

1.0 OVERVIEW OF TELECOMMUNICATIONS

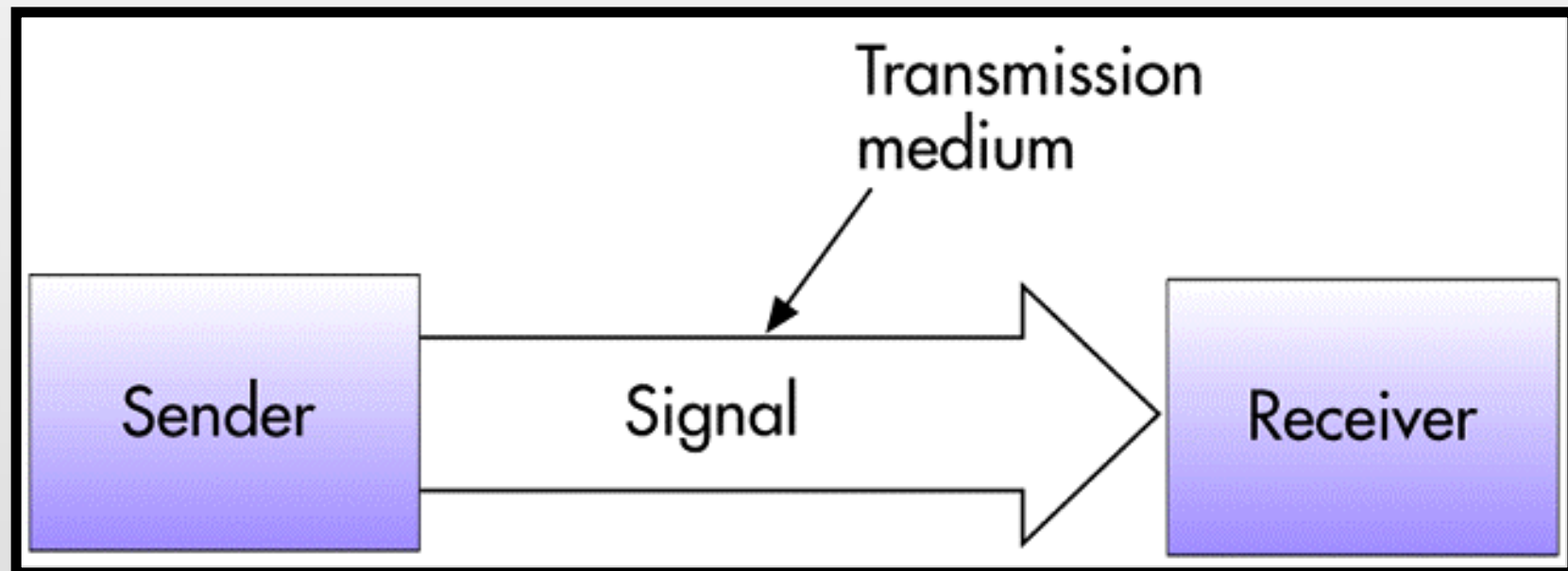
School of Education
Faculty of Social Sciences and Humanities

1.1

INTRODUCTION TO TELECOMMUNICATION

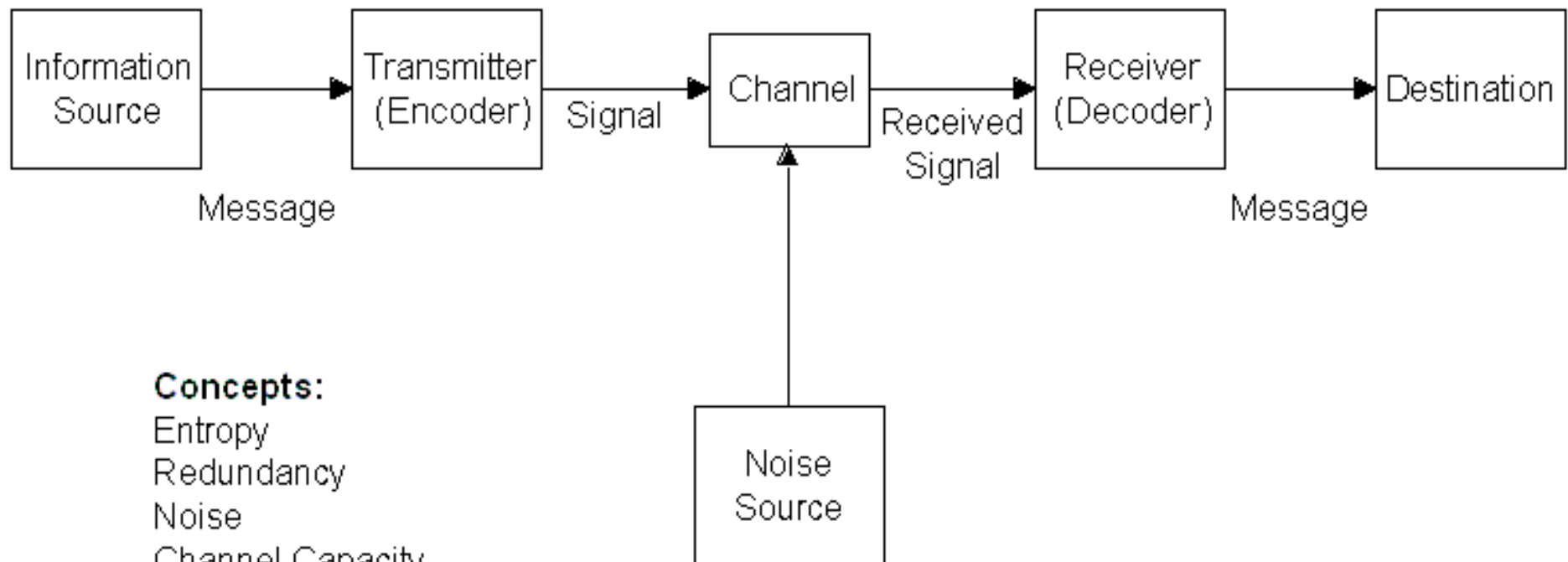
Communication

- The message (data and information) is communicated via the signal.
- The transmission medium “carries” the signal.



Communication Process

The Shannon-Weaver Mathematical Model, 1949

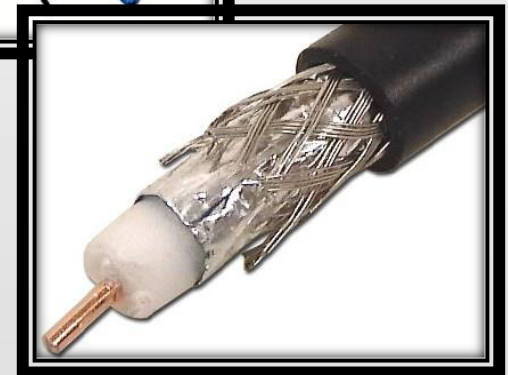
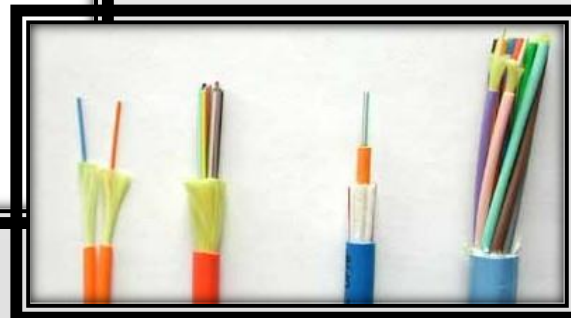
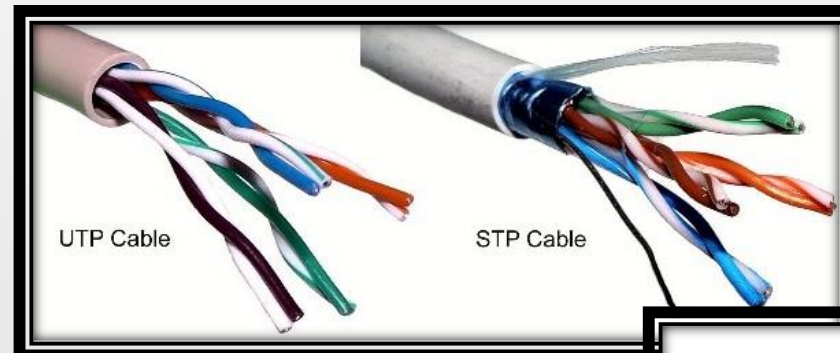
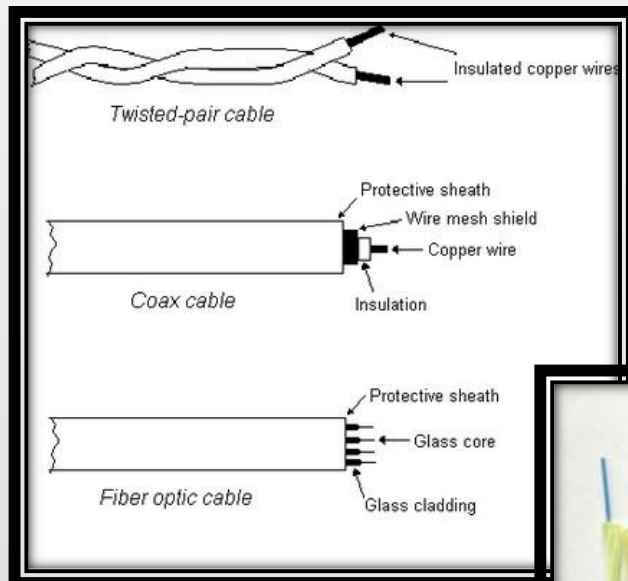


Telecommunication

- The **electronic** transmission of signals for communications over a distance.
- For example: telephone, telegraph, television, radio, etc.
- **Telecommunication Medium**
Anything that carries an electronic signal and interfaces between a sending device and a receiving device.

Telecommunication Medium

Anything that carries an electronic signal and interfaces between a sending device and a receiving device.



Telecommunication Hardware

Send and receive the signals employing telecommunications software that governs their operations such as repeaters, hubs, bridges, switches, routers and gateways

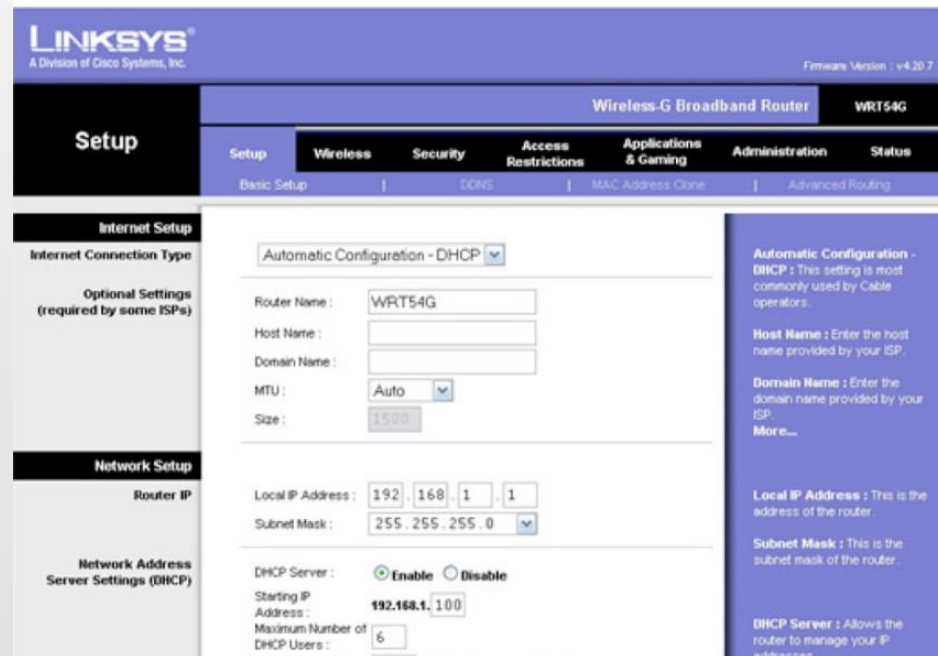


Telecommunication Software

Software based on telecommunications protocols used to

- control
- monitor load
- troubleshoot data
- provide security

that traveling over a telecommunications network.



The screenshot shows the Linksys WRT54G router configuration interface. The main navigation bar includes 'Setup', 'Wireless', 'Security', 'Access Restrictions', 'Applications & Gaming', 'Administration', and 'Status'. The 'Setup' section is expanded to show 'Internet Setup' and 'Network Setup'.

Internet Setup

Internet Connection Type: Automatic Configuration - DHCP

Optional Settings (required by some ISPs):

Router Name: WRT54G

Host Name: []

Domain Name: []

MTU: Auto

Size: 1500

Network Setup

Router IP

Local IP Address: 192.168.1.1

Subnet Mask: 255.255.255.0

DHCP Server: Enable Disable

Starting IP Address: 192.168.1.100

Maximum Number of DHCP Users: 6

Help Text:

Automatic Configuration - DHCP: This setting is most commonly used by Cable operators.

Host Name: Enter the host name provided by your ISP.

Domain Name: Enter the domain name provided by your ISP.

Local IP Address: This is the address of the router.

Subnet Mask: This is the subnet mask of the router.


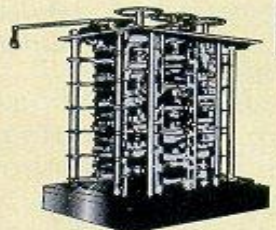

DHCP Server: Allows the router to manage your IP addresses.

1.2



HISTORY OF TELECOMMUNICATION TECHNOLOGIES

1642 AD - 1876

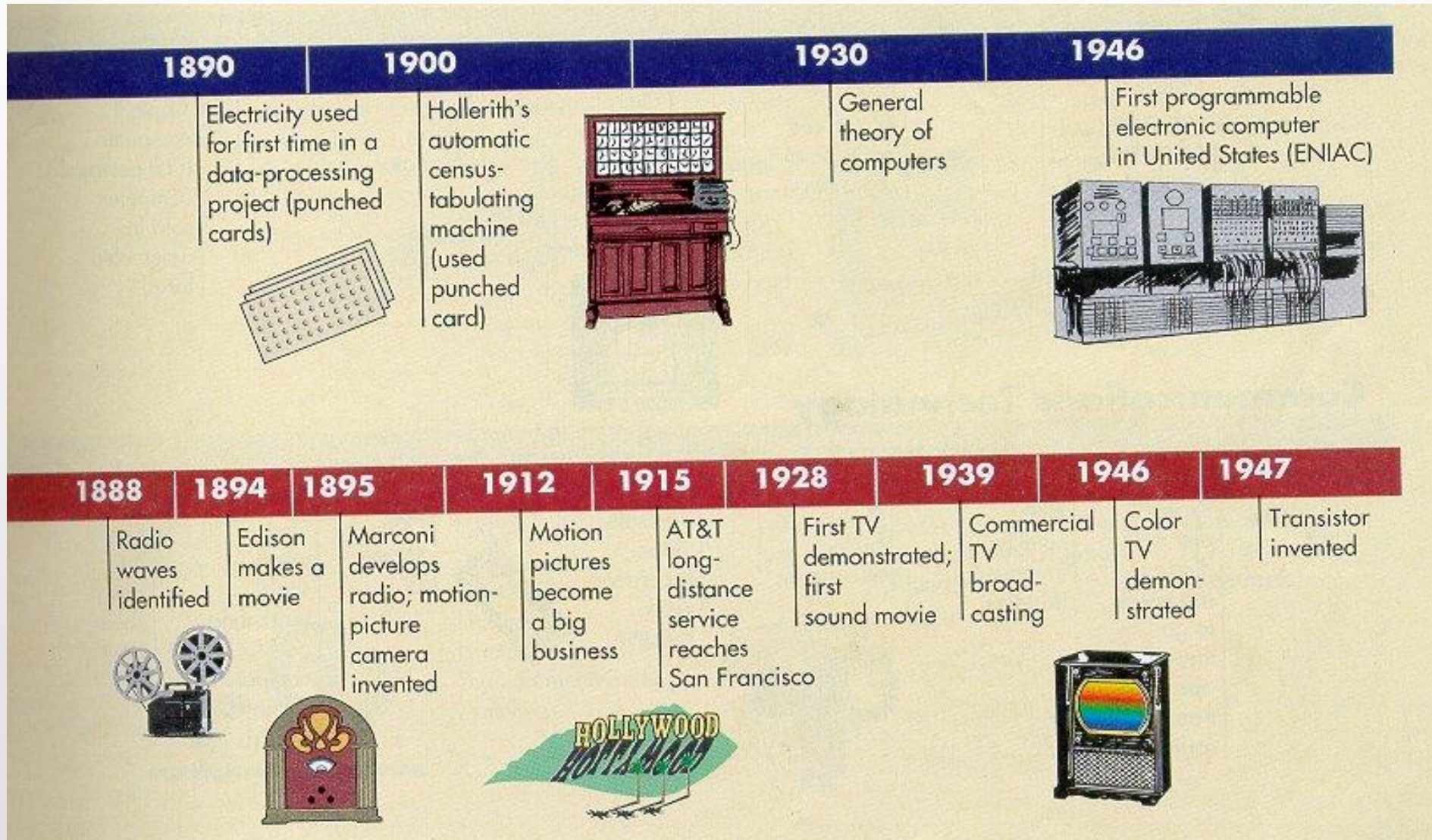
Computer Technology

1642 AD	1832	1843
 <p>First mechanical adding machine (Blaise Pascal)</p>	 <p>Babbage's difference engine (automatic calculator)</p>	 <p>World's first computer programmer, Ada Lovelace, publishes her notes</p>

Communications Technology

1562	1594	1639	1827	1835	1846	1866	1876
<p>First monthly newspaper (Italy)</p>	<p>First magazine (Germany)</p>	<p>First printing press in North America</p> 	<p>Photographs on metal plates</p>	<p>Morse's telegraph (first long-distance digital communication system)</p>	<p>High-speed printing</p>	<p>Trans-atlantic telegraph cable laid</p> 	<p>Telephone invented</p>

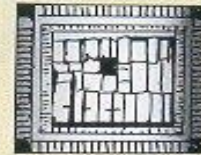
1890 - 1947



1952 - 1977

Computer Technology

1952	1964	1970	1971	1977
UNIVAC computer correctly predicts election of Eisenhower as U.S. President	IBM introduces 360 line of computers	Microprocessor chips come into use; floppy disk introduced for storing data	First pocket calculator	Apple II computer (first personal computer sold in assembled form)

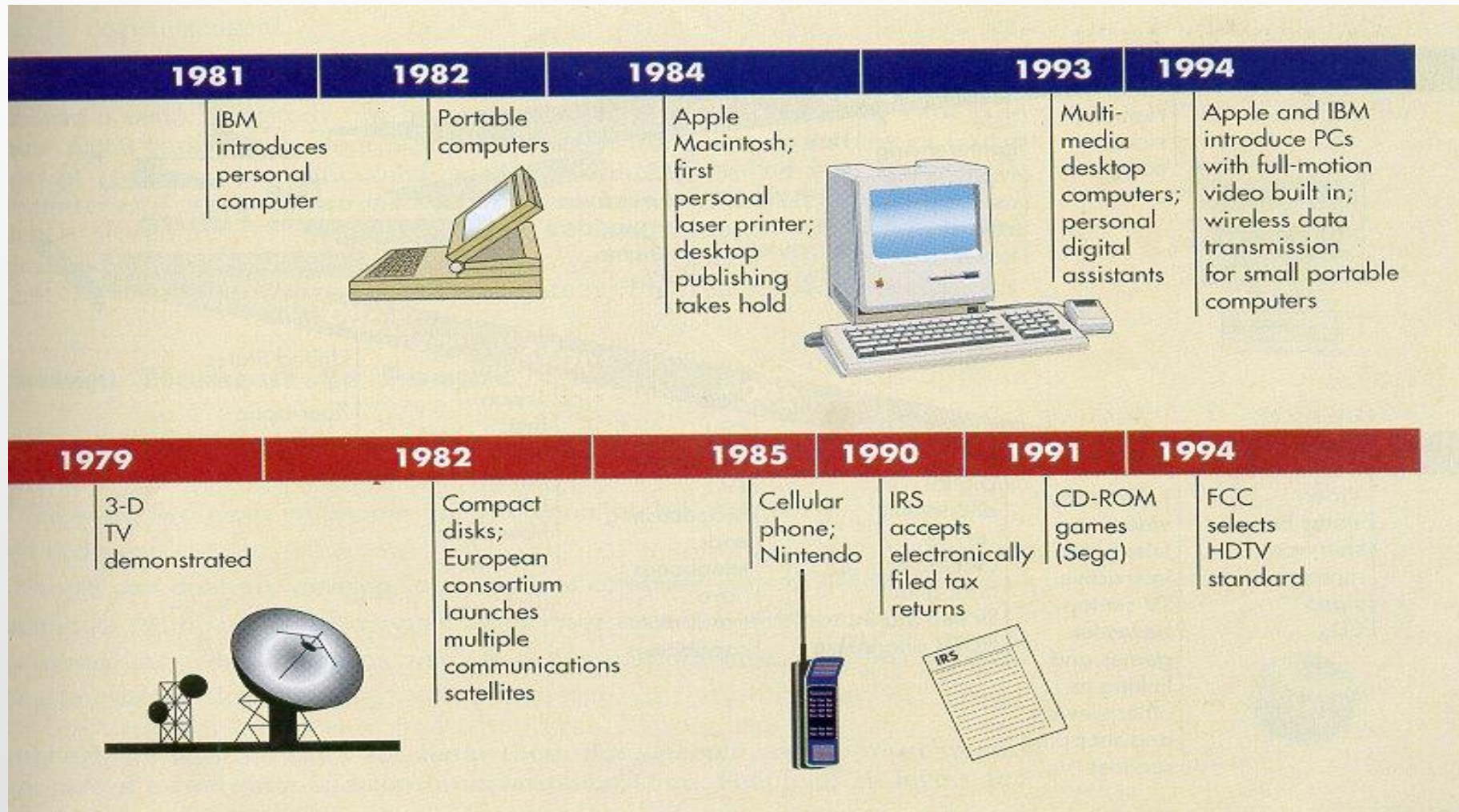


Communications Technology

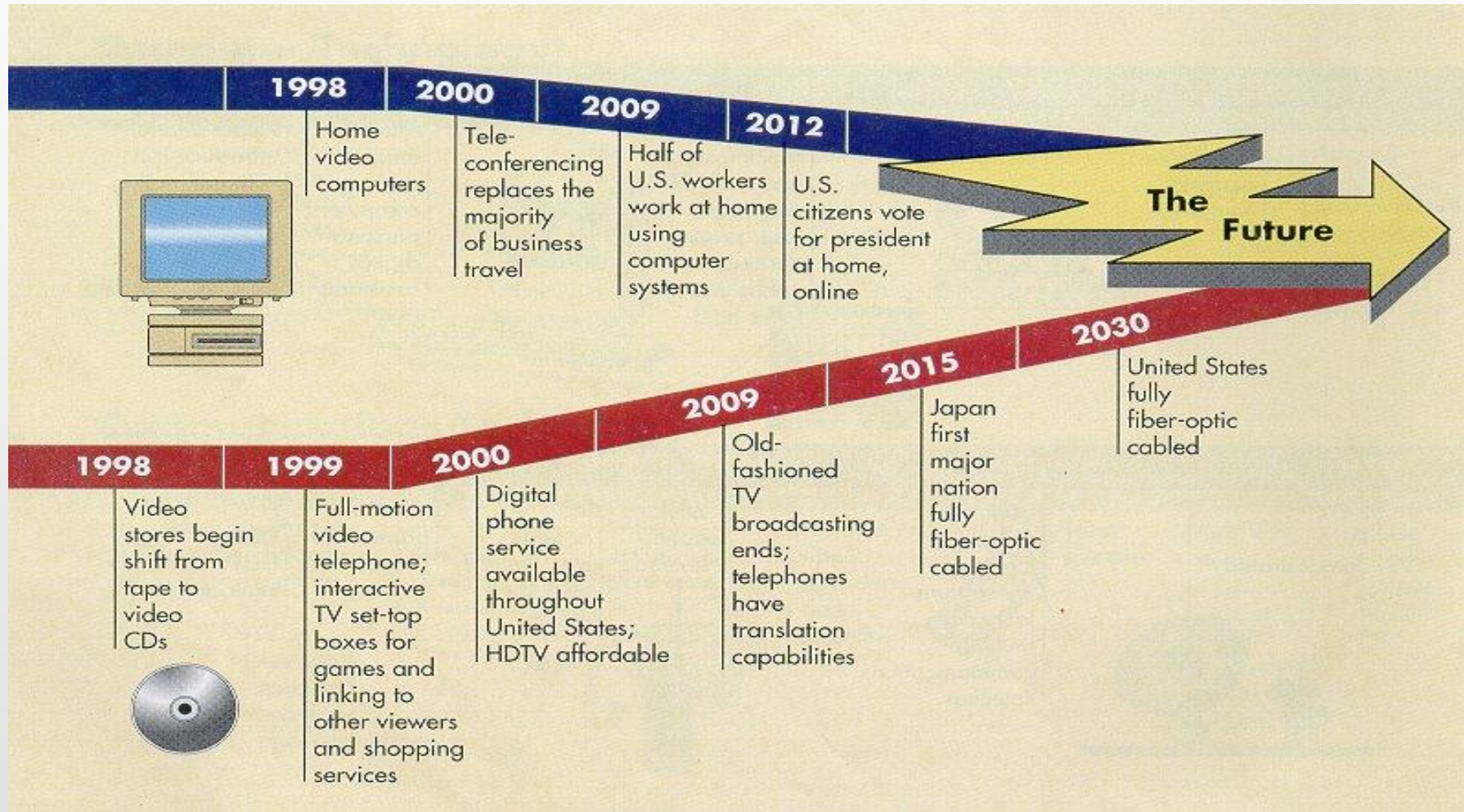
1950	1952	1957	1961	1968	1975	1976	1977
Cable TV	Direct-distance dialing (no need to go through operator); transistor radio introduced	First satellite launched (Russia)	Push-button telephones	Portable video recorders; video cassettes	Flat-screen TV	First wide-scale marketing of TV computer games (Atari)	First interactive cable TV



1981 - 1994



1998 - Current



1.3A INTERNET

What Happens in an Internet Minute?



And Future Growth is Staggering



Internet

- A global collection of network
- Interconnected computers work by transmitting data through a special type of packet switching which is known as the IP (internet protocol).
- When you connect to the Internet, your computer becomes part of a network.

Internet VS WWW?

Browser

- Can be defined as a software application used to locate and display web.

IE (Internet Explorer)

Mozilla Firefox

Safari

Microsoft Edge



1.3B

WEB SEARCHING

Web Searching

- World Wide Web (or WWW, It is called a “web” because the interconnections between documents resemble a spider’s web).
- Web is a software application that makes it easy and possible for nearly anyone to publish and browse hypertext documents on the Internet.
- Web searching is an act of looking for information in computer database or network (web).

Web Searching Categories

1. Directories
2. Search engines
3. Meta-search engines
4. Yellow pages

Directories

- A Web Directory or Web Guide is a hierarchical representation of hyperlinks.

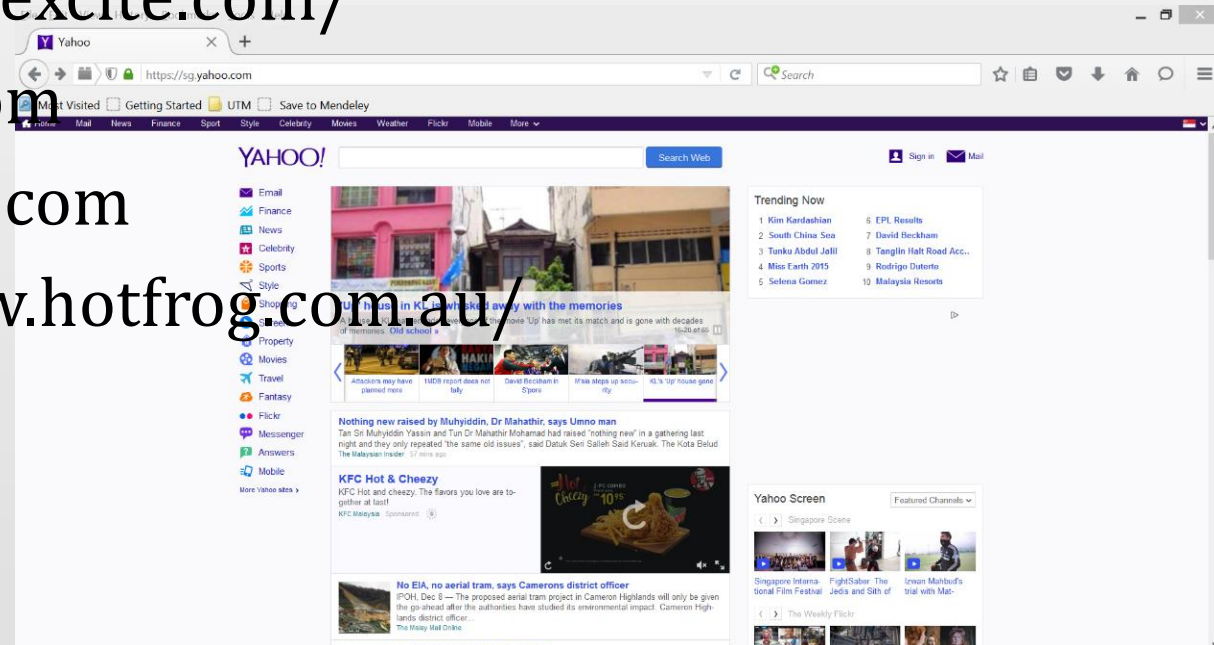
AOL – <http://www.aol.com/>

Excite – <http://www.excite.com/>

Lycos – www.lycos.com

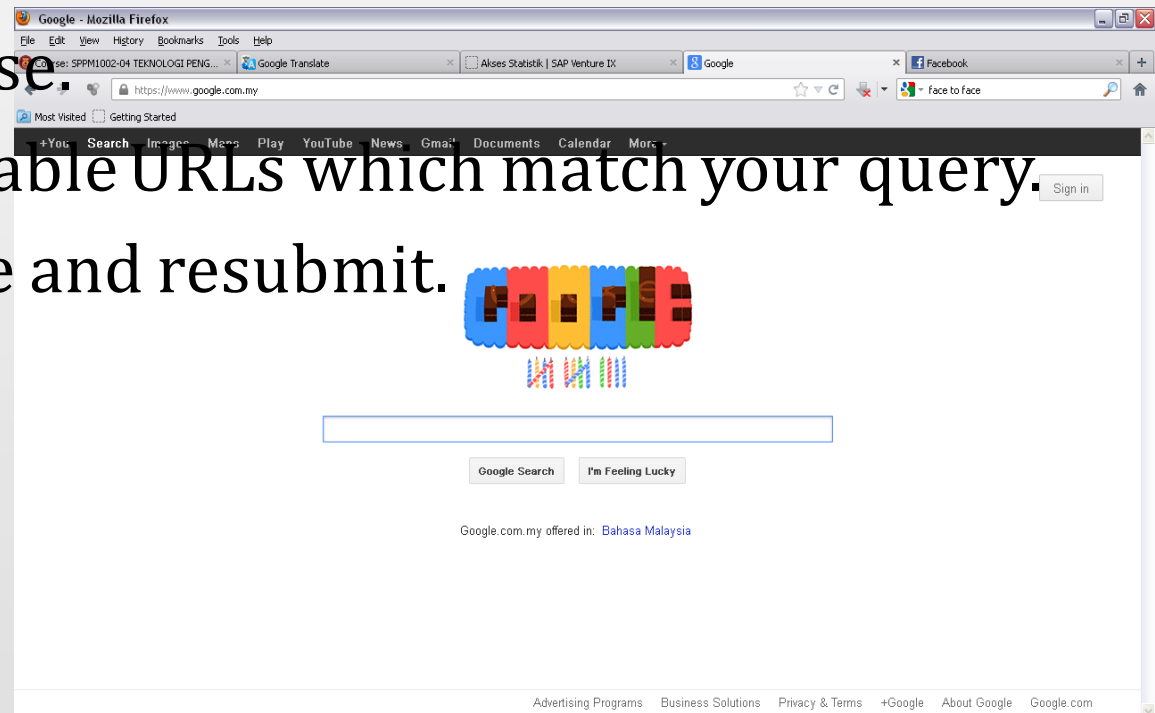
Yahoo! – www.yahoo.com

Hotfrog - <http://www.hotfrog.com.au/>



Search Engines

- A computer program that does the following:
 - Allows user to submit a query that consists of a word or phrase.
 - Searches the database.
 - Returns a list of suitable URLs which match your query.
 - Allows user to revise and resubmit.



Meta-search Engines

- A search engine that queries other search engines and then combines the results that are received from all. In effect, the user is not using just one search engine but a combination of many search engines at once to optimize Web searching.

<http://www.search.com/>

<http://www.dogpile.com/>

<http://clusty.com/>

Yellow Pages

- The **yellow pages** are any telephone directory of businesses, organized by category rather than alphabetically by business name, and in which advertising is sold, while **white pages** contains individual directory.

Bigfoot – www.bigfoot.com

Yahoo! People Search – people.yahoo.com

WhoWhere – www.whowhere.com

Yellow Page Malaysia – <http://www.yellowpages.com.my/>

SuperPages – www.superpages.com

Directory vs Search Engine

Directory	Search Engine
A directory allows you to explore and get what you want eventually.	A search engine brings you to the exact page on the words or phrases you are looking for.
Use a directory to find cooking-related websites.	Use a search engine to find a specific recipe, by providing the name of the ingredients.
Use a directory to find travel guides in a country.	Use a search engine to find the transport trains schedule in South Africa.

Web Searching Techniques



1. Pattern Matching Queries
2. Boolean Queries

Pattern Matching Queries

- It is also called **Fuzzy Query**.
- You can enter “ungrammatical sentences”, “incomplete sentence fragments”, “disjoint phrases”, “nonsense words”.
- The search engine gets a collection of keywords.
- Required keyword: Mark with “+” before the keyword.
- Prohibited keyword: Mark with “-” before the keyword.
- Type in keywords +online learning and -online learning. Seek the difference.



Pattern Matching Queries

+You Search Images Maps Play YouTube News Gmail Documents Calendar More ▾



Search About 13,100,000 results (0.23 seconds)

+You Search Images Maps Play YouTube News Gmail Documents Calendar More ▾

Search About 5,660,000 results (0.17 seconds)

+You Search Images Maps Play YouTube News Gmail Documents Calendar More ▾

Search About 12,500 results (0.27 seconds)

Boolean Queries

- A Boolean Query is a **query that consists keywords** but with **logical operators** (AND, OR, NOT).
- X AND Y – will return URLs that contain both X and Y.
- X OR Y – will return URLs that contain either X or Y.
- X AND NOT Y – will return URLs that contain X and do not contain Y.
- Symbol:
(AND - &), (OR - |), (NOT - !), (NEAR - ~)

1.3C

WEB APPLICATIONS

Web Applications

In groups of 2, find two (2) web applications and present their advantages and disadvantages to the class.