

Analytic DB

User Guide

User Guide

Preface: A Fast and Free Big Data OLAP Experience

As corporate IT and Internet systems develop, they produce more and more data. The accumulation of greater data volume has led to a quantitative leap forward. This has made data systems evolve from one part of business systems into independent systems in their own right. Through data analysis and mining, these systems produce their own unique value.

In business systems, we normally use OLTP (OnLine Transaction Processing) systems, such as MySQL, Microsoft SQL Server, and other relational database systems. These relational database systems are adept at transaction processing. In data operations, they maintain strong consistency and atomicity while supporting frequent data insertion and modification. However, once you need to compute extremely large data volume, with data records in the millions or even billions, or require extremely complex computation, OLTP database systems will no longer be sufficient.

At this time, we will need an OLAP (On-Line Analytical Processing) system to process the data. Broadly speaking, OLAP systems, compared with OLTP systems, are not especially concerned with data input, modification and other transactional processes. Rather, they concentrate on the multi-dimensional and complex analysis of large amounts of existing data. Of the specific products, we generally divide OLAP systems into three types: MOLAP, ROLAP, and HOLAP.

Multi-Dimensional OLAP (MOLAP) models in advance based on the dimensions required in data analysis. In terms of the data's physical storage it stores data in cubes, providing rapid query and other advantages. However, the data must be modeled in advance and cannot be changed on the fly at a user's will. Next, Relational OLAP (ROLAP) uses a data storage model similar to relational databases and performs query and computation through SQL and other such languages. Its advantage is greater freedom in data query and computation. It allows for flexible analysis based on the user's needs. However, its defect is its slow analysis and computing speeds when working with a massive amount of data. Finally, HOLAP is a hybrid mode combining MOLAP and ROLAP.

Analytic Database Services (Analytic DB) is a RT-OLAP (Realtime OLAP) system. For data storage, it adopts a free and flexible relational model. It can use SQL for free and flexible computation and analysis, without requiring modeling in advance. Meanwhile, Analytic DB can utilize the cloud computing technology to process data records in the tens of billions or even more, with processing performance that exceeds even MOLAP systems and truly reaches the scale of tens of billions of data records in milliseconds.

Analytic DB allows for both real-time and free computing of massive data volume and represents a speed-driven big data business revolution. Analytic DB has the capability to quickly process big data

with tens of billions of records, meaning the data used in analysis does not have to be a sample, but can be all the data produced by a business system. This maximizes the representativeness of the data analysis results. Even more important, Analytic DB uses cloud computing technology and possesses powerful real-time computing capabilities. Generally, computation of billions or tens of billions of data records can be performed in several hundred milliseconds. This allows users to freely explore massive data volume in their own ways, rather than simply viewing data reports based on pre-defined logic.

At the same time, because Analytic DB can support a large amount of concurrent queries and ensures high system availability through dynamic multi-copy storage and computing technology, it can serve as a back-end system for end user products (including Internet products and internal enterprise analysis products). Internet business systems with hundreds of thousands or even millions of users, such as Taobao Data Cube, Taobao Index, Kuaidi Taxi, Alimama DMP, and Taobao food channels, all use Analytic DB. As a real-time computing system of massive data volume, Analytic DB provides its users with a fast and free big data OLAP analysis experience. Ultimately we expect to bring huge changes to the big data industry. We invite users with various needs to use Analytic DB and give us their valuable suggestions.