

NEWTON's TELECOM DICTIONARY

27th Expanded and Updated Edition

Harry Newton

Steve Schoen, Contributing Editor

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SIEMENS et al. EXHIBIT 1022

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book site: www.NewtonsTelecomDictionary.com



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Published in the United States by Flatiron Publishing
50 Central Park West, Suite 5C
New York, NY 10023
www.FlatironBooks.com

Printed by United Book Press
1807 Whitehead Road
Baltimore, MD 212074104
800-726-0120 • 410-944-4044 • Cell phone 410-340-7878
Represented by Larry Davis

Distributed by
National Book Network (NBN)
4501 Forbes Boulevard, Suite 200
Lanham, MD 20706
Represented by Jeanne Kramer
Orders: Phone 1-800-462-6420 • Direct 1-717-794-3800 •
Fax 1-800-338-4550
custserv@nbnbooks.com

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ISBN 13 digit Number 978-0-9793873-6-4

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Service Providers (ISPs, for short). But they largely provided dial-up service. Then came broadband. Now an ISP that provides broadband access to the Internet is called a broadband service provider, or BSP. Such companies may provide service by cable modems over cable TV coaxial cable, DSL or ADSL, T-1 lines, wireless or satellite. Broadband service providers (BSPs) are also trying to generate both revenue and stickiness with broadband content.

Broadband Stimulus Program A catchall term for a set of programs funded by the American Reinvestment and Recovery Act (ARRA) of 2009 to expand broadband access and adoption in communities across the U.S., which in turn, the Federal government hoped, would increase jobs, stimulate private investment in technology and infrastructure, and provide many long-term social and economic benefits. Through the ARRA, the U.S. Congress appropriated \$7.2 billion in broadband stimulus funding, which was divided between the U.S. Department of Agriculture's Rural Utilities Service (RUS) and the U.S. Department of Commerce's National Telecommunications Information Administration (NTIA). RUS used the funds for loans and grants for broadband infrastructure projects in rural areas through its Broadband Initiatives Program (BIP). NTIA used its funds to provide grants for broadband infrastructure projects, public computer centers and sustainable broadband adoption projects through its Broadband Technology Opportunities Program (BTOP). The Broadband Stimulus Program had its critics, including incumbent broadband service providers such as telcos and cablecos who protested that the stimulus funding was going largely to competitors for "overbuild" projects in areas where broadband access already was available rather than to unserved areas where broadband access was needed. Another critic was the Inspector General of the U.S. Department of Commerce, which issued a report whose main finding was that the NTIA was inadequately prepared and funded to oversee and monitor the use of the \$4 billion in BTOP grant money that it awarded to over 200 broadband stimulus projects; the Inspector General's office was concerned that the NTIA was inadequately equipped to prevent waste, fraud and abuse in the use of the grant money. Surprise. Surprise.

broadband switching system See BSS.

Broadband Technology Opportunities Program BTOP, a program administered by the U.S. Department of Commerce's National Telecommunications and Information Administration (NTIA) to improve Internet connectivity for community anchor institutions and increase broadband Internet usage and adoption in communities where broadband technology has not been widely available or has been underutilized. BTOP was launched as a part of the American Recovery and Reinvestment Act (ARRA) of 2009. See Broadband Initiatives Program.

broadband wireless local loop B-WLL is also known as local multipoint distribution service, i.e. LMDS. B-WLL is a way of getting various multimedia services such as high-speed Internet, cable TV, and VOD (video-on-demand) to subscribers. The great advantage of B-WLL is that wireless technology can be used to connect the costly last mile of high data speed networks from an operator's backbone network to individual users. The technology uses millimeter wave signals in the 28 GHz spectrum to transmit voice, video, and data signals within a three-mile to 10-mile radius.

LMDS differs from an ordinary transport system in the way a train differs from a pipeline. Both are data transport systems, but a pipeline can transport only one product from one place to another. A train, on the other hand, can transport many different products over the same infrastructure. LMDS, implemented with multi-service protocol such as ATM, can transport, among others, voice, Internet, Ethernet, video, computer files, and transaction data. It is the multipoint radio technology, combined with the appropriate protocol and access method that gives LMDS its potential tremendous potential. LMDS/B-WLL infrastructure technology can be divided into two basic multiple access technologies: FDD and TDD. FDD equipment uses separate frequencies for the up-link and down-link channels, as opposed to TDD, which uses the same frequency channel for both up-link and down-link, separating the traffic by the use of time slots. FDD equipment differs among vendors in the type of backbone network technology incorporated into the system. The two primary divisions are cable modem-based versus telecom-network-based. With respect to the telecom-back-

bone-based solutions, there are two basic architectures being developed: time division multiplex (TDM) and packet-based (either ATM or IP). B-WLL has some advantages: (1) It can be engineered to provide 99.99% availability, rivaling that of the best fiber backbones. (2) It can be deployed quickly. Once a hub is installed (a matter of days), new customers can be added in a matter of hours. (3) It is estimated that deployment of a B-WLL system is about 60% cheaper than fiber-optic cable-based networks. Physical technologies such as copper or fiber require individual rights-of-way to each building, as well as the physical placement of the transport media. (4) Wireless equipment is less vulnerable to sabotage, theft, or damage resulting from exposure to the elements. There are negatives. (1) It requires line-of-sight. You typically can't shoot it through buildings or hills. (2) Bad weather can affect it.

broadcast 1. In simple terms: Sending network traffic from one network node to all other network nodes. To send information to two or more receiving devices simultaneously—over a data communications network, voice mail, electronic mail system, local TV/radio station or satellite system. Broadcast involves sending a transmission simultaneously to all members of a group. In the context of an intelligent communications network, such devices could be host computers, routers, workstations, voice mail systems, or just about anything else. In the less intelligent world of "broadcast media," a local TV or radio station might use a terrestrial antenna or a satellite system to transmit information from a single source to any TV set or radio capable of receiving the signal within the area of coverage. See also Narrowcasting and Pointcasting. Contrast with Unicast, Anycast and Multicast.

2. As the term applies to cable television, broadcasting is the process of transmitting a signal over a broadcast station pursuant to Parts 73 and 74 of the FCC rules. This definition is deliberately restrictive: it does not include satellite transmission, and it does not include point-to-multipoint transmission over a wired or fiber network. In spite of the fact that the broadcast industry and the cable television industry are forever bound together in a symbiotic relationship, they are frequently at odds over policy issues. See Broadcast Station. Compare with Cablecast.

broadcast channel BCCH. A wireless term for the logical channel used in certain cellular networks to broadcast signaling and control information to all cellular phones. BCCH is a logical channel of the FDDCH (Forward Digital Control Channel), defined by IS-136 for use in digital cellular networks employing TDMA (Time Division Multiple Access). The BCCH comprises the E-BCCH, F-BCCH and S-BCCH. The E-BCCH (Extended-BCCH) contains information which is not of high priority, such as the identification of neighboring cell sites. The F-BCCH (Fast-BCCH) contains critical information which must be transmitted immediately; examples include system information and registration parameters. S-BCCH (System message-BCCH), which has not yet been fully defined, will contain messages for system broadcast. See also IS-136 and TDMA.

broadcast circuit The main point about a broadcast circuit is that it is a unidirectional circuit. The sender of the broadcast can use the broadcast circuit to send a message out, but return traffic on the circuit is not possible. Here is a neat definition from a Tellabs user manual. "Broadcast circuits are unidirectional. The data is transferred from master to slave through a branchnode. A broadcast circuit consists of two or more subcircuits. One subcircuit is created between the master and branch node and the other subcircuits between the branch and slave nodes."

broadcast domain Set of all devices that receive broadcast frames originating from any device within the set. Broadcast domains typically are bounded by routers because routers do not forward broadcast frames.

broadcast list A list of two or more system users to whom messages are sent simultaneously. Master Broadcast Lists are shared by all system users and are set up by the System Administrator. Personal Lists are set up by individual subscribers.

broadcast message A message from one user sent to all users. Just like a TV station signal. On LANs, all workstations and devices receive the message. Broadcast messages are used for many reasons, including accounting, alerting, and distribution of information. In electronic mail systems, broadcast messages are important announcement messages from the