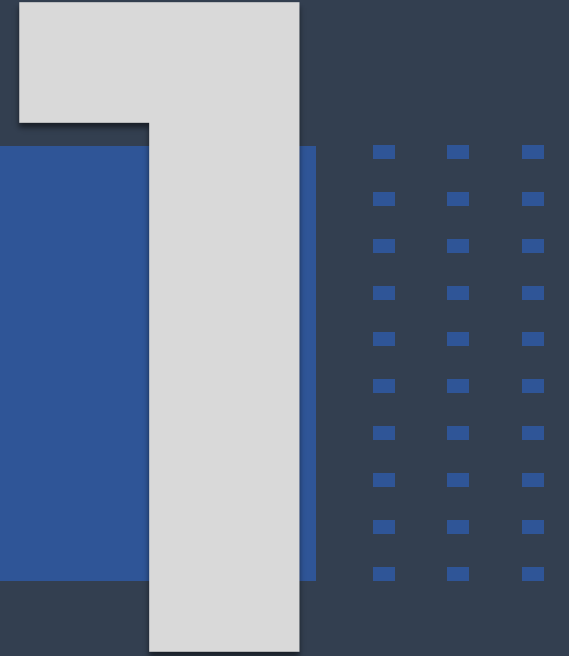


Introduction to Internet & World Wide Web



Web Technology

Asst. Prof. Manop Phankokkruad, Ph.D.

Faculty of Information Technology

King Mongkut's Institute of Technology Ladkrabang



Outline

1. History of Internet
2. The World Wide Web
3. Introduction to Web Technology
4. Web Development Technologies



What is the Internet ?

- ❑ **The Internet** is a worldwide system of interconnected networks and computers.
- ❑ **The Internet** is a network of networks that connects users in every country in the world. There are currently over one billion Internet users worldwide. 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”.

History of Internet

What is the Internet ?

- The Internet is a global network of computers that works much like the postal system, only at sub-second speeds. Just as the postal service enables people to send one another envelopes containing messages, the internet enables computers to send one another small packets of digital data. – *BBC WebWise*

History of the Internet (cont.)

Use of internet

- ☐ Email
- ☐ Social Networking, Chat
- ☐ Information sharing
- ☐ Getting updates – News around the world
- ☐ Entertainment – Games, Videos and Music
- ☐ Virtual classrooms
- ☐ Remote Access
- ☐ Online Jobs
- ☐ Online Meetings

History of the Internet (cont.)

Online Application

- ☐ No need to install
- ☐ Just login and use
- ☐ Available from anywhere where Internet connection is available
- ☐ Operating system independent
- ☐ No piracy issues

History of the Internet (cont.)

How big is the Internet ?

WORLD INTERNET USAGE AND POPULATION STATISTICS 2020 Year-Q2 Estimates						
World Regions	Population (2020 Est.)	Population % of World	Internet Users 30 June 2020	Penetration Rate (% Pop.)	Growth 2000-2020	Internet World %
Africa	1,340,598,447	17.2 %	566,138,772	42.2 %	12,441 %	11.7 %
Asia	4,294,516,659	55.1 %	2,525,033,874	58.8 %	2,109 %	52.2 %
Europe	834,995,197	10.7 %	727,848,547	87.2 %	592 %	15.1 %
Latin America / Caribbean	654,287,232	8.4 %	467,817,332	71.5 %	2,489 %	9.7 %
Middle East	260,991,690	3.3 %	184,856,813	70.8 %	5,527 %	3.8 %
North America	368,869,647	4.7 %	332,908,868	90.3 %	208 %	6.9 %
Oceania / Australia	42,690,838	0.5 %	28,917,600	67.7 %	279 %	0.6 %
WORLD TOTAL	7,796,949,710	100.0 %	4,833,521,806	62.0 %	1,239 %	100.0 %

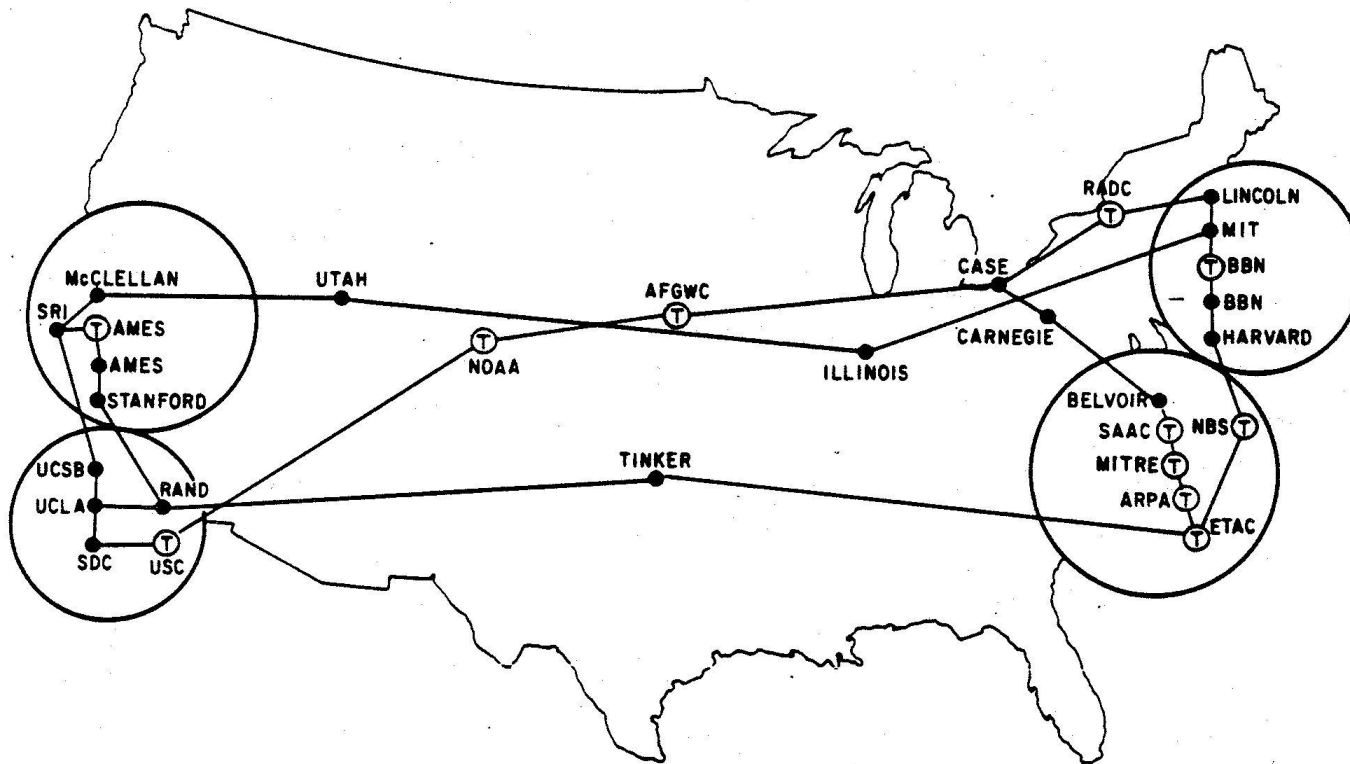
source : <https://www.internetworldstats.com/stats.htm>

Who owns the Internet?

- ☐ No person or organization owns the entire Internet
- ☐ As the Internet is a network of networks, each network is owned by a company
- ☐ This is similar to the motor-way and road system. Each town or state owns and maintains roads in its jurisdiction.

History of the Internet (cont.)

- **1969** ARPANET was the world's first operational network, and the predecessor of the global Internet



History of the Internet (cont.)

□ **1973** Transmission Control Protocol/Internet Protocol (**TCP/IP**) is designed and in 1983 it becomes the standard for communicating between computers over the Internet.



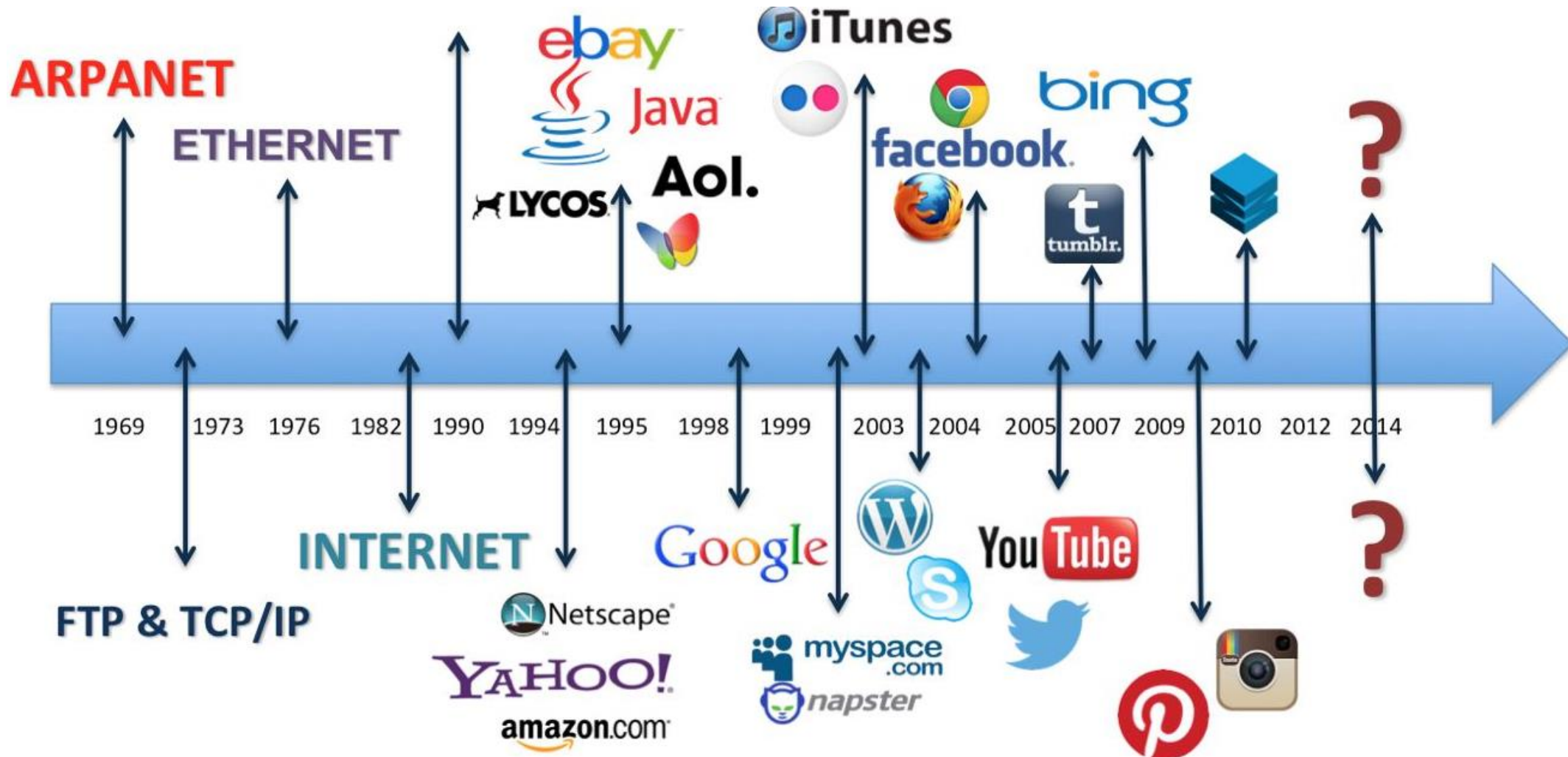
TCP/IP, or the Transmission Control Protocol/Internet Protocol, is a suite of communication protocols used to interconnect network devices on the internet. TCP/IP can also be used as a communications protocol in a private network (an intranet or an extranet).

History of the Internet (cont.)

□ **1974** The first appearance of the term **“Internet”** as an abbreviation for **“*Internetworking*”**, and things developed from there, with electronic mail soon becoming an important form of communication within the research community that used this technology.

History of the Internet (cont.)

Evolution of Internet



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.
- ❑ A collection of linked Web pages that has a common theme or focus is called a Web site.
- ❑ 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.

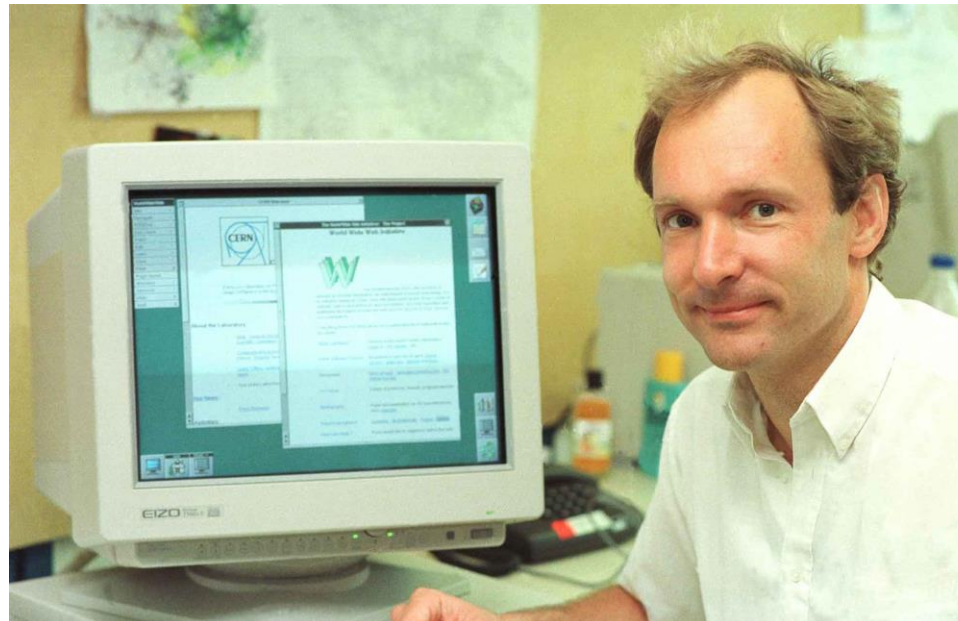
The World Wide Web (cont.)

- ❑ The World Wide Web (**WWW**, or simply **Web**) is an information space in which the items of interest, referred to as resources, are identified by global identifiers called Uniform Resource Identifiers (URI).
- ❑ The Web presents information through multimedia formats: graphics, sound, animation, and video.

The World Wide Web (cont.)

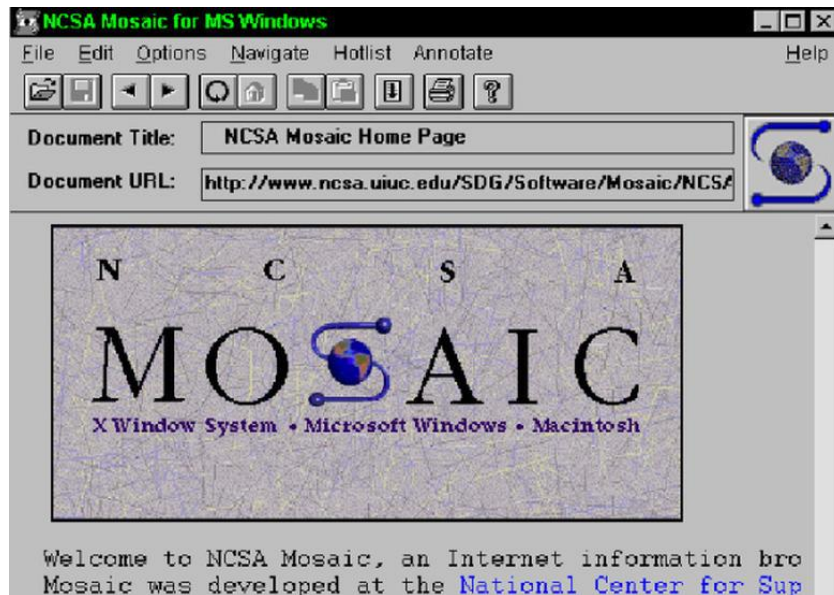
□ **1990** Tim Berners Lee brought all of this together to form the **World Wide Web**. HTML documents transmitted over the Internet by a web server to web browsers using URIs and HTTP. The first web page online on Aug 6, 1991.

Sir Tim Berners-Lee
invented the World
Wide Web.



The World Wide Web (cont.)

- ❑ **Mosaic** is the first Web Browser.
- ❑ Very slow
- ❑ Did not handle loading pictures very well
- ❑ Modems were very slow



The World Wide Web (cont.)

- ❑ The Web uses several tools to provide a visual layout: Hypertext links, Browser, Code structure
- ❑ The Web resembles an electronic library – each location or site is like a book. These books are created using Hypertext Markup Language (HTML).
- ❑ These materials, along with interactive objects such as JavaScript, and VBScript adds functionality to web pages.

The World Wide Web (cont.)

Web Browsers

- ❑ An application that provides a way to look at and interact with the information on the WWW.
- ❑ It retrieves, presents, and traverses information resources.
- ❑ These include web pages, images, video, and other multimedia content

Figure: Usage share of desktop browsers

Browser ↕	StatCounter ^[19] June 2020 ↕	NetMarketShare ^[20] June 2020 ↕	W3Counter ^[21] November 2019 ↕	Wikimedia ^[22] November 2019 ↕
Chrome	69.42%	70.19%	59.3%	49.4%
Firefox	8.48%	7.58%	6.1%	12.0%
Safari	8.74%	3.56%	14.6%	6.7%
Edge	5.82%	8.07%	4.2%	4.5%
IE	2.88%	4.53%	5.3%	9.2%
Opera	2.39%	1.06%	3.5%	2.0%
Others	2.27%	5.01%	7.0%	16.2%

- ❑ **Web technology** is the methods by which computers communicate with each other through the use of *markup languages* and *multimedia packages*.
- ❑ Web Technologies are playing the leading role in the World Wide Web includes many latest evolutions in it like Web Services, HTML, CSS, XML, JSON, FTP, etc.
- ❑ Web technology aims to enhance creativity, secure information sharing, collaboration and functionality of the web.

Introduction to Web Technology

Web Technology application include:

- ☐ Ecommerce
- ☐ Content management
- ☐ Customer relationship management systems
- ☐ Mobile web technologies
- ☐ Web-enabled applications
- ☐ Social media and Computing
- ☐ Web Analytics and Search Engine
- ☐ etc.

- ❑ Web development comes with a huge set of rules and techniques every website developer should know about. If you want a website to look and function, you need to get familiar with web technologies that will help you achieve your goal.
- ❑ Developing a website typically comes down to knowing 3 main languages: JavaScript, CSS, and HTML. Once you know what you are doing, understanding web technology and the way it works becomes significantly easier.

Web Development Technologies

What Are The Different Types Of Web Technologies?

- ❑ The basics, which will cover web browsers and some web app development fundamentals.
- ❑ Programming languages and frameworks which are used in the development of websites
- ❑ Databases that are used at the backend to store data required or collected by websites
- ❑ Some protocols, that is, rules for communicating on the web

What Are The Different Types Of Web Technologies? (cont.)

- ❑ Graphic, audiovisual, and other multimedia elements
- ❑ Some data formats that are usually used to transmit data over the internet
- ❑ Other miscellaneous web technologies

Web Development Technologies

Client-Side

- ❑ HTML
- ❑ CSS
- ❑ JavaScript, AJAX, VBScript
- ❑ WML
- ❑ DOM
- ❑ etc.

Server-Side

- ❑ ASP, ASP.NET
- ❑ PHP
- ❑ Perl
- ❑ JSP, Java
- ❑ MySQL, SQL Server
- ❑ Node.JS
- ❑ etc.

Technologies Overview (cont.)

Some More Advanced Technologies

- ❑ XML, XSLT, RSS
- ❑ XQuery, WSDL
- ❑ XML-DOM, RDF
- ❑ Ruby on Rails
- ❑ REST, SOAP
- ❑ JSON
- ❑ etc.

How to choose a Technology?

Depends on:

- ☐ What is the type of content ?
- ☐ Who is your audience/user ?
- ☐ Who will modify your content ?
- ☐ What are your Future Plans ?
- ☐ Availability of technology ?
- ☐ Your previous experience ?
- ☐ Portability and Data sharing



More Information

- ❑ www.whatis.com
- ❑ www.w3schools.com
- ❑ www.webopaedia.com
- ❑ <http://alexa.com/>