Signals vs React Hooks: The Battle for Clean and Performant Code

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Henry Lagarde

Software Engineer @ Datadog | Cloud SIEM

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Agenda

01 ⚛️ How to handle states?

02 🥊 Signals VS Hooks

03 🥳 Let’s play

04 🦇 Dark side of the signal

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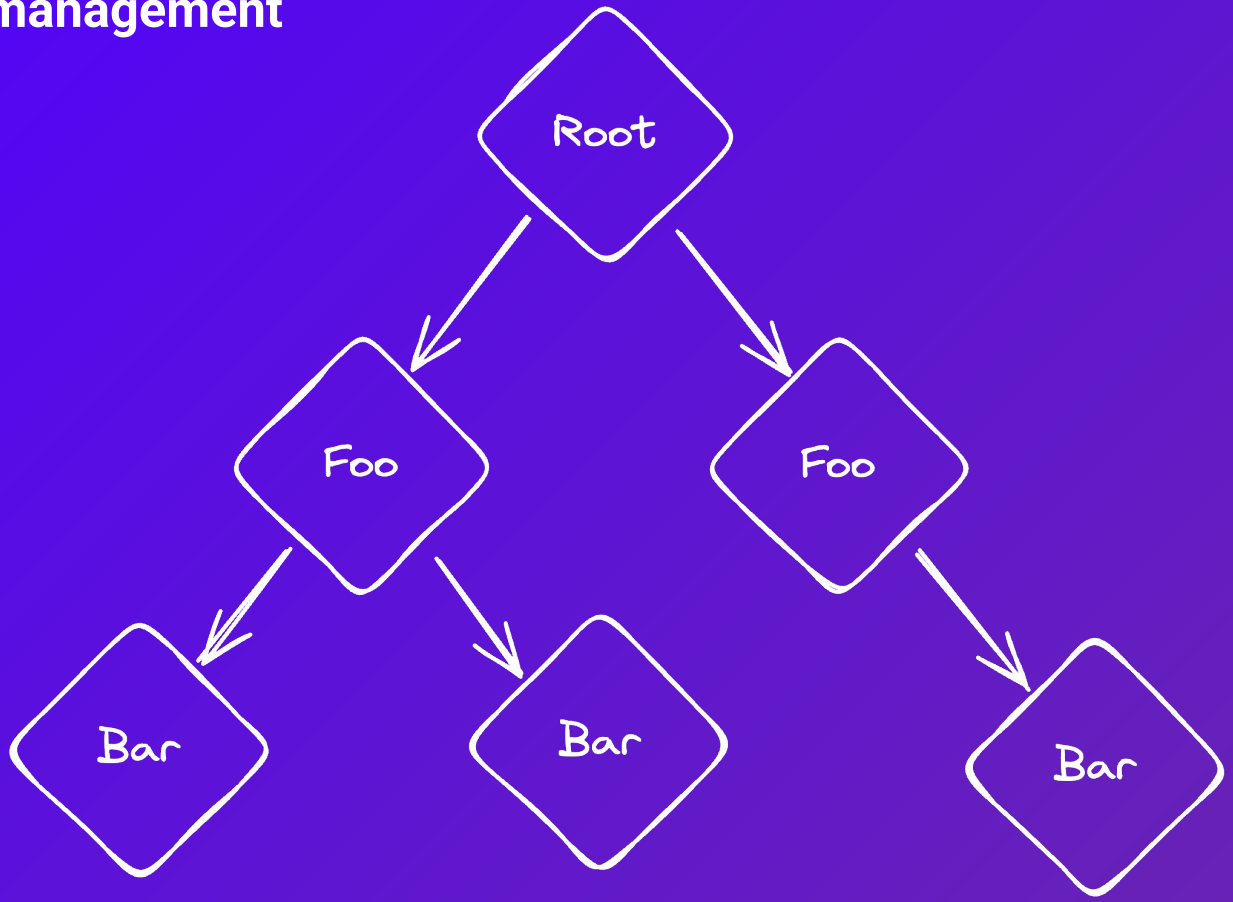
How to handle states ?

How to handle states ?

Basic state management



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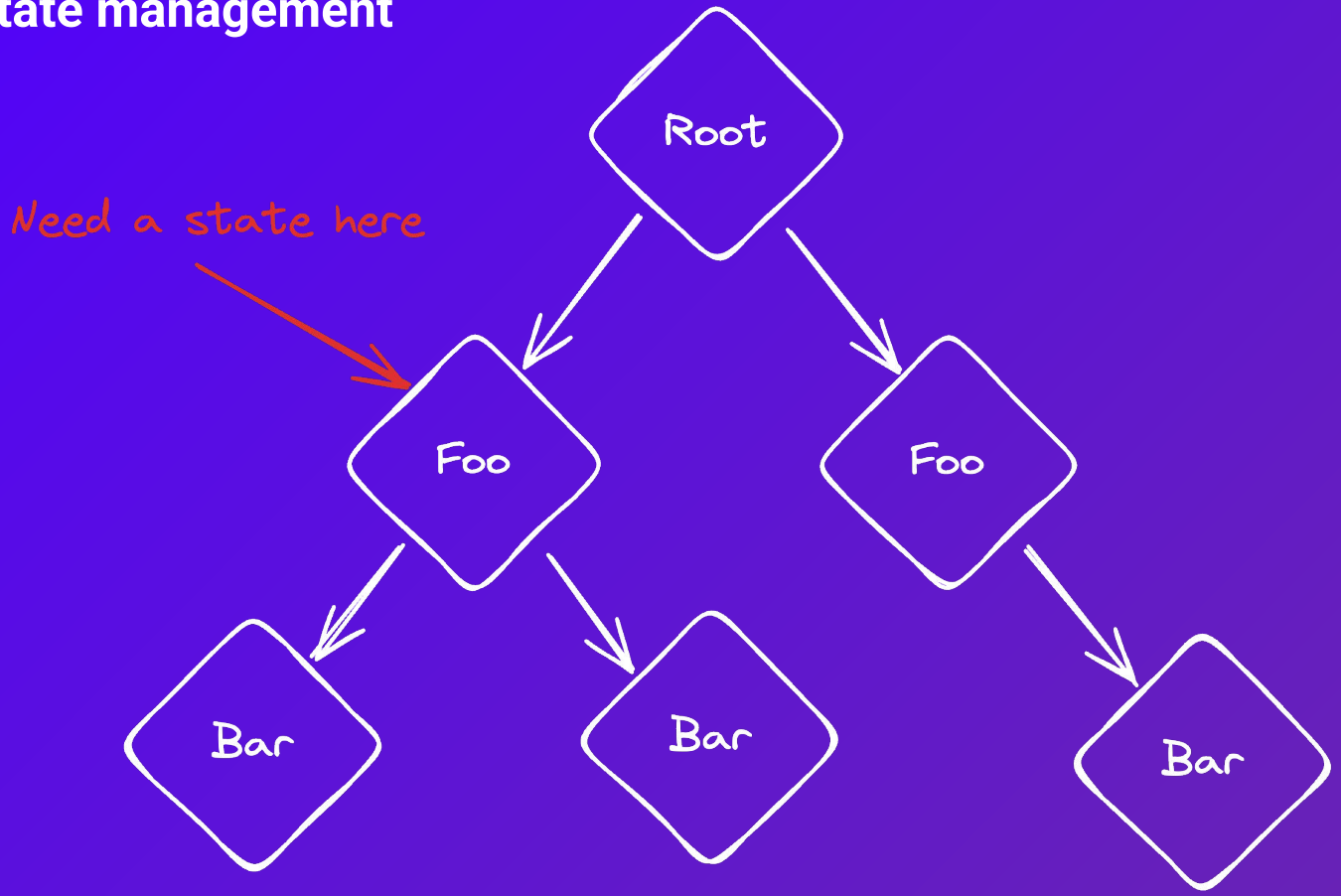

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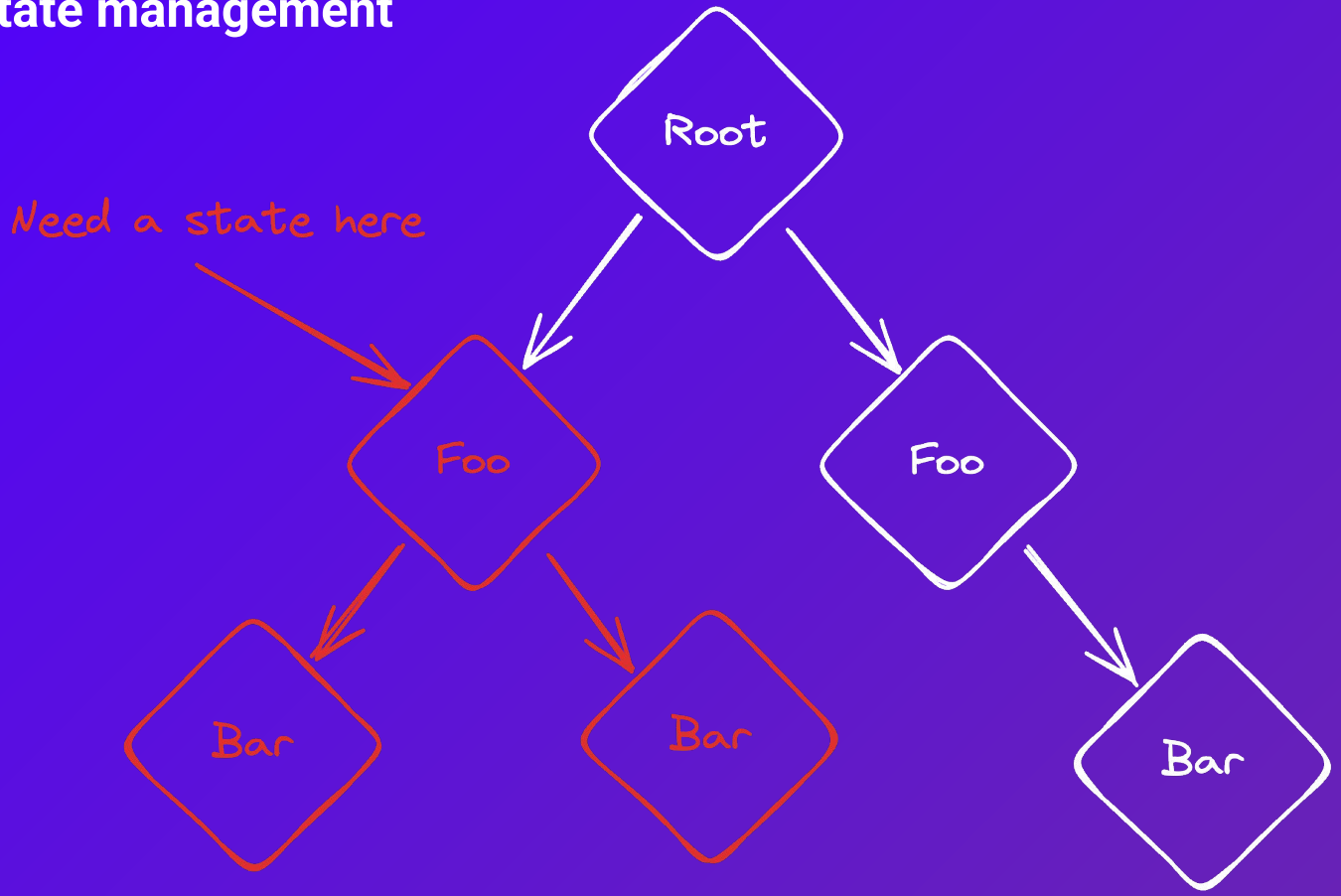

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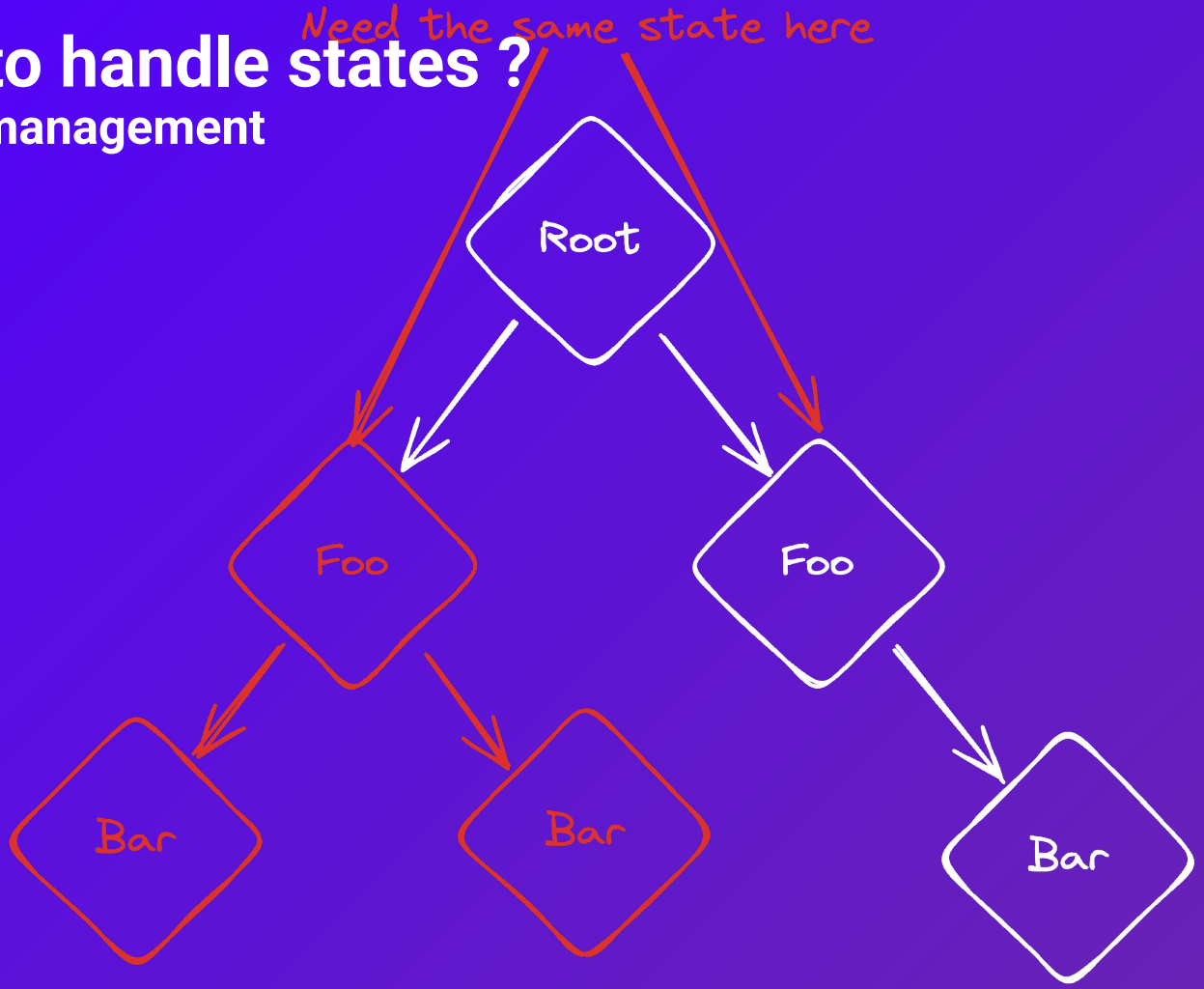

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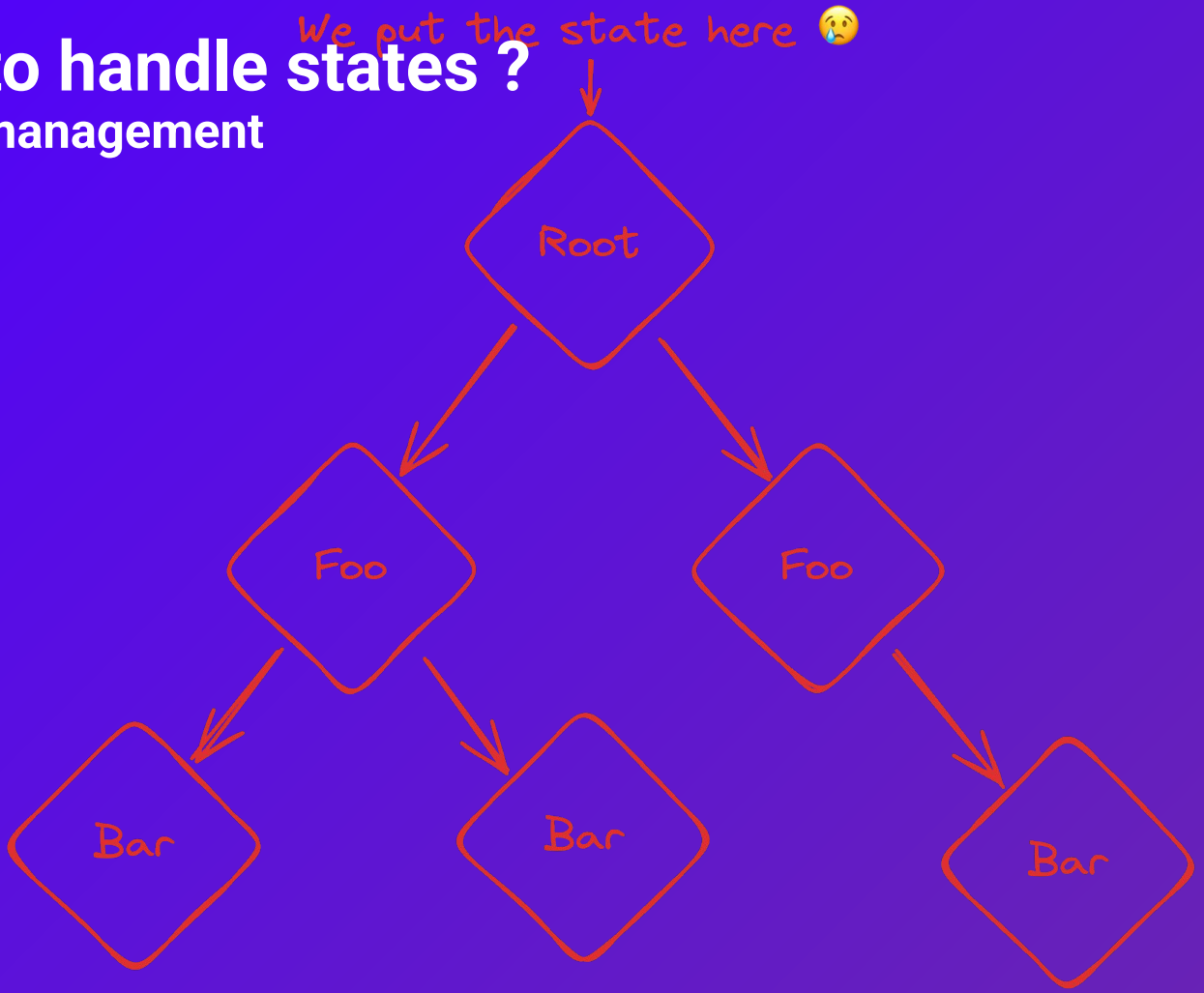
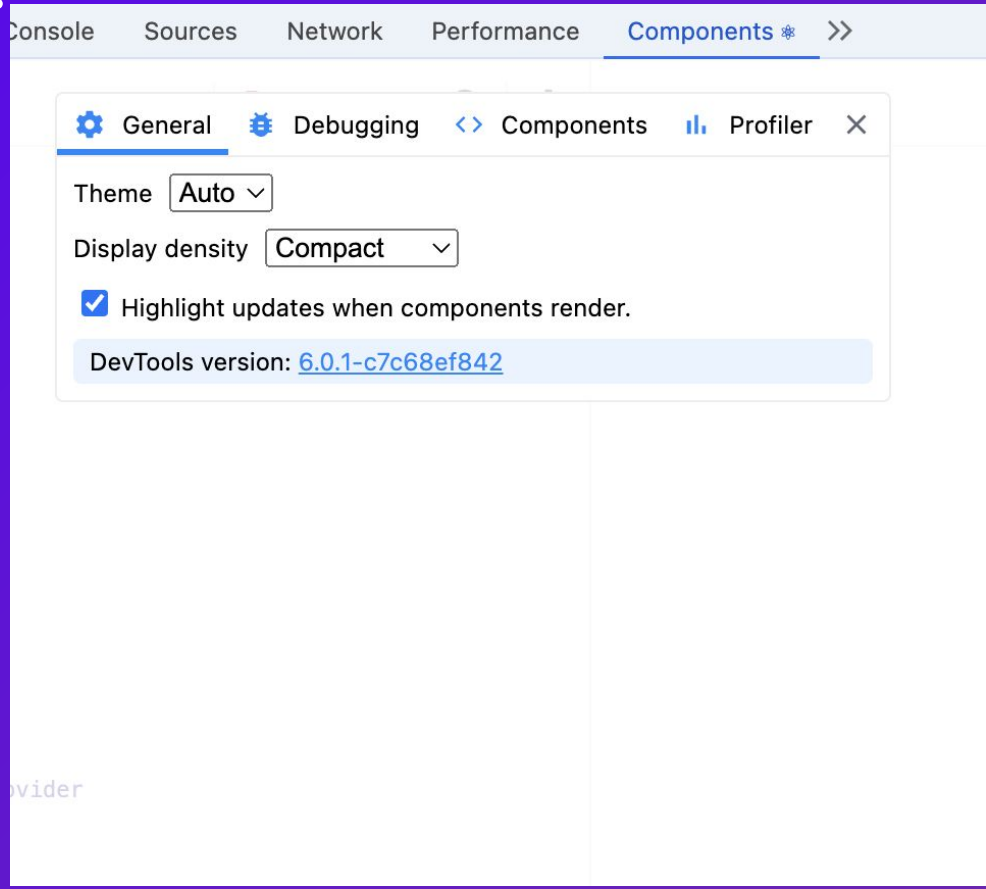
Basic state management



How to handle states ?

Basic state management

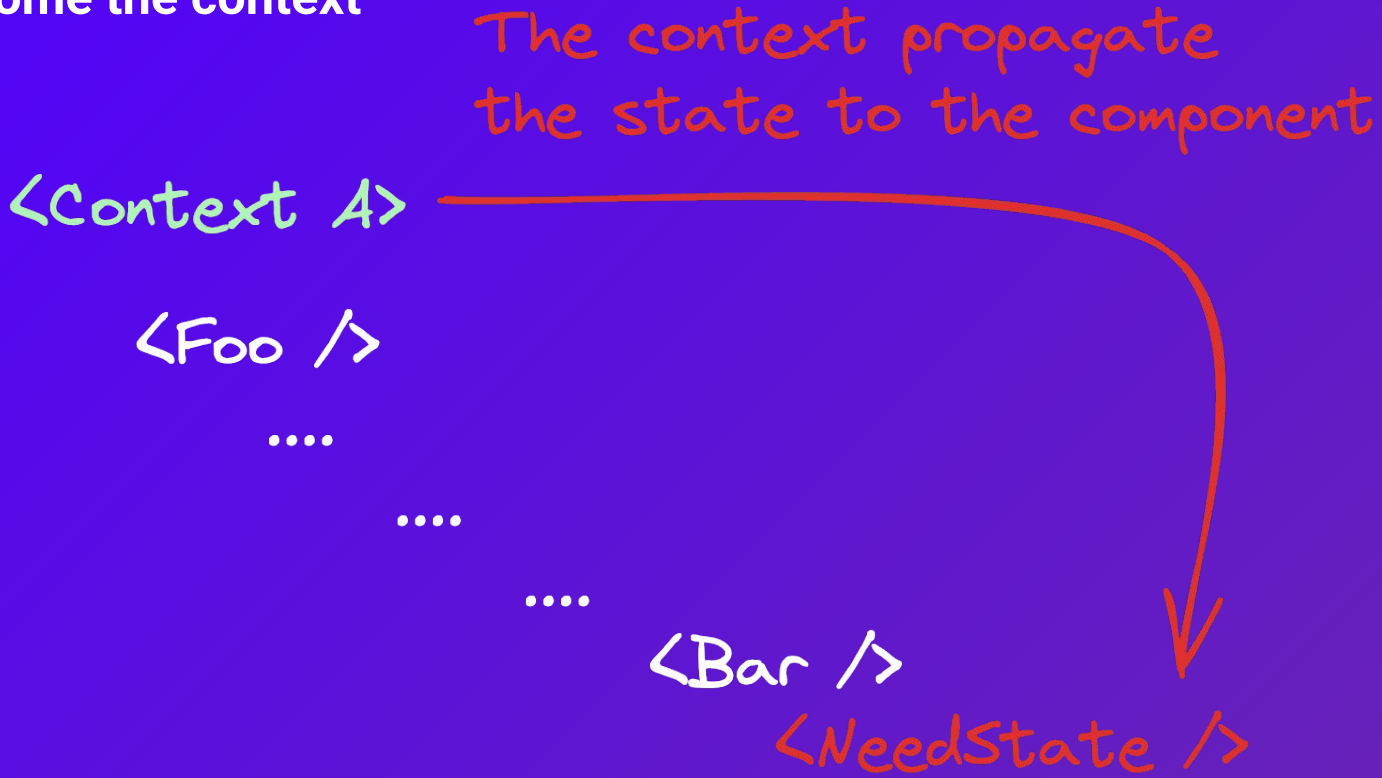
- **React Dev Tools**
  - Easily track your renders
  - Profile and debug



⚠️ **On big app the profiler crash** ⚠️

How to handle states ?

Here come the context



How to handle states ?

Here come the context

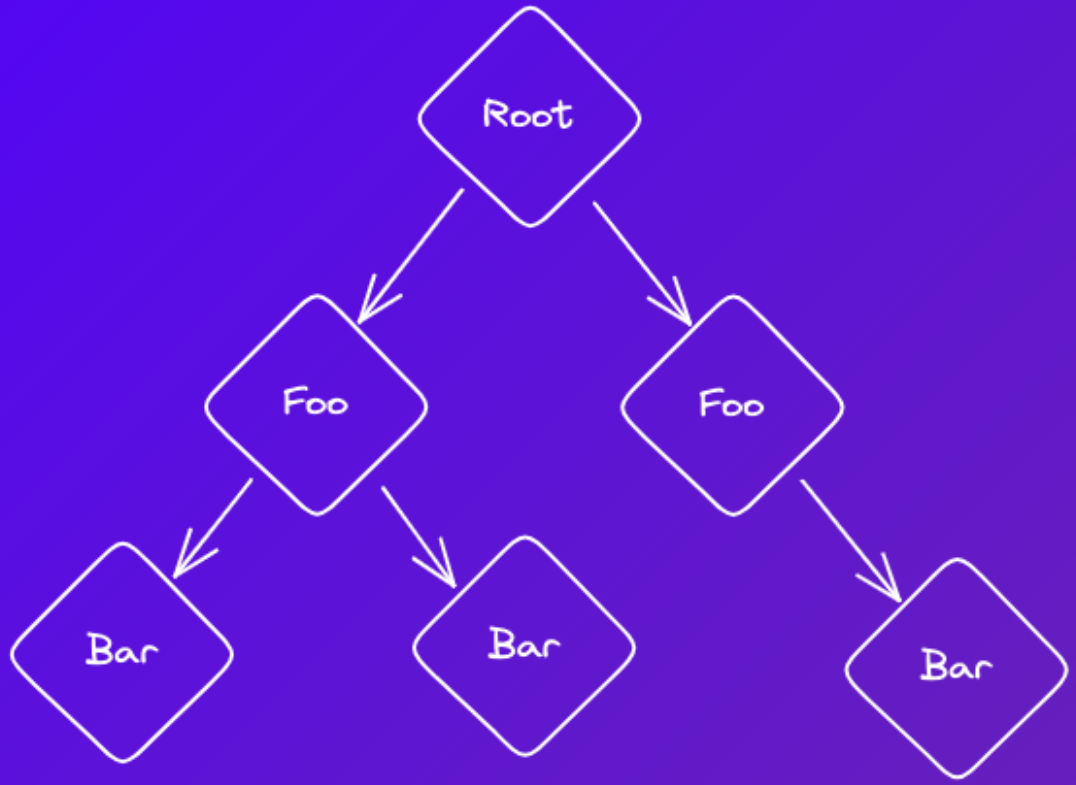

WELCOME TO
HELL

```
<FooContext.Provider value="foo">
  <BarContext.Provider value="bar">
    <BazContext.Provider value="baz">
      <AnotherProvider>
        <AgainAnotherProvider configHereAlso={someEnvronmentVar}>
          <AreYouKiddingMeProvider>
            <IHateReactContextHellProvider frustration={true}>
              <FinallyYourApp />
            </IHateReactContextHellProvider>
          </AreYouKiddingMeProvider>
        </AgainAnotherProvider>
      </AnotherProvider>
    </BazContext.Provider>
  </BarContext.Provider>
</FooContext.Provider>
```


TEEN NOIR

What are Signals?

What are signals?



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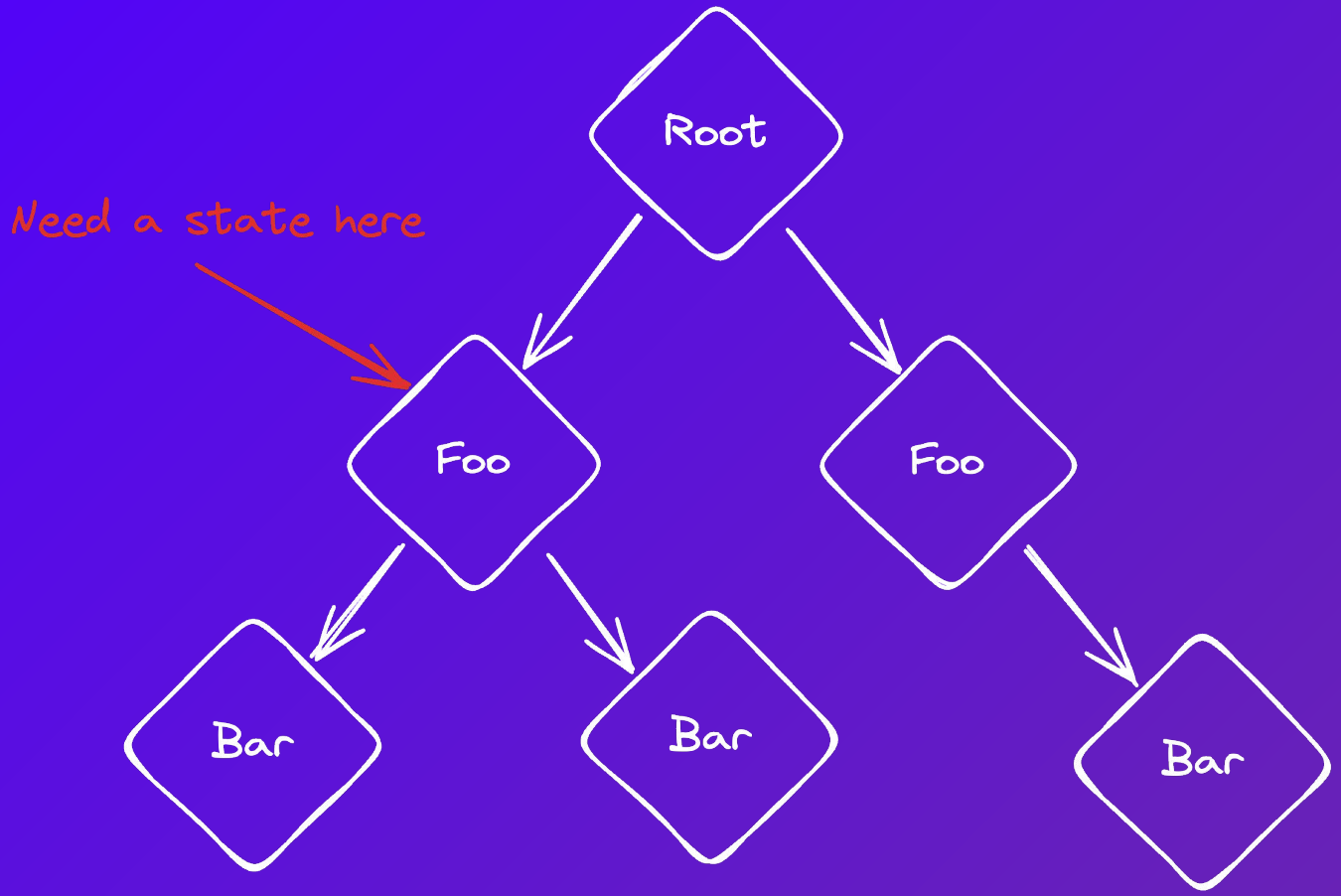

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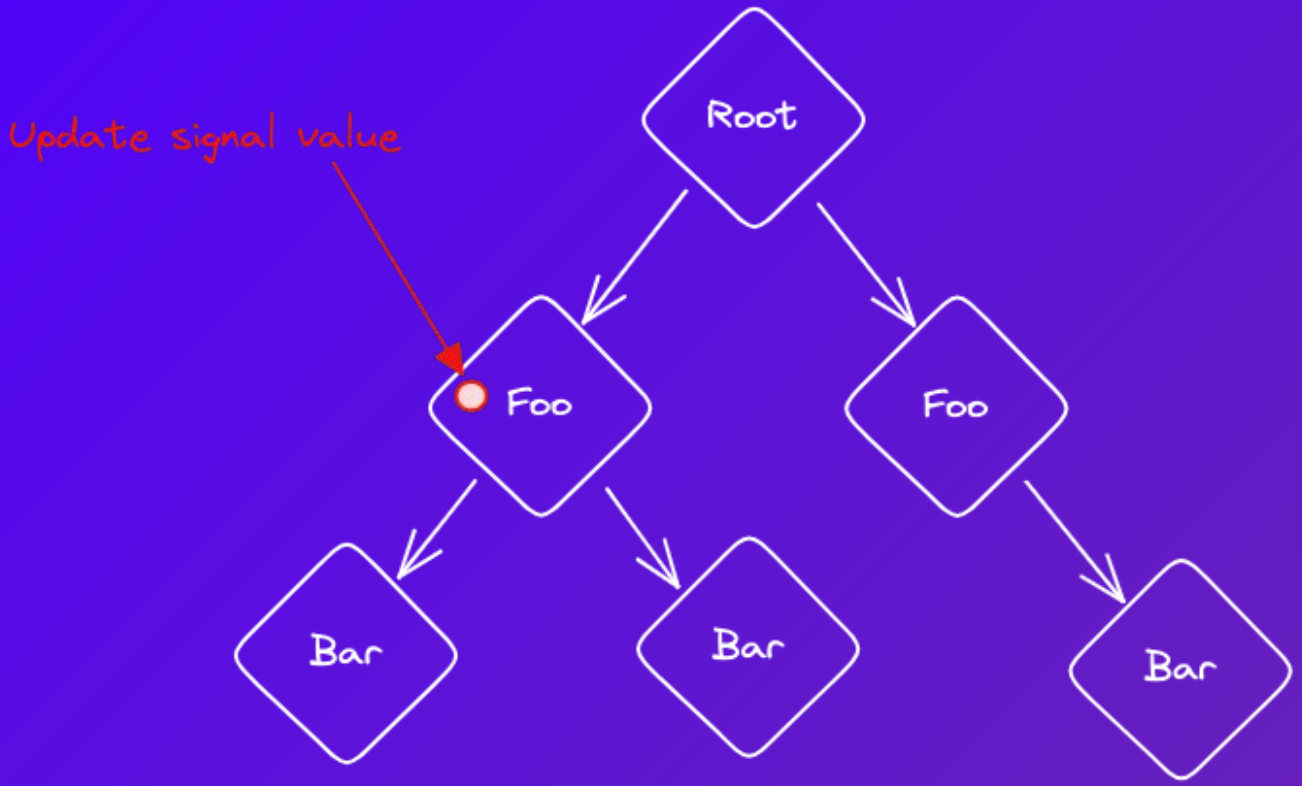

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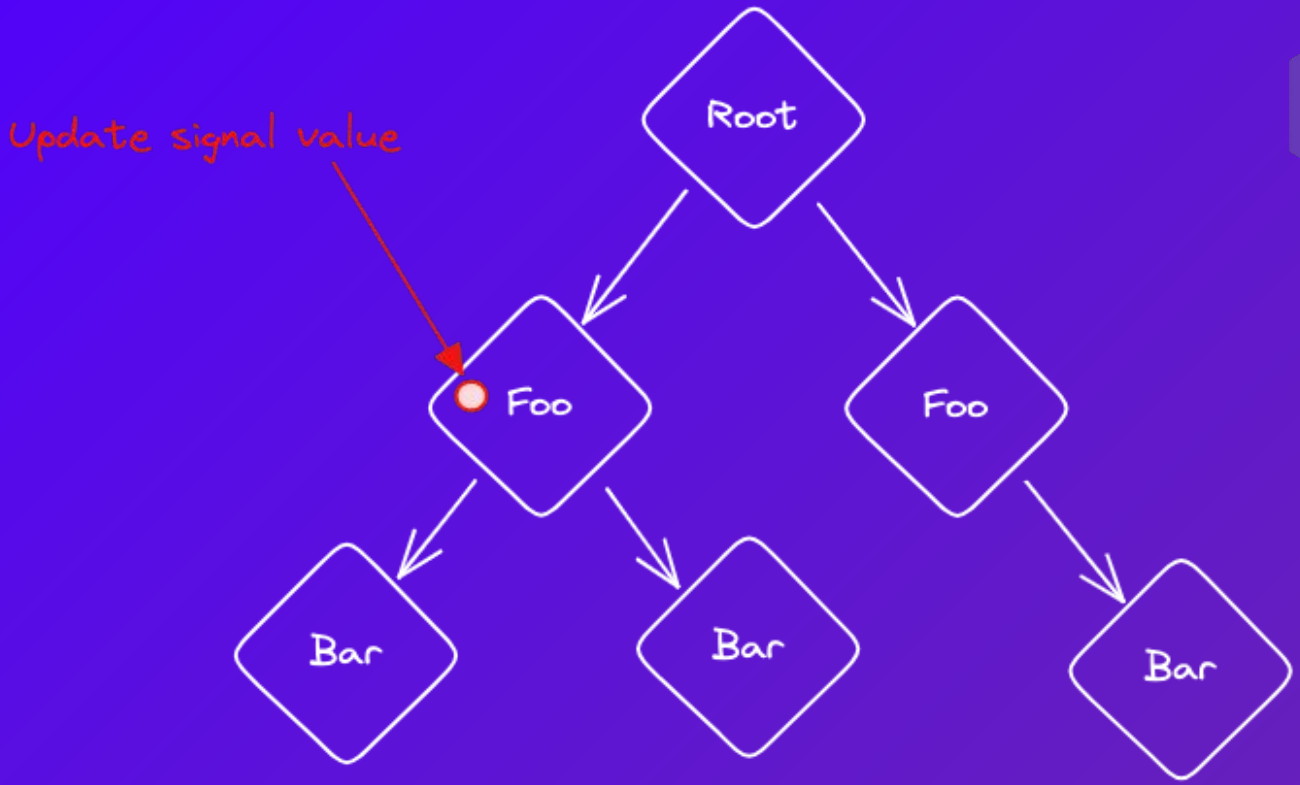

Signals vs Hooks

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Hook

Reactively respond to changes in data or state

- Component Rendering
- React core feature since 2019
- Available at components level
- Need to declare dependencies

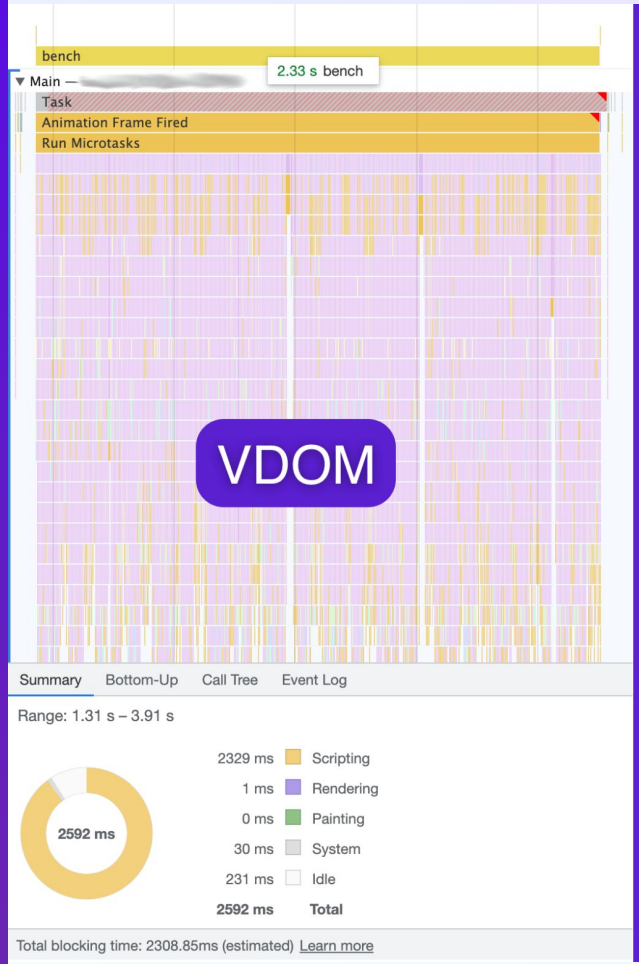
Signal

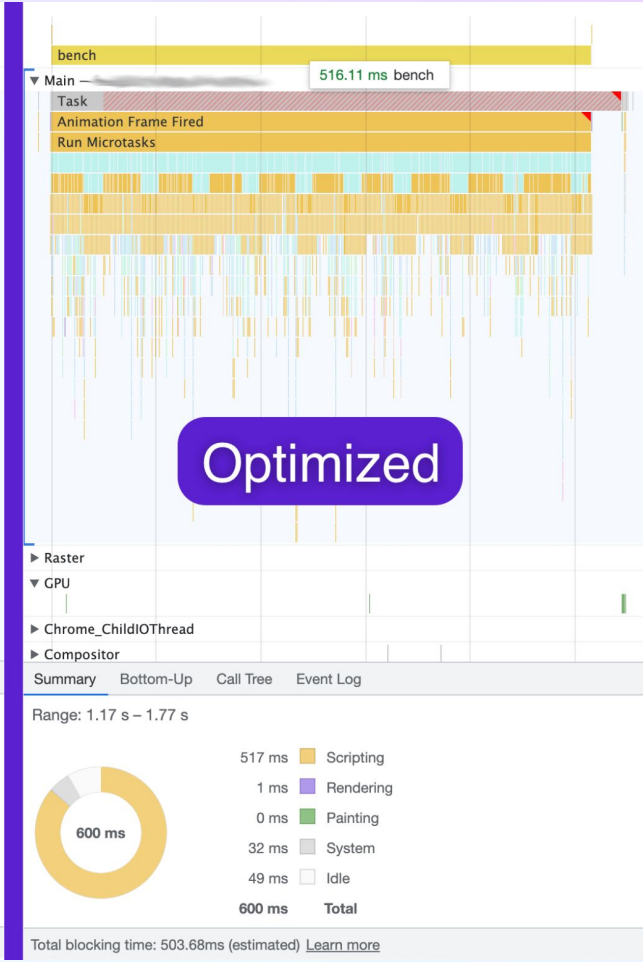
Reactively respond to changes in data or state

- Data level Rendering
- Recent concept from third-party library
- Available everywhere
- Automatic dependencies detection

Rendering improvements

- Lazy by default
- Optimal updates
- Optimal dependency tracking
- Direct access
- Lightweight package





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Signals 101

```
import { signal } from "@preact/signals-react";

const count = signal(0);

const App = () => (
  <div>
    <button onClick={() => count.value++}>{count}</button>
  </div>
);
```

Signals 101

```jsx
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);
```

```jsx
import { count } from "./signals";

function AnotherComponent() {
  return (
    <div>
      <p>Current Count: {count}</p>
    </div>
  );
}
```

Signals 101

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```
import { count } from "./signals";

function AnotherComponent() {
  return (
    <div>
      <p>Current Count: {count}</p>
    </div>
  );
}
```

```
effect(() => {
    yourFunction(count.value);
});
```

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How does it works?

```
class Signal {
  constructor(value) {
    this.value = value; // Valeur actuelle de la Signal
    this.subscribers = new Set(); // Observateurs
  }

  get() {
    // Enregistre l'observateur actuel si une lecture est effectuée
    if (Signal.currentObserver) {
      this.subscribers.add(Signal.currentObserver);
    }
    return this.value;
  }

  set(newValue) {
    if (newValue !== this.value) {
      this.value = newValue;
      this.notify(); // Notifie les observateurs en cas de
changement
    }
  }

  notify() {
    for (const subscriber of this.subscribers) {
      subscriber(); // Déclenche la mise à jour de chaque
observateur
    }
  }
}
```

Let’s Play

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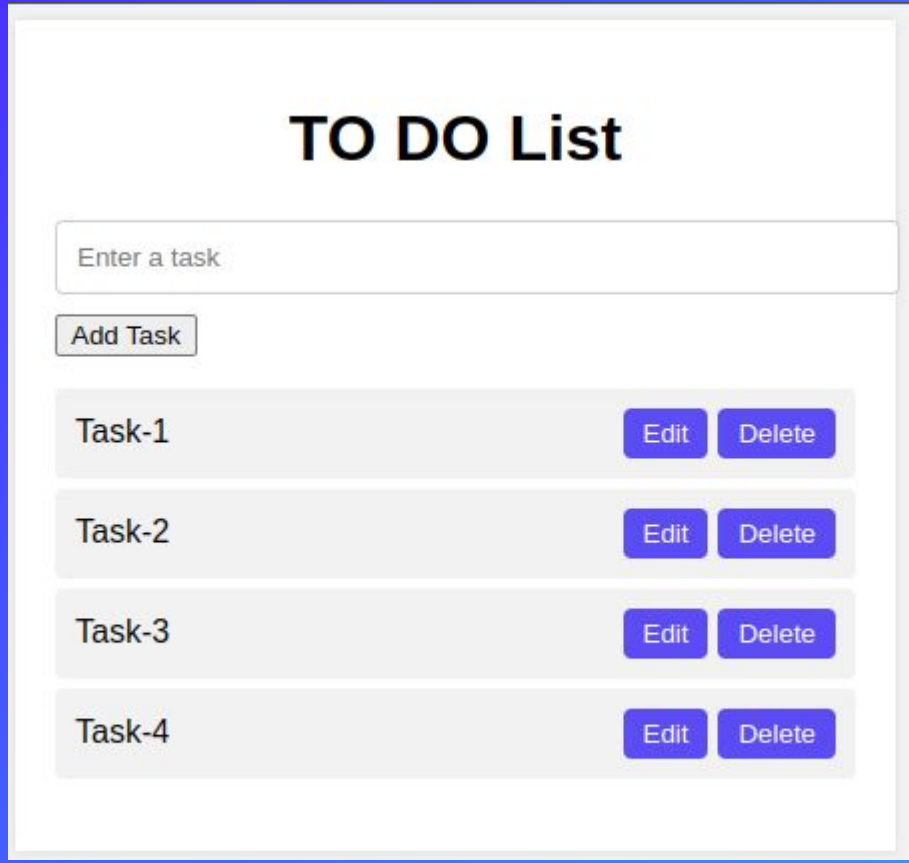
🥳 Let’s Play

- Create a simple todo App
- Migrate it with Signals instead of hooks

🥳 Let's Play

- Migrate Hooks to Signals
- Performance improvement
- Helpers: **computed, effect ...**



Dark side of the signals

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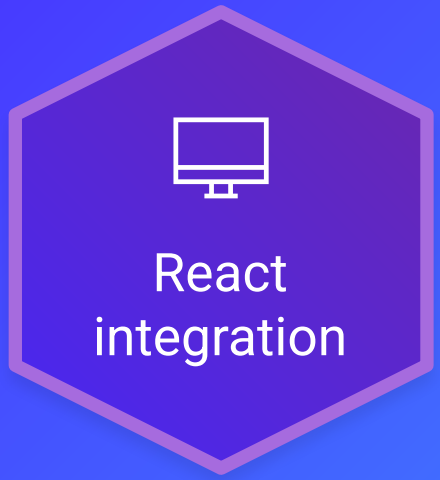
Dark side of the signal



Dark side of the signal

🧠 Conclusion

Thank you

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LinkedIn : **Henry LAGARDE**

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