

Web Development: You're Doing it Wrong

Stefan Tilkov, innoQ
QCon London 2013

Session # 9770
#qconlondon
@stilkov

Annoying your users

***Forbid the use of the back
and forward buttons***

*Send them to the home page
when they hit “refresh”*

*... or ensure the browser
pops up a warning window*

***Make sure they can't open a
second browser window***

*Let them see UI chrome and
ads first, content last*

***Make sure they can't
bookmark or send a link***

*Don't let Google index
anything*

*Ensure disabling JavaScript
gives them a blank page*

**Things that seem like a good
idea, but aren't**

*Fix HTTP's basic flaw: its
statelessness*

*Go beyond the page model
because we're r/w now*

*Avoid CSS because who
understands how it works?*

*Avoid HTML because that's
so 20th century*

*Avoid JavaScript because it's
not for real programmers*

*Extend the client/server
model with server push
because polling? don't even ...*

Let's take a step back

Let's build a generic client runtime

Define a protocol so it can work with any server

Allow it to mix services from different backends

Define a generic, declarative data format

Separate content and layout

Allow for extensibility with client-side scripting

Make it work on any device, with any resolution

We're not done yet

Standardize it, with (rough) consensus

Ensure there are multiple client, server and intermediary implementations to choose from

Have every client OS ship with an implementation of the generic client

Let every programming environment support it

How hard can it be?

**Competing with the Web may
not be the best idea**

Web-centric web UIs

Server-side components	Avoid HTML, JS, CSS Trade Familiarity for Complexity Session-centric
ROCA	Server-side POSH Client-side components Web-centric
Single Page Apps	Advanced Client Frameworks Server-side REST APIs

ROCA

(Resource-oriented Client Architecture)

Make your HTML semantic

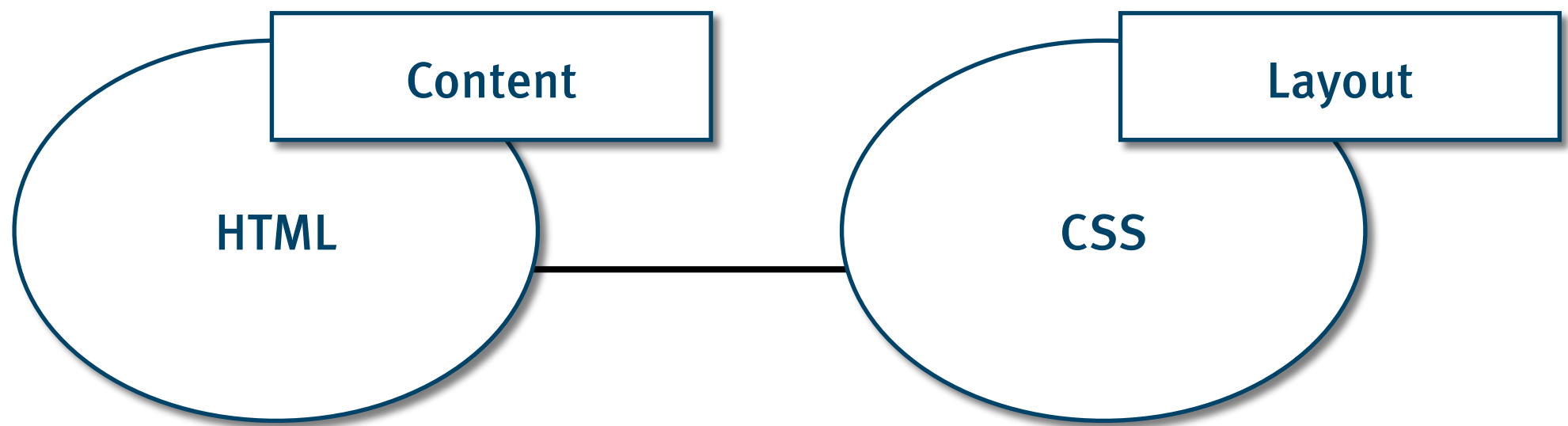
Minimal load times

API usage

Accessibility

Self-descriptiveness

Readability



schema.org

`<div>`

`<h1>Avatar</h1>`

`Director: James Cameron
(born August 16, 1954)`

`<span>Science fiction</span>`

`<a href=" ../movies/avatar-theatrical-trailer.html">`

`</div>`

schema.org

```
<div itemscope itemtype="http://schema.org/Movie">  
  <h1>Avatar</h1>  
  <span>Director: <span>James Cameron</span>  
    (born August 16, 1954)</span>  
  <span>Science fiction</span>  
  <a href="../movies/avatar-theatrical-trailer.html">  
  
</div>
```

schema.org

```
<div itemscope itemtype="http://schema.org/Movie">  
  <h1 itemprop="name">Avatar</h1>  
  <span>Director: <span itemprop="director">James Cameron</span>  
    (born August 16, 1954)</span>  
  <span itemprop="genre">Science fiction</span>  
  <a href="../../movies/avatar-theatrical-trailer.html"  
    itemprop="trailer">Trailer</a>  
</div>
```

Use Javascript *unobtrusively*

```
<a href="javascript:doSomething();">
```

Some Link

```
</a>
```

```
<a href="#"  
    onclick="doSomething();">  
    Some Link  
</a>
```

```
<a href="/some-resource"  
  onclick="doSomething(this.href);">  
  Some Link  
</a>
```

```
<a href="/some-resource"  
  class="whatever">  
  Some Link  
</a>
```

```
<a href="/some-resource"  
  class="whatever">  
  Some Link  
</a>
```

+

```
$("a.whatever").click(function() {  
  doSomething(this.href);  
});
```

```

<div id="tabs">
  <ul>
    <li><a href="#tabs-1">Nunc tincidunt</a></li>
    <li><a href="#tabs-2">Proin dolor</a></li>
    <li><a href="#tabs-3">Aenean lacinia</a></li>
  </ul>
  <div id="tabs-1">
    <p>Proin elit arcu, rutrum commodo, vehicula ...</p>
  </div>
  <div id="tabs-2">
    <p>Morbi tincidunt, dui sit amet facilisis feugiat, odio ...</p>
  </div>
  <div id="tabs-3">
    <p>Mauris eleifend est et turpis. Duis id erat ...</p>
  </div>

```

+

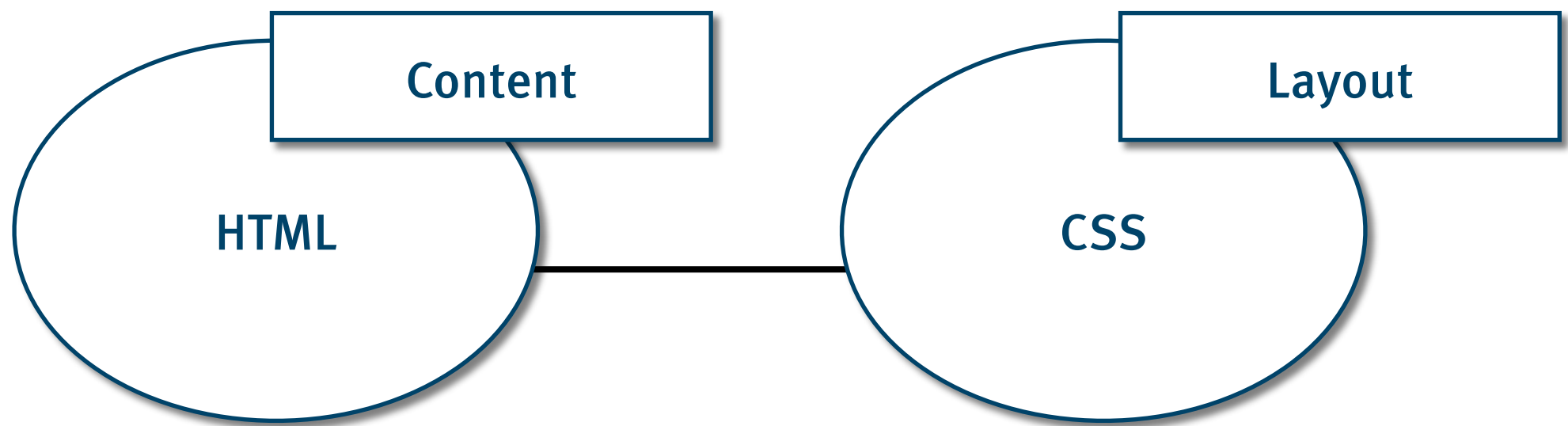
```
$("#tabs").tabs();
```

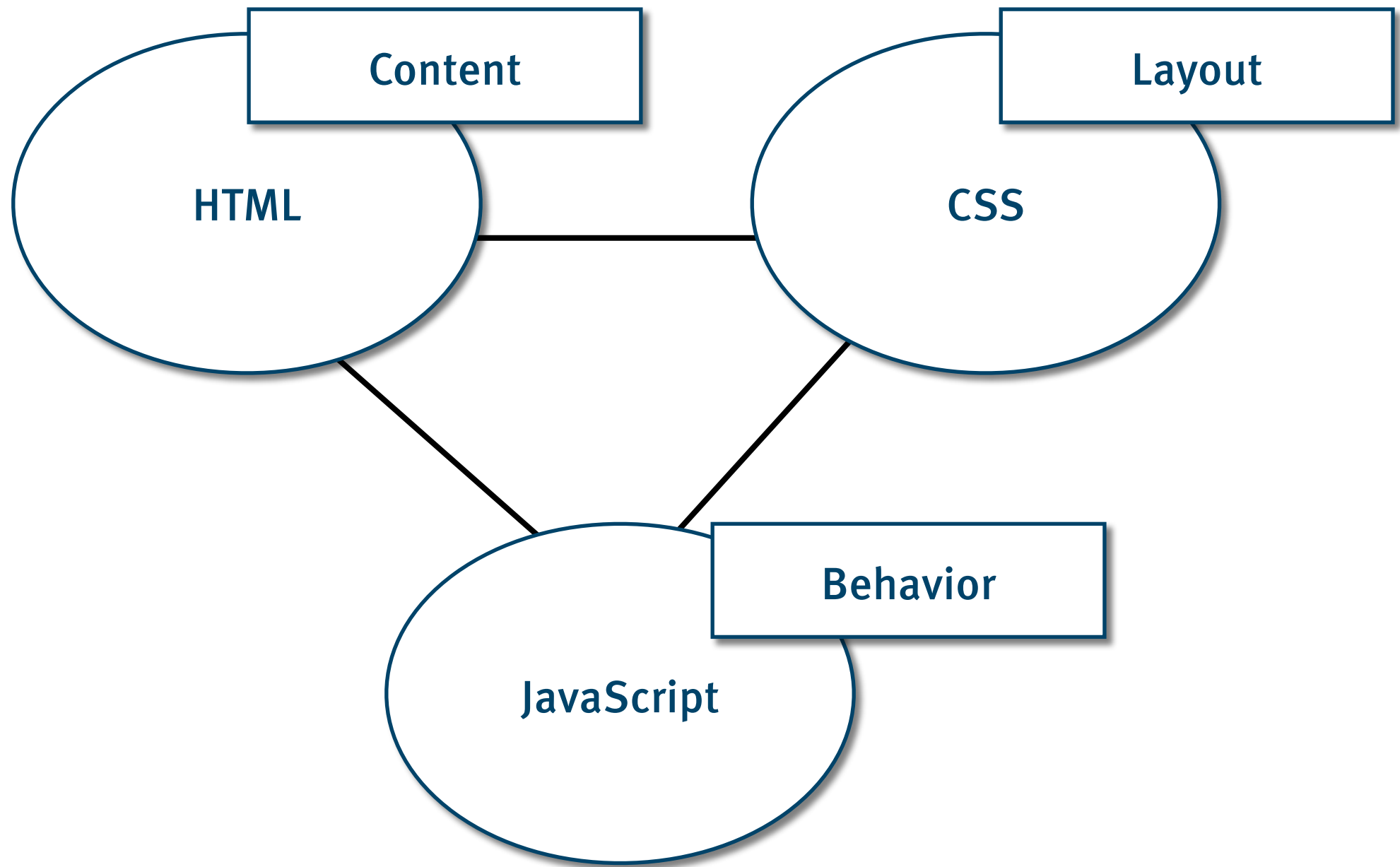
Nunc tincidunt

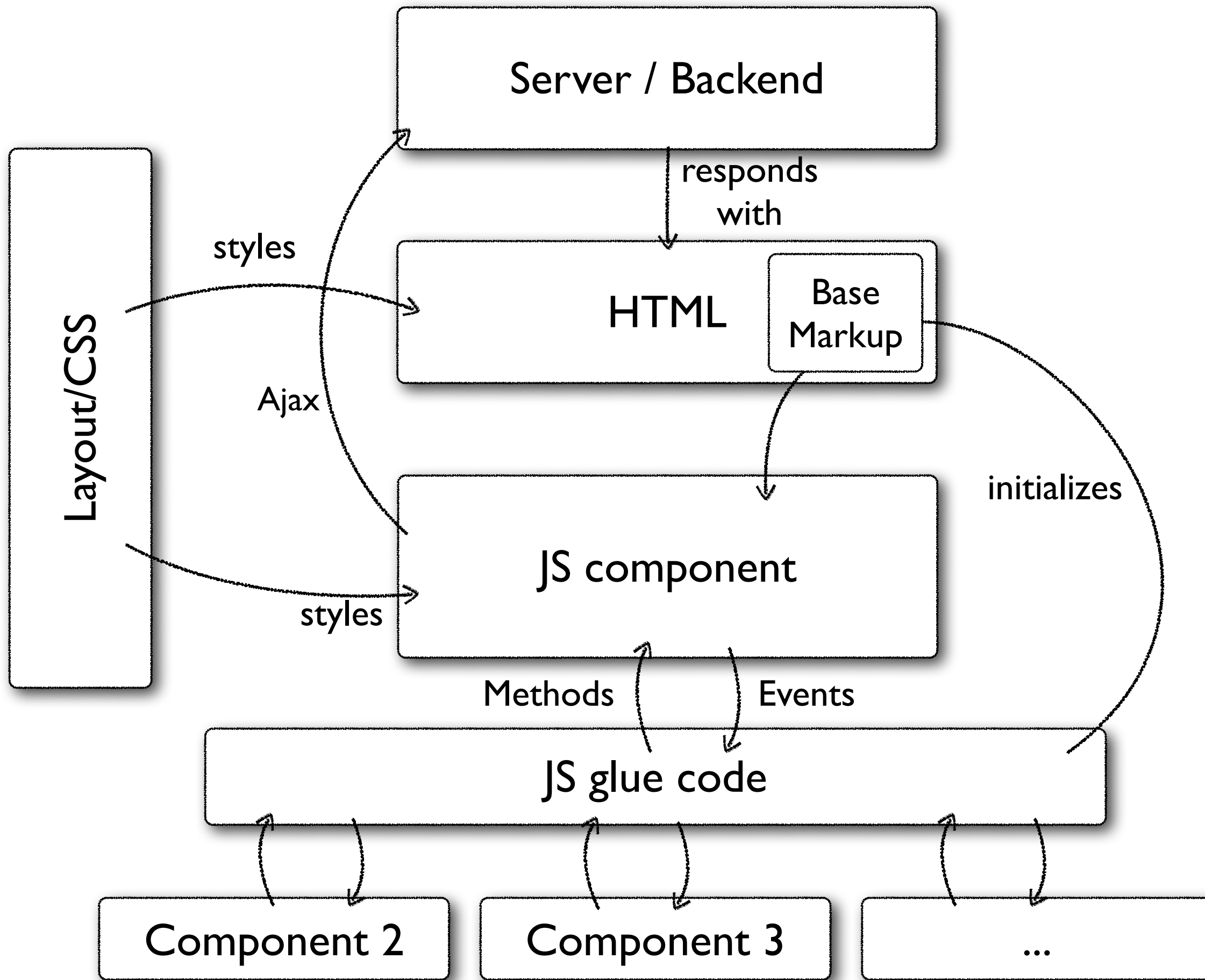
Proin dolor

Aenean lacinia

Proin elit arcu, rutrum commodo, vehicula tempus, commodo a, risus. Curabitur nec arcu. Donec sollicitudin mi sit amet mauris. Nam elementum quam ullamcorper ante. Etiam aliquet massa et lorem. Mauris dapibus lacus auctor risus. Aenean tempor ullamcorper leo. Vivamus sed magna quis ligula eleifend adipiscing. Duis orci. Aliquam sodales tortor vitae ipsum. Aliquam nulla. Duis aliquam molestie erat. Ut et mauris vel pede varius sollicitudin. Sed ut dolor nec orci tincidunt interdum. Phasellus ipsum. Nunc tristique tempus lectus.

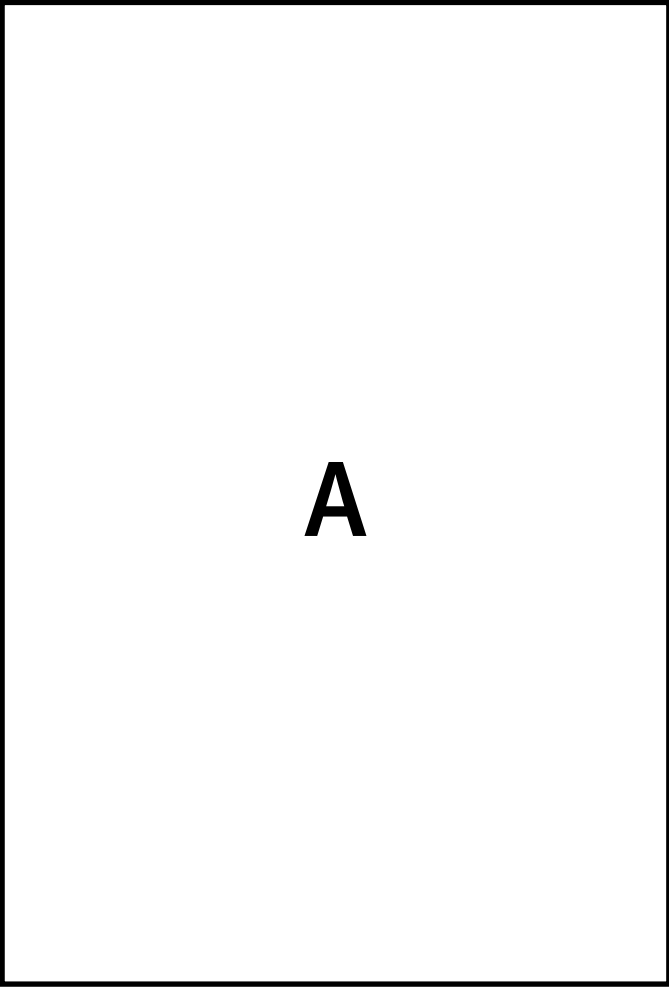






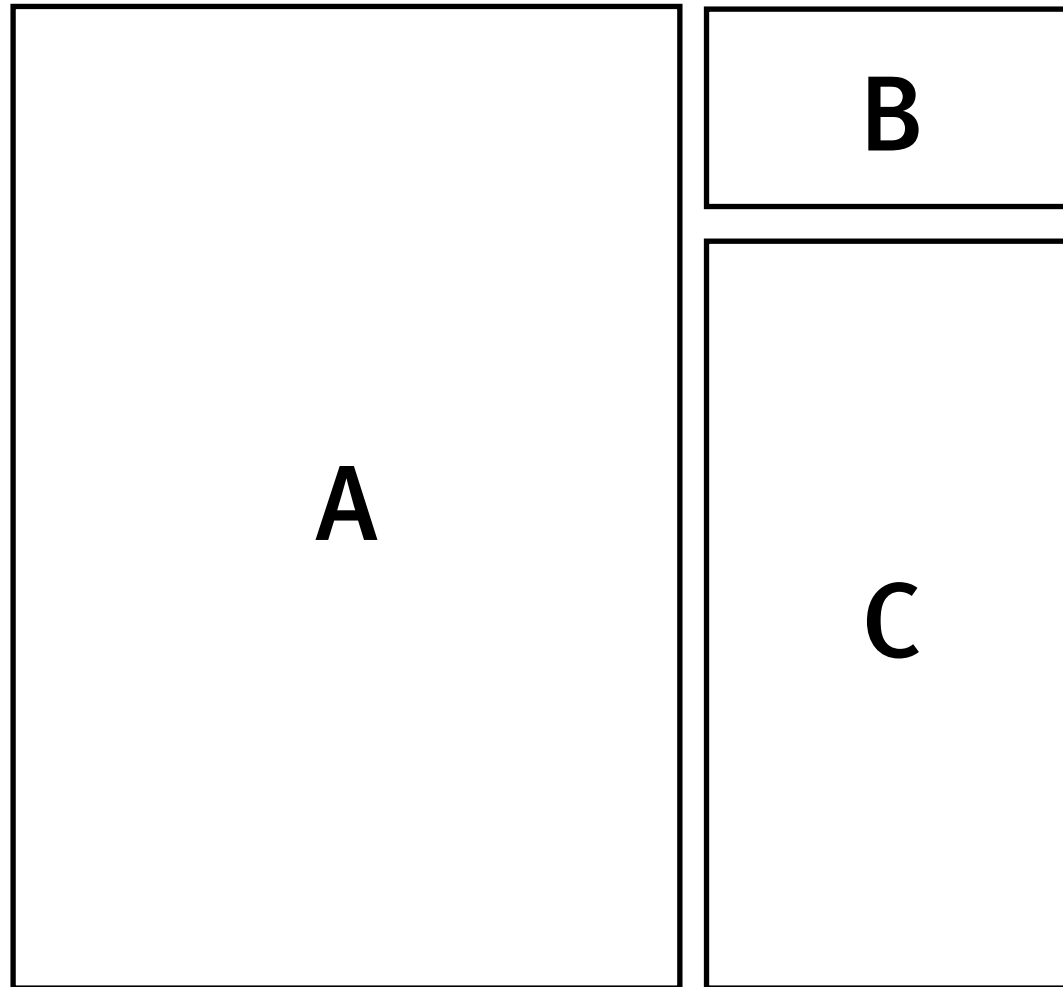
**Use URIs to identify a *single*
meaningful concept**

http://.../A



A

http://.../A



http://.../B

http://.../A

http://.../C

B

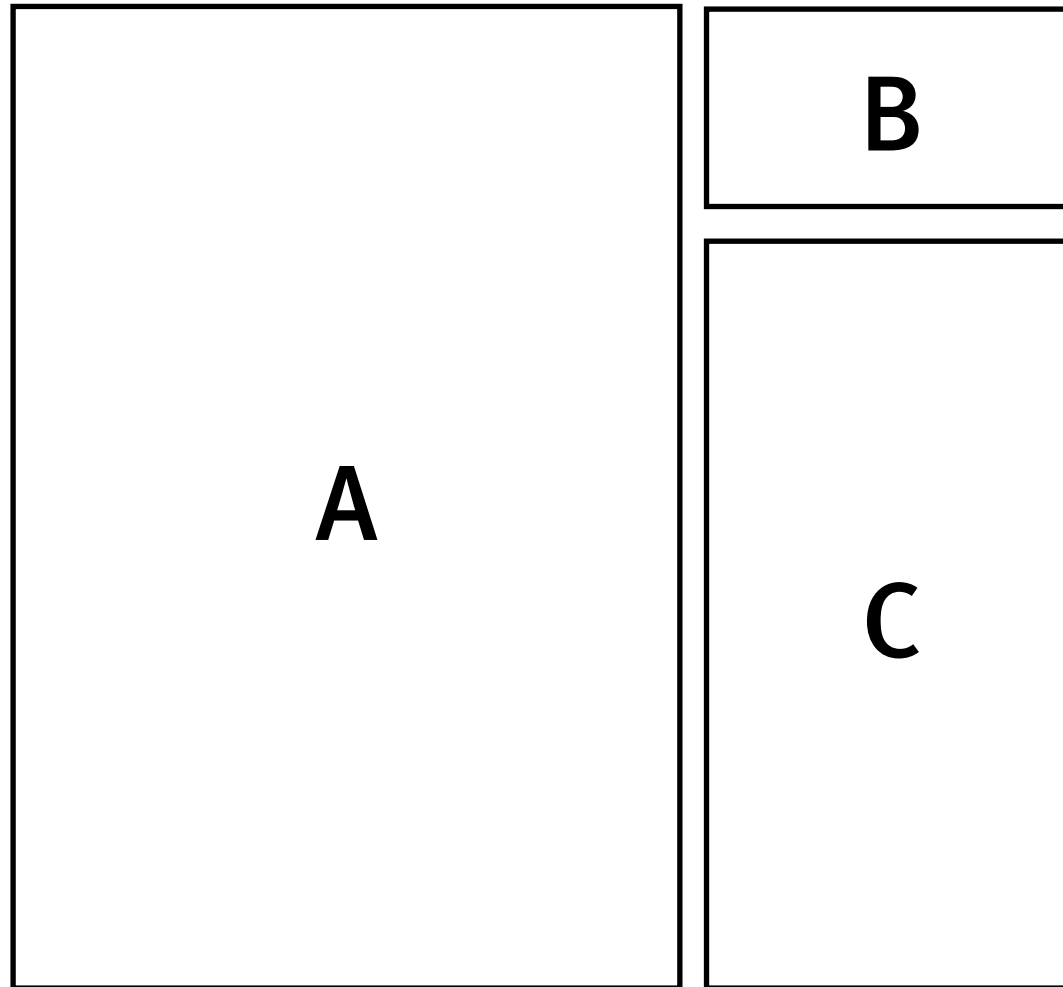
A

C



+ AJAX + CSS

http://.../A



**Don't *disable* Browser
Features – *use them***

Multiple tabs & windows

Bookmarks

Back/Forward/Refresh

Personalization

Menus

**Put *application* logic on the
server *only***

Don't trust your clients

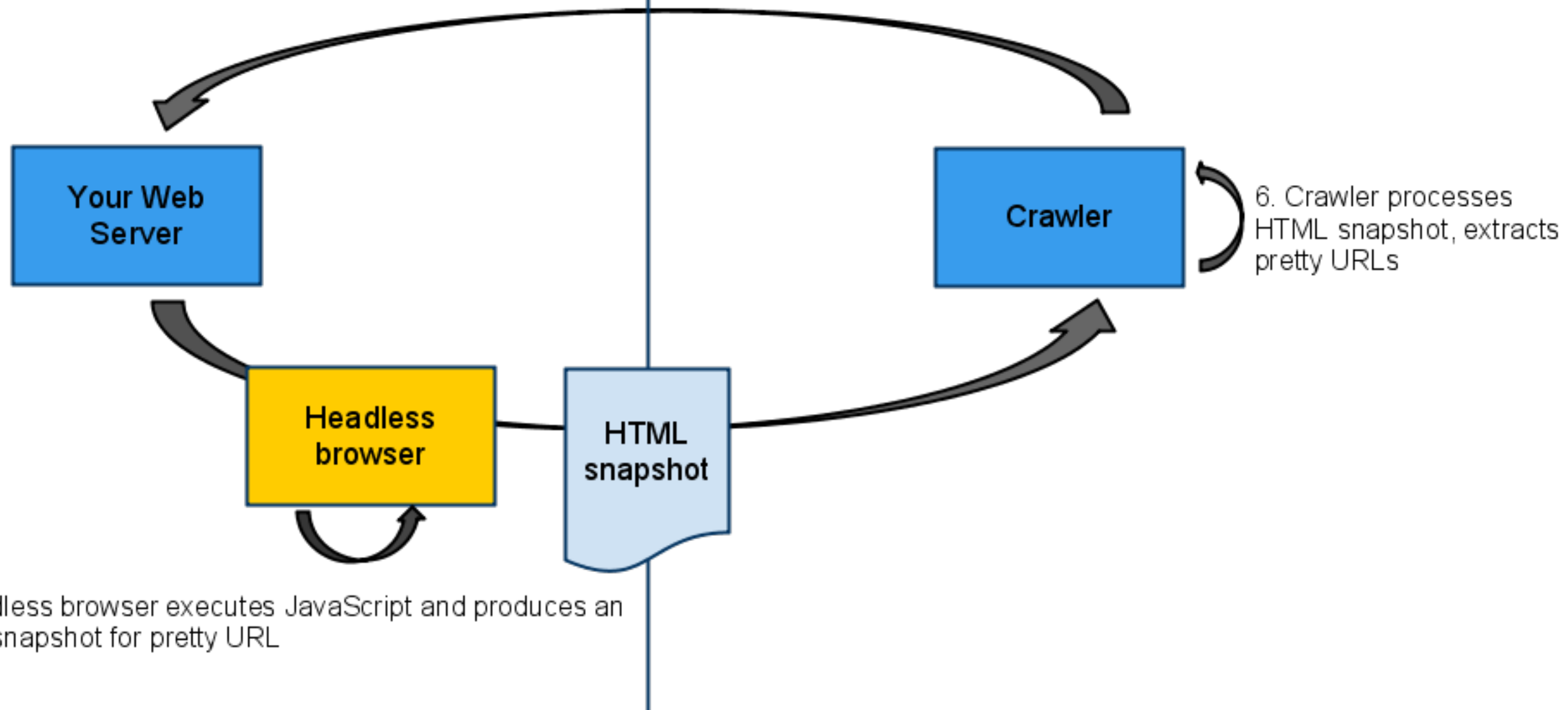
RESTful APIs for free

Non-browser clients

(e.g. Google Crawler)

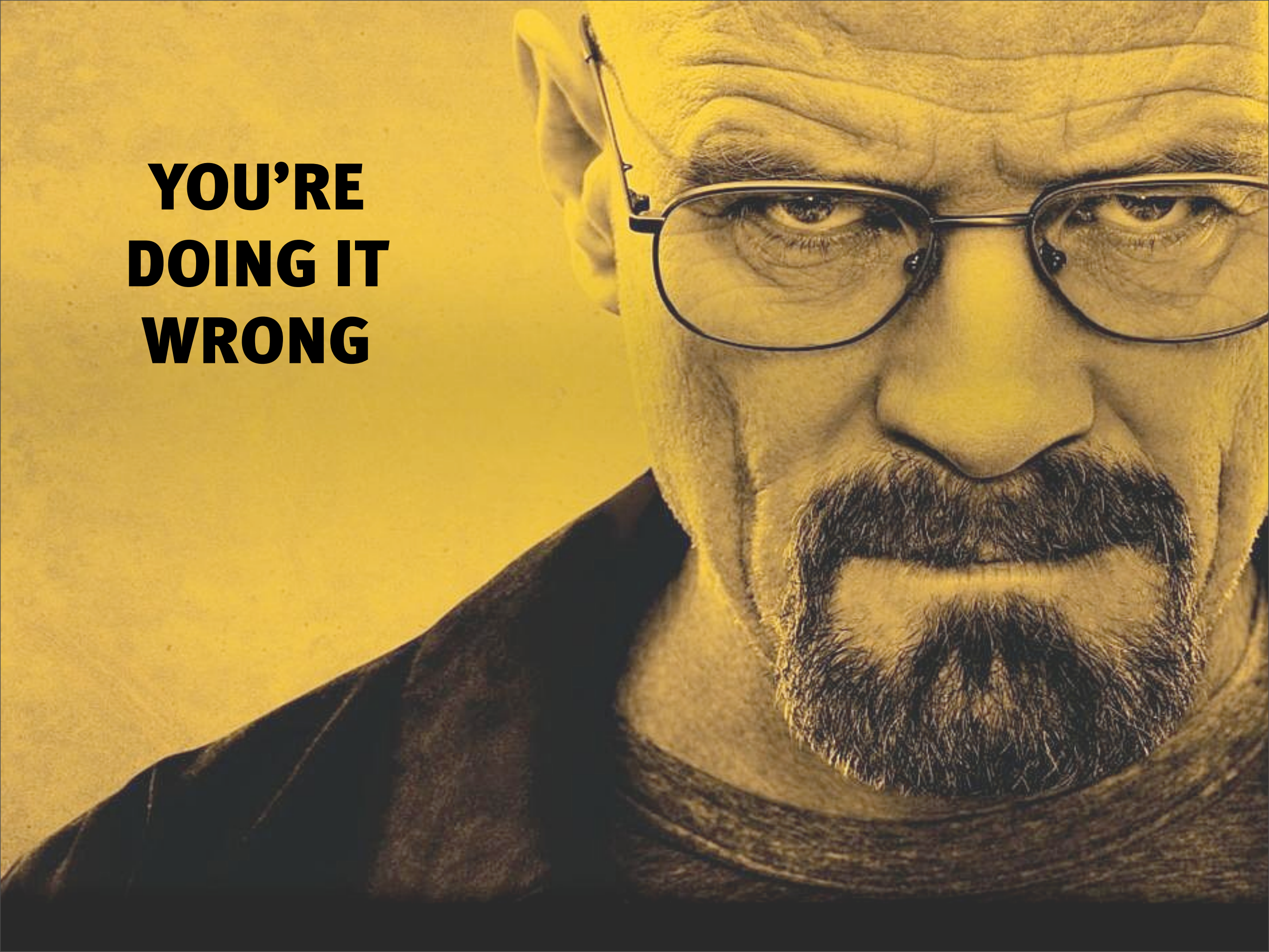
3. Server maps from ugly URL to pretty URL:
`www.example.com/page?query#!mystate`
4. Server invokes headless browser

1. Crawler maps from pretty URL to ugly URL:
`www.example.com/page?query&_escaped_fragment_=mystate`
2. Requests ugly URL

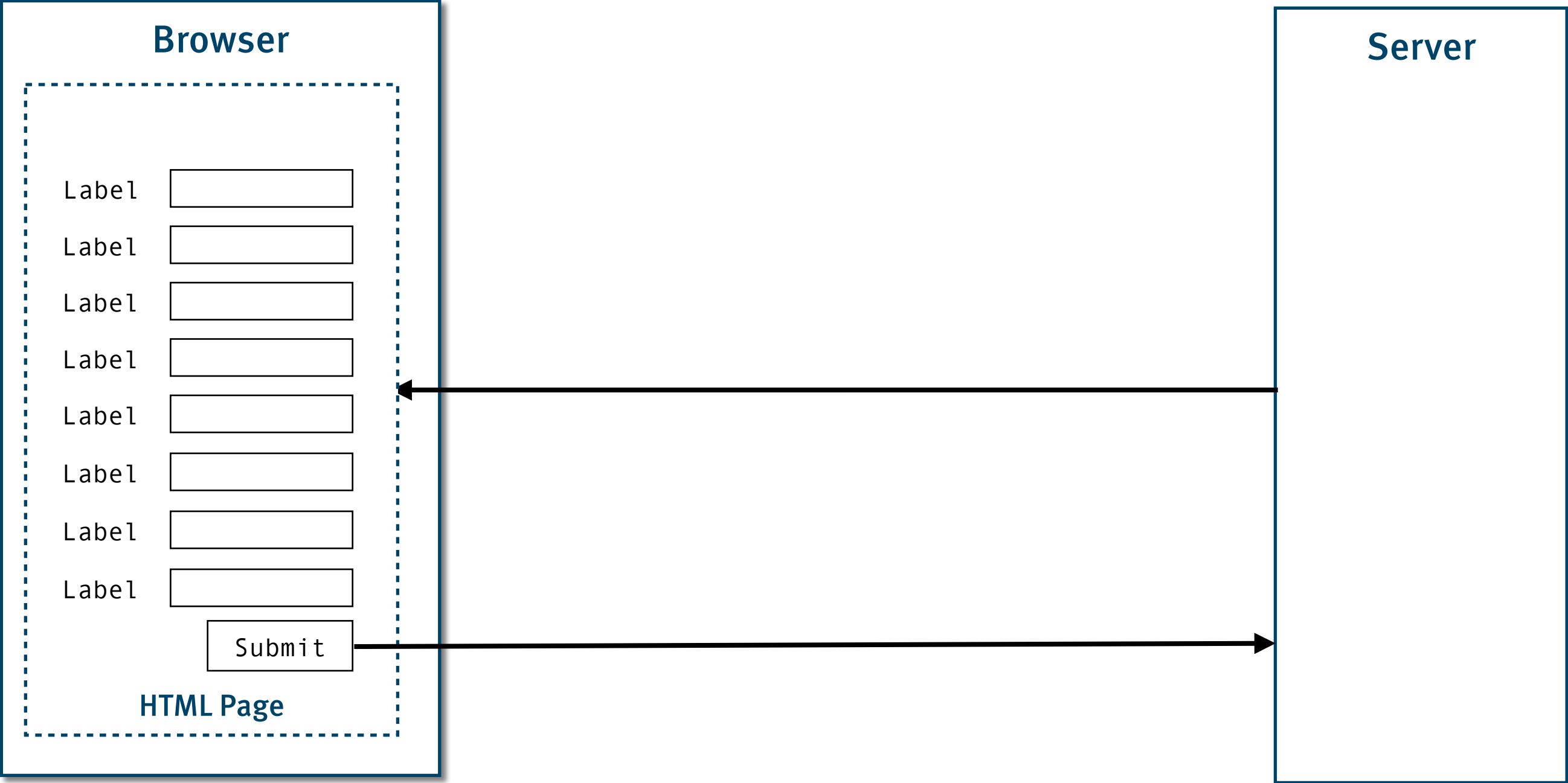


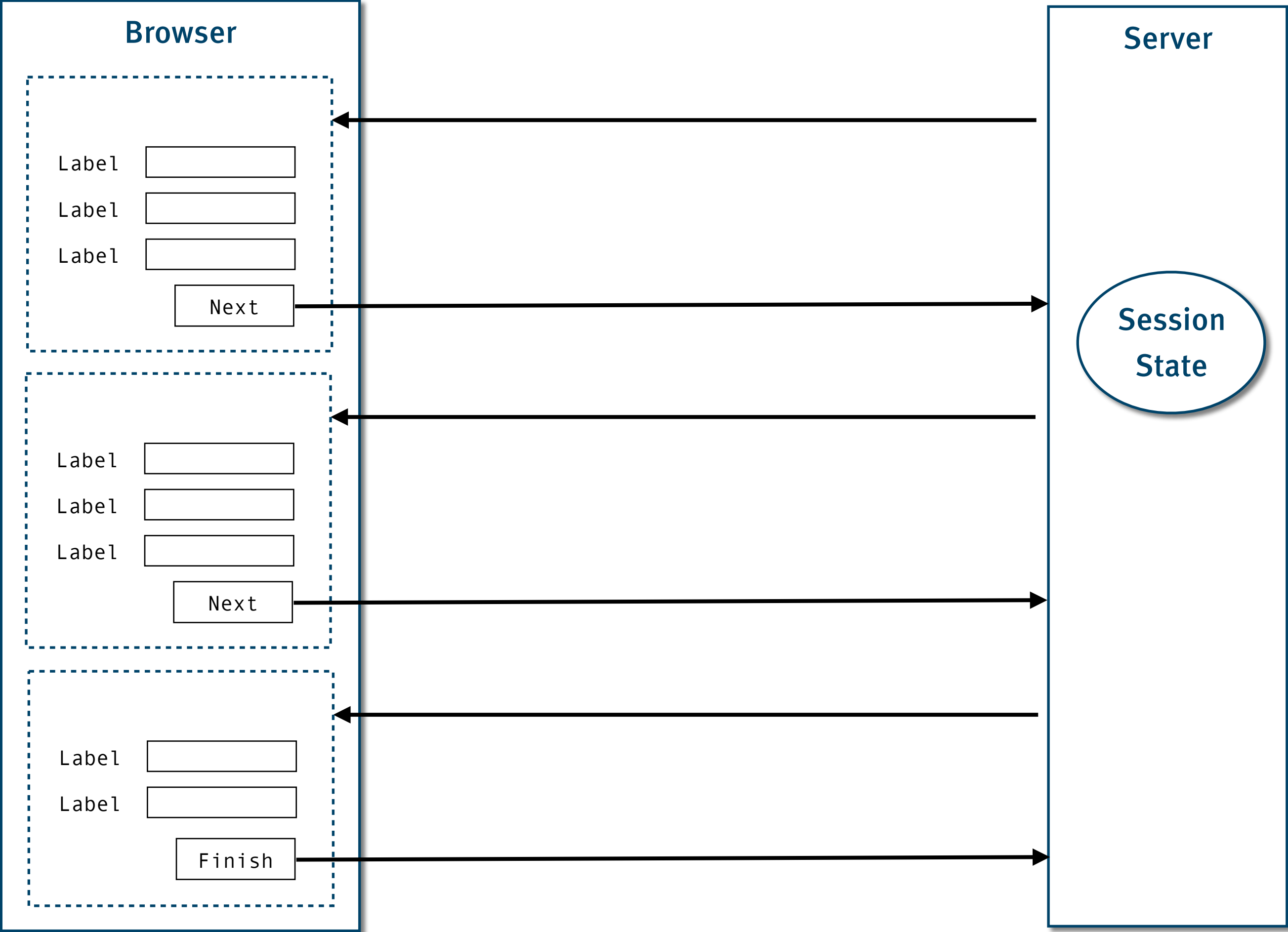
<http://googlewebmastercentral.blogspot.com/2009/10/proposal-for-making-ajax-crawlable.html>

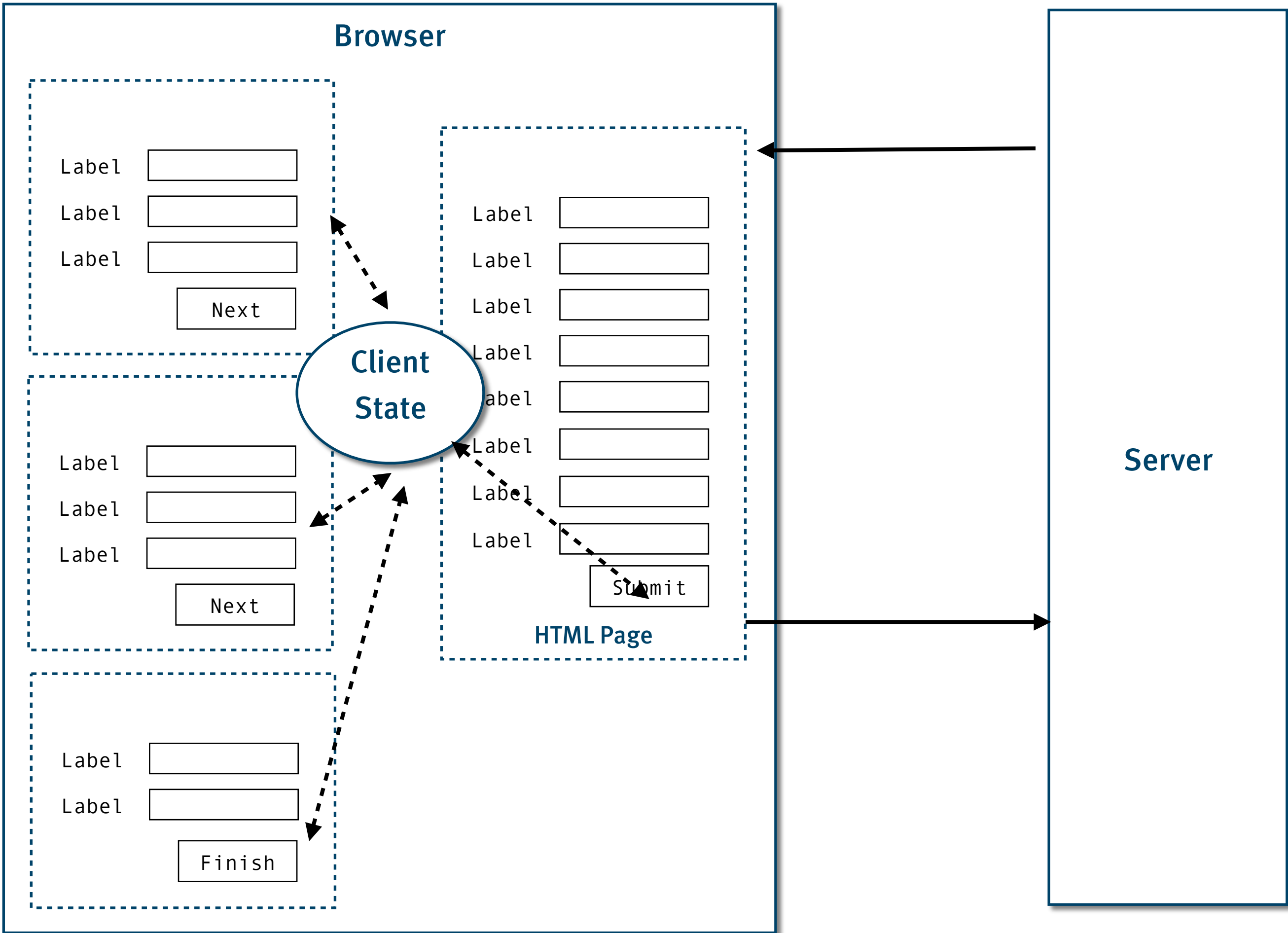
**YOU'RE
DOING IT
WRONG**

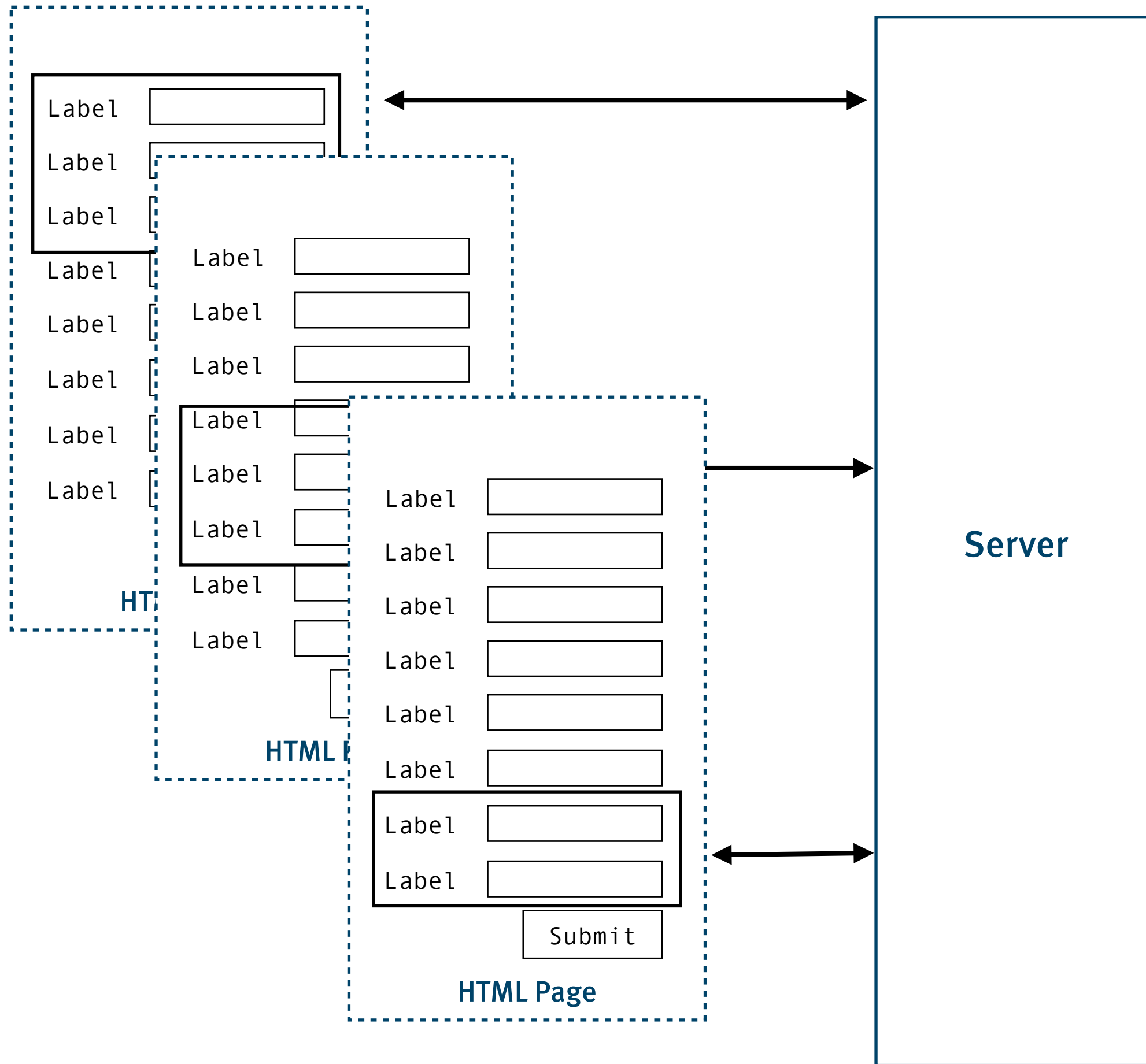


Avoid session state









ROCA

<http://roca-style.org/>

So why don't we do this?

Obsessive Specialization Disorder

generic

```
interface Resource {  
    Resource(URI u)  
    Response get()  
    Response post(Request r)  
    Response put(Request r)  
    Response delete()  
    Link[] links()  
    Form[] forms()  
}
```

```
class MyResource implements Resource {  
    ...  
    Response post(Request r) {  
        ...  
    }  
    ...  
}
```

specific

Severe Tunneling Fixation

simple

easy

complex

hard

In summary ...

**Not everything new is good,
not everything old is bad.
(Surprise.)**

**Learning details of how the
web works might be time
well spent**

**Working with the web is a lot
easier than fighting it**

Thank you!

Q&A

Stefan Tilkov

stefan.tilkov@innoq.com

**[http://www.innoq.com/blog/st/
@stilkov](http://www.innoq.com/blog/st/@stilkov)**

Phone: +49 170 471 2625



innoQ Deutschland GmbH

Krischerstr. 100
40789 Monheim am Rhein
Germany

Phone: +49 2173 3366-0
<http://www.innoq.com>

innoQ Schweiz GmbH

Gewerbestr. 11
CH-6330 Cham
Switzerland

Phone: +41 41 743 0116
info@innoq.com