

# PowerEnJoy

## Design Document

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# Scope

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- **Intended audience:** project managers and software developers

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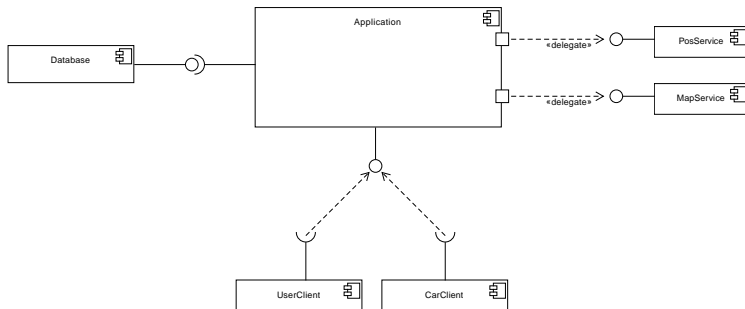
- **Intended audience:** project managers and software developers
- Architectural choices and paradigms
- **Assumption:** the system will not be implemented by our team
- No fixed constraints for future implementers

# Main Principles

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- **Client-Server** model.
- **RESTful** API.
- **Microservices** approach.

# Client-Server



# RESTful API

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- Intuitiveness
- Simplicity
- Modifiability
- Scalability
- Performance



# REST Simplicity

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**Syntax:** /resource/identifier/resource

GET /users/5678/rides

GET /cars/1234/reservations

POST /users/5678/reservations?car=1234

# Microservices

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## PROS:

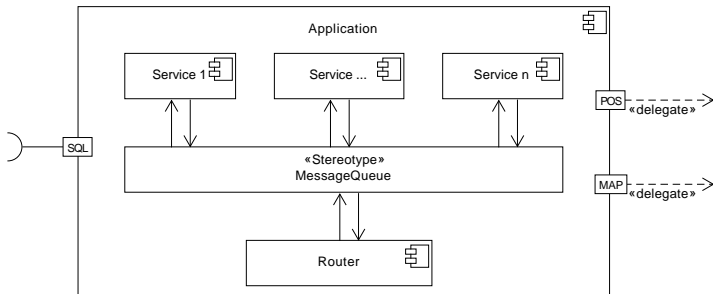
- Decoupled
- Single Responsibility
- Composable

## CONS:

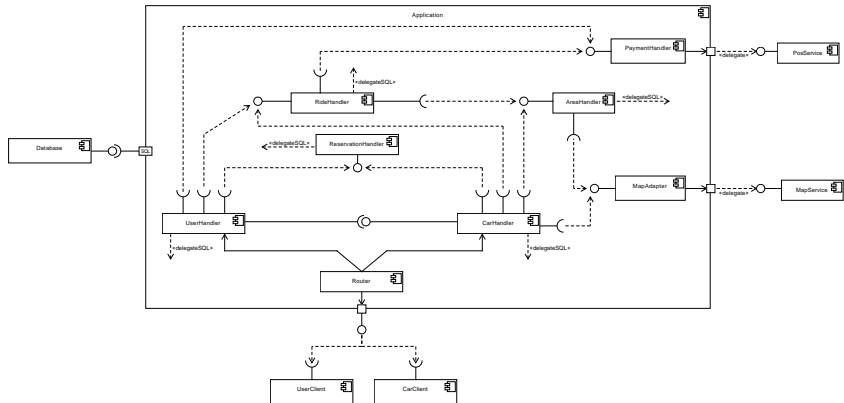
- Harder to implement
- Side effects (latency, inconsistency)

Lots of pre-made solutions for different languages

# Microservices



# Microservices

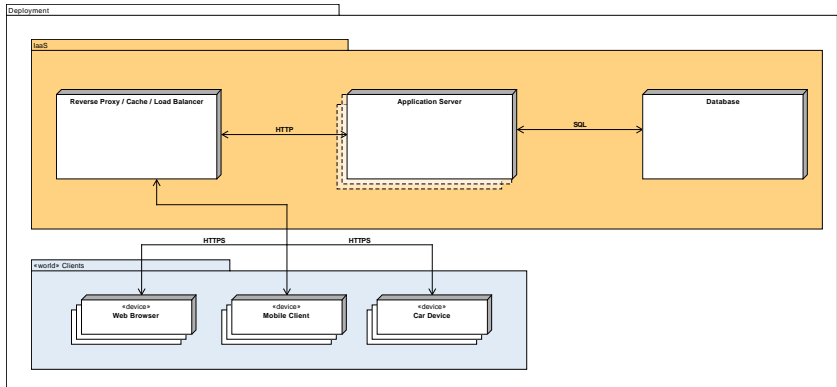


# Deployment

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- IaaS
- Three-Tier
- Single entry point
- Start small and grow with requests

# Deployment



# Reserve a Car

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**Goal:** Registered user must be able to reserve a single car among all the available cars.

- The ReserveHandler

- ☐ verifies that the user is not reserving more than one car at a time.
- ☐ changes the car status from 'available' to 'reserved'.
- ☐ starts keeping track of the time elapsed.

- The UserHandler

- ☐ sends a confirmation of the reservation to the user.

# Car Locking and Price Charging

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**Goal:** At the end of the ride the car is locked automatically and the user is charged.

- The CarHandler

- ☐ locks the car as soon as the passengers got out.

- The RideHandler

- ☐ waits five minutes.
- ☐ checks possible discount or additional fees.
- ☐ computes the total price.

- The PaymentHandler

- ☐ charges the user of the total amount.
- ☐ manages the communication with the external API.