August-Wilhelm Scheer Institut Digital Research

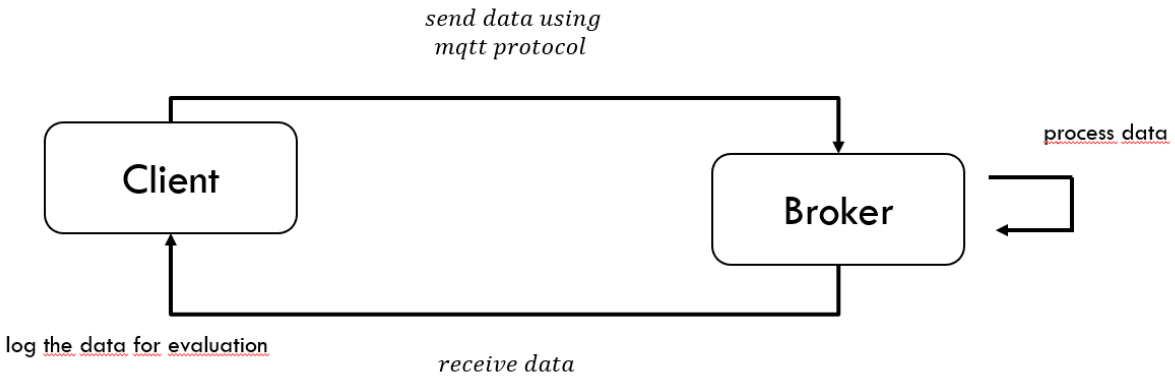
CODING TASK – Felix Wagner 25.05.2020

Proving Your Hypothesis

In our interview, there was an interesting and pivotal point where you have stated that the performance of the messaging protocol MQTT with Javascript would yield the fastest data exchange in contrast to other programming languages. Research is an important part of our daily work and learning the benefits/drawbacks of nowadays technology stacks help us design more sophisticated and novel products in the institute. We would like you to set up a suitable use-case study that will be used to prove your hypothesis.

Task Description:

Your task is to design and implement a concept that proves your hypothesis by comparing at least 3 implementations of MQTT clients in different programming languages. One of these languages is Javascript while the other two can be freely chosen by you.



Existing MQTT Client implementations can be found here:
https://github.com/mqtt/mqtt.github.io/wiki/libraries

You can use public brokers to manage your message exchanges:
https://github.com/mqtt/mqtt.github.io/wiki/public_brokers

The minimum requirement of the implementation is that the MQTT clients send a large amount of data payload to the MQTT broker and be able to receive these messages back.

At the end, an evaluation shall tell us which language performed the best in our small use-case and what metric did we use to prove this result. A possible evaluation metric can be the Round Trip Time.

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Remark:

Besides solving the problem at hand, it is important that you design a clean solution in which you display your knowledge w.r.t. OOP, design patterns and data structures while balancing the time available to complete this task.

Also, think about this assessment as an actual contribution to a scientific paper. How would you address this research question and how would you prove/present it. The result is equally important as your methodology.