探索 React 生态圈

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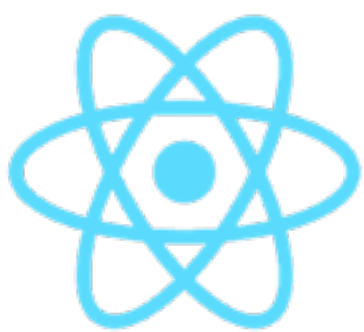
strikingly

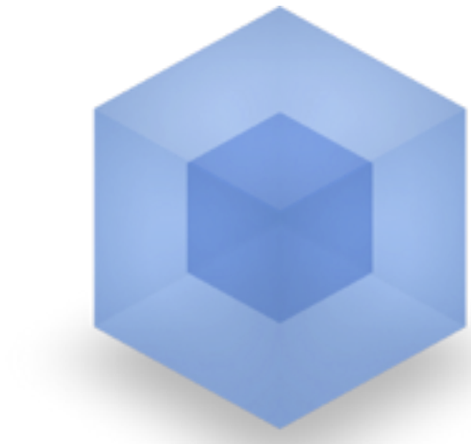
THE EASIEST EDITOR POSSIBLE

BEAUTIFUL MOBILE SITES



GraphQL

Relay



webpack
MODULE BUNDLER

你们城里人真会玩

you city people play well

本质原因是什么?

前端正面临着前所未有的工程化挑战

React 生态圈

- 目标平台
- 数据处理
- 语言

目标平台

React 生态圈

Brief History

- 服务器渲染
- 客户端渲染

目标平台

- 浏览器作为唯一目标平台
- 首次打开速度
- SEO
- Twitter 11 年时甚至重回服务器渲染方案

目标平台：前端+后端（同构）

Virtual DOM = UI虚拟机

目标平台： iOS & Android

React Native

目标平台： iOS & Android

- Facebook Ads Manager
  - 85% 代码重用

目标平台：TUI

Left File Command Options Right

/Users/azproduction/Projects/my/node-mc

Name	Size	Modify time
/..	340	Jun 05 15:45
/assets	136	Jun 24 15:20
/bin	102	Jun 05 12:13
/client	170	Jun 24 15:20
/lib	170	Jun 24 15:20
/node_modules	1870	Jun 24 15:44
/server	238	Jun 24 15:20
/shared	136	Jun 24 15:20
AUTHORS	36	May 19 19:07
CHANGELOG.md	35	May 19 19:07
CONTRIBUTION.md	1141	May 19 19:07
LICENSE	1101	May 19 19:07
package.json	2495	Jun 24 15:44
README.md	1279	Jun 24 15:20
webpack.config.dev.js	316	Jun 24 15:20

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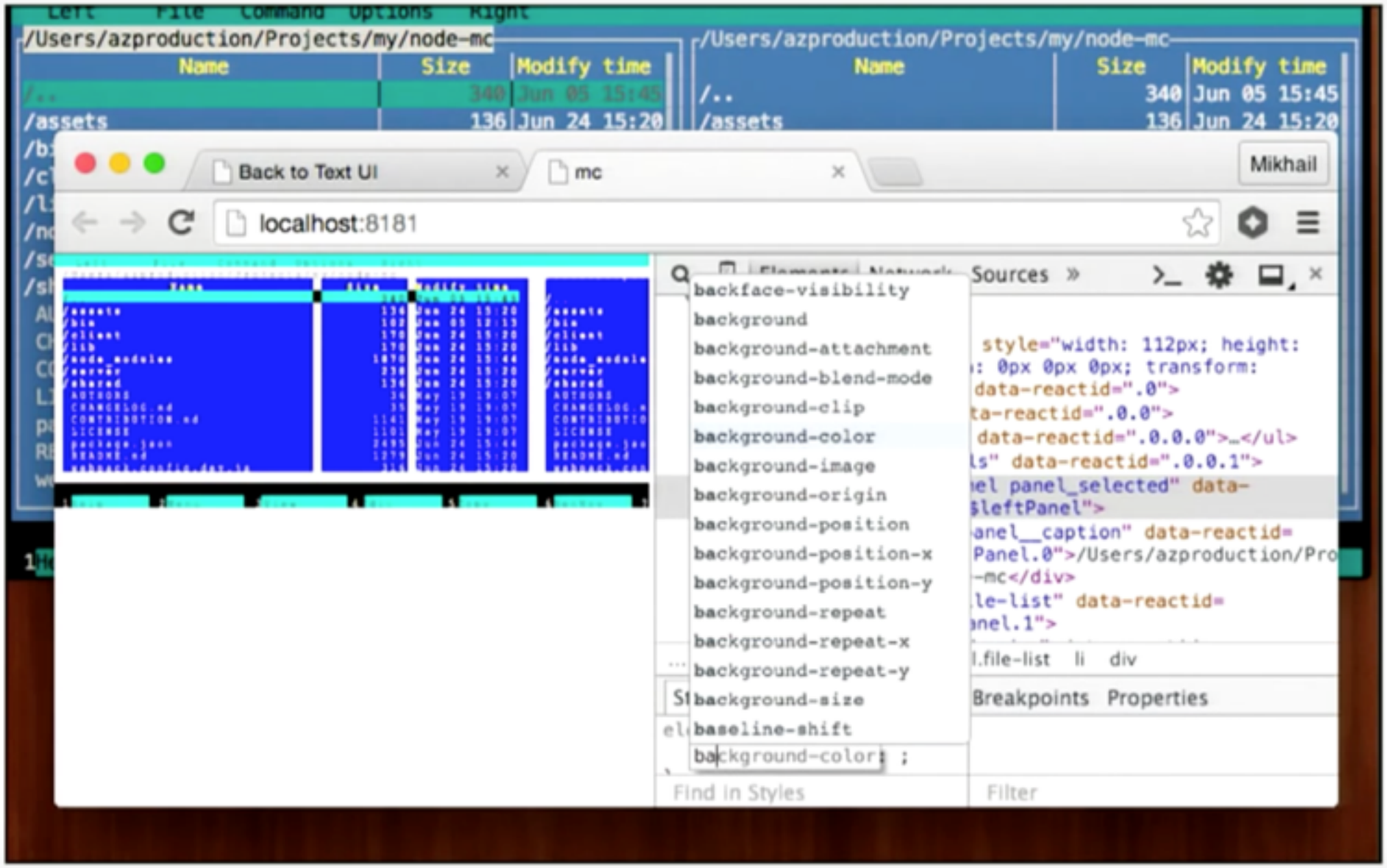
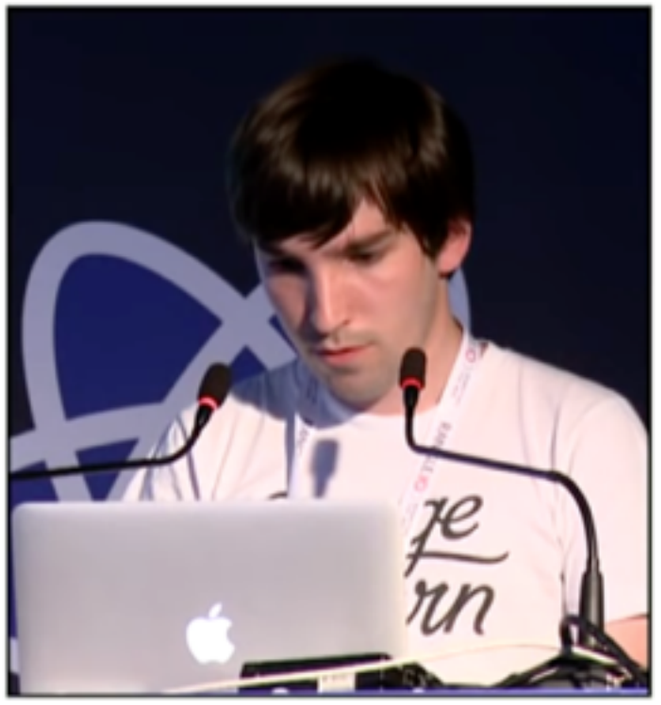
1Help 2Menu 3View 4Edit 5Copy 6RenMov 7Mkdir 8Delete 9PullDn 10Quit

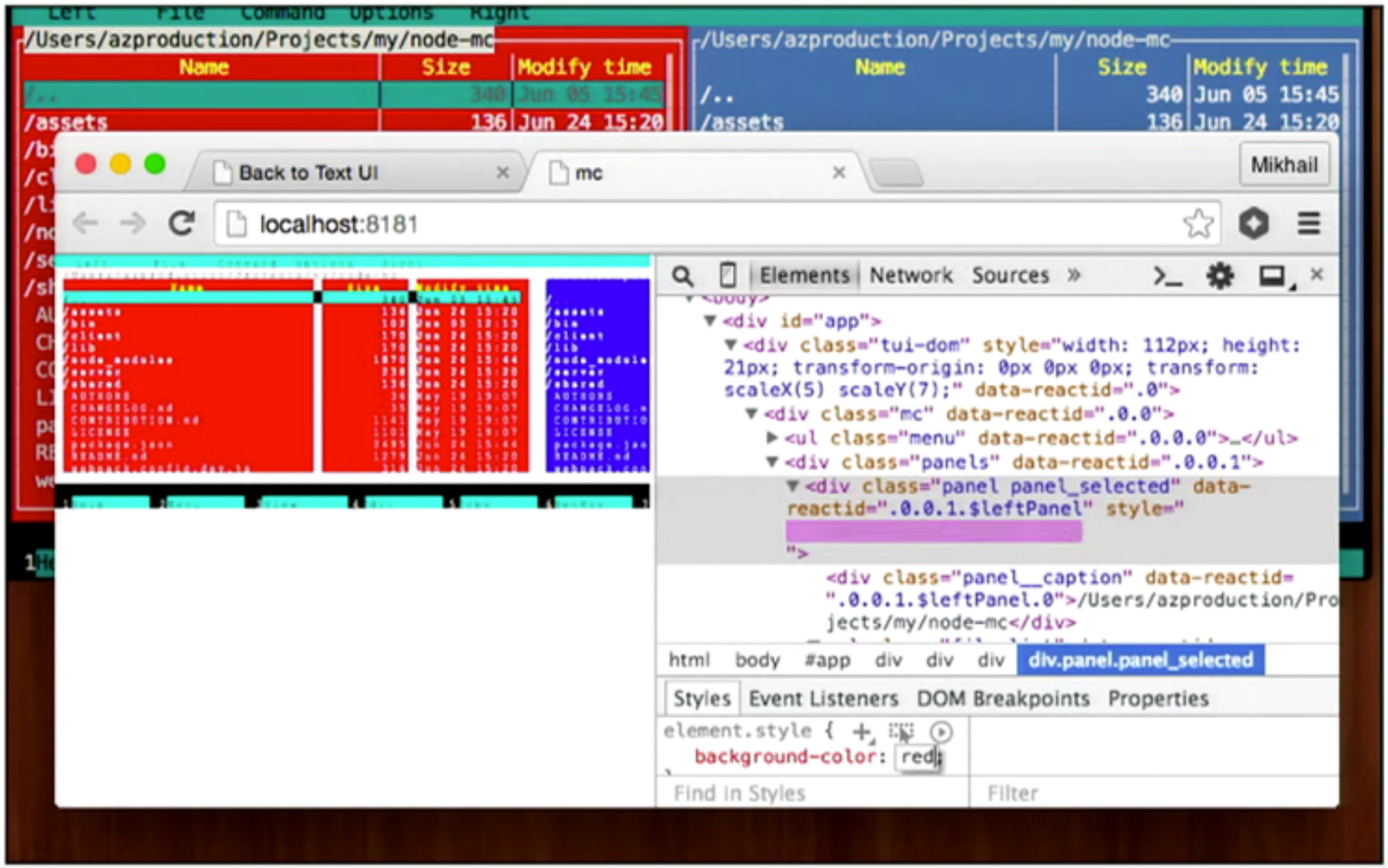
RANGLE.IO

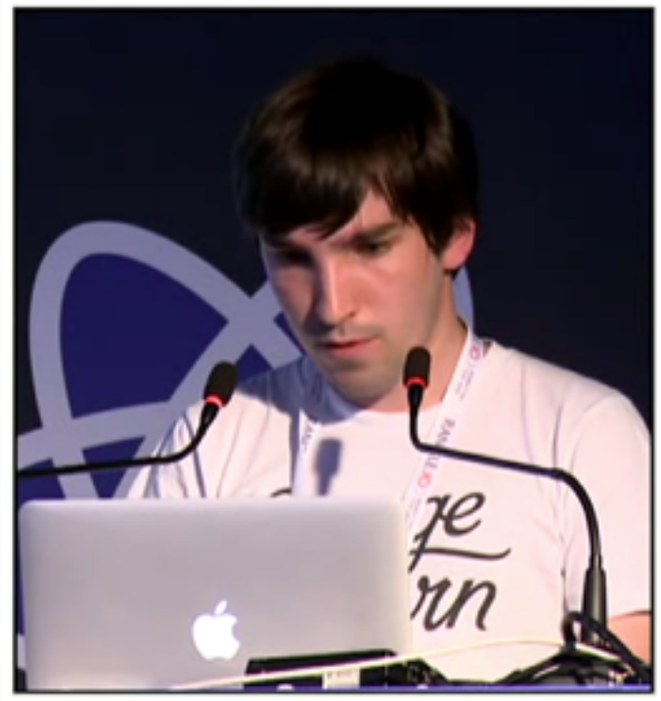
REWRITING THE WEB





RANGLE.IO
REWRITING THE WEB





RANGLE.IO
REWRITING THE WEB

其他平台

- TUI
- React canvas
- React three (3D)
- React art

多目标平台

- Virtual DOM = UI虚拟机
- 目标平台不再只是浏览器
  - 解决首次打开速度和 SEO 问题
  - 其他客户端成为可能性

想想都有点小激动

Excited!

数据处理

React 生态圈

数据处理

- Flux
- GraphQL / Relay

GraphQL

What is this?

GraphQL是RESTful API之外的另一个选择，在某些情况下，是更好的选择。

REST API 的问题

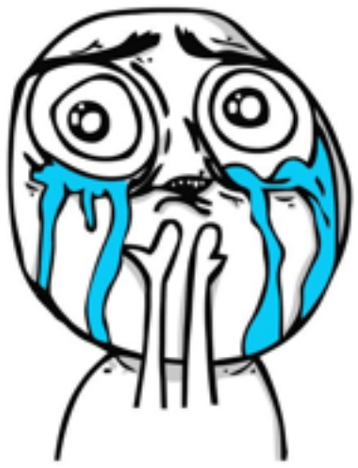
- 两个分开的请求
  - /api/v1/site/{id}
  - /api/v1/site/{id}/analytics

REST API 的问题

- Custom endpoint：/api/v1/site_info/{id}
  - 各种资源的组合，不好维护
- Over-fetching
  - iOS 客户端只需要部分信息（粒度不同）
- 客户端版本问题

每次需求的变更

都需要后端修改



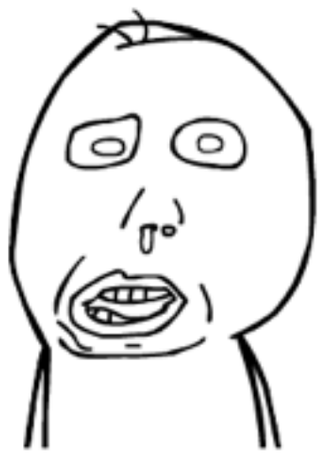
"The REST interface is designed to be efficient for ***large-grain*** hypermedia data transfer..."

- Dr Roy T Fielding, Author of REST

REST更适用于大粒度数据场景

不同的UI设计和需求导致了对数据有更小粒度控制的需求。

GraphQL是RESTful API之外的另一个选择，在对数据有更小粒度控制需求的时候，是更好的选择。



GraphQL at Facebook

- 3 years

- 26 billion request / day

GraphQL Client-side

- GraphQL as a unified query interface - only 1 endpoint
- Describe the shape of the data

GraphQL Query

Code

```
{
  user(id: 3500401) {
    id,
    name,
    isViewerFriend,
    profilePicture(size: 50)  {
      uri,
      width,
      height
    }
  }
}
```

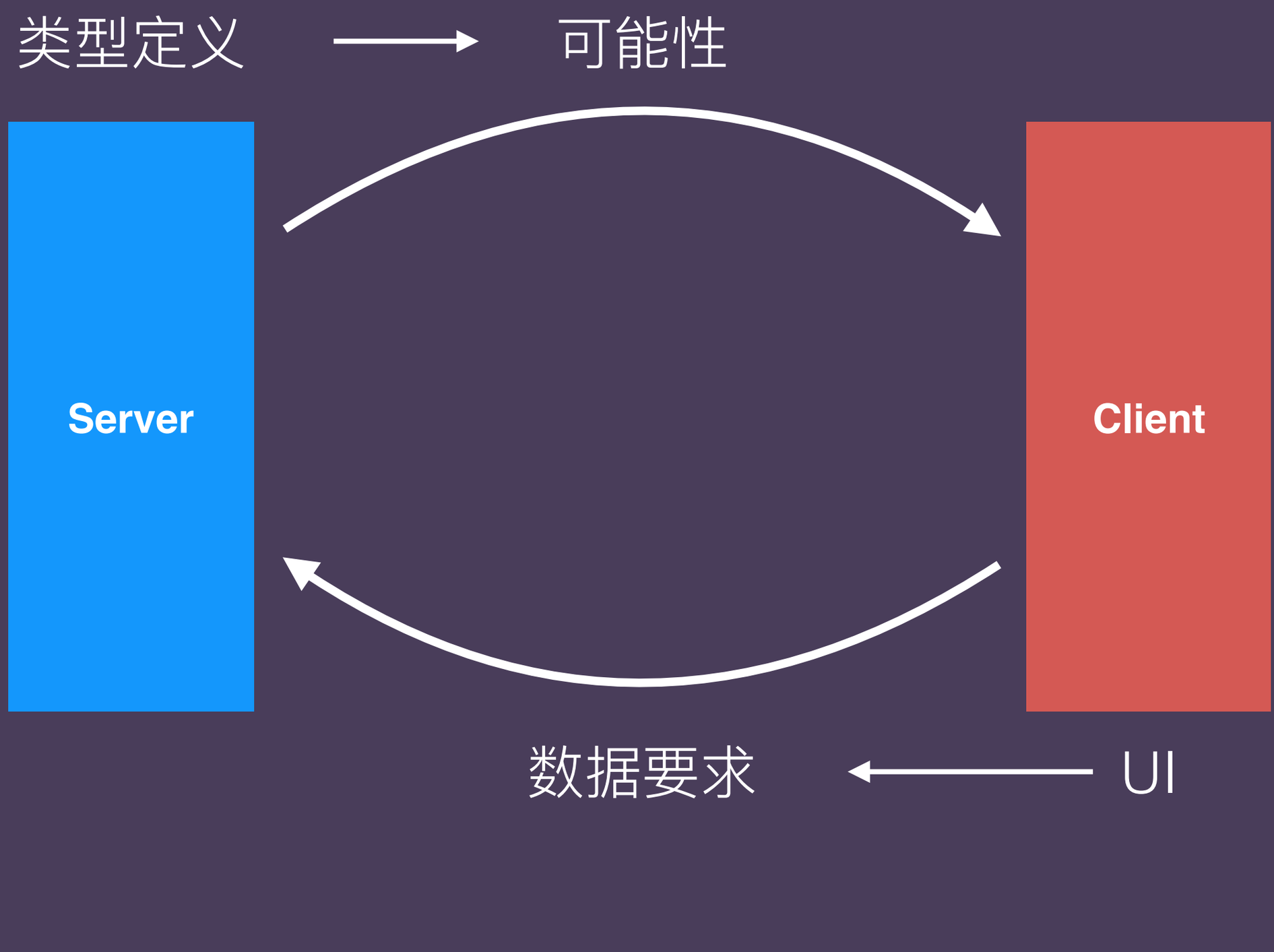
JSON Response

Code

```
{
  "user" : {
    "id": 3500401,
    "name": "Jing Chen",
    "isViewerFriend": true,
    "profilePicture": {
      "uri": "http://someurl.cdn/pic.jpg",
      "width": 50,
      "height": 50
    }
  }
}
```

GraphQL Server-side

Big Picture 逼格图



REST API 的问题都被解决了

- Custom endpoint
- Over-fetching
- 客户端版本问题

每次需求的变更

不需要后端修改

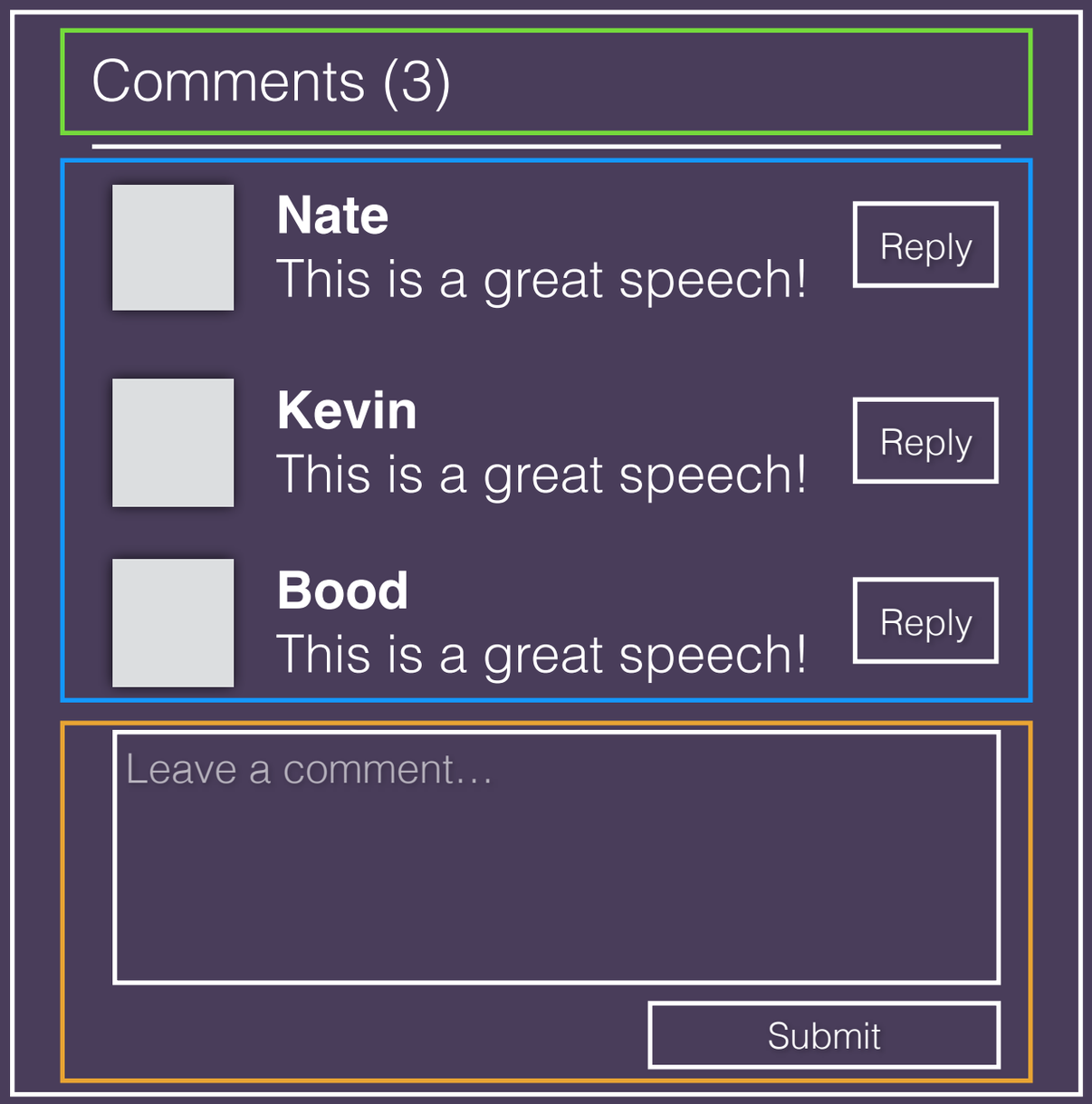
Relay

Using GraphQL in React

Component

- Component is at the core of React
- Reusing any component, we are reusing
  - HTML - React
  - Javascript - React
  - CSS - Maybe React?
  - Data - Relay

Relay




```
<CommentBox>
    <Header />  GraphQL Query
    <CommentList />  GraphQL Query
    <SubmitForm />
</CommentBox>
```

Relay

- Co-locate data definition with React component
- Using GraphQL to describe the data
- Automatically batch and fetch the data for you

Other solutions

- Relay + GraphQL
- Falcor + JSONGraph
- Om Next
- Meteor

语言

React 生态圈

语言

- Node.js
  - CommonJS
  - NPM
- ES6

Immutable.js

```
var obj1 = {
  val1: 1,
  val2: 2
}
var obj2 = obj1
obj2.val1 = 2

obj1 === obj2 // true
```

```
var obj1 = Immutable.fromJS({
  val1: 1,
  val2: 2
})
var obj2 = obj1.set('val1', 2)

obj1 === obj2 // false
```

Immutable.js

- Immutable - changes create new copy on every change
- Persistent - old copies will be kept
- Structural sharing - new/old objects shares memory

Immutable.js

- Om
- a clojure wrapper of React.js
- faster than React.js?! Why?

Immutable.js

Code

```
shouldComponentUpdate: function(nextProps, nextState) {
  return nextProps.id !== this.props.id;
}
```

- high performant React.js application
- compiler friendlier
- Immutability might become part of JavaScript language in the future

flow

Static typed JavaScript (opt-in)

CSS

CSS
IS
AWESOME

CSS Problems

1. Global namespace
2. Dependencies
3. Dead code elimination
4. Minification
5. Sharing constants
6. Non-deterministic resolution
7. Isolation

CSS in JavaScript

```
/* button.js */

var styles = {
  container: {
    background: '#f6f7f8 url(/images/button/background.png) repeat-x',
    border: '1px solid #cdced0',
    borderRadius: 2,
    boxShadow: '0 1px 1px rgba(0, 0, 0, 0.05)',
  },
  depressed: {
    backgroundColor: '#4e69a2',
    borderColor: '#c6c7ca',
    color: '#5890ff',
  },
};

<div style={styles.container}>
```

JSX

CSS in JavaScript

1. Global namespace - solved
2. Dependencies - solved
3. Dead code elimination - solved
4. Minification - solved
5. Sharing constants - solved
6. Non-deterministic resolution - solved
7. Isolation - solved

CSS in JavaScript

- Not without its own problems
  - media queries
  - hover state
- Ongoing work: Radium, react-style, css-module

探索 React 生态圈

- 目标平台
  - 前后端同构
  - Virtual UI Machine
- 数据处理
  - Flux
  - GraphQL / Relay 解决 REST API 的问题
- 语言
  - ES6
  - Immutable.js
  - Flow
  - CSS in JavaScript

Q&A

GraphQL Ecosystem

GraphQL Application Servers

Libraries (e.g. for Parse, SQL)

GraphQL Core (per-language)

GraphQL Spec

Common Tools (e.g. GraphiQL)

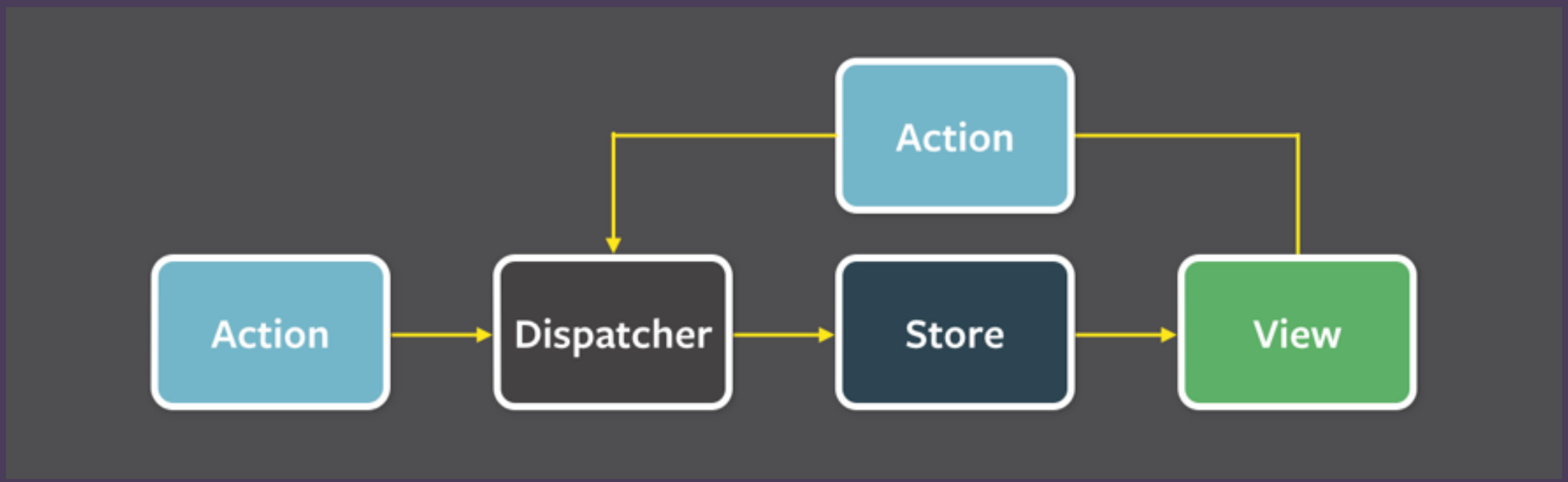
Client SDKs (JS [Relay!], iOS, Android)

GraphQL Clients

数据处理

- Flux
- unidirectional data flow
- single source of truth

Flux



工具

React 生态圈

- Webpack
- Babel

Dev tool

React hot load

工具

React 生态圈

Webpack

- webpack 是一款强大的前端模块管理和打包工具。这里列出他的一些特性：
  - 支持 CommonJS / AMD
  - 灵活和可扩展的 loader （加载器）机制
  - 支持对 CSS，图片等其他资源进行打包
  - 内置强大的 Code splitting 功能可以拆分并动态加载包
  - 开发模式支持 hot module replacement 模式，提高开发效率