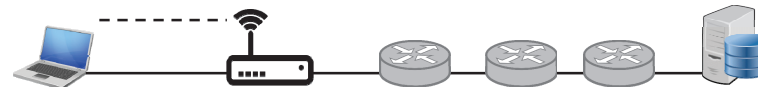


Lab 4A

- ❑ Use “Route Help” in Windows (or man route in MAC) to learn the route command
- ❑ Ping www.google.com to find its address
- ❑ Make sure that you have two active interfaces preferably connected to different routers. For example, create a 2nd interface by connecting a smart phone hot spot via USB. Or by connecting to a router in our lab during TA hours
- ❑ Print route table
- ❑ Trace route to www.google.com using tracert
- ❑ Modify the routing table so that the other interface will be used.
- ❑ Note the command you used to modify the routing table
- ❑ Print the new routing table
- ❑ Trace route to the same numeric address for www.google.com as before . Submit underlined items.

Lab 4A Hints

- ❑ A host with two interfaces going to the same router:

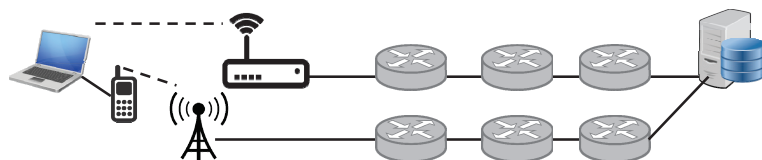


- ❑ Trace route result will not change even if you change the interface.

```
IPv4 Route Table
=====
Active Routes:
Network Destination  Netmask  Gateway  Interface  Metric
0.0.0.0             0.0.0.0  192.168.0.1  192.168.0.152  55
0.0.0.0             0.0.0.0  192.168.0.1  192.168.0.151  25
```

Lab 4A Hints (Cont)

- ❑ If you have two routers, you can see the effect in trace route. One way to get two routers is to use your cell phone hot spot:

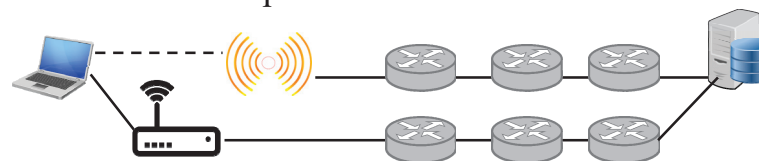


```
IPv4 Route Table
=====
Active Routes:
Network Destination  Netmask  Gateway  Interface  Metric
0.0.0.0             0.0.0.0  192.168.0.1  192.168.0.151  25
0.0.0.0             0.0.0.0  172.20.10.1  172.20.10.2  35
```

- ❑ WiFi on phone should be disabled to ensure that it does not forward the traffic to the same home router.

Lab 4A Hints (Cont)

- ❑ Another way to get two routers is to use another router. We have placed an extra router in our lab.



```
IPv4 Route Table
=====
Active Routes:
Network Destination  Netmask  Gateway  Interface  Metric
0.0.0.0             0.0.0.0  192.168.0.1  192.168.0.151  25
0.0.0.0             0.0.0.0  172.20.10.1  172.20.10.2  35
```

Lab 4A Hints (Cont)

- ❑ [WWW.google.com](http://www.google.com) may have different IP addresses on different networks and so trace route to the same numeric address.
- ❑ WUSTL VPN rejects all traffic not going to WUSTL. So it can not be used as the 2nd interface.
- ❑ The new metric assigned by the route command may not be what you specified. So always check using route print.

Lab 4A Hints (Cont)

- A. Use “route help” to learn the route command
 - ❑ **Windows:** route help
 - ❑ **Linux:** route help
 - ❑ **MAC:**
 - ❑ man netstat
 - ❑ man route
- B. Ping www.google.com to find its address
 - ❑ ping www.google.com
- C. Print the new routing table
 - ❑ **Windows:**
 - ❑ route print
 - ❑ **Linux:**
 - ❑ route
 - ❑ **MAC:**
 - ❑ netstat -nr
- D. Modify routing tables
 - ❑ **Windows:**
 - ❑ route add/delete/change
 - ❑ **Linux:**
 - ❑ route add/del
 - ❑ **MAC:**
 - ❑ sudo route -nv add
- E. Verify using tracert
 - ❑ **Windows:**
 - ❑ tracert
 - ❑ **Linux:**
 - ❑ traceroute
 - ❑ **MAC:**
 - ❑ traceroute