Hewlett-Packard

Hewlett-Packard Boosts Productivity With SQL Server-based OLAP System and Knosys ProClarity

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With an OLAP system based on Microsoft SQL Server 7.0 and Knosys ProClarity, HP can easily access and quickly analyze enormous volumes of sell-through data to help its reseller customers improve the efficiency and profitability of their businesses.

With an installed base of more than 55 million printers, Hewlett-Packard Company is a worldwide market leader in the $18 billion inkjet industry. The company's Consumer Products Group develops and manufactures a full range of imaging products using HP-pioneered thermal-inkjet technology. Responsible for creating more new product categories for HP over the last 10 years than any other part of the company, the Consumer Products Group introduced the world's first desktop inkjet printer in 1984 and pioneered large-format inkjet printers in 1993, all-in-one (printer/fax/scanner/copier) devices in 1994, PC photography in 1997, and color copiers in 1997.

In addition to its Home Business, Office Business, and Inkjet Supplies Business units, the Consumer Products Group includes HP's Consumer Products Business Organization (CPBO), responsible for worldwide retail sales and distribution of all of HP's consumer-targeted products. While the market for these products continues to grow, it is not experiencing the explosive, double-digit growth rates that characterized the past decade. With technical barriers to entry falling, more and more competitors are bringing products to market—giving each competitor a smaller piece of a shrinking pie.

Solution Overview

Company

Hewlett-Packard

Solution Description

Third party software included in the solution is Knosys ProClarity.

Architecture included in the solution is: HP NetServer LH 3 Intel Pentium II Xeon 450-MHz dual processor with NetRAID disk array, Windows NT® Server running Microsoft SQL Server 7.0 and SQL Server 7.0's OLAP Services, accessed through HP's intranet, three hundred users across North America access the system through Knosys ProClarity Web-based and desktop-client-based application.

Software and Services

- Microsoft Internet Explorer
- Microsoft SQL Server 7.0
- Microsoft Visual Basic 6.0
- Microsoft Windows NT Server 4.0

Vertical Industries

Wholesaling

Country/Region

United States

Solutions

CRM

Audiences

Business Decision Makers

Resellers Key HP Customers

With approximately 80 percent of HP's consumer products volume sold directly to top national accounts such as CompUSA, Best Buy, and Office Depot, each of these resellers is as important a "customer" as the end user who plugs in the printer. In the past, HP's brand recognition and reputation for reliability were enough to ensure that a reseller would carry HP products. Today, while those factors are still important, in an increasingly competitive landscape, they're simply not enough.

"To be successful in our business, we have to come up with solutions for the reseller," explains Greg Stanley, Manager of HP CPBO's Business Analysis Group, which is responsible for aggregating and analyzing the market data—including information on ad spending, market share, pricing, demographics, econometrics, and channel spending—that CPBO uses to run its business. "Resellers have specific needs and wants just as individual users do. To maximize their profitability, they're focusing on the expense and inventory investment side of the profit equation. We have to share information that will help them maximize their efficiency and profitability. If we don't, the competition will walk in and do it for us."

Easier access to information needed

As a technology company, HP has done a superb job of capturing and storing the information its resellers need, both from primary research and from third parties—vast quantities of it. But the information exists in huge pipelines or reservoirs that don't communicate with one another. "When it comes to connecting all the data in the reservoirs to the people who need to use it, they can't get to it," Stanley comments. "It gets so difficult to extract information from the system and put it in a meaningful context that a lot of our users just aren't willing to do it."

The Business Analysis Group decided they needed a system that would provide market metric data to help field sales force managers or account teams make brand and channel management decisions. And, at a higher level, the group wanted a unified analytical environment that would allow HP decision-makers to clearly see the complex trends, patterns, and relationships that impact their business—including such data as how advertising affects sales and who is capturing market share and why.

Because of its small size and limited IT expertise, the group needed help evaluating potential solutions. "We wanted a system that was low-cost, low-maintenance, and as simple to administer as possible," Stanley explains. So the group turned to Knosys Inc., a Boise, Idaho-based software company that has developed a business analysis/online analytical processing (OLAP) package called ProClarity. Having built its software from the ground up for the Microsoft SQL Server 7.0 data mart/data warehouse environment, Knosys recommended that HP adopt the SQL Server 7.0 relational database and ProClarity solution.

At first, Stanley's group was opposed to creating yet another data store. "But Knosys showed us that this solution would enable us to move the data so quickly and at such a low cost of maintenance and ownership that it would solve our problems," he says. "We would be duplicating data, but the new system would bridge the gap between users and data. This was very compelling." But the group also wanted to evaluate other potential solutions, so they brought in a leading OLAP consulting company called Symmetry Inc. With over a decade of OLAP consulting experience, Symmetry offered the product and industry knowledge to effectively evaluate the Knosys and Microsoft approach.

"Initially, Symmetry was skeptical," Stanley explains. "'There are probably bigger companies with more robust solutions out there,' they said. So, with that kind of background, they came in, looked at Knosys' proposal, and said, 'Wow. They really do have a compelling product here. For what your group wants to do and the way you want to implement it, it's a very compelling proposition—especially as you move into the future.'"

SQL Server 7.0 Saves Money, Meets Sophisticated Analytical Needs

With the endorsement of Symmetry, the Business Analysis Group decided to move ahead with the SQL Server 7.0 and ProClarity solution, which they are currently rolling out. Knosys has helped the group build the data flow algorithms with the Microsoft Visual Basic development system and SQL Server 7.0's Data Transformation Services. Some of the original data was in Microsoft Excel spreadsheets, other flat files, and OLAP exports from other vendors. HP needed some common ground to establish the data flow procedures. Visual Basic for Applications (VBA) and Microsoft Access 97 provided that common ground, and made the data easier to maintain. From Access, the data goes into SQL Server 7.0.

At the highest level, SQL Server 7.0 is expected to deliver significant cost savings in two critical areas. First—as the first database on the market with integrated Data Transformation Services—it will make moving the data from multiple, disparate sources easier than competing solutions. Second, Microsoft's OLAP Services can meet the needs of a sophisticated analytical environment without excessive management overhead.

The OLAP Services include a number of additional features that are attractive to HP. According to Clay Young, Vice President of Marketing for Knosys Inc., the Business Analysis Group was particularly impressed with SQL Server 7.0's hybrid OLAP (HOLAP) capabilities.

"Because of HP's enormous sell-through data volumes, it would take too long to build analytical models with a pure, multidimensional OLAP solution," explains Young. "And pure relational OLAP solutions don't meet the query performance requirements of HP decision-makers. The hybrid architecture of SQL Server 7.0's OLAP Services will enable HP to deal with high data volumes and still deliver fast query response."

Further, HP appreciated SQL Server 7.0's virtual cubes and cube partitioning capabilities. Cubes are databases with multiple dimensions: HP has at least eight OLAP cubes, each of which will support a particular group of decision-makers. Virtual cube capabilities also allow decision-makers to cross-analyze data from all these OLAP sources simultaneously.

Cube partitioning will allow HP to more effectively manage a large number of OLAP cubes and to easily manage differing levels of aggregation and views of time. Additionally, the virtual cube capabilities allow HP to easily derive new business views from the existing cubes, making it considerably easier for the Business Analysis Group to manage its business views. "Basically," Young remarks, "it will give them information about market share, econometrics, demographics, pricing, sell through, and channel activity—all in one view if they desire."

ProClarity Adds Sophisticated Data Visualization Capabilities
"Knosys ProClarity provides HP decision-makers with the key to analyzing masses of data," explains Young. "It gives them previously unavailable data visualization techniques as well as easy-to-use, full Web-enabled analysis capabilities." ProClarity is fully integrated with Microsoft products, and its PC-based client is modeled after Internet Explorer 4.0. "This is because analyzing business data is a lot like trying to find information on the Web," he adds.

ProClarity's powerful analytical features, which take full advantage of the robust capabilities found in SQL Server 7.0's OLAP Services, help knowledge workers understand complex data. The software's state-of-the-art data visualization tools enable workers to quickly see patterns, trends, and exception—even in complex environments such as HP's, where they must analyze hundreds of products across thousands of reseller partners.

Finally, HP needed a solution that required minimal training and support. ProClarity's ease of use and deployment were key

to lowering these costs.

Expected Results

When the new SQL Server 7.0 and ProClarity system is fully operational, Stanley expects it to provide significant benefits to account representatives in the field, business analysts in his and other groups, and HP's reseller customers: "I expect that account reps who are calling on a major account will log onto a Web page on Monday morning before going to call on that account and pull up last week's sales and inventory levels all the way down to the store level. They can produce a report that shows inventory problems in particular stores—for example, the new printer we just introduced three weeks ago is selling really well but it looks like we're having stock outs in particular stores. Then they can take our in-store audit data, which might show a problem with product placement in these stores. They can suggest that the problem may be that the product is displayed in the computer aisle, and people may not be shopping the computer aisle for a printer.

"Then, as analysts, we can study these trends over time and say, 'These stores are continually out of stock. These other stores are continually over stock and don't have as high a sell-through rate. Let's move inventory from these stores where it just sits on the shelves for two weeks to these stores where it sells out in half a week.'"

"The bottom line," concludes Stanley, "is that this new system, through more accurate, detailed, and timely data, will make our business more efficient so we, in turn, can help our resellers make their businesses more efficient."