

Comenius University in Bratislava  
Faculty of Mathematics, Physics and Informatics

# **Modern Development of Web Applications**

Lukáš Zdechovan  
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Applied Informatics

## Abstract

The paper presents new methods of creating interactive web applications, how they are created, how they look like and for which purposes these modern web applications could be used.

In the first part I show you a few examples of new interactive web applications and explain their advantages compared to the old-fashioned webs. Then you can read more about the technologies and methods which were used to create these applications.

The second part discusses designing modern web sites. It is not only about the best graphics and fascinating animations. Good design means much more. The structure and semantics of the documents are very important as well. Moreover, they have to be easy to use and in addition they should be accessible for handicapped people.

Finally, I will focus more on the **Accessibility** and explain how accessibly designed web sites are helpful for our blind or other way handicapped fellow citizens.

## Ajax: A new Approach to Web Applications

The Internet has rapidly changed in the last few years and it is still improving. Lots of cool, innovative internet projects are being launched nowadays.

<sup>1</sup>Despite this, Web interaction designers can't help but feel a little envious of our colleagues who create desktop software. Desktop applications have a richness and responsiveness that has seemed out of reach on the Web. The same simplicity that enabled the Web's rapid proliferation also creates a gap between the experiences we can provide and the experiences users can get from a desktop application.

Courageous idea of many web developers (including me) was to close that gap as much as possible. Take a look at *Google Suggest* or *Seznam.cz*. Watch the way the suggested terms update as you type, almost instantly. Now look at incredible *Google Maps*. Zoom in, use your cursor to grab the map and scroll around a bit. Again, everything happens almost instantly, with no waiting for pages to reload makes you feel like working with desktop application.

Google Suggest, Seznam.cz and Google Maps are three examples of a new approach to web applications that is called Ajax. The name is an acronym for **A**synchronous JavaScript and **X**ML.

JavaScript is a programming language used for creating scripts that make web objects dynamic and interactive. In addition, it provides asynchronous data retrieval using XMLHttpRequest object via HTTP protocol. Final data are presented by XHTML (structure and content) and CSS (style).

<sup>1</sup>The classic web application model works like this: Most user actions in the interface trigger a HTTP request back to a web server. The server does some processing — retrieving data, crunching numbers, etc. — and then returns an HTML page to the client.

This model does not make much for a great user experience. While the server is processing data and generating output, the user is waiting. And at every step in a task, the user waits some more. This is one of the main reasons why people prefer desktop applications where actions are done immediately. However, web applications have one very strong advantage. They do not have to be installed on the user's computer. In lots of big companies **intranet web applications** are implemented and so what all employees need is only a computer connected to the local network. You do not have to install any software or updates.

So as I have already mentioned before, the biggest disadvantage of web applications is waiting for response after every demand and loading the whole web page again. Fortunately, Ajax opens a way how to avoid that.

<sup>1</sup>Instead of loading a webpage, at the start of the session, the browser loads a hidden Ajax engine — written in JavaScript. This engine is responsible for both rendering the interface the user sees and communicating with the server on the user's behalf. The Ajax engine allows the user's interaction with the application to happen asynchronously — independent of communication with the server. So the user is never staring at a blank browser window and an hourglass icon, waiting around for the server to do something.

Google discovered the power of Ajax and is making a huge investment in developing the Ajax approach. All the newest Google products are Ajax applications and majority of web developers around the world have started using it for developing their applications.

## The Design and Accessibility

Design is another important part of developing web applications. There were so many web sites full up with insignificant graphics. Blinking and glowing animations, headers, menus, everything made by pictures... a typical web site looked like this many years ago.

<sup>2</sup>A few designers started to put more attention to **the structure and semantics** of the content later. Furthermore a new idea of separating style from content appeared 7 years ago. It had lots of opponents who thought it is at the expense of the final design. But this approach to web design brought many benefits. One person (a coder) can major in programming code and site structure. Another one (a designer) can make 3 different designs for that one code (structure + content, etc.). And in if the project is rather important a SEO (Search-engine optimization), usability and accessibility consultant is asked to optimize the whole final design.

<sup>3</sup>For disabled (physically, blind, etc.) people even a simple administrative action is a battle for hours. They have often problems when getting to magistracy or a shopping centre. As a result, lots of governments around the world started to modernize their web portals in order to facilitate the process of searching for information or communication. Blind people have special **readers** that can read the whole web page. However, the web have to be accessibly designed so the blind visitor could recognize what is a header, a navigation, paragraphs of text and he should be able to read descriptions of pictures instead of see it, as well.

All things considered, I must confirm that lots of work in the area of web development has already been done. On the other hand there is still a large number of things that should be solved.

## References

<sup>1</sup> Ajax: A New Approach to Web Applications, Jesse James Garret, <http://www.adaptivepath.com/>

<sup>2</sup> Separation Anxiety: The Myth of the Separation of Style from Content, Bob Stein, <http://www.alistapart.com/>

<sup>3</sup> Accessibility: the Politics of Design, Alan Herrell, <http://www.alistapart.com/>