

GoGuardian Empowers 500,000 Educators in Digital Learning Environments with SingleStore DB

Sub-30 MILLISECOND

Query Response Time

750,000

Writes Per Second

\$30K

Saved Per Month
on Database Costs

“SingleStore supports both row and columnar storage, defined at table creation time. Perhaps most importantly, it allows unions and joins across row-based and columnar tables. I cannot stress enough how important this feature is to us, as it fundamentally changed how we served data by giving us the best of both worlds: the fast writes of a row-store and the fast aggregate reads of a column-store.”

JK Kim,
Senior Infrastructure Engineer

Business Goals

The pandemic rapidly accelerated digital learning adoption, as 55 million K-12 students in the United States found themselves moved to online classrooms. Essential operations such as classroom management, device inventory, content filtering, and student safety were often spread across multiple applications, increasing complexity and reducing efficiency.

GoGuardian offers a unified education technology platform specializing in moderating student web activities using machine learning to facilitate a better learning environment. School districts and educators can access all of this functionality through a single platform. GoGuardian’s goals are to enable them to offer students a more engaging experience, help them meet their educational goals, and keep them safe during an incredibly stressful time.

GoGuardian’s priorities for developing this platform are:

- Maintaining data security, fidelity, and retention.
- Scalability and availability to meet the needs of millions of concurrent users.
- Queryability to give users access to all the data they need to achieve educational goals.

Technology Requirements

GoGuardian needed database technology that could work with volatile data, capture all real-time browsing events of 55 million students, and provide aggregate query support. The digital learning environment had a number of unique requirements to meet.

Data generation on its platform was cyclical since schools didn’t keep GoGuardian enabled when classes weren’t in session. Events tracked by the software included collections of web clicks or navigation, which required multiple writes across different tables. This data is mutable, which may need an update rather than an insert.

The read query pattern was dynamic over many dimensions. The data was grouped, aggregated, and filtered by time, classrooms, student, school, URL, and other information. The query response time needed to be fast to meet the real-time performance requirements that provided educators with important guidance and tools.



Why SingleStore? Unified Database with the Best of Both Worlds

GoGuardian tested many databases and found that SingleStore DB was the ideal solution for working with their incoming data and query patterns. This cloud-native unified database built for speed, scale, and agility delivered the functionality and performance needed for this robust software platform.

SingleStore DB combines the fast writes of row-based databases with the high-speed aggregate reads of columnar databases. It also provides high availability by replicating every write into a master and secondary partition, so educators and school districts always have access to the tools they depend on.

The database is simple by design, with support for SQL and streamlined maintenance requirements. The developer-friendly features provide GoGuardian with a powerful, scalable, and flexible foundation to grow their platform.

GoGuardian also found SingleStore's support to be helpful, friendly, and responsive. They could reach out directly to SingleStore engineers when they had questions and feature requests. This level of support made the database adoption process easier and created a pleasant working experience.

Business Outcomes

Helping 500,000 Educators Manage Digital Classrooms

GoGuardian is now being used in more than 10,000 schools, reaching more than 18 million students. Educators can focus on creating a quality online learning environment rather than struggling with software that's not purpose-built for classroom management. They can offer students a more engaging experience, help them meet their educational goals, and keep them safe during an incredibly stressful time.

Achieving Throughput of 2.49 Million Events Per Minute

GoGuardian was able to reach their real-time event processing goals through SingleStore's ultra-fast ingest and high-performance queries. The sheer amount of data contained in the events, and the fact that it is volatile for a short period, frequently required upsert operations.

Saving \$30,000 Per Month on Database Costs

GoGuardian no longer needed to use multiple databases to meet their data storage and aggregate query requirements. The reduced infrastructure complexity significantly improved the maintainability of the database technology, requiring less hands-on time from the engineering team. They were also able to optimize data storage and queries to control expenses. SingleStore DB made scalability, high availability, and flexibility more cost-efficient for the platform.

Joining Rows and Columns in a Single Database

GoGuardian could bring both types of storage into a single database, rather than mixing and matching solutions and losing out on performance. The team could use unions and joins across rows and columns, which fundamentally changed how the platform served data.