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SOFTWARE **DONE RIGHT**

LARGE-SCALE SINGLE-PAGE WEB APP DEVELOPMENT EXPERIENCES

By Freek Wielstra and Vincent Lussenburg

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SETTING

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WHAT ARE YOU HERE FOR?

- Listen to a nice tale from the trenches
- Learn from our experience (mistakes? ;) - the what and the why
- Get any questions you have answered

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AGENDA

- Context
- Problems that need fixing
- Scalable architecture
- Technology & frameworks you need
- Questions

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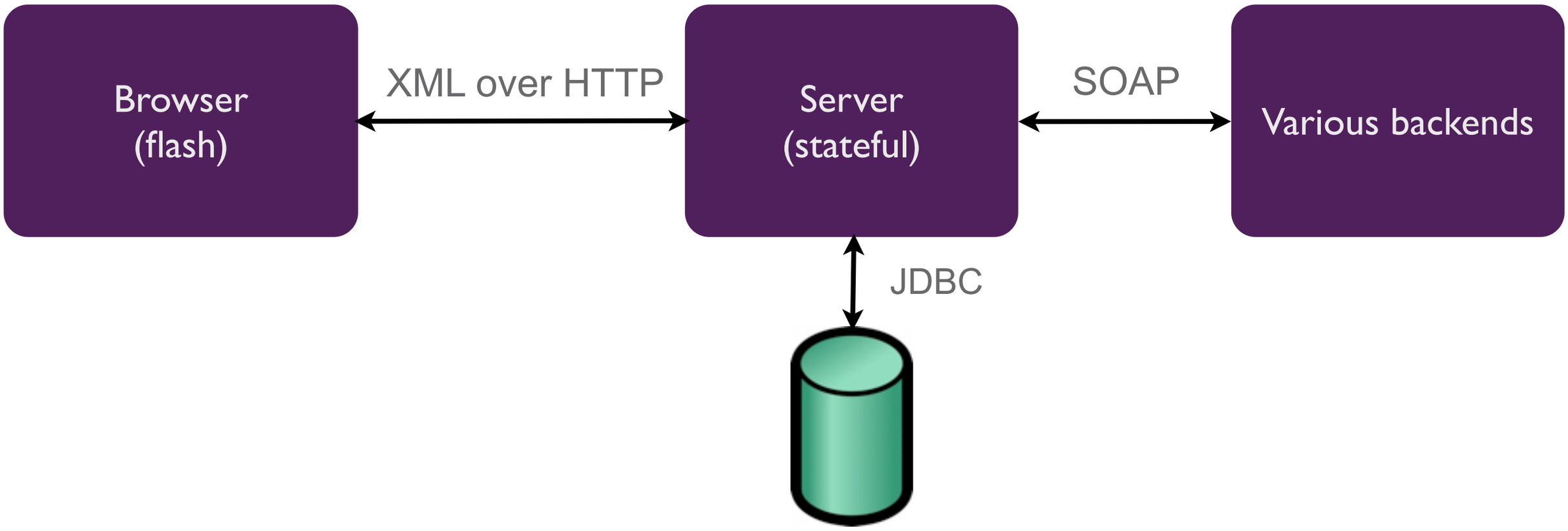
PROBLEMS THE SUPPLIER CAN'T FIX (IN A TIMELY FASHION)

- Impossible to match corporate design
- Flash-based technology, unsuitable for mobile devices
- Missing features
- Sluggish / jerky user experience (scalability)
- Fault tolerance issues


Browser
(flash)
XML over HTTP
Server
(stateful)
SOAP
Various backends
JDBC

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REALIZING CUSTOMER WISHES

- Decision: replace the frontend entirely with custom software
  - *Integrate with service layer to be built by supplier*
  - *Custom "new" functionality, such as a search engine for stocks can be realized*
  - *Existing functionality can be improved and customized*

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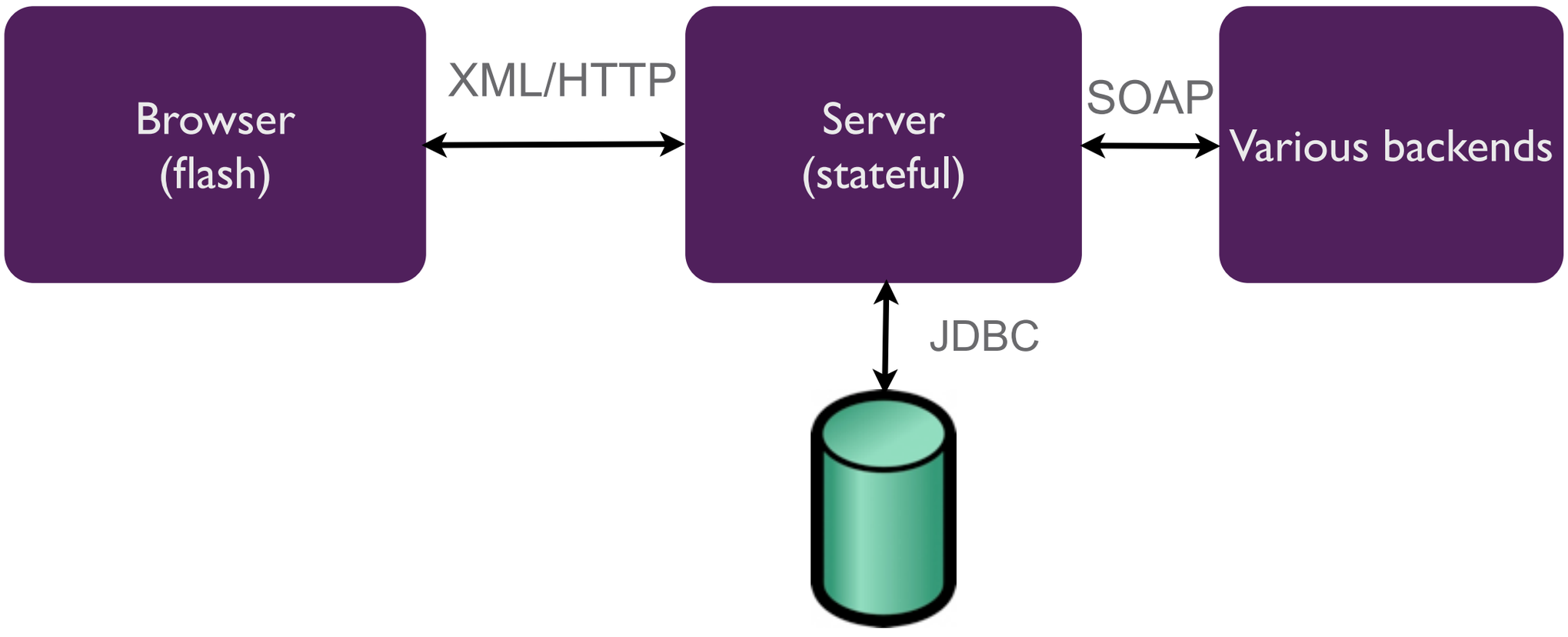
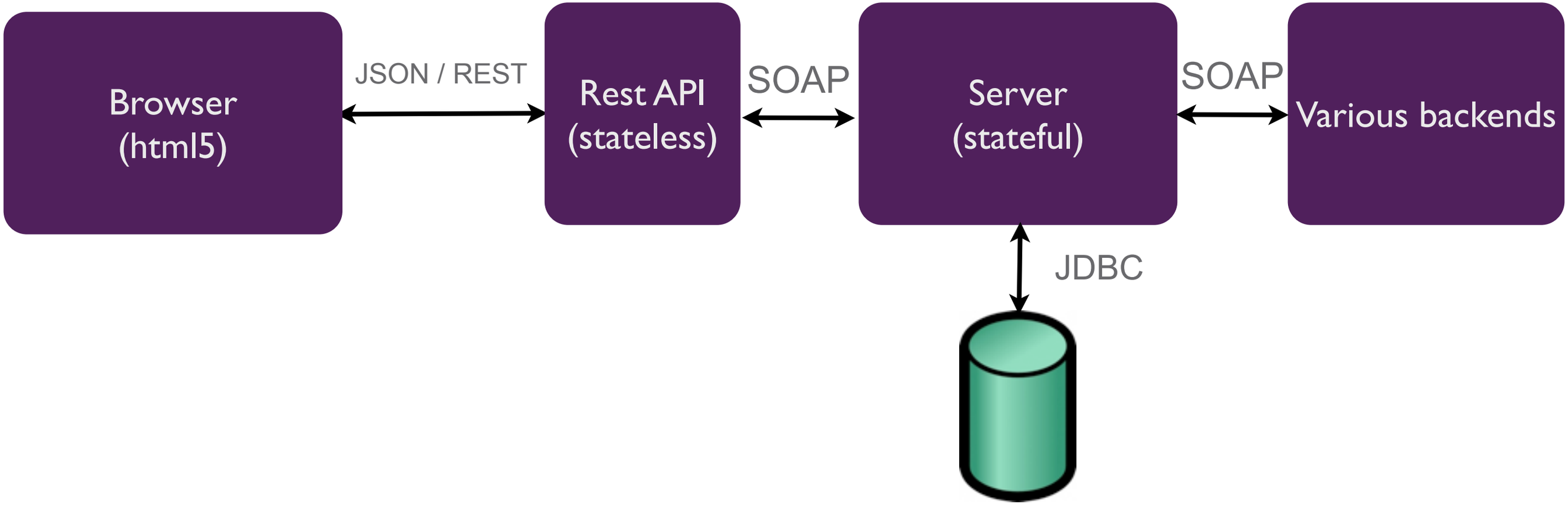
CREATING A SCALABLE ARCHITECTURE

- Decision: REST architectural style with JSON
  - *the usual scalability benefits (stateless, cacheable, ..)*
  - *enables mixing of "slow" and "fast" pieces of data in a page*
  - *clear separation from display (data vs presentation)*
  - *JSON: efficient format, good browser support*
  - *reusable for mobile apps*


Browser
(flash)
XML/HTTP
Server
(stateful)
SOAP
Various backends
JDBC


Browser
(html5)
JSON / REST
Rest API
(stateless)
SOAP
Server
(stateful)
SOAP
Various backends
JDBC

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WHAT IF THE SUPPLIER DOESN'T DELIVER...

- Waiting for the supplier to deliver a workable service layer (months!)
  - *Create a mock implementation*
  - *Treat the mock as the real thing*
  - *Once the the service layer is reasonably stable, plan to integrate it*
  - *Put (re)work on the backlog!*

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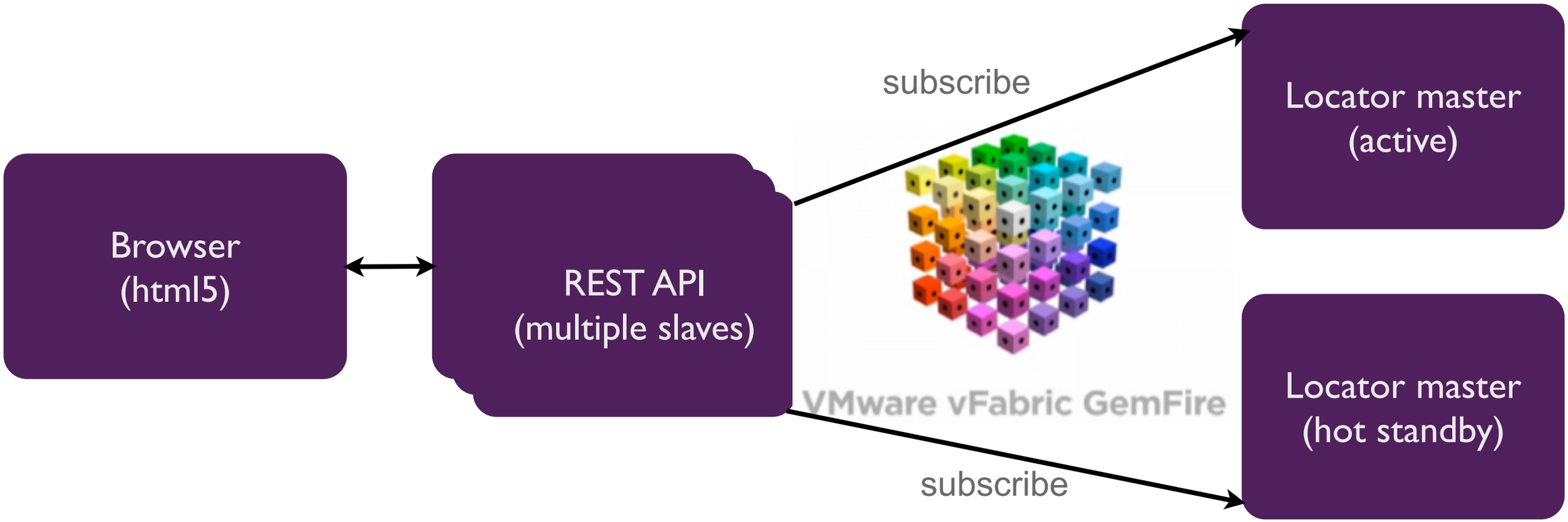
Browser
(html5)

REST API
(multiple slaves)

VMware vFabric GemFire

Locator master
(active)

Locator master
(hot standby)


Browser
(html5)
REST API
(multiple slaves)
subscribe
Locator master
(active)
VMware vFabric GemFire
subscribe
Locator master
(hot standby)

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Browser
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REST API
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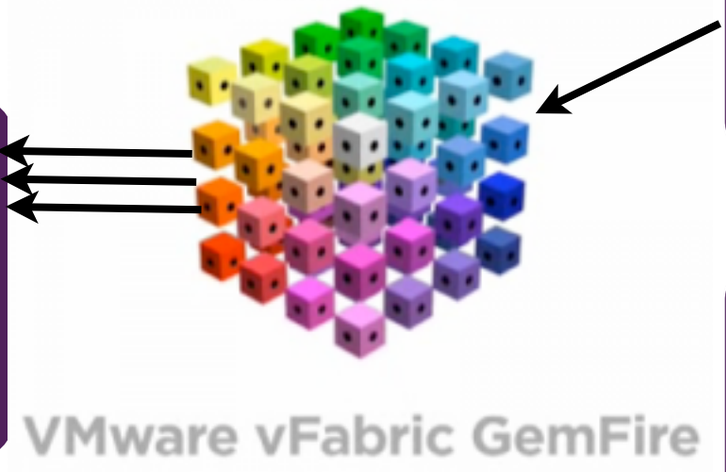
Browser
(html5)

REST API
(multiple slaves)



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Locator master
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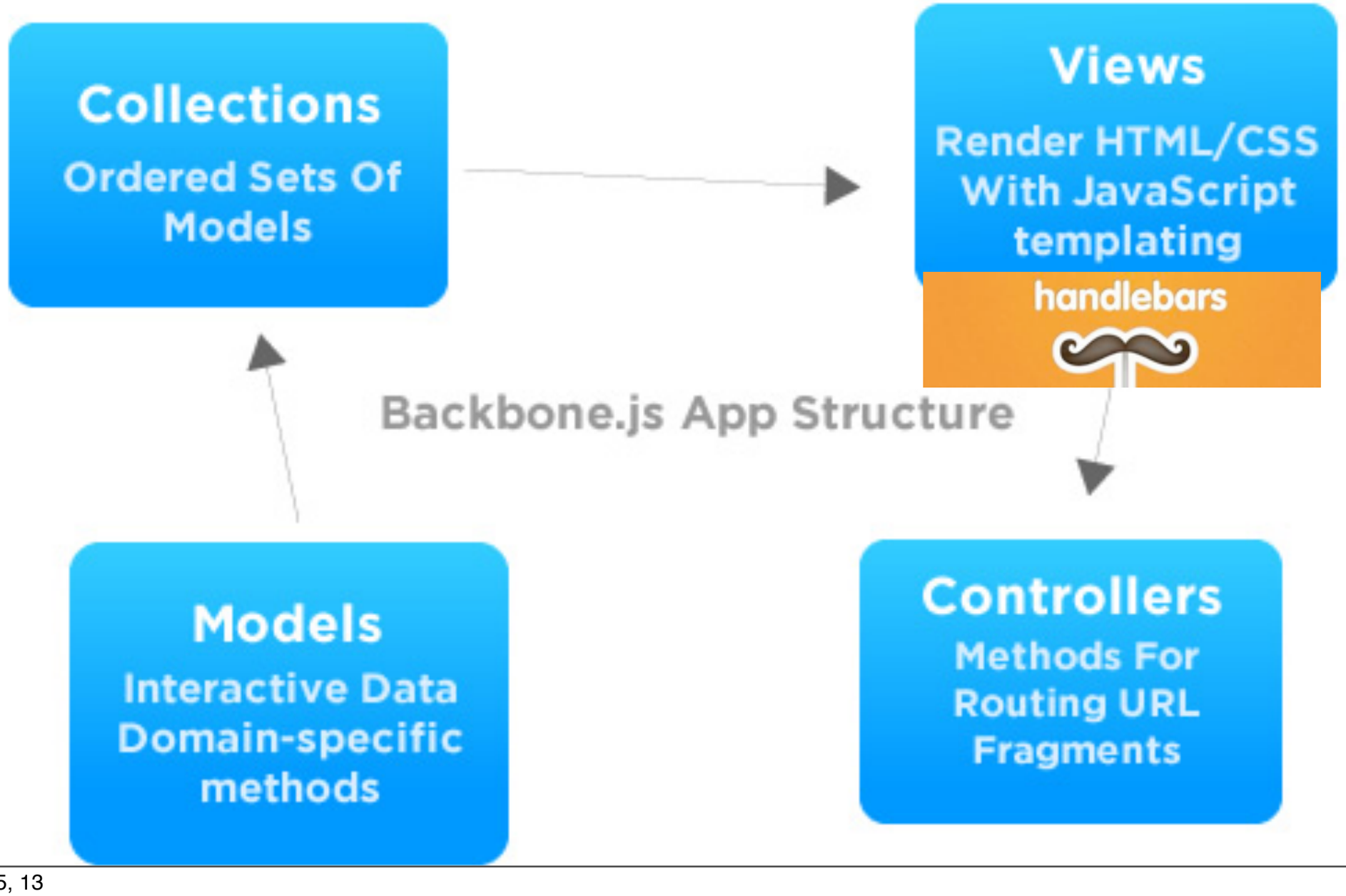
SINGLE-PAGE WEB APPLICATIONS

- "Heavy" client, light server
- Client-side UI rendering; server only serves data
- Light-weight, scalable and focused server component (REST)
- Takes advantage of fast browsers of today - both desktop and mobile
- AJAX to the max

BACKBONE.JS


Collections
Ordered Sets Of Models
Views
Render HTML/CSS With JavaScript templating
handlebars
Backbone.js App Structure
Models
Interactive Data Domain-specific methods
Controllers
Methods For Routing URL Fragments

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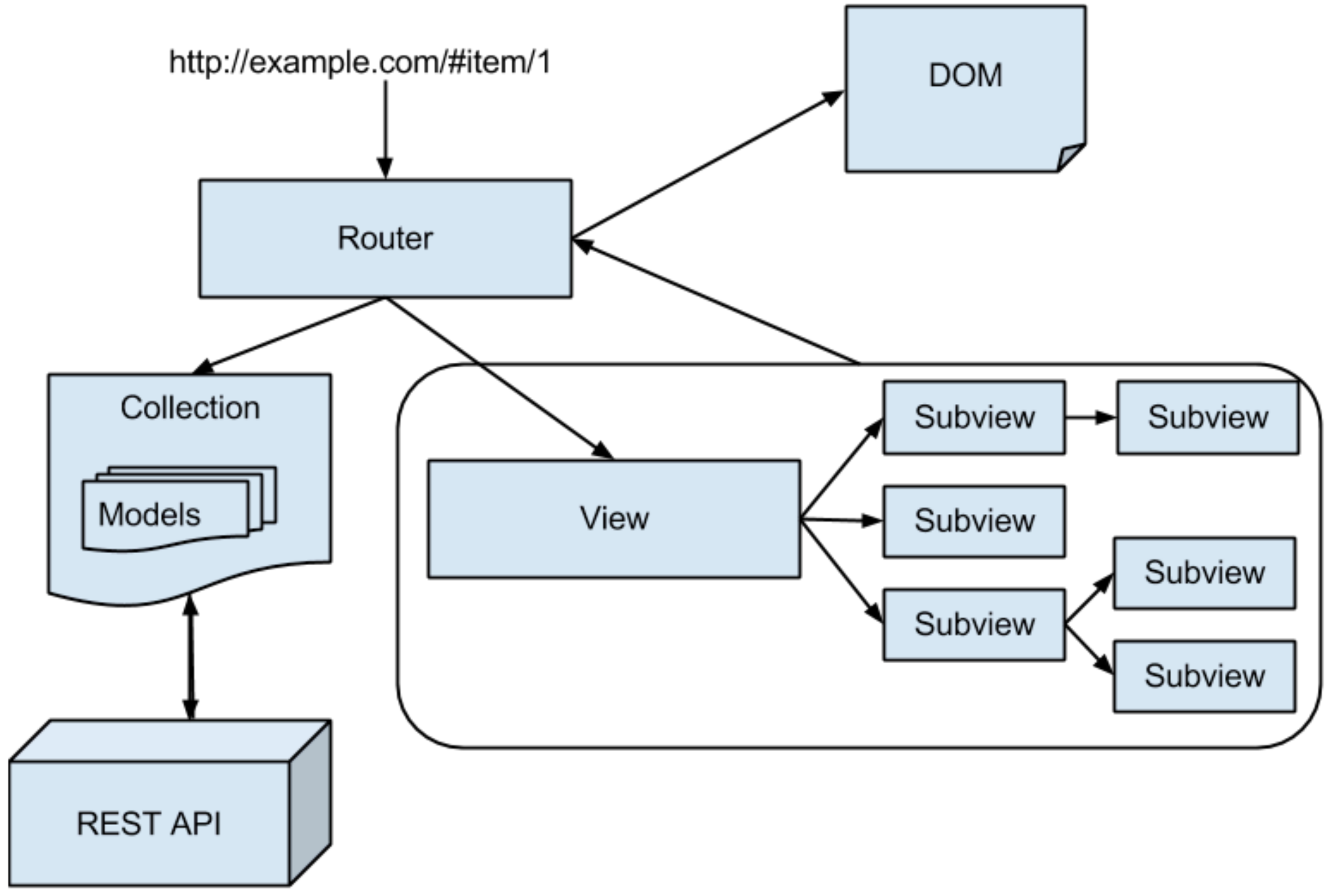
Todos

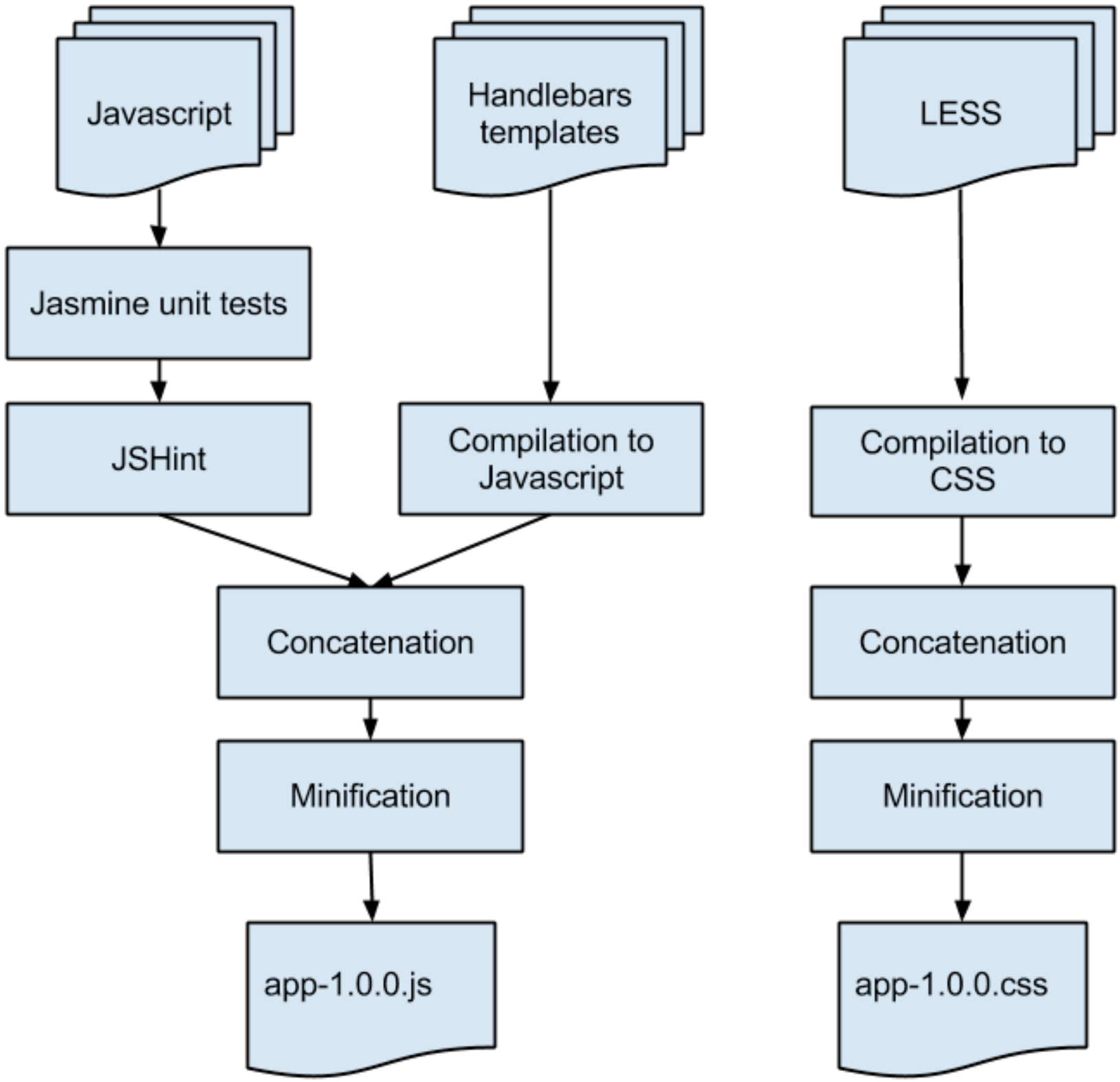
What needs to be done?

Mark all as complete

Make all the people happy

1 item left


http://example.com/#item/1
DOM
Router
Collection
Models
REST API
View
Subview
Subview
Subview
Subview
Subview
Subview


Javascript
Handlebars templates
LESS
Jasmine unit tests
JSHint
Compilation to Javascript
Compilation to CSS
Concatenation
Concatenation
Minification
Minification
app-1.0.0.js
app-1.0.0.css

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Bootstrap

Sleek, intuitive, and powerful front-end framework for faster and easier web development.

Download Bootstrap

GitHub project Examples Extend Version 2.3.2

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Project name

Home | Projects | Services | Downloads | About | Contact

Marketing stuff!

Cras justo odio, dapibus ac facilisis in, egestas eget quam. Fusce dapibus, tellus ac cursus commodo, tortor mauris condimentum nibh, ut fermentum massa justo sit amet risus.

Get started today

Heading

Donec id elit non mi porta gravida at eget metus. Fusce dapibus, tellus ac cursus

Heading

Donec id elit non mi porta gravida at eget metus. Fusce dapibus, tellus ac cursus

Heading

Donec sed odio dui. Cras justo odio, dapibus ac facilisis in, egestas eget quam. Vestibulum

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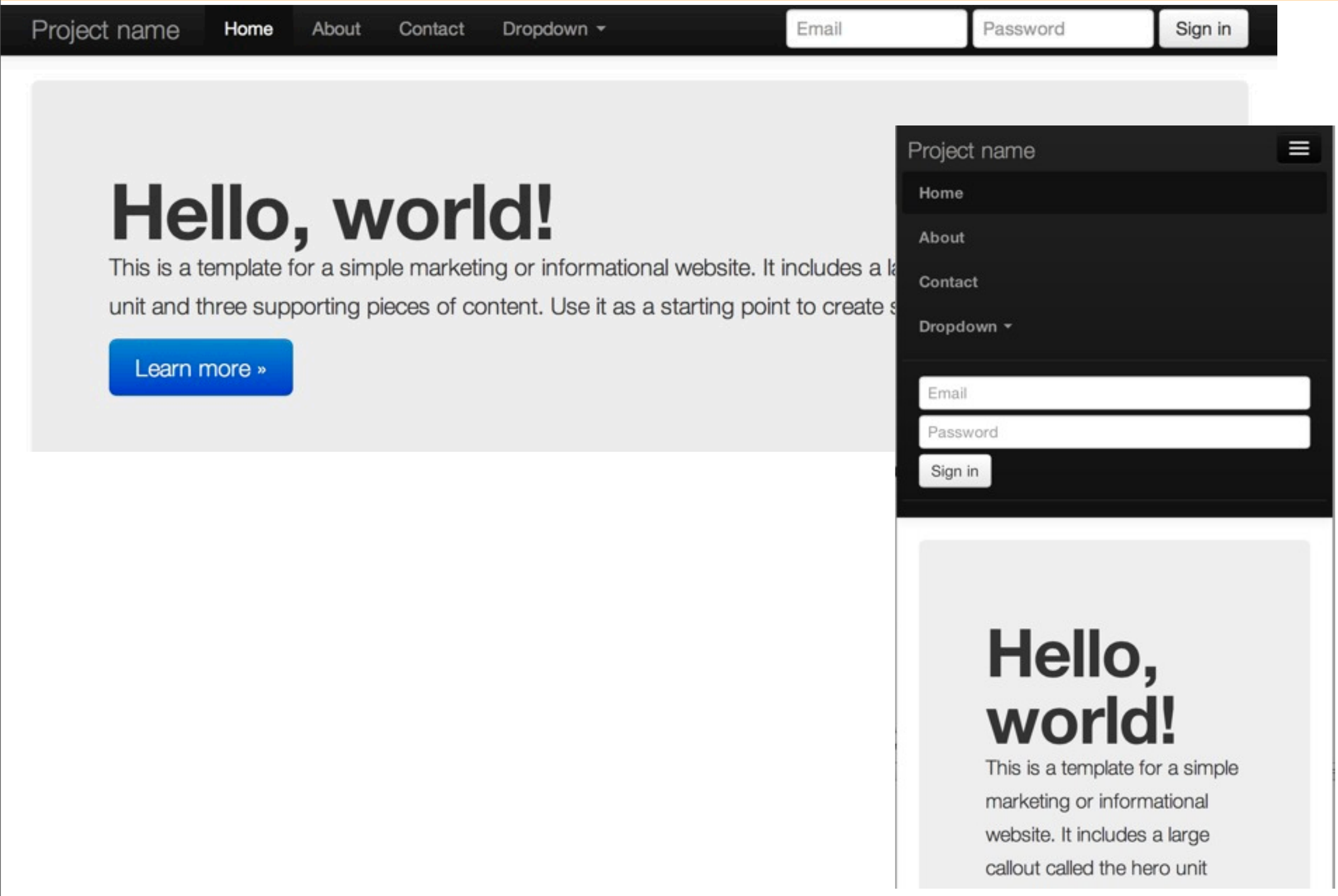
Project name
Home
About
Contact
Dropdown
Email
Password
Sign in
Hello, world!
This is a template for a simple marketing or informational website. It includes a la
unit and three supporting pieces of content. Use it as a starting point to create s
Learn more »
Project name
Home
About
Contact
Dropdown
Email
Password
Sign in
Hello, world!
This is a template for a simple marketing or informational website. It includes a large callout called the hero unit

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LIVING STYLE GUIDE AS SEPARATE PRODUCT

- Extending Bootstrap with custom, application / environment-specific components
- Example for new pages
- Physical, immediately usable implementation of corporate design
- Developed as a separate product

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ROUND UP

- For large scale single page webapp development you need:
  - *a scalable, fault tolerant back end: REST and JSON*
  - *to choose framework that enables you to work in modules*
  - *to treat client-side code as you would java code: style checks, unit tests, compilation and packaging*
  - *to treat styling as first class citizen, product*

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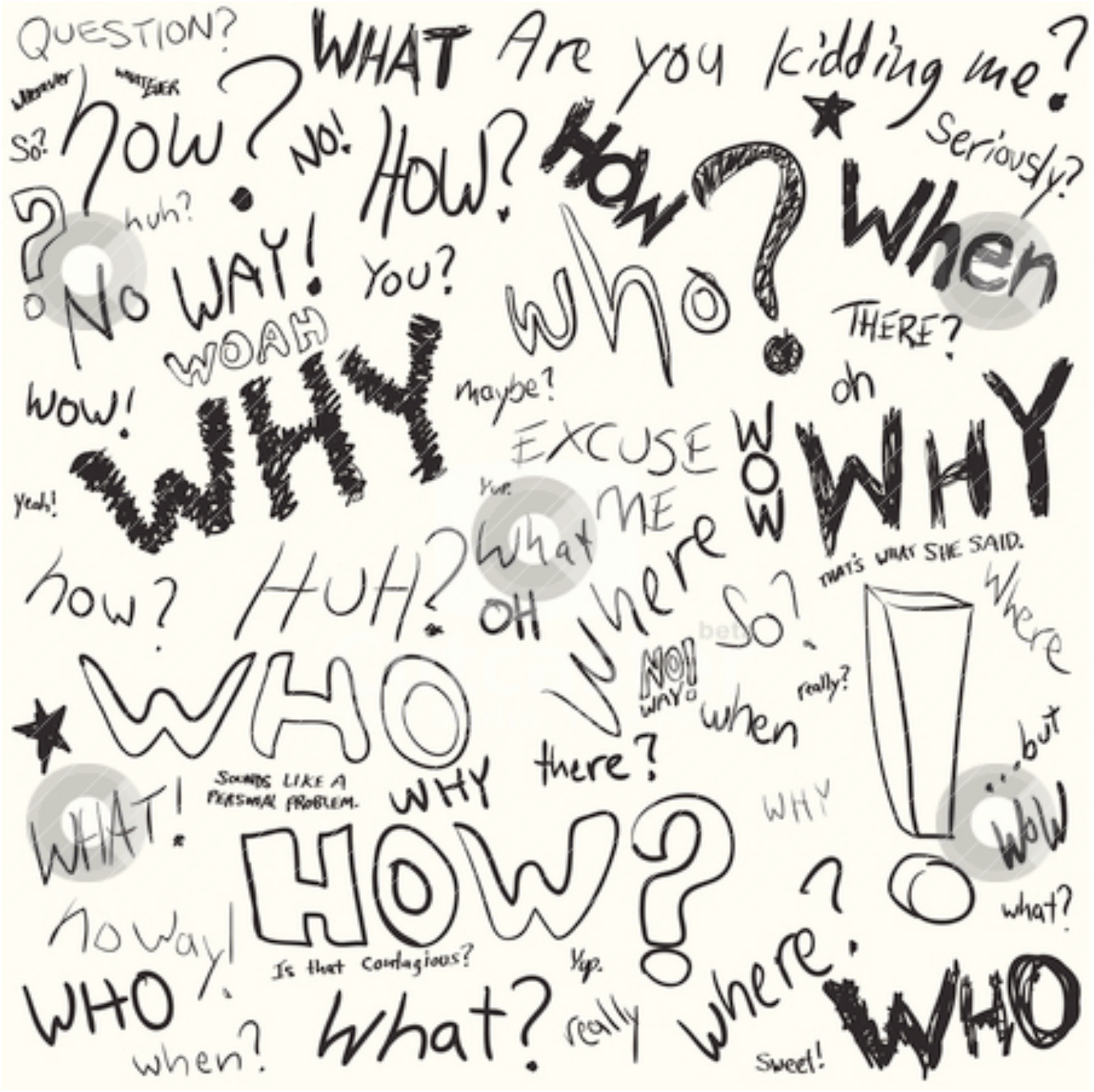
QUESTIONS



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PLEASE GIVE US YOUR FEEDBACK

- http:/bit.ly/xc_large