React in 2020

- URL: https://pavestru.github.io/react-bbs-2020-slides
- Source: https://github.com/pavestru/react-bbs-2020-slides
- This presentation was generated using mdx-deck.

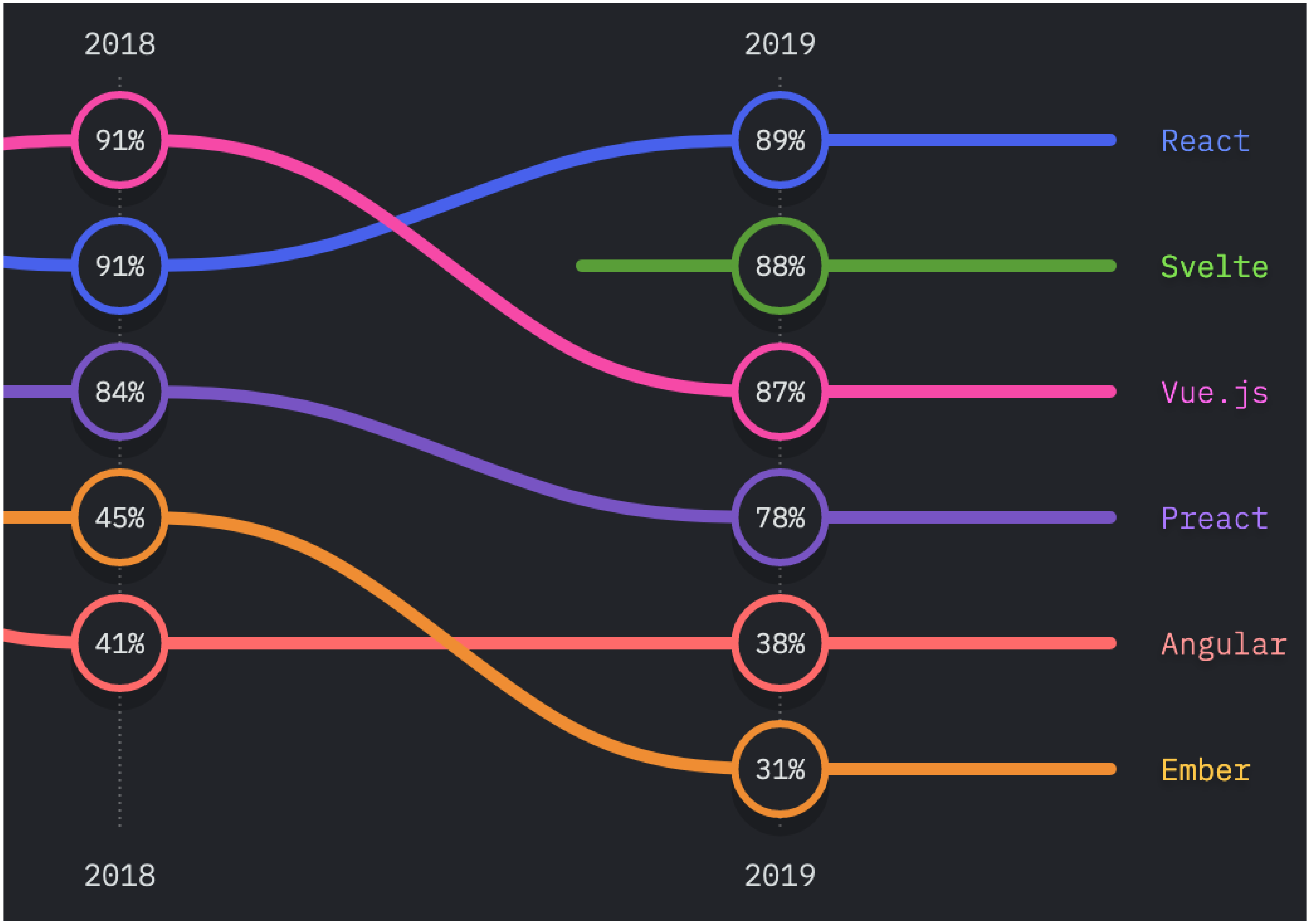
Speakers

- Pavel Struhar
- Jan Capiak

State of JS 2019

https://2019.stateofjs.com/

State of JS - Satisfaction survey



Svelte? Who is Svelte?

Are those graphs relevant?

Why React is winning

- Uni-directional data flow
- Component model
- Just JavaScript
- Just UI component library
- Community
- Investments of large companies
- ...
- Innovative

Topics

- Hooks
- Component Life-cycle API updates
- Error Boundaries
- Cuncurrent rendering and Suspense

REACT HOOKS

What are React Hooks?

- JS functions
- >= v16.8.0
- Hooks don’t work inside classes

Which Hooks does React offer?

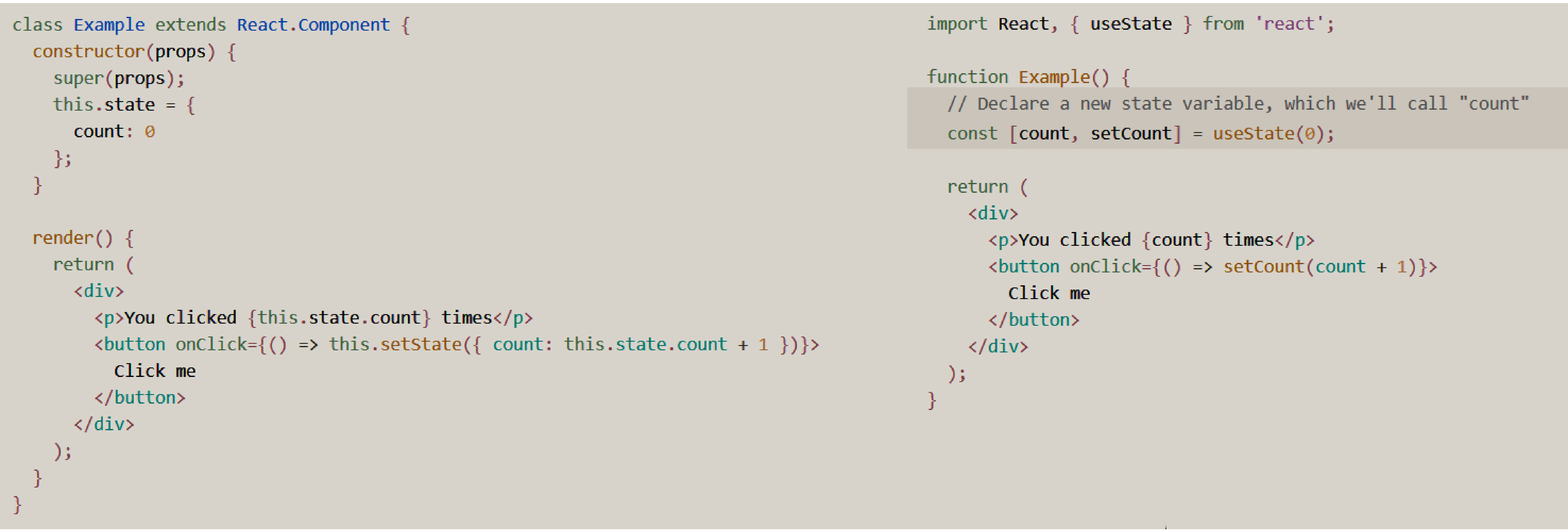
- Basic Hooks (**useState, useEffect, useContext**)
- Additional Hooks (**useCallback, useMemo, useRef** …)
- Custom Hooks

Function component

```
import React from 'react';

export function Example(props) {
  return <div>Hello {props.name}!</div>;
}
```

```
import React, { useState } from 'react';

export function Example(props) {
  const [count, setCount] = useState(0);
  return (
    <div>
      Hello {props.name}!
      <button onClick={() => setCount(count + 1)}>
        Click me (clicked {count} times)
      </button>
    </div>
  );
}
```

React Class vs. useState Hook



```
class Example extends React.Component {
  constructor(props) {
    super(props);
    this.state = {
      count: 0
    };
  }

  render() {
    return (
      <div>
        <p>You clicked {this.state.count} times</p>
        <button onClick={() => this.setState({ count: this.state.count + 1 })}>
          Click me
        </button>
      </div>
    );
  }
}
```

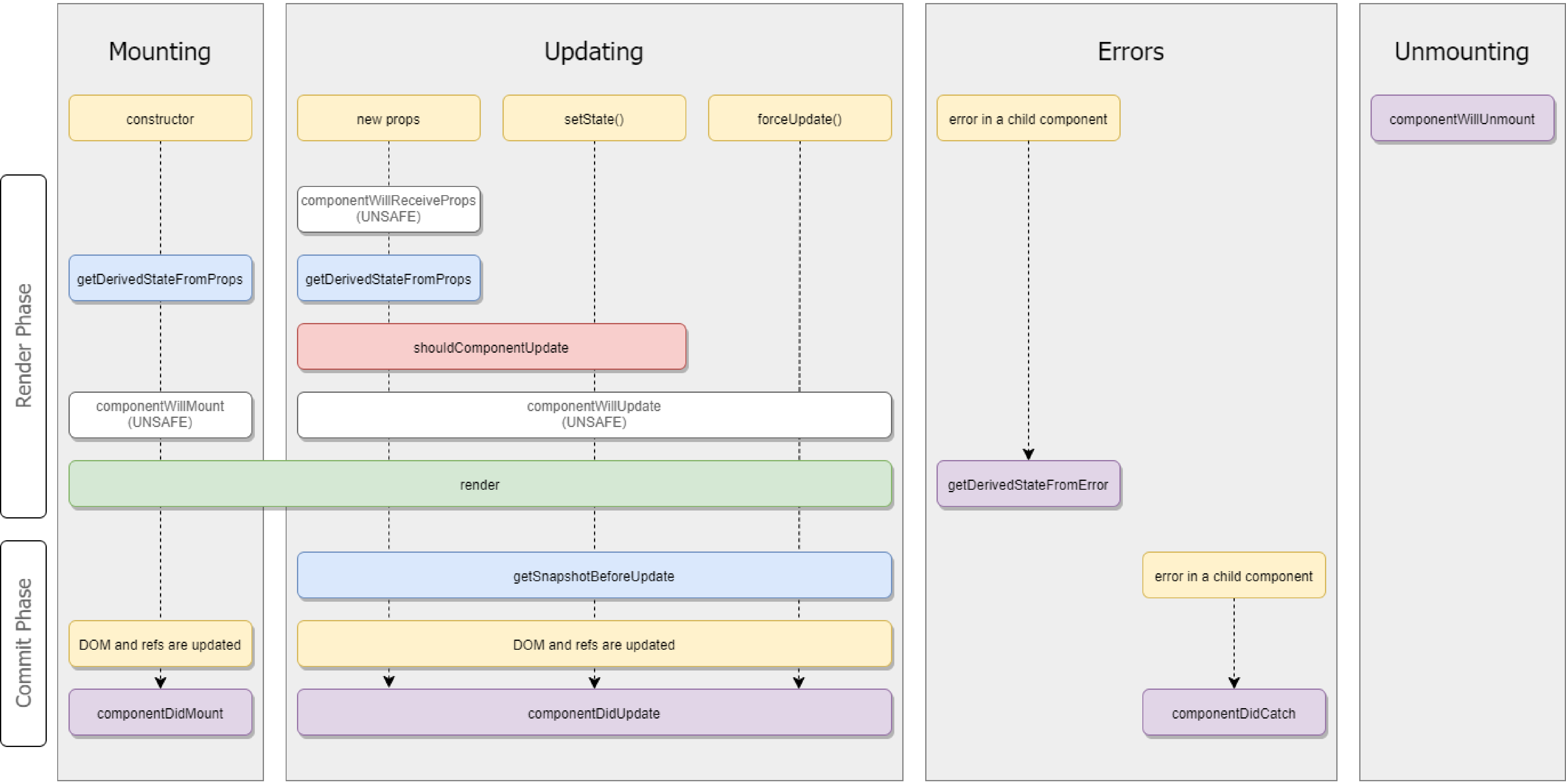
```
import React, { useState } from 'react';

function Example() {
  // Declare a new state variable, which we'll call "count"
  const [count, setCount] = useState(0);

  return (
    <div>
      <p>You clicked {count} times</p>
      <button onClick={() => setCount(count + 1)}>
        Click me
      </button>
    </div>
  );
}
```

React Life-cycle methods - Legacy

- componentWillMount → **UNSAFE_componentWillMount**
- componentWillRecieveProps → **UNSAFE_componentWillRecieveProps**
- componentWillUpdate → **UNSAFE_componentWillUpdate**

React Life-cycle methods - New

- **getDerivedStateFromProps** >=16.3.0
- **getSnapshotBeforeUpdate** >= 16.3.0
- **getDerivedStateFromError** >= 16.6.0


Render Phase
Commit Phase
Mounting
Updating
Errors
Unmounting
constructor
new props
setState()
forceUpdate()
error in a child component
componentWillUnmount
componentWillReceiveProps (UNSAFE)
getDerivedStateFromProps
getDerivedStateFromProps
shouldComponentUpdate
componentWillMount (UNSAFE)
componentWillUpdate (UNSAFE)
render
getDerivedStateFromError
getSnapshotBeforeUpdate
error in a child component
DOM and refs are updated
DOM and refs are updated
componentDidMount
componentDidUpdate
componentDidCatch

Rewriting to Hooks

- Live coding session
- Radio Stations deployed app: https://pavestru.github.io/radio-stations
- Source: https://github.com/pavestru/radio-stations
- See the diff between old and Hooks
- See the diff for custom hook

Mark Dalgleish
@markdalgleish

"With hooks, beginners no longer need to learn about 'this' to avoid shooting themselves in the foot."

Closures:

[Tweet source]

JavaScript Closure

Getting Closure on React Hooks

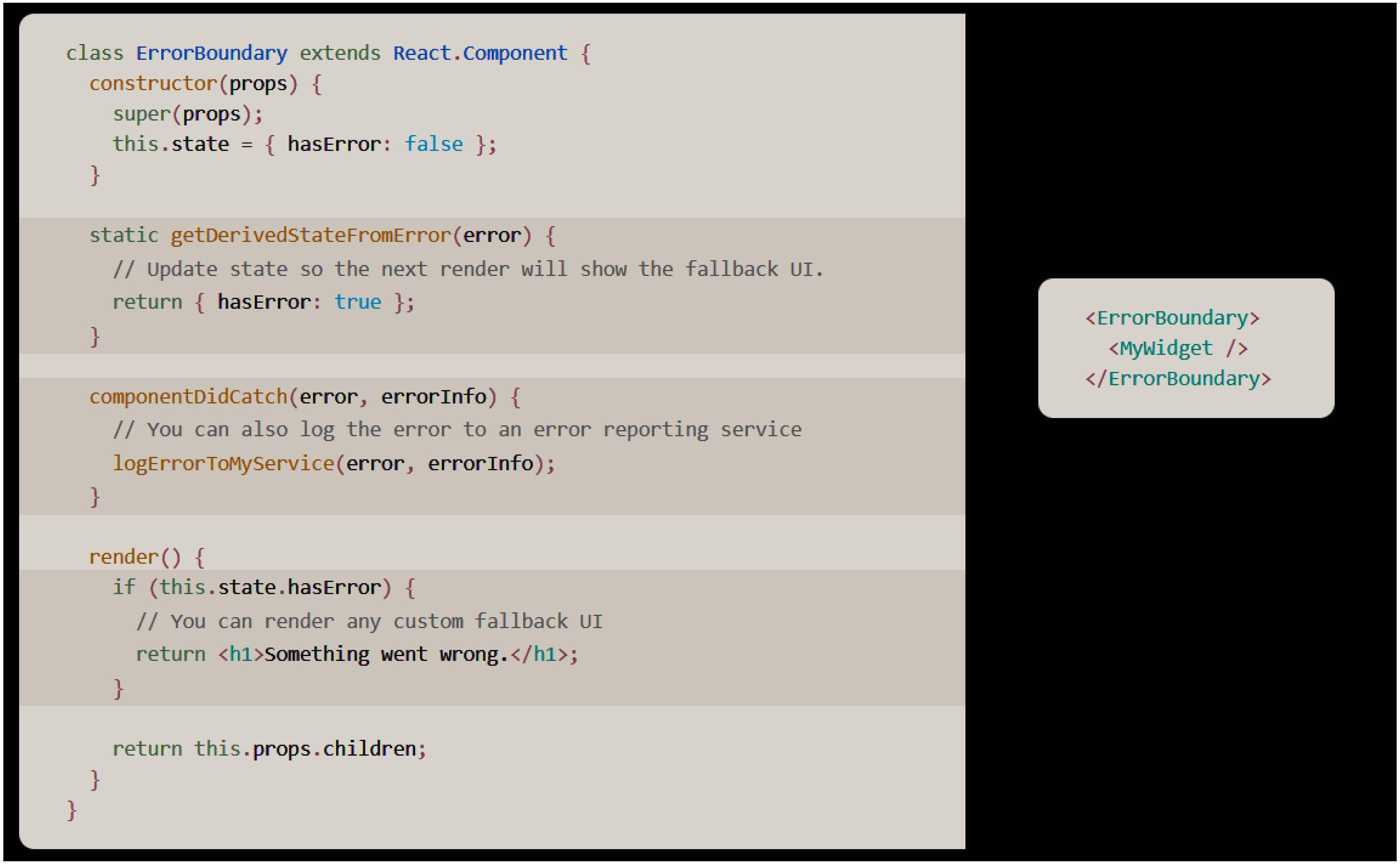
https://www.youtube.com/watch?v=KJP1E-Y-xyo

Recommended articles

- [Writing Resilient Components] by Dan Abramov
- [Making setInterval Declarative with React Hooks] by Dan Abramov

Error Boundary

- components that catch JavaScript errors and display a fallback UI
- getDerivedStateFromError(), componentDidCatch()
- works like a JavaScript catch block, but for components
- catch only errors in the components below them in the tree



```
class ErrorBoundary extends React.Component {
  constructor(props) {
    super(props);
    this.state = { hasError: false };
  }

  static getDerivedStateFromError(error) {
    // Update state so the next render will show the fallback UI.
    return { hasError: true };
  }

  componentDidCatch(error, errorInfo) {
    // You can also log the error to an error reporting service
    logErrorToMyService(error, errorInfo);
  }

  render() {
    if (this.state.hasError) {
      // You can render any custom fallback UI
      return <h1>Something went wrong.</h1>;
    }

    return this.props.children;
  }
}
```

```
<ErrorBoundary>
  <MyWidget />
</ErrorBoundary>
```

Error Boundary

"try-catch" for

```
throw new Error()
```

React Suspense

"try-catch" for

```
throw new Promise()
```

React Suspense

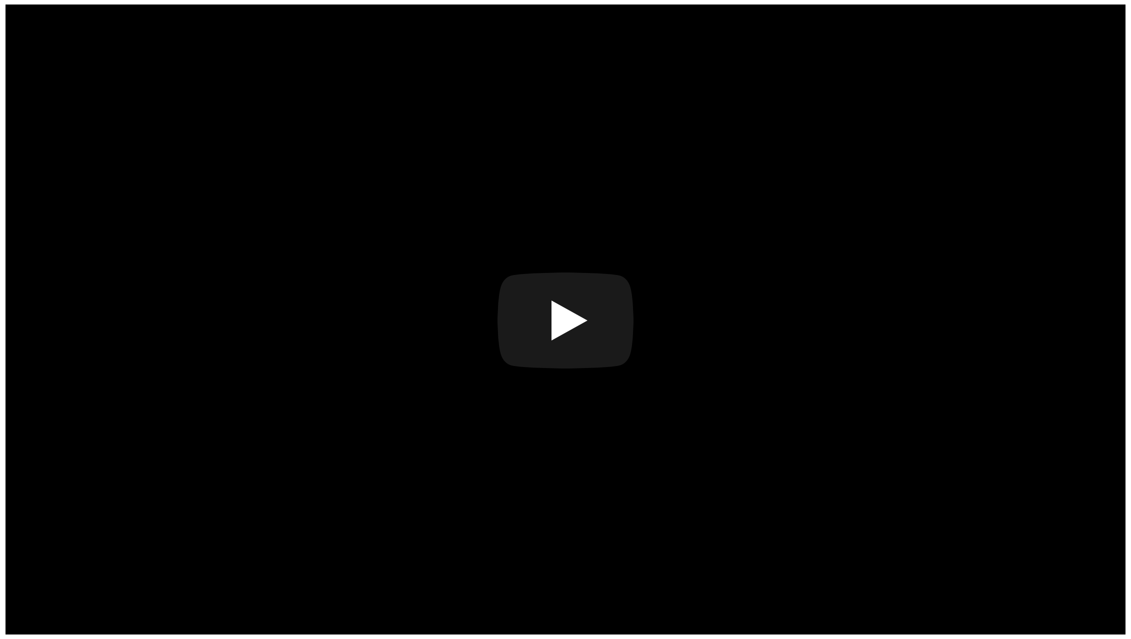
API still experimental

```
const ProfilePage
  = React.lazy(() => import("./ProfilePage"));

<Suspense fallback={<Spinner />}>
  <ProfilePage />
</Suspense>;
```

Concurrent rendering

Putting User Experience First

Understanting Event Loop

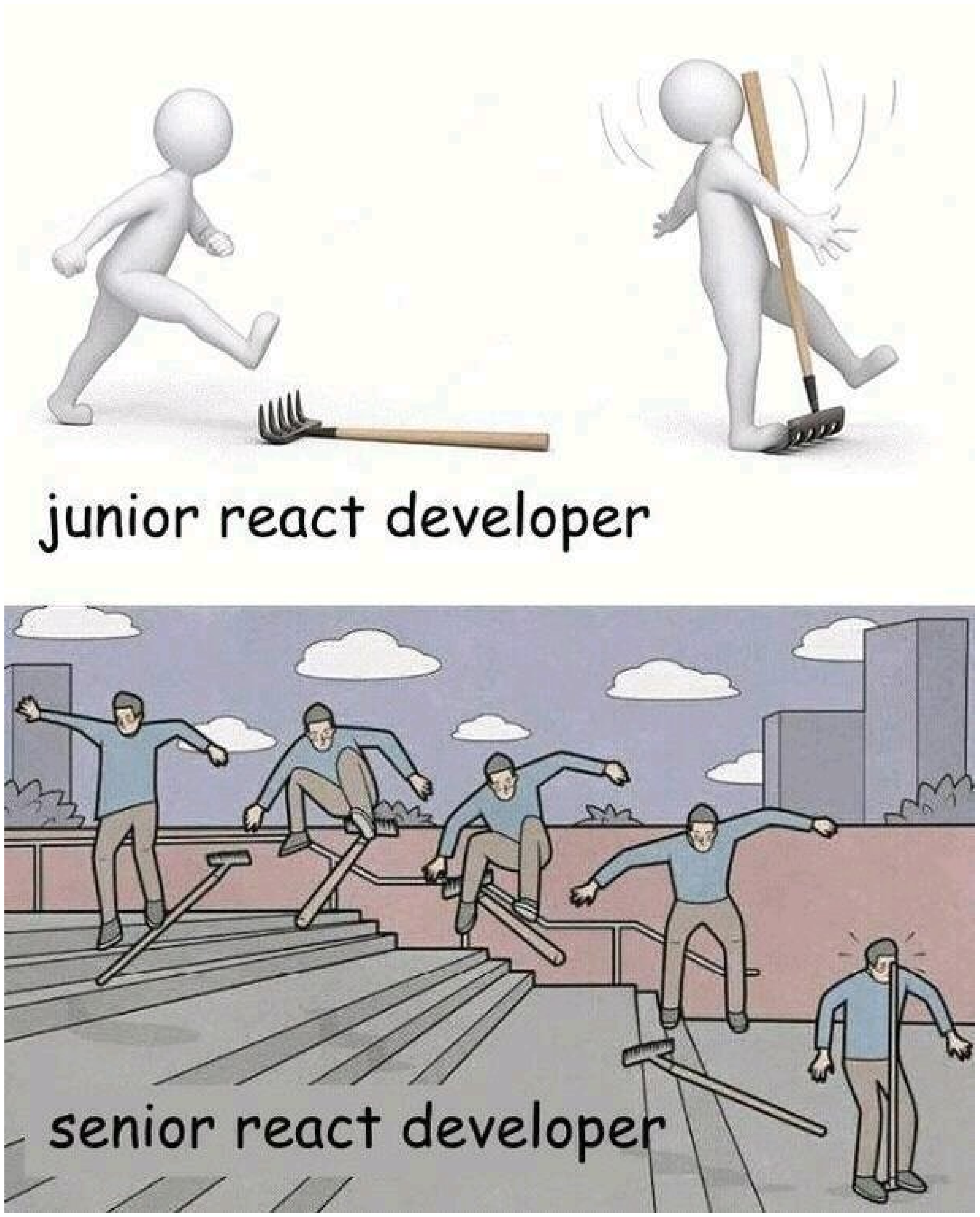


https://www.youtube.com/watch?v=8aGhZQkoFbQ

Event Loop playground: http://latentflip.com/loupe

Concurrent rendering

- Splits rendering into chunks
- Puts them into batch
- Able to interrupt, cancel rendering


junior react developer
senior react developer

Future talks?

Deep dive

SVELTE

Dart

Flutter

Thank you for your attention

😎