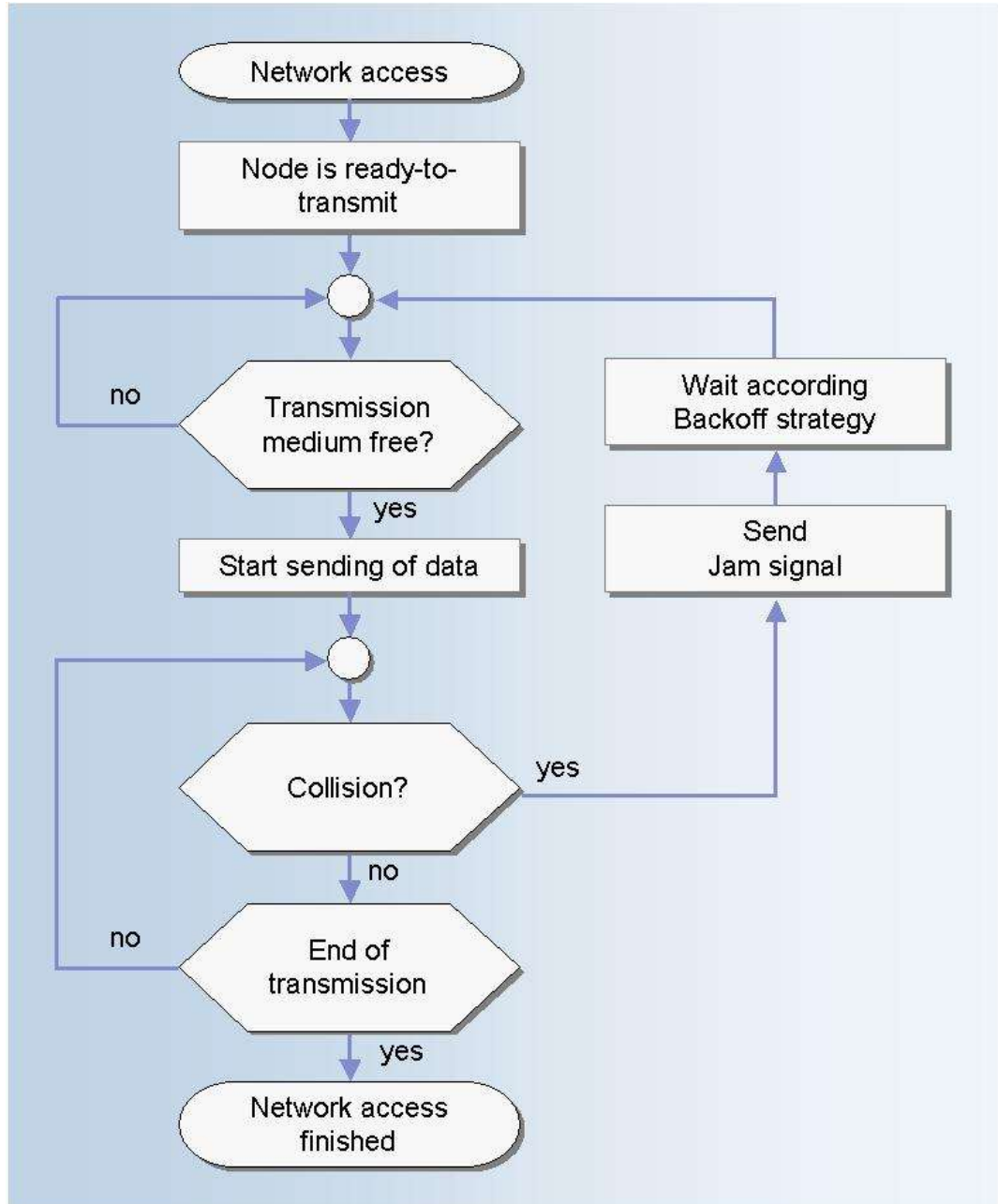
CSMA/CD

- CSMA/CD is Carrier Sense Multiple Access / Collision Detection :
  - Carrier Sense – the ability of a network card to *sense* or detect communication on the network
  - Multiple Access – states that in that network there are multiple stations that could access the network at the same time
  - Collision Detection – the method needed for detecting a collision

- Station that wants to transmit first listens to check if another transmission is in progress (carrier sense).
- If medium is in use, station waits; else, it transmits.
- Collisions can still occur.
- Transmitter waits for ACK; if no ACKs, retransmits.

- **Carrier Sense Multiple Access/Collision Detect** (CSMA/CD) is the protocol for carrier transmission access in Ethernet networks.

- **Carrier-sense multiple access with collision detection** describes how the Ethernet protocol regulates communication among nodes
- CSMA/CD is specified in the IEEE 802.3 standard.
- The flow chart for **CSMA/CD** protocol is **:**
- given in the next slide


Network access
Node is ready-to-transmit
Transmission medium free?
no
yes
Start sending of data
Collision?
yes
Send Jam signal
Wait according Backoff strategy
no
End of transmission
no
yes
Network access finished

- A node wants to send a packet over a wireless LAN. What will CSMA/CD protocol do if the channel is busy?
- -waits until the channel is idle and sends the packet if it is idle even after the jam signal is sent (inactive)

• What is the jam signal sent for?

-a) To stop transmission

b) To avoid further collision

c) To inform all other nodes that there is a collision

- After a jam signal is sent, Nodes wait for a random period of time.
- What is purpose of CSMA/CD protocol in wireless LAN?
- Detect collision of packets