A Short History of the Internet and Web
(Narrated)

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“We've all heard that a million monkeys banging on a million typewriters will eventually reproduce the entire works of Shakespeare. Now, thanks to the Internet, we know this is not true.”

- Robert Wilensky
• 1945 – Vannevar Bush writes about “memex”, a futuristic, automatic, personal library system

• 1960s – Advanced Research Projects Agency (ARPA) does research on “internetwork”, connecting small and large networks
1968 – Doug Engelbart demonstrates NLS, a hypertext system that uses a “mouse”

“The Demo”

http://technologyyyz.blogspot.com/2012/12/engelbart-mouse.html
• 1969 – **ARPANET** goes online with 4 nodes

Dec 1969 – June 1970

Dec 1970 – Sept 1971

Aug 1972 – June 1975

[Map of ARPANET growth from 1969 to 1975](http://www.mappingcyberspace.com/gallery/figure1_2.html)
• 1969 – **Request for Comments (RFC)** created for quickly disseminating ideas with other network researchers

**Telnet** allows user to login to a remote computer (**RFC 15**)

• 1971 – Ray Tomlinson sends **first e-mail** (sent to himself and probably read “QWERTYUIOP”)

**FTP** (File Transfer Protocol) allows files to be transferred between computers (**RFC 114**)
• 1981 – ARPANET (Internet) has 200 nodes

• 1982 – ARPANET standardizes its use of TCP/IP (Transmission Control Protocol / Internet Protocol) to send data packets across the network

• 1983 – Domain Name System (DNS) developed

• 1985 – NSFNET established, would later become major part of the Internet backbone

• 1986 – Over 10,000 nodes on ARPANET. US military portion of ARPANET splits off into MILNET (military-only network)
• 1988 – Over 100,000 nodes on Internet

• 1988 – **First Internet worm** by Robert Tappan Morris crashes 6% of servers on Internet

**IANA** established to oversee global IP address allocation (and other)

1990 – Tim Berners-Lee and others at CERN develop the **WorldWideWeb (WWW)**, HTML documents transmitted over the Internet by a web server to web browsers using URIs and HTTP (1\textsuperscript{st} web page online on Aug 6, 1991)

Images: [http://www.radford.edu/sjennings15/text.htm](http://www.radford.edu/sjennings15/text.htm)
• 1992 – **ViolaWWW** browser for UNIX

50 web servers

• 1993 – 500 web servers

**Mosaic** web browser – multi-platform and 1\textsuperscript{st} browser to display inline images, written by **Marc Andreesen**

• 1994 – 2,500 web servers

WWW Consortium (W3C) began

Netscape 1.0

Yahoo! Web directory started by Jerry Yang and David Filo
• 1995 – **Netscape 2.0** – Supported plug-ins, frames, Java applets, JavaScript
• 1995 - **Internet Explorer 1.0** released by Microsoft
• 1996 – Macromedia **Flash 1.0** (previously called FutureSplash Animator)

**Internet Archive** begins archiving the Web
• 1997 – HTML 4.0 de facto standard

Browser Wars I:
Netscape vs. IE

“Netscape 72, Microsoft 18”

Image: [http://home.snafu.de/tilman/mozilla/stomps.html](http://home.snafu.de/tilman/mozilla/stomps.html)
• 1998 – Network Solutions registers 2 millionth domain name

Emergence of <XML>

ICANN created to manage IP address space and DNS root zone
• 1998 – **Google** founded by Larry Page and Sergey Brin
• 2000 – **Napster** sued over music sharing

Web size estimates by NEC-RI and Inktomi surpass **1 billion indexable pages**.

**XHTML 1.0** recommended by W3C
• 2001 – Wikipedia: encyclopedia that can be edited by anyone

• 2002 – Blogs become popular

The Political Blogosphere and the 2004 U.S. Election by Adamic & Glance
• 2003 – **iTunes.com** and other legal Internet music downloading services appear. iTunes.com registers 25\textsuperscript{th} million song download in Dec ("Let It Snow! Let It Snow! Let It Snow!" by Frank Sinatra).
- 2003 – Security problems
  - SQL Slammer worm - largest and fastest spreading distributed denial of service (DDoS) attacks ever
  - Sobig.F virus - the fastest spreading virus ever
  - Blaster (MSBlast) worm – one of the most damaging worms ever

• 2004 – **MySpace** and **Facebook** popularize online social networks
• 2005 – **YouTube** founded by three former PayPal employees and sold to Google the next year for $1.65B

2006 – **Twitter** launches 140 character limit micro-blogging service

*Time Magazine*’s person of the year: **You**. Acknowledges significance of user-generated content (Web 2.0)
• 2007 – One of the first massive cyber attacks: Estonian websites attacked by Russian hackers after relocating the Bronze Solider of Tallinn monument

• 2008 – **Firefox 3** sets Guinness World Record for the “largest number of software downloads in 24 hours.” (8M downloads)

• 2008 – Google releases the **Chrome** web browser

• 2008 – W3C releases First Public Working Draft of HTML5 spec

• 2012 – ICANN reveals 1,410 new generic top-level domains (gTLDs) like .apple, .catholic, and .dad

• 2013 – Mobile devices account for 18% of all web page views (StatCounter)