

ICICI Bank

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– Pravir Vohra,
Group Chief Technology Officer,
ICICI Bank

INDUSTRY

- Financial Services

KEY BENEFITS

- Compresses data by over 60%
- Leverages scalability owing to its open system architecture
- Achieves trickle-feed loading
- Allows for simultaneous loading and querying
- Supports more than 150 users concurrently
- Reduces downtime by providing 24x7 availability
- Significantly improves query performance and response time
- Lowers cost of maintenance and TCO
- Supports heterogeneous environment as it is hardware and platform independent

SYBASE TECHNOLOGY

- Sybase IQ
- PowerDesigner®

ICICI Bank is the pioneer in implementing a data warehousing (DW) solution for banking in India. The enterprise-wide data warehouse at ICICI bank is powered by Sybase IQ, a highly optimized business intelligence, analytics and data warehousing solution for delivering dramatically faster results at a low cost.

ICICI Bank is India's largest private sector bank. The bank has a network of 1,308 branches and 3,950 ATMs as well as robust Internet banking. The Bank is present in 19 countries, including India. ICICI Bank offers a wide range of banking products and financial services to corporate and retail customers through a variety of delivery channels and through its specialized subsidiaries and affiliates in the areas of investment banking, life and non-life insurance, venture capital and asset management.

Previously, the bank was dependent on its DW from Teradata. With dramatic growth in its users, amount of data, and source stations, etc., the increasing cost of scaling and maintenance and mounting system unavailability posed difficulties for the bank. To resolve these recurring problems, the bank undertook a migration of the enterprise data warehouse from Teradata to Sybase IQ. The success of this project provides the bank with an always available system, visibly increased query performance, and lower TCO among a host of many other benefits. Applauding the strength of Sybase IQ, Pravir Vohra, Group Chief Technology Officer, says, “Our business requirements were addressed well with minimum infrastructure. Sybase IQ is an excellent product.”

SYBASE – THE PREFERRED CHOICE

ICICI Bank was using Teradata for its data warehouse. However, due to its proprietary hardware, the cost of procurement, upgrades and administration was soaring. The closed box architecture of Teradata imposed restrictions on scalability. Secondly, querying and loading could not happen simultaneously. Queries could only be run during business hours because the loading of data had to take place during off-business hours. This meant that the refresh rate of EDW was delayed, so queries may not reflect the most current data. ICICI Bank was also dependent on Teradata for support and other activities: The bank was completely tied down to that solution.

These issues compelled ICICI Bank to look for more efficient and flexible solutions. The solution would have to address not only current issues, but accommodate future growth expectations and business requirements. ICICI Bank evaluated numerous data warehousing solutions in the pursuit of solving its issues, and developed a shortlist of alternatives for its migration proof-of-concept: Sybase, SAS and Netezza. The primary criteria for evaluation was the price-to-performance ratio where Sybase IQ emerged the clear winner. During this rigorous testing, Sybase IQ delivered faster results on independent hardware and operating systems with minimum infrastructure. Commending the improvements achieved, Amit Sethi, Joint General Manager, ICICI bank says, “What impressed us was that even with overall lower costs, we could achieve significantly better query performance after implementing the Sybase enterprise warehouse solution.”

FAST IMPLEMENTATION – FASTER RESULTS

Sybase IQ analytics server is the enterprise-wide repository at ICICI Bank. Data warehousing is used primarily for campaign management and reporting. Data feeds are provided to different departments like credit cards, customer profiling etc., to identify those customers most suited to up-sell and cross-sell offers. Secondly, the data warehouse is employed to identify customer trends, spending analysis, etc. And, beyond these more predictable analyses, ad hoc queries are required to be run on the warehouse.

Data from approximately 14 source systems is extracted and loaded on to the writer node of Sybase IQ, hosted on IBM System p-series hardware. The enterprise SAN storage is connected to both the reader and write node and the business users run queries on the reader node of Sybase IQ.

The prime challenge faced by the Sybase team was that ICICI Bank wanted the migration to be transparent to business users. This effort involved moving from Teradata tables to Sybase tables, integrating the Informatica ETL tool with Sybase IQ and training the business users on the new system. The Sybase team developed a solution to these issues using Sybase PowerDesigner. PowerDesigner was used as the modeling tool to provide the ease of transition from the Teradata warehouse.

More than three TB of data was required to be moved into Sybase IQ, typically requiring a large amount of time and storage using traditional RDBMS systems. However, Sybase IQ achieved an exceptional speed of two million records per second, so data loading with Sybase IQ took a mere two days. The data compression achieved on Sybase IQ was in excess of 60%—dramatically reducing the footprint of the data warehouse, without compromising performance. To further accelerate the migration, automated loading and archiving was implemented. The entire migration process for the new system took less than three months.

The simplicity of the system is exhibited by the fact that DBAs, developers and business users were running on the new system after only a five day training session. Mukesh Kumar Jain, Senior General Manager, ICICI Bank says, “Thanks to Sybase IQ, we have increased the system up-time to almost 24x7, and have completely eliminated the need for proprietary hardware and therefore, the dependence on external vendors.”

Sybase IQ is flexible and can be connected to a host of such complementary ETL and reporting tools and technologies. The ICICI Bank system uses Informatica’s ETL tool with EMC SAN storage.

MORE USERS, FASTER QUERIES, EASIER MAINTENANCE

Sybase IQ achieves trickle-feed loading. Now, ICICI Bank achieves simultaneous loading and querying of data, significantly increasing the window of availability for the system. While previously, the Teradata system had night and weekend downtimes, Sybase IQ is now available 24x7 to users.

The most significant achievement is the ease of scalability at low cost. This is achieved effortlessly with Sybase IQ as it is not tied to its own hardware, so it can scale within a box in addition to horizontal scaling. Sybase IQ is also platform and hardware independent and so it provides flexibility to deploy any hardware. ICICI bank has procured IBM System p-series servers, leveraging the bank’s in-house maintenance expertise, removing any dependence on an external hardware vendor.

The number of source systems and data required on the warehouse is ever increasing. The source systems maintain data from various divisions of ICICI Bank like its Retail Banking (liabilities and assets), call centre, Internet Banking and Demat units, supporting over 3.5 TB of data. Using Sybase IQ’s unique concurrent user scalability, ICICI Bank now supports over 150 users without any performance degradation.

Sybase IQ drastically reduced query time. Queries that used to take over four hours before, now complete in a quarter of the time. Additionally, system maintenance has been streamlined and can be carried out by in-house developers. With the Teradata warehouse, loading scripts were run, which made the system difficult to modify and maintain. However, with the new system, load automation has been achieved through Sybase IQ stored procedures.

EXTENDING THE SUCCESS OF THE SYSTEM

ICICI Bank’s data warehousing capability is powered by Sybase IQ’s unique column-based architecture, developed specifically for analytics. Realizing the enormous potential of Sybase IQ, ICICI Bank now plans to include its group companies into the EDW. It also envisions extending the success of the data warehousing system to include MIS and regulatory reporting.

The bank has achieved tremendous improvement in system uptime and significant improvement in query performance over its previous Teradata implementation. The number of concurrent users has increased without any performance degradation, scalability has been cost effective and is now easier, and the window of system availability has improved considerably in addition to the host of other benefits of the Sybase IQ data warehouse migration. This kind of dramatic improvement impacts the business and its decision-maker’s ability to respond more quickly. Summarizing the overall business benefits of the system, Pravir Vohra, says, “Being able to make these kinds of timely informed business decisions helps us add to our bottom line. The solution has met our expectations regarding time and performance.”