

CS 121

Our Digital World:

The Internet

# For Wednesday...

- Find one article regarding a networking topic to post a short blog about.
- Sample topics:
  - net neutrality
  - expansion of/lack of broadband access
  - network privacy
  - Internet of Things
- Summary
  - link
  - your questions
  - your thoughts

# Wednesday Tasks

- 1) Email me (chadd@pacificu.edu) a link to your blog in Google Sites
  
- 2) Sit in teams
  
- 3) Discuss the article each of you posted
  - 1) 15 minutes
  
- 4) Pose one question raised by either article
  
- 5) Networking lecture focused by 4).

# How does...

- an email get from you to me?

`chadd@pacificu.edu`

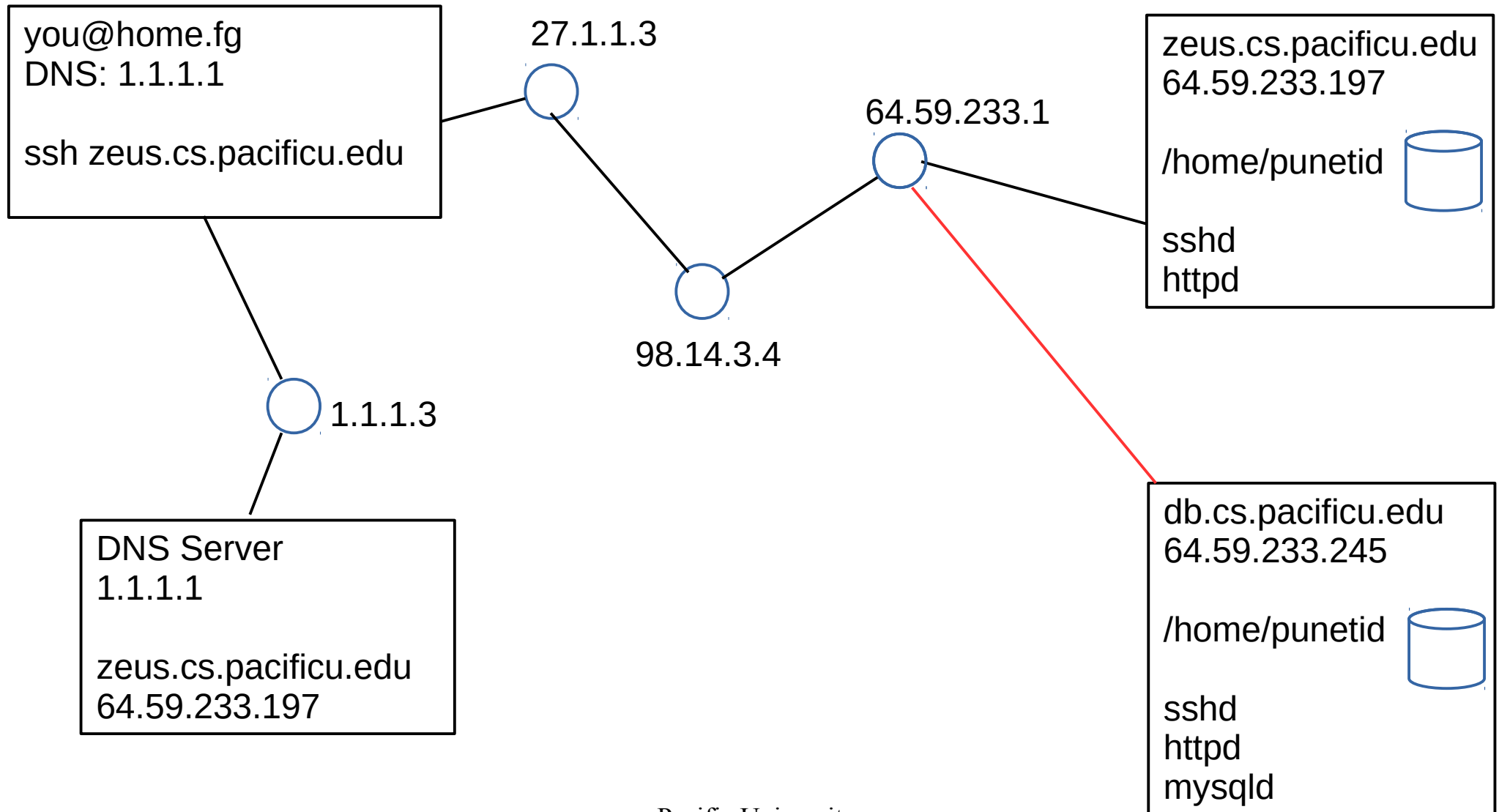
`profchadd@gmail.com`

- Facebook work?

`www.facebook.com`

`facebook.com`

# Make a Connection



# The Internet (appendix)

- Computer Network

- Host

- Address           64.59.233.197

- Domain name system

- TLD

- ICANN

<http://whatismyip.com>

- Internet Protocol (IP)

- IPv4 (32 bits)           IPv6 (128 bits)

- Client/Server

- <http://www.internettrafficreport.com/>

# Addresses

- IP address
  - IPv4: ###.###.###.### (range 0-255)
  - IPv6: 12a4:12c4:1e34:1f34:1a34:1d34:1b34:123b
  - each machine on the internet must have an IP address.
- DNS address
  - human readable address
- DNS Server
  - translates the human readable address to IP address

# Letters you might see

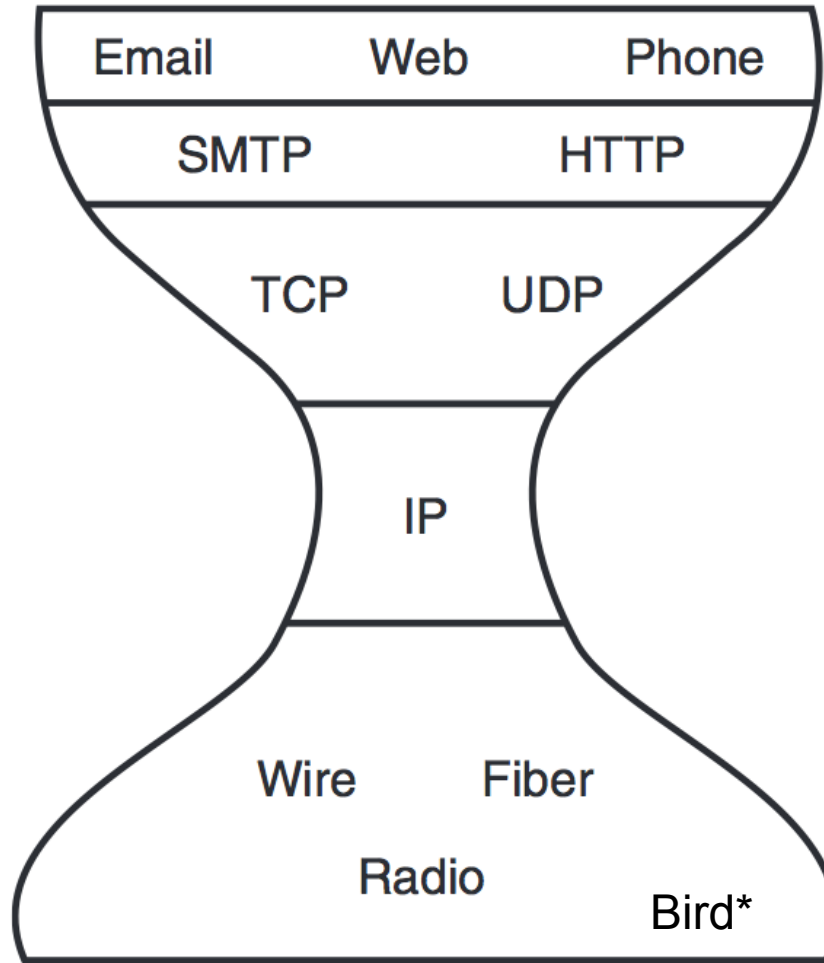
- http
  - html / html5
  - URL
  - https
- DNS
- SSL / TLS
- IMAP
- POP/POP3
- DHCP

Protocol

Packet



# Blown To Bits, p 310



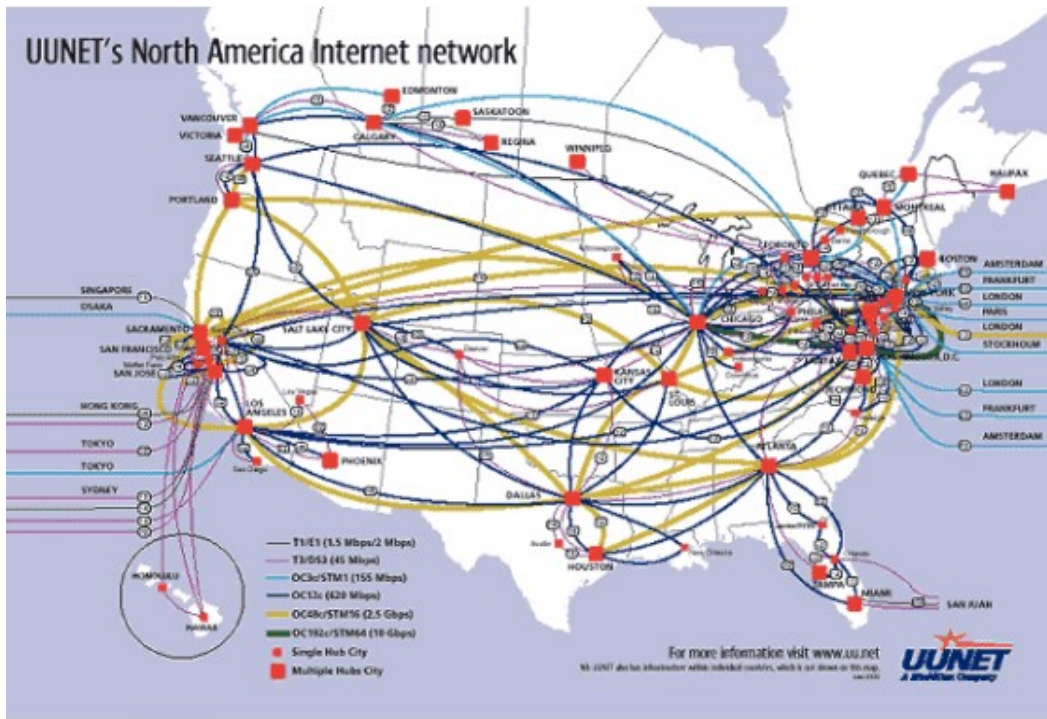
\*<http://tools.ietf.org/html/rfc1149>

<http://creativecommons.org/licenses/by-nc-sa/3.0/us/>

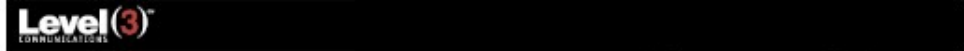
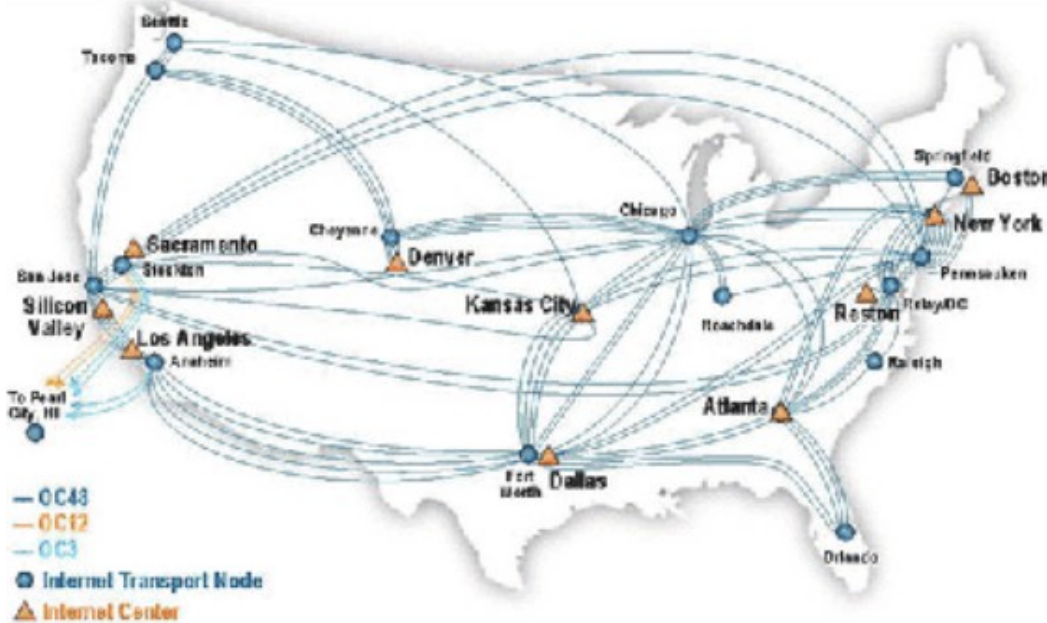
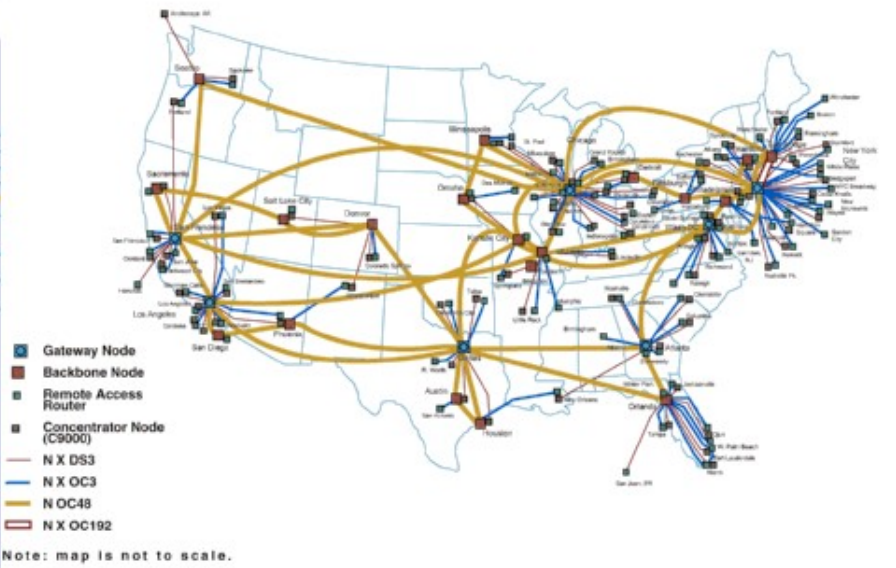
# Internet Access

- How does my computer at home connect to the Internet?
- Backbone
- Internet Service Provider (ISP)
  - broadband
- <http://broadbandmap.gov/technology>

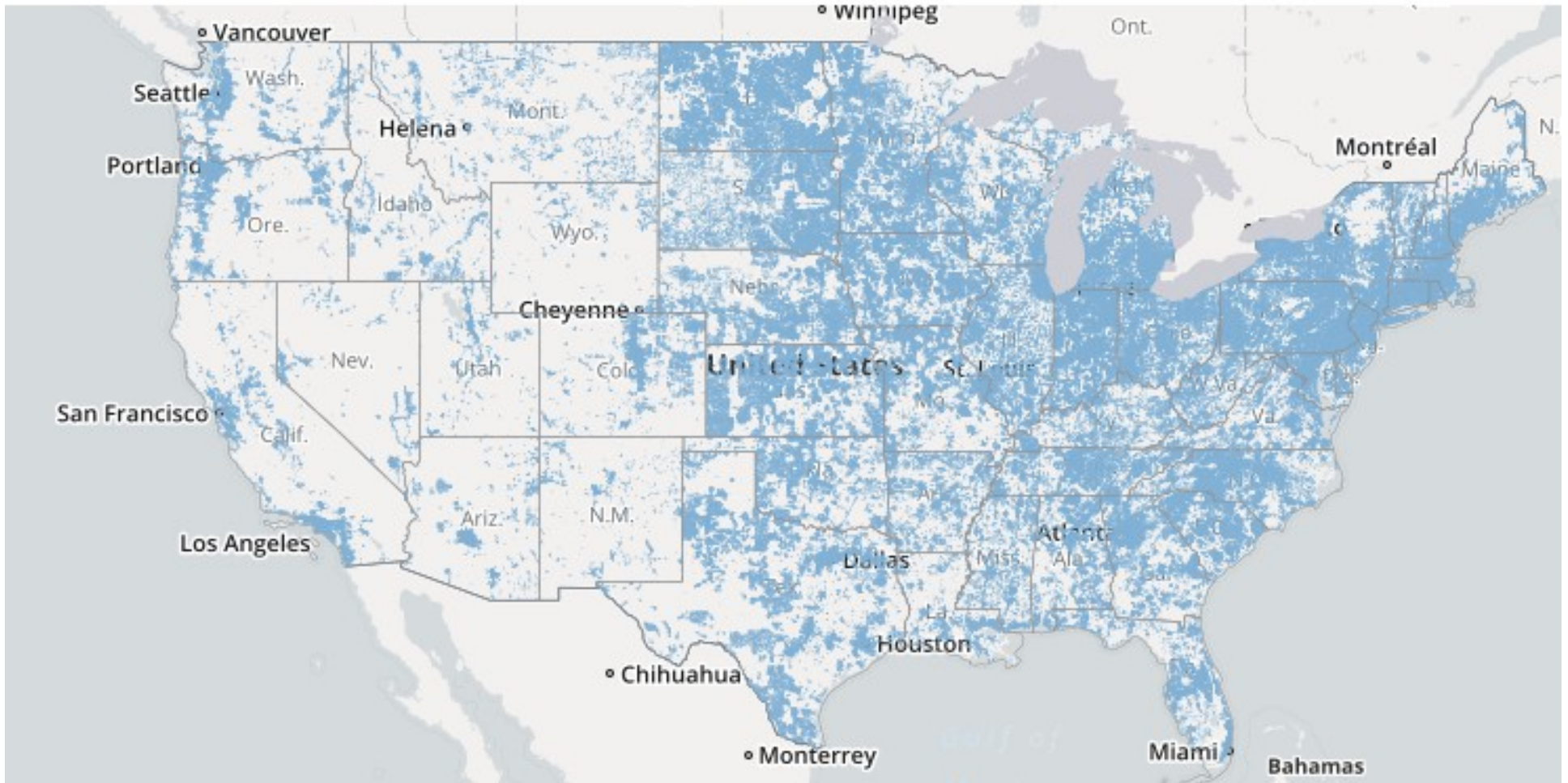
### UUNET's North America Internet network



### AT&T IP BACKBONE NETWORK







<http://broadbandmap.gov/technology>

# Speed

- Bandwidth

- how many bits can you send in 1 second?

- Dialup            56 kilo bit/second
- DSL                1.5 Mega bit/second

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- Cable\*            up to 350 Mbps
- FiOS\*             up to 500 Mbps

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- OC12              622 Mbps
- OC48              2.5 Giga bit/second
- OC192            9.6 Gbps
- 10GigE           10 Gbit/second

\* based on commercially advertised speeds

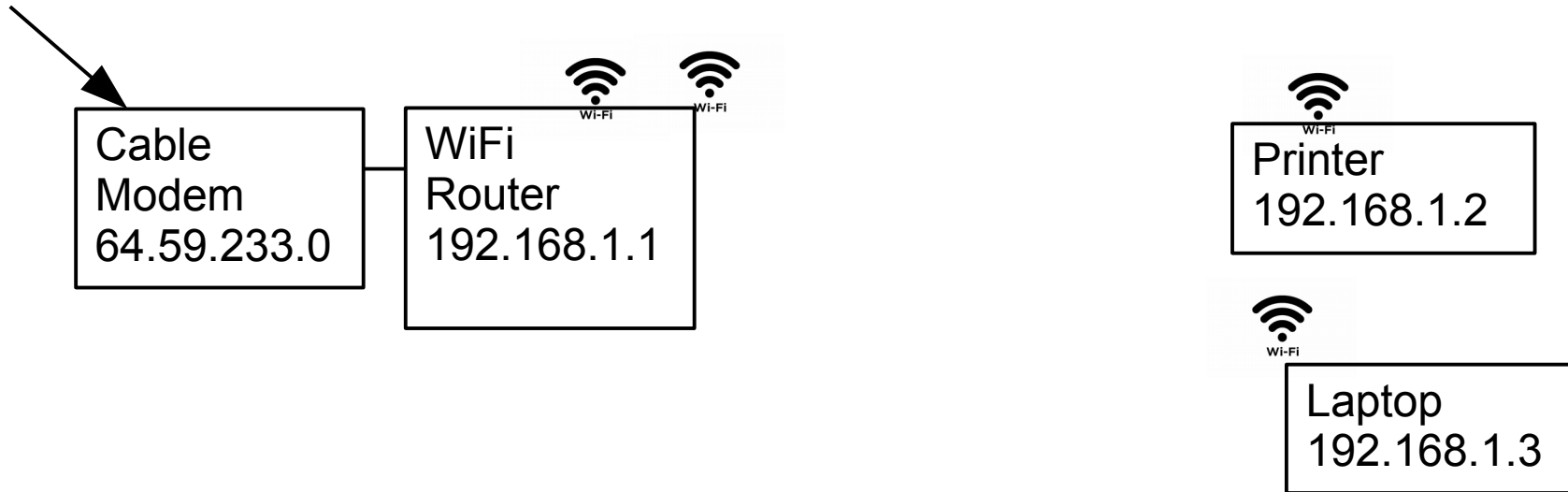
Google Fiber\*  
1000 Mbps

<https://fiber.google.com/>

What about your wireless router?

802.11 speeds

# A home network



NAT  
DHCP

# For Monday

- Read Chapter 2: Privacy
- Read two linked articles on class web page
  - bring two questions you have about the articles to class