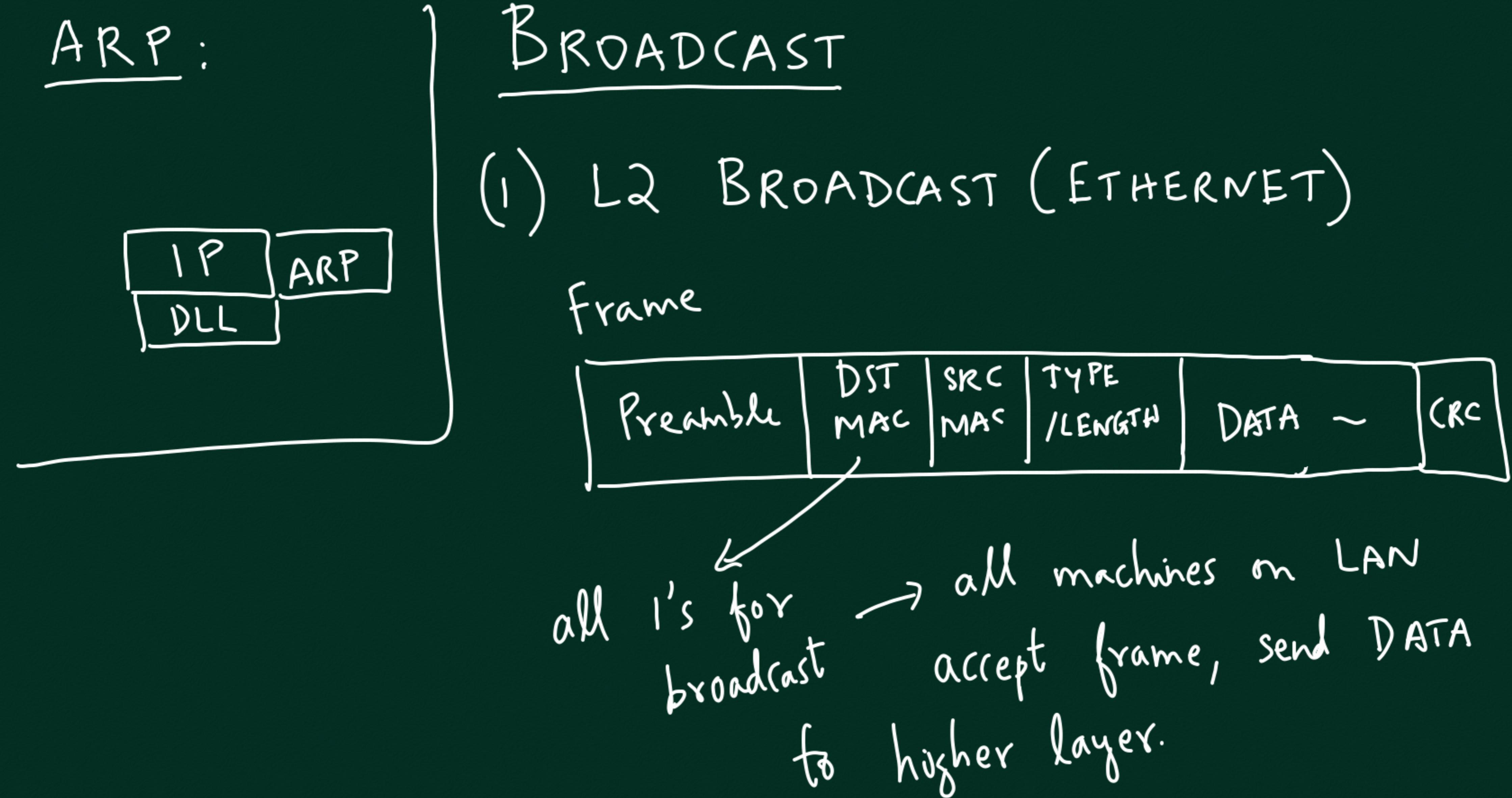


ARP :



(2) L3 BROADCAST (IP)

IP Packet :  *for next layer*

(i) LIMITED BROADCAST

DST IP = all 1's

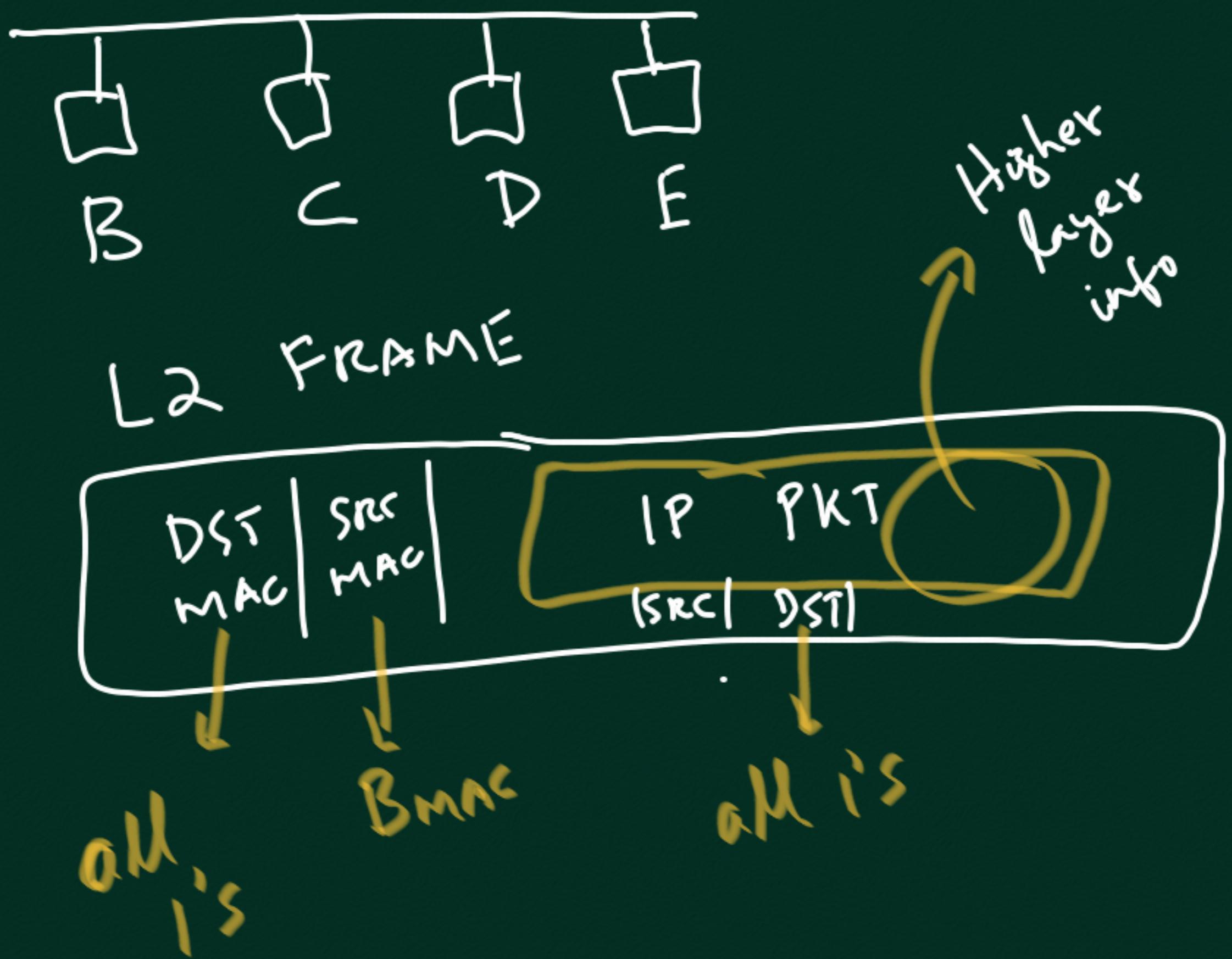
READ BY ALL L3 devices at layer-3
on same subnet

Machine Has IP A

Subnet #, Subnet mask

A AND MASK = Subnet #
 \Leftrightarrow Belongs to subnet

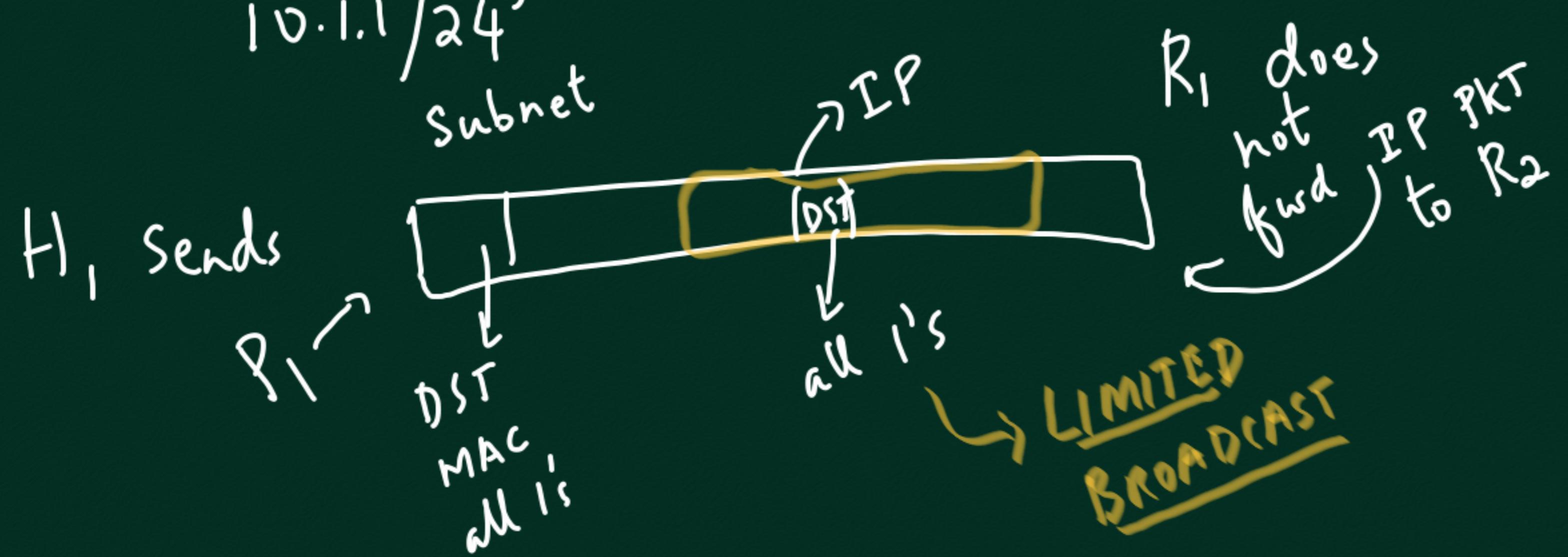
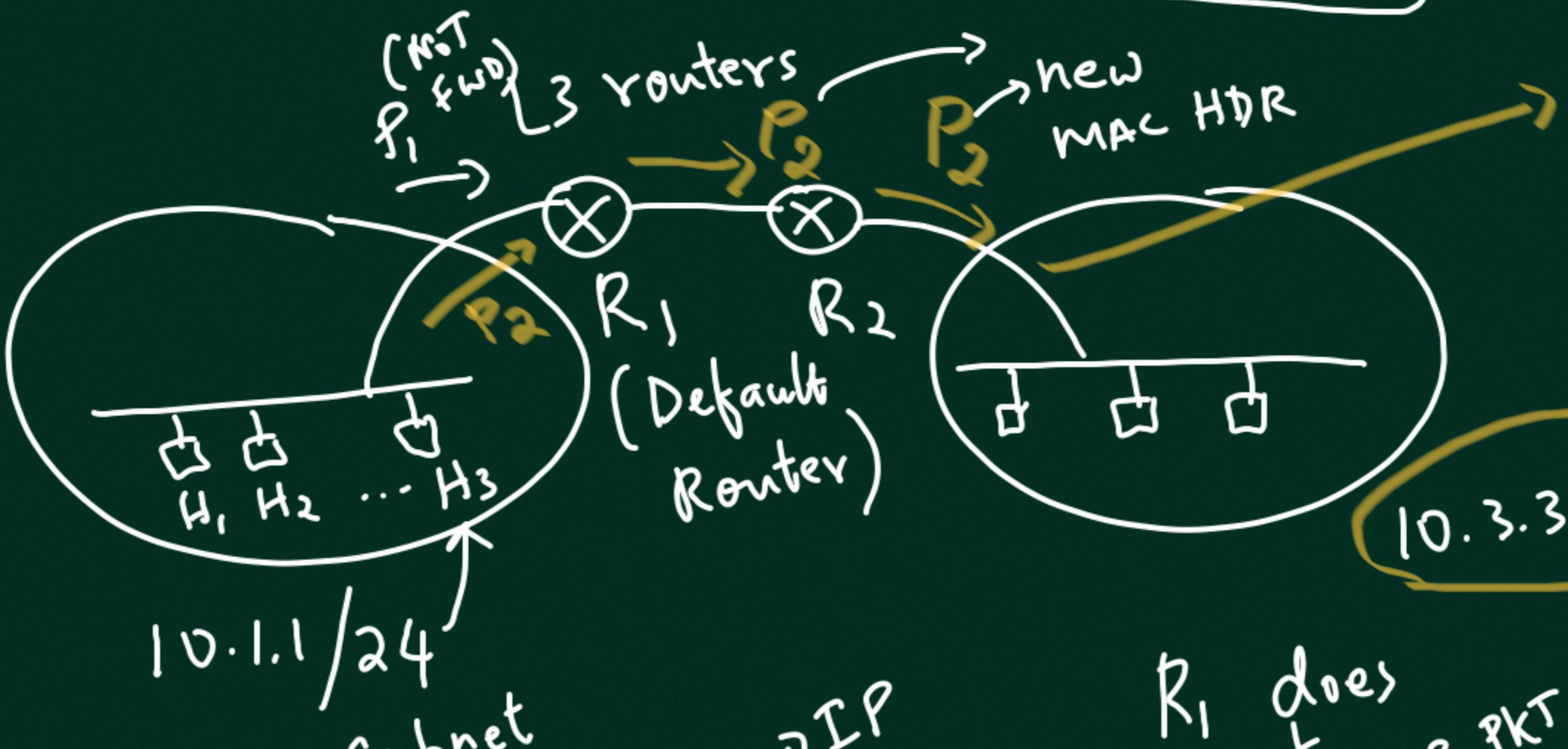
Appl.
Transport
IP
DLL
PHY



(ii) DIRECTED

BROADCAST

10.3.3.255



DIRECTED BROADCAST

H₁ in LAN1 wants to send to send IP
broadcast to LAN2 (10.3.3|24) route

DST IP: Subnet Num 111116
 - - - - -
 host bits

10.3.3.255

R₁(MAC)

P₂:

DST MAC	SRC MAC	...	SRC IP	DST IP	...
---------	---------	-----	--------	--------	-----

24 bits

8 bits (host)

H₁(MAC)

10.1.1.5 (H₁'s IP)

The diagram illustrates the structure of an IP address and how it is used in a network frame. At the top, a subnet mask is shown as a dashed line with the binary value 111116. Below it, the subnet number 10.3.3.3 is circled in yellow. The host bits are labeled as 8 bits (host). Below the subnet mask, a yellow box represents a network frame with fields for DST MAC, SRC MAC, SRC IP, DST IP, and more. The DST MAC field is highlighted with a yellow arrow pointing to R₁(MAC). The DST IP field is highlighted with a yellow arrow pointing to H₁(MAC) and 10.1.1.5 (H₁'s IP). The SRC MAC and SRC IP fields are also highlighted with yellow arrows. A label '24 bits' points to the boundary between the MAC and IP fields.

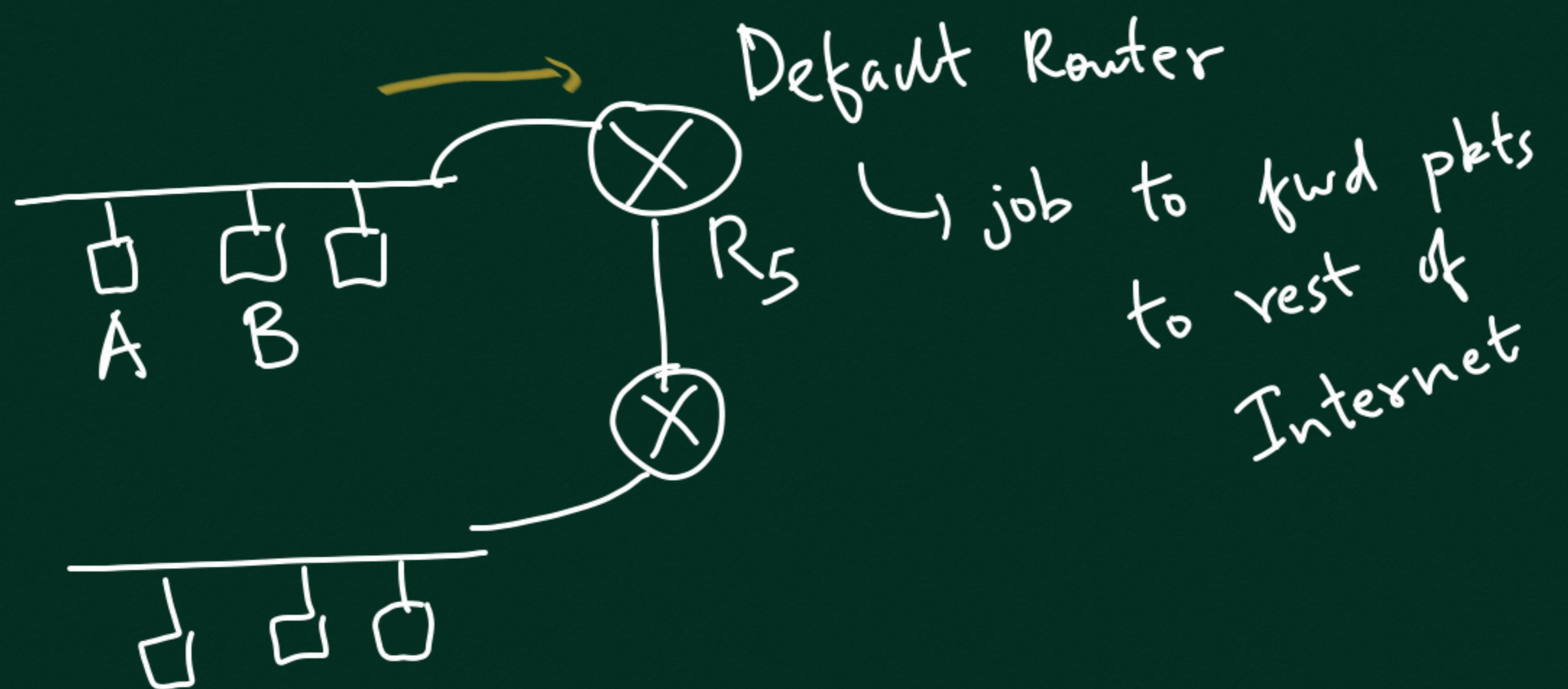


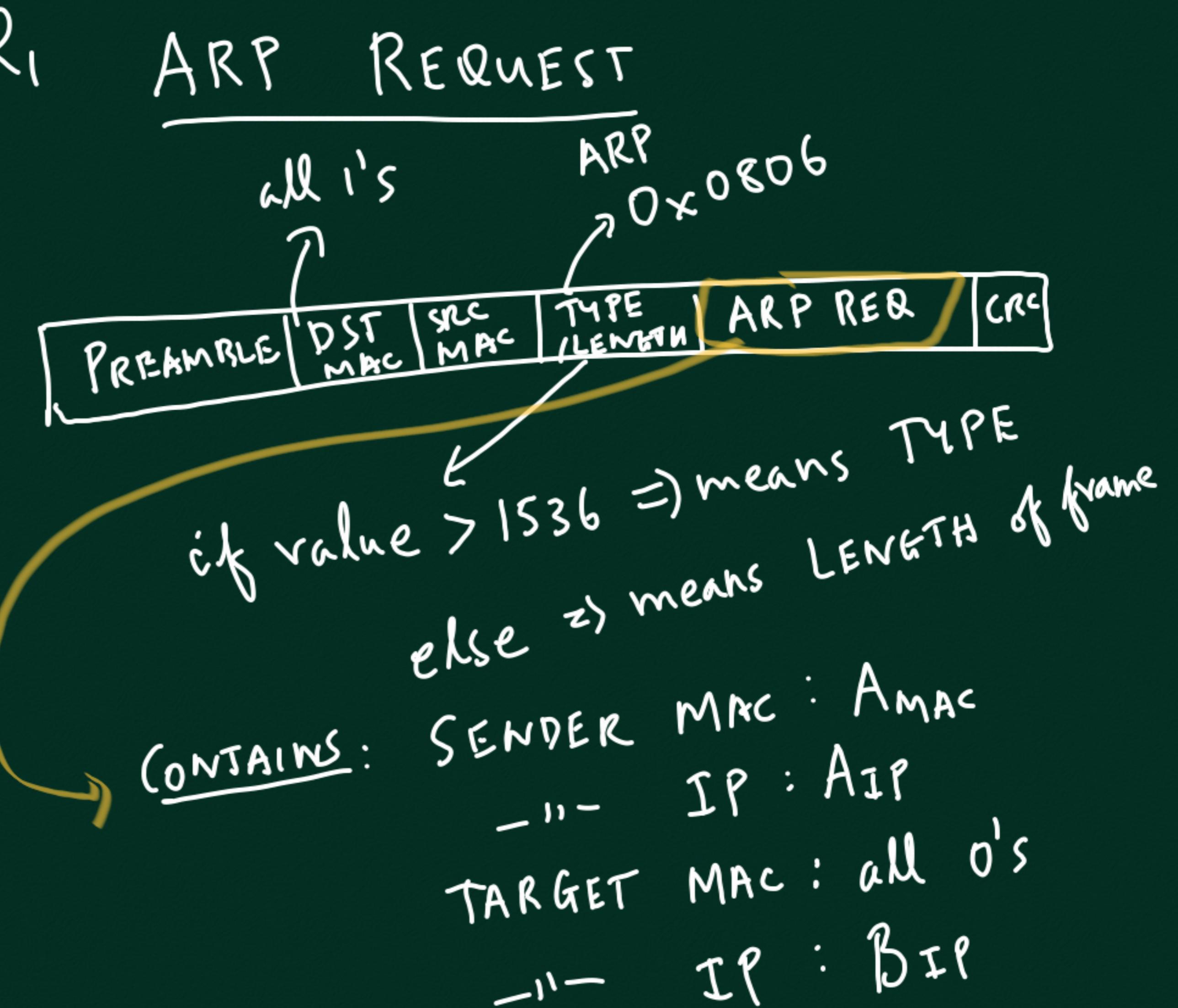
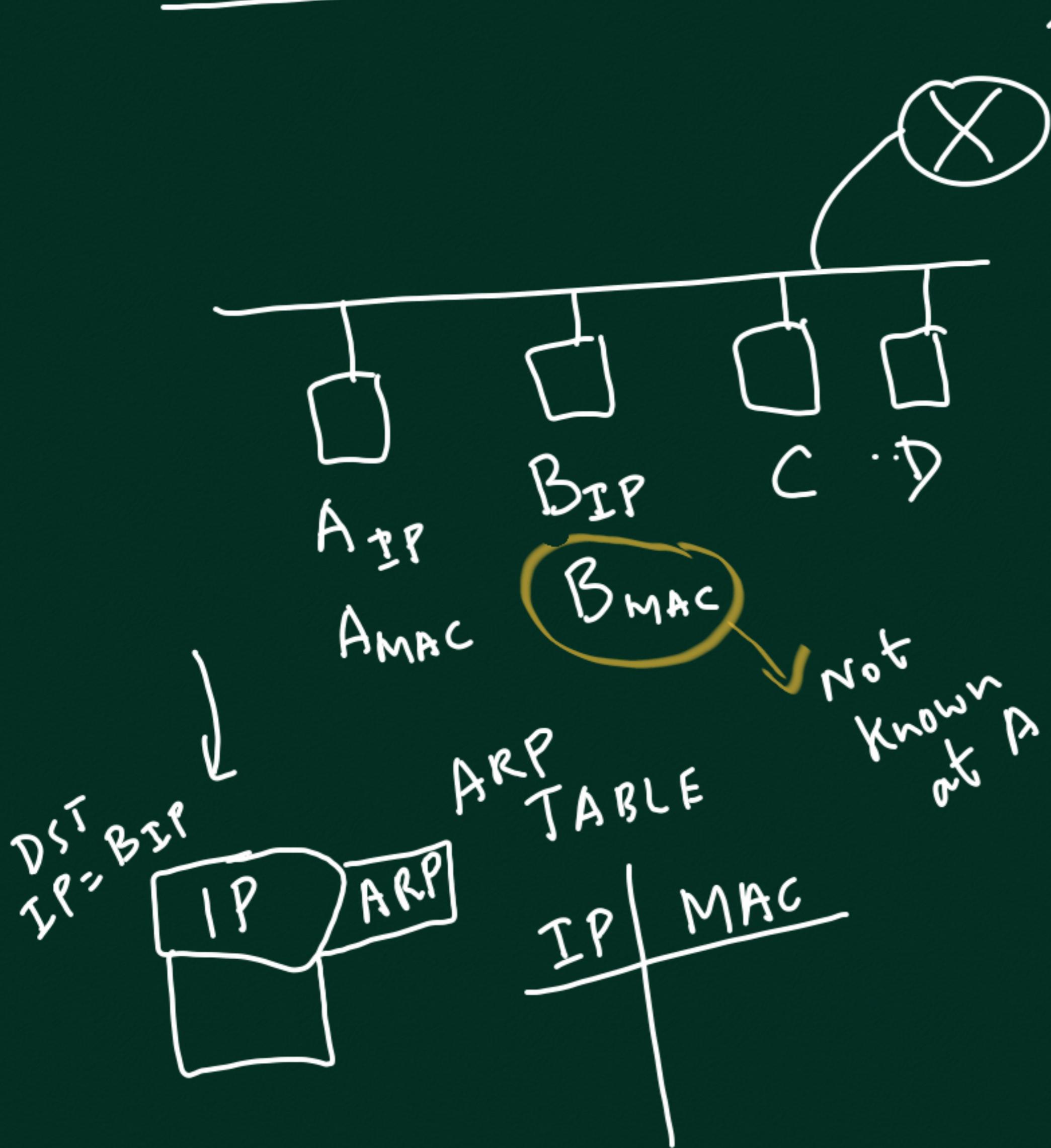
Table . - .
 Subnet # Subnet mask

/

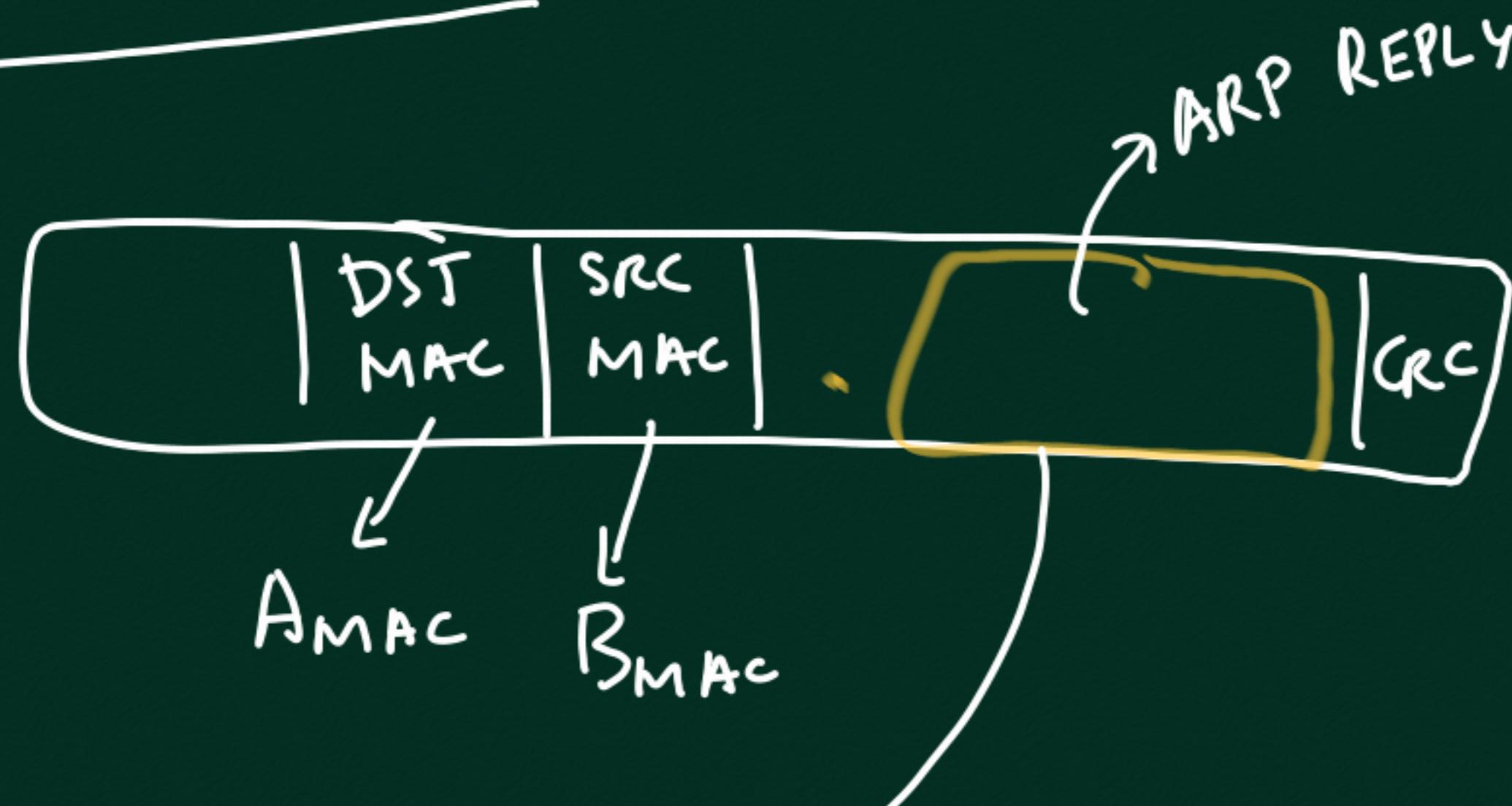
default

en01

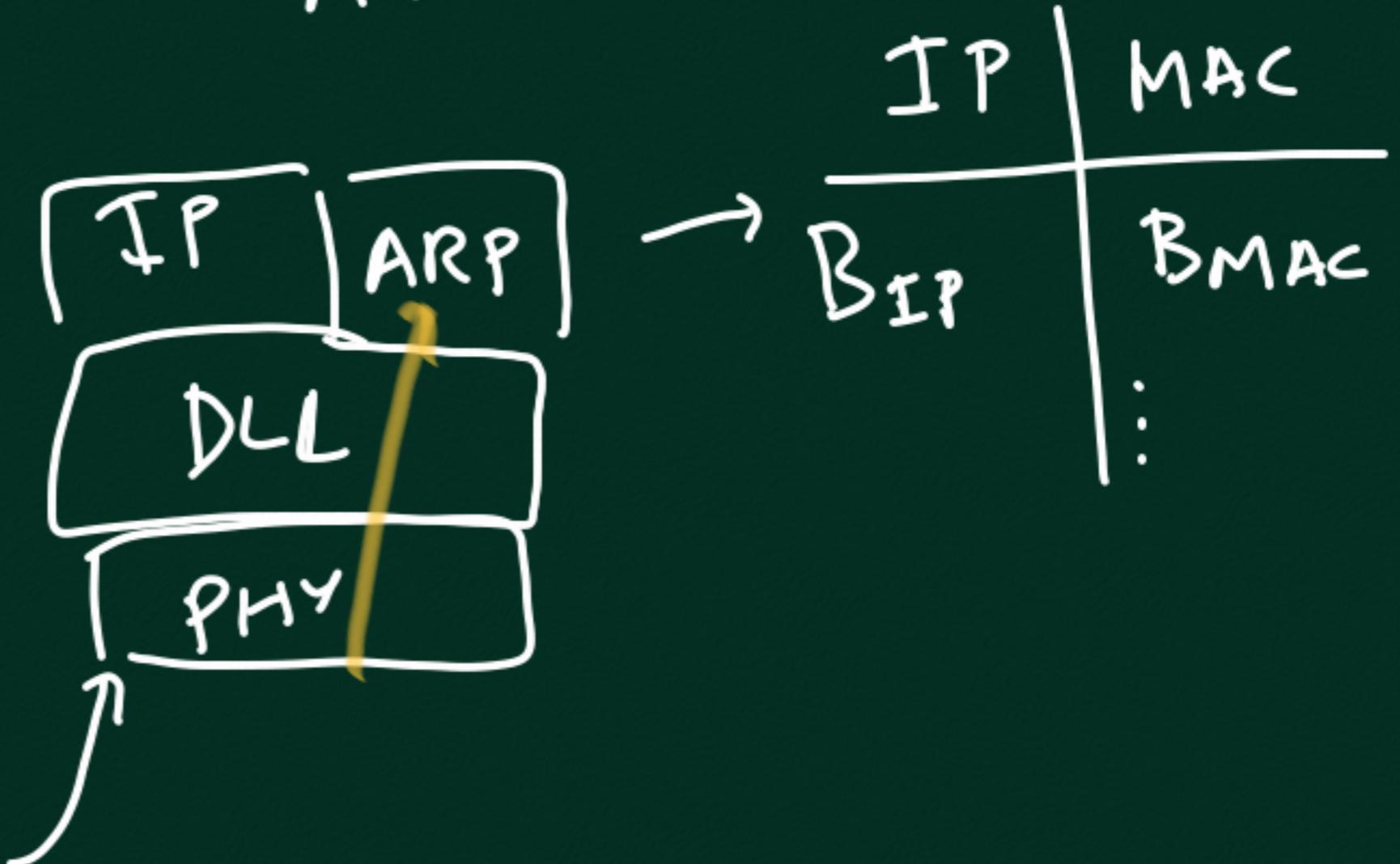
Address Resolution Protocol



ARP REPLY

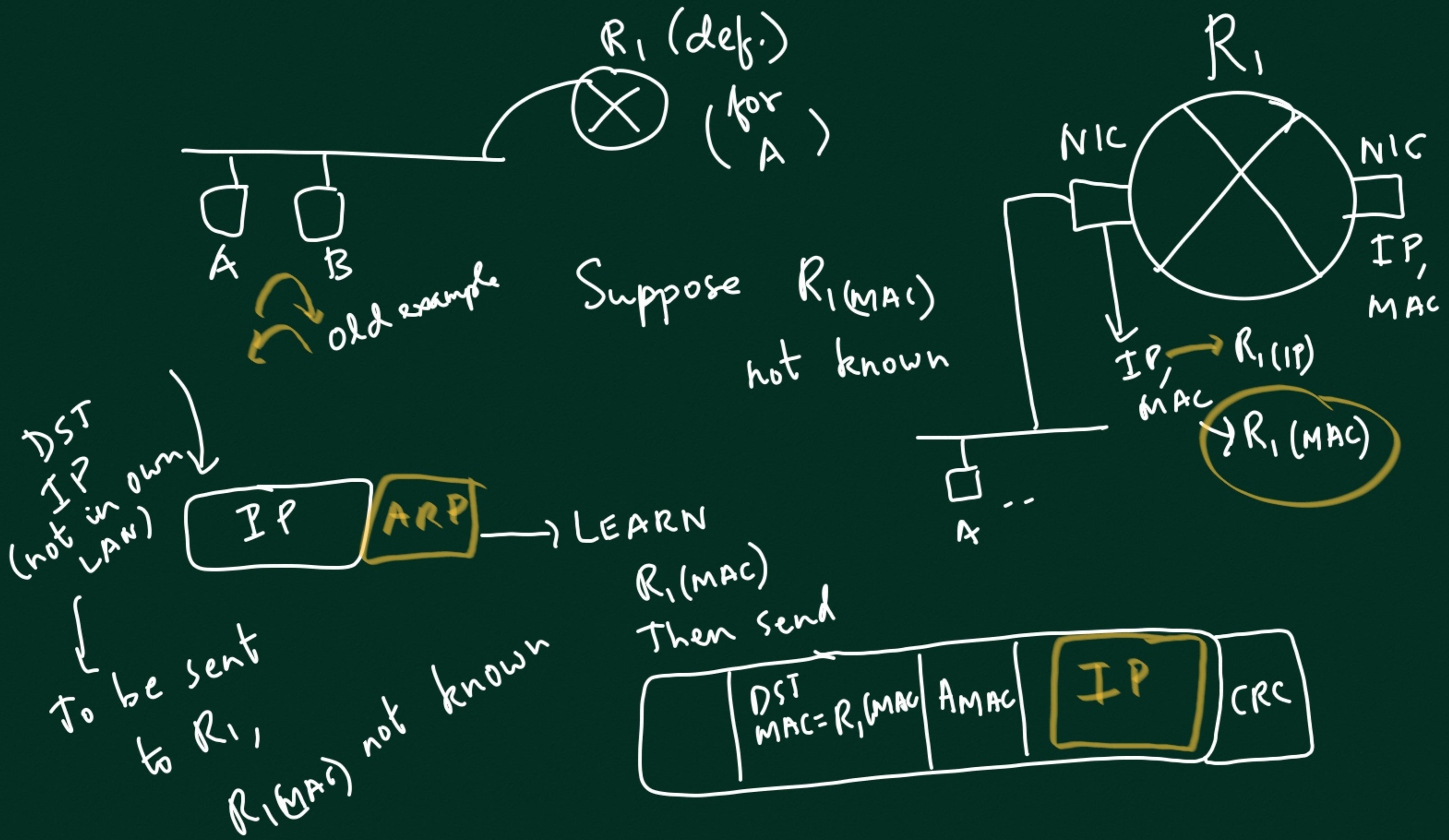


At A



CONTAINS: SENDER MAC : B_{MAC}
 " IP : B_{IP}

TARGET MAC : A_{MAC}
— " — IP : A_{IP}

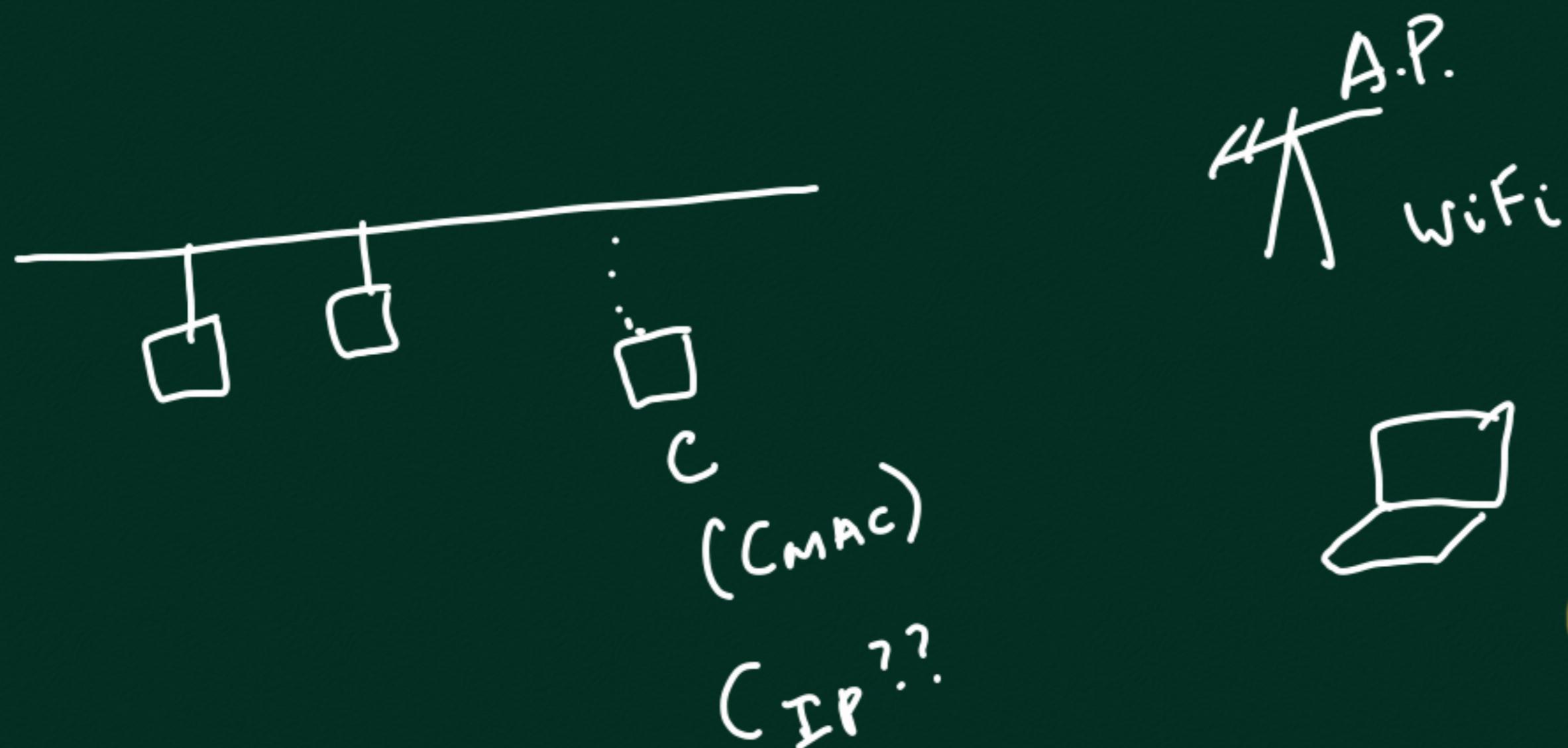


Know IP }
don't know MAC } ARP

UDP | TCP

DHCP

IP



A_{MAC}
A_{IP???}

