

Tbricks Delivers Blazingly Fast Strategy Trading Platform with Embedded Database



Tbricks
Stockholm, Sweden
www.tbricks.com

Industry:

High Technology

Employees:

30

Oracle Products & Services:

Oracle Berkeley DB Database

Key Benefits:

- Provided an extremely fast database to support the automated trading solution
- Provided an easy-to-use, embedded solution, eliminating the need for traders to understand databases
- Ensured 24x6 uptime
- Supported an average of 10 to 25 database transactions per millisecond and more than five million orders per day
- Minimized storage overhead

“Oracle Berkeley DB Database has been able to deliver exactly what our customers require, 'speed, speed, speed!’” – Aleksey Dukhnyakov, Vice President, Engineering, Tbricks

Established in 2006, Tbricks mission is to provide trading professionals with the most user-friendly and efficient tools for executing automated trading strategies on the financial markets. The Tbricks engineering team required a database foundation for its Genesis trading platform that could endure the volume and stress presented by real-time market data, trade execution, strategy analytics, and asset management. Tbricks designed Genesis to be the fastest strategy trading system available so that traders and managers can be first to understand and react to market movements.

Launched in 2008, the Genesis platform consists of both a Windows GUI client written in C# using the .NET platform and many server-side analysis and execution engines written in C++ running on commodity hardware located at the customer’s site or co-located at various electronic trading platforms (Electronic Communication Networks - ECNs, exchanges, brokers) around the world. The client and the server applications depend on Oracle Berkeley DB Database to store critical data.

The Case for an Embedded Database

“Using Oracle Berkeley DB Database as an embedded database allowed us to build a package where the database is invisible to our customer. Our customers do not have to be experts in databases, just trading,” said Aleksey Dukhnyakov, vice president, engineering, Tbricks. Furthermore, according to Tbricks marketing materials, “Tbricks Genesis uses Oracle Berkeley DB as a blazingly fast database that stores instruments, trades, orders, and all your customized strategy data. The database is fully embedded to relieve you from all configuration and tuning. No hassle, it just works.”

Fundamentally, Tbricks engineers needed to simplify installation, administration, and management of their solution at the client and server. This led them to choose an embedded database.

“With Oracle Berkeley DB Database, we were able to minimize storage overhead, maximize our through-put, ensure 24x6 uptime, and obtain the lowest latency possible for our traders.”

Aleksey Dukhnyakov
Vice President,
Engineering
Tbricks

“We do all the tuning because we know what to optimize and how. We can diagnose issues quickly because we know exactly what is executing in the field. Oracle Berkeley DB Database has been able to deliver exactly what our customers require, 'speed, speed, speed!'” Dukhnyakov continued.

Non-stop, Fault-tolerant, and Fast

Tbricks has rolled out a 24x6, ‘non-stop’ system capable of sending more than five million orders per day to the markets, resulting in more than 200,000 executed trades per day, per customer. Servers average between 10 and 25 database transactions per *millisecond* during every trading day, with an ability to manage much higher burst rates if necessary. Every order is the result of an opportunity Tbricks’ system identifies with one or more of the strategies constantly monitoring the market for any arbitrage, which is an opportunity to take advantage of price differentials between markets.

Tbricks’ system manages and updates more than 500GB of data heavily accessed daily to support traders and their strategies. Any loss of data, decrease in performance, or other database related failure would cost millions in lost opportunities for Tbricks’ customers.

As such, the demands on the embedded Berkeley DB database are intense. On a given trading day, traders place two to five million orders. Each of the orders placed is the result of strategic analysis requiring dozens, if not hundreds, of data points.

Why Oracle?

Tbricks reviewed relational client/server databases such as MySQL and PostgreSQL, as well as other storage solutions including building its own database, but in the end it found that Oracle was the best choice.

“We had no need for SQL ad-hoc queries and we could not afford the overhead associated with query processing and network latency common to all relational databases,” said Dukhnyakov.

Ultimately, he noted, “Without overly-complex relational joins and a simple 10-20 table schema containing well structured data, we achieved much better performance when we tailored our storage layer to address our specific needs. This turned out to be much better than any relational model we could have constructed. We know our data, we know our queries, and with Oracle Berkeley DB Database we were able to minimize storage overhead, maximize our through-put, ensure 24x6 uptime, and obtain the lowest latency possible for our traders.”

Tbricks is a provider of next-generation strategy trading systems. Tbricks' mission is to provide professionals with the most user-friendly and efficient tools for executing automated trading strategies on the financial markets. A privately-funded company founded in 2006, the firm is headquartered in Stockholm, Sweden, with development facilities in St. Petersburg, Russia.