IPv4 - CIDR

Cálculo do endereço de rede e broadcast

IPv4 - CIDR

Transformando em Decimal em Binario

192.168.39.39/27

192 = 11000000

168 = 10101000

39 = 00100111

39 = 00100111

IPv4 - CIDR

MASCARA - /24 /25 /26 /27

192 . 168 . 39 . 39

11000000 . 10101000 . 00100111 . 00100111

11111111 . 11111111 . 11111111 . 11100000

Mascara /27

/24 /25

IPv4 - CIDR

/27

AND LÓGICO

192 . 168 . 39 . 39

11000000 . 10101000 . 00100111 . 00100111

11111111 . 11111111 . 11111111 . 11100000

IPv4 - CIDR

/27

AND Lógico

192 . 168 . 39 . 39

11000000 . 10101000 . 00100111 . 00100111

11111111 . 11111111 . 11111111 . 11100000

11000000 . 10101000 . 00100111 . 00100000

End. de Rede = 192 . 168 . 39 . 32

MASCARA = 255 . 255 . 255 . 224

IPv4 - CIDR

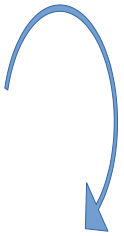
/27

OR Lógico

192 . 168 . 39 . 39

11000000 . 10101000 . 00100111 . 00100111

11111111 . 11111111 . 11111111 . ~~11100000~~



11000000 . 10101000 .00100111.INVERT MASK

End. de Broadcast = 192 . 168 . 39 . xxx

MASCARA = 255 . 255 . 255 . 224

IPv4 - CIDR

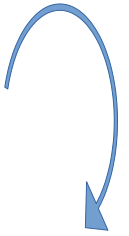
/27

OR Lógico

192 . 168 . 39 . 39

11000000 . 10101000 . 00100111 . 00100111

11111111 . 11111111 . 11111111 . 00011111



11000000 . 10101000 . 00100111 . 00111111

End. de Broadcast = 192 . 168 . 39 . 63

MASCARA = 255 . 255 . 255. 224

IPv4 - CIDR

RESUMO

IPv4 – CIDR - Resumo

15 . 55 . 150 . 30/14

/8 /16

/14

55 em binário

.00110111 .

11111111.11111100.00000000.00000000

.00110100. (**and** lógico)

End. Rede = 15.**52**.0.0

End. Broadcast = 15.

IPv4 – CIDR - Resumo

15 . 55 . 150 . 30/14

/8 /16

/14 55 em binário

.00110111. MASCARA INVERTIDA

11111111.00000011.00000000.00000000

.00110111. (**OR** lógico)

End. Rede = 15.**52**.0.0

End. Broadcast = 15.55.255.255

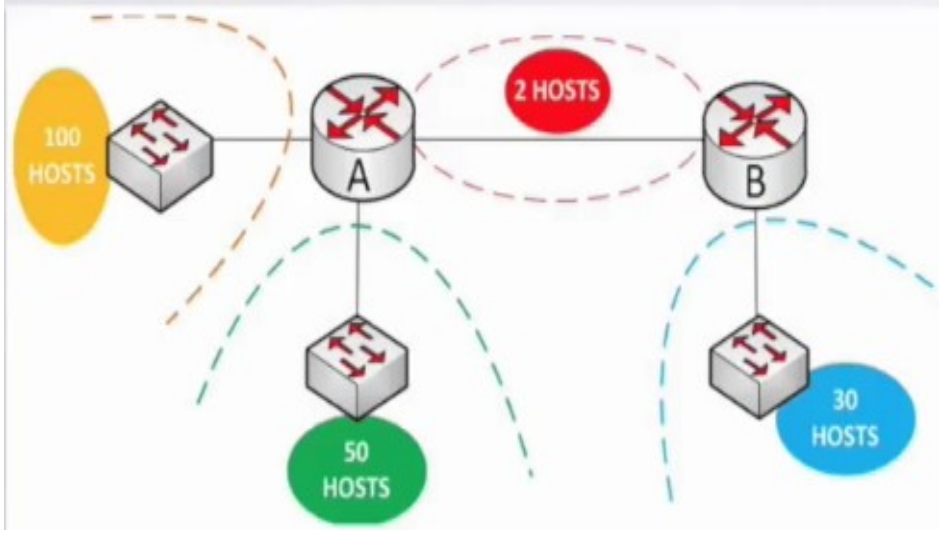
Mascara decimal = 255.252.0.0

IPv4 – CIDR – Outro exemplo

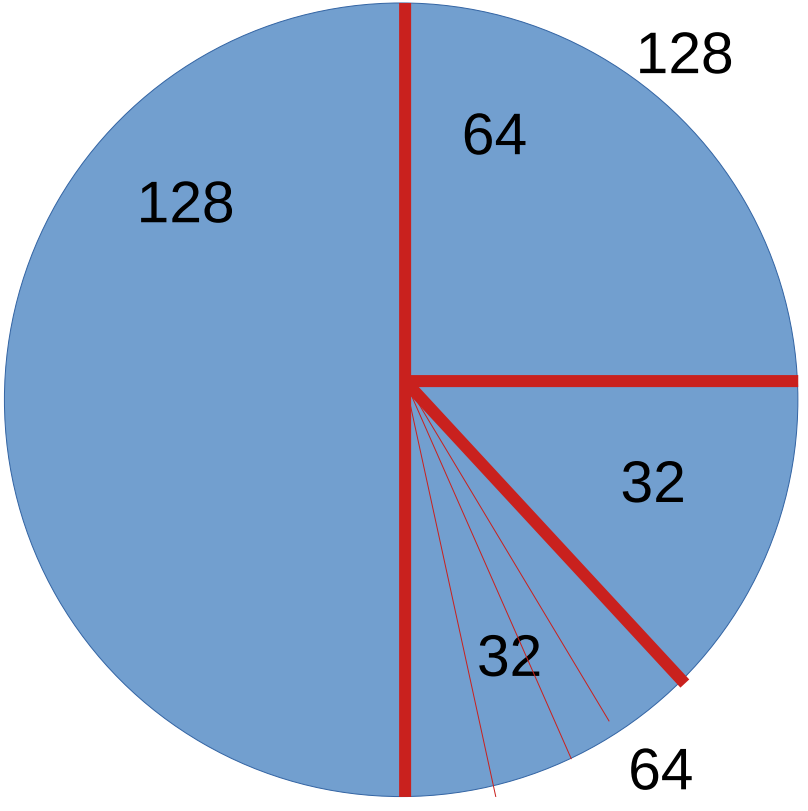
Outro Exemplo

IPv4 - CIDR

192.168.15.0/24
255.255.255.0
100 = hosts
50 = hosts
30 = hosts
2 = hosts

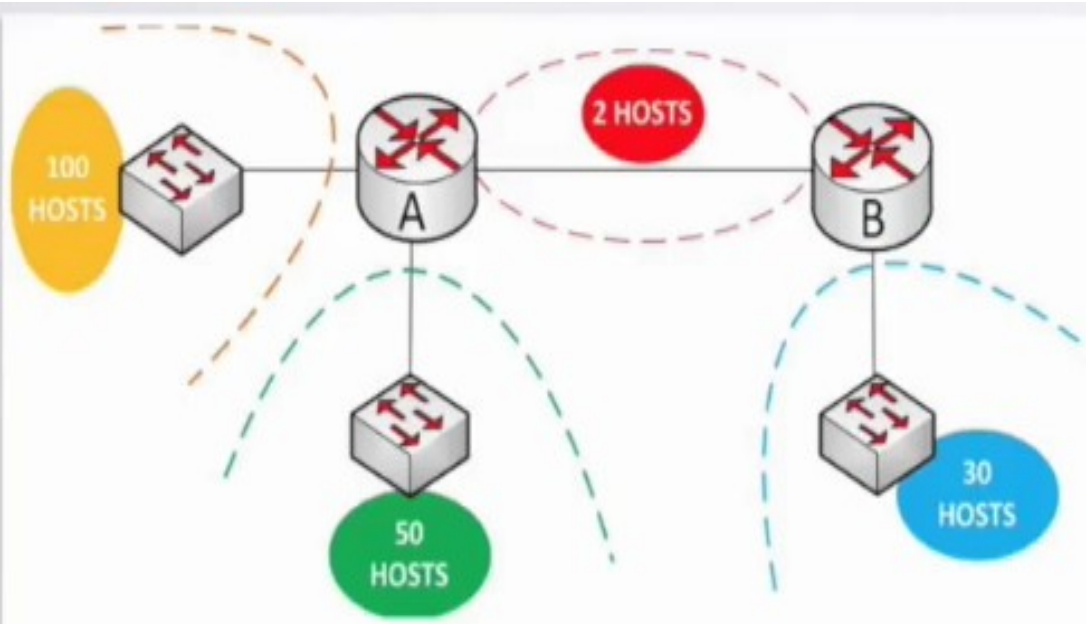


255.255.255.0 = /24 = 256 hosts



IPv4 - CIDR

1	1	1	1	1	1	1	1	.	1	1	1	1	1	1	1	1	.	1	1	1	1	1	1	1	1	.	0	0	0	0	0	0	0	0

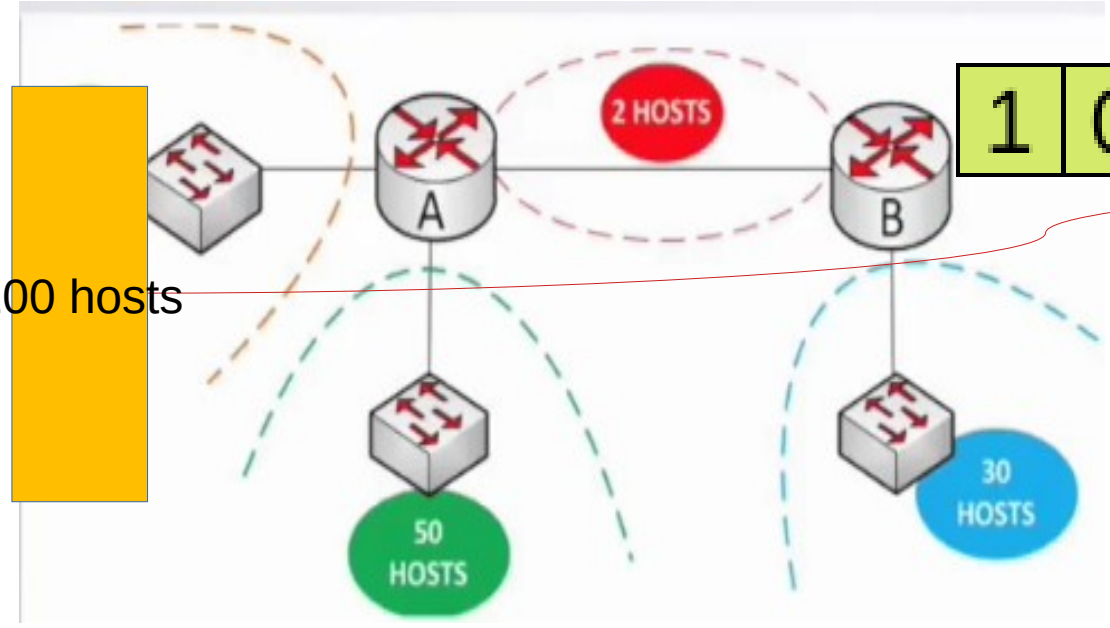


192.168.15.0/24

Preciso de 100 hosts, quantos bits 0 preciso para ter 100 hosts?

IPv4 - CIDR

1	1	1	1	1	1	1	1	.	1	1	1	1	1	1	1	1	.	1	1	1	1	1	1	1	1	.	0	0	0	0	0	0	0	0



1	0	0	0	0	0	0	0

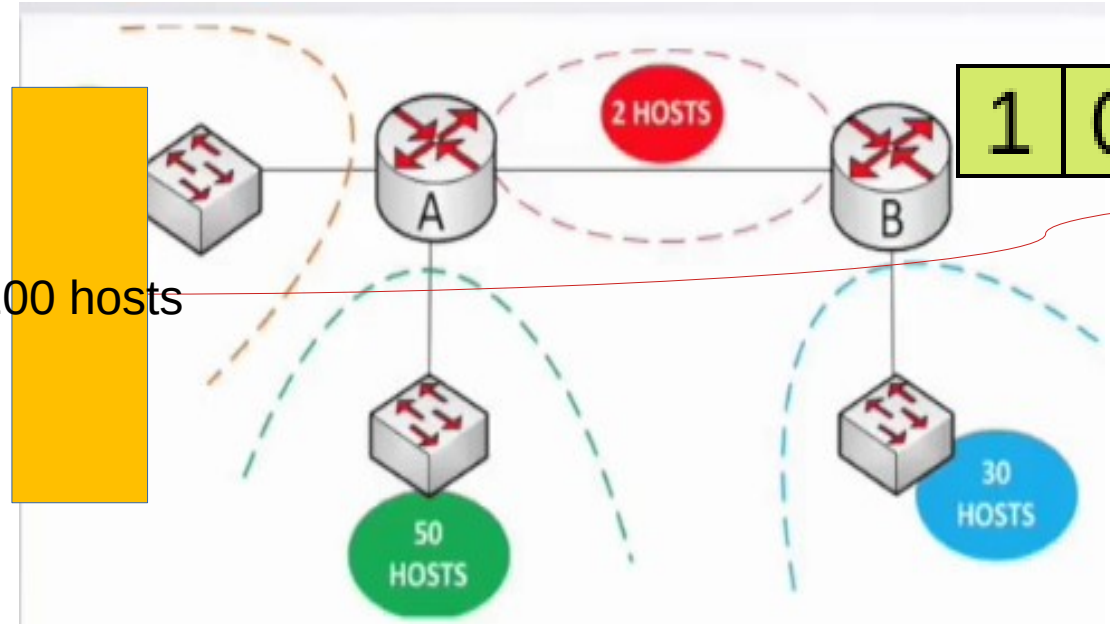
= 128

100 hosts

192.168.15.0/25

IPv4 - CIDR

1	1	1	1	1	1	1	1	.	1	1	1	1	1	1	1	1	.	1	1	1	1	1	1	1	1	.	0	0	0	0	0	0	0	0



100 hosts

1	0	0	0	0	0	0	0

= 128

2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0

$2^n - 2 >= 100$

$2^7 = 128$

$2^6 = 64$

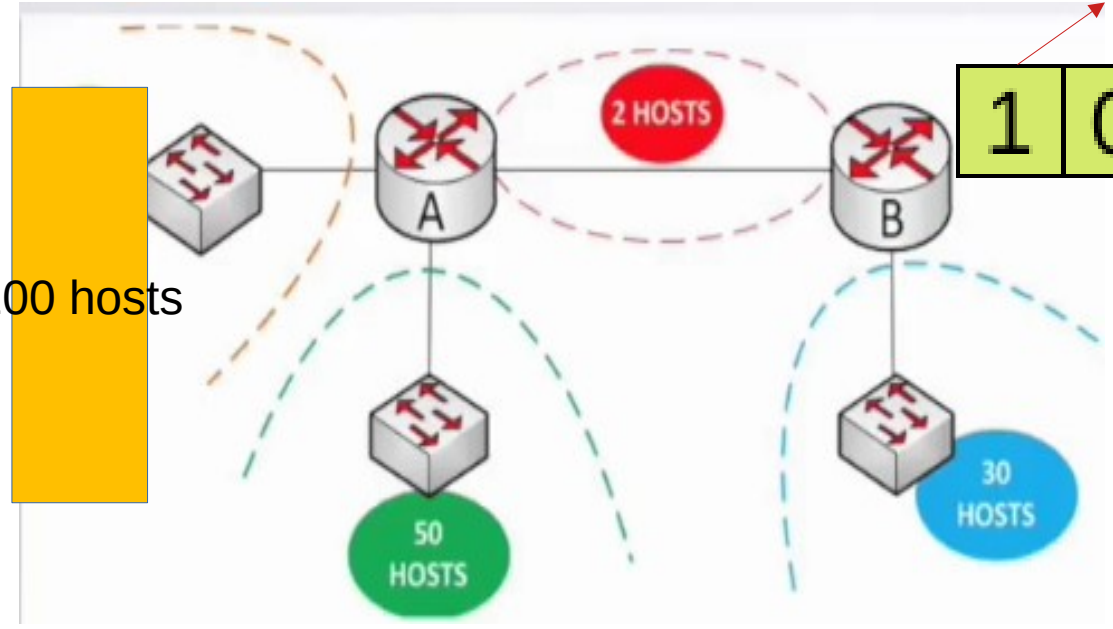
$2^5 = 32$

$2^4 = 16$

192.168.15.0/25

IPv4 - CIDR

1	1	1	1	1	1	1	1	.	1	1	1	1	1	1	1	1	.	1	1	1	1	1	1	1	1	.	0	0	0	0	0	0	0	0



100 hosts

REDE

1	0	0	0	0	0	0	0

= 128

2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0

$2^n - 2 >= 100$

$2^7 = 128$, a rede vai de 128 em 128

192.168.15.0/25

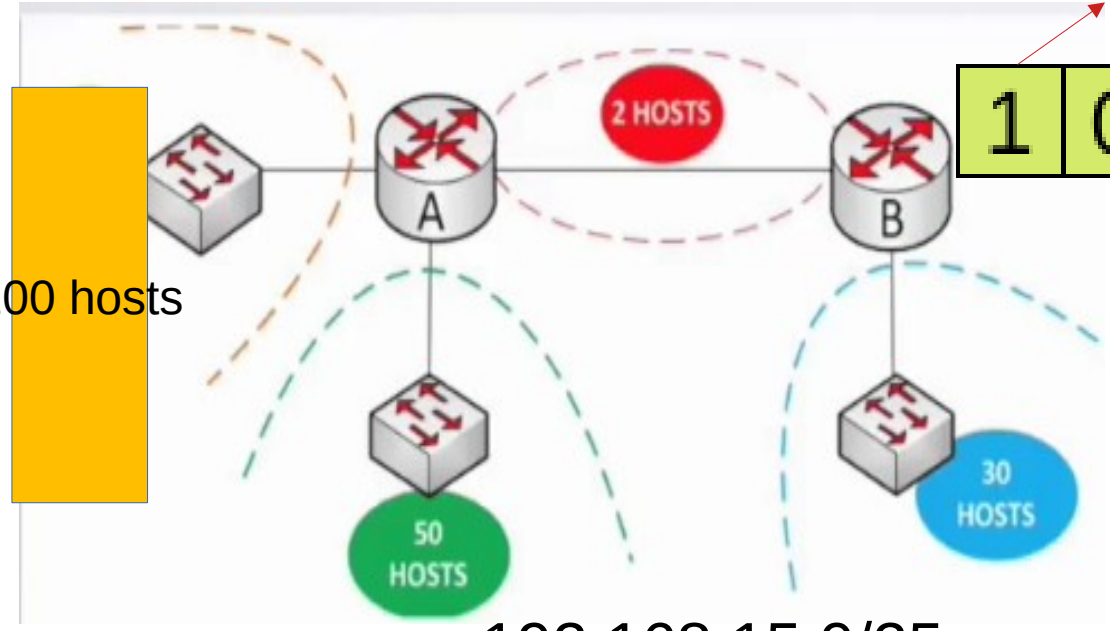
IPv4 - CIDR

1 1 1 1 1 1 1 1 . 1 1 1 1 1 1 1 1 . 1 1 1 1 1 1 1 1 . 0 0 0 0 0 0 0 0

REDE

1	0	0	0	0	0	0	0

= 128



192.168.15.0/25

2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0

$2^n - 2 >= 100$

2^7 = 128, a rede vai de 128 em 128

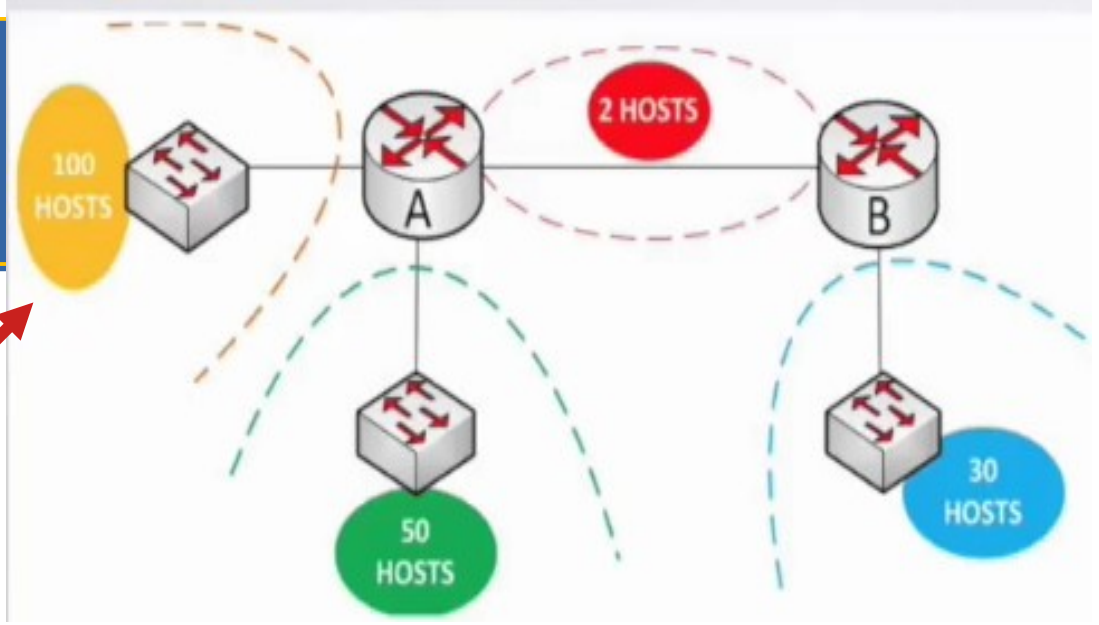
192.168.15.0 = rede

192.168.15.127 = broadcast

255.255.255.128 = mascara

IPv4 - CIDR

192.168.15.0/25

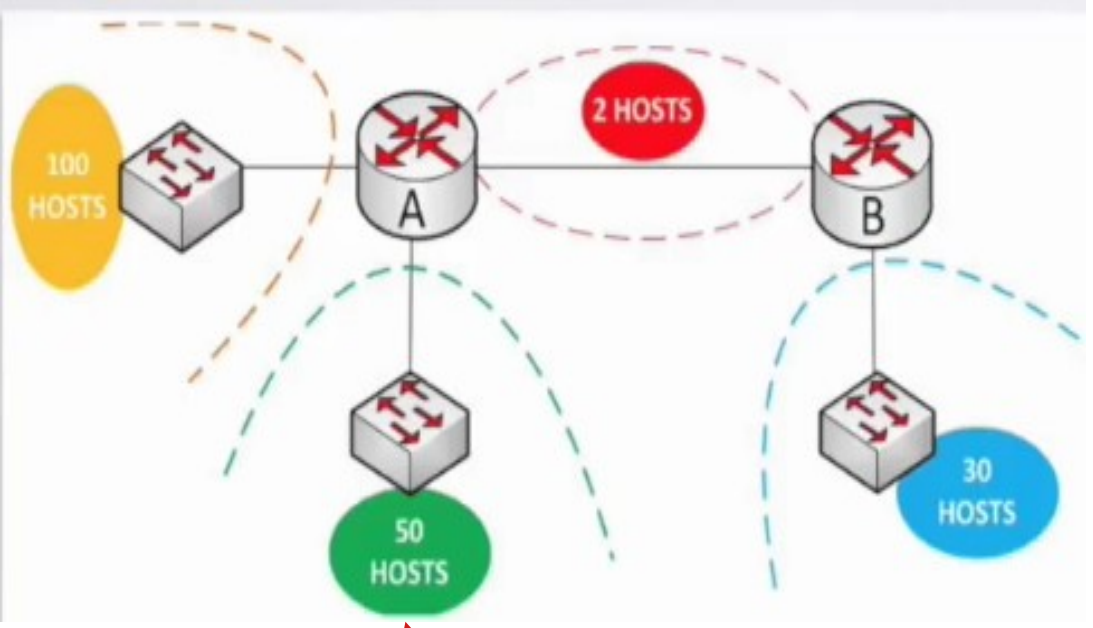


192.168.15.0 = rede
192.168.15.127 = broadcast
255.255.255.128 = mascara
192.168.15.0/25

192.168.15.128 = rede
192.168.15.255 = broadcast
255.255.255.128 = mascara
192.168.15.128/25

IPv4 - CIDR

192.168.15.0/25



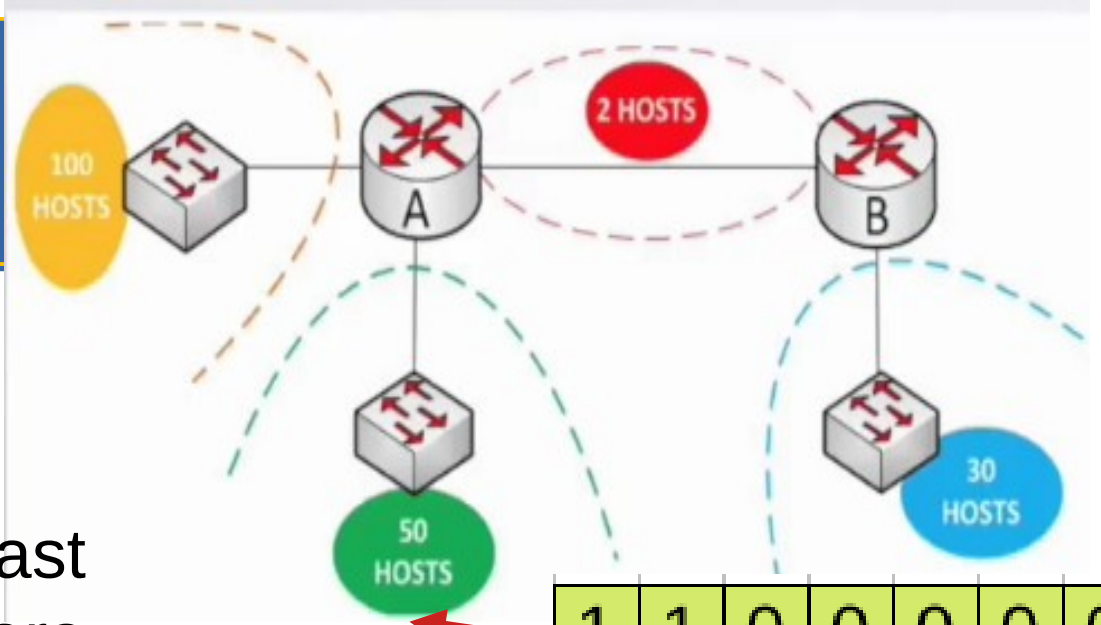
192.168.15.0 = rede
192.168.15.127 = broadcast
255.255.255.128 = mascara
192.168.15.0/25

192.168.15.128 = rede
192.168.15.255 = broadcast
255.255.255.128 = mascara
192.168.15.128/25
Perda de IPv4 então –>

IPv4 - CIDR

192.168.15.0/25

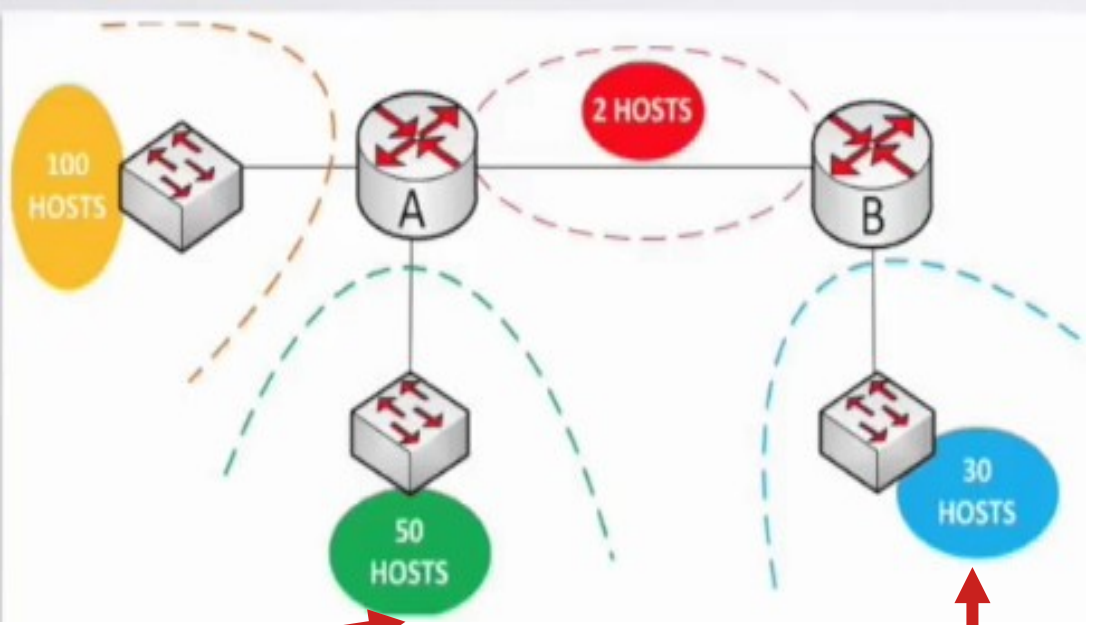
192.168.15.128 = rede
192.168.15.255 = broadcast
255.255.255.128 = mascara
192.168.15.128/25



$2^6 - 2 >= 50$
$2^6 - 2 >= 64 - 2 = 62$ hosts
192.168.15.128 = rede
192.168.15.191 = broadcast (impar)
255.255.255.192 = mascara
192.168.15.128/26

IPv4 - CIDR

192.168.15.128/26



$2^6 - 2 >= 50$

$2^6 - 2 >= 64 - 2 = 62$ hosts

192.168.15.128 = rede

192.168.15.191 = broadcast (impar)

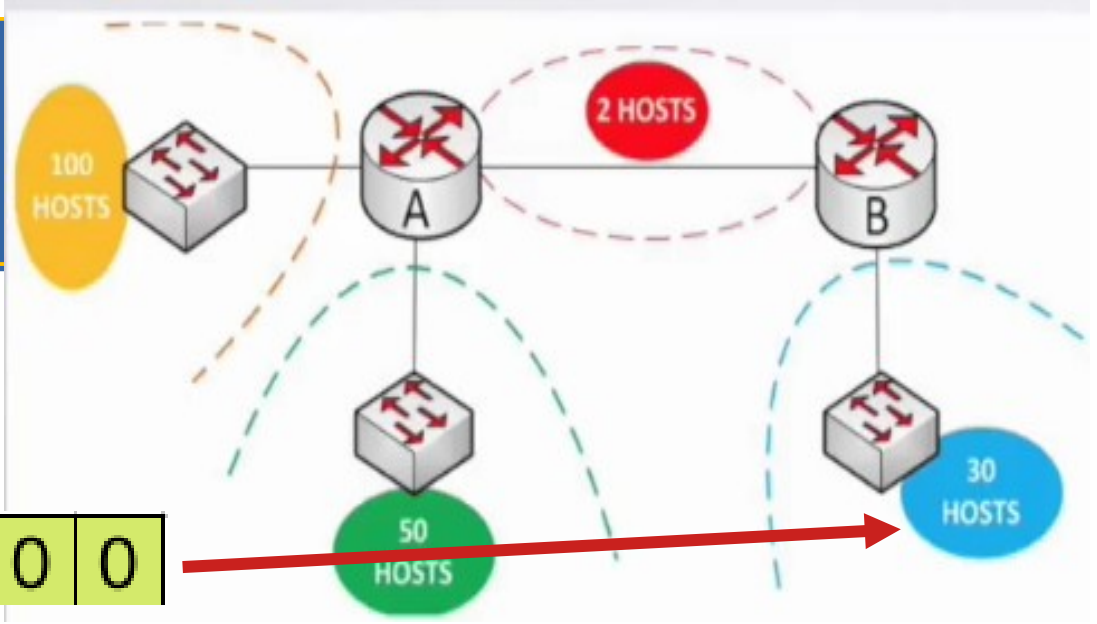
255.255.255.192 = mascara

192.168.15.128/26

1	1	1	0	0	0	0	0

IPv4 - CIDR

192.168.15.192/27



$2^5 - 2 >= 30$

$2^5 - 2 >= 32 - 2 = 30$ hosts

192.168.15.192 = rede

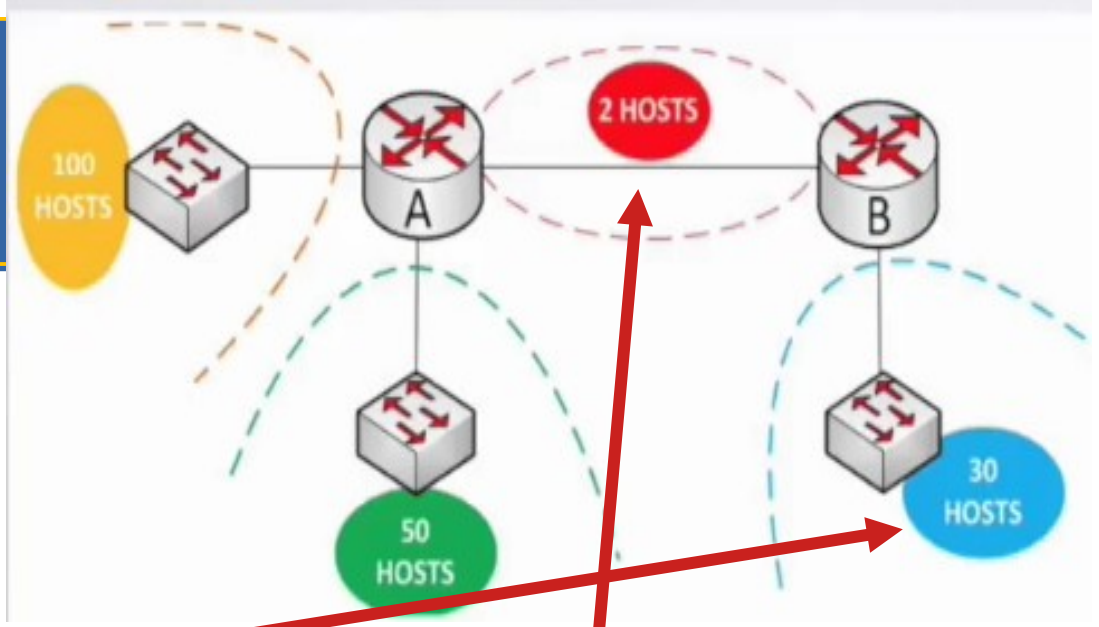
192.168.15.223 = broadcast (impar)

255.255.255.224 = mascara

192.168.15.224/27

IPv4 - CIDR

192.168.15.192/27



$2^5 - 2 >= 30$

$2^5 - 2 >= 32 - 2 = 30$ hosts

192.168.15.192 = rede

192.168.15.223 = broadcast (impar)

255.255.255.224 = mascara

192.168.15.224/27

192.168.15.224/27

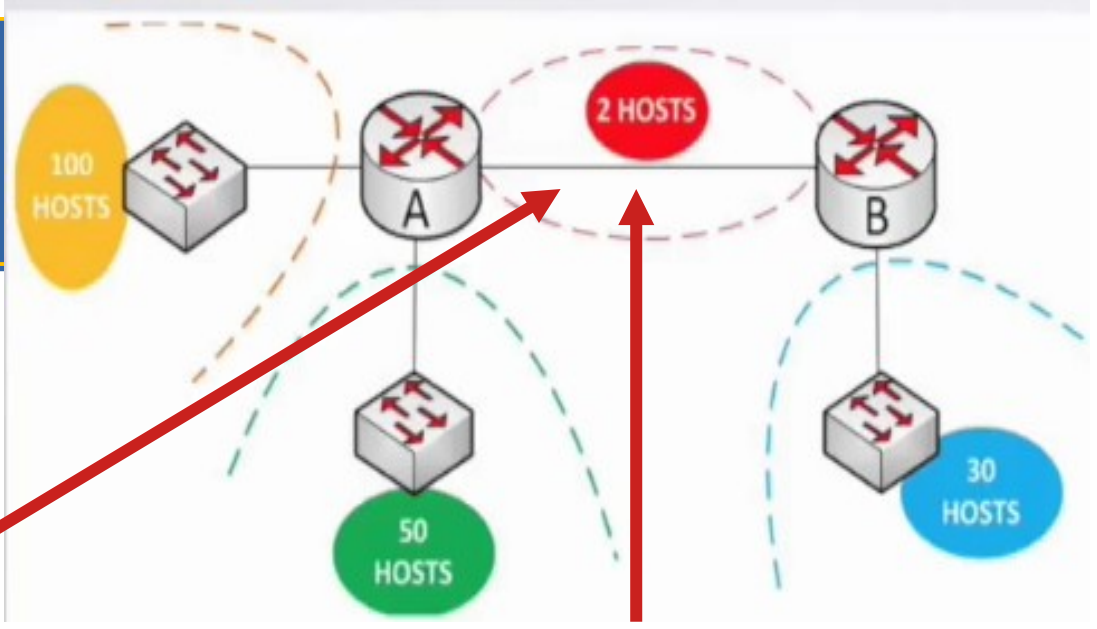
$2^n - 2 = 2$

$2^2 - 2 = 2$

1	1	1	1	1	1	0	0

IPv4 - CIDR

192.168.15.192/27



192.168.15.224/27

$2^n - 2 >= 2$

$2^2 - 2 >= 2$ número de host

$2^3 = 8$ sub-redes

1	1	1	1	1	1	0	0

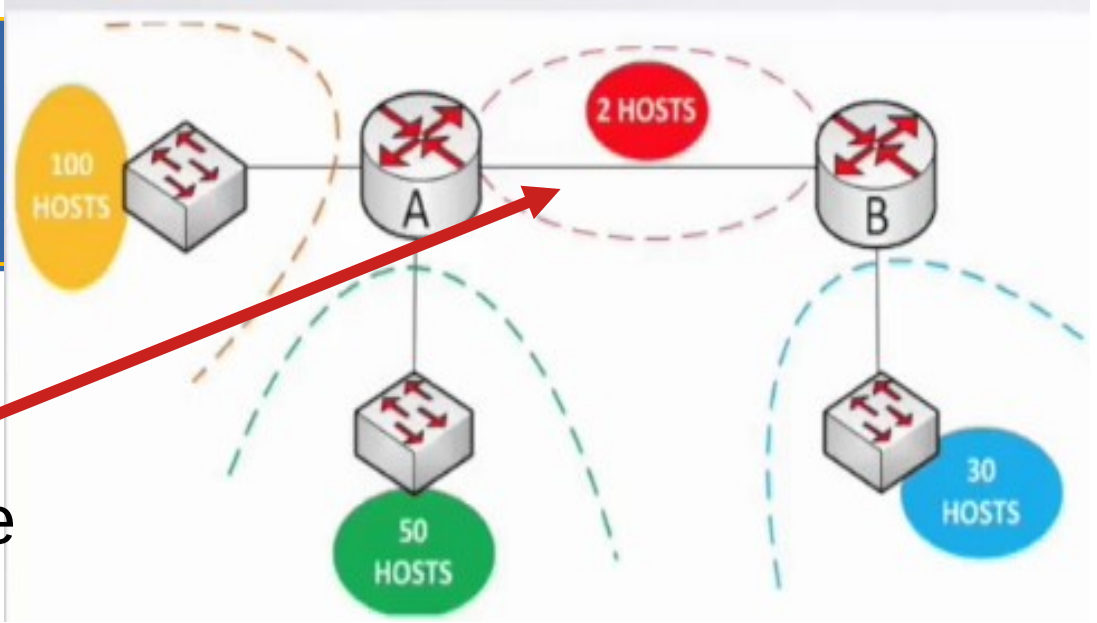
192.168.15.224/30 = rede

192.168.15.228/30 = rede

192.168.15.232/30 = rede

IPv4 - CIDR

1	1	1	1	1	1	0	0



Vai de 4 em 4

192.168.15.224/30 = rede

192.168.15.228/30 = rede

192.168.15.232/30 = rede

192.168.15.236/30 = rede

192.168.15.240/30 = rede

192.168.15.244/30 = rede

192.168.15.248/30 = rede

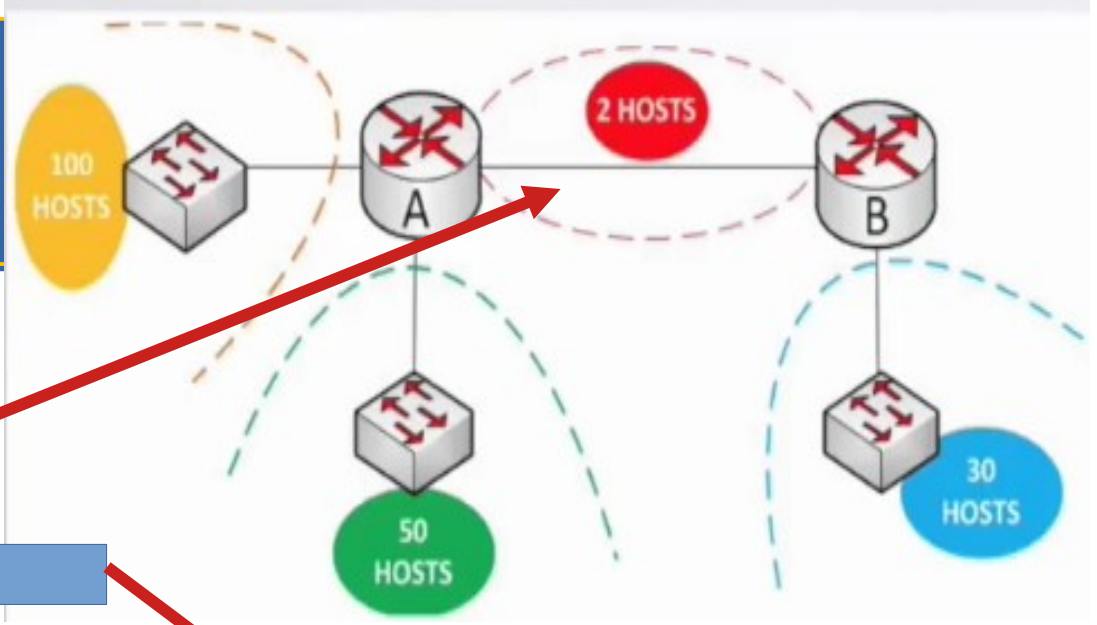
192.168.15.252/30 = rede

IPv4 - CIDR

1	1	1	1	1	1	0	0

Vai de 4 em 4

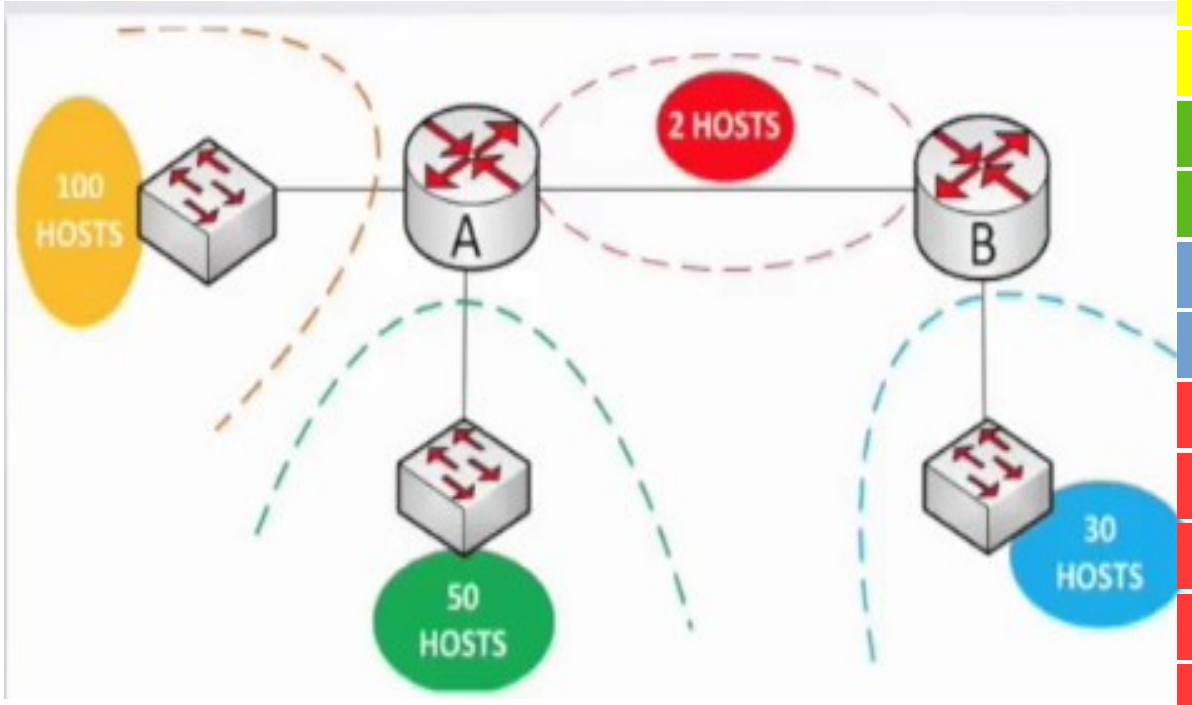
192.168.15.224/30 = rede



192.168.15.228/30 = sub-rede
192.168.15.232/30 = sub-rede
192.168.15.236/30 = sub-rede
192.168.15.240/30 = sub-rede
192.168.15.244/30 = sub-rede
192.168.15.248/30 = sub-rede
192.168.15.252/30 = sub-rede

192.168.15.224 = rede
192.168.15.225 = host
192.168.15.226 = host
192.168.15.227 = broadcast

IPv4 – CIDR - Resumo



192.168.15.0/24 – Class C

- 192.168.15.128/25 = 128 host
- 192.168.15.128/25 = 128 host
- 192.168.15.128/26 = 64 host
- 192.168.15.192/26 = 64 host
- 192.168.15.192/27 = 64 host
- 192.168.15.224/27 = 2 hosts
- 192.168.15.228/30 = 2 hosts
- 192.168.15.232/30 = 2 hosts
- 192.168.15.236/30 = 2 hosts
- 192.168.15.240/30 = 2 hosts
- 192.168.15.244/30 = 2 hosts
- 192.168.15.248/30 = 2 hosts
- 192.168.15.252/30 = 2 hosts

IPv4 - CIDR

PERGUNTAS?