IBM Apache Kafka Administration by Confluent

Duration: 3 Days Course Code: ADMINKAFKAG Delivery Method: Virtual Learning

Overview:

Gain hands-on expertise in Apache Kafka and the Confluent Platform.

Learn to deploy, secure, and optimize clusters using proven industry standards, and build seamless data pipelines with Kafka Connect through practical, scenario-based exercises.

Throughout the course, hands-on exercises reinforce the topics being discussed. Exercises include: Using Kafka- s command-line toolsExploring configurationUsing Kafka- s administrative toolsTuning Producer and Consumer performanceSecuring the cluster Building data pipelines with Kafka Connect

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Virtual Learning

This interactive training can be taken from any location, your office or home and is delivered by a trainer. This training does not have any delegates in the class with the instructor, since all delegates are virtually connected. Virtual delegates do not travel to this course, Global Knowledge will send you all the information needed before the start of the course and you can test the logins.

Target Audience:

This course is designed for System Administrators and Operations staff responsible for building, managing, monitoring, and tuning Kafka clusters and components of Confluent Platform. Architects and DevOps staff who want a tour on how the Central Services (Kafka, KRaft, Schema Connect, Registry, etc.) work are also welcome.

Objectives:

- During this hands-on course you will learn how:
- Kafka and the Confluent platform work, and how their main subsystems interact
- To set up, manage, monitor and tune your cluster
- To use industry best practices developed by the world- s foremost Apache Kafka experts

Prerequisites:

Attendees should have a working knowledge of the Kafka architecture. It is also important to have strong knowledge of Linux/Unix and understand basic TCP/IP networking concepts. Familiarity with Java Virtual Machine (JVM) is helpful. Participants are required to provide a laptop computer with unobstructed internet access to fully participate in the class.

Testing and Certification

- *None*

Follow-on-Courses:

- *None recommended*

Content:

Bridging From Fundamentals

- Fundamentals Review
- Replication Review

Replicating Data: A Deeper Dive

- Which messages can be consumed-
- Managing Replica Placement
- Partition Leadership Tracking
- Partition Follower Responsiveness

Producing Messages Reliably

- Message Production Acknowledgement
- Dealing with same-session duplicates in Producers
- Transactional Messages Production

Providing Durability in Other Ways

- How Kafka Organizes Partition Data Files in Local Storage
- Beyond Local Storage (Tiered Storage)
- Persistence of Consumer Offsets

Configuring a Kafka Cluster

- Static Kafka Server Configuration
- Dynamic Server Configuration
- Topic Dynamic Configuration Overrides

Managing a Kafka Cluster

- Notes on Installation and Upgrading
- Kafka Server Roles: Controllers and Brokers (KRaft)
- Basics of Kafka Monitoring
- Message Retention Policies
- Replica Workload Management (Self-Balancing Cluster)
- Elastic Cluster: adding and removing Brokers

Balancing Load with Consumer Groups

- How do Partitions and Consumer Scale
- How does Kafka Manage Consumer Groups

Introduction to Performance Optimization

- Sending Multiple Messages in one Request (Batching)
- Broker Anatomy for Produce and Fetch Requests
- Metrics and Configuration related to Broker Anatomy
- Client Quotas
- Performance Tests

Securing a Kafka Cluster

- Security Concepts applicable to Kafka
- Options to Secure Kafka/Confluent Deployments
- Authorization (Access Control Lists - ACL)

Kafka Connect

- Concepts related to Kafka Connect
- Connect Workers and Connector Configuration
- Finding and Deploying Connectors

Deploying Kafka in Production

- Reference Architecture for Apache Kafka and the Confluent Platform
- Capacity Planning

Additional Information:

Official course book provided to participants

Further Information:

For More information, or to book your course, please call us on 0800/84.009

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