

Stuff you should know about CS144



Keith Winstein
Nick McKeown



Wireless Communications: 1964

*“A network to
survive nuclear attack.”*

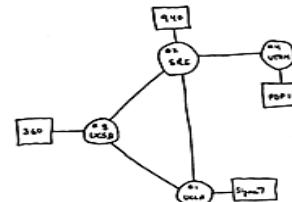


Paul Baran

1st network
connects two
computers

US Government
starts “ARPANET”
project

Four nodes connected
(UCLA, SRI, UCSB, Utah)



1964

1965

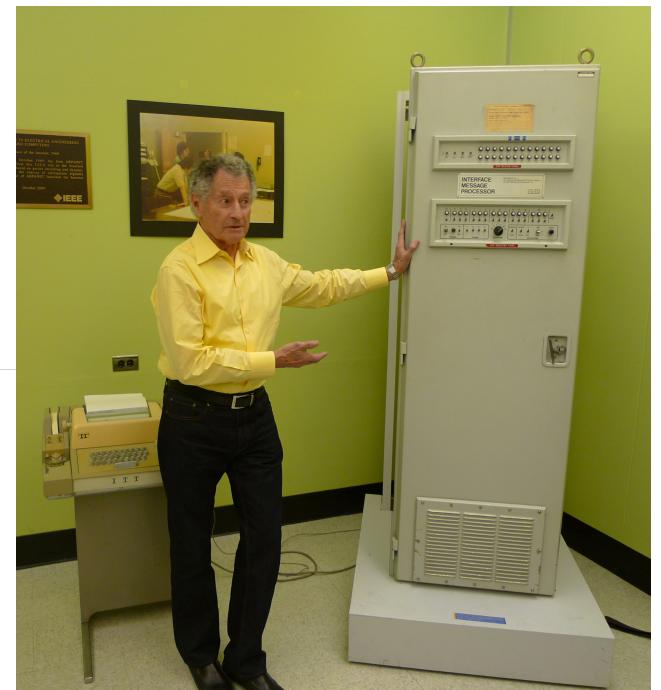
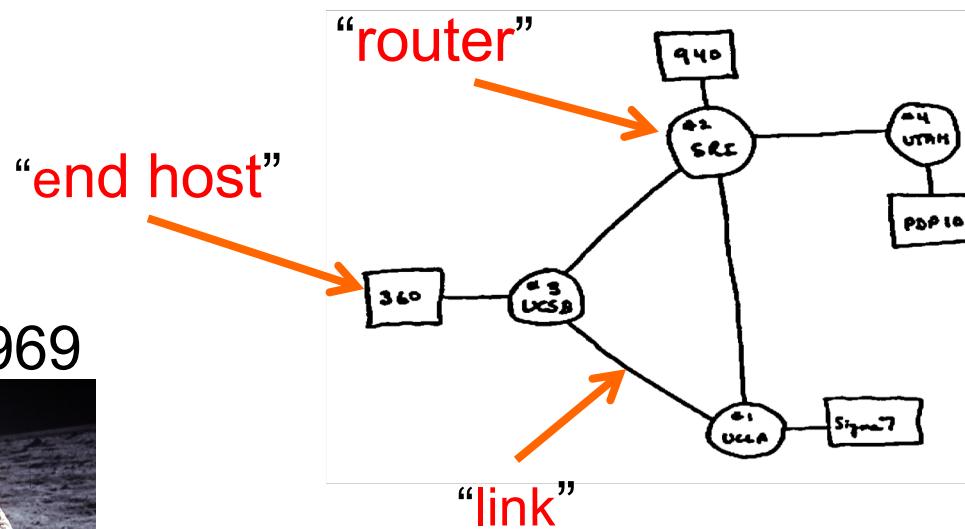
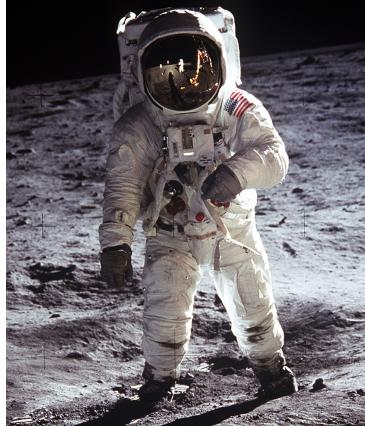
1966

1968

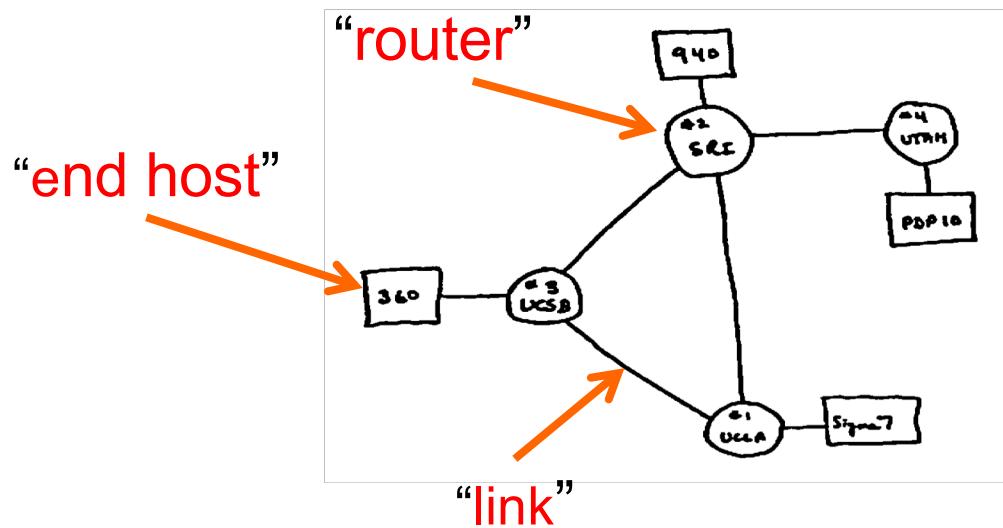
1969

The Internet in 1969

Also in 1969

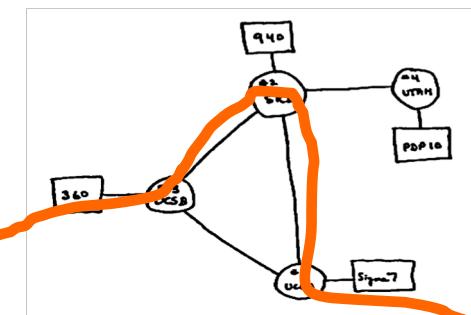


What did they use it for?



1. Sending files between scientists: “*Here is a big file of astronomy data!*”
2. Email: “*Where shall we have lunch today?*”
3. Remote login to another computer.

1971

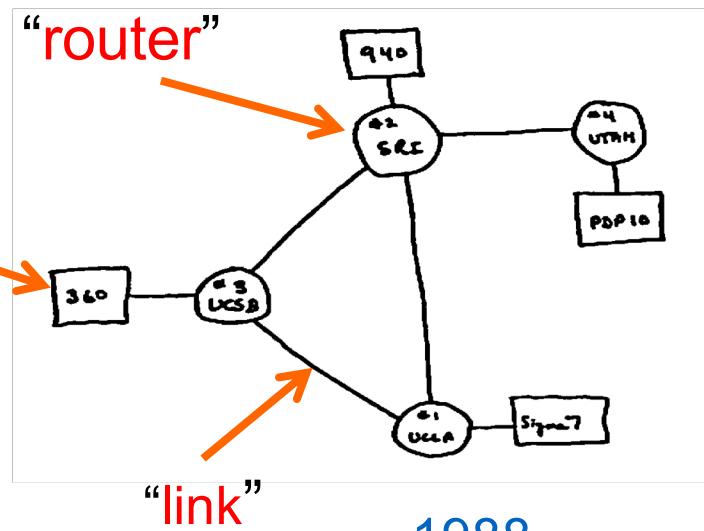


First email typed here

“QWERTYUIOP”

...and printed here





"end host"

"link"

"router"

1969

4 "end hosts"



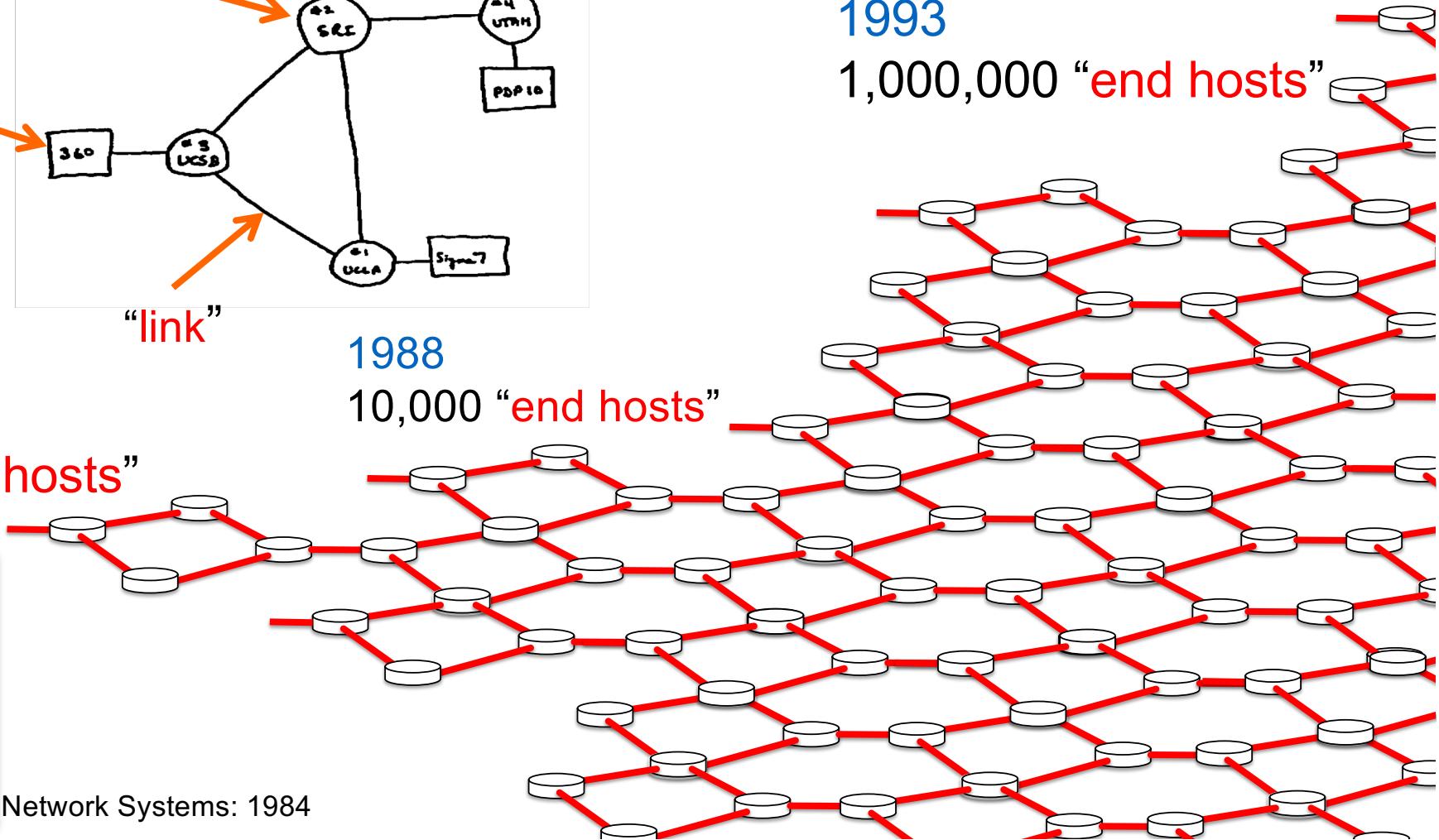
Network Systems: 1984

1988

10,000 "end hosts"

1993

1,000,000 "end hosts"

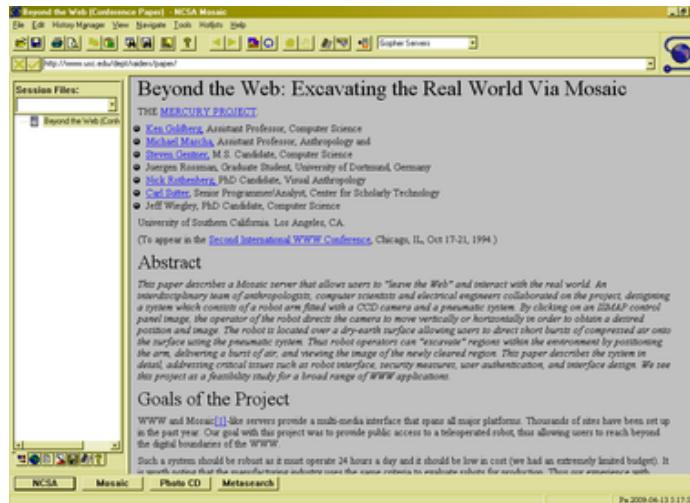


Then in 1993 something
even BIGGER happened!!!

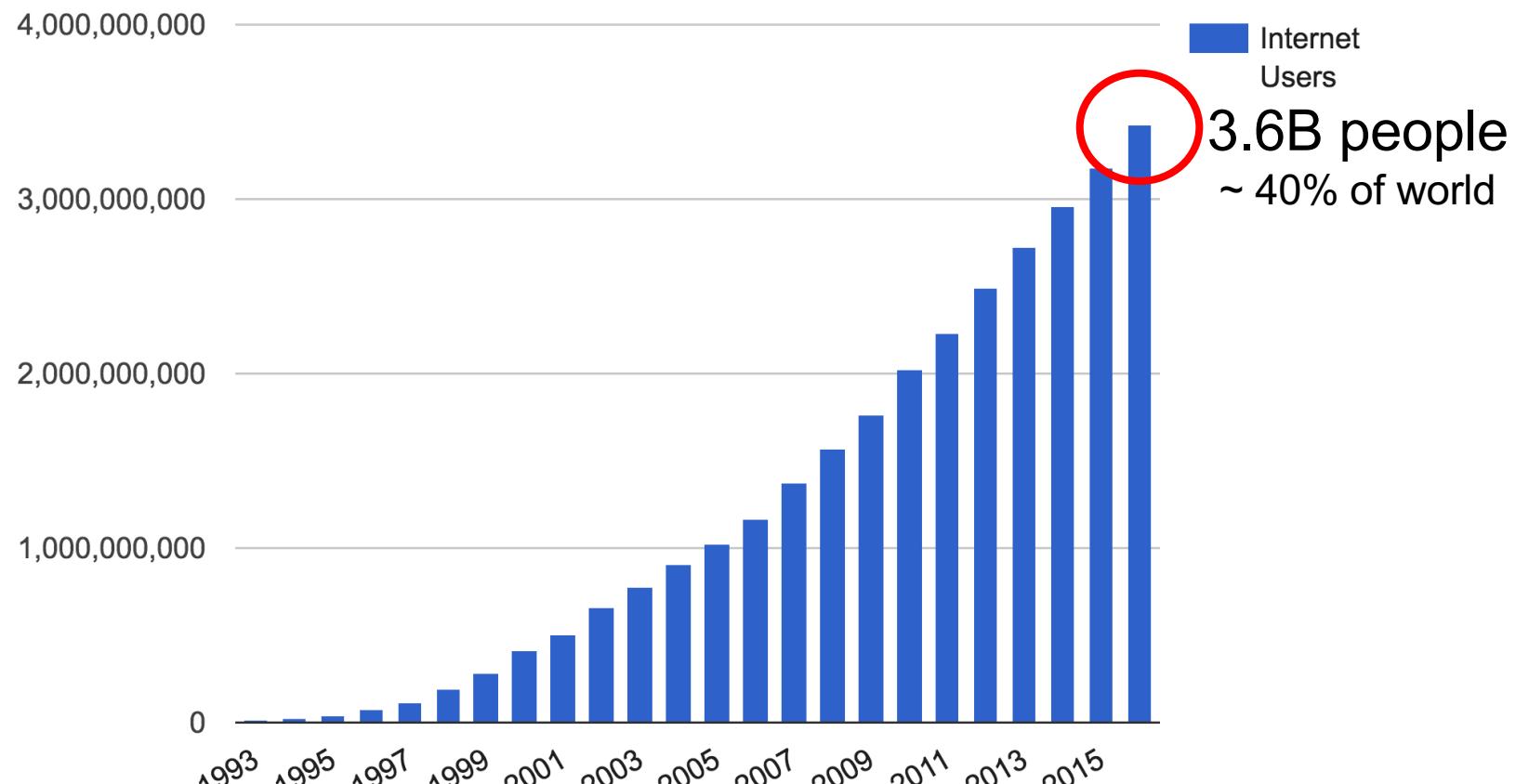
1993: The first web browser (Mosaic)



Marc Andreessen



The number of Internet users in the world



Source: <http://www.internetlivestats.com/>



How does it all work?

Why was it designed this way?

CS144

Isn't it really difficult....?

Goals

1. To learn how the Internet works.
2. To learn why the Internet was designed this way.
3. To learn how to use the Internet.
4. To build some significant pieces of the Internet.
5. To learn the underlying principles and technologies of networking.

CS144 stud**n**ets are....

How each week goes

CS144 is divided into week-long units, devoted to a particular topic.

e.g. the 1st week is about Basic Principles, the 2nd week is about Transport.

There are two types of week:

1. “Video Weeks”

- Three lectures (MWF). Mandatory attendance.
- Occasional in-class exercises and guest speakers.
- A short pop quiz on Friday in-class.
- Videos to watch in your own time.
- Short graded online quiz at the end of the unit due Monday 2pm PT.

2. “Lecture-only Weeks”

- Same as above, but no videos to watch and no online quiz.

For example: In week 1 you watch videos about Basic Principles and take the online test before Monday Sept 30 at 2pm. You will have a pop quiz on Friday.

Laptops

- We do not allow laptops to be used in class.
- Except for specific in-class exercises (we will ask you to bring your laptop) and by the teaching staff.
- You should bring a laptop every Friday, for the pop quiz.



How we calculate your grade

1. Class Attendance **10%**
2. Programming assignments **45%**
Lab 0-8: **5%** each.
Get started!!!
3. Quizzes & Exams **45%**
End-of-unit quizzes **10%**
(pop quiz every week; plus online quiz in video weeks)
Midterm: **15%** (50mins, in-class)
Final: **20%** (120mins, in scheduled slot)

Exam Policy

Exams are closed-book, closed-note, closed-laptop etc.

But you may bring 2 double-sided sheets of 8.5" x 11" paper of your own design to the Midterm and Final.

Labs

- Programming is in C++
- CS110 is a prerequisite.
- Late policy:
 - 3 late days (24 hours) of your choosing.
 - At most 2 late days for one lab.
 - After you use up your late days, late labs are not graded.



"Thank goodness you're here—I can't accomplish anything unless I have a deadline."



Win prizes!!!



For each Lab:

1. Prize for BEST submission,
2. Prize for FIRST CORRECT submission.

Each winner receives a certificate and a gift.

Workload



- This is a 4-unit workload, which means a workload of about 12hrs/week
- Our estimate based on previous years
 1. Videos and quizzes: 0-3hrs/week
 2. Class time: 3hrs/week
 3. Labs and preparing for exams: Avg 6hrs/week
 4. Average overall 9-12hrs/week

Contact

For anything non-private: **Piazza**

If private: email cs144-au1920-staff@mailman.stanford.edu

If it's personal (e.g. a medical emergency):

email Nick or Keith nickm@stanford.edu and keithw@cs.stanford.edu

The Honor Code

- We take it seriously and we expect you to take it seriously too.
- Last year was a bad year with several CS144 students getting into a lot of trouble ☹
- None of them hadn't set out to cheat: At the last minute, they copied an assignment off the web, then tried to modify it. It doesn't work!
- We use special tools to compare solutions against current and previous years and solutions we find on the web.
- Please, let's have a zero-violation year.

The Honor Code

Permitted Collaboration: The following items are encouraged and allowed at all times for all students in this class:

- Discussion of material covered during lecture, problem sessions, or in handouts
- Discussion of the requirements of an assignment
- Discussion of the use of tools or development environments
- Discussion of general approaches to solving problems
- Discussion of general techniques of coding or debugging

The Honor Code

Unpermitted Collaboration: All submissions must represent **original, independent work**. Some examples of activities that do not represent original work include:

- Copying solutions from others or knowingly allowing others to copy your solution.
- Use of solutions posted to websites is prohibited.
- Placing your source code in a public repository where others can copy it is unpermitted collaboration.
- Debugging code for someone else.
- Collaborating on or discussing the online graded quizzes before you have completed them.

What to do next

- Look around and get familiar with <https://cs144.stanford.edu>
- Watch half the videos before Wednesday's class.
These videos are quite simple and descriptive and should be a quick watch; 1.5-2x speed-up should work well.
- Start working on Lab 0! It is due next Monday.

TCP/IP Header Formats in Lego

