

**Module Title** : Veritas InfoScale Availability 7.3 for UNIX/Linux:Administration

**Duration** : 5 days

## Overview

The Veritas InfoScale Availability 7.3 for Unix/Linux: Administration course is designed for the IT professional tasked with installing, configuring, and maintaining Veritas Cluster Server (VCS) clusters.

This class discusses how to use InfoScale Availability to manage applications in a high availability environment. After gaining the necessary fundamental skills that are required to manage a highly available application in a cluster, the course enables you to deploy InfoScale Availability in the lab environment to practically implement a sample cluster design and deployment.

## Course Objectives

By the completion of this course, you will be able to:

- Describe how clustering is used to implement high availability in the data center environment.
- Describe VCS and cluster communication mechanisms.
- Create a cluster, and 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.
- Describe I/O fencing operations, and its implementation.
- Configure VCS to manage an Oracle database and other applications.
- Configure and manage VCS clusters on virtual machines in VMware environment.
- Implement Just in Time Availability for single node VCS cluster on virtual machine in a VMware environment.

## Who Should Attend

This course is for UNIX/Linux system administrators, system engineers, technical support personnel, network/SAN administrators, and systems integration/development staff, who will be installing, operating, or integrating InfoScale Availability.

## Prerequisites

Knowledge of and hands-on experience with UNIX/Linux systems administration is required.

## Hands-On

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

## Course Outline

### Cluster Server Basics

#### High Availability Concepts

- High availability concepts
- Clustering concepts
- High availability application services
- Clustering prerequisites

#### VCS Building Blocks

- VCS terminology
- Cluster communication
- VCS architecture

#### Labs

- Exercise A: Installing InfoScale Enterprise using the Common Product Installer (CPI)
- Exercise B: Running a post-installation check
- Exercise C: Adding cluster systems to VIOM as managed hosts

#### VCS Operations

- Common VCS tools and operations
- Service group operations
- Resource operations

#### Labs

- Exercise A: Displaying cluster information
- Exercise B: Displaying status and attributes
- Exercise C: Performing service group operations
- Exercise D: Manipulating resources

### VCS Configuration Methods

- Starting and stopping VCS
- Overview of configuration methods
- Online configuration
- Controlling access to VCS

#### Labs

- Exercise A: VCS configuration state and stopping VCS
- Exercise B: Configuring automatic backup of the VCS configuration
- Exercise C: Setting non default VCS stop options

### Preparing Services for VCS

- Preparing applications for VCS
- Performing one-time configuration tasks
- Testing the application service
- Stopping and migrating an application service
- Collecting configuration information

#### Labs

- Exercise A: Configuring and examining storage for the service
- Exercise B: Examining the application
- Exercise C: Manually starting and stopping the application

### Online Configuration

- Online service group configuration
- Adding resources
- Solving common configuration errors
- Testing the service group

#### Labs

- Exercise A: Creating a service group for the loopy application
- Exercise B: Configuring resources for the loopy application
- Exercise C: Performing a virtual fire drill on the service group
- Exercise D: Testing the service group
- Exercise E: Setting resources to critical
- Exercise F: (Optional) Examining Veritas File System locking by VCS

### Offline Configuration

- Offline configuration examples
- Offline configuration procedures
- Solving offline configuration problems
- Testing the service group

#### Labs

- Exercise A: Editing a copy of the main.cf file using a system editor
- Exercise B: Stopping VCS
- Exercise C: Restarting VCS using the edited main.cf file

### Configuring Notification

- Notification overview
- Configuring notification
- Overview of triggers

#### Labs

- Exercise A: Configuring and testing the notifier using VIOM
- Exercise B: Configuring trigger scripts

### Cluster Server Additions

#### Handling Resource Faults

- VCS response to resource faults
- Determining failover duration
- Controlling fault behavior
- Recovering from resource faults
- Fault notification and event handling

### Intelligent Monitoring Framework

- IMF overview
- IMF configuration
- Faults and failover with intelligent monitoring

#### Labs

- Exercise A: Examining IMF monitoring on a resource
- Exercise B: (Optional) Examining the IMF default configuration

### Cluster Communications

- VCS communications review
- Cluster interconnect configuration
- Joining the cluster membership
- Changing the interconnect configuration

#### Labs

- Exercise A: Reconfiguring LLT
- Exercise B: Observing jeopardy membership

### Cluster Server Applications

#### Using I/O Fencing for Application Data Integrity

- Data protection requirements
- I/O fencing concepts
- I/O fencing operations
- I/O fencing implementation
- Fencing configuration

#### Labs

- Exercise A: Fencing configuration pre-checks
- Exercise B: Configuring VCS for I/O fencing
- Exercise C: I/O fencing configuration verification
- Exercise D: Verifying data disks for I/O fencing

### Clustering Applications

- Application service overview
- VCS agents for managing applications
- The Application agent
- IMF support and prevention of concurrency violation

#### Labs

- Exercise A: Adding a resource of type Application
- Exercise B: Testing the resource
- Exercise C: IMF and Application agent monitoring options

## Clustering Databases

- VCS database agents
- Database preparation
- The database agent for Oracle
- Database failover behavior
- Additional Oracle agent functions

### Labs

- Exercise A: Verifying the Oracle configuration
- Exercise B: Preparing storage and network resources for the Oracle service group
- Exercise C: Testing the Oracle database manually
- Exercise D: Configuring Oracle under VCS control
- Exercise E: Running a virtual fire drill and switching the Oracle service group
- Exercise F: (Optional) Oracle monitoring

## *In-Guest Clustering*

### VMware vSphere Data Center Architecture

- VMware vSphere high availability architecture
- VMware administration
- VMware storage architecture
- Server and storage migration

### Labs

- Exercise A: Verifying the VMware vSphere lab environment
- Exercise B: Connecting to the nested virtual machines
- Exercise C: Testing vMotion

### Veritas High Availability Deployment in VMware

- Veritas high availability architecture in VMware
- Deploying Veritas InfoScale on VMs
- Configuring VIOM to manage InfoScale on VMs
- Configuring the vSphere Web Client for Veritas HA

### Labs

- Exercise A: Preparing the nested virtual machine lab environment
- Exercise B: Deploying a Veritas cluster on nested virtual machines
- Exercise C: Adding cluster systems as managed hosts to VIOM

- Exercise D: Installing the VIOM Control Host add-on on mgt
- Exercise E: Adding virtualization information to the VIOM management server
- Exercise F: Installing and registering the Veritas HA Plug-in for vSphere Web Client

#### **Veritas High Availability Configuration and Administration**

- Configuring storage for VCS failover clusters
- Configuring shared storage for CFS clusters
- Configuring availability
- Just In Time Availability solution

#### **Labs**

- Exercise A: Preparing the nested virtual machine lab environment
- Exercise B: Using the vSphere Web Client to monitor Veritas high availability
- Exercise C: Setting EnableUUID parameter for virtual machine disks
- Exercise D: Configuring a VCS service group with the VMwareDisks resource to manage virtual machine storage
- Exercise E: Managing the VCS service group from the vSphere Web Client
- Exercise F: Testing vMotion with Veritas in-guest clustering
- Exercise G: (Optional) Completing the Oracle service group configuration