

A Brief History of the Web

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The Virtual Museum of Computing

<http://vmoc.museophile.sbu.ac.uk/>



Morse Telegraph Machine



Difference Engine

In the beginning was the CABLE...

- The Atlantic cable of 1858
- Instantaneous communications across the ocean for the first time!
- Comparable to "landing on the moon"
- Cables laid in 1866 remained in use for over 100 years.

1930's



Differential Analyzer (MIT)

The Colossus



Using RAM for the first time...



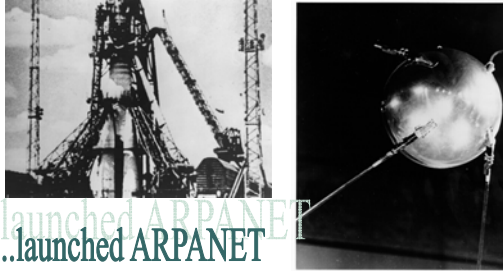
The Whirlwind (MIT)

The silicon chip is born! (1958)

- Compatible Time Sharing System (1961)



The launch of Sputnik I...



...launched ARPANET

1st WAN: Berkeley to MIT (1965)



Galactic Network concept by John Licklider

Internet as a tool...

- ...to create "critical mass" of intellectual resources.
- ...to facilitate communication among people with bringing them together in one physical location.

ARPANET-1969

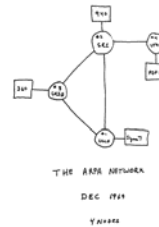


FIGURE 6.2 Drawing of 4 Node Network (Courtesy of Alex McKenzie)

IMPs
Interface message processors

This was a protocol to allow the computers to send and receive messages and data
UCLA, Stanford, UCSB, Utah

ARPANET, 1971 (23 Hosts)



MAP 4 September 1971

Electronic mail was born!

ARPANET GEOGRAPHIC MAP, OCTOBER 1980



--- SATELLITE CIRCUIT
 ○ IMP
 □ TIP
 ○ PLURIBUS IMP
 ○ PLURIBUS TIP
 ● CSB

NOTE: THIS MAP DOES NOT SHOW AMPA'S EXPERIMENTAL SATELLITE CONNECTIONS
 NAMES SHOWN ARE IMP NAMES, NOT NECESSARILY HOST NAMES

Four ground rules:

Each distinct network would have to stand on its own and no internal changes could be required to any such network to connect it to the Internet.

Communications would be on a best effort basis. If a packet didn't make it to the final destination, it would shortly be retransmitted from the source.

Black boxes would be used to connect the networks; these would later be called gateways and routers. There would be no information retained by the gateways about the individual flows of packets passing through them, thereby keeping them simple and avoiding complicated adaptation and recovery from various failure modes.

There would be no global control at the operations level.

Motivation: resource sharing

Very expensive machines could be shared among users across the country

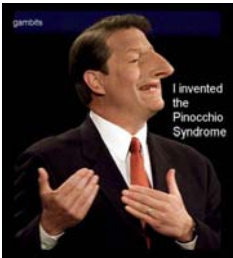
File Transfer Protocol (FTP)

Remote Login (Telnet)

Email

Key

Did you know...

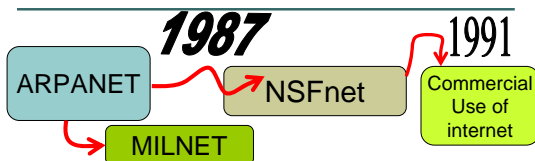


- Al Gore invented the internet!
- He told a CNN reporter in March of 1999

Some resources...

- <http://www.connected-earth.com>
- <http://www.isoc.org/internet/history/>
- <http://www.zakon.org/robert/internet/time line/>

By 1983...



By 1983, the ARPANET had become popular with universities. The military sites were worried about security, so the network was physically split in two with a few interconnection gateways.

Internet2 or vBNS

- Very high speed backbone network system
- Over 200 universities are participating
- SDSC: San Diego Supercomputer Ctr
- Faster, smarter, more reliable
- Video and multicasting

"We estimate that in three years, half the people using the Internet will not be using a PC. They'll be using it in kiosks, televisions, refrigerators, cell phones, and who knows what else."
Mike Nelson, IBM Director of Internet Technology 2001

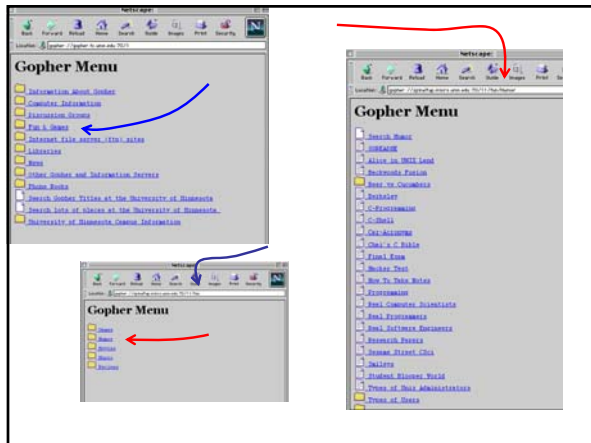
FTP: File Transport Protocol

- Program and protocol that allows a user to copy files/data from one computer to another over the network.
- Anonymous FTP sites
 - get programs or data from a site
- Command line syntax
- Difficult to transfer folders...
- Copy files before you can look at them

Gopher



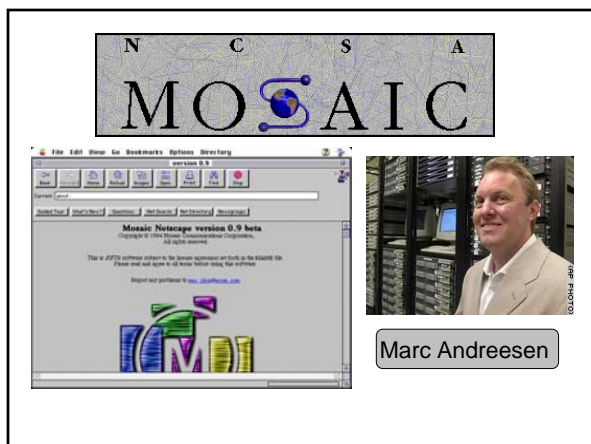
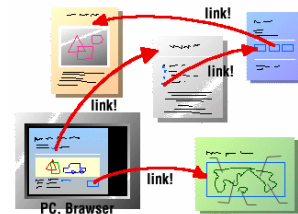
- Developed at University of Minnesota
- Allowed a gopher server to be linked to other gopher servers
- Creating a hierarchy of information
- First web of information and links
- Text based system (unformatted!)



HTML: Hyper Text Mark up Language

Tim Berners-Lee
CERN in
Switzerland

- Linked docs
- Certain words are hot spots that are linked to other documents



Creating docs and viewing docs

- W³ scheme: separation of the document creation software from the document viewing software.
- Single standard for web documents
- Browsers can be designed for any given hardware platform
- Helper Programs and Plug-ins

• <http://commons.internet2.edu/>

