

Digital Asset Research (DAR) performs data capture and analysis of digital asset trades at a tremendous rate. This requires a relational database management system (RDBMS) that is very fast and scalable. DAR found its answer with SingleStore.

# Realizing Dramatic Transactional and Analytic Performance Gains with Scalable Cost

July 2023

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## Introduction

DAR provides “clean” digital asset data, insights, and research to institutional clients. The New York-based company offers high-quality digital asset data and regularly compiles data from over 200 million monthly trades. The nature of this work requires the ingestion and analysis of vast amounts of trade data on an ongoing basis. Since 2017, DAR has led by rigorously vetting exchanges and assets to eliminate noise for flagship clients, such as Bloomberg, Chainlink, FTSE Russell, and Wilshire.

The analytics often look for trends, not just current behavior; DAR needs to see how each asset is behaving across all exchanges and perform appropriate filtering of the data. Queries include data for analysis that looks back 10 or 15 minutes. This historical data needs to be loaded, and the load times must be brief. The queries can be quite complex, and the pressure for a quick response is intense.

Recently, DAR found that it was struggling to keep up with the speed and volume of data that required analysis, so the company turned to SingleStore for a solution. When DAR started this work, the firm was processing roughly 20 million trades on an average day. SQL execution was slow and expensive, and the database was unable to keep up with the volume. There were also constant outages. Not anymore. DAR found that SingleStore was easy to understand and deploy and was pleased with how quickly the operation could get up and running.

Since moving to SingleStore, DAR handles over 200 million trades daily on an average volume day, and it looks to track many other similar-sized data sets. DAR has also added more analytic products. Originally, the company offered 15-second pricing. Now, DAR offers additional pricing products at many different intervals, including 400 milliseconds. In support of more complex analytics, the firm now has a more detailed schema. Before SingleStore, a sophisticated data model was out of the question. In addition, the demanding load times are no longer a problem.

## SOLUTION SNAPSHOT

### ORGANIZATION:

Digital Asset Research performs analysis on digital asset trades in real time.

### ORGANIZATIONAL CHALLENGE:

A slow, unreliable database was interfering with value delivery to clients and preventing business growth.

### SOLUTION:

DAR moved to SingleStore, a real-time, unified, distributed SQL RDBMS.

### PROJECT DURATION:

A few weeks

### BENEFIT:

SingleStore addressed speed, scalability, and reliability challenges, enabling DAR to expand its volume of work and the variety of analytic products offered.

Today, DAR uses SingleStore as a transactional (or online transaction processing) database, an analytic (or online analytical processing) database, a cache, and an extract transform load (ETL) engine, so they view it as a four-in-one solution.

## Implementation

Early in the implementation process, DAR considered setting up multiple databases for the different workloads and shipping the data around, but there were integrity and latency issues involved. Moving data from the transactional database to the data warehouse took an unacceptable amount of time, so DAR needed a database management system (DBMS) that could provide an all-in-one solution. Another issue concerned the migration of applications. They were all using the SQL of the prior relational DBMS (RDBMS) and would need to be converted. Fortunately, DAR found that SingleStore's SQL was very similar to what it had been using, so migrating the applications was simple.

Scalability proved to be a significant benefit, and the charging model was a big help. The prior RDBMS was charged based on many different factors, so the cost was unpredictable. SingleStore's model does not work that way, so it allows for expansion without breaking the bank. Some data tables have over 100 billion rows, so performing a cumulative calculation on all that data may not have been possible either operationally or in terms of expense. Now it does work, and without adding to the overall cost. DAR estimates that users accomplished 20 times more tasks when the company started using SingleStore, but its cost has risen by just 50%.

## Challenges

Any time a company moves from one DBMS to another, challenges arise involving data compatibility, SQL differences, and other related issues. Consequently, there were minor challenges involved in moving to this new technology, but they were easily overcome. The process wasn't completely smooth, but SingleStore has been, in the words of DAR, "a good partner."

## Benefits

SingleStore has enabled the dramatic expansion of products delivered by allowing for broader and faster analysis of more data and supporting the development of new analytic products. Its pricing model delivers more affordable scalability than the prior solution had. Before, there was frequent downtime and middle-of-the-night crisis calls; now, downtime is very unusual.

DAR praised SingleStore, highlighting its various benefits:

"In [our prior DBMS], we would get about a billion trades in one table before that table would just fall over, and then we would make a new trades table. We let that go for like 2–3 weeks until that fell over and then set up another one. Now I have one table with all our trades. It has 100 billion trades, and we can actually query that table and it comes back quickly. There's no end in sight to when this table will run out of room. It's operating fine with 100 billion rows. You could have a trillion rows in it, and it'll be fine."

With all that, the query performance is better than it had been with the prior DBMS. DAR is convinced that only SingleStore could address all its needs.

## Methodology

The project and company information contained in this document was obtained from multiple sources, including information supplied by SingleStore and questions posed by IDC directly to DAR. In addition, IDC conducted a series of structured interviews with DAR. This document summarizes the results of those interviews.

## About the Analyst



### ***Carl Olofson, Research Vice President, Data Management Software***

Carl Olofson has performed research and analysis for IDC since 1997, and manages IDC's Database Management Software service, as well as supporting the Data Integration Software services. Mr. Olofson's research involves following sales and technical developments in the structured data management (SDM) software markets. One key market is the database management systems (DBMS) software market, which includes non-schematic database management systems, data lake managers, navigational database management systems, low code database management systems, and memory-optimized shared data managers.

### MESSAGE FROM THE SPONSOR

SingleStore helps companies deliver value at the speed of business. With a unified data engine for transactional and analytical workloads, SingleStoreDB powers fast, real-time analytics and applications, managing transactions and analytics simultaneously and effortlessly spanning structured, semi-structured, and unstructured data, and across streaming and historical data, unified through a single pane of glass to make timely, accurate insight accessible for every worker and workload. The result is a modern ecosystem that eliminates data silos to develop products and services with real-time analytics, machine learning, and AI. This includes full-featured vector database, generative AI, Large Language Model, and ChatGPT functionality — and instead of increasing cost and complexity by introducing a separate, purpose-built vector database, companies can achieve this in a single platform, SingleStore DB. Learn more today at +1 855.463.6775, [team@singlestore.com](mailto:team@singlestore.com), or <https://www.singlestore.com/>.

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