Oracle Business Intelligence 11g and Data Warehousing Technology & Applications Integration Points

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Today’s Reality
Moving toward a Cleaner Architecture

APPLICATIONS

- CRM APPS
- SCM APPS
- OPERATIONS
- WEBSITES
- FINANCIALS
- DISTRIBUTION
- ERP APPS
- CUSTOM APPS

MASTER DATA

- MDM APPLICATIONS
- Master Data
- Data Warehouse

ANALYTICS / APPS SERVERS

- BI 11g
- ...
Oracle Business Intelligence 11g

**Common Enterprise Information Model**

- Common Metadata Foundation across all Data Sources
- Common Security, Access Control, Authorization, Auditing
- Common Request Generation and Optimized Data Access Services
- Common Clustering, Workload Management, & Deployment
- Common Systems & Operational Lifecycle Management

**OLTP & ODS Systems**
- Data Warehouse
- Data Mart

**OLAP Sources**
- Exadata

**Packaged Applications**
- Oracle, SAP, Others

**Unstructured & Semi-Structured**
- Excel
- XML/Office

**Business Process**
Oracle Database 11g
The Leading Enterprise Database

Key Capabilities
- Flexible Data Models
- Leading Performance
- Single Point of Management
- Secure
- 24X7 Availability
- Optimal Storage Management
- Scale to hundreds of Terabytes & large analyst communities
Oracle Exadata
Extreme Performance

• Fastest growing new product in Oracle’s history
• Server & Storage Integrated Hardware & Software Platform
  – Data Warehousing
  – OLTP
  – Consolidation

“After carefully testing several data warehouse platforms, we chose the Oracle Database Machine. Oracle Exadata was able to speed up one of our critical processes from days to minutes.”

Brian Camp
SVP, Infrastructure Services Knowledge Base Marketing
Oracle BI, Oracle Database & Exadata

Hardware and Software
Engineered to Work Together

ERP & CRM BI Applications
Industry BI Applications

Business Intelligence Foundation
WebLogic Server

Oracle Database
Embedded Analytics
Spatial Geocodes

Exadata Storage Server Software

Oracle Exadata Database Machine
Database Server Nodes
Exadata Storage Cells

Common Security
Enterprise Manager
Technology Integration
Better BI/DW With Oracle Fusion Middleware

Applications
Middleware
Database
Infrastructure & Management

Development Tools
User Experience
Content Management
Business Intelligence
SOA & Process Management
Data Integration
Application Grid
Identity Management
Enterprise Management
Best Performance
**Oracle BI 11g and Exadata**

- Intelligent Request Generation
- Intelligent Function Shipping
- With multi-pass calculations
- Intelligent Aggregate Navigation
- Intelligent Caching
- Optimized Distributed Data Access
Best Performance and Scalability
Oracle Business Intelligence + Exadata

Large US Grocery
• Up to 457x Faster queries
• 1 second vs. 7.6 minutes

Global Bank
• 9.2x to 27.6x Faster queries

Major US Bank
• 14x – 752x Faster queries,
• 5 hour query reduced to 17 seconds
Real-Time Data Warehousing on Exadata

Business Challenges

- Supporting campaigns management with timely customer information
- Reducing batch windows while data increases and improving the performance of ETL and reporting

Solution

- Oracle GoldenGate feeds real-time data from CRM, Billing and other key systems to operational data store
- Oracle Data Integrator extracts from the ODS and loads near real-time data to Exadata DW
  - New solution replaced IBM Infosphere Data Stage
- OBI EE is used for real-time reporting

Return on Investment

- Access to timely data for customer segmentation in the Siebel CRM campaign management system
- Batch window for the DW decreased by 50%
- Number of reports generated from the DW has increased by 10 times
Spatial Integration

Uncover Patterns Hidden in Tables

• Use geographic insights to innovate business processes
  • Manage location-based assets, people and property
  • Optimize service and sales territories for greater efficiencies
  • Deploy networks, infrastructure and utilities with confidence
  • Map resources, plan logistics and prepare for emergencies
OLAP Integration

• First, seamless ROLAP & OLAP Browser Interface

• OLAP Query Building
  – Member selection
  – Calculated members
  – Hierarchical calculations
  – Custom aggregates

• Navigate across relational and multidimensional sources
  – Shared metadata, calculations, dimensions, security
  – Ragged & skip-level hierarchies
  – Performance for each source
Unified Management & Security

- Enterprise Manager for all components / entire life cycle
  - Automates operational tasks
    - Develop, test & deploy including scale-out
    - Patch & upgrade cycles including HA patching
  - Performance monitoring & tuning

- Integrated security
  - Single Sign-on across the stack
  - Integrated with identity management
  - Oracle Virtual Private Database, database encryption & data masking recognized
Solutions Integration
"By having all of the pieces in the stack—from the silicon all the way up to the application—we'll be able to deliver systems that run faster, are fault-tolerant, are highly secure — much more secure, much more performance, much more cost-effective, much easier to use than we ever could have delivered by simply delivering components."

Larry Ellison
CEO, Oracle
**Oracle BI Applications**  
Complete, Prebuilt, Best Practice Analytics

### CRM Analytics

<table>
<thead>
<tr>
<th>Sales</th>
<th>Marketing</th>
<th>Service &amp; Contact Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pipeline Analysis</td>
<td>Campaign Effectiveness</td>
<td>Service Effectiveness</td>
</tr>
<tr>
<td>Forecast Accuracy</td>
<td>Customer Insight</td>
<td>Customer Satisfaction</td>
</tr>
<tr>
<td>Up-sell/Cross-sell</td>
<td>Product Propensity</td>
<td>Resolution Rates</td>
</tr>
<tr>
<td>Cycle Times</td>
<td>Market Basket Analysis</td>
<td>Service Rep Efficiency</td>
</tr>
<tr>
<td>Lead Conversion</td>
<td>Campaign ROI</td>
<td>Service Cost</td>
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<tr>
<td>Sales Team Effectiveness</td>
<td></td>
<td>Service Trends</td>
</tr>
</tbody>
</table>

### ERP Analytics

<table>
<thead>
<tr>
<th>Financials</th>
<th>Procurement &amp; Spend</th>
<th>Supply Chain &amp; Order Mgmt</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Ledger</td>
<td>Direct &amp; Indirect Spend</td>
<td>Revenue &amp; Backlog</td>
</tr>
<tr>
<td>Accounts Receivable</td>
<td>Buyer Productivity</td>
<td>Inventory Analysis</td>
</tr>
<tr>
<td>Accounts Payable</td>
<td>Contract Compliance</td>
<td>Fulfillment Status</td>
</tr>
<tr>
<td>Cash Flow</td>
<td>Supplier Performance</td>
<td>Customer Status</td>
</tr>
<tr>
<td>Profitability</td>
<td>Purchase Cycle Time</td>
<td>Order Cycle Time</td>
</tr>
<tr>
<td>Expense</td>
<td>Employee Expense</td>
<td>BOM Analysis</td>
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<tr>
<td>Management</td>
<td></td>
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</tbody>
</table>

### Price

<table>
<thead>
<tr>
<th>Price Segments</th>
<th>Price Waterfall Analysis</th>
<th>Deal Life Cycle</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Deal Desk Analysis</td>
<td>Product Pricing Performance</td>
</tr>
</tbody>
</table>

### Loyalty

<table>
<thead>
<tr>
<th>Member Demographics</th>
<th>Membership Trends</th>
<th>Promotion Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Promotion Effectiveness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Points Analysis</td>
</tr>
</tbody>
</table>

### Projects

<table>
<thead>
<tr>
<th>Project Funding and Budget</th>
<th>Product Cost</th>
<th>Project Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Billing</td>
<td>Project Profitability</td>
<td></td>
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</tbody>
</table>

### Human Resources

<table>
<thead>
<tr>
<th>Employee Productivity</th>
<th>Compensation</th>
<th>Talent Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recruiting Analysis</td>
<td>Learning Analysis</td>
<td>Workforce Profile</td>
</tr>
</tbody>
</table>
Oracle BI Apps Product Components

Example: Financial Analytics

1. Pre-built warehouse with 16 star-schemas designed for analysis and reporting on financial analytics

2. Pre-built ETL to extract data from over 3,000 operational tables and load it into the DW, sourced from PSFT, Oracle EBS and other sources

3. Pre-mapped metadata, including embedded best practice calculations and metrics for financial, executives and other business users
   - Presentation layer
   - Logical business model
   - Physical sources

Architecture for HR in Financial Services

FTP
- FTP Server
- Storage
- FTP Server
- Storage
- FTP Server
- Storage

ETL
- Informatica
- Informatica
- Informatica

Exadata
- Reporting
- HR DW
- Data distribution

OBI EE
- OBI Server
- Local cache
- OBI Server
- Local cache
Oracle Industry Data Models

- Deep communications, financial services, healthcare, retail & utilities knowledge combined with Oracle software expertise
- Jump-starts design and implementation
- Optimized for OBIEE, Oracle Database 11g and Oracle Exadata
Example: Oracle Retail Data Model

- Industry-standard compliant
- Addresses key retail business areas
  - 1200+ retail measures and KPI
  - Pre-built 15+ OLAP cubes
  - Pre-built 12+ data mining models
  - Extensive business intelligence metadata
- Easily extensible and customizable
- Works with any POS application
# Retail Business Area Coverage

## Example Analytics

<table>
<thead>
<tr>
<th>Business Area</th>
<th>Example Analytics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Store Operations</td>
<td>Comparative Store Analysis, Traffic Pattern</td>
</tr>
<tr>
<td>Point of Sale</td>
<td>Multi Channel Analysis &amp; Performance, POS Flow, Shopper Conversion</td>
</tr>
<tr>
<td>Loss Prevention</td>
<td>Unusual Transactions, Hidden Patterns, Attribute Importance, Statistical Outlier</td>
</tr>
<tr>
<td>Merchandising</td>
<td>Product Affinity &amp; Mix, Growth and Trend, Contribution Analysis and Performance, Item-Basket, Fast &amp; Slow Movers, Flexible Hierarchy</td>
</tr>
<tr>
<td>Order Management</td>
<td>Order Fulfillment, Integrated Analytic between e-commerce and Retail</td>
</tr>
<tr>
<td>Inventory</td>
<td>Forecast out-of-stock, Zero Selling, Inventory State Analysis, Vendor Scorecard, GMROI</td>
</tr>
<tr>
<td>Category Management</td>
<td>Shelf Analysis, Space Utilization, GMROS, Customer Purchase vs. Syndicated Data, Plan-o-gram Support</td>
</tr>
<tr>
<td>Workforce Management</td>
<td>Employee Utilization, SPIFF &amp; Split Commission Analysis</td>
</tr>
<tr>
<td>Customer</td>
<td>Customer Clustering &amp; Segment, Creation, Migration, Demographic, Psychographic and Behavioral Analysis</td>
</tr>
<tr>
<td>Promotion</td>
<td>Causal Factor, Halo Impact &amp; Promotional Lift</td>
</tr>
</tbody>
</table>
Hardware and Software
Engineered to Work Together

• Oracle is **most popular database for Oracle BI**
• **Integration with Oracle OLAP & Spatial**
• Single sign-on / **integrated security**
• **Common management** through Enterprise Manager
• Oracle provides **single point of support**
• **Common implementation partners** / consultants
• **Common Fusion & Applications vision**
• Growing number of **industry solutions**
• Better integration = **lower TCO**
• Common **focus on openness** and standards
More Information Needed?

- For more information on Oracle’s BI and Exadata products, see:
  - http://www.oracle.com/bi