

# VERITAS Storage Foundation™ 4.1 for Solaris

## COURSE DESCRIPTION

### Delivery Method

Instructor-led

### Duration

Five days

### Course Objectives

You will learn how to integrate, operate, and make the most of VERITAS Storage Foundation in a UNIX environment. This course provides instruction on operational management procedures for VERITAS Volume Manager (VxVM), VERITAS File System (VxFS), and options, such as VERITAS FlashSnap.

In this training you will learn how to install and configure VERITAS Volume Manager and how to manage disks, disk groups, and volumes by using the VERITAS Enterprise Administrator graphical user interface and from the command line. You will also learn system troubleshooting and recovery, online file system administration, cross-platform data sharing, and offline and off-host processing using volume snapshots and storage checkpoints.

### Who Should Attend

This course is for UNIX system or network administrators, system engineers, technical support personnel, and system integration/development staff who will be installing, operating, or integrating VERITAS Storage Foundation, VERITAS Volume Manager, or VERITAS File System.

### Prerequisites

Knowledge of UNIX system administration

### Hands-On

This course includes practical exercises that enable you to test your new skills and begin to transfer them into your working environment.

## COURSE OUTLINE

### **PART 1: VERITAS Storage Foundation 4.1: Fundamentals**

#### **Virtual Objects**

- Physical Data Storage
- Virtual Data Storage
- Volume Manager Storage Objects
- Volume Manager RAID Levels

#### **Installation and Interfaces**

- Installation Prerequisites
- Adding License Keys
- VERITAS Software Packages
- Installing VxVM
- VxVM User Interfaces
- Installing and Starting VEA
- Managing the VEA Server

#### **Managing Disks and Disk Groups**

- Naming Disk Devices
- Disk Configuration Stages
- Creating a Disk Group
- Viewing Disk and Disk Group Information
- Managing Disks
- Managing Disk Groups

#### **Creating Volumes**

- Selecting a Volume Layout
- Creating a Volume
- Displaying Volume Layout Information
- Creating a Layered Volume
- Removing a Volume

#### **Configuring Volumes**

- Administering Mirrors
- Adding a Log to a Volume
- Changing the Volume Read Policy
- Allocating Storage for Volumes
- Resizing a Volume

#### **Administering File Systems**

- Adding a File System to a Volume
- Using VERITAS File System Commands
- Upgrading the VxFS File System Layout
- Controlling File System Fragmentation
- Logging in VxFS

#### **Point-in-Time Copies: Standard**

- What Is a Point-in-Time Copy?
- Creating and Managing Traditional Volume Snapshots
- Creating and Managing File System Snapshots

## COURSE OUTLINE

*continued*

### Recovery Essentials

Maintaining Data Consistency  
 Hot Relocation  
 Managing Spare Disks  
 Replacing a Disk  
 Unrelocating a Disk  
 Recovering a Volume  
 Protecting the VxVM Configuration

### **PART 2: VERITAS Storage Foundation 4.1: Maintenance**

#### Managing Devices Within the VxVM Architecture

Managing Components in the VxVM Architecture  
 Discovering Disk Devices  
 Administering the Device Discovery Layer  
 Dynamic Multipathing  
 Preventing Multipathing for a Device  
 Managing DMP  
 Controlling Automatic Restore Processes

#### Resolving Disk Problems

Identifying I/O Failure  
 Disk Failure Types  
 Resolving Permanent Disk Failure  
 Resolving Temporary Disk Failure  
 Resolving Intermittent Disk Failure

#### Resolving Plex Problems

Displaying State Information for VxVM Objects  
 Interpreting Plex States  
 Interpreting Volume States  
 Interpreting Kernel States  
 Resolving Plex Problems  
 Analyzing Plex Problems

#### Encapsulation and Rootability

Placing the Boot Disk Under VxVM Control  
 Creating an Alternate Boot Disk  
 Removing the Boot Disk from VxVM Control  
 Upgrading to a New VxVM Version

#### Troubleshooting the Boot Process

Operating System Boot Processes  
 Troubleshooting the Boot Process  
 Recovering the Boot Disk Group

#### Volume Maintenance

Changing the Volume Layout  
 Managing Volume Tasks  
 Analyzing Volume Configurations with Storage Expert

#### Performance Monitoring

Assessing Performance in Your Environment  
 Storage Performance Considerations

Performance Monitoring Tools and Techniques

#### Point-in-Time Copies: Enterprise

Drawbacks of Traditional Volume and File System Snapshots  
 New Types of PITCs  
 Creating and Managing Full-Sized Instant Volume Snapshots  
 Creating and Managing Space-Optimized Instant Volume Snapshots  
 Creating and Managing Storage Checkpoints

#### Transferring Data for Operational Efficiency

What Is Cross-Platform Data Sharing?  
 Why Use CDS?  
 CDS Disks and Disk Groups  
 Creating CDS Disks and Disk Groups  
 Special Considerations for Different Platforms

#### Other Enterprise Features Overview

What Is QoS?  
 What Is ISP?