

## Subnetting

CIDR → Classless Inter-Domain Routing, no prefix requirements allowing larger networks to be splitted into subnets. IANA (Internet Assigned Numbers Authority) that assigns IPV4 addresses to companies/networks based on their sizes (number of hosts) which has led to many wasted IP addresses.

For point to point networks there is no need for a network or a broadcast address thus /31 prefix can be used.

/32 prefix can be used when you want to create a static route to a specific host.

The prefix is a CIDR network.

Number of sub networks =  $\text{pow}(2, \text{number of borrowed bits from host portion})$ .

To find the subnet network address convert to binary and put all host bits with zeroes and for broadcast put them with ones.

VLSM → variable length subnet masks.      FLSM → fixed length subnet masks.

VLSM steps:

- 1- Assign the largest subnet at the start of the address space.
- 2- Assign the second largest subnet after it.
- 3- Repeat the process until all subnets have been assigned.