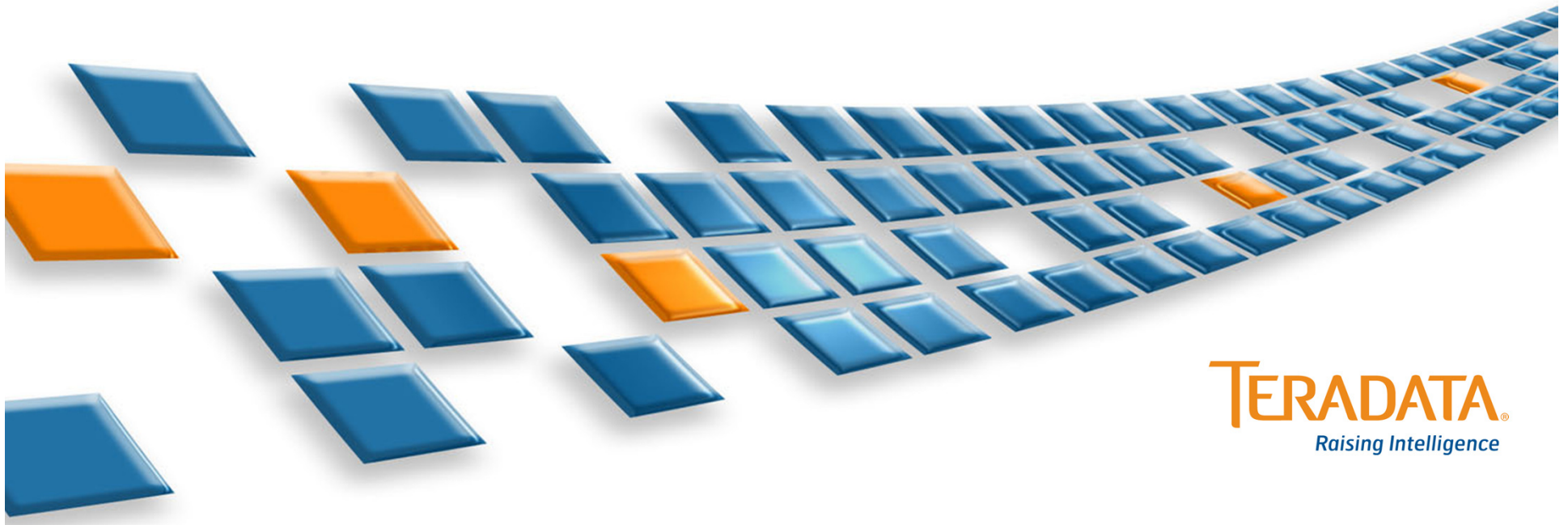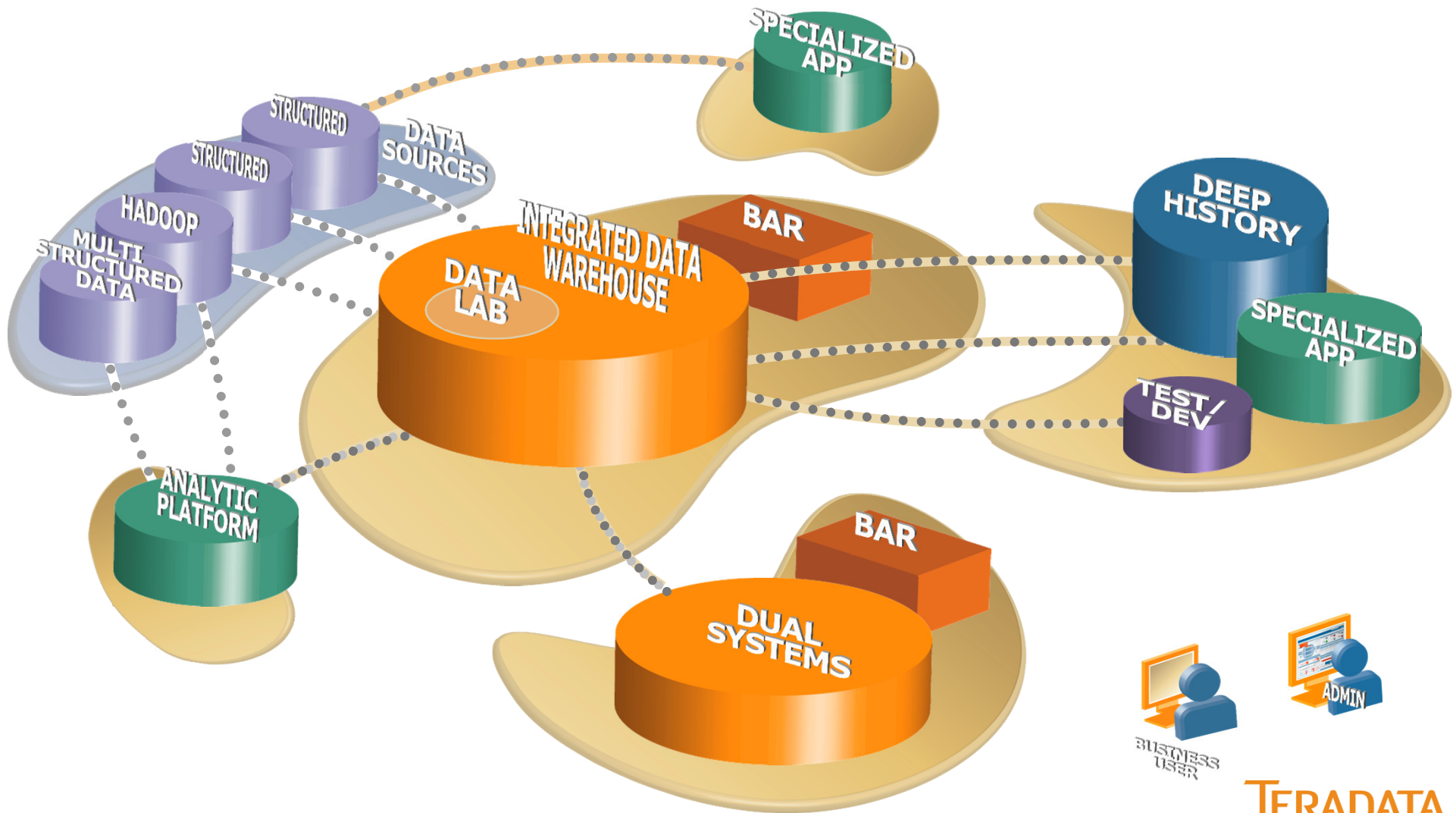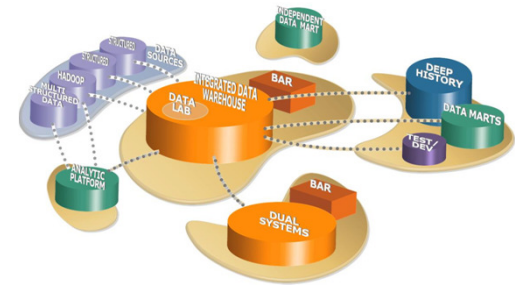# Teradata Unity

Teradata Analytical Ecosystem Overview
Flexible, Integrated Analytics

Teradata Unity Enables The Analytical Ecosystem

Key features that turn a multi-system environment into an orchestrated Analytical Ecosystem

- **Query Management**
  - > Controlled routing of user sessions for high availability and failover
  - > Intelligent and automatic query routing for workload optimization

- **Multi-System Synchronization**
  - > Enables database (object) synchronization across participating systems to maintain consistent data models with minimal effort
  - > Provides data synchronization for transactional updates across participating systems to maintain a single version of the truth
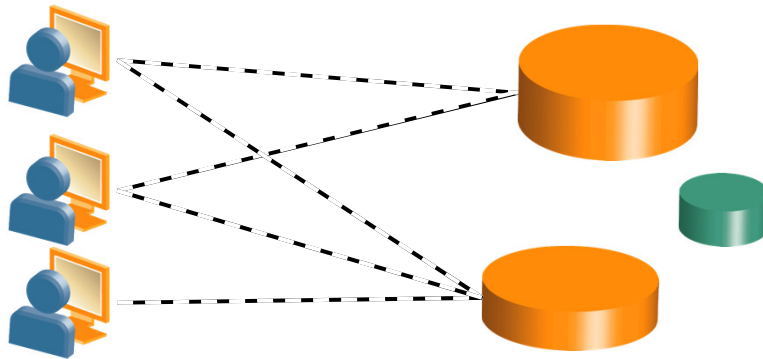
- **Auto Resubmit**
  - > Protects users and applications against database restarts
  - > No need to re-submit queries

TERADATA.
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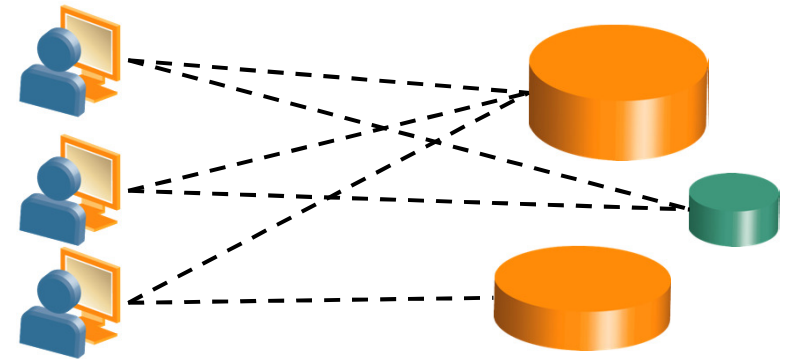# Teradata Unity Provides Query Management

- Two methods for query management
  - > User session routing
  - > Individual query routing

User Session Routing

Great for session and workload control across systems, especially when high availability failover is required
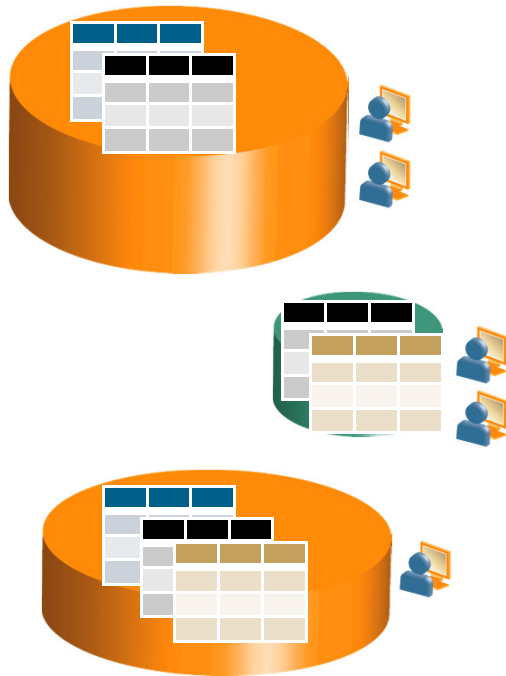
Individual Query Routing

Great when systems contain different data and/or for fast setup where session control isn't required

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Multi-System Synchronization

Database Synchronization

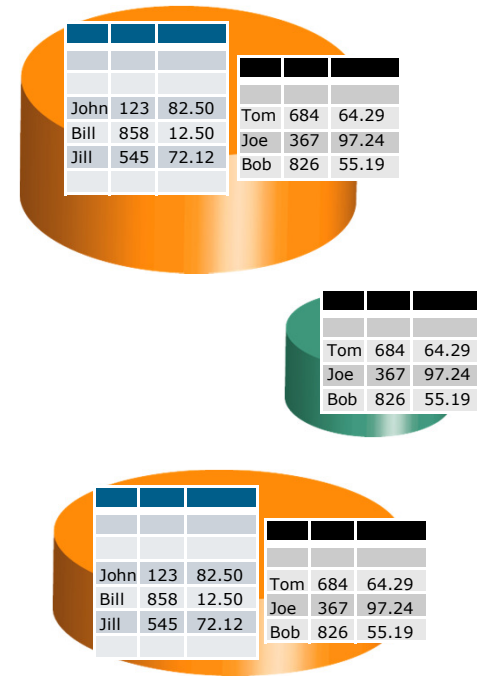**Architectural Flexibility**
- All Platform Family members supported
- Any number of systems can participate
- Databases objects don't have to be identical (tables, users, view, macros,…)

Data Synchronization

Data Flexibility
- Not all tables have to be on all systems
- Updates sent to all participating systems
- Data updates applied in the order received

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SQL Multicast

SQL Multicast is a Teradata Unity feature that simultaneously sends SQL updates to multiple Teradata systems and routes queries to the least busy system which can satisfy the query

> One-to-many, many-to-one, and one-to-one communication between Unity and Teradata systems

> It keeps a copy of the data dictionary participating Teradata systems and routes SQL accordingly

Benefits

- Same effort as managing one system
  - > Administrator submits SQL one time
  - > Unity efficiently sends SQL statements to all participating
- Ensures data and database integrity
  - > SQL on each system executed in the order received
  - > SQL held on Teradata Unity system until processed successfully on all participating systems

SQL Multicast

- SQL Multicast used in two ways
  - > Synchronization
  - > Queries

Synchronization
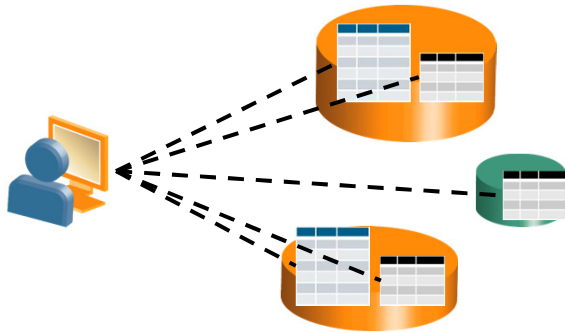
Queries

Systems kept in sync
- Data and database updates sent to all participating systems
- Not all systems have to be the same
- Updates can come from users, applications, or SQL-based utilities (TPump or TPT Streams)
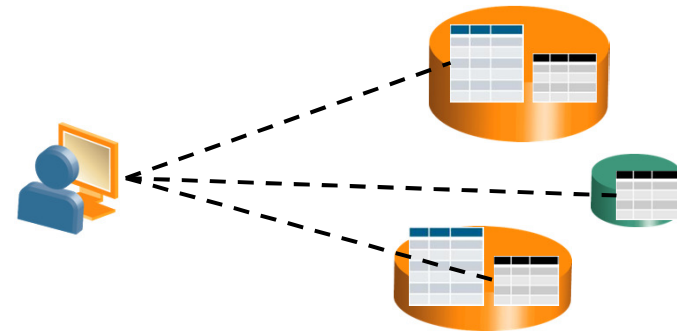
Intelligent query routing
- Unity determines which systems can satisfy the query and sends to the one with the shortest update queue
- Read-only queries sent to only one system (not query federation)

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Auto Resubmit

- Teradata Unity will resubmit in-flight queries following a database restart to an alternate Teradata system which can satisfy the query
    - > Automatic feature
        - – No changes required for applications or queries
        - – Removes the burden from application developers
        - – Improves user experience
    - > Auto Resubmit only available through Teradata Unity

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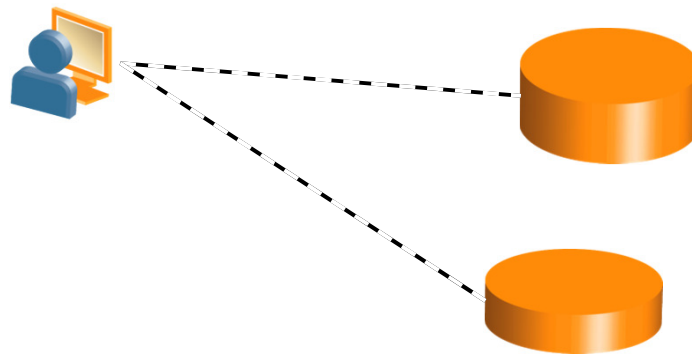
Teradata Dual System Solution Architecture

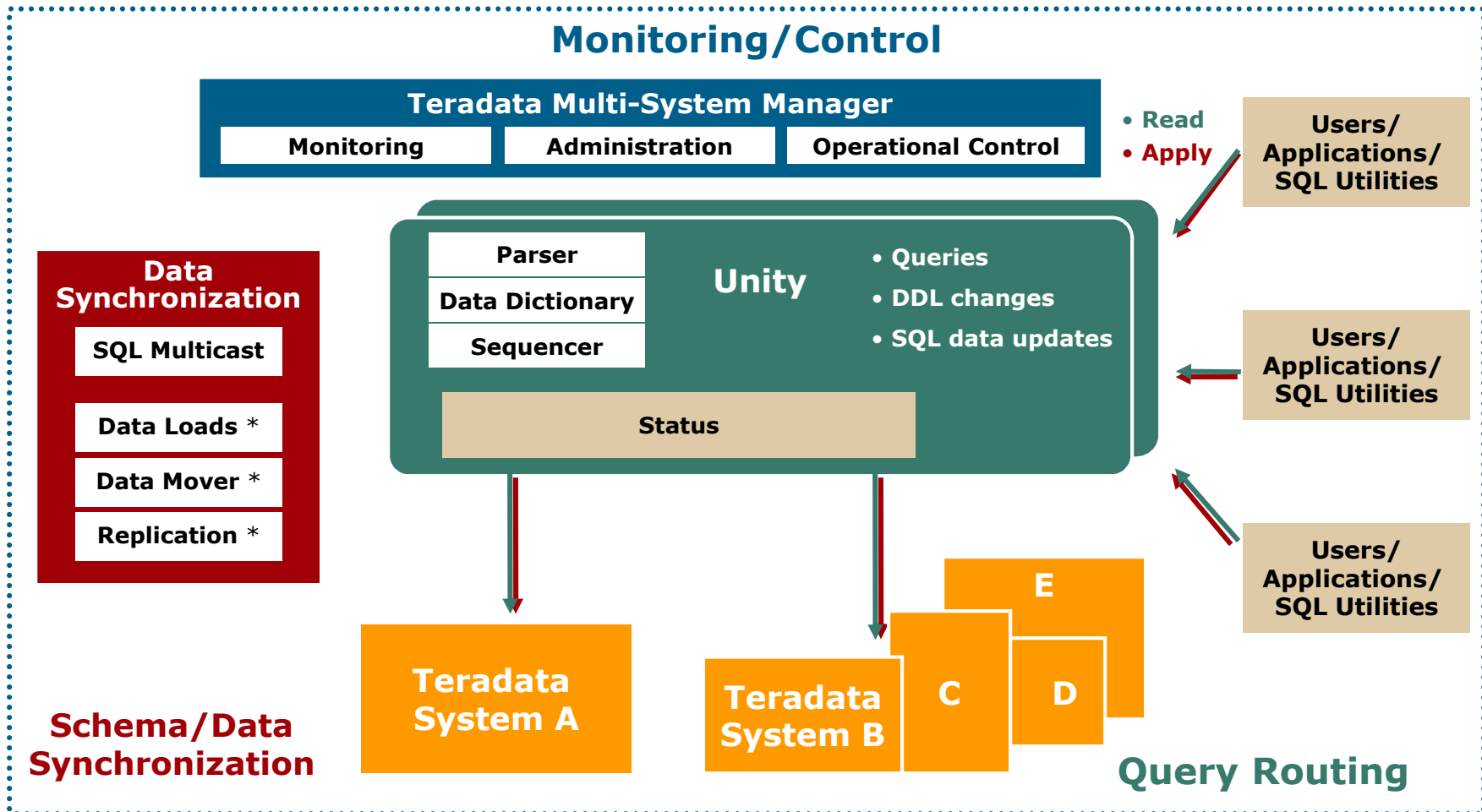## Teradata Unity 13.10

Monitoring/Control

Teradata Multi-System Manager

Monitoring	Administration	Operational Control

• **Read**
• **Apply**

Users/ Applications/ SQL Utilities

Data Synchronization

SQL Multicast

Data Loads *

Data Mover *

Replication *

Unity

Parser

Data Dictionary

Sequencer

• Queries
• DDL changes
• SQL data updates

Status

Users/ Applications/ SQL Utilities

Users/ Applications/ SQL Utilities

Schema/Data Synchronization

Teradata System A

Teradata System B

C

D

E

Query Routing

* This method of data sync can coexist with Unity, but needs to be managed and coordinated outside Unity
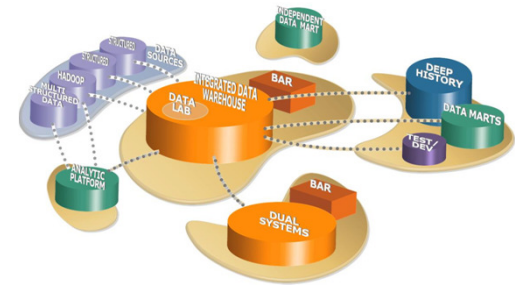
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Companies Who Will Benefit From Unity

Companies moving towards a Teradata Analytical Ecosystem and planning to employ Dual Systems for Availability or Workload Optimization

- Customers moving towards a Teradata Analytical Ecosystem and planning to employ Dual Systems for Availability or dedicated systems for Workload Optimization

- Customers who have these characteristics:
  - > Need to route user sessions/queries between systems
    - – Including upgrade/migration path for existing Query Director customers
  - > Have dual systems which are kept in sync
    - – With same data and data model for the subset of objects kept in sync
  - > Have SQL-based transactional updates in a multi-system environment
  - > Cannot tolerate the system resource penalty of Data Mover or Replication Services

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