z/OS V1R13

BCP supervisor / WLM: Join/leave for subtasks

Overview

- Problem: Enclave join/leave is not very flexible when it comes to the rules it applies to subtasks. This can cause performance problems for applications such as DB2®
- Solution: let the application ask for special subtask processing
- Benefit / Value: addresses the problem

Usage and invocation

- The new functionality is invoked by WLM services
  - IWMEJOIN SUBTASKS={NO | YES}
  - IWM4STBG SUBTASKS={NO | YES}
  - SUBTASKS=NO (the default) requests the "old behavior"
  - SUBTASKS=YES requests the "new behavior"
- You can tell if the support is available by SYSEVENT REQSRMST
  - New bit SRMSTSTS within macro IRASRMST indicates that the support is available (as mentioned earlier, if SUBTASKS=YES is requested but the support is not available, the option is ignored, treated exactly as if SUBTASKS=NO is in effect)

Usage (old behavior)

- When a task joins an enclave, a subtask subsequently attached by that task is implicitly joined to that enclave. Terminology: the "enclave root" is the task that did the join. Whenever a subtask is attached, it is given the same enclave root as the attaching task.
  - If that subtask had been attached before the join, the subtask does not join the enclave when the join occurs
- A task may not leave an enclave if the task has any subtasks that have the leaving task as its enclave root. This includes leaves done by IWM4STEN. It would get return/reason code 8/xxxx0859
- A task may leave an enclave only if the task's enclave root is itself. A root of "Not itself" means that the task was implicitly joined to that enclave. This includes leaves done by IWM4STEN

Usage (behavior with SUBTASKS=YES)

- When enclave join is done (IWM4STBG does a join in the background), any existing subtask (not just daughter tasks) that is not already joined to an enclave
  - is implicitly joined to this enclave
  - Has its enclave root set to the joining task
- SUBTASKS=YES is restricted to invocations of IWMEJOIN that have HASN = PASN (new return code 4 from IEAVJOIN if SUBTASKS=YES is seen on a system that supports it with HASN <> PASN which is surfaced to the WLM caller as return/reason code 4/xxxx044D). If HASN<>PASN, the join works, but no subtasks are processed.
- If SUBTASKS=YES on a system without the support, treated as SUBTASKS=NO with no new return information
- Leave (IWMELEAV or the leave that is done as part of IWM4STEN) may now also be done when
  - Subtasks exist that have the same enclave root as the leaving task (whether by join or attach processing) and HASN = PASN and the join for this task had specified SUBTASKS=YES. In this case, those subtasks are removed from the enclave
  - No subtasks exist that have the same enclave root and HASN <> PASN and the join had specified SUBTASKS=YES. In this case you get return code 4 from IEAVLEAV which is surfaced to the WLM caller as return/reason code 4/xxxx044D
- In all other cases, when there are subtasks with the same enclave root, you get the "cannot leave because subtasks exist" return code / reason code

Interactions and dependencies

- Software Dependencies
  - None (WLM APAR OA33344 – PTFs UA58270 and UA58271 -- and Supervisor APAR OA33406 – PTFs UA58254 and UA58255 -- are both needed. UA58270 PRE's UA58254; UA58271 PRE's UA58255.
- Hardware Dependencies - None
- Exploiters - DB2 exploits this through APAR PM22154 for DB2 V9 (PTF UK63959) and DB2 V10 (PTF UK63958).

Migration and coexistence considerations

- The function is requested by macro invocation.
- If the program is run on a release that does not have PTFs available or on a release that does not yet have the PTFs applied, the new option is ignored (that is, you get the "old behavior")

Installation

- WLM APAR OA33344 is needed (it PRE's Supervisor APAR OA33406).
- This is available for z/OS® 1.11 (PTF UA58270) and z/OS 1.12 (UA58271).
- The function is included in for z/OS 1.13.

Appendix - References

- Publications: z/OS V1R13.0 MVS Programming: Workload Management Services
  SA22-7619 (IWMEJOIN and IWM4STBG macros)