A composite image featuring a man in profile, looking upwards and to the side with a thoughtful expression. He has light brown hair and a short beard. In his right hand, he holds a silver scalpel handle pointing upwards. A large, white, speech bubble-shaped graphic overlaps the bottom half of the image. Inside the bubble, the text "The Bleeding Edge of HTML5" is written in a bold, black, sans-serif font.

The Bleeding Edge  
of HTML5

A dark, horizontal bar with a light-colored polka-dot pattern. It contains the speaker's name and social media handle in a large, white, sans-serif font.

Brandon Satrom  
@brandonsatrom



**My Dad is  
Program Manager for Kendo UI.  
We live in  
Austin, TX**



He blogs at  
**UserInexperience.com**  
and is  
**@BrandonSatrom** on  
**Twitter**



**Also, I pooped.**

02.02.13



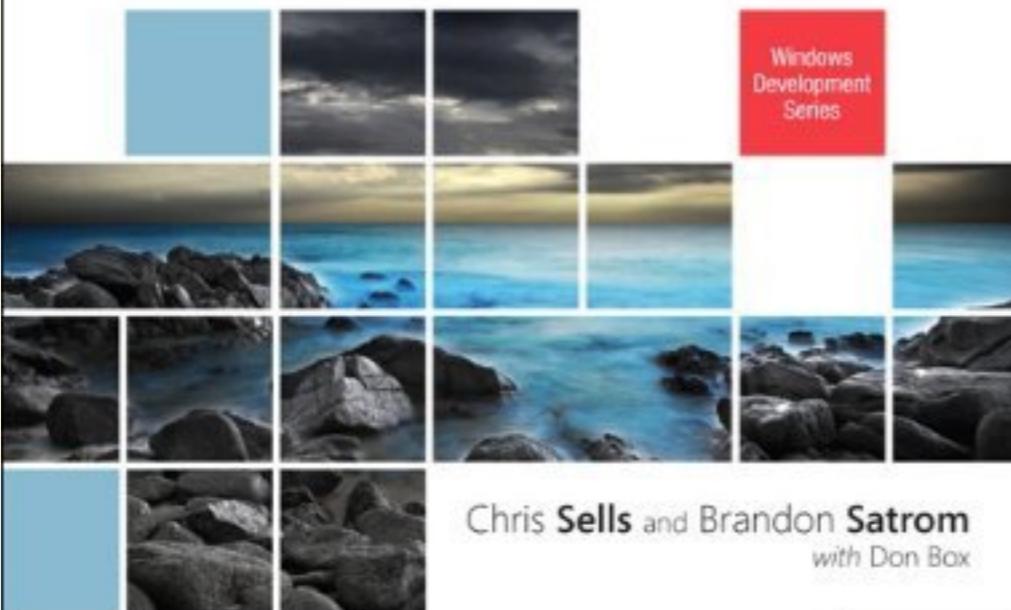
February 1-3,  
2013  
Austin, TX

[HTML5tx.com](http://HTML5tx.com)  
@html5tx

Forewords by **Chris Anderson** and **Rey Bango**



# Building Windows 8 Apps *with JavaScript*



**Buy my Book!**

<http://bit.ly/Win8Book>

# Meanwhile, back in the Enterprise...

So, to use Geolocation, I'll need to add feature detection. Then I need a polyfill for IE6, 7 and 8, which will triple the size of the feature...

HOLY CHRISTIAN HEILMANN, BATMAN!



Forget practical...

... let's have some fun!\*

- \* If you'd rather be practical, you can watch:  
<http://bit.ly/HTML5-TechEd>

**OUCH... THESE  
APIS ARE  
SHARP!**





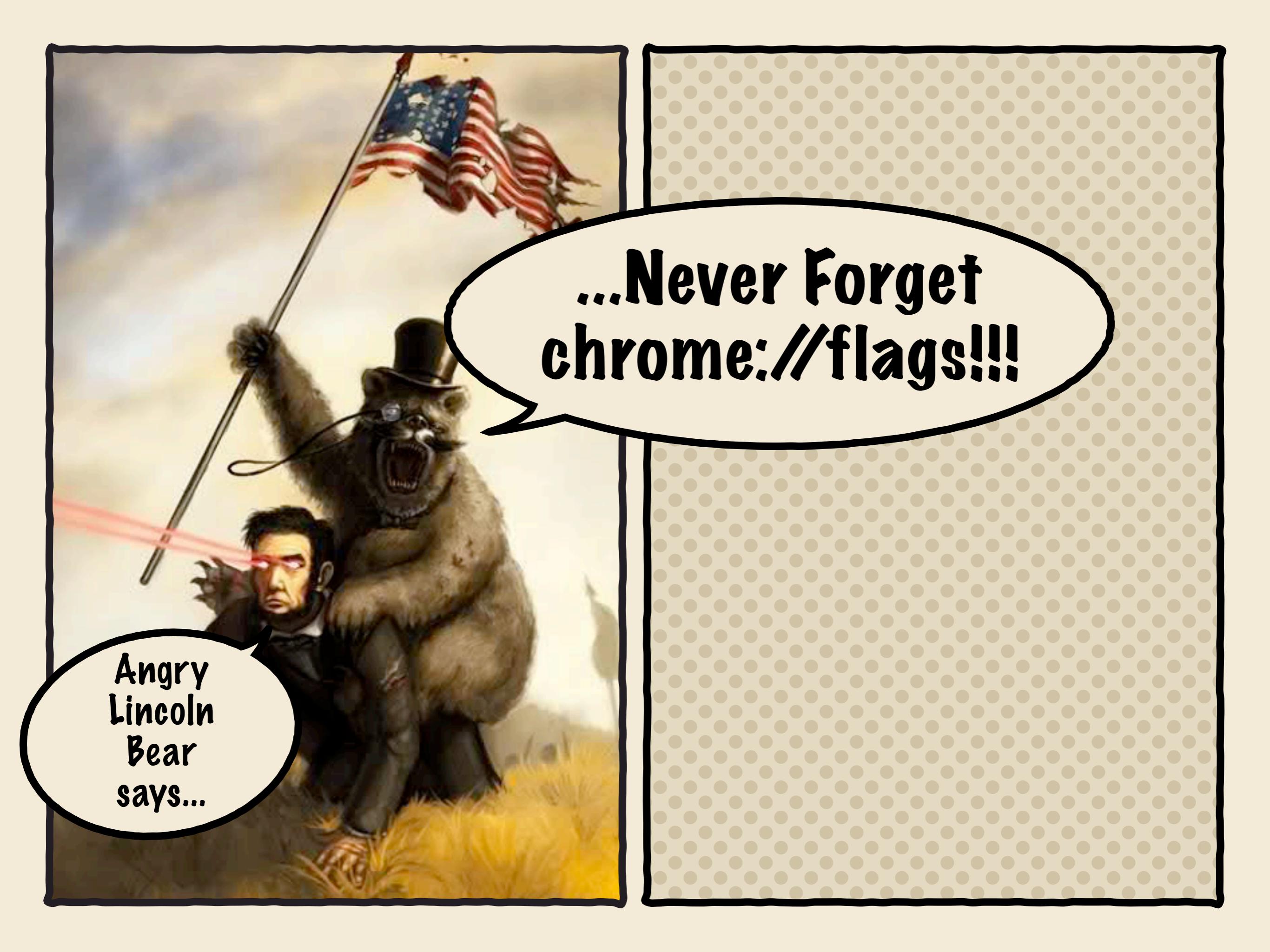
Firefox Nightly - [nightly.mozilla.org](https://nightly.mozilla.org)

**Notice!**

Cutting-Edge Browsers Only!



Chrome Canary - [bit.ly/Chrome-Canary](https://bit.ly/Chrome-Canary)



An illustration of a brown bear standing on its hind legs, wearing a top hat and a suit jacket over a white shirt with a bow tie. The bear has a stern, almost Lincoln-like expression. It holds a long rifle with a bayonet fixed. A small American flag is attached to the barrel of the rifle. In the background, there's a cloudy sky and some yellowish grass at the bottom. A speech bubble originates from the bear's mouth, containing the text "Angry Lincoln Bear says...". Another speech bubble is positioned above the bear, containing the text "...Never Forget chrome://flags!!!".

Angry  
Lincoln  
Bear  
says...

...Never Forget  
chrome://flags!!!

# ECMAScript

The Bleeding edge of...

[brendaneich.com/2012/10/  
harmony-of-dreams-come-  
true/](http://brendaneich.com/2012/10/harmony-of-dreams-come-true/)



JavaScript is like this  
really big fish I caught  
once...

- \* Default & Rest Parameters
- \* for-of iteration
- \* Map & Set
- \* Proxy
- \* Modules
- \* And more...

## Default and Rest Parameters

```
function f(a = 0, b = a*a) {  
    return [a, b];  
}
```

```
var ret = f(2); // Returns [2, 4]
```

```
function f(a, b, ...others) {  
    return others.concat(a, b);  
}
```

```
ret = f(1, 2, 3, 4); // Returns [3, 4, 1, 2];
```

# Modules

```
module EventAggregator {  
    export function sub() { /* ... */ }  
    export function pub() { /* ... */ }  
}  
  
import {sub, pub} from EventAggregator;  
  
import $ from  
“//code.jquery.comjquery-1.8.2.min.js”;  
  
var el = $('#main'); // No Script include!
```

# Glasses

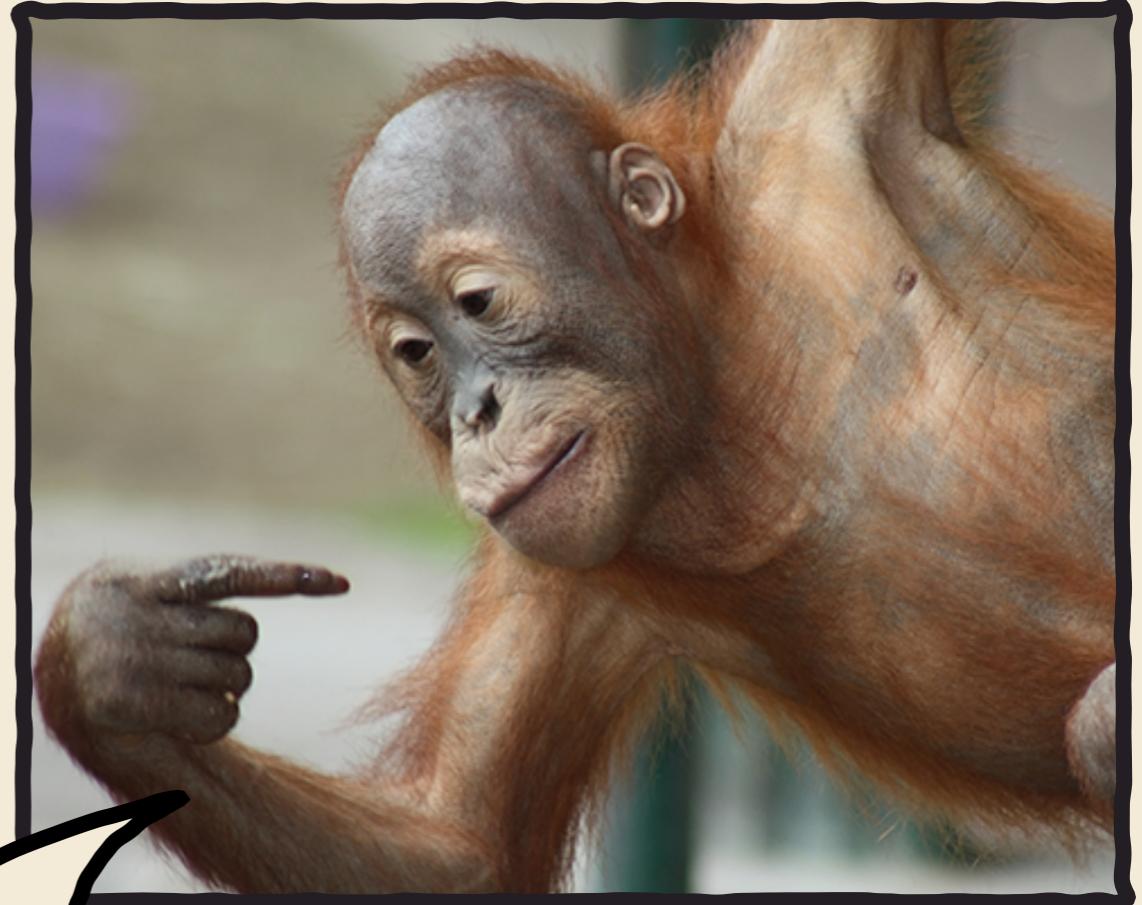
```
//Extend a ThreeJS Mesh with an
//overloaded ctor and extra properties
class SkinnedMesh extends THREE.Mesh {
    constructor(geometry, materials) {
        super(geometry, materials);

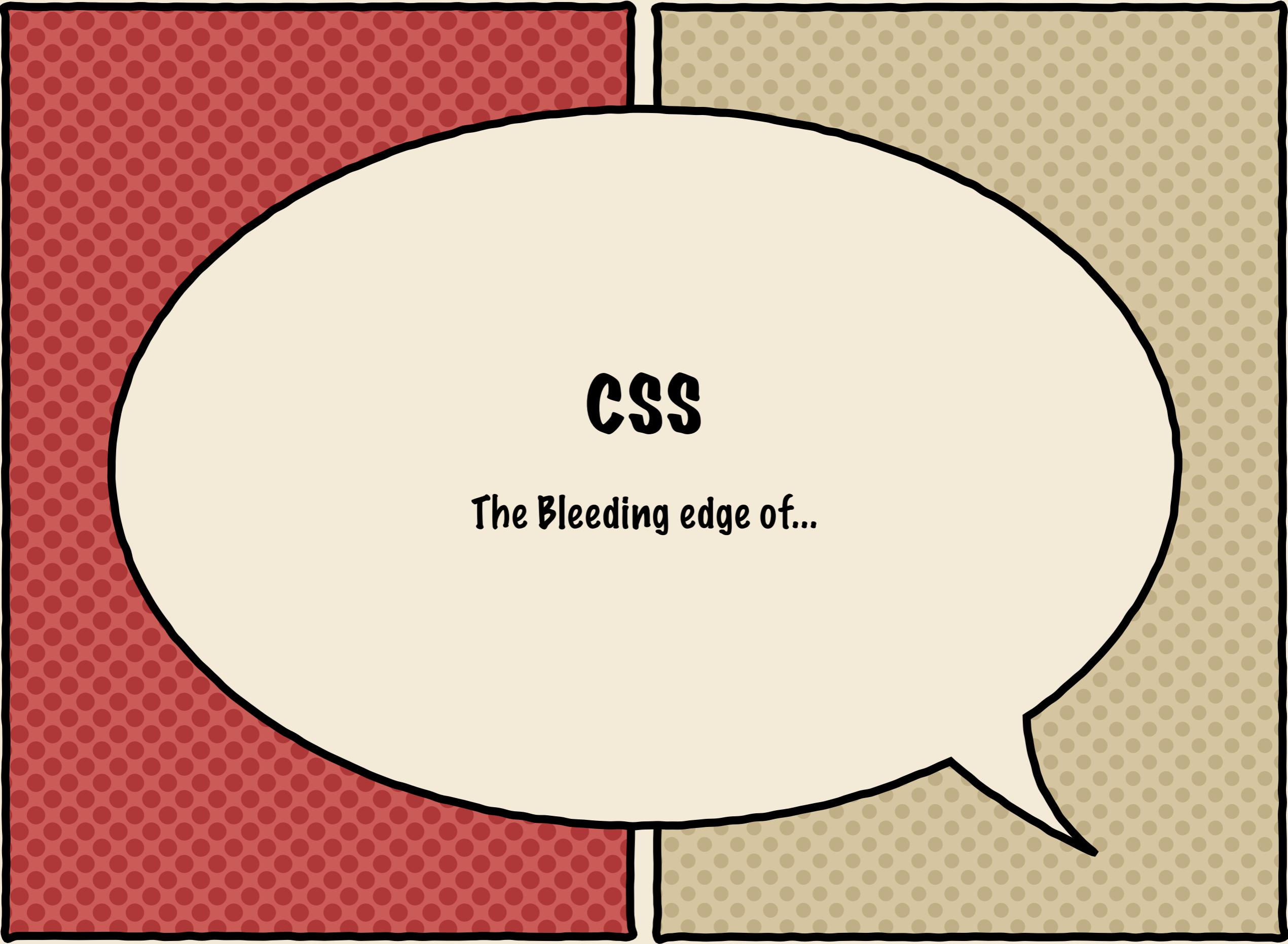
        this.idMatrix = new THREE.Matrix4();
        this.bones = [];
        this.boneMatrices = [];
        ...
    }

    update(camera) {
        ...
        super.update();
    }
}
```

# EcmaScript 6

Demo Time!





**CSS**

The Bleeding edge of...

# CSS Regions

```
<!-- HTML -->
<div id="source">
  <p> [ Really long article goes here ] </p>
</div>
<div class="container">
  <div id="region1" class="region"></div>
  <div id="region2" class="region"></div>
  <div id="region3" class="region"></div>
</div>

/* CSS */
#source { -webkit-flow-into: main; }

.region {
  -webkit-flow-from: main;
  width: 250px;
  float: left;
  margin-right: 10px;
  background: #eee;
  width: 30%;
  padding: 1%;
  margin-right: 1%;
  height: 400px;
}
```

# CSS Filter Effects

```
img.sepia {  
    -webkit-filter: sepia(100%);  
    -moz-filter: sepia(100%);  
    -o-filter: sepia(100%);  
    -ms-filter: sepia(100%);  
filter: sepia(100%);  
}  
  
img.hue {  
    -webkit-filter: hue-rotate(50deg);  
    -moz-filter: hue-rotate(50deg);  
    -o-filter: hue-rotate(50deg);  
    -ms-filter: hue-rotate(50deg);  
filter: hue-rotate(50deg);  
}
```

# CSS Custom Filters

```
.shader {  
    -webkit-filter: custom(none  
        mix(url(shaders/grayscale.fs)  
            normal source-atop), amount 0);  
    -webkit-transition: -webkit-filter linear 1s;  
}  
  
.shader:hover{  
    -webkit-filter: custom(none  
        mix(url(shaders/grayscale.fs)  
            normal source-atop), amount 1);  
}
```

**The Creative Web**

id nibh elementum ornare. Aliquam sit amet tempor lectus. Nunc ornare ornare tellus, vitae gravida metus dignissim lobortis. Integer consequat elit eu augue consectetur sodales.



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**The Creative Web**

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Morbi congue ultricies risus, quis laoreet dolor placerat vel. Mauris dignissim, diam sit amet dapibus fringilla, sem massa rhoncus mauris, non viverra nisl ipsum eu neque. Cras sollicitudin, leo et dapibus mattis, erat quam aliquam nisi, at dictum sapien sapien in libero. Pellentesque euismod pulvinar sem, sed condimentum purus consectetur eget.



# CSS Regions & Filters

Demo Time!



# JavaScript APIs

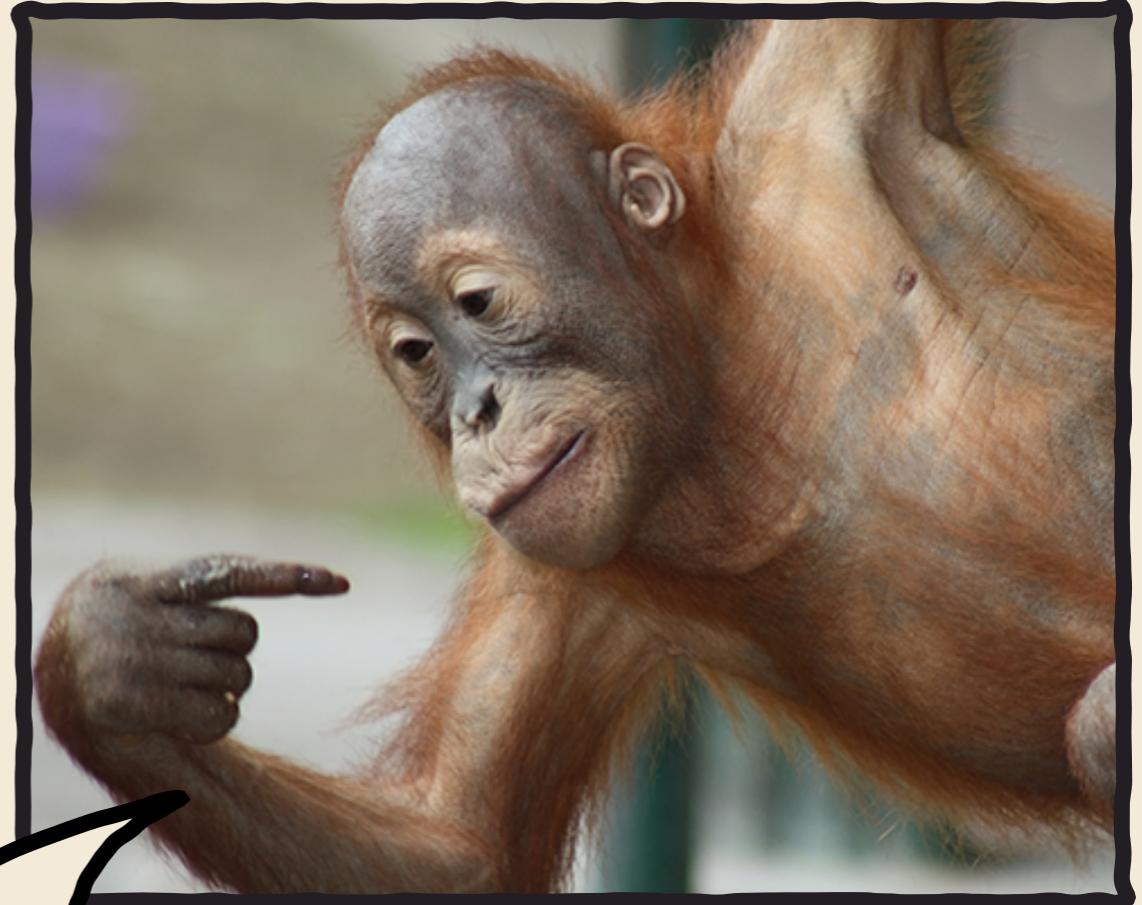
The Bleeding edge of...

# getUserMedia & WebRTC

```
navigator.getUserMedia =  
  navigator.getUserMedia ||  
  navigator.webkit GetUserMedia ||  
  navigator.mozGetUserMedia ||  
  navigator.msGetUserMedia;  
  
var url = window.URL || window.webkitURL,  
createEl = document.createElement;  
  
function streamVideo(lStream) {  
  var video = createEl("video");  
  video.autoplay = true;  
  video.src = url.createObjectURL(lStream);  
  
  document.body.appendChild(video);  
}  
  
navigator.getUserMedia(  
  {video: true}, streamVideo, logError);
```

getUserMedia &  
WebRTC

Demo Time!



# WebGL

```
var camera, scene, renderer;
var geometry, material, mesh;

camera = new THREE.PerspectiveCamera(75,500,1, 10000 );
camera.position.z = 1000;

scene = new THREE.Scene();
geometry = new THREE.CubeGeometry( 200, 200, 200 );
material = new THREE.MeshBasicMaterial(
{ color: 0xff0000, wireframe: true } );

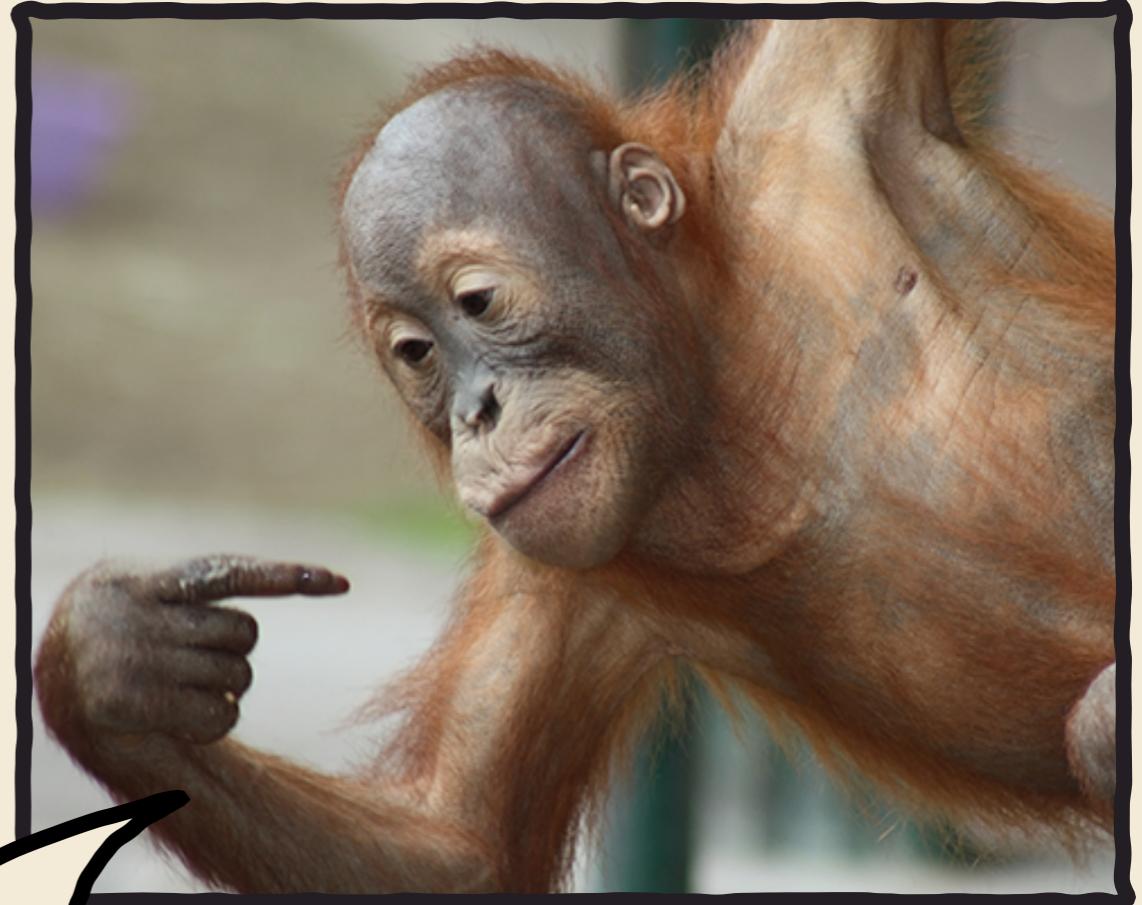
mesh = new THREE.Mesh( geometry, material );
scene.add( mesh );

renderer = new THREE.CanvasRenderer();
renderer.setSize( window.innerWidth,
    window.innerHeight );

document.body.appendChild( renderer.domElement );
```

WebGL

Demo Time!



# JavaScript Speech API

```
var recognition = new SpeechRecognition();
recognition.maxAlternatives = 5;

recognition.onresult = function(event) {
    // SpeechRecognitionEvent
    if (event.result.length > 0) {
        // SpeechRecognitionResult
        var q = document.querySelector('#query');

        // SpeechRecognitionAlternative
        q.value = event.result[0].transcript;
    }
};

var button = document.querySelector('#s');
button.onclick = function() {
    recognition.start();
};
```

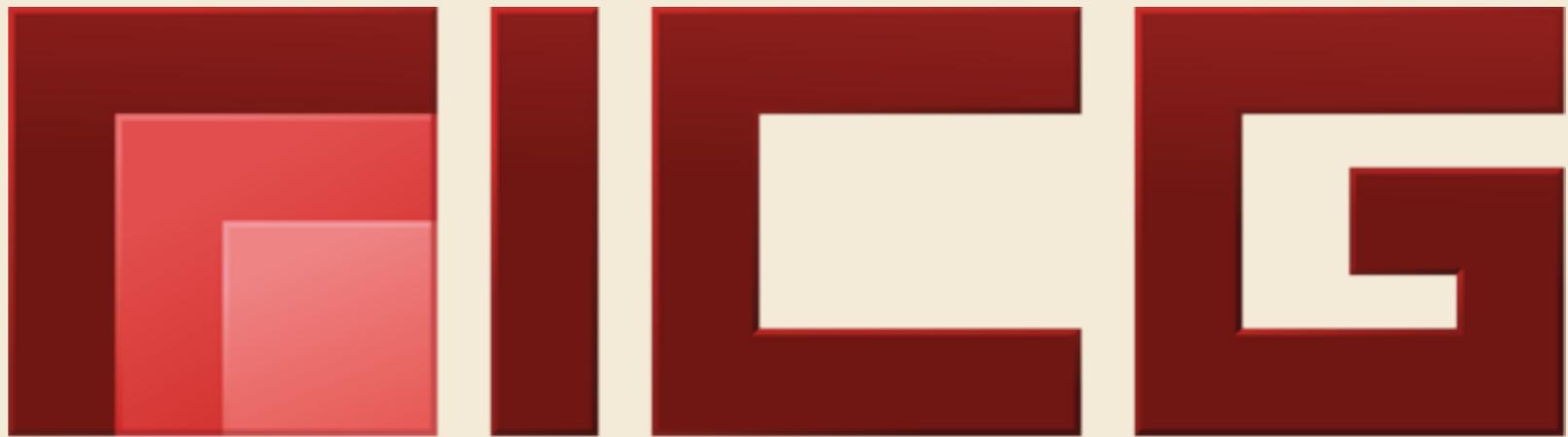
# JavaScript Speech API

Demo Time!



# HTML & the DOM

The Bleeding edge of...



# RESPONSIVE IMAGES COMMUNITY GROUP

## Hixie vs. THE WORLD

(a.k.a. `srcset` vs. `<picture>`)

or

(a tale of two specifications)

or

(much ado about media)

<http://responsiveimages.org/>

<http://picture.responsiveimages.org/>

<http://dev.w3.org/html5/srcset/>

# Responsive Images <picture>

```
<!-- picture-element -->
<picture>
  <source media="(max-width: 479px)"
         src="test_landscape_1@1x.jpg">
  <source
    media="(min-width: 480px) and (max-width: 639px)"
    src="test_landscape_1@2x.jpg">
  <source media="(min-width: 640px)"
    src="test_landscape_1@4x.jpg">
  <source media="monochrome"
    src="test_landscape_1@monochrome.jpg">

  <!-- fallback img if picture is not supported -->
  

  <!-- providing alternate text -->
  <p>Nymphenburg Castle in Munich during sunset</p>
</picture>
```

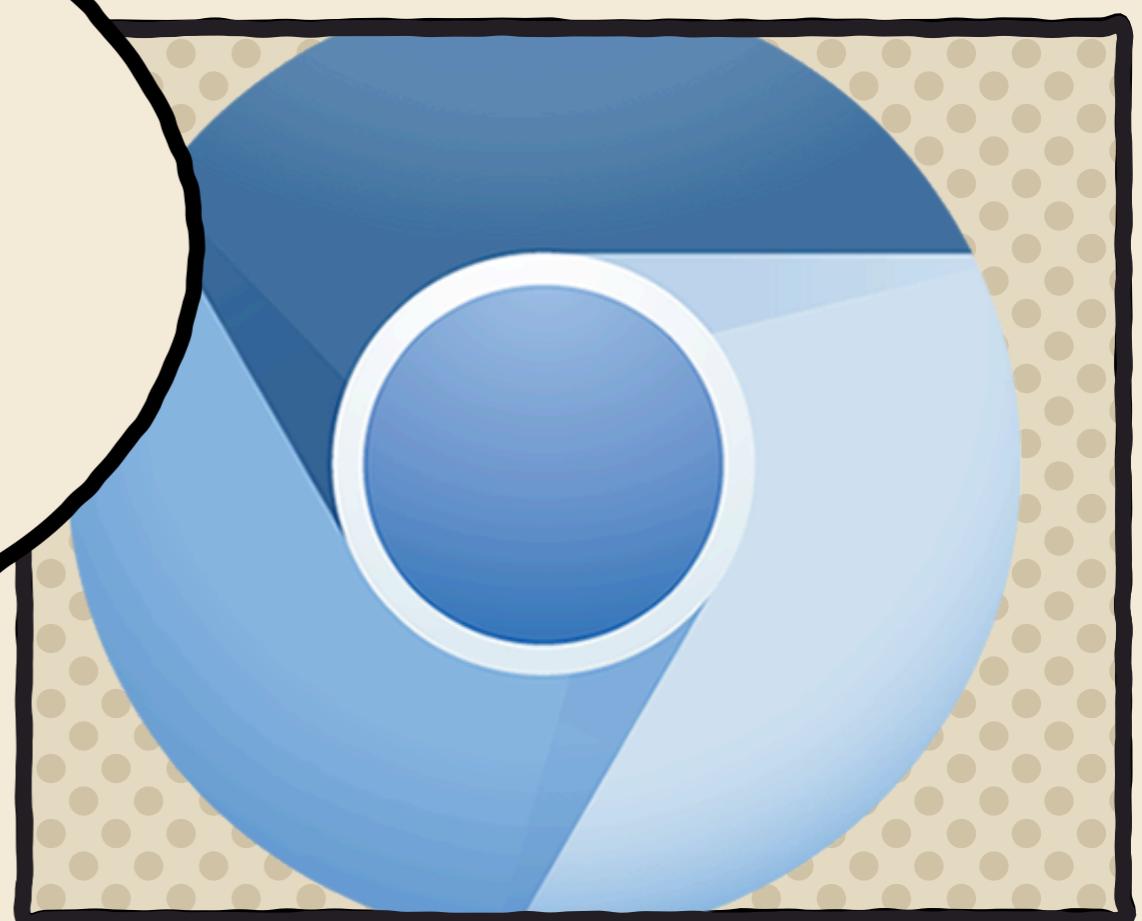
# “Responsive Images “srcset”

```
<h1>
  
</h1>

<figure>
  
  <figcaption>Awesome Pear</figcaption>
</figure>
```

# Responsive Images

Demo Time!



Custom Elements / x-tags  
Templates  
Decorators  
Shadow DOM

# Web Components

or  
("Subverting the W3C, one x-tag at a time")

WEB COMPONENTS

[webcomponents.github.com/](http://webcomponents.github.com/)

# Templates

```
<template id="cmmTmpl">
  <div>
    <img src="">
    <div class="comment"></div>
    ...
  </div>
</template>

var t = document.querySelector("#cmmTmpl");
// Populate the template.
// ...
// Add Node to DOM
someElement.appendChild(
  t.content.cloneNode()));
```

# Custom Elements

```
<element extends="button" name="x-fancybutton">
  <template>
    <style scoped>
      :host { display: contents; }
      div.fancy {
        ...
      }
    </style>
    <div class="fancy">
      <content></content>
      <div id="t"></div>
      <div id="l"></div>
      <div id="b"></div>
      <div id="r"></div>
    </div>
  </template>
</element>

<button is="x-fancybutton" onclick="showTime();">
  Show Time
</button>
```

# CSS Decorators

```
<decorator id="fade-to-white">
  <template>
    <div style="position: relative;">
      <style scoped>
        #fog {
          position: absolute;
          background: rgba(255, 255, 255, 0);
        }
      </style>
      <content></content>
      <div id="fog"></div>
    </div>
  </template>
</decorator>

<div class="poem">
  Two roads diverged in a yellow wood,<br>
</div>

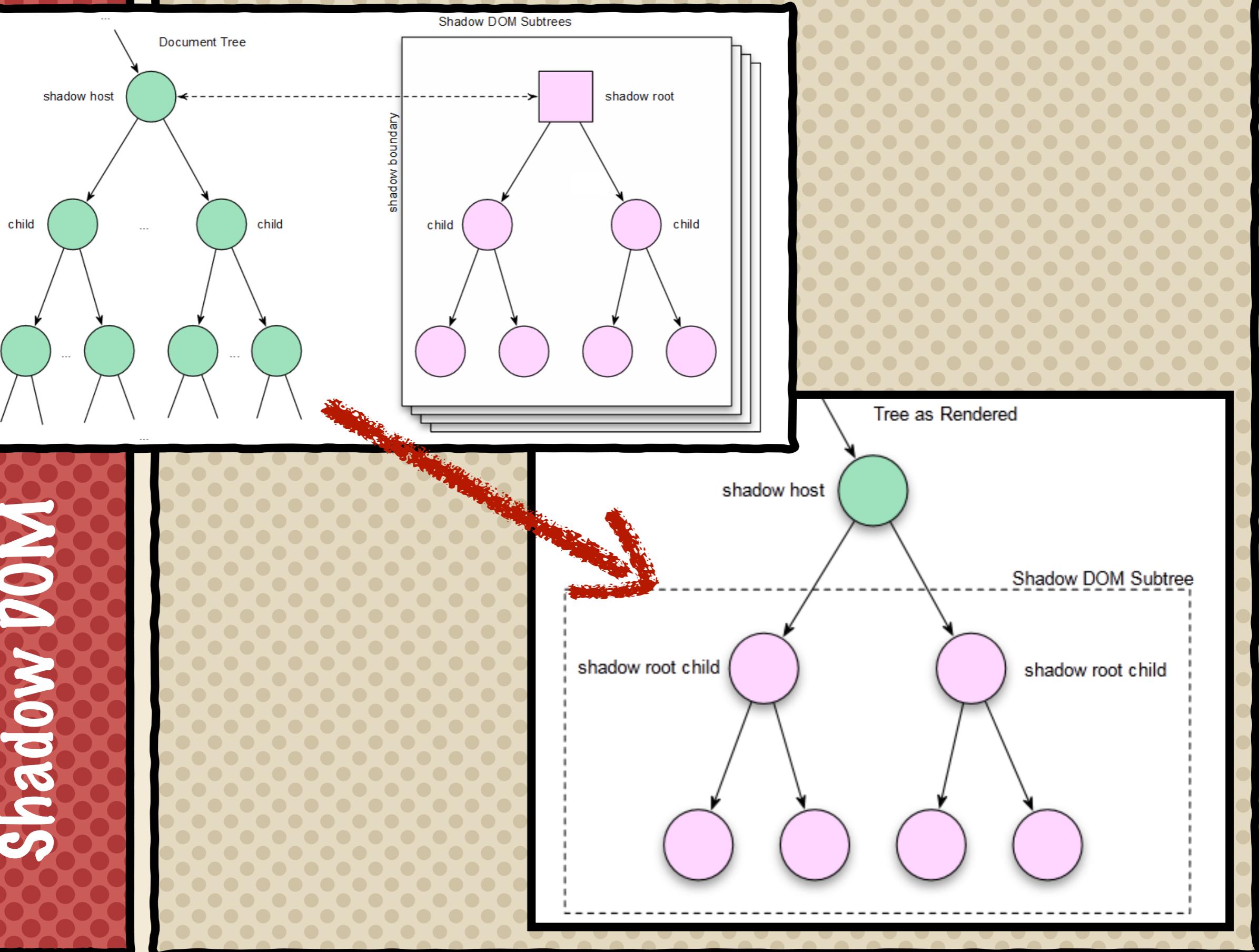
.poem {
  decorator: url(#fade-to-white);
  font-variant: small-caps;
}
```

# Shadow DOM

```
<div>
  <content select="h1.cool">
    <!-- all h1.cool children here -->
  </content>
  <div class="cool">
    <content select=".cool">
      <!-- all .cool children
          (except h1.cool) appear here -->
    </content>
  </div>
  <div class="stuff">
    <content>
      <!-- remaining children will appear here -->
    </content>
  </div>
</div>

<div>
  <shadow>
    <!-- range slider renders here -->
  </shadow>
  <div class="ticks"> ... </div>
</div>
```

# Shadow DOM



# Shadow DOM

## Demo Time!





We're only getting started...



# ... like Mozilla's WebAPI Initiative

- \* WebTelephony
- \* WebSMS
- \* Contacts API
- \* Battery Status
- \* WebNFC
- \* WebPayment
- \* WebFM
- \* Battery Status

[arewemobileyet.com](http://arewemobileyet.com)

# Firefox OS

## Demo Time!

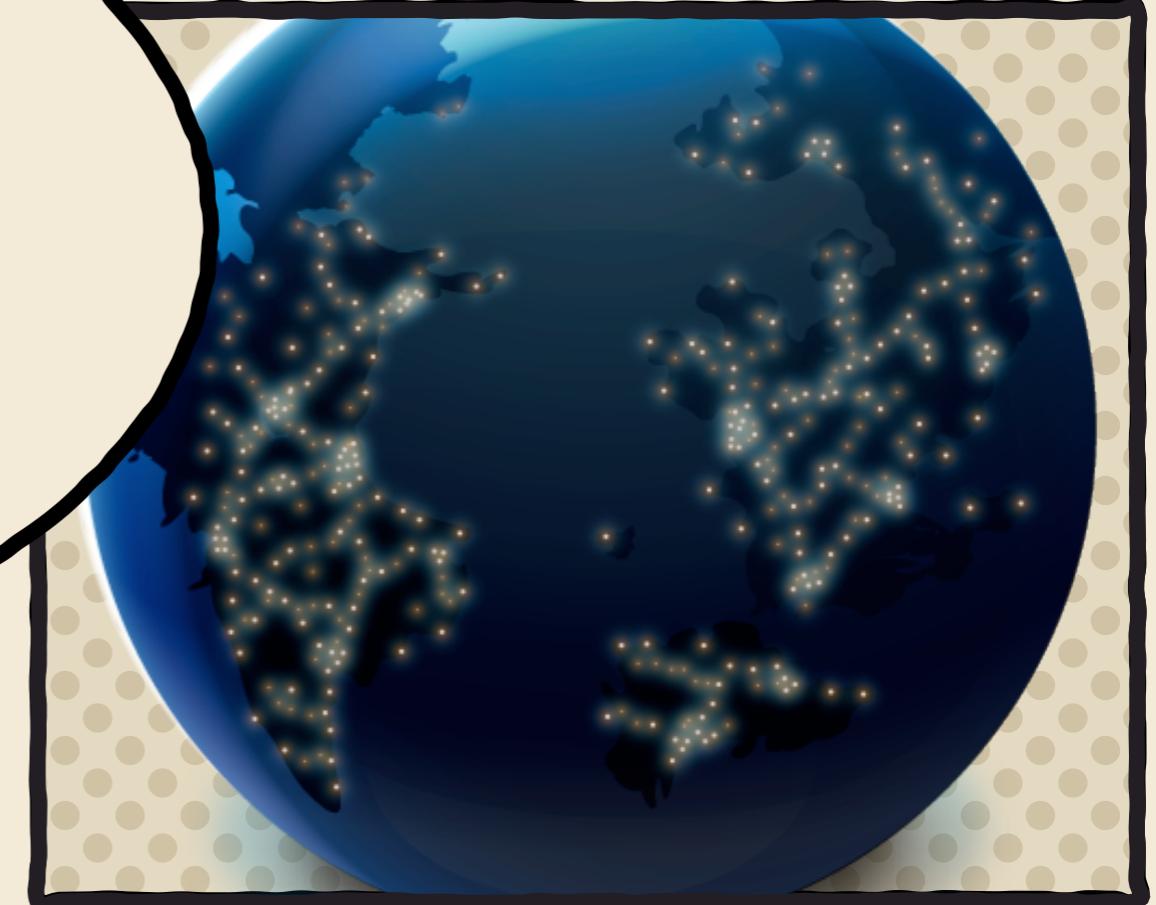




Image by "dbking" From <http://www.flickr.com/photos/65193799@N00/185094394/>

So, what does it all mean?

# Questions?



Image From <http://www.freepixels.com/index.php?action=showpic&cat=22&pic=1223>

Slides - [bit.ly/bleeding-html5](http://bit.ly/bleeding-html5)  
Demos - [github.com/bsatrom/bleeding-html5](https://github.com/bsatrom/bleeding-html5)

