

# 工程師的生涯規劃 從 REACT NATIVE 開始

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KUDO@CSIE.IO

## ABOUT ME

- ▶ CCUCSIE 2002 - 2008, BS + MS (GAIS Lab)
- ▶ CNA 2002 - 2008
- ▶ Trend Micro, startups...
- ▶ 打雜工，人生立志解 Bugs
- ▶ 最近是 Facebook 粉絲，立志進 Facebook，可惜 Algorithm 沒練好，還進不去 QQ
- ▶ 只好一邊練習 React Native，一邊繼續推坑



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# OUTLINE

- ▶ 大話工程師之路
- ▶ React Native 介紹
- ▶ 不一樣的 React Native 介紹
- ▶ 我的 React Native 學習之路
- ▶ 結



工程師

攻城獅

師程工

# 路

很多 很長  
一下分 一下合  
你走上的 我踏出的  
分不清 看不透  
孰好 孰壞

# 我想走工程師的之路

- ▶ 錢多
- ▶ 事少 (Work smart & efficiency)
- ▶ 離家近
- ▶ 成就感

# 很多事情 道理都是相通的



天下武功  
無堅不破，唯快不破

Q: 你選擇什麼手機？



然後還有，長江手機 ...

有一種工程師

擁有一技之長，打遍天下無敵手

# 有一種工程師

什麼都會

- ▶ PHP
- ▶ Perl
- ▶ Python
- ▶ Ruby
- ▶ C
- ▶ C++
- ▶ HTML
- ▶ CSS
- ▶ jQuery
- ▶ JavaScript
- ▶ Java
- ▶ Objective C
- ▶ Swift

Q: 如果你是老闆，你想聘用什麼樣的工程師？

擁有一技之長

看起來什麼都會

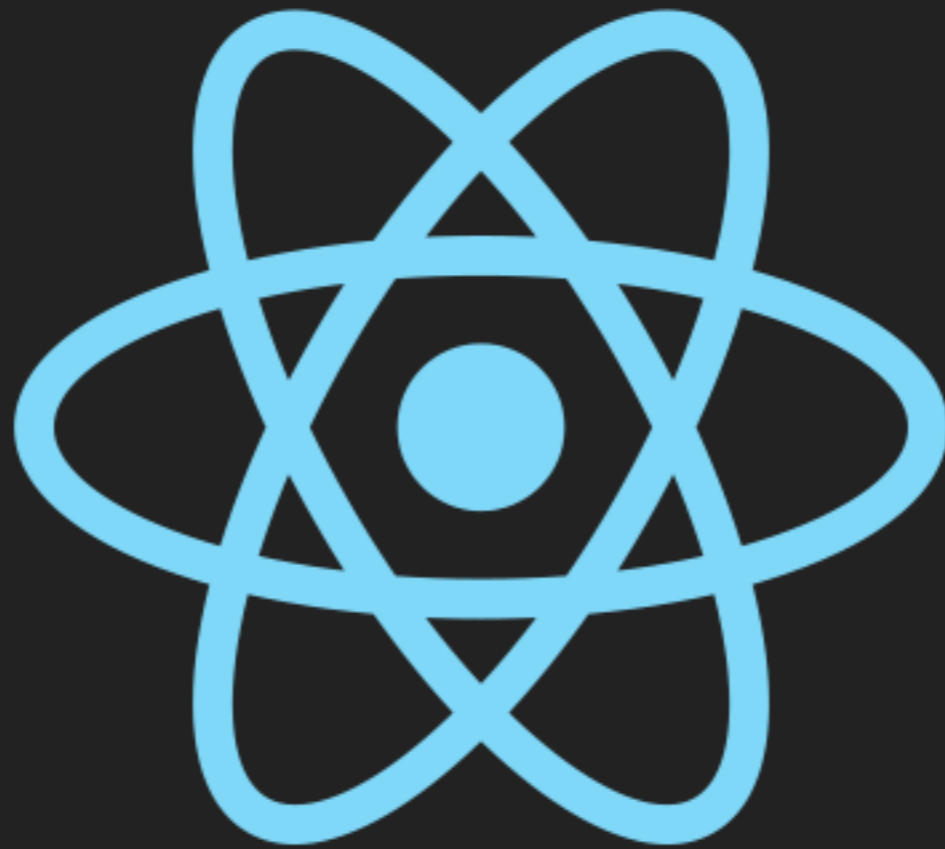
然後也還有，都不太會 ...

### 有價值的工程師

- ▶ 解決問題的能力，而不只是會很多程式語言，會做很多種事
- ▶ 深度學習
- ▶ 追根究柢
  - ▶ 面對 Bug 不能得過且過
- ▶ QBO 你看見了嗎

不要講屁話打高空  
例子啊例子啊

# React Native



## 故事是這麼開始的

- ▶ @Scale 2014 - Facebook's iOS Architecture



## The Solution - Components

```
[CPStackLayoutComponent
newWithView:{}
style:{
  .direction = CPStackLayoutDirectionVertical,
  .alignItems = CPStackLayoutAlignItemsStretch,
  .spacing = 10,
}
children:{
  {[CPStoryExplanationComponent newWithStory:story]},
  {[CPStoryHeaderComponent newWithStory:story]},
  {[CPStoryMessageComponent newWithStory:story]},
  {[CPStoryAttachedContentComponent newWithStory:story]},
  {[CPStoryAttachedStoryComponent newWithStory:story]},
  {[CPStorySubstoriesComponent newWithStory:story]},
  {[CPStoryLikeCommentComponent newWithStory:story]}
}]
```

### 故事是這麼開始的

- ▶ Immutable data model
- ▶ Uni-direction data flow
- ▶ Component
- ▶ Declarative UI
- ▶ Flexbox

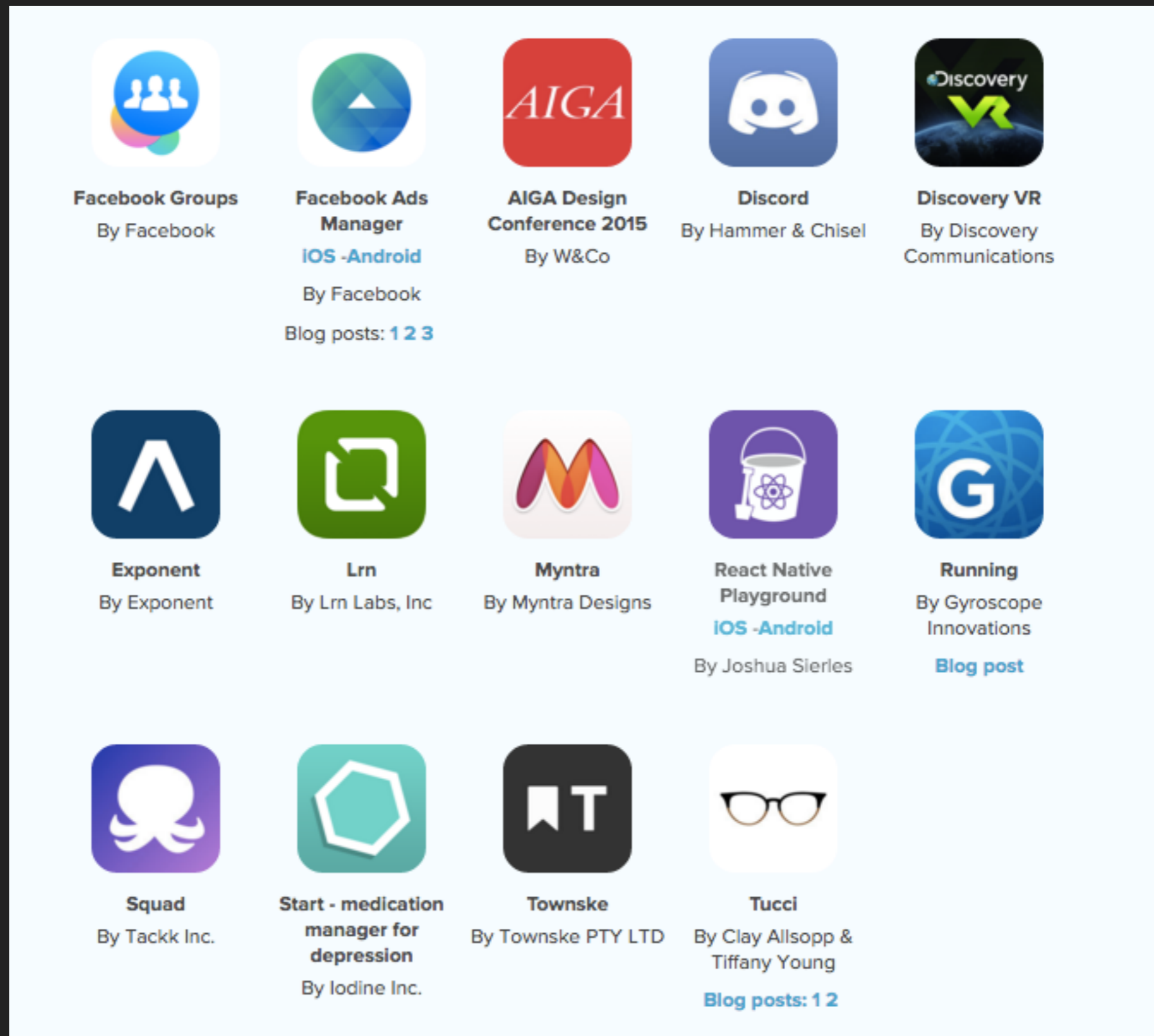


ComponentKit

# REACT NATIVE

- ▶ A framework for building native apps using React
- ▶ Consistent developer experience based on JavaScript and React
- ▶ Learn once, write anywhere
- ▶ Native, not HTML
- ▶ Highly shared code between iOS and Android
  - ▶ 85%+ for Facebook Ads Manager app
  - ▶ <https://speakerdeck.com/mkonicek/under-the-hood-of-react-native?slide=13>

## SHOWCASE



# REACT NATIVE

- ▶ Component based
  - ▶ Always thinking in Custom View for iOS / Android
- ▶ Flexbox
  - ▶ 從 iOS 苦力派數學刻 UI  
Auto Layout 拉一堆 constraints  
終於到了 iOS 9 才有 UIViewStackView
- ▶ inline CSS (CSS in JS)
  - ▶ 不需要在 xml 跟 source code 之間跳來跳去了

# REACT NATIVE

- ▶ Benefits from React
  - ▶ Virtual DOM
  - ▶ state / props
- ▶ Integrate with flux implementations for uni-directional data flow
- ▶ API 簡單，容易學習
  - ▶ 只是一開始很多很雜的小東西要拼拼湊湊，會辛苦一點

# REACT NATIVE

```
// iOS & Android


var React = require('react-native');
var { Image, StyleSheet, Text, View } = React;

var ReactNative = React.createClass({
  render: function() {
    return (
      <View style={styles.row}>
        <Image
          source={{uri: 'http://facebook.github.io/react/img/logo_og.png'}}
          style={styles.image}
        />
        <View style={styles.text}>
          <Text style={styles.title}>
            React Native
          </Text>
          <Text style={styles.subtitle}>
            Build high quality mobile apps using React
          </Text>
        </View>
      </View>
    );
  },
});

var styles = StyleSheet.create({
  row: { flexDirection: 'row', margin: 40 },
  image: { width: 40, height: 40, marginRight: 10 },
  text: { flex: 1, justifyContent: 'center' },
  title: { fontSize: 11, fontWeight: 'bold' },
  subtitle: { fontSize: 10 },
});
```

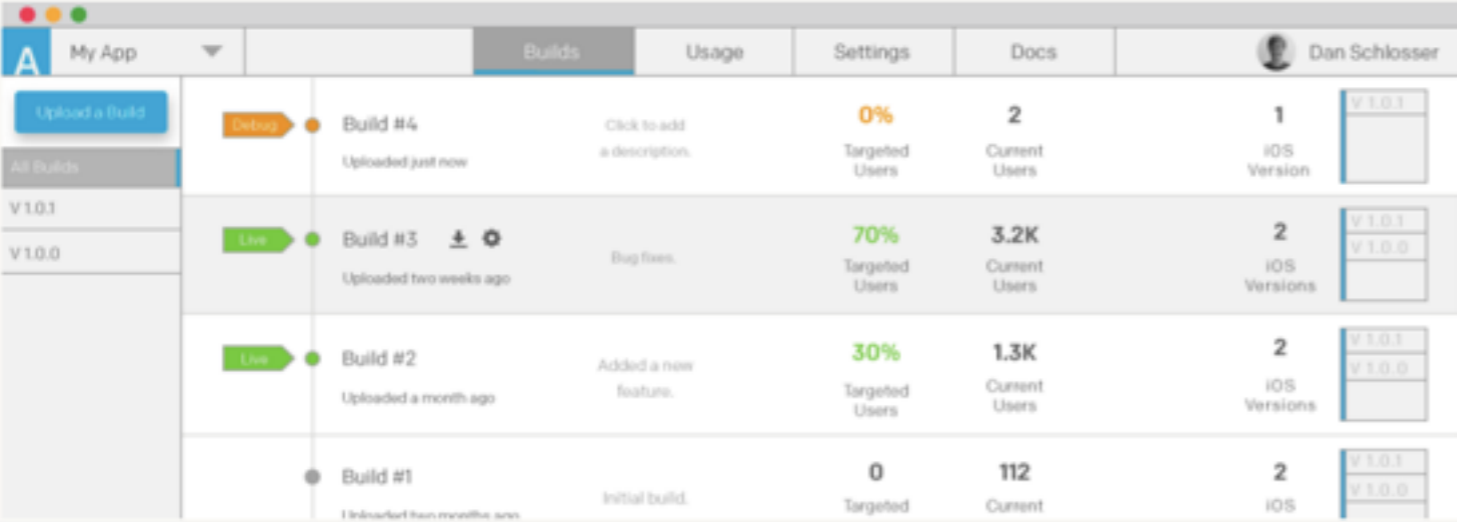
## THIRD PARTY COMPONENTS

► <https://react.parts/native>

 Search

React Native	React for Web
<b>rnpm</b> v1.3.2 published 18 hours ago by rnpm <i>visited</i> React Native Package Manager.	272 ★ 4513 📄
<b>react-native-paged-scroll-view</b> v1.3.2 published 21 hours ago by rreusser A higher-order React Native component to compute the current and total pages of a ScrollView. 🍏 For iOS 🤖 For Android	5 ★ 130 📄
<b>react-native-webview-bridge</b> v0.16.0 published 21 hours ago by alinz React Native WebView Javascript Bridge. 🍏 For iOS	65 ★ 1675 📄
<b>react-native-html-webview</b> v0.0.17 published 22 hours ago by almost Display (possibly untrusted) HTML using a UIWebView in React Native. 🍏 For iOS	51 ★ 1811 📄
<b>react-native-navbar</b> v1.1.0 published 22 hours ago by react-native-fellowship Simple customizable navbar component for react-native.	433 ★ 10263 📄

## INSTANTLY UPDATE YOUR APPS



The screenshot shows the AppHub interface for an app named 'My App'. The 'Builds' tab is selected, displaying a list of builds. The interface includes a sidebar with 'Upload a Build' and 'All Builds' sections. The main table lists builds with their status, descriptions, targeted users, current users, and versions.

Build	Status	Description	Targeted Users	Current Users	Version
Build #4	Setup	Click to add a description.	0%	2	1 iOS Version
Build #3	Live	Bug fixes.	70%	3.2K	2 iOS Versions
Build #2	Live	Added a new feature.	30%	1.3K	2 iOS Versions
Build #1	Initial build.		0	112	2 iOS

AppHub

<https://apphub.io/>



Microsoft CodePush

<https://microsoft.github.io/code-push/>

這些網路都有寫  
不要講這些浪費我時間



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# 不一樣的 REACT NATIVE 介紹

# TALK DRIVEN LEARNING

- ▶ JavaScript <-> Native code Bridge
- ▶ React Native 的優勢

Q: 要做一個跨平台的 MOBILE DEVELOPMENT FRAMEWORK 你會怎麼做？

- ▶ Q: 要賣雞排到世界上的不同國家，做一個全球化的事業，你有什麼方法？
- ▶ A:
  - ▶ 統一世界
  - ▶ 打通通路，從中央廚房賣到世界各地
  - ▶ 到每個國家設立據點

Q: 要做一個跨平台的 MOBILE DEVELOPMENT FRAMEWORK 你會怎麼做？

- ▶ Q: 要做一個跨平台的 mobile development framework 你會怎麼做？
- ▶ A:
  - ▶ 把 Apple, Google, ... 都買下來，叫他們通通改用你的方式開發
  - ▶ HTML5
  - ▶ Bridge for Native code

Q: 要做一個跨平台的 MOBILE DEVELOPMENT FRAMEWORK 你會怎麼做？

- ▶ 那 Transpiler 呢？
- ▶ J2ObjC
- ▶ Xcode support C++
- ▶ Android NDK
  
- ▶ 但不適合 UI 開發

# CROSS PLATFORM MOBILE DEVELOPMENT FRAMEWORK

- ▶ PhoneGap
  - ▶ HTML5
  - ▶ 為人詬病的 WebView performance
- ▶ Appcelerator Titanium
- ▶ React Native
  - ▶ JS <-> Native bridge

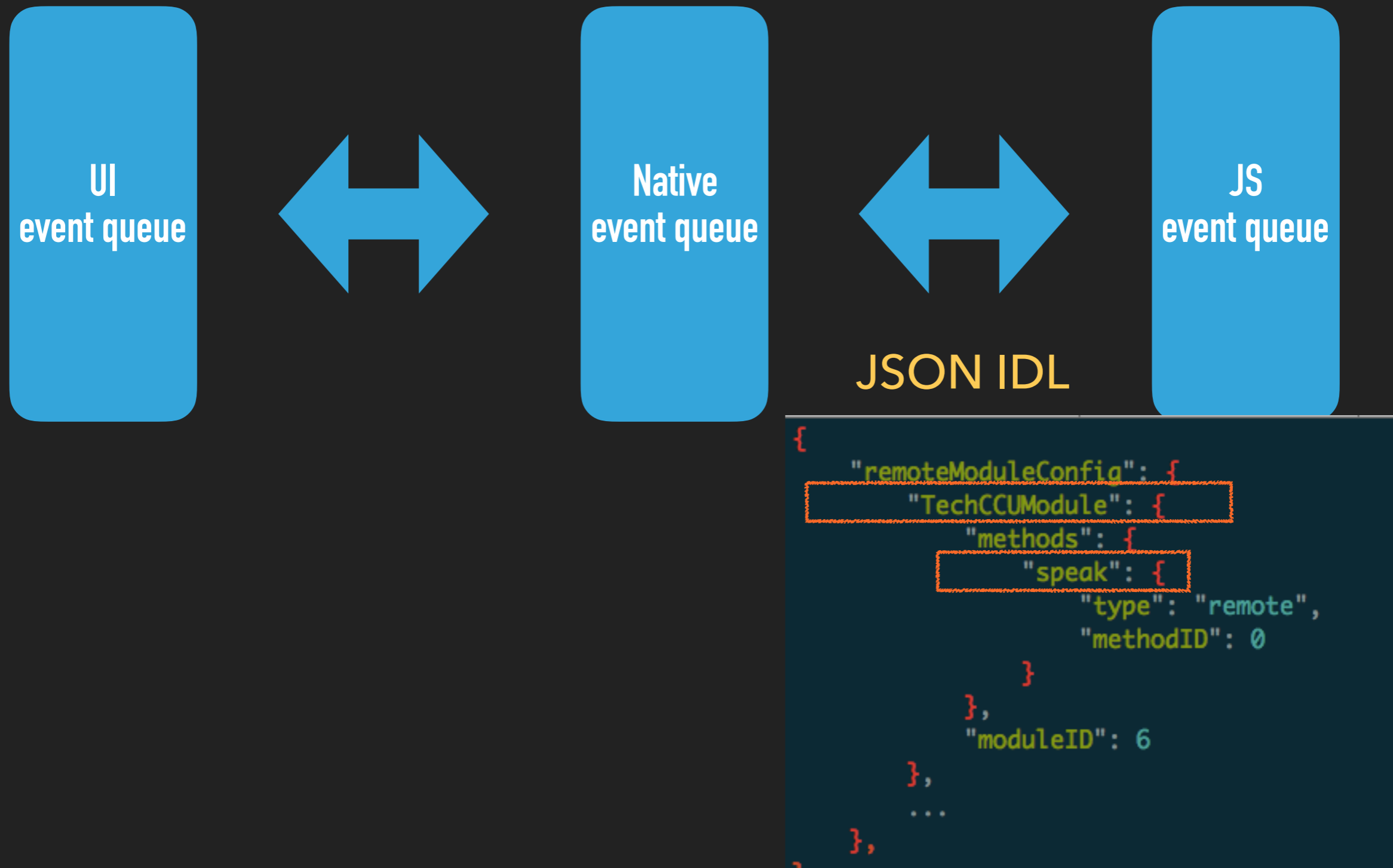
## JAVASCRIPT <-> NATIVE CODE BRIDGE

- ▶ 首先，打通路不是太難，很多都有提供
  - ▶ JavascriptCore / V8
  - ▶ Chrome extension
  - ▶ RPC
- ▶ 提供的方式不外乎
  - ▶ eval()
  - ▶ event

## JAVASCRIPT <-> NATIVE CODE BRIDGE

- ▶ 作為一個 Framework，當然不能只提供 eval() 給使用者用啦
- ▶ IDL (Interface Description Language)
  - ▶ MIDL for Windows COM/DCOM
  - ▶ AIDL for Android
  - ▶ JSON
  - ▶ protobuf / Thrift

# JAVASCRIPT <-> NATIVE CODE BRIDGE



## JAVASCRIPT <-> NATIVE CODE BRIDGE

▶ 怎麼 Export module/method 到 JSON config

▶ iOS by Macro

```
#define RCT_EXPORT_MODULE(js_name) \
RCT_EXTERN void RCTRegisterModule(Class); \
+ (NSString *)moduleName { return @"#js_name; } \
+ (void)load { RCTRegisterModule(self); }
```

```
#define RCT_EXTERN_REMAP_METHOD(js_name, method) \
+ (NSArray<NSString *> *)RCT_CONCAT(__rct_export__, \
RCT_CONCAT(js_name, RCT_CONCAT(__LINE__, __COUNTER__))) { \
return @"[#js_name, @#method]; \
}
```

▶ Android by Java Annotation

```
@Retention(RUNTIME)
public @interface ReactMethod {

}
```

```
if (targetMethod.getAnnotation(ReactMethod.class) != null) {
    String methodName = targetMethod.getName();
    if (methods.containsKey(methodName)) {
```

# JAVASCRIPT <-> NATIVE CODE BRIDGE

- ▶ iOS

- ▶ 使用內建的 JavaScriptCore

- ▶ Android

- ▶ 包 JavaScriptCore ，穿 JNI

- ▶ 為什麼不是 V8 呢？

- ▶ <https://news.ycombinator.com/item?id=10216234>

- ▶ We designed React Native to run with any JS engine by [@vjeux](#)

- ▶ 所以連 Chakra 都有在考慮 XD

## JAVASCRIPT <-> NATIVE CODE BRIDGE

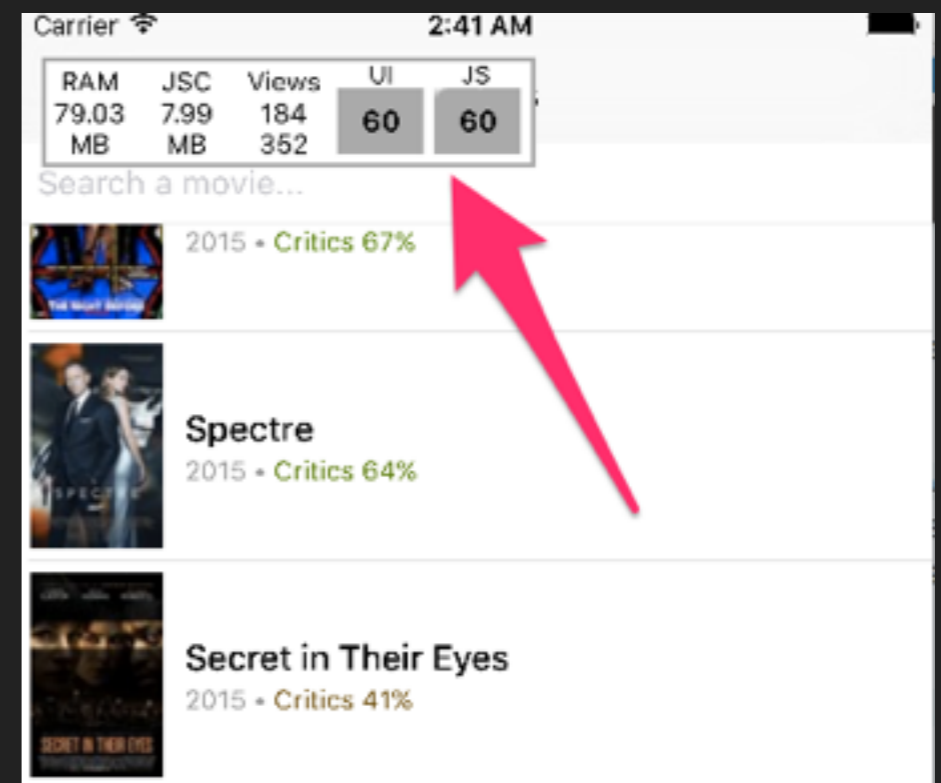
- ▶ Debugging JS mode
  - ▶ Leverage Chrome Devtool
  - ▶ V8

## REACT NATIVE 的優勢

- ▶ 夾帶 React 的優勢
  - ▶ 前端工程師的新頭路
  - ▶ Code share 程度很高
- ▶ Keep 60fps in mind
  - ▶ 很注重 Profiler 的使用與開發
  - ▶ 避免重蹈 HTML5 的歷史



Image from: <https://facebook.github.io/react-native/docs/android-ui-performance.html>



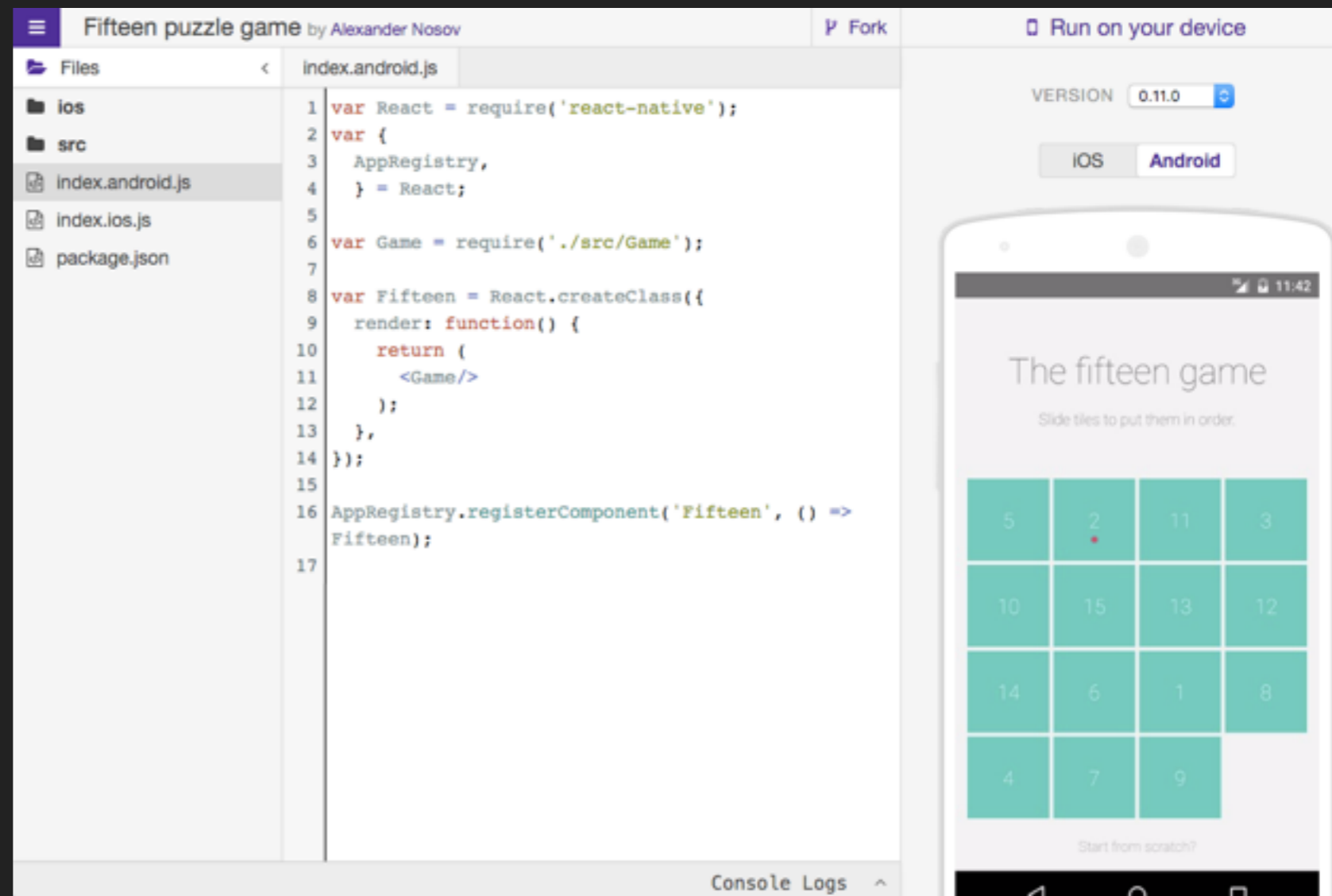
### REACT NATIVE 的優勢

- ▶ 一定要配 flux
  - ▶ 目前最夯 redux
  - ▶ 不要再搞 Fat Controller, MVC, MVP, MVVM, MVW
- ▶ Live Reload
  - ▶ 以後可能會有 Hot Reload
  - ▶ 不需要重 build

## REACT NATIVE 的優勢

▶ React Native Playground

▶ <https://rnplay.org/>





# 我的 REACT NATIVE 學習之路

### 其實也才兩個月

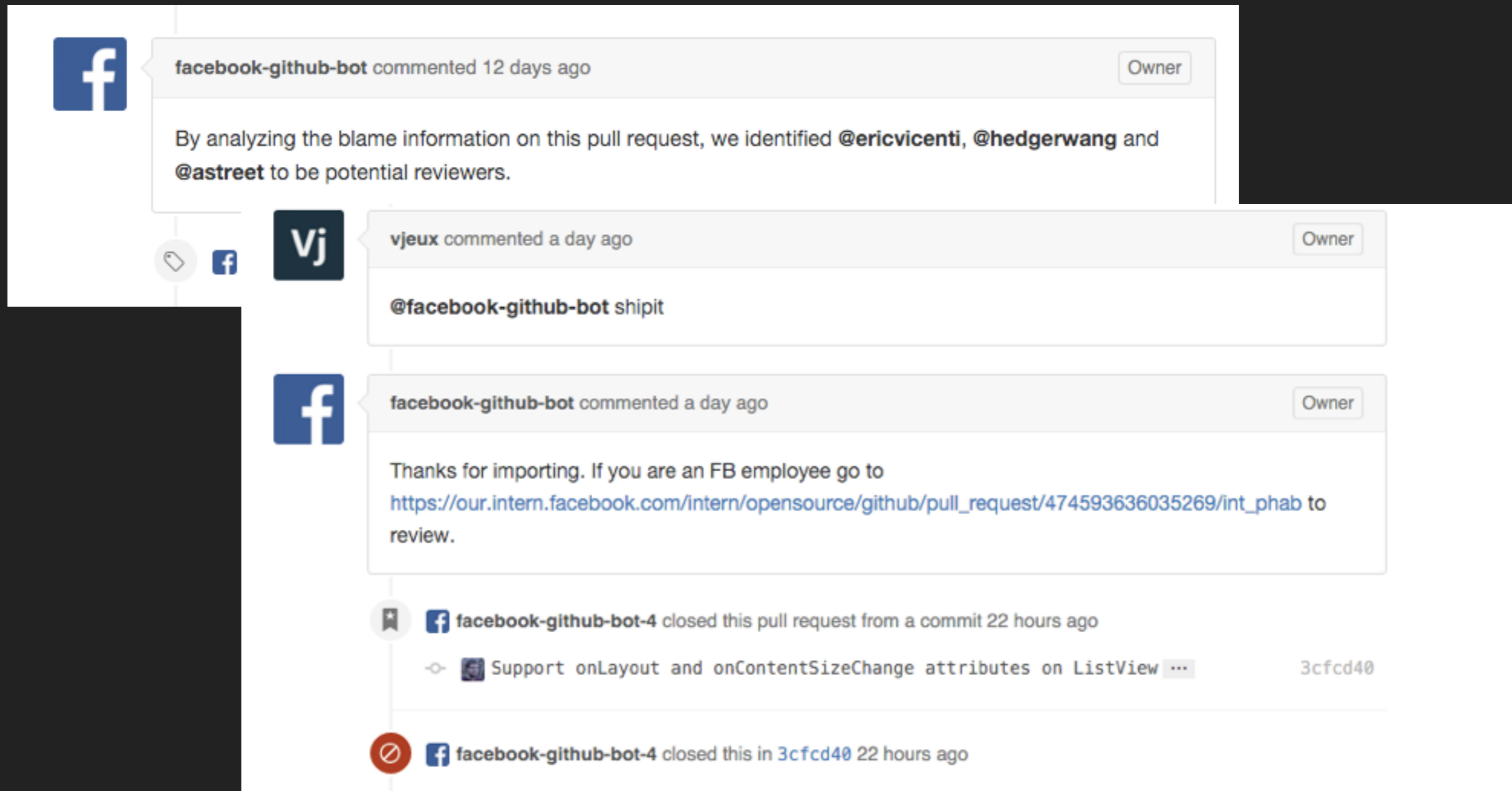
- ▶ 雖然一直很有興趣，但是苦無機會寫 mobile app
- ▶ 直到兩個月前才有機會碰 mobile app
- ▶ 現在進場很辛苦，但是很值得很有趣
  - ▶ 很多小小雜雜的東西，很少文件
  - ▶ 彷彿可以跟世界其他的工程師接軌

## SOURCE CODE 生態

- ▶ 每天都有很多的 commits
  - ▶ 來自外面的 contributors
  - ▶ 來自 Facebook 內部的員工
  - ▶ 但還是每天跟一下 commits 唄
- ▶ Facebook keeps sync with internal repo



## SOURCE CODE 生態 - FACEBOOK-GITHUB-BOT



► <https://github.com/facebook/mention-bot>

### GITHUB 生態

- ▶ GitHub issues 很多
  - ▶ 但大多都是問問題
  - ▶ 問問題請到 [StackOverflow](#) #react-native
  - ▶ Feature Request 請到 [ProductPains](#)
  - ▶ 有的時候不知道這是問題，還是真的 bug
  - ▶ 有的時候要送 PR 但不知道 Facebook roadmap 是不是一致

## REACTIFLUX

The screenshot displays the Reactiflux application interface. On the left is a dark sidebar with a list of chat channels. The main area shows the #react-native channel with a list of messages. On the right is a list of online users. At the bottom is a chat input area.

**reactiflux**

- # ractt
- # radium
- # react-bootstrap
- # react-dnd
- # react-hot-loader
- # react-mdl
- # react-motion
- # react-native
- # react-native-desktop
- # react-native-for-web
- # react-native-material-kit
- # react-native-newsletter
- # react-native-web
- # react-native-webpack
- # react-rails

**#react-native**

@siwymilek I had 2 Google Chrom debuggers open which caused the error, so you may have the same thing.

2015年12月12日

JonnyBGod 今天早上12點36  
Hi all. Any plans to support EventSource?

新訊息

aj9045 今天早上2點57  
does anyone have any idea how BackAndroid works? I thought I understood it (I have three different tabs in a tab bar and I put BackAndroid in each of the components that returns Navigator in componentDidMount & componentWillUnmount), but now I'm very confused. If I hit the hardware back it not only calls the componentDidMount in one component, but also in the other one. What? Any examples would be of use, thanks >.<  
This is what I based my code on: <https://www.snip2code.com/Snippet/725072/Use-Navigator-component-in-react-native>  
Use Navigator component in react-native: android\_naviator\_react-native.js

atticoos 今天早上3點05  
What would be the best way to have a view only be 50% of its parent width?  
I was hoping flex: 0.5, and would like to avoid raw dimensions and achieve with a style, but it doesn't sound likely  
I could have another view with another flex: 0.5, but would like to avoid that too  
Or rather, both be flex: 1. End goal is simply having a view 50% of its parent width

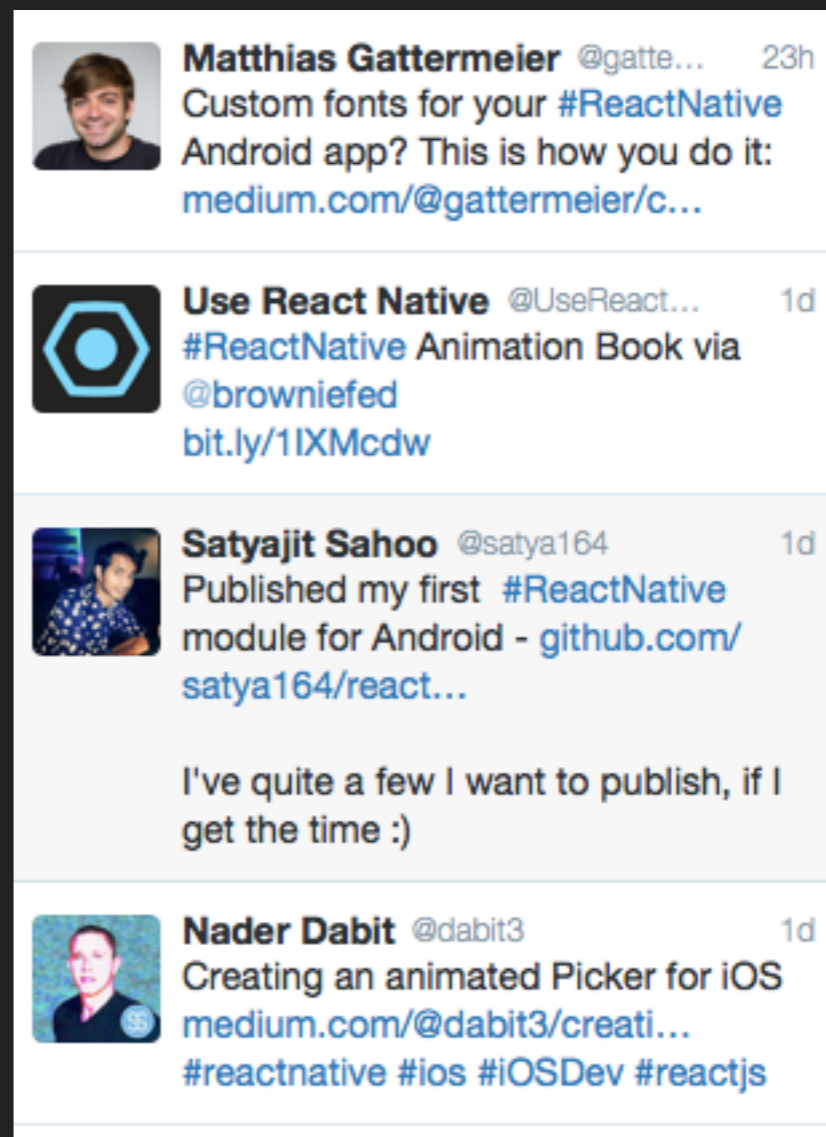
線上—404

- #christla
- (/•\_•)/◆\* ◆sp...  
Playing HuniePop
- .xhip. 🌲
- 80% Lean
- aa
- Aar
- Aar
- aaron
- abhi
- acgourley

在 react-native 聊天...

## TWITTER

- ▶ Follow 大神就對了
- ▶ #reactnative



## RXRNBRIDGE

- ▶ 我的第一個 React Native 學習 project/toy
- ▶ 新世代的 Android 開發者，一定要玩一下 RxJava
- ▶ RxJava 有很完整的 libraries 生態圈，如何快速把 RxJava 跟 RN 綁在一起
  - ▶ Java annotation processing
- ▶ <https://medium.com/@kudochien/introduce-rxrnbridge-the-bridge-helper-between-rxjava-and-react-native-94e5a43d8583>
- ▶ <https://github.com/Kudo/RxRNBridge>

挑 OPEN SOURCE FRAMEWORK / LIBRARY  
就像挑老婆一樣  
選好了就好好一起磨難一起成長



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結

## REACT NATIVE

- ▶ 首先還是要推坑一下
- ▶ 但希望除了拿來用以外，還要跟社群接軌，不要總是等人家的成果，也不要一直在等人家成熟穩定，這是需要大家一起進來努力的
- ▶ React Native 背後的美，你看見了嗎？

## 工程師

### ▶ QBO

- ▶ 當工程師，你看見別人程式或架構後面的美了嗎？
- ▶ 當設計師，你看著 UI 跟 Flow，感受到原創當時想表達的訴求了嗎？
- ▶ 當 PM，你抄著人家產品的功能時，領悟到對方原本推這個功能時，心中想的策略了嗎？

## 工程師

- ▶ 市場上會寫程式的人真的很多
- ▶ 一定要走出個人特色





路

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HOW ABOUT YOU?

# REACT NATIVE

- ▶ 入門
- ▶ [React Native Tutorial: Building Apps with JavaScript](#)
- ▶ [Navigating the React.JS Ecosystem](#)

# REACT NATIVE

- ▶ 進階
- ▶ [Under the hood of React Native](#)
- ▶ [From React web to native mobile: mapping out the unknown unknowns | Brent Vatne | Reactive 2015](#)