



HTML5



**Klaus
de Vries**

IAP fact sheet



- Progress work experience since 1989

Founded 1994 in Hamburg, Germany

Longest customer relationship exists since 1993

25 motivated members of staff

- Fields of work – 90% Progress

OF-1 (Object Framework - One)

Consulting, technology transfer, development

Viper, PCase, Skin-Client (Mobile, Java, HTML5)



Session will cover



- **Expectations**
- **History**
- **Technology + Examples**
- **Development with HTML5**
- **Libraries and Frameworks**
- **JQuery calling OE live demo**
- **Conclusion**

Expectations – thoughts



- **Better HTML, less JS, → Better performance**
- **Replace 3rd party products (like Flash, ActiveX)**
- **Will make web programming easier**
- **Will make browser more compatible (less browser sniffing)**
- **Can make Flash like painting**
- **Can have app like applications (work local, sync later), Google docs**
- **It is only about Audio and Video**
- **Animations in 2 and 3D**
- **I have no idea at all**

Expectations – questions

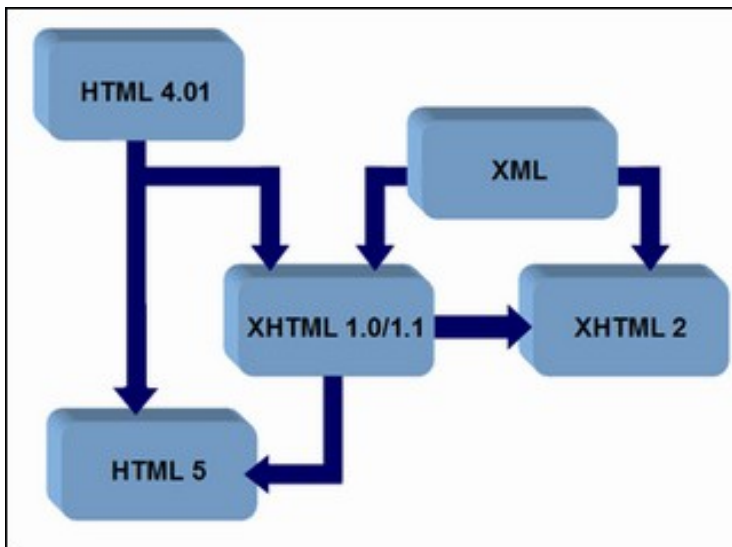


- **Difference to AJAX?**
- **Is it a tool or a technology (will replace AJAX)?**
- **Is is more than HTML4 + JS?**
- **Difference to DHTML?**
- **Is there more then the video tag?**
- **Difference to Flash and Silverlight?**

Timeline



- ~~2000~~ HTML 4.01 defined
- ~~2004~~ Web Hypertext Application Technology Working Group Started
- ~~2007~~ Adobe and MS want to rule “Any Device” with Flash / SL
- ~~2010~~ April, Apple banned Flash
- ~~2011~~ Nov., Adobe / MS stopped Flash / Silverlight for mobile devices
- ~~2011~~ HTML5 started to become de-facto standard
- ~~2014~~ HTML 5 should be a recommendation by end of year



Hero or Zero



OR



Semantic elements



- The Web is text and text has a meaning
- Examples of semantic elements in HTML5:

article

aside

figcaption

figure

footer

header

hgroup

mark

nav

section



http://playground.html5rocks.com/#semantic_markup

New input types



- **tel** **telephone numbers**
- **search** **search text**
- **url** **URL**
- **email** **single address or list**
- **datetime** **date/time with time zone**
- **date** **date without time zone**
- **number** **numeric input**
- **range** **numerical range (1-5)**
- **colour** **chose colour through colour wheel**
- **more...**

<http://mitemitreski.com/demo/html5/input.html>

Canvas element



- Draw lines, use images, use videos
- Paint anything anywhere

<http://www.craftymind.com/factory/html5video/CanvasVideo.html>

http://guciek.github.com/burn_canvas.html

<http://www.movikantirevo.com/>

```
<canvas id="example" width="200" height="200">
```

```
This text is displayed if your browser does not support HTML5 Canvas.
```

```
</canvas>
```

Using JavaScript, you can draw on the canvas:

```
var example = document.getElementById('example');
```

```
var context = example.getContext('2d');
```

```
context.fillStyle = 'red';
```

```
context.fillRect(30, 30, 50, 50);
```

Drag and Drop



- Native drag and drop in browser
- Interactive sites

<http://www.mariaantoniettaperna.com/...StickyNotes.html>

```
<p>What fruits do you like?</p>  
<ol ondragstart="dragStartHandler(event)" ondragend="dragEndHandler(event)">  
  <li draggable="true" data-value="fruit-apple">Apples</li>  
  <li draggable="true" data-value="fruit-orange">Oranges</li>  
  <li draggable="true" data-value="fruit-pear">Pears</li>  
</ol>
```

Web Storage Systems



- Storage space 5MB+, may ask for more
- Web Storage (local and session, fast 'n easy)
- Web SQL Database (deprecated) / IndexedDB (object db)
- File API

sessionStorage

```
// Store value on browser for duration of the session  
sessionStorage.setItem('key', 'value');  
  
// Retrieve value (gets deleted when browser is closed and re-opened)  
alert(sessionStorage.getItem('key'));
```

localStorage

```
// Store value on the browser beyond the duration of the session  
localStorage.setItem('key', 'value');  
  
// Retrieve value (works even after closing and re-opening the browser)  
alert(localStorage.getItem('key'));
```

Geo Location



- **Get location from device**

- **Methods to locate:**

IP address (DNS)

Radio-frequency identification

Global Positioning System (GPS)

Wi-Fi and Bluetooth MAC address

Wi-Fi connection location

GSM/CDMA cell IDs

<http://html5demos.com/geo>

```
if(!navigator.geolocation) {  
  alert('error');  
} else {  
  navigator.geolocation.getCurrentPosition(function(position) {  
    alert(position.coords.latitude + ', ' + position.coords.longitude);  
  });  
}
```

WebSockets



- Replace polling
- Asynchronous calls to web server
- Push data
- Stream data
- Gaming, group working, chat, ...



Part of WebSocket Interface:
attribute Function onopen;
attribute Function onmessage;
attribute Function onerror;
attribute Function onclose;

<http://scrumblr.ca/>

```
var websocket = new WebSocket(wsUrl);  
websocket.onopen = function (evt) { onOpen(evt) };  
websocket.onclose = function (evt) { onClose(evt) };  
websocket.onmessage = function (evt) { onMessage(evt) };  
websocket.onerror = function (evt) { onError(evt) };  
  
function onOpen(evt) {...
```

Web Worker



- **Asynchronous JavaScript**
- **real Multi Threading**
- **Keeps UI reactive**
- **Run “local batch jobs”**

[Sorry, no Longer avail:] [...html5_demo_web_workers/](#)

main.js:

```
var worker = new Worker('task.js');
worker.onmessage = function(event) { alert(event.data); };
worker.postMessage('data');
```

task.js:






```
self.onmessage = function(event) {
  // Do some work.
  self.postMessage("recv'd: " + event.data);
};
```

Video / Audio



- Multimedia on “any” platform without plugin
- No video format mandatory
- No audio format mandatory
- Audio, video player, YouTube, animations, chat...
- Real time CSS manipulation

CSS/HTML5 Video manipulation

	H.264	Ogg Theora	VP8 (WebM)
	native	with install	with installs
	native for now; with install from Microsoft	native	native
	native	with install	no
	with install from Microsoft	native	native
	no	native	native

- Manipulate “any DOM element” including images and videos

2D / 3D transformations

WebFonts

rounded corner, border-radius

opacity,

text shadows, box shadows

much, much more...

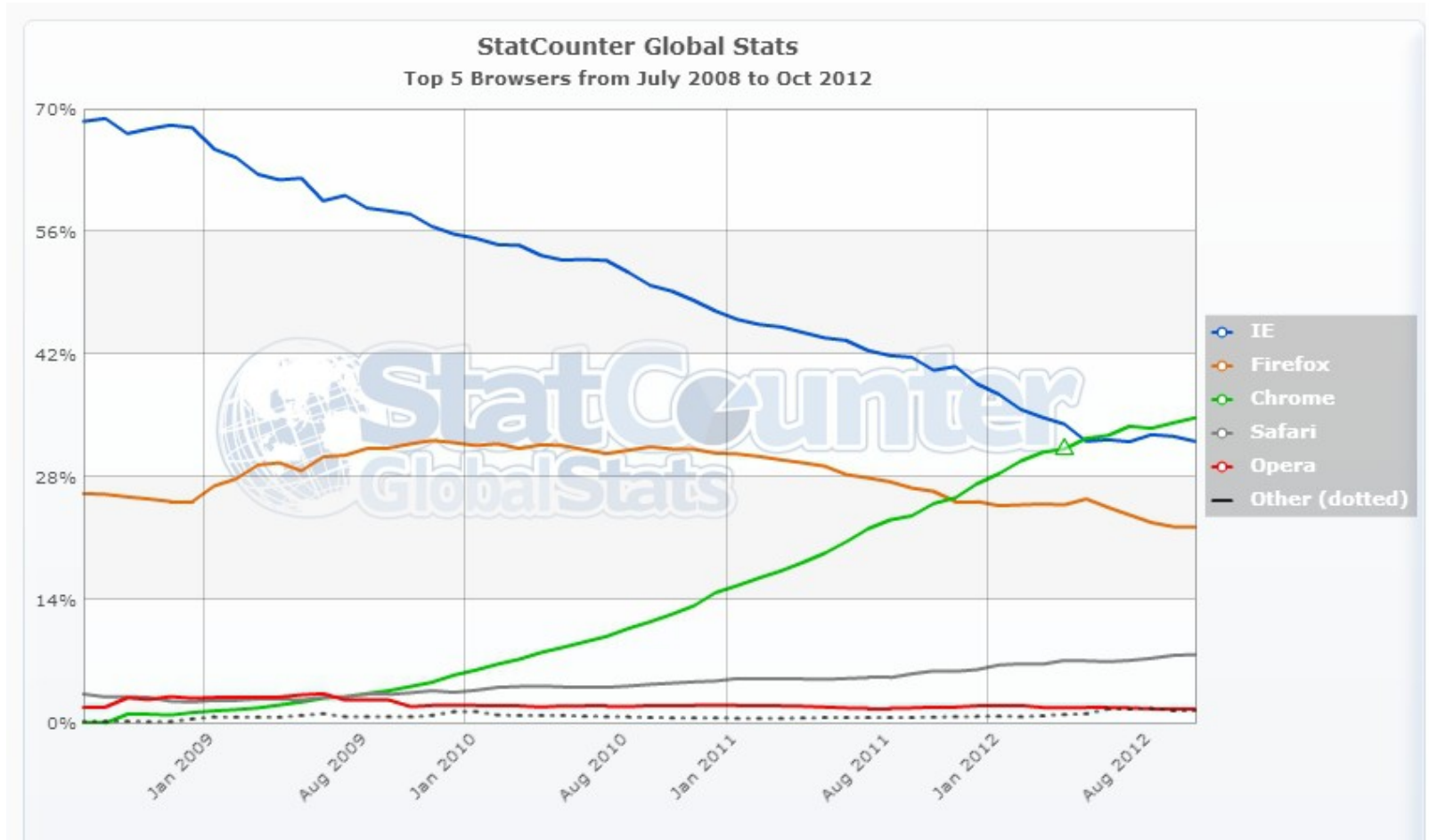
- Browser prefix:

`box-shadow:9px 9px 16px #000000;`

`-webkit-box-shadow:9px 9px 16px #000000;`

<http://www.sciweavers.org/i2style>

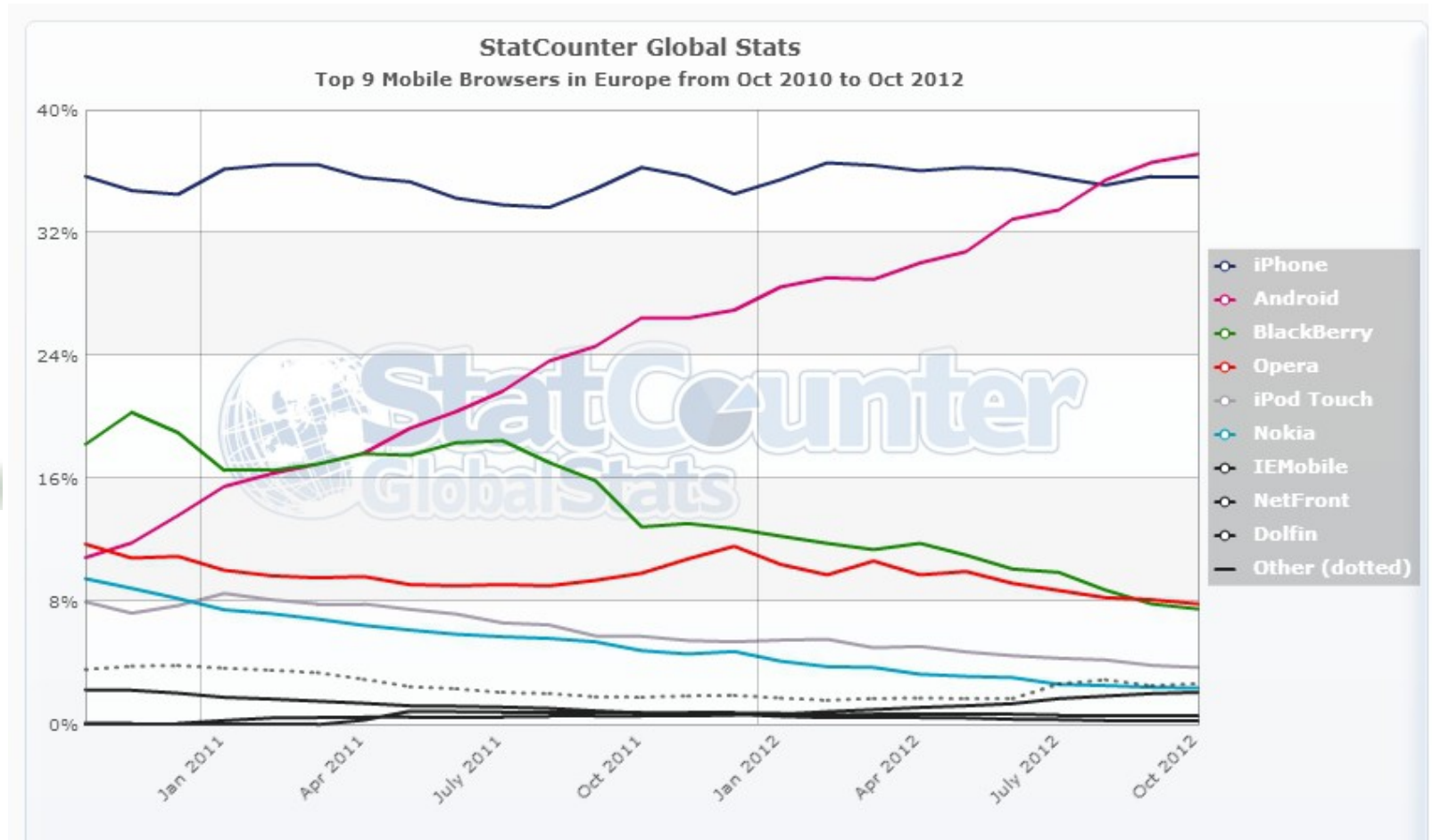
World Browser fragmentation



<http://gs.statcounter.com> (get today's data here)

- Strong fragmented browser market, IE8 (XP), IE10 (Win7/8)

EU Mobile Browser fragments



- Mobile phone Android update policy

Features / Desktop



Calculation of support for currently selected criteria

	IE	Firefox	Chrome	Safari
	8.0: 21%	15.0: 78%		5.1: 71%
Current	9.0: 45%	16.0: 79%	22.0: 89%	6.0: 81%
Near future	10.0: 79%	17.0: 80%	23.0: 89%	
Farther future		18.0: 80%	24.0: 89%	

Saturation cause of web site count method

Features / Mobile



Calculation of support for currently selected criteria

	IE	Firefox	Chrome	Safari	iOS Safari	Android Browser	Chrome for Android	Firefox for Android
						2.1: 41%		
					3.2: 42%	2.2: 45%		
					4.0- 4.1: 48%	2.3: 46%		
					4.2- 4.3: 54%	3.0: 59%		
	8.0: 21%	15.0: 78%		5.1: 71%	5.0- 5.1: 69%	4.0: 65%		
Current	9.0: 45%	16.0: 79%	22.0: 89%	6.0: 81%	6.0: 78%	4.1: 65%	18.0: 80%	15.0: 75%
Near future	10.0: 79%	17.0: 80%	23.0: 89%					
Farther future		18.0: 80%	24.0: 89%					

Saturation cause of web site count method

Libraries and Frameworks



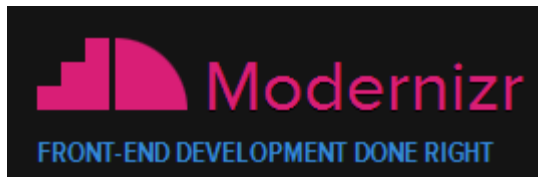
- **Fragmentation: Browser (Family), Feature Support, Content...**
- **Supply multiple content**

- **JavaScript is flexible**
- **Return of the browser sniffer**
- **Use libraries or framework**

Libraries



- **Modernizr.com – detect native browser HTML5 support**
often recommended and free! Allows to load so called “polyfills”.



<http://modernizr.com/>

- **Polyfills – allow to emulate HTML5 features in older browser**
Cross-browser compatible (IE6+)
HTML5 ready, use new tags

<https://github.com/Modernizr/Modernizr/wiki/HTML5-Cross-browser-Polyfills>

<http://afarkas.github.com/webshim/demos/index.html>



jQuery (UI)



- A widget and interaction library

Focus on web standards

IE 6.0+, Firefox 3+, Safari 3.1+, Opera 9.6+, and Google Chrome



jQuery UI provides abstractions for low-level interaction and animation, advanced effects and high-level, themeable widgets, built on top of the jQuery JavaScript Library, that you can use to build highly interactive web applications.

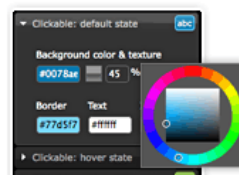
Download jQuery UI

[Build custom download](#)

Stable (1.8.21: jQuery 1.3.2+)
Legacy (1.7.3: jQuery 1.3+)



Rich effects and UI widgets



Powerful theme framework



Flexible & easy to learn

Recent activity

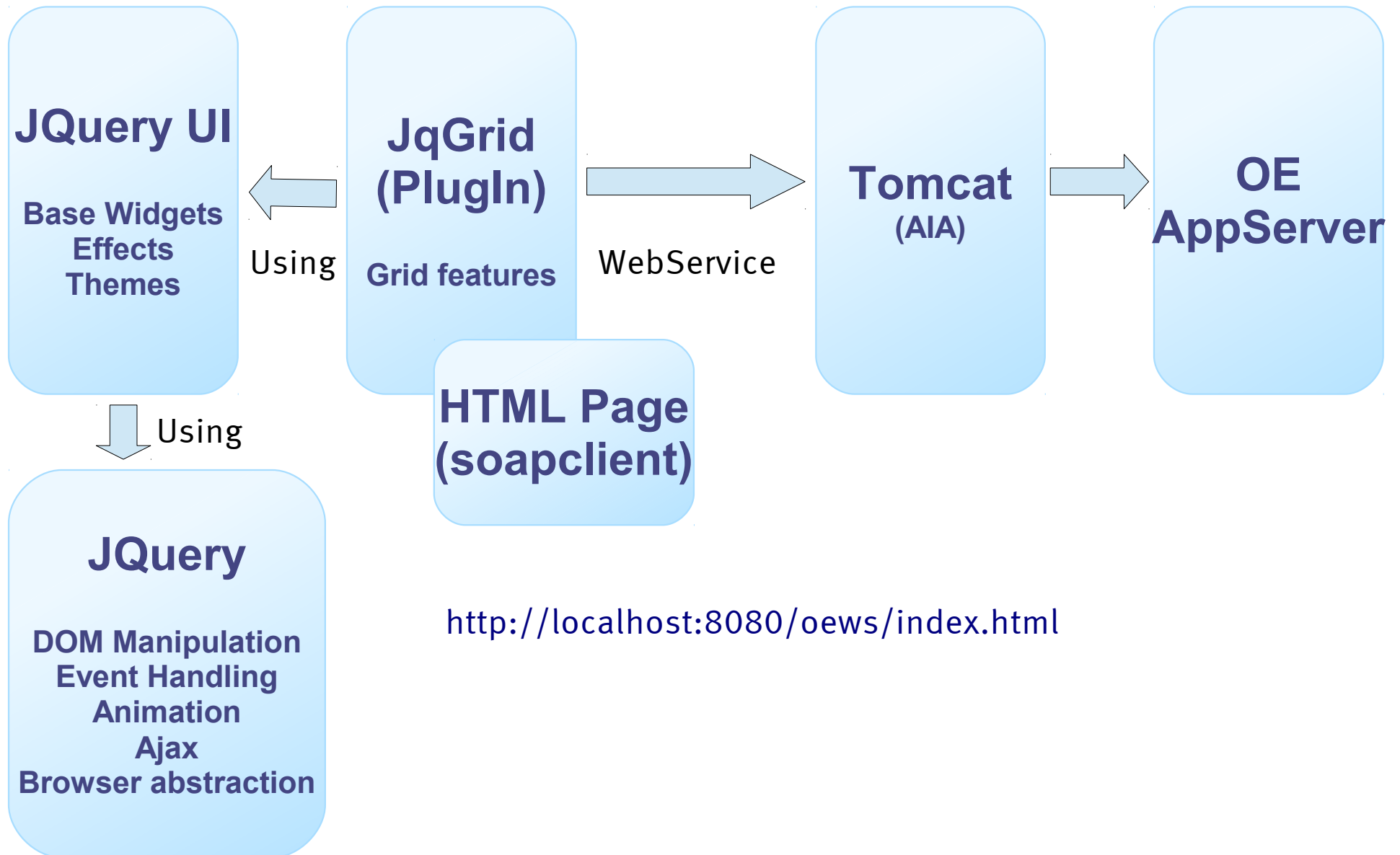
jQuery UI 1.8 adds position, button, autocomplete, new widget factory, lighter core.

[What's new](#)

Help us design future plugins
[Planning wiki](#)

[Developer links](#)

Demo - JQuery (UI) / OE AS

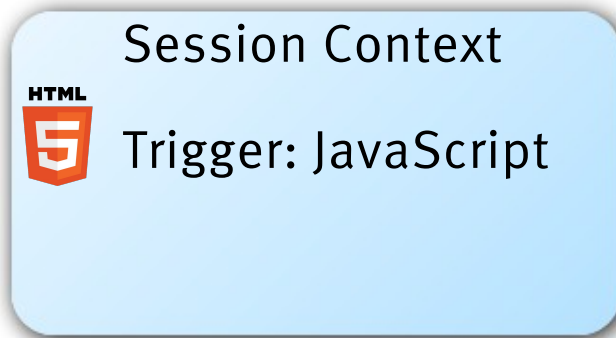


Connect to OpenEdge



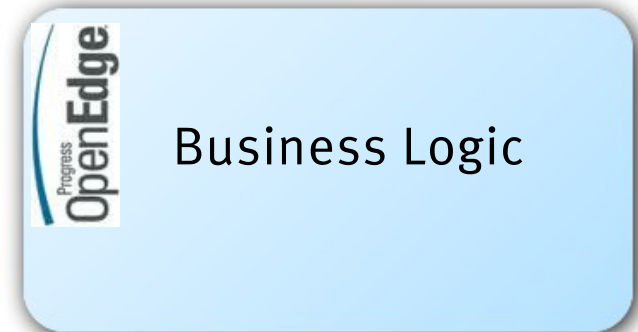
- Link client to AppServer
- Decisions: Session Context, Trigger Handling

“Fat” Client

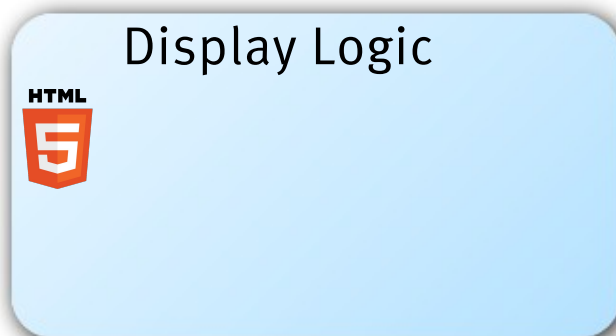


http / Webservice Call

AppServer

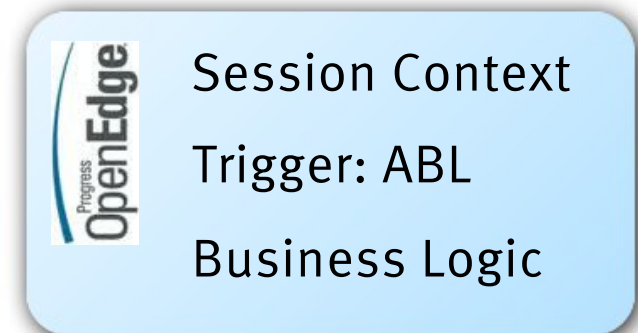


“Thin” Client



http / Web Sockets

AppServer



Conclusion



- **HTML5 = HTML + CSS3 + JavaScript**
- **Web Development (and desktop) !!!Mobile!!!**
- **Issues**

Fragmentation: Browser, Features, Content, (UI)

Framework or abstraction library needed

HTML5: Revolution in Evolution!



is





Questions?



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Three horizontal grey bars are positioned at the top left of the page, above the main heading.

Additional Links

Mashup (Music) visualization (<http://daftpunk.themaninblue.com/>)

<http://www.w3.org/2011/05/html5lc-faq.html>

[Compare HTML5 and Flash \(Wikipedia\)](#)

[Can I use a given HTML5 feature](#)

[Interaktive online HTML5 presentation](#)

[CSS3 Maker](#)

[CSS3 Me](#)

[CSS3 rectangle formatting](#)

[CSS3 button generator](#)