vmware® LEARNING

VMware vSAN: Install, Configure, Manage

Course Overview

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
- 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
- Detail vSAN iSCSI architecture and configuration
- Describe how to set up a stretched and a two-node vSAN cluster
- Explain the importance of vSAN hardware compatibility
- Describe vSAN maintenance mode and data evacuation options
- 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

vmware®

Target Audience

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

Prerequisites

Completion of the following course is required:

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

Course Delivery Options

- Classroom
- Live Online
- Private Training
- On Demand

Product Alignment

- VMware ESXi™ 8 U1
- VMware vCenter Server® 8 U1
- VMware vSAN 8 U1

Course Modules

1 **Course Introduction**
- Introductions and course logistics
- Course objectives

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Contact

If you have questions or need help registering for this course, click here.