

History of Communication in Computer Networks

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Introduction

In the last 20 years, we have seen a massive commercialization of the Open Internet. A future of control in large part exercised by technologies of commerce backed by the rule of law (or at least what's left of the rule of law).

Historical review

Internet Services in the 1980s

- **Electronic Mail (1980)** - <https://www.ietf.org/list/>
 - Centralised Addressing
 - One-To-One, but identity of the recipient is known before message is sent
 - One-To-Many
 - 1980: Identifiable messages on The Internet
 - 2014: Still massively used
- **File Transfer Protocol (1980)** - <https://www.ietf.org/rfc/rfc959.txt>
 - Centralised Addressing
 - One-To-Many
 - File Sharing
 - 1980: Identifiable files on The Internet
 - 2014: Still used to uploading web pages to authenticated servers.
- **Usenet (1980)** - <https://tools.ietf.org/html/rfc850>
 - Centralised Addressing
 - Text Broadcasting
 - Subscriptions
 - 1980: Identifiable discussion groups on The Internet
 - 2014: Declining usage. Replaced by web-based groups / chat
- **Internet Relay Chat (1988)** - <https://www.ietf.org/rfc/rfc1459.txt>
 - Real-Time with Decentralised #Hashtag Addressing
 - One-To-Many Texting
 - Many-To-Many Texting
 - Channel Operator Privileges such as Topics, Banning, Kicking
 - Private Chat with Online users.
 - One-To-One File Sharing
 - 1988: Real time Texting between Text terminals on The Internet
 - 2014: Declining usage. Replaced by WWW/Instant Messaging

Public Internet in the 1990s

- **World Wide Web (1990)** - <http://www.w3.org/>
 - Real-Time & Offline with Decentralised URL and #Hashtag Addressing
 - One-To-Many Broadcasting
 - 1990: Graphical terminals on The Internet
 - 2017: Total usage, but reduced by proprietary apps
- **Instant Messaging (1995)** - https://en.wikipedia.org/wiki/Instant_messaging
 - Real-Time & Offline Communication with Central Addressing
 - One-To-One Text Comments and File Sharing with Registration
 - Friend Lists
 - Avatar photos
 - Resumable One-To-One File Sharing
 - 1995: Private chat with Emoticons
 - 2017: Still relevant (but replaced by Skype, Facebook and Google Hangouts)
- **Wiki Wiki Web (1996)** - <http://wiki.c2.com/>
 - Real-Time & Offline with Decentralised Page Addressing
 - One-To-Many Page Broadcasting
 - Many-To-Many Page Comments
 - 1996: Wiki-idea
 - 2017: Still relevant (Wikipedia)
- **Napster (1999)** - <http://www.napster.com/>
 - Real-Time Network with Decentralised Addressing
 - Peer-To-Peer File Sharing without registration
 - 1999: MPEG audio compression
 - 2017: Not relevant (replaced by Youtube and Spotify)

The Internet in the 2000s

- **MultiMedia Messaging Service (2000)** - <https://en.wikipedia.org/wiki/MMS>
 - Offline Network with Centralised Addressing
 - One-To-One
 - One-To-Many
 - 2001: Mobile phone cameras
 - 2017: Still relevant with GPRS
- **Bittorrent (2001)** - <http://www.bittorrent.com/>
 - Real-Time File Sharing Protocol, Decentralized Peer-To-Peer addressing
 - Peer-To-Peer Large File Sharing
 - 2001: High-Speed Internet. Always Online
 - 2017: Still relevant, used for sharing large files
- **Skype (2003)** - <http://www.skype.com/>
 - Real-Time Voice & Video Communication, Centralized Peer-To-Peer
 - One-To-One
 - One-To-Many
 - Peer-To-Peer
 - 2003: High-Speed Internet. Always Online. Voice and audio terminals
 - 2017: Not relevant. Pay service replaced by Google Hangouts/Facebook
- **LinkedIn (2003)** - <http://www.linkedin.com/>
 - Real-Time
 - Business Profile Templates with Text Search
 - Social Member Lists
 - Subscription Feeds
 - 2003: Social networking for business types
 - 2017: Still Relevant
- **Podcasting (2004)** - <https://soundcloud.com/for/podcasting>
 - One-To-Many Audio & Video Broadcast One-To-Many
 - Subscription Feeds
 - 2004: High-speed Internet. Mobile Audio Players connected to The Internet.
 - 2017: Still relevant
- **Facebook (2004)** - <http://www.facebook.com/>
 - Real-Time & Central Addressing
 - Social Graph
 - Real-Time & Offline with Textual Search on friend graph
 - One-To-Many Texting, Photo & Video Broadcasting
 - Subscription Feeds
 - Photo + Video Sharing
 - Real-Time & Offline Texting
 - Places: Geolocation checkin service
 - 2004: Friend lists and page profiles
 - 2017: Massive usage

- **Youtube (2005) - <http://www.youtube.com/>**
 - Real-Time & Offline Storage
 - One-To-Many Broadcasting
 - One-To-Many Text & Video Comments
 - Subscription Feeds
 - Text Search

2005: Video terminals connected to The Internet
2017: Total Usage
- **Google Talk/Hangouts (2005) - <http://hangouts.google.com/>**
 - Real-Time & Offline with Textual Search
 - One-To-One Texting, Voice, and Video
 - Text Search

2005: Free Texting & Voice Chat
2017: Still Relevant
- **Spotify (2006) - <http://www.spotify.com/>**
 - Real-Time & Offline Music Templates with centralised addressing space
 - Textual Search
 - Social Graph

2006: Largest legal music catalogue on smart mobile phones with Internet
2017: Total usage
- **Twitter (2006) - <http://www.twitter.com/>**
 - Real-Time Texting with Textual Search
 - Photo sharing
 - Decentralised #hashtag addressing
 - Subscription Feeds
 - One-To-One
 - One-To-Many

2010: Mobile Smart Phones
2017: Still very much used.
- **AirBnB (2008) - <http://www.airbnb.com/>**
 - Geolocation search for private housing

2008: Housing bubble in the U.S.
2017: World Wide usage
- **Uber (2009) - <http://www.uber.com/>**
 - Geolocation search for private transportation

2009: Smart Mobiles
2017: World Wide usage
- **Foursquare (2009) - <http://www.foursquare.com/>**
 - Real-Time Communication with decentralised addressing space
 - Geolocation Search

2009: Smart Mobile terminals with GPS
2017: Relevant for geolocation search

The Internet in the 2010s

- **Google Buzz (2010)** - <http://www.google.com/buzz/>
 - Real-Time Communication with decentralised addressing space
 - One-To-One
 - One-To-Many
 - Text Search
 - Subscription Feeds

2010: Sharing Geolocation on Mobile Terminals

2014: Service closed, replaced by Google+, Twitter, Facebook Chat

- **Google+ (2011)** - <http://plus.google.com/>
 - Avatar photos
 - One-To-One
 - One-To-Many
 - Subscription Feeds

2011: Friend Circles

2017: Still relevant