



Tunisian republic
Ministry of Higher Education and Scientific Research
University of Tunis El Manar
National Engineering School of Tunis
Information Technology and Communication Department



End Of The Second Year Project

Design and development of a ride-sharing platform in a microservice architecture (passenger-side)

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Supervised by: Mr. HADDAD Mohammed Ramzi

Academic year: 2022 - 2023

Structure Of The Presentation

Introduction

Proposed Solution

Architecture

Design

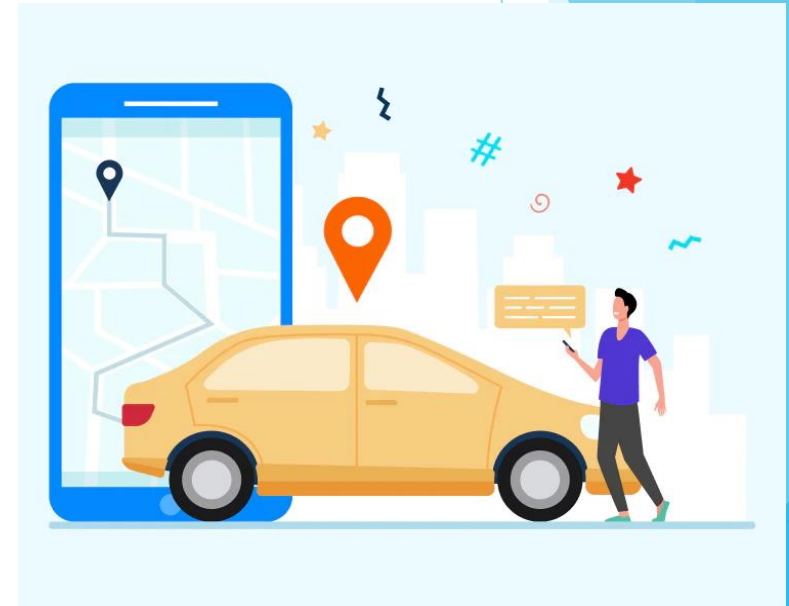
Implementation

Conclusion

Introduction

What is Ridesharing ?

- Service that connects passengers with drivers.
- Enable anyone with a car to become a driver and earn money by providing rides.



Pros of Ridesharing ?



Cost-effective



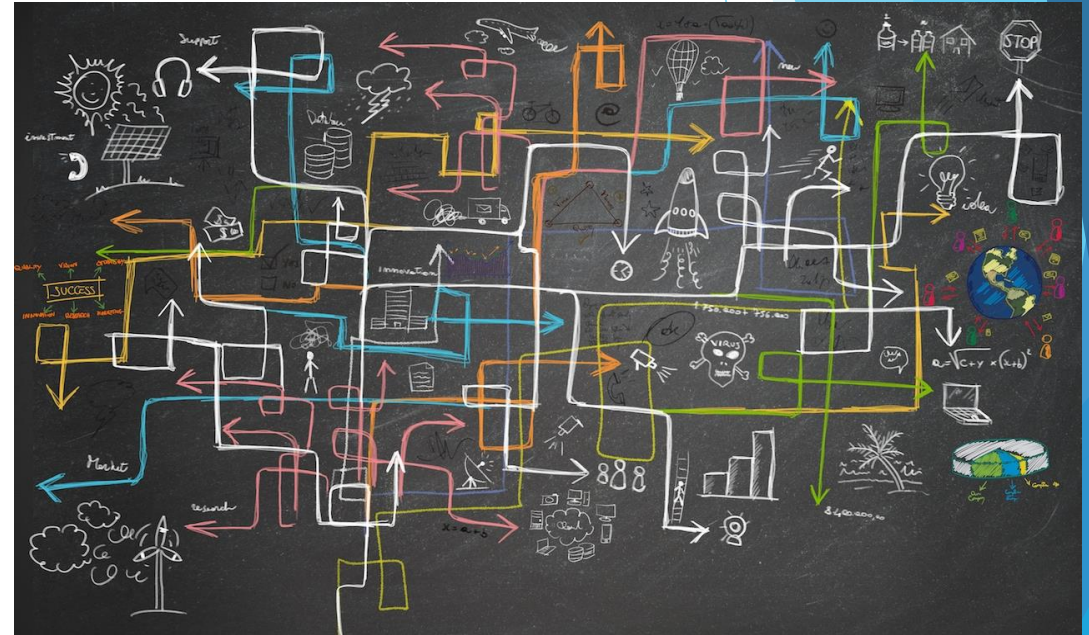
Environmental Benefits



Convenience

Ridesharing is a complex process

- Matching riders with drivers can be a complex process
- Managing a heavy user base



Problem

- How to modelize such complexity ?
- How to make it scalable and efficient ?



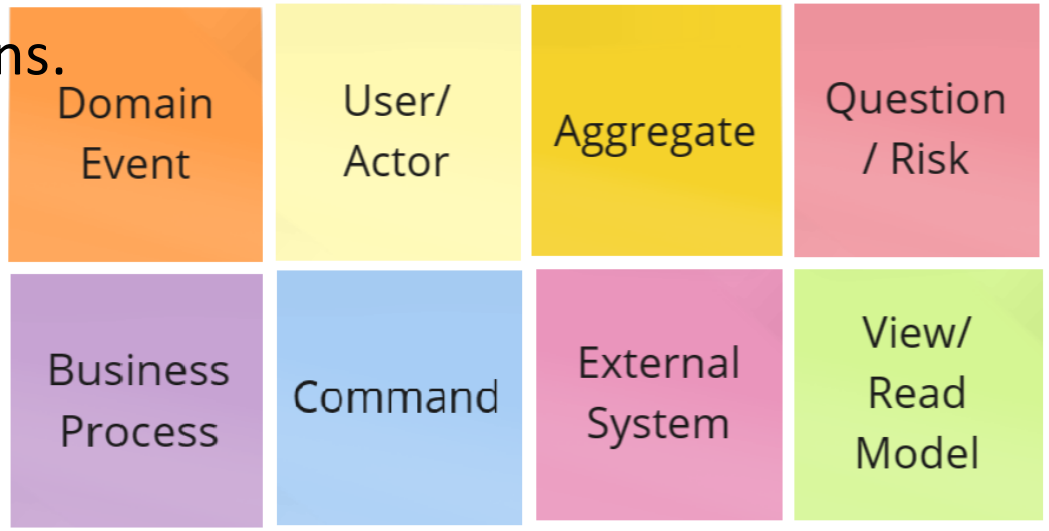
Proposed Solution

Specifications

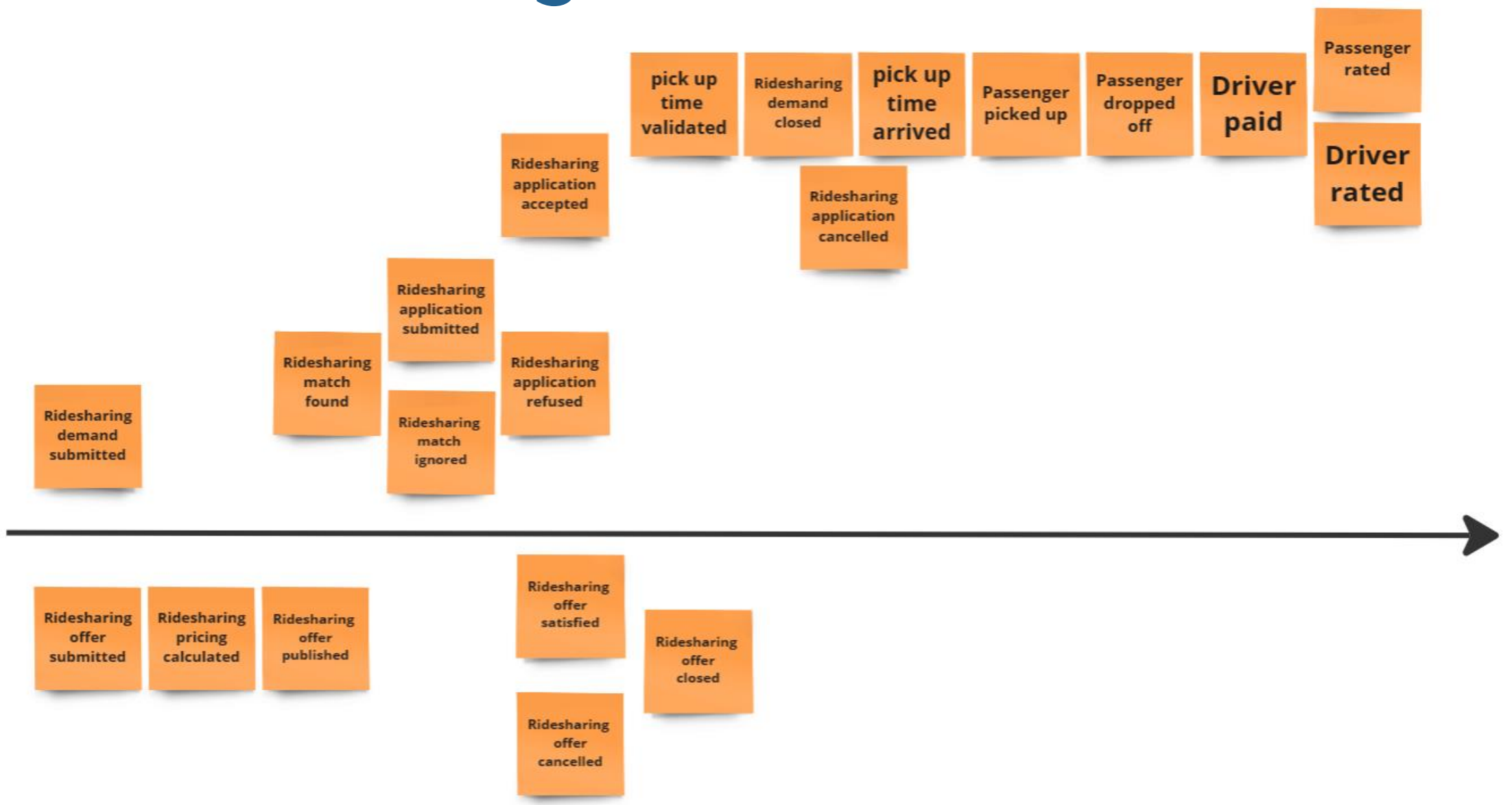
Actors

Event Storming

- visualize and explore complex business processes, systems, and software applications.
- rapid prototyping and iterative development
- emphasis on collaboration and cross-functional teamwork



Event Storming



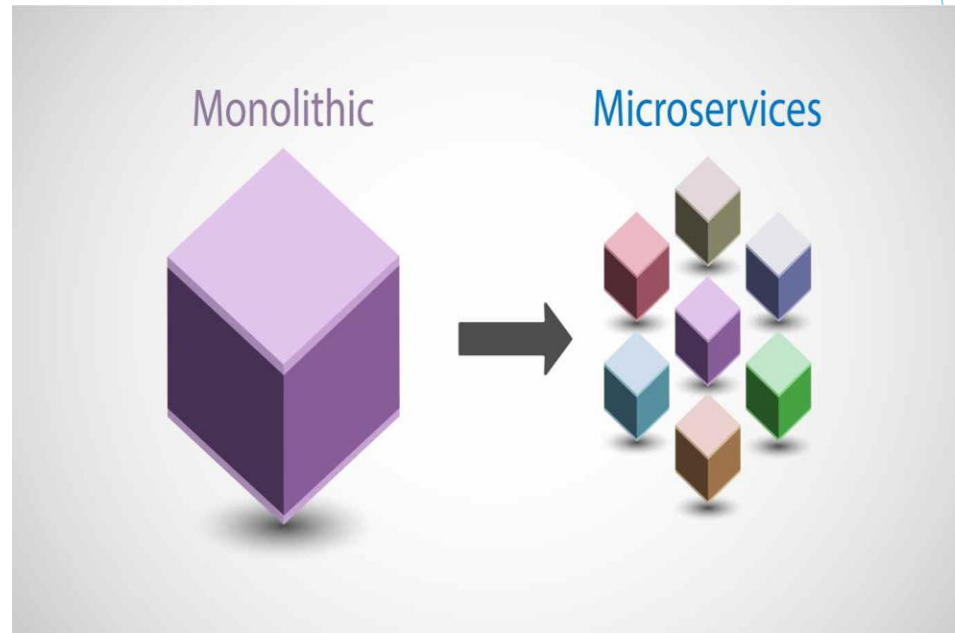
Event Storming



Architecture

Microservices

- Scalability
- Agility
- Modularity
- Flexibility
- Resilience

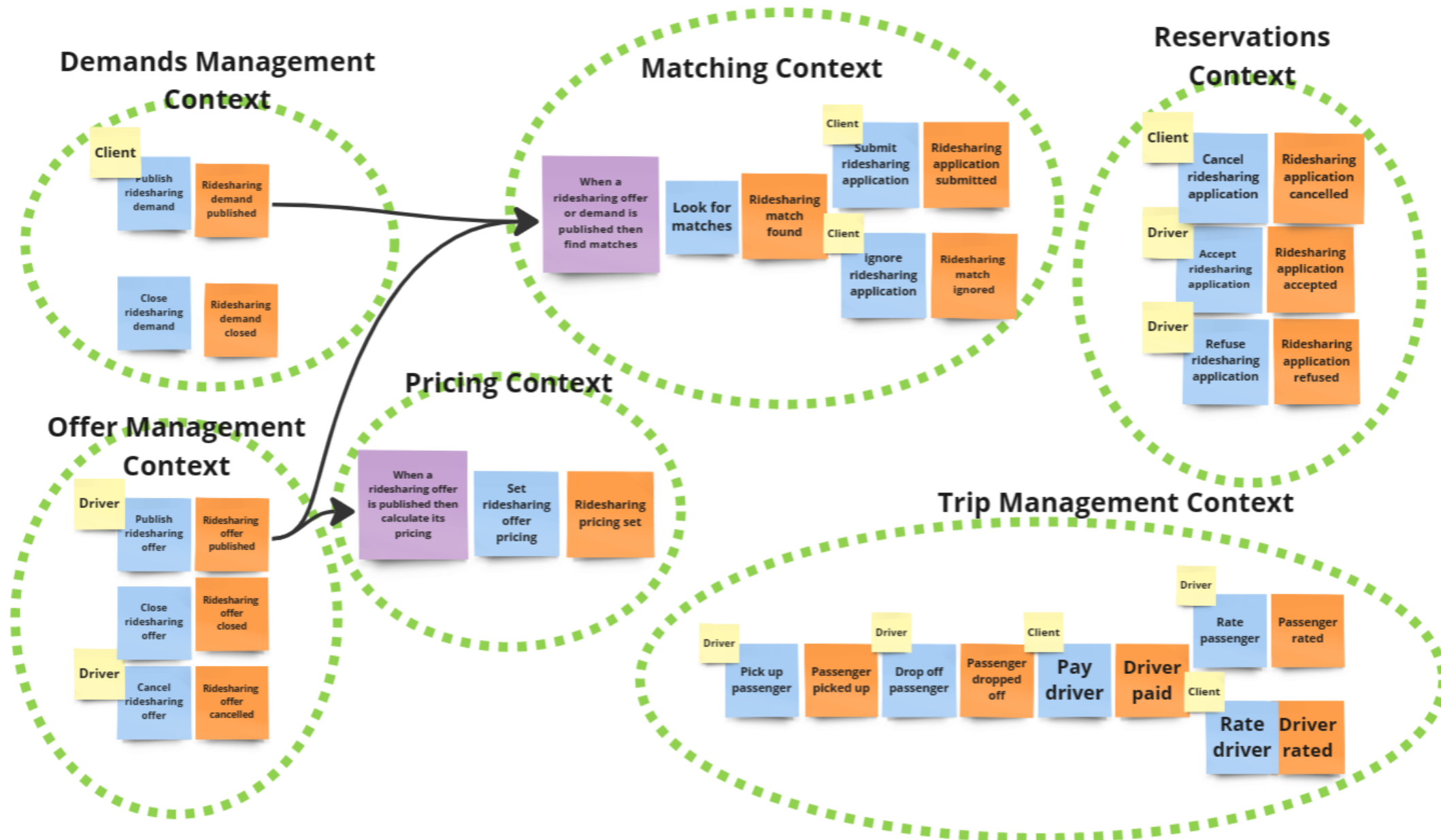


Domain-Driven Design

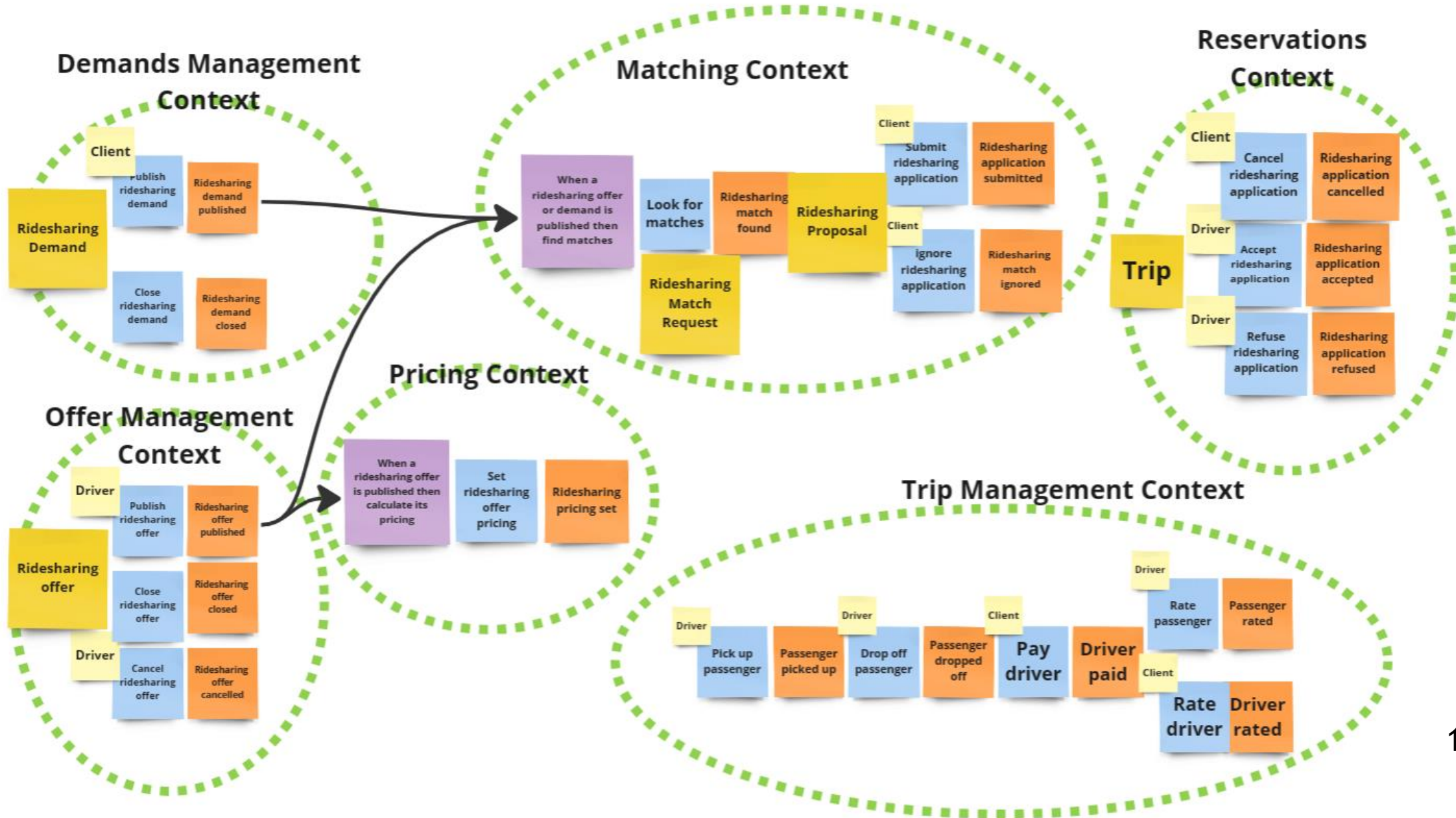
- Emphasis on the problem domain
- communication between developers and domain experts
- Flexible and scalable software development approach

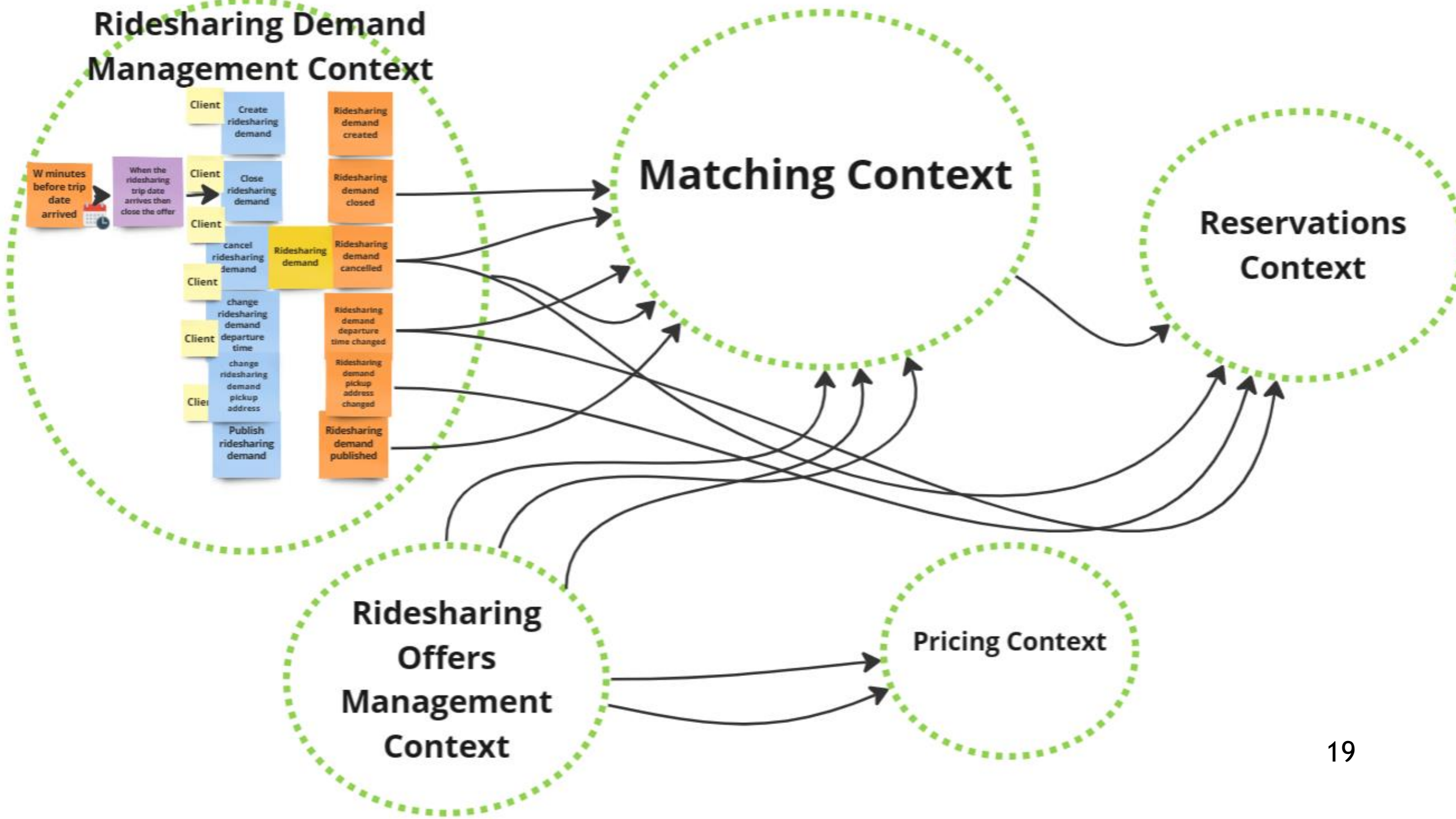
Design

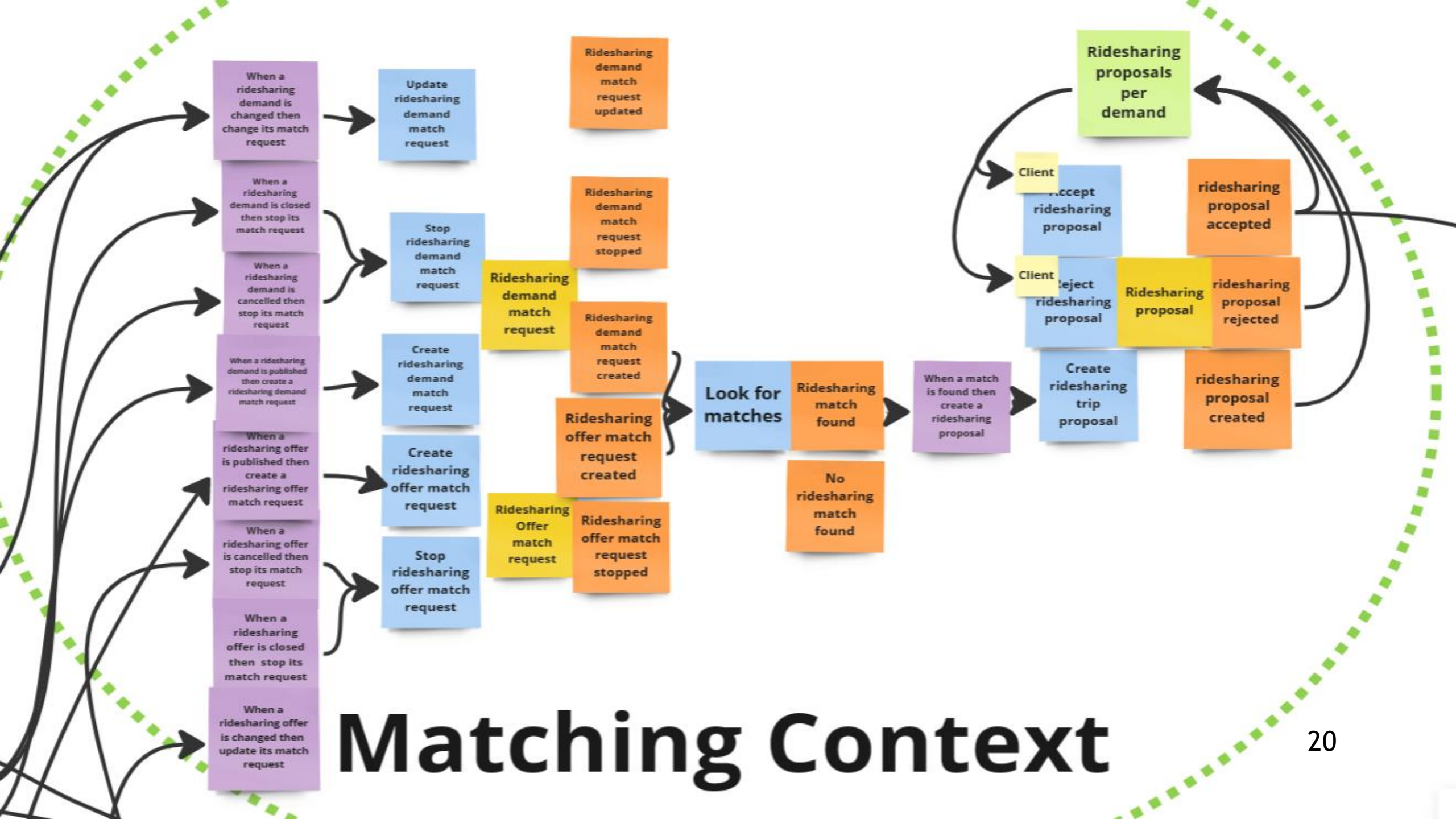
Microservices Decomposition



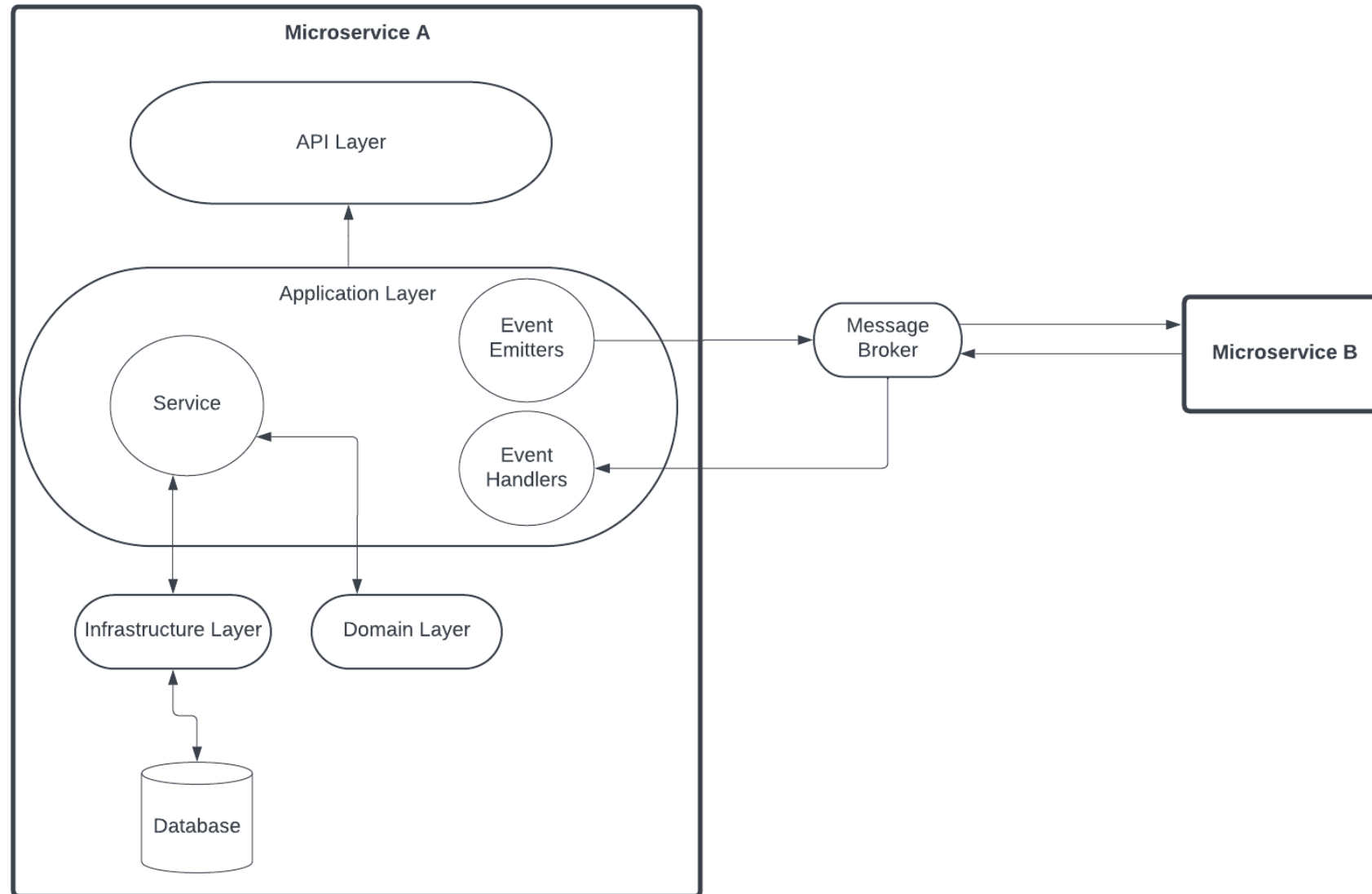
Microservices Decomposition



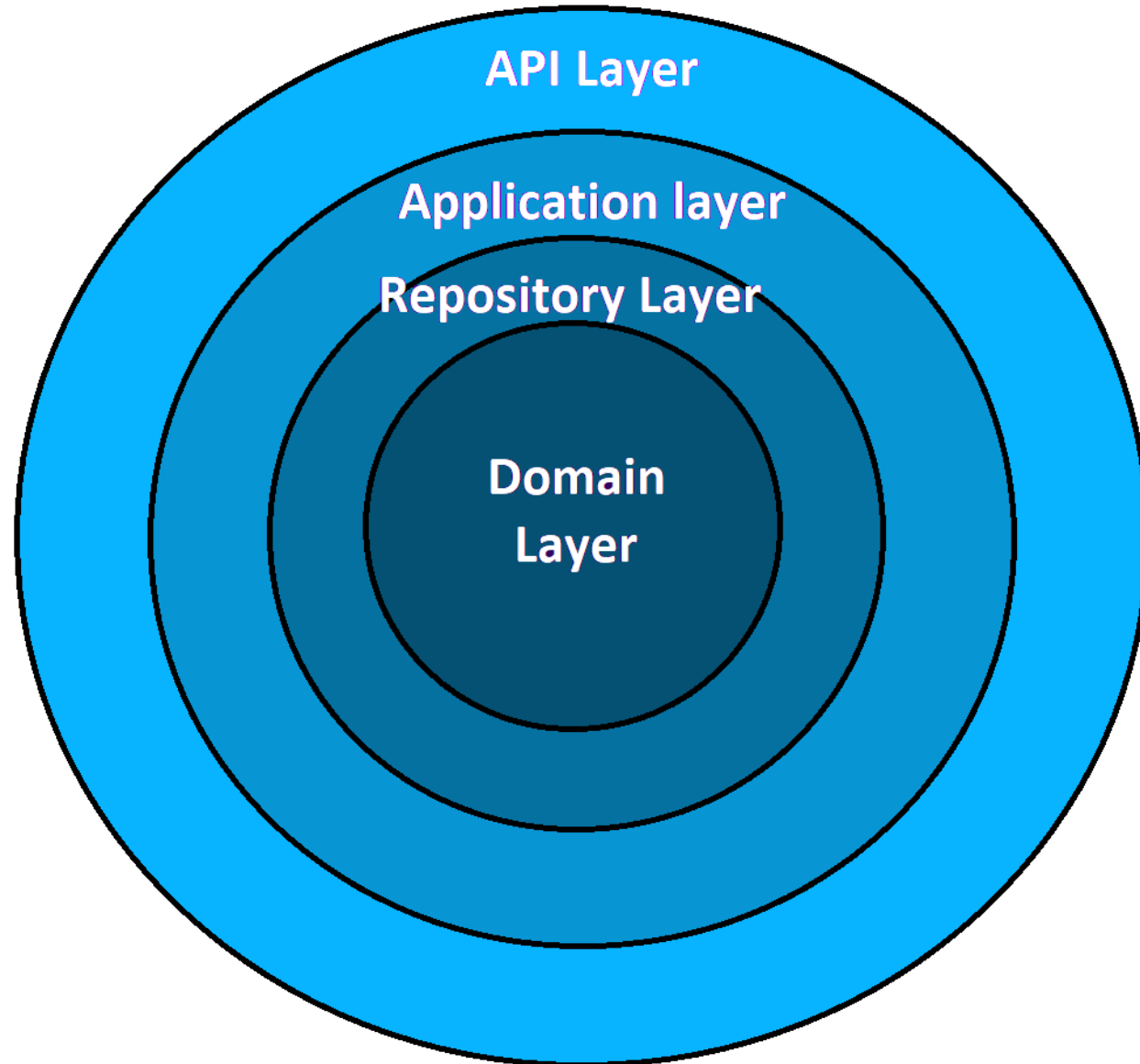




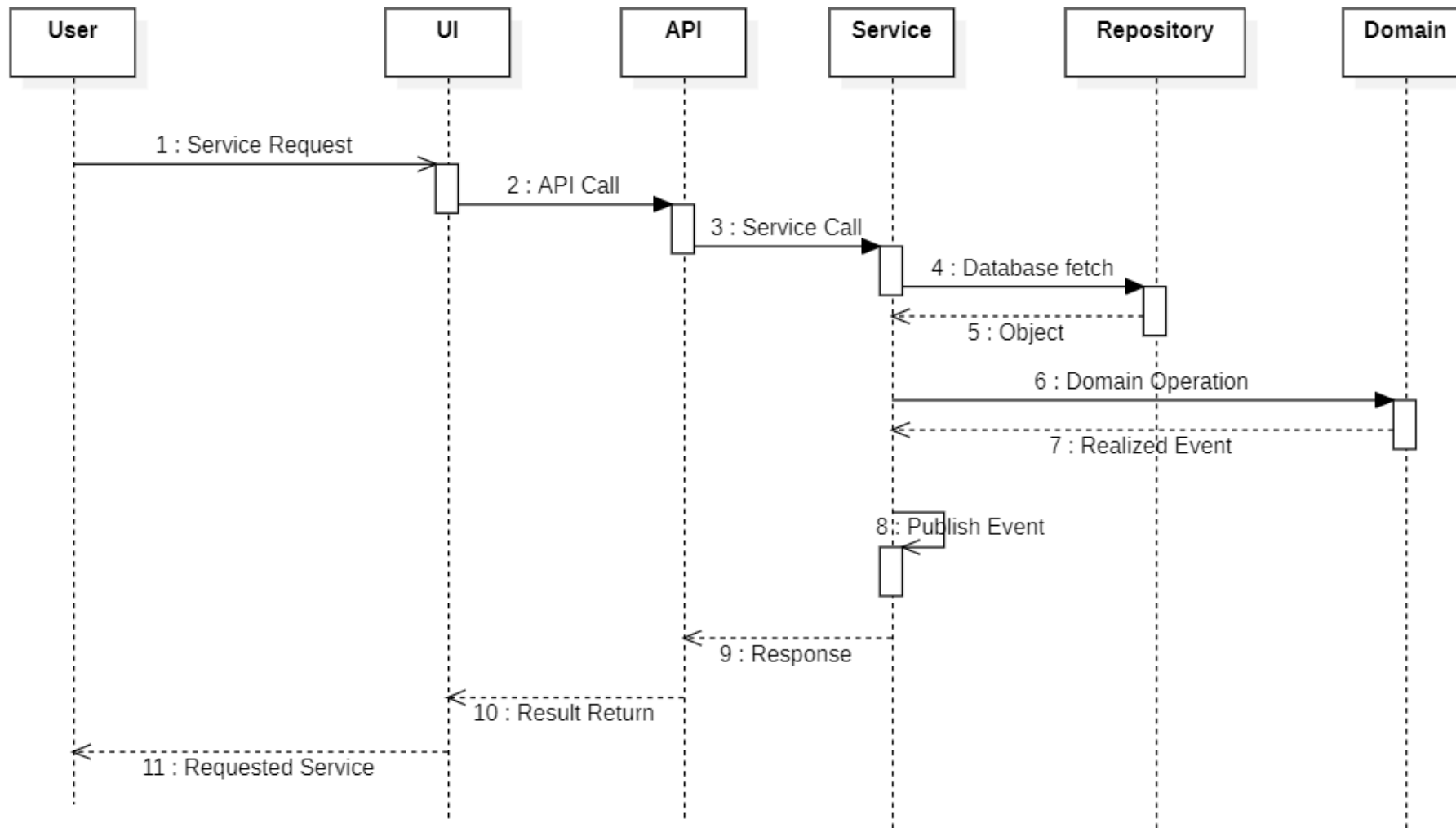
Event-Driven Architecture



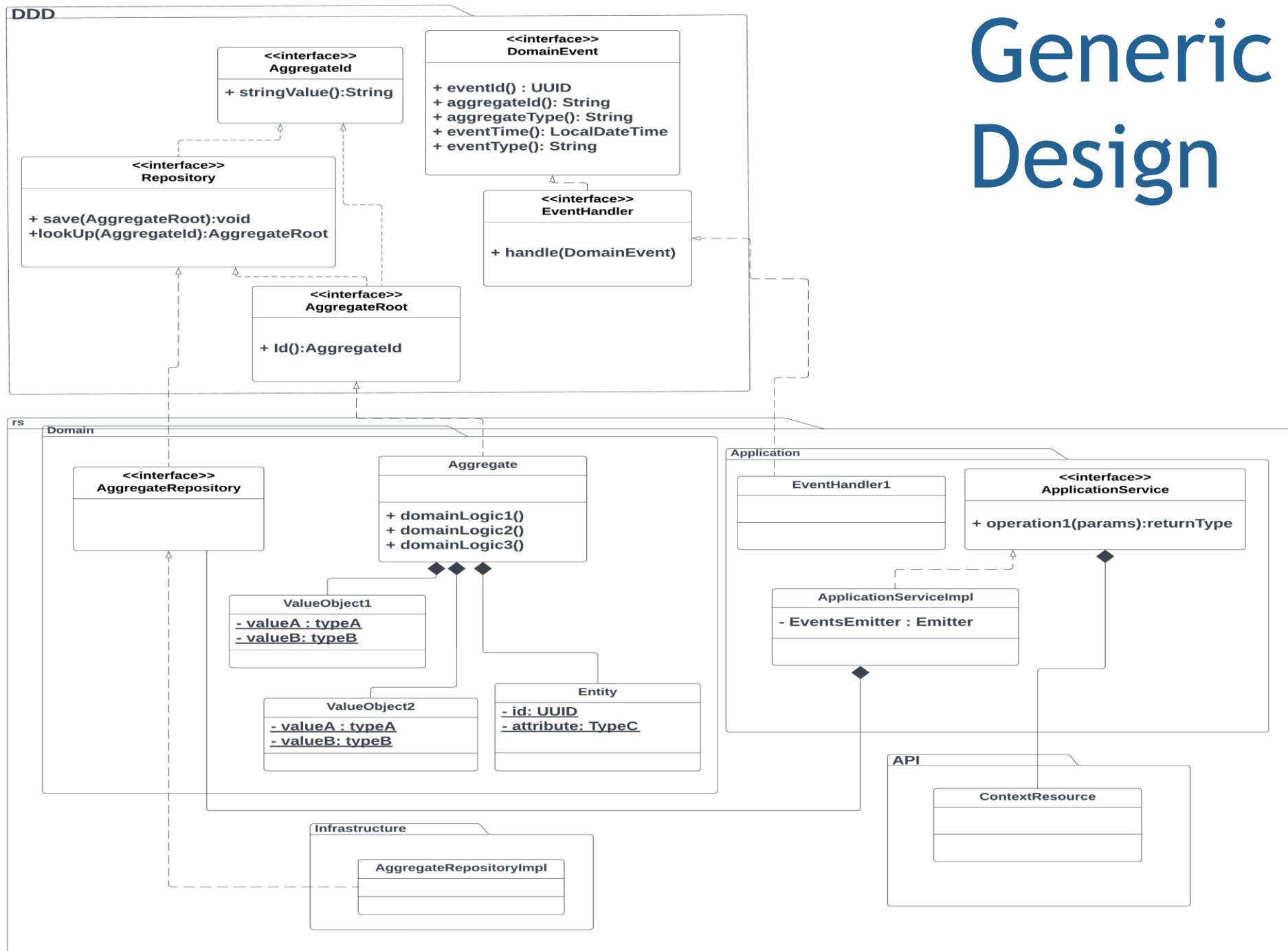
Onion Architecture



Generic Design



Generic Design



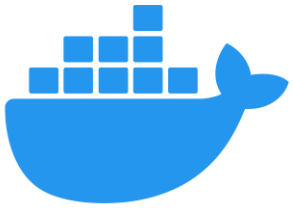
Implementation

Technology Stack



QUARKUS

- Quarkus: Java Framework "Supersonic Subatomic Java".



docker

- Docker: Software Infrastructure.



mongoDB

- MongoDB: Semi-Structured Database.

Technology Stack



- Apache Kafka: Publish-Subscribe Asynchronous message broker.



- Keycloak: Identity and access management.



- JUnit: Testing

Demonstrations

Departure address

tunis

Destination address

gabes

Departure date

08/05/2023



Departure
time

10:00

PM



Create Demand

Details

departure city : tunis (31.671937782063317,9.723202891826272)
destination city : gabes (32.87523238819117,9.670941836095182)
time : 2023-05-08 22:00:00
cancelled : false
published : false

Publish

Cancel

```
1 {
2   "userId": {
3     "id": "cad79aaf-a51c-4727-9eab-9161812d6749"
4   },
5   "departureAddress": {
6     "city": "tunis",
7     "street": "string",
8     "number": 0,
9     "location": "string"
10  },
11  "departureGeoPoint": {
12    "latitude": 10.394259588825676,
13    "longitude": 32.34322423927006
14  },
15  "destinationAddress": {
16    "city": "gabes",
17    "street": "string",
18    "number": 0,
19    "location": "string"
20  },
21  "destinationGeoPoint": {
22    "latitude": 8.900386093984347,
23    "longitude": 36.16505933940711
24  },
25  "departureDateTime": "2023-05-08T22:00:00",
26  "rsDemandId": {
27    "value": "9f396cf8-f5ca-4b9c-804c-af5070dae1c9"
28  },
29  "closed": false,
30  "cancelled": false,
31  "published": true
32 }
```

Demonstrations

ENIT RS






Home

Driver ▾

Rider ▾

Schedule

Messaging

Details

departure city : tunis (31.671937782063317,9.723202891826272)
destination city : gabes (32.87523238819117,9.670941836095182)
time : 2023-05-08 22:00:00
cancelled : false
published : true

Cancel

Matching

demand is matching = true

Proposals

```
1 {  
2   "rsDemandId": {  
3     "value": "9f396cf8-f5ca-4b9c-804c-af5070dae1c9"  
4   }  
5 }
```

```
1 "closed": false,  
2 "cancelled": false,  
3 "published": true
```

Demonstrations

Details

departure city : tunis (32.34322423927006,10.394259588825676)
destination city : gabes (36.16505933940711,8.900386093984347)
time : 2023-05-08 22:00:00
cancelled : false
published : true

Cancel

Matching

demand is matching = true

Proposals

accepted = undefined
rejected = undefined
pending = true



accepted = undefined
rejected = undefined
pending = true



Conclusion

Thanks
For Your
Attention!