Cloud Computing Project Milestone 2

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Questions

What is EDA? What are its advantages and disadvantages?

“EDA” stands for “Event-Driven Architecture. EDA is a mechanism/process that is used to construct an application where certain events can be created, processed, manipulated or reacted to, to trigger other actions or microservices. Many of the world's leading companies use a combination of microservices that communicate via events and Kafka.
Advantages of EDA include:

- High Scalability
- When split into microservices, we can develop each service independently (Loose Coupling).

Disadvantages of EDA are:

- High complexity. This can lead to poor understanding of major issues or inconsistencies in the behavior of the system.
- Lower Security.

In Kafka, what’s meant by cluster, broker, topic, replica, partition, zookeeper, controller, leader, consumer, producer, and consumer group?

Cluster: One or many servers together running kafka and distributing the load between them.

Broker: each server running in the cluster is a broker and they have their messages accessible by the consumers (given the topic).

Topic: a group of messages can be given a name called the topic where consumers can read only messages from the selected topic(s).

Replica: copies of the messages/data contained in brokers that serve the purpose of adding redundancy for the system to be ready to continue when other brokers fail.

Partition: small storage spaces which have some messages that pertain to a certain topic. There are many partitions in a broker.

Zookeeper: The zookeeper is used for synchronization of services and in regards to kafka, the zookeeper tracks the status of cluster nodes and has a list of all topics and their messages.

Controller: One of the brokers is the controller. It is responsible for managing and coordinating the different partitions so they work together efficiently.

Leader: The broker that responds to each read and write request from the producers and consumers and this is the broker that all replicas are a copy of.

Consumer: The consumer reads messages from the kafka cluster based on the topic that is provided from them which corresponds to some messages that have been fully replicated across all brokers.

Prepare a video showing the codes that generated topics, produce messages, and consume them in both NodeJS and python.

https://drive.google.com/file/d/1aQ3a4SGHj_gFeev6CYGQ_qO8QPkYFi_0/view?usp=sharing