adaptTo()

APACHE SLING & FRIENDS TECH MEETUP

2 - 4 SEPTEMBER 2019

Using React to enable Web Developers to work with AEM

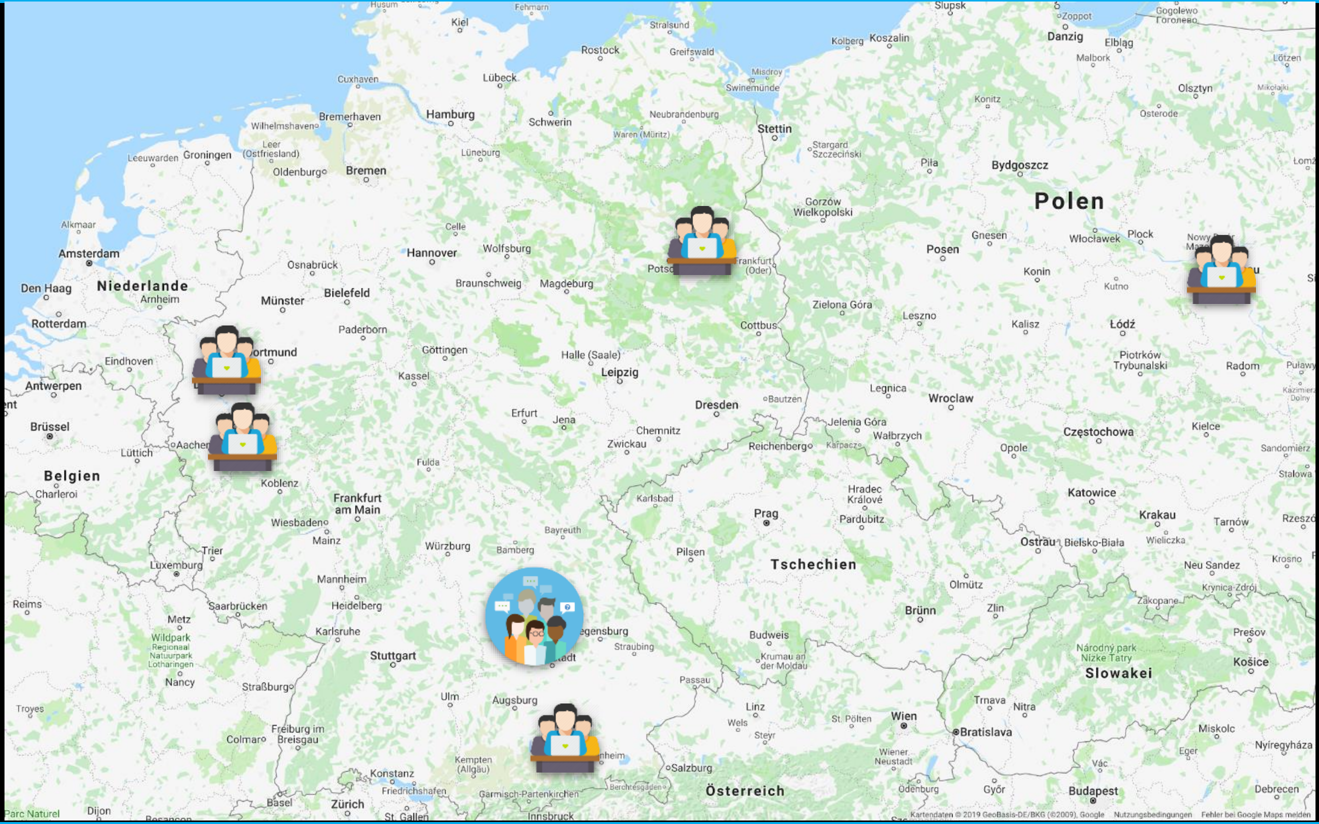
T. Schumacher, TECLEAD

Topics

- Project Situation
- Challenge
- Solution
  - Boilerplate
  - AEM Generator
  - Decoupled React Components
  - Custom Dialogs
- What we learned / Future

Project Situation - Distributed Teams in an enterprise context

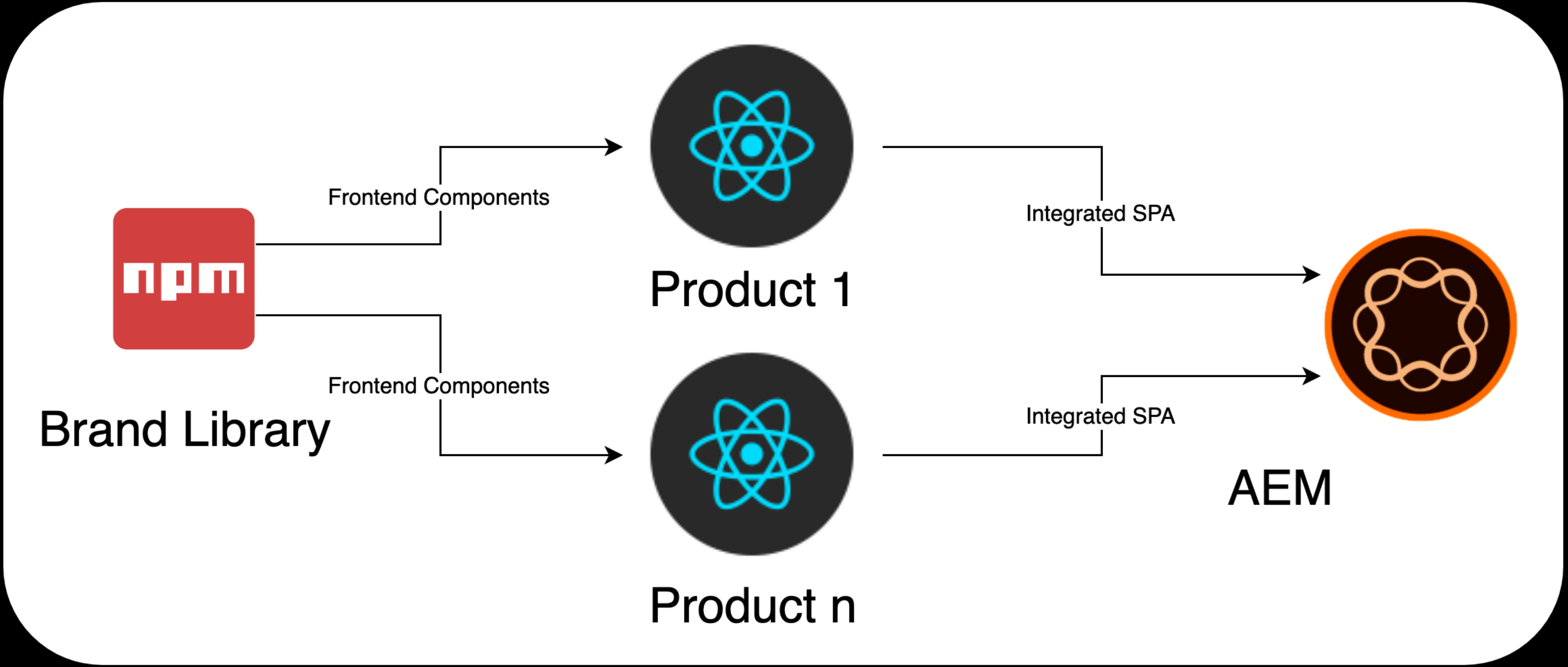
Distributed Teams in an enterprise context



Distributed Teams in an enterprise context

- language barrier
- different know how
- only high level architecture provided
- multiple locations and teams
- Different brands, same components
- external frontend library based on React

Distributed Teams in an enterprise context



What is the challenge

What is the challenge

- no AEM knowhow in internal teams
- redundant frontend code
- tight deadlines → no time / resources for coaching
- internal acceptance for AEM as the main technology

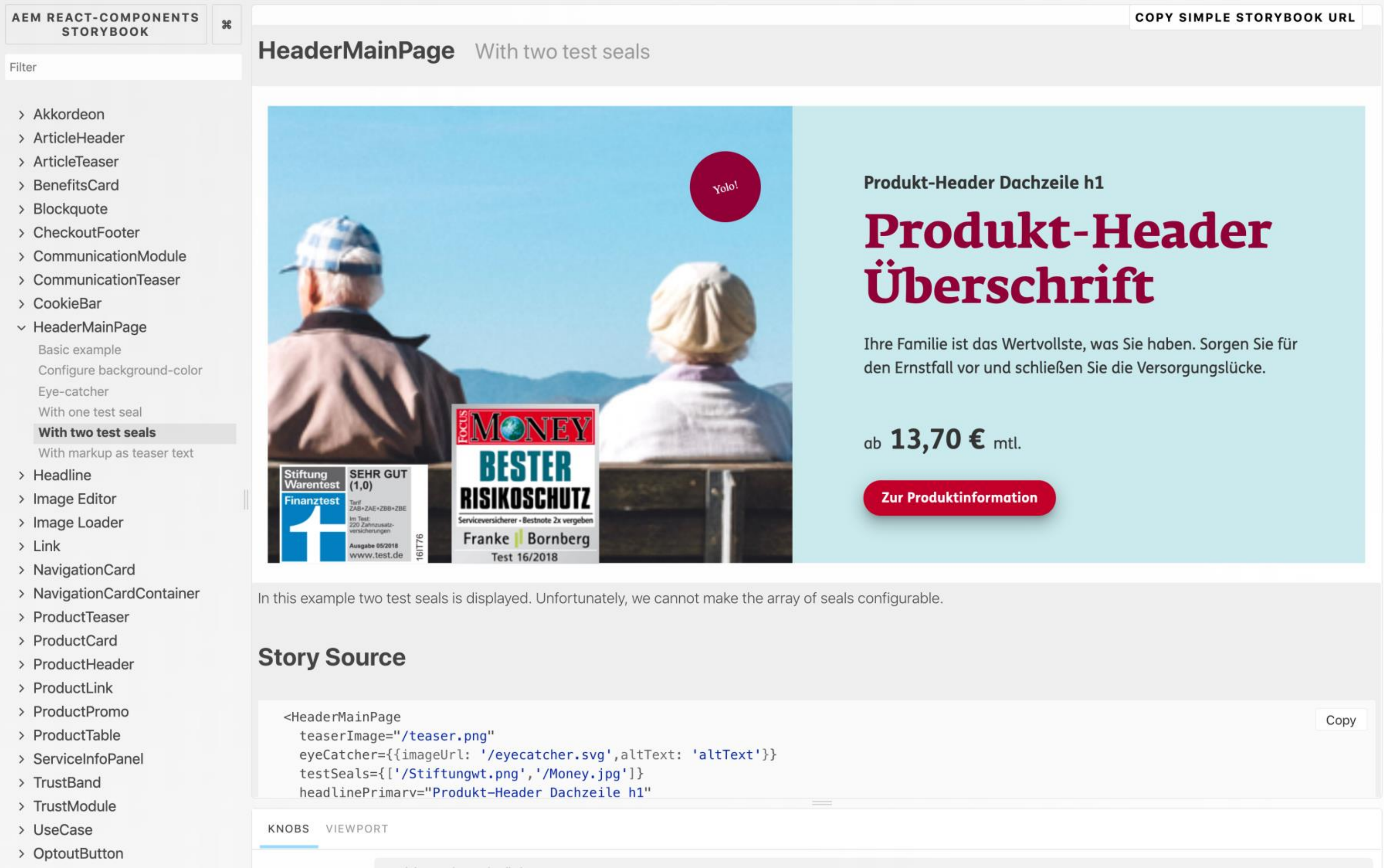
Solution

Solution

- AEM Generator
- Decoupled REACT Components
- SEO by SSR
- Custom Dialogs (with React)
- Boilerplate - Project structure and tooling

Boilerplate - Project structure and tooling

- frontend
  - react-components (with corporate library)
  - Typescript (tracking lib)
  - stylesheets
  - storybook
- Java
- e2e (automated cross browser tests with Selenium)
- test-content
- gradle



HeaderMainPage With two test seals

Produkt-Header Dachzeile h1

Produkt-Header Überschrift

Ihre Familie ist das Wertvollste, was Sie haben. Sorgen Sie für den Ernstfall vor und schließen Sie die Versorgungslücke.

ab **13,70 €** mtl.

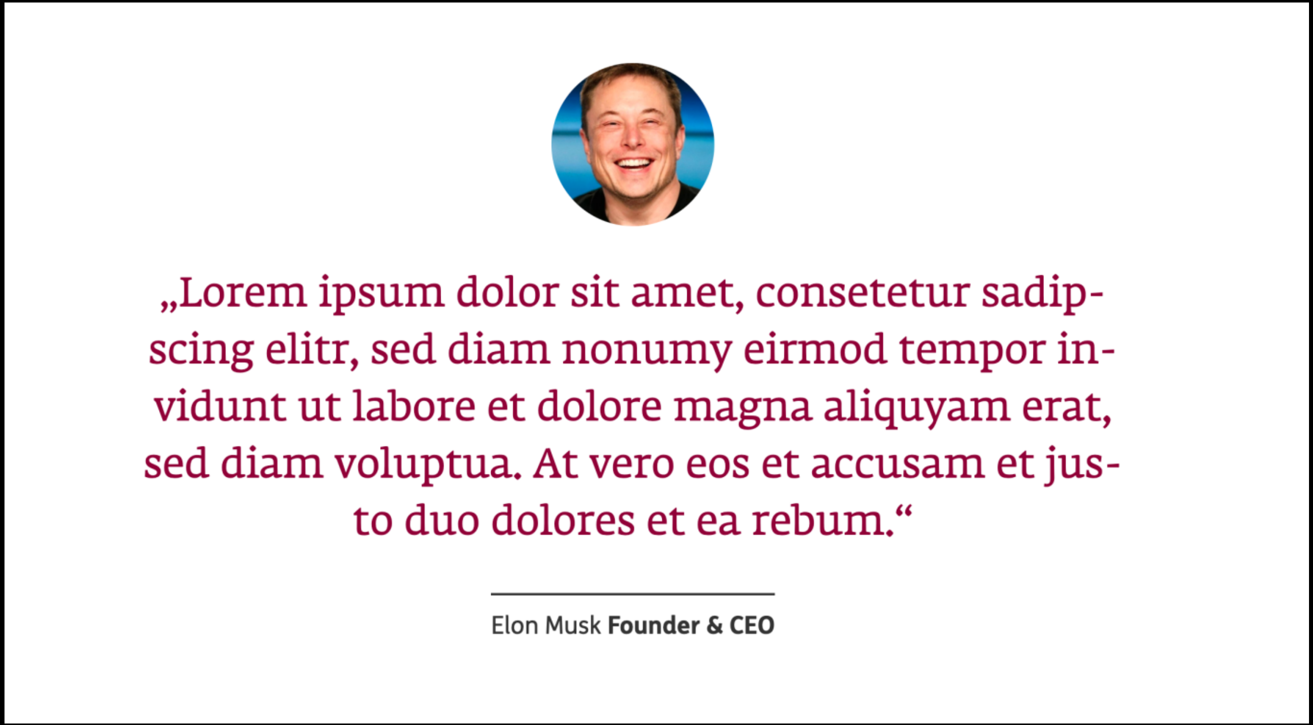
Zur Produktinformation

In this example two test seals is displayed. Unfortunately, we cannot make the array of seals configurable.

Story Source

```
<HeaderMainPage
  teaserImage="/teaser.png"
  eyeCatcher={{imageUrl: '/eyecatcher.svg',altText: 'altText'}}
  testSeals={['/Stiftungwt.png','/Money.jpg']}
  headlinePrimary="Produkt-Header Dachzeile h1"
```

Boilerplate – React Components

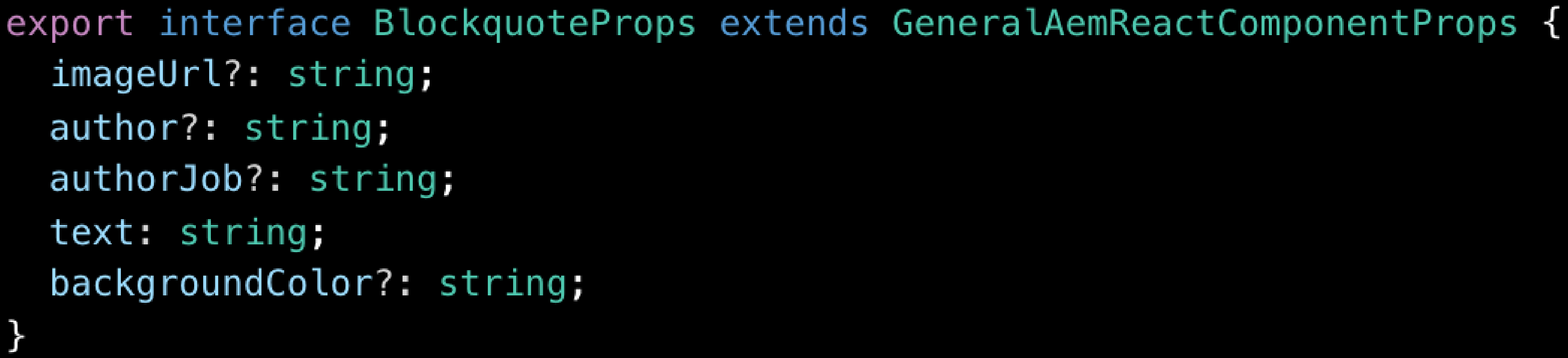


„Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum.“

Elon Musk **Founder & CEO**

Boilerplate – React Components

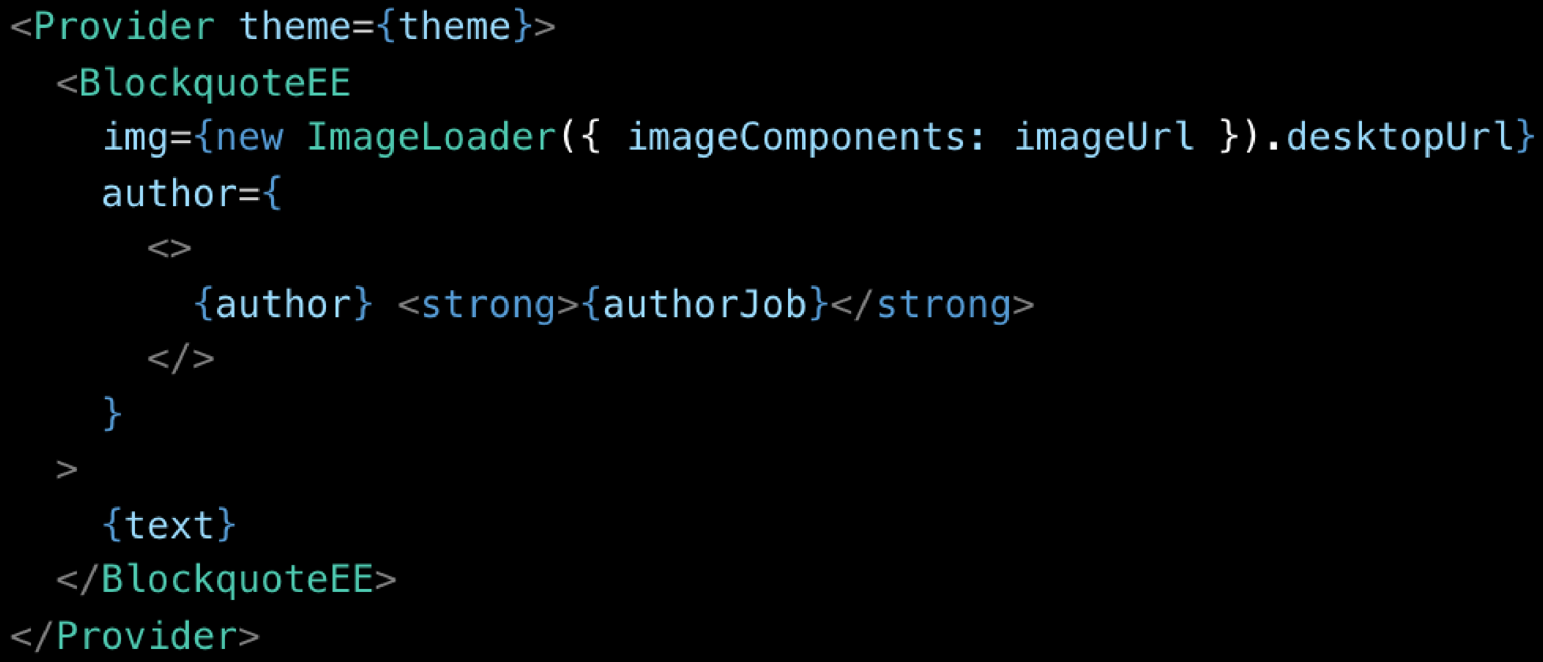
- React Component properties ≈ Dialog properties



```
export interface BlockquoteProps extends GeneralAemReactComponentProps {
  imageUrl?: string;
  author?: string;
  authorJob?: string;
  text: string;
  backgroundColor?: string;
}
```

Boilerplate – React Components

- Usage of the corporate library



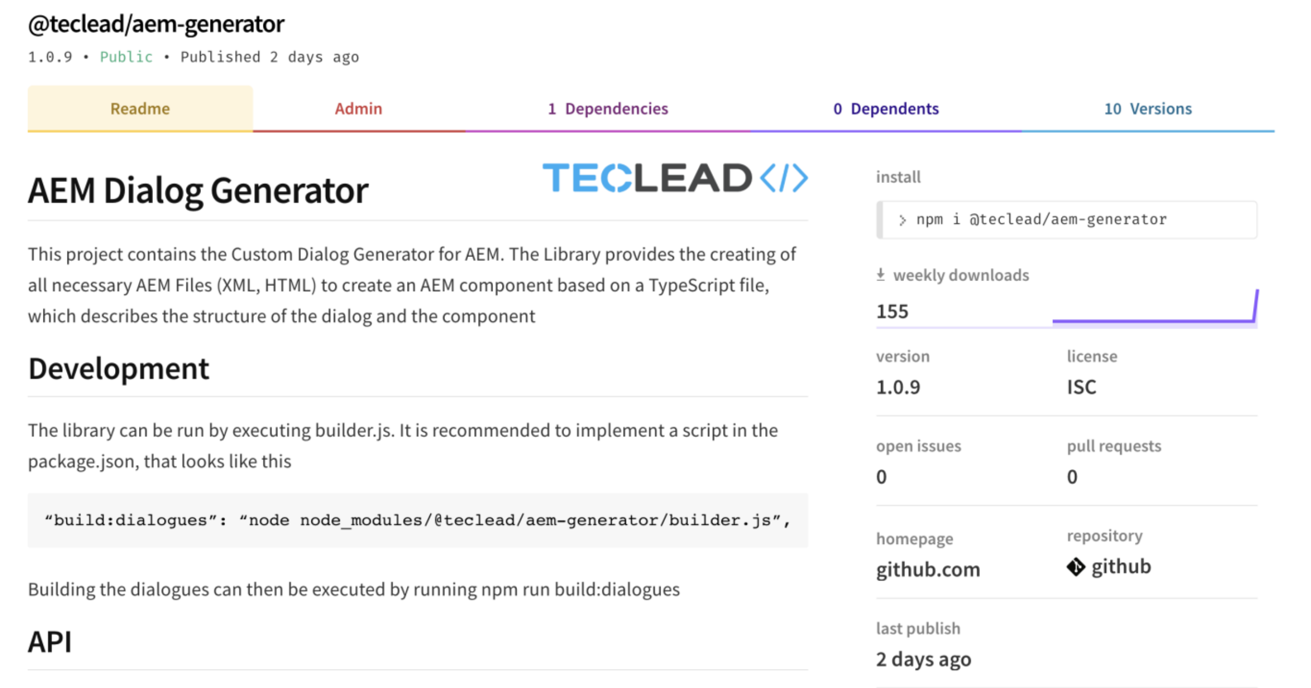
```
<Provider theme={theme}>
  <BlockquoteEE
    img={new ImageLoader({ imageComponents: imageUrl }).desktopUrl}
    author={
      <>
        {author} <strong>{authorJob}</strong>
      </>
    }
  >
    {text}
  </BlockquoteEE>
</Provider>
```

AEM Generator - and what it does

AEM Generator

- NPM / Typescript
- Is used in the build process only
- Generates all needed AEM sources
- Open source + extending in client context

AEM Generator



@teclead/aem-generator

1.0.9 • Public • Published 2 days ago

AEM Dialog Generator

This project contains the Custom Dialog Generator for AEM. The Library provides the creating of all necessary AEM Files (XML, HTML) to create an AEM component based on a TypeScript file, which describes the structure of the dialog and the component

Development

The library can be run by executing builder.js. It is recommended to implement a script in the package.json, that looks like this

```
"build:dialogues": "node node_modules/@teclead/aem-generator/builder.js",
```

Building the dialogues can then be executed by running npm run build:dialogues

API

install

```
> npm i @teclead/aem-generator
```

weekly downloads

155

version	license
1.0.9	ISC

open issues	pull requests
0	0

homepage	repository
github.com	github

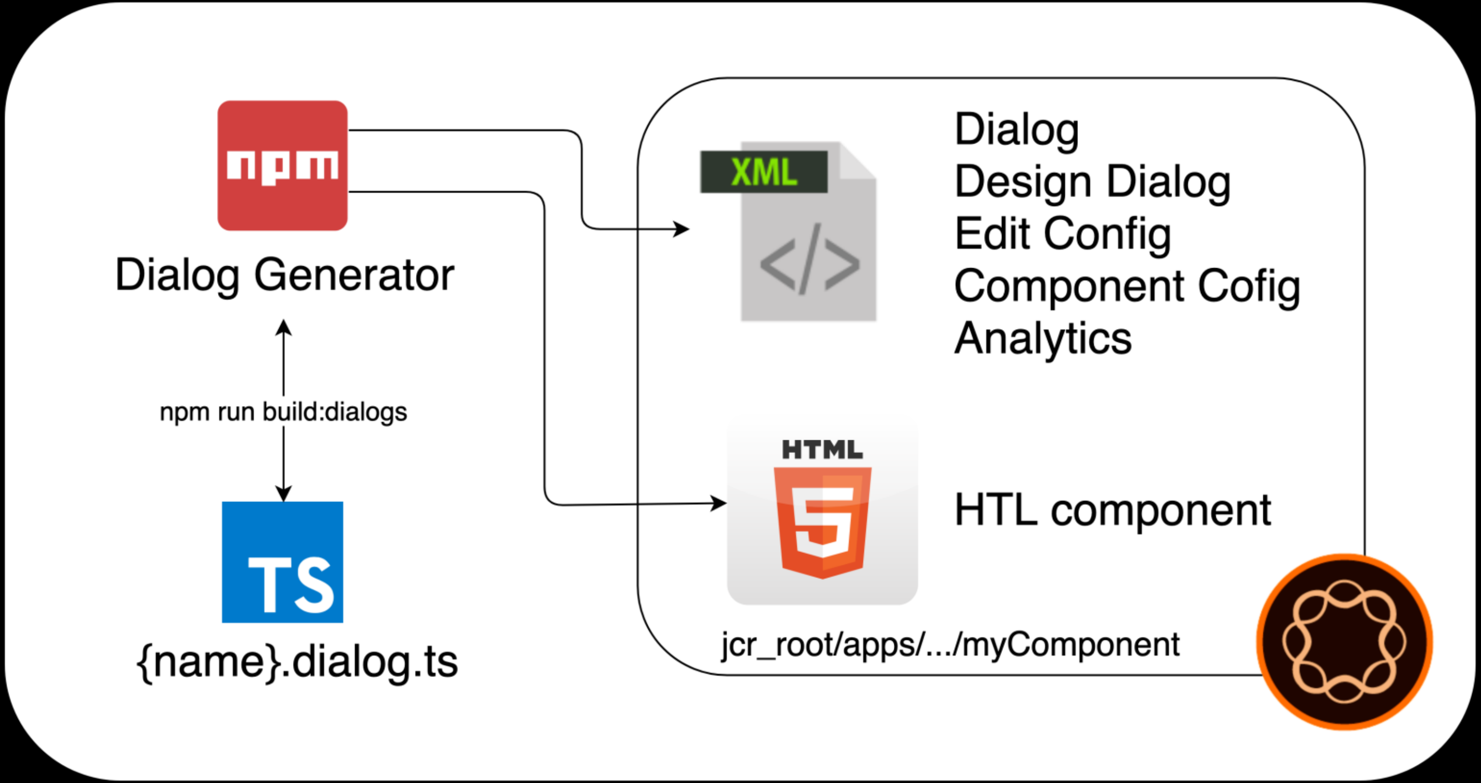
last publish

2 days ago

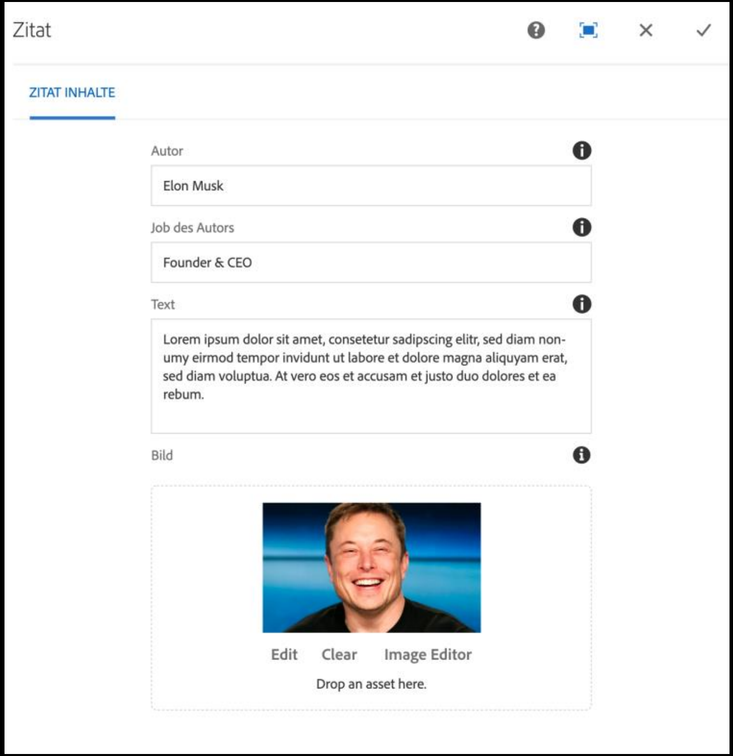
Simple demo project: https://github.com/Teclead/AdaptTo2019

Get it @NPM https://www.npmjs.com/package/@teclead/aem-generator

AEM Generator



AEM Generator



Zitat

Autor

Elon Musk

Job des Autors

Founder & CEO

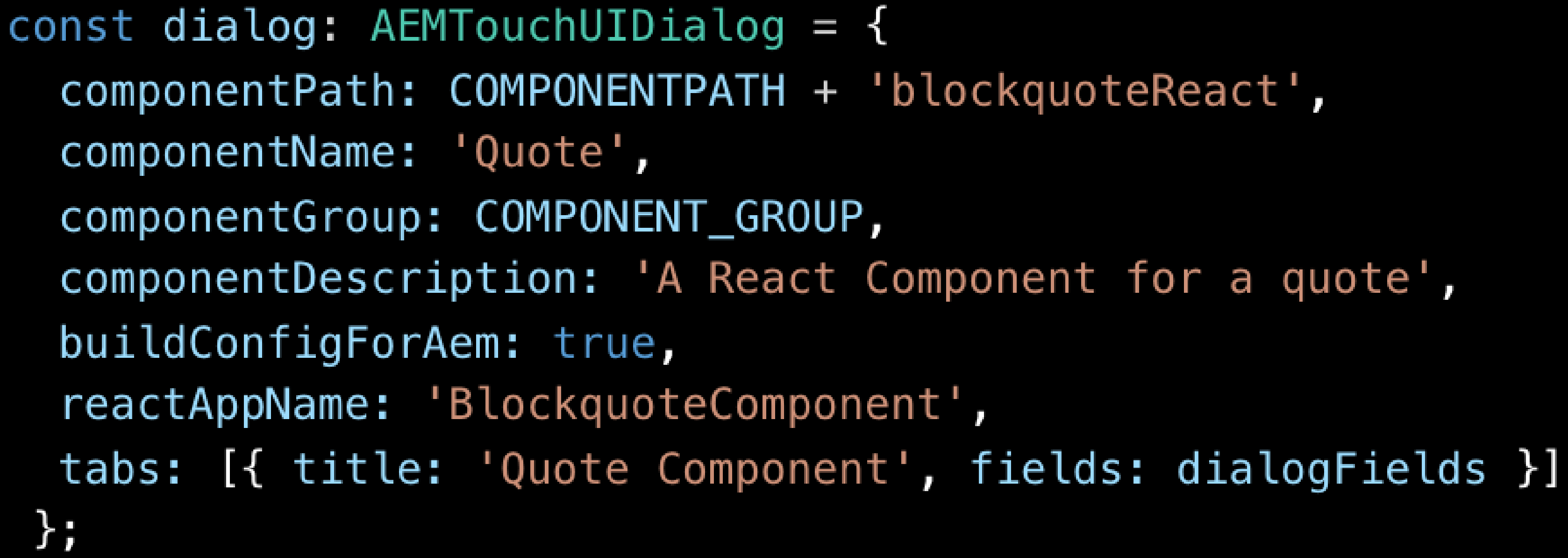
Text

Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum.

Bild

AEM Generator

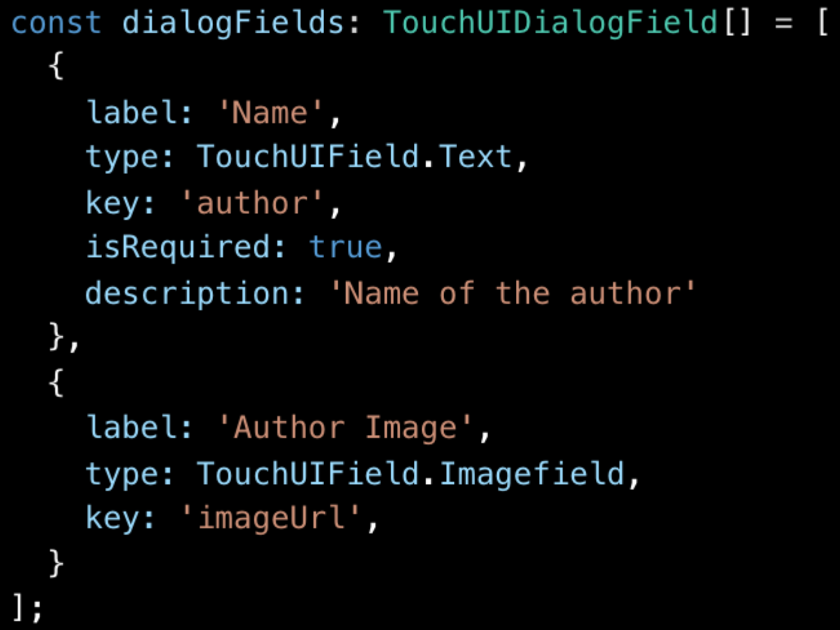
- Is used in the build process only
- Generates all needed AEM sources



```
const dialog: AEMTouchUIDialog = {
  componentPath: COMPONENTPATH + 'blockquoteReact',
  componentName: 'Quote',
  componentGroup: COMPONENT_GROUP,
  componentDescription: 'A React Component for a quote',
  buildConfigForAem: true,
  reactAppName: 'BlockquoteComponent',
  tabs: [{ title: 'Quote Component', fields: dialogFields }]
 };
```

AEM Generator

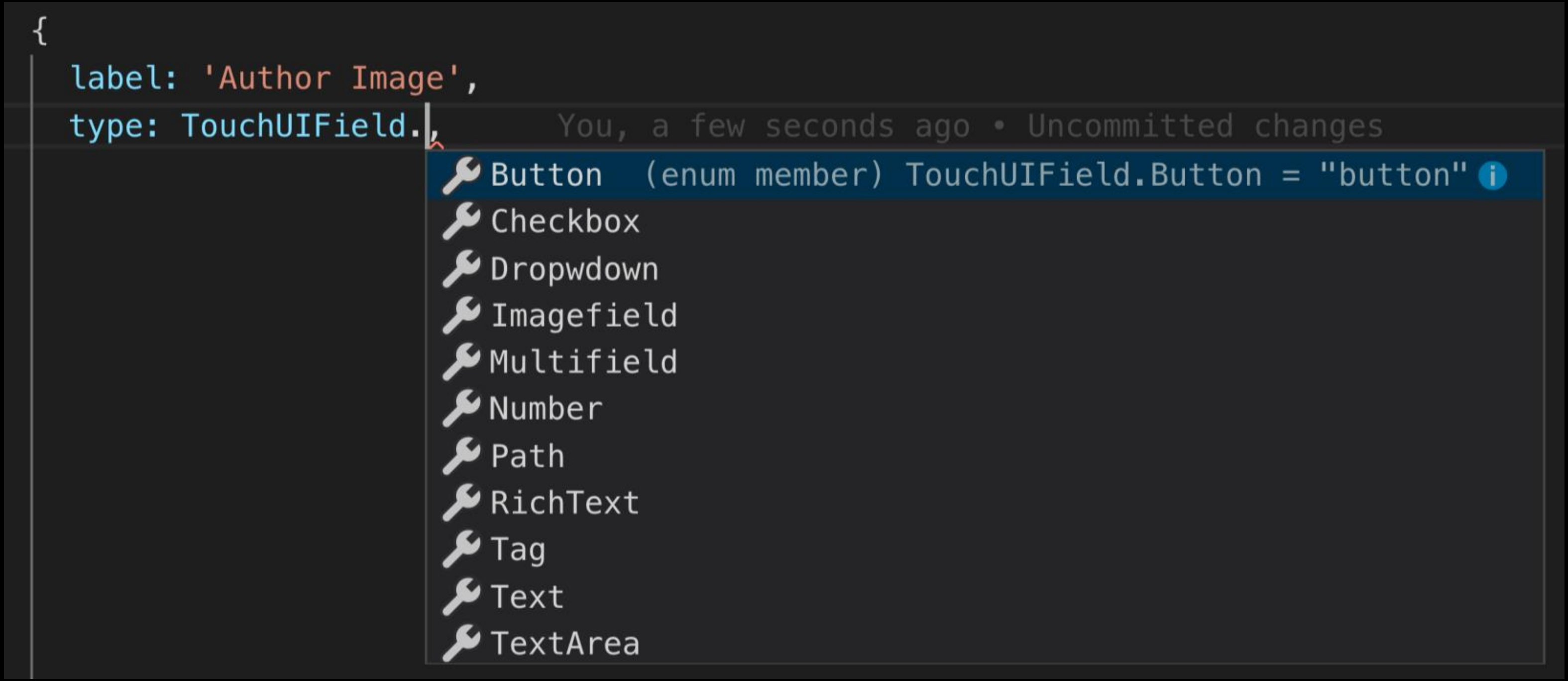
- Dialog fields ≈ React Props
- TS helps for validation in the IDE



```
const dialogFields: TouchUIDialogField[] = [
  {
    label: 'Name',
    type: TouchUIField.Text,
    key: 'author',
    isRequired: true,
    description: 'Name of the author'
  },
  {
    label: 'Author Image',
    type: TouchUIField.Imagefield,
    key: 'imageUrl',
  }
];
```

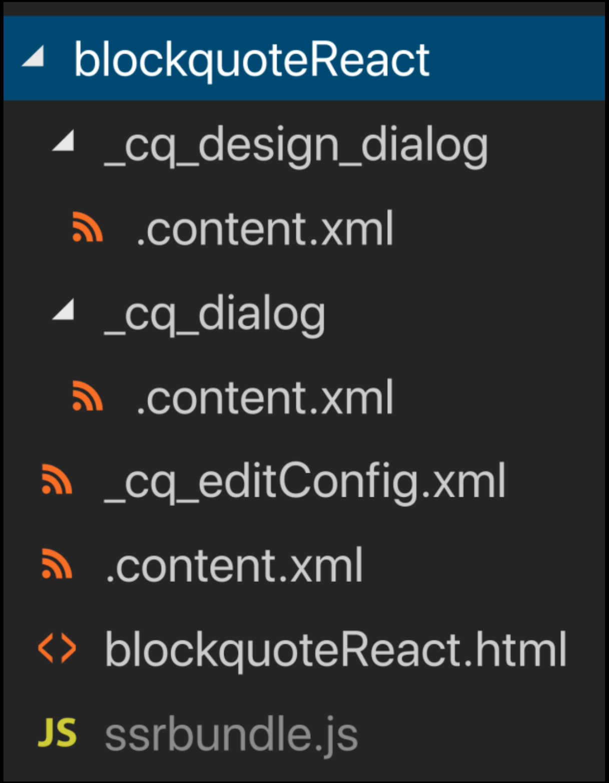
AEM Generator

- Field types with IDE support, Based on TS enum



```
{
  label: 'Author Image',
  type: TouchUIField.,          You, a few seconds ago • Uncommitted changes
                    Button   (enum member) TouchUIField.Button = "button"
                    Checkbox
                    Dropwdown
                    Imagefield
                    Multifield
                    Number
                    Path
                    RichText
                    Tag
                    Text
                    TextArea
```

Dialog Generator



```
◢ blockquoteReact
  ◢ _cq_design_dialog
      .content.xml
  ◢ _cq_dialog
      .content.xml
    _cq_editConfig.xml
    .content.xml
  <> blockquoteReact.html
  JS ssrbundle.js
```

- Generates all:
  - Folders and xml files
  - Dialogs (with functions)
  - Analytics
  - HTL template
  - SSR (project specific)

  - Easy to migrate components (e.g. Classic UI to Touch UI)

adaptTo()

AEM Generator

- FAQ:
  - Can we use component inheritance?
  - What about custom dialogs?
  - Is it mandatory for every component?
  - What types are supported?
    (e.g. nested multifields)

adaptTo()

Decoupled REACT Components

Decoupled REACT Components

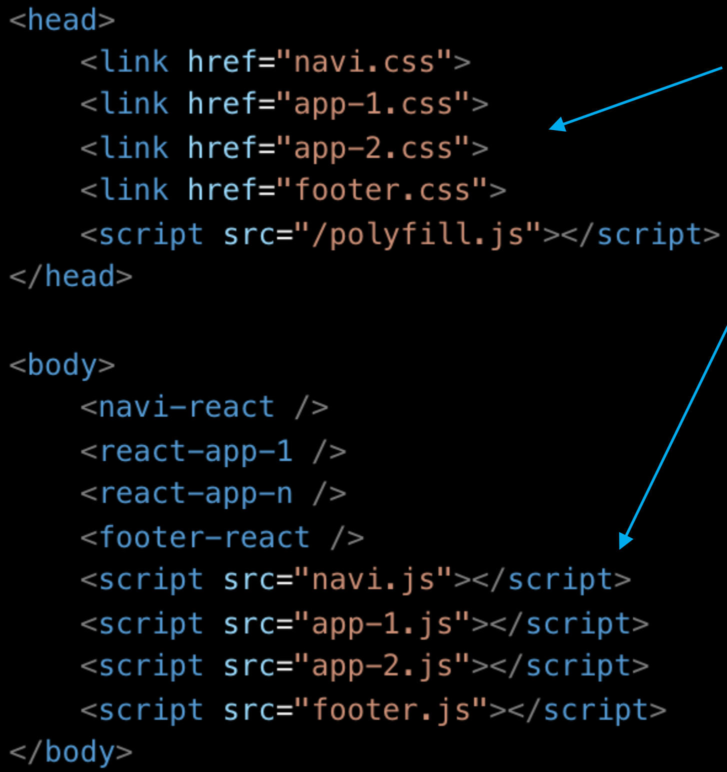
- HTL template:
  - Same for each AEM React component
  - No data fetch needed
  - Uses SSR
- Separate JS build vs clientlibs
- Can be used in outside of AEM
- Can be mixed with plain HTL components

Decoupled REACT Components

```html
<head>
    <link href="navi.css">
    <link href="app-1.css">
    <link href="app-2.css">
    <link href="footer.css">
    <script src="/polyfill.js"></script>
</head>

<body>
    <navi-react />
    <react-app-1 />
    <react-app-n />
    <footer-react />
    <script src="navi.js"></script>
    <script src="app-1.js"></script>
    <script src="app-2.js"></script>
    <script src="footer.js"></script>
</body>
```

Decoupled REACT Components

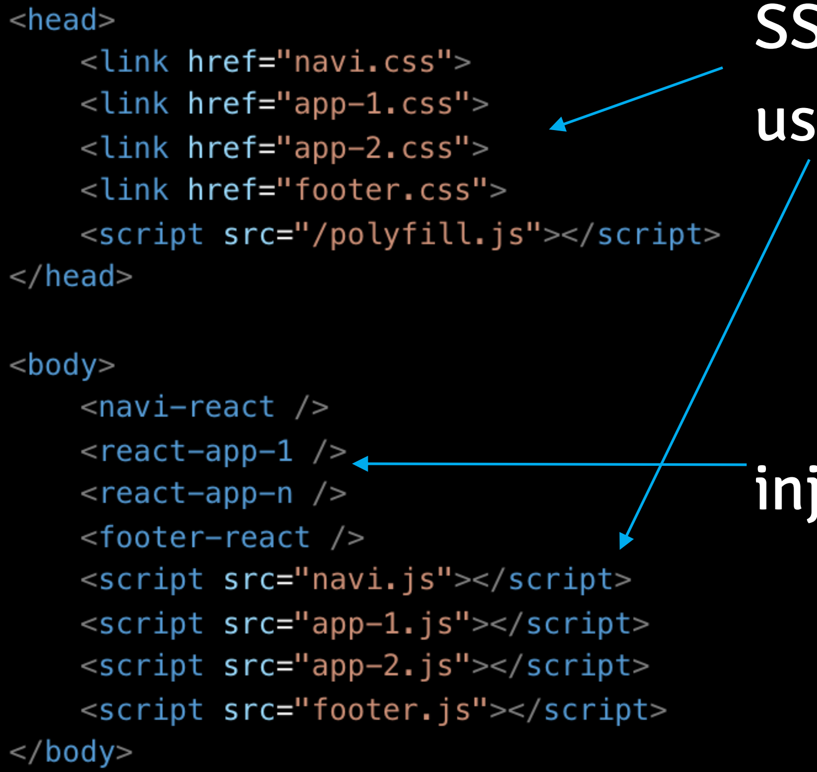


```
<head>
    <link href="navi.css">
    <link href="app-1.css">
    <link href="app-2.css">
    <link href="footer.css">
    <script src="/polyfill.js"></script>
</head>

<body>
    <navi-react />
    <react-app-1 />
    <react-app-n />
    <footer-react />
    <script src="navi.js"></script>
    <script src="app-1.js"></script>
    <script src="app-2.js"></script>
    <script src="footer.js"></script>
</body>
```

SSR Component scans for used apps(Server)

Decoupled REACT Components



```
<head>
    <link href="navi.css">
    <link href="app-1.css">
    <link href="app-2.css">
    <link href="footer.css">
    <script src="/polyfill.js"></script>
</head>

<body>
    <navi-react />
    <react-app-1 />
    <react-app-n />
    <footer-react />
    <script src="navi.js"></script>
    <script src="app-1.js"></script>
    <script src="app-2.js"></script>
    <script src="footer.js"></script>
</body>
```

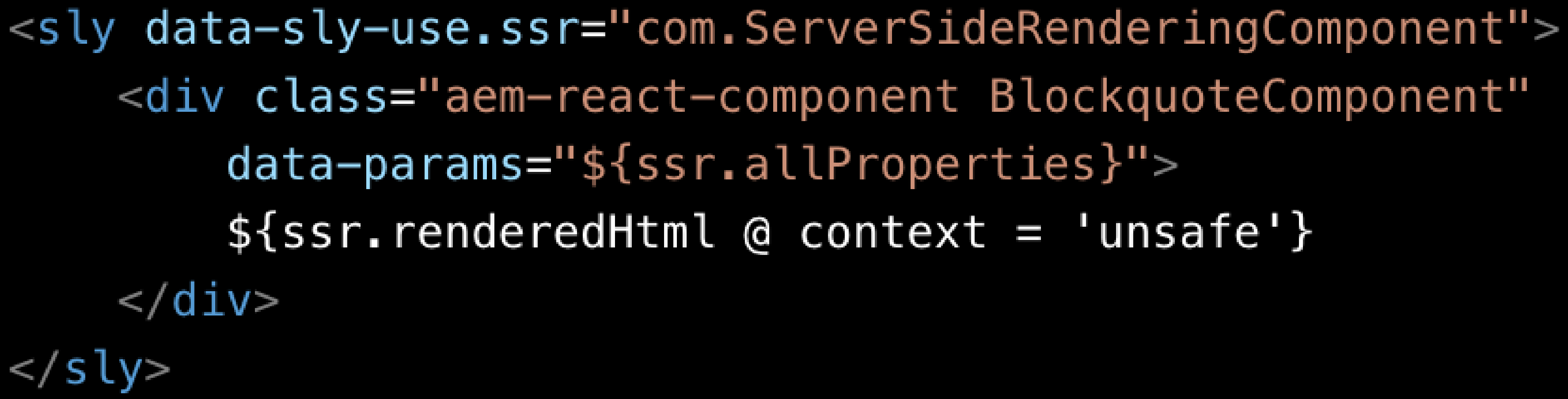
SSR Component scans for used apps(Server)

injects data and gets markup

Decoupled REACT Components

What happens on the client?

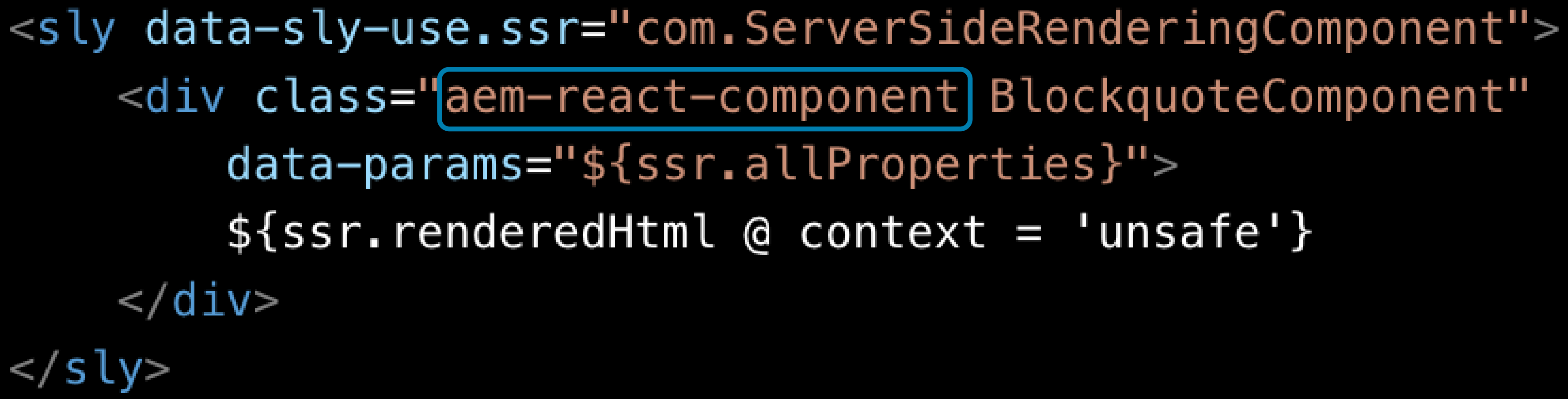
Decoupled REACT Components



```
<sly data-sly-use.ssr="com.ServerSideRenderingComponent">
    <div class="aem-react-component BlockquoteComponent"
        data-params="${ssr.allProperties}">
        ${ssr.renderedHtml @ context = 'unsafe'}
    </div>
</sly>
```

Decoupled REACT Components

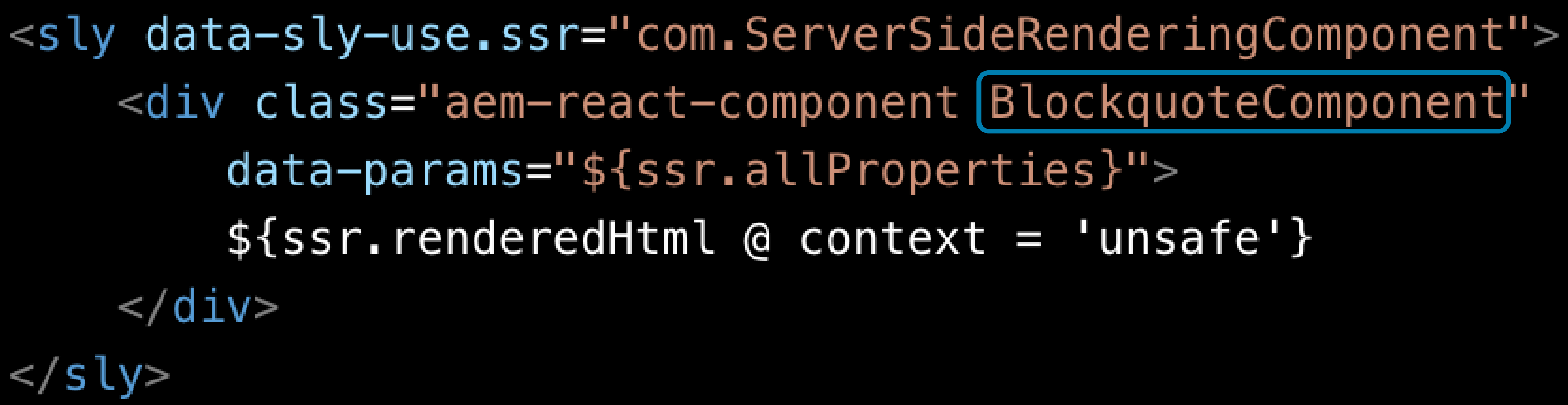
- React loader looks for indicator (Client)



```
<sly data-sly-use.ssr="com.ServerSideRenderingComponent">
    <div class="aem-react-component BlockquoteComponent"
        data-params="${ssr.allProperties}">
        ${ssr.renderedHtml @ context = 'unsafe'}
    </div>
</sly>
```

Decoupled REACT Components

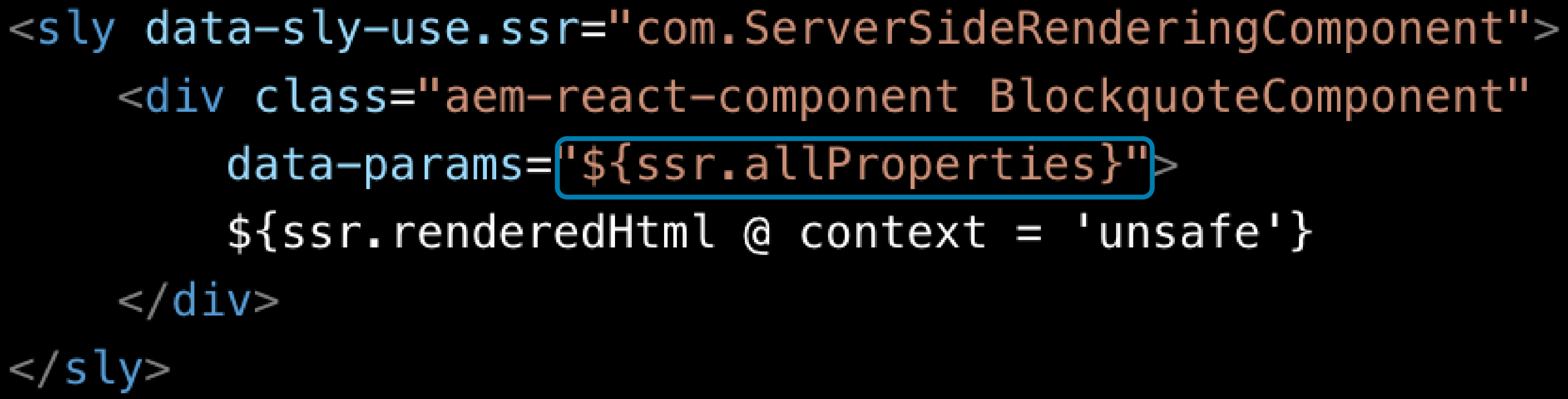
- React loader looks for indicator
- Finds the right React App to render



```
<sly data-sly-use.ssr="com.ServerSideRenderingComponent">
    <div class="aem-react-component BlockquoteComponent"
        data-params="${ssr.allProperties}">
        ${ssr.renderedHtml @ context = 'unsafe'}
    </div>
</sly>
```

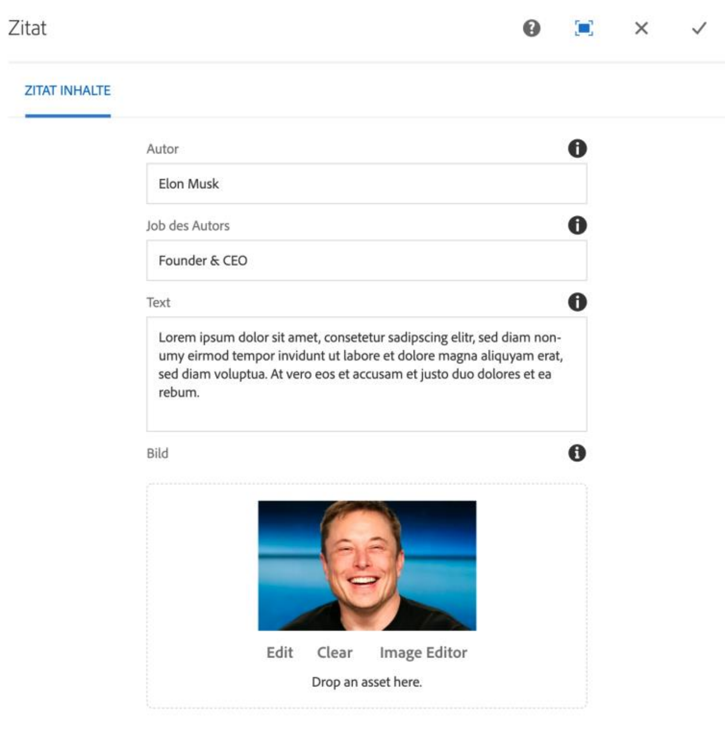
Decoupled REACT Components

- React loader looks for indicator
- Finds the right React App to render
- Injected data from JCR



```
<sly data-sly-use.ssr="com.ServerSideRenderingComponent">
    <div class="aem-react-component BlockquoteComponent"
        data-params="${ssr.allProperties}">
        ${ssr.renderedHtml @ context = 'unsafe'}
    </div>
</sly>
```

Decoupled REACT Components



Zitat

ZITAT INHALTE

Autor: Elon Musk

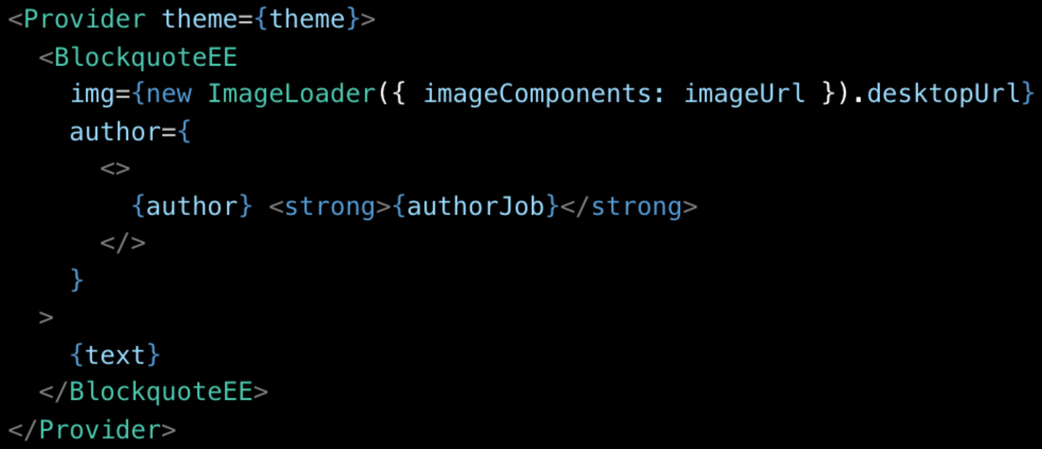
Job des Autors: Founder & CEO

Text: Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum.

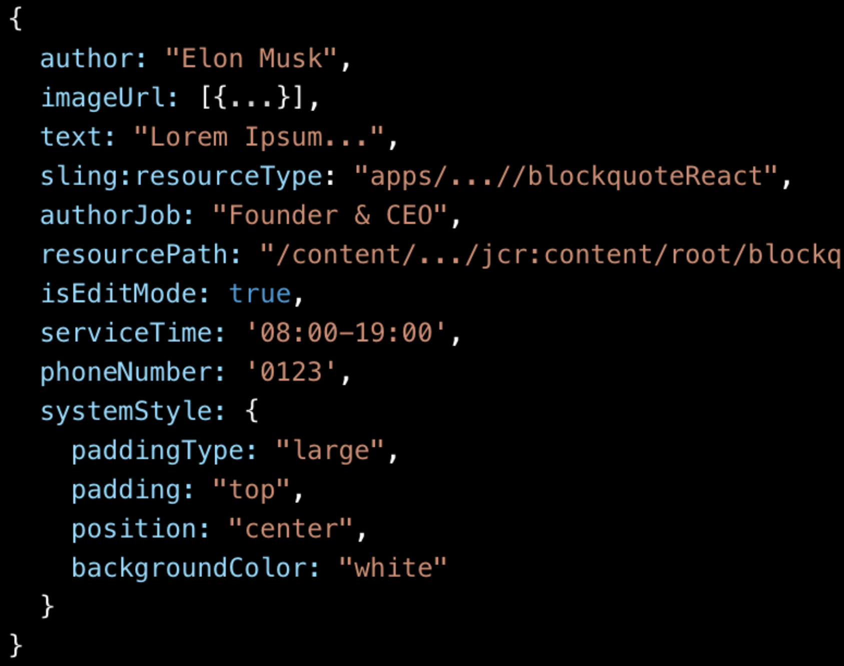
Bild

```
{
  author: "Elon Musk",
  imageUrl: [{...}],
  text: "Lorem Ipsum...",
  sling:resourceType: "apps/...//blockquoteReact",
  authorJob: "Founder & CEO",
  resourcePath: "/content/.../jcr:content/root/blockquotereact",
  isEditMode: true,
  serviceTime: '08:00-19:00',
  phoneNumber: '0123',
  systemStyle: {
    paddingType: "large",
    padding: "top",
    position: "center",
    backgroundColor: "white"
  }
}
```

Decoupled REACT Components

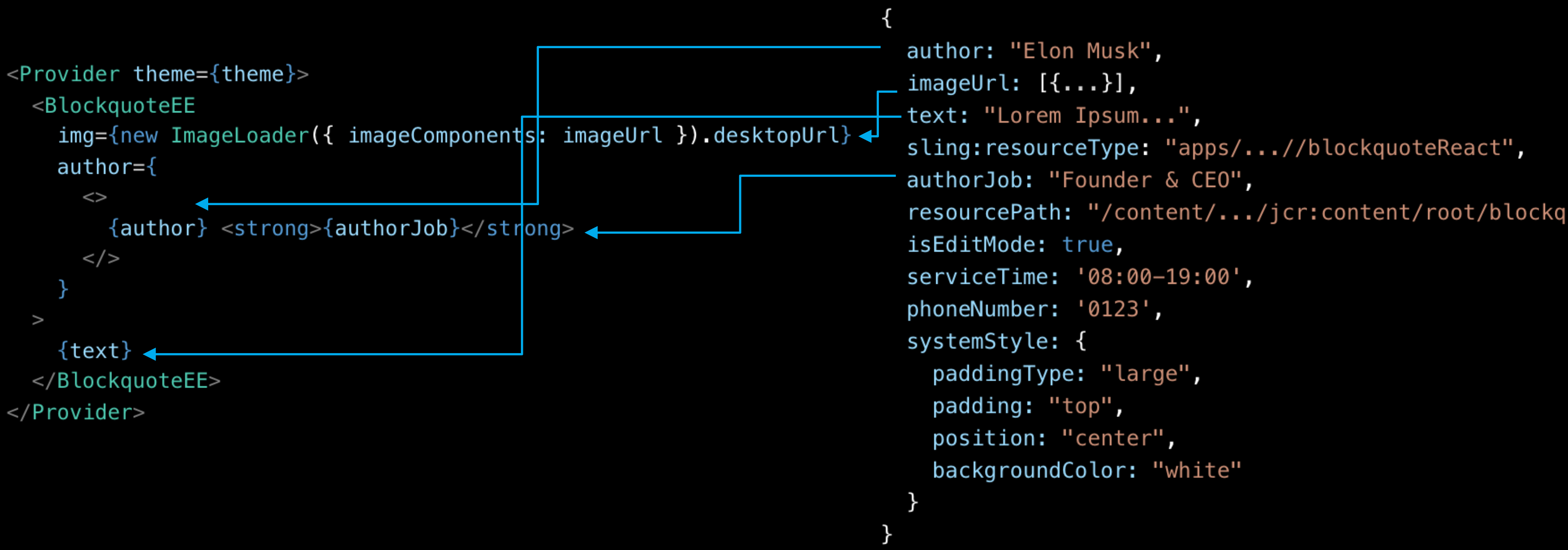


```
<Provider theme={theme}>
  <BlockquoteEE
    img={new ImageLoader({ imageComponents: imageUrl }).desktopUrl}
    author={
      <>
        {author} <strong>{authorJob}</strong>
      </>
    }
  >
    {text}
  </BlockquoteEE>
</Provider>
```



```
{
  author: "Elon Musk",
  imageUrl: [{...}],
  text: "Lorem Ipsum...",
  sling:resourceType: "apps/...//blockquoteReact",
  authorJob: "Founder & CEO",
  resourcePath: "/content/.../jcr:content/root/blockq
  isEditMode: true,
  serviceTime: '08:00-19:00',
  phoneNumber: '0123',
  systemStyle: {
    paddingType: "large",
    padding: "top",
    position: "center",
    backgroundColor: "white"
  }
}
```

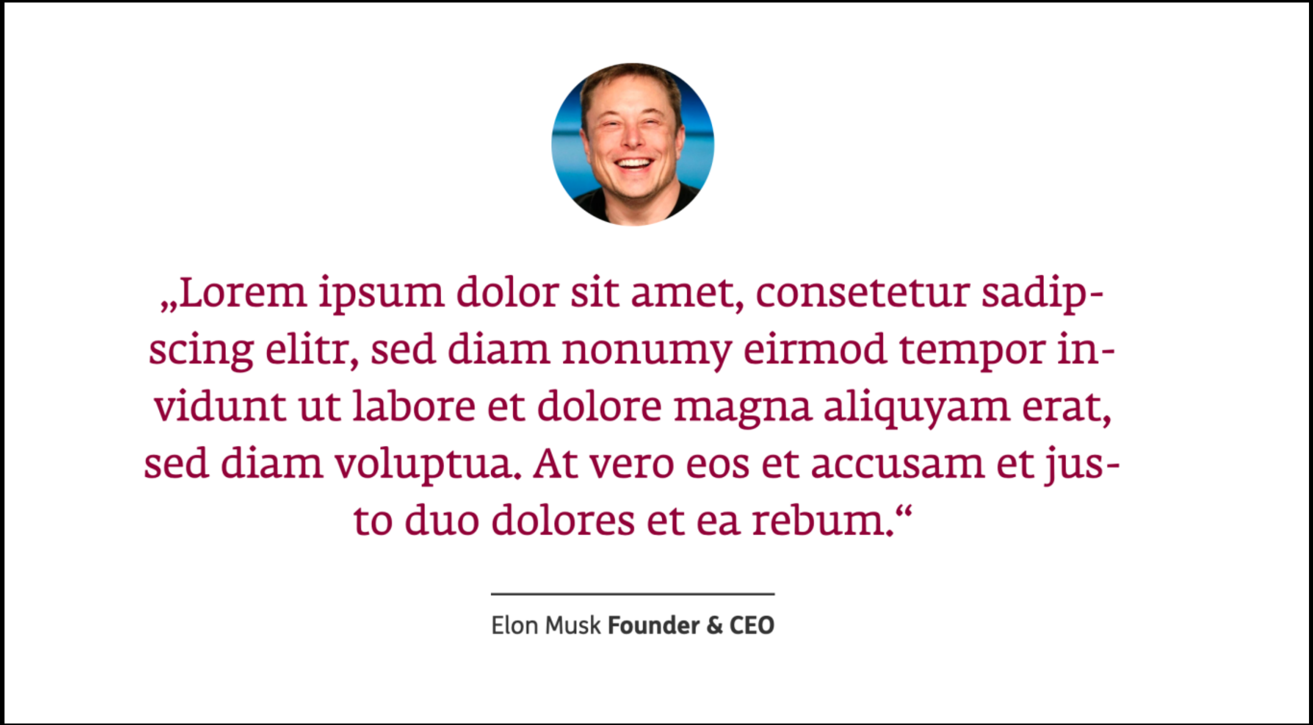
Decoupled REACT Components



```
<Provider theme={theme}>
  <BlockquoteEE
    img={new ImageLoader({ imageComponents: imageUrl }).desktopUrl}
    author={
      <>
        {author} <strong>{authorJob}</strong>
      </>
    }
  >
    {text}
  </BlockquoteEE>
</Provider>
```

```
{
  author: "Elon Musk",
  imageUrl: [{...}],
  text: "Lorem Ipsum...",
  sling:resourceType: "apps/...//blockquoteReact",
  authorJob: "Founder & CEO",
  resourcePath: "/content/.../jcr:content/root/blockq
  isEditMode: true,
  serviceTime: '08:00-19:00',
  phoneNumber: '0123',
  systemStyle: {
    paddingType: "large",
    padding: "top",
    position: "center",
    backgroundColor: "white"
  }
}
```

Decoupled REACT Components



„Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum.“

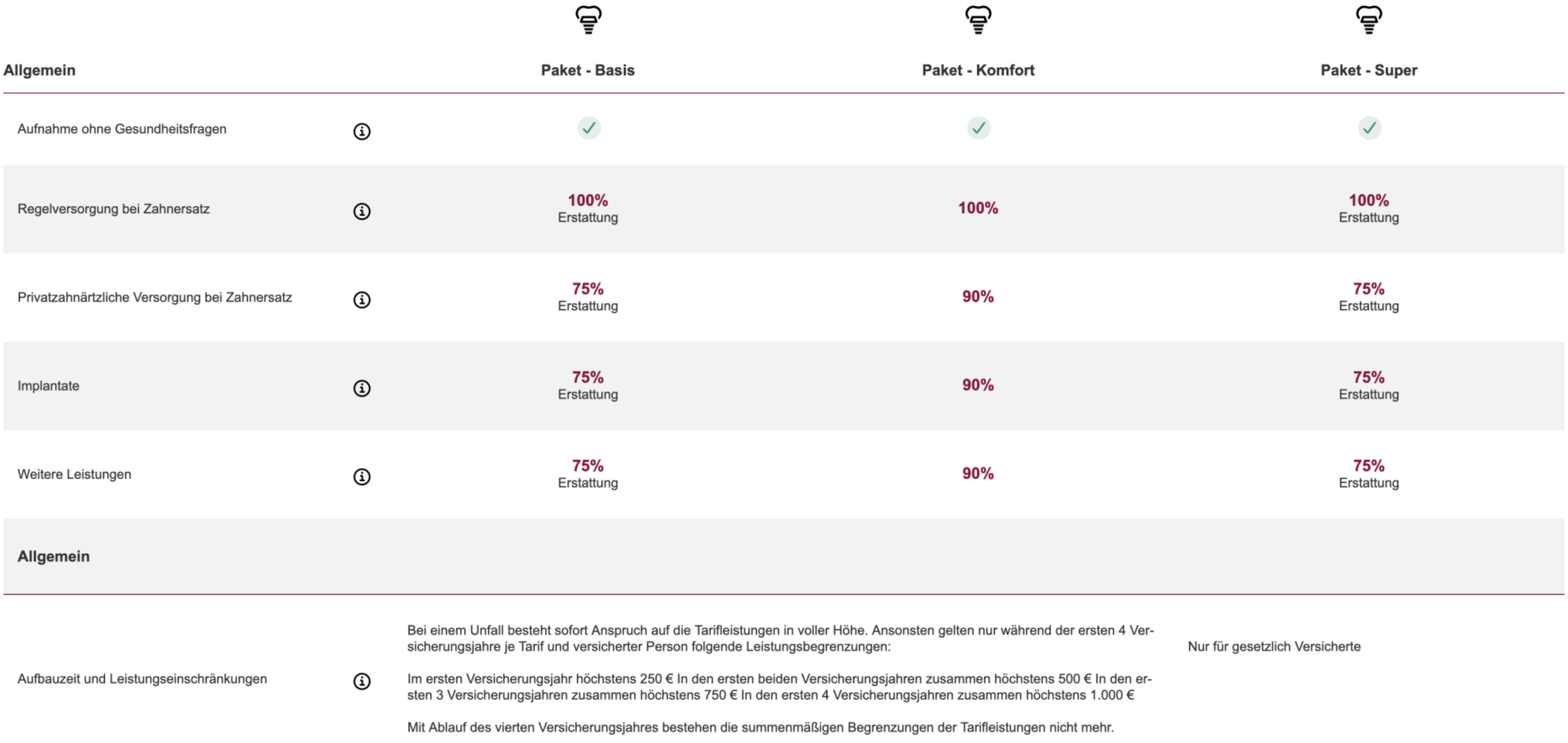
Elon Musk **Founder & CEO**

adaptTo()

Custom Dialogs

Custom Dialogs

- Needed for complex authoring use cases
- Better UX for authors
- Examples:
  - large icon sets
  - complex tables
  - more complex image component



Allgemein		Paket - Basis	Paket - Komfort	Paket - Super
Aufnahme ohne Gesundheitsfragen	ⓘ	✓	✓	✓
Regelversorgung bei Zahnersatz	ⓘ	**100%** Erstattung	**100%**	**100%** Erstattung
Privatzahnärtzliche Versorgung bei Zahnersatz	ⓘ	**75%** Erstattung	**90%**	**75%** Erstattung
Implantate	ⓘ	**75%** Erstattung	**90%**	**75%** Erstattung
Weitere Leistungen	ⓘ	**75%** Erstattung	**90%**	**75%** Erstattung
Allgemein				
Aufbauzeit und Leistungseinschränkungen	ⓘ	Bei einem Unfall besteht sofort Anspruch auf die Tarifleistungen in voller Höhe. Ansonsten gelten nur während der ersten 4 Versicherungsjahre je Tarif und versicherter Person folgende Leistungsbegrenzungen: Im ersten Versicherungsjahr höchstens 250 € In den ersten beiden Versicherungsjahren zusammen höchstens 500 € In den ersten 3 Versicherungsjahren zusammen höchstens 750 € In den ersten 4 Versicherungsjahren zusammen höchstens 1.000 € Mit Ablauf des vierten Versicherungsjahres bestehen die summenmäßigen Begrenzungen der Tarifleistungen nicht mehr.		Nur für gesetzlich Versicherte

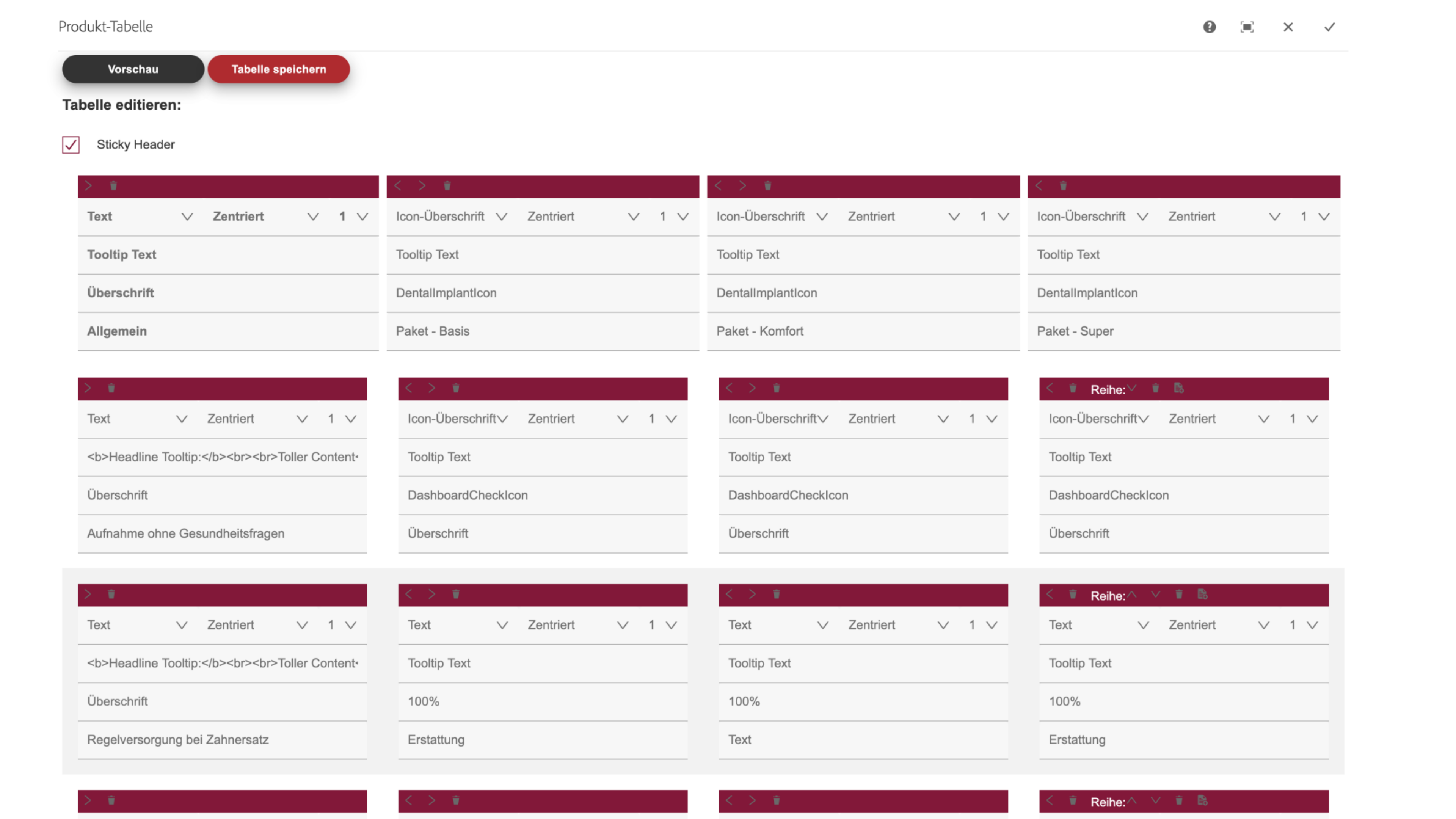


Tabelle editieren:

☑ Sticky Header

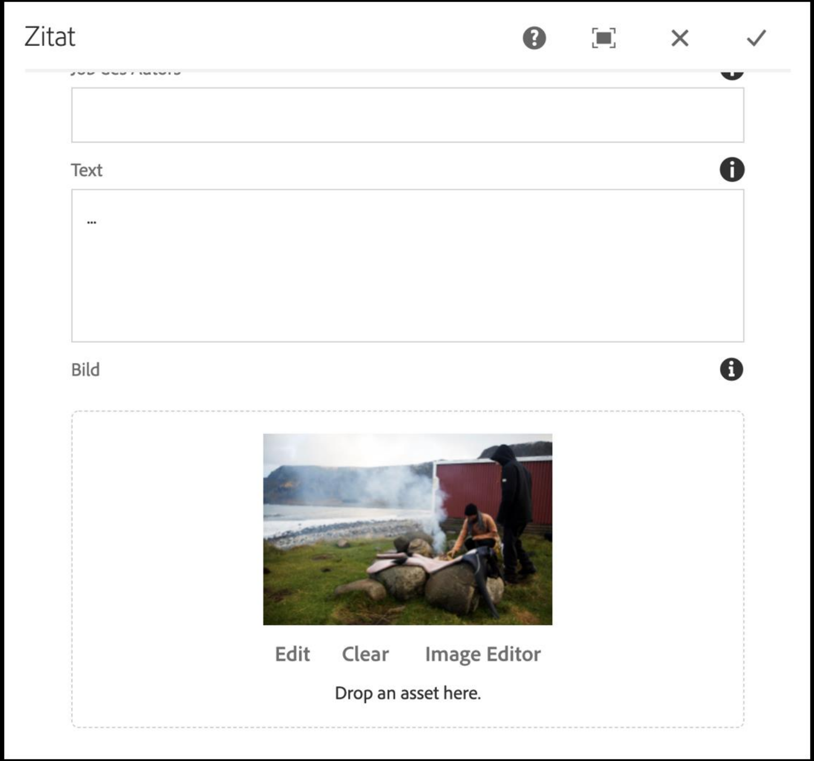
Text / Zentriert / 1	Icon-Überschrift / Zentriert / 1	Icon-Überschrift / Zentriert / 1	Icon-Überschrift / Zentriert / 1
Tooltip Text	Tooltip Text	Tooltip Text	Tooltip Text
Überschrift	DentalImplantIcon	DentalImplantIcon	DentalImplantIcon
Allgemein	Paket - Basis	Paket - Komfort	Paket - Super

			Reihe:
Text / Zentriert / 1	Icon-Überschrift / Zentriert / 1	Icon-Überschrift / Zentriert / 1	Icon-Überschrift / Zentriert / 1
<b>Headline Tooltip:</b> Toller Content	Tooltip Text	Tooltip Text	Tooltip Text
Überschrift	DashboardCheckIcon	DashboardCheckIcon	DashboardCheckIcon
Aufnahme ohne Gesundheitsfragen	Überschrift	Überschrift	Überschrift

			Reihe:
Text / Zentriert / 1	Text / Zentriert / 1	Text / Zentriert / 1	Text / Zentriert / 1
<b>Headline Tooltip:</b> Toller Content	Tooltip Text	Tooltip Text	Tooltip Text
Überschrift	100%	100%	100%
Regelversorgung bei Zahnersatz	Erstattung	Text	Erstattung

			Reihe:

Custom Dialogs

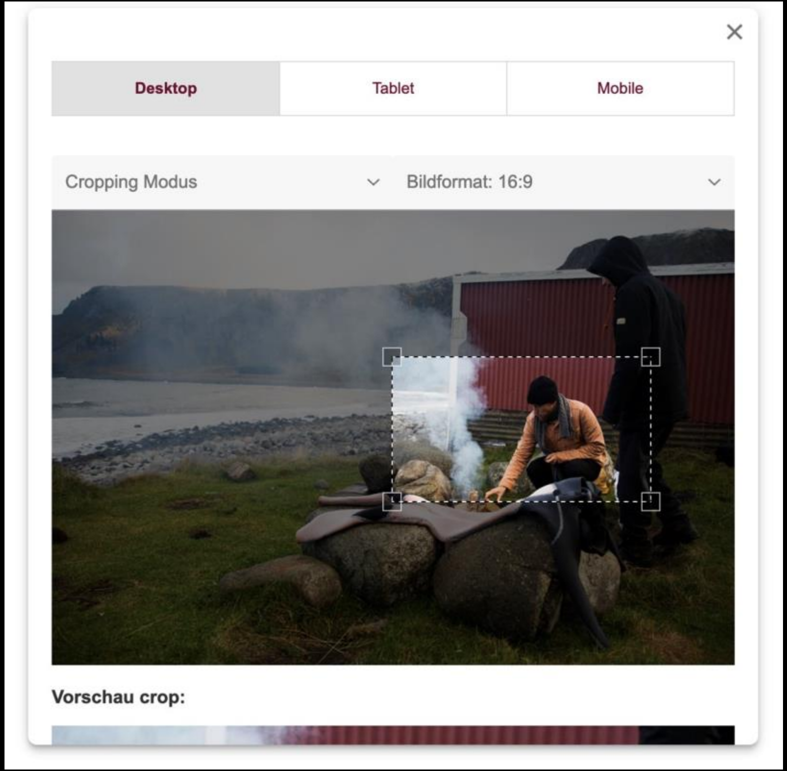


Zitat

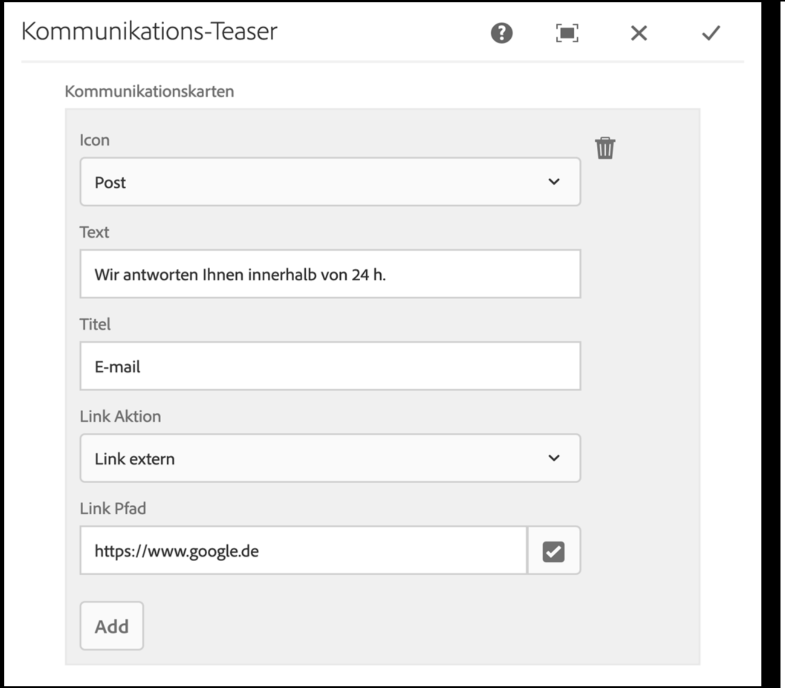
Text

...

Bild



Custom Dialogs



Kommunikations-Teaser

Kommunikationskarten

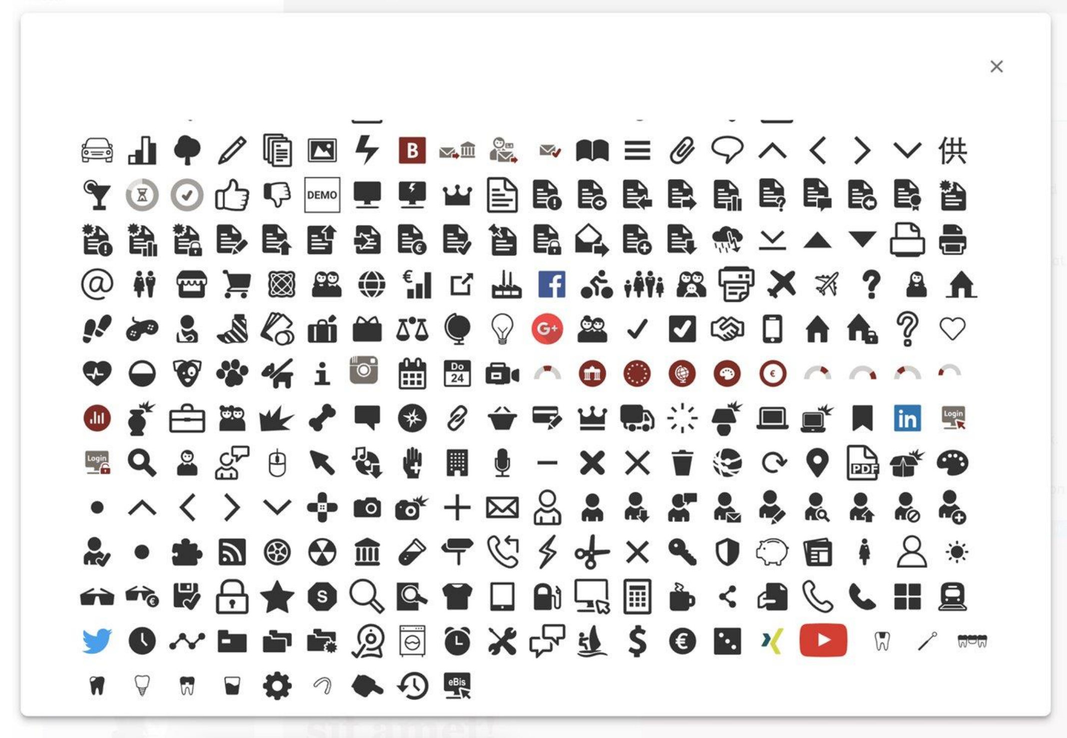
Icon: Post

Text: Wir antworten Ihnen innerhalb von 24 h.

Titel: E-mail

Link Aktion: Link extern

Link Pfad: https://www.google.de



What we learned

What we learned

- Pro:
  - happy developers => increased productivity
  - faster onboarding of new teams
  - custom dialog > complex parsys structure
  - SEO and React is possible
  - components can be used outside of AEM
- Cons:
  - multiple AEM bundles can be a pain
  - check your NPM imports and bundle sizes

Future

- Parsys inside of React Apps
- Nested React apps
- Components as a serivce

  (deploy new componenets without any AEM deployment)

Questions / Contact

Tony Schumacher

Platform Expert, Partner

Mail: tony.schumacher@teclead.de

Telefon: +49 176 78 35 16 77