A Platform-Independent Game Engine for the Web
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Introduction

HTML5 has introduced several new standards-based options for developing cross-platform games, namely Canvas and WebGL. These technologies are still in their infancy and as such, browser and platform support is inconsistent and the strengths and weaknesses of each technology are not widely understood.

Objectives

- Create a platform-independent, HTML5 game engine
- Design a language to define tile-based maps
- Implement an interesting game to facilitate testing
- Compare the performance of Canvas and WebGL across a variety of platforms and browsers

Architecture

An object-oriented approach was taken to design a flexible, extensible JavaScript game engine using both Canvas and WebGL interchangably.

Object Classes
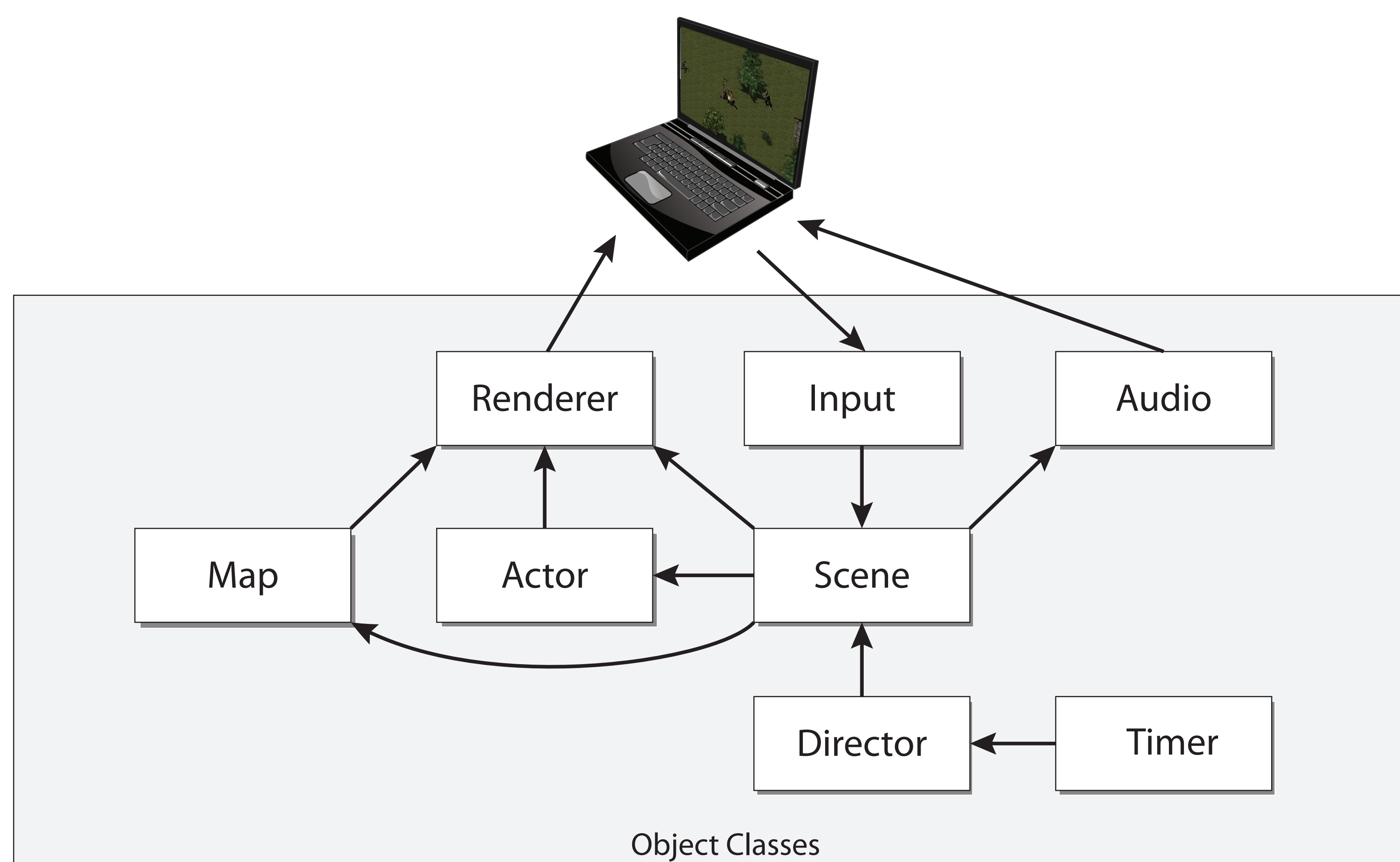
Results

N = 240 for all tests
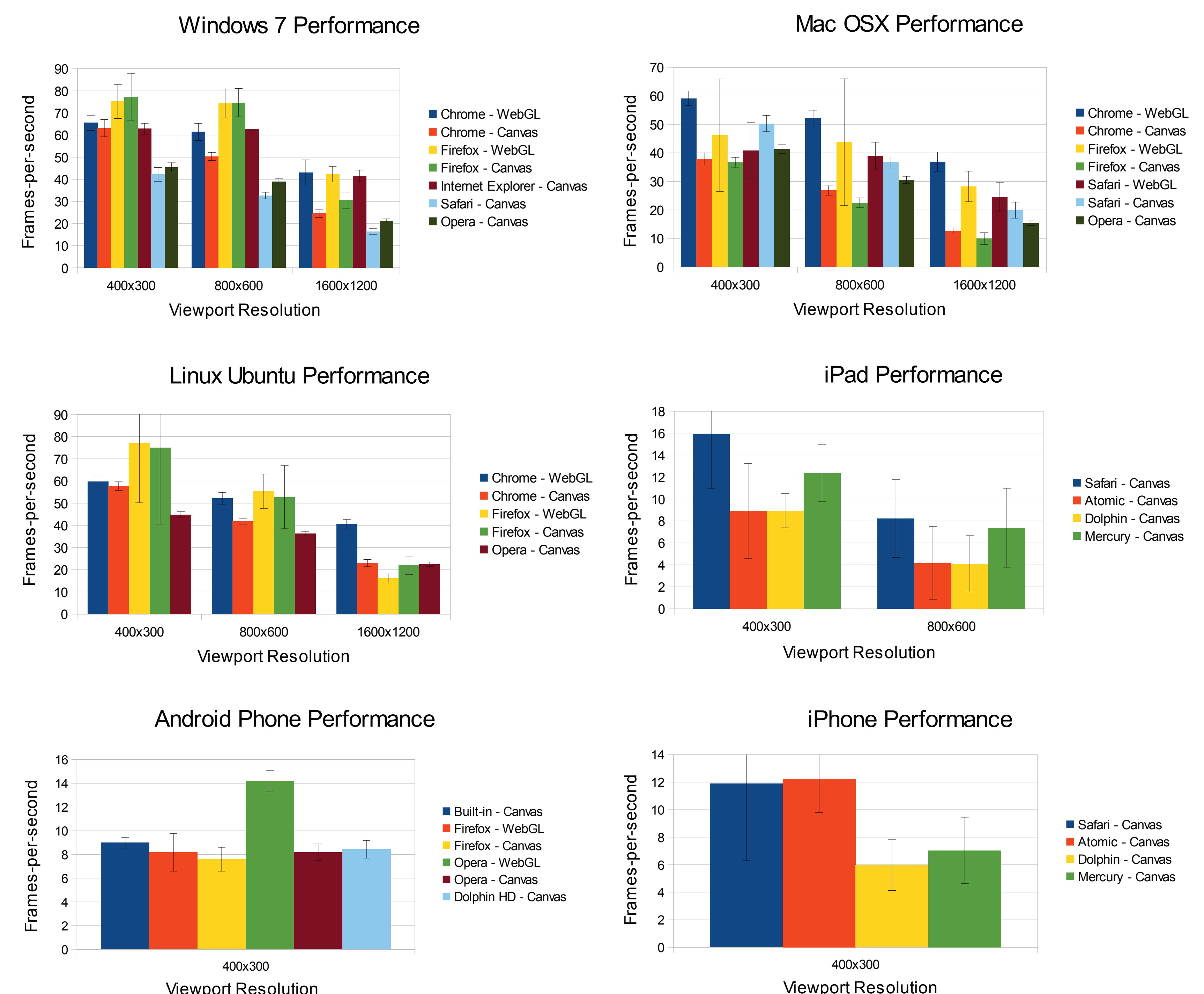
Conclusions

Support and performance with both Canvas and WebGL has a wide variability among browsers. While WebGL outperforms Canvas on virtually all platforms, its limited availability makes it unlikely that it can solely be used for a sprite-based game for some time. Developers must continue to provide fallback rendering options to reach the widest audience.

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