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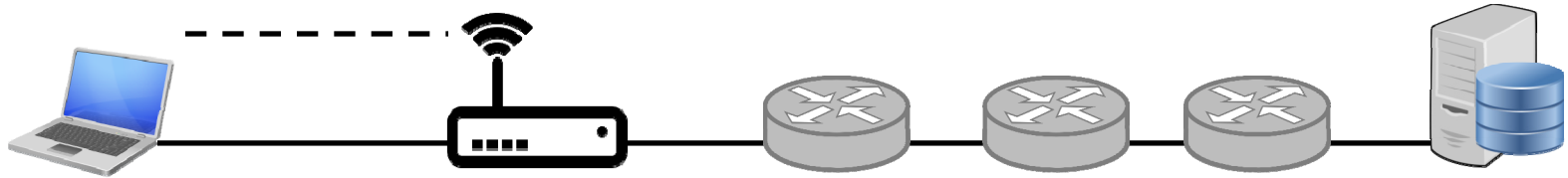
❑ Trace route result will not change even if you change the interface.

```
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:
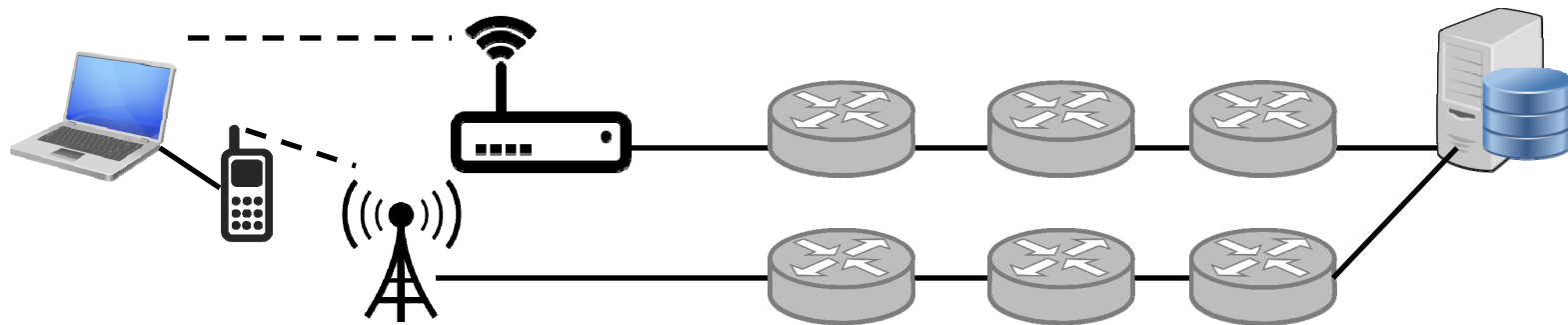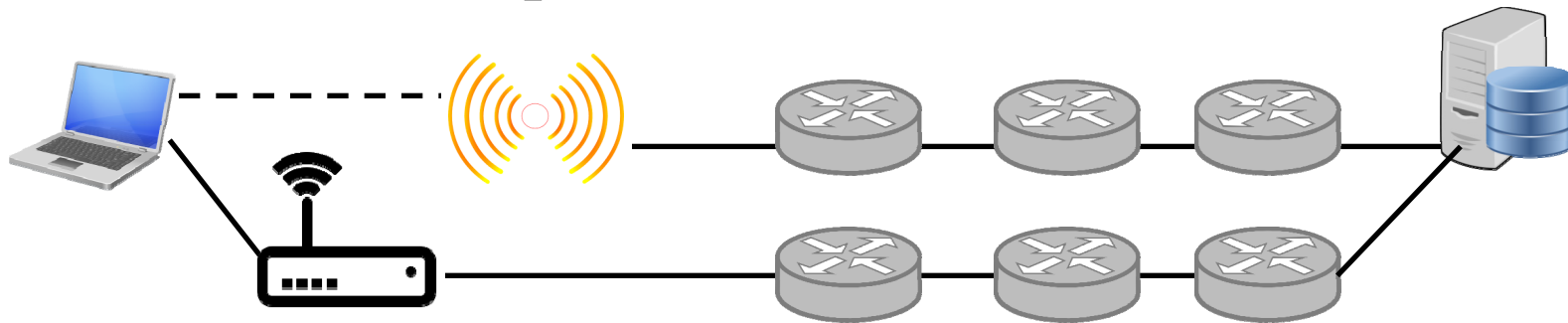


```
IPv4 Route Table
===========================================================================
Active Routes:
Network Destination        Netmask          Gateway       Interface  Metric
          0.0.0.0          0.0.0.0      192.168.0.1   192.168.0.151      25
          0.0.0.0          0.0.0.0      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 may have different IP addresses on different networks and so trace route to the same <u>numeric</u> 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