

SUBNETING

❖ SUBNETING IS USED TO DIVIDE LARGE NETWORK INTO SMALL NETWORK BASED ON SUBNET MASK

❖ **BENEFITS**

❖ REDUCE THE NETWORK TRAFFIC AND BANDWIDTH UTILIZATION

❖ PERFORMANCE

❖ SIMPLIFIED ADMINISTRATION AND MANAGEMENT

CIDR(CLASSLESS INTER DOMAIN ROUTING)

❖ CIDR INDICATE HOW MANY NETWORK
BITS AVAILABLE IN THE “SUBNET MASK”

“1” BITS ARE “NETWORK BIT” AND “0” BITS ARE “HOST BIT”

EXAMPLE:

IP ADD=10.0.0.100

SUBNET= 255 . 0 . 0 . 0

BINARY = 11111111 .00000000 .00000000 .00000000


8 N/W bits 24 host bits

“CIDR” INDICATE ONLY N/W BITS

SUBNET

255.0.0.0

CIDR

/8

- SUBNET MASK CIDR VALUE

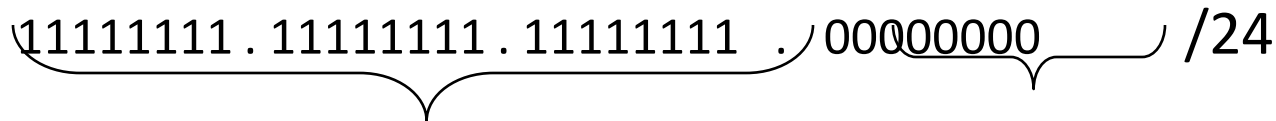
255 . 255 . 0 . 0 /16



11111111.11111111 . 00000000 . 00000000

8 n/w bits + 8 n/w bits 8 host bit + 8 host bit

255 . 255 . 255 . 0



8 n/w bit + 8 n/w bit +8 n/w bit 8 host bit

WHAT IS SUBNET MASK OF /26

/26 MEANS N/W BITS ARE AVAILABLE IN THE CIDR

11111111.11111111.11111111.11000000

255 . 255 . 255 . ?

CONVERT THE LAST OCTATE BINARY TO DECIMAL

128 + 64 + 32 + 16 + 8 + 4 + 2 + 1

1 1 0 0 0 0 0 0

128+64 =192

CIDR /26 = 255.255.255.192

CIDR VALUE OF /19

11111111.11111111.11100000.00000000

255 . 255 . ? . 0

128 + 64 + 32 + 16 + 8 + 4 + 2 + 1

1 1 1 0 0 0 0 0

128 + 64 + 32 = 224

CIDR /19 = 255.255.224.0

FIND THE SUBNET MASK

1) /30

2) /13

3) /27

CIDR Values

Subnet Mask	CIDR Value	Subnet Mask	CIDR Value
255.0.0.0	/8		
255.128.0.0	/9	255.255.252.0	/22
255.192.0.0	/10	255.255.254.0	/23
255.224.0.0	/11	255.255.255.0	/24
255.240.0.0	/12	255.255.255.128	/25
255.248.0.0	/13	255.255.255.192	/26
255.252.0.0	/14		
255.254.0.0	/15	255.255.255.224	/27
255.255.0.0	/16	255.255.255.240	/28
255.255.128.0	/17	255.255.255.248	/29
255.255.192.0	/18	255.255.255.252	/30
255.255.224.0	/19		
255.255.240.0	/20		
255.255.248.0	/21		

SUBNETING

- 192.168.68.0 /26
 - 1) FIND THE SUBNET MASK
 - 2) HOW MANY SUBNETWORKS AVAILABLE IN THE SUBNET MASK
 - 3) HOW MANY HOST AVAILABLE IN THE EACH SUB NETWORK
 - 4) CREATE THE SUBNET TABLE

1) FIND THE SUBNET MASK

/26=255.255.255. 11 000000



2 N/W BITS 6 HOST BITS

11000000=128+64=192

/26=255.255.255.192

2) HOW MANY SUB NETWORK

FORMULA= 2^N

N=NUMBER OF NETWORK BITS

N = 2 BITS

FORMULA= 2^2

$2^2=4$ SUB NETWORKS

3) HOW MANY HOST PER NETWORK

FORMULA = 2^H-2

H = NUMBER OF HOST BITS = 6 BITS

$2^6-2=2*2*2*2*2*2-2=64-2=62$

OVER ALL HOST = 64 ; AVAILABLE HOST = 62 HOST

-2 MEANS EACH SUB NETWORK HAVE ONE N/W IP AND ONE BROADCAST IP

THIS IP ADDRESS IS NOT USED IN OUR HOSTS

- SUBNET TABLE

STARTING N/W IP	STARTING HOST IP	END HOST IP	BROADCAST IP
192.168.68.0	192.168.68.1	192.168.68.62	192.168.68.63
+64			
192.168.68.64	192.168.68.65	192.168.68.126	192.168.68.127
+ 64			
192.168.68.128	192.168.68.129	192.168.68.190	192.168.68.191
+ 64			
192.168.68.192	192.168.68.193	192.168.68.254	192.168.68.255
+ 64			
192.168.68. 256			

THANK YOU FOR LISTENING

ANY QUESTIONS

ANY QUERRIES

PLEASE CONTACT

ARAVIND KUMAR GK

Email: gkaravindkumar@gmail.com

Phone: 9994871924

skybe: gkaravindkumar

Webpage: gkaravind.webs.com

