**Enterprise Integration (MEIC-A, 2019-20, 2º semestre)**

Instituto Superior Técnico – MEIC-A

*Project Proposal*

1. **Definition of the mobility operators and respective messages**

Mobility Operators: Metro, Uber and Gira

Explicação do tipo de transportes

Examples of messages received in a Kafka broker (sent in JSON format):

{“Metro”: {“CheckIn”: {“Token”: “t1”, “Station”: “Odivelas”, “Timestamp”: “2020-02-29 18:23:41.278”}}}

{“Metro”: {“CheckOut”: {“Token”: “t1”, “Station”: “Alameda”, “Timestamp”: “2020-02-29 18:23:47.718”}}}

{“Uber”: {“Usage”: {“Token”: “t2”, “Price”: “70.51901”, “Timestamp”: “2020-02-29 19:45:58.638”}}}

{“Gira”: {“Usage”: {“Token”: “t1.4”, “Distance”: “13.553344”, “Timestamp”: “2020-02-29 20:57:10.294”}}}

{“Discounts”: {“Value”: {“Token”: “t3”, “Discount Value”:”1”}}}

1. **Definition of the event queueing integration: Topics, partitions**

Each Operator has a Topic, and each Topic has 3 partitions.

Metro: Topic t0

Uber: Topic t1

Gira: Topic t2

Discounts

1. **Definition of the fault tolerance requirements for Kafka.**

3 brokers

Fator replicação 3

Zookeeper – base de dados- um zookeeper para cada um

Consumer Groups – mais que um

Cada partição para um consumer group, consumidor define-se em consumer

Retention period - log.retention.hours = 168 mas 48(2 dias basta) basta

1. **Kafka installation**

P2. B. Creating and launching an AWS EC2 instance

P2. C. Access the AWS EC2 instance using PuTTY

P2. E. Access the AWS EC2 instance using FileZilla

P2. F. Install Kafka in the AWS EC2 instance

Creating 3 brokers-.

**cp /usr/local/kafka/config/server.properties /usr/local/kafka/config/server-1.properties**

**cp /usr/local/kafka/config/server.properties /usr/local/kafka/config/server-2.properties**

**cp /usr/local/kafka/config/server.properties /usr/local/kafka/config/server-3.properties**

Broker-1

config/server-1.properties:

**broker.id=0**

**listeners=PLAINTEXT://*<YourIP\_or\_DNS>*:9093**

**offsets.topic.replication.factor=3**

**transaction.state.log.replication.factor=3**

**transaction.state.log.min.isr=3**

**log.dir=/tmp/kafka-logs-0**

log.retention.hours = 48

Broker-2

config/server-2.properties:

**broker.id=0**

**listeners=PLAINTEXT://*<Public DNS>*:9094**

**offsets.topic.replication.factor=3**

**transaction.state.log.replication.factor=3**

**transaction.state.log.min.isr=3**

**log.dir=/tmp/kafka-logs-1**

log.retention.hours = 48

Broker-3

config/server-3.properties:

**broker.id=0**

**listeners=PLAINTEXT://*<Public DNS>*:9095**

**offsets.topic.replication.factor=3**

**transaction.state.log.replication.factor=3**

**transaction.state.log.min.isr=3**

**log.dir=/tmp/kafka-logs-2**

**log.retention.hours = 48**

**sudo /usr/local/kafka/bin/kafka-server-start.sh -daemon /usr/local/kafka/config/server-1.properties**

**sudo /usr/local/kafka/bin/kafka-server-start.sh -daemon /usr/local/kafka/config/server-2.properties**

**sudo /usr/local/kafka/bin/kafka-server-start.sh -daemon /usr/local/kafka/config/server-3.properties**

We added these commands to .bash\_profile

Open the in-bound ports 9093, 9094 and 9095 in the AWS EC2 console

**sudo /usr/local/kafka/bin/kafka-topics.sh --create --zookeeper *<Public DNS>*:2181 -replication-factor 3 --partitions 3 --topic T0\_METRO**

**sudo /usr/local/kafka/bin/kafka-topics.sh --create --zookeeper *<Public DNS>*:2181 -replication-factor 3 --partitions 3 --topic T1\_UBER**

**sudo /usr/local/kafka/bin/kafka-topics.sh --create --zookeeper *<Public DNS>*:2181 -replication-factor 3 --partitions 3 --topic T2\_GIRA**

**sudo /usr/local/kafka/bin/kafka-topics.sh --create --zookeeper *<Public DNS>*:2181 -replication-factor 3 --partitions 3 --topic Discounts**

E verificamos**: ps -ef |grep java |grep server**

**sudo /usr/local/kafka/bin/kafka-topics.sh --list --zookeeper *<Public DNS>*:2181**

**sudo /usr/local/kafka/bin/kafka-topics.sh --describe --topic Topic\_Name --zookeeper *<Public DNS>*:2181**

(prints aqui)

1. **Kafka parametrization**
2. **Test of the integration using applications for event generation**