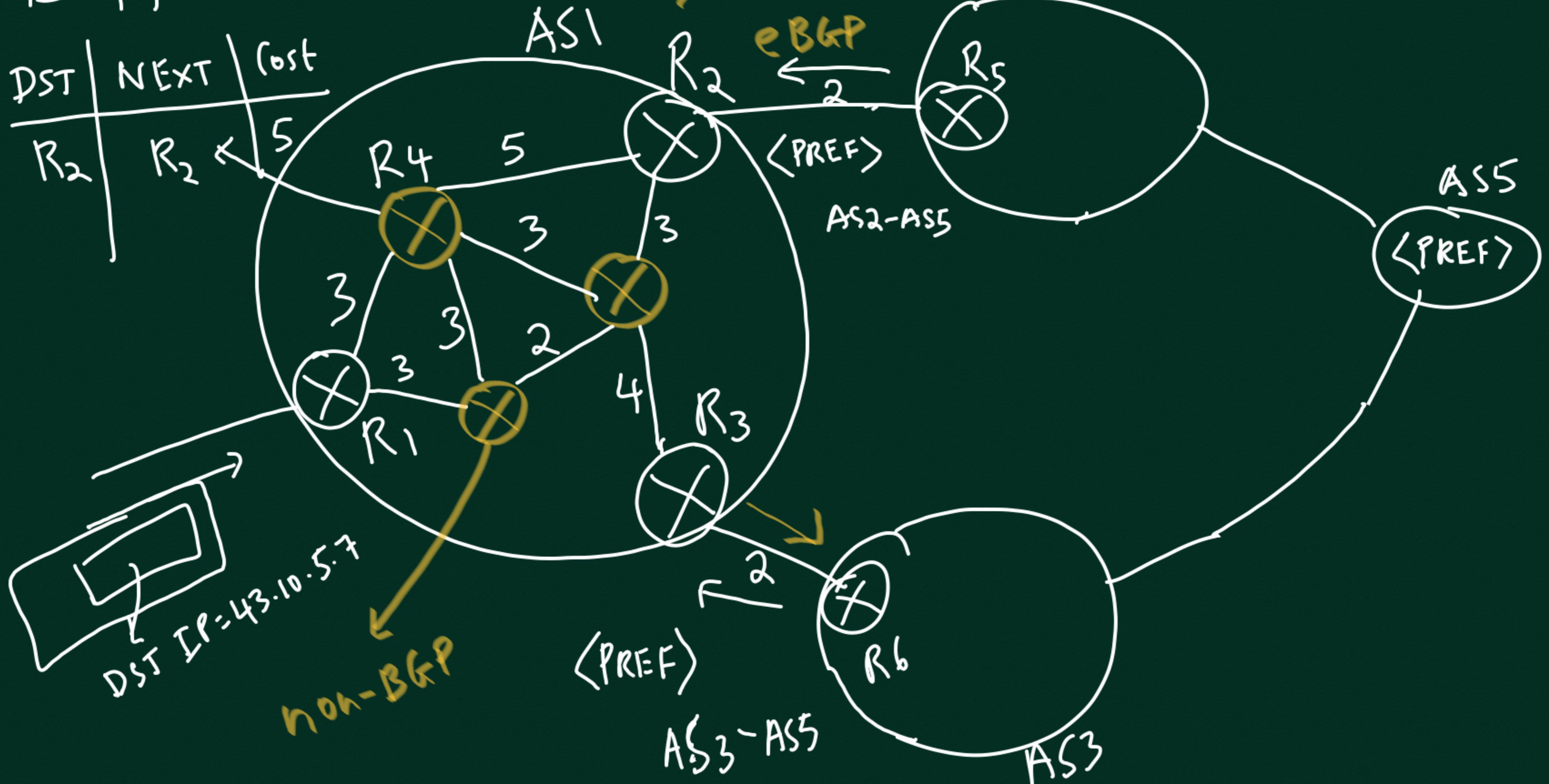


BGP \leftrightarrow IGP

DST	NEXT	cost
R ₂	R ₂ \leftarrow	5



METHODS

1) ENCAPSULATION

2) PERVERSIVE BGP

3) TAGGED IGP

1) ENCAPSULATION

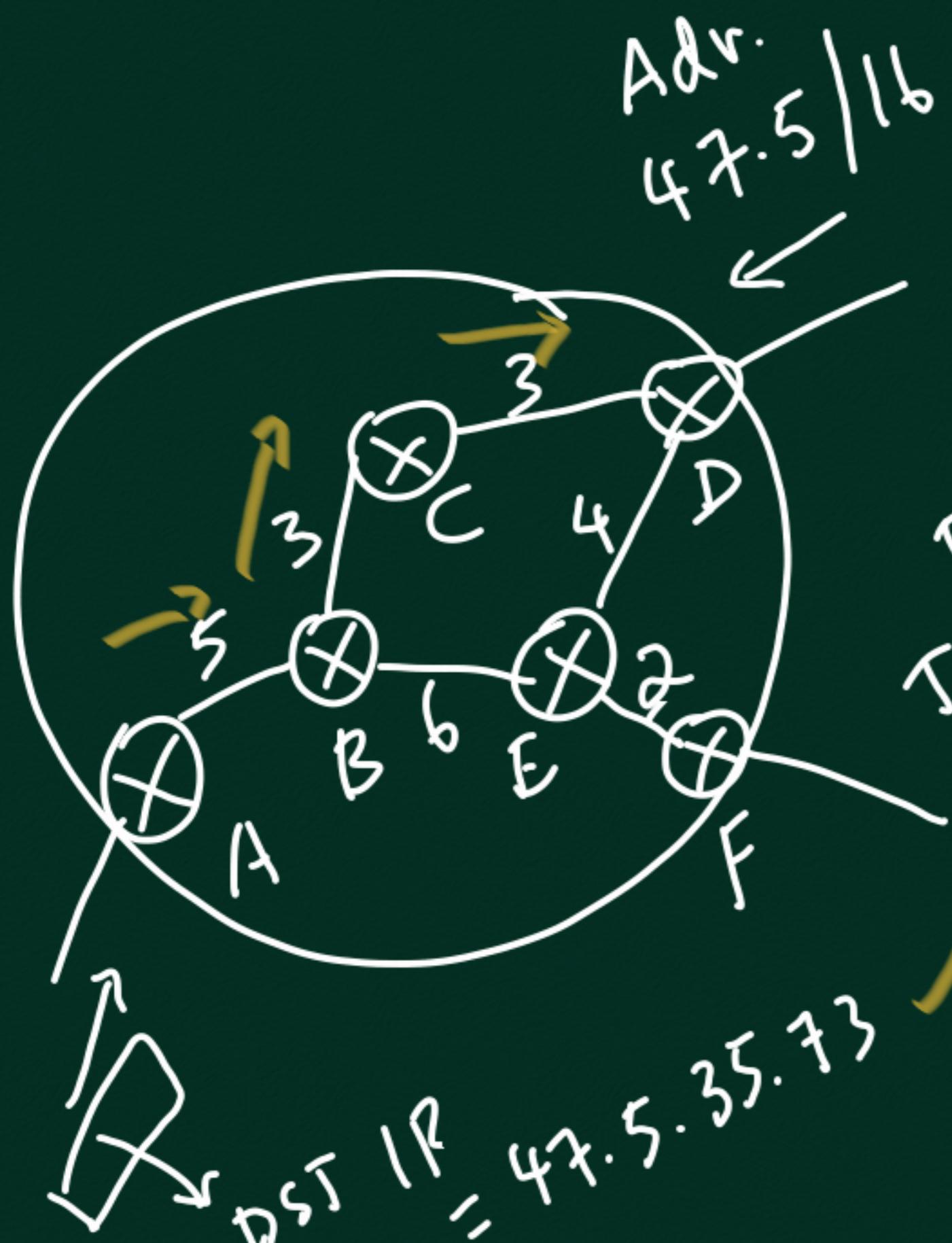
R₂ fwds ORIG PKT to R₅

$$\langle \text{PREF} \rangle = 43.1011b$$



(2) PERVASIVE BGP

→ ASSUMPTION: (i) ALL INTERNAL ROUTERS RUN BGP



16 (2) EACH PREFIX HAS UNIQUE EXIT ROUTER
IN A.S.

The diagram illustrates the forwarding process between two routers, A and B, using BGP and IGP tables.

Router A:

- BGP Table:** Contains a route entry for **47.5.116** with a **DST** value of **D**.
- IGP Table:** Contains a route entry for **D** with a **DST** value of **D**.
- NEXT Table:** Contains a route entry for **D** with a **NEXT** value of **B**.

Router B:

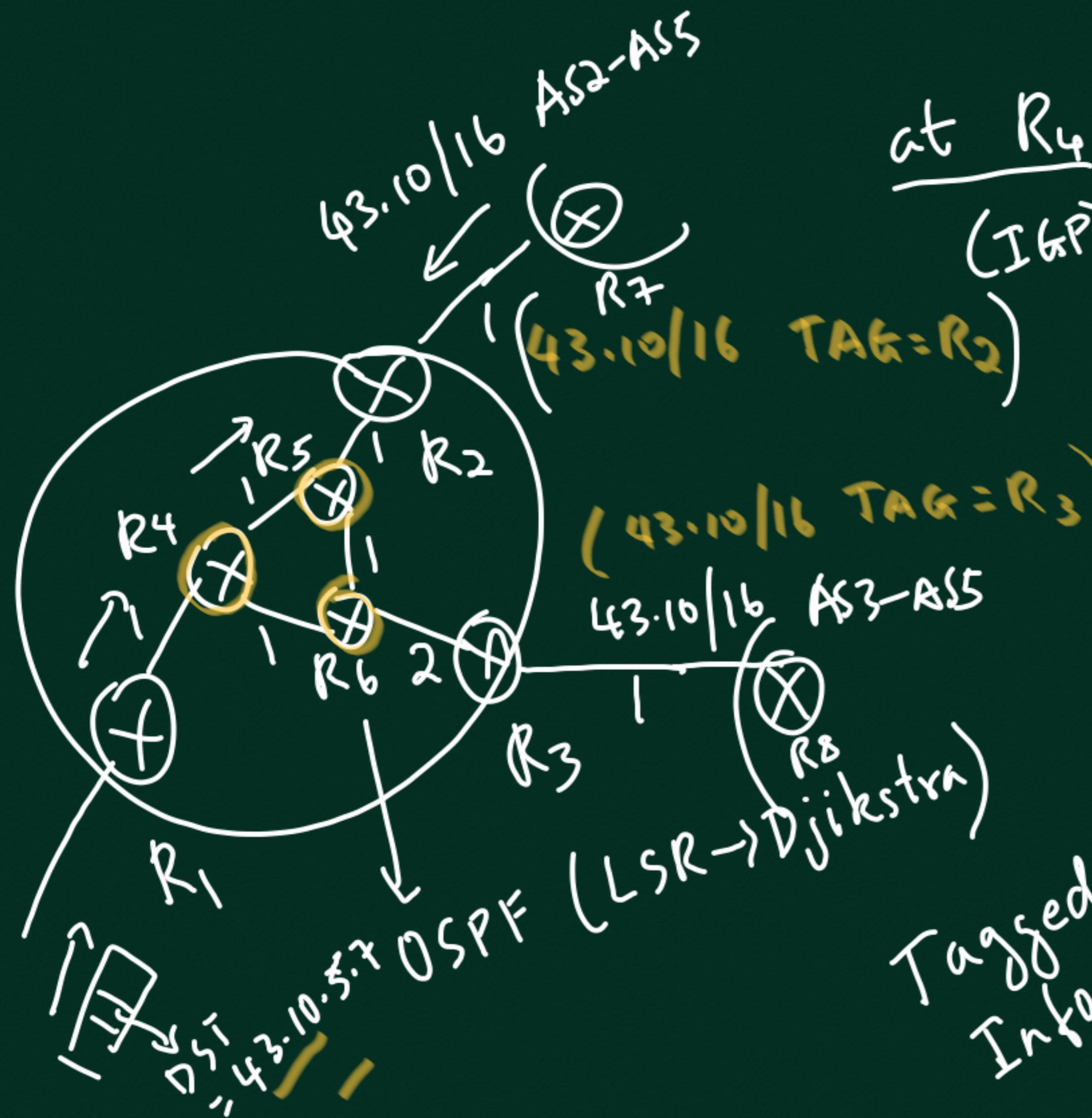
- NEXT Table:** Contains a route entry for **B** with a **NEXT** value of **FWD to this**.

Annotations:

- A yellow arrow points from the **DST** field in the BGP table to the **DST** field in the IGP table.
- A yellow arrow points from the **DST** field in the IGP table to the **NEXT** table.
- A yellow wavy line connects the **D** value in the BGP table to the **D** value in the IGP table.
- A yellow wavy line connects the **D** value in the IGP table to the **B** value in the NEXT table.
- The text "ALL Have Same BGP exits." is written at the bottom.

TAGGED IGP

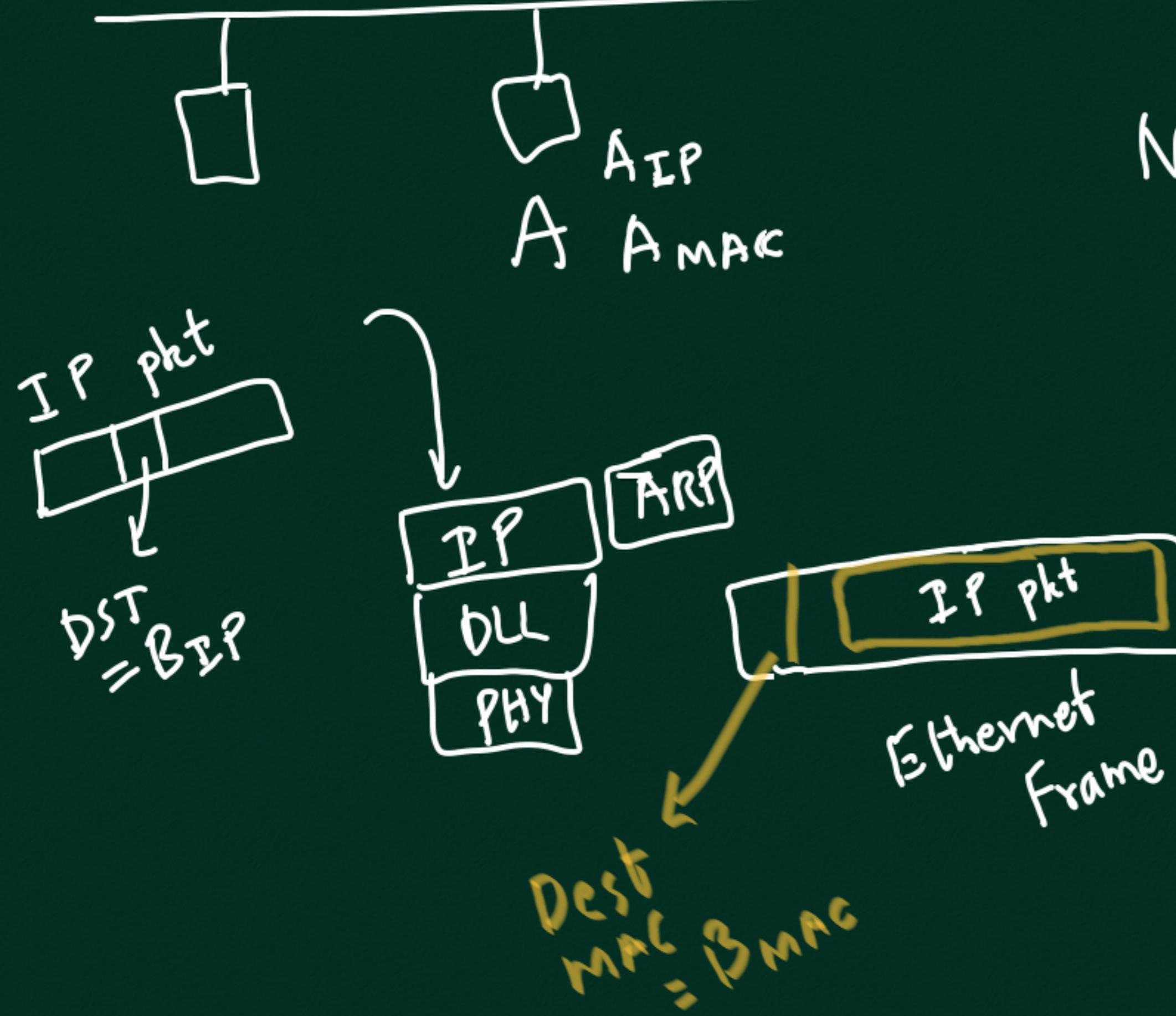
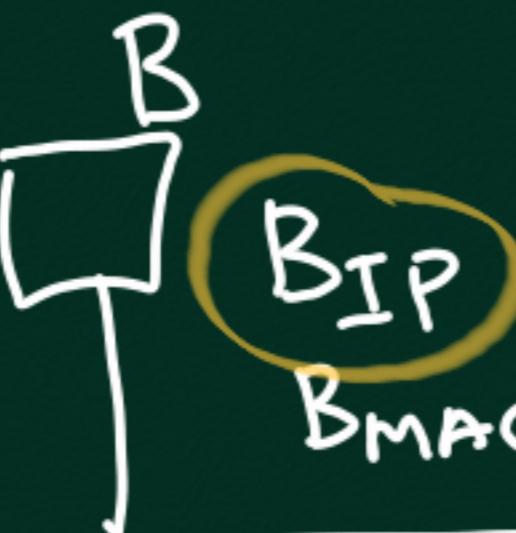
BGP speakers insert Tagged info.
into BGP about Prefixes learned via BGP



DST	NEXT	TAG	Cost
R_1	R_1		1
R_7	R_5		3
R_8	R_6		4
R_5	R_5		1
			1
			1
<input checked="" type="checkbox"/> 43.10/16		R_7	
<input checked="" type="checkbox"/> 43.11/16		R_8	

L3 \longleftrightarrow L2 interaction

LAN



ARP: Addr. Resolution
Protocol

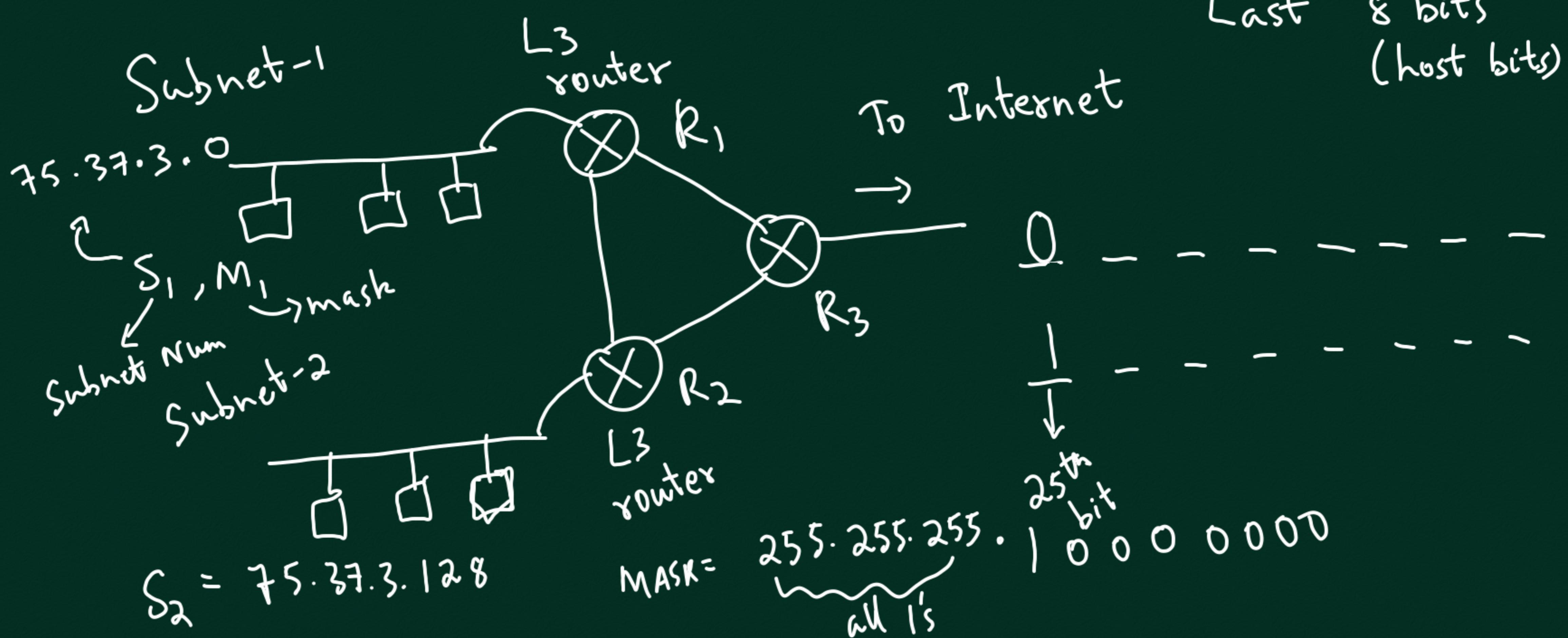
NEED TO BE ABLE TO
BROADCAST

SUBNETTING

SUBNET Num , SUBNET MASK \rightarrow Identifies which bits of IP addr. to consider

$75.37.3/24 \rightarrow$ prefix

Last 8 bits
(host bits)



Given An IP, say X

If $(X \text{ AND } M_1) = S_1$, then X is in Subnet-1

If $(X \text{ AND } M_2) = S_2$ — " — Subnet-2

Table at R

IP Y

Subnet Num	MASK	Next
S_1	M_1	-
S_2	M_2	R_2 R_3

