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1. **What is EDA? What are its advantages and disadvantages?**

Advantages:

- ***Loose coupling:*** This allows for asynchronous communication between topics
- Event brokers are able to retain all messages until read by the target services
- ***Fault Tolerance*****:** In event driven architecture since events are decoupled from each other, faults can be isolated independently.
- Other services do not impact the communication of events that are being repaired or replaced
- ***Reduced future technical problems:*** Similar to the last point, the updating of individual service and operation.

Disadvantages:

- ***Duplicated events:*** This error usually occurs in EDA if there are duplicate messages across different services.
- Duplicated messages would trigger not the correct message being queued across service.
- ***Naming conventions:*** This problem can also occur when numerous publishers and subscribers have duplicate names.
- Since events are decoupled, name repetition cannot be prompted
- ***Error Handling of Pipeline order:*** Each event in a pipeline related to a service or broker is triggered upon initiation.
- This can cause multiple issues in the pipeline of events if the wrong service is called.

Source: video &
https://www.techtarget.com/searchapparchitecture/tip/Event-driven-architecture-pros-and-cons-Is-EDA-worth-it

2. In Kafka what do the terms cluster, broker, topic, replica, partition, zookeeper, controller, leader, consumer, producer, and consumer group?

- **Cluster** - a group of clusters
- **Broker -** Server within a cluster.
- This is responsible for for consumers to fetch request and requests
- **Topic -** To categorize data in data sets that can be broken down into partition.

- For published data that is organized by producers.
- **Replica-** Copies of data across multiple clusters
- **Partition -** Allow topics to work in parallel with each other.
- **Zookeeper-** Maintain the cluster by tracking nodes, topics and other pipeline status points.
- **Controller-** A single broker in a cluster that will be responsible for partitions and replicas
- **Leader**- This is a broker in a cluster that manages all requests
- **Consumer-** Applications using data from the cluster in one of the brokers within the cluster
- **Consumer Group-** a group of application that request/ingest data from topics
- **Producer -** This sends to the Kafka cluster from data creation . Creates new messages and sends them to a topic.

3. Kafka docker non-persistent data storage resolution

By default the docker images for Kafka do not store the data in a volume. This would mean that when a container is destroyed, data is as well.

- “/var/lib/kafka/data” for image confluentinc/cp-kafka
- “/var/lib/zookeeper/data” for image confluentinc/cp-zookeeper
- “/var/lib/zookeeper/log” for confluentinc/cp-zookeeper