Varroa

MQTT-Scenario-Testing-Tool

Masters Level Study Project, Prof. PhD. Siebert
SS 2018 - WS 2018/2019

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1 Vision

The Name of our MQTT-Testing-Tool (Varroa) is inspired by the varroa mite, which is a species of mite that infects honey bee colonies. This name has been chosen due to it working in a similar way but instead of infesting a hive, it tries to infest a broker. The inspiration for this name came from the Broker 'HiveMQ' and it's branding. The basic use-case of Varroa is testing the resilience of Brokers by creating load. Hereby load is defined by a number of MQTT-Clients sending different sequences of MQTT-messages to the Broker. Which sequences get carried out in which order is determined by a Scenario. A Scenario is a concept which defines the temporal execution as well as the amount of actions across a MQTT-Network. The motivation for the creation of this project was the lack of testability of MQTT-Systems without using large amounts of machines. Therefore Varroa had to be a distributed System itself, to be able to test the Limits of a MQTT-Broker without using a machine for every client.

2 Requirements

#	Title	User Story	Importance
1	Transparency	Varroa has to be comprehensible for the user.	Must have high
2	10.000.000 MQTT Clients	Varroa has to be able to generate a large amount of clients.	Must have high
3	Scalability	Varroa should scale vertically with relatively low scaling costs.	Must have
4	Determinism	Varroa has to work in deterministic ways, meaning it should produce the same result for a Scenario every time.	Must have
5	Distributed	Varroa is a distributed System.	Must have low
6	Usabillity	Varroa has to be easily usable.	Very important
7	Code Quality	Varroa's coding quality should be very high.	Important
8	Stability	Varroa has to run in a stable manner.	Important
9	Resource efficiency	Varroa has to use the available computation and memory resources efficiently.	Important
10	User / Developer Guide	Varroa needs a User / Developer Guide.	Somewhat important
11	Automation capacity	Varroa should be automatable	Somewhat important

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