Subnetting — A Networking Concept

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Hello Folks, Ayush this side, today I'm gonna tell you about an important concept of networking i.e **Subnetting**.

Before reading further , you should aware of some basic networking concepts like IP address, **CIDR(/24,/16,/8)**, etc.

So without wasting time, let's get started :)

Now what is subnetting ?

> *Subnetting is nothing but dividing the network into different parts, suppose you have an network in your shop or company and you want to divide your network in 4 parts , so there we use subnetting.*

Before moving into actual part you should know about below given cheatsheet, this will help you to convert ip into binary and binary into ip.If you are aware of IP address then you know an Ip addreess is splitted into 32 bits into 1s and 0s.

128 64 32 16 8 4 2 1 — Cheatsheet

Now let's take an example suppose you have and IP **192.168.1.12** and it's binary form is **11000000 10101000 00000001 00001100**

How we did this , we did it with the help of above cheatsheet , see

Here **192=128+64**, then we'll consider 128 and 64 as 1s and others as 0s. So, binary form of 192 will be: **11000000**. Now next

168=**128+32+8**, so we'll consider 128,32 and 64 as 1 and others as 0. So, binary form

of 168 will be **10101000**

1=**1** so binary will be **00000001**

12=**8+4**, so we'll consider 8 and 4 as 1s and others as 0.So, binary form will be **00001100**.

I hope know it should be clear .

Now next we have to change binary to ip, we'll consider same IP, you just have to add that number which shows 1 and that will give your IP, just like shown below:

Now we are done with conversion now we'll see actual subnetting part, so for this let's take a Network: **192.168.1.0** and we have to divide this into 4 subnets(4 Networks). So it's whack 24 IP (/24) and for /24 subnet mask will be always **255.255.255.0**

Now, **First Step**: Convert the given IP and subnet mask address into Binary:

192.168.1.0 = 11000000 10101000 00000001 00000000

255.255.255.0 = 11111111.11111111.11111111.00000000

Second Step: Now we know we need 4 subnets then according to number of subnets we

use one formula 2^y where y is the number of bits which we have move in last octet of subnet mask. Here in this case we'll use $2^2=4$ so we'll move 2 bits in last octet of subnet , but if we need 5 subnets then we'll do $2^3 = 8$ then we'll move 3 bits but in this case it's only 2 bit.

Now same thing we'll do on Network ID also and find the min value in last octet till this red line and then add that min value till max value.

Now we'll **add Min value** which is 64 in the last octet of IP address till **Max value** which is 192.

1st Subnet: 192.168.1.0

2nd Subnet: 192.168.1.64

3rd Subnet: 192.168.1.128

4th Subnet: 192.168.1.192

I hope you got the concept of subnetting, and if you think this is valuable then please share it with your friends and give a clap on it :)

If you want to follow me on instagram , click here.

Thank You

Happy Learning !

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