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Debezium Training with Apache Kafka

2 days (14 hours)

Overview

Debezium with Apache Kafka is a Change Data Capture (CDC) solution that captures data changes in real time and streams them to Kafka. Using Kafka Connect, Debezium connectors, initial snapshots, and transactional streaming, you can build reliable, scalable, and production-ready data pipelines.

Our Debezium with Apache Kafka training course takes you beyond the basics to help you master the practical challenges of event-driven replication and data synchronization between systems.

You'll learn how to deploy a Kafka Connect architecture, configure Debezium connectors, and understand change events, dedicated topics, and snapshot and recovery mechanisms.

By the end of the training, you'll be able to design a robust CDC pipeline, leverage data from relational databases, secure data exchanges, and ensure reliable integration between applications, data warehouses, and business services.

This training also covers best practices for monitoring, schema management, handling schema changes, and preparing for deployment in a production environment.

Like all our training courses, this one will introduce you to **the latest stable version** of the technology and its new features.

Objectives

- Understand the principles of Change Data Capture and its value in an event-driven architecture.
- Configure and operate Apache Kafka and Kafka Connect to transport data streams.
- Implement Debezium connectors to capture database changes.
- Interpret the events, snapshots, topics, and metadata generated by Debezium.
- Build a reliable, monitorable processing pipeline suitable for production use.

Target Audience

- Data Engineer
- Data Developer
- Data Architect
- Platform Engineer
- Kafka Administrator

Requirements

- Proficiency in SQL fundamentals and relational models.
- General knowledge of Java or backend development.
- Basic understanding of event-driven architectures and message queues.
- Previous experience with Apache Kafka or a streaming system.

Technical Prerequisites

- A recent computer with sufficient resources to run Apache Kafka, Kafka Connect, and the demo tools.
- Stable Wi-Fi or Ethernet network connection for live exercises.
- A development environment with Java 17 or later installed.
- A test client or suitable IDE for editing configuration files and following along with the exercises.
- Access to a terminal; if the session is remote, a microphone and headset are recommended.

Our Debezium with Apache Kafka Training Program

[Day 1 - Morning] CDC

Fundamentals

- Understand the role of Change Data Capture in a modern data architecture.
- Identify the benefits of Debezium compared to traditional integration approaches.
- Review key Kafka concepts: topics, producers, consumers, and partitions.
- Analyze business use cases: synchronization, replication, real-time integration, and auditing.
- Discover where Kafka Connect fits into the processing chain.
- Hands-on workshop: Map a source-to-target data flow and identify the events to capture.

[Day 1 - Afternoon]

Debezium and Kafka Connect Architecture

- Examine the deployment architecture of Debezium on Kafka Connect.
- Understand the role of source connectors and the logic behind streaming data to Kafka topics.
- Learn about snapshots, streaming, and recovery after an interruption.
- Review the structure of CDC events, including keys, values, metadata, and operations.
- Discuss the principles of topic naming and schema management.
- Hands-on workshop: Deploy a Debezium connector and observe the creation of the associated topics.

[Day 2 - Morning]

Configuring Connectors

- Configure a MySQL or PostgreSQL connector based on the demo context.
- Configure the necessary access settings, permissions, and connection properties.
- Understand the role of change logs, such as the binlog or logical replication.
- Manage the initial data capture and the continuity of changes.
- Interpret insert, update, and delete events.
- Hands-on workshop: Configure a source connector and verify the transmission of the first events.

[Day 2 - Afternoon] Deployment

and Scaling

- Structure a processing pipeline suitable for a production environment.
- Implement best practices for monitoring and tracking connectors.
- Manage schema changes and anticipate their impact on consumers.
- Ensure the reliability of data recovery, offset control, and service continuity.
- Identify key considerations related to security, performance, and maintenance.
- Hands-on workshop: Diagnose a data flow incident and correct the connector configuration.

Target Audience

This training is intended for both individuals and companies—large or small—that wish to train their teams in new, advanced IT technologies or to acquire specific business knowledge or modern methods.

Prerequisites

The assessment process at the start of the training program complies with Qualiopi quality standards. Upon final enrollment, the learner receives a self-assessment questionnaire that allows us to evaluate their estimated proficiency with various types of technology, as well as their expectations and personal goals for the upcoming training, within the limits imposed by the selected format. This questionnaire also enables us to anticipate certain connection or internal security issues within the company (intra-company or virtual classroom) that could pose

impede the monitoring and smooth running of the training session.

Teaching Methods

Hands-On Course: 60% Hands-On, 40% Theory. Training materials distributed in digital format to all participants.

Organization

The course alternates between theoretical input from the instructor—supported by examples and reflection sessions—and group work.

Assessment

At the end of the session, a multiple-choice quiz is administered to verify that participants have successfully acquired the skills.

Certification

A certificate will be issued to each trainee who has completed the entire training program.