

INSTRUCTIONS

- 1) put the project folder in "**Home/058172-network-computing-labs/ebpf-labs**"
- 2) open 3 shell in "**Home/058172-network-computing-labs/ebpf-labs/project**"
- 3) run "**./create_topo.sh**"
- 4) run "**make**"
- 5) we attach the program on the *veth1_* interface on the *ns1* by running on one of the shell the command "**sudo ip netns exec ns1 ./l4_lb -1 veth1_**"
- 6) to look for debugging information and check the packet is properly processed run on another shell "**sudo su**" and then "**cat /sys/kernel/debug/tracing/trace_pipe**"
- 7) to send packets on the last shell run one of the following commands:
 - 7.1) "**sudo python3 ./send.py -i veth1 -p 1 -f 1**" to send on *veth1* as many flows as specified in **-f**, each with **-p** packets
 - 7.2) "**sudo python3 ./send.py -i veth1 -maxp 10 -f 2**" to send on *veth1* as many flows as specified in **-f**, each with a random number of packets between 0 and **-maxp**
- 8) since the program is not retransmitting packets properly using *XDP_TX*, to see the packets are correctly processed and updated change the **line 406** of "**l4_lb.bpf.c**" into "**return XDP_PASS**". Then open other two terminal and run **wireshark** on both virtual interfaces to see both the packets that are sent by *veth1* and the ones that are received on *veth1_* (once modified) running "**sudo wireshark**" clicking on *veth1* and "**sudo ip netns exec ns1 wireshark**" clicking on *veth1_*