

NEWTON'S TELECOM DICTIONARY

**23rd
Edition**

Harry Newton



New York

NEWTON'S TELECOM DICTIONARY

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I promise you I won't give your name to anybody. Nobody. Promise.

Harry Newton

nice reader who works at Verizon.

pool A collection of things available to all for the asking or the dialing. A modem pool is a collection of modems typically attached to a PBX. Dial a special extension and you can use the modem, which answers that extension (or one of the extensions in the hunt group) to make a data call. Pooling is sharing. The purpose of having a "pool" is to avoid buying everybody one of whatever it is you're pooling. Actually, "pooling" is a fancy word for something we've been doing in the telephone business for the past 100 years – sharing. We started sharing lines, then sharing switches, then sharing voice mail devices, now we're sharing equipment, like modems.

pooling point A physical place where local and long distance carriers join their networks in order to swap bandwidth. See Bandwidth Broker.

pooling point administrator See Bandwidth Broker.

poop fiction A literary genre that uses potty humor and off-color jokes to appeal to young children.

POP 1. Point Of Presence. The IXC equivalent of a local phone company's central office. The POP is a long distance carrier's office in your local community (defined as your LATA). A POP is the place your long distance carrier, called an InterExchange Carrier (IXC), terminates your long distance lines just before those lines are connected to your local phone company's lines or to your own direct hookup. Each IXC can have multiple POPs within one LATA. All long distance phone connections go through the POPs.

2. Point Of Presence at which ISPs (Internet Service Providers) exchange traffic and routes at Layer 2 (Link Layer) of the OSI model.

3. Short for "population." One "pop" equals one person. In the cellular industry, systems are valued financially based on the population of the market served.

4. Post Office Protocol. An e-mail server protocol used in the Internet. You use POP to get your mail and download it to your PC, using SMTP (Simple Mail Transfer Protocol). POP3 is the current version, as defined in RFC 1725. POP is increasingly being replaced by IMAP.

5. Principles of Operation is a manual for IBM Mainframe Systems such as S/360, S/370, S/390, etc. which describes how each of the assembler instructions operates. It is considered the Systems Programmer's "bible", commonly referred to as a "POP".

POP3 Post Office Protocol version 3 is pronounced "pop three." Think of POP3 as the place in the sky where your incoming email from all your friends is stored, waiting for you to come by and pick it up. All you have to do is to "knock" on your POP3 door, identify yourself and pick up your mail. Conceptually it's not much different from physically picking up mail at your local post office. POP3 is actually a protocol widely used on the Internet or other IP-based networks to retrieve electronic mail from a (typically distant) email server. You use POP3 to get your mail from the server it is sitting on and to download it to your PC. Most email software (sometimes called email clients) use the POP3 protocol. POP3 can be characterized as a store-and-forward mail protocol. It runs on a client/server basis, with your email client workstation (i.e. your PC) running against an email server, both of which include POP3 software. POP3 generally makes use of SMTP (Simple Mail Transport Protocol), which is an extension of TCP/IP intended specifically for email transfer. Unlike the earlier POP2 protocol, however, POP3 does not require SMTP and, therefore, is characterized as being independent of the transport layer. POP3 is run by most Internet service providers and ISPs (Internet Service Providers). When accessing a network-based email server, you generally will access a POP3 server to download email. When uploading email, you access an SMTP server, which merely forwards your mail through the Internet after translating the email addresses into IP addresses after consulting with a DNS (Domain Name Server) server. Actually, the two servers may well be in the form of one physical server, logically partitioned into two. So, when I access my main email account at www.TechnologyInvestor.com, using my main email address of Harry_Newton@TechnologyInvestor.com, I access a local Internet POP (Point Of Presence). I can use a dial up connection through a modem, or DSL (Digital Subscriber Line), or a cable modem network to access the Internet. Anyway is fine. In any event, I run my laptop running the TCP/IP protocol stack and POP3 software against a [technologyinvestor.com](http://www.technologyinvestor.com) server running the same software. Once I connect to my server, all of my email downloads immediately, whether I want all of it or not. This all or nothing approach is a major drawback of POP3. If I set up the POP3 options correctly on the client workstation, I can choose to leave a copy of the mail on the server. That way, I can check my email from a friend's or colleague's computer when I'm away from my office, and can still view the mail from my own computer when I get back. POP3 also helps solve the problem of accessing my email when I'm on the road, and outside the local calling areas of my ISP. Let's say I'm in Singapore and I want to check my email. I jump onto the Internet, using any local Internet Service Provider (ISP). I then instruct my email client (in my case, it's Microsoft Outlook.) to go find my technologyinvestor POP3 email server, the address of which happens to be email.technologyinvestor.com. It finds that server. The server asks me

to identify myself by user name and password. Then it starts sending me my email. POP3 is particularly useful because I can pick up my email from wherever I am in the world – just so long as I can get on the Internet in some way. IMAP (Internet Message Access Protocol) is an improvement on POP3, but is not widely implemented. When you are choosing an email provider, make sure that email provider places your email on a POP3 server and that you can retrieve your email from anywhere. Some companies claim to have "POP3" servers but, for some reason (technical, security or incompetence), they don't allow you grab your mail over the Internet and download it to your machine. Some email providers insist that you be on line to read and respond to your email. When I wrote an article on the subject of POP3 servers, many readers wrote me that there are "POP3" and "POP3" servers. Thus my warning to check. See also DNS, IMAP, IP, ISP, SMTP, and TCP/IP.

pop-under Also called pop-up advertisements. You go to a web site with your browser. You close your browser. Bingo, your taskbar shows your browser has visited another "site" and it's – surprise, surprise – an advertisement for a piece of hardware, a cheap airline trip, a lottery, a casino....usually something you don't want. It's called a pop-under because it pops under your browser. It's also very annoying. Companies pay for the privilege of buying these ads. A good piece of software which gets rid of Pop-Unders is called AdsGone and is available from www.AdsGone.com.

pop-up A call center term. A button that displays, on demand, several items from which you can choose (by clicking on it, for example). In effect, this is a list box that you don't see until you push button. Pop-ups always have double lines on their right and bottom sides.

pop-up ad A typically annoying Web-based advertising technique in which Javascript code creates a small Web browser window that suddenly 'pops up' in the foreground of the visual interface. Pop-ups can contain graphics, HTML, animation, or any combination of the three. Software to prevent pop-ups is available. Our favorite is AdsGone, available from www.AdsGone.com. See Inline ads.

pop-up electronic mail An electronic mail system that runs as a terminate-and-stay-resident program (typically within DOS) and can be popped up inside any application to send or read mail. Our office, we have a TSR electronic mail program that pops up. It is called Noteworks and we really love it.

pop-up program A memory-resident program that is loaded into memory but isn't visible until you press a certain key combination or until a certain event occurs, such as receiving a message. See also TSR.

POPS A cellular industry term for its customers or its potential customers. (It varies with usage.) POPS, short for "population" (well, sort of) refers to members of the population. According to Ron Schneiderman's book on Wireless, "if the coverage area of a cellular carrier include a popular base of one million people, it is said to have one million POPS. The financial community uses the number of potential users as measuring stick to value cellular carriers."

populate The classic definition of "to populate" is to furnish with inhabitants. To populate printed circuit board, you fill it with semiconductors, capacitors and other components. To populate fields in a form, you (or your computer) fill them in.

PORPX Federal Charge, local number port.

port 1. noun. The physical interface between a device and a circuit. The device may be a system (e.g., a mainframe, PC, or other host computer), a switch (e.g., PBX, Central Office, or ATM switch) or router, a hub or bridge, a buffer, a printer or other peripheral, or virtually any other type of device. The port and circuit may be either digital or analog, and either electrical (e.g., twisted pair or coaxial cable) or optical (e.g., optical fiber). The port and circuit connect through some sort of plug and socket arrangement. For example, your PC typically has one or more serial ports, a parallel port, a USB port and maybe a firewire port.

2. noun. The logical interface between a process or program and a communications or transmission facility. One or more logical ports (Lports) are associated with a single physical port. See also Logical Port

3. noun. A logical point of connection, most especially in the context of TCP (Transmission Control Protocol), which is part of the TCP/IP protocol suite developed for what we now know as the Internet. Port numbers are 16-bit values which range from 0 to 65,536. "Well-known ports" are numbered 0 to 1,023, and assigned by the IANA (Internet Assigned Numbers Authority) for the use of system (root) processes or by programs executed by "privileged users." Examples of well-known ports include 25 for SMTP (Simple Mail Transfer Protocol), 80 for HTTP (Hypertext Transport Protocol), and 107 for Remote Telnet Service). In the Internet TCP/IP-based client/server environment the ports are assigned by the server in consideration of the application-level protocol being exercised at the client level. In Internet terms, it is the identifier (16-bit unsigned integer) used by Internet transport protocols to distinguish among multiple simultaneous connections to a single destination host. "Ephemeral ports" are short-lived ports assigned randomly to the source port of the

port 25 blocking • portal site

sender, or client. Ephemeral port numbers usually have a value between 1,024 and 5,000. Their short life is due to the fact that the client normally stops using the randomly selected port number once the transaction or session is completed. See also HTTP, IANA, SMTP, TCP, TCP/IP, and Telnet.

4. verb. To move a process, program or subroutine from one processor, controller, or operating system to another. For example, a software developer might "port" an application software system from UNIX to Windows XP.

port 25 blocking ISP use "port 25 blocking" to prevent their subscribers accessing "foreign" SMTP servers, i.e. using other SMTP email servers to send out their mail. The reason? So ISPs can stop their customers spamming. The real reason? To reduce traffic on their network. See Port Services.

Port Address Translation PAT. A feature which lets you number a LAN (a local area network) with inside local addresses and filter them through one globally routable IP address. Here's an example of when you would use this. Let's say that you have subscribed at your home to a DSL line to the Internet from your local CLEC. For \$80 a month you get a line and one IP address. (To get more IP addresses would cost you more money.) You would like to attach several PCs to the line - your wife's PC, your son's PC, etc. You attach a router to your "digital modem" which your DSL line is terminated on. That router has PAT. It essentially assigns IP addresses behind the DSL. You assign these separate IP addresses to each of your PCs, install cheap Ethernet hubs to joint the PCs together in a LAN and bingo you have a bunch of PCs able to access the Internet. I have exactly this configuration at my home. The device which does the Port Address Translation is a Cisco 1605R router. Companies also use PAT to use one set of IP addresses for internal traffic and a second set of addresses for external traffic. This allows a company to shield internal PCs from the outside world. None of these machines can be reached from the Internet. They can only access the Internet, surf, send email, etc. Port Address Translation is sometimes called Network Address Translation (NAT).

Port Aggregation Group Protocol PaGP is a Cisco proprietary technology which conforms to the IEEE 802.3ad (Link Aggregation Control Protocol-LACP), which itself is a specification for bundling multiple Ethernet links into what appears to be one spanning tree protocol (STP) link. Before this specification was ratified, various vendors had their own proprietary mechanisms for providing this functionality, but it would not work in mixed vendor environments. The technology allows an uplink to have 8 Gbps aggregate uplink speed in the situation where 8 Gigabit Ethernet links are used between two switches. Without the technology, seven of the links would have gone into the STP blocking state because spanning-tree protocol detected a loop in the network.

port aliasing Imagine a switch on a local area network. It switches one port to another via a common backplane. We're having trouble and we're looking to do some diagnosis. So we grab all the information flowing through the switch and mirror it (i.e. forward it, but keep it going elsewhere in the switch) to a special port, which we can hook up equipment to and then monitor and check for problems in the resulting data flow - errors in packets, etc.

port connection The point of entry into a public frame relay network service.

port density The number of ports, physical or logical, per network device.

port group A collection of switch interfaces through which packets can be switched. Port groupings can be distinct for different types of destination addresses: multicast, broadcast, and unicast sprays.

port identifier The identifier assigned by a logical node to represent the point of attachment of a link to that node.

port knocking A new form of user authentication in which closed server ports are "knocked on" in a sequence known only to legitimate users. It eliminates the need for leaving ports open and vulnerable to attack.

Port Level VLAN VLAN based on source port ID. This is a multiple bridge configuration of a switch.

port multiplier A local area network interconnect, a concentrator providing connection to a network for multiple devices.

port per pillow A goal set by colleges seeking to install network connections in the bedrooms of every student on campus.

port replicators Low-cost docking station substitutes that provide one-step connection to multiple desktop devices.

port scanning Port scanning is the technique of attempting to find listening TCP or UDP ports on an IP device and abstracting from the listening ports as much information as possible about the device. Port scanning in and of itself is not usually harmful but it lets potential crackers fingerprint your systems, learn everything they can about your possible vulnerabilities and set themselves up for a later intrusion. For example, if a port scan shows

that the device is listening on port 23, the cracker knows that Telnet is likely enabled on the device and can attempt a brute force password guessing attack later.

port selector Another name for a dataPBX. Since the advent of LANs (local area networks) these devices have been getting a bad rap. Not fair. These gadgets are really great at transmitting and switching huge number of low-speed asynchronous lines. If you put this sort of traffic on a LAN, you could severely mess up its performance. Some port selectors have data throughput in excess of 20 million bits per second.

port services Servers attached to the Internet run software for various purposes - sending mail, receiving mail, publishing web pages, etc. In Internet-speak, these software programs are called "port services." RFC's (Request for Comments) define the nature of the service and standard TCP/UDP port assignments. For example SMTP (Simple Mail Transfer Protocol) is nominally run on port 25, and POP3 (Post Office Protocol version 3) is located on port 110. Typically, organizations run these services behind a firewall. A firewall is designed to keep unwanted intruders out. Because these servers are enticing targets for unethical hackers, these people often run software across the Internet designed to see if they can penetrate into these servers and cause damage, or find secrets (like email addresses, credit card numbers). These are called "intrusive scans." Most intrusions begin with a port scan, a sequential query of available ports and services on an exposed system. Most firewalls will keep track of these attempts by hackers and capture the IP address of the system doing the scanning. A network administrator can then use this information along with a network trace utility such as traceroute to identify the originating ISP. Once that is found, the network administrator and a representative of the source ISP can typically find the hacker and suggest to him/her that she lay off. Thank you to Matt Kalas of Telephone@Work for help on this definition.

port sharing 1. A system which connects multiple lines to a single port by means of a manual or automatic line selection method.

2. In frame relay, where multiple virtual connections share the same port connection.

port sharing device A system which connects multiple lines to a single port by means of a manual or automatic line selection method.

port switching According to 3Com, port switching is merely an electronic patch panel function, not the genuine switching capability that provides a performance boost. Port switching lets administrators configure their networks, allocating any port to any backplane on their hub. Unlike true switching, it doesn't increase the bandwidth available to the network manager.

portability 1. The ability of a customer to take his telephone number from place to place and, for 800 numbers, from one long-distance company to another.

2. The ability of software designed for one computer system to be used on other systems. Little software outside MS-DOS software for IBM and IBM clone computers is portable. UNIX software is portable to an extent.

portable A one-piece, self-contained cellular telephone - easily carried in a brief case or purse. Portables normally have a built-in antenna and rechargeable battery and operate with six-tenths of one watt (0.6 watt) of power. Car cellular phones operate with three watts.

Portable Application Description See PAD.

portable cellular phone Also known as a "hand-held phone". Refers to a lightweight, compact cellular handset that incorporates a battery power supply, and can be used without any peripheral power or antenna. See Portable.

portable document format See PDF.

Portable Teletransaction Computers PTC. These are typically handheld devices used for retail (inventory), healthcare (tracking supplies), mobile field repair (reporting fixes), insurance (visiting car wrecks and other disasters), etc. The devices typically have telecommunications capabilities, sometimes wireless, sometimes landlines. And they typically include microprocessors, memories, displays, keyboards, touchscreens, character recognition software, barcode readers, printers, modems and local and/or wide area data radios.

portable NXX A Verizon definition. An NXX from which at least one number has ported or there is a pending order to port a telephone number.

portal site The classic definition of a portal is a door, gate, or entrance, especially one of imposing appearance, as to a palace. In the Internet / World Wide Web, a portal is a site, which the owner positions (through marketing and heavy promotion) as an entrance to other sites on the Internet. The concept is that he convinces visitors to the Internet to visit his site first, and savor the advertising on his site (his major way of making money). A portal typically has, at minimum, search engines, free email, instant messaging and chat, personalized home pages and Web hosting. In the past, companies like America Online and CompuServe would have been called portals. Many browsers (e.g., Netscape Navigator and Internet Explorer) point you to a Web site - their own Web site, which they