HTML5: Programming the Compute Continuum

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What is “HTML5”?
the html5 user experience
basic client web technologies
Client Web Languages

**HTML:** Content

**CSS:** Styling

**JavaScript:** Behavior

<button>Hello!</button>

button { color: blue }

```javascript
$('button').on('click', function() {
    $(this).css('color', 'yellow');
});
```
Web Runtime Basics

Web Apps (HTML, CSS, JavaScript)

Standard Web APIs

Parser
DOM tree
Styling
render tree
Layout + Paint

<button>Hello!</button>

button {color: blue}

JavaScript Engine

$(‘button’).on(‘click’,function() {
  $(this).css(‘color’, ‘yellow’);
});

Web Runtime
e.g. Webkit (C)
High Developer Productivity

- High-level, flexible languages & APIs
- Cross-platform code reuse

<table>
<thead>
<tr>
<th>Objective-C</th>
<th>Java</th>
<th>C#</th>
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<tr>
<td>Xcode</td>
<td>Eclipse</td>
<td>Visual Studio</td>
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<tr>
<td>Three20, Unreal, ...</td>
<td>DroidUX, AndEngine, ...</td>
<td>Silverlight, XNA, ...</td>
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</tbody>
</table>

Language Tooling
Libraries

HTML5
Just in Time (JIT) Compilation

@ run time

JavaScript* Code

+ type info

bytecode → jitted code

JavaScript* Engine

interpret

bytecode

effective code

jit

native code

fast path

slow path

bailouts

Source: Brendan Eich via Moh Haghighat
JavaScript* Performance

Kraken Benchmark Suite Performance
(lower is better)

Source: whyEye.org; Intel® Core2™ Quad @ 2.66 GHz, running a virtual machine with Windows® Server 2003 (1 CPU, 2GB RAM)
web >> html, css, javascript
Web Beyond the Client

- web or native
- cloud services
- server backend
  - extended compute & data;
  - dynamic app delivery & generation

Intel
what’s new with “html5++”
HTML5 Programming Platform

HTML5 as “the new OS”
Complete programming platform, beyond just DOM scripting.
JavaScript* Harnessing HW Capabilities

More code in JS, hungry for more performance.

Web Apps (JS)

Libraries (JS)

Web Runtime (C)

DOM + graphics + multimedia + system

local storage

threading

img

video

local media stream

SIMD, Parallelism

HTML5 Beyond the Browser

Browser

- e.g. Chrome*
- HTML5 Runtime
- e.g. Webkit*

App

- HTML, CSS, JS
- HTML5 Spec

WebView

- HTML, CSS, JS
- HTML5 Spec

App

- ObjC Java C

OS

- e.g. iOS*
- OS Specific API
- e.g. Cocoa Touch

develop common code base
deploy natively
Cross-Platform Tooling

http://software.intel.com/html5/

develop

test, debug, profile

build
what does this all mean?
The HTML5 Computing Platform

Cross-device, open, productive for developers, delivers great UX.
Thank you!

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