

Introduction to Web Science – Assignment 1

hotel

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1 Ethernet Frame

1. Source MAC Address (6 bytes): 00 13 10 e8 dd 52
2. Destination MAC Address (6bytes): 00 27 10 21 fa 48
3. protocol inside the data payload (2bytes): 08 06 → Address Resolution Protocol (ARP) (for IP and for CHAOS)
4. last 2 fields:
28 bytes arp request or arp reply
(source hardware address/source protocol address/ target hardware address/target potocol address)
00 01 08 00 06 04 00 01
00 13 10 e8 dd 52 c0 a8
02 01 00 00 00 00 00 00
c0 a8 02 67;
10 bytes padding → filler bytes to reach minimum of 46 bytes
00 00 00 00 00 00 00 00
00 00

2 Cable Issue

speed * time = distance

speed = 300 000 000 m/s

distance = 20 m

time → unknown

100 Mbit/s:

$$300\,000\,000 \text{ m/s} * t_{100} * 10^{-8} = 20 \text{ m}$$

$$t_{100} = 20/3 \text{ s} \rightarrow 6,666 \text{ s}$$

10 Mbit/s:

$$300\,000\,000 \text{ m/s} * t_{10} * 10^{-7} = 20 \text{ m}$$

$$t_{10} = 200/3 \text{ s} \rightarrow 66,666 \text{ s}$$