4: Ethernet

Tuesday 7th of November, 2017

Intro

Ethernet is the dominant technology – it's simple and cheap, and widely deployed.

Hard to replace it with token LANs or ATM, because it's so dominant.

Frame Structure

Need preamble to show that a packet is starting, because otherwise you don't know when packets are coming. It also allows you to synchronise the clocks between sender and receiver.

The type field identifies a higher-layer protocol – usually IP but sometimes others e.g. AppleTalk in the past.

The CRC is checked at the receiver, and the frame is silently dropped if there are errors.

Characteristics

Ethernet has no connections – no handshaking between senders and receivers.

No ACKs or NAKs are used, and so the channel is unreliable.

There's no flow control, so if a receiver can't receive as fast as the sender can send, packets will be dropped. It's assumed that this won't happen, and in practice it doesn't.

Ethernet is unslotted – there's no time synchronisation.

Standards

802.3 are the ethernet standards.