Course Outline

Container and Kubernetes Networking Deep Drive

Course Summary

Description

Containerized applications are accessed over the network, but how are they connected to the network while staying isolated from each other?

Participants of this training will learn about the different types of networking resources that facilitates the connectivity for containers, the Container Network Interface (CNI) as well as CNI plugins.

Topics

- Network Connectivity for Containers
- CNI – Container Network Interface
- CNI Plugins

Audience

This course is designed for system administrators, developers, and DevOps who want to understand and use Kubernetes network features.

Prerequisites

Linux container (e.g., Docker) and Kubernetes administration skills are required for this course.

Duration

One Day

Course Outline

I. Network Connectivity for Containers

A. Isolating network resources
B. Connecting network namespaces – veth pairs
C. Connecting network namespaces – bridges
D. Connecting network namespaces – routing
E. Connecting network namespaces – macvlan
F. Connecting network namespaces – ipvlan
G. Docker networking
H. Docker networking – addresses
I. Docker networking – custom bridge
J. Docker networking – host network
K. Docker networking – shared network NS
L. Docker networking – publishing ports
M. Lab 1

II. CNI – Container Network Interface

A. CNI Specification – Concepts
B. CNI – Network configuration format
C. CNI – Execution protocol
D. CNI – Operations
E. CNI – Plugin delegation
F. CNI – Conventions
G. Lab 2

III. CNI Plugins

A. CNI – Reference Plugins
B. Third Party Plugins – Calico
C. Third Party Plugins – Multus CNI
D. Third Party Plugins – Whereabouts
E. Lab 3