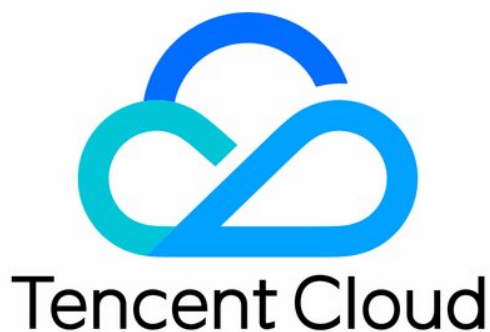


Tencent Cloud TCHouse-P

Product Introduction



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Overview

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Tencent Cloud TCHouse-P (Tencent Cloud TCHouse-P, TCHouse-P) provides a simple, fast, and cost-effective PB-level cloud data warehouse solution. Cloud Data Warehouse is compatible with the open-source PostgreSQL data warehouse and is a data warehouse service based on an MPP (Massively Parallel Processing) architecture.

Tencent Cloud TCHouse-P is a high-performance, general-purpose MPP database system designed for massive online real-time data analysis. The prototype of Tencent Cloud TCHouse-P originates from the mature technology and powerful features of PostgreSQL. With over 30 years of development, PostgreSQL is one of the most beloved enterprise-level open-source relational databases in the world. Based on this, we have developed and distributed the distributed database product TCHouse-P, which boasts richer features, better stability, broader compatibility, higher security, stronger performance, and excellent scalability. Tencent has full control over TCHouse-P with complete intellectual property rights, demonstrating the capability to replace foreign databases in the mid-to-high-end market on a large scale and support the national strategy for self-reliance and development at the foundational software level of databases. Currently, TCHouse-P is already deployed and operational within the core transaction systems of industries like Tencent WeChat Pay, finance, insurance, electricity, fire services, and government affairs.

Strengths

Elastic scaling

CDWPG delivers convenient and elastic scalability, allowing you to scale hundreds of nodes and adjust their configurations through simple operations through the console or TencentCloud API. You can choose to scale the compute unit, CPU, memory, and storage proportionally to better match your business needs and progress.

Ease of Use

Cluster management, monitoring, and maintenance can be done in the console, freeing you from the cumbersome Ops of the underlying infrastructure. CDWPG fully conforms to the ANSI 2008 standard for SQL, so you can build an enterprise-grade data warehouse with standard SQL. You can also directly query COS data without preloading needed.

Seamless integration

CDWPG supports unlimited expansion of the storage capacity on top of COS. It can work with a wide variety of tools and solutions to enable high-speed data import from multiple sources (such as traditional relational databases, CKafka, and Oceanus) for aggregation and analysis in the cloud.

Outstanding Performance

CDWPG boasts a distributed MPP framework to linearly scale the storage and computing capabilities. With hybrid row/column-oriented storage, it offers an optimal storage solution for your business to query data several times faster than traditional data warehouses thanks to its deeply optimized query engine.

Security and reliability

CDWPG has two nodes in a redundant way to implement failover and disaster recovery imperceptible to users. It adopts distributed deployment to protect compute units, servers, and cabinets to secure critical data infrastructure. Furthermore, your clusters are independently deployed in isolated VPCs for more secure data access.

Application Scenario

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Operational Analysis and Decision Making

In the fields of finance and retail, business data of the sales, assets, and supply chain need to be aggregated and analyzed for you to stay on top of operations and make accurate and efficient decisions.

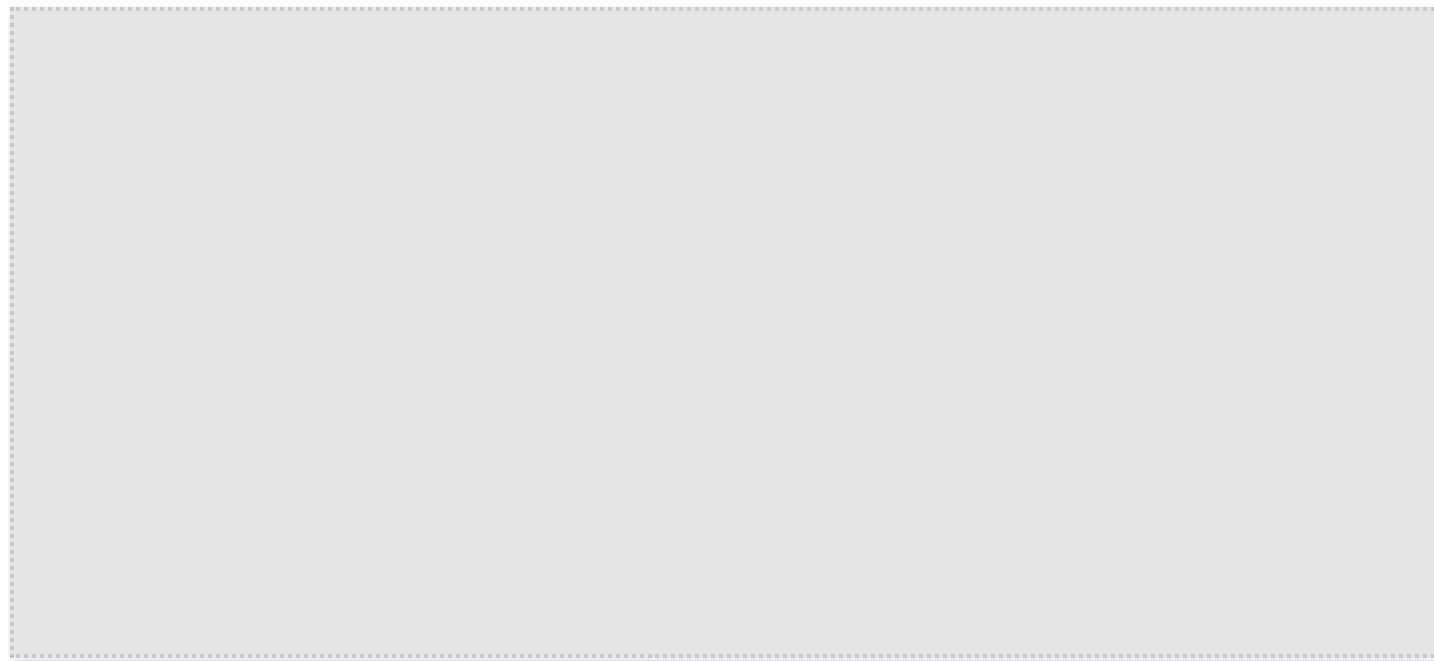
Through sync or ETL tools, you can import data dispersed across TencentDB, Oracle, and PostgreSQL into Tencent Cloud TCHouse-P. It utilizes its ability to analyze heterogeneous data from multiple sources to assist in business decision making.



Massive Log Analysis

In internet finance, gaming, O2O, and other industries, CDWPG can analyze user behaviors, system logs, orders, and other structured or semi-structured data at the petabyte level economically and efficiently.

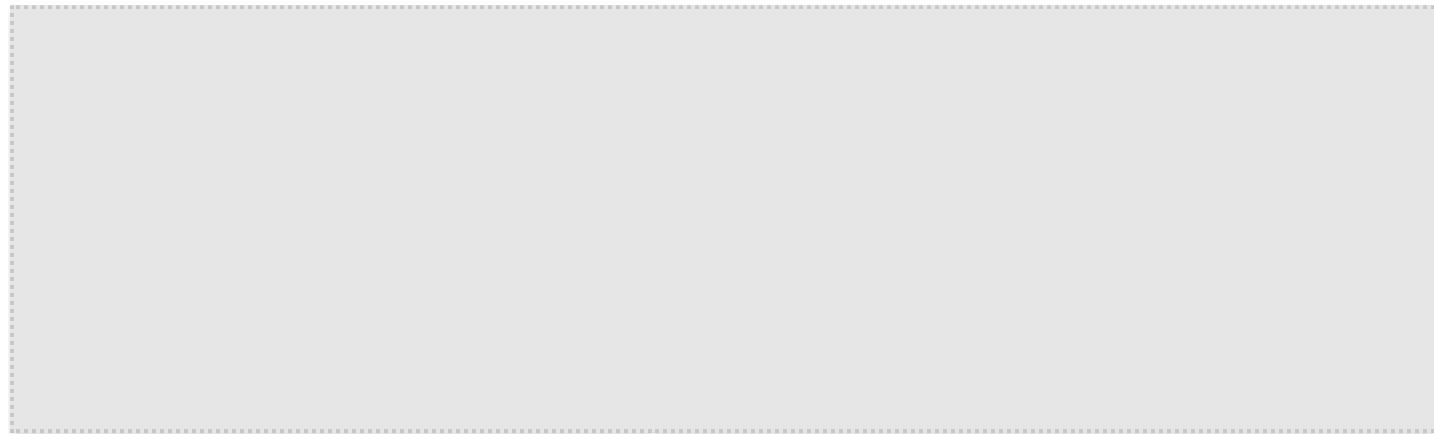
You can store massive amounts of data directly in COS without importing it into Tencent Cloud TCHouse-P in advance. By just writing SQL statements, you can quickly analyze and apply the data in COS.



Real-Time Insights into User Behaviors

In the fields of internet and gaming, CDWPG analyzes user behaviors in real time to optimize operations strategies and enhance the efficiency of resource operations.

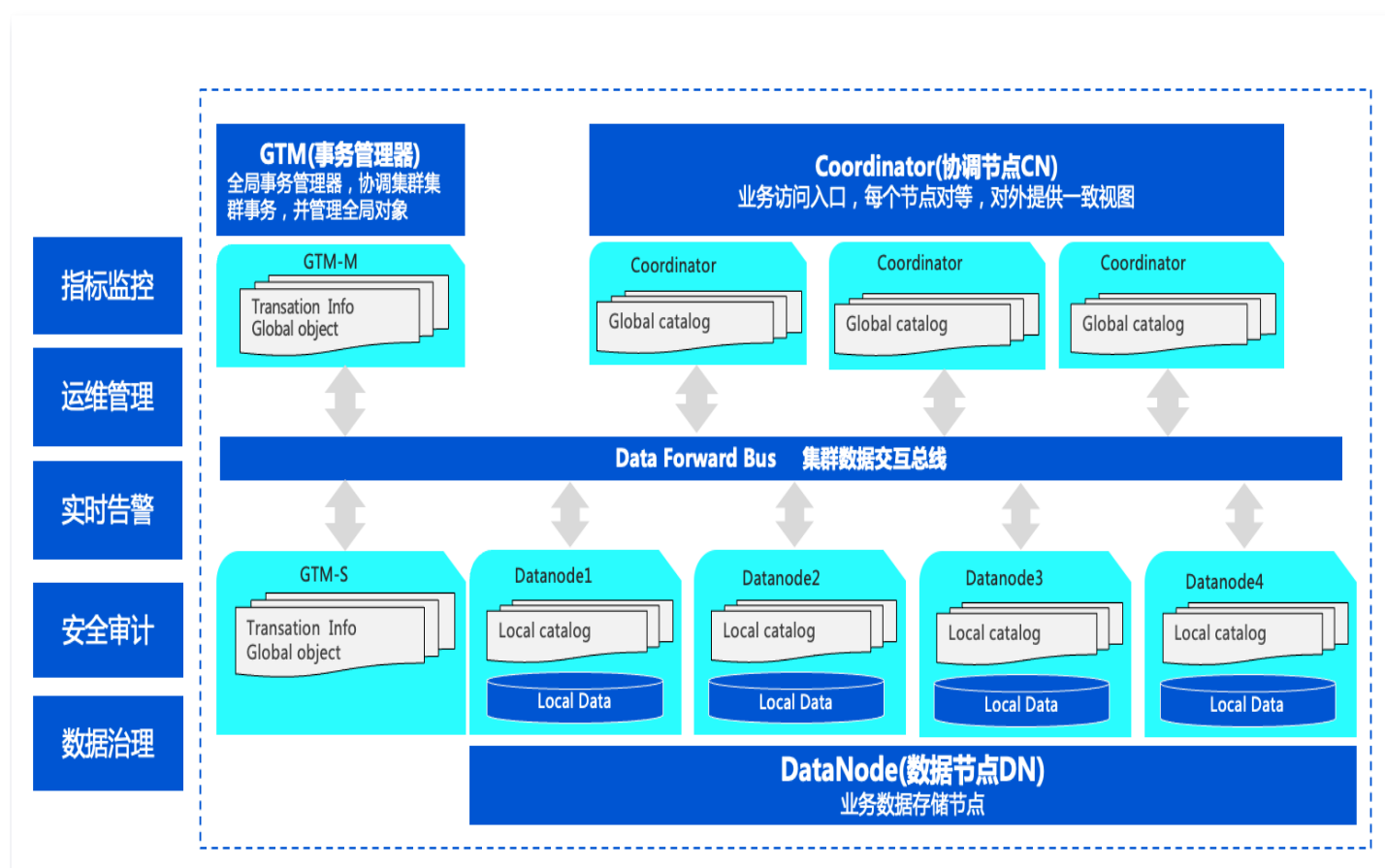
You can use Stream Computing Service to filter, sort, and aggregate users' real-time operation data, then sync the results instantly to Tencent Cloud TCHouse-P. With the strong SQL analysis and query capabilities of the data warehouse, you can quickly sense player behavior trends and adjust operational strategies in a timely manner.



Cluster architecture

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The overall architecture of Tencent Cloud TCHouse-P includes the upper-layer Coordinator CN, GTM Transaction Manager, middle-layer Data Exchange Bus FN, and lower Data Nodes DN. Utilizing MPP architecture, its characteristic is share-nothing, with data scattered across multiple DNs according to different scatter keys. Different tables can define different scatter keys. When the CN receives a query, it distributes the task across multiple DNs for parallel execution to improve execution efficiency. Finally, the CN collects the results from the DNs' parallel execution, aggregates them, and returns them to the client.



- **CN Node:** CN nodes do not store business data; they only store the data dictionary. They are responsible for generating and distributing SQL execution plans to each DN node and interacting with clients and handling authentication and authorization.
- **DN Node:** DN nodes store business data and execute SQL statements distributed by CN nodes. To ensure each DN service operates at the same performance level, each DN node machine has identical resource configuration. During scale-out, machine types do not change.

Node Specification

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- Tencent Cloud TCHouse-P supports the following two types of node specifications:
- **Standard:** The underlying storage is CBS, providing AS expansion capability.
 - **High-performance:** Uses local disks, offering better I/O capability and higher performance.

When choosing node specifications, it is recommended to select based on the required storage space and computing power. Meanwhile, Tencent Cloud TCHouse-P supports COS-based external table expansion. Data not needed for real-time computing can be stored in external storage, further reducing storage costs.

Standard node specification list

CPU (Core)	Memory (GB)
4	16
8	32
16	64
32	128
64	256

Node storage

Disk type	Disk Capacity
Enhanced SSD	200GB – 32000GB
Premium Cloud Storage	200GB – 32000GB

High-performance node specification list

Node Specification

CPU (Core)	Memory (GB)	Disk (GB)
16	64	1 * 3570GB local disk
32	128	2 * 3570GB local disks

64	256	4 * 3570GB local disks
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