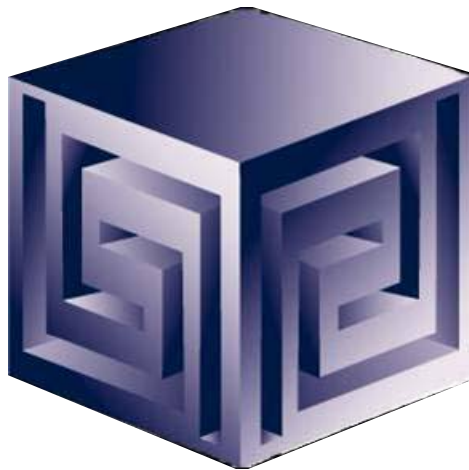


Discoverer 10g or Bi Beans - Which Is Right for You?

IOUG Live! 2004

Session #418



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Vlamiis 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**



Outline

- **Introduction - History**
- **Overview of OLAP, BI Beans and Discoverer fit together**
- **BI Beans Specifics**
 - ❑ **General Features of BI Beans Applications**
 - ❑ **Features Unique to BI Beans**
 - ❑ **Demo**
- **Discoverer OLAP Specifics**
 - ❑ **General Features of Discoverer OLAP**
 - ❑ **Plus or Viewer**
 - ❑ **Demo (hopefully)**
- **Which is Right for you?**

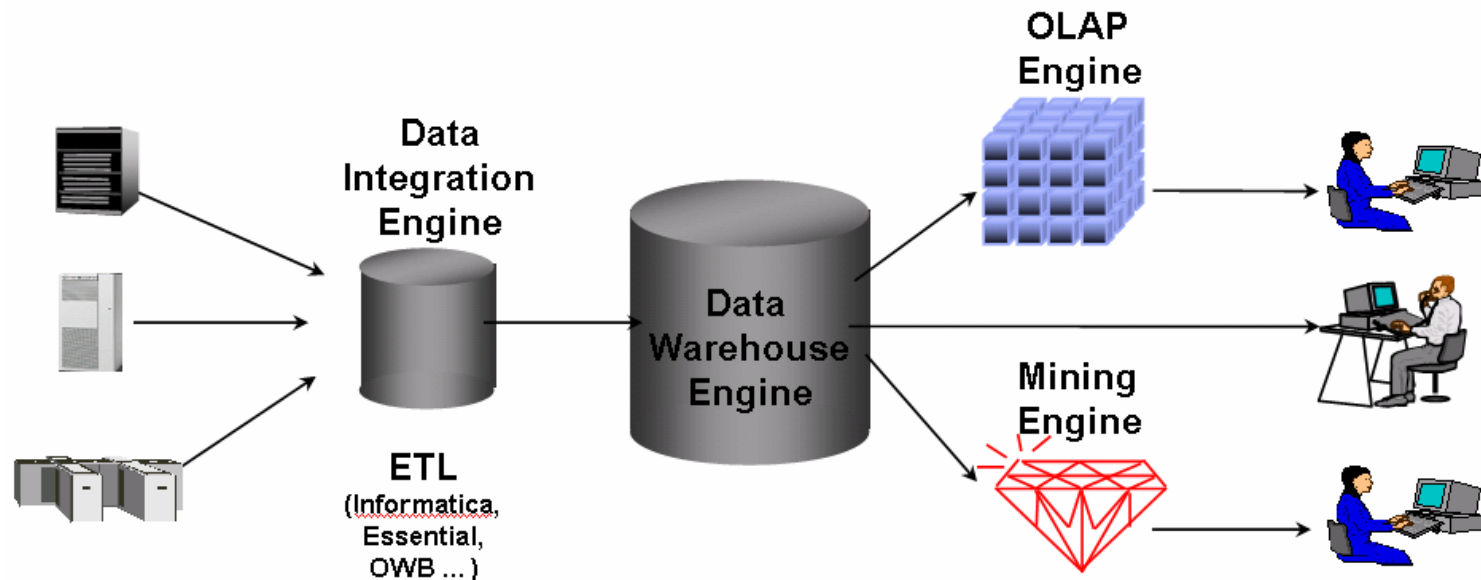


In the Past

- **Previous development of BI and OLAP Applications required proprietary development environment**
- **Each deployment model required a different tool**
- **Development effort very labor intensive**
- **Concept to Deployment takes long time**
- **Requires specialized skills**



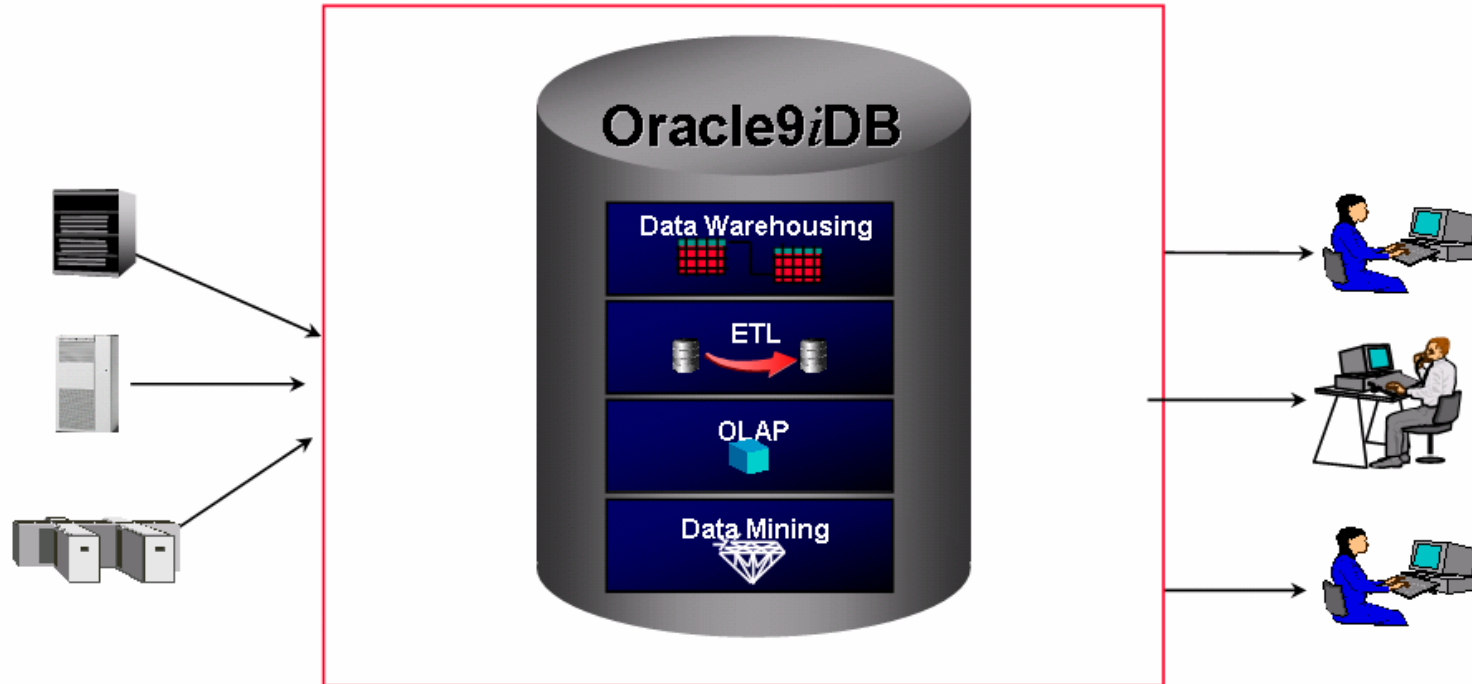
Business Intelligence the Old Way



- Special purpose engines for differing tasks
- Metadata migration tools ease replication
- User interfaces generally different for different tools

Thin Client Demo

BI the New Way: Oracle 9iDB



- Single business intelligence platform
 - Reduce administration, implementation costs
 - Faster deployment & Improved scalability and reliability

Thin Client Demo



Key Developments for Oracle OLAP

- **Integrating Express Server team into Oracle Server team**
- **RDBMS gets OLAP functionality in SQL**
- **Data Warehouse features in Oracle 8i:**
 - ❑ **Bitmap and bitmap join indexes**
 - ❑ **Materialized views**
 - ❑ **Query rewrite**
 - ❑ **“N-pass” functions**
- **Increasing use of very sparse data**
- **Oracle focus on integration**



History of Oracle OLAP

- **Express language goes back to 1970's**
- **Applications written in Express (CUI)**
- **Early 1990's Express Objects introduced**
- **1995 Oracle purchased Express from IRI**
- **Oracle Express Objects based on Visual Basic**
- **1999 OEO on web "Walden" dropped to focus on Java-based BI Beans**
- **2001 Oracle9i released with Express engine**
- **2001 BI Beans released under JDeveloper**



History of Oracle OLAP (cont.)

- **2002 VSS released VSSBA, the first ad-hoc tool to access Oracle OLAP using BI Beans**
- **2002 9iR2 integrated Express engine and AWs**
- **2002 BI Beans accesses Analytic Workspaces**
- **2003 AWM provided tools to build AWs from ROLAP cubes**
- **2003 Oracle saw need for ad-hoc tool and began Discoverer OLAP development**
- **2004 Oracle extends Discoverer to use BI Beans**



Oracle OLAP Ad-Hoc Analysis

Situation in 2003:

- **Discoverer for Ad-hoc analysis**
- **Bridge for developing views for Disco**
- **3rd Party tools (e.g. VSSBA) limited adoption**
- **BI Beans / JDeveloper for "build your own"**
- **Few companies building their own**
- **Discoverer did not have full power of BI Beans Query Builder / Calc Builder**
- **Companies questioning Oracle's commitment to Oracle OLAP**



Extend Discoverer via BI Beans

Solution:

- **Discoverer Plus OLAP built in BI Beans for ad-hoc application use**
- **Use Crosstab, Graph for visualization**
- **Use Query Builder and Calc Builder**
- **Offer JDeveloper / BI Beans for customers that want to "build their own"**
- **Shows Oracle's commitment to Oracle OLAP**



Why a Separate OLAP Tool?

- **Empowers end-users to do own analysis**
- **Frees up IS backlog of report requests**
- **Ease of use**
- **Drill-down**
- **No knowledge of SQL or tables required**
- **Exception Analysis**
- **Variance Analysis**



What Does 9i OLAP Add to a DW?

- **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 Does 9i OLAP Add to a DW?

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- **Users create own measures**
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- **Iterative discovery process (not just reports)**
- **Ad-hoc analysis**
- **Easy selection of data with business terms**

- **OLAP DML with what-if, forecasting**

- **Platform for extensions**

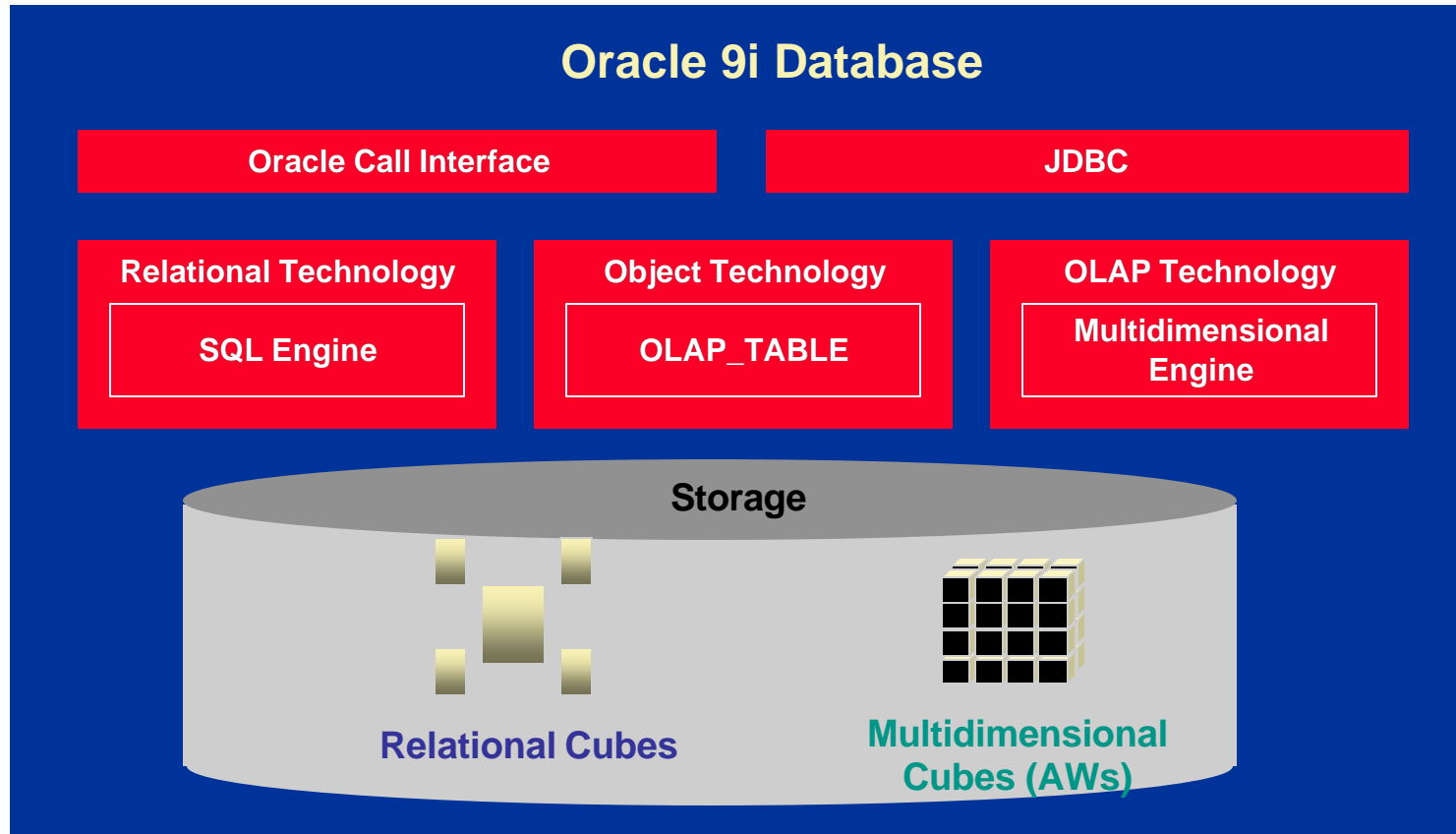
Not exposed with Discoverer



What Makes a DW OLAP-Ready?

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

Oracle 9i RDBMS - MDDS





Oracle BI – Getting the Data In

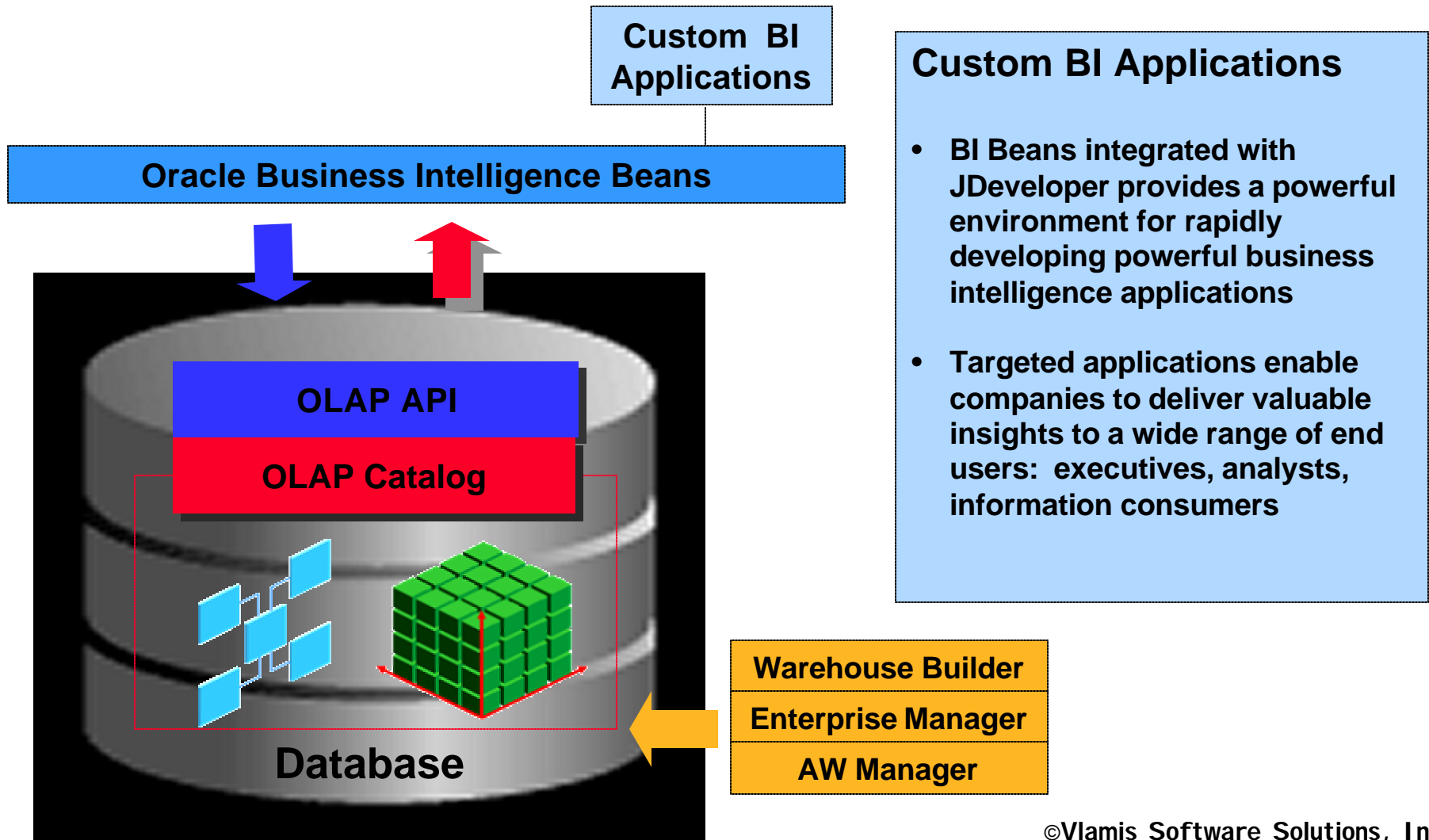
- **Storing / calculating with the data**
 - ❑ Oracle RDBMS
 - ❑ Oracle OLAP (an option to the RDBMS)
- **Getting the data in / managing**
 - ❑ Oracle Warehouse Builder
 - ❑ Oracle Enterprise Manager
 - ❑ Analytic Workspace Manager (part of OEM)



Getting the Data Out

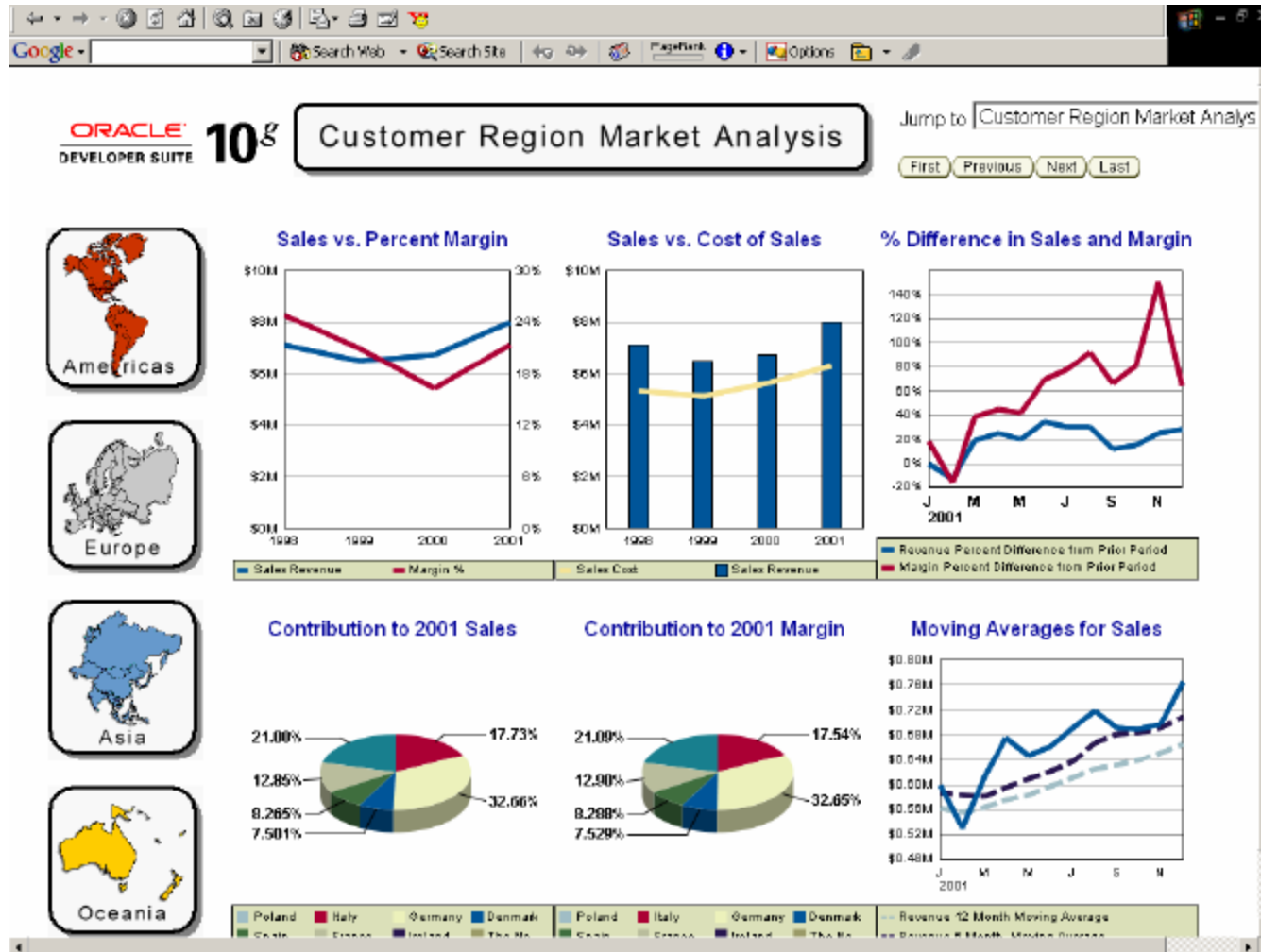
- **Once the Data is in OLAP how do we get the data out?**
- **Alternatives**
 - BI Beans applications (Custom or pre-built)**
 - Discoverer**
 - Oracle Reports**
 - SQL Access from any SQL tool**
 - Spreadsheet Add-in**
 - Any except Spreadsheet add-in can be in a portal and with web interface**

Custom Development via BI Beans





Custom BI Application



BI Beans Applications



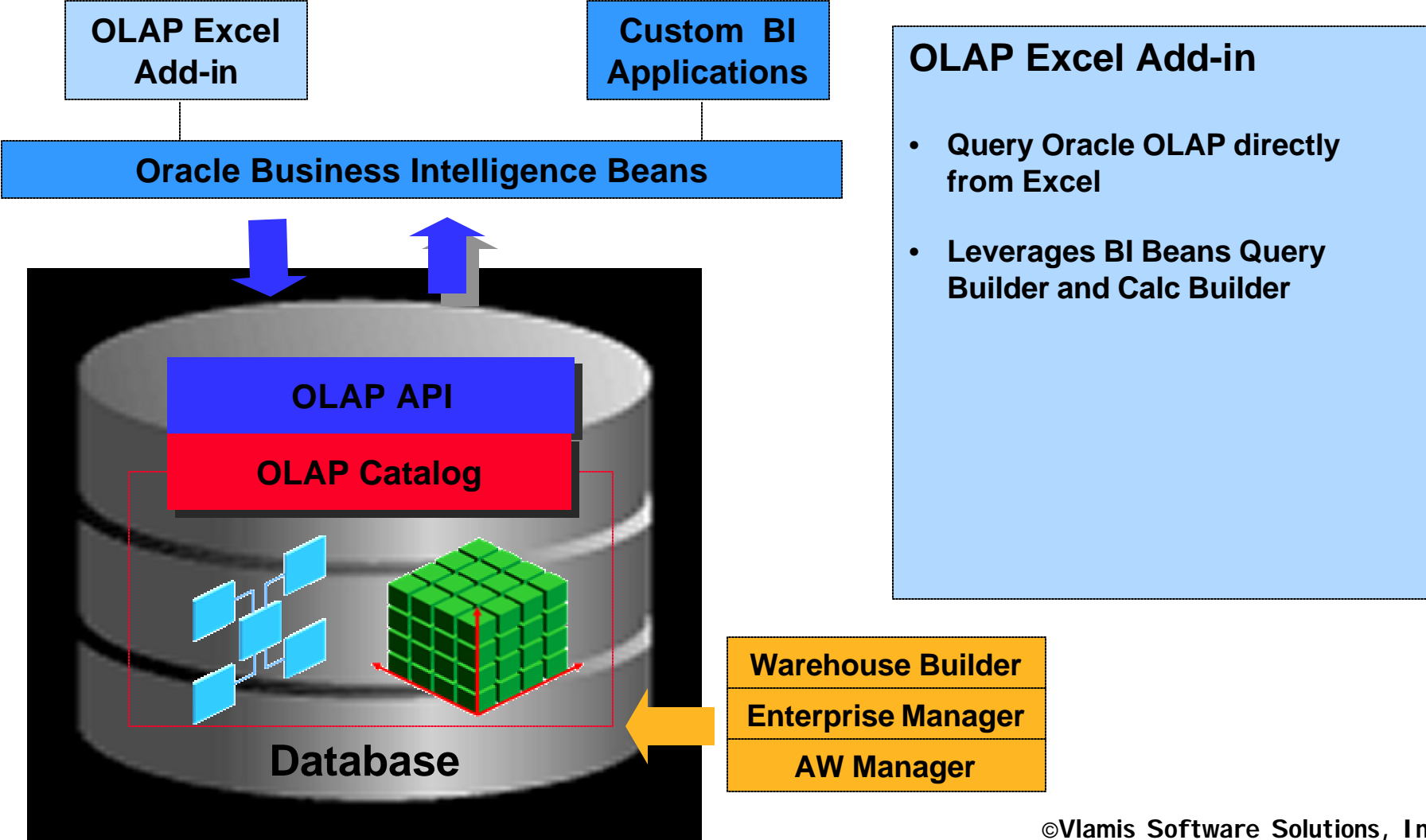
Thick Client

Page Items	Time	Product	Channel	Sales Revenue	% Sales Variance	Quota
Areas in the Americas	December02	360 Modems	All Channels	460,710		451,616
Argentina				11,681		8,666
Brazil				18,005		17,330
Sao Paulo, Brazil				18,005		17,330
Canada				154,629		147,136
Colombia				6,778		8,666
Mexico				31,196		25,896
United States of America				239,518	-1.77%	243,626

Thin Client

©Vlavis Software Solutions, Inc.

Access to All OLAP Data from Excel



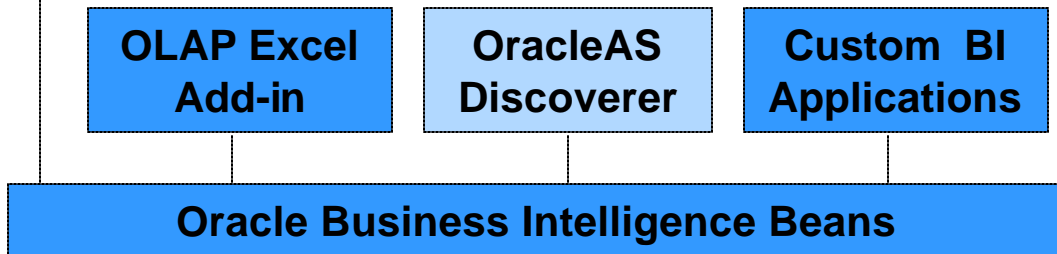
Spreadsheet Add-In



The screenshot displays the Oracle OLAP Query Wizard dialog box over a Microsoft Excel spreadsheet. The wizard is in the 'Items' tab, showing a tree view of available dimensions and measures. The 'Selected' tab shows the query configuration: '1. Start with Equipment/Parts: Top 5 based on Sales'. The background spreadsheet shows a table with columns for Sales, Quota, and Quota Var % for various product categories. A bar chart is also visible in the background.

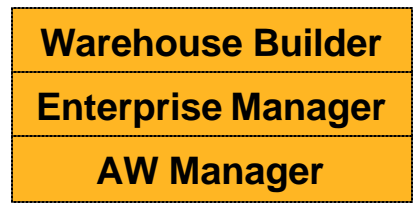
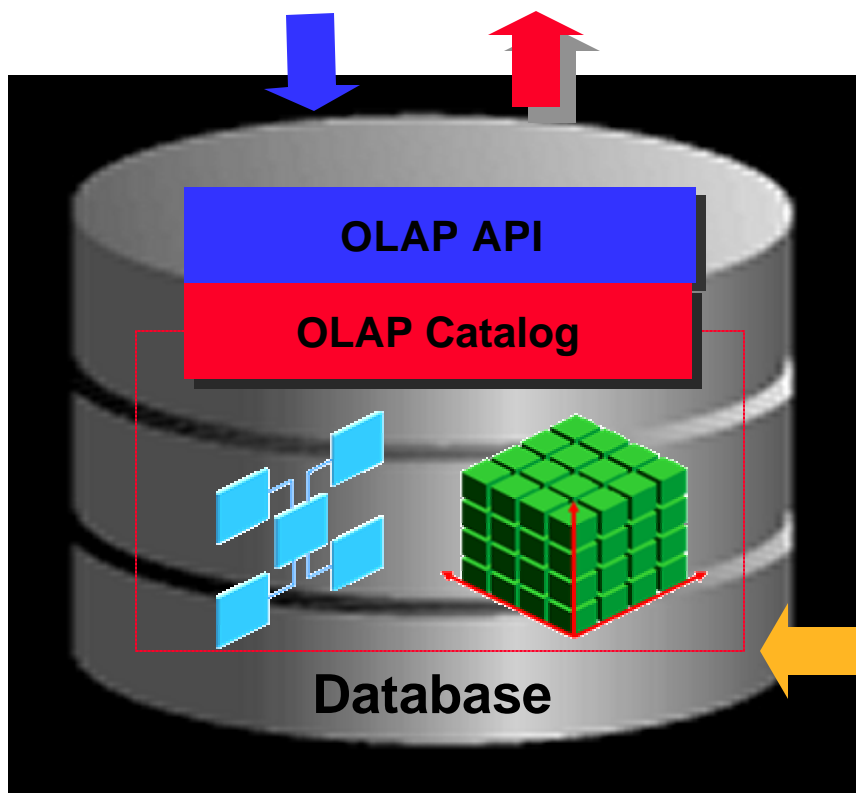
	Sales	Quota	Quota Var %
Worldwide			
All Channels			
2000		2000	2000
CD Player	16,558,146	16,154,468	> 50%
Amplifier	14		
VHS Camcorders	13		
Receiver	13		
Digital Camcorders	12		
	70		

Ad-hoc Access OLAP via Discoverer



OracleAS Discoverer

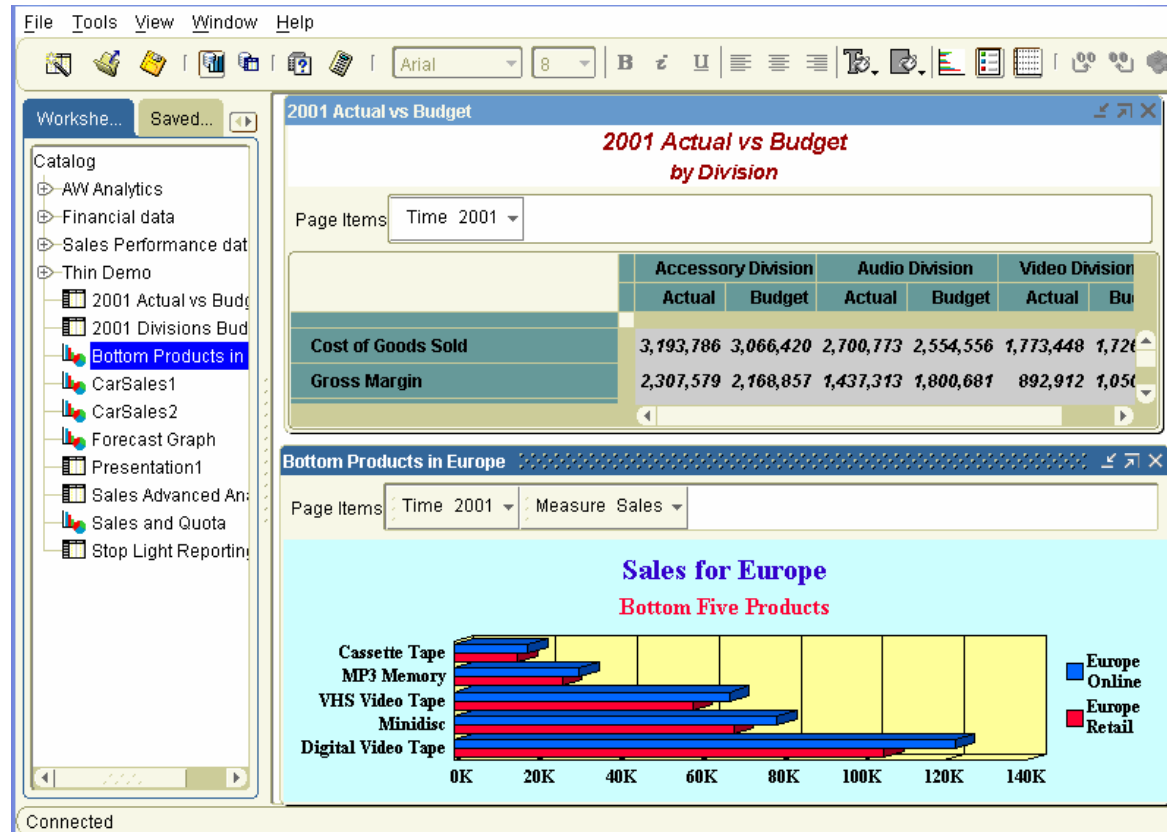
- An intuitive ad-hoc query, reporting, analysis, and Web-publishing tool
- Enables advanced analyses on both operational and OLAP data sources



Discoverer 10g - Discoverer OLAP



- Currently AWM creates EUL for SQL Access
- Disco 10g adds Direct Access to OLAP

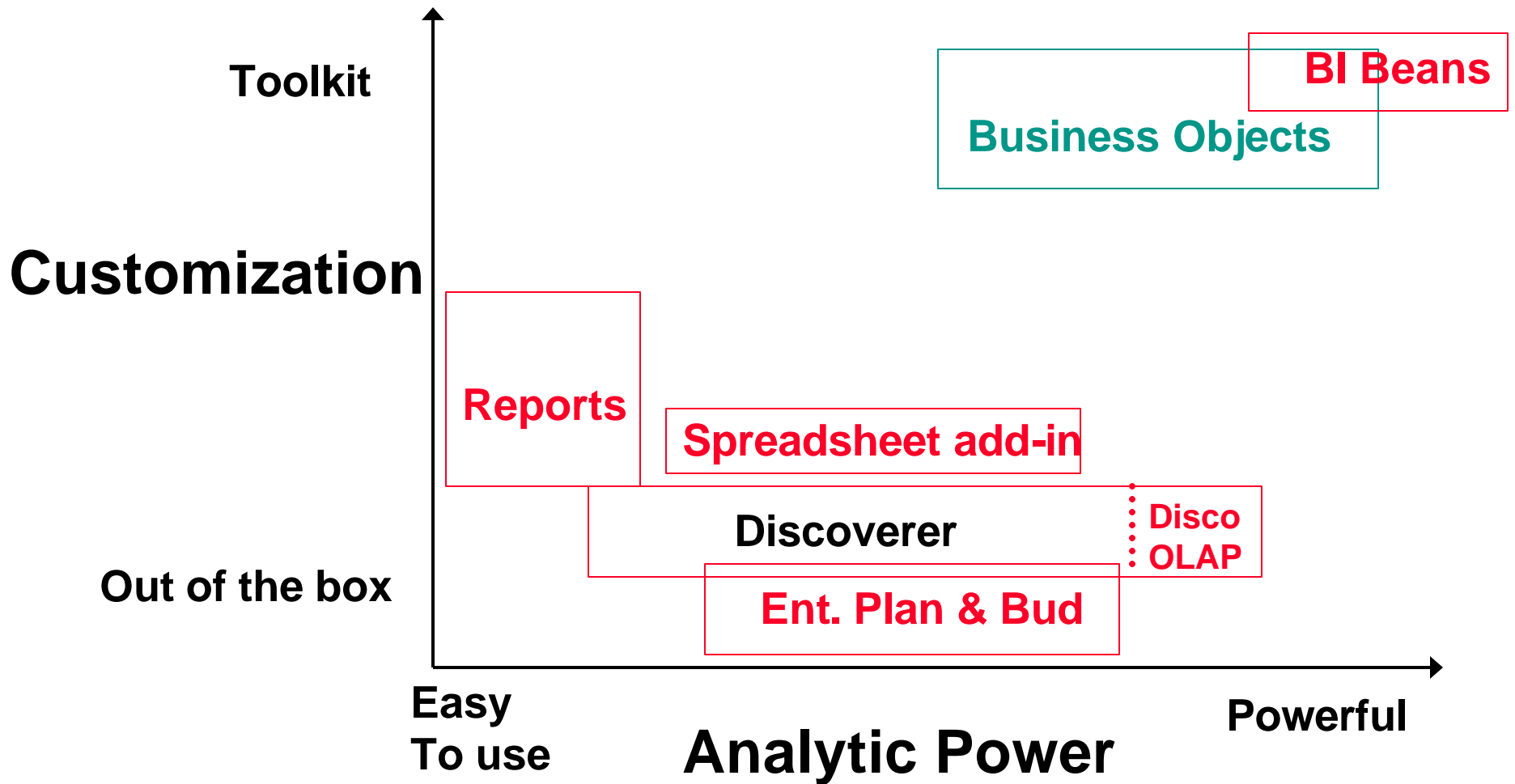




What Access Tool?

- **Java OLAP API designed for products**
- **BI Beans for custom applications (using JDev)**
- **Oracle Reports for highly formatted reports**
- **Discoverer for ad hoc analysis**
- **Oracle Apps for analysis of Apps data**
- **3rd Party tools fill in gaps**

Choices for Viewing Data





Java OLAP API

- **Object-oriented**
- **Mathematically consistent**
- **Java (industry standard)**
- **Compatible with JOLAP standard**
- **Declaratively (not procedure) based**
- **Data in relational or analytic workspace**
- **Multidimensional cursors**
- **Really designed for low-level access**
- **Most developers will use BI Beans instead**



OLAP API Calculation Capabilities

- **Multidimensional object model**
- **Totals broken out by multiple attributes**
- **Row and column calculations**
- **Union dimensions**
- **Measures as dimensions**
- **Calculated dimension members
(e.g. income 0-20K, 20-50K, 50-75K, >75K)**
- **Asymmetric queries**
- **Multiple measures per cell (e.g. color-coding)**



Simple Java OLAP API Example

English

Select the products where the dollars measure is greater than 1,000,000 for geography Orlando for time period May2001.

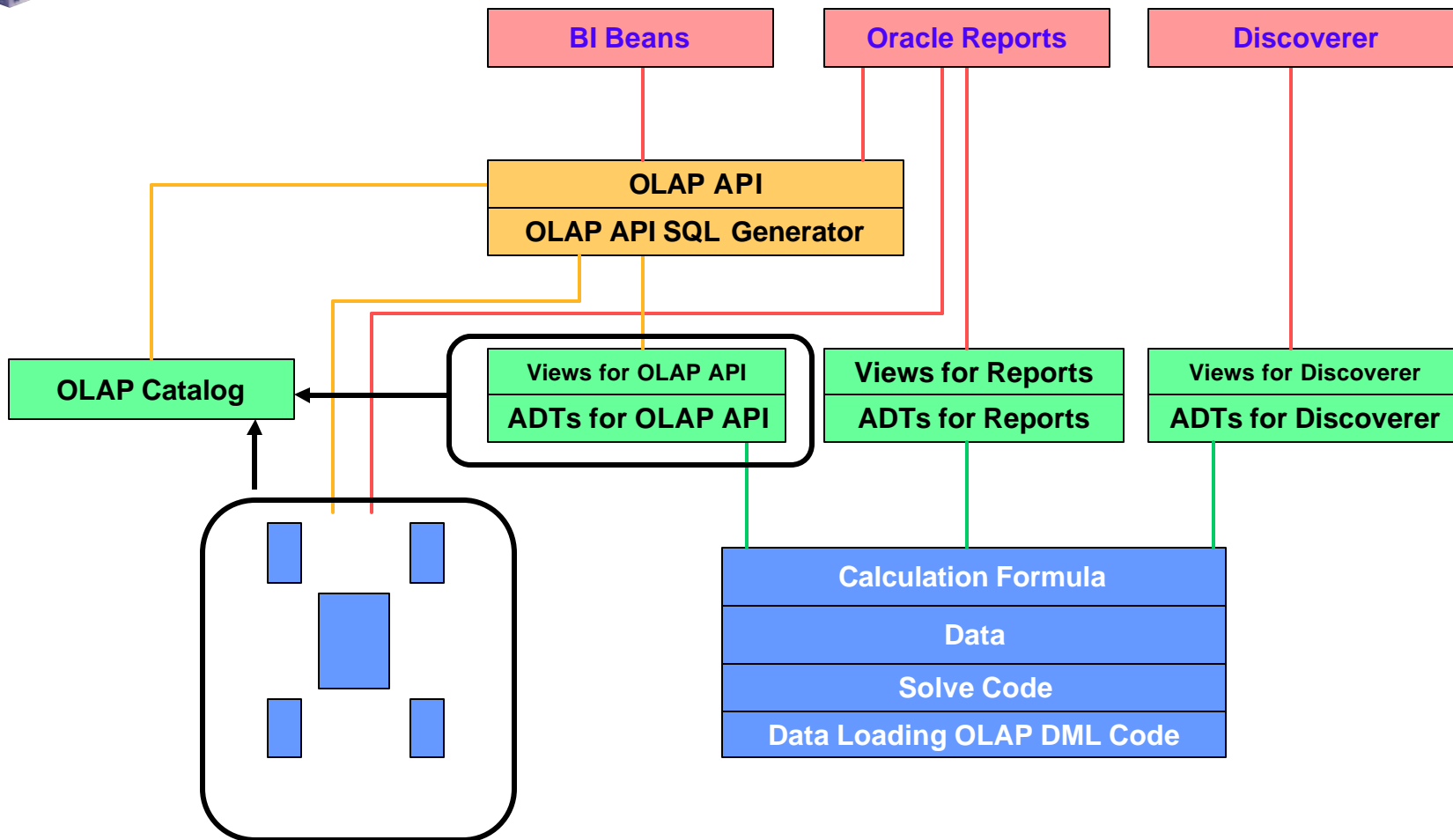
Express

```
limit geography to 'ORLANDO'  
limit time to 'MAY2001'  
limit product to dollars gt 1000000
```

Java
OLAP
API

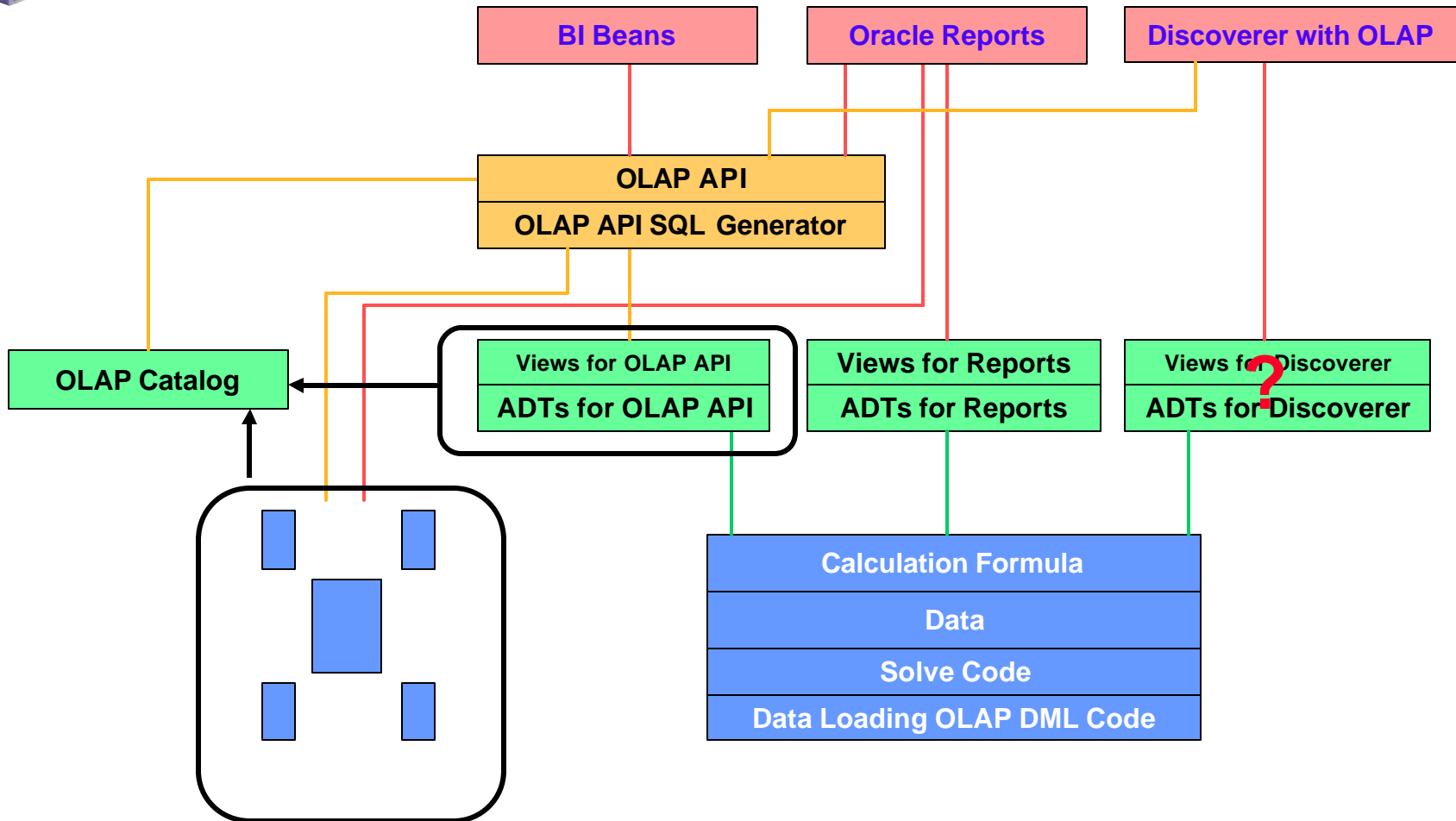
```
Source geogSel = geography.selectValue("ORLANDO");  
Source timeSel = time.selectValue("MAY2001");  
Source dolByProd = dolSrc.join(geogSel).join(timeSel);  
Source prodSel = product.select(dolByProd.gt(1000000));  
Source dolGT1Mill =  
    dolSrc.join(geogSel).join(timeSel).join(prodSel);
```

Overview of Access Methods 2003

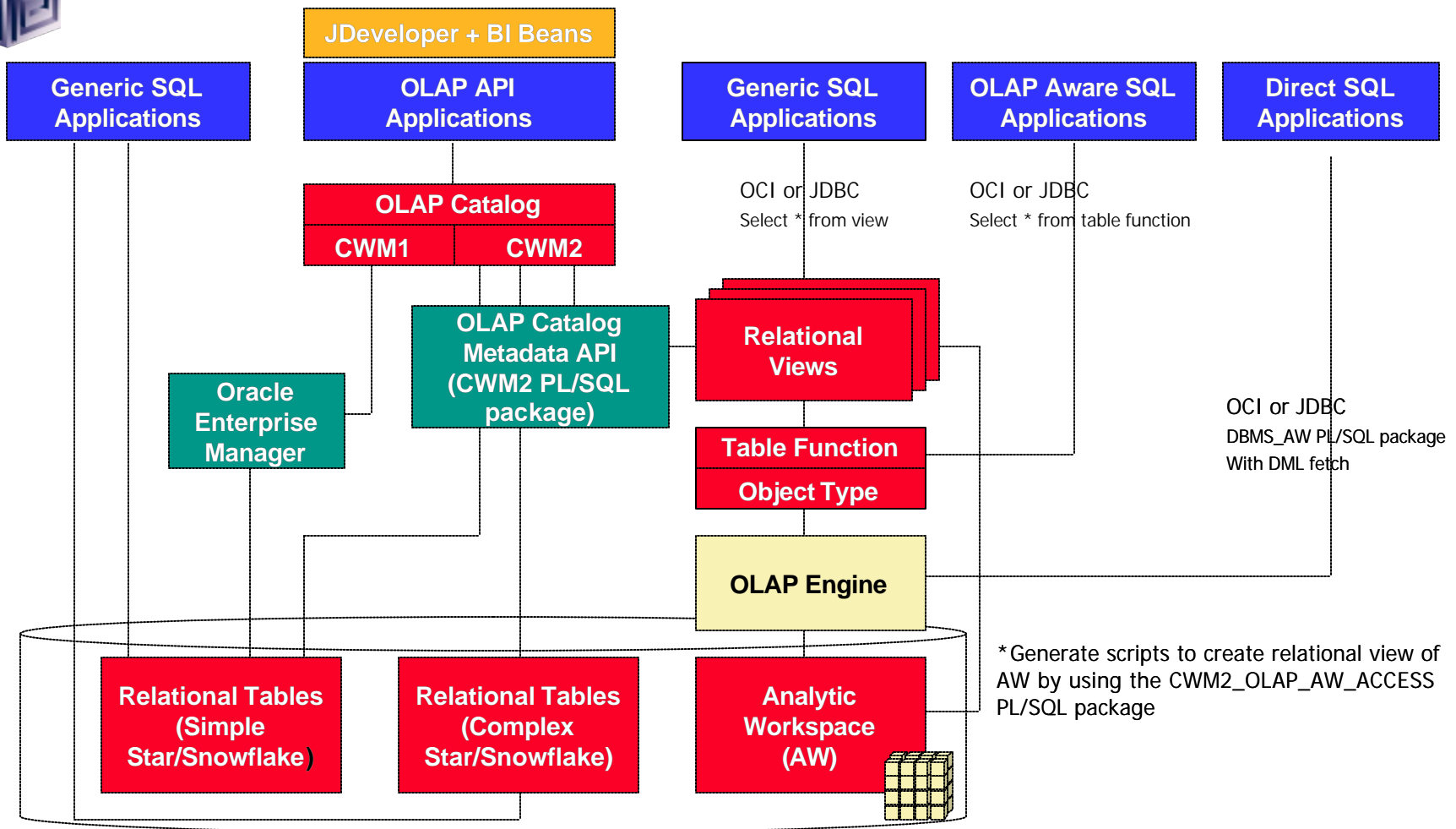




Overview of Access Methods 2004



OLAP Access Methods



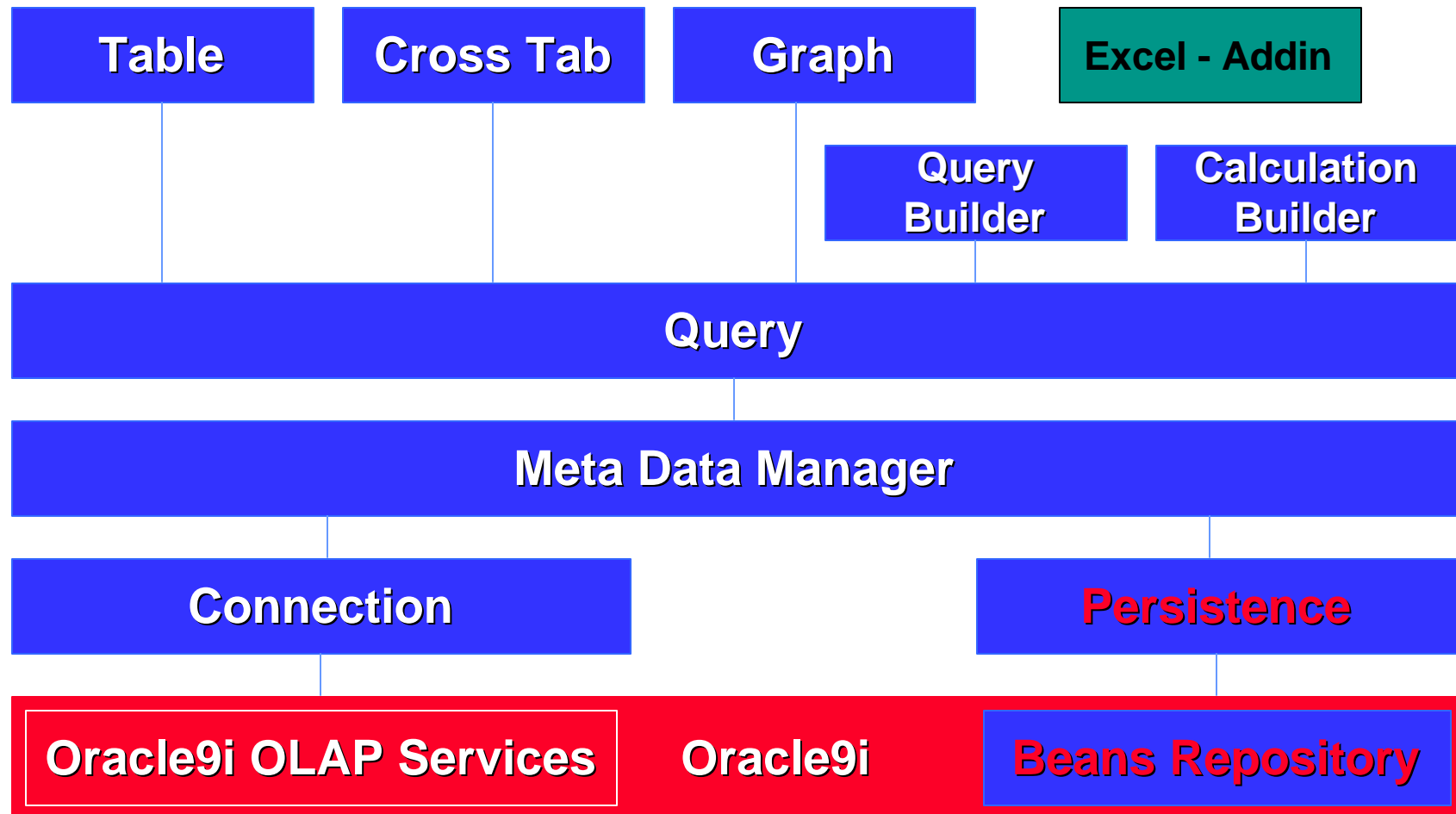


BI Beans Specifics

- **Can look like anything**
- **Since custom coded, can do anything**
- **Generally, use Cross-tab and Graph bean to present data**
- **Can integrate other data easily**
- **JDeveloper not required, but helpful**
- **No deployment license necessary**
- **Requires Oracle OLAP to run**



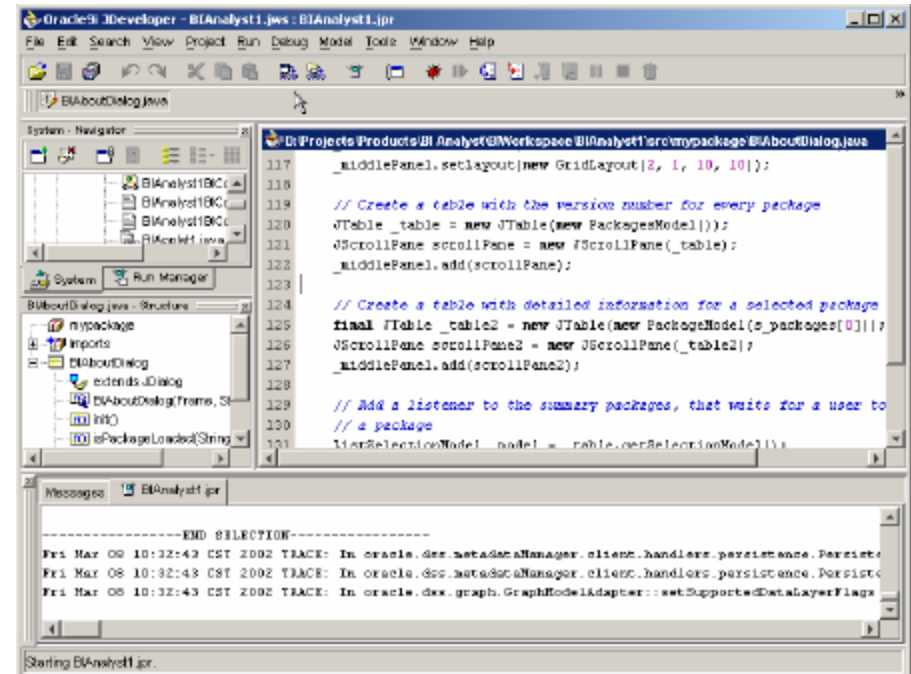
Business Intelligence Beans





JDeveloper Integration

- **Single Development tool for Relational and OLAP dev**
- **Design-time integration objectives**
 - ❑ **Use JDeveloper concepts; extend when necessary**
 - ❑ **Live data access**
 - ❑ **Run application objects**
 - ❑ **Extensive use of Wizards to support rapid development**
 - ❑ **Use BI Beans runtime repository to enable multiple deployment options**





JDeveloper 9i Environment

System Navigator

Structure Window

Log Window

The screenshot displays the Oracle9i JDeveloper IDE interface. The main window shows a Java code editor with the following code:

```
1140 cancelButton.addActionListener(this);
1141 cancelButton.registerKeyboardAction(this,
1142 KeyStroke.getKeyStroke(KeyEvent.VK_ESCAPE, 0),
1143 JComponent.WHEN_IN_FOCUSED_WINDOW);
1144 getContentPane().add(buttonPanel, BorderLayout.SOUTH);
1145 setResizable(false);
1146 pack();
1147 }
1148
1149 public void actionPerformed(ActionEvent e)
1150 {
1151     if(e.getSource() == cancelButton) {
1152         setVisible(false);
1153         dispose();
1154         getParent().repaint();
1155     } else if (e.getSource() == applyButton)
1156     {
1157         if (m_activeView instanceof Graph)
1158         {
```

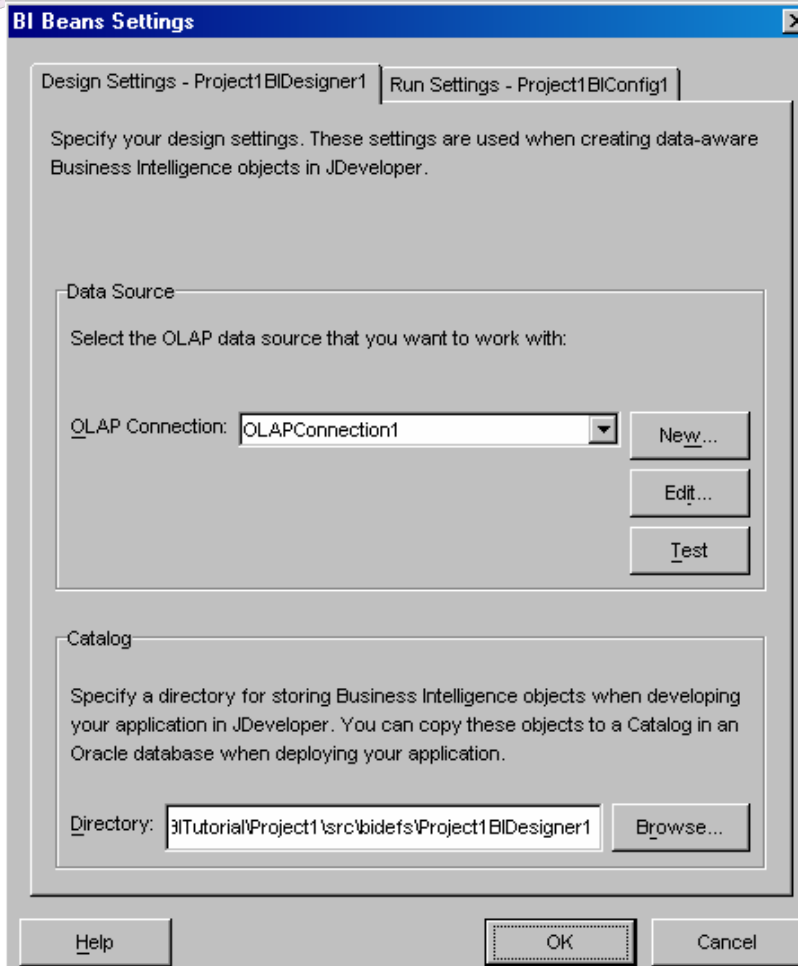
The interface includes several panels:

- System Navigator:** Located on the left, showing a project tree with folders like 'vssbaBIDesigner', 'application-client', and 'vssba1_deploy'.
- Structure Window:** Below the System Navigator, showing a detailed view of the 'BIApplication1.java' structure, including 'VIEW_TYPE_GRAPH', 'xYLayout1', 'GraphLayoutForWizard', and 'PanelDialog'.
- Code Window:** The central area displaying the Java source code for 'BIApplication1.java'.
- Component Toolbar:** Located at the top right of the code window, containing various icons for editing and development.
- Log Window:** At the bottom, showing a 'Messages - Log' window with the text: 'Compiling... D:\oracle\jdev9i\jdev\bin\ojc.exe -noquiet -warn -nowarn:486 -nowarn:487 -encoding Cp1252 -g -d D:\Projects\vssba\vssvba compiling D:\Projects\vssba\vssvba.ws\vssba\src\vssba\BIApplication1.java Successful compilation: 0 errors, 0 warnings.'

Component
Toolbar

Code
Window

BI Beans Designer Settings



- **Container for Business Intelligence Objects**
- **References information needed to connect:**
 - to Oracle 9i OLAP**
 - and the BI Beans Catalog.**
- **Design Settings - Lets you view and edit settings in your BI Designer object**
- **Run Settings - Lets you view and edit settings in your BI Configuration file**

Connection Wizard



**Walks you through
creating an Catalog
Connection**

OLAP Connection Wizard - Step 1 of 4: Type

Type Authentication Connection OLAP Server Instance

Each connection is identified by a name. It must be a valid java identifier and unique.

Connection Name:
OLAPConnection1

Connection Type:
Oracle (JDBC)

Help

- **Define Connection Name and Type**
- **Login and Password**

OLAP Connection Wizard - Step 2 of 4: Authentication

Type Authentication Connection OLAP Server Instance

A username and password is usually used to authenticate your connection. Enter your username and password below if one is required. If you would like your password to be deployed with the connections.xml file with your projects, select Deploy Password.

Username:
BIBDEMO

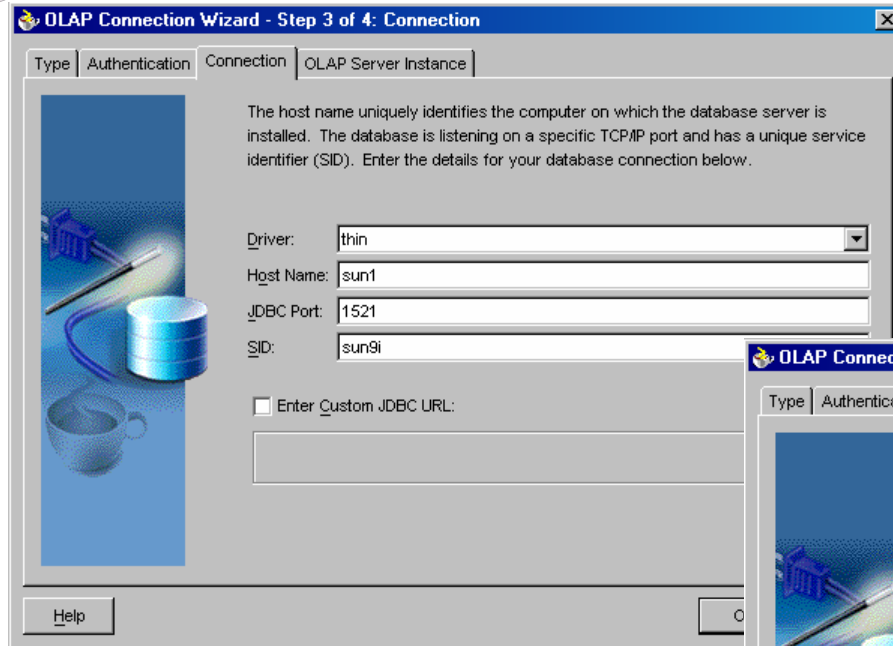
Password:

Role:

Deploy Password

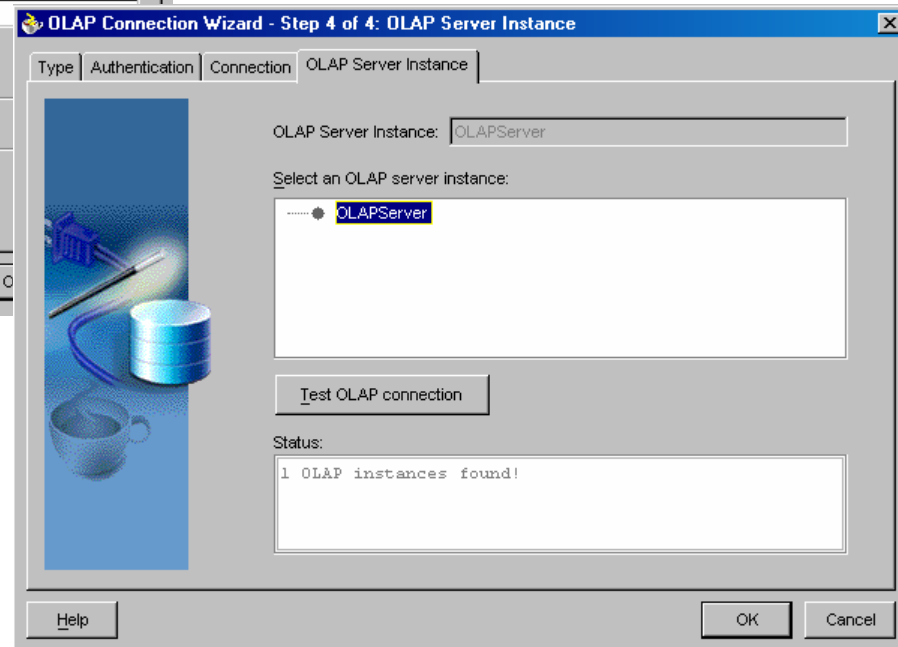
Help OK Cancel

Connection Wizard



- **Specify data source.**

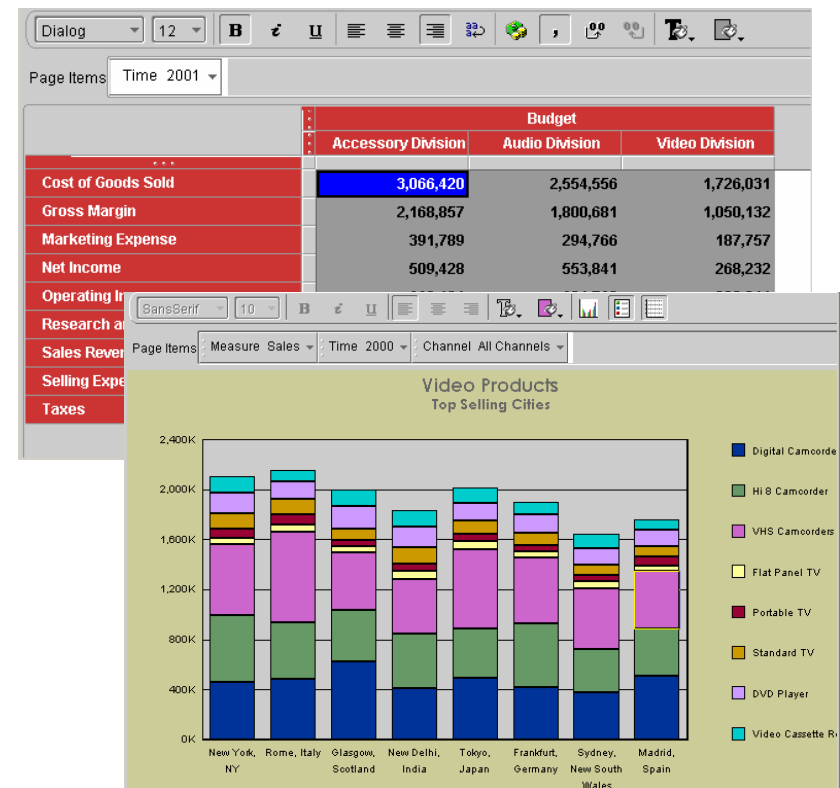
- **Select and Test OLAP Connection**



Presentation Beans



- Provides common user interface across Oracle BI products
- Translate UI gestures into OLAP events
- Graph
 - Over 50 graph types
 - Can modify appearance
- Crosstab/Table
 - Cell level formatting
- View toolbar enables simple access to formatting capabilities
- Customers: Discoverer, Reports, Portal, CRM, Enterprise Planning and Budgeting, Balanced Scorecard
- ...





Business Intelligence Wizards

- **Specialized Wizards Built into JDeveloper 9i**
 - Connection Wizard**
 - Calculation Wizard**
 - Query Wizard**
 - Presentation Wizard**
 - Java Client Application Wizard**
 - Servlet (JSP) Application Wizard**

JDeveloper BI Wizards



The image displays several screenshots from the JDeveloper BI Wizard:

- New Dialog:** Shows the 'Categories' list with 'Business Intelligence' selected under the 'Web Services' category. The 'Items' list includes 'Designer', 'Presentation', 'Query', 'Calculation', 'Java Application', and 'Servlet Application'.
- BI Java Application Wizard - Step 3 of 3: Menu and Toolbar:** A dialog box asking if the user wants to include a menu and toolbar. The 'Yes' option is selected for both. Under 'Select the top level menu items that you want', 'File', 'Tools', and 'Help' are checked.
- BI Java Application Wizard - Summary:** A dialog box showing the summary of the wizard. It lists the following options for the BI Java Application:
 - BI Java Application
 - File
 - D:\Projects\wssba\wssvba.ws\wssba\src\bidefs\wssbaBIApplication2.java
 - BI Designer
 - wssbaBIDesigner1
 - Display Presentation
 - No
 - Include Menu
 - File Menu
 - Tools Menu
 - Include Toolbar
 - Yes

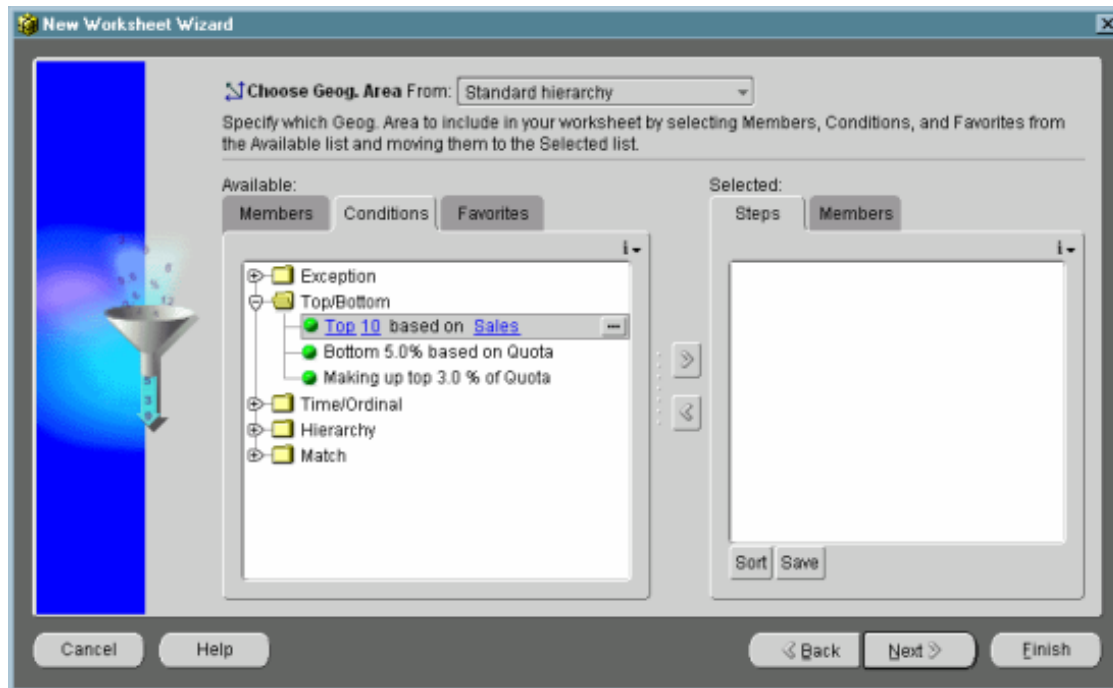
Choose Finish to generate the BI Java Application.

- Background Presentation:** A screenshot of a BI application presentation showing a data table with columns for 'First Quarter' (January, February, March) and 'Second Quarter'. The table contains the following data:

	First Quarter			Second Quarter
	January	February	March	
ect	5,000	5,400	5,800	7,200
irect	500	540	580	1,711



Query Builder



- **“Brains” behind the presentation beans**
 - Data provider**
 - Data navigation**
 - Data selection**
- **QueryBuilder customizer**
 - Enables end user to specify advanced queries using business terms - not SQL**
 - Save favorite selections**

Customizer



Crosstab Customizer - Step 1 of 3: Options

Options | Titles | Format | Style

Select options for your crosstab.

Show horizontal grid lines:

Show vertical grid lines:

3D gridlines

Show column headers

Show row headers

Row header style:

Inline

Outline

Sample:

	Category	Product	Region
Region	Product		
Region	Product		
Region	Product		
Region	Product		
Region	Product		

Help Apply

- Alter the look of your presentation.
- Add titles and footnotes.

Crosstab Customizer - Step 2 of 3: Titles

Options | Titles | Format | Style

Enter text for your crosstab titles.

Show Title Title Font...

Asian Sales Summary

Show Subtitle Subtitle Font...

Stoplight Report

Show Footnote Footnote Font...



Customizer

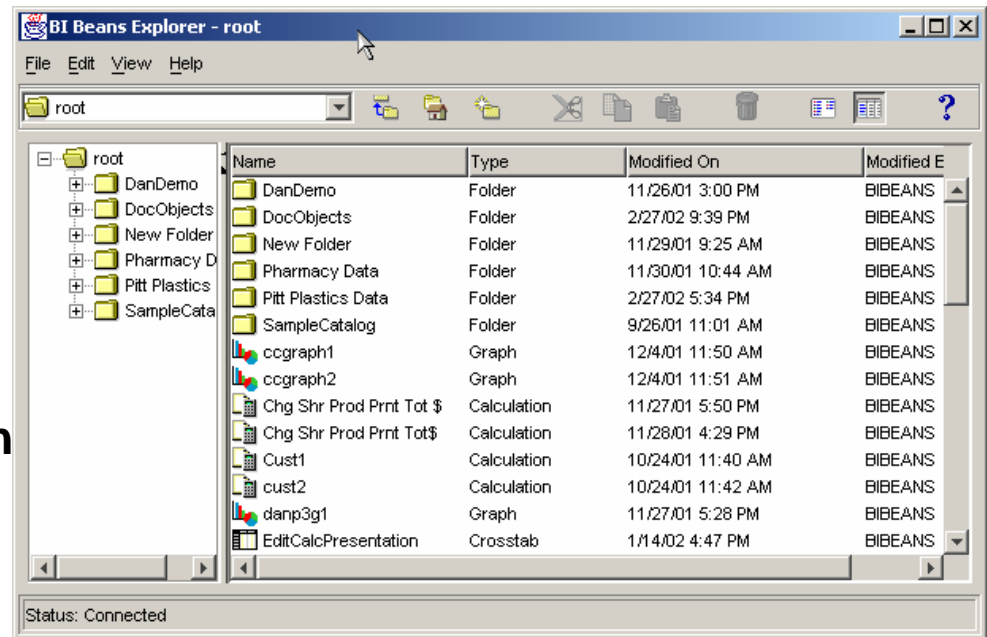
- Add data-driven formatting.

The screenshot displays the 'Crosstab Customizer - Step 3 of 3: Format' window. It features tabs for 'Options', 'Titles', 'Format', and 'Style'. The 'Format' tab is active, showing instructions to define formats for highlighting cells. A list of 'Data Formats' includes 'Big Shots' and 'Losers', both of which are checked. A 'Sample' field shows the value '-123,456'. An 'Edit Condition' dialog box is open, showing a rule: 'Sales > 1000000.0'. The 'Format Data' dialog box is also open, showing a list of conditions: 'Geography: China, India, Japan, Malaysia, Singapore, Taiwan', 'Channel: Retail', 'Time: 2000', and 'Sales > 1000000.0'. The 'Sample' field in this dialog shows a list of values: 1,234, 9,012, 3,456, -4,567, 2/2/03, 6/15/00, and 12/4/02, all of which are highlighted in green. The 'Format Data' dialog also shows a list of format elements to include, with 'Background color' checked.

Persistence Services - BI Catalog

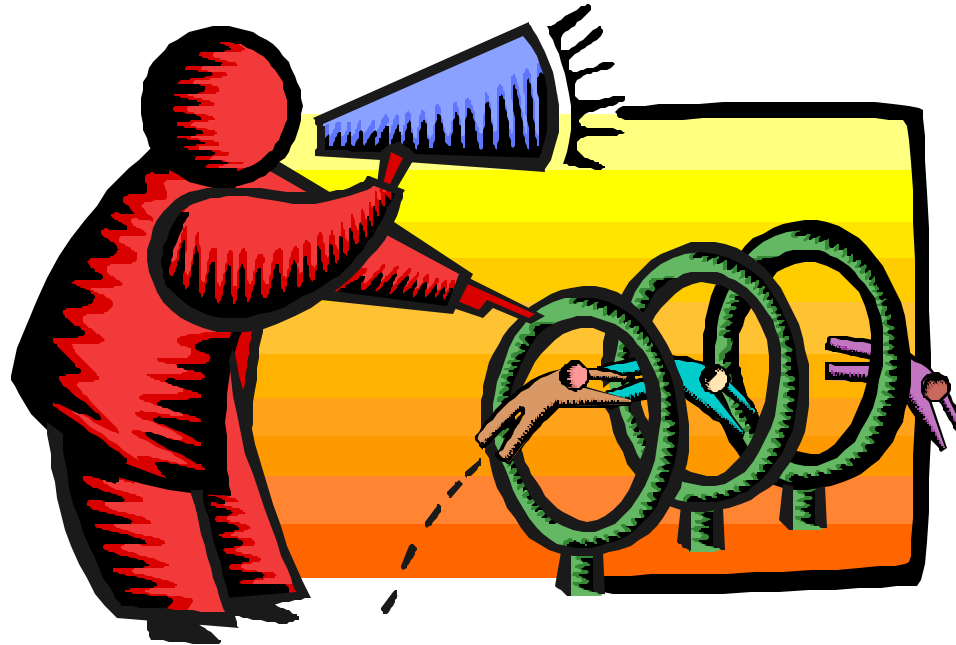


- Enables end users to save personal analyses or share analyses with other users.
- Organizes information in folders
- Persisted objects include:
 - Crosstab, table and graph formatting
 - Entire queries or individual selections
 - Calculations
- Objects persisted in XML format
- Searchable





Demonstration of BI Beans Application





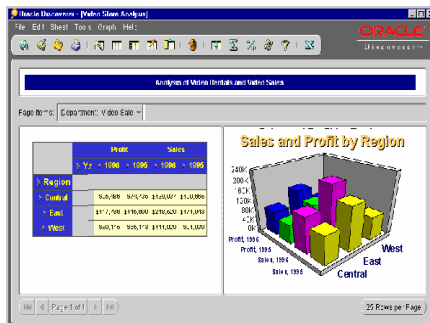
Discoverer Specifics

- **Discoverer "Classic" still there**
- **Discoverer OLAP built with BI Beans**
- **Integrated Relational and Multidimensional access to data**
- **Discoverer OLAP uses BI Beans repository with Discoverer extensions**
- **Uses "Workbook" metaphor to organize crosstabs and graphs into screens**

Three Deployments of Discoverer



Discoverer Plus



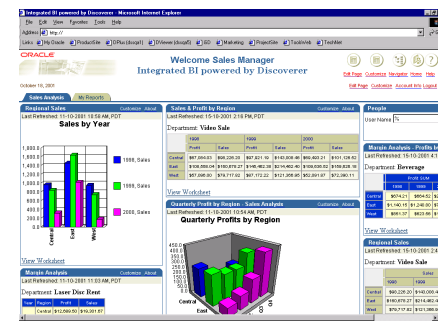
Power user tool
Creates new workbooks
Runs via applet

Discoverer Viewer



Casual user tool
Existing workbooks
Launched from Browser
Zero footprint

Discoverer Portlets



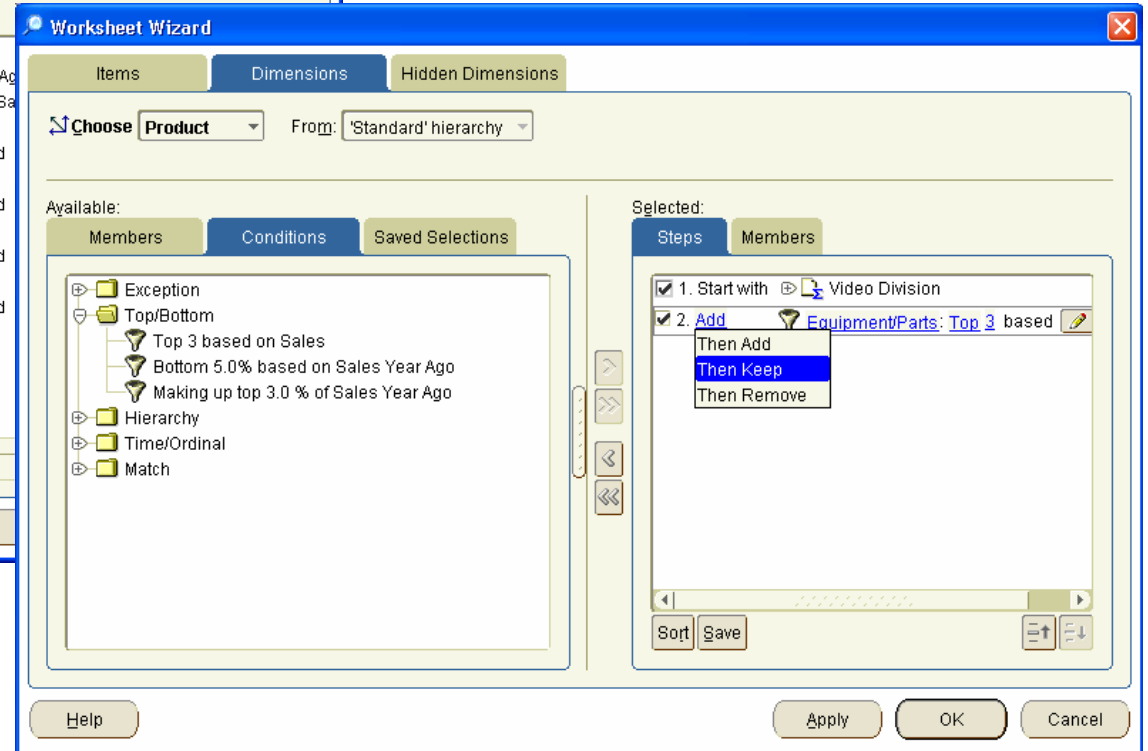
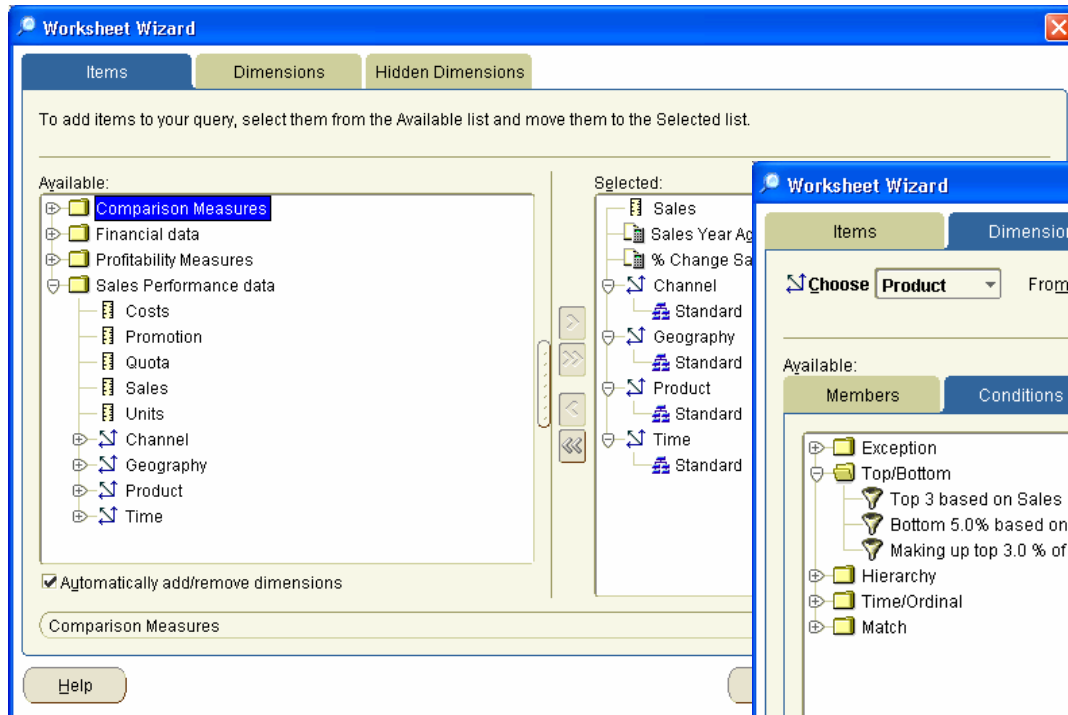
Casual user tool
Existing workbooks
Part of Portal
Launches Viewer
Zero footprint



Discoverer Development Themes

- **Single tool for both relational and multidimensional analysis**
- **Easy access to powerful analytics of the database**
- **Highly customizable display**
- **Support collaboration**

Query Building

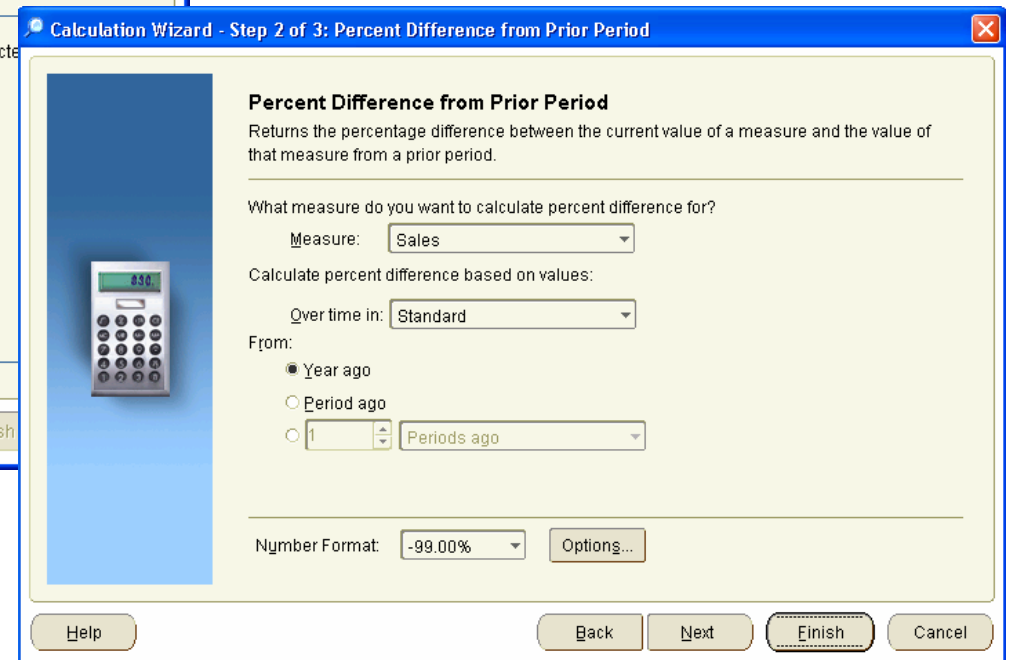
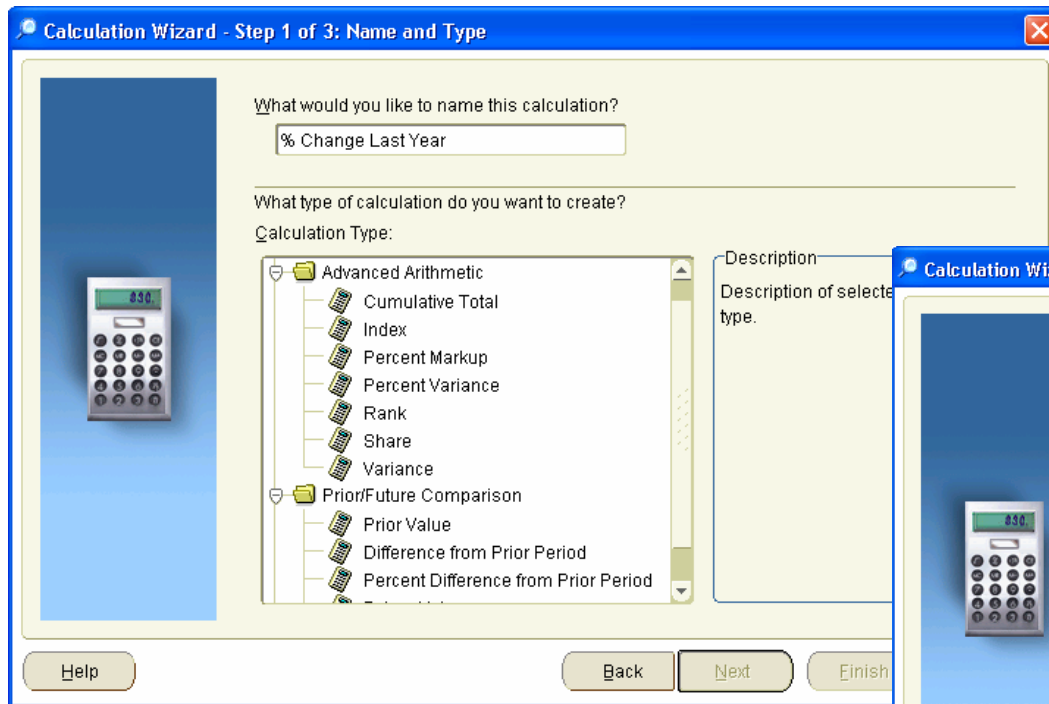


Simplified access
to analytics

Custom Calculations



Powerful calculations,
simple user interface



Direct Manipulation



Oracle Discoverer OLAP Plus - [Performance Tracker]

File Edit View Format Tools Window Help

Dimension: Measures

- Root
 - Comparison Measures
 - % Change Sales
 - Quota Variance
 - Sales Year Ago
 - Financial data
 - Profitability Measures
 - Sales Performance data
 - Costs
 - Promotion
 - Quota
 - Sales
 - Units

1. Start with Members

- Sales
- Sales Year Ago
- % Change Sales

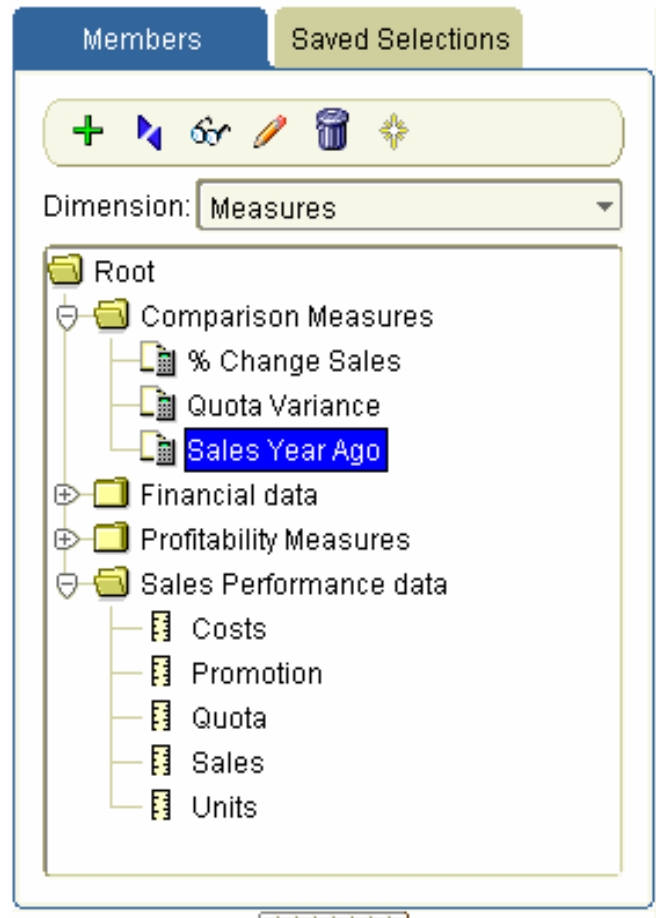
Product: All Products Time: March 2001

Product	Time	Sales
Worldwide	March 2001	9,700,000
Americas	March 2001	3,000,000
Asia	March 2001	2,000,000
Australia	March 2001	1,000,000
Europe	March 2001	2,500,000

Negative sales growth highlighted red

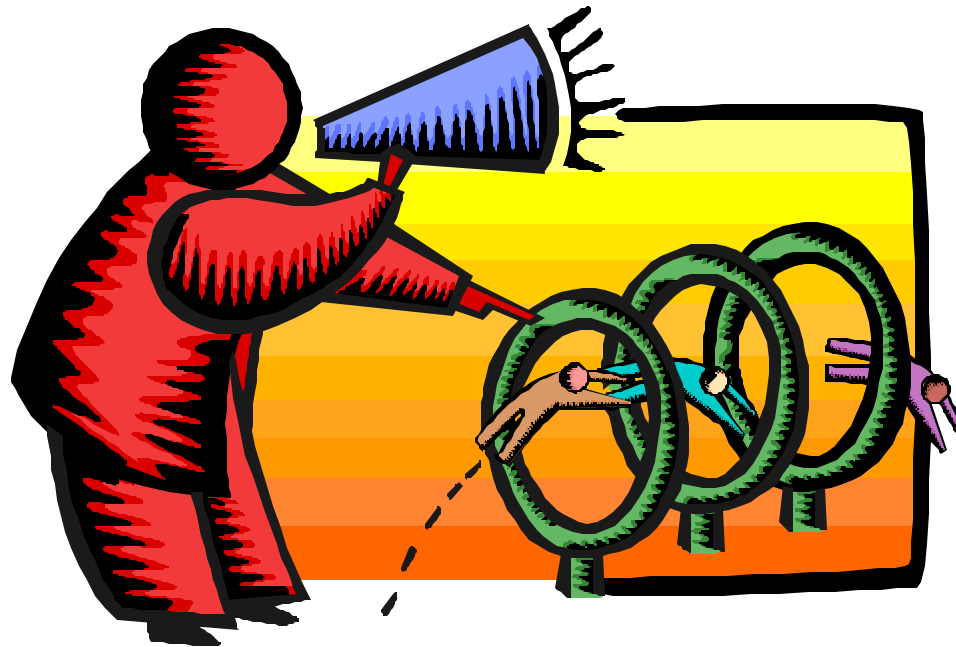
Sales vs. Year Ago Product Performance by Region Sales Trends

Navigator – Member Selection



- **Dimension members and measures can be selected and applied to the worksheet**

Demonstration of Discoverer





Discoverer Plus Features Over Vanilla BI Beans Application

- **Multiple deployments**
 - Thick applet
 - Thin viewer
 - Portlet
- **Worksheet metaphor**
- **Export to PDF**
- **Undo**
- **Drag and Drop selection changes**
- **Totals at bottom or right**
- **Other features as well**



Which Is Right For You?

BI Beans

- **Need customizations**
- **Integrate with other non-Oracle Applications**
- **Need to extend in future**
- **Have Java programmers**
- **No problem with:**
 - Documentation**
 - Installation**
 - Support**
 - Training**

Discoverer

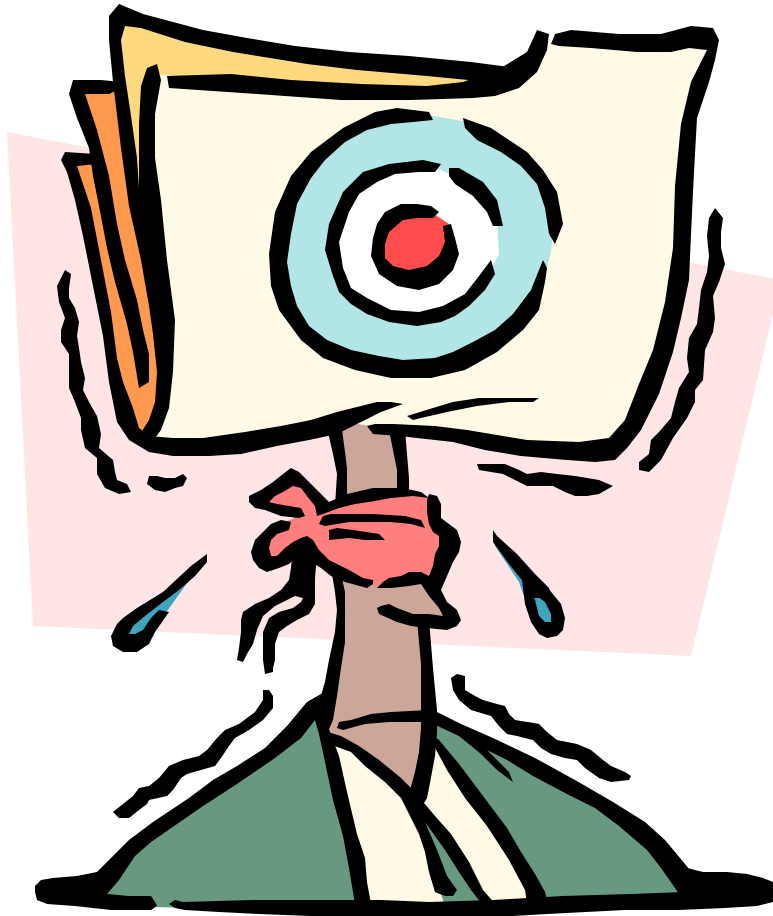
- **Want out-of-the-box setup**
- **Already have Discoverer**
- **Want Portal integration**
- **Like Discoverer functionality**



Enterprise Planning and Budgeting (EPB)

- **Part of Oracle E-Business Suite (Oracle Apps)**
- **Integrated security**
- **Workflow oriented**
- **Extends calc templates**
- **Includes custom aggregates**
- **Thin BI Beans deployment**
- **Worksheets enable writeback**
- **Migration tools from OFA/OSA eventually**

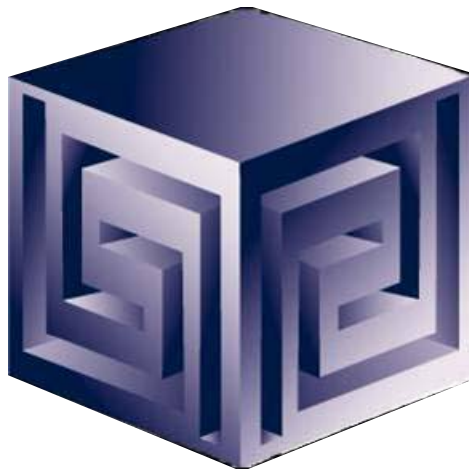
QUESTIONS?



Discoverer 10g or Bi Beans - Which Is Right for You?

IOUG Live! 2004

Session #418



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