

The History of the Internet



History of the Internet

The Problem

- Networking had complications
- Connections had to be direct
- Slow and tedious!
 - Very similar to Tyranny of Numbers problem



J.C.R. Licklider

- Computer scientist at the Department of Defense Advantage Research Projects Agency (DARPA)
- Worked on some of the earliest networked computers
 - One connected at MIT and the other at Santa Monica
 - Each one required a different terminal and commands



J.C.R. Licklider

Man-Computer Symbiosis

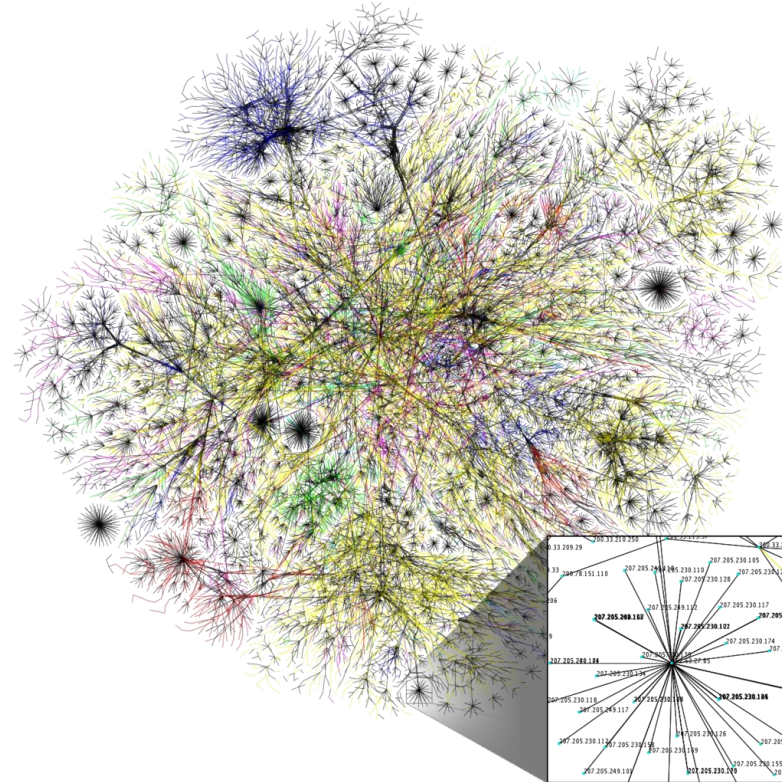
- *"A network of such [computers], connected to one another by wide-band communication lines [which provided] the functions of present-day libraries together with anticipated advances in information storage and retrieval and [other] symbiotic functions."*

– J.C.R. Licklider - 1962

[Man-Computer Symbiosis](#)

Intergalactic Computer Network

- Global network of computers
- Instantly access data and programs from any other computers



Leonard Kleinrock

- Major figure in the history of the internet from UCLA
- Packet switched network
 - Developed and proposed to the government





The First Internet Connection

First Post!

- October 29, 1969, the first message was transmitted across the newly created ARPANET
- Tried to transmit “login” but only got “lo” before it crashed

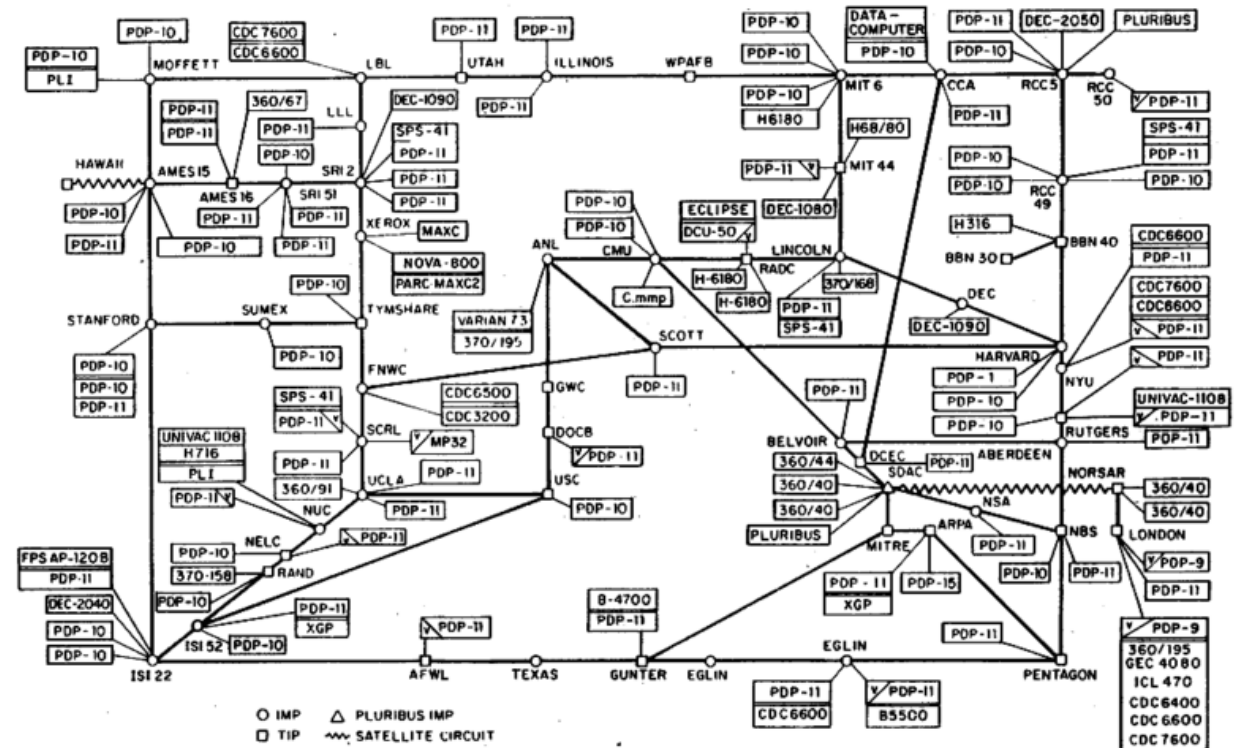
A handwritten log on a yellowed grid paper, likely a page from a notebook or a document. The log is written in blue ink and is organized into a table with four columns. The first column contains the date '29 OCT 69'. The second column contains the time '2100'. The third column contains the text 'LOADED OP. PROGRAM CSK' followed by 'E012 BEN BARKER' and 'BBW'. The fourth column contains 'CSK'. The second row of the table has the time '22:30' in the second column, 'talked to SRI' and 'host to host' in the third column, and 'CSK' in the fourth column. The third row of the table has 'Left op. program' and 'running after sending a host dead message to imp.' in the third column, and 'CSK' in the fourth column.

29 OCT 69	2100	LOADED OP. PROGRAM CSK E012 BEN BARKER BBW	CSK
	22:30	talked to SRI host to host	CSK
		Left op. program running after sending a host dead message to imp.	CSK

ARPANET

- Advance Research Projects Agency Network
- Packet switched network of four different sites
- Interface Message Processors (IMPs)
 - Precursor to the router

ARPANET LOGICAL MAP, MARCH 1977



(PLEASE NOTE THAT WHILE THIS MAP SHOWS THE MOST POPULATION OF THE NETWORK ACCORDING TO THE BEST INFORMATION OBTAINABLE, NO CLAIM CAN BE MADE FOR ITS ACCURACY)

NAMES SHOWN ARE IMP NAMES, NOT NECESSARILY) HOST NAMES

Lots of Networks

- ARPANET
- NPL
- Merit
- CYCLADES
- X.25 & Public Networks
- UUCP - Usenet

Unification

- Robert Kahn and Vinton Cerf, ARPANET engineers, began work to improve connections in 1973
- Revolutionary work awarded with the Presidential Medal of Freedom in 2005



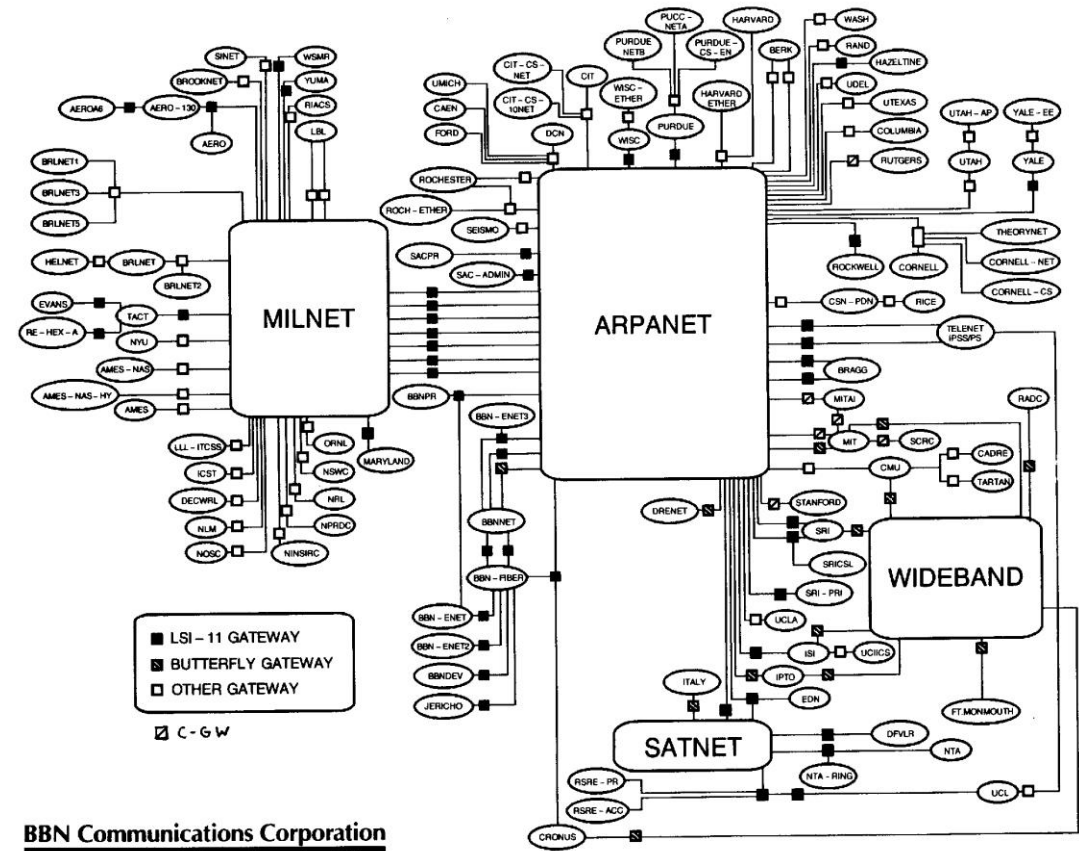
Birth of the Internet

Transmission Control Protocol (TCP)

- Small networks could talk via a common standard (or protocol)
- No single point of failure in a system
- Computers could acknowledge successful transmission or request a retransmittal of missing data
- Data transmission was tolerant of errors and lost data

Internet (1985)

- Most of the networked computers began using TCP by 1985
- Big push to bring more computers to the Internet
- Wasn't really much out there at the time..



The World Wide Web

- The NeXTCube 1990
 - First web server



Tim Berners-Lee

- Engineer at CERN in Europe
- 1984: How to create a better way to present information on the Internet?
- 1990: The first working versions of the core tech behind the internet



Early Browsers – Mosaic

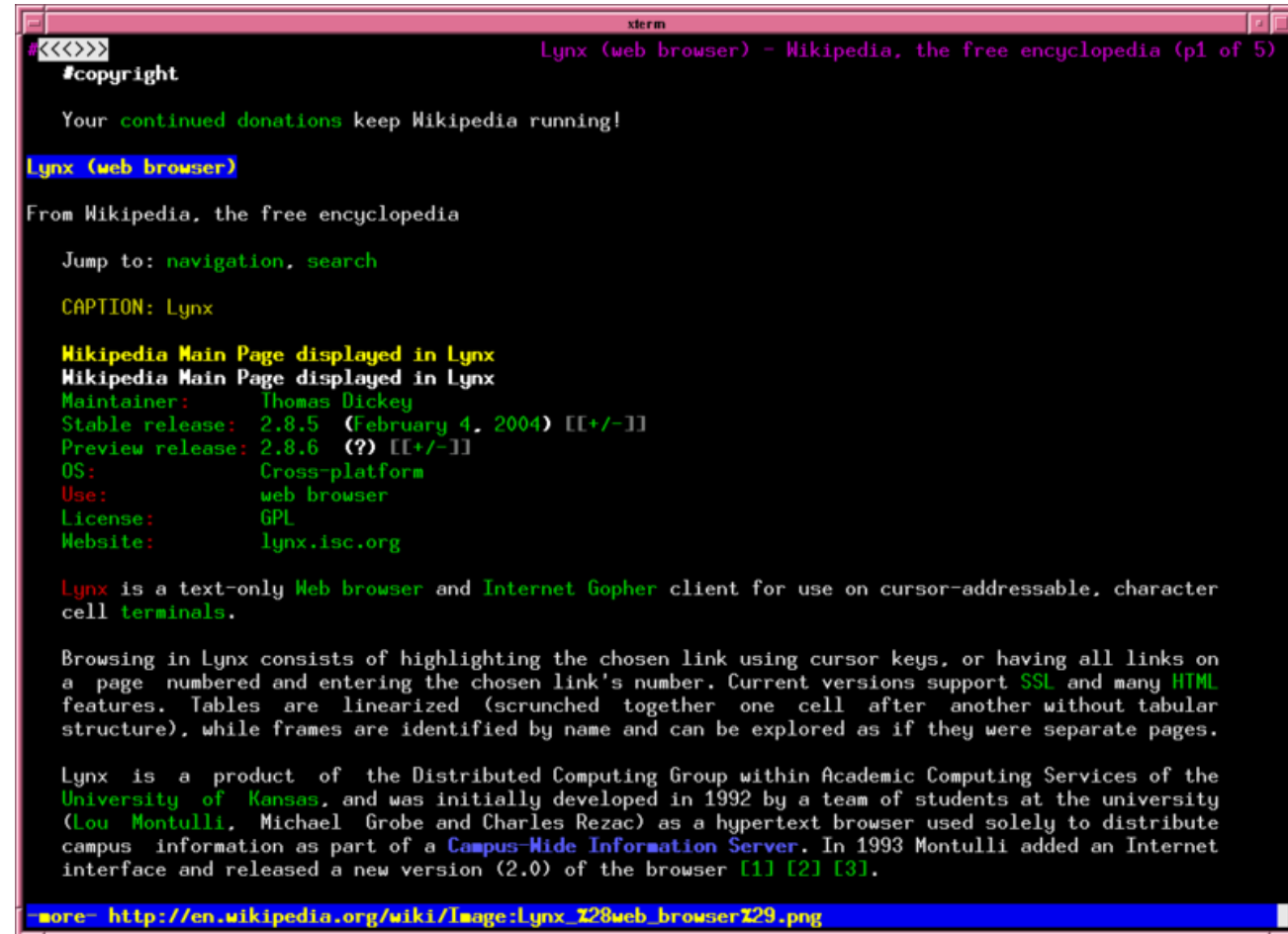
- Hypertext Transfer Protocol (HTTP)
- First webserver
 - First web browser
- These creations were called the World Wide Web



World Wide Web turns 25

Early Browsers – Lynx

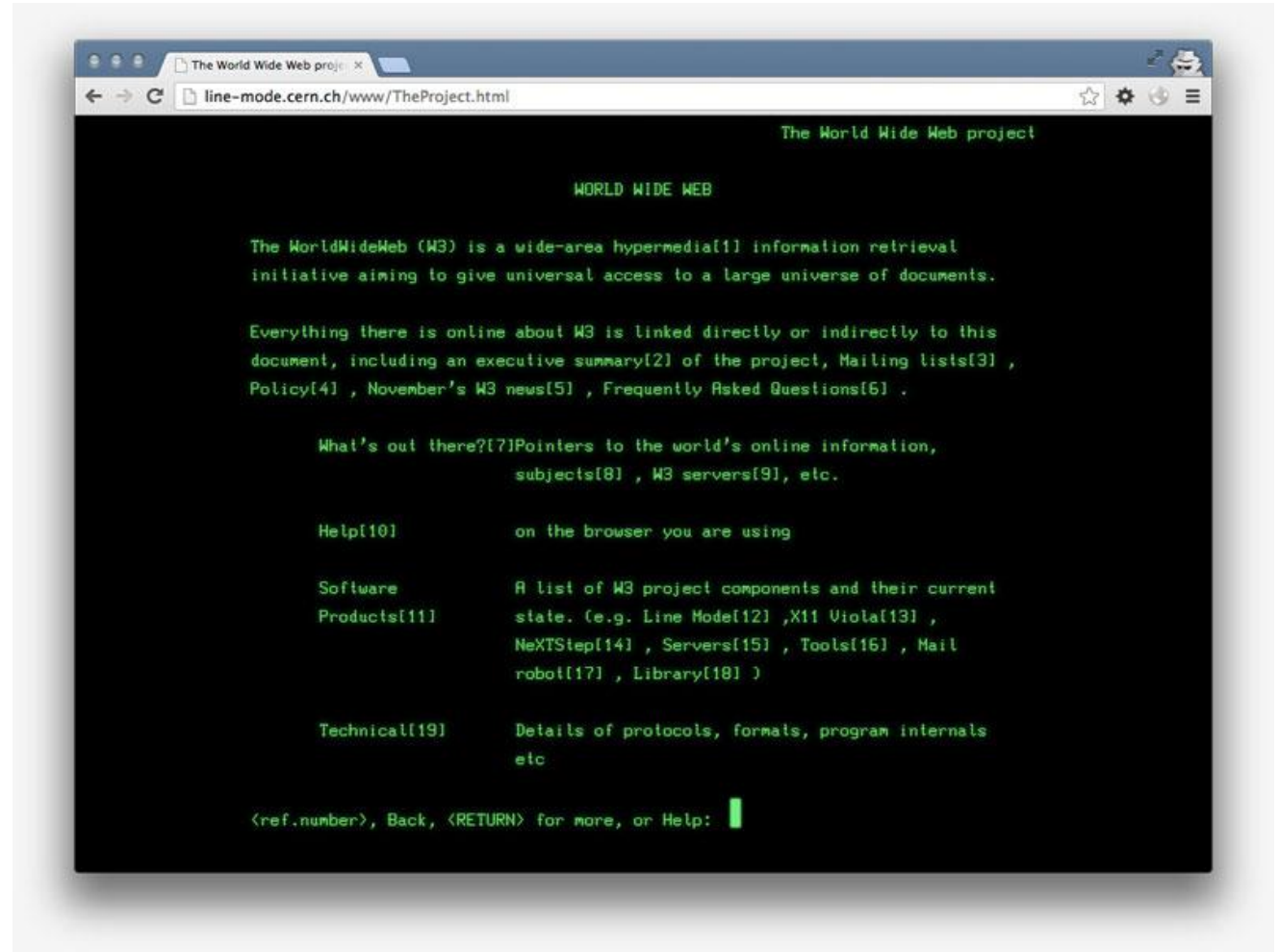
- Mosaic was one of the first browsers
 - Credited to bringing the web to a huge number of people
- Eventually became Netscape Navigator
 - Then sold to Mozilla
- Lynx was a popular text-based browser



```
xterm
#<<<>> Lynx (web browser) - Wikipedia, the free encyclopedia (p1 of 5)
#copyright
Your continued donations keep Wikipedia running!
Lynx (web browser)
From Wikipedia, the free encyclopedia
Jump to: navigation, search
CAPTION: Lynx
Wikipedia Main Page displayed in Lynx
Wikipedia Main Page displayed in Lynx
Maintainer: Thomas Dickey
Stable release: 2.8.5 (February 4, 2004) [[+/-]]
Preview release: 2.8.6 (?) [[+/-]]
OS: Cross-platform
Use: web browser
License: GPL
Website: lynx.isc.org
Lynx is a text-only Web browser and Internet Gopher client for use on cursor-addressable, character cell terminals.
Browsing in Lynx consists of highlighting the chosen link using cursor keys, or having all links on a page numbered and entering the chosen link's number. Current versions support SSL and many HTML features. Tables are linearized (scrunched together one cell after another without tabular structure), while frames are identified by name and can be explored as if they were separate pages.
Lynx is a product of the Distributed Computing Group within Academic Computing Services of the University of Kansas, and was initially developed in 1992 by a team of students at the university (Lou Montulli, Michael Grobe and Charles Rezac) as a hypertext browser used solely to distribute campus information as part of a Campus-Wide Information Server. In 1993 Montulli added an Internet interface and released a new version (2.0) of the browser [1] [2] [3].
more- http://en.wikipedia.org/wiki/Image:Lynx_228web_browser_229.png
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Early Browsers - Line Mode

- First widely used browser
- CERN brought it back for the 20th anniversary of the WWW

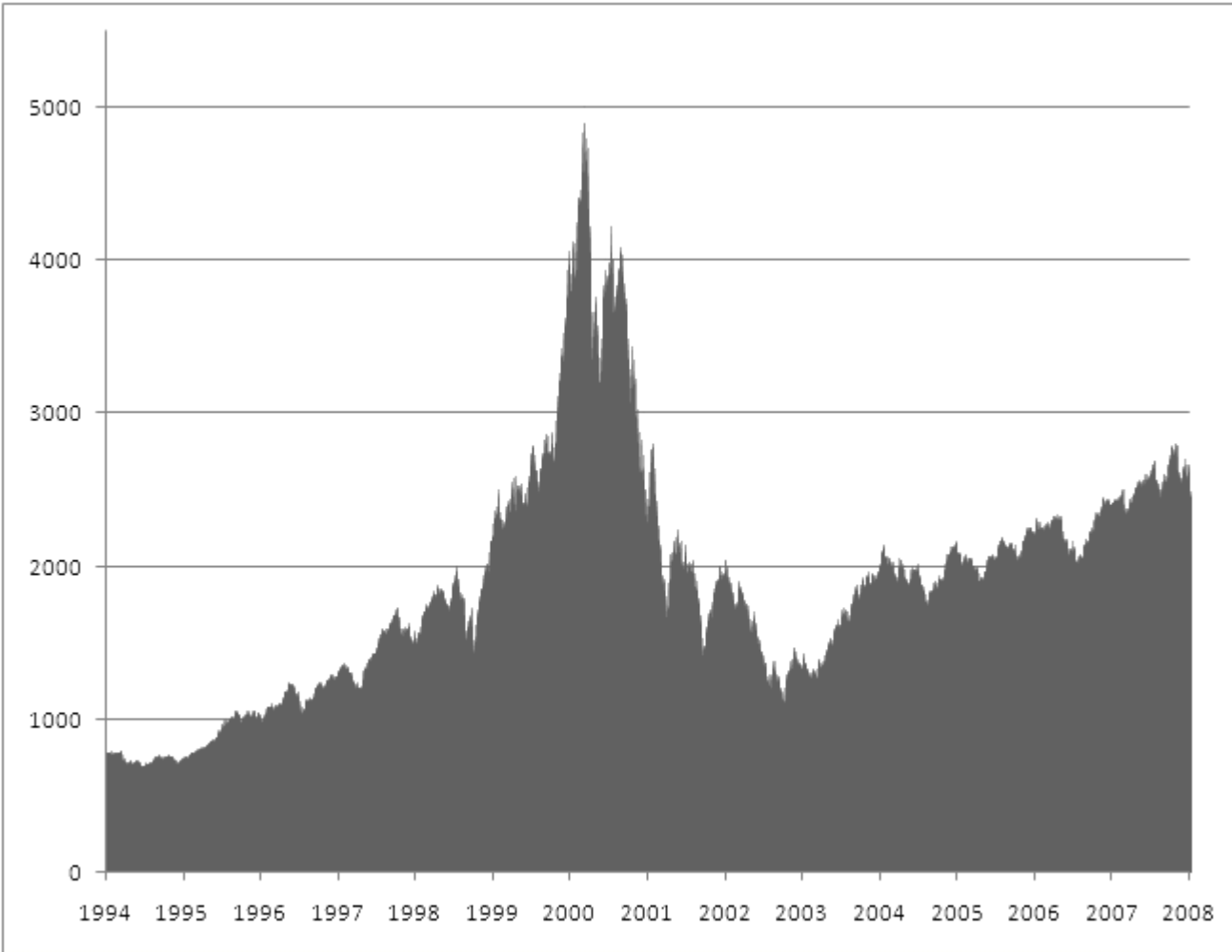


Commercial Web (1996 – 1999)

- '96 the web really took off
- Companies realized they could have a digital presence
- Early examples of these sites were TigerDirect and Apple computers



Dot-Com Boom (1999 – 2001)



- Internet ran into unprecedented growth from 1999-2001
- Businesses invested a lot into “the next big thing”
 - Didn’t work out as well as everyone thought

Dot-Com Bust

- **Infospace:** \$1,305/share in March 2000; \$2.67 by June 2002
- **The Learning Company:** Bought for \$3.5 billion in 1999; sold for \$27.3 million in 2000
- **Geocities:** Purchased by Yahoo for \$3.57 billion in 1999, closed 10 years later

The Internet Today

- Web 2.0 and Social Media
- Ubiquitous Internet Access
- Mobile Devices
- Rise of Search Engines

