REACT AND REFLUX:
Components, Actions, Stores, and State

Philip Baues, Thomas Ströder
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Components, Actions, Stores, and State

4.–6. October 2017,
TopConf Düsseldorf

Philip Baues and Thomas Ströder

Drilled down webshop example

METRO 3.88€

Aro H-Milch 3,5% 0.99

Unbelievable but true, this is really just milk. The exquisite milk comes in a handy 1l packaging.

Aro Blütenhonig flüssig 2.89

The real honey experience.

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Why React?

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Why React?

declarative view abstraction

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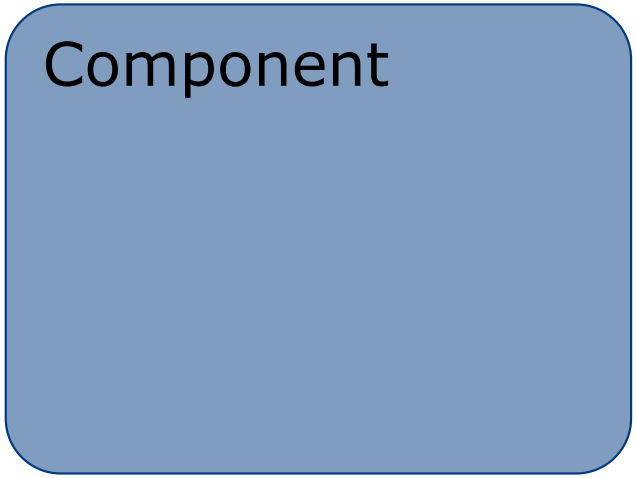
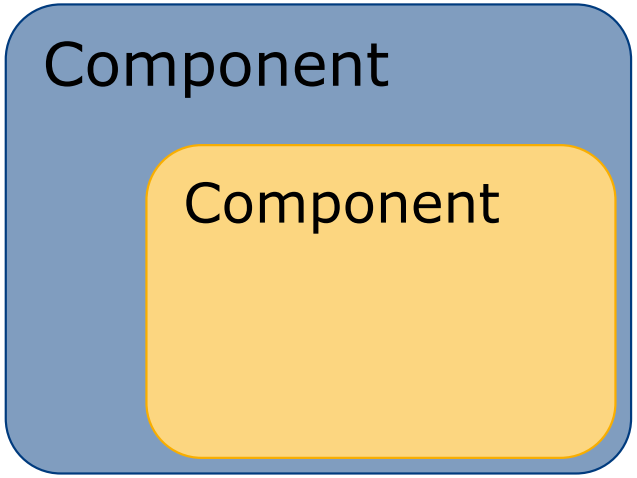
Why React?

declarative view abstraction



Why React?

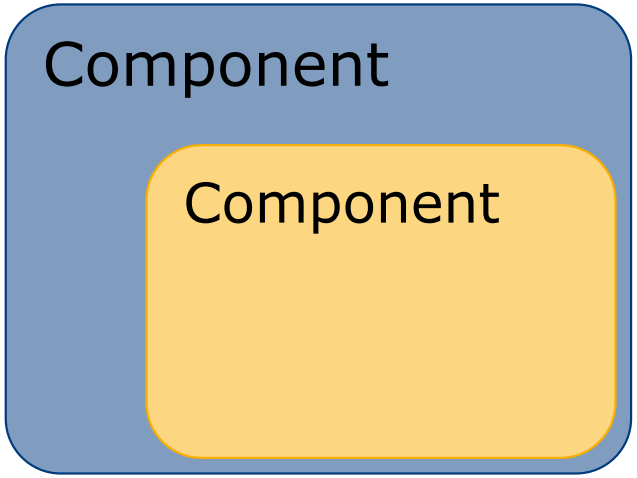
declarative view abstraction



Why React?

declarative view abstraction

decoupling



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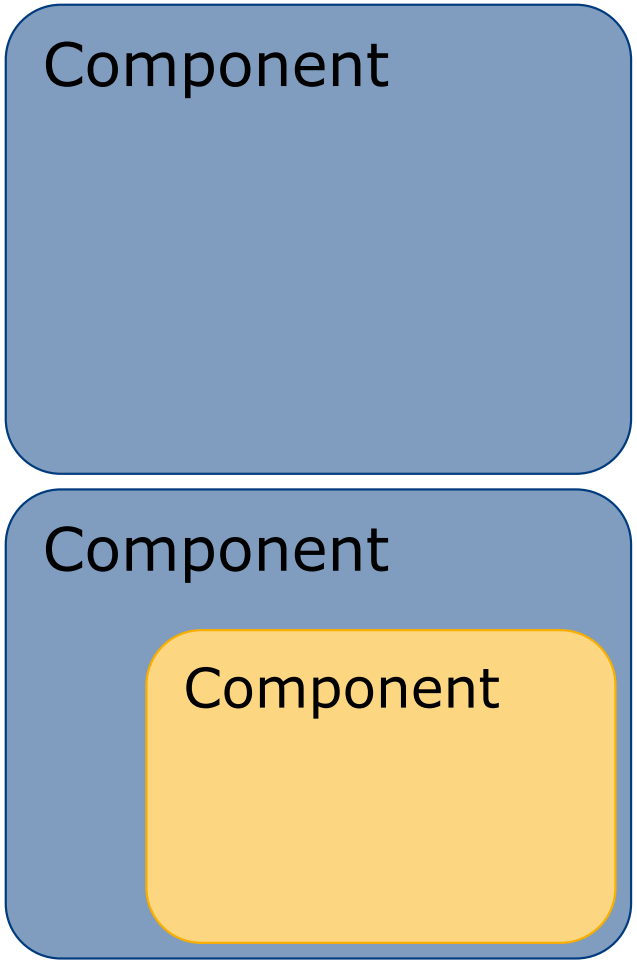

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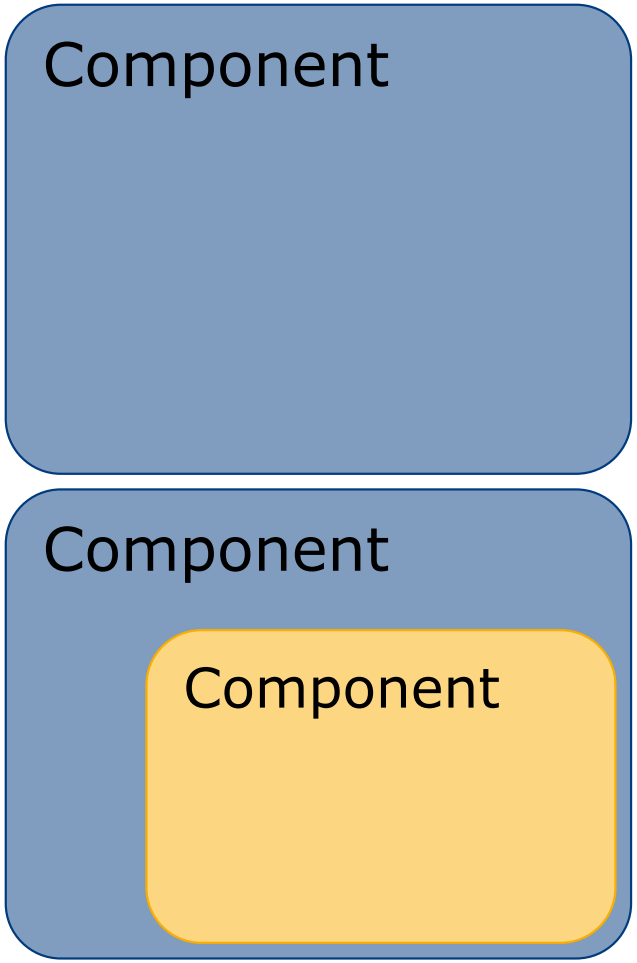

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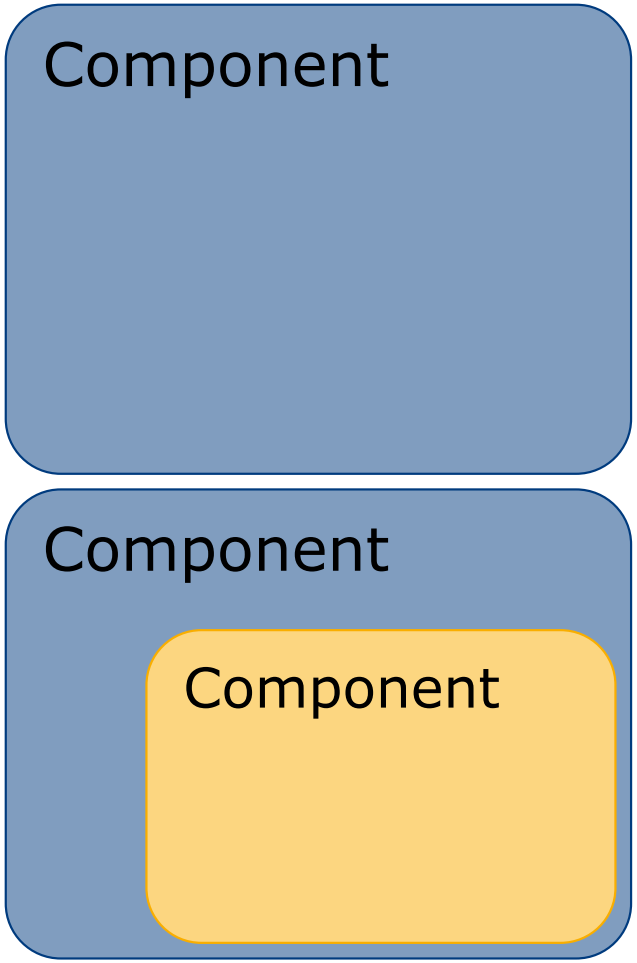


React Components

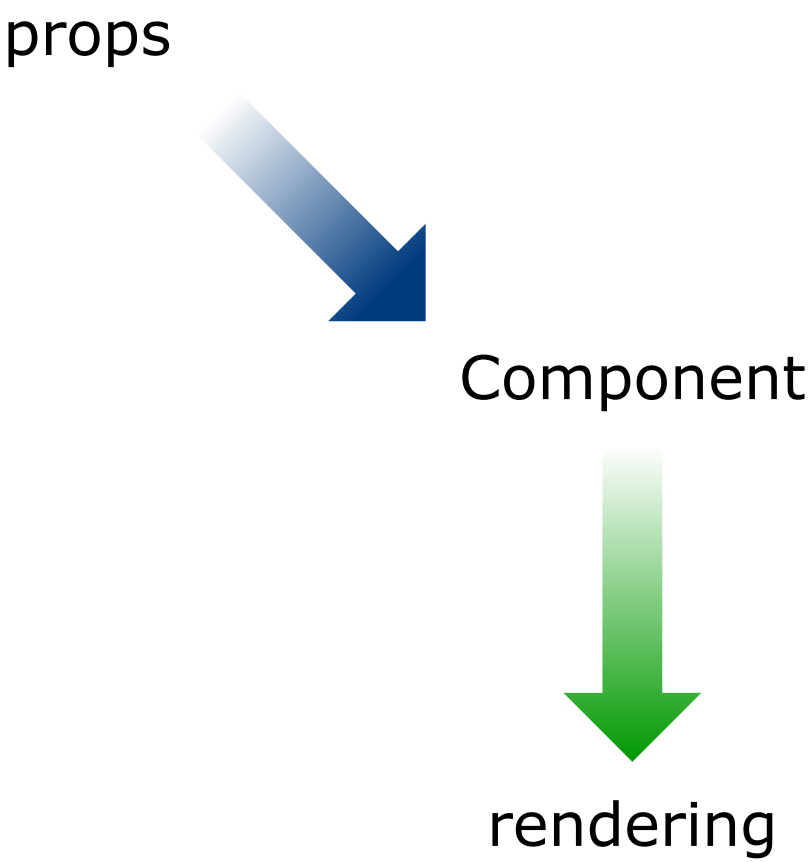
Component

React Components

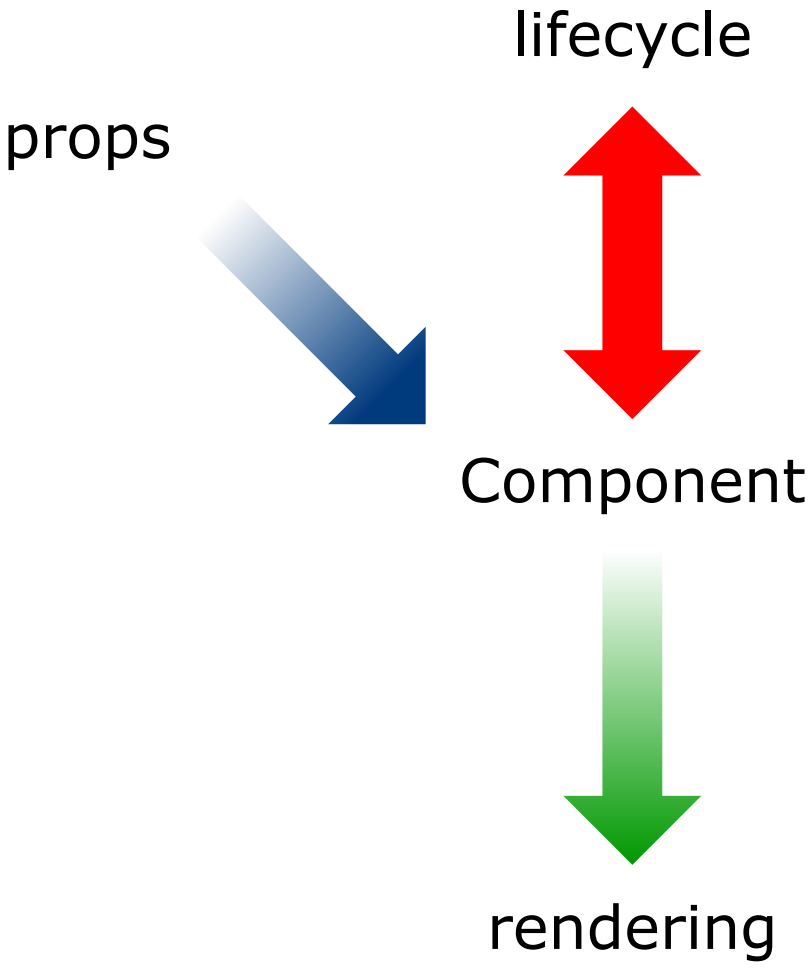
Component

rendering

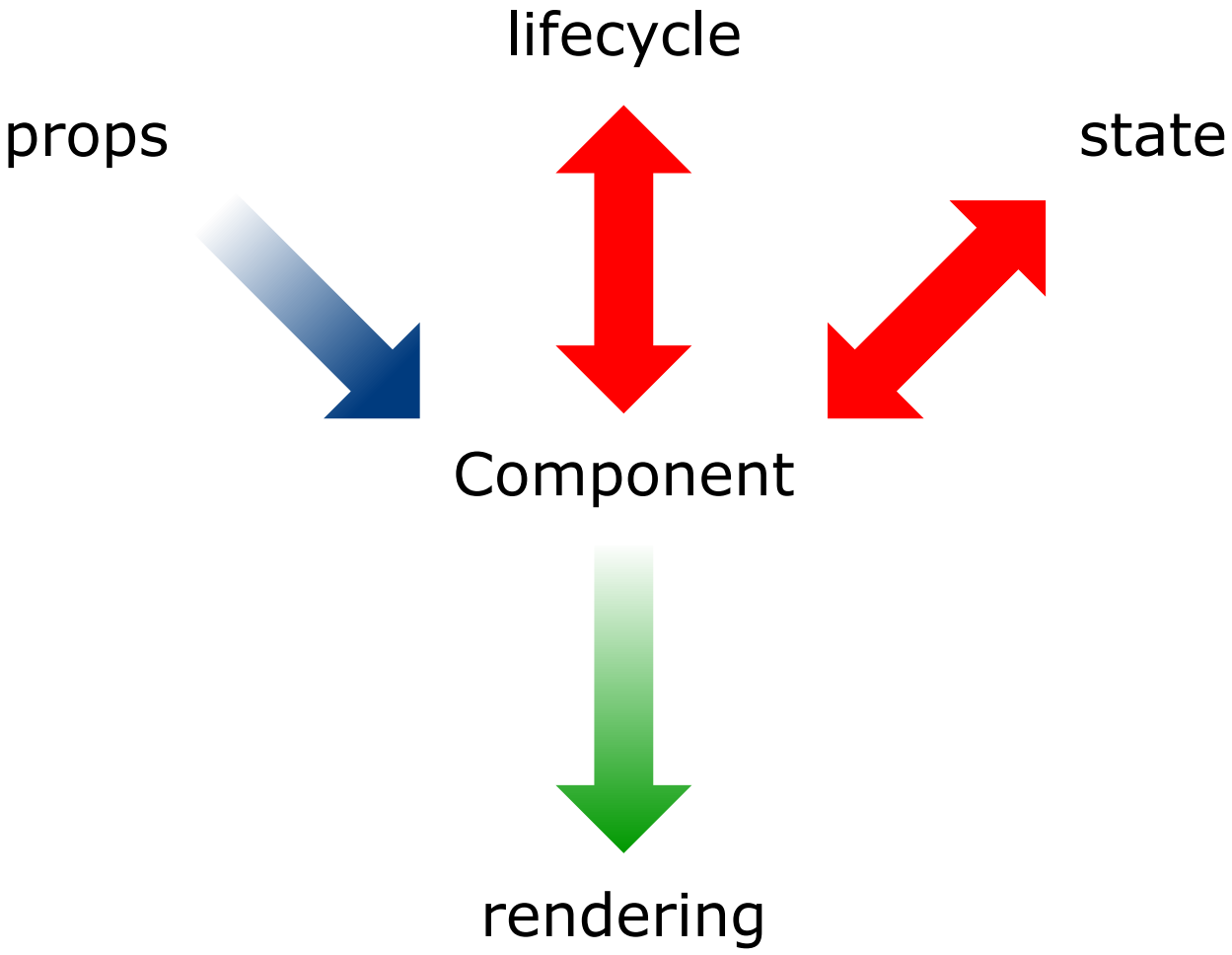
React Components



React Components



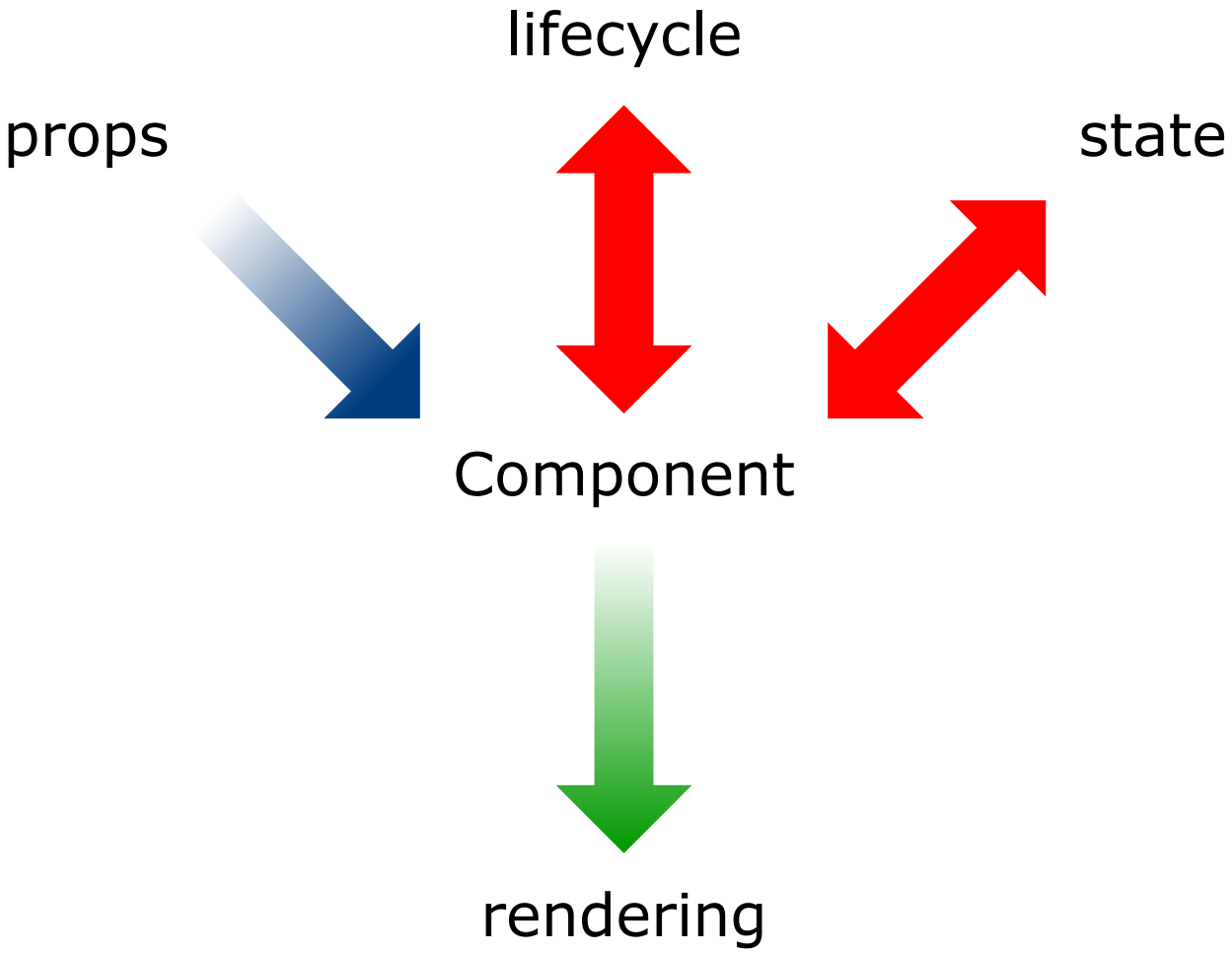
React Components



React Components – Example

```
1   class Article extends React.Component {
2
3       render() {
4           const article = this.props.article;
5           return (
6               <div key={article.id} className="col">
7                   <div className="article">
8                       <img src={article.image}/>
9                       <span>{article.name}</span>
10                      <span>{article.price}</span>
11                  </div>
12              </div>
13          );
14      }
15  }
```

Components



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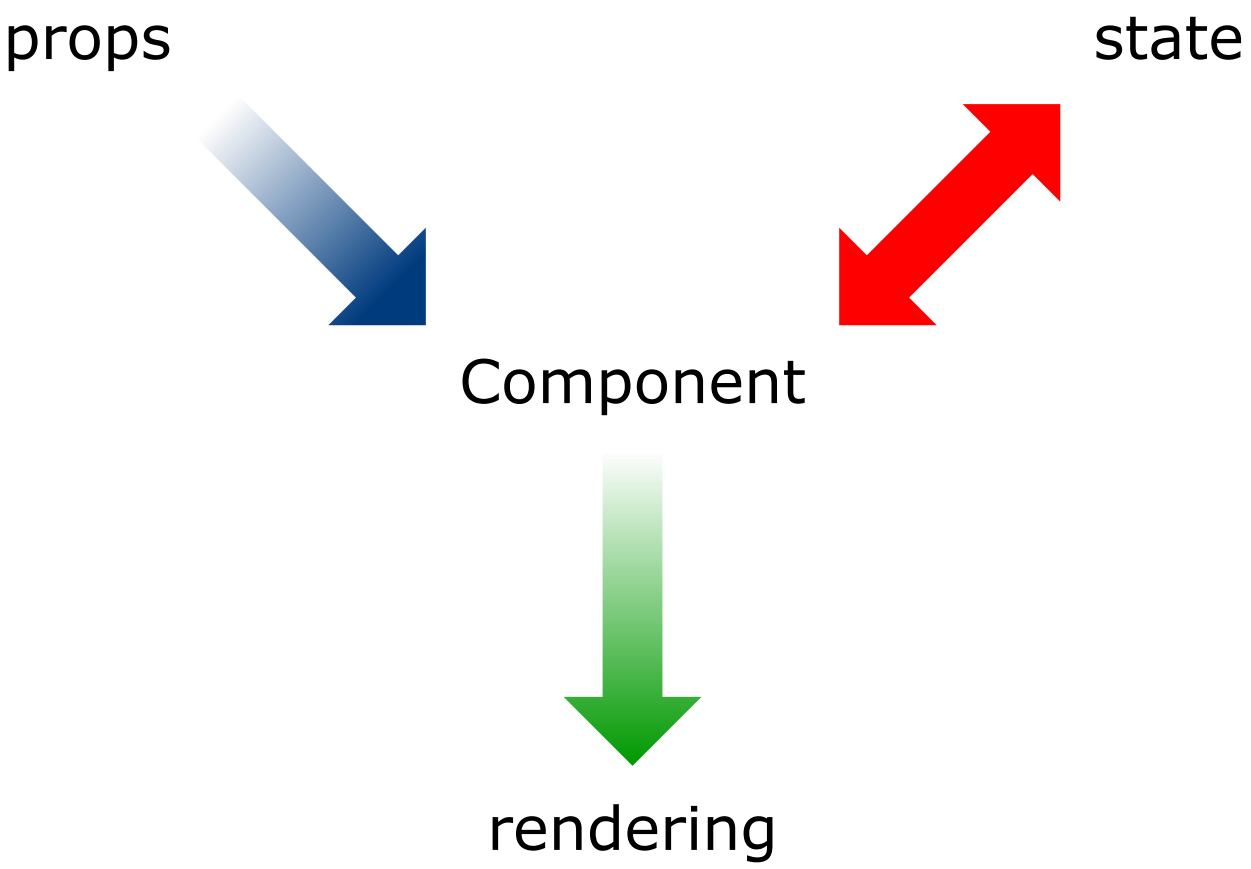

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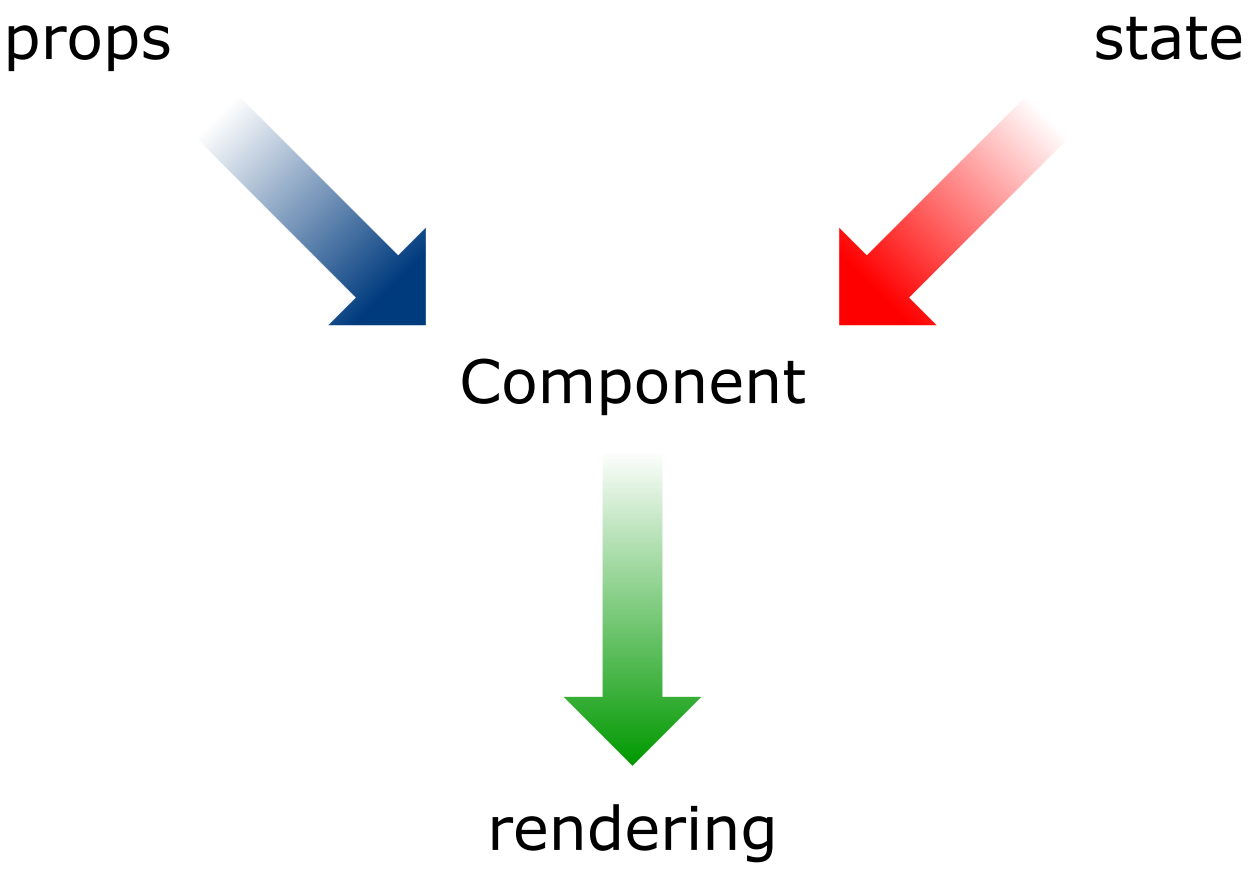

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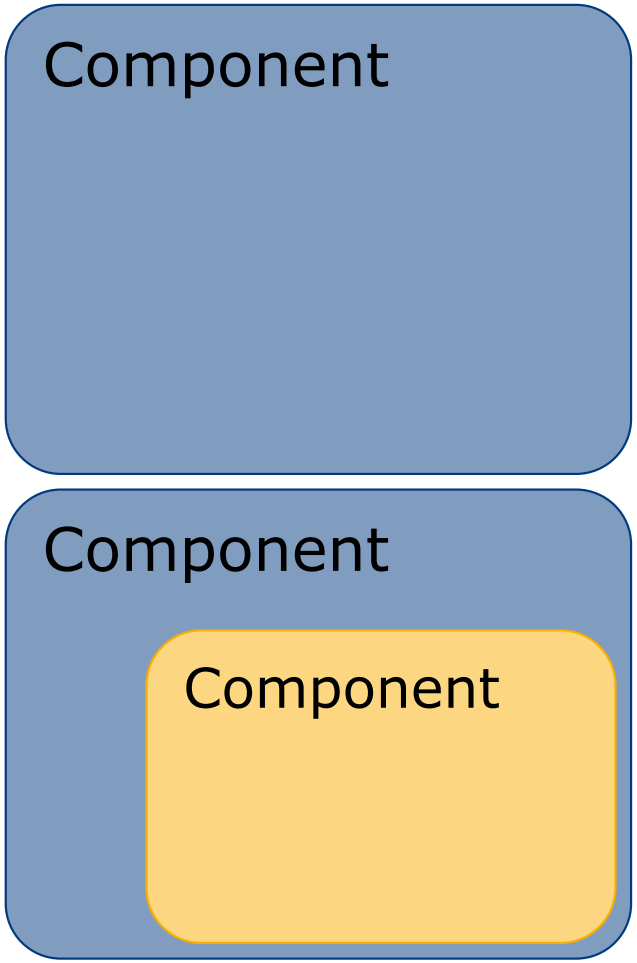

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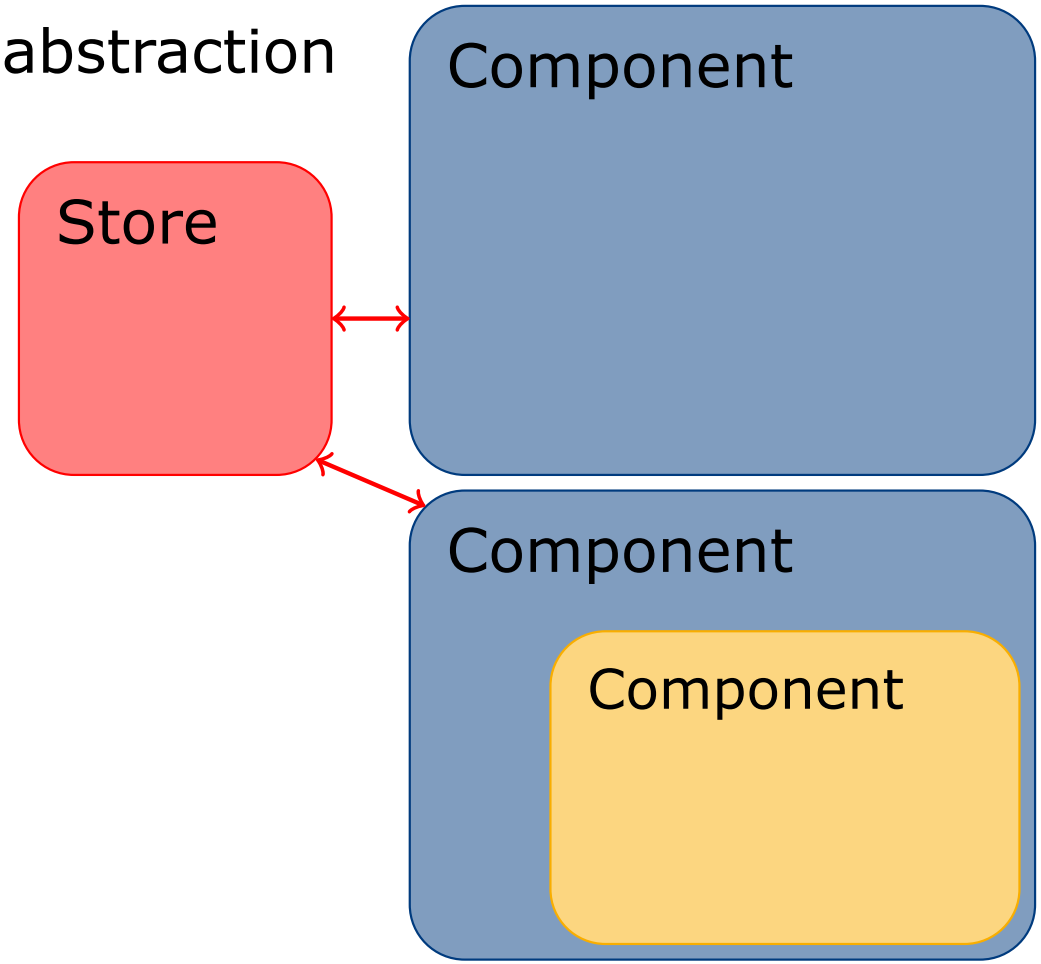

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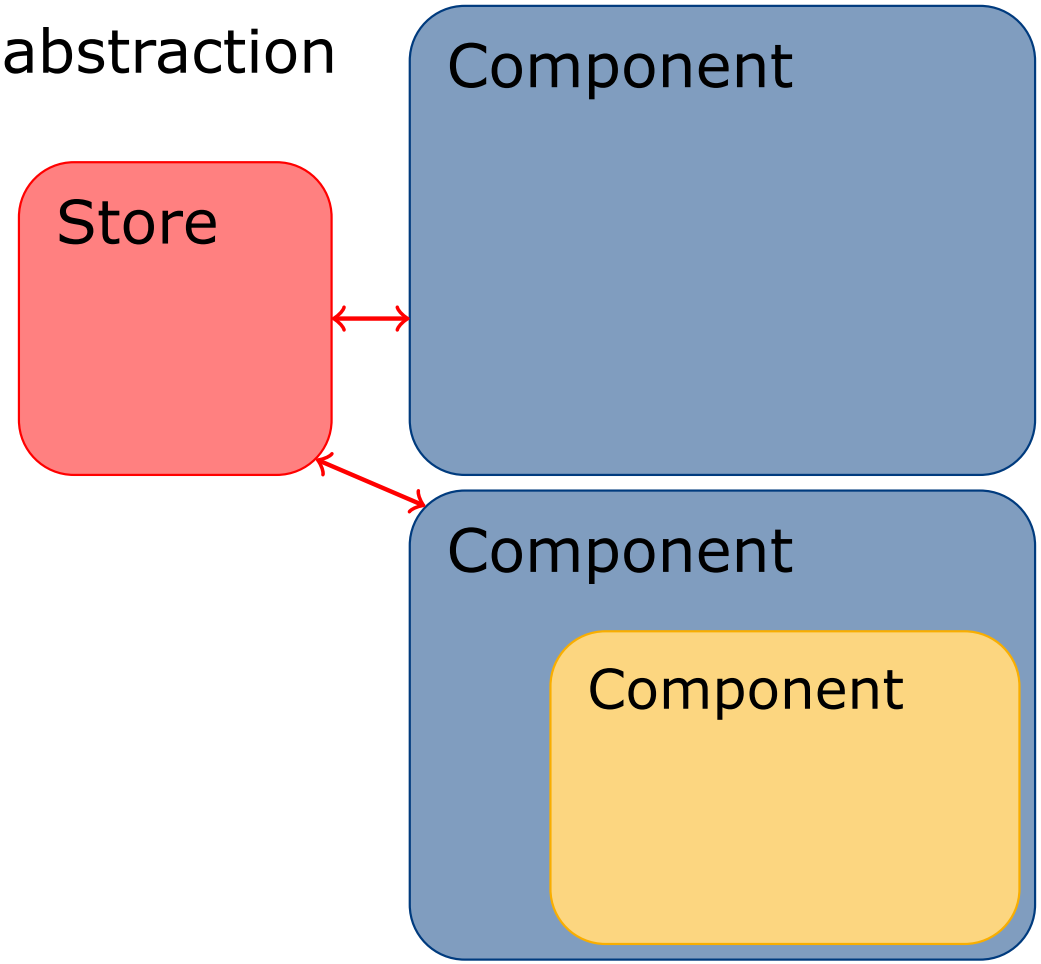

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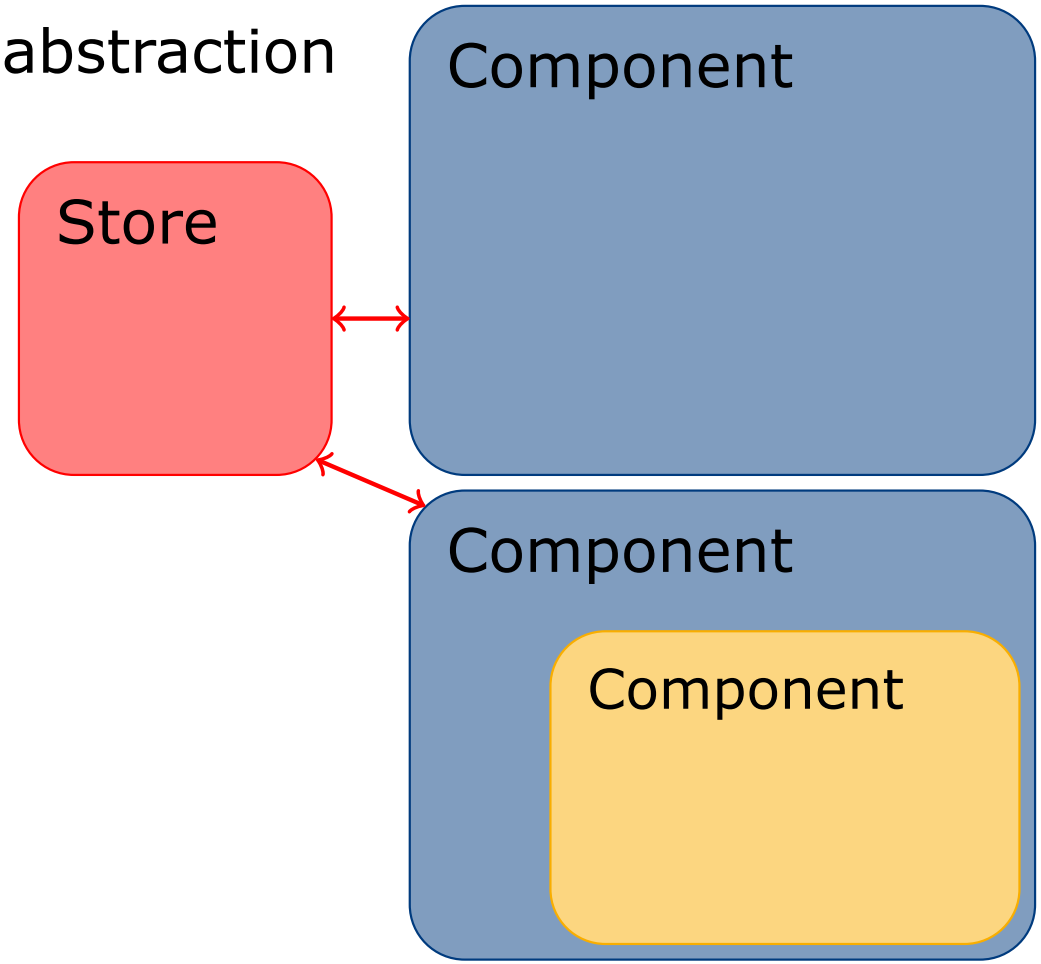

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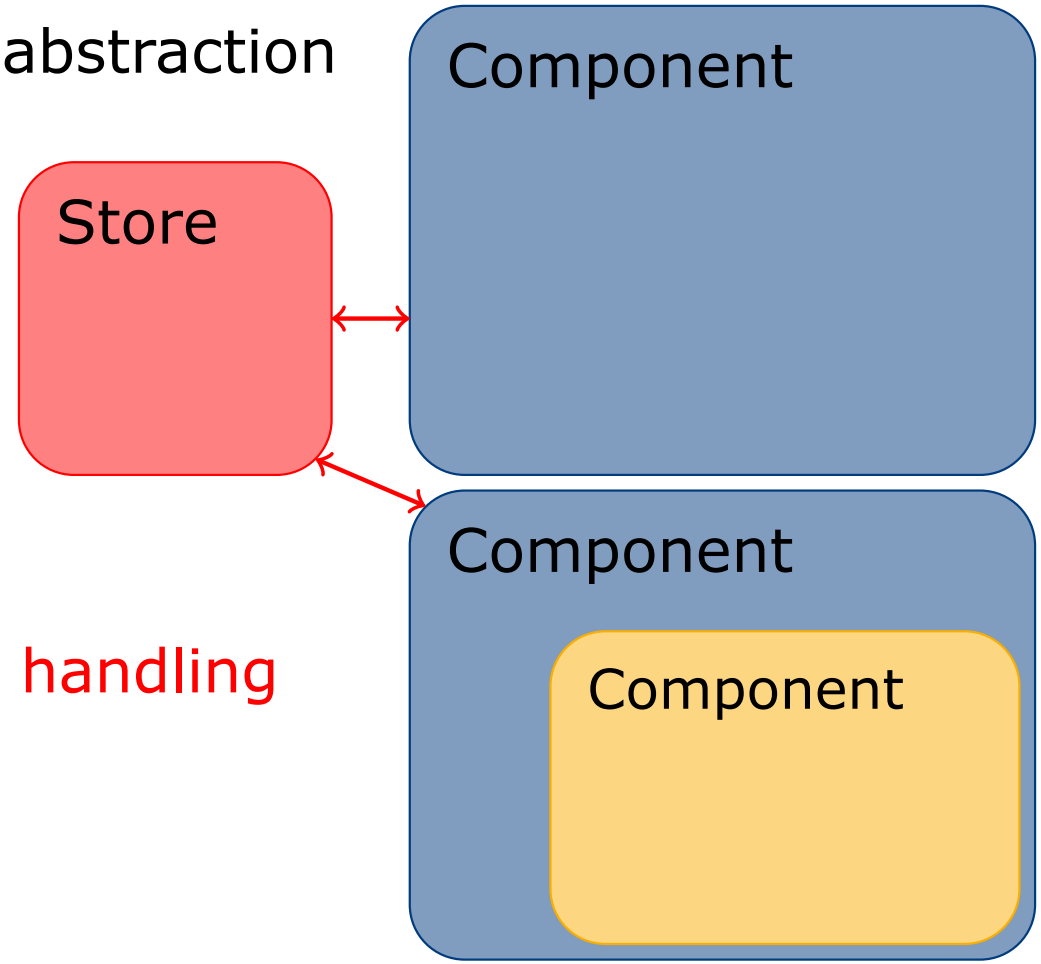
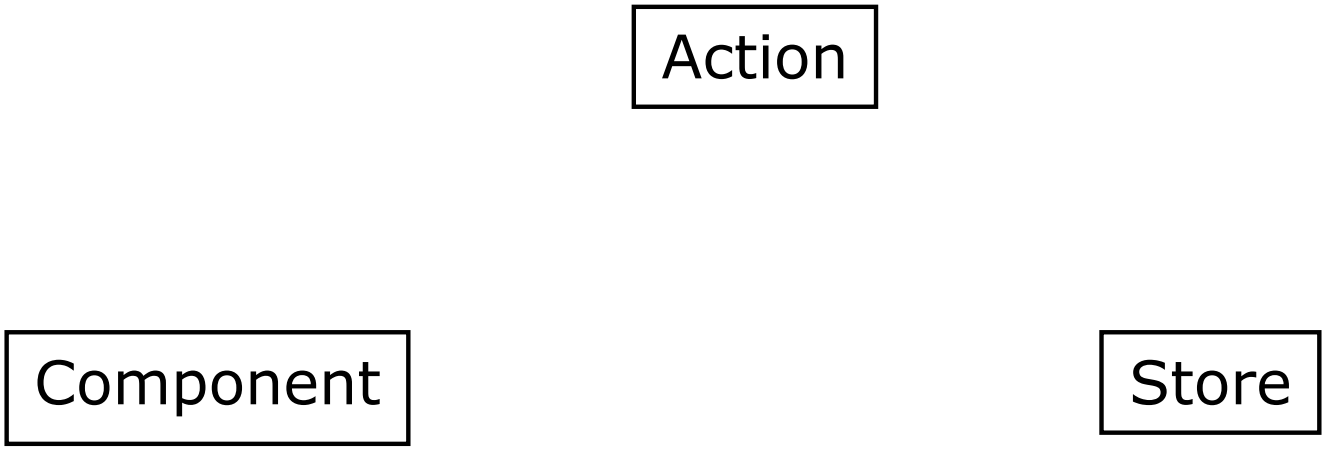
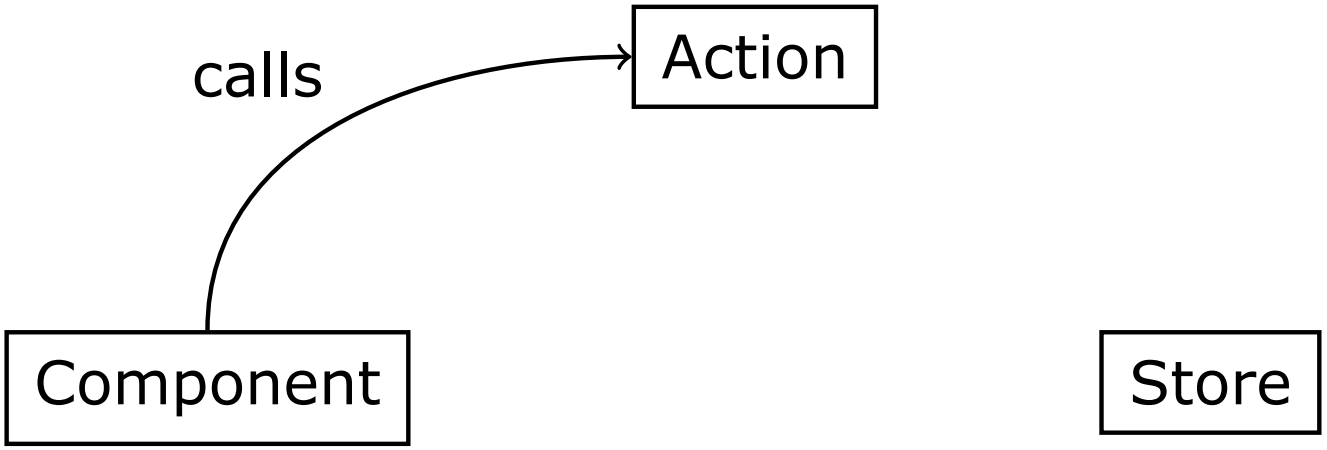
transversal state handling



Data Flow



Data Flow



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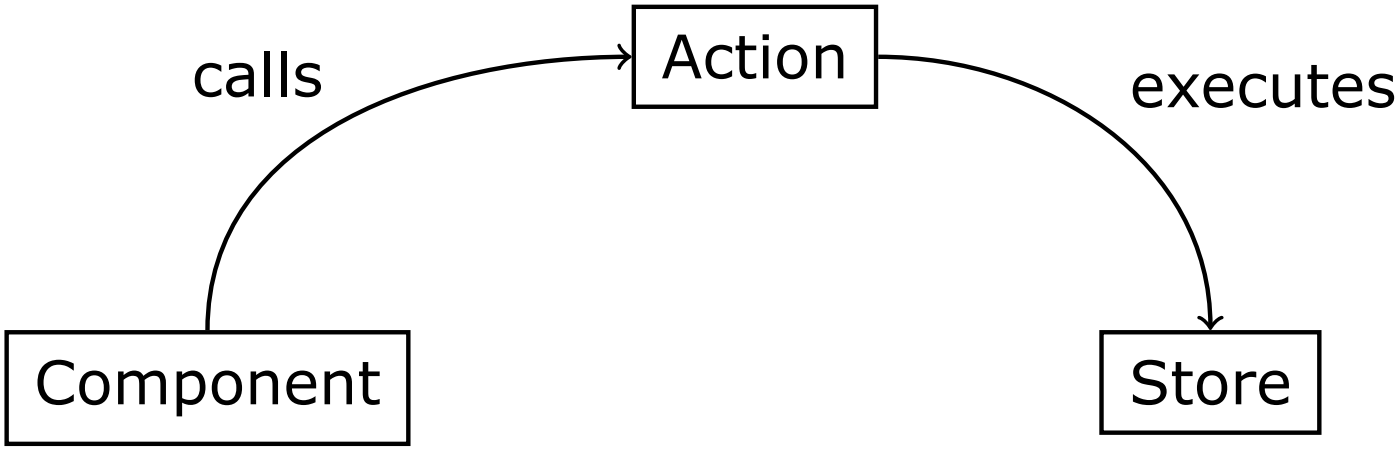

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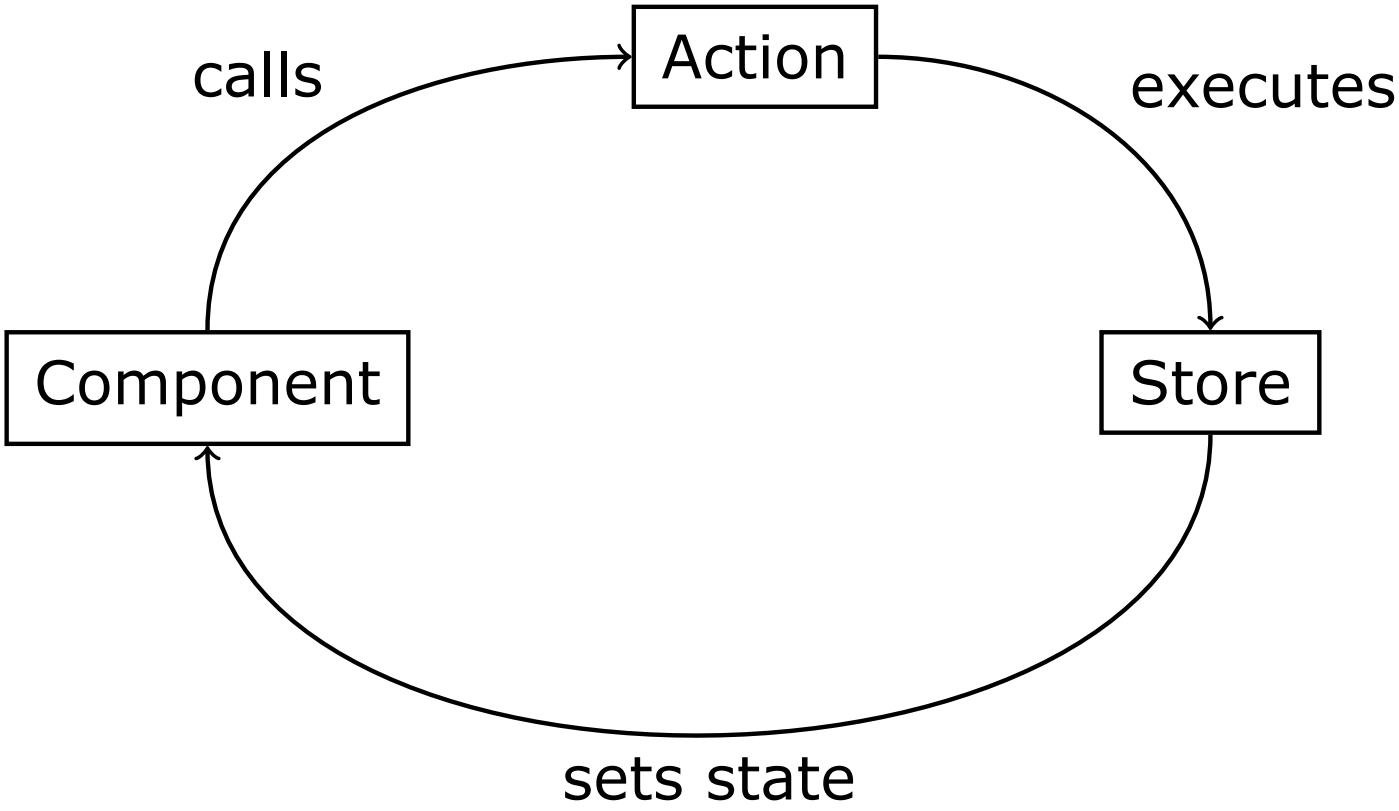

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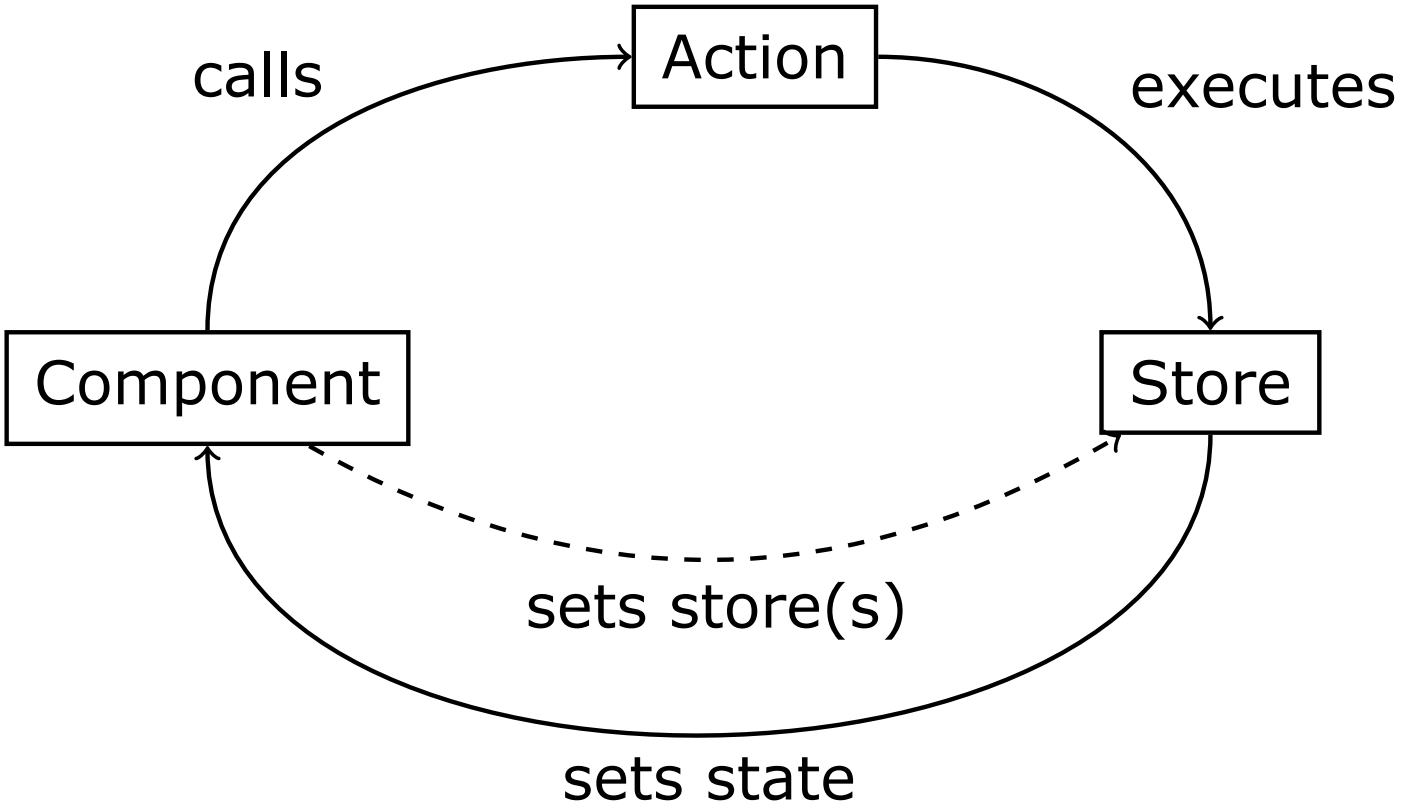
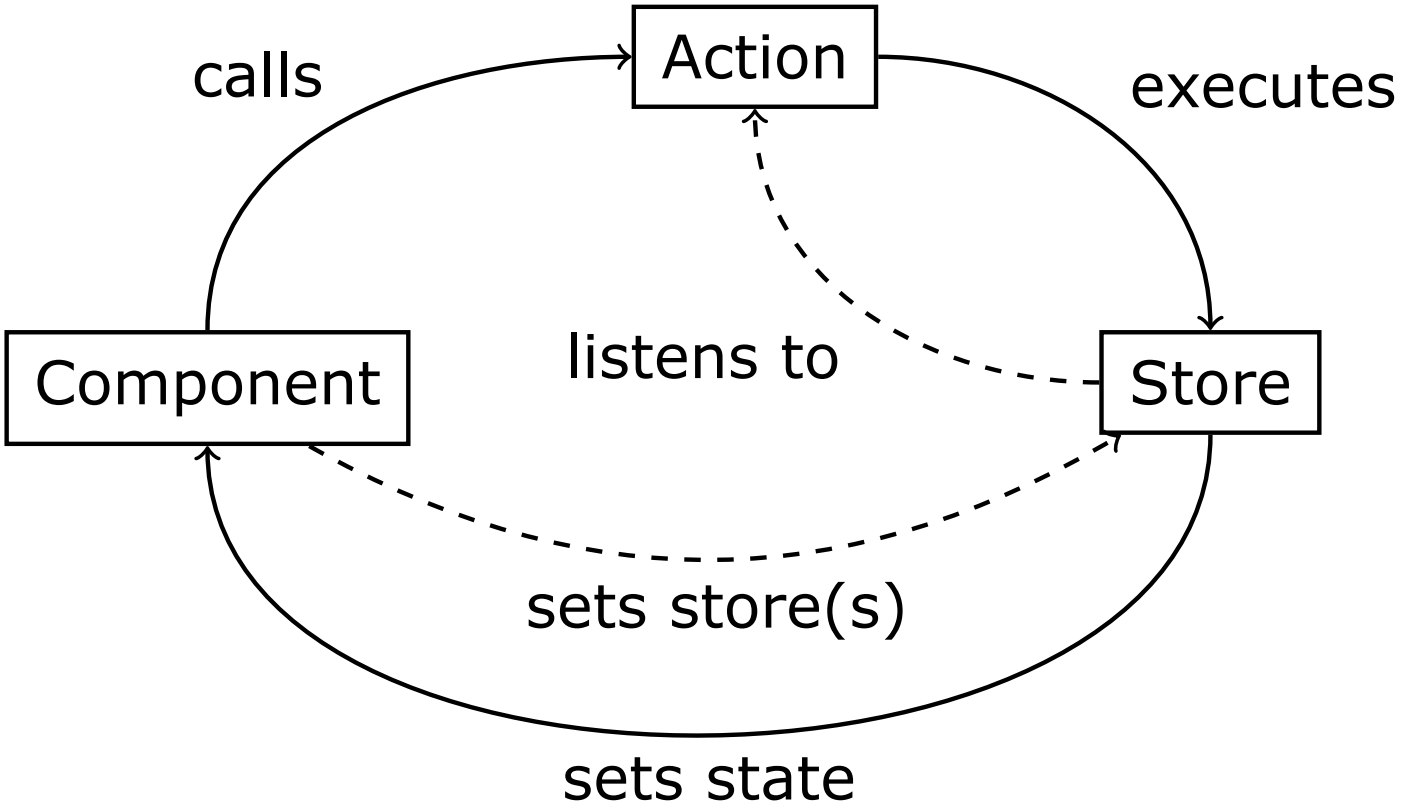

Action
calls
executes
Component
Store
sets store(s)
sets state

Data Flow


Action
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Component
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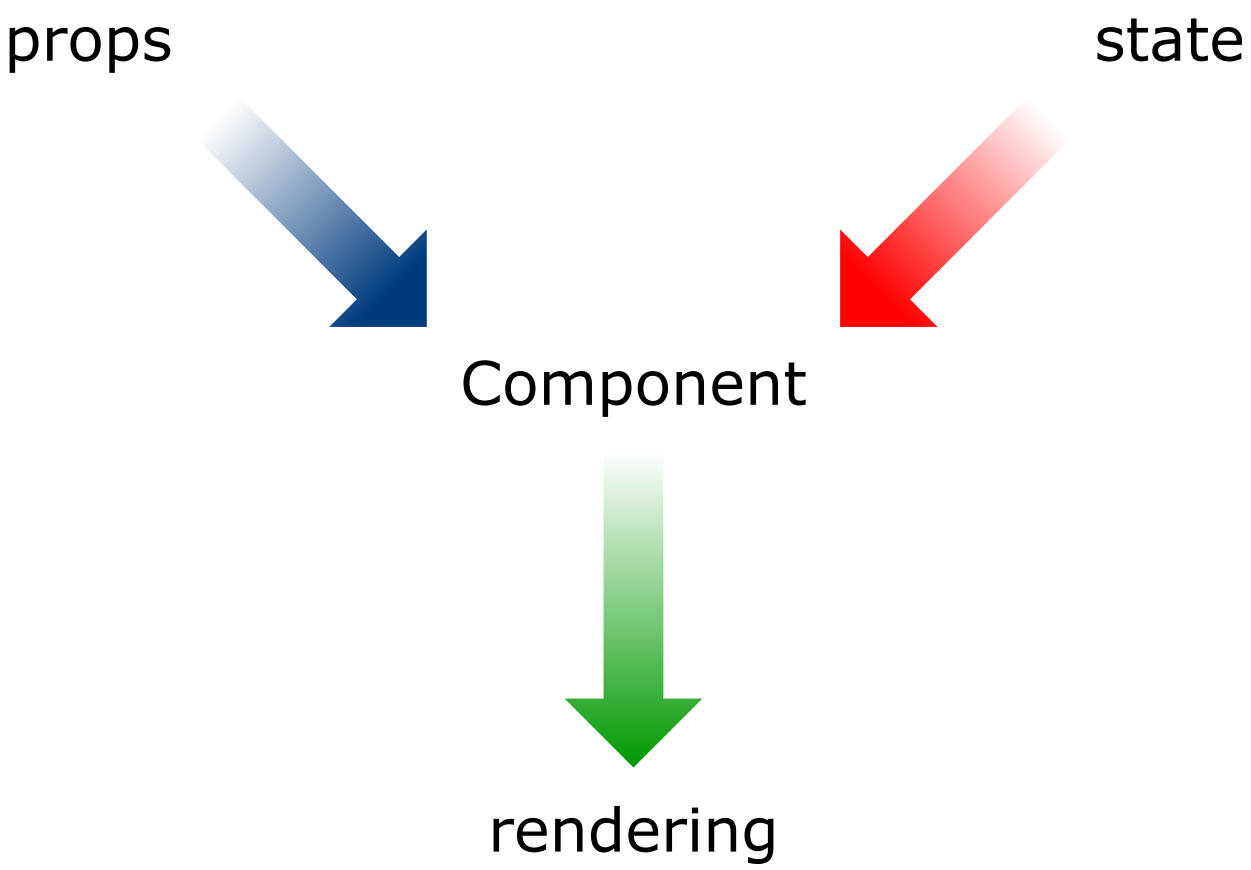
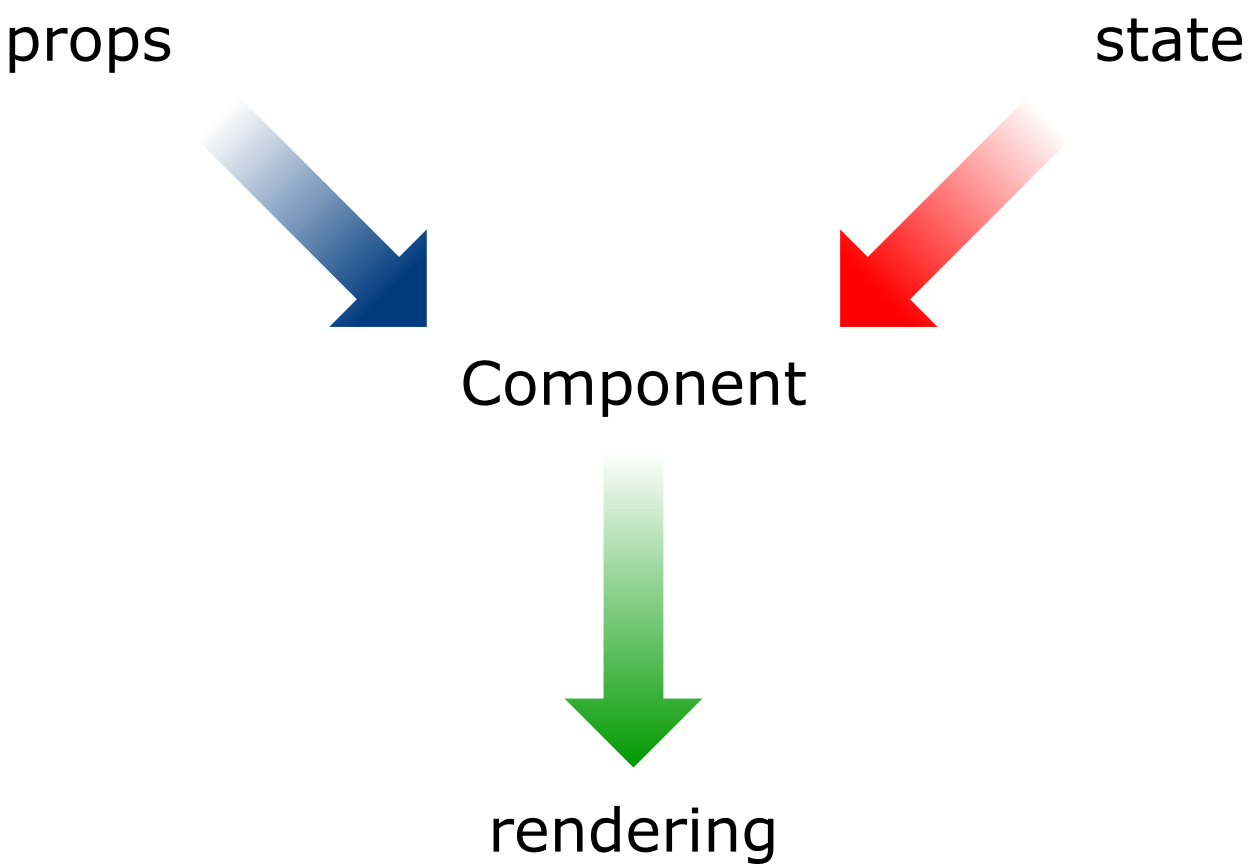
Reflux Components



Reflux Components

extend React components



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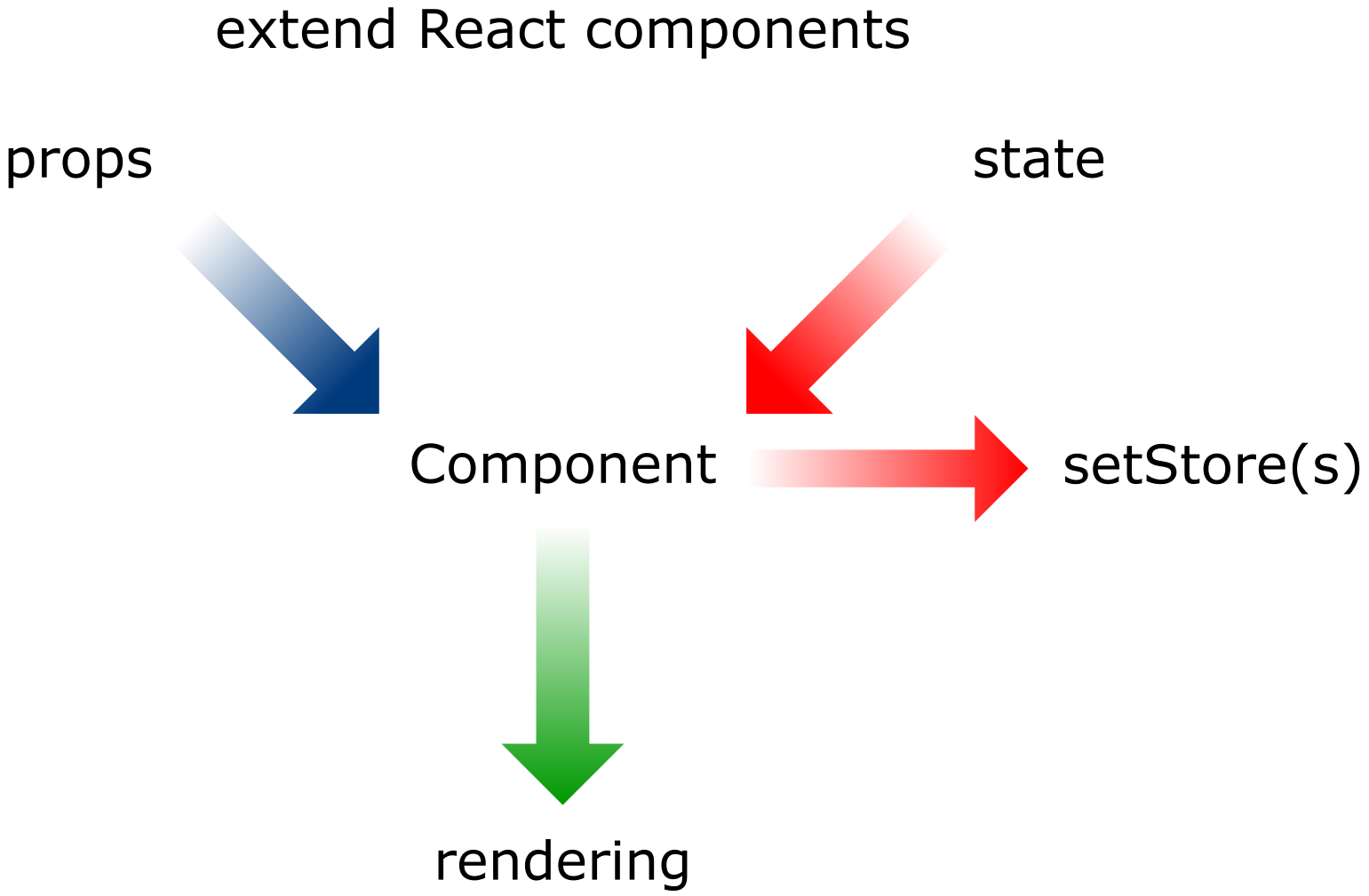

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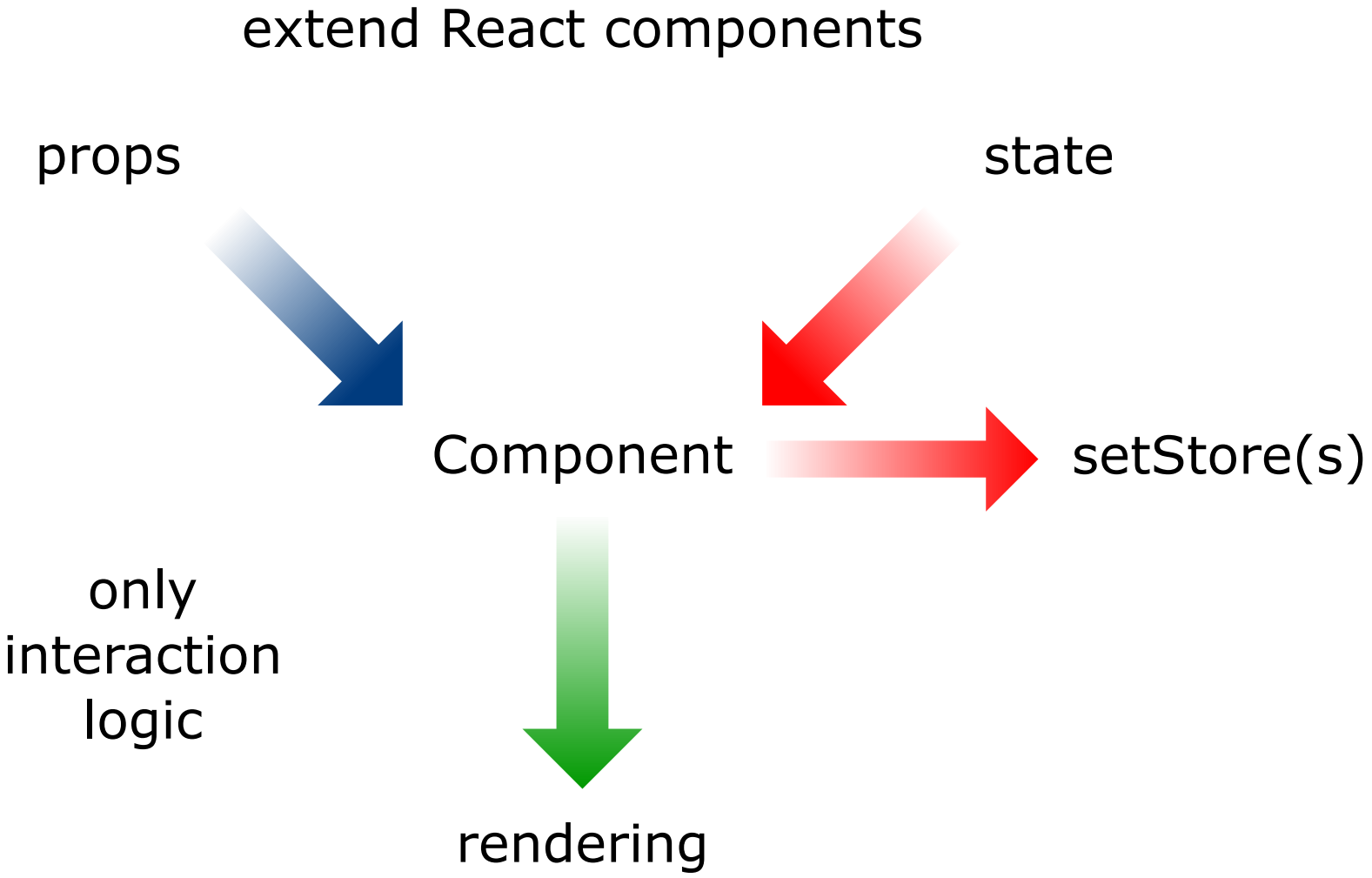
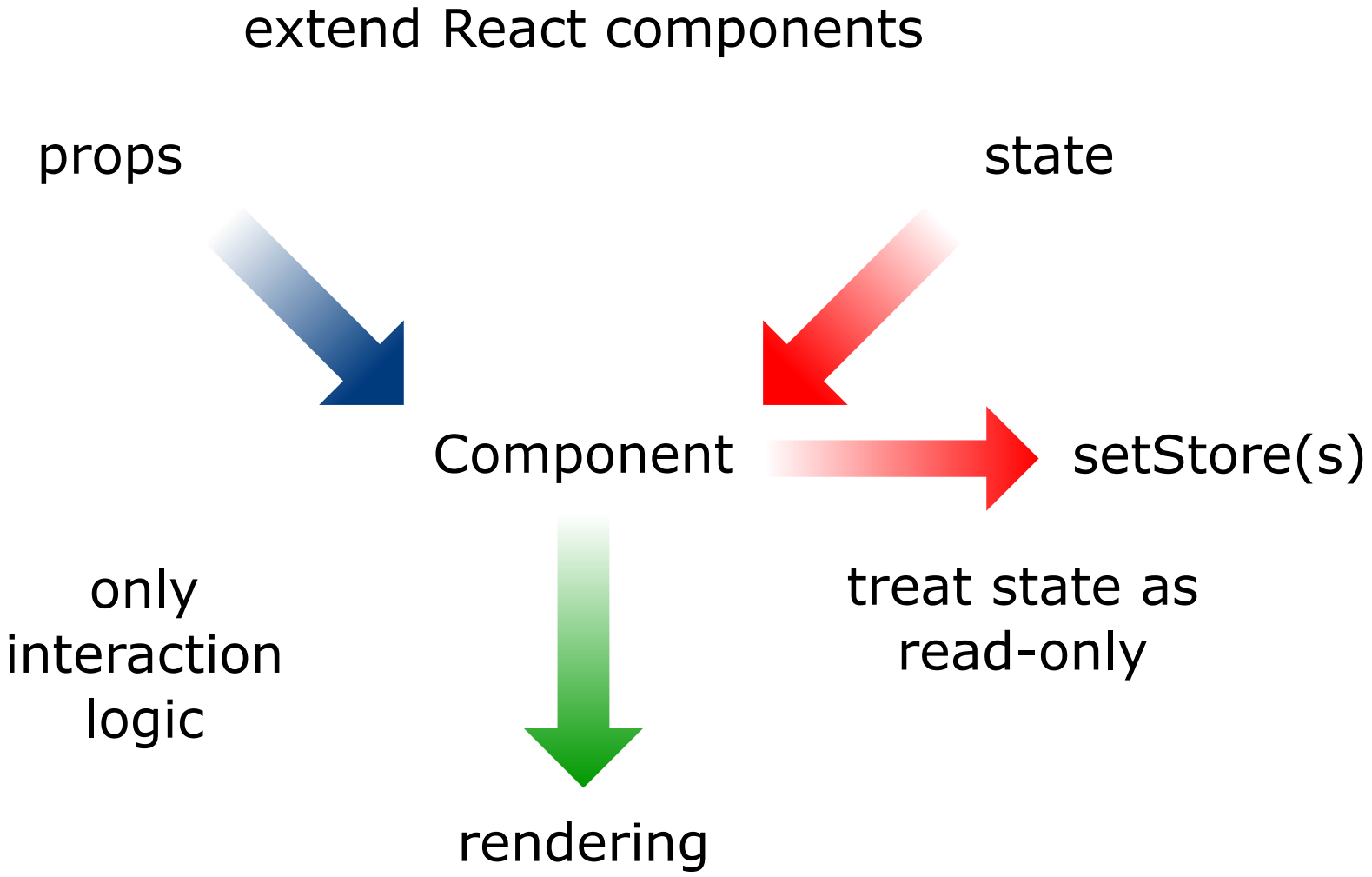


Reflux Components



Actions

Action

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Actions

just a function

Action

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Actions

just a function

Action

called by
component

Actions

just a function

Action

called by component

transports payload

Stores

Store

Stores

state handler

Store

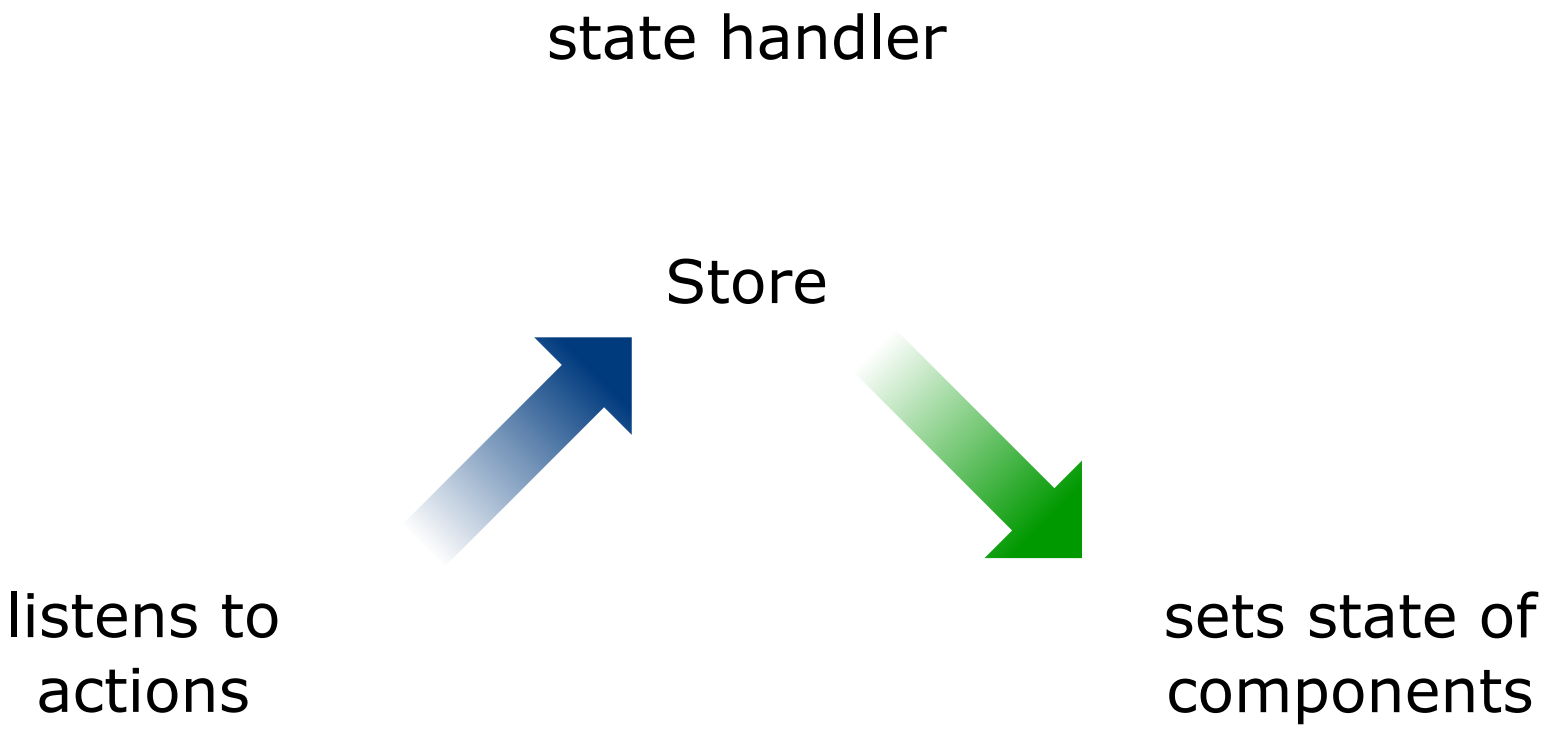
Stores

state handler

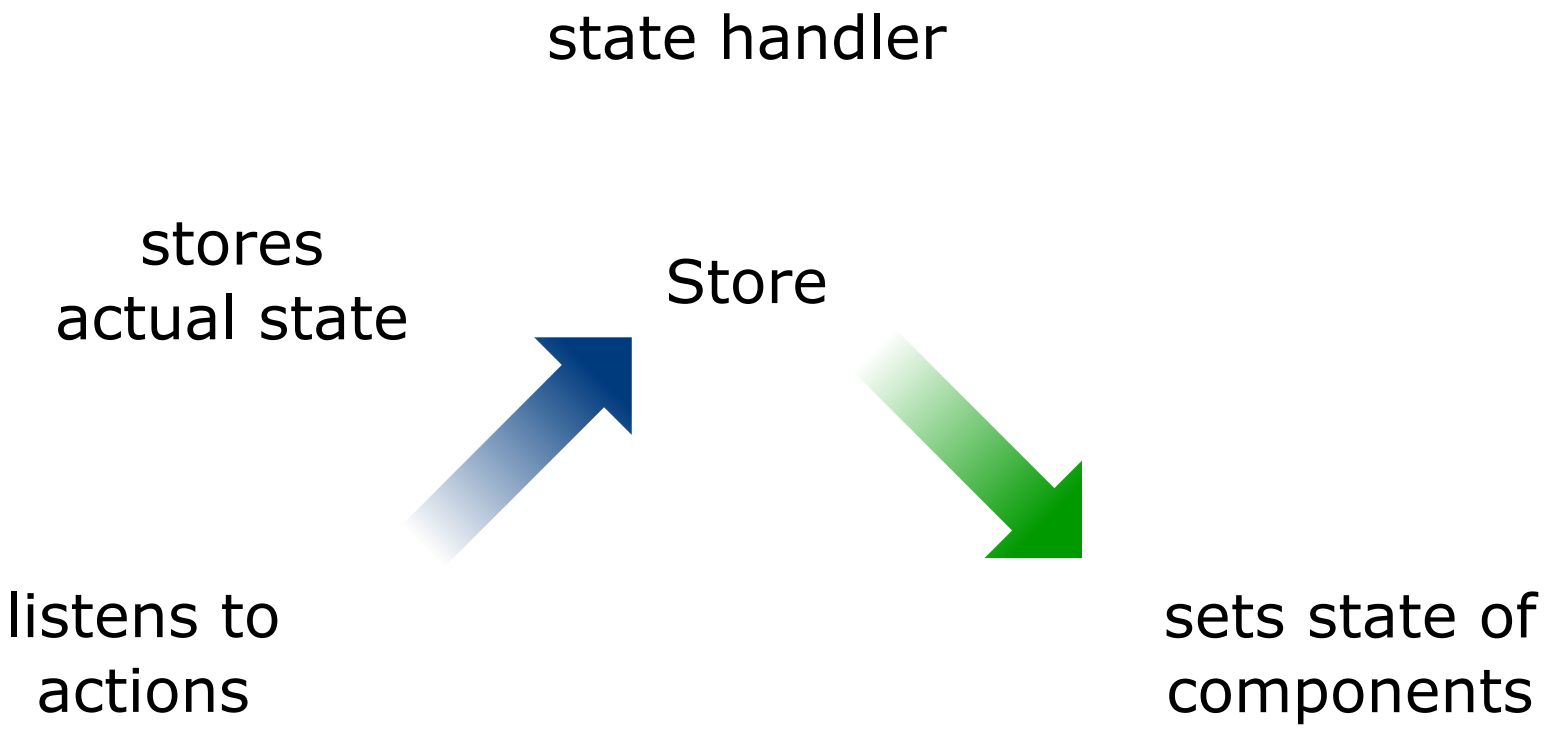
Store

listens to
actions

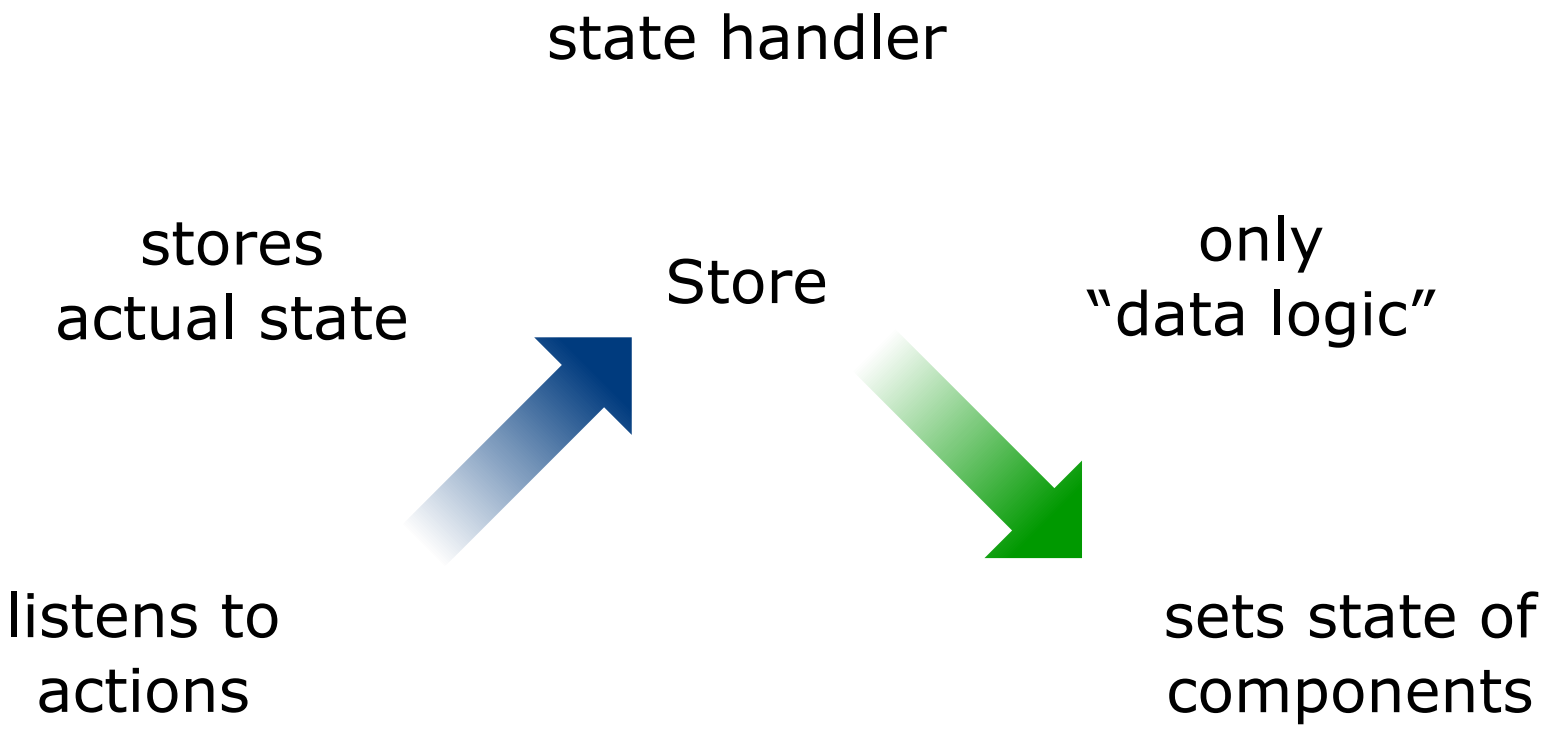
Stores


state handler
Store
listens to actions
sets state of components

Stores


state handler
stores
actual state
Store
listens to
actions
sets state of
components

Stores


state handler
stores
actual state
Store
only
“data logic”
listens to
actions
sets state of
components

Reflux Components, Actions, and Stores – Example

```
1  const Actions = Reflux.createActions([
2      "loadArticles",
3      "addToBasket",
4      "removeFromBasket",
5      "clearBasket"
6  ]);
```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Reflux Components, Actions, and Stores – Example

```
1   class ArticleStore extends Reflux.Store {
2       constructor() {
3           super();
4           this.state = {articles: []};
5           this.listenTo(Actions.loadArticles,
                this.loadArticles);
6       }
7       loadArticles() {
8             ArticleClient.loadArticles()
9               .then(this.loadCompleted.bind(this))
10              .catch(this.loadFailed.bind(this));
11      }
12      loadCompleted(newArticles) {
13          this.setState({articles: newArticles});
14      }
15      loadFailed(response) {
16          console.warn("Loading articles failed:", response);
17      }
```

Reflux Components, Actions, and Stores – Example

```
1   class ExampleWebshop extends Reflux.Component {
2       constructor(props) {
3           super(props);
4           this.store = ArticleStore;
5       }
6       componentDidMount() {
7           Actions.loadArticles();
8       }
9       render() {
10          return (
11              <div>
12                  <div className="row">
13                      {this.state.articles.map(article =>
14                          <Article article={article} />)}
15                  </div>
16              </div>);
17      }
18  }
```


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Problematic state handling

- Getter in stores

Problematic state handling

- Getter in stores
- Unnecessary state in components

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Problematic state handling

- Getter in stores
- Unnecessary state in components
- State vs. props

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Getter in stores – Example

```
1  const BasketStore =  Reflux.createStore({
2      constructor() {
3          this.basket = [];
4          this.listenTo(Actions.addToBasket, this.addToBasket
               );
5      },
6
7      getBasket() {
8          return this.basket;
9      },
10
11     addToBasket(article) {
12         if (!this.isArticleInBasket(article)) {
13             this.basket = this.basket.concat([article])
14         }
15         this.trigger(this.basket());
16     }
17 };
```


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Getter in stores – Example

```
1  class Article extends Reflux.Component {
2      render() {
3          const article = this.props.article;
4          return (
5              <div className="article" >
6                  <img src={article.image}/>
7                  <span>{article.name}<span/>
8                  <span>{article.name}<span/>
9                  <div onClick={() => {
10                     BasketStore.getBasket().indexOf(
                           article.id) < 0
11                     ? "Add to basket"
12                     : "Remove from basket"}
13                 </div>
14             </div>
15         );
16     }
17 }
```

Unnecessary state in components – Example

```
1   class Article extends Reflux.Component {
2       constructor(props) {
3           super(props);
4           this.store = BasketStore;
5       }
6       render() {
7           return (
8               <div className="article" onClick={() => {
9                   this.state.basket.indexOf(
                        this.props.article) < 0
10                  ? "Add to basket"
11                  : "Remove from basket"}
12              </div>
13          );
14      }
15  }
```

State vs. props – Example

```
1   class Article extends Reflux.Component {
2       constructor(props) {
3           super(props);
4       }
5       render() {
6           return (
7               <div className="article" onClick={() => {
8                   this.props.articleIsAlreadyInBasket
9                   ? "Add to basket"
10                  : "Remove from basket"}
11              </div>
12          );
13      }
14  }
```

How to handle state

How to handle state

How to handle state (if you have to)

- Access state from as few components as possible

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- Do not alter state in a component directly

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How to handle state (if you have to)

- Access state from as few components as possible
- Do not alter state in a component directly
- Extract state on a high level and hand it to child components via props
- Stateless components

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Stateless component – Example

```
1   const ExampleWebshopHeader = ({sumPrice}) => {
2       return (
3           <div className="row webshop-header">
4               <img className="logo" src="https://
                    www.internet.com" />
5               <div className="basket"
6                       onClick={() => Actions.clearBasket()}>
7                   <span>{sumPrice + "€"}</span>
8               </div>
9           </div>
10      );
11  };
12
13  ExampleWebshopHeader.propTypes = {
14      sumPrice: PropTypes.number.isRequired
15  };
16
17  export default ExampleWebshopHeader;
```


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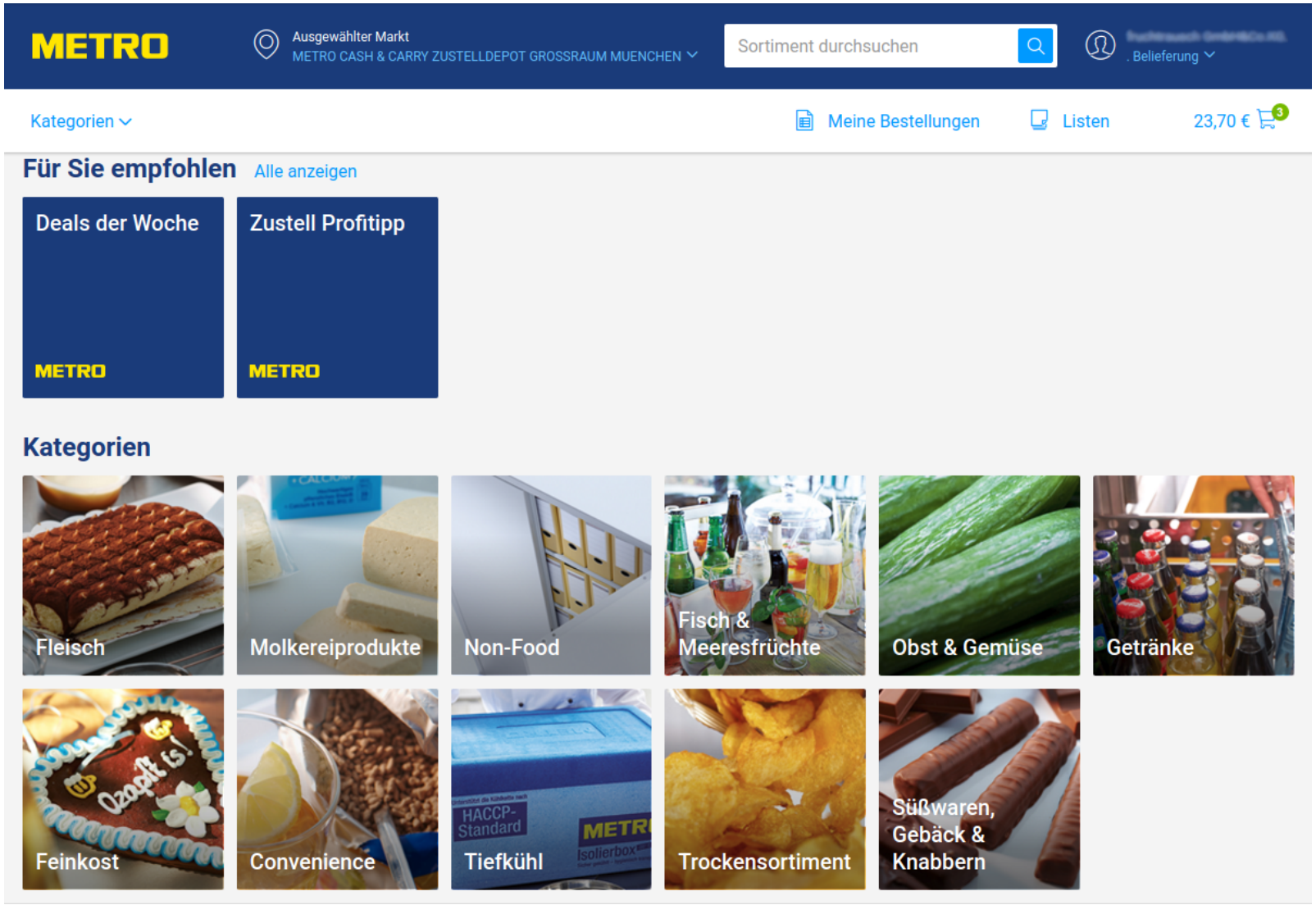
React and Reflux @METRO



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Docker

Tech Stack @METRO

REST API

Docker

Tech Stack @METRO

`http://domain/service/endpoint`

REST API

Docker

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`http://domain/service/endpoint`

REST API

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kubernetes

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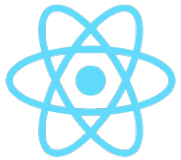

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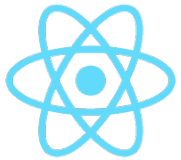

React

Java 8

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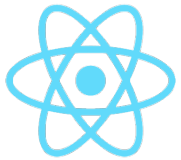

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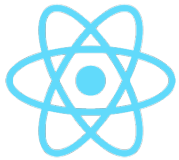

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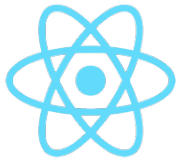

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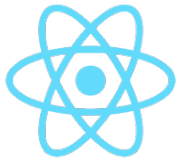

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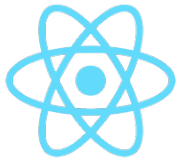

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LaTeX

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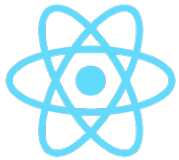

React

Java 8

REST API

Docker

Clojure

github.com/techmetro
metro-cc.com/transformers

kubernetes

LaTeX

Thank you!

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