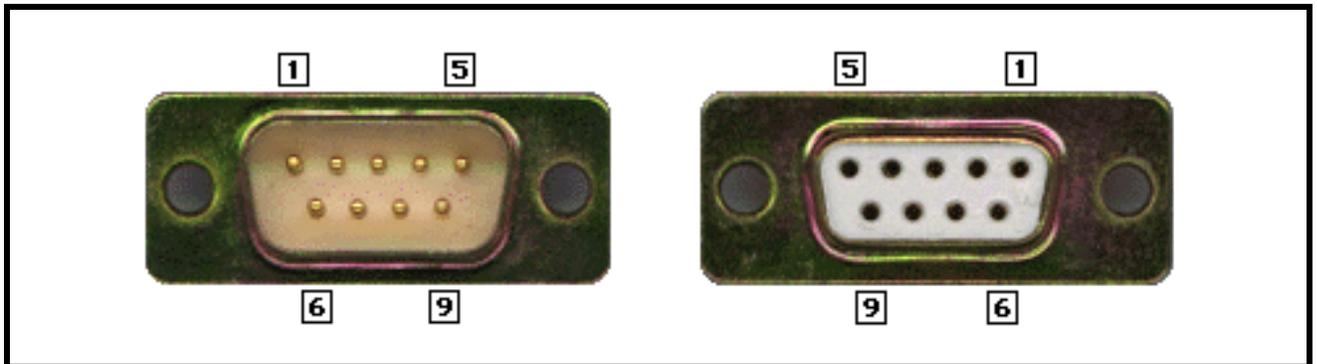
FIGURE 1. DB-9 Male and Female Connectors

DB-25

This is the standard RS-232 connector, with enough pins to cover all the signals specified in the standard. The table shows only the core set of pins that are used for most RS-232 interfaces.

Important: Telex connector pinouts vary from the standard DB-9 connectors. See data in the technical manual for specific connector pinout information.

The images in Figure 2 show the male and female versions of the DB-25 connector with pin numbers.

TABLE 2. Standard DB-25 Connector Pin Out Data

Pin No	Name	Description		Pin No	Name	Description
1	-	Protective, shielded ground		14	STD	Secondary Transmit Data
2	TD	Transmit Data (TX)		15	DB	Transmit Clock
3	RD	Receive Data (RX)		16	SRD	Secondary Receive Data
4	RTS	Request To Send		17	DD	Receive Clock
5	CTS	Clear To Send		18	LL	Local Loopback
6	DSR	Data Set Ready		19	SRTS	Secondary Request to Send

TABLE 2. Standard DB-25 Connector Pin Out Data

Pin No	Name	Description		Pin No	Name	Description
7	Gnd	Ground		20	DTR	Data Terminal Ready
8	CD	Carrier Detect		21	RL/SQ	Signal Quality Detector. Remote Loopback
9	-	Reserved		22	RI	Ring Indicator (DCE raises when incoming call detected used for auto-answer applications
10	-	Reserved		23	CH/CI	Signal Rate Selector
11	-	Unassigned		24	DA	Auxiliary Clock
12	SDCD	Secondary Carrier Detect		25	-	Unassigned
13	SCTS	Secondary Clear to Send		-	-	-
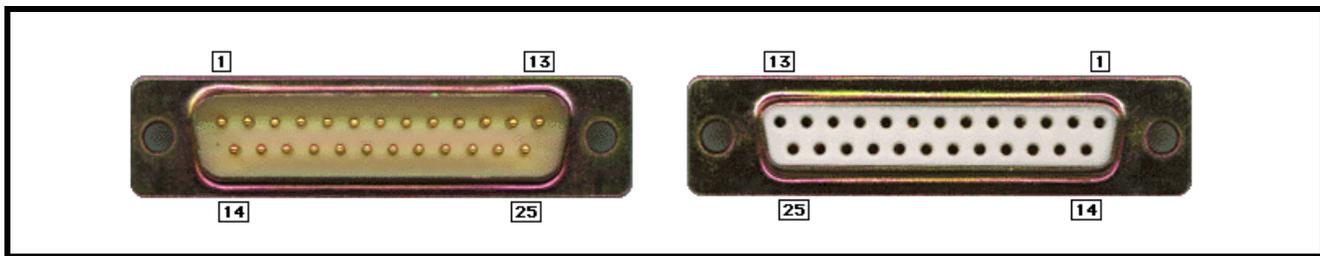
FIGURE 2. DB-25 Male and Female Connectors

DSP

DSP (Digital Signal Processing) is a method of manipulating analog information into digital form.

Duplex

Duplex communication system is a system composed of two connected parties or devices which can communicate with one another in both directions. (The term duplex is not used when describing communication between more than two parties or devices.)

Duplex systems are employed in nearly all communications networks, either to allow for a communication two-way street between two connected parties or to provide a reverse path for the monitoring and remote adjustment of equipment in the field

E

E&M

E&M is a type of supervisory line that uses separate leads, called the *E* lead and *M* lead. Traditionally used in North American telecommunications industry.

EFJ

EFJ, or EF Johnson, is a two-way radio and communication systems manufacturer, is a subsidiary of EFJ Inc.

ESMR

ESMR (Enhanced Specialized Mobile Radio). A Motorola-developed mobile communications implementation that integrates radio services with TDM mobile telephony to provide digital mobile communications service using primarily the 800 MHz frequency band, facilitating applications such as paging, data transmission, dispatch, and inter-operability with the wire line PSTN (public switched telephone network).

Encode

In communications, a code is a rule for converting a piece of information (for example, a letter, word, or phrase) into another form or representation, not necessarily of the same type. In communications and information processing, **encoding** is the process by which information from a source is converted into symbols to be communicated.

F

FleetSync

FleetSync is a two-way digital messaging and signaling protocol used on devices manufactured by Kenwood.

Falcon Class

The **Falcon Class** is a series of Motorola iDEN handheld phones.

Full Duplex

Full Duplex communications in which reception and transmission take place at the same time. In radio it also means using two separate channels.

G

Guard-Function-Hold Tone

The Guard-Function-Hold Tone is a series of tones that occur when a PTT button is pressed: the guard tone is a 2175Hz, +10dBm burst, approximately 130ms long; followed by the selected function tone at 0dBm (equal to voice level) for 40ms; the hold tone is a 2175Hz at -20dBm that transmits continuously, while the PTT button is pressed, to keep the line open for voice transmission.

H

Hertz

Hertz is a measurement of frequency in cycles per second. One Hertz is one cycle per second.

Half Duplex

See "Channel" on page 7.

I

iDEN

iDEN (Integrated Digital Enhanced Network) is a mobile telecommunications technology, developed by Motorola, which provides its users the benefits of a trunked radio and a cellular telephone. iDEN places more users in a given spectral space, compared to analog cellular and two-way radio systems, by using speech compression and time division multiple access (TDMA).

iDEN is designed, and licensed, to operate on individual frequencies that may not be contiguous. iDEN operates on 25 kHz channels, but only occupies 20 kHz in order to provide interference protection via guard bands.

IGMP

IGMP (Internet Group Management Protocol) can be used to control where multicast is allowed to propagate. When a console on the subnet is expected to be continually operational, multicast must be active for that subnet at all times.

IMBE

IMBE (Improved Multi-Band Excitation) is a proprietary vocoder developed by Digital Voice Systems, Inc. (DVSI). It is the predecessor of their *Advanced Multi-Band Excitation (AMBE)*.

AMBE operates at very low bit rates of between 2000 and 9600 bit/s. The audio data is usually combined with up to 7.200 bps of forward error correction data. Lost frames can be masked by using the parameters of the previous frame to fill in the gap.

AMBE is based on codebooks and works at a sampling rate of 8 kHz in frames of 20 ms.

IP

The **IP** (Internet Protocol) is a data-oriented protocol used for communicating data across a packet-switched inter-network. As a lower layer protocol, IP provides the service of a communicable unique global addressing amongst computers and devices.

K

KEK

KEK (Key Encryption Key) is used to encrypt the encryption key. The KEK blocks unauthorized users from being able to retrieve an encryption key.

KMF

KMF (Key Management Facilities) is a mission critical enterprise solution used to organize the system with user groups, units and common key references enabling the console operator to distribute and change keys. KMF allows operators to inhibit and enable radios, log events, archive, and report. KMF is Project 25 compliant.

L

LAM

LAM (Line Activity Monitor) is a console indicator that shows receive audio is present, also used as squelch level value to activate the receive path.

LAN

A **LAN** (Local Area Network) is a computer network that connects a relatively small area (a single building or group of buildings). Most LANs connect workstations and computers to each other. Each computer (also known as a "node"), has its own processing unit and executes its own programs; however it can also access data and devices anywhere on the LAN. This means many users can access and share the same information and devices. A good example of a LAN device is a network printer. Most companies cannot afford the budgetary or hardware expense of providing printers for each of its users; therefore, one printer (or device) is placed on the LAN where every user can access the same printer.

The LAN uses IP Addresses to route data to different destinations on the network. An IP Address is a 32-bit numeric address consisting of four numbers separated by periods (for example, 10.2.210.14).

LMR

LMR (Land Mobile Radio) is a term that denotes a wireless communications system(s) intended for use by terrestrial users in vehicles (mobiles) or on foot (portables). Such systems are used by emergency first responder organizations, public works organizations, or companies with large vehicle fleets or numerous field staff. Such a system can be independent, but often can be connected to other fixed systems such as the public switched telephone network (PSTN) or cellular networks. Also called Public Land Mobile Radio or Private Land Mobile Radio.

LTR

LTR (Logic Trunked Radio), developed by E. F. Johnson Company, does not have a dedicated control channel. Each repeater has it own controller. The controllers are coordinated by assigned one control in the group to be a master with other controllers reporting to the master.

M

MDC-1200

An **MDC-1200** is a two-way radio with encoder/decoder capabilities, manufactured by Motorola.

MHz

MHz, or Megahertz, 1MHz equal to one million Hertz.

MPT-1327

MPRT-1327 in an open standard for trunked private land mobile radio systems. MPT1327 specifies analogue signaling for voice and data calls based on frequency division multiple access. MPT1327 uses a dedicated control channel for management, messaging and call setup.

Multicast

Multicast is the process by which one network host can send packets to an IP address and be heard by multiple listeners. The listeners choose which multicast addresses they wish to monitor and ignore the rest. The address range for multicast addresses include 224.0.0.1 to 255.255.255.255. Some addresses within this range are reserved for a few services such as Network Time Protocol (224.0.1.1), MS Windows Internal Name Service Locator (224.0.1.24), EGRIP Broadcast (224.0.0.5/6)

Multicast is the delivery of information to a group of destinations simultaneously using the most efficient strategy to deliver the messages over each link of the network only once, creating copies only when the links to the destinations split.

N

NID

A **NID** (Network ID) defines a network segment which allows a router to distinguish it from other networks.

P

P25

P25, or Project 25, refers to a suite of standards for digital radio communications for use by federal, state/province and local public safety agencies in North America to enable them to communicate with other agencies and mutual aid response teams in emergencies.

Passport

Passport is a proprietary format for Logical Trunked Radio (LTR). Like MPT 1327, Passport specifies analogue signaling for voice and data calls employing frequency division multiple access. However, LTR does not utilize a system-wide dedicated control channel.

POT

POT, or Potentiometer, is a three-terminal resistor with an adjustable center connection used to adjust voltages.

POTS

POTS (Plain Old Telephone Service) is a term which describes the voice-grade telephone service that remains the basic form of residential and small business service connection to the telephone network in most parts of the world. The name is a reflection of the telephone service still available after the advent of more advanced forms of telephony such as ISDN, mobile phones and VoIP. It has been available almost since the introduction of the public telephone system in the late 19th century, in a form mostly unchanged to the normal user despite the introduction of Touch-Tone dialing, electronic telephone exchanges and fiber-optic communication into the public switched telephone network (PSTN).

POTS services include:

- bi-directional, or full duplex, voice path with limited frequency range of 300 to 3400 Hz: in other words, a signal to carry the sound of the human voice both ways at once;
- call-progress tones, such as dial tone and ringing signal;
- subscriber dialing;
- operator services, such as directory assistance and long distance and conference calling assistance;
- a standards compliant analog telephone interface including BORSCHT functions

PTT

PTT (Push-to-Talk), also known as *Press-to-Transmit,* is a method of conversing on half-duplex communication lines, including two-way radio, using a momentary button to switch from voice reception mode to transmit mode.

R

RMS

RMS (Root Mean Square) is used as a measurement of AC signal power.

RoIP

RoIP (Radio over Internet Protocol), is similar to VoIP, but attempts to replace two-way radio communications rather than telephone calls. With RoIP, at least one end of a connection is a radio receiver or transceiver connected to a to a base station that uses IP to connect to a remote device. The other device can be another two-way radio or base station, but could also be a POTS telephone, computer, Skype phone[1], PDA, smart phone, or some other communications device accessible over IP. RoIP can be deployed over private networks of wireless base stations, as well as the public Internet.[2] It is useful in land mobile radio situations like public safety systems.

RS-232

In telecommunications, **RS-232** is a standard for serial binary data signals connecting between a DTE (Data terminal equipment) and a DCE (Data Circuit-terminating Equipment). It is commonly used in computer serial ports. The most common serial connectors used are DB-9 (page 8) and DB-25 (page 9).

RSI

RSI (Radio Set Identifier)

RX

In data communications and telegraphy **RX** is the abbreviation for r*eceive*.

S

SMR

SMR (Specialized Mobile Radio) is a conventional two-way-radio or trunked radio system operated by a service in the 800 or 900 MHz bands.

Simplex

See "Channel" on page 7.

T

T1

The **T1** carrier is the most commonly used digital transmission service in the United States, Canada, and Japan. In these countries, it consists of 24 separate channels using pules code modulation signals with time-division multiplexing at an overall rate of 1.544 (Mbps) million bits per second.

TCP

The **TCP** (Transmission Control Protocol) is one of the core protocols of the Internet protocol suite, often simply referred to as TCP/IP. Using TCP, applications on networked hosts can create connections to one another, over which they can exchange streams of data using Stream Sockets. The protocol guarantees reliable and in-order delivery of data from sender to receiver. TCP also distinguishes data for multiple connections by concurrent applications (e.g., Web server and e-mail server) running on the same host.

TETRA

TETRA (Terrestrial Trunked Radio) (formerly known as Trans European Trunked Radio) is an open standard for digital trunked radio, specified by the European Telecommunications Standards Institute (ETSI). TETRA supports voice and data calls based on time division multiple access.

TETRA is an ETSI standard, first version published 1995. TETRA is endorsed by the European Radio Communications Committee (ERC).

TTL

TTL (Time To Live) identifies the number of routers a multicast audio packet is allowed to go through before being stopped. For more information, see Multicast.

Tone Control

Remote **Tone Control** are used anytime a two-way radio or base station is located away from the desk or office where communication originates. For example, a dispatch center for taxicabs may have an office downtown but have a base station on a distant mountaintop. A tone remote, also known as an EIA Tone remote, is a signaling telecommunications system used to operate a two-way radio base station by remote control.

TOR

TOR (Tone Operated Relay): The transceiver notifies a user that is received the GID in Trunking system and the QT/DQT is matched in Conventional Group.

TX

In data communications **TX** is the abbreviation for *transmission* or *transmit*.

U

UDP

The **UDP** (User Datagram Protocol) is one of the core protocols of the Internet protocol suite. Using UDP, programs on networked computers can send short messages sometimes known as datagrams (using Datagram Sockets) to one another. UDP is sometimes called the Universal Datagram Protocol or Unreliable Datagram Protocol.

UDP does not provide the reliability and ordering that TCP does. Datagrams may arrive out of order, appear duplicated, or go missing without notice. Without the overhead of checking whether every packet actually arrived, UDP is faster and more efficient for many lightweight or time-sensitive purposes. Also, its stateless nature is useful for servers that answer small queries from huge numbers of clients. Compared to TCP, UDP is required for broadcast (send to all on local network) and multicast (send to all subscribers).

Common network applications that use UDP include the Domain Name System (DNS), streaming media applications such as IPTV, Voice over IP (VoIP), and Trivial File Transfer Protocol (TFTP).

UHF

UHF (Ultra high frequency) designates a range (band) of electromagnetic waves whose frequency is between 300 MHz and 3 GHz. Also known as the decimeter band or decimeter wave as the wavelengths range from ten to one decimeters. Radio waves whose frequency is above the UHF band fall into the SHF (Super high frequency) and EHF (Extremely high frequency) bands; all of which fall under the Microwave frequency range. Lower frequency signals fall into the VHF or lower bands. See electromagnetic spectrum for a full listing of frequency bands.

UI Button

The **UI** (User Interface) button is created by the C-Soft designer for the end-user to access various commands, menus and options with one button click.

Unicast

Unicast is the process of transmitting to a number of users via a separate (unicast) channel for each user.

V

.veg

A **.veg** file is the file in which the CSoft Design is saved. When CSoftRuntime is launched, a.veg file can be loaded with pre-designed, company specific console operation window.

VHF

VHF (Very High Frequency) is the radio frequency range from 30 MHz to 300 MHz. Also known as the meter band or meter wave as the wavelengths range from ten to one meters. Frequencies immediately below VHF is HF, and the next higher frequencies are known as Ultra high frequency (UHF).

Common uses for VHF are FM radio broadcast at 88–108 MHz and television broadcast (together with UHF). VHF is also commonly used for terrestrial navigation systems (VOR in particular), Marine Communication, and aircraft communications.

VOCODER

A **vocoder** (name derived from voice encoder) is a speech analyzer and synthesizer. It was originally developed as a speech coder for telecommunications applications in the 1930s, the idea being to code speech for transmission. Its primary use in this fashion is for secure radio communication, where voice has to be digitized, encrypted and then transmitted on a narrow, voice-bandwidth channel.

VoIP

VoIP (Voice over Internet Protocol) IP Telephony, Internet telephony, Broadband telephony, Broadband Phone and Voice over Broadband is the routing of voice conversations over the Internet or through any other IP-based network.

Companies providing VoIP service are commonly referred to as providers, and protocols which are used to carry voice signals over the IP network are commonly referred to as Voice over IP or VoIP protocols. They may be viewed as commercial realizations of the experimental Network Voice Protocol (1973) invented for the ARPANET providers. Some cost savings are due to utilizing a single network - see attached image - to carry voice and data, especially where users have existing under utilized network capacity that can carry VoIP at no additional cost. VoIP to VoIP phone calls are sometimes free, while VoIP to public switched telephone networks, PSTN, may have a cost that's borne by the VoIP user.

VOX

A VOX (Voice Operated eXchange) is a voice operated switch that activates when audio over a specified threshold is detected. When the detected audio is no longer present the swtich is deactivated.

VU

A **VU** (Volume Units) meter is often included in analog circuit sound equipment to display a signal level in volume units. It is intentionally a "slow" measurement, averaging out peaks and troughs of short duration to reflect the received loudness of the audio.

W

WAN

A WAN (Wide Area Network) connects two or more LANs and can span a relatively large geographical area (see "LAN" on page 14). For example, Telex Headquarters in Burnsville, MN is connected to several branch offices in Nebraska and Arkansas over a WAN. The largest WAN in existence is the Internet.

Z

Zone

Zone refers to a group on channels with a radio's programming.

Numbers

19200, N, 8, 1

19200, N, 8, 1 is a standard serial baud rate Telex Radio Dispatch products communicate to devices.

5-6 Tone

5/6 Tone is a sequential tone format used for paging, selective calling and ANI. Variations include from 3 to 8 tones in sequence, usually no longer than 100mS in duration, sometimes with a preamble tone.

2-Wire

2-wire is used in standard tone control, both TX and RX audio's are combined and controlled in a simplex fashion (only one direction can talk at a time).

4-Wire

4-wire is used in standard tone control, both TX and RX audio's are run on separate pairs and can be controlled in simplex or full-duplex fashion.

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Suggestions or comments:

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