Maths Circle Turns to Percona Consulting to Ensure Database Performance and a Great Customer Experience

MATHS CIRCLE

About the company

Maths Circle Ltd is the creator of Times Tables Rock Stars, an interactive and carefully sequenced math program with a rock star theme. Times Tables Rock Stars is successfully boosting times tables recall speeds of over a million pupils worldwide and is now used in more than 12,000 primary and secondary schools across the UK and internationally.

> *The way our system was performing, we were heading over a precipice. Percona completely turned us around. We are now providing a great customer experience. Our conversion and retention rates are up, and our attrition rates are down. And my staff are happier and proud of the stable system they are delivering.*
>
> **Bruno Reddy**,
> Founder and CEO, Maths Circle Ltd

The challenge

Maths Circle relies on a MySQL database as the repository for its application. Each day, 250,000 students answer multiplication and division questions — and race against each other in competitions — via the company's website and mobile app. Millions of answers per day are stored in the database, which must support real-time updates. As the company initially scaled the number of users, the application would experience significant lag — sometimes as much as 45 seconds — during peak periods of the school day, resulting in frustrated students, teachers, and company employees.

> *It's clear Percona engineers really know their stuff, right down to the physical level of how data is transferred. At times it seemed like wizardry. We could never acquire that kind of expertise inhouse.*

The solution

Years before, a web designer had told Reddy about Percona Consulting as a resource for database optimization, but Reddy never felt the company was in a financial position to retain a consultant. However, as the level of customer dissatisfaction began threatening the viability of the company, he knew he had to act, and he contracted for four Percona Consulting days.

Still, Reddy had his doubts. How could this remote team that did not know his systems or how they were built figure out his issues? "I was wrong," said Reddy. "They quickly took the vitals of our infrastructure and immediately diagnosed several issues. They quickly provided incredibly precise recommendations on what we needed to do, and we immediately saw tremendous improvement."

The solution (continued)

However, as the number of users continued to soar, the database experienced another capacity limit, and Reddy began to see performance issues again. He contracted for three additional Percona Consulting days, and once again, Percona provided another suite of razor-sharp recommendations.

Key benefits

Just some of the optimization benefits that Percona Consulting delivered included providing configuration improvements, identifying which queries needed to be improved and improving them, recommending which indexes to apply or eliminate, and suggesting changes to field types to reduce the size.

I have a friend who is running another very successful maths education platform. When he recently complained that he had to come back early from holiday because his user numbers were up and his database was crashing, I told him he had to take advantage of Percona because they're worth their weight in gold.

Percona optimization "wizardry" also included recommending:

- ZFS file system to enable massive compression of the data without sacrificing performance
- RabbitMQ, an open source message broker to enable more reliable connectivity and scale
- Sphinx for a more efficient way to search text strings
- ProxySQL to more efficiently support concurrent connections
- Percona Monitoring and Management to manage performance and even make changes to tables while the database is still running

"After our last engagement with Percona, our database has been crazy fast and crazy stable. Those spikes of impending doom that would choke our system are completely gone, and we're easily maintaining the full system load with 40- to 50-millisecond average response times. I've dreamt of this day for a long time."

In addition to doing away with the frustrating lag in the application, Maths Circle can now comfortably support 50,000 concurrent users with the same infrastructure that was crashing at 25,000 concurrent users. "We now have a much more scalable solution in place," added Reddy, "and ultimately, that will be great for our trial conversion and retention rates."

Technologies and services used

Percona Consulting
Percona consultants are trusted advisors with decades of experience solving complex database performance issues and design challenges across multi-vendor database environments. Consultants provide unbiased recommendations on the best solution for each environment to help businesses reach their specific objectives.

For more information, contact us at **+1-888-316-9775** (USA), **+44 203 608 6727** (Europe) or via email at **sales@percona.com**.