

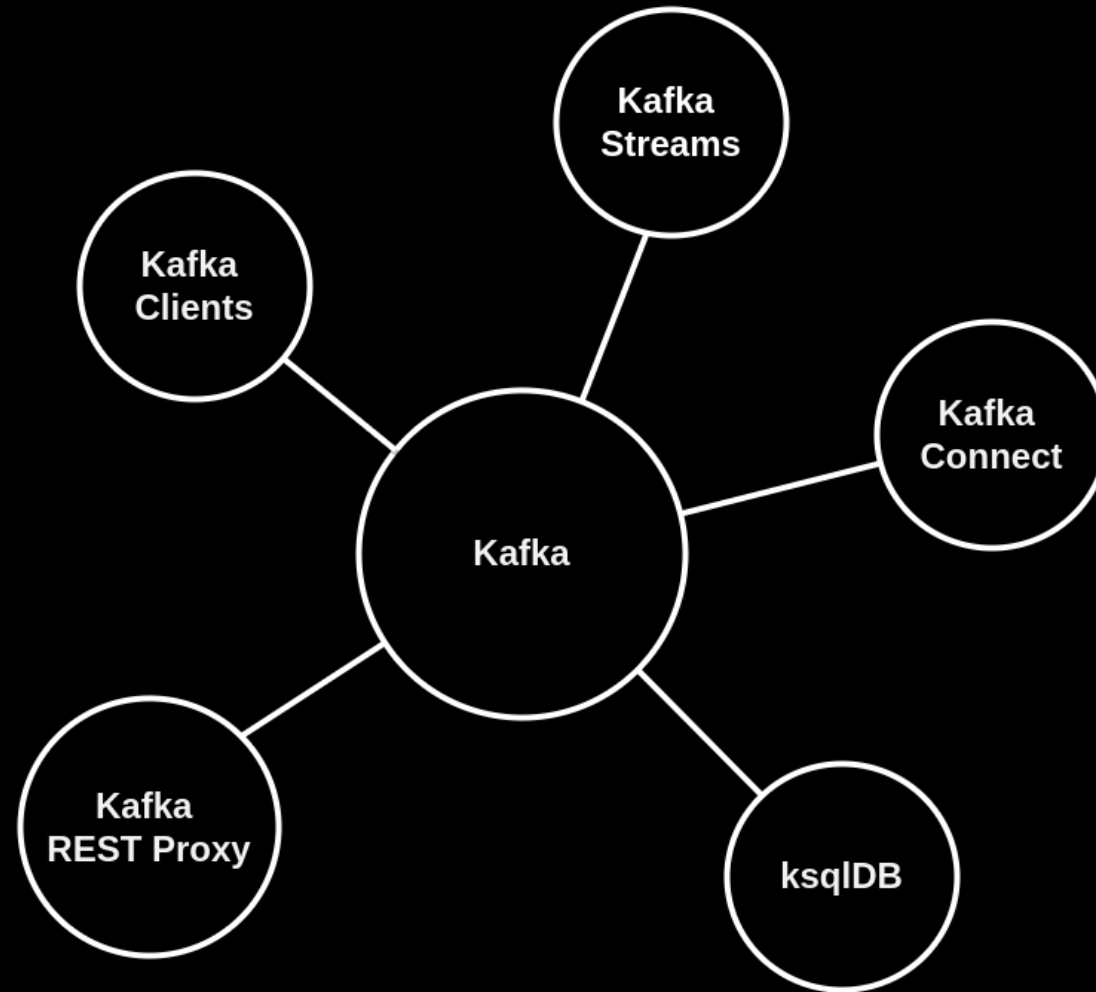
Kafka Universe: End-to-end data streaming pipelines

Igor Buzatović

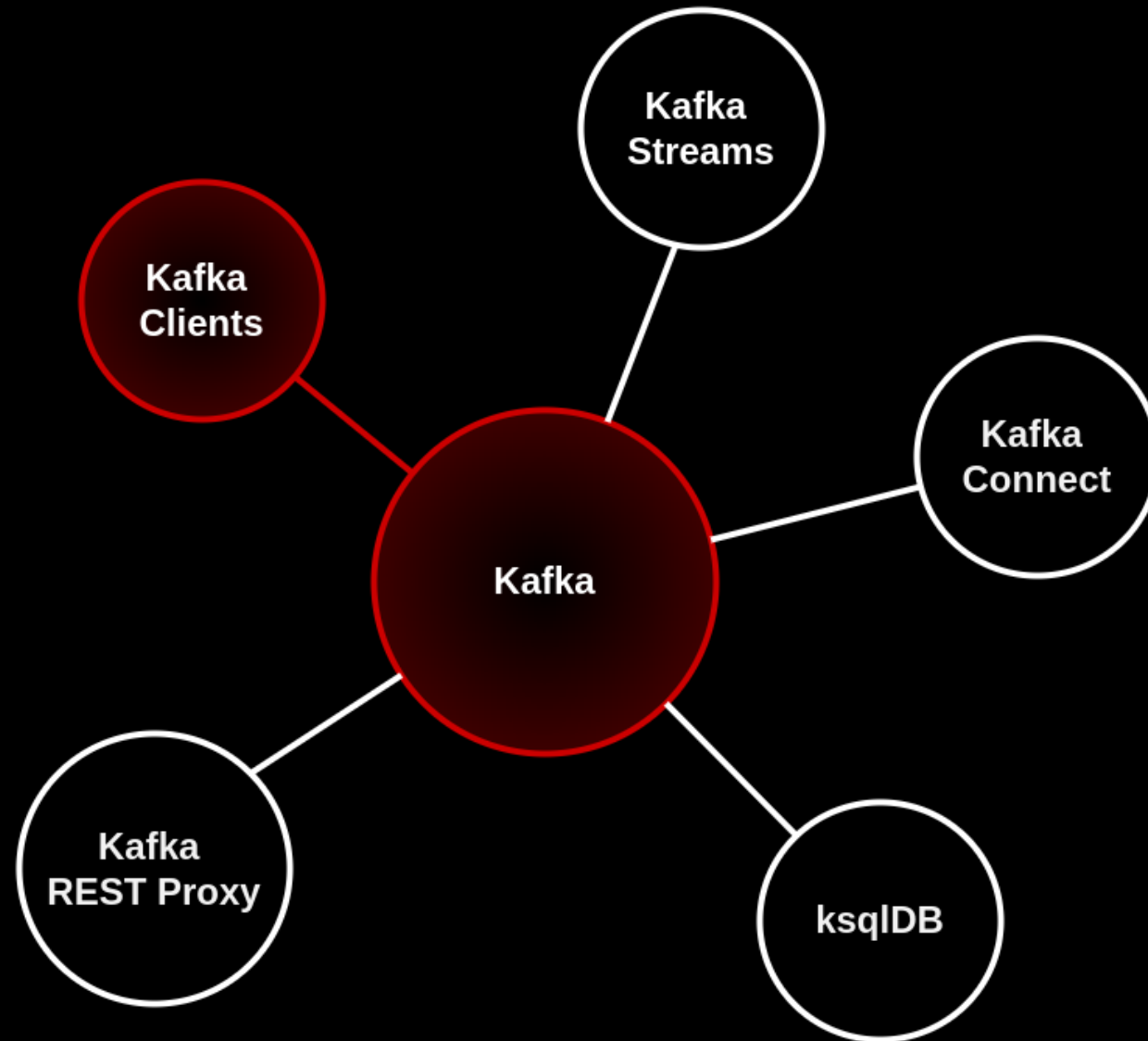
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Kafka Ecosystem



Core Kafka



Core Kafka

Kafka Cluster

- 1-n Brokers
- Zookeeper (soon to be gone)
- Topics (pub-sub)

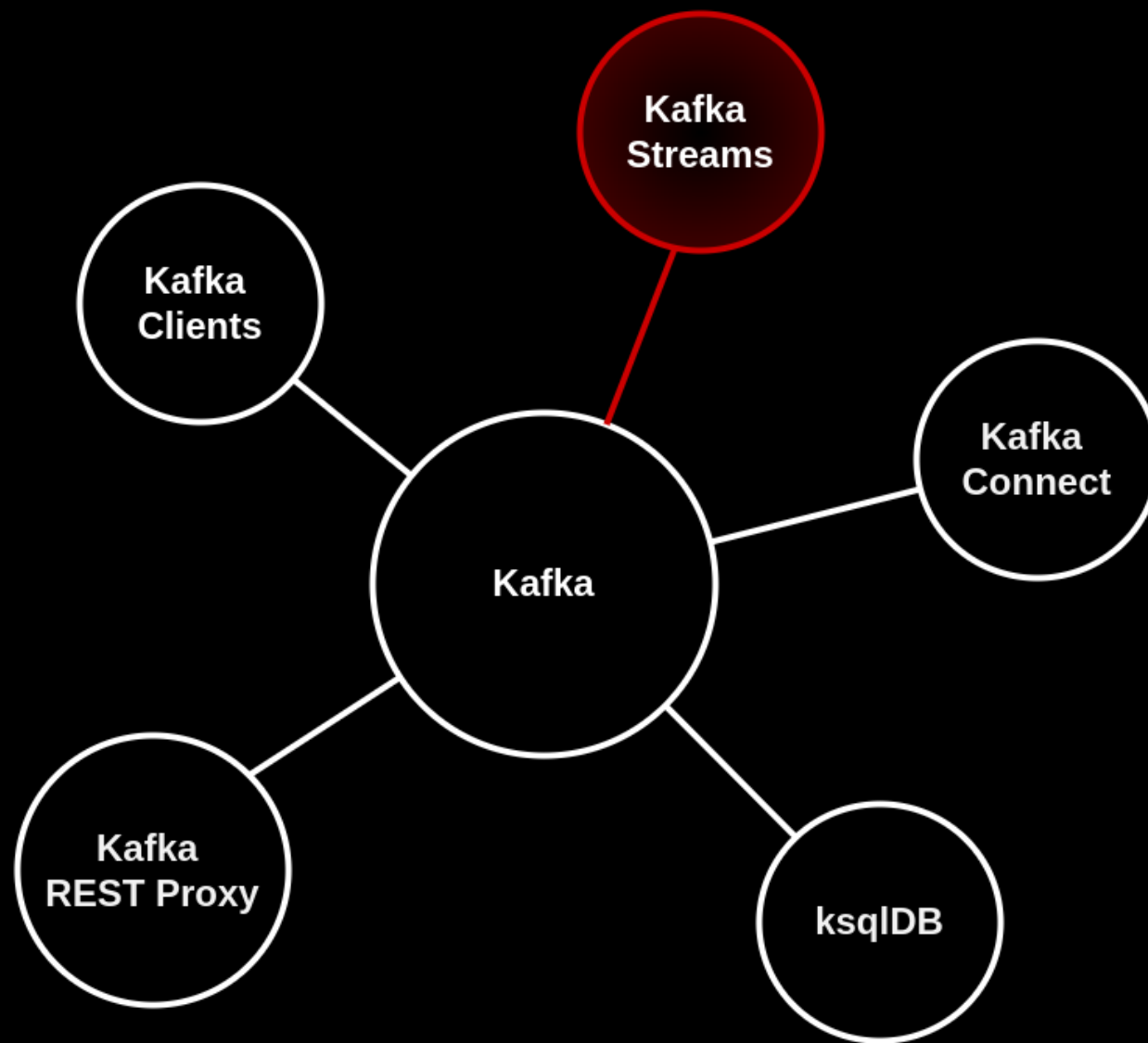
Kafka Clients

- Producer
- Consumer
- Admin client

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KafkaStreams



Kafka Streams

Client Library

Provides stream operations

Map, filter, aggregate, join...

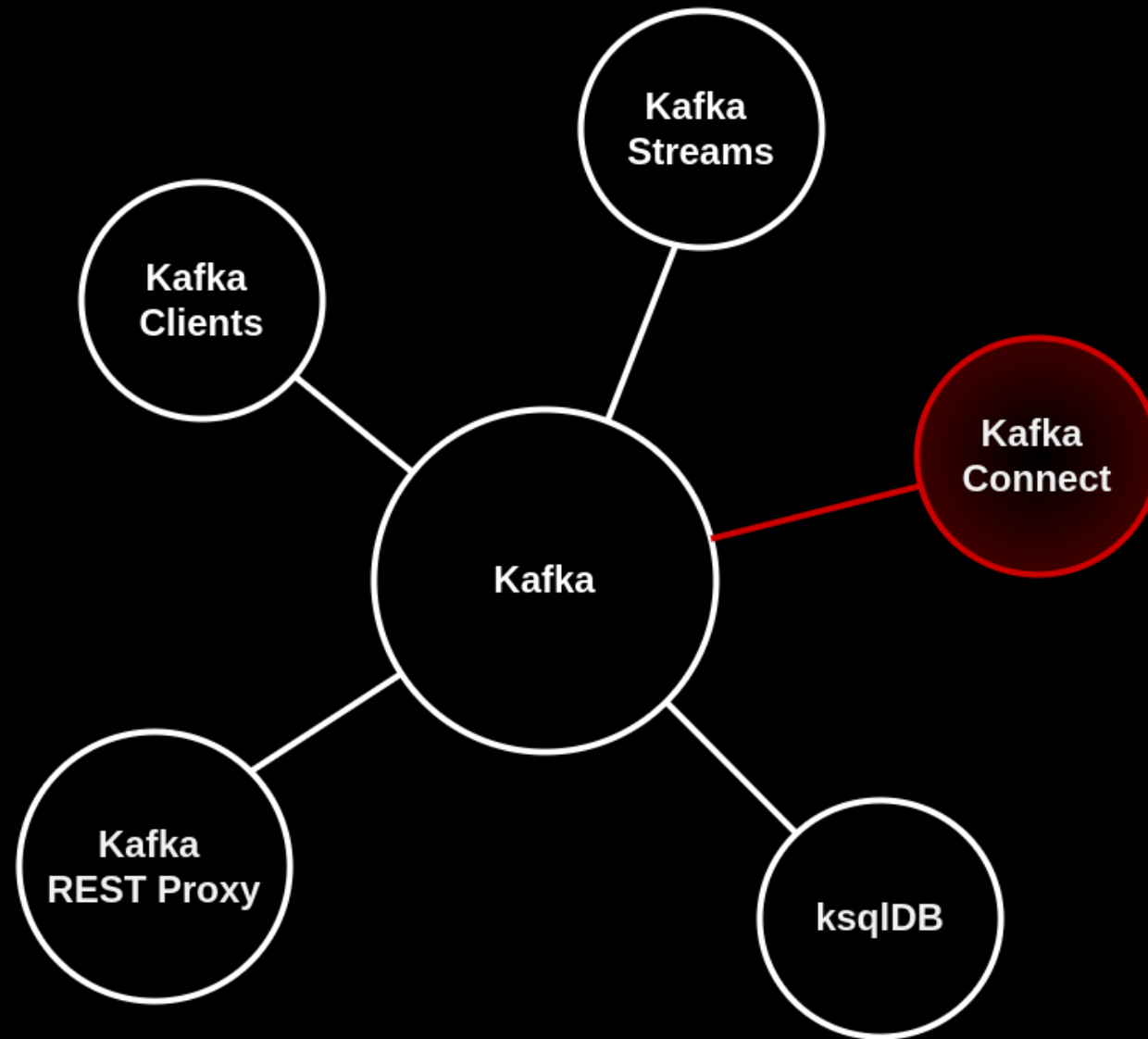
Scalable

Fault tolerant

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Kafka Connect



Kafka Connect

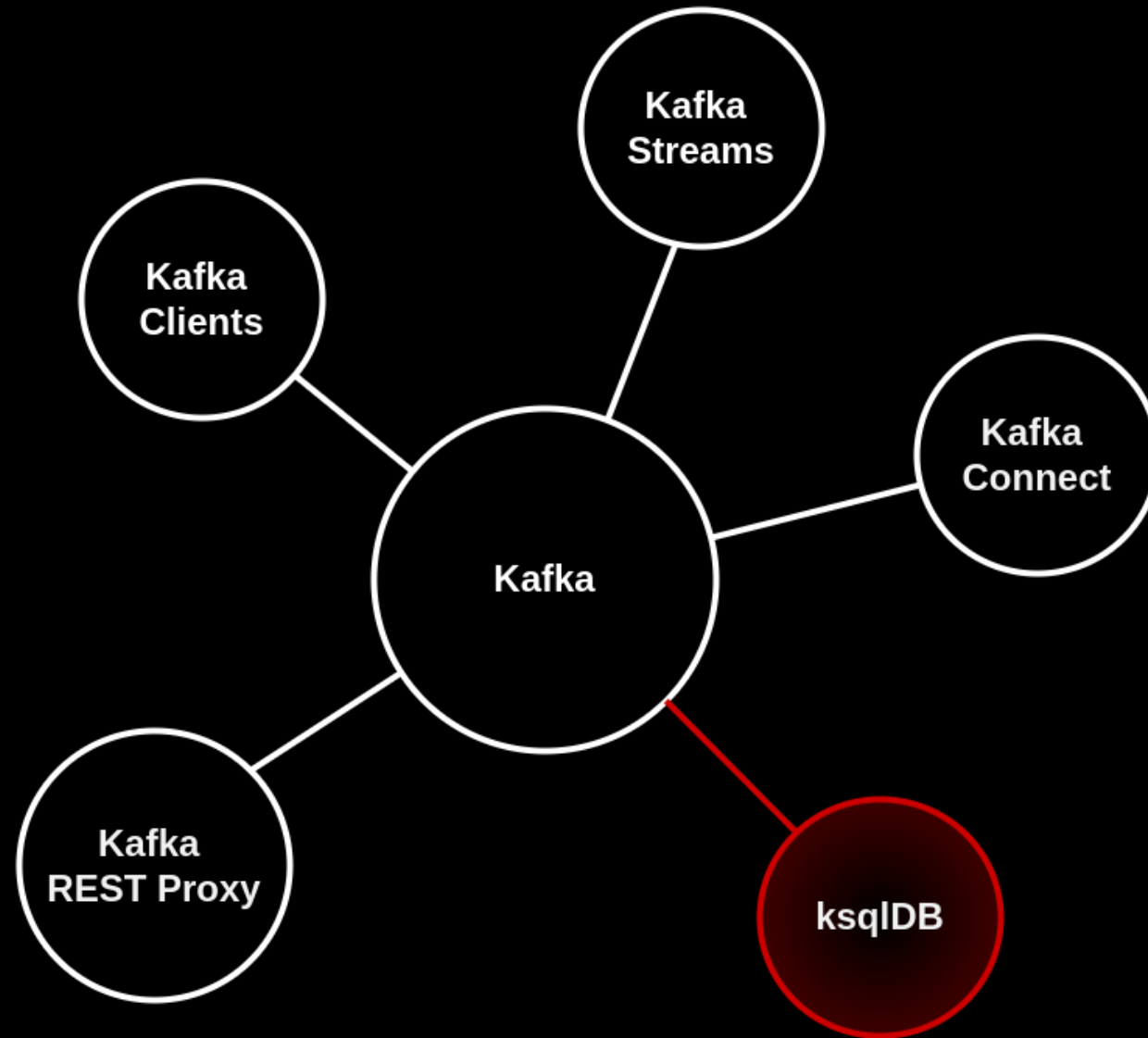
Kafka Connect Workers

- Standalone or Distributed mode(cluster)

Kafka Connect Connectors

- Available for many existing systems
- Type: Source and Sink
- Confluent Hub
- You can write your own

ksqlDB



ksqlDB

Kafka Streams features without coding the application

Uses SQL-like language to create and run Kafka Streams topologies

Three types of queries:

- Persistent queries
- Push queries
- Pull queries

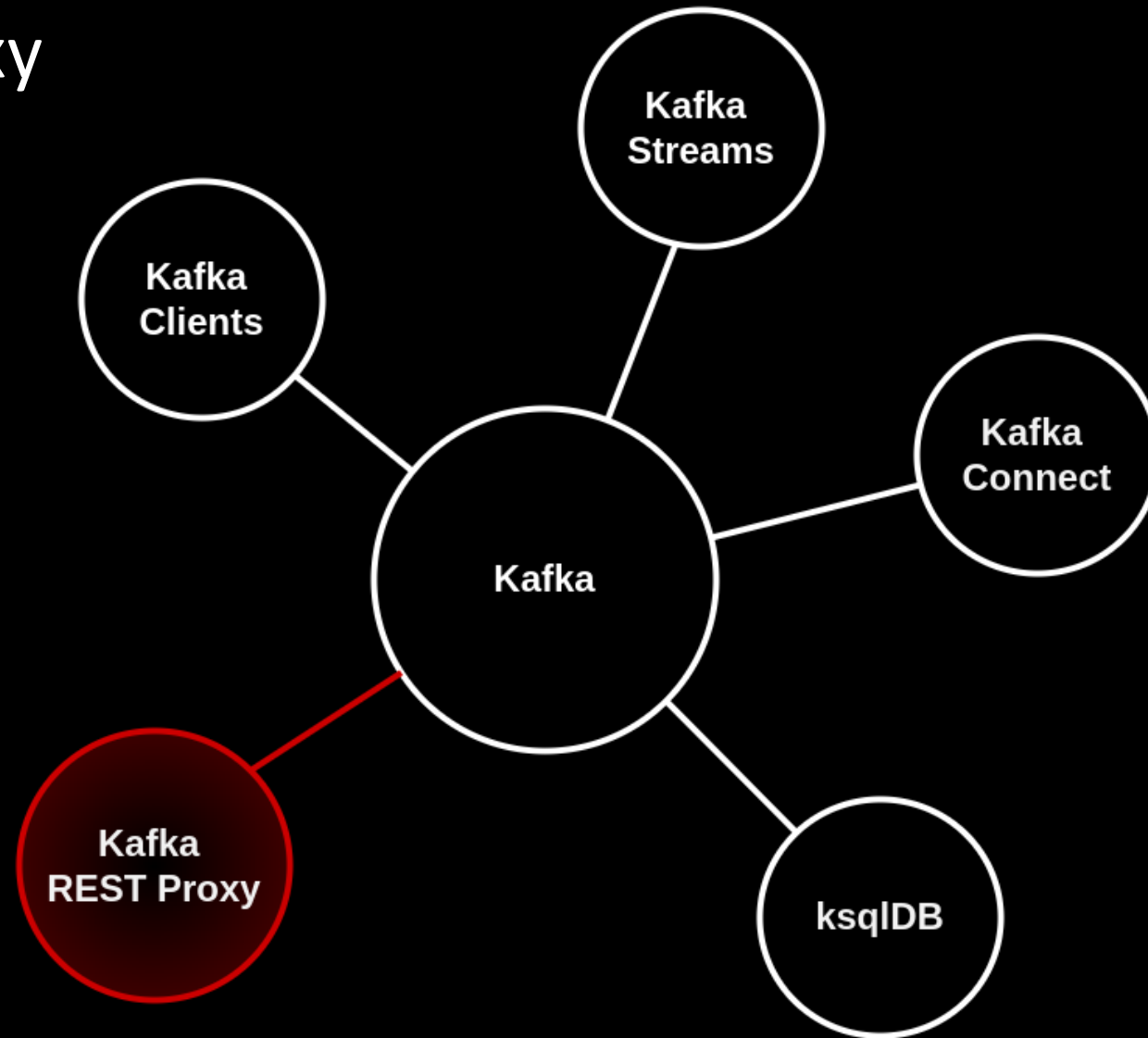
Integration with Kafka Connect

- You can manage connectors via ksqlDB

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Kafka REST Proxy



Kafka REST Proxy

Provides REST API for use cases where client libraries can't be used

End points

- For producing messages
- For consuming messages
 - Requires initiation of consumer session before messages can be consumed

Performance "much" lower than with client libraries

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QUIZ

Quiz

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1. If we have 3 partitions in topic and 4 consumers in the same group, how will partitions be assigned?

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2. If we have **replication factor of = 2** and **min in sync replicas=2**, and only one broker running, can we write to this topic partition, if producer is configured with **ack="all"**?

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3. If we want to ingest data from Oracle DB to Kafka, what type of connector do we need?

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4. In Kafka streams, what operation is used for data enrichment?

- A) groupBy
- B) join
- C) windowBy

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5. Which type of joins here are possible:

A) Stream to Stream

B) Stream to KTable

C) KTable to KTable

(multiple choice)

Demo app

<https://github.com/beegor/javacro-22-kafka-pipelines>

Q & A