REACT MEETUP HAMBURG

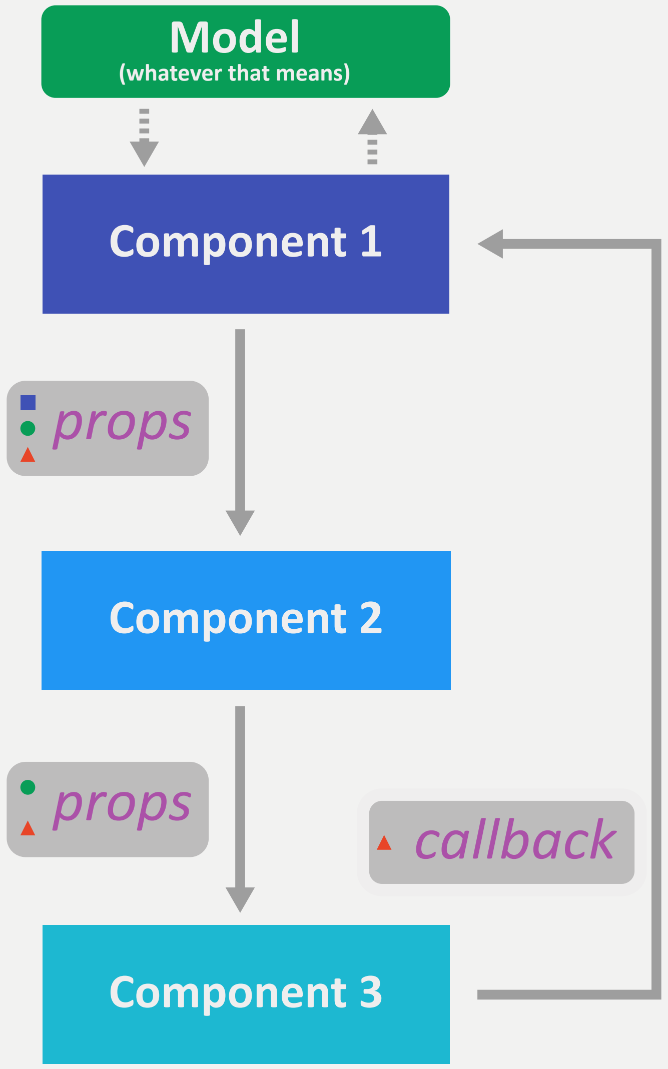
FLUX INTRODUCTION

Nils Hartmann (nils@nilshartmann)

WHY FLUX?

Some background first...

SINGLE COMPONENT HIERARCHIE



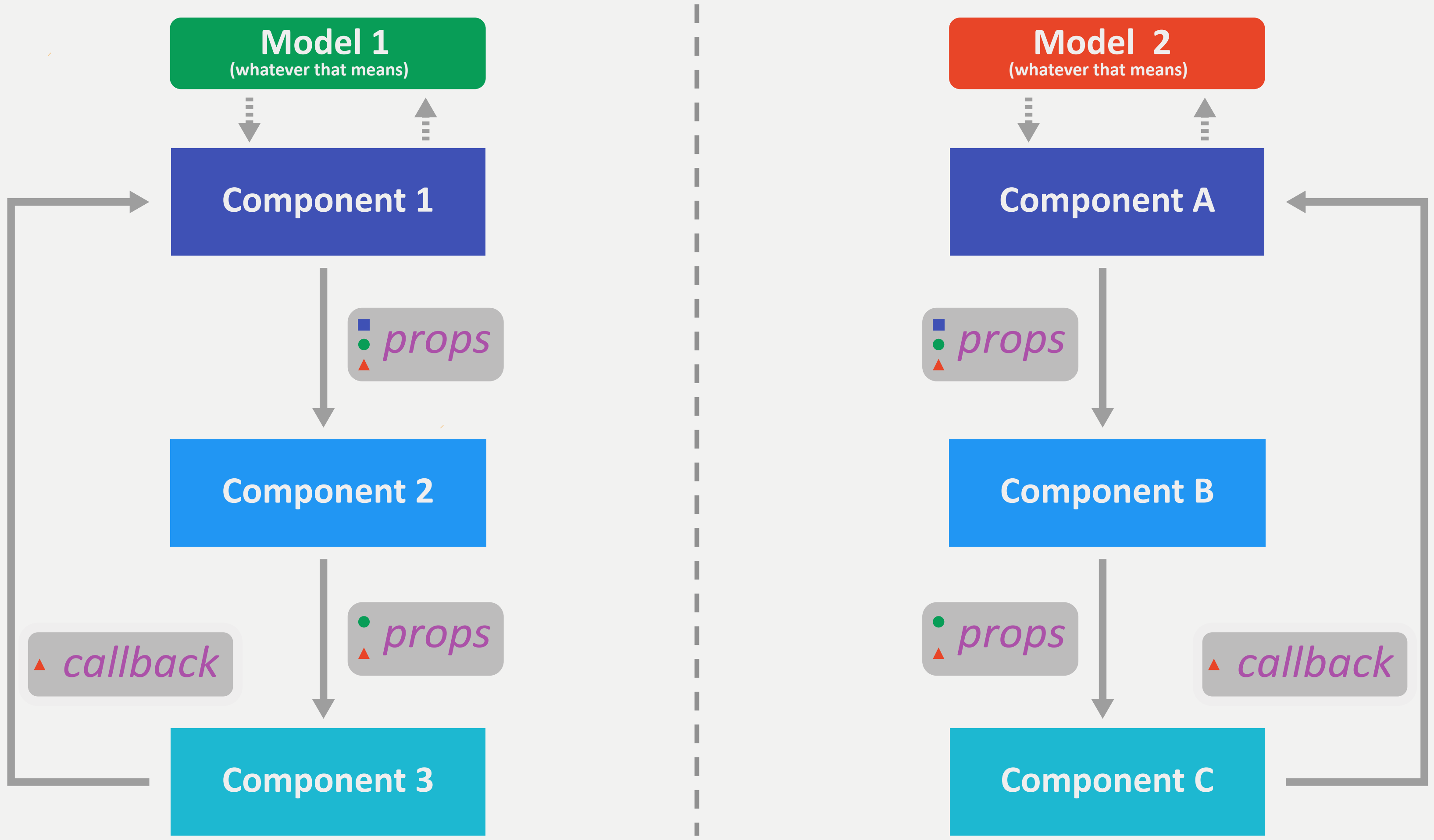
Communication

- Down via properties
- Up via callbacks

Top-level component

- Works on **single** model
- (whatever a ‚model‘ is)

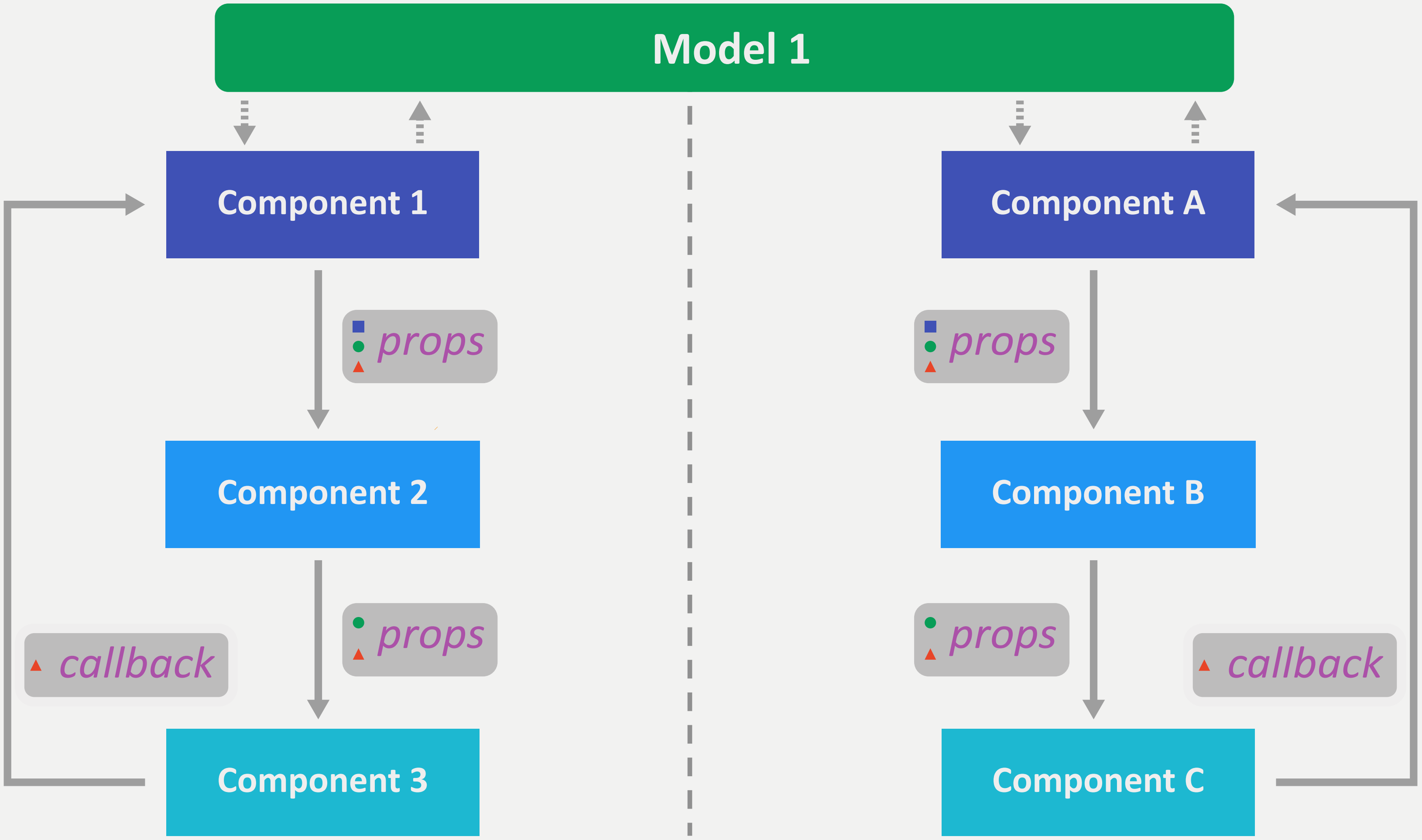
MULTIPLE COMPONENT HIERARCHIES (I)



***Isolated* Models with *independent* component trees**

- Each component (tree) works on its own model
- Peaceful co-exsitence

MULTIPLE COMPONENT HIERARCHIES (II)



***Shared* Model with *independent* component trees**

- Each component (tree) works on the **same** model
- Can be confusing: who‘s taking responsibility? Can lead to back loops

REACT MEETUP HAMBURG

FLUX

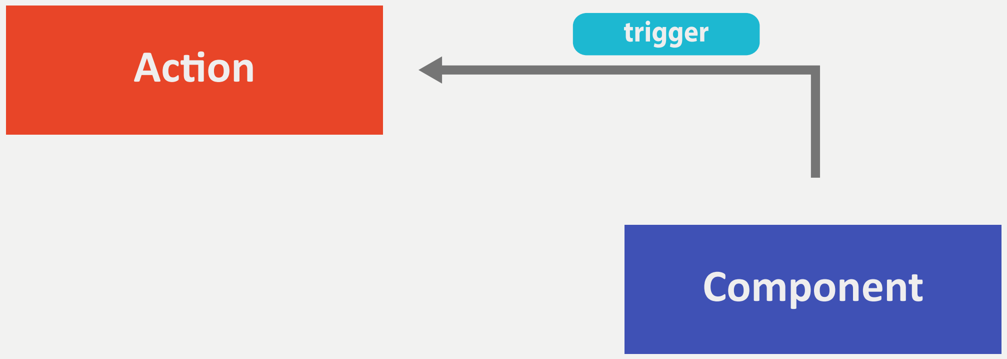
FLUX

„Application architecture for building user interfaces“

- http://facebook.github.io/flux/
- Design pattern, not a framework
- Various implementations and interpretations
- Not tied to React

Introduces unidirectional data flow

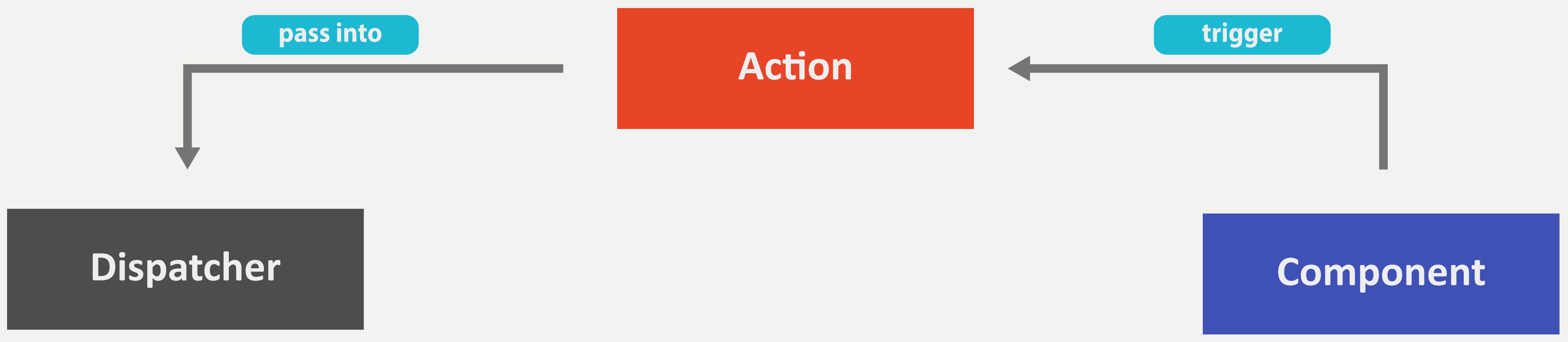
UNI-DIRECTIONAL DATA FLOW - 1



Component triggers an Action using an ActionCreator

```
<button onClick={()=> {
    UserActionCreators.addUser(...);
}} />
```

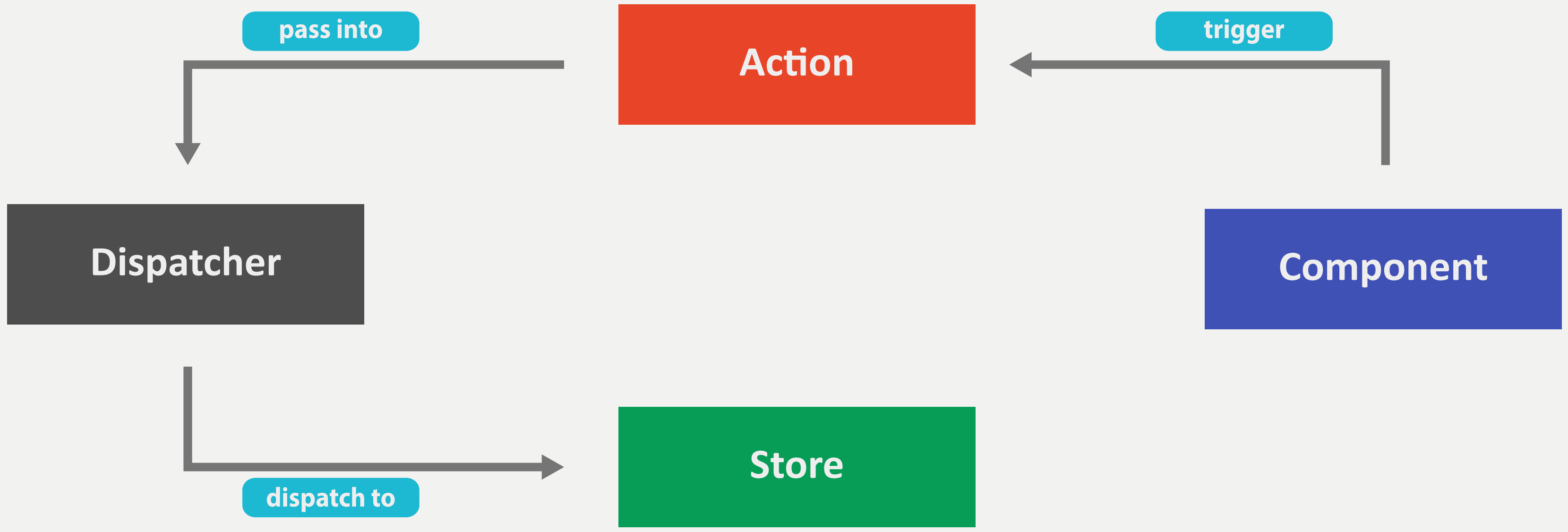
UNI-DIRECTIONAL DATA FLOW - 2



ActionCreator sends Action to Central Dispatcher

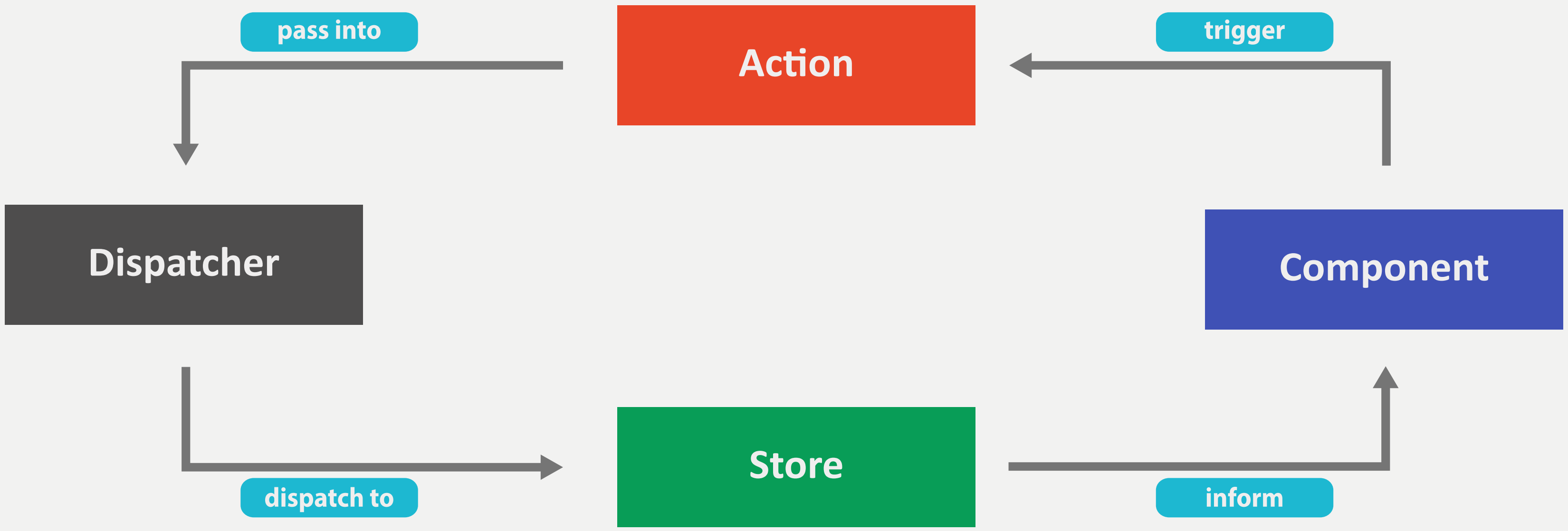
```
addUser(name) {
    Dispatcher.dispatch({
        type: 'USER_ADD_ACTION',
        payload: { user: name }
    });
}
                (UserActionsCreator)
```

UNI-DIRECTIONAL DATA FLOW - 3



Dispatcher forwards the Action to Store

UNI-DIRECTIONAL DATA FLOW - 4

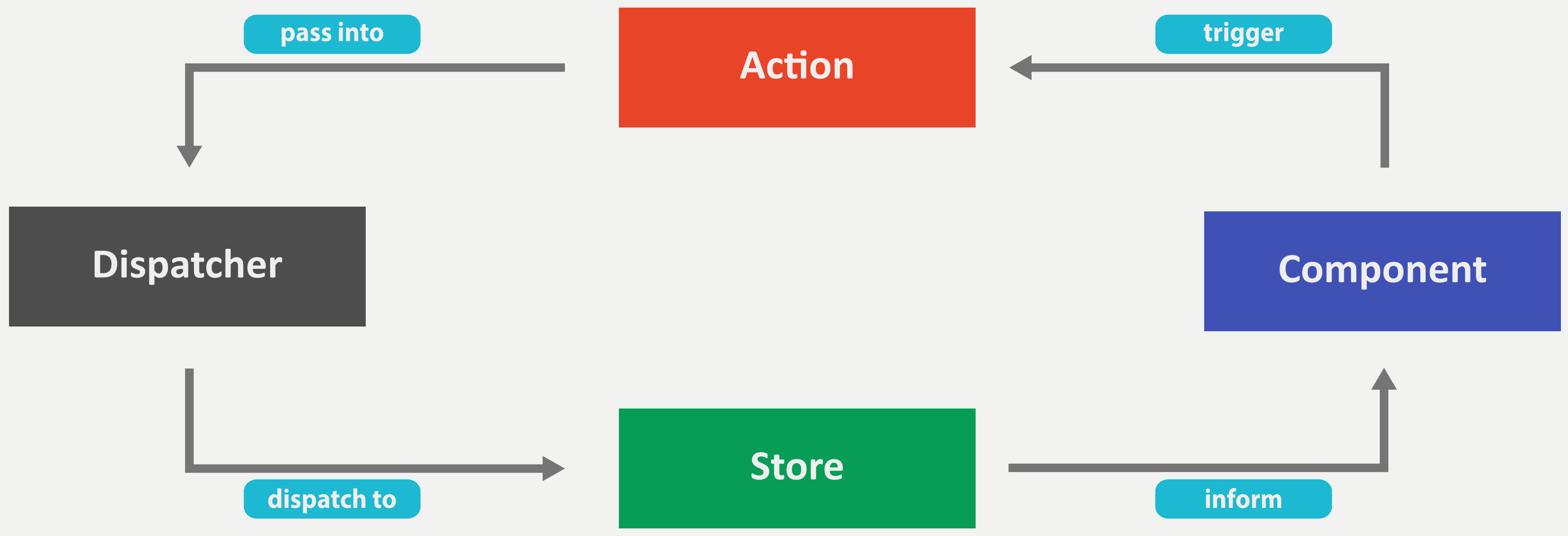


Store processes Action and emits a change event

```
handleAction(action){
    if (action.type==='USER_ADD_ACTION') {
        this.users.push(action.payload.user);
        emitStoreChangeEvent();
    }
}
```

(UserStore)

UNI-DIRECTIONAL DATA FLOW - 5



Component receives event and updates its state

```
onUserStoreChange() {
    this.setState(
        {users: UserStore.getAllUsers();}
    );
}
```

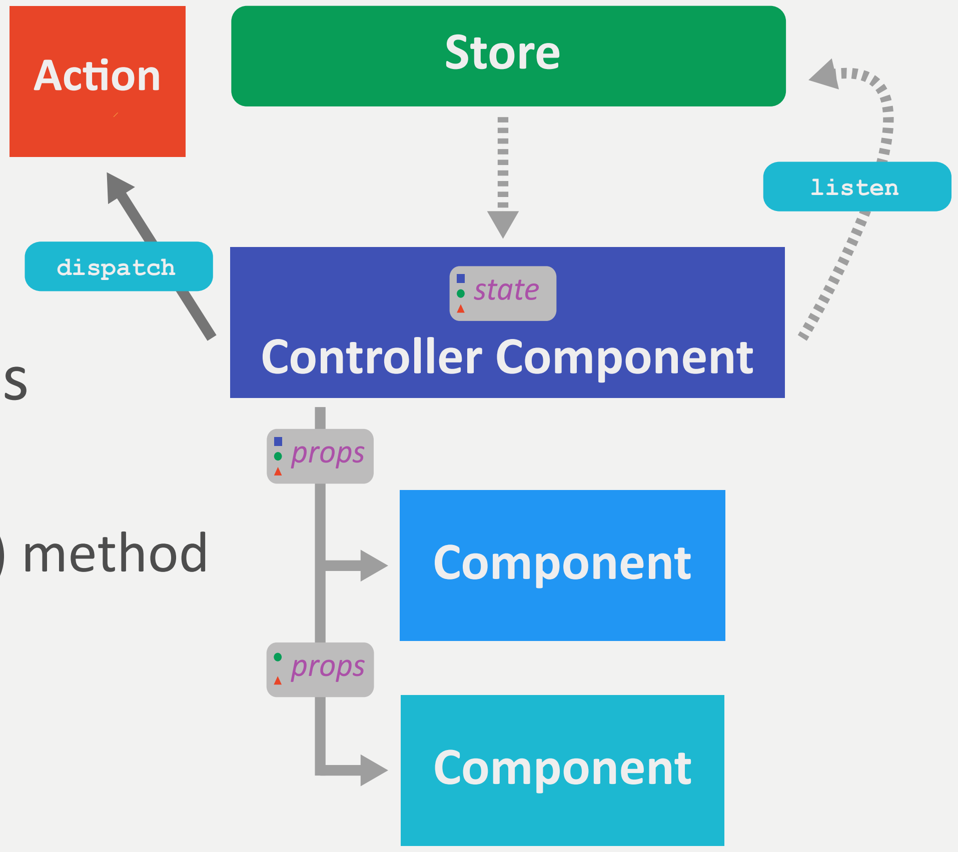
FLUX ELEMENTS IN DETAILS

Note: different implementations interpret differently

COMPONENT

„Regular“ React component

- Triggers an action
  - e.g. on user interaction
- Listens to one or more Stores
- Derives its state from Store
  - Update children from render() method



Controller Component

- Top-level component should be the only component interacting with Flux

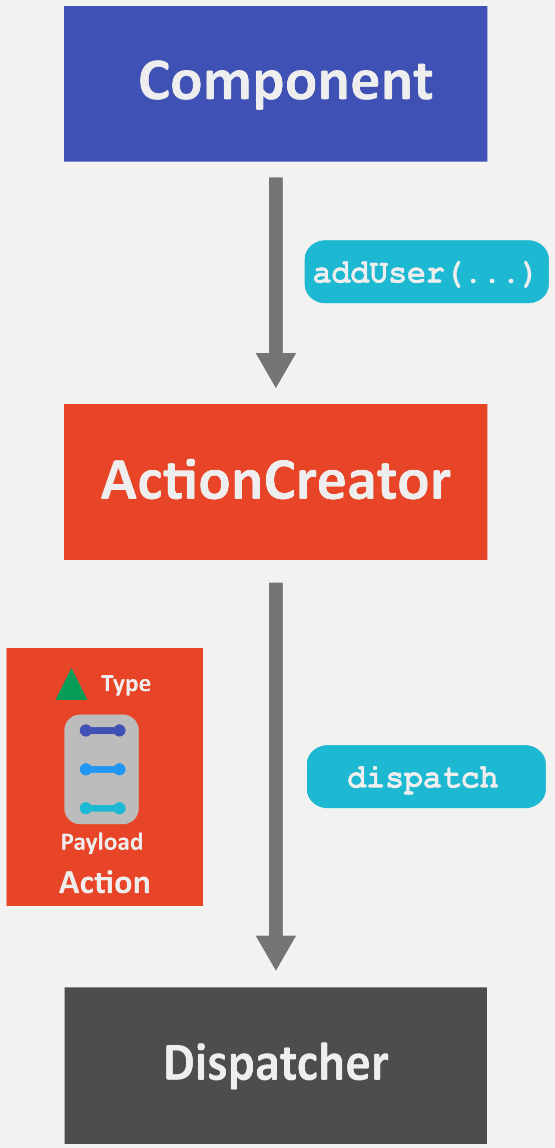
ACTION and ACTIONCREATOR

Action

- Represents *semantic* event happend in the app
- Has an identifying „type“
- Contains information what happend (payload)
- Triggered by Components

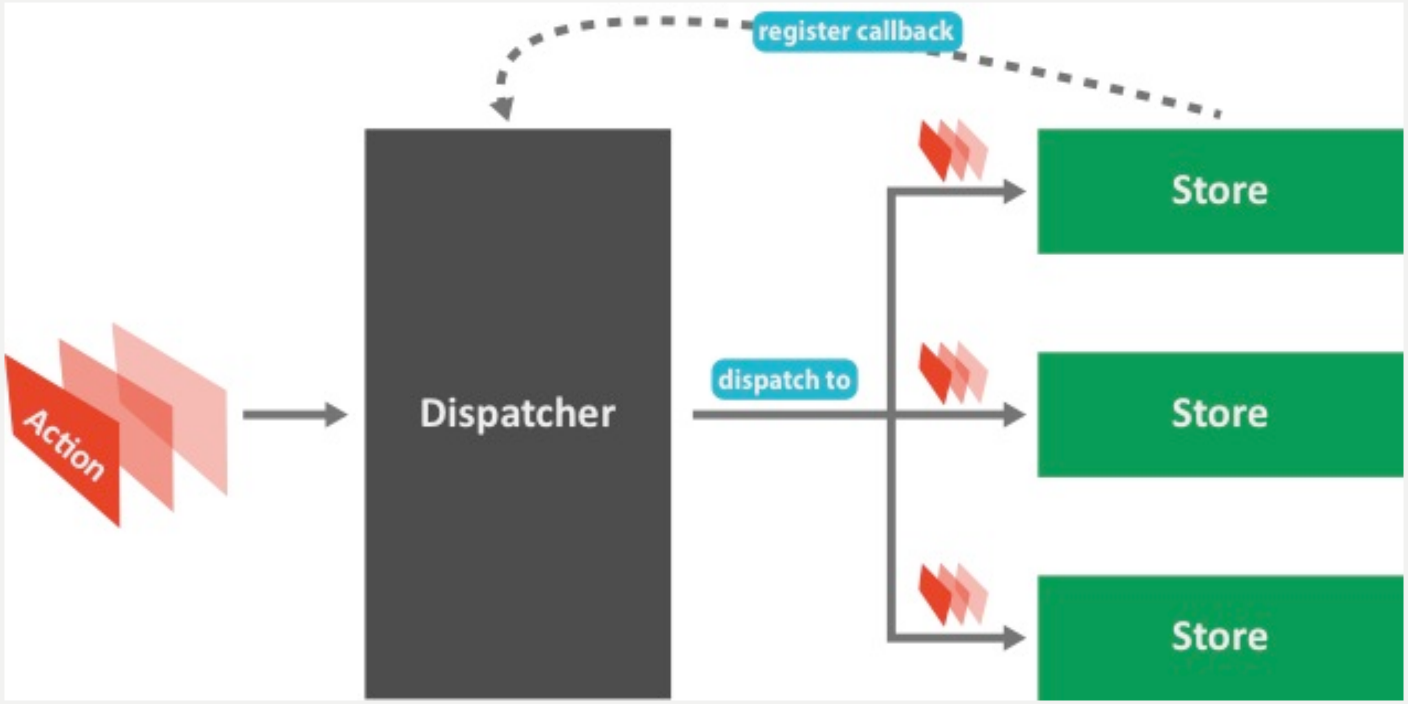
ActionCreator

- Factory for Actions
- Ensures integrity of action object,
- Semantic methods
- Pass Action to Dispatcher



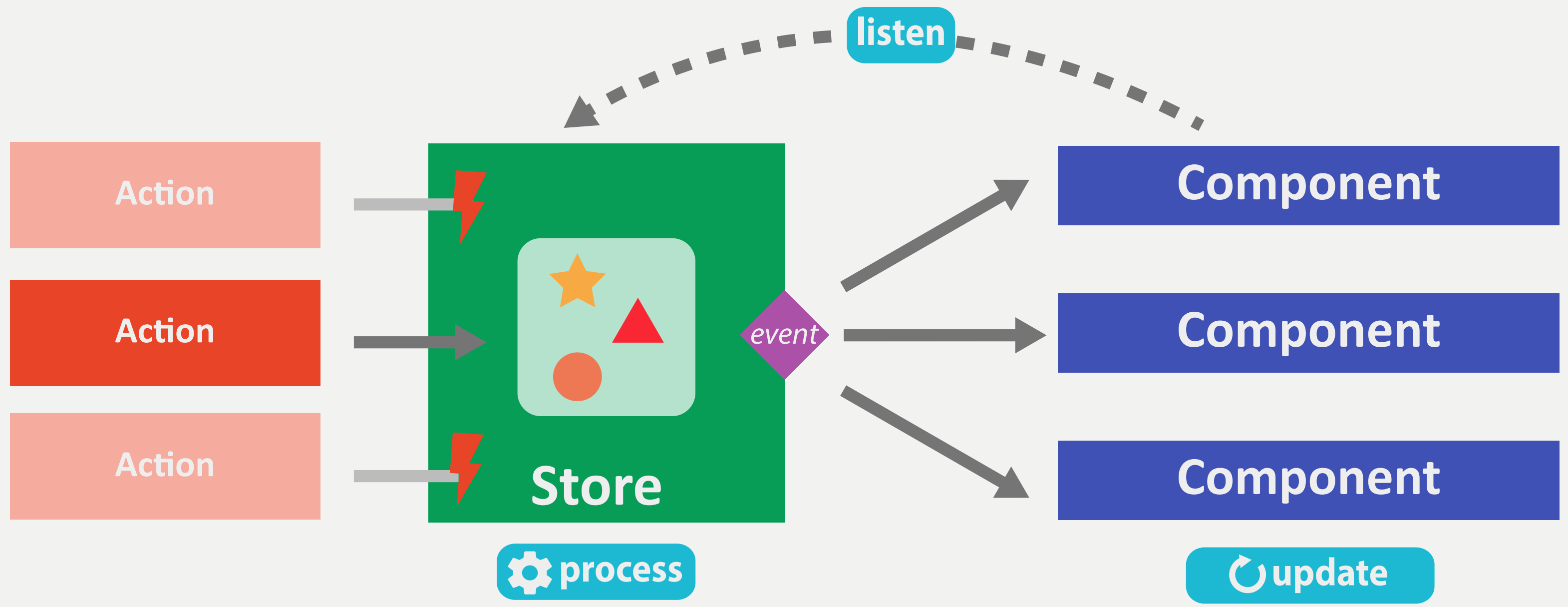
DISPATCHER

- *Pure technical* component, no business logic
- Only one Dispatcher in your application (singleton)
- Forwards Actions to *all* registered Stores
- Works synchronous

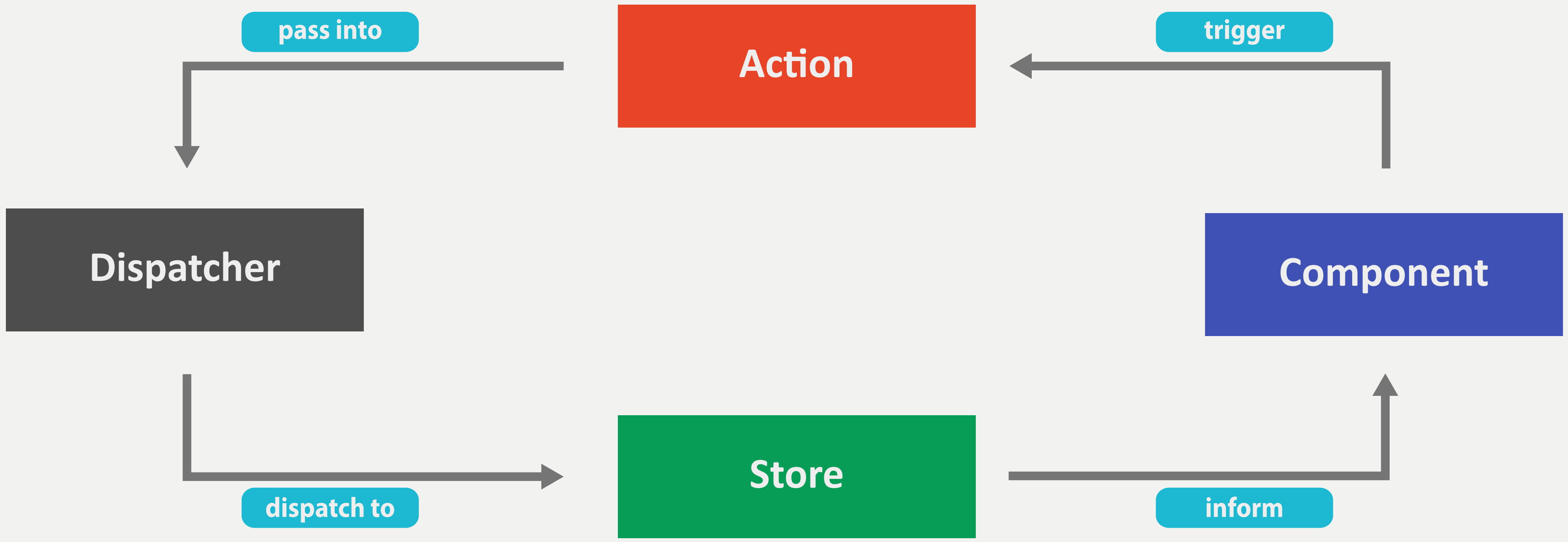


STORE

- Contains the **business logic** for a specific domain
- Conntect to the central Dispatcher via callback method
- Process only Actions they are interessted in (eg filter by type)
- Emit events after changing model

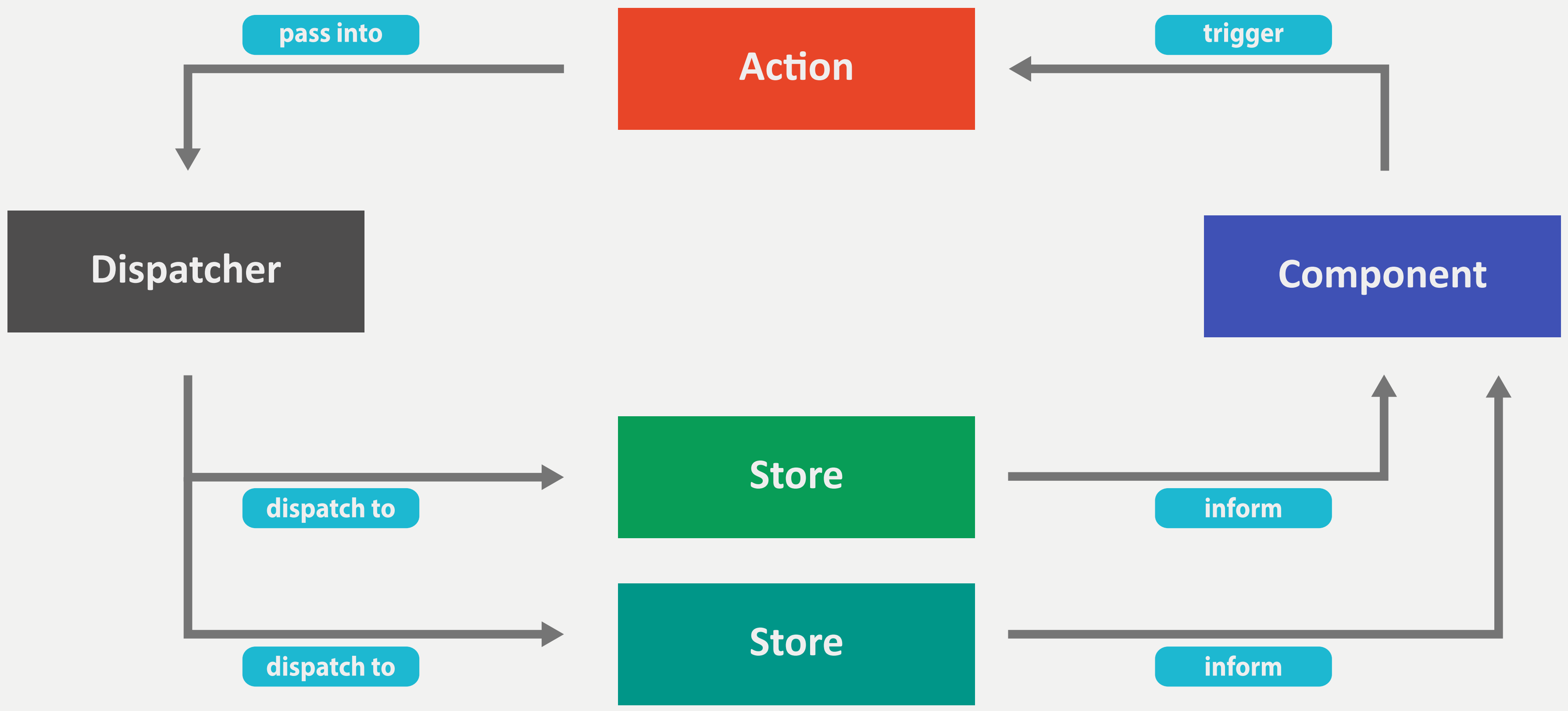


UNI-DIRECTIONAL DATA FLOW - EXAMPLES



Very flexible scenarios...

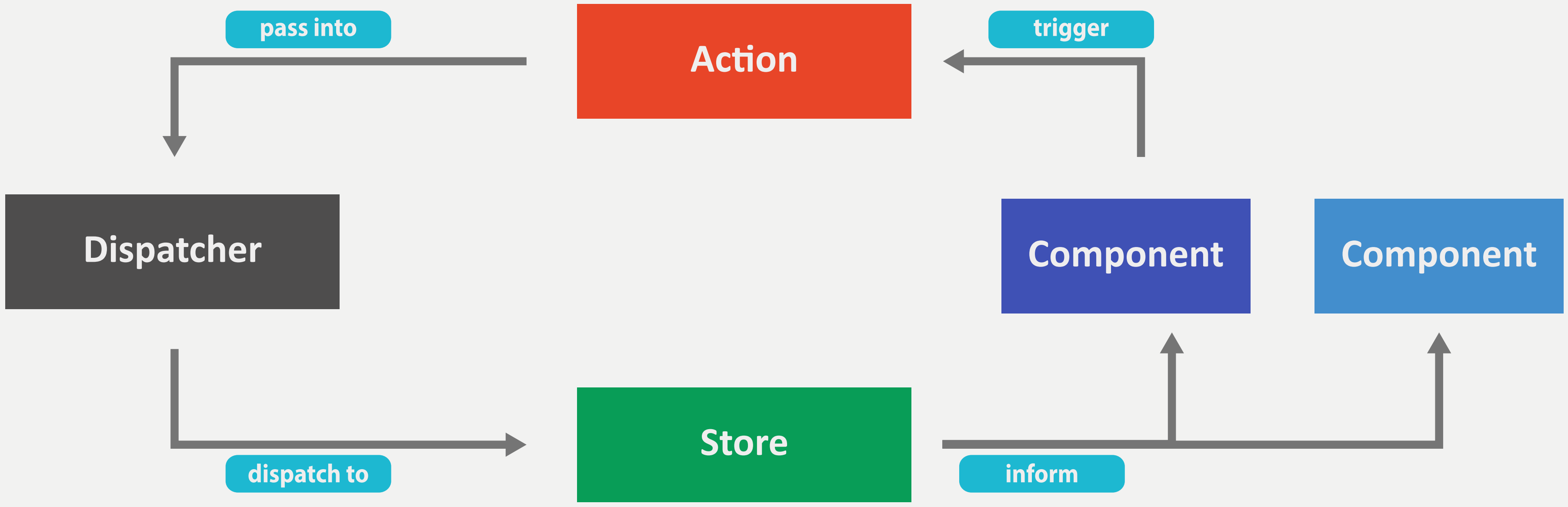
UNI-DIRECTIONAL DATA FLOW - EXAMPLE 1



...Action can be dispatched to multiple stores

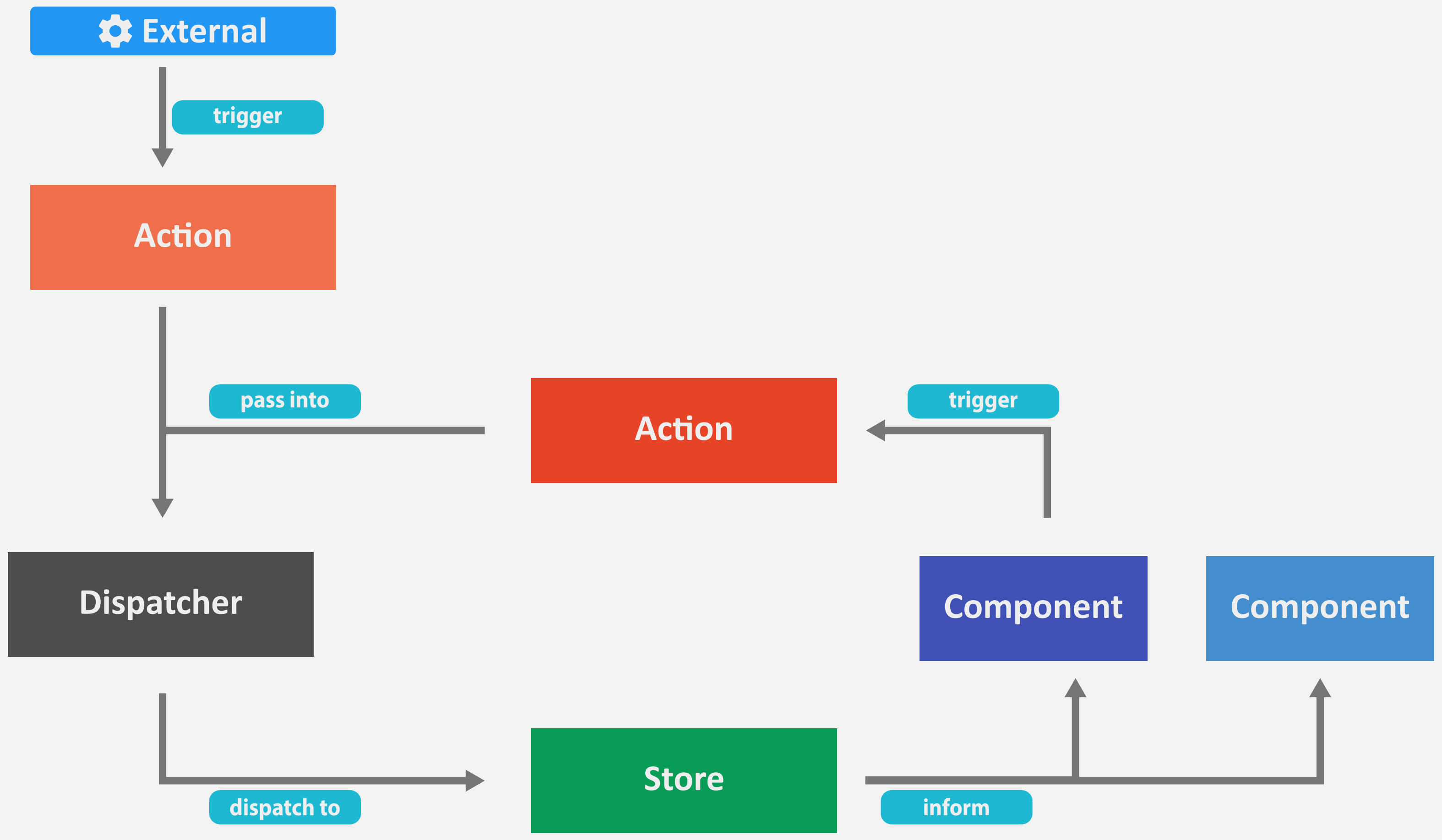
...A component can listen to multiple stores...

UNI-DIRECTIONAL DATA FLOW - EXAMPLE 2



...Multipe components can listen to same store, working on same domain „model“...

UNI-DIRECTIONAL DATA FLOW - EXAMPLE 3



…"external events" (e.g. response from server) can trigger actions

- Flow is still the same

SUMMARY

Useful when working on same model

Defined flow of data

- Easy to track
- Recordable

Lots of new vocabular

- eg: what is the shape of a Store?

Many implemenations

- No „standard“ implementation

THANK YOU!

Slides:

tbd