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MinIO and Amazon S3 training

2 days (14 hours)

Presentation

Our MinIO and S3 training course will teach you how to master object storage for optimal deployment of your AI infrastructure.

We'll start this course with an introduction to object storage. We'll look at the architecture and components of MinIO and S3. You'll then learn how to install and configure the tools. Then you'll learn how the two tools differ and can be used in conjunction with each other.

We'll show you the command lines you need to master, as well as good security practices (TLS protocol, tokens, identity and access management).

We'll teach you how to maintain high availability and efficient data replication in the event of a disaster. You'll also learn how to integrate MinIO with Kubernetes.

Finally, we'll go back over the best practices and essential principles of MinIO so that you can set up a robust architecture for your Artificial Intelligence needs.

Objectives

- Installing and configuring MinIO
- Configure S3
- Create and manage buckets and objects on MinIO
- Understanding erasure coding
- Good safety practices

Target audience

- Data Engineers
- Cloud engineers
- AI Engineers
- Database administrators

Prerequisites

- Basic knowledge of AWS S3 and the S3 API
- Basic knowledge of the Linux environment, command lines and shell scripts
- Experience in modern object-oriented programming languages

Hardware requirements

SSH access on a public IP.account access on AWS and MinIO.

MinIO and S3 training program

Introduction to Minio and Object Storage

- Introducing Minio
- What is Minio?
- Minio's advantages over traditional storage solutions
- Typical use cases
- Understanding object storage
- What is object storage?
- Differences between file storage and object storage
- Features and benefits of object storage
- Understanding erasure coding

S3 Fundamental Concepts

- Introduction to Amazon S3
- S3 overview
- Main features
- Use cases
- Bucket management
- Creating, deleting and configuring buckets
- Bucket management policies

Minio and S3 comparison

- Differences between Minio and S3
- Comparative architecture
- Features

- Limitations and strengths of each solution
- Interoperability with S3
- How Minio is compatible with the S3 ecosystem
- Using standard S3 clients with Minio

Deploying Kubernetes

- Introduction to Kubernetes
- Kubernetes basics
- Architecture
- Key concepts: Pods, Services, Deployments, etc.
- How do I install Kubernetes and manage clusters?
- Installation options
- Minimum system requirements

Deploying Minio on Kubernetes

- Environmental preparation
- System requirements for deploying Minio on Kubernetes
- Configuring CSI storage nodes
- Minio deployment
- Use Helm to simplify deployment
- Minio settings

Minio Supervision and Authentication Management

- Monitoring Minio
- Monitoring tools and techniques for Minio
- Performance and availability monitoring
- Authentication management
- Configuring authentication mechanisms for Minio
- User and access management

Case studies and exercises

- Minio usage scenarios
- Practical examples of using Minio in real-life environments
- Minio-compatible application development
- Practical exercises
- Deploying Minio with CSI volumes
- Object manipulation via the Minio API and user interface.
- Development of a Go client for Minio

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.