

CIDR Range

CIDR = Class Inter Domain Routing

11.0.0.0/24 = 256 IP Addresses

$$\downarrow \\ 32 - 24 = 8 \rightarrow 2^8 = 256$$

11.0.0.0/16 = 65,536 IP Addresses

$$\downarrow \\ 32 - 16 = 16 \rightarrow$$

11.0.1.125 = 32 Bit Address

11.0.1.125
8 bit 8 bit 8 bit 8 bit

32 Bit Address

11.0.1.0/23



$$32 - 28 = 4$$

$$\downarrow \\ 2^4 \\ \downarrow$$

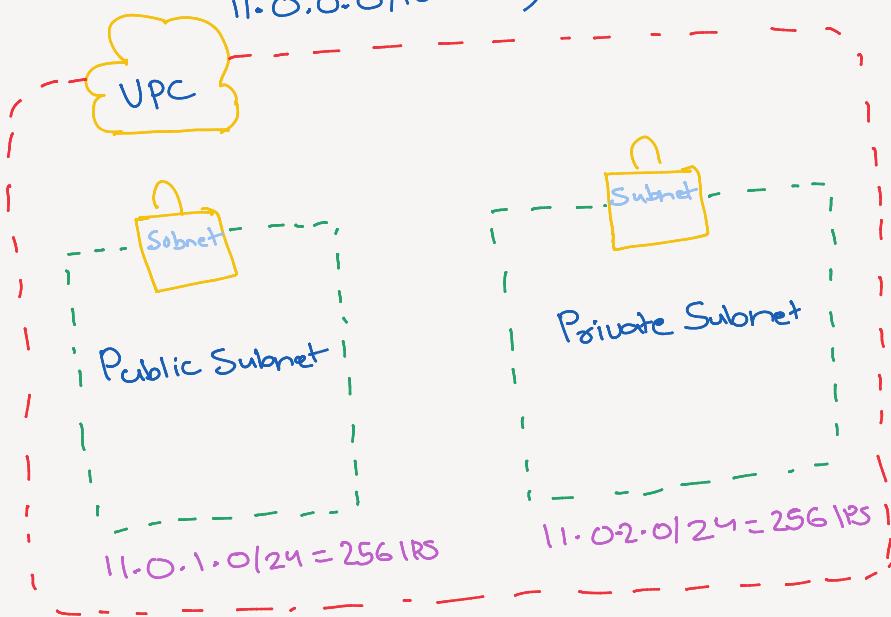
16 Addresses

11.0.1.0, 11.0.1.1, 11.0.1.2, 11.0.1.3, - - -

- - - 11.0.1.15

How to create UPC & Subnet?

$$11.0.0.0/16 = 65,536 IPs$$



Question

Suppose my network has UPC with

IP Address 192.16.0.0/16 and I

want subnet with 64 IP addresses

formula
 $IP = 2^{(32-CIDR)}$

↳ 192.16.5.0/26

$$2^6 = 64$$
$$32 - 6 = 26$$

Why mostly IP addresses start with

[192 | ?
172 |
10]
because these are mostly

used for private.

Challenge Questions

Calculate the CIDR range for the following.

[172.168.3.0 / 30
10.0.0.0 / 8]

↳ 172.168.3.0 / 30

For /30

$$\text{IP} = 2^{\wedge}(32-30) \\ = 2^{\wedge}2$$

$$\text{IP} = 4$$

So, CIDR range = [172.168.3.0 - 172.168.3.3]

Total IPs : 4
Usable IPs : 2

Now for 10.0.0.0 / 8

Here,

$$\text{CIDR} = 8$$

$$\text{Total no. of IPs} = 2^{\wedge}(32-8) \\ = 2^{\wedge}(32-8) \\ = 2^{\wedge}24 \\ = 16,777,216$$

$$\text{Total IPs} = 16,777,216$$

$$\text{Usable IPs} = 16,777,214$$

(excluding network & broadcast)

#Final Answer

- CIDR Range: 10.0.0.0 - 10.255.255.255
- Total IPs: 16,777,216
- Usable IPs: 16,777,214