

Mobile HTML5: Implementing a Responsive Cross-Platform Application

The topic of the thesis will be HTML5 as an application platform for mobile and other devices. HTML5 and related APIs and modern browser functionality will be assessed as a cross-platform solution compared to developing applications with each platform's native tools.

Smartphones have become a commodity in the last few years and therefore several platforms have gained significant share of the mobile phone market. A cross-platform solution is needed to reach all potential users of a service, and building a native application for each platform is very expensive. Furthermore, new platforms and form factors such as tablets or TVs also become possible targets of the service.

The only common factor between different devices and platforms is the browser. Technologies used in web applications are well known and there are lots of developers around the world who are familiar in those technologies. Also, new browser APIs are being deployed to help build personal and contextual applications that match native ones in functionality, user experience, and performance.

Still, these browser based APIs and technologies are still somewhat new, and performance and technology support varies between platforms and devices. The thesis will investigate the available APIs and their performance in modern smartphone platforms. The work will investigate especially the performance of the technologies compared to native applications and also touch the subject of hybrid applications with some parts built with web technology and others with native technologies.

The goal is to define areas where web technologies perform well and areas where native code is needed. Differences between platforms are assessed keeping in mind the big promises of HTML5 as a cost-efficient, cross-platform solution for modern applications.

The thesis will also present a modern architecture and useful tools for mobile web applications. Design considerations and possible compromises are also investigated in addition to best practices for high quality applications that can handle slow and flaky mobile networks and expensive data transfer rates.