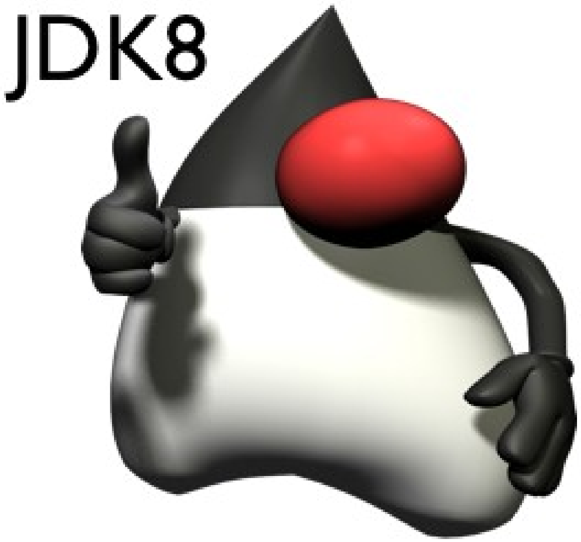
Jfokus 2013
Stockholm Waterfront Conference Centre, February 4-6

2012/04/26	M1	
2012/06/14	M2	
2012/08/02	M3	
2012/09/13	M4	
2012/11/29	M5	
2013/01/31	M6	
2013/02/21	M7	
2013/07/05	M8	Final Release Candidate
2013/09/09	GA	General Availability

- Date & Time API
- Base64 Encoding & Decoding standard

- Reduce Class Metadata Footprint
- Small VM
- Remove the Permanent Generation
- Enhance javac to Improve Build Speed

- Bulk Data Operations for Collections (“filter/map/reduce ")
- Enhance Core Libraries with Lambda



λ

Stödja programmering i ett multicore miljö genom att lägga till ”**closures**” och ”**higher-order functions**” i Java.

*A **closures** contains a **pointer** to the function code, plus a representation of the function's **lexical environment** at the time when the closure was created.*

*When the closure is entered at a **later time**, possibly from a **different scope**, the function is executed with its **variables referring** to the ones captured by the closure.*

```
function sandwichMaker(magicIngredient) {
  return function (filling) {
    return magicIngredient + " och " + filling;
  }
}

var hamAnd = sandwichMaker("skinka");
console.log(hamAnd("ost"));
console.log(hamAnd("korv"));
```

A **higher-order function** is a function that does at least one of the following:

- Take one or more functions as an input
- Output a function

```
function ArrayForEach(array, func) {
    for(i = 0; i < array.length; i++) {
        if(i in array) {
            func(array[i]);
        }
    }
}

function log(msg) {
    console.log(msg);
}

ArrayForEach([1,2,3,4,5],log);
```

Functional Interface

```
//Old style event handling
button.addActionListener(new ActionListener() {
    public void actionPerformed(ActionEvent e) {
        ui.dazzle(e.getModifiers());
    }
});

//Java 8 Lamda style
button.addActionListener(e -> { ui.dazzle(e.getModifiers()); });
```

Functional Arrays

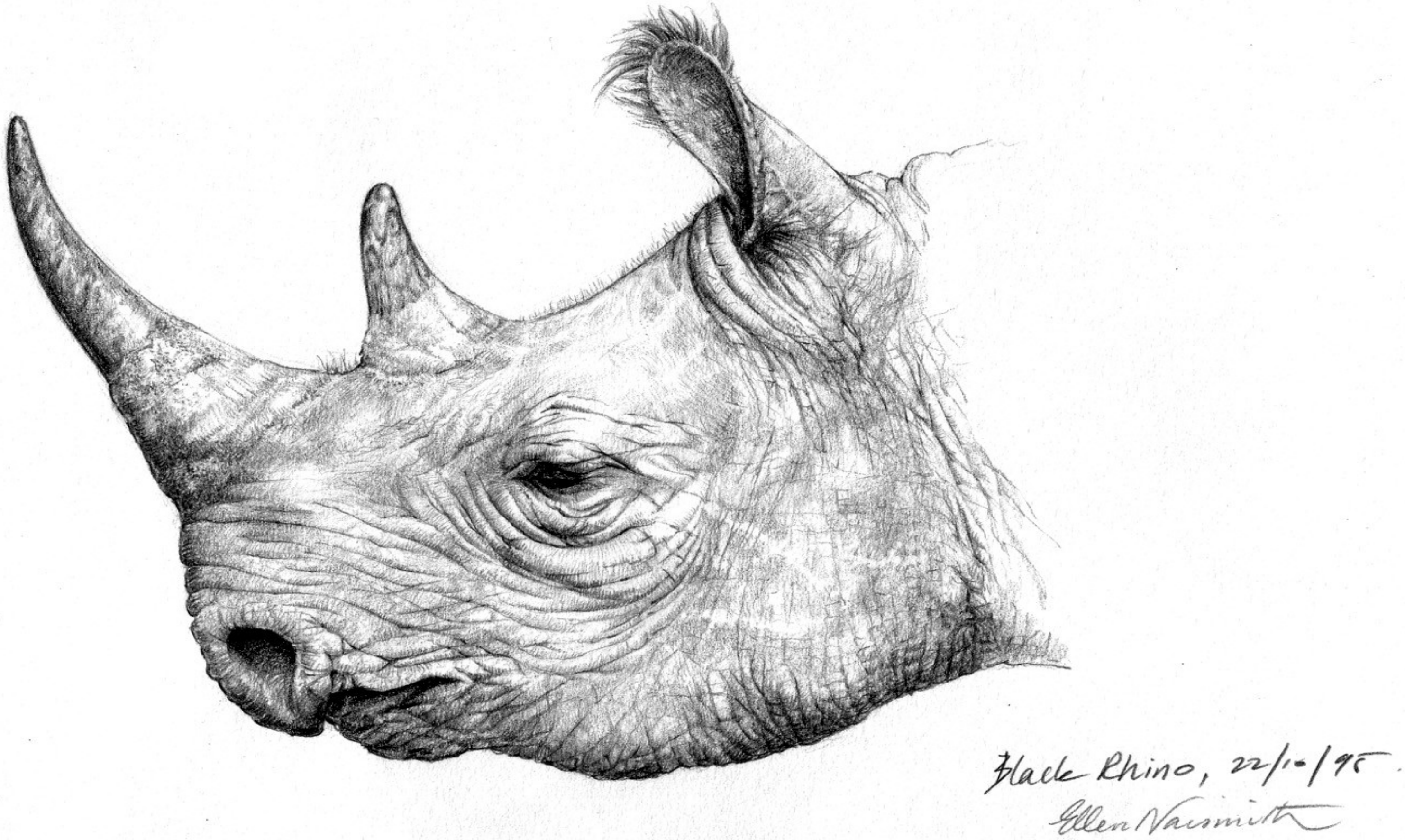
```
List<String> names = Arrays.asList("Alice", "Bob", "Charlie", "Dave");
List<String> filteredNames = names
        .filter(e -> e.length() >= 4)
        .into(new ArrayList<String>());
for (String name : filteredNames) {
    System.out.println(name);
}
```

http://datumedge.blogspot.se/2012/06/java-8-lambdas.html

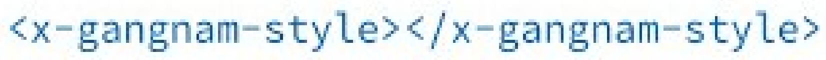
```
List<String> names = Arrays.asList("Alice", "Bob", "Charlie", "Dave");
names
   .mapped(e -> { return e.length(); })
   .asIterable() // returns an Iterable of BiValue elements
                 // an element's key is the person's name, its value is the string
length
   .filter(e -> e.getValue() >= 4)
   .sorted((a, b) -> a.getValue() - b.getValue())
   .forEach(e -> { System.out.println(e.getKey() + '\t' + e.getValue()); });
```

http://datumedge.blogspot.se/2012/06/java-8-lambdas.html

Project Nashorn



Web components | Shadow DOM



```
<x-gangnam-style></x-gangnam-style>
```

https://dvcs.w3.org/hg/webcomponents/raw-file/tip/spec/shadow/index.html

http://www.youtube.com/watch?v=rdDoc3fLalI&feature=youtube_gdata_player

<template>- Scaffold/Blueprint
chunks of clonable DOM

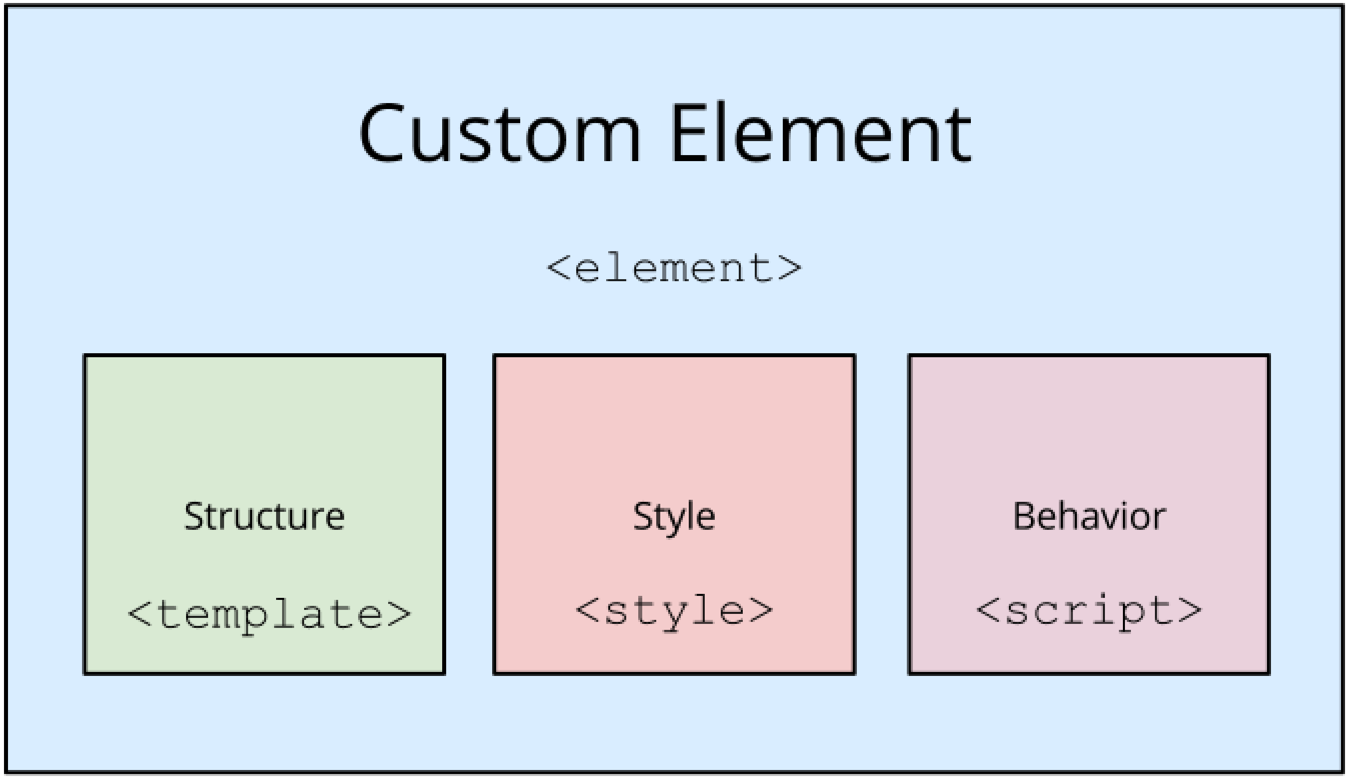
Shadow DOM - Mortar/glue
building blocks for encapsulation & boundaries inside of DOM

<element> (custom elements) - Toolbelt
create new HTML elements - expand HTML's existing vocabulary
extend existing DOM objects with new imperative APIs

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

```
var t = document.querySelector('#mytemplate');
t.content.querySelector('img').src = 'http://...';
document.body.appendChild(t.content.cloneNode(true));
```

.content provides access to the <template>'s guts



Custom Element

<element>

Structure

<template>

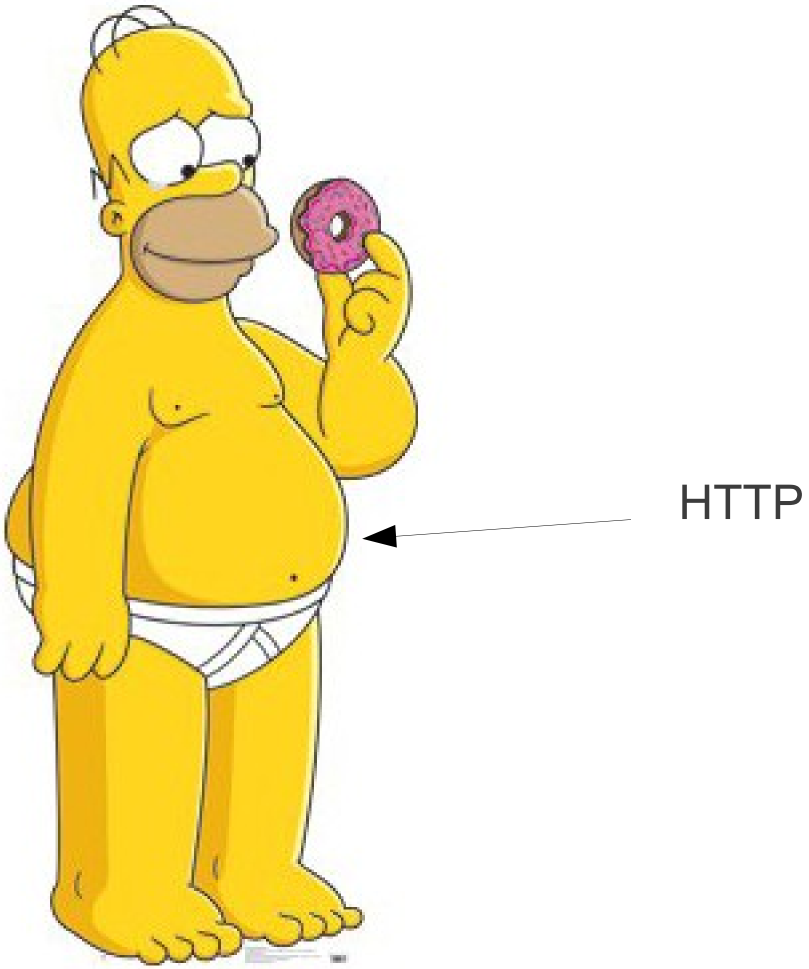
Style

<style>

Behavior

<script>

Web Sockets & SPDY



HTTP

Data:
{"seven":{"operator":"7 gånger 1","result":"7"}}

Overhead

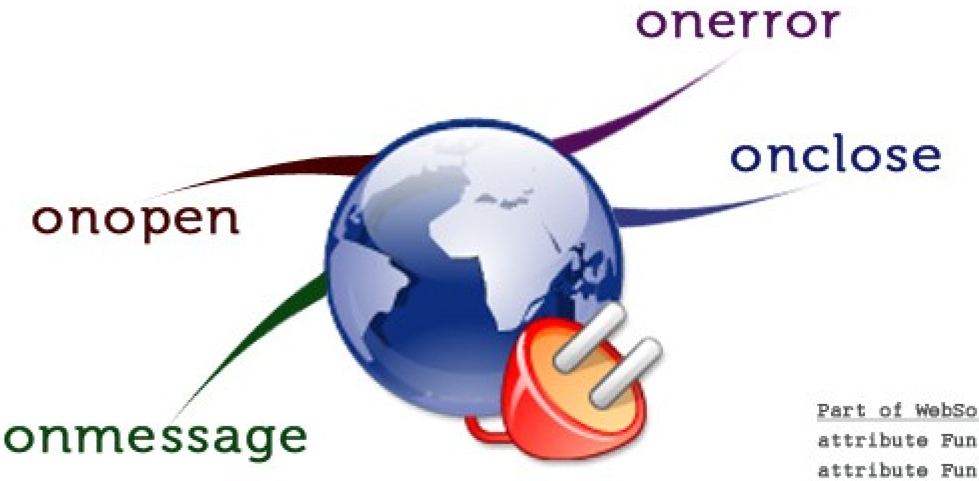
Request Headers

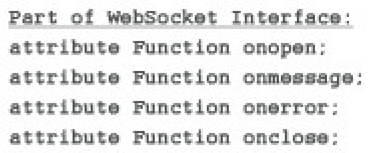
```
Requested-With:XMLHttpRequest
User-Agent:Mozilla/5.0 (X11; Ubuntu; Linux i686; rv:18.0) Gecko/20100101 Firefox/18.0
Referer:http://sjuans-tabell.appspot.com/Host:sjuans-tabell.appspot.com
Connection:keep-alive
Cache-Control:max-age=0
Accept-Language:en-US,en;q=0.5
Accept-Encoding:gzip,
deflateAccept:application/json,
text/javascript, */*; q=0.01
```

Response Headers

```
Vary:Accept-Encoding
Server:Google Frontend
Date:Sat, 02 Mar 2013 14:17:47 GMT
Content-Type:application/json; charset=UTF-8
Content-Length:64
Content-Encoding:gzip
Cache-Control:private
```

WebSockets

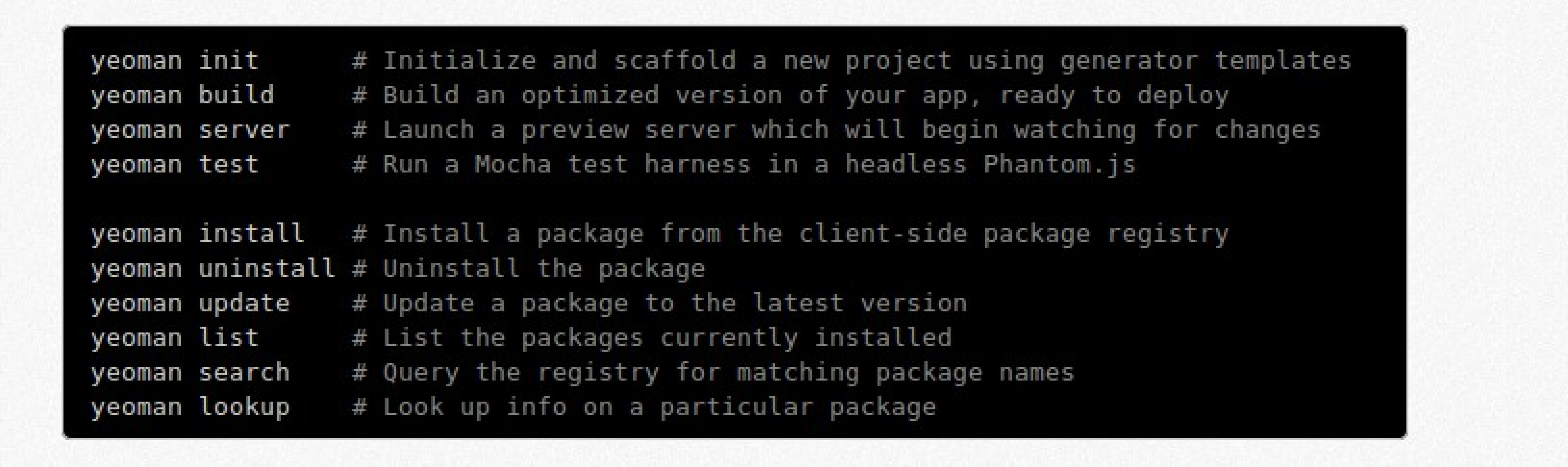




```
Part of WebSocket Interface:
attribute Function onopen;
attribute Function onmessage;
attribute Function onerror;
attribute Function onclose;
```

spdy://

YEOMAN



```
yeoman init      # Initialize and scaffold a new project using generator templates
yeoman build     # Build an optimized version of your app, ready to deploy
yeoman server    # Launch a preview server which will begin watching for changes
yeoman test      # Run a Mocha test harness in a headless Phantom.js

yeoman install   # Install a package from the client-side package registry
yeoman uninstall # Uninstall the package
yeoman update    # Update a package to the latest version
yeoman list      # List the packages currently installed
yeoman search    # Query the registry for matching package names
yeoman lookup    # Look up info on a particular package
```

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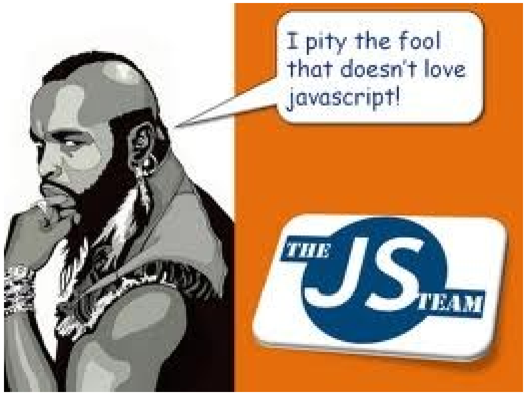
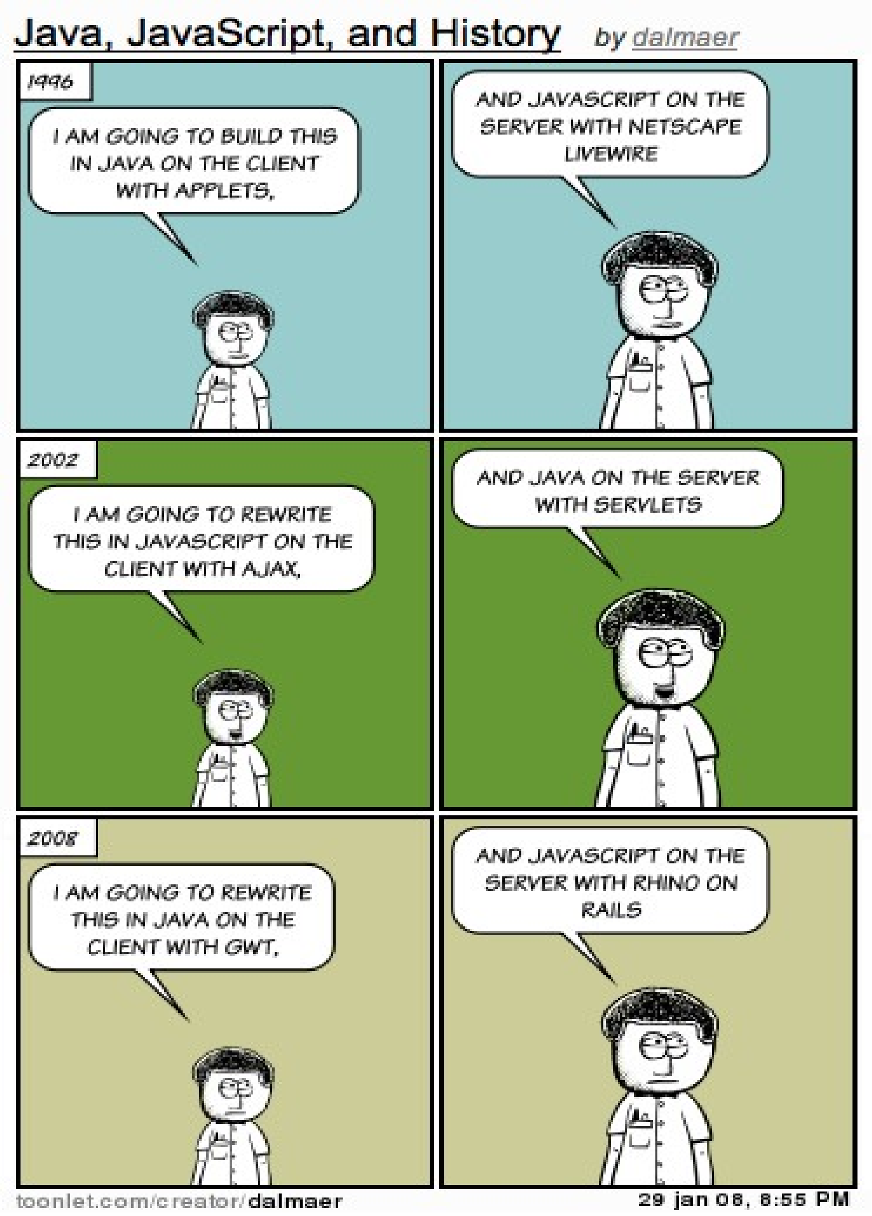


RESTful API

GET PUT POST DELETE

Message

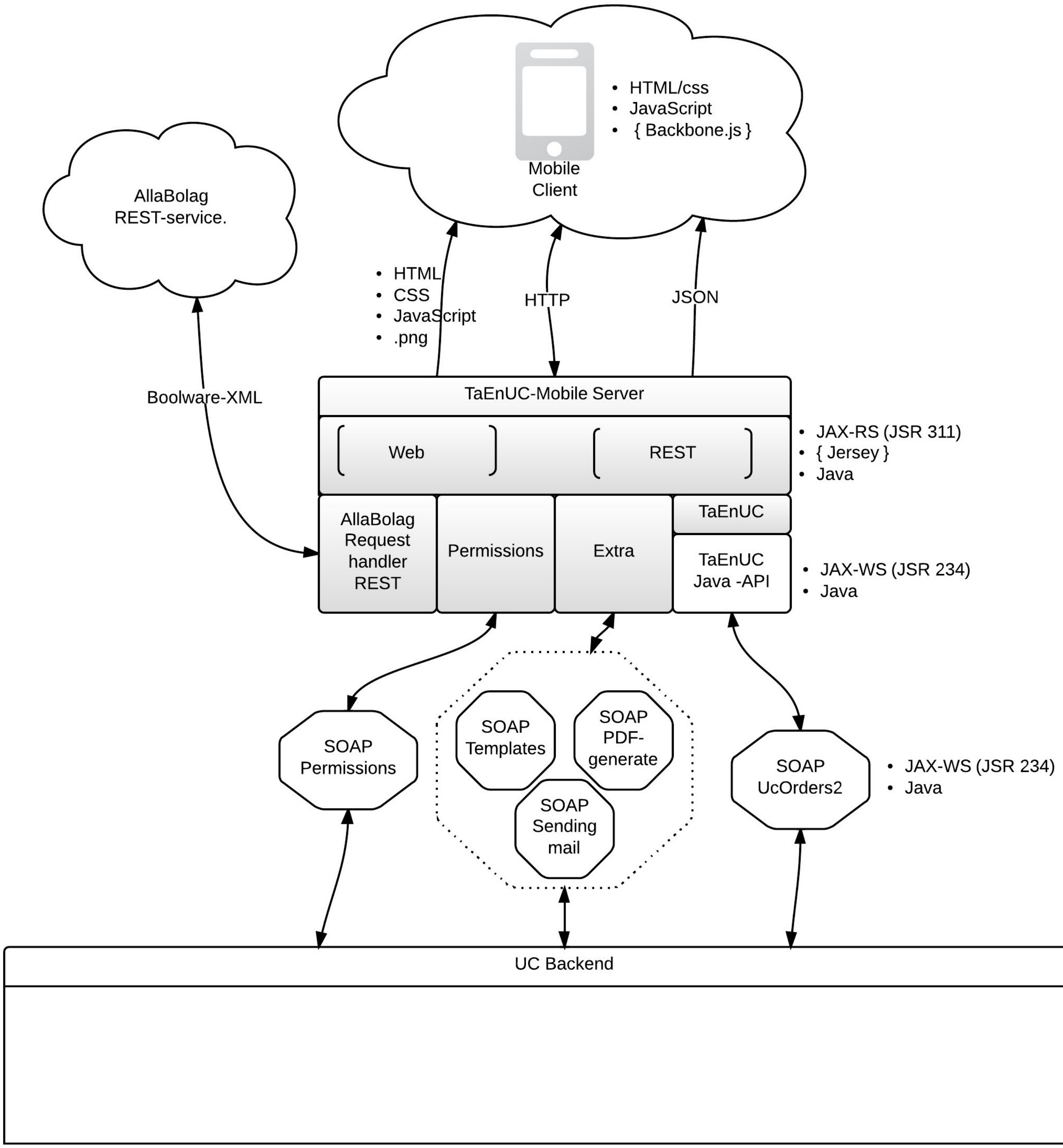
I Love Java


Java, JavaScript, and History by dalmaer
1996
I AM GOING TO BUILD THIS IN JAVA ON THE CLIENT WITH APPLETS,
AND JAVASCRIPT ON THE SERVER WITH NETSCAPE LIVEWIRE
2002
I AM GOING TO REWRITE THIS IN JAVASCRIPT ON THE CLIENT WITH AJAX,
AND JAVA ON THE SERVER WITH SERVLETS
2008
I AM GOING TO REWRITE THIS IN JAVA ON THE CLIENT WITH GWT,
AND JAVASCRIPT ON THE SERVER WITH RHINO ON RAILS
toonlet.com/creator/dalmaer
29 jan 08, 8:55 PM

http://toonlet.com/archive?m=s&i=3757

2013

I am going to build this with Responsive Web Design, using HTML5/CSS3 and some cool JavaScript MVC framework on the client
And use JAX-RS to build a java RESTfull server.



HTML/css
JavaScript
{ Backbone.js }
Mobile Client
AllaBolag REST-service.
HTML
CSS
JavaScript
.png
HTTP
JSON
Boolware-XML
TaEnUC-Mobile Server
Web
REST
JAX-RS (JSR 311)
{ Jersey }
Java
AllaBolag Request handler REST
Permissions
Extra
TaEnUC
TaEnUC Java -API
JAX-WS (JSR 234)
Java
SOAP Permissions
SOAP Templates
SOAP PDF-generate
SOAP Sending mail
SOAP UcOrders2
JAX-WS (JSR 234)
Java
UC Backend

REST

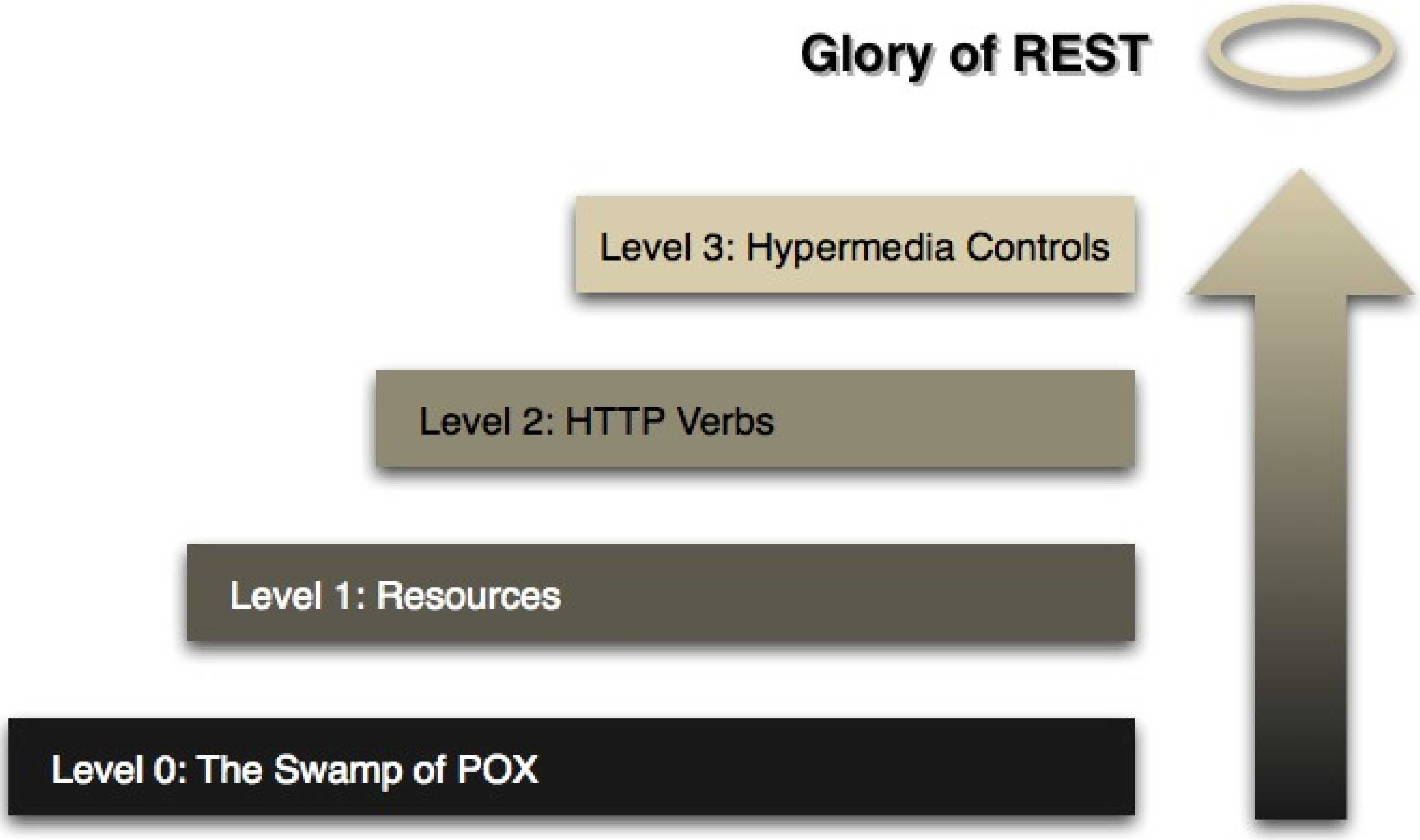
Consist of **clients** and **servers** that communicate in the form of **requests** and **responses** which are built around (web-) **resources**.

The client–server communication should be **stateless**

No client context being stored on the server between requests. Each request from any client contains information necessary to service the request, and any session state is held in the client.

http://en.wikipedia.org/wiki/Representational_state_transfer

The Richardson Maturity Model of REST



Glory of REST

Level 3: Hypermedia Controls

Level 2: HTTP Verbs

Level 1: Resources

Level 0: The Swamp of POX

http://martinfowler.com/articles/richardsonMaturityModel.html

Level 0 Using **HTTP** as a **transport** system for remote interactions, but **without** using any of the mechanisms of the web.

Level 1 **Resources**. So now rather than making all our requests to a singular service endpoint, we now start talking to individual resources.

Level 2 **Verbs GET, POST PUT DELETE**

Level 3 **HATEOAS** (Hypertext As The Engine Of Application State).

*http://martinfowler.com/articles/richardsonMaturityModel.htm*l

Jersey

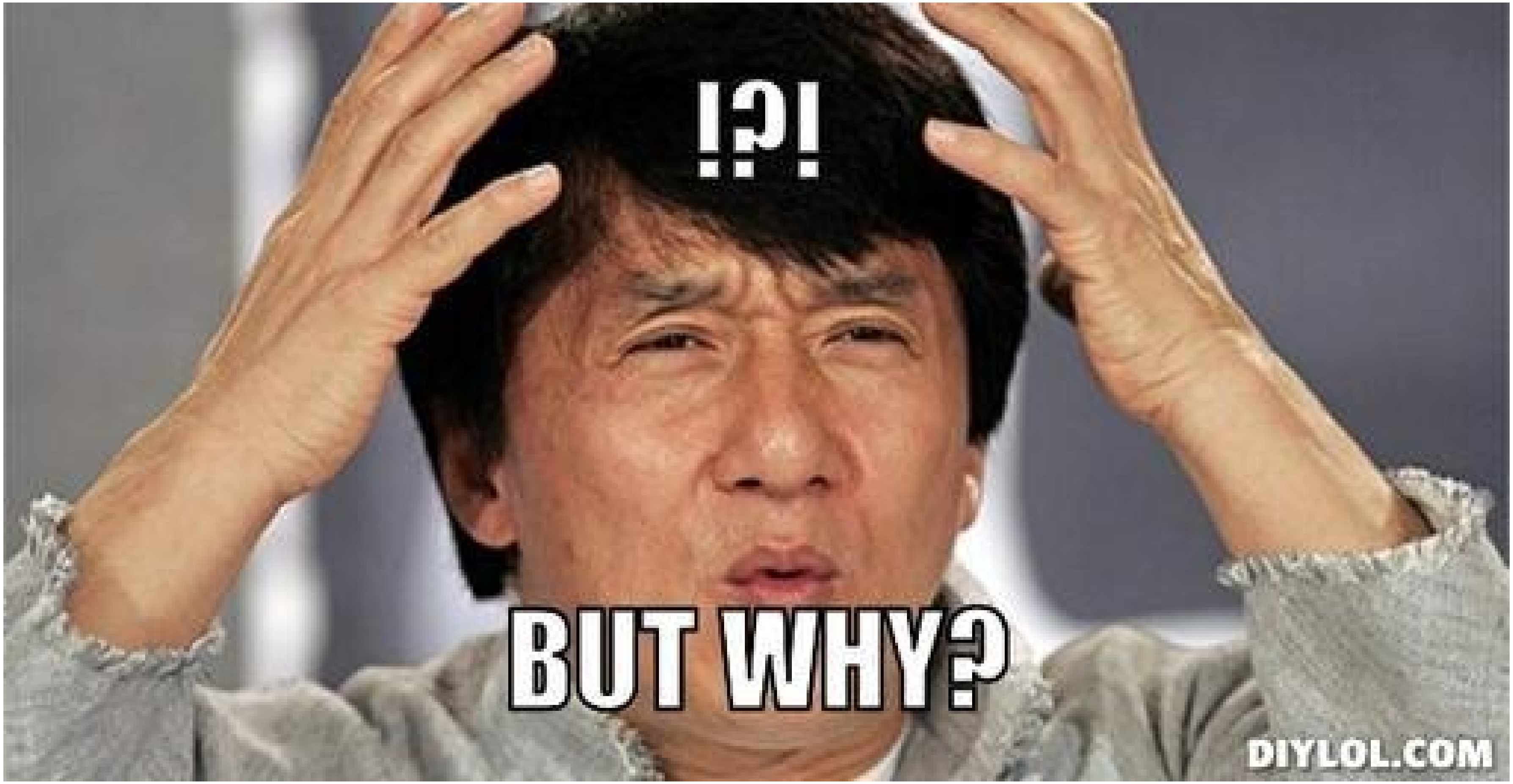
- Referens implementation av JSR-311 (JAX-RS)
- Använder @nnotations
- Matchar metoder mot URI

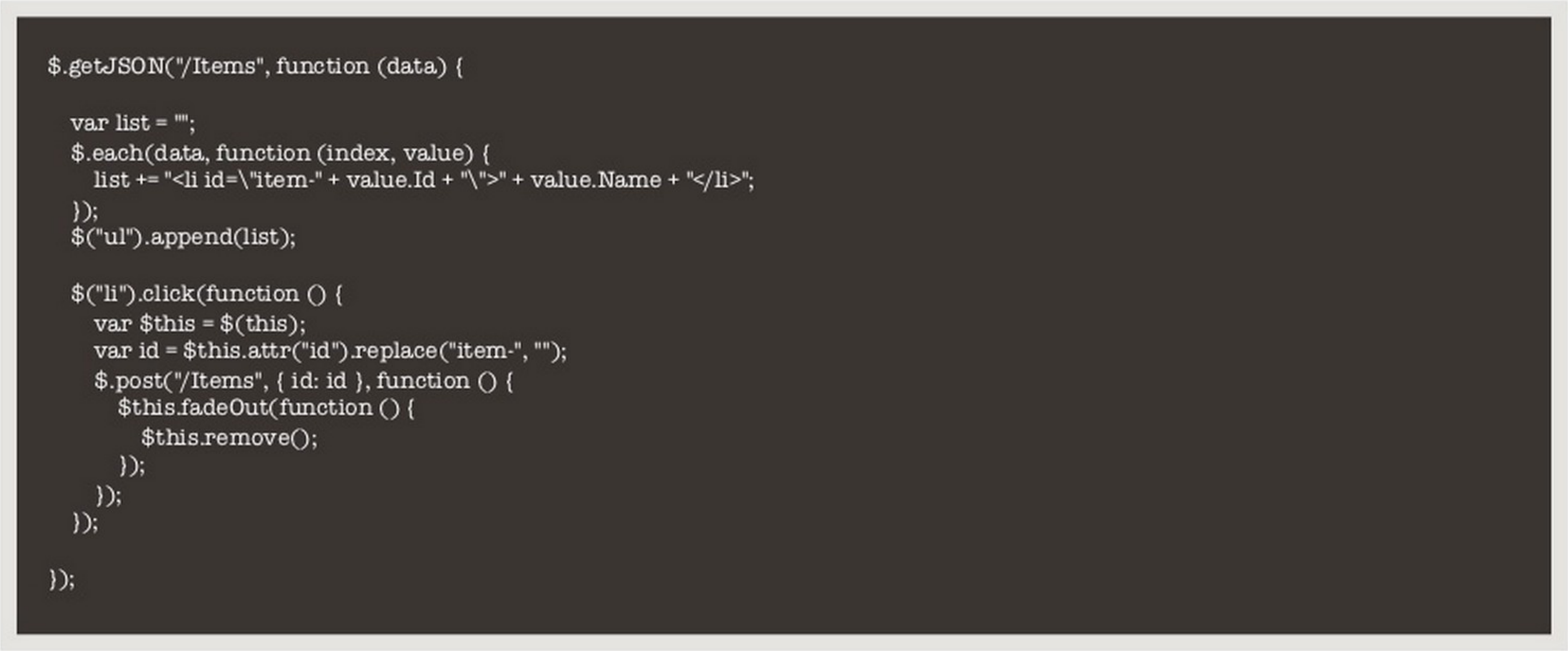
```
@Path("/users")
public class UserRestResource {
    @Produces("application/json;charset=UTF-8")
    @GET
    @Path("{id}")
    public User getUserById(@PathParam("id") String id) {
```

```
@GET
@Produces({"application/pdf"})
@Path("/pdf/{orgNumber}")
public StreamingOutput getPdf(
            @PathParam("orgNumber") String orgNr,
            @QueryParam("abonnent")String abonnent,
            @QueryParam("pkod")String pkod)  {

    try {
        final byte[] data = getPdfFromWebService(orgNr, abonnent, pkod);

        return new StreamingOutput() {

        @Override
        public void write(OutputStream output) throws Exception {
            output.write(data);
        …
        ..
        .
```

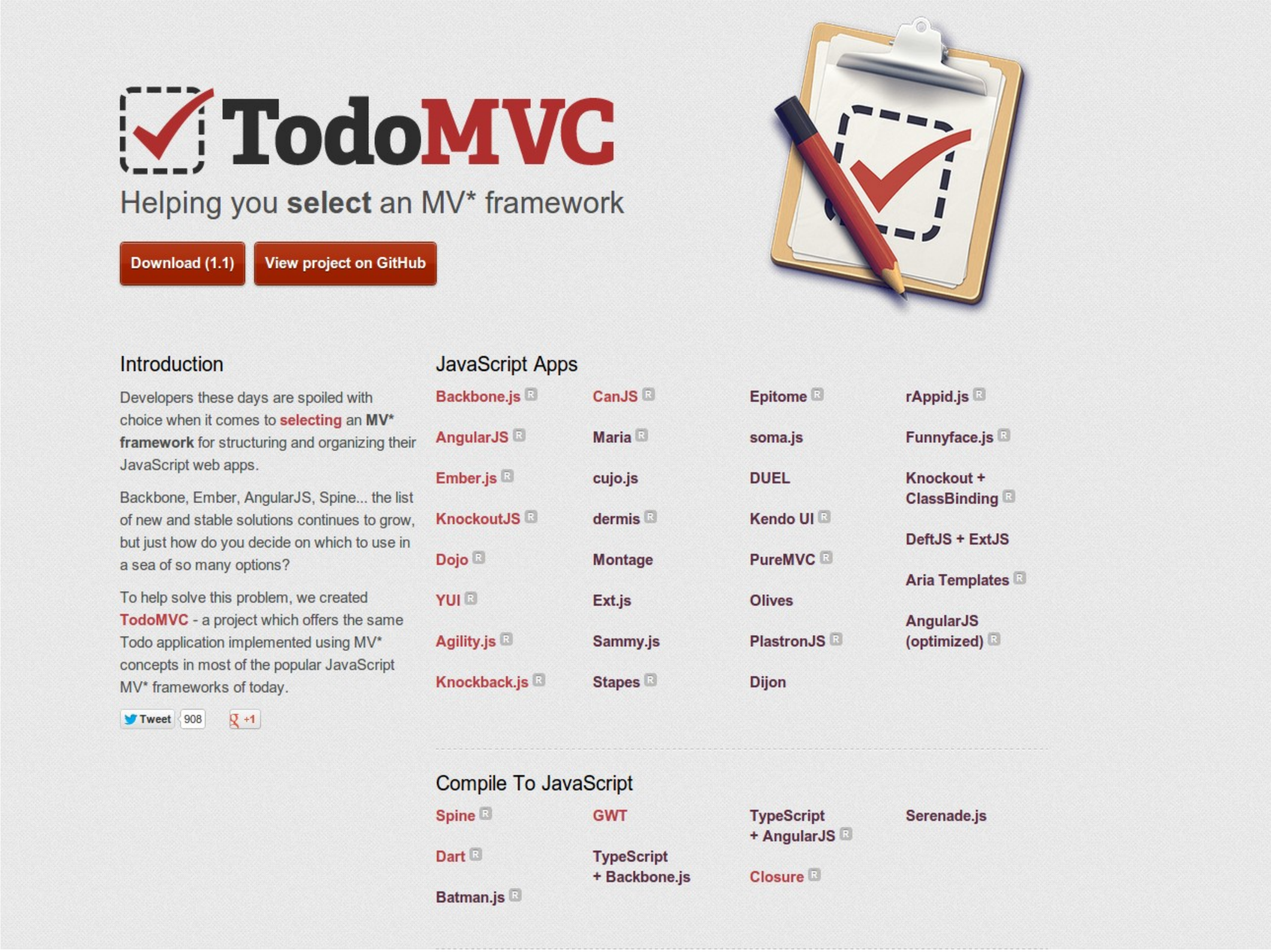
JavaScript MVC (MV*)

http://coding.smashingmagazine.com/2012/07/27/journey-through-the-javascript-mvc-jungle/


!?!
BUT WHY?
DIYLOL.COM



```
$.getJSON("/Items", function (data) {

  var list = "";
  $.each(data, function (index, value) {
    list += "<li id=\"item-" + value.Id + "\">" + value.Name + "</li>";
  });
  $("ul").append(list);

  $("li").click(function () {
    var $this = $(this);
    var id = $this.attr("id").replace("item-", "");
    $.post("/Items", { id: id }, function () {
      $this.fadeOut(function () {
        $this.remove();
      });
    });
  });

});
```



TodoMVC

Helping you **select** an MV* framework

Introduction

Developers these days are spoiled with choice when it comes to **selecting** an **MV* framework** for structuring and organizing their JavaScript web apps.

Backbone, Ember, AngularJS, Spine... the list of new and stable solutions continues to grow, but just how do you decide on which to use in a sea of so many options?

To help solve this problem, we created **TodoMVC** - a project which offers the same Todo application implemented using MV* concepts in most of the popular JavaScript MV* frameworks of today.

JavaScript Apps

- Backbone.js
- AngularJS
- Ember.js
- KnockoutJS
- Dojo
- YUI
- Agility.js
- Knockback.js
- CanJS
- Maria
- cujo.js
- dermis
- Montage
- Ext.js
- Sammy.js
- Stapes
- Epitome
- soma.js
- DUEL
- Kendo UI
- PureMVC
- Olives
- PlastronJS
- Dijon
- rAppid.js
- Funnyface.js
- Knockout + ClassBinding
- DeftJS + ExtJS
- Aria Templates
- AngularJS (optimized)

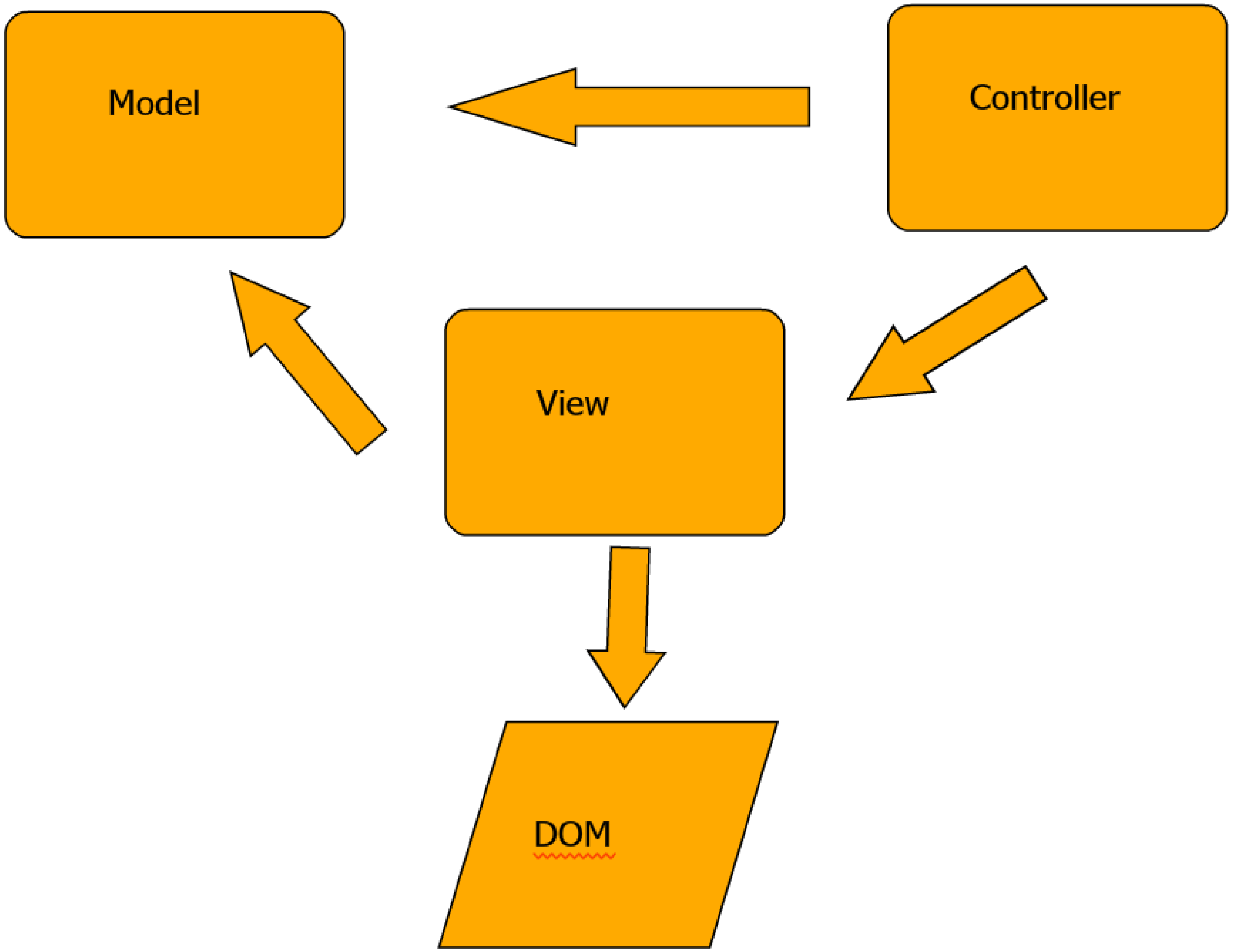
Compile To JavaScript

- Spine
- Dart
- Batman.js
- GWT
- TypeScript + Backbone.js
- TypeScript + AngularJS
- Closure
- Serenade.js

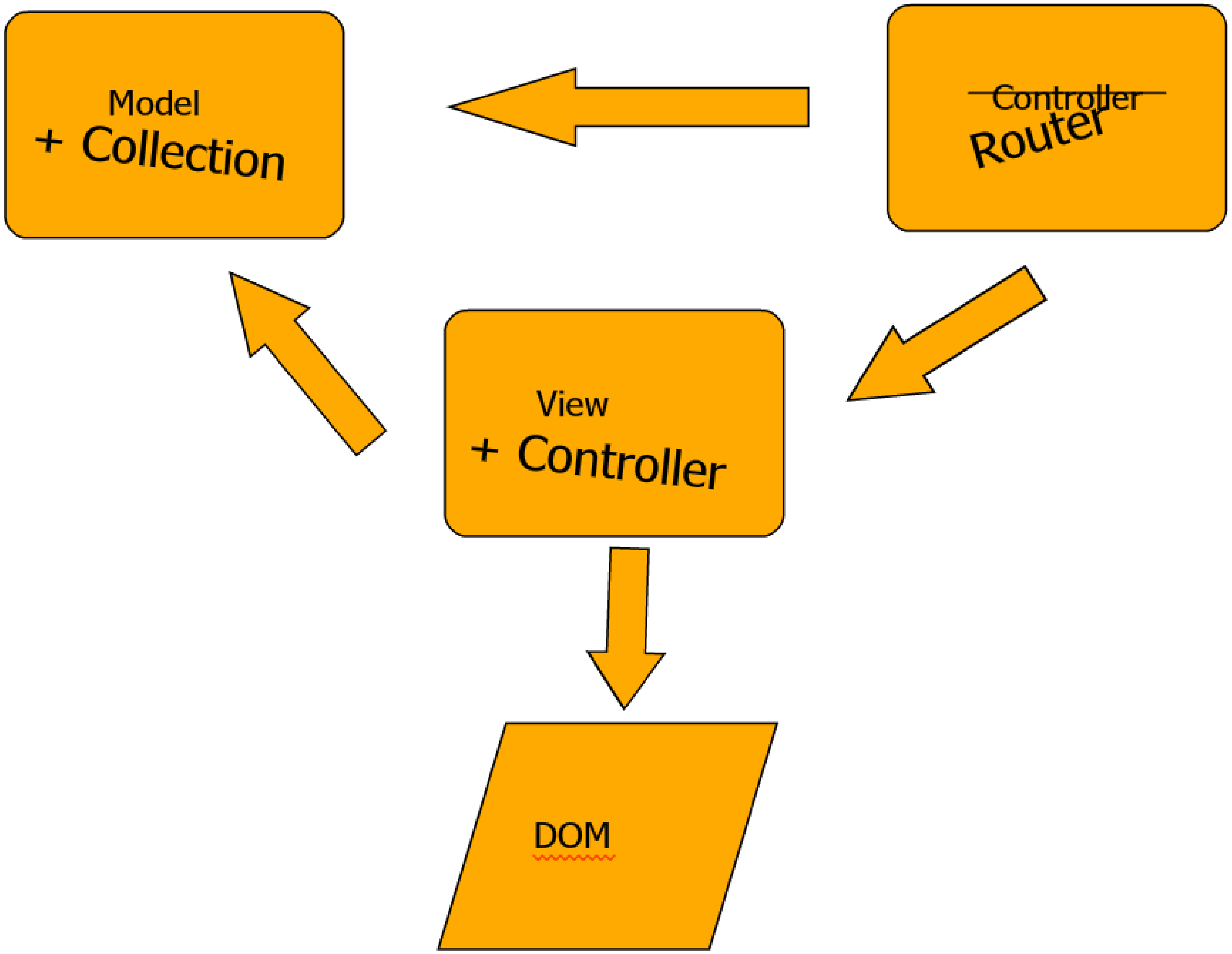
http://addyosmani.github.com/todomvc/

BACKBONE.JS

MVC i teorin

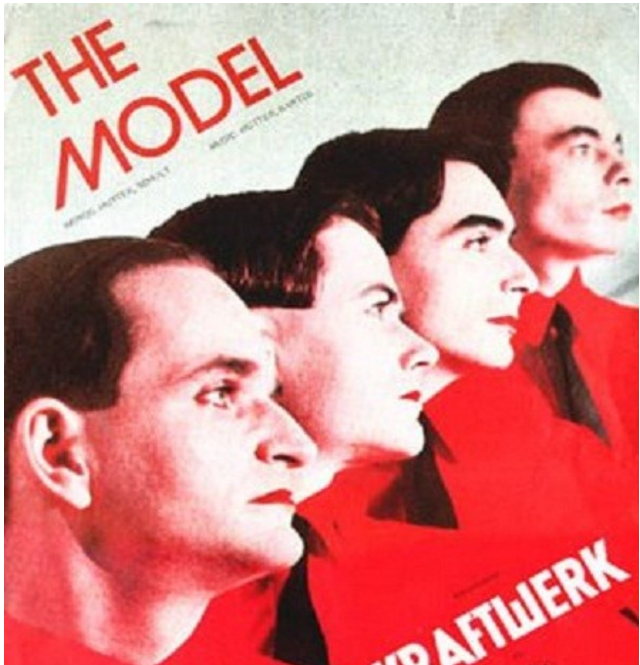


MVC Backbone style



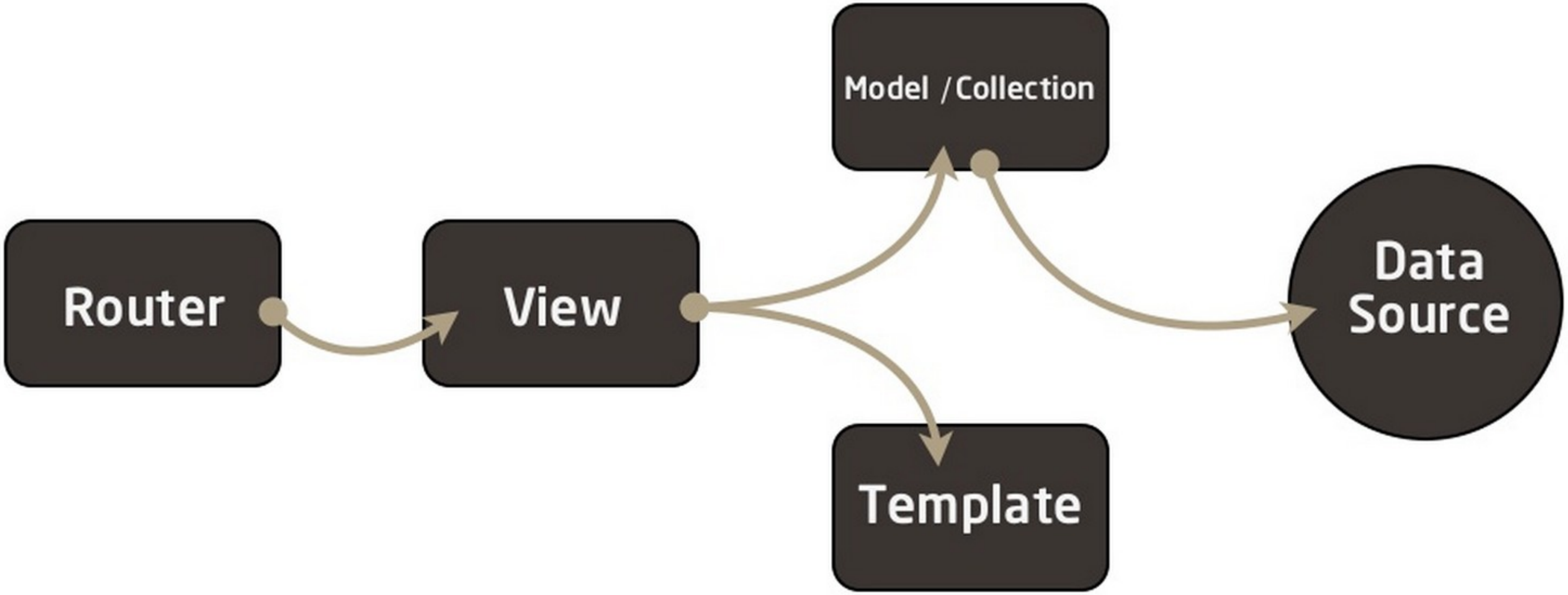
Model

- Fetch → HTTP GET /url
- Save (new) → HTTP POST /url
- Save → HTTP PUT /url/id
- Destroy → HTTP DELETE /url/id



GUINNESS WORLD RECORDS
CERTIFICATE
The largest collection of videogames memorabilia is owned by Brett Martin (USA) and was counted in Littleton, Colorado, USA, in August 2012
GUINNESS WORLD RECORDS
SUPER MARIO
Jenga
PAC-MAN
Nintendo

Wireless-G
Broadband Router
with SpeedBooster
2.4GHz
802.11g
LINKSYS®
Cisco Systems
Secure
Easy
Setup™
Wireless-G
Ethernet
Power
DMZ
WLAN
1
2
3
4
Internet
Wireless-G
Broadband Router
With SpeedBooster
Model
WRT54GS
LINKSYS®



Router

View

Model /Collection

Template

Data Source

Linus Torvalds (2000-08-25). Message to linux-kernel mailing list