

GOLDEN RULE: IF A SPEAKER^{IN} A.S._X SENDS ADVERTISEMENT

FOR <PREFIX> X-Y-Z... TO A NEIGHBORING A.S.,

AND NEIGHBOR SENDS THIS BGP SPEAKER A

PKT WITH DEST IP matching PREFIX, THEN

A.S. X WILL FORWARD IT ALONG A.S. PATH

WHICH WAS ADVERTISED.

FINE EXTRA
DETAILS

AS²⁰⁰ → AS¹⁰⁰

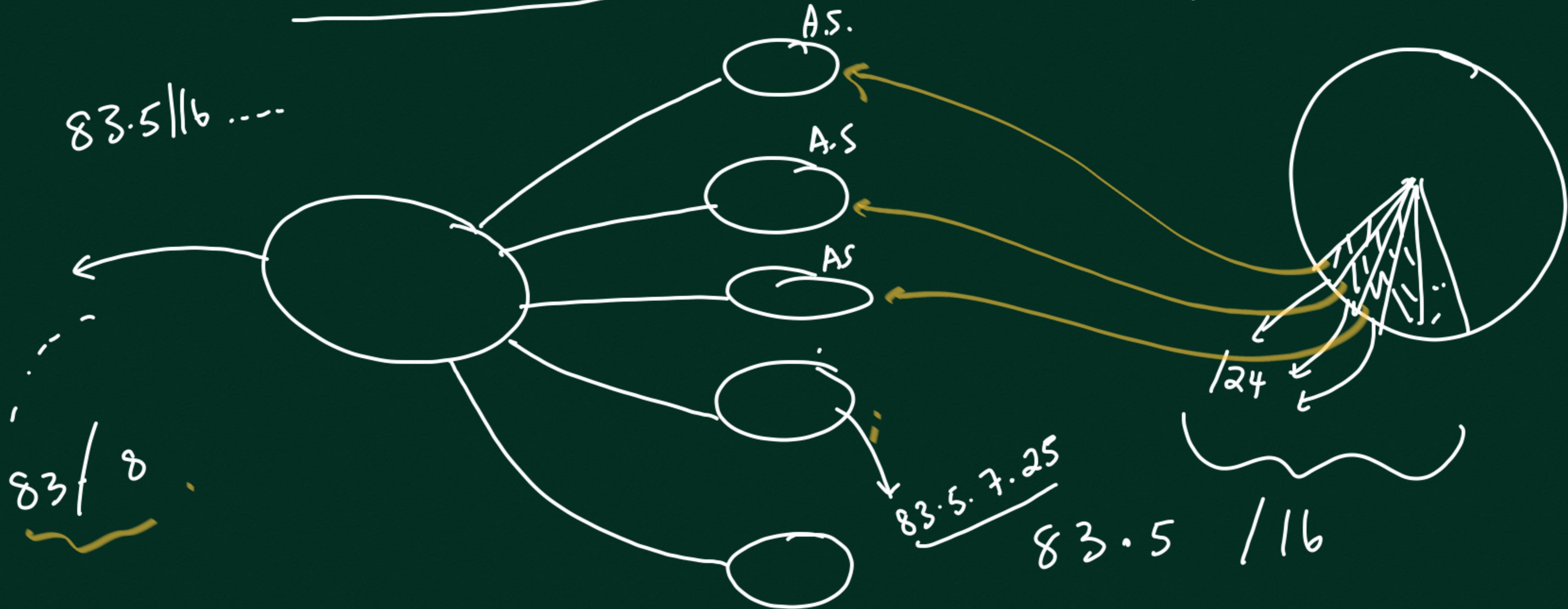
✓ 83.5/16 AS²⁰⁰ - AS³⁰⁰ ---

✓ 83.5.7/24 AS²⁰⁰ - AS⁶⁰⁰ AS³⁰⁰ ---
LONGER

LONKEST-PREFIX
MATCH IS USED

SUPER-NETTING

83.5.x /24



BGP ATTRIBUTES

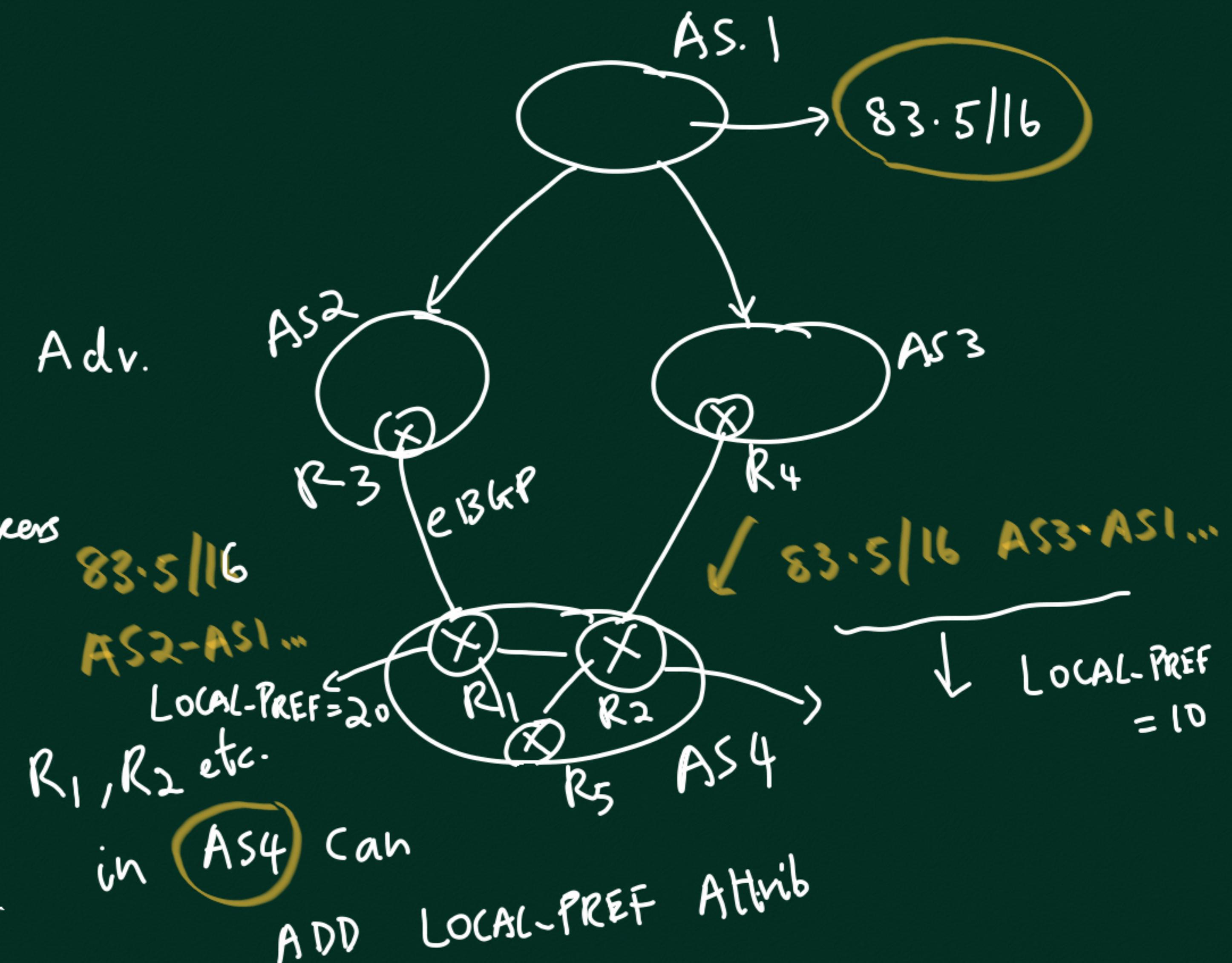
(1) LOCAL-PREF

↳ Added locally to Adv.

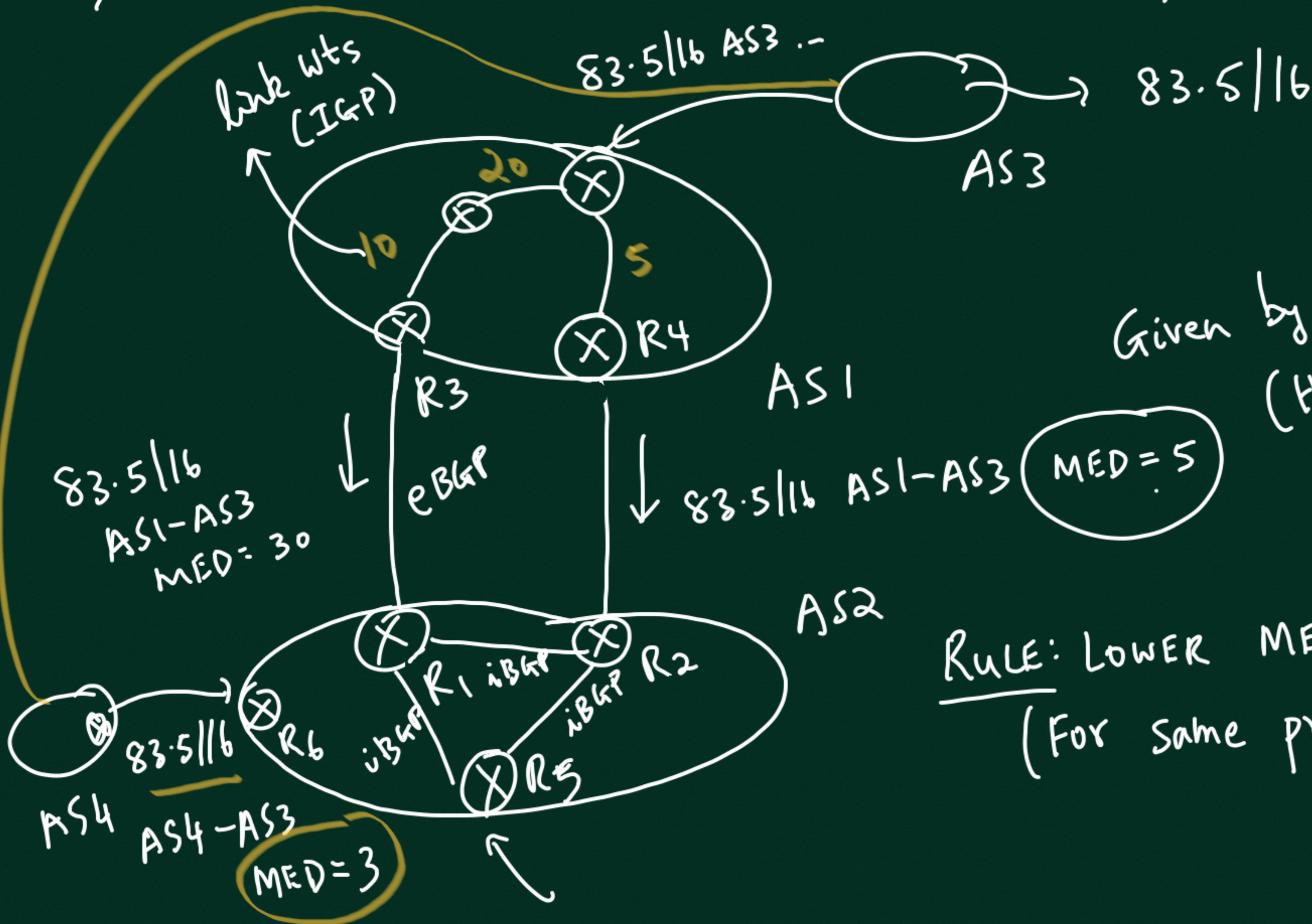
heard via eBGP.

Sent to other BGP speakers
in own A.S. using iBGP.

Larger LOCAL-PREF value
is preferred



2) MULTI-EXIT DISCRIMINATOR (MED)



Given by AS1 to AS2
(HINT: use $R_2 - R_4$
over $R_1 - R_3$,
for $83.5/16$)

Rule: LOWER MED value preferred
(For same prefix)

3) AS-PATH : LIST OF ASes TO DESTINATION

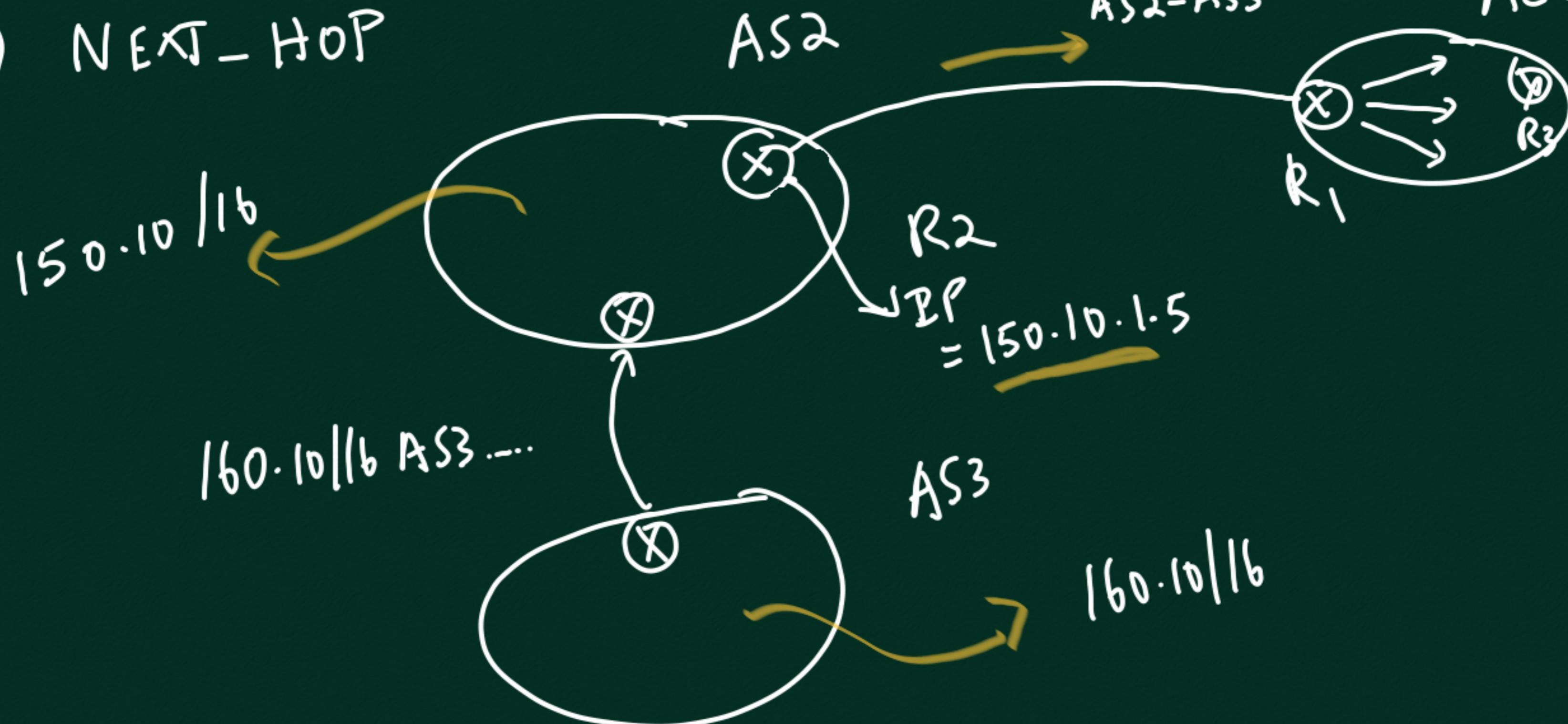
AS WHICH HAS THE PREFIX

Shorter AS-PATH IS PREFERRED

ADV: 160.10/16
AS2-AS3

NEXT-HOP = 150.10.1.5

(4) NEXT-HOP



RULES FOR CHOOSING PATHS (USED AT EACH BGP SPEAKER)

(FOR EACH UNIQUE PREFIX)

- a) Choose route with LARGEST LOCAL-PREF
- b) - " - SHORTEST AS-PATH (IN TERMS OF NUMB. of ASes)
- c) Choose path with lowest MED
- d) - " - learned via eBGP over path learned by iBGP
- e) HOT-POTATO ROUTING: choose path with lowest IGP metric to NEXT-HOP EXIT ROUTER (in same AS) has lowest ROUTER-ID (= highest IP add. on all interfaces of Router)
- f) Choose path whose EXIT ROUTER (in same AS) has lowest ROUTER-ID (= highest IP add. on all interfaces of Router)

