

☰☱☲☳☴☵☶☷ Topic Page: [Internet](#)

Definition: **Internet** from *Dictionary of Energy*

Communication. a publicly available worldwide system of interconnected computer networks that has revolutionized communications and methods of commerce throughout the world.



Image from: [In 1999 Professor Leonard Kleinrock poses with... in Encyclopedia of New Media: An Essential Reference Guide to Communication and Technology](#)

Summary Article: **Internet, the**
From *The Columbia Encyclopedia*

international computer network linking together thousands of individual networks at military and government agencies, educational institutions, nonprofit organizations, industrial and financial corporations of all sizes, and commercial enterprises (called gateways or service providers) that enable individuals to access the network. The most popular features of the Internet include electronic mail (e-mail), blogs (web logs or journals), discussion groups (such as newsgroups, bulletin boards, or forums where users can post messages and look for responses), on-line conversations (such as chats or instant messaging), wikis (websites that anyone on the Internet can edit), adventure and role-playing games, information retrieval, electronic commerce (e-commerce), Internet-based telephone service (voice over IP [VoIP]), and web mashups (in which third parties combine their web-based data and services with those of other companies).

The public information stored in the multitude of computer networks connected to the Internet forms a huge electronic library, but the enormous quantity of data and number of linked computer networks also make it difficult to find where the desired information resides and then to retrieve it. A number of progressively easier-to-use interfaces and tools have been developed to facilitate searching. Among these are search engines, such as Archie, Gopher, and WAIS (Wide Area Information Server), and a number of commercial, Web-based indexes, such as Google, Bing, and Yahoo, which are programs that use a proprietary algorithm or other means to search a large collection of documents for keywords and return a list of documents containing one or more of the keywords. Telnet is a program that allows users of one computer to connect with another, distant computer in a different network. The File Transfer Protocol (FTP) is used to transfer information between computers in different networks. The greatest impetus to the popularization of the Internet came with the introduction of the World Wide Web (WWW), a hypertext system that makes browsing the Internet both fast and intuitive. Most e-commerce occurs over the Web, and most of the information on the Internet now is formatted for the Web, which has led Web-based indexes to eclipse the other Internet-wide search engines.

Each computer that is directly connected to the Internet is uniquely identified by a binary number called its IP address. Most computers presently use an Internet Protocol version 4 (IPv4) address, which is 32 bits in size. This address is usually seen as a four-part decimal number, such as 4.33.222.111, with each part equating to 8 bits (1 byte) of the 32-bit address in the decimal range 0–255; the parts are separated by dots (periods). Although the number of addresses available under IPv4 is roughly 4.3 billion, the number of unassigned addresses will soon be depleted.

The Internet is transitioning to IP version 6 (IPv6) addressing, which uses 128 bits to represent an

address. An IPv6 address is usually represented as an eight-part hexadecimal number (see numeration); each part is equivalent to 16 bits (2 bytes) of the 128-bit address in the hexadecimal range 0000–ffff, and colons are used to separate the parts. An IPv6 address such as 1234:0000:0000:0000:1234:5678:9abc:deff may also be represent by a shorthand version, 1234::1234:5678:9abc:deff, which does not show bytes with a zero value. IPv6 allows for some 3.4×10^{38} addresses.

Because an address of the form 4.33.222.111 is usually difficult to remember, a system of Internet addresses, or domain names, was developed in the 1980s. An Internet address is translated into an IP address by a domain-name server, a program running on an Internet-connected computer. Reading from left to right, the parts of a domain name go from specific to general. For example, www.college.columbia.edu is a World Wide Web site for Columbia College, which is part of Columbia Univ., which is an educational institution. The rightmost part, or top-level domain (or suffix or zone), can be a two-letter abbreviation of the country in which the computer is in operation; more than 250 abbreviations, such as “ca” for Canada and “uk” for United Kingdom, have been assigned. Although such an abbreviation exists for the United States (us), it is more common for a site in the United States to use a generic top-level domain such as edu (educational institution), gov (government), or mil (military) or one of the four domains originally designated for open registration worldwide, com (commercial), int (international), net (network), or org (organization). In 2000 seven additional top-level domains (aero, biz, coop, info, museum, name, and pro) were approved for worldwide use, and other domains, including the regional domains asia and eu, have since been added. In 2008 new rules were adopted that would allow a top-level domain to be any group of letters, but the final approval for proceeding with the creation of such domain names (beginning in 2012) waited until 2011. In 2009 further rules changes permitted the use of other writing systems in addition to the Latin alphabet in domain names (beginning in 2010).

The Internet evolved from a secret feasibility study conceived by the U.S. Dept. of Defense in 1969 to test methods of enabling computer networks to survive military attacks, by means of the dynamic rerouting of messages. As the ARPAnet (Advanced Research Projects Agency network), it began by connecting three networks in California with one in Utah—these communicated with one another by a set of rules called the *Internet Protocol* (IP). By 1972, when the ARPAnet was revealed to the public, it had grown to include about 50 universities and research organizations with defense contracts, and a year later the first international connections were established with networks in England and Norway.

A decade later, the Internet Protocol was enhanced with a set of communication protocols, the Transmission Control Program/Internet Protocol (TCP/IP), that supported both local and wide-area networks. Shortly thereafter, the National Science Foundation (NSF) created the NSFnet to link five supercomputer centers, and this, coupled with TCP/IP, soon supplanted the ARPAnet as the backbone of the Internet. In 1995 the NSF decommissioned the NSFnet, and responsibility for the Internet was assumed by the private sector. Progress toward the privatization of the Internet continued when Internet Corporation for Assigned Names and Numbers (ICANN), a nonprofit U.S. corporation, assumed oversight responsibility for the domain name system in 1998 under an agreement with the U.S. Dept. of Commerce.

Fueled by the increasing popularity of personal computers, e-mail, and the World Wide Web (which was introduced in 1991 and saw explosive growth beginning in 1993), the Internet became a significant factor in the stock market and commerce during the second half of the decade. By 2000 it was estimated

that the number of adults using the Internet exceeded 100 million in the United States alone; in 2010 it was estimated that there were 2 billion Internet users worldwide. The increasing globalization of the Internet led a number of nations to call for oversight and governance of the Internet to pass from the U.S. government and ICANN to an international body, but a 2005 international technology summit agreed to preserve the status quo while establishing an international forum for the discussion of Internet policy issues. Revelations of U.S. Internet spying beginning in 2013 gave new impetus to end U.S. oversight of ICANN. In 2016 the U.S. Commerce Dept. handed over its largely perfunctory control of ICANN to stakeholder organizations and committees consisting of business, government, and other representatives. A number of nations have undertaken to limit their citizens' access to the Internet worldwide; China, whose so-called Great Firewall largely prevents Chinese users from accessing foreign sites, is probably the best known example.

See S. Coleman; J. G. Blumler, *The Internet and Democratic Citizenship* (2009);

Ryan, J. , *A History of the Internet and the Digital Future* (2010);

Brockman, J. , ed., *Is the Internet Changing the Way You Think?* (2011);

S. Levmore; M. C. Nussbaum, ed., *The Offensive Internet* (2011);

Pariser, E. , *The Filter Bubble: What the Internet Is Hiding from You* (2011);

Lanier, J. , *You Are Not a Gadget: A Manifesto* (2011).

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Internet, the. (2018). In P. Lagasse, & Columbia University, *The Columbia encyclopedia* (8th ed.). New York, NY: Columbia University Press. Retrieved from <https://search.credoreference.com/content/topic/internet>



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Internet, the. (2018). In P. Lagasse, & Columbia University, *The Columbia encyclopedia* (8th ed.). New York, NY: Columbia University Press. Retrieved from <https://search.credoreference.com/content/topic/internet>

Chicago

"Internet, the." In *The Columbia Encyclopedia*, by Paul Lagasse, and Columbia University. 8th ed. Columbia University Press, 2018. <https://search.credoreference.com/content/topic/internet>

Harvard

Internet, the. (2018). In P. Lagasse & Columbia University, *The Columbia encyclopedia*. (8th ed.). [Online]. New York: Columbia University Press. Available from: <https://search.credoreference.com/content/topic/internet> [Accessed 13 November 2019].

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"Internet, the." *The Columbia Encyclopedia*, Paul Lagasse, and Columbia University, Columbia University Press, 8th edition, 2018. *Credo Reference*, <https://search.credoreference.com/content/topic/internet>. Accessed 13 Nov. 2019.