TÉCNICO LISBOA

Lab 2: Network Tools

Learning the tools of the trade / Debugging networks

Network tools

- Goals:
  1. Learn how to use **ip**, **traceroute**, **ping**, **wireshark**, and **iperf**.
  2. Identify a networking issue.
  3. Fix the networking issue.

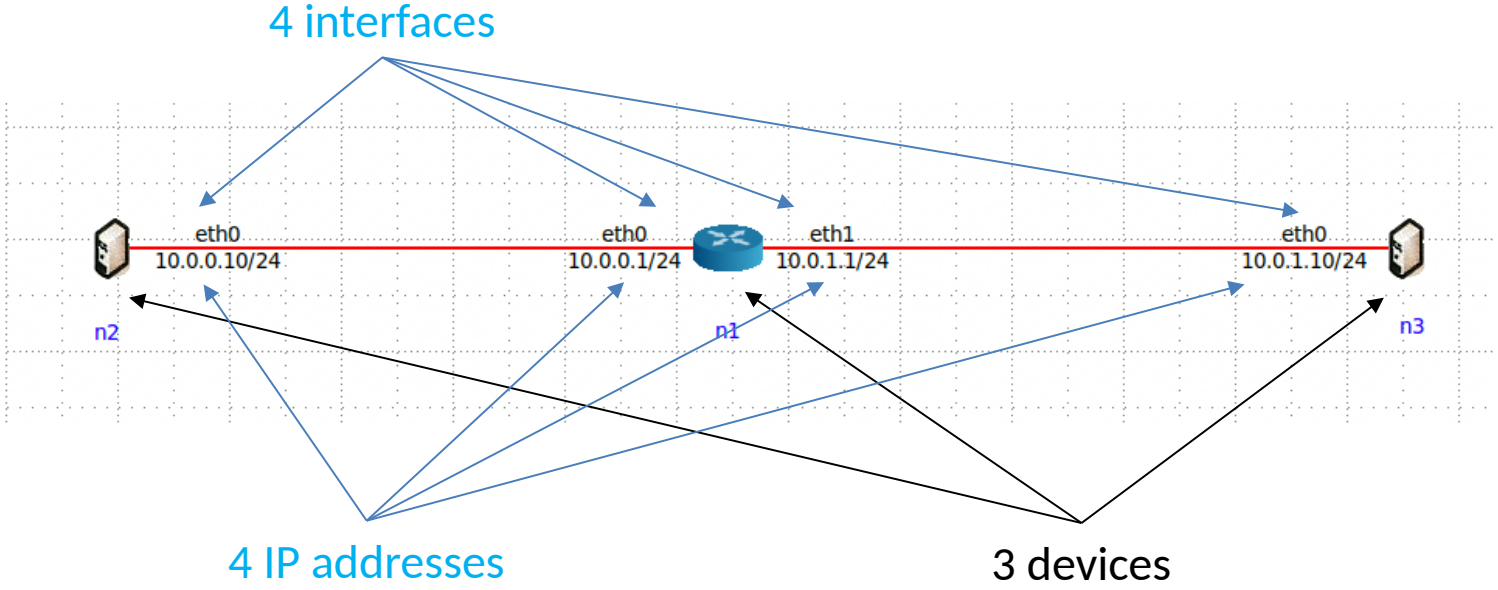
Evaluation

- Where
  - *Lab 2: Network Tools & Configuration* on Moodle
  - Submit your answers in the quiz
- Submission due
  - Sunday, November 19, 23h59


ALWAYS GIT PULL

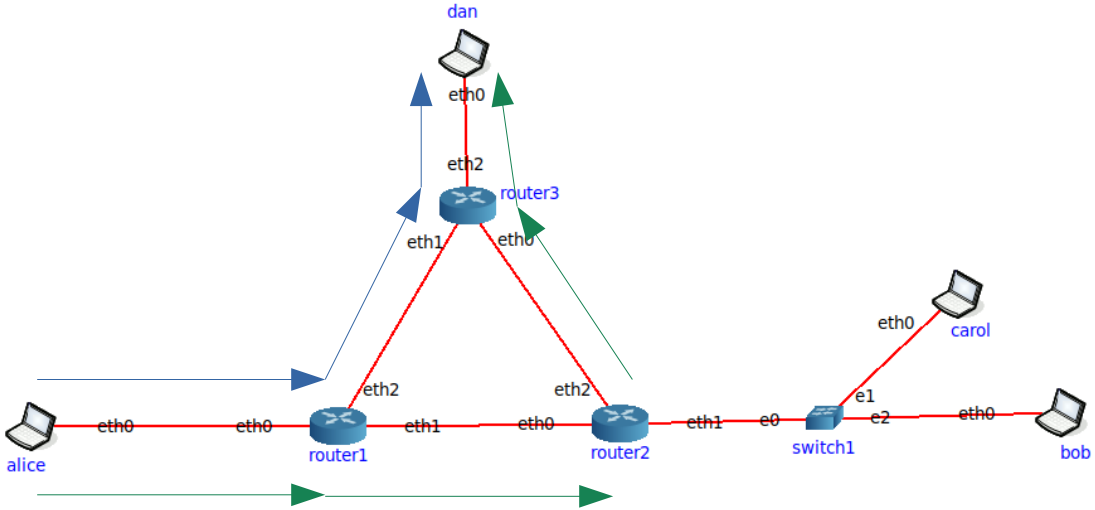
Tools: IP

- Control interfaces, routes, devices, and tunnels
- Set/unset **IP addresses**; Bring **interfaces** up/down

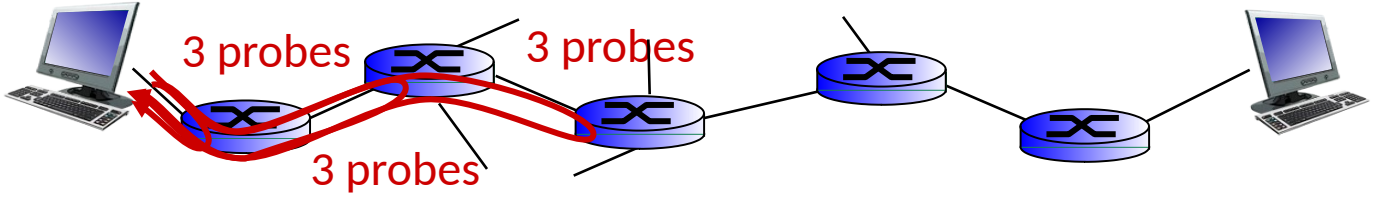


Tools: traceroute

- Find **networking paths** from source to destination

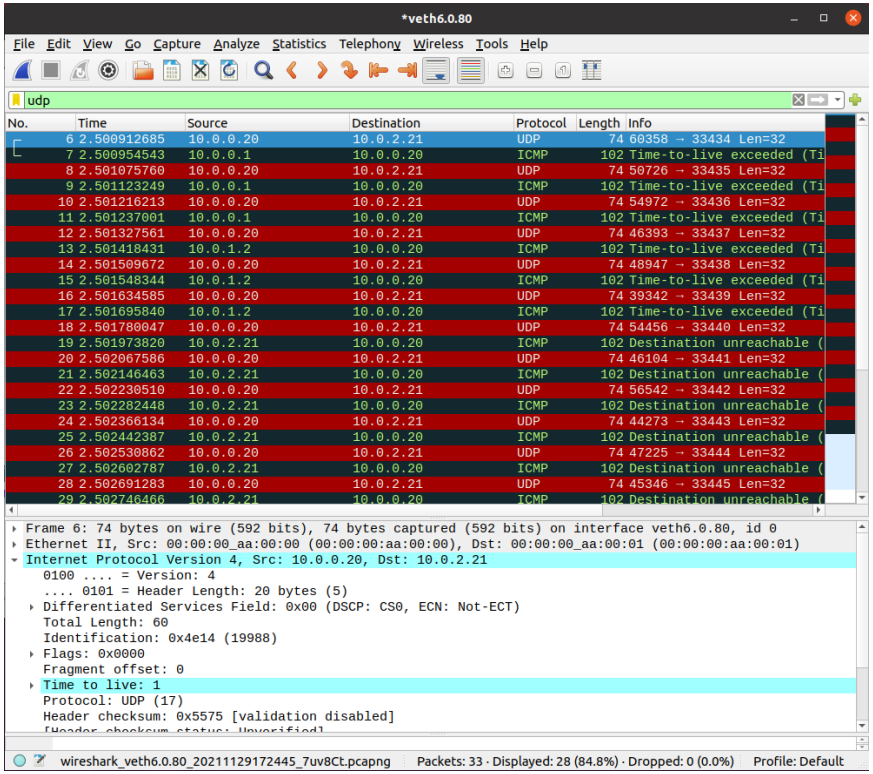


How does it work?



Tools: wireshark

- Packet sniffer
- Use the filter!



Tools: ping

- Sends ICMP echo requests
- Widely used to check connections between hosts

```
-> % ping google.com
PING google.com(mad07s10-in-x0e.1e100.net (2a00:1450:4003:80a::200e)) 56 data bytes
64 bytes from mad07s10-in-x0e.1e100.net (2a00:1450:4003:80a::200e): icmp_seq=1 ttl=60 time=17.6 ms
64 bytes from mad07s10-in-x0e.1e100.net (2a00:1450:4003:80a::200e): icmp_seq=2 ttl=60 time=17.8 ms
64 bytes from mad07s10-in-x0e.1e100.net (2a00:1450:4003:80a::200e): icmp_seq=3 ttl=60 time=17.6 ms
64 bytes from mad07s10-in-x0e.1e100.net (2a00:1450:4003:80a::200e): icmp_seq=4 ttl=60 time=17.3 ms
64 bytes from mad07s10-in-x0e.1e100.net (2a00:1450:4003:80a::200e): icmp_seq=5 ttl=60 time=17.7 ms
64 bytes from mad07s10-in-x0e.1e100.net (2a00:1450:4003:80a::200e): icmp_seq=6 ttl=60 time=17.5 ms
64 bytes from mad07s10-in-x0e.1e100.net (2a00:1450:4003:80a::200e): icmp_seq=7 ttl=60 time=17.6 ms
64 bytes from mad07s10-in-x0e.1e100.net (2a00:1450:4003:80a::200e): icmp_seq=8 ttl=60 time=17.7 ms
^C
--- google.com ping statistics ---
8 packets transmitted, 8 received, 0% packet loss, time 7010ms
rtt min/avg/max/mdev = 17.314/17.587/17.776/0.139 ms
```

Tools: iperf

- Run performance tests
  1) Run server
  2) Run client