CSE3151

COMPUTER NETWORKS

DR. ASIF ZAMAN
ASSOCIATE PROFESSOR, CSE, RU

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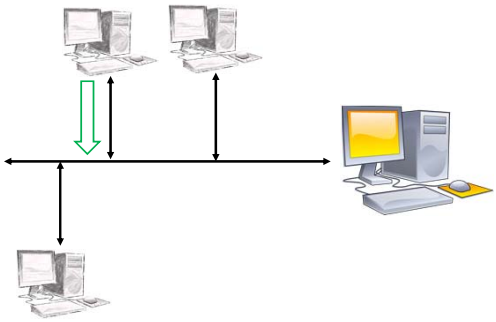
1- Persistent CSMA Protocol



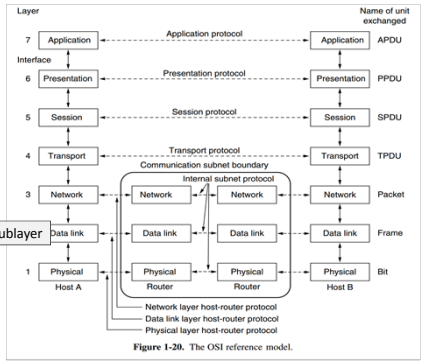


Figure 1-20. The OSI reference model.

1- Persistent CSMA Protocol

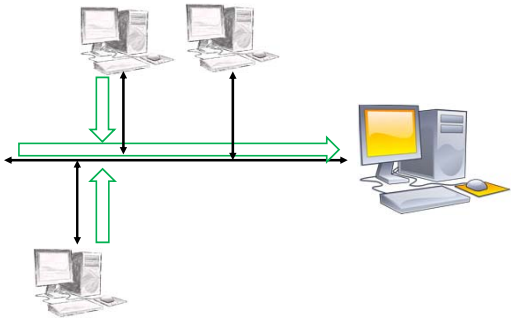
- **When a station has data to send:**
  - It first listens to the channel to see if anyone else is transmitting at that moment.
  - If the channel is idle, the stations sends its data.
  - if the channel is busy, … waits until it becomes idle. Then the station transmits a frame
  - if a **collision** … waits a random amount of time and starts all over again.
  - The protocol is called **1-persistent** because the station transmits with a **probability of 1** when it finds the channel idle

Carrier Sense Multiple Access Protocols

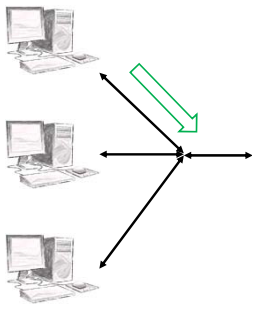
- **C**arrier **S**ense **M**ultiple **A**ccess Protocols – CSMA
- Protocols in which stations listen for a carrier (i.e., a transmission) and act accordingly are called carrier sense protocols

- **PERSISTENT** and **NONPERSISTENT** CSMA
- Persistent - নাছোড়বান্দাভাবে রত

1- Persistent CSMA Protocol



Nonpersistent CSMA



- A station senses the channel when it wants to send a frame, and if no one else is sending, the station begins doing so itself.
- However, if the **channel is already in use, the station does not continually sense** it for the purpose of seizing it immediately upon detecting the end of the previous transmission.
- Instead, it **waits a random period** of time and then repeats the algorithm.

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P-persistent CSMA

- It applies to **slotted** channels and works as follows.
  - When a station becomes **ready to send**, it **senses the channel**.
  - **If it is idle**, it transmits with a probability **p**.
  - With a probability **q = 1 – p**, it defers until the next slot.
  - If that slot is also idle, it either transmits or defers again, with probabilities p and q.
  - This process is repeated until either the frame has been transmitted or another station has begun transmitting.
  - if there had been a collision - it waits a random time and starts again.
  - If the station initially senses that the channel is busy, it waits until the next slot and applies the above algorithm.

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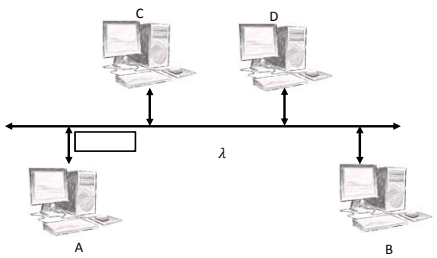
CSMA with Collision Detection

- CSMA with Collision Detection – CSMA/CD



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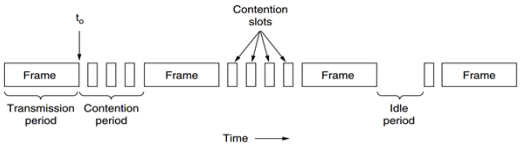
CSMA with Collision Detection



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Collison Free Protocol

- A Bit-Map Protocol

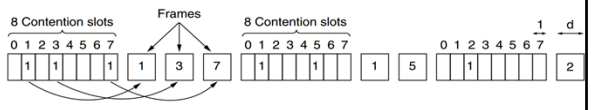

Figure 4-6. The basic bit-map protocol.

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Collison Free Protocol

- Token Passing

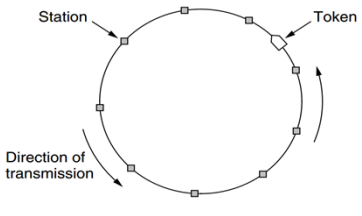

Figure 4-7. Token ring.

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