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# Linkerd training: The world's most advanced service network

3 days (21 hours)

## Presentation

Make it easy to manage communications between microservices with our Linkerd training, an open-source service-mesh for native cloud applications.

With this course, you'll learn how to secure connections, monitor network traffic, troubleshoot and route traffic.

In addition, this technology will teach you to understand the concepts of service networking, distributed application resilience and [horizontal scalability](#).

What's more, you'll acquire skills in microservices management, cloud-native application deployment, as well as in solving reliability and performance problems.

As with all our training courses, this one will introduce you to the latest version of Linkerd (at the time of writing: [Linkerd 2.15](#)).

## Objectives

- Understanding Linkerd's fundamental principles
- Deploy applications and interpret monitoring metrics
- Install and configure the Linkerd control plane on a Kubernetes cluster
- Implement effective observability to diagnose problems and improve performance

## Target audience

- Developers
- Software engineers

## Prerequisites

- Basic knowledge of distributed application architectures and microservices concepts
- Working knowledge of cloud and container technologies (Kubernetes, Docker)

## LINKERD TRAINING PROGRAM

### INTRODUCTION TO LINKERD AND SERVICE MESHES

- What is Linkerd?
- Basic principles and architecture of a mesh service
- How Linkerd compares with other mesh service solutions
- Typical Linkerd use cases
- Linkerd ecosystem and community

### INSTALLATION AND CONFIGURATION

- Prerequisites and environment
- Installing Linkerd's control plane on a Kubernetes cluster
- Discover Linkerd's command line interface (CLI)
- Installation validation and troubleshooting
- Initial configuration and customization via Helm or Kustomize

### APPLICATION DEPLOYMENT

- Automatically inject Linkerd proxy into applications
- Deploying a demo application
- Visualizing and understanding metrics
- Using the dashboard to monitor services
- Application debugging techniques

### ADVANCED FEATURES

- HTTP, HTTP/2, gRPC and TCP proxies with protocol detection
- Implementation of retries and timeouts
- Security with automatic mTLS and certificate management
- Integration of ingress solutions
- Load balancing and authorization policies

### OBSERVABILITY WITH LINKERD

- Telemetry and monitoring with Linkerd
- Setting up and using Grafana for Linkerd metrics
- Distributed tracing and diagnosis of performance problems
- HTTP access logging and export of metrics
- Obtaining metrics by route and using service profiles

## HIGH AVAILABILITY AND MULTI-CLUSTER COMMUNICATION

- Linkerd configuration for high availability
- Communication between clusters
- Automatic multi-cluster failover and TLS certificate rotation
- Progressive delivery strategies and traffic distribution (canary, blue/green)

## SECURITY AND AUTHORIZATION POLICY

- Setting Linkerd authorization policies
- Secure access to services and control plan
- Webhook certificate rotation and access restriction
- Using and configuring circuit breakers

## EXTENSIONS AND INTEGRATION WITH OTHER TOOLS

- Overview and use of Linkerd extensions (SMI, Tap, etc.)
- Integration of non-Kubernetes workloads in the mesh
- Using GitOps with Linkerd and Argo CD for continuous deployment
- Customize installation with external tools (e.g. Prometheus)

## Companies concerned

This 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 training: 60% Practical, 40% Theory. Training material distributed in

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.