z/OS Technical Bootcamp

Course Summary

Description

This course provides an intense examination of z/OS for systems programmers. Topics include an introduction to computer systems hardware and an exploration of architecture, system services and functions, storage management mechanisms, and I/O processes. Additional topics include REXX programming, SMP/E processing, an overview of Workload Manager and performance tuning. In the final section a look at system diagnostics and data collection will be examined.

Topics

- System Basics
- Programs
- History and Overview of z/OS
  The IPL Process
- System Services and PARMLIB
- Storage Management Mechanisms
- Task Management
- I/O Processing
- Access Methods and Data Bases
- Resource Management
- System Managed Storage
- Introduction to JES2
- Introduction to Unix System Services (USS)
- Introduction to Basic Communication Services
- Introduction to REXX Programming
- Software Installation and Maintenance - SMP/E

Audience

This course is designed for system programmers, operators, and application programmers that need an understanding of the z/OS environment and the subsystems supported. Workstations will be used to illustrate concepts and provide basic exposure to the elements of the z/OS environment

Prerequisites

z/OS (MVS) Skill Pack or equivalent experience with TSO/ISPF and JCL processing are required.

Duration

Ten days

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... to Your Success!"

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Course Outline

I. System Basics
- A. Examine how data is represented in computers, using binary, hexadecimal, and decimal.
- B. Introduction to memory addresses and basic instruction operation
- C. Explore the role of the PSW in machine operations
- D. Introduce basic computer hardware inventory: CPU, Memory, and I/O devices

II. Programs
- A. Examine basic program structure.
- B. Introduction to Linkage Editor functions
- C. Illustrate connection between data, JCL and programs

III. History and Overview of z/OS
- A. Evolution of operating systems from MVT/MFT to z/OS.
- B. Examining LPARs and parallel sysplex configurations.

IV. The IPL Process
- A. Review the IPL process
- B. Steps in systems initialization

V. System Services and PARMLIB
- A. Interrupts and interrupt handling
- B. PARMLIB definitions related to system functions
- C. System Address spaces

VI. 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

VII. Task Management
- A. Review of initiator/terminator functions
- B. Address spaces and task control

VIII. I/O Processing
- A. Introduction to DASD hardware functions:
  1. CKD, ECKD, and FBA devices
  2. Parallel Access Volumes (PAV)
  3. Volume Affinity
- B. Components of I/O operation:
- C. Introduction to channel command processing
- D. Access method services
- E. Caching mechanisms

IX. Access Methods and Data Bases
- A. Data set organization and access methods:
  1. Sequential access (SAM)
  2. Basic Partitioned Access (BPAM)
  3. Basic Direct Access (BDAM)
  4. VSAM processing (ESDS, KSDS, RRDS)
- B. Introduction to database processing concepts

X. Resource Management
- A. Examine basic objectives in managing system resources
- B. Explore the process of defining objectives
- C. Discuss the process WLM uses to make decisions and monitoring requirements
- D. Scheduling environments
- E. Intelligent Resource Director

XI. System Managed Storage
- A. Introduce DFSMS concepts
- B. Review SMS components
  1. SMS Control data sets
- C. ISMF Panels and Storage Administration Functions
  1. Storage Groups
  2. Data Class
  3. Management Class
  4. Storage Class

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Course Outline (cont'd)

XII. Introduction to JES2

A. Introduction to JES2 Concepts
   1. Introduction to JES2 Checkpoint and Spool operations
   2. Examine JES2 job execution phases
   3. JES2 and Workload Manager (WLM)
   4. JES2 system configuration options (including Poly-JES)

B. JES2 Initialization
   1. JES2 start-up options
   2. JES2 procedure and specification requirements
   3. Dynamic allocation of PROCLIB and PARMLIB specifications
   4. Introduction to JES2 initialization statements

C. Controlling JES2 Processes
   1. JES2 device assignments
   2. Internal reader facility
   3. Job selection criteria and job initiation
   4. Member affinity and initiator management
   5. Output management
   6. Print/Punch phase and output routine

D. Spool Volumes and Operation
   1. Spool volume allocation
   2. Spool management
   3. Spool Offload Facility

E. JES2 Checkpoint Processing
   1. Checkpoint sizing and placement
   2. Checkpoint configuration considerations
   3. Checkpoint reconfiguration dialogues
   4. Recovering from Multi-Access Spool (MAS) failures
   5. JES2 Checkpoint and coupling facility

F. Remote JES2 Configurations: RJE/NJE

G. Network Job Entry (NJE) definitions

H. Networking considerations and topology

I. Remote Job Entry (RJE) definitions

XIII. Introduction to Unix System Services (USS)

A. USS File systems

B. USS Setup, commands, and definitions

XIV. Introduction to Basic Communication Services

A. Basic networking and configurations

B. VTAM/SNA overview and function
   1. Examine terminology associated with SNA networks
   2. Review VTAM/SNA networking concepts and configurations
   3. VTAM JCL and data sets
   4. VTAM initialization parameters (ATCSTR00 and ATCCONxx)
   5. Terminal definitions, USSMODE, LOGON mode

C. TCP/IP overview and function
   1. Examine terminology associated with TCP/IP networks
   2. Review TCP/IP networking concepts and packet delivery
   3. Examine architecture and standards
   4. Review TCP/IP protocols
   5. Describe various TCP/IP applications and their uses

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Course Outline (cont'd)

XV. Introduction to REXX Programming

A. REXX Overview
   1. Basic language structure
   2. Clauses
   3. Literals

B. Running REXX programs
   1. ALTLIB

C. REXX Procedures
   1. PARSE
   2. Data Stack
   3. Operators
   4. DO Loops
   5. Built-in functions
   6. External functions
   7. Routines
   8. ADDRESS host environments

XVI. SYSTEM Installation and Maintenance

A. SMP/E Overview and Methodology
   1. SMP/E data sets and their role in maintaining system information
   2. Introduction to SMP/E dialogues
   3. Introduction to the SMP/E zones; Global, Target, and Distribution
   4. Establishing the SMP/E environment and its definitions

B. SYSMODS
   1. Introduction to SYSMOD types; PTF, APAR, FUNCTION, and USERMODS
   2. Review HOLDDATA
   3. Examine MCS statements and how utility functions are performed within SMP/E
   4. RECEIVE, APPLY, and ACCEPT processing
   5. Examine the SMP/E process for introducing change into the z/OS environment
   6. RECEIVE processing
   7. APPLY CHECK and APPLY processing
   8. ACCEPT CHECK and ACCEPT processing

C. RESTORE and REJECT processing
   1. Examine SMP/E process for restoring and removing changes from z/OS
   2. RESTORE CHECK and RESTORE processing
   3. REJECT processing

D. Managing SYSMODS
   1. CLEANUP processing to remove extraneous data from zones
   2. REPORT processing commands for reviewing SYSMOD status

E. Controlling SMP/E data sets
   1. UCLIN processing to modify data elements within zones
   2. ZONE processing commands
   3. BUILDMCS command for migrating SMP/E managed elements to other systems

F. SMP/E Reporting
   1. SMP/E logging functions to trace activity

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2. SMP/E LIST command to report on managed elements
3. SMP/E Report functions

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