

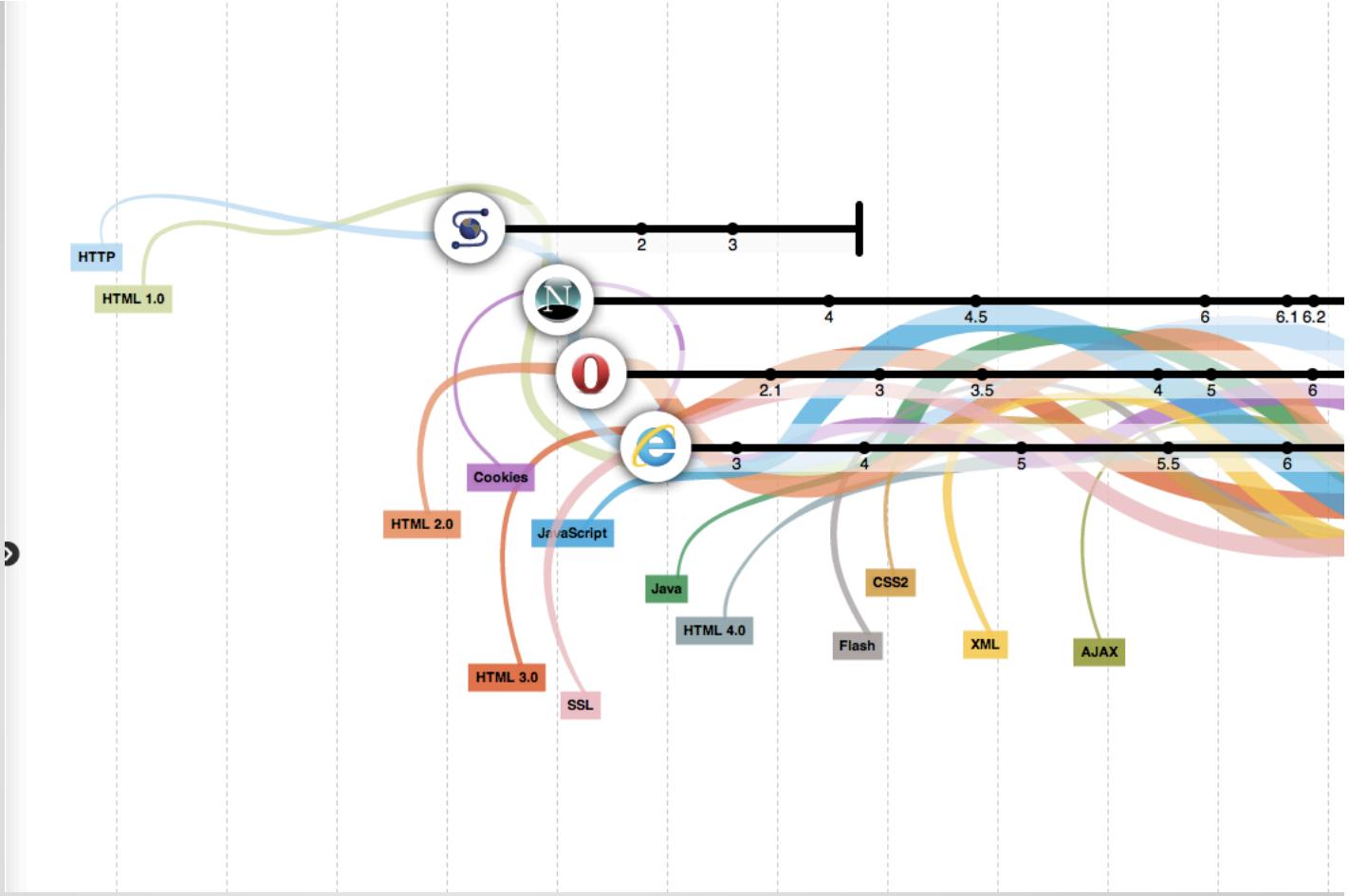
HTML



HTML5 AND THE MOBILE WEB REVOLUTION

Claudio Riva

**"HOW IS HTML5
MATURITY LEVEL ?"**



So, what is

HTML version 5 ?

1998 - W3C decided they will stop evolving HTML beyond version 4.01
1999 - HTML 4.01 becomes a recommendation

- 2000 - W3C released XHTML 1.0 and force the world to use XML
- 2002 - W3C released first draft of XHTML 2.0, no backwards compatibility
- 2004 - WHATWG started working on **HTML v5** (Opera, Mozilla and Apple)
- 2006 - W3C agrees to use WHATWG proposal for HTML5
- 2009 - W3C stops works on XHTML 2.0 and resources are diverted to HTML5
- 2012 - HTML5 gets forked up
- 2014 - **HTML 5.0** will become a recommendation (according to W3C)
- 2016 - W3C **plans** to release **HTML 5.1**

Philosophy of HTML v5

Specify undocumented features (e.g. XMLHttpRequest)

Browser behaviour with invalid markup

Support web applications

Define an open standard (opposed to Flash)

Don't break the Web

HTML

Living Standard — Last Updated 11 June 2012

Table of contents

- [1 Introduction](#)
- [2 Common infrastructure](#)
- [3 Semantics, structure, and APIs of HTML documents](#)
- [4 The elements of HTML](#)
- [5 Microdata](#)
- [6 Loading Web pages](#)
- [7 Web application APIs](#)
- [8 User interaction](#)
- [9 Web workers](#)
- [10 Communication](#)
- [11 Web storage](#)
- [12 The HTML syntax](#)
- [13 The XHTML syntax](#)
- [14 Rendering](#)
- [15 Obsolete features](#)
- [16 IANA considerations](#)
- [Index](#)
- [References](#)
- [Acknowledgements](#)

STANDARDS[Web Design and Applications](#)[Web Architecture](#)[Semantic Web](#)[XML Technology](#)[Web of Services](#)[Web of Devices](#)[Browsers and Authoring Tools](#)[All Standards and Drafts](#)[About W3C Standards](#)

WEB DESIGN AND APPLICATIONS

On this page → [technology topics](#) • [news](#) • [upcoming events and talks](#)

Web Design and Applications involve the standards for building and Rendering Web pages, including HTML, CSS, SVG, device other technologies for Web Applications ("WebApps"). This section also includes information on how to make pages accessible disabilities (WCAG), to internationalize them, and make them work on mobile devices.

HTML & CSS

HTML and CSS are the fundamental technologies for building Web pages: HTML (html and xhtml) for structure, CSS for style and layout, including WebFonts. Find resources for good Web page design as well as helpful tools.

JavaScript Web APIs

Standard APIs for client-side Web Application development include those for Geolocation, XMLHttpRequest, and mobile widgets. W3C standards for document models (the "DOM") and technologies such as XBL allow content providers to create interactive documents through scripting.

Graphics

W3C is the home of the w deployed PNG raster form vector format, and the C WebCGM is a more spec used, for example, in the automotive engineering, a



New Tags

section, header, footer, nav, ...

New Form Controls & Types

date, range, email, url, tel, ...

New Form Validation

by type, required, :valid, :invalid, :required



Offline Usage

Install a package on the device
online/offline events

Storage

Persistent and Session Storage
key/value (strings)
IndexDB and SQL storage



Multimedia

Audio and Video Tags

Javascript API & events

Some codecs supported



3D, Graphics and Effects

2D Canvas API

SVG support

WebGL



Device Access

Accelerometer / gyroscope / magnetometer

Orientation change

Touch events (touchstart, touchmove, touchend)

File API and File Reader

Media Capture API



CSS New Styling

Rounded borders, shadows, opacity

CSS 2D & 3D transforms

rotate, scale, skew, translate

CSS Transitions

basic animations between 2 states

keyframe animations



Communication

Web Sockets

Server-sent Events



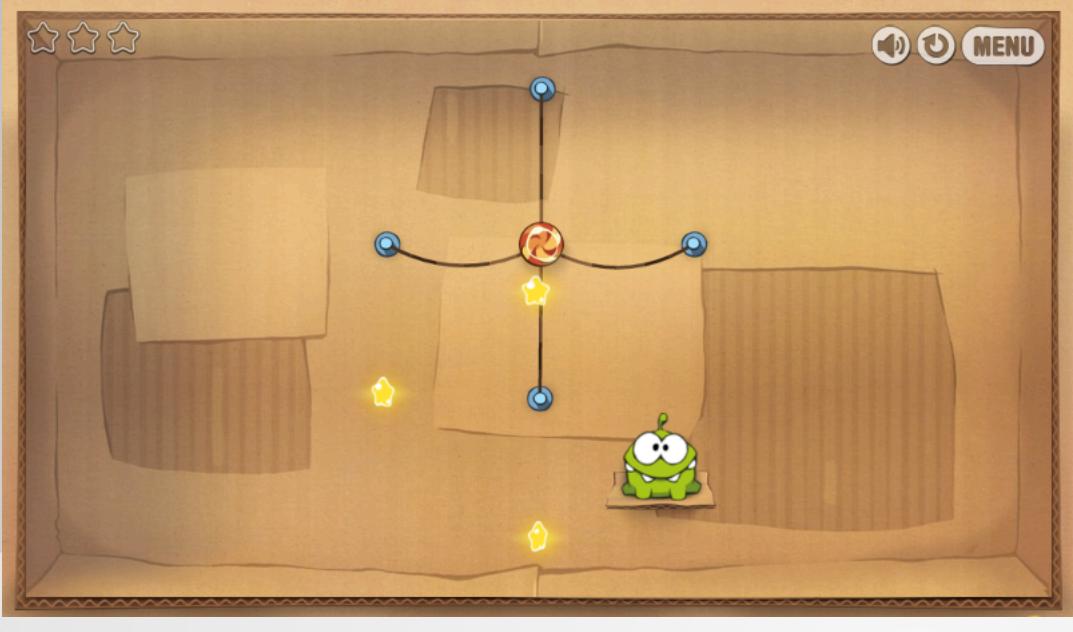
Performance & Optimization

Notifications API

XMLHttpRequest 2

Web Workers

Does this stuff actually work ?



What about

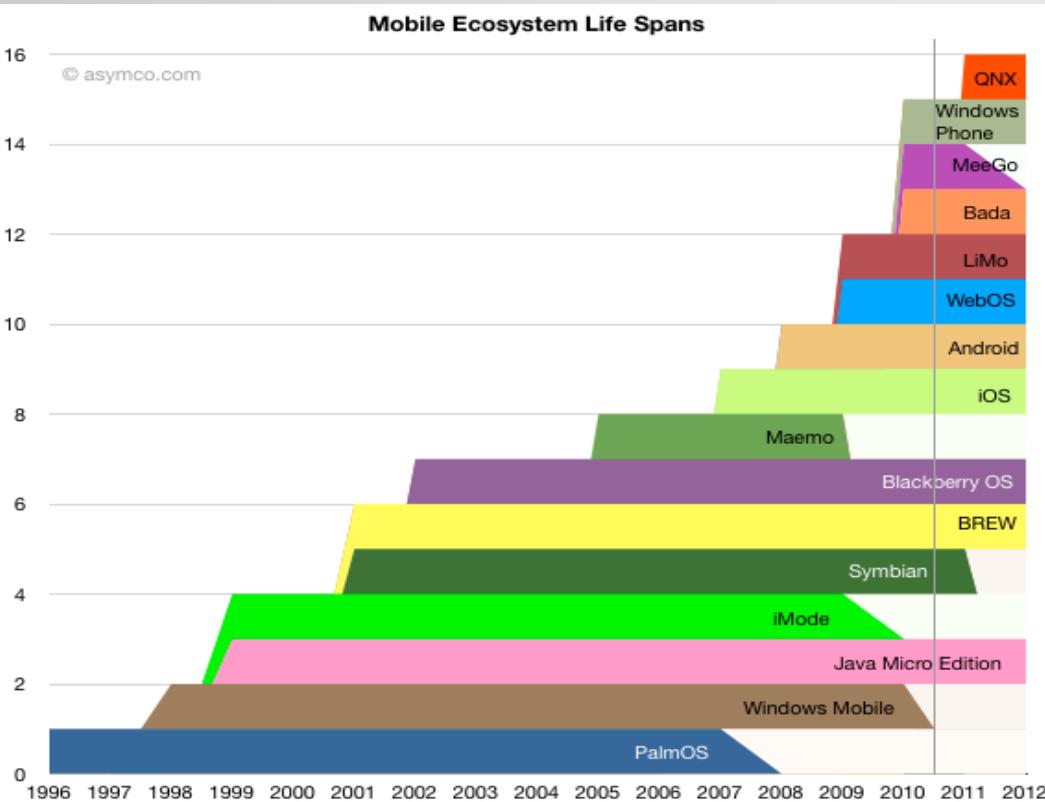
mobile HTML5 ?

What's the

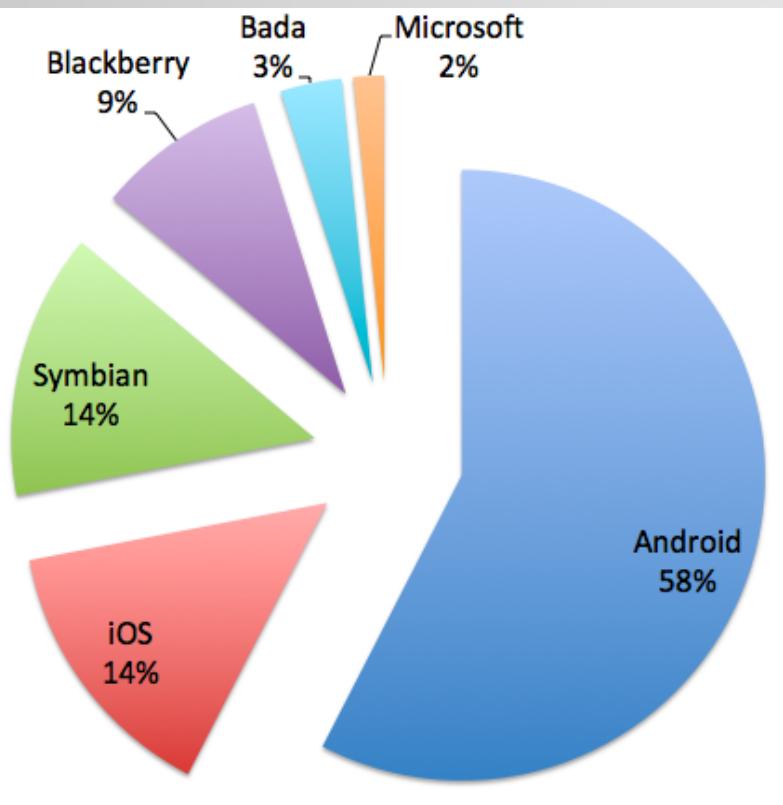
HTML5 promise

for **mobile** development ?

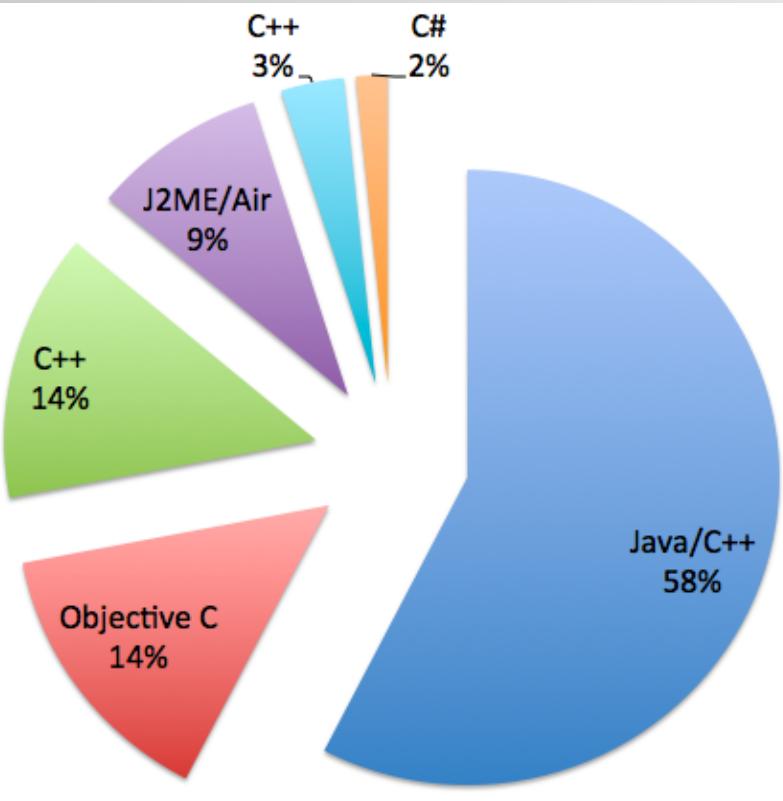
Mobile Platforms



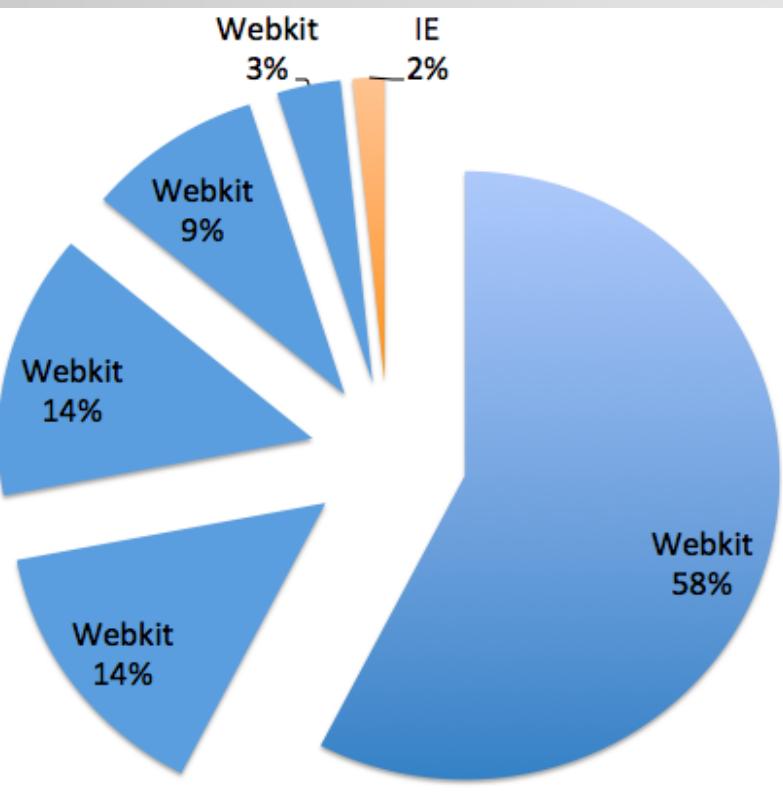
Smartphone Platforms Shares



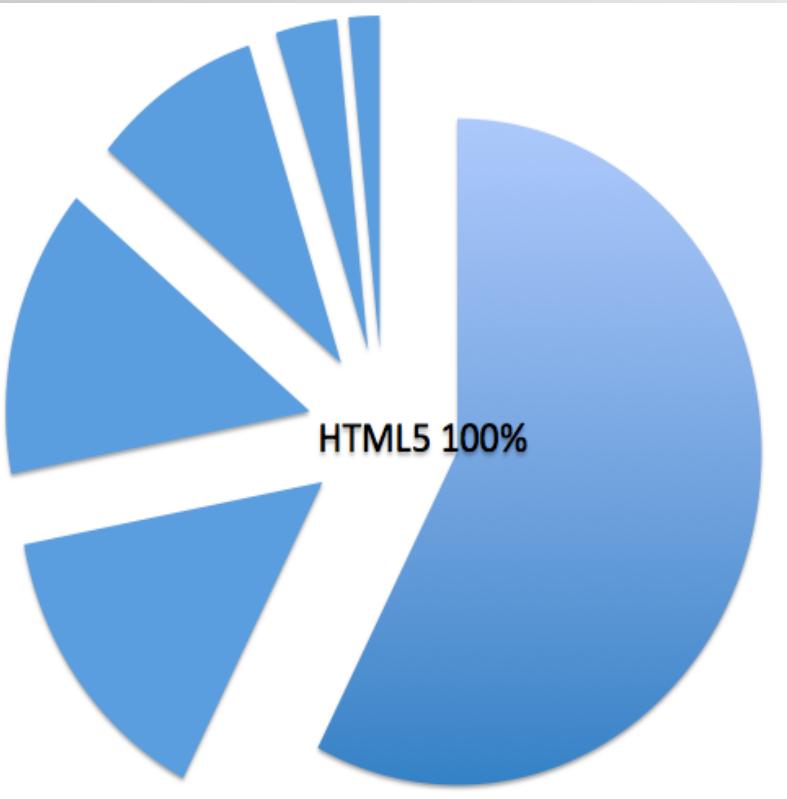
Smartphone Languages Shares



Smartphone Browser Shares



Smartphone HTML5 Shares



Offline web applications - Working Draft

Method of defining web page files to be cached using a cache manifest file, allowing them to work offline on subsequent visits to the page

| *Usage stats: | | Global |
|------------------|--------|--------|
| Support: | 57.04% | |
| Partial support: | 0.4% | |
| Total: | 57.44% | |

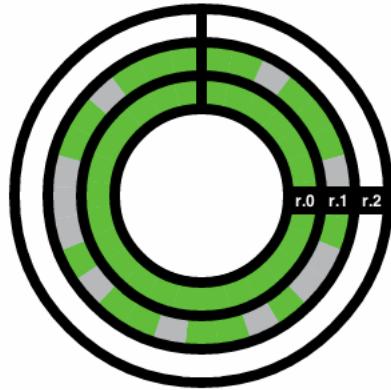
Resources: [Sitepoint tutorial](#) [Dive Into HTML5 article](#) [Mozilla Hacks article/demo](#)

| Show all versions | IE | Firefox | Chrome | Safari | Opera | iOS Safari | Opera Mini | Opera Mobile | Android Browser |
|-------------------|------|---------|--------|--------|-------|------------|------------|--------------|-----------------|
| 3 versions back | 6.0 | 6.0 | 13.0 | 3.2 | 11.0 | 3.2 | | 10.0 | |
| 2 versions back | 7.0 | 7.0 | 14.0 | 4.0 | 11.1 | 4.0-4.1 | | 11.0 | 2.1 |
| Previous version | 8.0 | 8.0 | 15.0 | 5.0 | 11.5 | 4.2-4.3 | | 11.1 | 2.2 |
| Current | 9.0 | 9.0 | 16.0 | 5.1 | 11.6 | 5.0 | 5.0-6.0 | 11.5 | 2.3 3.0 |
| Near future | 10.0 | 10.0 | 17.0 | | 12.0 | | | | 4.0 |
| Farther future | 10.0 | 11.0 | 18.0 | 6.0 | 12.1 | | | | |

Note: Currently not supported in some versions of Chrome on Linux.

[Feedback](#)

| Feature | Safari on iOS | Android Browser | BlackBerry Browser | Nokia Browser | Internet Explorer | Opera | Firefox | webOS Browser | | | | |
|--|---------------|---------------------|--------------------|---------------|-------------------|------------------|---------|---------------|--------|------|---------|-----|
| Version tested | iPhone, iPad | Phones (1-2.3, 4.0) | Tablets (3.0+) | Phones | Tablet | Meego - Nokia N9 | Symbian | Windows Phone | Mobile | Mini | Android | |
| Minimum version tested | 3.2 | 1.5 | 3.0 | 5.0 | 1.0 | 1.2 | ^3 | 9 | 11 | 5 | 6 | 1.4 |
| Application Cache <small>W3C API</small> Offline package installation. | ✓ | ✓ 2.1+ | ✓ | ✓ 6.0+ | ✓ | ✓ | | | ✓ | | ✓ | ✓ |
| Web storage <small>W3C API</small> Persistent and session storage. | ✓ | ✓ 2.0+ | ✓ | ✓ 6.0+ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ |
| Web SQL storage <small>W3C API (no active)</small> Persistent SQLite storage. | ✓ | ✓ 2.0+ | ✓ | ✓ 6.0+ | ✓ | ✓ | | | ✓ | | | ✓ |
| Geolocation <small>W3C API</small> Geolocation & tracking using GPS, cells or Wi-Fi. | ✓ | ✓ 2.0+ | ✓ | ✓ 6.0+ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ |
| Multimedia <small>W3C API</small> Video & Audio Players | ✓ | ✓ 2.3+ | ✓ | ✓ 7.0+ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ |
| Server-Sent Events <small>W3C API</small> EventSource pattern to maintain the connection to the server open | ✓ 4.1+ | | | | | ✓ | | | ✓ | | ✓ | |
| Web Sockets <small>W3C API</small> New bidirectional protocol over HTTP | ✓ 4.2+ | | | ✓ 6.1+ | ✓ | | | | ✓ | | ✓ 7+ | |



FINANCIAL TIMES



Previous edition 9:02pm Wed

Refresh

Oil surges after Iran uranium warning



UN watchdog report to member states showed Iran had carried out a significant expansion of activities at its main enrichment plant 9:55pm

© AP

Arabs take lead in adding pressure on Assad

Gulf states press for strong action, while Palestinian militant



1x

touch.www.linkedin.com/#home

FT.com / Registration / Sign-up LinkedIn

People search

LINKEDIN TODAY

Marc Benioff is Thinking... The One Big Interviewing... Salesforce Tops Analyst P... Gorgeous iPhone 5 Concept... Apple Scorns Rivals, Says... Facebook Shakes Hardware...

Recent Updates

14 people have new connections

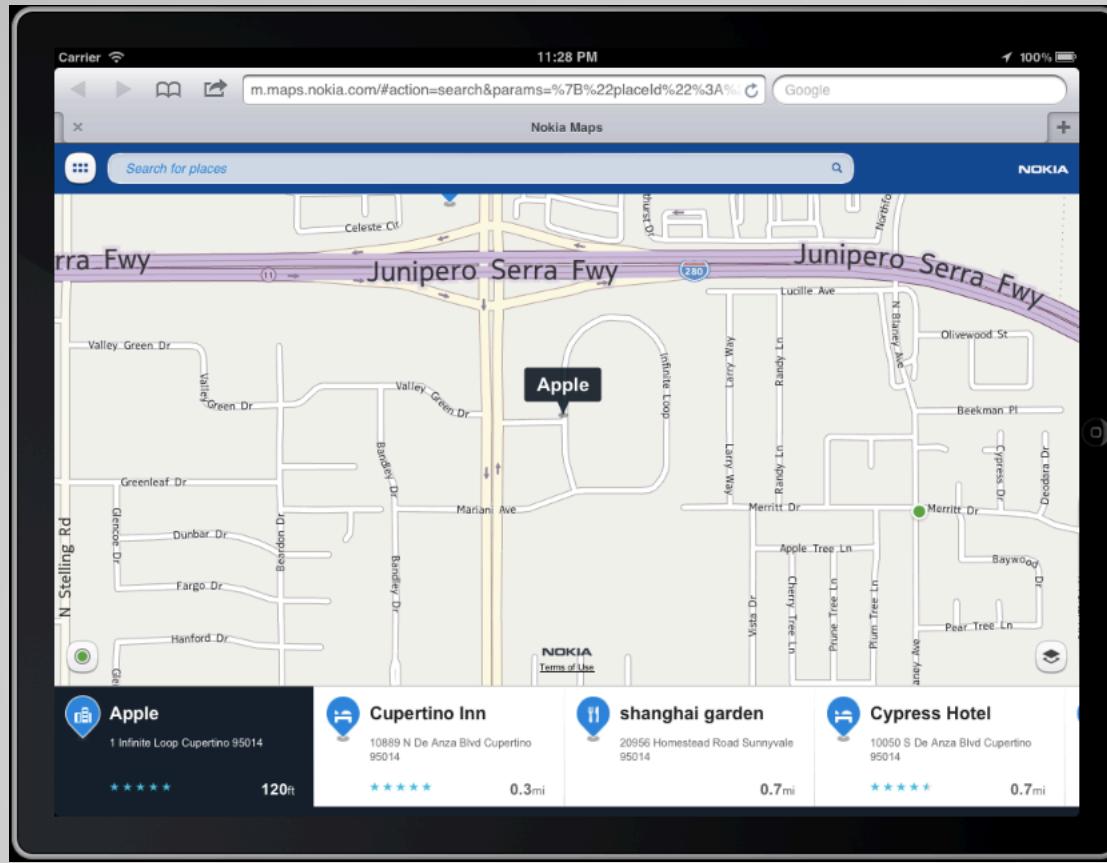
Jan Blom, Endre Domiczi, Agathe Battestini, Emmanuel Oluwatosin, M...

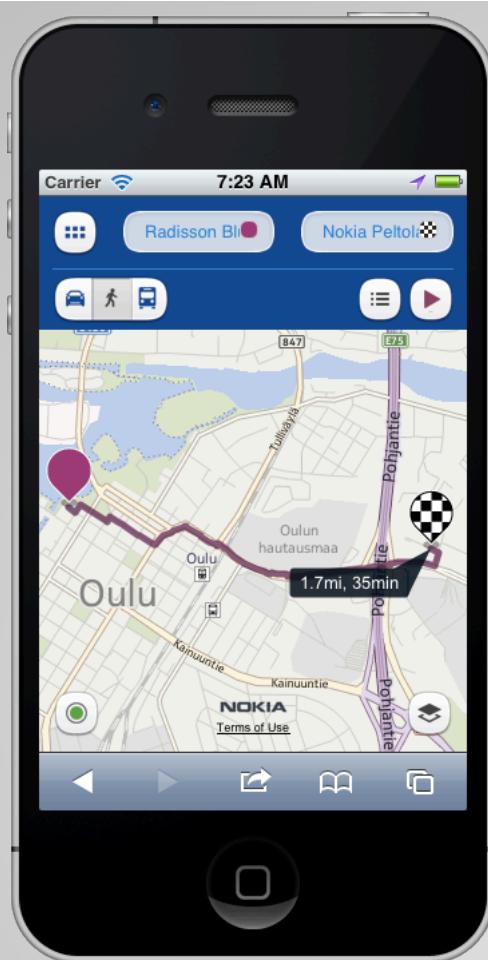
Arie van Deursen - 45m ago
StackOverflow question on Reactive Extensions for Java illustrates differences between C# & Java. <http://t.co/ODuR1Usp>
/cc @alexnderlof
via Twitter

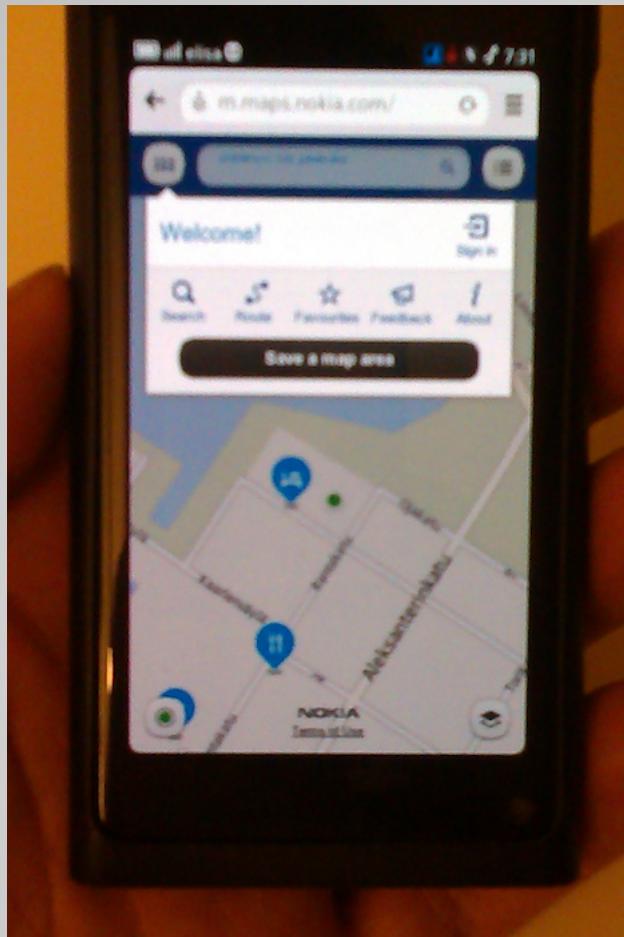
Ville Simola - 49m ago
Welcome Back, Nokia <http://t.co/gyvl4bql> via @TechCrunch
TechCrunch | Welcome Back, Nokia
techcrunch.com via Twitter

Ville Simola - 56m ago
AIP mixer event about to start. Good vibes and some classic Johnny Walker! (@ Zebra Tower w/ 3 others)
<http://t.co/Bfsg7w75>
via Twitter

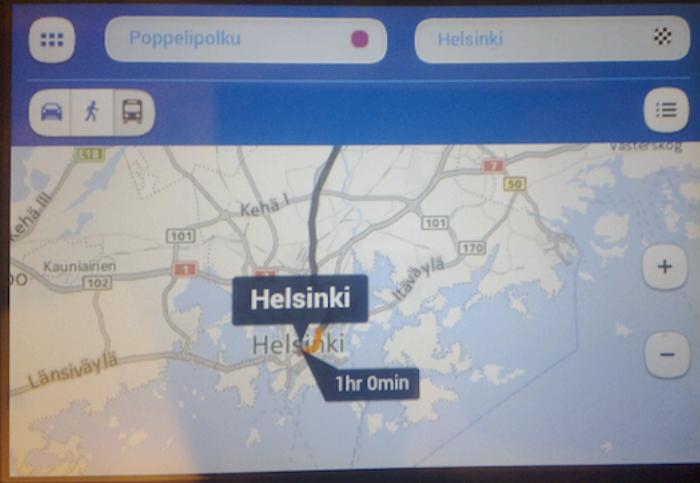
Vincenzo Belpiede - 2h ago
That was quick: @Nokia became top @Microsoft smartphone maker in Q4 | VentureBeat: <http://t.co/XjKzT8l5> via @AddThis
LOVE WHEN WE ARE QUICK!
That was quick: Nokia became top Microsoft smartphone maker in Q4
venturebeat.com via Twitter

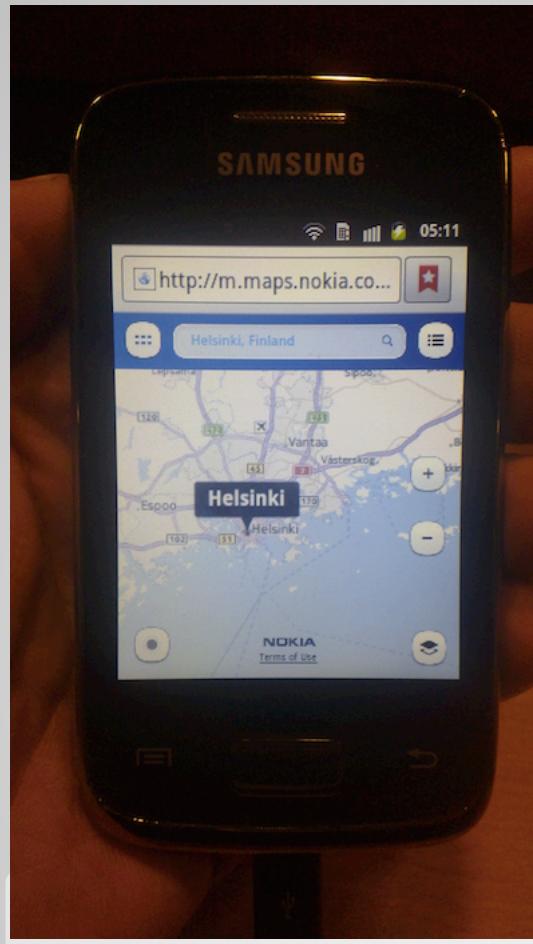






htc





What really matters to **us**
and to the **developers** ?

FUNCTIONALITY

W3C / WHATWG

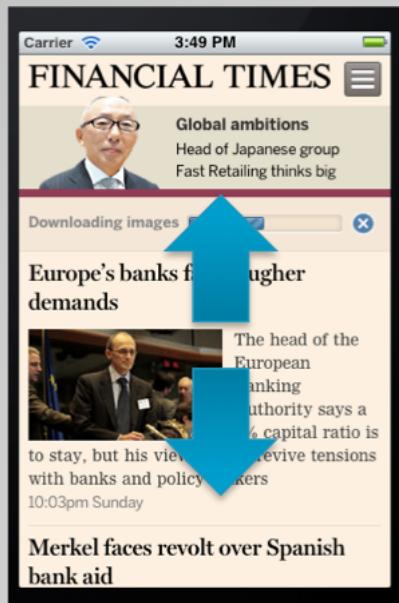
Tizen/Mozilla Device APIs

Phonegap

Mobile jQuery / Sencha / Backbone.js

RESPONSIVENESS

Scroll Performance



Touch Performance



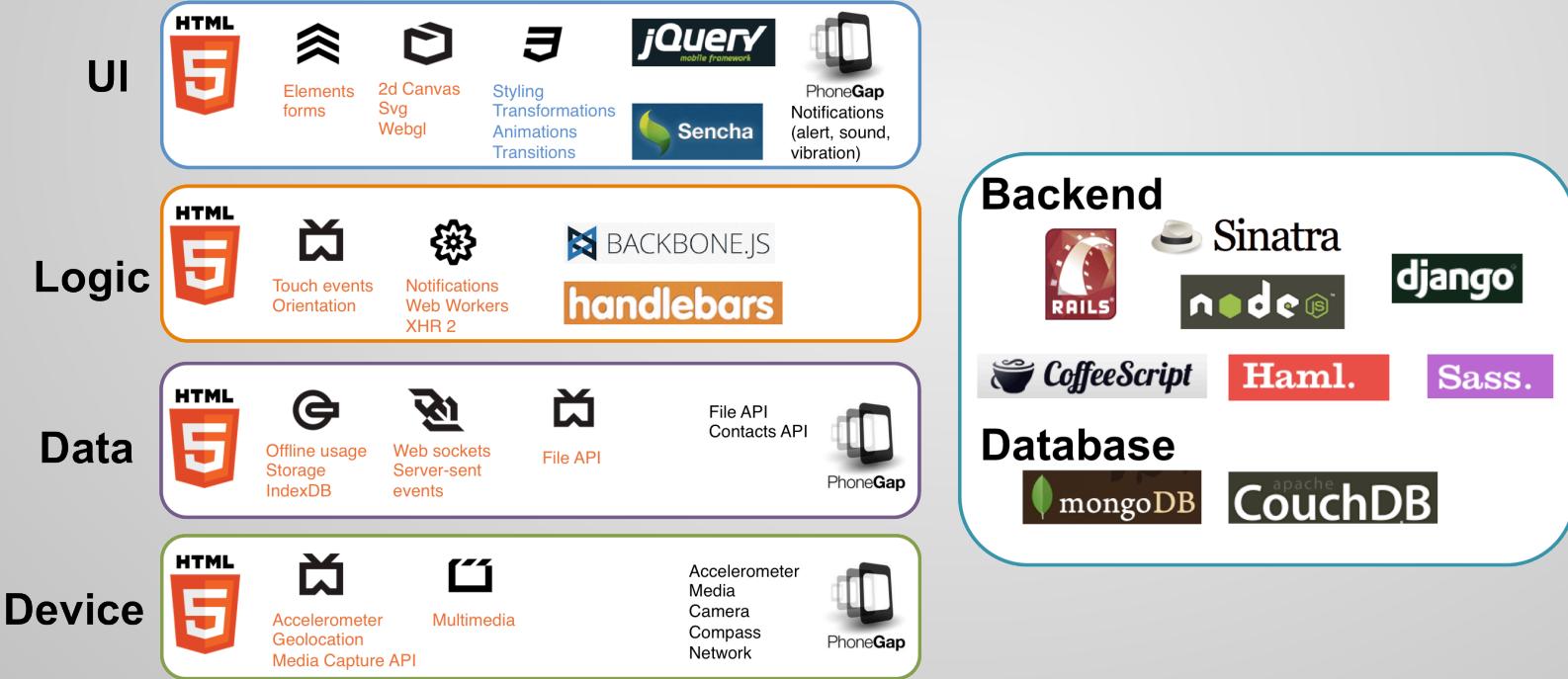
2D/3G GRAPHICS

2D Canvas

WebGL

JAVASCRIPT PERFORMANCE

JIT



HARDWARE ACCELERATION

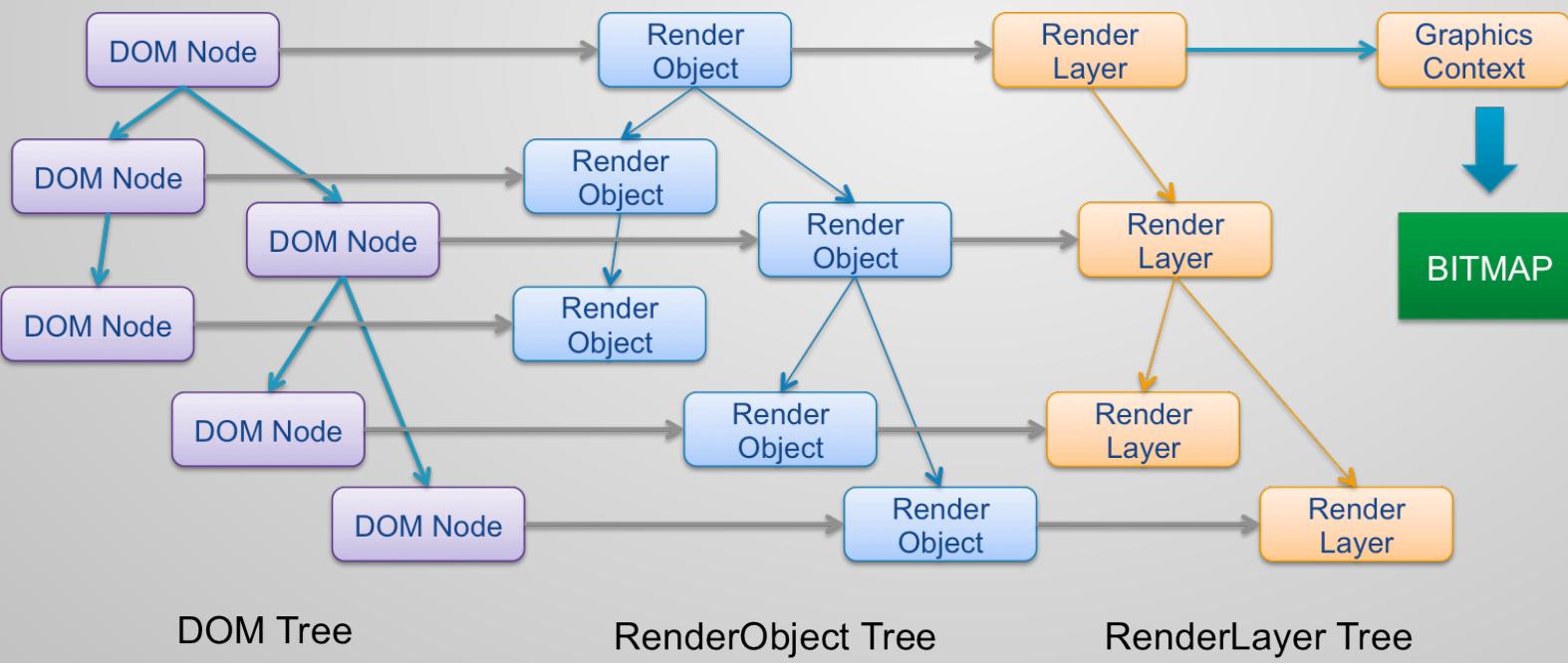
Video

2D Graphics

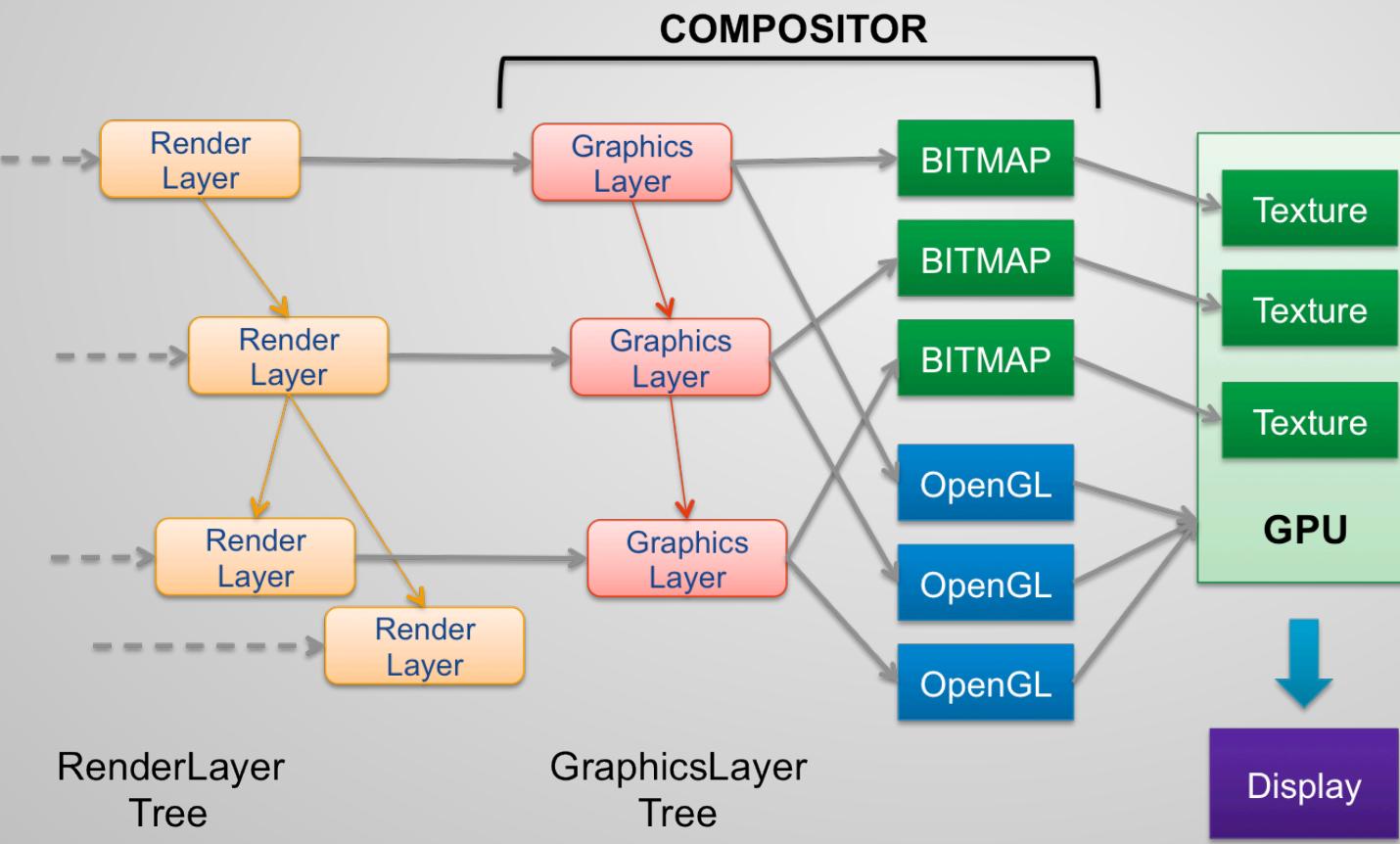
WebGL

Compositing

SOFTWARE RENDERING



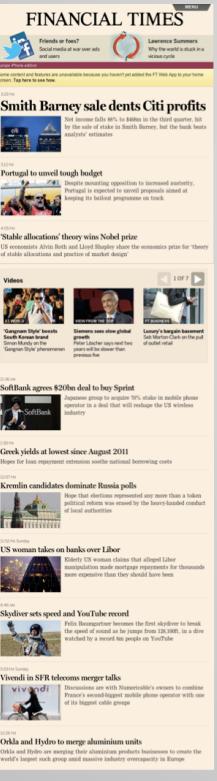
GPU ACCELERATED COMPOSITING



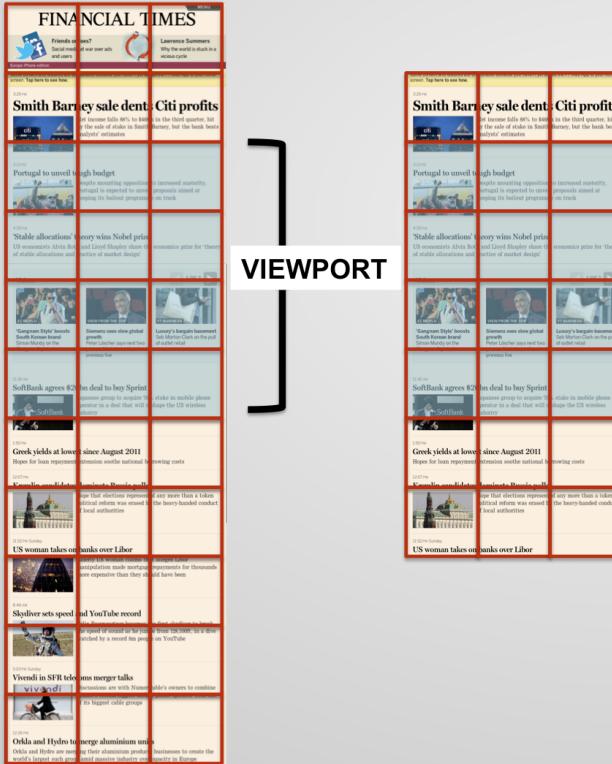
ADDITIONAL OPTIMIZATIONS

Only the graphics layers that intersects with a *damage rectangle*
are repainted

TILING



VIEWPORT



GraphicsLayer

Tiles

GPU

Display

2D GRAPHICS

ACCELERATION

CANVAS 2D

```
ctx.beginPath();
ctx.arc(150, 150, 100, 0, 2 * Math.PI, false);
ctx.closePath();
ctx.fillStyle = "rgb(255, 255, 0)";
ctx.fill();

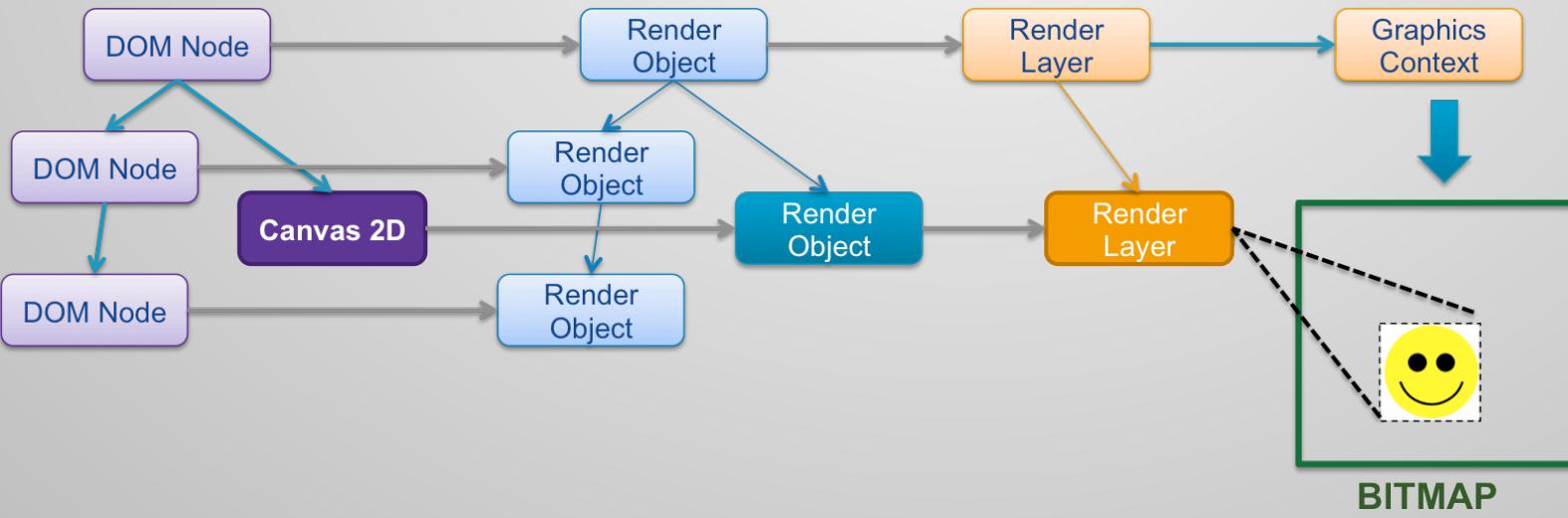
ctx.fillStyle = "rgb(0, 0, 0)";
ctx.beginPath();
ctx.arc(120, 130, 20, 0, 2 * Math.PI, false);
ctx.closePath();
ctx.fill();

ctx.beginPath();
ctx.arc(180, 130, 20, 0, 2 * Math.PI, false);
ctx.closePath();
ctx.fill();

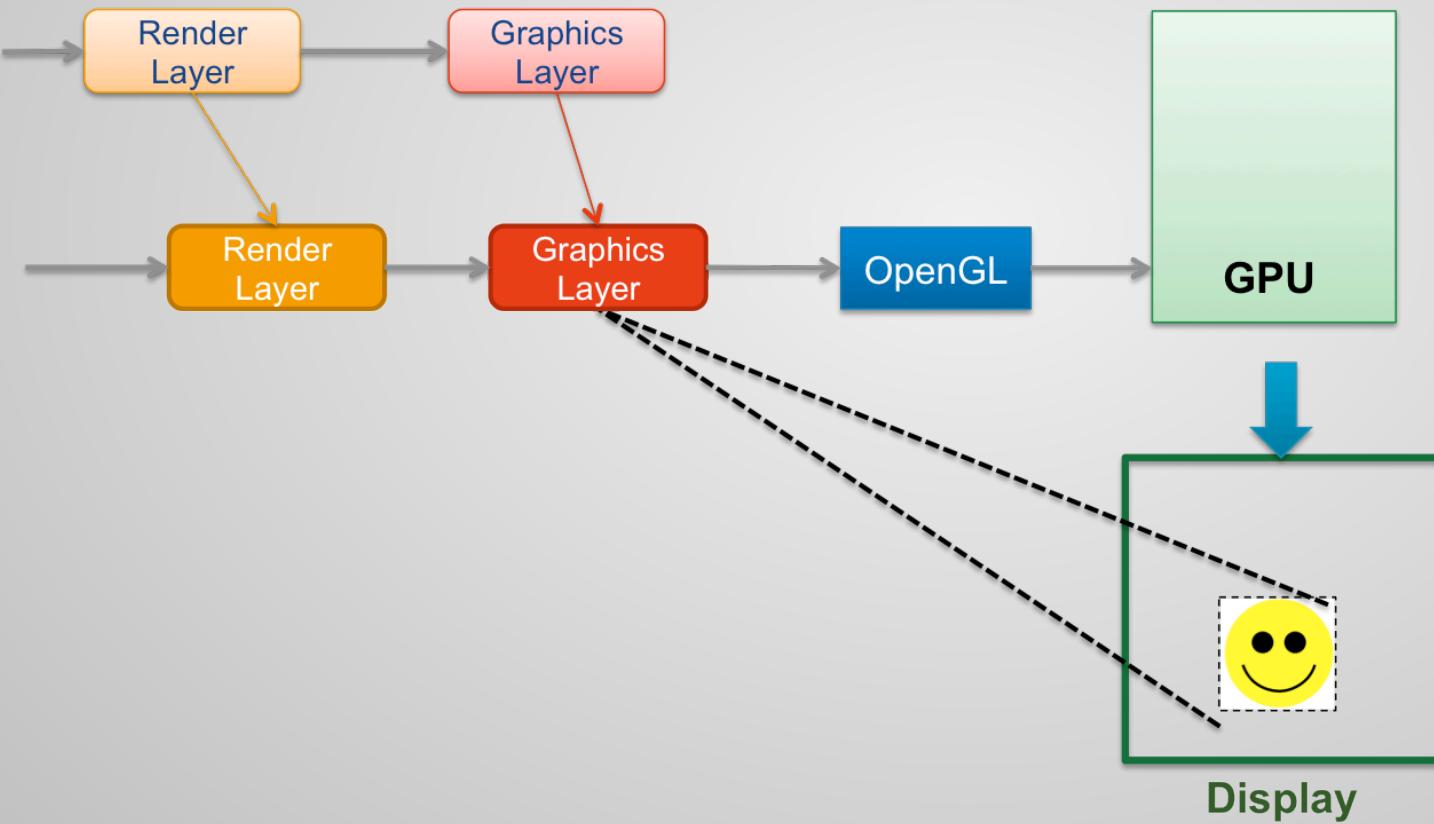
ctx.beginPath();
ctx.arc(150, 150, 70, Math.PI/10, Math.PI*
(1-1/10), false);
ctx.lineWidth = 5;
ctx.strokeStyle = "rgb(0,0,0)";
ctx.stroke();
```



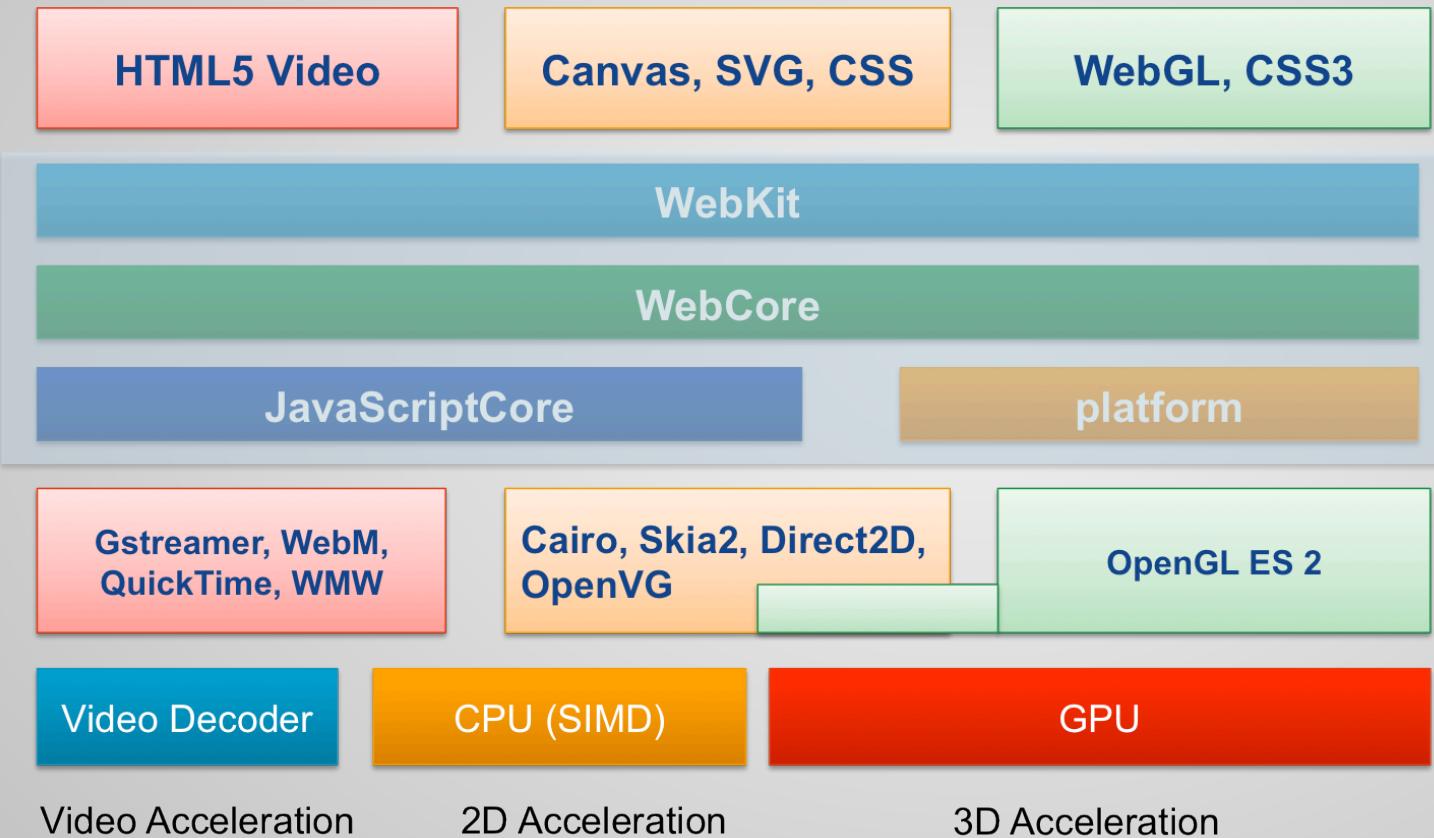
SOFTWARE RENDERING



HARDWARE ASSISTANCE/ACCELERATION



| | iOS | Android pre 3.x | Android 3.x & 4.x | Windows/ WP8 | Mac Os | Tizen | CanvasGL |
|-----------------|-----------|-----------------|-------------------|--------------|-----------|-------|----------|
| Graphics Engine | Quartz 2D | Skia | Skia | Direct 2D | Quartz GL | Cairo | CanvasGL |
| 2D Acceleration | No | No | Yes | Yes | Yes | No | Yes |
| 3D Acceleration | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Retained | Yes | No | Yes | | Yes | | |



Web Browsers

Too many

Some are limited

Some are too innovative

Some are proxy based

Little debugging support

Various input methods (focus, cursor, touch, multi-touch)

API support

Adaptation

Optimization

Mobile usability

Touch vs Click

Viewport
Full screen
Pixel density

Data URI - inlining content

Hybrid Apps



Mobile web is **slow**

Performance Optimization

No redirect

Semantic html5

Leverage CSS

Inline images

Reduce HTTP requests

Web Development is fun

Thank You

