

ICD 20

1.2



NETWORKING & THE INTERNET



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Networks

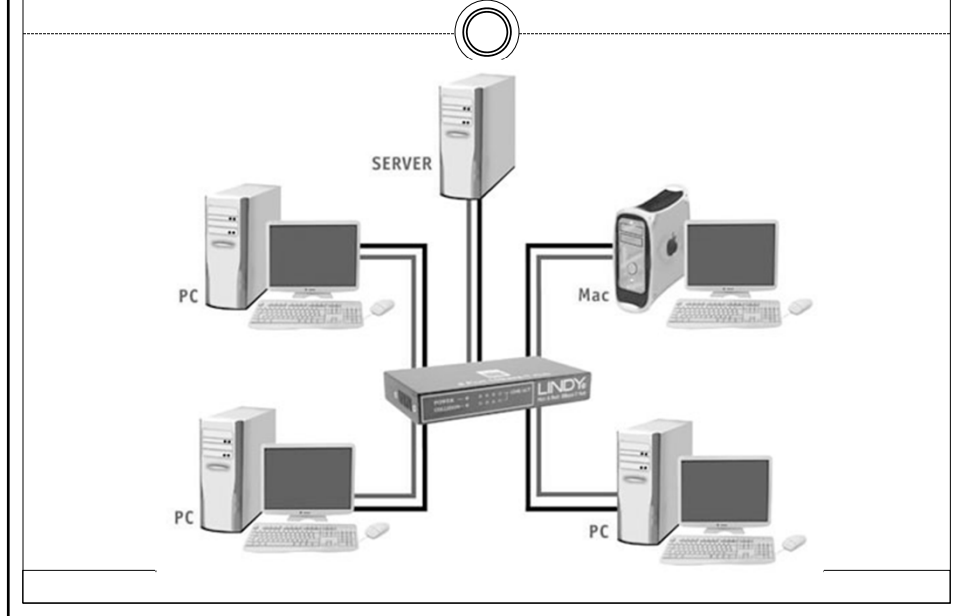


- What is computer networking?
 - The practice of linking two or more computing devices together for the purpose of sharing data.
- How to they connect?



2

Networks (cont.)



3

Components



4

Networks (cont.)



Area networks

- Local Area Network (LAN)
 - ✦ Typically the network at a single location (home, business, etc)
- Wide Area Network (WAN)
 - ✦ Typically a place where many LANs connect
 - ✦ The Internet is the world's largest WAN
- How are they communicating?
 - Computers communicate by sending individual parcels of data called 'packets'
 - These packets conform to certain protocols (think of having different languages...)

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Networking (cont.)



- The Internet Protocol (IP)
 - Works by having numeric addresses for all machines
 - Ex. 192.168.1.10
- In order to make good use of these numbers, we have servers that turn something
 www.google.ca into 216.58.194.35
- These are called Domain Name Servers (DNS)

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History of the Internet



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History of the Internet



- In 1966, Laurence G. Roberts went to DARPA (Defense Advanced Research Projects Agency) and started development on *ARPANET* (Advanced Research Projects Agency Network, US Department of Defence)
- ARPANET grew to become the Internet we know today



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History of the Internet (cont.)



- 1971: 15 nodes (23 hosts) all at US locations
- 1972: Ray Tomlinson modifies email program for use on ARPANET; it becomes a big hit
- 1973: First international connections to ARPANET (England and Norway)
- 1976: Elizabeth II sends email
- 1979: USENET (Newsgroups) established
- 1979: Scott Fahlman suggests use of emoticons, :-) and :-(



STILL NO WEB PAGE!

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History of the Internet (cont.)



- 1983: ARPANET split into ARPANET (civilian) and MILNET (military)
- 1983: Berkley UNIX Desktop OS includes IP networking software
- 1984: Domain Name System (DNS) introduced
- 1987: Number of hosts exceeds 10,000
- 1988: Morris Worm
- 1989: 100,000 hosts

<https://www.livescience.com/20727-internet-history.html>

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History of the Internet (cont.)



- 1990: ARPANET ceases to exist
- 1990: Tim Berners-Lee (CERN) invents HTTP and implements server and browser **(BOOM! Web pages)**
- 1993: *NCSA Mosaic* takes the Internet by storm
- 1996: Beginning of Browser Wars (Netscape vs. Microsoft)
- 1997: Google appears as a new search engine
- 1999: Napster popularizes peer-to-peer file sharing
- 2002: Weblogs (blogs) become popular

<https://www.livescience.com/20727-internet-history.html>

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History of the Internet (cont.)



- 2001: Napster is shut down.
- 2003: The SQL slammer virus spreads worldwide in under 10 mins.
- 2003: Myspace, Skype and Safari start up. WordPress blog platform is launched.
- 2004: Facebook goes online starting social networking era.
- 2004: Mozilla Firefox browser begins.
- 2005: YouTube.com launches. Reddit is also founded.
- 2006: Twitter launches.

<https://www.livescience.com/20727-internet-history.html>

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History of the Internet (cont.)

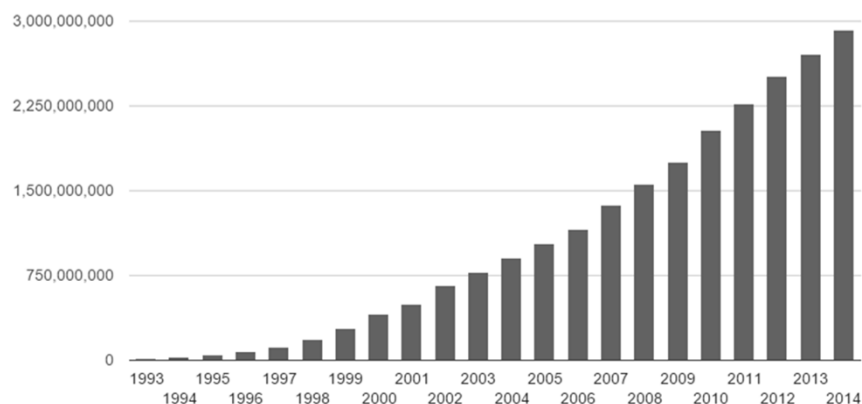


- 2009: The Internet marks its 40th anniversary.
- 2010: Facebook reaches 400 million active users.
- 2010: Pinterest and Instagram are launched.
- 2013: Fifty-one percent of U.S. adults report that they bank online.
- 2015: Instagram reaches 400 million users. Twitter reach 316 million users.
- 2016: Google unveils Google Assistant.

<https://www.livescience.com/20727-internet-history.html>

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Internet Usage over Time

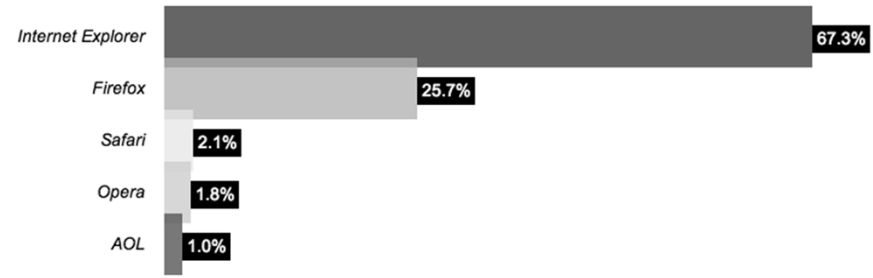


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Internet Browsers - 2007

Web Browser Market Share

[NEW: View Trends](#)

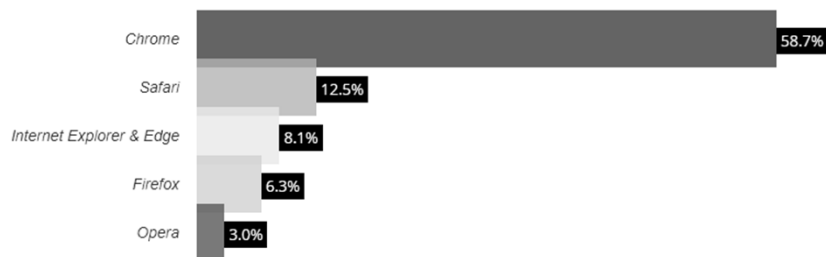


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Internet Browsers - 2019

Web Browser Market Share

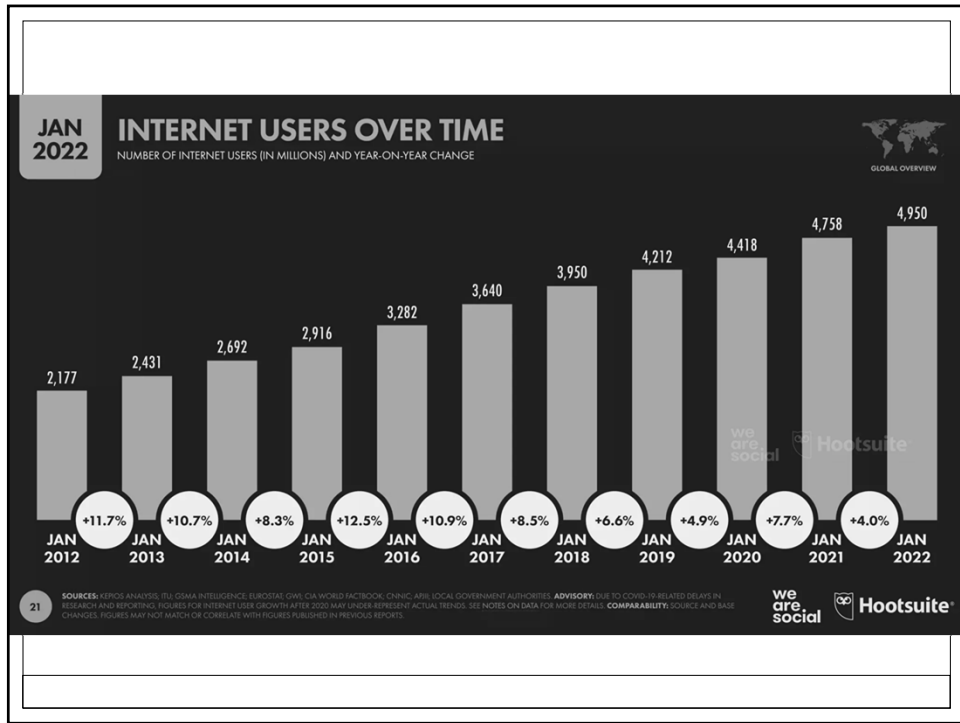
[View Monthly Trends](#)



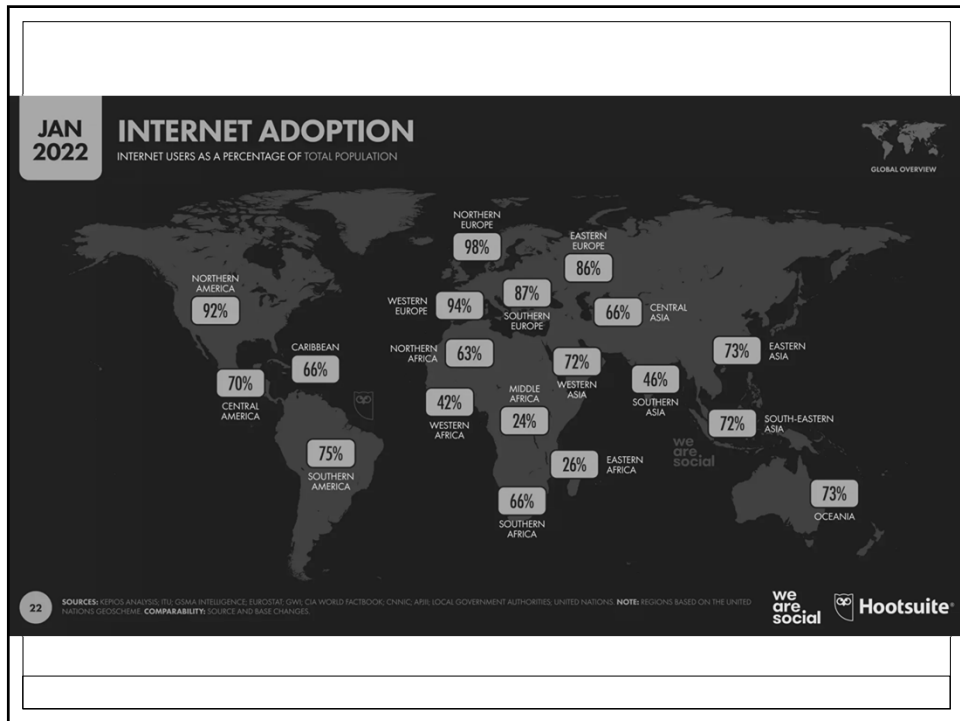
- Most widely-used Internet protocol: HTTP
- Most popular web browsers (Sept 2019)

<http://www.w3counter.com/globalstats.php>

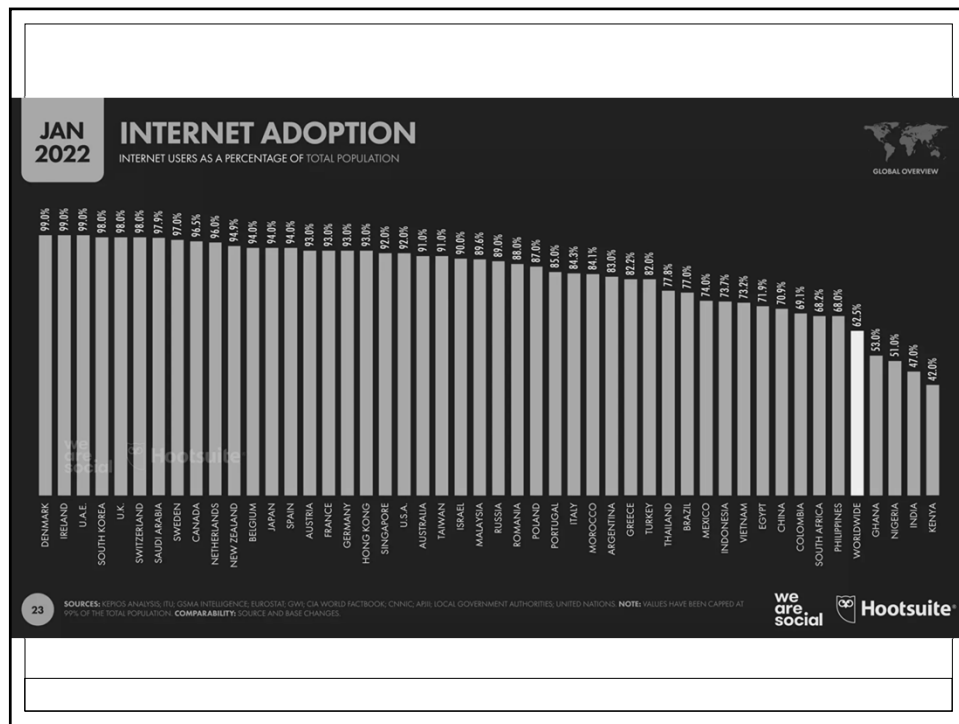
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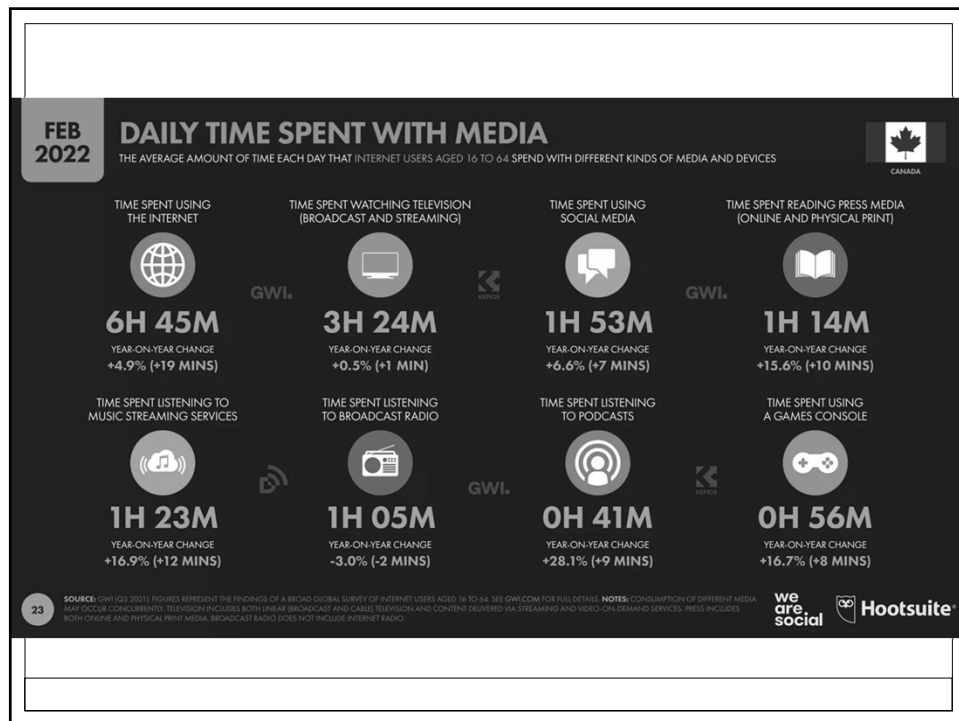
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Across the sea....



- It all started with telegraph cables in 1850...



<https://www.submarinecablemap.com/>