

TencentDB for MySQL

Product Introduction

Product Documentation



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Product Introduction

Overview

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Overview

TencentDB for MySQL is a high-performance distributed data storage service developed by Tencent Cloud based on the open-source MySQL database. It enables you to set up, manipulate, and scale relational databases in the cloud more easily.

TencentDB for MySQL has the following features:

- It provides cloud-based data storage service for internet applications.
- It is fully compatible with MySQL protocols and suitable for table-oriented application scenarios. TencentDB for MySQL can be used wherever MySQL is used.
- It offers MySQL cluster service that features high performance, data reliability up to 99.9996%, ease of use, and convenience.
- It integrates various database features such as backup, scaling, and migration. In addition, it is equipped with the new-generation database tool DMC for even more convenient management of databases.

Related Concepts

Instance: a TencentDB for MySQL resource in Tencent Cloud.

Instance type: a combination of node count, read/write capability, and deployment region for a TencentDB for MySQL instance.

Read-only instance: a TencentDB for MySQL instance that can only be read from.

RO group: a logical tool used to manage one or more read-only instances. It can meet load balancing requirements in read/write separation scenarios and significantly enhance a database's read load capacity.

Disaster recovery instance: a TencentDB for MySQL instance that supports disaster recovery across AZs and regions.

VPC: a custom virtual network space that is logically isolated from other resources.

Security group: security access control to TencentDB for MySQL instances by specifying IP, protocol, and port rules for instance access.

Region and AZ: physical location of a TencentDB for MySQL instance and other resources.

[Tencent Cloud Console](#): web-based UIs.

Related Services

For more information on how to calculate actual expenses precisely with relevant billing tools, please see [Fees Overview](#) and [Price Calculator](#).

For more information on how to set up in-cloud data services by purchasing TencentDB for MySQL instances, please see [Purchase Process](#) and [Getting Started](#).

For more information on how to migrate data in/off the cloud with the TencentDB for MySQL data migration tool, please see [Data Migration](#).

For more information on how to cleanse and analyze data with the TencentDB for MySQL data subscription tool, please see [Data Subscription](#).

For more information on how to deploy your computing services by purchasing CVM instances, please see [CVM](#).

For more information on how to monitor the running status of your TencentDB for MySQL instances with Cloud Monitor, please see [Cloud Monitor](#).

For more information on how to call TencentCloud APIs to access Tencent Cloud products and services by writing code, please see [TencentCloud API](#).

Strengths

Last updated : 2020-09-04 11:33:56

Note :

The strengths described in this document are exclusive to TencentDB for MySQL High-Availability Edition and Finance Edition instances.

Cost Effectiveness and Ease of Use

- **Read/write separation is supported**

Read-only instances can be mounted to TencentDB for MySQL. One-source-multiple-replica architecture allows you to respond to massive requests. RO group with load balancing feature is supported to greatly optimize the pressure distribution among read-only instances.

- **Powerful hardware ensures high performance**

NVMe SSD features high IO performance, ensuring smooth reads and writes.

A maximum of 240,000 QPS and a maximum storage space of 6 TB are supported.

High Security

- **Anti-DDoS protection**

When you suffer a DDoS attack, this feature can help you resist various attack traffic, ensuring the normal operation of businesses.

- **Protection against database attacks**

Effectively defense against such database attacks as SQL injection and brute force attacks.

High Reliability

Data is stored online in a source/replica architecture, ensuring high data security. Moreover, backup data can be stored for an extended time period, allowing for data recovery in case of a database disaster.

- **Data encryption**

Transparent data encryption (TDE) feature guarantees the security of real-time data and backup data.

- **Database audit**

Financial-grade data audit feature helps prevent core data theft, trace non-compliant operations, and locate malicious pulls.

High Availability

- **Real-time hot backup**

The dual-server hot backup mechanism supports lossless restoration of data from the last 7-732 days based on data backup and log backup (binlog). Such backups can be retained for 7-732 days.

- **Automatic disaster recovery**

Automatic failure detection and automatic failover are supported. Procedures of source/replica switchover and failover are imperceptible to users.

Advantages over Self-created Databases

- **Easy management of massive databases**

Databases can be managed via command line or console. Batch database management, permission setting, and SQL import are supported.

- **Data import and backup rollback**

Multiple data import methods are provided for initialization. Data is backed up automatically on a daily basis. TencentDB allows data to be rolled back to any point in time within the retention period based on backup files.

- **Professional monitoring and alarm**

Multidimensional monitoring and alarming based on custom resource thresholds are supported. You can also download slow query analysis reports and complete SQL running reports.

- **A variety of access methods**

Access to the public network and VPC is supported. You can connect TencentDB instances to your IDC, a private cloud, or other computing resources for deployment in a hybrid cloud conveniently.

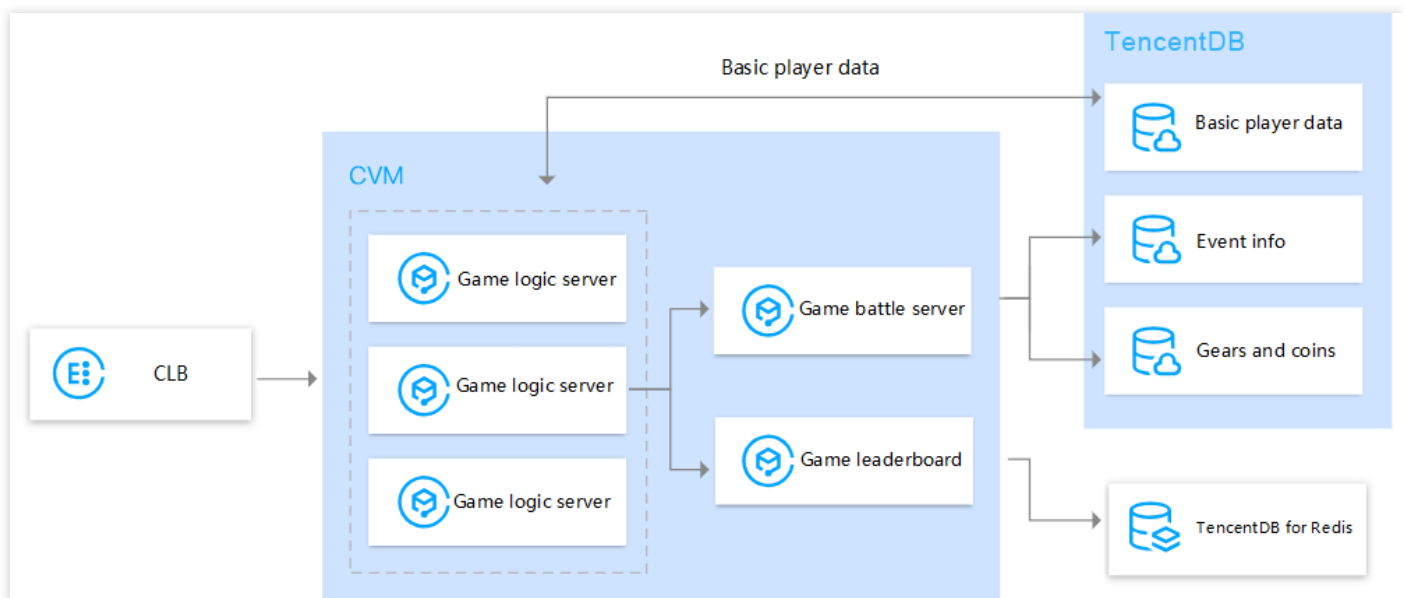
Use Cases

Last updated : 2019-11-28 14:11:52

Games

Gaming scenarios generally require elastic scaling and fast rollback.

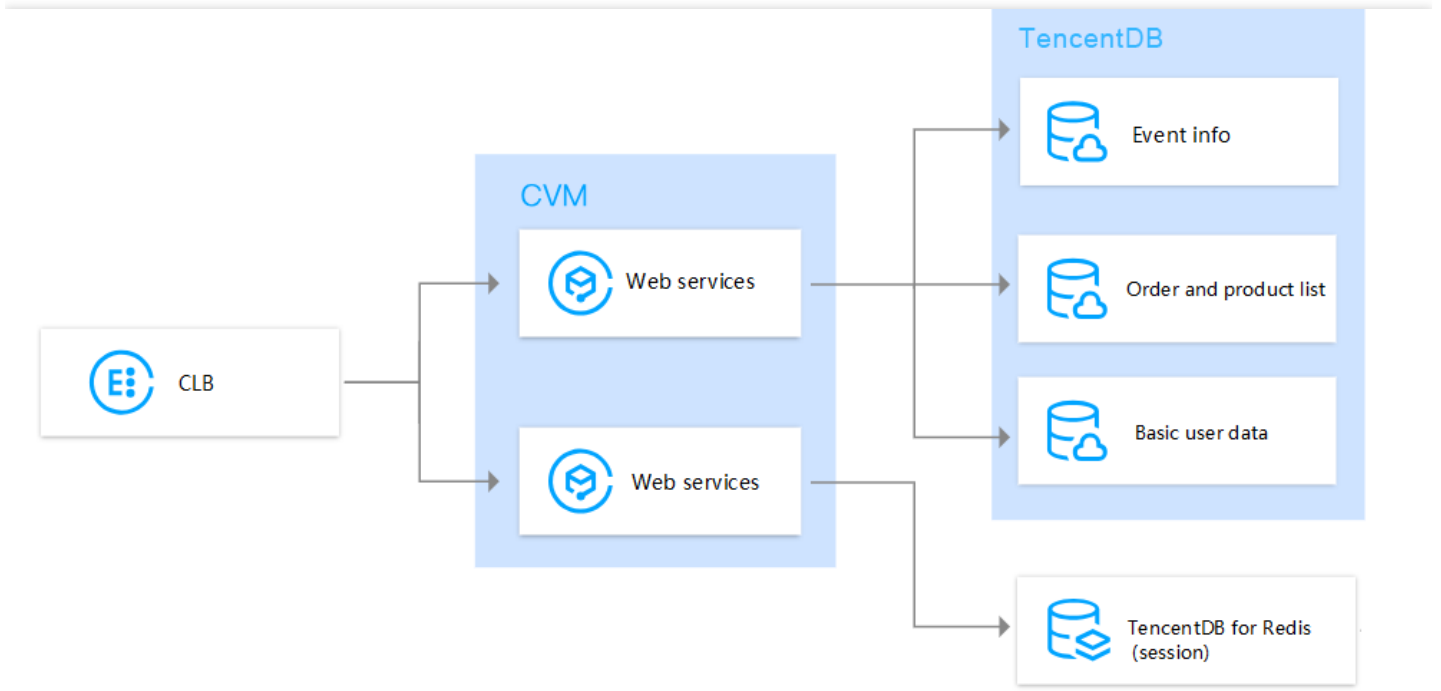
- TencentDB for MySQL features elastic scaling of compute resources, enabling you to increase productivity and deploy game servers in multiple regions in a matter of minutes.
- Its support for rollback and batch operation enables you to restore to any point in time to facilitate gaming rollback.



Internet/Mobile Apps

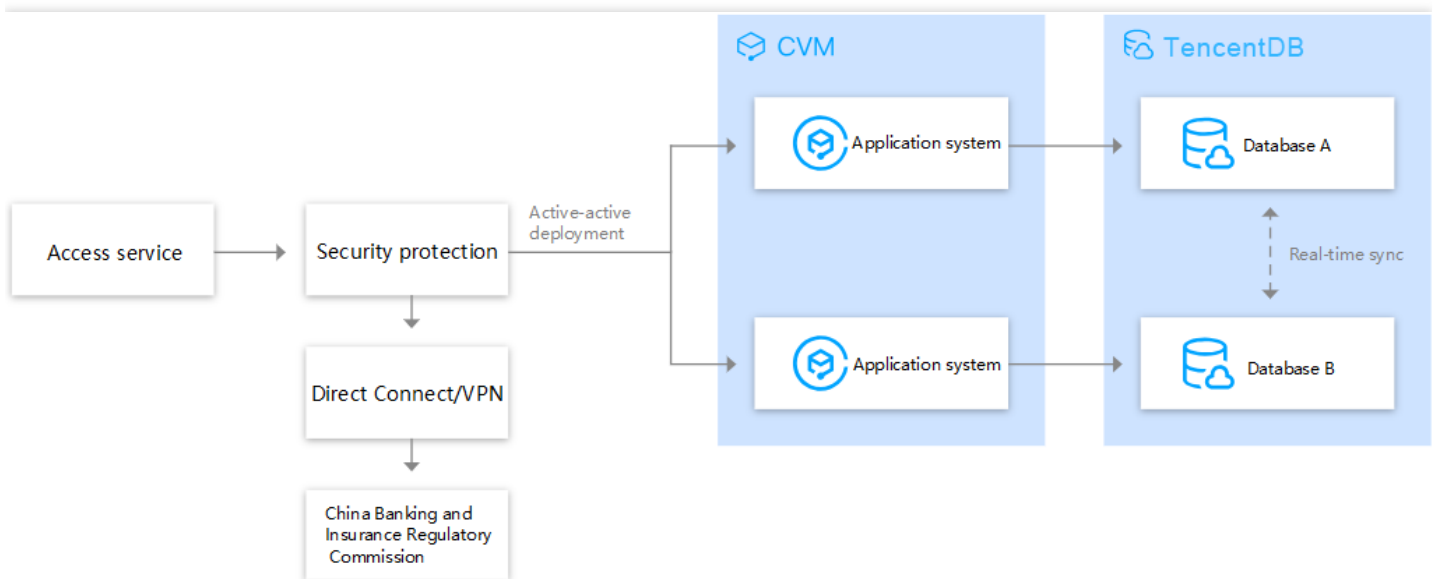
TencentDB for MySQL can serve as the storage medium of server data in internet and mobile apps. For scenarios where there are more reads than writes, read-only instances can be created for

frequently read databases, which greatly improves the read performance.



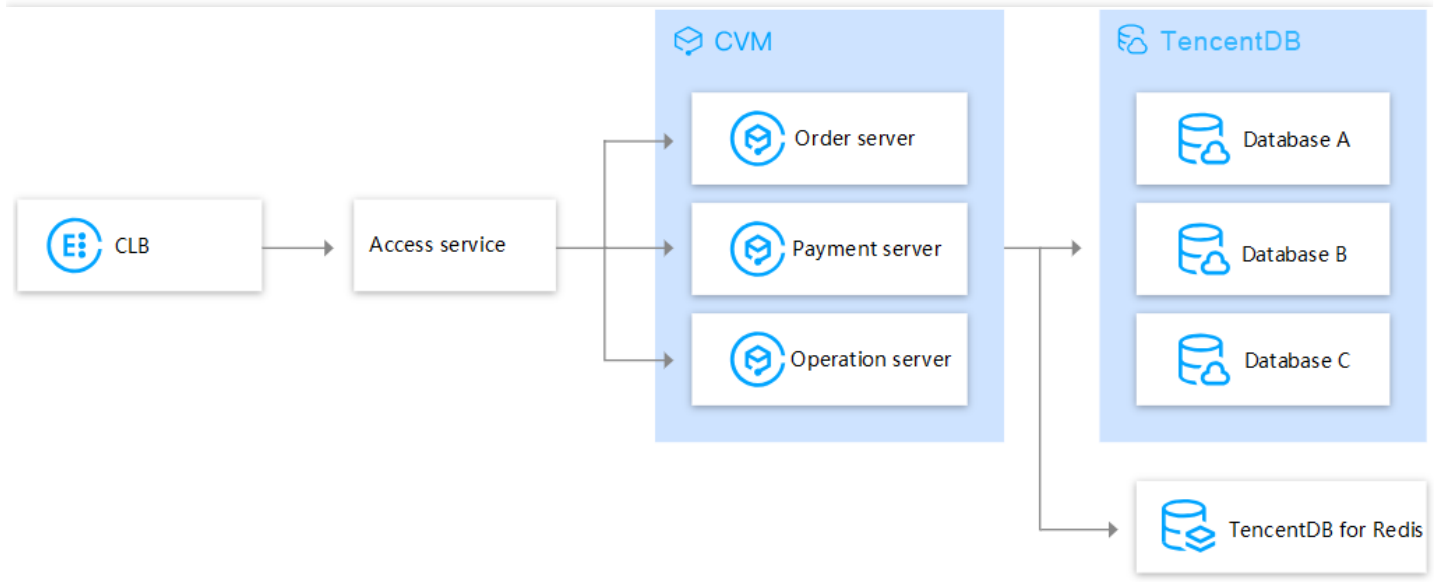
Finance

With its database services such as security audit, cross-region disaster recovery, and strong data consistency, TencentDB for MySQL is ideal for storing and processing data of financial transactions and accounts to ensure high security and reliability of financial data.



Ecommerce

TencentDB for MySQL features high performance and rapid Redis reads and writes, enabling you to easily cope with high-concurrency access traffic and business peaks during sales and marketing campaigns.



Database Architecture Overview

Last updated : 2020-12-08 17:29:31

TencentDB for MySQL supports four types of architectures: the High-availability Edition, the Finance Edition, the Single-node High IO Edition, and the Basic Edition. Currently, the Single-node High IO Edition applies to [read-only instances](#) only.

Viewing Instance Architectures

- For instances to be purchased, log in to the [TencentDB for MySQL purchase page](#) and select the architecture in the **Architecture** section.

Version	MySQL5.5	MySQL5.6	MySQL5.7	MySQL8.0
Architecture	High-Availability Edition Finance Edition NEW <small>Two-node (1 master, 1 slave) architecture with local SSD storage, featuring robust performance and ease of use</small>			
Primary AZ	Guangzhou Zone 2	Guangzhou Zone 3	Guangzhou Zone 4	Guangzhou Zone 6
Secondary AZ	Guangzhou Zone 4			

Products in the same region but different availability zones can communicate each other via private network. For example, under the same VPC, the CVM in Guangzhou Zone 2 can access the MySQL instance in Guangzhou Zone 3 via private network.

- For purchased instances, log in to the [MySQL console](#), locate the desired instance in the instance list, and view its architecture in the **Configuration** column.

Instance ID/Name	Monitoring/Status/Task	Availability Zone	Configuration	Version	Private IP	Billing Mode	Project	Placement Group	Operation
	Running	Guangzhou Zone 4	High-Availability Edition 1core1000MB/25GB Network: Default-VPC - Default-Subnet	MySQL5.7		Pay as you go	Default Project	--	Login Manage More

Architecture Comparison

Architecture	High-availability Edition	Finance Edition	Single-node High IO Edition	Basic Edition
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Architecture	High-availability Edition	Finance Edition	Single-node High IO Edition	Basic Edition
Supported Version	MySQL v5.5, v5.6, v5.7, and v8.0	MySQL v5.6, v5.7, and v8.0	MySQL v5.6, v5.7, and v8.0	MySQL v5.7
Node	One source node, one replica node	One source node, two replica nodes	Single node	Single node
Source-replica Replication Mode	Async (default), semi-sync	Async (default), strong sync, semi-sync	N/A	N/A
Instance Availability	99.95%	99.99%	N/A	N/A
Underlying Storage	Local NVMe SSD	Local NVMe SSD	Local NVMe SSD	Premium cloud disk
Performance	Up to 240,000 IOPS	Up to 240,000 IOPS	N/A	The IOPS calculation formula: {min 1,500 + 8 x disk capacity, max 4,500}
Use Case	Gaming, internet, IoT, retail, e-commerce, logistics, insurance, securities, etc.	Gaming, internet, IoT, retail, e-commerce, logistics, insurance, securities, etc.	Applications with read/write separation requirements	Personal learning, small websites, non-core small enterprise systems, and medium-to-large enterprise development and testing

Documentation

- TencentDB for MySQL supports MySQL v8.0, v5.7, v5.6, and v5.5. For more information, please see [Database Version](#).
- TencentDB for MySQL supports the following instance types: the source instance, the read-only instance, and the disaster recovery instance. For more information, please see [Database Instance](#)

Types.

- TencentDB for MySQL supports different features in different architectures. For more information, please see [List of Feature Differences](#).

High-Availability Edition

Last updated : 2020-11-10 15:22:17

TencentDB for MySQL supports four types of architectures: the High-availability Edition, the Finance Edition, the Single-node High IO Edition, and the Basic Edition. This document describes the High-availability Edition.

The High-availability Edition adopts a highly available one-source-one-replica architecture and supports real-time hot backup, automatic detection of failure, and automatic failover.

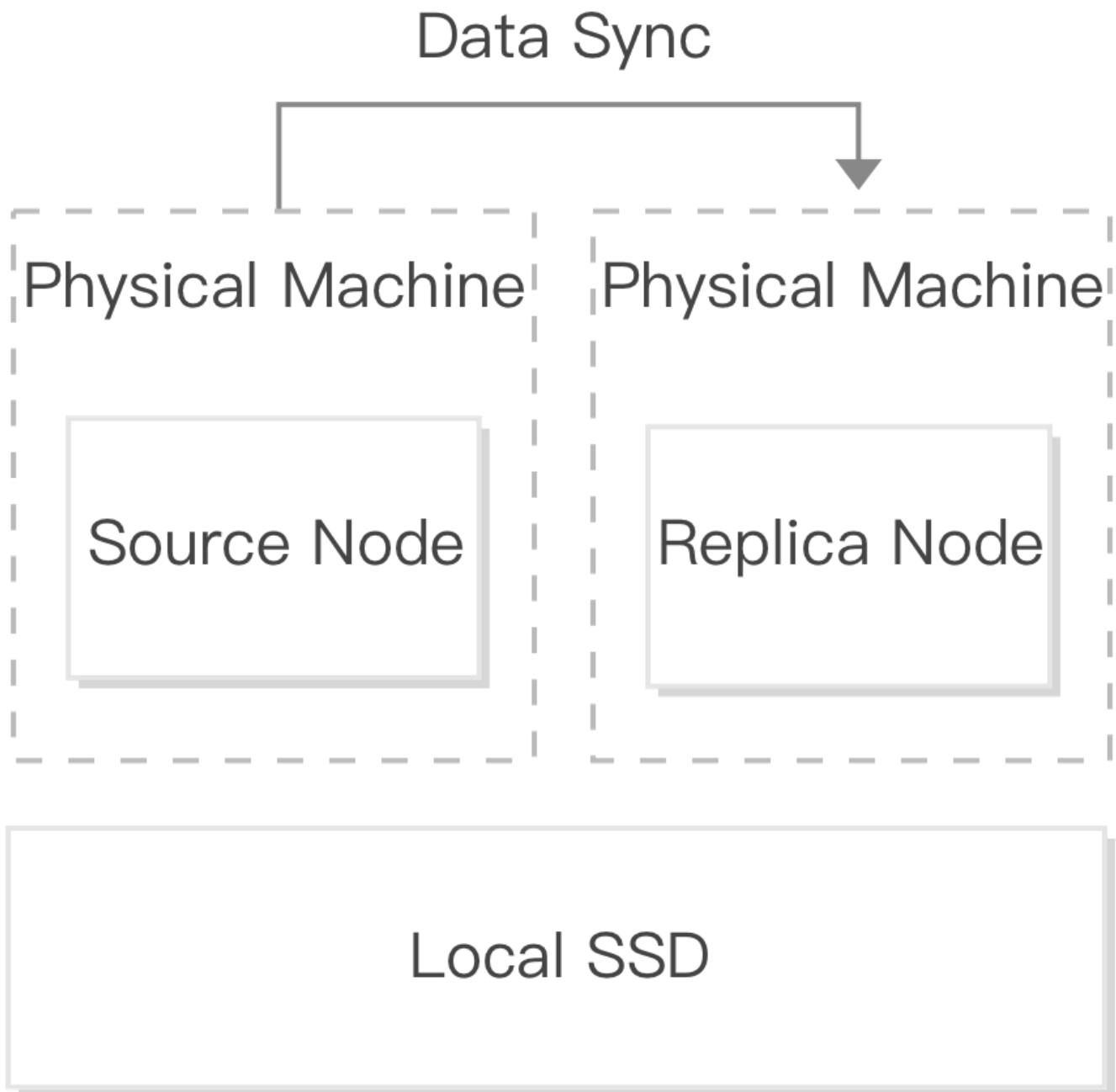
Use Cases

Ideal for industries such as gaming, internet, IoT, retail, e-commerce, logistics, insurance, and securities.

Features

- Offers two source/replica replication modes: async (default) and semi-sync. You can change the replication mode or [upgrade to the Finance Edition](#) (with the one-source-two-replica strong sync mode) on the instance details tab of the instance in the [console](#).
- Supports a complete set of features including read-only instances, disaster recovery instances, security groups, data migration, and multi-AZ deployment. For more information, see [Strengths](#).
- Achieves a high availability of up to 99.95%. For more information, see [TencentDB Service Level Agreement \(New Version\)](#).
- Its data nodes are deployed on powerful hardware devices and its underlying storage uses local NVMe SSD disks with an IOPS of up to 240,000 (this value is the test result with MySQL's default page size of 16 KB and for your reference only. The actual value is subject to the specific configuration, page size, and business load).

Basic Framework Diagram



Upgrading

- The engine versions of TencentDB for MySQL can be upgraded. For more information, see [Upgrading Database Engines](#).
- TencentDB for MySQL can be upgraded from the High-availability Edition to the Finance Edition. For more information, see [Upgrading from the High-availability Edition to the Finance Edition](#).

- The kernel minor versions of TencentDB for MySQL can be upgraded automatically or manually. For more information, see [Upgrading Kernel Minor Versions](#).

Single-Node High IO Edition

Last updated : 2020-11-10 15:22:52

TencentDB for MySQL supports four types of architectures: the High-availability Edition, the Finance Edition, the Single-node High IO Edition, and the Basic Edition. This document describes the Single-node High IO Edition.

The Single-node High IO Edition adopts a single-physical node architecture with high cost performance.

Use Cases

Ideal for various industries with read/write separation requirements.

Features

The Single-node High IO Edition uses local NVMe SSD disks for underlying storage with excellent IO performance and is ideal for [read-only instances](#) to share business read load.

Basic Framework Diagram

Physical Machine

Source Node

Local SSD

⚠ Note :

- Single-node deployment is susceptible to single points of failure. If only one read-only instance is purchased, it is impossible to ensure high availability for your business, because a failure of the single read-only instance will lead to business disruption.
- As the time taken to recover a single read-only instance depends on the business data volume, the recovery time cannot be guaranteed. As a result, if your business requires high availability, we recommend you purchase at least two read-only instances for the [RO group](#).

Relevant Operations

- You can create one or more read-only instances, which can be applied to read/write separation and one-source-multiple-replica application scenarios. For more information, please see [Read-only Instances](#).
- You can create one or more read-only instances and put them in an RO group to ensure availability. For more information, please see [RO Group of Read-only Instance](#).

Basic Edition

Last updated : 2020-11-10 15:23:15

TencentDB for MySQL supports four types of architectures: the High-availability Edition, the Finance Edition, the Single-node High IO Edition, and the Basic Edition. This document describes the Basic Edition.

The Basic Edition adopts a single-node deployment method and offers extremely high cost effectiveness.

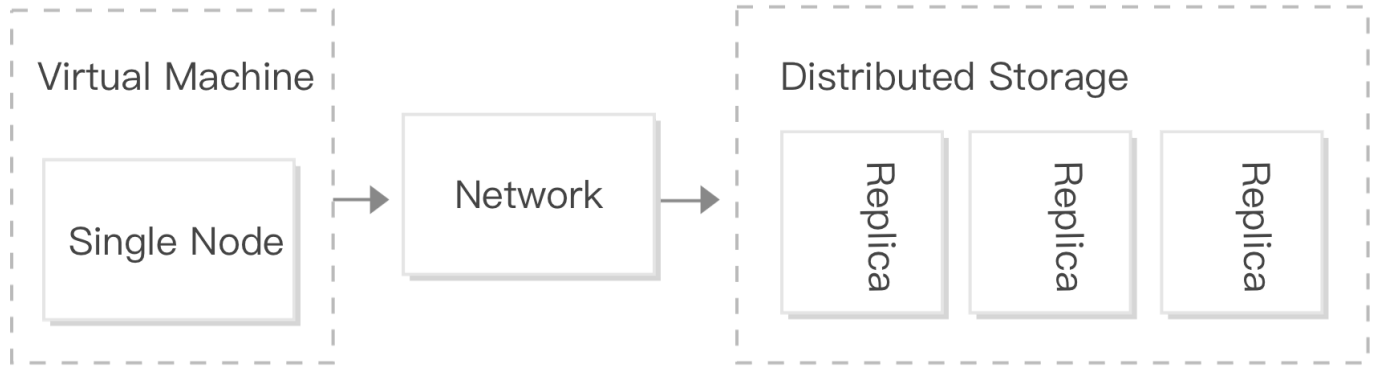
Use Cases

We do not recommend the Basic Edition for the business production environment. It is more suitable for personal learning, small websites, non-core small enterprise systems, and medium-to-large enterprise development and testing.

Features

- Supports computation-storage separation. If a compute node fails, fast recovery can be achieved by switching to another node. Underlying data is stored in three copies on CBS, which ensures a certain level of data reliability and enables quick data restoration from disk snapshots in case of disk failures.
- Offers over 20 monitoring metrics such as database connection, access, and resource and supports configuring alarm policies as needed. Compared with a self-created CVM-based database, a Basic Edition instance is also deployed on a CVM instance but is more convenient and provides higher database performance at a 40% lower cost.
- Uses cost-effective premium cloud disks with stable performance as its underlying storage media, which makes them suitable for 90% of I/O scenarios. The IOPS calculation formula is $\{\min 1,500 + 8 * \text{capacity}, \max 4,500\}$. For example, the IOPS value range of a 50 GB disk is $\{\min 1,900, \max 4,500\}$.

Basic Framework Diagram

**⚠ Note :**

As the Basic Edition adopts a single-node architecture, when the node fails, it takes slightly longer to recover than the CVM (due to instance startup and data restoration). If your business requires high availability, we recommend you use MySQL instances of the High-availability Edition or the Finance Edition.

Database Instance

Database Versions

Last updated : 2021-01-07 16:13:06

Supported Versions

Currently, TencentDB for MySQL supports MySQL v8.0, v5.7, v5.6, and v5.5. For more information on the features of each version, please see the [official documentation](#). MySQL's official lifecycle support policies are as shown below:

Release	GA Date	Premier Support End	Extended Support End	Sustaining Support End
MySQL Database 5.0	Oct-05	Dec-11	Not Available	Indefinite
MySQL Database 5.1	Dec-08	Dec-13	Not Available	Indefinite
MySQL Database 5.5	Dec-10	Dec-15	Dec-18	Indefinite
MySQL Database 5.6	Feb-13	Feb-18	Feb-21	Indefinite
MySQL Database 5.7	Oct-15	Oct-20	Oct-23	Indefinite
MySQL Database 8.0	Apr-18	Apr-23	Apr-26	Indefinite

Note :

- The extended official support for MySQL v5.5 ended in December 2018. There has been no explicit statement on further support extension, which is possibly because fixing issues takes more time. We strongly recommend that you use a higher version of MySQL.
- MySQL v5.6 and higher no longer support the MyISAM storage engine, so we recommend that you use the InnoDB engine, which features better and more stable performance.
- Currently, MySQL v5.6 and higher support three replication modes: async, semi-sync, and strong sync. Only async mode is available in MySQL v5.5.

TencentDB for MySQL v8.0 Strengths

- Combined with a complete set of management services and the TSQL kernel, TencentDB for MySQL provides an enterprise-level database service that is more stable and quicker to deploy. It is applicable to a variety of use cases and helps you upgrade your business.
- TSQL is 100% compatible with MySQL and the widely-used MySQL forks.
- TencentDB for MySQL supports three disaster recovery systems including hot standby, cold standby, and multi-AZ switchover. It can achieve a high service availability of up to 99.95% and a high data reliability of up to 99.9996%.
- TencentDB for MySQL provides a complete set of easy-to-use database management services, including monitoring, backup, rollback, encryption, auto scaling, auditing, and intelligent diagnosis and optimization, allowing you to focus more on business development.
- A TencentDB for MySQL instance can handle 500,000+ QPS. TencentDB for MySQL greatly simplifies business development, database OPS, and business architecture, making it easy for you to manage databases.
- TencentDB for MySQL Single-Node High IO Edition, High-Availability Edition, and Finance Edition are supported.
- The high-performance analysis engine CStore is supported. CStore is a high-performance columnar storage engine, supporting millions of real-time writes per second and real-time queries in any dimension of tens of billions of data in milliseconds. To apply for CStore, please [submit a ticket](#).

Feature Comparison between TencentDB for MySQL v8.0 and Oracle MySQL v8.0

Feature	TencentDB for MySQL v8.0	Oracle MySQL v8.0
Cost performance	<ol style="list-style-type: none"> 1. Elastic resources. 2. Tencent's kernel TSQL. 3. The backup and restoration features are already integrated. 4. A complete set of SaaS tools and services. 	<ol style="list-style-type: none"> 1. The one-time investment cost is huge. 2. The open source version has no performance optimization. 3. You need to deploy backup resources by yourself, which incurs additional costs. 4. You need to pay for public network traffic as well as high domain name fees.

Availability	<ol style="list-style-type: none"> 1. A complete high-availability switchover system is provided. 2. Read-only instances automatically balance load and traffic. 3. Disaster recovery instances are provided for remote disaster recovery, ensuring high availability. 	<ol style="list-style-type: none"> 1. You need to buy servers and wait for the delivery. 2. You need to deploy the high availability and load balancing systems by yourself. 3. It costs a lot to build data centers in multiple regions.
Reliability	<ol style="list-style-type: none"> 1. Data reliability of up to 99.9996%. 2. Low RPO/RTO. 3. Stable source-replica data replication. 	<ol style="list-style-type: none"> 1. Data reliability of 99%, which depends on the probability of damage to a single disk. 2. You need extra R&D investment to achieve a low RPO. 3. Data replication delays or interruptions may occur.
Ease of use	<ol style="list-style-type: none"> 1. A complete set of database management services are provided and databases can be easily operated in the console. 2. Seconds-level monitoring and intelligent alarms. 3. An automatic multi-AZ high availability system. 4. One-click version upgrade. 	<ol style="list-style-type: none"> 1. You need to deploy high availability and backup and restoration systems by yourself, which requires time and money. 2. You need extra investment to purchase a monitoring system. 3. It costs a lot to set up data centers in different regions with labor costs in OPS. 4. The version upgrade cost is high and the maintenance needs a long downtime.
Performance	<ol style="list-style-type: none"> 1. Local SSD disks have excellent performance and the custom hardware supports fast iterations. 2. The optimized TXSQL ensures high performance. 3. DBbrain supports the intelligent diagnosis and optimization of MySQL. 	<ol style="list-style-type: none"> 1. Oracle MySQL has a slower hardware iteration speed than that of cloud computing, usually resulting in lower performance. 2. It can be costly as databases rely on senior DBAs. 3. Oracle MySQL does not have native performance tools, so you have to purchase or deploy them by yourself.
Security	<ol style="list-style-type: none"> 1. Prevention in advance: allowlist, security group, VPC-based isolation. 2. Protection during the database operations: TDE + KMS data encryption. 3. Auditing after the database operations: SQL auditing. 	<ol style="list-style-type: none"> 1. The cost of the allowlist configuration is high and the private network needs to be implemented by yourself. 2. You need to implement encryption by yourself during the database operations.

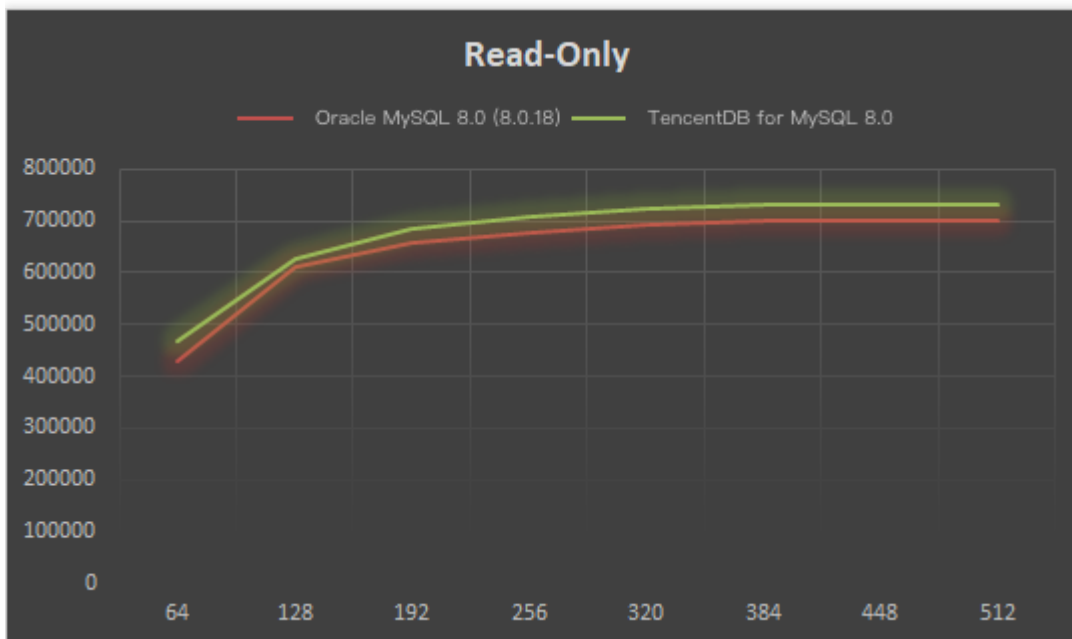
4. TencentDB for MySQL is updated right after the Oracle MySQL has security updates.

3. It is difficult to audit SQLs after the database operations as the open source MySQL does not support SQL auditing.

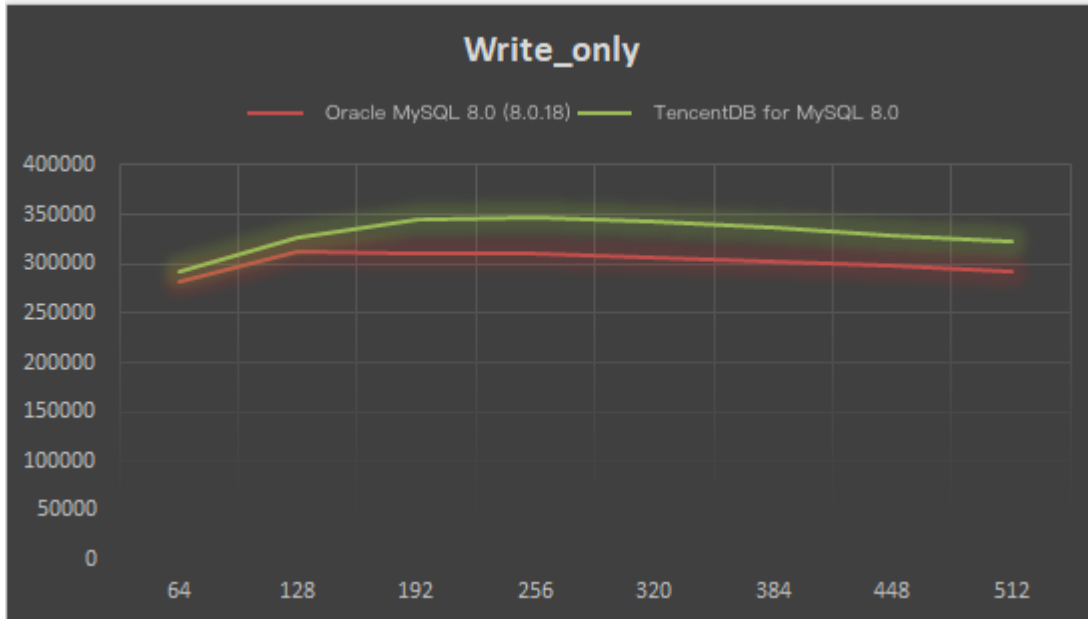
4. Once MySQL updates, OPS will be required to install updates or databases will have to be shut down for maintenance.

Performance Comparison between TencentDB for MySQL v8.0 and Oracle MySQL v8.0

Read performance



Write performance



Database Storage Engines

Last updated : 2020-10-29 09:54:22

Storage engine of a database refers to the type of tables and determines how tables are stored in computers. Although MySQL supports different types of storage engines, not all of them have been optimized for data restoration and persistence. TencentDB for MySQL features such as point-in-time restoration and snapshot restoration require a restoration-enabled storage engine and are available in the InnoDB storage engine only.

TencentDB for MySQL supports InnoDB by default. It no longer supports the MyISAM and Memory engines in MySQL 5.6 and higher mainly for the following reasons:

- TencentDB for MySQL greatly optimizes the kernels for InnoDB and achieves higher performance.
- MyISAM adopts a table-level locking mechanism, while InnoDB uses a row-level one. Normally, InnoDB features higher write efficiency.

Note :

- With the widest lock scope, table-level locking is to lock the entire table that is being manipulated in MySQL.
 - With the narrowest lock scope, row-level locking is to lock only the row that is being manipulated in MySQL.
-
- MyISAM has defects in protecting data integrity, which may lead to data corruption or even loss. Moreover, many of these defects are attributable to design issues and can only be fixed at the cost of compatibility.
 - Migration from MyISAM and Memory to InnoDB can be done at low costs by simply changing the code of created tables for most applications.
 - MyISAM is giving ground to InnoDB. In the latest MySQL 8.0, all system tables come in the InnoDB type.
 - Memory cannot guarantee data integrity. If the instance restarts or experiences master/slave switch, all data in the table will be lost. You are recommended to migrate to InnoDB as soon as possible.

For more information, please see [InnoDB Overview](#) and [MyISAM Overview](#).

Database Instance Types

Last updated : 2020-09-14 11:35:45

A TencentDB instance is a standalone database environment running in Tencent Cloud. It includes multiple databases created by users and can be accessed using the same tools and applications as those for a standalone database instance.

There are three types of instances available in TencentDB for MySQL:

Instance Type	Definition	Architecture	Visible in the Instance List	Feature
Source instance	An instance that can be read from and written to	<ul style="list-style-type: none"> • Basic Edition • High-availability Edition • Finance Edition 	Yes	A source instance can mount read-only instances and disaster recovery instances for read/write separation and remote disaster recovery
Read-only instance	An instance that can only be read from	Single-node High IO Edition	Yes	A read-only instance cannot exist on its own. Instead, it must be affiliated to a source instance. Its data comes solely from syncing with the source instance, and it must reside in the same region as the source instance.
Disaster recovery instance	An instance that supports disaster recovery across AZs and regions	<ul style="list-style-type: none"> • High-availability Edition • Finance Edition 	Yes	A disaster recovery instance is read-only when it syncs with a source instance. It can actively stop the sync and be promoted to a source instance for read/write access. The disaster recovery instance should reside in a different region than the source instance does.

Related Information

- For more information on the creation of and notes on the read-only instance, please see [Read-Only Instances](#).

- For more information on how to create and configure a RO group of read-only instances, please see [Creating a RO Group of Read-Only Instances](#).
- For more information on the creation of and notes on the disaster recovery instance, please see [Disaster Recovery Instances](#).

Database Instance Duplication

Last updated : 2020-09-09 16:03:44

Database instance replication means to sync data by configuring one or more backup databases for the server in order to distribute the data in MySQL to multiple systems. TencentDB for MySQL supports three data replication modes:

Note :

- "Master" refers to the master database instance, while "Slave" the backup database instance.
- MySQL v5.6, v5.7, v8.0 support three replication modes: async, semi-sync, and strong sync. Only async mode is available in MySQL v5.5.

Async Replication

An application initiates a data update (including insert, update and delete operations) request. After completing the update operation, the Master sends a response to the application immediately, and then replicates the data to the Slave.

During data update, the master does not need to wait for a response from the slave, so the database instance replicated asynchronously often has a higher performance, and slave unavailability will not affect the provision of services by the master. However, as the data is not synced to the slave in real time, if the master fails when a delay occurs on the slave, there is a slight chance of data inconsistency.

Asynchronous replication of Tencent Cloud database for MySQL uses a "One Master, One Slave" architecture.

Semisync replication

An application initiates a data update (including insert, update and delete operations) request. After completing the update operation, the Master replicates the data to a Slave immediately. After **receiving and writing the data into relay log (bypassed)**, the Slave returns success message to the Master. Only after receiving the message from the Slave, the Master can return a response to the application.

Only when an exception occurs with the data replication (a Slave node becomes unavailable or an exception occurs with the network used for data replication), the Master will suspend the response to the application (for about 10 seconds by default in MySQL), and the replication will be downgraded to asynchronous replication. When the data replication returns to a normal state, semisync

replication will be restored.

Semi-synchronous replication of Tencent Cloud database for MySQL uses a "One Master, One Slave" architecture.

Strong Sync Replication

An application initiates a data update request (i.e., INSERT, UPDATE, or DELETE). After completing the update operation, the master replicates the data to the slave immediately. After receiving and updating the data, the slave **returns a success message to the master**. Only after receiving the message from the slave will the master return a response to the application.

As the data is replicated synchronously from the master to the slave, successful update on the slave must be guaranteed for each update operation on the master. Therefore, strong sync replication can maximize master-slave data consistency. However, the master cannot process an update request until it gets a response from the slave, so slave unavailability can greatly affect the operations on the master.

TencentDB for MySQL uses a one-master-two-slave architecture for strong sync replication. The master can receive the success message as long as either of the two slaves updates the data successfully, preventing the unavailability of a single slave from affecting the operations on the master and improving the availability of the strong sync replication cluster.

List of Feature Differences

Last updated : 2020-10-26 15:55:14

This document describes and compares the features supported by different types of TencentDB for MySQL instances, providing a guide for you to learn more about the features of all architectures and purchase instances according to your needs.

Feature	High-Availability Edition	Finance Edition	Single-node High IO Edition	Basic Edition
Version	<ul style="list-style-type: none"> MySQL 5.5 MySQL 5.6 MySQL 5.7 MySQL 8.0 	<ul style="list-style-type: none"> MySQL 5.6 MySQL 5.7 MySQL 8.0 	<ul style="list-style-type: none"> MySQL 5.6 MySQL 5.7 MySQL 8.0 	MySQL 5.7
Number of nodes	2	3	1	1
Specification configuration	Up to 488 GB/6 TB	Up to 488 GB/6 TB	Up to 488 GB/6 TB	Up to 8 GB/1 TB
Upgrading Database Engine	Supported (MySQL 5.5、5.6)	Supported	Supported	Supported
Upgrading to Finance Edition	Supported	-	-	-
RO Instance	Supported (MySQL 5.6, 5.7 and 8.0)	Supported	Supported	-
DR Instance	Supported (MySQL 5.6, 5.7 and 8.0)	Supported	-	-
Account Management	Supported	Supported	-	Supported
Setting Instance Parameters	Supported	Supported	-	Supported
Backup Mode	Supported	Supported	-	-
Database Rollback	Supported	Supported	-	-
Data Import	Supported	Supported	Supported	-

Importing SQL Files	Supported	Supported	-	-
Security Group	Supported	Supported	Supported	-
Monitoring and Alarm	Supported	Supported	Supported	Supported
Operation Logs	Supported	Supported	Supported	Supported

Note :

"-" in the table above indicates "unsupported".

High Availability (Multiple AZs)

Last updated : 2020-11-17 10:59:05

Multi-AZ deployment protects your database from being affected by database instance failures and AZ outages. For more information, please see [Regions and AZs](#).

The multi-AZ deployment scheme of TencentDB for MySQL guarantees the high availability and failover capability of database instances by combining multiple AZs into a single "multi-AZ".

Note :

- No matter whether the TencentDB for MySQL instances in a database cluster are running across multiple AZs or not, each instance has a slave for real-time hot backup to ensure high database availability.
- With multi-AZ deployment, TencentDB for MySQL automatically presets and maintains a sync slave replica in a different AZ.
- The master database instance is synchronously replicated to the slave replica across AZs to provide data redundancy, eliminate I/O freezes, and minimize latency during system backups.

Supported Regions

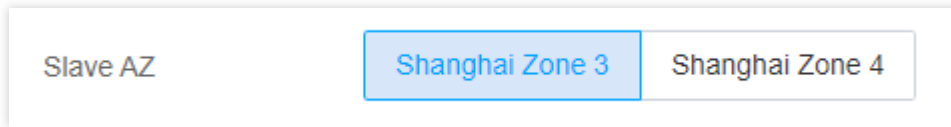
The multi-AZ deployment scheme of TencentDB for MySQL is currently available in Guangzhou, Shanghai, Beijing, Chengdu, and Virginia regions.

Multi-AZ Deployment

1. Log in to the [TencentDB for MySQL Console](#) and click **Create** in the Instance List to enter the purchase page.
2. On the TencentDB for MySQL purchase page, select a supported region, and select a desired slave AZ in the **Slave AZ** option.

Note :

Only certain AZs can be selected as a slave AZ. For more information, please see the purchase page.



3. After confirming that everything is correct, click **Buy Now**. After making the payment, you can return to the instance list to view the newly purchased multi-AZ instance.

Failover

TencentDB for MySQL processes failover automatically, so database operations can be resumed as quickly as possible with no administrative intervention required. The master database instance will automatically switch to the slave replica in the slave AZ in the following conditions:

- AZ outage.
- Master database instance failure.

Regions and Availability Zones

Last updated : 2020-12-14 11:14:33

TencentDB data centers are hosted in multiple locations world wide. These locations are known as regions. Each region contains multiple availability zones (AZs).

Each region is an independent geographic area containing multiple isolated AZs. Separate AZs in the same region are connected via low-latency private networks. Tencent Cloud provides you with the ability to distribute Tencent Cloud resources across different locations. We recommend placing resources in different AZs to eliminate single points of failure which may lead to service unavailability.

Region name and AZ name can most directly embody the coverage of a data center. The following naming convention is used for your convenience:

- A region name is composed of **region + city**. The `region` indicates the geographic area that the data center covers, while the `city` represents the city in or near which the data center is located.
- An AZ name is in the format of **city + number**.

Regions

Tencent Cloud regions are completely isolated. This guarantees the maximum cross-region stability and fault tolerance. When purchasing Tencent Cloud services, we recommend selecting the region closest to your end users to minimize access latency and improve download speed. Operations such as launching or viewing instances are performed at the region level.

Private Network Communication:

- Tencent Cloud resources within the same region (under the same account in the same VPC) can communicate with each other over a private network. They can be accessed via [private IPs](#).
- The networks of different regions are fully isolated. Tencent Cloud services in different regions cannot communicate over a private network by default.
- Tencent Cloud services in different regions can communicate with each other by accessing the Internet through [public IPs](#). Tencent Cloud services in different VPCs can communicate with each other through [Cloud Connect Network \(CCN\)](#), which is faster and more stable.
- [Cloud Load Balancer \(CLB\)](#) does not support cross-region traffic forwarding.

Availability Zones

Availability zones (AZs) refer to Tencent Cloud IDCs with independent power supply and network in a region. They are designed to ensure that failures within one AZ can be isolated from other AZs, thereby ensuring service availability and business stability, excepting the occurrences of large-scale disasters or major power failures. Users can protect their applications from being affected by a single point of failure by deploying instances in independent AZs.

When launching an instance, you can select any AZ in the specified region. For high reliability, you can adopt a cross-AZ deployment solution to ensure that the service remains available when an instance in a single location fails. Examples of such solutions include [CLB](#) and [EIP](#).

List of Regions and AZs

Region and Availability Zones:

China

Region	AZ
South China (Guangzhou) ap-guangzhou	Guangzhou Zone 1 (sold out) ap-guangzhou-1
	Guangzhou Zone 2 ap-guangzhou-2
	Guangzhou Zone 3 ap-guangzhou-3
	Guangzhou Zone 4 ap-guangzhou-4
	Guangzhou Zone 6 ap-guangzhou-6
East China (Shanghai) ap-shanghai	Shanghai Zone 1 ap-shanghai-1
	Shanghai Zone 2 ap-shanghai-2
	Shanghai Zone 3 ap-shanghai-3
	Shanghai Zone 4 ap-shanghai-4

	Shanghai Zone 5 ap-shanghai-5
East China (Nanjing) ap-nanjing	Nanjing Zone 1 ap-nanjing-1
	Nanjing Zone 2 ap-nanjing-2
North China (Beijing) ap-beijing	Beijing Zone 1 ap-beijing-1
	Beijing Zone 2 ap-beijing-2
	Beijing Zone 3 ap-beijing-3
	Beijing Zone 4 ap-beijing-4
	Beijing Zone 5 ap-beijing-5
Southwest China (Chengdu) ap-chengdu	Chengdu Zone 1 ap-chengdu-1
	Chengdu Zone 2 ap-chengdu-2
Southwest China (Chongqing) ap-chongqing	Chongqing Zone 1 ap-chongqing-1
Hong Kong, Macao and Taiwan, China (Hong Kong) ap-hongkong	Hong Kong Zone 1 (Hong Kong nodes cover services in the China regions of Hong Kong, Macao, and Taiwan) ap-hongkong-1
	Hong Kong Zone 2 (Hong Kong nodes cover services in the China regions of Hong Kong, Macao, and Taiwan) ap-hongkong-2

Other countries/regions

Region	AZ
Southeast Asia (Singapore)	Singapore Zone 1 (Singapore nodes cover

ap-singapore	services in Southeast Asia) ap-singapore-1
Singapore Zone 2 (Singapore nodes cover services in Southeast Asia) ap-singapore-2	
Southeast Asia (Bangkok) ap-bangkok	Bangkok Zone 1 (Bangkok nodes cover services in Southeast Asia) ap-bangkok-1
South Asia (Mumbai) ap-mumbai	Mumbai Zone 1 (Mumbai nodes can cover services in South Asia) ap-mumbai-1
	Mumbai Zone 2 (Mumbai nodes can cover services in South Asia) ap-mumbai-2
Northeast Asia (Seoul) ap-seoul	Seoul Zone 1 (Seoul nodes can cover services in Northeast Asia) ap-seoul-1
	Seoul Zone 2 (Seoul nodes can cover services in Northeast Asia) ap-seoul-2
Northeast Asia (Tokyo) ap-tokyo	Tokyo Zone 1 (Tokyo nodes can cover services in Northeast Asia) ap-tokyo-1
Western US (Silicon Valley) na-siliconvalley	Silicon Valley Zone 1 (Silicon Valley nodes cover services in Western US) na-siliconvalley-1
	Silicon Valley Zone 2 (Silicon Valley nodes cover services in Western US) na-siliconvalley-2
Eastern US (Virginia) na-ashburn	Virginia Zone 1 (Virginia nodes can cover services in Eastern US) na-ashburn-1
	Virginia Zone 2 (Virginia nodes can cover services in Eastern US) na-ashburn-2
North America (Toronto)	Toronto Zone 1 (Tokyo nodes can cover services

na-toronto	in North America) na-toronto-1
Europe (Frankfurt) eu-frankfurt	Frankfurt Zone 1 (Frankfurt nodes can cover services in Europe) eu-frankfurt-1
Europe (Moscow) eu-moscow	Moscow Zone 1 (Moscow nodes can cover services in Europe) eu-moscow-1

Selecting Regions and AZs

When purchasing Tencent Cloud services, we recommend selecting the region closest to your end users to minimize access latency and improve download speed.