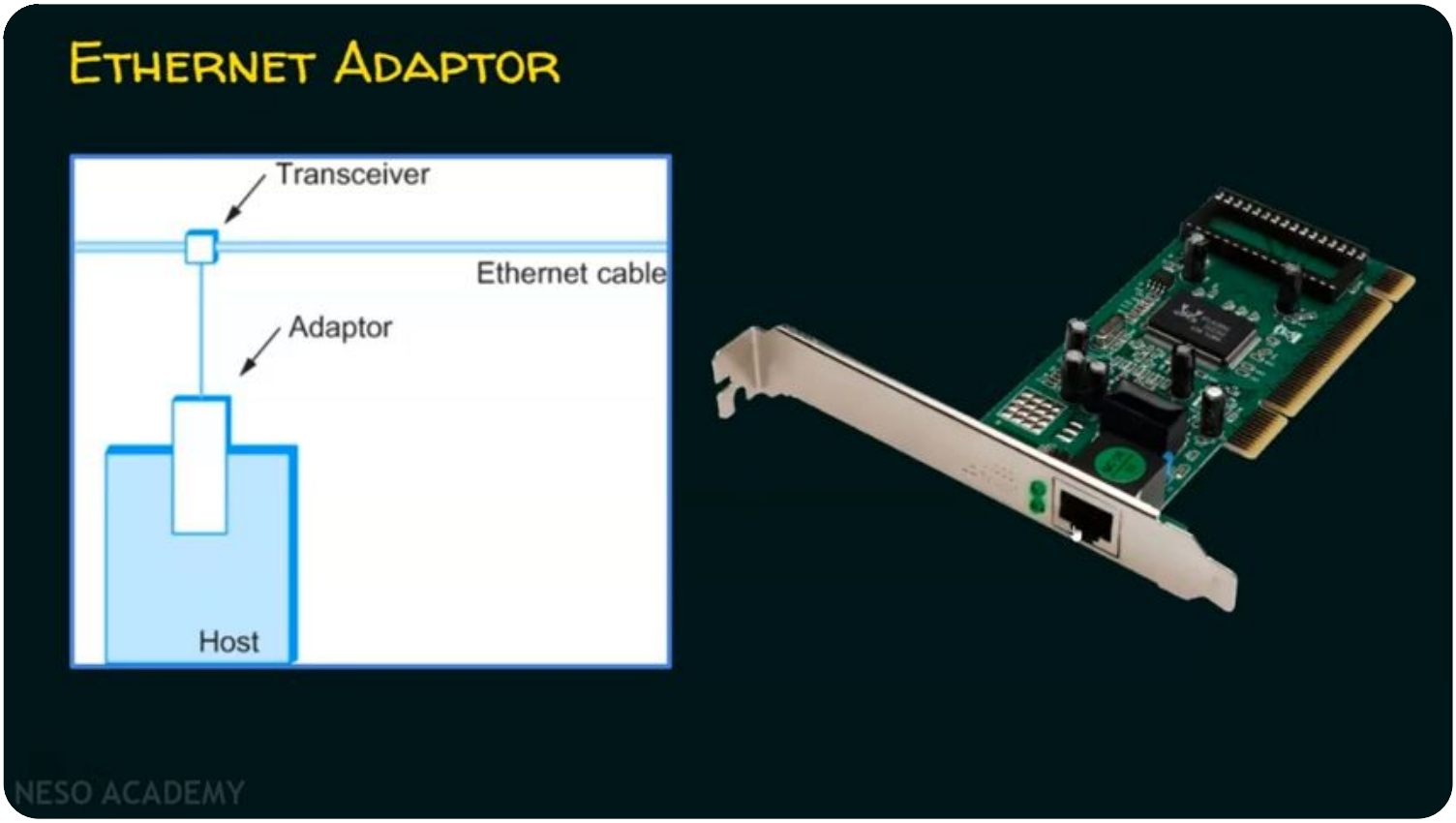
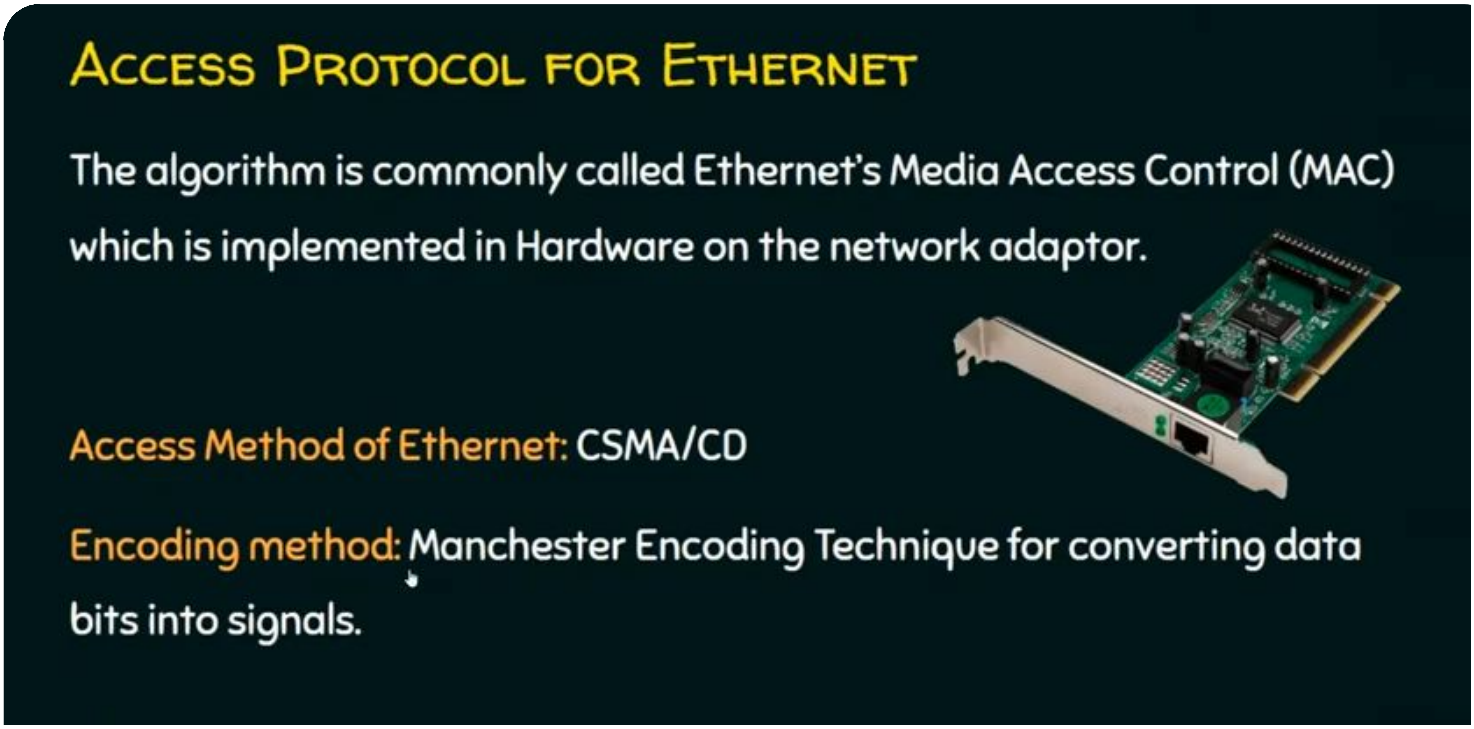
01:00

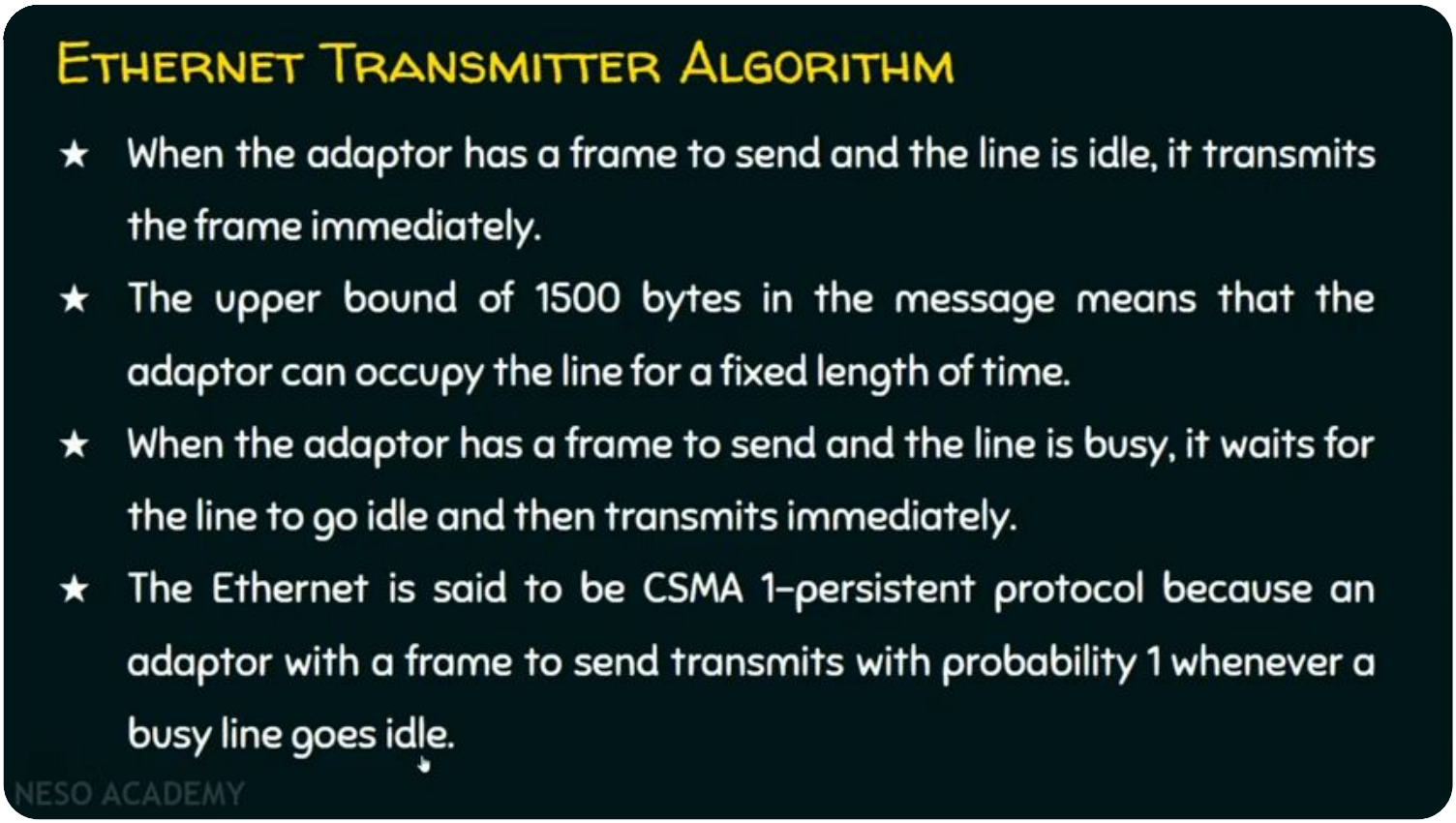


02:35

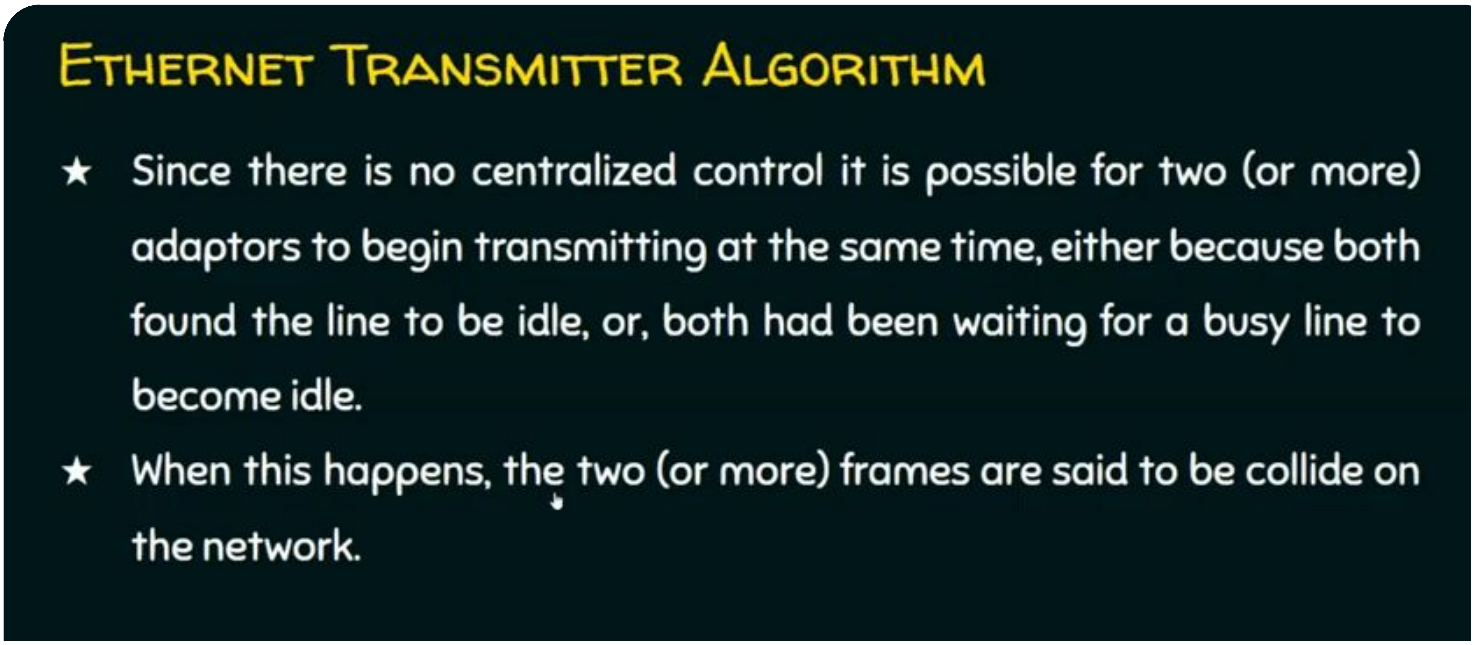



NESO ACADEMY

04:12


ETHERNET TRANSMITTER ALGORITHM
★ When the adaptor has a frame to send and the line is idle, it transmits the frame immediately.
★ The upper bound of 1500 bytes in the message means that the adaptor can occupy the line for a fixed length of time.
★ When the adaptor has a frame to send and the line is busy, it waits for the line to go idle and then transmits immediately.
★ The Ethernet is said to be CSMA 1-persistent protocol because an adaptor with a frame to send transmits with probability 1 whenever a busy line goes idle.
NESO ACADEMY

05:27


ETHERNET TRANSMITTER ALGORITHM
★ Since there is no centralized control it is possible for two (or more) adaptors to begin transmitting at the same time, either because both found the line to be idle, or, both had been waiting for a busy line to become idle.
★ When this happens, the two (or more) frames are said to be collide on the network.

06:35

Ethernet Transmitter Algorithm

- ★ Since Ethernet supports collision detection, each sender is able to determine that a collision is in progress.
- ★ At the moment an adaptor detects that its frame is colliding with another, it first makes sure to transmit a 32-bit jamming sequence and then stops transmission.
- ★ Thus, a transmitter will minimally send 96 bits in the case of collision 64-bit preamble + 32-bit jamming sequence.

NESO ACADEMY

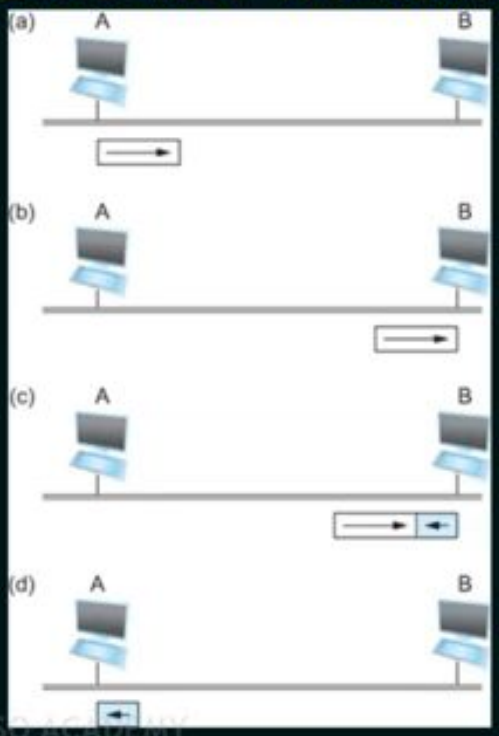
07:50

Runt Frames

- ★ A runt frame is an Ethernet frame that is less than the IEEE 802.3's minimum length of 64 bytes.
- ★ Runt frames are most commonly caused by collisions.
- ★ Other possible causes are a malfunctioning network card, buffer underrun, duplex mismatch or software issues.

10:03

Ethernet Transmitter Algorithm



Worst-case scenario:

(a) A sends a frame at time t.

(b) A's frame arrives at B at time t + d.

(c) B begins transmitting at time t + d and collides with A's frame.

(d) B's runt (32-bit) frame arrives at A at time t + 2d.

11:12

Exponential Backoff

★ Once an adaptor has detected a collision, and stopped its transmission, it waits a certain amount of time and tries again.

★ Each time the adaptor tries to transmit but fails, it doubles the amount of time it waits before trying again.

★ This strategy of doubling the delay interval between each

★ This strategy of doubling the delay interval between each retransmission attempt is known as Exponential Backoff.