

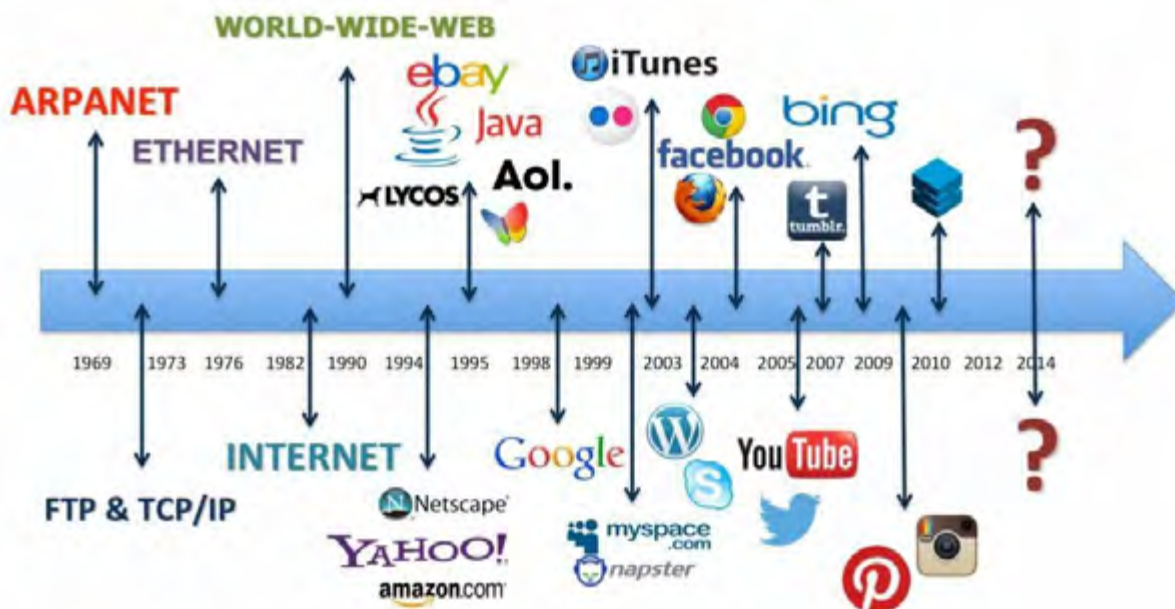


Fundamentals of the web

3.1 FUNDAMENTALS OF THE WEB

Since the 1990's we live in the information society. Now, information is crucial for the development of mankind and society. Web pages are an important source of information. To understand how web pages work, we have to clear up some basics.

First of all, suitable environment for sharing the web pages is the World Wide Web (WWW). WWW is an information space where documents, such as web pages are identified by the specific addresses. Simply, an address is a unique reference to a WWW resource that specifies its location on a computer network and a mechanism for retrieving it. An address of the web page is displayed in an address bar of the web browser.



With the usage of the Hypertext Transfer Protocol (HTTP), the web page is retrieved by a web browser from the remote server, which actually is the computer where the web page is stored. In principle, mentioned protocol transfers a computer file, usually written in HyperText Markup Language (HTML). This language allows describing the content, appearance, and behavior of the web page. This file is a web page really. Today, HTML code of contemporary web pages is support by other languages and technologies, but more on that later.

To navigate between web pages are used embedded hyperlinks. Multiple web pages with a common domain name, a common theme, or both, make up a website. To make the website accessible via the World Wide Web, a web hosting service is needed.

Until 1991, the Internet contains a tiny number of web pages, because it was restricted to use only for research and education in the sciences and engineering. Until the end of 1993, there were not any graphical web browser for computers with Mac or Windows operating systems, because the World Wide Web protocols had only just been written. An individual or company would need their own computer or server to host a website.

Considering these conditions, web hosting services began to offer to host users' websites on servers of these services, without the client needing to own the necessary equipment required to operate the website. So web hosts are companies that provide space on a server owned or leased for use by clients. These servers are connected to the Internet, typically in a data center of web Host Company.

We have to clear up a domain name idea, mentioned earlier. Domain names are easy to read and remember by the human addresses of servers, which contain web sites. Really, servers are clearly identified by their IP addresses (IP – Internet Protocol), but these addresses contain many numbers, so they are hard to remember by the human. Every time you enter some web page address, special servers, called Domain Name Servers (DNS) translate easy to understand domain names into hard to remember IP address. For example, instead of typing IP address 172.217.16.14, you can enter simply www.google.com.

As we mentioned earlier, HTML allow to describe the content, appearance and behavior of the web page, but today, the modern web pages is support by other technologies and languages. This idea allow to separate the structure, style and interactivity.

Generally, the structure and content of the web page is contained with HTML or XHTML (Extensible HyperText Markup Language).

The style and design of the web page is define in Cascading Style Sheets (CSS) files. The CSS file is a list of directives (rules) determining how the content of the selected element (or elements, defined in HTML or XHTML file) should be displayed by the web browser. In this way, we can describe all the concepts responsible for the presentation of elements of web documents, including the font family, text color, margins, distance between lines, or even the position of the element relative to other elements or the browser window. Using CSS files give us much more possibilities for positioning elements on the web page than we are able to do using the HTML or XHTML file only.



To create the interactivity on the web page, we should use JavaScript language (JS) or Flash or Silverlight technologies, but the last one is no more supported in contemporary web browsers, such as Google Chrome, Mozilla Firefox and Microsoft Edge.

The subject of the style and design is closely related with the audience. Different groups of recipients have different, specific ways of perception. The best designed web pages are easy to use, meet the objective of the publisher and meet the expectations of a user obviously. Before you design your website, you should take several considerations.

Firstly, think about your target group. For example, there are different expectations from the bank web page and web page with funny videos. A bank site provides a sense of stability, professionalism and safety. Navigation on this web page should be easy to follow, because older users probably have less technical skills. On the other hand, an entertainment web page with funny videos should contain links to social networking service, due to you can expect, that teenage audience will be your target group. The appearance of this page should be trendy and attractive.

Secondly, you should always remember, that your web page users are impatient. If the web page does not display within a few seconds, users will leave them. To improve user experiences on your web page, you should use images with optimized size for faster loading. Images should be used when they add value to the content of the web page. Long content should be separated into multiple pages. Then pages loads faster.

Thirdly, almost every new user these days wants a mobile version of their website. Mobile devices, as well as computer screens, have many different resolutions and sizes. Creating a website version for each screen resolution and the new mobile device would be impossible, or at least impractical. Very useful and common solution to this problem is the responsive web design. This approach suggests that design and development should respond to the user's behavior and environmental conditions such as screen size, resolution, platform and orientation (portrait or landscape). As the user switches from their MacBook to iPhone, the website should automatically switch to accommodate for size, resolution, and orientation. In the other words, the web page should automatically respond to the changes and user preferences.