Lab 4
Naseem Machlovi

Option 3 (Maintenance): Monitoring a Kafka Cluster

Managing a cluster in real-time is an important task. Apache Kafka has several open-source monitoring tools, such as Kpow, Burrow, and Prometheus. In this lab, you are going to integrate a monitoring tool into your Kafka cluster and develop testing programs.

Requirements:

1. Deploy a cluster version of Kafka.
2. Ingrate a monitoring tool – choose any tool you want. Kpow and Burrow are preferred.
3. Develop producers and consumers that submit workloads to the system (you can find the code online).
4. Monitor your cluster with the tool that you installed, and you should see the workloads from the monitoring tool that you developed in Step 2.

1. Installation:

1. For Kafka installation, we use the following script on each node.

```
sudo apt-get update
sudo apt-get install default-jdk
wget https://downloads.apache.org/kafka/latest/kafka_2.13-2.8.0.tgz
tar -xzf kafka_2.13-2.8.0.tgz
cd kafka_2.13-2.8.0
mv kafka_2.13-2.8.0 kafka
```

2. Once installation is done make the following changes in zookeeper.properties on each node, to add our internal ip address in zookeeper.properties, to allow the server to listen each node

3. We have to create the following directories and give permission to the root. Make it on every node

```
<username>--> your username
<id> uniquebroker id [1,2,3]
sudo mkdir -p /var/lib/zookeeper
sudo chown <username>:<username> /var/lib/zookeeper
echo <id> | sudo tee /var/lib/zookeeper/myid
```

4. Now start the zookeeper on each node first and then start the kafka server

```
~/kafka/bin/zookeeper-server-start.sh -daemon ~/kafka/config/zookeeper.properties
```

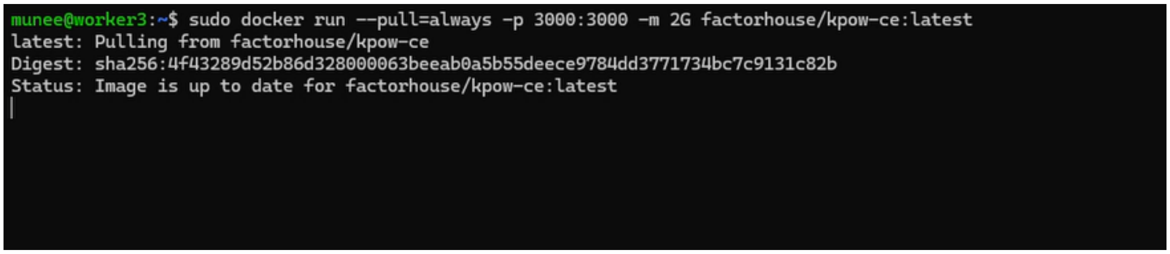
~/kafka/bin/kafak-server-start.sh -daemon ~/kafka/config/server.properties
Now, we are ready to run the producer.py and consumer.py code on any client and can view the created topics on each node.

2. Kpow

We integrated Kpow as a monitoring tool for the Kafka cluster. Installation is followed by docker installation on the manager node pulling the latest image and running allowing to listen to port 3000.

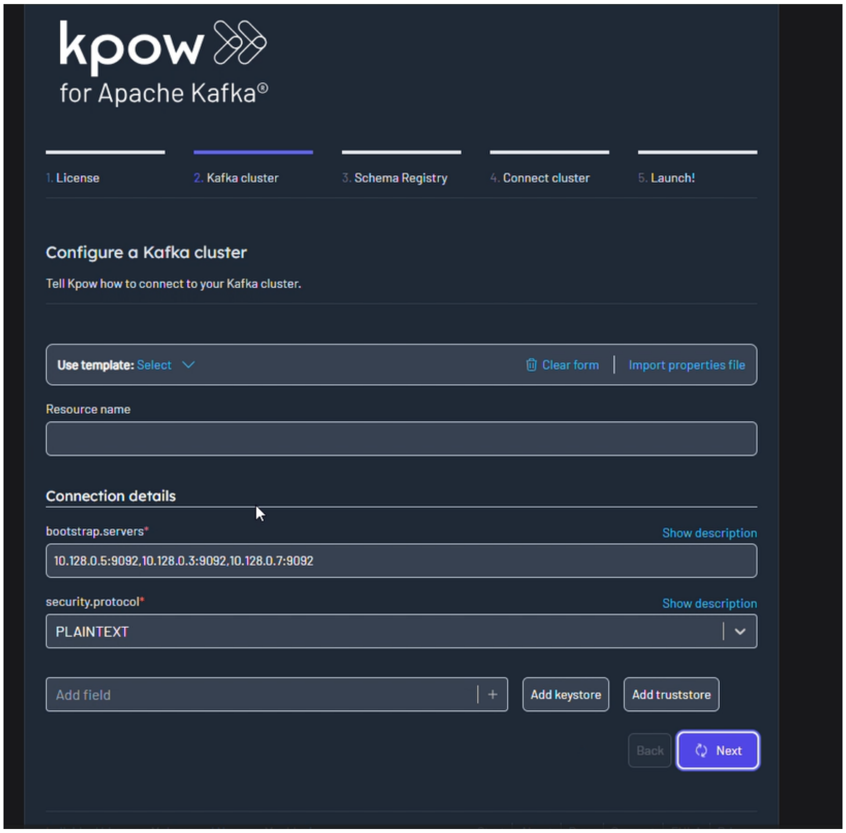
Now open the following link in a tab after changing the firewall rules in GCP, allowing port TCP port 3000 to listen to external services.

http://<manager_external_ip>:3000



```
munee@worker3:~$ sudo docker run --pull=always -p 3000:3000 -m 2G factorhouse/kpow-ce:latest
latest: Pulling from factorhouse/kpow-ce
Digest: sha256:4f43289d52b86d328000063beeab0a5b55deece9784dd3771734bc7c9131c82b
Status: Image is up to date for factorhouse/kpow-ce:latest
```

Now you have to configure you community license, following the directions and adding the internal ips:9092 in bootstrap server and you can see the its monitoring



Configure a Kafka cluster

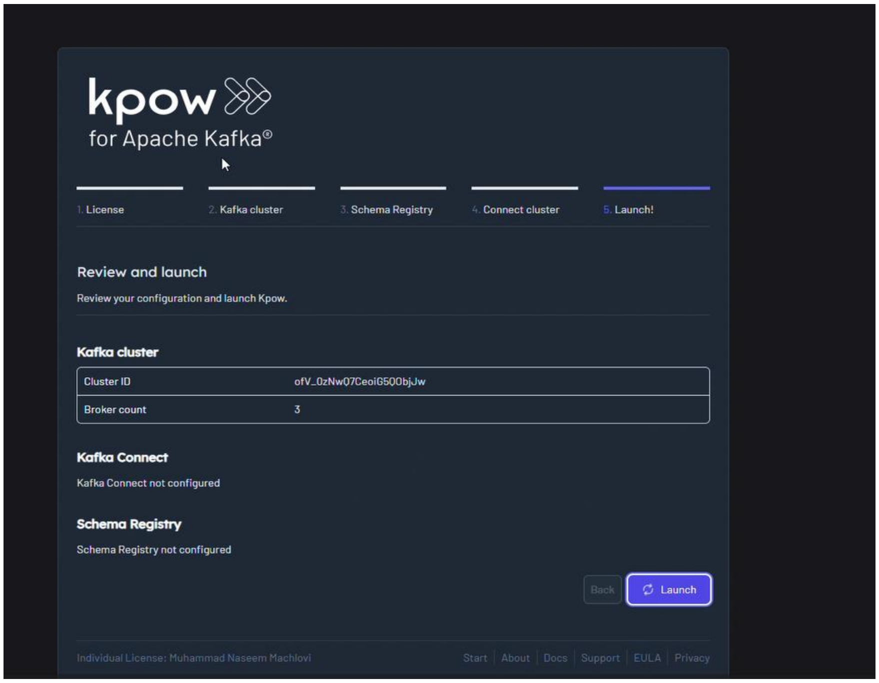
Tell Kpow how to connect to your Kafka cluster.

Resource name

Connection details

bootstrap.servers*: 10.128.0.5:9092,10.128.0.3:9092,10.128.0.7:9092

security.protocol*: PLAINTEXT



Review and launch

Review your configuration and launch Kpow.

Kafka cluster

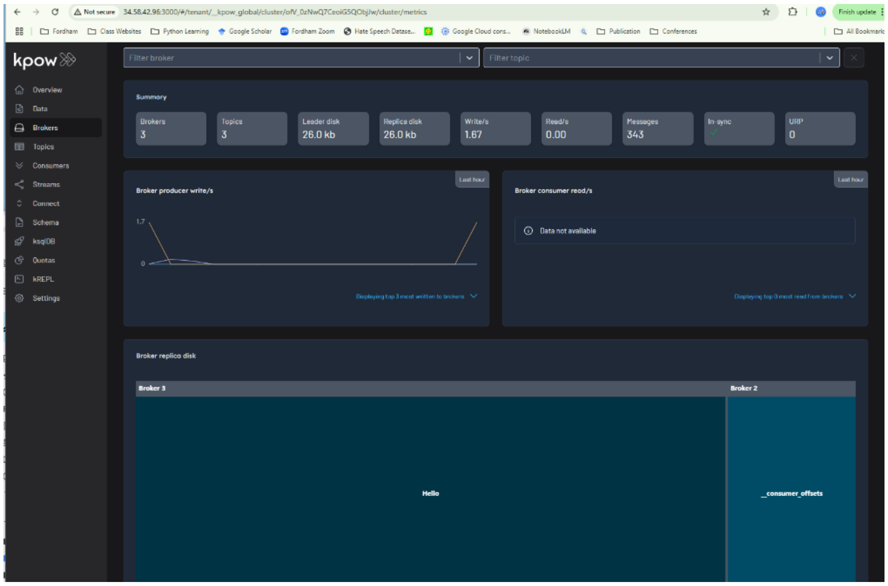
Cluster ID	ofV_0zNwQ7CeoiG5QObjJw
Broker count	3

Kafka Connect

Kafka Connect not configured

Schema Registry

Schema Registry not configured



34.58.42.96:3000/#/tenant/__kpow_global/cluster/ofV_0zNwQ7CeoiG5QObjJw/cluster/metrics

Summary

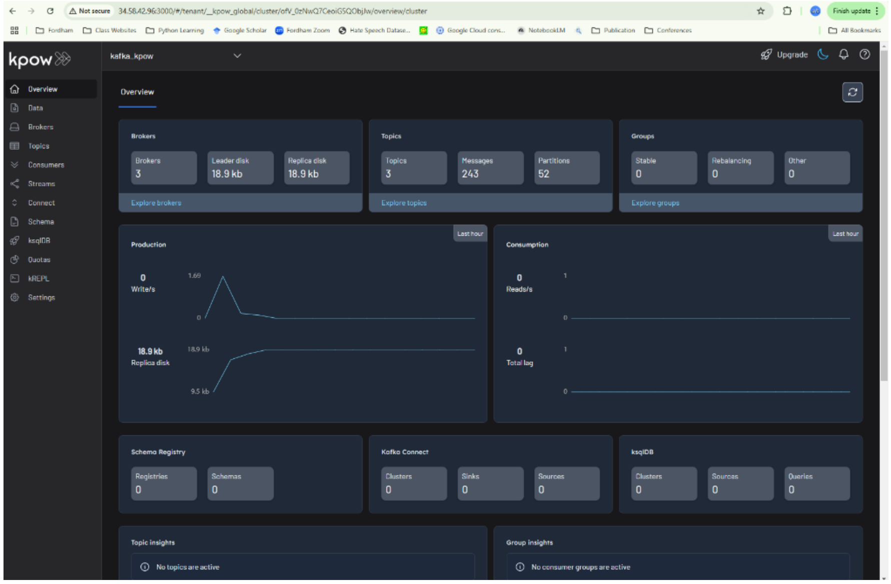
Brokers	Topics	Leader disk	Replica disk	Write/s	Read/s	Messages	In-sync	URP
3	3	26.0 kb	26.0 kb	1.67	0.00	343	✓	0

Broker producer write/s

Broker consumer read/s

Data not available

Broker replica disk



34.58.42.96:3000/#/tenant/__kpow_global/cluster/ofV_0zNwQ7CeoiG5QObjIw/overview/cluster

kafka_kpow

Brokers

Brokers 3 | Leader disk 18.9 kb | Replica disk 18.9 kb

Topics

Topics 3 | Messages 243 | Partitions 52

Groups

Stable 0 | Rebalancing 0 | Other 0

Production

0 Write/s

18.9 kb Replica disk

Consumption

0 Reads/s

0 Total lag

Schema Registry

Registries 0 | Schemas 0

Kafka Connect

Clusters 0 | Sinks 0 | Sources 0

ksqlDB

Clusters 0 | Sources 0 | Queries 0

Topic insights

ⓘ No topics are active

Group insights

ⓘ No consumer groups are active