# “What the Flux?! Let's Redux.”

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***Before start we need to know three things about Redux...***

## *Single source of truth*

The state of your whole application is stored in an object tree within a single store.

## *State is read-only*

The only way to change the state is to emit an action, an object describing what happened.

## *Changes are made with pure functions*

To specify how the state tree is transformed by actions, you write pure reducers.

***And then we can start to talk about these libs...***

## *React-redux*

Official React bindings for Redux. Connects a React component to a Redux store

## *Redux-actions*

Flux Standard Action utilities for Redux. Wraps an action creator so that its return value is the payload of a Flux Standard Action

## *Redux-form*

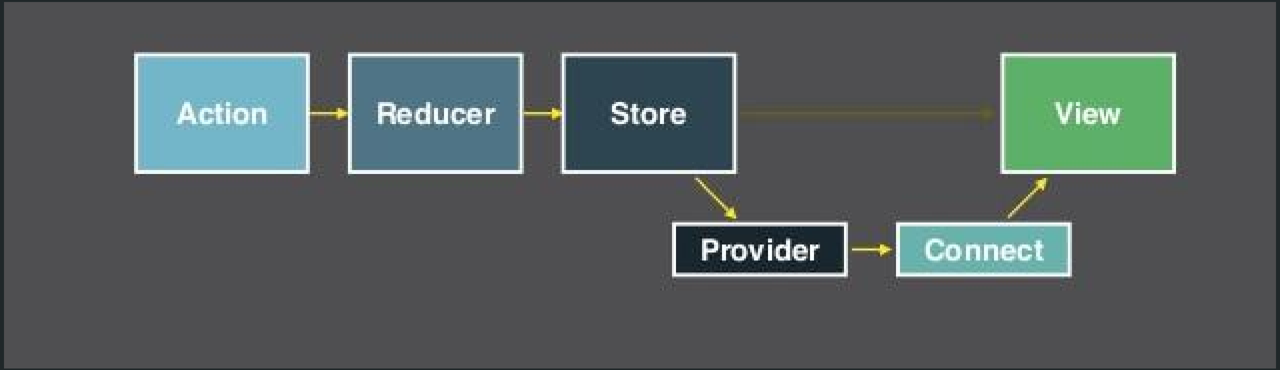
Manage form state in Redux

## *Redux-promise*

FSA-compliant promise middleware for Redux (Async Actions)

*No, we are not going to talk about “TODO list”… Relax and enjoy it.*

## *Data flow using react-redux*



## Presentational and Container Components

| | Presentational Components | Container Components |
|---|---|---|
| **Purpose** | How things look (markup, styles) | How things work (data fetching, state updates) |
| **Aware of Redux** | No | Yes |
| **To read data** | Read data from props | Subscribe to Redux state |
| **To change data** | Invoke callbacks from props | Dispatch Redux actions |
| **Are written** | By hand | Usually generated by React Redux |

## *Presentational and Container Components*

*“Most of the components we'll write will be presentational, but we'll need to generate a few container components to connect them to the Redux store. This and the design brief below do not imply container components must to be near the top of the component tree.”*

## React-redux

Provider

*“Makes the Redux store available to the connect() calls in the component hierarchy below. Normally, you can’t use connect() without wrapping the root component in <Provider>.”*

# React-redux

## Provider

```
import {Provider} from 'react-redux'
import {store} from './modules'

render(
    <Provider store={store}>
        <Router history={browserHistory}>
            <Route path="/" component={App}/>
            <Route path="/netflix" component={Netflix}/>
            <Route path="/spotify" component={Spotify}/>
        </Router>
    </Provider>,
    document.getElementById('root')
)
```

# ***React-redux***

## Connect

Inject just dispatch and don't listen to store

```
export default connect()(Spotify)
```

Inject all action creators without subscribing to the store

```
import * as actions from '../../modules/Spotify/actions'

export default connect(null, actions)(Spotify)
```

Inject dispatch and every field in the global state

```
export default connect(state => state)(Spotify)
```

***Don't do this!*** *It kills any performance optimizations because App will rerender after every action.*
*It's better to have more granular connect() on several components in your view hierarchy that each only*
*listen to a relevant slice of the state.*

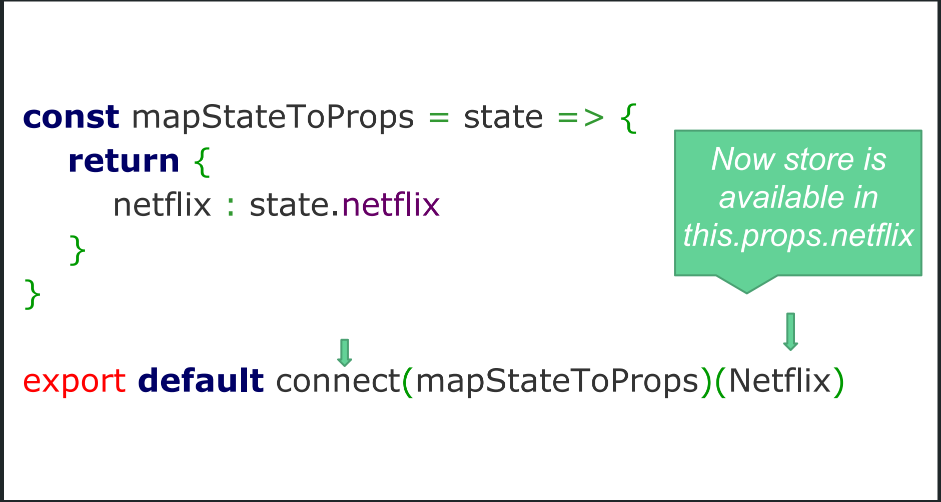
## ***React-redux***

Connect

*“[mapStateToProps(state, [ownProps]): stateProps] (Function): If this argument is specified, the new component will subscribe to Redux store updates. This means that any time the store is updated, mapStateToProps will be called. The results of mapStateToProps must be a plain object*, which will be merged into the component’s props.”*

# React-redux

## Connect



```
const mapStateToProps = state => {
    return {
        netflix : state.netflix
    }
}

export default connect(mapStateToProps)(Netflix)
```

*Now store is available in this.props.netflix*

## ***React-redux***

<u>Connect</u>

*“[mapDispatchToProps(dispatch, [ownProps]): dispatchProps] (Object or Function): If an object is passed, each function inside it is assumed to be a Redux action creator. An object with the same function names, but with <u>every action creator wrapped into a dispatch call so they may be invoked directly</u>, will be merged into the component’s props. If a function is passed, it will be given dispatch. If you don't want to subscribe to store updates, pass null or undefined in place of mapStateToProps.”*

# React-redux

## Connect

```
import {connect} from 'react-redux'
import {bindActionCreators} from 'redux'

const mapStateToProps = state => state.spotify

const mapDispatchToProps = dispatch =>
       bindActionCreators(spotifyActions, dispatch)

export default connect(
   mapStateToProps,
   mapDispatchToProps
)(Spotify)
```

## ***Redux-actions***

<u>Flux Standard Actions (FSA)</u>

An action MUST

- be a plain JavaScript object.
- have a ***type*** property.

An action MAY

- have an ***error*** property.
- have a ***payload*** property.
- have a ***meta*** property.

An action MUST NOT include properties other than type, payload, error, and meta.

## *Redux-actions*

*createAction(type, payloadCreator = Identity, ?metaCreator)*

```
let netflixSearch = createAction('NETFLIX_SEARCH', value => value);
// same as
netflixSearch = createAction('NETFLIX_SEARCH');

expect(netflixSearch('breaking bad')).to.deep.equal({
  type: 'NETFLIX_SEARCH',
  payload: 'breaking bad'
});
```

## Redux-actions

```
const netflixSearch = () => {
    return {
        type: 'NETFLIX_SEARCH'
    }
}
```

↓

```
const netflixSearch = createAction('NETFLIX_SEARCH')
```

# Redux-actions

*handleAction(type, reducer | reducerMap = Identity, defaultState)*

```
export default (state = initialState, action) => {
    switch (action.type) {
        case 'NETFLIX_SEARCH':
            return {
              ...state,
              result : action.payload
            }
      default:
        return state
    }
}
```

⬇

```
const reducer = (state = initialState, action) => ({
  ...state,
  result : action.payload
})

export default handleAction('NETFLIX_SEARCH', reducer, initialState)
```

# Redux-actions

*handleActions(reducerMap, defaultState)*

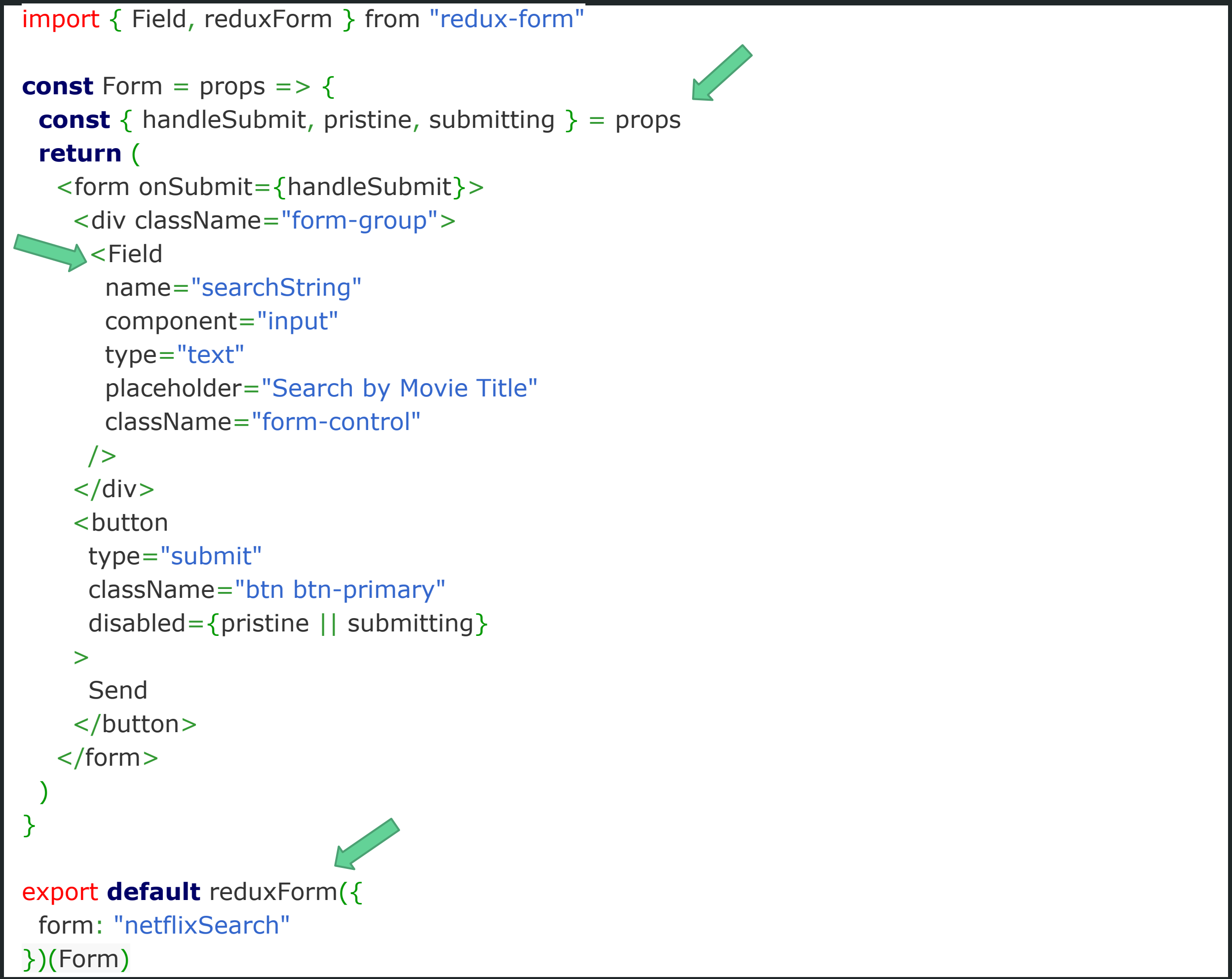
```
const initialState = {
    fetching : false,
    user      : null
}

const reducer = handleActions({
  [GITHUB_FETCHING]: (state, action) => ({
      ...state,
      sending      : true
  }),

  [GITHUB_SUCCESS]: (state, action) => ({
      sending      : false,
      user         : action.payload.data
  }),

  [GITHUB_ERROR]: (state, action) => ({
      ...state,
      sending      : false,
  })

}, initialState);

export default reducer
```

## ***Redux-form***

redux-form primarily consists of four things:

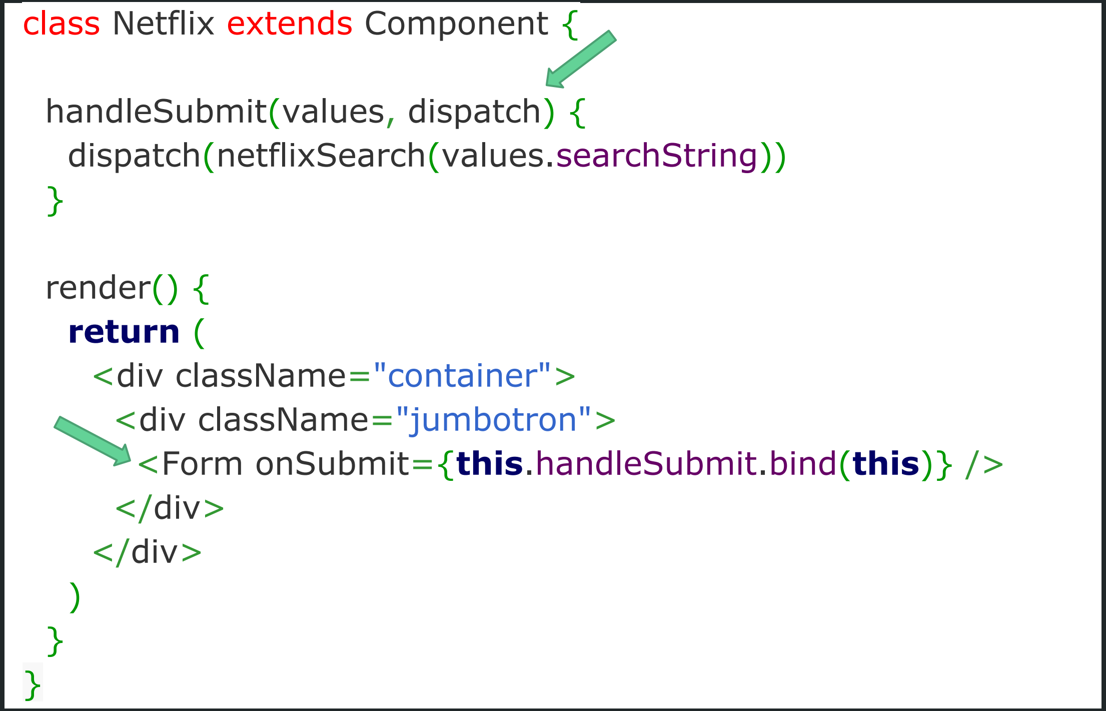
1. A Redux reducer that listens to dispatched redux-form actions to maintain your form state in Redux.
2. A React component decorator that wraps your entire form in a Higher Order Component (HOC) and provides functionality via props.
3. A Field component to connect your individual field inputs to the Redux store.
4. Various Action Creators for interacting with your forms throughout the application.

# Redux-form



```
import { Field, reduxForm } from "redux-form"

const Form = props => {
  const { handleSubmit, pristine, submitting } = props
  return (
    <form onSubmit={handleSubmit}>
      <div className="form-group">
        <Field
          name="searchString"
          component="input"
          type="text"
          placeholder="Search by Movie Title"
          className="form-control"
        />
      </div>
      <button
        type="submit"
        className="btn btn-primary"
        disabled={pristine || submitting}
      >
        Send
      </button>
    </form>
  )
}

export default reduxForm({
  form: "netflixSearch"
})(Form)
```

# Redux-form



```
class Netflix extends Component {

  handleSubmit(values, dispatch) {
    dispatch(netflixSearch(values.searchString))
  }

  render() {
    return (
      <div className="container">
        <div className="jumbotron">
          <Form onSubmit={this.handleSubmit.bind(this)} />
        </div>
      </div>
    )
  }
}
```

# *Redux-promise*

If it receives a promise, it will dispatch the resolved value of the promise. It will not dispatch anything if the promise rejects.

If it receives an **Flux Standard Action** whose payload is a promise, it will either

- Dispatch a copy of the action with the resolved value of the promise, and set status to success.
- Dispatch a copy of the action with the rejected value of the promise, and set status to error.

The middleware returns a promise to the caller so that it can wait for the operation to finish before continuing.

# Redux-promise

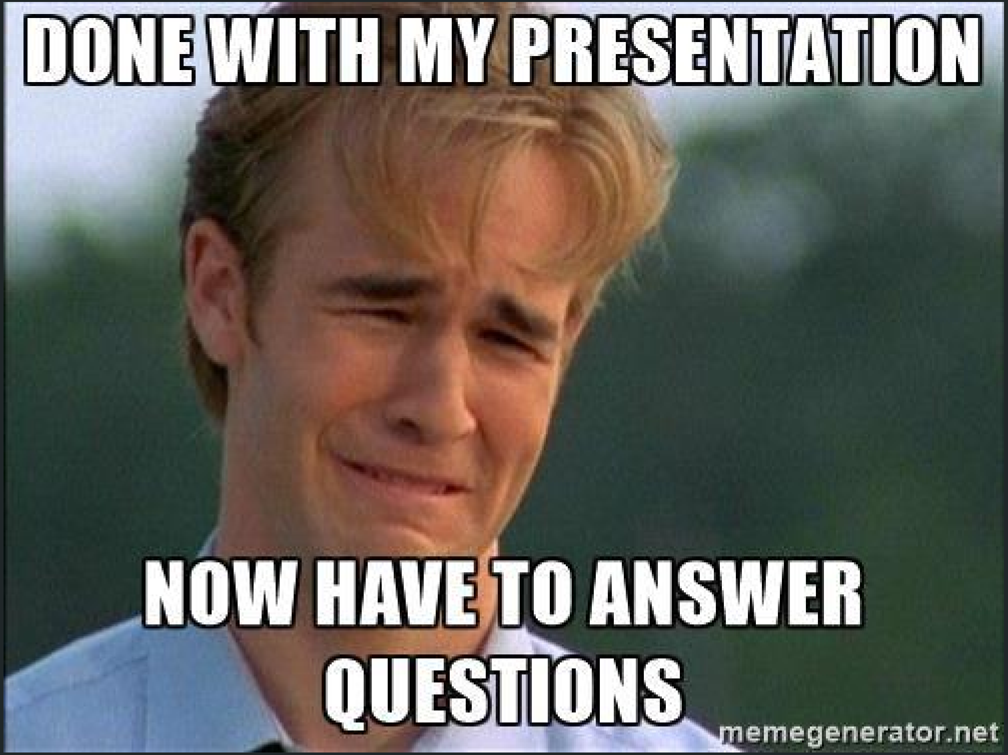
```
const searchAction = value => {
  return axios
    .get(apiServer + value.replace(/\s/ig, "%20"))
    .then(res => res.data)
    .catch(err => err)
}


export const NETFLIX_SEARCH = "modules/Netflix/SEARCH"
export const netflixSearch = createAction(NETFLIX_SEARCH, searchAction)
```

## Redux-promise

```
export default function promiseMiddleware({ dispatch }) {
  return next => action => {
    if (!isFSA(action)) {
      return isPromise(action)
        ? action.then(dispatch)
        : next(action);
    }

    return isPromise(action.payload)
      ? action.payload.then(
          result => dispatch({ ...action, payload: result }),
          error => {
            dispatch({ ...action, payload: error, error: true });
            return Promise.reject(error);
          }
        )
      : next(action);
  };
}
```

## *Thank you folks*

https://github.com/arojunior/what-the-flux-lets-redux


DONE WITH MY PRESENTATION
NOW HAVE TO ANSWER QUESTIONS
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## *References*

http://redux.js.org/
https://github.com/reactjs/react-redux
https://github.com/acdlite/redux-actions
http://redux-form.com/
https://blog.andyet.com/2015/08/06/what-the-flux-lets-redux/