

GoldenGate®

Today's businesses must be able to access, analyze, act on and verify data faster than ever. In addition, the volume of transactional data is growing at a rapid pace, with 90 percent of all new information appearing in digital form. These trends are driving requirements in key areas, including the following:

- **Reduced latency** — Real time data is no longer a luxury but a competitive necessity that more and more organizations expect.
- **Heterogeneous support** — Data must be integrated across a variety of databases and platforms.
- **Transaction-aware information** — The completeness, accuracy and reliability of transactional data must be guaranteed.

The GoldenGate® Solution

To address today's business requirements and new realities, GoldenGate provides a transactional data management (TDM) solution that enables users to move high volumes of transactional data across systems with subsecond latency and preserved data integrity.

GoldenGate is the leader in TDM solutions, providing guaranteed capture, routing, transformation, delivery and verification of transactional data across heterogeneous environments in real time.

GoldenGate TDM solutions are used by Fortune 500 and other large enterprises in more than 1,500 implementations in 35 countries. Applications include support for projects in high availability and disaster recovery, real time data integration, high-performance distributed computing, and compliance.

Choose Architecture Components That Meet Business Needs

GoldenGate's TDM platform consists of a variety of decoupled components that can be combined across the enterprise to provide maximum flexibility, modularity and recoverability — with extremely high performance. Unlike architectures that implement a tight process-to-process coupling, GoldenGate's TDM architecture allows each component to perform its tasks independently of the others. Those core components include the following:

- GoldenGate Capture
- GoldenGate Trail
- GoldenGate Delivery



GoldenGate Meets these TDM Requirements	
TDM must enable:	GoldenGate offers:
<i>Real time</i>	High performance when moving data between sources and targets — with only subsecond latency
<i>Heterogeneity</i>	Support to capture and deliver data between legacy, relational and open systems — and open application program interfaces (APIs) for further extensibility
<i>Transactional integrity</i>	Guaranteed reliability and availability of the most current transactional data

GoldenGate Capture

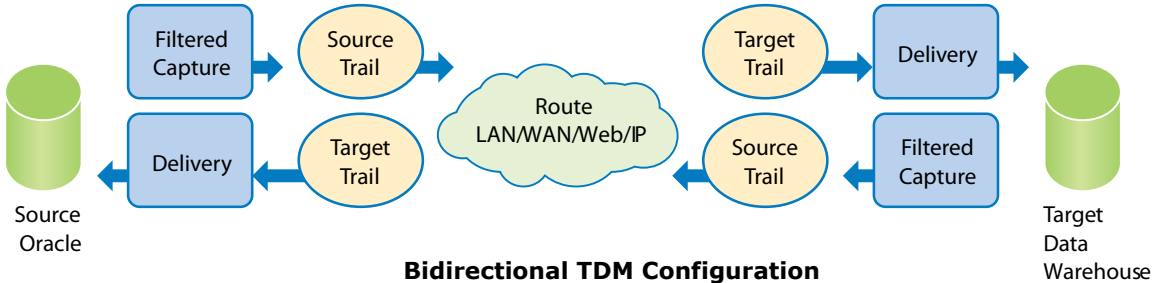
GoldenGate Capture reads the results of insert, update and delete operations as they occur at a database and routes them for distribution. Capture directly accesses the native database transaction logs for a number of supported databases, ranging from legacy systems, relational databases, open systems, data warehouses and Web-based applications. As a result, no additional tables are required and overhead is significantly reduced, unlike trigger-based capture techniques.

GoldenGate Capture routes only the committed transactions (intermediate activities and rolled-back operations are not transferred), which not only reduces infrastructure load but also eliminates potential data inconsistencies. Further optimization is achieved through transaction grouping and optional compression features.

GoldenGate Trail Files

GoldenGate Trail Files are part of GoldenGate’s TDM proprietary queuing mechanism and contain the changed data operations in a transportable, platform-independent, universal data format. Trail Files can be located with the source database, target database or both. Trail Files allow data to be staged; thus, the solution supports heterogeneity, scalability and checkpoints for guaranteed delivery and preservation of data — even in the event of an outage.

An example of bidirectional topology using GoldenGate TDM Modules to enable real time “active” data feeds for a data warehouse solution.



Trail Files provide a great deal of flexibility to the GoldenGate architecture and can be converted to XML and other popular formats for use by different applications. To support archival, audit or compliance needs, Trail Files can provide an archive of purged information from the source database, by transforming delete and update records into inserts and maintaining a separate history table to track each update to individual records as they change.

GoldenGate Delivery

GoldenGate Delivery takes changed data transactions that have been placed in GoldenGate Trail Files and applies them to the target database. The Delivery component applies each data transaction in the same order as it was committed at the source to ensure data and referential integrity. Changes are also applied within the same transactional context as they are on the source system to ensure read consistency on the target.

GoldenGate Delivery uses a number of techniques to optimize the application of transactional data to target databases. The posting processes run local to the target database where possible, which maximizes throughput by avoiding network limitations. GoldenGate Delivery also organizes smaller transactions into larger commit groups, minimizing disk input-output while preserving the transaction properties. In addition, updates are executed via native interfaces rather than through middleware, and the solution leverages internal caches whenever available to ensure fast execution of repetitive statements.

The ACI Advantage

ACI Worldwide is committed to providing quality products and services to its customers. As a leading international provider of infrastructure and electronic payments solutions, ACI continually searches the marketplace for best-of-breed solutions to enhance the efficiency and cost effectiveness of its customers' systems. By partnering with these solution providers, ACI is able to supply its customers with innovative solutions to address their business needs.

GoldenGate's TDM solutions enable companies to address a variety of initiatives across their enterprises. The product's unique TDM architecture and components deliver comprehensive functionality for real time data delivery across diverse IT environments. GoldenGate's TDM solutions can be enhanced with GoldenGate Director™, which speeds and centralizes the deployment and management of the TDM process modules, and GoldenGate Veridata™, which quickly compares, verifies and reports on any data discrepancies found between two active databases.

Technologies Supported	
Databases	O/S and Platforms
Oracle®	UNIX®
DB2 OS/390 and DB2 UDB	Microsoft® Windows® NT/2000/XP
Microsoft SQL Server	Linux®
MySQL	Sun Solaris™
Enscribe	HP-UX
SQL/MP, SQL/MX	IBM® AIX®
Sybase	HP NonStop™
Teradata	TRU64
Any ODBC compatible databases	IBM OS/390 and z/OS

Filtering and Transformations

GoldenGate supports table and row filtering at capture and delivery, based on user-defined criteria. Users can apply explicit mapping and transformation rules via built-in GoldenGate functions, user-supplied code and stored procedures. Those rules may range from simple column assignments to more complex transformations for which GoldenGate provides a suite of date, math, string and utility functions. Furthermore, implicit and explicit mapping rules can be combined.

If additional transformations, data quality, aggregation or other functionality is required, then GoldenGate's data services can be used to integrate with other applications.

Flexible Topology Support

GoldenGate's architecture allows customers to support a variety of topologies, including one source to one target, one-to-many, many-to-one, many-to-many, and bidirectional configurations. Users can also create cascading topologies for unlimited scalability and to eliminate potential bottlenecks for high-volume environments.

Conflict Detection and Resolution

Bidirectional, "active-active" implementations require conflict detection and resolution capabilities, since both systems are actively

processing and sharing data transactions.

GoldenGate provides conflict detection and resolution options that can be implemented globally, object-by-object, based on data values and complex filters, and through event-driven criteria.

Data Security

GoldenGate offers 128-bit encryption to ensure secure, confidential data transmissions. GoldenGate's encryption can take a variable length key, from 32 bits to 128 bits, making the solution ideal for domestic or international applications.

Experience, Expertise

Every second of every day, more than 800 customers around the world rely on ACI solutions to process payments, manage risk, automate back-office systems and provide application infrastructure services. More customers use ACI software to manage higher payment volumes, of greater diversity, across more platforms and geographies than any other provider in our field. Since 1975, ACI has provided software solutions to the world's innovators. We welcome the opportunity to do the same for you.

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