z/OS V1R13

BCP Supervisor: SRB enclave join/leave

Overview

- Problem: SRBs can join an enclave only upon schedule. SRBs leave an enclave only upon SRB termination or enclave termination. In order to implement some performance-senstivie code, DB2® needs to be able to have a preemptable SRB switch its enclave allegiance while the SRB is running.
- Solution: Provide SRB Enclave Join/Leave functionality for a preemptable SRB
- Benefit / Value: addresses the problem

Usage and invocation

- The new functionality is invoked by direct call. No macro is provided.
- ECVT field ECVTSRBJ (offset x'90') contains the pointer-defined address for “Join”
- ECVT field ECVTSRBL (offset x'94') contains the pointer-defined address for “Leave”
- If the field is 0, then the support is not present. It will never be the case that one of the fields is 0 and the other non-0 (overlays notwithstanding)

Usage (SRB Join, commentary on ECVTSRBJ)

- Caller must be AMODE 31 or 64, key 0, supervisor state, enabled for I/O and external interrupts, holding no locks
- SRB mode (preemptable non-Client SRB only)
- Primary ASC mode
- Any P, Any S, Any H
- Set GR 1 to the below-2G address of the 8-byte enclave token. Bits 0-31 of 64-bit GR 1 are ignored.
- Load this address into GR 15. Do not use the LLGT instruction. You do not need to set bits 0-31 of 64-bit GR 15.
- If AMODE 64, issue BASSM 14,15
- If AMODE 31, issue BASSM 14,15 or BASR 14,15
- 31-bit GRs 2-13, high halves 2-14, and ARs 2-14 will be preserved.
- On return, GR 15 contains the return code:
  - 0 = Join successfully completed.
  - 8 = Enclave token is not or is no longer valid
  - 12 = Work unit is already in an enclave
  - 16 = Non-preemptable SRB
  - 20 = Client SRB

Usage (SRB Leave, commentary on ECVTSRBL)

- Caller must be AMODE 31 or 64, key 0, supervisor state, enabled for I/O and external interrupts, holding no locks
- SRB mode
- Primary ASC mode
- Any P, Any S, Any H
- Set GR 1 to the below-2G address of the 8-byte enclave token. Bits 0-31 of 64-bit GR 1 are ignored.
- Load this address into GR 15. Do not use the LLGT instruction. You do not need to set bits 0-31 of 64-bit GR 15.
- If AMODE 64, issue BASSM 14,15
- If AMODE 31, issue BASSM 14,15 or BASR 14,15
- 31-bit GRs 2-13, high halves 2-14, and ARs 2-14 will be preserved.
- On return, GR 15 contains the return code:
  - 0 = Leave successfully completed.
  - 8 = Enclave token is not or is no longer valid
  - 12 = Work unit is not in an enclave
  - 16 = Work unit is not in the enclave identified by the input

Interactions and dependencies

- Software dependencies
  - None (APAR OA35146 is needed for z/OS® 1.10, 1.11, 1.12)
- Hardware dependencies
  - None
- Exploiters
  - DB2 will exploit this via APAR PM28626 for DB2 V8, V9, V10.

Migration and coexistence considerations

- A program must test the ECVT field containing the entry point address of the service, and call only if that field is not 0.

Installation

- APAR OA35146 is needed for releases 1.10, 1.11, 1.12.
- The function is included in z/OS 1.13.

Appendix - References

- Publications: MVS Programming: Workload Management Services SA22-7619