

z/OS Advanced Internals

Course Summary

Description

This course provides a detailed examination of z/OS for systems programmers. Topics include an introduction to computer systems hardware and an exploration of 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.

Topics

- Introduction to Computer Systems Architecture
- z/OS Architecture
- System Initialization (IPL)
- System Services and Functions
- Real storage management
- I/O Processing
- z/OS Exploitation Opportunities
- z/OS Workload Management

Audience

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

Five 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 – L4 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. Address space structure
- C. Cross memory services
- D. Logical partitioning (LPAR)

III. System Initialization (IPL)

- A. IPL process details
- B. IPL Program functions
- C. Nuclear Initialization Program
- D. Master Scheduler Initialization

IV. System Services and Functions

- A. Role of z/OS Dispatcher
- B. Task management
- C. Resource serialization
- D. Recovery/Termination management
- E. Virtual Lookaside Facility (VLF)
- F. Storage Management Mechanisms

V. Real storage management

- A. Central storage usage and "above the bar" usage
- B. Virtual storage management:
- C. Paging/Swapping mechanisms
- D. Auxiliary storage management

VI. I/O Processing

- A. Introduction to DASD hardware functions:
- B. CKD, ECKD, and FBA devices
- C. Parallel Access Volumes (PAV)
- D. Volume Affinity
- E. Disk arrays (RAID)
- F. Components of I/O operation:
- G. Introduction to channel command processing
- H. Access method services
- I. Caching mechanisms

VII. z/OS Exploitation Opportunities

- A. Dataspaces/Hiperspaces
- B. Access register usage
- C. Batchpipes
- D. Hiperbatch/DLF
- E. Batch LSR
- F. Parallel sysplex
- G. Data buffering

VIII. z/OS Workload Management

- A. Metrics associated with performance objectives
- B. Basic control mechanisms of WLM