



# The Mainstream

An article from the IBM @server zSeries software newsletter

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## IBM DB2 for z/OS Version 8 – One giant leap for database-kind

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“Why do you rob banks?” a reporter once asked Willie Sutton, the famous bank robber. He looked at the reporter quizzically and replied, “Because that’s where the money is.”

A similar question can be posted to many IBM® zSeries® mainframe-based IT organizations. Why run IBM DB2® on a zSeries server? The standard answer has been, frankly, because that’s where all your data is. And for good reason: Renowned for its reliability, scalability, availability and other industrial-strength attributes, the zSeries has been the backbone of data-heavy IT organizations for decades.

Starting today, though, there’s an even more compelling response. It’s the introduction of IBM DB2 for z/OS® Version 8, a supercharged database management application that’s designed specifically to optimize the power of z/OS on zSeries for today’s on demand computing requirements.

### Worthy of the hype

It’s no exaggeration to call Version 8 one of the most important product releases in the history of DB2, IBM’s flagship relational database management system.

Nearly three years in the making, DB2 V8 is among the largest DB2 releases ever. Its significance goes well beyond size, however. Data has always been the lifeblood of your organization. But in the past decade, the IT industry has seen major technology and paradigm shifts. Client/server technology, enterprise resource planning (ERP) applications and, most importantly, the advent of the Internet and e-business have caused major modifications in how businesses design, develop, test and deploy their applications.

In addition, new IT infrastructures span more sophisticated, often multiplatform networking



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architectures, which access and consolidate data from a wide variety of sources. And application standards such as Java™ J2EE™ and Microsoft.NET™ have further changed the rules of engagement for how applications are built and deployed.

DB2 V8 is designed to stay apace with these and future developments. Building on the solid foundation of Version 7, it has been extensively enhanced and re-architected to address the critical challenges faced by demanding enterprises in an increasingly on demand world.

### **Unprecedented 64-bit support**

Perhaps the biggest DB2 V8 news is that it's the first-ever middleware product designed to exploit the breakthrough performance of IBM's 64-bit zSeries machines.

Breaking the bonds of 31-bit computing enables your business to drive greater workloads through your system. The move to a 64-bit environment yields significant DB2 performance enhancements, many of which require little or no application changes. These enhancements, in turn, enable your system to cache much more data and scale much higher than before, reducing overhead and making more efficient use of limited machine resources.

These enhancements also drive down total cost of ownership for DB2 applications, making each transaction more cost-effective to execute and allowing greater workloads to be handled by your zSeries server.

### **How 64-bit translates to scalability**

Say "64-bit support" and what you're really talking about is a giant leap in your database's scalability. Erasing traditional virtual storage barriers, DB2 V8 eliminates the need for yesterday's workarounds such as buffer pools, hiperpools and EDM pools in dataspaces.

Expanded storage lays the foundation for system growth as your needs dictate in the years ahead. Whether you're developing online transaction processing (OLTP) and batch applications, or mining data warehouses and data marts, you can leverage your organization's existing IT skills and investments in DB2.



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Other benefits of Version 8's 64-bit support include:

*Developing more efficiently.* V8 offers major partitioning enhancements to your DB2 database architects, who can now develop up to 4,096 partitions (up from 254), and create efficient designs that support higher transaction loads per given amount of machine resource.

*Handling larger workloads.* V8 allows much more recovery log data to be held both online and offline, allowing your system to handle larger workloads while maintaining the recoverability of data.

### **More data availability means less downtime**

DB2 V8 includes major advances to improve data availability, reducing your downtime and enabling your 24X7 on demand applications to stay active longer. Through dynamic schema change capabilities, you can change the configurations of DB2 objects online, without having to shut down your system or “drop” and re-create each object. That allows you to implement changes more frequently—and react more quickly to changing market conditions or unexpected performance issues.

For example, your database administrator (DBA) may be asked to change some characteristics of your database—a numeric data type, integer, floating decimal, etc. In a 24X7 environment, however, that change may need to be made without bringing the system down and interrupting business. DB2 V8 allows you to meet both of these objectives.

V8's improved data availability provides a host of other benefits as well. It enables you to:

*Improve DBA productivity* and reduce the risks associated with change, due to a much simpler change process.

*Better organize data.* A new partitioning model allows true partition independence for the first time, allowing administrators to keep their data better organized—and potentially improve application performance.



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*Back up data faster.* V8's new system-wide backup and recovery capabilities can reduce the time that your DB2 data is unavailable during system backups or workflow interruptions.

*Raise DBA productivity.* The increased automation and intelligence built into V8 allows skilled DB2 administrators and developers to spend less time performing routine, lower-level tasks—and more time adding value to the organization by producing better-written, more efficient applications.

### **“U” stands for universal support**

Supporting multiple application architectures is central to IBM's database strategy. And many of DB2 V8's enhancements aim to improve application support and code transportability.

First off, V8 enables your DBAs to develop applications in Java or XML. They can get to data securely, whether in Java, XML or other language. That gives your organization a growth path to develop multiple applications and run them concurrently, with no performance bottlenecks.

To further achieve the goal of making the “U” in Universal Database (UDB) even more universal, a new DB2 Universal Driver is built into V8. It provides a single driver on all platforms, eliminating the code changes that would otherwise be required when porting applications to the zSeries platform.

Adding still more consistency across DB2 platforms, V8 provides enhanced support for porting applications from Oracle and other non-IBM database products to DB2. SQL enhancements reduce the effort, complexity, risk and cost of porting database definitions and application code to V8. That makes it an attractive platform for vendor application porting, infrastructure consolidation projects, and development on Windows®, Unix® or Linux™ platforms.

At the same time, V8 also enhances performance with dynamic SQL- and Java-based applications. (In fact, a new Java function in the Universal Driver provides valuable productivity and performance enhancements, reinforcing Java's position as a key zSeries programming language.) It supports many other standards and industry conventions as well, including XML, J2EE, JDBC, SQLJ, ODBC, DRDA, Web Services, .NET and Unicode.



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### **What else the “U” stands for**

Actually, the “U” in UDB could also stand for Unicode support. In addition to its support for EBCDIC and ASCII, one of the most significant Version 8 enhancements is its expanded support of Unicode—the encoding scheme required by many application software providers, including SAP, PeopleSoft and Seibel. Unicode provides a standard cross-platform, cross-vendor method of encoding data. And with V8, it has become a central part of DB2 processing.

Building upon DB2 V7’s initial Unicode support, V8 removes many of the restrictions that once limited Unicode’s considerable benefits in multinational applications. Today, multinational companies can confidently develop DB2 applications for easy, hassle-free global deployment.

### **Data on an as-needed basis**

Security is a critical area of your enterprise...and a critical area of DB2 enhancement. V8 provides multi-level data security, via a new feature called “row-level granularity.” Essentially, the term means that you can authorize certain users to view only certain rows of data within a table or database.

This feature, exclusive to DB2 V8, is a security boon for banking, insurance and pharmaceutical firms, as well as any organization where data security is a priority.

### **Total cost of ownership**

Adding to the total cost of ownership benefits of DB2 V8 are two key features: the Type 4 driver and the zAAP processor.

The Type 4 driver, a no-charge feature of DB2 V8, enables you to interconnect multiple DB2 databases on your zSeries server without incurring the expense of a second license for Java application development. You can develop applications natively on the platform without paying for a second DB2 license—a real money saver.



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zAAP, or zSeries Application Assist Processor, is a zSeries engine designed exclusively for developing Java applications. Not only does it eliminate one of the extra costs of a DB2 license, but it also provides heightened performance throughput on your zSeries server.

### Migrating to DB2 V8

Given the scope and breadth of DB2 V8, it's logical to ask the question: What kinds of organizations are the best candidates for migrating to this powerful new database application?

IT departments implementing WebSphere are certainly prime candidates. V8's optimizer performance, SQL driver and availability enhancements all have the potential to provide huge benefits.

Some shops may have large distributed DB2 workloads that support a variety of Web-enabled and other application types. For them, V8's Unicode support and optimizer enhancements can be a big advantage. Plus, other enhancements support the stringent uptime standards and availability needs of Web-based applications.

IT organizations with SAP or PeopleSoft may also want to move to V8 quickly. Its optimizer and SQL enhancements can boost the performance and ease the migration of ERP applications from other database management systems to DB2. Also, the 64-bit performance gained from V8 can simplify implementation of large virtual pools while eliminating the need for mechanisms such as dataspace.

One more significant advantage for ERP applications is V8's enhanced availability. Since ERP applications are implemented with thousands of objects, it can be difficult to take an application off line to make changes to the underlying objects. V8 eliminates this nuisance.

On the topic of quick changes, any shop that has already hit architectural limits in DB2 workload size or scalability—and is perhaps using virtual storage workarounds to compensate—is definitely ready for DB2 V8.



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### There's no time like now

Ultimately, your IT organization must consider its own unique circumstances to determine the optimal method to migrate to DB2 V8. Are the hardware and software prerequisites met? How much time and expense will be required? What are the potential benefits to be realized?

Considering the size, complexity, performance considerations and pre-requisites of IBM DB2 Version 8, it certainly is not too early to begin planning for the on demand generation of database management.

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