



**OST**

Eastern Switzerland  
University of Applied Sciences

# Challenge Task

## Cookie Clicker

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Distributed Systems & Blockchain

# Agenda

- Goal & Idea
- Software Design
- Architecture
- Database
- Implementation
- Fulfillment of requirements
- Demonstration

# Goal & Idea

## **Goal:**

Design and implementation of a simple distributed system.

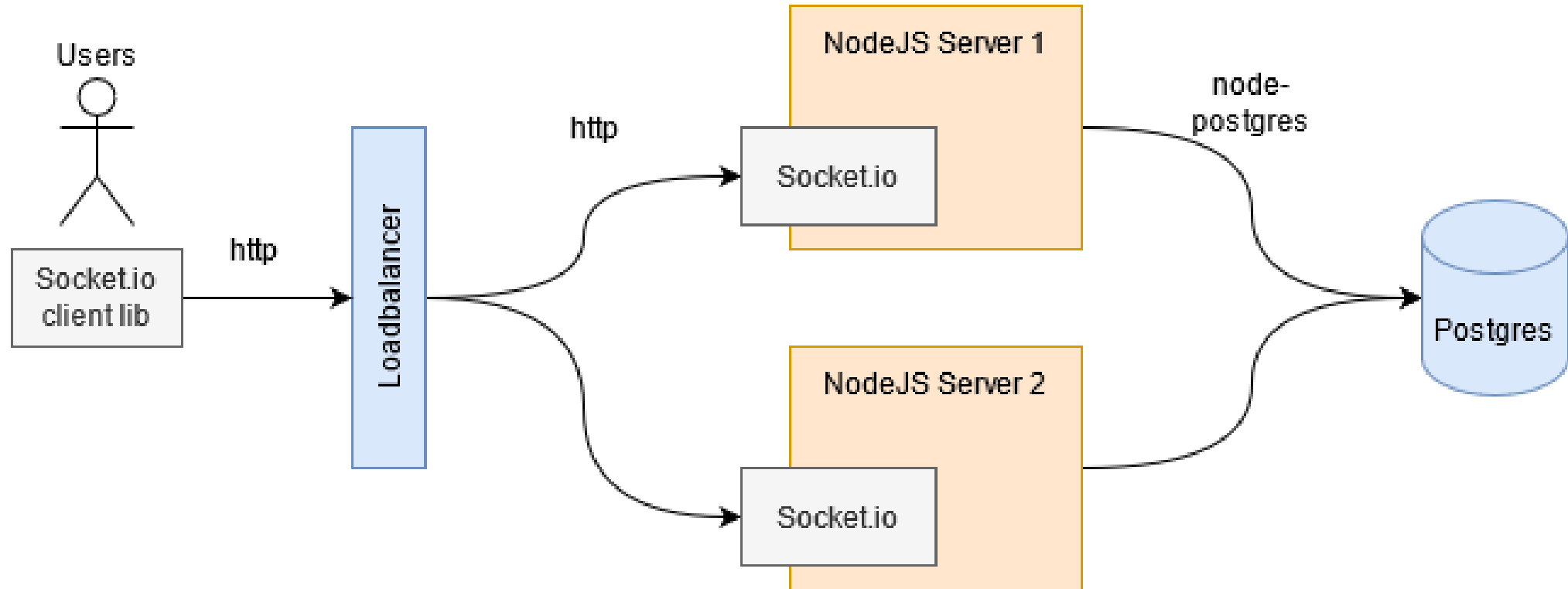
## **Our Idea:**

A decentralized cookie clicker with real-time communication. Users can open a room with a cookie and send the room ID to friends. They then can join the room and start clicking.

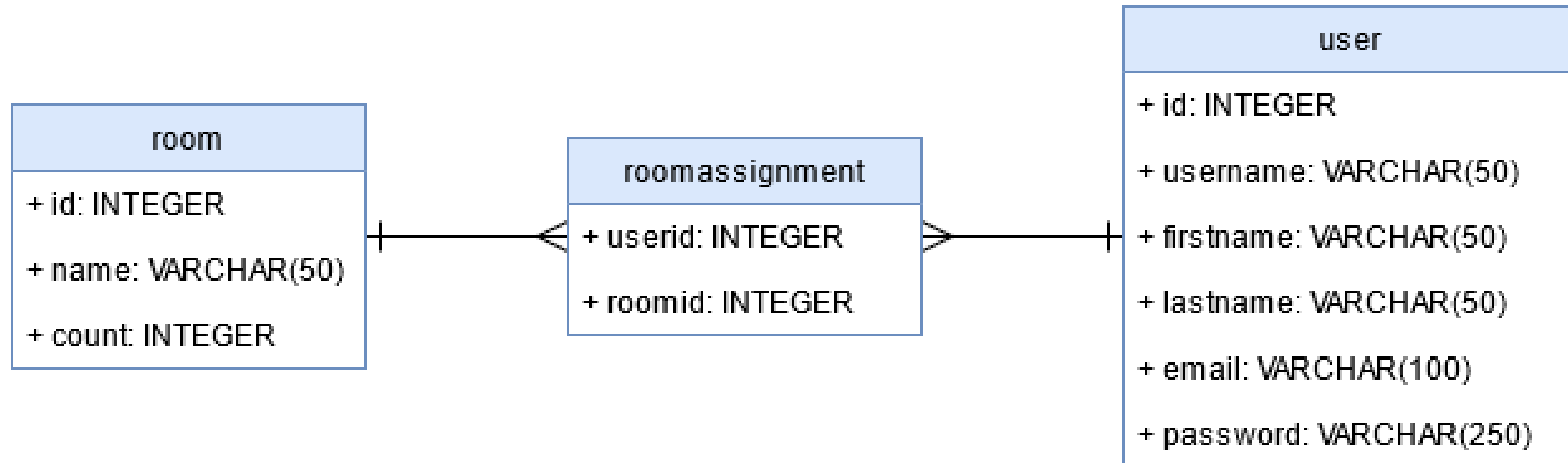
# Software Design

- Server-side rendering design
  - Backend and Database
- Horizontally scalable through Docker deploy
- Socket.io
  - Real-time, bi-directional communication

# Architecture



# Database



# Implementation

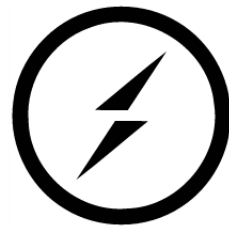
## Server

- NodeJS
  - Express
  - Handlebars
  - Socket.io
  - JWT

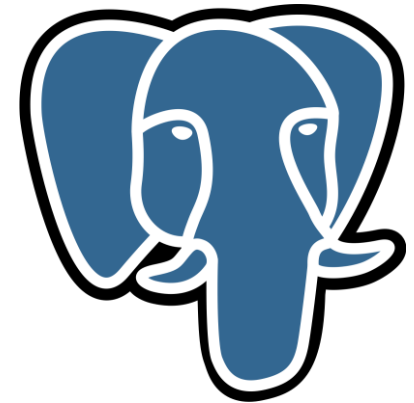


## Services

- Postgres
- Traefik
- Docker



socket.io



# Fulfillment of requirements

- |                               |                                         |
|-------------------------------|-----------------------------------------|
| 1. Simple Frontend            | ✓ Server-Side rendering with Handlebars |
| 2. Loadbalancer               | ✓ Traefik                               |
| 3. Two instances of a service | ✓ Application in Docker containers      |
| 4. One storage backend        | ✓ Postgres                              |
| 5. JWT Authentication         | ✓ JWT Authentication                    |



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# Demostration