

Backup and Recovery Solution for IMS

Key Benefits

- Best-of-breed technology ensures that image copies and recoveries are performed at a fraction of the time required by standard IMS utilities.
- Integration ensures minimized installation requirements, maintenance requirements, and learning curve of IT staff.
- Proactive Recovery Advisor technology maximizes IT staff resources by notifying DBAs of exposures before they occur.

Key Features

- Integrated, comprehensive solution for IMS backup and recovery
- Disaster recovery capabilities
- Maximization of investment
- Rapid performance of image copies and recoveries
- Automation of many tasks
- Ease of installation and maintenance

Business Challenge

You're handling an ever-growing amount of data, and many times it is not even IMS data. But if your company is like most, you have a set of tools and processes that have evolved to meet specific needs. You must deal with each tool's implementation and maintenance requirements in addition to those of the databases that are your primary responsibility. With today's IT budget and staff reductions, the effective use of this hodge-podge of software tools becomes next to impossible. The result: sub-optimal use of the products, frustrated IT staff, increased downtime, and irate customers.

BMC Software Solution

For many years, BMC Software, Inc. has provided the best-of-breed products for backup and recovery of IMS databases. Each of these utilities performs at speeds several times greater than those of the standard IMS utilities. Having achieved near instantaneous image copies and recoveries, BMC Software has focused its efforts on ensuring that you can maximize the benefits of its products and the productivity of your IT staff that uses them. Thus, it

integrated the functions into one comprehensive solution and built intelligence into that solution to automate many routine tasks.

The result is Backup and Recovery Solution (BRS) for IMS—the industry's fastest, most flexible, and most powerful IMS recovery solution. As an integrated solution, BRS brings together BMC Software's four cornerstone backup and recovery functions for IMS:

- Image Copy
- Change Accumulation
- Recovery
- Recovery Management

The solution also includes additional support from three related utilities, as well as intelligent automation that is exclusive to BRS. BRS works with full-function IMS databases, including high availability large databases (HALDBs), and Fast Path data-entry databases (DEDBs).

Image Copy Function

BRS includes the high-performance BMC Software Image Copy function, which performs image copies faster and more efficiently than the standard IMS utility.

Important Image Copy features include

- high-speed access methods
- functions for producing image copies without competing for online IMS resources and while databases remain available for other processing
- Snapshot technology, which works with intelligent storage devices to produce Instant Snapshot copies within seconds or to produce Snapshot (nonfuzzy) copies with minimal downtime
- dynamic allocation of input data sets and automatic creation and allocation of output data sets
- automatic restart of failed tasks
- concurrent copying of multiple databases and production of multiple output image copies for each database
- compression and stacking of image copies to reduce tape-related expenses

Recovery Function

BRS includes the high-performance BMC Software Recovery function, which recovers databases faster and more efficiently than the standard IMS utility.

Important Recovery features include

- concurrent recovery of multiple databases with one pass of log and change accumulation data sets and with multiple log readers for faster log processing
- recovery to *any* point in time (PIT), including times when databases were allocated for updates, with no manual tasks

- recovery with no required change accumulation
- recovery with no required logs (by using a point-in-time change accumulation produced by the Change Accumulation function)
- dynamic allocation of input data sets and automatic creation and allocation of output data sets
- automatic restart of failed tasks
- production of multiple output image copies during recovery
- simulated recovery for testing recovery options and JCL
- full recovery (with two-phase and single-phase methods)
- roll-forward recovery
- automatic instant restore (in seconds) of Instant Snapshot copies produced by the BRS Image Copy function

Change Accumulation Function

BRS includes the high-performance BMC Software Change Accumulation function, which performs change accumulation faster and more efficiently than the standard IMS utility.

Important Change Accumulation features include

- parallel processing of most tasks
- high-speed access methods
- processing of multiple change accumulation groups with one pass of log data sets
- faster sorting through multiple small sort tasks and ability to sort different key lengths
- change accumulation to a point in time, allowing faster recoveries with no required log input, providing incremental image copies that are logically correct as verified with a pointer checking utility, and reducing disaster recovery costs because no log data sets must be shipped offsite

- production of extract log data sets
- production of multiple output change accumulation data sets for offsite storage
- stacking of multiple change accumulation data sets to reduce tape-related expenses
- reduced time and expense for performing change accumulation, allowing you to perform more frequent change accumulations and thereby reducing outages in recovery situations

Recovery Manager Function

BRS includes the Recovery Manager (RMGR) function, which automates and simplifies recovery and related processes to get your databases back online quickly and efficiently.

Important Recovery Manager features include

- grouping of related recoverable objects to simplify handling
- automated validation and rebuilding of groups
- checking of recovery assets to ensure that necessary data sets are available
- creation of additional recovery points to ensure recoverability within your service level agreements and to optimize recovery results
- synchronization of recovery points across multiple IMS systems, which is especially useful for disaster recovery preparation
- interactive search for and display of recovery points in RECON data sets
- interactive search, display, and analysis of logs, which is useful for identifying additional recovery points and evaluating the impact of a point-in-time recovery
- automated creation and execution of optimized JCL for recovering groups

- Disaster Recovery RECON Cleanup utility for preparing a DBRC RECON data set for IMS startup and database recovery in the event of a disaster
- Automatic Delete/Define utility for capturing allocation information about IMS database data sets and building IDCAMS allocation, delete, and define control statements
- ability to issue selected IMS commands with a positive response
- Recovery Extensions feature that allows other BRS functions to process RMGR groups and that permits automated registration and use of additional recovery assets

Concurrent Pointer Checking Support

BRS includes the BMC Software Concurrent Point Checking functions for full-function databases and DEDBs. These functions verify physical and logical database pointers to ensure the structural integrity of the database. The functions work during the image copy and recovery processes, so that one I/O operation serves multiple purposes.

This concurrent approach reduces the amount of elapsed time and resources than would be consumed if the image copy or recovery and pointer checking functions were performed separately. It also provides immediate assurance that the image copy or recovered database is valid, and it detects problems immediately, while you still have the opportunity to correct them.

Index Rebuild Function

BRS includes the Index Rebuild function. If the primary or secondary index of a full-function database is lost

or damaged, the Index Rebuild function allows you to rebuild the index instead of recovering it from an image copy.

Through the Index Rebuild function, BRS automatically handles the rebuilding of indexes and registration of virtual image copies for these indexes. By rebuilding an index instead of recovering it, you avoid taking and maintaining index image copies.

Intelligent Automation

BRS includes the exclusive Recovery Advisor function for intelligent automation. The Recovery Advisor function detects, reports, and (when possible) takes action to correct many common conditions that may affect the recovery of IMS databases. This proactive technology helps ensure recoverability, reduce technical and business exposures, prevent lengthy outages for database recoveries, and prevent unnecessary consumption of resources.

Recovery Advisor executes as a batch utility. During execution, it examines the DBRC RECON data sets and analyzes information about selected objects, which are database data set groups (including HALDB partition data set groups) or areas.

Events

Recovery Advisor detects selected events, which are exception conditions that could prevent recovery of an object or increase the time and resources required for recovery. Examples of events that Recovery Advisor detects include the following:

- image copy needed
- image copy recommended
- no valid image copy exists
- minimum number of image copies not available

- no batch image copies exist
- batch image copy not within time range
- minimum number of batch image copies not available
- no online image copies exist
- online image copy not within time range
- minimum number of online image copies not available
- number of logs exceeds user threshold
- database data set not in change accumulation group
- both primary and secondary logs in error
- recovery needed
- one or more errors (EEQEs) found
- HALDB partition not initialized
- no area data set available
- no area data set defined
- DBRC GENMAX, GRPMAX, or RECOVPD value exceeded or not met

Actions

For some events, Recovery Advisor can take automatic defined actions to address the events, such as submitting a job to perform an image copy or a change accumulation.

Information

Recovery Advisor issues a return code to indicate that it has detected one or more events. It produces detailed reports to help you understand the events and any actions that it took to address them. It also maintains a history of events that you can analyze interactively through the ISPF interface.

Benefits

Recovery Advisor increases data availability by ensuring that image copies and change accumulations are performed at appropriate intervals to

minimize the number of logs required for recovery. It reduces data management costs by automating many tasks and decisions that affect recoverability and by providing easy-to-use information.

Easy Installation and Implementation

By implementing BRS, you will not only be using the industry's fastest and smartest backup and recovery solution, you will also greatly shorten the learning curve required to manage IMS backup and recovery processes. This integrated solution requires only one installation, as opposed to seven installations for standalone utilities. Simple control statement syntax, ISPF interfaces, dynamic allocation, and sensible default options ensure maximum productivity of users.

About BMC Software

BMC Software, Inc. [NYSE:BMC], is a leader in enterprise management. The company focuses on Assuring Business Availability® for its customers by helping them proactively improve service, reduce costs, and increase value to their business. BMC Software solutions span enterprise systems, applications, and databases. Founded in 1980, BMC Software has offices worldwide and is a member of the S&P 500, with fiscal year 2002 revenues of approximately \$1.3 billion. Visit www.bmc.com to learn more.

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