

Solution Brief

Shorten the Financial Close Cycle with SingleStore

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1. Business Problem

Elongated financial close cycles could be a great threat to your organization, as they may limit your ability to adjust quickly to unforeseen economic or market shifts. Focus on predictable, timely and quick close cycles are particularly important in the midst of the COVID-19 pandemic and they impact downstream processes such as scenario planning in the Enterprise Performance Management (EPM) system.

The amount of time consumed and error-prone manual processes make the financial close cycle difficult and painful. According to a recent article in [CFO.com](#), which is based on a survey that comes from APQC's General Accounting Open Standards Benchmarking Survey, the bottom 25% of companies need 10 or more days to perform the monthly close cycle (colloquially known as "closing the books"). The top 25% take about 5 days or less.

According to the same article, CFOs often say that their top priority is closing the books faster. Some of the key reasons for long close cycles include: humongous manual efforts in accounting, inadequate tools for querying and reconciling, inadequate systems and system constraints, need for manual entries due to lack of automation, collecting and consolidation of data from different departments, etc. These tasks require strenuous manual efforts.

A very large part of closing cycle time is often consumed by what should be the fast and simple process of computing results based on input data from across the company. Unfortunately, this process is often neither fast nor simple. Data is often gathered using one-off processes that differ by data source, then "crunched" in a process that can take many hours, even days. The business requirement is that this process take a few hours - so



as to not impede financial work, and so as to enable repetition of the process to review results, fix errors, and accommodate late-breaking new information.

The C-suite needs to treat data as a strategic asset across the organization. Any technology in a company cannot be leveraged well without the strategic asset (i.e. data). Senior financial executives (such as CFOs) play an important role in responding to crises, such as the coronavirus pandemic. They need the most updated information on everything from employee safety, to the firm's financial status, at all times, and in particular during crisis situations. Delays due to elongated close cycles can adversely affect the decision-making capability of senior management.

Some of the key challenges faced by financial executives include: constraints in combining multiple Enterprise Resource Planning (ERP) databases into a single source for quarter-end or month-end reporting (closing books), understanding cash flow, running analytics on near real-time data from multiple data sources in parallel, limitations in scaling the system on demand, etc. In addition, legacy data platforms are inefficient, not performant, and very expensive to maintain.

2. Consequences of the Problem

CFOs and finance analysts often dedicate 25 percent (or more) of their productive time to month-end, quarter-end, and year-end close cycles. This leaves them with very little time to focus on the strategic planning required for the growth of the company. In such cases, the finance team won't have enough bandwidth to analyze the results so as to understand key business trends, and accurately forecast future results. The executives may lack real-time visibility into the overall financial state of the business, including company revenue, cost management, and financial liabilities. As a result, CFOs may lack the ability



to make important business decisions so as to adjust quickly with the changes in economic conditions, in particular changes due to unexpected crisis situations, such as the coronavirus pandemic.

3. SingleStore's Solution

3.1 Technical Solution

SingleStore is a distributed, relational, SQL database management system (RDBMS) that features ANSI SQL support and is known for exceptional speed in both query processing and data ingestion with unlimited scaling capability. SingleStore, an operational database built for speed and scale, can be an excellent solution to empower accounting and finance systems with real-time capabilities. Access to real-time data with SingleStore gives finance teams, asset managers, advisors, and analysts a leg up. Some of the leading finance institutions and trading firms leverage SingleStore to ingest, query, and serve data to tens of thousands of simultaneous users, with unlimited scalability.

SingleStore's key capabilities, such as unlimited scalability and support for fast, SQL-based analytics with high concurrency, and ultra-fast query performance while streaming data, makes it very well-suited to serve as the underlying database platform to solve this business problem.

The following key capabilities of SingleStore are instrumental for this solution:

- **Scalable Analytics Concurrency.** Scale-out for growing analytics concurrency for ad hoc queries, business intelligence tools, and apps, with industry-standard hardware
- **Low Latency Queries.** Interactive query response time through scale-out and query compilation



SingleStore

- **Stream Ingestion.** Discover insights on fast-changing data with real-time ingestion, including scalable integration with Kafka
- **Scale-out Architecture.** Deliver performance as ingest, processing, and query requirements grow, on industry-standard hardware or on the cloud
- **Fast SQL.** Vectorized and compiled query performance deliver reliable sub-second response
- **Interoperable Architecture.** Drop-in compatibility using standard SQL, hardware, and interfaces provides seamless integration

SingleStore solves the problem of slow financial close cycles by delivering demanding needs for near real-time data such as faster ad-hoc analytics, dashboards, reporting, and support for modern applications, all to shorten the financial close cycle so as to provide quick access to the most up-to-date financial data.

Before SingleStore. Reference architecture diagram (fig.1) demonstrates the complexity of legacy systems and their workflow.

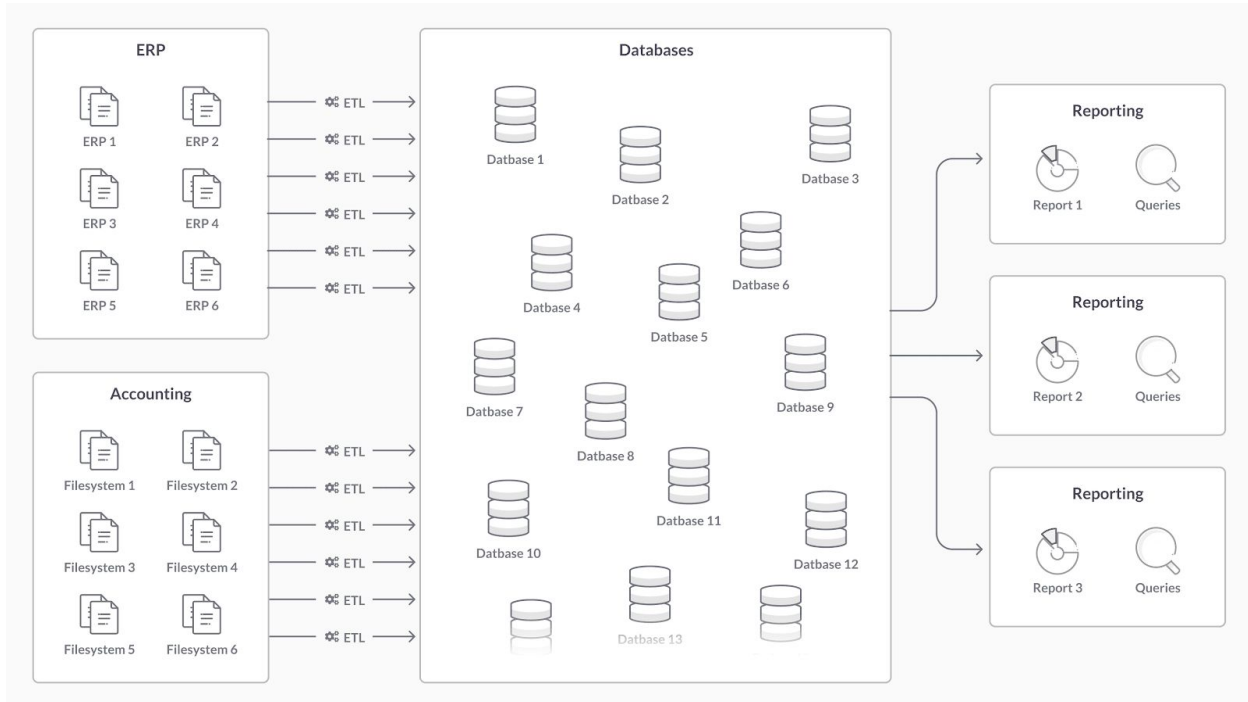


Figure 1. Architecture Before SingleStore

After SingleStore. Reference architecture diagram (fig.2) demonstrates how SingleStore can solve this business problem in a simplified approach.

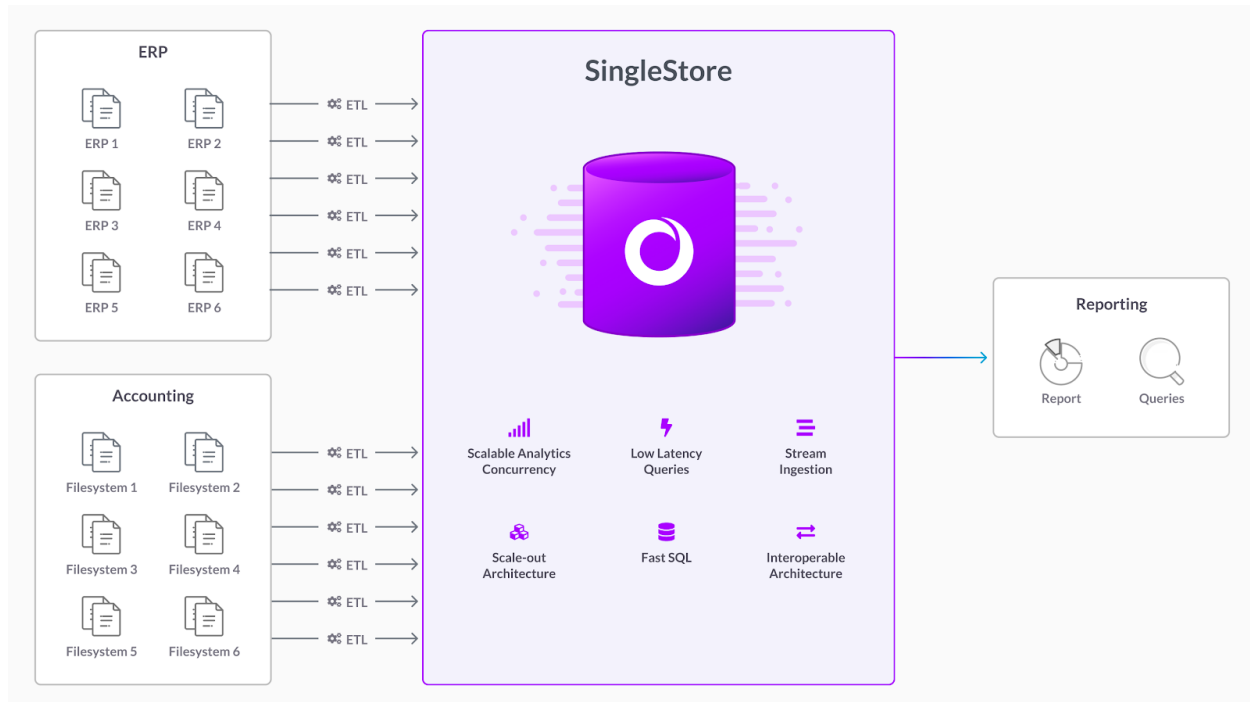


Figure2. Architecture After SingleStore

Here are several ways in which SingleStore can be used to solve this business problem, depending on the systems you currently have in place:

- **Kafka/Spark integration:** SingleStore integrates very well with Kafka and Spark platforms. If you are currently using, or planning to use those streaming platforms in future, then the combined price/performance of SingleStore (with Kafka/Spark) are likely to far exceed your current system.
- **Hadoop augmentation** (or other NoSQL database): Hadoop systems often run quite slowly, and require many servers or instances to accommodate a given volume of data and queries. Moving data required for financial close cycles to SingleStore can reduce processing time, often from days down to a few hours, or from several hours down to a few minutes. (Shorter cycle times not only save time; they also provide the opportunity to review results and correct mistakes, or otherwise improve reporting.) The reduction in supporting hardware often saves

money, and the operations workload is likely to be reduced as well - especially with our elastic managed database in the cloud.

- **Legacy System Modernization** (or other relational database): Many traditional relational database systems offer uncomfortable trade-offs between very high prices, poor performance - or both. SingleStore offers much better price-performance and total cost of ownership than other vendors, allowing you to save time, cut costs, and simplify operations.

3.2 Positive Business Outcomes with SingleStore

The key positive business outcomes (PBOs) that you can expect with SingleStore, specific to this particular business problem, include: shortened financial close cycles; reduced human efforts through automation; fewer errors in processing; better visibility of financial state; smart decision making through analytics on real-time data; etc. For example, speeding up the process of financial close cycle each month frees CFOs and finance teams to focus on more high-priority strategic initiatives. If a CFO can close the month-end cycle in just two days instead of six, then those extra days can be spent on other key areas such as forecasting and decision making with the CEO, financial planning and forecasting with other department heads, future strategic projects, and streamlining existing processes for overall operational efficiency. This leaves the CFO with more time to focus on other lines of business and actively contribute toward C-level decisions.

4. Customer Success Stories

4.1 Financial/ERP Reporting for the C-Suite in a Fortune 50 Company

A leading Fortune 50 company uses SingleStore to power their ERP (enterprise resource planning, a form of financial reporting) use case, which is considered as one of their



mission critical customer-facing applications. With the old data platform (before SingleStore), it was challenging for them to consolidate all of the twenty ERP databases into a single source for processing the financial close cycle (closing the books, revenue reporting etc.), and understanding the overall revenue flow. Other big challenges with the old platform included lack of scalability, poor performance, and the inability to run analytics on near real-time data.

After moving to SingleStore, the same process - consolidating multiple ERP databases into a single source for month/quarter end closing, and understanding the flow of money - that took more than a week with the old platform is now finishing within seconds or minutes, as data is ingested on a near real-time basis into SingleStore for up-to-date reporting from nearly twenty ERP sources.

SingleStore has enabled this company to be agile and responsive to any changes. Some of the key PBOs) follow:

- **Self-service analytics on financial data enabling actionable insight.** No more daily dumps and Excel-based analysis.
- **Improved capabilities due to automation.** What took days now takes minutes with SingleStore.
- **Single source of truth.** For quarter-end Wall Street reporting.
- **Manage costs and expenses.** Operational efficiency across the company in a timely manner.
- **CEO-level visibility.** Ability to make business decisions based on changes in the market.

4.2 Financial Forecasting in a Fortune 500 Oil and Gas Company

A Fortune 500 company, one of the most admired companies in the oil and gas space, leverages SingleStore for their financial reporting use case. Not only does the price of oil change rapidly, oil well production also tends to vary depending on the location of the well and the method used to drill (shale or traditional). Hence forecasting budgets for every department became a big challenge for this customer, due to the sheer number of variables.

In order to solve this problem, the company decided to consolidate all the available historical data (oil prices, oil production data, and related information) and create a model which any department within the company could use to forecast a budget with a high degree of accuracy. This model is updated multiple times a day with spot oil prices and actual production values from oil wells owned by the company across the world, derived from their Internet of Things (IoT) implementation of extensive networks of sensors across their owned physical plant.

The company evaluated a number of database vendors to solve this problem and landed on SingleStore. Not only was SingleStore fast for analytical requirements, but also delivered ultra-fast performance in ingesting vast volumes of data (millions of records in a second) with a query response time in subseconds. The entire solution was built within a few months and was able to deliver immediate success for the company.

SingleStore powers the following applications in this company: Financial forecasting, IOT and well production analysis based on real-time processing (which means that a transaction is processed fast enough for the result to come back and be acted on without noticeable delay), and back-office reporting (ERP, contracts, etc).

Some of the key PBOs achieved with SingleStore include:

- **Real-time visibility for financial forecasting.** Each department/region now has the ability to assess current business and oil production, and use this information to forecast budgets from their computers or mobile devices, at any time of the day.
- **Strong earnings and profitability.** Shown by the market capitalization and stock price.

4.3 Billing Data Management in a Global Content Delivery Network Company

A leading content delivery network (CDN) provider leverages SingleStore for accelerating their billing data management. They generate revenue by billing their customers for whom they deliver content. The inability to map their billing cycles to that of their cloud partners (some of which have hundreds of thousands of “sub-customers”) was a great hurdle in their billing management cycle. This scenario directly and indirectly impacted the ability of their C-Suite executives to maintain competitiveness and customer retention. As a result, they decided to evaluate a modern data platform solution which is capable of handling higher throughputs from edge servers. Some of the key challenges with the old system include: degraded performance, inability to scale-out for weekly and daily billing, lesser granularity, lack of geospatial support, and poor query response time.

Before SingleStore, the data required batch processing and complex multi-step ETL jobs. Hence finalizing data for billing required lengthy batch updates and unavailability periods. After SingleStore, the data finalization process got much simpler as it gets transformed in-flight using [SingleStore Pipelines](#) functionality. As a result of getting all the invoices out



on-time, SingleStore played a key role in closing the books in accounts receivable (AR) for the month-end close process.

Some of the key PBOs achieved with SingleStore include:

- **Accelerated month-end cycle.** Month-end close process got shortened due to quick availability of final data
- **Increased revenue.** Revenue increased significantly by enabling weekly/daily billing
- **Dramatic cost savings.** Reduced data management costs by 5x (vs old legacy system)
- **Real-time visibility for C-Suite.** Ability to see what's happening with customer utilization in real time and respond on a daily (rather than monthly) basis
- **Enhanced customer experience.** Deliver internal and external customers visibility into their own costs and usage with very high degree of transparency