* **CIDR(Classless Inter-Domain Routing):**

Introduced in 1993.

Replaces classful IP addressing

Allows us to variable Length subnet Mask(VLSM)

Use 10.0.0.0/8 notation

Rather than 10.0.0.0 255.0.0.0 notation

* **/x Mask (CIDR Notation):**

Ex1):

Dotted decimal: Binary bits:

255.255.255.0 /24

Convert Mask to binary:

255 = 1 1 1 1 1 1 1 1 (8 binary 1’s)

255 = 1 1 1 1 1 1 1 1 (8 binary 1’s)

255 = 1 1 1 1 1 1 1 1 (8 binary 1’s)

1. = 0 0 0 0 0 0 0 0 (0 binary 1’s)

Thus 255.255.255.0 can be written as /24 because there are 24 binary 1’s in the subnet mask.

Ex2):

255.255.0.0 /16

Note: Mask must be contiguous

* Before using CIDR we have classfull IP addresses.

Problem:

Class A :  
 16,777,214 host addresses

Mask of 255.0.0.0

Class B:

65,534 host addresses

Mask of 255.255.0.0

Class C:

254 host addresses

Mask of 255.255.255.0

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| Note:  Notice that in Class A,B,C the subnet mask is set at the octet boundary.  By using CIDR the subnet mask can be somewhere in middle of the octet it doesn’t have to be in octet boundary. |

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| Note:  CIDR helps us to use Variable Length Subnet Mask(VLSM) |

Example for /X Masks (CIDR Notation):

255.224.0.0

11111111.11100000.00000000.00000000

11 binary 1’s or /11

255.224.0.0 = /11

Note :

1) CIDR allows us to implement a “Variable Length Subnet Mask(VLSM)”.

2) No longer do we have Class A,B,C networks

Where Class A - /8

Class B - /16

Class C - /24

3) when CIDR is used the masks can vary.

4) From 1993 CIDR is more preferable than classfull network masks.