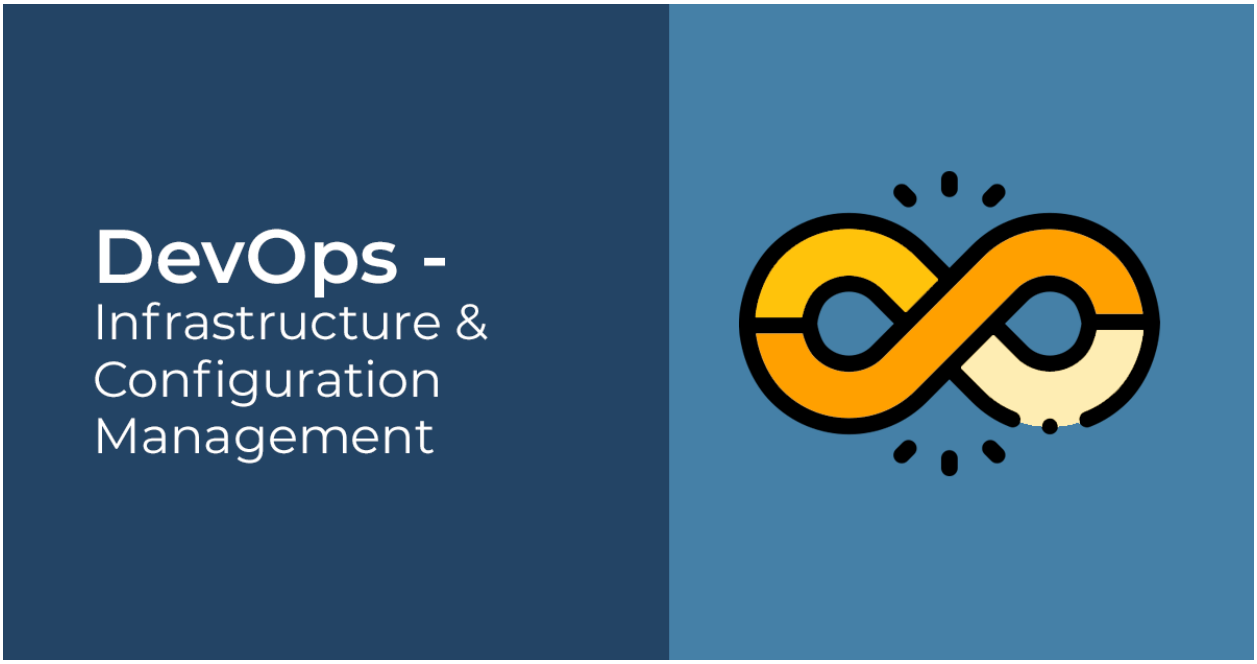


DevOps

Infrastructure & Configuration Management

April 2022

Message Brokering with RabbitMQ

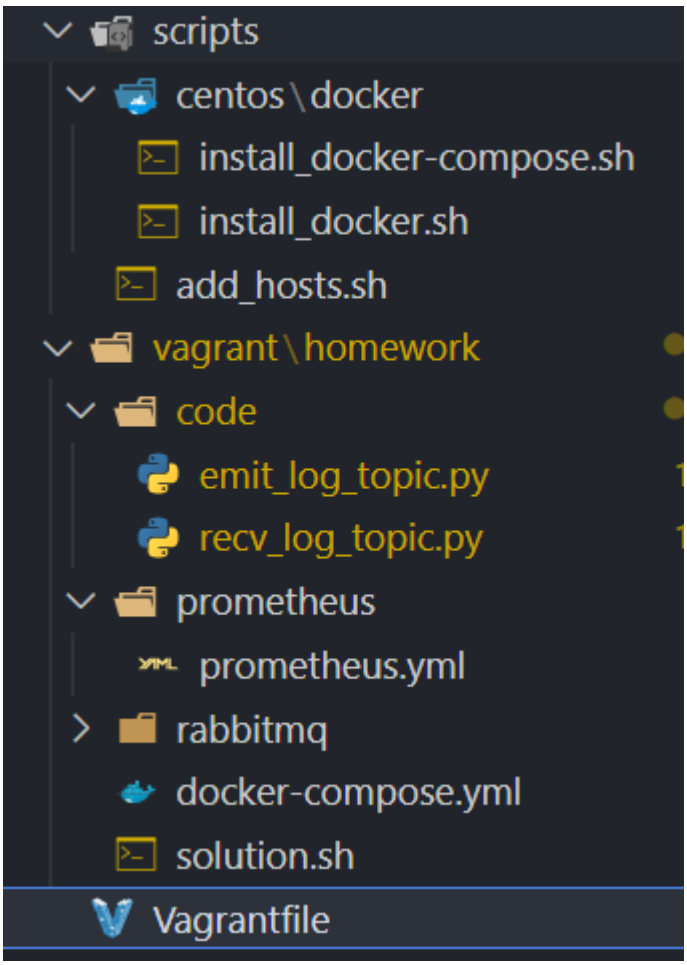
Home Work

Stefan Veselinov

Assignment

You are expected to execute the following:

1. Create a **single machine** with **Docker** installed
    - Create a **three-node RabbitMQ** cluster
    - Add a policy to distribute/replicate queues to all nodes
    - Run the last example (Topics) either on the command line on the Docker host or as containers
        i. One producer
        ii. One consumer subscribed to all warn and crit messages
        iii. One consumer subscribed to all ram related messages
    - Deploy **Prometheus** as a container and make it collect metrics for all three nodes of the cluster
    - Deploy **Grafana** as a container and add Prometheus as a data source
    - Prepare at least one visualization to display any of the metrics exposed by the nodes



Solution Structure

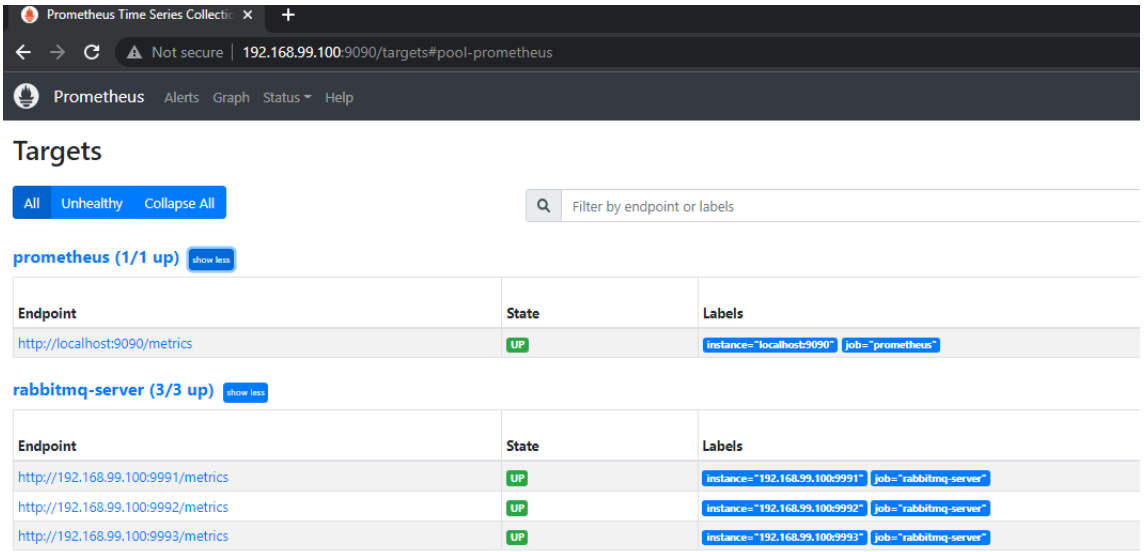
- scripts - provisioning scripts for initial setup, installation, and config. Scripts for Docker and Docker-Compose installation
- vagrant – shared folder, contains code for emitter and receiver, Prometheus configurations, Volumes for docker containers, main docker-compose script

Solution Setup

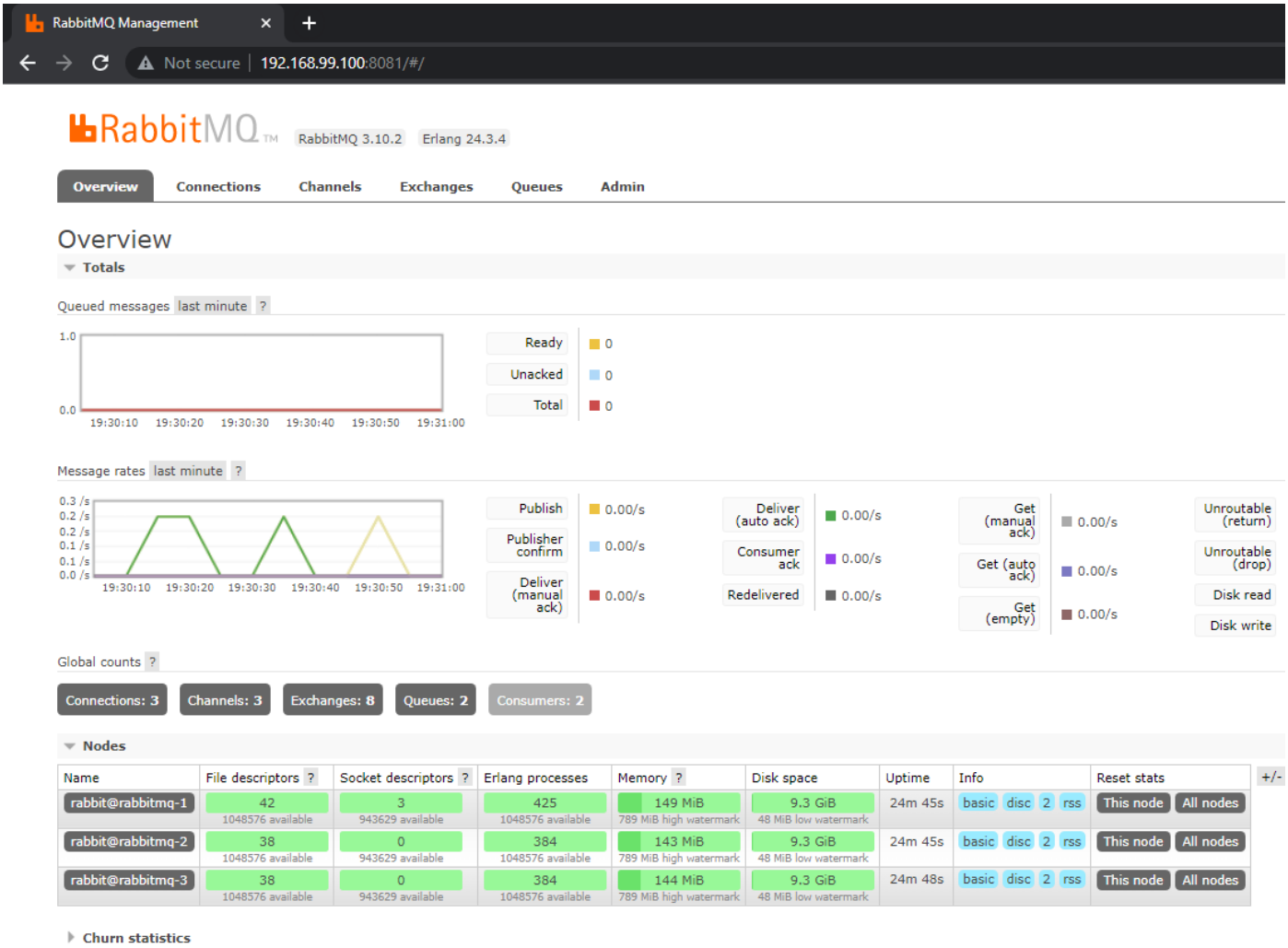
- Enter solution directory (where Vagrant file is placed).
    - Execute – vagrant up
- Vagrant is going to create 1-vm
    - Docker – Fully running docker and docker compose instances
        - Docker Compose is going to be used for creation of RabbitMq cluster and monitoring by Prometheus and Grafana
- Vagrant ssh docker
    - Execute row by row commands from /vagrant/homework/solution.sh

```
echo "** Instaling Packages"
sudo dnf install -y python3
sudo python3 -m pip install pika --upgrade

echo "** Starting RabbitMQ Containers"
docker-compose -f /vagrant/homework/docker-compose.yml up -d --build

echo "** Adding Pluggins to RabbitMQ Containers"
docker container exec -it rabbitmq-1 rabbitmq-plugins enable rabbitmq_federation
docker container exec -it rabbitmq-2 rabbitmq-plugins enable rabbitmq_federation
docker container exec -it rabbitmq-3 rabbitmq-plugins enable rabbitmq_federation

docker container exec -it rabbitmq-1 rabbitmq-plugins enable rabbitmq_prometheus
docker container exec -it rabbitmq-2 rabbitmq-plugins enable rabbitmq_prometheus
docker container exec -it rabbitmq-3 rabbitmq-plugins enable rabbitmq_prometheus

echo "** Adding Policy"
docker exec -it rabbitmq-1 rabbitmqctl set_policy ha-fed ".*" '{"ha-sync-mode":"automatic", "ha-mode":"nodes",
"ha-params":["rabbit@rabbitmq-1","rabbit@rabbitmq-2","rabbit@rabbitmq-3"]}' --priority 1 --apply-to queues

echo "** Starting Emiter"
python3 /vagrant/homework/code/emit_log_topic.

echo "** Starting Consumers"
python3 /vagrant/homework/code/recv_log_topic.py "*.warm" "*.crit"

echo "** Starting Consumers"
python3 /vagrant/homework/code/recv_log_topic.py "ram.*"
```

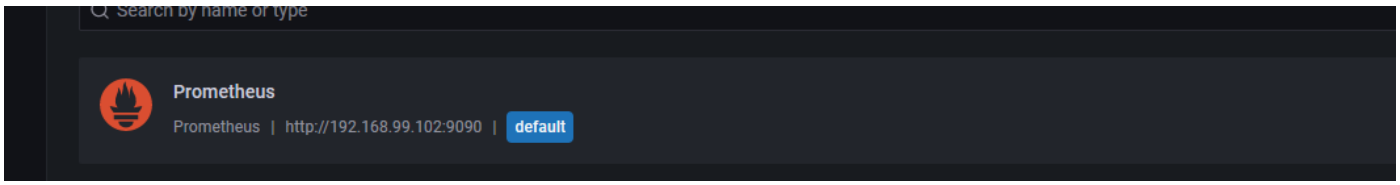
- Check Prometheus Targets



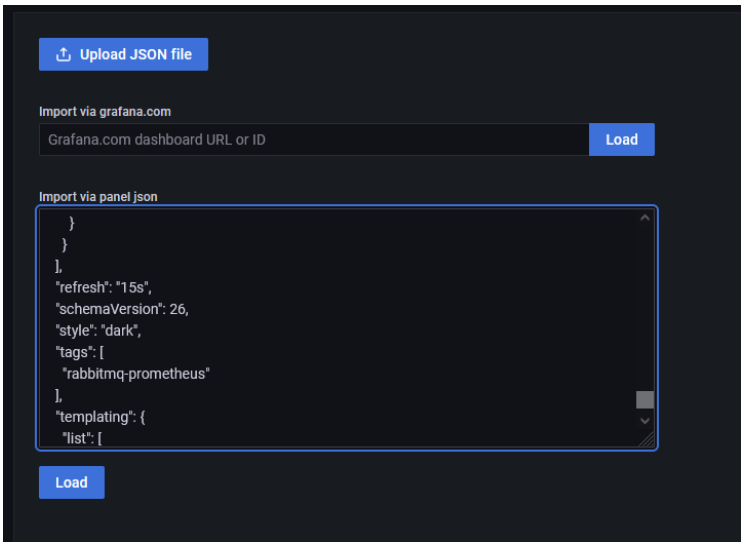
- Check RabbitMq
-



- Login to Grafana - http://192.168.99.100:3000
- Set Grafana data source



- Import Grafana Dashboard



JSON: Source

- Go to Dashboard