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FlexFS Training

3 days (21 hours)

Overview

FlexFS is a network file system designed for the most demanding cloud workloads, featuring POSIX compatibility, high throughput, and transparent object storage. Our FlexFS training will help you master a modern storage architecture designed for HPC, AI, and data-intensive environments.

You'll learn how mount.flexfs, the data path, the cache, and object access mechanisms work, building a solid foundation in FlexFS. The training also guides you through selecting editions, managing volumes, configuring access, security options, and best practices for production deployments. You'll learn to leverage caching, encryption, access control, and Kubernetes integration capabilities to reduce latency, improve resilience, and simplify operations. By the end of the course, you'll be able to design, configure, and monitor a FlexFS platform tailored to real-world performance, cost, and governance requirements.

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 architecture and positioning of FlexFS.
- Configure a POSIX mount and use the main clients and commands.
- Master caching, data flow, and their impact on performance.
- Secure access using permissions and encryption mechanisms.
- Prepare a cloud or Kubernetes deployment suitable for a production environment.
- Diagnose common use cases and apply best practices for operation.

Target Audience

- Cloud Architect
- Systems Engineer
- DevOps Engineer
- Storage Administrator
- Platform Engineer

Requirements

- Basic knowledge of Linux and system administration.
- Understanding of networking principles and distributed storage.
- Experience with cloud environments and object storage services.
- Basic knowledge of Kubernetes and containerized application deployments.
- Prior experience with file systems or network file services.

Technical Prerequisites

- A recent computer with sufficient memory for hands-on exercises.
- A stable Wi-Fi or Ethernet connection for accessing remote environments.
- A computer equipped with a Linux terminal or an SSH-compatible environment.
- A modern web browser to view the documentation and follow along with the demonstrations.
- If the session is remote, a microphone and headset for live discussions.

FlexFS Training Program

[Day 1 - Morning] FlexFS

Fundamentals

- Understand FlexFS's position within the cloud storage ecosystem.
- Identify priority use cases: HPC, AI, and I/O-intensive workloads.
- Explore the overall architecture, mount clients, metadata, and object storage.
- Compare POSIX, traditional file storage, and object storage.
- Analyze the expected benefits in terms of performance, cost, and elasticity.
- Hands-on workshop: mapping out a target FlexFS architecture based on a given business requirement.

[Day 1 - Afternoon]

Initial mounts and commands

- Set up a test environment and verify access prerequisites.
- Use `mount.flexfs` and understand its role in the FUSE mount.
- Explore useful subcommands for initializing and starting a client.

- Review basic options related to mount points, logs, and authentication.
- Verify the behavior of a mounted volume from the local system.
- Hands-on workshop: Mount a FlexFS volume, then test reading, writing, and navigating directories.

[Day 2 - Morning]

Data Flow and Caching

- Understand the path a request takes between the kernel, the client, and backend services.
- Examine the role of the local cache in reducing latency.
- Analyze block-level partitioning logic and its impact on performance.
- Discover invalidation mechanisms and cross-client consistency.
- Identify the parameters that influence throughput and scalability.
- Hands-on workshop: Observe the effect of cache settings on a read-intensive scenario.

[Day 2 - Afternoon] Security

and Access Control

- Apply Unix permission rules and POSIX principles.
- Understand options for restricting access and protecting data.
- Examine server-side encryption and block-level security mechanisms.
- Manage the concepts of accounts, groups, and user privileges.
- Assess the security implications for day-to-day administration.
- Hands-on workshop: Configure a set of permissions and verify the effects on multiple access profiles.

[Day 3 - Morning]

Cloud Deployment and Kubernetes

- Position FlexFS within a hybrid or multi-cloud architecture.
- Understand the principles of integration with a Kubernetes environment.
- Explore the concepts of static and dynamic provisioning.
- Prepare operational components for a controlled production rollout.
- Align architectural choices with cost, availability, and performance objectives.
- Hands-on workshop: Build a deployment diagram for a FlexFS service for a containerized application.

[Day 3 - Afternoon]

Operation, Monitoring, and Best Practices

- Implement a reliability-focused operations approach.

- Identify useful metrics for monitoring activity and capacity.
- Diagnose common issues related to mounting, caching, and access.
- Establish best practices for maintenance and scaling up.
- Prepare validation steps before deploying to a live environment.
- Hands-on workshop: Resolve a simulated incident and propose a plan to improve operations.

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 industry knowledge or modern methodologies.

Assessment upon enrollment

The pre-training assessment complies with Qualiopi quality standards. Upon final registration, the learner receives a self-assessment questionnaire that allows us to evaluate their estimated proficiency with various types of technologies, as well as their expectations and personal goals for the upcoming training, within the limits imposed by the selected format. This questionnaire also allows us to anticipate certain connection or internal security issues within the company (intra-company or virtual classroom) that could pose challenges for monitoring and ensuring the smooth running of the training session.

Teaching Methods

Hands-On Training: 60% Practical, 40% Theoretical. 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.