Thesis plan

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0 Introduction

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.

1 Example application

Qt Developer Days mobile web application (http://m.qtdevdays2011.qt.nokia.com/) is used as an example application. The app was developed by the author and it was used in two conferences: Dev Days Munich and Dev

Days San Francisco.

The application is built specifically for modern smartphones and tablets and it uses several of the latest HTML5 APIs.

2 Example library

JSONCache (http://kpuputti.github.com/JSONCache/) is a Javascript library to help data transfer in bad networks. The library uses HTML5 APIs to cache data and tries to download the data using several attempts to help dealing with short interruptions that occur often in mobile networks. The library was also developed by the author.

3 Work plan

The practical application was done in September/October 2011. Articles have been gathered in November and December and the writing will be started as soon as possible. January and February are used for full-time writing work. The goal is to finish writing the thesis in February.

Experienced tutoring and support is provided by experts at Futurice. Prof. Petri Vuorimaa from Aalto University will be the supervisor or the work.