Migrating a Discoverer System to Oracle Business Intelligence Enterprise Edition

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Who am I

- Project Manager in TechnoLogica Ltd (http://www.technologica.com)
  - Oracle Partner since 1994
  - Oracle Approved Education Provider since 1995
  - Oracle Certified Advantage Partner since 2006

- Oracle BI&DW Architecture & Development Specialist

- Certified Oracle Trainer as from 2001

- 14 years experience with Oracle: Design, Development, Implementation
Agenda

- Oracle BI products overview and comparison
- Options for Discoverer customers
- Manual migration approaches
  - EUL objects
  - Workbooks
  - Operational environment
  - Workbook fine-tuning
  - Take advantage of all the new features
The Evolving Role of BI

From:

- Fewer users
- Historical data
- Fragmented view
- Reporting results
- Analytic tools
- Separate BI, CRM, ERP

To:

- Pervasive use
- Real-time, predictive data
- Unified, enterprise view
- Insight-driven Actions, Process Optimization
- Prebuilt analytic solutions
- Integrated Performance Management System
Oracle’s BI Product Strategy

- **Oracle BI Applications**
  - Analytic and Corporate Performance Applications
    - Enterprise Wide
    - Industry Specific
  - Business Intelligence Tools
    - Unified, enterprise view
    - Pervasive information delivery
    - Real-time, predictive data from heterogeneous data sources
    - Interactive visualization
- **Oracle BI Suite**
- **Oracle Data Warehousing**
  - Data Warehousing
    - OLAP and Data Mining options in the database
    - ETL tools
Oracle BI Suite EE

- Oracle BI Suite Enterprise Edition (OBIEE)
  - Oracle + Siebel
  - Powerful BI Server technology
  - BI presentation Tools

- OBIEE Plus = OBIEE + Hyperion products
What About Oracle Discoverer?

- Previous Oracle BI Platform
- Now part of Oracle BI Suite Standard Edition (OBISE)

![Diagram of Oracle BI components]

- Discoverer Plus
- Discoverer Viewer
- Portlet Provider
- BI Beans
- Discoverer OLAP
- Excel OLAP Add in
- Discoverer Administrator
- Discoverer Desktop
- EUL / BI Metadata
- Oracle AS
- Discoverer Services
- MOLAP
- ROLAP
- OLTP
## Product Components Mapping

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<th>OBIEE Plus</th>
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<td>Office integration</td>
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<td>Financial Analysis</td>
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What is More in OBIEE?

BI Server Technology

- **Unified BI metadata** for all end-user tools
  - Moving from “Report-centric” to “Model-centric” approach
  - Common Enterprise Information Model

- **Intelligence across multiple sources**
  - Real-time and historical data
  - Oracle and non Oracle data sources

- **Performance**
  - Caching, Summary management, SQL tuning
  - Load balancing across many presentation servers
What is More in OBIEE?

BI Presentation Tools

- Full ad hoc analysis over the Web
- Rich interactive dashboards with guided analytics
- Proactive detection, alerts and distribution
- Full MS Office integration
- Disconnected analytics for mobile users
- Multilanguage support
OBIEE is part of Oracle Fusion Middleware

- SOA and Web Services connectivity
- BPEL Process Manager integration
- Oracle Internet Directory and Single Sign-On Support
What is Less in OBIEE?

- No native access to OLAP cubes
  - Access through materialized views

- User interface
  - No ability to drill up
  - Missing wizards for using analytical and time-series functions
  - Missing wizards for creating reports in Answers
To Migrate or Not To Migrate?

- Stay on Discoverer (BI Standard Edition)
- Use Discoverer with BI Enterprise Edition
- Migrate Discoverer to BI Enterprise Edition
To Migrate or Not To Migrate?

Option 1: Stay on Discoverer (BI Standard Edition)

- Continued new releases and functionality
  Statement of Direction March 2008
- Covered by Oracle’s Lifetime Support
- Dedicated development team
- No forced migration
To Migrate or Not To Migrate?

Option 2: Use Discoverer with BI Enterprise Edition

- Use a Discoverer analysis as a source in BI Publisher
  (*from Discoverer 10.1.2.3*)

- Publish Discoverer analysis in BIEE Interactive Dashboards
  (*from Discoverer 11g*)

- Use BI EE Delivers for alerting & distribution of Discoverer analysis
  (*from Discoverer 11g*)
Option 3: Migrate Discoverer to BI Enterprise Edition

- Migration utility planned for **Discoverer 11g**
  - EUL metadata to OBIEE Common Enterprise Information Model
  - Discoverer Workbooks to Answers Requests
  - Post-migration work
    - Answers requests and Dashboards fine-tuning
    - Take advantage of all the new features

- Now: Manually recreate in OBIEE
  - Helps you understand how it all works
  - Useful for simple proof-of-concepts, demo systems
Migration Considerations

◆ STOP if
  ◆ your business case have not been confirmed
  ◆ your business sponsors and users have not adequately engaged
  ◆ your resources have not been appropriate aligned
  ◆ you don’t have a detailed, step-by-step implementation plan

◆ Move when ready
  ◆ Apply formal SDLC methodology
Migration Approach

1. Convert EUL to Repository Model
2. Workbook Conversion
3. Users & Roles migration
4. Favour the new features

OBIEE
- Presentation Services
- Presentation Catalog
- Answers

OBI Server
- OBI Repository
  - Common Enterprise Information Model
  - Presentation Model
  - Logical Model
  - Physical Model

Discoverer Server
- Discoverer Workbooks
- Discoverer EUL

DW / DM
Migration Approach

- **1st step:** Convert EUL to OBIEE Information Model
- **2nd step:** Workbook conversion
- **3rd step:** Security (users & roles)
- **4th step:** Favour the new features
Observe Discoverer EUL

- Investigate previous DW project documentation

- Access current use of Discoverer and review:
  - Range of workbooks
  - Defined objects in End User Layer
  - Defined users and privileges

- Arrange user interviews
  - Which reports do you frequently use?
  - What is not working with the current implementation?
  - Discuss requirements for new features (alerting, publishing, dashboards)
EUL into OBIEE Repository: 1 into 3

- End User Layer (EUL)
  - Discoverer metadata repository
  - Schema in a database

- BI Enterprise Edition RPD file
  - Metadata repository file in the file system
OBIEE Common Enterprise Information Model

**How** business users want to see their data

**What** is the business meaning of the data

**Where** are that data

The organization’s data
OBIEE Common Enterprise Information Model Physical layer

- Definition of source tables
- No data is moved
- Multiple sources
- Optimized SQL generation
- Regardless of Schema
OBIEE Common Enterprise Information Model Business Logical Layer

Business Model Layer
- Integrated view of the organization's data
- One logical source per all relevant enterprise data
- Historical + real-time data, whenever they reside
- Presented like Star schema (Facts, Dimensions, Drill Paths)
- Consistency of business metrics and calculations
OBIEE Common Enterprise Information Model Presentation Layer

- Role-based, in context, personalized presentation
- Oracle Answers, Oracle BI Publisher, 3rd party tools
OBIEE Common Enterprise
Information Model Model-centric approach

- Design goal for the BI Server metadata layer is to create:
  - **Integrated view** of the organization’s data
  - **One logical source** per all relevant enterprise data
    - Historical + *real-time* data, whenever they reside
  - Presented like **Star schema** (Facts, Dimensions, Drill Paths)
    - Integrated using BI server
    - Pre-integrated (data mart, data warehouse)
  - **Consistency** of business metrics and calculations
Map objects with similar metadata concepts

- Business Areas
- Folders
- Joins
- Hierarchies
- Item classes
- Calculated items
- Optional and mandatory conditions
- Complex folders
- Custom folders
- Summaries
Business Areas → Presentation Catalog → Answers Subject Area
EUL into OBIEE Repository

Folders

[Diagram of folder properties and database structure]
Physical Layer:
New physical table defined as of type ‘Select’

Oracle Answers:
Direct Database Request

Oracle Database:
View or Materialized view
OBIEE join types

- **Foreign key**: \( \text{Fact.DATE_ID} = \text{D_DATE.ID} \)
- **Complex**: \( \text{REP_DATE between DATE_FROM and DATE_TO} \)

Foreign keys from the database will be imported automatically into the Physical Layer.

Logical Layer

- **Foreign key joins** are allowed but **not recommended**
- Complex joins allows BI server to determine best join path
- Create physical joins before importing into Logical Layer

New joins can be defined using **Joins Manager** or **Physical Diagram window** or **Logical Table Diagram**
EUL into OBIEE Repository

Joins
EUL into OBIEE Repository
Complex Folders

◆ Logical table with more than one table mapped -
  Mapping
  ◆ BI server creates **one** physical query
  ◆ Use when you need columns from other joined tables
  ◆ Use when creating star schema from snowflake physical model

◆ Logical table with more than one source –
  Fragmentation
  ◆ BI Server creates **two or more** physical queries
  ◆ Executes **one** of the queries
  ◆ Use when gathering data from **different levels**
  ◆ Use when gathering data from **different systems** (OLTP, DW)
Define dimensions and hierarchies in Logical Layer to create **drill paths**

Hierarchy levels should have at least one key

Define **Preferred Drill Paths** to skip a level

Collapse snowflake data models from Discoverer into a star schema in OBIEE Logical Layer
 Explicitly specify time dimensions
- Requires at least one **Chronological Key** (DAY etc)
- Unique value for each hierarchy level
- No equivalent in BIEE
- Need to fit model into the **star schema** for logical business layer
- **Alias folders** used to satisfy multiple join paths
OBIEE uses its own SQL dialect

- Consistent calculation ability across DB platforms
- Function Shipping
- Difficult for migration

Calculations in the Business Logical Layer

- Creates “logical columns”
- Use ‘Evaluate’ to map to Oracle embedded functions

Calculations in Answers

- **Not recommended** for common business metrics
- Use pass-thru native SQL to take advantage of Oracle native analytical capabilities
- Perform calculations as close to the source data as possible
- Use dedicated OLAP technology if available
- Use BI Server to provide features not found in sources
No Item Class equivalent in BI EE
- LOV’s are generated at run time automatically

Filters
- Mandatory: on Logical data source layer
- Optional: as filters in Answers

Summaries
- Materialized views in BI Server
- Materialized view in the database
- OLAP cube in the database
◆ One Logical Table can be presented in more than one Presentation Catalogs

◆ Answers Request uses tables in current Subject Area (different from Discoverer)

◆ Group related items in Presentation Folders

◆ Use Rename Wizard to clean up table and column names
Migration Approach

- **1st step:** Convert EUL to OBIEE Information Model
- **2nd step:** Workbook conversion
- **3rd step:** Security (users & roles)
- **4th step:** Favour the new features
Discoverer Objects Migration

Worksheets in a workbook

Discoverer Worksheets → Answers Requests
Discoverer Objects Migration
Creating a request in BI Answers

- Choose Subject Area
- Choose Presentation Columns
- Use tabs to fine-tune the request
- Preview the results
- Save the request
- Share request thorough Manage Catalog window
No direct equivalent to workbook in BI EE

- **Dashboards** or **tab pages** or **sections**
  can be used to group functionally related requests

- A dashboard can be related to > 1 data source

- Workbook parameters <-> Dashboard prompts

- Worksheet parameters <-> Answers request prompts
Create Dashboards
Create Tab Pages
Create Sections within a Tab Page
Add dashboard prompts
Add Requests
Save/preview the dashboard
Migration Approach

1st step: Convert EUL to OBIEE Information Model

2nd step: Workbook conversion

3rd step: Security (users & roles)

4th step: Favour the new features
Operational environment

Security

- User accounts definition
  - Explicitly in BI Server via Security Manager
  - In external source
- Roles -> Groups
- Authentication
  - LDAP Authentication
  - External Table Authentication
  - Database Authentication
- Row Level Security
  - Oracle VPD or on a Logical Table level
Migration Approach

◆ 1st step: Convert EUL to OBIEE Information Model
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◆ 4th step: Favour the new features
Enjoy the New Features

- Take advantage of new Answers and Dashboard features
- Add alerts, guided analytics in Oracle BI Delivers
- Print and distribute reports using BI Publisher
- Disconnected and mobile mode
- Write back option for budget and planning
Oracle Answers New Features

- Extra capabilities for conditionally format results:
  - Icons in tables
  - Conditional chart formatting

- Extra visualization options in BI EE
  - Gauges, Narrative, Ticker

- Drag and drop layout editing
Interactive Dashboards
New Features

◆ Local time display

◆ New Content Types
  ◆ Link or Image
  ◆ Embedded content
  ◆ Guided Navigation Links
  ◆ Briefing book navigation
  ◆ BI Publisher Report
Summary

- Migrating Discoverer to Oracle BI Enterprise Edition is a relatively straightforward task
  - Move when ready
  - Do now manually, or wait for migration utility
  - Migrate similar metadata concepts: 1 into 3 does work!

- Benefits of Oracle BI Enterprise Edition
  - Access multiple different data sources
  - Interactive Dashboards
  - Pure thin client interface
  - Alerting, scheduling and distribution
  - Hot Pluggable
  - Highly scalable architecture
Thank You

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