

Computer Science department

M1: RTIC, Course: QOS

PW 1 Quality of Service: MGEN

We want to study how the packets circulate on a network according to the type of traffic, and the type of network. It is advisable to write the report during the practical work. To generate the traffic (and also read it) we use the mgen command. To extract information (throughput, jitter, losses) and generate data for the grapher, we use the trpr command. We use the gnuplot command as a grapher.

Example of traffic generation

To generate:

2 seconds after starting, a flow named 1 in UDP with destination IP 192.168.9.24 on port 5000 a PERIODIC flow that sends 10 packets of 1024 bytes per second.

6 seconds after starting, a stream named 2 in UDP with destination IP 192.168.9.24 on port 5001 a POISSON stream that sends 100 packets of 8192 bytes per second. This flow stops at time 11.0.

You put the following lines in the source.mgn file:

```
2.0 ON 1 UDP DST 192.168.9.24/5000 PERIODIC [10.0 1024]
```

```
6.0 ON 2 UDP DST 192.168.9.24/5001 FISH [100.0 8192]
```

```
11.0 OFF 2
```

To start the generation: mgen input source.mgn

Example of reading traffic

To listen on ports 5000 and 5001 you put the following line in the file destination.mgn:

```
0.0 LISTEN UDP 5000,5001
```

To start playback: mgen input destination.mgn

You can continue the command with a | if you want to send the output directly to a processing program or a > if you want to save the acquired data in a file.

Example of traffic processing and display

Graphical display of traffic in real time or from a file.

```
mgen input destination.mgn | trpr mgen real | gnuplot
```

```
trpr <name_of_log_file mgen real | gnuplot -persist
```

The trpr options

- interarrival displays the time between the current packet and the last packet received on the same stream.
- loss displays the quantity of lost packets (normed value).
- history N indicates that the graph displays N seconds of information.

Experiments

packet per second	Packet size	real-time graphic display			deferred graphic display		
		throughput	loss	jitter	throughput	loss	jitter
50	128						
60	128						
100	128						
1000	128						
50	1024						
60	1024						
100	1024						
1000	1024						
50	8192						
60	8192						
100	8192						
1000	8192						

It is necessary to test the traffic in the case of a single periodic flow between 2 machines passing through a switch. You don't have to fill in all the boxes in the table, but enough to get an idea of what's going on.

Normally you should find 2 types of charts that are out of the ordinary in their regularity. Try to explain where these patterns come from.

What precaution should be taken for the continuation of the QoS PWs?

Continue the experiment by adding a second flow in such a way that it disturbs the first.

Your conclusions?

Generate your traffic from 2 different machines. Your conclusions?

What should be measured in the next WP to know if the first traffic is disrupted by the second?