**Data Management Solutions**
November 2001

# IBM Informix XPS Version 8.32

### When industrial-strength isn't strong enough

IBM Informix® XPS (Extended Parallel Server™), Version 8.32, is a high-end database server that provides customers with scalable data warehousing for business-critical applications. IBM Informix XPS enables fast data loading and comprehensive data management to support some of the world's largest and most heavily utilized business intelligence environments.

Designed for a broad range of enterprises, IBM Informix XPS offers extensive performance-enhancing technologies that breeze through complex, query-intensive analytical applications to help you make informed, proactive and timely business decisions. IBM Informix XPS is an ideal solution for customers that require:

- Reliable Internet data manipulation
- Fast ad-hoc queries from their data warehouse
- Rapid concurrent data loading and query execution
- Easy and simple expansion of capacity as data needs grow
- Flexible control over user sessions and resource usage.

### No-limits scalability

For linear scalability of data capacity and processing speed, start with a small system and easily add nodes as your data requirements grow. IBM Informix XPS enables you to achieve fully parallel query processing for fast and efficient performance without having to worry about:

- Ceilings on the database size
- Limits on the database design
- Bottlenecks in the architecture
- Limits on the number of users.

#### Fast-everywhere performance

Load and modify data and get query results fast with:

- Superior ad-hoc query performance
- Ultra-fast parallel loader
- Parallel transaction support.

#### Advanced data warehousing capabilities

Create and deploy a high-performance data warehouse with:

- A smart optimizer that automatically designs the best plan for each query—no hints or directives are required
- Fully parallel query plans for large queries
- Specialized query plans for complex queries
- Serial query plans for small queries.

#### Simplified management

Database administrators (DBAs) will be delighted with the simplified database server management capabilities in IBM Informix XPS, Version 8.32. Built-in management features provided with the database server enable DBAs to use:

- IBM Informix Server Administrator to manage the server from any computer with a Web browser
- Default and user-defined co-server and storage space groups to simplify table management
- Custom I-Spy rules to manage individual queries
- New session-management features to help control resource use.

### Full range of dynamic features

IBM Informix XPS provides the following data warehousing features to enable specialized fragmentation schemes for tables, fast data loading and unloading, and expandable database servers for more data processing and storage capacity:

- **Rapid, efficient, fully parallel query processing**—The IBM Informix XPS database server makes full use of all available hardware resources to deliver mainframe-caliber scalability, manageability and performance while requiring minimal operating-system overhead. The smart IBM Informix XPS optimizer determines the best query plan and can combine several methods of joining tables in a single query plan for the most efficient use of memory and processing power.
- **Fast, easy expandability**—The dynamic co-server management feature lets you add nodes to your system to expand database server capacity, either temporarily or permanently. When end-of-month processing causes a temporary system overload, one or more specific-purpose co-servers can distribute the processing load to enable parallel processing tasks to be accomplished while normal operations continue. When data requirements push the limits of your current database capacity, it is easy to add permanent co-servers to the database server to contain the additional tables or table fragments.
- **Flexible database design**—IBM Informix XPS provides table fragmentation methods that are appropriate for normal or denormalized relational database schema. Choose the database schema that best fits your data and queries. Then determine the fragmentation method to distribute data across co-servers for optimum performance on specific queries.
- **Rapid data loading and unloading**—The IBM Informix XPS parallel data loader quickly adds new data for immediate use, checking constraints as it loads. The parallel loader is also a parallel unloader that enables quick downloads of data from your data warehouse to data marts or other special-purpose data stores.
- **Ease of management**—With IBM Informix Server Administrator, you can manage your IBM Informix XPS database from any computer that has a Web browser.

### Maximize your control over sessions

With multiple users accessing increasingly large and diverse data with a variety of tools, many performing actions that you cannot manage, you need to be able to control the use of the database. To help you do this, IBM Informix XPS, Version 8.32, offers the following new features:

- User control allows you to provide for all users with the appropriate environment for their tasks. You can control resource usage for each user through the following new options in the SET ENVIRONMENT SQL statement:
  - Ration compute power. Allow parallel processing across co-servers, but restrict parallelism within each co-server to facilitate serial query plans and allow more queries to run at the same time.
  - Ration TEMP space. Prevent one or two queries from monopolizing TEMP space for query overflow and causing other queries to abort.
  - Allocate memory efficiently. Avoid the guesswork that leads to over allocation of memory for queries by letting the optimizer use accumulated statistics about data distributions to decide how much memory each query really needs.
  - Create startup SPL routines containing any allowable and appropriate SPL or SQL statements that set the user environment when the database is opened.
  - Change user settings dynamically with new onmode commands.
  - Audit user activity.
  - Audit database server events to maintain a record of user actions on the database server.

- Query control with I-Spy collects information about the way users access data and utilize database resources, allowing you to analyze usage patterns to improve performance. In addition, you can rewrite queries, prevent certain queries from running and otherwise manage user access to the database.
- Built-in performance improvements eliminate the need to manipulate environment variables and tweak queries to get the query plan you want. The database server can:
  - Determine the amount of memory each query requires and allocate that memory without user instructions
  - Appropriately distribute memory among query operators
  - Include left-deep and right-deep joins in the same query plan (zigzag plans)
  - Create serial plans for queries that use the compute-power limits if all data is on a single co-server.
- Duplicate small tables on all co-servers to improve the performance of business intelligence and online transaction processing (OLTP)-like query responses.
- Distributed transactions on an IBM Informix XPS database server can participate as a resource manager (RM) in a distributed transaction system as specified by the X/Open® XA standard. All programs that need to participate as an application or a transaction manager (TM) in a distributed transaction must link with the XA-compatible client library. Applications that use the X/Open interface to define transaction boundaries and other transaction functions can participate in distributed transactions that use an IBM Informix XPS database server as an RM. A TM that also uses the X/Open interface, such as IBM WebSphere® Application Server, can multiplex several user connections onto a single database connection for more efficient use of memory.

- External backup and restore is a new feature intended for customers whose storage vendor systems allow for hardware mirroring. Should the storage vendor's product allow for splitting the mirror and rejoining at a later time, the customer may use the mirrored copy to backup the database quickly with virtually no downtime using the EBR feature supported in this release.
- IBM Informix MaxConnect™ is a new IBM feature that will provide support for tens of thousands of client connections while reducing the CPU utilization of the database server, thereby improving end-user response time and enabling the customer to get the most value from available hardware.

### Summary

IBM Informix XPS, Version 8.32, enables you to manage increasingly commom mixed-workload demands, where queries vary in size and complexity. IBM Informix XPS provides features that enable flexible and effective management of all types of user sessions, tailored for users' queries. As your needs increase, IBM Informix XPS lets you expand your system easily. IBM Informix XPS, Version 8.32, also adds value through distributed transaction functionality, duplicated tables and event auditing.

### For more information

Please contact your IBM marketing representative or an IBM Business Partner, or call 1-800 IBM CALL within the U.S. Also, visit our Web site at **ibm.com**/software/data/informix



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