

# Introduction to Internet and Web

## What is the Internet?

- *It is the largest network in the world that connects hundreds of thousands of individual networks all over the world.*
- *The popular term for the Internet is the “information highway”.*
- *Rather than moving through geographical space, it moves your ideas and information through cyberspace — the space of electronic movement of ideas and information.*
- *The Internet is an inherently participative medium. Anybody can publish information or create new services*

The Internet is a global network of billions of computers and other electronic devices. With the Internet, it's possible to access almost any information, communicate with anyone else in the world, and do much more.

You can do all of this by connecting a computer to the Internet, which is also called going online. When someone says a computer is online, it's just another way of saying it's connected to the Internet.

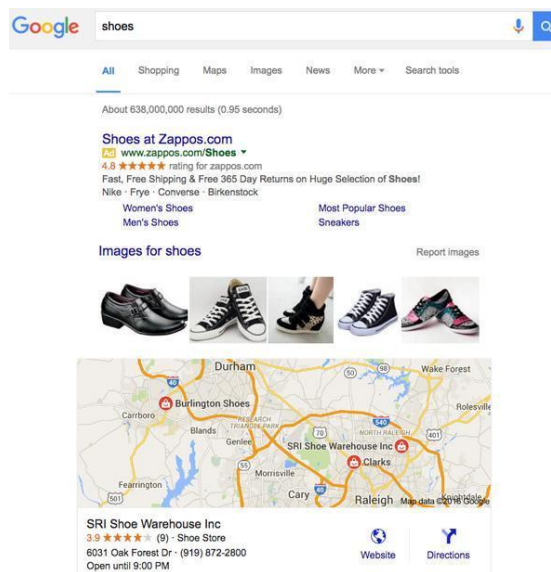
Other facts about the internet:

- *No one owns it*
- *It has no formal management organization.*
- *As it was originally developed by the Department of defense, this lack of centralization made it less vulnerable to wartime or terrorist attacks.*
- *To access the Internet, an existing network need to pay a small registration fee and agree to certain standards based on the TCP/IP (Transmission Control Protocol/Internet Protocol).*

## Uses of the Internet:

- *Finding information* – With billions of websites online today, there is a lot of information on the Internet. Search engines make this information easier to find. Basically, **search engine** is a program that searches for and identifies items in a database that correspond to keywords or characters specified by the user, used especially for finding particular sites on the World Wide Web. All you have to do is type one or more keywords, and the search engine will look for relevant websites.

For example, let's say you're looking for a new pair of shoes. You could use a search engine to learn about different types of shoes, get directions to a nearby shoe store, or even find out where to buy them online!



**Figure 1. Google's Search Engine**

(source: <https://edu.gcfglobal.org/en/internetbasics/what-can-you-do-online/1/>)

- *Sending e-mail messages* – Short for electronic mail, **email** is a way to send and receive messages across the Internet. Almost everyone who uses the Internet has their own email account, usually called an email address. This is because you'll need an

email address to do just about anything online, from online banking to creating a Facebook account.

- *Social Networking* – Social networking websites are another way to connect and share with your family and friends online. Rather than sharing with just a few people over email, social networks make it easier to connect and share with many people at the same time. Facebook is the world's largest social networking site, with more than 1 billion users worldwide.
- *Chat and instant messaging* – Chat and instant messaging (IM) are short messages sent and read in real time, allowing you to converse more quickly and easily than email. These are generally used when both (or all) people are online, so your message can be read immediately. By comparison, emails won't be seen until recipients check their inboxes.
- *Send (upload) or receive (download) files between computers.*
- *Participate in discussion groups, such as mailing lists and newsgroups.*
- *Online Media* – There are many sites that allow you to watch videos and listen to music. For example, you can watch millions of videos on YouTube or listen to Internet radio on Pandora. Other services, like Netflix and Hulu, allow you to watch movies and TV shows. And if have a set-top streaming box, you can even watch them directly on your television instead of a computer screen.

## What is Web?

- The **Web (World Wide Web)** consists of information organized into Web pages containing text and graphic images.

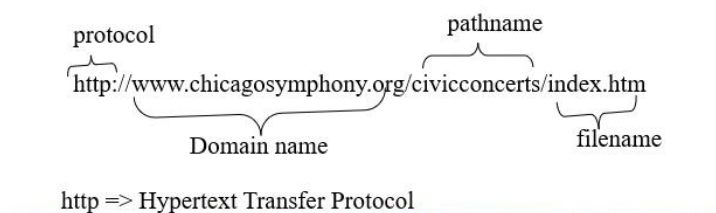
- *It contains hypertext links, or highlighted keywords and images that lead to related information.*
- *The Web was invented in 1991 by Tim Berners-Lee, while consulting at CERN ([European Organization for Nuclear Research](#)) in Switzerland.*
- *A collection of linked Web pages that has a common theme or focus is called a **Website**. It can resemble other forms of media—like newspaper articles or television programs—or they can be interactive in a way that's unique to computers.*
- *The main page that all of the pages on a particular Web site are organized around and link back to is called the site's **home page**.*
- *Once you are connected to the Internet, you can access and view websites using a type of application called a web browser. Just keep in mind that the web browser itself is not the Internet; it only displays websites that are stored on the Internet.*
- *Web pages are stored in computers called **web servers**. When you use your Internet connection to become part of the Web, your computer becomes a **web client** in a worldwide client/server network.*
- *A database for the scanned websites is called **search index**.*
- *A special program in the search engine that reads and scans websites in advance is called **spider**.*
- *Ranking algorithm for prioritizing what to display during search is called **page rank**.*
- *To identify a Web pages exact location, Web browsers rely on **Uniform Resource Locator (URL)**.*

*URL is a four-part addressing scheme that tells the Web browser:*

- *What transfer protocol to use for transporting the file*

- *The domain name of the computer on which the file resides*
  - *The pathname of the folder or directory on the computer on which the file resides*
  - *The name of the file*
- A **domain name** is a unique name associated with a specific IP address by a program that runs on an Internet host computer.
- The host computer that runs this software is called a **domain name server** (DNS).
- Each computer on the internet does have a unique identification number, called **an IP (Internet Protocol) address**.

## Structure of a Uniform Resource Locators



- ***HTTP or HyperText Transfer Protocol*** – is the foundation of the World Wide Web, and is used to load web pages using hypertext links. HTTP is an application layer protocol designed to transfer information between networked devices and runs on top of other layers of the network protocol stack. Two other protocols that you can use on the Internet are the *File Transfer Protocol (FTP)* and the *Telnet Protocol*
  - o *File Transfer Protocol* – FTP is the language that computers on a TCP/IP network (such as the internet) use to transfer files to and from each other.

- *Telnet Protocol* – Telnet, developed in 1969, is a protocol that provides a command line interface for communication with a remote device or server, sometimes employed for remote management but also for initial device setup like network hardware.

## ❖ How to Access the Internet?

- Many schools and businesses have direct access to the Internet using special high-speed communication lines and equipment.
- Students and employees can access through the organization's local area networks (LAN) or through their own personal computers.
- Another way to access the Internet is through Internet Service Provider (ISP).
- To access the Internet, an existing network need to pay a small registration fee and agree to certain standards based on the TCP/IP (Transmission Control Protocol/Internet Protocol) reference model.
- Each organization pays for its own networks and its own telephone bills, but those costs usually exist independent of the internet.
- The regional Internet companies route and forward all traffic, and the cost is still only that of a local telephone call.

## ❖ Types of Internet Service

The type of Internet service you choose will largely depend on which **Internet service providers** (ISPs) serve your area, along with the types of service they offer. Here are some common types of Internet service.

- **Dial-up:** This is generally the slowest type of Internet connection, and you should probably avoid it unless it is the only service available in your area. Dial-up Internet uses your phone line, so unless you have multiple phone lines you will not be able to use your landline and the Internet at the same time.
- **DSL:** DSL service uses a broadband connection, which makes it much faster than dial-up. DSL connects to the Internet via a phone line but does not require you to have a landline at home. And unlike dial-up, you'll be able to use the Internet and your phone line at the same time.
- **Cable:** Cable service connects to the Internet via cable TV, although you do not necessarily need to have cable TV in order to get it. It uses a broadband connection and can be faster than both dial-up and DSL service; however, it is only available where cable TV is available.
- **Satellite:** A satellite connection uses broadband but does not require cable or phone lines; it connects to the Internet through satellites orbiting the Earth. As a result, it can be used almost anywhere in the world, but the connection may be affected by weather patterns. Satellite connections are also usually slower than DSL or cable.

**3G and 4G:** 3G and 4G service is most commonly used with mobile phones, and it connects wirelessly through your ISP's network. However, these types of connections aren't always as fast as DSL or cable. They will also limit the amount of data you can use each month, which isn't the case with most broadband plans.