Optimize the performance of mission-critical IBM Z applications while reducing the associated total cost of ownership of your IT environment

IBM Z Table Accelerator (IZTA) is an IBM mainframe real-time high performance in-memory table manager. As a mainframe optimization solution, IZTA is ideal for organizations that need to get every ounce of power from their mainframe systems to maximize performance and transaction throughput, while minimizing system resource usage at the application level. It allows for more powerful and efficient applications while lowering mainframe Total Cost of Ownership (TCO) and reducing operational spend. It can also help to increase the timeframe between upgrade capital expense.

In-Memory Table Manager
As an off-the-shelf solution, it is perfect for those organizations that have a need to focus their development efforts more on revenue-generating business activity, and less on supporting in-house developed table management utilities.

Db2 Accelerator
Overall Db2 database performance can be improved by optimization at the application level. Db2 applications with very high transaction processing rates can be optimized to use fewer resources (CPU and I/O) while improving application performance. Applied to several resource-intensive applications will dramatically improve overall Db2 performance.

VSAM and IMS Database Accelerator
Overall VSAM or IMS performance can be improved by optimization at the application level. Applications with very high transaction processing rates can be optimized to use fewer resources (CPU and I/O) while improving application performance. Applied to several resource intensive applications will dramatically improve overall VSAM or IMS performance

Batch Application Accelerator
Batch applications with very high transaction throughput rates can be optimized to use fewer resources (CPU and I/O) while improving application performance. Batch run times can be sharply reduced.
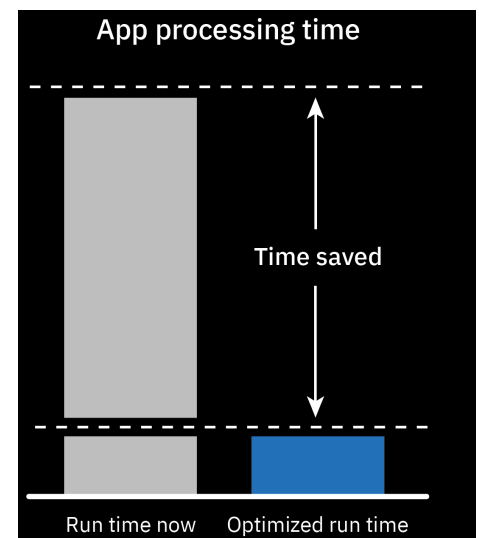
OLTP Accelerator
OLTP applications with very high transaction throughput rates can be optimized to use fewer resources (CPU and I/O) while improving application performance. The time needed to complete each transaction can be reduced significantly, dramatically improving the overall system performance.

Query Accelerator
Systems that run both long-run queries (like those used for analytics) and short-run queries (like those used in transaction processing) often need two solutions. IZTA is the ideal solution to improve access time for short-run queries.

Agile Market-Reactive Application Solution
Business rules are processed ultra-fast when they are embedded within rules processing applications. But updating rules requires application recompiles. IZTA applications can run almost as fast as embedded-rules applications, but with rules externalized they can be updated in hours or days rather than weeks or months.

App processing time

Time saved

Run time now   Optimized run time

Without IZTA   Figure 1

With IZTA

How IBM Z Table Accelerator (IZTA) Works

Generally, data access follows the 80 to 20 rule—80% of your data is accessed only 20% of the time, and 20% of your data is accessed 80% of the time. The 20% of your data that you are accessing 80% of the time is the reference data that you access many times for every business transaction.

This is typically where costs get eaten up and represents a significant opportunity to increase performance and decrease operating costs—considerably. You can use IBM IZTA to do just this. Copying some of the most often accessed data into IZTA high performance in-memory tables allows access to that data up to 100 times faster than is possible using other methods.

As shown in Figure 2, the data that is used most often during processing is accessed from IZTA high-performance in-memory tables, while the rest of the data is accessed from DASD using current techniques. In this way, applications can run much faster—and the difference can be astounding.
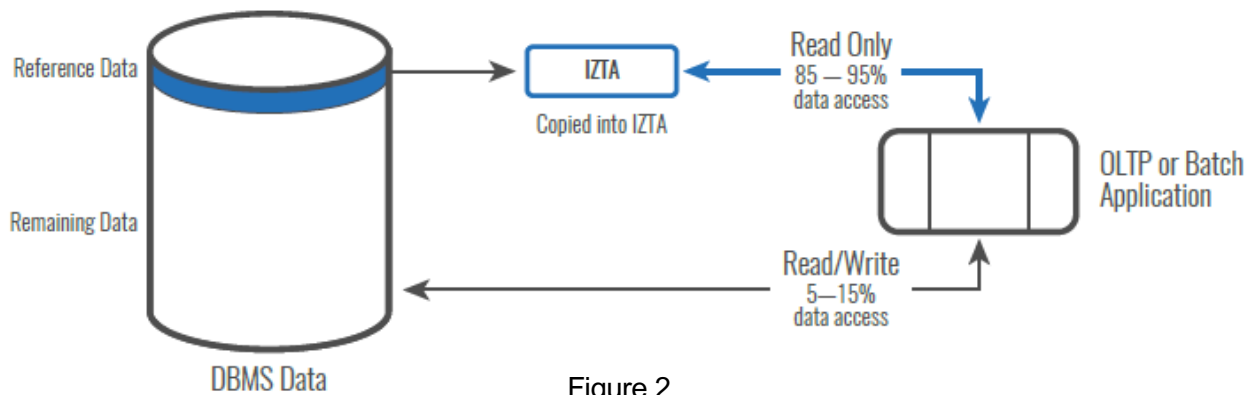
Figure 2

Also, as part of transaction processing, temporary files are often created for the purpose of sorting: using temporary in-memory tables instead can save CPU resource usage and processing time for every business transaction.

IZTA Code Path

IZTA high-performance in-memory tables are accessed using the shortest possible code path—as close as possible to the calling application. Accessing buffered data uses the same code path that is used for accessing data from disk; it reduces I/O, but still uses the same code path. Figure 3 (top) shows an approximation of the Db2 code path taken for accessing data on disk and from buffers.
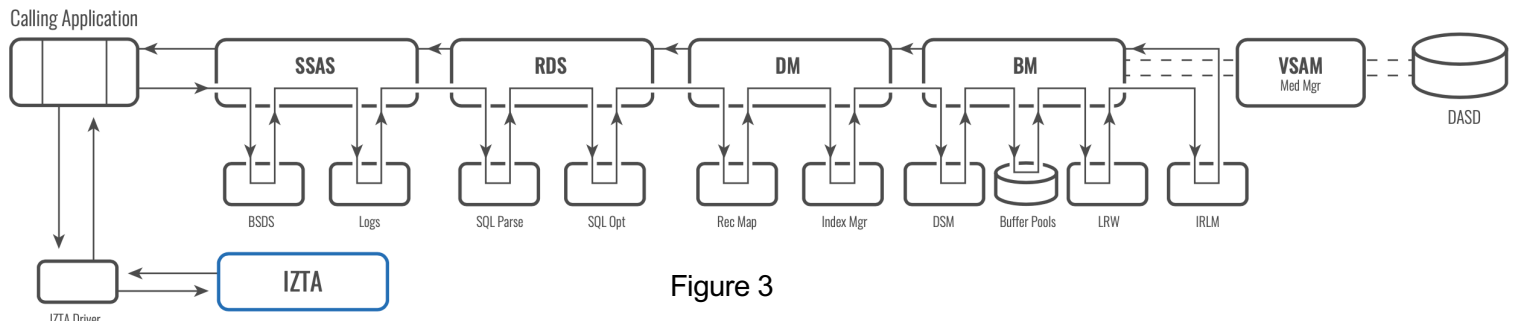

Figure 3

Figure 3 (bottom) shows the code path taken to access data from IZTA high-performance in-memory tables. This is why accessing just a small amount of often-accessed data using IZTA can make such a dramatic improvement to an application's processing speed.

VTS (Virtual Table Share)

VTS augments the IZTA core product by providing the capability to share table data. Using IZTA, every region loads tables into a local table space region. After augmenting the core product with VTS, all regions can access the same data from a single shared region. Applications do not need to load data into their local table space, and system resource usage is optimized.

CICS and IMS interfaces

Besides the default batch interface, there are two optional interfaces available. An IMS/TM interface provides compatibility for increased throughput IMS online applications, and a CICS interface provides compatibility for CPU-cycle and I/O-operation efficient CICS online applications.

IZTA features

Accessing IZTA

IZTA is accessed via its API—a single call, and can be used in batch, CICS, IMS and other operating environments. This allows organizations to retain and optimize existing applications. A swap of I/O calls for IZTA API calls will obtain up to a 100x improvement in application performance.

z/OS version compatibility

IZTA operates on all version levels of the z/OS operating system.

Db2 version compatibility

IZTA supports all version levels of Db2, and is designed to work in a Db2 stored procedure environment with multiple TCBs.

IMS version compatibility

IZTA/IMS supports all version levels of IMS. ISPF version compatibility. The optional IZTA/ISPF interface supports all version levels of ISPF.

Sysplex support

IZTA is fully capable of running in a Sysplex environment. Read-Only tables are fully supported across LPARs—updates to Read-Only tables are managed using Linear Data Set mappings. Read/Write tables can be managed using Db2 stored procedures. Datasets are fully supported across all MVS images in a GRS configuration.

CICSPLEX support

IZTA is CICSPLEX compliant, but applications using IZTA may require transaction affinities. This limitation can be eliminated by using the optional IZTA VTS interface—this provides support for multiple regions accessing a shared Read/Write table. A transaction running in any region can create, update and access any table in a common shared region.

64-bit support

IZTA is a 31-bit application; it does not use virtual storage above the 2G bar. z/OS fully supports 31-bit applications.
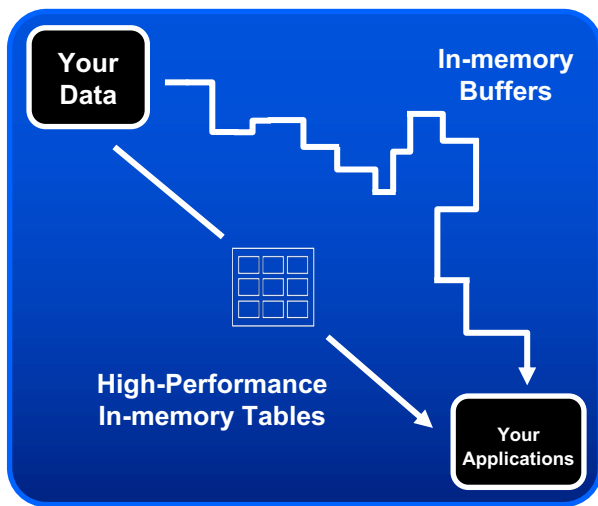
Figure 4

Other Features

IBM Z Table Accelerator (IZTA) uses the shortest possible code path to execute your application's table calls as shown in Figure 4. It is a robust and mature in-memory table manager that has features that your Data Base Management System (DBMS) does not have, including:

• In-memory table management that complements DBMS
• Date sensitive processing
• Indirect table access
• Flexible high-performance indexing
• Version control (up to 9 table generations)
• Multitasking – IZTA is fully re-entrant
• In-memory repository for reference data
• Ideal holding area for temporary data
• Automatic table load and unload
• Multiple high-performance search methods
• Dynamic run-time table expansion
• Dynamic table reorganization
• Dynamic index creation and modification
• Dynamic run-time alternate views
• TSO/ISPF, CICS TS, IMS TM, Db2 SPAS compatibility •
C, C++, COBOL, PL/1, Assembler, Fortran accessibility •
Data access 1000x faster than I/O
• Data access 10x faster than DBMS buffer pooling
• Compatible with Db2, VSAM, BDAM, QSAM
• Compatible with MVS, IMS
• RACF compatibility

Learn more:
www.ibm.biz/IZTAinfo
www.ibm.biz/IZTAAnnounce