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## RedPanda training

3 days (21 hours)

### Presentation

Our RedPanda training course offers you a unique opportunity to master a real-time data streaming platform, designed to meet the challenges of managing large-scale data flows.

[RedPanda](#) offers a highly scalable and sustainable distributed architecture, guaranteeing a constant level of performance even with massive volumes of data.

During this course, we'll guide you through the essential aspects of RedPanda, from its fundamental concepts to its practical implementation in business environments.

We'll take a detailed look at its basic architecture, as well as the use of its main components and APIs. In addition to mastering the RedPanda core, you'll also explore advanced functionalities such as transactions, delivery guarantees and data management.

As with all our training courses, our RedPanda training will introduce you to the latest version and its new features (at the time of writing: [RedPanda 23.3](#)).

### Objectives

- Understanding architecture and key components
- Install, configure and maintain a RedPanda cluster in production
- Implement strategies to ensure high availability and security
- Develop efficient message production and consumption applications with RedPanda
- Master RedPanda's advanced features

### Target audience

- Developers
- Data Scientists
- Architects
- System administrators
- DevOps

## Prerequisites

- Basic knowledge of computing and distributed systems
- Familiarity with real-time data streaming concepts
- Understanding of the fundamentals of data management and data analysis
- Ability to work on the command line in a Unix/Linux environment
- Experience in software development would be beneficial

## OUR REDPANDA TRAINING PROGRAM

### INTRODUCTION TO REDPANDA

- Introducing RedPanda and its ecosystem
- RedPanda's advantages over other distributed messaging systems
- Main features and use cases
- RedPanda architecture and key components
- Comparison with Apache Kafka

### REDPANDA'S BASIC CONCEPTS

- Understanding brokers, topics and partitions
- Introduction to producers and consumers
- The role of clustering in RedPanda
- Aspects of replication and fault tolerance
- High availability fundamentals with RedPanda

### INSTALLING AND CONFIGURING REDPANDA

- Installation requirements and environment
- Step-by-step guide to installing RedPanda
- Initial configuration and important parameters
- Configuration file management and customization
- System updates and maintenance

### HIGH AVAILABILITY AND PRODUCTION DEPLOYMENT

- Strategies for ensuring high availability in RedPanda
- Best practices for secure and reliable production deployment
- Monitoring and monitoring tools for RedPanda
- Performance optimization techniques for high workloads
- Scalability: extending RedPanda's capabilities

## DEVELOPMENT WITH REDPANDA

- Introduction to development APIs with RedPanda
- Use of RedPanda clients in different languages (Java, Python, Go)
- Techniques for producing and consuming effective messages
- Practical examples of real-time data flow processing
- Good programming practices with RedPanda

## REDPANDA'S ADVANCED FEATURES

- Transactions and delivery guarantees in RedPanda
- Data compression and serialization
- Backup and disaster recovery management
- Data security and customer authentication
- Strategies for retaining and cleaning topics

## INTEGRATION WITH OTHER TOOLS AND PLATFORMS

- Connecting RedPanda with Kafka Connect and Kafka Streams
- Using RedPanda with the Confluent Platform
- Integration with monitoring and logging systems such as Prometheus and Grafana
- Examples of integration in microservices and cloud-native architectures
- RedPanda use cases with data processing tools such as Spark and Flink

## USE CASES AND CASE STUDIES

- Analysis of RedPanda use cases in various sectors (Finance, Media, E-commerce)
- Feedback and case studies of successful deployments
- Discussion of typical challenges and solutions
- Best practices for adopting RedPanda in specific projects
- Analysis of RedPanda's impact on performance and operational efficiency

## REDPANDA OPTIMIZATION AND MONITORING

- RedPanda health and performance monitoring methods
- Performance optimization and resource management techniques
- Using metrics for proactive problem analysis
- Advanced configuration for improved I/O efficiency
- Reconfiguring the Raft group for greater resilience

## Companies concerned

This training course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

## Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives for the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

## Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

## Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

## Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

## Sanction

A certificate will be issued to each trainee who completes the course.