

Oracle Solaris 11 Performance Management

Course Summary

Description

This course will provide a summary of tools and techniques used to monitor the performance of the hardware and operating system in an Oracle Solaris 11 operating environment. This course will also provide techniques used to tune and optimize the performance of the Oracle Solaris 11 operating environment. The student will use tools that are available in the standard release of the Solaris 11 OE (version 11.1).

Objectives

By the end of this course, students will be able to:

- Describe the Solaris 11 and third party system monitoring tools
- Monitor and control processes
- Monitor and manage memory consumption
- Monitor and manage disks and ZFS file systems
- Monitor and manage network resources
- Monitor the Solaris hardware
- Students will understand how to tune the facilities of the Solaris 11 OE

Topics

- Describe the system monitoring tools included with the Solaris 11 operating environment
- Monitor process and thread activity
- Monitor memory
- Monitor disk I/O and ZFS file systems
- Tune ZFS file systems
- Monitor and tune the network
- Monitoring the Solaris hardware
- Overview of Oracle Solaris System tuning
- Oracle Solaris Kernel Tunable Parameters
- Overview of System Facility Parameters
- View and set tuning parameters for global and non-global zones
- Modify CPU scheduling and virtual memory operations
- Resource management: control how applications and zones use available system resources

Audience

This course is designed for System Administrators who are responsible for the daily operation of a Solaris system and desire a better understanding of the tools that are available for monitoring and tuning the environment.

Prerequisites

Students should have 3-6 months experience in Solaris 11 System Administration

Duration

Five days

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Course Outline

I. Fundamentals of Performance Management

- A. Introduction to Tuning
- B. Performance measurement terminology
- C. What's new in monitoring and tuning for Solaris 11

II. Solaris OE Monitoring Tools

- A. sar
- B. vmstat
- C. iostat
- D. mpstat
- E. netstat
- F. nfsstat
- G. kstat
- H. dtrace

III. Other Tools

- A. The swap Utility
- B. The cpustat Utility
- C. The mdb Utility
- D. zonestat

IV. Monitoring Processes and Threads

- A. Overview of a Solaris process
- B. Introduction to procfs-based tools
- C. ps
- D. top / prstat
- E. vmstat /mpstat
- F. Control and Monitor CPUs

V. DTrace

- A. Introduction to DTrace
- B. DTrace Architecture
- C. DTrace Toolkit
- D. DTrace Virtualization Tool

VI. Processes and Threads

- A. Process Concepts
- B. Threads and Locking
- C. Process-Related Tunable Parameters
- D. CPU Scheduling Classes
- E. Managing Scheduling Classes

VII. Monitoring System Memory

- A. Monitor memory utilization
- B. Virtual memory
- C. View paging statistics
- D. Identifying a memory shortage
- E. Monitoring swap statistics and space

VIII. ZFS File System

- A. Monitor the ZFS File System
- B. Tuning the ZFS file system

IX. Network Monitoring

- A. Network wide statistics
- B. Network monitoring tools
- C. Network Performance Management
- D. Configuring networks using best practices
- E. Network Resource management

X. Resource Management

- A. Projects and Tasks
- B. Resource Controls
- C. Resource Pools
- D. Resource Capping

XI. Kernel Tuning

- A. What's new in Solaris 11
- B. Describe the tunable parameters
- C. Tuning an Oracle Solaris 11 System
- D. ZFS, NFS and IP tunables

XII. System Facility Parameters

- A. Describe system facility parameters
- B. Modify system facility parameters

XIII. Monitor Virtual Environments

- A. Oracle Solaris Zones
- B. Oracle Solaris Zones Resource Management
- C. Network Virtualization