HNDIT1106 – Web Development

Chapter 1: Introduction

Module Code	HNDIT1106	Module Title	Web Development	
Credits	2		Lectures	01
		Hours		
GPA/NGPA	GPA		Lab/Tutorial	03
Semester	S1	Module Type	Core compulsory	

Module Objective

- To develop skills required for using Internet and software tools associated with the Internet for information search, retrieval, and networking for improving productivity at work
- To develop skills and knowledge required for development and deployment of simple websites with static content

Learning Outcomes

- *At the end of the module the student will be able to*
  - **Describe the history and the development of the Internet**
  - **Describe operation and governance in the Internet**
  - **Connect a computer to the Internet using different connection options**
  - **Use common Internet based applications such as WWW, email, FTP etc.**
  - **Describe and use emerging applications and social networking tools (Face Book, YouTube, Twitter etc.)**
  - **Apply necessary security measures for transaction over the Internet**
  - **Understand and describe the concepts of web design, basic HTML and related web technologies**
  - **Use a website development software applications to design and develop simple websites with static content**
  - **Deploy simple websites on server**

Outline Syllabus

- History and development of the Internet
- How Internet operates and Internet governance
- Different ways of connecting to the Internet
- Common Internet based applications (WWW, email, FTP etc.)
- Types of web-sites (Static, Dynamic, Collaborative and Syndication etc.)
- Migration from Web 1.0 to Web 2.0 and the differences between them
- Modern Web applications (Social Networking, e-Commerce, e-Governance)
- Data security issues in Internet (Viruses, Adware & Spyware, Trojan programs etc.)
- Protecting data in the Internet

Outline Syllabus (Cont.)

- Introduction to World Wide Web and web technologies
- Markup languages – HTML basics
- Use of styles and frames
- Website development using a design tool
- Deploying websites

Assessment and Weighting

- Assignments and tutorials 50%
- Structured Paper 50%

Introduction

We all use the Internet, but what is it?

- A network of computer networks
- A descendent of Cold War defense technology
- The most powerful distribution system in the history of civilization
- A medium that melds text, audio and video through digitalization.

Internet

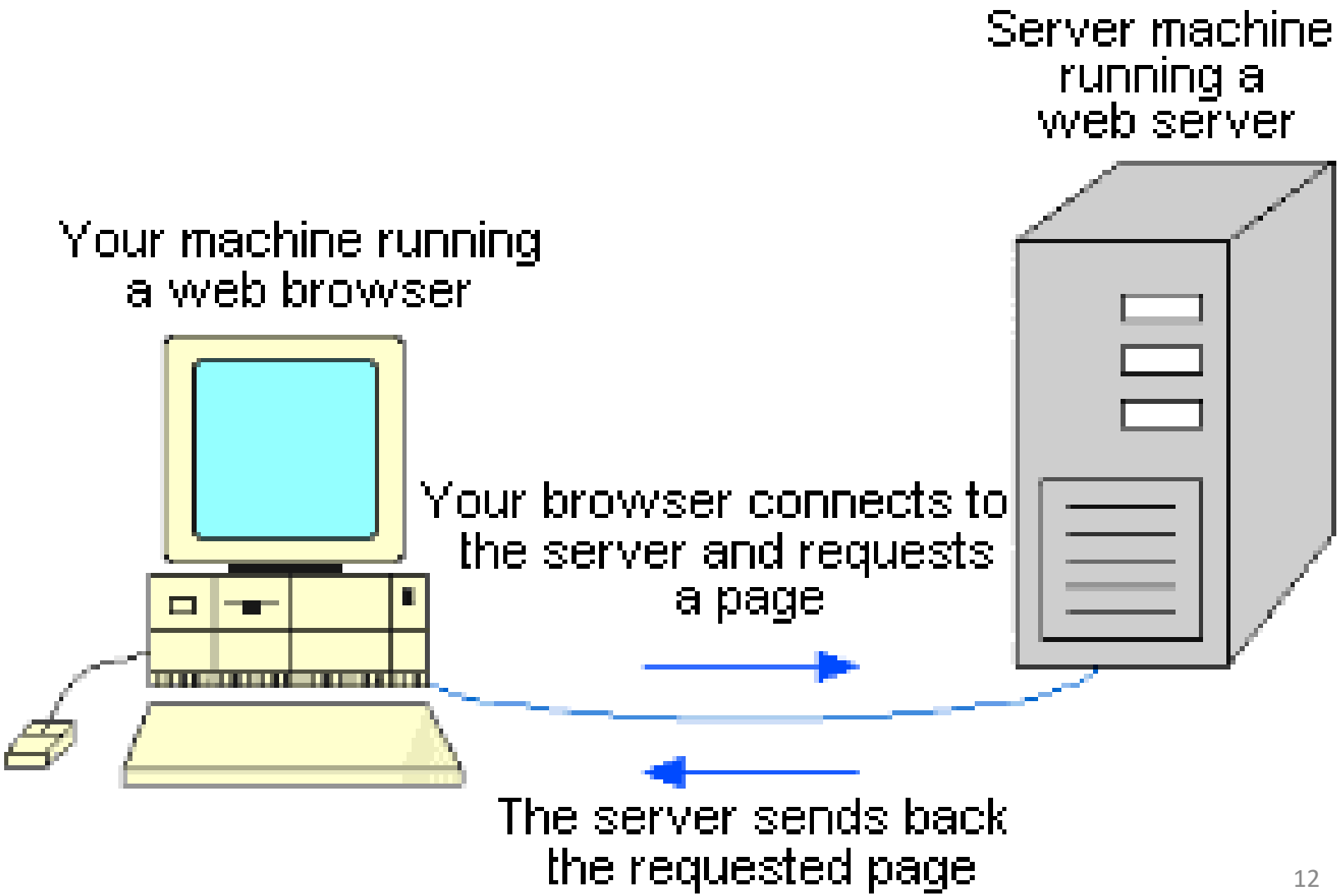
- The Internet is a group of computer networks interconnected around the world.

- It is the largest communication network ever conceived.
- The connected networks are comprised of educational, commercial and government sites.
- The interconnected networks may be made up of any number of computers from two to infinity.
- The collection of sites residing on the Internet form one of the largest repositories of information in history.

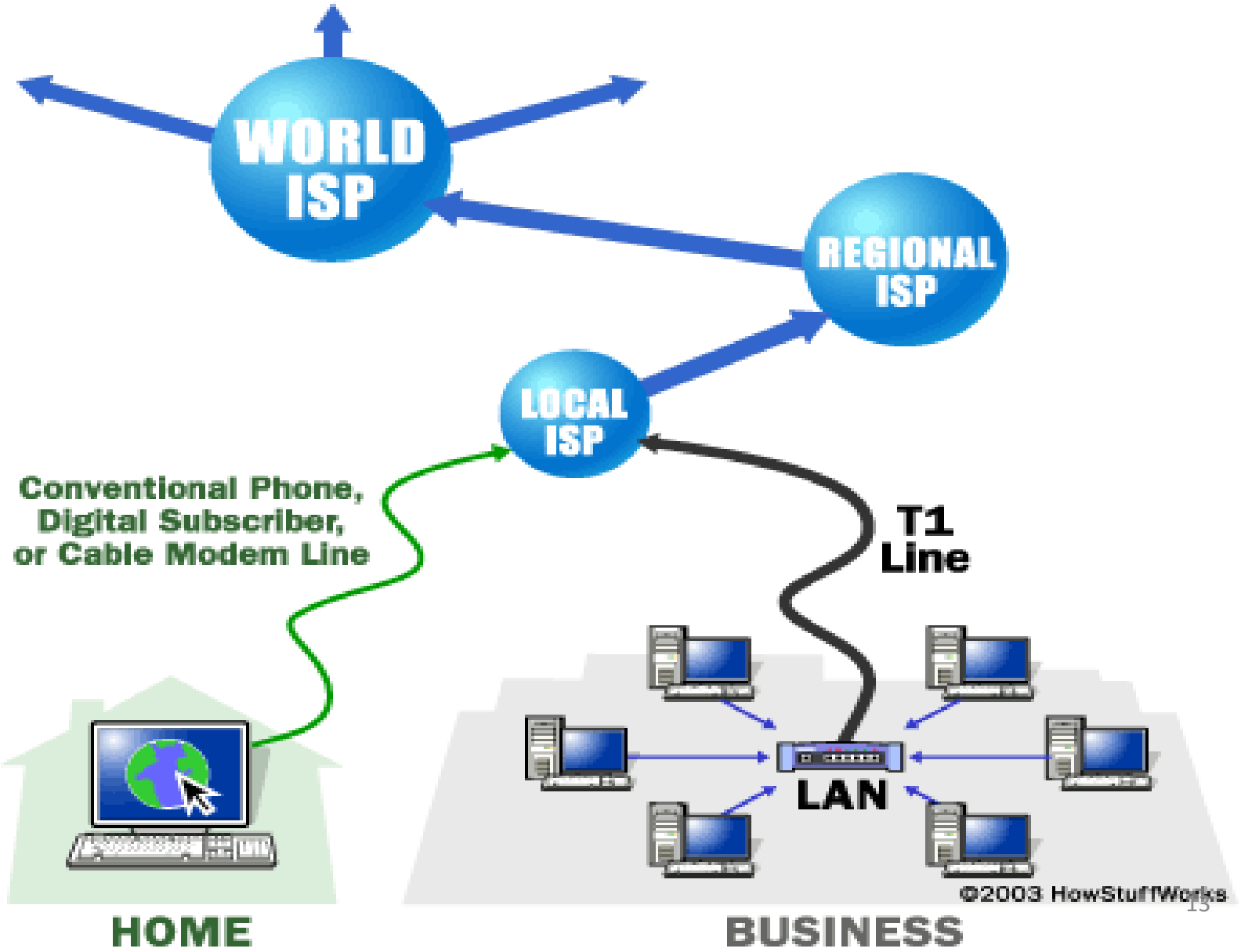
Computer Network

- A **computer network**, often simply referred to as a network, is a collection of computers and devices interconnected by communications channels that facilitate communications among users and allows users to share resources.

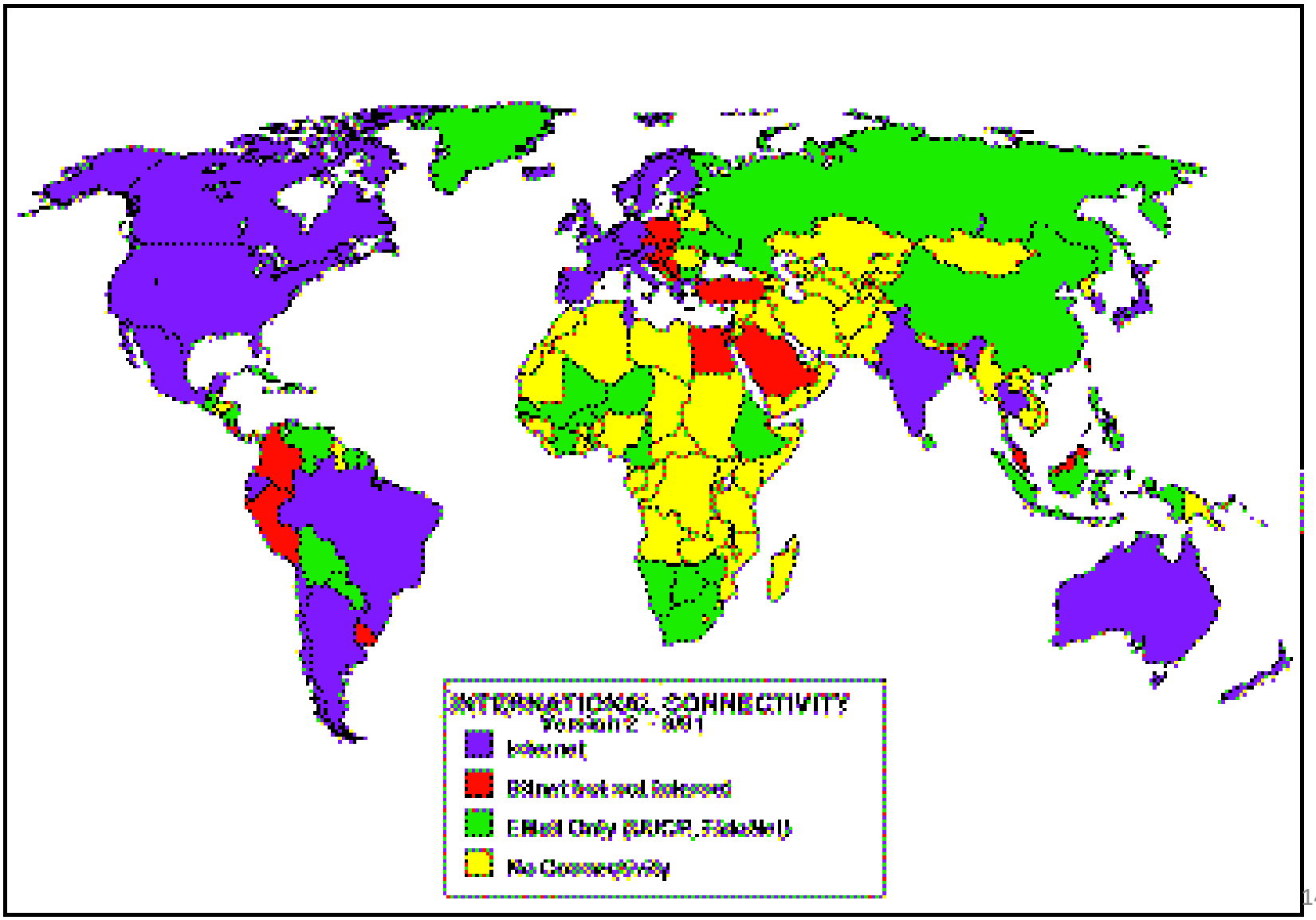
How it works


Server machine running a web server
Your machine running a web browser
Your browser connects to the server and requests a page
The server sends back the requested page

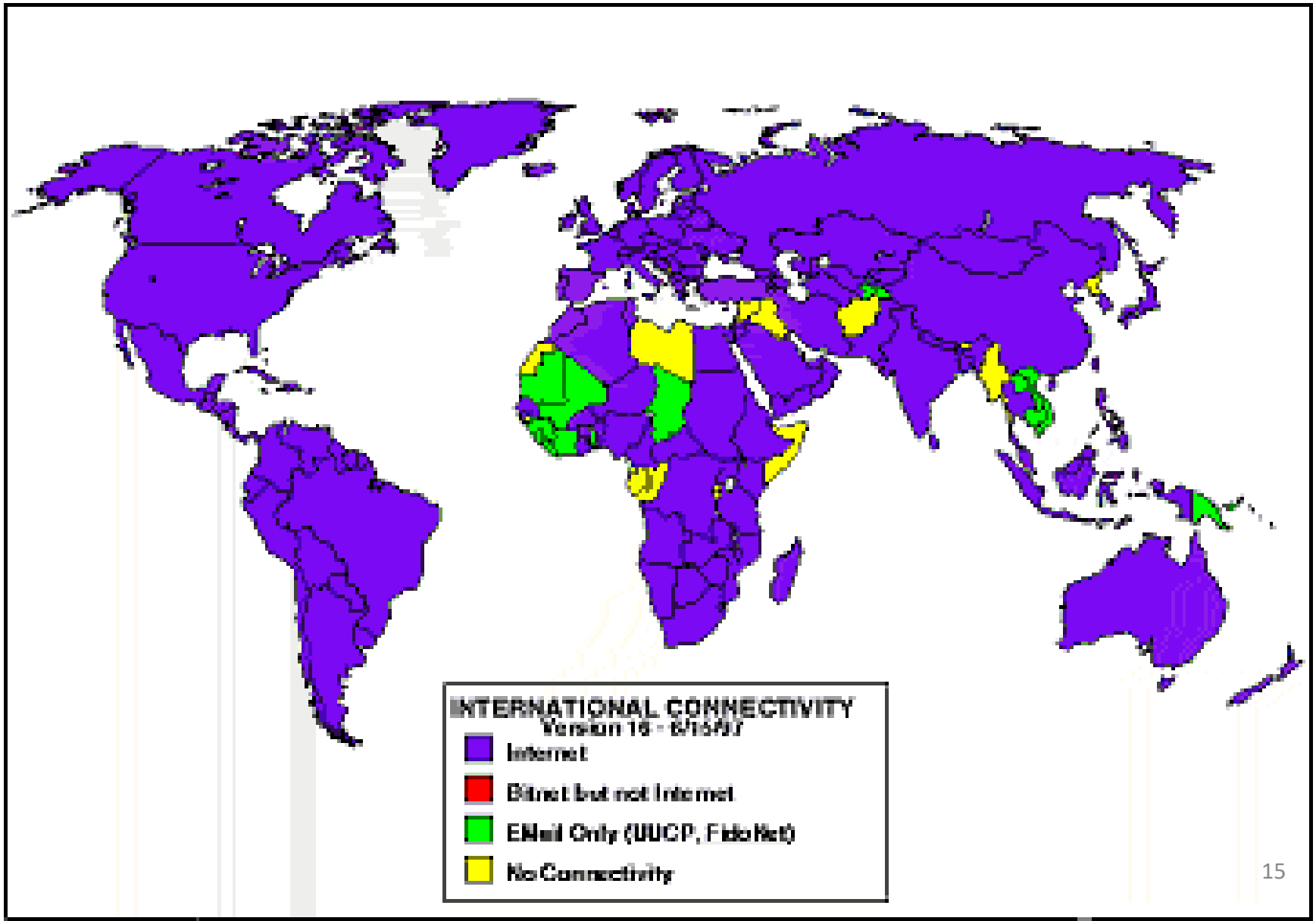
How Internet structured



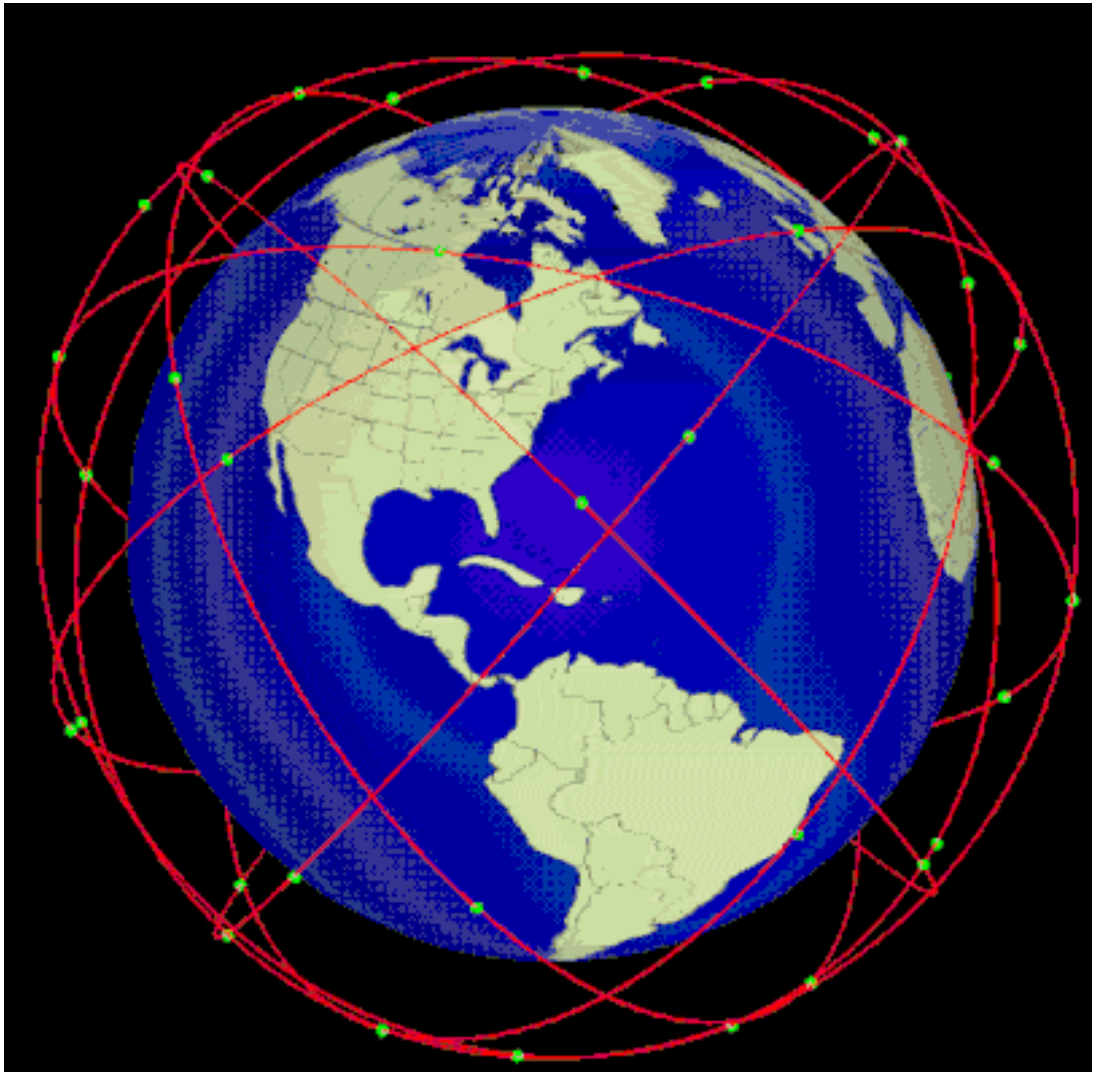
World Internet Presence, 1991



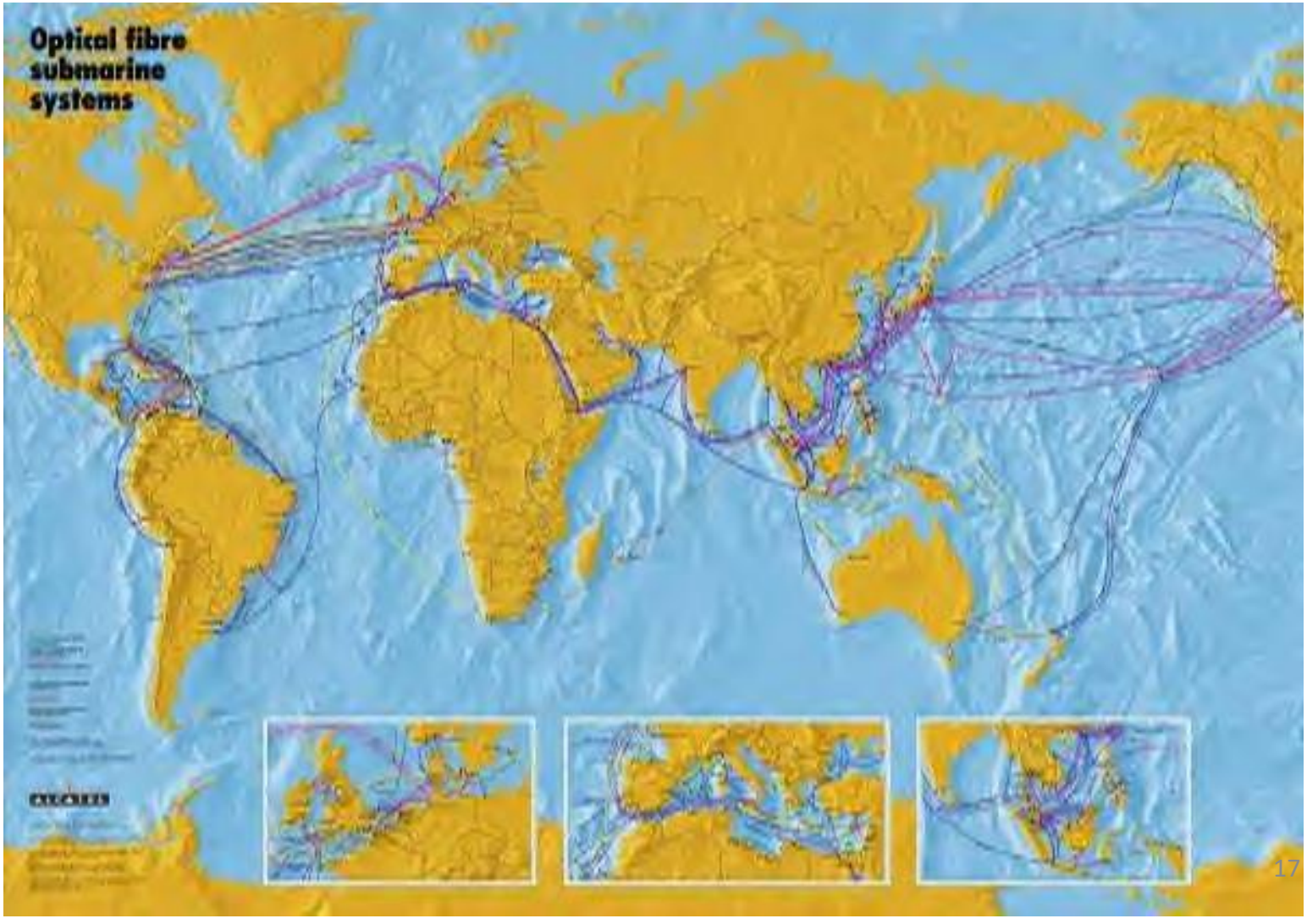
World Internet Presence, 1997



Global cyberspace connections are made by satellites…



Or undersea cables…



Evolution of the Internet

- 1820s—First experiments in building calculating “engines” done by Charles Babbage.
- 1890—Herman Hollerith develops digital processing machine to compile U.S. Census.
- 1944—IBM builds electromechanical calculator to help calculate trajectories for weaponry and to break German and Japanese codes.

- 1957—Soviet Union ratchets up Cold War by launching first orbiting man-made satellite, *Sputnik.* U.S.

- Defense Department creates ARPA (Advanced Research Projects Agency) to apply technology to Cold War defense.

- 1961—IBM designs computer system that allows separate terminals to access same hardware, effectively inventing “remote access.”

- 1969—ARPANET computer network started. The network makes use of a packet-switching concept that would send messages in pieces and assemble them at their destination. Thus, no one path destroyed by nuclear attack could disable a message.

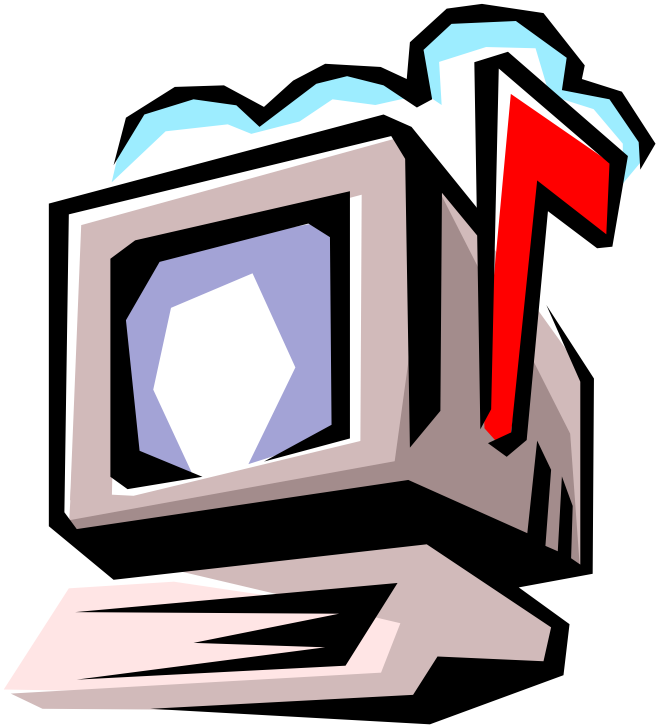
- 1972—At the First International Conference on Computers and Communication, ARPA scientists demonstrated their network, linking computers between 40 different locations.

- First email sent between research facilities.

- 1974—Scientists at ARPA create a common language that allows different networks to communicate. It's called *transmission control protocol/internet protocol* (TCP/IP).

- Other computer networks are devised:
  - Telenet (1974—commercial version of ARPANET)
  - Usenet (1979—focusing on email and newsgroups)
  - Bitnet (1981—links scientists across disciplines)

- 1976—Queen Elizabeth sends an email from Buckingham Palace.



- 1983—ARPANET abandoned by government for military research functions.

- 1984—William Gibson, a novelist, coins term “cyberspace,” using it in his sci-fi book *Neuromancer*.

- 1984—Domain name servers introduced (.com, .gov, .org, .edu), making Internet addresses easier to remember.

- 1985—NSFNet founded, which creates the Internet “backbone” (massive high-speed network pathways)

- 1985—San Francisco network the WELL (Whole Earth ‘Lectronic Link) starts up as one of the first bulletin boards and chat sites.

Effects of NSFNet

- Allowed increased Internet capacity.
- Encouraged surge in Internet use. (By 1986, host computers numbered 5,000. In 1987, there were 28,000 hosts.)
- Encouraged private Internet providers because commercial enterprises were excluded from NSFNet.

- 1989—CERN scientist Tim Berners-Lee designs World Wide Web as a way to share and retrieve research. He designs first browser and HTML.

- 1990—Internet hosts number 300,000.

- First “search engine,” called Archie, developed at McGill University, Montreal.

- 1991—NSF removes its restriction on private access to its backbone computers, a result of the end of the Cold War.

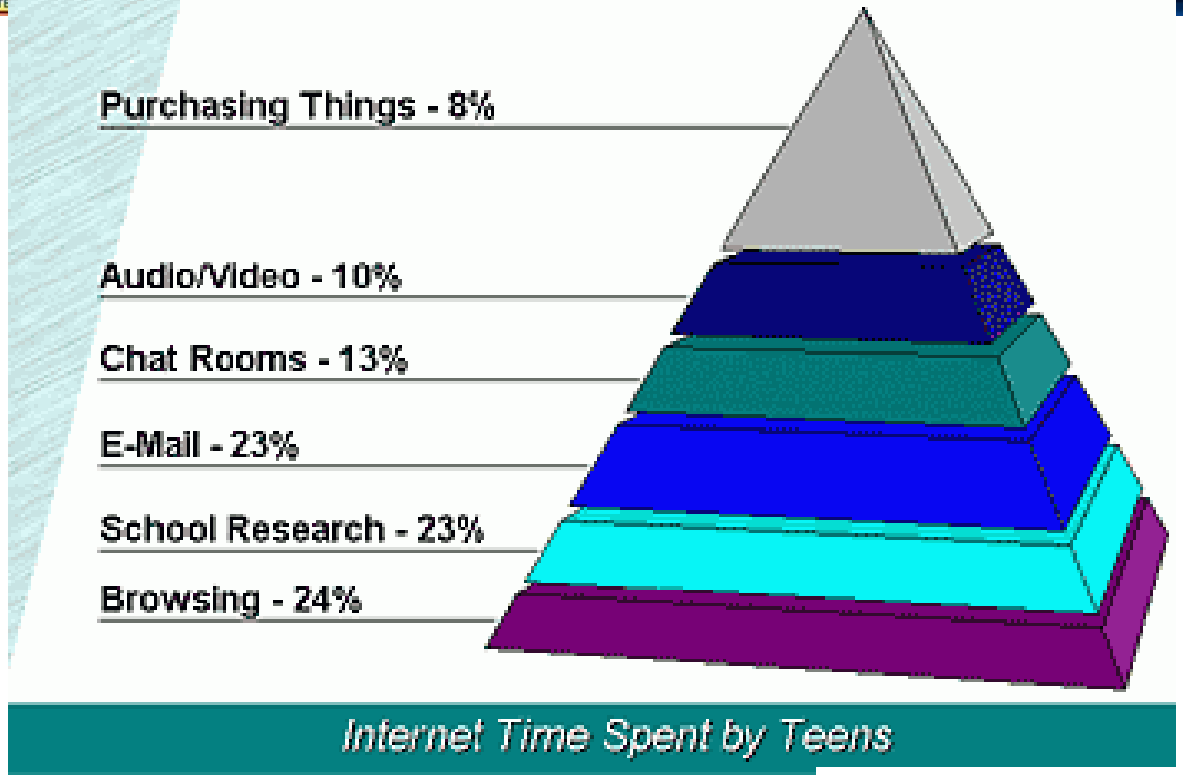
- 1991—Sen. Al Gore sponsors *High Performance Computing Act*, which funds research into improving the Internet infrastructure.

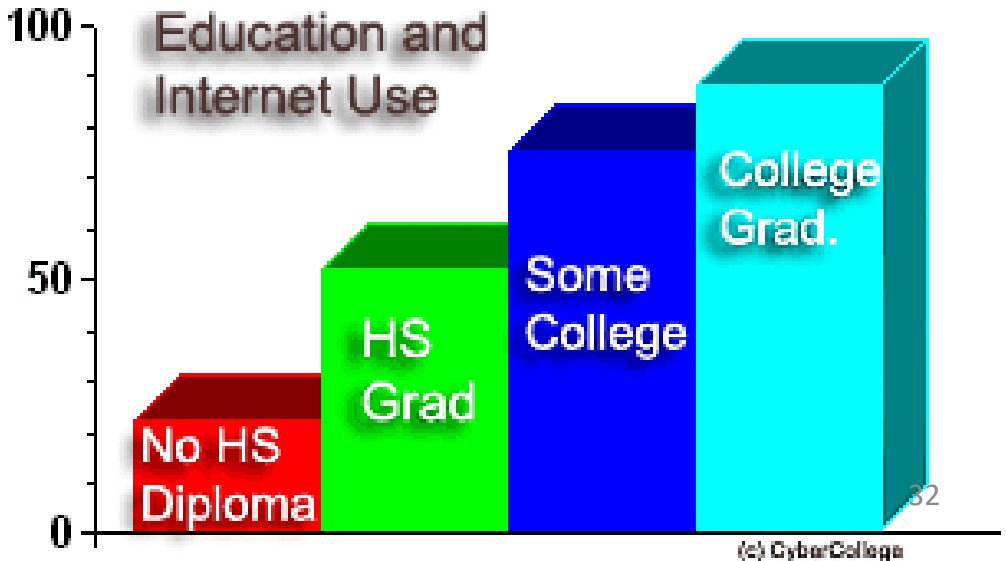
- 1992—Only 50 Websites exist in the world.

- 1993—Mark Andreessen invents Mosaic browser, which would lead to his company Netscape. His browser allows easier “surfing” of the Web.

- 1994—Proprietary computer services, such as Prodigy, Compuserve and AOL, provide Internet “gateways” for their subscribers.
- 1995—25,000 Web sites exist.
- 1996—More than 250,000 Web sites exist.
- 1997—E-Commerce gets underway and the start of .com retailers, such as Amazon.com.

- 2005—Google.com can search more than 8 billion Web pages.


Purchasing Things - 8%
Audio/Video - 10%
Chat Rooms - 13%
E-Mail - 23%
School Research - 23%
Browsing - 24%
Internet Time Spent by Teens


100
50
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Education and Internet Use
No HS Diploma
HS Grad
Some College
College Grad.
(c) CyberCollege

Where will the Internet take us?

- Today the Internet continues to grow, driven by ever greater amounts of online information, commerce, entertainment, and social networking.
- All traditional media will use the Web for distribution. Some mainstream media, such as newspapers, may end up moving totally to Cyberspace."
- Movies, books, music, TV will be increasingly downloadable from the Internet onto storage media, such as today's DVDs.
- The Internet will likely be as accessible as our phone network, as we use it from our cars, from pocket devices and from devices yet to be imagined. (Instead of taking our cars in for recall repairs, might patches downloadable from the Internet fix electronic components or monitor maintenance?)

- As more bandwidth becomes available, graphics and video will be the norm and text will take a backseat in presentation of content.

- The voice of the individual among the world's billions of human beings will be discernable.

- Global, instantaneous distribution of information and culture will further "shrink" and homogenize the planet, making us a true "Global Village."

- The Internet will be ubiquitous, available everywhere wirelessly, like cell phone service.