Computer Networking: Concepts

(CSE 3751)

Experiment 4

Aim:

Implementation and understanding the use of IPv4 Addressing, NAT with Cisco Packet Tracer

Objectives:

1. An overview on IPv4 addressing (Public, Private, Classful) and NAT (Network Address Translation).
2. Constructing and analysing the communication between two networks (of different classes).
3. Configuring and implementing NAT using a router to analyse the communication between PCs(in a private network) and a public server.

Exercises:

1. Mention the subnet mask and class of the following IPv4 addresses:
    a. 172.14.9.64
    b. 129.34.67.25
    c. 185.56.32.87
2. What are the commands used to determine the current IP address configurations on a Windows operating system? What is the difference between ipconfig and ifconfig commands?
3. If a class B network on the Internet has a subnet mask of 255.255.248.0, what is the maximum number of hosts per subnet?
4. List the situation where NAT is required.
5. Host A (on TCP/IPv4 network A) sends an IP datagram D to host B (also on TCP/IPv4 network B). Assume that no error occurred during the transmission of D. When D reaches B, what are the IP header field(s) that may be different from that of the original datagram D?