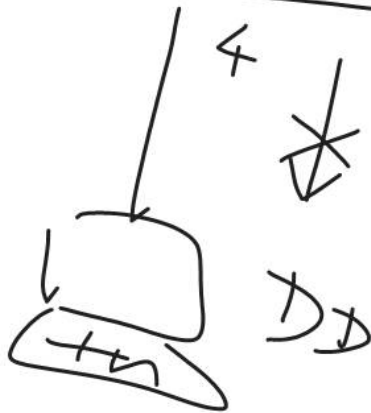
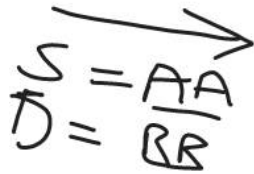
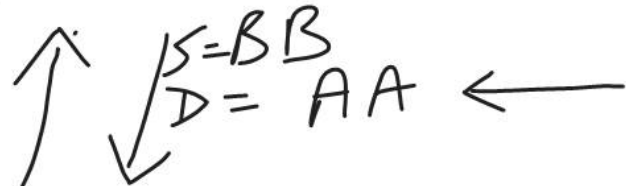


MAC TABLE

→ 1	AA
2	BB
3	CC
4	DD



N N N | H
192 . 168 . 1 | 0
1 | 1
254
255

$$2^8 = 256$$
$$2^8 - 2 = 254$$

NET
FIRST }
LAST }
B/CAST

$$\text{HOSTS} = 2^H - 2$$

S = 2		H = 6						Dec
128	(64)	32	16	8	4	2	1	
0	0	0	0	0	0	0	0	0
0	0			"				64
1	0			"				128
1	1			"				192

$$\text{HOSTS} = 2^H - 2 = 2^6 - 2 = 62$$

192.168.

52.
52.
52.
52.
52.
52.

0
64
128
192

.1-.62

$$\rightarrow \text{SUBNETS} = 2^S = 2^2 = 4$$

192.168.52.0/24

Require 8 subnets

Bits to borrow?

$$\text{SUBNETS} = 2^S$$

$$8 = 2^3$$

→ 3

255.255.255.0

11105600

224

/27

$$\text{Hosts} = 2^H - 2 = 2^5 - 2 = 30$$

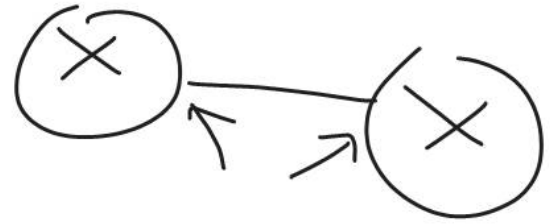
$S = 3$
 128 64 (32)
 0 0 0
 0 0 0
 - 0 0 0
 - 0 0 0
 - 0 0 0

$H = 5$
 16 8 4 2 1
 0 0 0 0 0
 .
 .
 .
 .
 .
 .
 .

Dec
 0
 32
 64
 96
 128
 160
 192
 224

128	64	32	16	8	4	2	1	
1	0	0	0	0	0	0	0	= 128
1	1	0	0	0	0	0	0	= 192
1	1	1	0	0	0	0	0	= 224
1	1	:	1	0	0	0	0	= 240
1	1	:	1	1	0	0	0	= 248
1	1	:	1	1	1	0	0	= 252
1	1	1	1	1	1	1	0	= 254

CLASS C			C
S	SUBNETS 2^S	H	HOSTS $2^H - 2$
1	2	7	126
2	4	6	62
3	8	5	30
4	16	4	14
5	32	3	6
6	64	2	2



L7 APP FTP

L6 PRCS JPEG

L5 SESS SSL/TLS

L4 TRANS TCP/UDP, SEGMENT, RELIABILITY

L3 NET IP ADDRESSES, PACKET, ROUTER

L2 DL MAC ADDRESSES, FRAME, SWITCH

L1 PHY CABLE 1s & 0s PINS

192.168.52.0/24

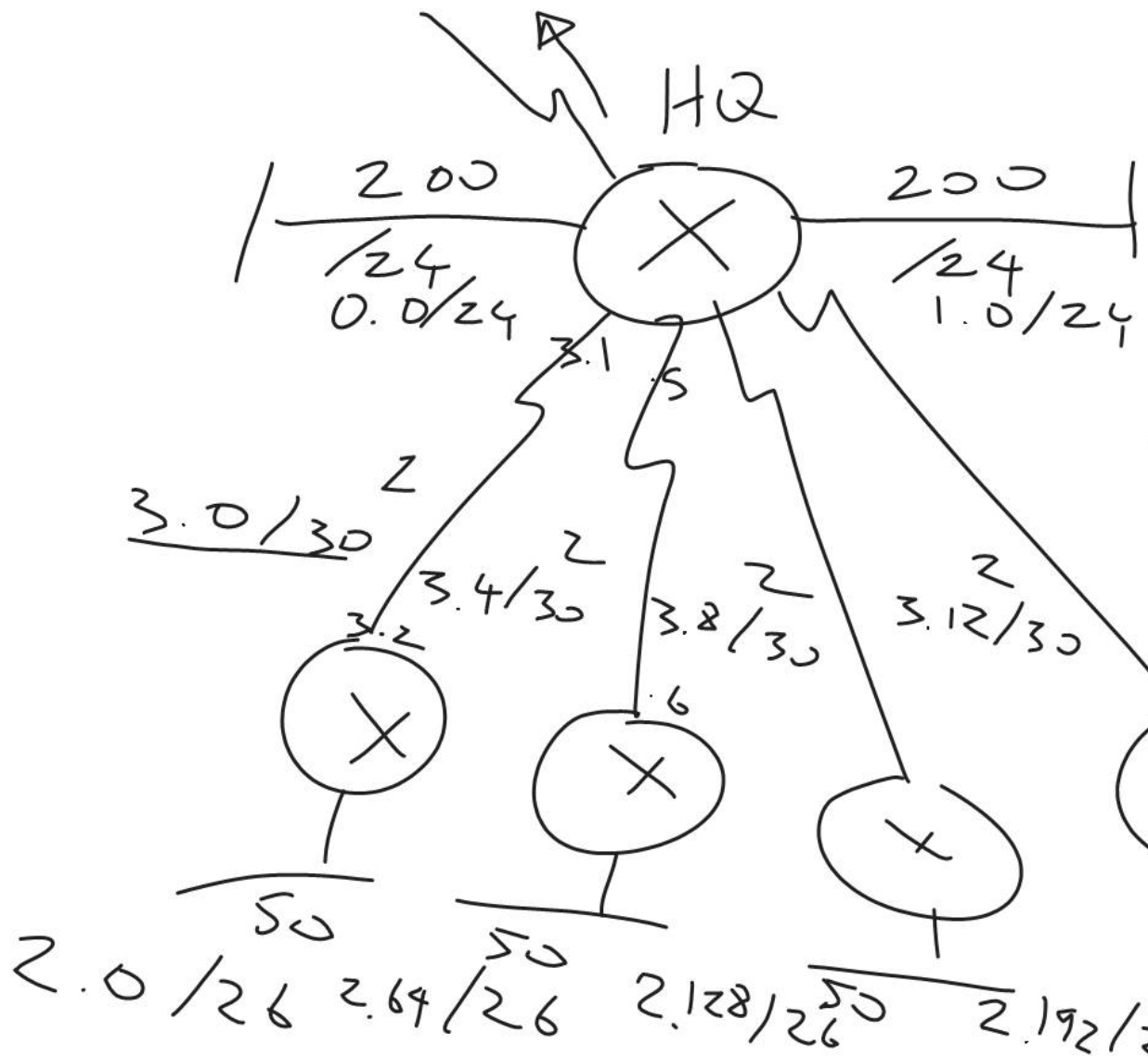
You Require 16 subnets.

Bits to borrow? 4 $2^4 = 16$

Mask? 255.255.255.240/28

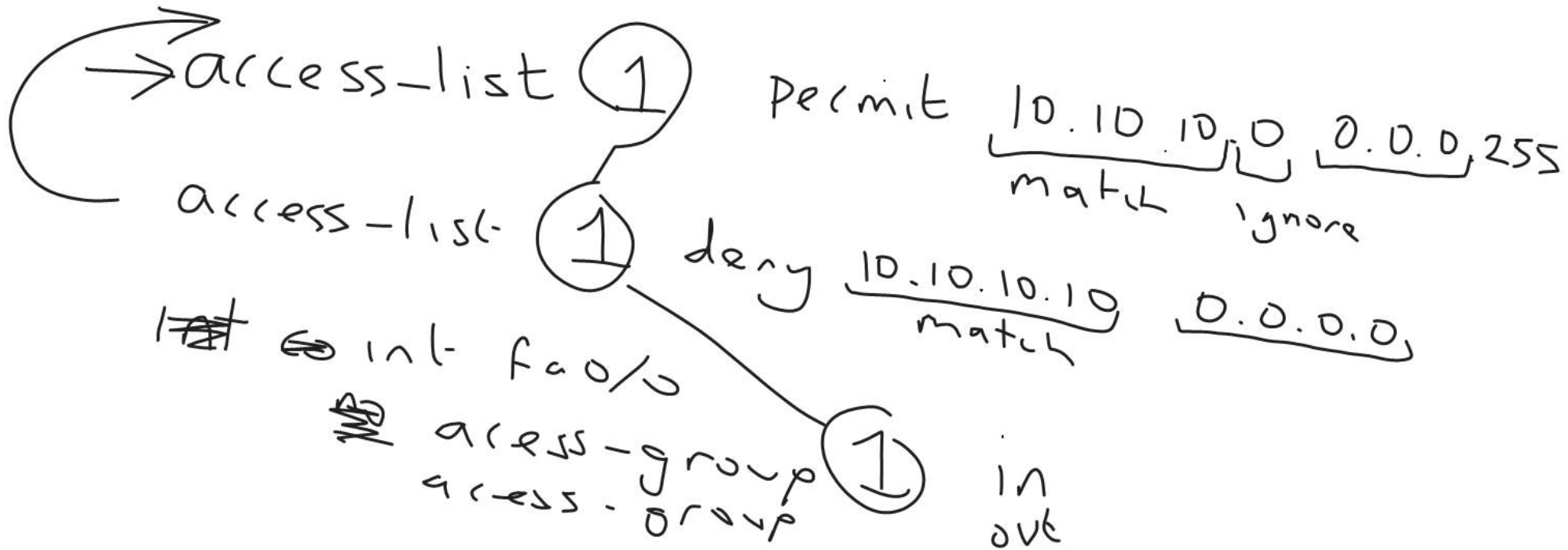
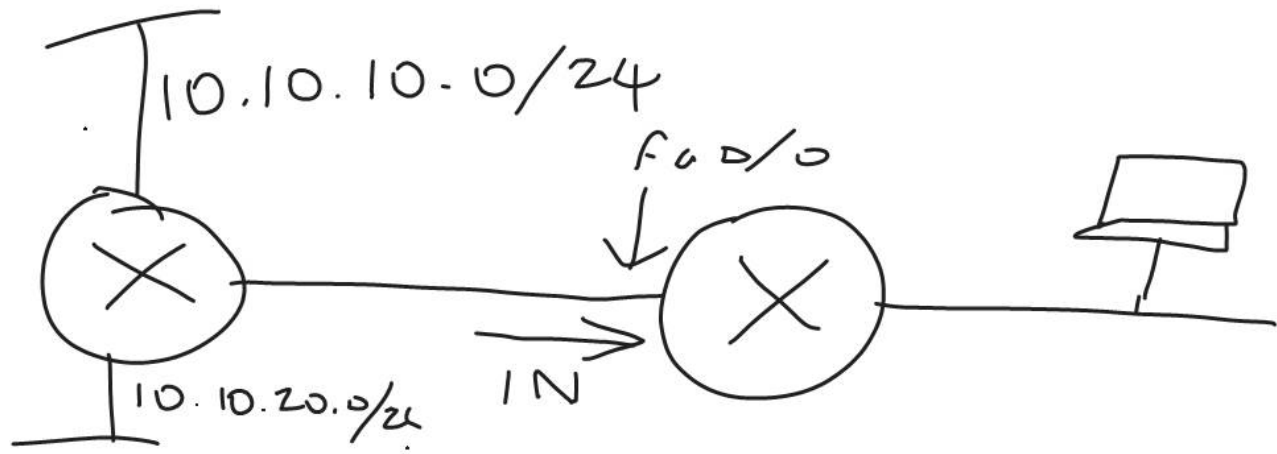
Subnet Addresses?

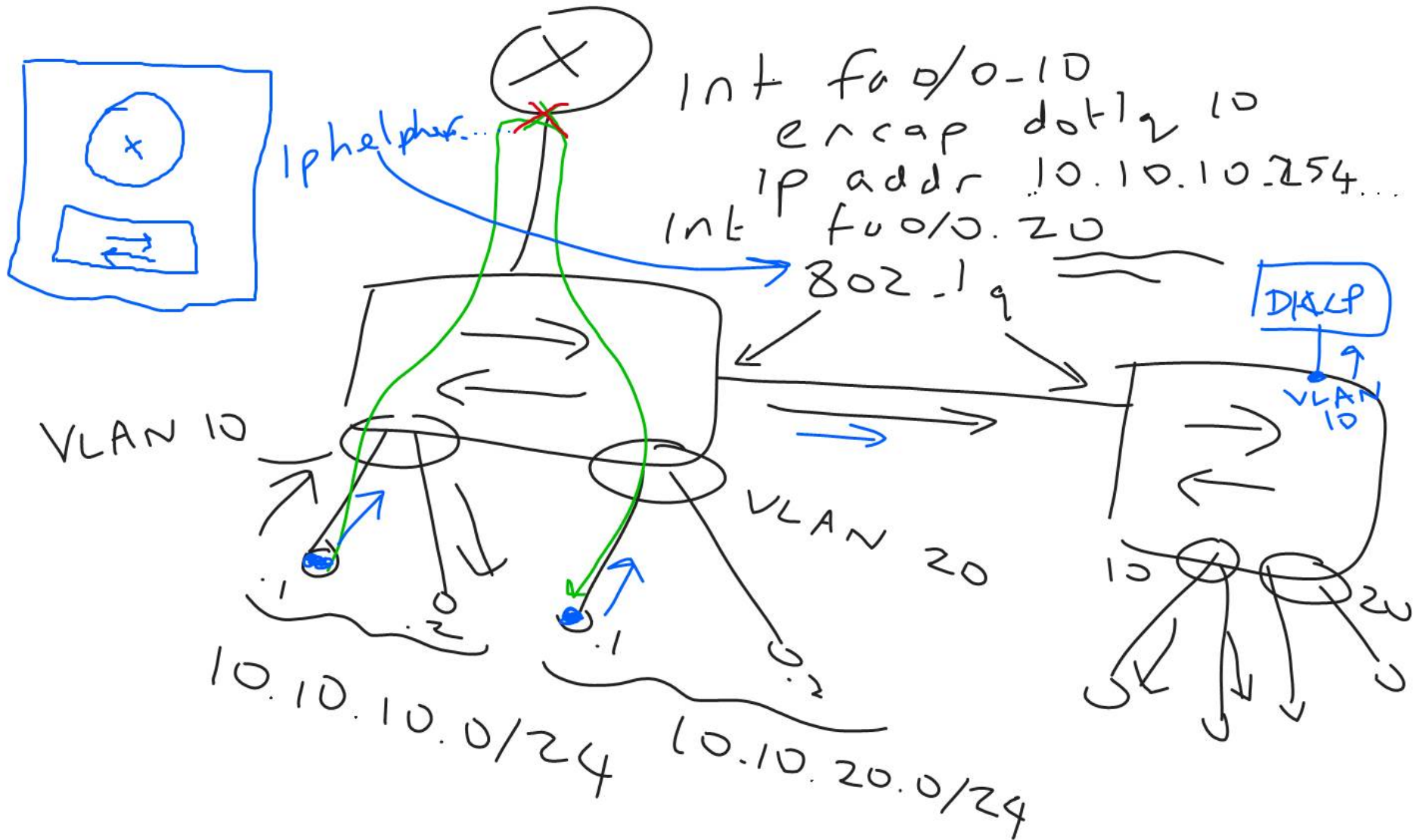
128 64 32 16 8 4 2 1



172.16.0.0

- 172.16.0.0/24
- 172.16.1.0/24
- 172.16.2.0
- 2.0/26
- 2.64/26
- 2.128/26
- 2.192/26
- .16.
- 2.0/30
- 2.4/30
- 2.8
- 2.12
- 2.14

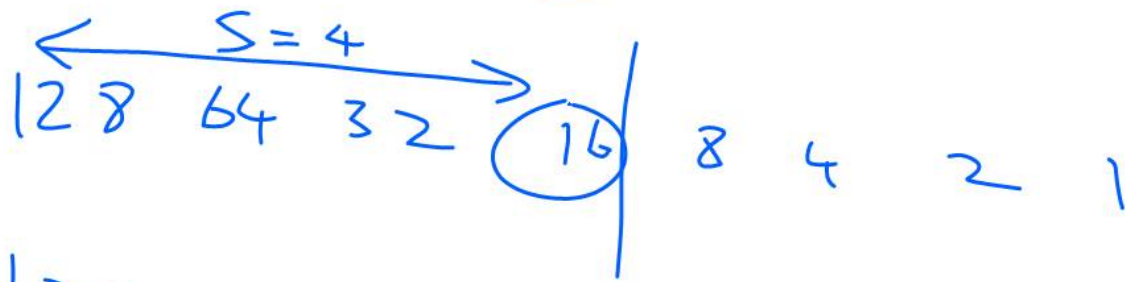




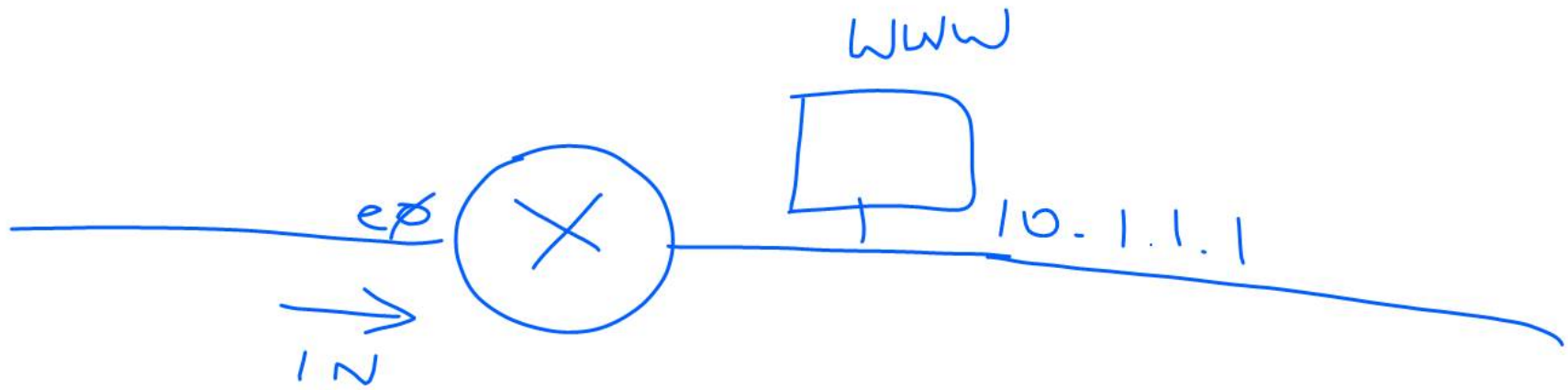
↓
172.16.0.0/16

Require 16 subnets

4 bits $2^4 = 16$

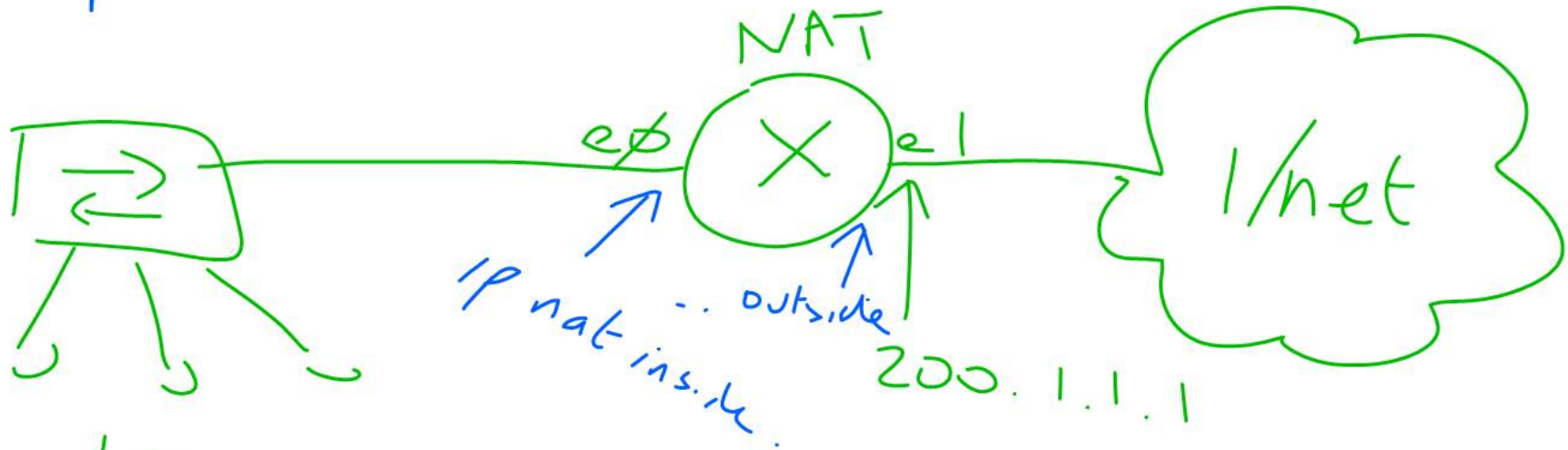


172.16.0.0/20
16.0.0.0/20
32.0.0.0/20
⋮



access-list 133 permit tcp any host 10.1.1.1
 int ex
 access-group 133 in
 eq 80

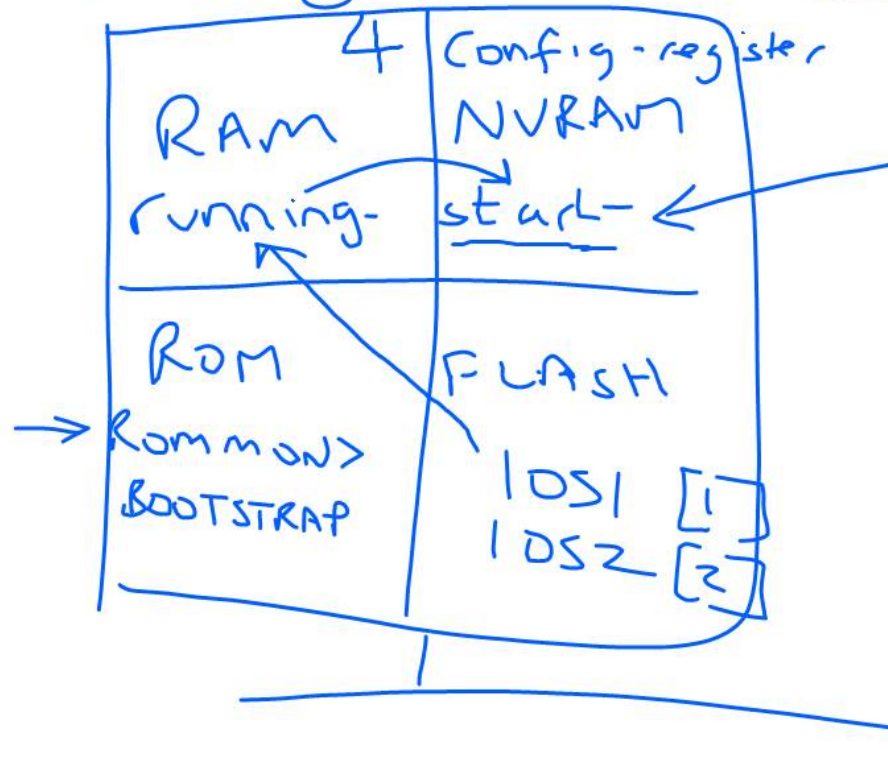
access-list 1 permit 10.1.1.0 0.0.0.255
match
IP nat inside source list 1 int e0 overload



10.1.1.0/24

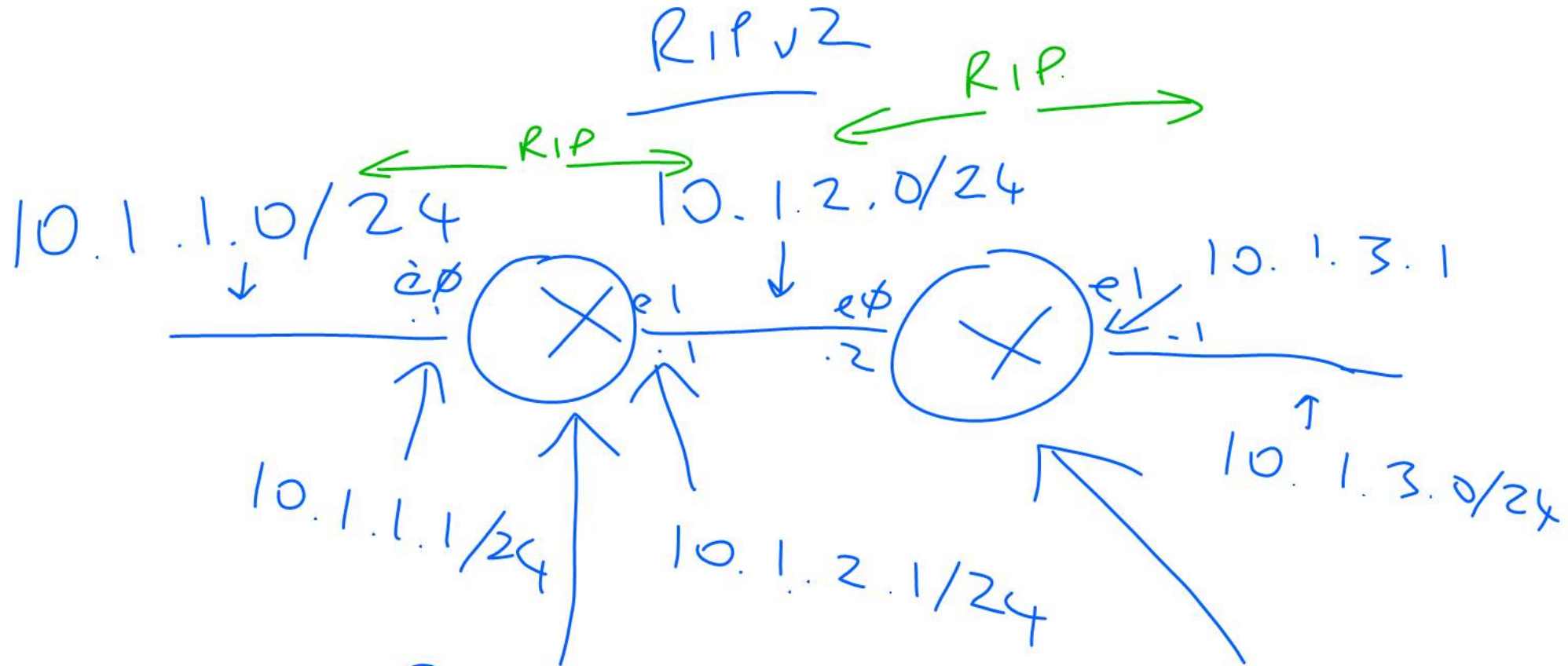
15 14 13 12 | 11 10 9 8 | 7 6 5 4 | 3 2 1 0
 0 0 1 0 | 0 0 0 1 | 0 0 0 0 | 0 0 1 0
 2 | | | 2
 } | | | }

By Pass starter - config BOOT FIELD
 0 0 1 0 = $\emptyset \times 2102$
 = 2142



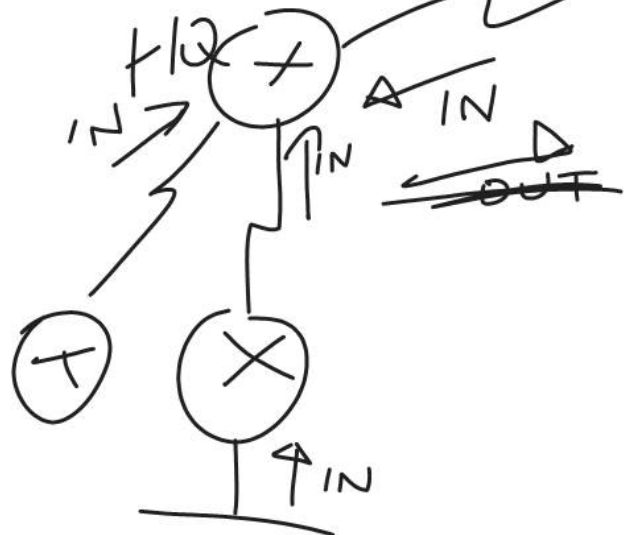
boot system flash: 1052
 " " tftp: ip... 103





- C 10.1.1.0/24 via e0
- C 10.1.2.0/24 via e1
- R 10.1.3.0/24 via e1

~~Branch~~



Branch

/26

128 (64) | 32 16 8 4 2 1

192 . 168 . 52 . 0 / ~~26~~ 26
· 64
· 128
· 192

x

New battery!

x

x

x

x

✓

✓

ρ

