

Article1-Birth of the Net

The Internet has had a relatively brief, but explosive history. It grew out of an experiment begun in the 1960s by the U.S. Department of Defense. The DoD wanted to create a computer network that would continue to function in the event of a disaster, such as a nuclear war. If part of the network was damaged or destroyed, the rest of the system still had to function. That network was called ARPANET (Advanced Research Projects Agency Network), which linked U.S. scientific and academic researchers, the forerunner of today's Internet.

NSFNET

In 1985, the National Science Foundation (NSF), an American research organization, developed NSFNET, a series of communication networks. Based on ARPANET protocols, NSFNET created a national backbone service, provided free to any American research and educational institution. At the same time, regional networks were created to link individual institutions with the national backbone service.

NSFNET grew rapidly as people discovered its potential and as new software applications made access easier. Corporations such as Sprint and AT&T began to build their own networks that were then linked to NSFNET. NSF withdrew from the backbone business when commercial firms and other regional network providers took over the operation of the major Internet arteries.

NSF also coordinated a service called InterNIC that registered all addresses on the Internet so that data could be routed to the right system. This service is now administered by Network Solutions, Inc. and other Internet registration services in cooperation with NSF.

For a look at the Internet's major milestones, see The Roads and Crossroads of Internet History. Visit the the Computer History Museum's online exhibit of Internet history from 1962 - 1992.

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Article 2-Future of the Net

When the World Wide Web began in 1990, few suspected how successful it would become. One estimate is that as of December, 2009, there were over a 234 million websites and billions of web pages. But as some people are well aware, the Web can be painfully slow for those who connect to the Internet using 56 Kbps modems over telephone lines. Because the data-carrying capacity of telephone lines, known as bandwidth, can be low, receiving large data files like video clips takes a long time. Fortunately new technology has addressed this problem.

Connecting to the Internet via DSL lines, cable, satellite and wireless networks increases bandwidth dramatically, making the Web much more useful. Increased speed has ignited an explosion of electronic commerce, video on demand, telecommuting, collaborative scientific projects, videoconferencing and virtual environments.

Internet2

The incubator for many of the emerging technologies shaping the future is known as Internet2. Formed in 1996 and administered by the University Corporation for Advanced Internet Development (UCAID), Internet2 is a partnership between universities, corporations and government agencies. It's a Petrie dish for networking experiments. The project's goals are to create new applications that can't run over the existing Internet and to develop the infrastructure that supports those applications.

Internet2 is not a single network, but a consortium of hundreds of high-speed networks linked by fiber optic backbones that span the United States and links to other countries. The network transmits data at speeds up to 2.4 gigabits per second--45,000 times faster than a 56 Kbps modem-- allowing scientists to test their laboratory discoveries in the real world.

The next-generation network went online in February, 1999, linking a number of universities around the world. It should be available for commercial use soon. Then get ready for 21st century services like interactive television, virtual 3-D videoconferencing, and much more.

Ms. Hall Note: Is this already happening? This article is 4 years old but see how technology has already advanced!

High-speed networks will make it possible for professionals to work in ways never before possible. For instance, scientists around the world can share specialized equipment like electron microscopes.

NASA has developed a Virtual Collaborative Clinic that connects medical facilities around the U.S., allowing doctors to manipulate high-resolution, 3-D images of MRI scans and other medical imaging. Not only can doctors consult and diagnose, but they can simulate surgery by using a "CyberScalpel." Virtual surgery gives surgeons an opportunity to practice before ever entering the operating room, reducing the time required for the actual procedure. Using this kind of virtual technology, local hospitals can access resources and skills only available at larger institutions. NASA plans to use the technology to provide remote health care to astronauts on extended space journeys.

A Webbed World

While PCs were once the primary means of accessing the Internet, we're now seeing Internet-enabled devices such as netbooks, tablets and smartphones that send and receive e-mail and access the Web. Soon, everything from your car to your refrigerator will be connected to the global network, communicating with each other wirelessly. Electrolux, best known for its vacuum cleaners, has developed the ScreenFridge, an Internet refrigerator that manages your pantry, among other things. It e-mails a shopping list to your local supermarket and coordinates a convenient delivery time with your schedule. Say hello to a brave, new world.

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