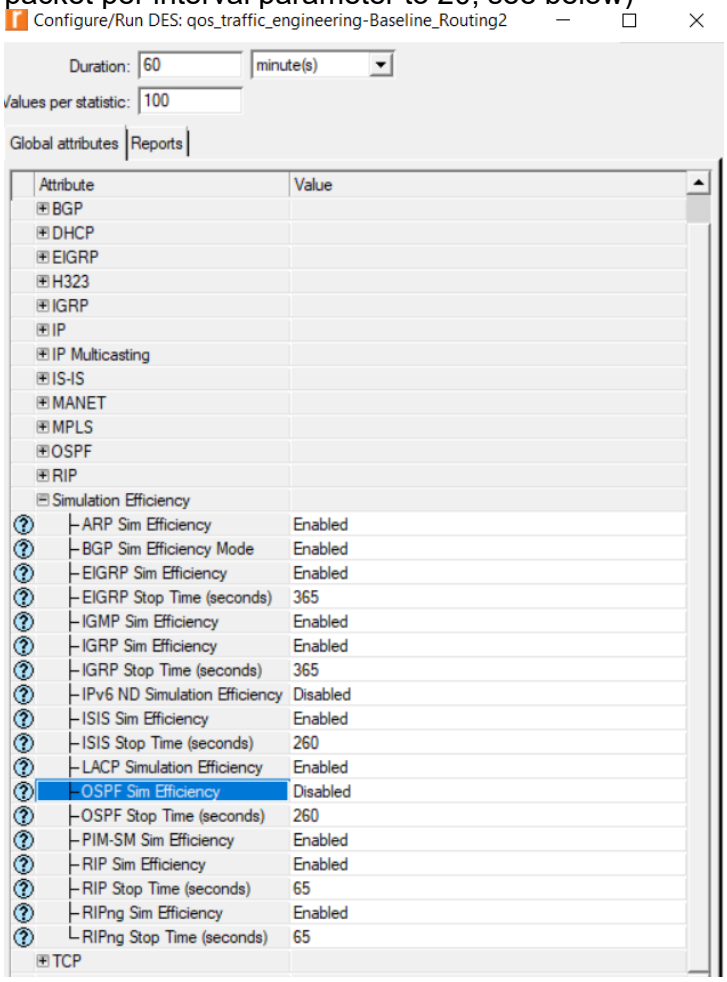
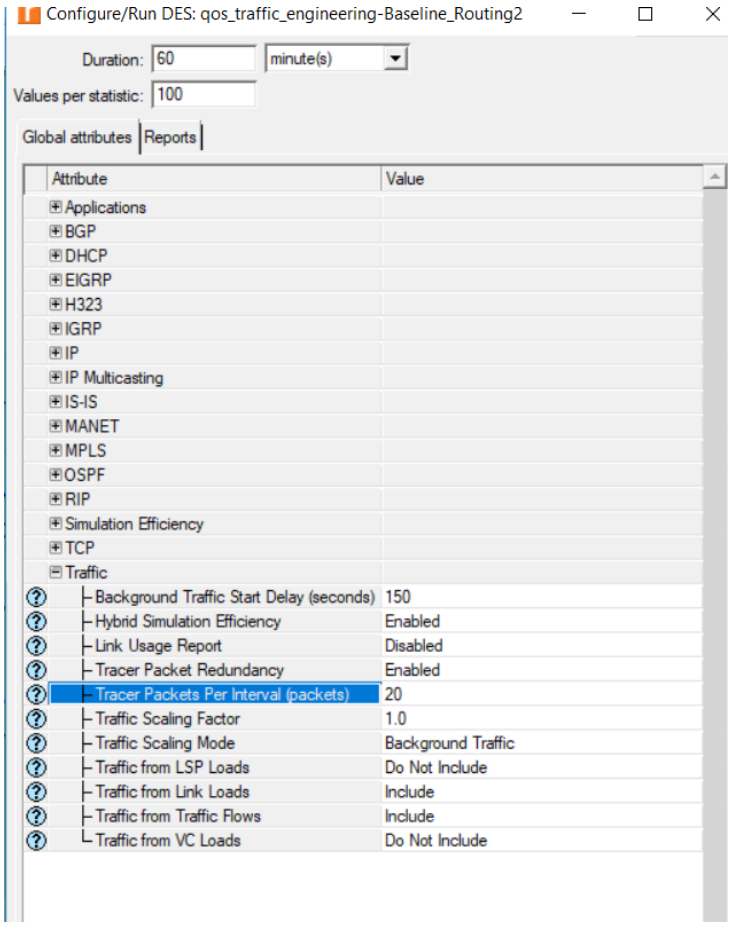
EPL606: Assignment 1 Routing & Quality of Service

1. Download from the lab website the OPNET Files taffic_engineering.rar.
2. UNZIP the file and add it to the OPNET Modeler

Questions:

1. Create three new duplicate scenarios and configure them to run RIP, OSPF, EIGRP. Compare them and explain the differences among them. Your answer must be supported with the appropriate graphs and paths that will justify the implementation of the scenarios.
2. Duplicate all the three scenarios above and create a failure of one link of the path from each scenario. The failure should take place at 300 seconds and recover at 400 seconds. Compare all the scenarios among them. (You need to disable the simulation efficiency parameter and also make a change to the Tracer packet per interval parameter to 20, see below)



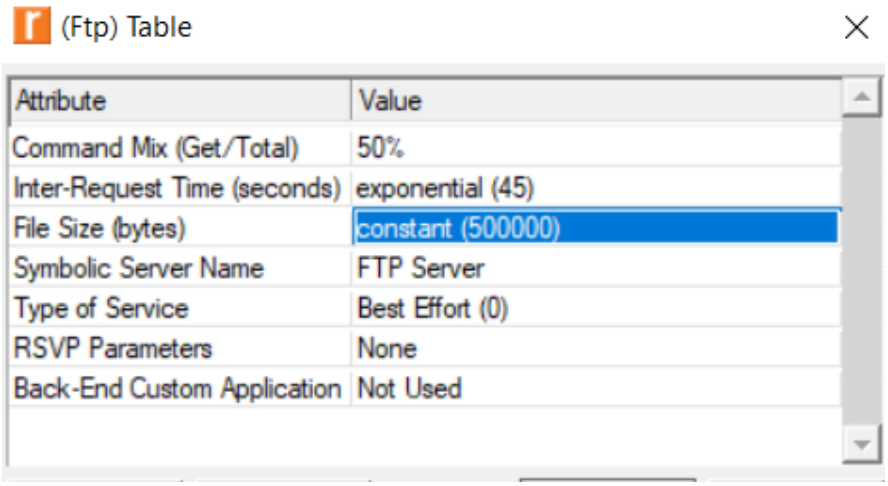


3. Duplicate the OSPF scenario (from q1) and force your traffic to traverse from Sender Router to Router 3 and Receive Router. Attach a screenshot with the path and describe how you have done it.

4. Create a duplicate scenario from Baseline_Qos scenario, configure it with OSPF routing algorithm and add the following applications and profiles to the network.

   Applications
   Http: heavy browsing, Page interarrival time 30 seconds

   FTP: High load please see the picture below



Voice: PCM Quality Speech

Profile:
VOIP
Sender 1 – Receiver 1
Sender 2 – Receiver 2
Sender 3 – Receiver 3

All users use the same.

5. Run the above scenario and present the paths and the applications response times using graphs.
6. Duplicate the above scenario and configure with quality of service mechanisms to provide better service to your users. You are not allowed to change the data rate of the links.
7. Duplicate the scenario above (q4) and make changes to your links so your network is running with utilization 60% on all links.
8. Duplicate the scenario from question 4 and configure it to run RSVP routing algorithm.
9. Write your conclusions.