Singapore's Largest Bank Moves to Open Source with MariaDB

Challenge: Migrate mission-critical applications from Oracle to open source

DBS Bank is Southeast Asia's largest, handling nearly three million financial transactions monthly and having total assets of approximately $333 billion.[1] Additionally, the bank has been named Asia's safest for nine consecutive years.[2] DBS executives are always seeking to maintain that level of excellence while moving the business forward through innovation – with a goal of driving customer excitement and continually simplifying the technology stack.

A few years ago, those pursuits came into conflict with the bank's use of closed source, proprietary database solutions, so they began looking for alternatives. When evaluating solutions, they had these key factors in mind:

- Open source technology
- Cost-effectiveness
- Flexibility and scalability
- Compliance with strict financial services regulations

Solution: MariaDB TX

When DBS Bank first started the journey to open source with MariaDB, it took a conservative approach, testing a single non-critical application. That was a success, so DBS tested three additional applications, including a payment service module – a key component of the bank's offerings. Those, too, were a success.

The MariaDB migration continued apace, and now, nearly two years into the journey, DBS Bank has more than 30 applications in production running on MariaDB, including some of the most complex applications for corporate

> "We like to be connected to the rest of the world. We don't want to be alone in the open source community. I think we need to give and people need to give to us. And that's where we learn from each other."
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> — *Joan Tay Kim Choo*
> *Executive Director of Technology & Operations*
> *DBS Bank*

banking services. Its commercial banking and integrated payment engines went live on MariaDB in August 2017 – the first two mission-critical apps to do so.

Standardizing on MariaDB TX has been extremely successful for DBS Bank. Key benefits include the following:

- **Flexibility:** MariaDB affords DBS Bank the flexibility to use the topology that works best for it. DBS can create applications with microservices and deploy them through a container (such as Docker) to aid in resiliency, ease of deployment and independent scaling.

- **Cost savings:** With MariaDB, DBS Bank sees cost savings of 30 to 70 percent, depending on the app and workload. There are no CPU fees to pay, so scaling out applications doesn't automatically inflate costs like it can with proprietary databases.

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1   https://www.forbes.com/global2000/list/
2   https://www.dbs.com/newsroom/DBS_named_Asias_Safest_Bank_for_ninth_consecutive_year

- **Real-time data streaming:** The MariaDB MaxScale database proxy's change data capture (CDC) modules enable DBS to stream data automatically from MariaDB TX to Hadoop:

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> "The data streaming capabilities offered with MaxScale 2.0 will be a powerful new tool to stream the data from our MariaDB database and our Hadoop clusters. [The] ability to stream data from our OLTP MariaDB database to our Hadoop cluster in real time is critical for us to have real-time insight into our customer data."
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> — *Madan Sugumar*
> *Application Architect, Institutional Banking*
> *DBS Bank*

- **Comprehensive monitoring:** The Monyog monitoring tool included in MariaDB TX helps DBAs monitor everything from server status to query performance with a handy dashboard. DBS Bank finds the database-comparison and conflict-monitoring features particularly useful, making troubleshooting and data duplication much easier.

- **Compliance:** The financial services industry is governed by many regulations, and MariaDB features such as data-at-rest encryption and user auditing are invaluable for ensuring compliance.

Having started with a single test application, DBS Bank has now integrated MariaDB solutions deeply into its business. And to spread the word about its successes, DBS Bank has hosted two DBS/MariaDB conferences for technology colleagues to learn about the use of open source technology and how it can work even in risk-averse industries.

About DBS Bank

DBS is a leading financial services group in Asia, with over 280 branches across 18 markets. Headquartered and listed in Singapore, DBS has a growing presence in the three key Asian axes of growth: Greater China, Southeast Asia and South Asia. The bank's "AA-" and "Aa1" credit ratings are among the highest in the world.

About MariaDB

MariaDB Corporation is the company behind MariaDB, the fastest growing open source database. MariaDB is the default in major Linux distributions like Red Hat and SUSE, which in total reach more than 60 million users. MariaDB can be deployed in a hybrid, public or private cloud with technologies like Docker, Microsoft Azure, Amazon Web Services and OpenStack. The company's product portfolio includes MariaDB MaxScale and MariaDB ColumnStore, enabling a broader range of use cases across the enterprise. MariaDB, with its commitment to community innovation and customer success, is the leading database preferred by developers and trusted by enterprises.