

REACT AND FRIENDS

- James Kent
- Matt
Gilbride

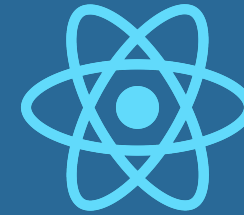
AGENDA

- What is React?
- Intro to Create React App
- What React isn't
- Common companion libraries
- What makes React a good choice for your team

WHAT IS REACT?

- A view library for building component-based UIs
- Created by Facebook in 2013
- Includes a declarative DSL for describing components called JSX
 - "html in your javascript"
- Components are a function of two parameters
 - "props" = read-only
 - "state" = read/write
- Components have a specific lifecycle that can be used to influence behavior
 - <http://projects.wojtekmaj.pl/react-lifecycle-methods-diagram/>

CREATE REACT APP



- <https://github.com/facebook/create-react-app>

WHAT REACT ISN'T

- A "framework"
- The following is up to you:
 - State Management
 - Routing
 - Forms
 - Styling
 - Testing

OUR STACK

STATE MANAGEMENT



Flux



Redux



Mobx

STATE MANAGEMENT



Flux



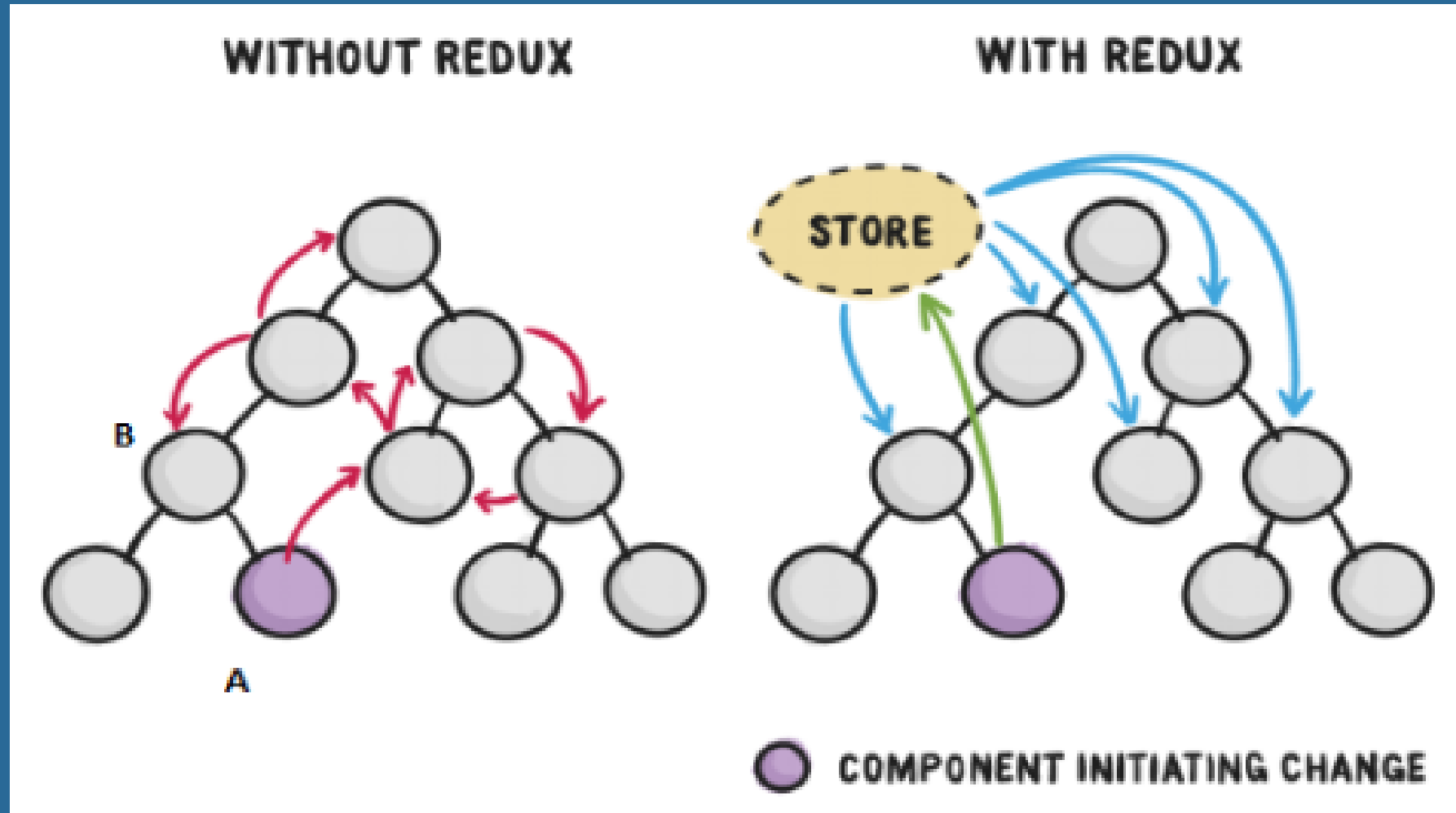
Redux



Mobx

- It is totally possible to use React without any state management library!

REDUX - DATA FLOW



Source: <https://www.slideshare.net/binhqdgmail/oo6-react-redux-framework>

REDUX - VOCABULARY

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- REDUCER - function which responds to ACTION(s) and decides how to update
STATE
- DISPATCH - function that passes actions to
reducers
 - you "dispatch" an "action"

REACT-REDUX

- (yet another) a companion library
- provides a nice API for using redux with your React components
- subscribe to pieces of the data, receiving updates when they change
- make changes to the data from your components

REACT-REDUX IN PRACTICE

```
9 interface StateProps {
10   inFlight: boolean;
11   schedule?: Session[];
12 }
13
14 interface DispatchProps {
15   scheduleRequest: () => void;
16 }
17
18 type ScheduleProps = StateProps & DispatchProps;
19
20 class ScheduleComponent extends Component<ScheduleProps> {
21
22   public componentDidMount() {
23     this.props.scheduleRequest();
24   }
25
26   public render() {
27     return (
28       <Fragment>
29         <h3>Choose an appointment time:</h3>
30
31         <div className={styles.schedule}>
32           {(this.props.inFlight || !this.props.schedule)
33             ? <SpinnerComponent />
34             : <Fragment>
35               {this.props.schedule.map((session: Session) => (
36                 <SessionLink
37                   key={session.id}
38                   {...session}
39                 />
40               ))}
41             </Fragment>
42         </div>
43       </Fragment>
44     );
45   }
46 }
47
48
49 const mapStateToProps: MapStateToProps<StateProps, ScheduleProps, { spa: SpaState }> = state => ({
50   inFlight: state.spa.inFlight,
51   schedule: state.spa.schedule,
52 });
53
54 const mapDispatchToProps: MapDispatchToProps<DispatchProps, ScheduleProps> = dispatch => ({
55   scheduleRequest: () => dispatch(ActionCreators.scheduleRequest()),
56 });
57
58 export const ScheduleContainer = connect(mapStateToProps, mapDispatchToProps)(ScheduleComponent);
```

REACT-REDUX IN PRACTICE

- tooling matters

ASYNC ACTIONS



redux-thunk



redux-saga



redux-observable

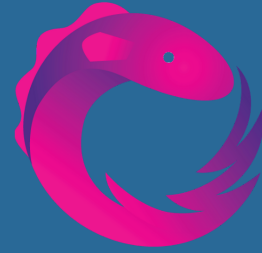
```
function makeASandwichWithSecretSauce(forPerson) {  
  return function (dispatch) {  
    return fetchSecretSauce().then(  
      sauce => dispatch(makeASandwich(forPerson, sauce)),  
      error => dispatch(apologize('The Sandwich Shop', forPerson, error))  
    );  
  };  
};
```

- a.k.a. but I need to talk to a server!

REDUX-OBSERVABLE


- turns redux actions into observables
- "Epics": actions in, actions out

RXJS




- "Observable" - think of it as a stream
- resources
 - <http://rxmarbles.com/>
 - <http://reactivex.io/documentation/operators/merge.html>
 - <http://reactivex.io/documentation/operators/zip.html>
 - Video: Marble diagrams in Rx

REDUX-OBSERVABLE IN PRACTICE



Chariot SPA Day



CHARIOT SOLUTIONS

Welcome to the SPA

Just float and wait for the wind to blow you around. Here's another **little happy bush**. Let all these little things happen. Don't fight them. Learn to use them. No worries. No cares.

How do you make a round circle with a square knife? That's your challenge for the day. Anytime you learn something your time and energy are not wasted. **Let's get crazy**. At home you have unlimited time. We need a shadow side and a highlight side. Nothing's gonna make your husband or wife madder than coming home and having a snow-covered dinner.

This is your world, **whatever makes you happy** you can put in it. Go crazy. Everybody needs a friend. It's important to me that you're happy. Isn't that fantastic? You can just push a little tree out of your brush like that. They say everything looks better with odd numbers of things. But sometimes I put even numbers –just to upset the critics. Maybe we got a few little happy bushes here, just covered with snow.

Didn't you know you had that much power? **You can move mountains**. You can do anything. Don't kill all your dark areas - you need them to show the light. It just happens - whether or not you worried about it or tried to plan it.

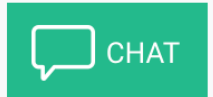
Success! Your registration is complete

Appointment: **Nov. 28th - 10 am - 11 am**
Name: **Matthew T Gilbride**
Email: **mtg5014@gmail.com**
Treatment: **Chemical peel**

Complete Registrant List

Name	Email	Treatment
Matthew T Gilbride	mtg5014@gmail.com	Exfoliation
Matthew T Gilbride	mtg5014@gmail.com	Exfoliation
Matthew T Gilbride	mtg5014@gmail.com	Exfoliation
Matthew T Gilbride	mtg5014@gmail.com	Chemical peel
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[Back to Schedule](#)



filter... Commit

@@@INIT 7:51:34.65

spa/register/REQUEST +00:12.42

spa/register/SUCCESS +00:00.01

spa/schedule/REQUEST +00:00.01

@@router/LOCATION_CHAN... +00:00.01

spa/schedule/SUCCESS +00:01.04

Inspector

React App

Diff

Tree

Raw

spa (pin)

inFlight (pin): true => false

schedule (pin): { 0: {...} }

1x

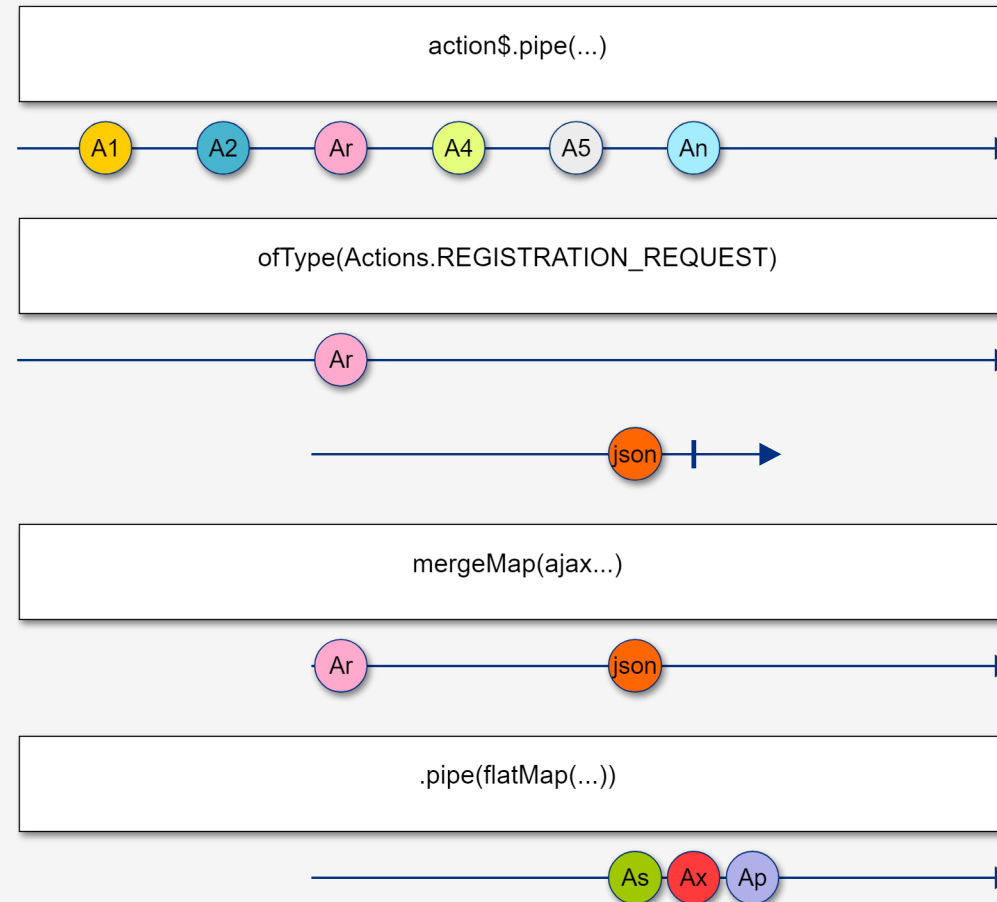
Dispatch

Custom action

Dispatch

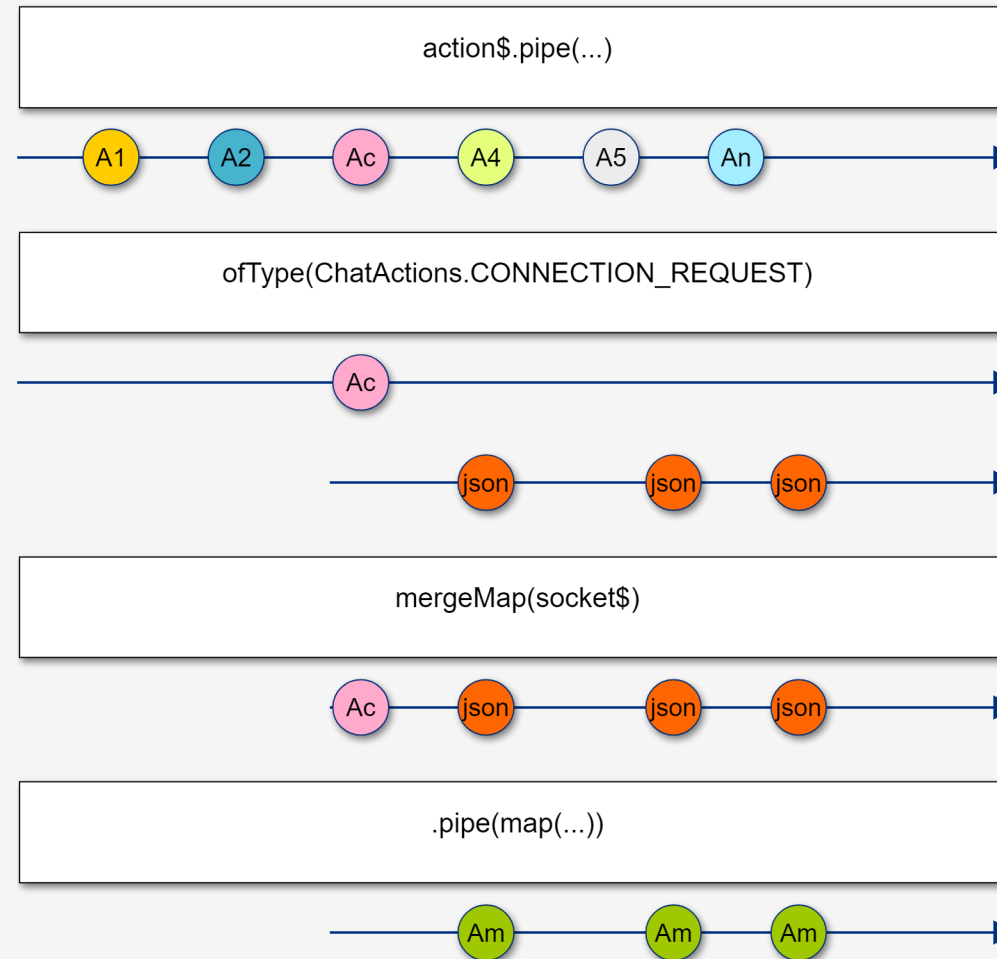
REDUX-OBSERVABLE IN PRACTICE

registrationRequestEpic (spaEpic.ts)

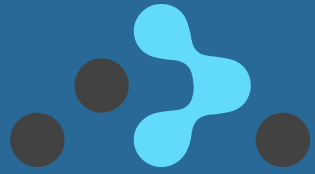


REDUX-OBSERVABLE IN PRACTICE

connectEpic (chatEpic.ts)



ROUTING



React Router



Aviator



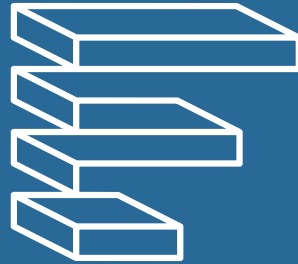
Backbone Router

i React's website has a more comprehensive list of available routers: [Link](#)

FORMS



Redux Forms




Formik


Formsy

i React's basic documentation on controlled and uncontrolled forms: [Link](#)

FORMS



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Register for your appointment:


Appointment: **Nov. 28th - 11 am - 12 pm**

Name
Matthew T Gilbride

Email
mtg5014@gmail.com

Treatment
Choose a treatr ▾

Register



Elements Sources Network Performance Console React

Elements Profiler

Search (text or /regex/)

```
<Provider>
  <Connect(ConnectedRouter)>
    <ConnectedRouter action="PUSH">
      <Router>
        <App>
          <Header>...</Header>
          <Home>
            <div className="Home_home_Msffs">
              <h1>Welcome to the SPA</h1>
            </div>
            <div className="Home_row__3RM-M">
              <div className="Home_column__3MWvA">
                <Welcome>...</Welcome>
              </div>
              <div className="Home_column__3MWvA">
                <Routes>
                  <Switch>
                    <Route exact={true} path="/schedule/:id/register">
                      <Connect(RegistrationComponent)>
                        <RegistrationComponent inFlight={false}> == $r
                          <h3>
                            >Register for your appointment:
                          </h3>
                          <form className="Registration_form__CctT5">
                            <h4>
                              "Appointment: "
                              <b>
                                "Nov. 28th - 11 am - "
                                "12 pm"
                              </b>
                            </h4>
                            <div>
                              <label>Name</label>
                              <input type="text">

```

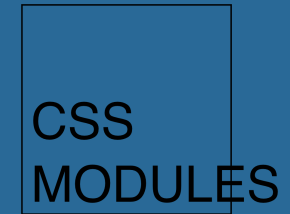
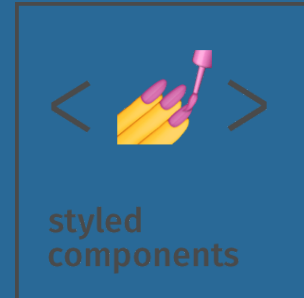
Props

- history: {...}
- inFlight: false
- location: {...}
- match: {...}
- registrationRequest: regi
- session: {...}

State

- email: "mtg5014@gmail.com"
- name: "Matthew T Gilbride"
- treatment: ""

STYLING



Global Styles or
Imported Component Styles

React Specific Approaches

CSS Modules

TESTING



Jest



Enzyme

WHO IS REACT GOOD FOR?

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- Existing projects

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- Existing projects
- Strong development teams which want flexibility

WHO IS REACT GOOD FOR?

- Existing projects
- Strong development teams which want flexibility
- Small projects

THANKS!

- Questions?