

Active Data Warehousing: Straight Shot to Success for PING

I. Executive Summary

Table of Contents

<i>I Executive Summary</i>	2
<i>II Driving Success in the Golf Market</i>	3
<i>III Corporate Growth Leads PING to Teradata</i>	4
<i>IV Active Data Warehousing Begins</i>	5
<i>V Technology Creates Foundation for Competitive Advantage</i>	6
<i>VI EDW: The Heart of PING's Operations and Service</i>	7
<i>VII Powerful Support for PING's Business Operations</i>	9
<i>VIII Bottom-Line Value is a Winner for PING</i>	12
<i>IX Teradata Support Enhances PING's Swing</i>	14
<i>X Active Data Warehousing Spurs Innovation</i>	15
<i>XI PING: Top of the Leader Board</i>	16

PING, Inc. is a highly competitive and profitable manufacturer of custom-fitted and -built golf equipment. Despite its 46-year record of success, this Phoenix-based family-owned corporation has never lost its commitment to providing superior customer service, a value highlighted by its large and loyal customer base. The organization is marked by innovative thinking and leading-edge application of tools and technology; yet it provides a supportive environment where employees routinely work for decades. In the highly competitive market for golf equipment, PING stands out as a tremendously successful provider of sophisticated, well-engineered and -designed products and an enterprise with a long history of responding to market challenges with innovation and determination.

Supporting PING's operations is an enterprise data warehouse (EDW) based on Teradata system technology; the EDW serves as the single repository for transactional production data and decision support. The Teradata solution provides a form of active data warehousing for PING, one of the first implementations of its kind.

One of the company's competitive advantages is custom fitting of equipment. PING builds custom clubs from components, and stresses timely delivery to customers – within 48 hours from receipt of the customer's order. Providing superior service in the highly technological golf equipment industry is a differentiator for PING. The company's leaders view the Teradata system solution as critical to providing superior service.

II. Driving Success in the Golf Market

Golf is intensively competitive, and not just on the fairways. Around the world, more than 25 million people play the game, spending \$15 billion annually on equipment alone. Competition for each player's spending is intense. One of the leading golf equipment providers is PING Inc., a privately held manufacturer of golf equipment based in Phoenix, Arizona. The

company was founded in 1959 by Karsten Solheim, who designed a revolutionary putter in his garage. (The company's name comes from the unusual sound the clubs make when striking the golf ball.) The founder's youngest son, John A. Solheim, is the current chairman and CEO of PING, which operates as part of Karsten Manufacturing Corp.

PING is the largest family-owned golf equipment company; third-party industry watchers estimated 2004 sales at approximately \$200 million, and company officials recently announced that 2005 was the best year in the company's history. PING has experienced steady, low-double-digit growth for the last three years; this is impressive in a market that is not generally growing in number of players or number of rounds played.

PING's Passion: Quality, Service, and Innovation

PING sells its products through a channel of pro and high-end retail golf shops to demanding consumers in the premium club market. The company counts among its customer base approximately 10,000 domestic customers, who place 3,000 orders per day for custom-made clubs. These retailers fit and measure the consumer in less than 30 minutes. Clubs are custom-manufactured to the player's exact specifications, marked with individual serial numbers, and shipped within 48 hours of order placement. Lost or damaged equipment can be replaced quickly and easily using records of customer's previous orders.

The company customizes products by club colors, lengths, shaft flexibility, and grip size. With so many options available, the number of product combinations is huge. In the U.S. market, for example, only about 65% of PING products are covered by 30,000 variations of irons. It would take hundreds of thousands of discrete stock keeping units to account for all of the possible combinations.

PING's manufacturing facilities include 25 buildings on 50 acres at its Phoenix headquarters, with approximately 500,000 square feet of production space and more than 400 manufacturing employees. A nearby foundry called "Dolphin," where irons are made, employs approximately 200 workers in seven buildings with 138,000 square feet.

Maintaining the same family values and corporate culture that have defined the company since its founding is one key to PING's remarkable success. Most employees have decades of service to the company – it's rare to talk to one who has worked there for less than a decade – and they all take great pride in delivering superior product quality and exceptional customer service. "Our greatest asset is our passion for what we do," agrees Doug Hawken, president and COO of PING. "We are focused on quality, service, and innovation."

The company, which makes custom-fitted and manufactured golf equipment – including irons, woods, and putters – designs products for the golf enthusiast who views custom equipment as a way to add enjoyment to the game. The company's market share is high. A previous model, the G2, grabbed the top position for both irons and woods. PING's share of putters sold doubled within a year of the G2 introduction, while its share of other equipment categories also increased. The latest model, the G5, aims to continue the tradition of market leadership. Says Doug Hawken, PING's president and COO: "Golf is probably the most driven by technology of any sport. From an engineering and design point, there are many improvements still to be found that will improve consumers' enjoyment of the game. From that view, we must constantly be driven to innovate and bring new development to the marketplace."

III. Corporate Growth Leads PING to Teradata

The complex manufacturing operations PING executes demand a powerful business system. In 1989, the company ran its operations on an IBM mainframe with a SQL-DS database. However, dramatic company growth forced PING to consider new IT options to better support its customer base. The Information Systems (IS) department, which is responsible for technical support of PING business operations, planned to develop an order management system, which it wanted to run on a relational database platform.

The company considered two choices. The first was to run the database on the IBM mainframe platform, which would require an upgrade to a more costly water-cooled machine. The second was to run it on a separate database computer: a Teradata machine that would serve as the database platform for both transactions and strategic decision support, with other applications running on the mainframe.

Although the Teradata system was architected to deliver prime performance decision support applications, the PING

evaluation team knew it could also meet the demand for rapid transaction processing response times. For PING, the Teradata alternative was much more affordable than the water-cooled mainframe. In addition, the Teradata solution offered an extensible, scalable platform – one that the company could expand with additional processing and disk storage. By using the Teradata system, PING could create a single active data warehousing system that would simultaneously support operational and decision support data.

“Our goals are to have zero defects – in other words, the perfect order. That’s where the Teradata system comes in. We use that as a resource to process the information as it comes in from our customers, and get it out to manufacturing to facilitate a quick, timely, defect-free delivery of that product to our customers. Teradata helps us to meet our goal of delivering the perfect order.”

– Doug Hawken, President and COO, PING, Inc.

IV. Active Data Warehousing Begins

PING has been a Teradata customer since 1990, continually finding new ways to use the system as the company's business approach changed to meet new market challenges. Initially, the company implemented an 8-processor Model III DBC1012 machine and went live with the order management system in July 1990. The system excelled at performing large-scale queries and complex operations such as multiple table joins; yet it was also used even in these early days to provide decision support to business executives.

PING worked hard to tune the system and optimize the environment so that it could perform simple transactions fast. "We felt that by making the system perform well, the company would be better positioned as it grew and the technology evolved to grow with our needs," explains Kent Crossland, PING's information services director and a 23-year employee. "The biggest part of the challenge was simply implementing an application of that magnitude. Everything that we did that involved processing customer orders – sending it through production, shipping it,

billing it, collecting payment, and everything in operations – was affected by that implementation."

As the company grew, PING continued to add applications to the EDW. By 1991, the Teradata system was so large that the company needed to add processing power and storage. PING migrated to a 16-processor Model IV machine that year. PING executives believed that the larger, more powerful machine would help the company improve:

- > Customer service
- > Efficiency of the made-to-order business
- > System performance, processing capacity, and up-time
- > Support of mission-critical, online transaction processing (OLTP) applications
- > System scalability

PING was able to rapidly exploit the parallel processing capabilities of the new system. The company was able to process large-scale transactions in dynamic

production scheduling applications that were built to run on the Teradata system – even as it was using the data generated by these applications to support real-time decision making. For example, PING began using the data mining capabilities of the solution to determine which orders to fill first. The production department would query the database to determine which orders were pending and what materials were available to fill those orders. Information generated by these queries helped production make decisions about what to commit to production, based on real-time information. In this way, the Teradata system helped PING support its early active data warehousing effort.

Critical to PING's execution of this active data warehousing approach was the support of implementation and testing professionals from Teradata Customer Services. "We got great support from Teradata," says Crossland. "Early on, we had people here every week. They effectively resolved every issue we had."

V. Technology Creates Foundation for Competitive Advantage

With changing market conditions in the late 1990s, PING began to reconsider its business model. At that time, golfers who ordered custom equipment from the company waited from six to eight weeks for delivery. Although custom fitting was valued by PING's best customers, the two months it took PING to deliver the custom-fit golf clubs was a disincentive to some buyers. Hawken, the president, spearheaded an initiative to remake PING's production strategy.

Hawken led the redesign of production and assembly operations. These changes cut the time needed to create custom equipment from six weeks to just 48 hours after an order is received. In addition, the revised process reduced the time needed to bring a new product to market from two years in 2000 to nine months today. The Teradata system solution helped PING to better understand outstanding orders, materials on hand, goods in inventory, and

“We have developed a manufacturing process to accommodate customers who want to have their equipment custom fit. Now we blend our powerful manufacturing, a sophisticated fitting, and leading technology with a market that values all of that. We think it’s a competitive advantage. By combining the customer’s immediate gratification with custom design and fit, you’ve got a win/win situation.”

– Doug Hawken, President and COO, PING, Inc.

supply chain constraints – information that helped the company make the goal of a 48-hour delivery a reality.

“We have developed a manufacturing process to accommodate customers who want to have their equipment custom fit,” says Hawken. “Now we blend our powerful

manufacturing, a sophisticated fitting, and leading technology with a market that values all of that. We think it’s a competitive advantage. By combining the customer’s immediate gratification with custom design and fit, you’ve got a win/win situation.”

VI. EDW: The Heart of PING's Operations and Service

Today the Teradata system is the core of PING's business, according to Sandy Rumble, data center and operations manager. An Teradata 4475 with Teradata Database V2R5.1 supports PING's enterprise data warehouse (EDW) in an active data warehousing approach that includes both operational transactions and decision support. This single-node system includes 7 AMPs and 12 36-GB drives, as well as a mirrored system with RAID 1 protection. The warehouse supports 582GB of total disk and 82GB of production user data, as well as 1,250 production tables.

PING uses the Teradata Utility Pack, including Teradata Manager, Teradata Administrator, and Teradata SQL Assistant. The company also uses Cognos Impromptu and Cognos PowerPlay and Microsoft Query. Soon the organization may also begin using Microsoft Reporting Services. PING also uses an Oracle database and a SQL Server database, an IBM mainframe, and several UNIX systems. The Teradata system is channel-connected to the mainframe and uses a PCI card to connect with the network.

"I can't stress enough how important Teradata is to our business," says Rumble, a 25-year PING veteran. "Without the Teradata system we are essentially 'down' because we can't take any new orders. If Teradata is not running, we are really out of business." Fortunately, the Teradata

system provides the company with greater than 99% availability.

More than 350 PING users have access to the EDW, and as many as 200 may use it concurrently. The system runs a custom-built ERP system with a variety of homegrown applications. The company also uses Oracle financials and a few Oracle inventory applications. Using this software, the system captures sales, order processing, and inventory data in the Teradata system. After 20 years of collecting customer data, the warehouse now contains 12 million serial number records of equipment sold. Rumble estimates that the data volumes are growing at approximately 10% annually.

The system runs approximately 1.75 million queries against the data warehouse daily. Many of these are transaction queries run against indexes to retrieve a single customer record. Some queries are run against the tables, however. There are no data loads per se; instead, PING simply uses its business transactions as source data in its active data warehousing approach, which creates a mixed workload environment. The warehouse contains only a few tables with summarized data. Most of the data stored in the warehouse is in third normal form, but some has been denormalized to enhance performance. Data is stored in summary tables as well as views.

PING's high-performance system can scan about 7 million rows in the order management database in less than one minute. "We do that all day long in our production facilities," states Rumble. "The system helps us determine the next order we should process to meet our 48-hour delivery promise." To streamline post-production logistics processes, the PING IS team is developing an application that will extract data from the web site of providers such as UPS and load it into the warehouse to support transportation decision making.

With a goal of using the data to gain valuable insights and putting that information into the hands of its users, PING's active data warehousing approach allows users to access system data. Users regularly run as many as 300 standardized reports against the data warehouse. In addition, PING reports that approximately 700 ad hoc queries are run each year. Much of the data gathering is done in real-time to support customer service requirements. "We sometimes execute reports off the very same data that a customer service representative is entering while taking an order," says Rumble.

PING continues to seek innovative ways to use technology to support its business goals. The company has adopted Microsoft .NET as its application development platform. PING's mainframe environment will gradually be replaced by applications

running on .NET; the Teradata system will continue to serve as the data warehouse. Applications, such as the order processing system, are being developed to be compatible with both the current system and .NET, so that they can be incrementally implemented. Crossland expects this strategy to mitigate implementation risk. The Teradata system provides interfaces

that enable organizations to fit a variety of platforms, including Microsoft .NET, into the enterprise infrastructure and access information in Teradata.

To ensure PING's growth and system redevelopment strategy is on target, the company recently engaged Teradata Professional Services. "We wanted to get

a handle on our growth as it relates to deploying new applications," says Rumble. "We needed to know how putting more people and applications on the system would affect the Teradata system." Service professional Donna Becker processed re-usage queries and captured key performance and workload management tracking information. She then helped PING understand current usage trends and possible adjustments to enhance performance – the type of knowledge transfer that helps Teradata customers maximize their success. Explains Rumble: "The information was helpful because it told us which queries will run the longest, which users are consuming most of the CPU, and how much of the CPU we use over the day, and when."

PING, Inc.'s Active Data Warehouse Environment

The system includes:

- > 350 users
- > 12 million equipment serial numbers
- > data volume growth of 10% annually
- > 1.75 million queries daily
- > the ability to scan 7 million rows in the order management database in less than one minute
- > 700 ad hoc queries annually
- > data gathering in real-time to support customer service requirements
- > business transactions used as source data creating a mixed workload environment
- > most data in third normal form and stored in summary tables as well as views

"I can't stress enough how important Teradata is to our business. Without the Teradata system we are essentially 'down' because we can't take any new orders."

– Sandy Rumble, Data Center and Operations Manager, PING, Inc.

VII. Powerful Support for PING's Business Operations

The Teradata system is now central to PING's operations throughout the enterprise. It supports a wide variety of business processes, including:

Order Processing

The EDW handles the entire order processing cycle, including setting up a customer account, placing an order in that account, processing the order through assembly, shipping the product, and collecting payments. The EDW also extends to the supply chain; some component inventories reside on the warehouse, and it is integrated with the Oracle financials, purchasing, and inventory applications.

Front-office Processes

Customer care representatives use the EDW to take orders, answer customer requests for information, generate work orders, process orders through the plant, and capture work status details as the

order progresses through production.

This information becomes part of the warehouse, where it is available to support actionable decisions at the point of customer contact.

Back-office Processes

PING employees also use the system to capture serial numbers, package and ship products, generate billing, receive customer payments, and apply cash. It provides data needed to make credit and collections calls.

Marketing

PING's marketing department is also a heavy user of the system, generating many ad hoc requests for information. This group uses the EDW to search for a wide variety of information, including trends, year-over-year sales results and comparisons, market and regional developments and patterns, sales performance, and forecasting accuracy.

Production

All EDW activities run against production data in the company's online transaction processing (OLTP) systems to support real-time decision making by a variety of users. "Our production requirement changes constantly, like a deck being reshuffled, and it is driven entirely by the demands of our customers," says Crossland. "We value the visibility that the EDW provides, the ease and rapidity of getting information out of the system, and the ability to generate work orders for manufacturing."

With all of the company's transactions running through the EDW, PING's production departments frequently use the system to run complex queries about component inventories, as information is being collected. The information generated by these queries helps production to more efficiently schedule operations, based on available components and specific orders. For example, PING often runs a query to aggregate the finished iron head inventory. These heads, which are stored in boxes of 50 according to model and head number, are separated by weight increments. The query aggregates the available heads and converts each from dead weight to projected swing weights. This query enables the system to display inventory in real-time so that it can be viewed in matching sets of heads. This allows production to determine which club sets can be custom-assembled, based on the available heads.

"Our production requirement changes constantly, like a deck being reshuffled, and it is driven entirely by the demands of our customers. We value the visibility that the EDW provides, the ease and rapidity of getting information out of the system, and the ability to generate work orders for manufacturing."

– Kent Crossland, Information Services Director, PING, Inc.

Reporting

PING uses the EDW to create a variety of prepared reports, which are automatically generated and forwarded to requesting business users. The IS group provides specialized reports to users that request specific information. IS also uses the EDW to import key summarized update data into the spreadsheets of users who have requested this service. In addition, some users are able to submit queries and generate their own reports.

Analytics

PING has several power users who use the EDW to generate analysis data. Although most of these users have only limited IS backgrounds, they find it easy to use the EDW to dig into the data, produce reports, answer ad hoc queries, and spot trends. Jeffrey Smith, a sales technology and special projects analyst who has 17 years with the company, uses the system to perform ad-hoc queries, generate long-term analytic reports, find creative solutions to challenges posed by global business practices, and perform data mining.

Ad hoc queries: Often a user asks Smith's group to retrieve one specific piece of information, which is to be inserted into another document or presentation. Smith performs dozens of such queries weekly. For example, PING's system displays information about inactive accounts for no more than four years; older information is maintained in the EDW, but cannot be viewed by users. However, the data is

still valuable to some users, such as when marketing wants to view international business accounts. Smith generates an ad-hoc query to retrieve information about specific inactive accounts.

Long-term analytic reports: Several of PING's power users perform queries and generate reports, using procedures, forms, queries, inserts, updates, and deletes. Many queries use unions and joins (including standard, left outer, right outer, and full outer); Smith uses K statements, substrings and extracts, derived tables, and sub-selects. He also converts numeric text to text data and vice versa.

One example of this application is Smith's ability to track long-term data. PING generates international sales reports on a demand basis only, preferring not to run those reports in batch, where sensitive information might be viewed accidentally by unauthorized users. Using IBM QMF, a mainframe query tool, to work with the production data, Smith periodically updates a table of international sales data with historical information. Although PING's policy is to retain only four years of data in active history, by updating this table monthly, Smith has collected 15 years of international sales data, which is available for interested users.

Creative solutions to the challenges of global business: Like many global organizations, PING struggles with

the data requirements of supply chain partners in different regions of the world. Smith has discovered several creative ways to use the EDW to support PING's business operations. For example, the company works with a Japanese distributor that does not use PING's proprietary commercial order handling system. Because of this disconnect, the only way that serial numbers for products created in the U.S. and sold in Japan could be entered into a database for Japanese operations would be to re-key the serial number data. Using PING's global virtual private network (VPN), the data is transported to the distributor; using ODBC, the distributor extracts the entire database of serial numbers associated with each weekly shipment from PING and adds it to the Japanese system, saving hundreds of labor hours.

Another example enhances inventory efficiency. PING Canada once carried a full inventory of all products. To reduce inventory costs, PING began shipping clubs directly from U.S. manufacturing plants to PING Canada's customers. That change created a need for PING Canada to access corporate IS systems. To prevent the subsidiary from accessing headquarters information, PING provided the Canadian operation with only a view of its data from the Teradata system. The system provided maximum flexibility, but not at the expense of security. "Individual users can create databases, share specific tables, or hide tables," says Smith. "It is very

important to be able to segregate the data virtually and yet make it easy to query by each of the offices.”

Data mining: Smith also uses the EDW to identify actionable information and trends that would otherwise go unnoticed. “We call this looking for what the data doesn’t tell you,” he says. For example, because it sells products internationally, PING must effectively manage transfer pricing so that products are priced to cover all relevant taxes, regardless of where and how the product is sold. Each year, PING sets transfer pricing to ensure fair prices for corporate and independent distributors.

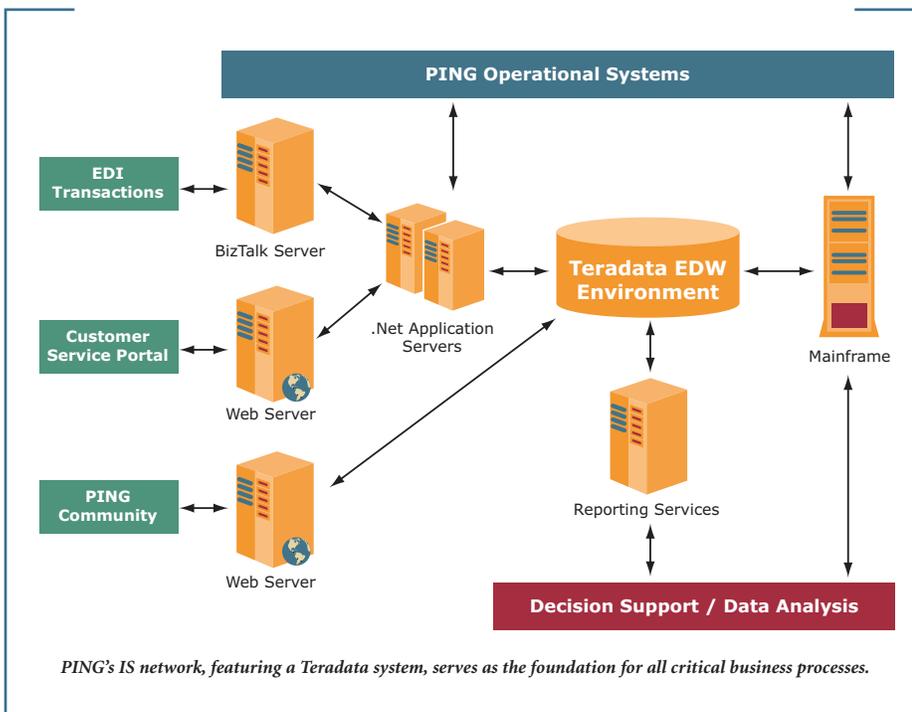
While executing this process, PING runs many queries and conducts deep analysis. In the last few years, this analysis has revealed numerous unexpected trends. “Sometimes we notice a certain combination of specifications in a particular market, one that wouldn’t normally be expected,” says Smith. “Upon investigation, we found out that the distributor didn’t understand the product as well as necessary and needed more education. Or in another case, the market required some product combination that we never would have considered. We don’t actively seek these trends, but quite often – in the pursuit of another project – we have been able to reveal them.”

Customer-facing Applications

The EDW also supports a major customer-facing initiative, the PING Customer Service (PCS) system. Within PCS are currently two primary applications: the PING Customer Service Portal and the PING Community portal.

The PING Customer Service Portal is the first application created within PING’s new .NET initiative, and it was phase one of the overall PCS project. This portal, which went live in 2004 at www.pinggolf.biz, was used as PING’s proof-of-concept for the .NET platform. Retail customers can log into a web site and gain access to their account, where they can review invoices, payments, and orders. They also can track deliveries through a link to the UPS and FedEx sites, and they can print invoice copies. Today, approximately 4000 customers routinely access the customer portal – using the up-to-the-moment information available thanks to PING’s active data warehousing approach to make decisions in real-time.

The PING Community, which went live in 2003, is a Web-based application that customers can enroll in and interact with. Through this community, customers can register PING products they’ve bought, and they can receive email offers and communications.



VIII. Bottom-Line Value is a Winner for PING

In the years since PING first deployed Teradata technology, the EDW has delivered extensive business value to the company. Key benefits include:

Enhanced Decision Support and Reporting Capabilities

Information is delivered with sub-second response time, giving users an instant, single view of the business. This enhanced corporate visibility supports rapid and accurate decision making. For example, production planners can use the EDW to track the quantities of a given product that are on order at any time. Active data warehousing provides real-time information that allows planners to more accurately forecast demand. In addition, the sales force uses the EDW to receive timely updates of sales activities, which helps them to work more productively.

Increased Customer Support and Service

PING's active data warehousing approach allows the company to more effectively respond to customer demand and to provide more responsive service. With the Teradata system, PING customer care representatives can make fast, accurate, and informed decisions about how to take the next best action with each customer. The EDW helps service personnel provide efficient delivery for club replacements and timely information to customers about their orders and product delivery. Customers can instantly order club replacements from a list of millions of product serial numbers. Also, customers can easily check the status of their orders online.

Improved Demand Forecasting

Beginning with the early Teradata technology implementations, PING has been able to convert its increased visibility and an integrated view of the business into more accurate demand forecasting. Working within a 48-hour delivery window, PING needs real-time access to timely information about which components are available – the instant knowledge needed to support front-line decision making. “We look for patterns of ordering and anticipate what we'll need, because the materials have to be here when the order comes in,” says Crossland. “That is the only way to get the 48-hour turnaround. Most of our components are not commodity items; we either manufacture them ourselves or they are manufactured to our specifications. There are a very limited number of suppliers and very special components, so it's a real challenge to have what we need precisely when we need it.”

“The Teradata platform enabled us to shift the paradigm from the six-week delivery to the 48-hour delivery. To me, the most significant advantage we got from Teradata was the ability to very easily make that transition.”

– Kent Crossland, Information Services Director, PING, Inc.

Reduced Cycle Time

The Teradata system enabled PING to slash its order-to-delivery timeframe from six weeks to just 48 hours. Using the EDW has also helped PING to eliminate significant amounts of work in progress. “The Teradata platform enabled us to shift the paradigm from the six-week delivery to the 48-hour delivery,” says Crossland. “To me, the most significant advantage we got from Teradata was the ability to very easily make that transition.”

Fresh Data

Because PING's EDW supports both operational and decision support data on the same platform, it creates a true active data warehousing environment that ensures data freshness. Concerns about data synchronization or versioning are non-existent. "As soon as an order is entered, the information is on the system," says Crossland.

Always-on Availability

The PING EDW boasts 99.9% uptime, which is essential for optimum customer service. PING has come to rely on the

Teradata system for unfailing availability. Says Crossland: "We've been on Teradata since 1990, and there was only one day when we were unable to ship products because of a technical problem."

Excellent Manageability

The Teradata system is exceptionally easy for PING to manage and control. Even with all operational data moving throughout the EDW, the company has only one database administrator (DBA) to manage the system – and she spends limited hours working on EDW issues.

"I would love to say that I spend half my time administering the Teradata system," says Rumble. "Because when you consider the EDW's importance to the company, it should be half my time. But the truth is that I spend a lot more time maintaining other databases and performing other aspects of my job than I do working on the Teradata system. Teradata runs so well that it really runs on its own. I don't spend a lot of time managing it compared to the other databases that I am responsible for. It's by far the most important and yet it takes the least amount of effort to keep running."

"I would love to say that I spend half my time administering the Teradata system, because when you consider the EDW's importance to the company, it should be half my time. But the truth is that I spend a lot more time maintaining other databases and performing other aspects of my job than I do working on the Teradata system."

– Sandy Rumble, Data Center and Operations Manager, PING, Inc.

IX. Teradata Support Enhances PING's Swing

PING's success has been enhanced by the ongoing availability of Teradata Enterprise System Support (ESS). Teradata Customer Service provides end-to-end support to PING, with real-time access, expert advice, and web-enabled solutions offered on a 24/7 basis. "With Teradata, we're not just getting hardware and software," says Hawken. "It comes with a group of individuals that services the equipment and the software and partners with us. They take the time to understand what makes us tick and how to best service us. They have, over the course of the years, identified issues long before we would have been able to identify them and make corrections, and helped us to be much more competitive much sooner."

Rumble, the DBA, agrees. "Our Teradata support team is excellent. Sometimes they are here, they fix something and we didn't even know there was a problem. I deal with many vendors on support, and the support we get from Teradata is one of the best. I can always call somebody and get an answer. They stay with me on the phone. I use the Teradata web site and find it easy to get answers. I compose questions and get resolutions very quickly. Overall, the support is phenomenal."

"A huge component of our success was having that ability to have not only the best product and the most options for fitting, but also to provide the best customer service. There is no one else that does business quite the way we do in our industry, and we couldn't do it without Teradata."

– Kent Crossland, Information Services Director, PING, Inc.

PING also uses ESS Business Critical Service, a powerful proactive and predictive support solution that significantly reduces problem resolution time and ultimately boosts productivity through increased system availability. The company selected this high level of service to protect its essential Teradata system. "Teradata is critical to running our business," says Crossland. "If anything happened to it, we couldn't do business. The ESS Business Critical Service team does a great job, too." One of the most useful features is proactive monitoring. By helping PING's IS organization spot trouble conditions before they develop into full-blown

problems, proactive monitoring prevents an issue from impacting the company's finely tuned production operations.

Perhaps most important was Teradata's ability to support PING's innovation and competitiveness. Crossland says that PING's business model – with the 48-hour delivery – was built around the Teradata system capabilities. "A huge component of our success was having that ability to have not only the best product and the most options for fitting, but also to provide the best customer service," he says. "There is no one else that does business quite the way we do in our industry, and we couldn't do it without Teradata."

X. Active Data Warehousing Spurs Innovation

PING's dramatic success with its EDW is matched only by its continuing plans for expansion and additional development. The PING Customer Service project will continue through its six phases, with incremental development in .NET occurring throughout 2006. The primary focus in the coming year will be work order processing, which includes activities such as scheduling orders, generating work orders, and tracking them through production, as well as generating and tracking serial numbers. All new applications will also be linked to the Teradata system. "Teradata is the heart of our system," says Crossland. "It is the data repository, and we are keeping this model intact. We will continue to use the operational data warehouse as our decision support data warehouse."

PING continues to use technology to provide the highest possible levels of customer service. When complete, the PCS system will be available around the clock for PING users who need access to production data. The system will be multi-lingual and will offer multi-currency support. The system will be made available to PING operations in England and other parts of Europe early in 2008 and in Japan in the fourth quarter of that year. Later, the PING Community portal will support online product ordering by customers. When complete, the PCS project will support PING business around the world, providing operational visibility and control through a shared data structure.

Yet even those enhancements are not the end goal for PING. Recognizing cus-

tomers' desire for rapid service and the company's intention to provide it, CEO John Solheim recently stated that the company's long-term goal is to move from a 48-hour delivery timeframe to only 24 hours. Making such a shift would also help PING's customers, the retail sellers of golf equipment, to better serve customers and succeed on their own.

Hawken, the company president, says PING understands the need for continuing innovation. "If we sit still, we'll be copied or passed," he explains. "In continuing our relationship with Teradata, our vendors, and our customers, we are certain we can come up with ways to get this done in 24 hours or less."

XI. PING: Top of the Leader Board

PING's EDW, built on Teradata system technology, has contributed significantly to the company's business success for the last 16 years. Company president Hawken believes that, in this way, Teradata is helping PING meet its corporate goals. Although he is a strong proponent of manufacturing in America, meeting the company's lofty customer service goals also requires that PING locate regional assembly processes in strategic locations throughout in the world.

"In order to meet our goal of 24-hour delivery of custom-built product to our customers, we must have a worldwide presence," he says. "Teradata is critical to that effort. Partnering with a company like Teradata is enabling us to be more competitive and to serve our customers well."

Yet, in the end, companies need to take responsibility for understanding their own business needs and creating the IS system that will best support them. "Do your homework," he advises Crossland. "There is no substitute for understanding your business and how you want to apply technology to it."

He credits the forward thinking of his IS group and Teradata's technology for much of PING's success. Developing custom operational systems has helped the company control its systems and make maximum use of its data assets. "We've been able to develop on a single platform,

"We have been able to use our application design in combination with the Teradata solution to create an active data warehousing environment that conventional database platforms would not support very well. Teradata has given us the ability to utilize actual transactional data in powerful queries without requiring data extraction into a separate data warehouse, allowing us to bypass issues of data versioning and conversion. Combining Teradata services, active data warehousing, and scalable software and hardware gives us the tools we need to keep PING on top of the leader board."

– Kent Crossland, Information Services Director, PING, Inc.

where we can run both operational and decision support applications," he says. "That's key to our ability to make careful, market-driven business decisions."

Understanding the physical database design and its relationship to how data is stored and accessed by the Teradata system has been key to exploiting some of the parallel capabilities in application design. "We have been able to use our application design in combination with the Teradata system solution to create an active data

warehousing environment that conventional database platforms would not support very well," he adds. "Teradata has given us the ability to utilize actual transactional data in powerful queries without requiring data extraction into a separate data warehouse, allowing us to bypass issues of data versioning and conversion. Combining Teradata services, active data warehousing, and scalable software and hardware gives us the tools we need to keep PING on top of the leader board."

Teradata continually improves products as new technologies and components become available. Teradata, therefore, reserves the right to change specifications without prior notice. All features, functions, and operations described herein may not be marketed in all parts of the world. Consult your Teradata representative or Teradata.com for more information.

Copyright © 2006-2007 by Teradata Corporation All Rights Reserved. Produced in U.S.A.