ReactJS Global State Mangement Redux Toolkit

1. Global State Mangement, why!
2. How redux works, explanation!
3. How redux works, let's start coding!
4. Redux/ToolKit with React
5. Shopping Cart (E-Commerce System)
6. Redux bad practice

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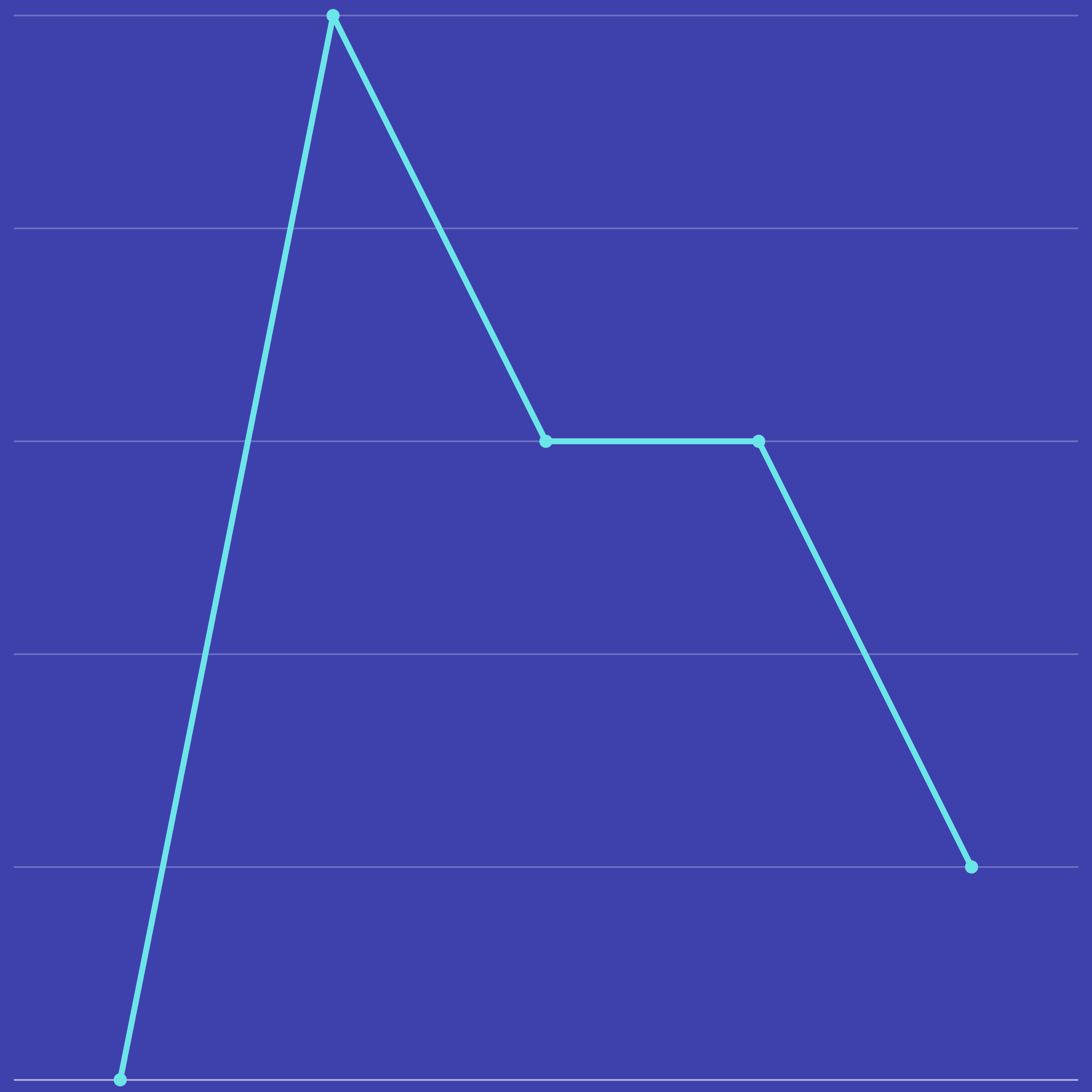
Learning Curve

Easy

Hard

Normal

Ready to start!



How to study and understand?
Always take notice

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Before global state

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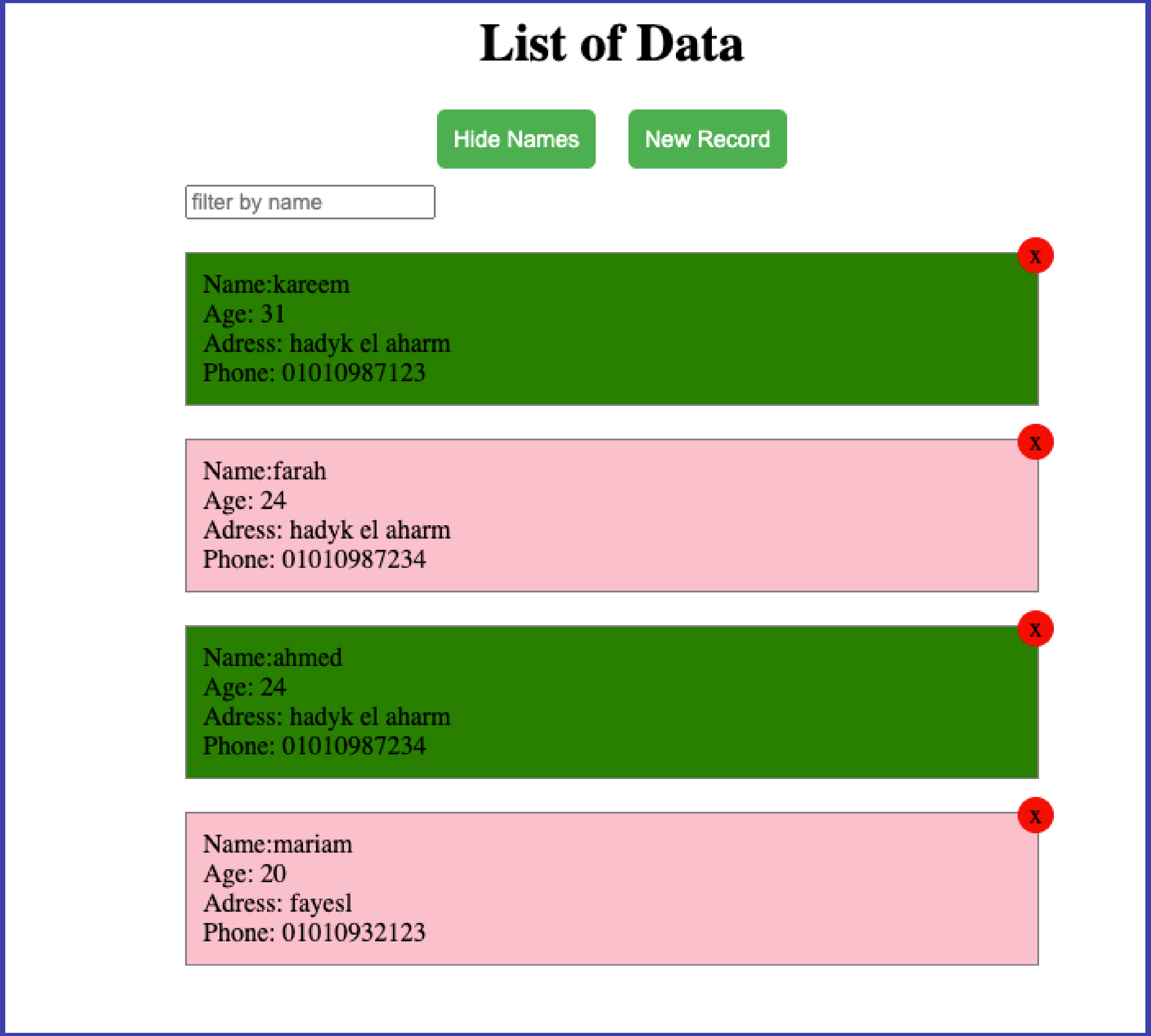
Our Old App (local state AND Props Drilling)

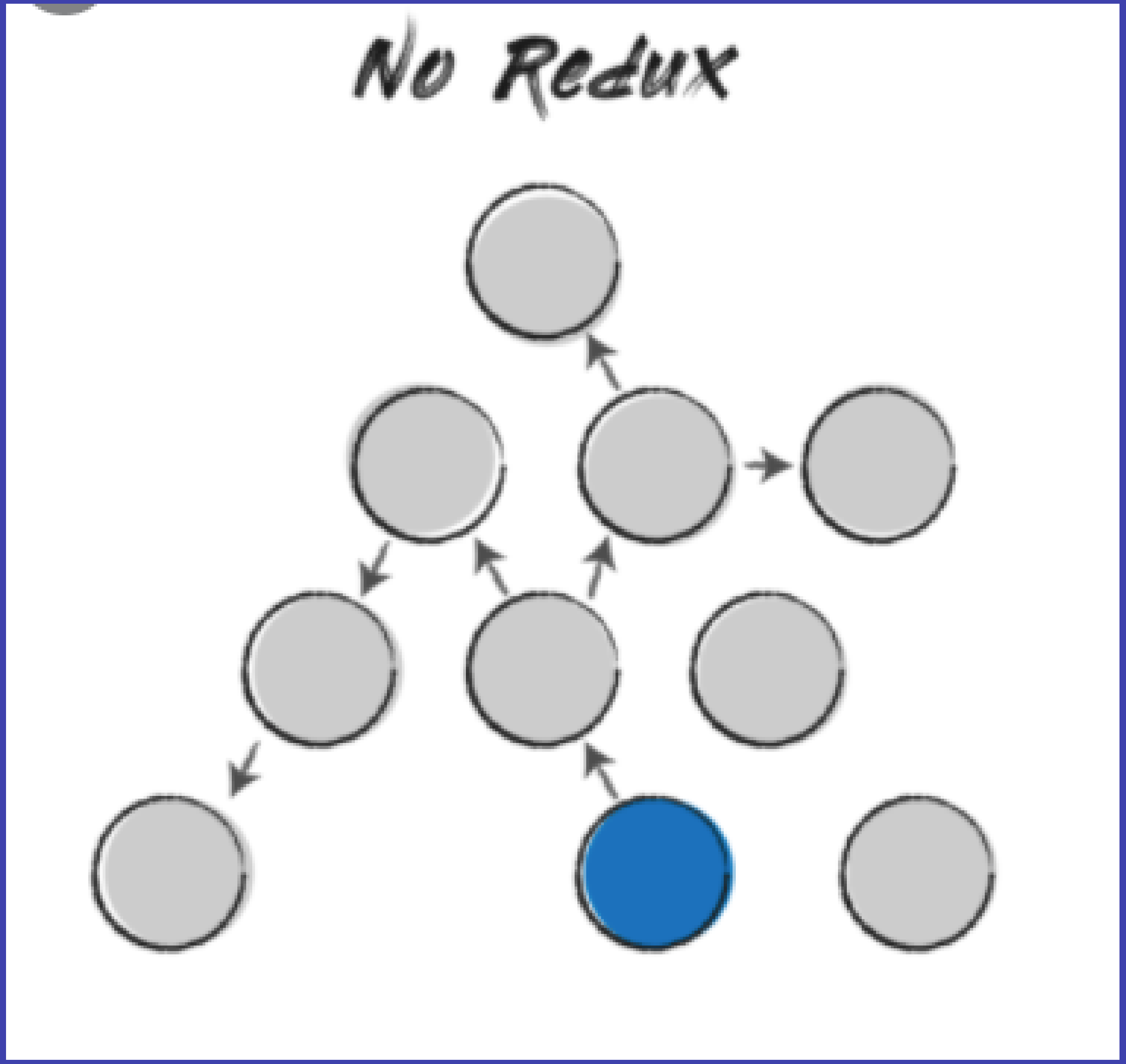


Name:kareem
Age: 31
Adress: hadyk el aharm
Phone: 01010987123

Name:farah
Age: 24
Adress: hadyk el aharm
Phone: 01010987234

Name:ahmed
Age: 24
Adress: hadyk el aharm
Phone: 01010987234

Name:mariam
Age: 20
Adress: fayesl
Phone: 01010932123



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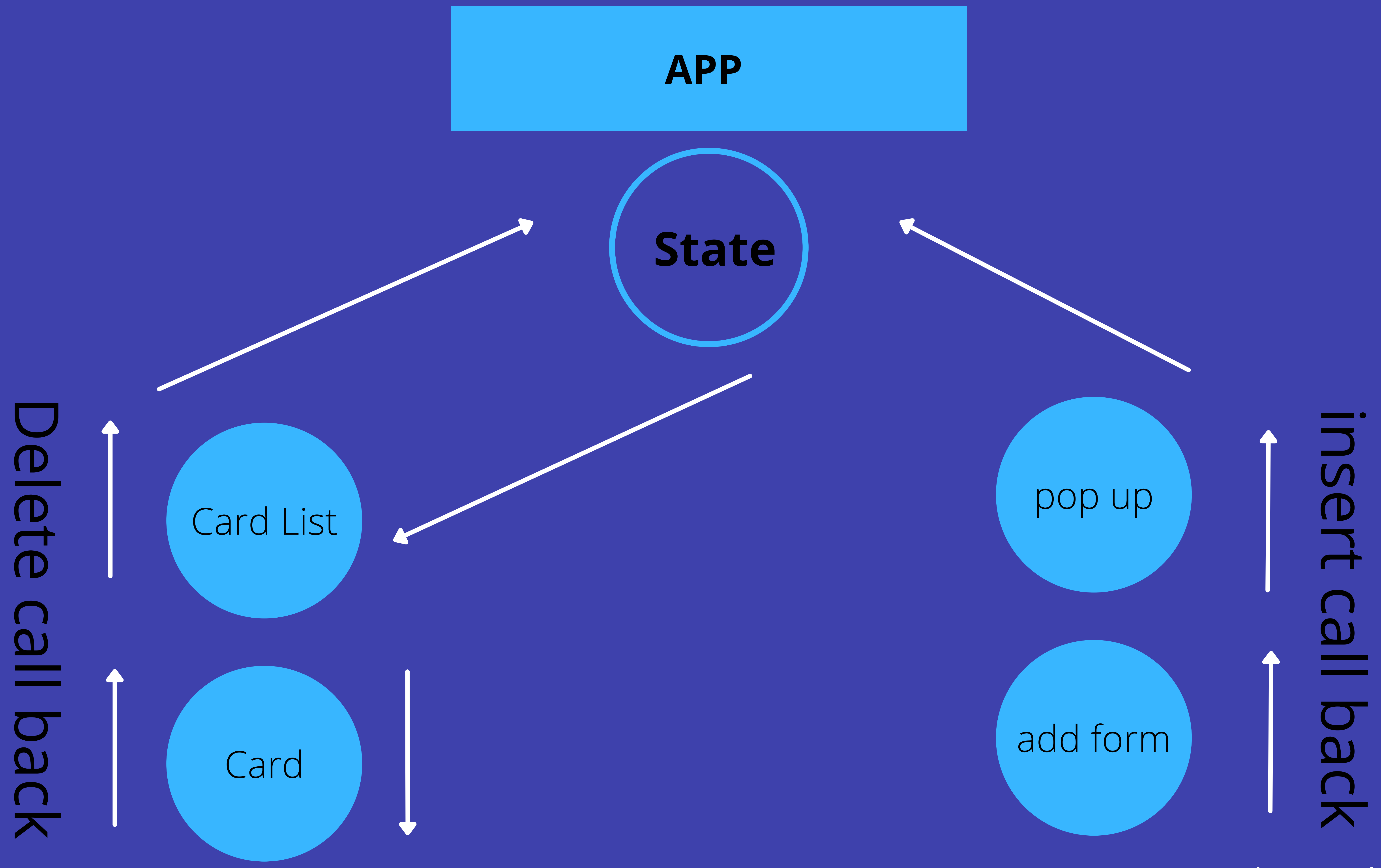

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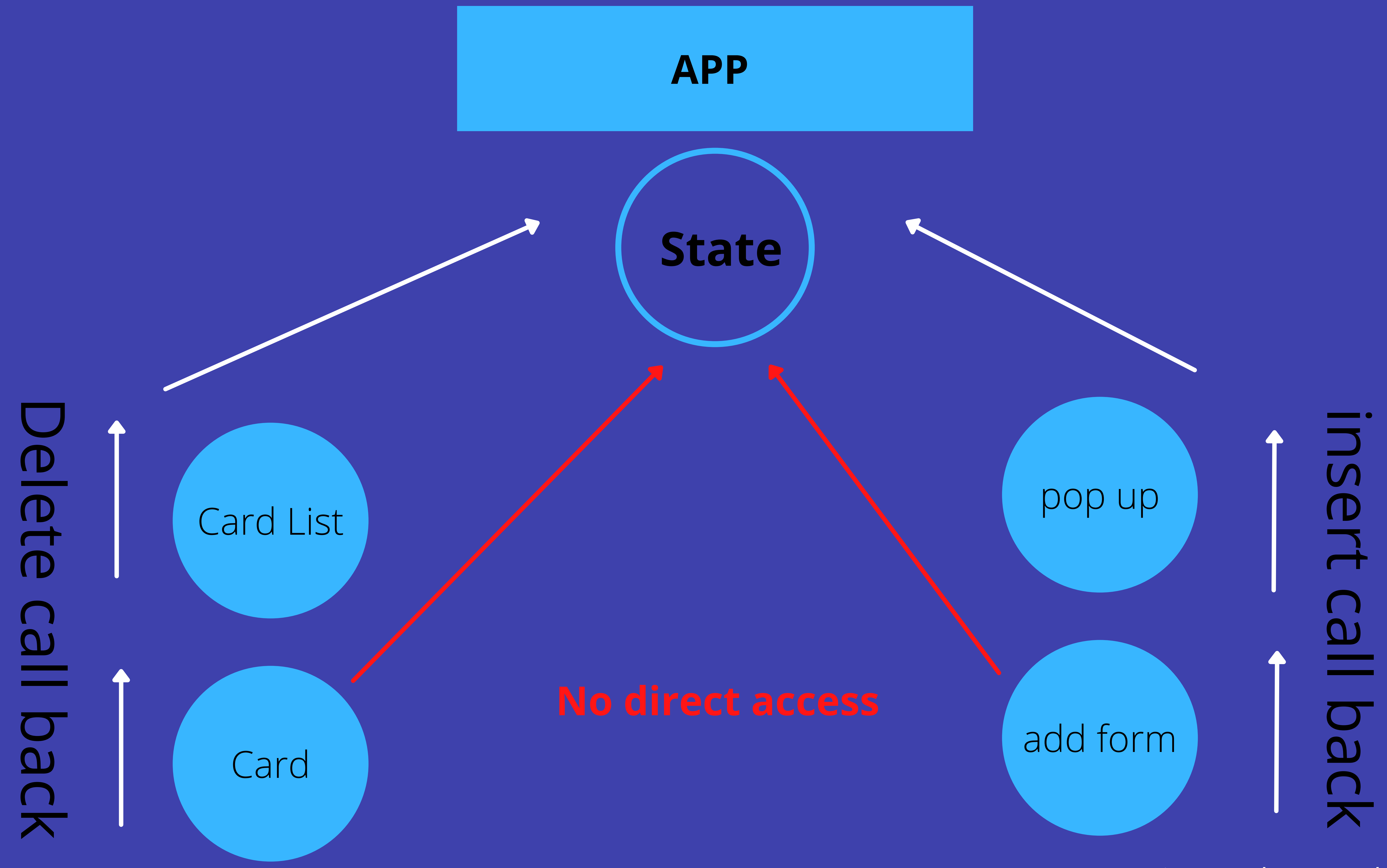

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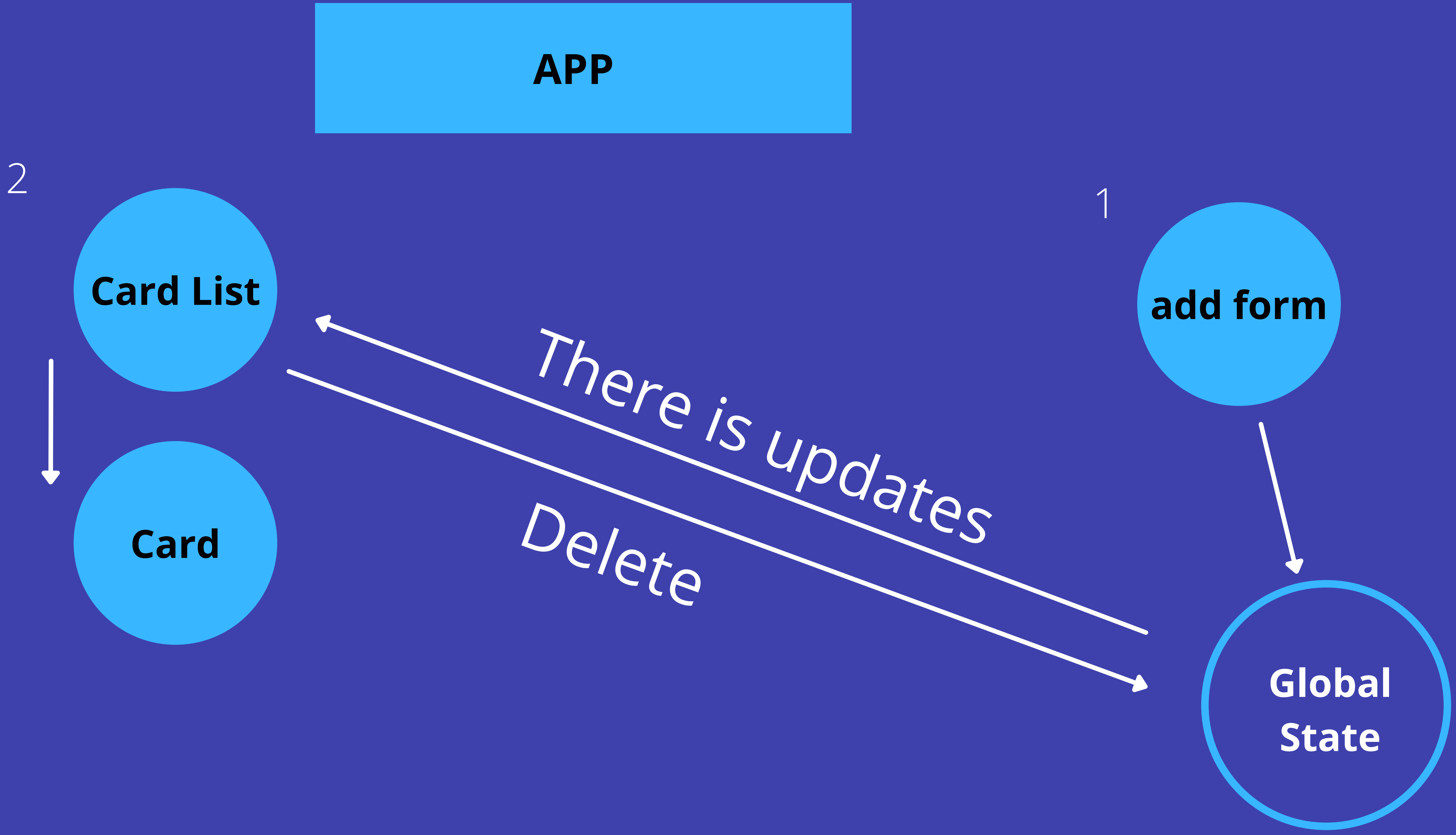
With global state



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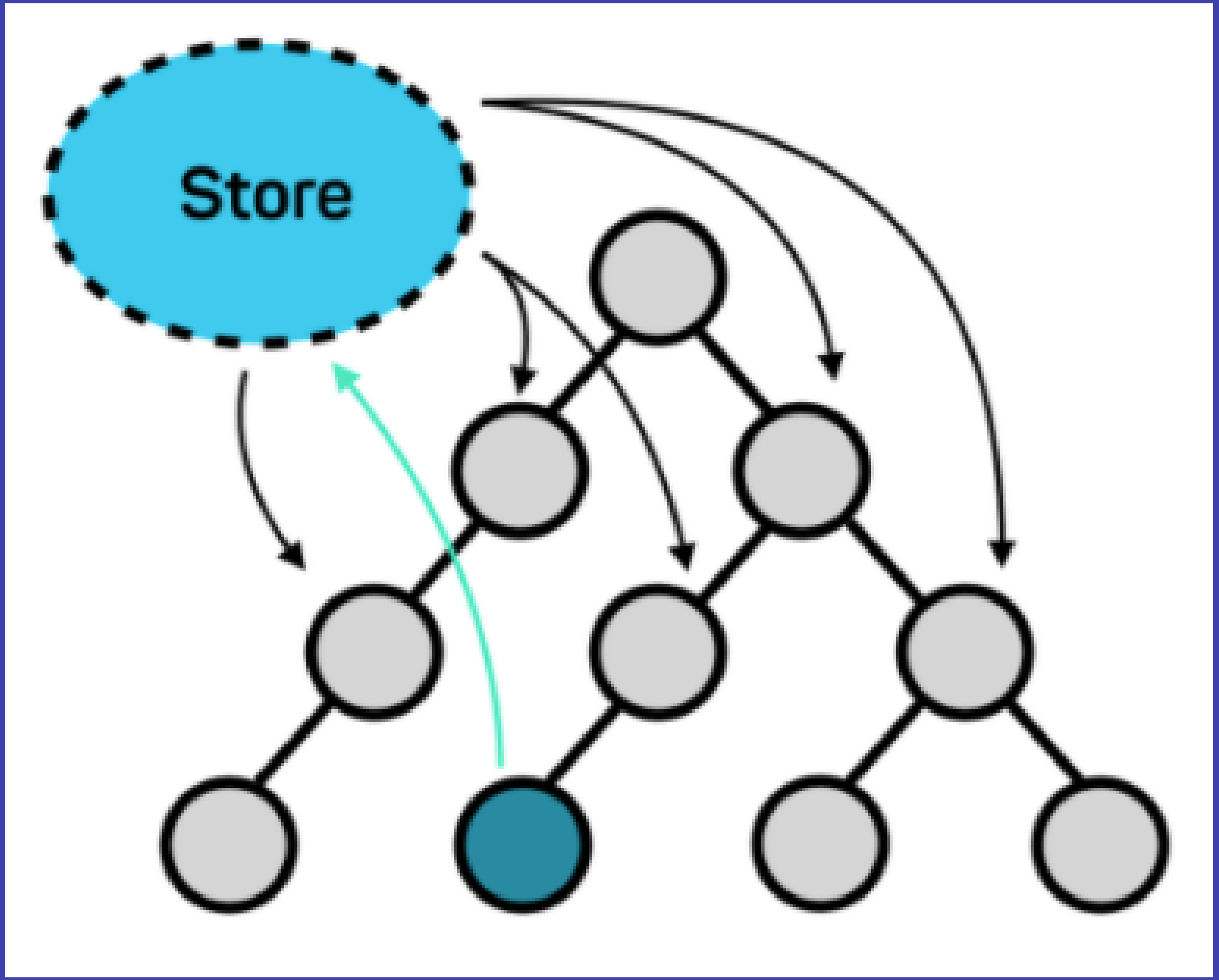
With global state

Store (global state)



Conclusion

- Local state is scoped and we have drilling props (pass props & call back function) between components to share data
- Global state allows to access state from anywhere without do more drilling

Redux

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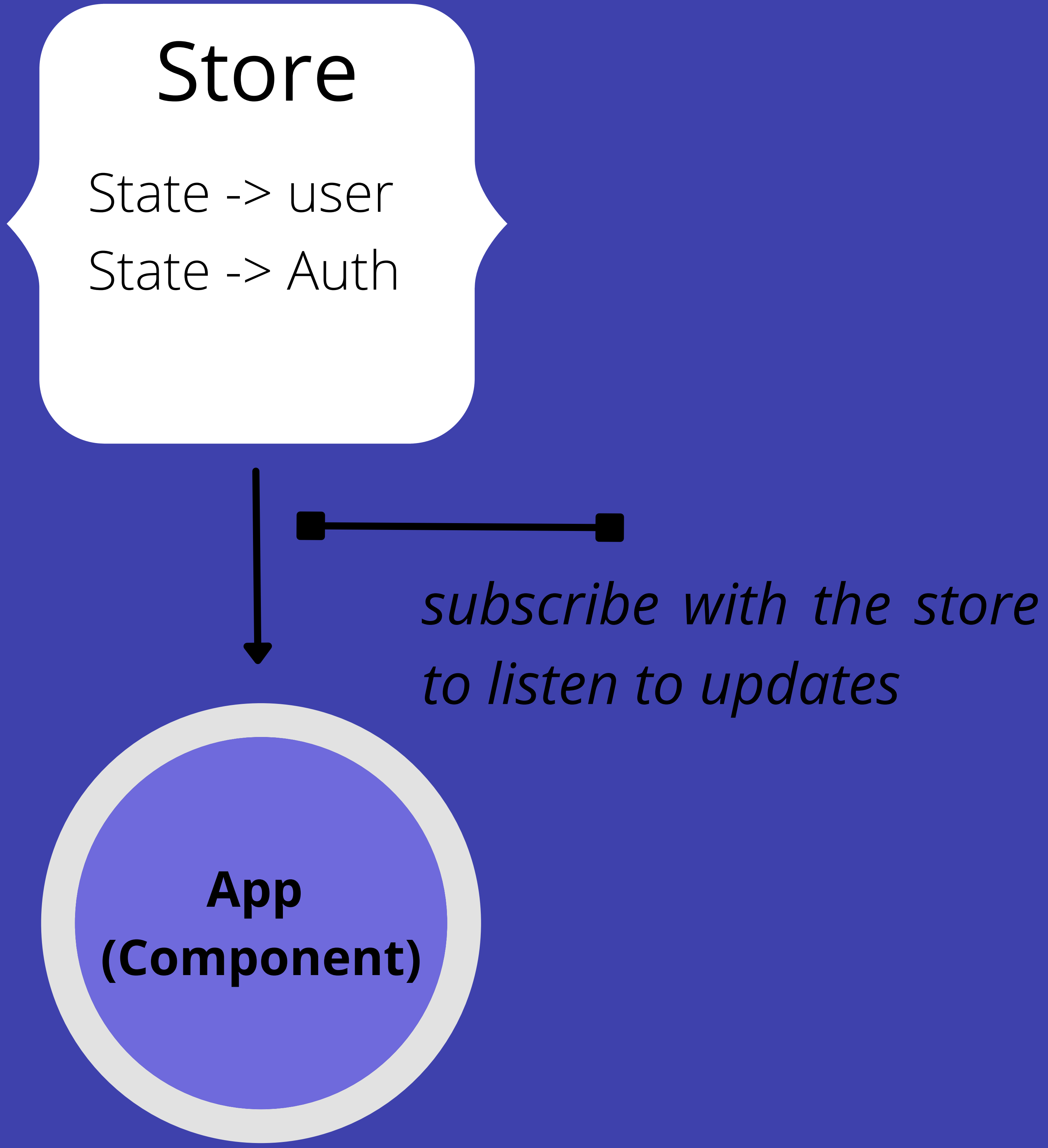
Store

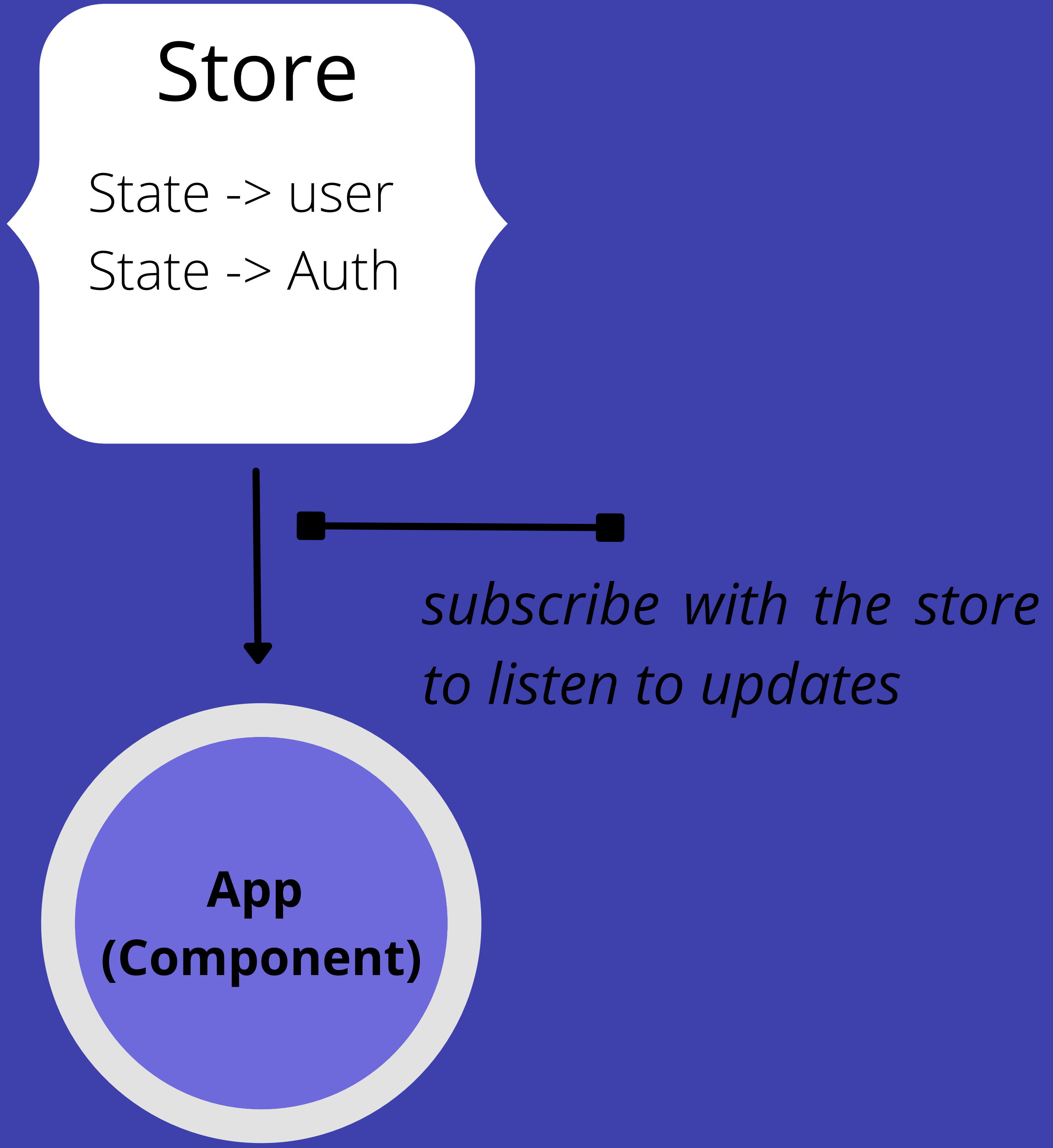
State -> user

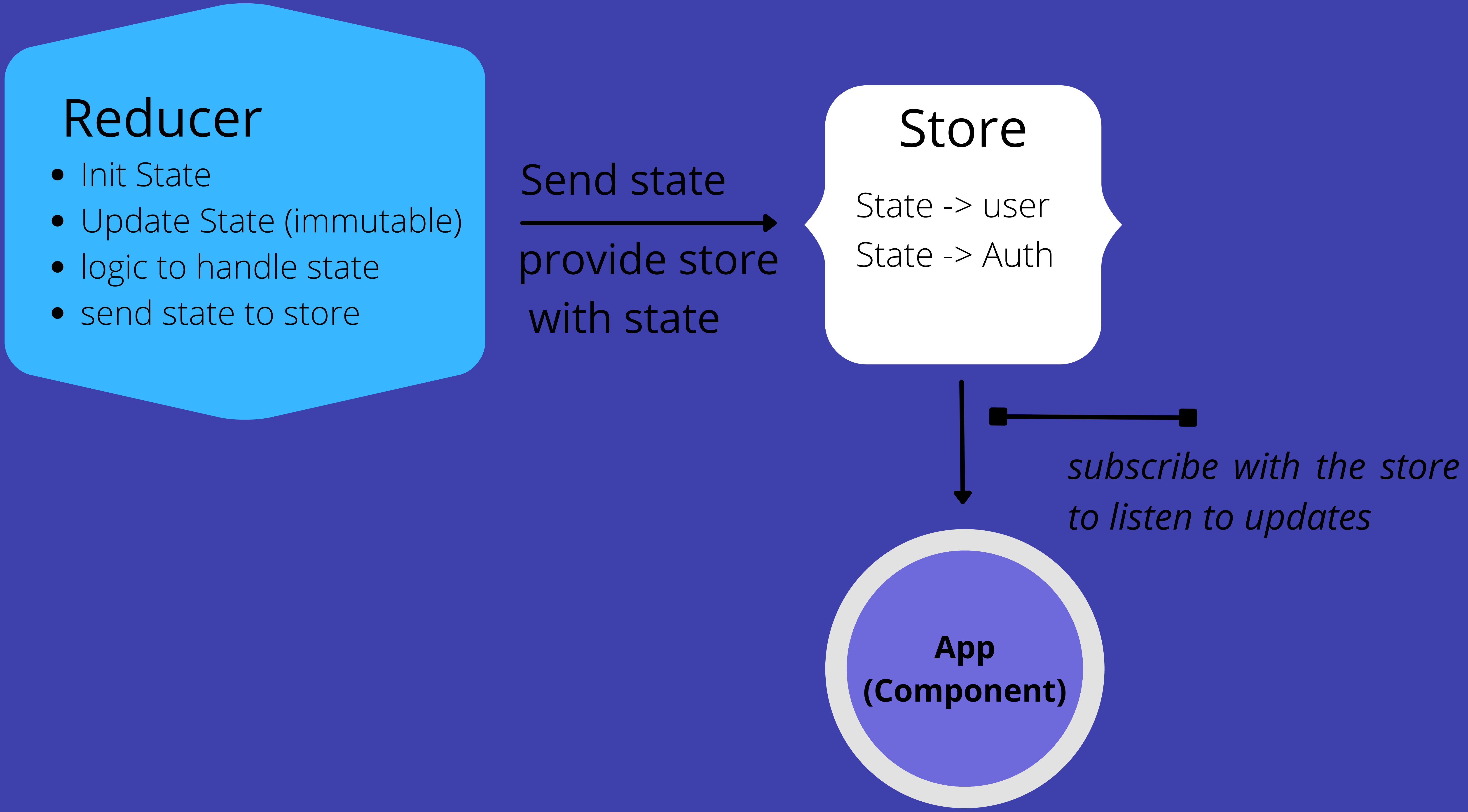
State -> Auth

How read state? Subscribe



How is the state created in-store?
How the state will be updated?





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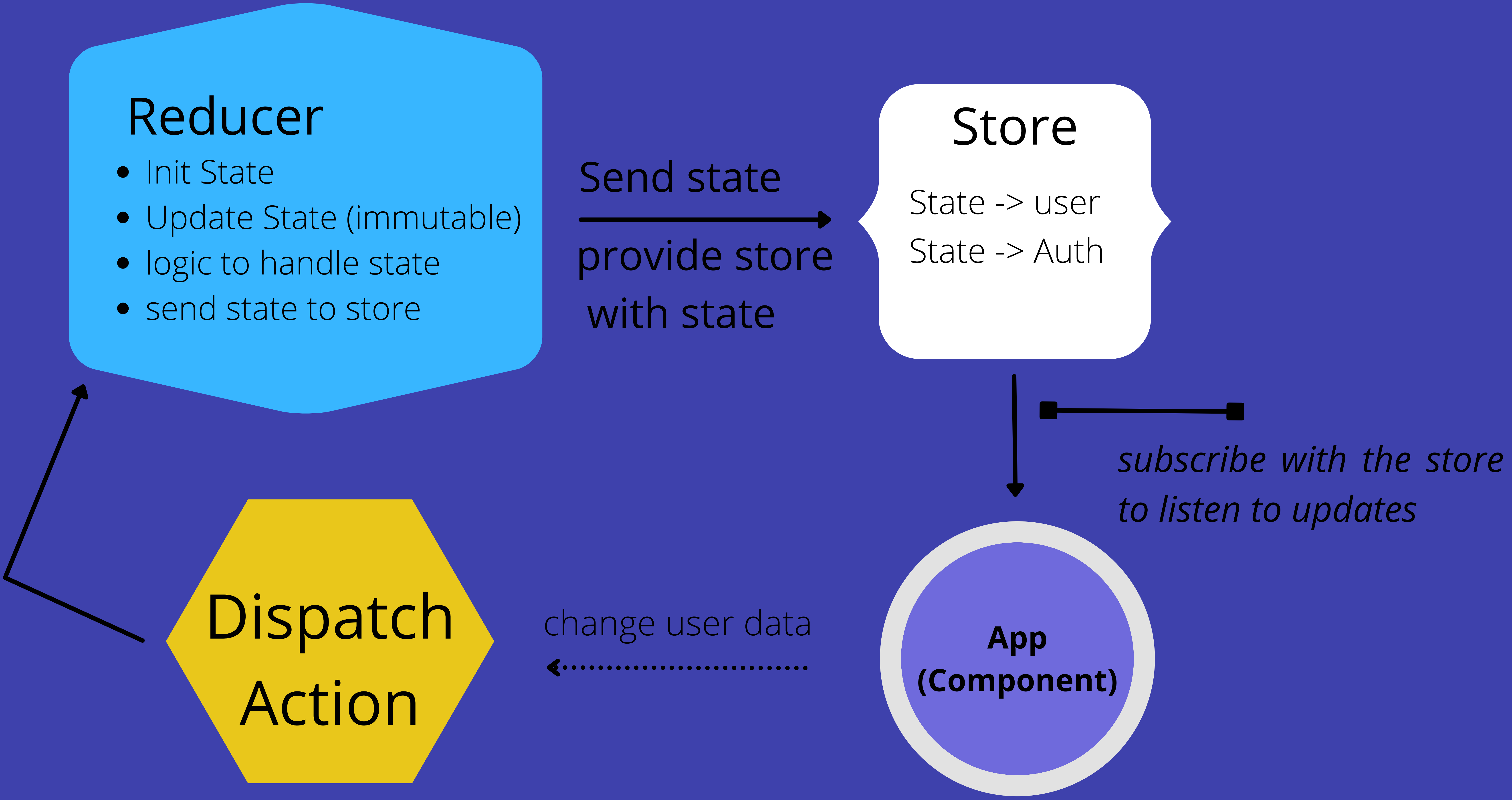

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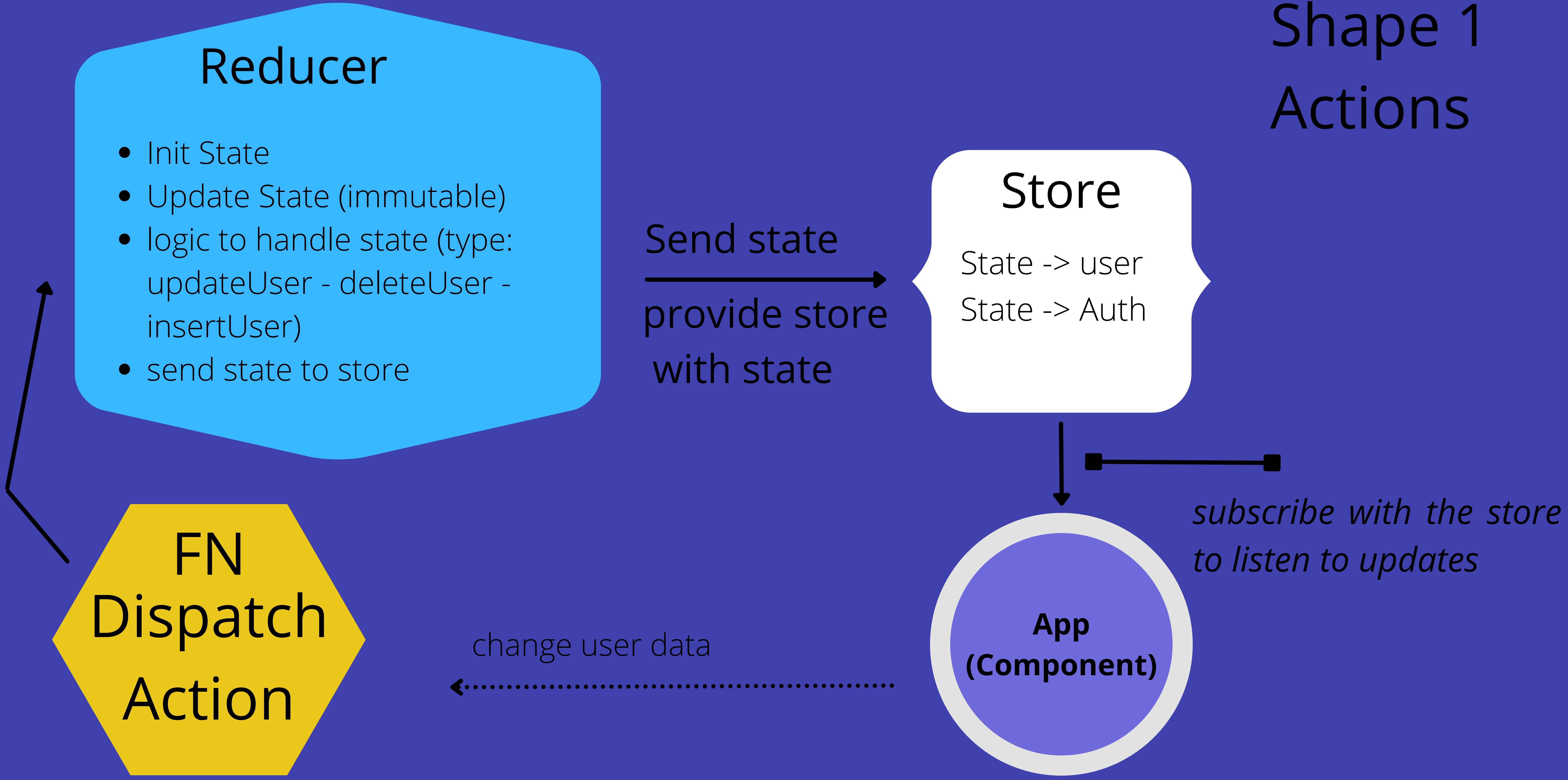
Conclusion

- Only reducers can create/update state
- The store is the place that contains all states
- (Dispatch function) send a trigger to force reducer do update
- Subscribe with the store to listen to updates
- Wihtout subscribe there is no re-render happen and component will not see updates

Lets go deep, step by step!

Action & Dispatch fn

Shape 1 Actions



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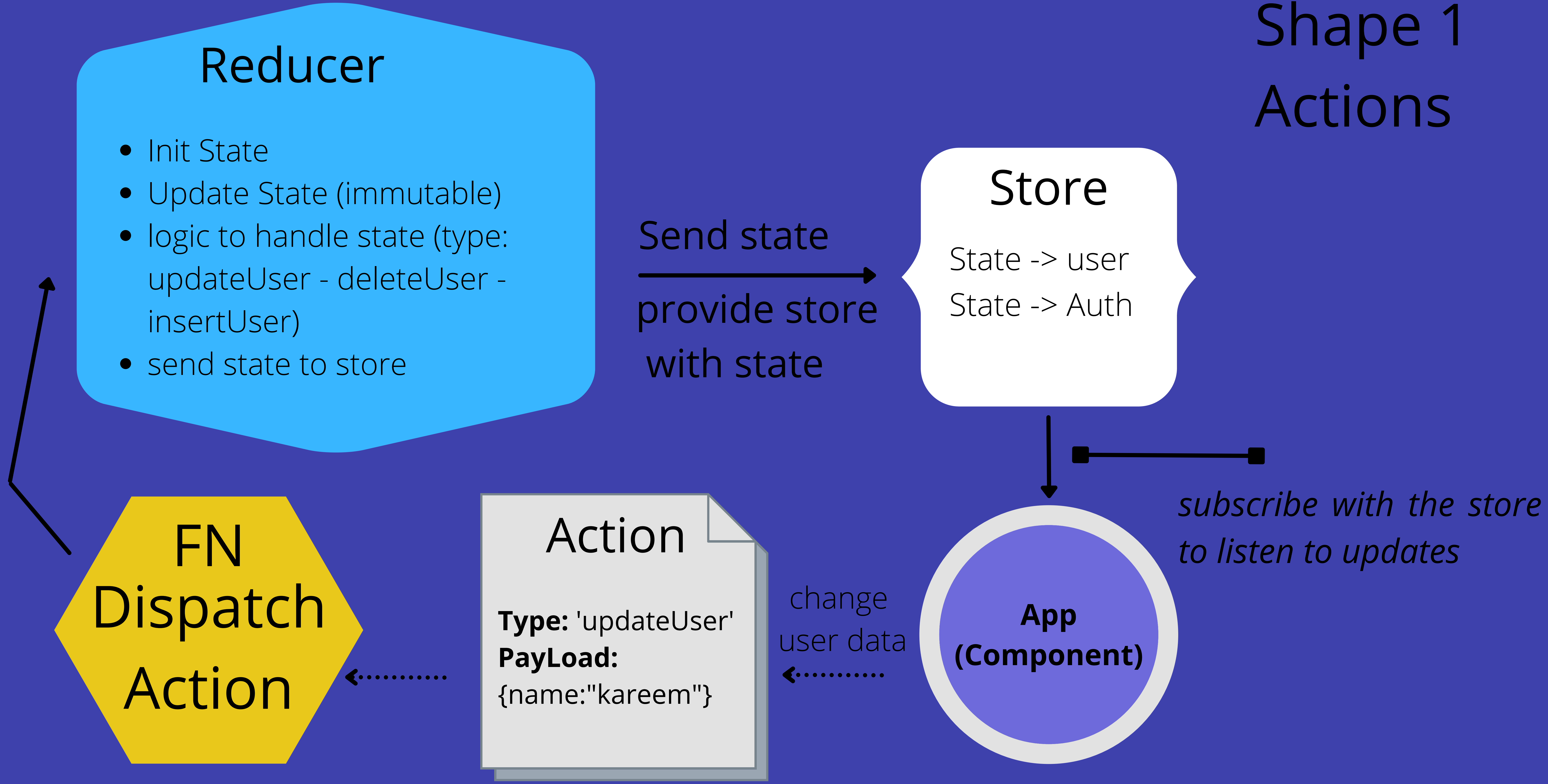
Shape 1 Actions



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Conclusion

- Action is something like a contract!
- Dispatch function: is a function that take Action and sends it to the reducer to make updates

Reducer

Reducer

```
const initState = {username: "kareem"}

const user = (state = initState, action) =>
{
  some logic to handle actions
  return state
}
```

- Is function
- Should be Pure
- Init the state and send it to the store
- State is object
- Don't mutate
- Always return
- Can have many reducers

Reducers

Reducer

```
const initState = {username: "kareem"}
const user = (state=initState, action) => {
    Return state

}
```

Reducer

```
const initState = {name: "dark"}
const theme = (state=initState, action)
=> {
    Return state

}
```

Reducer

```
const auth = {login: "false"}
const auth = (state=initState, action) => {
    Return state

}
```

Reducer

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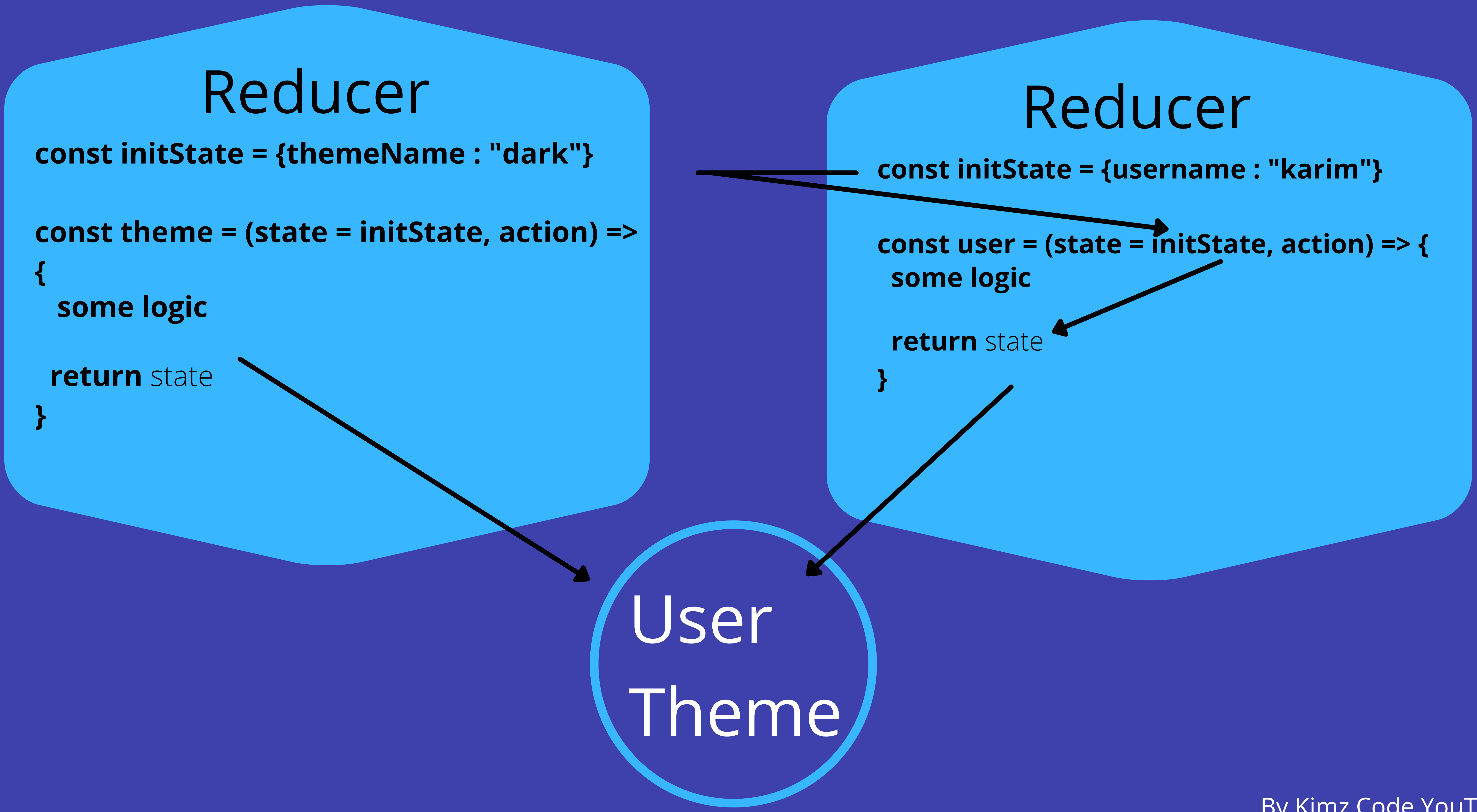
Init state and send to store



```
const initState = {themeName : "dark"}

const theme = (state = initState, action) =>
{
  some logic

 return state
}
```

```
const initState = {username : "karim"}

const user = (state = initState, action) => {
  some logic

  return state
}
```

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Reducer (logic) - if Vs Action type

Reducer

```
const initState = {themeName : "dark"}

const theme = (state = initState, action){
if(action.type === "changeTheme"){
  return state with new state + action.payload
}

  return state
}
```

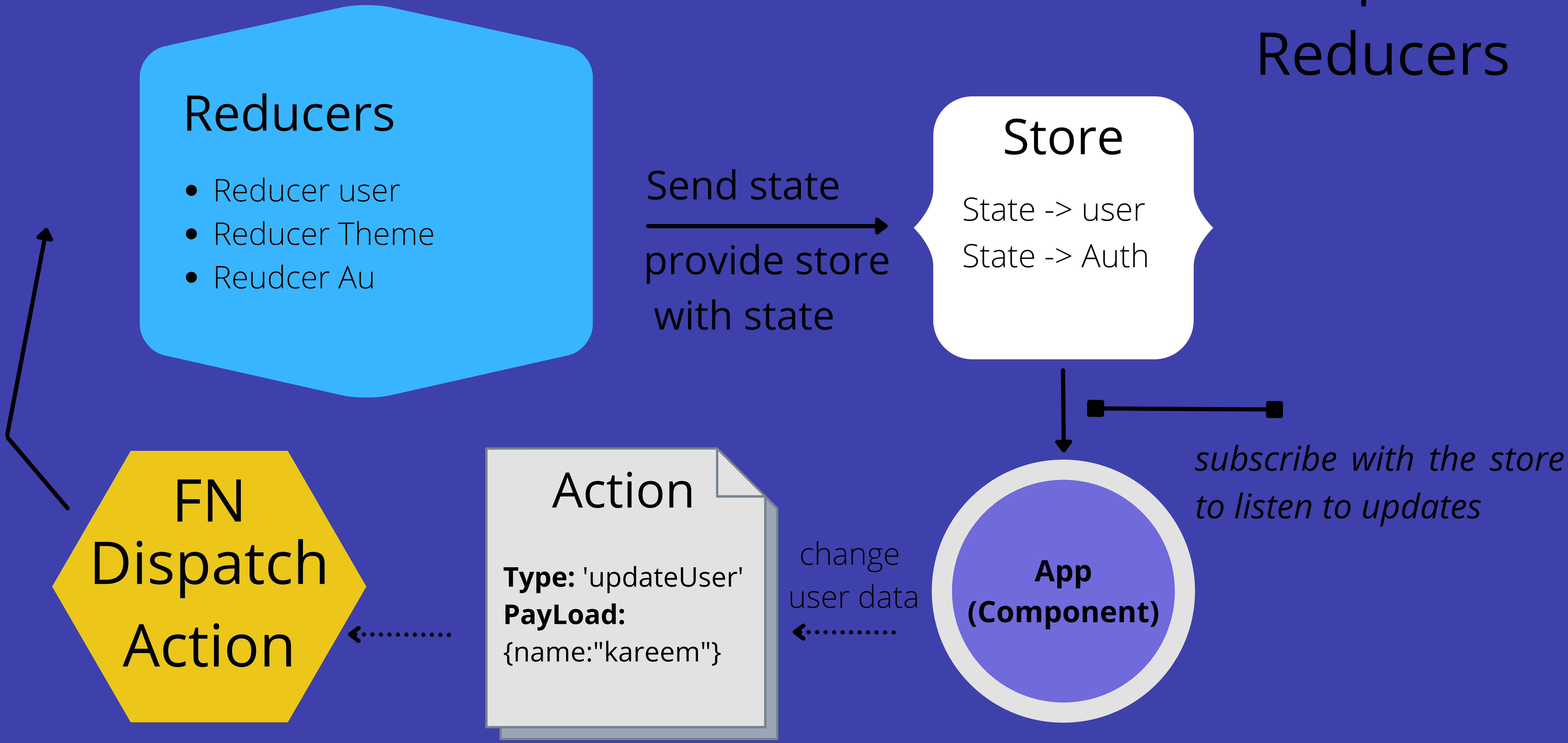
Reducer

```
const initState = {username : "karim"}

const user = (state = initState, action){
if(action.type === "updateUser"){
  return state with new state + action.payload
}
if(action.type === "deleteUser"){
  return state with new state + action.payload
}
  return state
}
```

Dont worry, I will tell you how this logic will fire

Shape 2
Reducers



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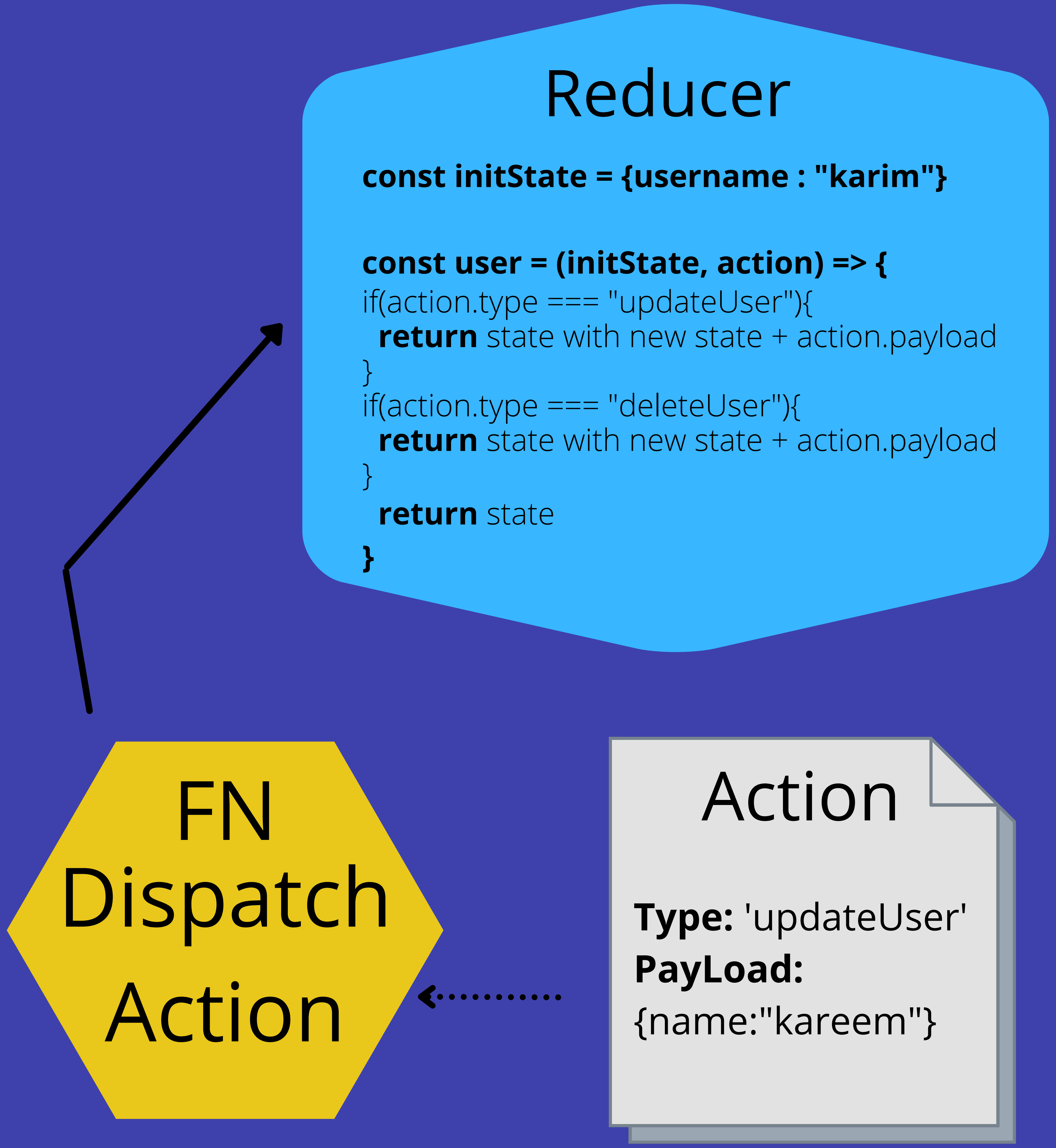
Conclusion

- Can have many reducers
- reducer return state
- returned state will take place in store

So how & when reducer function will fire?

Answer:

```
if(action.type === "updateUser"){
  return state with new state + action.payload
}
```



```
const initState = {username : "karim"}

const user = (initState, action) => {
if(action.type === "updateUser"){
  return state with new state + action.payload
}
if(action.type === "deleteUser"){
  return state with new state + action.payload
}
  return state
}
```

Type: 'updateUser'
PayLoad:
{name:"kareem"}

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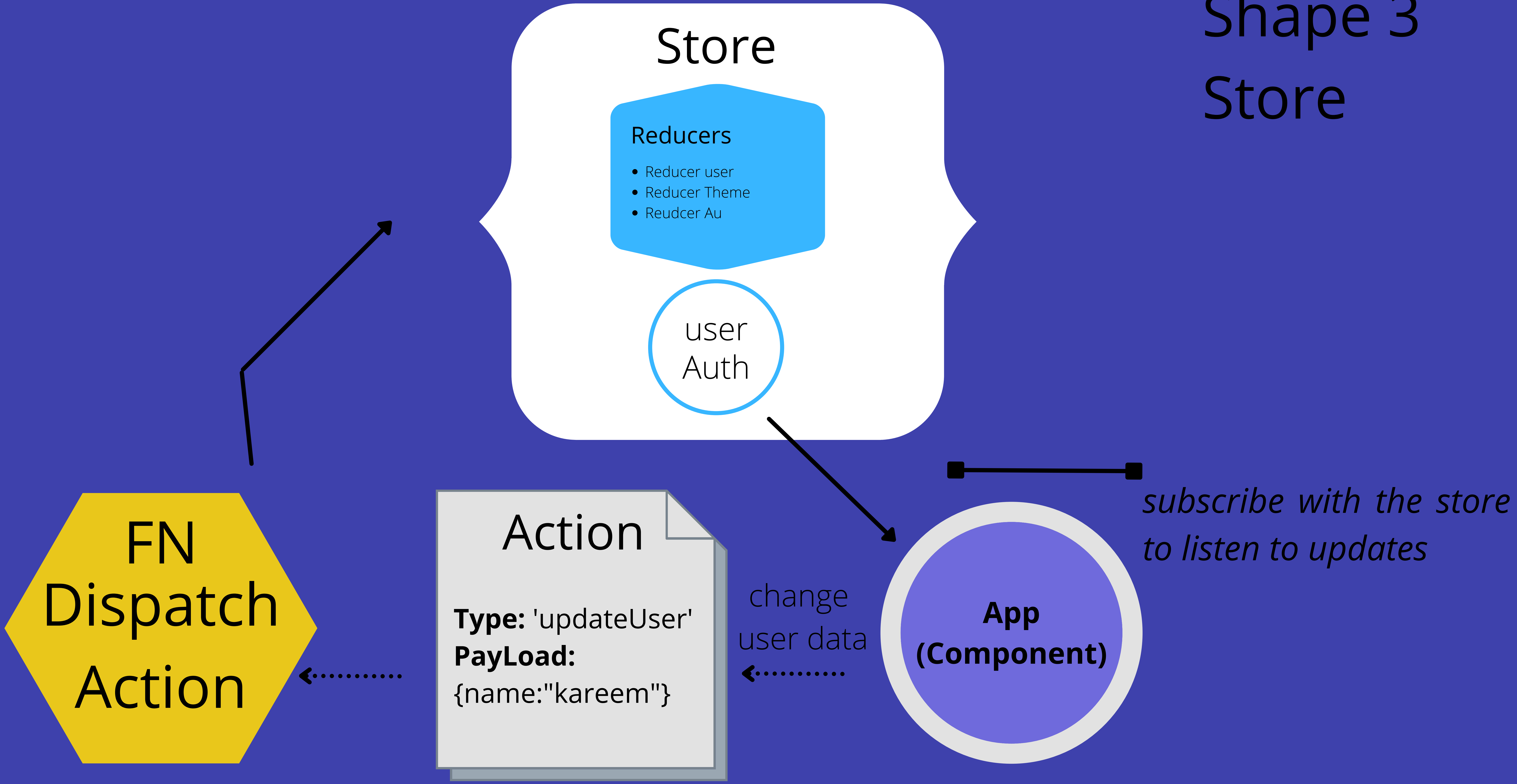
But what if i have many reducers, how i will naviagte action to related reducers?

to answer we need to:

- understand where is the reducer take place?
- need to look up again to the final design pattern!

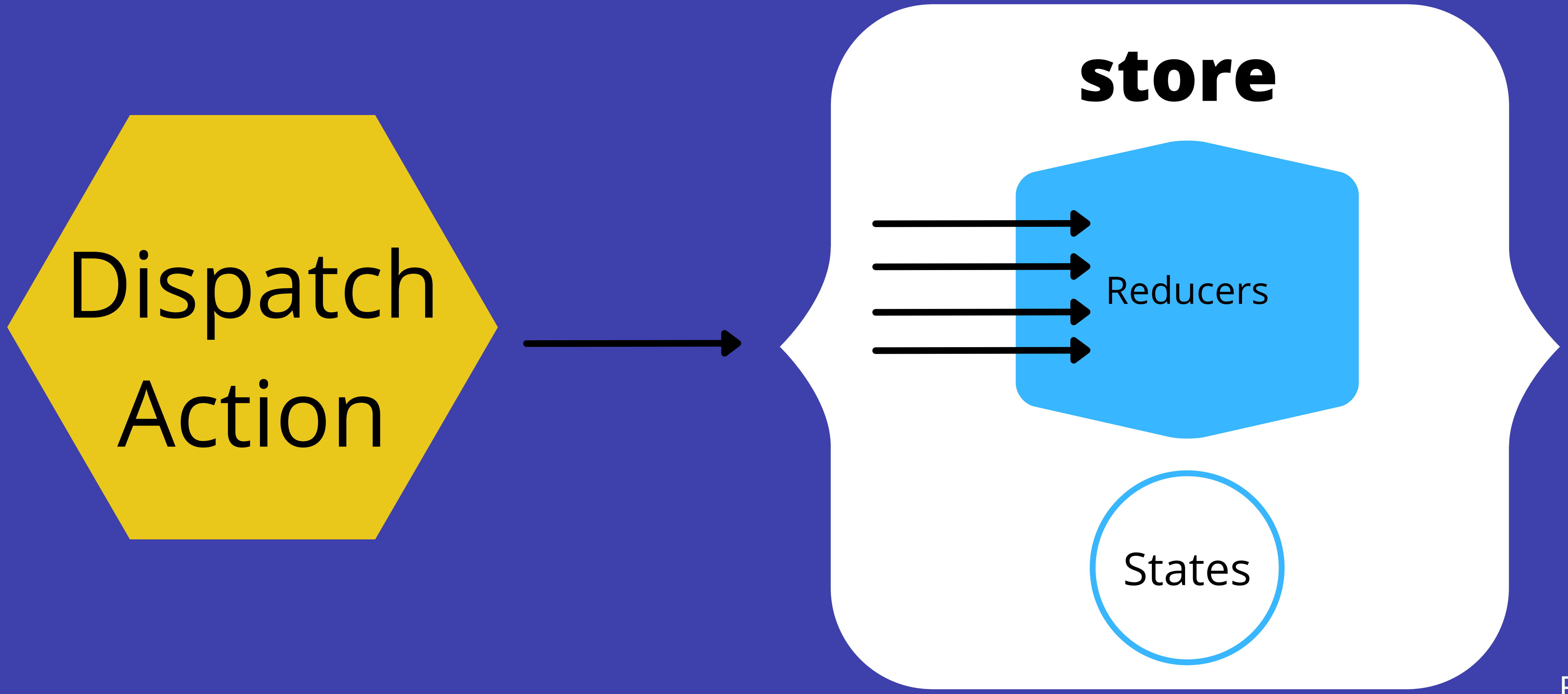
Need to understand first new shape & process on details

Shape 3 Store



Important note

- Store contains reducer and states
- when dispatch action fire it goes to store first, then store send it to the reducer
- The store is the key,it takes action and lookup for related reducer



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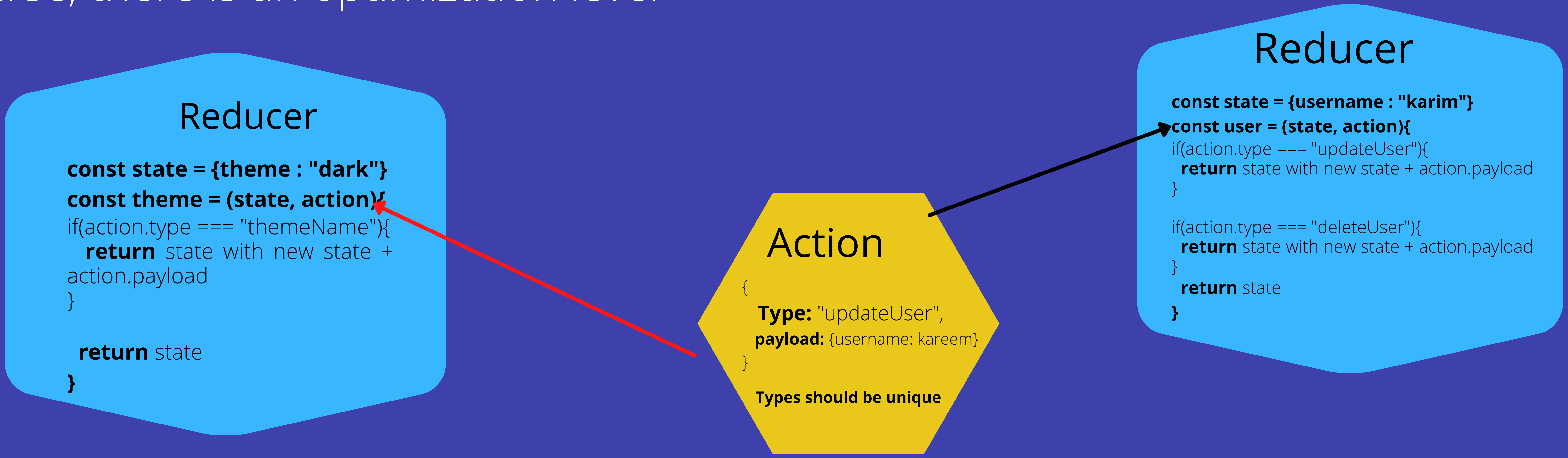
Store & Dispatching Steps

- Store take incoming dispatch, fetch throw all reducers and assign action as a param for each reducer
- The reducer will be executed one by one - the reducer will recive action as param, and by using if condition with "action.type" reducer will check do I have this type? if yes stop looping and execute the logic
- of course, there is an optimization level



```
const state = {theme : "dark"}
const theme = (state, action){
if(action.type === "themeName"){
  return state with new state + action.payload
}

  return state
}
```

```
{
  Type: "updateUser",
  payload: {username: kareem}
}
```

```
const state = {username : "karim"}
const user = (state, action){
if(action.type === "updateUser"){
  return state with new state + action.payload
}

if(action.type === "deleteUser"){
  return state with new state + action.payload
}
  return state
}
```

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What about state as param? why

when dispatch is sent to store and while store does fetch throw reducers, store actually path two params to reducers:

- Action: we already know why.
- State: to make sure this reducer will have the latest version from the state

State Life cycle inside reducer:

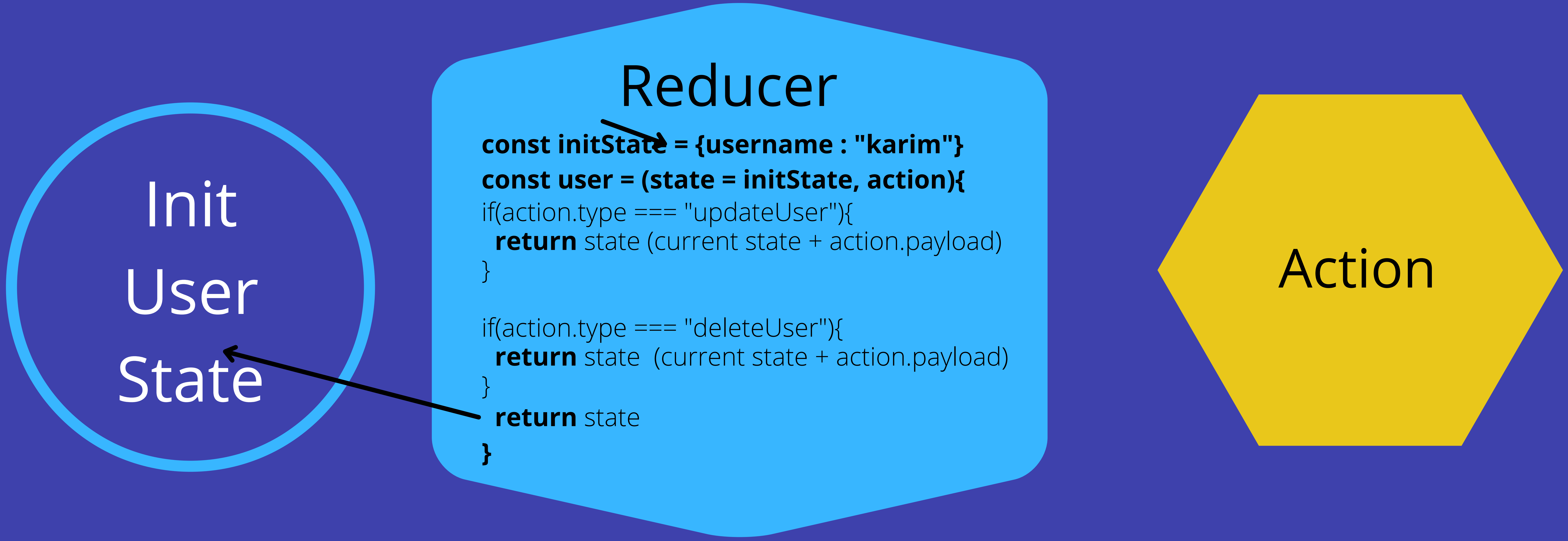
- when the app inits, the reducer will depend on the state you created **const state = {username: "karim"}** and will return it as default, why! because there no "action.type" match with what reducer have
- then, every time there is action come to the store, the store will pass the last state it has from the previous return

First time to load app

- **Store will start**
- **Action status:**

  Normal: no action

  unless you sent action when app init for the first time



```
const initState = {username : "karim"}
const user = (state = initState, action){
if(action.type === "updateUser"){
  return state (current state + action.payload)
}

if(action.type === "deleteUser"){
  return state  (current state + action.payload)
}
  return state
}
```

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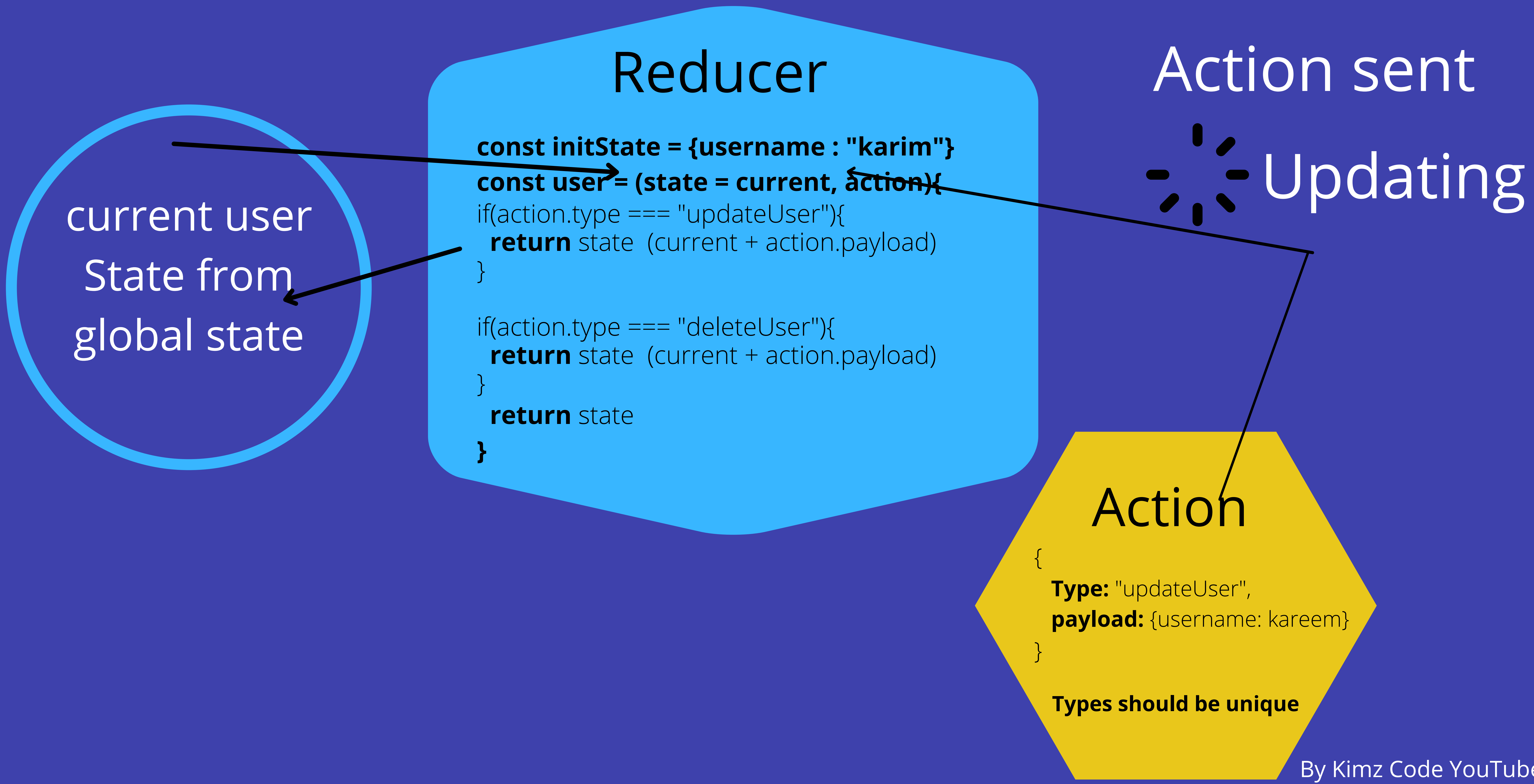
After first time to load app



```
const initState = {username : "karim"}
const user = (state = current, action){
if(action.type === "updateUser"){
  return state  (current + action.payload)
}

if(action.type === "deleteUser"){
  return state  (current + action.payload)
}
  return state
}
```

```
{
  Type: "updateUser",
  payload: {username: kareem}
}
```

Types should be unique

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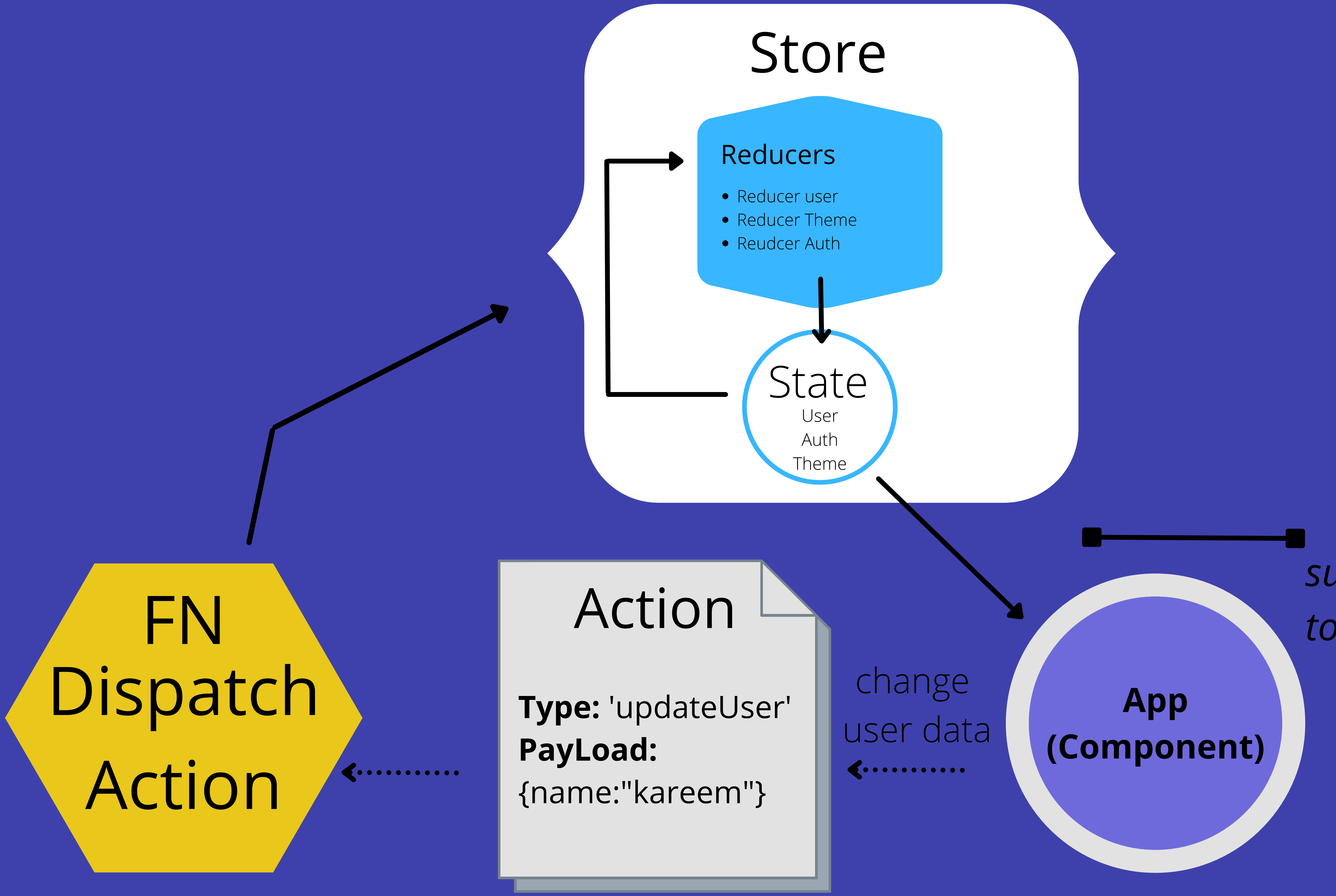
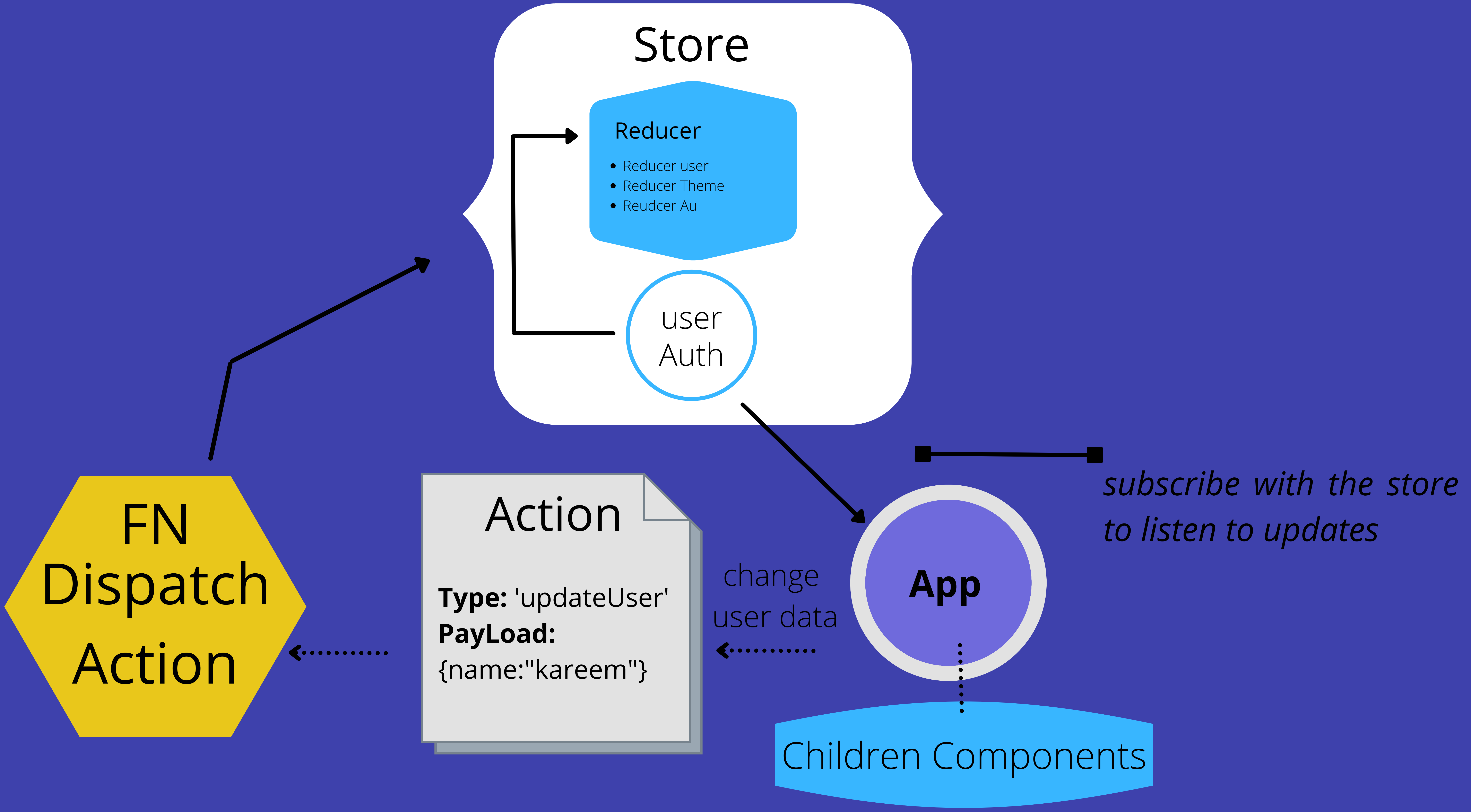
Shape 4
Final Store



subscribe with the store to listen to updates

React & Redux Subscription

- Prefer to subscribe with the main App or main parent for groups of component
- Once subscribn enabled all children will be able to see updates too



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The End of story

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