z/OS Internals Workshop

Course Summary

Description

This course provides a detailed examination of z/OS for systems programmers. Topics include an introduction to z/OS architecture, system services and functions, storage management mechanisms, and I/O processes. Each section will also explore the associated control block structures associated with the z/OS operations being looked at. In addition, the student will become familiar with using the z/OS Data Areas documentation, and analyzing numerous dumps and trace data to gather information about problems.

Topics

- Introduction to Computer Systems Architecture
- z/OS Architecture
- System Initialization (IPL)
- System Services and Functions
- Storage Management Mechanisms
- I/O Processing
- z/OS Exploitation Opportunities
- Management

Audience

This course is designed for experienced systems programmers with a need for a more detailed understanding of z/OS functions.

Prerequisites

Due to the technical nature of this material, the student should have several years experience in the z/OS environment.

Duration

Ten days

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Course Outline

I. Introduction to Computer Systems Architecture

A. Examine processor architecture and its role in supporting z/OS facilities.
B. Introduction to storage hierarchy: L1 and L2 cache memories and various architectural enhancements to enable processors to achieve their rated speeds.
C. Review of processor power ratings and their associated metrics.

II. z/OS Architecture

A. Interrupt handling and SVC functions
B. PSA, Fixed Storage, and the CVT
C. Address space structure
D. Cross memory services

III. System Initialization (IPL)

A. IPL process details
B. IPL Program functions
C. Nuclear Initialization Program
D. Master Scheduler Initialization
E. Stand-alone dumps
F. IPL related problems

IV. System Services and Functions

A. Role of z/OS Dispatcher
B. Task management
C. Dispatcher traces
D. Task and Contents Management Control Block relationships
E. Task management dump analysis

V. Storage Management Mechanisms

A. Real storage management:
B. Central and expanded storage usage
C. Virtual storage management:
D. Paging/Swapping mechanisms
E. Auxiliary storage management
F. Storage traces
G. Storage Control Block relationships
H. Storage management dump analysis

VI. I/O Processing

A. Components of I/O operation:
B. Introduction to channel command processing
C. Access method services
D. I/O Tracing
E. I/O Control Block relationships
F. Data set internals
G. I/O and data set dump analysis

VII. z/OS Exploitation Opportunities

A. Dataspaces/Hiperspaces
B. Access register usage
C. Component traces

VIII. z/OS Workload Management

A. Using SMF Type 99 records

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