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Sign Up

Kubernetes Network Engineer (CKNE) Certification Training

2 days (14 hours)

Overview

The Kubernetes Network Engineer (CKNE) Certification Training prepares you to demonstrate key skills in Kubernetes networking, CNI, DNS, network policies, and observability. Designed with the official exam in mind, it helps you build operational expertise that can be directly applied in production.

Through this course, you'll learn to build a solid understanding of network flows in Kubernetes, diagnose connectivity issues, and master the mechanisms that ensure the reliability of containerized applications.

You'll learn how to leverage the essential components of the cluster network, from integrating CNI plugins to managing traffic, services, DNS, security policies, and advanced troubleshooting tools.

The course also emphasizes the skills required for the CKNE exam, featuring real-world scenarios, configuration exercises, and assessment activities to build your confidence and independence.

By the end of the course, you will be able to analyze a Kubernetes network architecture, resolve common incidents, secure network traffic, and sit for the certification exam with structured and targeted preparation.

Like all our training courses, this one will introduce you to **the latest stable version** of the technology and its new features.

Objectives

- Understand Kubernetes network architecture and the main data flows between pods, services, and nodes.
- Master the concepts of CNI, IPAM, DNS, and routing within a cluster.
- Be able to diagnose issues with connectivity, name resolution, and inter-service traffic.
- Apply best practices for network security using Network Policies and encryption.
- Effectively prepare for the CKNE exam using scenarios that closely mirror the certification requirements.

Target Audience

- DevOps Engineer
- Kubernetes Administrator
- Network Engineer
- Cloud Architect
- Platform Engineer

Prerequisites

- Basic knowledge of Kubernetes and container orchestration.
- Proficiency in Linux fundamentals, IP networking, and the command line.
- Experience with Docker environments or other containerization technologies.
- Understanding of TCP/IP, routing, and DNS resolution concepts.
- Prior experience in system administration, cloud operations, or DevOps.

Technical Prerequisites

- A recent computer with an up-to-date browser and a configuration powerful enough to run the labs.
- A stable Wi-Fi or Ethernet connection to follow the online demonstrations and exercises.
- A functional terminal with kubectl installed for Kubernetes operations.
- A work environment with Docker or access to a test cluster if requested by the instructor.
- For virtual classes, a microphone and headset to participate in discussions and workshops.

Curriculum for our Kubernetes Network Engineer (CKNE) Training

[Day 1 - Morning]

Fundamentals, CNI, and pod-to-pod connectivity

- Understand the scope of the CKNE certification and the structure of the hands-on exam.
- Master the Kubernetes network model, the data plane, and pod-to-pod connectivity.
- Study how CNI plugins work, overlay modes, routing, and IPAM.
- Manage the allocation of Pod CIDR ranges and verify the initialization of network interfaces.

- Hands-on workshop: Install, configure, and validate a CNI plugin, then map a packet's path.

[Day 1 - Afternoon]

Services, CoreDNS, and Traffic Management (Ingress & Gateway API)

- Understand traffic routing via Services and the role of kube-proxy.
- Analyze internal name resolution with CoreDNS and service discovery.
- Expose application traffic via Ingress, the Gateway API, and egress policies.
- Diagnose common errors related to service publication, endpoints, and routing.
- Hands-on Workshop: Configure the complete exposure chain and troubleshoot a failing service.

[Day 2 - Morning]

Network Security, Network Policies, and Observability

- Apply network segmentation using Network Policies (namespaces, pods, ports).
- Understand the principles of traffic encryption (mTLS) and attack surface reduction.
- Use metrics, logs, and traces to monitor the cluster's network health.
- Correlate application performance issues with traffic metrics and anomalies.
- Hands-on workshop: Design restrictive network policies and interpret traffic metrics.

[Day 2 - Afternoon]

Advanced Network Troubleshooting and CKNE Exam Preparation

- Deploy a structured diagnostic method to resolve Kubernetes network outages.
- Use fundamental CLI tools: ip, tcpdump, iptables, and interface inspection.
- Handle complex incidents: MTU issues, DNS timeouts, broken routes, and missing endpoints.
- Adopt the reflexes, shortcuts, and time management strategies specific to the CKNE exam.
- Hands-on workshop: practical exam simulation (time-limited network troubleshooting with feedback).

Target Audience

This training is intended for both individuals and companies—large or small—seeking to train their teams in new, advanced IT technologies or to acquire specific industry knowledge or modern methodologies.

Entry-Level Assessment

The pre-training assessment complies with Qualiopi quality standards. From the very beginning,

Upon final registration, the learner receives a self-assessment questionnaire that allows us to evaluate their estimated proficiency with various types of technology, 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 problems 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.