

**Linkerd with AKS (Azure Kubernetes Service)**

**Course Number:** CLD-136WA
**Duration:** 2 days

**Overview**

This Linkerd with AKS course teaches learners how to install, configure, and integrate Linkerd with AKS. Learners gain practical experience deploying and managing Linkerd in an AKS environment, mastering microservices' observability, security, and reliability for enhanced application performance and resilience.

**Prerequisites**

All participants must have taken [Introduction to Docker and Kubernetes](file:////training/docker-kubernetes-introduction) or have equivalent experience.

**Materials**

All AKS training attendees receive comprehensive courseware.

**Software Needed on Each Student PC**

Attendees will not need to install any software on their computers for this class. The class will be conducted in a remote environment that Accelebrate will provide; students will only need a local computer with a web browser and a stable Internet connection. Any recent version of Microsoft Edge, Mozilla Firefox, or Google Chrome will work well.

**Objectives**

* Understand the role of a service mesh in modern microservices architecture
* Deploy and configure Linkerd in an AKS environment
* Secure service-to-service communication using mTLS with Linkerd
* Leverage Linkerd's observability tools to monitor and debug microservices
* Optimize traffic management with features such as retries, timeouts, and traffic splitting
* Integrate Linkerd with third-party tools like Prometheus and Grafana for enhanced monitoring
* Troubleshoot common issues encountered with Linkerd in AKS

**Outline**

* Introduction to Service Mesh and Linkerd
	+ What is a service mesh?
	+ Linkerd vs. other service meshes (Istio, Consul, etc.)
	+ Use cases and benefits of Linkerd
* Setting Up AKS
	+ Overview of AKS
	+ Configuring kubectl and Azure CLI for AKS
* Installing Linkerd in AKS
	+ Pre-requisites for Linkerd installation
	+ Installing Linkerd CLI and validating the environment
	+ Deploying Linkerd control plane in AKS
	+ Installing and configuring Linkerd data plane on services
* Securing Communication with mTLS
	+ Introduction to mutual TLS (mTLS)
	+ Enabling and validating mTLS in Linkerd
	+ Verifying secure communication between services
* Observability with Linkerd
	+ Built-in observability features: Dashboard, CLI tools, and service tap
	+ Monitoring services and debugging issues with Linkerd
* Traffic Management
	+ Configuring retries and timeouts
	+ Traffic splitting for canary deployments
	+ Using Linkerd for blue-green deployments
* Integrating Third-Party Tools
	+ Setting up Prometheus and Grafana with Linkerd
	+ Visualizing metrics and creating dashboards
	+ Using Jaeger for distributed tracing with Linkerd
* Scaling and Optimizing Linkerd in AKS
	+ Best practices for running Linkerd in production
	+ Scaling the control and data planes.
	+ Fine-tuning resource allocations for Linkerd
* Troubleshooting and Debugging
	+ Common issues with Linkerd in AKS and their solutions
	+ Debugging service failures and performance bottlenecks