

## VMware vSAN Fast Track [V7]

Duration 5 Days

### COURSE DESCRIPTION

During this five-day, intensive course, you gain the knowledge, skills, and tools to plan and deploy a VMware vSAN™ cluster. You 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, and advanced vSAN cluster operations.

You also focus on learning the tools and skills necessary to troubleshoot vSAN 7 implementations and gain practical experience with vSAN troubleshooting concepts through the completion of instructor-led activities and hands-on lab exercises.

This course is a combination of the following courses: VMware vSAN: Plan and Deploy, VMware vSAN: Management and Operations, and VMware vSAN: Troubleshooting.

### 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
- Describe vSAN storage space efficiency
- Explain how vSAN encryption works
- Identify requirements to configure vSAN iSCSI target
- Detail HCI Mesh technology and architecture
- Detail vSAN file service architecture and configuration
- Explain the use cases of vSAN Direct
- Describe how to setup stretched and two-node vSAN clusters
- Explain the importance vSAN node hardware compatibility
- Describe the use of VMware vSphere® Lifecycle Manager™ to automate driver and firmware installations
- Detail vSAN resilience and data availability
- Discuss the vSAN cluster backup methodology
- Describe the 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
- Apply a structured approach to troubleshoot vSAN cluster configuration and operational problems

## COURSE OUTLINE

### 1 Course Introduction

- Introductions and course logistics
- Course objectives

### 2 Introduction to vSAN

- Describe vSAN architecture
- Describe the vSAN software components: CLOM, DOM, LSOM, CMMDS, and RDT
- Identify vSAN objects and components
- Describe the advantages of object-based storage
- Describe the difference between All-Flash and Hybrid vSAN architecture
- Explain the key features and use cases for vSAN

Discuss the vSAN integration and compatibility with other VMware technologies

### 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

- Recognize the importance of hardware compatibility
- Ensure the compatibility of driver and firmware versioning
- Use tools to automate driver validation and installation
- Apply host hardware settings for optimum performance
- Use vSphere Life Cycle Manager to perform upgrades
- Deploy and configure a vSAN Cluster using Cluster Quickstart wizard
- Manually configure a vSAN Cluster using vSphere Client
- Explain and configure vSAN fault domains
- Using vSphere HA with vSAN
- Understand vSAN Cluster maintenance capabilities
- Describe the difference between implicit and explicit fault domains
- Create explicit fault domains

### 5 vSAN Storage Policies

- Describe a vSAN Object
- Describe how objects are split into components
- Explain the purpose of witness components
- Explain how vSAN stores large objects
- View object and component placement on the vSAN Datastore
- Explain how storage policies work with vSAN
- Define and create a virtual machine storage policy
- Apply and modify virtual machine storage policies
- Change virtual machine storage policies dynamically
- Identify virtual machine storage policy compliance status

## 6 vSAN Resilience and Data Availability

- Describe and configure the Object Repair Timer advanced option
- Plan disk replacement in a vSAN cluster
- Plan maintenance tasks to avoid vSAN object failures
- Recognize the importance of managing snapshot utilization in a vSAN cluster

## 7 Configuring vSAN Storage Space Efficiency

- Discuss Deduplication and Compression techniques
- Understand Deduplication and Compression overhead
- Discuss Compression only mode
- Configure Erasure Coding
- Configure swap object Thin Provisioning
- Discuss Reclaiming Storage Space with SCSI UNMAP
- Configure TRIM/UNMAP

## 8 vSAN Security Operations

- Identify differences between VM encryption and vSAN encryption
- Perform ongoing operations to maintain data security
- Describe the workflow of Data-in Transit encryption
- Identify the steps involved in replacing Key Management Server

## 9 Introduction to Advanced vSAN Configurations

- Identify requirements to configure vSAN iSCSI target
- Detail HCI Mesh technology and architecture
- Detail vSAN File Service architecture and configuration
- Explain the use cases of vSAN Direct

## 10 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
- Use best practices for boot devices
- Replace vSAN Nodes

## 11 vSAN Stretched and Two Node Clusters

- Describe the architecture and uses case for stretched clusters
- Detail the deployment and replacement of a vSAN Witness node
- Describe the architecture and uses case for two-node clusters
- Explain the benefits of vSphere HA and vSphere Site Recovery Manager in a vSAN stretched cluster
- Explain storage policies for vSAN stretched cluster

## 12 vSAN Cluster Monitoring

- Describe how the Customer Experience Improvement Program (CEIP) enables VMware to improve products and services
- Use vSphere Skyline Health for monitoring vSAN Cluster Health
- Manage alerts, alarms, and notifications related to vSAN in vSphere Client
- Create and configure custom alarms to trigger vSAN health issues

- Use IO Insight metrics for monitoring vSAN performance
- Analyse vsantop performance metrics
- Use vSAN Proactive Test to detect and diagnose cluster issues

### 13 vSAN Troubleshooting Methodology

- Use a structured approach to solve configuration and operational problems
- Apply troubleshooting methodology to logically diagnose faults and optimize troubleshooting efficiency

### 14 vSAN Troubleshooting Tools

- Use Skyline Health for vSAN to identify and correct issues in VMware vSAN
- Discuss the ways to run various command-line tools
- Discuss the ways to access VMware vSphere ESXi Shell
- Use commands to view, configure, and manage your VMware vSphere environment
- Discuss the esxcli vsan namespace commands
- Use log files to help vSAN troubleshooting

### WHO SHOULD ATTEND

Storage and virtual infrastructure consultants, solution architects, and administrators who are responsible for production support and administration of VMware vSAN [v7]

### PREREQUISITES

Completion of the following course is required:

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