KOENIG SOLUTIONS · COURSE OUTLINE

vSphere: Troubleshooting Networks, Storage & Clusters

Learn to troubleshoot vSphere networks, storage, clusters, and virtual machines using CLI tools, log analysis, and structured diagnostic methods.

10	91	21
MODULES	TOPICS	HANDS-ON ACTIVITIES

COURSE OVERVIEW

This course covers vSphere and virtualization concepts before addressing operations and troubleshooting of virtual machines, including snapshots, power-on issues, and connection states. It then examines vSphere and vCenter monitoring, command-line troubleshooting tools, log file analysis, and VMware Skyline. The course continues with vCenter and ESXi operations, virtual networking with distributed switches, storage architecture and connectivity problems, and vSphere cluster features such as HA, DRS, and vMotion. It concludes with log analysis best practices and the use of vSphere Lifecycle Manager for host and VM updates.

WHO THIS COURSE IS FOR

- **vSphere Administrators**
- **System Administrators**
- **Virtualization Engineers**
- **Infrastructure Support Engineers**
- **Network Administrators**
- **Storage Administrators**

LEARNING OBJECTIVES

- Explain vSphere virtualization concepts and architecture
- Troubleshoot virtual machine power-on and connection state problems
- Diagnose virtual machine snapshot and VMware Tools installation failures
- Monitor vCenter and virtual machine performance using vSphere tools
- Analyse log files and CLI output to identify root causes
- Configure and troubleshoot distributed switches and network connectivity
- Resolve storage connectivity, multipathing, and performance problems
- Troubleshoot vSphere HA, DRS, and vMotion cluster issues

COURSE SYLLABUS

10 Modules, 91 Topics

01

VMware Course Introduction

TOPICS

Introductions and course logistics · Course objectives

02

Demo

vSphere and Virtualization Overview

TOPICS

- Explain basic virtualization concepts
- Describe how vSphere fits in the software-defined data Center and the cloud infrastructure
- Recognize the user interfaces for accessing vSphere
- Explain how vSphere interacts with CPUs, memory, networks, storage, and GPUs

03

2 Labs

Virtual Machine – Operations and Troubleshooting

TOPICS

- Recognize the role of a VMware Tools Repository
- Configure a VMware Tools Repository
- Identify the components in the VMware vSphere® Replication architecture
- Deploy and configure vSphere Replication and VMware Site Recovery instances
- Recover replicated VMs
- Discuss virtual machine files and disk content IDs
- Recognize the backup and restore solution for VMs
- Describe virtual machine files
- Identify, analyze, and solve virtual machine snapshot problems
- Troubleshoot virtual machine power-on problems
- Identify possible causes and troubleshoot virtual machine connection state problems
- Diagnose and recover from VMware Tools™ installation failures

04

Lab

vSphere Monitoring and Troubleshooting

TOPICS

- Monitor the key factors that can affect a virtual machine's performance
- Describe the factors that influence vCenter performance
- Use vCenter tools to monitor resource use
- Create custom alarms in vCenter
- Describe the benefits and capabilities of VMware Skyline
- Recognize uses for VMware Skyline Advisor Pro
- Use Data Center CLI commands for troubleshooting
- Run commands to view, configure, and manage your vSphere components
- Identify the best tool to use for CLI troubleshooting
- Locate important log files
- Identify how to use log files in troubleshooting
- Describe the benefits and capabilities of VMware Skyline™
- Explain how VMware Skyline works at a high-level
- Identify the types of health information provided by Skyline™ Health
- Identify uses for VMware Skyline™ Advisor
- Describe the support bundle REST API
- Use the support bundle REST API

05

Demo | Simulated Demo | 2 Activities

vCenter and ESXi – Operations and Troubleshooting

TOPICS

- Create a vCenter backup schedule
- Recognize the importance of vCenter High Availability
- Explain how vCenter Server High Availability works
- Use host profiles to manage ESXi configuration compliance
- Recognize the benefits of using configuration profiles
- Use the vSphere client and the command line to manage certificates
- Analyze and resolve vCenter service problems

06

Demo | 4 Labs

Virtual Network – Operations and Troubleshooting

TOPICS

- Configure and manage vSphere distributed switches
- Describe how VMware vSphere® Network I/O Control enhances performance
- Explain distributed switch features such as port mirroring and NetFlow
- Define vSphere Distributed Services Engine
- Describe the use cases and benefits of VMware vSphere® Distributed Services
- Analyze and troubleshoot virtual machine connectivity problems
- Analyze and troubleshoot management network problems
- Analyze and troubleshoot standard and distributed switch problems

07

6 Labs

Storage – Operations and Troubleshooting

TOPICS

- Discuss vSphere support for NVMe and iSER technologies (OS – Mod 5 – L1+L2+
- Recognize components in the vSphere storage architecture
- Identify the possible causes of problems in the various types of datastores
- Analyze the common storage connectivity and configuration problems and discuss the possible causes
- Resolve the storage connectivity problems, correct misconfigurations, and restore LUN visibility
- Analyze log file entries to identify the root cause of storage problems
- Use ESXi and Linux commands to troubleshoot storage problems
- Investigate ESXi storage issues
- Troubleshoot virtual machine snapshots
- Recognize how multipathing works
- Identify the common causes of missing paths
- Resolve the missing path problems between hosts and storage devices
- Describe the architecture and requirements of vSAN configuration
- Describe storage policy-based management
- Recognize components in the VMware vSphere® Virtual Volumes architecture
- Configure Storage I/O Control
- Troubleshoot storage performance problems

08

Lab

vSphere Cluster - Operations and Troubleshooting

TOPICS

- Explain the vSphere HA architecture
- Use vSphere HA advanced parameters, Admission control policies and EVC selection
- Describe how vSphere HA responds to various types of failures
- Create and manage resource pools in a cluster
- Describe how scalable shares work
- Describe the function of the vCLS
- Recognize operations that might disrupt the healthy functioning of vCLS VMs
- Identify and troubleshoot potential vSphere HA problems
- Analyze and solve vSphere potential vMotion problems
- Diagnose and troubleshoot potential vSphere DRS problems

09

vSphere LOG Analysis

TOPICS

- Describe the best practices of collecting log bundles
- Use a structured approach to solve configuration and operational problems
- Discuss the log analysis best practices
- Overview of VMware vRealize Log Insight

10

Demo

vSphere Lifecycle Manager

TOPICS

- Describe features of the vCenter Update Planner
- Run vCenter upgrade prechecks and interoperability reports
- Recognize features of VMware vSphere® Lifecycle Manager
- Distinguish between managing hosts using baselines and managing hosts using images
- Describe how to update hosts using baselines
- Describe ESXi images
- Validate ESXi host compliance against a cluster image and update ESXi hosts
- Update ESXi hosts using vSphere Lifecycle Manager
- Describe vSphere Lifecycle Manager automatic recommendations
- Use vSphere Lifecycle Manager to upgrade VMware Tools and VM hardware

NOTES

- Versions covered: ESXi 7.x, 8.x

HANDS-ON ACTIVITIES

Practise What You Learn

#	MODULE	ACTIVITY
02	**vSphere and Virtualization Overview**	**Demo:** Lab: Accessing the Lab Environment
03	**Virtual Machine – Operations and Troubleshooting**	LAB - Resolving VM Power-On Problems - Troubleshooting VM Problems
04	**vSphere Monitoring and Troubleshooting**	**Lab:** Using the Command Line

#	MODULE	ACTIVITY
05	**vCenter and ESXi – Operations and Troubleshooting**	**Demo:** Back Up vCenter Appliance **Simulated Demo:** Configuring vCenter High Availability **DEMO - LAB** ■ Using vSphere Configuration Profiles ■ Working with Certificates
06	**Virtual Network – Operations and Troubleshooting**	**Demo:** Lab: Using Port Mirroring **LAB** ■ Monitoring NIC Teaming During Failover ■ Monitoring and Recovering Switches ■ Applying the Troubleshooting Methodology ■ Troubleshooting Network Problems
07	**Storage – Operations and Troubleshooting**	**LAB** ■ Investigating Disk Issues on ESXi ■ Troubleshooting Storage Performance Issues ■ Troubleshooting VM Power-On Problems ■ Troubleshooting VM Snapshot Problems ■ Working with VM Snapshots Using the Command Line ■ Troubleshooting Storage Problems
08	**vSphere Cluster - Operations and Troubleshooting**	**Lab:** 15: Troubleshooting Cluster Problems
10	**vSphere Lifecycle Manager**	**Demo:** Lab: Using vSphere Lifecycle Manager

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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