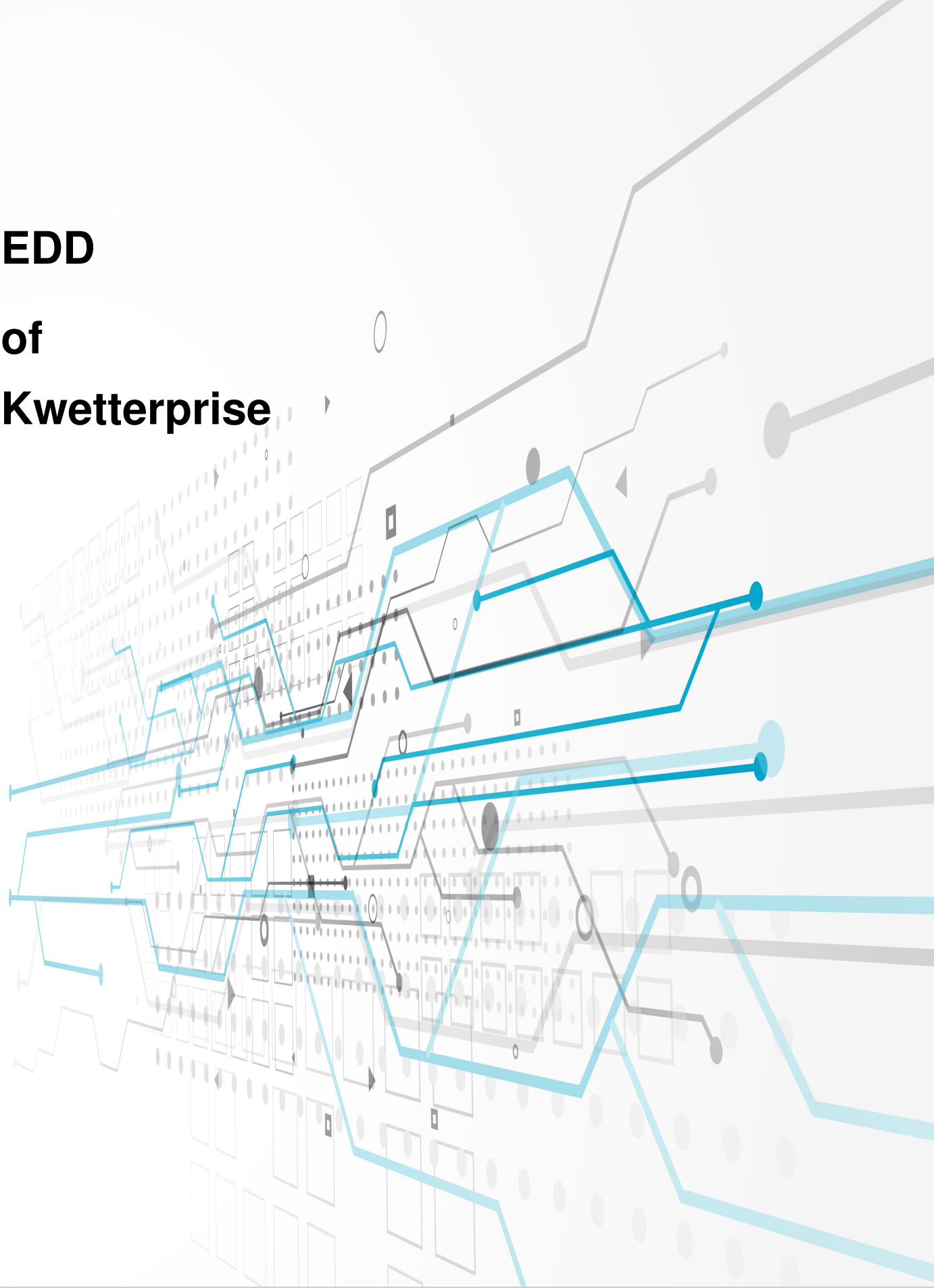
EDD

of

Kwetterprise



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Rel.	Date	Status	Changes
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Distribution list

Name	R01	R02	R03
Kwetterprise			
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Document

Text marking

Marked text	Text needs to be changed or completed.
Marked text	Text has changed compared to the previous release.
Marked section	Section headers that are intended for review.

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1. Introduction

This document describes the design of Kwetter.

1.1. Definitions and abbreviations

RSD	Requirements Document
SPD	Specification Document
EDD	Engineering Design Document
CQRS	Command–Query Responsibility Segregation
SPoT	Single Point of Truth

2. High Level Design

Figure 2.1 contains a diagram of Kwetterprise's architecture.

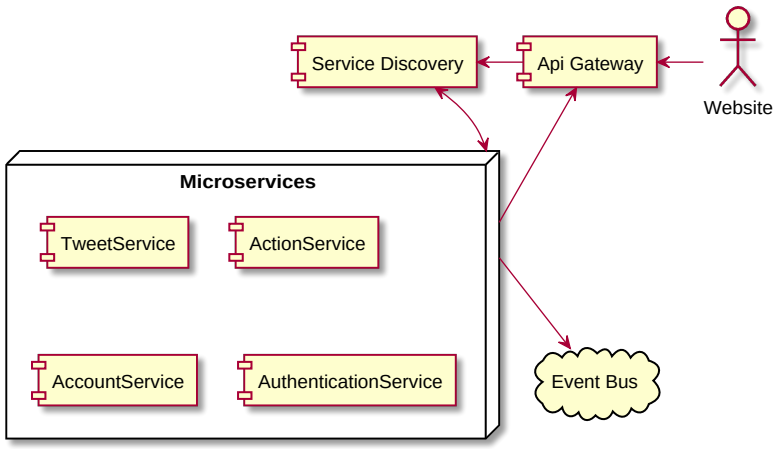

Figure 2.1: High level design.

This architecture consists of four main parts:

- **Microservices**
  The business logic of Kwetterprise is handled by multiple microservices. Microservices are chosen to seperate responsibilies and functionality.
- **Service discovery server**
  The service discovery server exists to let microservices register themselves.
- **API gateway**
  The API gateway is used to dyamically route requests from the front-end (or other API users) to the correct micro-service.
- **Event bus**
  Communication between microservices is event-driven. A so called "event bus" is responsible for accepting and delivering events.

2.1. Service design

Services are designed with the "command–query responsibility segregation" principle (CQRS) in mind. Figure 2.2 shows this archtecture.

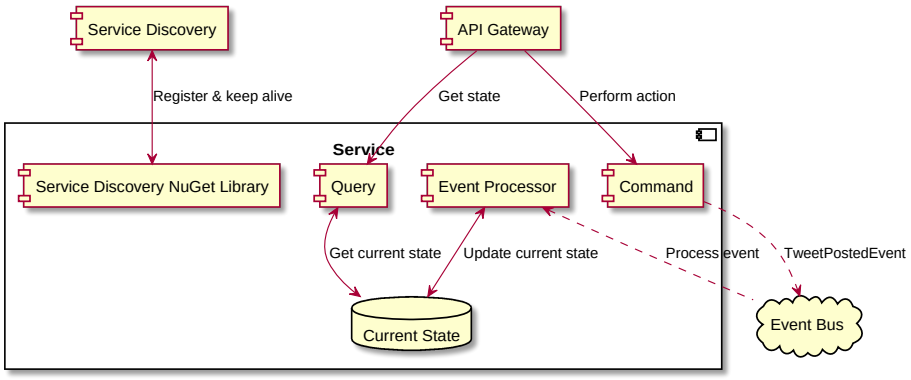

Figure 2.2: High level design of a service.

The service consists of three parts. The *Command* part handles commands which are invoked by an actor such as tweeting or following a user. These commands result in events being published to the event bus.

The *Processor* part processes events and updates a database with the “current state”. E.g. whenever a tweet even comes in, the tweet is added to the database. Then, whenever an event communicates a tweet is removed, the tweet is deleted from the database.

The *Query* part of the service is responsible for presenting this data to other components.

The reason this cache exists is because otherwise a “retrieve all followers from this user” request must fetch all events relating to that user (following, unfollowing, account deletion, etc) and process them to determine the final result. This would put high load on the service the moment a query is executed instead of balancing the load whenever updates are pushed.

Thus, the SPoT (single-point of truth) is the events in the events bus. Note that the “current state cache” database can always be recreated by processing all historic events.

3. Events

- **Account**
  - AccountCreated
  - AccountUpdated
  - AccountRoleChanged
  - AccountDeleted
- **Tweet**
  - TweetCreated
  - TweetDeleted