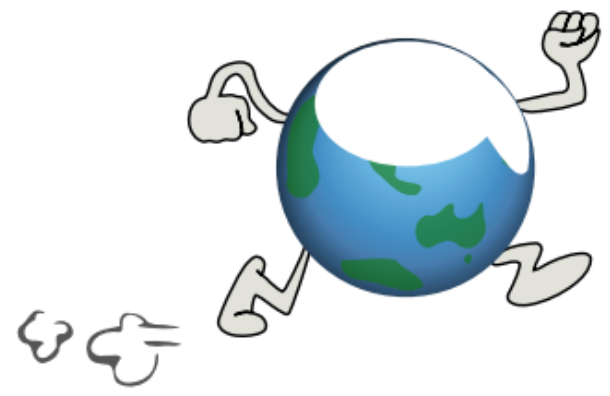




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Haohui Mai

University of Illinois

A Case for Parallelizing Web Pages

Thursday, September 6th, 2012

4 - 5 PM CDT

2405 Siebel Center

Abstract

Mobile web browsing is slow. With advancement of networking techniques, future mobile web browsing is increasingly limited by serial CPU performance. Researchers have proposed techniques for improving browser CPU performance by parallelizing browser algorithms and subsystems. We propose an alternative approach where we parallelize web pages rather than browser algorithms and subsystems. We present a prototype, called Adrenaline, to perform a preliminary evaluation of our position. Adrenaline is a server and a web browser for parallelizing web workloads. The Adrenaline system parallelizes current web pages automatically and on the fly – it maintains identical abstractions for both end-users and web developers.

Our preliminary experience with Adrenaline is encouraging. We find that Adrenaline is a perfect fit for modern browser's plug-in architecture, requiring only minimal changes to implement in commodity browsers. We evaluate the performance of Adrenaline on a quadcore ARM system for 170 popular web sites. For one experiment, Adrenaline speeds up web browsing by 3:95x, reducing the page load latency time by 14:9 seconds. Among the 170 popular web sites we test, Adrenaline speeds up 151 out of 170 (89%) sites, and reduces the latency for 39 (23%) sites by two seconds or more.

Bio

Haohui Mai is in his fifth-year of Ph.D. in University of Illinois at Urbana-Champaign. He is working with Professor Sam King. His current research focuses on improving both security and performance of mobile systems.

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