IBM® Information Management software

# DB2 9: Optimized pureXML data server to meet the demands of SOA solutions.

Innovation is easy enough to recognize. And so are its rewards, which can include everything from increased revenues to expanded market reach. But while it might be easy to recognize innovation, it's not always that simple to achieve it—especially when you're simultaneously charged with keeping costs in check. Companies that successfully tackle both goals know that it takes flexibility. Highly available information. Streamlined business processes. In short, it takes a new approach—one that moves beyond the traditional model of inflexible business processes that can make even minor initiatives seem cost prohibitive.

An increasing number of organizations are transforming their systems into smaller, more accessible and reusable components by adopting a service-oriented architecture (SOA). A SOA enables firms to create building blocks—or services—for their IT assets, thereby promoting greater code reuse and a more adaptable infrastructure that can address changing business priorities. In contrast to a rip-and-replace approach, SOA is designed to make maximum use of new and existing IT assets to help you quickly respond to innovative new opportunities.

At the core of any SOA implementation is the need for a robust information infrastructure that enables information to flow freely across and beyond your organization—without being tied down by proprietary systems, formats or technologies. Where information can be easily accessed by people, applications and business processes.

DB2® 9 (formerly codenamed Viper) data server represents the next evolution in information management—combining the high performance and ease of use that relational databases offer with the flexible, self-describing benefits that XML offers. Innovative in its own right, DB2 9 enables you to transform captive data of all types into openly available information that's ready on demand.
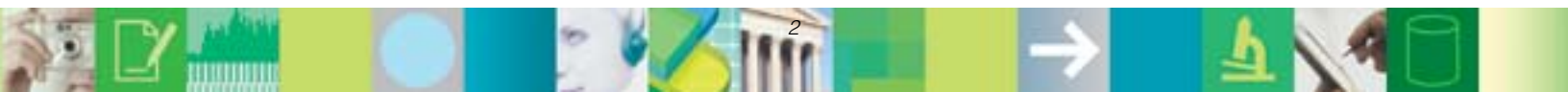
A flexible environment for next-generation services

SOAs are often built using Web services, a platform-independent collection of protocols and standards like eXtensible Markup Language (XML), which allows different applications or systems to exchange information. Using independent Web services written to specifications such as the Web Services Description Language (WSDL) eliminates the need for each application to develop its own access method—and helps reduce development costs and facilitate application integration along the way. In fact, analysts estimate that companies can save up to $53 billion in IT spending over the next five years by adopting a SOA approach[1].

Over the past few years, widely used application development languages such as Java 2 Platform, Enterprise Edition (J2EE™) technology, .NET and PHP have evolved to meet the challenge of SOA environments. These enhancements include comprehensive support for XML, which is becoming an increasingly important part of a SOA through its ability to deliver information as a service. In a stock trade transaction, for example, a customer might purchase a certain amount of shares through a Web interface. To perform the transaction, an XML message is sent to the brokerage system. By delivering this information as a service, XML enables the flexibility of connecting information where it's needed, when it's needed.

Whether it's in an XML format or resides in a traditional relational database management system (RDBMS), you want to store, manage and protect all of your data with the same high levels of availability, performance and accessibility. So when someone needs to make a decision, the right information is available in the right context—within minutes, not months.

Now, with the release of DB2 9, IBM is leading the way to an innovative new era in information management for SOA environments and unprecedented opportunities to extract value from business information. DB2 9 is designed to optimize the way you manage data, giving you more accessibility and insight, with less duplication and complexity.

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The best of both worlds

As the first hybrid data server for the industry, DB2 9 incorporates proven relational capabilities with first-class support for storing, searching, sharing, validating and managing XML data. The result is a high-performance, scalable platform that enables you to seamlessly manage both conventional relational data and pureXML™ data without requiring the XML data to be reformatted or placed into a large object within the database.

This breakthrough technology can help you increase the availability, speed and versatility of your information, while dramatically reducing administrative costs associated with existing data management techniques. With industry-standard application interfaces to connect to widely used platforms like Java™, .NET and PHP, DB2 9 can provide real-time, integrated access to business information.

Through the ability to transform data—from transactional systems, data warehouses, XML and other sources—into information that can then be made available as a service, DB2 9 can help you unlock hidden strengths within your organization and position you to respond quickly to dynamic conditions.

Make the most of existing skills

Participating in a SOA shouldn't require you to abandon significant investments in time and resources. Though DB2 9 represents new, sophisticated XML technology, it doesn't mean you have to hire XML-savvy developers. Nor do your XML experts need a deep-level understanding of relational data-bases to utilize the relational data functionality within DB2 9.

The flexible pureXML technology in DB2 9 supports both XQuery—a powerful industry-standard language designed to process XML data—as well as standard Structured Query Language (SQL), the language used for accessing and manipulating conventional relational databases. Developers can use the languages they're already familiar with to retrieve data from either or both XML and relational storage formats. As a result, you can utilize your IT staff's existing database skills to manage and safeguard your data.

Maximize business continuity

While a SOA offers unprecedented opportunities to participate in next-generation transactions, much of your success will hinge on one thing: the availability of your information. If someone requests information, how confident are you that it will be available to the right people at the right time? To fully reap the advantages of a service-oriented environment, you need to make sure data is available when and where it's needed despite threats posed by disaster, outages or human error. And if an error or disaster should occur, you need to make sure you have the tools to easily recover data before extended downtime can jeopardize your bottom line and company integrity.

Online backup and database recovery features within DB2 9 can help save significant time and resources by enabling you to quickly:

- *Restore.* Get your data back online quickly through the ability to automatically generate scripts from existing backup images to redirect restore operations.
- *Restart.* Save time and resources when they're needed most through the ability to start and stop recovery operations.
- *Rebuild.* Give yourself a much-needed head start on recovery through the ability to rebuild databases from table space backup images.
- *Recover.* Even in worst-case scenarios like partial and complete site failures, the High Availability Disaster Recovery (HADR) functionality included with DB2 9 can help you get back on track fast.

DB2 9 also gives administrators improved control over database security through fine-grained, label-based security and a new security administrator authority level. These features provide greater control over access to information assets and improved reporting capabilities for monitoring access to sensitive data.

"Our development time using DB2 Viper database as our pureXML store is a radical improvement over existing XML shred technology. We are now able to make schema changes in minutes rather than days and will be able to dramatically improve our customer response time. In combination with our service oriented architecture, DB2 Viper can help us achieve, with far greater ease, our goal of using information on demand to readily respond to market changes and customer demand."

– Thore Thomassen,
Senior Enterprise Architect, Storebrand

A flexible infrastructure to support your growth initiatives

A streamlined information infrastructure can help you find opportunities to minimize the complexity accompanying business growth. Ideally, your infrastructure should give you the leeway to instantly respond to business opportunities without putting additional strains on your staff or budget.

A major innovation in improving data management, DB2 9 is the first data server to simultaneously support all three common methods of database partitioning—range (table) partitioning, multi-dimensional clustering and hashing— to help ensure you can meet growing data and user volumes. You can use one, two or a combination of all three to get the most value across your entire infrastructure.

Along with support for all three types of partitioning, DB2 9 addresses the continued strains on your available storage resources through powerful new data compression features. Data row compression within DB2 9 is based on methodology that maps repeating data patterns within a data row to symbols of a smaller size. Ultimately, data row compression can help you reduce the size of the table data, easing the strain on your storage resources. The end result: Less of your budget spent on storage and the potential to significantly increase performance.

DB2 9 offers support for all three common types of partitioning, enabling you to:

- Arrange and order information in the way that's best suited to your individual business requirements and demands.

- Create larger systems with fewer resources.

- Simplify the management of large database systems.

- Drive data across multiple machines.

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Summary

By transforming applications, information and other IT assets into services, SOA reconnects technology to business outcomes, accelerates the deployment of new business applications and lowers costs by meeting new needs with existing resources. To get the maximum advantage from your SOA environment, you need to ensure information—in whatever form it takes—is readily available to the processes, people and applications who need it.

IBM helped pioneer Web services and the open standards that drive SOAs—ushering in new levels of flexibility to help you meet the relentless demands for innovation. Now, DB2 9 enables you to embrace the emerging types of data SOAs rely on without sacrificing the reliability, performance and security of traditional data formats. Manage, share and secure your XML data using a proven database management system backed by the world's leading IT vendor.

With the release of DB2 9 data server, IBM provides breakthrough XML support, including the ability to:

- Leverage backup and recovery features to ensure continuity.

- Search documents quickly and efficiently using proven indexing technologies.

- Increase productivity through the ability to access both relational and XML data within a single request.

- Preserve the integrity of your XML documents and maintain digital signatures to help ease the time and costs associated with auditing requirements.

- Reduce costs by utilizing existing IT skills.

- Minimize expenses by eliminating the need to install and maintain separate database environments for relational data and XML data.

- Leverage enterprise service bus (ESB) and enterprise information integration (EII) strategies to help create a seamless flow of information and transactions.

For more information

For more information about DB2 9 and how it can help you solve real business problems faster at a lower cost, contact your local IBM Business Partner or visit: **ibm.com**/db2/viper

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