

# HTML5

The web strikes back...

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 @hansolo\_



# The web strikes back...

About the author

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## Raith

INNOVATIVE SOLUTIONS FOR NANOFABRICATION AND  
SEMICONDUCTOR NAVIGATION

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Gerrit Grunwald

Team Manager  
Software Development

*What we  
are doing*



*How you  
could reach me*













*My job*



# The web strikes back...

## Agenda

-  What is HTML5
-  `<audio>` & `<video>`
-  `<canvas>`
-  Forms
-  Notifications
-  Going offline
-  WebSockets
-  WebWorkers
-  GeoLocation API
-  DeviceOrientation API

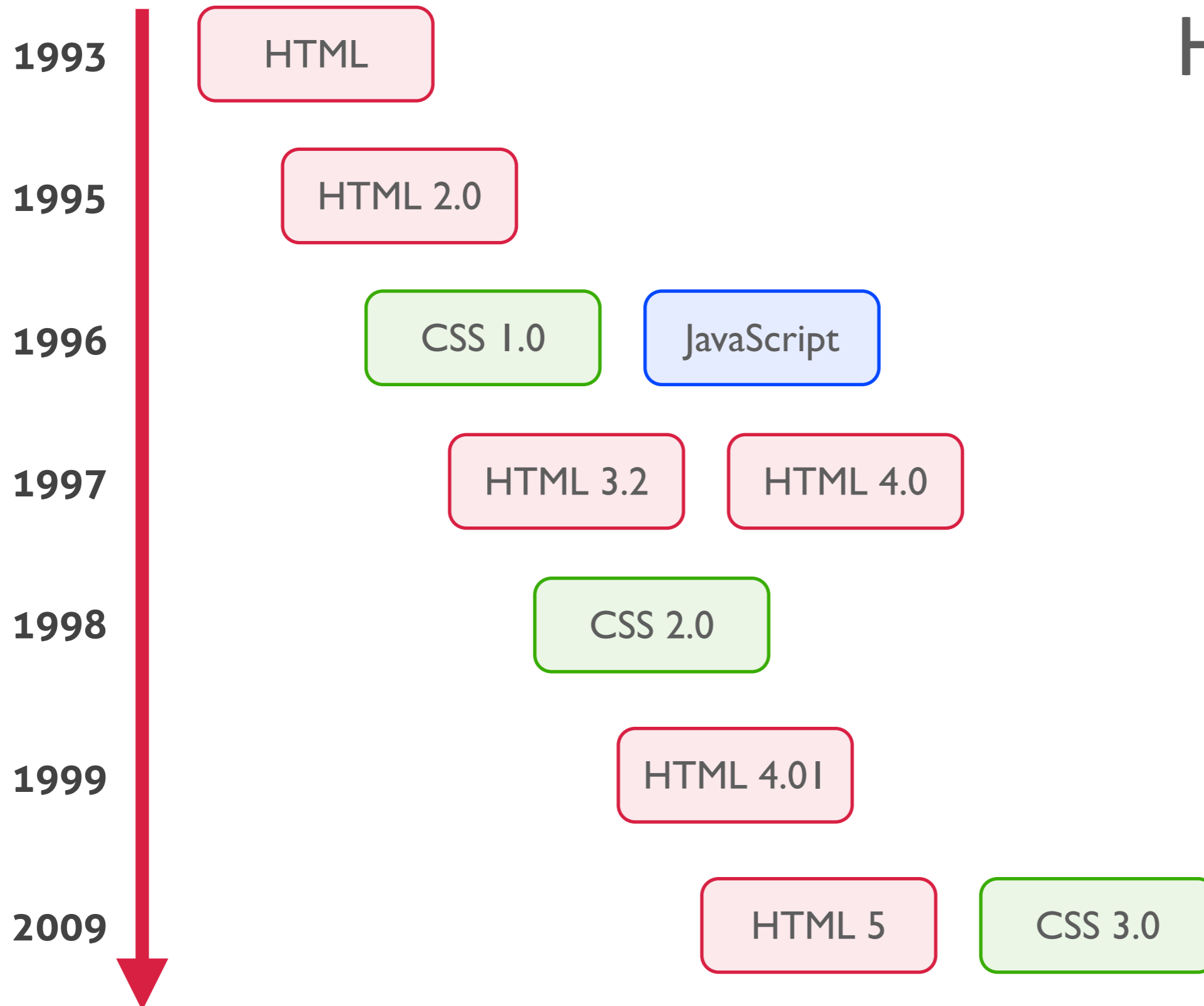


# What is **HTML5** ?

# The web strikes back...

What is HTML5 ?

## History



# The web strikes back...

What is HTML5 ?

It's not one big new thing but...

- a collection of usefull new features
- it defines the interaction between tags and JavaScript with the help of the DOM (Document Object Model)
- it's HTML + CSS + JavaScript

# The web strikes back...

What is HTML5 ?

## New markup tags

<article>	<mark>
<aside>	<meter>
<command>	<nav>
<details>	<progress>
<summary>	<ruby>
<figure>	<rt>
<figcaption>	<rp>
<footer>	<section>
<header>	<time>
<hgroup>	<wbr>

# The web strikes back...

What is HTML5 ?

## New Media tags

`<audio>`

`<video>`

`<source>`

`<embed>`

# The web strikes back...

What is HTML5 ?

## The Canvas Element

`<canvas>`

# The web strikes back...

What is HTML5 ?

## New Form tags

<datalist>

<keygen>

<output>

# The web strikes back...

What is HTML5 ?

## New input type attributes

tel	number
search	range
url	color
email	
datetime	
date	
month	
week	
time	
datetime-local	

**<video> & <audio>**

# The web strikes back...

<video> & <audio>

Want to embed a video on your page...?

No problem...you just need to add this...

```
<object style="height: 390px; width: 640px">
  <param name="movie"
    value="http://www.youtube.com/v/9bZkpFbRKtQ?version=3">
  <param name="allowFullScreen"
    value="true">
  <param name="allowScriptAccess"
    value="always">
  <embed src="http://www.youtube.com/v/9bZkpFbRKtQ?version=3"
    type="application/x-shockwave-flash"
    allowfullscreen="true"
    allowscriptaccess="always"
    width="640"
    height="390">
</object>
```

# The web strikes back...

<video> & <audio>

Video & audio are 1st class citizens now  
Embedding a video looks like this...

```
<video src='http://www.domain.com/video.mp4' controls>
```

Embedding audio looks like this...

```
<audio src='http://www.domain.com/audio.mp3' controls>
```

# The web strikes back...

<video> & <audio>

## Supported video codecs

- Ogg Theora
- H.264
- VP8 (webM)



Make sure to provide your videos in webM, Theora and H.264 codecs

# The web strikes back...

<video> & <audio>

## Supported audio codecs

- Ogg Vorbis
- WAV
- MPEG3



Make sure to provide your audios in  
Ogg Vorbis and WAV codecs

# The web strikes back...

<video> & <audio>

## Attributes and methods of media tags

- 35 attributes
- 26 methods

# The web strikes back...

<video> & <audio>

## Common control functions

load()	Loads media files and prepares it for playback
play()	Plays the media file from the beginning unless it's already paused (loads it first if necessary)
pause()	Pauses playback if currently active
canPlayType(type)	Checks if the video element is able to play a file with the given MIME type

# The web strikes back...

<video> & <audio>

## Read-only attributes

duration	Duration of the full media clip in seconds (NaN if unknown)
paused	True if the media clip is paused
ended	True if the media clip has finished playing
startTime	The earliest possible value for playback start time (usually 0.0)
error	Error code if an error has occurred
currentSrc	A string that represents the file that is currently loaded/displayed

# The web strikes back...

<video> & <audio>

## Scriptable attribute values

autoplay	Sets the media clip to play upon creation or query whether it is set to autoplay
loop	True if the clip will restart upon ending or sets the clip to loop (or not loop)
currentTime	The time that has elapsed since the beginning of the playback. Sets the currentTime to seek to specific position in the clip
controls	Shows or hides the default user controls or queries if the controls are visible
volume	Sets the audio volume to a relative value between 0.0 and 1.0, or queries the value of the same
muted	Mutes or unmutes the audio, or determines the current mute state
autobuffer	Tells the player whether or not to attempt to load the media file before playback is initiated (ignored if auto-playback)

# The web strikes back...

<video> & <audio>

## Additional video attributes

poster	The url of an image file used to represent the video content before it has loaded (e.g. a movie poster)
width, height	Read or set the visual display size (may lead to centering, letterboxing etc.)
videoWidth, videoHeight	The natural width and height of the video (readonly)

# The web strikes back...

<video> & <audio>

## Typical code examples...

```
<video controls>
  <source src="Episode_IV.mp4" type="video/mp4" />
  <source src="Episode_IV.webm" type="video/webm" />
  <source src="Episode_IV.ogv" type="video/ogv" />
  The movie Episode IV of the StarWars trilogy.
</video>

<audio controls>
  <source src="StarWars_Theme.ogg" type="audio/ogg">
  <source src="StarWars_Theme.wav" type="audio/wav">
  The theme melody of the StarWars trilogy.
</audio>
```

# The web strikes back...

<video> & <audio>

## Restrictions...

- No streaming
- Full screen video is not scriptable

# The web strikes back...

<video> & <audio>

## Browser support (7/2011)



<canvas>

# The web strikes back...

<canvas>

## The <canvas> element...

- is a resolution dependend bitmap
- can be used to render graphs, games
- is accessible by JavaScript
- lives on the DOM but it's content doesn't
- represents a „dead“ bitmap

# The web strikes back...

<canvas>

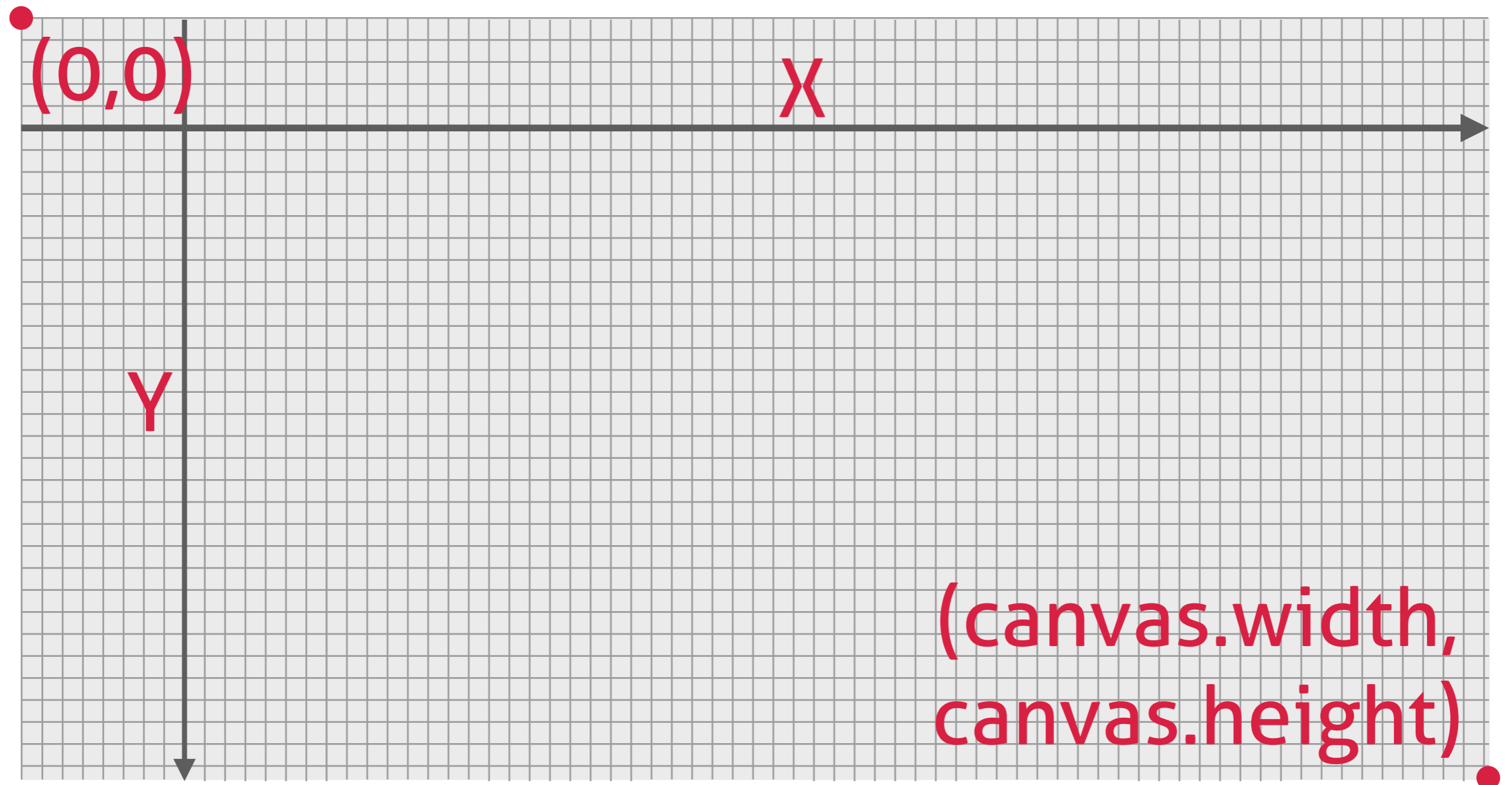
## 2d Features...

- shapes (lines, polygons, curves)
- colors (incl. alpha channel)
- gradients, pattern
- transformations
- text
- and more

# The web strikes back...

<canvas>

## The coordinate system



# The web strikes back...

<canvas>

## How to access it...?

```
<canvas id='myCanvas' width=300 height=300>
  Sorry, your browser does not support HTML5 canvas
</canvas>

<script>
  // Get the canvas element itself
  var canvas = document.getElementById('myCanvas');

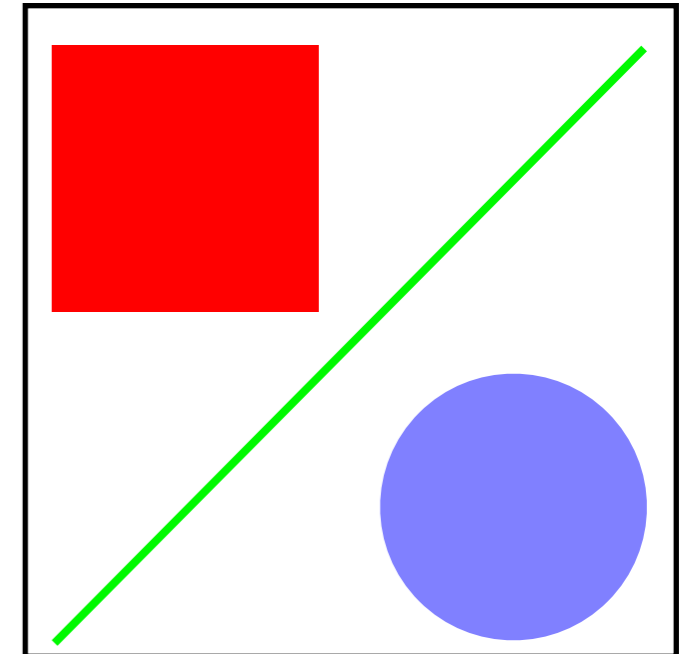
  // Get the context of the canvas element
  var ctx = canvas.getContext('2d');
</script>
```

# The web strikes back...

<canvas>

## Simple shapes and colors...

```
var canvas = document.getElementById( 'myCanvas' );
var ctx = canvas.getContext( '2d' );
// Set the stroke color to green
ctx.strokeStyle = '#00ff00';
ctx.beginPath();
ctx.moveTo(10, 233);
ctx.lineTo(233, 10);
ctx.closePath();
// Stroke the line
ctx.stroke();
// Set the fill color to red
ctx.fillStyle = 'rgb(255, 0, 0)';
// Fill a rectangle
ctx.fillRect(10, 10, 100, 100);
// Set the fill color to transparent blue
ctx.fillStyle = 'rgba(0, 0, 255, 0.5)';
// Start a path and add a circle
ctx.beginPath();
ctx.arc(183, 183, 50, 0, 2 * Math.PI, true);
ctx.closePath();
// Fill the path
ctx.fill();
```

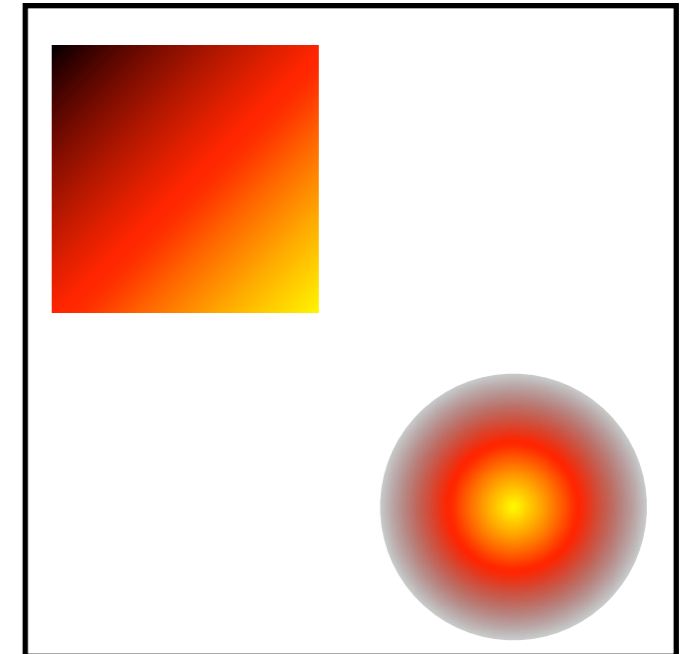


# The web strikes back...

<canvas>

## Gradients...

```
var canvas = document.getElementById( 'myCanvas' );
var ctx = canvas.getContext( '2d' );
// Define a linear gradient
var linGrad = ctx.createLinearGradient(10, 10, 100, 100);
linGrad.addColorStop(0.0, 'rgb(0, 0, 0)');
linGrad.addColorStop(0.5, 'rgb(255, 0, 0)');
linGrad.addColorStop(1.0, 'rgb(255, 255, 51)');
ctx.fillStyle = linGrad;
// Fill a rectangle
ctx.fillRect(10, 10, 100, 100);
// Define a radial gradient
var radGrad =
    ctx.createRadialGradient(183, 183, 0, 183, 183, 50);
radGrad.addColorStop(0.0, 'rgb(255, 255, 51)');
radGrad.addColorStop(1.0, 'rgba(0, 0, 0, 0.2)');
radGrad.addColorStop(0.5, 'rgb(255, 0, 0)');
ctx.fillStyle = radGrad;
// Start a path and add a circle
ctx.beginPath();
ctx.arc(183, 183, 50, 0, 2 * Math.PI, true);
ctx.closePath();
// Fill the path
ctx.fill();
```

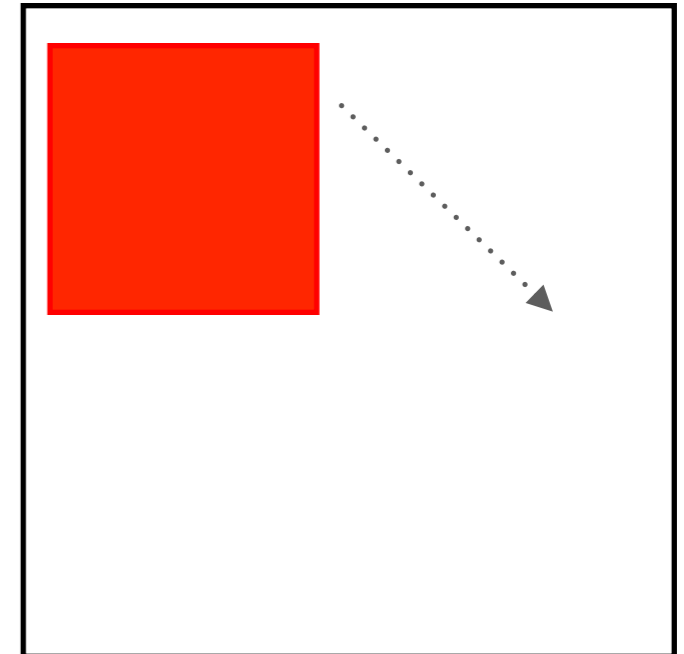


# The web strikes back...

<canvas>

## Transformations (translation)...

```
var canvas = document.getElementById( 'myCanvas' );
var ctx = canvas.getContext( '2d' );
// Set the fill color to red
ctx.fillStyle = '#ff0000';
// Fill a rectangle
ctx.fillRect(10, 10, 100, 100);
// Apply a translation
ctx.translate(110, 110);
// Set the stroke color to red
ctx.strokeStyle = '#ff0000';
// Stroke the same rect
ctx.strokeRect(10, 10, 100, 100);
```

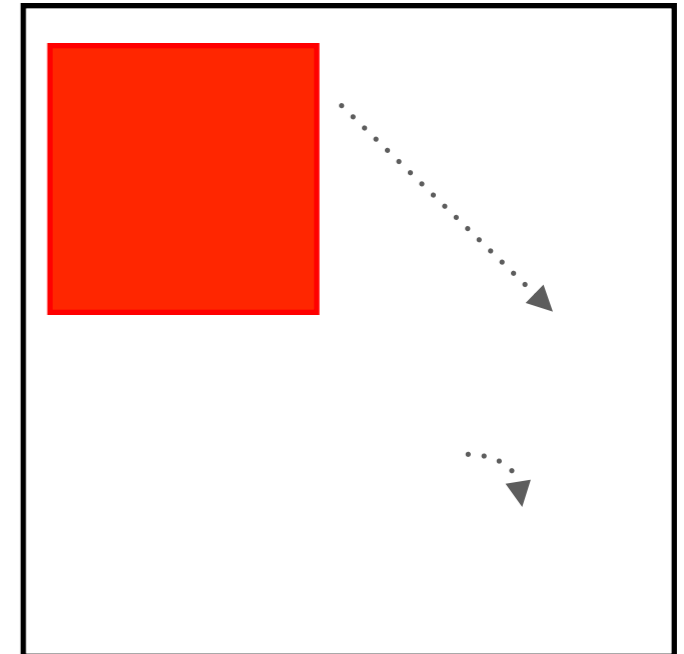


# The web strikes back...

<canvas>

## Transformations (rotation)...

```
var canvas = document.getElementById( 'myCanvas' );
var ctx = canvas.getContext( '2d' );
// Set the fill color to red
ctx.fillStyle = '#ff0000';
// Fill a rectangle
ctx.fillRect(10, 10, 100, 100);
// Apply a translation to the rotation center
ctx.translate(160, 160);
// Apply a rotation
ctx.rotate(45 * Math.PI / 180);
// Apply a translation back
ctx.translate(-60, -60);
// Set the stroke color to red
ctx.strokeStyle = '#ff0000';
// Stroke the same rectangle
ctx.strokeRect(10, 10, 100, 100);
```

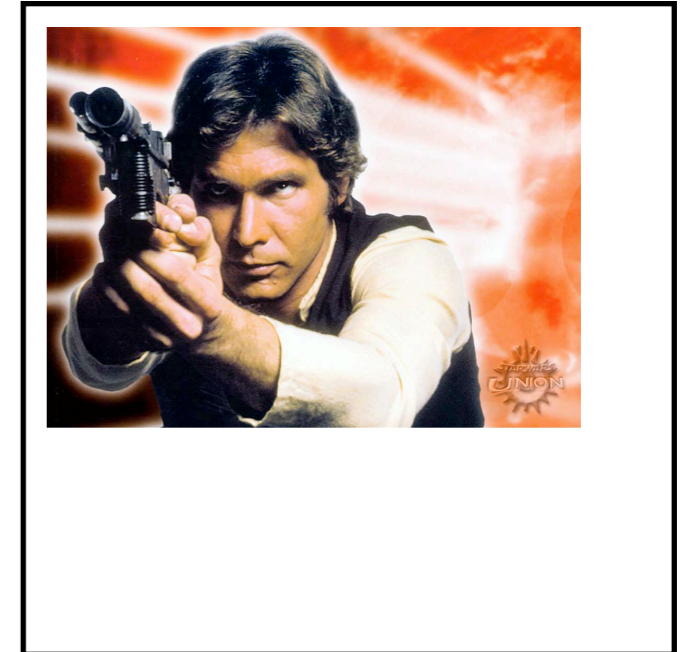


# The web strikes back...

<canvas>

## Draw images...

```
window.onload = function() {  
  var canvas = document.getElementById("myCanvas");  
  var ctx = canvas.getContext("2d");  
  ctx.globalAlpha = 1.0;  
  var img = new Image();  
  img.src = "han_solo.jpg";  
  ctx.drawImage(img, 10, 10);  
};
```



# The web strikes back...

<canvas>

Makes things like this possible...



# The web strikes back...

<canvas>

## Restrictions...

- No DOM access
- Slow if it comes to large areas
- Hardware acceleration is not standard

# The web strikes back...

<canvas>

## Browser support (7/2011)



# Forms...

# The web strikes back...

## Forms

In times of HTML4...

- client side validation using JavaScript
- server side validation using Java, PHP etc.



**No JavaScript means no validation**

# The web strikes back...

## Forms

# HTML5 Form validation in the browser...

Project information

Name  
StarWars

Priority 4

Estimated hours  
500

Start date  
2011-07-21

Email contact  
anakin@alliance.com

Project URL  
sdf

submit

Project information

Name  
StarWars

Priority 4

Estimated hours  
500

Start date  
2011-07-21

Email contact  
anakin@alliance.com

Project URL  
sdf

Geben Sie eine URL ein.

Project information

Name  
StarWars

Priority 4

Estimated hours  
500

Start date  
2011-07-21

Email contact  
anakin@alliance.com

Project URL  
http://google.com

submit

# The web strikes back...

## Forms

## New input types...

```
<!-- HTML5 forms -->
<input type="text" autofocus="true" name="name" placeholder="Project name"
      required="true">

<input type="range" name="priority" min="0" max="10" value=0
      onchange="updatePrio()">

<input type="number" name="hours" min="0" max="1000" value=0 required="true">

<input type="date" name="start" value="2011-07-18" required="true">

<input type="email" name="email" placeholder="user@domain.com">

<input type="url" name="web" placeholder="http://harmonic-code.org"
      required="true">
```

# The web strikes back...

## Forms

### CSS 3 for validation...

```
:focus:invalid {  
  background-image: url('invalid.png');  
  background-position: right center;  
  background-repeat: no-repeat;  
}  
  
:focus:valid {  
  background-image: url('valid.png');  
  background-position: right center;  
  background-repeat: no-repeat;  
  background-color: #ffffff  
}
```

# The web strikes back...

## Forms

### New elements

<code>&lt;progress&gt;</code>	Represents the completion of a task
<code>&lt;meter&gt;</code>	Represents a linear measurement within a known range (e.g. for visualizing the temperature etc.)
<code>&lt;dataset&gt;</code>	Represents a set of option elements that can be used in combination with the new list attribute for input to make dropdown menus
<code>&lt;keygen&gt;</code>	A control for key-pair generation
<code>&lt;output&gt;</code>	Displays the result of a calculation

# The web strikes back...

## Forms

### New input types

tel	For entering a telefon number
search	To prompt users to enter text they want to search for
url	For entering a single url
email	For entering either a single mail address or a list of mail addresses
datetime	For entering a date and time with the timezone set to UTC
date	For entering a date with no timezone
month	For entering a date with a year and a month but no timezone
week	For entering a date that consists of a year and a week number (2011-W29)
time	For entering a time with hour, minute, seconds and fraction seconds
datetime-local	For entering a date and time with no timezone
number	For numerical input
range	For numerical input, but unlike number, the actual is not important
color	For choosing color through a color control

# The web strikes back...

## Forms

### New input attributes

<b>autofocus</b>	Set the focus to the input field when the page is loaded
<b>placeholder</b>	Gives the user a hint about what sort of data they should enter
<b>form</b>	Specifies one or more forms to which the input element belongs
<b>required</b>	Defines the element as required
<b>autocomplete</b>	Disables autocompletion by the browser (e.g. for password fields)
<b>pattern</b>	For validating the elements value against a given regular expression
<b>dirname</b>	For submitting the directionality of the control with the form (e.g. right -> left)
<b>novalidate</b>	Disables form submission validation
<b>formaction</b>	Overrides the action attribute on the form element
<b>formenctype</b>	Overrides the enctype attribute of the form element
<b>formmethod</b>	Overrides the method attribute of the form element
<b>formnovalidate</b>	Overrides the novalidate attribute of the form element
<b>formtarget</b>	Overrides the target attribute of the form element

# The web strikes back...

Forms

## Browser support (7/2011)



# Notifications...

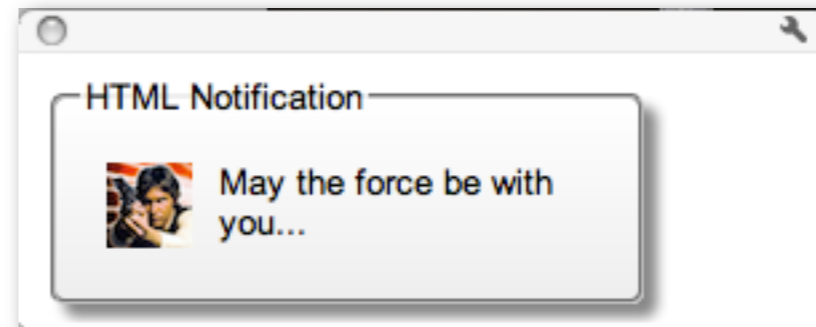
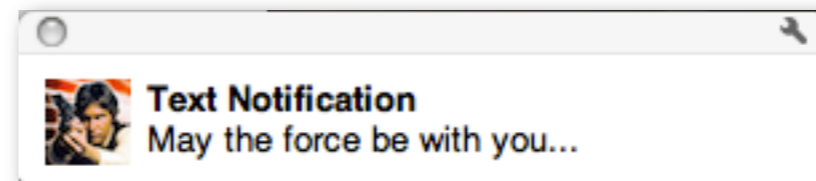
# The web strikes back...

## Notifications

HTML5 makes it possible to display desktop notifications to the user.

There are two types of notifications

- plain text
- html



# The web strikes back...

## Notifications

## How to create a notification...

```
// Plain text notification
if (window.webkitNotifications.checkPermission() == 0) {
    window.webkitNotifications.createNotification(picture, title, text).show();
} else {
    window.webkitNotifications.requestPermission();
}

// HTML notification
if (window.webkitNotifications.checkPermission() == 0) {
    window.webkitNotifications.createHTMLNotification('http://domain/notify.html');
} else {
    window.webkitNotifications.requestPermission();
}
```

# The web strikes back...

Notifications

## Browser support (7/2011)



# Going **offline**

# The web strikes back...

Going offline

Know that...?



# The web strikes back...

Going offline

Forget about it...



# The web strikes back...

Going offline

## Know when you're all alone...

```
if (navigator.onLine) {  
    console.log('online');  
} else {  
    console.log('offline');  
}
```

```
window.addEventListener('online', function(event) {  
    // Re-sync data with server.  
}, false);  
  
window.addEventListener('offline', function(event) {  
    // Queue up events for server.  
}, false);
```

# The web strikes back...

Going offline

## The cache manifest...

### **CACHE MANIFEST**

```
# „CACHE MANIFEST“ has to be the first row (mandatory)
```

```
# use some rev. no. or date to indicate a refresh of the cached data
```

```
# rev 1
```

```
# data that should always be loaded from the web (optional)
```

### **NETWORK:**

```
foo_online.html
```

```
bar_online.js
```

```
# data that should be cached (optional and default)
```

### **CACHE:**

```
foo_cached.html
```

```
bar_cached.js
```

```
# data that will be used as fallback option (optional)
```

### **FALLBACK:**

```
foo_fallback.html
```

```
bar_fallback.js
```

# The web strikes back...

Going offline

## Things to know about the manifest...

- Link to the manifest like this

```
<html manifest="/FOO.MANIFEST">
```

- It must be served as mime-type

```
„text/cache-manifest“
```

- To force a refresh of the cache you have to change the content of the manifest file (changing a comment is enough).

# The web strikes back...

Going offline

## Cookies



# The web strikes back...

Going offline

## Cookies are...

- limited in size (usually about 4kb)
- transmitted back and forth from server to browser on every request
- visible on the network (security risk)
- consuming bandwidth
- complicated to setup

# The web strikes back...

Going offline



so it's time to say goodbye...

# The web strikes back...

Going offline

## WebStorage

- SessionStorage
- LocalStorage

WebSQL (spec is no longer in active maintenance !!!)

## Indexed Database API

# The web strikes back...

Going offline

## WebStorage

- SessionStorage
- LocalStorage

WebSQL (spec is no longer in active maintenance !!!)

Indexed Database API

# The web strikes back...

Going offline

## SessionStorage

available only to the window (will be cleared when browser window or tab will be closed)

add data to the session storage

```
if (window.sessionStorage) {  
    // Store data to the session storage  
    window.sessionStorage.setItem('variable', 'value');  
  
    // Get data from the session storage  
    alert(window.sessionStorage.getItem('variable'))  
} else {  
    alert('This browser does not support sessionStorage');  
}
```

# The web strikes back...

Going offline

## SessionStorage

remove data from the session storage

```
if (window.sessionStorage) {  
  
    // Store data to the session storage  
    window.sessionStorage.setItem('variable1', 'value1');  
    window.sessionStorage.setItem('variable2', 'value2');  
  
    // Remove a single item from the session storage  
    window.sessionStorage.removeItem('variable1');  
  
    // Clear the entire session storage  
    window.sessionStorage.clear();  
} else {  
    alert('This browser does not support sessionStorage');  
}
```

# The web strikes back...

Going offline

## LocalStorage

available only to the domain (has to be cleared by yourself)

add data to the local storage

```
if (window.localStorage) {  
  
    // Store data to the local storage  
    window.localStorage.setItem('variable', 'value');  
  
    // Get data from the local storage  
    alert(window.localStorage.getItem('variable'));  
} else {  
    alert('This browser does not support localStorage');  
}
```

# The web strikes back...

Going offline

## LocalStorage

remove data from the local storage

```
if (window.localStorage) {  
  
    // Store data to the local storage  
    window.localStorage.setItem('variable1', 'value1');  
    window.localStorage.setItem('variable2', 'value2');  
  
    // Remove a single item from the local storage  
    window.localStorage.removeItem('variable1');  
  
    // Clear the entire local storage  
    window.localStorage.clear();  
} else {  
    alert('This browser does not support localStorage');  
}
```

# The web strikes back...

Going offline

## Things to know about LocalStorage...

- typically limited to 5 MB
- handles strings only  
(for storing objects use JSON.parse and JSON.stringify)
- returns null if key does not exist

```
// Store data to the session or local storage  
window.sessionStorage.setItem('variable', 'value');  
  
// can be also be written as  
window.sessionStorage['variable'] = 'value';  
  
// Get data from the session or local storage  
window.sessionStorage.getItem('variable');  
  
// can also be written as  
window.sessionStorage['variable'];
```

# The web strikes back...

Going offline

## Browser support (7/2011)





# WebSockets

# The web strikes back...

## WebSockets

*„The goal of this technology is to provide a mechanism for browser-based applications that need two-way communication with servers that does not rely on opening multiple HTTP connections (e.g. using XMLHttpRequest or <iframe>s and long polling).“*

[websocket protocol draft](#)

# The web strikes back...

WebSockets

## What could it be used for...

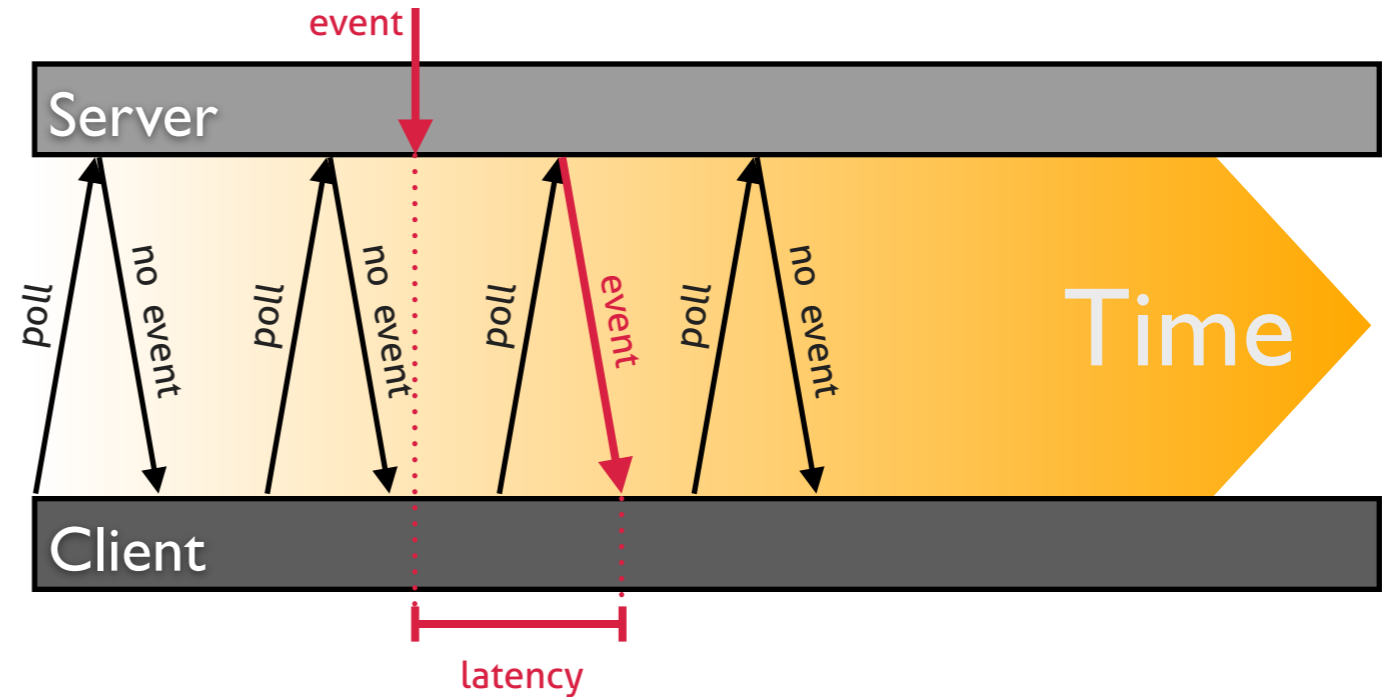
- Monitoring
- Games
- StockTickers
- RealTime Notifications
- Collaboration
- and more...

# The web strikes back...

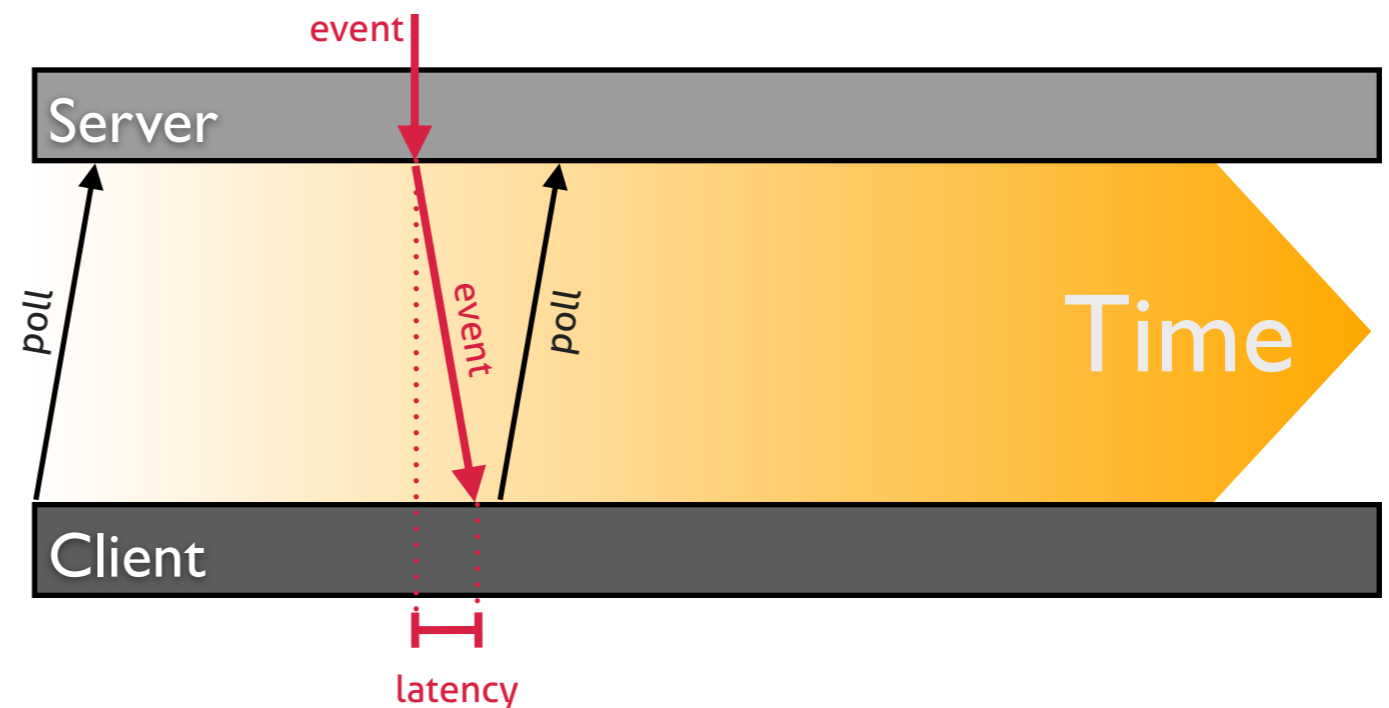
WebSockets

## HTML4 gave you...

### Polling



### LongPolling



# The web strikes back...

WebSockets

## HTML4 request header

```
GET / HTTP/1.1
User-Agent: ...some long user agent string...
Host: harmonic-code.org
Accept: */*
```



## HTML4 response header

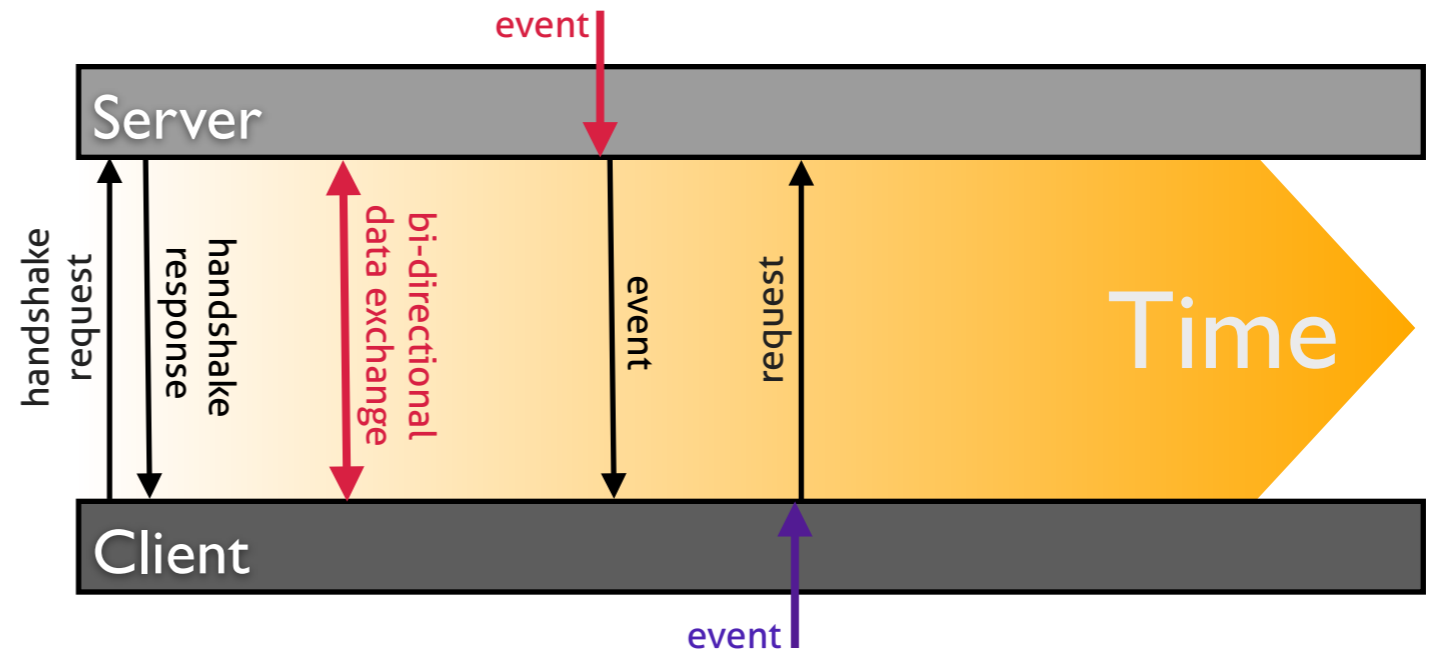
```
HTTP/1.1 200 OK
Date: Tue, 25 Jan 2011 17:32:19 GMT
Server: Apache
X-Powered-By: PHP/5.2.3
X-Pingback: http://harmonic-code.org/endpoint/
Connection: close
Transfer-Encoding: chunked
Content-Type: text/html; charset=UTF-8
```

# The web strikes back...

WebSockets

## HTML5 brings you...

### WebSockets



# The web strikes back...

## WebSockets

### HTML5 handshake request

```
GET /demo HTTP/1.1
Upgrade: WebSocket
Connection: Upgrade
Host: harmonic-code.org
Origin: http://harmonic-code.org
WebSocket-Protocol: sample
```



~350 byte  
only once

### HTML5 handshake response header

```
HTTP/1.1 101 Web Socket Protocol Handshake
Upgrade: WebSocket
Connection: Upgrade
WebSocket-Origin: http://harmonic-code.org
WebSocket-Location: ws://harmonic-code.org/
WebSocket-Protocol: sample
```

# The web strikes back...

## WebSockets

## How to use it on the client...

```
var socket = new WebSocket( 'ws://domain.com' );

socket.onopen = function () {
    alert( 'WebSocket connection established' );
};

socket.onmessage = function (evt) {
    alert( 'Received: ' + evt.data );
};

socket.onerror = function () {
    console.log( 'WebSocket error' );
};

socket.onclose = function (evt) {
    alert( 'WebSocket connection closed' );
};

socket.send( 'Hi server...nice to meet you' );

socket.close();
```

# The web strikes back...

## WebSockets

### Advantages...

- bidirectional communication
- minimum latency
- connections to multiple servers
- scalability
- reduced network traffic

# The web strikes back...

WebSockets

## Browser support (7/2011)



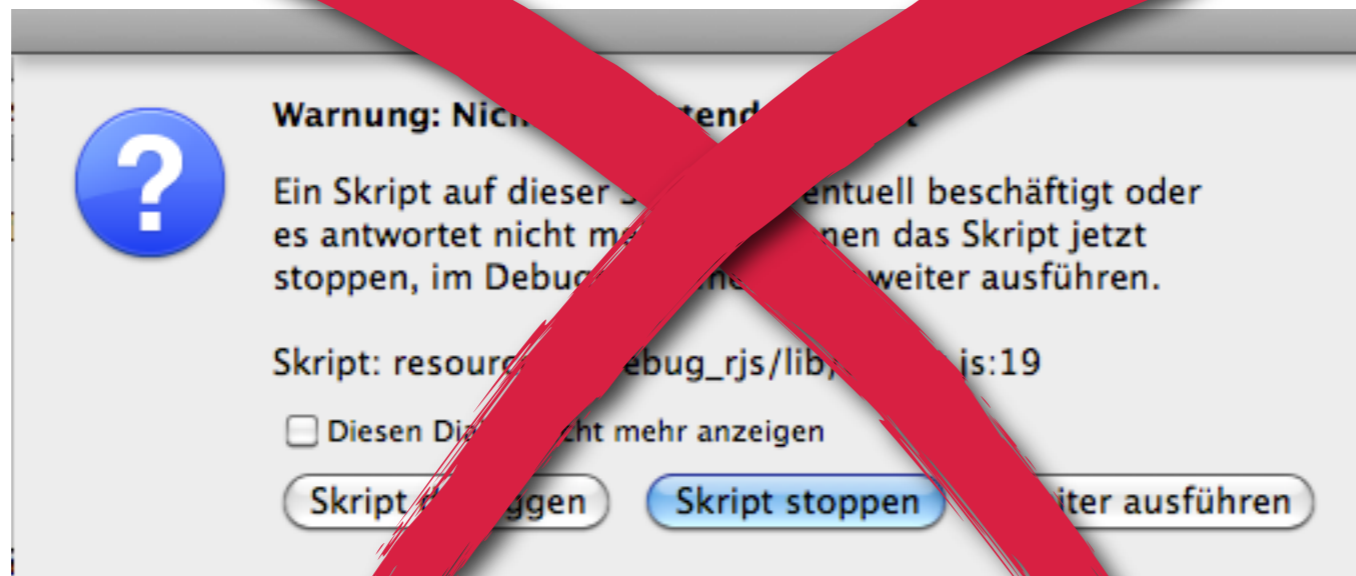


# WebWorkers

# The web strikes back...

WebWorkers

## Remember that...



## No JavaScript concurrency...

# The web strikes back...

## WebWorkers

### WebWorkers can...

- do the heavy lifting in a background
- enable nonblocking UI's
- post messages back to the main task
- receive message from the main task
- spawn other webworkers
- dynamically load JavaScript files

# The web strikes back...

## WebWorkers

### How does it work (main document)...

```
// In the main html document //  
  
// Create the worker  
var worker = new Worker('worker.js');  
  
// Start the worker  
worker.postMessage('');  
  
// Add an event listener for messages from the worker  
worker.addEventListener('message', function(evt) {  
    console.log('Message from worker: ', evt.data);  
}, false);  
  
// Send a message to the worker  
worker.postMessage('Hi Worker...');  
  
// Terminate the worker  
worker.terminate();
```

# The web strikes back...

## WebWorkers

## How does it work (worker.js)...

```
// The worker script //  
  
// Add an event listener for messages from the main document  
addEventListener('message', function(evt) {  
    // Send a message to the document  
    postMessage(evt.data);  
  
    // Close the worker  
    close();  
}, false);
```

# The web strikes back...

## WebWorkers

It offers JavaScript access to...

- the navigator object
- the location object
- XMLHttpRequest
- setTimeout(), clearTimeout() methods
- setInterval(), clearInterval() methods
- the AppCache
- import scripts
- spawn other webworkers

# The web strikes back...

## WebWorkers

But it has no access to...

- the DOM
- the window object
- the document object
- the parent object

# The web strikes back...

WebWorkers

## Browser support (7/2011)



# GeoLocation API

# The web strikes back...

## GeoLocation API

### Features...

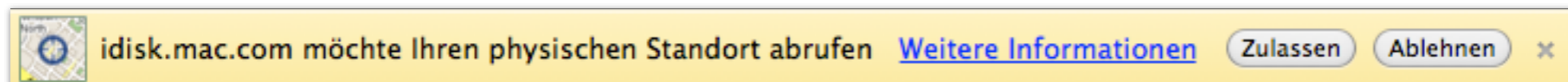
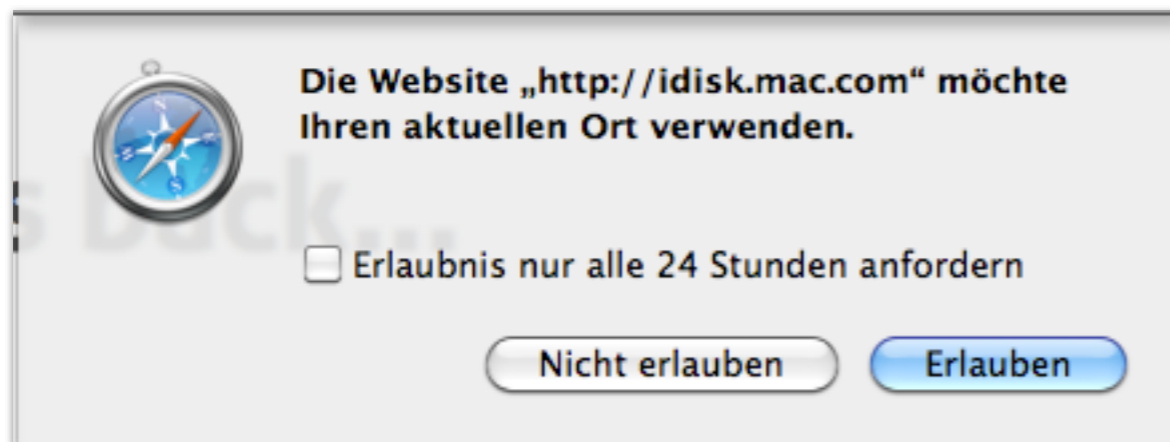
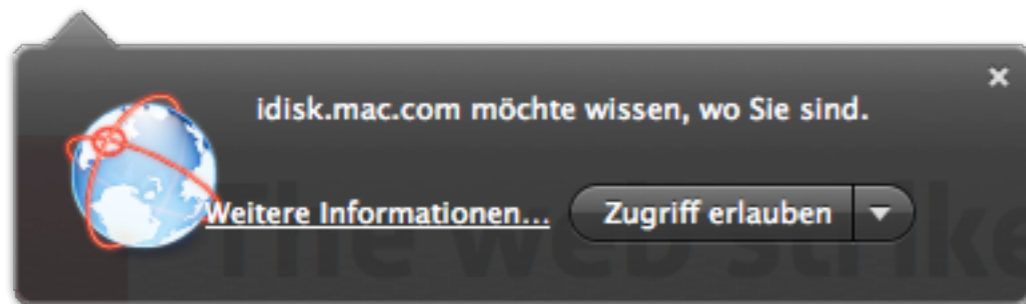
- Uses GPS, CellTower, IP address etc.
- Location is represented by latitude and longitude values
- High level interface to device implementation

# The web strikes back...

GeoLocation API

Afraid about sharing your location...?

You don't have to...it's your decision



# The web strikes back...

## GeoLocation API

## How to access it...?

```
if (navigator.geolocation) {  
    // Get the current location  
    navigator.geolocation.getCurrentPosition(showPosition, handleError);  
  
    // Track the location continuously  
    var trackId = navigator.geolocation.watchPosition(function(position) {  
        console.log(position.coords.latitude);  
        console.log(position.coords.longitude);  
    });  
} else { alert ('Your browser does not support GeoLocation API'); }  
  
function showPosition(position) {  
    var latitude = position.coords.latitude;  
    var longitude = position.coords.longitude;  
    var accuracy = position.coords.accuracy;  
}  
  
function handleError(err) {  
    if (err.code == 1) {  
        console.log('Permission denied');  
    }  
}
```

# The web strikes back...

## GeoLocation API

### Position object properties

Property	Type	Info
coords.latitude	double	decimal degrees
coords.longitude	double	decimal degrees
coords.altitude	double or null	meters above the reference ellipsoid
coords.accuracy	double or null	meters
coords.altitudeAccuracy	double or null	meters
coords.heading	double or null	degrees clockwise from true north
coords.speed	double or null	meters per second
timestamp	DOM TimeStamp	a Date() object

# The web strikes back...

GeoLocation API

## Browser support (7/2011)





# DeviceOrientation API

# The web strikes back...

DeviceOrientation API

## Features...

- Describes the physical orientation of the device (needs Gyroscope)
- Orientation is represented by the angles around the spatial axes
- High level interface to device implementation

# The web strikes back...

## DeviceOrientation API

### DeviceOrientationEvent properties

Property	Type	Info
alpha	double or null	Degrees the frame is rotated around its z-axis
beta	double or null	Degrees the frame is rotated around its x-axis
gamma	double or null	Degrees the frame is rotated around its y-axis

# The web strikes back...

DeviceOrientation API

## Axes definition



# The web strikes back...

## DeviceOrientation API

### How to access it...?

```
// Webkit implementation
window.addEventListener("deviceorientation", function(event) {
    // Degrees around z-axis
    console.log(event.alpha);

    // Degrees around x-axis
    console.log(event.beta);

    // Degrees around y-axis
    console.log(event.gamma);
});

// Mozilla implementation
window.addEventListener("MozOrientation", function(event) {
    // Values from -1 to 1 z-axis
    console.log(event.z);

    // Values from -1 to 1 x-axis
    console.log(-event.x * 90);

    // Values from -1 to 1 y-axis
    console.log(-event.y * 90);
}, true);
```

# The web strikes back...

Notifications

## Browser support (7/2011)



\* Window.OrientationEvent with different values for x, y and z-axis

# Demo...

DoubleClick to open in browser  
(best results with Google Chrome)

# The web strikes back...

## Links

- ◎ [HTML5 spec](#)
- ◎ [WHATWG](#)
- ◎ [HTML5 Rocks](#)
- ◎ [Dive into HTML5](#)
- ◎ [HTML5 BoilerPlate](#)
- ◎ [Can I Use](#)

# The web strikes back...



*Thanx for your  
attention...*