



Managing IMS  
with BMC DELTA IMS

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## Managing IMS with BMC DELTA IMS

For many years, the BMC® DELTA IMS® products have evolved to meet customer needs. This white paper reviews how the development of the BMC Software® solutions continues to meet the constantly changing business needs of today's customers.

BMC provides a comprehensive line of Data Management products for IMS. The BMC DELTA IMS products allow organizations to define IMS system components, expand user access, and increase the size of the network without interrupting workflow and without a system generation.

### Early IMS Business Needs

During the 1980s, most IMS shops were busy developing new IMS applications. To deploy a new online application, each new program and database had to be defined to IMS through a process called a SYSGEN.

In a SYSGEN, IMS Stage1 macros were coded and assembled/link edited to define the new system definition. Cutting over a new SYSGEN required a shutdown of the IMS control region and a cold start, resulting in the loss of any messages that remained unprocessed or undelivered in the IMS message queues.

Many shops also employed the IMS Data Dictionary, an IBM application that was used to keep track of PSB and DBD definitions, segment layouts, and other metadata about their IMS systems. The capabilities of the IMS Data Dictionary had to be maintained in conjunction with the rapidly evolving features of IMS.

Great care had to be taken to ensure that any change to the IMS definition made online using IMS commands was reflected in the Stage1 deck and the Data Dictionary. Failure to perform this vital task could result in application outages the next time a SYSGEN was built and cut over.

Given this situation, many shops would perform an IMS SYSGEN on a monthly (or less frequent) basis to avoid loss of message data, to save the personnel and CPU from the intensive process, and to reduce the exposure to an invalid Data Dictionary definition or Stage1 deck. Application developers worried that projects would be adversely affected if they missed the monthly SYSGEN. It was common practice to define spare database, application, and transaction definitions to avoid this outcome. Unfortunately, there was a cost — each spare entry resulted in IMS control blocks that occupied system memory.

## BMC Develops BMC DELTA IMS

BMC developed BMC DELTA IMS to correct these deficiencies in the IMS system definition process. BMC DELTA IMS allowed DBAs and administrators to define BMC DELTA IMS worklists using a TSO/ISPF application. A DBA could extract the definition of an existing database, program, or transaction from the running IMS system, convert it to a BMC DELTA IMS worklist, and then update it as necessary. The resulting worklist could then be executed against an IMS system, resulting in the new system definitions being made available immediately. BMC DELTA IMS became a valuable tool for migrating system definitions from development through to production.

The need to perform IMS SYSGENs to update application definitions was eliminated. In cases where an IMS SYSGEN was required to perform other maintenance, BMC DELTA IMS could extract the running definitions of all databases, applications, and transactions for conversion into a new Stage1 deck that truly reflected the running IMS. This eliminated the need for a separate IMS Data Dictionary to track this information along with the risk associated with maintaining this information in two places.

### BMC develops BMC DELTA IMS VIRTUAL TERMINAL

In the mid-1980s, memory on the IBM mainframes was limited and very expensive. IMS systems had large terminal networks defined in the Stage1 deck. At any time, only a fraction of these terminals were connected to IMS. The remaining terminal control blocks occupied valuable memory that could be used by other mainframe processes.

Recognizing this wasted resource, BMC developed BMC DELTA IMS VIRTUAL TERMINAL. An IMS systems programmer could define a small number of model terminals in the Stage1 deck. A combination of VTAM attributes and table entries then would be used by BMC DELTA IMS VIRTUAL TERMINAL to create IMS terminal control blocks on demand, whenever a terminal attempted to access IMS.

Many IMS shops used BMC DELTA IMS VIRTUAL TERMINAL to stretch the available memory and avoid expensive CPU upgrades.

### IBM develops IMS online change

Recognizing a need to implement new database, application, and program definitions without an IMS outage, IBM developed MODBLKS Online Change as part of the base IMS product. IMS Online Change did allow system definitions to be updated without shutting down the IMS control region and without losing message queue information. However, it

did nothing to address potential problems due to an incorrect Stage1 deck or Data Dictionary definition being input to the SYSGEN process.

Additionally, IBM still required an IMS SYSGEN and cold start to implement updates to the IMS network definition. Because many shops could not tolerate loss of message queue data, IBM introduced the Message Requeuer product to save and restore message queue data.

IBM still did not have an equivalent feature to match BMC DELTA IMS VIRTUAL TERMINAL. IBM's IMS dynamic terminal definition feature (Extended Terminal Option – ETO) was still years away.

### **Maintaining agility during two decades of mergers: 1980-2000**

The 1980s and 1990s were a period of mergers and acquisitions. The airline industry is a good example. The business needs of the airlines dictated that they have globe-girdling networks, with IMS systems up 24x7 to service their aircraft maintenance needs. Margins were thin, so money for extra hardware and staff was scarce.

In this environment, shops with BMC DELTA IMS VIRTUAL TERMINAL were the agile, can-do operations during a merger. Using BMC DELTA IMS VIRTUAL TERMINAL, they could perform data center merge activities with greatly reduced outages and take on additional workload without hiring extra staff.

### **IBM introduces parallel sysplex**

One result of these business mergers was the evolution of large IMS shops that simply could not fit their IMS work onto one processor. To address this need, IBM introduced parallel sysplex, where the workload could be shared across several IMS systems running on multiple processors. The challenge was to keep the SYSGEN definitions synchronized across these multiple IMS systems.

### **BMC develops BMC DELTA PLUS**

BMC® DELTA PLUS (originally named BMC DELTA Plex) was designed as the parallel sysplex-enabled version of BMC DELTA IMS, permitting coordinated changes to be made to all IMS systems in the sysplex. While this feature is essential for shops running parallel sysplex, BMC DELTA PLUS brings far more functionality.

BMC DELTA PLUS provides view profiles that allow systems programmers to restrict what system definitions can be modified by internal customers or DBAs. Further, system programmers can define new fields for the customer to update to support custom processing.

BMC DELTA PLUS uses a new worklist file format that can be processed by user-written programs. Based upon IMSID, customer, or other criteria, system programmers can enforce business rules for application naming, transaction class, or other attributes before allowing the internal customer or DBA to execute their worklist against IMS.

Like BMC DELTA IMS, BMC DELTA PLUS can extract SYSGEN definitions to produce a Stage1 deck, but it also can extract running application group name (AGN) definitions. This feature should be particularly helpful for migration to IMS V9.1 and conversion from AGN to RACF.

BMC DELTA PLUS keeps a log of every change made to the IMS definition, with granularity down to individual parameters on each SYSGEN definition.

## **Business Drivers Today**

The BMC DELTA IMS products always have evolved to meet a business need. A few things have changed over the years. Here are the business drivers today:

- > **CPU and memory have become relatively inexpensive.** Compared to the 1980s, CPU and memory are plentiful and cheap. This is no longer a consideration.
- > **Skilled IMS DBAs and systems programmers have become scarce.** Unlike the 1980s when many colleges and vendors taught IMS, very few venues provide IMS education, or any mainframe education at all. At the same time, the skilled ranks that fashioned most IMS systems are rapidly retiring. They are taking their intimate knowledge of in-house-developed IMS change management systems with them. Faced with this skills crunch, companies can choose to do less, or they can select tools that allow their more compact teams to do far more, with greater agility and far more reliably.
- > **Some shops are retiring IMS.** Is your business retiring IMS? How long have you been doing that? This kind of change will place new demands upon your team as you create additional IMS control regions to support parallel testing and data migration. Will you be able to hire skilled IMS personnel to perform this extra work when you both know the work is short term? Can you hire them economically? How long is retiring IMS going to take?

- > **The ability to audit is essential.** The auditing troubles experienced by Enron have made a big impact. As a result, government regulations now force a great deal of change in the level of audit ability that must be supported. Many IMS DBAs are given extensive authority to update business data. If your auditors have not recognized this, they soon will. Will they be satisfied with a last-update timestamp/user ID on your Stage1 PDS members, which each could contain thousands of SYSGEN macros? Or will they be better served by a BMC DELTA IMS or BMC DELTA PLUS audit report, with granularity down to individual parameters on your SYSGEN definitions, along with who activated them and a precise activation timestamp?
- > **Mergers keep happening.** In the 1980s, it was airline mergers. Today, will it be manufacturing, retail, aerospace, banking, and possibly your industry. You may not see that merger coming until it is upon you and you must prove that your organization is the one best prepared to drive the data center merger. With tools such as BMC DELTA IMS or BMC DELTA PLUS, you can consolidate the business systems with minimal impact to the business.
- > **The Web drives 24x7 availability.** Out of business necessity, airlines ran IMS 24x7 in the 1980s. Today, any business that presents IMS data on the Web will be faced with a 24x7 IMS requirement. Will your current IMS software get you there? Evaluate the ISV tools on the market to see which ones will provide the most availability and reliability.

## Case Studies

A large outsourcing firm in North America noted these recent examples of how of BMC DELTA IMS helped their customers:

- > A customer with five IMS control regions recently converted to BMC EXTENDED TERMINAL ASSIST PLUS (ETA) and BMC DELTA PLUS. Using BMC DELTA PLUS with customer view profiles, the customer's legacy SYSGEN application was retired. DBAs now can perform their own SYSGEN-related changes at any time, with greater control, accountability, and audit-ability. A reduction of the equivalent of one full-time IMS systems programmer was realized during the conversion.
- > A typical IMS shop in 1985 running one production and two development IMS systems without BMC DELTA IMS required three IMS systems programmers to manage the SYSGEN activities. In 2006, using BMC DELTA PLUS and ETA, two IMS systems programmers manage five production and 19 development IMS systems.

## Conclusion

In the past, BMC DELTA IMS and BMC DELTA PLUS evolved to address business needs and provide many advantages to BMC customers. Taking into account the new business drivers that challenge us, and the ones that are still with us today, acquiring BMC DELTA IMS or BMC DELTA PLUS still makes good business sense.



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#### About BMC Software

BMC Software helps IT organizations drive greater business value through better management of technology. Our industry-leading Business Service Management solutions ensure that everything IT does is prioritized according to business impact, so IT can proactively address business requirements to lower costs, drive revenue, and mitigate risk. BMC solutions share BMC Atrium™ technologies to enable IT to manage across the complexity of diverse systems and processes — from mainframe to distributed, databases to applications, service to security. Founded in 1980, BMC Software has offices worldwide and fiscal 2005 revenues of more than \$1.46 billion. BMC Software. Activate your business with the power of IT. For more information, visit [www.bmc.com](http://www.bmc.com).

