

z/OS V2.5 IBM Education Assistant

Solution Name: WLM Batch initiator enhancements for job placement & initiator management

Solution Element(s): BCPWorkload Manager (WLM)



Agenda

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Trademarks

- See url <http://www.ibm.com/legal/copytrade.shtml> for a list of trademarks.
- Additional Trademarks:
 - None

Objectives

Currently, initiator placement is primarily determined based on the available or displaceable capacity of general purpose processors. As the capacity of specialty processors is increasing, as does the demand for such workloads, it is important to consider the workload specific capacity demand for placement routines.

With this solution in IBM z/OS VR5, initiators for batch jobs classified into a service class of which the first period executes primarily on zIIP will tend to be added on systems with spare zIIP capacity. Initiators for batch jobs classified into a service class of which the first period executes primarily on CP will tend to be added on systems with spare CP capacity.

Overview

- Who (Audience)
 - System or service level administrators
- What (Solution)
 - For job initiator placement WLM will now consider both general purpose processor and specialty processor consumption.
- Wow (Benefit / Value, Need Addressed)
 - This enhancement will help to remove the need of manual management of zIIP eligible batch jobs such that the z/OS system automatically selects to best suited system.

Usage & Invocation

- The new function is ready to be used “out of the box” with installation of IBM z/OS V2R5.
- WLM’s algorithms for JES initiator management have now knowledge about specialty processor consumption of batch jobs that run in these initiators. There are three algorithms.
 1. Starting additional initiators in WLM’s policy adjustment cycle (10 s) to reduce batch queue delays of a service class in order to improve its Performance Index (PI).
 2. Also, in the housekeeping part of WLM’s policy adjustment cycle, rebalance the number of initiators across the systems in a sysplex, since the previous algorithm has only limited means to balance the number of started initiators amongst the individual systems.
 3. Starting additional initiators in WLM’s resource adjustment cycle (2 s) when a system is considered to be underutilized.

Interactions & Dependencies

- Software Dependencies
 - None
- Hardware Dependencies
 - None
- Exploiters
 - Any user of z/OS V2.5 using WLM managed batch initiators

Upgrade & Coexistence Considerations (cont.)

- To exploit this solution, all systems in the Sysplex must be at the new z/OS level:
NO
- List any toleration/coexistence APARs/PTFs: None
- With the new function, WLM will check whether there is enough zIIP processor capacity available before starting additional initiators that might run zIIP workload. The function will be effective without any customer intervention.
- If it is not already the case, the customer might want to use separate sets of service classes for initiators running on specialty processors and initiators executing on standard CPs such that all initiators running in the same service class either execute on standard CPs or on specialty processors. This is no mandatory requirement, but it allows for a more accurate management of the initiators.

Upgrade & Coexistence Considerations

- If back-level systems and IBM z/OS V2R5 systems in a SYSPLEX/MAS have WLM managed initiators running in the same service class and on either system the initiators execute on specialty processors, balancing these initiators across the SYSPLEX/MAS will not be optimal. Neither system would be aware of the other system's consumption of specialty processor capacity.
- To circumvent this problem, customers can use one set of service classes for initiators executing zIIP workloads on IBM z/OS V2R5 systems and another set of service classes for initiators executing zIIP workloads on back-level systems.

Upgrade & Coexistence Considerations (cont.)

- On a system with “mixed” service classes, that is, on a system where initiators running CP workload and initiators running zIIP workload are classified into the same service class. WLM then must assume that on such system each initiator consumes processor capacity on both processor types.

To allow the customer some control with “mixed” service classes, WLM does the following:

- The available CP capacity is always checked.
- If OPT parameter “IIPHONORPRIORITY = NO” is in effect, the available zIIP capacity is always checked.
- If OPT parameter “IIPHONORPRIORITY = YES” is in effect (this is the default), then zIIP capacity is only checked if the service class’ consumed amount of zIIP capacity is above a certain threshold. With the default threshold of 10% the service class’ consumed service units on zIIPs must be at least 10% of the consumed service units on CPs.
- Initiators will only be started if there is sufficient available capacity for all checked processor types.

Installation & Configuration

- Part of z/OS V2.5
- Are there any planning considerations?
 - Be prepared for the WLM Batch Initiator Management to consider specialty processor consumption and update your batch initiator service classes in the WLM service definition as described on the previous slides **before upgrading to z/OS V2.5.**

Summary

- Starting with IBM z/OS V2R5, WLM will no longer consider only available capacity on standard CPs when starting new batch initiators.
Batch jobs that primarily consume standard processor capacity cause initiators to be started preferentially on systems with available standard processor capacity.
Batch jobs executing primarily on specialty processors cause initiators to be started preferentially on systems with available specialty processor capacity.
- **Tip:** Use separate service classes for batch jobs primarily executing on specialty processors and batch jobs executing on standard CPs such that all jobs running in the same service class either execute on standard CPs or on specialty processors. This allows WLM to manage initiators more efficiently.

Appendix

- Publication references
 - z/OS MVS Planning: Workload Management chapter *Batch Workload Management*