SoundBoom: Breaking App Barriers

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Abstract. Cross-platform application development is a rapidly increasing area of research. SoundBoom is a mobile application created using innovative cross-platform development techniques. SoundBoom provides a unique ability to create a custom soundboard on a device, utilising the device capabilities such as the camera and microphone. Subsequently, the soundboard assets can be uploaded to the cloud. These assets can populate the SoundBoom app on another device, potentially on a different platform, via the cloud using web services. This population of a native app with dynamic content from the cloud is the first step towards on-device application creation.

Keywords: Mobile applications, app creation, cloud, web services, cross-platform, HTML5.

1 Introduction

Increasing smartphone sales are helping the development of a mobile apps culture [1]. With over 10.9 billion applications (app) downloads occurring in 2010 alone [2], the 'apps culture' is just beginning and is expected to peak in 2014 [2] with 76.9 billion downloads. This anticipated rapid increase in demand for mobile apps has associated issues. One of the biggest problems for both the end-user and mobile application developer is the ability to access the same application on different devices and platforms. This is a well-known issue [3] and usually requires the development of an app for each platform. Ideally, an application should be available on many platforms/devices; however, developing the same application for multiple platforms is not a trivial task. The ultimate goal is to write an application once and deploy to any mobile screen. The closest solutions currently available are collectively known as cross-platform approaches. These approaches rely on web-based technologies [4], [5] or known languages [6], [7], which produce hybrid or native cross-compiled applications. There are limitations of these approaches, especially regarding rich-media content and deploying to multiple platforms. Most approaches are capable of producing mobile applications for a subset of mobile platforms. The SoundBoom project was created to test the limits of cross-platform techniques, which are proprietary to JamPot Technologies Limited, and in the process break some of the app development barriers.

J.Y. Zhang et al. (Eds.): MobiCASE 2011, LNICST 95, pp. 345–348, 2012.

2 SoundBoom

The SoundBoom application [8], [9], [10], [11], [12] was created to test cross-platform technologies when producing a media-rich application. The aim of the project was to produce an application that:

- Works consistently on as many platforms/devices as possible and has been produced from the same code.
- Enables users to create dynamic content using device capabilities (camera and microphone), which can be viewed on a different device within seconds. The assets can be shared via the cloud and downloaded to a different device on a potentially different platform.

The SoundBoom application meets these requirements by providing:

- A soundboard that plays a sound when each image icon is clicked.
- A means of creating a custom soundboard using the device capabilities (camera, microphone and asset library).
- The ability to save a custom soundboard to the cloud via web services with a unique PIN.
- The option to download a custom soundboard from the cloud using a unique PIN.

The SoundBoom application works on the following platforms:

- iOS
- Android
- BlackBerry Playbook
- MeeGo
- Samsung Smart TV
- WeTab
- Mac OS X
- Windows (XP, Vista, 7)

3 SoundBoom Demonstration

The demonstration will consist of presenting the SoundBoom application on a variety of devices: iPhone; iPad; Android mobile phone; Android tablet; BlackBerry Playbook; MeeGo tablet; WeTab; Mac OS X; Windows. The demo will proceed as follows:

- A custom soundboard will be created on one of the devices using pictures taken and sounds created at the demo.
- The assets will be uploaded to the cloud from the device.
- The assets will be downloaded from the cloud to all the other devices. This whole process will take less than a minute.

- A participant will be invited to choose any of the devices, which will have the newly made custom soundboard and asked to change one of the items (both sound and audio) and upload it to the cloud.
- The changes made on the one device will be populated to other devices within seconds.

The demo highlights the power of a cross-compiled application that can interact with the cloud as a means of uploading and downloading content.

3.1 Wider Audience Participation

To encourage participation, the audience will be provided with information on how to download SoundBoom from the app stores to the their personal devices. SoundBoom will be free for the duration of the conference, where possible. Users will be provided with a PIN to download JamPot's custom soundboard – uploading will be disabled on this PIN. Up to 50 participants will be provided with a unique PIN, which permits write access to the JamPot cloud to store custom soundboards. Each PIN will allow 3 uploads (saves) and unlimited downloads.

3.2 Equipment

JamPot will provide all technical equipment. A stand or table is required to display all the devices. A Wi-Fi connection is required to enable the devices to connect to the cloud via web services.

3.3 HTML5 SoundBoom

As part of an experimental project, a read-only (download only) version of SoundBoom was created in HTML5. The web address to the HTML5 version of SoundBoom will be provided to the users. The PINs that work on the native application will also work on the HTML5 version.

4 Conclusion

The creation of SoundBoom is the result of a novel approach to the development of cross-platform mobile applications. The biggest technological advance in SoundBoom is the proof of concept that application assets created on one device can easily populate a different device on a different platform, via the cloud, in real-time. This addresses the issue identified by Gartner in May 2011[3].

"Every time a user downloads a native app to their smartphone or puts their data into a platform's cloud service, they are committing to a particular ecosystem and reducing the chances of switching to a new platform"

A user no longer has to commit to a specific platform or ecosystem using this approach. SoundBoom is the first step in a much bigger project aimed at making cross-platform app creation possible. The ultimate goal is to create an on-device app-builder aimed at non-technical users.

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