SUBNETING

- SUBNETING IS USED TO DIVIDE LARGE NETWORK INTO SMALL NETWORK BASED ON SUBNET MASK
- **BENEFITS**
- REDUCE THE NETWORK TRAFFIC AND

BANDWITH UTILIZATION

- PERFORMANCE
- SIMPLIFIED ADMINISTRATION AND MANAGEMENT

CIDR(CLASSLESS INTER DOMAIN ROUTING)

- CIDR INDIMATE HOW MANY NETWORK

BITS AVALABLE 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	CIDR
255.0.0.0	/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

11111111 . 11111111 . 11111111 . 00000000 /24

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 AVALABLE 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

1111111.11111111.11100000.00000000

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
255.0.0.0	/8
255.128.0.0	/9
255.192.0.0	/10
255.224.0.0	/11
255.240.0.0	/12
255.248.0.0	/13
255.252.0.0	/14
255.254.0.0	/15
255.255.0.0	/16
255.255.128.0	/17
255.255.192.0	/18
255.255.224.0	/19
255.255.240.0	/20
255.255.248.0	/21

Subnet Mask	CIDR Value
255.255.252.0	/22
255.255.254.0	/23
255.255.255.0	/24
255.255.255.128	/25
255.255.255.192	/26
255.255.255.224	/27
255.255.255.240	/28
255.255.255.248	/29
255.255.255.252	/30

SUBNETING

- 192.168.68.0 /26

1) FIND THE SUBNET MASK
2) HOW MANY SUBNETWORKS AVALABLE IN THE SUBNET MASK
3) HOW MANY HOST AVALABLE 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 ; AVALABLE HOST = 62 HOST

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

THIS IP ADDRESS IS NOT USED IN OUR HOSTS

- SUBNET TABLE

STARTING N/W IP	STARTING HOST IP	END HOST IP	BROADCOST 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
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