Exhibit 9

NEWTON'S TELECOM DICTIONARY

The Official Dictionary of
Telecommunications & the Internet

16th Updated, Expanded and Much Improved Edition

NEWTON'S TELECOM DICTIONARY

Email: Harry Newton@TechnologyInvestor.com
Personal web site: www.HarryNewton.com

Published by Telecom Books
An imprint of CMP Media Inc.
12 West 21 Street
New York, NY 10010

ISBN # 1-57820-053-9

Sixteenth Edition, Expanded and Updated, February 2000

For individual orders, and for information on special discounts for quantity orders, please contact:

Telecom Books
6600 Silacci Way
Gilroy, CA 95020
Tel: 800-LIBRARY or 408-848-3854
FAX: 408-848-5784
Email: telecom@rushorder.com

Distributed to the book trade in the U.S. and Canada by
Publishers Group West
1700 Fourth St., Berkeley, CA 94710

Manufactured in the United States of America

Client Clients are devices and software that request information. Clients are objects that use the resources of another object. A client is a fancy name for a PC on a local area network. It used to be called a workstation. Now it is the "client" of the server. See also Client Server, Client Server Model, Fat Client, Mainframe Server, Media Server and Thin Client.

Client Access Protocol CAP. See iCalendar.

Client Application Any computer program making use of the processing resources of another program.

Client Operating System Operating System running on the client platform. See Client.

Client Pull See Meta Tag.

Client Server A computer on a local area network that you can request information or applications from. The idea is that you — the user — are the client and it — the slave — is the server. That was the original meaning of the term. Over time, client server began to refer to a computing system that splits the workload between desktop PCs (called "workstations") and one or more larger computers (called "servers") joined on a local area network (LAN). The splitting of tasks allows the use of desktop graphic user interfaces, like Microsoft's Windows or Apple Macintosh's operating system, which are easier to use (for most people) than the host/terminal world of mainframe computing, which placed a "dumb terminal" on a user's desk. That dumb terminal could only send and receive simple text-based material. And the less it sent, the faster it worked (lines were slow), so some of the "human interfaces" were very cryptic. You often were forced to spend weeks at school learning simple mainframe programs.

A good analogy of client-server computing, according to Peter Lewis of the New York Times is to think of client server as a restaurant where the waiter takes your order for a hamburger, goes to the kitchen and comes back with some raw meat and a bun. You get to cook the burger at your table and add your favorite condiments. In computerese, this is client/server, distributed computing, where some processing work is done by the customer at his or her table, instead of entirely in the kitchen (centralized computing in the old mainframe days). It sounds like more work, but it has many advantages. The service is faster. The food is cooked exactly to your liking, and the giant, expensive stove in the kitchen can be replaced by lots of cheap little grills. See Client Server Model, Downsizing, Reengineering and Server.

Client Server Computer Telephony Client server computer telephony delivers ten benefits:

1. Synchronized data screen and phone call pop. Your phone rings. The call comes with the calling number attached (via Caller ID or ANI). Your PBX or ACD passes that number (via Telephony Services) to your server, which does a quick database look up to see if it can find a name and database entry. Bingo, it finds an entry. It passes the call and the database entry simultaneously to whoever is going to answer the phone: The attendant. The boss. The sales agent. The customer service desk. The help desk. All this saves asking a lot of questions. Makes customers happier.

2. Integrated messaging. Also called Unified Messaging. Voice, fax, electronic mail, image and video. All on the one screen. Here's the scenario. You arrive in the morning. Turn on your PC. Your PC logs onto your LAN and its various servers. In seconds, it gives you a screen listing all your messages — voice mail, electronic mail, fax mail, reports, compound documents .... Anything and everything that came in for you. Each is one line. Each line tells you whom it's from. What it is. How big it is. How urgent. Skip down. Click. Your PC loads up the application. Your LAN hunts down the message. Bingo, it's on screen. If it contains voice — maybe it's a voice mail or compound document with voice in it — it rings your phone (or your headset) and plays the voice to you. Or, if you have a sound card in your PC, it can play the voice through your own PC. If it's an image, it will hunt down (also called launch) imaging software which can open the image you have received, letting you see it. Ditto, if it's a video message.
Messages are deluging us. To stop them is to stop progress. But to run your eye down the list, one line per entry. Pick the key ones. Junk the junk ones. Postpone the others. That's what integrated messaging is all about. Putting some order back into your life.

3. Database transactions. Customer look ups. There are bank account balances, ticket buys, airline reservations, catalog requests, movie times, etc. Doing business over the phone is exploding. Today, the caller inputs his request by touchtone or by recognized speech. The system responds with speech and/or fax. Today's systems are limited in size and flexibility. The voice processing application and the database typically share the same processor, often a PC. Split them. Spread the processing and database access burden. Join them on a LAN (for the data) and on new, broader voice processing "LANs," like SCSA or MVIP. You've suddenly got a computer telephony system that knows no growth constraints. You could also get the system to front-end an operator or an agent. Once the caller has punched in all his information, then the call and the screen can be simultaneously passed to the agent.

4. Telephony work groups. Sales groups. Collections groups. Help desks. R&D. We work in groups. But traditional telephony doesn't. Telephony today is BIG. Telephony today is one giant phone system for the building, for the campus. Everyone shares the same automated attendant, the same voice mail, the same ubiquitous, universal, generic telephone features. But they shouldn't. The sellers need phones that grab the caller's phone number, do a look-up on what the customer bought last and quickly route the call to the appropriate (or available) salesperson. The one who sold the customer last time. The company's help desk needs a front end voice response system that asks for the customer's serial number, some indication of the problem and tries to solve the problem by instantly sending a fax or encouraging the caller to punch his way to one of many canned solutions. "The 10 biggest problems our customers have." When all else fails, the caller can be transferred to a live human, expert at diagnosing and solving his pressing problem. A development group might need e-mails and faxes of meeting agendas sent, meeting reminder notices phoned and scheduled video conferences set up. All automatically. The accounts receivable department needs a predictive dialer to dial all our deadbeats. The telemarketing department also needs a predictive dialer, but different programming.

5. Desktop telephony. There are two important aspects. Call control and media processing services. Call control (also called call processing) is a fancy name for using your PC to get to all your phone system's features — especially those you have difficulty getting to with the forgettable commands phone makers foist on us. *39 to transfer? Or it is *79. With attractive PC screens, you point and click to easy conferencing, transferring, listening to voice mail messages, forwarding, etc. There are enormous personal productivity benefits to running your office phone from your PC: You can dial by name, not by a number you can't remember. You can set up conference calls by clicking on names and have your PC call

Parity is a method of checking for errors in transmitted data. You can set parity to odd or even, or not use parity at all. When the character length is set to 8, parity checking cannot be done because there are no "spare" bits in the byte. When the character length is 7, the eighth bit in each byte is set to 0 or 1 so that the sum of bits (Os and 1s) in the byte is odd or even (according to the parity setting). When each character is received, its parity is checked again. If it is incorrect (because a bit was changed during transmission), the communications software determines that a transmission error has occurred and can request that the data be retransmitted.
Stop bit is a special signal that indicates the end of that character. Today's modems are fast enough that the stop bit is always set to one Slower modems used to require two stop bits. XON/XOFF is one of many methods used to prevent the sending system from transmitting data faster than the receiving system can accept the information. See also EIA/TIA-232-E, RS-232-C and serial data transmission.

Serial Data Transmission Serial data transmission is the most common method of sending data from one DTE to another. Data is sent out in a stream, one bit at a time over one channel. When a computer is instructed to send data to another DTE, the data within the computer must pass through a serial interface to exit as serial data. Then it passes through ports, cables, and connectors that link the various devices. The boundaries (physical, functional, and electrical) shared by these devices are called interfaces. See serial communications.

Serial Digital Digital information that is transmitted in serial form. Often used informally to refer to serial digital television signals.

Serial Interface The "lowest common denominator" of data communications. A mechanism for changing the parallel arrangement of data within computers to the serial (one bit after the other) form used on data transmission lines and vice versa. At least one serial interface is usually provided on all computers for the connection of a terminal, a modem or a printer. Sometimes also called a serial port. See EIA/TIA-232-E, RS-232-C, Serial Interface Card and the Appendix.

Serial Interface Card A printed circuit card which drops into one of the expansion slots of your computer and changes the parallel internal communications of your computer into the one-bit-at-time serial transmission for sending information to your modem or to a serial printer.

Serial Memory Memory medium to which access is in a set sequence and not at random.

Serial Port An input/output port (plug) that transmits data out one bit at a time, as opposed to the parallel port which transmits data out eight bits, or one byte at a time. Most personal computers (PCs) have at least one serial and one parallel port. In a typical configuration, the serial port is used for a modem while the parallel port is used for a printer. For a diagram of a typical 25-pin RS-232-C serial port, see the Appendix at the back of this book.

Serial Processing Method of data processing in which only one bit is handled at a time.

Serial Transmission Sending pulses one after another rather than several at the same time (parallel). When transmitting data over a telephone line there is only one set of wires. Therefore, the only logical way to transmit it is to send the data in serial mode. It is possible to use eight different frequencies to transmit a character all at once (parallel), but these modems are ridiculously expensive. See Parallel, Parallel Port and Serial Port.

Serialize To change from parallel-by-byte to serial-by-bit.

Series A connection of electrical apparatus or circuits in which all of the current passes through each of the devices in succession or on after another. See also Parallel.

Series 11000 An AT&T private line long distance tariff created in the 1970s and designed expressly to reduce MCI's chances of selling any private lines and thus of surviving. It was thrown out by the FCC and the tariff figured in MCI's and the Federal Government's antitrust against AT&T.

Series Circuits In a series circuit, the electric current has only one path to follow. All of the electric current flows through all the components of the circuit. To calculate the resistance of a series circuit add up the resistance of each of the components in the circuit. In contrast, see parallel circuits.

Series Connection A connection of electrical apparatus or circuits in which all of the current passes through each of the devices in succession or on after another. See also Parallel.

Series RF Tap A bugging device. It is a radio transmitter which is installed in series with one wire of the telephone circuit. Normally a parasite (i.e. takes power from the phone line). Transmits both sides of the conversation. It transmits only when the phone is off-hook. See also Series.

Server 1. Hardware definition of server: A server is a shared computer on the local area network that can be as simple as a regular PC set aside to handle print requests to a single printer. Or, more usually, it is the fastest and brawniest PC around. It may be used as a repository and distributor of oodles of data. It may also be the gatekeeper controlling access to voice mail, electronic-mail, facsimile services. At one stage, a local area network had only one server. These days networks have multiple servers. Servers these days have multiple brains, large arrays of big disk drives (often in redundant arrays) and other powerful features. New powerful servers are called superservers. A $35,000 superserver today can match the performance of a $2 million mainframe of ten years ago. Then again, according to Peter Lewis of the New York Times, the lowliest client today has more computing power than was available to the entire Allied Army in World War II. See Downsizing for some of the benefits of running servers as against mainframes.
2. Software definition of server: A server is a program which provides some service to other (client) programs. The connection between a client program and the server program is traditionally by message passing, often over a local area or wide area network, and uses some protocol to encode the client's requests and the server's responses.

Server API A SCSA term. A communications protocol that allows a call processing application running on one computer to control SCSA hardware residing in another computer.

Server Application A Windows NT application that can create objects for linking or embedding into other documents.

Server Colocation An ISP/web hoster service in which a client places their server on the Internet at an ISP's office for a monthly fee. In return, the server is, theoretically, always connected via multiple redundant high speed connections to the Internet. See also Web Hosting.

Server Farm Imagine a room stuffed with PCs, ranged in racks along walls, ranged in racks in lines like a library's back room. The PCs are really servers — powerful PCs containing databases and other information they are dispensing to the thousands of PCs dialing into them from afar. A server farm may be owned by one company and used by one company, or it may be owned by one company and each of the machines leased to other companies. I first heard the term when MCI described a room it had in a place called Pentagon City. There it had hundreds of servers each of which it leased to other