



جامعة المستقبل
AL MUSTAQBAL UNIVERSITY

كلية العلوم
قسم الأنظمة الطبية الذكية

Wireless Local Area Networks

Lecture 5

Subject: Wireless Sensor Network

Level: Third

Lecturer: M.Sc Ola Ali

Wireless Local Area Network (WLAN)

- A **wireless local area network (WLAN)** is a wireless computer network that links two or more devices using wireless communication within a limited area such as a home, school, computer laboratory, or office building .
- This gives users the ability to move around within a local coverage area and yet still be connected to the network.
- Through a gateway, a WLAN can also provide a connection to the wider Internet.
- Most modern WLANs are based on **IEEE 802.11** standards and are marketed under the Wi-Fi brand name.

Wireless LAN Applications

Four application areas for Wireless LAN's:

- LAN extension
- Cross Building interconnect
- Nomadic access
- Ad hoc networks

LAN extension

Wireless LAN linked to a Wired LAN on same premises

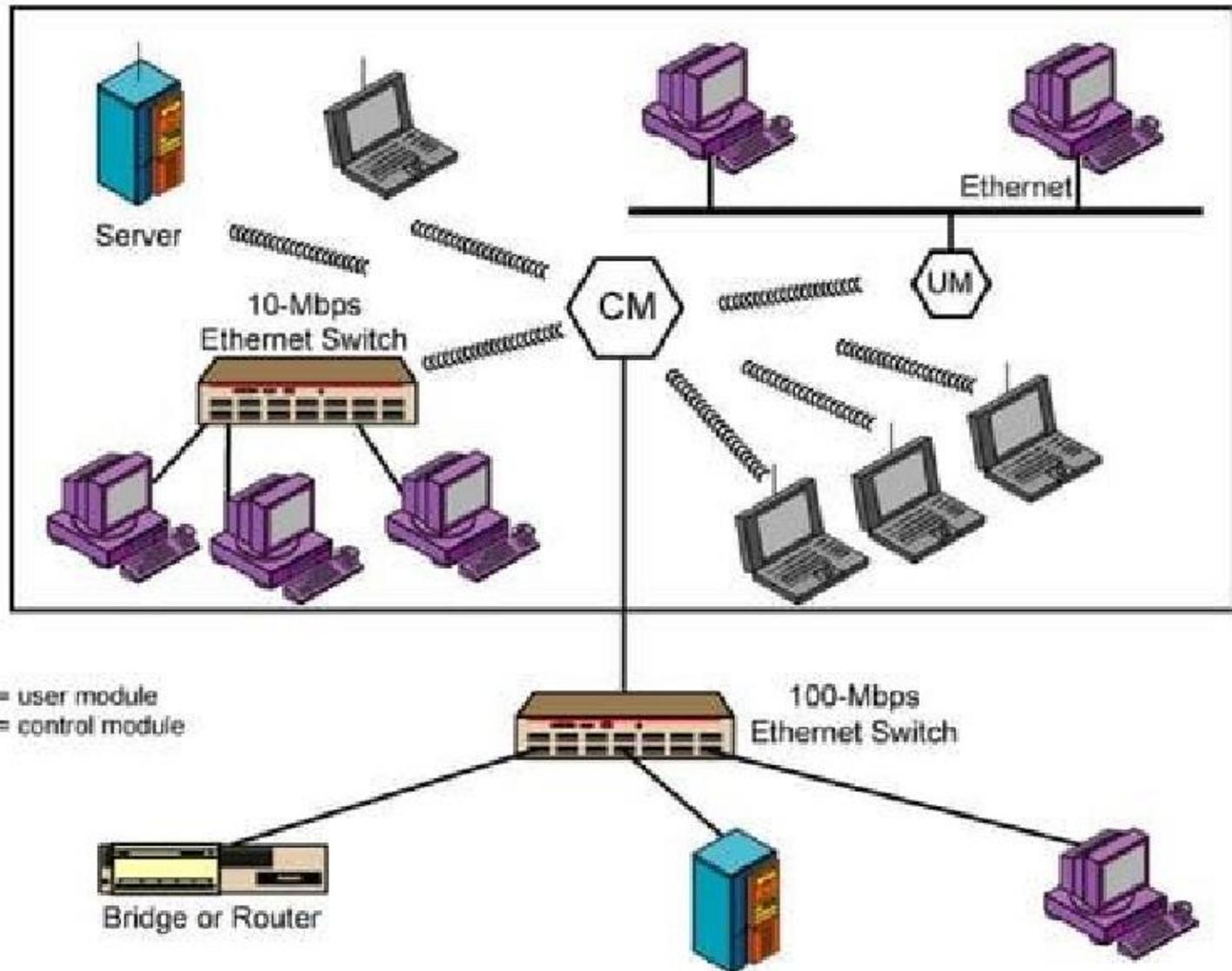
➤ Wired LAN

- Backbone
- Supports servers and Stationary Workstations

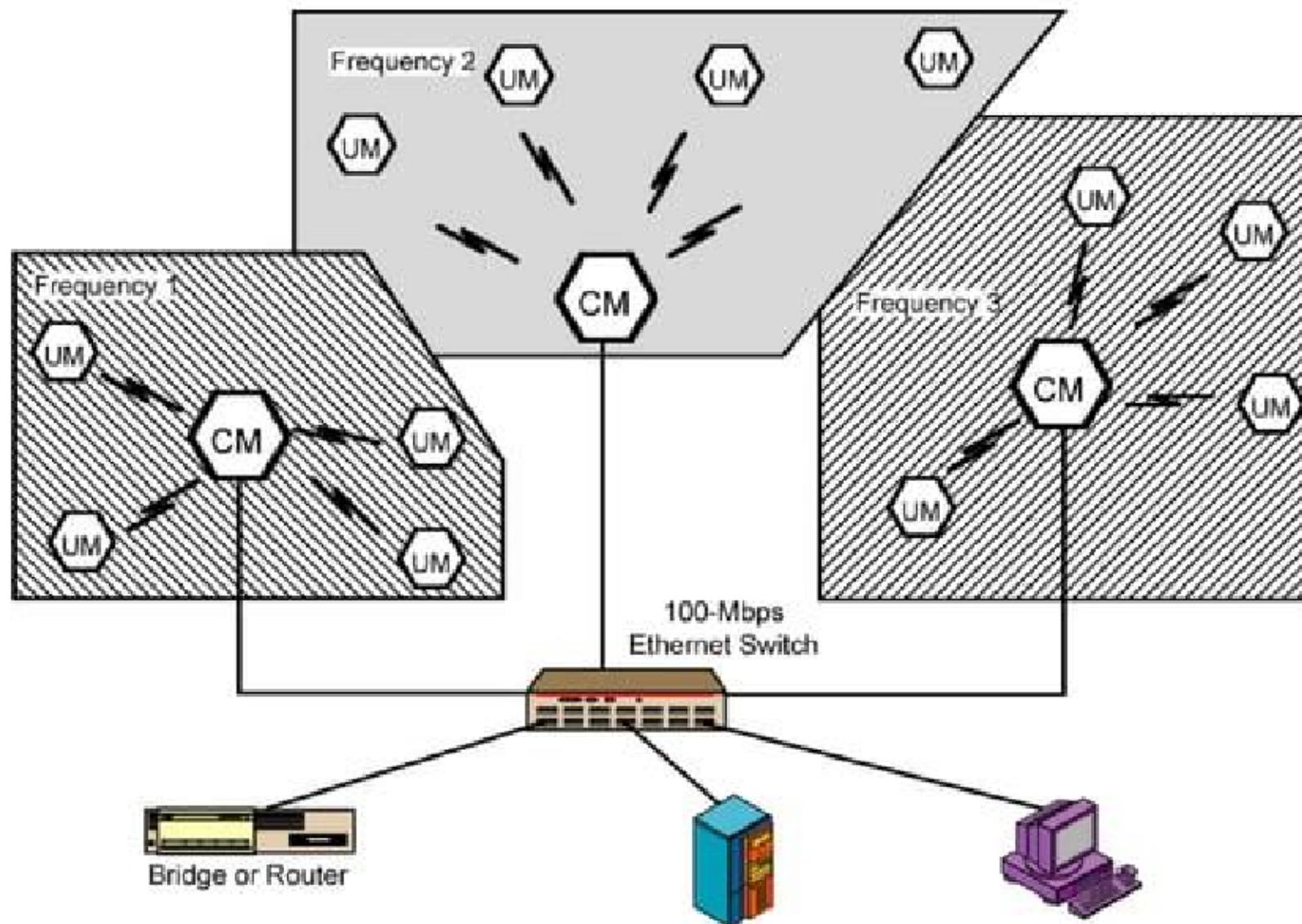
➤ Wireless LAN

- Stations in large areas such as offices, warehouses etc.
- Historical buildings
- Small offices

Single-Cell Wireless LAN Configuration



Multi-Cell Wireless LAN Configuration



Cross-Building Interconnect

- Connecting LANs in nearby buildings
 - Wired LAN or Wireless LAN
- Point-to-point wireless link is used
- Devices connected are typically Bridges or Routers
- Signal point-to-point link is not a LAN

Nomadic access

- Wireless link between LAN hub and mobile data terminal equipped with an antenna
 - Laptop or Notepad
- Uses:
 - Transfer of data from portable computer to office server
 - Extended environments such as acces

Ad hoc networking

- Temporary peer-to-peer network set-up for immediate network access without any use of centralized server

Eg: Connecting laptops temporarily to a network for a limited amount of time