HNDIT1022 – Web Design

Week 1: Introduction

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Web Design

- Course Code HNDIT 1022
- No of Credits: 4
- Lecture : 2 hours
- Tutorial / Practical : 4 hours
- Student Activity : 7 hours

Course Aims

- The course focuses on the fundamentals of web internet and develop web site using HTML, CSS, Java Scripts, and the current developments in Web Design theory and the practice.

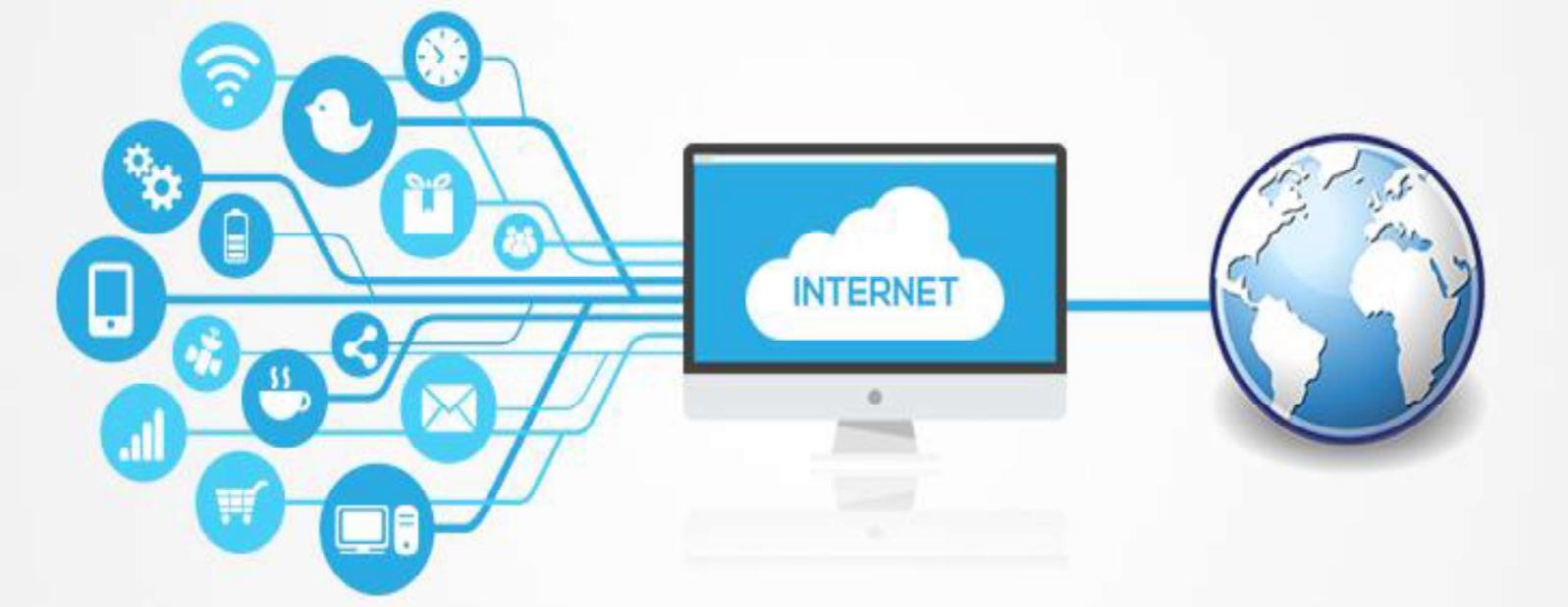
Learning Outcomes (LO)

- LO1: Design, develop and deploy a simple website using HTML, CSS and Java Scripts
- LO2: Design and develop interactive, visually appealing client-side programs.
- LO3: Describe HTML 5 and web-design tools.

The Internet, WWW, Web Browser & Search Engine

What is internet?

- The **Internet**, sometimes called simply ***"the Net,"*** is a worldwide system of computer networks

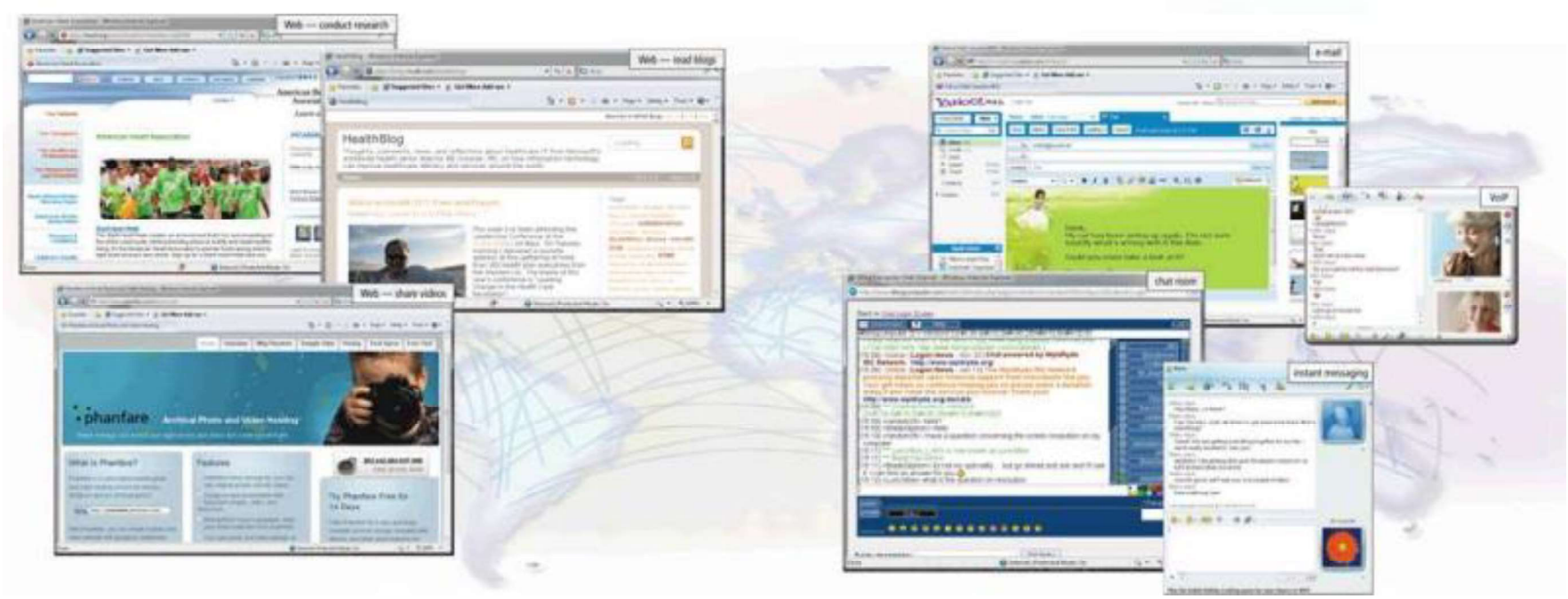


Internet

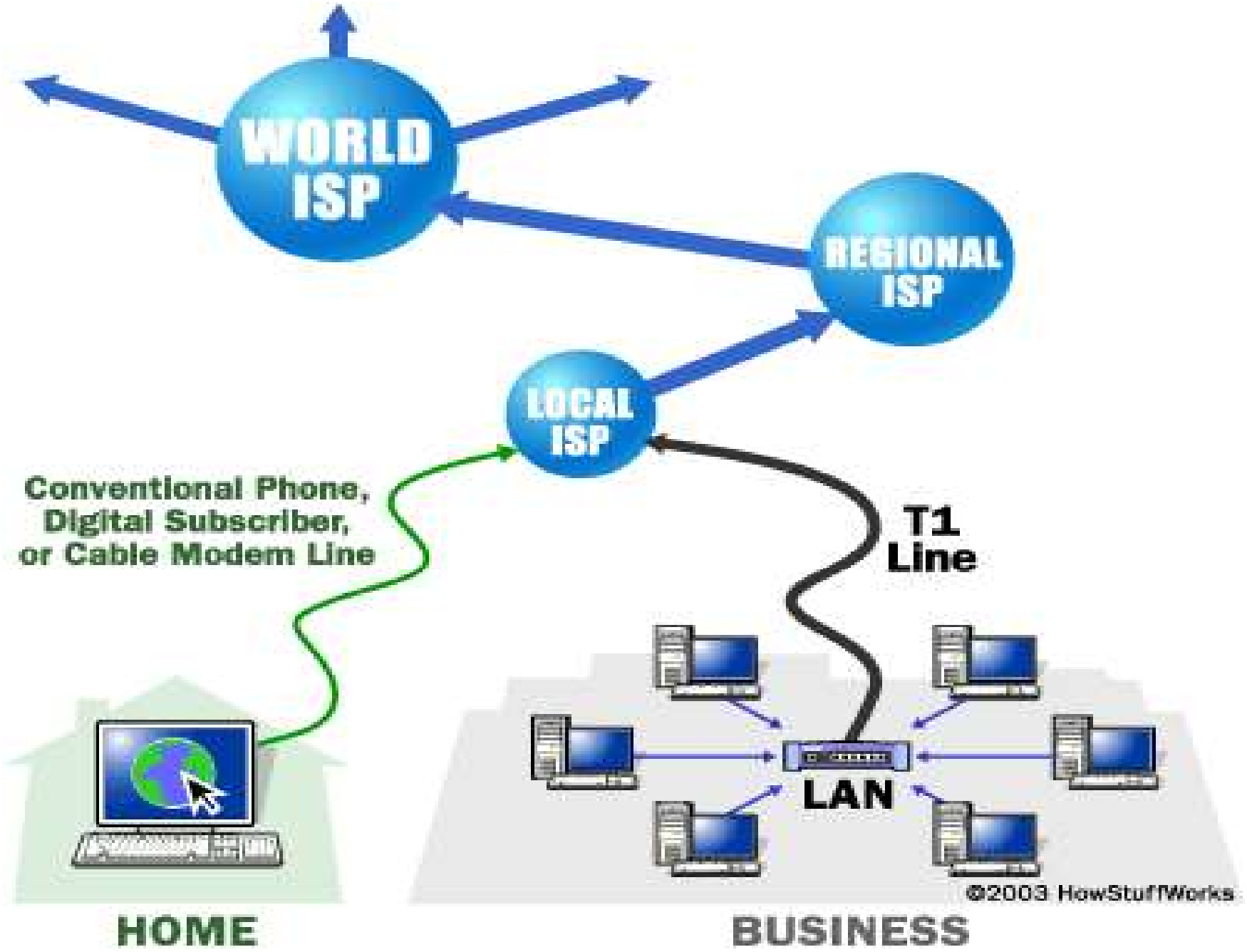
- The Internet is a group of computer networks interconnected around the world.
- It is the largest communication network ever conceived.
- The connected networks are comprised of educational, commercial and government sites.
- The interconnected networks may be made up of any number of computers from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

The Internet:

The Internet is a worldwide collection of networks that links millions of businesses, government agencies, educational institutions, and individuals.



How Internet structured



Internet

Metrics
- Stats
- Enquiries
- Sales

Objectives
- Awareness?
- Relationships?
- Sales?

Time
- Yours
- Others

Skills
- Technical
- Writing
- Marketing

Content
- Words
- Images
- Videos

Attraction
- Engagement
- Education

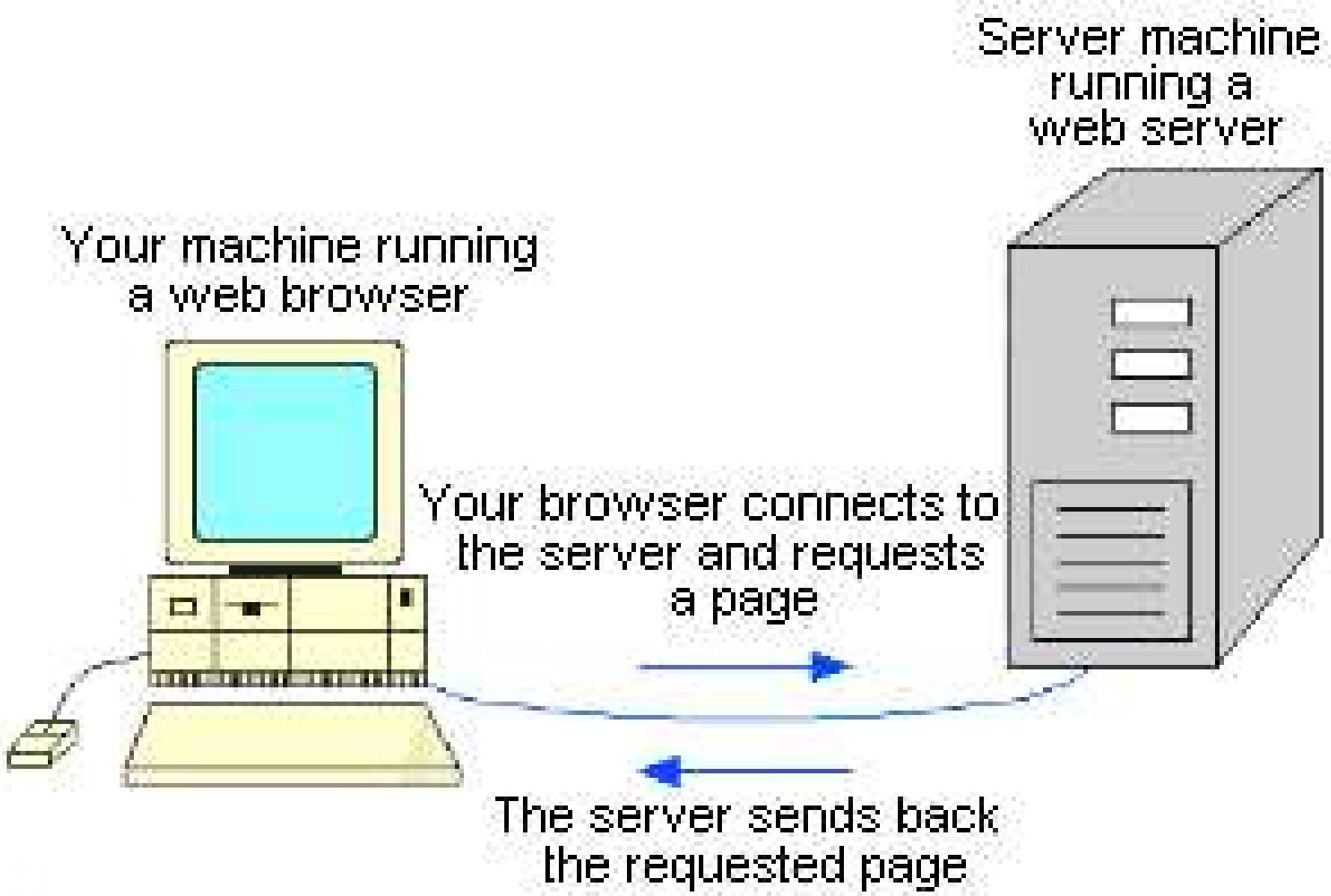
Social
- Media
- Reputation

Website
- CMS
  - Design
  - Interactivity
  - e-commerce
- SEO
  - Keywords

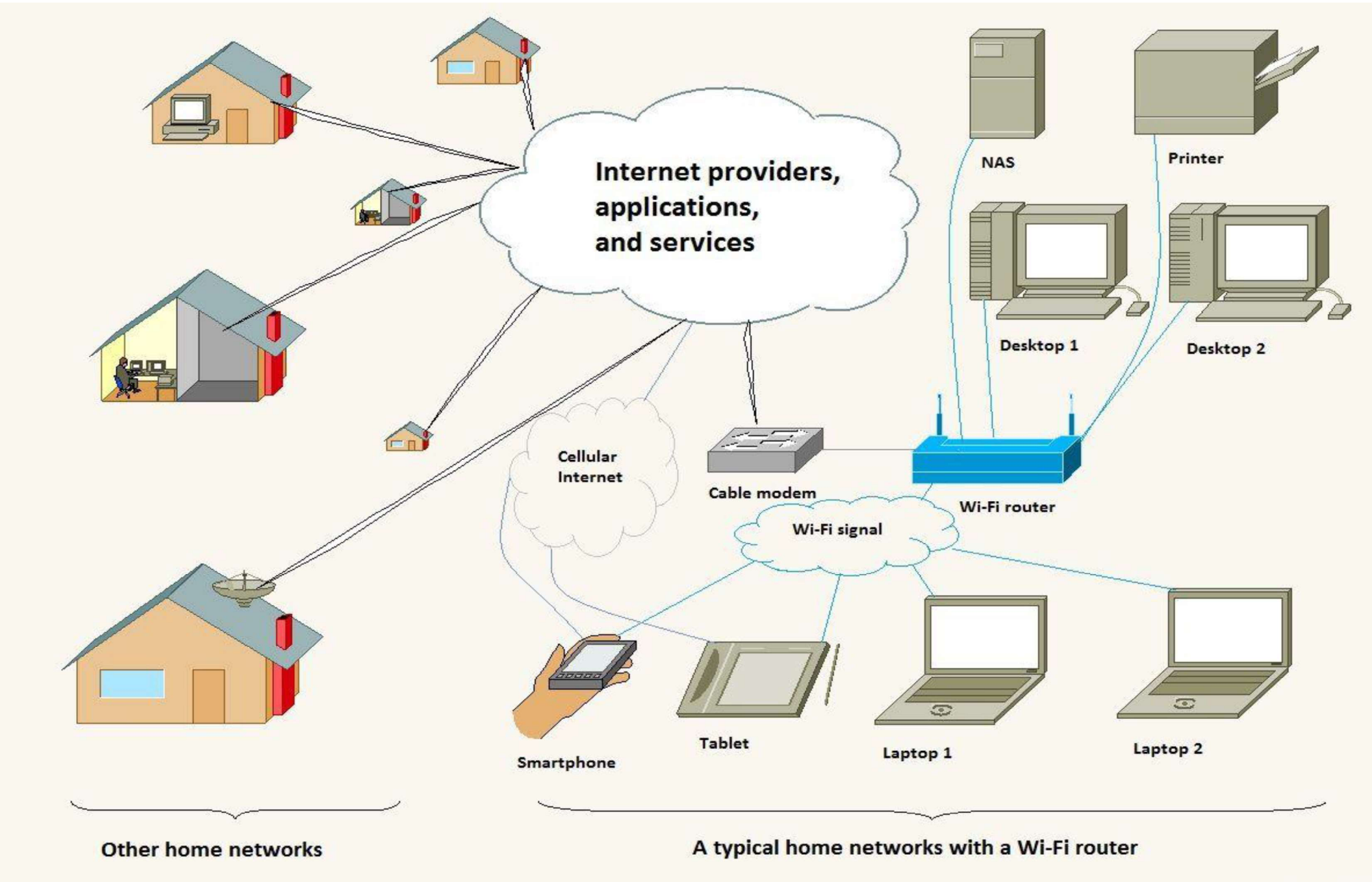
Computer Network

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

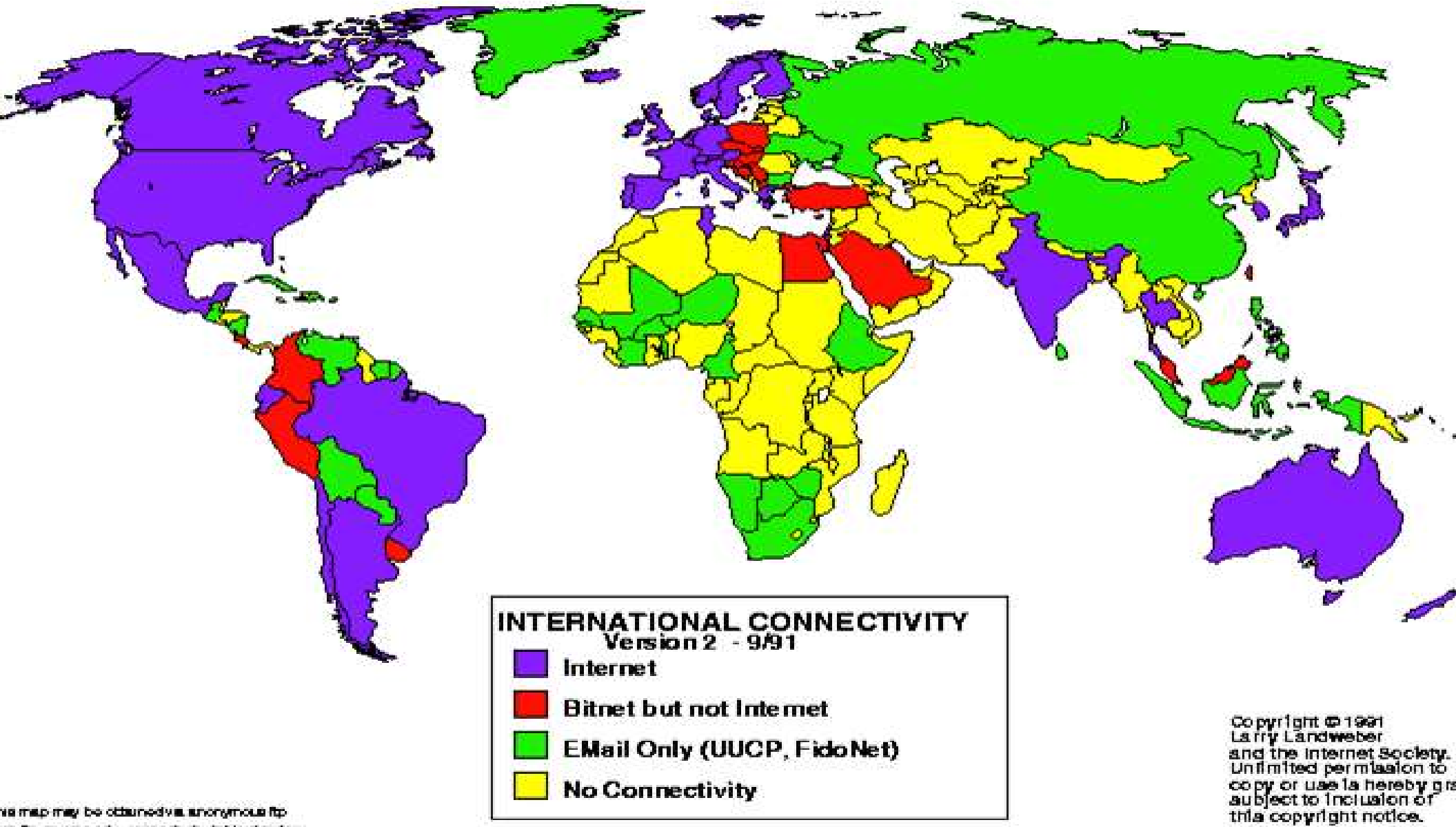
How it works


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

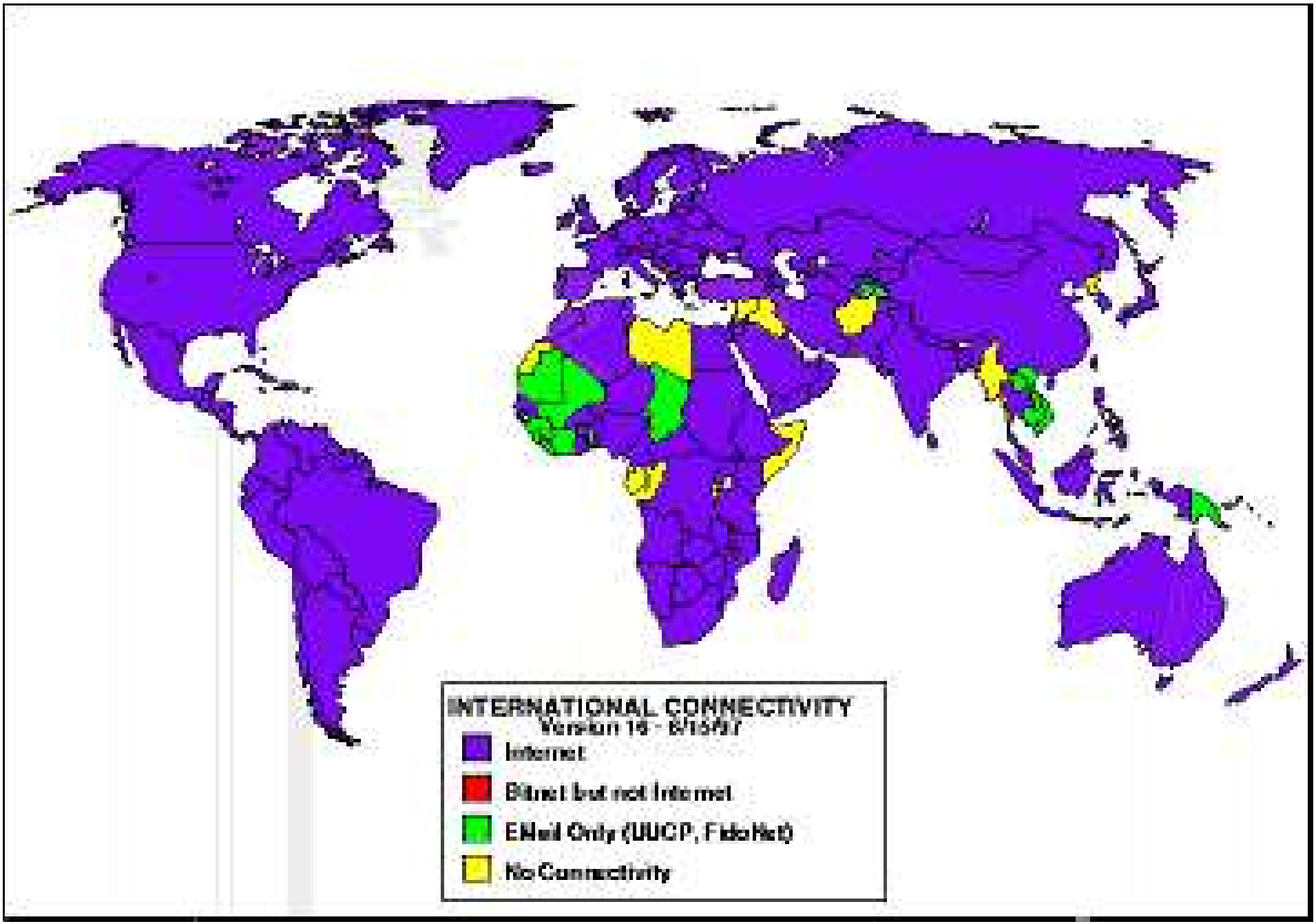
How internet structured ?



World wide Internet presence - 1991



World Internet Presence, 1997



Global Presence

March 2015

Updated

108 Chapters Worldwide

More than **70k** Members and Supporters

145 Organization Members

6 Regional Bureaus

Internet Society

Global cyberspace connections are made by satellites…

Or undersea cables…

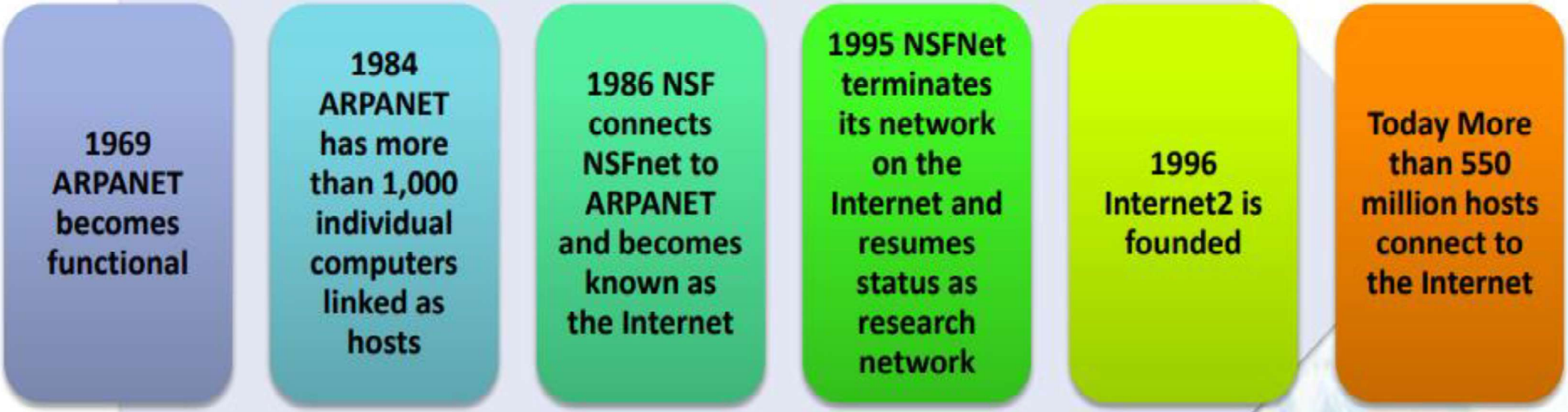
Origins of the Internet

- The Internet originated as ARPANET in September 1969 and had two main goals:

Allow scientists at different physical locations to share information and work together

Function even if part of the network were disabled or destroyed by a disaster

Evolution of the internet



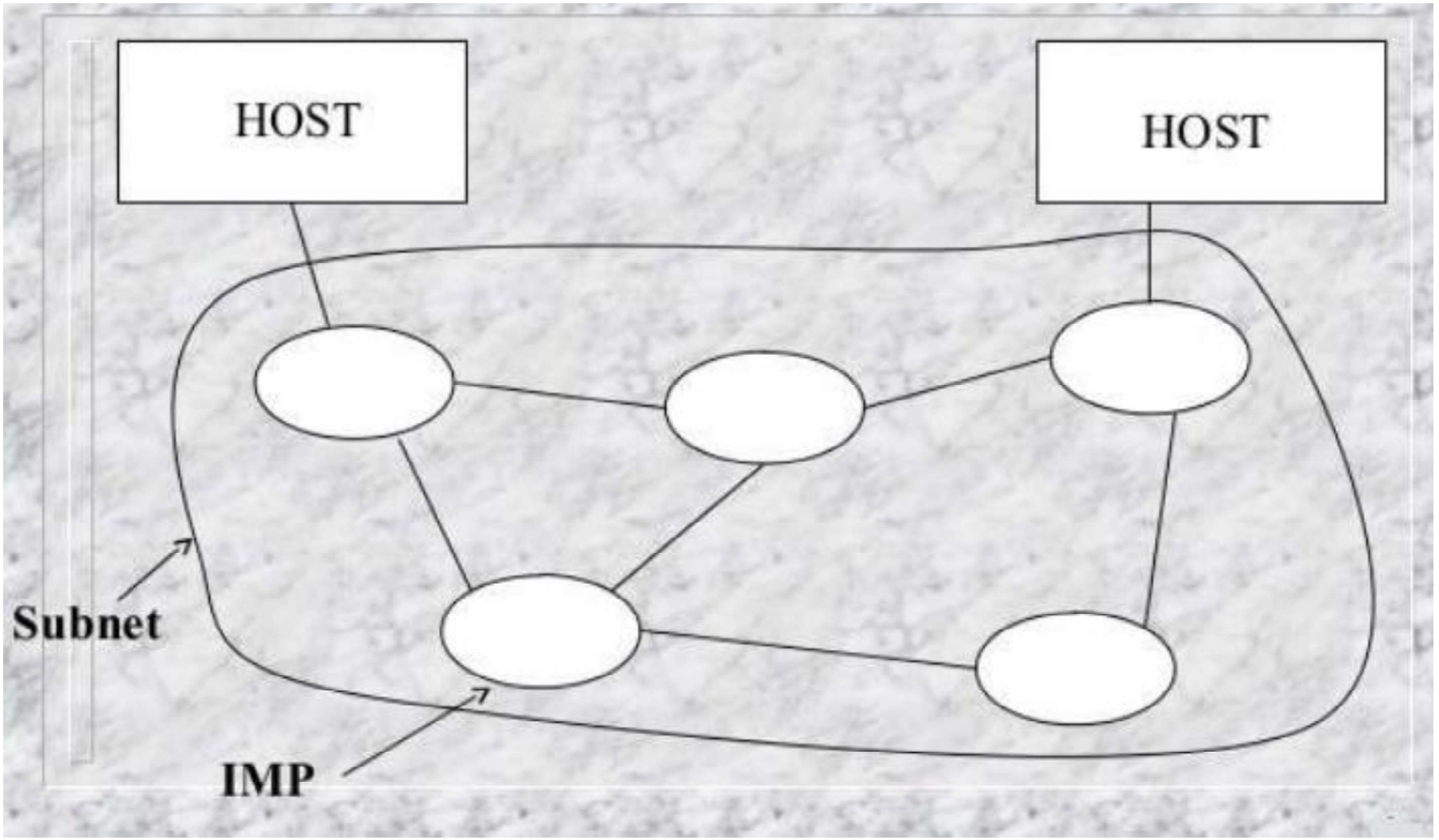
What is ARPANET?

- ARPA (**A**dvanced **R**esearch **P**rojects **A**gency), is an agency of the U.S. Department of Defense.
- The network which called ARPANET, became functional in September 1969, ***linking scientific and academics researchers across U.S.***

- ARPANET consisted of 4 main computers located at:
  - University of California, Los Angeles.
  - University of California, Santa Barbara.
  - The Stanford Research Institute.
  - University of Utah.

- Each of these computers served as a host on the network, commonly known today as server

ARPANET



What is NSF?

- NSF is the National Science Foundation, that connected its huge network of five supercomputer centers, called NSFnet to ARPANET in 1986.
- The configuration of complex networks and hosts became known as the Internet.

Owner

- Each organization is responsible only for maintaining its own network.
- No single person, company, institution, or government agency controls or owns the Internet.
- The World Wide Web Consortium (W3C) oversees research and sets guidelines and standards.
- Internet2 is a non-profit research & development project, that connects more than 200 universities and 115 companies via a high-speed private network to develop and test advanced network technologies (e.g.: telemedicine, digital libraries & faster Internet services).

Some ways to use the Internet

- E-mail
- Research
- Shopping
- News
- Games
- Ed-line
- Entertainment

Major Features of the Internet

- The World Wide Web
- E-Mail
- News
- Telnet
- File Transfer Protocol (FTP)
- VoIP
- Internet Relay Chat (IRC)

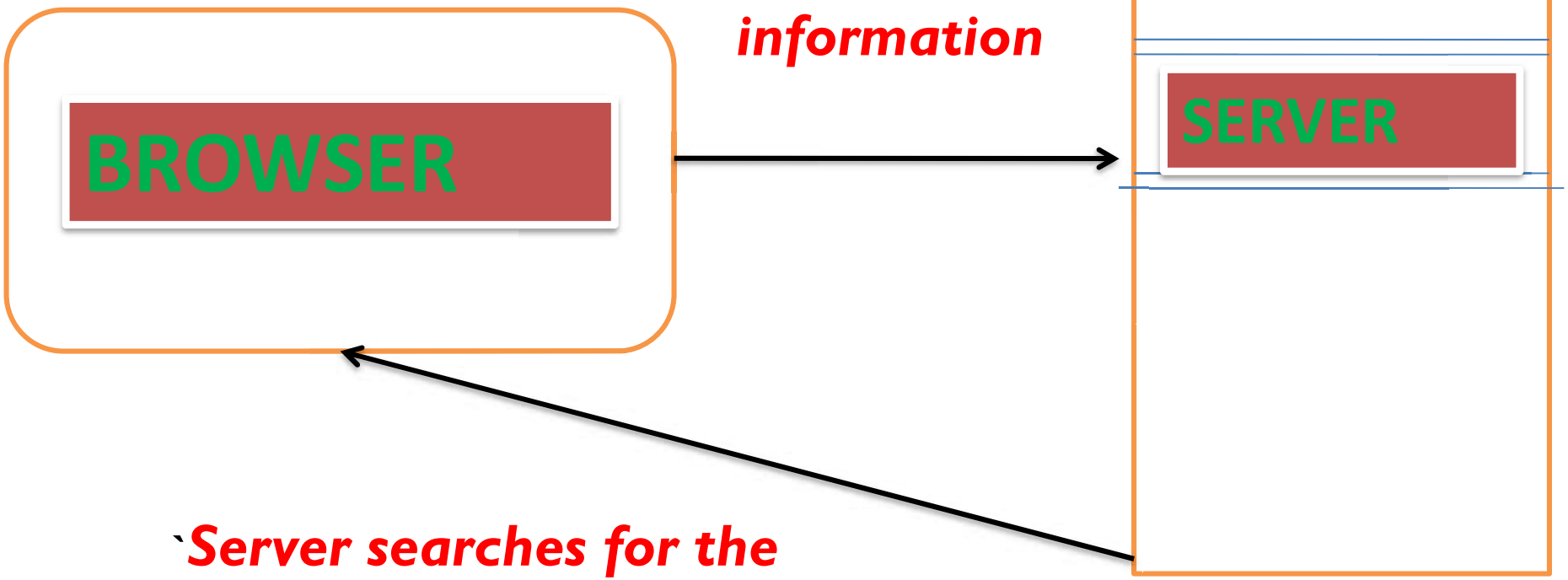
The World Wide Web (WWW)

- The **World Wide Web**, abbreviated as **WWW** and commonly known as **the Web**, is a system of interlinked hypertext documents accessed via the Internet.
- WWW is a part of the Internet, which supports hypertext documents, allowing users to view and navigate different types of data.
- With a web browser, one can view web pages that may contain text, images, videos, and other multimedia and navigate between them via hyperlinks.
- Every Web page has an address, a Uniform Resource Locator (URL).

Web Browser

- A **web browser** or **Internet browser** is a *software application* for retrieving, presenting, and traversing information resources on the World Wide Web.

Eg: Internet Explore(IE)
Firefox
Opera
Chrome
Safari
Netscape Navigator


Browser request for information
BROWSER
SERVER
`Server searches for the information and sent it to the browser

Search Engines

- A search engine is a piece of application software that sits on a powerful computer (a server) on the Internet.
- Search engines keep track of information available on the Internet.
- E.g.

- Googlewww.google.com)
- Excitewww.excite.com)
- Lycoswww.lycos.com)
- Info seek Guide(www.infoseek.com)
- WebCrawler(www.webcrawler.com)
- World wide web worm (www.goto.com)
- AltaVista (www.altavista.com)

How Internet Works

- TCP/IP
- Routing Traffic Across the Internet
- Addressing Schemes
- Domains and Sub domains

How Internet Works…

TCP/IP

- Every computer and network on the Internet uses the same protocols (set of guidelines or rules and procedures) to control timing and data format.
- The protocol used by the Internet is the Transmission Control Protocol/Internet Protocol, or TCP/IP.
- No matter what type of computer system you connect to the Internet, if it uses TCP/IP, it can exchange data with any other type of computer.

TCP/IP (Cont.)

- Single, common, worldwide standard

- US Department of Defense
  - TCP, transmission control protocol
    - » Handle the movement of data
    - » Breaks the original massage in to small packets & sequentially labels them.
  - IP, Internet Protocol
    - » Delivery of packets
    - » Disassembling and reassembling of packets

How TCP/IP Works

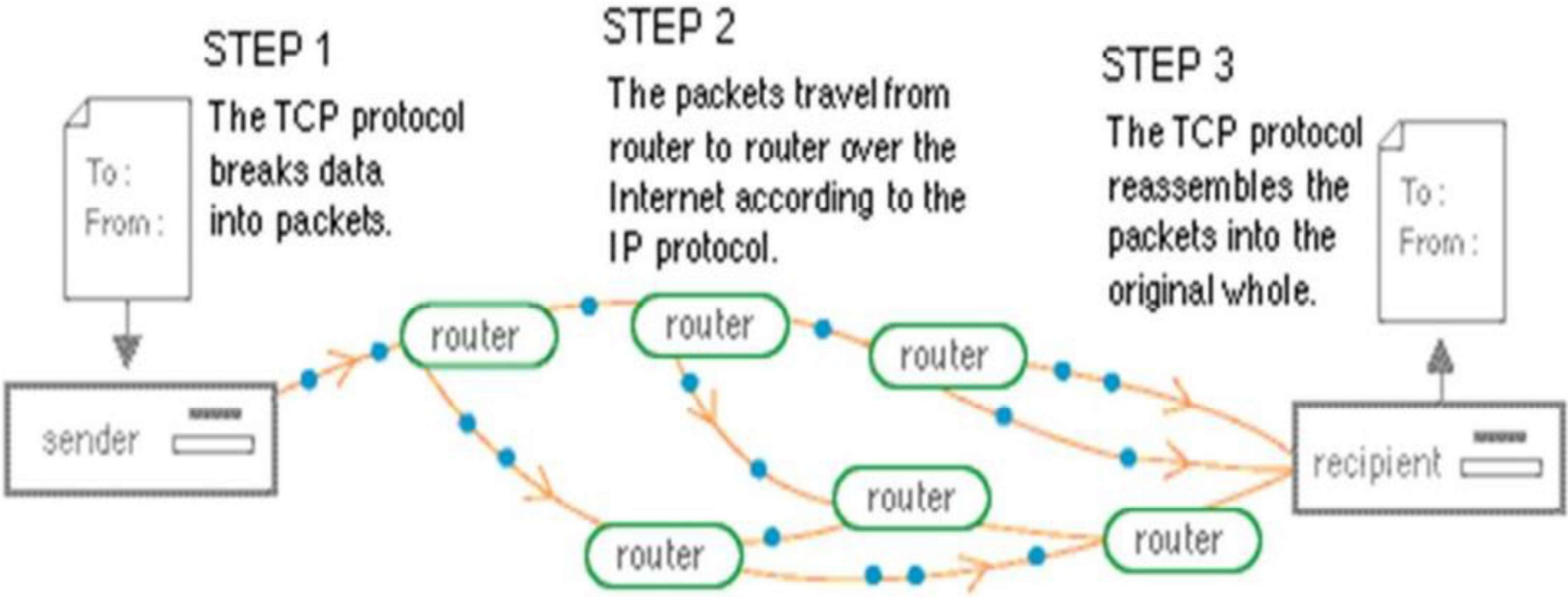
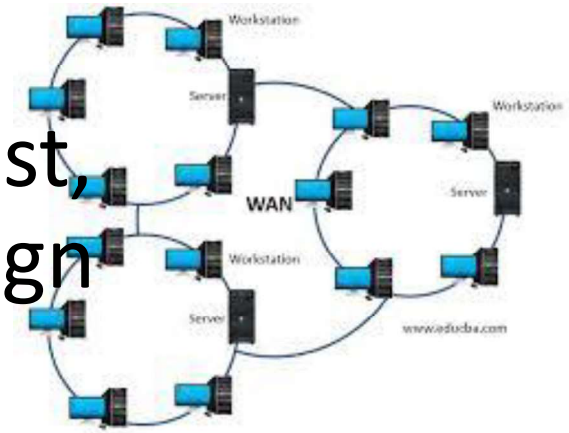


Figure 2. How data travels over the Net.

What about Internet Congestion?

- the packet-switched design solves this
- packets can take multiple paths to destination and get re-assembled
- if one router gets overloaded, buffer overflow messages tell neighbors to route around it
- also TCP/IP “back-off” algorithm
  - monitors throughput of connections and adjusts transmission frequency adaptively
- thus the Internet is amazingly robust, adaptive, and fault tolerant by design



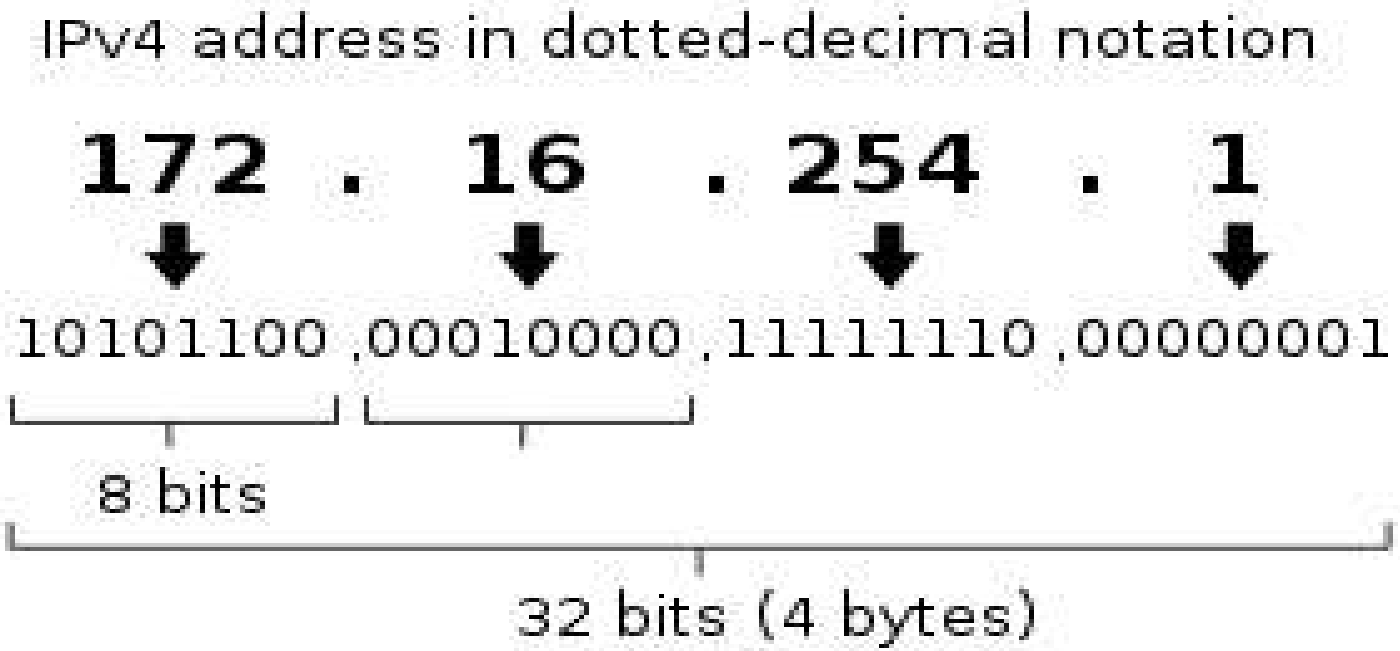
Addressing Schemes

- In order to communicate across the Internet, a computer must have a unique address.
- Every computer on the Internet has a unique numeric identifier, called an Internet Protocol (IP) address.
- Each IP address has four parts – each part a number between 0 and 255. An IP address might look like this:

  e.g. 205.46.117.104.

IP addresses

- [0-255].[0-255].[0-255].[0.255]
- 128.194.139.1 (associated with a specific MAC)
- <domain>.<domain>.<subnet>.<host>
- IPv4 (current standard, 4 billion IP addresses)



Domains and Sub domains

- In addition to an IP address, most Internet hosts or servers have a Domain Name System (DNS) address, which uses words.

- A domain name identifies the type of institution that owns the computer. An Internet server owned by IBM might have the domain name ibm.com.

- The last part of the domain name is called the *Top-Level Domain (TLD)* or *Zone* and is either two or three letters long.
- The second-to-last part of the domain name is called the *Second-Level Domain*, and It chosen by the organization that owns the computer. *e.g.* *whitehouse.gov*
  ibm.com
  slt.net

Three-letter zones (mainly used in the U.S.) indicate the type of organization that owns the domain.

Internet Domains

Domain	Type of Organization	Example
.com	Business (commercial)	ibm.com (International Business Machines Corp.)
.edu	Educational	center.edu (Centre College, Danville, KY)
.gov	Government	Whitehouse.gov (The White House)
.mil	Military	Navy.mil (The United States Navy)
.net	Gateway or host (or business/commercial)	Mindspring.net (A regional Internet service provider)
.org	Other organization (typically nonprofit)	isoc.org (The Internet Society)

Domains and Sub domains (cont.)

- The two-letter zones indicate the country in which the organization that owns the computer is located.

  e.g. U.S. - .us
  Canadian - .ca
  Sri Lankan - .lk

- Some enterprises have multiple servers, and identify them with sub domains

  e.g. products.ibm.com.

- Currently, domains in the *com, edu, net* and *org* zones are assigned by Network Solutions' InterNIC Registration Services, at http://www.internic.net

What is internet governance?

The development and application by governments, private sector and civil society, in their respective roles, of shared principles, norms, rules, decision-making procedures, and programmes that shape the evolution and use of the internet

The world summit on the information society(WSIS)(Tunis Agenda 2005)

INTERNET GOVERNANCE =

COORDINATION OF THE MANY ASPECTS

INCLUDING

TECHNICAL STANDARDS, POLICIES, INFRASTRUCTURE

THAT MAKE THE INTERNET **WORK** & **DETERMINE HOW IT IS USED**

INVOLVING

- GOVERNMENTS
- PRIVATE SECTOR
- CIVIL SOCIETY

Why is Internet Governance Important?

- Determines how the Internet is managed and used now and in the future
- Outcomes may affect all stakeholders

INTERNET **STAKEHOLDERS**

Internet Governance Matters

- The Internet is seen as
  - A global force
  - An ecosystem
- Many implications
  - Economic
  - Social
  - Political

Worldwide Resource => Many Competing Interests

Question…?