ABSTRACT
        As computers become an increasingly common appliance,
groups and individuals whose interests extend beyond computers have
found computer bulletin board systems (BBS) to be efficient
communication devices. A BBS is a modem-equipped computer that can
communicate with other modem-equipped computers over ordinary
telephone lines. A modem translates computer text and numeric data
into an audio signal that can be passed back and forth; the BBS
software tells the computer how to act as a host for other computers
that dial in. Use of the BBS varies extensively from "underground"
boards to businesses using them to communicate with employees, to
investment groups swapping ideas, to churches using them as outreach
tools, and to schools, which are especially interested in their use.
One example is the Brooklyn Math and Science Research Academy in New
York, where students use the BBS for math/science competitions,
trading tips on research projects, and finding a tutor from a
database of volunteers. Although time consuming, it is not difficult
to install a BBS. All that is needed is a computer, an auto-answer
modem, two disk drives or a hard disk for data storage, a phone line
dedicated solely to the BBS, and BBS software. Once the BBS is open,
a system operator should be alert for any special problems associated
with high-tech vandalism. (DJR)

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PLUGGING IN TO COMPUTER BULLETIN BOARDS

Computer bulletin boards get noticed when people get arrested.

Teenagers in New Jersey were accused of using a bulletin board system (BBS) to trade tips on breaking into government computers. A computer programmer in Virginia was charged with running a BBS devoted to child pornography. And kids in California allegedly used a bulletin board to swap illicit credit card numbers.

But while the underground boards get the headlines, thousands of other computer users are putting bulletin boards to use in honest and innocent ways. Businesses are using them to communicate with employees and customers. Computer clubs sponsor boards for their members. Churches and public-interest organizations use them to spread their gospel. And bulletin boards are springing up across the country in public libraries, schools, and colleges.

"The BBS movement is big time," says computer columnist John Dvorak. Estimates of the number of bulletin boards in operation run upwards of 4,000, but nobody knows for sure because turning a computer into a BBS is like plugging in a telephone answering machine—a simple matter of personal communication choice.

What is a bulletin board system?

Simply put, a BBS is a modem-equipped computer that can communicate with other modem-equipped computers over ordinary telephone lines. A modem translates computer text and numeric data into an audio signal that can be passed back and forth. The BBS software tells the computer how to act as a host for other computers that dial in.

When bulletin board systems first began to appear in the late 1970s, they were little more than electronic versions of the old fashioned push-pin type. Computer hobbyists in Chicago, who created the first BBS on a microcomputer, used the system to swap hardware and software, post club meeting times, and exchange technical tips.

Since then, BBS communication has outgrown the "techie" culture that spawned it. As computers become an increasingly common appliance, groups and individuals whose interests extend beyond computers have found bulletin boards to be efficient communication devices.

Who uses bulletin boards?

Here are some examples:

Investment groups such as The Association of Individual Investors in Chicago use bulletin boards for members to swap ideas. Clients of Max Ule & Co., a discount brokerage firm in New York, can call the Ule BBS to get quotes or place orders.

Churches in Maryland, Iowa, California, and Arkansas use bulletin boards as outreach tools. And special groups such as the Bai'hi faith have their own boards.

Doctors at a Cleveland hospital offer electronic house calls through a BBS they call "Doc In The Box." Health professionals in Minnesota, Texas, California, and Maryland use bulletin boards as information clearinghouses. A board in Washington, DC, posts news about AIDS research, and a California psychologist will conduct counseling sessions by modem.

Other professional groups including lawyers, social workers, broadcasters, architects, and corporate insurance managers have their own boards. Several systems put professional writers in touch with publishers and farmers can get crop and livestock advice from a BBS run by Purdue University.

There are political boards run by Nazis and leftist radicals, by people who want to ban the bomb and feed the world. A Connecticut board communicates with political campaign organizers from around the country, and a state senator in Michigan uses a BBS to communicate with his constituents.

Bulletin boards in schools

Schools have been especially interested in bulletin boards. In New York, the Brooklyn Math and Science Research Academy runs a BBS called Brainwave where students can trade tips on research projects, check deadlines for scholarship applications, and find a tutor from a database of volunteers.

"We also use it for math and science competitions," said Marc Licht, who started the BBS for the school. "In the morning, we'll put math or science questions on the board. Students at each school log in, get the questions, and try to answer them. Then the teachers file the scores and we'll post the winners on the BBS the next day."

High schools in Richmond, CA, Cheyenne, CO, and other cities have put bulletin boards online. So have colleges in San Diego and Northern Michigan, and education agencies such as the Far West Regional Educational Laboratory in San Francisco. The University of Arizona has an extensive BBS that posts alumni news, campus events, and corporate recruitment visits.

Setting up a bulletin board

Running a bulletin board can be time-consuming, but setting it up is often no more challenging than learning a new word processing program. Necessary tools include a computer, an auto-answer modem, plenty of data storage, a telephone line, and BBS software.

BBS packages are available for most popular computers, including the Apple II, IBM PC, Commodore 64, and even the new Amiga and Atari ST models. Two disk drives are a minimum requirement; a hard disk is the best option. And a phone line dedicated solely to the BBS will eliminate confusion.

There are more than 40 commercial BBS software packages on the market and a dozen or so others that are in the public domain. Fido BBS software for the IBM, for example, can be downloaded directly from many Fido boards.

Tips for system operators (sysops)

Once the BBS is open to the public, or even to a select group, the operator—a sysop in BBS jargon—should be alert for some special problems from high-tech vandals. A sysop in the Washington, DC, area recently got help from the phone company to track down a teenager who transferred material from his board and demanded a ransom to return it.

Sysops have also recently encountered destructive programs uploaded by unidentified callers. The programs masquerade as harmless utilities, but when booted, they can erase an entire hard disk. That s why it's best to closely examine any program that comes in through the BBS.

It also pays to read everything that's posted on the BBS. When phone company investigators found stolen access numbers posted on a board in California, they got the local police to arrest the sysop and confiscate his computer. The sysop argued that he didn't know about the postings and he eventually got his equipment back—but not without a lot of trouble and expense.

Some lawyers argue that bulletin boards are like public kiosks and that their operators shouldn't be held liable for all posted material. But there is yet to be a court ruling on that contention, so most sysops choose to play it safe.

References

The following references should be helpful for ayone interested in exploring or operating a computer bulletin board:

Books:
Bowen, Charles and Stewart Schneider (1985). *Smarter Telecommunications.* New York: Bantam Press.
Ferrarini, Elizabeth M. (1985). *Infomania—The Guide To Essential Electronic Services.* Boston: Houghton Mifflin Company.
Glossbrenner, Alfred (1985). *The Complete Handbook of Personal Computer Communications.* New York: St. Martin's Press.

Periodicals:
Bulletin Board Systems, Meckler Publishing Co., 11 Ferry Lane West, Westport, CT 06880. $26.50 for 8 issues per year.

Link-Up, Learned Information Inc., 143 Old Marlton Pike, Medford, NJ 08055. Monthly, $22 per year.
The New York Times Magazine. "Of Bytes and Bulletin Boards," by Martin Lasden. August 4, 1985, page 34.
Articles in *Info World, Family Computing, Popular Computing.*

BBS Software:
The *Bread Board System* (TBBS), $300, Ebert Personal Computers Inc., 4122 S. Parker Rd., Aurora, CO 80014. Packages for TRS-80, Kaypro IV/V, Epson QX-10 and IBM PC and compatibles.
Fido, free as a download from another Fido board or available with full documentation for $100 from Tom Jennings, 2269 Market Street #118, San Francisco, CA 94114. Packages for IBM PC and DEC Rainbow.
Let's Talk, $125, RUSS Systems, 320 Dufour, Santa Cruz, CA 95060. For the Apple II+, IIe and IIc.
Mouse Exchange, $40, Dreams of the Phoenix, Inc., Box 10273, Jacksonville, FL 32247. For the Macintosh.

Selected Bulletin Boards:
Most are open 24 hours, operate at 300 or 1200 baud, and use 8 bits and 1 stop bit for communications parameters.

Roland BBS, Long Beach, CA. Files pertaining to computer design and music. 213-438-6783.
Warlock's Castle, Collinsville, IL. Computer and general interest files. 618-345-6638.
FACTS, Purdue University, West Lafayette, IN. Agriculture news and reports. 317-494-6643.
Doc In The Box, Cleveland, OH. Medical help and advice. 216-368-3888.
Microcomputer Electronic Information Exchange, Maryland. Information on microcomputer usage in the federal government. 301-948-5718.
Health Education Electronic Forum, Ames, IA. Health education and disease prevention information. 515-233-5254.
North Pulaski BBS. Sponsored by a branch of the Chicago Public Library. 312-235-3200.
JOBBS. Postings from people seeking and offering jobs. 404-992-8937.
UA Today, Tucson, AZ. University of Arizona campus events. 602-621-5669.