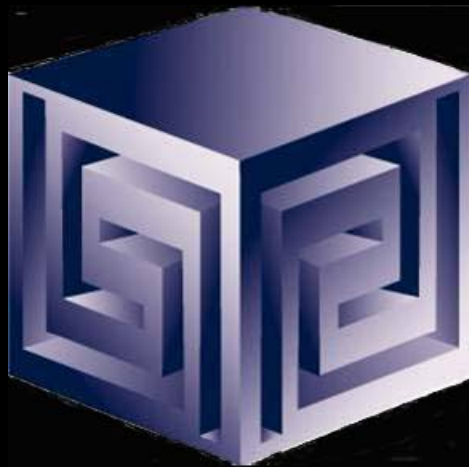


Developing Applications with Business Intelligence Beans and Oracle9i JDeveloper: Our Experience

IOUG 2003
Paper 406



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Vlami Software Solutions, Inc.

- **Founded in 1992 in Kansas City, Missouri**
- **Oracle Certified professional services company**
- **Provides business solutions to international and domestic clients based on Oracle technologies.**
- **Authorized software reseller**
- **Creator of the first Oracle 9i Business Intelligence and Analytics tool.**
- **Core competency include:**
 - ☐ **Certified designers,**
 - ☐ **Developers,**
 - ☐ **Implementers**
 - ☐ **Nationally recognized technical authors, speakers and publishers.**



Who are we?

Chris Claterbos, Consulting & Development Manager

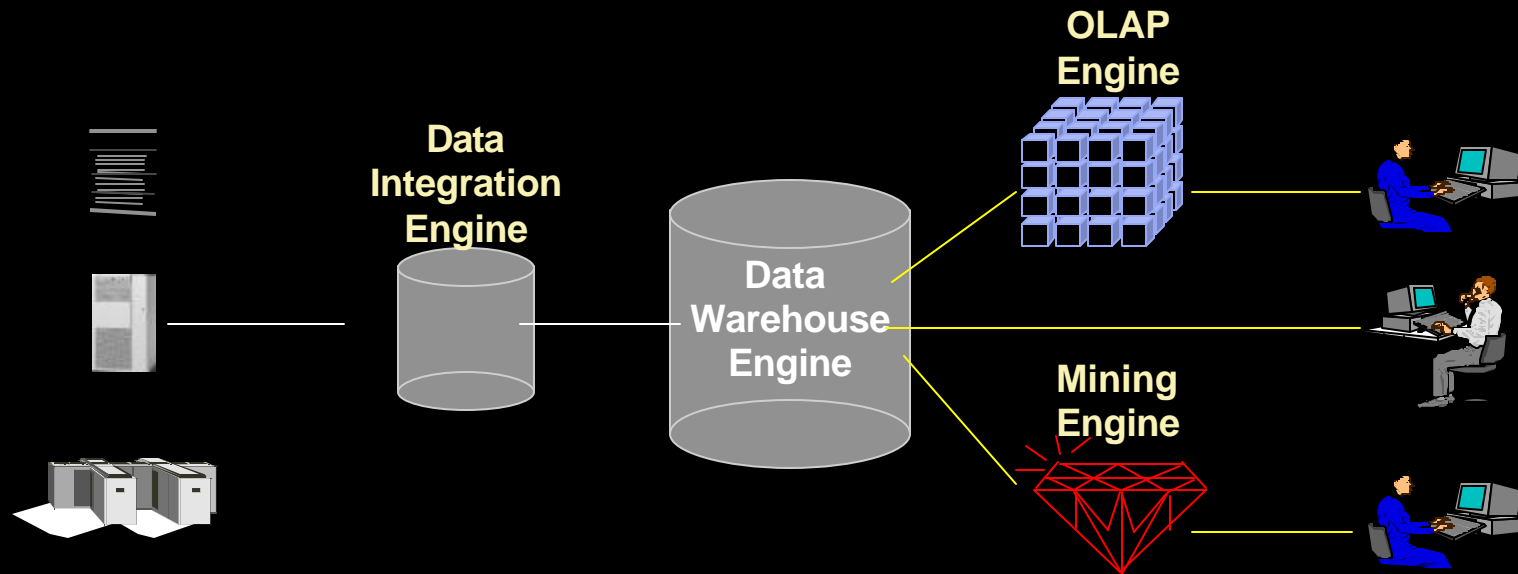
- ❑ DBA and applications developer for Oracle products, since 1981.**
- ❑ Beta tester and early adopter of - including Oracle 8i and 9i, JDeveloper and BBeans, Oracle 9IAS, Portal (formerly WebDB), and Reports.**
- ❑ Speaker and author.**
- ❑ IOUG Focus Area Manager for Data Warehousing and BI**
- ❑ Utilized Oracle SQL, PL/sql, Oracle Forms, Reports, Discover, Express, Express Objects, Web Objects, OWB, Designer and Oracle Applications (since version 7).**



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**

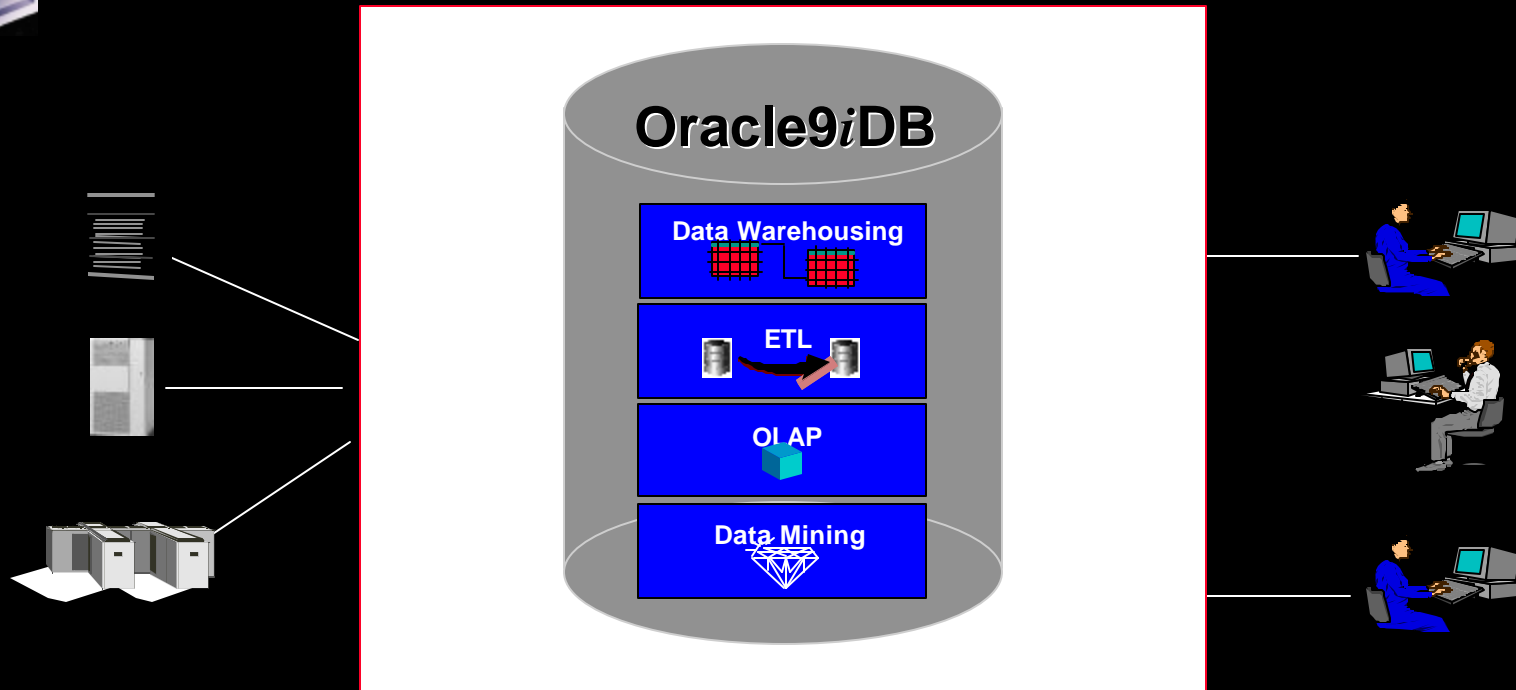
Business Intelligence the Old Way



Special purpose engines for differing tasks

- Metadata migration tools ease replication
- User interfaces generally different for different tools

BI the New Way: Oracle 9iDB



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



Oracle 9i and OLAP – What Is It?

- Advanced analytics
- Integrated in RDBMS
- Easy to develop
- Easy to use
- Facilitate collaboration
- Flexible deployment
- Scalable and performant



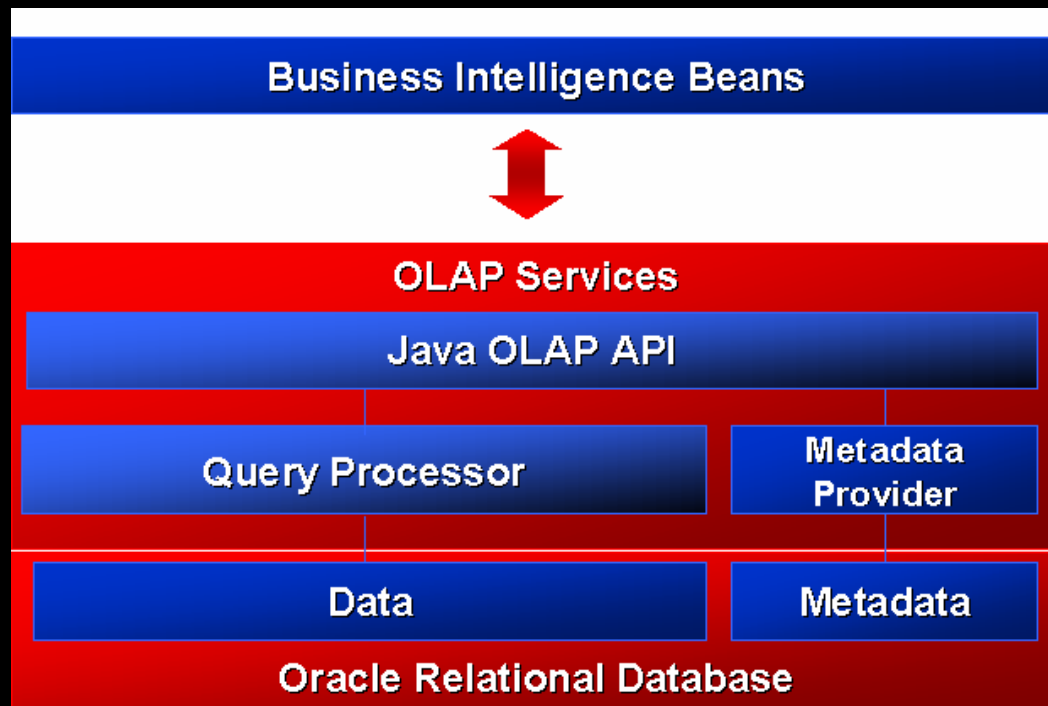
Analysis Functions

Oracle 9i Supports

- **Ranking family**
- **Window Aggregate**
- **Reporting Aggregate family LAG/LEAD**
- **Linear Regression family**
- **Inverse Percentile family**
- **Hypothetical Rank and Distribution family**
- **FIRST/LAST Aggregates family**



Oracle 9i OLAP Architecture



Rapid application development
Analysis ready

Java OLAP API
Predictive analysis functions

Scaleable data store
Integrated meta data
Summary management
SQL analytic functions



Java OLAP API

- **Designed for OLAP on the internet**
 - ❑ **Java, object-oriented**
 - ❑ **Supports OLAP calculations**
 - ❑ **Schema independent**
- **The API for analytical tools and applications**
 - ❑ **Oracle Business Intelligence Beans**
 - ❑ **Oracle Applications**

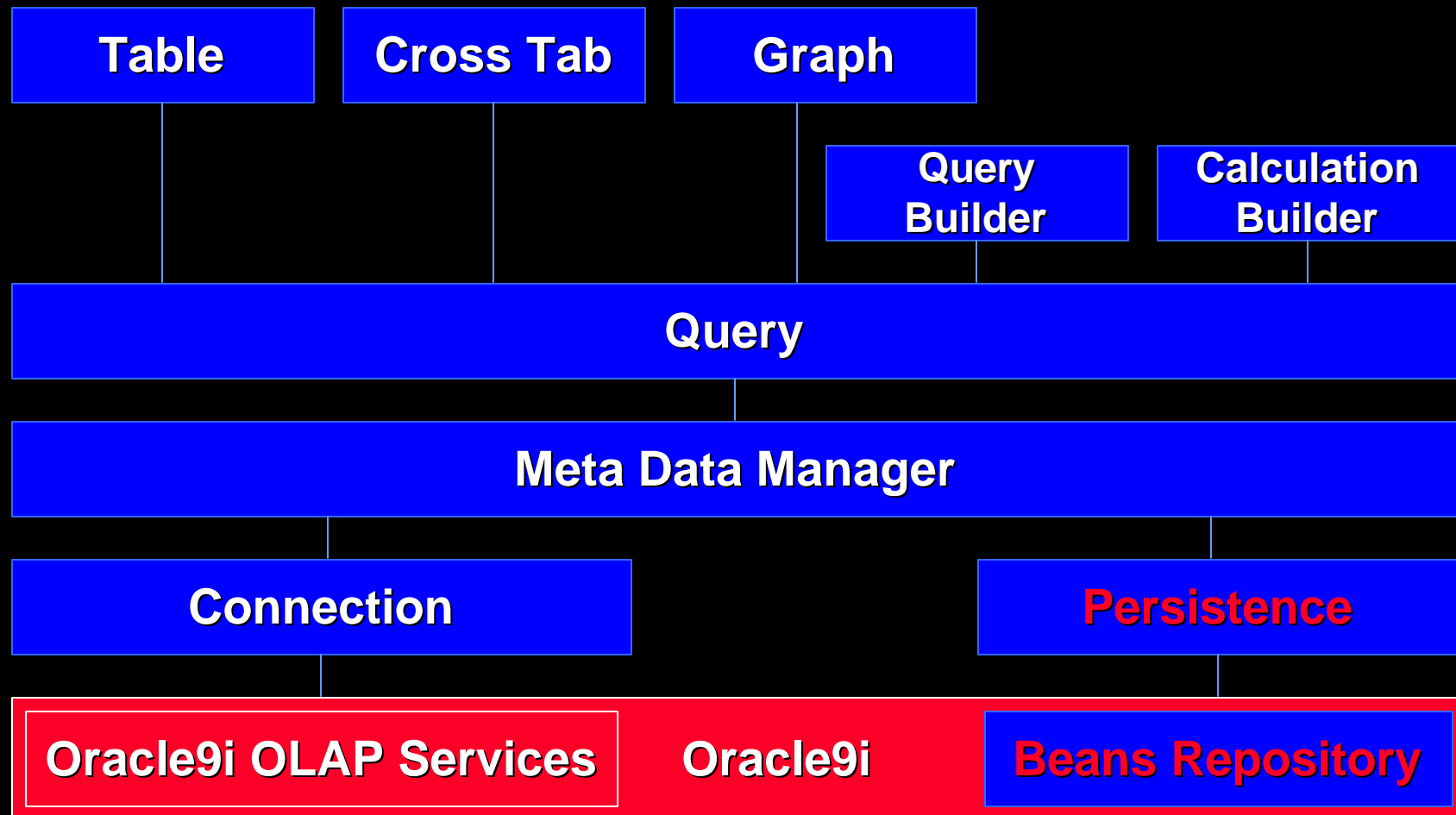


Java OLAP API

- **Complete OLAP query API**
 - ❑ **Multidimensional object model**
 - ❑ **Statistical, mathematical, financial, and time series functions**
 - ❑ **Asymmetric queries**
 - ❑ **Calculated dimension members**
 - ❑ **Incremental query construction**
 - ❑ **Multidimensional cursors**

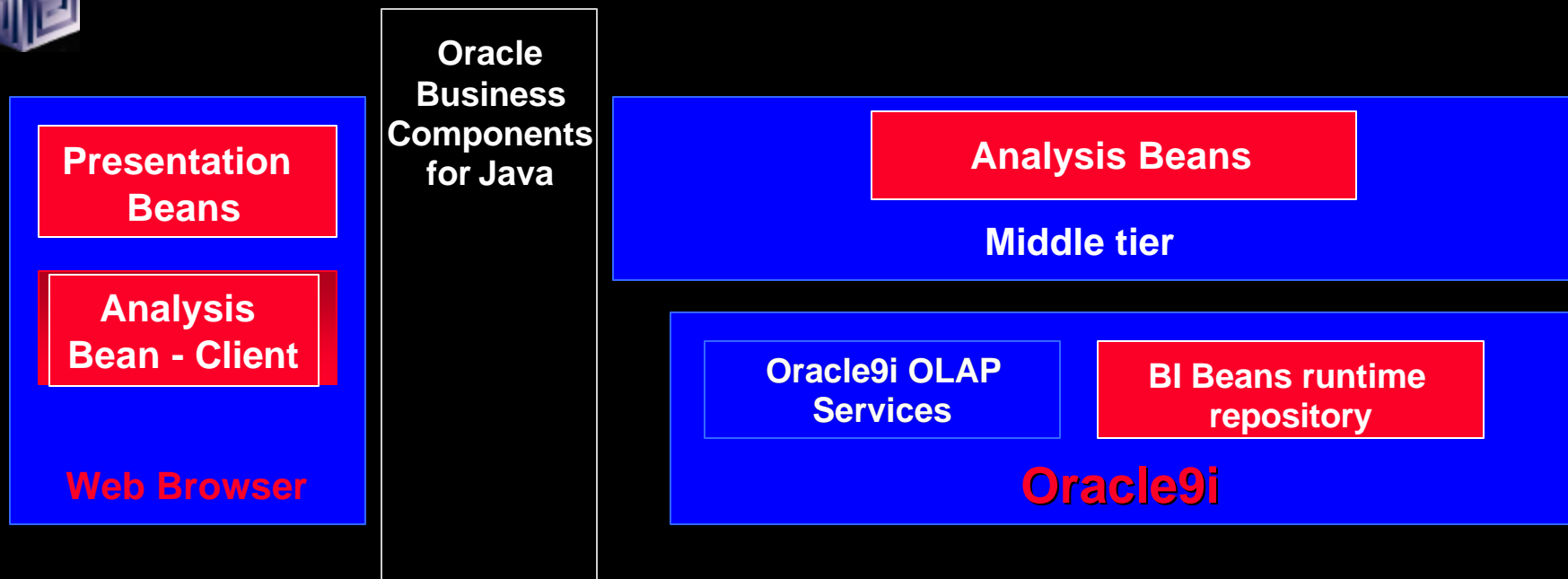


Business Intelligence Beans





Architecture: Java clients

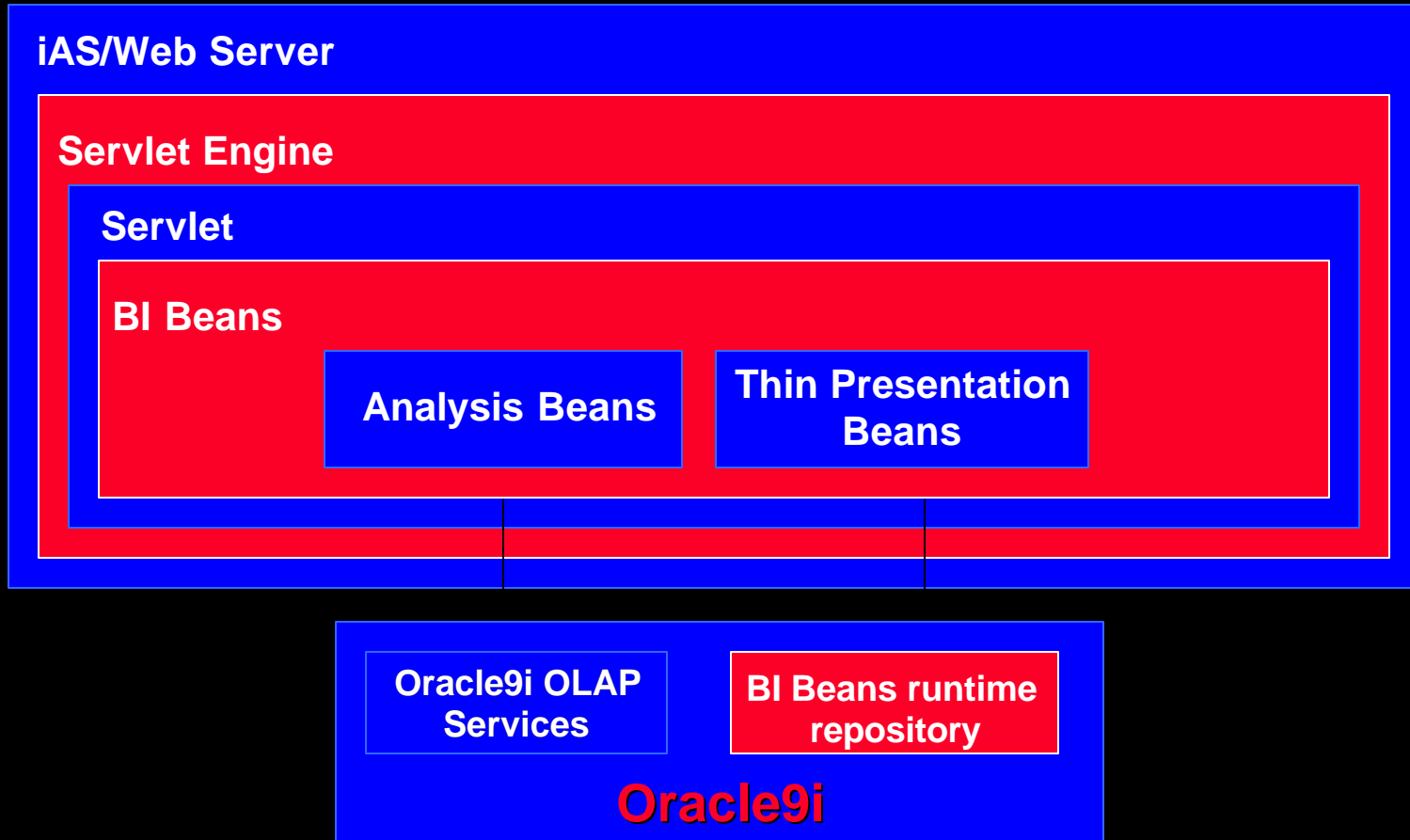


BI Beans use of Oracle Business Components for Java:

- * communications protocol across tiers
- * deploying iBeans on the middle tier (EJB, 8i)
- * insulates application developer from “application plumbing” related to deployment



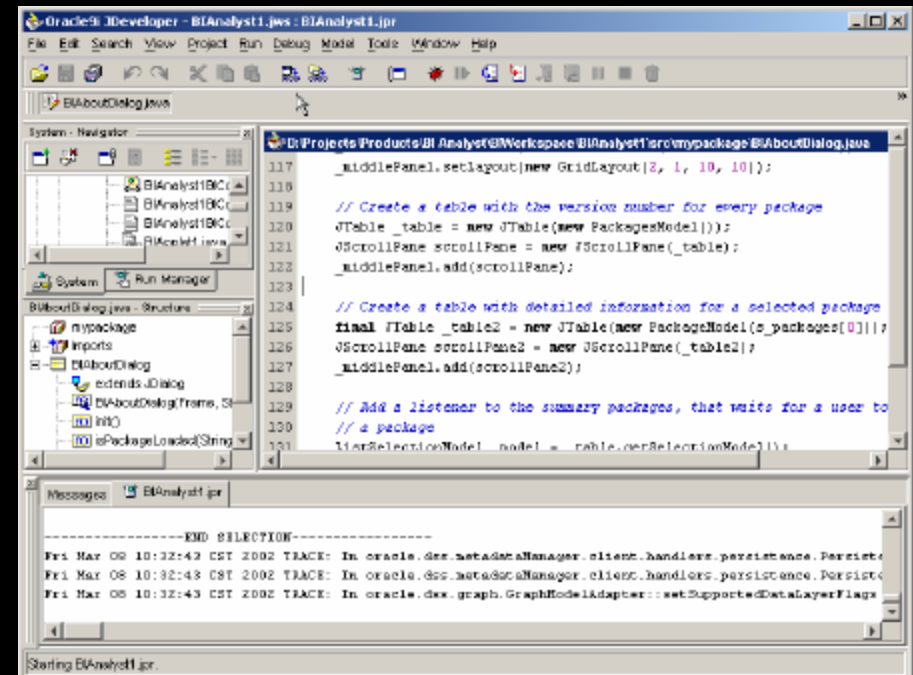
Architecture: Thin client





JDeveloper Integration

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



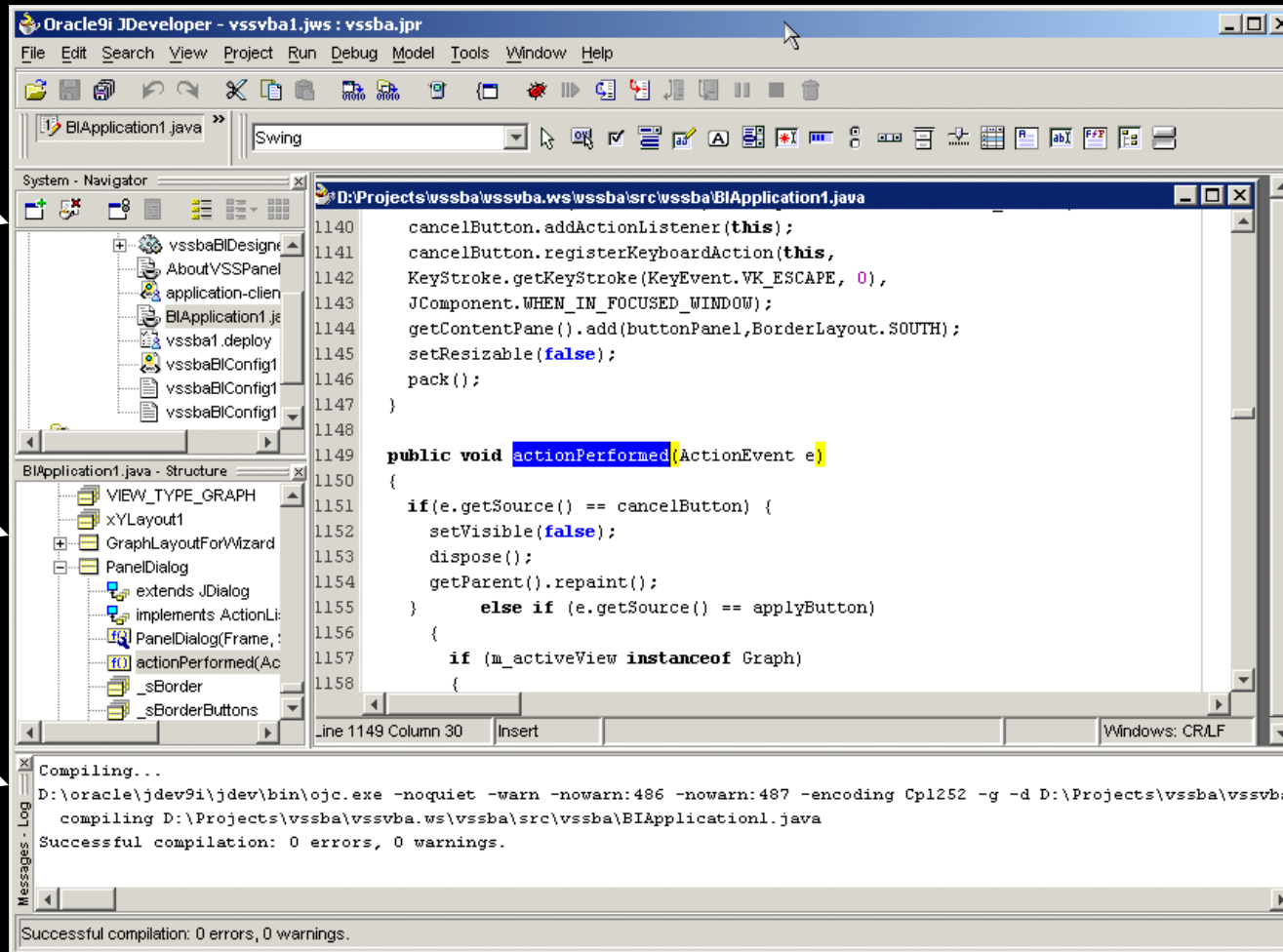


JDeveloper 9i Environment

System
Navigator

Structure
Window

Log
Window

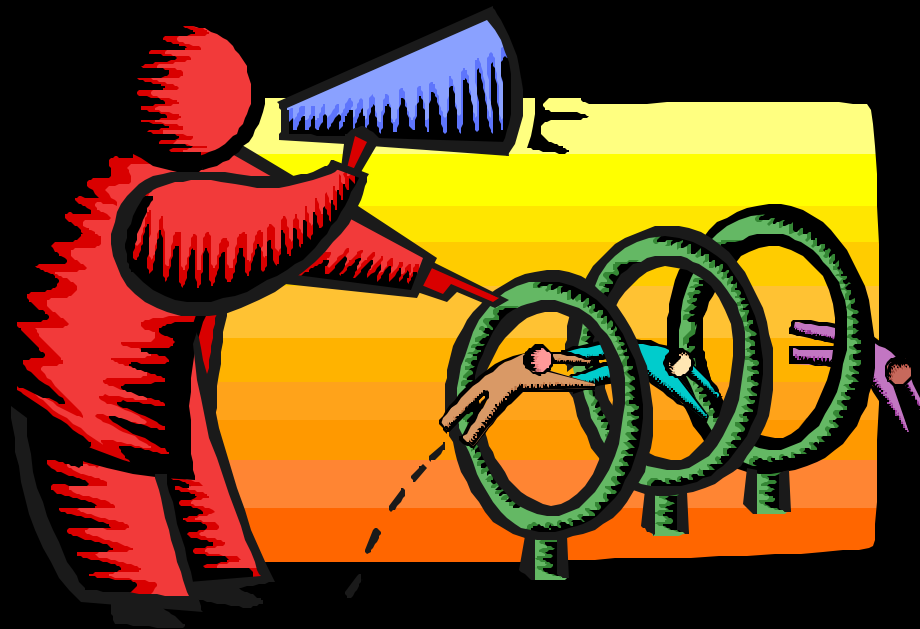


Component
Toolbar

Code
Window



Demonstration



BI Beans Designer Settings

The BI Beans Settings dialog box is shown with two tabs: 'Design Settings - Project1BIDesigner1' and 'Run Settings - Project1BIConfig1'. The 'Design Settings' tab is active. It contains a section for 'Data Source' with a text box for 'OLAP Connection' set to 'OLAPConnection1' and buttons for 'New...', 'Edit...', and 'Test'. Below this is a 'Catalog' section with a text box for 'Directory' set to '3ITutorial\Project1\src\bidefs\Project1BIDesigner1' and a 'Browse...' button. At the bottom are 'Help', 'OK', and 'Cancel' buttons.

BI Beans Settings

Design Settings - Project1BIDesigner1 | Run Settings - Project1BIConfig1

Specify your design settings. These settings are used when creating data-aware Business Intelligence objects in JDeveloper.

Data Source

Select the OLAP data source that you want to work with:

OLAP Connection: OLAPConnection1

New... Edit... Test

Catalog

Specify a directory for storing Business Intelligence objects when developing your application in JDeveloper. You can copy these objects to a Catalog in an Oracle database when deploying your application.

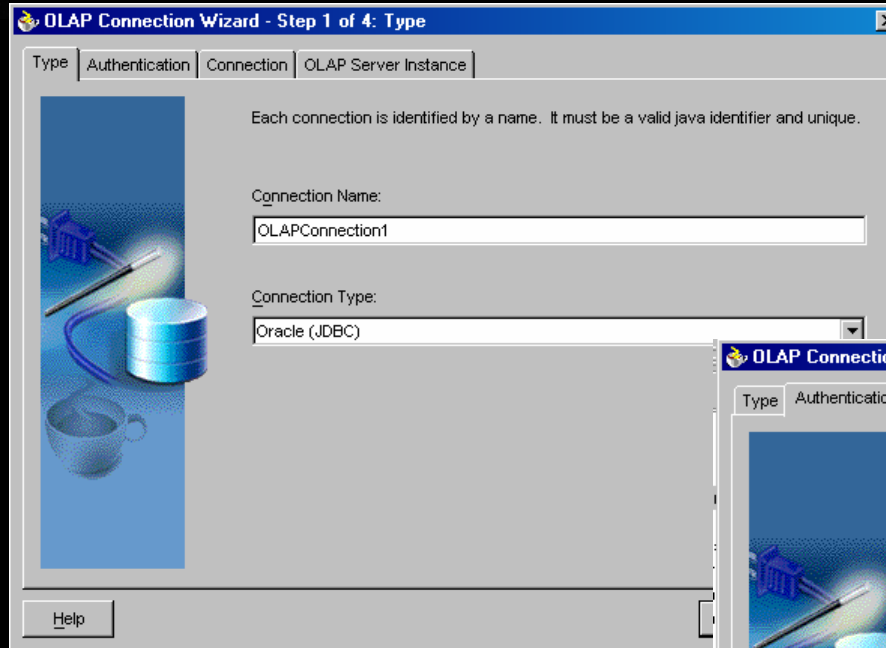
Directory: 3ITutorial\Project1\src\bidefs\Project1BIDesigner1

Browse...

Help OK Cancel

- **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



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.

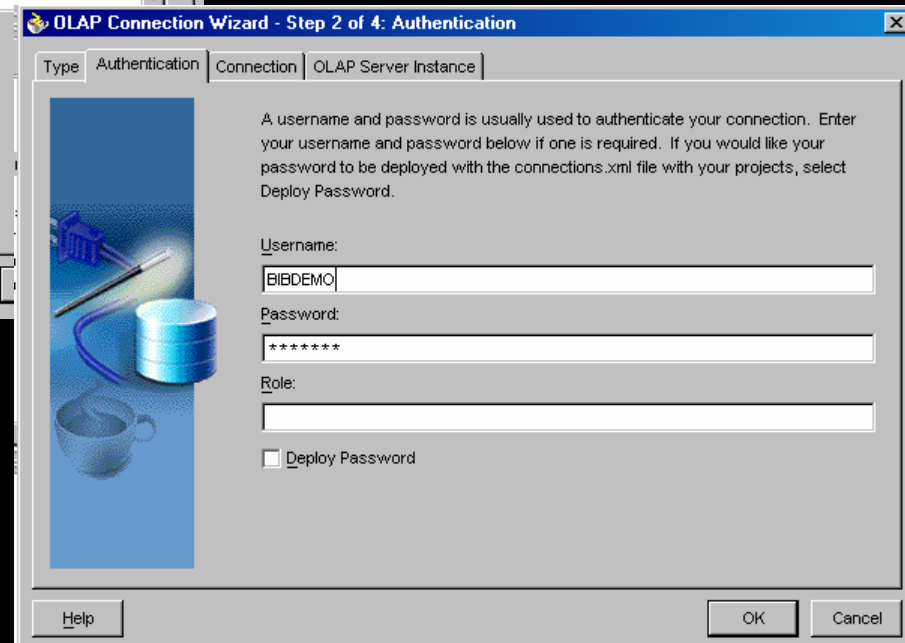
Connection Name:
OLAPConnection1

Connection Type:
Oracle (JDBC)

Help

**Walks you through
creating an Catalog
Connection**

- 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



OLAP Connection Wizard - Step 3 of 4: Connection

Type | Authentication | Connection | OLAP Server Instance

The host name uniquely identifies the computer on which the database server is installed. The database is listening on a specific TCP/IP port and has a unique service identifier (SID). Enter the details for your database connection below.

Driver: thin

Host Name: sun1

JDBC Port: 1521

SID: sun9i

☐ Enter Custom JDBC URL:

Help

- Specify data source.

- Select and Test OLAP Connection

OLAP Connection Wizard - Step 4 of 4: OLAP Server Instance

Type | Authentication | Connection | OLAP Server Instance

OLAP Server Instance: OLAPServer

Select an OLAP server instance:

• OLAPServer

Test OLAP connection

Status:

1 OLAP instances found!

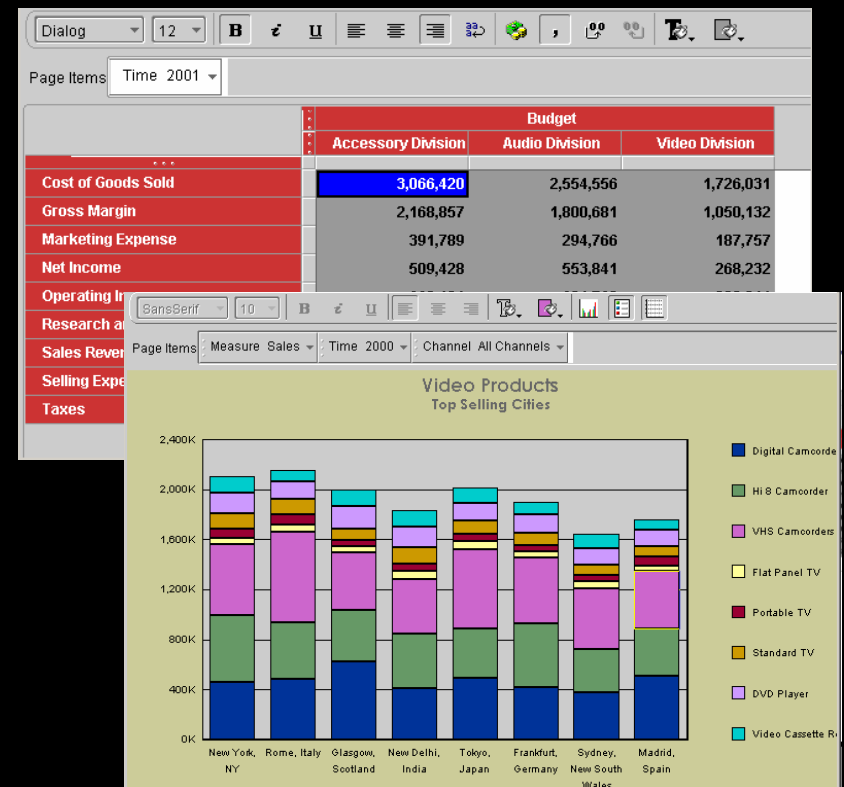
Help OK Cancel



Presentation Beans

- Provides common user interface across Oracle BI products
- Translate UI gestures into OLAP events
- Graph
 - ☐ Over 50 graph types supported
 - ☐ Customizers for modifying 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

...



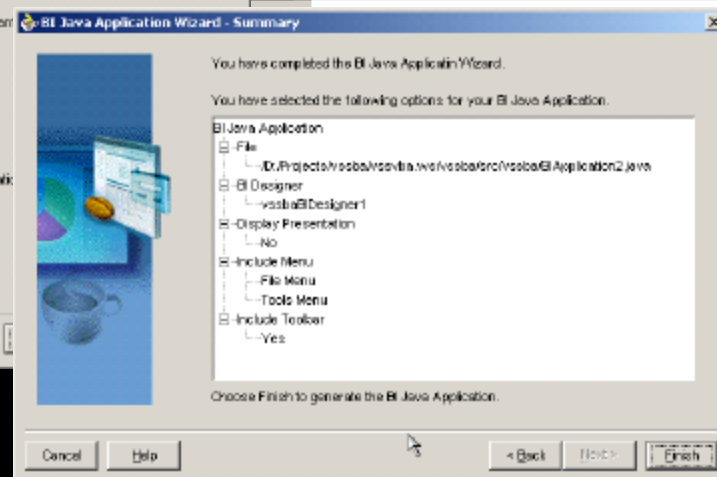
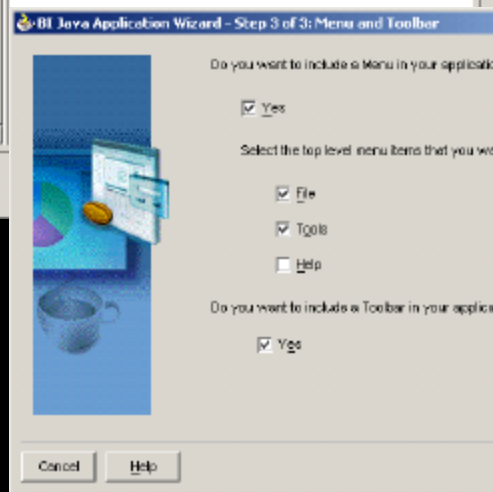
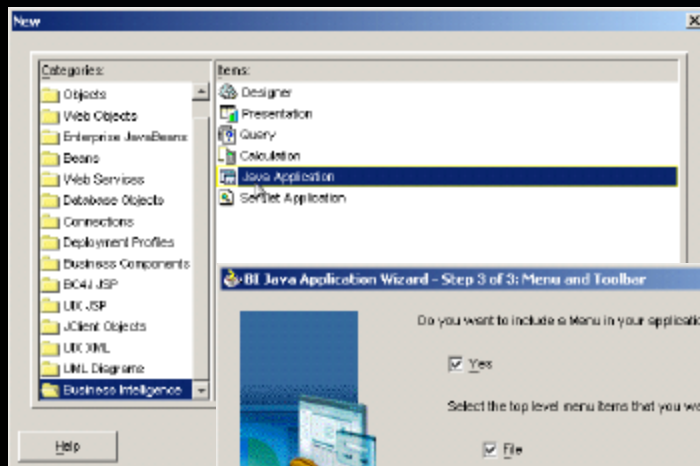


Business Intelligence Wizards

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



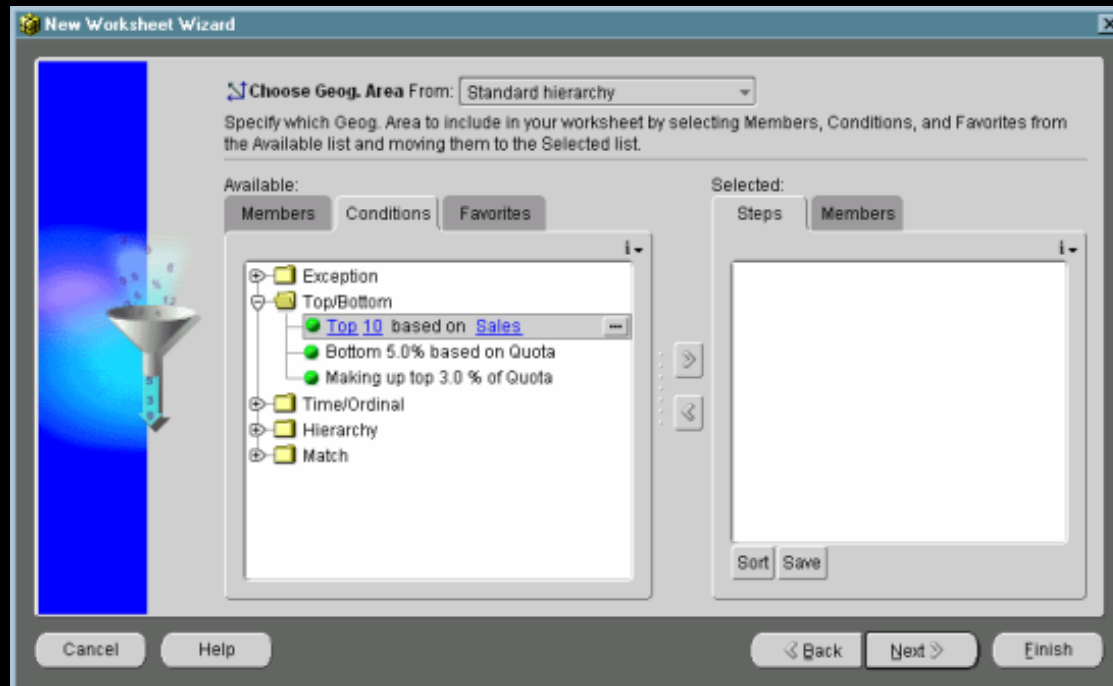
JDeveloper BI Wizards



	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
- CalcBuilder
 - ☐ Wizard enables creation of new calculations, including: variances, ratios, time comparisons, and more

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:

	Quarter	Year	Region
Quarter	Quarter		
Quarter	Quarter		
Quarter	Quarter		
Quarter	Quarter		
Quarter	Quarter		

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...

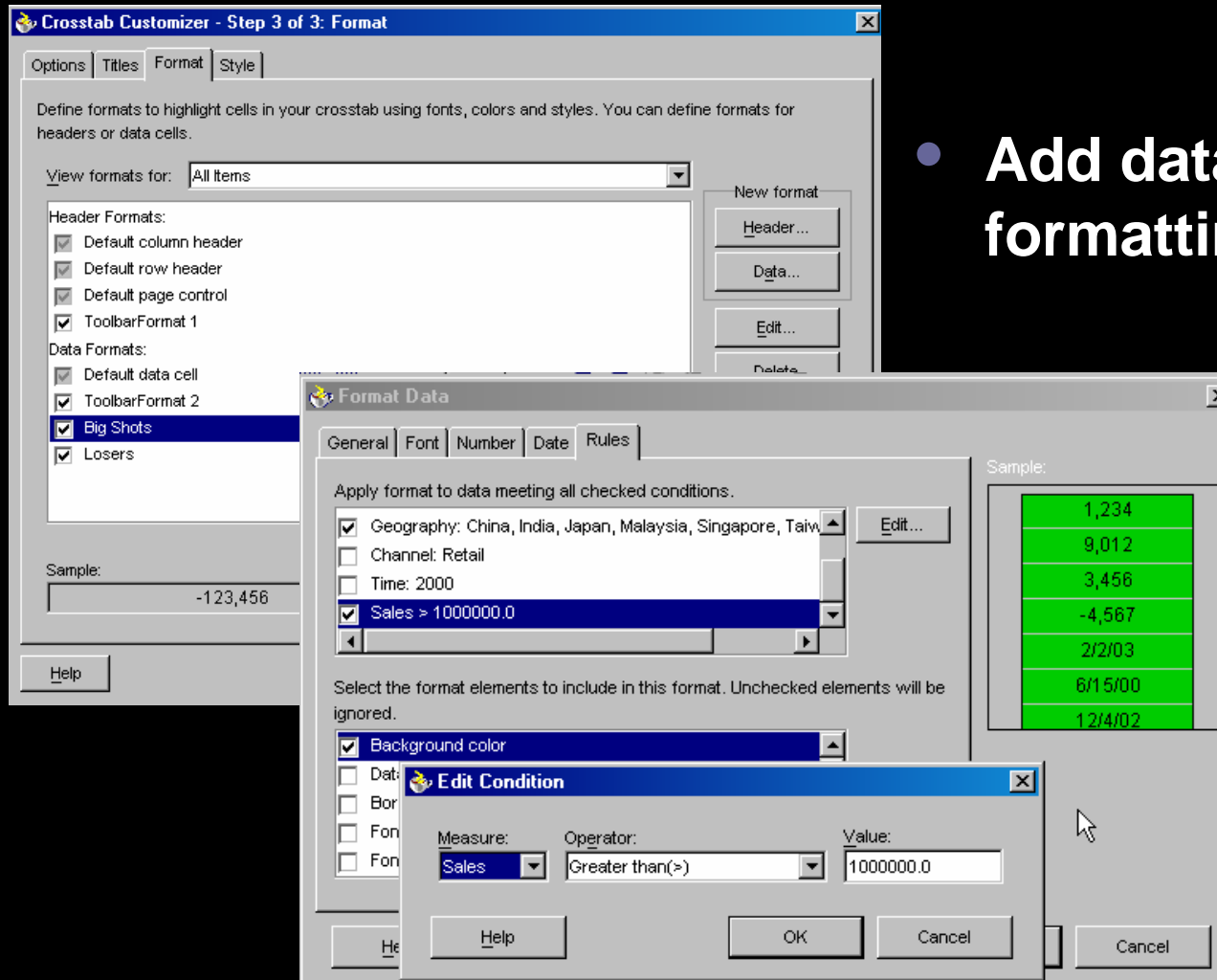
Stoplight Report

☐ Show Footnote Footnote Font...



Customizer

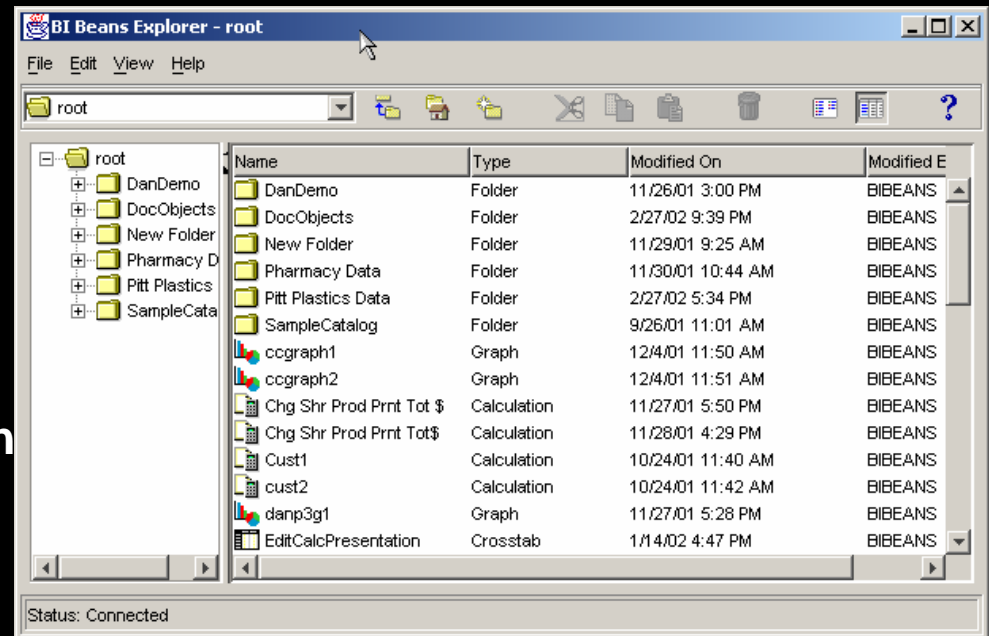
- Add data-driven formatting.





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





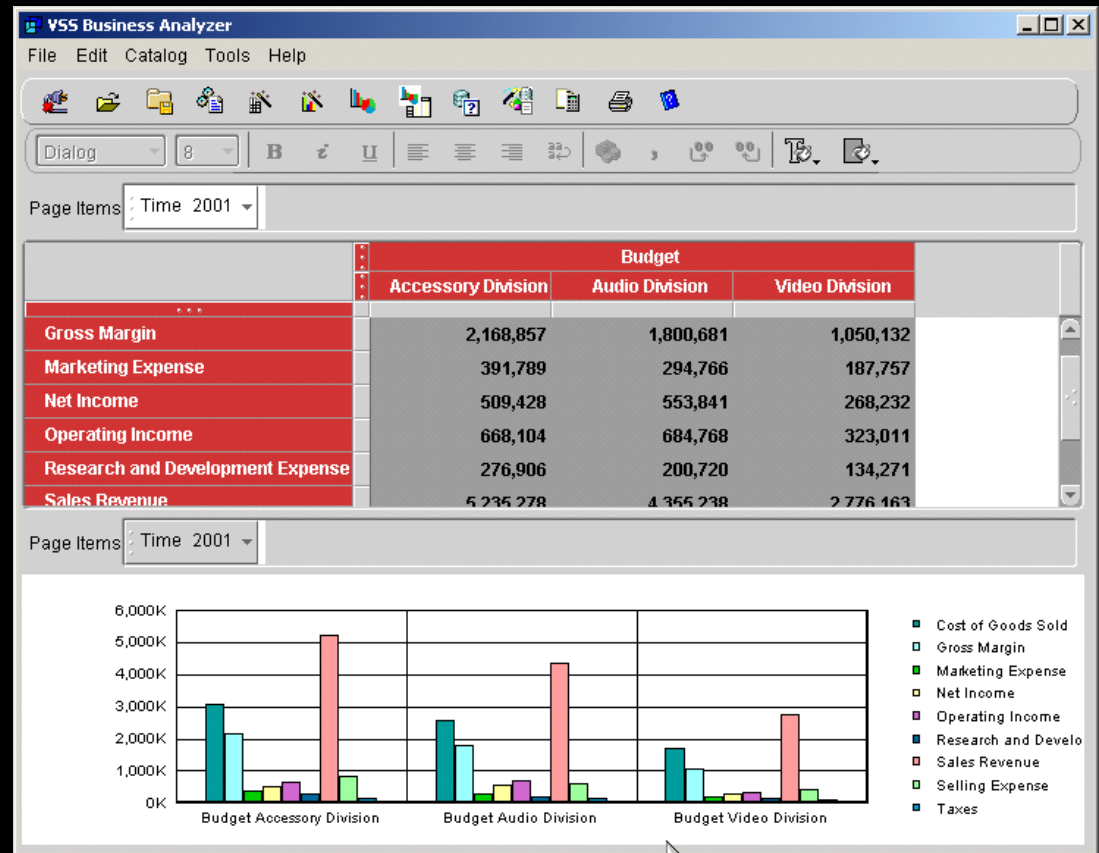
Summary

- **Analysis ready relational database**
 - ❑ Analytical functions
 - ❑ Scaleable, manageable
- **Internet application deployment**
 - ❑ Java OLAP API
 - ❑ Business Intelligence Beans and JDeveloper
- **Open**
 - ❑ Java and CWM-compliant meta data
 - ❑ OLAP API and SQL access



What Can We Really Do?

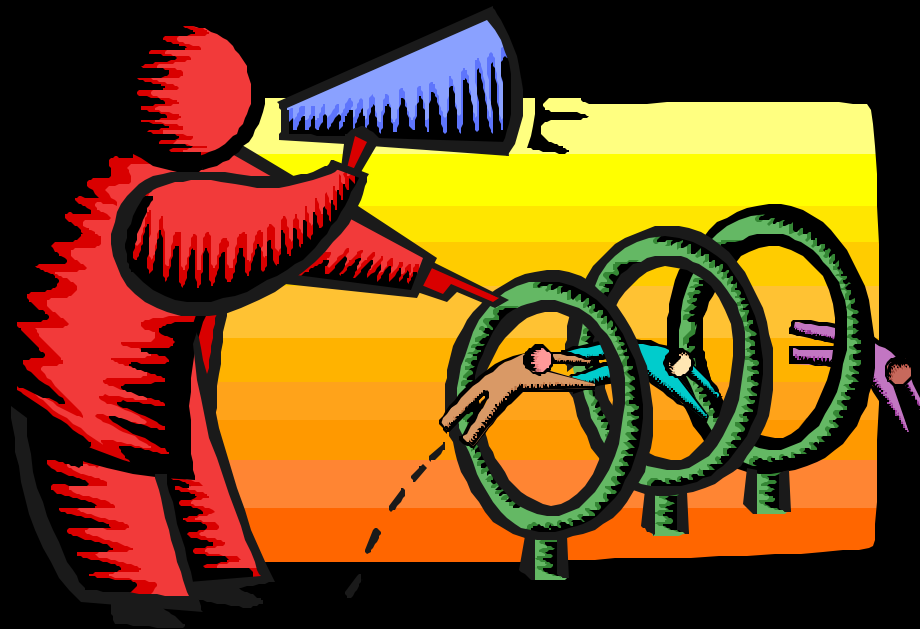
- **VSS Business Analyzer is an example of what can be done**
- **Developed in less than 4 months!**
- **Comprehensive Application that provides Ad-Hoc Query capabilities in both Thick and thin clients**
- **Utilizes a central report catalog available to all client types**
- **Provides an extensible framework for more complex applications**



See www.vlamis.com for more info...



Demonstration





What Did We Learn?

- **JDeveloper Wizards are a great start**
- **Samples also helped a lot**
- **Neither provided total solution -- Just a start**
- **Need to be able to understand Java Doc**
- **Not all JDev functions are available to developed app without custom coding.**
- **BI Beans directly tied to 9i OLAP release!**
- **Need to have a Java Guru on staff!**
- **BI Beans is not a 100% solution – they are still evolving**
- **Don't be afraid to rollup your sleeves and learn something new!**



How Get Started? / More Information

- **Java programming**
 - ❑ Start with JDeveloper 9i (download from OTN)
- **BI Beans**
 - ❑ Tutorials (In JDeveloper)
 - ❑ Samples (on OTN)
 - ❑ Training (Web and Instructor Led)
- **Oracle Technology Network**
 - ❑ <http://otn.oracle.com/products/bib/content.html>
- **Discussion Forums**
 - ❑ <http://www.oracle.com/forums/forum.jsp?id=828024>
- **VSS Business Analyzer**
 - ❑ www.vlamis.com



Q & A



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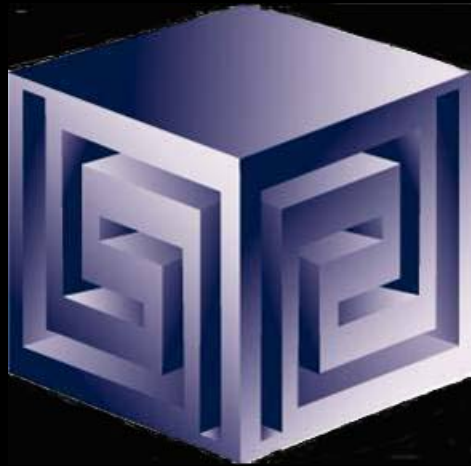
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