

# ***HTML5 and the Open Web Platform***

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## Contents

- What is HTML5 and the “Open Web Platform”?
  - What the web is becoming
  - The role of HTML5
  - ... and other technologies
  - Are these technologies usable now? Or when?
- What do these technologies look like?
  - Functionalities of technologies
  - What they aim to provide
- How do technologies behave?
  - Demonstration
- Discussion
  - Examples

# HTML5 and the “Open Web Platform”

## A quick intro

## *The HTML5 sales pitch!*

- What?
  - A platform for applications on the Internet
  - Standardised
  - Well supported by technology vendors
  - Functionality for future and emerging needs
- Why?
  - The primary framework to provide end-user services
  - Minimizes cost/effort to develop/maintain services
- How?
  - Smooth transition from earlier HTML
  - Browser behaviour backwards compatible.

## Important new areas

- HTML5 elements (“tags”)
  - New elements ... matching current needs
  - Support audio/video, integrated in page (“1<sup>st</sup> class citizens”)
  - Open set of fonts
  - Generate graphics on a canvas
  - Improved support for input
- CSS
  - Much more rendering mechanisms available
  - Harmonized with SVG
- APIs to libraries
  - JavaScript enables extensibility ... tailoring
  - Emerging large set of standardised large set of

## The Open Web platform

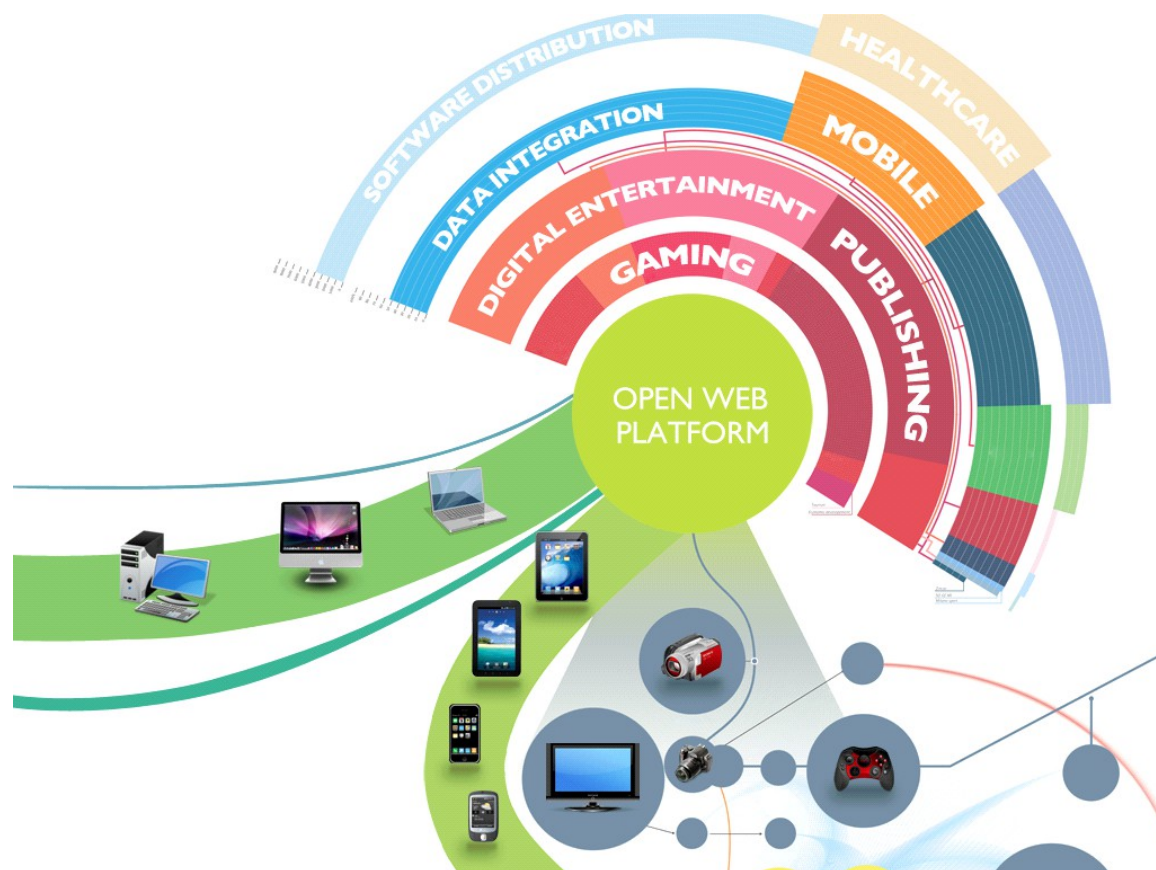
- Not a closed technology
  - Toolbox
  - Functionality in many dimensions
  - Extensible
  - Minimizing needs for other technologies
- Called what?
  - Open Web platform
  - Popularized under name “HTML5”

## *Perspectives on the web*

- The web in use
  - Technologies
  - Contents
  - Business
  - Management
  - Policies
  - .....
- The web as an enabler
  - The impact of the web, on society at large
- The web as a competitive space
  - Users, consumers, ...
  - Suppliers, business stakeholders

## *Main perspectives here*

- Web technologies
  - Packaged
  - Objectives
  - Scope
  - Focus
  - .....
- Web technology standards
  - Standards status
  - Standardisation
- Use of web technologies
  - Needs, uptake
  - Devices, contexts



## Open standards

### Standard Technologies (royalty-free)

Text, videos	Hypertext Markup Language (HTML)
Styles	Cascading Style Sheets (CSS)
Fonts	Web Open Font Format (WOFF)
Protocols	Hypertext Transfer Protocol (HTTP)
Dynamic	Javascript (ES), Web Application Programming Interfaces (WebAPIs)
Graphics	Scalable Vector Graphics (SVG), 2D Canvas API
Offline access	WebAPIs: Web Storage, IndexedDB, File API
Device access	WebAPIs: Geolocation, Orientation, Multi-touch, etc.
Performance	WebAPIs: Navigation timing, Page visibility, Timing control

[out-of-bound slides]

## *What do early majority say?*

- Close the gap with native
  - Improve Performance, capability, packaging, payment, discovery, system-level APIs
- Achieve broad interoperability
  - Increase testing, libraries, modularization, developer outreach
- Meet reqs of adjacent industries
  - Increase participation from industries most dramatically affected by new devices, connectivity, mobility, social

## HTML5 / the Open Web Platform is here

- Do not hesitate!
- Strategy for transition to the new world
  - Know-how; skills
  - New contents; services
- Successive transition
  - Old contents will work
  - Automatic content transformation



## HTML5 – the framework

## HTML5 – the pitch

- HTML5 is:
  - An enhanced HTML
  - Cater for recent & current new needs
  -
- A framework for applications
  - Rendering with CSS
  - Behavior via JavaScript (ECMAScript)
  - Programmatic access to other technologies (“library components”)
  -
- Supported by browser vendors
  - Traditional vendors
  - Emerging vendors in other device device landscapes

## HTML5 – approach

- Principle: correct HTML4 pages remain correct
- Goal: many incorrect pages still work, too
- New elements
- New attributes



## HTML 5: HTML or XML?

- Two serializations
  - HTML serialization (`text/html`)
  - XML serialization (`application/xhtml+xml`)
- Incorporates SVG and MathML
  - XML-based
- Incorporates DOM Core and DOM HTML
  - API to document object model

## The HTML5 specification

W3C Editor's Draft



### HTML 5.1 Nightly

A vocabulary and associated APIs for HTML and XHTML

Editor's Draft 15 January 2013

**Latest Published Version:**

<http://www.w3.org/TR/html51/>

**Latest Editor's Draft:**

<http://dev.w3.org/html5/spec/Overview.html>

**Previous Versions:**

<http://www.w3.org/TR/2012/WD-html5-20121217/>

<http://www.w3.org/TR/2012/WD-html5-20121025/>

<http://www.w3.org/TR/2012/WD-html5-20120329/>

<http://www.w3.org/TR/2011/WD-html5-20110525/>

<http://www.w3.org/TR/2011/WD-html5-20110405/>

<http://www.w3.org/TR/2011/WD-html5-20110113/>

<http://www.w3.org/TR/2010/WD-html5-20101019/>

<http://www.w3.org/TR/2010/WD-html5-20100624/>

<http://www.w3.org/TR/2010/WD-html5-20100304/>

<http://www.w3.org/TR/2009/WD-html5-20090825/>

## New elements - structure

- **section**: generic document or application section.
- **article**: independent piece of content of a document.
- **aside**: content that is only slightly related to the rest of the page.
- **hgroup**: header of a section.
- **header**: group of introductory or navigational aids.
- **footer**: footer for a section.
- **nav**: section of the document intended for navigation.
- **figure** self-contained flow content.
- **figcaption**: caption'..

## New elements – other 1/2

- **video** and **audio**
- **track**: text tracks for the video element.
- **embed**: plugin content.
- **mark**: marked or highlighted text.
- **progress**: completion of a task (downloading, ...).
- **meter**: measurement (disk usage, ...).
- **time**: date and/or time.
- **ruby**, **rt**, **rp**: ruby annotations.
- **bdi**: bidirectional text formatting.

## New elements – other 2/2

- **wbr**: line break opportunity.
- **canvas**: dynamic bitmap graphics.
- **command**: command the user can invoke.
- **details**: additional information to user.
- **datalist**: data for comboboxes.
- **keygen**: key pair generation.
- **output**: output data (from scripts, ...).

## New attributes ... examples 1/2

- `<input autofocus>`
- `<input placeholder="...">` – hint shown inside an empty input
- `<input form=ID>` – allows to put element outside form
- `<input required>`
- `<input min= max= step= pattern= >` – constraints
- `<ol reversed>` – count down

## New attributes ... examples 2/2

- `<iframe seamless>` – render with intrinsic height instead of 150px
- `<contenteditable >` – a bit like textarea
- `<data-* >` – guaranteed non-standard attributes
- `<role= aria* >` – restore accessibility of incorrectly used elements
- `<input spellcheck>` – indicate use of spellchecking

## Other types of changes to markup

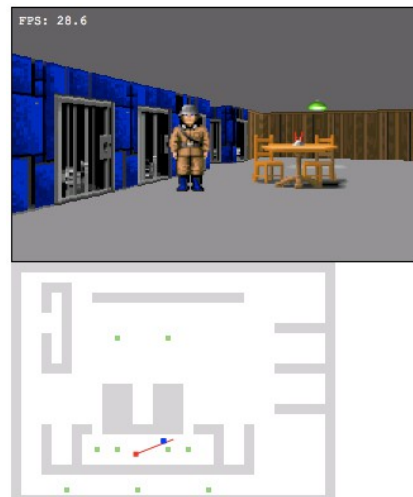
- Changed elements: **a**, **address**, **dl**, ....
- Changed attributes: `<script type=..>`, `<table border=...>`, ...
- Removed elements: **basefont**, **big**, **center**, ...
- Removed attributes: `<link target=...>`, `<img longdesc=...>`, ...

## Changes to internal structure

- New APIs: audio, video, drag-and-drop, edit, ...
- DOM extensions: HTMLDocument, HTMLInputElement

## Canvas

- 2D drawing space
- Scripted manipulation
- Dynamic contents



*Demo examples: html5*

## HTML 5.0 <video>

- `<video src='myMovie' id='myVideoElement' />`
- .....



*Demo [html5/video.html](#)*

## Reasonable Requirements for a Video codec

- Known not to require per-unit or per-distributor licensing
- Compatible with the open source development model
- Of sufficient quality as to be usable
- Not an additional submarine patent risk for large companies
- Compatible with W3C Royalty-Free policy
- .....

None of the codecs fit the requirements for HTML 5?

## Codecs and formats

Format Container: .avi, .mp4, .mov, .ogg, .flv, .mkv, etc.

**Video codec:**

H.264,  
VP8,  
Theora,  
Dirac 2.1,  
H.263,  
etc.

**Audio codec:**

AAC,  
WMA,  
Vorbis,  
PCM,  
etc.

**Captioning,  
Video description:**

SAMI, SMIL,  
Hi-Caption,  
CMML, DFXP,  
3GPP TS 26.245,  
MPSub,  
etc.

**Metadata:**

MPEG-7,  
CableLabs,  
TV-ANYtime,  
EBU,  
XMP,  
etc.

## Codec implementations

## Enhanced presentation – CSS3 et al.

## *Improved user experience*

Main components:

- The HTML language: content structure
- CSS3: rendering contents ... visualisation
- JavaScript: specialized behaviour

But ...

- CSS3: provides dynamic visualisation effects
- SVG: flexible scalable vector graphics, with some dynamic effects.



# CSS – the big picture

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- XX

## CSS 3 Modules – examples

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- Media Queries
- Selectors Level 3; Level 4
- CSS Grid Template Layout
- CSS Aural Style Sheets
- CSS Backgrounds and Borders Level 3; Level 4
- CSS Basic Box Model
- CSS Extended Box Model
- CSS Marquee
- CSS Color
- CSS Fonts
- CSS Generated Content for Paged Media
- CSS Generated and Replaced Content
- CSS Line Layout
- CSS Lists
- CSS Multi-column Layout
- CSS Paged Media
- Grid Layout

## CSS Media Queries

```
<link rel="stylesheet" type="text/css" href="base.css" />
<style type="text/css" media="screen and (min-width: 481px)">
  @import url("advanced.css");
</style>
<link rel="stylesheet" type="text/css" href="base.css"
      media="handheld, only screen and (max-device-width:
480px)" />
```

W3C mobileOK Checker  
Is your Web site mobile-friendly?

Validate by URI | Validate by File Upload | Validate by Direct Input

Address:

Check

This checker performs various tests on a Web Page to determine its level of mobile-friendliness. The tests are defined in the [mobileOK Basic Tests 1.0](#) specification. A Web Page is **mobileOK** when it passes all the tests. Please refer to the [About](#) page for more details. If you wish to validate specific content such as [markup validation](#), or [RSS/Atom feeds](#), or [CSS stylesheets](#), or to [find broken links](#), there are [other validators and tools](#) available.

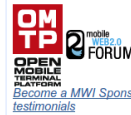
### ONLINE TRAINING SESSIONS

Want to learn more about mobile Web design?

Attend one of our online training sessions on Mobile Web Best Practices!

[Check it out!](#)

### SPONSORS



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### Online training sessions

Want to learn more about mobile Web design?

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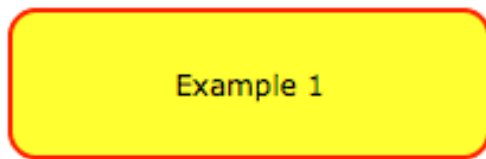
[Check it out!](#)

## CSS Borders

```
.grunge {
  background-image: url(laptop-graphic.jpg);
  padding: 26px 23px;
  width: 223px;
}
```

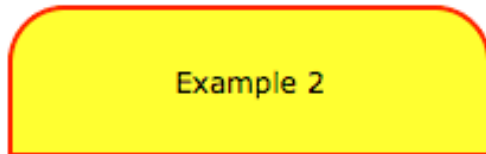


## CSS Borders



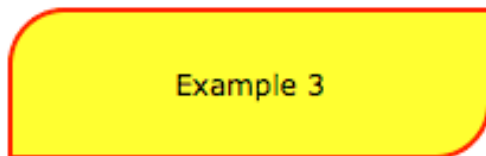
Example 1

```
-moz-border-radius: 1em;
```



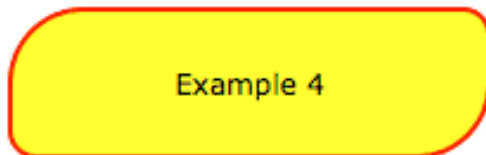
Example 2

```
-moz-border-radius-topright: 2em;  
-moz-border-radius-topleft: 2em;
```



Example 3

```
-moz-border-radius: 2em 0;
```



Example 4

```
-moz-border-radius: 3em 1em;
```

## CSS 3 Selectors

- :first-child, :last-child, :nth-child(3), :nth-child(odd)

Date	Description	Deposition	Transfer	Withdrawal	Balance
10/08/2004	Restaurant	Expenses:Foods		38.14	440.67
10/10/2004	Market	Expenses:Groceries		123.14	317.53
10/11/2004	Gas	Expenses:Car		40.00	277.53
10/12/2004	Payroll	Income:Salary	2,000.00		2277.53
10/12/2004	Home depot	Expenses:House Supplies		41.14	2236.39
10/14/2004	Dentist	Expenses:Medical		166.20	2070.19
10/15/2004	Electricity	Expenses:Utilities		27.88	2042.31
10/16/2004	Filene's Basement	Expenses:Grooming		31.93	2010.38

## CSS Borders, selectors, ...

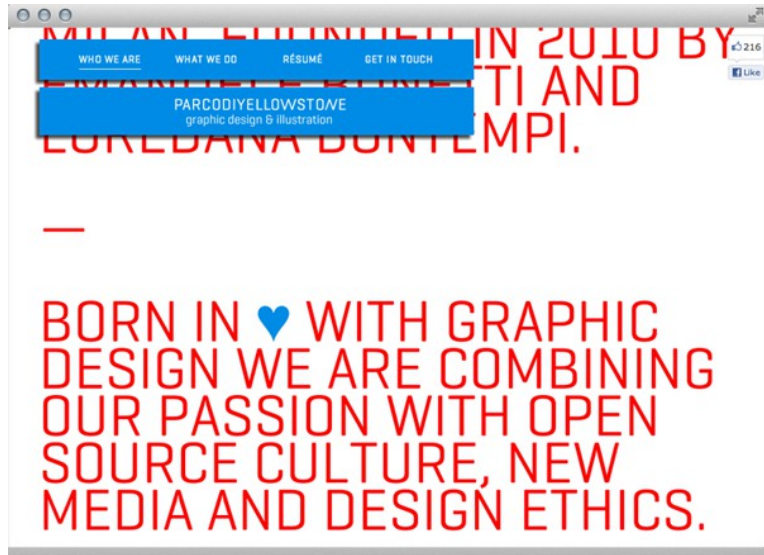
```
.grunge {
  background-image: url(laptop-graphic.jpg);
  padding: 26px 23px;
  width: 223px;
}
```

Article	Date
24 ways to feed a goat	October 2
Top 10 ways to become popular	October 4
Site taken? Get to the point.	October 8
I was crazy to say yes	October 9
Trying too hard	October 15
Not trying hard enough	October 23
Are you dressing up?	October 30
Happy Halloween!	October 31
8 articles for October	

## Associated technologies

## WOFF – web fonts

- Basically OpenType or TrueType fonts
  - With added support for network delivery
- No longer restricted to built-in browser fonts.



## ... and many others

- Geolocation ... use geographical position (mobile!)
- Web applications ... small things on your desktop
  - Newsfeeds, ticker tapes, weather, timetables, ...
- Offline web applications ... working when not online
- Web workers ... threads for independent processing
- Web sockets ... bi-directional, full-duplex communications
- Device APIs ... calendar, contacts, camera, files, sensors, ...

# The Open Web Platform

- HTML 5
- CSS 2.1
- CSS 3 Selectors
- CSS 3 Media Queries
- CSS 3 Text
- CSS 3 Backgrounds and Borders
- CSS 3 Colors
- CSS 3 2D Transformations
- CSS 3 3D Transformations
- CSS 3 Transitions
- CSS 3 Animations
- CSS 3 Multi-Columns
- CSS Namespaces
- SVG 1.1
- WAI-ARIA 1.0
- MathML 2.0
- ECMAScript 5
- 2D Context
- WebGL
- Web Storage
- Indexed Database
- Web Workers
- Web Sockets Protocol/API
- Geolocation
- Server-Sent Events
- Element Traversal
- DOM Level 3 Events
- Media Fragments
- XMLHttpRequest
- Selectors API
- CSSOM View Module
- File API
- RDFa
- Microdata
- WOFF
- HTTP 1.1 part 1 to part 7
- TLS 1.2 (updated)
- IRI (updated)
- ...

# Blank page

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## HTML5 and apps

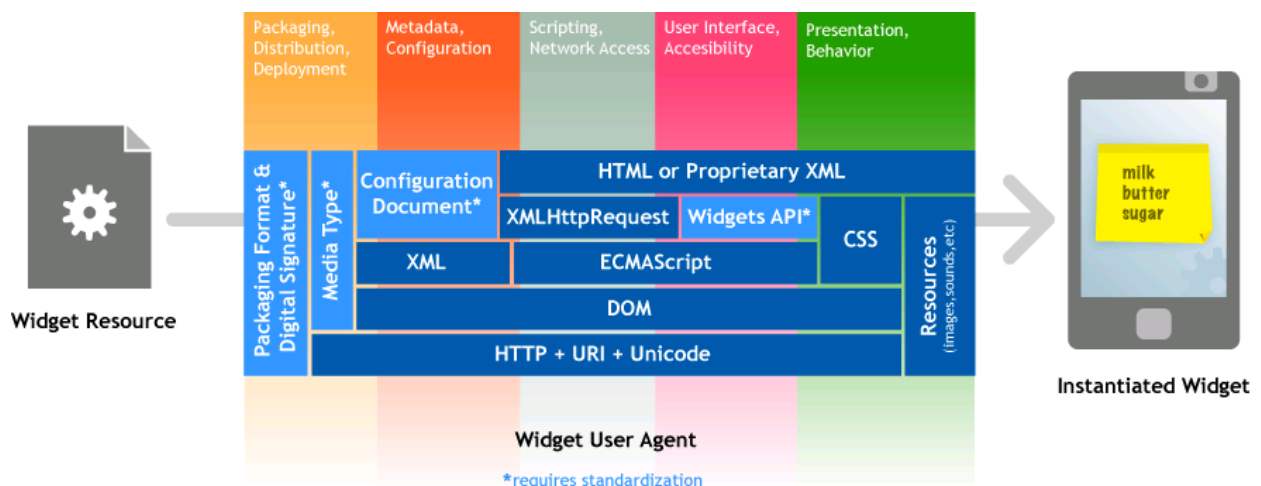
## *Apps – a practical objective*

- Growth of mobile space
- A main driver for W3C work: support for “web apps”
- Supporting technologies:
  - HTML5
  - Functional components ... defined APIs

# Web Apps @ W3C

- Web Applications (WebApps) Working Group
  - enable improved client-side application development on the Web, including specifications for
    - application programming interfaces (APIs) for client-side development
    - markup vocabularies for describing and controlling client-side application behavior.
- Widget
  - packaging and delivery
  - single download/installation
  - run as standalone (i.e., outside browser)
  - expressed in web technologies
  - executed in a small “virtual machine”

## Widget technology stack – generic view





## Web Apps: Technology APIs

- Web DOM4/Core API
- Indexed Database API
- CSSOM View Module API
- Drag Drop API
- Microdata API
- Text Selection API
- RDFa API
- Selectors API
- Undo History API
- Element Traversal API
- File API
- 2D Context API
- XMLHttpRequest API
- Web Events API
- Web Storage API
- Web Notification API
- Resource Timing API
- Web Sockets API
- DOM Level 3 Events API
- Audio API
- Web Workers API
- Navigation Timing API
- Messaging API
- Web Messaging API
- Multi-touch Events API
- Device API
- Geolocation API
- ...

## Web Apps: Other candidate areas/needs

- Video Streaming (adaptive and live), P2P
- TV remote, DLNA
- TV channels, Speech
- More Web performance benchmarks
- 3D at the markup level (SVG equivalent)
- Identity, Access control
- Security, Privacy
- Digital content distribution and micropayment
- Data and query server discovery, service description
- Federated query server
- Trust, Provenance
- Read-write Web
- Interoperability
- Education materials
- Certification (software and developers)
- Authoring tools support
- Multilingual support
- Publishing pipeline: more on XML?
- ...

## Web Apps vs Native Apps

Differences in terms of:

- Portability
- Provisioning
- Developer skills
- Interoperability
- Integrated web management
- Etc.
  
- Use vendor-specific functionality
- Be seen in a specific AppStore
- etc.

## Will web apps happen?

**“One Billion HTML5 Phones to be Sold Worldwide in 2013”**

Boston, MA - December 7, 2011

According to the latest research from Strategy Analytics, *worldwide HTML5 phone sales will surge from 336 million units in 2011 to 1 billion units in 2013.*

HTML5 has quickly become a high-growth technology that will help smartphones, feature phones, tablets, notebooks, desktop PCs, televisions and vehicles to converge through cloud services.

<http://www.strategyanalytics.com/default.aspx?mod=pressreleaseviewer&a0=5145>

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# Browser support

## Issues

- Is HTML5 supported?
  - Can new browsers handle HTML5?
  - How do older browsers handle HTML5?
  
- State-of-the-art dependent on category of device
  - PC world important
    - But with tons of legacy
  - Mobile world increasingly important
    - Average age of device stays low
  - Tablet is taking off
    - But does it differ from the two above?

## Browser vendors and HTML5

- Major vendors active in HTML Working Group
  - Driving standardisation work
- Successively implementing features
  - With different plans
- Ongoing: refined and broader implementations

## Browser implementations

- Browser main component: layout engine
  - Gecko: Firefox, ...
  - Presto: Opera, ...
  - Trident: Internet Explorer, ...
  - WebKit: Apple Safari, Google Chrome, ... (LG TV)

## Browser coverage snapshot

- New Elements

	Trident	Gecko	WebKit	Presto
section				
nav				
article				
aside	5.0 <sup>[1]</sup>	2.0 <sup>[1]</sup>	533 <sup>[1]</sup>	2.7.70
hgroup				
header				
footer				
time	No	No <sup>[1]</sup>	No	2.8.146
mark	5.0 <sup>[1]</sup>	2.0 <sup>[1]</sup>	Yes <sup>[1]</sup>	2.7.70
ruby, <sup>[1]</sup> rt, rp	3.1 <sup>[1]</sup>	No <sup>[1]</sup>	533 <sup>[1]</sup>	No
dialog	No	No	No <sup>[1]</sup>	No
figure	5.0 <sup>[1]</sup>	2.0 <sup>[1]</sup>	Yes <sup>[1]</sup>	2.7.70
figcaption				
embed	<3.1 <sup>[1]</sup>	1.7	85	1.0
video				
audio	5.0 (Partial) <sup>[1]</sup>	15.0 <sup>[1]</sup>	525	2.5 <sup>[1]</sup>
source				
canvas		1.9.2 <sup>[1]</sup>	Partial	2.0 <sup>[1]</sup>
Inline MathML	No		Yes <sup>[1]</sup>	2.1 <sup>[1]</sup>
Inline SVG	5.0 <sup>[1]</sup>	2.0	Yes <sup>[1]</sup>	2.9.220 <sup>[1]</sup>
details			Yes <sup>[1]</sup>	
summary		No <sup>[1]</sup>	Yes <sup>[1]</sup>	No
command	No	No <sup>[1]</sup>	No	
menu		8.0 <sup>[1]</sup>	No <sup>[1]</sup>	2.8 <sup>[1]</sup>
bd		10.0 <sup>[1]</sup>	526 <sup>[1]</sup>	No

# Browser coverage snapshot

- New attributes

## Element-specific

Attribute	Element	Trident	Gecko	WebKit	Presto
manifest	html	6.0 <sup>[1]</sup>	1.9	Yes	2.6 <sup>[8][9]</sup>
sizes	link	No	8.0 (only mobile) <sup>[13][14]</sup>	Yes <sup>[17]</sup>	No
charset	meta	4.0 <sup>[5]</sup>	1.9.2	Yes	2.5.24
scoped	style	No	21.0 <sup>[18]</sup>	No <sup>[18]</sup>	No
async	script	6.0	1.9.2 <sup>[19]</sup>	Yes <sup>[19]</sup>	
reversed	ol	No	18.0 <sup>[17]</sup>	Yes <sup>[21]</sup>	
download	a, area	No	20.0 <sup>[18]</sup>	Yes	
sandbox	iframe	6.0 <sup>[9]</sup>	17.0 <sup>[18]</sup>	533 <sup>[21]</sup>	
seamless	iframe	No	No <sup>[21]</sup>	No <sup>[22]</sup>	
Attribute	Element	Trident	Gecko	WebKit	Presto

## Global

	Trident	Gecko	WebKit	Presto
translate <sup>[4]</sup>	No			
Datasets (data-*)	No	6.0 <sup>[21]</sup>	Yes <sup>[23]</sup>	2.8 <sup>[10]</sup>
contextmenu		8.0 <sup>[21]</sup>	No <sup>[24]</sup>	No
hidden		2.0 <sup>[23]</sup>	Yes <sup>[23]</sup>	2.7.70
contenteditable <sup>[5]</sup>	<3.1 <sup>[16][5]</sup>	1.9	Yes	2.0
spellcheck <sup>[6]</sup>	6.0	1.8 <sup>[24]</sup>	Incorrect <sup>[25]</sup>	2.8 <sup>[11]</sup>
draggable		1.9.1 <sup>[23]</sup>	533 <sup>[27]</sup>	2.10.270
dropzone		No <sup>[28]</sup>	Yes	2.10.270
	Trident	Gecko	WebKit	Presto

# Browser coverage snapshot

- Form elements/attributes

	Trident	Gecko <sup>[8][21]</sup>	WebKit <sup>[8][23]</sup>	Presto <sup>[13]</sup>
Attributes				
autocomplete	3.1	Yes	Yes	2.0
list	6.0 <sup>[9]</sup>	2.0 <sup>[23]</sup>	No <sup>[29]</sup>	
required	6.0 <sup>[7]</sup>	2.0 <sup>[23]</sup>	528 <sup>[10][6][30]</sup>	2.7 <sup>[13]</sup>
multiple	6.0 <sup>[9]</sup>	1.9.2 <sup>[10][9][31]</sup>	528 <sup>[10][6][9][31]</sup>	
pattern	6.0 <sup>[9]</sup>	2.0 <sup>[31]</sup>	528 <sup>[10][6][32][33]</sup>	2.0
min, max	6.0 <sup>[10][11]</sup>	16.0 <sup>[34][35]</sup>	Yes <sup>[33]</sup>	
step	6.0 <sup>[12]</sup>	16.0 <sup>[36]</sup>	528 <sup>[34]</sup>	2.7 <sup>[13]</sup>
placeholder	6.0 <sup>[13]</sup>	2.0 <sup>[33]</sup>	Yes	
form	No	2.0 <sup>[33]</sup>	Yes <sup>[33]</sup>	2.0
autofocus	6.0 <sup>[14]</sup>	2.0 <sup>[37]</sup>	528 <sup>[33]</sup>	
maxlength	6.0 <sup>[19]</sup>	2.0 <sup>[33]</sup>	528 <sup>[37]</sup>	2.8 <sup>[14]</sup>
novalidate	6.0 <sup>[19]</sup>	2.0 <sup>[33]</sup>	528 <sup>[33]</sup>	
control	No	2.0 <sup>[41]</sup>	No	No
accept	No	2.0 <sup>[41]</sup>	Yes <sup>[33]</sup>	Yes
formtarget	6.0 <sup>[17]</sup>	2.0 <sup>[43]</sup>	Yes <sup>[43]</sup>	2.8 <sup>[19]</sup>
formaction	6.0 <sup>[19]</sup>	2.0 <sup>[43]</sup>	Yes <sup>[44]</sup>	2.8 <sup>[19]</sup>
formmethod	6.0 <sup>[19]</sup>	2.0 <sup>[44]</sup>	Yes <sup>[44]</sup>	2.8 <sup>[17]</sup>
formenctype	6.0 <sup>[23]</sup>	2.0 <sup>[44]</sup>	Yes <sup>[44]</sup>	2.8 <sup>[19]</sup>
formenvaliddate	6.0 <sup>[21]</sup>	2.0 <sup>[43]</sup>	528 <sup>[33]</sup>	2.8 <sup>[19]</sup>
disabled (fieldset element)	<3.1	2.0	No	2.7
Elements				
datalist	6.0 <sup>[22]</sup>	2.0 <sup>[46]</sup>	No <sup>[41]</sup>	2.0
keygen <sup>[7]</sup>	No <sup>[23]</sup>	1.0 <sup>[47]</sup>	125	1.0

# Browser coverage snapshot

## • CSS3 Media Queries

Test Name	Opera 12.00-1317	Firefox 10.0.1	Internet Explorer 10.0.8250.0	Chrome 20.0.1132.27 beta
Script-harness Sanity Check	Pass	Pass	Pass	Fail
<i>Logic Expressions on Untyped Queries</i>	<i>Opera</i>	<i>Firefox</i>	<i>Internet Explorer</i>	<i>Chrome</i>
query (orientation) should be parseable	Pass	Pass	Pass	Fail
query not (orientation) should not be parseable	Pass	Pass	Pass	Pass
query only (orientation) should not be parseable	Pass	Pass	Pass	Pass
query all and (orientation) should be parseable	Pass	Pass	Pass	Fail
query not all and (orientation) should be parseable	Pass	Pass	Pass	Pass
query only all and (orientation) should be parseable	Pass	Pass	Pass	Fail
<i>Parsing width</i>	<i>Opera</i>	<i>Firefox</i>	<i>Internet Explorer</i>	<i>Chrome</i>
expression width should be parseable	Pass	Pass	Pass	Pass
expression width: 0 should be parseable	Pass	Pass	Pass	Pass
expression width: 0px should be parseable	Pass	Pass	Pass	Pass
expression width: 0em should be parseable	Pass	Pass	Pass	Pass
expression width: -0 should be parseable	Pass	Pass	Pass	Pass
expression width: -0 should be parseable	Pass	Pass	Pass	Pass
expression min-width: -0 should be parseable	Pass	Pass	Pass	Pass
expression max-width: -0 should be parseable	Pass	Pass	Pass	Pass
expression width: -0cm should be parseable	Pass	Pass	Pass	Pass
expression width: 1px should be parseable	Pass	Pass	Pass	Pass
expression width: 0.001mm should be parseable	Pass	Pass	Pass	Pass
expression width: 100000px should be parseable	Pass	Pass	Pass	Pass
expression width: -1px should not be parseable	Pass	Pass	Pass	Fail
expression min-width: -1px should not be parseable	Pass	Pass	Pass	Fail
expression max-width: -1px should not be parseable	Pass	Pass	Pass	Fail

# Coverage in the mobile space

## • Some display-related technologies

Animations	<a href="#">CSS Animations Module Level 3</a>		Working Draft	Early draft	<a href="#">Updated regularly</a>	
	<a href="#">CSS Transitions Module Level 3</a>		Working Draft	Early draft	<a href="#">Latest update July 2012</a>	Well deployed 
	<a href="#">Timing control for script-based animations API</a>	<a href="#">Web Performance Working Group</a>	Last Call Working Draft	Stabilizing	<a href="#">Regularly updated</a>	Limited, but growing 
Downloadable fonts	<a href="#">WOFF File Format 1.0</a>	<a href="#">WebFonts Working Group</a>	Proposed Recommendation	Mostly finished	<a href="#">Latest update Oct 2012</a>	Good deployment 
Fullscreen display	<a href="#">Fullscreen API</a>	<a href="#">Web Apps and CSS Working Groups</a>	Working Draft	Early draft	<a href="#">Regularly updated</a>	Very limited 
Orientation Lock	<a href="#">The Screen Orientation API</a>	<a href="#">Web Apps Working Groups</a>	Working Draft	Early draft	<a href="#">Regularly updated</a>	Very limited 

# Coverage in the mobile space

## Communication

HTTP(s) network API	<a href="#">XMLHttpRequest</a>		Working Draft	changing, but starting to stabilize	<a href="#">Regularly updated</a>	growing for level 2 5.0+ 3.0+ 12.0+ 18.0+ 7.0+ 10.0+ 15.0+
Cross-domain requests	<a href="#">Cross-Origin Resource Sharing</a>		Last Call Working Draft	Stable	<a href="#">Latest update June 2012</a>	Getting well-deployed 3.2+ 2.1+ 12.0+ 18.0+ 7.0+ 10.0+ 15.0+
Server-pushed requests	<a href="#">Server-Sent Event</a>	<a href="#">Web Applications Working Group</a>	Candidate Recommendation	Stable	<a href="#">Regularly updated</a>	Getting well-deployed 4.0+ X 11.1+ 18.0+ 7.0+ X 15.0+
	<a href="#">Push API</a>		Working Draft	Early draft	<a href="#">Last updated Oct 2012</a>	None
Bidirectional connections	<a href="#">The WebSocket API</a>		Candidate Recommendation	Stable	<a href="#">Regularly updated</a>	Good deployment 6.0+ X 12.1+ 18.0+ 7.0+ 10.0+ 15.0+
P2P data connections	<a href="#">WebRTC 1.0: Real-time Communication Between Browsers</a>	<a href="#">Web Real-Time Communications Working Group</a>	Working Draft	Early draft	<a href="#">Regularly updated</a>	None X X X X X X X
on-line state	<a href="#">HTML5 onLine DOM state</a>	<a href="#">HTML Working Group</a>	Working Draft	Mostly stable	<a href="#">regularly updated</a>	Limited X 2.2+ X X X 15.0+ X

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## World Wide Web Consortium (W3C)

- W3C (World Wide Web Consortium)
  - The web standards organization Consortium



- Consortium 375 member organisations
- Founded 1994
- Creating web standards (“W3C Recommendations”)
  - HTML, CSS, SVG, RDF, PNG, MathML, XML, WCAG, EXI...

## Open standardisation process

- Requirements driven and needs driven
  - Use cases, business needs, ...
- Proposals exposed to the world
- Comments and feedbacks incorporated
- HTML Working Group handles work on HTML5
  - ... in collaboration with WHATWG
  - Done as collaboration between IT companies
- Consensus in working group
  - Stakeholders are driving it
- Drivers: market; use; and technology

## Challenges to standardisation

- Compatibility between standards
  - Combining web technologies
    - Combining standards
    - HTML + CSS; HTML + MathML; XHTML + Xquery; ...
- Compatibility across generations of a standard
  - Keep old stuff? How to shape new stuff?
  - HTML 3 => HTML 4 => HTML 4.01 => HTML 5
- HTML5 defined to:
  - integrate other standards
  - be "backwards compatible" & tolerant

## Evolution of HTML

- HTML family
  - November 1995 - HTML 2.0 (IETF RFC 1866)
  - January 1997 - HTML 3.2 (W3C Recommendation)
  - December 1997 - HTML 4.0 (W3C Recommendation)
  - December 1999 - HTML 4.01 (W3C Recommendation)
  - May 2000 - ISO/IEC 15445:2000 (ISO standard)
  - 2007-2014 - HTML5 (work in progress)
- XHTML family
  - Jan 2000 - XHTML 1.0 (W3C Recommendation)
  - May 2001 - XHTML 1.1 (W3C Recommendation)
  - (2002-2009 - XHTML 2.0)
  - 2007 - XHTML5 (work in progress)

## HTML5 evolution

- 2007:
  - Opera, Mozilla, and Apple creates the WHAT WG (*Web Hypertext Application Technology Working Group*)
- 2007:
  - W3C restarts the HTML Working Group
- 2008:
  - January: First Public Working Draft
- 2010:
  - Apple, Google, Mozilla, Microsoft, and Opera (and others) are implementing, or are committed to, HTML 5
- 2014
  - Plan for publication as W3C Recommendation

## HTML Working Group

- 54 W3C Member organizations
- 419 participants in the group
- 225 Invited Experts
- Coordinates with WHATWG .

## Tests suites

- Needed for approving as web standard.
- Extensive contributions from Google, Microsoft, Opera, Mozilla, Apple, and others.
- Have implementation results for 925 tests and currently 11907 approved test cases (Oct 2012).
- 110,303 test have been submitted including ~8,000 parser tests and another ~18,000 are for testing attribute reflection
- Test results (snapshot):
  - <http://w3c-test.org/html/tests/reporting/report.htm>

## Using test suites

- Example: HTML5 Parser
  - Good Coverage
  - Interoperability IE10, Opera 11.62, Firefox 12, Chrome 18
- Test suits foundation for conformance assertions
  - Implementation conform to standard == fulfill test suite

Thank you for your attention!

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