

# The World Wide Web

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## WHAT'S COVERED

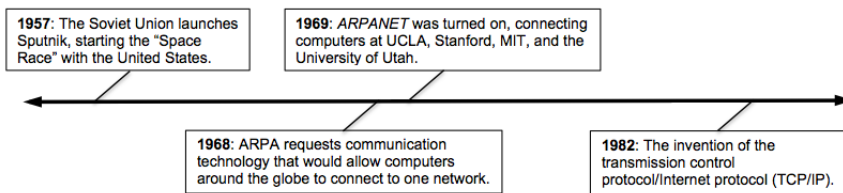
Computer networking really began in the 1960s with the birth of the Internet. However, in the 1990s, when the Internet came of age, Internet technologies began to pervade all areas of personal and organizational life. Now, with the Internet a global phenomenon, it would be unthinkable to have a computer that did not include the ability to access the Internet. In this tutorial, we will discuss the Internet, its history, and how the Internet differs from the World Wide Web.

Our discussion will break down as follows:

## 1. History of the Internet

The story of the Internet can be traced back to the late 1950s. The United States was in the depths of the Cold War with the former Soviet Union (USSR), and each nation closely watched the other to determine which one would gain a military or intelligence advantage. In 1957, the Soviets surprised the United States with the launch of Sputnik, propelling us into the space age. In response to Sputnik, the U.S. Government created the Advanced Research Projects Agency (ARPA), whose initial role was to ensure that the United States was not surprised again. The Internet sprang from the ARPA, now called DARPA (Defense Advanced Research Projects Agency).

ARPA was the center of computing research in the 1960s, but there was just one problem: many of the computers could not talk to each other. In 1968, ARPA sent out a request for proposals for a communication technology that would allow different computers located around the country to be integrated together into one network. Twelve companies responded to the request, and a company named Bolt, Beranek, and Newman (BBN) won the contract. They began work right away, and were able to complete the job just one year later. In September 1969, the ARPANET was turned on. The first four nodes were at UCLA, Stanford, MIT, and the University of Utah. Over the next decade, the ARPANET grew and gained popularity. During this time, other networks also came into existence. Different organizations were connected to different networks. This led to a problem: the networks couldn't talk to each other. Each network used its own proprietary language, or protocol, to send information back and forth. This problem was solved by the invention of Transmission Control Protocol/Internet Protocol (TCP/IP). TCP/IP was designed to allow networks running on different protocols to have an intermediary protocol that would allow them to communicate. So as long as your network supported TCP/IP, you could communicate with all of the other networks running TCP/IP. TCP/IP quickly became the standard protocol and allowed networks to communicate with each other. From this breakthrough came the term **Internet**, which simply means “an interconnected network of networks.”



A timeline of events that motivated the invention of the internet



#### TERM TO KNOW

##### Internet

Global network of smaller networks linking devices through TCP/IP.

## 2. The Internet

At its core, the Internet is a global wide area network (WAN) comprised of smaller networks owned by businesses, educational institutions, individuals, and governments all working together under a common protocol (TCP/IP). The Internet enables people to communicate and share information within the same home, business, and school, or across the globe.

The benefits of the Internet are tremendous for businesses, governments, and individuals. For example, students can use the Internet to take courses online, communicate with instructors, or research topics for reports. Employees and businesses can use the Internet to advertise products and services for sale, provide benefits information to employees, or to educate potential buyers. Government institutions can use the Internet to collect taxes, provide forms and manuals, and inform the public about new laws.

The Internet's primary protocol is TCP/IP. Under TCP/IP, each computer is identified by an **Internet Protocol (IP) address**, which is a numeric address that provides an ID for a computer on a network. A domain name is a string of text that uniquely identifies a company or server on the Internet. For example, if you want to visit Apple's website, instead of typing the IP address for it into your web browser, you would type `www.apple.com`. **Domain Name Service (DNS)** servers convert the request between IP addresses and domain names. This process is called **resolving** an IP address and happens almost instantaneously.



#### TERMS TO KNOW

##### IP Address

Short for Internet Protocol address; numeric address that provides an ID number for a computer on a network.

##### Domain Name Service (DNS)

Converts the request between IP addresses and domain names.

##### Resolve

The process of converting a domain name to an IP address.

## 3. The World Wide Web

On a fairly regular basis, people use the term **“World Wide Web”** to describe the Internet. However, the World Wide Web is only a part of the Internet. In essence, the World Wide Web is an interconnected network of documents written in Hypertext Markup Language (HTML) that can be accessed through the Hypertext Transfer Protocol (HTTP). Information on the World Wide Web is contained in web pages. A **web page** is a document written in HTML format that contains content prepared for the web. A **website** is a group of interconnected webpages with a system for navigation through all of the pages. The navigation scheme uses **hyperlinks** to connect to other pages within the site. A hyperlink is a link to a web page or other type of content.



#### TERMS TO KNOW

##### **World Wide Web**

An interconnected network of documents written in Hypertext Markup Language (HTML) that can be accessed through the Hypertext Transfer Protocol (HTTP).

##### **Web Page**

Document written in HTML format that contains content prepared for the web.

##### **Website**

A group of interconnected web pages with a system for navigation through all of the pages.

##### **Hyperlinks**

Link to a web page or other type of content.

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## 4. Web 2.0

In the first few years of the World Wide Web, creating and putting up a website required a specific set of knowledge: you had to know how to set up a server on the World Wide Web, how to get a domain name, how to write web pages in HTML, and how to troubleshoot various technical issues as they came up. Someone who did these jobs for a website became known as a webmaster. As the web gained in popularity, it became more and more apparent that those who did not have the skills to be a webmaster still wanted to create online content and have their own piece of the web. This need was met with new technologies that provided a website framework for those who wanted to put content online.

➞ **EXAMPLE** Blogger and Wikipedia are examples of these early Web 2.0 applications. They provided anyone who had something to say a place to say it, without the need for understanding HTML or web-server technology.



#### DID YOU KNOW

Starting in the early 2000s, Web 2.0 applications began a second bubble of optimism and investment. It seemed that everyone wanted his or her own blog or photo-sharing site. Here are some of the companies that came of age during this time: MySpace (2003), Photobucket (2003), Flickr (2004), Facebook (2004), WordPress (2005), Tumblr (2006), and Twitter (2006). The ultimate indication that Web 2.0 had taken hold was when Time magazine named “You” its “Person of the Year” in 2006.



#### WATCH

This video introduces a digital platform that connects women who are returning to the workforce with employers.



## SUMMARY

In this tutorial, we took a deeper look at what the Internet is and how the **World Wide Web** fits into the overall scope of the Internet. The **development of the Internet** and World Wide Web, combined with wireless access, has made information available at our fingertips. The **Web 2.0** revolution has made us all authors of web content. As networking technology has matured, the use of Internet technologies has become a standard for every type of organization. The use of intranets and extranets has allowed organizations to deploy functionality to employees and business partners alike, increasing efficiencies and improving communications.

Source: Derived from Chapter 5 of “Information Systems for Business and Beyond” by David T. Bourgeois. Some sections removed for brevity.

<https://www.saylor.org/site/textbooks/Information%20Systems%20for%20Business%20and%20Beyond/Textbook.html>



## TERMS TO KNOW

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Converts the request between IP addresses and domain names.

### Hyperlinks

Link to a webpage or other type of content.

### IP Address

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### Internet

Global network of smaller networks linking devices through TCP/IP.

### Resolve

The process of converting a domain name to an IP address.

### Web Page

Document written in HTML format that contains content prepared for the web.

### Website

A group of interconnected webpages with a system for navigation through all of the pages.

### World Wide Web

An interconnected network of documents written in Hypertext Markup Language (HTML) that can be accessed through the Hypertext Transfer Protocol (HTTP).