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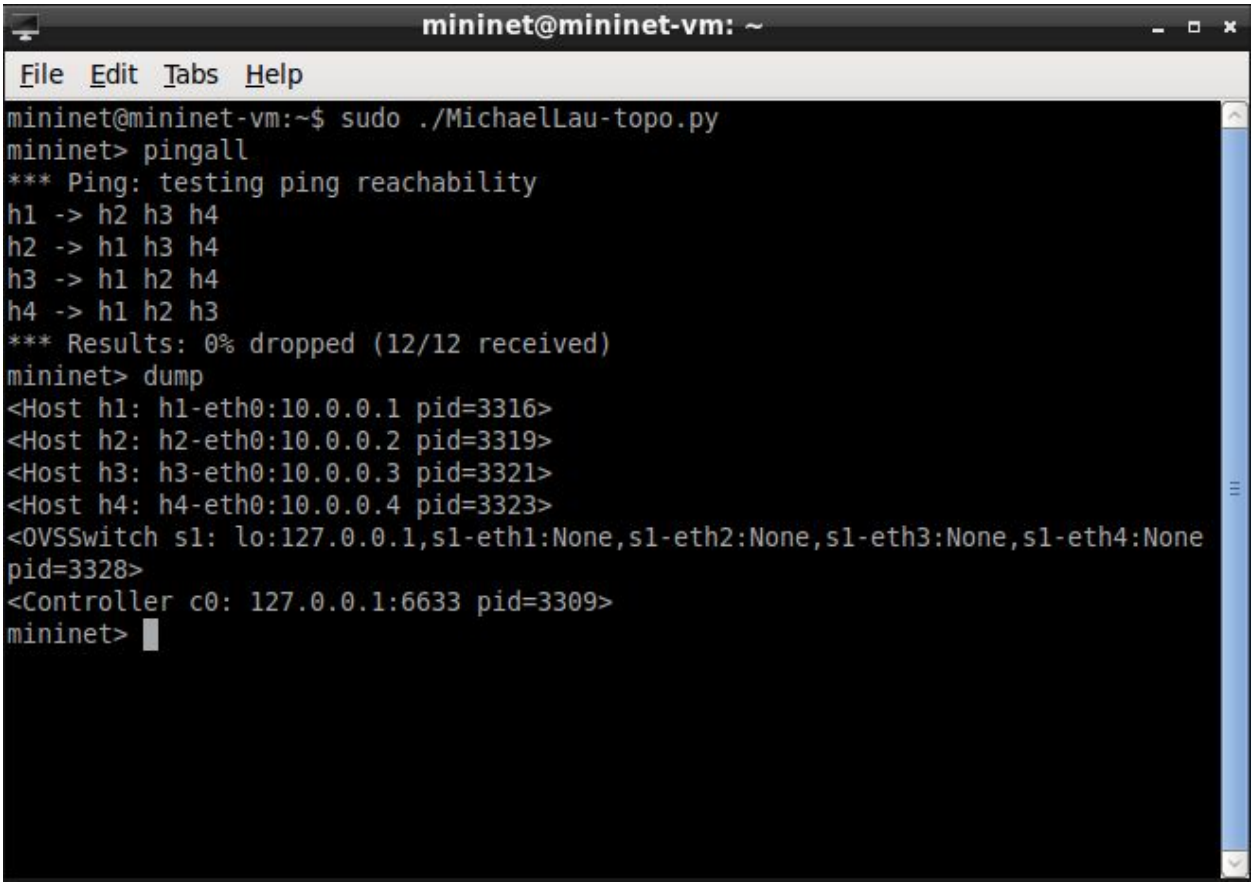
1/28/18
Lab 1

Pre-Lab

1. groups <user>
2. exit status of most recent command
3. CTRL+z then type bg
4. uname -r -n
5. . is current dir, .. is parent dir, ~ is home dir, / is root dir
6. PID is process ID. ps will list running PID and ps ax | grep <name> for a specific one.
7. cut -d: -f1,7 /etc/passwd
8. sudo runs a single command with current user permission while su runs with root privileges. Both require passwords respectively for user/root privilege.
9. watch -n 1800 <command> or crontab then 30**** <command>
10. <MichaelLau-script.sh> I got help from https://unix.stackexchange.com/questions/26723/

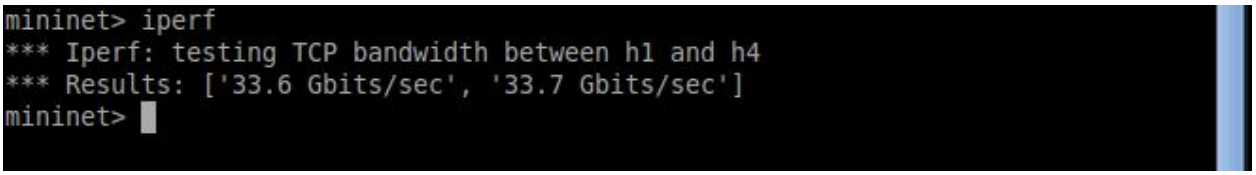
Lab

1. <MichaelLau-topo.py>
2.



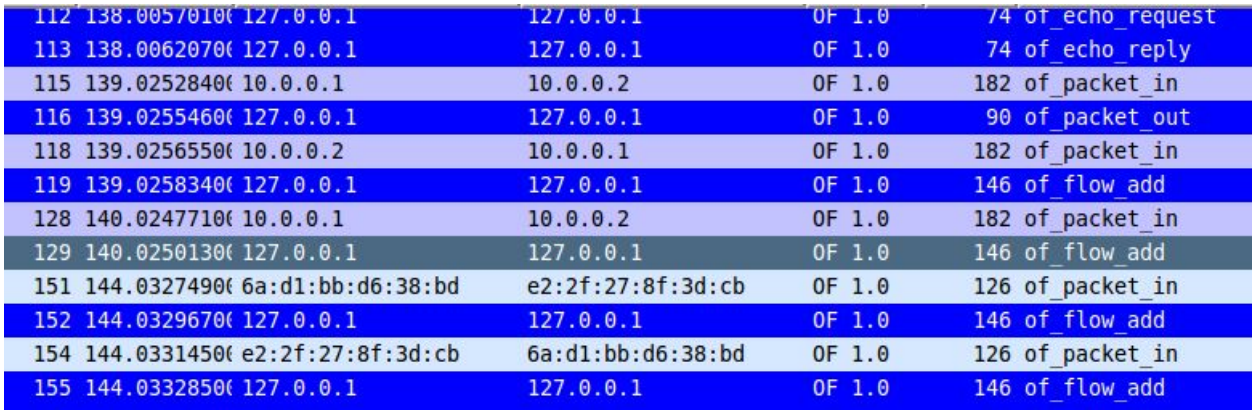
pingall pings every host to test reachability.
Dump shows every every host, switch, and controller PID and ip.

3.



The connection has a speed of approx ~33.6-33.7 Gbit/sec

4a.

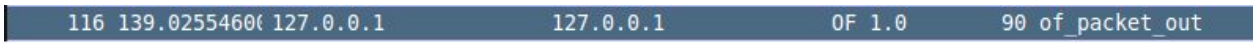


112	138.0057010(	127.0.0.1	127.0.0.1	OF 1.0	74 of_echo_request
113	138.0062070(	127.0.0.1	127.0.0.1	OF 1.0	74 of_echo_reply
115	139.0252840(	10.0.0.1	10.0.0.2	OF 1.0	182 of_packet_in
116	139.0255460(	127.0.0.1	127.0.0.1	OF 1.0	90 of_packet_out
118	139.0256550(	10.0.0.2	10.0.0.1	OF 1.0	182 of_packet_in
119	139.0258340(	127.0.0.1	127.0.0.1	OF 1.0	146 of_flow_add
128	140.0247710(	10.0.0.1	10.0.0.2	OF 1.0	182 of_packet_in
129	140.0250130(	127.0.0.1	127.0.0.1	OF 1.0	146 of_flow_add
151	144.0327490(	6a:d1:bb:d6:38:bd	e2:2f:27:8f:3d:cb	OF 1.0	126 of_packet_in
152	144.0329670(	127.0.0.1	127.0.0.1	OF 1.0	146 of_flow_add
154	144.0331450(	e2:2f:27:8f:3d:cb	6a:d1:bb:d6:38:bd	OF 1.0	126 of_packet_in
155	144.0332850(	127.0.0.1	127.0.0.1	OF 1.0	146 of_flow_add

There were 5 of_packet_in.

4b. The 5 source>destinations for 4a

1. 10.0.0.1 to 10.0.0.2
2. 10.0.0.2 to 10.0.0.1
3. 10.0.0.1 to 10.0.0.2
4. 6a:d1:bb:d6:38:bd to e2:2f:27:8f:3d:cb
5. e2:2f:27:8f:3d:cb to 6a:d1:bb:d6:38:bd

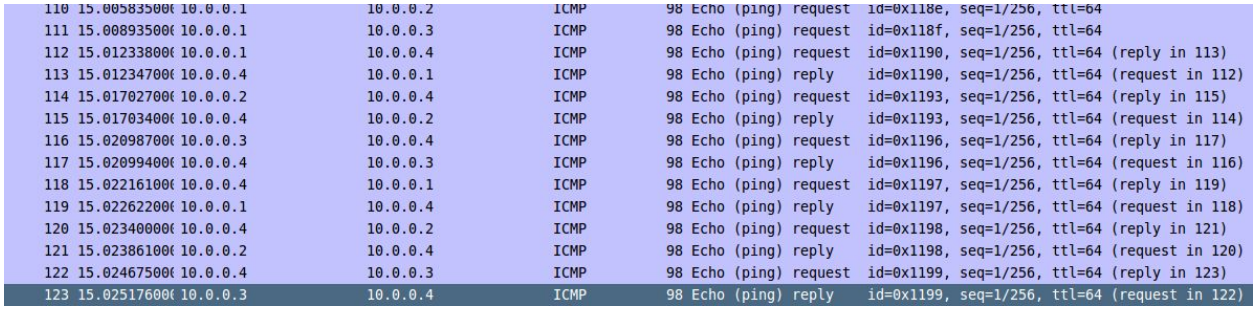


116	139.0255460(	127.0.0.1	127.0.0.1	OF 1.0	90 of_packet_out

The source>destination for OFPT_PACKET_OUT

127.0.0.1 to 127.0.01

4c.



110	15.00583500(	10.0.0.1	10.0.0.2	ICMP	98	Echo (ping) request id=0x118e, seq=1/256, ttl=64
111	15.00893500(	10.0.0.1	10.0.0.3	ICMP	98	Echo (ping) request id=0x118f, seq=1/256, ttl=64
112	15.01233800(	10.0.0.1	10.0.0.4	ICMP	98	Echo (ping) request id=0x1190, seq=1/256, ttl=64 (reply in 113)
113	15.01234700(	10.0.0.4	10.0.0.1	ICMP	98	Echo (ping) reply id=0x1190, seq=1/256, ttl=64 (request in 112)
114	15.01702700(	10.0.0.2	10.0.0.4	ICMP	98	Echo (ping) request id=0x1193, seq=1/256, ttl=64 (reply in 115)
115	15.01703400(	10.0.0.4	10.0.0.2	ICMP	98	Echo (ping) reply id=0x1193, seq=1/256, ttl=64 (request in 114)
116	15.02098700(	10.0.0.3	10.0.0.4	ICMP	98	Echo (ping) request id=0x1196, seq=1/256, ttl=64 (reply in 117)
117	15.02099400(	10.0.0.4	10.0.0.3	ICMP	98	Echo (ping) reply id=0x1196, seq=1/256, ttl=64 (request in 116)
118	15.02216100(	10.0.0.4	10.0.0.1	ICMP	98	Echo (ping) request id=0x1197, seq=1/256, ttl=64 (reply in 119)
119	15.02262200(	10.0.0.1	10.0.0.4	ICMP	98	Echo (ping) reply id=0x1197, seq=1/256, ttl=64 (request in 118)
120	15.02340000(	10.0.0.4	10.0.0.2	ICMP	98	Echo (ping) request id=0x1198, seq=1/256, ttl=64 (reply in 121)
121	15.02386100(	10.0.0.2	10.0.0.4	ICMP	98	Echo (ping) reply id=0x1198, seq=1/256, ttl=64 (request in 120)
122	15.02467500(	10.0.0.4	10.0.0.3	ICMP	98	Echo (ping) request id=0x1199, seq=1/256, ttl=64 (reply in 123)
123	15.02517600(	10.0.0.3	10.0.0.4	ICMP	98	Echo (ping) reply id=0x1199, seq=1/256, ttl=64 (request in 122)

There are 123-67=56 entries for icmp && not of. There were of ICMP protocols of type reply and request.