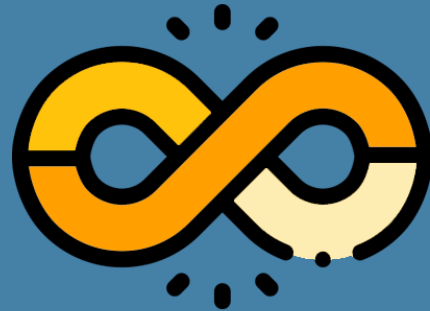


DevOps -
Infrastructure &
Configuration
Management



DevOps

Infrastructure & Configuration Management

April 2022

Event Streaming with Apache Kafka Home Work

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Assignment

Create a set of two machines

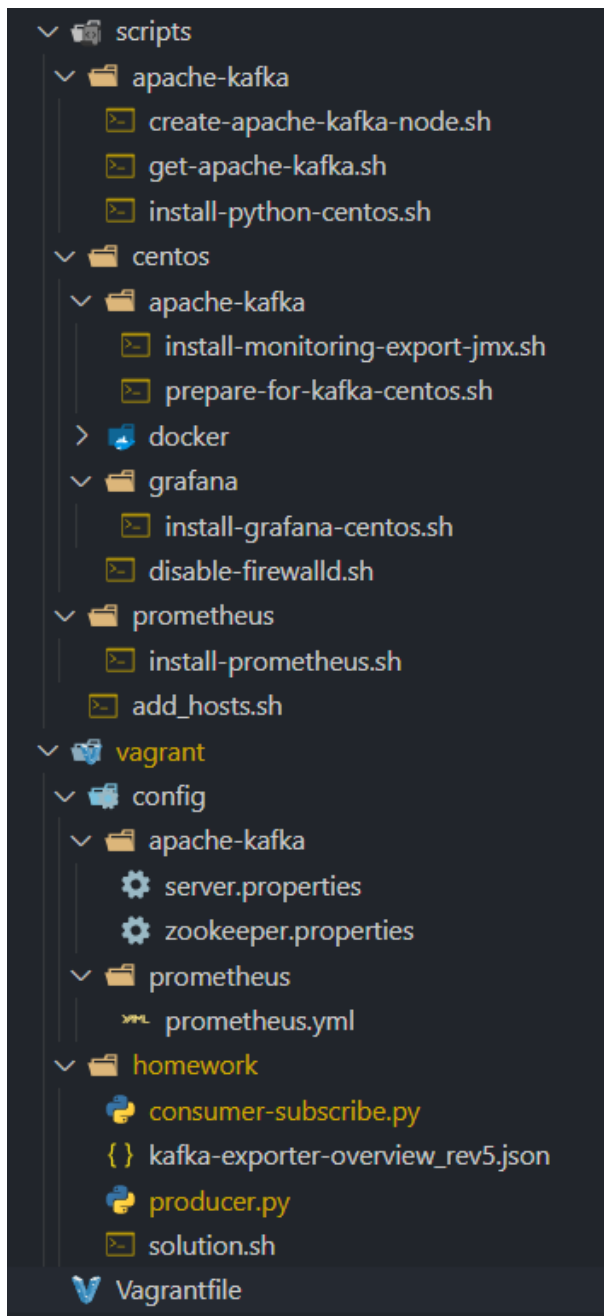
- First should be dedicated to Apache Kafka (a single node cluster)
- Create a topic with three partitions and no replication
- Adjust the demonstrated producer to send custom messages (use your imagination) to the topic
- Adjust the demonstrated consumer to subscribe for the topic
- Second should be dedicated to monitoring and include Prometheus and Grafana (either as containers or regular processes)
- This time, instead of the demonstrated JMX exporter, use the Kafka Exporter (https://github.com/danielqsj/kafka_exporter)
- Prepare at least one visualization to display any of the metrics exposed by the exporter

Solution Structure

- scripts - provisioning scripts for initial setup, installation and config. Scripts for Apache Kafka, Prometheus, Grafana, Docker (used for Kafka-Exporter)
- vagrant – shared folder, contains application code, Apache Kafka, Prometheus configurations, and homework script solution

Solution Setup

- Enter solution directory (where Vagrant file is placed).
 - Execute – vagrant up



- Vagrant is going to create 2-vm's
 - o Kafka – Apache Kafka vm
 - Apache Kafka Single node cluster is going to be running, python producer is started, Kafka Exporter Docker container
 - o Monitoring – Prometheus-Grafana Monitoring infrastructure
- Vagrant ssh kafka-1
 - o Execute – `python3 /vagrant/homework/consumer-subscribe.py`

```
[vagrant@kafka-1 ~]$ python3 /vagrant/homework/consumer-subscribe.py
Consumer started. Press Ctrl+C to stop.
ConsumerRecord(topic='homework', partition=0, offset=194, timestamp=1653375108509, timestamp_type=0, key=None, value=b'My number is 590', headers=[], checksum=None, serialized_key_size=-1, serialized_header_size=-1)
ConsumerRecord(topic='homework', partition=1, offset=202, timestamp=1653375109515, timestamp_type=0, key=None, value=b'My number is 591', headers=[], checksum=None, serialized_key_size=-1, serialized_header_size=-1)
ConsumerRecord(topic='homework', partition=1, offset=203, timestamp=1653375112527, timestamp_type=0, key=None, value=b'My number is 592', headers=[], checksum=None, serialized_key_size=-1, serialized_header_size=-1)
```

- Check Prometheus Targets

Targets

Filter by endpoint or labels

kafka-exporter (1/1 up) [show less](#)

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://192.168.99.101:9308/metrics	UP	instance="192.168.99.101:9308" job="kafka-exporter"	24.473s ago	54.866ms	

prometheus (1/1 up) [show less](#)

Endpoint	State	Labels	Last Scrape	Scrape Duration	Error
http://monitoring:9090/metrics	UP	instance="monitoring:9090" job="prometheus"	21.909s ago	3.877ms	

- Login to Grafana - <http://192.168.99.102:3000>
 - o Set Grafana data source

Search by name or type

Prometheus
Prometheus | <http://192.168.99.102:9090> | default

- Import Grafana Dashboard

Import

Import dashboard from file or Grafana.com

Options

Name: Kafka Exporter Overview

Folder: General

Unique identifier (UID): jwPKIsniz [Change uid](#)

Prometheus: Prometheus

[Import](#) [Cancel](#)

Key: 7589

Json: kafka-exporter-overview_rev5.json

- Go to Dashboard

