



## ES-345 – Sun(TM) Cluster 3.2 Administration

**Course Duration:** 5 Days

### **COURSE DESCRIPTION**

The Sun(TM) Cluster 3.2 Administration course provides students with the essential information and skills needed to install and administer Sun Cluster 3.2 hardware and software systems. Students are introduced to Sun Cluster hardware and software product features, hardware configuration, and software installation along with configuration, data service configuration, and system operation.

### **PREREQUISITES**

To succeed fully in this course, students should be able to:

- \* Demonstrate knowledge and experience in Solaris(TM) Operating System (Solaris OS) server administration and maintenance
- \* Perform basic network administration
- \* Administer virtual volume structures using either VERITAS Volume Manager (VxVM) or Solaris(TM) Volume Manager Software (formerly known as Solstice DiskSuite(TM) software)

### **SKILLS GAINED**

Upon completion of this course, students should be able to:

- \* Describe the major Sun Cluster hardware and software components and functions
- \* Configure different methods of connecting to node consoles
- \* Configure a cluster administrative workstation
- \* Install and configure the Sun Cluster 3.2 software
- \* Configure Sun Cluster 3.2 quorum devices
- \* Configure VERITAS Volume Manager in the Sun Cluster software environment
- \* Configure Solaris(TM) Volume Manager software in the Sun Cluster software environment
- \* Create Internet Protocol Multipathing (IPMP) failover groups in the Sun Cluster 3.2 software environment
- \* Understand resources and resource groups; configure a failover data service resource group (Network File)

System [NFS]), and resource group (Apache)

\*Configure failover between Solaris 10 zones, failover ORACLE, and ORACLE Real Application Clusters (RAC) in the Sun Cluster software environment

## **COURSE OUTLINE**

**Module 1** - Introducing Sun(TM) Cluster Hardware and Software

- \* Define the concept of clustering
- \* Describe the hardware and software environment
- \* Identify the data service support
- \* Explore the high availability (HA) framework
- \* Define global storage services differences

**Module 2** - Exploring Node Console Connectivity and the Cluster Console Software

- \* Access the Node consoles on domain-based servers
- \* Configure the Sun Cluster console software
- \* Use the Cluster console tools

**Module 3** - Preparing for Installation and Understanding Quorum Devices

- \* List the Sun Cluster software boot disk requirements and restrictions
- \* Identify typical cluster storage topologies
- \* Describe quorum votes and quorum devices
- \* Configure a quorum server
- \* Describe persistent quorum reservations and cluster amnesia
- \* Describe data fencing
- \* Configure a supported cluster interconnect system
- \* Identify public network adapters
- \* Configure shared physical adapters

**Module 4** - Installing and Configuring the Sun Cluster Software Framework

- \* Install the Sun Cluster packages using the Sun Java Enterprise System (Java ES) installer
- \* Describe the Sun Cluster Framework configuration
- \* Describe the files and settings that are automatically configured by scinstall
- \* Perform automatic quorum configuration
- \* Describe the manual quorum selection

**Module 5** - Performing Basic Cluster Administration

- \* Identify the cluster daemons
- \* Perform basic cluster startup and shutdown operations
- \* Describe the Sun Cluster administration utilities

**Module 6** - Using VERITAS Volume Manager for Volume Management

- \* Describe the most important concepts of VERITAS Volume Manager (VxVM)
- \* Initialize a VERITAS Volume Manager disk
- \* Install VxVM 5.0 software
- \* Use basic commands to put disks in disk groups and build volumes
- \* Register and resynchronize VxVM disk groups with the cluster

**Module 7** - Managing Volumes With Solaris(TM) Volume Manager

- \* Describe the most important concepts of Solaris Volume Manager
- \* Describe Solaris Volume Manager soft partitions
- \* Explain shared disksets, local disksets and multiowner disksets
- \* Describe volume database (metadb) management issues

- \* Install and configure the software
- \* Create the local metadbs
- \* Add disks to shared disksets
- \* Perform device group management
- \* Perform cluster-specific changes to device groups
- \* Create global file systems
- \* Mirror the boot disk

**Module 8** - Managing the Public Network with IPMP

- \* Define the concepts for an IPMP group
- \* List examples of network adapters in IPMP groups
- \* Describe the operation of the in.mpathd daemon
- \* List the new options to the ifconfig command that support IPMP, and configure IPMP with /etc/hostname.xxx files
- \* Perform a forced failover of an adapter in an IPMP group
- \* Configure IPMP manually
- \* Describe the integration of IPMP into the Sun Cluster software environment

**Module 9** - Introducing Data Services, Resource Groups, and HA-NFS

- \* List the components of a data service agent
- \* Describe the primary purpose of resource groups
- \* Differentiate between failover and scalable data services
- \* Use the clrg and clres command to control resources and resource groups
- \* Use the rg and clres cstat command to view resource and group status
- \* Use the clsetup utility for resources and resource group operations

**Module 10** - Configuring Scalable Services and Advanced Resource Group Relationships

- \* Describe scalable services
- \* Create the failover resource group
- \* Create the scalable resource group
- \* Describe the SharedAddress resource
- \* Use the clrg and clres commands

**Module 11** - Performing Supplemental Exercises for Sun Cluster 3.2 Software

- \* Configure a failover application that fails over between zones
- \* Configure HA-ORACLE in a Sun Cluster 3.2 software environment as a failover application
- \* Configure ORACLE Real Application Cluster (RAC) 10g in a Sun Cluster 3.2 software environment