7.0 COMPUTER NETWORK (PART II)

School of Education
Faculty of Social Sciences and Humanities

Learning Outcomes

At the end of this lesson, you should be able to:

1. Discuss on different types of network, such as LAN, CAN, MAN, WAN, Internet, Extranet and Intranet.
2. Elaborate on two networking methods, which are peer-to-peer and client-server.
3. Explain on LAN applications.

Task

In groups of 4, draw the telecommunication and computer networking structure of UTM. The drawing must includes:

1. Networking structure in a computer laboratory.
2. Networking structure to transfer files between computer to computer in a computer laboratory without using internet.
3. Networking structure to transfer files between computer to computer in a computer laboratory using internet.
4. Networking structure in School of Education.
5. Networking structure in UTMJB.
6. Networking structure between UTMJB and UTMSPACE JB.
7. Networking structure between UTMJB and UTMKL.

7.1
TYPES OF NETWORK

Types of Network

- LAN vs MAN vs WAN vs CAN
  https://www.youtube.com/watch?v=qli-X51EkCg

- Local Area Network (LAN) is basically used for computer networking of small span of areas.

Types of Network

- Campus Area Network (CAN) is a computer network. It is made up of two or more Local Area Networks (LANs) within a limited area. It ran cover many buildings in an area. The main feature of Campus Area Network (CAN) is that all of the computers which are connected together have some relationship to each other. Wires, wireless or some other technology can be used to connect these computers.

Types of Network

- Metropolitan Area Network (MAN) is the interconnection of networks in a city. Generally, Metropolitan Area Network (MAN) is not owned by a single organization. It acts as a high speed network to allow sharing resources within a city. Metropolitan Area Network (MAN) can also be formed by connecting remote Local Area Networks (LANs) through telephone lines or radio links. Metropolitan Area Network (MAN) supports data and voice transmission. The best example for Metropolitan Area Network (MAN) is the television cable network in cities.

Types of Network

- Wide Area Network (WAN) covers a wide geographical area which includes multiple computers or Local Area Networks (LANs). It connects computers through public networks, like telephone system, microwave, satellite link or leased line. Most of the Wide Area Networks (WANs) use leased lines for Internet access as they provide faster data transfer. Leased line is a dedicated telephone connection between service provider and consumer. The main advantage of using lease lines is that there is no interference by other users outside the network. Wide Area Network (WAN) helps an organization to establish network between all its departments and offices located in the same or different cities. It also enables communication between the organization and the rest of the world.

Types of Network

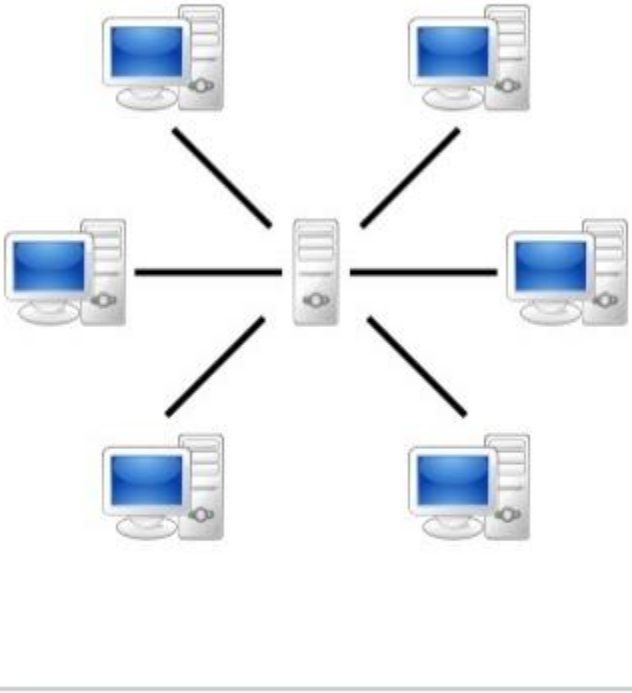
Parameter	Intranet	Extranet
Usage	Private	Private
User Types	Organization employees and Internal company departments	Suppliers, customer and Business partners.
Usage	Internal employee communication , telephone directories etc.	Check status of orders, Access data , send email
Security	High security. Configured under 100 security level in firewall	Generally uses VPN technology for secured communication over Internet. Medium security Level.
Regulated by	It is regulated by an organization.	It is regulated by multiple organization.
Ownership	Owned by Single organization	It is owned by single/multiple organization.

Types of Network

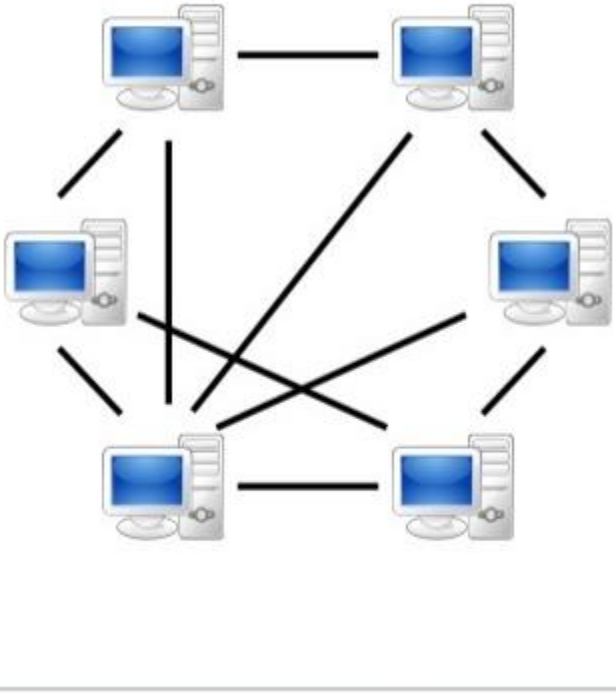
Parameter	Internet	Intranet
Usage	Public	Private
User Types	Any user having dial up of Internet access line.	Organization employees and Internal company departments
Usage	Access all kind of information	Internal employee communication , telephone directories etc.
Security	Low security. Configured under 0 security level in firewall	High security. Configured under 100 security level in firewall
Regulated by	Internet Architecture Board (IAB): Oversees the technical and engineering development of the IETF and IRTF. Internet Corporation for Assigned Names and Numbers (ICANN).	It is regulated by an organization.
Coverage	Wide Area	Within an organization
Access	Large number of users	Limited number of users
System failure	Unpredictable	System availability is high since system is monitored by authority

7.2
NETWORKING METHODS

Networking Methods



A client-server network



A peer-to-peer network

Networking Methods

	CLIENT-SERVER	PEER-TO-PEER
Basic	There is a specific server and specific clients connected to the server.	Clients and server are not distinguished; each node act as client and server.
Service	The client request for service and server respond with the service.	Each node can request for services and can also provide the services.
Focus	Sharing the information.	Connectivity.
Data	The data is stored in a centralized server.	Each peer has its own data.
Server	When several clients request for the services simultaneously, a server can get bottlenecked.	As the services are provided by several servers distributed in the peer-to-peer system, a server in not bottlenecked.
Expense	The client-server are expensive to implement.	Peer-to-peer are less expensive to implement.
Stability	Client-Server is more stable and scalable.	Peer-toPeer suffers if the number of peers increases in the system.

7.3
LAN APPLICATIONS

LAN Applications

- Housekeeping applications
- Educational services
- Resources sharing
- Office administration