INSIGHT

Base One: Advances in Grid Computing Technologies for Database-Centric Applications

Earl Joseph, Ph.D.   John Humphreys

Addison Snell   Christopher G. Willard, Ph.D.

IDC OPINION

In IDC's Insight on Base One (see *Base One: Grid Computing for Database-Centric Applications,* IDC #31942, September 2004), we identified the company as a player in the emerging database-centric grid computing landscape, a market that IDC believes will have strong growth potential through 2008. Base One has extended its offering to include secure data-transfer tools through its High-Performance Information Sharing (HPIS) facility. Data-centric grid capabilities will be of increasing importance in such market areas as:

☑ Commercial data interchange

☑ Scientific collaboration, for accessing scientific databases available from sites around the world (e.g., genomic database)

☑ National security, for accessing data from multiple sources on an as-needed basis

IN THIS INSIGHT

This IDC Insight provides a brief review of Base One's announcement on HPIS for grid computing. It also provides an analysis of data-centric grid market opportunities and grid market segments where this technology could play.

SITUATION OVERVIEW

Base One and High-Performance Information Sharing for Cluster and Grid Computing

Base One's Product Strategy

Base One was one of the first software companies to develop and sell database-oriented tools for building peer-to-peer applications. The company's distributed processing technology takes advantage of the PC's local, client-side capabilities. This allows the storage capacity and processing power of client computers to be brought to bear on tasks that previously had to be carried out on expensive servers and

mainframes. Base One is focused on supporting data-intensive grid applications, as opposed to resource management or computational uses of grid technology. It is positioning this technology to address both technical and commercial markets.

Base One's solution is designed to support the sharing of information in a high-transaction environment without affecting the customer's base production environment. Current product implementations support four major databases: SQL Server, Oracle, DB2, and Sybase.

High-Performance Information Sharing

HPIS facility is an extension to Base One's grid middleware and programming toolkit. This facility addresses the security and implementation requirements for sharing data within large enterprises and between independent organizations.

HPIS supports the secure querying and sharing of data across different data structures and/or database environments. Database-independent metadata (including validation rules, indices, and referential constraints) can be used to reconstruct the database structure and execute data validation rules on the target system. HPIS is file based and supports the importing and exporting of nontext objects (images, sounds, documents, video clips, etc.).

HPIS enables information exchange with J2EE, legacy, and handheld database applications through XML and Web services. This, in turn, enables communication between disparate, independently managed application systems, each having its own production database(s) to protect.

Record Set Files

The Base One database library implements a file conversion/transfer mechanism called Record Set Files. These flat files contain human- and machine-readable information, formatted as plain text or XML files, describing the fields and structure of the file (i.e., metadata). This information is used by the HPIS system to support the storage and retrieval of sequences of records or result set rows between hardware systems and between various database and file system structures. Reading and writing of records in these files is carried out through the common database interface, simplifying interactions and error handling.

HPIS ties Record Set Files directly into the grid computing, data dictionary, and security system of Base One's database library. This technology provides a basis for secure, large-scale, distributed storage and data-sharing networks of disparate database platforms. Record Set Files thus provide a vehicle for the multiorganization information sharing and exchange that is at the heart of data grids.

FUTURE OUTLOOK

The technical computing market exhibited very strong growth in 2004, with a 30% increase over 2003. The resurgence of this market should provide opportunities for expansion of grid technology within technical markets. The technical server market now represents $7.25 billion in yearly sales revenue.

IDC surveys show that an increasing number of sites are implementing various types of grids in their computing environments. The need to share information among different systems within and between organizations provides a significant opportunity for grid-based products. On the technical side, data grids can support information sharing both within and between organizations, in such areas as accessing the latest information from genomic databases, coordinating product design plans among engineering groups, and supporting onsite seismic survey teams in the petroleum industry. In addition, government agencies can use this type of function to query and exchange information for threat monitoring and assessment or establish cross-organizational inventories and parts-replacement capabilities. On the commercial side, data grid technology supports functions such as data interchange between suppliers and customers, inventory, and quick merging of information after an acquisition.

Types of Grids

There are many ways to look at the grid market today. One approach is to divide the market into three types of grids, based on end use:

☑ **Compute grids** are hardware oriented and often user built; they focus on providing computational power to problems.

☑ **Optimization grids** focus on cost efficiencies. Optimization opportunities are balanced among hardware, software, and services. End users will pay for increased IT productivity.

☑ **Data grids** focus on the quest for perfect and complete information. They resemble a combination of compute and optimization grids.

Strong data-centric software solutions are needed to make each of these grid types productive, especially in the data and optimization grid segments. Base One, with its database-centric grid computing solution, is well positioned to address the requirements in these segments as customers continue to expand their capabilities in these grid types.

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