Flux

Cory House

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What Is Flux?

A pattern

Centralized dispatcher

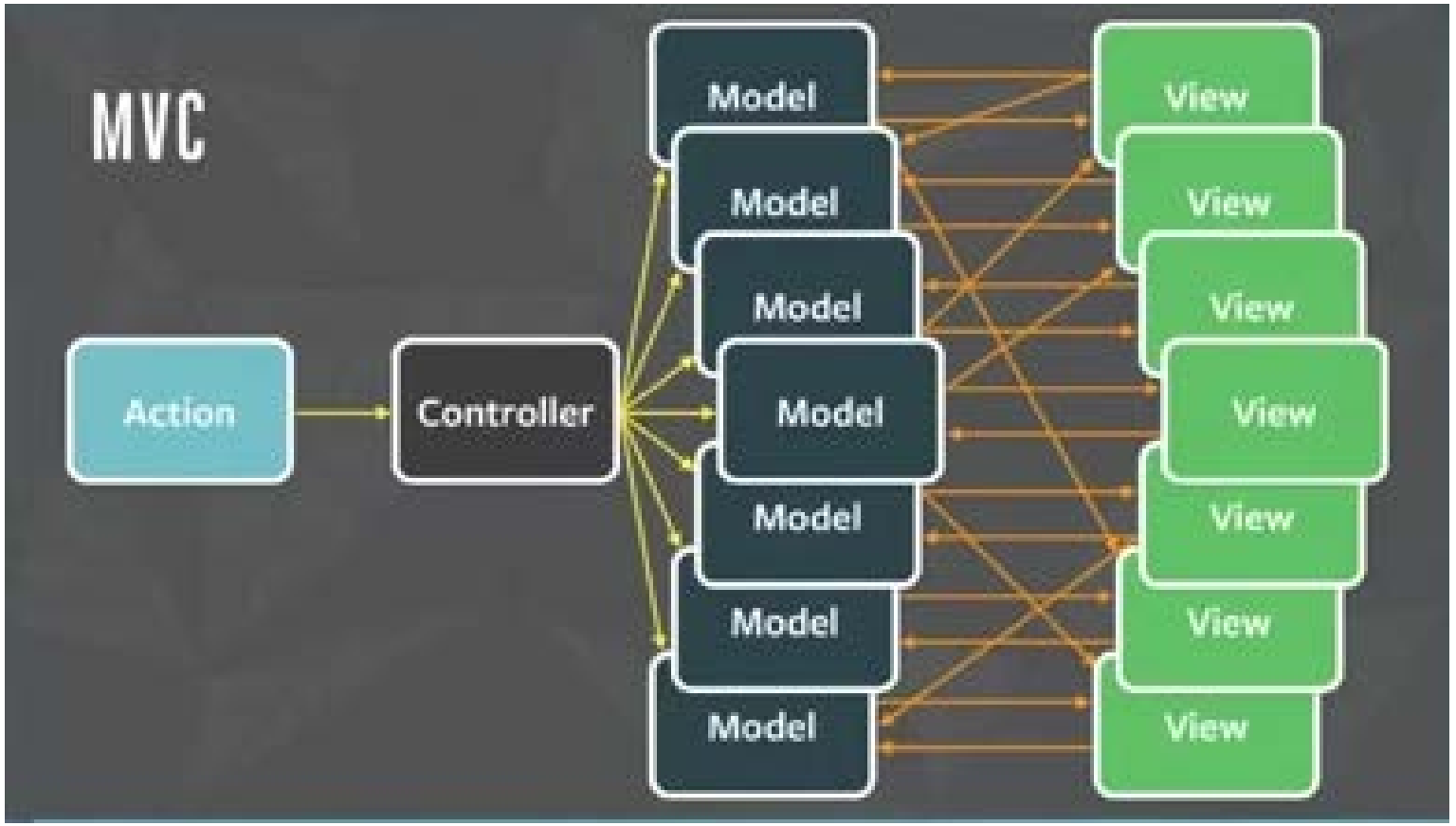
Unidirectional data flows

They call it Flux for a reason too.

Flux Implementations

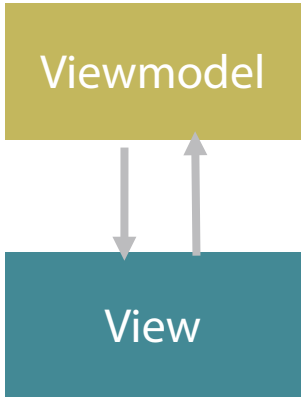
- Facebook's Flux
- Alt
- Reflux
- Flummox
- Marty
- Fluxxor
- Delorean
- Redux
- NuclearJS
- Fluxible

Good Luck Debugging This

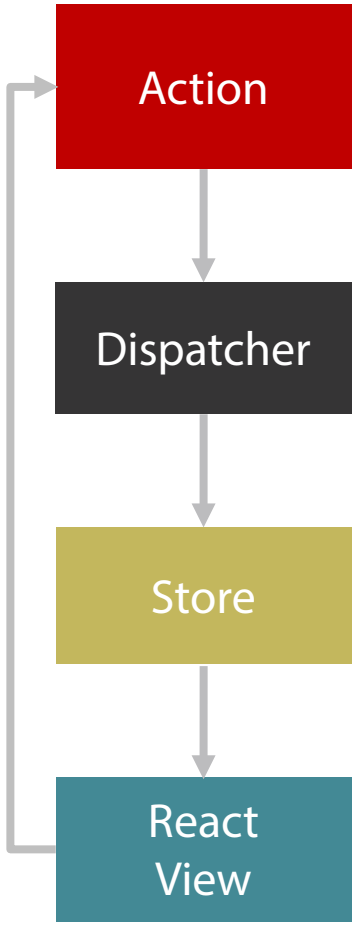


Two-way Binding vs. Unidirectional

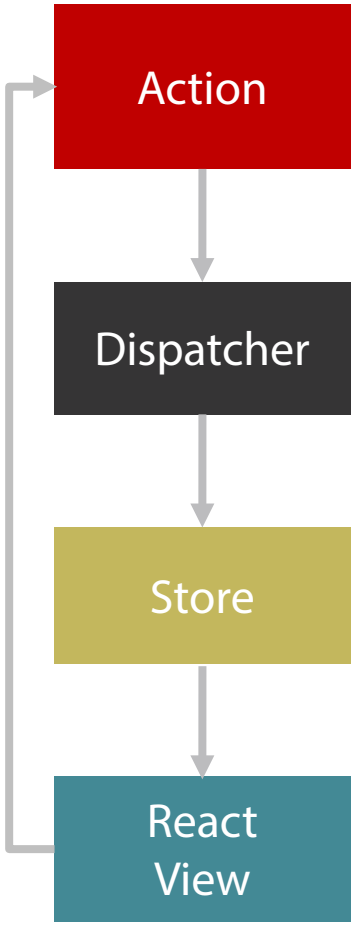
Two-way binding



Unidirectional



Flux: 3 Parts

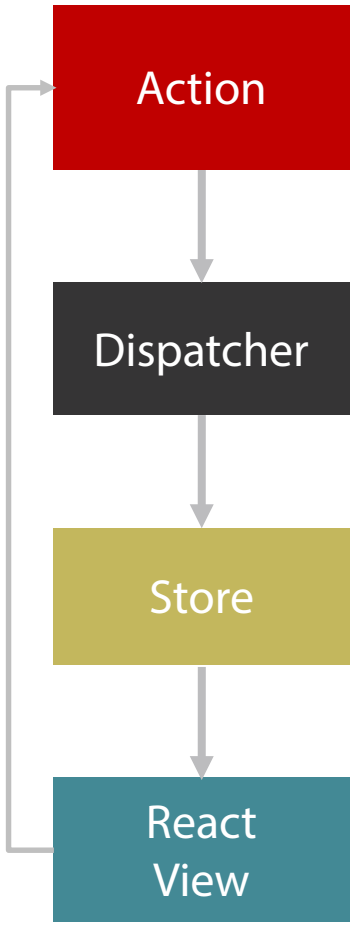


Delete User

Notify everyone who cares

Hold app state and logic

Actions

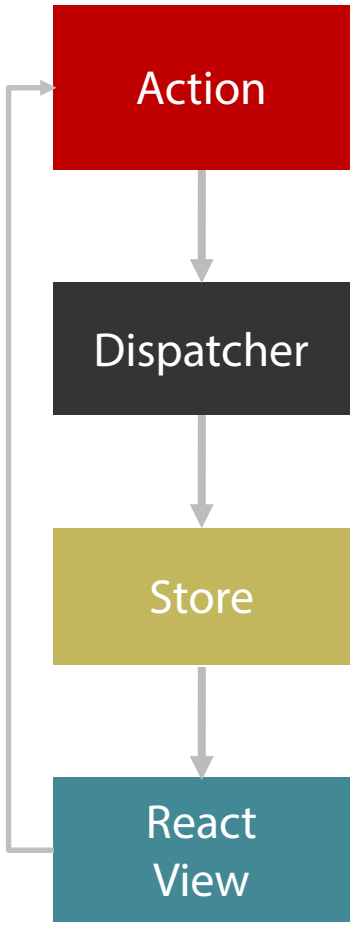


Encapsulate events

Triggered by user interactions and server

Passed to dispatcher

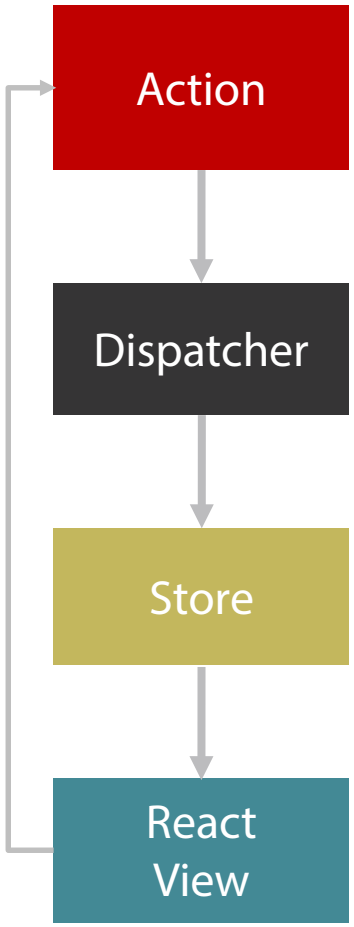
Actions



Payload has type and data

```
{
   type: USER_SAVED
   data: {
    firstName: 'Cory',
    lastName: 'House;
   }
}
```

Dispatcher



Central Hub – There's only one

Holds list of callbacks

Broadcasts payload to registered callbacks

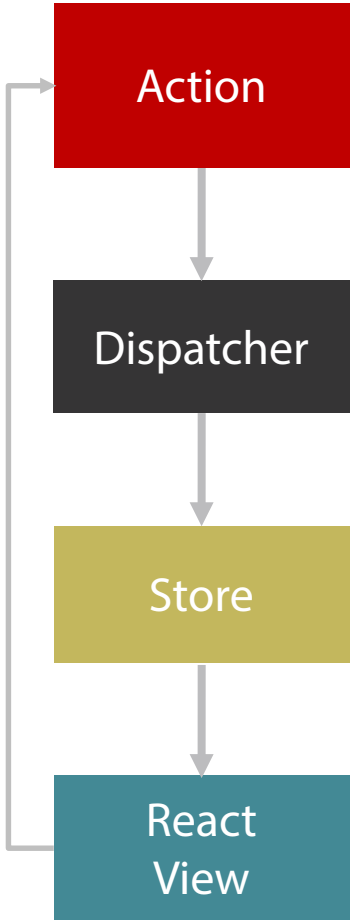
Sends actions to stores

Constants

Keeps things organized

Provides high level view of what the app actually does

Store



Holds app state, logic, data retrieval

Not a model - *Contains* models.

One, or many

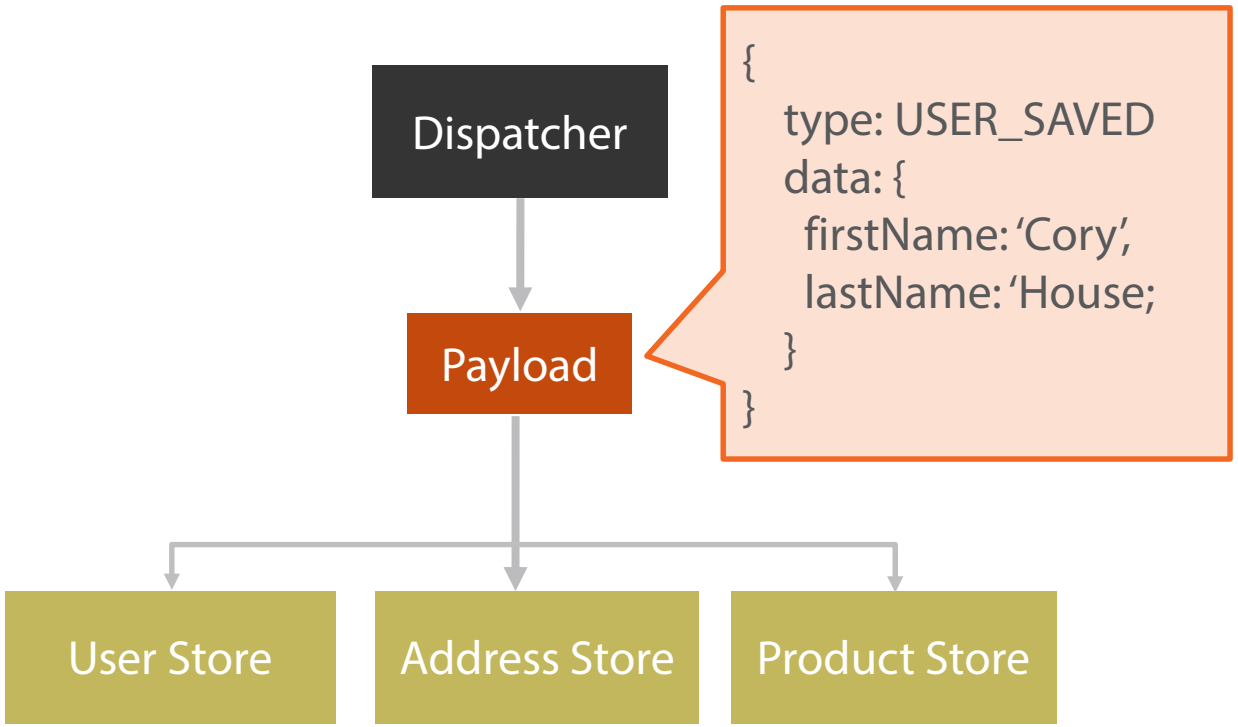
Registers callbacks with dispatcher

Uses Node's EventEmitter

The Structure of a Store

Every store has these common traits (aka interface)

1. Extend EventEmitter
2. addChangeListener and removeChangeListener
3. emitChange



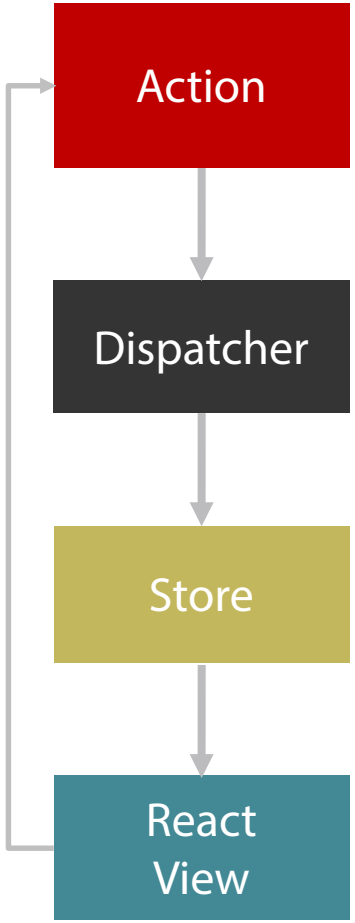
> As an application grows, the dispatcher becomes more vital, as it can be used to manage dependencies between the stores by invoking the registered callbacks in a specific order. Stores can declaratively wait for other stores to finish updating, and then update themselves accordingly.
>
> — Flux Documentation

I usually view ActionCreators as something that is used for writes to the server. For example, the user added a new message by clicking the Send button, so the responsible view calls into ActionCreator.

On the other hand, if a store needs to fetch data from the server, then that doesn't have to use an ActionCreator. Instead, the store can directly hit an endpoint to load its data, and then direct the response through the dispatcher.

— Jing Chen, Facebook

Controller Views



Top level component

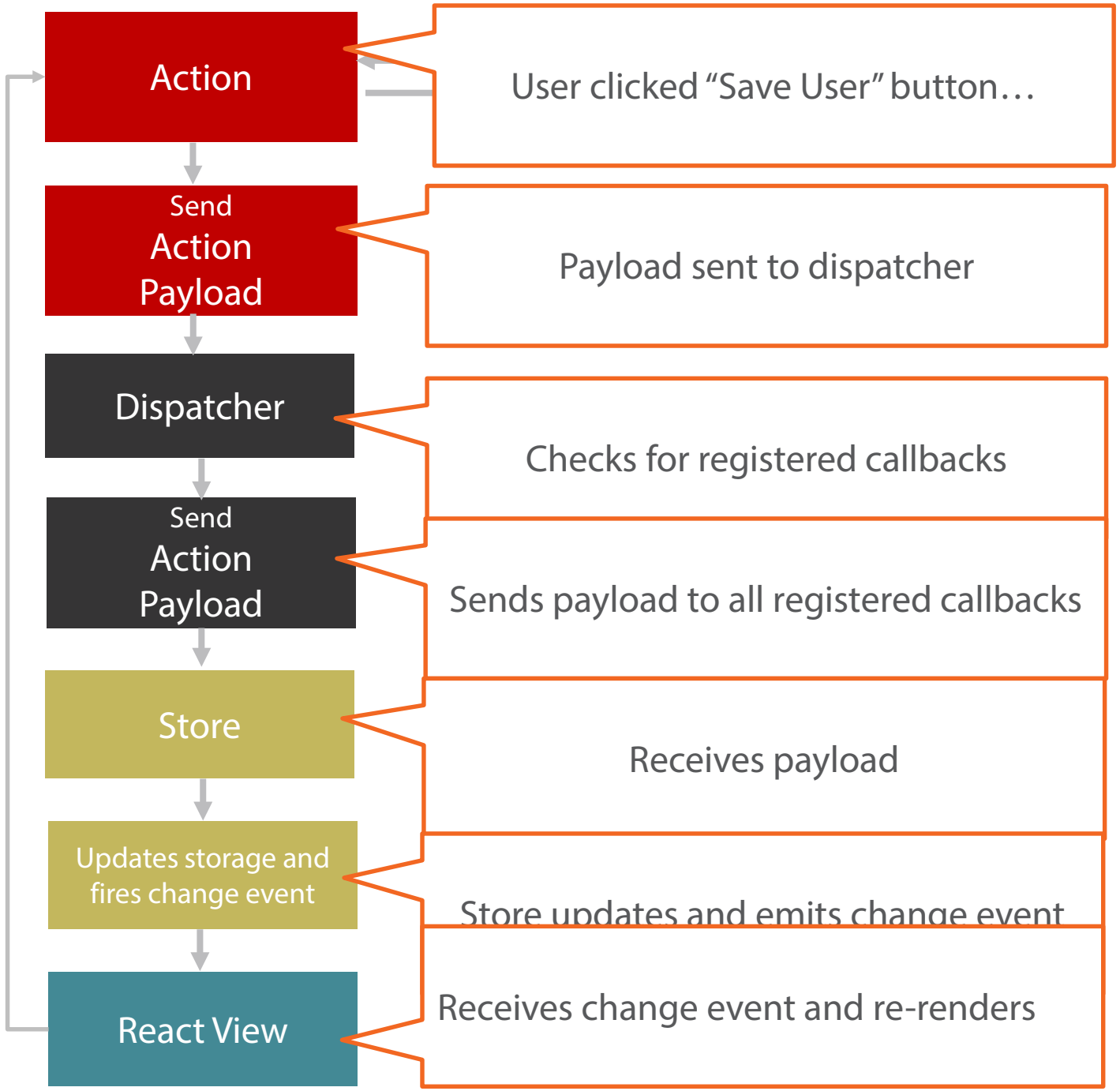
Interacts with Stores

Holds data in state

Sends data to children as props

Payload:

```
{
   type: USER_SAVED
   data: {
    firstName: 'Cory',
    lastName: 'House';
   }
}
```



A Chat with Flux

React	Hey CourseAction, someone clicked this "Save Course" button.
Action	Thanks React! I registered an action creator with the dispatcher, so the dispatcher should take care of notifying all the stores that care.
Dispatcher	Let me see who cares about a course being saved. Ah! Looks like the CourseStore has registered a callback with me, so I'll let her know.
Store	Hi dispatcher! Thanks for the update! I'll update my data with the payload you sent. Then I'll emit an event for the React components that care.
React	Ooo! Shiny new data from the store! I'll update the UI to reflect this!

Flux API

register(function callback) – "Hey dispatcher, run me when actions happen. - Store"

unregister(string id) – "Hey dispatcher, stop worrying about this action. - Store"

waitFor(array<string> ids) – "Update this store first. – Store"

dispatch(object payload) - "Hey dispatcher, tell the stores about this action. - Action"

isDispatching() – "I'm busy dispatching callbacks right now."

So Flux Is a Publish-Subscribe Model?

Not quite.

Differs in two ways:

1. Every payload is dispatched to all registered callbacks.
2. Callbacks can wait for other callbacks

Summary

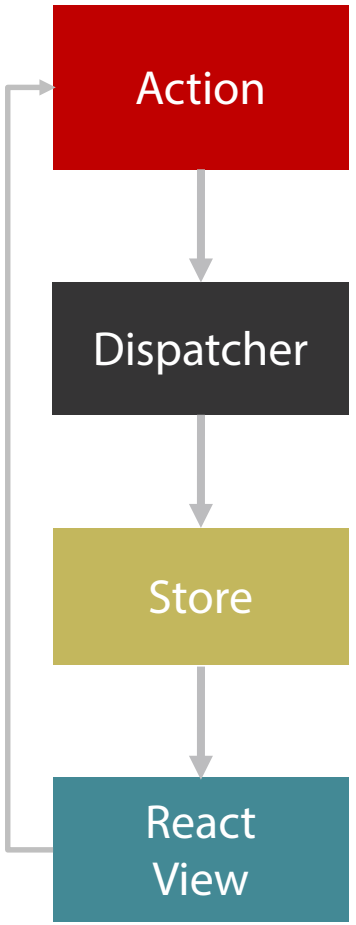
Flux is a pattern for unidirectional data flows

Actions encapsulate events

Dispatcher is a central hub that holds callbacks

Stores hold app state

Many implementations



Challenge

Add course functionality