

NILS HARTMANN

<https://nilshartmann.net>

Hooks, Concurrent Mode, Suspense, Lazy, ...

React 2019

Alles neu? 😱

Slides: <https://nils.buzz/wjax2019-react>

NILS HARTMANN

nils@nilshartmann.net

Freiberuflischer Entwickler, Architekt, Trainer aus Hamburg

Trainings, Workshops und Beratung

Java

JavaScript, TypeScript

React

GraphQL

[HTTPS://NILSHARTMANN.NET](https://nilshartmann.net)

React

Grundlagen, fortgeschrittene Techniken und Praxistipps

2. Auflage, Dezember 2019



[HTTPS://REACTBUCH.DE](https://reactbuch.de)

November 2018...

EIN BLICK ZURÜCK

We plan to split the rollout of new React features into the following milestones:

- React 16.6 with Suspense for Code Splitting (*already shipped*)
- A minor 16.x release with React Hooks (~Q1 2019)
- A minor 16.x release with Concurrent Mode (~Q2 2019)
- A minor 16.x release with Suspense for Data Fetching (~mid 2019)

16.8 (Februar 2019)

**16.11 (Okt 2019)
(experimentell)**

<https://reactjs.org/blog/2018/11/27/react-16-roadmap.html>

Weiterhin nur Minor-Versionen (!)

STAND NOVEMBER 2019

The image displays two side-by-side screenshots of a web application titled "React Chat Example".

Left Screenshot (React 16.6.0):

- Header:** "React Chat Example" and "16.6.0".
- Navigation:** "In the Office..." (highlighted), "Philosophy", "Coffee".
- Content Area:**
 - Anonymous-620:** "I also believe it's important for every member to be involved and invested in our company and this is one way to do so. Curate."
 - Harry:** "Pushback."
 - Peter:** "Guerrilla marketing we don't want to boil the ocean we need to leverage our synergies touch base"
 - Maja:** "The sprint is over please use "solutionise" instead of solution ideas! ;).
 - Sue:** "Push back digitalize yet enough to wash your face, or low-hanging fruit horsehead offer, for Bob called an all-hands this afternoon that ipo will be a game-changer."
 - Anonymous-620 joined in the Office...**
 - Anonymous-621 joined in the Office...**
 - Anonymous-617 left in the Office...**
 - Klaus:** "Anonymous-621 logged in as Klaus"
- Bottom:** "Please login to post messages" and a red "Login" button.
- Footer:** "https://github.com/nilshartmann/react-chat-example"

Right Screenshot (React 16.7.0-alpha.0):

- Header:** "React Chat Example" and "React 16.7.0-alpha.0".
- Navigation:** "In the Office..." (highlighted), "Philosophy", "Coffee".
- Content Area:**
 - Anonymous-620:** "I also believe it's important for every member to be involved and invested in our company and this is one way to do so. Curate."
 - Harry:** "Pushback."
 - Peter:** "Guerrilla marketing we don't want to boil the ocean we need to leverage our synergies touch base"
 - Maja:** "The sprint is over please use "solutionise" instead of solution ideas! ;).
 - Sue:** "Push back digitalize yet enough to wash your face, or low-hanging fruit horsehead offer, for Bob called an all-hands this afternoon that ipo will be a game-changer."
 - Anonymous-620 joined in the Office...**
 - Anonymous-621 joined in the Office...**
 - Anonymous-617 left in the Office...**
 - Klaus:** "You" and "Anonymous-621 logged in as Klaus"
- Bottom:** "Add Message" input field and a red "Send" button, along with three red buttons labeled "Dashboard (Effects)", "Dashboard (Suspense)", and "Exit".
- Footer:** "https://github.com/nilshartmann/react-chat-example"

<https://github.com/nilshartmann/react-chat-example>

EIN BEISPIEL...

16.8

Hooks

<https://reactjs.org/docs/hooks-intro.html>

FUNCTIONS EVERYWHERE

HINTERGRUND

Hooks: State, Context, Lifecycle etc auch in Funktionskomponenten

HINTERGRUND

Hooks: State, Context, Lifecycle etc auch in Funktionskomponenten

Hooks sind reguläre Funktionen, aber...

- **nur in** Funktionskomponenten (oder anderen Hooks) erlaubt
- **müssen** auf Top-Level-Ebene stehen (nicht in Schleife, if, ...)
- **müssen** mit "use" benannt werden

USECONTEXT HOOK

useContext: Vereinfachter Zugriff auf den Context



You're logged in as **Maja**

User-Objekt liegt in einem Context



Maja You!

*The sprint is over please use "solutionise"
instead of solution ideas! :).*

USECONTEXT HOOK

useContext: Vereinfachter Zugriff auf den Context

- **Bisher**: Zugriff über Consumer-Komponente und Render Properties

```
function CurrentUserProfile(props) {  
  
  return (  
    <ChatContext.Consumer>  
      {chatValue => {  
        return <div>  
          <Avatar userId={chatValue.user.id} />  
          You're logged in as {chatValue.user.name} />  
        </div>;  
      }}  
    </ChatContext.Consumer>  
  );  
}
```

USECONTEXT HOOK

useContext: Vereinfachter Zugriff auf den Context

- **Bisher**: Zugriff über Consumer-Komponente und Render Properties
- Unübersichtlich bei mehreren Kontexten

```
function CurrentUserProfile(props) {  
  
  return (  
    <ChatContext.Consumer>  
      {chatValue => {  
        return <ThemeContext.Consumer>  
          { themeValue => {  
            return <div className={themeValue.name}>  
              <Avatar userId={chatValue.user.id} />  
              You're logged in as {chatValue.user.name} />  
            </div>;  
          }  
        }  
      }  
    </ThemeContext.Consumer>  
  }  
</ChatContext.Consumer>  
);
```

USECONTEXT HOOK

useContext: Vereinfachter Zugriff auf den Context

- Hook: "normale" Funktion, Komponente wird gerendert, wenn Context sich ändert

```
import { useContext } from "react";

function CurrentUserProfile(props) {
  const chatValue = useContext(ChatContext);
  const themeValue = useContext(ThemeContext);

}
```

USECONTEXT HOOK

useContext: Vereinfachter Zugriff auf den Context

- Hook: "normale" Funktion, Komponente wird gerendert, wenn Context sich ändert

```
import { useContext } from "react";

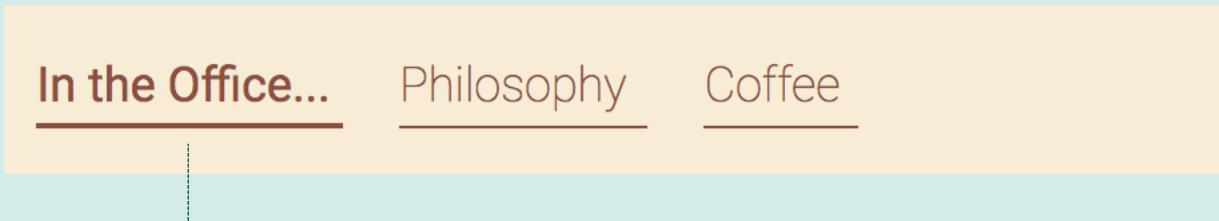
function CurrentUserProfile(props) {
  const chatValue = useContext(ChatContext);
  const themeValue = useContext(ThemeContext);

  return (
    <div className={themeValue.name}>
      <Avatar userId={chatValue.user.id} />
      You're logged in as {chatValue.user.name} />
    </div>
  );
}
```

USESTATE HOOK

useState: State in Funktionskomponenten

Beispiel: Tab Bar



Zustand: welche Tab ist geöffnet?

USESTATE HOOK

useState: State erzeugen

```
function Tabs(props) {  
  const [activeTabId, setActiveTabId] = React.useState(0);  
}  
  
|  
Aktueller State  
|  
Setter  
|  
Initialer Wert  
|  
}  
}
```

USESTATE HOOK

useState: Aktuellen State verwenden

```
function Tabs(props) {  
  const [activeTabId, setActiveTabId] = React.useState(0);  
  
  return (  
    <div>  
      {props.tabs.map(tab => {  
        return <Tab  
          classname={tab.id === activeTabId ? "active" : ""}  
        />  
      })}  
    </div>  
  );  
}
```

Zugreifen auf State

USESTATE HOOK

useState: State verändern

```
function Tabs(props) {  
  const [activeTabId, setActiveTabId] = React.useState(0);  
  
  return (  
    <div>  
      {props.tabs.map(tab => {  
        return <Tab  
          classname={tab.id === activeTabId ? "active" : ""}  
          onClick={() => setActiveTabId(tab.id)}  
        />  
      })}  
    </div>  
  );  
}
```

**Setzen von State
(kein Objekt mehr!)**

USESTATE HOOK

useState: Mehrere States in einer Komponente möglich

- Kein "mergen" von State mehr!

```
function LoginForm(props) {  
  const [username, setUsername] = React.useState("klaus");  
  const [password, setPassword] = React.useState("");  
  
  return (<>  
    <input value={username}  
          onChange={e => setUsername(e.target.value)} />  
  
    <input value={password}  
          onChange={e => setPassword(e.target.value)} />  
  </>);  
}
```

USERREDUCER HOOK

useReducer: Redux für Komponenten?

- Für komplexen State mit viel Logik zur Veränderung

Login

Username

Sue

Password

.....

Cancel Reset Login

USERREDUCER HOOK

useReducer: Redux für Komponenten?

Schritt 1: Reducer-Funktion (state, action) => newState

USERREDUCER HOOK

useReducer: Redux für Komponenten?

Schritt 1: Reducer-Funktion (state, action) => newState

Actions sind einfache JavaScript-Objekte

```
const action = {
  type: "SET_USER", ----- Type
  username: "..." ----- Payload
}
```

```
const action = {
  type: "SET_PASSWORD",
  password: "..."
}
```

```
const action = {
  type: "RESET"
}
```

USERREDUCER HOOK

useReducer: Redux für Komponenten?

Schritt 1: Reducer-Funktion (state, action) => newState

```
function loginReducer(oldState, action) {  
  switch (action.type) {  
    case "SET_USER":  
      // ...  
    }  
  }  
}
```

USERREDUCER HOOK

useReducer: Redux für Komponenten?

Schritt 1: Reducer-Funktion (state, action) => newState

```
function loginReducer(oldState, action) {  
  switch (action.type) {  
    case "SET_USER":  
      return {...oldState, username: action.username};  
  }  
}  
}
```

USERREDUCER HOOK

useReducer: Redux für Komponenten?

Schritt 1: Reducer-Funktion (state, action) => newState

```
function loginReducer(oldState, action) {  
  switch (action.type) {  
    case "SET_USER":  
      return {...oldState, username: action.username};  
  
    case "SET_PASSWORD":  
      return {...oldState, password: action.password};  
  
    case "RESET":  
      return { user: "", password: "" };  
  
    default:  
      return throw new Error("Invalid action!");  
  }  
}
```

USERREDUCER HOOK

useReducer: Redux für Komponenten?

Schritt 2: Verwendung

```
function loginReducer() { ... }

function LoginForm(props) {
  const [state, dispatch] = React.useReducer(loginReducer);

  return (>
    </>);
}
```

USERREDUCER HOOK

useReducer: Redux für Komponenten?

Schritt 2a: Zugriff auf den State

```
function loginReducer() { ... }

function LoginForm(props) {
  const [state, dispatch] = React.useReducer(loginReducer);

  return (<>
    <input value={state.username}>
    />

    <input value={state.password}>
    />

    <button />;
  </>);
}
```

USERREDUCER HOOK

useReducer: Redux für Komponenten?

Schritt 2b: Verändern des States über Actions

```
function loginReducer() { ... }

function LoginForm(props) {
  const [state, dispatch] = React.useReducer(loginReducer);

  return (<>
    <input value={state.username}
      onChange={e =>
        dispatch({type: "SET_USER", username: e.target.value})} />

    <input value={state.password}
      onChange={e =>
        dispatch({type: "SET_PASSWORD", password: e.target.value})}/>

    <button onClick={() => dispatch({type: "CLEAR"})};
  </>);
}
```

USERREDUCER HOOK

useReducer: Konsequenzen

- Reducer Standard-JavaScript-Funktion, d.h. gut test- und wiederverwendbar
- Logik zur Behandlung des Zustandes an einer zentralen Stelle
- dispatch von Actions Code-intensiv

USERREDUCER HOOK

useReducer: Konsequenzen

- Reducer Standard-JavaScript-Funktion, d.h. gut test- und wiederverwendbar
- Logik zur Behandlung des Zustandes an einer zentralen Stelle
- dispatch von Actions Code-intensiv
- Im Gegensatz zu Redux
 - keine Developer Tools (Timetravelling, ...)
 - keine Middleware

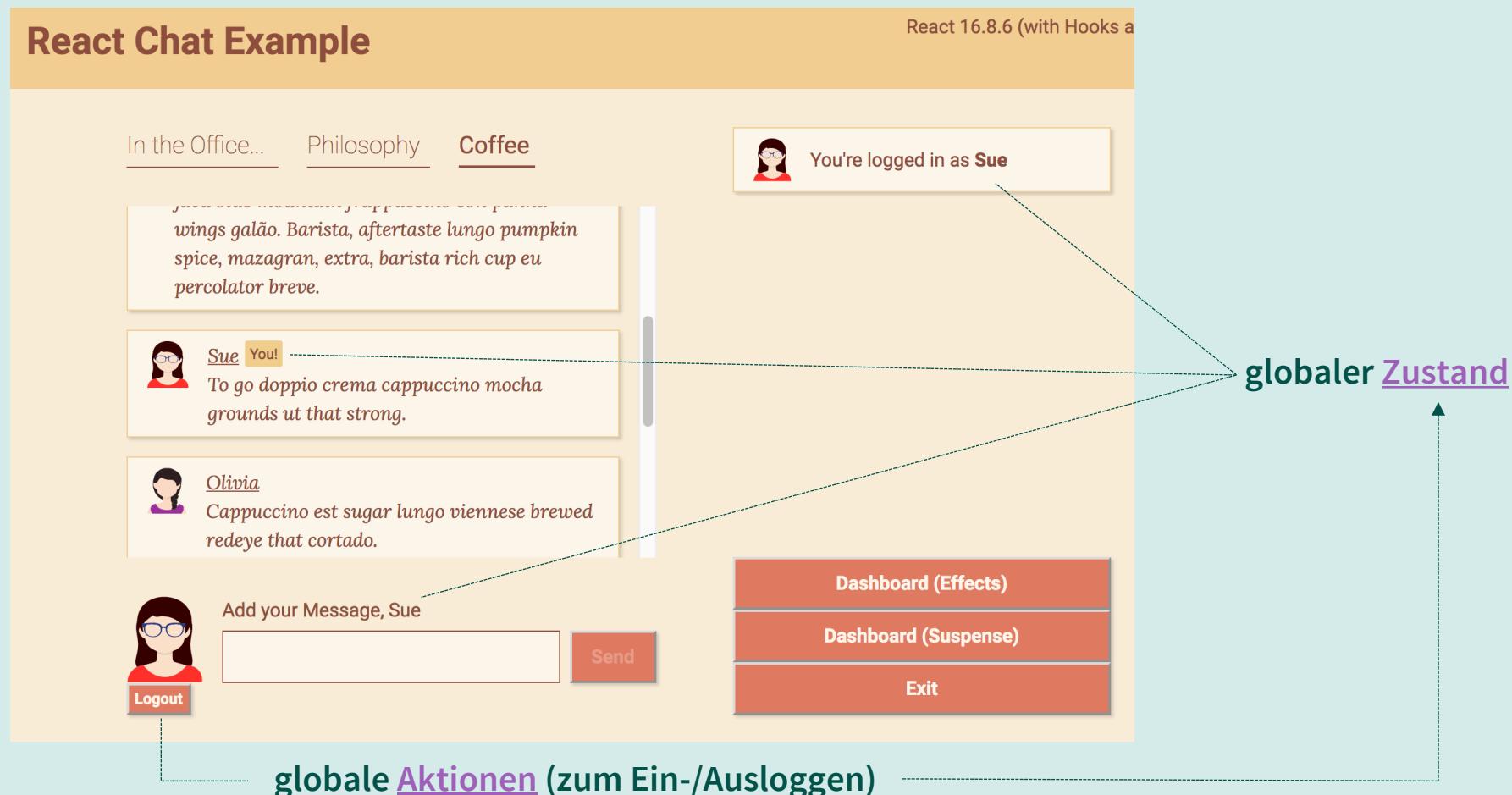
ARCHITEKTUR IDEE: USECONTEXT & USEREDUCER

useContext & useReducer: Für globalen App State?

ARCHITEKTUR IDEE: USECONTEXT & USEREDUCER

useContext & useReducer: Für globalen App State?

Beispiel: globale Logik für Login/Logout bzw. angemeldeten User



ARCHITEKTUR IDEE: USECONTEXT & USEREDUCER

useContext & useReducer: Für globalen App State?

Beispiel: Ein Reducer für Aktionen zum Ein-/Ausloggen

```
function authenticationReducer(state, action) {  
  switch (action.type) {  
    case "LOGIN":  
      return { user: action.user };  
  
    case "LOGOUT":  
      return { user: null };  
  
    default:  
      throw new Error("...");  
  }  
}
```

ARCHITEKTUR IDEE: USECONTEXT & USEREDUCER

useContext & useReducer: Für globalen App State?

- Über Context werden **Zustand** und **Aktionen** nach unten gereicht

Beispiel: Provider-Komponente für dispatcher

```
const AuthDispatcherCtx = React.createContext(null);  
  
function AuthProvider(props) {
```

```
}
```

ARCHITEKTUR IDEE: USECONTEXT & USEREDUCER

useContext & useReducer: Für globalen App State?

- Über Context werden State und Dispatch nach unten gereicht

Beispiel: Provider-Komponente für dispatcher

```
const AuthDispatcherCtx = React.createContext(null);

function AuthProvider(props) {
  const [authState, dispatch] = useReducer(authenticationReducer);

}

}
```

ARCHITEKTUR IDEE: USECONTEXT & USEREDUCER

useContext & useReducer: Für globalen App State?

- Über Context werden State und Dispatch nach unten gereicht

Beispiel: Provider-Komponente für dispatcher

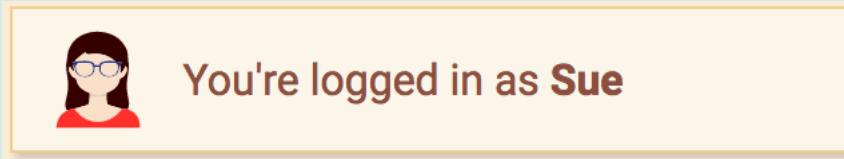
```
const AuthDispatcherCtx = React.createContext(null);

function AuthProvider(props) {
  const [authState, dispatch] = useReducer(authenticationReducer);
  return (
    <AuthDispatcherCtx.Provider
      value={{authState, dispatch}}>
      {props.children}
    </AuthDispatcherCtx.Provider>
  );
}
```

ARCHITEKTUR IDEE: USECONTEXT & USEREDUCER

useContext & useReducer: Für globalen App State?

- Unterkomponenten können den State verwenden



Beispiel: Verwendung innerhalb der Anwendung – State verwenden

```
function Avatar(props) {  
  const {authState} = useContext(AuthDispatcher);  
  
  return (  
    <h1>You're logged in as {authState.user}</h1>  
  );  
}
```

ARCHITEKTUR IDEE: USECONTEXT & USEREDUCER

useContext & useReducer: Für globalen App State?

- Unterkomponenten können dispatch-Funktion dann verwenden
- (ähnlich wie in Redux)

Beispiel: Verwendung innerhalb der Anwendung – Actions auslösen

```
function LogoutButton(props) {  
  const {dispatch} = useContext(AuthDispatcher);  
  
  return (  
    <button onClick={() => dispatch({type: "LOGOUT"})}>  
      Logout  
    </button>  
  );  
}
```



ARCHITEKTUR IDEE: USECONTEXT & USEREDUCER

useContext & useReducer: Für globalen App State?

- Schwäche 1: Verwender muss Context API verwenden (eigentlich Implementierungsdetail)
- Schwäche 2: Verwender muss dispatch verwenden und Action-Objekte selber erzeugen

CUSTOM HOOKS

CustomHooks: für wiederverwendbare Logik

- Es können eigene Hooks definiert werden
- Custom Hooks dürfen andere Hooks verwenden
- Custom Hooks sind reguläre JavaScript-Funktionen, die mit "use" anfangen
- Custom Hooks können frei definierbare Argumente haben und beliebigen Return Typ haben

ARCHITEKTUR IDEE: CUSTOM HOOKS

CustomHooks für fachliche Sicht auf Auth-State und -Logik

- 👉 Verzichten auf direkten dispatch-Aufruf (stattdessen Funktionen, ähnlich wie Action Creator in Redux)
- 👉 Context API und useReducer wird zum Implementierungsdetail und könnte z.B. durch Redux ersetzt werden

ARCHITEKTUR IDEE: CUSTOM HOOKS

CustomHooks: Für globalen App State?

- Custom Hook kapselt Zugriff auf Context, dispatch und state
- Stellt authState und fachliche Funktionen zum Verändern zur Verfügung

Beispiel: Custom Hook

```
function useAuth() {  
  const {dispatch, authState} = useContext(AuthDispatcher);  
  
  const logout = () => dispatch({type: "LOGOUT"});  
  const login = () => dispatch({type: "LOGIN", ...});  
  
  return {  
    logout, login, authState  
  }  
}
```

ARCHITEKTUR IDEE: CUSTOM HOOKS

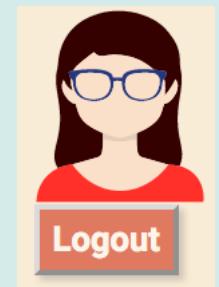
]

CustomHooks: Für globalen App State?

- In Komponenten wird der Custom Hook verwendet, um Zugriff auf "action creator" zu erhalten

Beispiel: Verwendung Custom Hook (statt dispatch)

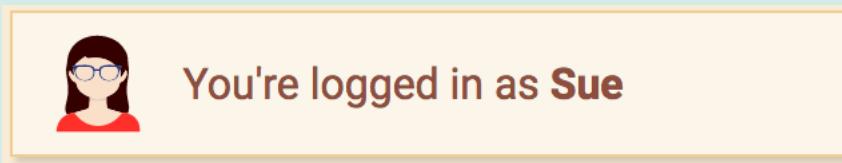
```
function LogoutButton(props) {  
  const { logout } = useAuth();  
  
  return (  
    <button onClick={logout}>  
      Logout  
    </button>  
  );  
}
```



ARCHITEKTUR IDEE: CUSTOM HOOKS

CustomHooks: Für globalen App State?

- In Komponenten wird der Custom Hook verwendet, um Zugriff auf den State zu bekommen



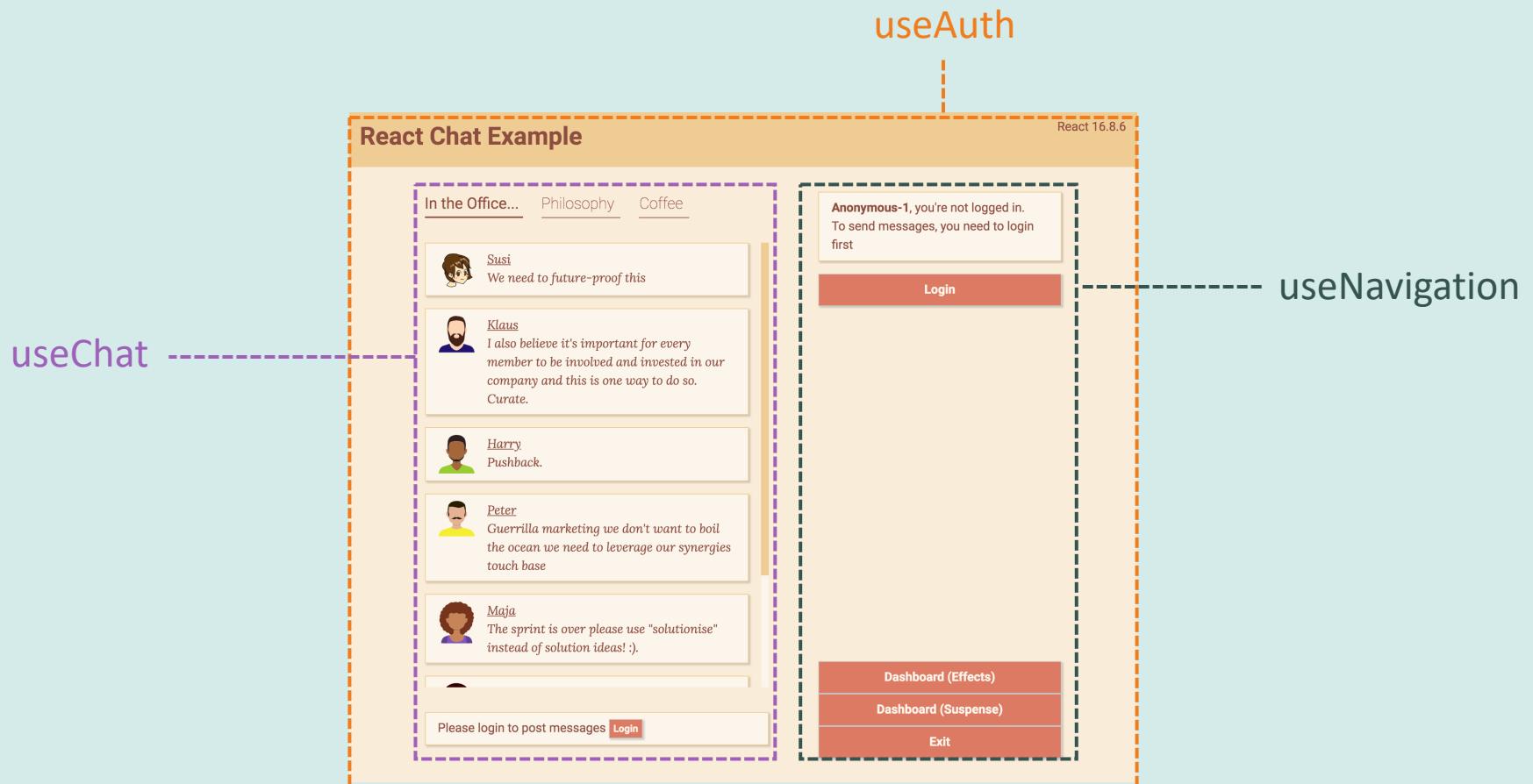
Beispiel: Verwendung Custom Hook (statt state)

```
function Avatar(props) {  
  const { authState } = useAuth();  
  
  return (  
    <h1>You're logged in as {authState.user}</h1>  
  );  
}
```

ARCHITEKTUR IDEE: CUSTOM HOOKS

App-State per Context: Flexibilität

- Hooks könnten auch für "Teil-State" der Anwendung verwendet werden (im Gegensatz zu Redux):



16.6

Suspense

RENDERN UNTERBRECHEN

SUSPENSE

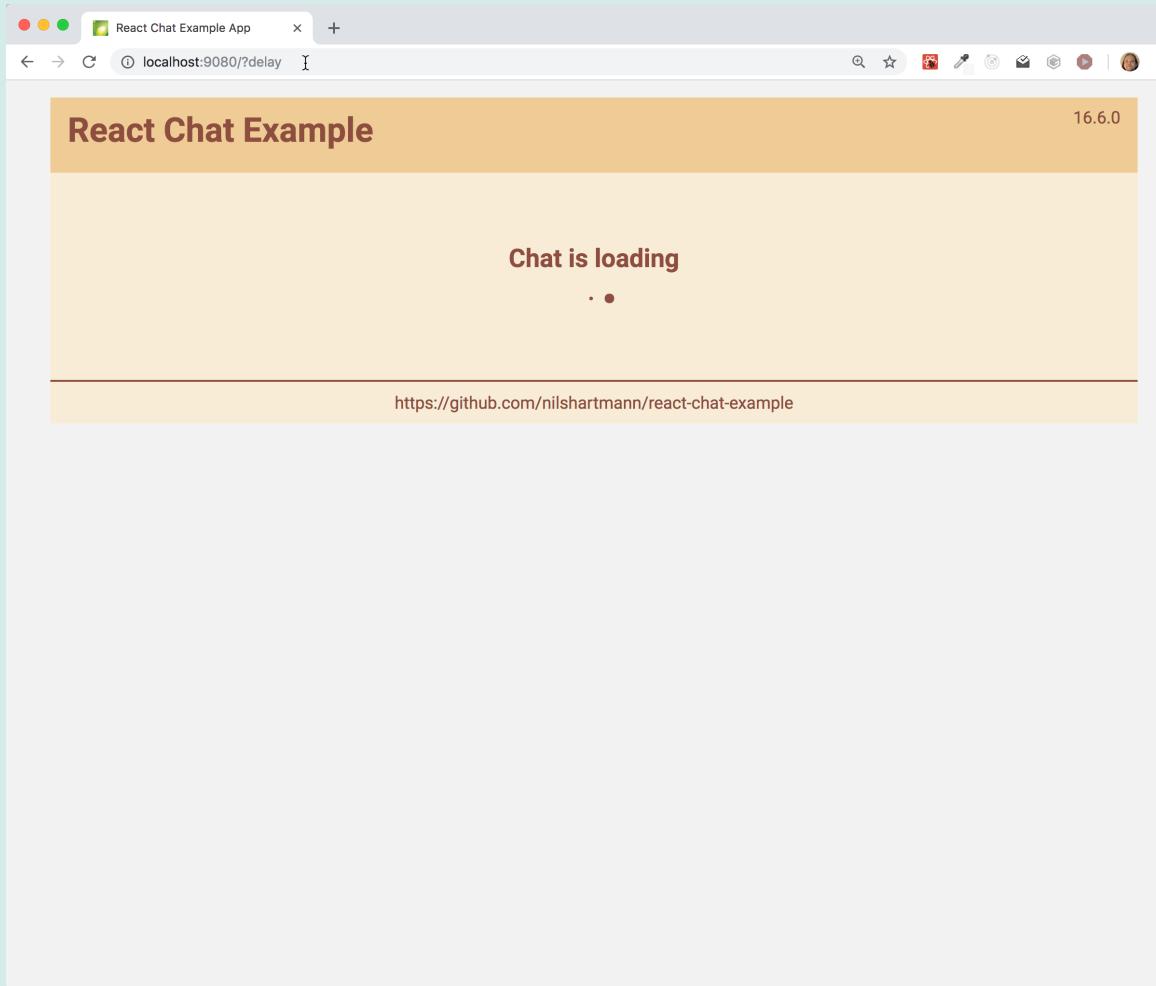
Suspense: React kann das Rendern von Komponenten unterbrechen, während (asynchron) Daten geladen werden

- Funktioniert aktuell für **Code Splitting**
- **Künftig** auch zum **Laden von beliebigen Daten** (z.Zt. experimentell)

DEMO: LAZY UND SUSPENSE

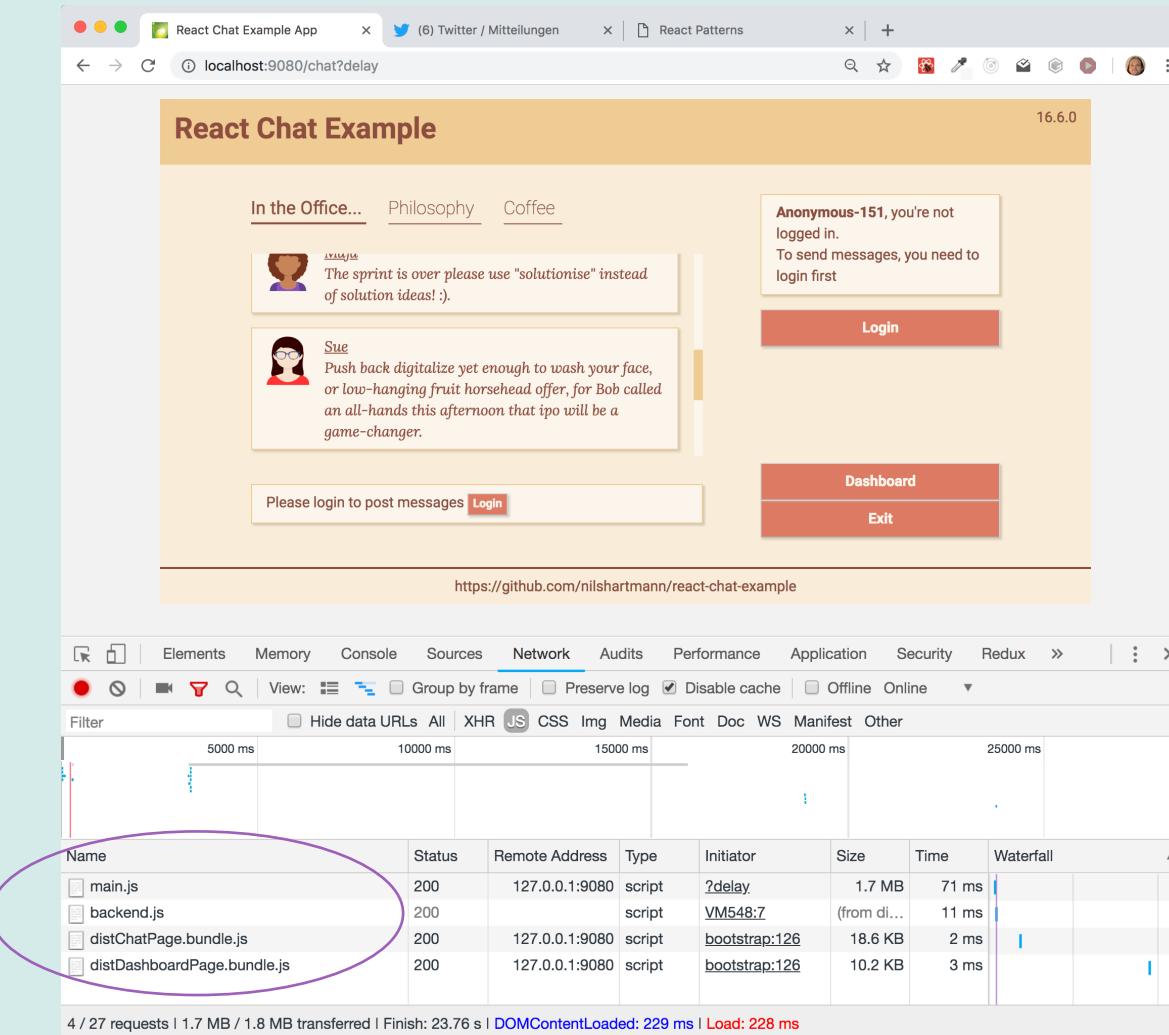
- **Demo: Fallback Komponente**

<http://localhost:9081/?delay>



DEMO: LAZY UND SUSPENSE

- **Netzwerk Requests**
<http://localhost:9081/?delay>



React Chat Example App (6 Twitter / Mitteilungen) | React Patterns

localhost:9081/chat?delay

React Chat Example

16.6.0

In the Office... Philosophy Coffee

LYAM/JM The sprint is over please use "solutionise" instead of solution ideas! .

Sue Push back digitalize yet enough to wash your face, or low-hanging fruit horsehead offer, for Bob called an all-hands this afternoon that ipo will be a game-changer.

Please login to post messages [Login](#)

Anonymous-151, you're not logged in.
To send messages, you need to login first

[Login](#)

[Dashboard](#)

[Exit](#)

<https://github.com/nilshartmann/react-chat-example>

Elements Memory Console Sources Network Audits Performance Application Security Redux

View: Group by frame Preserve log Disable cache Offline Online

Filter Hide data URLs All XHR JS CSS Img Media Font Doc WS Manifest Other

Name	Status	Remote Address	Type	Initiator	Size	Time	Waterfall
main.js	200	127.0.0.1:9080	script	?delay	1.7 MB	71 ms	
backend.js	200	127.0.0.1:9080	script	VM548:7	(from di...	11 ms	
distChatPage.bundle.js	200	127.0.0.1:9080	script	bootstrap:126	18.6 KB	2 ms	
distDashboardPage.bundle.js	200	127.0.0.1:9080	script	bootstrap:126	10.2 KB	3 ms	

4 / 27 requests | 1.7 MB / 1.8 MB transferred | Finish: 23.76 s | DOMContentLoaded: 229 ms | Load: 228 ms

SUSPENSE

React.lazy: Code splitting with Suspense [16.6]

```
const ChatPage = React.lazy(() => import("./chat/ChatPage"));  
                                         Dynamic Import  
class App {  
  render() {  
    return <>  
  
      <ChatPage />  
      // more pages...  
  
    </>  
  }  
}
```

SUSPENSE

React.Suspense: Zeigt Fallback Komponente an [16.6]

- Bis Komponente geladen ist, muss Spinner o.ä. angezeigt werden

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

class App {
  render() {
    return <>
      <React.Suspense fallback={<h1>Loading...</h1>}>
        <ChatPage />
        // more pages...
      </React.Suspense>
    <>
  }
}
```

Concurrent Mode & Suspense for Data Fetching

AUSBLICK

Introducing Concurrent Mode (Experimental)

Caution:

This page describes **experimental features that are not yet available in a stable release**.

Don't rely on experimental builds of React in production apps. These features may change significantly and without a warning before they become a part of React.

This documentation is aimed at early adopters and people who are curious. If you're new to React, don't worry about these features — you don't need to learn them right now.

<https://reactjs.org/concurrent>

CONCURRENT REACT

Concurrent Mode 1

- Rendern ist eine "non-blocking" Operation
 - Es kann **immer** auf User-Interaktionen reagiert werden
- Updates können priorisiert werden

Concurrent Mode 2

- Komponenten können u.a. vor-gerendert werden, ohne sofort sichtbar zu sein
 - Zum Beispiel beim **Laden von Code und Daten**
 - Verhindert überflüssige Warte- und Zwischen-Zustände
 - Komponenten müssen "etwas" haben, woher sie ihre Daten beziehen (gibt's aber noch nicht)
 - Erst wenn Komponente alle **gewünschten** Daten hat, wird sie angezeigt

CONCURRENT REACT

- Beispiel: Seite öffnen

<http://localhost:9081/?delay>

React Chat Example

React 16.11.0-experimental-f6b8d31a7 (with Hooks and more)

In the Office... Philosophy Coffee

involved and invested in our company and this is one way to do so. Curate.

 Harry
Pushback.

 Peter
Guerrilla marketing we don't want to boil the ocean we need to leverage our synergies touch base

 Maja
The sprint is over please use "solutionise" instead of solution ideas! :).

 Sue
Push back digitalize yet enough to wash your face, or low-hanging fruit horsehead offer, for Bob called an all-hands this afternoon that ipo will be a game-changer.

Anonymous-21 joined In the Office...

Please login to post messages [Login](#)

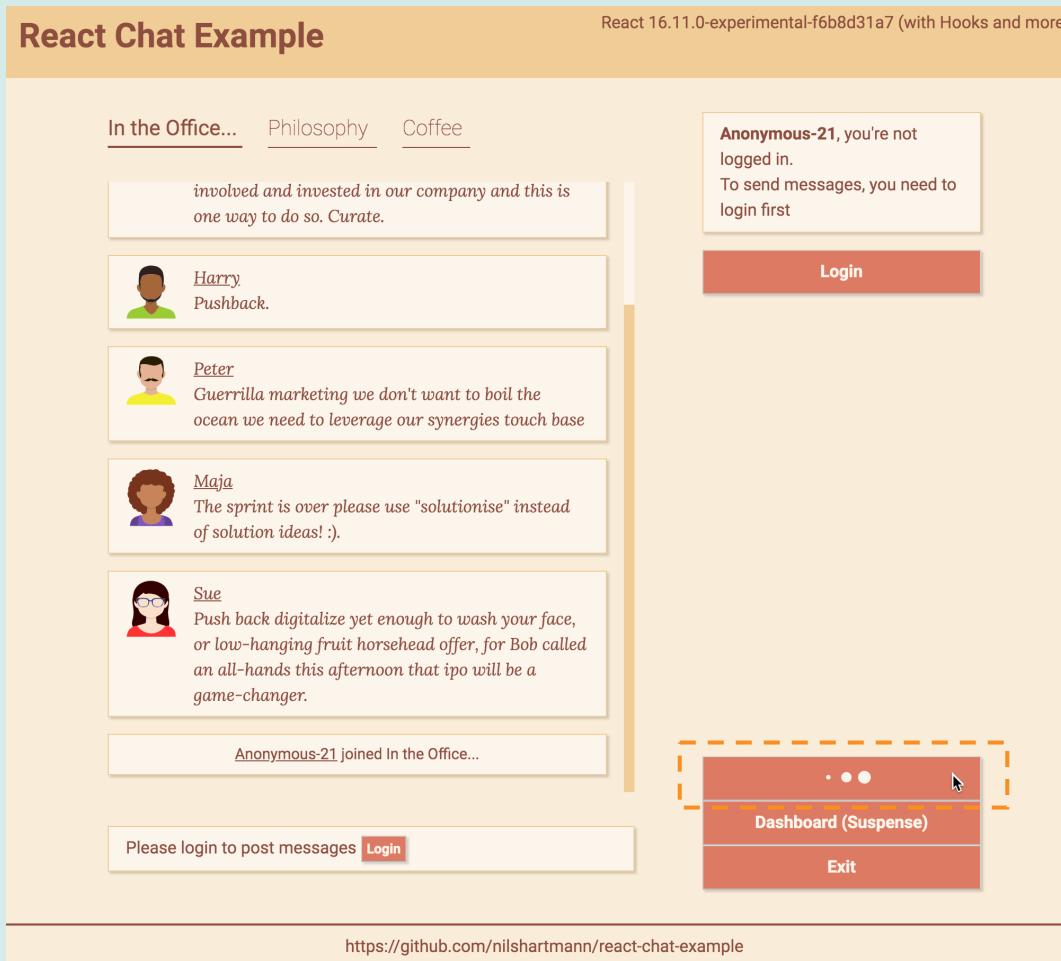
Anonymous-21, you're not logged in.
To send messages, you need to login first

[Login](#)

Dashboard (Suspense)

Exit

<https://github.com/nilshartmann/react-chat-example>



CONCURRENT REACT

useTransition: Übergänge, bei denen die Ziel-Komponente auf evtl. noch auf Daten wartet, müssen angegeben werden

- React verzögert den Übergang zur Ziel-Komponente
- Unnötige Warteindikatoren werden vermieden
- Ausgangskomponente kann anzeigen, dass gewartet wird

Code-Beispiel: ChatPage.js

```
export default function ChatPage() {
  const [setTransition, isPending] = useTransition(...);

  function openDashboard() {
    setTransition( () => setView("dashboard") );
  }

  return ...
  <Button onClick={openDashboard} pending={isPending}>
    Dashboard
  <Button>
}
```

SUSPENSE FOR DATA FETCHING

- **Suspense for Data Fetching: Daten laden**

SUSPENSE FOR DATA FETCHING

- **Beispiel: Admin Dashboard**

<http://localhost:9081/dashboard?delay>

/api/cpus

React Chat Example React 16.11.0-experimental-f6b8d31a7 (with Hooks and more)

Admin Dashboard Close

Server CPUs			
Model	Speed	User (ms)	Idle (ms)
Intel(R) Core(TM) i7-4870HQ CPU @ 2.50GHz	2500	20797620	133462890
Intel(R) Core(TM) i7-4870HQ CPU @ 2.50GHz	2500	1460040	163234200
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Intel(R) Core(TM) i7-4870HQ CPU @ 2.50GHz	2500	1512770	163103860
Intel(R) Core(TM) i7-4870HQ CPU @ 2.50GHz	2500	16121350	142914170
Intel(R) Core(TM) i7-4870HQ CPU @ 2.50GHz	2500	1511200	163098080

SUSPENSE FOR DATA FETCHING

- Beispiel: Admin Dashboard

<http://localhost:9081/dashboard?delay>

/api/cpus

/api/logs

React Chat Example

React 16.11.0-experimental-f6b8d31a7 (with Hooks and more)

Close

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Logs			
[Anonymous-14]	Client registered		
[Anonymous-14]	join chatroom with id 'r1'		
[Anonymous-14]	client disconnected		
[Anonymous-15]	Assigned User id 'Anonymous-15'		
[Anonymous-15]	Client registered		
[Anonymous-15]	join chatroom with id 'r1'		
[Anonymous-15]	client disconnected		
[Anonymous-16]	Assigned User id 'Anonymous-16'		
[Anonymous-16]	Client registered		
[Anonymous-16]	join chatroom with id 'r1'		

SUSPENSE FOR DATA FETCHING

- Beispiel: Admin Dashboard

<http://localhost:9081/dashboard?delay>

/api/cpus

/api/logs

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Logs	
[Anonymous-14]	Client registered
[Anonymous-14]	join chatroom with id 'r1'
[Anonymous-14]	client disconnected
[Anonymous-15]	Assigned User id 'Anonymous-15'
[Anonymous-15]	Client registered
[Anonymous-15]	join chatroom with id 'r1'
[Anonymous-15]	client disconnected
[Anonymous-16]	Assigned User id 'Anonymous-16'
[Anonymous-16]	Client registered
[Anonymous-16]	join chatroom with id 'r1'

User	
ID	Name
u1	Susi
u2	Klaus
u3	Harry
u4	Peter
u5	Maja
u6	Sue
u7	Olivia
u8	Cathy

SUSPENSE FOR DATA FETCHING

• Beispiel: Admin Dashboard

<http://localhost:9081/dashboard?delay>

Fachlich:

- Wo wollen wir warten?
- Welche Daten müssen da sein, damit Darstellung Sinn macht?

React Chat Example React 16.11.0-experimental-f6b8d31a7 (with Hooks and more)

Admin Dashboard

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Logs

```
[Anonymous-14] Client registered  
[Anonymous-14] join chatroom with id 'r1'  
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[Anonymous-15] Client registered  
[Anonymous-15] join chatroom with id 'r1'  
[Anonymous-15] client disconnected  
[Anonymous-16] Assigned User id 'Anonymous-16'  
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```

User

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Fachlich:

- Wo wollen wir warten?
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Technisch:

- Wie kommt die Seite an die Daten?
- Wie unterbrechen wir das Rendern?

React Chat Example
React 16.11.0-experimental-f6b8d31a7 (with Hooks and more)

Admin Dashboard

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/api/cpus

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SUSPENSE FOR DATA FETCHING

• Beispiel: Admin Dashboard

<http://localhost:9081/dashboard?delay>

Technisch:

- Wie kommt die Seite an die Daten?
 - Unklar! In Arbeit...
 - Nicht mehr mit useEffect, Komponenten-Lifecycle
- Wie unterbrechen wir das Rendern?
 - Suspense Komponente

React Chat Example
React 16.11.0-experimental-f6b8d31a7 (with Hooks and more)

Admin Dashboard

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/api/cpus

/api/logs

/api/users

SUSPENSE FOR DATA FETCHING

React.Suspense: legt fest, wo in der Komponentenhierarchie gewartet werden soll

Code-Beispiel: DashboardWithSuspensePage.js

```
const dashboardData = loadDashboardData();

export default function DashboardPage({ onClose }) {
  return (
    <React.SuspenseList revealOrder="backwards">
      <React.Suspense fallback={<Spinner label="Loading Logs..." />}>
        <Logs logsResource={dashboardData.logs} />
      </React.Suspense>
      <React.Suspense fallback={<Spinner label="Loading User..." />}>
        <Users usersResource={dashboardData.users} />
      </React.Suspense>
    </React.SuspenseList>
  );
}
```

SUSPENSE FOR DATA FETCHING

React.Suspense: legt fest, wo in der Komponentenhierarchie gewartet werden soll

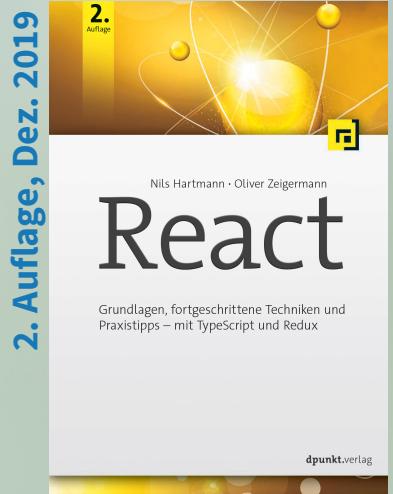
Code-Beispiel: DashboardWithSuspensePage.js

```
function Logs({ logsResource }) {  
  const logs = logsResource.read(); ----- Hierauf wird gewartet  
  
  return (  
    <div>  
      <h2>Logs</h2>  
      <code>  
        {logs.map(l => (  
          <p key={l.eventId}>  
            [{l.user}] {l.msg}  
          </p>  
        ))}  
      </code>  
    </div>  
  );  
}
```

CONCURRENT REACT

Concurrent Mode: Aktueller Stand

- Experimentelle Version verfügbar, wird von FB produktiv eingesetzt
- Hat Veränderungen auf die Anwendungsarchitektur
 - Transitionen
 - Vorladen von Daten
- Ökosystem muss darauf vorbereitet sein
 - Router
 - Konzepte/Bibliotheken zum Vorladen von Daten
- Für wen ist der Suspense sinnvoll?



vielen Dank!

Slides: <https://nils.buzz/wjax2019-react>

Source Code: <https://github.com/nilshartmann/react-chat-example>

Fragen & Kontakt: nils@nilshartmann.net