**Monitoring and Communication Microservice**

-Distributed Systems-

This application is an Monitoring and Communication Microservice for the Energy Management System. The microservice is based on a message broker middleware that gathers data from the smart metering devices, processes the data to compute the hourly energy consumption and stores it in the database of the Monitoring and Communication Microservice. The synchronization between the databases of Device Management Microservice and the new Monitoring and Communication Microservice is made through an event-based system that uses a topic for device changes (sends device information through a queue for the Monitoring and Communication Microservice). A Smart Metering Device Simulator application will be implemented as the Message Producer. It will simulate a smart meter by reading energy data from a sensor.csv file and sends data in the form < timestamp, device\_id, measurement\_value > to the Message Broker. The timestamp is taken from the local clock, and the device\_id is unique to each instance of the Smart Metering Device Simulator and corresponds to the device\_id of a user from the database.

A diagram of a computer

Description automatically generated

FRONTEND : 3000:3000

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A diagram of a ship

Description automatically generated

5050:5050

7070:7070