Network Application Studio

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Today's Agenda

1. Introductions
2. Contents of the class
3. Coding demo
4. Pick papers to present
5. Meet teammates

Introductions

My Interest in Networking

In the last 25 years, advances in networking and communications have produced huge societal changes.

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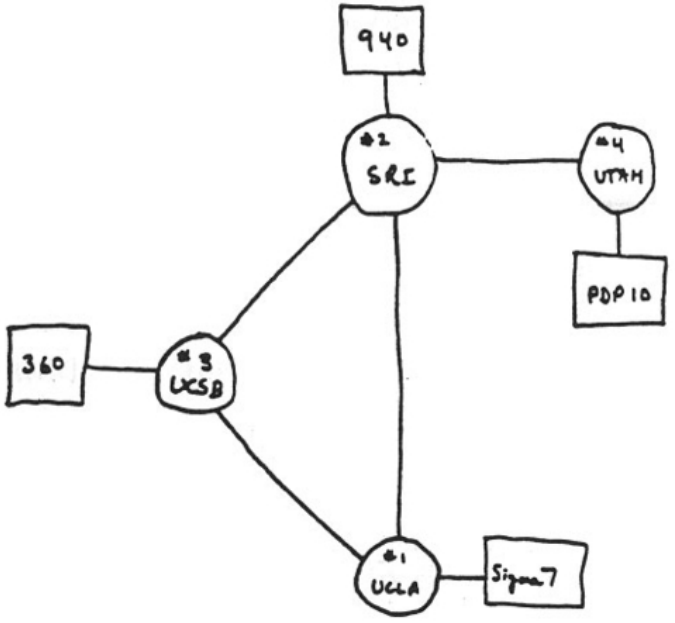
the Internet



THE ARPA NETWORK

DEC 1969

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the World-Wide Web

(Stanford Physics Information Retrieval System,
first website outside Europe)

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Wi-Fi

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Skype

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Facetime

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Google Hangouts

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Netflix

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YouTube

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Bitcoin

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Google search

Computer Networks and ISDN Systems 30 (1998) 107–117

COMPUTER NETWORKS and ISDN SYSTEMS

The anatomy of a large-scale hypertextual Web search engine [1]

Sergey Brin [2], Lawrence Page [*,2]

Computer Science Department, Stanford University, Stanford, CA 94305, USA

Abstract

In this paper, we present Google, a prototype of a large-scale search engine which makes heavy use of the structure present in hypertext. Google is designed to crawl and index the Web efficiently and produce much more satisfying search

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Napster

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BitTorrent

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Dropbox

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Tor

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MapReduce, Hadoop, Spark

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Meteor, Derby, React

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Bolo

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World of Warcraft

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Snapchat

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Wi-Fi, LTE, SDN, BGP, MIMO, mesh-networking, full-duplex, medical devices, undersea, deep space...

This class

1. My goal: Help **you** realize a great project
2. Teams of 2–3
3. Two-page proposal by January 13
4. Present in last week of class
5. Writeup

Some ideas

1. Filesystem that stores everything in pings in flight
2. Solve the Emoji Crisis
3. sshfs, but keeps connection across change of IP address or loss of connection
4. ISP in the sky: share multiple connections
5. Connect to every node in the Bitcoin network and...

Also. . .

1. Reading group
2. Congestion-control "contest" (in February)
3. Office hours: Wed., 3–4 p.m., Gates 282
4. Questions on Piazza
5. I am here to help you!

Coding demo (sourdough)

Paper captains

Team discussions