



HIDDEN ARTS

Francesco Musso, Davide Ponassi

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Domain overview

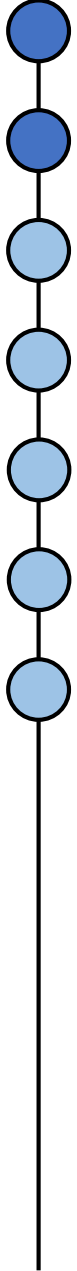
Hidden Arts is a mobile application that allow users to share their favourite street arts around the world.

The user, through the application, will take a picture of a «street art» he likes and select the location.

Once an administrator check the validity of the submission it will be shown on the homepage.



Aim of the project



The goal of the project is the design and the development of the large-scale data management/data processing layer

Part I

- Provide application and system requirements (~10 hours)
- Choice of the reference technology

Part II

- Schema and workload definition (~10 hours)
- Cluster and dataset creation (~15 hours)
- Schema and workload implementation (~8 hours)

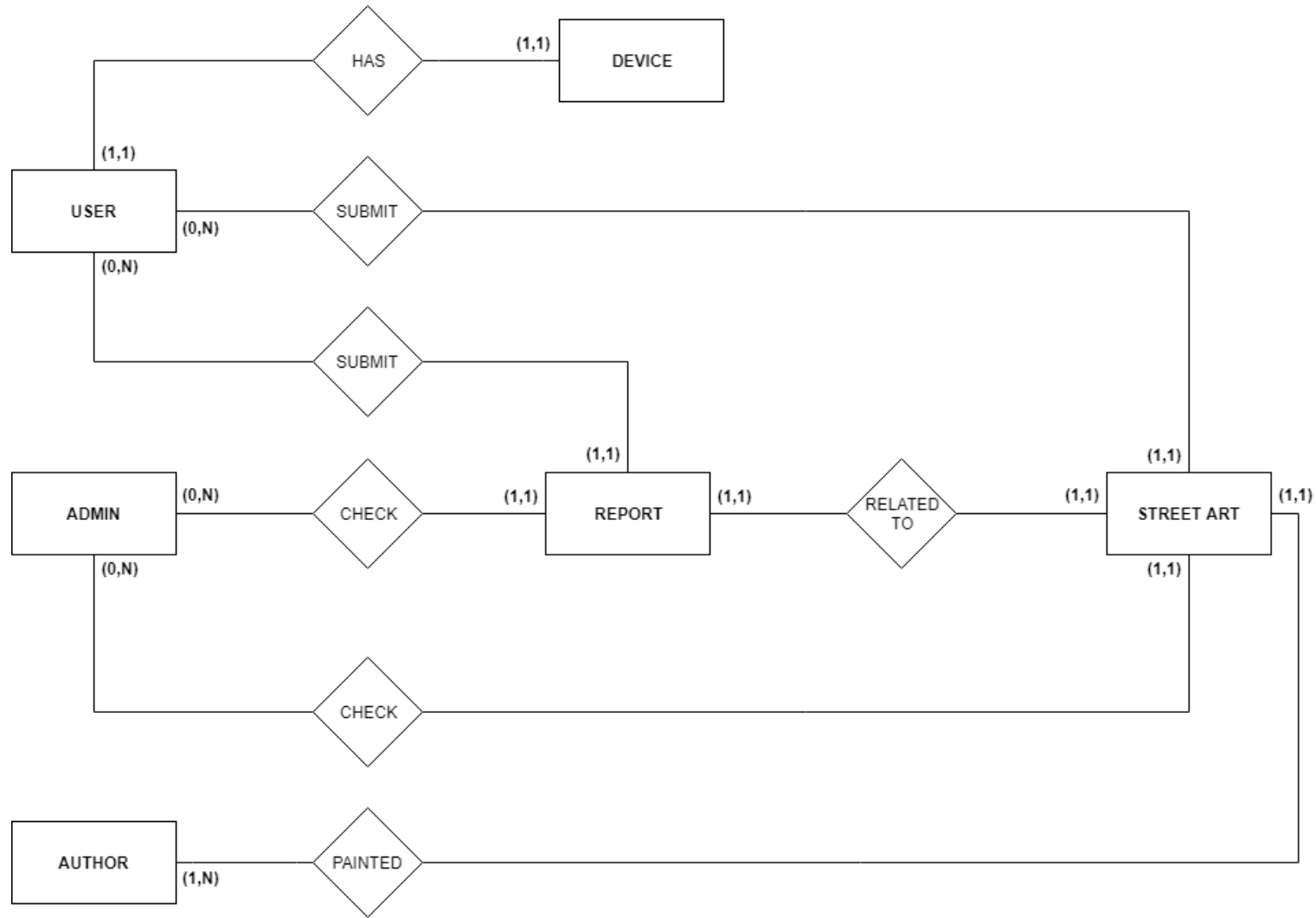
Reference technology: Cassandra



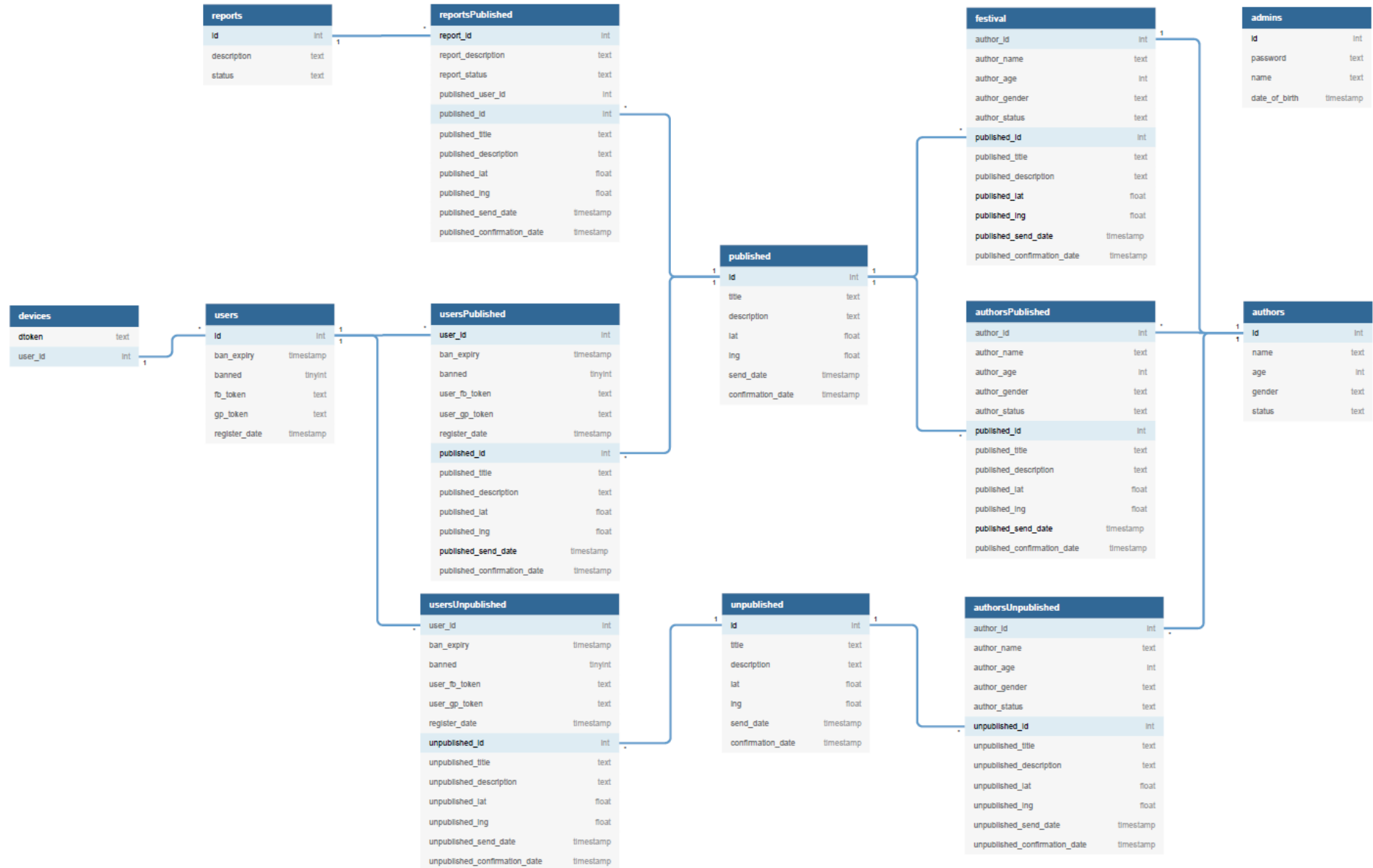
Reasons

- The workload is based on a mixed write and read operations. For this reason we decided to rely on Cassandra for data storage and management since it provides very good performance on both of the operations stated above.
- It provides an high availability and fault tolerance
- CQL

Conceptual schema



Logical schema



Workload and CQL



Tunable consistency for client requests

- LOCAL_QUORUM for strong consistency. A write must be written to the commit log on a quorum of replica nodes in the same datacenter as the coordinator node (Used along with SimpleStrategy).

Cassandra Query Language (CQL)

- Schema creation and population
- Workload operations

Workload operations: Examples

Creation of a new user's account

```
INSERT INTO users (id, banned, fb_token, register_date) VALUES (501, 0, '71678885163916348', 1551597653000) IF NOT EXISTS;
```

Insert new street art

```
INSERT INTO unpublished (id, title, description, lat, lng, send_date, confirmation_date) VALUES  
(5001, 'Little Chef', 'Description example', 53.0067, 67.378, 1551466481000, 0);
```

Select street arts sent by a specific user in a specific range date

```
SELECT * FROM usersPublished WHERE user_id = 348 AND published_send_date >= 1551446416000 AND published_send_date <= 1551456416000;
```

Insert new report

```
INSERT INTO reports (id, description, status) VALUES (101, 'INCORRECT_NAME', 'AWAITING');
```