Storage Management Administration & Exploitation Training

Duration: **4 Day**

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Overview

This popular four-day course describes and explains how to implement and exploit the features provided by the z/OS storage environment, and covers SMS in particular. It examines both hardware and software features and explains how to exploit them to the full. The course will gives attendees a detailed knowledge of how best to design and test the SMS Constructs and ACS routines.
The course also provides a basis for evaluating standards and for establishing an optimised System Managed Storage (SMS) environment. Key components such as catalogs, VTOCs and I/O definitions are all explained.

There are a number of challenging online practical sessions during the course which, among other things, teach how to write optimised ACS routines.

This course is also available for one-company, on-site presentations and for live presentation over the Internet, via the Virtual Classroom Environment service.

Prerequisites

A general knowledge of z/OS concepts, the ability to use TSO and familiarity with JCL and Utility programs.

What You Will Learn

- explain IBMs storage management concept as implemented through SMS
- exploit the hardware features utilised by SMS
- define I/O devices and get them recognised by z/OS
- define VTOCs and VTOCIXs
- administer ICF Catalogs
- define and maintain data classes, storage classes, management classes and storage groups
- write and maintain optimised ACS routines
- audit and optimise the SMS environment
- describe the functions of HSM.

Outline

Storage Management Overview

What is storage management?; Space management roles; DFSMS products; DFSMS Optimizer; NaviQuest feature; Advantages of an SMS environment; Availability management; Performance management.

Data Storage Hardware

Direct Access Storage Devices; I/O operations on disks; DASD performance reporting; caching concepts; Read Hit; Write commands; Write Hit; Read Miss; Write Miss; cache modes; Record Level caching; Peer to Peer Remote Copy (PPRC); Extended Remote Copy (XRC); Concurrent Copy; Extended Format Data Sets; Sequential Data Striping support; RAID technology; Flashcopy; Extended Address Volumes-; Virtual Tape Servers; Virtual Tape configurations.

Introduction to HCD

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I/O configuration principles; I/O configuration practicalities; I/O configuration addressing; HCD definition process; Objects managed by HCD; Load member; IODF processing at IPL; HCD Primary Option menu; Creating a new work IODF; Sizing the work IODF; Defining the new configuration menu; Pull-down menu action bar; Goto pull down menu; Filter pull down menu; Backup pull down menu; Query pull down menu; Help pull down menu; Context menus; PF keys; Keyboard navigation.

Catalogs & VTOCs

Catalog overview; Catalog search order; Catalog environment ; Multi-level aliases; Catalog address space; VTOC and IXVTOC; Initialising DASD volumes; VTOC & VTOCIX sizing; Extending VTOC & VTOCIX.

Auditing SMS

Working with users; identify general requirements; how to gather user data; Negotiate service levels with users; Space requirements; Meeting space requirements; Other space issues; Availability issues; Recovery; Backup/Recovery; Other service level issues; Monitor service levels; DCOLLECT; Running DCOLLECT; DCOLLECT output records; Managing data sets; PDSE processing; PDSE load libraries; Access Methods enhancements; VSAM Record Level Sharing; VSAM greater than 4 GB; What is Pooling?; Why pooling?; How many pools?; Positioning for SMS - review questions.

DFSMS Constructs

Service levels for data; SCDS Base Definition Panel; Data Class; defining a Data Class; defining Data Class Attributes; Dataset compression; Dataset compression information; Data Class control; Data Class implementation; JCL keywords; JCL changes; Generation Data Sets; new JCL requirements; non-VSAM Data Classes; VSAM Data Classes; Management Class; Management Class characteristics; defining Management Class Introduction Menu; Defining Management Class Panel; Storage Class; Storage Class characteristics; Cache attribute determination (simplified); Storage Class application selection; Storage Class define; Storage Class maintenance; Storage Groups; Storage Group major activities; isolate non-SMS data: Defining a Storage Group; Defining VIO Storage Group attributes; Defining Pool Storage Group attributes; Storage Group rules; Volume selection preference attributes; Device selection; Defining a Copy Pool.

Writing ACS Routines

ACS routines - what are they?; Automatic Class Selection - how many?; an ACS example; ACS routine rules; ACS mask rules; ACS Read/Write variables; ACS Read-only variables; ACS special purpose variables; Other ACS variables; OAM & tape ACS variables; ACS operations; ACS statements (PROC, END, SET, FILTLIST); ACS statements (SELECT, END); Coding ACS routines; ACS application selection; ACS translation panel; ACS validation panel; Testing ACS routines; Defining test cases; ACS coding tips; ACS exit routines; ACS exit steps; Programming ACS exits; ACS exit parameter structure; Actions in ACS exits; ACS routines - hands-on exercises.

DFSMS Set-up & Control

Control Data Sets; sizing SMS Control Data Sets; defining Control Data Sets; Control Data Set application selection; SCDS base definition panel; IGDSMSxx; IEFSSNxx; activating SMS; SETSMS command; SMS-related commands; displaying SMS information; displaying Storage Group information; displaying SMS volume information; displaying device information; Start/Restart SMS address space; recovering ACDS; recovering COMMDS; enhanced ISMF.

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HSM Functional Overview

HSM as part of SMS; Key commands; Migration types; Defining ML1 volumes; Small data set packing; Secondary migration; Controlling migration from ML0; Interval Migration; Command migration; Recalling datasets; Recall process; Backup flow; Backup control; Command backup - volume; BACKVOL examples; Backup command; Controlling command backup - SETSYS DSBACKUP; Controlling command backup - ML1 overflow; Command backup - dataset.