

## VERITAS Cluster Server™ 5.0 for Solaris (Suite)

### COURSE DESCRIPTION

The VERITAS Cluster Server course is designed for the IT professional tasked with installing, configuring, and maintaining VCS clusters. This five-day, instructor-led, hands-on class covers how to use VERITAS Cluster Server to manage applications in a high availability environment. After gaining the fundamental skills that are needed to manage a highly available application in a cluster, you will deploy VCS in a lab environment to implement a sample cluster design.

#### Delivery Method

Instructor-led training (ILT)

#### Duration

Five days

#### Course Objectives

By the end of this course, you should be able to:

- Manage existing highly available application services using VERITAS Cluster Server.
- Install VCS and create a cluster.
- Configure service groups and resources.
- Implement and verify failover and failback capability for application, storage, and network services.
- Configure and optimize cluster behavior.
- Protect data in a shared storage environment.
- Configure VCS to manage an Oracle database, an NFS share, and other applications.
- Analyze, troubleshoot, and correct cluster problems.
- Implement four-node clusters.
- Configure service group dependencies and workload management.
- Implement alternative network configurations.

#### Who Should Attend

This course is for system administrators, system engineers, network administrators, system integration or development staff, and technical support personnel who will be working with VERITAS Cluster Server.

#### Prerequisites

You should have experience as a system and network administrator working in a UNIX environment. Experience developing shell or Perl scripts is helpful.

#### 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

#### VERITAS Cluster Server, Fundamentals

##### High Availability Concepts

- High Availability Concepts
- Clustering Concepts
- Clustering Prerequisites

##### VCS Building Blocks

- VCS Terminology
- Cluster Communication
- VCS Architecture

##### Preparing a Site for VCS Implementation

- Hardware Requirements and Recommendations
- Software Requirements and Recommendations
- Preparing Installation Information

##### Installing VCS

- Using the VERITAS Product Installer
- VCS Configuration Files
- Viewing the Default VCS Configuration
- Other Installation Considerations

##### VCS Operations

- Managing Applications in a Cluster Environment
- Service Group Operations
- Using the VCS Simulator

##### VCS Configuration Methods

- Starting and Stopping VCS
- Overview of Configuration Methods
- Online Configuration
- Offline Configuration
- Controlling Access to VCS

##### Preparing Services for High Availability

- Preparing Applications for VCS
- One-Time Configuration Tasks
- Testing the Application Service
- Stopping and Migrating an Application Service

##### Online Configuration

- Online Service Group Configuration
- Adding Resources
- Solving Common Configuration Errors
- Testing the Service Group

##### Offline Configuration

- Offline Configuration Procedures
- Offline Configuration Practices and Tools
- Solving Offline Configuration Problems

- Testing the Service Group

#### **Sharing Network Interfaces**

- Parallel Service Groups
- Sharing Network Interfaces
- Localizing Resource Attributes

#### **Configuring Notification**

- Notification Overview
- Configuring Notification
- Using Triggers for Notification

#### **Configuring VCS Response to Resource Faults**

- VCS Response to Resource Faults
- Determining Failover Duration
- Controlling Fault Behavior
- Recovering from Resource Faults
- Fault Notification and Event Handling

#### **Cluster Communications**

- VCS Communications Review
- Cluster Membership
- Cluster Interconnect Configuration
- Joining the Cluster Membership
- Changing the Interconnect Configuration

#### **System and Communication Faults**

- Ensuring Data Integrity
- Cluster Interconnect Failures

#### **I/O Fencing**

- Data Protection Requirements
- I/O Fencing Concepts and Components
- I/O Fencing Operations
- I/O Fencing Implementation
- Configuring I/O Fencing
- Stopping and Recovering Fenced Systems

#### **Troubleshooting**

- Monitoring VCS
- Troubleshooting Guide
- Cluster Communication Problems
- VCS Engine Problems
- Service Group and Resource Problems
- Archiving VCS-Related Files

#### ***VERITAS Cluster Server, Example Application Configurations***

##### **Clustering Applications**

- Application Service Overview
- VCS Agents for Managing Applications
- The Application Agent

##### **Clustering Databases**

- VCS Database Agents
- Database Preparation
- The Enterprise Agent for Oracle
- Database Failover Behavior
- Additional Oracle Agent Functions

##### **Clustering NFS**

- Preparing NFS for High Availability
- Testing the NFS Service
- Configuring an NFS Service Group
- NFS Lock Failover

#### ***VERITAS Cluster Server, Implementing Local Clusters***

##### **Workshop: Reconfiguring Cluster Membership**

- Task 1: Removing a System from a Running VCS Cluster
- Task 2: Adding a New System to a Running VCS Cluster
- Task 3: Merging Two Running VCS Clusters

##### **Service Group Interactions**

- Common Application Relationships
- Service Group Dependency Definition
- Service Group Dependency Examples
- Configuring Service Group Dependencies
- Alternative Methods of Controlling Interactions

##### **Workload Management**

- Startup Rules and Policies
- Failover Rules and Policies
- Configuring Startup and Failover Policies

##### **Alternate Network Configurations**

- Alternative Network Configurations
- Additional Network Resources
- Example MultiNIC Setup

##### **Data Center Availability**

- Cluster Management Console
- Storage Foundation Management Server
- Disaster Recovery
- Symantec Data Center Foundation