Next Generation Data Integration Architectures with Oracle Data Integrator Enterprise Edition
Data Integration: Agenda

- Obstacles to Unifying Enterprise Information
- Oracle’s Data Integration Strategy
- What’s new in ODI-EE 11g?
- ODI-EE Architectural Advantages
- Oracle Data Integrator in Action
- How to get started
Unifying Information in a Mixed Landscape
Maximize the Value from BI/DW, SOA, and Business Apps

Custom Reporting
Analytics
Packaged Applications
Business Intelligence
SOA Applications

Data Migration
Data Replication
Data Warehousing
Data Federation

Data Silos
Data Marts
Data Hubs
Data Access

Scripts
Custom
SQL
Java

OLTP & ODS Systems
Oracle
PeopleSoft, Siebel, SAP
Files
Data Warehouse, Data Mart
Custom Apps
Excel
XML

High Cost of Custom Coding
Lack of clean, consistent data
Multiple standards, disciplines
Comprehensive Approach to Data Integration
Combining Operational and Analytical Data Integration

Oracle Applications  Custom Applications  MDM Applications  Business Intelligence  Activity Monitoring  SOA Platforms

Comprehensive Data Integration Solution

SOA Abstraction Layer
- Process Manager
- Service Bus
- Data Services
- Data Federation

Oracle Data Integrator
- ELT/ETL
- Data Transformation
- Bulk Data Movement
- Data Lineage

Oracle GoldenGate
- Real-time Data
- Log-based CDC
- Replication
- Data Verification

Oracle Data Quality
- Data Profiling
- Data Parsing
- Data Cleansing
- Match and Merge

Storage  Data Warehouse/Data Mart  OLTP System  OLAP Cube  Flat Files  Web 2.0  Web and Event Services, SOA
Oracle Data Integrator 11g (ODI-EE)
Fastest E-LT, Lowers TCO, Speeds Time-to-Value

Legacy Sources

Application Sources

OLTP DB Sources

Oracle Data Integrator Enterprise Edition

- Best in class performance, scalability
- Lowered TCO, lightweight deployment
- Improved usability and manageability
- Heterogeneous, Open, Standards-based
- Log-based CDC with Oracle GoldenGate

Any Data Warehouse

Any Planning System
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What’s New in ODI-EE 11g
Comprehensive Solution Goes Beyond Traditional ETL

- **Enterprise Deployment**
  - Integrated to WebLogic, Application Grid deployments, and Coherence, OPSS LDAP
  - Provides Improved HA, Scalability, Security

- **Enhanced Productivity**
  - IDE based on JDeveloper, new interface editor and improved graphical design environment

- **Flexible Connectivity**
  - Supports SAP integrations, OLAP, Oracle Apps
  - Extended API for custom integrations

- **Improved Manageability**
  - Integrated to Oracle Enterprise Manager
  - Enhanced session control and error management

- **Real-Time CDC Integration**
  - Integrated to Oracle GoldenGate’s CDC for real-time capture and delivery

- **What’s New in ODI-EE 11g**
  - Comprehensive Solution Goes Beyond Traditional ETL
Enterprise Deployment
Provides Lowered TCO and Improved Efficiencies

- Run-time components deploy on Oracle WebLogic Suite, Coherence
- Options for High Availability deployments as standalone or JEE-based
- Connection pooling, load balancing
- Connection retry (Oracle RAC)
- Corporate Security Integration
- Lightweight E-LT agents for lowered TCO
Enterprise Deployment
Provides Lowered TCO and Improved Efficiencies

Desktop

- JVM
  - Java EE Application
  - ODI SDK

ODI Studio
- Designer
- Operator
- Topology
- Security

WebLogic 11g / Application Server

- FMW Console
  - ODI Plug-in

Servlet Container
- ODI Console
- ODI SDK
- Java EE Application
- Runtime WS
- Java EE Agent

Web Service Container
- Public WS
- Data Services

Data Sources Connection Pool

Repositories
- ODI Master Repository
- ODI Work Repository

Sources and Targets
- Legacy
- Files / XML
- DBMS
- Applications ERP/CRM/PLM/SCM
- DW / BI / EPM

JVM
- Runtime WS
- Standalone Agent
**Enhanced Productivity**

Improves ease-of-use, speeds deployment

- New IDE based on JDeveloper
- Interface Editor leverages diagramming framework and includes Auto fixing
- Quick-Edit allows for faster interface design and mass updates
- Code Simulation
Flexible Connectivity
Improves ease-of-use, speeds deployment

- Application Adapters for Oracle E-Business Suite, PeopleSoft, Siebel, JD Edwards, SAP ERP and SAP BW.
- Oracle OLAP, Oracle CDC
- Hyperion Planning, Financial Management and Essbase
- Real-Time CDC with GoldenGate
- Optimizations for Teradata and multi-statements
- Oracle DB multi-table insert
- ADF-View Objects via OBI-EE
Improved Manageability
Implements ease-of-use, speeds deployment, lowers TCO

- Oracle Enterprise Manager for unified administration and management
- Enhanced error management – precise error messages, extended notifications
- Oracle Data Integrator Console manages run-time operations and browse run-time, design-time artifacts, errors
- Enhanced Session Control - stop immediate stale sessions
Real-time CDC Integration
Best-in-class solution for real-time with Oracle GoldenGate

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

ODI + Oracle GoldenGate
- 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
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Optimized Data Loading through E-LT
The key to improved performance and reduced costs

Conventional ETL Architecture

- **E-LT** provides flexible architecture for optimized performance

- **Benefits:**
  - Leverage Set-based transformations
  - Improved performance for loading, no network hop
  - Takes advantage of existing hardware

Next Generation Architecture

“E-LT”
ODI-EE Knowledge Modules
Pluggable Architecture for Improved Flexibility

Pluggable Knowledge Modules Architecture

Reverse Engineer Metadata → Journalize (CDC) → Load from Source to Staging → Check Constrains → Integrate, Transform → Data Service

Sample out-of-the-box Knowledge Modules

- SAP/R3
- Log Miner
- SQL Server Triggers
- Oracle DBLink
- JMS Queues
- Check MS Excel
- TPump/Multiloading
- Oracle Merge
- Oracle Web Services
- Siebel
- DB2 Journals
- DB2 Exp/Imp
- Oracle SQL*Loader
- Check Sybase
- Type II SCD
- Siebel EIM Schema
- DB2 Web Services

Key Architecture Benefits:

- Ease of maintenance,
- Flexibility, tailored to existing best practices,
- Reduces cost of ownership
Leverage Pre-Packaged Integration Solutions

Direct Pre-Built Integrations” - Data Integration made simple
- Oracle CRM On Demand Integration to Siebel CRM
- Siebel Life Sciences Integration for Oracle Adverse Event Reporting System
- Demantra Integration Pack for Siebel CRM Consumer Goods
- Oracle Transportation Management (Glog) Integration to E-Business Suite

Cross Industry Process Integration Packs - Design, Sell, Plan and Execute
- **Design to Release**
  - Agile Product Lifecycle Management integration Pack for Oracle E-Business Suite
- **Opportunity to Quote**
  - Oracle CRM On Demand Integration Pack for Oracle E-Business Suite
- **Order to Cash**
  - Siebel CRM Integration Pack for Oracle EBS Order Management
- **Trade Promotion Mgmt**
  - Siebel CRM Integration Pack for Trade Promotion Management

Industry Process Integration Packs - Transform key business processes
- **Comms** Order to Bill
  - Siebel CRM Integration Pack for Oracle Comms Billing and Revenue Management: Order to Bill
- **Comms** Customer care
  - Siebel CRM Integration Pack for Oracle Comms Billing & Revenue Management: Agent Assisted Billing Care
- **Comms** Revenue Accntg
  - Oracle Comms Billing and Revenue Management Integration Pack for Oracle E-Business Suite: Revenue Accounting
- **Banking** Acct Originations
  - Siebel CRM Integration Pack for i-flex FLEXCUBE Account Originations
- **Banking** Acct Originations
  - Siebel CRM Integration Pack for Banking Account Originations
Light E-LT Architecture with ODI-EE
High Performance, Flexible, Lightweight Architecture

- Key Architecture Benefits: 100% Java, Open APIs, fast E-LT
Best Data Warehouse Machine
Fastest E-LT Processing

• Massively parallel high volume hardware to quickly process vast amounts of data
  – Exadata runs data intensive processing directly in storage

• Most complete analytic capabilities
  – OLAP, Statistics, Spatial, Data Mining, Real-time transactional ETL, Efficient point queries

• Powerful warehouse specific optimizations
  – Flexible Partitioning, Bitmap Indexing, Join indexing, Materialized Views, Result Cache

• E-LT runs 20X faster only with Oracle
Service-based Data Integration
Best of Breed Data Integration as a SOA Service

- Decouple business apps from underlying data-centric applications
- Recombine existing services and app components instead of new development
- Orchestrate services to create custom view.

**Benefit**
- Enables efficiencies in transformation, data loading, data synchronization, all at improved performance
OBI EE Suite and ODI-EE

Data Lineage and Data Quality provides trusted data

- Support OLAP/R-OLAP sources and targets
- Report-to-source lineage
- Integrated Data Quality
- Common management: administration, monitoring, scheduling, auditing, exceptions
- Works with Oracle GoldenGate for improved real-time data access
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Accelerated Business Process Performance by 75%
Ross Stores

Business Challenges
- Connect 900+ store chains together for better managing inventory
- Eliminate data leakage – reduce costs for every missed order
- Standardize the business on a single approach to data integration and process management which would scale, be open and standards-based

Oracle Solution
- 120+ interfaces in production utilizing process orchestration and bulk data integration patterns with Oracle Data Integrator
- Oracle SOA Suite footprint spans across merchandising, supply chain and financial applications
- Integration with over 10 B2B trading partners

Return on Investment
- 75% improvement in business process execution times via SET based transformations (E-LT)
- Eliminated errors in inventory replenishment
- Built trusted integration across over 400 retail chains
- Heterogeneous sources helped lower total cost of ownership
Improved Data Quality and Consistency
Verizon

Oracle Solution
- SOA Suite and Oracle Data Integrator and Oracle Data Quality provided a shared data services framework
- New integration solution allows the operations team to process large data batch loads automatically

Business Challenges
- Services Operations dept maintains the infrastructure which integrates the various technologies used in the company
- Needed a single integration infrastructure to glue all disparate systems to create a consolidated view of client records
- Manual integrations required between systems led to high TCO

Return on Investment
- Improved data quality and consistency with data correction, monitoring, & audit capabilities
- Saved several millions of dollars by IT consolidation of applications
- 50% performance enhancement on batch processing
Achieved Faster time to Compliance
NYK Line

Business Challenges
- Needed a global shipping solution to meet new US Customs reporting mandates to notify Customs within 24 hours before a container was loaded on a ship in a foreign port.
- Tighter integration between key business software, e-commerce systems and corporate information management systems

Oracle Solution
- They have about 60 to 70 Oracle Data Integrator-based solutions running in production
- +10,000 ETL/E-LT jobs on a daily basis and moving about 25 million transactions per day
- Integrates data between e-commerce systems, partners, customers, legacy integration with regional systems, and (ERP)

Return on Investment
- Customers can now enter a tracking number and see where their container is anywhere in the world
- Met U.S. Customs Service requirements for 24X7 notification of all container movements in under a month
- Data Marts were in production within half a year
Delivered Actionable Business Insight

Nespresso

**Oracle Solution**
- Implemented Oracle Data Integrator to develop and supply a data warehouse from the consolidated operational transaction database of all countries
- Provided 100 gigabytes of available high-value-added actionable data on clients, orders, stock, etc.
- Developed and supplied a business data mart for marketing and CRM needs through Oracle Data Integrator

**Business Challenges**
- Enable marketing and CRM teams to better target its campaigns and activities across 50 countries
- Scale available for high-value-added actionable data on clients, orders, stock, etc.

**Return on Investment**
- Replaced weekly insertion with daily recording of change—allowing for more effective client follow-up
- Improved response times for production by transferring reporting processes to the data warehouse
- Improved reactivity for restocking requirements thanks to daily updates on stock quantity and value for each store
- Provided overall view of the status of business intelligence processing, thereby resulting in improved user communication

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Cut Costs by 50% of Custom ETL
Bank of Asya

Business Challenges
- Create a single customer view across multiple applications, databases
- Improve analysis capability and allow analysts to mine data without slowing the system
- Identify errors and anomalies in databases to improve reliability and maintain data quality

Oracle Solution
- Accelerated ETL processes with Oracle Data Integrator by 400%, cutting processing time from two days to four hours
- Reduced training time from two weeks to two days
- Improved ETL team collaboration—Oracle Data Integrator has made it possible to assign specific jobs to each team member

Return on Investment
- Cut costs by 50% by eliminating ETL hub server and ETL engine
- Improved analysis capability dramatically due to improved data availability and quality
- Reduced the time necessary to create complex queries from one day to five hours
- Eliminated serious errors in data by using error reporting
- Reduced human error in data entry
Increased DW Loads by 40%
Raiffeisen International Bank

Business Challenges
- Improve scalability to populate data warehouses across 12 countries
- Reduce number of hand-coded ETL jobs to minimize complexity and reduce high maintenance costs
- Minimize costs associated with system migrations and upgrades

Oracle Solution
- Implemented Oracle Data Integrator to standardize ETL for all processes and jobs across multiple financial chains
- Ensured a high-performance operation via horizontal and vertical scaling options
- Leveraged the flexible architecture of Oracle Data Integrator to develop a converter to automate the migration of ETL jobs

Return on Investment
- Provided efficient access to data sources and significantly improved data warehouse processing performance by up to 40%
- Reduced costs for migrations and upgrades across multiple regions
- Reduced risk of data gaps, data errors and synchronization of data across global regions
Faster Time To Value for Business Intelligence

Finansbank

Oracle Solution
- Implemented Oracle Data Integrator to implement all BI/DW loads
- Combined solution for Oracle Database, Oracle Performance Analyzer, Oracle Financial Data Manager to improve performance management

Business Challenges
- Implement an automatic data management system for business intelligence to reduce man time lost through manual coding
- Streamline systems for ease of use to reduce training time
- Improve data tracking capabilities to solve queries and ambiguities quickly and efficiently

Return on Investment
- Accelerate response delivery to business intelligence requests, reducing time needed from one day to one hour
- Cut learning period for new staff from about six weeks to three days
- Reduced time required to trace business intelligence data to its source from two days to a matter of seconds
- Reduce the time needed to identify the impact of changes to source data from weeks to just minutes
Oracle Solution
- Implemented **Oracle Data Integrator** to run more than 300 loading processes, with some processing more than 30 million records.
- Integrate 60 systems operating in environments that included RDB on Open VMS, SQLServer, Oracle, Sybase, and Object Store
- Employed a functional-oriented definition of its data movement and transformation rules

Business Challenges
- Simplify and centralize the distribution of internal data from the data warehouse
- Centrally integrate information across 13 distinct legal entities to improve data quality and centrally manage data access rights to improve security

Return on Investment
- Reduced data warehouse development times - improves the ability to optimize processes
- Simplified deployment of new processes for additional business entities—without requiring the company to edit a single line of code
- Delivered automatic consolidation of all essential banking and customer information
Real Results: Oracle Data Integrator EE
Reduce costs, improve performance, faster time to value

Cost Savings, Efficiencies
- Reduce development costs by at least 30%
- Improve the speed and accessibility of data by 50%

Reduce Risk
- Improve data quality by integrating cleansing as part of the process
- Eliminate accessibility issues by better connecting data

Business Insight
- End-to-end data lineage
- Ensure pervasive reach of BI/EPM applications to multiple source systems
Demonstration
An Introduction to ODI-EE
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Best Practices

1. Leverage E-LT and real-time data replication for real-time BI/DW
2. Commit to a service oriented architecture approach for increased agility
3. Leverage both pre-packaged Oracle solutions, Oracle Partners and Oracle Professional Services
For More Information

Get Started

• Visit the Oracle Fusion Middleware 11g web site at http://www.oracle.com/goto/fmw11g/index.html
• Oracle Data Integration on oracle.com www.oracle.com/goto/odi
• Oracle Fusion Middleware on OTN http://otn.oracle.com/middleware
• Information on GoldenGate: http://www.oracle.com/goldengate

Resources

• Blog: http://blogs.oracle.com/dataintegration
• Data Integration Events http://www.oracle.com/events
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