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IBM's strategy: a four-pronged approach - IBM maintains four DB engines - database - column

George Schussel

IBM's strategy: A four-pronged approach

While IBM wants a strong, independent software product community, it would prefer that that community not offer alternative database management system (DBMS) products. IBM would like to be your (only) supplier for DBMS software.

This goal is already a fact of life on the AS/400. Although on the PS/2 platform the data manager (OS/2 Extended Edition) is separately priced, IBM's marketing goal is pretty clear from the name.

In the 370 line IBM has been careful to not talk about a bundling of DB2. However, it is likely that as the next generation hardware series is delivered and IBM's architecture develops over the 1990s that DB2 will evolve into a common subsystem with MVS, ultimately to be installed by most customers using large IBM mainframes.

This does not necessarily mean that the market for alternative database managers on large mainframes will go away. In fact, over the 1990s the DBMS choice for most companies will become more tactical than strategic.

Emergence of SQL as a standard database access language for all DBMS vendors will allow more profitability of applications over different DBMSs. Most large shops then are likely to have several DBMS products in the 1990s with DB2 being one of them.

In the PC arena, competition from alternative suppliers for local area network (LAN) and DBMS managers will probably deny IBM a position of hegemony in systems software. Companies like Sybase, Microsoft, Gupta, Novell, Lotus and others have the market credibility and technology to give IBM a tough run.

A principal Systems Application Architecture (SAA) goal is to allow mainframe and minicomputers to become network servers in a world where small machines run most of the MIPS. IBM's future architectures stress the use of intelligent workstations rather than 327X-type terminals.

In this computing environment your "system" becomes a network where all processors have common access to repository managed databases.

Connectivity/consistency

A key goal for IBM's SAA is to provide the connectivity and database consistency across IBM's diverse platforms. IBM knows that in the 1990s the mainframe will become a repository and network server to

a large variety of mid-sized and small machines where most processing will occur.

Co-operative processing and distributed database will be the new technologies that allow this to happen. In the past, IBM's support for connectivity across different IBM architectures has been poor. In the future, IBM plans to offer distributed database software solutions that span the SAA world.

A distributed database manager offers the advantages of a single logical view of data with the physical implementations spread over a number of heterogenous computers. Changes in the physical reorganization or breaks in the network will be hidden from the application developer. The future of database management lies in the field of distributed databases.

IBM has developed a multi-phased plan for bringing distributed database capability to its customers. Four principal development laboratories are participating in the evolution of this plan: Toronto (SQL/DS), Santa Teresa (DB2), Rochester (AS/400 SQL) and Austin (OS/2EE). The three critical phases of IBM's plan are:

* Phase II -- Remote Unit of Work;

* Phase III -- Distributed Unit of Work; and,

* Phase IV -- Distributed Request.

In Phase II an application may send discrete committable units of work to different remote databases. However, each committable unit must go to only one physically remote database.

This is loosened somewhat in Phase III, where each committable unit work may consist of a number of discrete SQL statements, each constrained to a single physical site.

In Phase IV, Distributed Request, the restraints of physical locations are removed and individual SQL statements may execute over data that is located at diverse sites. It is in Phase IV where a true multi-site JOIN and support for replicates are available. IBM's plans call for delivery of Phase IV capabilities in the 1992 or 1993 time frame.

IBM's only announced distributed DBMS product plans support for like-like environments. What this means, for example, is that the DB2 Remote Unit of Work capability that is to be delivered in late 1989 will only work among diverse DB2 partners.

In comparable fashion initial releases of SQL/DS and OS/2EE will only distribute over their own equal partners initially. The difficulty in this arena is caused because IBM is pursuing a distributed database strategy with different relational database engines.

Although IBM developers share research and product development plans among different IBM groups, they do not share source code for the DBMS engines. The result of this policy has been significant differences between the two SQL DBMS engines that run on the 370 (SQL/DS, DB2).

So why doesn't IBM take one of its SQL engines, like DB2, and port it to the diverse operating systems of SAA (like competing products Oracle, Ingres, and Datacom are doing) in order to make its job easier?

Santa Teresa staffers argue that differences among the SAA operating systems mean each must have its own physical implementation of SQL in order to operate efficiently.

This certainly is true for implementation specific (physical) functions such as cross-memory services, memory management and I/O management. It has been estimated, however, that no more than 25 per cent of DB2's code is required to handle these functions.

This leaves the large majority of DB2's source code to be taken up with software performing logical SQL functions.

Another reason for the separate policy is IBM's management and accounting policies. IBM products have to stand on their own for profitability analysis.

For whatever reasons, IBM is committed to an SAA-SQL solution that involves four different products, while almost all of IBM's competitors will be taking a single DBMS product and distributing it over diverse operating systems. Some of IBM's competitors in the distributed DBMS market will also offer support for non-SAA operating systems like Digital Equipment Corp.'s VMS and Unix.

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