Performance testing and analysis of Qpid-dispatch router

Jakub Stejskal
Faculty of Technology, Brno University of Technology
xstejs24@stud.fit.vutbr.cz
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Messaging Performance Tool

Messaging Performance Tool ***(Maestro)*** is a testing system designed for testing the performance of **Message Oriented Middleware** (MOM)

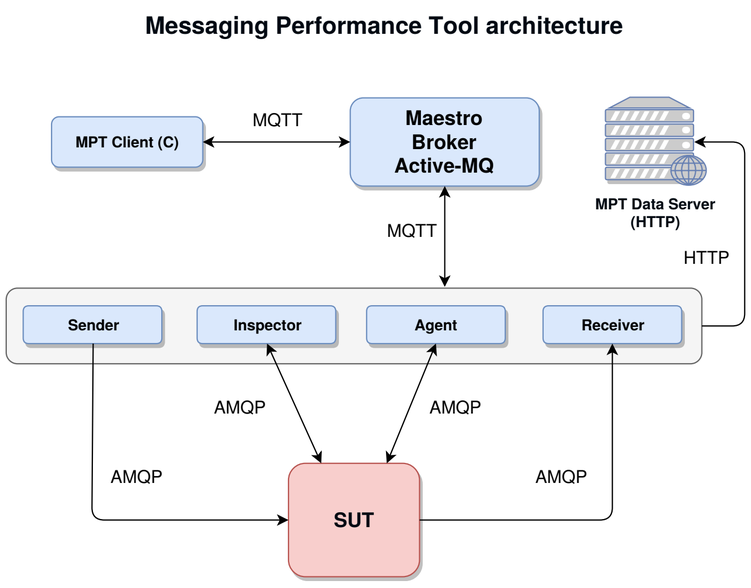

Fig. 1: Scheme of communication and protocols used between the Messaging Performance Tool and testing nodes.

Maestro is able to monitor each testing node and collect data to help improve the performance. Maestro is focused on performance testing of **Messaging Broker**. For expand the capabilities of Maestro to perform behavioral testing we need new extension module.

Maestro Extensions

Maestro Agent

- Behavioral performance testing
- Execute user specified code from git repository on each test node by Groovy

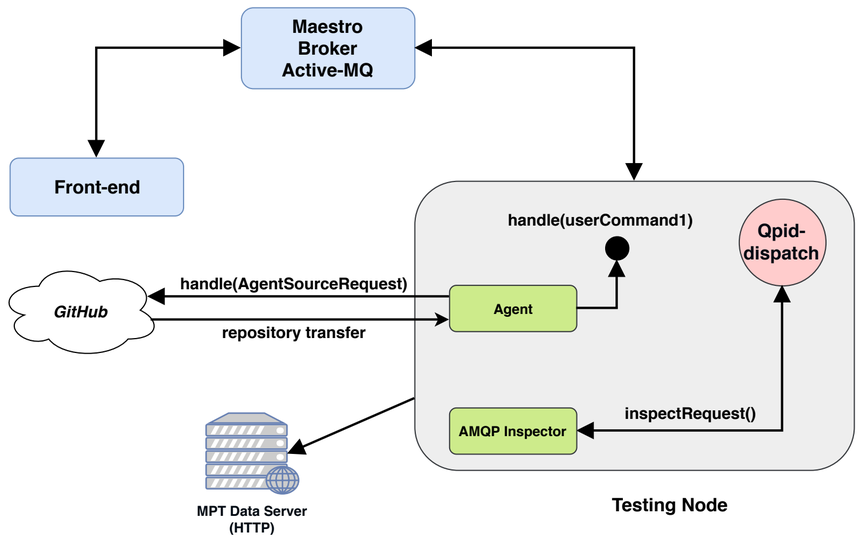

Fig. 4: A shaded circle

Maestro AMQP Inspector

- Monitor inner informations about Qpid-dispatch router
- Collect and report data to data server

Topology Generator

For automatic deployment and node configuration we use **Ansible** and **Topology Generator**. We are able to generate configuration files and deploy them via one simple YAML script.

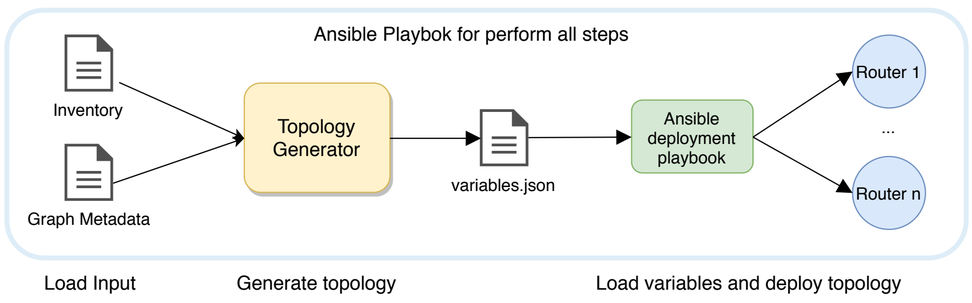

Fig. 2: Example of router topology generation and deployment.

Throughput Measurements

Maestro is able to compute **throughput** of **single node** or whole topology consisting of **multiple nodes**.

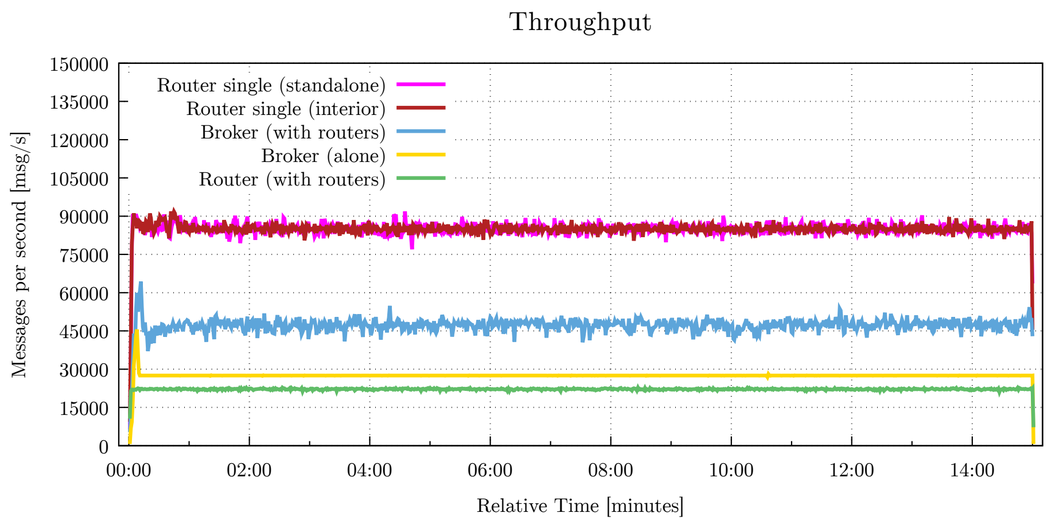

Fig. 3: Chart of maximum throughput of router service and broker service during specific test cases with specific node configuration.

Latency Measurements

Maestro is able to measure **latency** on over the topology. Latency is measured between message send time and receive time.

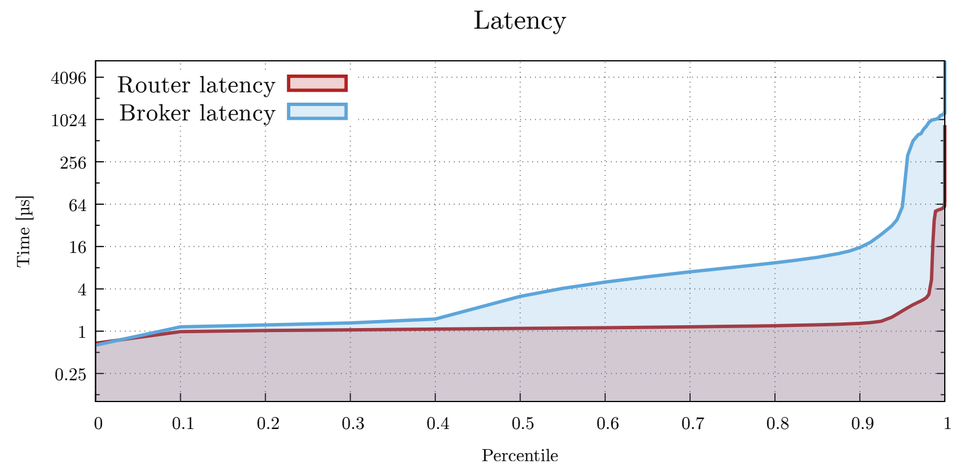

Fig. 5: Latency chart showing the difference between router service and broker service latency at 80 % of maximum rate.

The agent can influence performance with his action such as shut down one node, change the router configuration or change setting of network interface. All these actions can influence the latency and message delivery time.

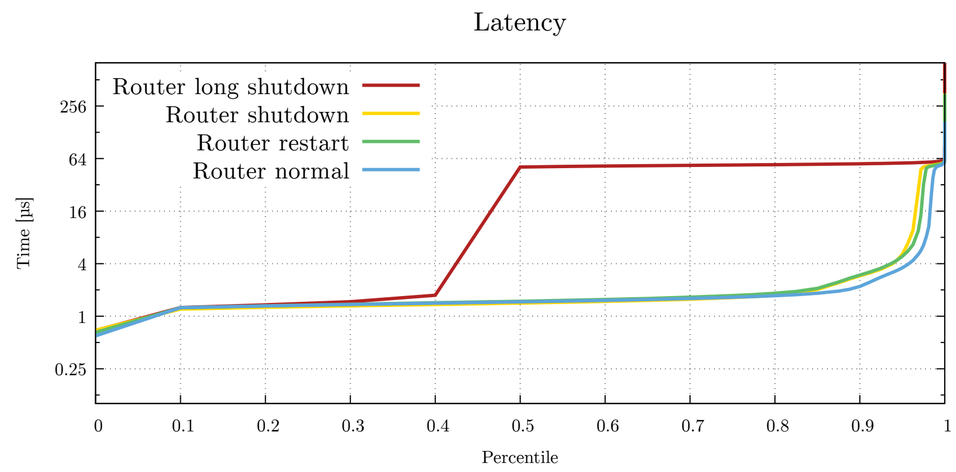

Fig. 6: Latency chart showing the results of tests with agent actions. The agent shut down one of the test node during the test.