Welcome to

CS 3516:
Computer Networks

Prof. Yanhua Li

Time: 9:00am –9:50am M, T, R, and F
Location: AK 219
Fall 2018 A-term

Updates

Quiz 6, Mid-term exam

Graded!

Quiz 7

Grading by next Mon

Project 2

Due tomorrow

Extra office hour: today 11AM-12PM

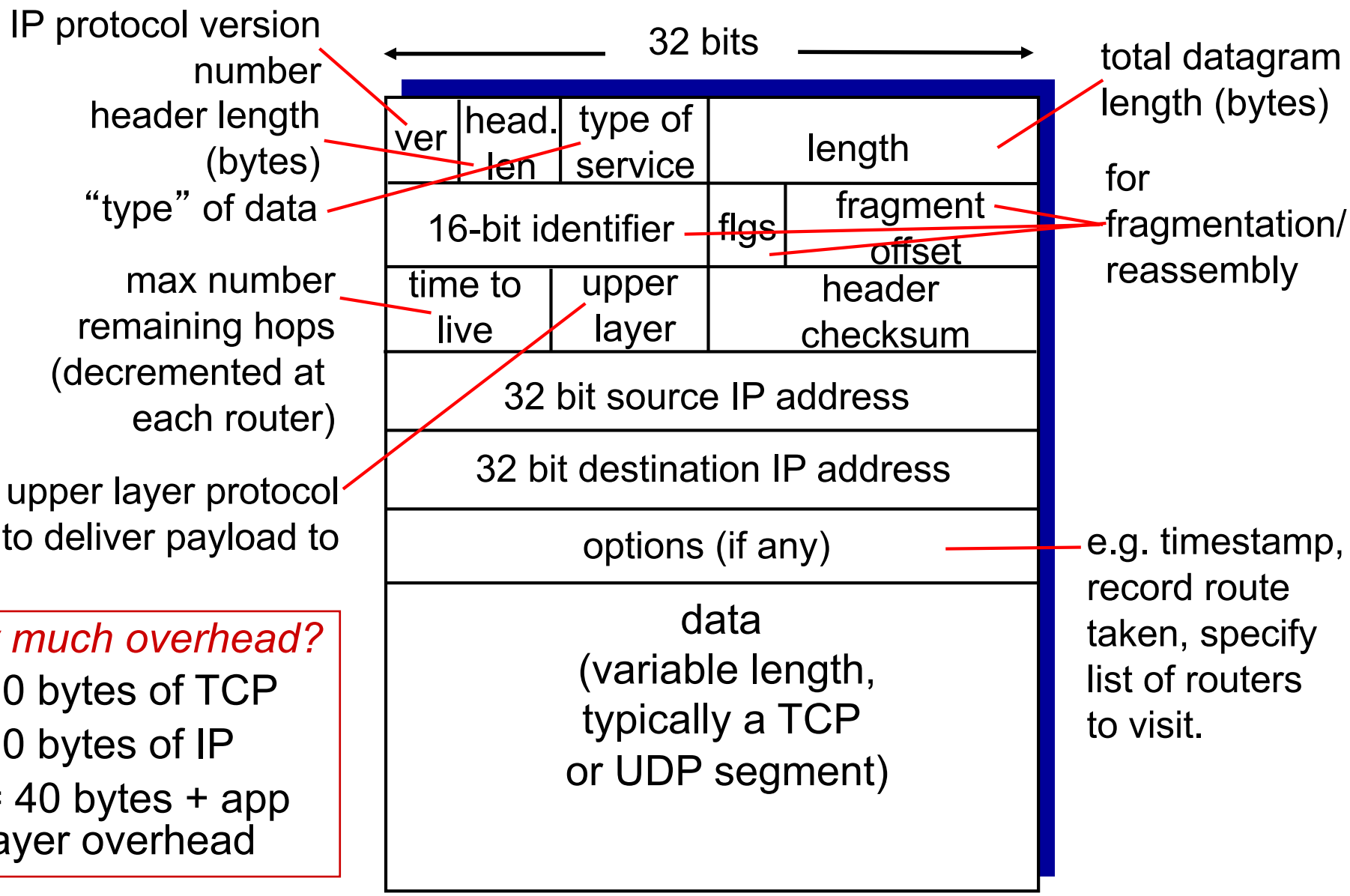
Regular office hour: today and tomorrow 1-3PM

Chapter 4-5: network layer

chapter goals:

- understand principles behind network layer services:
  - network layer service models
  - forwarding versus routing
  - IP addressing
    - datagram format
    - IPv4 addressing
      - Classful addressing
      - Classless Inter-Domain Routing
  - routing (path selection)

IP datagram format



how much overhead?

- 20 bytes of TCP
- 20 bytes of IP
- = 40 bytes + app layer overhead

Datagram forwarding table

Destination Address Range	Link Interface
11001000 00010111 00010000 00000000 through 11001000 00010111 00010111 11111111	0
11001000 00010111 00011000 00000000 through 11001000 00010111 00011000 11111111	1
11001000 00010111 00011001 00000000 through 11001000 00010111 00011111 11111111	2
otherwise	3

Q: but what happens if ranges don't divide up so nicely?

Longest prefix matching

longest prefix matching

when looking for forwarding table entry for given destination address, use *longest* address prefix that matches destination address.

Destination Address Range	Link interface
11001000 00010111 00010*** *********	0
11001000 00010111 00011000 *********	1
11001000 00010111 00011*** *********	2
otherwise	3

examples:

DA: 11001000 00010111 00010110 10100001 which interface?

DA: 11001000 00010111 00011000 10101010 which interface?

IP addressing: Classful addressing

White board

Questions