

FS20

DISTRIBUTED SYSTEMS

Challenge Task FS-2020

T. Bocek

thomas.bocek@hsr.ch

VSS: Plan 2020 as of 18.02.2020

Nr	Date	Vorlesung*	Dozent	Suggested Milestone
01	18.02.2020	Admin / Introduction	Bocek	Group forming, idea for services
02	25.02.2020	Protocols, Basics, Scalability	Bocek	
03	03.03.2020	Distributed Applications	Bocek	Load balancer working
04	10.03.2020	Deployment, Infrastructure	Bocek	Authentication
05	17.03.2020	RPC and Queues	Bocek	
06	24.03.2020	Naming	Bocek	
07	31.03.2020	Distributed Hash Tables	Bocek	Storage backend ready
08	07.04.2020	Blockchain, Bitcoin	Bocek	
09	14.04.2020	-	-	
10	21.04.2020	Blockchain, Ethereum	Bocek	
11	28.04.2020	Guest/TBA	TBA	Frontend ready
12	05.05.2020	Guest/TBA	TBA	Connecting everything together
13	12.05.2020	Student Presentation	you	
14	19.05.2020	Fragestunde und Feedback	Bocek	
15	04.08.2020	Beratungswoche	Bocek	

■ Deliverables, 12.05.2020

- Well documented code and infrastructure
- Presentation (slides) and demo of the application, also showing the architecture and design decisions

■ Libraries and tools

- Allowed to use any language, framework, and platforms. However, the supervisors are familiar with those: Java, Golang, JavaScript, Linux

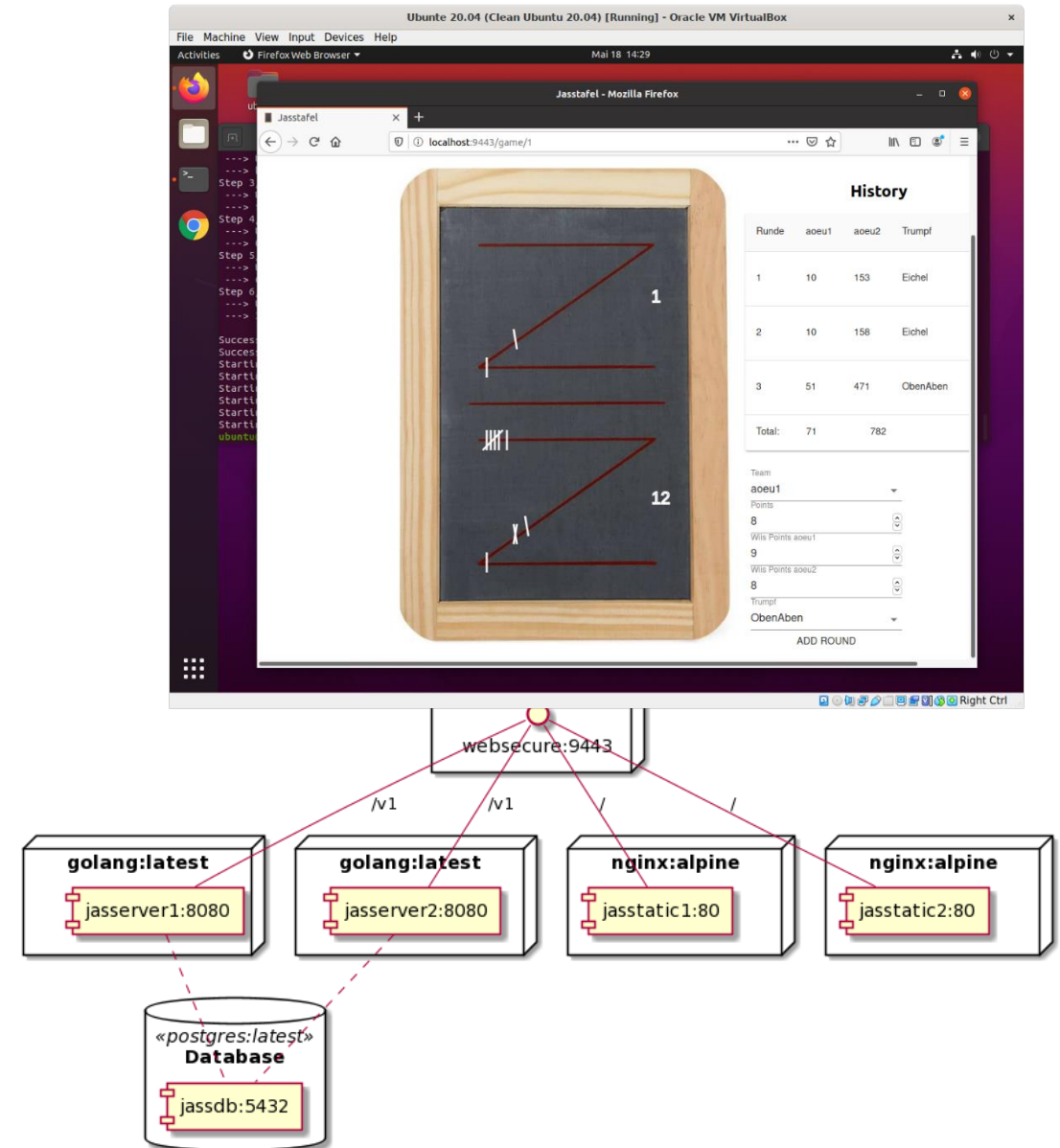
■ Organization

- n groups of 3 people, if group members found, send email to thomas.bocek@hsr.ch
- During the challenge task, the group shall meet every week during exercise hours to work on the task and discuss the next steps.
- The groups shall utilize their homework times to work on the CT, besides the exercise time slots assigned on Tuesday/Wednesday.
- You **do not have** be physically present at the exercises. Supervisors will be available.
- The groups shall determine and set-up an internal project plan
- Distribute the workload so that each group member gets a fair load of work

■ No grades for CT

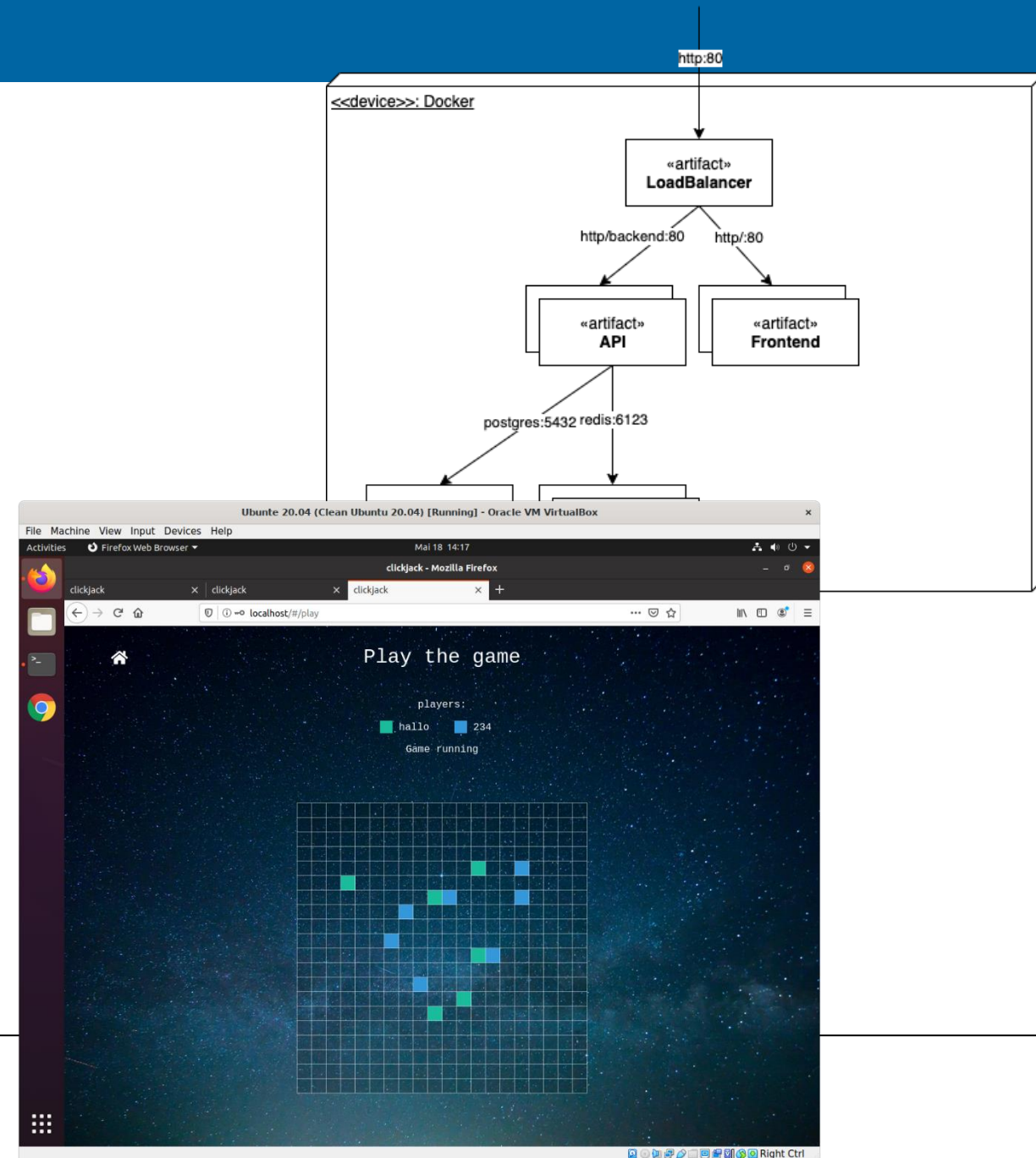
■ Benny V., Moritz S., David K. [[source](#)]

- Setup: worked as expected (changed \ to / as developers seem to use Windows → ERROR: .FileNotFoundError)
- Docker compose
 - Postgres DB
 - Traefik LB
 - 2x Jass server
 - Golang
 - 2x frontend
 - React
- Comments: “yeah boi” 😊
- Runs on my machine!



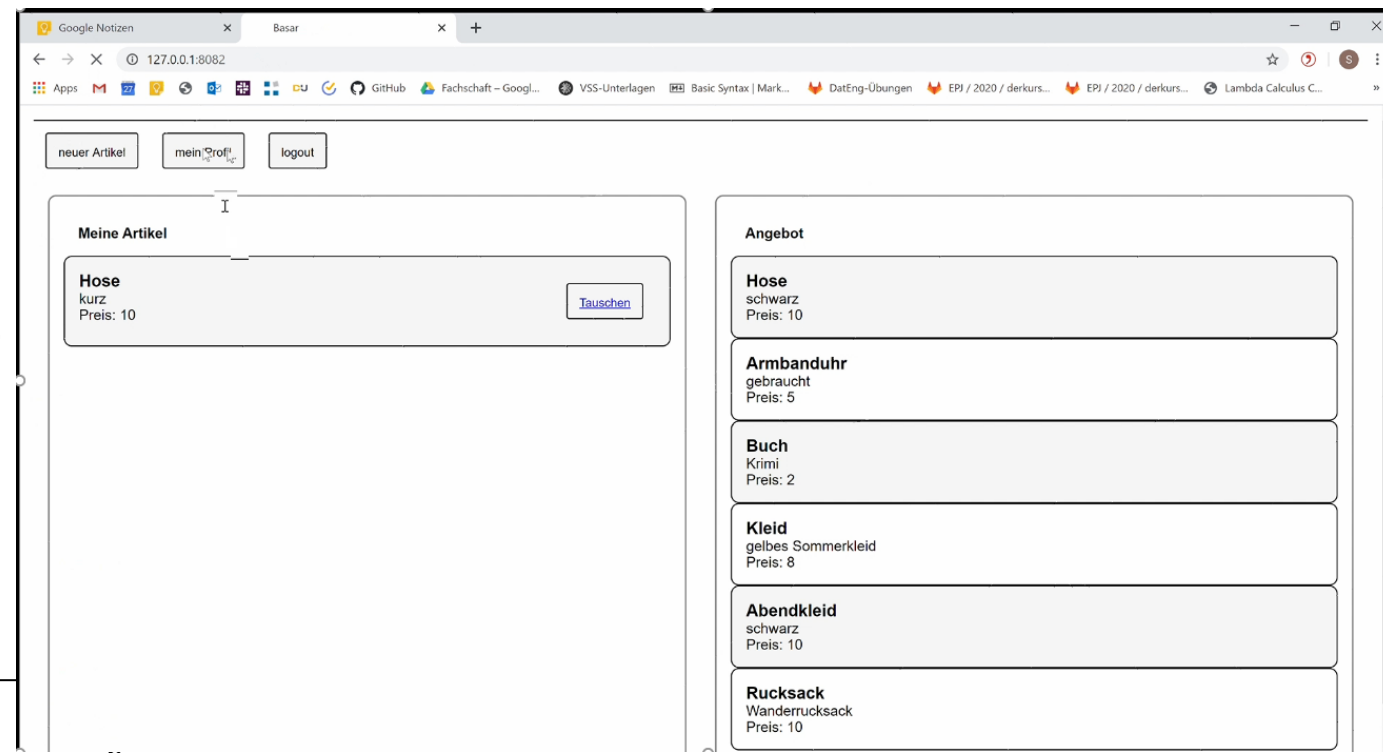
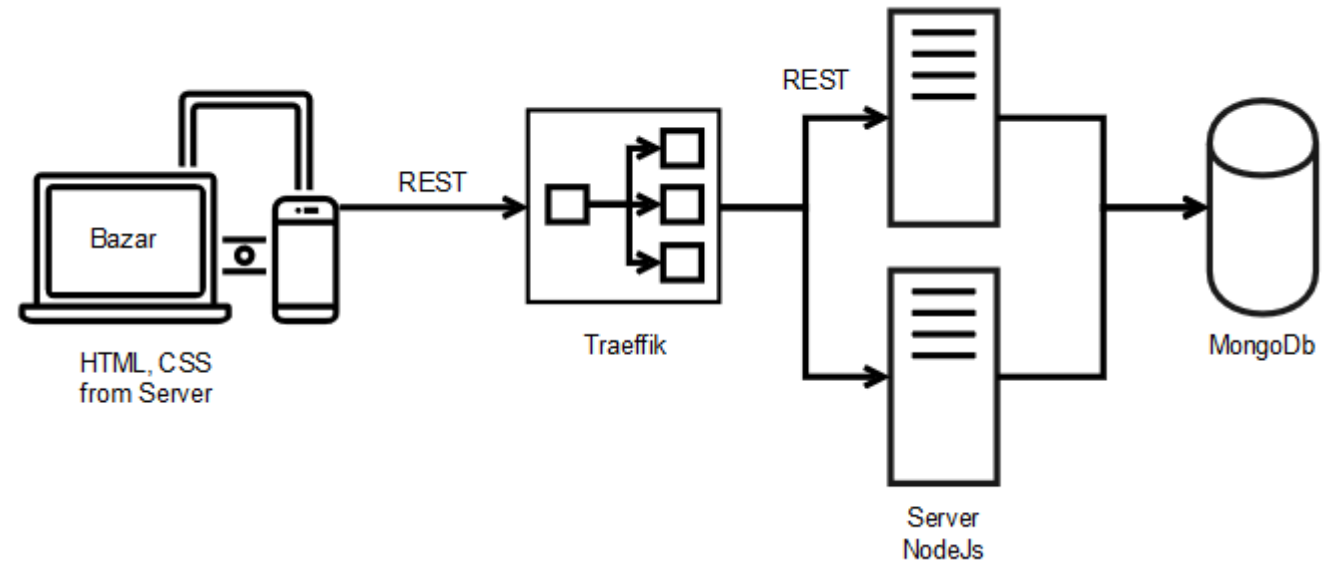
ClickJack

- Marco G., Oliver G., Carlo K. [[source](#)]
- ClickJack is a multiplayer click-war game
 - Redis and Postgres
 - Frontend: Vue.js, Caddy as r.proxy
 - LB: traefik
 - Docker-compose
- Password and Username in docker-compose: for dev ok, should be as ENV
- Backend: express, JS
- No auth
- Runs on my machine!



Basar

- Yael S., Nadine S., Saskia S. [[source](#)]
 - P2P exchange clothes app
- Setup as discussed during lecture
 - DB: MongoDB
 - LB: traefik
 - Backend node, express
 - Classical server-side rendering
 - Handlebars
 - Alpine & MongoDB issues:
 - “Since mongodb changed their license, it is no longer available as an apk package on the alpine repository for alpine versions after 3.9.”
- No easy setup



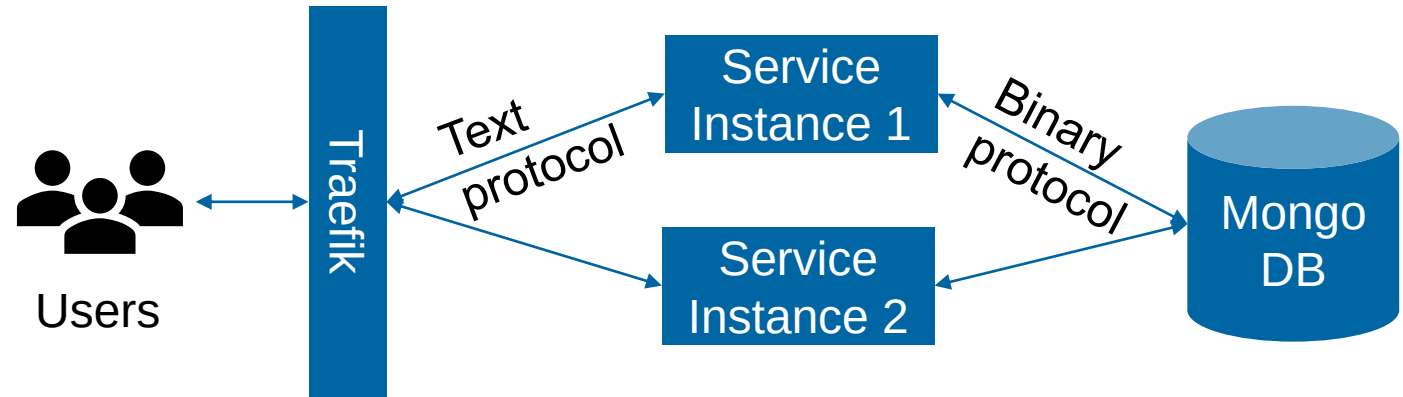
Handed-in, but not all requirements met

■ Anina B., Pascal S. [source by email]

- Quiz Website

■ Setup as discussed during lecture

- DB: MongoDB
- LB: traefik
- Backend node



Bike Planner

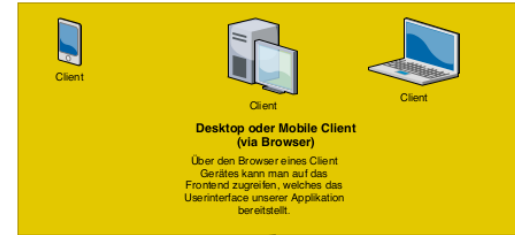
- **Jonas H., Christoph S., Rafael F. [source by email]**

- Bike Planning, find best date to go on biketour

- **Setup as discussed during lecture**

- FE: React
- LB: traefik
- Backend Spring Boot, Java
- DB: postgres
 - Includes php admin for DB
- GraphQL

- **No easy setup**



Bike Planner

Dark mode

Sommer Tour

📍 Zentralschweiz
🕒 1. Mai 2020

Teilnehmer	1. April	2. April	3. April
Jonas H.	X		
Christoph S.	X		X
Jonas H.			X
Jonas H.	X		X
Jonas H.			
Jonas H.	X	X	
Jonas H.		X	
Jonas H.			
Jonas H.	X	X	X
Jonas H.	X		

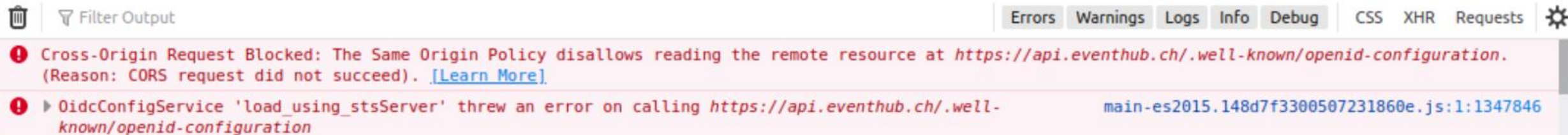
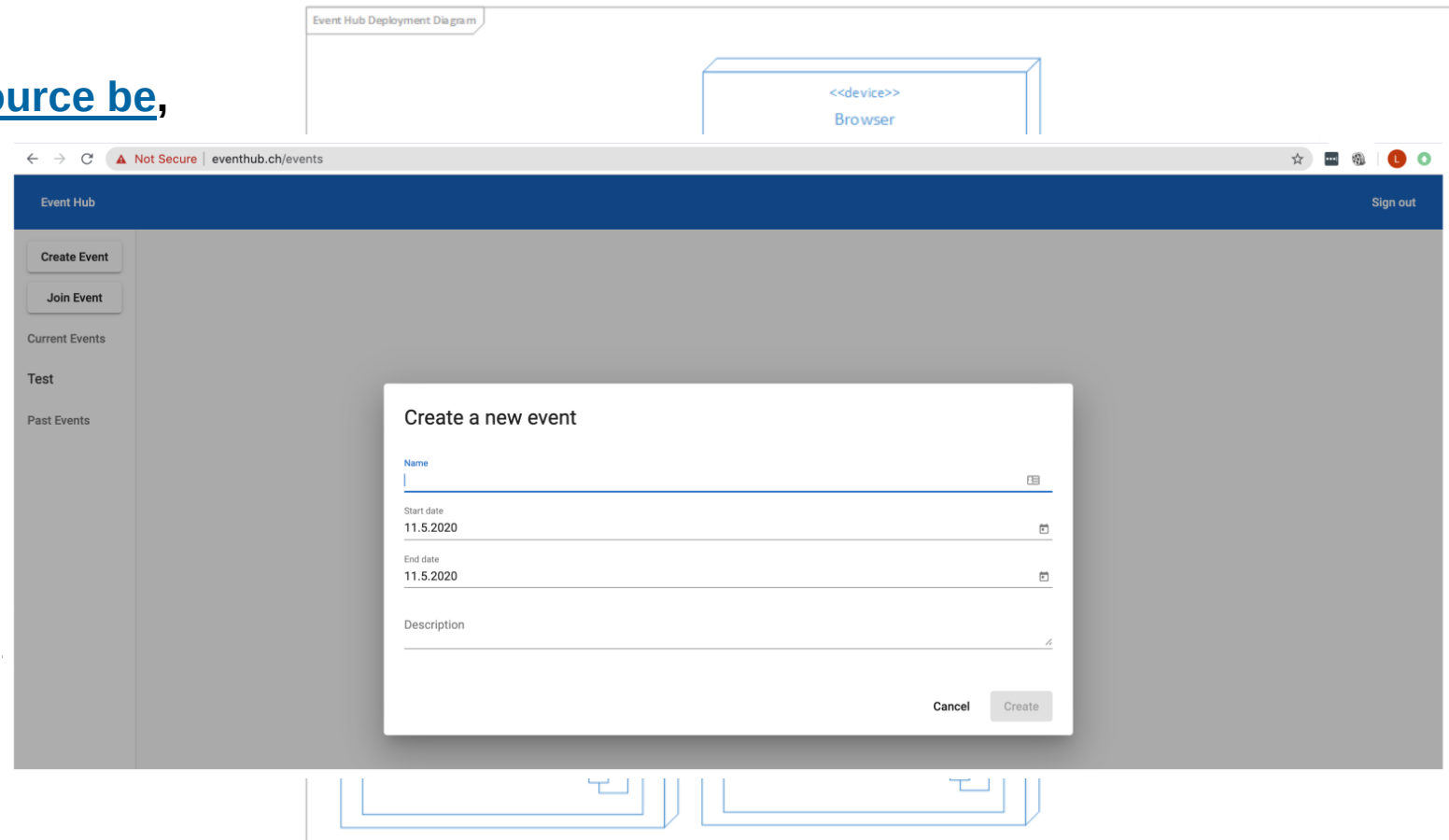
Bike Planner
© 2020 - Jonas Hauser, Christoph Scheiwiler und Rafael Fuhrer

Event Hub

■ Leonard O., Daniel E., Loris K. [[source be](#), [source fe](#)]

- Event management system, auth Real-time chat (SignalR)
- FE: Angular
- LB: nginx
- ASP.NET
- DB: MS SQL, Redis
- Docker compose
- Deployed on eventhub.ch, but “Si found”

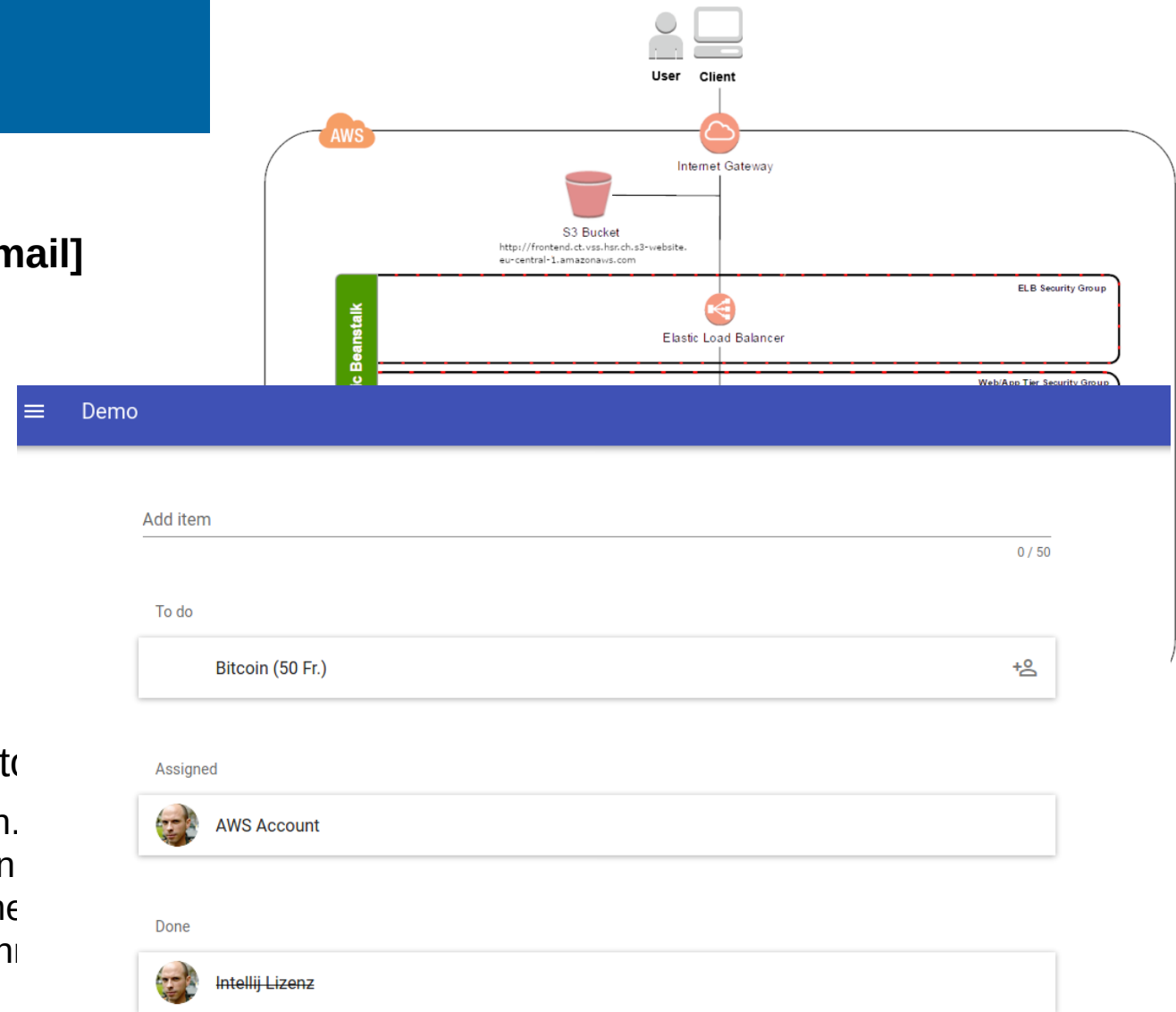
■ No easy setup / CORS issue



■ Laurin Z., Lukas S., Simeon H. [source via email]

- Shopping List
- Hosted on Amazon
- FE: Vue.js
- Auth JWT
- BE: Java / Spring Boot
- DB: Postgres / JPA
- LB: Amazon
- Building frontend / backend works, but need to
 - Caused by: org.flywaydb.core.internal.exception. Unable to obtain connection from database: Connection to localhost:5432 refused. Check that the hostname and that the postmaster is accepting TCP/IP connections

■ Frontend starts, but no easy setup (DB), but v <http://frontend.ct.vss.hsr.ch.s3-website.eu-central-1.amazonaws.com>



Expense Tracker

■ Bojan D., Fabian T. [source via email]

- Included their own webserver
- Included their own loadbalancer, issue with FF, used Haproxy
- DB: postgres
- Included their own frontend DOM update mechanism:
 - `document.getElementById("expenses").appendChild(tr);`
- Simple auth
- Architecture: as shown in the lecture

■ No easy setup

Expense Tracker

Current Expenses

Expense	Categorie	Cost	Notes

Expenses

Expense Categorie Cost

Notes

Add

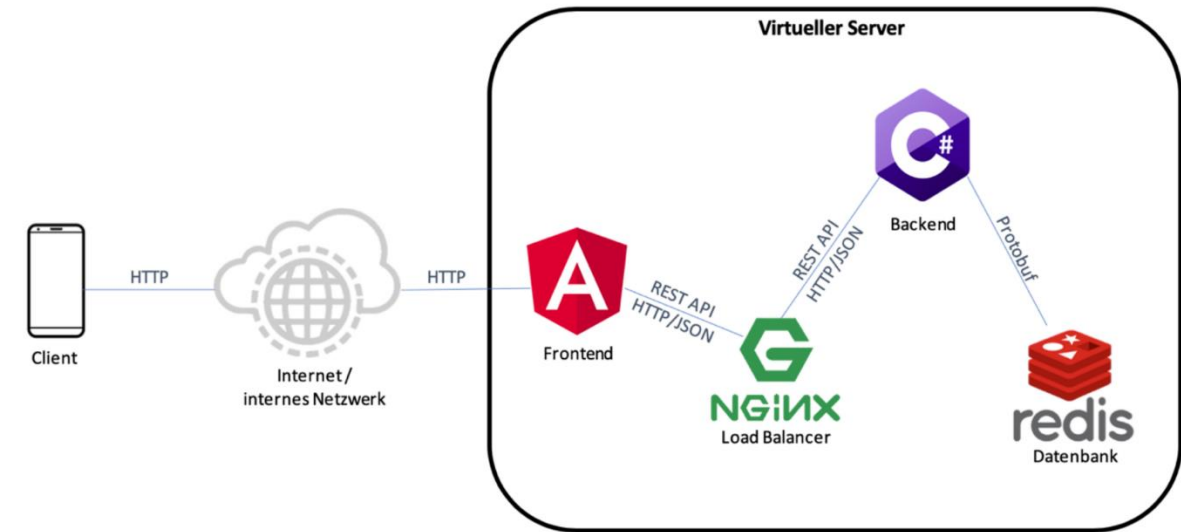
Email Web Client

- Raphael J., Gino C., Timothée M. [[backend](#), [frontend](#)]
- Email client for multiple email addresses
 - FE: angular
 - BE: Java/Spring Boot
 - DB: Postgres
 - Auth JWT
 - LB: Nginx
- Setup easy, docker-compose up, but:
 - There was an unexpected error (type=Unauthorized, status=401). Unauthorized
 - Its wip



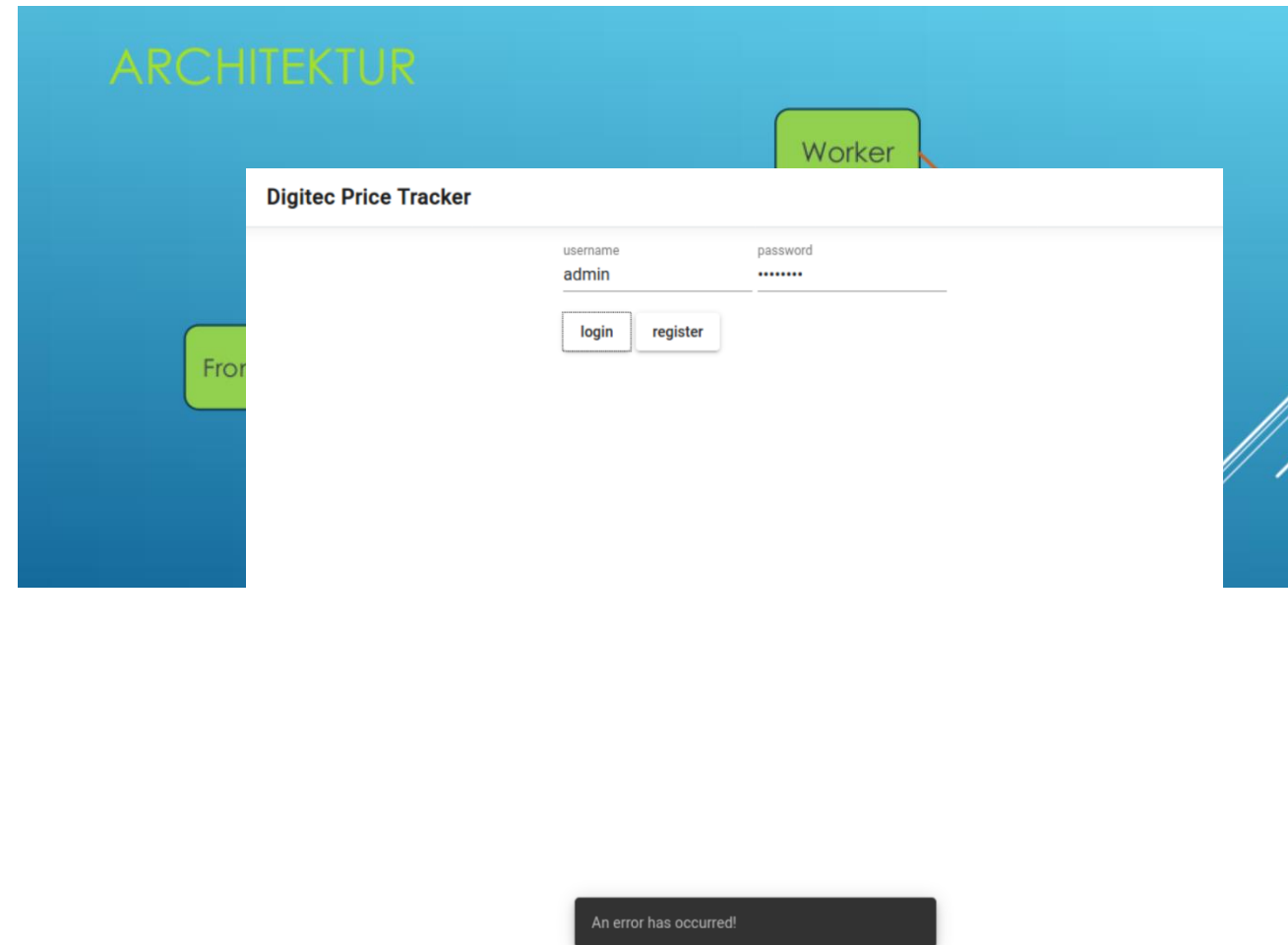
A "Sign In" form with a title "Sign In" at the top. Below the title are two input fields: "Username" and "Password". The "Password" field has a toggle icon (an eye) on the right side. Below the input fields is a "Sign In" button. At the bottom of the form is a "Sign Up" link in green text.

- Kevin M., Danusan P., Aynkaran S. [[frontend](#)] [[backend](#)]
- Manage your Grades (no description, but title is obvious)
 - FE: Angular
 - BE: ASP.NET
 - LB: Nginx
 - DB: redis
 - Auth: JWT
 - Used Ubuntu Virtual Machine
- No easy setup



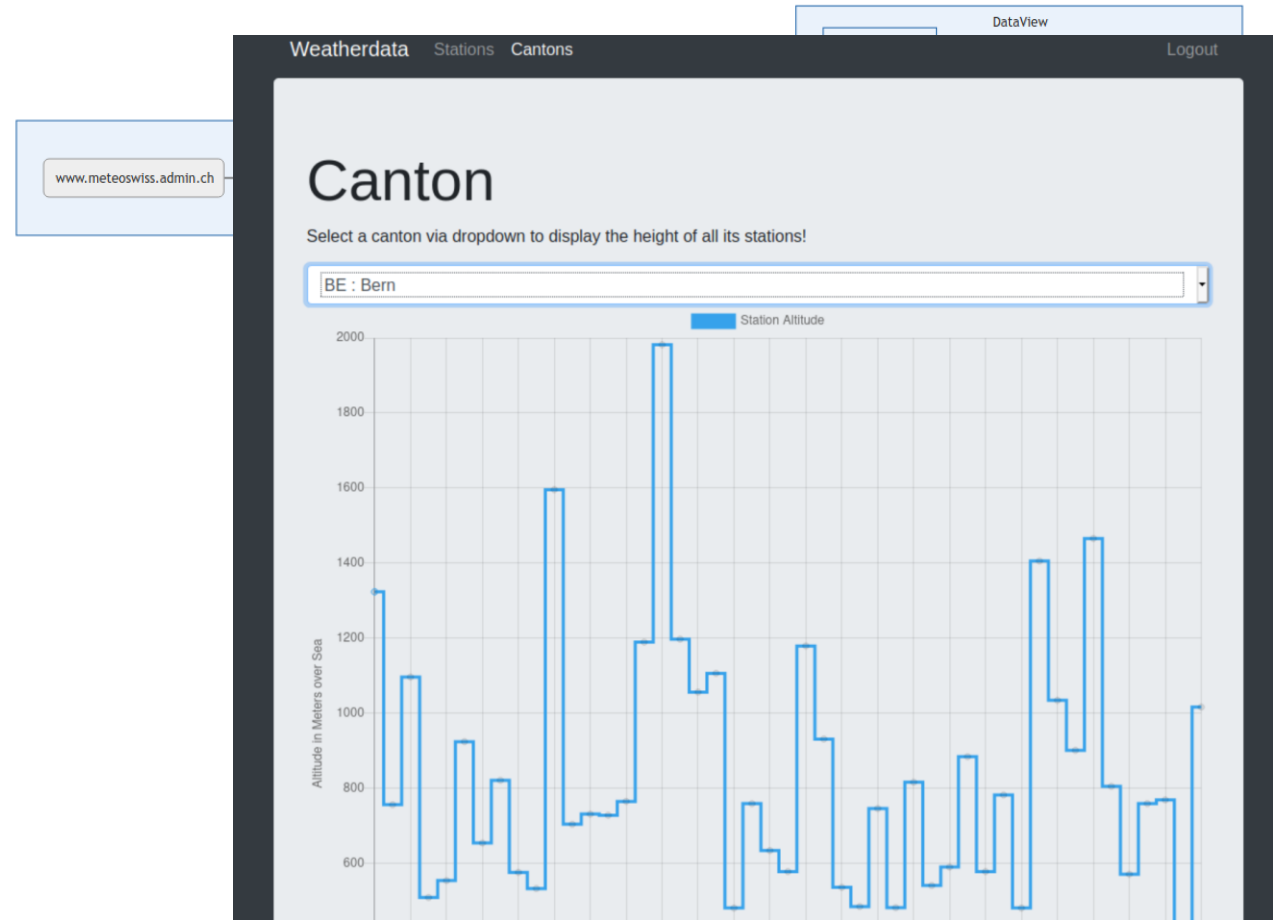
Price Checker

- Pascal S., Pascal S., Florian F. [source via email]
- Price history check for digitec, since the prices change
 - FE: Angular
 - BE: .NET
 - DB: Postgres
 - Auth: Identity Framework
 - Docker compose
 - LB: traefik
- Path issues \ to be replaced with /
- Setup easy, shell script, could not go beyond login screen



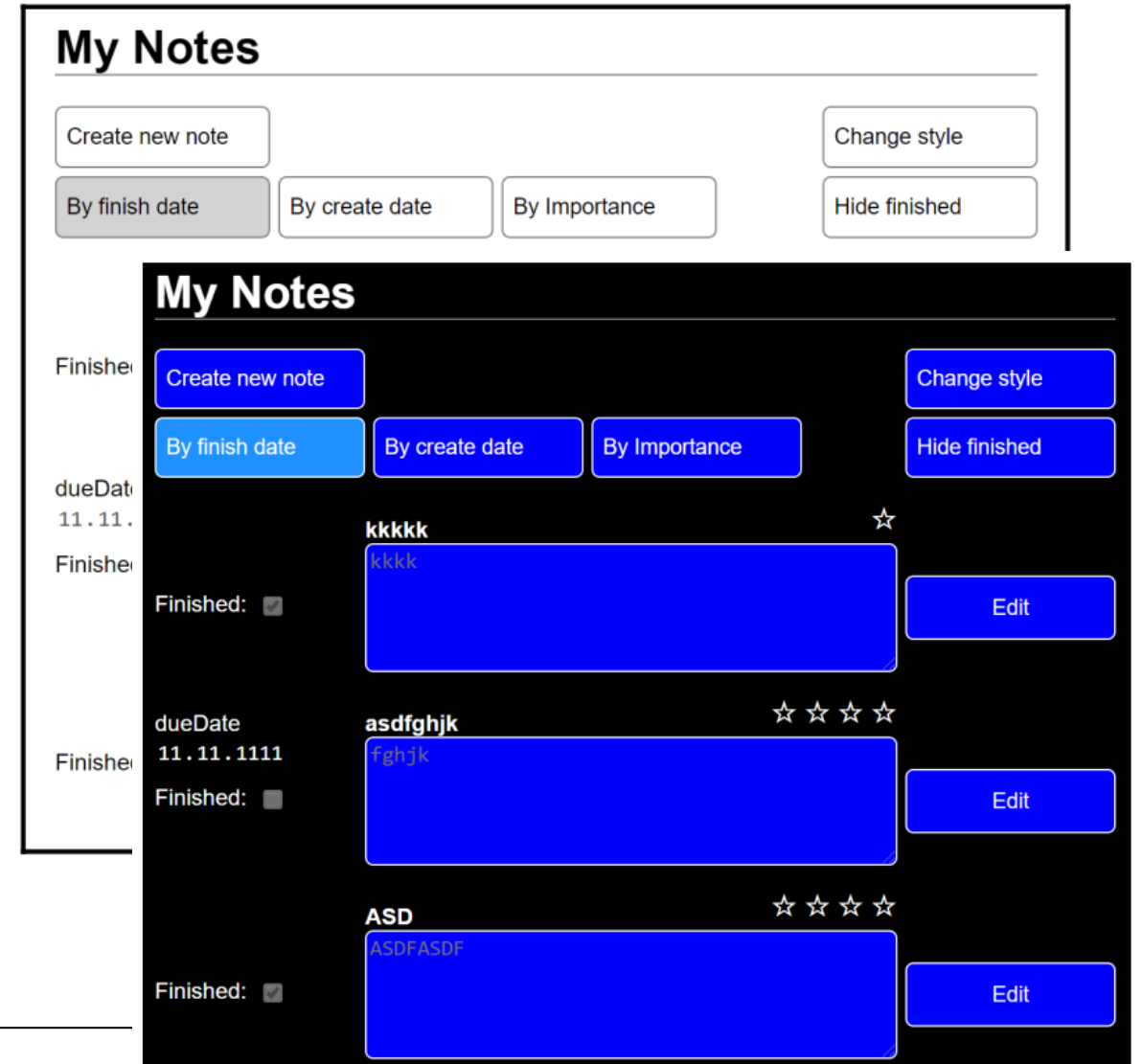
Weather Data Stack

- **Dominic K., Lukas L.r, Jan R. [[source](#)]**
 - Self-hosting gitlab on stackhub.ch
- **Application for**
 - ActiveMQ Web Console
 - [Eureka](#) Web Interface
 - [Kibana](#) Dashboard
 - PostgreSQL Database
 - Traefik Dashboard
 - Traefik API Loadbalancer
 - Swagger API Documentation
 - Weatherdata Web Application
- **Setup easy, shell script / docker compose – login worked after a weird permission error**



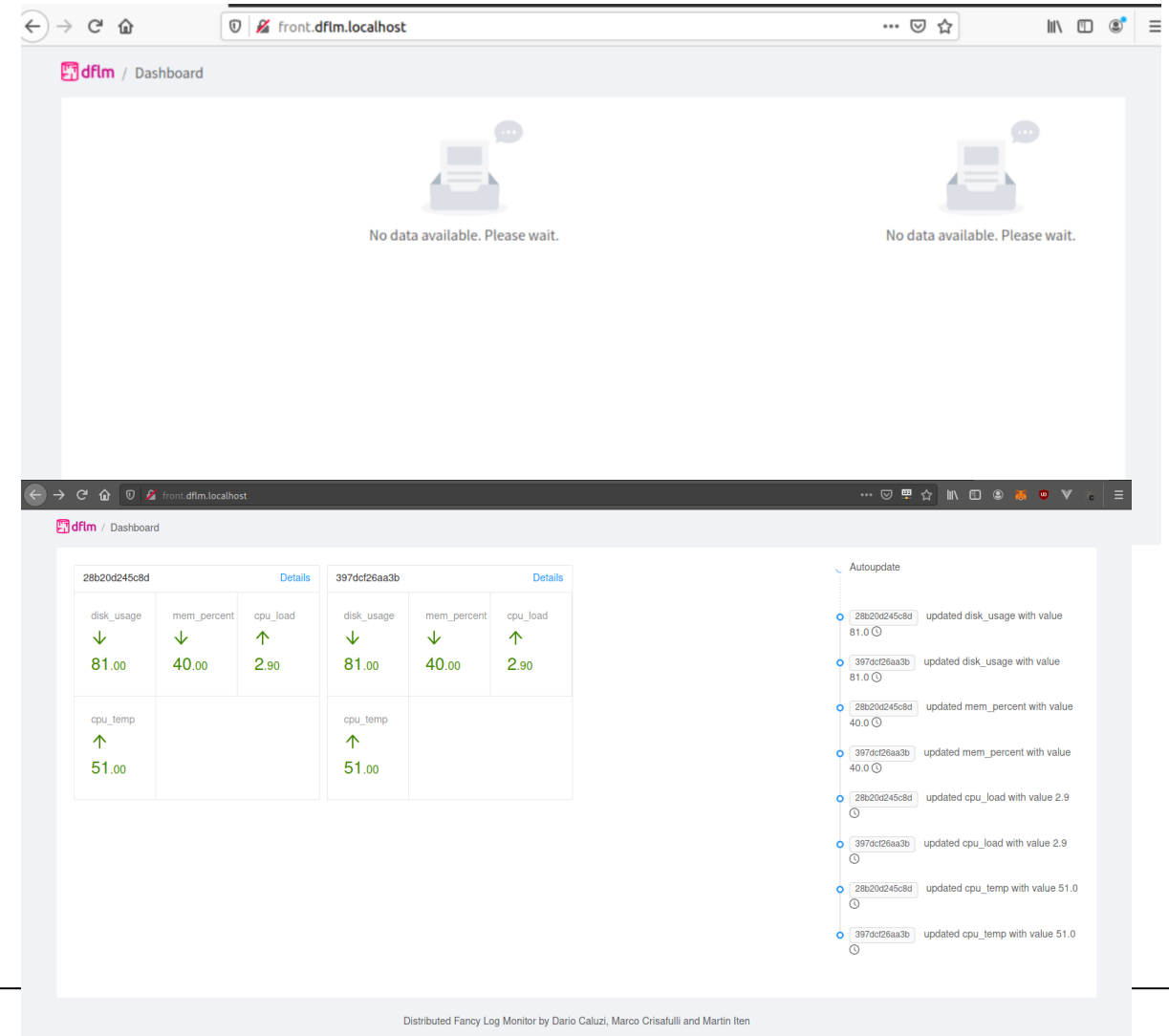
Todo App

- Aaron S., Nebai Kidane T. [[source](#)]
 - Good documentation
- No access to code, based on WED2
 - Dark mode
 - Backend: node.js
 - Frontend: classic server side rendering
 - DB: MongoDB – using grpc for communication
 - LB: nginx
 - Auth: basic auth



Distributed Fancy Log Monitor

- **Dario C., Marco C., Martin I. [[source](#)]**
 - Docker-compose
 - Image from HSR docker registry
 - LB: traefik
 - DB: MongoDB
 - FE: Vue
 - BE: python, [flask](#)
 - Logger input via grpc
 - (don't checkin .idea)
 - Issues with Kubernetes / Swarm
- **Setup: easy, docker-compose pull / docker-compose up**

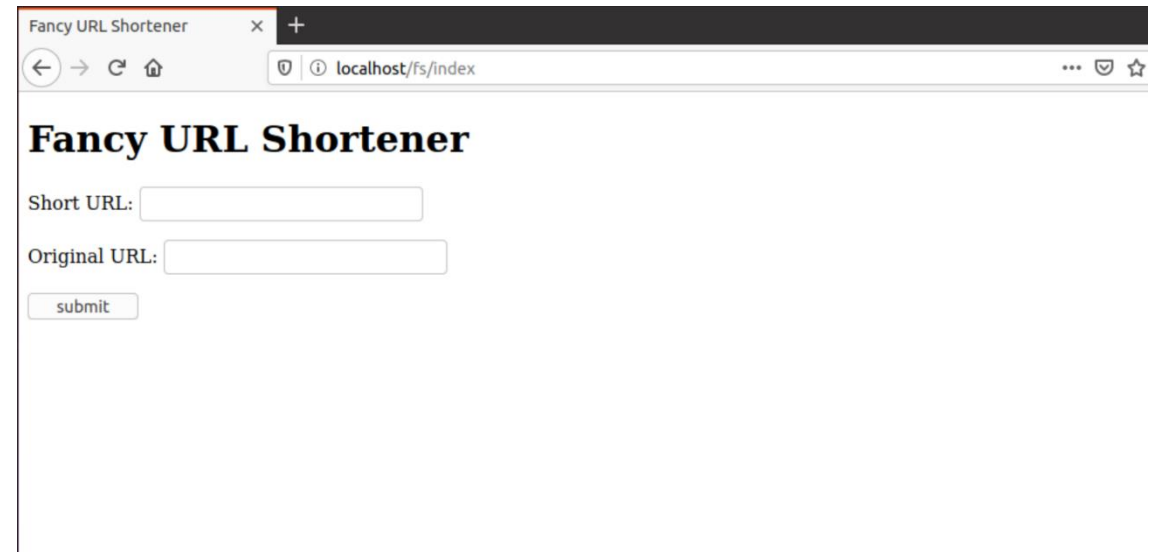


URL Shortener

■ Fabian G., Fabio C., Philippe W. [[source](#)]

- FancyShortener is a url shortener to reduce long links.
- DB: Redis
- LB: Traefik
- BE: node
- FE: server side rendering
- Docker compose
- Architecture as discussed in the lecture

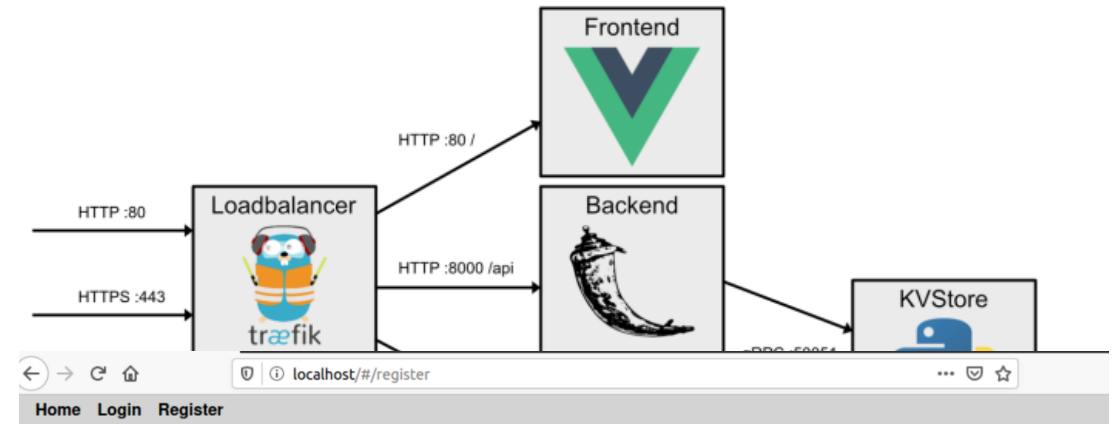
■ Setup: easy docker-compose up



■ Lukas B., Fabian Z., Pascal P. [[source](#)], also sent via email

- Read once message, a message that only can be viewed once
- LB: traefik
- FE: vue
- BE: flask, python
- DB: KV store in python
- Docker compose

■ Setup: easy, docker-compose up



Register here to get access to the tool.

Email:

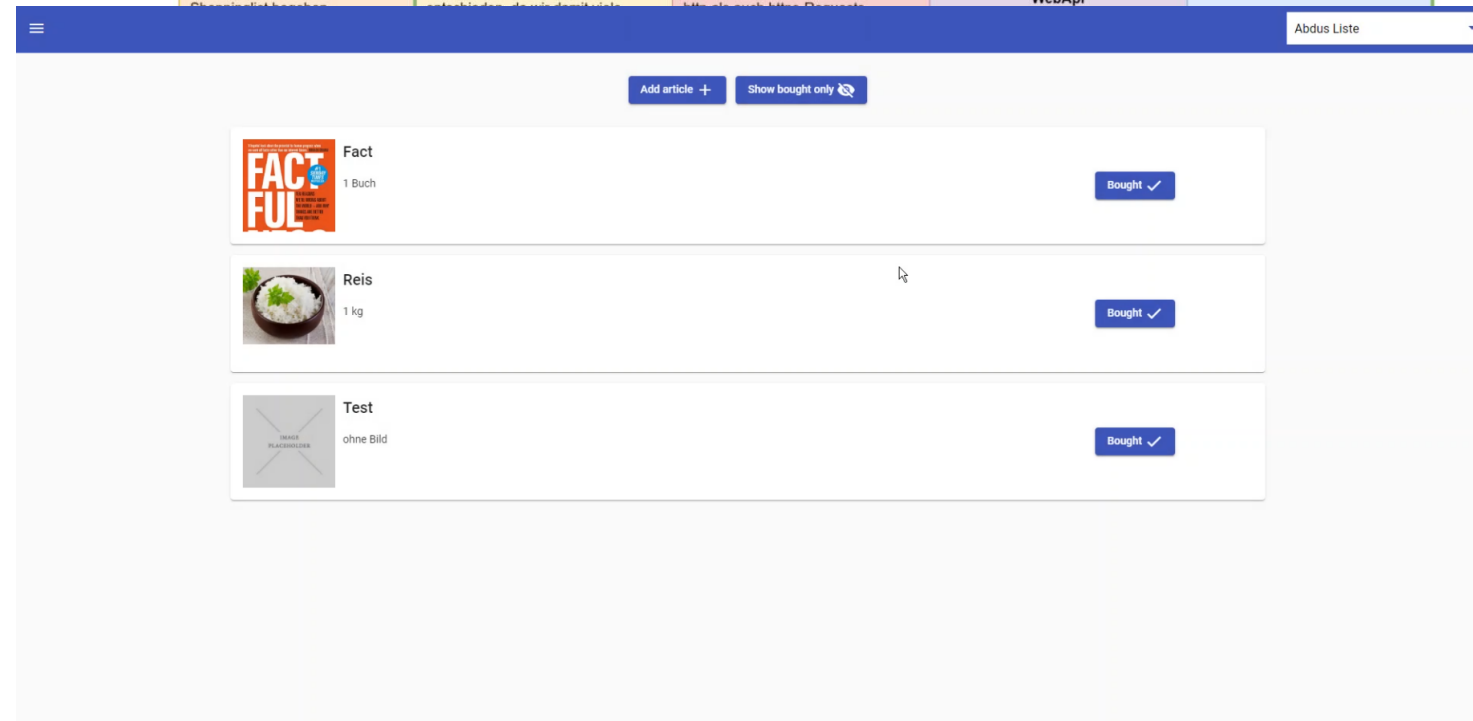
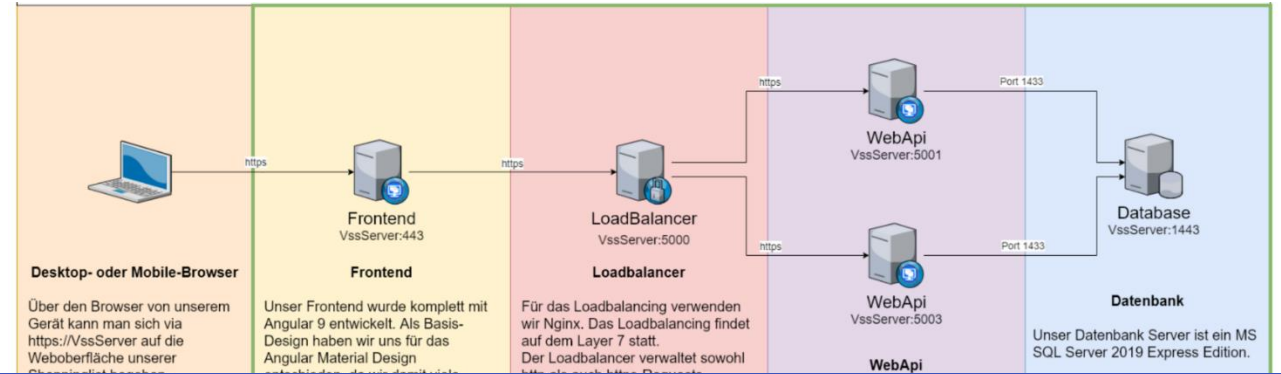
Password:

Repeat password:

Register

Shopping List

- Abdullah A., Ricky R., Ursin Z. [source via email]
- Shopping list app
 - Coordinaton via Azure DevOps for ticketing
 - FE: Angular
 - BE: .NET
 - DB: MSSQL
 - LB: Nginx
 - Auth: JWT
 - Added a Video
- No easy setup

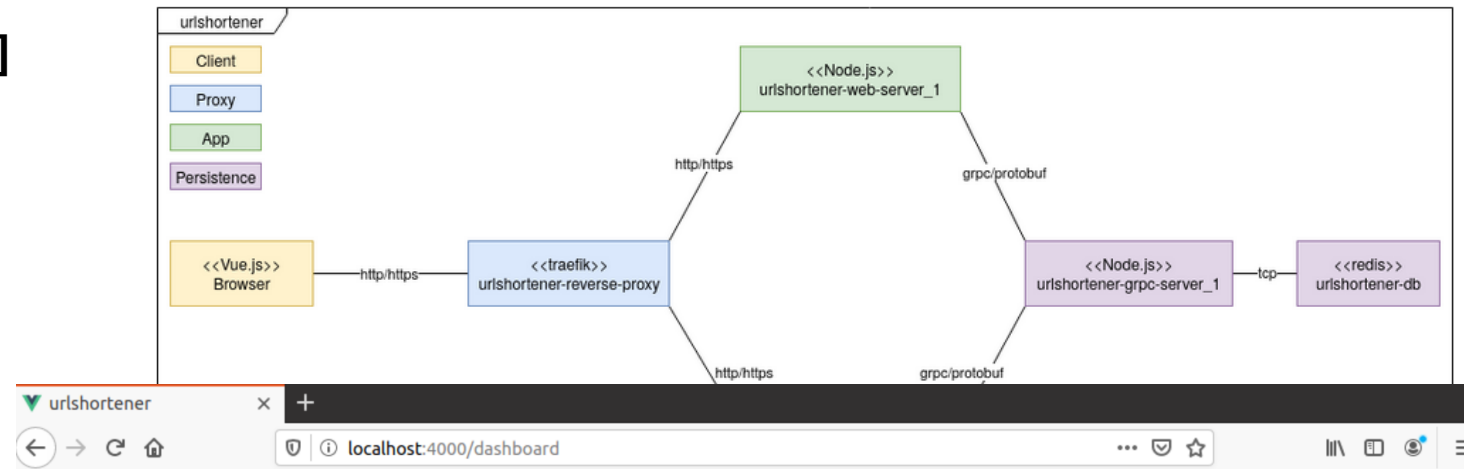


URL shortener2

■ Fabian T., Yannick V., Robin E. [\[source\]](#)

- Shorten URLs
- LB: traefik
- FE: Vue
- BE: node/express
- DB: redis via grpc
- Auth: JWT
- Docker-compose

■ Easy to setup, docker-compose via npn



urlshortener

Your URL

Custom URL

Expires on

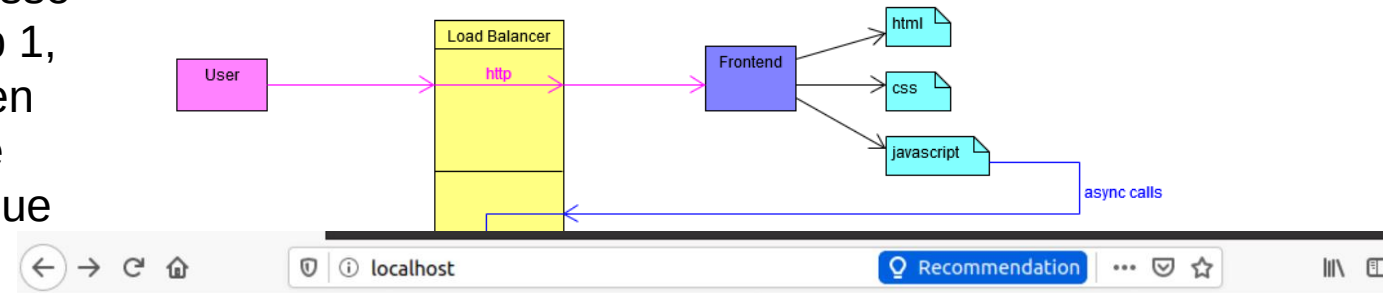
Create

my urls

URL	Shortened URL	Expires on	Actions
https://www.google.com	http://localhost:4000/asdfiol	none	Delete

■ Felix K., Marc S., Patrick K. [\[source\]](#)

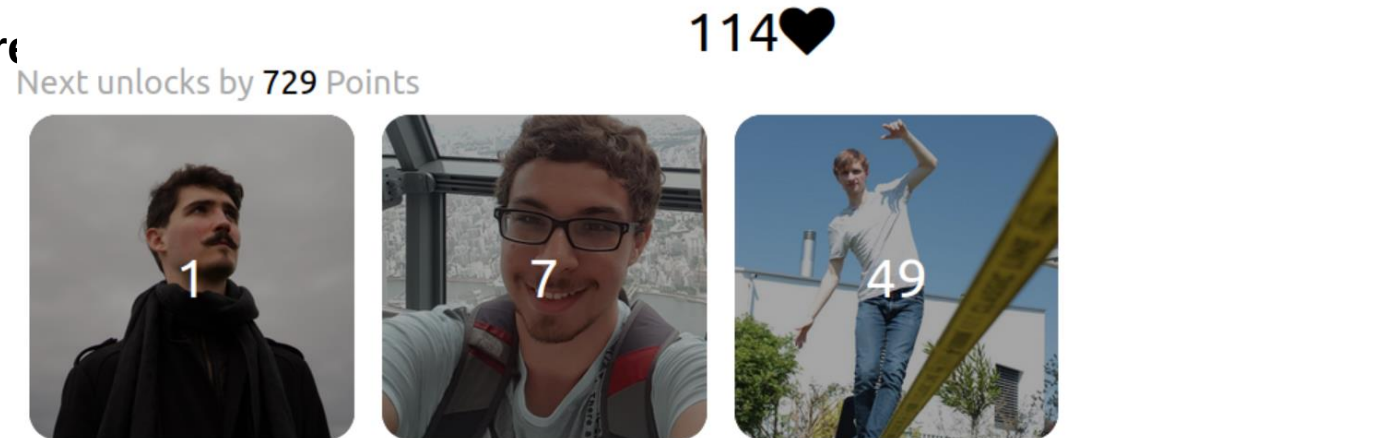
- Ein Click auf ein Bild (Face) gibt eine gewisse Anzahl an Herzen (wie eine Währung): z.b 1, 7, 49. Hat man eine gewisse Anzahl Herzen gesammelt kann man sich ein neues Face kaufen, für einen Cost (Betrag). Dieses neue Face gibt dann mehr Herzen: z.b 343.



■ WICHTIG: postgres muss vor backend bereit sein

- Wait4ports
- DB: Postgres
- LB: nginx
- BE: node
- FE: classic server side + JS

■ Easy to setup, docker-compose



■ Armend L., Christian B., Marco E. [[source](#)]

- Decide where to eat, based on dislikes

■ Demo App

- FE: React
- Keine Erfahrung (Nur Vue.js) aber Interesse
- BE: Java/Spring
- Auth: basic, bcrypt (alternatively s
- LB: Traefik
- DB: Postgres

■ Could not run, no access to source

DEPLOYMENT DIAGRAMM

thomas  Sign out 

Menu von 21.05.2020

Döner

*Menu wird um 11:40 generiert

Neues Menu...

	
Inder	 
Mc	 
Dieci	 
Brezelkönig	 
Migros	 
Mensa	 
Döner	 
Test	 

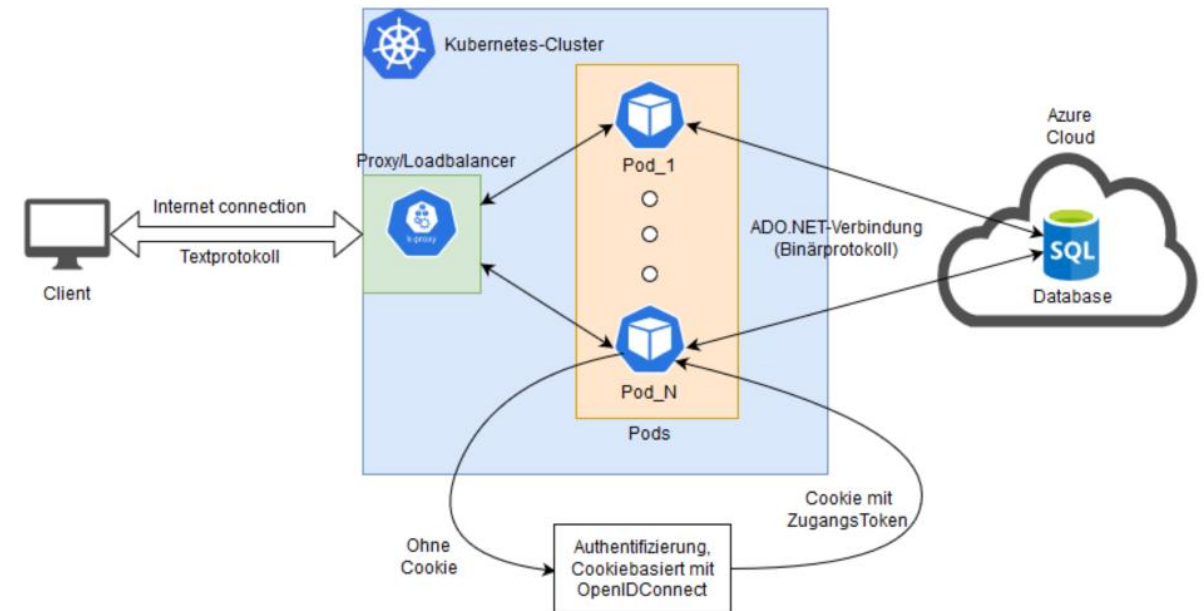
Shopping List 2

■ Mike S., Sascha G., Luca T. [\[source\]](#)

- Shopping list

■ Kubernetes setup with compose

- LB: Kubernetes cluster has an LB, e.g., Traefik
- FE: swagger
- BE: .NET
- DB: Postgres



Chat

- **Benjamin P., Yanick R. [[source](#)]**
 - Chat application
- **Tried IPFS and gun**
 - FE: classic server side rendering
 - DB: Azure Cosmos DB
 - BE: node
 - LB: nginx
 - Deployment at:
chat.westeurope.cloudapp.azure.com
 - azure.com seems slow...



And the Winner Is:

...

**will be announced on the
26.5.2020**

Questions?



Dr. Thomas Bocek
thomas.bocek@hsr.ch