MySQL Database Service
with HeatWave
Easy, secure, with real-time analytics
Looking to deliver modern applications with high security and increased performance at lower costs?

MySQL Database Service delivers the world’s most popular open source database on Oracle cloud at a fraction of the costs of other cloud vendors.

It is built on MySQL Enterprise Edition and offers unmatched performance by speeding up MySQL queries by 400x.

MySQL Database Service is 100% developed, managed, and supported by the MySQL Team.

Combined with HeatWave, it scales to thousands of cores and is 2.7x faster than Amazon Redshift, at 1/3 of the cost.

Powered by Oracle Gen 2 Cloud Infrastructure, MySQL Database Service delivers a secure, cost-effective, and enterprise-grade database service, to help rapidly build innovative applications.

MySQL Database Service is easy to use, secure, and ready for real-time analytics.
Open Source in the Enterprise

The 2020 survey published in The State of Enterprise Open Source report\(^1\) found that among developers and businesses:

- 95% considered enterprise open source important
- 86% associated open source with innovation
- 77% planned to increase their usage of open source

By 2022, according to Gartner’s State of the Open-Source DBMS Market Research Report, more than 70% of new in-house applications will be developed on Open Source Database Management Systems (OSDBMS), and 89% of the surveyed organizations reported to already use an OSDBMS.

Open source technologies are often adopted to get applications into production faster. Projects are frequently unfunded or need instant IT approval. Projects start small and solve an immediate need, but over time many evolve into critical applications. Success with the initial use of MySQL generally translates into additional MySQL projects.

As organizations consolidate and standardize on a select few IT technologies, MySQL becomes a strategic part of their technology infrastructure.

\(^1\) Red Hat, February 2020: The State of Enterprise Open Source
Surveys from Stack Overflow and JetBrains rank MySQL as the most popular database among developers. Its clear leadership position comes with an entire ecosystem of tools and applications that support MySQL, as well as numerous developers and DBAs with an extensive MySQL experience and skills.

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**Most popular databases (Stack Overflow)**

- MySQL: 56%
- PostgreSQL: 36%
- MS SQL Server: 33%
- SQLite: 31%
- MongoDB: 26%

**Which databases have you used in the last 12 months? (JetBrains)**

- MySQL: 60%
- PostgreSQL: 32%
- MongoDB: 30%
- SQLite: 28%
- Redis: 27%

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2 Stack Overflow, [Stackoverflow survey 2020](#)
3 JetBrains, [The State of Developer Ecosystem 2020](#)
Innovative Enterprises Across Many Industries Run MySQL

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<th>Social</th>
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The move to the cloud is the most significant technology shift that organizations will face over the next decade. Gartner projects the cloud services industry to grow exponentially by 2022. More than $1.3 trillion in IT spending will be directly or indirectly affected by the shift to the cloud. In fact, the market size and growth of the cloud services market is nearly 3x the growth of overall IT services.

For the DBMS market, similar growth rates and shifts in spending are also taking place. Gartner states in its report The Future of Database Management Systems Is Cloud that:

- The overall DBMS Market grew to $46B in 2018. Its 18% increase from 2017 to 2018 represents the fastest growth in a decade.

- $10B of the DBMS market is from DBMS Cloud Services, which accounted for 68% of that growth.

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4 Gartner, October 2019: State of the Open-Source DBMS Market
5 Gartner, June 2019: The Future of Database Management Systems Is Cloud
Top Investment Priorities for CIOs

1. Security
2. People/Talent
3. Digital Transformation
4. Analytics/BI/Al
5. Cloud
6. Improve Applications & Infrastructure
7. Low Code/No Code
8. Business/IT Continuity
9. Application Upgrades
10. Getting More Value from Investments

CIO from IDG, Top Priorities for CIOs in 2019
Data: Your Most Valuable Asset

In today’s digital world, data is your organization’s most valuable asset.

Data is about your customers, employees, and partners. Data is about your IP, mergers and acquisitions, strategy, and sales figures.

The data might be generated by your organization or it might have been entrusted to you, such as PII (Personally Identifiable Information), PCI (Payment Card), or PHI (Personal Health Information) data.

Your data presents a great value for thieves, state-sponsored criminals, and malicious insiders who will do anything to obtain it.
Recent Data Breach Statistics

- **7.9 billion** records stolen in 2019, up by 33%
- **1.76 billion** records leaked in January 2020
- **48%** of breaches are malicious attacks
- **$3.86 million** average cost of a data breach
- **7 out of 10** businesses are not prepared to react
- **$2 trillion** global cost of cybercrime in 2020

Always Up-to-Date with the Latest Security Fixes. Get the latest MySQL security updates from the MySQL Team to limit your exposure to security vulnerabilities.

Advanced Security Features to Help Meet Regulatory Requirements. Access built-in MySQL security features to comply with governments’ data privacy laws and regulatory requirements for GDPR, HIPAA, etc.
MySQL Database Service is designed to work natively with Oracle Gen 2 Cloud.

Leverage the only zero-trust architecture where tenants are isolated from one another. Its core infrastructure includes total encryption, least-privilege identity, access management as well as granular resource and network control.

MySQL Database Service is tightly integrated with Oracle Technologies.

Fully integrated with Oracle technologies such as Oracle Golden Gate, Oracle Data Integrator, Oracle Audit Vault, Oracle Container Engine for Kubernetes, Oracle Analytics Cloud, and more.
MySQL Database Service is a fully managed service, running on Oracle Gen 2 Cloud Infrastructure. It enables you to:

- Instantly provision MySQL instances and connect to a production ready, pre-configured MySQL database.
- Automate database specific tasks such as configuration, security patching, backup, and monitoring.
- Choose from multiple compute shapes, depending on your application and capacity requirements.
- Provision fast, reliable, and secure cloud storage for all enterprise workloads.
- Set up fast, predictable networking with end-to-end network security, including a Virtual Cloud Network (VCN).
- Monitor the health of your resources, optimize the performance of your applications, and respond to anomalies in real time.
- Access dozens of additional Oracle Cloud Services for a faster transition to the cloud.
- Free up time of developers, DBAs, and DevOps to focus on value added tasks that are core to your business.
## MySQL On-Premises vs MySQL Database Service

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<th>MySQL On-Premises</th>
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<td>OS Installation</td>
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<td>Hardware Purchase &amp; Maintenance</td>
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<td><strong>Storage</strong></td>
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<td>Storage Purchase &amp; Maintenance</td>
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<td>Rack &amp; Space</td>
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<td>Power, HVAC, Networking</td>
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- **fully managed**
- **manual**
Larry Ellison Introduces MySQL with HeatWave

“We also introduced several new OCI managed services during the quarter. The most interesting of these new OCI managed services is for the popular open-source database MySQL, featuring an all-new Oracle developed, massively parallel query accelerator called HeatWave. MySQL plus HeatWave processes queries hundreds of times faster. Seriously, hundreds of times faster than the current version of MySQL by itself and other MySQL compatible databases such as Amazon's Aurora.

MySQL plus HeatWave is so much faster, so much easier to use and less expensive than Postgres, Redshift, Snowflake or any other database available on Amazon AWS. The amazing thing about HeatWave is that you don’t have to move your data out of MySQL and build a separate data warehouse to get the huge performance gains. You simply take any existing MySQL or Aurora database, run that exact same database on the new MySQL version that includes HeatWave. And immediately, your queries run hundreds of times faster. You don’t have to change a single line of code. It can't get any easier to use than that.”
Performance: Real-Time Analytics

Faster business insights using real-time data

The MySQL Database Service is the only MySQL service with a massively scalable integrated real-time analytics engine. This service, only available in Oracle Cloud, overcomes the limitations of traditional data warehouse and analytics environments that use periodic long-running ETL batch jobs required to refresh the data.

HeatWave is a new, in-memory analytic accelerator for MySQL that scales to thousands of cores and makes MySQL analytic queries run up to 400x faster.

**Single MySQL database for OLTP and OLAP**

It enables customers to run both OLTP and OLAP workloads in MySQL, without the need to move data out of MySQL databases (No ETL), and without requiring any proprietary syntax or change to their applications.
HeatWave is 10 times faster than the analytics service of another major cloud vendor. Now there is no need for ETL. Compared to MySQL on-premises, HeatWave is 4,000 times faster.”

Tetsuro Ikeda
Manager of Cloud IT Architecture
Service Department
SCSK Corporation
We discovered astonishing performance improvements during our tests of the new HeatWave, reducing query times from hours to seconds in cases of non-index based queries. This enables us to expand our service and open the door to many more analytics-based capabilities while maintaining a single, seamless database platform.”

Dr. Jens Uecker
Senior Key Expert
Siemens Healthineers
Benchmark queries are derived from TPC-H benchmark, but results are not comparable to published TPC-H benchmark results since they do not comply with TPC-H specification.
2.7x Faster and 1/3 of the Cost of Amazon Redshift [4TB]

Benchmark queries are derived from the TPC-H benchmark, but results are not comparable to published TPC-H benchmark results since they do not comply with the TPC-H specification.
We ran the analytic workload of the Social Game Infrastructure group with HeatWave without requiring ETL or changing our application. HeatWave is up to 500x faster than our current on-premises MySQL 5.7 instance.”

Masashi Hamahira
Social Game Infrastructure Group
SQUARE ENIX CO., LTD.
1/3 of the Cost of AWS RDS, AWS Redshift, and Microsoft Azure

MySQL Database Service delivers significant cost savings over other public cloud database services such as Amazon RDS, Microsoft Azure for MySQL, and Google Cloud SQL.

A one-year TCO of MySQL Database Service with the equivalent PAYG (pay-as-you-go) services from other vendors costs 1/3 of Amazon RDS.

When comparing the one-year TCO of MySQL Database Service with HeatWave, it is up to 1/3 of the cost of Amazon Redshift.

Selecting MySQL Database Service on Oracle cloud over forked MySQL services in other clouds helps significantly cut costs.

MySQL Database Service: Standard E3 AMD 16GB/Core, all regions have the same price.
Amazon RDS: Intel R5 16GB/Core, AWS US East.
Google: High Memory N1 Standard Intel 13GB/Core, GCP Northern Virginia.
Configuration: 100 OCPUs, 1TB Storage.
Benefits Across the Organization

Developer

▪ Provision database instances in minutes to get apps into production faster
▪ Focus on development, not infrastructure or database administration
▪ Get the latest MySQL features to develop modern applications and scale these applications according to your needs

DBA

▪ Improve productivity with a fully managed database cloud service
▪ Get the latest updates, security fixes, and features from the MySQL Team
▪ Manage and monitor the entire environment using a single pane of glass

VP of IT

▪ Reduce database total cost of ownership by 3x with MySQL Database Service
▪ Make real-time decisions with HeatWave
▪ Protect data and help ensure regulatory compliance with advanced security features
Move workloads to the cloud. Move MySQL workloads to the cloud to not only free resources, but also improve security, so you can focus on your core business.

Develop new cloud native applications. Develop modern, cloud-native, MySQL-based applications fast while improving business agility.

Deliver real-time data analytics. Make faster business decisions. HeatWave accelerates MySQL query performance by 400x. It uniquely eliminates the complexity and risk of having to use separate databases for OLTP and OLAP workloads.

Leverage hybrid cloud deployment flexibility. MySQL Database Service is 100% compatible with on-premises MySQL, giving you complete flexibility between on-premises, cloud, or a hybrid model.

Power SaaS applications. ISVs can scale their SaaS applications globally by leveraging Oracle Cloud Infrastructure and MySQL Database Service.
100% Supported by the MySQL Team

Get the highest level of MySQL expertise

MySQL Support together with Oracle Premier Support and the industry’s most experienced MySQL Engineers provide a unified support solution for both cloud infrastructure and MySQL.

It includes:

- 24/7 production support in 29 languages
- Unlimited support incidents
- Knowledge base and maintenance releases
- Bug fixes, patches, and updates
- MySQL consultative support

No other cloud vendor can deliver such comprehensive support for the MySQL database.
You already know that MySQL powers the leading eCommerce and SaaS companies. You also know that MySQL has a well-earned reputation for being easy to use, highly scalable, and cost-effective.

You’ve experienced the pain and cost of managing your database instances on your own infrastructure. Data security is very important to you, so you have decided to move your applications to a cloud model with a fully managed and secure service.

Next, you have to choose the right cloud platform for your business.

Unlike proprietary forks of MySQL available in other cloud services, Oracle MySQL Database Service is the only cloud service that is 100% compatible with on-premises MySQL for a seamless transition to cloud and hybrid deployments.

It is the only cloud service 100% developed, managed, and supported by the MySQL Team.

HeatWave enables you to run both OLTP and OLAP workloads in MySQL with no ETL. There is no need to move data out of MySQL, no proprietary syntax, and no change to the applications.

In addition, the Oracle Gen 2 Cloud infrastructure delivers a highly secure and integrated cloud environment.

The very competitively priced MySQL Database Service with HeatWave on Oracle Gen 2 Cloud will enable your business to easily deploy modern applications globally with a secure, managed, and supported cloud service from the MySQL Team at 1/3 of the cost of AWS RDS/Redshift/Aurora and Microsoft Azure.

Start using it now!
Learn More

Start Now oracle.com/mysq