

VMware vSAN: Install, Configure, Manage [V8]

Duration 4 Days

COURSE DESCRIPTION

During this four-day course, you will gain the knowledge, skills, and tools to plan and deploy a VMware vSAN™ cluster. You will learn about managing and operating vSAN. This course focuses on building the required skills for common Day-2 vSAN administrator tasks such as vSAN node management, cluster maintenance, security operations, troubleshooting and advanced vSAN cluster operations. You will learn these skills through the completion of instructor-led activities and hands-on lab exercises.

COURSE OBJECTIVES

By the end of the course, you should be able to meet the following objectives:

- Describe vSAN concepts
- Detail the underlying vSAN architecture and components
- Explain the key features and use cases for vSAN
- Identify requirements and planning considerations for vSAN clusters
- Explain the importance vSAN node hardware compatibility
- Describe the different vSAN deployment options
- Explain how to configure vSAN fault domains
- Detail how to define and create a VM storage policy
- Discuss the impact of vSAN storage policy changes
- Detail vSAN resilience and data availability
- Describe vSAN storage space efficiency
- Explain how vSAN encryption works
- Detail VMware HCI Mesh™ technology and architecture
- Detail vSAN File Service architecture and configuration
- Describe how to setup a stretched and a two-node vSAN cluster
- Describe vSAN maintenance mode and data evacuation options
- Define the steps to shut down a vSAN cluster for maintenance
- Explain how to use proactive tests to check the integrity of a vSAN cluster
- Use VMware Skyline Health™ for monitoring vSAN health
- Use VMware Skyline Health to investigate and help determine failure conditions
- Discuss vSAN troubleshooting best practices
- Describe vSAN Express Storage Architecture™ concepts

COURSE OUTLINE

Module 1: Course Introduction

- Introductions and course logistics
- Course objectives

Module 2: Introduction to vSAN

- Describe vSAN architecture
- Identify vSAN objects and components
- Describe the advantages of object-based storage
- Describe the difference between All-Flash and Hybrid vSAN architecture

Module 3: Planning a vSAN Cluster

- Identify requirements and planning considerations for vSAN clusters
- Apply vSAN cluster planning and deployment best practices
- Determine and plan for storage consumption by data growth and failure tolerance
- Design vSAN hosts for operational needs
- Identify vSAN networking features and requirements
- Describe ways of controlling traffic in a vSAN environment
- Recognize best practices for vSAN network configurations

Module 4: Deploying a vSAN Cluster

- Understand how to create a vSAN cluster
- Deploy and configure a vSAN Cluster using the Cluster QuickStart wizard
- Manually configure a vSAN Cluster using VMware vSphere® Client™
- Deploy a vSAN cluster using the Easy Install method to build a single-node vSAN cluster
- Validate a successful deployment of vSAN
- Explore how to reserve capacity for future vSAN Operations

Module 5: vSAN Storage Policies

- Describe a vSAN object
- Describe how objects are made up of components
- Explain the purpose of witness components
- Explain how to create a custom-sized object to act as a library for user files
- View object and component placement on the vSAN datastore
- Explain how storage policies work with vSAN
- Define and create a virtual machine storage policy
- Explain and configure vSAN fault domains
- Describe the difference between implicit and explicit fault domains
- Create explicit fault domains

Module 6: vSAN Resilience and Data Availability

- Identify virtual machine storage policy compliance status
- Analyze vSAN's response to various types of outages
- Explore how vSAN protects data during outage Scenarios

Module 7: Managing vSAN Storage Space Efficiency

- Discuss deduplication and compression techniques
- Understand deduplication and compression overhead
- Discuss compression only mode
- Configure erasure coding
- Discuss reclaiming storage space with SCSI UNMAP
- Configure TRIM/UNMAP
- Explore vSAN's capacity monitoring

Module 8: vSAN Security Operations

- Discuss how vSAN Data-in-Transit encryption can protect data in flight
- Discuss how vSAN Data-at-Rest encryption can protect data while stored on vSAN
- Explore how to configure Data-in-Transit and Data-at-Rest encryption
- Review how vSAN encrypts data before it is stored on disk
- Explore how vSAN can store keys locally with the use of the Trusted Platform Module

- Detail the integration of the Key Management Service with vCenter Server
- Detail the deployment and integration of the vSphere Native Key Provider
- Review the steps to rotating encryption keys

Module 9: vSAN Stretched and Two Node Clusters

- Describe the architecture and uses case for stretched clusters
- Understand how the witness supports a vSAN stretched cluster and a two-node cluster
- Explain storage policies for vSAN stretched cluster
- Review outage scenarios and how vSAN protects data
- Describe the architecture and uses case for two-node clusters
- Explore how a shared witness can support multiple two-node clusters and reduce the total cost of ownership

Module 10: vSAN HCI Mesh

- Understand the purpose of vSAN HCI Mesh
- Detail vSAN HCI Mesh technology and architecture
- Perform mount and unmount of a remote datastore

Module 11: vSAN File Service and iSCSI Target Service

- Understand the purpose of vSAN File Services
- Detail vSAN File Services architecture
- Configure vSAN File Shares
- Describe vSAN iSCSI Target Service

Module 12: vSAN Cluster Maintenance

- Perform typical vSAN maintenance operations
- Describe vSAN maintenance modes and data evacuation options
- Assess the impact on cluster objects of entering maintenance mode
- Determine the specific data actions required after exiting maintenance mode
- Define the steps to shut down and reboot hosts and vSAN clusters
- Explore how vSAN supports scaling up and scaling out of resources
- Detail how to upgrade a vSAN cluster using the vSphere Lifecycle Manager

Module 13: vSAN Cluster Monitoring

- Use VMware Skyline Health for monitoring vSAN cluster health
- Describe how the Customer Experience Improvement Program (CEIP) enables VMware to improve products and services
- Manage alerts, alarms, and notifications related to vSAN in VMware vSphere® Client™
- Explore monitoring and forecasting tools build in the vCenter Server
- Use vSAN proactive tests to detect and diagnose cluster issues

Module 14: vSAN Troubleshooting

- Use a structured approach to solve configuration and operational problems
- Apply troubleshooting methodology to logically diagnose faults and optimize troubleshooting efficiency
- Use VMware Skyline Health to investigate and help determine failure conditions
- Explain which log files are useful for vSAN troubleshooting

Module 15: vSAN Express Storage Architecture

- Understand the purpose of vSAN Express Storage Architecture

- Describe the vSAN Express Storage Architecture Components
- Identify Storage Policy differences
- Understand compression and encryption operation differences
- Detail how vSAN implements snapshots with the Express Storage Architecture

WHO SHOULD ATTEND

Storage and virtual infrastructure consultants, solution architects, and administrators who are responsible for production support and administration of VMware vSAN 8 Update 1.

PREREQUISITES

Equivalent knowledge or completion of the following course is required:

- VMware vSphere: Install, Configure, Manage or equivalent knowledge