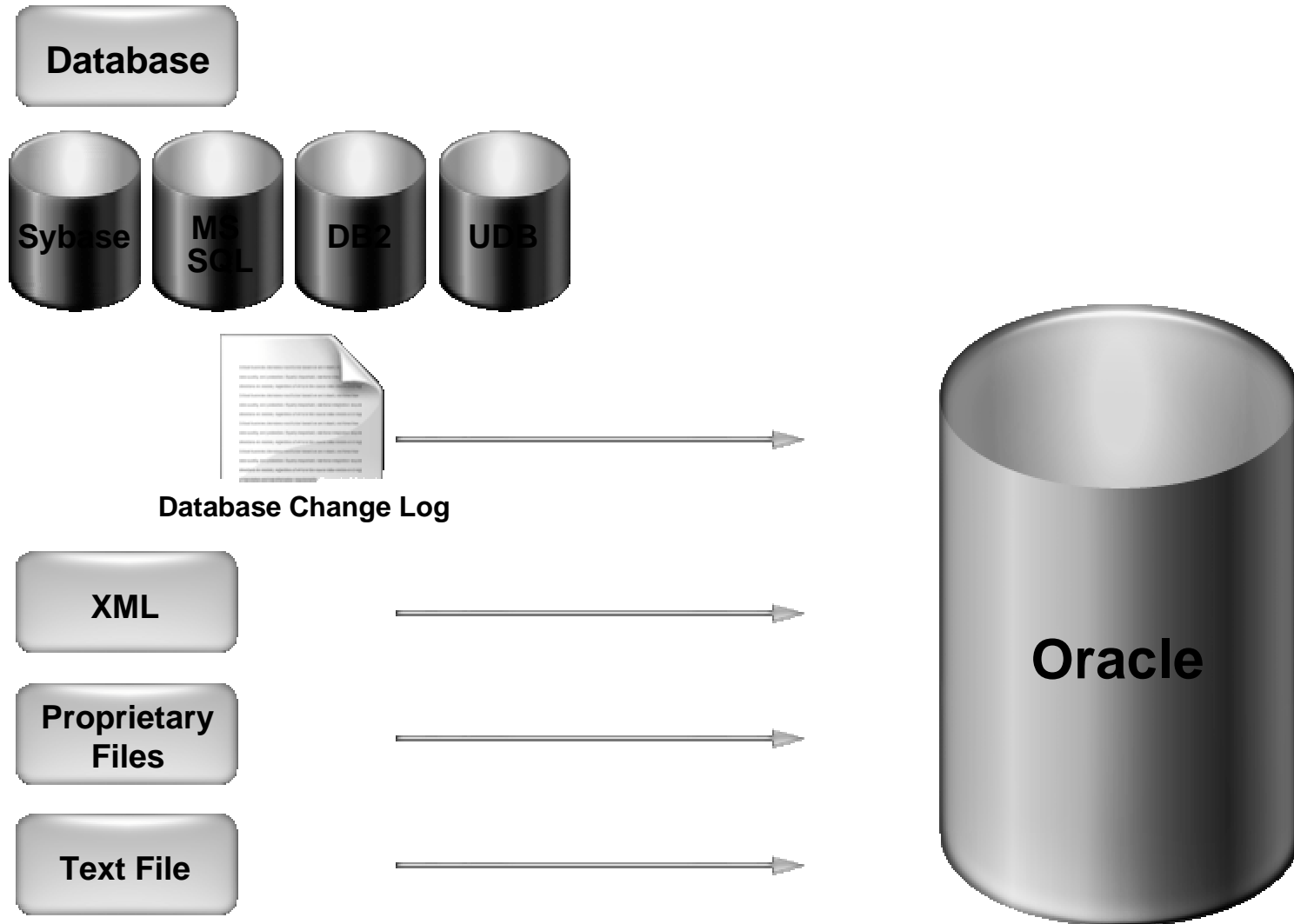# Integrating Data in Oracle Environments

Agenda

- Reasons for heterogeneous integration

- Sources of data

- Types of data integration

  - ETL: Extract Transform and Load

  - EAI: Enterprise Application Integration

  - DTC: Detect, Transform, Communicate

- Summary

- Q & A

Why Heterogeneous Integration?

DataMirror®

- Company acquisitions - differing environments

- Purchased applications - database requirements

- Legacy applications

- Load balancing

- Complexity and cost of ownership for disparate databases

- Need for specialized data stores

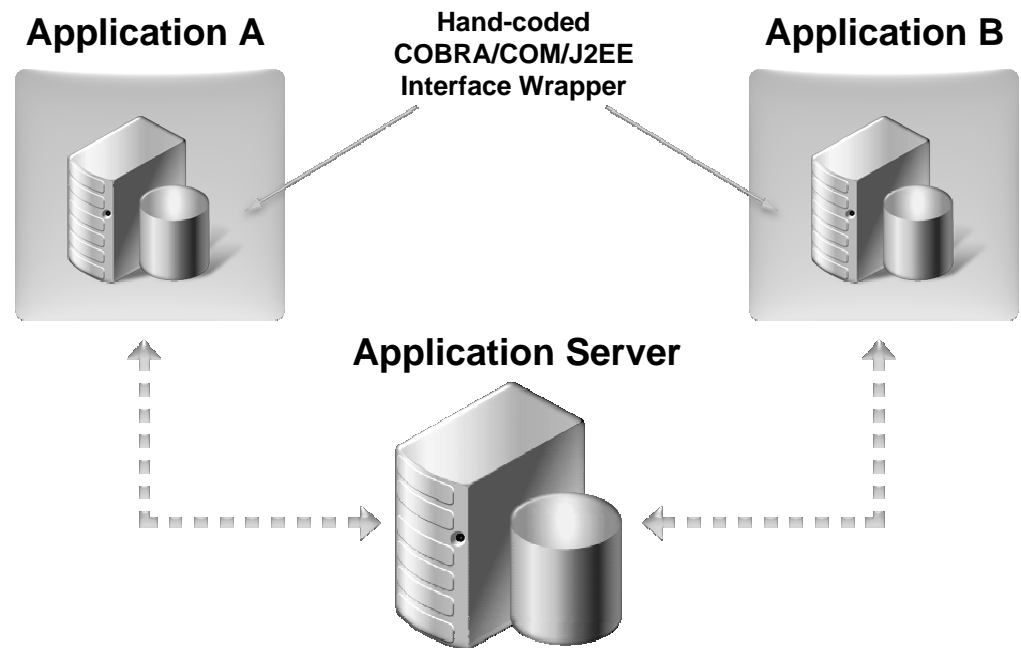- Have complete view of all business information

Database Support & Flat Files

DataMirror®

Database

Sybase   MS SQL   DB2   UDB

Database Change Log

XML

Proprietary Files

Text File

Oracle

Application Message Queues

DataMirror®

JMS Application Servers:

- BEA Weblogic
- IBM Websphere
- iPlanet
- SeeBeyond
- webMethods
- Vitria
- Sun ONE
- Oracle 9i Application Server

Application A

Hand-coded COBRA/COM/J2EE Interface Wrapper
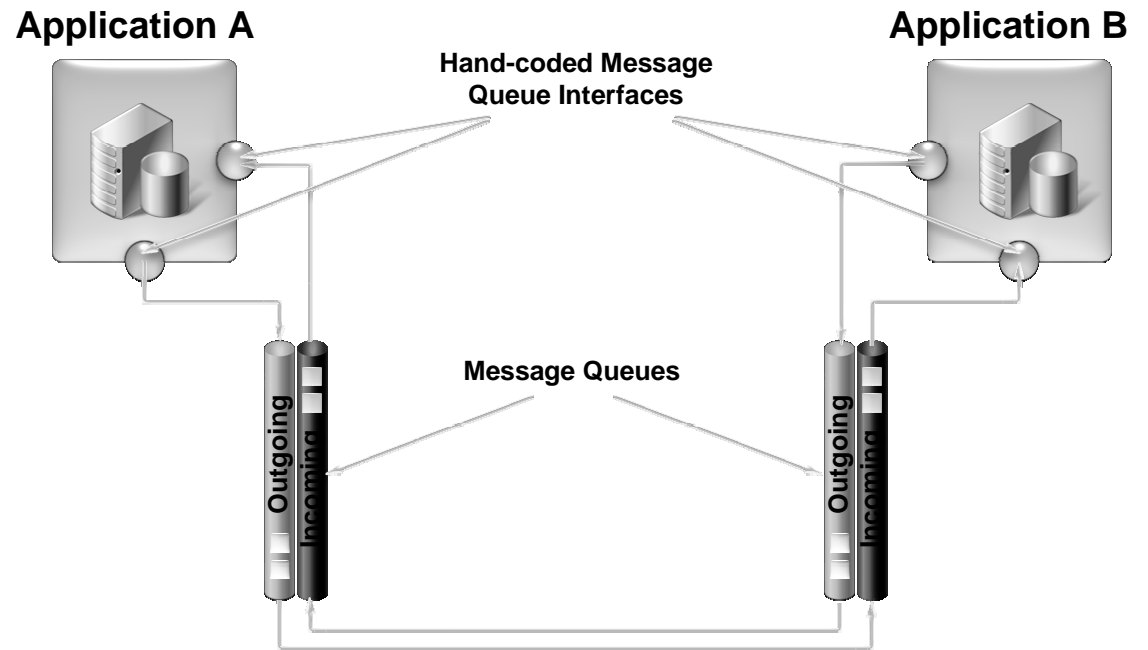
Application B

Application Server

Application Servers coordinate transactions between applications, but customers must program standard interface wrappers to the application server.

Application Message Queues

DataMirror®

JMS Message Queues:

- IBM MQSeries
- Sonic MQ
- Tibco
- Oracle AQ

Application A

Application B

Hand-coded Message Queue Interfaces

Message Queues

Outgoing Incoming

Outgoing Incoming

Types of Oracle Data Integration

- ETL: Extract Transform and Load

- EAI: Enterprise Application Integration

- DTC: Detect, Transform, Communicate

- Others:
  - EII: Enterprise Information Integration
  - Block Replication
  - Custom Integration Code

ETL – Advantages

- Integrate disparate data sources

- Complex transformations

- Low TCO - hides database complexities

- Database access as opposed to logs

- Handles large data volumes

- Light footprint due to PULL rather than Push technology

ETL – Disadvantages

- Database access as opposed to logs

- Batch processing vs. real-time

- Requires extensive re-work to handle real-time

- Rigid – RDBMS, application packages, and flat files

- Back office, un-attended integration

EAI – Advantages

- Transaction-Oriented

    - Ensures transactional integrity

- Event-driven

- Enables Business Process Automation

- Efficient transactional message movement

- Complex to maintain

- Not highly scalable

- Complex to deploy

- Expensive to setup

- Complex to maintain

DTC – Advantages

- Asynchronous

- Log Access

- Access to timely data

- Load Balancing

- Push-based Technology

- Change Data Capture

- Flexible – supports both real-time <u>and</u> batch mode integration

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"The big trend in data integration is real-time reporting and analysis that enable more rapid business action based on deeper business insights."

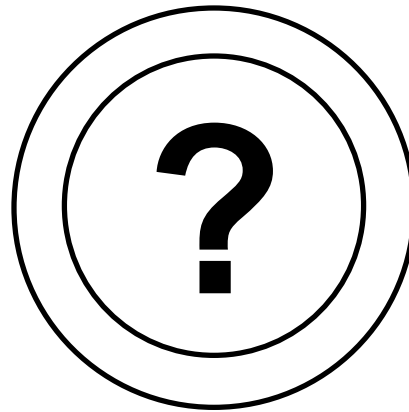*Integration Landscape 2005*, **Forrester Research Inc., Dec. 2004**

DTC – Disadvantages

- Doesn't handle message queues

- Doesn't handle proprietary formats (non-rdbms)

- Doesn't validate transaction process

DataMirror®

- ▪ Information stored in more than one format
  - ▪ Large variety of data sources
    - ▪ Open (relational & flat file)
    - ▪ Proprietary
    - ▪ Applications

- ▪ To get a complete view of your business, you must integrate the data stored in these systems

- ▪ Several different methodologies for integration
  - ▪ EAI, ETL, DTC

- ▪ Must select the methodology that best suits each business problem

Q&A

?

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