TLEN 5460Telecommunications Systems Lab

Lab 5

NAT/PAT, Access Lists, HSRP, Stateful NAT and NTP

Spring 2020

**Objective 1:**

A close up of a computer

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### Your objective is to make use of different NAT/PAT configurations to connect to Router 2:

1. Use static NAT to share 2 public IP addresses to provide for connectivity to router 2 to your

PC’s

1. Make use of Dynamic NAT to share 2 public IP addresses between your internal users.

1. Make use of PAT to share only 1 public IP address between all your users.

1. Telnet from all PC’s to Router 2 and keep sessions open. Document your translations.

**Objective 2:**

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1. The R6 and R7 PC’s have the same IP’s respectively as PC1 and PC2 (Both are a part of the same /29 network). However, we need them to be able to talk to each other.
2. Make use of NAT/PAT commands of your preference to achieve end to end connectivity. Include in your report a copy of your NAT/PAT configuration on all routers plus explain the NAT process that a packet would follow while pinging from PC1 to PC4.

Note: You cannot change the current IP addressing scheme.

**Objective 3: HSRP**

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1. Create the redundancy in the network by running HSRP in R3 and R7.
2. R3 should be the active router while R7 will act as the standby router in case of R3 failure. Configure R5 with a loopback to test the end connectivity of network. Verify end to end connectivity. Then purposely fail R3 and verify if traffic passes through R7.

## Objective 4: Stateful NAT

Use the previous network topology to configure stateful NAT on R3 and R7 to reach R5. Paste screenshots showing the NAT translations before and after failover.

## Objective 5: Access Lists

Make use of access lists so the following conditions are met:

1. PC1 can ping PC2 but not R5
2. PC1 can telnet to all routers except R5
3. There is a loopback on R4 which is yahoo (221.22.2.22/32). All PCs and router can reach yahoo except PC2.

## Objective 6: NTP

Consider the configuration design below.

1. Router 5 is the NTP server and router R4 and R6 are clients. Configure the devices such that R4 and R6 sync their clocks according to R5.
2. Paste relevant configuration and output snippets.