

ORACLE OLAP

KEY FEATURES AND BENEFITS

FAST ANSWERS TO TOUGH
QUESTIONS... EASILY

KEY FEATURES & BENEFITS

- World class analytic engine
- Superior query performance
- Simple SQL access to advanced analytics
- Enhanced summary management with Cube-organized materialized views
- Leverages Oracle Database security, manageability, scalability and availability infrastructure

Oracle OLAP is a world class multidimensional analytic engine embedded in Oracle Database 11g Release 2. Oracle OLAP cubes deliver sophisticated calculations using simple SQL queries - producing results with speed of thought response times. This outstanding query performance may be leveraged transparently when deploying OLAP cubes as materialized views – enhancing the performance of summary queries against detail tables. Because Oracle OLAP is embedded in Oracle Database 11g, it allows centralized management of data and business rules in a secure, scalable and enterprise-ready platform.

Embedded, Manageable, Enterprise-Ready OLAP

Oracle OLAP delivers advanced multidimensional analytic capabilities within Oracle Database 11g Release 2. It is designed to provide excellent query performance, fast incremental updates of data sets, efficient management of summary data and rich analytic content.

Oracle OLAP makes it easy to produce analytic measures, including time-series calculations, financial models, forecasts, allocations, regressions, and more.

Hundreds of analytic functions can be easily combined in custom functions to solve nearly any analytic calculation requirement. Oracle OLAP cubes are represented using a star schema design: dimension views form a constellation around the cube (or fact) view. This standard representation of OLAP data makes it easy for any SQL-based tool or application to leverage the power of Oracle OLAP.

As an embedded component of Oracle Database 11g, Oracle OLAP benefits from the manageability, scalability, high availability and security features that make the Oracle Database the market leading information platform:

- Oracle OLAP is embedded in the Oracle Database kernel and runs in the same database process
- OLAP cubes are secured by standard Oracle Database security features (e.g. Virtual Private Databases)
- Oracle OLAP fully leverages scalability and high availability features such as Real Application Clusters and Automatic Storage Management.
- Queries against OLAP cubes may be combined with other types of data managed by the Oracle Database – including spatial, XML, documents, etc.
- Oracle OLAP is enhanced by Exadata features such as Smart Flash Cache.

From a total cost of ownership perspective, Oracle OLAP represents an incremental investment in the Oracle Database you already own. Oracle OLAP does not require separate server computers. It allows you to leverage your current capital and intellectual investment and to continue to use your existing SQL-based applications. Using Oracle OLAP enables these applications to simply become smarter and faster.

Oracle OLAP in the Data Warehouse

Oracle OLAP is an ideal technology to enhance the performance layer of the data warehouse. A single OLAP cube benefits multiple applications by simultaneously providing several access paths. Cubes may be queried using:

- Oracle Business Intelligence Enterprise Edition.
- Cubes and dimensions can be queried directly using SQL.
- Cubes can be queried by Microsoft Excel PivotTables and other MDX-based tools using the MDX Provider for Oracle OLAP.
- Cubes can be queried indirectly when deployed as a cube-organized materialized view (Cube MV). Cube MVs augment your summary management strategy. Automatic query rewrite redirects summary queries against a fact table to the cube – transparently improving query performance.

Oracle Business Intelligence Enterprise Edition and Oracle OLAP

Use Oracle cubes to enhance both the performance and analytic content of OBIEE dashboards and ad-hoc reports.

Oracle Business Intelligence Enterprise Edition (OBIEE) can be used to query Oracle cubes in both tabular and multidimensional report styles. Cubes can be queried using OBIEE 10 and 11 in the traditional row and column style report using SQL. OBIEE 11 provides additional support for OLAP, offering the option of querying cubes with the dimensionally oriented pivot table.

For both OBIEE versions 10 and 11 administrative tools automatically create ready-to-use subject areas in the OBIEE repository, allowing cubes to be queried in OBIEE in just a few minutes.

Direct SQL Query of the Cube

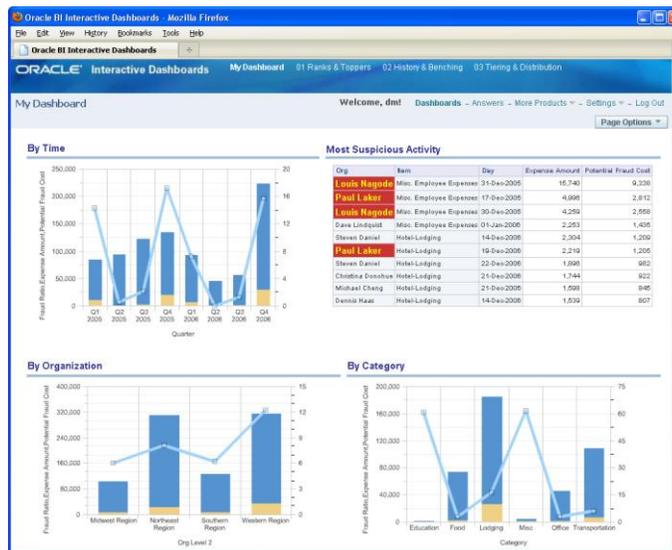
A cube, including summary data and calculations, can be queried directly by SQL-based applications. Dimension views, hierarchy views and cube views are provided for this purpose. The analytic content embedded in the cube and revealed through views allows even the most basic SQL-based reporting tools to deliver high-end OLAP content.

Cubes present both summary data and analytic measures as fully computed. Calculation rules defined in the cube are used to ensure the correct results. Defining this metadata in the cube greatly simplifies the SQL required to query the cube because applications are not burdened with the need to understand how the data is computed – they simply select the information that they need. For example:

- Analytic calculations are exposed as additional fact columns in the cube view. The application queries sophisticated calculations by simply selecting columns

from the cube view.

- All summary data is available in the cube view. This is especially useful when aggregation rules are complex (e.g. headcount sums over organization but aggregates using last over time). The application simply selects data at the correct level of summarization; it does not need to include aggregation functions and GROUP BY in the query.
- Partitioned outer joins are automatically and efficiently executed within the cube as needed by analytic calculations. For example, time series functions such as leads, lags and parallel periods are automatically “densified” in the cube, thus eliminating the need for complicated outer join syntax in SQL queries.



Oracle Business Intelligence Enterprise Edition Leverages OLAP Cubes

Using Microsoft Excel PivotTables and MDX-Based Tools with Oracle Cubes

Dimensionally aware tools such as Microsoft Excel PivotTables can query Oracle cubes using the MDX Provider for Oracle OLAP. This allows Excel to query Oracle cubes using a simple two tier deployment, eliminating the need to export data to separate Excel spreadsheets. Users get timely access to data in a familiar tool. (The MDX Provider for Oracle OLAP is available from Simba Technologies Inc.)

Summary Management With Cube-Organized Materialized Views

SQL-based applications can also use the cube to enhance a summary management solution. In this use of the cube, summary data is managed within the cube and revealed to the application as a cube-organized materialized view. The application continues to query the detailed level data in relational tables, expressing queries for summary level data with an aggregation function and GROUP BY. The automatic query rewrite feature of the Oracle Database rewrites the query to the cube-organized materialized view. The result is improved query performance without any changes to the application.

The cube-organized materialized view is managed using standard materialized view

refresh policies and procedures. Incremental updates to the cube will be performed using materialized view logs or partition change tracking.

Improving the Business Intelligence Solutions You Already Own

The vast majority of BI solutions query relational schemas that have been implemented using a star schema design. Oracle OLAP has been designed to be compatible with these BI solutions. Because OLAP cubes are exposed using a traditional star design, BI solutions can easily query cubes and gain access to their rich analytic content. BI administrators experience tremendous productivity gains from the automatic generation of Oracle Business Intelligence Enterprise Edition metadata over cubes. End users benefit from excellent query performance and enhanced content in business intelligence applications.

Centralized Management of Key Business Intelligence Assets

Metadata (e.g. dimensions, hierarchies, cubes), calculation rules and KPIs are key assets of a BI solution and the organization that owns it. Oracle OLAP allows organizations to manage these assets within the Oracle Database and share them among any number of BI and reporting tools. Applications simply query the Oracle data dictionary views to discover the properties of the business model. This management strategy allows the Oracle Database to be a single version of the truth.

RELATED PRODUCTS

Oracle OLAP delivers fast answers to complex analytic questions using simple SQL. It transparently enhances the performance of business intelligence solutions using cube-organized materialized views. Oracle OLAP is embedded in Oracle Database 11g Release 2, allowing it to leverage the security, manageability, scalability and availability features of the industry's leading database platform.

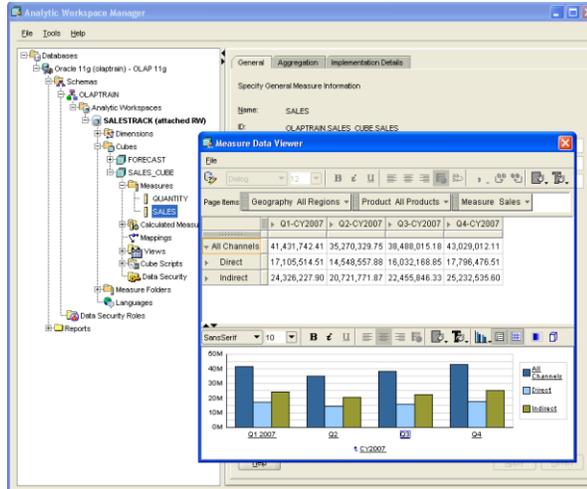
The following products are typically used with Oracle OLAP:

- Oracle Database Enterprise Edition
- Oracle Partitioning
- Oracle Data Integration Enterprise Edition
- Oracle Data Mining
- Oracle Exadata Database Machine
- Oracle Business Intelligence Enterprise Edition

Managing Cubes

Analytic Workspace Manager is a graphical administrative tool that is designed specifically to manage OLAP cubes and dimensions. Using Analytic Workspace Manager, the DBA or application developer designs dimensions, hierarchies, cubes, measures, aggregation rules, forecasting rules, allocations and security policies for cubes and dimensions.

Programmers may use the Oracle OLAP API to create and manage the cubes. The Oracle OLAP API is a high level Java API that facilitates the creation of cubes and dimensions, as well as the maintenance of these objects. The API naturally reflects the logical business model – enabling Java-based applications to easily define and query OLAP cubes.



Managing Cubes Using Analytic Workspace Manager

Oracle Exadata Database Machine

The Oracle Exadata Database Machine is the ideal platform for Oracle OLAP. As a well balanced machine with ample processing power, memory and fast disk, Exadata is able to support the largest cubes and user communities. The real ‘magic’ of OLAP on Exadata is Smart Flash Cache. Cubes can be kept in Smart Flash Cache memory to support the most demanding workloads with most queries returning in less than a second.

Contact Us

For more information about Oracle OLAP, please visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.



Copyright © 2009-2012 Oracle and/or its affiliates. All rights reserved.

This document is provided for information purposes only and the contents hereof are subject to change without notice. This document is not warranted to be error-free, nor subject to any other warranties or conditions, whether expressed orally or implied in law, including implied warranties and conditions of merchantability or fitness for a particular purpose. We specifically disclaim any liability with respect to this document and no contractual obligations are formed either directly or indirectly by this document. This document may not be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without our prior written permission. Oracle is a registered trademark of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners. 0109