A Study On New Standard For Interactive Web And Mobile Platforms

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*Abstract-***As the development and mature of web as well as mobile, more and more companies start to focus on developing not only interactive web but also mobile platforms. This is a great market. Many popular applications have been developed by applying some new web technologies. But development of dynamic web as well as mobile applications is still has many problems because of its content, experience effect and operation. In order to meet the increasingly huge demand of interactive web and mobile application development, this paper mainly discusses how to improve the experience effect of dynamic web page as well as mobile development and optimize system architecture, database and cache by applying HTML5 technology. The paper provides information how make interactive and dynamic web page and Mobile development faster and more stably, and extend to other platforms, such as mobile internet tools.**

Keywords—HTML5, Browser Support , Firefox os, Mobile OS

I. HTML 5 AN OVERVIEW

HTML5 is simply a set of new features made available for developing web applications, adding to the existing capabilities we find in HTML4. It is particularly designed to improve the language with much better support for multimedia and server communication, making a web developer's job much easier.

HTML5 is not a new version of HTML4 in comparison to when new software versions are released. It comprises an entire set of small additions to the existing web standard; currently each browser implements some but not all of these features. Eventually though we expect all browsers to have a similar set of features, which means there is no such thing as being "HTML5 compliant."

A) Future RIA is HTML5
HTML5 is the W3C's next major revision to HTML, which it started developing in 2004. HTML5 is not some new language or development tool. It is just HTML with an extended layer of standardized tags and attributes.

Next generation of cloud applications is going to be RIA based, incorporating the interactivity and responsiveness we expect from a desktop application. Future of RIA isn't going to be built around proprietary technologies like Flex or Silverlight but rather on the about open standards - HTML5 and JavaScript.
To be more specific, it's going to be HTML5/JavaScript/CSS3. We have already witnessed strong endorsement from leaders like Apple, Google, Facebook, and Microsoft.
It is also obvious from Adobe's recent initiative towards HTML5 related tools (Adobe Wallaby pre-release) that they understand the change coming in the Rich Internet Applications (RIA) space.
As a pioneer of the RIA movement, Adobe created the right awareness and tools around it. Microsoft and Sun followed this path and created their own tools to grab the RIA market share (Silverlight/JavaFx)

B) 2D Canvas Animation API
<canvas> New canvas functionality and JavaScript 2D canvas API allow two dimensional drawing, graphics and animations. With this enhancement,cross-platform games become possible for mobile browsers.

C) Web Storage
Web Storage provides a way for websites to store information on your computer and retrieve it later.
localStorage - stores data with no time limit session Storage - stores data for one session Similar to cookies, but it's designed for larger quantities of information. Cookies are limited in size, and your

Browser sends them back to the web server every time it requests a new page (which takes extra time and precious bandwidth). HTML5 Storage stays on your computer, and websites can access it with JavaScript after the page is loaded.

D) Web Database
Web SQL Database API is a specification which covers storing and accessing data through SQL. It allows Web pages to contain code that interacts with an embedded client database, which is useful for applications wanting to store data locally or for off-line browsing. For example, phonebook contact information and preloading of data in preparation for 'off-line' mode are all easily within reach.

E) Web Workers
Web Workers are basically a API specification that lets you create background JavaScript threads to process CPU intensive tasks. Normally in browsers a single thread is created to handle all the JavaScript code.So whatever JavaScript code is run in the browser, all of them is executed in one single thread; whether you are doing some calculation or updating page elements.

F) Web Sockets
Web Sockets is a technique for two-way communication over one (TCP) socket, a type of PUSH technology. Web sockets can replace longpolling. This is an interesting concept; the client sends a request to the server – now rather than the server responding with data it may not have, it essentially keeps the connection open until the fresh, up-to-date data is ready to be sent – the client next receives this, and sends another request.

G) Offline Access (AppCache)
HTML5 introduces new methods for enabling a web site or web application to function without a network connection.Using the cache interface gives your application advantages of using cache for Offline browsing, Higher speed, Reduced server load etc.

H) GeoLocation
GeoLocation API makes the mobile device's geographic location available to a Web app. In the past, obtaining device

location was only possible using proprietary JavaScript extensions or server-side integration via mobile operator API.

I) Drag and Drop

HTML5 comes with a Drag and Drop (DnD) API that brings native DnDsupport to the browser, making it much easier to support on devices suchas mobile phones.This includes dragging of content and files from outside the browser, e.g. drag and drop to upload files or photos.

II. HTML5 AND ITS WEB SUPPORT

Mobile Web development is a hotspot for HTML5 apps. A recent McKinsey report highlighted that more than 50% of all mobile apps will move to new HTML5 standards within 3-5 years. Already 46% of videos available online can be viewed via HTML5 instead of Flash. According to ABI research, "By 2016, more than 2.1 billion mobile devices will have HTML5 browsers, up from just 109 million in 2010". WebKit-powered browsers have the least market share on the desktop, but the highest market share on mobile devices.

A. HTML5 is currently supported on:

- iPhone,
- iPad,
- Google Android,
- BlackBerry,
- Smart phones running Symbian

Table below shows the main mobile browsers available today and their current support for HTML5. Mobile platforms on this table are Windows Phone, iPhone, Android and Blackberry respectively. Each cell indicates from which version of the platform the feature is supported.

B. *Figure Showing Information about main mobile browsers available today and their current support for HTML5*

Source: http://mobilehtml5.org/

Note:-
Not all HTML5 features are listed but only the most popular and widely implemented ones. Moreover, third-party HTML5 browsers are becoming available such as Opera Mini and Firefox Mobile.

Table below shows the main mobile browsers available today and their current support for HTML5. Mobile platforms on this table are Windows Phone, iPhone, Android and Blackberry respectively. Each cell indicates from which version of the platform the feature is supported.

III. HTML5 FOR DESKTOP

A. As HTML5 allows for more sophisticated user experience development, it is starting to become a rival to desktop software development. HTML, JS and CSS are already installed cross-platform on the vast majority of the world's computers. It is not a proprietary technology and has numerous open source implementations, free of patents.

B. There are plenty of solutions that provide the ability to build a Web app into a self-contained installable bundle, ready for distribution. This opens up the desktop application field immensely, and helps to reduce concerns about cross browser support.

C. The up and coming Chrome OS will be making heavy use of HTML5. Google is adding numerous HTML5 features into their online apps, such as the ability to drag and drop attachments into Gmail. Google wants to tempt more users away from the traditional desktop to its Web-based products.

IV. HTML 5 BROWSER SUPPORT

A. *Figure Showing Information about Browser Support of HTML 5*

Source: *Source: http://www.madhueadara.com/2011/04/html5-browser-support.html*
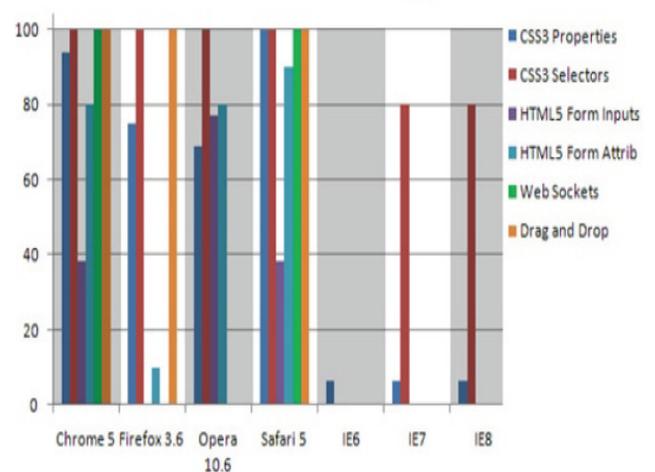
V. HTML5 AND MOBILE OS

HTML5 powered operating system by Mozilla. For the Android based mobile operating system called Firefox OS

Firefox OS[4] (project name: Boot to Gecko, also known as B2G)[5] is a Linux kernel-based open-source operating system for smart phones and tablet computers[6] and is set to be used on smart TVs.[7] It is being developed by Mozilla, the non-profit organization best known for the Firefox web browser.

Firefox OS is designed to provide a complete, [8] community-based alternative system for mobile devices, using open standards and approaches such as HTML5 applications, JavaScript, a robust privilege model, open web APIs to communicate directly with cellphone hardware,[5] and application marketplace. As such, it competes with commercially developed operating systems such as Apple's iOS, Google's Android, Microsoft's Windows Phone[8] and Jolla's Sailfish OS.

Firefox OS was publicly demonstrated in February 2012, on Android-compatible smart phones.[9][10] In January 2013, at CES 2013, ZTE confirmed they would be shipping a smartphone with Firefox OS,[11] and on July 2, 2013, Telefónica launched the first commercial Firefox OS based phone, ZTE Open, in Spain[12][13] which was quickly followed by Geeks Phone's Peak+.[14] As of December 16, 2014, Firefox OS phones are offered by 14 operators in 28 countries throughout the world.[15]

First things first: you don't build apps for Firefox OS – you build HTML5 apps for the Web. Firefox OS enables you as a developer to access the hardware of the phone by means of Web APIs – JavaScript APIs that are proposals to the standards bodies to give secure and simple access.

This means first and foremost that for web developers, nothing changes. There is no SDK for the web you need to download and install. You can use the editor and tool chain you are familiar with. This could be as simple as VI on the command line, or Eclipse as you are working with other languages than the web ones. Firefox OS doesn't demand any fixed environment, much like the Web doesn't. That said, there are efforts to create HTML5 tools out there and Mozilla is keeping a close eye on these efforts to see where and if partnering makes sense.

To get you started with building a Firefox OS app, you simply start with an HTML5 application in your browser. Whilst the first wave of Firefox OS devices have a resolution of 320 x 480 pixels, you should not fix your app to that size. Embracing the ubiquitous nature of the web, it seems prudent to use a responsive design approach. We've collected a lot of information on how to design a good HTML5 app on the Firefox OS developer hub.

One great feature of the Firefox Developer Tools is the responsive view mode. You can turn this one on by opening the developer tools and clicking the ▣ icon. This will result in the current page becoming re-sizable in the browser without losing the developer tools or having to resize the window:

If you want to test Firefox OS itself or how your app performs in it – including the install process – you can download the Firefox OS simulator, a no-restart-required add-on for Firefox.

Once installed, you get a dashboard that allows you to manage your applications on your computer and start or stop the emulator:

When you start the simulator, you get a clean instance of Firefox OS running on your computer in a window of the right dimensions.   You can try out the OS, install your apps and see what the experience is like.
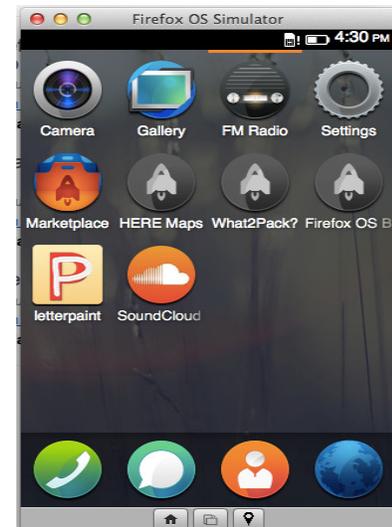
More detailed testing of the performance of your apps requires a Firefox OS device. If you have one of them, you can connect the phone via USB and send your app directly from the simulator to the phone.
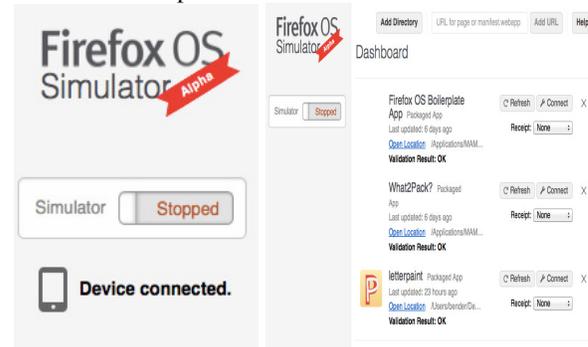
The tooling space of HTML5 applications is one of the most discussed markets on the Web right now. We are confident that in the nearer future a lot of new, amazing tools will become available to make HTML5 app development easy and give developers the insights they need when they develop. For now, using the browsers' developer tools and the Firefox OS Simulator will get you 90% on the way.

VI. HTML 5 AND ITS FUTURE

A. HTML5 is rapidly advancing and will continue to evolve. While HTML5 competes directly against technologies like Flash, Flex and Silverlight, it seems to be working its way into everything. Currently, it may not be capable of creating as impressive a user experience as its competitors, but the sheer audience it will have access to will make it a serious player.

B. HTML5 still will not totally solve the mobile device fragmentation. However, it will act as a strong catalyst to increase convergence of the market, as it sets a new standard with many features, and the first signs indicate that this standard is moving much faster than any previous attempts made by the W3C alone, thanks to the WHATWG.

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