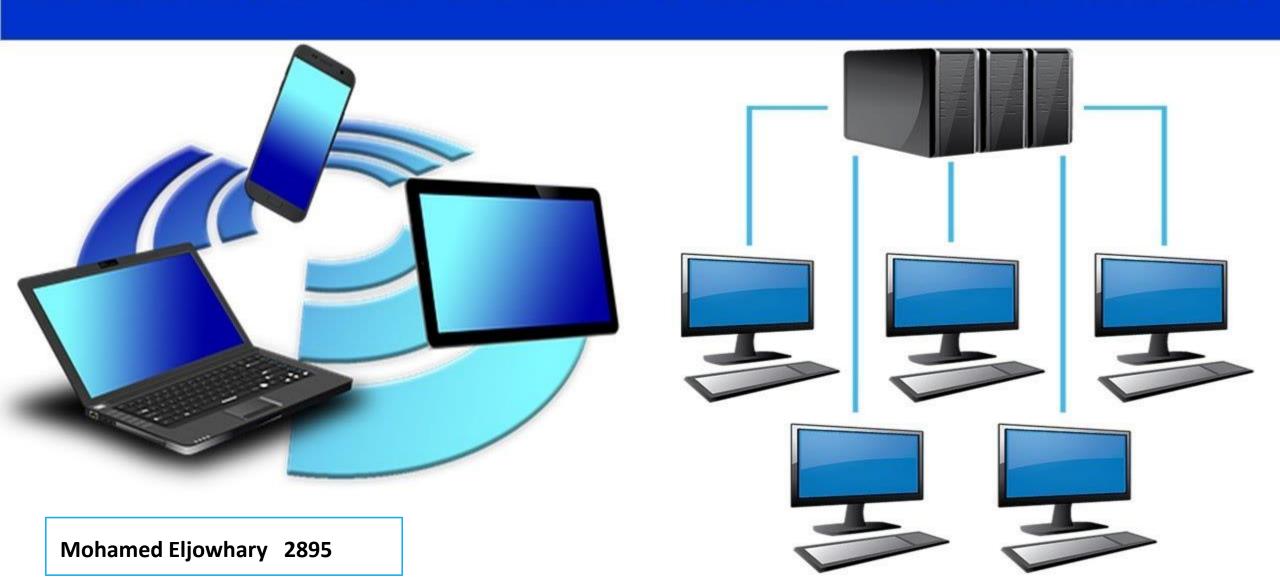# COMPUTER NETWORKS

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Objectives

1-Define computer network , and discuss their advantage and disadvantage .

2-Describe types of network .

3-Distinguish between peer to peer , client server and virtual private LAN

4-Define network topology and differences between tree LAN topology

5-Differences between LAN , WAN components

6-Differences between circuit switching , packet switching , and their strong ness and weaknesses

7-Define network protocol , and its importans , list of wired protocol and wireless protocol and their versions   .

1-Define computer network , and discuss their advantage and disadvantage

Computer networks link two or more computers so that they can exchange data and share resources, such as high-performance laser printers, enabling communication and collaboration between individuals and businesses. Networks are often labeled by the geographic distance they span

2-Describe types of network .

A local area network (LAN)
Uses cables, radio waves, or infrared signals to link computers or peripherals,
such as printers, within a small geographic area,
such as a building or a group of buildings.
LANs are typically owned and managed by a single person or organization

A wide area network (WAN)
uses long-distance transmission media to link computers separated by a few
miles or even thousands of miles.
A WAN is a geographically dispersed collection of LANs.
The Internet is the largest WAN; it connects millions of LANs all over the
globe. Unlike a LAN, a WAN is not owned by a single organization. Instead, it
has a collective ownership or management

A metropolitan area network (MAN)
 is a network designed for a city or town.
 It is usually larger than a LAN but smaller than a WAN. Typically, a MAN is
owned by a single government or organization. Some more essential examples of
a MAN include a network used to connect firehouses across a region

A campus area network (CAN)
includes several LANs that are housed in various locations on a
college or business campus. Usually smaller than a WAN, CANs
use devices such as switches, hubs, and routers to interconnect

personal area network (PAN).
This is a network created among an individual's own personal devices,
usually
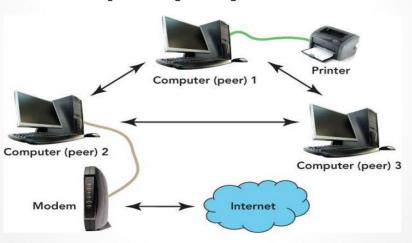within a range of 32 feet. Such networks
involve wireless technology

3-Distinguish between peer to peer , client server and virtual private LAN

A peer-to-peer LAN

-Share files without a file server

-easy to set up

-best used for home or small offices

with no more than 10 computer

-Do not require a network operating system

-Can be slow if there are too many users

-security not strong

Local Area Networks

- Peer-to-peer (P2P) networks

Computer (peer) 1   Printer
Computer (peer) 2   Computer (peer) 3
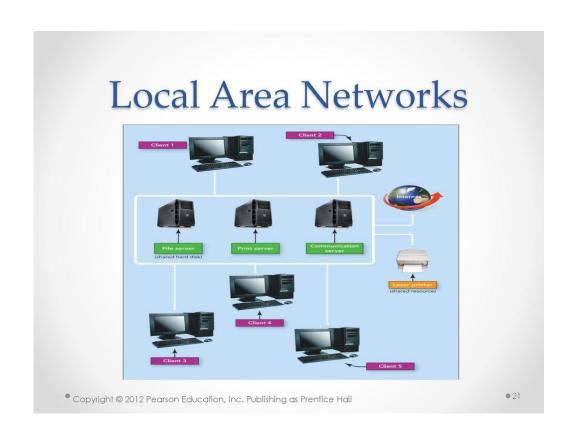Modem   Internet

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Client /server networks
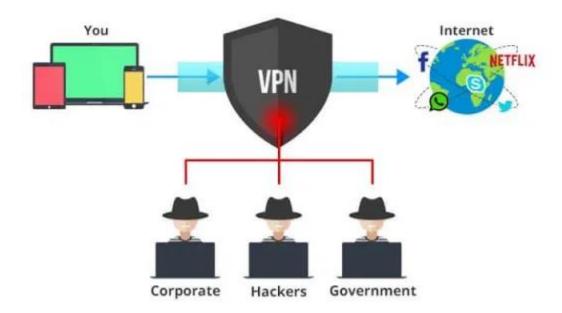
-made up of one or more file
servers and clients
(any type of computer)
-Client software enables requests
to be sent to the server
-Wired or wireless connections
-Do not slow down with heavy use

Virtual private network

➢ Operates over the internet
➢ Accessible by authorized users for quick access to corporate information
➢ Uses secure , encrypted connections and special software.

4-Define network topology and differences between three LAN topology

network topology. A
topology isn't just the arrangement of computers in a particular
space; a topology
provides a solution to the problem of
contention, which occurs when two computers try to access
the LAN at the same
time

The three different LAN topologies are

bus (single connections to a central line)

star (all connections to a central switch)

ring (tokens carry messages around a ring)

5-Differences between LAN , WAN components

WANs and LANs have all the same basic components—cabling, protocols, and routing devices.
But a WAN is different in that it has a backbone, high capacity transmission lines, and points of presence, connection points that enable users to access
the network

6-Differences between circuit switching , packet switching , and their strong ness and weaknesses

WAN protocols include circuit switching and packet switching. Circuit switching creates a permanent end-to-end circuit that is optimal for voice and real time data. Circuit switching is not as efficient or reliable as packet switching; it is also more expensive.
Packet switching does not require a permanent switched circuit. A packet-switched network can funnel more data through a medium with a given data transfer capacity. However, packet switching introduces slight delays that make the technology less than optimal for voice or real-time data.

7-Define network protocol , and its importans , list of wired protocol and wireless protocol and their versions

Protocols are the rules that define how network devices can
communicate with each other. Messages
move through the layers of the protocol stack.
When a computer sends a message over the network, the
application hands the message down the
protocol stack. At the receiving end, the message
goes up a similar stack in reverse order

 The most widely used LAN protocol for wired networks is
Ethernet. Popular versions include
Ethernet (10Base-t), Fast Ethernet (100Base-T),
Gigabyte Ethernet, and 10 Gigabyte Ethernet. The
most commonly used wireless protocol is 802.11g.
Additional wireless protocols are 802.11n, 80211r,
802.15, 802.16, and the new 802.20.

THANK YOU

http://portal.limu.edu.ly/pluginfile.php/22664/mod_resource/content/1/Computers%20Are%20Your%20Future