Distributed Coordination Function (DCF)

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Two MAC sublayers: **the distributed coordination function (DCF)**

And **point coordination function (PCF)**

Distributed coordination function (DCF):

One of the two protocols defined by IEEE at the MAC sublayer is called the distributed coordination function (DCF). DCF uses CSMAICA as the access method. Wireless LANs cannot implement CSMAfCD for **three reasons**:

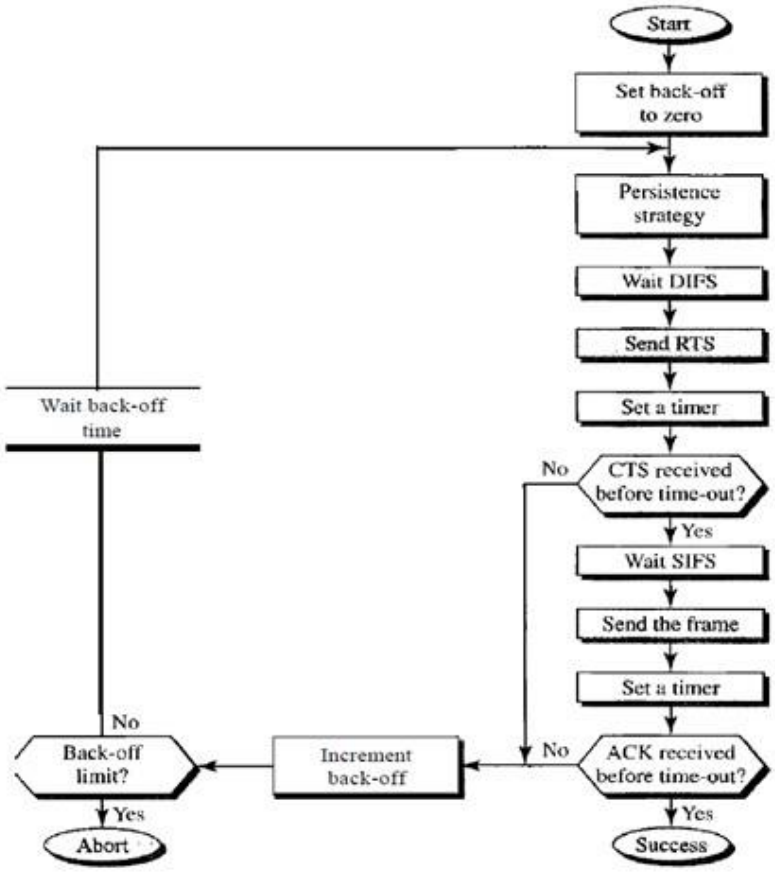
I. For collision detection a station must be able to send data and receive collision signals at the same time. This can mean costly stations and increased bandwidth requirements.

2. Collision may not be detected because of the hidden station problem.

3. The distance between stations can be great. Signal fading could prevent a station at one end from hearing a collision at the other end.

Process Flowchart:

Figure 14.4 *CSMAICA flowchart*



I. Before sending a frame, the source station senses the medium by checking the
Energy level at the carrier frequency.

a. The channel uses a persistence strategy with back-off until the channel is idle.

b. After the station is found to be idle, the station waits for a period of time called
The distributed interframe space (DIFS); then the station sends a control frame called the request to send (RTS).
2. After receiving the RTS and waiting a period of time called the short interframe space (SIFS), the destination station sends a control frame, called the clear to send (CTS), to the source station. This control frame indicates that the destination station is ready to receive data.

3. The source station sends data after waiting an amount of time equal to SIFS.

4. The destination station, after waiting an amount of time equal to SIFS, sends an acknowledgment to show that the frame has been received. Acknowledgment is needed in this protocol because the station does not have any means to check for the successful arrival of its data at the destination. On the other hand, the lack of collision in *CSMAlCD* is a kind of indication to the source that data have arrived.

Network Allocation Vector How do other stations defer sending their data if one station acquires access? In other words, how is the *collision avoidance* aspect of this protocol accomplished? The key is a feature called NAV.