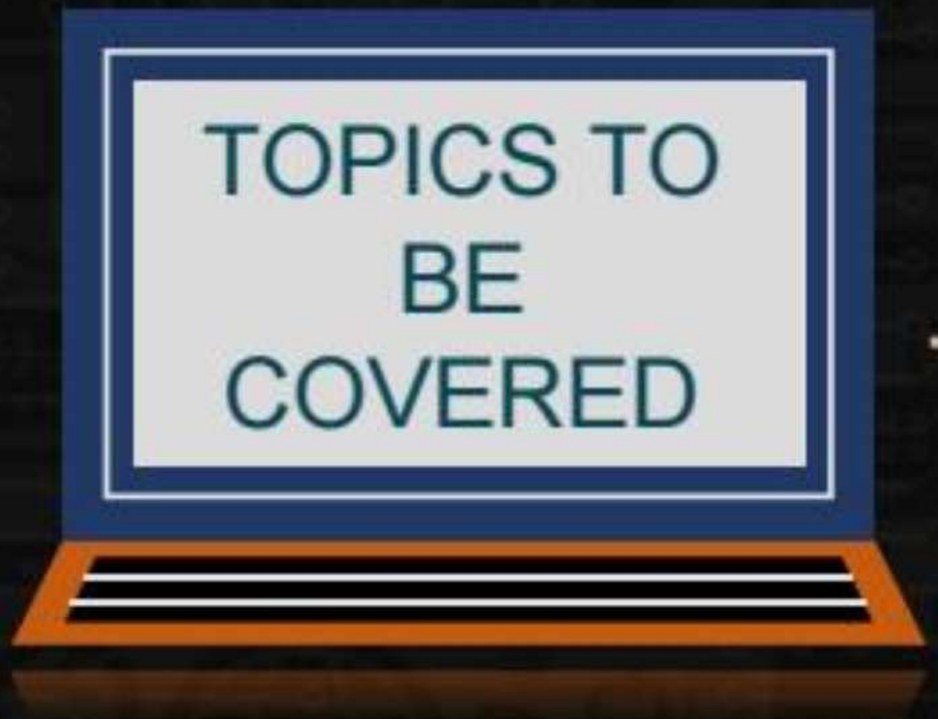
CS & IT ENGINEERING

COMPUTER NETWORKS

IPv4 Addressing

Lecture No-03

By- Ankit Doyla Sir



Classful Addressing

CLASSFUL ADDRESSING

class-A

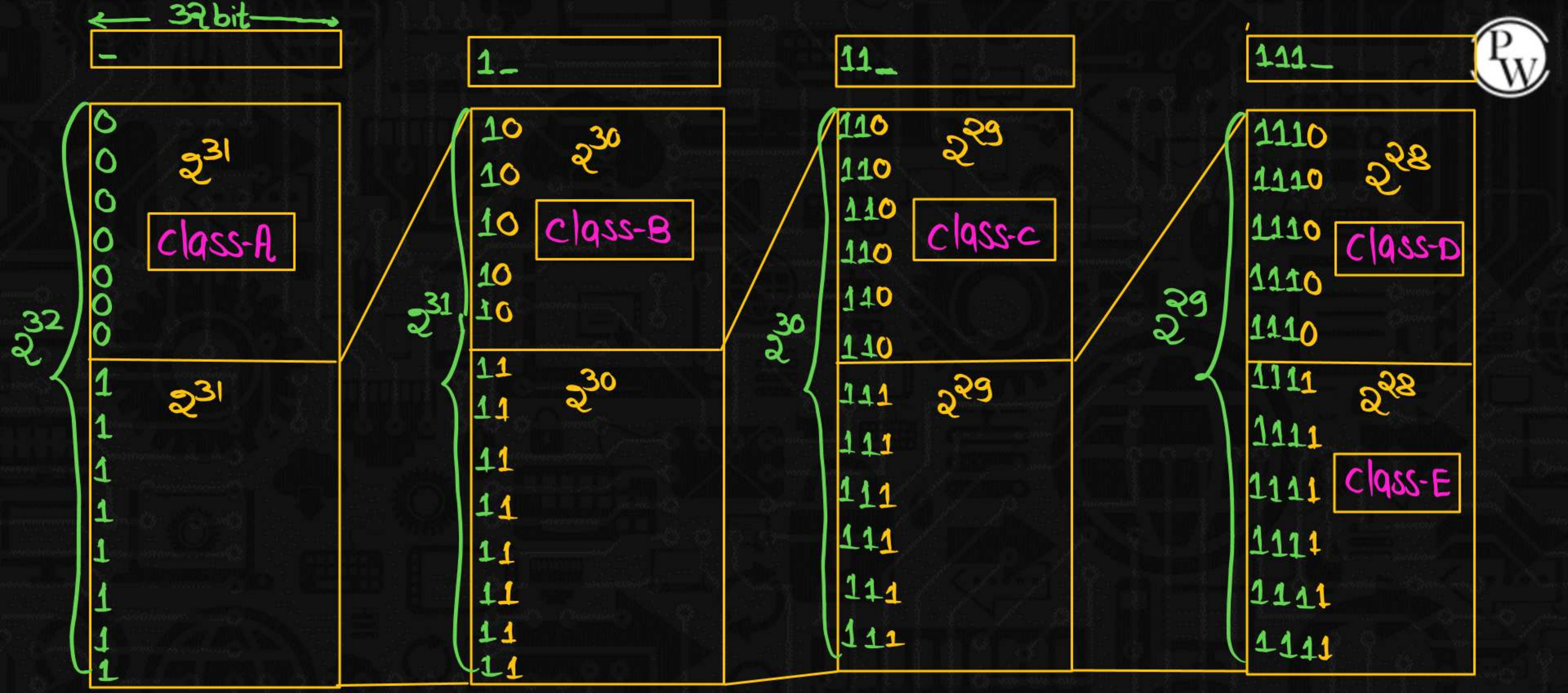
NID	HID
8	24

class-B

NID	HID
16	16

class-C

NID	HID
24	8


32 bit
0_
1_
11_
111_
0 0 0 0 0 0 0 0
1 1 1 1 1 1 1 1
2^{32}
2^{31}
2^{31}
Class-A
10 10 10 10 10 10
2^{31}
2^{30}
Class-B
11 11 11 11 11 11 11 11
2^{30}
2^{30}
110 110 110 110 110 110
2^{29}
Class-C
111 111 111 111 111 111
2^{29}
2^{29}
1110 1110 1110 1110 1110 1110
2^{28}
Class-D
1111 1111 1111 1111 1111 1111
2^{28}
Class-E

No. of IP Addresses Present in the class-A = 2^{31}

" " " " " " " class-B = 2^{30}

" " " " " " " class-C = 2^{29}

" " " " " " " class-D = 2^{28}

" " " " " " " class-E = 2^{28}

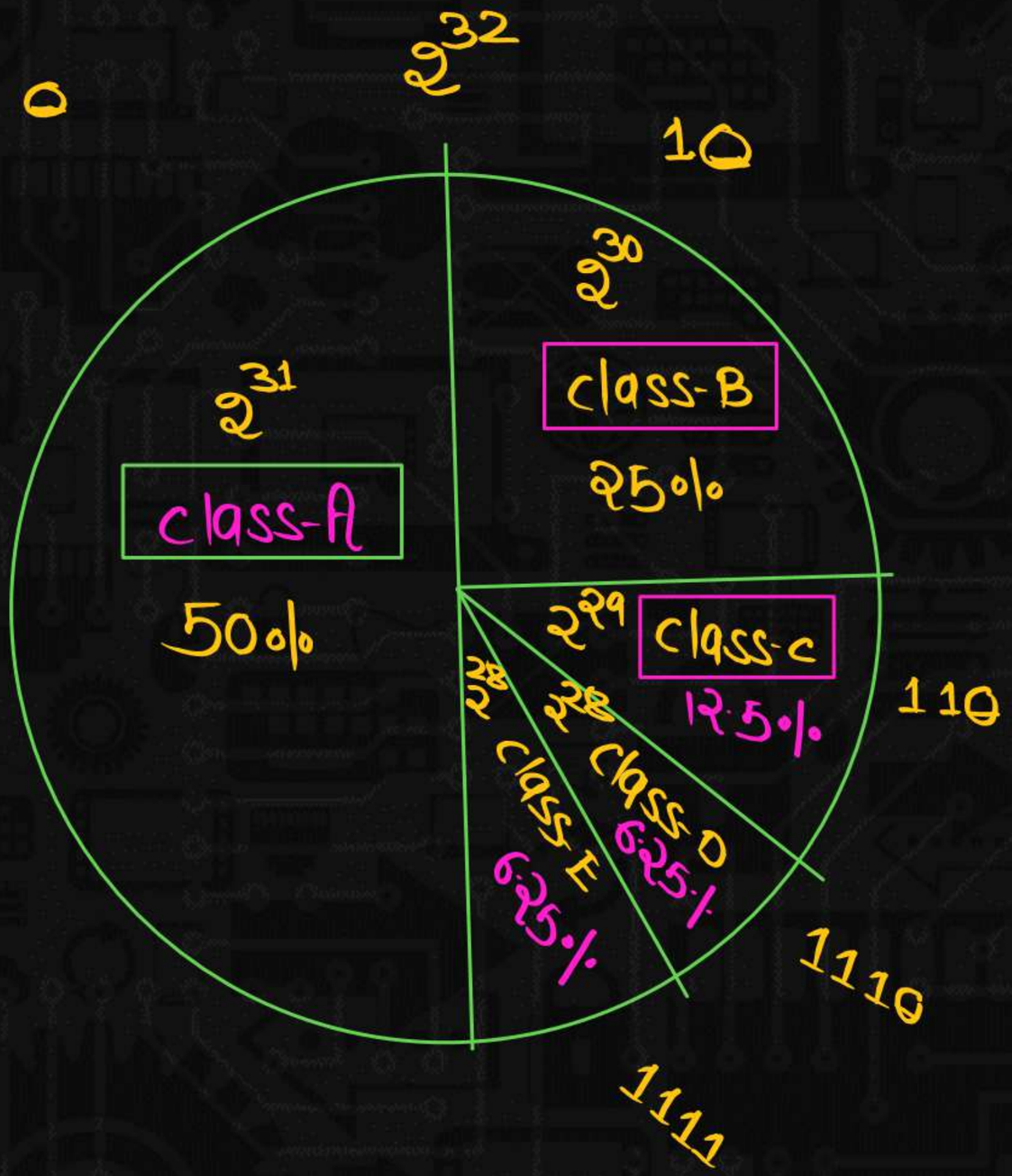
class-A → 0

class-B → 10

class-C → 110

class-D → 1110

class-E → 1111


0
2^{32}
10
2^{30}
class-B
25%
2^{31}
class-A
50%
2^{29}
class-C
12.5%
110
2^{28}
class E
6.25%
2^{28}
class D
6.25%
1110
1111

CLASSFUL ADDRESSING

- Class A → 0 → (1 - 126), No. of IP Addresses = 2^{31}
- Class B → 10 → (128 - 191), No. of IP Addresses = 2^{30}
- Class C → 110 → (192 - 223), No. of IP Addresses = 2^{29}
- Class D → 1110 → (224 - 239), No. of IP Addresses = 2^{28}
- Class E → 1111 → (240 - 255), No. of IP Addresses = 2^{28}

CLASSFUL ADDRESSING

Class	Number of Networks	Number of hosts
Class A	$2^7 - 2 = 126$	$2^{24} - 2$ $= 1,67,77,214$ hosts
Class B	$2^{14} = 16,384$	$2^{16} - 2$ $= 65,534$ hosts
Class C	$2^{21} = 20,97,152$	$2^8 - 2$ $= 254$ hosts
Class D	No NID and HID, all 28 remaining bits are used to define multicast address	
Class E	No NID and HID, it is meant for research and future purpose	


THANK YOU
GW
SOLDIERS !