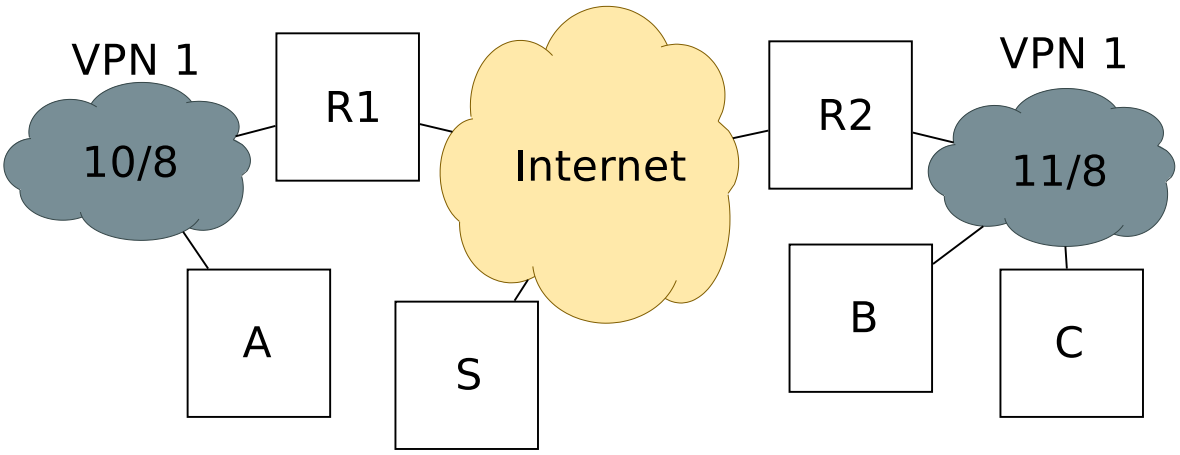
Tecnologies Avançades d'Internet **ACTIVITY**
Id: XX **Unit 1 and 2**

According to the following figure, answer the following questions:



1. A router R3 in the Internet implements a special version of SFQ (Stochastic Fairness Queuing) where its classifier follows the following algorithm:

   md5(IPsource, IPdestination, IPprotocol) mod 10

   How many different queues does R3 have?

2. There are two concurrent TCP connection: A-B (very busy connection) and A-S (regular connection). Its resulting datagrams arrive almost simultaneously to R3 and in order of being sent. Which is the output order in R3?

3. Is this configuration fair?

4. TCP in A uses the Nagle algorithm to decide when to deliver TCP segments to B. These segments contain ssh commands typed at the speed of 0.05bytes/ms. The application in A types the three-byte command "ls (intro)". If the MSS in A is 100 bytes, its Window size is 500 and its RTT is always 30ms, draw the segment exchange between A and B as a function of time.

5. With the same TCP configuration, what happens when A sends 2000 bytes to B and the first segment gets lost when A implements TCP TAHOE (If 3 dup ACKs -> Fast Restransmission, CWND = 1MSS and Slow Start).

6. Describe R1's routing table.

7. Describe R1's NAT table so that a Web server installed at 10.0.0.3:88 can be offered outside the VPN and hosts in 10/8 can be connected to the Internet.

8. Describe this NAT table after a host in the Internet connects to 10.0.0.3:88 and A to S.