Web Game Engines

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***Abstract*—The abstract goes here.**

I. Introduction

A. History

The was world's first web browser, WorldWideWeb, was written almost 20 years ago by Tim Berners-Lee.[1] JavaScript, originally developed by Brendan Eich, was introduced to the browser almost 15 years ago in Netscape Navigator 2.0.[2] The way we browse the web and the devices we use to do it have changed many times during the last 15 years, but the basic technologies have remained unchanged. We still use HTML[3] and JavaScript[4]. Why is it that only now we are starting to use the plain browser as the platform for multimedia and games?

Java Applets were supposed to bring multimedia to the browsers but they never quite reached the popularity that Sun might have hoped for. Possible reasons for failure might include; consumer computers were not fast enough, the runtime downloaded too slow and the runtime started up too slow.[5]

FutureSplash Animator, later known as Flash,[6] has the been the dominant way to present multimedia and games inside web browsers for many years.

B. Today

The success of iPhone and other mobile devices has increased the interest in browser based games. For example iPhone doesn't have a Flash player but instead it supports a set of features of the HTML5[3] standard, like SVG[7], canvas[8] and audio[9]. These technologies are also supported on modern desktop browsers, like Google Chrome, Apple Safari, Mozilla Firefox 4, and Microsoft Internet Explorer 9. Java Applets promised cross-browser and cross-platform support, Flash is cross-browser but supports mainly Apple OsX and Microsoft Windows platforms. Browser based games of today and the future that use the new HTML5 APIs instead of any 3rd party plugins could be truly cross-browser, cross-platform and cross-device ready. When a new, handheld or desktop, device comes to the market it is higly likely that it will have a web browser and if it has it can be used to play games without the need to wait if Adobe releases Flash Player for that platform or to wait for the games to be ported to the device.

1) Future:

II. A look at the current engines

How can the basic components of game engines[10] be implemented in the browser.

A. Canvas based engines

Many of the currently available and up and coming game engines rely on the canvas element for rendering. These engines include Effect Engine[11], Render Engine[12], Impact HTML5 Game Engine[13].

B. DOM and CSS based engines

Some of the current engines rely on the DOM tree and CSS for rendering. Some of the main benefits in using this approach include support for older browsers like IE8, hardware accelerated CSS transforms, easier user interaction. Bakaus[14] talks about the benefit of using the DOM and CSS instead of canvas for rendering. These engines include Rocket Engine[15], Aves Engine and Render Engine[12].

C. Similarities and differences between the engines

D. Perfomance

E. Possible future directions

JavaScript is single threaded.. Web Workers?

III. Conclusion

Is the technology ready yet? Will the Flash game developers start to use HTML5 instead of Flash? Will the AAA games industry use these technologies?

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