Accelerate your business with Oracle Data Integration Solutions

Milomir Vojvodic
EMEA DIS Business Development Manager
Data Integration Needs
Pain Points

Improve IT Productivity

- Modernizing IT architectures/systems: Modernizing legacy data integration architectures: Implement light-weight solutions that replace custom code and reduce ETL overhead and complexity.

- Improving Performance: Systems that are overloaded with exponential growth in data volumes, and wide variety of users, such as reporting queries, can create performance degradation. Companies need to find solutions that will alleviate the overhead and provide scalability, availability, and manageability now and over time.

- Improving Re-use and Flexibility: All organizations are looking to make sure their solutions are adaptable. Decreasing time to market with easy to implement solutions is also a common goal.

Use Trusted Data for Business Operations

- Improving data reliability: Avoiding data loss during data movement and maintaining timeliness of data and transaction integrity.

- Managing Data Accuracy, Visibility and Control: Achieve single version of truth. Work with good quality of data. Cleanse, standardize, enrich and de-duplicate name and addresses as well as other business data. Give business users accurate inventory and customer data, a better understanding of customer behavior and trustworthy information for decision making and opportunity discovery.

- Gaining Better Business Insights Faster: Access timely relevant data in major databases, data warehouses, and other data stores to enable a comprehensive view into operations.
Pain Points

Reduce Costs and Risk

- **Lowering cost for ETL efforts** and Replacing Custom Code to decrease complexity and management overhead involved with custom code
- **Removing batch windows**: As systems become global and require 24/7 availability, batch windows impact availability of mission-critical applications and business operations, leading to potential loss in revenue and productivity.
- **Eliminating downtime during unplanned outages**: Having a disaster tolerance planning in place to protect against site and system level failures
- **Eliminating risks and downtime** for system upgrades, migrations and maintenance: Avoid interrupting business operations during planned activities for database, hardware, OS and application upgrades/migrations as well as system maintenance activities such as patch application.
- **Meeting compliance and auditing requirements**: Meet SLAs around system availability, compliance with regulations on disaster recovery as well as auditing/reporting in a timely manner. Requires being able to view and understand the flows of data, data lineage, and execution audit trails,
## Oracle – “Excellent Product Viability”

<table>
<thead>
<tr>
<th>Feature</th>
<th>Weighting</th>
<th>IBM</th>
<th>Oracle</th>
<th>Informatica</th>
<th>iWay</th>
<th>SAP</th>
<th>SAS</th>
<th>Microsoft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk data movement</td>
<td>55%</td>
<td>5.0</td>
<td>4.5</td>
<td>5.0</td>
<td>4.1</td>
<td>4.6</td>
<td>4.3</td>
<td>4.3</td>
</tr>
<tr>
<td>Federated views</td>
<td>15%</td>
<td>3.9</td>
<td>3.0</td>
<td>3.9</td>
<td>3.7</td>
<td>4.2</td>
<td>3.4</td>
<td>2.2</td>
</tr>
<tr>
<td>Message-oriented movement</td>
<td>10%</td>
<td>4.5</td>
<td>3.7</td>
<td>3.3</td>
<td>4.1</td>
<td>3.2</td>
<td>2.0</td>
<td>3.7</td>
</tr>
<tr>
<td>Data replication and synchronization</td>
<td>20%</td>
<td>4.6</td>
<td>5.0</td>
<td>4.5</td>
<td>2.9</td>
<td>4.0</td>
<td>3.0</td>
<td>2.9</td>
</tr>
<tr>
<td><strong>Total Rating</strong></td>
<td></td>
<td>18</td>
<td>16.2</td>
<td>16.7</td>
<td>14.8</td>
<td>16</td>
<td>12.7</td>
<td>13.1</td>
</tr>
<tr>
<td><strong>Weighted Rating</strong></td>
<td></td>
<td>4.705</td>
<td>4.295</td>
<td>4.565</td>
<td>3.8</td>
<td>4.28</td>
<td>3.675</td>
<td>3.645</td>
</tr>
</tbody>
</table>

Source: Gartner Critical Capabilities for Data Integration Tools: Common Data Delivery Styles, Dec 2010
*(showing top 7 of 11 vendors in chart above)*
## DIS products vs. “out of the box”…

<table>
<thead>
<tr>
<th>Oracle OOTB</th>
<th>DIS Oracle strategic products</th>
<th>Difference?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Streams</td>
<td>Oracle GoldenGate</td>
<td>- Heterogeneous</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Scalability, performance, reliability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Best Productivity</td>
</tr>
<tr>
<td>OWB</td>
<td>Oracle Data Integrator</td>
<td>- Increased ROI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Broader support/heterogeneity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Best productivity &amp; scalability</td>
</tr>
</tbody>
</table>
Oracle GoldenGate’s Modular Architecture

**Capture**
Source
Oracle & Non-Oracle Database(s)

**Trail**
Pump
LAN / WAN / INTERNET OVER TCP/IP

**Delivery**
Target
Oracle & Non-Oracle Database(s)

**Benefits:**
- Non-intrusive, low-impact, sub-second latency
- Supports heterogeneous sources and targets
- Maintains transactional integrity - Resilient against interruptions and failures
# Oracle GoldenGate’s Heterogenity

<table>
<thead>
<tr>
<th>Databases</th>
<th>O/S and Platforms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oracle GoldenGate Capture:</strong></td>
<td>Linux</td>
</tr>
<tr>
<td>- Oracle</td>
<td></td>
</tr>
<tr>
<td>- DB2 NEW for v 9.7</td>
<td></td>
</tr>
<tr>
<td>- Microsoft SQL Server</td>
<td></td>
</tr>
<tr>
<td>- Sybase ASE</td>
<td></td>
</tr>
<tr>
<td>- Teradata</td>
<td></td>
</tr>
<tr>
<td>- Enscribe</td>
<td></td>
</tr>
<tr>
<td>- SQL/MP</td>
<td></td>
</tr>
<tr>
<td>- SQL/MX</td>
<td></td>
</tr>
<tr>
<td>- MySQL NEW</td>
<td></td>
</tr>
<tr>
<td>- JMS message queues NEW</td>
<td></td>
</tr>
<tr>
<td><strong>Oracle GoldenGate Delivery:</strong></td>
<td></td>
</tr>
<tr>
<td>- All listed above, plus:</td>
<td></td>
</tr>
<tr>
<td>- TimesTen, DB2 for iSeries NEW</td>
<td></td>
</tr>
<tr>
<td>- Exadata, Netezza, Greenplum, and HP Neoview</td>
<td></td>
</tr>
</tbody>
</table>
Oracle GoldenGate’s Transaction Integrity

- Capture, Pump, and Delivery save positions to a checkpoint file so they can recover in case of failure.
Oracle Data Integration Solutions

Use Cases

- Migrations & Consolidations
- New DB/HW/OS/APP
- Zero Downtime
  Migrations & Upgrades
- ADG
- Active/Active
  High Availability
- Fully Active Distributed DB
- ADG
- Query Off-Loading
  And Disaster Recovery
- Reporting Database
- ADG
- BI&DW Synchronization
  and Loading
- Data Warehouse
- ADG
- Data Distribution
  and Disaster Recovery
- Global Data Centers
- Solutions/Apps Integration
- Batch Int.
- EDA/SOA Int.

Use Cases:
- Heterogeneous Source Systems
- Disaster Recovery
- OGG
- ADG
- BPM
- CEP
Cost of Downtime
Where milliseconds = dollars

- **Tangible costs**
  - Revenue
  - Employee productivity
  - Recovery efforts
  - Regulatory penalties

<table>
<thead>
<tr>
<th>Industry</th>
<th>Revenue / Hour</th>
<th>Revenue / Employee Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>$2,817,846</td>
<td>$569.20</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>$2,066,245</td>
<td>$186.98</td>
</tr>
<tr>
<td>Banking and Finance</td>
<td>$1,245,468</td>
<td>$605.42</td>
</tr>
<tr>
<td>Information Technology</td>
<td>$1,344,461</td>
<td>$184.03</td>
</tr>
<tr>
<td>Insurance</td>
<td>$1,202,444</td>
<td>$370.92</td>
</tr>
<tr>
<td>Retail</td>
<td>$1,107,274</td>
<td>$244.37</td>
</tr>
<tr>
<td>Transportation</td>
<td>$668,586</td>
<td>$107.78</td>
</tr>
<tr>
<td>Utilities</td>
<td>$643,250</td>
<td>$380.94</td>
</tr>
<tr>
<td>Healthcare</td>
<td>$636,030</td>
<td>$142.58</td>
</tr>
<tr>
<td>Hospitality and Travel</td>
<td>$330,654</td>
<td>$38.62</td>
</tr>
</tbody>
</table>

- **Intangible costs**
  - Brand
  - Trust
  - Customer satisfaction
  - Loyalty

Source: IT Performance Engineering & Measurement Strategies: Quantifying Performance Loss, Gartner
GoldenGate and Physical Replication

Using GoldenGate for data replication offers substantial advantages over the traditional physical replication approaches:

<table>
<thead>
<tr>
<th>Physical Replication</th>
<th>TDM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Like-to-like databases and platforms</td>
<td>Heterogeneous databases and platforms</td>
</tr>
<tr>
<td>One-to-one topology with all-or-nothing data replication</td>
<td>Many-to-many topology with selective and optimized data movement</td>
</tr>
<tr>
<td>No transaction integrity</td>
<td>Guaranteed transaction integrity</td>
</tr>
<tr>
<td>Data corruption propagated to target</td>
<td>Data corruption is isolated at source</td>
</tr>
<tr>
<td>No rollback or point-in-time recovery</td>
<td>Selective and dynamic rollback with advanced point-in-time recovery</td>
</tr>
<tr>
<td>Target system unavailable for data processing</td>
<td>Both source and target systems are available</td>
</tr>
<tr>
<td>No data transformation capability</td>
<td>Data transformation and enrichment</td>
</tr>
<tr>
<td>Geographic distance limitation between data source and target</td>
<td>No distance limitations</td>
</tr>
</tbody>
</table>
# Benefits of Query Offloading using Oracle GoldenGate

## Oracle GoldenGate Query Offloading Cost & Benefit Summary

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Initial Investment</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>End User Productivity Gains</td>
<td>$212,500</td>
<td>$212,500</td>
<td>$212,500</td>
<td>$212,500</td>
<td>$212,500</td>
<td></td>
</tr>
<tr>
<td>Reduced TCO of the Reporting Infrastructure</td>
<td>$61,000</td>
<td>$11,000</td>
<td>$11,000</td>
<td>$11,000</td>
<td>$11,000</td>
<td></td>
</tr>
<tr>
<td>Reduce the Workload on the Production OLTP System</td>
<td>$40,000</td>
<td>$40,000</td>
<td>$40,000</td>
<td>$40,000</td>
<td>$40,000</td>
<td></td>
</tr>
<tr>
<td><strong>Annual Potential Benefits</strong></td>
<td>$313,500</td>
<td>$263,500</td>
<td>$263,500</td>
<td>$263,500</td>
<td>$263,500</td>
<td></td>
</tr>
</tbody>
</table>

| Benefit Realization Rate (adjust as required) | 33%                | 67%      | 100%     | 100%     | 100%     |

<table>
<thead>
<tr>
<th>Implementation Costs</th>
<th>Initial Investment</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Licenses</td>
<td>$50,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Software Maintenance</td>
<td>$11,000</td>
<td>$11,000</td>
<td>$11,000</td>
<td>$11,000</td>
<td>$11,000</td>
<td></td>
</tr>
<tr>
<td>Hardware Purchase</td>
<td>$25,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardware Maintenance</td>
<td>$2,500</td>
<td>$2,500</td>
<td>$2,500</td>
<td>$2,500</td>
<td>$2,500</td>
<td></td>
</tr>
<tr>
<td>Implementation &amp; Training Costs</td>
<td>$50,000</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Annual Costs</strong></td>
<td>$138,500</td>
<td>$13,500</td>
<td>$13,500</td>
<td>$13,500</td>
<td>$13,500</td>
<td>$13,500</td>
</tr>
<tr>
<td><strong>Cumulative Costs</strong></td>
<td>$138,500</td>
<td>$152,000</td>
<td>$165,500</td>
<td>$179,000</td>
<td>$192,500</td>
<td>$206,000</td>
</tr>
</tbody>
</table>

| Net Present Value of Benefits                  | $881,582           |          |          |          |          |          |

| Net Savings                                   | ($138,500)         | $89,955  | $163,045 | $250,000 | $250,000 | $250,000 |
| Cumulative Savings                            | ($138,500)         | ($48,545)| $114,500 | $364,500 | $614,500 | $864,500 |

| Weighted Average Cost of Capital               | 6%                 |          |          |          |          |          |
| NPV of Recommendation                         | $686,215           |          |          |          |          |          |
| Five Year ROI                                 | 351%               |          |          |          |          |          |
| IRR                                          | 101%               |          |          |          |          |          |
| Payback                                      | Year 2             |          |          |          |          |          |
Benefits of Query Offloading using Oracle GoldenGate

Payback Analysis

Cumulative Savings

Cumulative Costs vs. Benefits

Initial Investment
Year 1
Year 2
Year 3
Year 4
Year 5

Cumulative Costs
Cumulative Benefits

Benefits of Query Offloading using Oracle GoldenGate
Benefits of Query Offloading using Oracle GoldenGate

Reduce the workload on production

- Annual amortization of HW purchase 250,000 USD (1,000,000 USD per 4 years)
- Annual HW maintainence 100,000 USD
- Annual SW maintanence 200,000 USD
- Energy, floor space 200,000 USD
- Overall 800,000 USD
- As there are 36 CPUs, Annual cost 22,000 USD per CPU

- Overhead 8% with other solution
- Overhead 3% with GoldenGate
- Cost of overhead 64,000 USD vs 24,000 USD
- Savings 40,000 USD per year

Alternative option for target server

- DB software first option 100,000 USD, DB software second option 50,000 USD,
- Annual DB software support 22,000 USD vs 11,000 USD
Operational Reporting for Oracle Applications

- Certified for Operational Reporting using Oracle GoldenGate
  - Oracle E-Business Suite v12.x and higher
  - Oracle JD Edwards v9.x and higher
  - Oracle PeopleSoft Enterprise v8.51 and higher
  - Oracle Siebel CRM v8.x and higher

- Knowledge Documents on Oracle Support
  - Detailed Overview, Key Features, and Limitations

- Ongoing Enhancements and Further Integration
Oracle Data Integration Solutions

Use Cases

- **New DB/HW/OS/APP**
- **BPM**
- **CEP**
- **Global Data Centers**
- **Fully Active Distributed DB**
- **Reporting Database**
- **Data Warehouse**
- **Heterogeneous Source Systems**
- **ADG**
- **Disaster Recovery**
- **OGG**
- **Zero Downtime Migrations & Upgrades**
- **Active/Active High Availability**
- **Query Off-Loading And Disaster Recovery**
- **BI&DW Synchronization and Loading**
- **Data Distribution**
- **Solutions/Apps Integration**
- **Migrations & Consolidations**
- **EDA/SOA Int.**
- **BPM**
- **CEP**
Maximum Availability + Computing Capacity at the same time
Maximum Availability + Computing Capacity at the same time

ORACLE
Oracle Data Integration Solutions
Use Cases

- Zero Downtime Migrations & Upgrades
- Active/Active High Availability
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- Heterogeneous Source Systems
- ODG
- OGG
- EDA/SOA Int.
- BPM
- CEP
Oracle Data Integration Solutions

Use Cases

1. **Zero Downtime Migrations & Upgrades**
   - Heterogeneous Source Systems
   - New DB/HW/OS/APP
   - ADG

2. **Active/Active High Availability**
   - Query Off-Loading And Disaster Recovery
   - Reporting Database
   - Fully Active Distributed DB
   - ADG

3. **BI&DW Synchronization and Loading**
   - Data Warehouse
   - ADG

4. **Data Distribution**
   - Global Data Centers
   - Data Distribution
   - EDA/SOA Int.
   - Batch Int.

5. **Solutions/Apps Integration**
   - Batch Int.
   - EDA/SOA Int.

**Disaster Recovery**

- BPM
- CEP
Zero Downtime Oracle Upgrade Implementation Steps:
Example of 9i → 11g Cross-Platform

1. Start Oracle GoldenGate Capture module
2. - 4. Initial loading, export import of a new 11g target db (ELT/flat files/jdbc/native db loaders/import export tablespaces etc.)
5. Start Oracle GoldenGate Delivery module at target
6. Start Oracle GoldenGate’s Capture at 11g
7. Start Oracle GoldenGate’s Delivery process 9i (old source, contingency)
Available – no issues

- Planned outage
  - Upgrade
  - Migration
  - Maintenance

- Unplanned outage
  - System failure
  - Data failure

- Semi-available
  - Performance issues

Reusability of licenses
Reusability of licenses

- Planned outage
  - Upgrade
  - Migration
  - Maintenance

- Unplanned outage
  - System failure
  - Data failure

- Semi-available
  - Performance issues

Available – no issues
Reusability of licenses
Tool based migrations
Reusability of licenses
Oracle GoldenGate 11g for Oracle Applications

- **Oracle GoldenGate for Application Upgrades & Migrations**
  - Siebel CRM (V6 – V8 upgrading to V8.x)
    - All platforms (Oracle, DB2(LUW & z/OS) & MSSQL)
    - Also available to support Siebel Remote and incremental application repository zero downtime releases.
  - JDE (all versions)
    - Low downtime (not zero) upgrade solution
    - All platforms except iSeries are supported. *(iSeries is on the roadmap)*
  - SAP (Oracle to Oracle Online Migrations aka “Triple-O”)

*ORACLE*
Oracle GoldenGate 11g for Oracle Applications

IBM DB2 z/OS

Oracle Database RAC

Real-time data capture from Oracle and non-Oracle databases on mixed platforms

GoldenGate capture of source transactions happens in real-time so latency between old and new databases is minimal

GoldenGate bidirectional replication can allow parallel running, phased migration or fail-back during consolidation and migration

Target new platform is populated continuously in real-time
Reduced risk for SAP migrations
SAP Note 1508271

- Minimum Oracle database version for the production system is 9.2.0.8
- Oracle version on the target can be 10.2 or 11.2 and any UNIX, Linux or Windows platform is supported
- All SAP products and solutions where Oracle database is certified are supported (such as R/3, BW, CRM or XI)
- Supplemental Logging must be enabled on the source database prior to Oracle GoldenGate implementation
- The source Oracle database cannot contain any OLTP compressed tables
Oracle Data Integration Solutions

Use Cases

- Migrations & Consolidations
  - New DB/HW/OS/APP
  - ADG

- Zero Downtime Migrations & Upgrades
  - OGG
  - ADG

- Active/Active High Availability
  - OGG
  - ADG

- Query Off-Loading And Disaster Recovery
  - OGG
  - ADG

- BI&DW Synchronization and Loading
  - OGG
  - ADG

- Data Distribution
  - OGG

- Solutions/Apps Integration
  - OGG

- Batch Int.

- Global Data Centers
  - EDA/SOA Int.

- Disaster Recovery

- Heterogeneous Source Systems

- Reporting Database

- Fully Active Distributed DB

- OGG

- OGG

- OGG

- OGG

- OGG

- OGG

- OGG
Which value does solution like GoldenGate bring?

But GG differentiators are:

- **Performance**
  - Reduce downtime (end user productivity and customer satisfaction)
  - Reduce migration and recovery effort
  - Reduce source system overhead (and costs for stronger HW)
  - Decrease TCO because of report server
  - Communication Cost Savings

- **Flexible & Extendable**
  - Global optimization of resources as having real time insight in regional capacities
  - Avoiding data loss
  - Consolidating and modernizing into more efficient systems

- **Reliable**
Oracle Data Integration Solutions

Use Cases

Heterogeneous Source Systems

- Zero Downtime Migrations & Upgrades
- Active/Active High Availability
- Query Off-Loading
- BI&DW Synchronization and Loading
- Data Distribution
- Solutions/Apps Integration

- New DB/HW/OS/APP
- Fully Active Distributed DB
- Reporting Database
- Data Warehouse
- Global Data Centers
- EDA/SOA Int.

Disaster Recovery

- Migrations & Consolidations
- ADG
- OGG
- ODI

Batch Int.

ODI

BPM

CEP
Oracle Data Integrator
How it works

ODI Data Services

ODI Knowledge Modules

ODI Declarative Design

ODI E-LT

Benefits

Oracle Data Integrator
How it works

ODI Data Services

ODI Knowledge Modules

ODI Declarative Design

ODI E-LT

Benefits

Oracle Data Integrator
How it works

ODI Data Services

ODI Knowledge Modules

ODI Declarative Design

ODI E-LT

Benefits
Differentiator: Broad Connectivity
Variety of Different Kinds of Systems

DB & Application KMs
- Generic SQL DB
- Oracle DB 9i
- Oracle DB 10g
- Oracle DB 11g
- IBM DB2/400
- IBM DB2/UDB
- IBM Informix SE
- IBM Db2
- MS SQL Server 2000
- MS SQL Server 2005
- MS SQL Server 2005 SE
- MS Office Access 2000
- MS Office Excel 2000
- MS Active Directory
- Sybase ASE 8.0 & 9.x
- Sybase IQ
- Sonic Q v7.0
- Teradata V2R5.x
- Teradata V2R6.x
- Teradata v12
- Netezza Performance Server 2.2.1
- Hyperion Essbase
- PostgreSQL 8.1
- MySQL 4.0
- MySQL 5.0
- Oracle BI Suite 10g
- Oracle BAM 10g
- Oracle Internet Directory 9i
- OpenLDAP 2.3
- Siebel CRM 7.8
- JD Edwards
- PeopleSoft
- SAP R/3
- Oracle E-Business Suite
- Oracle AQ 10g
- Oracle SOA Suite
- Oracle ESB 10g
- Salesforce.com AppExchange
- Any JMS Standard Implementation

Data Adapters
- Ariba
- Axiom mx/open
- Baan
- BroadVision
- Clarify
- Commerce One
- Hogan Financials
- i2 Technologies
- Lawson
- Livelin
- Lotus Notes
- Manugistics
- Microsoft CRM
- Vantive
- Walker Interactive
- Remedy
- SalesForce

Content Adapters
- DEC WPS Plus
- Display Write 2, 3, 4 & 5
- Enable (Writer & Spreadsheet)
- First Choice
- Framework
- IBM Writing Assistant
- Lotus Manuscript
- Lotus AMI/AMI Professional
- Microsoft Word & Works
- MultiMate
- Novell WordPerfect
- Office Writer
- PFS: Write
- Total Word
- Wang PC (IWP)
- WordMARC
- WordStar
- Just Systems Ichitaro
- JustWrite
- Adobe FrameMaker
- Lotus Word Pro
- Microsoft Write
- Microsoft Word
- Microsoft WordPad
- Microsoft Works
- MacWrite II
- Microsoft Word (Mac)
- Novell Perfect Works
- OpenOffice Writer
- Professional Write Plus
- StarOffice Writer
- WordStart
- Lotus 1-2-3
- Lotus Symphony
- Microsoft Excel (all versions)
- Mosaic Twin
- Novell Perfect Works (SS)
- OpenOffice Calc
- PFS: Professional Plan
- Quattro Pro (DOSS
- Quattro Pro (Win)
- SmartWare II
- StarOffice Calc
- SuperCalc
- VP Planner 3D

Tech Adapters
- ActiveX
- AQ(*)
- COM / DCOM
- CORBA
- Email
- Flat Files(*)
- FTP(*)
- HTTP / HTTPS
- IBM MQSeries (native)
- IDMS
- JMS(*)
- Microsoft DTS
- MS MQ (Native)
- NET
- Oracle Advanced Queues
- RPG
- Socket
- Telnet
- Tibco Rendezvous (Native)

B2B Standards
- EDI
- UCCNet
- RosettaNet
- CIDX
- PIDX
- VICS
- ebXML
- UBL
- UN/EIDFAX
- X12
- X12, Property & Casualty
- X12, HIPPA
- X12N, Life & Annuity
- X12N, Healthcare
- NCPDP SCRIPT
- HL7
- OAG
- UCB

B2B Standards
- CXML
- xCBL

Application Adapters
- Oracle Applications(*)
- SAP(*)
- Peoplesoft(*)
- JD Edwards(*)
- Siebel(*)
- Great Plains
- Hitachi HIRDB (ODBC)

Legacy Adapters
- Adabas
- Bull TDS
- Bull TP8
- CA-Datacom
- CA-IDMS/DB
- CA-IDMS/SQL
- C-ISAM (Informix)
- C-ISAM (Microfocus)
- C-ISAM ACCUCORP
- CICS(*)
- D-ISAM
- Hitachi HIRDB (ODBC)
- IMS/DB(*)
- IMS/TS(*)
- Software AG Natural
- Tuxedo(*)
- Unisys DMS 1100/2200
- VSAM(*)

Variety of Different Kinds of Systems
- IDAPI
- IDS-II
- ImageSQL
- Informix(*)
- Ingres
- MicroFocus Cobol
- Microsoft Access
- Microsoft SQL Server(*)
- MUMPS
- Navision Financials
- Nucleus
- Openingres
- Oracle(*)
- Paradox
- Pointbase
- PostgreSQL
- Progress
- Quattro Pro Windows v5
- Rdb (ODBC 3.x)
- Red Brick
- RMS
- Supra
- Sybase(*)
- Teradata
- UniVerse
- Velocis (ODBC 3.x)
- Visual dBase 5.5
- Visual FoxPro
- XDB
Oracle Data Integration Solutions

Use Cases

- **Heterogeneous Source Systems**
  - Use Cases
    - Active/Active High Availability
    - Zero Downtime Migrations & Upgrades
    - Query Off-Loading
    - BI&DW Synchronization and Loading
    - Data Distribution
    - Solutions/Apps Integration
    - Migrations & Consolidations
    - Disaster Recovery

- **Oracle Data Integration (ODI)**
  - OGG
  - ADG

- **Global Data Centers**
  - EDA/SOA Int.
Oracle Data Integration Solutions

Use Cases

- **Zero Downtime Migrations & Upgrades**
- **Active/Active High Availability**
- **Query Off-Loading**
- **BI&DW Synchronization and Loading**
- **Data Distribution**
- **Solutions/Apps Integration**
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- **Disaster Recovery**
ODI Outperforms Informatica for Less

- Run ODI Directly on Exadata
- Complex Data Transformations
- Linear ETL Scalability
- Fully Leverages DBFS/Infiniband, Smart Storage, and Advanced Compression

* TPC-H data sets with transformations
** Production hardware savings (not including Dev + Test environments, management costs or software savings)
Oracle Data Integration Solutions

Use Cases

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- Disaster Recovery
- OGG
- ODI
- ADG
- BPM
- CEP
- EDA/SOA Int.
- Batch Int.
## Understanding Performance Choices

<table>
<thead>
<tr>
<th>Source</th>
<th>Less than 10MB</th>
<th>Between 10-50MB</th>
<th>Greater than 50MB</th>
</tr>
</thead>
<tbody>
<tr>
<td>XML</td>
<td>XML</td>
<td>XML</td>
<td>XML</td>
</tr>
<tr>
<td>File</td>
<td>ESB</td>
<td>depends</td>
<td>ODI</td>
</tr>
<tr>
<td>DB</td>
<td>ESB</td>
<td>depends</td>
<td>ODI</td>
</tr>
<tr>
<td>XML</td>
<td>XML</td>
<td>depends</td>
<td>ODI</td>
</tr>
<tr>
<td>File</td>
<td>depends</td>
<td>ODI</td>
<td>ODI</td>
</tr>
<tr>
<td>DB</td>
<td>ODI</td>
<td>ODI</td>
<td>ODI</td>
</tr>
<tr>
<td>XML</td>
<td>depends</td>
<td>ODI</td>
<td>ODI</td>
</tr>
<tr>
<td>File</td>
<td>ODI</td>
<td>ODI</td>
<td>ODI</td>
</tr>
<tr>
<td>DB</td>
<td>ODI</td>
<td>ODI</td>
<td>ODI</td>
</tr>
</tbody>
</table>

- **Less than 10MB**
  - Depends on whether an intermediary XML format is useful for other processing (use ESB), or if joining File data to tabular RDB data is required (use ODI).

- **Between 10-50MB**
  - Depends on how much cross-referencing among the data values and rows is required during transformation – the more there is, the faster ODI will perform relative to ESB.

- **Greater than 50MB**
  - If the source and target are both XML, and there is no cross-referencing of data among rows, then a streaming-type or parallel-engine-type approach might scale.

*caution – always benchmark if you are unsure and require best possible results*
## ODI EE and SAP

<table>
<thead>
<tr>
<th>Connection to SAP</th>
<th>SAP Versions</th>
<th>Availability</th>
<th>Support Level</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle SAP Adapter (iWay)</td>
<td>ERP 3.1h – ECC 6.0</td>
<td>Available</td>
<td>Oracle Certified &amp; SAP Certified</td>
<td>May use with SOA Suite or ODI-EE; optimal for Transaction style i/o.</td>
</tr>
<tr>
<td>ODI KMs for Files</td>
<td>BW 3.5 – BW 7.0</td>
<td>Available</td>
<td>Oracle Certified</td>
<td>Use with OpenHub while integrating using files</td>
</tr>
<tr>
<td>ODI Web Services</td>
<td>ECC 6.0 and higher</td>
<td>Available</td>
<td>Oracle Certified</td>
<td>Confirmed to work with SAP Web Services</td>
</tr>
<tr>
<td>ODI Tools for iDocs</td>
<td>ERP 4.6c – ECC 6.0</td>
<td>Available</td>
<td>Oracle Certified</td>
<td>Read &amp; Write to iDoc</td>
</tr>
<tr>
<td>ODI KMs for ERP ABAP</td>
<td>SAP 4.6c – ECC 6.0</td>
<td>Available</td>
<td>Oracle Certified</td>
<td>Best for high-perf data extraction (read-only). Used with BI Apps.</td>
</tr>
<tr>
<td>ODI KMs for BW ABAP</td>
<td>BW 3.5 – BW 7.0</td>
<td>Available</td>
<td>Oracle Certified</td>
<td>Best for data extraction from SAP BW</td>
</tr>
<tr>
<td>OWB Connector – use with OWB or ODI</td>
<td>SAP 4.6c – ECC 7.0</td>
<td>Available</td>
<td>Oracle Certified</td>
<td>Best for OWB, may also be used with ODI for staging to Oracle DB</td>
</tr>
<tr>
<td>ODI KMs for SAP DBMS</td>
<td>ERP 4.6c &amp; 4.7</td>
<td>Available</td>
<td>Unsupported</td>
<td>Best performance for data extraction, but may violate some SAP Licenses. Use with caution.</td>
</tr>
</tbody>
</table>
Which value does solution like Oracle Data Integrator bring?

- Reduce development and maintenance costs
- Improve the speed of handling data
- Improve business process execution times
- Decrease the cost of ETL HW
- Decrease TCO (because of unified platform and single vendor)

ODI differentiators are:

- Faster
- Simpler
- Saves Money (Lower TCO, Higher ROI)
Oracle Data Integration Solutions

Use Cases

- New DB/HW/OS/APP
- BPM
- CEP
- Global Data Centers
- Fully Active Distributed DB
- Reporting Database
- Data Warehouse
- Heterogeneous Source Systems
- Zero Downtime Migrations & Upgrades
- Active/Active High Availability
- Query Off-Loading And Disaster Recovery
- BI&DW Synchronization and Loading
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- EDQ
- Batch Int.
- ODI
- ADG
- OGG
- Oracle Data Integration Solutions
- Use Cases
- BPM
- CEP
### Typical Customer Data Problems

- Missing, inconsistent, unstructured, mis-classified

#### Inconsistent formats
- Abbreviations (often ambiguous)

<table>
<thead>
<tr>
<th>Customer ID</th>
<th>Customer Name</th>
<th>Address 1</th>
<th>Address 2</th>
<th>City</th>
<th>State</th>
<th>Zip</th>
<th>Country</th>
<th>Birth Date</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD23298</td>
<td>Mr Peter Mayhew</td>
<td>9407 Main St</td>
<td></td>
<td>Fairfax</td>
<td>VA</td>
<td>22031-4001</td>
<td>USA</td>
<td>02/23/61</td>
<td>M</td>
</tr>
<tr>
<td>VS38611</td>
<td>Dr Ellen Van Der Heijde</td>
<td>144 E Grove St</td>
<td></td>
<td>Kingston</td>
<td>PA</td>
<td>18704</td>
<td>US</td>
<td>07/12/57</td>
<td></td>
</tr>
<tr>
<td>DC18223</td>
<td>Jalila Abdul-Alim (Do Not Call)</td>
<td>4548 Pennsylvania Ave</td>
<td>Apt 205</td>
<td>Kansas City</td>
<td>MO</td>
<td>64111-3349</td>
<td>USA</td>
<td>02/23/63</td>
<td>F</td>
</tr>
<tr>
<td>CO9387A</td>
<td>Tayside Computers Inc.</td>
<td>4912 E 41st N</td>
<td></td>
<td>Idaho Falls</td>
<td>ID</td>
<td>83401</td>
<td>USA</td>
<td>31/03/07</td>
<td></td>
</tr>
<tr>
<td>TZ35019</td>
<td>Mr Zachary P Jahn</td>
<td>98-1731 Ipuala Loop</td>
<td>Aiea</td>
<td>Hawaii</td>
<td>96701</td>
<td>1710</td>
<td>United States</td>
<td>06/12/86</td>
<td>Male</td>
</tr>
<tr>
<td>CB27843</td>
<td>Mrs Edith Y Baba Junior</td>
<td>Baba Real Est. Corp.</td>
<td>209 Stony Point Trl</td>
<td>Webster</td>
<td>NY</td>
<td>USA</td>
<td>11/17/1971</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>OX80306</td>
<td>Andrew &amp; Mary Baxter</td>
<td>14 Oxbridge Way</td>
<td></td>
<td>Millford</td>
<td>NH</td>
<td>03055-4614</td>
<td>US</td>
<td>05/28/67</td>
<td>F</td>
</tr>
<tr>
<td>JP70210</td>
<td>Mr RJ &amp; Mrs FB MacDonald</td>
<td>57 Hadleigh Close</td>
<td>Westlea</td>
<td>Swindon SN5 9BZ</td>
<td>MA</td>
<td>USA</td>
<td></td>
<td>Y</td>
<td></td>
</tr>
<tr>
<td>RD48107</td>
<td>Mr Andy Baxter</td>
<td>14 Oxbridge Wy</td>
<td></td>
<td>Millford</td>
<td>NH</td>
<td>3056</td>
<td>USA</td>
<td>01/01/01</td>
<td>M</td>
</tr>
</tbody>
</table>

#### Attributes non-standard, missing or invalid

- Widespread duplication (often hard to spot)

1. Compound Names
2. Embedded Additional Information
3. Mixed Business & Personal Names
4. Multiple Names
5. Mis-Fielded Data
6. Erroneous Data
7. International Date Formats
8. Default or Dummy Data
Value Proposition EDQ
‘Fit for Purpose’ Data is Key to Driving ROI

**Enhance the positive**
- Enable other systems, integration & processes
- Increase ROI
- Increase agility
- Increase efficiency
- Increase customer satisfaction
- Increase scalability

**Reduce the negative**
- Reduce project risk
- Avoid data remediation costs (manual effort, custom code)
- Avoid error costs (incorrect orders, inventory etc.)
- Postpone system upgrades

---

The value of ‘good’ data

The cost of ‘bad’ data
Interactive exploration of data, identifying distribution and outlying values with drill-downs
• Standardize, Transform and Parse
• Split names and name elements
• Identify individuals and businesses
• Derive additional attributes

Not just names but any data such as addresses, dates & phone numbers
Oracle Enterprise Data Quality – Match

Match & Merge data from disparate sources
Create the ‘best’ record

Match Individuals
Match Households
Match Businesses

Title: Mr
First: Robert
Last: Fulmar
Gender: Male
DoB: 12/05/1978
Phone: 555-120-1329
Address: 9405 Main St
Fairfax
Virginia
22030

First: Bob
Last: Fulmar
Gender: Male
Email: chem291_rjf@barker.edu

Title: Dr
First: R
Last: Fulmer
DoB: 01/01/1978
Email: chem291_rjf@barker.edu
Address: 9407 Main Street
Fairfax
VA
22031-4001

Title: Dr
First: Robert
Last: Fulmar
Gender: Male
DoB: 12/05/1978
Email: chem291_rjf@barker.edu
Phone: 555-120-1329
Address: 9407 Main St
Fairfax
VA
22031-4001