

**Esri Developer Summit**

March 8–11, 2016 | Palm Springs, CA



# Native Apps in JavaScript with React Native: Lessons From a Prototype

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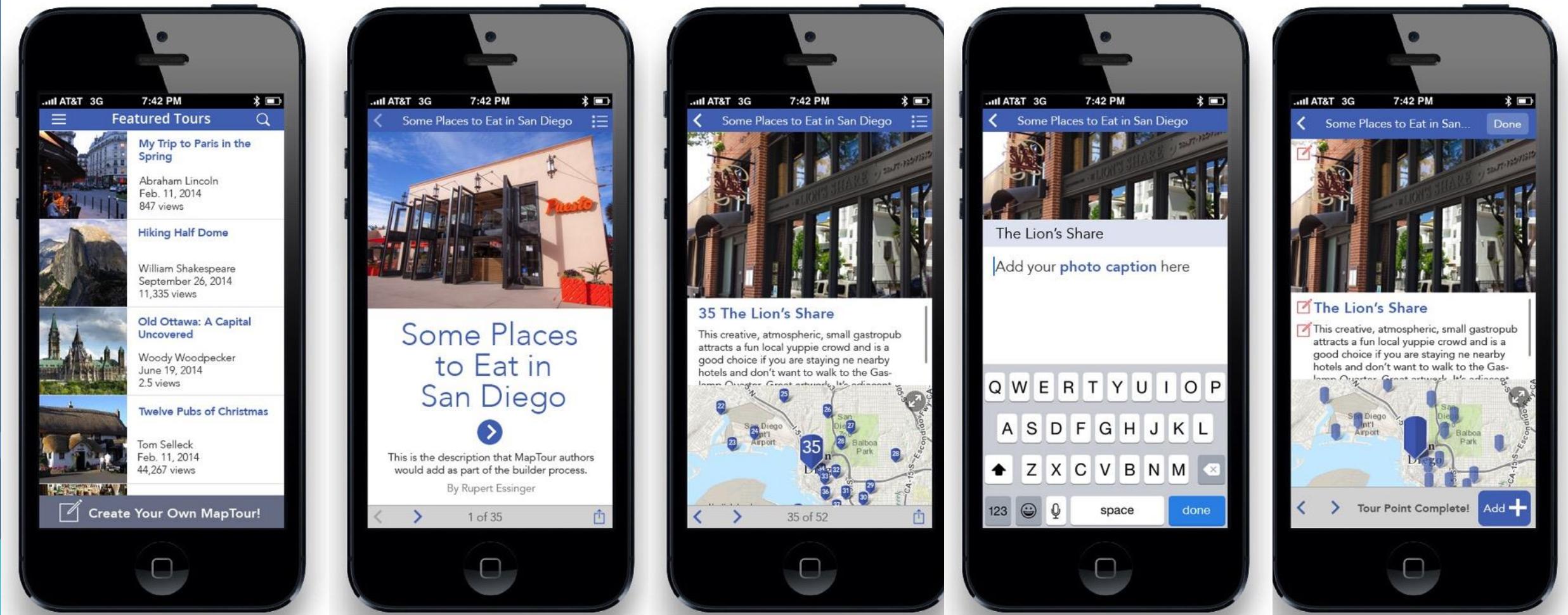
# Agenda

- Context of our prototype
- React Native introduction
- Demos
- Hands-on UI
- Hands-on Maps
- Conclusion
- Questions and Discussion

# Context of our prototype

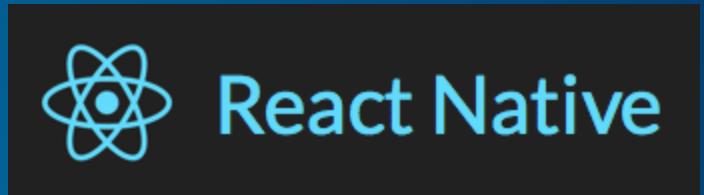
# Context of our prototype

What technology to implement for a cross-platform Map Tour app?



# Criteria and technologies

- Look and feel
- Performance
- Development/ maintenance cost
- Integration with native capabilities
- Maturity, “future”
- Fit for the team of web dev



AppStudio For ArcGIS



# Technologies overview

| Technology   | Description  | App logic  | Native PF access | View                |
|--------------|--|------------|------------------|---------------------|
| PhoneGap     | Bundle a JavaScript web app in a native app                              |            |                  | HTML                |
| AppStudio    | Write JavaScript & QML, output a native app that uses Qt Quick Framework | JavaScript | Yes              | Qt Quick            |
| React Native | Write JavaScript that uses native UI components and get a native app     |            |                  | Native UI framework |

# React Native introduction

# React Native introduction

- Build native apps for iOS and Android in JavaScript
- OpenSource, started by Facebook
- Released in March 2015 with iOS support, added Android in September
- Active development, release every 2-3 weeks
- Native implementation of React web framework
  - Released in 2013, one of the three most popular (with Angular and Ember)
  - Very opinioned at UI, great concept that get adopted in other frameworks

React Native announcement <https://code.facebook.com/videos/786462671439502/react-js-conf-2015-keynote-introducing-react-native/>

React native concepts <https://code.facebook.com/posts/1014532261909640/react-native-bringing-modern-web-techniques-to-mobile/>

React announcement <https://www.youtube.com/watch?v=x7cQ3mrcKaY>

# Growing steadily

<https://facebook.github.io/react-native/showcase.html>

## Apps using React Native

The following is a list of some of the public apps using **React Native** and are published on the Apple App Store or the Google Play Store. Not all are implemented 100% in React Native – many are hybrid native/React Native. Can you tell which parts are which? :)

Want to add your app? Found an app that no longer works or no longer uses React Native? Please submit a pull request on [GitHub](#) to update this page!

### Featured Apps

These are some of the most well-crafted React Native apps that we have come across. Be sure to check them out to get a feel for what React Native is capable of!

Facebook Groups  
By Facebook

Facebook Ads Manager  
[iOS](#) - [Android](#)  
By Facebook

AIGA Design Conference 2015  
By W&Co

Discord  
By Hammer & Chisel

Discovery VR  
By Discovery Communications

Exponent  
By Exponent

Lrn  
By Lrn Labs, Inc

Movie Trailers by MovieLaLa

Myntra  
By Myntra Designs

React Native Playground

<https://github.com/facebook/react-native>

facebook / react-native

Watch 1,988 Unstar 28,100 Fork 5,225

Code Issues 968 Pull requests 219 Wiki Pulse Graphs

A framework for building native apps with React. <http://facebook.github.io/react-native/>

5,413 commits 21 branches 56 releases 592 contributors

<https://js.coach/react-native>

JS.COACH SEARCH

rn-router updated today by jcergtig  
React native routing system based on react router.  
17 stars 513 installs/mo

react-native-google-signin updated today by apptailor  
Google Signin for your react native applications.  
85 stars 1.3K installs/mo [iOS](#) [Android](#)

react-native-signalr updated today by olofd  
Connect to a SignalR server from react-native.  
13 stars 64 installs/mo

react-native-webview-crosswalk updated today by jordansexton  
Crosswalk's WebView for React Native on Android.  
2 stars 181 installs/mo [Android](#)

Sort by  
 Updated  
 New  
 Popular

## Why it's attractive to the StoryMaps team

- Develop in JavaScript
- Cross-platform web, Android and iOS
- Beautiful UI and responsive app
- Simple UI layout (Flexbox and CSS)
- Productive environment: live reload, debug
- Full native capabilities, can integrate existing native UI components
- Flexible deployment (the JS bundle can be downloaded by the app from your server)
- Well-known UI framework (React.js)

# Philosophy

Write once → run anywhere

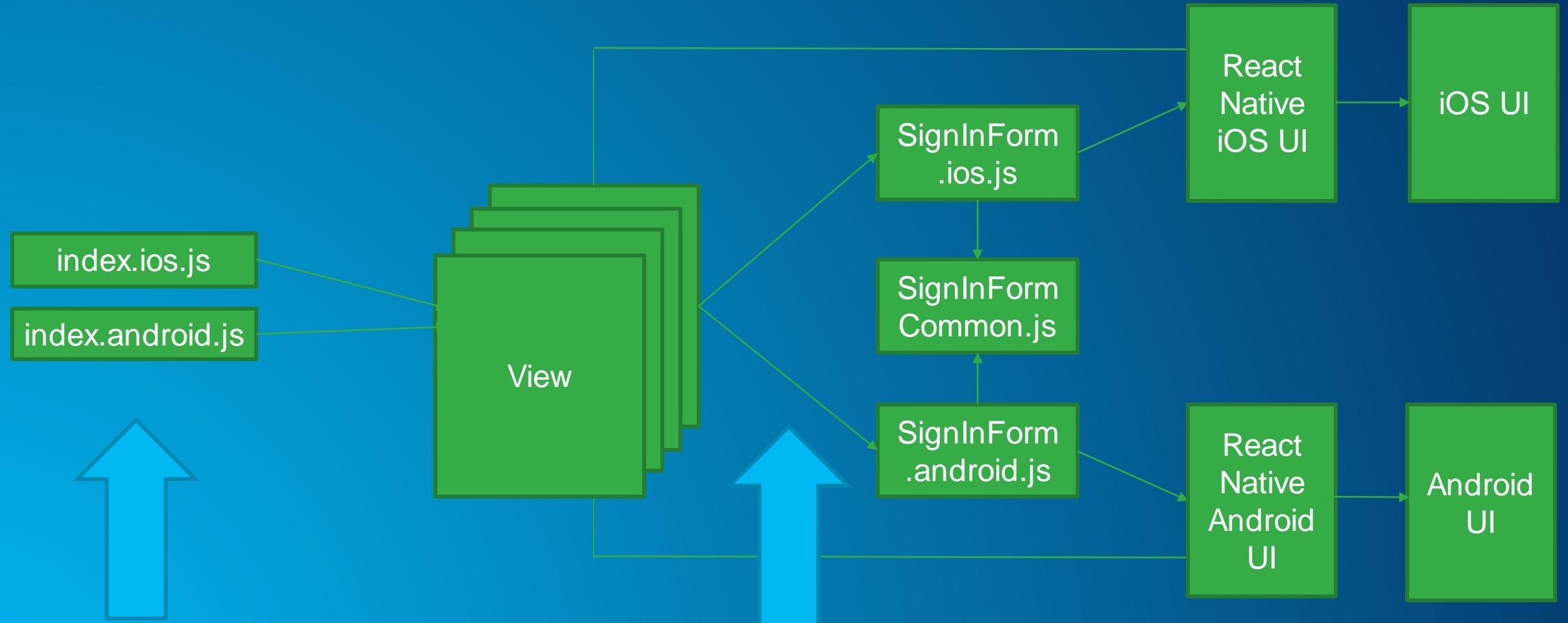


Learn once → write anywhere

*AppStudio  
Phonegap*

*React Native  
Xamarin*

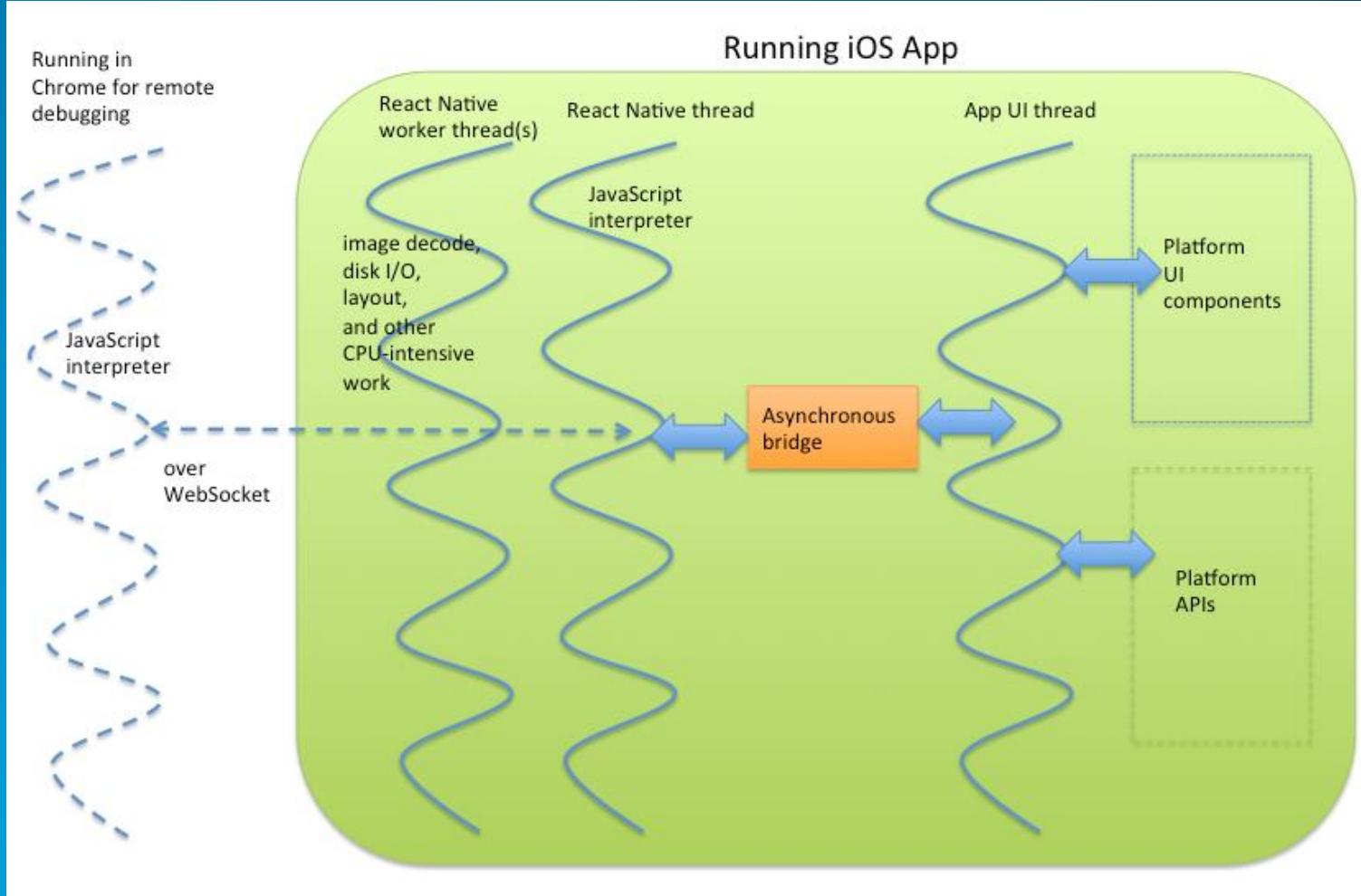
# App design



React Native exposes one implementation to the device

React Native exposes one of the Forms to the view

# At runtime



Source: [www.ibm.com/developerworks/library/mo-bluemix-react-native-ios8/](http://www.ibm.com/developerworks/library/mo-bluemix-react-native-ios8/)

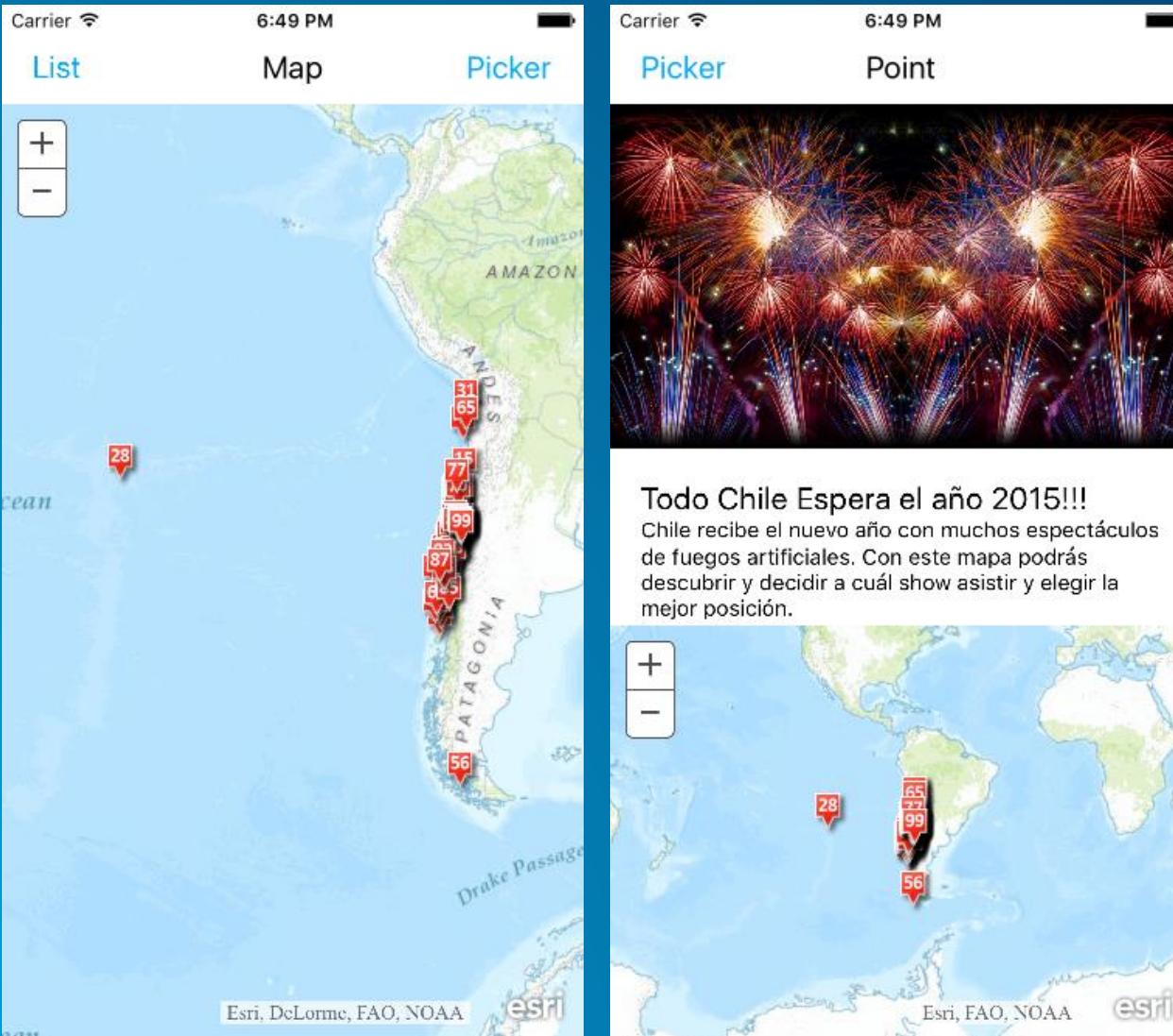
# Demos

## Demos

- **Map Tour React Native prototype iOS**
- **Example React Native app:**
  - Facebook Ads and Hacker News Reader on Android
  - Discovery VR on iOS
- **React Native UI explorer on iOS** [www.reactnative.com/uiexplorer/](http://www.reactnative.com/uiexplorer/)
- **React Native playground** [rnplay.org](http://rnplay.org)
- **Map Tour Phonegap prototype**

# Hands-on UI

# Hands-on UI

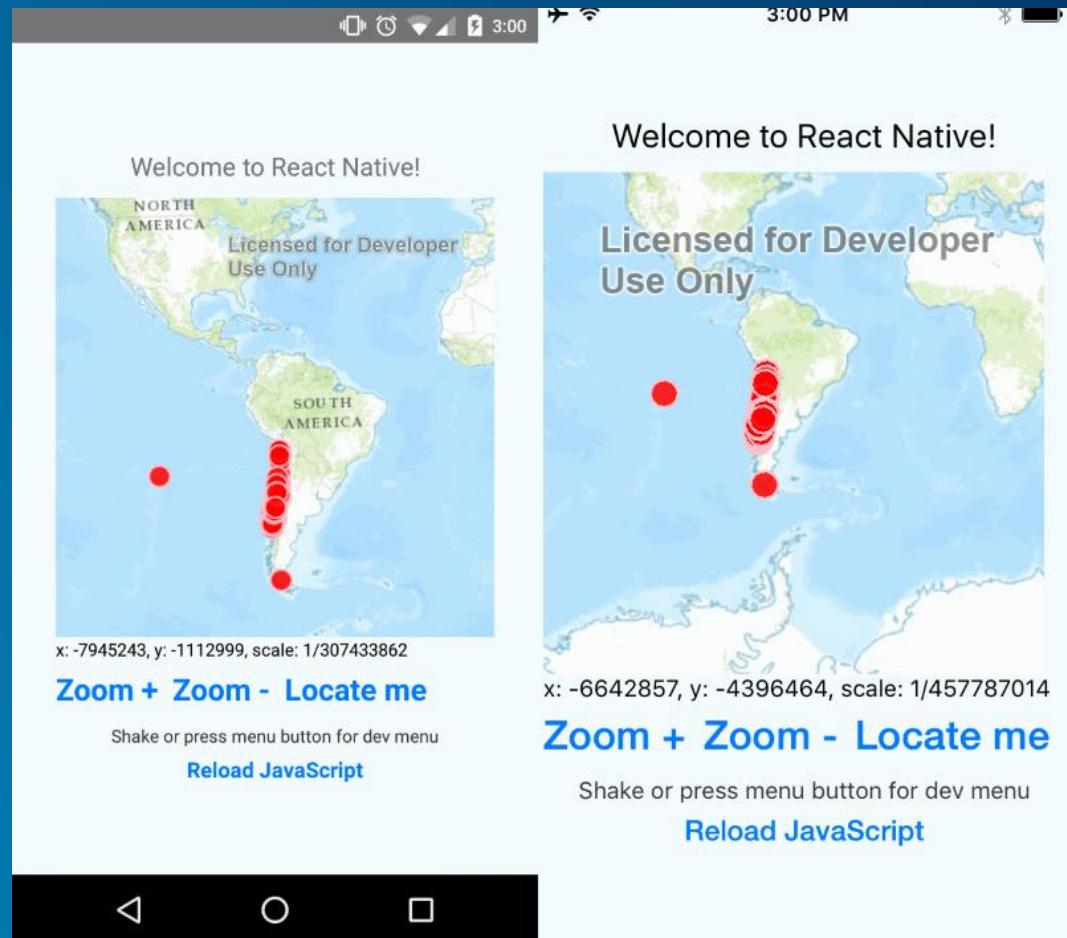


[github.com/skitterm/react-native-demo](https://github.com/skitterm/react-native-demo)

# Hands-on Maps

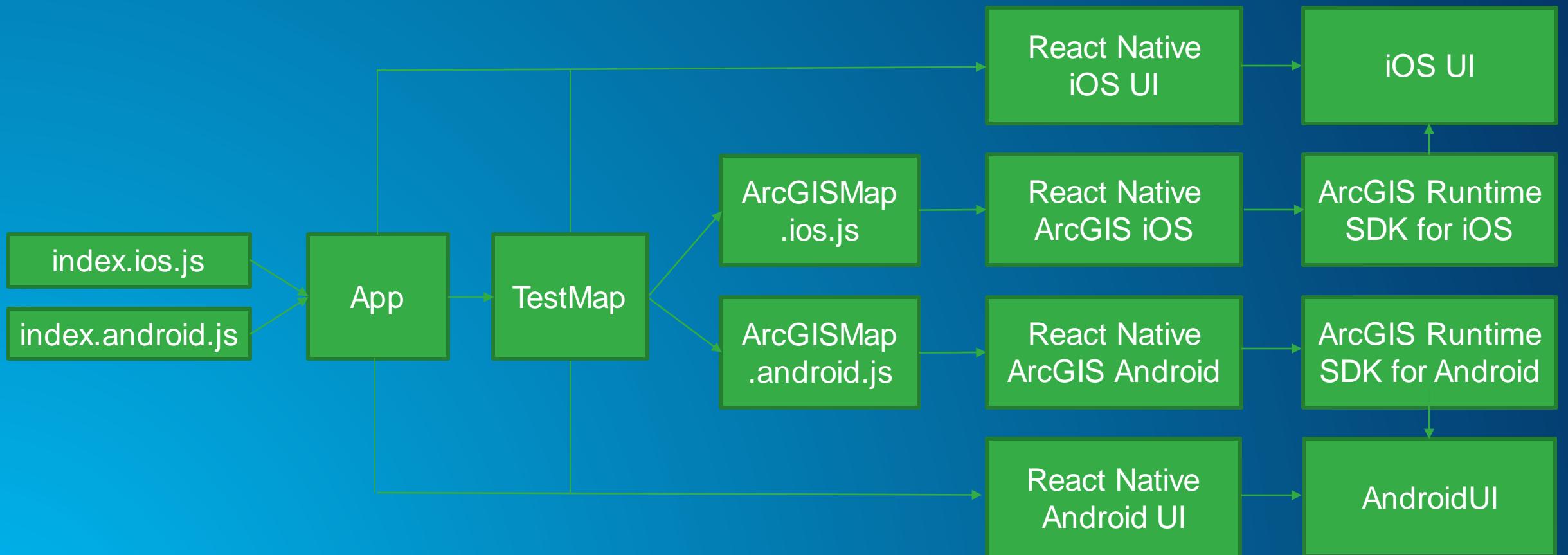
# Hands-on Maps

- Use ArcGIS Runtime SDK for iOS and Android in React native
- While there is no plan for a ArcGIS SDK for React Native, this proof of concept may work for you if you need limited API in JavaScript or can develop in native
- Other options to get a Map:
  - Use JavaScript API through a web view (can't send command or receive events)
  - Use JavaScript API through a Web Bridge (we prototyped with earlier version, it can allow to send command and receive events)



[github.com/glazou/react-native-arcgis-sdk-demo](https://github.com/glazou/react-native-arcgis-sdk-demo)

# Hands-on Maps design



# Conclusion

# Conclusion

- Seems great for apps where look&feel and performance matter
- Many challenges but it maybe ready for production for your needs
- Resources about React Native: [github.com/jondot/awesome-react-native](https://github.com/jondot/awesome-react-native)
- Let us know if you are interested

## Development Strategies for Building Mobile Apps - the Great Debate

Thursday, March 10

10:30 AM – 11:30 AM

Primrose A

Palm Springs Convention Center

## Developing Cross-Platform Native Apps with AppStudio for ArcGIS (Advanced)

Thursday, March 10

2:30 PM – 3:30 PM

Catalina/Madera

Renaissance Hotel

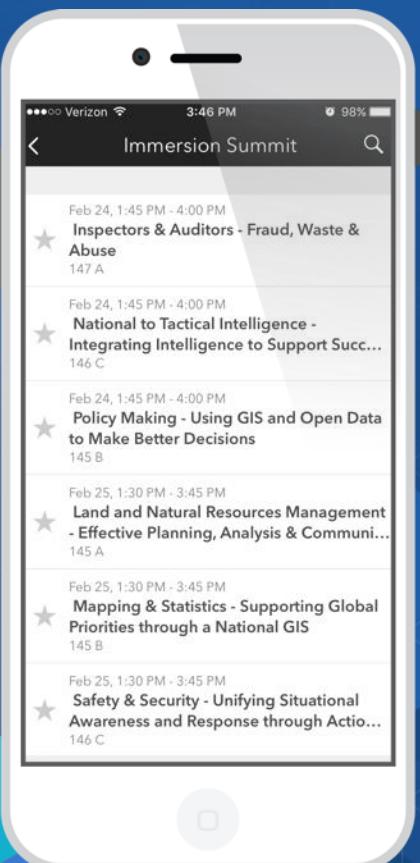
# Questions and Discussion

# Please Take Our Survey!

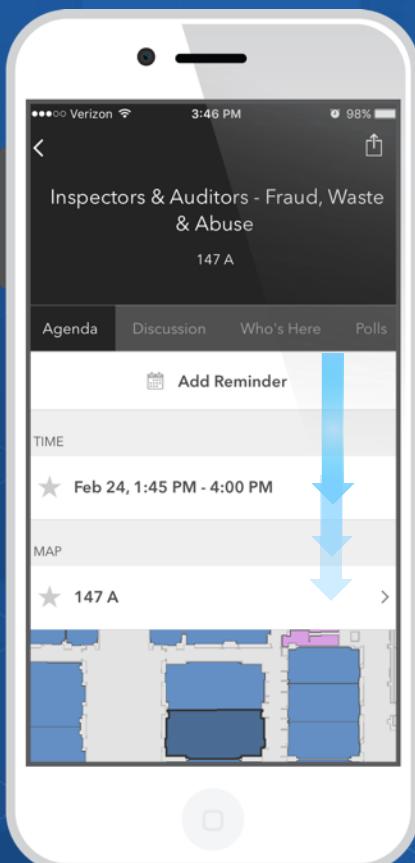
Download the Esri Events app and find your event



Select the session you attended



Scroll down to find the survey



Complete Answers and Select “Submit”

