上海交通大學
SHANGHAI JIAO TONG UNIVERSITY

Computer Networking

CS339, Spring Term 2017

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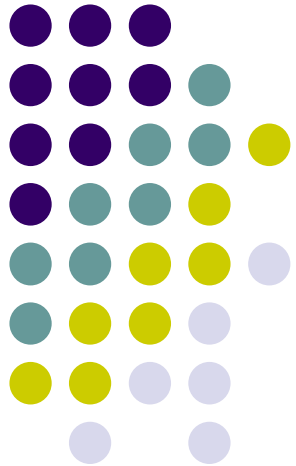
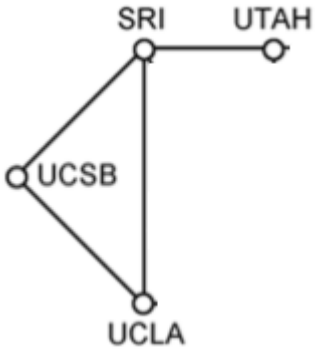
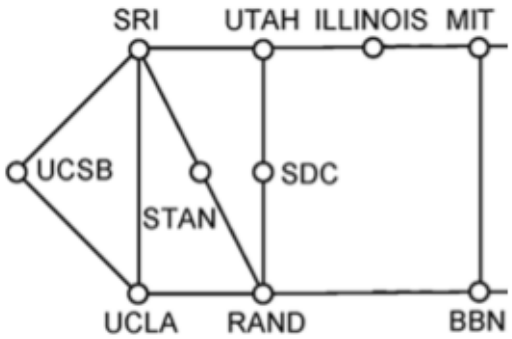


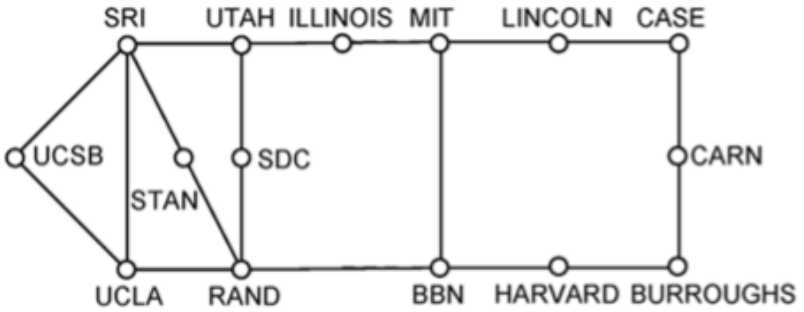
Internet evolution



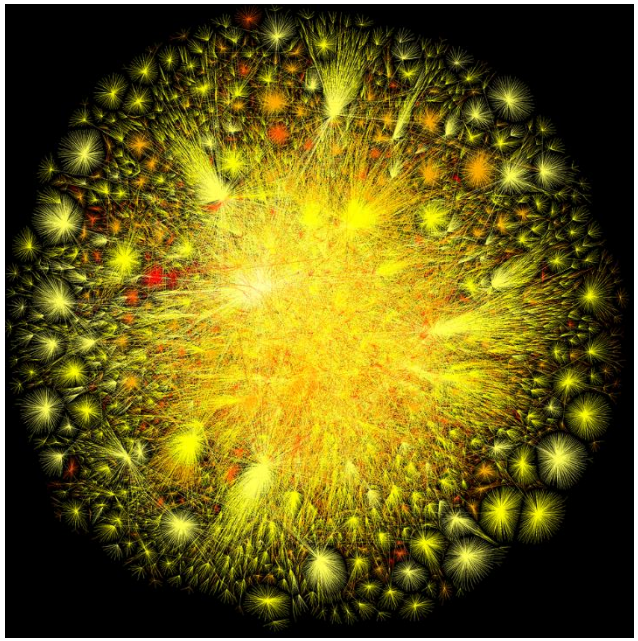
1969.12



1970.7

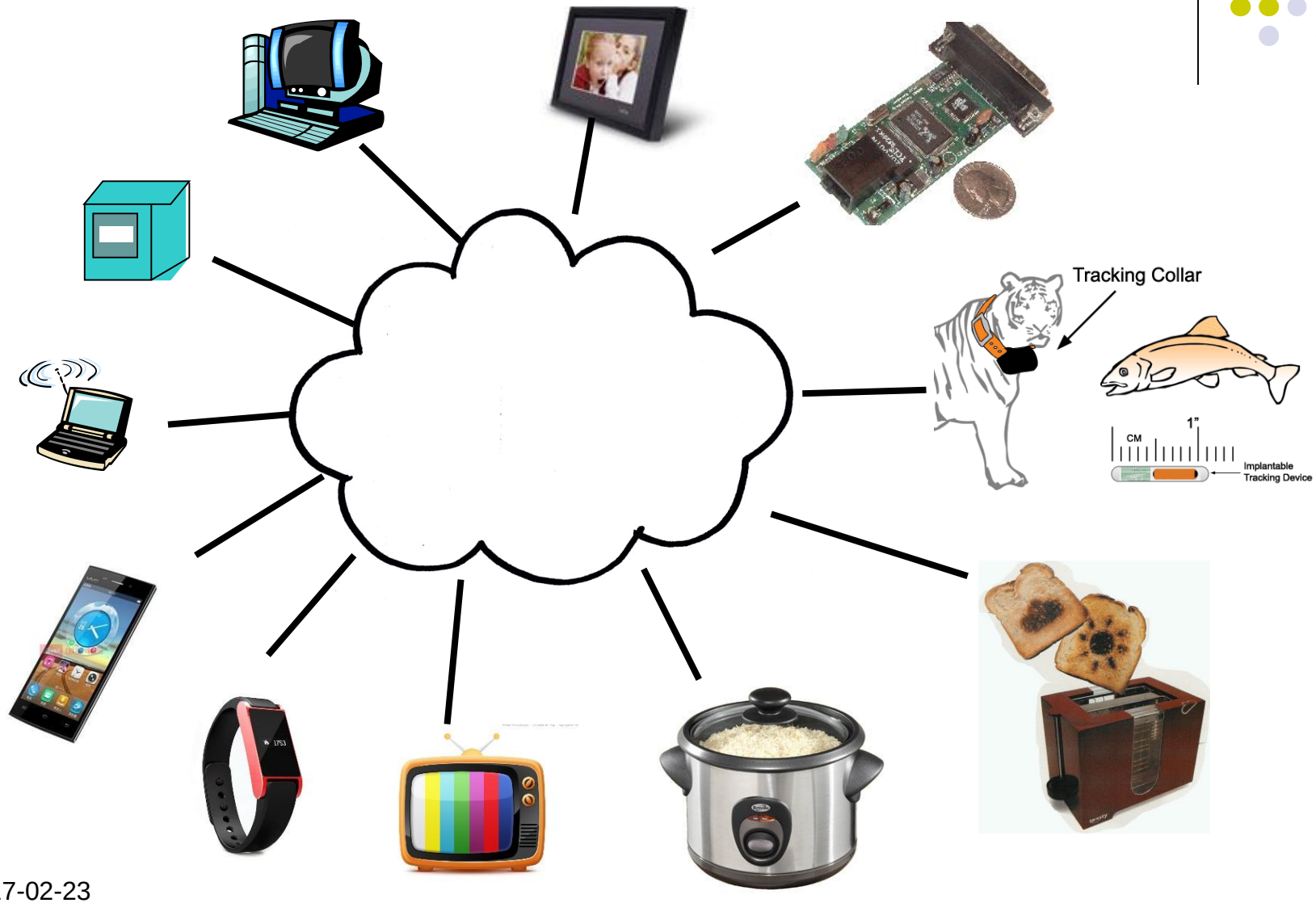


1971.3

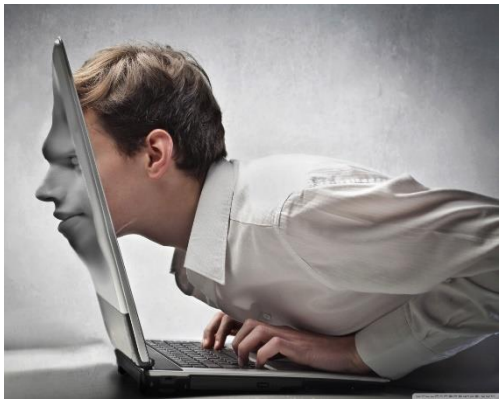


2010

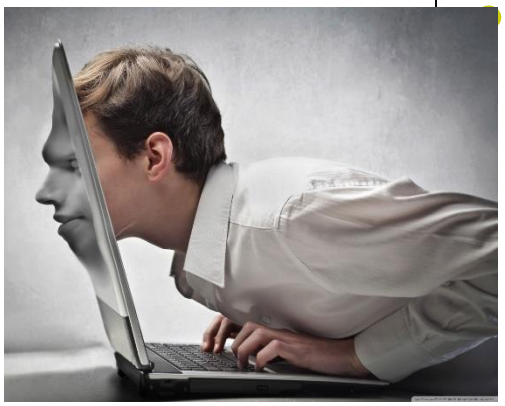
Everything is connected

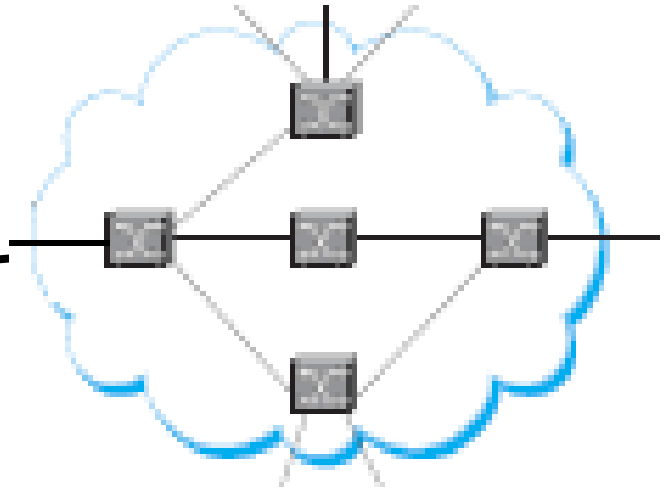


and Everybody...

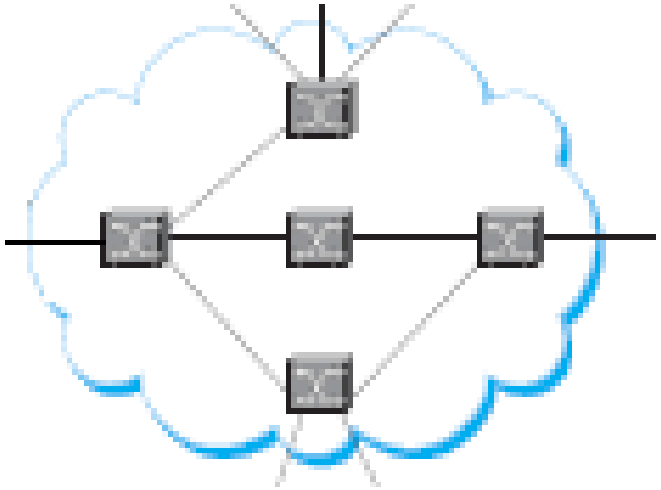


What's inside the cloud?



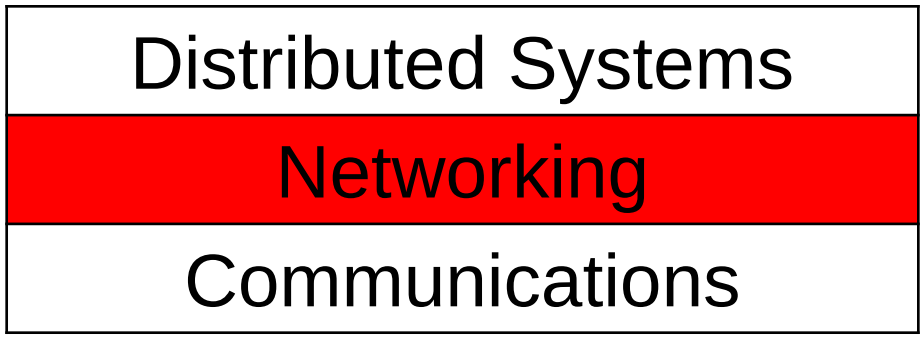


What do you want to learn ?

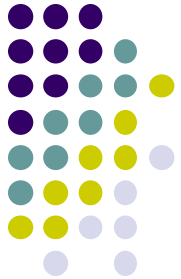


Focus of this course

- **Three “networking” topics**

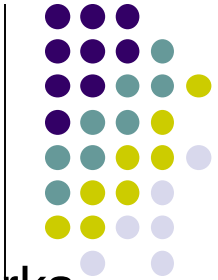


Two main points



- **To learn how the Internet works**
  - What really happens when you “browse the web”?
  - What are TCP/IP, DNS, HTTP, NAT, VPNs, 802.11 etc. ?
- **To learn the fundamental of computer networks**
  - Apply to all computer networks
  - What hard problems must they solve?
  - What design strategies have proven valuable?

Course Description



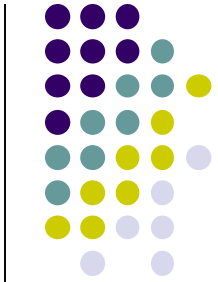
- **Goal:** Teach the concepts and principles underlying networks.
  - Give you a basic understanding of network protocols
  - Give you a basic understanding of the Internet
  - Give you experience using and writing protocols
- **Approach:**
  - Top-down instead of bottom up
  - General principles instead of digging into engineering details
  - Focus on the Internet
  - Try flipped classroom (MOOC)
- **Prerequisites:**
  - EI211/IE419: class assumes you know basic principles of communication, some data communication concepts helpful.
  - EI105/CS383: class assumes you are comfortable with C/java programming, some socket programming helpful.

Course Schedule (Subject to Change)

Content	Chapter	Classes
Intro & Data Communication	1	6
Application Layer	2	6
Transport Layer	3	9
Network Layer	4	9
Data Link/MAC Layer	5	8
Wireless and Mobile	6	4
Security and Multimedia	7, 8	4
Review		(2)

Note: 1 class=45 min.

Textbook and References



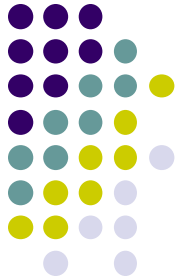
Primary Text:

- Computer Networking: A Top-Down Approach, Jim Kurose & Keith Ross, Addison-Wesley

Other Selected Texts:

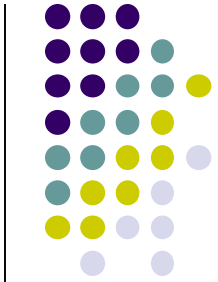
- Computer Network ,Andrew S. Tanenbaum ,PRENTICE HALL
- Computer Networks: A Systems Approach, Peterson and Davie, MORGAN-KAUFMAN
- Computer Networks and Internets, Douglas E. Comer, PRENTICE HALL
- Data and Computer Communication, William Stallings, PRENTICE HALL

Course Website



- All course materials could be found at
  - ftp://lpshen:public@public.sjtu.edu.cn (pswd: public)
- Textbook website:
  - http://www.aw.com/kurose_ross
  - http://wps.aw.com/aw_kurose_network_5/111/28536/7305312.cw/index.html (demo page)
- Other courses public accessible:
  - https://class.coursera.org/comnetworks-003/
  - https://class.stanford.edu/courses/Engineering/CS-144/Winter2015/info
  - http://www.cs.cmu.edu/~prs/15-441-F13

Grading



- Final Examination 60%
- Class quizzes 20%
- Assignments 10%
- Class Activities 10%
- All assignments will be released on FTP site.
  - Most assignments will be given one week time limit, i.e. start after Thursday class and due at 24:00 of next Thursday
  - Please submit your solutions with handwriting either in hardcopy or photo-copy to the ftp upload directory.
  - Please do all the assignments by yourself.
  - Late policy: late submission will not be accepted.