

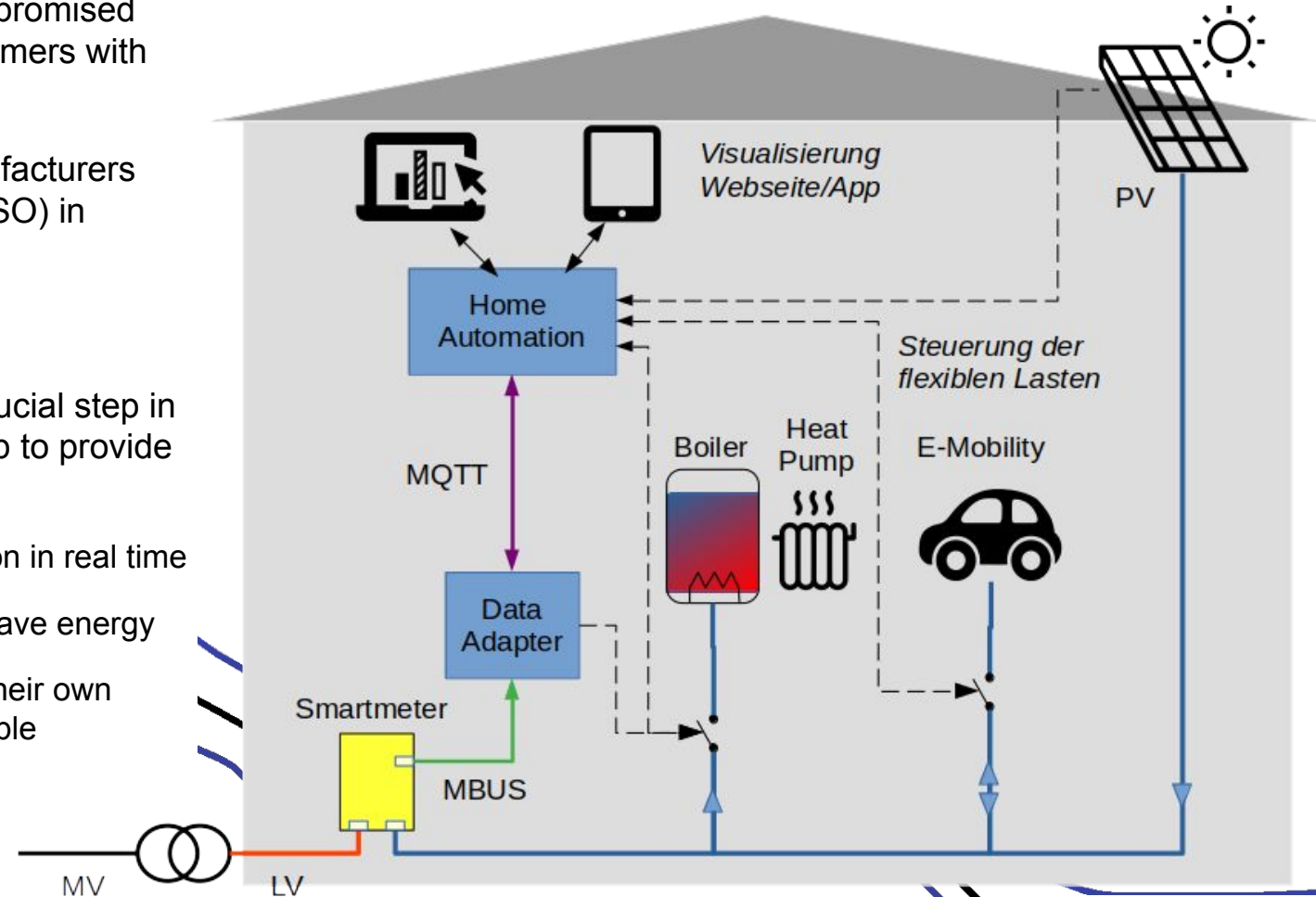
Empower citizens to use their own energy data.
Using the smartmeter's local interface for visualization and automation

• **Intro**

- Smart Meters rollout in Switzerland hardly deliver the promised energy savings because they do not yet provide customers with easy access to their data by a local interface CII.
- Interfaces are not implemented uniformly by the manufacturers and are rolled out by distribution system operators (DSO) in different configurations.

• **Motivation**

- The easy and free access of consumption data is a crucial step in the energy transition and CO2 reduction and shall help to provide the following contribution
 - give customers transparency about their consumption in real time
 - change customer behavior in a sustainable way to save energy
 - create innovations that help customers to optimize their own consumption with self-generation (PV) and controllable consumers (car charging station, heat pump)



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• **Idea**

- Reading of data from smart meter CII (DLMS, IDIS CII, DSMR-P1, MBUS), from different DSO (EKZ, AEW, EWB, Romande Energie)

• **Harmonized MQTT profile**

The MQTT topics should be standardized to provide interoperability between different smart meters and various applications.

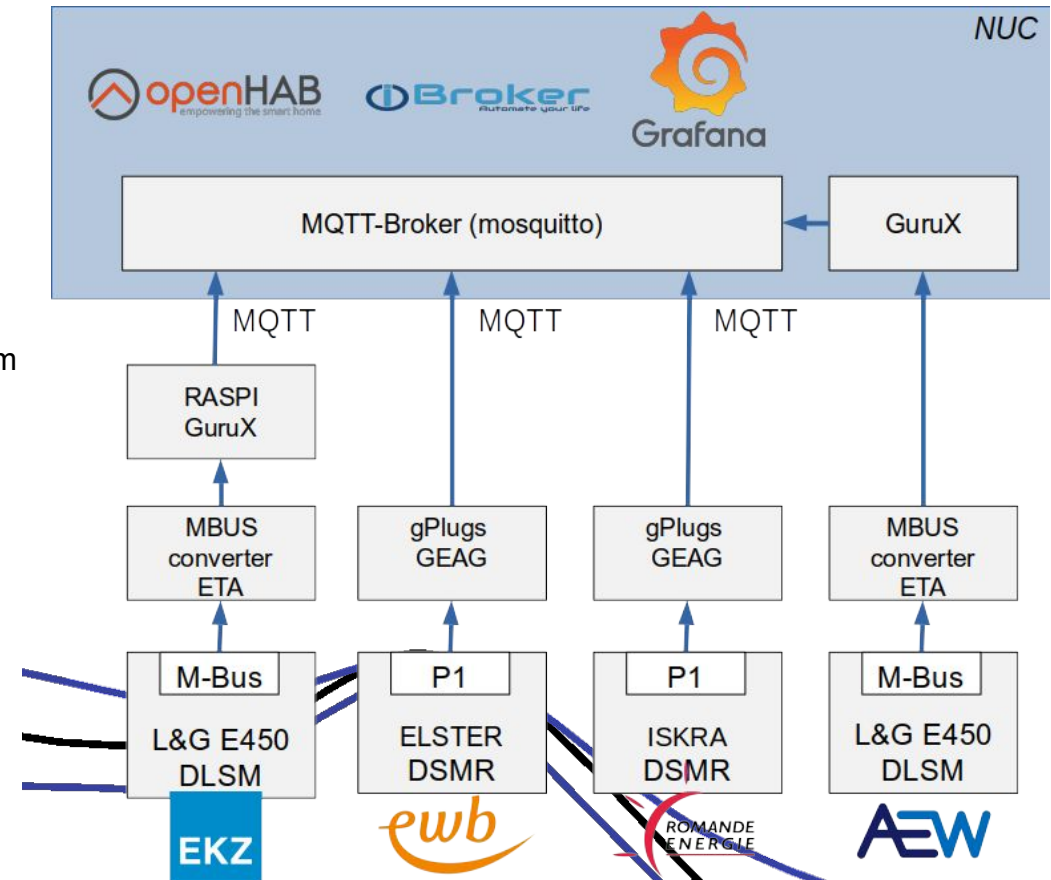
• **Data**

- The data from the different meters are sent via MBUS or DSMR to a adapter which converts the data into MQTT. Different meters are provided by the DSO. The MQTT stream is then integrated into OpenHab and ioBroker.

• **Tasks**

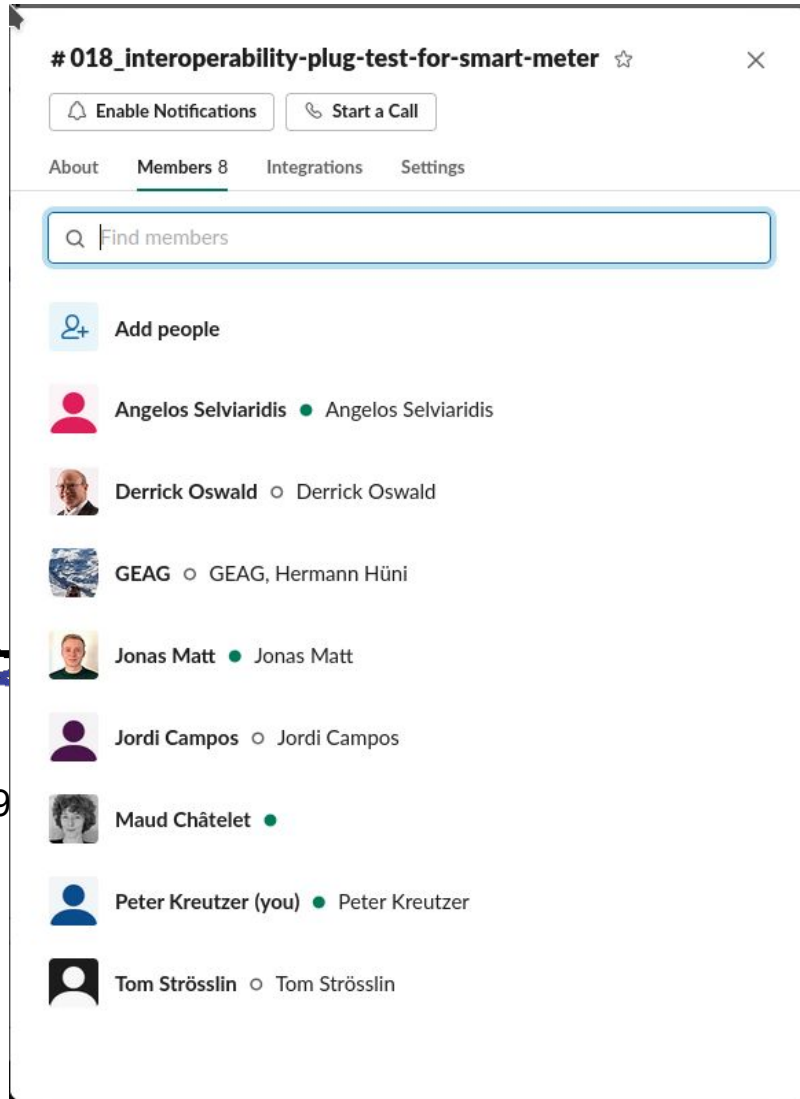
- Setup of the different metering systems
- 12 • Conversion of MBUS-DLMS/COSEM data into MQTT using the open-source library from gurus.fi and Adaption of the DSMR-P1 Protocol to MQTT
- Integration of the smart meter data into ioBroker and OpenHab
- Documentation of the interoperable MQTT interface

Interoperability test setup



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All meters up and running !!!!



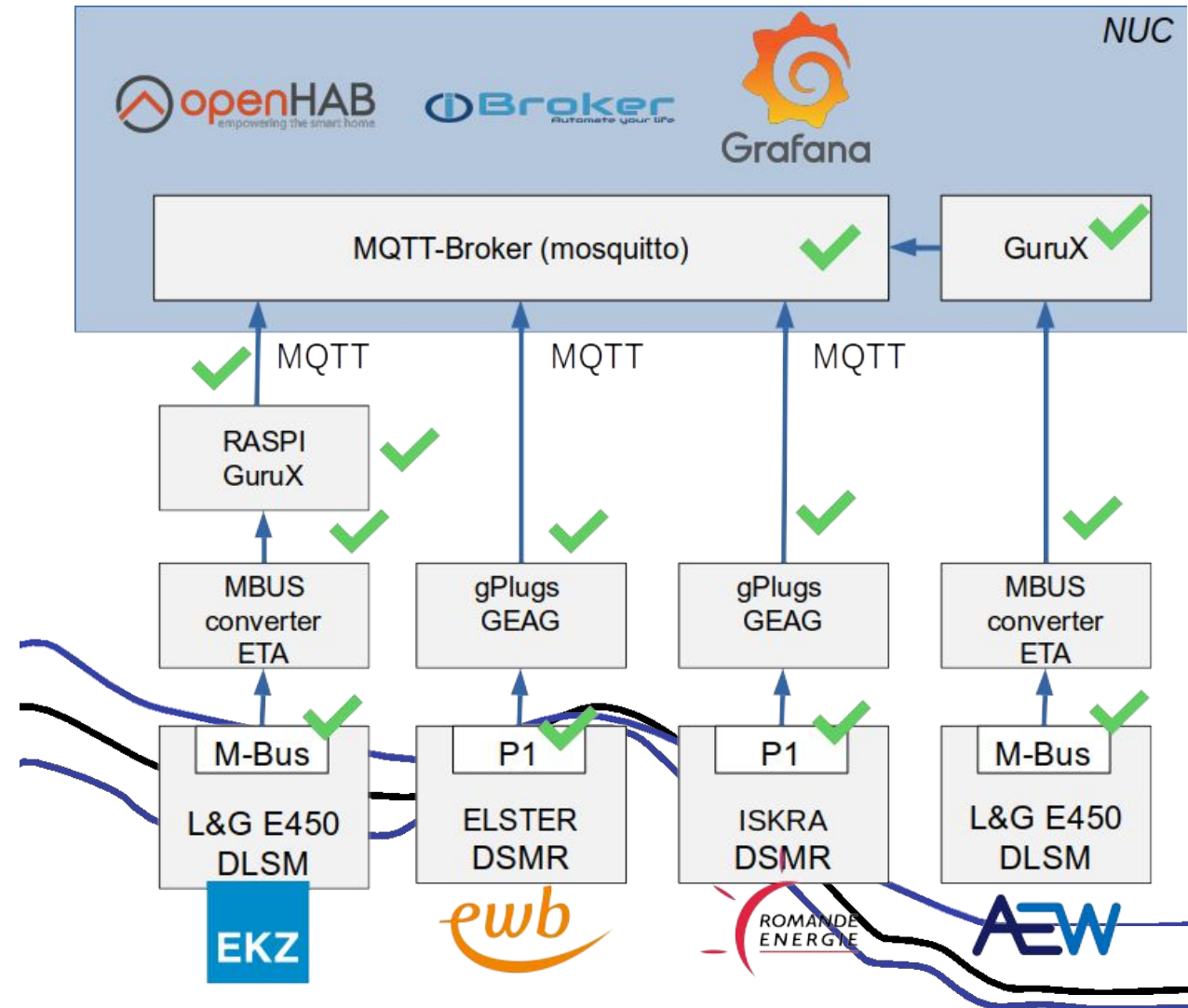
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Interoperability test setup

All data are flowing from the smart meters up to the central MQTT broker

The EKZ open source library is now able to read data from different smart meters !

MQTT transformation adapter implemented



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Central broker shows all data from smart meter

different MQTT messages:

EKZ: smartmeter/LGZ1030655933512/ACTIVE_POWER_P {"value": 0.0, "timestamp": 1629055611}

Romande Energie: tele/gPlug11/SENSOR {"Time":"2021-09-24T17:56:38","z":{"Pi":0}}

AEW: smartmeter/12345/ACTIVE_POWER_P {"value": 71.0, "timestamp": 1632499152}

EWB: tele/gPlug10/SENSOR {"Time":"2021-09-24T17:03:45","z":{"Pi":0}}

Visualization to be done as next step – today

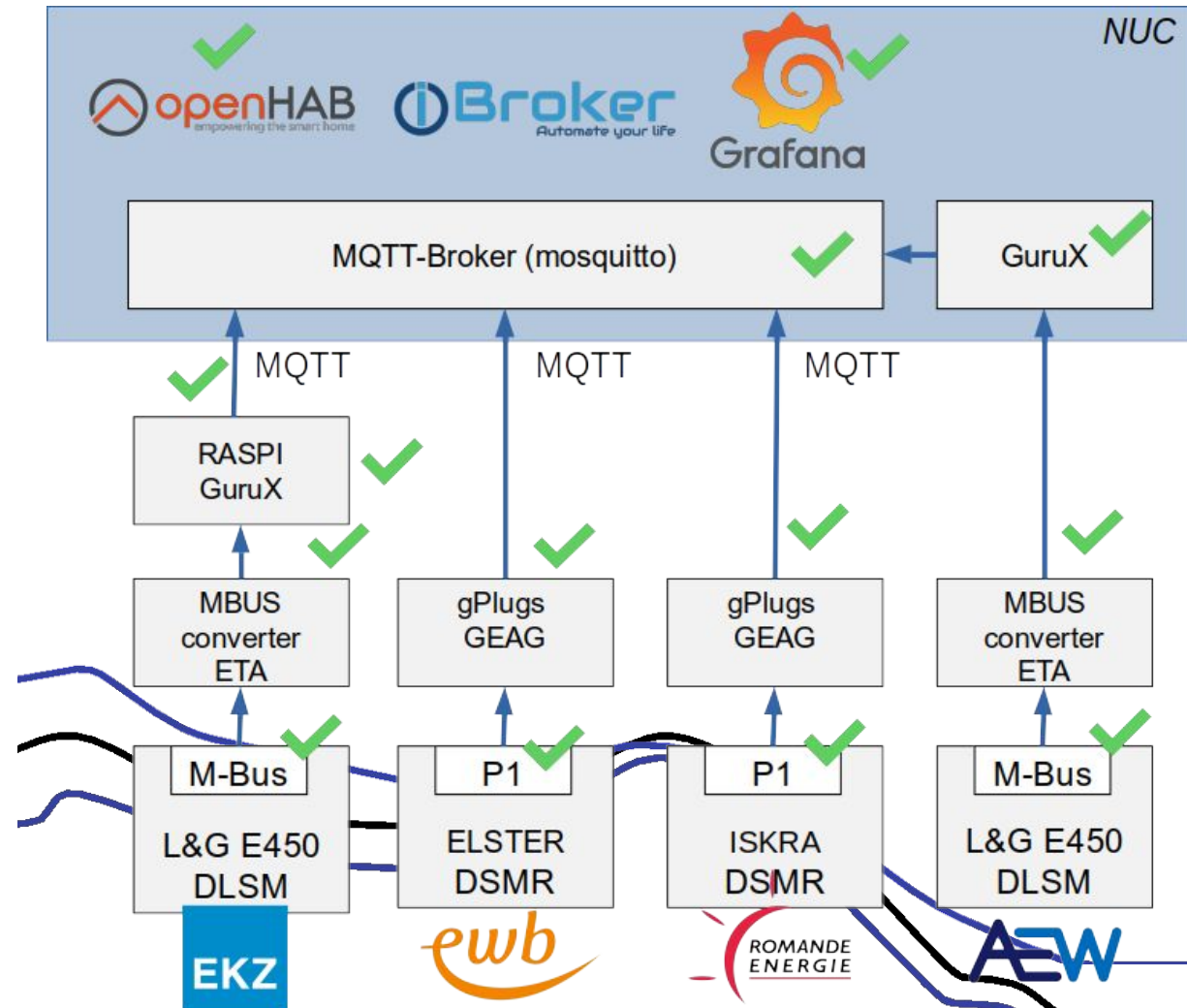
Tomorrow we can start analyzing the common profile and start implementing it into the setup

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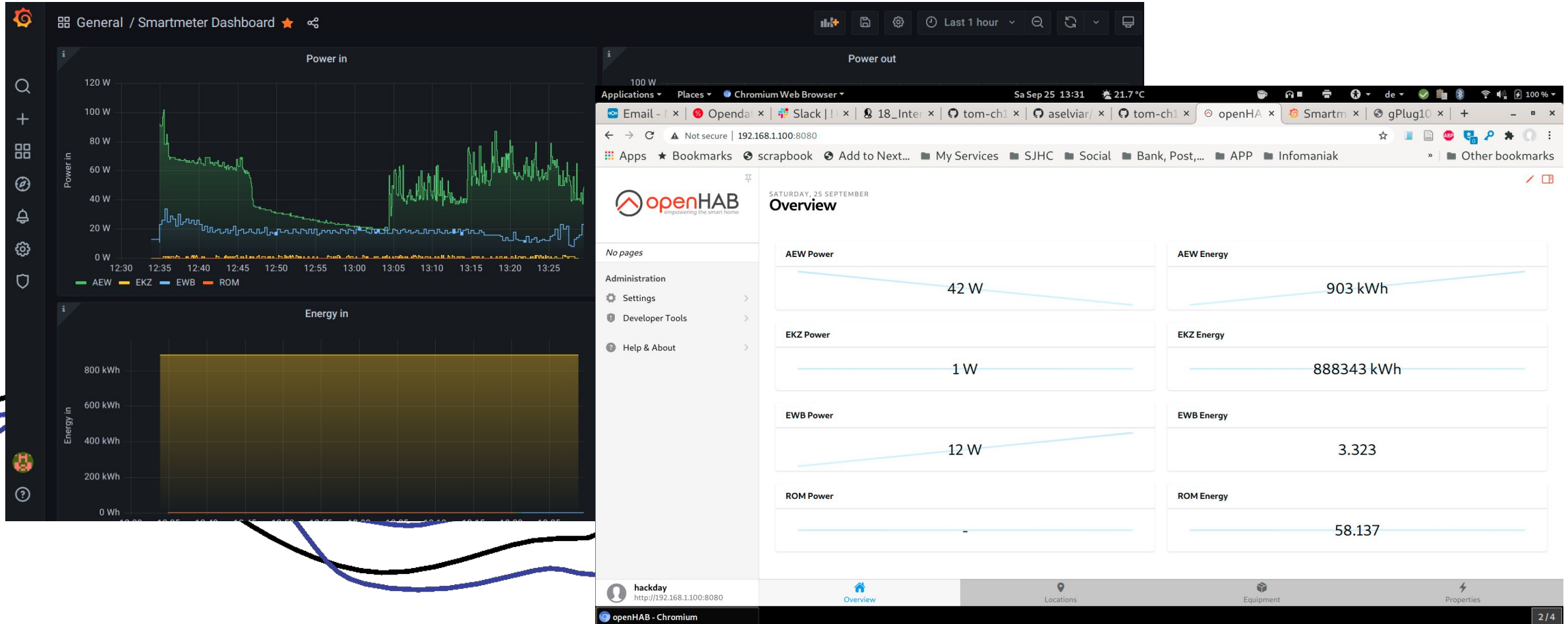
Interoperability test setup

All data are read from the meter and connect to grafana and openhab

MQTT transformation adapter implemented and publishes a common profile for all meter



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Visualization

What is required to address the interoperability issue?

Establish a taskforce on VSE involving all DSO in switzerland to get harmonized publishing of OBIS data from the meter,
e.g.: Profile for consumer, prosumer ...

Embrace the open software project from EKZ to make the MQTT profile publishing publicly available → <https://github.com/scs/smartmeter-datacollector>

Start a open hardware project to have a plug and play device that implements the reading of the meter profile and publishes the MQTT profile

Build a community of users that actively maintains the projects