Remote Dynamic I/O Capabilities (October 2023)

System Control Program (SCPR)

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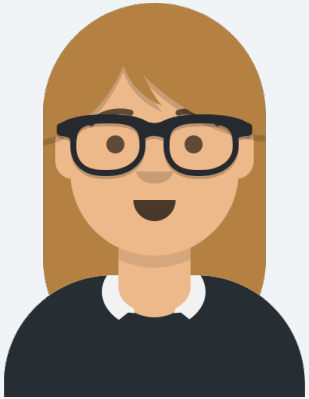
IBM Z

IBM

Problem Statement

Adding new devices or channels to the I/O configuration requires an IOCDS update, which is disruptive.

Users



Maria
Director of Operations

Maria needs to define some spare devices in preparation for the next DASD migration. This requires scheduling an outage to bring a new I/O configuration online.

She is also worried that a new channel path might be required after the migration, which would require an additional outage for a logical partition (LPAR) reactivation.

As-Is User Story

If a new DASD CU is needed then an updated I/O configuration is needed, which requires a deactivation and activation cycle of the LPAR to begin using a new I/O configuration.

- New DASD devices (or tape devices, and so on) can be configured to the system, but only if spare devices were defined in the current I/O configuration and if there are spare logical device blocks (LDEVs).

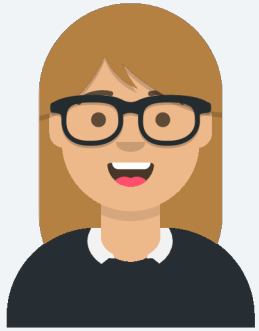
The addition or deletion of a channel path requires a deactivation and activation cycle of the LPAR.

Pain Points

An outage is needed to make the I/O configuration changes.

To-Be User Story

With the benefit of dynamic I/O configuration, the addition of new devices and channel paths will no longer require an LPAR deactivation and activation cycle.



Technical Details

- The new I/O configuration can be activated using HCD on any z/OS system that is within the processor cluster.
- Prerequisites for supporting this capability:
  - No z/TPF software updates are required.
  - An IBM z16 or above is required.
  - z/OS 2.4 or later with the PTF for OA65559 is required.

Technical Details

The addition of new devices also requires a sufficient number of spare LDEV blocks on z/TPF. If an insufficient number of spare LDEVs are available, additional LDEVs can be allocated by a soft IPL.

- The number of spare LDEVs is defined by the LDEVADD parameter of the CORREQ SIP macro. The default value is 16. Increase this value to suit your dynamic I/O reconfiguration requirements.
- Each LDEV requires 512 bytes of 31-bit memory and 8 KB of 64-bit memory.

Technical Details

Before activating the new I/O configuration using HCD, carefully examine it by setting the “Test only” field to “Yes”.

```
                 Activate New Hardware Configuration
CBDPDY50

Specify or revise the values for IODF activation.

Source IODF . . . . . : SYS4.IODFAA
Processor ID  . . . . . : BOESCLY

Target IODF . . . . . : SYS4.IODF00
Processor ID  . . . . . ECL2      +

Test only  . . . . . . . . . . . . . . . . . . . . . . Yes  (Yes or No)
Allow hardware deletes (FORCE, FORCE=DEVICE) . . . . . No   (Yes or No)
Delete partition access to CHPIDs unconditionally
(FORCE=CANDIDATE)  . . . . . . . . . . . . . . . . . . No   (Yes or No)

 F1=Help     F2=Split    F3=Exit     F4=Prompt   F5=Reset    F9=Swap
```

Technical Details

With this support, you can:

- Add or delete I/O control units and devices (DASD, tape, OSA, CTC, and console)
- Add channel paths to one or more devices
  - ZPATH UP is required to use new channel paths after they are added to the configuration.
- Delete channel paths from one or more devices
  - Use ZPATH DOWN to disable paths before deleting them from the configuration.

Technical Details

For more information about this support, see:

https://community.ibm.com/community/user/ibmz-and-linuxone/blogs/mark-boonie/2024/03/19/support-for-remote-dynamic-io

Value Statement

Allowing channel paths, I/O devices, and so on, to be dynamically added to a configuration eliminates outages required for an LPAR deactivation and activation cycle.

Conclusion

Support for dynamic I/O reconfiguration increases flexibility in adding and deleting I/O resources by eliminating the need for outages.

Thank you.