

### Tutorial 5

1. Analyze Figure 3-1 and Figure 3-2. Identify and rectify the errors for static NAT and dynamic NAT with PAT to be implemented successfully in the network topology. Use Table 3-1 to document your answers. (15 marks)

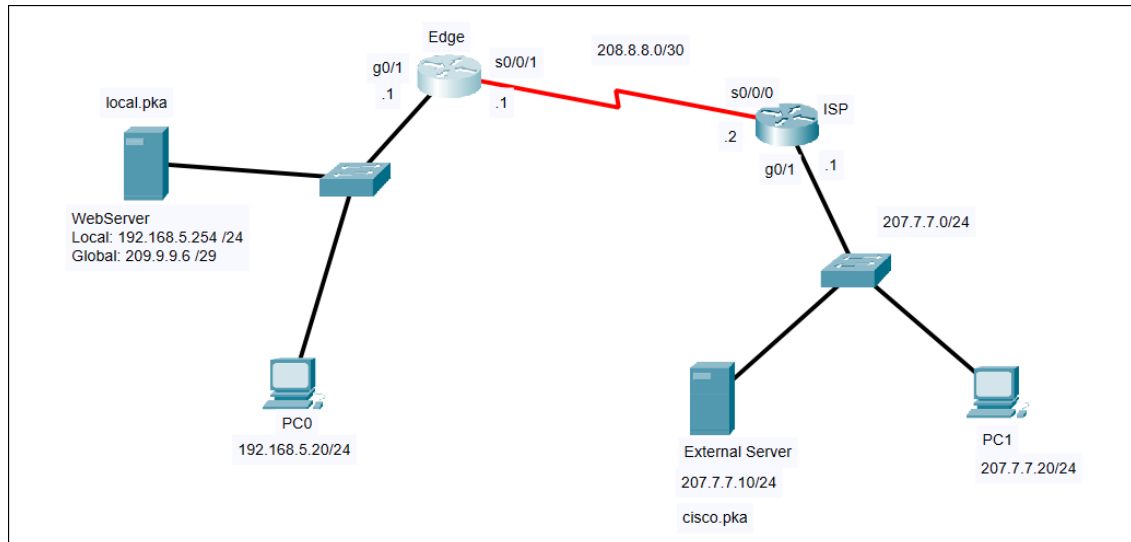


Figure 3-1: Network Topology

Edge router	ISP router
<pre>interface GigabitEthernet0/1 ip address 192.168.5.1 255.255.255.0  interface Serial0/0/1 ip address 208.8.8.1 255.255.255.252  ip nat pool EdgePool 209.9.9.1 209.9.9.5 netmask 255.255.255.248  access-list 3 permit 209.9.9.0 0.0.0.7  ip route 0.0.0.0 0.0.0.0 Serial0/0/1</pre>	<pre>interface GigabitEthernet0/1 ip address 207.7.7.1 255.255.255.0  interface Serial0/0/0 ip address 208.8.8.2 255.255.255.252 clock rate 2000000  ip route 209.9.9.0 255.255.255.248 Serial0/0/0</pre>

Figure 3-2: Partial output of "show run"

Table 3-1: Documentation Table

Problems	Solutions

2. A network topology with IPv4 addressing, OSPF configurations and static routing were configured in the respective routers in Figure 3-1 network topology. All PCs are able to communicate with each other. Refer to Figure 3-1, answer the following questions. (202201 pass year)

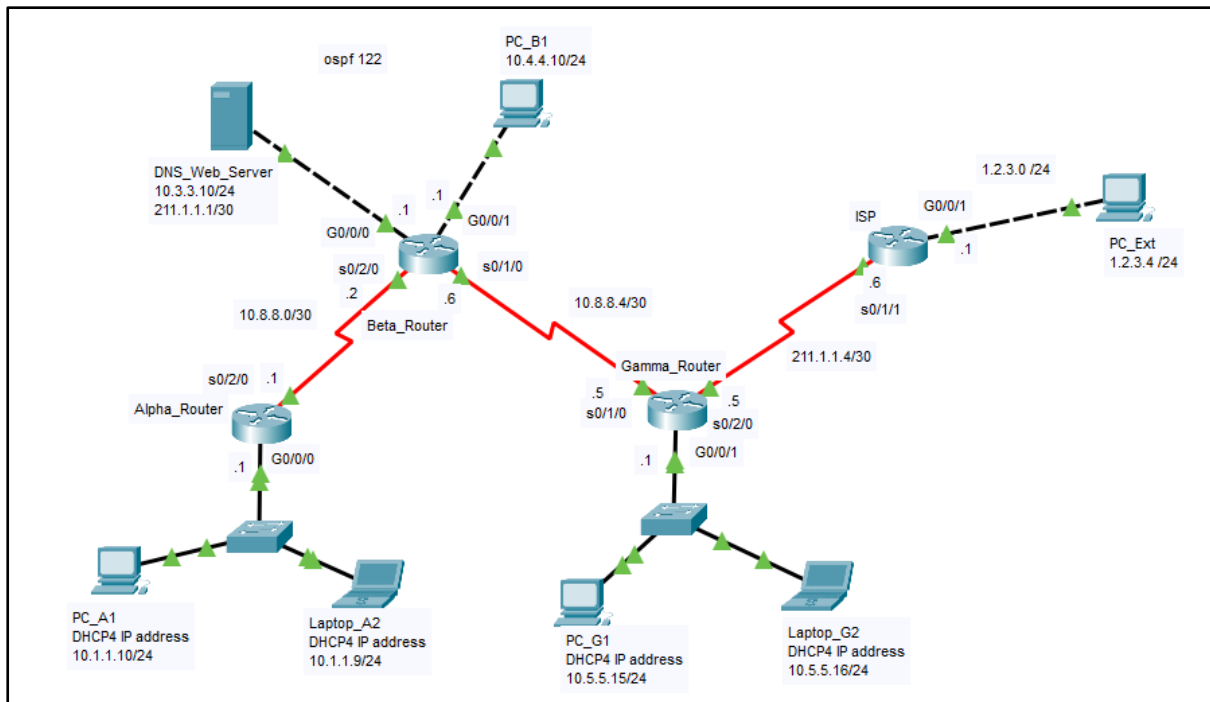


Figure 3-1: A network topology

- a) (i) Analyze Figure 3-1 and write a Static NAT configuration in order for DNS\_Web\_Server to be directly reachable from the Internet. Specify the router to implement Static NAT. (3 marks)
- (ii) Examine Figure 3-1 and write the configurations for Port Address Translation (PAT) using the **single IP address** assigned to the external interface in Gamma\_Router. Access-list number is 72. All the PCs should be able to ping the PC\_Ext. (8 marks)
3. Relate to the topology diagram shown in Figure 3-1, identify and explain the most suitable type of Network Address Translation (NAT) used by WebServer1 and WebServer2. Besides, you are required to propose the relevant addresses for both the web servers by using Table 3-1.

Inside local	Inside global

Table 3-1: A NAT table

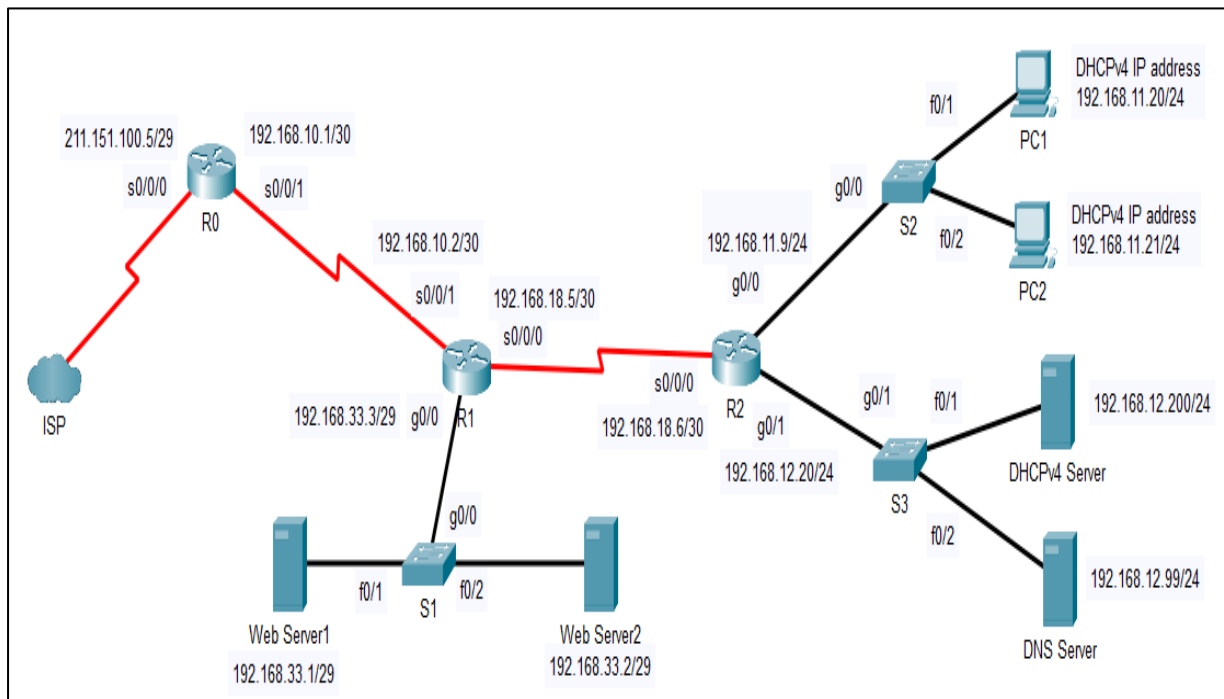


Figure 3-1: SeaUniq Sdn. Bhd. network topology

4. A network associate has configured OSPF and static routing in the respective routers as shown in Figure 3-1 network topology. He has tested that all devices can communicate with each other. With reference to Figure 3-1, answer the following questions.

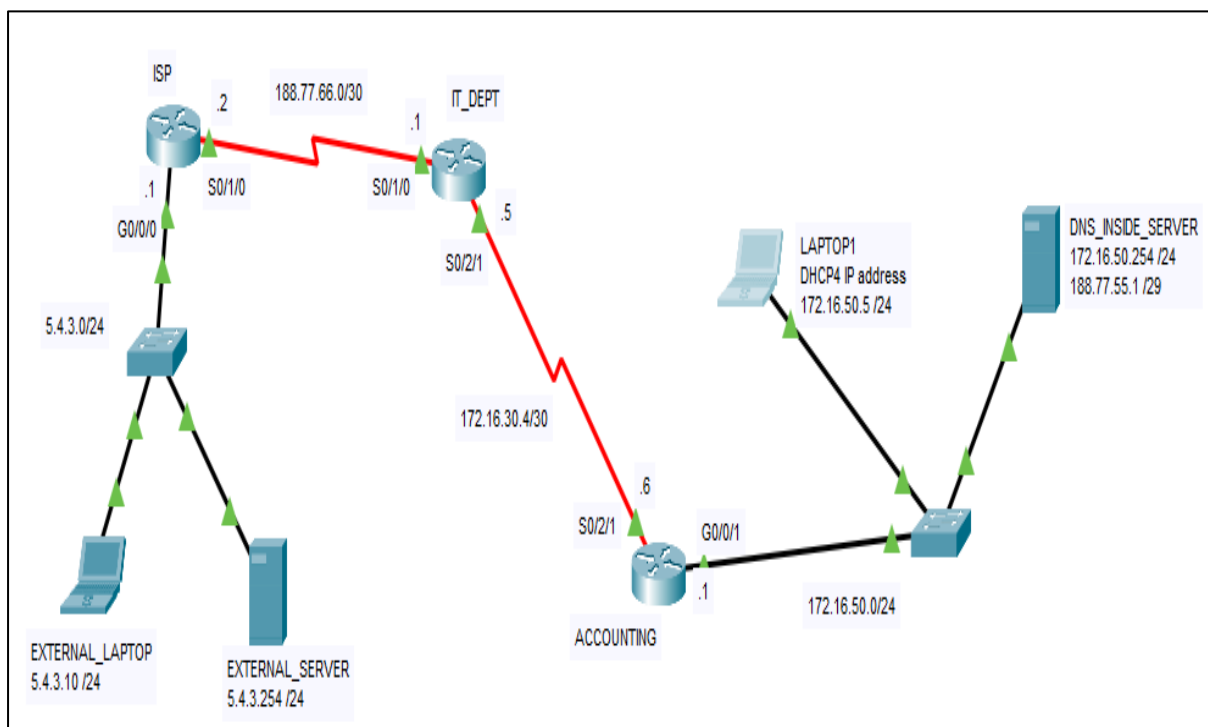


Figure 3-1: A network topology

- a) Write a Static NAT configuration in order for DNS\_INSIDE\_SERVER to be directly reachable from the Internet. Use the first usable address from external network address 188.77.55.0/29. Specify the router and interfaces to implement Static NAT. Use Table 3-1 to document your answers. (5 marks)

Table 3-1: Documentation Table

Router name	Configurations

- b) Write configurations for Network Address Translation (NAT) to use the remaining of external network addresses from 188.77.55.0/29 as the pool of addresses. The pool name is NAT\_POOL. Access-list number is 69. All the PCs should be able to ping the EXTERNAL\_LAPTOP. Use Table 3-2 to document your answers. (5 marks)

Table 3-2: Documentation Table

Router name	Configurations