INDIAN SCHOOLMUSCAT

CLASS XI

INFORMATION TECHNOLOGY(802)

Chapter -1: Computer Organization & OS : User Perspective

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Some points to keep in mind…..

- Please avoid login from multiple systems.
- Kindly logout at the end of the session.
- Please turn off your mic and webcam
- If you have any doubt, write in the chat box
- If there is any technical problem, hold on – we will be back
- Since it is a lockdown situation you can use rough notebook or notepad or sheets of paper to take down notes. You may take screenshots during the course of delivery of topics.

Operating System continued…

Single user and Multi-user

Single-user operating systems allow only one user to use the system. The desktop systems can be classified as typical single user systems.
Eg: Windows, Mac OS X

Multi-user operating systems allow many users to access the system by maintaining an account of all the registered users. Eg: Linux, Unix

Operating System continued…

Real-time Operating System

Operating systems which ensure that the response time is fixed are categorized as real-time operating systems. They are intended for applications where data needs to be processed quickly, without any significant delays. For example, an antiaircraft missile system must fire as soon as it receives signal from the enemy aircraft, before it leaves the bomb and flies away.

Usage: Traffic Lights control, Heart rate monitoring, Aircraft control, Controlling robots. Eg: IBM's **OS/390**

Operating System continued…

Batch Processing Systems

In a batch processing systems, similar jobs are clubbed together and submitted as a block to the processor for execution. User intervention is minimal in such systems. The jobs are picked up one by one and executed.

Usage: Electricity, Gas and telephone bills calculated on a monthly basis. Eg: IBSYS for IBM's 709x

Worksheet-1

1.	What is a computer?
2.	What are the characteristics of a computer? Explain.
3.	Draw a neat block diagram of a computer system and label the blocks.
4.	Write short notes on : a) Input unit. b) CPU. c) ALU. d) Control unit. e) Output Unit.
5.	Discuss on Primary storage (RAM) and Secondary storage.

Worksheet-1 Continued…..

5.	Write short notes on: a) Units of memory. b) Motherboard. c) Power Supply Unit.
6.	What do you mean by an operating system? Explain.
7.	Name 4 commonly used operating systems.
8.	Draw a neat block diagram of Operating system as an interface and label the parts.

Worksheet-1 Continued…..

9.	Explain in detail about the functions of an operating system.
10.	Write short notes on: a) Single Tasking and Multitasking OS. b) Single user and Multi-user OS. c) Real time OS. d) Batch Processing OS.

Any Questions?

Chapter - 2 : Networking and Internet

Evolution of Networks and Internet

In 1876 Bell came forward with the concept of communication through telephone lines leading to development of Public Switched Telephone Network (PSTN) in 1877.

In late 1950s, all the military communications started using telephone networks setting up dedicated connection between the two parties. This dedicated connection made use of technology called circuit switching.

Evolution of Networks and Internet continued….

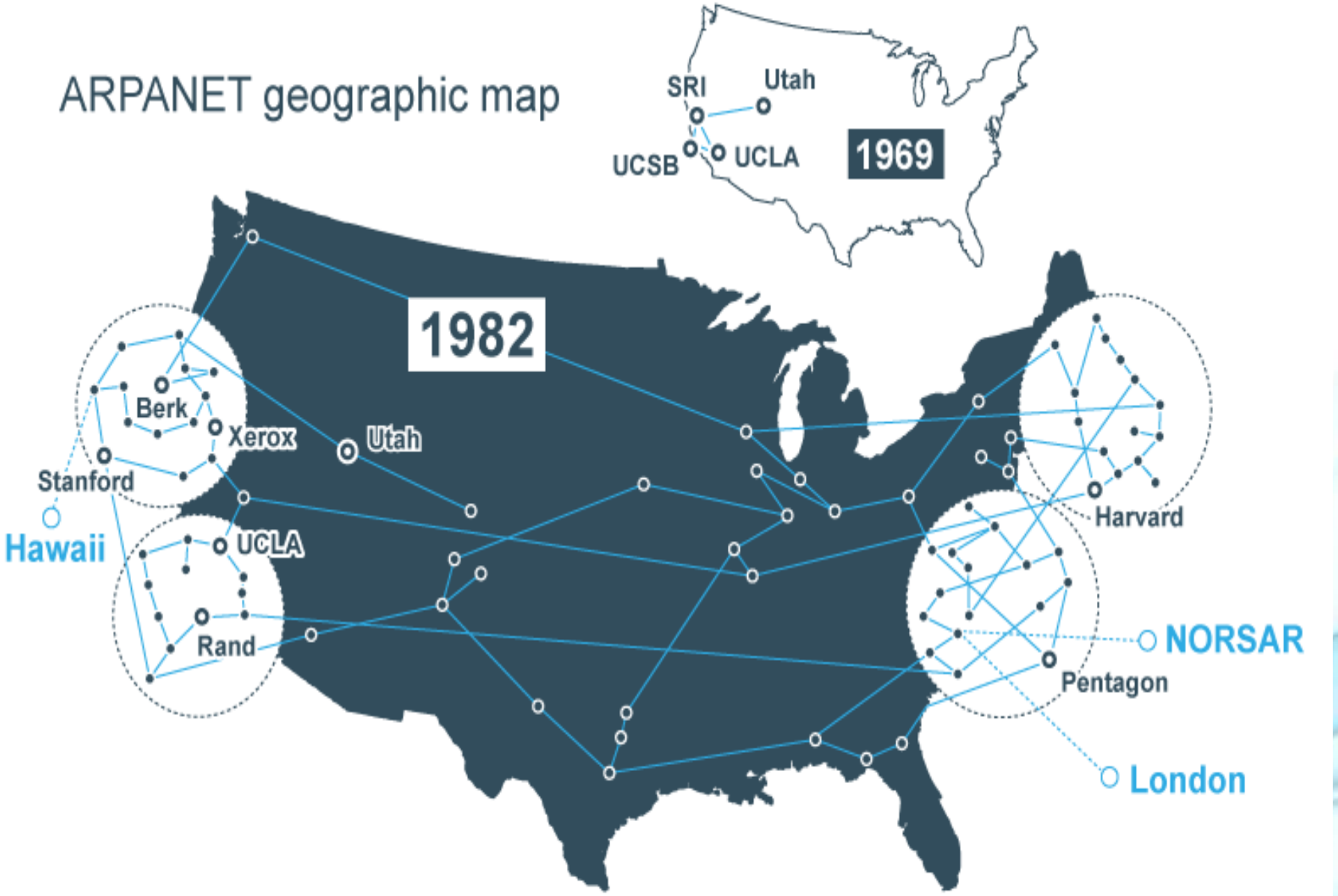
The connection comprised of several intermediary lines and switching offices enroute. They were vulnerable to danger of damage to the switching offices which may disrupt the entire network.

At the peak of cold war, US Department of Defense (DoD) realized the need to establish fault-tolerant network that would not fail at the time of nuclear war and could survive a single point failure in the network.

Evolution of Networks and Internet continued….

US Department of Defense realized the need to connect geographically separated research computers together to form a network. This led to the development of Advanced Research Projects Agency Network (ARPANET) in 1969. Along with several smaller networks, another large network called NSFNET was developed in 1984 by NSF,
U.S. National Science Foundation for research and education purpose.

ARPANET geographic map



Evolution of Networks and Internet continued….

When ARPANET and NSFNET were interconnected, the network growth increased tremendously. TC P/IP protocol (rules for communication) acted as a glue to connect various heterogeneous networks together into a single network. This wide network is an Internet (network of networks).

With the advent of Internet, the whole world got connected on a global level.

Evolution of Networks and Internet continued….

Several government and private organizations, collectively called Internet Service Providers (ISPs) joined hands to provide connectivity for Internet.

Internet made it possible to exchange information and communicate with remote nodes. There are several applications of Internet such as e-mail, file transfer, remote login, and World Wide Web (WWW).

Computer Networks

Nodes or stations are electronic devices such as computers, printers, Fax machines, and telephones which communicate with each other by sending and receiving data/message.

A one-way simple communication system that comprises the following components:

- Sender: The node that is responsible for sending the data.
- Receiver: The node that is responsible for receiving the data.
- Message: Message is the information or meaningful data that is being communicated in a structured form.

Computer Networks continued…..

Channel: Channel is the communication medium through which message is transmitted.

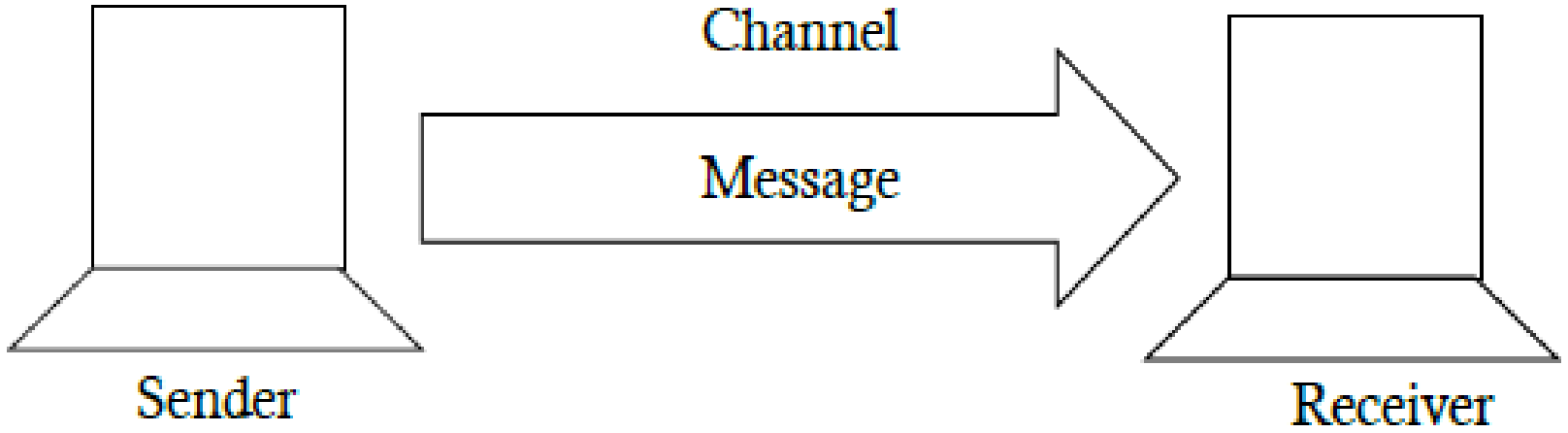


Figure 2.2: One-way Communication System

Computer Networks continued…..

A collection of interconnected nodes which communicate by means of some channel form computer network. The communication taking place in a computer network can be categorized as simplex, half-duplex, and full-duplex.

In simplex mode, information can be transferred only in one direction. This mode is termed unidirectional.

Computer Networks continued…..

In computer networks, the data transmitted using many fiber optics and satellites is simplex in nature. Half-duplex mode is a bidirectional communication between the two nodes, however, only one node at a time can transmit the data. This mode is generally used for transferring files between nodes in a low-bandwidth setting.

Computer Networks continued…..

In full-duplex mode, both communicating parties can send and receive at the same time.

The interactive applications use this mode of communication, thus speeding up the data transfer. NIC (Network Interface Card) on the systems for networking supports full-duplex mode.

Network Interface Card

Any Questions?