

Hi.

I am Mantas Indrašius

Wix Engineering Locations

Israel

Tel Aviv
Be'er Sheva

Lithuania

Vilnius

Ukraine

Dnipropetrovsk



Being Developer in The World of SDKs

We employ a wide stack of technologies

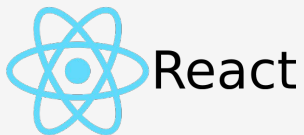
But our field of expertise is only limited to narrow set of SDKs



ES6
FOR EVERYONE



webpack
MODULE BUNDLER

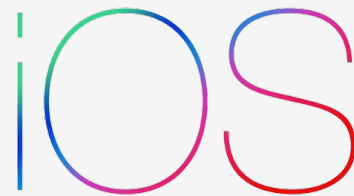
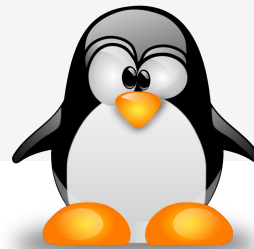


React

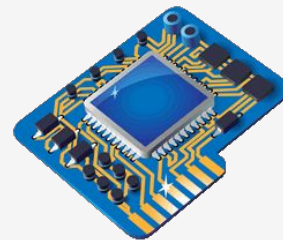
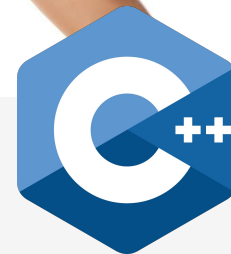


Jasmine





ORACLE®



01

The Use Case for a Product Startup

You want to build a product that people use & love

- People are On the Go
 - You want to have a mobile app.
- They are browsing the Web
 - It's the source of your transactions.
- Using desktop apps (Well, depending on use-case)
 - Native experience brings your product to the next level.
- Interacting in many ways
 - Businesses package & transfer information in countless ways.

What's the native stack?

Must have

- Browser: JavaScript & DOM
- Mobile: iOS, Android, Windows Phone

Optional

- Server: static HTML + API
- Desktop: Cocoa, Windows API / WPF, Countless frameworks in Linux
- Embedded systems: Flavours of Linux, .NET

So how many engineers do you
need to change a light bulb?

What's the native stack?

Must have

- Browser: JavaScript & DOM
- Mobile: iOS, Android, Windows Phone

Optional

- Server: static HTML + API
- Desktop: Cocoa, Windows API / WPF, Countless frameworks in Linux
- Embedded systems: Flavours of Linux, .NET

1

Implementation that describes your World

We have solutions for reuse!

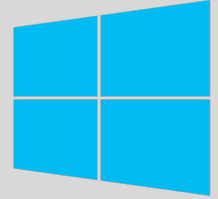
- Dumb client
 - Server rendered content is bad UX.
- C++!
 - Entry level is high and maintainability is hard.
- .NET
 - Standard Library is different for different mediums.
- Java
 - JVM is heavy and running in browser has already past.





JavaScript

Write once, run everywhere



And we need 1 perfect tool for us to present it

- This should be **Extensible**
- Highly **Composable**
- Providing **Native** experience
- Widely **Adopted**
- Well **Maintained**

Universal React

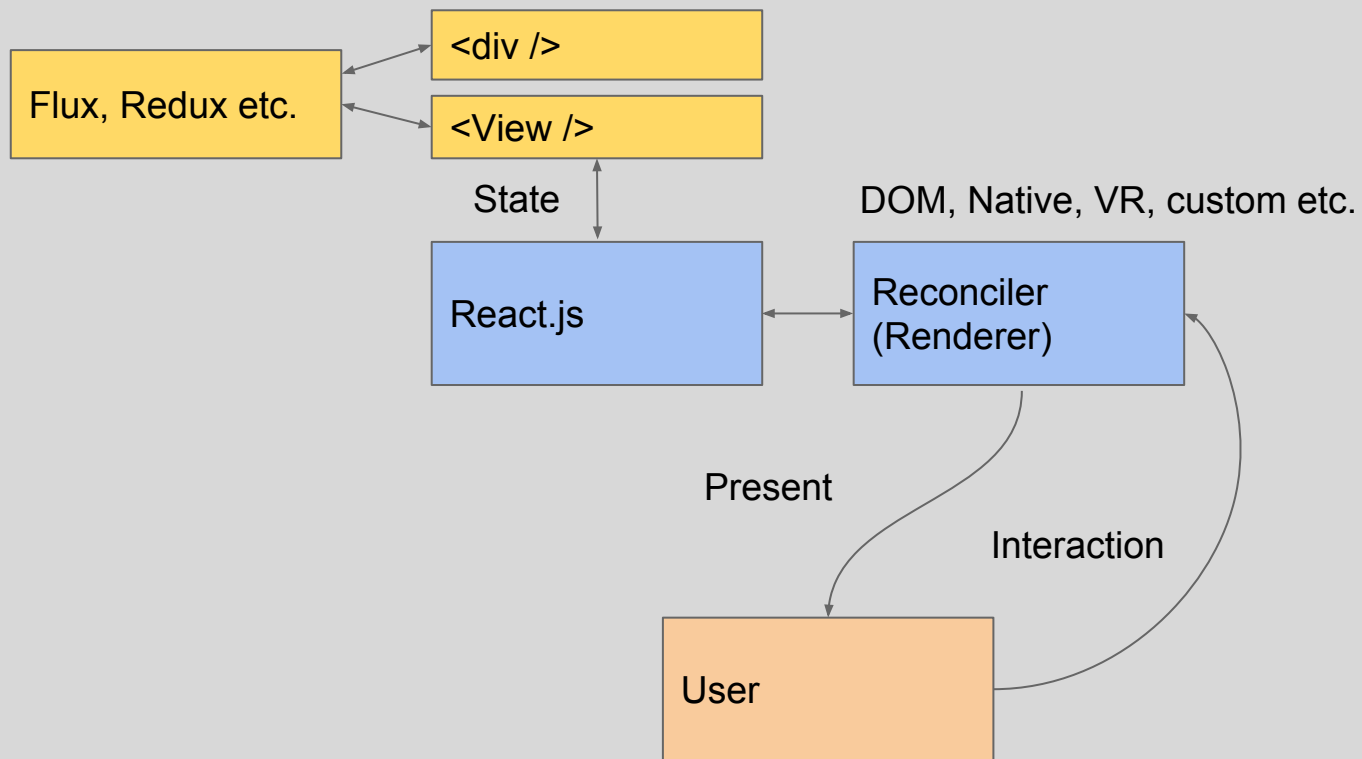
Why it's so cool?

- It is **Extensible**
- It is **Composable**
- Working on **Native**
- Widely **Adopted**
- Well **Maintained**
- **Rapid** development (think HRM for every medium)

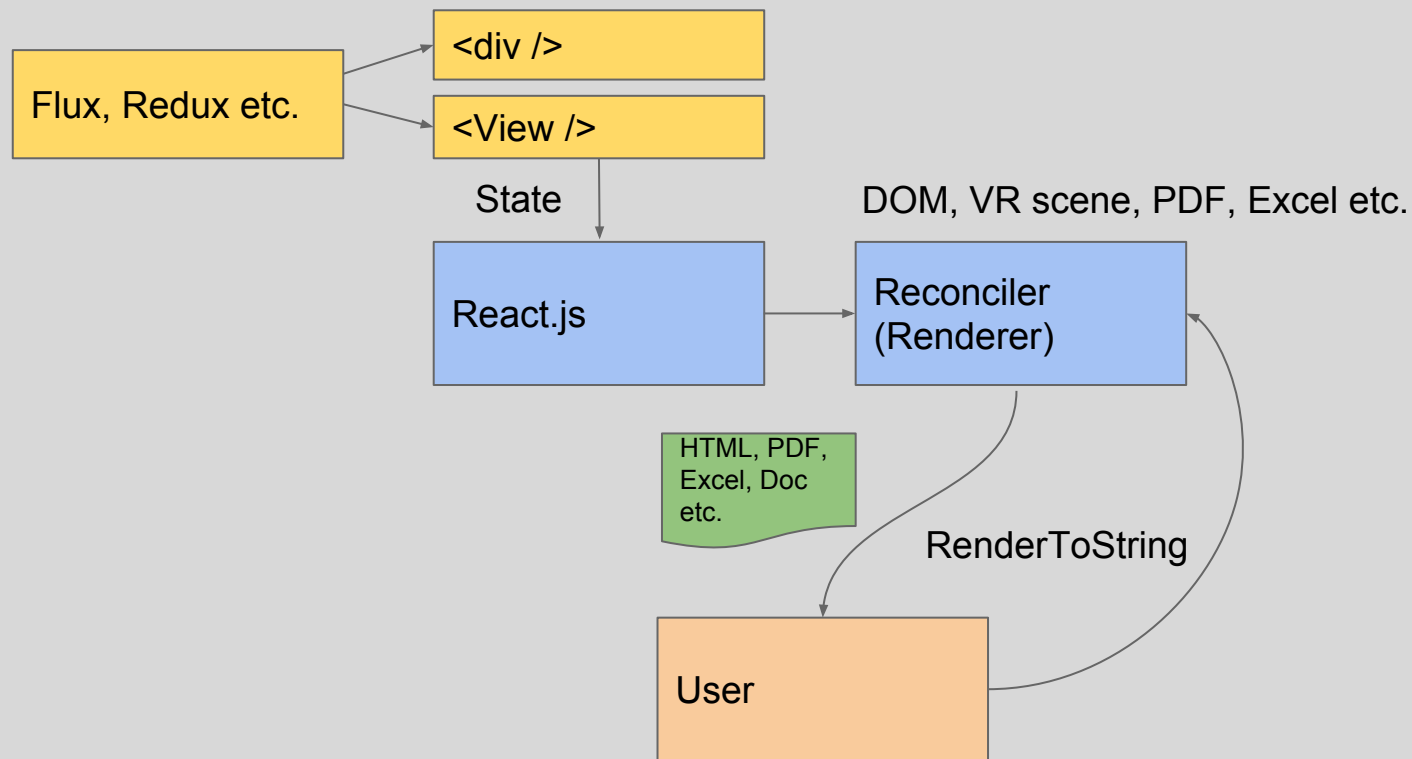
02

Architecture

Stateful application

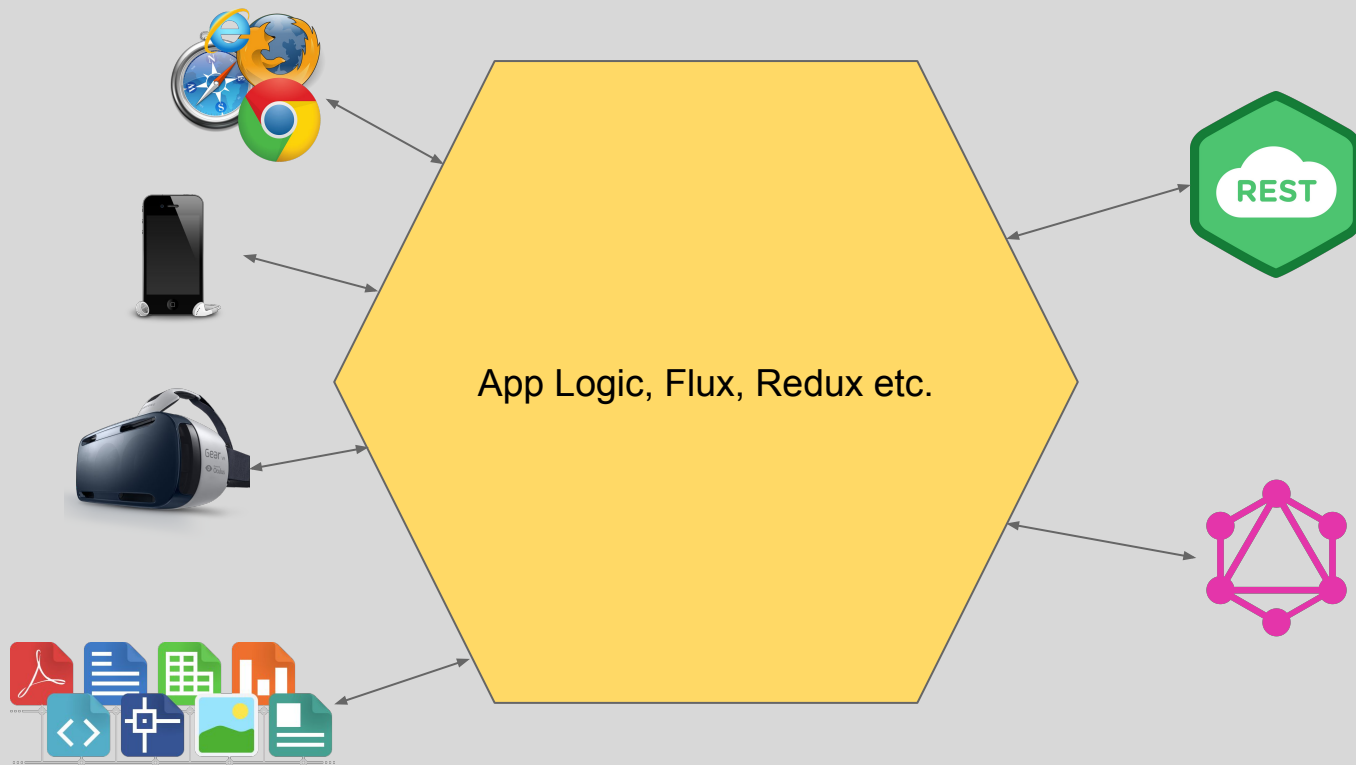


Exported View

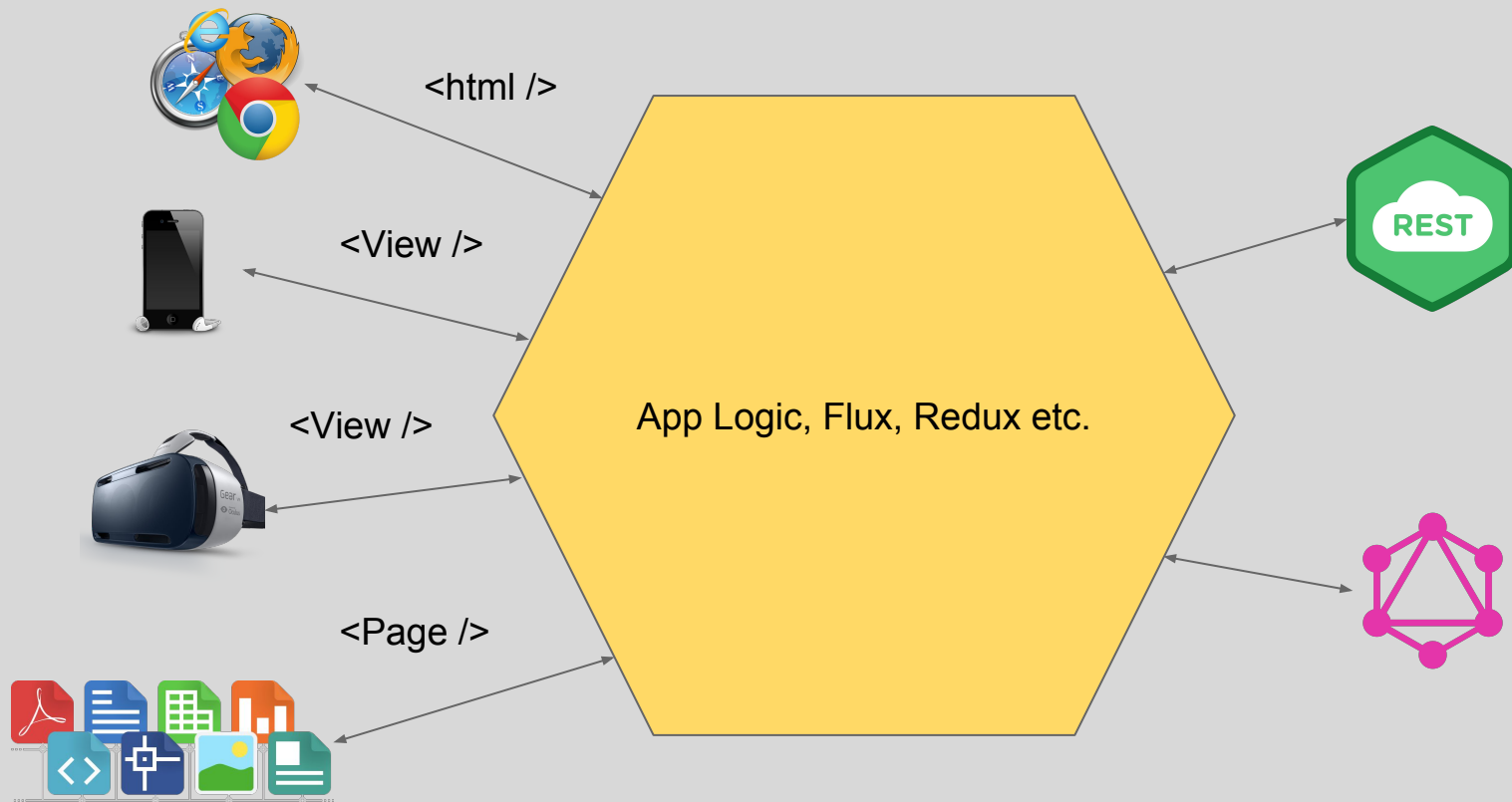


But wait, React is not a
template engine!

The Hexagon



The Hexagon



What's so cool about export?

- Same state
- Same stack
- Same tooling
- Same team
- Profit

03

React Ports beyond Web

React Native

- iOS, Android & Windows
- Native feel
- 1 developer for cross-platform
- Better async & state handling

```
render() {  
  var movie = MOCKED_MOVIES_DATA[0];  
  return (  
    <View style={styles.container}>  
      <Text>{movie.title}</Text>  
      <Text>{movie.year}</Text>  
      <Image source={{uri: movie.posters.thumbnail}} />  
    </View>  
  );  
}
```

Demo



Support

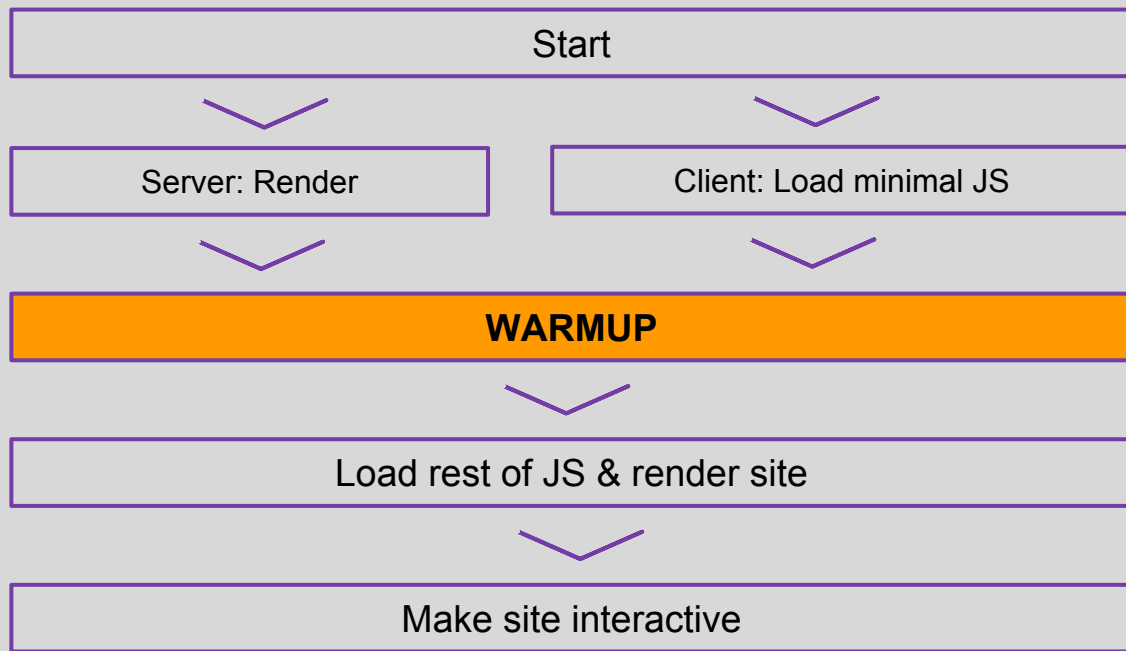
- Android & iOS (by Facebook)
- Windows / Windows Phone / XBox
- Cocoa (Mac OSX)
- Web!

React on WebServer

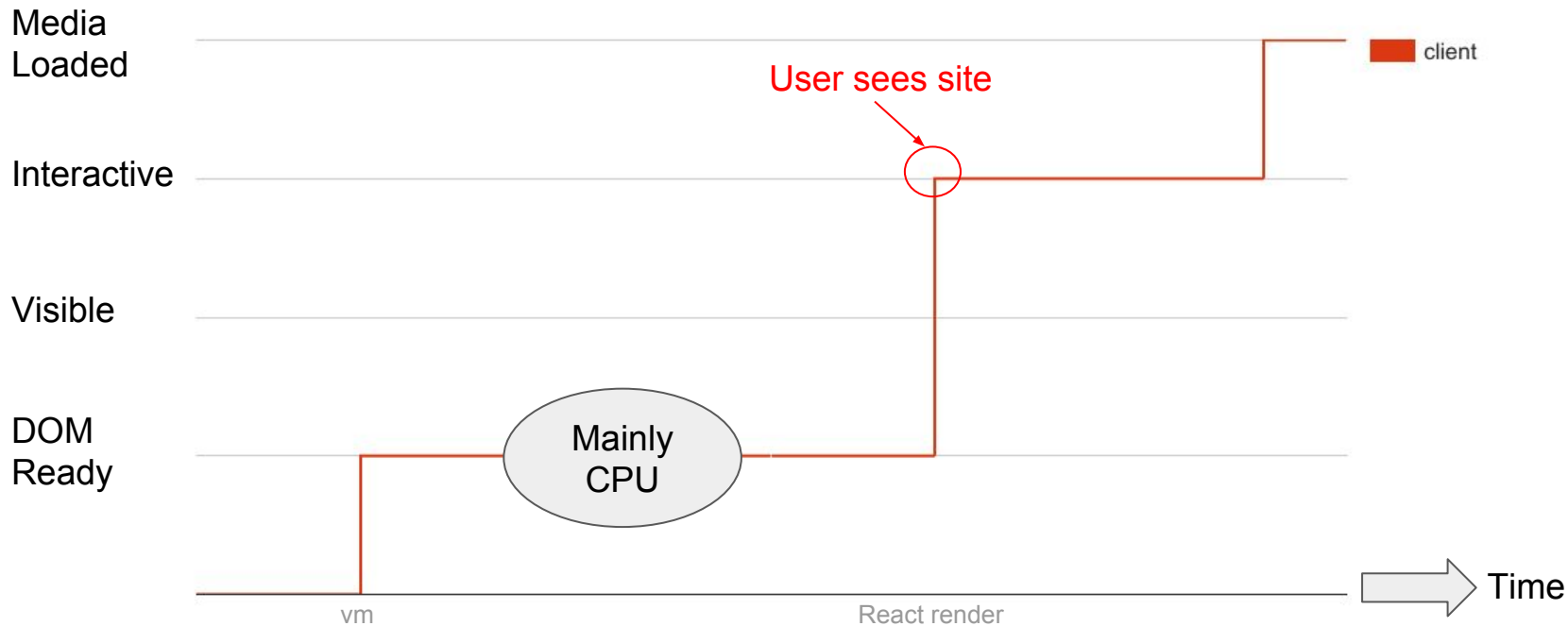
- Run whenever you find a js engine
- Node.js
- Nashorn @ JVM
- .NET
- ReactDOMServer.renderToStaticMarkup

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>Title of the document</title>
  </head>
  <body>
    Hello World
  </body>
</html>
```

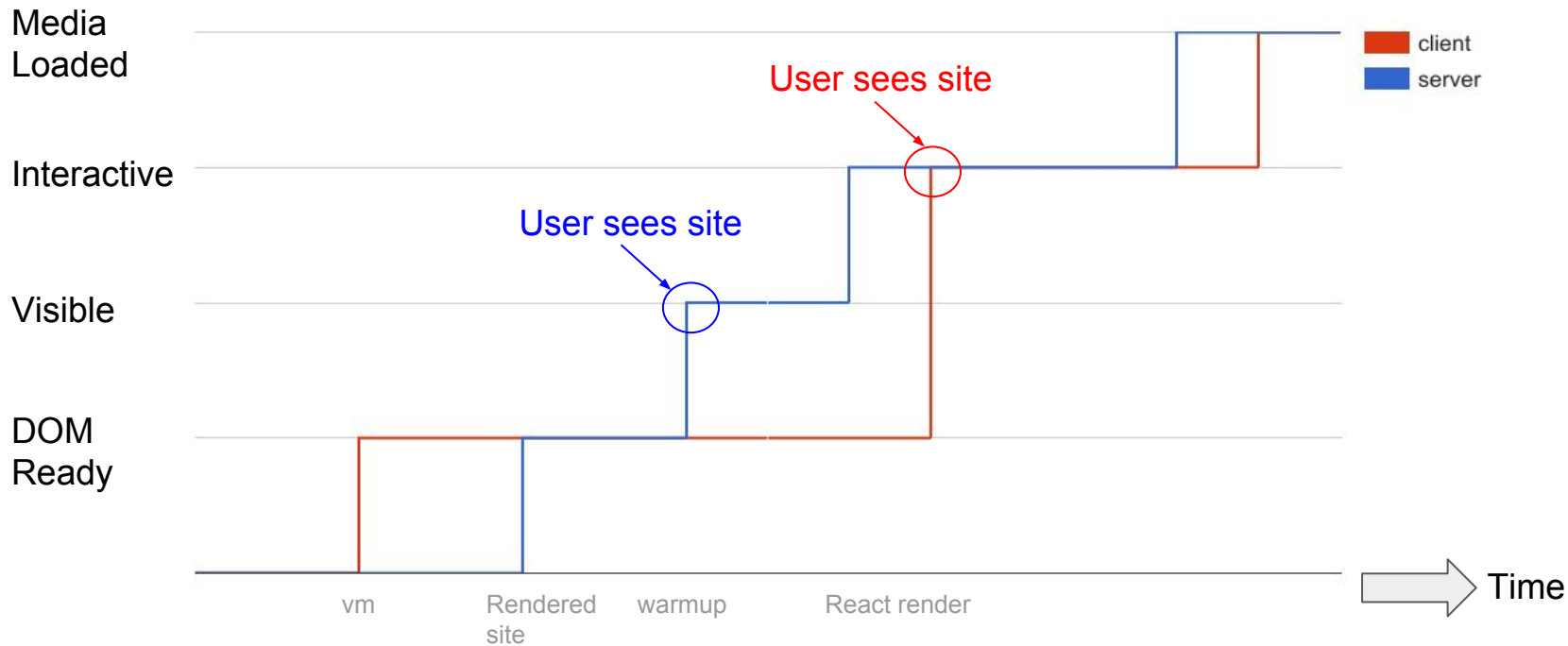
Server-side rendering



Client Rendering

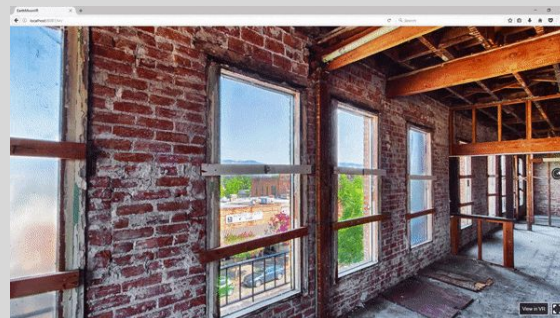
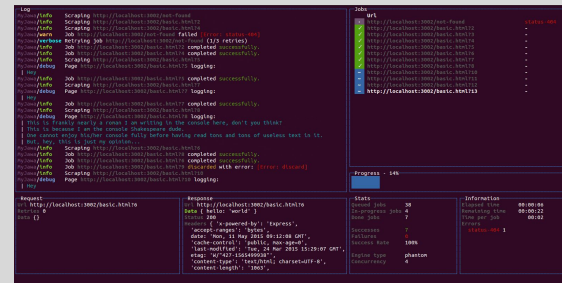
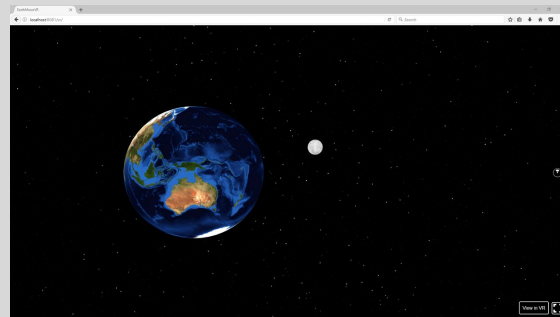


Server Rendering



Beyond Web & Apps

- React Blessed (Command line)
- React Hardware
- VR
- Drawing, 3D modeling
- Document rendering
- Well, anything you could think of



React for Blessed

- CLI interface

```
class Log extends Component {  
  render() {  
    return (  
      <box label="Log"  
        class={stylesheet.bordered}  
        width="60%"  
        height="70%"  
        draggable={true}>  
        {'Hello'}, {0}, {'World'}  
      </box>  
    );  
  }  
}
```

React for Blessed

Log

```
MyJawa/info Jawa starting...
MyJawa/info Scraping http://localhost:3002/basic.html?3
MyJawa/debug Page http://localhost:3002/basic.html?3 error:
| Error: Custom error message
MyJawa/info Job http://localhost:3002/basic.html?3 completed successfully.
```

Jobs

Url

```
~ http://localhost:3002/not-found -
~ http://localhost:3002/basic.html?2 -
✓ http://localhost:3002/basic.html?3 -
~ http://localhost:3002/basic.html?4 -
~ http://localhost:3002/basic.html?5 -
```

Progress - 2%

Request

```
Url http://localhost:3002/basic.html?3
Retries 0
Data {}
```

Response

```
Url http://localhost:3002/basic.html?3
Data [ 'http://nicesite.com',
  'http://awesomesite.com',
  'http://prettysite.com',
  'http://unknownsite.com' ]
Status 200
Headers { 'x-powered-by': 'Express',
  'accept-ranges': 'bytes',
  date: 'Mon, 11 May 2015 09:12:04 GMT',
  'cache-control': 'public, max-age=0',
  'last-modified': 'Tue, 24 Mar 2015 15:29:07 GMT',
```

Stats

```
Queued jobs 45
In-progress jobs 4
Done jobs 1

Successes 1
Failures 0
Success Rate 100%

Engine type phantom
Concurrency 4
```

Information

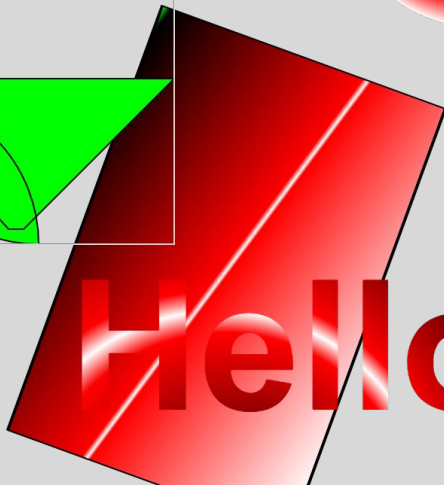
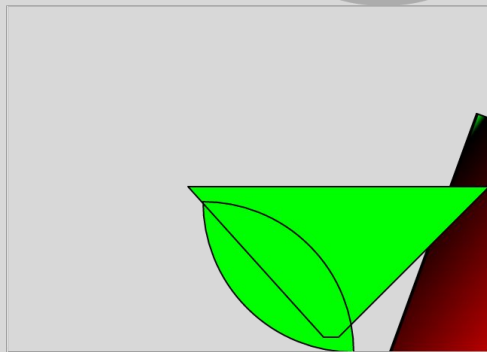
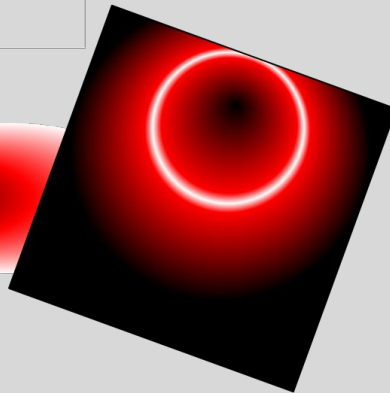
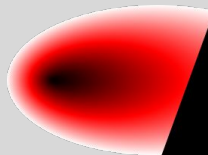
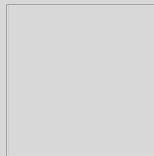
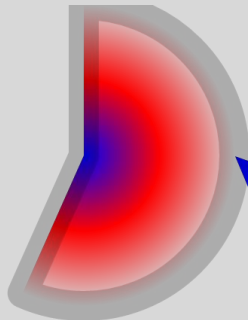
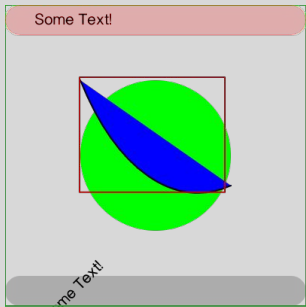
```
Elapsed time 00:00:02
Remaining time 00:00:21
Time per job 00:02
Errors
```

React ART

- Drawing
- Animation

```
render: function() {  
  return (  
    <div>  
      <Surface  
        width={500}  
        height={500}  
      >  
        <Group x={50} y={45}>  
          {this.getPie()}  
        </Group>  
      </Surface>  
    </div>  
  )  
}
```

React ART



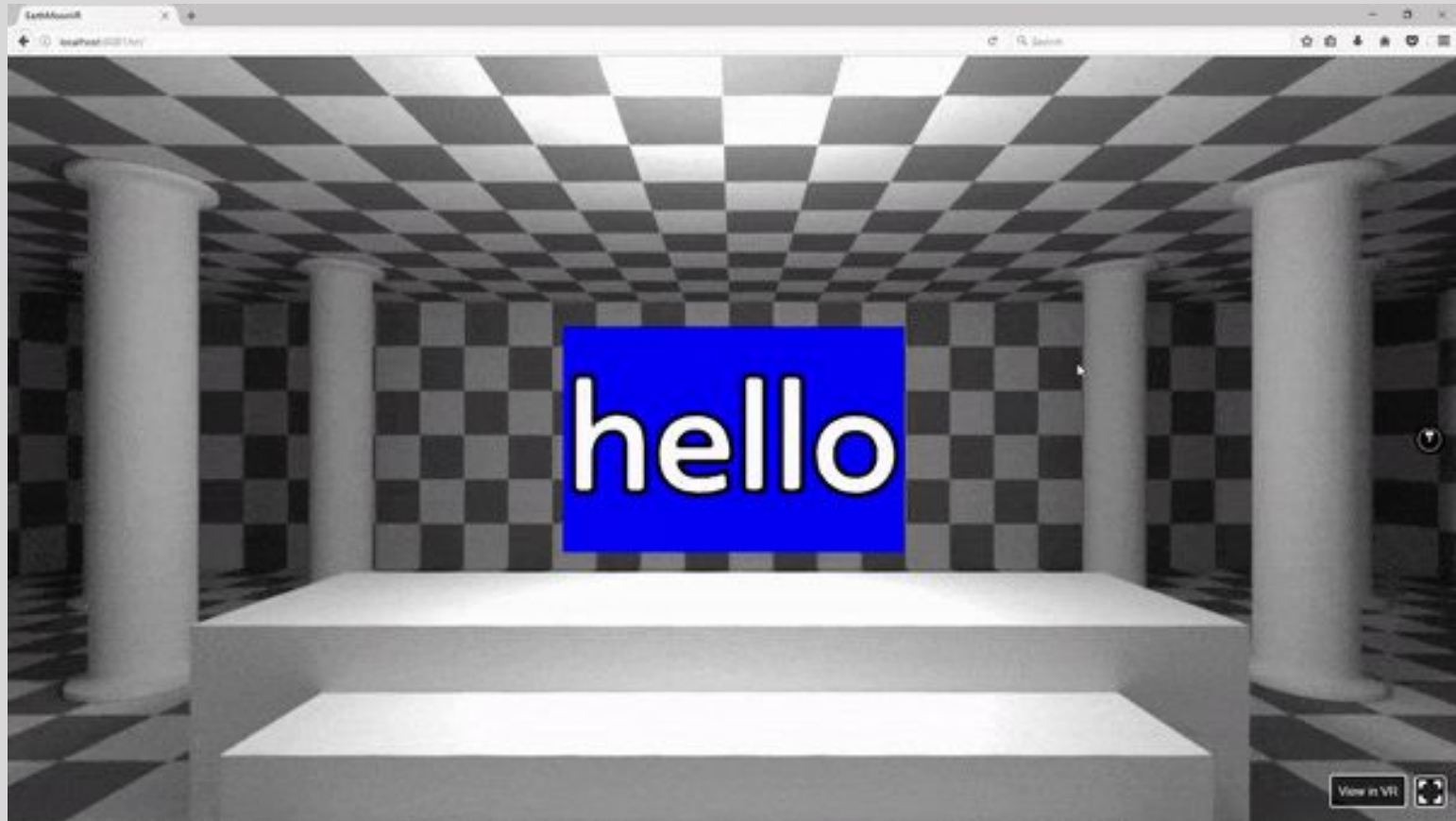
Hello

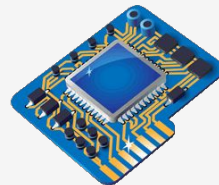
React VR

- UI for VR devices

```
class ChessWorldVR extends React.Component {  
  render() {  
    return (  
      <View>  
        <Pano source={asset('chess-world.jpg')}/>  
        <Text  
          style={{  
            backgroundColor: 'blue',  
            padding: 0.02,  
            textAlign: 'center',  
            textAlignVertical: 'center',  
            fontSize: 0.8,  
            layoutOrigin: [0.5, 0.5],  
            transform: [{translate: [0, 0, -3]}]},  
        >>  
        hello  
      </Text>  
    </View>  
  );  
}
```

React VR

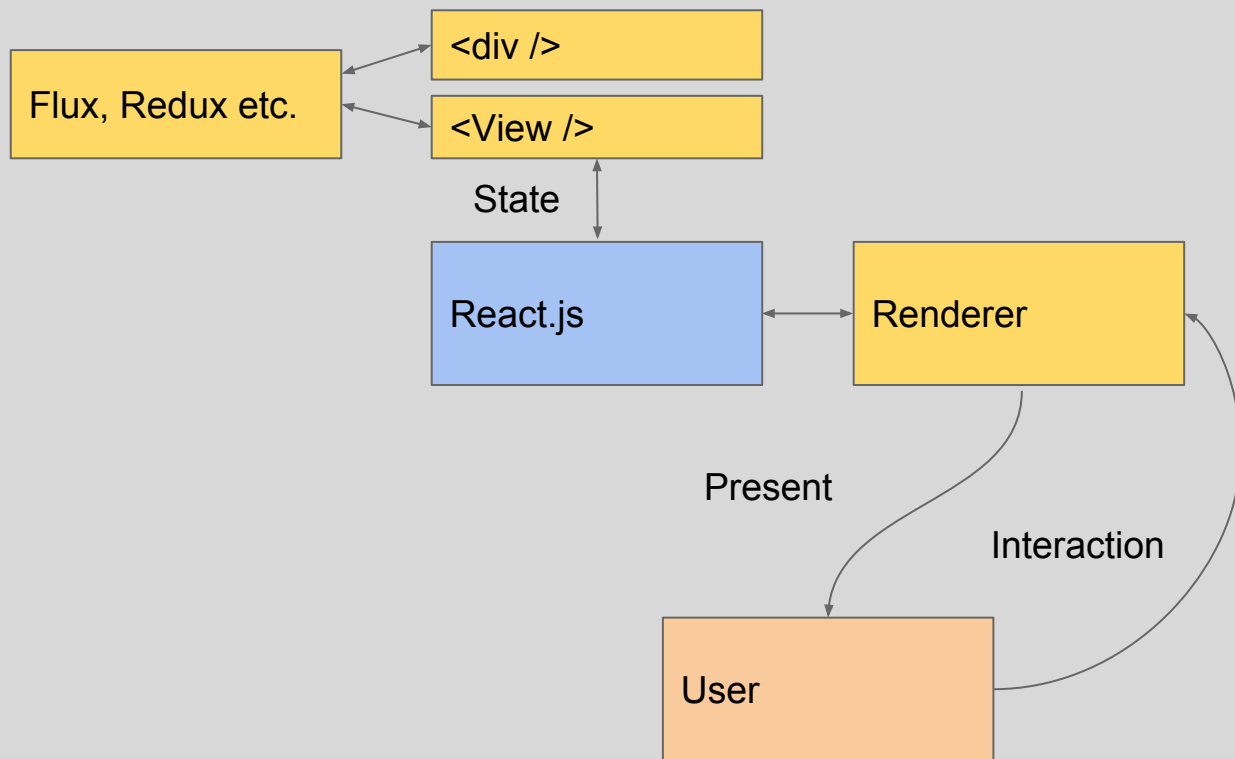




04

Custom Renderers

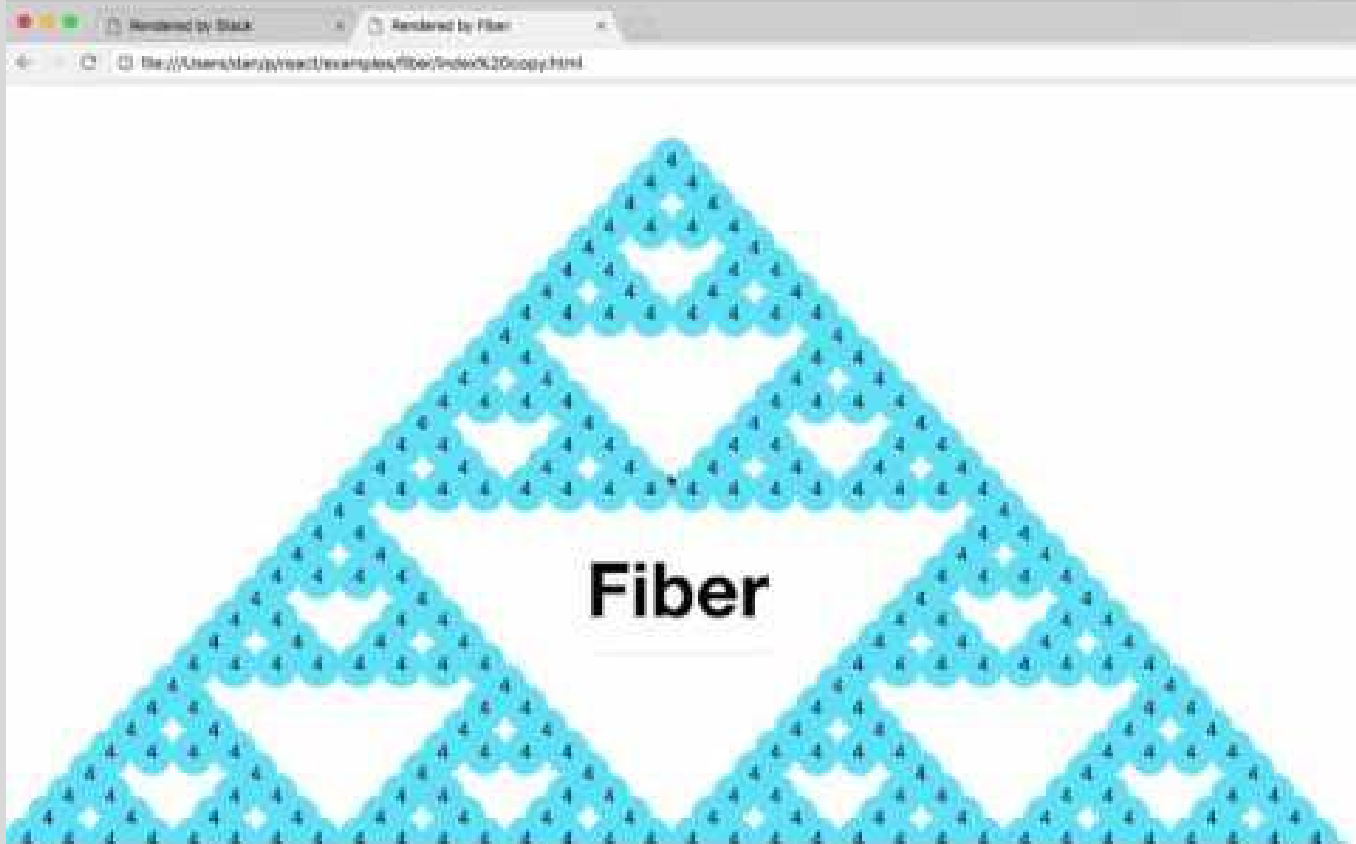
Stateful application



Show the Code

React Fiber

- Cleaner & easier API for renderers
- Re-write of React
- Rendering is done in stages
- Optimized over idle periods of the UI thread
- 16.0.0-alpha





- Great software is scalable
- Don't duplicate your business logic
- Cross-platform is hard
- So let's make it easy
- React is great
- Tweak it!

Thank You



mantasi@wix.com



[linkedin/mantasindrasius](https://www.linkedin.com/company/mantasindrasius)



github.com/mantasindrasius

Testing

React Universe

- PDF <https://github.com/diegomura/react-pdf>
- Hardware <https://github.com/iamdustan/react-hardware>
- 3D scene <https://github.com/lzzimach/react-three>
- Unreal motion graphics <https://github.com/drywolf/react-umg>
- React presentation <https://panpan-lin.github.io/react-presentation/#/4/6>
- Canvas <https://github.com/Flipboard/react-canvas>
- Blessed <https://github.com/Yomguithereal/react-blessed>
- Electron <https://github.com/mhink/react-ionize>
- X11 <https://github.com/sidorares/react-x11>
- VR <https://github.com/facebook/react-vr>
- A frame VR <https://github.com/aframevr/aframe-react>

Compose Different React renderers

References

<https://www.toptal.com/react/how-react-components-make-ui-testing-easy>

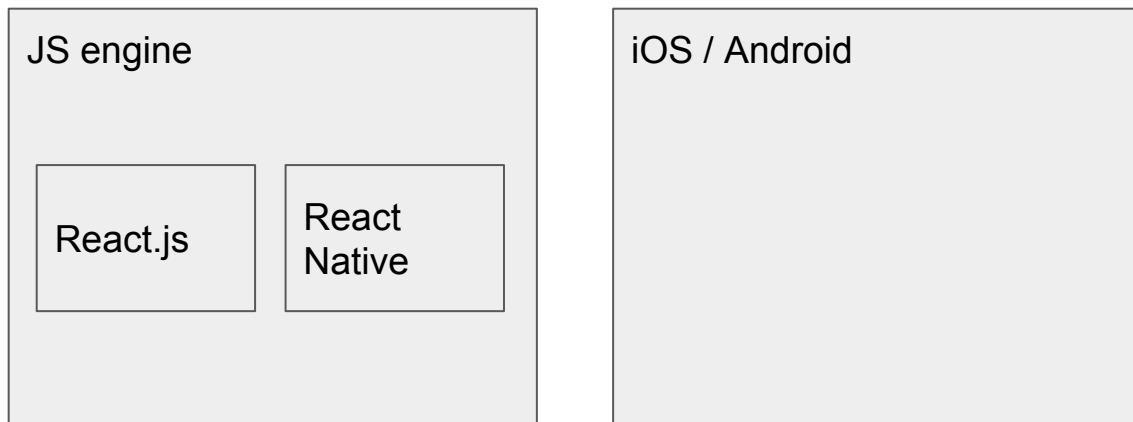
<https://github.com/LeuisKen/react-collection/blob/master/ebooks/Hacking.with.React.pdf>

<https://goshakkk.name/react-custom-renderers/>

Netflix <https://www.youtube.com/watch?v=eNC0mRYGWgc>

React Fiber <https://www.youtube.com/watch?v=ZCuYPiUIONs>

React Native Architecture



Bridged React Native

