Cloud documentation

From precursor project (last year spring) Choosing MQTT as protocol between local and cloud. Cloud needs relational storage for profiles (users), schedules and devices as well as locations. => MariaDB as I’m familiar with SQL and this is a relatively basic database schema. So therefore, the requirements were a pub/sub (with optional broker) MQTT client as well as a MariaDB connector. Looked around and found readymade solutions: too easy outside scope of this course. Opposite: Make own connector for MariaDB and own client for MQTT in C/C++: too challenging for 8 weeks of project time. Thus: Find libraries for MariaDB and MQTT.

Language: What would benefit my working life? Scripting languages for Windows/Linux. Python. C/C++ if only for background knowledge. PowerShell/shell script discarded. Reason: Unsuited for task. Could it be done? Probably. Should it be done? No. C/C++ discarded. Reason: While possible the time invested would require less time spent on Virtualization/Cisco thus discarded as programming an IoT project is beneficial as ops but of secondary importance to routing and virtualization. Thus python. Reason: Libraries exist, good language for Linux tasks. Does not require me to learn a new language as I have had no experience with C/C++.

Paho MQTT: Library for Pub/Sub client in python with compatible license.

MariaDB connector: Can connect to a database and run queries against it.

Optionally: Mosquitto as MQTT broker. Can be rented from third-party services such as AWS, Azure etc however most likely cheaper to do it yourself.

main.py – program subscribing to actuators and updating values in DB

pub.py – check if database has been updated and if so change actuators

ProposalforOffsiteDataRetention.sql – Database schema, not including creating the user and granting permissions to the created database.

Plans for future improvements:

Integrate MariaDB into multi-user website and implement website sql queries