PIC 40A

Lecture 2a: History of the internet and state of the web today

History of the internet

1950s - early 1960's

Networks isolated from each other
One main frame to which many terminals connected

1960 paper Man-Computer Symbiosis:

"A network of such [computers], connected to one another by wide-band communication lines [which provided] the functions of present-day libraries together with anticipated advances in information storage and retrieval and [other] symbiotic functions."
—J.C.R. Licklider

Licklider calls his invention the Intergalactic Computer Network .

History of the internet

DARPA Wanted to connect the big three networks: US Department of Defense main computers at Cheyenne Mountain, the Pentagon, and SAC HQ.

1962 DARPA hires Licklider

Packet switching is developed by Paul Baran of RAND and Donald Davies National Physical Laboratory UK

ARPANET

Robert Taylor and others at DARPA develope ARPANET

First two nodes of the ARPANET, UCLA's School of Engineering and Applied Science and Stanford were connected October 29th 1969

By December University of Utah and UCSB were added

By 1981 number of hosts had grown to 213

History of the internet

ARPANET was the technical core of the internet and primary tool in developing the techniques used.

There was little international collaboration on ARPANET due to political reasons

X.25 networks

x.25 was a different different packet switching standard from what ARPA used

It became the basis of international network system based initially in Britain called IPSS.

It's success was due to to it being open for businesses.

Early internet providers such as Compuserve, AOL and Prodigy used x.25

History of the internet

Too many different protocols being used on different networks

Something was needed to unify them

Robert Kahn of DARPA and Vinton Cerf solve the problem by creating TCP/IP

The word internet first appears in a technical paper describing TCP/IP in 1974

By 1979 ARPANET adopts TCP/IP as a standard to unify the internet

Even though there is initial resistance to TCP/IP on the X.25 networks by late 80s vast majority of networks are unified under TCP/IP

History of the internet

Early 80's ARPANET is being faced out and replaced by NASA, National Science Foundation and Department of Energy networks

By mid 90's large commercial backbones took over the main duties and Regional network access points (NAPs) became the primary interconnections between the many networks

Brief Timeline of the Web

Hypertext was widely used and regarded as important, but there weren't graphical programs or web browsers as we have today

1989 While working at CERN Tim Berners-Lee proposes a project to write a standardized marpkup language for hypertext which is now called HTML

1990 He writes the first web browsers which he calls WorldWideWeb

1993 Mosaic developed by Netscape

Brief Timeline of the Web

1996 Microsoft IE 3.0 released

1997 HTML 3.2 released (product of the Browser Wars)

1997 Microsoft IE 4.0 released
Netscape surrenders

1997 W3C takes over HTML

1999 W3C approves HTML 4.01 (latest version)

2000 XHTML 1.0 (W3C makes HTML markup syntax stricter using XML

2003 Web 2.0 coined by Dale Dougherty

The State of the web today

Web 1.0 vs Web 2.0

Web 1.0: "Brochure web" Informative, non-interacting web pages.

Think of a lecture. One person informing many others in a non-interacting manner.

Example: UCLA math website.

Web 2.0: Interactive, customizable, user created.

A conversation (More like a discussion section :)

Example: Facebook, wikipedia etc.

Philosophy of Web 2.0

Web 2.0 describes the recent trend of using the Web as a platform to create collaborative, community-based sites

Companies provide the platforms the user helps create, organize, share, rem critique, and update content using those platforms

Web 2.0 relies on

- **collective intelligence**
–a large diverse group of people will create smart ideas and robust software

- **collaborative filtering**
–users decide the importance or value of content and flag inappropriate or offensive content

- **user interaction and participation**

Reasons for Web 2.0 growth

- Technological advances

- Broadband Internet access

- Available Open Source Software

- Easy business models and monetization models

- Consumer demand

Examples of Web 2.0

Search engines
Content networks
User-generated content
Blogging
Social networking
Social Media
Tagging
Social bookmarking
Rich Internet Applications (RIA's)
Widgets, mashups, and Web services
RSS feeds