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Oracle GoldenGate 11g Release 2(11gR2) Overview

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Summary: Oracle GoldenGate 11gR2

Largest Number of New Features Ever Released





Integrated Extract – *Die eierlegende Wollmilchsau?*

Integrated Capture

Overview

Integrated Capture

Support for Oracle Compression

With this support, GoldenGate provides 100% support for capture and delivery of compressed objects within Oracle Database and Oracle Exadata

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Integrated Capture

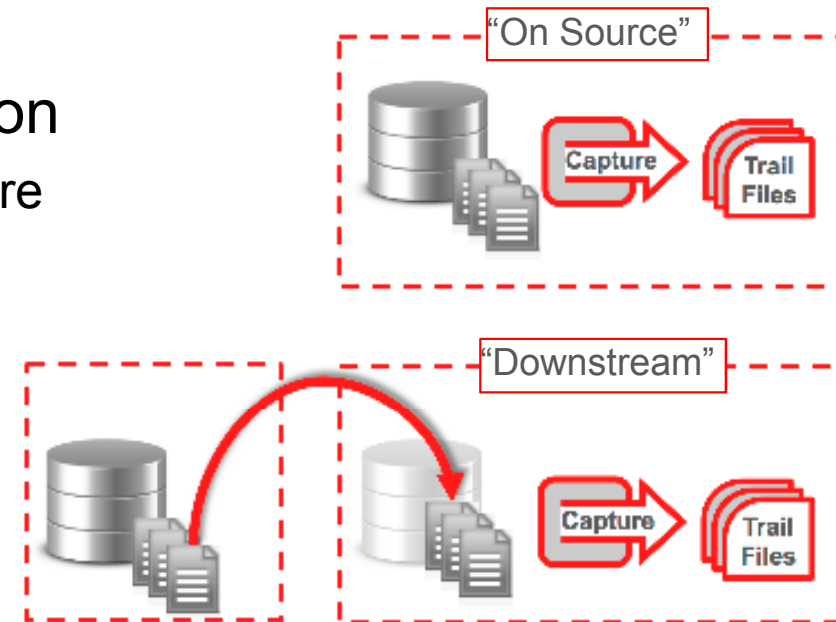
Overview

- Brings GoldenGate extract closer to the RDBMS engine
- Leverages Proprietary Oracle Database Logmining API
 - Seamless traversal of different branches of redo
 - Parallelism in mining and transforming redo records
 - Transparent mining of different threads in a RAC
 - Future enhancement in the RDBMS area will be reflected immediately in the product
- Multi Threaded
 - Uses producer thread to capture REDO record and consumer thread to process the REDO records.
 - Performance gain from parallel processing

Integrated Capture

Overview

- Supports multiple deployment configuration
 - Source : Source database and Integrated Capture process are in the same machine
 - Downstream : Source database and Integrated Capture process are in a different machine
- Easy transitions for existing GoldenGate customers
 - Customers may choose which option they prefer based on their requirements.



Integrated Capture - What You Need To Know

Category	Description
Exadata	Capture support for EHCC compression
Compression	Capture support for OLTP, Segment compression
Distributed Transactions	XA-RAC, PDML
RAC	Simplified RAC management
New Datatypes	XML OR, XML Binary
LOB	Full and Partial read from REDO log
REDO Processing	Multithreaded support
Deployment	Source and Downstream capture support
DDL	Captures tables created with column level password specification
Others	Support IOT with MAPPING table option

Enhanced Conflict Detection & Resolution

Overview

Enhanced Conflict Detection & Resolution

Enhancements provide automated detection and resolution of data conflicts for active-active or multi-master deployments.

Robust, easier to code, and less time to implement.

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Introduction

- Conflicts occur when the timing of simultaneous changes results in one of these out-of-sync conditions:
 - a replicated insert attempts to add a row that already exists in the target.
 - the before image of a replicated update does not match the current row in the target.
 - a replicated delete attempts to remove a row that does not exist in the target.



Enhanced Conflict Detection & Resolution

Key Points to Take Away

- Robust Infrastructure for Active-Active, Multi-Master setup
- Reduced Implementation Time
 - Replaces expensive hand-coding of CD&R rules as compared to prior version of GoldenGate. Easy and Expandable rules.
- Ideal for custom and specialized applications
- Supports Heterogeneous Deployments

Enhanced Conflict Detection & Resolution

Example

Syntax for 11gR1 CDR

```
MAP source.Order, TARGET target.Order,  
  REPEROR (21000, DISCARD),  
  
  SQLEXEC (ID lookup, ON UPDATE,  
    QUERY "select count(*) conflict from Order where ID =  
    ? and & Modified_TS > ?",  
    PARAMS (p1 = ID, p2 = Modified_TS), BEFOREFILTER,  
    ERROR REPORT, TRACE ALL),  
  
  FILTER (lookup.conflict = 0, ON UPDATE, RAISEERROR  
    21000);
```

7 Lines of Code & SQL

Syntax for 11gR2 CDR

```
MAP source.Order, TARGET target.Order,  
  RESOLVECONFLICT (UPDATEROWEXISTS,  
    (DEFAULT, USEMAX (Modified_TS)) );
```

3 Lines of Code, Automatically Resolved

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Handling Conflicts – UPDATE Example

- Update Conflicts
 - Conflict situation
 - UPDATEROWEXIST : *“During UPDATE operation on the target table, no data found error in the target table. Some of target table row columns were changed”*
 - What can be possible
 - IGNORE: Silently ignore (don’t apply) the record.
 - DISCARD: Write the record to the discard file.
 - OVERWRITE: Reapply the update, specifying only the primary key columns in the WHERE clause.
 - USEMAX: If the value of the resolution column in the record is greater than the value of the column in the target database, then apply the record (specifying only the primary key columns in the WHERE clause). Otherwise, the record will be ignored.
 - USEMIN: If the value of the resolution column in the record is less than the value of the column in the target database, then apply the record (specifying only the primary key columns in the WHERE clause). Otherwise, the record will be ignored.
 - USEDELTA: Update the column by adding difference between the before and after image values of the columns in the record to the current value for the column in the database.

Enhanced Conflict Detection & Resolution

Supported Platforms

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◆ LUW ◆ z/OS ◆ iSeries ◆



TERADATA®

Microsoft®
SQL Server®

SYBASE®
An SAP Company

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Globalization

Overview

Globalization

Expanding the commitment for enhancing our support for international implementations, this feature allows Oracle GoldenGate to be implemented on, and capture data from databases using multi-byte/Unicode character sets.

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Globalization

Overview

- Database Object Name Enhancement
 - Non US-ASCII Character Support (both DDL/DML)
 - Support database object name with any characters including European accent, multibyte, white space and symbols as long as database supports
 - Database Like Object Level Case Sensitivity Support
 - Oracle, DB2 and SQL/MX case sensitive object name
 - Case sensitive from/to case insensitive mapping
- Partial Character Set Conversion
 - Implicit Character Set Conversion Support by replicat
 - Between two different character set CHAR/VARCHAR/CLOB columns
 - CHAR/VARCHAR/CLOB from/to NCHAR/NVARCHAR/NCLOB columns

Globalization

Key Points to Take Away

- GoldenGate deployment in a non English environment
 - Supports European Accent characters, Multibyte characters
- Automatic conversions of transactional data across different character set environments
- Native error messages, supports case sensitivity

Security & Performance

Overview

Security

The Most Secure Version of GoldenGate

Oracle GoldenGate 11gR2 supports Federal Information Protection Standard (FIPS) and BLOWFISH encryption algorithms to provide secure data movement across systems and regions

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Security

Overview

- Support FIPS compliant encryption algorithm in addition to current BLOWFISH algorithm
 - On disk encryption for trail file
 - In password encryption
 - When transferring data
 - Supported on Linux, Windows, and Unix.
- IPv6 support
 - Mandate from the government
 - The existing GoldenGate library of IPC routines is based on IPv4. All existing GoldenGate calls using IPv4 AP were changed to use IPv6 APIs.

Security & Performance

Overview

Performance

Performance improvements for data replication across geographically separated systems in high latency networks.

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Security & Performance

Key Points to Take Away

- Transactional data is protected with High degree of data security.
- Improvement in data routing, network auto configuration, security, Quality of Service, etc.
- Performance improvement in data replication across geographically separated systems in high latency networks

Manageability & Monitoring

Overview

Manageability



Efficiencies implemented to improve support for very large implementations.

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Manageability & Monitoring

Overview

Monitoring

The new Oracle GoldenGate Monitor product offers a rich graphical user interface (GUI) client that interacts with core Oracle GoldenGate components to provide a complete view of the GoldenGate implementations

Plug-In for Enterprise Manager Integration

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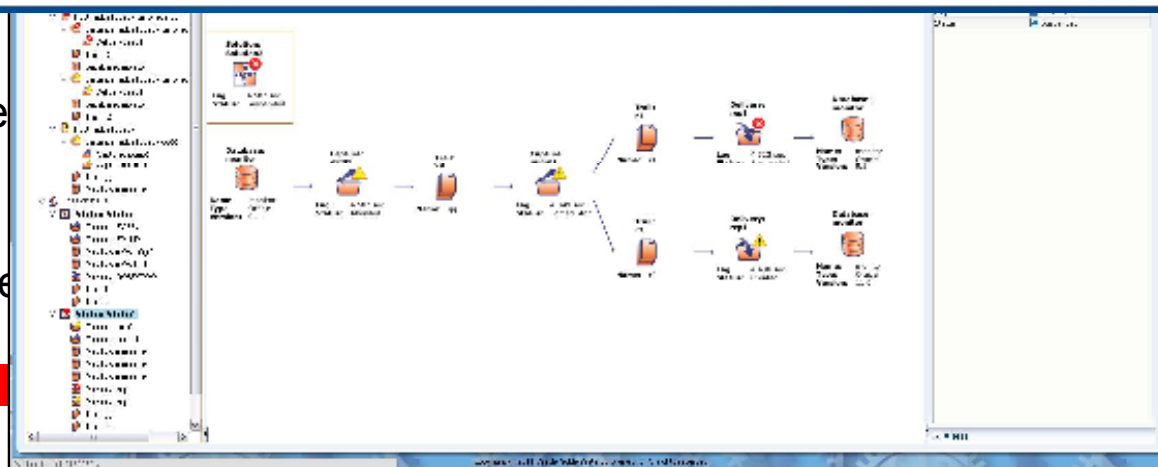
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Monitoring Overview

- Oracle GoldenGate
 - Lightweight tool
 - For customers, database as main
 - Simple SNMP interface

Process Name	Process Type	Status	Lag (sec)	Lag Trend	New Operations Count	Current Operations Per Second	Incidents	Last Checkpoint
prod	Oracle GoldenGate	↓	5929437				1 0 0 0	Dec 02, 2011 08:44:37 AM GMT-08:00
prod	MGR	↑					0 0 0 0	
prod	ROBEY	↓	5929437		0	0	1 0 0 0	Nov 30, 2011 12:43:09 PM GMT-08:00
prod	PUMP	↑	3157003		170645	0	0 0 0 0	Dec 02, 2011 08:44:37 AM GMT-08:00
prod	EOBEY	↑	2144420		170645	0	0 0 0 0	Dec 02, 2011 08:44:37 AM GMT-08:00
dev	Oracle GoldenGate	↑					0 0 0 0	
dev	MGR	↑					0 0 0 0	
dev	ROBEY	↑					0 0 0 0	
dev	PUMP	↑					0 0 0 0	
dev	EOBEY	↑					0 0 0 0	

- Oracle Enterprise Manager
 - Oracle preferred monitoring tool, covers Database, Storage, FMW etc
 - For customers, who prefer to drill into etc, apart from monitoring GoldenGate



Expanded Heterogeneity

Overview

Expanded Heterogeneity

The new release brings enhancements to existing supported platforms such as: Oracle MySQL, Microsoft SQL Server, Sybase, Teradata, and IBM DB2 z/OS including expanded data type support.

Stay tuned for tier 3 announcements for IBM DB2/iSeries, Coherence, & Postgres

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Q&A

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Hardware and Software

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Engineered to Work Together

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