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Oracle Data Integration Strategy and Roadmap

Oracle Fusion Middleware Product Management

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Agenda

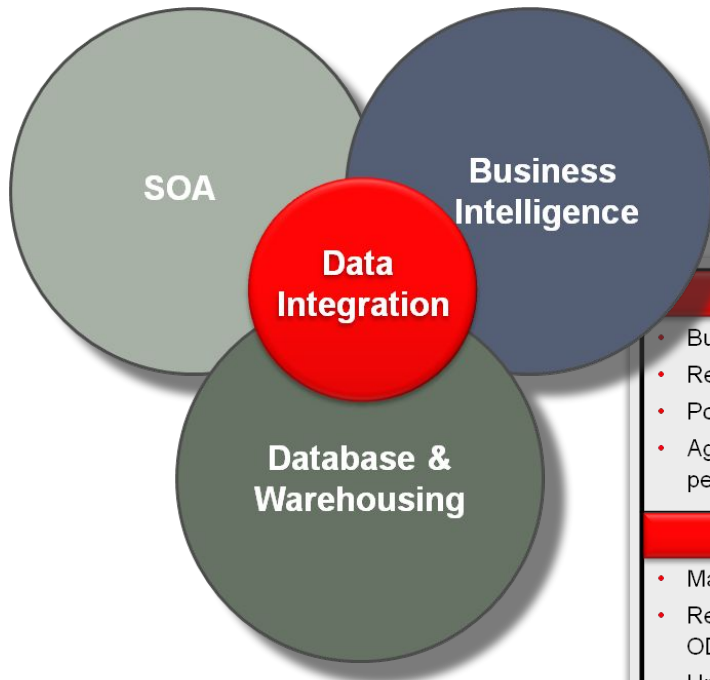
- **Introduction to Oracle Data Integration**
 - Business Drivers for Data Integration
 - Benefits from a Modern Data Integration Platform
 - Key Oracle Data Integration Products
 - Oracle Data Integration Solution
- **Oracle GoldenGate Overview**
- **Data Integrator Overview**
- **ODI & GG Together**
 - Best of Breed Integration for Batch and Realtime Data Integration
 - Support any Type of Data Integration Use Case
 - Implementing Best-Practice Technical Pattern for Data Warehousing
- **Technical Details – How it Works**
- **Demonstration and Q&A (if available)**

A grayscale background image showing a hand placing a puzzle piece into a larger assembly. The puzzle pieces are interlocking, and the hand is positioned as if it has just placed or is about to place a piece. The image is used to illustrate the concept of data integration.

Data Integration Portfolio **INTRODUCTION**

Business Drivers for Data Integration

Essential Ingredient for Information Agility



Strategic Value of Data Integration

- Common technical foundation platform across data silos

Key Data Integration Use Cases

- SOA, Enterprise Integration & Modernization

BI & DW Projects	DB Availability & Replication
<ul style="list-style-type: none">• Bulk-load historical data to new application• Real-time Data Warehouse for BI• Populate Warehouse with High Performance ODI• Aggregates and aligns data for operational analytics, performance management, etc	<ul style="list-style-type: none">• Real-time DB High-Availability & Backup• Application data consistency (bi-directional)• Disaster recovery and data protection• Query offloading, DB performance optimization
Modernization Initiatives	Migrations / Consolidation
<ul style="list-style-type: none">• Mainframe / iSeries sources to Oracle RAC• Re-architect legacy batch processing to SOA and ODI-EE• Unification of structured and unstructured data	<ul style="list-style-type: none">• Upgrade Applications or Migrate to New Schema• Single-time Bulk load and/or keep in Sync with ongoing translation, delivery of data.• Applications merge support
SOA Projects	Master Data Management
<ul style="list-style-type: none">• Establish CDC framework for pushing database events into SOA, BAM and CEP• Incorporate Efficient Bulk Data Processing with ODI• Providing data access, large payload transformation etc. as services within SOA	<ul style="list-style-type: none">• Create Single View of the Truth in real time• Aggregating multiple operational sources• Synchronize Data with ODI-EE• Supports master data stores, publishes master data changes to all consumers

Benefits from a Modern DI Platform

Data Integration is Infrastructure that enables Business Value

Do More with Less

**Design metadata-driven integration
Leverage skills & dictate patterns**

Compete Globally 24X7

**Ensure continuous uptime
Access data in real time**

**Use Data for Competitive
Advantage**

**Ensure the quality of your data
Actively govern most valuable asset**

**Automate and Adapt Business
Processes**

**Expose data services for reuse
Orchestrate processes using SOA**

Key Data Integration Products

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GOLDENGATE

- Real Time Data Replication
- Changed Data Capture
- DBMS High Availability
- Disaster Tolerance

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DATA INTEGRATOR ENTERPRISE EDITION

- Heterogeneous E-LT & ETL
- High-speed Transformations
- OLAP Data Loading
- Data Warehouse Loading

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DATA INTEGRATION SUITE

- Comprehensive Integration
- ELT/ETL for Bulk Data
- Service Bus
- Process Orchestration
- Human Workflow
- Data Grid

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DATA SERVICE INTEGRATOR

- Data Service Modeling
- XQuery Data Federation
- Data Security/Redaction
- XA Compliance

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DATA PROFILING

- Business Data / Metadata
- Statistical Analysis
- Time Series Reporting
- Integrated Data Quality

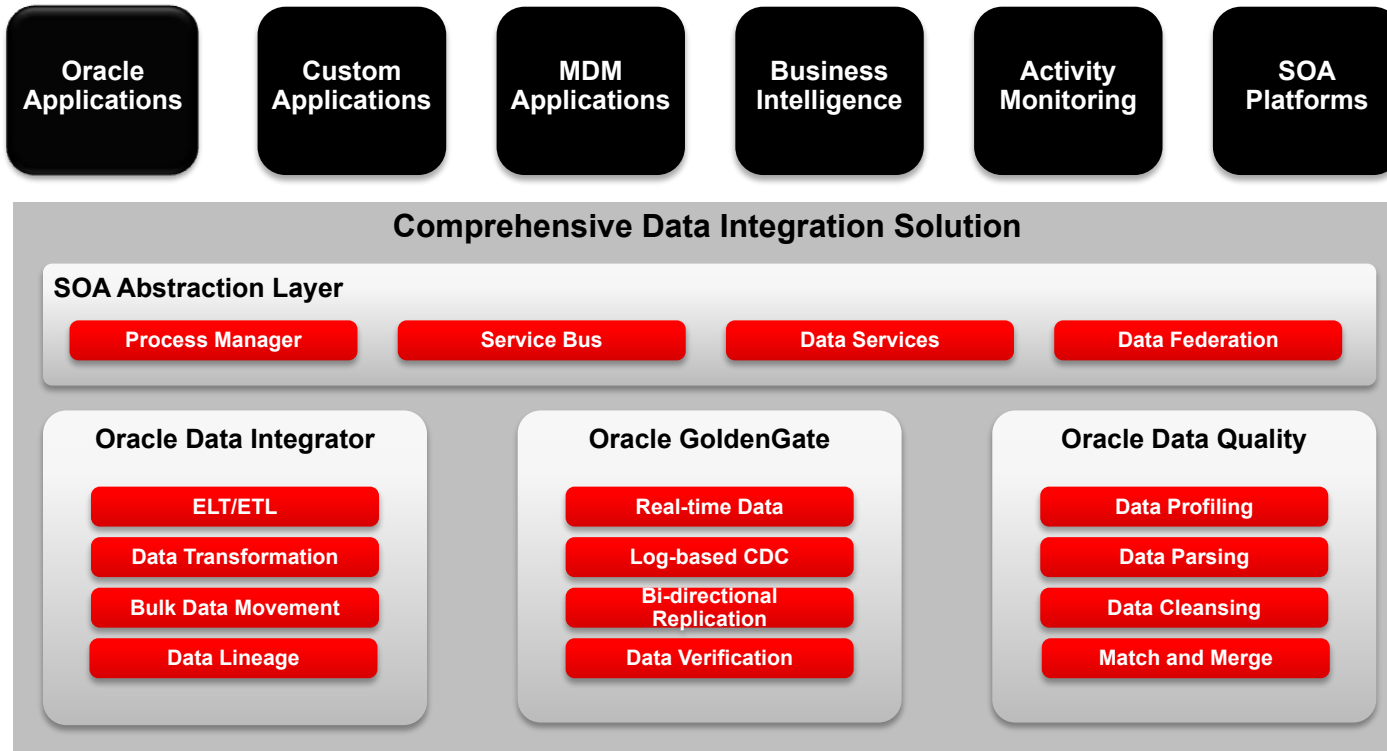
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DATA QUALITY

- Cleansing & Parsing
- De-duplication
- High Performance
- Integrated w/ODI

Oracle Data Integration Solution

Best-in-class Heterogeneous Platform for Data Integration



Storage



Data Warehouse/
Data Mart



OLTP
System



OLAP Cube



Flat Files



Web 2.0



Web and Event
Services, SOA

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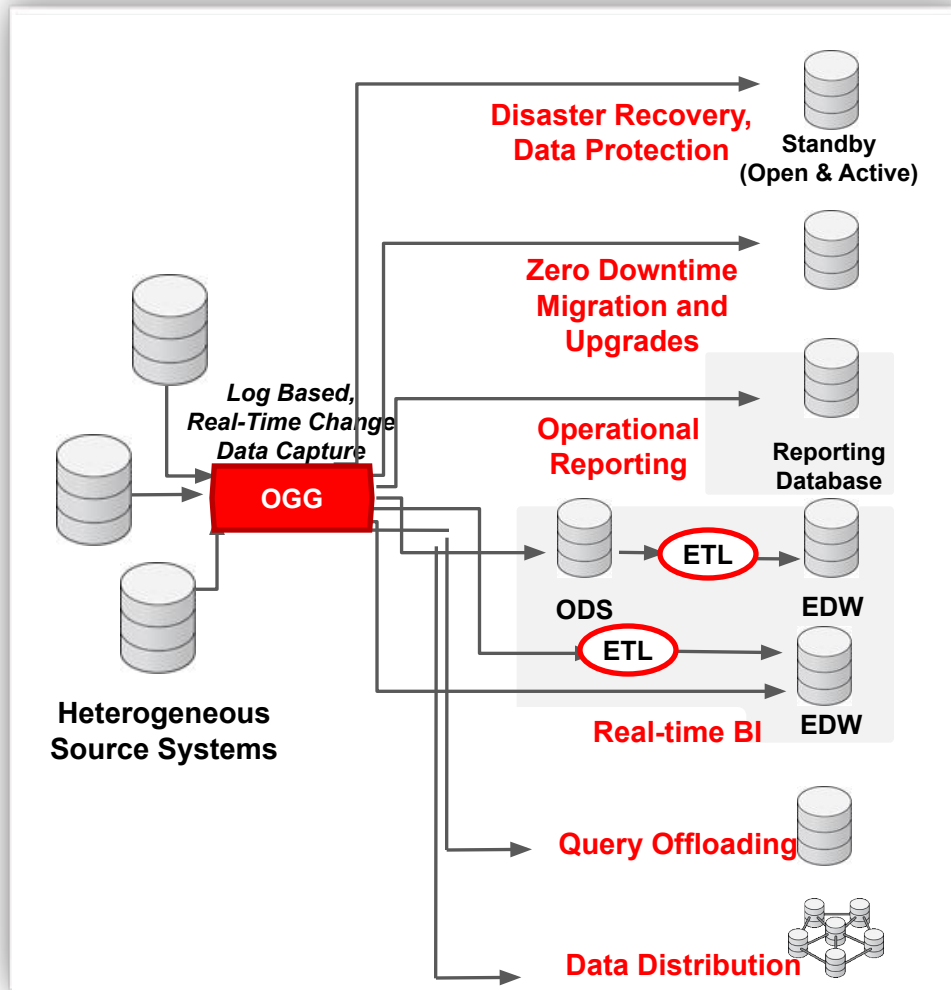
A grayscale background image showing a hand placing a puzzle piece into a larger assembly, symbolizing integration. The hand is positioned at the top right, and the puzzle piece is being inserted into a gap in the lower right. The puzzle pieces are interlocking, and the overall scene is in grayscale, emphasizing the mechanical and structural nature of the action.

Data Integration Portfolio

GOLDENGATE

Oracle GoldenGate Overview

Enterprise-wide Solution for Real Time Data Needs



- Standardize on **Single Technology** for Multiple Needs
- Deploy for Continuous Availability **and** Real-time Data Access for Reporting / BI



- Highly Flexible
- Fast Deployments
- Lower TCO & Improved ROI

How Oracle GoldenGate Works

Modular De-Coupled Architecture

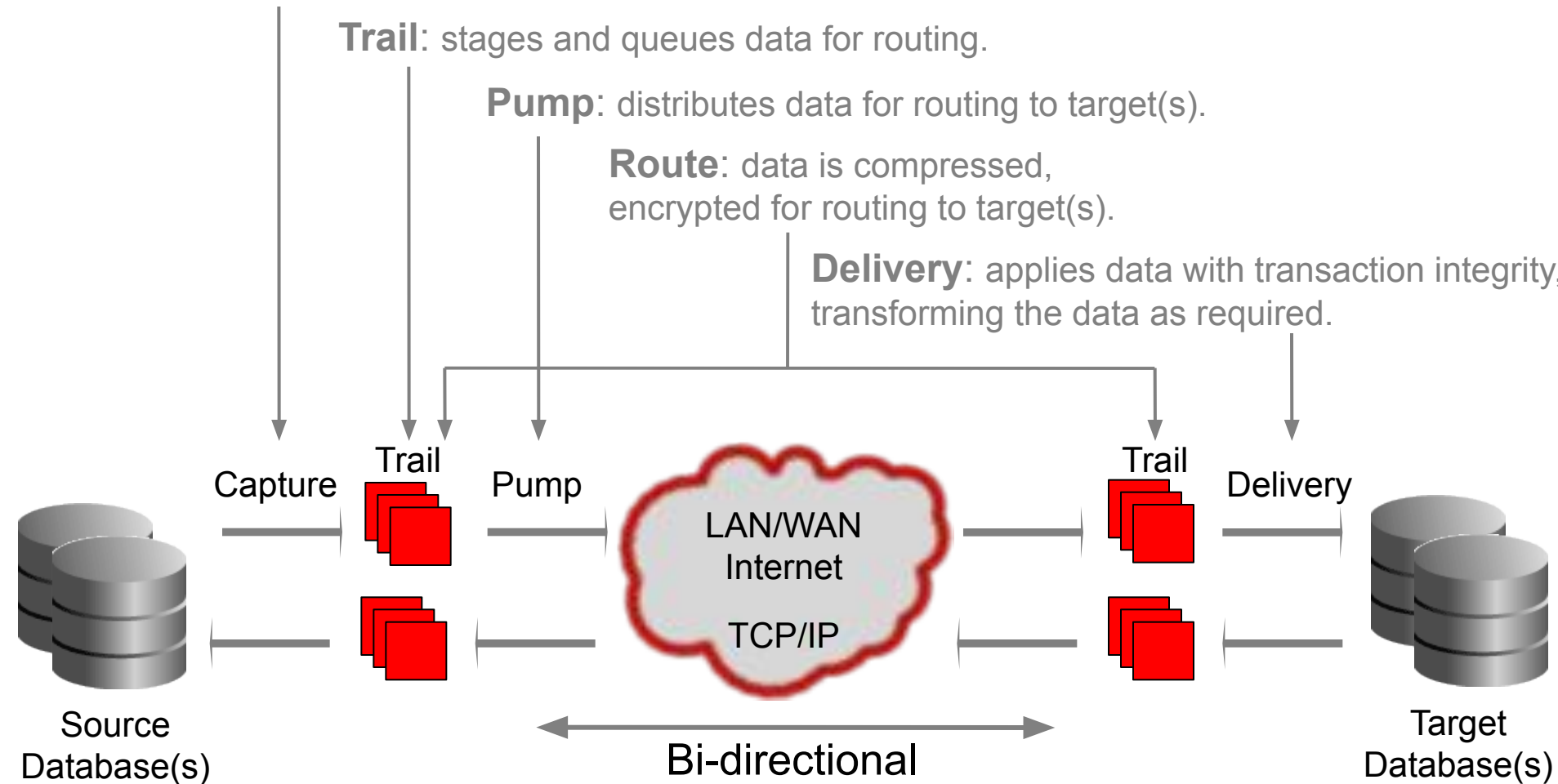
Capture: committed transactions are captured (and can be filtered) as they occur by reading the transaction logs.

Trail: stages and queues data for routing.

Pump: distributes data for routing to target(s).

Route: data is compressed, encrypted for routing to target(s).

Delivery: applies data with transaction integrity, transforming the data as required.



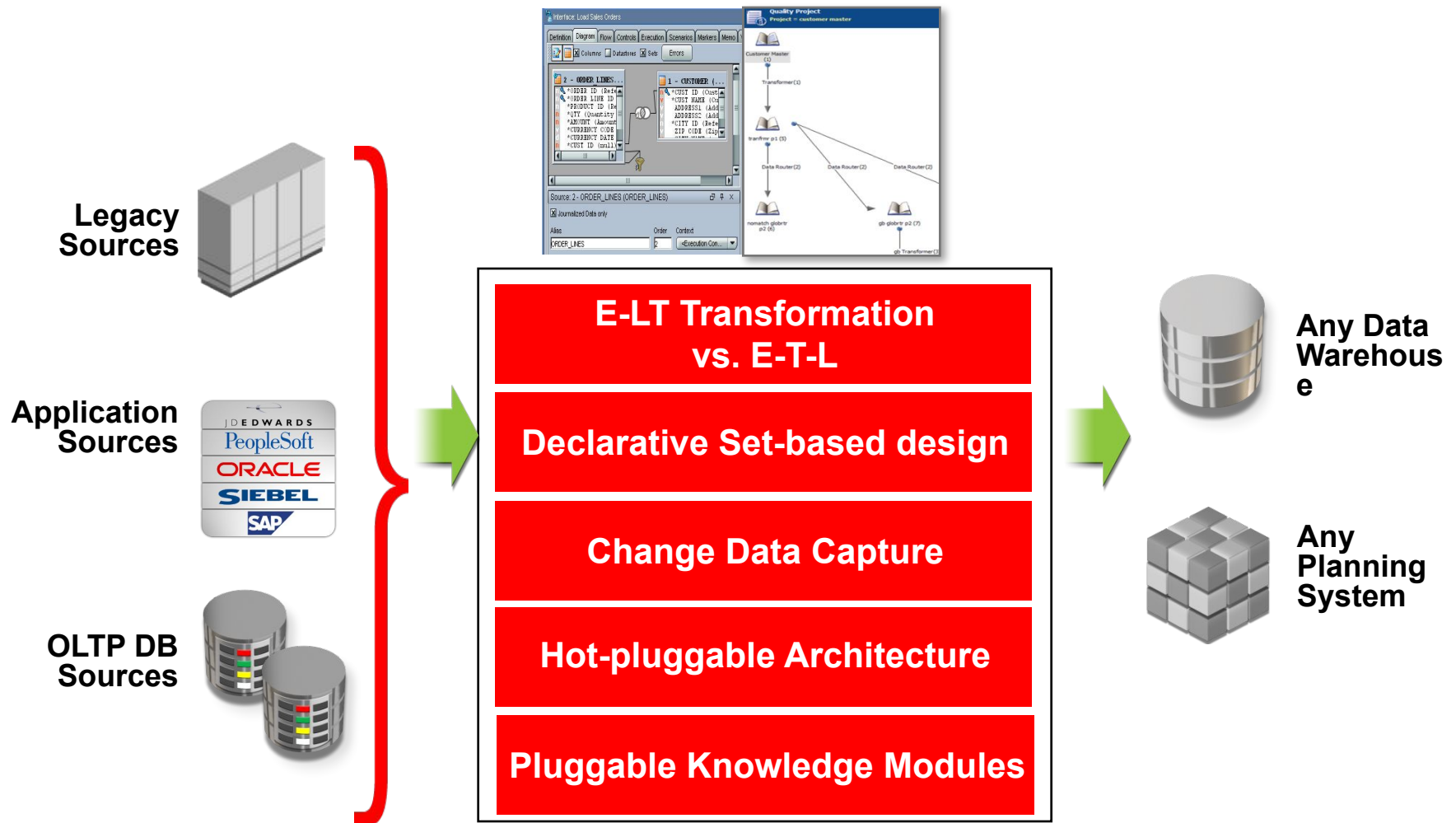
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Data Integration Portfolio

DATA INTEGRATOR

Oracle Data Integrator Enterprise Edition

Optimized E-LT for High Performance, Productivity and Low TCO



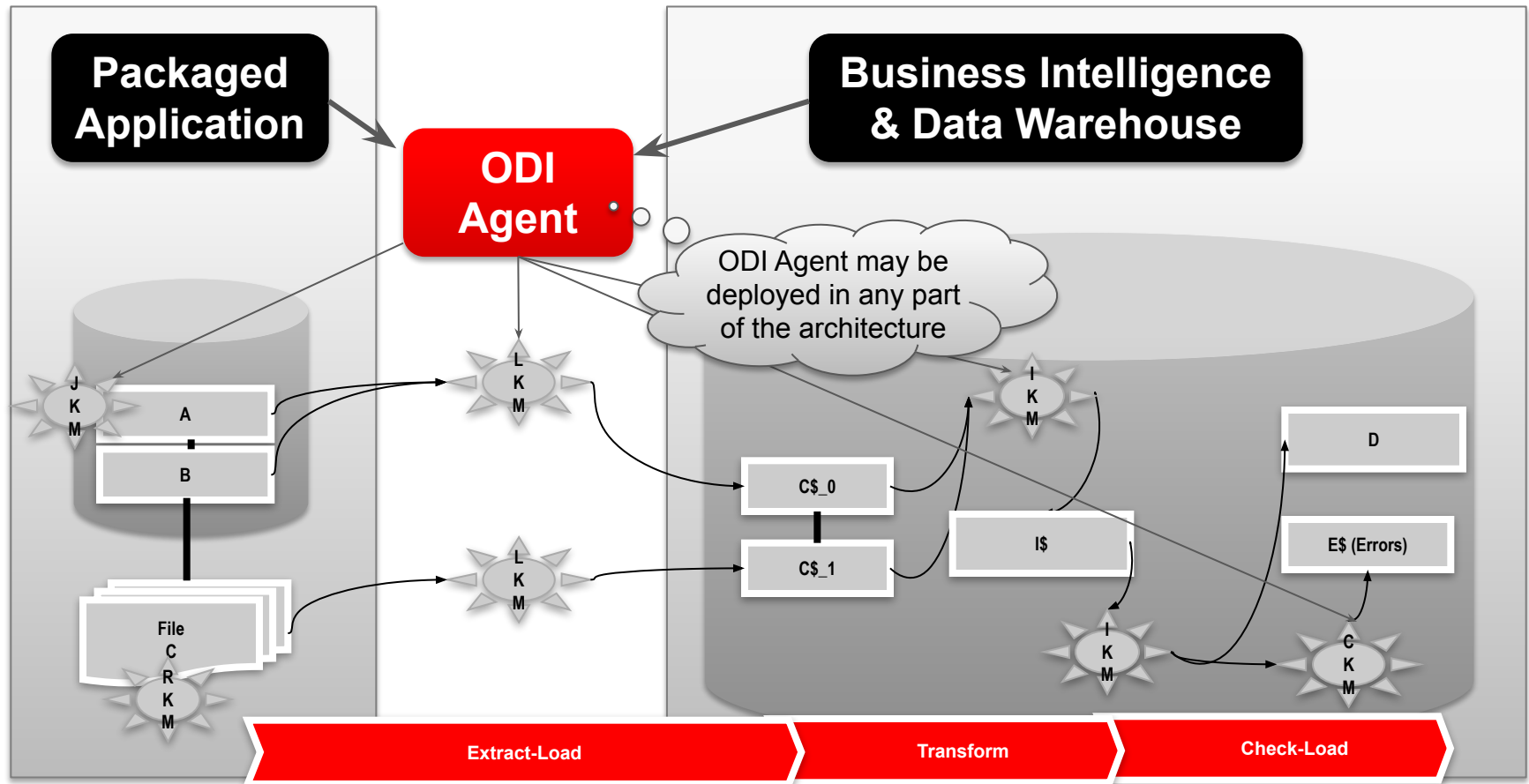
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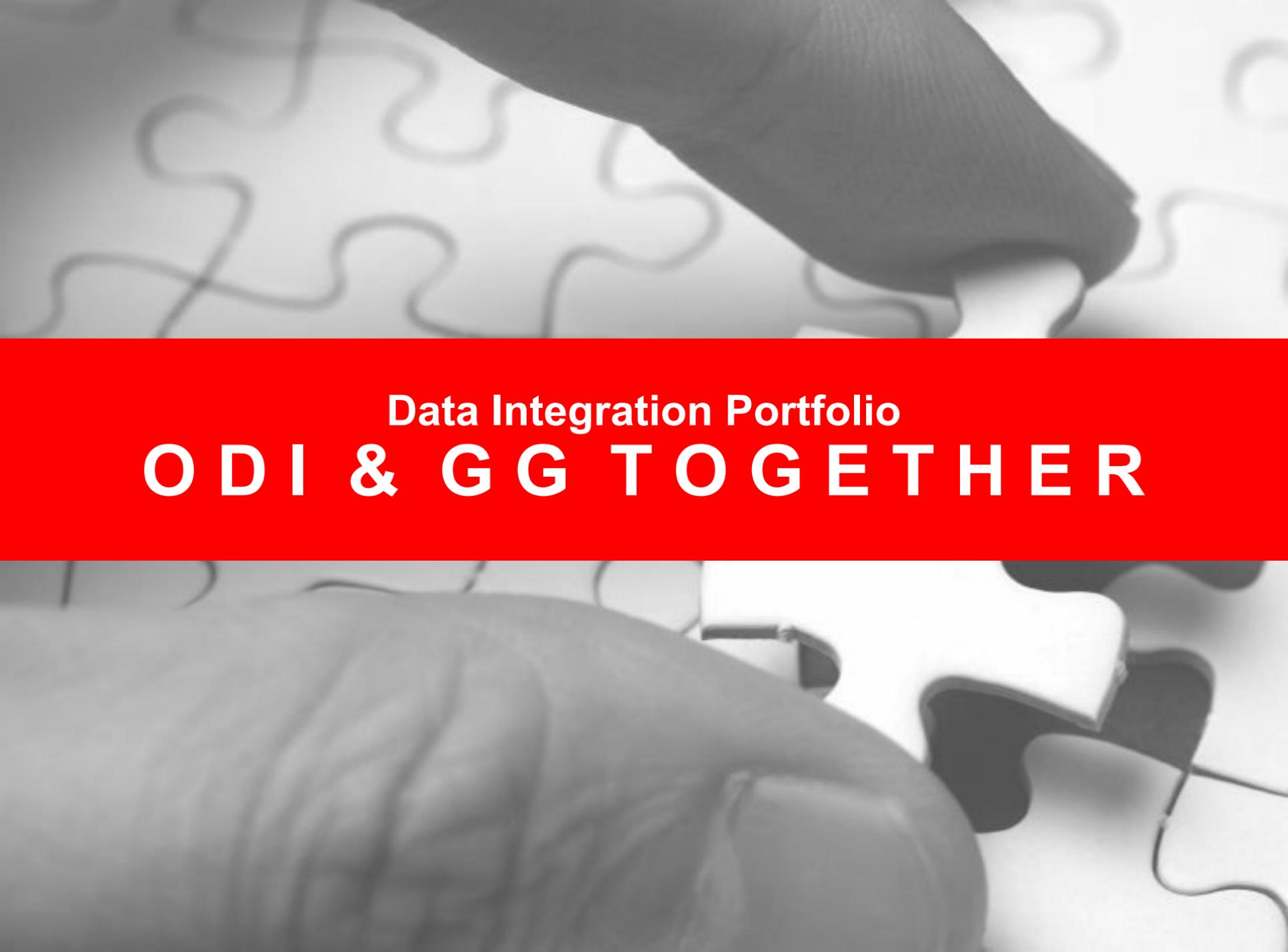
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How ODI Works: E-LT Architecture

High Performance, Flexible, Lightweight Architecture

- Key Architecture Benefits: 100% Java, Open APIs, fast E-LT

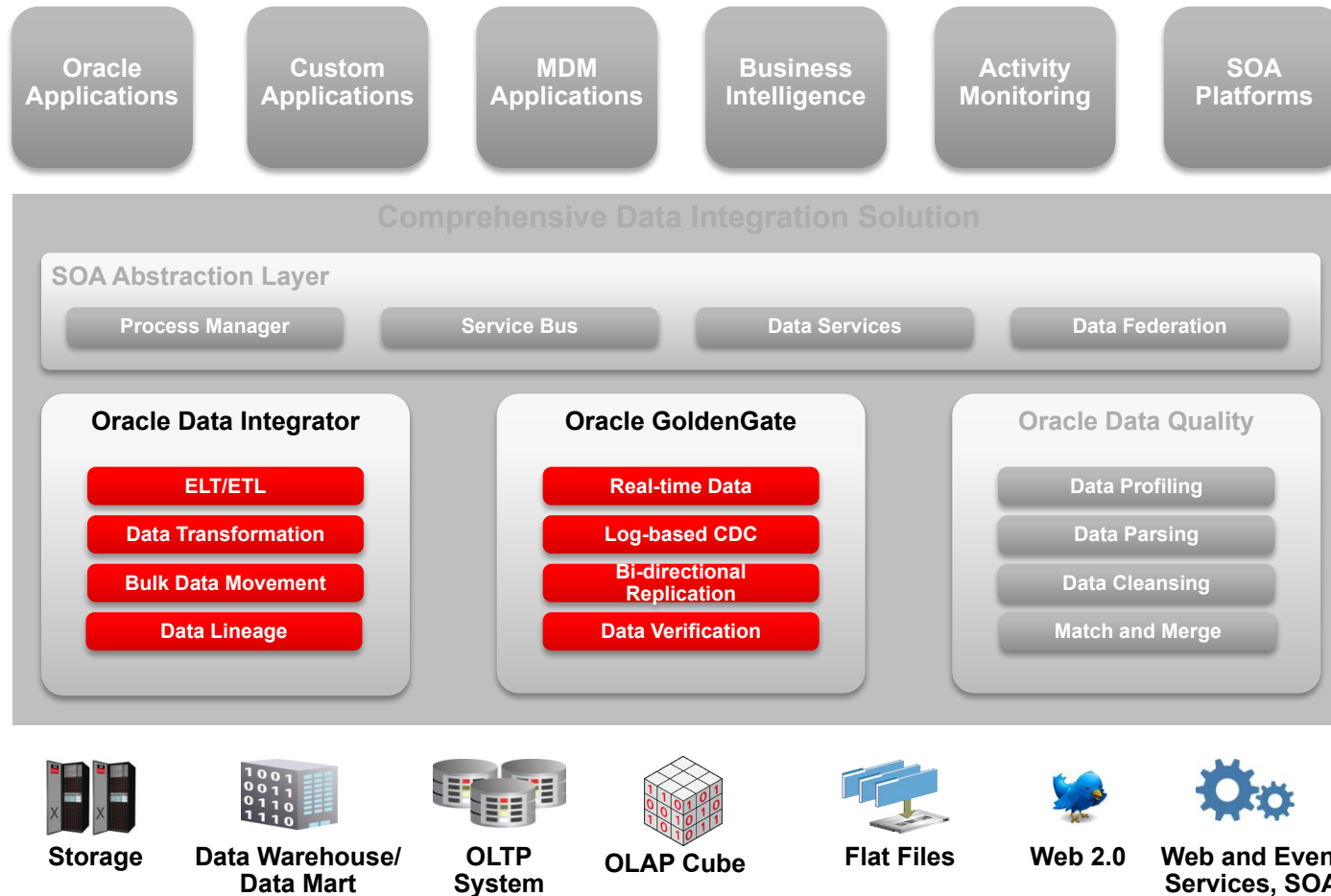


A grayscale background image showing a hand placing a puzzle piece into a larger assembly, symbolizing integration. The hand is positioned at the top right, and the puzzle piece is being inserted into a gap in the lower right. The puzzle pieces are interlocking, and the overall scene suggests a process of building or connecting different parts.

Data Integration Portfolio
ODI & GG TOGETHER

Oracle Data Integration Solution

Best-in-class Heterogeneous Platform for Data Integration



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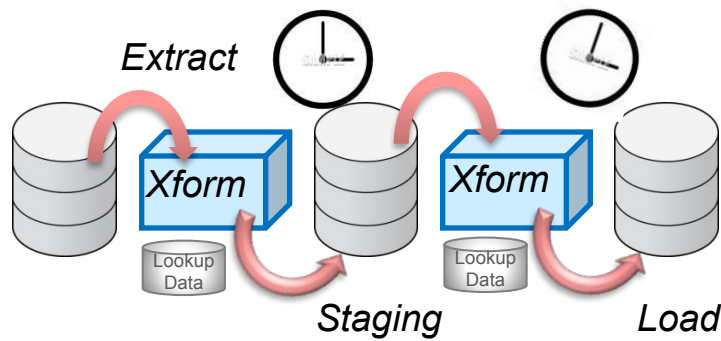
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Best-of-Breed Data Integration

Heterogeneous, Real-time, Non-Invasive, High Performance E-LT, and Low Hardware Costs

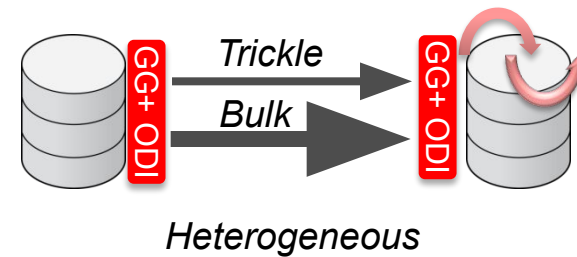
Traditional ETL + CDC

- Invasive Capture on OLTP systems using complex Adapters
- Transformations in ETL engine on expensive middle tier servers
- Bulk load to the data warehouse with large nightly/daily batch



Oracle E-LT + Real-time

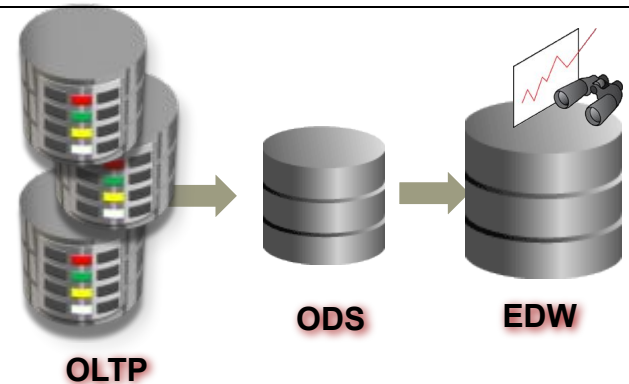
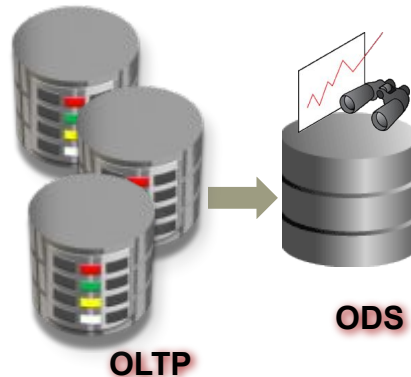
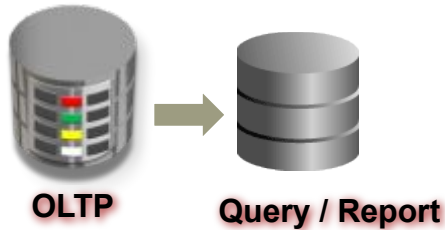
- Continuous feeds from operational systems
- Non-invasive data capture
- Thin middle tier with transformations on the database platform (target)
- Mini-batches throughout the day or bulk processing nightly



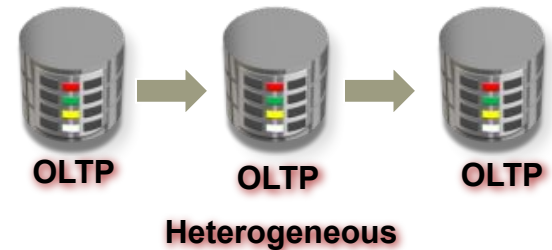
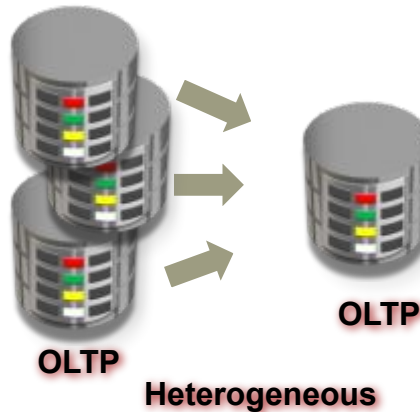
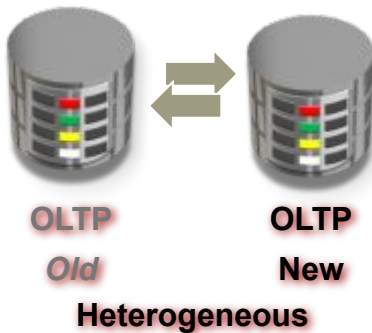
Support Any Type of Data Integration

Best of Breed means using the Right Tools for the Job!

Analytical



Operational

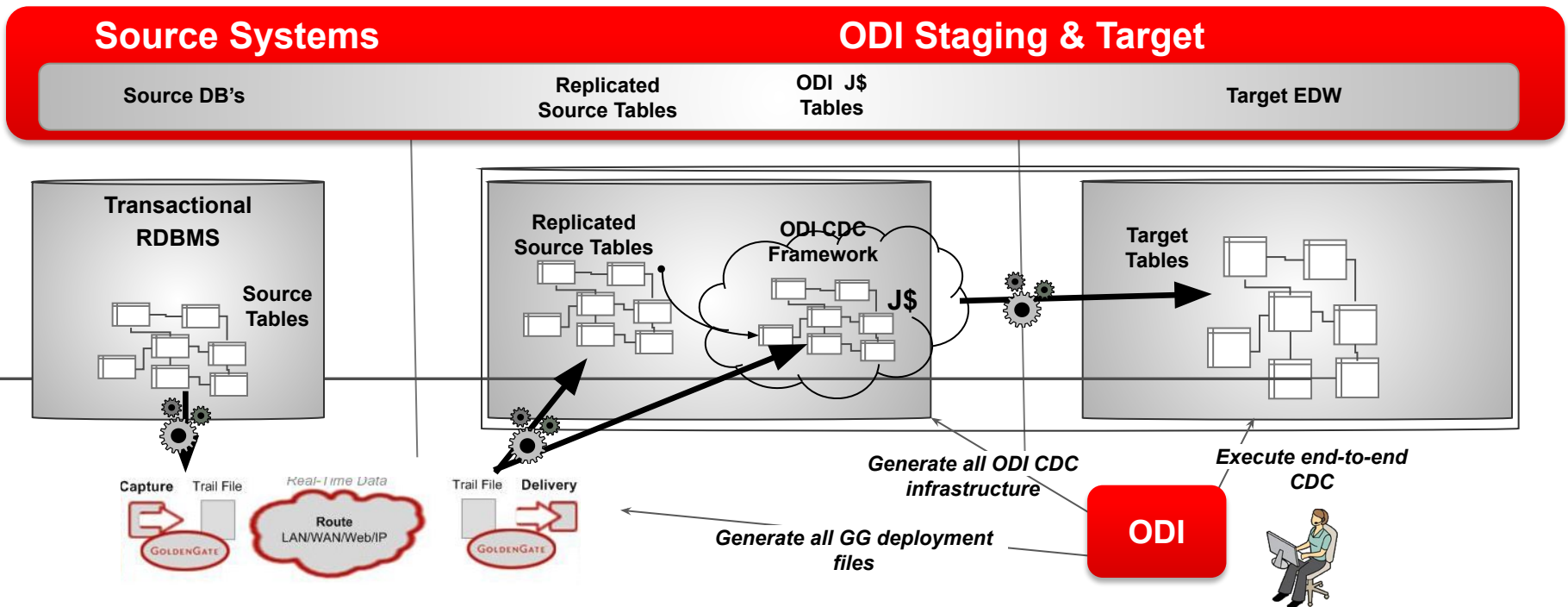


ODI-EE Integration with GoldenGate

Non-invasive Data Capture combined with ODI ELT strengths

Key Benefits:

1. **Eliminate Overhead** □ no need for DB API overhead on the Source, or the invasiveness of the ODI J\$ objects on the Source system,
2. **Automate GoldenGate** □ automation of GG deployment *directly from* ODI GUI
3. **Provide Common DW Pattern** □ supplies a common pattern for mini-batch style (non-real-time) DW aggregate loads



Oracle's Data Integration Joint Solution

Best-of-Breed and *Proven*

Oracle GoldenGate

Oracle Data Integrator
Enterprise Edition

Technology Differentiators:

Performance

- **Lowest latency** and highest throughput; non-invasive, low overhead

- **E-LT architecture** for best performance of high data volume transformations

Extensible & Flexible

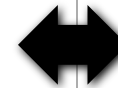
- **De-coupled** architecture; multiple deployment styles; open and extensible

- **Knowledge Module** architecture for extensibility and flexible connectivity

Enterprise

- Maintain transactional **integrity**; resilient against interruptions and failures

- **SOA-native**, integrated with Fusion MW to fit future enterprise architectures

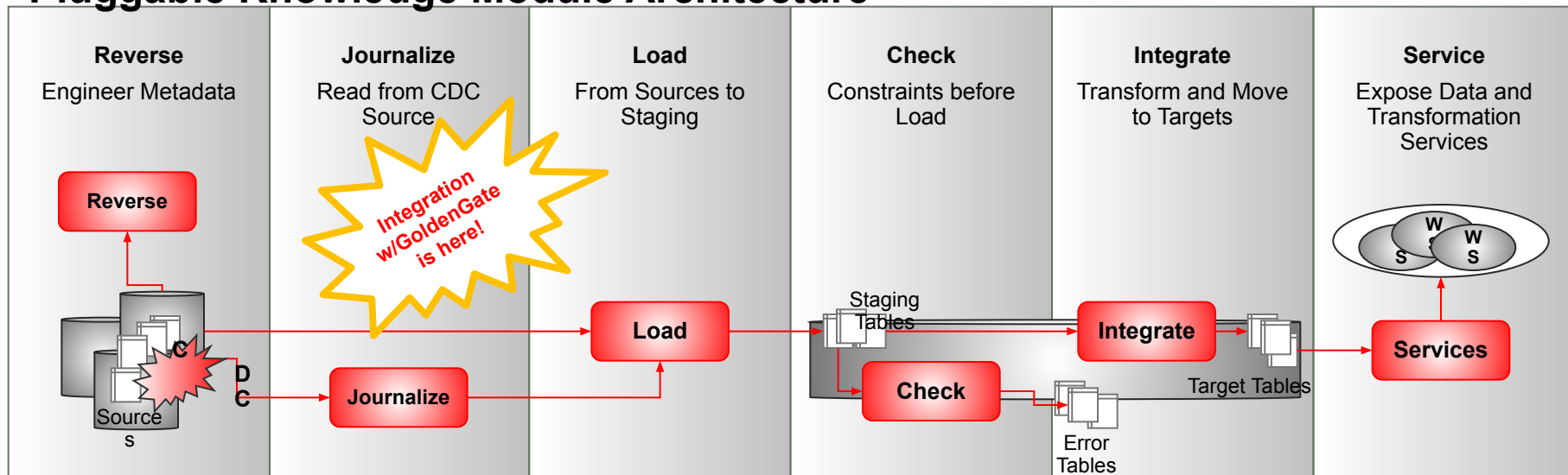


A grayscale background image showing a hand placing a puzzle piece into a larger assembly. The hand is in the foreground, and the puzzle pieces are in the background. The text is overlaid on a red horizontal band.

ODI & GG Together **TECHNICAL DETAILS**

Overview of the ODI KM Framework

Pluggable Knowledge Module Architecture

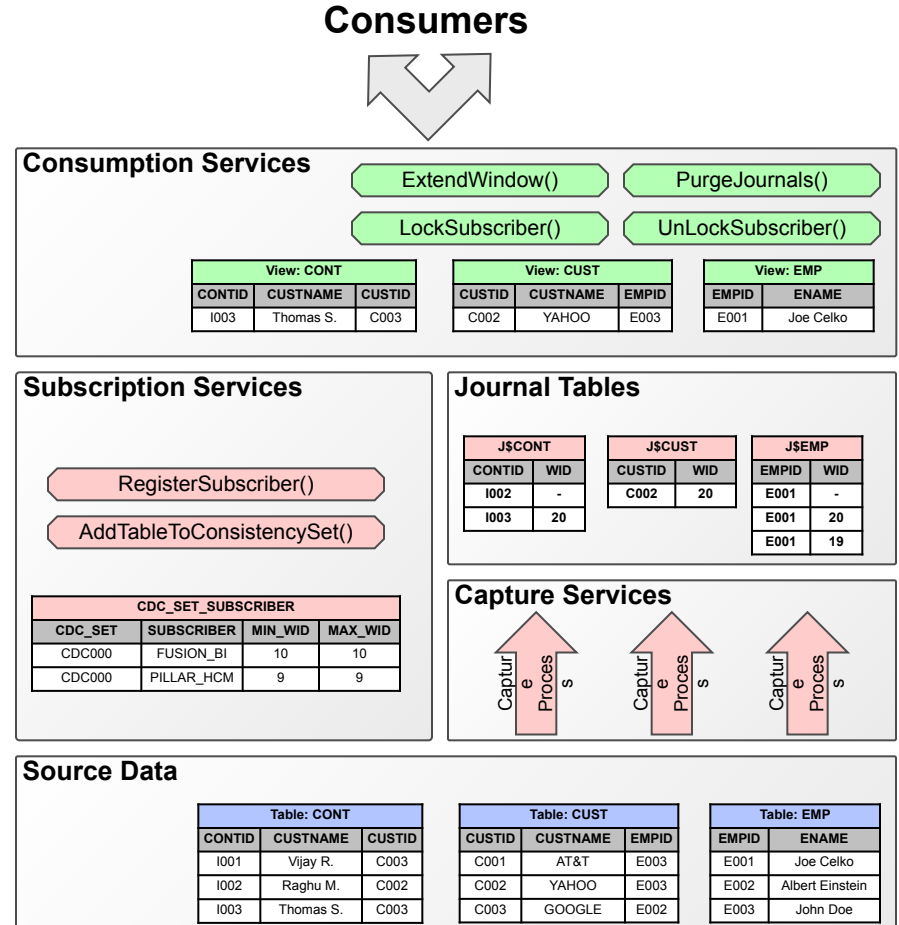


- Benefits**
- Leverage Database Optimizations: Native SQL; Native Functions; Native Loads; Native Journaling / CDC
 - Tailor to an organization's existing best practices
 - Ease administration work
 - Reduce cost of ownership

ODI CDC in a Nutshell

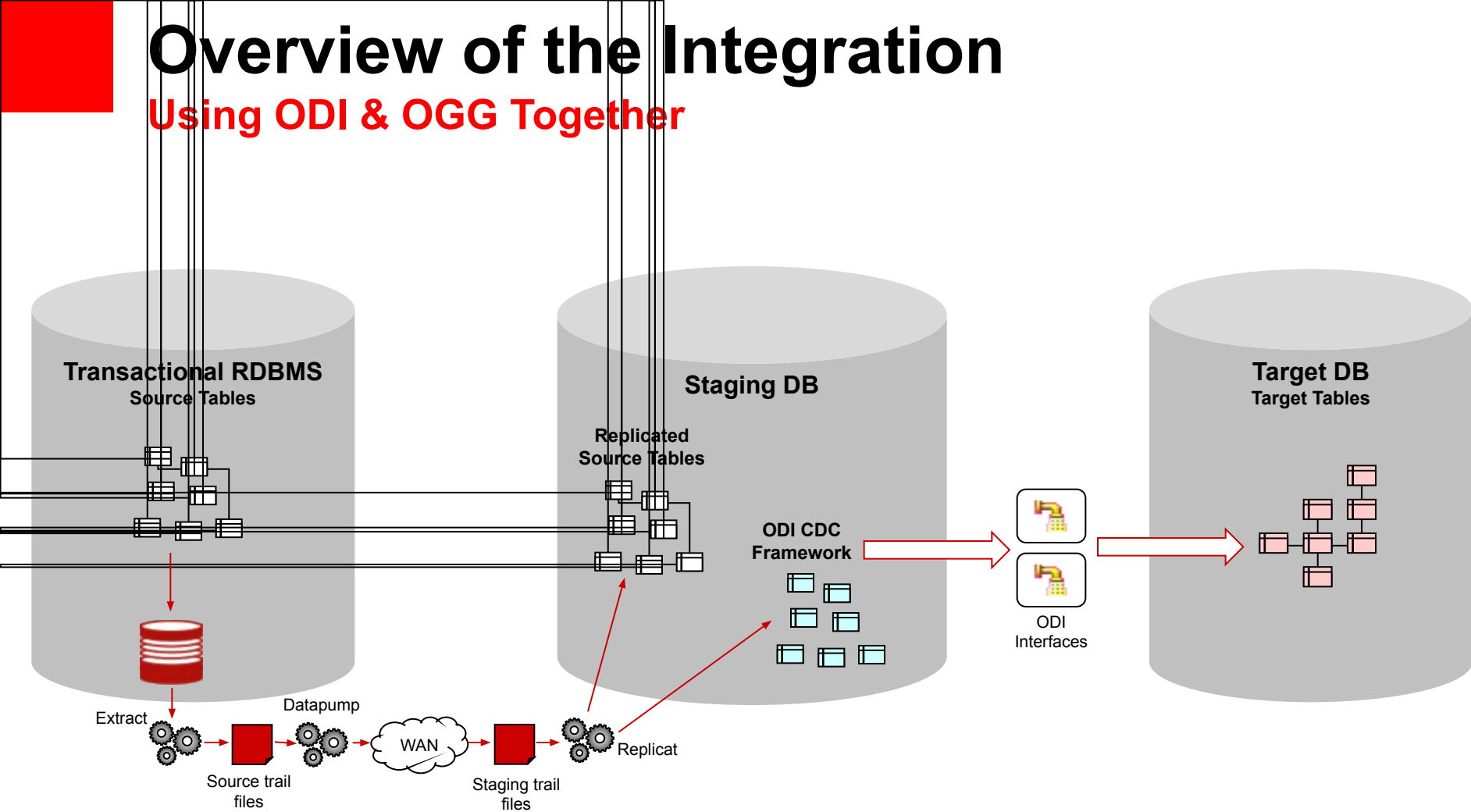
A General Framework for Change Capture on Source DBs

- Automatic w/JKMs
- Journal Tables
- Capture Services
 - Create Capture Process
 - Start/Stop Capture Process
- Subscription Services
 - Manage Consistency Sets
 - Register/Un-register Subscriber
- Consumption Services
 - Consumption Views
 - Consumption Operations
 - Extend Window
 - Lock/Unlock Subscriber
 - Purge Operations

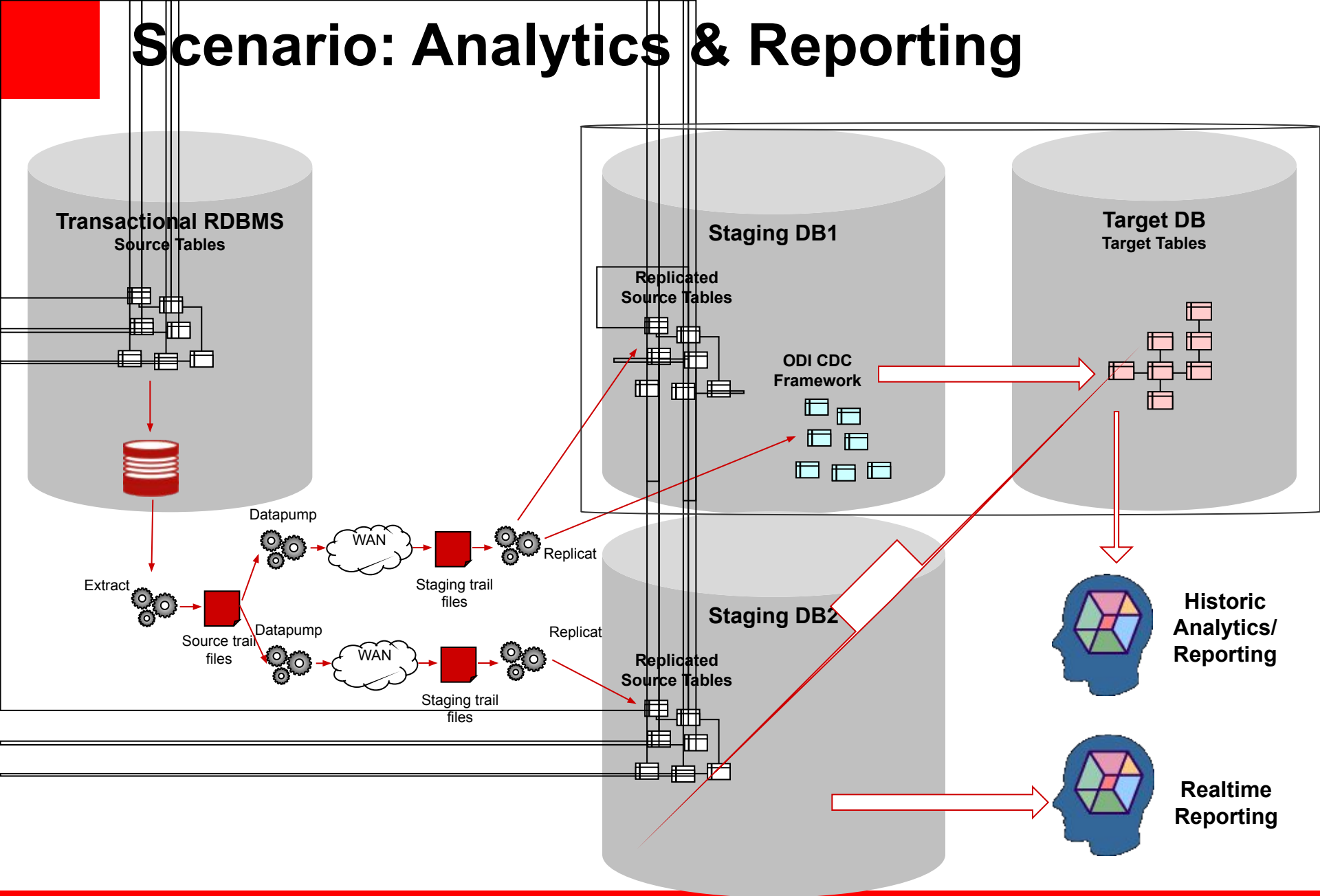


Overview of the Integration

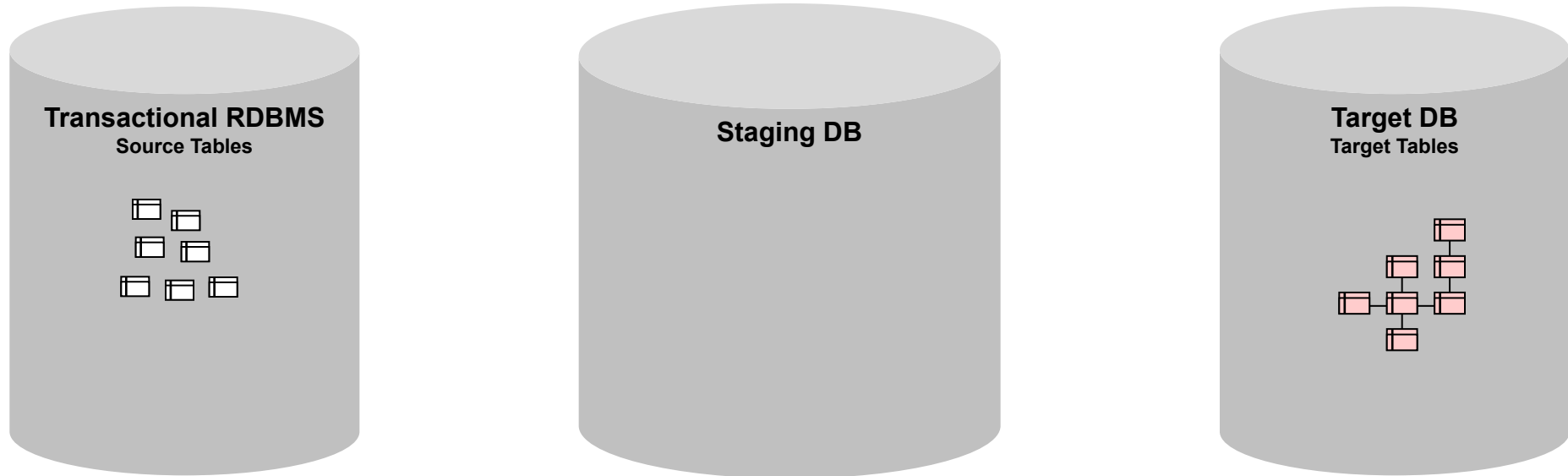
Using ODI & OGG Together



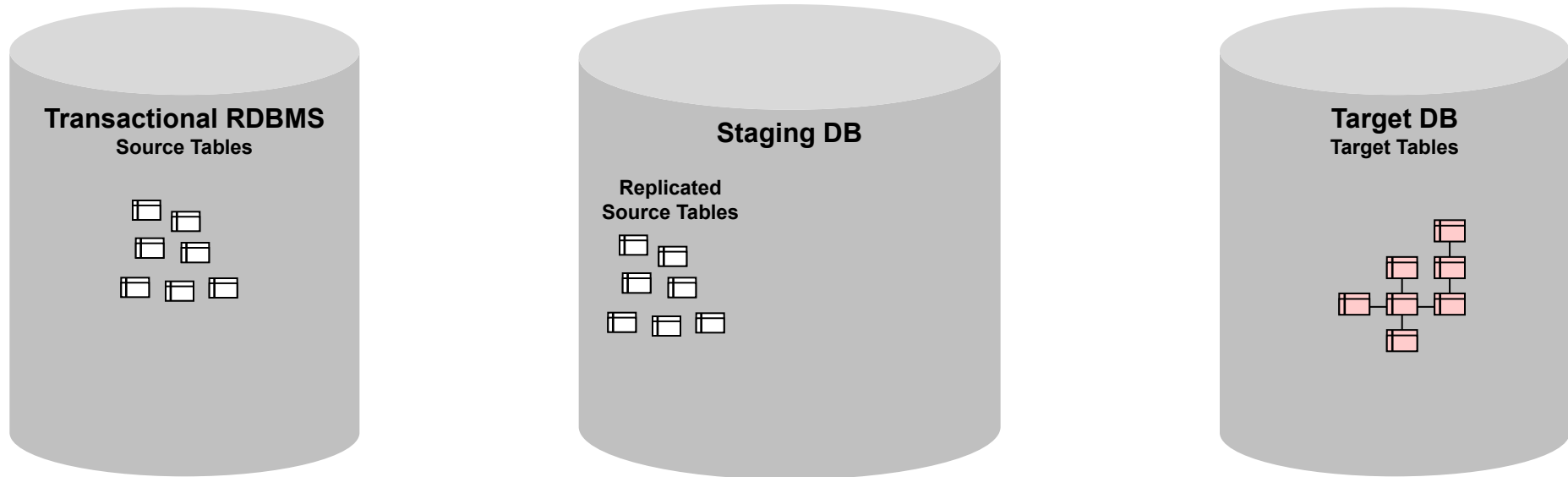
Scenario: Analytics & Reporting



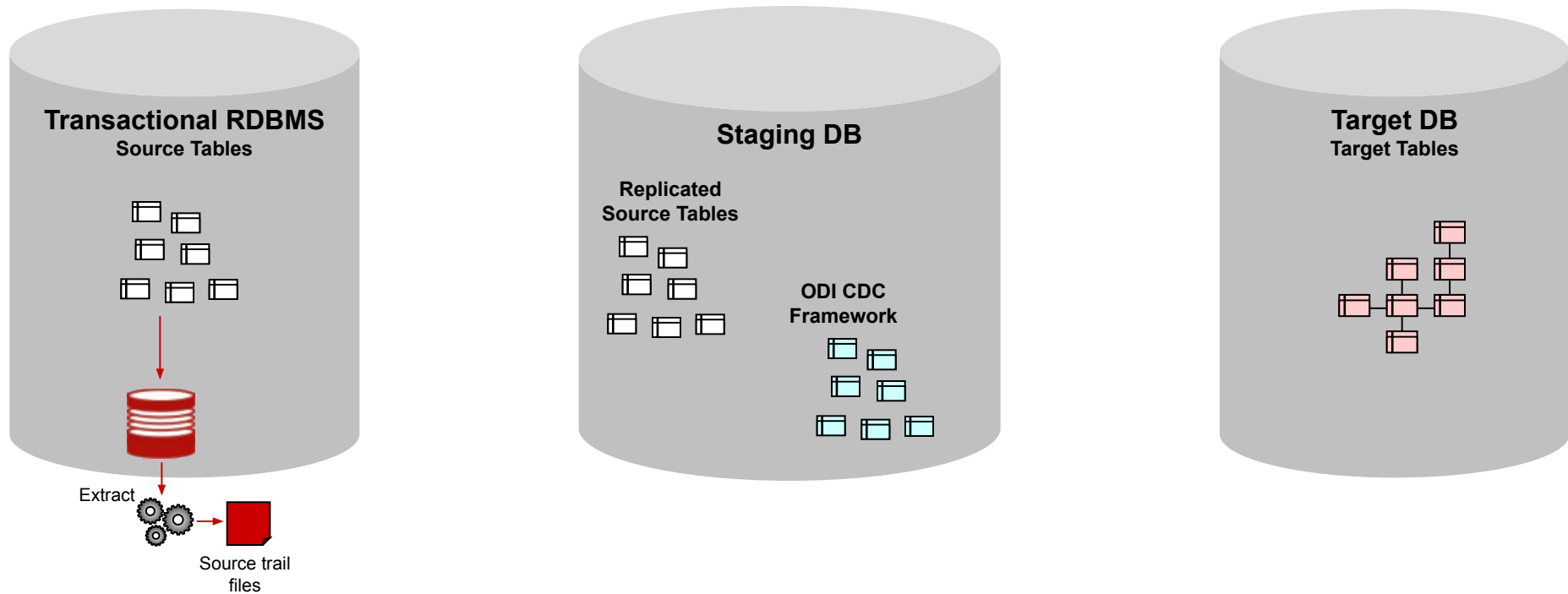
Step-by-step How It Works



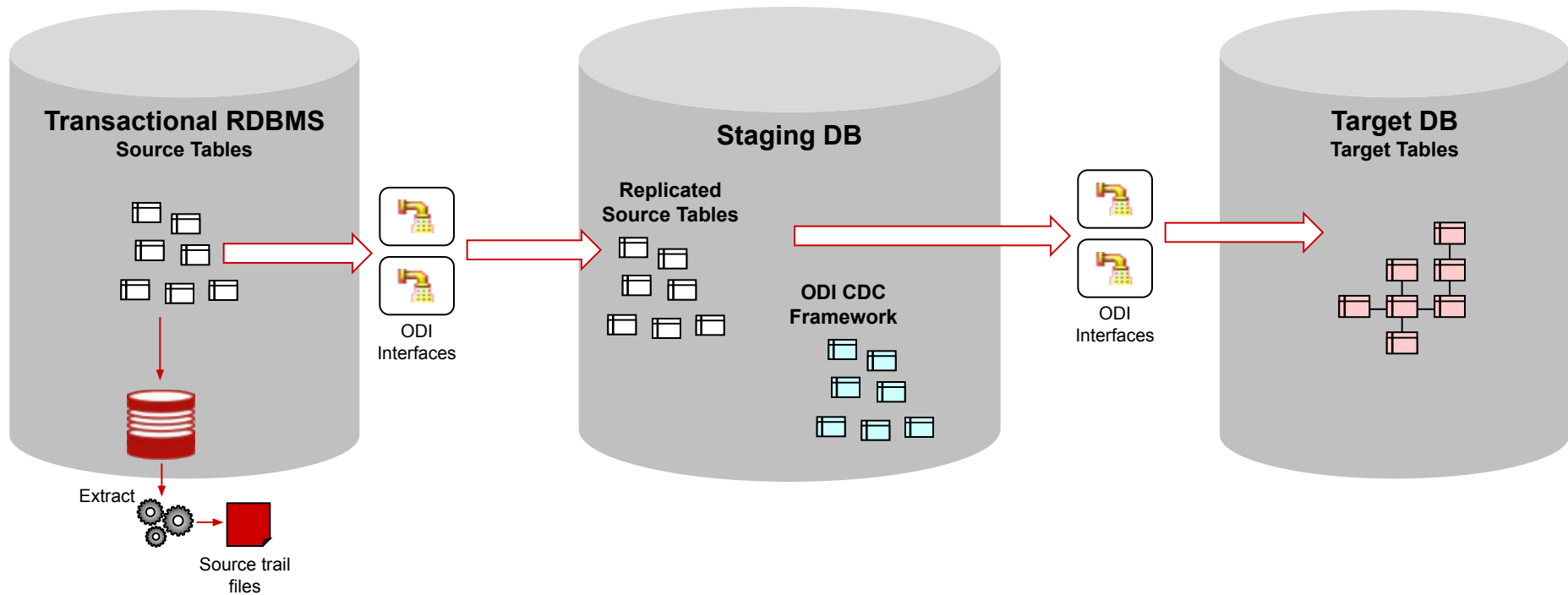
1. Replicated tables created with Common Format Designer (using ODI)



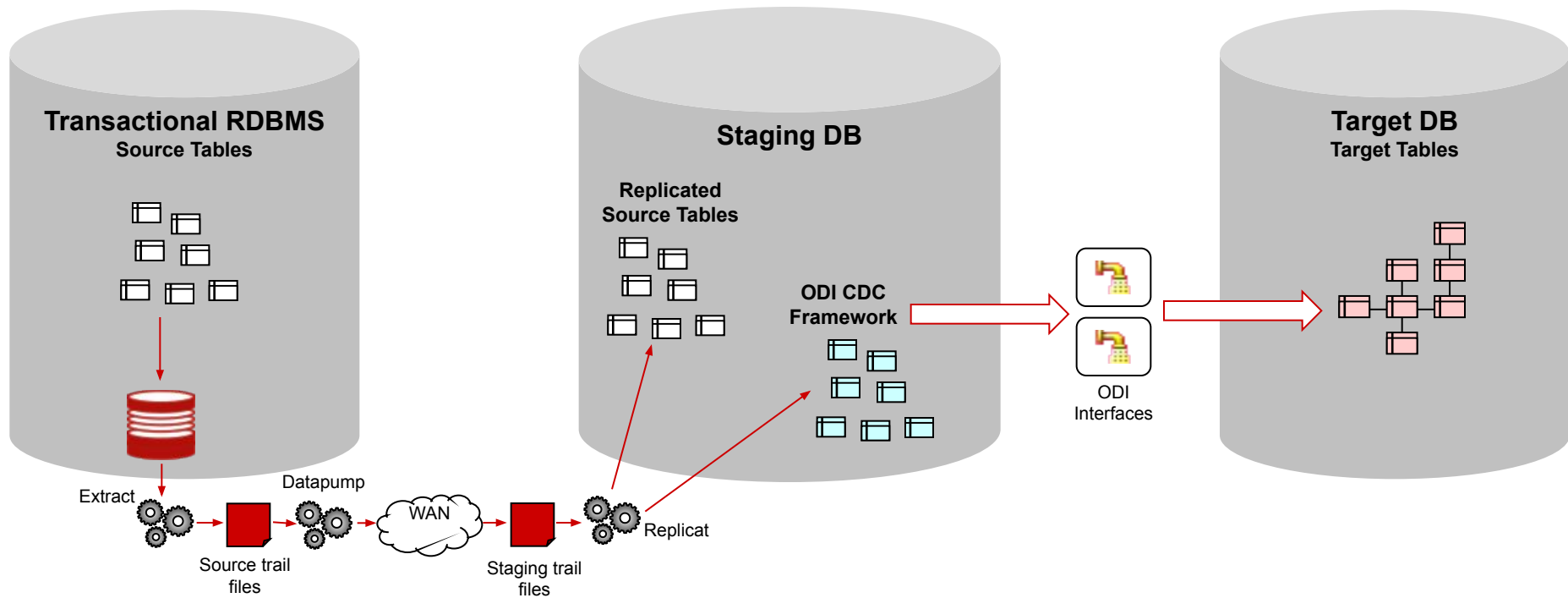
2. Start Capturing Changed Data in Source (OGG Extract process)



3. Initialize Staging and Target Data (with ODI or optionally, OGG)



4. Start Replication / Propagate Changes to Target DB (OGG and ODI)



Simplified & Productive Development

DEMONSTRATION





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