Yatish Kelkar TE IT 8001

Computer Network Technology Assignment 2

* Aim: Using a network simulator (eg Packet tracer) configure:
  a) subnetting of given network
  b) supernetting of given network

* Theory:

Subnetting:

- It is the practice of dividing a network into 2 or more smaller networks. It increases routing efficiency which helps to enhance security of the network and reduces size of broadcast domain.

- IP subnetting designates high order bits from the host as a part of network prefix. This method divides a network into smaller subnets.

Supernetting

- It is the process of summarizing a bunch of contiguous subnetted networks back in a large network. Supernetting is also called route summarization and route aggregation.

- Supernetting is mainly done for optimizing route tables. Routers share tables to find the new path and locate best path for destination.

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- Without supernetting routers will share all routing tables as they are. With supernetting, it will summarize them before ~~super~~ sharing.

Classful Address

- It is a concept that divides the available address space of IPv4 into classes namely A, B, C, D, E. The classful addressing concept divides the address space into a fixed number of blocks and each block has a fixed number of hosts.

Ranges:

A : 1.0.0.1 to 126.255.255.254
B : 128.1.0.1 to 191.255.255.254
C : 192.0.01.1 to 223.255.254.254
D : ~~192~~.224.0.0.0 to 239.255.255.255
E : 240.0.0.0 to 254.255.255.254

Default subnet mask

A : 255.0.0.0
B : 255.255.0.0
C : 255.255.255.0

Classless Addressing

- Its a concept of addressing the IPv4 addresses. Adopted after

failure of classful addressing.

- Classful addressing leads to wastage of addresses as it assigns a fixed size block of addresses to customer.
- Classless addressing assigns a block of addresses to customer according to requirement. It does not divide the address space into classes.

CIDR

- Classless inter domain routing is a method for allocating IP addresses and for IP Routing.
- CIDR is a set of internet protocols standards that is used to create a unique identifier for networks and invidual devices.
- The IP addresses allow particular information packets to be sent to specific computers.
- CIDR consists of 2 groups:
  i) network addresses
  ii) host identifier.