

How we are building Cross-Platform React Native Messenger project



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2016

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1. Messenger Mobile Application

- Overview React-Native
- Application Architecture
- Using Modules

2. Messenger Backend Server Application

- Server Architecture
 - : Session Server (API)
 - : Channel Server (Messaging)



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1. Messenger Mobile Application

- Overview React-Native
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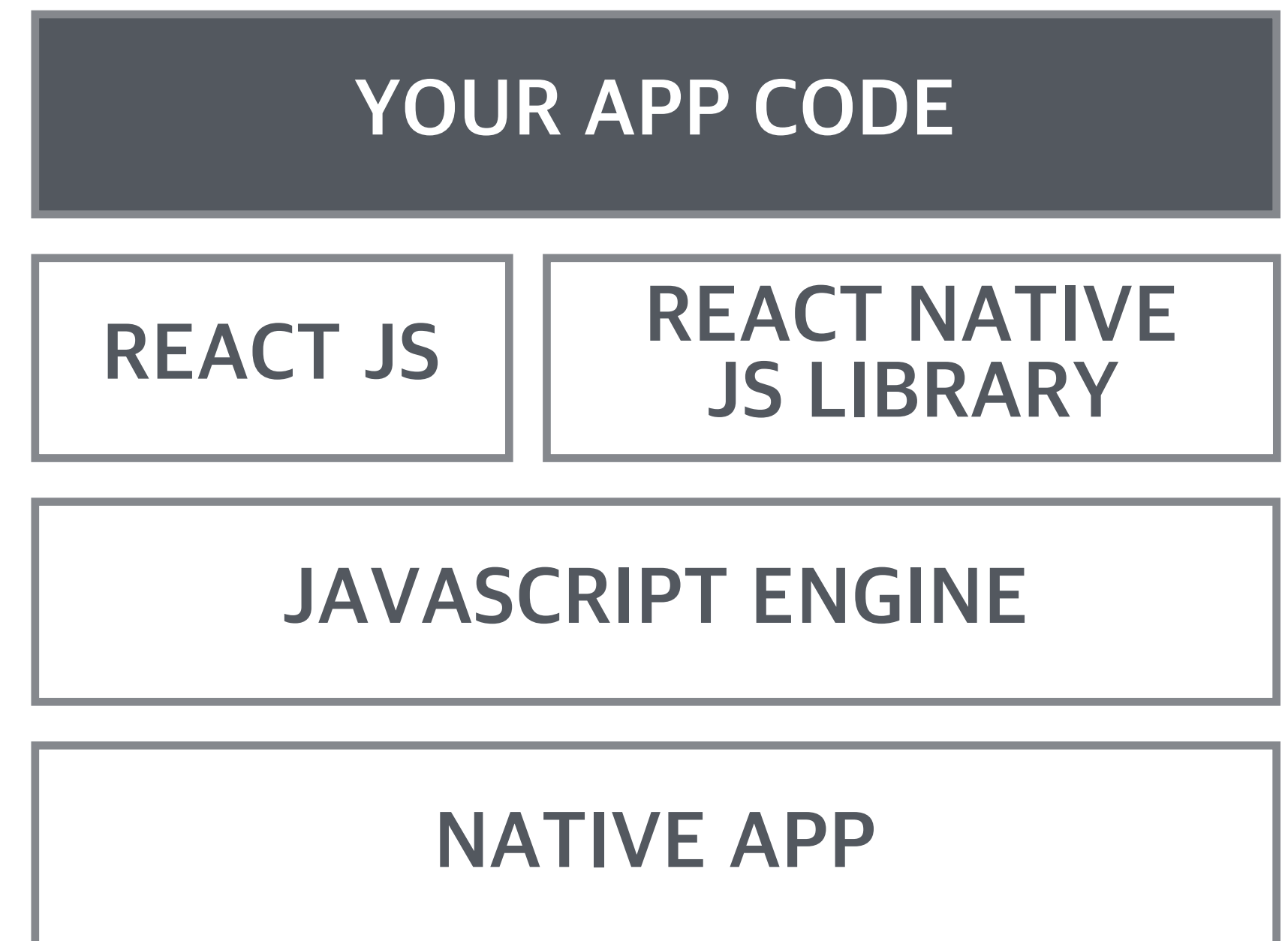


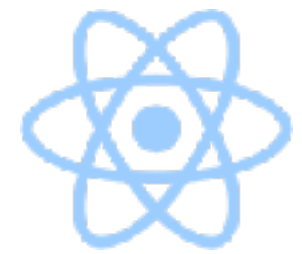
stalk-messenger

<https://github.com/S5Platform>

React Native

- Build Native Mobile Apps using JavaScript and React
- Native Experience (No WebView, No HTML, No CSS)
- Bridge with your Native Code
- Fast & Great Development Experience
 - : Auto Reloading, Hot Reloading
 - : 80% Share code between Android & iOS
 - : Debugging using Chrome Developer Tools
- iOS (March 2015), Android (September 2015)





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YOUR APP CODE

**REACT
JS**

**REACT NATIVE
JS LIBRARY**

**YOUR JS
BRIDGE LIB**

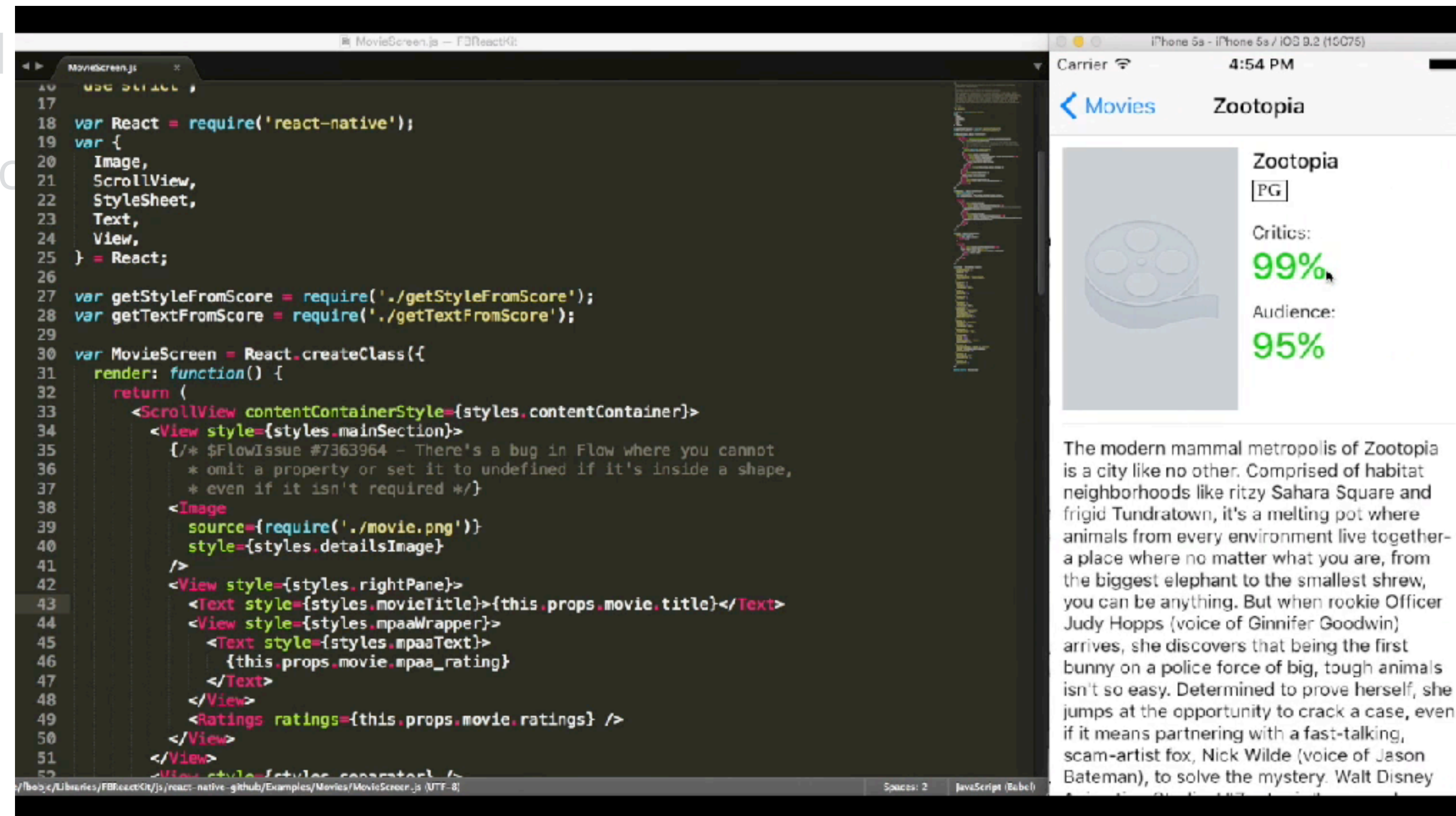
JAVASCRIPT ENGINE

YOUR NATIVE APP LIB

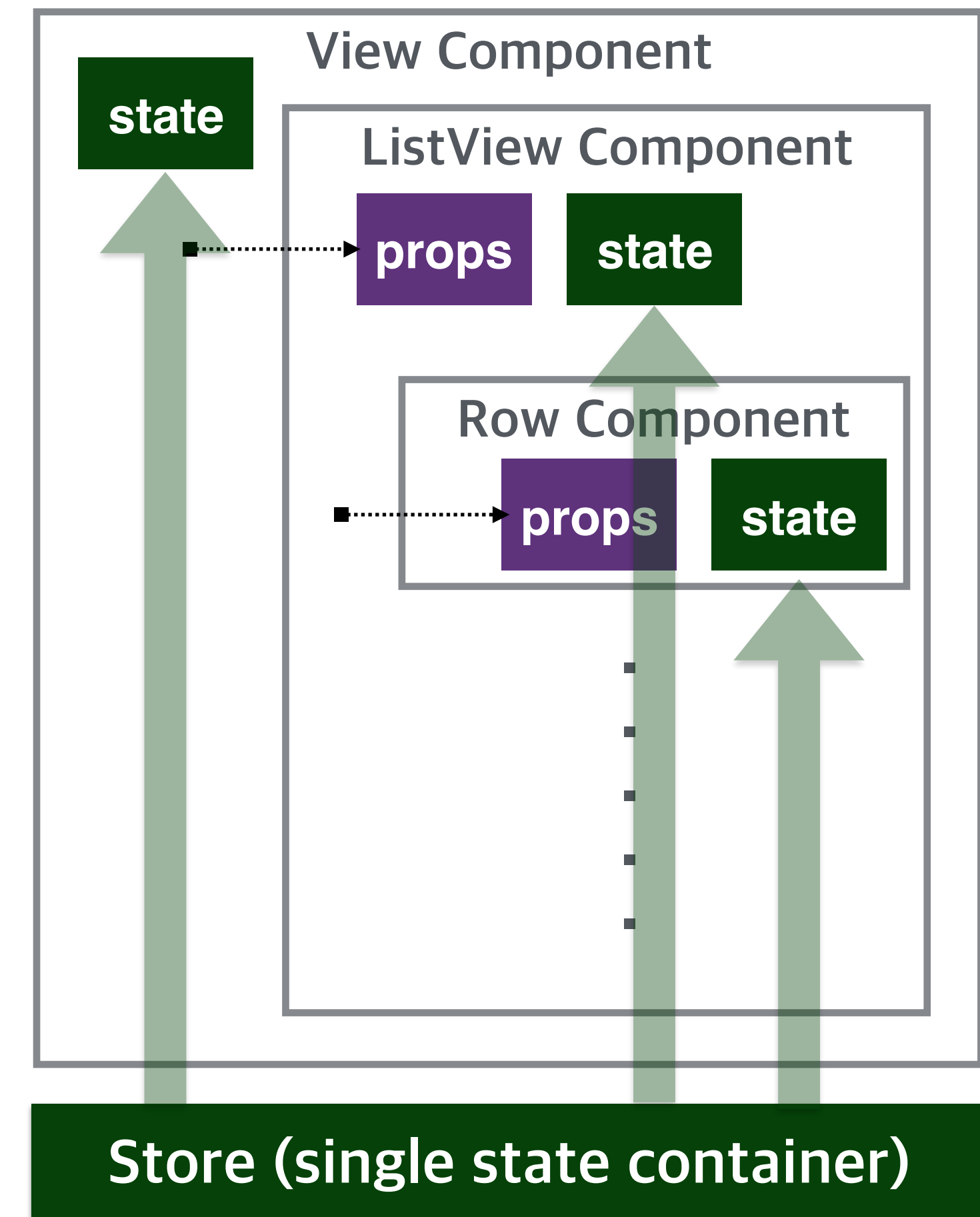
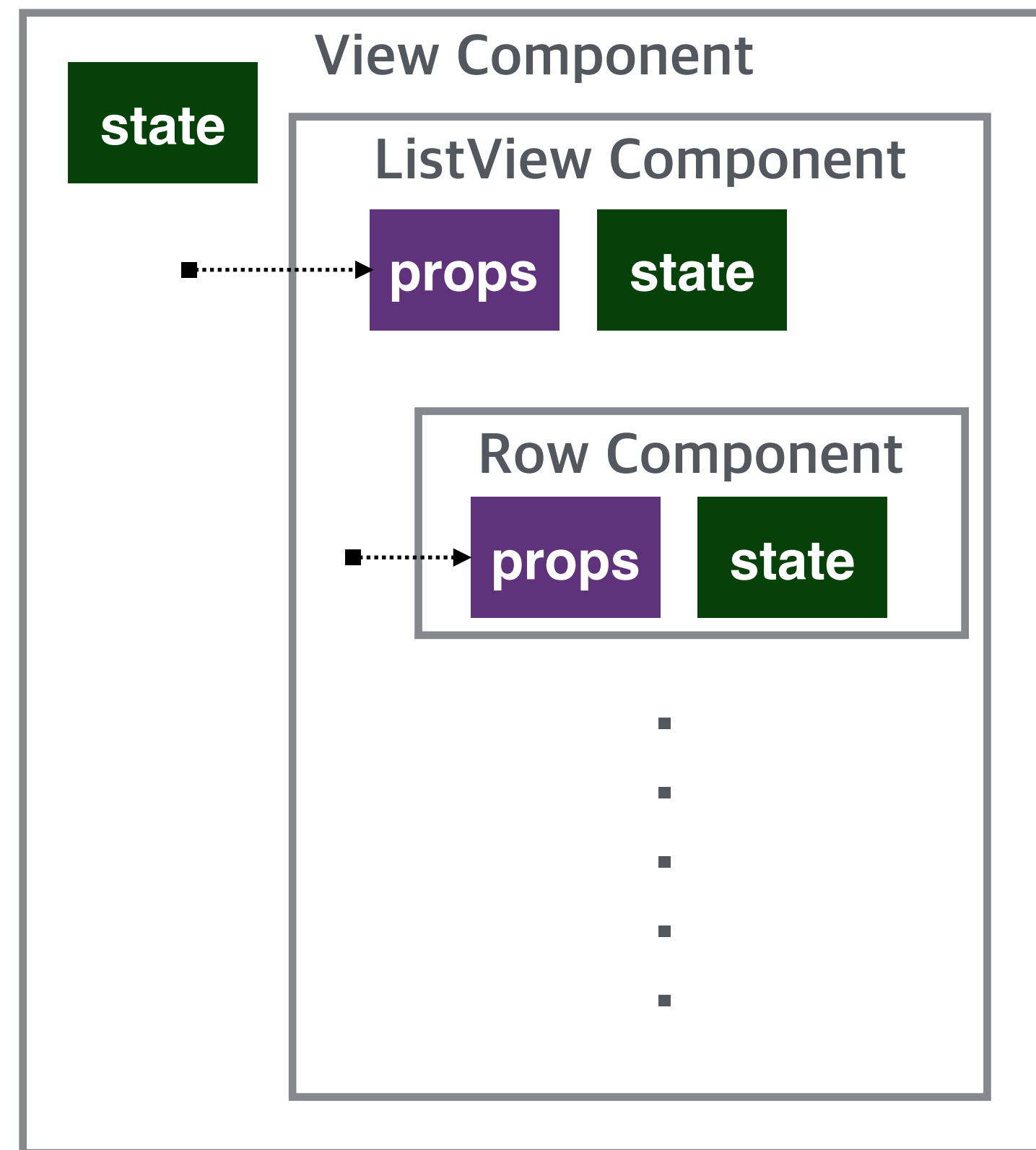
NATIVE APP

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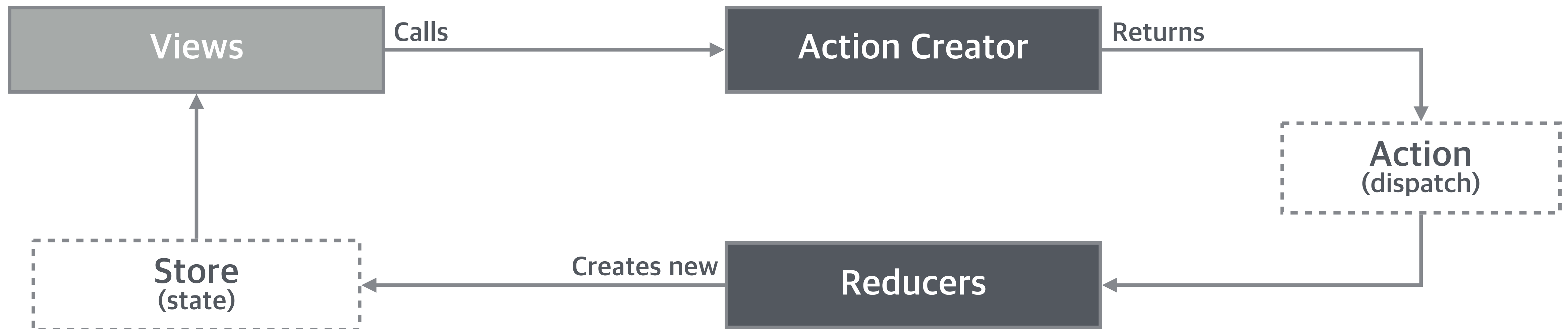
Big problem of complexity with components

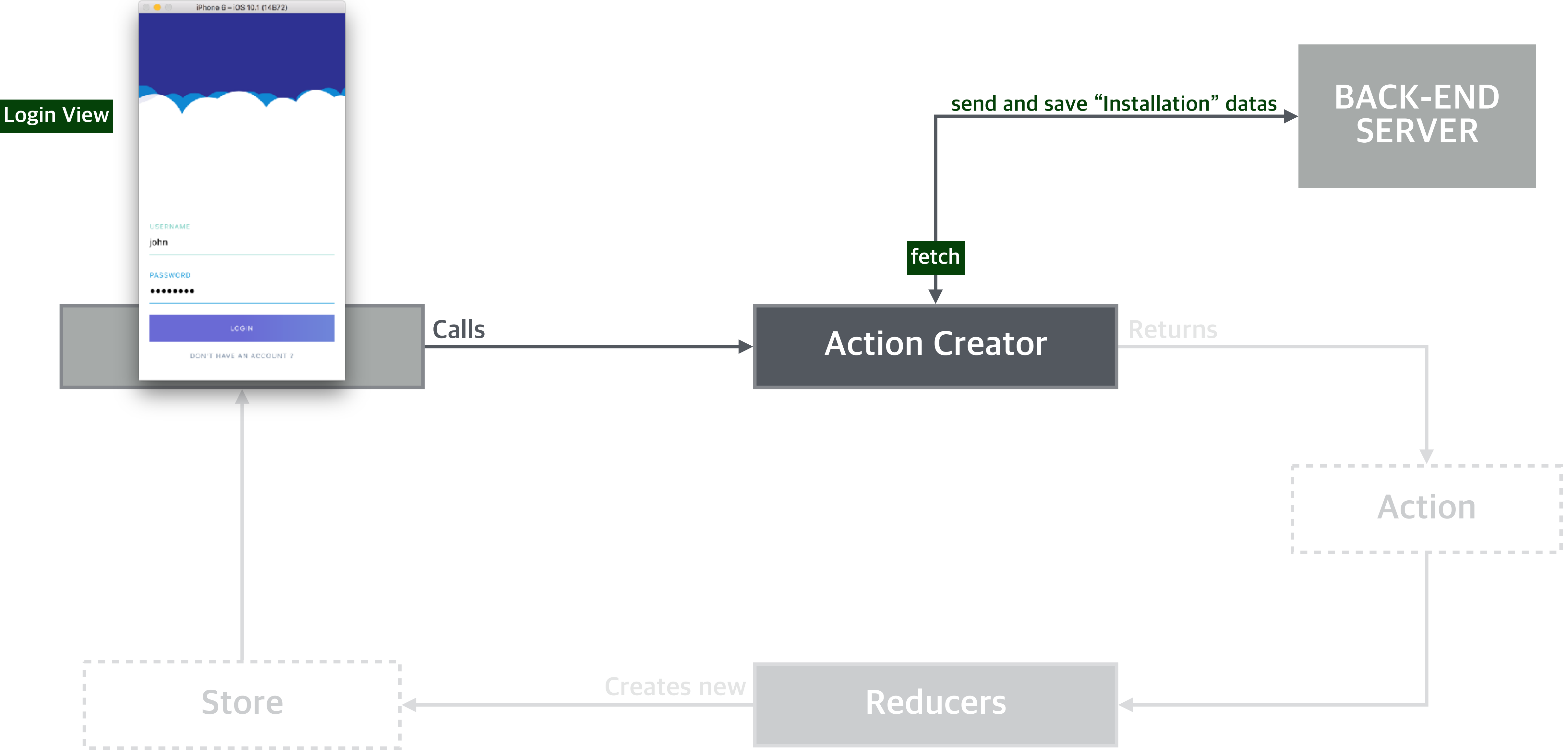


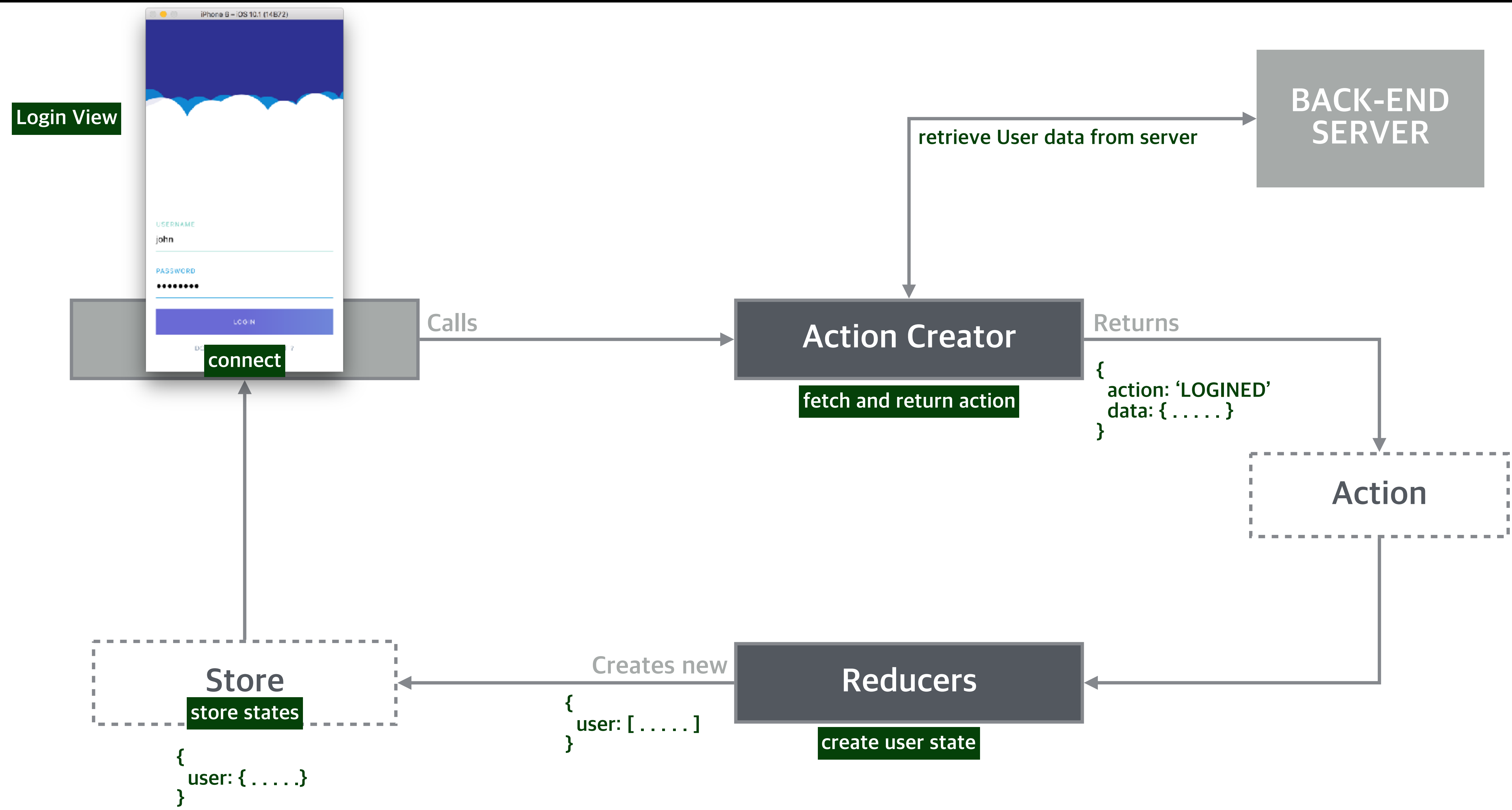


Redux is a predictable state container for JavaScript apps.

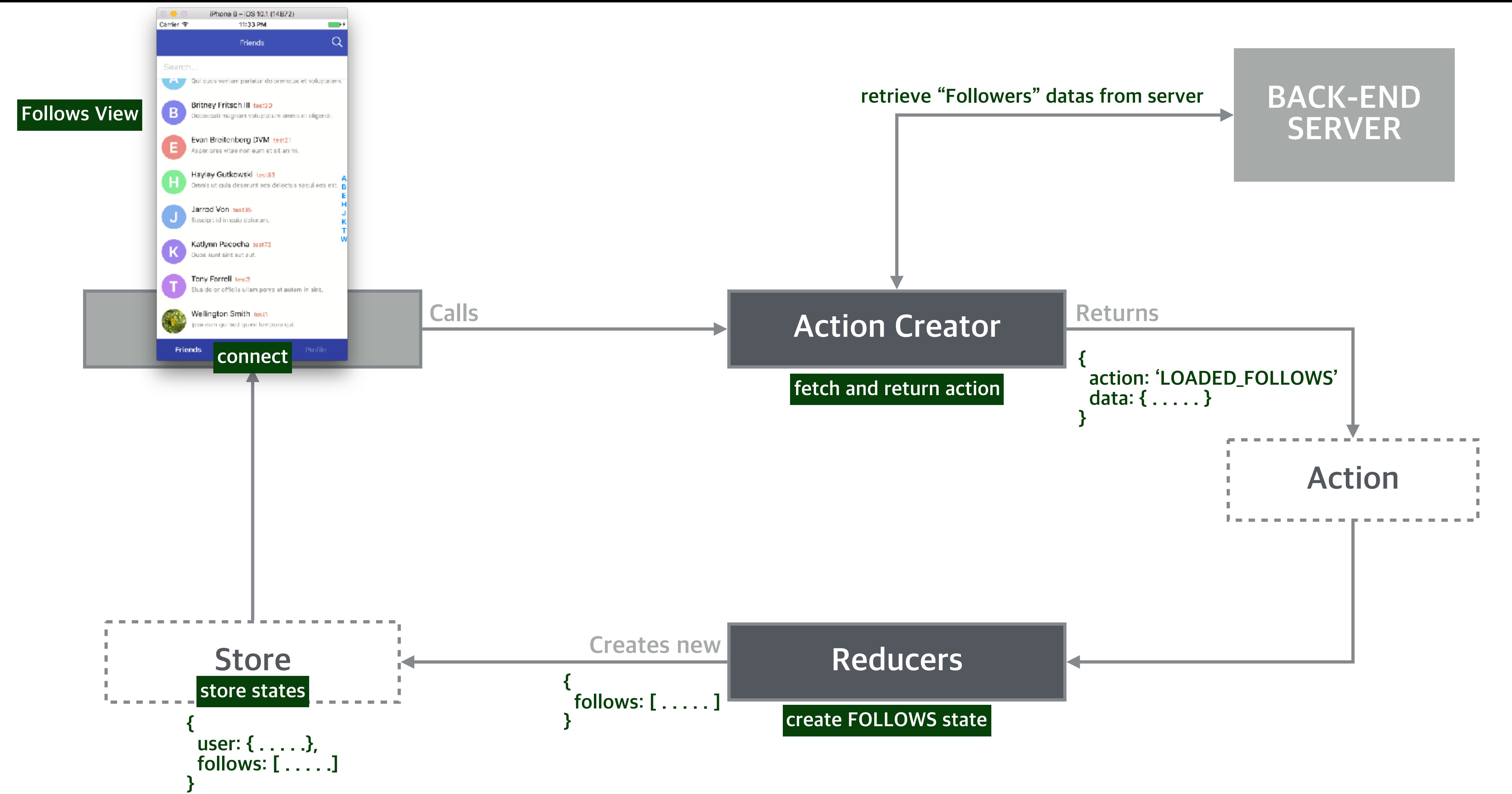
- Only concerned with state (Abstracting state)
 - Inspired by Flux. (not a pure Flux implementation)
- It uses a **single store** that wraps a state object





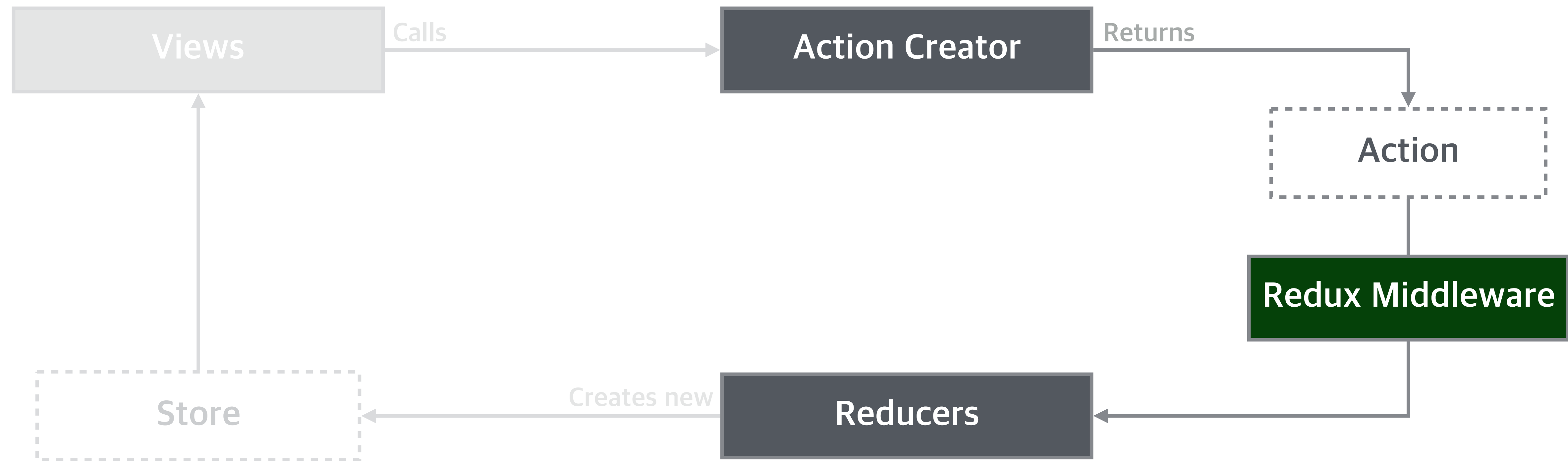


1. Messenger Mobile Application > Application Architecture



Redux Middleware

provides a third-party extension point between dispatching an action and the moment it reaches the reducers for logging, crash reporting, talking to an asynchronous API, routing, and more.



1. Messenger Mobile Application > Using modules



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react-native-linear-gradient

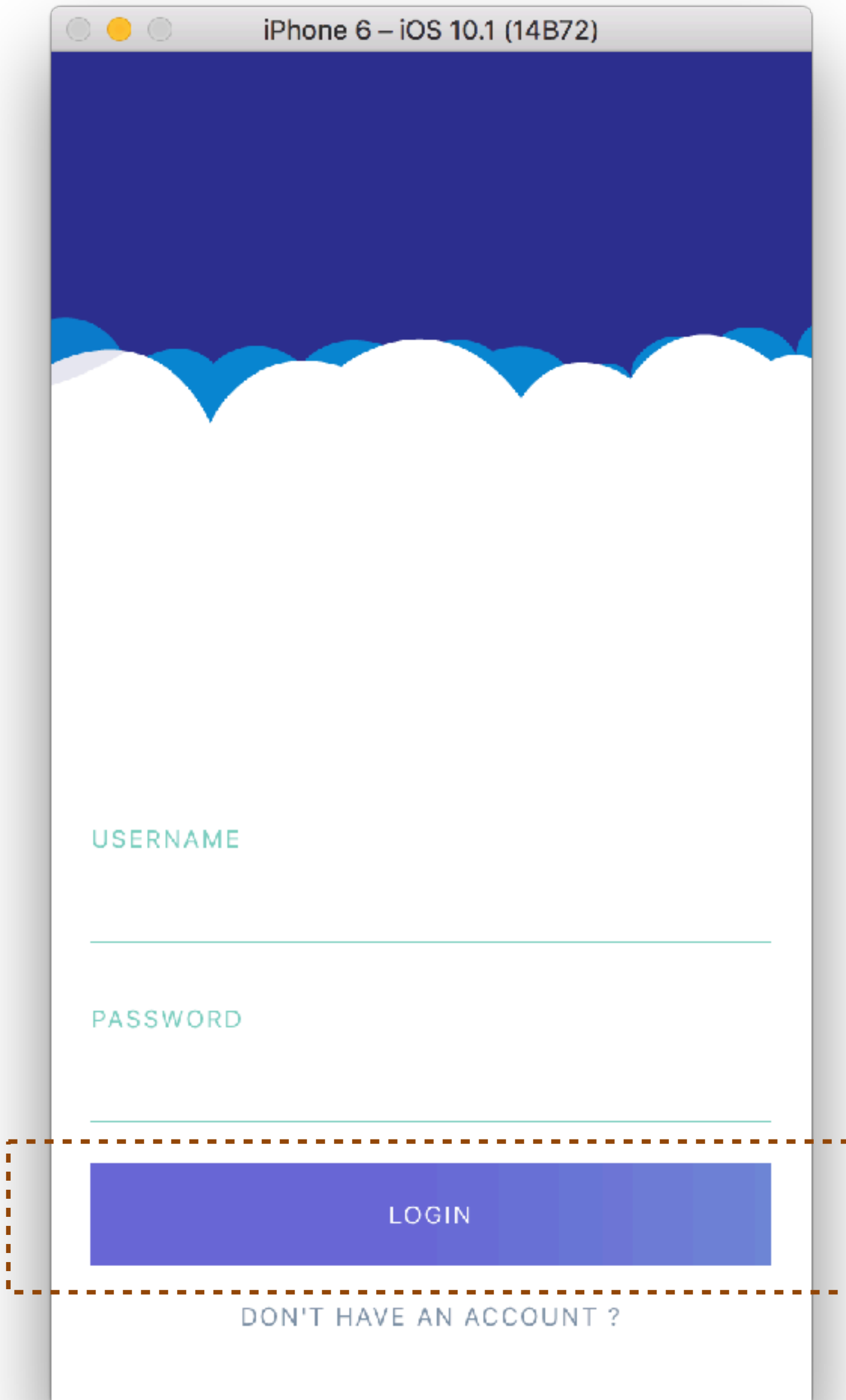
<https://github.com/react-native-community/react-native-linear-gradient>

```
<LinearGradient
  start={[0.5, 1]} end={[1, 1]}
  colors={['#6A6AD5', '#6F86D9']}
  style={[styles.button, styles.primaryButton]}>

  <Text style={[styles.caption, styles.primaryCaption]}>
    LOGIN
  </Text>

</LinearGradient>
```

<https://github.com/S5Platform/stalk-messenger/blob/master/app/components/common/S5Button.js>



1. Messenger Mobile Application > Using modules



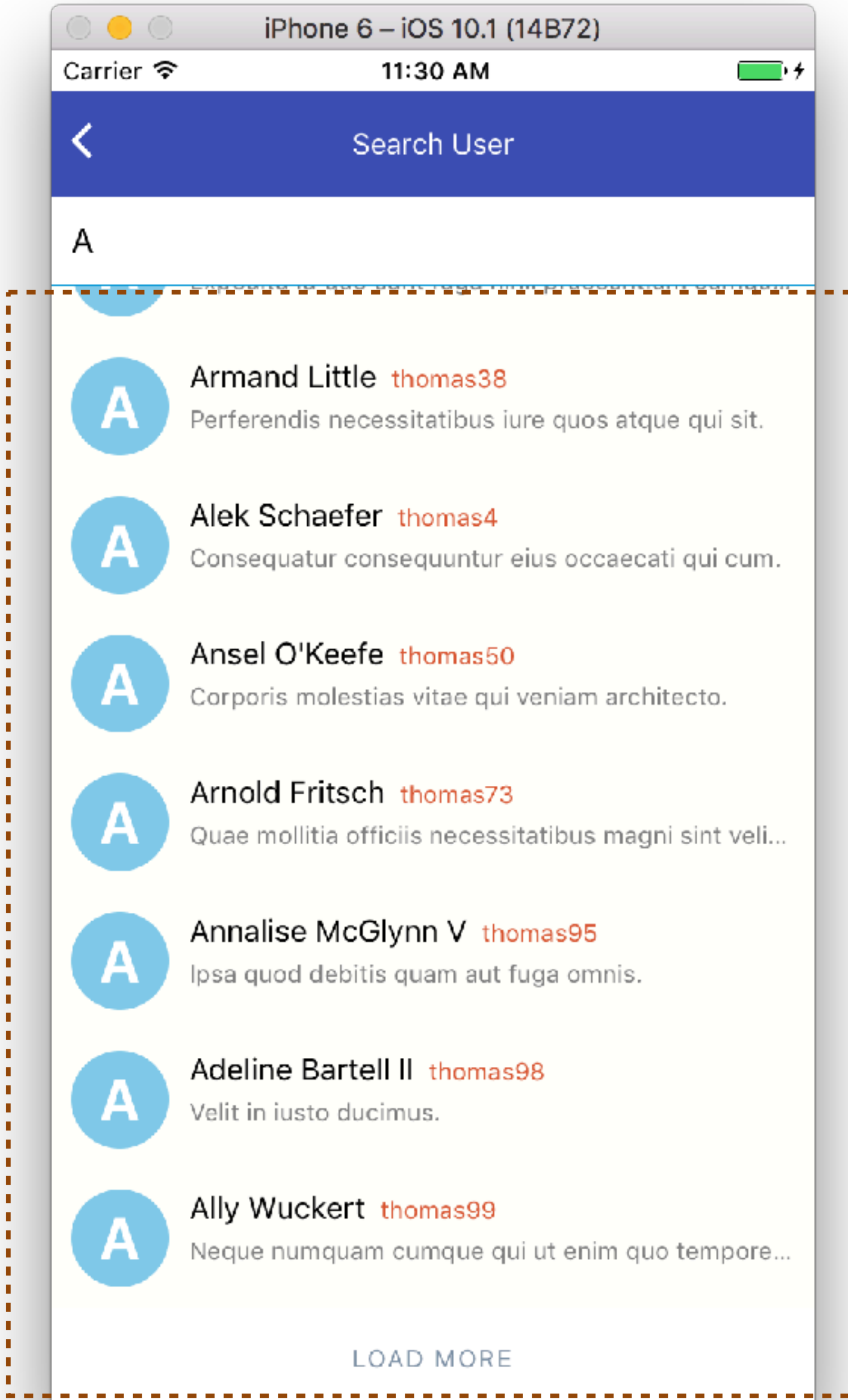
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react-native-gifted-listview

<https://github.com/s5platform/react-native-gifted-listview> forked from <https://github.com/FaridSafi/react-native-gifted-listview>

```
<GiftedListView
  ref={(ref) => this.s5ListView = ref}
  rowView={this.props.rowView}
  onFetch={this.props.onFetch}
  firstLoader={this.props.firstLoader}
  pagination={this.props.pagination}
  refreshable={this.props.refreshable}
  withSections={this.props.withSections}
  enableEmptySections={this.props.enableEmptySections}
  refreshableTintColor="blue"
  paginationWaitingView={this.paginationWaitingView}
  paginationAllLoadedView={ () => null }
```

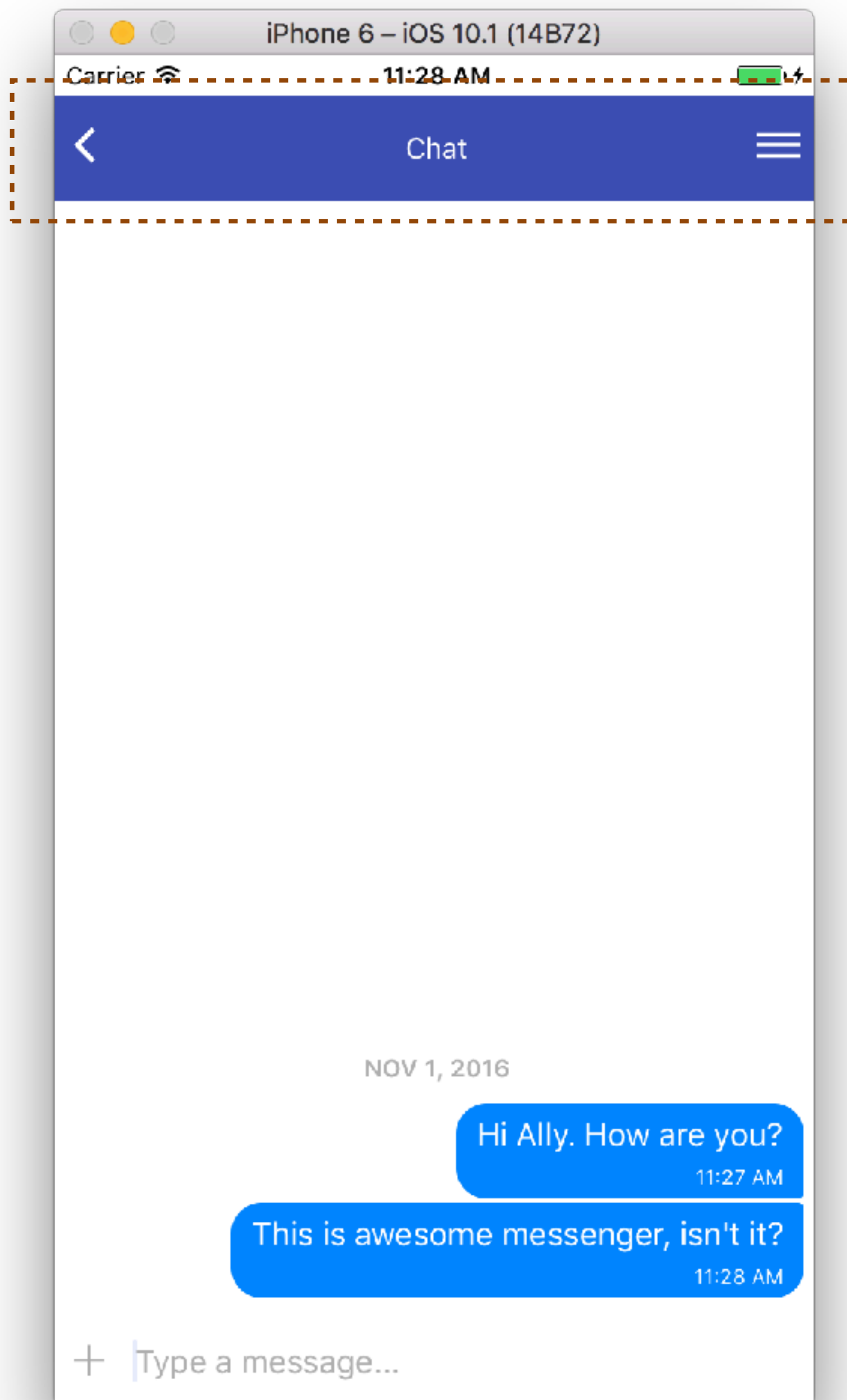
<https://github.com/S5Platform/stalk-messenger/blob/master/app/components/common/S5ListView.js>



1. Messenger Mobile Application > Using modules



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react-native-navbar

<https://github.com/react-native-community/react-native-navbar>

```
<NavigationBar
  style={styles.toolbar}
  title={{ title: this.props.title, style: {color: S5Colors.primaryText}}}
  leftButton={
    <NavBarButton
      style={{ marginLeft: 10 }}
      onPress={ this.props.onPress }
      actions={ this.props.leftItem } />
  }
  rightButton={
    <NavBarButton
      style={{ marginRight: 10 }}
      onPress={ this.props.onPress }
      actions={ this.props.rightItem } />
  }
/>
```

<https://github.com/S5Platform/stalk-messenger/blob/master/app/components/common/S5Header.js>

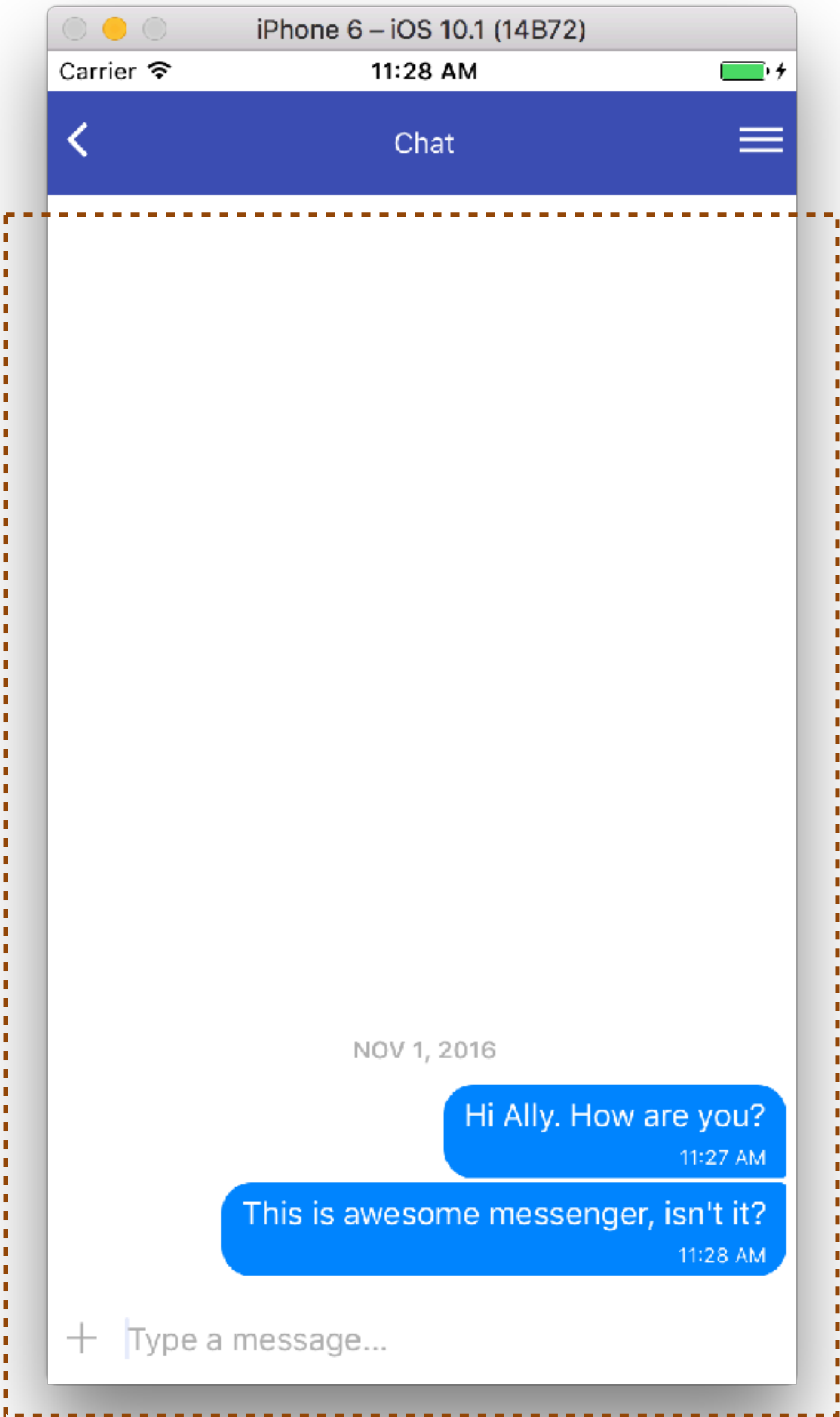
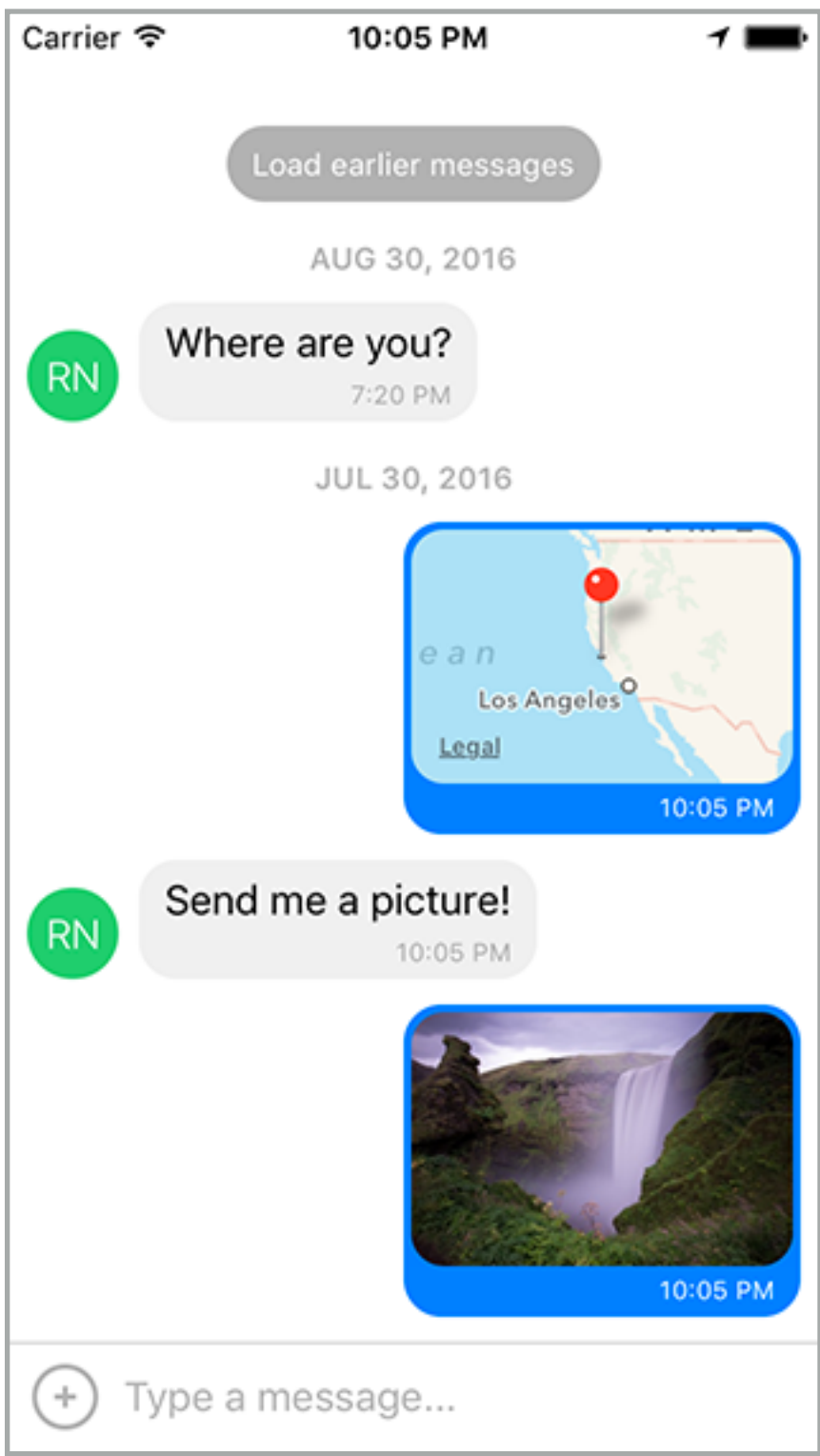
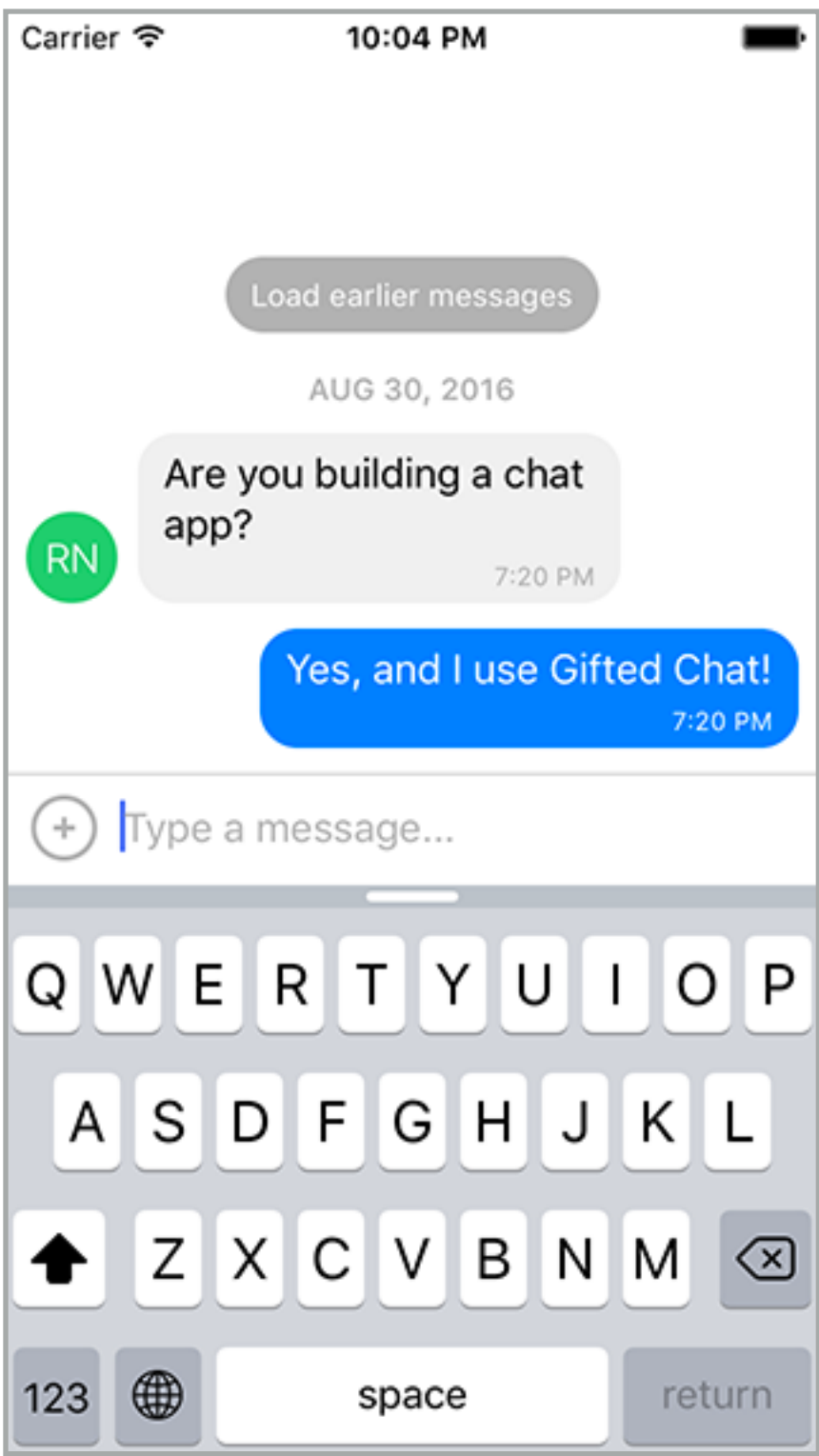
1. Messenger Mobile Application > Using modules



react-native-navbar

<https://github.com/FaridSafi/react-native-gifted-chat>

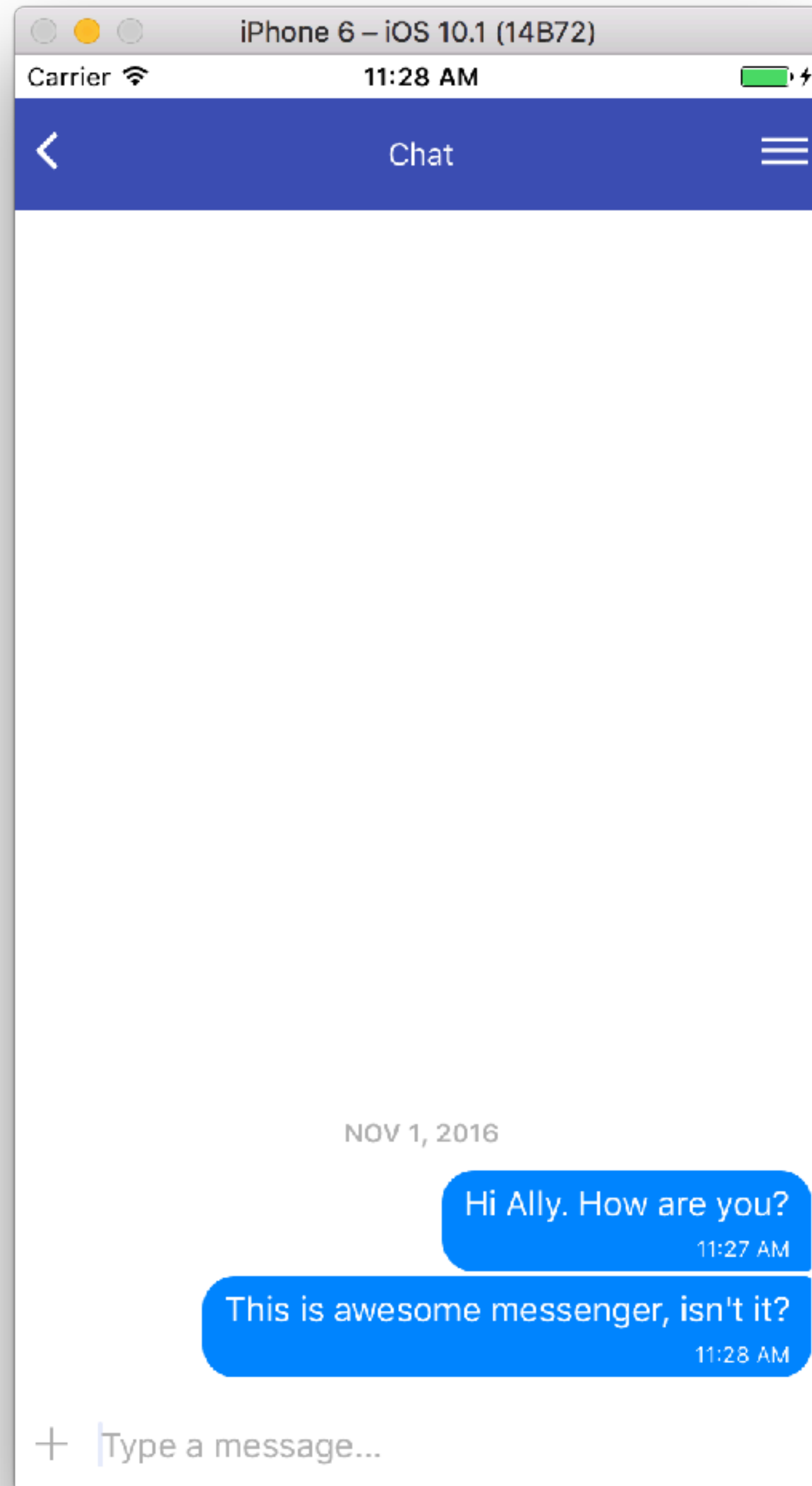
Chat UI for React Native



1. Messenger Mobile Application > Using modules



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react-native-socketio

<https://github.com/S5Platform/react-native-socketio> forked from <https://github.com/gcrabtree/react-native-socketio>

A React Native wrapper for both the Swift and Java Socket.io clients

- forked from github.com/gcrabtree/react-native-socketio
- Reviewing Pull requests
- Making the project compatible with ^RN .35
- Making the project XCode 8 compatible.
- Upgrading to Swift 3
- wrapped libraries

<https://github.com/socketio/socket.io-client-swift>

<https://github.com/socketio/socket.io-client-java>

<https://github.com/S5Platform/stalk-messenger/blob/master/package.json>

```
"dependencies": {
  "moment": "^2.15.2",
  "parse": "github:s5platform/Parse-SDK-JS",
  "react": "15.3.2",
  "react-addons-shallow-compare": "^15.3.2",
  "react-native": "0.35.0",
  "react-native-gifted-chat": "0.0.10",
  "react-native-gifted-listview": "github:s5platform/react-native-gifted-listview",
  "react-native-image-picker": "^0.22.10",
  "react-native-linear-gradient": "^1.5.13",
  "react-native-navbar": "^1.5.4",
  "react-native-push-notification": "^2.1.1",
  "react-native-socketio": "github:s5platform/react-native-socketio",
  "react-native-tab-view": "0.0.37",
  "react-native-vector-icons": "^2.1.0",
  "react-redux": "^4.4.5",
  "redux": "^3.6.0",
  "redux-logger": "^2.7.0",
  "redux-persist": "^4.0.0-alpha6",
  "redux-thunk": "^2.1.0",
  "tween-functions": "^1.2.0"
}
```

Wrap up

Fast & Great Development Experience

Community size

Lower Learning code

structure for separating concerns

wrapping 3-party react native modules



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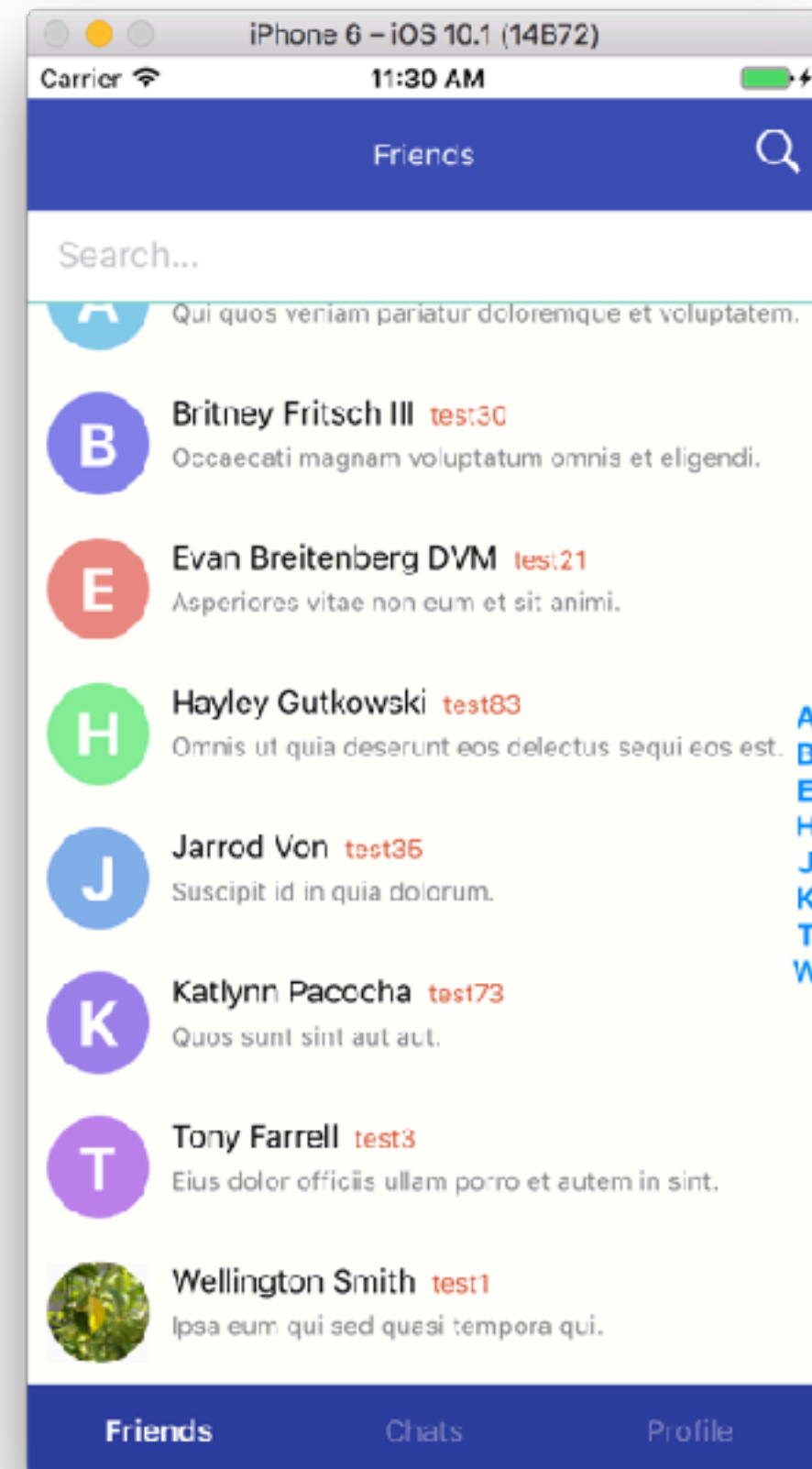
2. Messenger Backend Server Application

- Server Architecture
 - : Session Server (API)
 - : Channel Server (Messaging)

2. Messenger Backend Server

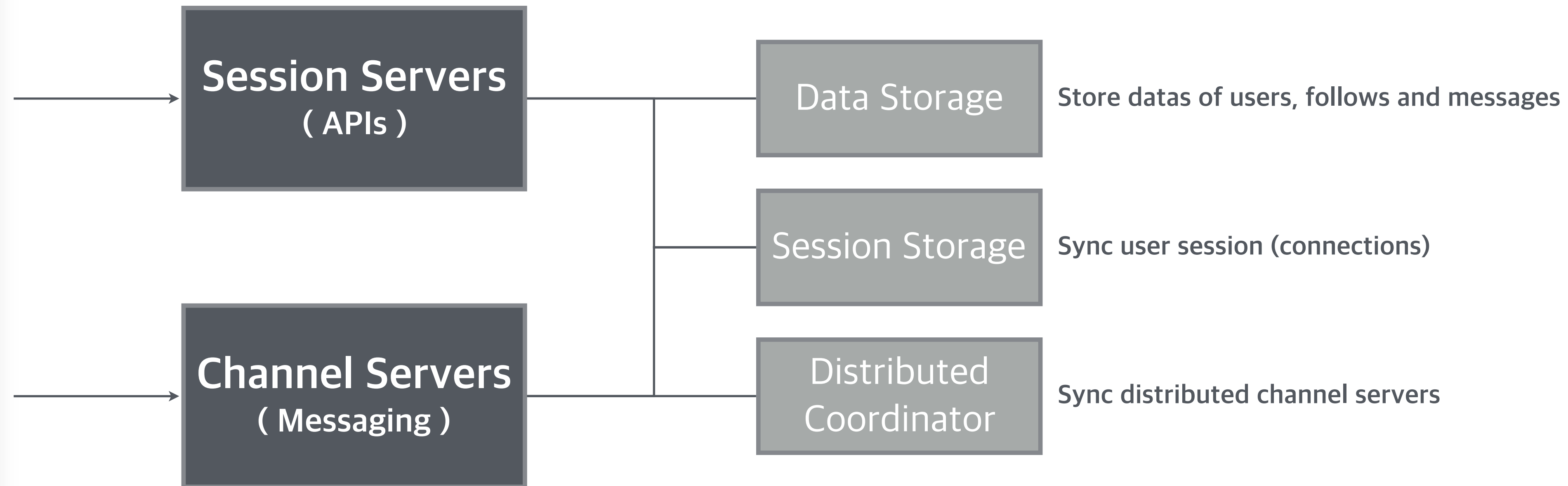


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Provide Messenger APIs

- login, sign up and logout
- retrieve user account and search users
- retrieves lists of follows and chats
- assign channel server for socket connections



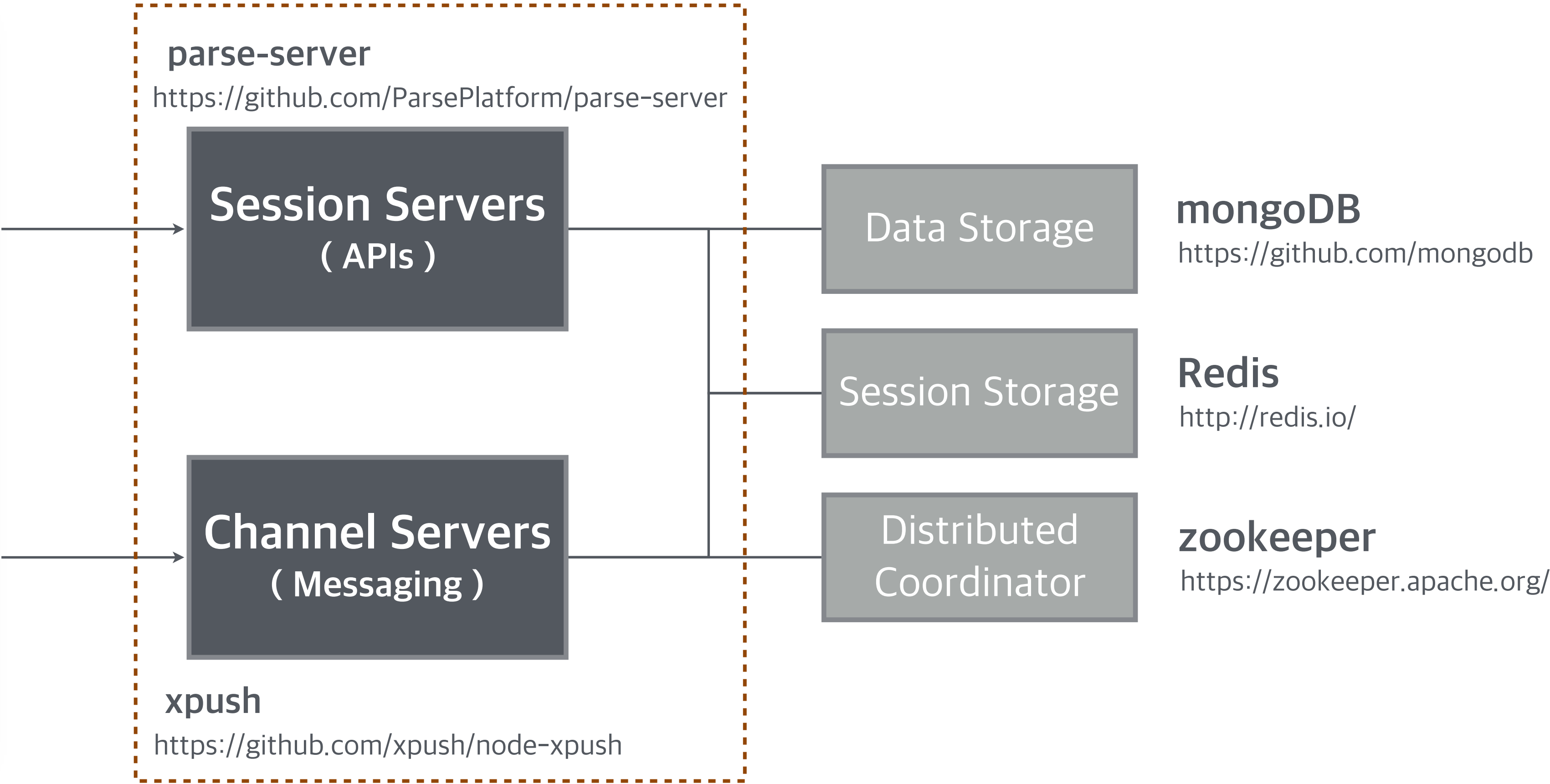
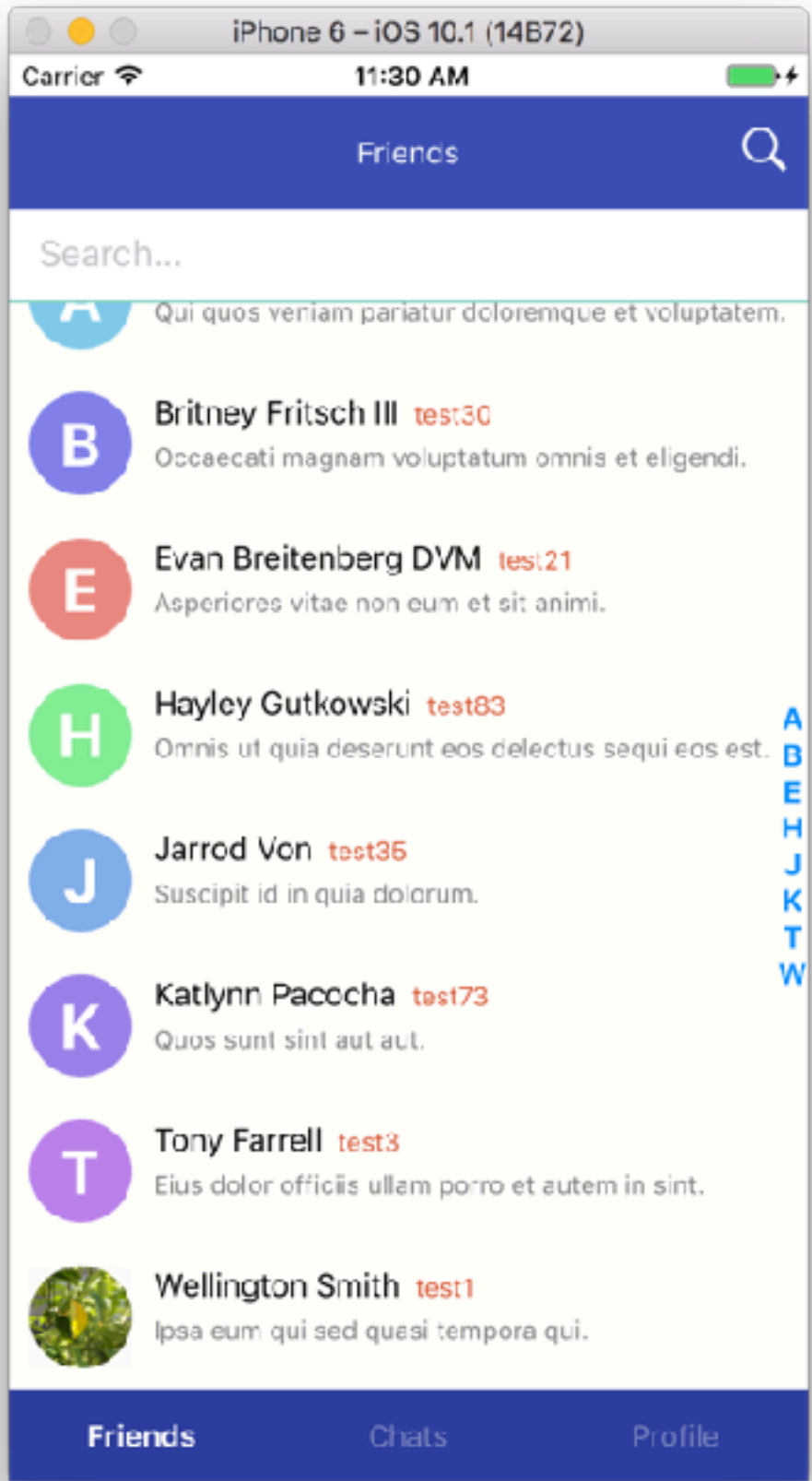
Connect and exchange messages

- create socket connection
- create room for chatting
- exchange messages (send and receive)



stalk-messenger-server

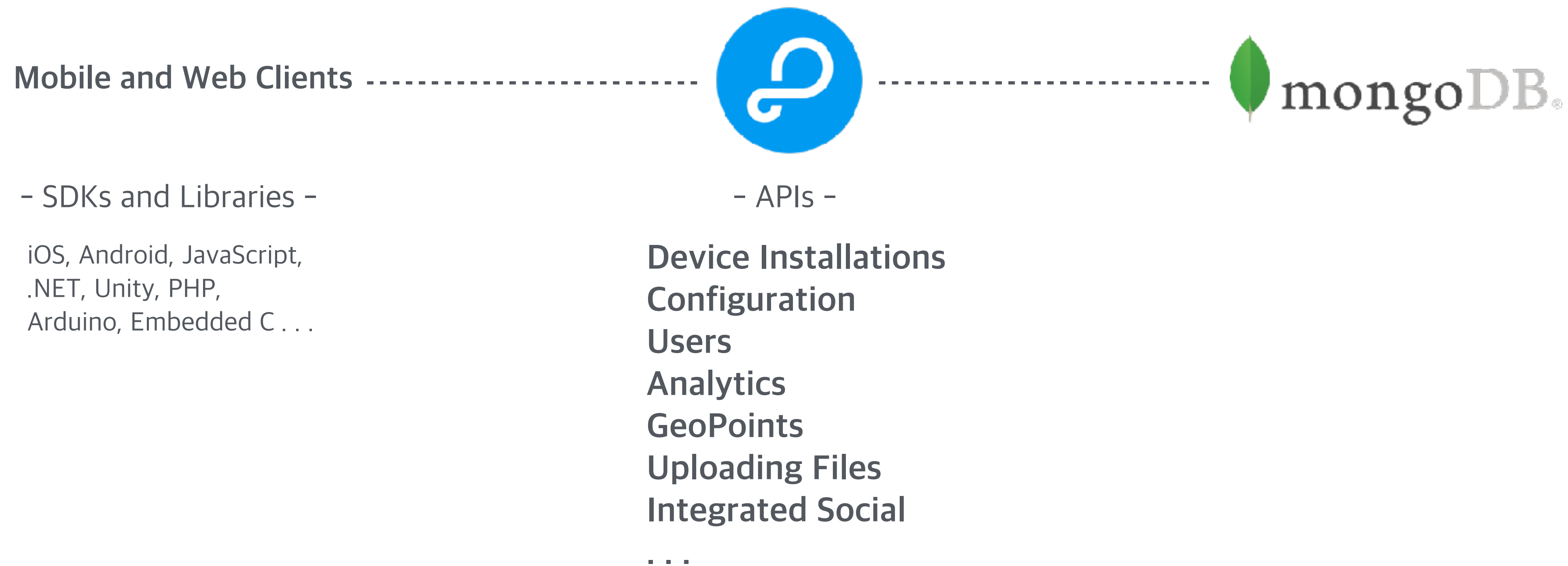
<https://github.com/S5Platform/stalk-messenger-server>



Parse Server

Parse Server is an open source version of the Parse backend that can be deployed to any infrastructure that can run Node.js.

- works with the Express web application framework
- added to existing web applications
- Mobile backend as a service (MBaaS) ?



2. Messenger Backend Server



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Mobile and Web Clients



parse-dashboard

PARSE DASHBOARD 1.0.16

S5Messenger

Core

Browser

Installation9

Session215

User206

Channels34

Chats145

Follows39

Messages76

UploadFiles2

Logs

Config

API Console

Push

CLASS

User

206 objects • Public Read and Write enabled

Refresh

Filter

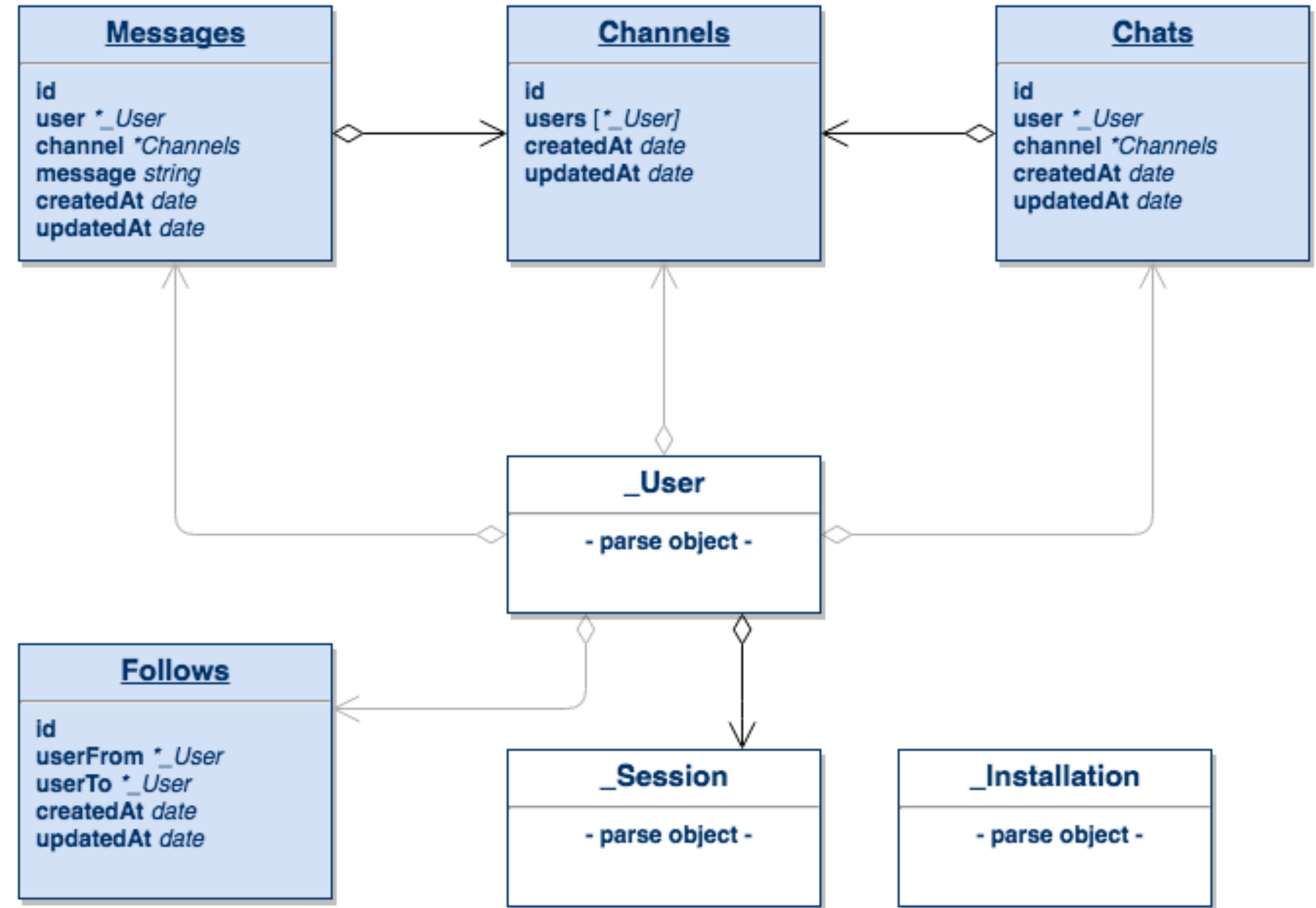
Security

Edit

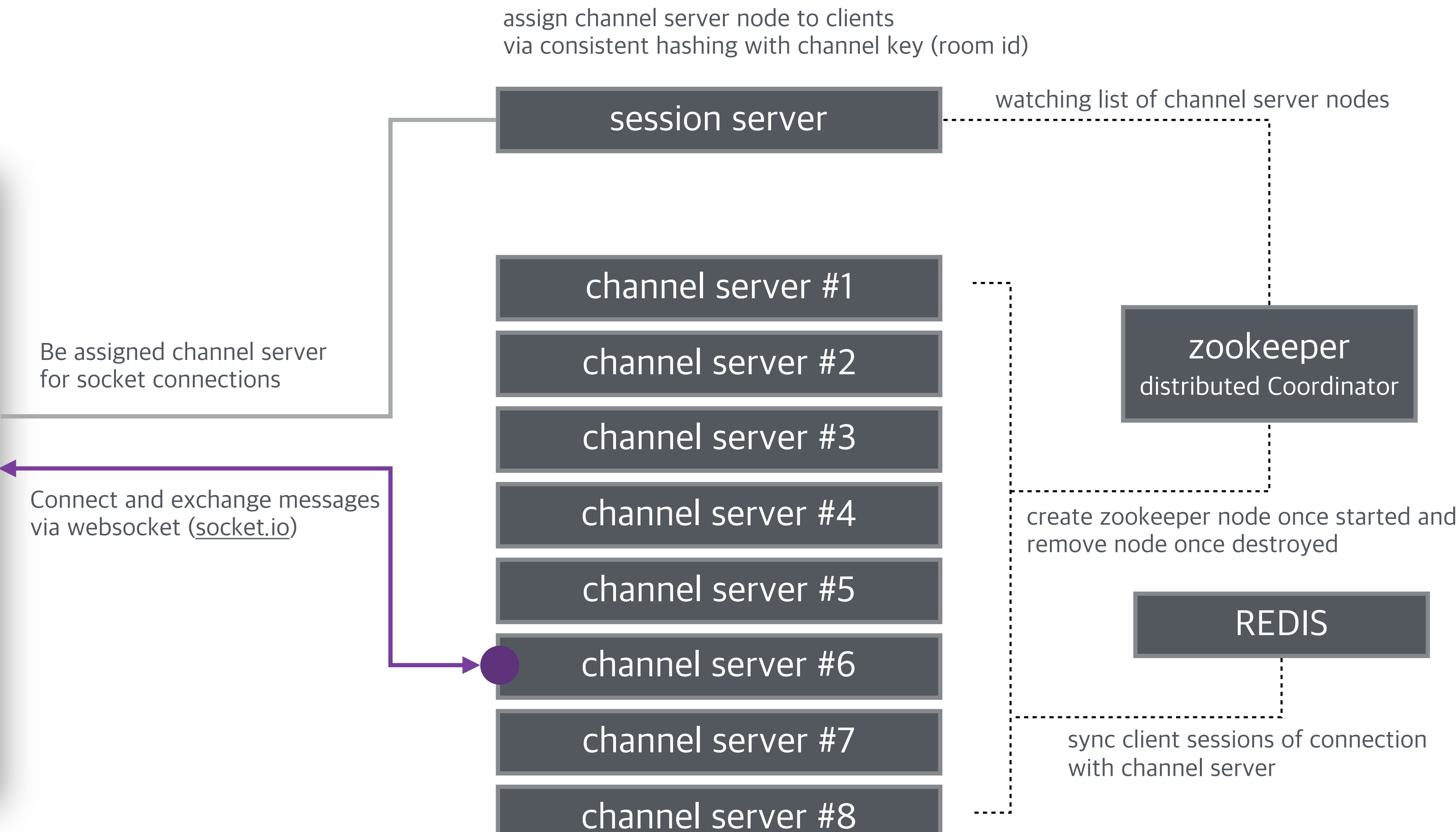
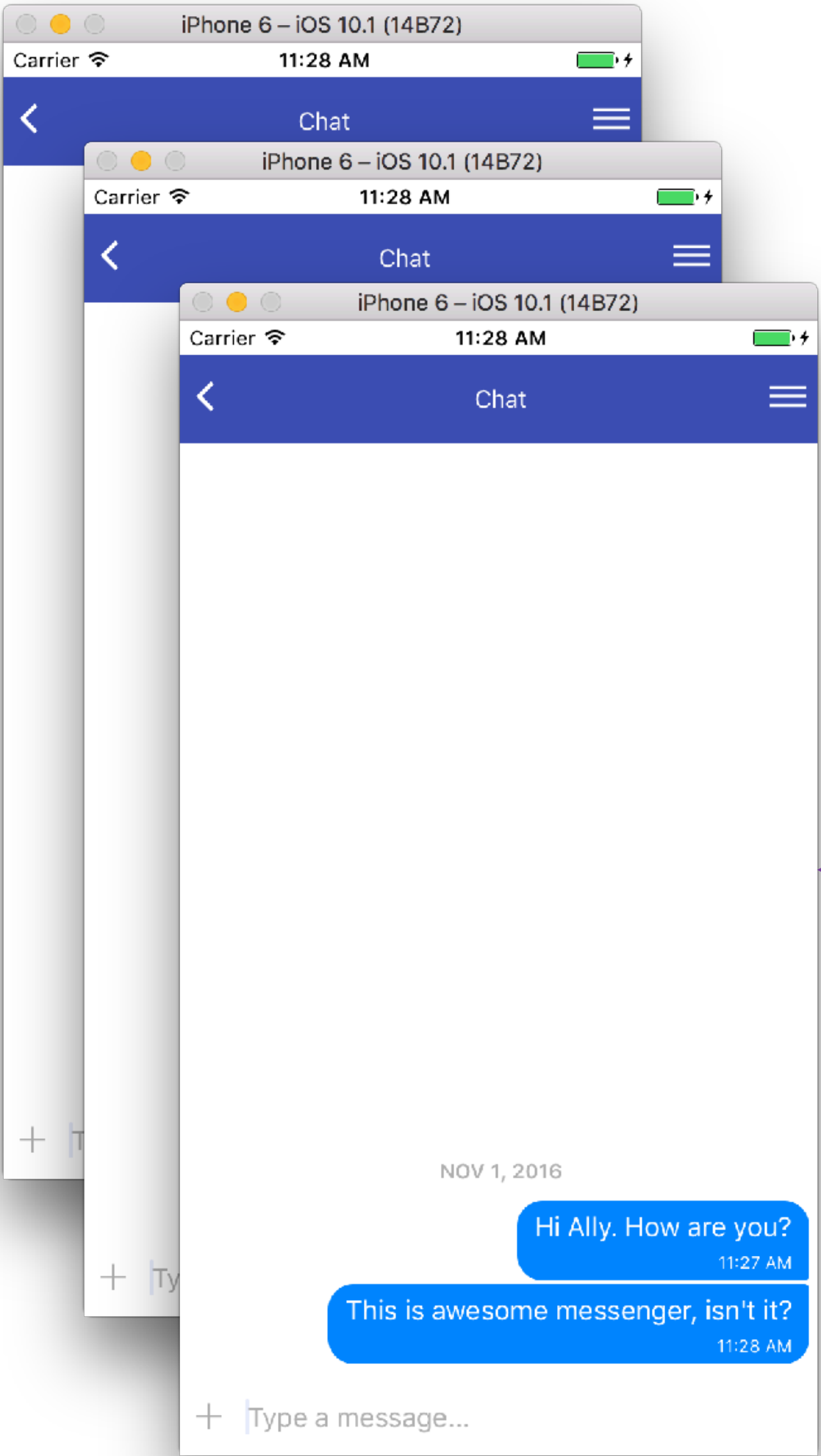
objectId	String	emailVerified	Boolean	ACL	ACL	updatedAt	Date	authData	Object	username	String	createdAt	Date	password	String
<input type="checkbox"/>	HXWjH7D7X4	(undefined)		Public Read, HXWjH...		30 Oct 2016 at 05:...		(undefined)		thomas95		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	U1N3zW3Mps	(undefined)		Public Read, U1N3z...		30 Oct 2016 at 05:...		(undefined)		thomas96		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	Ic0n3E40nJ	(undefined)		Public Read, Ic0n3...		30 Oct 2016 at 05:...		(undefined)		thomas97		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	yg0TLEjond	(undefined)		Public Read, yg0TL...		30 Oct 2016 at 05:...		(undefined)		thomas98		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	PLi4x1FL67	(undefined)		Public Read, PLi4x...		30 Oct 2016 at 05:...		(undefined)		thomas99		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	xQdoswVj0U	(undefined)		Public Read, xQdos...		30 Oct 2016 at 05:...		(undefined)		thomas91		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	Cq8R4zu8zE	(undefined)		Public Read, Cq8R4...		30 Oct 2016 at 05:...		(undefined)		thomas92		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	aIrMEY3vyH	(undefined)		Public Read, aIrMB...		30 Oct 2016 at 05:...		(undefined)		thomas93		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	bcJ7i1pe15	(undefined)		Public Read, bcJ7i...		30 Oct 2016 at 05:...		(undefined)		thomas94		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	GNzPz3Ath6	(undefined)		Public Read, GNzPz...		30 Oct 2016 at 05:...		(undefined)		thomas96		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	1X3mRBTb64	(undefined)		Public Read, 1X3mR...		30 Oct 2016 at 05:...		(undefined)		thomas97		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	X6oY19BIEj	(undefined)		Public Read, X6oYL...		30 Oct 2016 at 05:...		(undefined)		thomas98		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	PkhBwXpN8z	(undefined)		Public Read, PkhBw...		30 Oct 2016 at 05:...		(undefined)		thomas99		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	RgqcTeY6LM	(undefined)		Public Read, RgqcT...		30 Oct 2016 at 05:...		(undefined)		thomas90		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	r8ZL7YXHuK	(undefined)		Public Read, r8ZL7...		30 Oct 2016 at 05:...		(undefined)		thomas91		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	hlwBl3i3Dy	(undefined)		Public Read, hlwBl...		30 Oct 2016 at 05:...		(undefined)		thomas92		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	DYAhSM5j0P	(undefined)		Public Read, DYAhS...		30 Oct 2016 at 05:...		(undefined)		thomas93		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	V9zi7gabz2	(undefined)		Public Read, V9zi7...		30 Oct 2016 at 05:...		(undefined)		thomas94		30 Oct 2016 at 05:...		(hidden)	
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<input type="checkbox"/>	vRFAFvNwc1	(undefined)		Public Read, vRFAF...		30 Oct 2016 at 05:...		(undefined)		thomas96		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	RYWghdRrrL	(undefined)		Public Read, RYWgh...		30 Oct 2016 at 05:...		(undefined)		thomas97		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	w5021Ahcqp	(undefined)		Public Read, w5021...		30 Oct 2016 at 05:...		(undefined)		thomas98		30 Oct 2016 at 05:...		(hidden)	
<input type="checkbox"/>	FqhsDgcCMg	(undefined)		Public Read, FqhsD...		30 Oct 2016 at 05:...		(undefined)		thomas99		30 Oct 2016 at 05:...		(hidden)	



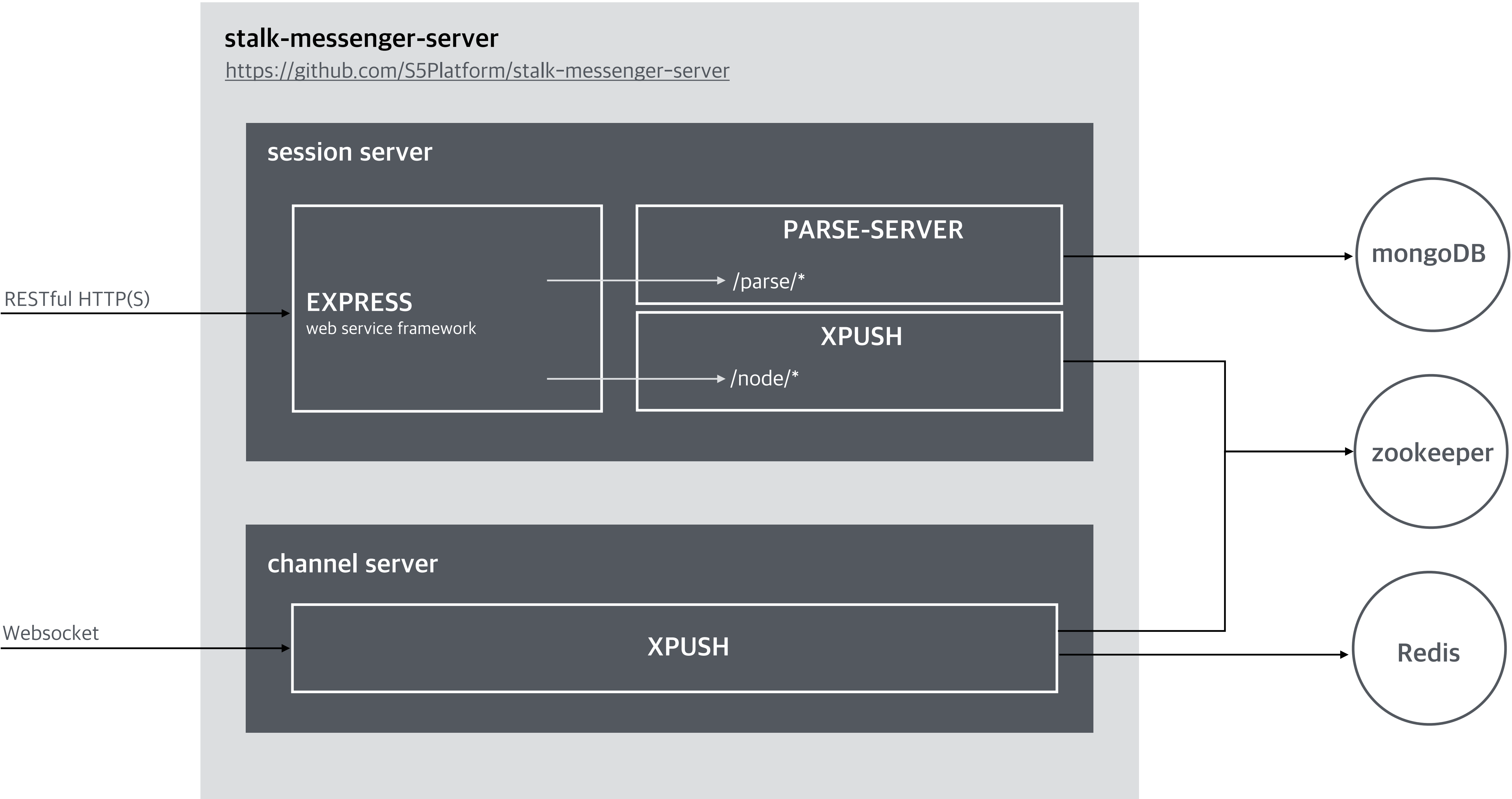
- Messenger data structure in mongoDB -



XPUSH XPUSH is distributed websocket module that provides real-time message communication with socket.io



2. Messenger Backend Server



Wrap up

Start with Platform, not user-end service.

Concerns with margin cost for platform business.

Scale Out with Distributed Coordinator.

Provides Common API for mobile services.

