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**Assignment No.2**

**Title :** Explore subnetting and supernetting of network and simulate it

using network packet simulator.

**Theory**

**Subnetting :**

It allows you to create multiple logical network that exists within a single class A,B or C network.If you do not subnet,you are only able to use one network from your class A,B or C which is unrealistic.

**Advantages of subneting :**

* Efficiency for management.
* Less congestion.
* Isolating seurity threats.

**Disadvantages of subnetting :**

* Cost of overall network increases.
* Required expiried network manager.

**Example of subnetting :**

IP is 198.162.0.0 and divide it into 4 network.

Step 1) Identify class

198.162.0.0 belong to class C.

Step 2)Create subnet mask.To creat 4 network,we need to borrow 2 bits (2 ^ 2 = 4) from host ID.

| | | | | | | | . | | | | | | | | . | | | | | | | | . | | 0 0 0 0 0 0

network ID host ID

Subnet mask : 255.255.255.192

Step 3)Identify IP range in each network.Each network will have 2 ^ 6 host.

Subnet 1 : 198.162.0.0 - 198.162.0.63

Subnet 2 : 198.162.0.64 - 198.162.0.127

Subnet 3 : 198.162.0.128 - 198.162.0.191

Subnet 4 : 198.162.0.192 - 198.162.0.255

**Supernetting :**

Supernetting is about aggregating the network together to form a larger network ( a super network or supernet).

**Advantages of supernetting :**

* It reduces the size of routing update.

**Disadvantages of supernetting :**

* All the IP address must be contigous.
* Size of all the small network should be equal to and must be in form of 2 ^ n.

**Conclusion :**

In this way,I have performed subnetting and supernetting.