Universität Zürich[UZH]

S3IT: Service and Support for Science IT

MySQL and RabbitMQ

Or: OpenStack's core support softwares

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MySQL's role inside OpenStack

MySQL database assumes a core role in the set of support softwares inside OpenStack and is mainly used:

- for storing the state of the OpenStack cluster (VMs, users, volumes, tokens, etc),
- in the workflow of handling new requests (starting a new instance, creating a volume, etc).

Alternative of MySQL inside OpenStack is MariaDB.

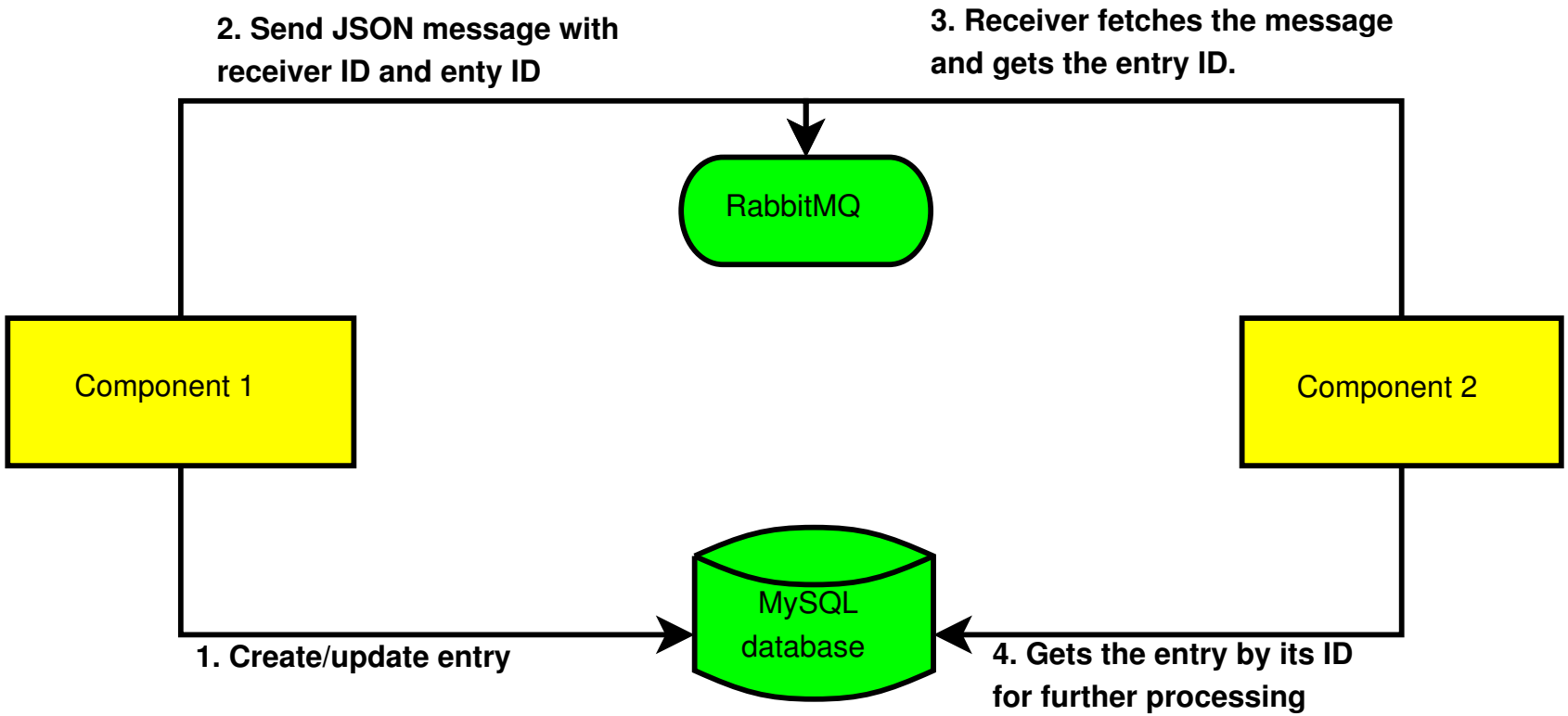
RabbitMQ's role inside OpenStack

The *RabbitMQ* messaging system is the second core support software inside OpenStack and is mainly used:

- in the process of communication between the different stack components,
- in tight collaboration with MySQL in the workflow of handling new requests.

Alternatives of RabbitMQ inside OpenStack are Qpid and ZeroMQ.

MySQL & RabbitMQ interaction 1/2



MySQL & RabbitMQ interaction 2/2

Example: provisioning of a new instance

- a client sends a POST request to nova-api for a VM provisioning,
- nova-api writes an entry in the DB,
- nova-api posts then a JSON message in RabbitMQ queue (the message is for nova-scheduler),
- nova-scheduler reads the JSON message from RabbitMQ queue,
- nova-scheduler then examines the overall cluster situation from the DB,
- nova-scheduler posts a JSON message in RabbitMQ saying which compute host should start the VM,
- nova-compute gathers then the info from the RabbitMQ and from the DB and proceeds with the VM provisioning.

MySQL High Availabiltiy

MySQL is one of the most critical components in the OpenStack installation because it contains the state of the whole Stack.

Thus, the HA of MySQL becomes critical. The recommended way to do that is by using DRBD and Pacemaker even if the alternative method, by using MySQL and Galera, should take over in the near future.

Refer to this link for more details and info on DRBD and Pacemaker configuration.

RabbitMQ High Availabiltiy

RabbitMQ can be configured in HA to prevent communication failure between the OpenStack components.

This can be achieved again, like with MySQL, by using DRBD and Pacemaker even if the alternative method, by using two active-active mirrored servers is also becoming important.

Refer to this link for more details and info on DRBD and Pacemaker configuration.

Notes and Remarks

- Installation of MySQL and RabbitMQ is really straight forward and requires limited intervention.
- Configuration of RabbitMQ is limited to changing the default password.
  - Logs directory is: `/var/log/rabbitmq`
- Configuration of MySQL requires a little bit more than RabbitMQ.
  - Conf. file is: `/etc/mysql/my.cnf`
  - Logs directory is: `/var/log/mysql`
- We will see everything in more detail during the tutorial.