

## AIX Systems Administration Performance Concepts and Analysis v7.2

### Course Summary

#### Description

This course is designed to teach performance concepts relating to UNIX systems (IBM AIX pSeries and RS/6000 hardware platforms), and to use these concepts to develop a tuning methodology to monitor, interpret, and adjust mechanisms that affect performance. The course will develop the skills to measure, analyze, and tune AIX subsystems for optimum performance. The course will also show how to use standard AIX performance tools (sar, iostat, vmstat, and trace), along with advanced AIX performance tools (tprof, svmon, filemon, monitor, and nmon).

#### Objectives

After taking this course, students will be able to:

- Understand fundamental performance concepts for memory management, CPU management, and I/O management in AIX systems
- Use supplied monitoring tools to interpret performance statistics.

#### Topics

- Performance Basics
- Memory Management
- CPU Management
- I/O Management
- Network Management
- NFS Performance
- X-window basics and implementation
- Modification of Performance Parameters
- Summaries

#### Prerequisite

It is assumed that the student has experience with interactive UNIX systems with user-level commands, basic shell or PERL scripting techniques, and essential systems administrator functions

#### Duration

Four Days

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### Course Outline

#### I. *Performance Basics*

- A. Factors affecting system performance
- B. Performance metrics
- C. Virtual system caching
- D. Effects of Computer Architecture

#### II. *Memory Management*

- A. Memory usage by the kernel
- B. Process creation
- C. Buffer Cache (and allocation control)
- D. Shared Memory / Page Caching
- E. Paging and Swapping
- F. Monitoring Tools

#### III. *CPU Management*

- A. Software priorities concepts
- B. Impact of the nice parameters
- C. Priority boosting
- D. Differences in hardware implementations
- E. Monitoring tools

#### IV. *I/O Management*

- A. Breakdown of disk I/O
- B. Measuring Disk and terminal I/O
- C. File system structure concepts
- D. File system caching
- E. Name Lookup Caching
- F. Tuning the Usage of Non-Computational Memory
- G. Monitoring tools

#### V. *Network Management*

- A. TCP/IP Layers
- B. Socket controls
- C. Controlling network services
- D. Setting network buffer values
- E. Monitoring tools

#### VI. *NFS Performance*

- A. RPC Performance Considerations
- B. Impact of NFS Blocking and Caching Sizes
- C. Optimizing NFS Servers and Clients
- D. Monitoring tools

#### VII. *X-window basics and implementation*

- A. Client-server communications
- B. Optimizing a system with X
- C. Reducing xterm memory usage
- D. Monitoring tools

#### VIII. *Modification of Performance Parameters*

- A. Using smit to change basic parameters
- B. Dynamic changes with vmtune, schedtune, schedo, iotune

#### IX. *Summaries*

- A. Memory management
- B. CPU management
- C. I/O management
- D. Network management
- E. User program management