Teradata Unity

Simplify and Integrate Your Analytical Ecosystem

The business analytics landscape changes almost daily. As companies everywhere are collecting, storing, and analyzing huge amounts of data from ever-increasing sources, they're discovering that not all data is equal. Some must support mission-critical applications and be constantly available. Other data may be time-sensitive. And still other data is retained simply for historical or regulatory requirements.

One way businesses have chosen to deal with these different types of data is by employing multiple analytical systems; each tuned for its data and workload. These multi-system environments can be very effective when they're designed to add value, not complexity.

Teradata Unity provides the critical role of managing multi-system Teradata environments. Tasks for the user and query routing, and if necessary auto resubmittal, data loading, and database synchronization, are all in one product.

All together, Teradata Unity helps you and your company with high availability and disaster recovery initiatives, as well as workload optimization across your Teradata systems.

Query Management

Teradata Unity enables routing of users and queries between Teradata systems. There are two different scenarios to consider when routing queries. The first is routing users to a system that has the data to satisfy their queries; this can be done to balance applications and workload on the platforms. The second scenario is re-routing users from a primary to secondary system during planned or unplanned system outages. These two require-ments may differ in their goals, but they provide end users with the same ultimate benefit—continuous, transparent access to data.

Routing users based on data location requires the ability to direct queries based on SQL objects. Teradata Unity can parse queries and determine which database objects, such as tables and views, are available and are needed to fulfill the request. The solution also knows which Teradata systems have these database objects. It will transparently route to the system that can satisfy the request and has the most up-to-date data. This means the queries are handled automatically through database intelligence and do not require a DBA to determine where queries belong. This, in turn, simplifies running multiple active systems, each of which is designed and optimized for a specific analytical workload.

Rules-based session routing is needed to direct users for high availability and failover. DBAs predetermine the rules for where user sessions will go during planned and unplanned system outages. Forethought and planning are needed to determine how to deal with planned and unplanned outages and which data, applications, and users require high availability based on business priorities.

Auto Resubmit

Protection against database restarts can be greatly enhanced in multi-system environments by avoiding the need for users to resubmit queries when the database comes back online. Having to resubmit the query impacts end-user productivity and requires users to know when the database becomes available. Organizations can deal with this inconvenience by embedding logic in their applications that will automatically resubmit queries when the database is back online. However, doing so puts the burden on IT to custom build and maintain the logic.

If queries abort due to a database restart, Teradata Unity automatically resubmits them to an alternate Teradata system that can satisfy the query. This makes the entire event transparent to the user or application and ensures a better end-user experience that doesn't burden IT.
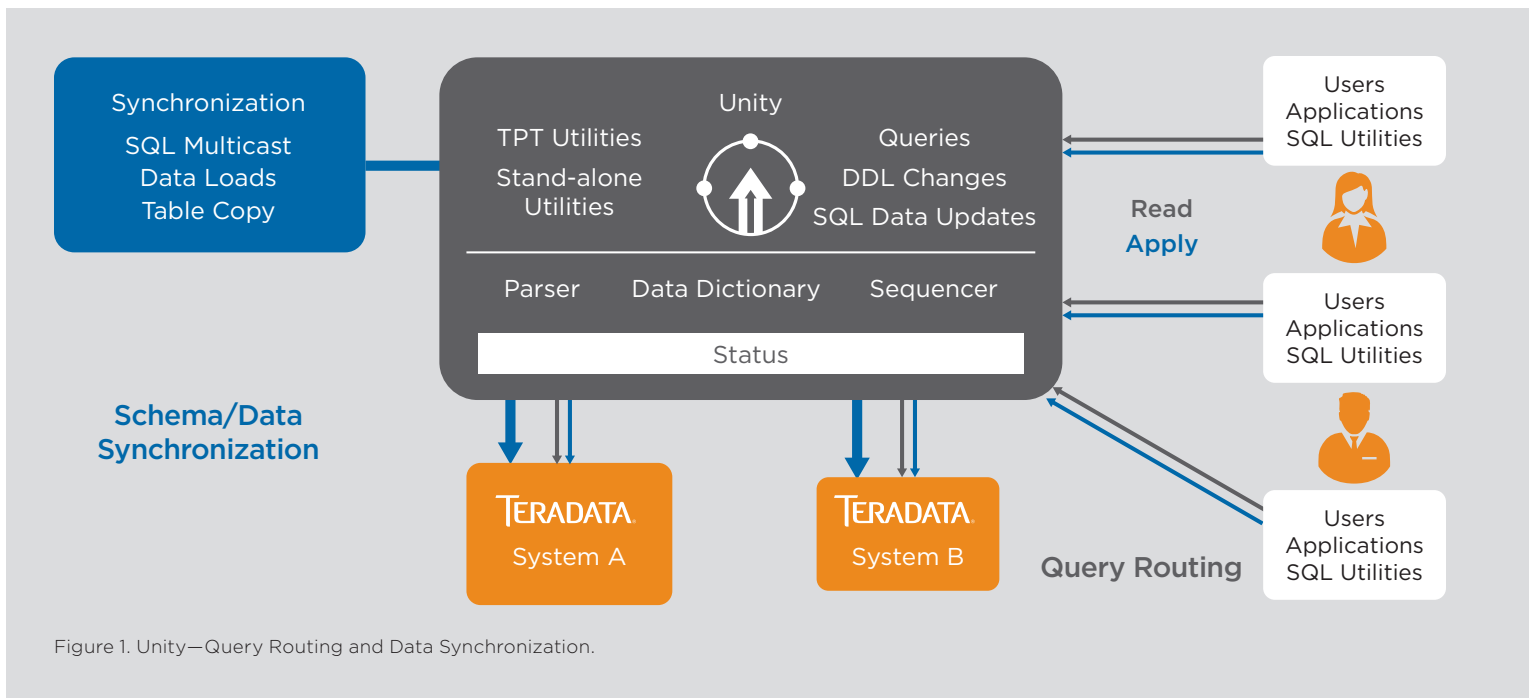
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Figure 1. Unity—Query Routing and Data Synchronization.

Data and Database Synchronization

Another benefit of Teradata Unity is the capability to synchronize multiple Teradata systems.

The SQL Multicast feature delivers SQL commands to all participating systems in the Teradata Analytical Ecosystem. Teradata Unity will automatically queue up and dispatch the incoming SQL commands in the order in which they're received, maintaining consistency and integrity across systems.

Through the use of SQL Multicast, Teradata Unity keeps database changes in sync across systems by processing SQL commands (DDL and DCL) in the order in which they arrive. For example, commands such as CREATE TABLE, ALTER TABLE, and CREATE USER, are processed in order.

Similarly, SQL-based data changes (DML) are kept in sync across systems. Update queries that change data will be executed across participating systems, making the same data changes everywhere they're run. Also, new data coming into the warehouse through SQL-based utilities such as Teradata TPump or the Teradata Parallel Transporter Stream Operator will also be applied to all participating systems.

Data Loading and Synchronization

Another core requirement of the Teradata Analytical Ecosystem is synchronizing data between systems, the majority of which is new data loaded from source systems. Accomplishing that task used to require custom-built solutions.

Teradata Unity has a powerful replacement for custom-built dual load solutions. It applies the underlying capabilities of patented Teradata SQL Multicast technology to Teradata Parallel Transporter bulk load utilities for intelligent and selective routing of bulk loads to the appropriate Teradata system. In essence, Teradata Parallel Transporter load jobs are pointed at Teradata Unity which will intelligently deliver the data updates to one or many systems where the data belongs. For IT, this means simple and seamless growth of the Teradata Analytical Ecosystem and the ability to support additional Teradata systems with little to no increased effort.

Taken together, the data loading and query management work as one to sequence database changes and query requests. This ensures that data updates and database structure changes are always applied in the order received; automatically coordinating and maintaining order and consistency across systems. And, it is specifically designed to work with systems that are not identical. For example,

if the primary integrated data warehouse contains 100 percent of the data, and there is a second system for high availability that holds a 30 percent subset of that data, Teradata Unity understands the capabilities and limitations of each system and will route data loads accordingly.

Teradata Unity – A Complete Ecosystem

Teradata Unity is part of the portfolio of powerful products that is integrated to work together to turn a multi-system environment into an orchestrated analytical ecosystem. Within a Teradata analytical ecosystem, these tools comprise all the features and capabilities needed to simplify and synchronize systems. There are myriad benefits for both IT and business.

IT Benefits

- Automated management of the analytical ecosystem enables the warehouse to grow in sophistication and scale without a corresponding increase in staff.

- Architectural flexibility to deliver operational and strategic intelligence meets both business and technical needs.

- A comprehensive, proven solution reduces risk, saves time, and provides seamless growth in enterprise analytics.

Business Benefits

- Transparent access to diverse analytics gets query results to users while shielding them from IT complexities.

- Continuous access to analytics allows uninterrupted decision making.

- A cost-effective solution minimizes the IT investment needed to deliver business analytics.

For More Information

To find out more about how Teradata Unity can help you make the most of your analytical ecosystem and grow your business, contact your local Teradata representative, or visit **Teradata.com**.