MIGRATING FROM IBM DB2 TO TERADATA

Case Studies of Four Companies that Made the Switch
MANY COMPANIES TODAY UNDERSTAND THE IMPORTANCE AND VALUE OF DATA WAREHOUSING

The data warehouse has moved from a nice-to-have to a must-have piece of IT infrastructure. To be competitive, today’s organizations need to be able to make critical strategic and tactical business decisions based on as much data as possible. A robust data warehouse solution is key for that process.

Many companies have tried to implement a data warehouse based on their existing standard OLTP database management system (DBMS), like DB2. In many cases that initial solution fairs well for set reports and limited analytical workloads. But because analytical needs are always changing within dynamic business environments, companies find that those platforms are limited in the scope of analytics they can handle. Even more pronounced is the complexity and pain involved, not only in managing, but also in making changes to their data warehouse environment. Most importantly, companies are coming to realize that these platforms are not meeting the needs of their business and are recognizing that they may be suffering because of these limitations.

As a result, many IBM DB2 customers are considering migrating to the Teradata® Data Warehousing Solution. The following are questions we typically hear:

Why do companies choose Teradata over DB2?

What prompted them to migrate?

How does the migration take place?

What value have companies seen after migration?

This note will try to answer those questions by highlighting a number of key customers who have successfully migrated from DB2 to Teradata. These companies have experienced improved performance, decreased complexity and enabled data warehouse agility—but more importantly, they have achieved business benefits that justify the cost and effort involved in a migration.
THE PRIMARY COMPLAINT ABOUT DB2

Companies that have implemented data warehousing solutions on DB2 have come to find that the problem with the solution is not any single issue or performance pain, but the overall complexity of the environment as well as the complexity involved in responding to changing business requirements. It is also not the case that DB2 is incapable of meeting most requirements, but that the time, effort and pain required to affect the change is deemed worse than the potential benefits, and so no change is made. Large, long-term DB2 customers also tell us that they become increasing reluctant to make needed changes to their environment because as the size and complexity of the system grows, DB2 becomes much harder to keep tuned and changes take longer and longer, often with un-intended and detrimental consequences.

CASE STUDY #1
A LARGE HOME IMPROVEMENT RETAILER

A nationwide home improvement retailer with more than 2,000 store locations initially implemented their data warehouse on DB2. They invested in DB2 with hopes of establishing an enterprise data warehouse. Following IBM’s recommendations, they implemented their solution on DB2 Enterprise Server Edition, leveraging a hub-and-spoke architecture. Over time, the company began to face both business and technical problems that prompted them to look at alternative data warehousing solutions. One of the business problems the company faced was that a large downturn in the housing market was putting pressure on sales and profitability. At the same time, customers were demanding lower prices for home improvement products, and fierce competition was
ramping up from other retailers. Because of these business pressures, the company needed to make smarter and more rapid decisions to better leverage inventory, pricing and sales data. The existing DB2 architecture was inhibiting their ability to make those decisions due to significant performance problems, even with the latest version of DB2. To increase performance, IBM kept recommending creating separate data marts to reduce the burden on the DB2 warehouse, which dramatically increased duplication of data and latency of decision making while it inhibited integrated data analytics. The performance limitations and architectural complexity also forced them to leverage numerous OLAP cubes as a work-around attempt to integrate data. Because of the complexity of the environment, existing management costs were high and rapidly increasing. The company also realized that infrastructure upgrade costs were going to be extensive—it was time for a change.

The company looked at numerous solutions in the marketplace, and after a thorough evaluation, decided that a Teradata solution was the best strategic choice for both their business and technical needs. The retailer stated that the reason for choosing Teradata and deciding to migrate off of DB2 was that Teradata could truly deliver linear scalability and consistent performance, plus the ability to leverage Teradata's robust Retail Logical Data Model (RLDM). They also believed that by choosing Teradata they were going with the industry leader in data warehousing and taking advantage of a proven track record of delivering large, comprehensive, integrated data warehouses on a scalable platform.

The company embarked on a migration that included a redesign of the underlying physical data model to a new integrated data model based on Teradata’s RLDM. The goal of the migration was to have full-scale integration across all subject areas. The first phase of the redesign included sales, inventory, cost and master data. The customer took responsibility for the data integration work, leveraging Ab Initio ETL tools in the process. New and more frequent incremental loads were added as part of the process. Teradata Professional Services performed the database migration and helped out with the movement and loading of historical data and with improvement of the BI reporting environment and dashboards.

The company has been thrilled with their results post-migration. Their new environment enables them to have fully integrated subject areas including sales, inventory, costs and master data. They are now delivering in-store reporting out to more than 30,000 users, delivering data to in-store handheld devices, and employees are now able to leverage mobile dashboards. They can now report intra-day sales across their stores, and deliver new effective executive and financial reporting as well as in-depth market basket analysis. Their Teradata environment allowed them to achieve their vision of a fully integrated enterprise data warehouse containing sales, inventory, cost, store, labor, vendor, inventory planning and replenishment, purchase orders, shipment notification, customer, house holding, transaction matching, financial, transportation, distribution, supply chain visibility, expense, payroll and merchandising BI, all in a single Teradata solution. Most importantly, they now have an integrated, flexible and responsive warehouse environment which makes it far easier to manage and respond to changing business requirements.
CASE STUDY #2
A LARGE HEALTH CARE INSURANCE PROVIDER

A health care insurance provider with more than 3.9 million members was facing serious problems with their existing DB2 data warehouse environment. The health-care industry was undergoing tremendous change as a result of new government mandates, changing business strategies, new customer targets, new cost structures and relationships with business partners that needed to change. The existing DB2 data warehouse environment was not allowing them to react fast enough—they needed faster access to more and more information to analyze options, develop new approaches and measure results. Performance was also limited as complexity had forced the company to create multiple data marts. Their existing DB2 environment was becoming a huge bottleneck, and loads were taking too long and response times were not being met. They knew their existing environment was too complex, hard to manage, and could not meet their current and future data and performance needs.

Their existing DB2 DW environment was composed of two large marts, one for loading and one for production, and numerous other small DB2 data marts. The company had about five terabytes of user data, but needed over 50 TB of disk to support that data due to duplication, indexes and other overhead. The environment leveraged Informatica® for ETL with 300+ workflows, 1,000+ mappings and 1,400+ sessions. SAS® was their primary reporting tool.

“When Teradata was first introduced to Unum, we addressed reporting performance issues by simply re-platforming some operational DB2 databases to Teradata. Some of the queries ran 10x to 30x faster on the Teradata system than on DB2 without any restructuring of the data.”

Peter McCluskey,
EDW Technical Architected, Unum Group
“Enhancing Service to Customers at Unum Group”,
by Bolder Technology Inc.

In undertaking a migration, the company’s goal was to put in place a new analytical environment that would meet their needs driven by healthcare reform. They also wanted to put in place an integrated profile of the total customer versus having just a fragmented view across marts. Another goal was to support new online care applications for members.
After a careful and thorough evaluation of marketplace alternatives, the company chose to migrate to Teradata. They initially decided to keep the existing underlying physical data model and data marts but consolidate them on a single Teradata platform. They took a phased approach to their data mart consolidation, with the total migration time taking nine months. During this process they also chose to upgrade their ETL environment to the latest version of Informatica®, as well as leverage SAS in-database analytics within their new Teradata environment.

The insurance provider has seen huge benefits post-migration. They now have a consolidated analytical environment within their Teradata data warehouse. They have cut ETL times down by more than 40 hours, data loads now run up to six times faster and they have seen some query processing improve up to 60 times faster. They have cut their daily ETL batch window in half, reducing it from 24 hours to 12 hours. Based on this success, they have embarked on consolidating other DB2 as well as Oracle marts into the integrated Teradata environment.

CASE STUDY #3
A LARGE RETAIL COMPANY

A nationwide retailer that provides household product, clothing, electronics and groceries to more than 1,800 stores was experiencing problems with their existing DB2 data warehouse. Their existing system was reaching end-of-life, and they were projecting data growth into the petabytes going forward. A large and persistent problem with their existing DB2 environment stemmed from the need to have lots of duplicate and aggregate data structures in order to meet performance requirements. In turn, duplicated data across multiple marts was leading to data quality problems and poor decisions. Continuing to support the environment was becoming unrealistic based on growing complexity. The existing ETL process was so complex that it was hindering their ability to meet any new business needs. On top of the query and ETL performance and complexity issues, the company was unable to implement effective workload management within their DB2 environment, overflowing batch windows, and continually missing SLAs. IBM continued to claim the next version of DB2 would solve all their problems, but to no avail. After years of frustration, the company decided to look for alternatives and chose Teradata based upon its reputation as the leader.
in data warehousing and Teradata’s stellar references, both within their industry and at the size and scope the company envisioned.

The company’s existing DB2 data warehouse environment was composed of more than 30 TB of data spread across numerous marts. Datastage was used for ETL with 660+ ETL jobs, and Microstrategy® was used for reporting. Their DW environment covered subject areas such as location, item, time, purchase orders, receipts, sales and inventory.

The company decided to take a hybrid approach to their migration, which consisted of forklifting some tables and redesigning others. They decided to selectively redesign specific tables and subject areas such as inventory. They also decided to redesign and optimize the load processes for the Teradata environment, making them fully parallel, a decided upgrade from the previous environment.

During the migration redesign process they were able to eliminate numerous duplicate tables as well as ETL processes and aggregate tables. The first phase of the multi-phase migration and data mart consolidation process took six months, completing all store-level sales and common dimensions in that period. The company later completed the process of multiple mart integration and new subject area integration.

Like other companies who have migrated from DB2 to Teradata, their results exceeded their initial expectations. Eliminating numerous aggregates and duplicate data dramatically decreased the overall size and complexity of their data warehouse environment. They eliminated all of their performance problems and are now able to meet all of their batch load SLAs, even with growth in data volumes, workload, and users. With their new Teradata platform they are able to integrate numerous subject areas and data sources, which allows them to have a more complete view of their business and to optimize business processes and decisions going forward.

With the power of the Teradata database, they were able to move from a traditional ETL (extract, transform, load) environment to a new ELT (extract, load, transform) environment, which sped up the load processes and allowed them to leverage the parallel power of Terada for data transformations. The new robust workload management capabilities and overall performance of the Teradata platform even allowed them to implement what they call “innovation spaces”—areas on the Teradata platform where users load their own data into tables in their work area, work and test ideas on that data, as well as join it to tables that already exist in the larger DW area. This allowed them to rapidly test concepts and ideas and drive innovation surrounding business users’ use of data.

**CASE STUDY #4
A LARGE HEALTHCARE PROVIDER**

A healthcare provider with more than 87,000 employees was running their existing analytical environment on DB2. They had a multiple-mart environment, mainly on DB2, but also including some Oracle marts. Their existing infrastructure was seriously underperforming, so they realized they needed to either upgrade or make a change.

Within their existing DB2 mart-centric environment, data was fragmented across more than ten marts, giving them an incomplete view of what was going on in their business. The real desire was to get a true 360-degree view of their business, which was just not possible with their existing infrastructure. Their existing DB2 warehouse was limited to data feeds three times a month, and they could only provide a monthly view to the business. The company wanted to take advantage of real-time opportunities in the healthcare industry and move to an infrastructure that could support more frequent data feeds. They looked into upgrading their present DB2 environment, and found that the cost to upgrade just one mart was 80% of that of a new EDW solution.

Their DB2 environment consisted of a five-node partitioned warehouse, IBM Datastage for ETL and SAS, Cognos® and Microstrategy for reporting. To get the I/O performance they needed out of their existing system they had to put in place an extremely high spinning disk-to-data ratio of 28:1 spinning disk to raw data. That meant that 100 TB of spinning disk was put in place to support 3.5 TB of raw data. There were around 1,800 business and technical users on the system. After a thorough analysis and evaluation of alternatives, the
MIGRATING FROM IBM DB2 TO TERADATA

The company chose to migrate to Teradata. The company gave several reasons for choosing Teradata over DB2: First, Teradata was built specifically for data warehousing, not OLTP, and provides better support for a large user base performing diverse and complex analytical tasks. Second, their TCO analysis determined that Teradata would reduce the true TCO of the data warehouse. Third, they would have fewer copies of the data, fewer servers, the solution would consume less disk and they would have fewer database objects to develop and maintain. Fourth, the Teradata solution would also allow them to move away from a mart-centric environment permeated with summaries and large amounts of indexes toward a less complex, streamlined environment.

The company undertook an evolutionary approach to the migration, initially forklifting data while maintaining the same physical data models that existed in their DB2 environment, and over time evolving into a new integrated EDW data model. The migration process took nine months while running both environments in parallel. After nine months, the DB2 environment was shut down and decommissioned. As a second phase the company began to migrate other marts around the company into the Teradata data warehouse, including numerous Oracle marts.

The company has been extremely happy with their decision to migrate to Teradata. With the new system they now see user queries running ten times faster than their previous DB2 environment. They are now able to load data in near-real time. They can now reduce their overall disk to data ratio down to 4-1 versus their previous 28-1. They believe they are now positioned for growth and see long-term consolidation efforts growing their data warehouse to over 100 TB of user data which would have simply been impossible before.
One of the most challenging problems businesses face is tapping into their vast amounts of data to make quick and effective decisions. They struggle with the question of whether to improve their existing infrastructure or find a new, better, more cost-effective solution. The four companies profiled here all faced diminishing returns and were not satisfied with the ROI provided by their existing DB2 data warehouse systems. Problems with complexity and performance hindered their ability to achieve the analytical goals they had envisioned. These companies made the decision to move to a Teradata solution.

Teradata has put in place a migration program composed of methodologies, services and tools that makes the migration from DB2 to Teradata fast and easy. Tools like the Teradata migration accelerator (TMA) will migrate DB2 schema, data and code from DB2 to Teradata, automating a lot of the migration process.

When companies decided to migrate from DB2 to Teradata they discovered the following:
- Teradata has established, robust procedures that simplify the migration process.
- The tasks involved in the migration process are simple, straightforward and designed to account for existing needs along with future plans.
- The positive results can be significant. The cost of administering and maintaining the warehouse environment is greatly reduced and the capability and performance of the new system saw a dramatic improvement.

Teradata would like to add your company to the growing list of firms that have unlocked the full potential of data warehousing.

For more information about migrating from DB2 to Teradata, please visit Teradata.com or contact your Teradata account representative.