

# Agenda

- \* What is HTML5 -- Its history and motivation
- \* HTML/XHTML as Human / Machine Readable Format
- \* HTML and its related technologies
- \* Brief summary of the changes
- \* Models of HTML5
- \* Examples and demonstrations

# What is HTML5 -- Its history and motivation

- \* W3C and HTML
- \* Brief history of HTML
- \* WHATWG and HTML5
- \* 'Working Draft' and 'Recommendation'
- \* HTML5 as IDL -- Interface Definition via IDL

# What is HTML5 - W3C and HTML

**W**orld

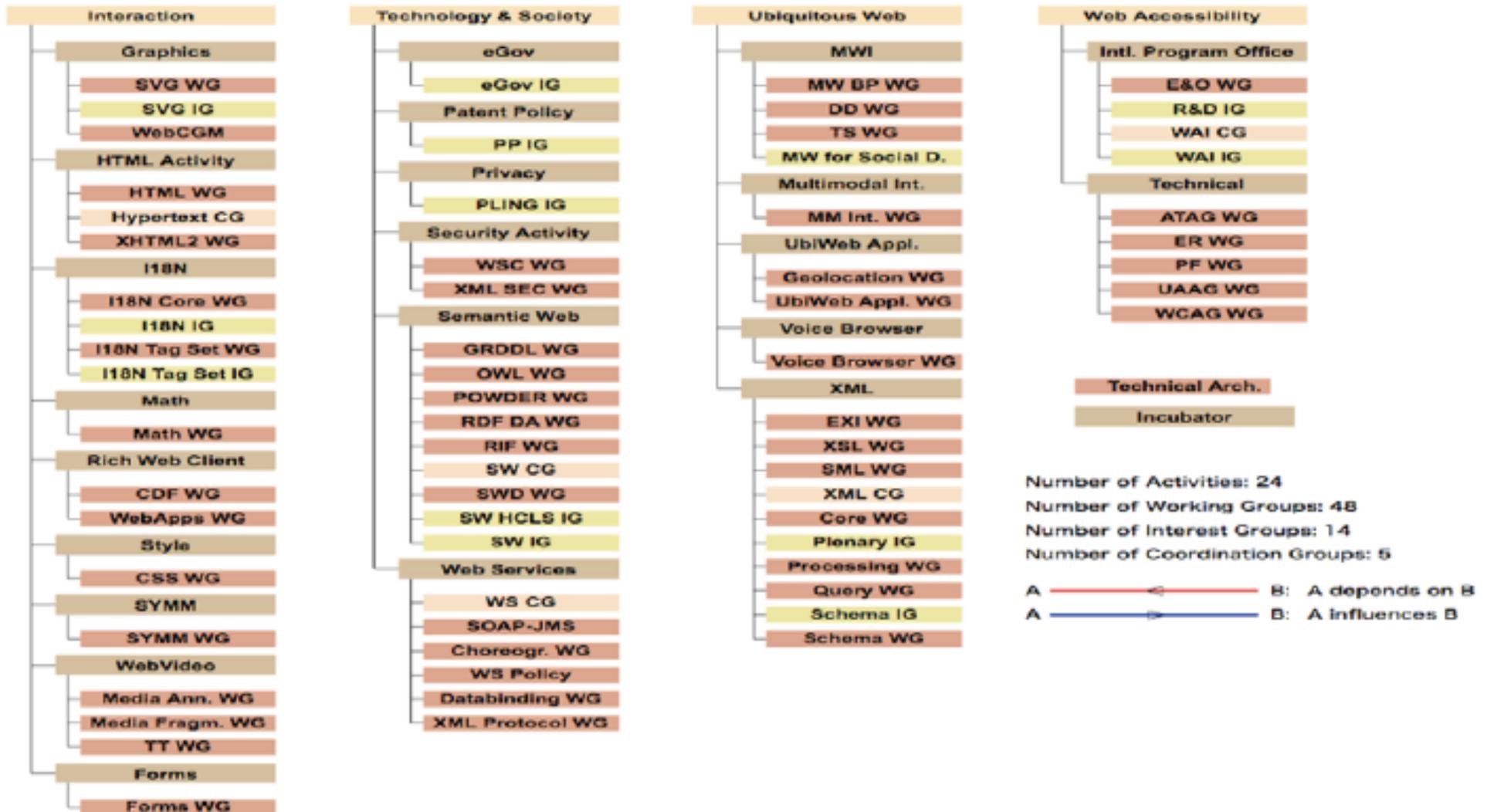
**w**ide

**w**eb

**C**onsortium



# What is HTML5 - W3C and HTML



# What is HTML5 - Brief history of HTML

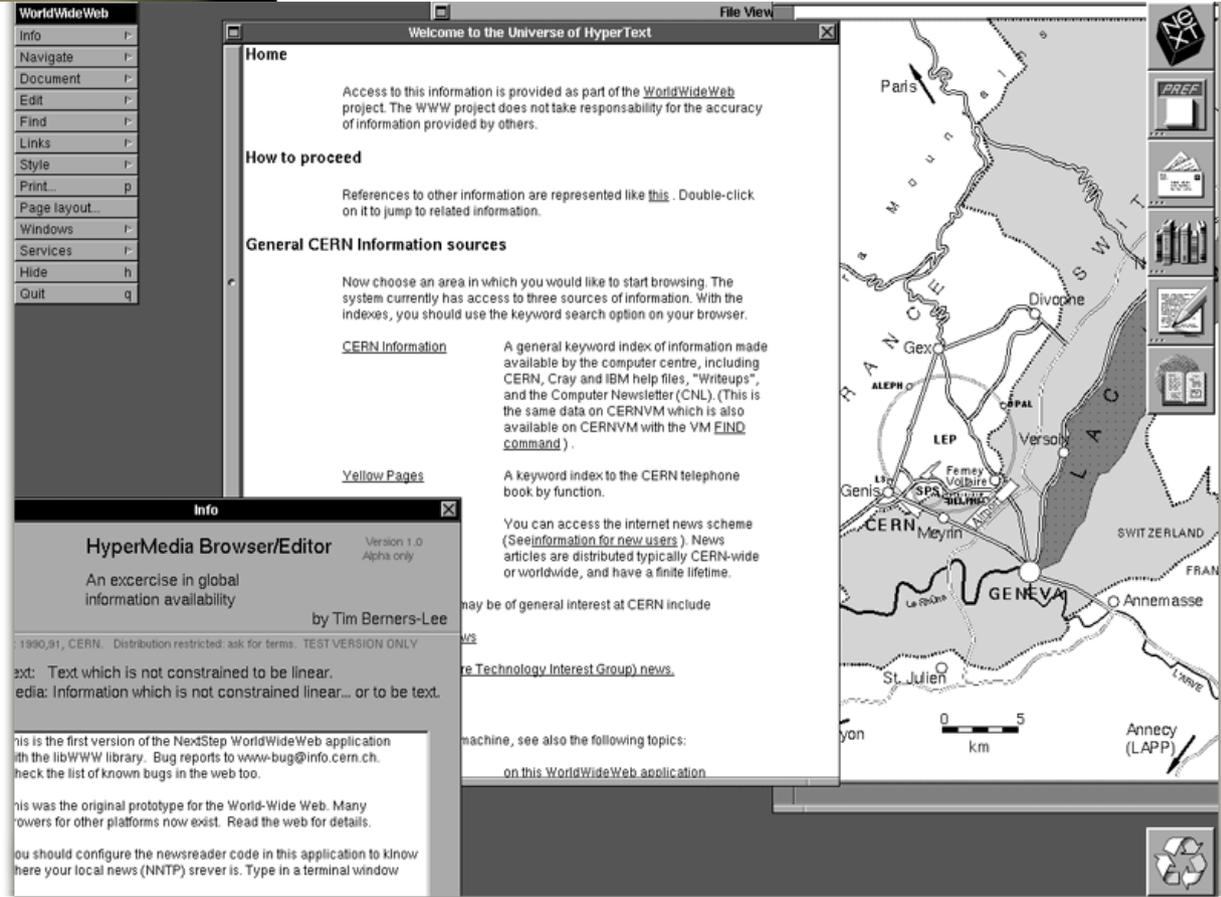
HTML is born for 'Scientists' at CERN.



copyright by Silvio Tanaka: <http://www.flickr.com/photos/...>

Tim Berners Lee

First website (from archive@cern)



# What is HTML5 - Brief history of HTML

HTML (1989; CERN)

HTML 1.0 (1993; IETF)

HTML 2.0 (1995; W3C)

HTML 3.2 (1997; W3C)

HTML 4.0.1 (1999; W3C)

HTML =  
HyperText Markup Language

XML 1.0 (1998)

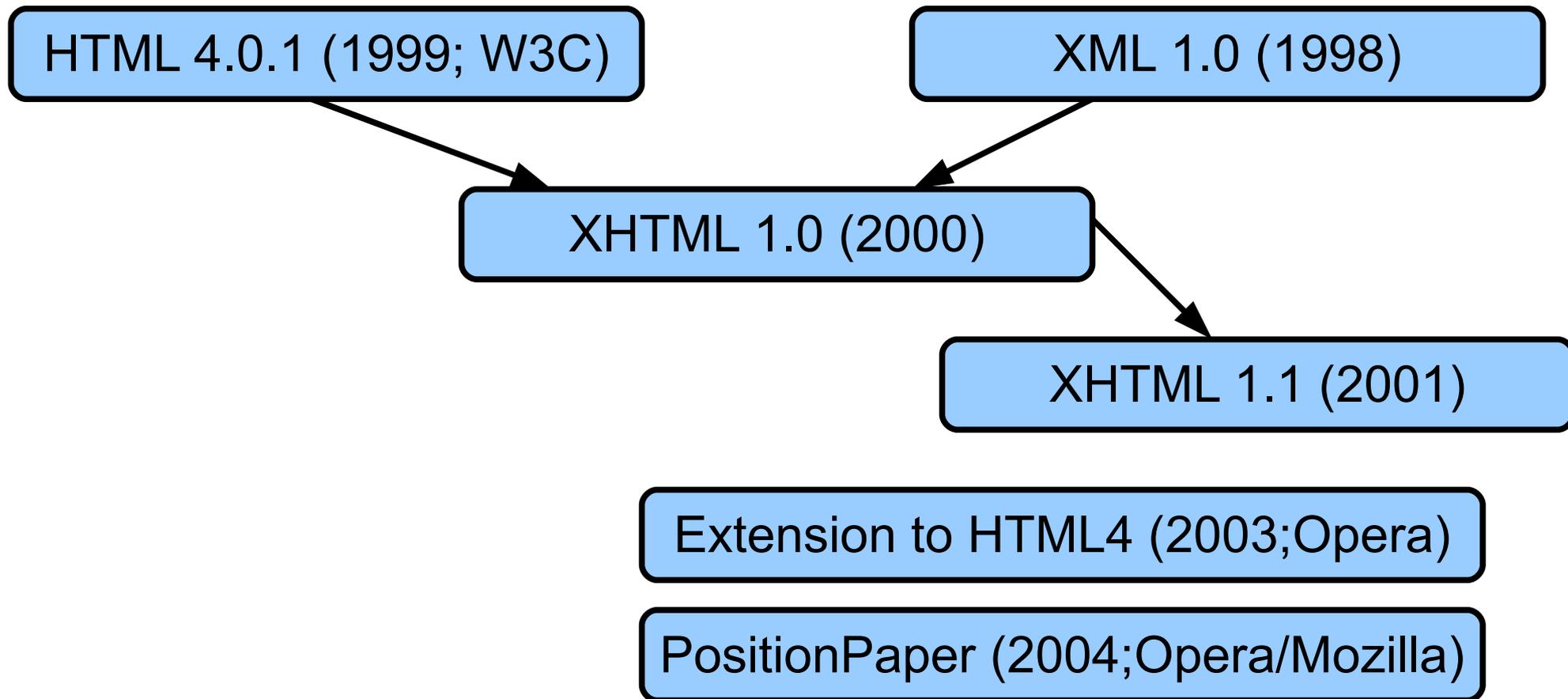
XHTML 1.0 (2000)

XHTML Basic 1.0 (2000)

XHTML 1.1 (2001)

XHTML Basic 1.1 (2008)

# What is HTML5 - Brief history of HTML



# What is HTML5 - Brief history of HTML

<http://www.w3.org/2004/04/webapps-cdf-ws/papers/opera.html>

## **Position Paper for the W3C Workshop on Web Applications and Compound Documents**

This document represents the consensus opinion of the Mozilla Foundation and Opera Software in the context of standards for Web Applications and Compound Documents.

We consider Web Applications to be an important area that has not been adequately served by existing technologies.

There is a rising threat of single-vendor solutions addressing this problem before jointly-developed specifications. To compete with other players in this field, user agents with initial implementations of jointly-developed specifications should ideally be shipping before the end of the year 2004.

Work has been started by Mozilla and Opera on aspects of this work and one [working draft](#) is already underway and publicly available.

## **Design Principles for Web Application Technologies**

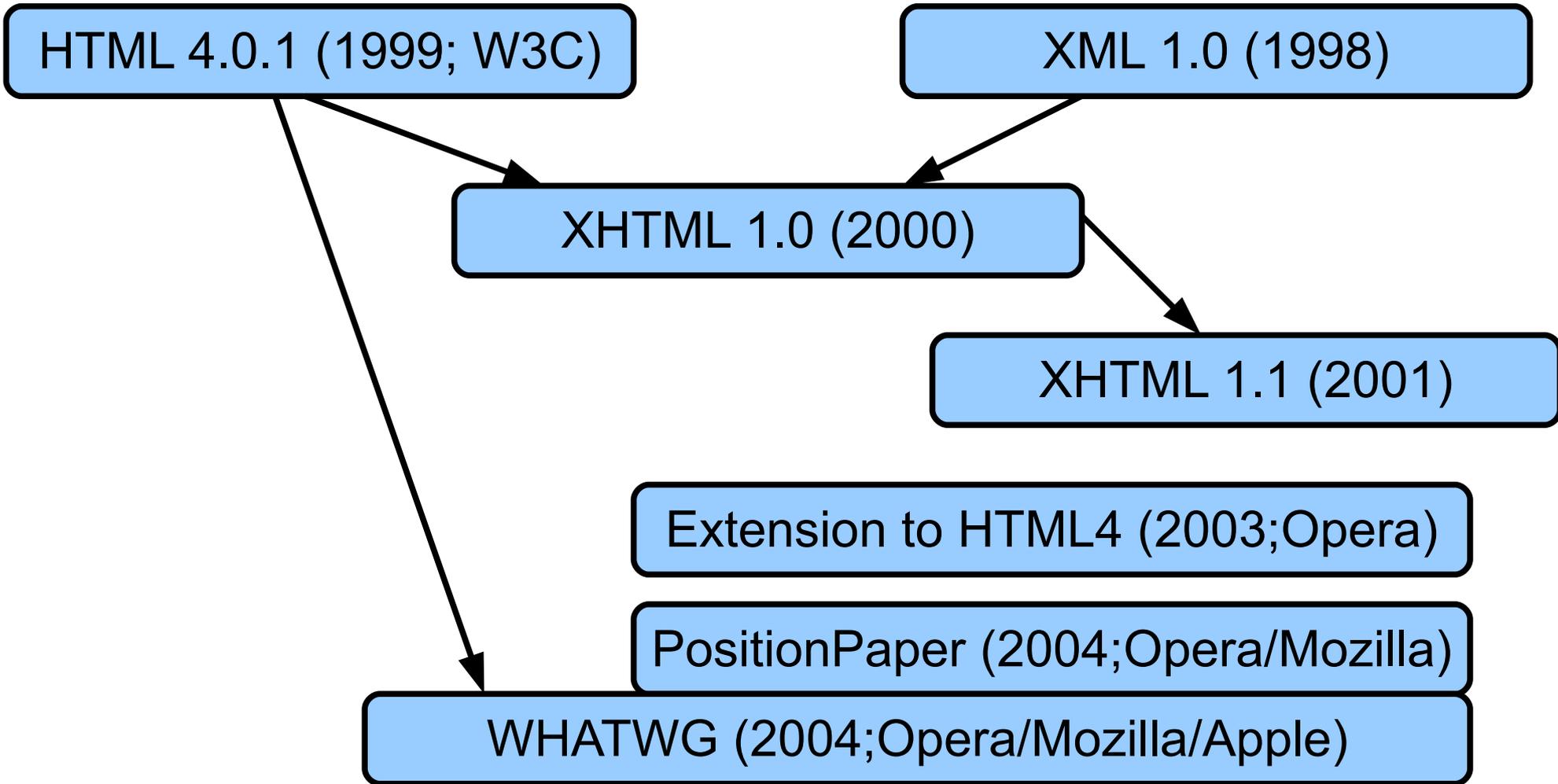
The following seven principles represent what we believe to be the most critical requirements for this work.

### **Backwards compatibility, clear migration path**

Web application technologies should be based on technologies authors are familiar with, including HTML, CSS, DOM, and JavaScript.

Basic Web application features should be implementable using behaviors, scripting, and style sheets in IE6 today so that authors have a clear migration path. Any solution that be used with the current high-market-share user agent without the need for binary plug-ins is highly unlikely to be successful.

# What is HTML5 - Brief history of HTML



# What is HTML5 - Brief history of HTML

## The Web Hypertext Application Technology Working Group (WHATWG)

🔗 Welcome to the WHATWG community

*Maintaining and evolving HTML since 2004*

Want to get involved and help out? [See a list of things for which we need volunteers](#) and jump in!

### FAQ

Get answers to your questions

### Blog

Read and contribute to the WHATWG blog

### Demos

Play with demos today  
or watch [a video of some demos](#)

### Help

Send questions and help others  
in the [help@whatwg.org](mailto:help@whatwg.org) mailing list

### IRC

Chat with other members  
of the WHATWG community

### Forums

Talk with Web designers  
about how to write HTML5

### Specs

Read the WHATWG proposals  
([HTML5](#), [Web Workers](#))

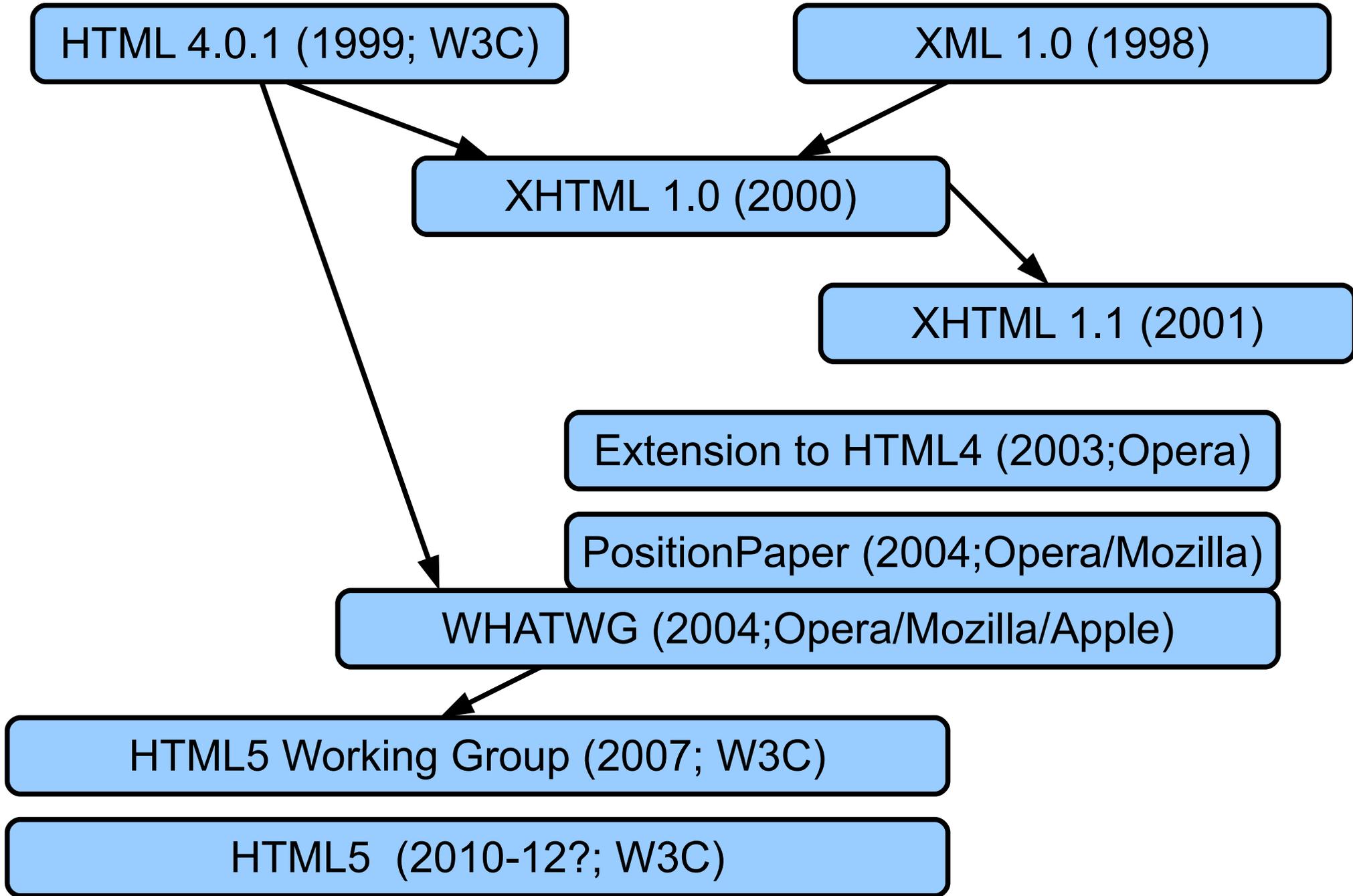
### Mailing List

Comment on the WHATWG proposals and  
send proposals of your own

### Wiki

Read and contribute to the WHATWG wiki

# What is HTML5 - Brief history of HTML



# What is HTML5 - WHATWG and HTML5

HyperText Markup Language



The Web Hypertext Application Technology Working Group

# What is HTML5 - 'Working Draft' and 'Recommendation'

## Process of W3C



Working Draft

Last Call Working Draft

Candidate Recommendation

Proposed Recommendation

Recommendation

### HTML5

A vocabulary and associated APIs for HTML and XHTML

W3C Working Draft 24 June 2010

**This Version:**

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

**Latest Published Version:**

<http://www.w3.org/TR/html5/>

**Latest Editor's Draft:**

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

**Previous Versions:**

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

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

<http://www.w3.org/TR/2009/WD-html5-20090423/>

<http://www.w3.org/TR/2009/WD-html5-20090212/>

<http://www.w3.org/TR/2008/WD-html5-20080610/>

<http://www.w3.org/TR/2008/WD-html5-20080122/>

**Editors:**

[Ian Hickson](#), Google, Inc.

# What is HTML5 - 'Working Draft' and 'Recommendation'

## Process of W3C

Working Draft

Last Call Working Draft

Candidate Recommendation

Proposed Recommendation

Recommendation

[W3C home](#) > [Mailing lists](#) > [Public](#) > [public-html@w3.org](#) > [September 2010](#)

### Timeline to Last Call

*This message:* [ [Message body](#) ] [ [Respond](#) ] [ [More options](#) ]

*Related messages:* [ [Next message](#) ] [ [Previous message](#) ] [ [Next in thread](#) ] [ [Replies](#) ]

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**From:** Maciej Stachowiak <[mjs@apple.com](mailto:mjs@apple.com)>

**Date:** Tue, 07 Sep 2010 23:25:14 -0700

**Message-id:** <C4B4D028-AC27-48EE-AD9C-5B28D5C79CBE@apple.com>

**To:** HTML WG <[public-html@w3.org](mailto:public-html@w3.org)>

Dear HTML WG,

The Chairs have been discussing with the team the need for a timeline to get to Last Call. We have urged us to create a timeline to drive an initial Last Call candidate, and we agree to do so for HTML5.

# What is HTML5 - 'Working Draft' and 'Recommendation'

## Process of W3C

Working Draft

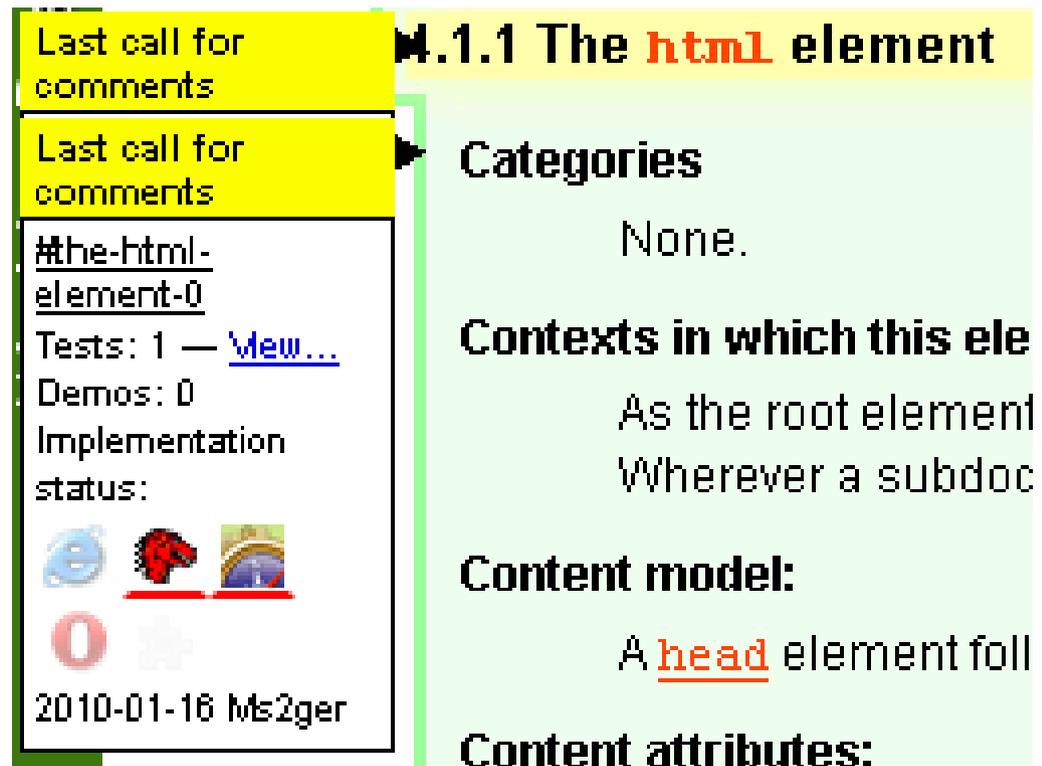
Last Call Working Draft

Candidate Recommendation

Proposed Recommendation

Recommendation

At least, TWO implementations



4.1.1 The **html** element

**Categories**  
None.

**Contexts in which this element can appear:**  
As the root element  
Wherever a subdocument is allowed

**Content model:**  
A **head** element followed by a **body** element

**Content attributes:**

# What is HTML5 - 'Working Draft' and 'Recommendation'

<http://www.mozilla.com/en-US/firefox/beta/technology/>

HTML5	Firefox 3.5	Firefox 3.6	Firefox 4 <sup>beta</sup>
	✓	✓	✓
Performance			✓
CSS			✓
Graphics & Animation	✓	✓	✓
	✓	✓	✓
Device Integration	✓	✓	✓
File API	✓	✓	✓
	✓	✓	✓
Security & Privacy	✓	✓	✓
	✓	✓	✓
Developer Tools	✓	✓	✓
Storage		Optional	✓
JavaScript		Optional	✓
Networking		Optional	✓
Plugins			Partial
		Partial	✓
	✓	✓	✓
	✓	✓	✓
	✓	✓	✓

# What is HTML5 - 'Working Draft' and 'Recommendation'

## Process of W3C

Working Draft

Last Call Working Draft

Candidate Recommendation

Proposed Recommendation

Recommendation

HTML 4.01 Specification

W3C Recommendation 24 December 1999

### This version:

<http://www.w3.org/TR/1999/REC-html401-19991224>  
(plain text [794Kb], [gzip'ed tar archive of HTML files \[371Kb\]](#)  
[389 pages](#), [gzip'ed PDF file \[963Kb\]](#))

### Latest version of HTML 4.01:

<http://www.w3.org/TR/html401>

### Latest version of HTML 4:

<http://www.w3.org/TR/html4>

### Latest version of HTML:

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

### Previous version of HTML 4.01:

<http://www.w3.org/TR/1999/PR-html40-19990824>

### Previous HTML 4 Recommendation:

<http://www.w3.org/TR/1998/REC-html40-19980424>

### Editors:

[Dave Raggett <dsr@w3.org>](mailto:dsr@w3.org)  
Arnaud Le Hors, W3C  
Ian Jacobs, W3C



# What is HTML5 - 'Working Draft' and 'Recommendation'

## Process of W3C



Working Draft

### HTML5

A vocabulary and associated APIs for HTML and XHTML

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<http://www.w3.org/TR/2009/WD-html5-20090212/>

<http://www.w3.org/TR/2008/WD-html5-20080610/>

<http://www.w3.org/TR/2008/WD-html5-20080122/>

**Editors:**

[Ian Hickson](#), Google, Inc.

Just now, HTML5 is only the 'Working Draft',  
but It's important to 'use' (and comment) NOW.

# What is HTML5 - HTML5 as IDL

## .1.1 The `html` element

### Categories

None.

### Contexts in which this element can be used:

As the root element of a document.

Wherever a subdocument fragment is allowed in a compound document.

### Content model:

A `head` element followed by a `body` element.

### Content attributes:

[Global attributes](#)

`manifest`

### DOM interface:

```
interface HTMLHtmlElement : HTMLElement {};
```

# HTML/XHTML as Human / Machine Readable Format

- \* Semantic Web
- \* From the 'Web of Document' to the 'Web of Data'
- \* And 'Web as an Application Platform'

# Human / Machine Readable Format - Semantic Web



## Semantic Web

Group of methods and technologies to allow machines to understand the meaning - or "semantics" - of information on the World Wide Web.  
(wikipedia)

RDF - Resource Description Framework

# From the 'Web of Document' to the 'Web of Data'

## 'Web of Documents'

- \* Collections of 'simple' human readable documents
- \* In HTML4, we had <link>

## 'Web of Data'

- \* Collections of machine readable / parsable data
- \* Buildin support
  - \* Document hierarchies
  - \* ex. Microdata

# From the 'Web of Document' to the 'Web of Data'

## Microdata

This example is the same as the previous one, but all the properties are separated from their [items](#):

```
<div itemscope id="amanda" itemref="a b"></div>
<p id="a">Name: <span itemprop="name">Amanda</span></p>
<div id="b" itemprop="band" itemscope itemref="c"></div>
<div id="c">
  <p>Band: <span itemprop="name">Jazz Band</span></p>
  <p>Size: <span itemprop="size">12</span> players</p>
</div>
```

Adding 'meanings of data' into HTML document

# 'Web as an Application Platform'

At the era of HTML4, we had already 'DHTML', aka. Dynamic HTML.

First, we used them as 'interacting web'.  
And we have found the 'AJAX'

In HTML5, many new APIs are included.

- \* Graphics – SVG, Canvas
- \* Acceleration – Image/Video hardware acceleration
- \* AV – Audio / Video elements had added

# HTML and its related technologies

- \* Divided HTML5 -- Making small and related formats
- \* CSS as 'General Formatter',  
including Web as well as Paper Publishing
- \* HTML5 as 'Web of Data'  
Microdata and RDFa
- \* HTML5 as 'Collection of WebAPI'  
web storage, web sockets etc.
- \* HTML5 as 'Client Graphics'  
Canvas, SVG etc.

# HTML and related - Divided HTML5

HTML5 is LARGE, and also has many and many related technologies.

## **Working Group Decision on ISSUE-76 Microdata/RDFa (DRAFT)**

### **Question before the Working Group =**

Currently, the [HTML5 Draft](#) incorporates [Microdata](#), a syntax for metadata annotation in HTML content that can map to an RDF data model. There is a separate draft specification for [HTML+RDFa](#), a different syntax for embedding metadata in HTML that can map to an RDF data model, based on the earlier [RDFa in XHTML](#), a W3C Recommendation. Proponents have argued for the approaches having various strengths and weaknesses. Though they are not identical in scope and approach, it is clear that these technologies serve many of the same use cases, and are seen by many as competing.

Concerned about the perceived conflict, some HTML Working Members raised [ISSUE-76](#) RDFa/Microdata. The Chairs solicited Change Proposals and Counter-Proposals, and two concrete proposals have been submitted:

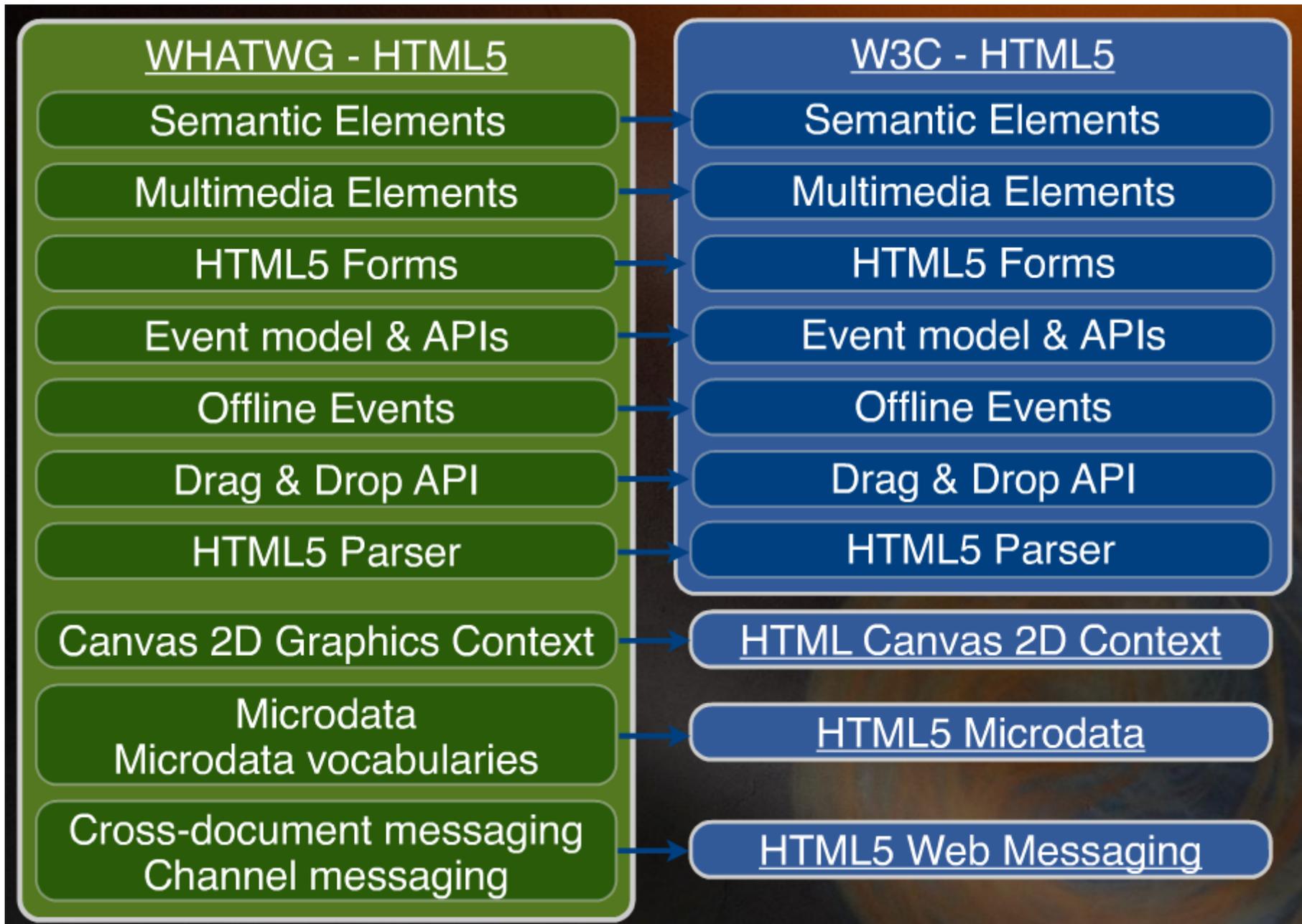
- Change Proposal: [Separate Microdata from HTML5 Specification](#)
- [Change Proposal: Keep Microdata](#)

The question before the Working Group is which of these Change Proposals to adopt, based on which will draw the weaker objections.

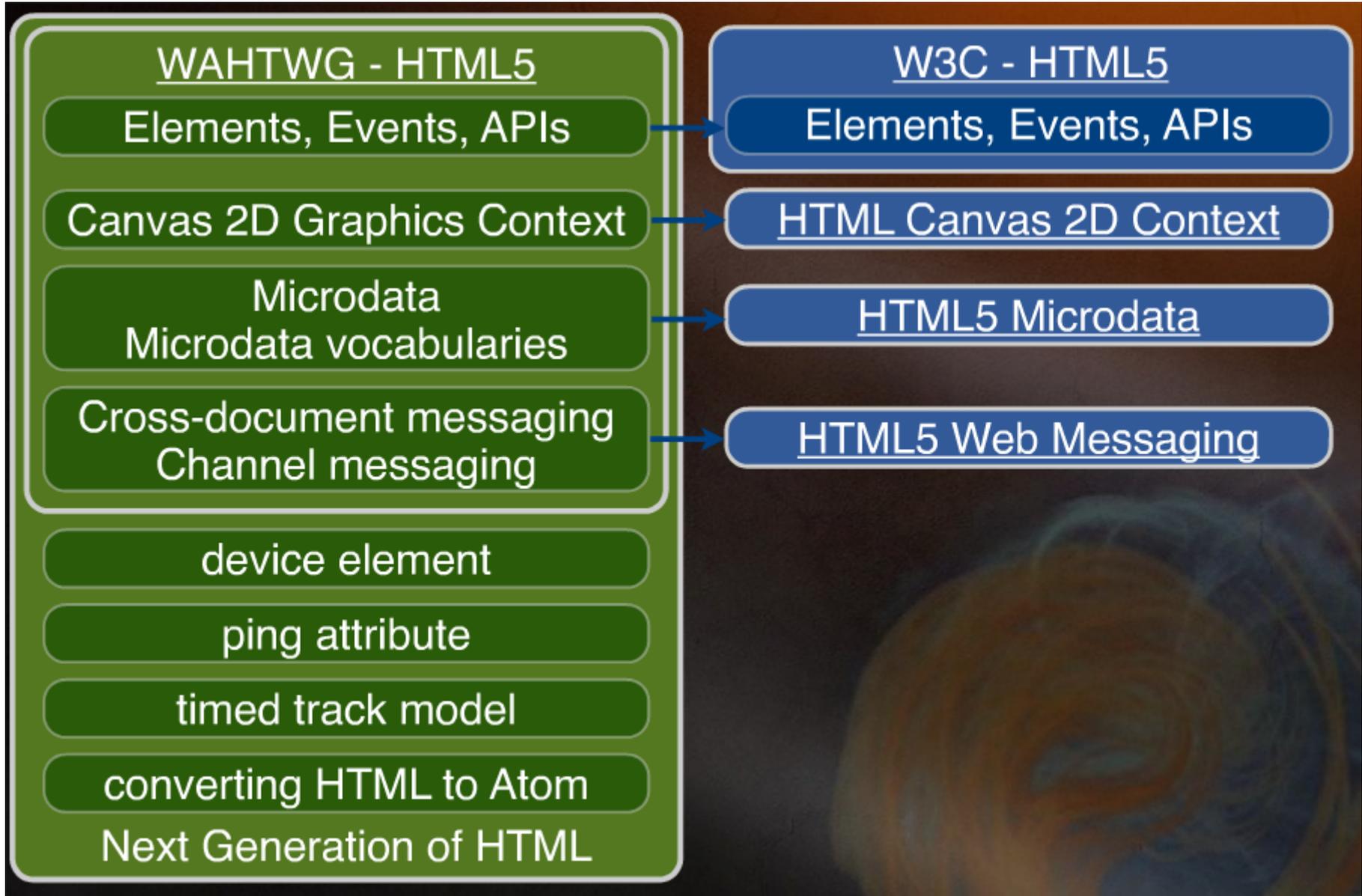
### **Short Summary of Arguments**

See the Review of Arguments Presented below for a full, detailed discussion of the arguments relating to this question.

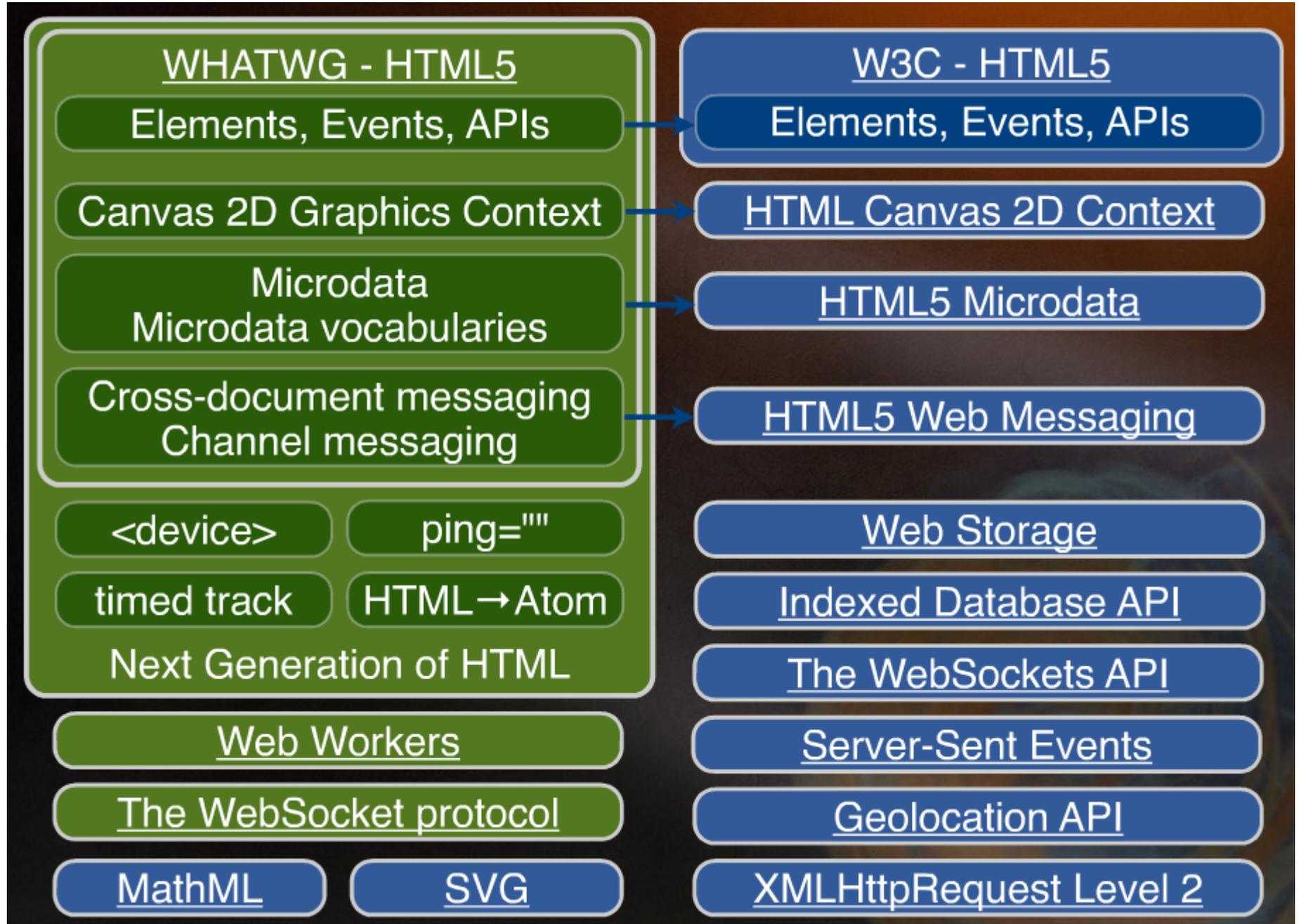
# HTML and related - Divided HTML5



# HTML and related - Divided HTML5



# HTML and related - Divided HTML5



# HTML and related - CSS as 'General Formatter'

## CSS – Cascading Style Sheets

\* CSS is also used for 'print' media

\* ex. ePub, media=""

\* CSS3 is changed to 'module based' spec.

•3.1. Introduction

•3.2. Syntax / grammar

•3.3. Selectors

•3.4. Values & units

•3.5. Value assignment / cascade / inheritance

•3.6. Box model / vertical

•3.7. Positioning

•3.8. Color / gamma / color profiles

•3.9. Colors and Backgrounds

•3.10. Line box model

•3.11. Text

•3.12. Fonts

•3.13. Ruby

•3.14. Generated content / markers

•3.15. Replaced content

•3.16. Paged media

•3.17. User interface

•3.18. WebFonts

•3.19. ACSS

•3.20. SMIL

•3.21. Tables

•3.22. Columns

•3.23. SVG

•3.24. Math

•3.25. BECSS

•3.26. Media queries

•3.27. Test Suite

# HTML and related - CSS as 'General Formatter'

## Vender prefix for CSS

- \* Used when spec is on development
- \* Of course you can use them
  - \* Be careful for spec change
  - \* Also include w/o vender prefix

prefix	organization
-ms-, mso-	Microsoft
-moz-	Mozilla
-o-, -xv-	Opera Software
-atsc-	Advanced Television Standards Committee
-wap-	The WAP Forum
-khtml-	KDE
-webkit-	Apple
prince-	YesLogic
-ah-	Antenna House
-hp-	Hewlett Packard
-ro-	Real Objects
-rim-	Research In Motion

# HTML and related - HTML5 as 'Web of Data'

## Microdata / RDFa (Resource Description Format)

You might already know / use RDF as RSS – RDF Site Summary.

## Including RDF formatted description into HTML

This example is the same as the previous one, but all the properties are separated from their [items](#):

```
<div itemscope id="amanda" itemref="a b"></div>
<p id="a">Name: <span itemprop="name">Amanda</span></p>
<div id="b" itemprop="band" itemscope itemref="c"></div>
<div id="c">
  <p>Band: <span itemprop="name">Jazz Band</span></p>
  <p>Size: <span itemprop="size">12</span> players</p>
</div>
```

# HTML and related - HTML5 as 'Collection of WebAPI'

Among HTML5 and its related APIs, many WebAPI is defined.

- \* HTML5
  - \* Offline events
  - \* Drag and Drop
  - \* Web messaging
  - \* 'device'
- \* Related
  - \* WebStorage
  - \* IndexedDB
  - \* Geolocation
  - \* XMLHttpRequest
  - \* WebWorkers
  - \* WebSocket

# HTML and related - HTML5 as 'Client Graphics'

Canvas is included in HTML5, and also SVG is avail.

- \* Canvas

- \* Script based Graphics

- \* Image will be handled as 'pixel data array'

- \* SVG – Scalable Vector Graphics

- \* XML based Graphics

- \* Image will be handled as 'DOM' object

# Brief summary of the changes

- \* New elements

- \*\* Semantics -- section, article, aside, hgroup, etc.

- \*\* Multimedia -- video, audio, embed, canvas

- \*\* Widgets -- progress, meter, command, details, etc.

- \* Deleted elements

- \*\* CSS / font related.

- \*\* frame, frameset related.

- \* Simple doctype

# The changes - New elements - Semantics

Many semantics related elements have added.  
And also, you can use Microdata/RDFa for semantics.

- \* section – general sectioning/grouping for contents
  - For h\* with its continuing contents
- \* article – section for an independent contents
- \* aside – 'aside' contents, such as references
- \* hgroup – grouping for h\*
  
- \* header – section header (not 'head')
- \* footer – section footer
- \* nav – site navigation

# The changes - New elements - Semantics

```
<body>
→ <header>
  <h1>Wake up sheeple!</h1>
  <p><a href="news.html">News</a> -
    <a href="blog.html">Blog</a> -
    <a href="forums.html">Forums</a></p>
  <p>Last Modified: <time>2009-04-01</time></p>
→ <nav>
  <h1>Navigation</h1>
  <ul>
    <li><a href="articles.html">Index of all articles</a></li>
    <li><a href="today.html">Things sheeple need to wake up for today</a></li>
    <li><a href="successes.html">Sheeple we have managed to wake</a></li>
  </ul>
</nav>
</header>
<div>
  <article>
    <header>
      <h1>My Day at the Beach</h1>
    </header>
    <div>
      <p>Today I went to the beach and had a lot of fun.</p>
      ...more content...
    </div>
  <footer>
    <p>Posted <time pubdate datetime="2009-10-10T14:36-08:00">Thursday</time>.</p>
  </footer>
</article>
  ...more blog posts...
</div>
<footer>
  <p>Copyright © 2006 The Example Company</p>
  <p><a href="about.html">About</a> -
    <a href="policy.html">Privacy Policy</a> -
    <a href="contact.html">Contact Us</a></p>
</footer>
</body>
```

# The changes - New elements - Multimedia

Many multimedia feature are added to HTML.  
Also, they will be used from scripts.

- \* video – native video player (eg. WebM)
- \* audio – native audio player
  
- \* canvas – scriptable pixel images

# The changes - New elements - Widgets

Graphical rendering are suggested for browsers.

- \* progress – progress bar etc.
- \* meter – results of measuring
- \* menu / button / command – menu list
- \* details / summary – detailed informations by user req.
- \* keygen – PKI key generation

# The changes - Deleted elements - CSS / font

Elements only for display (w/o semantics) are deleted.  
All of these elements could be replaced by 'CSS'.

such as 'font'

could be replaced with `<div style="font-family: *">`

# The changes - Deleted elements - frame, frameset

Frame feature had deleted.

- \* Adding scroll bar for some region – use CSS
- \* Including common contents – use SSI or iframe

# The changes - Simple doctype

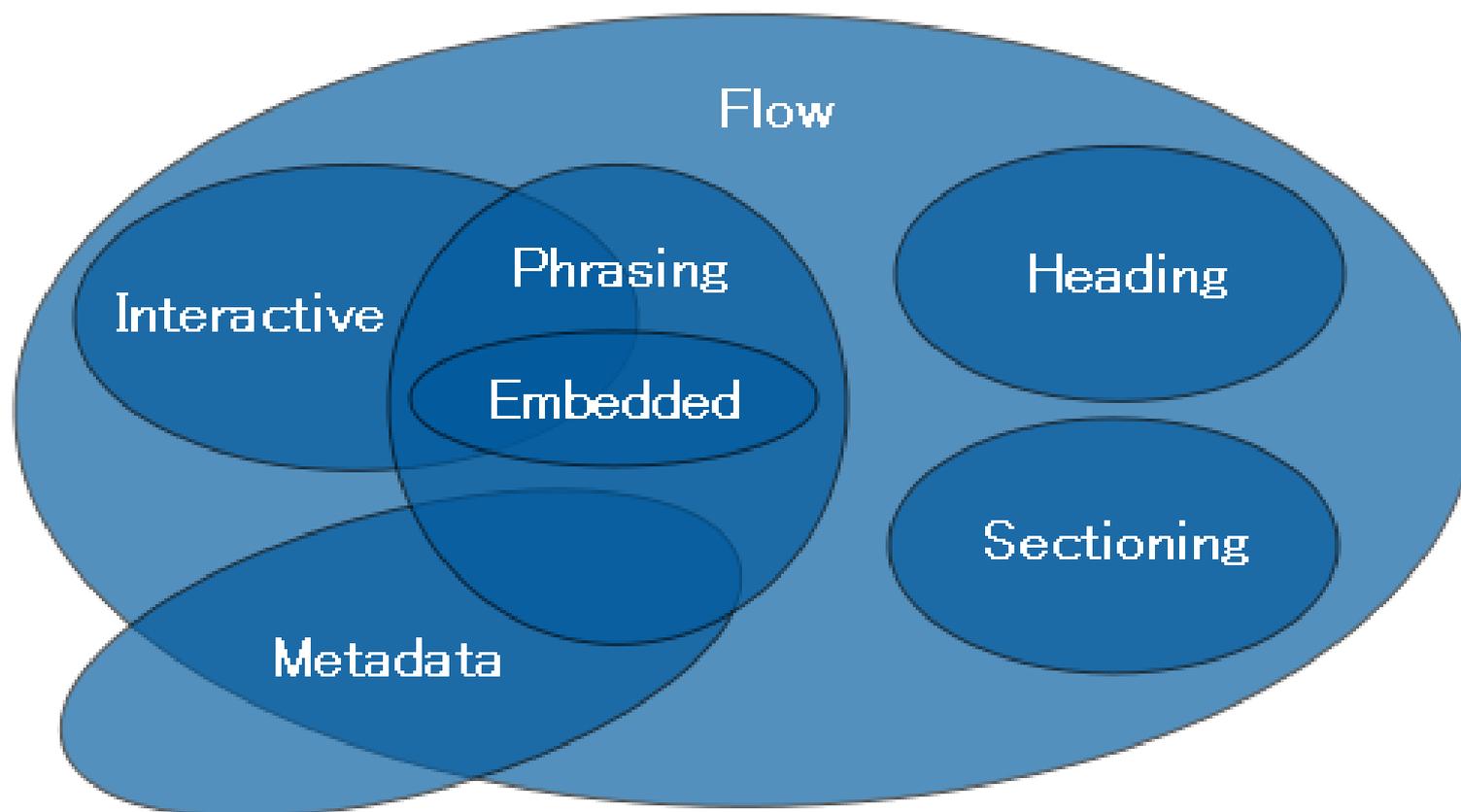
Doctype is simplified – `<!DOCTYPE html>`

- \* Aren't we need to specify version of html?
  - most of current contents will be valid as HTML5
  - versioning of HTML might not be important

# Models of HTML5

- \* The contents model
- \*\* Categories
- \* Sectioning and outlines

# Models of HTML5 - The contents model



# Models of HTML5 - The contents model

At HTML4, block / inline elements are defined.

At HTML5, we use the 'contents model' for this.

Examples..

- \* contents model for 'section' is flow and sectionning
  - <section> can have <h\*>, <p>, <article> etc.
  - <section> can not have <link>, <style> etc.

# Models of HTML5 - Sectioning and outlines

We could not define sections / hierarchies of contents only with markup.

- of course, we have `<h*>` for heading
- but, cannot specify which contents are related on

On HTML5, `<section>`, `<article>` etc. are defined for these definition.

# Models of HTML5 - Sectioning and outlines

```
<article>
  <hgroup>
    <h1>Apples</h1>
    <h2>Tasty, delicious fruit!</h2>
  </hgroup>
  <p>The apple is the pomaceous fruit of the apple tree.</p>
  <section>
    <h3>Red Delicious</h3>
    <p>These bright red apples are the most common found in many
    supermarkets.</p>
  </section>
  <section>
    <h3>Granny Smith</h3>
    <p>These juicy, green apples make a great filling for
    apple pies.</p>
  </section>
</article>
```

# Examples and demonstrations

- \* Semantics
- \* WebSockets
- \* Canvas / SVG
- \* Audio Data API

Any Questions?