The notation /24 to /30 refers to different subnet masks within the context of CIDR (Classless Inter-Domain Routing). CIDR allows for flexibility in defining the size of subnets within a network. Here's a breakdown of the subnet masks from /24 to /30:

1. \*\*/24 Subnet Mask:\*\*

- \*\*Binary:\*\* 11111111.11111111.11111111.00000000

- \*\*Decimal:\*\* 255.255.255.0

- \*\*Addresses:\*\* Provides a total of 256 addresses (2^8), with 254 usable host addresses.

2. \*\*/25 Subnet Mask:\*\*

- \*\*Binary:\*\* 11111111.11111111.11111111.10000000

- \*\*Decimal:\*\* 255.255.255.128

- \*\*Addresses:\*\* Divides the /24 subnet into two subnets, each with 128 addresses (2^7), 126 usable host addresses in each.

3. \*\*/26 Subnet Mask:\*\*

- \*\*Binary:\*\* 11111111.11111111.11111111.11000000

- \*\*Decimal:\*\* 255.255.255.192

- \*\*Addresses:\*\* Divides the /25 subnet into four subnets, each with 64 addresses (2^6), 62 usable host addresses in each.

4. \*\*/27 Subnet Mask:\*\*

- \*\*Binary:\*\* 11111111.11111111.11111111.11100000

- \*\*Decimal:\*\* 255.255.255.224

- \*\*Addresses:\*\* Divides the /26 subnet into eight subnets, each with 32 addresses (2^5), 30 usable host addresses in each.

5. \*\*/28 Subnet Mask:\*\*

- \*\*Binary:\*\* 11111111.11111111.11111111.11110000

- \*\*Decimal:\*\* 255.255.255.240

- \*\*Addresses:\*\* Divides the /27 subnet into sixteen subnets, each with 16 addresses (2^4), 14 usable host addresses in each.

6. \*\*/29 Subnet Mask:\*\*

- \*\*Binary:\*\* 11111111.11111111.11111111.11111000

- \*\*Decimal:\*\* 255.255.255.248

- \*\*Addresses:\*\* Divides the /28 subnet into 32 subnets, each with 8 addresses (2^3), 6 usable host addresses in each.

7. \*\*/30 Subnet Mask:\*\*

- \*\*Binary:\*\* 11111111.11111111.11111111.11111100

- \*\*Decimal:\*\* 255.255.255.252

- \*\*Addresses:\*\* Divides the /29 subnet into 64 subnets, each with 4 addresses (2^2), 2 usable host addresses in each.

Each step involves dividing the available address space into smaller subnets by borrowing additional bits from the host portion of the address. The subnet mask determines the size of the subnet and the number of usable host addresses in each subnet. Smaller subnets are often used for point-to-point links or specific purposes where a smaller number of addresses is sufficient.