Telecom LAN Media Access

❖ Ethernet IEEE 802.3

- **Is the most used LAN implementation**
- **The Ethernet use CSMA/CD**
- **Traffic is brusty in nature and broadcasts data to all hosts on the subnet**
- **Ethernet is a baseband Network**
- **Uses broadcast and collision domains**
- **It can operate at 10 to 1,000 Mbps**
- **Shared Media (all devices take turns using the same media)**
- **Supports full-duplex on twisted pair**
- **Can use coaxial or twisted pair media**
- **Defined by standard 802.3**
- **Ethernet defines 3 cable standards**
  - **THINNET RG58 10Base2**
    - Require BNC British Naval Connectors
    - Up to 185 meters
    - Provides 10 Mbps
  - **THICKNET RG8, RG11 10Base5**
    - Require BNC British Naval Connectors
    - Use non flexible cable
    - Can have longer segment than THINNET
    - Up to 500 meters
    - Provides 10 Mbps
  - **Unshielded Twisted Pair**
    - Nodes are connected to a central LAN device
    - 10BaseT
      - Operate at 10MBps
      - Use UTP
    - 100Base-TX Fast Ethernet
      - Operate at 100MBps
      - Use UTP
    - 1000Base-T Gigabit Ethernet
      - Operate at 1GBps 1,000 Mbps
      - Use UTP

❖ ARCnet

- **Is one of the earliest LAN technologies**
- **It uses a token passing access method in a STAR technology on coaxial cable**

- **Provide slow network performance**
- **Node address of each station must be set manually**

❖ Token-Ring IEEE 802.5

- **Created by IBM in 1970**
- **Is an older LAN implementation that use token passing technology**
- **Transmission speeds of 4 to 16 Mbps**
- **All end stations are attached to a device called Multistation Access Unit MAU**
- **It use Active monitor mechanism to remove frames that are continually circulating**
- **One station on the network play the role of active monitor**
- **It use beaconing mechanism**
- **Nodes are connected by unidirectional links**

❖ FDDI ANSI X3T9.5

- **Fiber Distributed Data Interface**
- **FDDI - was developed by American National Standards Institue (ANSI)**
- **FDDI is a RING topology used in LAN and WAN**
- **FDDI - Consists of a dual Token Ring operating at 100MBps**
- **Used in backbone networks**
- **Use token passing with dual counter-rotating Rings with one ring active at any given time**
- **FDDI is a token passing media access topology**
- **FDDI- has a redundant rings in case primary ring goes down**
- **Copper Distributed Data Interface CDDI can be used with UTP to connect nods into the ring**
- **CDDI - Introduce Length problem**
- **CDDI - Introduce EMI problem**
- **CDDI - Works over UTP**
- **More resistant to EMI then Twisted pair & Coaxial**
- **Can transmit greater bandwidth and distance then twisted pair & Coaxial**
- **Most expensive to install**