+33 (0)1 48 10 09 46
formation@ambient-it.net
140 Avenue Jean Lolive 93500 Pantin - France

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Sign up

KVM Virtualization Training

2 days (14 hours)

Overview

KVM (Kernel-based Virtual Machine) is a virtualization technology integrated into the Linux kernel that transforms a server into a high-performance hypervisor. This open-source solution leverages the capabilities of the Linux kernel to run virtual machines in an isolated and efficient manner.

Our KVM Virtualization training will enable you to master the deployment, administration, and optimization of a professional KVM-based virtualization infrastructure in a Linux environment.

You will learn how KVM works, how to install and configure it, and how to manage virtual machines in a production environment.

You will also be able to optimize resources, discover advanced techniques, and apply best practices to maintain a stable and efficient virtualization platform.

Upon completion of the course, participants will be able to deploy, administer, and maintain a professional KVM-based virtualization infrastructure in a Linux environment.

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

Objectives

- Understand how KVM works
- Install and configure KVM
- Administer virtual machines

- Optimize resources
- Discover advanced techniques
- Learn best practices

Target Audience

- Linux system administrators
- Systems and infrastructure engineers
- IT architects
- Operations managers
- System technicians

Prerequisites

- Proficiency in Linux system administration
- Basic knowledge of TCP/IP networks

Technical requirements

- A workstation with Internet access and a modern web browser
- One or more Linux servers compatible with hardware virtualization
- A processor that supports virtualization (Intel VT-x or AMD-V)
- Sufficient resources (CPU, RAM, storage) to create and manage multiple virtual machines
- Network access allowing for the configuration of interfaces, network bridges, and associated services
- Access to Linux administration tools and KVM/libvirt utilities for hands-on exercises

KVM Virtualization Training

[Day 1 - Morning]

How KVM works and virtualization architecture

- Understanding how KVM works
- The role of the Linux kernel in virtualization
- Ecosystem components: QEMU, libvirt, virt-manager
- Differences between hypervisor, host machine, and guest machine
- Overview of infrastructure use cases
- Hands-on workshop: Analysis of a KVM architecture on Linux.

Installation and initial configuration of KVM

- Installing and configuring KVM
- Verifying hardware prerequisites and virtualization support
- Installing the necessary packages on Linux
- Initial configuration of libvirt and associated services
- Verifying that the environment is functioning properly
- Hands-on workshop: Complete installation of a KVM host.

[Day 1 - Afternoon]

Administering virtual machines

- Administering virtual machines
- Creating, starting, stopping, and deleting VMs
- Allocating CPU, memory, and storage resources
- Managing disk images and associated formats
- Monitoring VM status
- Hands-on workshop: Creating and managing a virtual machine.

Networking and storage in virtualized environments

- Configuring the network for virtual machines
- Setting up network bridges and guest connectivity
- Managing local storage and volumes
- Organizing storage spaces for VMs
- Best practices for configuration and operation
- Hands-on workshop: Configuring the network and storage for a KVM environment.

[Day 2 - Morning]

Resource optimization

- Optimizing resources
- Adjusting VM CPU and memory resources
- Optimizing disk and network performance
- Load balancing and host sizing
- Identifying bottlenecks
- Hands-on workshop: Optimizing the performance of a host and its VMs.

Advanced virtualization techniques

- Discover advanced techniques
- Using snapshots and managing their lifecycle
- Cloning and duplicating virtual machines
- Automating routine operations with libvirt tools
- Introduction to Advanced Deployment Scenarios
- Hands-on Workshop: Implementing Snapshots, Cloning, and Advanced Operations.

[Day 2 - Afternoon]

Best practices for administration and operations

- Understanding best practices
- Resource organization and deployment standardization
- Securing the Linux host and virtual machines
- Monitoring, logging, and operational tracking
- Preventive maintenance methods
- Hands-on workshop: Setting up an operational foundation in line with best practices.

Troubleshooting and maintenance of a KVM infrastructure

- Diagnosing common issues in a KVM environment
- Log analysis and verification of libvirt services
- Resolving VM boot, network, and storage issues
- Host maintenance and infrastructure sustainability
- Summary of training objectives
- Hands-on workshop: Troubleshooting incidents on a KVM platform.

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 professional knowledge or modern methods.

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

Practical Course: 60% Practical, 40% Theory. Training materials distributed in digital format to all participants.

Organization

The course alternates between theoretical input from the trainer, supported by examples and reflection sessions, and group work.

Assessment

At the end of the session, a multiple-choice questionnaire is used to verify that the skills have been properly acquired.

Certification

A certificate will be issued to each trainee who has completed the entire training program.