z/OS Parallel Sysplex Concepts for System Programmers

Course Summary

Description

This course presents the features, functions, and requirements for running in the Parallel Sysplex environment. Capabilities of z/series processors are reviewed regarding how each participates in the Parallel Sysplex configuration. The Coupling Facility, which forms the basis of IBM's unique method for high-speed data-sharing across all systems, is discussed at length and in significant detail. The course begins with a high-level introduction that examines the terminology, components and architectural aspects of a parallel sysplex. The presentation then moves into the details of management and operation of a parallel sysplex environment.

Objectives

At the completion of this course, the student will be able to:

- Compare the differences between a base Sysplex and parallel Sysplex
- Describe the purpose of the Coupling Facilities three Structure forms (Lock, Cache and List)
- Describe the various Coupling Facility options and their implementations.
- Review the software concepts of resource versus data sharing through a Coupling Facility
- Discuss configuration choices and potential impact on performance

Topics

- Concepts and architecture
- Planning for sysplex
- Defining a sysplex
- Workload Manager Considerations
- Managing a sysplex
- Data Sharing Considerations

Audience

This class is designed for Systems Programmers, Technical Support and anyone who wants a better understanding of the technical issues associated with the Parallel Sysplex.

Prerequisites

Students should have an understanding of OS/390 and/or z/OS fundamentals.

Duration

Two days

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Course Outline

I. Concepts and architecture
   A. Compare the differences between a base Sysplex and parallel Sysplex
   B. Describe the purpose of the Coupling Facilities three Structure forms (Lock, Cache and List)
   C. Describe the various Coupling Facility options and their implementations.
   D. Review the software concepts of resource versus data sharing through a Coupling Facility
   E. Discuss configuration choices and potential impact on performance

II. Planning for a Sysplex
   A. Identify the required hardware and software components that make up a Parallel Sysplex and describe their function
   B. List the factors that will impact the size of Coupling Facility storage needed in the Parallel Sysplex
   C. Examine tools and options for sizing a Coupling Facility
   D. Describe the reasons for using a stand-alone Coupling Facility vs. an LPAR between systems
   E. Understand dynamic CF expansion and dynamic CF dispatching mechanisms
   F. Examine XCF and CF RMF Reports examples

III. Defining a sysplex
   A. Describe the requirements for implementing a Coupling Facility and a Structure within it
   B. Describe the functions performed by the Coupling Facility channels (Receive and Send) and how they need to be defined through Hardware Configuration Definition
   C. List the required data sets for a Sysplex and the purpose of each
   D. Indicate the steps necessary to create Sysplex-required data sets

IV. Workload Manager Considerations
   A. Examine impact of WLM managed initiators
   B. Determine requirements for Resource Affinity Scheduling and Scheduling environments
   C. Understanding workload balancing algorithms
   D. Intelligent Resource Director (IRD)
   E. Introduce enclaves and multi-system enclaves

V. Managing a Sysplex
   A. List the operator tasks performed via the Hardware Management console
   B. Review operator commands and functions performing in managing a Parallel Sysplex environment
   C. Examine recovery considerations for failed members of a Parallel Sysplex

VI. Data Sharing Considerations
   A. Describe the steps necessary to share data between multiple users across different systems in a Sysplex, using the Coupling Facility
   B. Describe how data invalidation is handled when that data is maintained in a Coupling Facility Structure
   C. Describe the major exploiters of data sharing versus resource sharing and some of the product implementations that can take advantage of the Coupling Facility.