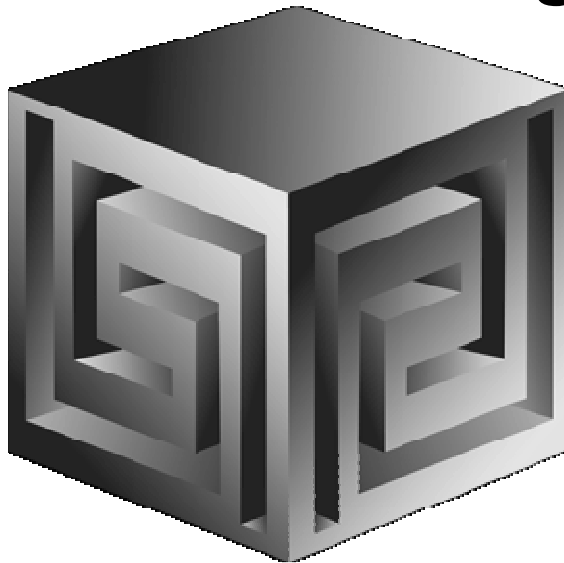


Using Warehouse Builder for Business Intelligence

Oracle OpenWorld '07

Session S291027



Chris Claterbos
claterbos@vlamis.com

Dan Vlamis
dvlamis@vlamis.com
Vlamis Software Solutions, Inc.
<http://www.vlamis.com>

Copyright © 2007, Vlamis Software Solutions, Inc.



Vlami Software Solutions, Inc.

- **Founded in 1992 in Kansas City, Missouri**
- **Oracle Partner and reseller since 1995**
- **Specializes in ORACLE-based:**
 - ☐ **Data Warehousing**
 - ☐ **Business Intelligence**
 - ☐ **Data Transformation (ETL)**
 - ☐ **Web development and portals**
 - ☐ **Express-based applications**
- **Delivers**
 - ☐ **Design and integrate BI and DW solutions**
 - ☐ **Training and mentoring**
- **Expert presenter at major Oracle conferences**





Who Am I?

- **Chris Claterbos, Consulting Manager**
 - ❑ Consulting and Development Manager for Vlamis Software Solutions, Inc.
 - ❑ DBA and applications developer for Oracle products, since 1981.
 - ❑ Beta tester and early adopter of - including Oracle 8i, 9i, 10g and 11g, JDeveloper and BIBeans, Oracle AS, Portal , and Reports.
 - ❑ Speaker and author.
 - ❑ Previous IOUG Focus Area Manager for Data Warehousing and BI



Using OWB to Create OLAP Databases

- Introduction
- Oracle 11g and OLAP
- What is OWB?
- What is New in OWB 11g?
- Oracle 10/11g Integration
- Design objects
- The Process
- Demonstration
- Managing an OLAP project
- Tips and Issues
- 11g OLAP New Features
- Questions



**2006 and 2007 have been
important years for Business
Intelligence!**

Market Position



QuickTime™ and a
decompressor
are needed to see this picture.

Customers need a Unified View

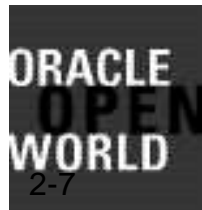
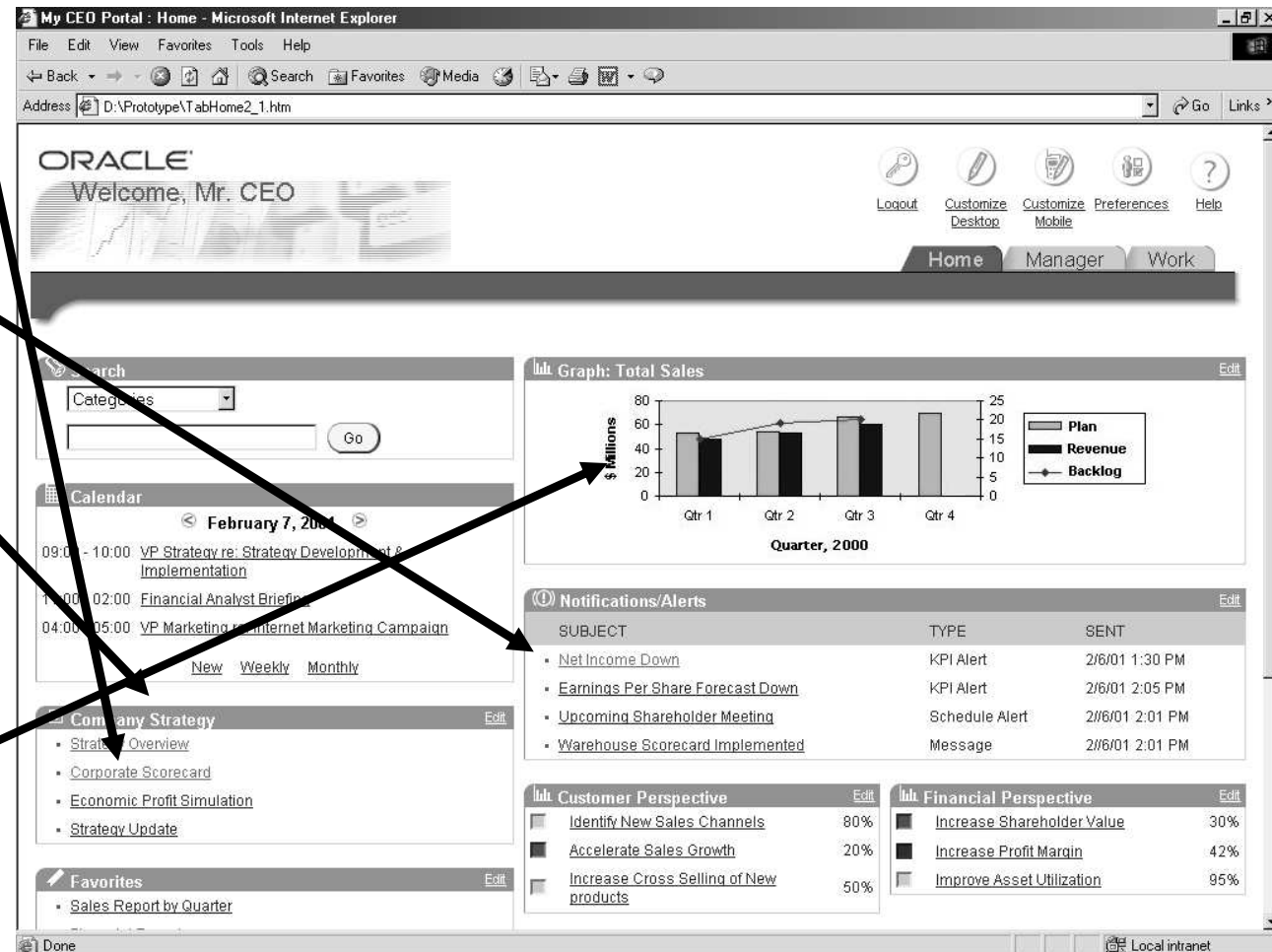


Planning

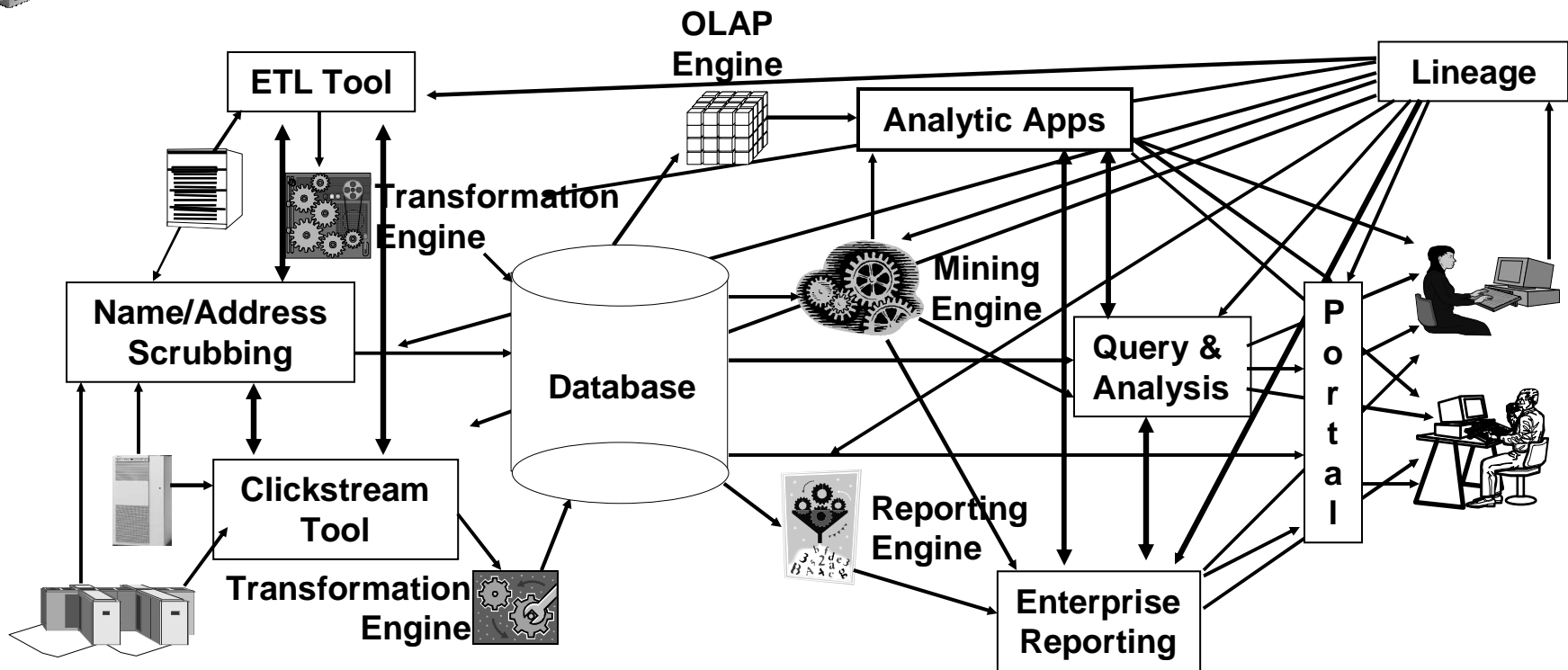
Monitoring

Analysis

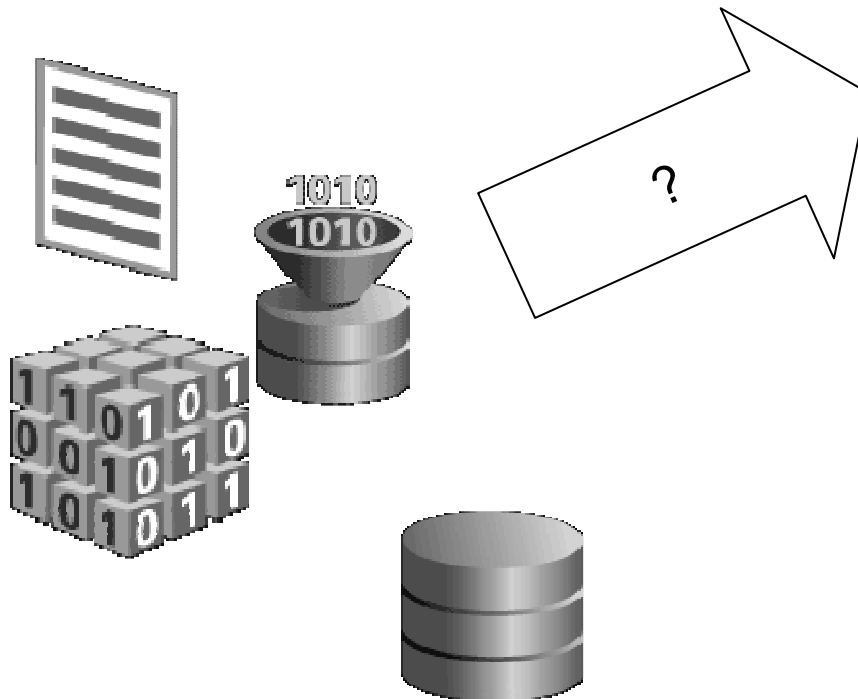
Reporting



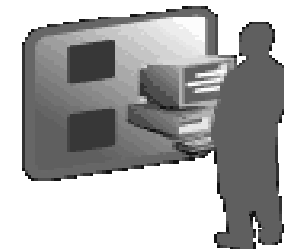
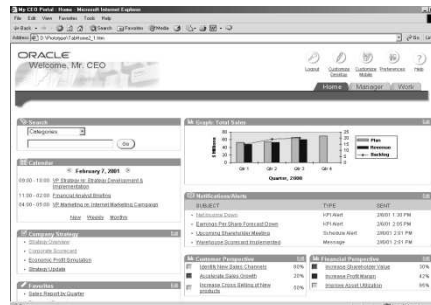
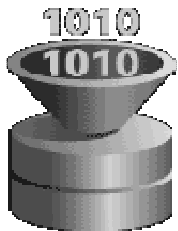
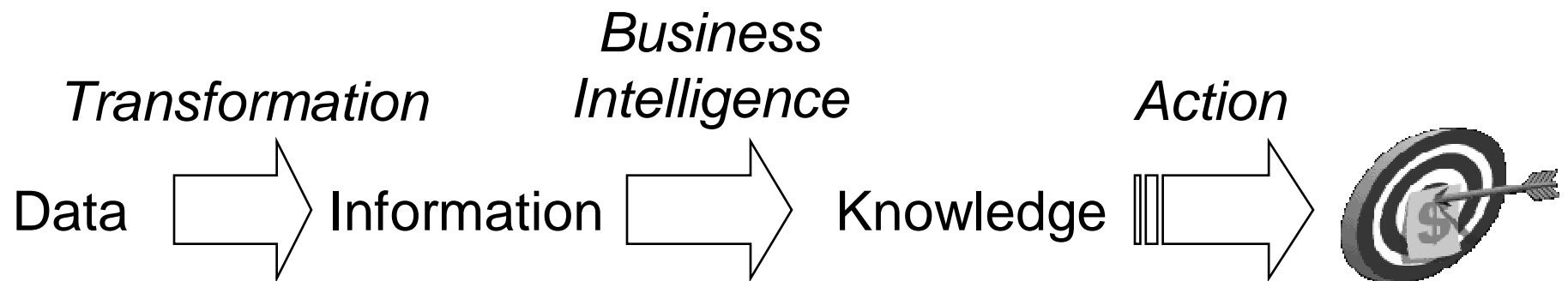
Business Intelligence Market Multi-Vendor, Un-integrated

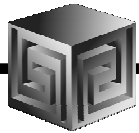


- Protracted and complex implementation
- Escalating maintenance costs
- Software ***and Metadata*** Integration is key!

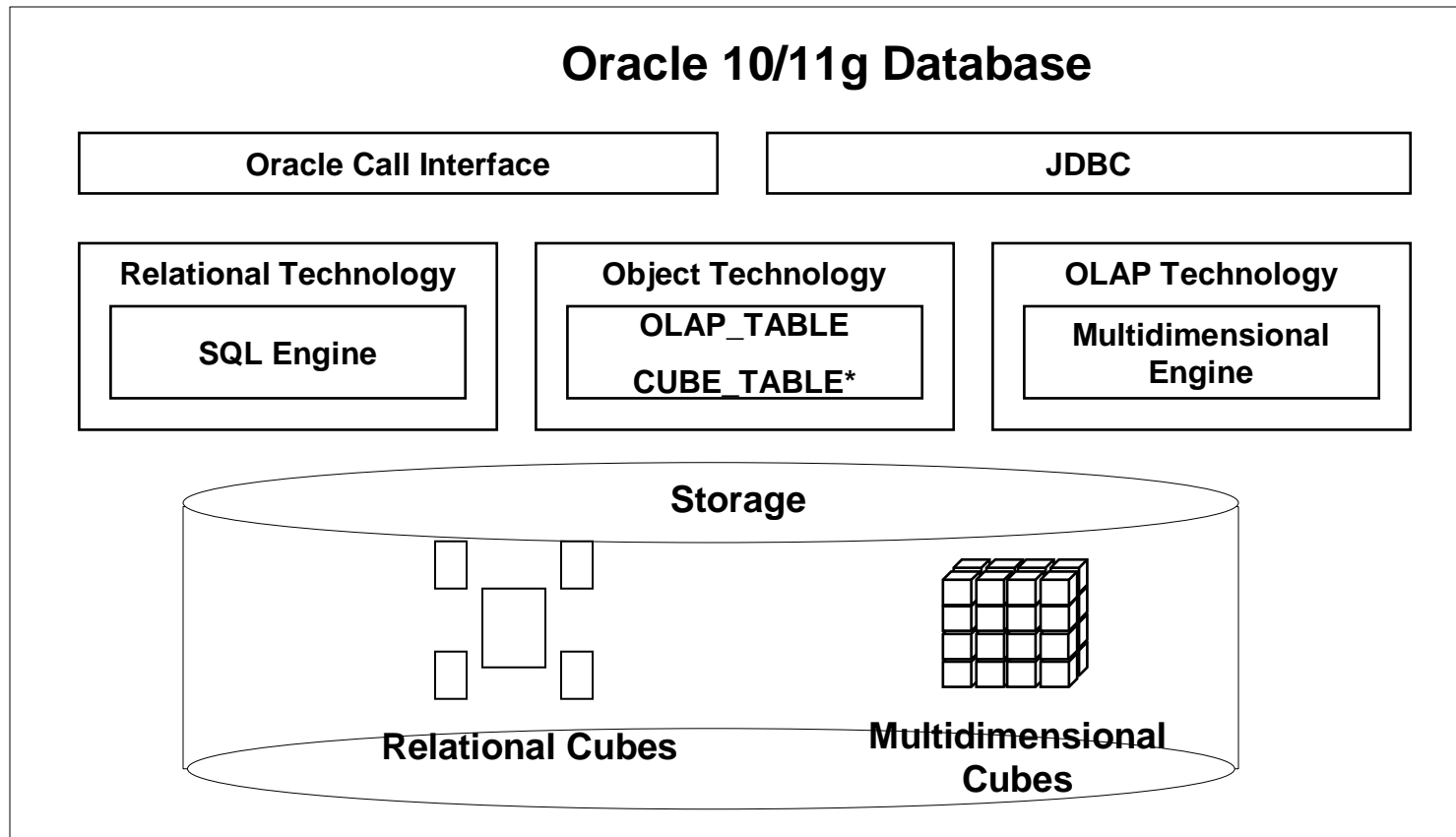


Turning Data into Profit....





Oracle RDBMS - MDDS





What Does Oracle OLAP Add?

- **Multidimensional user view of data**
- **Users create own reports**
- **Users create own measures**
- **Easy drill-down, rotate**
- **Iterative discovery process (not just reports)**
- **Ad-hoc analysis**
- **Easy selection of data with business terms**
- **What-if, forecasting**
- **OLAP Cube can replace Materialized Views (11g)**



What Makes a DW OLAP-Ready?

- **Star or Snowflake schema design**
- **Simple or complex dimension tables (level-based)**
- **Each child has single parent (no many-to-many)**
- **Total level at top of each dimension (except Time?)**
- **End_date and Timespan attributes for TIME**
- **Unique descriptions across all levels**
- **Fact tables with additive measures**



Some New Features in OWB 11g

- **New Connectivity Options**
 - ☐ 11g Database Support
 - ☐ Siebel (BIEE) Connector
 - ☐ Gateway 11g Support
- **Simplified Installation**
 - ☐ Installs with the DB
 - ☐ Includes Workflow with OWB install
- **Enhanced SQL Generation**
 - ☐ Advanced aggregation support (Cube/Rollup)
 - ☐ DML error logging in mappings



Some New Features in OWB 11g

- **More Dimensional Support**
 - ☐ Hierarchy versioning
 - ☐ Support for multiple hierarchies

Next Release ADDS!

- **Support for OBI EE**
 - ☐ Derive metadata from data models in OWB
 - ☐ Create Objects in OBI EE
- **Generates OBI EE repository File**

Why OWB to build Dimensional Warehouse?



- Integrated with entire Oracle stack
- Graphically designs, generates, and deploys
- Only ETL tool that understands Oracle OLAP
- Uses 10/11g PL/SQL for transformations
- One-click deployment of 10g OLAP AW



What is Oracle Warehouse Builder?

- **Integrated Tool for Data Warehousing**
- **Based on Common Warehouse Metadata Standard (OMG)**
- **Supports Design and ETL Functions**
- **Enterprise Framework for Designing and Deploying Datawarehouses and Datamarts**



Key OWB themes

- Improved User Interface
- Enabling Quality Information
- Enabling Business Intelligence
- Enabling Expertise capture
- Signification improvements in usability and functions over previous releases



Sources & Targets

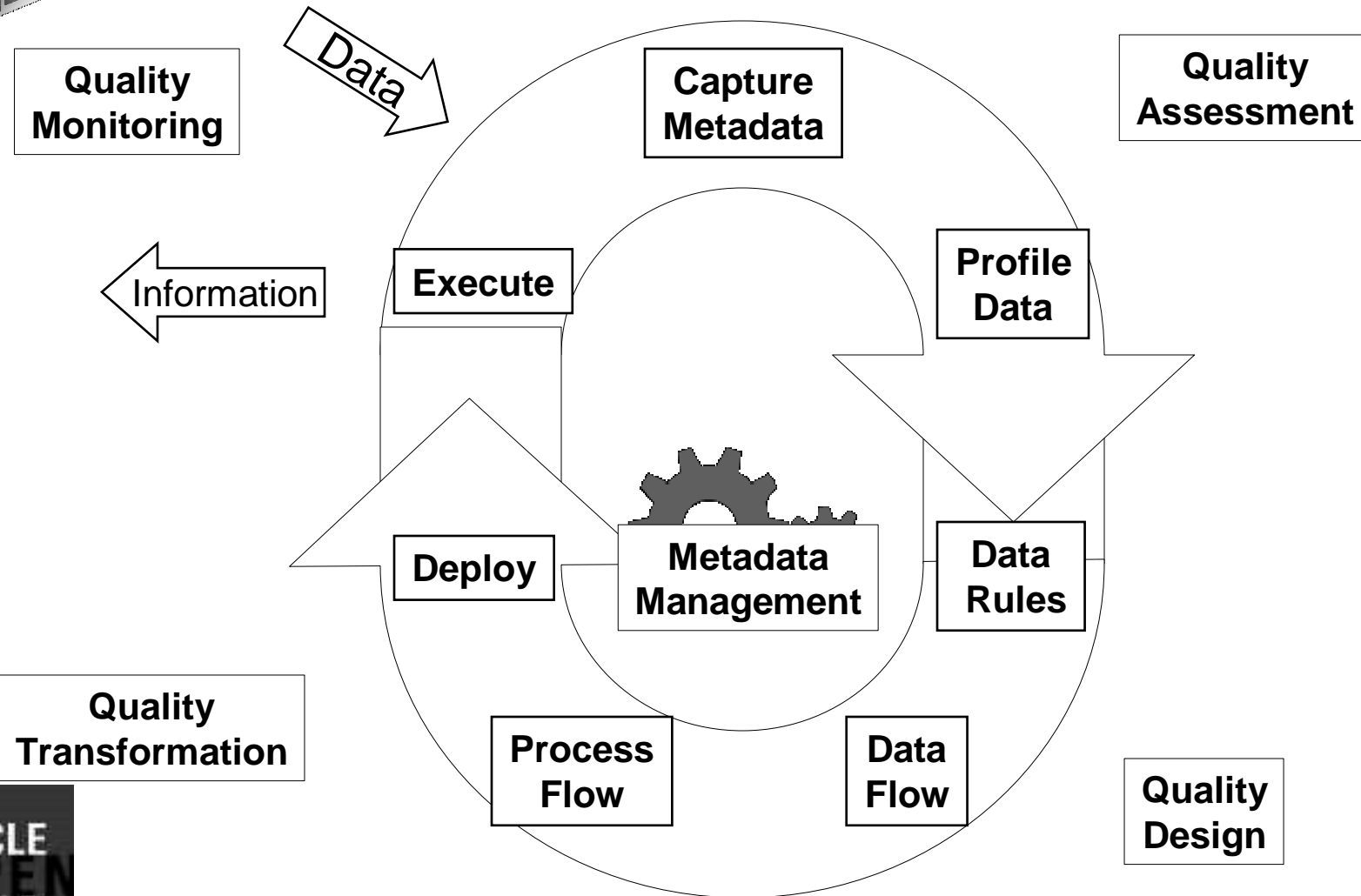
Sources

- Oracle
Tables, Views, MViews, Queues, External
Tables, Table Functions, Streams,
PL/SQL API's, Sqlloader...
- DB2, Sybase, SQLServer, Informix, ...
(Oracle Transparent Gateways)
- Any ODBC source
- Flat Files
- Applications
 - ☐ Oracle Apps
 - ☐ SAP
 - ☐ Custom SQL App

Targets

- Oracle
Tables, Streams, OLAP, Table
Functions, PL/SQL API's
- DB2, Sybase, SQLServer, Informix,
... (Oracle Transparent Gateways)
- Flat files

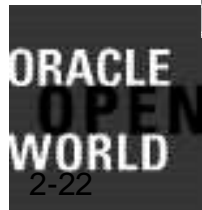
Enabling Information Quality



Data Object Design – One Editor



- Dimensions, cubes, tables, views, complex objects, ...
- Support for Star, Snowflake, Skip-Level, calculated measures, ...
- One editor for creation, configuration, validation, code generation, impact analysis, deployment, data viewing



Business Intelligence Object Derivation



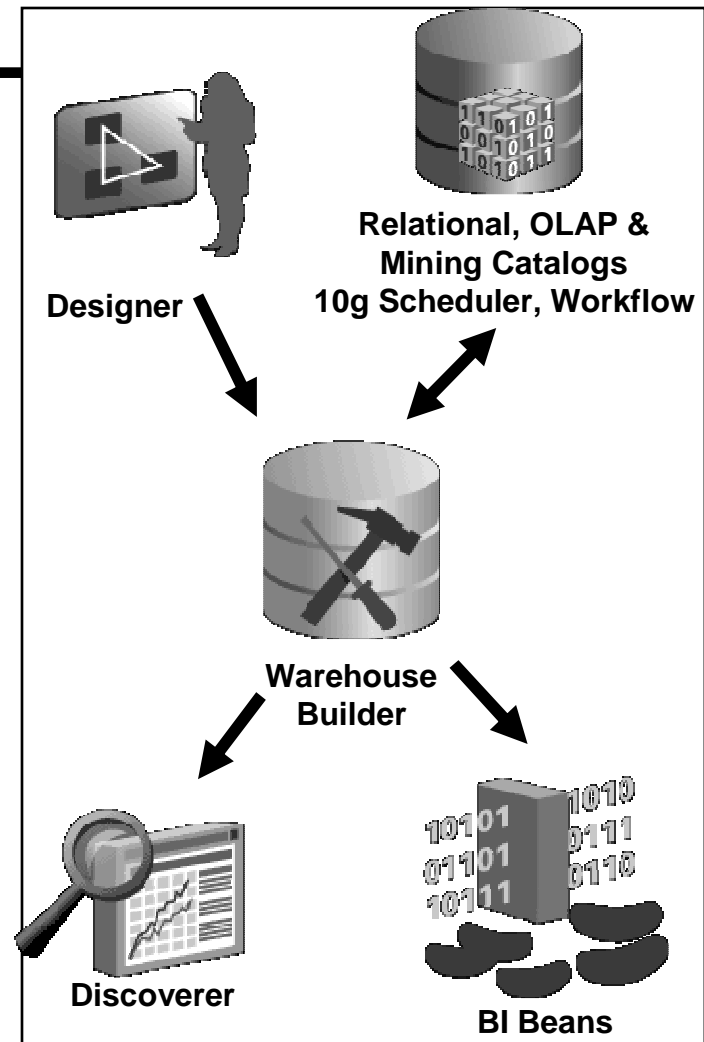
Create and Derive Business intelligence objects

Oracle OLAP Cubes & Dimensions

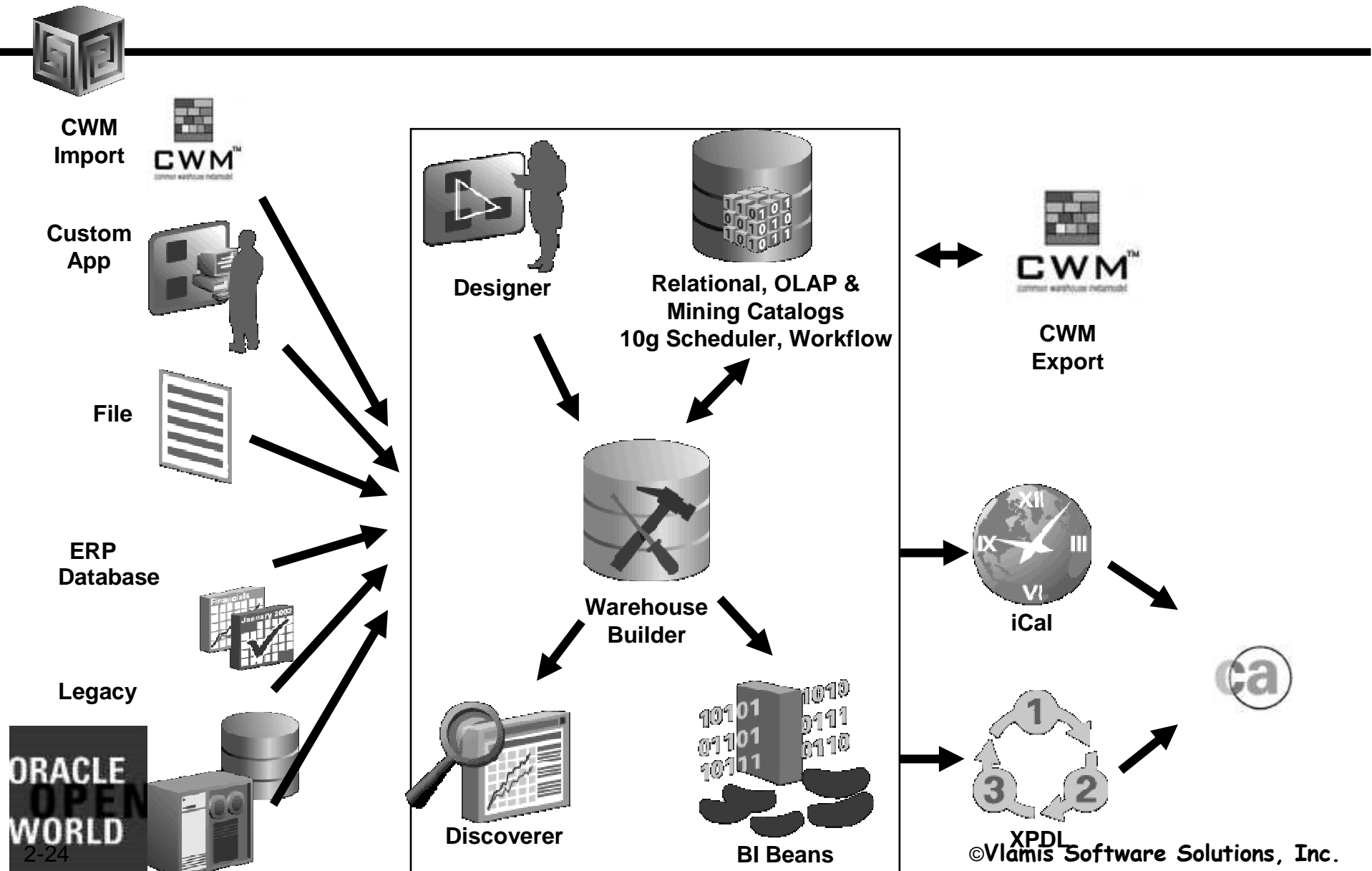
OracleBI Discoverer EUL

OracleBI Beans Reports

Included in Lineage and Impact analysis!



End-to-End Meta Data Integration





Components: Overview

Components of Oracle Warehouse Builder

- ☐ Repository (CWM)
- ☐ Graphical User Interface
- ☐ Code Generator
- ☐ Integrators
- ☐ Control Center

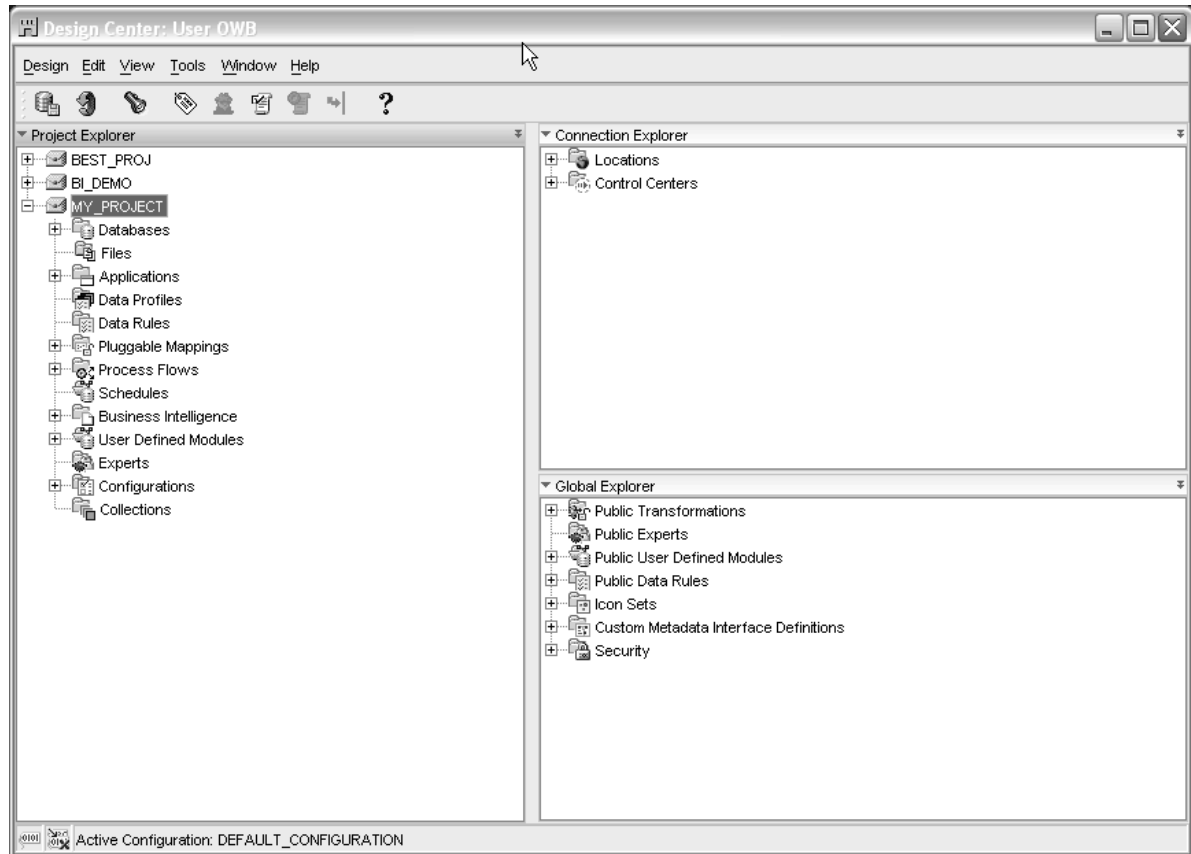


Components: *OWB User Interface*

Java Based

**Same look and
feel as Designer**

**Significantly
simplified over
previous
versions**





Components: *OLAP Wizards*

- **Full Integration support for OLAP AWs**
- **Supports 10g OLAP as a Target and 11g in 10g mode for 11g**
- **Full Life Cycle support**
- **Viewing data is integrated into new interface**



10/11g OLAP Integration

- OWB metadata to Oracle OLAP Metadata
- Create ROLAP or MOLAP objects
- Creates links to Relational Data for Facts and Dimensions (views or tables)
- Creates Scripts for building Materialized Views that are BI Beans OLAP friendly (ROLAP only)
- Creates Scripts to build and populate Analytic Workspaces
- User can use AWM to make changes (but cannot reverse engineer)
- Currently Scripts are not 11g Mode compatible



The Process

- **Design or Import Relational Schema**
 - ☐ Define Fact Table(s)
 - ☐ Define Dimensions
 - ☐ Define Cubes (collection of like measures)
- **Create Physical Schema**
- **Create Script for OLAP or JUST DEPLOY!**
- **View/Modify in OWB**
- **Run Application**
- **Gather Statistics / Tune**





Creating Dimensions

- Use OWB to Create Dimensions
- Use the following “Special” Attributes when building OLAP Dimensions

Physical Level Attribute Name Suffixes in Warehouse Builder	Dimension Attribute Created
_NAME or NAME	Short_Description or Long_Description
_END_DATE or END_DATE	End_Date
_TIME_SPAN or TIME_SPAN	Time_Span
_PRIOR_PERIOD or PRIOR_PERIOD	Prior_Period
_YEAR_AGO_PERIOD or YEAR_AGO_PERIOD	Year_Ago_Period



Creating Dimensions

Table Properties: OWB_TIMEDIM_DATA_TABLE [Read/Write]

Name Columns Constraints Attribute Sets User Defined Properties

Table Columns

Name	Position	Data Type	Length	Precisi...	Scale	Not Null	Note
WEEK_OF_YEAR	15	NUMBER		0	0	<input type="checkbox"/>	
WEEK_START_DA...	16	DATE				<input type="checkbox"/>	
WEEK_END_DATE	17	DATE				<input type="checkbox"/>	
WEEK_TIME_SPAN	18	NUMBER		0	0	<input type="checkbox"/>	
MONTH_ID	19	NUMBER		0	0	<input type="checkbox"/>	
MONTH_OF_QUA...	20	NUMBER		0	0	<input type="checkbox"/>	
MONTH_OF_YEAR	21	NUMBER		0	0	<input type="checkbox"/>	
MONTH_START_D...	22	DATE				<input type="checkbox"/>	
MONTH_END_DATE	23	DATE				<input type="checkbox"/>	
MONTH_TIME_SPAN	24	NUMBER		0	0	<input type="checkbox"/>	
QUARTER_ID	25	NUMBER		0	0	<input type="checkbox"/>	
QUARTER_OF_YE...	26	NUMBER		0	0	<input type="checkbox"/>	

Add Remove

Help OK Cancel



Creating Time Dimensions

- Time Dimensions are “Special” Dimensions that allow for several analytic analyses such as “Sales last month compared with same month last year”
- Requires special attributes
- OWB has sample definition and SQL scripts for “Best Practice”
- Always use “Time” or “_Time” in Dimension Name – Like “T_TIME” or “TIME”



Creating Time Dimension

New Wizard to Create!

Time Dimension Attributes:

Physical Level Attribute Name Suffixes in Warehouse Builder	Dimension Attribute Created
_YEAR	Year Level
_QUARTER	Quarter Level
_MONTH	Month Level
_DAY	Day Level

Note: Week is not included because week cannot neatly rollup into calendar year.



Creating Dimensions

OWB now Supports Ragged and Skip Levels!

- **Must Load Dimension via Snowflake (now default)**
- **Can have Ragged and Skip in same Dim**
- **MUST use 10.1.0.4 Target to work – 10.2 preferred!**

Can be done NOW with AWM 10.2!



Time Dimension

Data Object Editor

Diagram Object Edit View Window Help

Explorer

- Databases
 - GLOBAL
 - LEV
 - SALES_MART_MODULE

Selection Tree Object Tree

Configuration

- TIME**
 - Generation Comme...
- Identification**
 - Deployable ☒

Data Object Editor Palette

- Dimensional
 - Dimension
 - Cube

Bird's Eye View

SALES

- Measures
 - SALES AMT
 - UNITS SOLD
 - COGS
- Dimensional
 - PRODUCT
 - GEOGRA...

TIME

- Attributes
 - ID
 - CODE
 - CAL_MON...
 - START_DA...
 - END_DATE
 - TIME_SPAN

Canvas

Time Dimension Details: SALES_MART_MODULE.TIME "Read/Write"

Name Storage Attributes Levels Hierarchies

Choose the sequence that will populate the Dimension Key:

TIME_SEQ

Dimension Attributes

	Name	Description	Identifier	Data Type	Length	Precision	Scale	Second...	Descriptor
1	ID		Surrogate	VARCHAR2	25				
2	CODE		Business	NUMBER		0	0		
3	CAL_MONTH_NUMBER			NUMBER		0	0		
4	START_DATE			DATE					
5	END_DATE			DATE					
6	TIME_SPAN			NUMBER		0	0		
7	MONTH_OF_QUARTER			NUMBER		0	0		
8	MONTH_OF_YEAR			NUMBER		0	0		
9	DESCRIPTION			VARCHAR2	2000				Long descripti
10	NAME			VARCHAR2	25				Short descripti
11	CAL_QUARTER_NUMB...			NUMBER		0	0		
12	QUARTER_OF_YEAR			NUMBER		0	0		
13	CAL_YEAR_NUMBER			NUMBER		0	0		

100%



Defining Cubes

- **Cube is a collection of Measures (Data)**
- **All measures in a cube have the same dimensionality**
- **Use OWB Cube Wizard to build Cubes**
- **Cube can be ROLAP or MOLAP**

Cube: Dimension Order



**Think about sparsity and use of compression first.
(Compression means the use of compressed composites)**

Create Cube

General Implementation Details Rules Summarize To Cache

These settings affect the performance of an analytic workspace in both querying and maintenance processes, such as data loading and aggregation

Dimension Order and Sparsity:

Order	Dimension	Sparse
1	TIME	<input type="checkbox"/>
2	CUSTOMER	<input checked="" type="checkbox"/>
3	PRODUCT	<input checked="" type="checkbox"/>

☒ Use Compression (recommended only for extremely sparse Cubes)

Data Type of Cube: DECIMAL

☒ Partition Cube

Choose a level within a hierarchy of one dimension. One partition will be created for each member of the selected level

Dimension: TIME

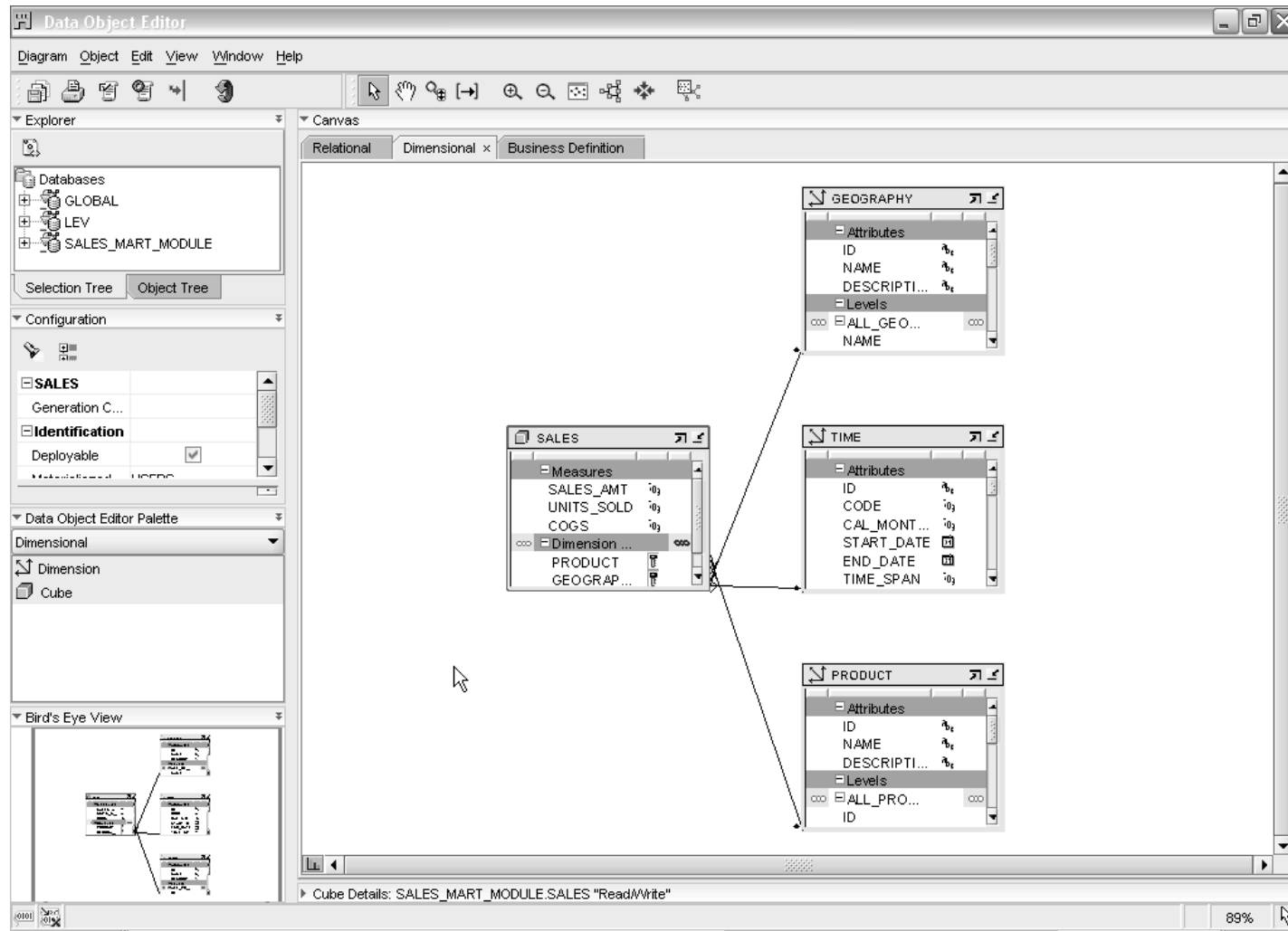
Hierarchy: CALENDAR

Level: YEAR

Help Create Cancel

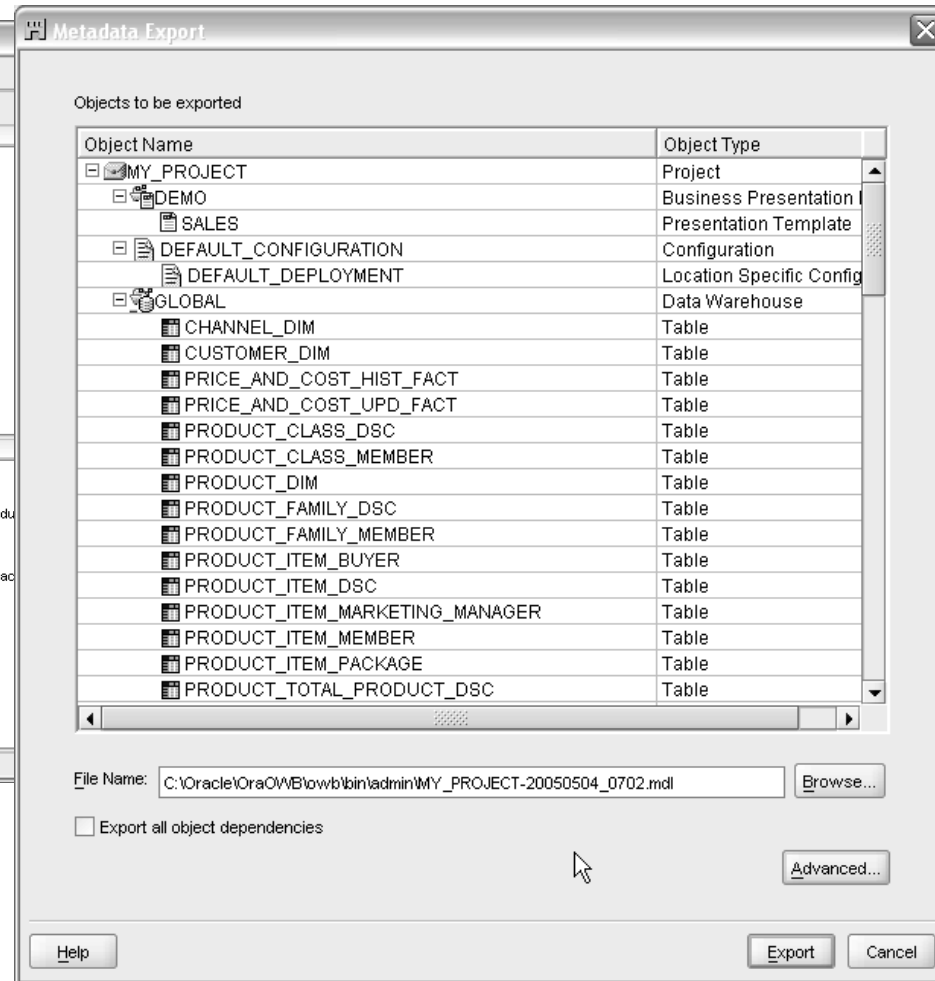
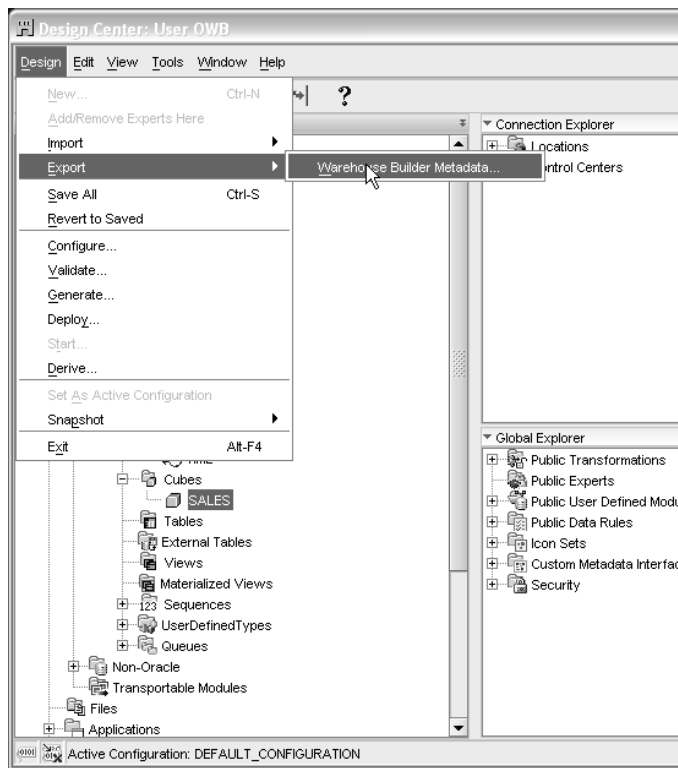


Finished Cube





Deploy



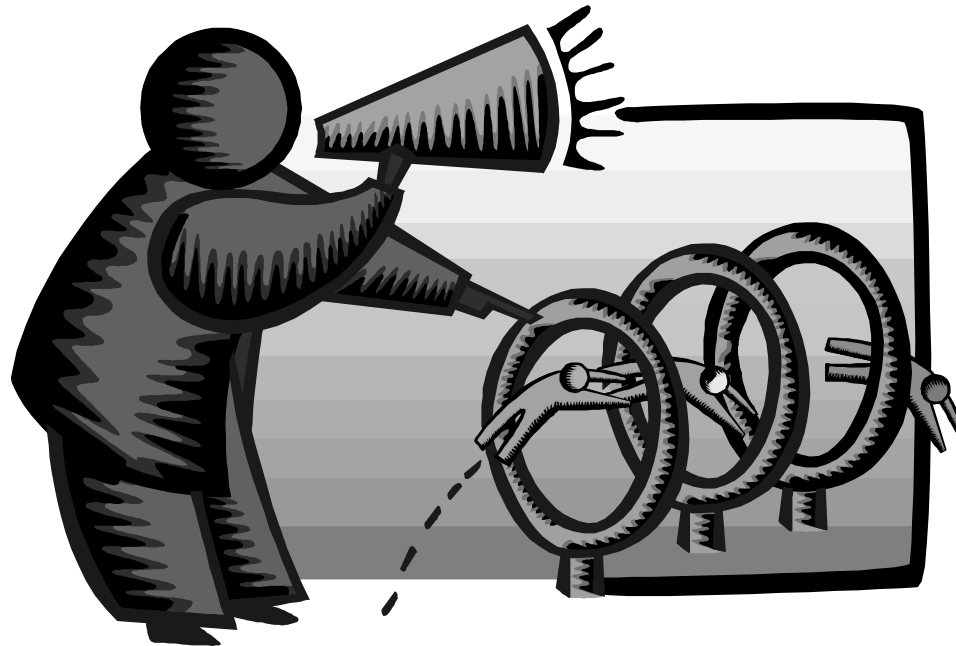


Loading AW Data

- OWB provides Transformations to Load Data into AWs
- Default behavior is to load the entire set of data
- Supports Sub-Setting with customize SQL i.e.

```
procedure ORDERS_LOAD_FILTER
BEGIN
  dbms_awm.create_awcubeload_spec ('ORDERS_FIL', USER, 'ORDERS',
    'LOAD_DATA');
  --- Define the Limiting Where Clause Here
  dbms_awm.Add_AWCubeLoad_Spec_Filter('ORDERS_FIL',USER,'ORD
    ERS',USER,'ORDERS',' month_id>33');
  dbms_awm.refresh_awcube (USER, 'AWS', 'AWORDERS', 'ORDERS_FIL');
EXCEPTION
  WHEN OTHERS THEN
  NULL;
```

OWB in Action





Issues with OWB and 11g OLAP

- OWB generated 10g mode Scripts
- Migration tools not available yet (Late '07 early '08)
- Can be done now but need to manually “Clone” 10g design
- Use AWM 11g to “Clone” 10g design (really not hard! --- see next slides)



Managing an OLAP Project

- **Involve end-users early on**
- **Prototype, pilot, then phase 1**
- **Recruit "champion" users**
- **Lead from user community, not IT**
- **Develop in phases**
- **Provide value early on**
- **Keep it simple (at first)**
- **Need forum for users to share ideas**
- **Provide user guide with user's data**



OLAP Implementation Suggestions

- **Pick small initial project. Deliver value quickly**
- **Decide on set of terminology at beginning**
- **Use embedded-total objects**
- **Show instances in addition to "levels" in diagrams**
- **Prototype and design iteratively**
- **Involve users early on. Listen to feedback**



Oracle OLAP 11g What is New?

- Oracle 11g is currently available for Linux and Windows (32bit)
- Oracle OLAP has many NEW Features!
 - ☐ New CUBE_TABLE function in SQL
 - ☐ Tight integration with SQL (automatically generated views)
 - ☐ Tight integration with data dictionary
 - ☐ New Calc Wizard in AWM!
 - ☐ Easier to use and deploy
 - ☐ Ability to use OLAP for Materialized views (get MUCH FASTER response times!)



OLAP 11g Changes

- New CUBE_TABLE function simplifies access to AW data (replacing OLAP_TABLE)

The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' tree is expanded to show the 'stack07 - global - main3' connection, with the 'Views' folder expanded to show 'CUSTOMER_SHIPMENTS_VIEW'. The main window displays the 'Enter SQL Statement' dialog with the following SQL query:

```
SELECT * FROM TABLE(CUBE_TABLE('GLOBAL.CUSTOMER;SHIPMENTS'));
```

Below the SQL editor, the 'Results' tab is selected, showing a table with 6 columns: REGION, WAREHOUSE, SHIP_TO, LEVEL_NAME, and LONG_DESCRIPTION. The table contains 4 rows of data.

	REGION	WAREHOUSE	SHIP_TO	LEVEL_NAME	LONG_DESCRIPTION
1	(null)	(null)	(null)	REGION	Europe
2	(null)	(null)	(null)	REGION	North America
3	(null)	(null)	(null)	REGION	Asia Pacific
4	20	99	SHIP_TO		UK Env Dept Glasgow

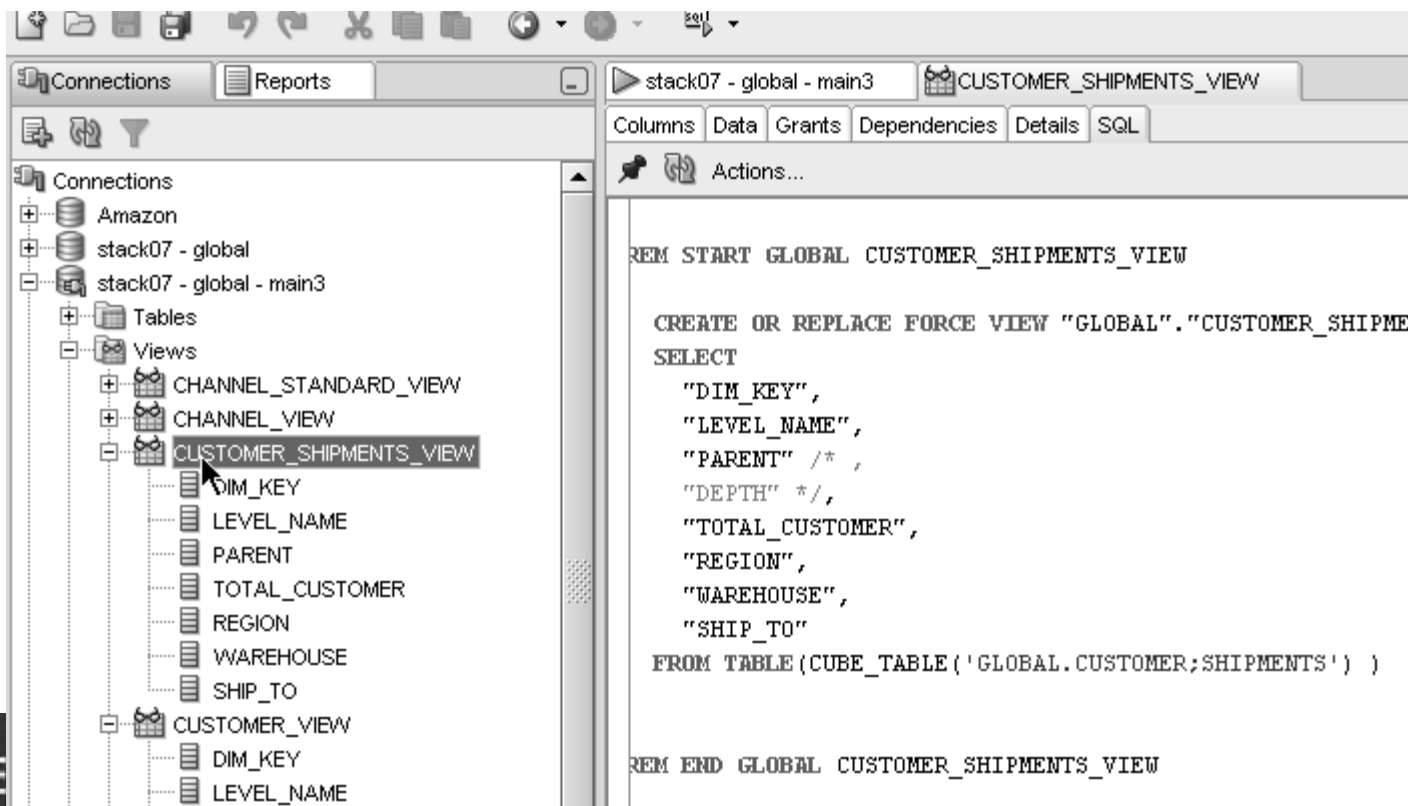
ORACLE
OPEN
WORLD

Copyright © 2007 Vlamis Software Solutions, Inc.
Standard Disclaimer - Beta software! No promises!



OLAP 11g Changes

- Views automatically created for SQL access to AWs – Dimensions and Cubes!



ORACLE
OPEN
WORLD

Copyright © 2007, Vlamis Software Solutions, Inc.
Standard Disclaimer – Beta software! No promises!



OLAP 11g Changes

- Views easily accessed from SQL Developer

The screenshot shows the SQL Developer interface. On the left, the 'Connections' pane shows a tree structure with 'Amazon' and 'stack07 - global' connections. Under 'stack07 - global - main3', there are 'Tables' and 'Views'. The 'Views' folder is expanded, showing 'CHANNEL_STANDARD_VIEW', 'CHANNEL_VIEW', and 'CUSTOMER_SHIPMENTS_VIEW'. The 'CUSTOMER_SHIPMENTS_VIEW' is selected. On the right, the 'Data' tab is active, displaying a table with 8 columns: DIM_KEY, LEVEL_NAME, PARENT, TOTAL_CUSTOMER, REGION, WAREHOUSE, and SHIP_TO. The table contains 16 rows of data.

DIM_KEY	LEVEL_NAME	PARENT	TOTAL_CUSTOMER	REGION	WAREHOUSE	SHIP_TO
1 9	REGION	1	1	9	(null)	(null)
2 10	REGION	1	1	10	(null)	(null)
3 8	REGION	1	1	8	(null)	(null)
4 99	SHIP_TO	20	1	9	20	99
5 46	SHIP_TO	21	1	10	21	46
6 89	SHIP_TO	21	1	10	21	89
7 59	SHIP_TO	21	1	10	21	59
8 91	SHIP_TO	20	1	9	20	91
9 90	SHIP_TO	21	1	10	21	90
10 49	SHIP_TO	16	1	9	16	49
11 95	SHIP_TO	21	1	10	21	95
12 72	SHIP_TO	11	1	8	11	72
13 47	SHIP_TO	14	1	9	14	47
14 60	SHIP_TO	18	1	8	18	60
15 74	SHIP_TO	15	1	8	15	74
16 75	SHIP_TO	16	1	9	16	75

ORACLE
OPEN
WORLD

Copyright © 2007 Vlamis Software Solutions, Inc.
Standard Disclaimer - Beta software! No promises!



OLAP 11g Changes

- Automatic views accessible from AWM

abases
stack07 (global)
Schemas
GLOBAL
Analytic Workspaces
GLOBAL (attached RW)
Dimensions
CUSTOMER
PRODUCT
TIME
CHANNEL
Levels
TOTAL_CHANNEL
CHANNEL
Hierarchies
STANDARD
Attributes
Unique Key Attributes
Mappings
Views
CHANNEL_VIEW - [Dimension ET]
VIEWNAME - [Hierarchy: STANDARD]
Data Security

General

Specify View Information

Dimension Name: CHANNEL
Hierarchy Name: STANDARD
View Name:

Column Name	Data Type	Object Type
DIM_KEY	VARCHAR2	Key
LEVEL_NAME	VARCHAR2	Level Name
PARENT	VARCHAR2	Parent
TOTAL_CHANNEL	VARCHAR2	Hierarchy Level
CHANNEL	VARCHAR2	Hierarchy Level



OLAP 11g Changes

- Query Rewrite knows about AWs now

General Translations Implementation Details **Materialized Views** Rules Summarize To Cache

Choose this option to manage refresh of the cube with the Materialized View refresh system

☐ Enable Materialized View Refresh of the cube

Choose how and when to refresh of the cube with the Materialized View refresh system

Refresh Method: Force Refresh Mode: On Demand

Start With: Modify...

Next Refresh: Modify...

Constraints: ☒ Trusted ☐ Enforced

☐ Parallel: Degree of Parallelism:

Choose this option to allow queries on the source tables of the cube to be automatically rewritten to use summary data in the cube

☒ Enable the Query Rewrite Materialized View

Materialized View Implementation Details

Refresh Rewrite

☒ Compatibility Check list ☐ Materialized View details

Status	Object	Check
--------	--------	-------



OLAP 11g Changes

- Optimizer pushes joins down to AW
- Enables efficient non-OLAP-aware SQL queries

The screenshot displays the Oracle SQL Developer interface. The top pane shows an SQL query:

```
FROM time_view t,  
product_view p,  
customer_view cu,  
channel_view ch,  
units_cube_view f  
WHERE t.dim_key = f.TIME  
AND p.dim_key = f.product  
AND cu.dim_key = f.customer  
AND ch.dim_key = f.channel  
AND t.long_description = '2000'  
AND p.long_description = 'Total Product'  
AND cu.long_description = 'All Customers'
```

The bottom pane shows the execution plan for the query. The 'Explain' tab is selected. The plan is as follows:

Operation	Optimizer	Cost	Cardinality	Bytes	Part
SELECT STATEMENT	ALL_ROWS	1028	1	520	
HASH JOIN		1028	1	520	
MERGE JOIN(CARTESIAN)		407	1	380	
MERGE JOIN(CARTESIAN)		305	1	240	
MERGE JOIN(CARTESIAN)		203	1	160	
CUBE SCAN(OUTER) GLOBAL.CHANNEL					
BUFFER(SORT)		102	1	80	
CUBE SCAN(OUTER) GLOBAL.PRODUCT					

Copyright © 2007, VIRTUUS Software Solutions, Inc.

Standard Disclaimer – Beta software! No promises!





OLAP 11g Changes

- Views are stored in Oracle Dictionary
- Notice in SYS.USER_DIMENSION_VIEWS

The screenshot shows the Oracle SQL Developer interface. On the left, the 'Connections' pane lists the database structure, including 'stack07 - global - main3' and its 'Views' folder. The main window displays the 'CUSTOMER_SHIPMENTS_VIEW' tab. The 'Enter SQL Statement' area contains the query: `select * from sys.user_dimension_views;`. The 'Results' pane shows the output of the query, which is a table with four columns: DIMENSION_NAME, VIEW_OWNER, VIEW_NAME, and VIEW_TYPE. The results are as follows:

	DIMENSION_NAME	VIEW_OWNER	VIEW_NAME	VIEW_TYPE
1	TIME	GLOBAL	TIME_VIEW	ET
2	CHANNEL	GLOBAL	CHANNEL_VIEW	ET
3	PRODUCT	GLOBAL	PRODUCT_VIEW	ET
4	CUSTOMER	GLOBAL	CUSTOMER_VIEW	ET





OLAP 11g Changes

- **Cost-based presummarization balances aggregation time with performance**

Create Cube

General Translations Implementation Details Materialized Views Rules Summarize To Cache

Presummarization

Select the type of presummarization you wish to use

☐ No presummarization

☒ Cost-based presummarization

Percentage:

☐ Level-Based Presummarization

Choose the regions of the cube to be presummarized and stored in the analytic workspace.

Dimension:

Dimension	Levels
TIME	<input type="checkbox"/> ALL_TIMES
CUSTOMER	<input type="checkbox"/> CALENDAR_YEAR
PRODUCT	<input type="checkbox"/> MONTH
CHANNEL	<input type="checkbox"/> QUARTER





OLAP 11g Changes

- Native support for AWs with skip level and ragged hierarchies

Create Hierarchy

General Translations

Specify General Hierarchy Information

Name: CALENDAR_YEAR_HIER

Short Label: Calendar Year Hier

Long Label: Calendar Year Hier

Description: Calendar Year Hier

☒ Set as Default Hierarchy

☐ Skip Level

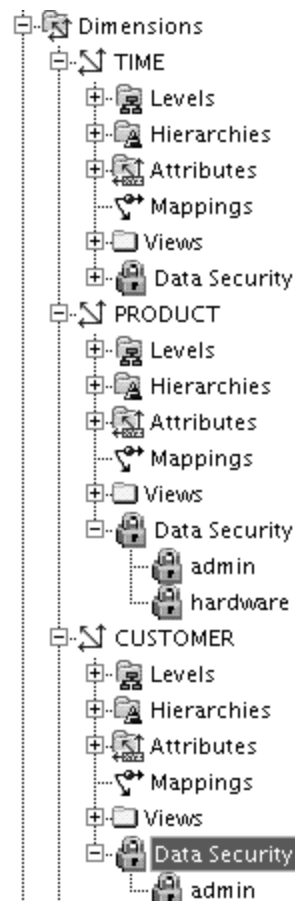
☐ Ragged

☒ Level Based Hierarchy ☐ Value Based Hierarchy



OLAP 11g Changes

- Create security policies based on hierarchies



Create Data Security Policy

General Member Selection

Choose Product From: 'Primary' hierarchy

Available: Members Conditions

Selected: Steps Members

1. Start with Hardware

2. Add Descendants of Hardware

Condition Expression:

GLOBAL.PRODUCT.DIM_KEY IN ('2') OR '2'

GLOBAL.PRODUCT.PRIMARY LEVEL GLOB

Specify Data Security Policy Information

Data Security Policy Name: north america

Select the access privileges for each user or role below

User or Role	Type	Select	Insert
SCOTT	User	<input checked="" type="checkbox"/>	<input type="checkbox"/>



OLAP 11g Changes

- Calc Wizard replaced by powerful "complete the sentence" wizard
- Expression language more SQL-like
- EQs of Calculated Measures in 11g-format AWs "read-only"

Choose a calculation type:

Rank

Calculation:

Rank members of the PRODUCT dimension and PRIMARY hierarchy based on measure UNITS_CUBE.UNITS (...)

. Calculate rank using RANK method with member's level in order lowest to highest.

member's level
member's parent
member's ancestor

Expression:

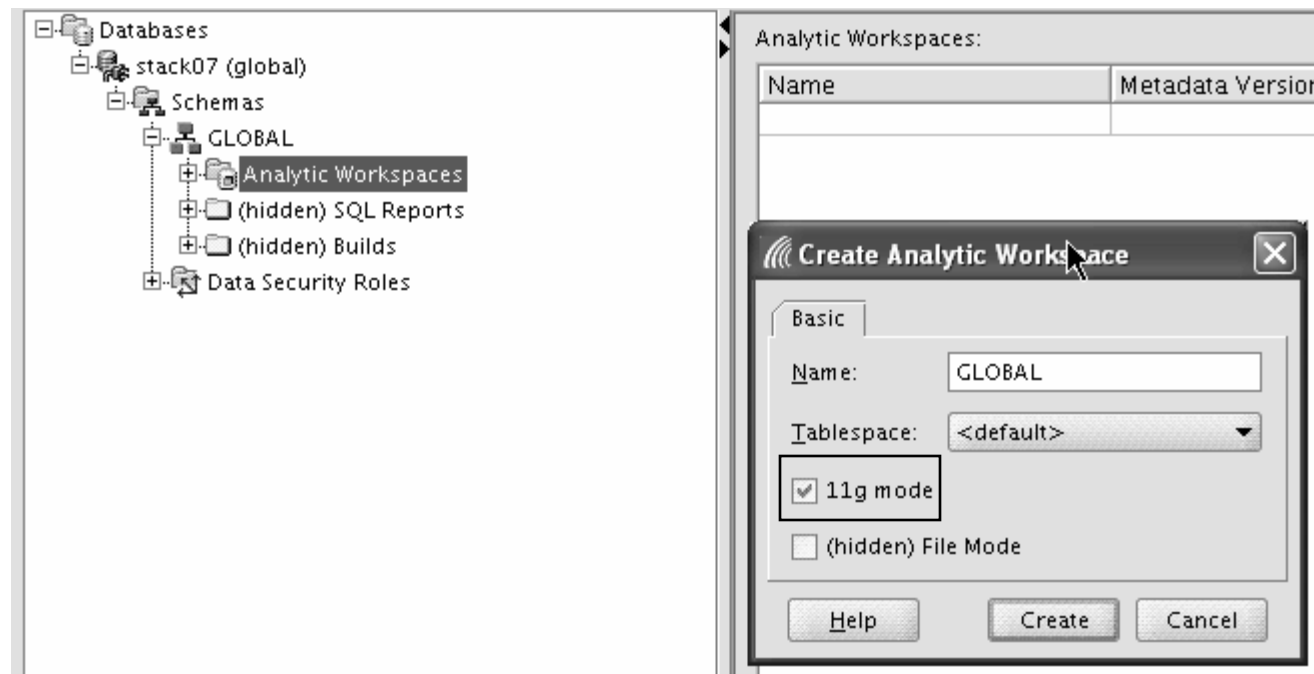
RANK() OVER HIERARCHY (GLOBAL.PRODUCT.PRIMARY ORDER BY GLOBAL.UNITS_CUBE.UNITS WITHIN LEVEL)

Copyright © 2007 Vlamis Software Solutions, Inc.
Standard Disclaimer - Beta software! No promises!



OLAP 11g Changes

- Can Create AWs in 11g mode (automatic views)
- If no 11g mode, have same flexibility as 10g



ORACLE
OPEN
WORLD



Conclusions

- **We can design complex OLAP Solutions**
- **Support for both ROLAP and MOLAP (AW)**
- **Strong Foundation for the Future**
- **Still Lacking all the Pieces**
 - ☐ **Complex models still not possible**
 - ☐ **Manual manipulations in ROLAP or MOLAP cubes not always reflected in OWB metadata**
 - ☐ **11g OLAP Mode not Supported yet!**



Conclusions

- **If you tried or looked at OWB before and said NO. Take another LOOK!**
- **We finally have a full Featured Tool for OLAP end to end design and build!**
- **Lots of new Enterprise Features**
- **Very Low COST!**



Platforms, Packaging

- **Available On:**
 - ☐ 10g Win32(Windows NT/2000/XP/2003), Win64(XP/2003), Linux x86, Linux Itanium, Solaris, HP-UX (RISC), HP-UX (Itanium), AIX, Tru64
 - ☐ 11g Linux and Windows
- **Packaging:**
 - ☐ Included with the Database!
 - ☐ Oracle Business Intelligence SE



How to Get Started?

- **Download OWB 11g R1**
- **Download and install Samples**
- **Read Reviewer's Guide if necessary**
- **Resources:**
 - ☐ **OTN**
 - ☐ **Discussion Forums**

ORACLE®

TECHNOLOGY NETWORK

ORACLE.COM TECHNOLOGY NETWORK PARTNERS STORE SUPPORT

Welcome Chris (Sign Out)

SELECT COUNTRY

search site

PRODUCT CENTERS

Database
Application Server
JDeveloper
Developer Suite
Enterprise Manager
Applications Technology
Collaboration Suite
More...

TECHNOLOGY CENTERS

BI & Data Warehousing

Grid
Java Developer
Linux
.NET Developer
PHP Developer
Security
Service-Oriented Architecture
Windows
XML
More...

COMMUNITY

About OTN
Oracle ACEs
TechBlast Newsletter
Oracle Magazine

Downloads

Documentation

Discussion Forums

Articles

Sample Code

Training

RSS

Re



Business Intelligence & Data Warehousing Technology Center

updated August 24, 2005

Only Oracle delivers a complete, pre-integrated technology foundation to reduce the cost and complexity of building and deploying enterprise business intelligence.

What's New

[Take a BI Deep Dive at Oracle OpenWorld X-Treme \(Sept. 17-18\)](#)

This exclusive two-day program, open to OpenWorld attendees and non-attendees alike, consists of highly technical, deep-dive content not typically available in the regular OpenWorld agenda. [Click here](#) to see the "Business Intelligence & Data Warehousing" track description.

[Read the New Oracle Business Intelligence Blog](#)

Read Abhinav Agarwal's musings about Oracle Discoverer, OLAP, and other Oracle BI products, technologies, and tools.

[Explore New Oracle Data Mining Sample Code](#)

Download new sample PL/SQL and Java applications that illustrate each of the algorithms supported by Oracle Data Mining.

[Oracle Database 10g Release 2: Top New Data Warehousing Features](#)

Oracle ACE Arup Nanda presents his analyses of top Release 2 features for data warehousing, including query rewrite with multiple MVs, LONG to LOB conversion online, and more.

[Using Oracle Business Intelligence Discoverer with the OLAP Option](#)

Learn the advantages of adding the Oracle Database Enterprise Edition OLAP Option to

Learn More

- [Oracle Business Technical Overview](#)
- [Oracle Business Demo](#)
- [Oracle by Example Tutorials](#)
- [Data Warehouse Discussion Forum](#)

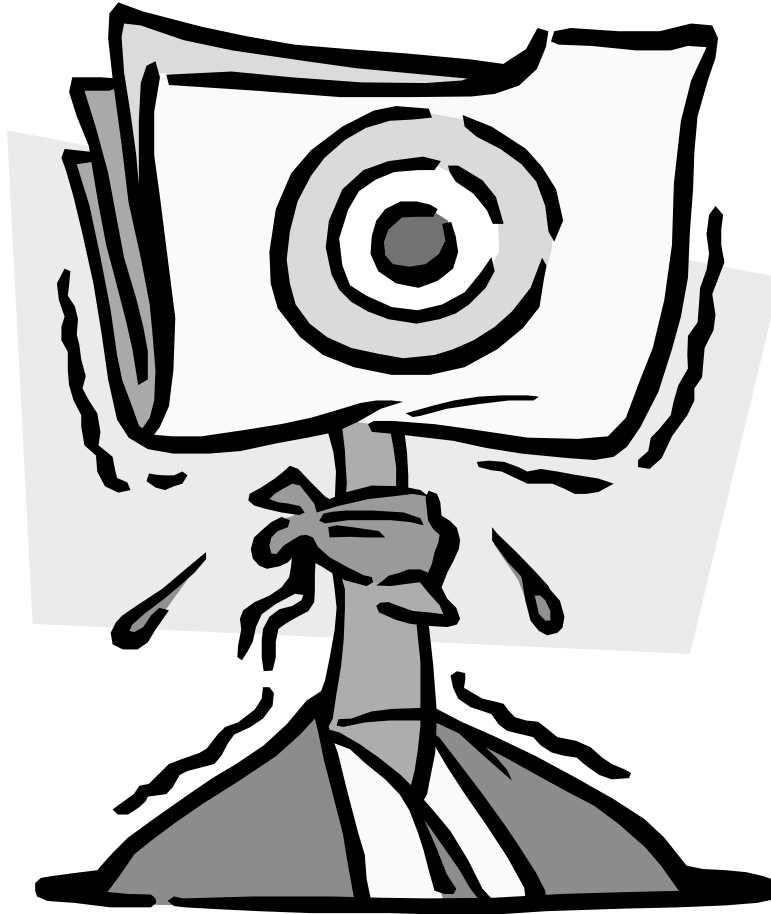
Download

- [Oracle Business](#)
- [Analytic Workspaces](#)
- [Oracle Warehouse](#)
- [Oracle Data Mine](#)
- [Oracle Database Edition](#)

Oracle Univers

- [Query & Reporting](#)
- [Data Warehousing](#)
- [Introduction BI Solutions](#)
- [Reports Development](#)
- [BI Developer Tools](#)

QUESTIONS?





Oracle BI and Vlamis Sessions



Integrating Oracle BI Enterprise Edition and SOA: Step-by-Step

November 13

3:15-4:15 PM

Moscone South 301 □

Mark Rittman, Rittman Mead Consulting □



Oracle BI Financial Services ASaP

November 15

2:30-3:30 PM

Moscone West 3022 □

Dan Vlamis, Vlamis Software Solutions, Inc. □





Save the Date!



COLLABORATE**08**

Technology and **Applications** Forum for the **Oracle** Community

April 13 – 17, 2008

Colorado Convention Center

Denver, Colorado

ORACLE
OPEN
WORLD



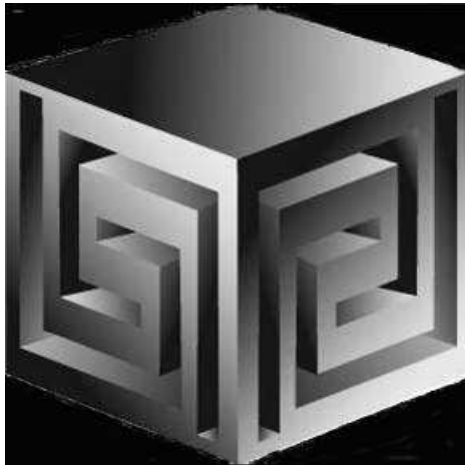
Sign-up for IOUG Today

- Join online at www.ioug.org and get immediate access to:
 - ☐ **Member Discounts and Special Offers**
 - ☐ **SELECT Journal**
 - ☐ **Library of Oracle Knowledge (LoOK)**
 - ☐ **Member Directory**
 - ☐ **Special Interest Groups**
 - ☐ **Discussion Forums**
 - ☐ **Access to Local and Regional Users Groups**
 - ☐ **5 Minute Briefing:Oracle**
 - ☐ **Volunteer Opportunities**

Using Warehouse Builder for Business Intelligence

Oracle OpenWorld '07

Session S291027



Chris Claterbos
claterbos@vlamis.com

Dan Vlamis
dvlamis@vlamis.com
Vlamis Software Solutions, Inc.
<http://www.vlamis.com>

Copyright © 2007, Vlamis Software Solutions, Inc.