



FedX: What's Next?

The Future of Frontend Development in Open edX

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Open edX Conference 2017

Nice to meet you!



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@arizzitano





“

Empower the edX development community by continually defining, evangelizing, and supporting front end best practices.

”

FedX mission

FedX: What's Next?

1. Prior Art 
2. Pain Points 
3. Remediation 
4. New Tech 



PRIOR ART



Server Side

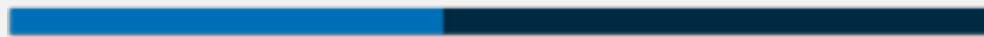


Client Side



BACKBONE.JS

UNDERSCORE.JS

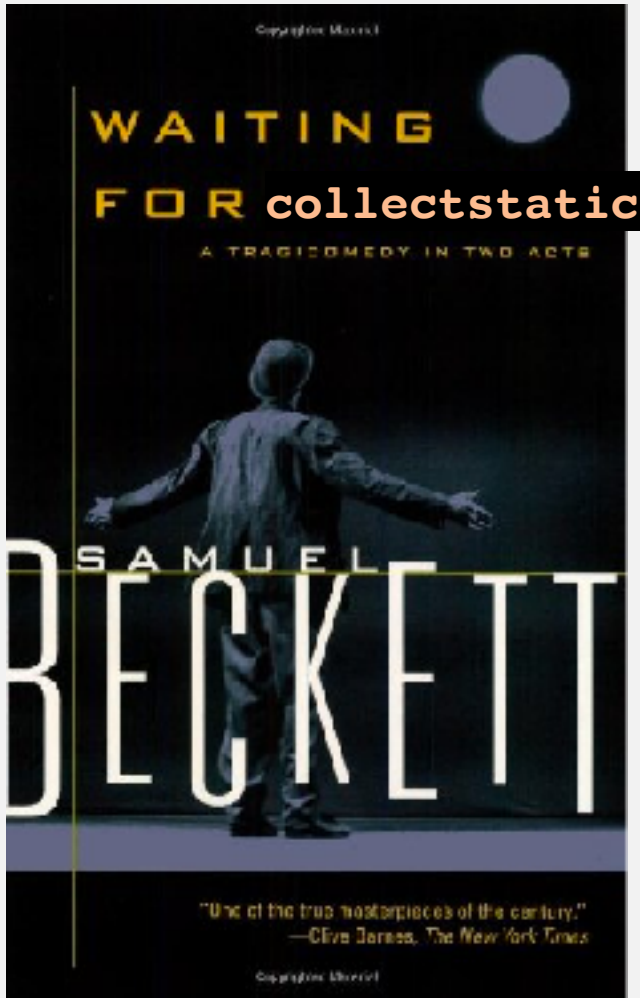


CoffeeScript

UX Pattern Library

- Homegrown CSS framework & HTML styleguide for Open edX platform
- Defines colors, fonts, etc. as well as a few UI patterns
- <http://ux.edx.org/>

Asset Management



- Django asset pipeline
- Watches & compiles SASS & JS files

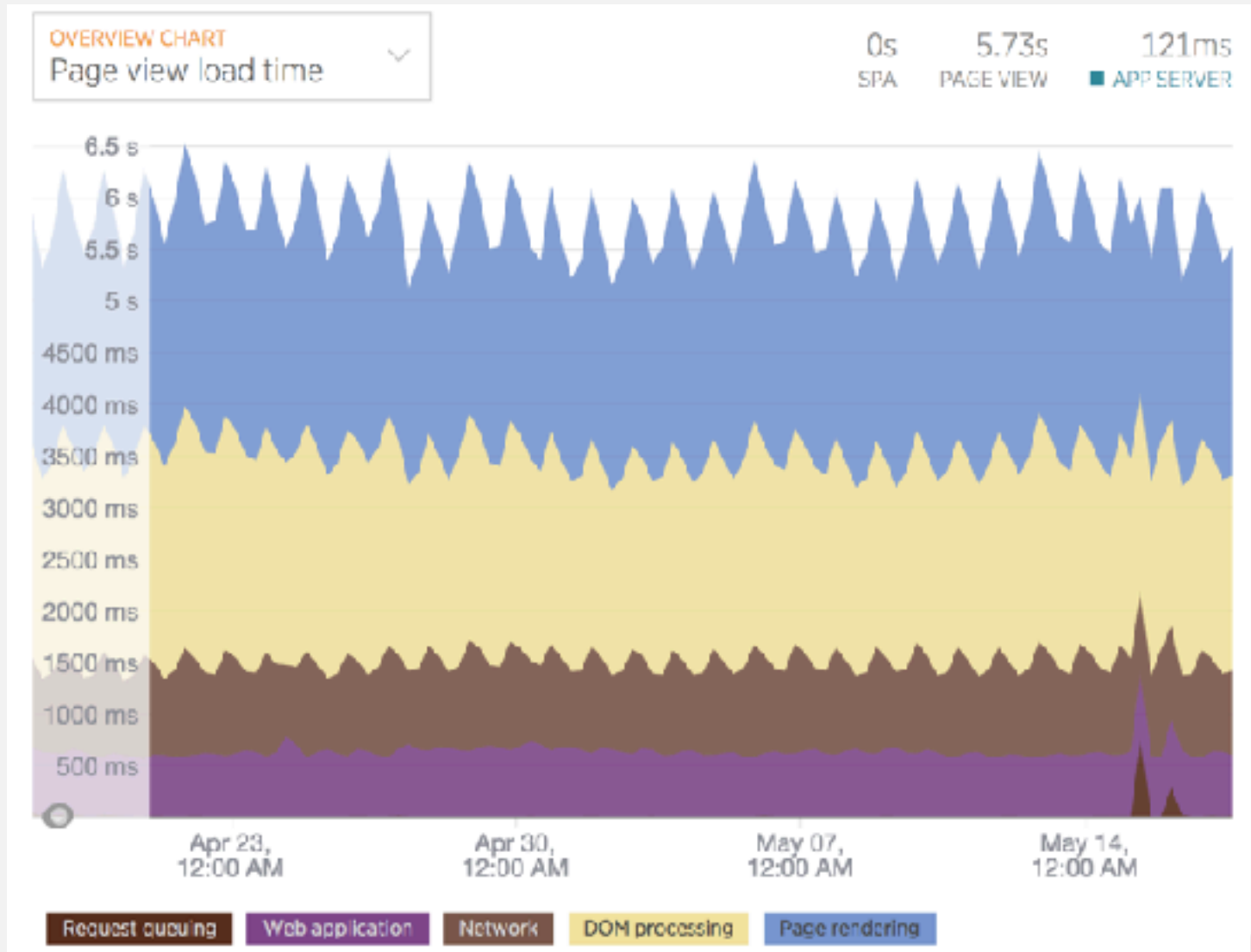
A light gray world map serves as the background. Two black-handled knives with silver blades are positioned on either side of the central text, pointing towards the center.

PAIN POINTS

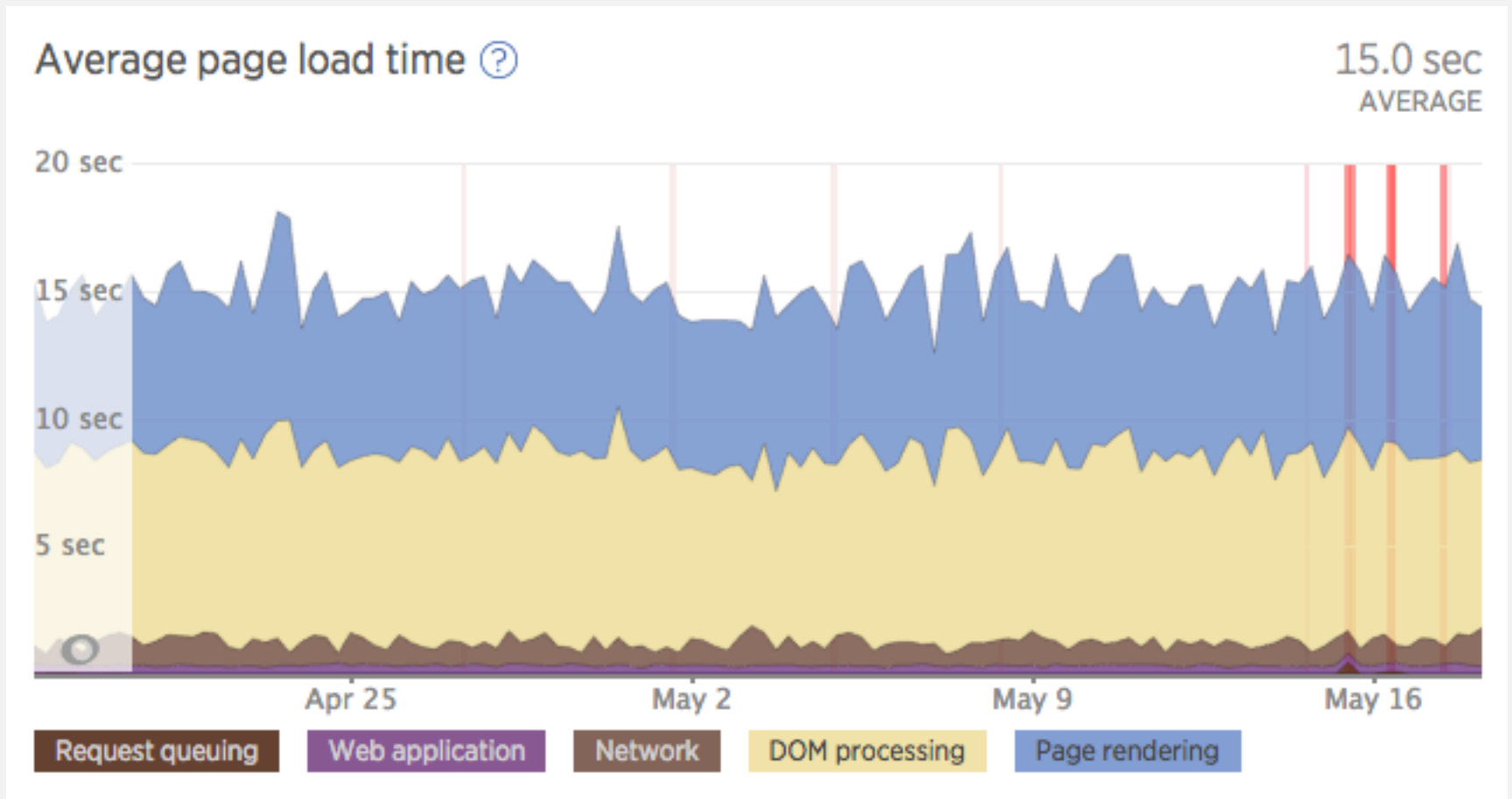
Performance

- Heavy page weight (static assets)
- Slow render time
- Much worse for mobile browsers or slow network connections

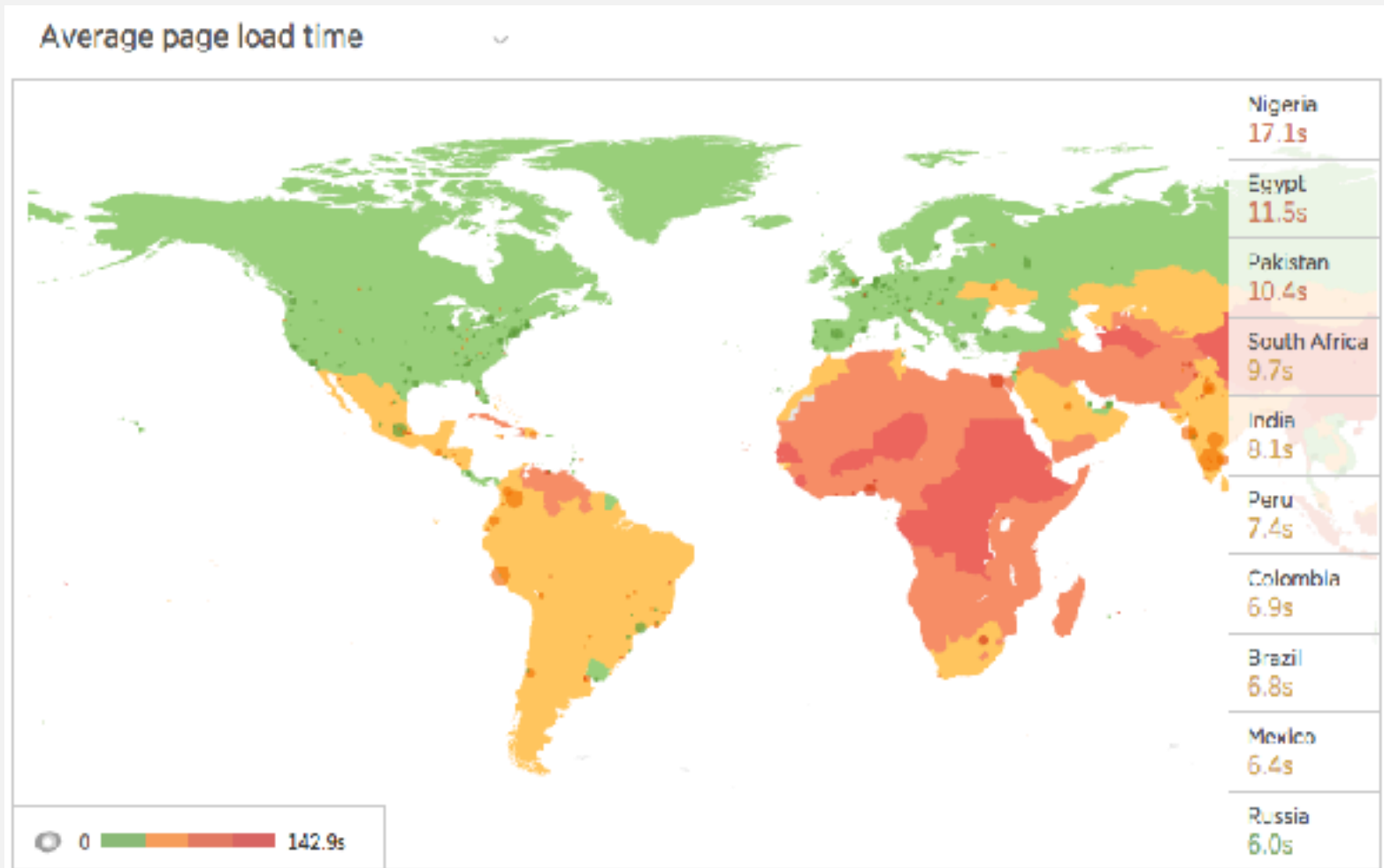
Performance



Performance (Mobile)



Performance (Geo)



Accessibility

- Solving for a11y requires domain knowledge, attention to detail, and extensive manual testing
- This overhead scales exponentially with code duplication

Accessibility

Reviewers

☒ @cptvitamin (Accessibility)

☐ @cchrens or someone else from T&I

@cptvitamin Have you seen this PR?

@cptvitamin Can you review the changes today?

@cchrens This is ready for the review.

@cptvitamin do you mind reviewing this from a11y standpoint?

@douglaschall perhaps you could review this from the WL stand

☐ @cchrens @cchrens

☒ Accessibility review: @cptvitamin

☐ @cchrens @cchrens

☐ Code review: two of @nasthagin @

☒ Accessibility review: @cptvitamin

@cptvitamin Any idea when you'll review this ?

I would also add @cptvitamin to a11y prs

@cptvitamin Can you have a look at the changes.

@cptvitamin would you mind giving this a quick spin

☒ @cptvitamin (Accessibility)

☐ @cchrens @cchrens (T&I)

Maintenance



Maintenance



As any codebase evolves, it becomes harder to grok in its entirety.



REMEDICATION



Goals

- Deliver an optimal experience for **all** users
- Develop with **maintenance in mind**
- Make it **easy** and **enjoyable** for developers to contribute to the Open edX frontend

CONSCIOUS DECOUPLING



Conscious Decoupling

- Separation of concerns: **data, logic, and appearance**
- Consistent, versioned integration points so each service can change independently
- Frontend as distributed system

Data

- Content of the UI
- Informs the **logic** layer
- Comes from server or user input
- Integration points: **web APIs, component parameters**

Logic

- Behavior and organization of the UI
- JS + HTML
- Must be **consistent, accessible**, and embody **best practices**
- Integration points: **web APIs, selectors**

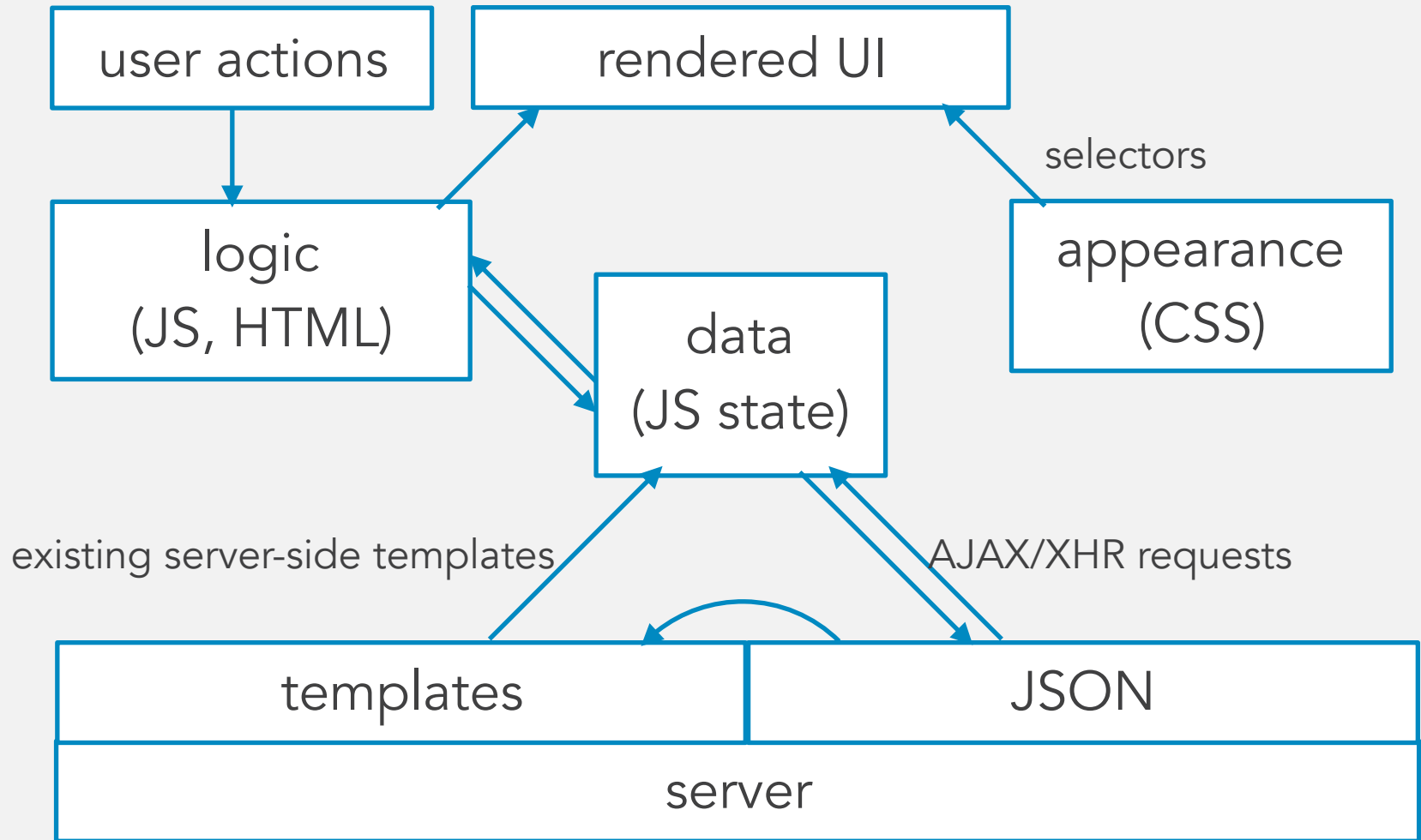


Appearance



- How the UI looks
- CSS + HTML
- Must be **extensible** and **receptive to theming**
- Integration point: **selectors**

All Together Now





NEW TECH

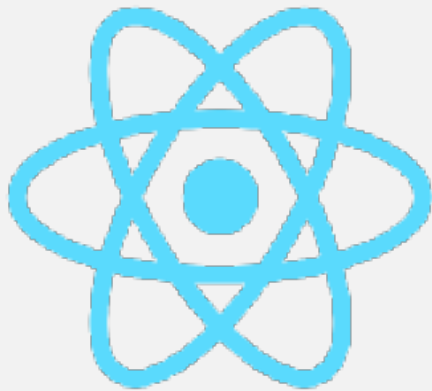


New Tech

ES2015



Bootstrap



React



webpack

Web Fragments

- Pluggable user interfaces via Django application
- Usable within edx-platform and XBlock implementations
- Approved via [OEP-12](#)

Asset Management

with

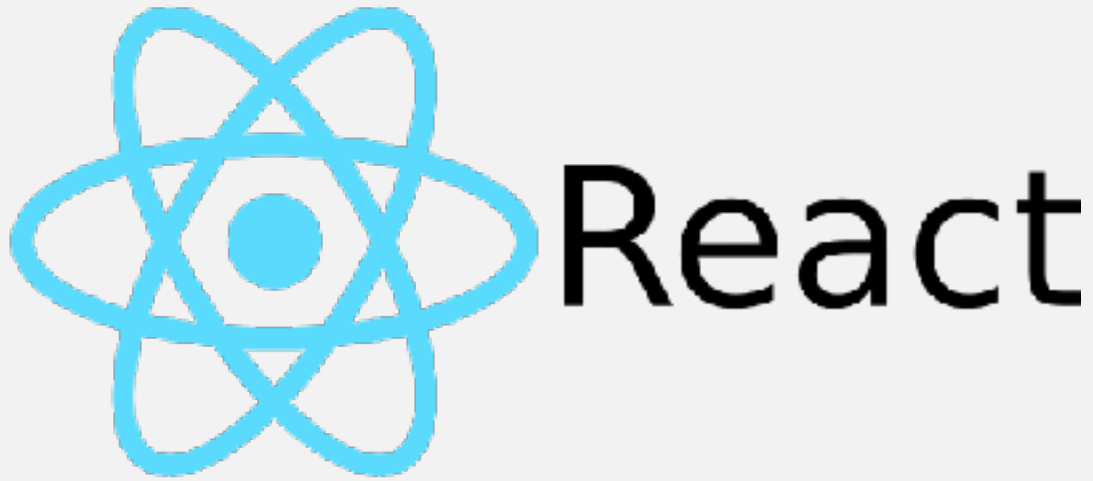


webpack

- Handles JS as well as SASS
- Not dependent on Django
- Enables modern ES2015 code via Babel

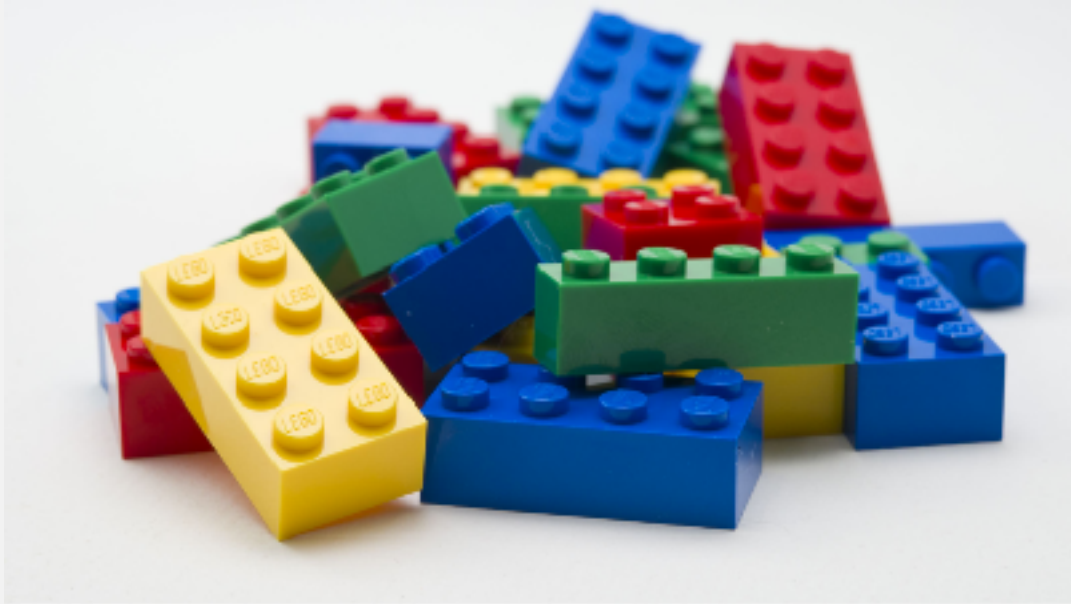


- Themeable, extensible CSS framework
- Version 4 (beta release coming soon)
- Approval in progress via [OEP-16](#)



- JS framework encouraging encapsulation and modularity
- Interoperates well with legacy code
- Approved for Open edX via [OEP-11](#)

Component Library



- Environment-agnostic chunks of UI
- Consistent markup, easy to style or theme
- Accessible functionality is baked in!

Get Involved

- [#front-end](#) in the Open edX Slack
- [edx-code](#) mailing list
- PRs always welcome
- Watch the OEP repo:
<https://github.com/edx/open-edx-proposals/>
- Come find us this week!

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