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INSIDE THE INDUSTRY

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INSIDE THE INDUSTRY

Relational Technology Looks To Expand Its DBMS Presence

Company pins its hopes for growth on distributed product and development tools

Big changes are underway at 6-year-old Relational Technology Inc., the second-largest independent supplier of midrange relational data-base management (DBMS) software. The company, born in academia and nurtured in the scientific and engineering-oriented world of Digital Equipment Corp.'s VAX minicomputers, now finds it must sell IBM mainframe and IBM PC versions of its Ingres relational DBMS in order to continue to grow and prosper.

Those changes mark more than a need for new products—they mark a qualitative change in the kind of customers Relational sells to, and the way they select software. It also means Relational faces a new class of competition, from \$50 billion IBM instead of \$50 million Oracle Corp.

Relational is no stranger to change. Its origins go back to the University of California, Berkeley, where company co-founders Lawrence Rowe, Michael Stonebraker, and Eugene Wong developed the Ingres relational DBMS prototype in 1975. Five years later, the first change came, in a move from academia to the commercial world. Joined by Gary Morgenthaler, a consultant at McKinsey & Co. Inc., the three professors started Relational with \$50,000 of their own money and \$300,000 in venture capital.

That change went pretty well. The company has been profitable in every full fiscal year since—although, as a private firm, it doesn't have to publicly state how profitable. Its officers claim that average annual revenue growth has been 300%, with revenue in the year ended June 30 reaching \$27 million, up from \$18 million the year before. The Gartner Group Inc., a research firm in Stamford, Conn., estimates sales for this calendar year at \$43 million.

In its early years, much of Relational's growth was attributable to the "next-bench syndrome." The company was selling to people who could easily be working on the "next bench," scientists and engineers whose needs were similar to those of



Morgenthaler: 'Our strategy [toward IBM] is to be competitive and complementary'

the founders. Relational became the dominant DBMS used on Digital's VAX minicomputers, with 44% of all installations, compared with 29% for DEC's own RDB DBMS and 27% for Oracle's Oracle DBMS. Because Ingres was written in C language, it appealed to users with Unix-based systems as well; those users also tended to be technically oriented.

A vendor can only get just so far selling to the next bench, however, as most of them eventually discover. At some point, a company that wants to sustain its growth rate must break into the much larger commercial marketplace. That is the market that represents the most opportunities for real growth—InfoCorp, a Cupertino, Calif., market research firm, says the worldwide mainframe and minicomputer DBMS market amounted to \$4 billion last year, rising to \$4.4 billion this year, and estimated at \$6.4 billion by 1990.

Relational plans to get its share. Company officials actually believe Relational will be the largest independent software supplier in the United States by 1991, even if no one else believes it. In any case, its future success depends on the ability to offer

new products to new customers while beating out both old and new competitors.

Relational has the products it must have to succeed, both announced and preannounced. It knows what the new customers look like and recognizes that they require a new kind of sales effort. And it understands its current major competitor, Oracle, and its newest, IBM. Whether Relational can convert this knowledge into success, whether it can cope with all the change it faces, remains to be seen.

Management views a quality product as the first step to success; it further believes that a data-base management system, to qualify as a quality product, must be relational and distributed. It is careful to describe its Ingres/Star system as a distributed relational DBMS software package.

Marketing vice president Peter Tierney believes relational technology is already the clear marketplace winner, that the days of hierarchical and network data-base management systems are numbered. "There is a changing of the guard in the DBMS business. The old technology is being found out. Buyers are tough and sophisticated; they are demanding a

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whole new technology. We are educating them to relational DBMSes."

It certainly took a while for the relational idea to catch on. Edgar Codd, then of IBM, now of Codd and Date Consulting, in San Jose, Calif., devised the original model for relational systems in 1970. He proposed a simple, well-defined data base that allowed users to view data as simple tables, without needing to know how the data was actually stored. Commercial products incorporating the idea didn't appear until a decade later, and only gained widespread acceptance in the last year or two.

The first papers on distributed DBMSes began to appear in the mid-1970s, according to Morgenthaler, now Relational's president, which means that 1986 was about the right time for the first commercial products to appear, with widespread acceptance likely by decade's end—if the distributed DBMS catches on.

Morgenthaler is confident it will. "I think the mass market has built for it. As a technology, the distributed data base will prove to be the single most important technology of the second half of the 1980s," as he believes the relational model was the most important idea of the first half. "Distributed data-base technology differs from existing data-base management and data-base networking technologies in that it presents an organization with a single relational view of all data stored within an entire network of computers," according to Relational. In short, the concept of distributed systems takes Codd's idea a step further: not only do users not need to know how

the data is stored, they don't need to know what machine it is stored on.

Not everyone share's the firm's sunny view of its technology. Omri Serlin, president of ITOM International Co., in Los Altos, Calif., describes Ingres/Star, the firm's distributed relational product, as one that will "eventually allow transparent, simultaneous access to data on multiple, dissimilar systems. It requires Ingres/Net," he notes, and uses a "virtual data dictionary" to link together information on different computers. The problem, as Serlin sees it, is that Relational "is a bit fuzzy in describing this rather crucial element of the whole scheme."

On the other hand, Forrester Research, a Cambridge, Mass., market research firm, sees distributed DBMSes in general and Ingres/Star in particular as tools that will "finally make networks of departmental computers a viable alternative to mainframes"; that will foster end user access to non-IBM networks, and will reduce the role of PC DBMS products.

Which is not to say that Relational is ignoring existing data bases. Morgenthaler describes Ingres/Star as a product that sits between applications programs and either an Ingres or non-Ingres data base. The interface with an outside DBMS—including IBM's IMS or DB2 DBMS—will be handled by "companion gateways," which will translate Ingres calls into calls the target data base can handle. At worst, he says, such calls will suffer a 20% performance penalty for having been made through Ingres; typical requests will result in only a 10% response time

reduction, compared to direct calls to the underlying data base. There will be no such penalty, of course, if Ingres is the underlying data base.

However, that does raise the question of performance, which is the fundamental problem delaying the widespread acceptance of all relational DBMS software. IBM contributed to the uncertainty about relational systems' performance with its early marketing efforts for DB2, in which it advised users to continue with IMS for high-speed production applications and to limit use of DB2 to information center queries, where ease of use was more important than raw speed.

Tierney, Relational's marketing vice president, prefers to recast the question of performance by asking how performance is measured. If a customer means the time between the pushing of the enter key and the return of an answer, relational DBMS products can't match traditional DBMS products at present, he admits. However, he quickly adds, that isn't the kind of performance most customers really need, if they think about it. "What they really want to know is how much time does it take between, 'I'd like to know this,' to 'Here are the facts.'" When the time it takes to compose a query is added into the equation, relational DBMS products look much better.

That measure of performance will suffice for about 70% of all DBMS applications, Tierney says. For the remainder, performance of the "enter key to response" type remains critical. Here, he reports, there is no theoretical reason why relational—particularly distributed relational—DBMS packages can't eventually offer the same performance as older technologies. Network and hierarchical data-base systems have been around for years, he notes. When relational DBMS packages have been around for as long, they will perform as well, he says, while traditional technologies will probably find it impossible to maintain their lead. They are at the end of their technology curve; the relational DBMS is at the beginning of its curve.

So, Relational has its products. They already operate under three of the most commonly used operating system environments in major corporations—Unix, DEC's VMS, and IBM's VM. By this time next year, Ingres/Star and Ingres/Net will also operate under IBM's MS-DOS and



Tierney (right): 'Buyers are tough and sophisticated, demanding a new technology'

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MVS/XA operating systems, giving Relational nearly complete coverage, from micro to mainframe, of the key, strategic operating environments in corporate America.

Products, however, rarely sell themselves. Although Relational has had great success selling to what Tierney calls "owner-operators," it must now sell its software to the "glass-house crowd." In more mundane terms, that means it can no longer appeal to just the departmental mini-

*In the \$50 million
Oracle Corp.,
Relational will
continue to face a
tough old
competitor . . .*

computer owners, it must also attract corporate mainframe owners. Under whatever names, they are two different worlds.

According to Tierney, many of Relational's VAX customers have been making the transition into commercial applications for some time; giving the company insight into their changing needs. Second, last year Relational introduced a version of Ingres for VM, which is generally used as a corporate-mainframe operating system. That version is already licensed at more than 50 sites. Third, although the company derived only 5% of its 1985 revenue from IBM sales, its senior officials have decades of experience working for IBM and IBM's competitors.

Tierney says Relational knows it faces longer sales cycles now that the snap judgment of engineers is being replaced by the strategic planning and multiple levels of approval required in commercial environments. He doesn't claim he is 100% ready for the MVS environment, but he is sure Relational is moving in that direction. So is the Gartner Group, which figures 60% of Relational's sales this year will go to DEC system users, 20% to Unix users, and 20% to IBM users, compared with 70% to DEC users, 25% to Unix users, and 5% to IBM users last year.

Morgenthaler thinks he has a lot to show the new customers, mainly in the area of applications development tools and user-friendly front ends. He

also thinks Ingres offers performance advantages, although that is much more difficult to prove.

What is already easy to prove is that Relational faces a tough new competitor in IBM. "IBM will be much more aggressive in defending its turf than DEC," says Morgenthaler, "and much more capable. Our strategy is to be at once competitive and complementary. We will compete with them for the base data-base sale. But even if we don't get it, we will allow customers to write applications that work on all kinds of machines.

"Ingres is the glue that allows users to stick together data from various kinds of equipment," he continues. "IBM cannot and will not link up with VAX or Unix data bases. It may choose to link with PCs, but probably not until 1990." In the meantime, by next year, Ingres/Star will provide access to IMS, allowing IMS hierarchies to appear as Ingres/Star data-base tables, and allowing IMS updates and retrieval from Ingres/Star.

The Relational DBMS also faces a tough old competitor, Oracle. It sometimes seems that Oracle and Relational are inextricably linked, although Oracle is a few years older and at least \$10 million larger. It was first into the MVS and MS-DOS environments. Employees from one company periodically go to work for the other (their headquarters, Relational in Alameda, Calif., and Oracle in Menlo Park, Calif., are only a few miles apart). Morgenthaler feels that "Oracle has been the sizzle and we have been the steak," with the older, now publicly held Oracle spending more time on marketing and publicity, while Relational spent more time working on its product.

P. Michael Seashols, Relational's sales vice president, came from Oracle. He says comparative statistics about the two firms' head-to-head competitions are hard to come by, since Oracle salespeople insist they win 90% of them, while Relational salespeople say the same thing.

Seashols says, now that he is at Relational, that Oracle's decision to diversify into a number of proprietary operating systems, such as those used by Harris Corp. and Honeywell Inc., will prove to be a less wise product plan than Relational's decision to concentrate on the five major operating environments and spend its efforts on creating a dis-

tributed DBMS. At one time, Relational's pricing was better, at about 15% of the price of the computer, but now both firms' prices run about 25% of a computer's purchase price. According to Serlin, at ITOM International, that puts Relational's prices in the \$4,000 to \$90,000 range.

That leaves Relational with its applications development tools, its networking (Ingres/Net), and its distributed DBMS (Ingres/Star) to distinguish it. Or, as Seashols puts it, "If we get distribution and development tools into the request for proposals, we win."

Among some large corporations—particularly those with reputations for being technologically farsighted, Relational has indeed won. General Motors Co., General Electric Co., and Boeing Corp. are the company's three largest customers, topping a list that includes three of the nation's four largest banks and seven of the top 10 companies on the *Fortune* 500. Such rich and sophisticated customers don't need much handholding, but they also aren't typical of the commercial marketplace. As the Gartner Group points out, a commercial operation "demands a much higher level of support, and is much less tolerant of software problems" than the scientists and engineers that form the core of Relational's customer base today.

Relational says it is hiring the people and spending the money to make

*. . . even as it
prepares to go
up against a
whole new class
of competition from
\$50 billion IBM.*

the changes it must make to remain a leading independent DBMS supplier. It has the products. It has identified the customers. It thinks it knows how to deal with its major competitors. It is betting that customers want their data bases both distributed and relational. If the bet pays off, by 1991, it just might be the largest independent software supplier. If it doesn't, Relational will be just another also-ran in the fiercely competitive DBMS market.

—Paul E. Schindler Jr.