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# Improve IMS Functionality by Implementing New Features

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## IMS KEEPS GETTING BETTER AND BETTER

When I began my career in IMS™, I was a business application programmer working with IMS Version 1.0 running (quite slowly) in an MVT 350K partition. Since those times, the IBM® IMS team has delivered significant improvements. Beginning around the year 2000, each release of IMS — from Version 8.1 to the present — has delivered incredible enhancements.

I still get excited when IMS provides new features and performance improvements, particularly when they improve IMS functionality.

Now that I work with IMS backup and recovery products at BMC, I pay particular attention to functional changes concerning DBRC. When the Base Primitive Environment (BPE) and the common services layer (CSL) were introduced in IMS Version 8.1 to allow a single point of control (SPOC), ISPF access, and automatic RECON loss notification (ARLN), it was obvious that IMS was on the brink of a new era — an era with improved functionality, better reliability, and increased speed with exceptional data access and share control — all to the advantage of the IMS developer and user community.

In this paper, I discuss how you can exploit some of this functionality to improve your IMS environment.

### DBRC SHARING ACCESS

At BMC, we have noticed improvements in DBRC sharing access. During BMC IMAGE COPY PLUS testing, we copied a 200–partition, high availability large database (HALDB) and produced all image copies at the same time. We ran this scenario several times to set a benchmark, and we established that it took elapsed time of:

- Four (4) hours to copy each of the 200 partitions when we split the job step into four (4) jobs taking image copies of 50 partitions in parallel on the same LPAR
- Six (6) hours to copy each of the 200 partitions when we split the job step into four (4) jobs taking image copies of 50 partitions in parallel on two LPARs (two jobs per LPAR)

It took longer to complete the jobs when they were split across LPARs because of RECON data set contention and increased contention time caused by cross-memory access and data set sharing overhead.

As a result of these tests, we looked for ways to improve RECON access speed and reduce contention within BMC IMAGE COPY PLUS. HALDB increased RECON contention for all programs that access DBRC, but it especially increased the elapsed time for utilities like BMC IMAGE COPY PLUS. **After we changed the BMC code to make it more efficient, the run time of four (4) hours dropped to 30 minutes.**

IMS Version 10 introduced parallel RECON access (PRA), which takes ARLN to the next level. PRA uses DFSMS transactional VSAM (DFSMStvs) to perform RECON access. Transactional VSAM can be compared to IMS database block-level sharing, in that it uses z/OS® logging and has automatic backout and recovery to help maintain VSAM data set integrity. Transactional VSAM is an add-on application.

If DBRC contention is a problem for you, or if you are using HALDB, then transactional VSAM is a must. The BMC IMAGE COPY PLUS job that copied all 200 partitions of a HALDB at the same time is benchmarked at 30-minute elapsed time without PRA and a 10-minute elapsed time with PRA — **a 66 percent savings!**

## IMS ENHANCEMENTS

Many organizations have not yet implemented recent IMS features, including IMS type-2 commands, ARLN, a BPE-based DBRC region, and parallel RECON access. Because these features may require training, experience, additional software, and people power for implementation, it may be reasonable to forego improvements in functionality, speed, and control if RECON contention and database availability are not issues.

However, if functionality, speed, and control are important to you, now is the time to acquire the knowledge and react.

The functionality migration (learning) path I recommend is:

1. Add IMS type-2 command capability.
   a. IMS type-1 commands are processed by the IMS CTL or DBCTL region, and compete for resources with IMS message and batch message processing (BMP) regions.
   b. IMS type-2 command processing is offloaded to the Common Services Layer, reducing the online strain. An IMS type-2 command has more flexibility than the IMS type-1 command it replaces.

   *Example: Consider an IMSPLEX with two IMS systems where one is active and one is shut down. If the IMS type-2 command equivalent of "/DBD DB dbdname" were issued with the additional parameter "SCOPE(ALL)", the command would look like this:*

   ***UPDATE DB NAME(dbdname) STOP(UPDATES) SCOPE(ALL)***

   *The "STOP(UPDATES)" portion of the command puts the database in "inquiry only" mode. The "SCOPE(ALL)" ensures that if the shutdown IMS system is suddenly initialized, then the database DBD name will be in "inquiry only" mode — even though it was not in that mode at shutdown time. This is well beyond the scope of an IMS type-1 "/DBD" command.*
2. Add Automatic RECON Loss Notification capability to reduce contention and improve availability.
3. Use BPE PROCLIB member DSPBIxxx to initialize the DBRC online region so that DBRC can take advantage of BPE services. These include improved support for DBRC exits, improved DBRC trace support, and improved support for configuring the DBRC address space.
4. Add Parallel RECON Access to reduce contention and improve availability.

This migration path allows each new feature to build on the one previously added. Allow sufficient time between implementing each feature.

## SUMMARY

Each of the features mentioned in this paper move IMS toward being a more efficient, easier to maintain (but more complex) system that improves speed, control, availability, and data integrity. BMC Software has embraced these features in its products.

BMC IMS Product Support is always available to help, and we encourage you to investigate the new features that IBM has added to IMS.

For more information, please visit www.bmc.com/ims.




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