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**THE WEB**

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# **History of the Internet**

Before 1957, computers worked on one task at a time. With computers getting bigger and bigger, they had to be stored in special cool rooms. But then the developers couldn’t work directly on the computers anymore, specialists had to be called to connect the, this indirect connection to computers let to a lot of bugs. A remote connection had to be installed so that the developers could work directly on the computers. At the same time the idea of time-sharing came up, to share the processing power of one computer with multiple users.

In 1958, during the cold war, in order to secure America’s lead in technology the US founded the Defense Advanced Research Project Agency (DARPA). At that time Knowledge was only transferred by people. The DARPA planned a large-scale computer network in order to accelerate knowledge transfer and avoid the doubling up of already existing research; this network would become the ARPANET. Furthermore, three other concepts were to be developed, which are fundamental to the history of the internet: The concept of a military network by the Research and development (RAND) corporation in America, The commercial network of the National Physical Laboratory (NPL) in England and the scientific network, Cyclades, in France. The scientific, military and commercial approaches of these concepts are the foundations for our modern Internet.

The ARPANET’s development began in 1966. Universities were generally cautious about sharing their computers; therefore, small computers were put on front of the mainframe. This computer, the Internet Message Processor (IMP), took over control of the network activities while the mainframe was only in charge of the initialization of programs and data files. At the same time, the IMP also served as interface for the mainframe. Since only the IMPSs were interconnected in a network, this was also called the IMP-subnet. For the first connections between the computers, the Network Working Group developed the Network Control Protocol (NCP). Later on, the NCP was replaced by more efficient Transmission Control Protocol (TCP), the specific feature of the TCP is the verification of the file transfer.

Since the NPL network in England was designed on a commercial basis, a lot of users and file transfer were expected. In order to avoid congestion of the lines, the sent files were divided into smaller packets, which were put together again at the receiver; “Packet Switching” was born.

In 1962 American ferret aircrafts discovered middle and long-range missiles in Cuba, which were able to reach the United States; this stoked fear of an atomic conflict. At that time information systems had centralized network architecture. To avoid breakdown during an attack, decentralized network architecture had to be developed, which in case of loss of a node would still be operative.

Communication still used to work through radio waves that would have caused problems in case of an atomic attack: the ionosphere would be affected and the long-wave radio waves wouldn’t work anymore. Therefore, they had to use direct waves, which however don’t have a long range. A better solution was the model of a distributed network. Thus long distances could be covered with a minimum of interference, another milestone followed with the development of the French network “Cyclades”. Since Cyclades had a far smaller budget than Arpanet and thus also fewer nodes, the focus was laid on the communication with other networks. In this way the term “inter-net” was born. Moreover, Cyclades’ concept went further than ARPA’s and the NPL’s. During communication between sender and receiver the computers were not to intervene anymore, but simply serve as a transfer node. Cyclades’ protocol went through all machines using a physical layer that was implemented into the hardware, providing a direct connection with the receiver – an end-to-end structure.

Inspired by the Cyclades network and driven by the incompatibility between the networks, their connection gained importance everywhere. The phone companies developed X.25 protocol which enabled communication through their servers – on exchange for monthly basic charge. DARPA’s Transmission Control Protocol was to connect the computers through gateways and the International Organization for Standardization designed the Open System Interconnection (OSI) reference Model. The innovation of OSI was the attempt to standardize the network from its ends and the channel’s division into separate layers. Finally, the TCP assimilated the preferences of the OSI Reference Model and gave way to the TCP/IP protocol – a standard which guaranteed compatibility between networks and finally merged them, creating the Internet. By February 28, 1990 the ARPANET hardware was removed, but the Internet was up and running.

# **Observation of Popular Websites**

## Facebook

Facebook is an American online [social media](https://en.wikipedia.org/wiki/Social_media) and [social networking service](https://en.wikipedia.org/wiki/Social_networking_service) based in [Menlo Park, California](https://en.wikipedia.org/wiki/Menlo_Park,_California). Facebook was the start for many social media networks we have today. It has brought so many benefits such as connecting people all over the world, increasing possibilities of making money on the Internet, staying updated with latest news and information but it has also led to new problems like people creating fake Facebook profiles to stalk or spam people, time consumption, spreading fake news and loss of privacy.

Each registered user on Facebook has a personal profile that shows their posts and content. Facebook provides several ways to find friends: using the search engine to look for a specific person, pull contacts from a web-based email account or browse and join networks and search for people. News Feed appears on every user’s homepage and highlights information including profile changes, upcoming events and friends’ birthdays.

Throughout the years, Facebook has been improving and updating its website, likewise the number of active Facebook users kept increasing. When it first launched in 2004, Facebook was just a website for Harvard students, the login page had “Harvard University” written in it. By 2005, it was opening up to other schools. Since 2006, anyone who claims to be at least 13 years old has been allowed to become a registered user of Facebook. The Mini-feed was also born in 2006, which was basically a play-by-play of one’s Facebook activity. The "like" button, stylized as a "thumbs up" icon, was first enabled on February 9, 2009, and enabled users to easily interact with status updates, comments, photos and videos. In 2011, Facebook launched a whole new design: You could add a cover photo, and the ticker of your friends' Facebook happenings now stayed docked in the right-hand side. Now we come to 2020, in which the company continues to move forward and dominate the social networking field.

## YouTube

YouTube is an American [video-sharing](https://en.wikipedia.org/wiki/Video_hosting_service) [platform](https://en.wikipedia.org/wiki/Web_platform) headquartered in [San Bruno, California](https://en.wikipedia.org/wiki/San_Bruno,_California). It was created by three PayPal employees as a video-sharing website on February, 2005. YouTube allows users to upload, view, rate, favorites, share, flag, report, comment on [videos](https://en.wikipedia.org/wiki/Video), and [subscribe to other users](https://en.wikipedia.org/wiki/List_of_most-subscribed_YouTube_channels). Available content includes [video clips](https://en.wikipedia.org/wiki/Video_clip), [TV show](https://en.wikipedia.org/wiki/TV_show) clips, [music videos](https://en.wikipedia.org/wiki/Music_video), [short](https://en.wikipedia.org/wiki/Short_film) and [documentary](https://en.wikipedia.org/wiki/Documentary_film) films, audio recordings, [movie trailers](https://en.wikipedia.org/wiki/Trailer_(promotion)) and [live streams](https://en.wikipedia.org/wiki/Live_stream). By using the YouTube search engine, users can search for any type of video. It also has a feature that recommends videos based on videos the user’s watch history: the recommended videos appear in boxes along with their titles so people can easily choose videos they want. YouTube has allowed people to learn any kind of skill, share useful or entertaining videos and earn money by sharing videos.

The early homepage in 2005 had only five videos, a search box, and a bunch of video tags to explore. Features like full-screen video view, subscriptions, video ratings, and personalized user profiles were added throughout 2005 and 2006, leading to various design and usability changes to the site layout and video player. 2010 saw the introduction of native live streaming infrastructure. In August of 2015, YouTube announced that the video view count will better reflect more accurate numbers as views come in. YouTube continues to grow and entertain/help users by adding different features to the website.

## Wikipedia

Wikipedia is a free, open content online encyclopedia created through the collaborative effort of a community of users known as Wikipedians. Anyone registered on the site can create an article for publication; registration is not required to edit articles. Jimmy Wales and Larry Sanger co-founded Wikipedia as an offshoot of an earlier encyclopedia project, Nupedia, in January 2001. Originally, Wikipedia was created to provide content for Nupedia. However, as the wiki site became established it soon grew beyond the scope of the earlier project. As of January 2015, the website provided well over five million articles in English and more than that number in all other languages combined.

Criticisms of Wikipedia include assertions that its openness makes it unreliable. Because articles don't include bylines, authors aren't publicly accountable for what they write. Similarly, because anyone can edit any article, the site's entries are vulnerable to unprincipled edits.

Wikipedia is a great invention that enables people to save time. Moreover, Wikipedia has lots of advantages as well as disadvantages. Some advantages in one context may be a disadvantage in another, taking example of the website being easy to edit. It is good to be able to edit and add information but somehow the information may not be reliable.

## Twitter

Twitter is an American microblogging and social networking service on which users post and interact with messages known as “tweets”. As a social network, Twitter revolves around the principle of followers. When you choose to follow another Twitter user, that user's tweets appear in reverse chronological order on your main Twitter page. Tweets are publicly visible by default, but senders can restrict message delivery to only their followers.

Twitter was created in March 2006 and launched in July of that year. The service rapidly gained worldwide popularity. In 2012, more than 100 million users posted 340 million tweets a day, and the service handled an average of 1.6 billion [search queries](https://en.wikipedia.org/wiki/Web_search_query) per day. In 2013, it was one of the ten [most-visited websites](https://en.wikipedia.org/wiki/List_of_most_popular_websites) and has been described as "the SMS of the Internet". As of 2018, Twitter had more than 321 million monthly active users.

Twitter is a very simple social network because it allows individuals to be aware of everything that interests them, such as communities, celebrities or just people they know. However, twitter has disadvantages like False profiles, insults from people and spam on the network.

## Quora

Quora is an American [question and answer website](https://en.wikipedia.org/wiki/List_of_question-and-answer_websites) where questions are asked, answered, and edited by [Internet](https://en.wikipedia.org/wiki/Internet) [users](https://en.wikipedia.org/wiki/User_(computing)), either factually or in the form of opinions. The company was founded in June 2009, and the website was made available to the public for the first time on June 21, 2010. Users can collaborate by editing questions and suggesting edits to answers that have been submitted by other users.

Quora first became available to the public on June 21, 2010, and was praised for its interface and for the quality of the answers written by its users. Quora's user base increased quickly, and by late December 2010, the site was seeing spikes of visitors five to ten times its usual load. Until 2018, Quora did not show ads because ads can often be negative for user experience.

Quora is a great resource for providing its users not just with answers to their questions, but also an opportunity to network with other professionals.