Alpha Presentation
Splitting the Atom. Again.
The Capstone Experience
Team Mozilla
Teja Bayya
Alex Vamvounis
Carson Greene
James Jahns
Tyler Staats

Department of Computer Science and Engineering
Michigan State University
Fall 2019
Project Overview

• Working to harden Firefox against Spectre/Meltdown style bugs
• Fission gives content in different frames their own processes
• Our completed work will be integrated into the release version of Firefox
System Architecture

Firefox

Browser Code

HTML  CSS  JS  JS

Rendering Engine

Parent Process

Child Processes

Webpage
Pre-fission Process Separation
Post-Fission Process Separation
Example: Forbes.com

Stockholm’s Vasa Museum is built around a renowned 17th century warship that was literally dredged up from the depths of the city’s harbor, where it rested for more than 300 years since sinking on its maiden voyage.

By Teen Cobby  Contributor

Kate Middleton And Prince William’s Royal Trip To Pakistan: A Major Security Challenge

The Duke and Duchess of Cambridge set off on their most complicated royal tour yet to a troubled country.

By Cecilia Rodriguez  Contributor

Delta And Marriott Named Best Airline And Hotel Chain For Business Travelers

Atlanta-based Delta Air Lines and Bethesda-based Marriott International have been voted as the top airline and hotel chain respectively for business travelers in North America.

By Grant Martin  Contributor

The Best Places To Eat In Vail & Beaver Creek

Taste In Vail/Boulder Beaver Creek & another restaurant north of the Bighorn Mountains.
Forbes.com without Fission
Forbes.com with Fission

<table>
<thead>
<tr>
<th>Name</th>
<th>Type</th>
<th>Energy Impact</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Task Manager</td>
<td>Tab</td>
<td>Medium (5.02)</td>
<td>43.5 MB</td>
</tr>
<tr>
<td>Nightly</td>
<td>Tab</td>
<td>Low (0.98)</td>
<td>21.5 MB</td>
</tr>
<tr>
<td>Preloaded New Tab</td>
<td>Tab</td>
<td>Low (0.86)</td>
<td>26.3 MB</td>
</tr>
<tr>
<td>contextualmedia.net (100)</td>
<td>Tab</td>
<td>Low (0.1)</td>
<td>5.3 MB</td>
</tr>
<tr>
<td>Firefox Screenshots (<a href="mailto:screenshots@mozilla.org">screenshots@mozilla.org</a>)</td>
<td>Other</td>
<td>Low (0.1)</td>
<td>384 KB</td>
</tr>
<tr>
<td>Form Autofill (<a href="mailto:formautofill@mozilla.org">formautofill@mozilla.org</a>)</td>
<td>Other</td>
<td>Low (0.1)</td>
<td>384 KB</td>
</tr>
<tr>
<td>gre-resources (11)</td>
<td>Other</td>
<td>Low (0.1)</td>
<td>384 KB</td>
</tr>
<tr>
<td>gum.critec.com (102)</td>
<td>Other</td>
<td>Low (0.1)</td>
<td>384 KB</td>
</tr>
<tr>
<td>s.amazon-adsystem.com (106)</td>
<td>Other</td>
<td>Low (0.1)</td>
<td>384 KB</td>
</tr>
<tr>
<td>secure-dserving-sys.com (108)</td>
<td>Other</td>
<td>Low (0.1)</td>
<td>384 KB</td>
</tr>
<tr>
<td>stags.bluekai.com (104)</td>
<td>Other</td>
<td>Low (0.1)</td>
<td>384 KB</td>
</tr>
<tr>
<td>Web Compat (<a href="mailto:webcompat@mozilla.org">webcompat@mozilla.org</a>)</td>
<td>Other</td>
<td>Low (0.1)</td>
<td>384 KB</td>
</tr>
<tr>
<td>WebCompat Reporter (<a href="mailto:webcompat-reporter@mozilla.org">webcompat-reporter@mozilla.org</a>)</td>
<td>Other</td>
<td>Low (0.1)</td>
<td>384 KB</td>
</tr>
</tbody>
</table>
What’s left to do?

• Two team members working on second bugs
• Rest of team working on testing their bugs
• Continue to work towards resolving multiple bugs each
• Examples:
  ▪ "about:studies" page
  ▪ Pop-up blocking
  ▪ Firefox "UI Tour" feature
Questions?