# DISTRIBUTED SYSTEMS

# Project

# Integrated Energy Management System

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## Objective

To implement an Energy Management System using a message broker middleware. This microservice collects data from smart metering devices, and sends it to a cloud topic storing hourly energy consumption, in its own database. The synchronization between the databases of the Device Management Microservice and the new Monitoring and Communication Microservice is done through an rabbitMq topic for device changes.

To simulate smart meter data, a Smart Metering Device Simulator application is implemented as the Message Producer. This simulator reads energy data from a sensor.csv file, where each line represents a timestamped measurement (taken every hour) in the format <timestamp, device\_id, measurement\_value>. The timestamp is obtained from the local clock, and the device\_id is unique to each instance of the simulator, corresponding to the device\_id of a user from the database. The Smart Metering Device Simulator is developed as a standalone desktop application.

Diagrama Deployment

O imagine care conține text, captură de ecran, proiectare

Descriere generată automat

Diagrama Conceptuala

O imagine care conține text, diagramă, captură de ecran, Plan

Descriere generată automat