SmartPulse Case Document

V1.0

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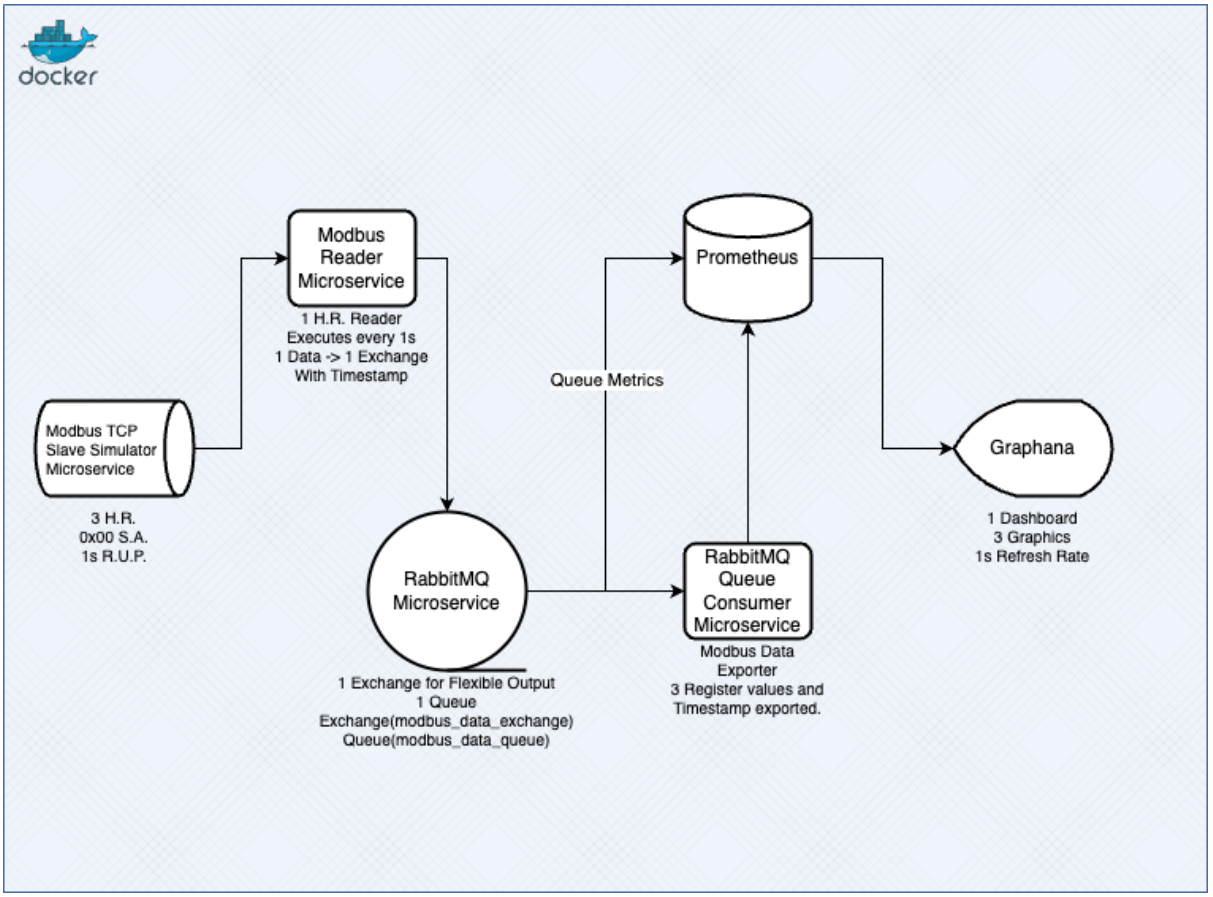
Architecture Overview



Service Descriptions

In this section every service will be explained with configurations and details.

Modbus Simulator Service

After a while of literature research, I realized there is so much simulator service for docker environments on linux. I've developed a modbus simulator on linux using pymodbus library. There is 3 holding registers and these registers updated in every second with randomly generated numbers between 0 and 100 and can be connectable with modbus TCP.

Modbus Reader Service

This service developed to retrieve data from modbus slave server and send the data to rabbitmq queue. It gets the holding registers data and formatted as JSON and adding timestamp, then it sends the data to rabbitmq queue.

RabbitMQ

Rabbitmq configured to has 1 exchange and 1 queue. The exchange has been used because of the elasticity purpose. With Exchanges, the data pipelines in rabbitMQ is easly configurable.

RabbitMQ Consumer Service

RabbitMq consumer service is developed in python environment and it retrieves the data from rabbitmq queue and represents this as prometheus metric. With this purpose, data from registers can be easly consumed and stored by prometheus.

Prometheus

Prometheus is a timeseries database and can be used to follow the application metrics. But in there, we used this as a representation table to source of grafana. RabbitMq consumer service added to prometheus as datasource.

Grafana

Grafana is used as visualiation tool for the data. Dashboard has been created for 3 different holding registers and updates every second.

ScreenShots