



Is the Web good enough for my app ?

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Workshop HTML5 vs Native by software.brussels

4 December 2014

A short history of the Web **App** platform



Web 25TH

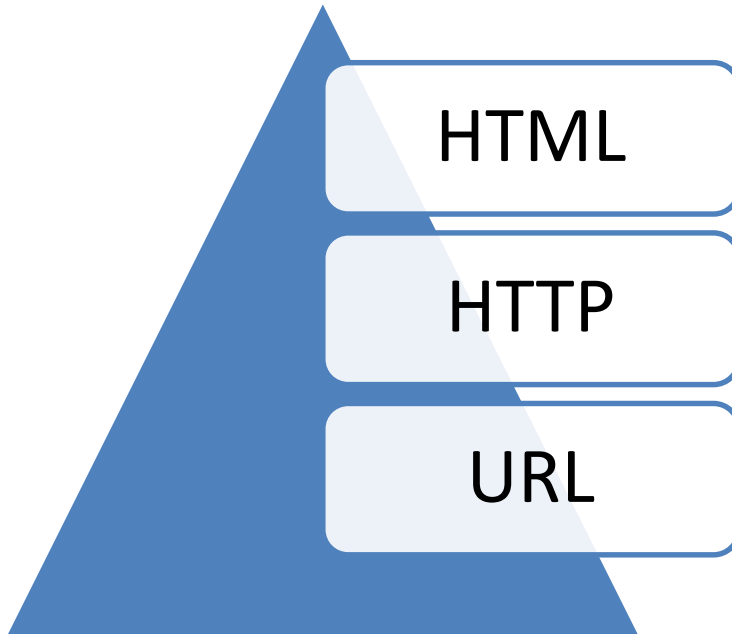
ANNIVERSARY

Tim Berners Lee
Olympic games
opening ceremony
July 2012, London



“The Web is an **information space** in which the items of interest, referred to as **resources**, are identified by **global identifiers** called Uniform Resource Identifiers”

Architecture of the World Wide Web





- **Web Standards**
HTML, CSS, XML, SVG, PNG, XSLT, WCAG, RDF, JavaScript APIs...
- **Consortium**
~400 members, from industry and research
- **World-wide**
Offices in many countries
- **One Web!**
Founded and directed by Tim Berners-Lee
- **Global participation**
55,000 people subscribed to mailing lists,
1,500+ participants in 60+ Groups

User interaction

```
<form action="post.cgi">  
  <input type="text" name="firstname" />  
  <input type="submit" title="Submit" />  
</form>
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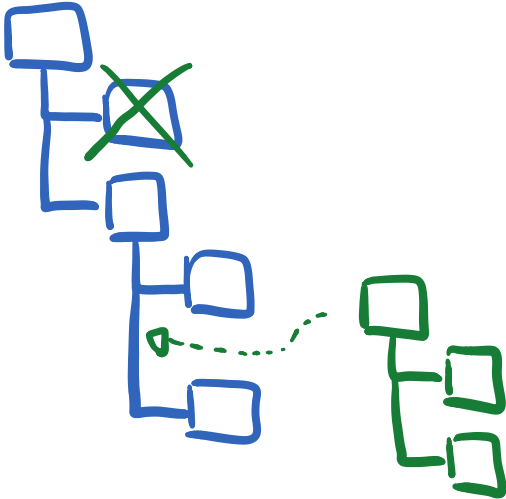
ASP
CGI
PHP

DATE ?
NUMBER ?

CLIENT ?
SIDE ?
VALIDATION

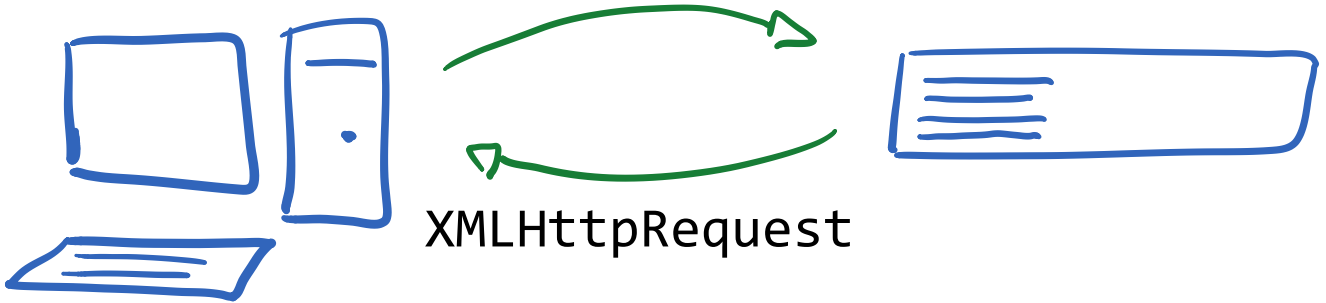
DHTML

D
DYNAMIC



- Document Object Model (DOM)
- JavaScript
- Events

ASYNCHRONOUS (AJAX) XML
JAVASCRIPT



HTML



GEOLLOCATION

MEDIA CAPTURE

WAKE LOCK

TIMING CONTROL

HTML

WEB

INDEXED DB

CRYPTO

FILE

WEB AUDIO

WEB DRIVER

TOUCH EVENTS

BATTERY STATUS

SCREEN ORIENTATION



SERVICE WORKERS

WEB SOCKET

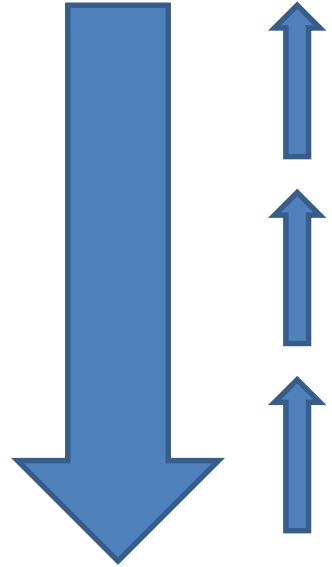
WEBRTC

EME

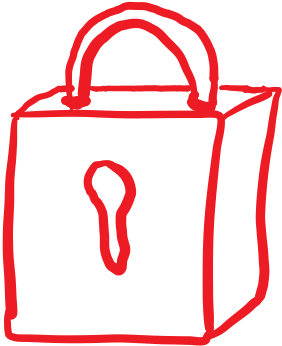
VIBRATION

Properties of the Web app platform

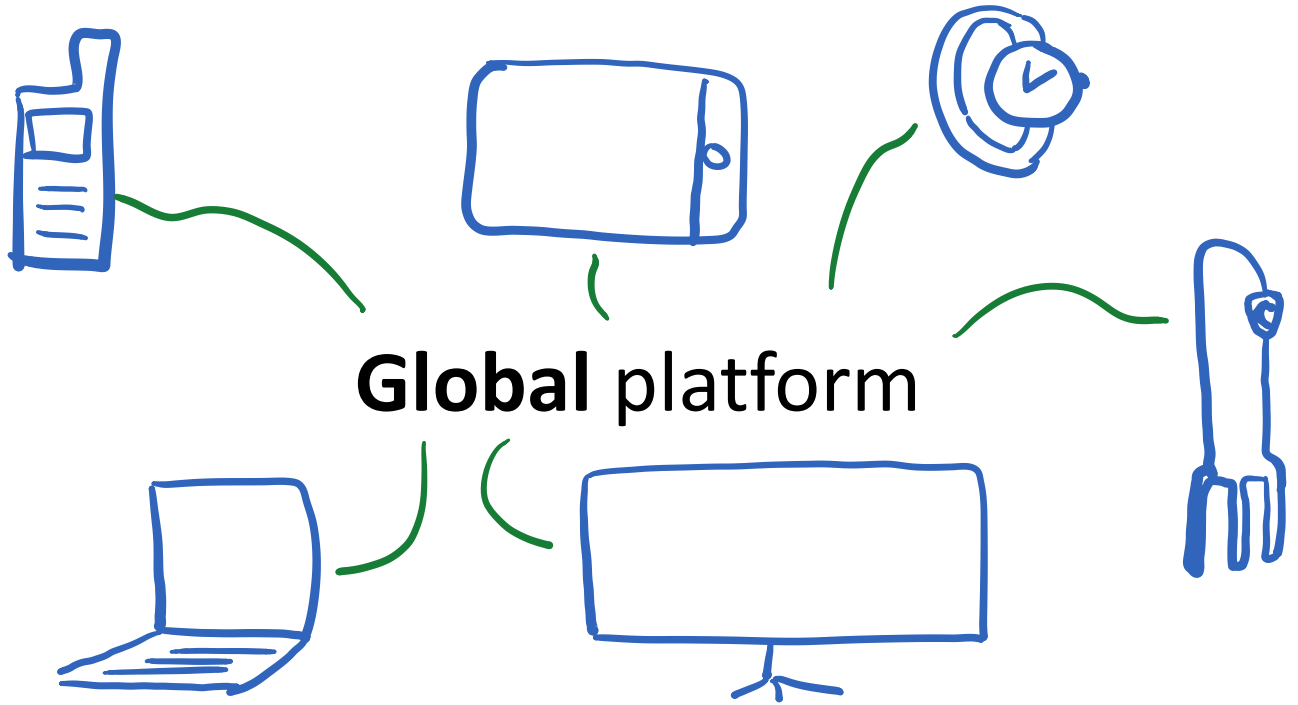
Top-down approach and Extensible Web Manifesto



Security

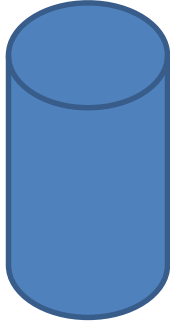


- Hard to expose low-level APIs
- Beware of fingerprinting



Global platform

Ex: access to local storage

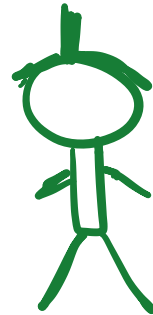
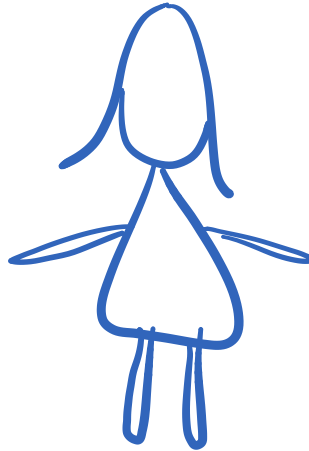
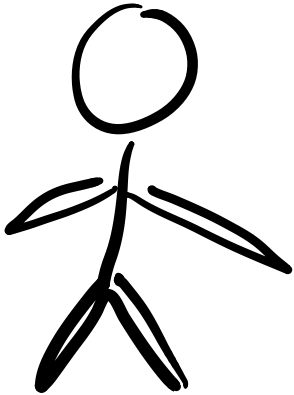


IndexedDB

API

└ No SQL
└ SIMPLE QUERIES
BASED ON INDEXES

Human platform



Philae vs. CSS

Humanity's victories:

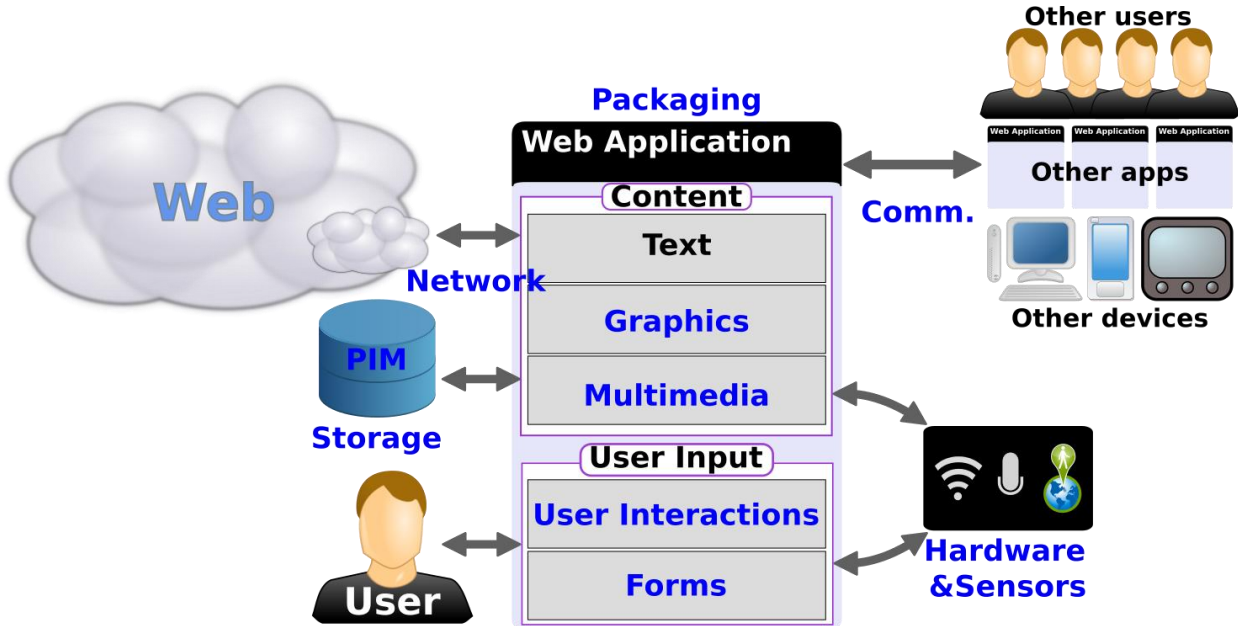


land probe perfectly on a comet 310 million miles away, using science



get stuff on a web page to align properly using CSS

Complete platform



Communications

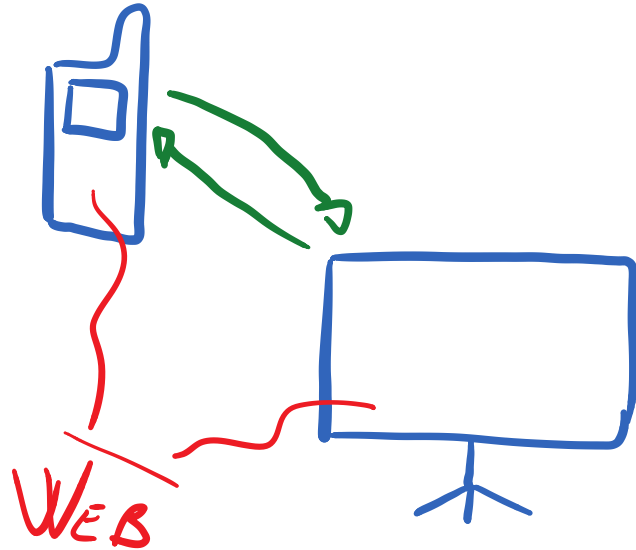
API	Usage
HTML5 Web Messaging	Inter-app (same browser)
WebRTC	P2P, real time data/audio/video
Network Service Discovery	Local network
Presentation API	Second screen Cross-device communication

Presentation API

```
navigator.presentation
.startSession('http://example.org/pres.html')
.then(function (newSession) {
  session.onstatechange = function () {
    switch (session.state) {
      case 'connected':
        session.postMessage(/*...*/);
        session.onmessage = function() {
          /*...*/
        };
        break;
      case 'disconnected':
        console.log('Disconnected.');
```

•

```
        break;
    }
  };
}, function () { /*...*/ });
```



Packaging

- **Offline execution**

ApplicationCache
Service Workers

- **Packaging in itself**

Manifest file

Archive (Zip)

Native shim (ex. Cordova)



BUSINESS MODEL!

Other categories?

« Standards for Web Applications on Mobile:
current state and roadmap »

<http://www.w3.org/Mobile/mobile-web-app-state/>

M

UPDATED EVERY
3 MONTHS

SHOWS MATURITY
LEVELS



LISTS SPECS
AND IMPLEMENTATIONS

How to develop Web apps

A platform like any other !

Need	Possible open source tools
Components, MVC, utilities	Backbone.js, AngularJS, Ember.js, Enyo, Mustache, SASS
Package manager	Bower, npm, Yeoman
Debugging	Browser developer tools (F12)
Unit tests, functional tests	Jasmine, QUnit, Sinon, TestSwarm
Acceptance tests	WebDriver, Selenium, PhantomJS, SlimerJS
Quality assurance	esvalidate, jslint, JSCover, Istanbul
« Compiler »	Google Closure Compiler, RequireJS, SASS
« Transpiler »	Emscripten, Google Web Toolkit, Ocamljs
Task automation	Grunt, gulp.js, ant, Make
Versioning	Git, Mercurial, CVS, SVN

Think responsive

- Split content, design, code (HTML, CSS, JS)
- Beware of pixel-perfect! 
- Target mobiles first 
- Progressive enhancement

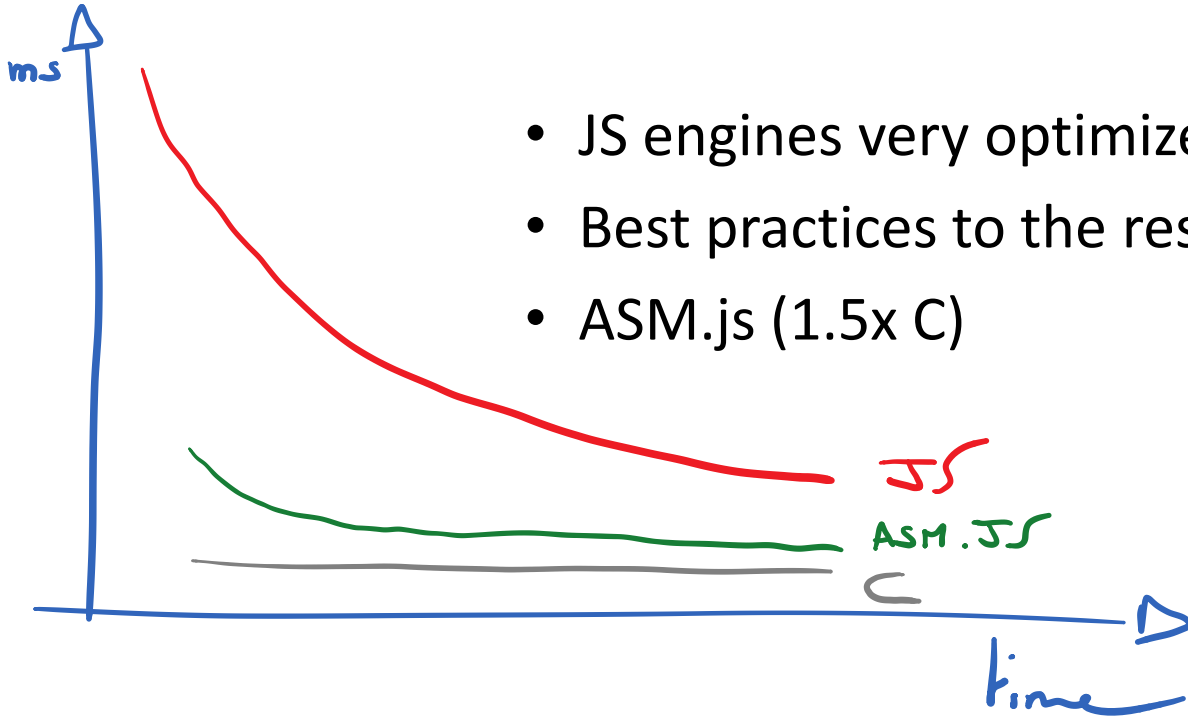
```
| IF (WINDOW.GEOLOCATION) {  
  * ... *  
}
```

Client and/or server

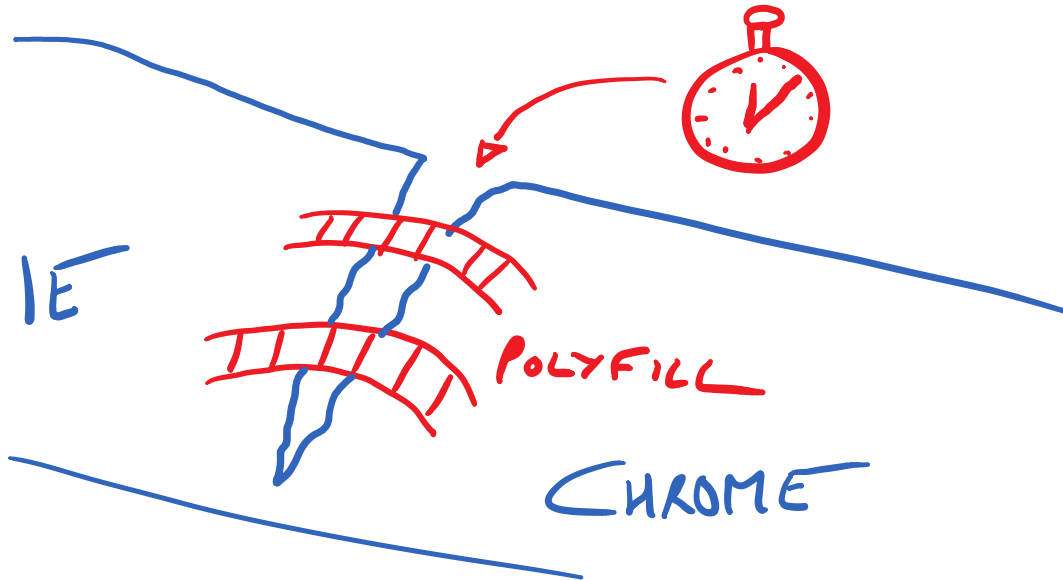
- JavaScript is back on servers!
ex: Node.js
- Same codebase between client and server
avoid code duplication
ex: validation of user input
allow modularization
ex: for constrained devices

Performances

- JS engines very optimized
- Best practices to the rescue
- ASM.js (1.5x C)



Fragmentation



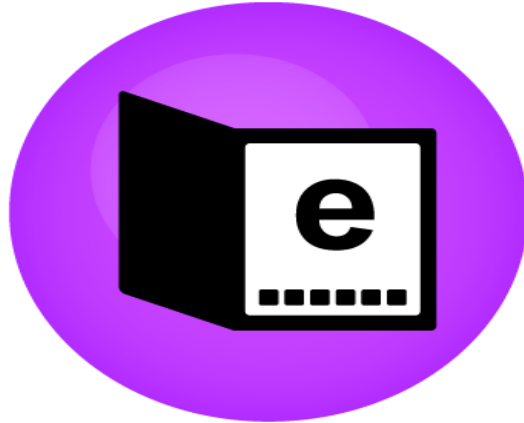
What's next

Focus on connected vehicles

- **Objective** : accelerate the adoption of Web technologies in the automotive industry by creating Vehicle Data Specifications



Focus on ePublishing



- **Objective** : put the publishing industry needs for digital books at the center of the open web platform developments

Focus on Web Payments



- ▀ **Objective** : facilitate web payments thanks to a standard that will help both usability (especially on mobile) and fraud detection.

Focus on Web and TV

- ▮ **Objective** : identify use cases and requirements that existing and/or new specifications need to meet to achieve a tighter support of TV and other Media services on the Web Platform



Focus on Web of Things

- ▮ **Objective** : create a level playing field to open markets and unlock the potential of web of thing



The Web for apps

A platform that is...	Notes
Complete	Many APIs being standardized
Ubiquitous	World-wide On every device... and more to come!
Secure	Privacy, security No side effect when browsing
Fast	Browsers are highly optimized « Transpiling » into asm.js is possible
Open and Royalty-Free	Non proprietary specs Open inclusive innovation
By and for human beings	On a global scale Public interest

The Web for apps

CODE APP
ONCE

&

DEPLOY
EVERYWHERE