SingleStore™

Powering Data-Driven Innovation in Fintech

Four customer examples

Table of contents

Powering the fintech revolution with data

SingleStore powers fintech innovation

The fintech industry is one of the most disruptive sectors in technology. The fintech market is projected to grow to $324 billion by 2026. with a global adoption rate of 25%.[1] Financial innovation requires a new set of technologies to fuel the demand for competitive financial services — for both companies and their customers.

Global consumers have turned to alternative ways of managing their finances, with a 64% adoption rate of fintech products. In addition, 96% of consumers are aware of at least one fintech service[2] — making the market ripe to drive more innovation. Tech-savvy startups are answering the call, applying disruptive technologies like banking-as-a-service or embedded finance to innovate at the speed of supply and demand.

Fintechs often find that yesterday's incumbent legacy infrastructure cannot support the pace of data innovations happening in their space.

In response, these fintech disruptors are ditching 60+ year-old database technologies to build their applications — and digital foundations —from the ground up on modern data engines that support demands for speed, scale and agility.

SingleStore powers some of the most innovative fintech companies around the world and across multiple segments including capital markets, data marketplaces, personal finance, crypto, consumer lending and payments.

This eBook demonstrates how top Fintechs leverage SingleStore to power modern, fast and interactive applications using data and analytics as the engine to deliver actionable insights in every moment.

1. https://www.marketdataforecast.com/market-reports/fintech-market
2. https://balancingeverything.com/fintech-statistics/#:~:text=Fintech%20Statistics%20(Editor's%20Choice),Ant%20Group%2C%20worth%20%24131%20billion.&text=The%20global%20fintech%20adoption%20rate%20rose%20to%2064%25%20in%202020

Fintech paradigms: Exploring Banking-as-a-service (BaaS)

How SingleStore helps BaaS

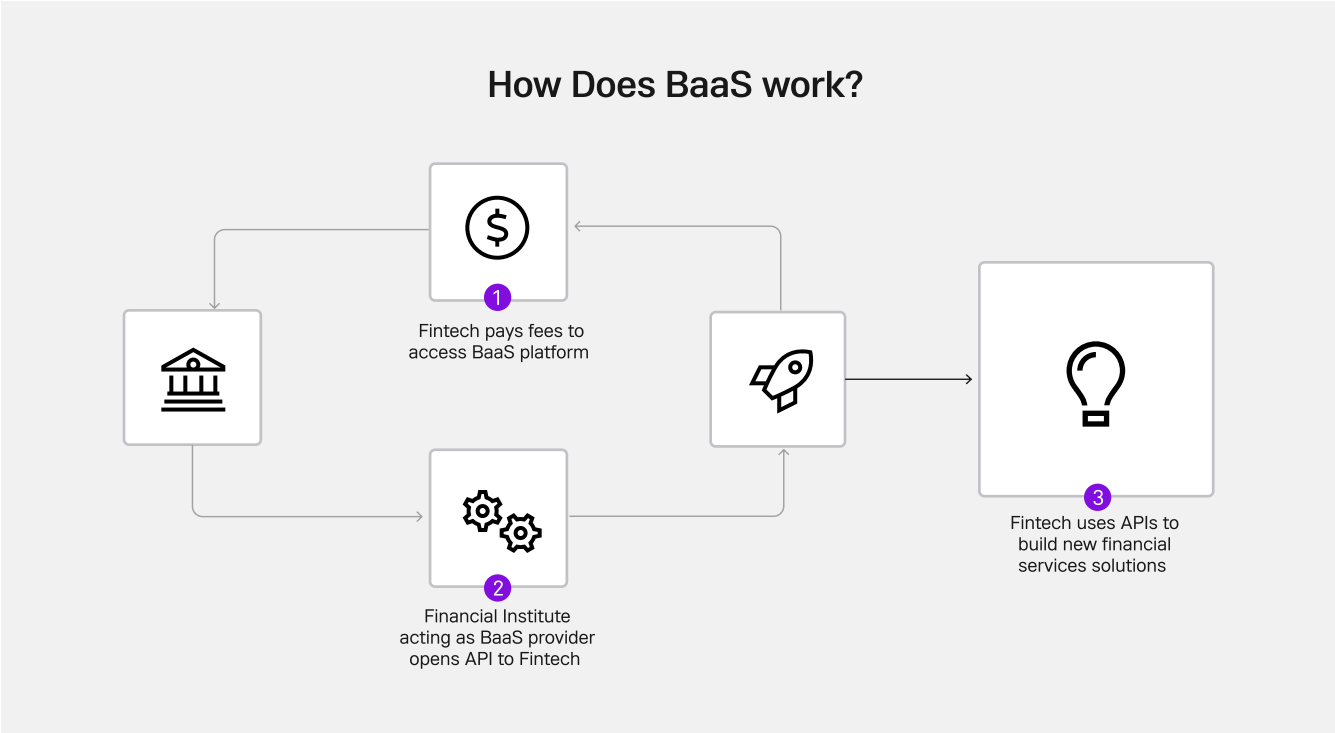
To innovate at the speed of market, leading fintech companies utilize banking-as-a-service to partner with banks while providing services that traditional banks don't offer.

So, what is banking-as-a-service?

A traditional bank takes years to be built and taken to market due to its highly regulatory nature. Because fintech start-ups cannot wait that long, they partner with a traditional bank to then integrate their digital banking services with other non-banking businesses, services and products.

This way, a non-bank business (like an airline) can offer its customers digital banking services including mobile bank accounts, debit cards, loans and payment services, without needing to acquire a banking license of their own.[1]

SingleStore helps banking-as-a-service by powering their API backends to handle fast-changing data, large reference datasets and analytics. No matter how data intensive the need, fintech companies find success with SingleStore.



1. https://www.finextra.com/blogposting/20099/what-the-hell-is-banking-as-a-service-and-what-is-it-not

Fintech paradigms: Exploring embedded finance

How SingleStore enables embedded finance

Within banking-as-a-service, there is the embedded finance sector that serves the demands of customers making billions of dollars of purchases online every year. Embedded finance is a huge market opportunity that is projected to grow to $7.2 trillion by 2030.[1]

So, what is embedded finance?

Embedded finance enables non-financial institutions to offer customers financial tools or services, seamlessly integrating creative forms of payment, debit, credit, insurance or even investment into their end-user experiences.

For example, a company can offer a product or service online, and an embedded finance service like PayPal or Klarna can offer credit or services to buy now and pay later.

Embedded finance services are data intensive and demand high data ingest with low-latency processing for fast analytics and better customer experiences. And, better customer experiences means higher user engagement and growth for these disruptors. SingleStore helps embedded finance companies like AntMoney power their application to easily scale — and deliver — an interactive customer experience, high availability and speed.

Particles of embedded finance

Embedded finance technologies simplify cumbersome processes into a seamless user experience. Customers can purchase or manage their fintech products or services with ease like banking, lending, insurance or wealth management.

1. https://www.finextra.com/blogposting/21357/embedded-finance-is-back-and-its-taking-over-the-lending-space

The need for speed, scale and agility

Today's cutting-edge fintechs demand a new breed of data infrastructure that delivers the speed, scale and agility to power their data-intensive applications. Incumbent financial institutions that rely on decades-old technology are unable to analyze data in real time, putting them at a competitive disadvantage.

Fintechs today need a modern, distributed data platform that can handle both transactions and analytics in the same engine, eliminating the need for unnecessary data movement. They need an underlying data platform optimized for high throughput streaming data ingestion, blazing fast queries and low latency to power real-time analytics for payments and fraud detection, anticipating customer needs and more.

What fintechs need today is a data Platform that can deliver

Speed

Power fast applications and accelerate speed-to-insights

1. Ability to ingest and process data in real time — up to millions of events per second
2. Millisecond latency query responses
3. Eliminate or minimize the need for ETL batch windows

Scale

Infinite scalability without compromising performance to handle

1. Fast user and data growth at petabyte scale
2. Growth in the amount of data ingested per second
3. Thousands of concurrent queries or requests

Agility

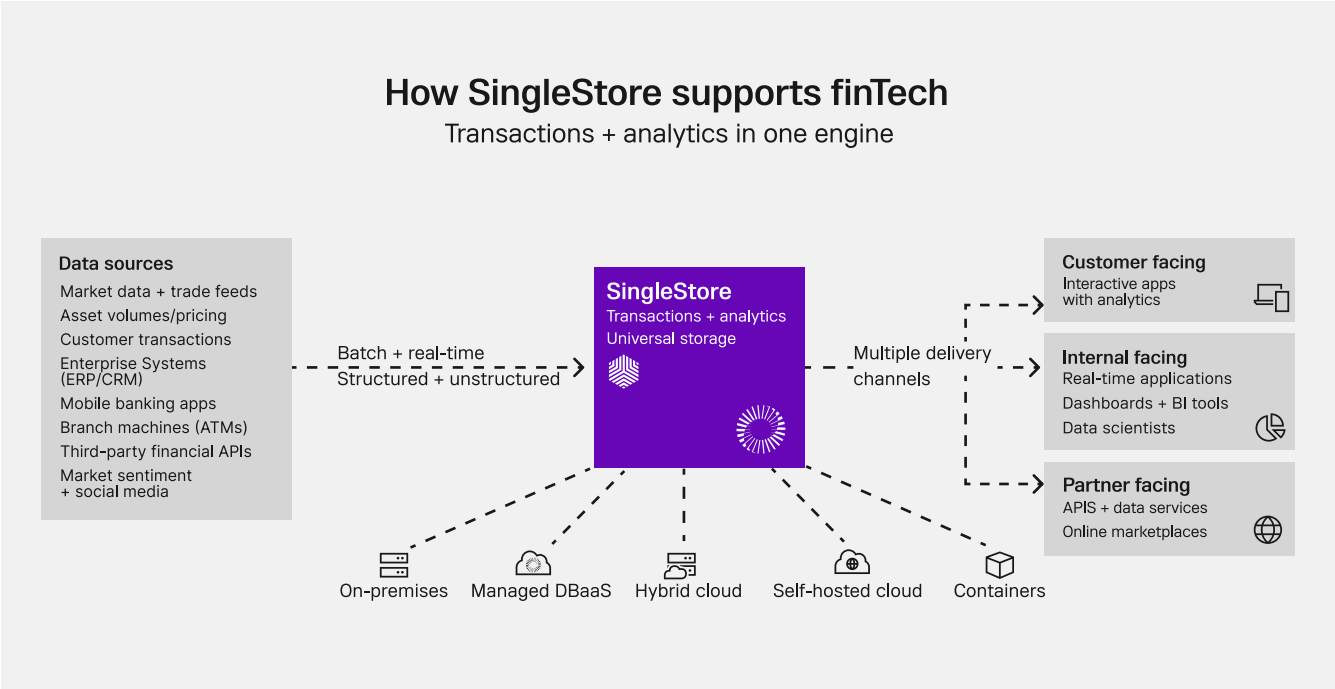
Leverage any type of data and run anywhere

1. Unify all types of data: real time and historical, unstructured and structured, streaming and batch
2. Leverage existing skillsets (i.e. SQL)
3. Run on-premise, in any cloud (AWS, Azure, GCP), in a hybrid mode or on containers

Enable new applications + business models

From real-time data analytic marketplaces and algorithmic crypto exchanges to enabling rich experiences in personal finance, SingleStore offers a unified database to power modern applications in fintech.

SingleStore is built from the ground up as a distributed, highly-scalable that delivers maximum performance for both transactional and analytical workloads. With **10-100x the performance at 1/3 the cost** of legacy infrastructure, we deliver speed, scale and agility in one powerfully simple, cloud-native, relational database. The result? You can easily scale and power your applications, driving analytics and insights fast for the moments that matter!



Powering diverse fintech segments + use cases

Today, SingleStore powers the database infrastructure of leading fintechs across multiple segments so they can continue to lead and innovate in their market sectors.

SingleStore customers across diverse fintech segments

Embedded finance with PostgreSQL

Watch webinar ↗

Payment processing + networks

Read customer story ↗

Asset management

Read customer story ↗

Consumer lending

Read customer story ↗

Personal finance

Watch video ↗

Cryptocurrency

Watch webinar ↗

Powering innovative use cases in fintech

With SingleStore, fintechs are able to ingest and aggregate millions of events and transactions every second, accomplishing real-time processing and analytics (with sub-second latencies) on petabytes of data. Analytics and data can then be served, in real time, to power applications or dashboards across a variety of channels — including external customer facing apps, internal operational systems and dashboards, partner-facing applications and online marketplaces.

SingleStore powers some of the most compelling use cases across fintech segments, including:

Consumer lending

- Peer-to-peer lending marketplace
- Real-time credit assessment
- Alternative payments and financing

Point-of-sales (POS)

- Payment acceptance terminals for mobile merchants
- One-stop payment + loyalty solutions
- Seamless payment solutions for banks, governments and individuals

Payments processing

- Omnichannel commerce (online, in-store and mobile payments)
- Full service 3rd-party payment and risk solutions
- Unified payments ecosystem

Capital markets + marketplaces

- API platform for streaming market data
- Real-time adaptive analytics, visualization and machine learning

Asset management

- Real-time investment performance calculation engine and reporting system
- On-demand and batch-generated investor account statements

Personal finance

- Self-directed investing platform
- Intelligent wealth management portfolios
- Easy-to-use mobile, desktop and web trading

Cryptocurrency

- 24/7 crypto derivatives exchange
- Digital clearing and brokerage houses
- Algorithmic trading platform

Accounting finance

- Cloud-based, end-to-end accounting
- Automated risk and finance platform
- Integrated credit stress testing and advance risk analytics

Embedded finance

- Embedded investment functionality in reward programs
- Drive new investment accounts via micro-income
- Drive partner apps' customer engagement and ARPU

CASE STUDY #1 | REAL-TIME CAPITAL MARKETS DATA MARKETPLACE

iex cloud

Democratize capital markets data in real time

IEX Cloud, curates and provisions institutional grade data, including real-time and historical prices on 95,000+ securities, fundamentals, forex, crypto and more — all in one API.

800k
events per second

2.5B
API calls per day

CASE STUDY #1 | REAL-TIME CAPITAL MARKETS DATA MARKETPLACE

iex cloud

Objective

IEX Cloud aimed to build a financial data delivery platform to make data more accessible to their community with real-time analytics.

Pain points

IEX Cloud outgrew MySQL, which couldn't meet performance and functionality. Also, Clickhouse couldn't support concurrent reads for IEX's 150k+ user base.

IEX Cloud needed one database that could provide low latency reads and write, immediate availability of data, real-time analytics, historical and real-time queries.

Key challenges before SingleStore

Disjointed data architecture: Lack of a unified data store where data needed to be ingested and stored in one database for low latency and complexity.

Unpredictable API traffic: The database couldn't horizontally scale reads and writes to handle API demand increases at any time in volatile financial markets.

Mixed-use data functions: Market participants could not pull large analytical queries concurrently with low latency, and simultaneously on both real-time and historical data.

Business impacts with SingleStore

10x-15x speed improvement: ETL process execution time dropped from days to minutes, handling up to 800k events per second, processing over 2.5B API requests daily with an 8ms average response time using SingleStore. The team benefited from substantial time savings to focus on other essential tasks.

Build fintech apps at scale + speed: Developers were able to get financial data in real time at an affordable price to further develop solutions with core and premium data sets. Developers built use cases for business needs, like front-office traders needing real-time data.

Accessible financial data sets: IEX Cloud achieved their vision of creating a vibrant financial data ecosystem with best-in-class financial data with 200+ financial data sets and plans. Data creators share their data in real time at no cost — while getting paid when developers use their data.

CASE STUDY #2 | CRYPTOCURRENCIES

Bitwyre

Cryptocurrency derivatives exchange

Bitwyre is the next gen, HFT-friendly cryptocurrency derivatives exchange

1M
orders per second

1ms
latency

CASE STUDY #2 | CRYPTOCURRENCIES

Bitwyre

Objective

Bitwyre is taking crypto trading in a new direction by offering low-latency trading infrastructure that combines a derivatives exchange, a clearing house and brokerage house, thus minimizing most risks for the cryptocurrency trader.

Pain points

The Bitwyre business model was dependent on uptime and helping its users continue to trade in real time, down to the millisecond. But with Bitywyre's initial database architecture setup in Redis, orders were failing and the entire exchange was experiencing failures and outages. With Redis, Bitwyre was getting dirty reads and concurrency issues — and lacked the overall durability and resilience to face outages.

Key challenges before SingleStore

Concurrency limitations: Popular in-memory data products like Redis did not sufficiently address the multithreaded, asynchronous access and low-latency requirements of market exchanges.

Proprietary programming semantics: The programming language semantics of market-leading, time-series data products required specially trained developer resources.

Massive outages: On Redis, Bitwyre was constantly experience failures and outages, making them vulnerable to lawsuits and loss of trading volume.

Business impacts with SingleStore

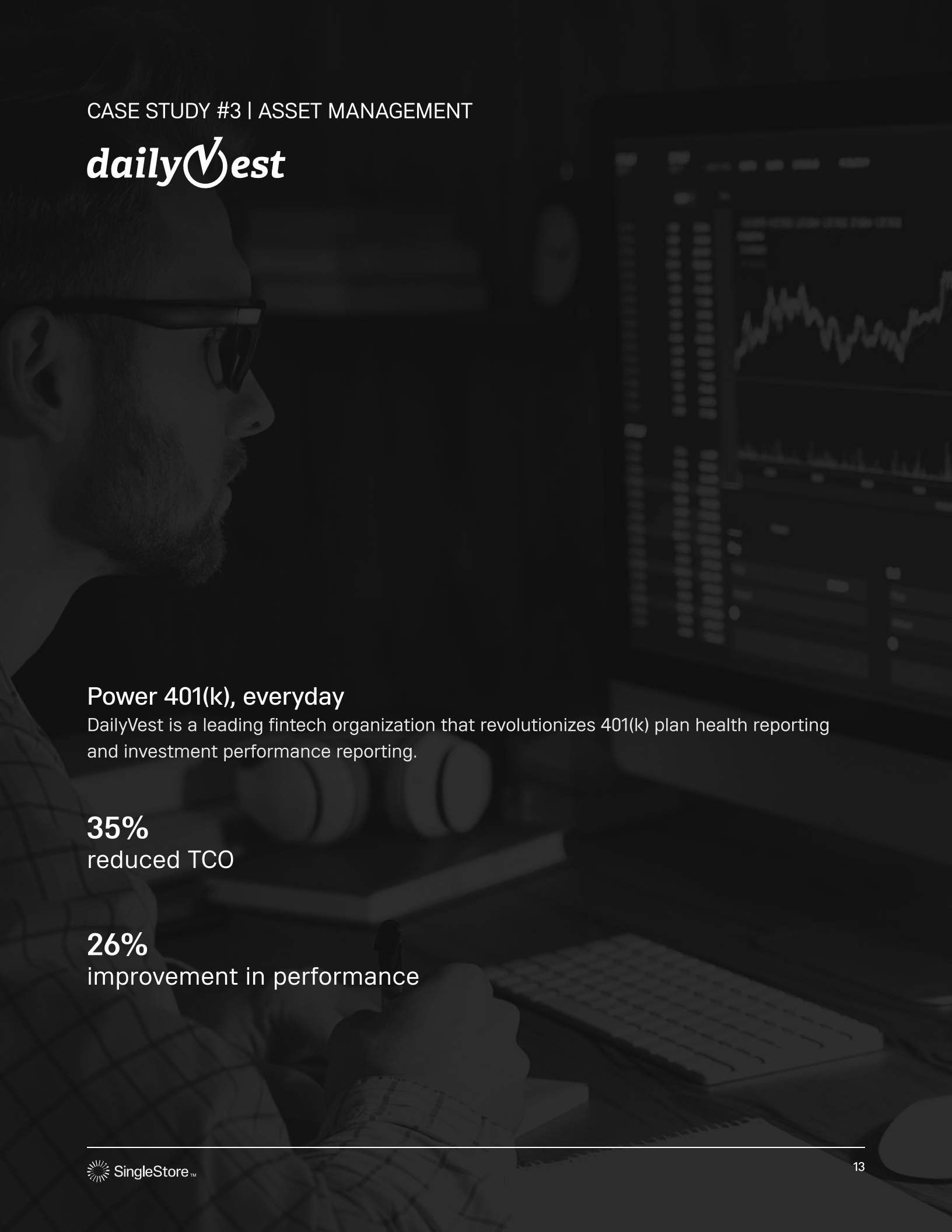
Infinitely scalable trading engine: Bitwyre's trading engine processed 1 million orders/second with 1 millisecond latency, or round-trip time. Bitywre outperforms the average crypto exchange that has 18ms latency round-trip time.

Increased profitability for Bitwyre: Bitwyre's ability to handle higher daily trading volumes drives more revenue — in excess of $1.5 million per day.

Reduced risk of disruption and outages: SingleStore's high availability nodes provided Bitwyre a resilient, stable and accurate trading system. Bitwyre continues to upkeep its trading volume and uptime for its customers.

CASE STUDY #3 | ASSET MANAGEMENT

dailyVest



Power 401(k), everyday

DailyVest is a leading fintech organization that revolutionizes 401(k) plan health reporting and investment performance reporting.

35%
reduced TCO

26%
improvement in performance

CASE STUDY #3 | ASSET MANAGEMENT

DailyVest

Objective

DailyVest was looking to improve investment and performance reporting for record keepers, plan participants and sponsors. They wanted an analytics dashboard with clear and digestible insights that could aggregate 12M+ 401(k) plan participant data for employers and sponsors to analyze and make better data-driven decisions for plan participants.

Pain points

DailyVest was using Microsoft Azure SQL, which couldn't effectively scale to meet the team's performance and cost expectations as data volume increased. Common operations like copying or restoring a database took an hour. In addition, the month-to-month storage costs for long-term recovery backups also increased several hundred dollars per month.

Key challenges before SingleStore

Data increase: DailyVest was unable to efficiently scale to meet data demands — including rapid growth targets of 36% YoY to $569B in assets managed for 12.3 million participants.

Proprietary programming semantics: Costs escalated month-over-month primarily because Long-Term Recovery (LTR) and Point-in-Time Recovery (PITR) backup storage requirements continuously grew.

Slow performing dashboards: With billions of transactions in need of analysis and accounts with growing number of participants, DailyVest's dashboard was suffering in performance.

Business impacts with SingleStore

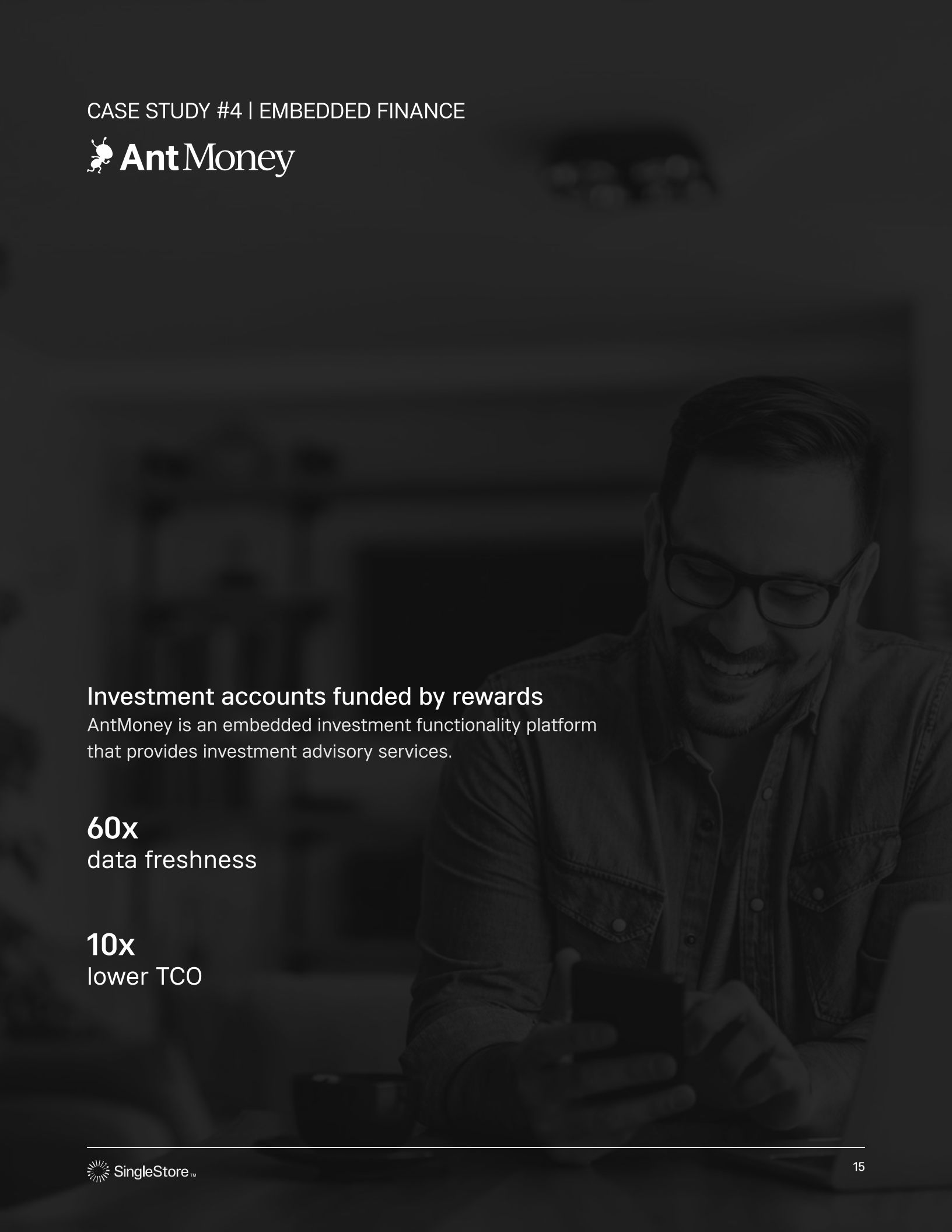
High performance: DailyVest saw a 26.6% improvement in their analytical dashboards while analyzing key performance metrics for their 16,200+ employer-sponsored plans.

Reduced TCO: DailyVest's database architecture with SingleStore saved them 35% compared to Azure SQL. DailyVest switched databases to SingleStore with limited disruption, and were able to stay with their Microsoft Database Cloud and data center (SingleStore is cloud-agnostic and doesn't lock companies into one cloud provider).

Better customer experiences: DailyVest was able to deliver better personalized investment content to empower its 12 million+ plan participants to make effective, data-driven decisions for their financial future.

CASE STUDY #4 | EMBEDDED FINANCE

AntMoney



Investment accounts funded by rewards

AntMoney is an embedded investment functionality platform that provides investment advisory services.

60x
data freshness

10x
lower TCO

CASE STUDY #4 | EMBEDDED FINANCE

AntMoney

Objective

As AFFIRM's embedded finance arm, AntMoney allows third-party apps to embed personal wealth tools so customers can have small income streams for funding investments. AntMoney was looking for a data analytics dashboard to allow employees company-wide to make data-driven decisions.

Pain points

AntMoney was using Postgres (AWS RDS) to store their first-party data. Though easy to get started, it costed the company a lot of money and maintenance. AntMoney was also using Quicksights for analytics — but it did not help with data ingestion and ETL while continuing to drive up costs.

Key challenges before SingleStore

Data increase: PostgreSQL's database architecture could not handle large volumes of data, nor support AntMoney's growth scale trajectory.

Cost increase: As a result of data-intensive demands, PostgreSQL replicas were becoming very expensive.

Performance decrease: AntMoney's database architecture suffered from slow analytics, and did not allow the company to have near real-time dashboards.

Business impacts with SingleStore

Real-time insights: With SingleStore, AntMoney was able to drive 60x improvement in data freshness and performance. Business teams were able to measure effectiveness of new features being rolled out immediately — instead of waiting 24 hours for their first data signal.

Simplified architecture: AntMoney saw a 50x increase in usable data to shape, slice and dice data for various user needs while driving user satisfaction.

Reduced TCO: AntMoney lowered their overall TCO by 10x to boost performance and scale while keeping their engineering team lean with less busy work (like writing ingest logic). And, they were able to gain back time to focus on other business priorities.

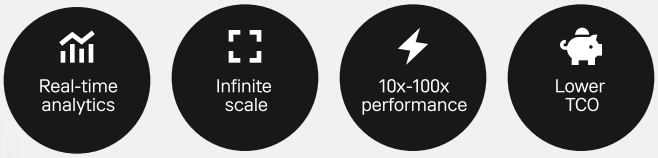
SingleStore powers modern applications in fintech

SingleStore offers a next generation database for powering modern Fintech applications for the data-intensive era. From powering modern data marketplaces to banking-as-a-service and embedded finance solutions, SingleStore provides real-time analytics, scale, performance and lower TCO. All of the stories described here are made possible by leveraging SingleStore's cloud-native, scalable architecture that provides fast ingest and query performance with high concurrency.

SingleStore helps half of the top 10 financial services providers in North America, and continues to enable a growing number of fintech disruptors around the globe to accelerate the performance of their data infrastructure. SingleStore supports a variety of use cases — like helping a cryptocurrency company with high user concurrency — make fast transactions by the millisecond. Powering interactive applications with real-time analytics is mission-critical for companies like IEX Cloud, Questrade, AntMoney and DailyVest, and SingleStore empowers them and their customers to be data-driven.

Fintech organizations choose SingleStore to move past the limitations of other databases that cannot handle high volumes of data ingest with ETL issues from various data sources (including slow queries and poor scalability).

With 10-100x the performance at 1/3 the cost compared to legacy infrastructure, SingleStore delivers the speed, scale and agility in one powerfully simple, cloud-native, relational database, helping you build, scale and deploy intelligent applications.



With up to 100x

the performance at 1/3 the cost compared to legacy infrastructure, SingleStore delivers the speed, scale and agility in one powerfully simple, cloud-native, relational database, helping you drive fast applications and analytics in the moment.

SingleStore Helios®

With SingleStore Helios®, the fully-managed, on-demand cloud database service, you can get started in just a few clicks — on any cloud of your choice.