

Mainframe Cost Optimization for DB2® for z/OS®

How to Improve DB2 Service while Reducing Costs

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WE'RE WATCHING YOUR DB2 SO YOU CAN WATCH YOUR BUSINESS

Your data is arguably your organization's most valuable asset and you must ensure that it is secure, available, and performing at the levels required to meet your business goals. In today's environments, there are fewer database professionals managing substantially higher transaction rates, data volumes, DB2 subsystems, and overall complexity. And while business volumes grow and availability requirements increase, companies are reducing IT budgets or at best, keeping budgets flat. Can you afford to use database tools that are just "good enough" to manage DB2 but waste MIPS and make your technical teams less productive?

At BMC Software, we are DB2 experts and can help ensure that your DB2 for z/OS databases and applications are performing optimally and are available, secure and recoverable. And the BMC solutions enable you to manage DB2 more efficiently and effectively than ever before. That is the primary objective of Mainframe Cost Optimization (MCO), the initiative that is driving our DB2 development strategy.



BMC solutions for DB2 use efficient processing, intelligent automation and proprietary technology to:

- » Reduce the cost of running DB2 applications and systems
- » Delay costly upgrades
- » Improve availability of applications, databases, and systems so that you can meet service level agreements (SLAs)
- » Reduce risk of data integrity issues, unplanned outages, and performance degradation
- » Improve performance of applications, databases, and systems to meet ever-increasing demands
- » Improve productivity of DBAs, system programmers, application programmers, and end users

REDUCE COSTS

BMC Database Management solutions for DB2 reduce costs by reducing the MIPS associated with processing DB2 workloads and automating much of the manual tasks performed by your database professionals. BMC's DB2 solutions save MIPS by:

- » Performing maintenance processes more efficiently
- » Offloading work to zIIP engines
- » Identifying resource intensive SQL and providing tuning advice
- » Managing buffer pools effectively to reduce I/Os
- » Avoiding unnecessary reorganizations or backups

USE SPECIALTY ENGINES

Several BMC products for DB2® on z/OS® exploit zIIP engines. Tests at customer sites have shown up to a 72 percent offload of MIPS to the zIIP from the use of these products. Depending on your environment, you could see even more savings. For products and processes that you run often, such as backups, the savings can be substantial.

zIIP offloading is enabled only for BMC products, and is not designed to offload third-party code. The execution of eligible code on a zIIP is fully controlled by IBM® z/OS Workload Manager.

The following BMC products and solutions are zIIP eligible:

- » BMC COPY PLUS for DB2
- » BMC DASD MANAGER PLUS for DB2
- » BMC LOADPLUS for DB2
- » BMC Log Master for DB2
- » BMC PACLOG for DB2
- » BMC RECOVER PLUS for DB2
- » BMC RECOVERY MANAGER for DB2
- » BMC REORG PLUS for DB2
- » BMC SNAPSHOT UPGRADE FEATURE for DB2
- » BMC UNLOAD PLUS for DB2
- » BMC Database Administration for DB2
- » BMC Database Performance for DB2
- » BMC Recovery Management for DB2
- » BMC System Performance for DB2
- » BMC SQL Performance for DB2
- » BMC APPTUNE for DB2

The Data Collector shared between the SQL Performance for DB2 solution and the System Performance for DB2 solution is zIIP eligible, and internal tests have shown that up to 60 percent of data collection can be run on zIIP engines. This reduces the cost of monitoring both DB2 System Performance and SQL.

Figure 1 shows how much BMC COPY PLUS for DB2 can offload to zIIPs.

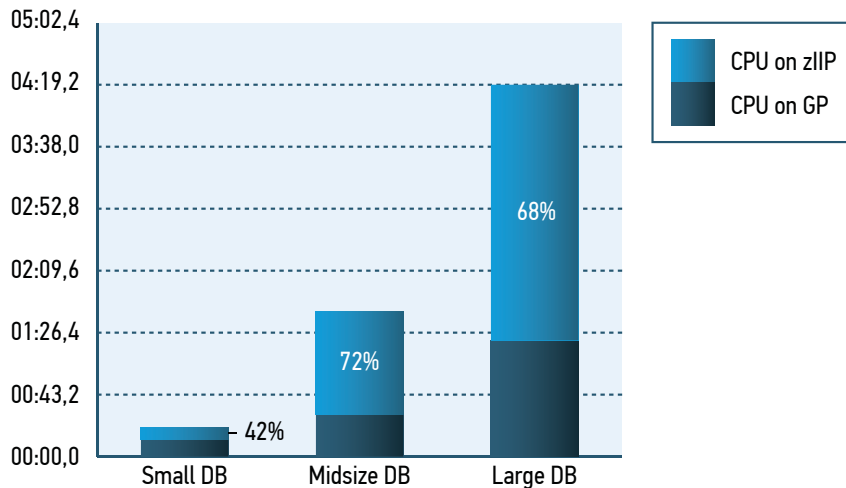


Figure 1. Volume offloaded to zIIPs by BMC COPY PLUS for DB2

IDENTIFY AND RESOLVE SQL PERFORMANCE PROBLEMS QUICKLY

Because SQL statements provide access to DB2 data, inefficient SQL causes performance problems and incurs unnecessary CPU. In addition, inefficient SQL increases the CPU consumption of DB2 and has a direct impact on the peak MIPS usage on your system. Therefore, one of the most effective ways to reduce peak MIPS is to tune SQL statements.

BMC SQL Performance for DB2 enables you to pinpoint poorly performing SQL quickly and easily, so you can reduce costs and improve response times. It provides tools to manage SQL performance across the application lifecycle. In development, it validates SQL to ensure optimal performance characteristics, such as valid access paths and best-practice SQL coding techniques. In production, it captures metrics to identify and resolve performance problems.

BMC SQL Performance for DB2 provides the following features and benefits:

- » Highlights the most expensive SQL statements and makes recommendations for improving performance to speed problem resolution and achieve more efficient processing
- » Analyzes the usage of existing indexes and recommends additional indexes that would improve performance and lower CPU costs across an application, or the entire DB2 subsystem
- » Enables the ability to analyze impact of changes to SQL within an application or even changes to DB2 versions for both static and dynamic SQL, including SQL statements that are executed hundreds or thousands of times a day

AVOID UNNECESSARY REORGANIZATIONS

You may reorganize all databases on a schedule to ensure that you meet performance SLAs. However, when you perform maintenance (reorg, backup, and statistics) on databases that don't need it, you are wasting time and CPU cycles. BMC solutions for DB2 prevent unnecessary maintenance by identifying which databases are physically disorganized and need reorganization.

BMC Database Performance for DB2 automates database maintenance and reduces unnecessary CPU cycles. It determines which maintenance tasks are required and can execute those tasks automatically. BMC Database Performance for DB2 uses thresholds and statistics to trigger reorganizations of the data only when needed and can execute reorganizations without disrupting application access to the data.

BMC Database Performance for DB2:

- » Reduces cost by reducing unnecessary reorganization processing
- » Improves performance of reorganizations with more efficient high-speed utility processing
- » Improves availability with online reorganization (providing full access to application data) and faster processing
- » Improves productivity by identifying performance thresholds and reorganizing data only when it benefits the performance of the application

When you have both BMC Database Performance for DB2 and BMC SQL Performance for DB2 installed, you can avoid unnecessary performance-related reorganizations. When applications are performing poorly, it is easy to assume that a reorganization will improve performance. However, not all performance problems are caused by disorganized databases. BMC SQL Performance for DB2 analyzes performance degradation over time correlated to physical disorganization over time to determine what level of disorganization in the database impacts performance and would benefit from the execution of reorg maintenance. If needed, it will trigger a reorganization through BMC Database Performance for DB2. If BMC SQL Performance determines that the database does not need to be reorganized, it notifies you and skips the reorganization that would not have improved performance. Customers that have implemented the Reorg Advisor capability have reported that they have eliminated over 50% of their reorg jobs and thereby saved the CPU associated with those jobs.

AVOID UNNECESSARY BACKUPS

BMC COPY PLUS for DB2 enables you to skip copies of table spaces that have not changed since the last copy was taken. Skipping unnecessary copies saves time and CPU resources.

BMC Recovery Management for DB2 exploits backup avoidance technology to reduce backup time while assuring full recoverability. This technology analyzes the log ranges to identify and exclude any objects that have not changed between the last backup and the current time. This feature is particularly useful for systems with large numbers of objects that change infrequently, such as SAP.

Cabinet copy is a patented BMC technology that provides improved performance and availability when you are copying a large number of spaces. In such cases, the overhead to open and close each copy data set can be a significant component of overall run time and CPU usage. Cabinet copies allow you to copy all the spaces that are specified as input into a single data set called a cabinet file. The cabinet file is allocated and de-allocated only once, regardless of the number of objects that are copied to or recovered from the cabinet file. Because there is no file opening or closing for each space in the cabinet file, the file header and trailer records (including the EOF markers) are omitted from cabinet files, and performance of the copy job is greatly improved. Cabinet copy can reduce the elapsed time of copy jobs by up to 50 percent and CPU time by up to 80 percent.

IMPROVE AVAILABILITY

High availability is a business imperative for most IT organizations. Availability of DB2 applications is not only affected by unplanned outages, but also by planned outages, long-running batch or maintenance windows, and slow transaction response time. Ensuring high availability for DB2 applications is complex and demands a variety of solutions. BMC ensures the highest levels of availability.

MAINTAIN NEAR-CONTINUOUS AVAILABILITY

You can keep your applications and databases available with BMC solutions for DB2.

Reorg

With BMC Database Performance for DB2, you can keep your databases online and available for processing — even while they are being reorganized. Databases are reorganized to shadow data sets, and only a short outage is required at the end of the reorg job to switch the names of the original and shadow databases. Except for the short outage at the end of the process, you have full access to the data for the duration of the reorganization.

The difference between BMC and standard online reorg solutions is that the BMC reorg process is much faster and uses less CPU. This makes it easier to finish the online reorg in a high-volume transaction environment without introducing transaction timeouts or failures.

Utility processing

The BMC utilities for DB2 (BMC LOAD PLUS for DB2, BMC UNLOAD PLUS for DB2, BMC COPY PLUS for DB2, and BMC CHECK PLUS for DB2) provide the fastest, most efficient and reliable alternative to the IBM DB2 utilities because they run completely external to the DB2 subsystem and take advantage of proprietary data-handling processes. Benchmarks show that BMC DB2 utilities use, on average, 40 percent less CPU than the IBM utilities. This 40 percent does not include the fact that the IBM utilities incur additional CPU overhead on the DB2 system itself (DBM1 address space). As the size and complexity of the object grows, so does the BMC performance advantage in elapsed time and CPU savings.

Figure 2 shows how BMC LOADPLUS for DB2 runs faster and uses less CPU than the IBM utility.

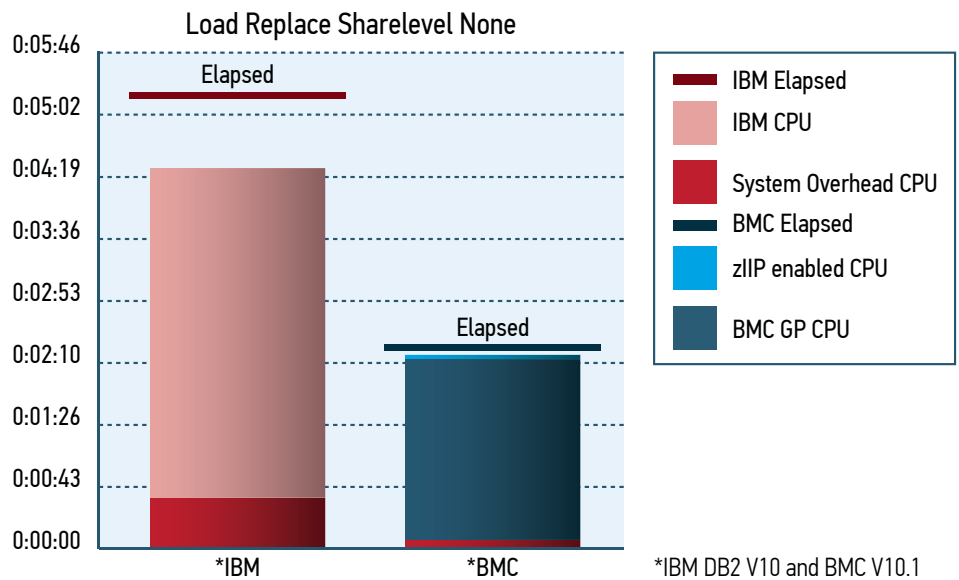


Figure 2. BMC LOADPLUS for DB2 runs faster and uses less CPU than the IBM utility.

Worklist parallelism

DB2 structure changes often result in an unload/drop/create/load (UDCL) process. Depending on the amount of data in the changed objects, the deployment of such changes can make the database unavailable for a long time.

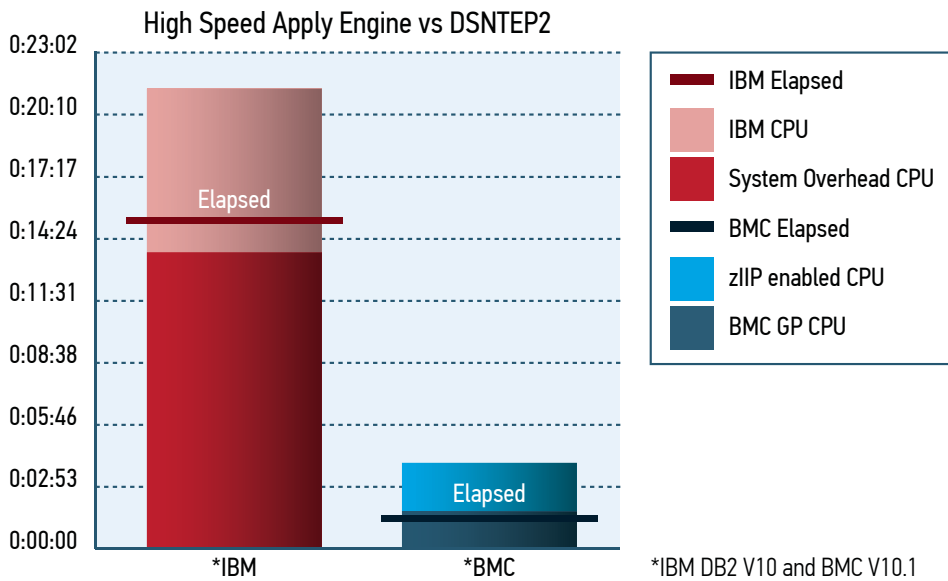
BMC Database Administration for DB2 uses parallelism to complete DB2 structure changes quickly and efficiently. BMC CHANGE MANAGER for DB2 supports parallelism when executing the commands and statements in the worklist that was generated to deploy a DB2 structure change to one or many database objects. It builds a worklist and identifies which work can be performed in parallel. The BMC high-speed utilities are invoked in the parallel execution of the worklist, providing faster execution than the standard DB2 utilities. Worklist parallelism works within a single LPAR or across a SYSPLEX environment. It automates unload and load processes, requiring no intervention or additional manual manipulation.

Backup and recovery

BMC Recovery Management for DB2 can eliminate the time needed for taking copies and significantly reduces the time it takes to recover. The following features improve availability.

- » **Snapshot copy.** BMC SNAPSHOT UPGRADE FEATURE provides consistent image copies of one or a group of spaces at the same consistent point while application updates are in progress.
- » **Instant snapshot copies.** Transparently use specialized hardware features, such as Flashcopy, to make data set level copies that can be restored using BMC RECOVER PLUS or BMC RECOVERY MANAGER for DB2 with BMC SNAPSHOT UPGRADE FEATURE
- » **Online consistent copy.** Provides an efficient way to make consistent copies of DB2 table spaces and indexes — without having to quiesce or cause any other outage to the spaces being copied. A consistent image copy is a copy that does not contain any uncommitted data. Consistent copies are usually required if you want to migrate the data to another object or subsystem. You can recover consistent copies without applying log records. By taking advantage of instant snapshot technology and BMC log analysis and apply technology, Online Consistent Copy can make consistent copies of even very large table spaces or indexes almost instantly and offers:
 - Continuous availability of source objects — No outage of the source objects is required.
 - Minimized performance impact on source system — Online Consistent Copy takes advantage of IBM, EMC, and Hitachi disks to make instant snapshots, so there is minimal performance impact on the source system (CPU, I/O, or storage).
 - Copies are available to the target users in seconds.
 - Reduced costs — Because the copies are made in the storage subsystem, practically no CPU or I/O is required.

- » **Physical backout recovery.** Dramatically faster than most traditional forward recoveries, a backout recovery does not require image copies to perform a point-in-time recovery. Instead, it backs out the log records to undo or redo the changes that occurred between the selected point in time and the current point. It returns the spaces and indexes to the required state without the overhead of restoring image copies, or rebuilding or restoring indexes.
- » **Recovery avoidance.** Some types of applications (such as SAP) can only be recovered as part of the entire DB2 subsystem. Full subsystem recoveries have always included a conditional restart of DB2, followed by the recovery of both application objects and the DB2 catalog and directory. This type of recovery is both time and resource intensive. However, unchanged objects do not need to be recovered and a conditional restart is not required if no alters, drops, or creates were performed in the subsystem between the recovery point and the current time. Recovery time can be further reduced if a quiet point can be used as the recovery point. BMC Recovery Management for DB2 can dramatically shorten the time required to perform a recovery of an entire local subsystem by analyzing the system for unchanged objects, DDL activity, and quiet points and then generating the fastest and most efficient recovery jobs possible.
- » **High speed structure change (HSSC).** Online schema change, introduced in DB2 Version 8, provides the ability to implement certain schema changes with no downtime. Although DB2 9 expanded this capability, not all changes can be made with ALTER; for some changes, you must go through the unload/drop/create/load process. By exploiting page-oriented processes, HSSC can dramatically reduce the downtime and CPU consumption to implement physical structure changes. You can use it with BMC CHANGE MANAGER for DB2 to manage the DDL changes and to further automate the process. A change that may take hours using standard unload/drop/create/load process can be transformed in minutes, with minimal resource waste. The transformation is done using a shadow object. The source object being transformed is the original object. The new and original objects have nearly identical structures. At the end of the process, the new table is renamed to the original table; you do not need to change application SQL.
- » **Undo SQL with High Speed Apply Engine.** BMC Log Master for DB2 enables you to undo bad transactions. You can undo the problematic transactions by generating UNDO SQL statements to reverse the transactions in error. The database and application remain online, and processing continues as normal. Many customers have replaced DSNTEP2 with the High Speed Apply Engine due to the significant reduction in both elapsed time and CPU. The following graph shows the results of internal benchmarks:



- » **Automated drop recovery.** BMC Log Master for DB2, working with BMC RECOVER PLUS for DB2 or DSN1COPY, can recover DB2 objects that have been accidentally dropped from the DB2 catalog.⁷

REDUCE RISK

BMC solutions for DB2 protect your data and application environment by ensuring that:

- » Changes are implemented with integrity
- » Data is fully recoverable
- » Application changes won't have a negative impact on the production environment

BMC solutions also reduce the risk of unplanned outages.

IMPLEMENT CHANGES WITH INTEGRITY

Change is inevitable. When the business introduces application changes, databases often need to be changed too. However, changing DB2 on z/OS database structures is labor intensive and error prone because you must identify dependencies; understand the impact of changes to other databases; and often, unload, drop, recreate, and reload changing objects — and ensure that all dependent objects are created in the correct order afterwards.

After you make a change, it is difficult, if not impossible, to revert to an earlier version of a database. It is difficult to migrate data structures to another environment because doing so requires additional manual analysis and coding. Migrating structure changes across multiple DB2 systems and preserving local modifications to each subsystem is repetitive and tedious and creates more complexity.

BMC CHANGE MANAGER for DB2 simplifies and automates change management and ensures the integrity of structures and data, even for large ERP and CRM environments. With BMC CHANGE MANAGER for DB2, you can extract changes to a data structure on one DB2 subsystem and then apply them to the corresponding data structures on other DB2 subsystems; preserve data and local modifications; and fall back to a previous version of the database if needed. You can synchronize database schema versions across multiple DB2 subsystems, across the SYSPLEX.

PREVENT POORLY PERFORMING APPLICATION CODE FROM BEING MOVED TO PRODUCTION

BMC SQL Performance for DB2 enables you to solve performance problems resulting from inefficient SQL statements. Application developers can use BMC SQL Performance for DB2 to identify and correct performance problems before they reach production. Similarly, DBAs can identify and manage SQL performance impacts resulting from data structure changes before implementing those changes in production.

Inefficient SQL statements can have a major impact on application throughput and response time. Even minor changes in application or DB2 data structures can significantly affect SQL access paths and therefore application performance and availability. For example, subtle statistical changes in the DB2 catalog can cause the DB2 optimizer to change access path selections. If the changes are not detected until the application moves into production, the application either performs poorly or is unavailable. Firefighting situations happen, and are stressful, and that can be avoided.

The workload access path compare allows you to define a set of SQL statements (a workload, representing an application) to analyze for access path changes within or between DB2 systems to identify and correct performance problems before the problems reach production. This can be particularly effective when migrating from one version of DB2 to the next. For example, migrating from DB2 version 9 to DB2 10 could have a significant impact on your systems because of unforeseen access path changes after REBINDs. The workload access path compare is also helpful when migrating application versions from one system to another, such as moving from test to production, and when applying system maintenance.

ENSURE RECOVERABILITY

Unplanned outages are stressful; you need to recover data quickly, correctly, and as painlessly as possible. New recovery processes provide flexibility and short recovery times, but it can be difficult to choose between all the backup and recovery options.

BMC Recovery Management for DB2 helps you decide what to recover and recommends the best course of action. It provides the tools you need to plan, simulate, and test for disaster and local recoveries. You can recover a group of transactions within an application, a single application, a group of applications, or an entire DB2 system. BMC Recovery Management for DB2:

- » Enables you to estimate how long it will take to recover your environment
- » Enables you to simulate recoveries and practice recoveries of production databases without impacting production systems
- » Provides reporting to analyze results of last disaster recovery
- » Enables you to create a consistent copy with no outage
- » Recovers to any point in time, even if there is no quiesce or quiet point
- » Enables conditional restart avoidance for local subsystem recovery

ENSURE AUDITABILITY

Corporate scandals and accounting discrepancies have made good auditing capabilities imperative. While legislation may dictate audit requirements, DB2 DBAs know that each application is different and that a “one size fits all” compliance strategy probably will not work.

In IT, we have been dealing with audit requirements since the first application was written. Homegrown auditing facilities generally use a combination of log information, separate databases, tables, and VSAM files. You can generate audit reports on demand, but getting consistent results and maintaining the patchwork system can be problematic.

BMC Log Master for DB2 provides quick, easy, and flexible auditing capabilities, whether you need a one-time audit or an ongoing compliance strategy. You can generate reports by selecting from a list of standard report formats with a choice of presentation by user, job name, or plan name.

REDUCE RISK OF UNPLANNED OUTAGES

BMC MainView for DB2 improves availability of critical databases and applications by automatically detecting exception conditions and providing corrective actions to fix problems before they cause outages. BMC MainView for DB2 watches over DB2 and reduces CPU usage. It:

- » Monitors DB2 to catch degradation, issue early warnings, and drive automation to correct exceptions, thus improving availability and reducing risk
- » Provides a single point of control for viewing and managing the most complex DB2 environments
- » Captures accounting information and statistics efficiently for reporting and trend analysis

IMPROVE PERFORMANCE

BMC solutions for DB2 enable you to improve application and system performance.

IMPROVE APPLICATION PERFORMANCE

Poorly performing applications degrade end-user response times and typically consume more computer resources than required, which could accelerate the need to acquire expensive hardware and software upgrades. The primary cause of inadequate DB2 application performance is poorly written SQL statements. It can be difficult to find which SQL statements are causing the problems, particularly when dynamic SQL and SQL provided by ERP applications are involved.

A performance problem can be caused by an SQL statement that uses an inefficient access path and runs thousands of times a day, or it can be caused by an SQL statement that runs once but takes a long time or excessive CPU.

Tuning SQL improves performance and can reduce peak MIPS. A general rule of thumb is that 80 percent of the benefits of tuning efforts can be achieved by analyzing and tuning the SQL statements in an application. However, it is not feasible to tune every SQL statement, and it can be challenging to find which statements are causing problems. BMC SQL Performance for DB2:

- » Solves application performance problems by quickly identifying the most expensive SQL statements and making tuning recommendations
- » Quickly and easily pinpoints resource-consuming SQL statements without executing an expensive DB2 SQL trace
- » Provides in-depth index optimization recommendations, including identification of unused indexes and “What-If Index” analysis across a workload (not just one SQL statement)
- » Identifies and recommends actions for exception conditions

BMC APPTUNE for DB2, a component of BMC SQL Performance for DB2, gathers and displays data from a single SQL statement or a set of SQL statements. Unlike other DB2 performance aids that rely on expensive DB2 SQL traces to gather data, BMC APPTUNE for DB2 collects all relevant performance measures in real time for every SQL statement (static or dynamic) executed in one or more DB2 subsystems. It summarizes the collected data and stores it for analysis.

The BMC APPTUNE Data Unload process and Data Collector workloads are zIIP eligible. This can reduce the general purpose MIPS required to capture BMC APPTUNE data and significantly reduces the cost of SQL tuning.

IMPROVE SYSTEM AND BUFFER POOL PERFORMANCE

DB2 for z/OS generally uses a large percentage of mainframe resources. A poorly tuned DB2 system affects overall response time and can ultimately lead to costly hardware upgrades. You need to keep system resources and buffer pools tuned to reduce DB2 costs and deliver optimal service levels.

BMC System Performance for DB2 monitors your DB2 systems to detect performance problems and correct them before they cause outages. It supplies critical data about DB2, including current thread activity, DB2 status and statistics, buffer pool status and statistics, and lockout events. With dynamic buffer pool tuning, BMC System Performance for DB2 adjusts pool sizes to optimize performance while considering overall storage usage and reduces the overhead associated with DB2 dynamic statement cache management. BMC System Performance for DB2:

- » Monitors DB2 performance, issues early warnings, and drives automation to correct exceptions, improving availability and reducing risk
- » Dynamically tunes buffer, EDM, sort, and RID pools in real-time to improve performance and reduce risk of outages caused by unpredictable workload fluctuations
- » Captures accounting and statistics for reporting and trend analysis
- » Provides direct access to accounting and statistics data via SQL through a DB2 performance management database
- » Enables you to manage all DB2 subsystems in the SYSPLEX from a single point of control
- » Keeps thread history online and provides tools for comprehensive thread data analysis

IMPROVE PRODUCTIVITY

As data volumes grow, DBAs are managing more data than ever before. Limited budgets and shrinking staffs force many IT organizations to “do more with less,” so it’s important to use tools that help each DBA be as productive as possible. BMC solutions for DB2 simplify the management of complex DB2 for z/OS environments.

SIMPLIFY ADMINISTRATIVE TASKS

Managing the DB2 catalog is an ongoing, daily activity. DBAs continuously look for and manage DB2 objects, execute DB2 commands, maintain user privileges, and generate utility JCL. BMC CATALOG MANAGER for DB2 simplifies DB2 catalog navigation and change management by providing an integrated table editor and audit logs. It automates tedious, error-prone tasks. With BMC CATALOG MANAGER for DB2, you don’t need extensive knowledge of the DB2 catalog table structure or the SQL that is required to query the DB2 catalog. BMC CATALOG MANAGER for DB2:

- » Simplifies DB2 catalog navigation and change management, offers multiple ways to find information in the catalog, and provides extensive catalog reports
- » Imports, edits, generates, tests, and analyzes SQL
- » Logs all DB2 catalog changes to provide an audit of DB2 catalog activity
- » Allows you to centrally create and save utility profiles to set IBM and BMC utility syntax at the site or user level

SIMPLIFY CHANGE MANAGEMENT

When you need to make mass changes, you must determine what needs to be changed and then execute many, often repetitive change management tasks. The CM/PILOT component of BMC CHANGE MANAGER for DB2 simplifies implementing repetitive change processes and enables you to prepare change management tasks, such as migrating changes from a test environment to a production environment on a weekly basis. CM/PILOT works as follows:

- » After you create or select a script, the user interface guides you to gather the specific information that is needed to accomplish the overall task.
- » The result is a CM/PILOT worklist that contains the appropriate and correctly sequenced BMC CHANGE MANAGER for DB2 processes.
- » An analysis worklist is generated from executing the CM/PILOT worklist. The actual changes to the data structures will only be made after the analysis worklist is executed.

It’s that easy. Instead of spending hours to determine what to change, you can get the job done in minutes, and you can be sure that the changes are made correctly and with integrity.

GET THE SUPPORT YOU NEED, WHEN YOU NEED IT

BMC Software is committed to providing the best software products and product support in the industry. This commitment results in superior new products and enhancements to existing products, and maintenance to meet your needs for performance and value.

BMC Software product support personnel provide fast, comprehensive answers. They are experts both in the BMC Software products they support and the environment these products enhance.

Because many BMC Software products are used on around-the-clock production systems, the product support staff is on call 24 hours a day, 7 days a week, 365 days a year.

BMC SOLUTIONS FOR DB2 ON Z/OS

The following solutions are available from BMC Software. For more information, visit www.bmc.com/db2.

BMC PERFORMANCE SOLUTIONS FOR DB2

BMC SQL Performance for DB2

- » **BMC APPTUNE for DB2**
- » **BMC SQL Explorer for DB2**

BMC System Performance for DB2

- » **BMC MainView for DB2**
- » **BMC Pool Advisor for DB2**
- » **BMC OPERTUNE for DB2**

BMC ADMINISTRATION SOLUTIONS FOR DB2

BMC Database Administration for DB2

- » **BMC CATALOG MANAGER for DB2**
- » **BMC CHANGE MANAGER for DB2**
- » **BMC COPY PLUS for DB2**
- » **BMC LOADPLUS for DB2**
- » **BMC UNLOAD PLUS for DB2**
- » **BMC SNAPSHOT UPGRADE FEATURE**

BMC Administrative Assistant for DB2

- » **BMC ALTER for DB2**
- » **BMC CATALOG MANAGER for DB2**

BMC Database Performance for DB2

- » **BMC DASD MANAGER PLUS**
- » **BMC REORG PLUS for DB2**

BMC RECOVERY SOLUTIONS FOR DB2

BMC Recovery Management for DB2

- » **BMC COPY PLUS for DB2**
- » **BMC Log Master for DB2**
- » **BMC RECOVERY MANAGER for DB2**
- » **BMC RECOVER PLUS for DB2**
- » **BMC SNAPSHOT UPGRADE FEATURE**
- » **BMC R+/CHANGE ACCUM**

Also available

- » **BMC APPLICATION RESTART CONTROL for DB2**
- » **BMC CHECK PLUS for DB2**
- » **BMC PACLOG for DB2**

**BUSINESS RUNS ON IT.
IT RUNS ON BMC SOFTWARE.**

Business thrives when IT runs smarter, faster and stronger. That's why the most demanding IT organizations in the world rely on BMC Software across distributed, mainframe, virtual, and cloud environments. Recognized as the leader in Business Service Management, BMC offers a comprehensive approach and unified platform that helps IT organizations cut cost, reduce risk and drive business profit. For the fiscal year that ended March 31, 2012, BMC revenue was approximately \$2.2 billion.

