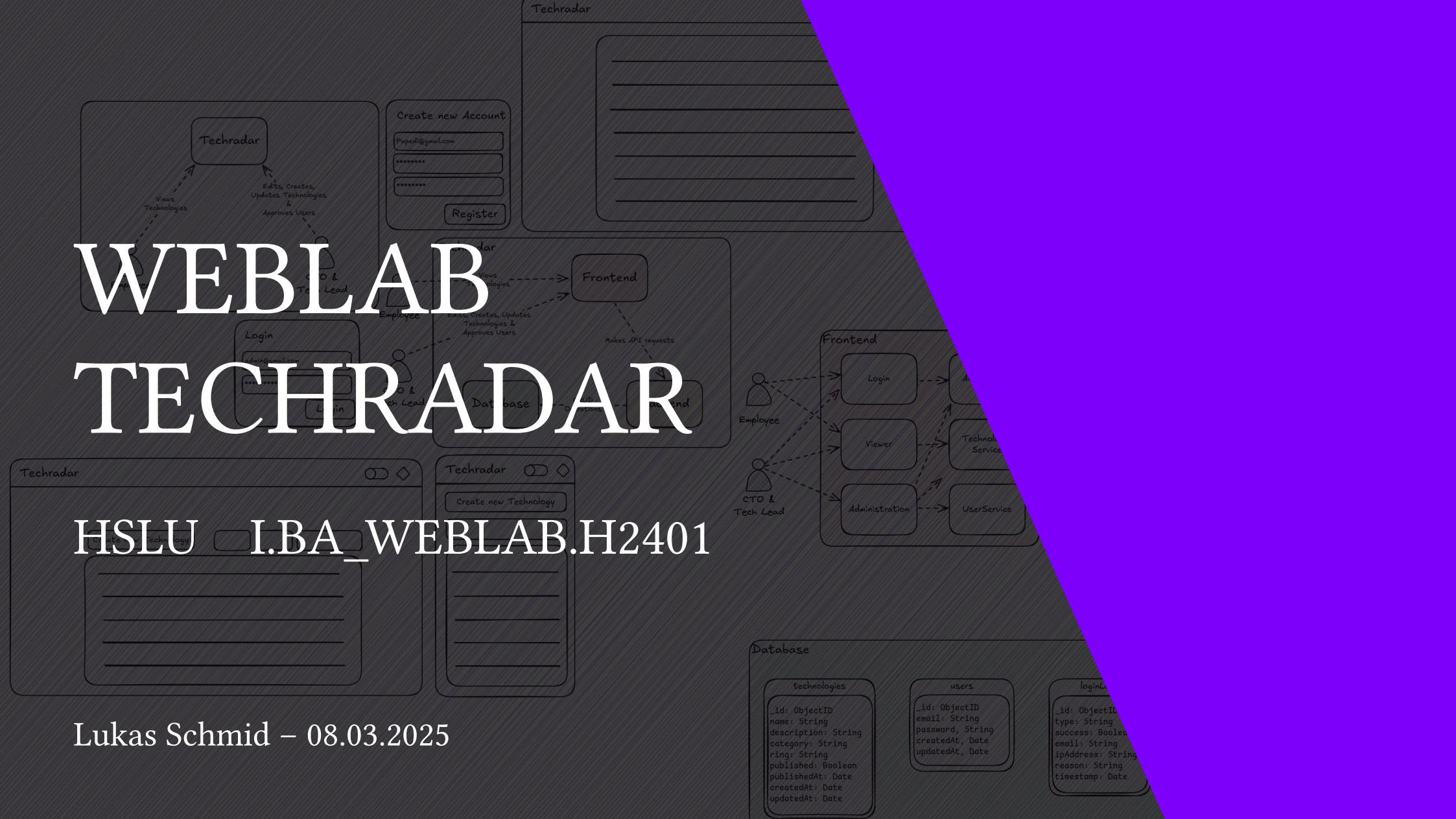


WEBLAB TECHRADAR

HSLU I.BA_WEBLAB.H2401

Lukas Schmid – 08.03.2025



Contents

1. Technology Radar
2. Vorgehen / Methodik
3. Architektur des Systems
4. Softwareartefakte
5. Fragen?

TECHNOLOGY RADAR

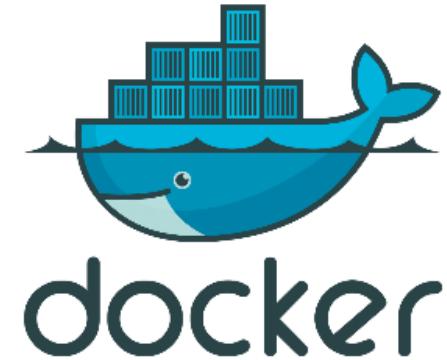
Zusatzfunktionen

- ▶ Administrationsbereich
 - **Benutzerregistrierung** - Möglichkeit für neue Nutzer, sich im System zu registrieren
 - **Benutzerfreigabe (User Approval)** - Admins können neue Benutzer manuell freischalten oder ablehnen
 - **Audit-Logs für Logins** - Alle Anmeldevorgänge werden protokolliert

VORGEHEN / METHODIK

Development / Testing

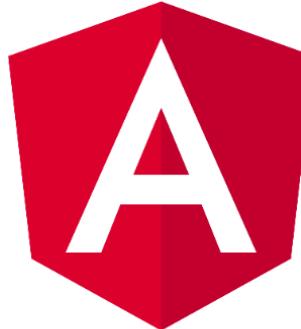
- ▶ Docker für Development und Deployment
 - Containerisierte Umgebung für eine konsistente Entwicklungs- und Produktionsumgebung
 - Datenbank-Initialisierung bei jedem Start für eine saubere Testumgebung
- ▶ End-to-End (e2e) Testing mit Playwright
 - Automatisierte Tests
 - Headless-Browser-Tests für schnelle und zuverlässige Prüfungen



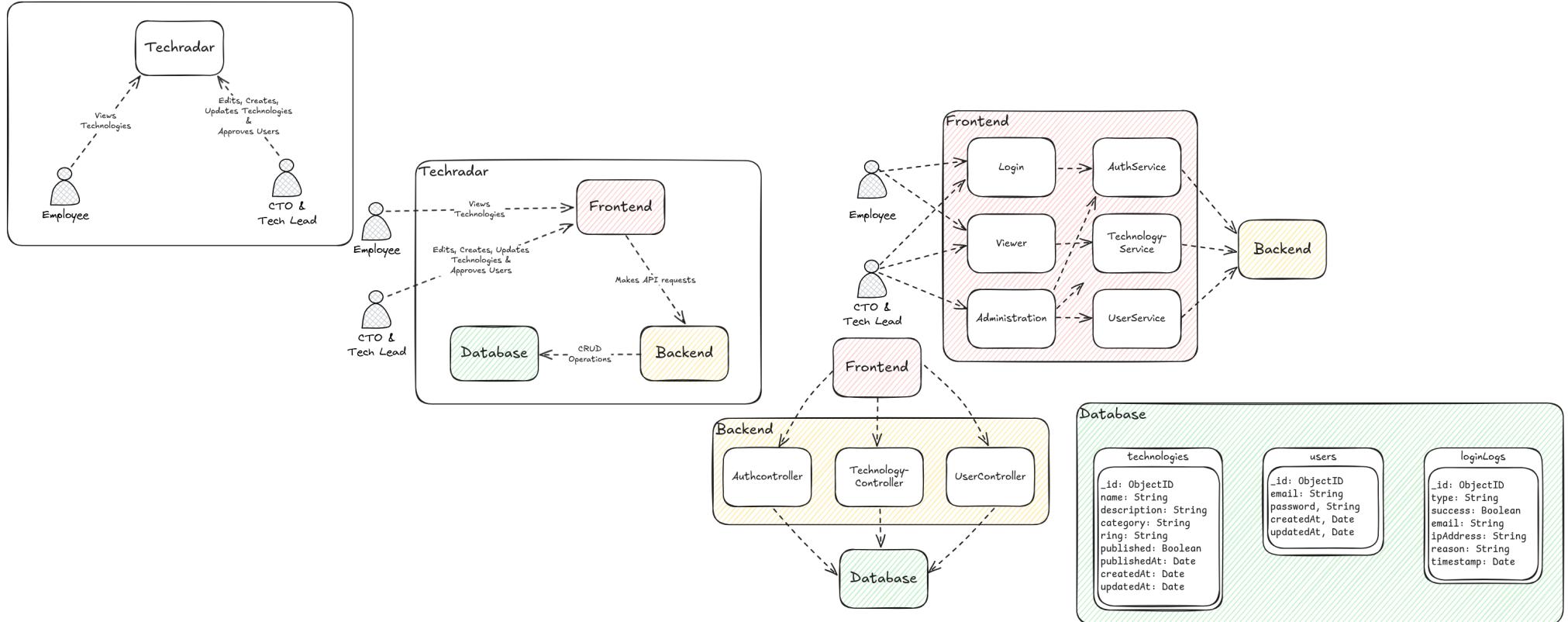
ARCHITEKTUR DES SYSTEMS

MEAN stack

- ▶ MongoDB
- ▶ ExpressJS
- ▶ Angular
- ▶ NodeJS

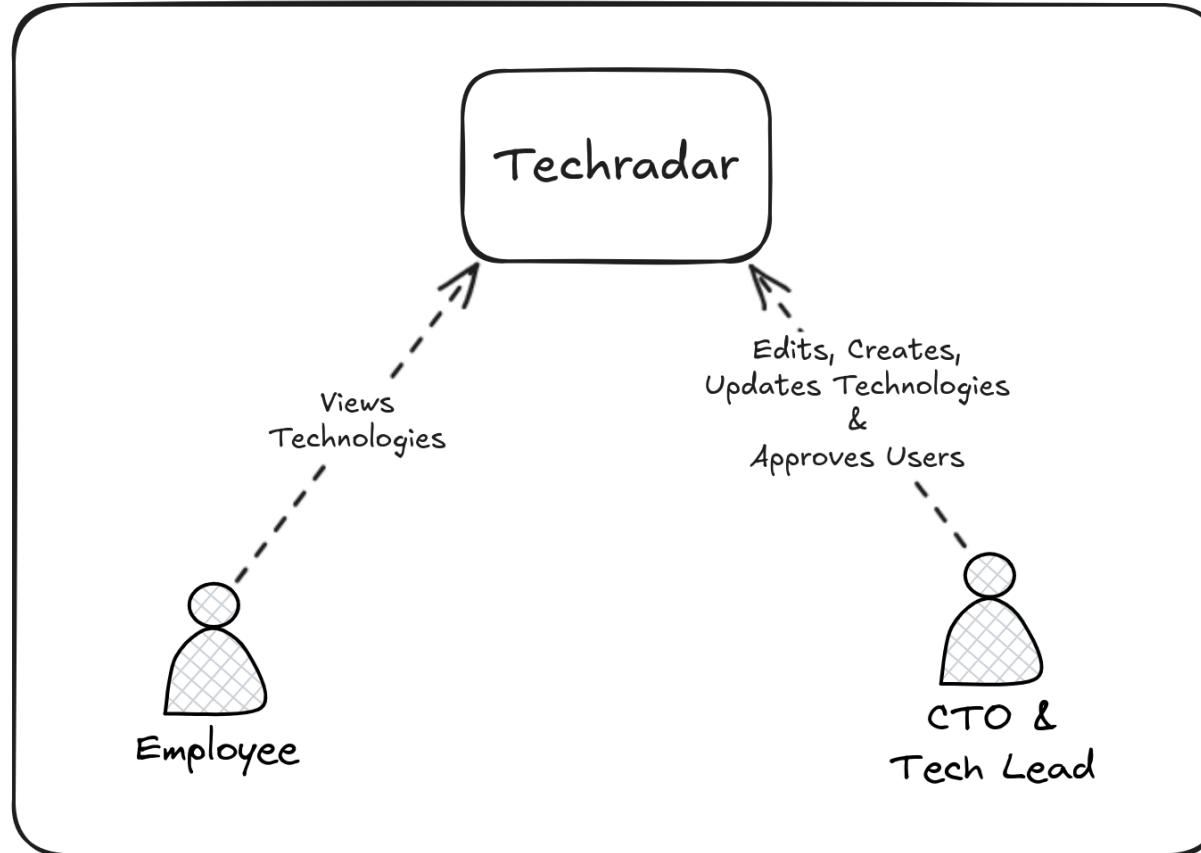


Architekturübersicht



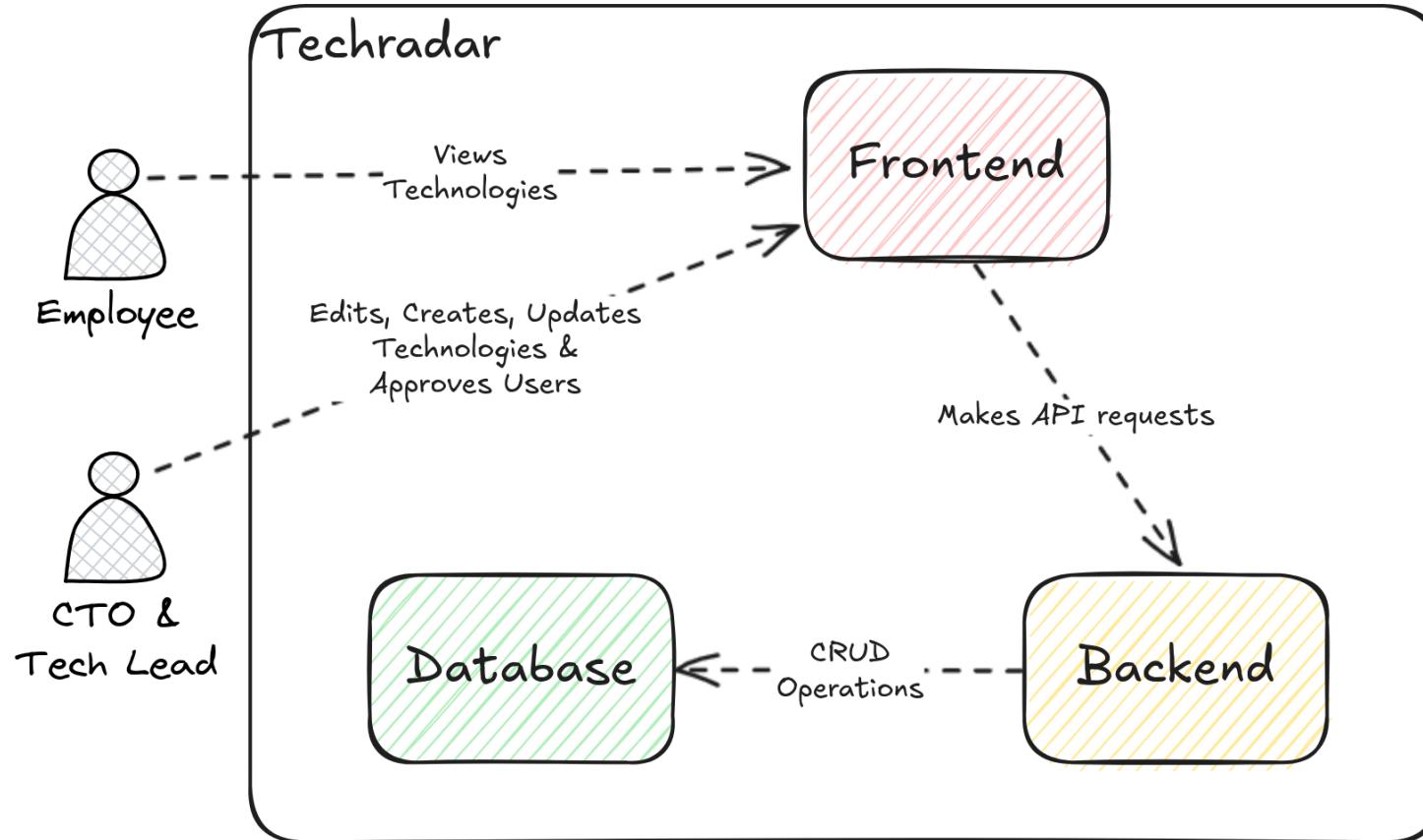
Architekturübersicht

Level 1



Architekturübersicht

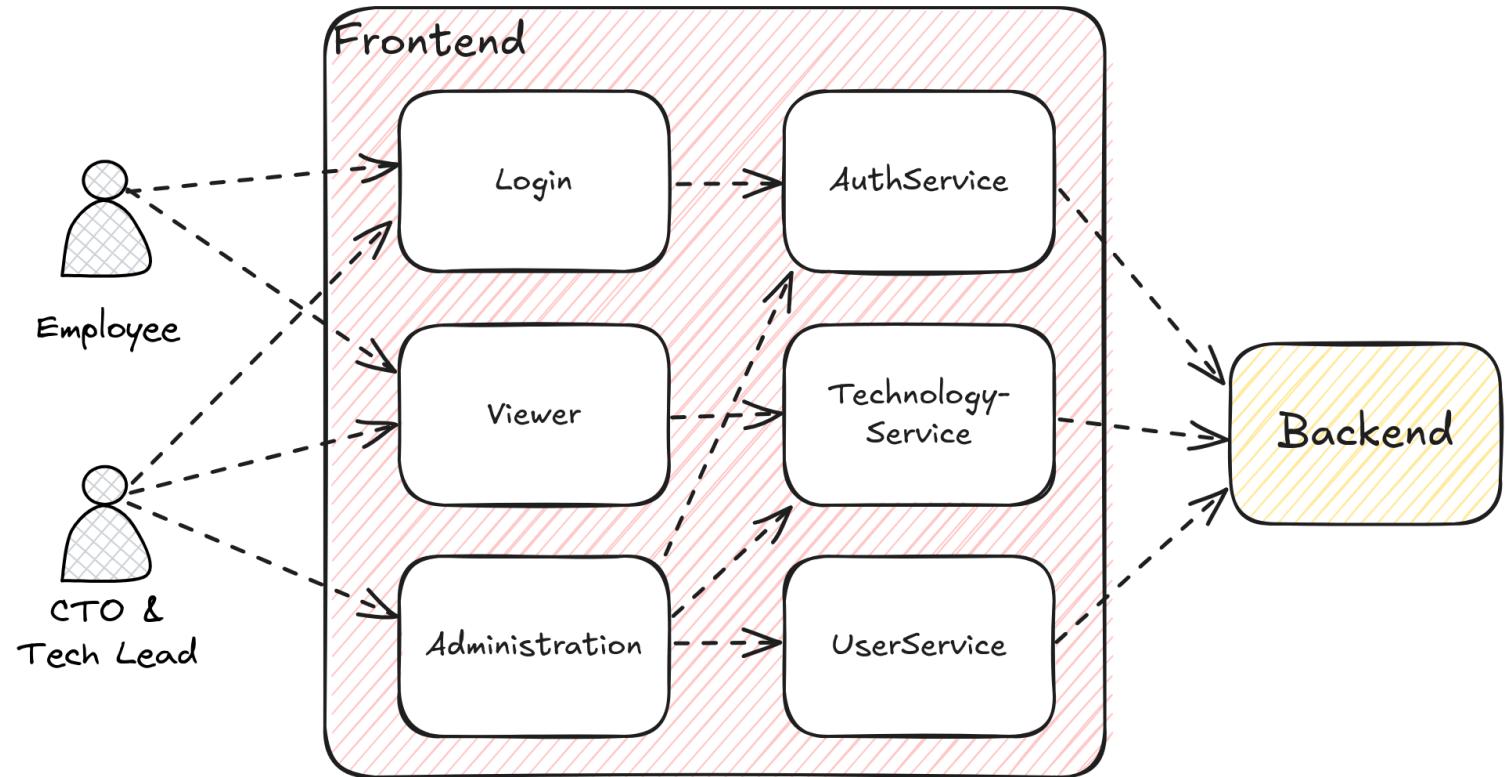
Level 2



Architekturübersicht

Level 3 Frontend

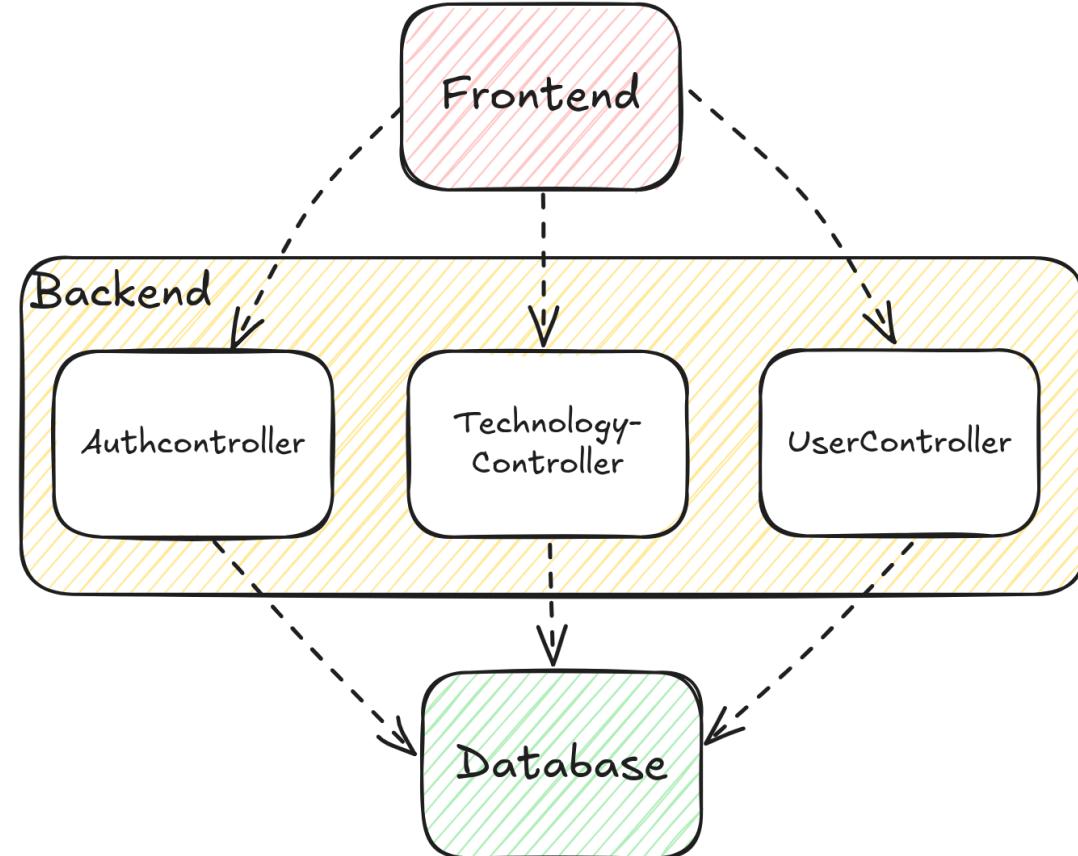
- ▶ **Angular:**
 - Components
 - Services
 - Guards
 - Interceptors



Architekturübersicht

Level 3 Backend

- ▶ **ExpressJS**
- ▶ **Mongoose** Object Data Modeling (ODM)
- ▶ **JSON Web Token** Authentifizierung



Architekturübersicht

Level 4 Database

Database

technologies

```
_id: ObjectId  
name: String  
description: String  
category: String  
ring: String  
published: Boolean  
publishedAt: Date  
createdAt: Date  
updatedAt: Date
```

users

```
_id: ObjectId  
email: String  
password: String  
createdAt: Date  
updatedAt: Date
```

loginLogs

```
_id: ObjectId  
type: String  
success: Boolean  
email: String  
ipAddress: String  
reason: String  
timestamp: Date
```

SOFTWAREARTEFAKTE

Demo

The image displays three views of the Techradar application:

- Mobile View:** Shows a search bar, "Filter Rings" dropdown, and "Filter Categories" dropdown. Below is a table with columns: Name ↑, Category, and Ring. The data includes:

Name ↑	Category	Ring
Deno	Platforms	Assess
GraphQL	Techniques	Adopt
Jenkins	Tools	Hold
Kubernetes	Platforms	Adopt
Rust	Languages & Frameworks	Trial
Serverless Architecture	Techniques	Trial
Vue.js	Languages & Frameworks	Trial

With pagination: 1 - 7 of 7 and items per page: 20.
- Large Desktop View:** Shows a table titled "Add Technology" with columns: Name ↑, Category, Ring, Description, and Justification. The data includes:

Name ↑	Category	Ring	Description	Justification
Deno	Platforms	Assess	A modern runtime for JavaScript and TypeScript built on V8 and Rust.	Deno provides a secure and developer-friendly alternative to Node.js, featuring a built-in package manager, TypeScript support, and a strong focus on security and performance.
GraphQL	Techniques	Adopt	A query language for APIs that provides a flexible and efficient alternative to REST.	GraphQL enables clients to request only the data they need, reducing over-fetching and improving performance. It is widely adopted in modern applications for its flexibility and developer experience.
Jenkins	Tools	Hold	An open-source automation server for continuous integration and continuous delivery (CI/CD).	Jenkins is widely used in DevOps pipelines for automating builds, tests, and deployments, but its configuration complexity and maintenance overhead have led to the rise of alternative CI/CD solutions.
Kubernetes	Platforms	Adopt	An open-source system for automating deployment, scaling, and management of containerized applications.	Kubernetes is the industry standard for orchestrating containerized applications, providing scalability, resilience, and efficient resource management, making it a key technology in cloud-native architectures.
New	Draft	Trial	Blub	uh
Rust	Languages & Frameworks	Trial	A systems programming language that guarantees memory safety and concurrency without garbage collection.	Rust is gaining traction for performance-critical applications, offering safety guarantees that help prevent memory errors and concurrency issues, making it a strong candidate for adoption in system-level

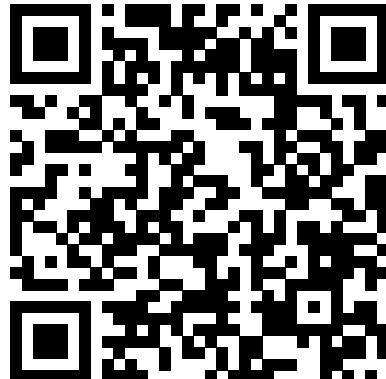
With a footer: 1 - 9 of 9 and items per page: 20.
- Small Desktop View:** Shows a Turborepo tool page with sections: "Description" (A high-performance build system for JavaScript and TypeScript monorepos.), "Justification" (Turborepo significantly improves build performance in monorepo projects by caching and parallelizing tasks, making it an attractive choice), and a "Publish Technology" section with a "Login" form and "Publish" button.

Softwareartefakte

Alles in einem Github Repository:

<https://github.com/dimschlukas/hslu-weblab-techradar>

- ▶ Frontend, Backend, Database
- ▶ Arc42-Dokumentation und Arbeitsjournal im Markdown Format



GitHub Repository



TechRadar Playground

<http://techradar.l-schmid.ch>

Email: play@hslu.ch

Passwort: weblab

FRAGEN?