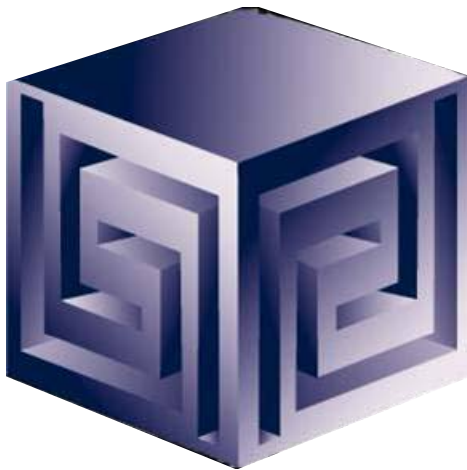# Developing Advanced Thin Client Applications with BI Beans

IOUG 2004
Paper 408

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Vlamis Software Solutions, Inc.

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http://www.vlamis.com

Vlamis 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.**

ORACLE® | CERTIFIED SOLUTION PARTNER

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, 9i OLAP, JDeveloper and BIBeans, Oracle 9IAS, Portal (formerly WebDB), and Reports.
  - ❑ Speaker and author. (new Article on OTN May 12th)
  - ❑ IOUG Focus Area Manager for Data Warehousing and BI
  - ❑ Utilized Oracle SQL, Pl/sql, Oracle Forms, Reports, Discoverer, Express, Express Objects, Web Objects, OWB, Designer and Oracle Applications (since version 7).
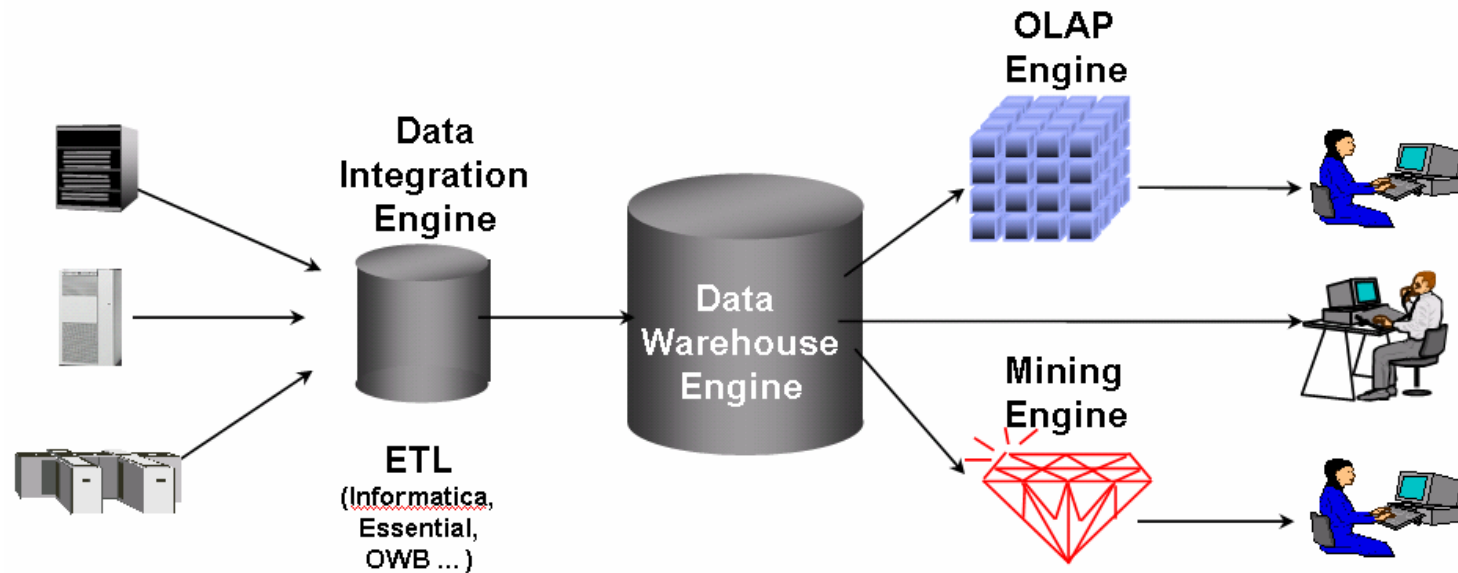
In the Past

- **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 OLAP – What Is It?

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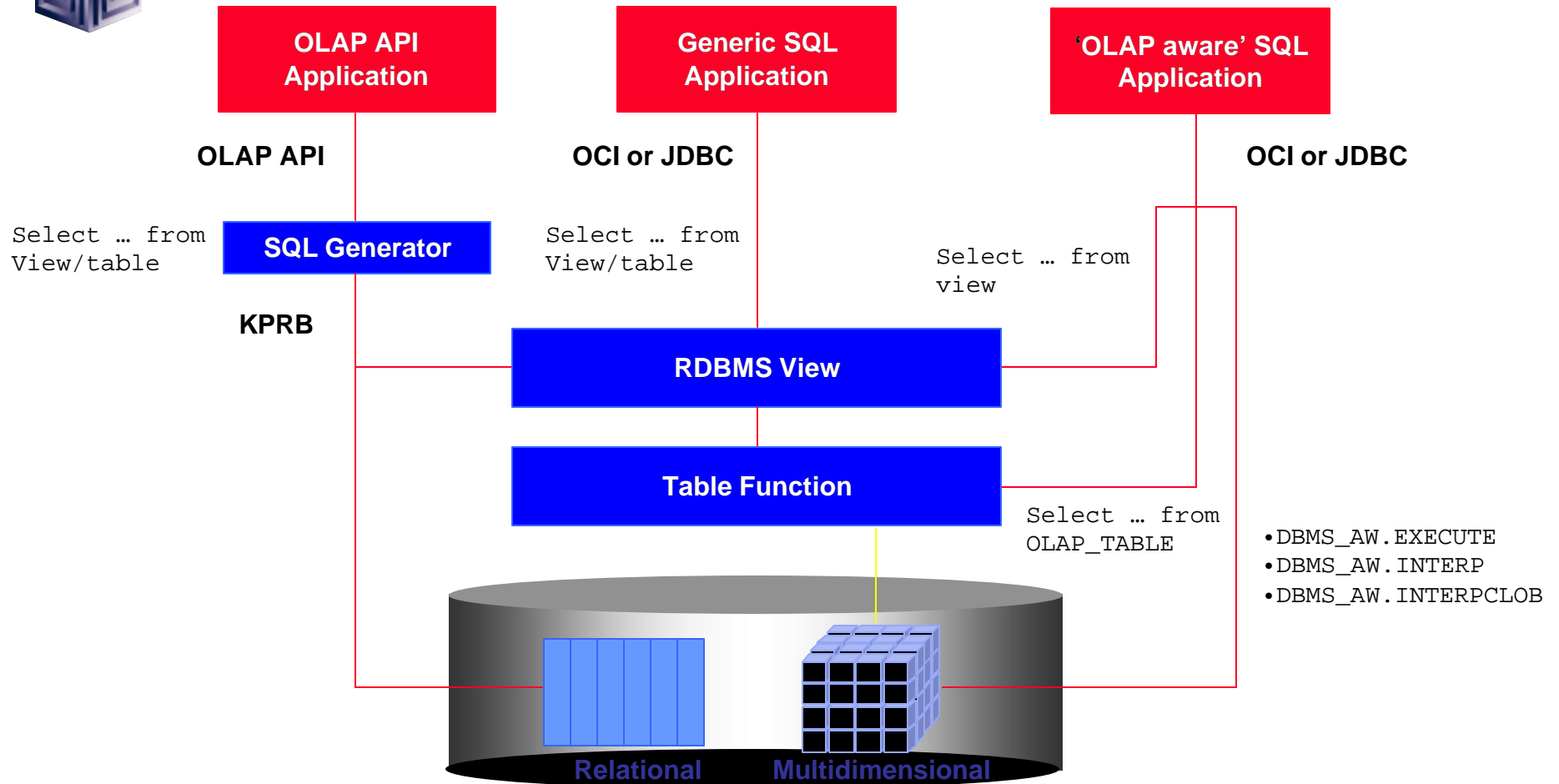- Scaleable and performant

Analysis Functions

Oracle 9i/10g Supports

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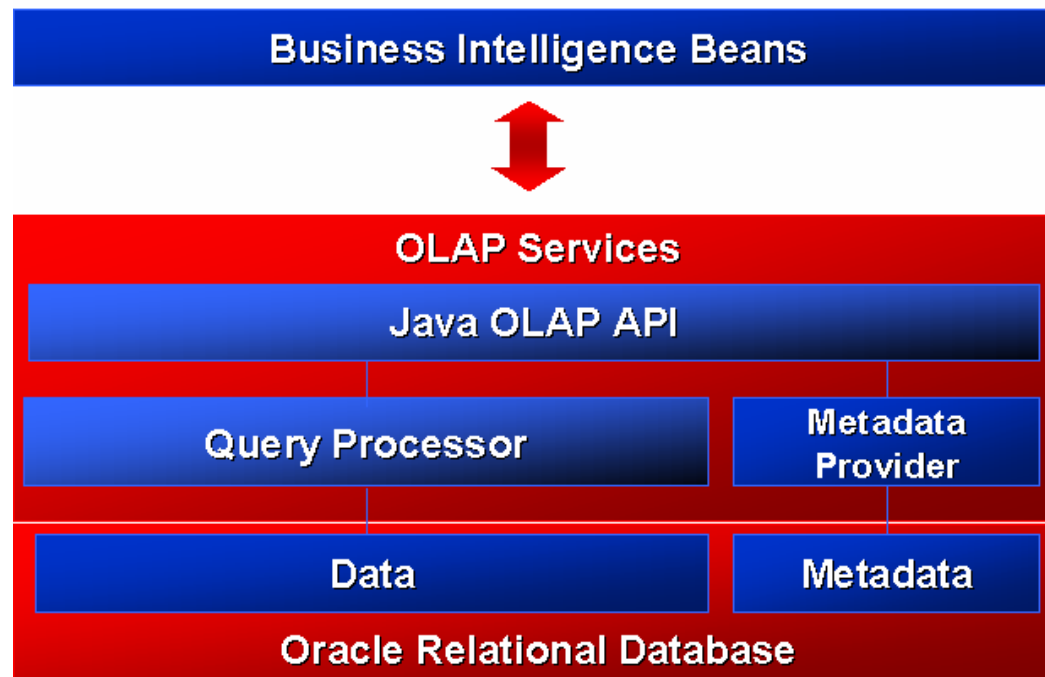- **FIRST/LAST Aggregates family**

Query Methods

OLAP API Application

Generic SQL Application

'OLAP aware' SQL Application

OLAP API

OCI or JDBC

OCI or JDBC

```
Select … from
View/table
```

SQL Generator

```
Select … from
View/table
```

```
Select … from
view
```

KPRB

RDBMS View

Table Function

```
Select … from
OLAP_TABLE
```

- DBMS_AW.EXECUTE
- DBMS_AW.INTERP
- DBMS_AW.INTERPCLOB

Relational   **Multidimensional**

Oracle OLAP Architecture

Business Intelligence Beans

⇕

OLAP Services
Java OLAP API

Query Processor	Metadata Provider

Data	Metadata

Oracle Relational Database

Clarifications *

- **BI Products with 10g in Names will run using 9.2.0.4.1 DB and above (i.e. do not require 10g Database!)**

- **Minimum DB to run TODAY is 9.2.0.4.1 - 9.2.0.5 is most current. 10.1.0 also…**

- **Disco 10g does not have OLAP components yet (see more tomorrow @2:15)**

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**

Deployment Models

- **Deploying BI Beans Apps**
  - ❑ **Thick Java Client – feature Rich!**
  - ❑ **Thin Client – More limited**
    - ▪ **JSPs**
    - ▪ **Servlets**
    - ▪ **UIXml**
    - ▪ **Oracle Portal Portlets**
  - ❑ **Reports 9i OLAP plug-in**
  - ❑ **Excel Add-in (Summer 2004*)**
  - ❑ **Discoverer 10g R2 (Summer 2004*)**

Business Intelligence Beans

Table	Cross Tab	Graph	Excel - Addin

		Query Builder	Calculation Builder

Query

Meta Data Manager

Connection			Persistence

Oracle9i OLAP Services   **Oracle9i**   **Beans Repository**
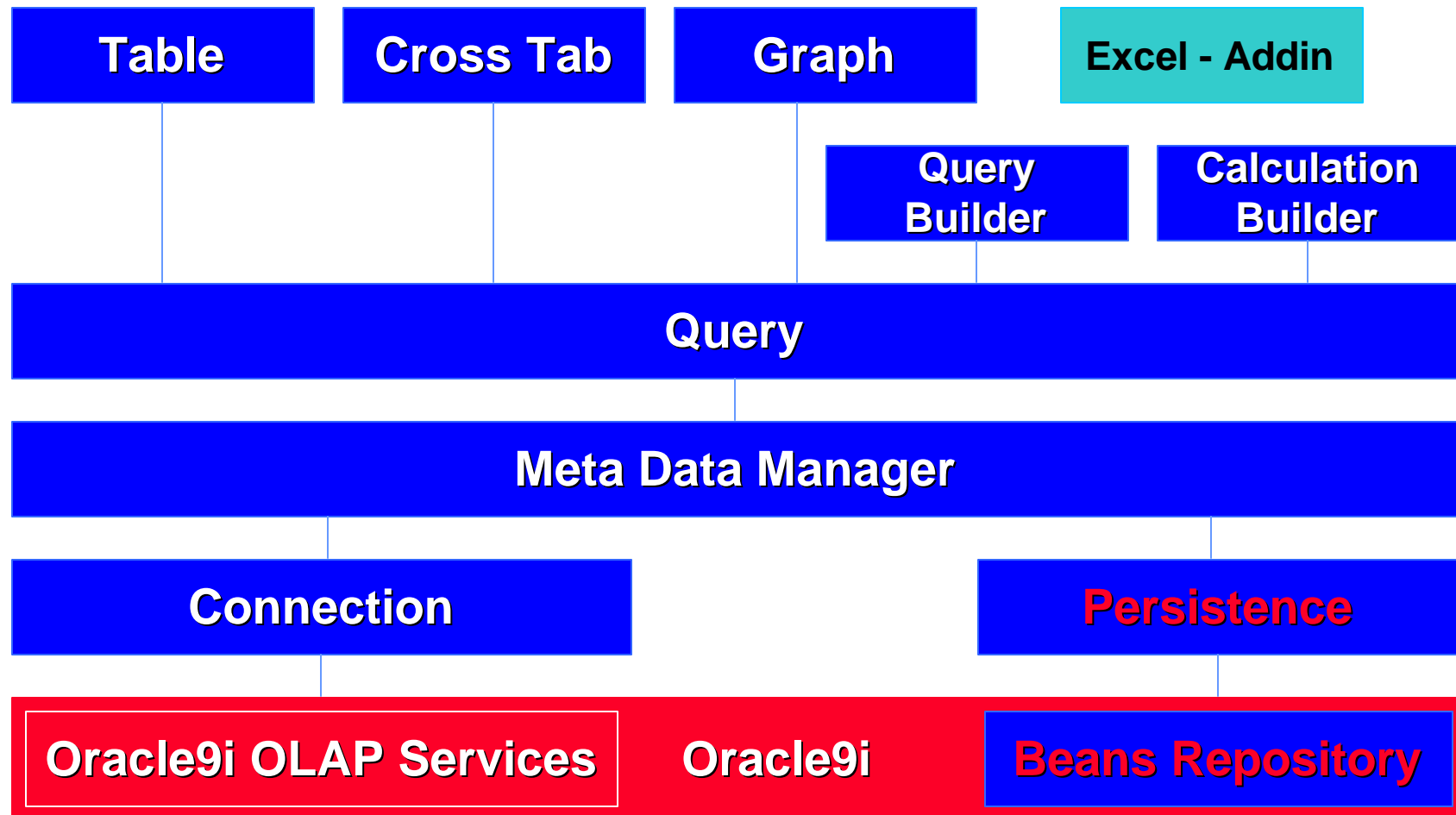
Architecture: Java clients

	Oracle Business Components for Java	
Presentation Beans **Analysis Bean - Client** **Web Browser**		**Analysis Beans** **Middle tier** **Oracle9i OLAP Services** **BI Beans runtime repository** **Oracle9i**
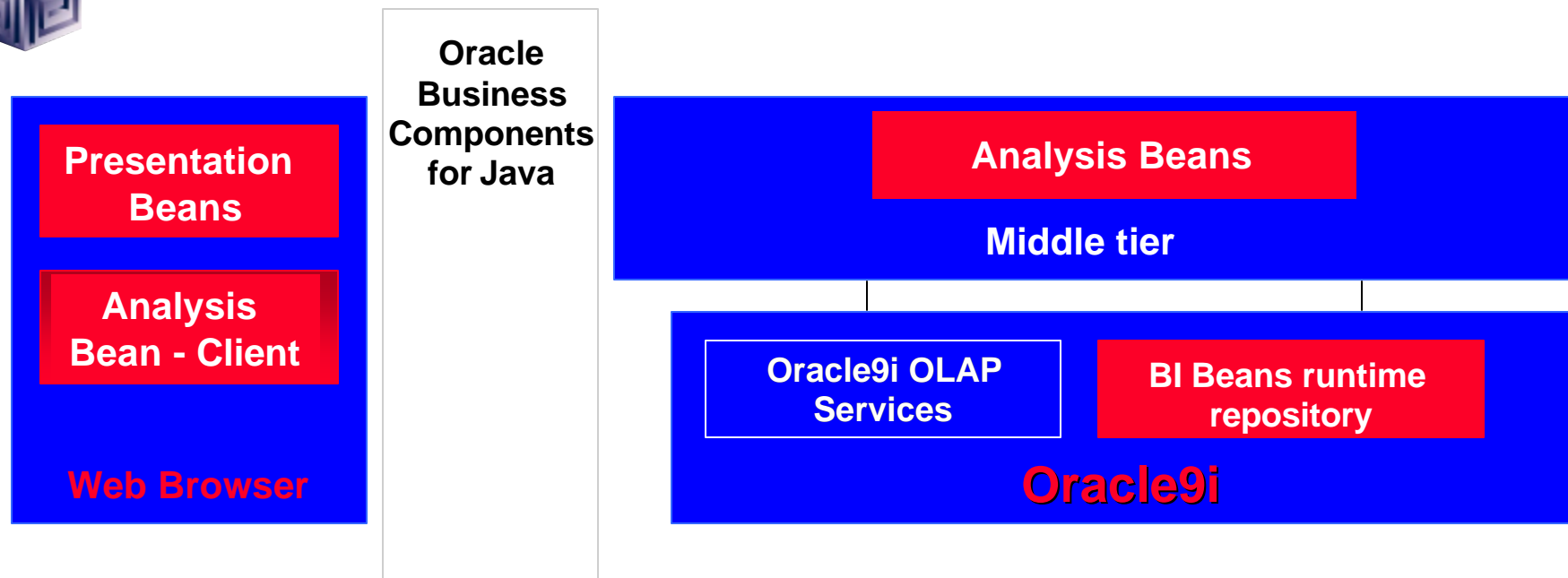
BI Beans use of Oracle Business Components for Java:
 * communications protocol across tiers
 * deploying iBeans on the middle tier (EJB, 8i)
 * insulates application developer from "application plumbing" related to deployment

Architecture: Thin client

iAS/Web Server

Servlet Engine

Servlet

BI Beans

Analysis Beans

Thin Presentation Beans

Oracle9i OLAP Services

BI Beans runtime repository

Oracle9i
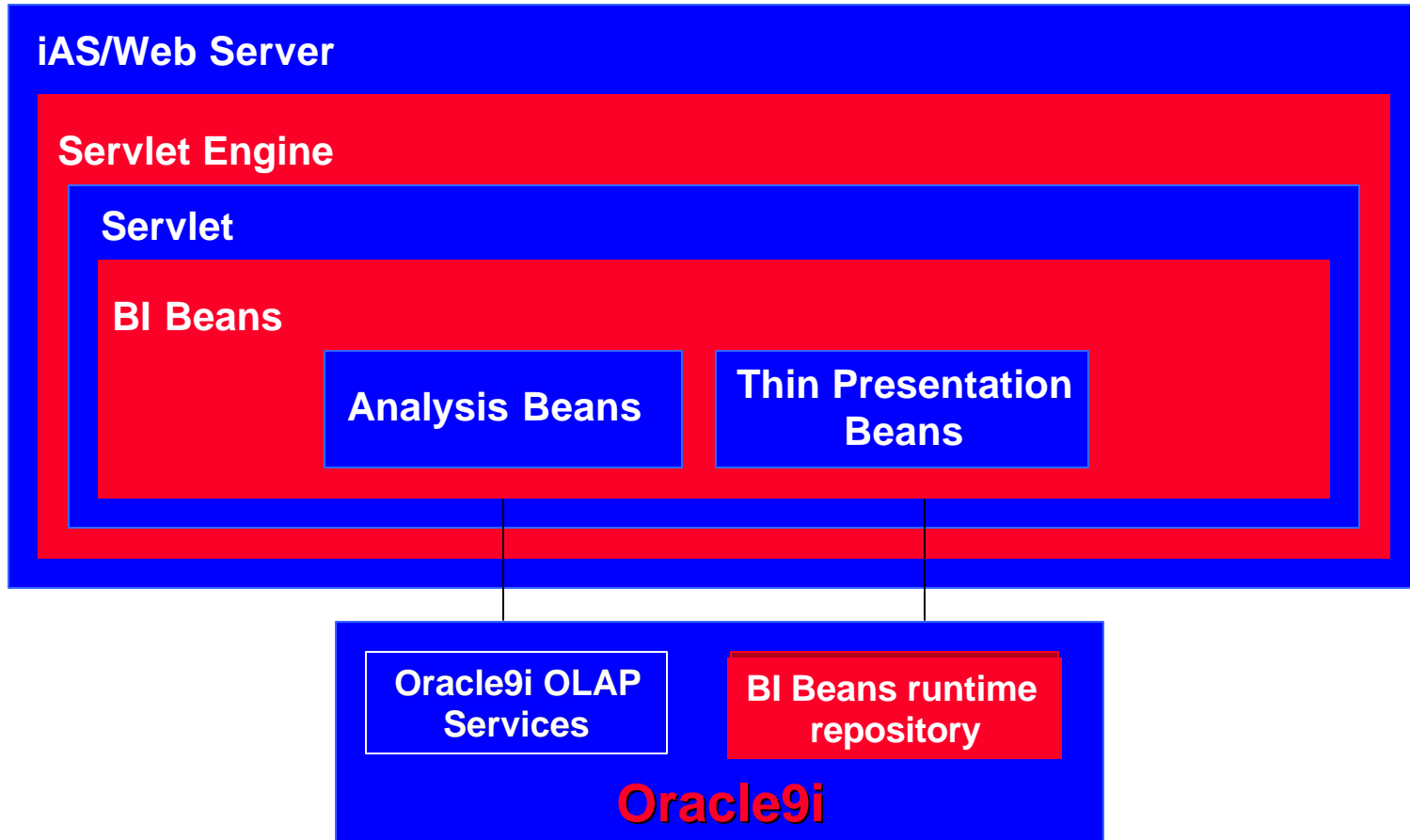
JDeveloper Integration

- **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
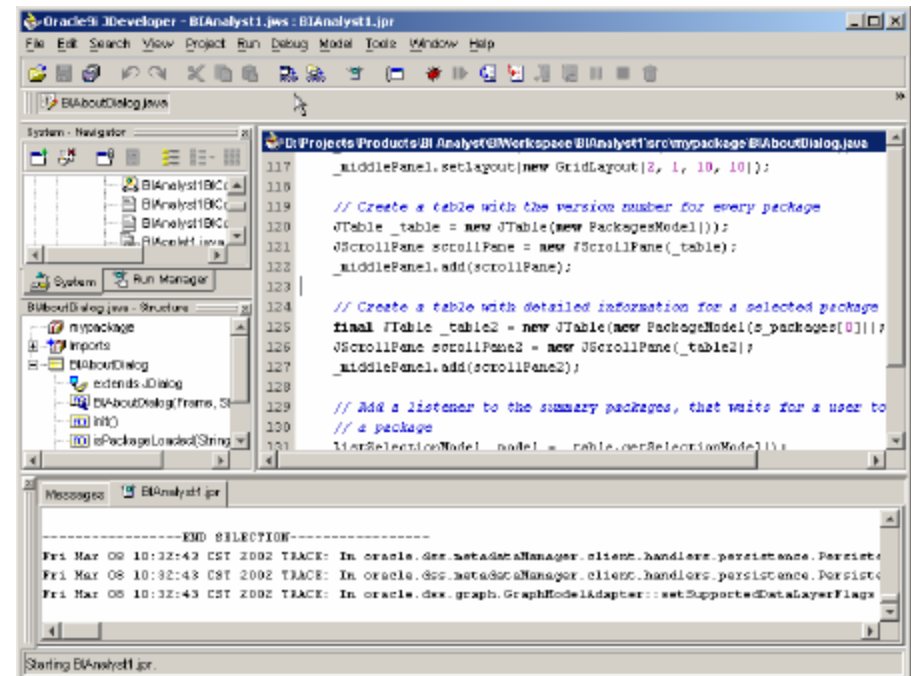
JDeveloper Environment

System Navigator

Structure Window

Log Window
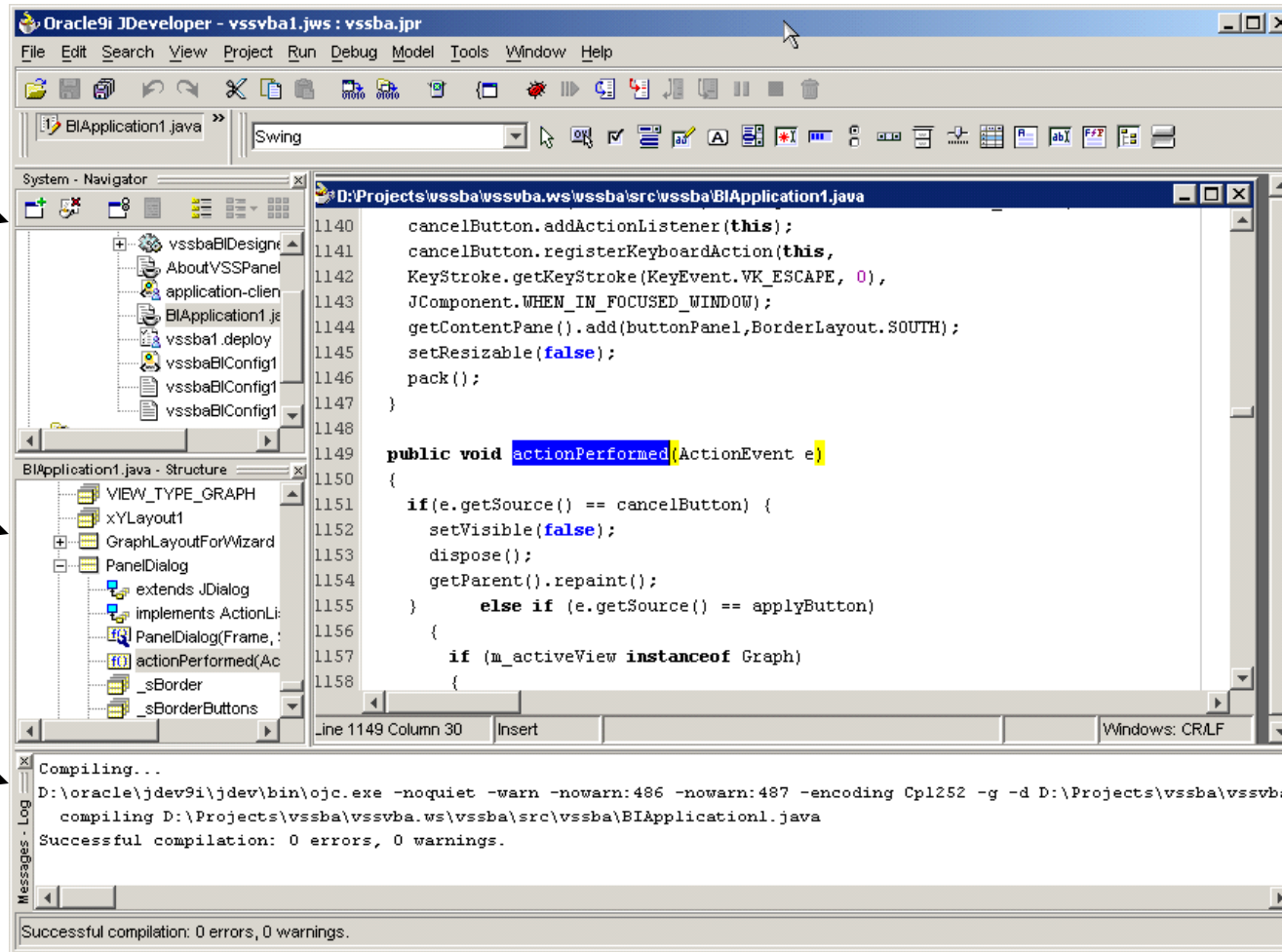
Component Toolbar

Code Window

New Version Coming!

- **BI Beans 10g just around the corner!**
- **Increased capabilities, most significantly in Thin Client**
- **Thin Client can now do what Thick Client can**
- **New Wizards – wizard driven creation of JSP!**
- **New Thin Client Toolbars**
- **Formatted export to Excel**

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**
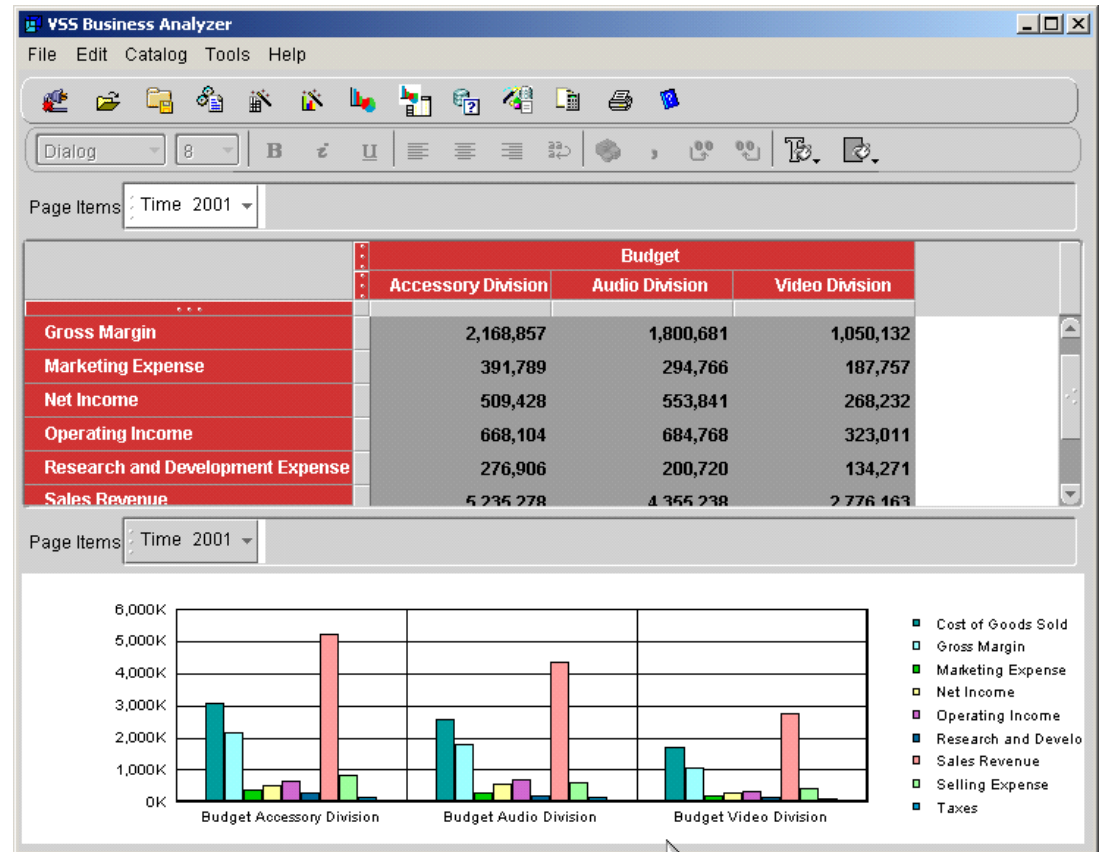
See www.vlamis.com for more info…

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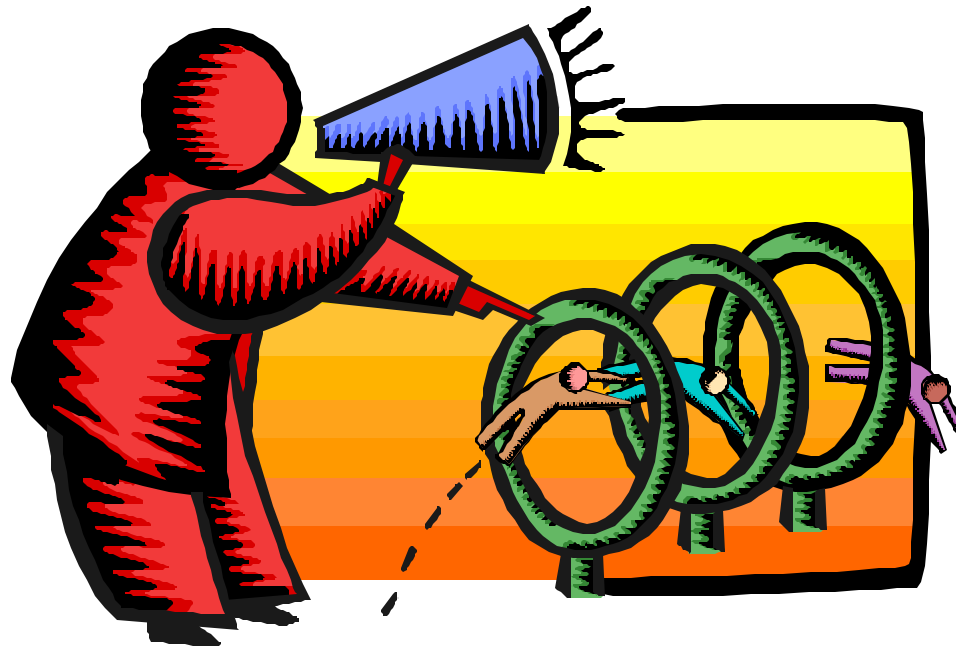
BI Beans Designer Settings
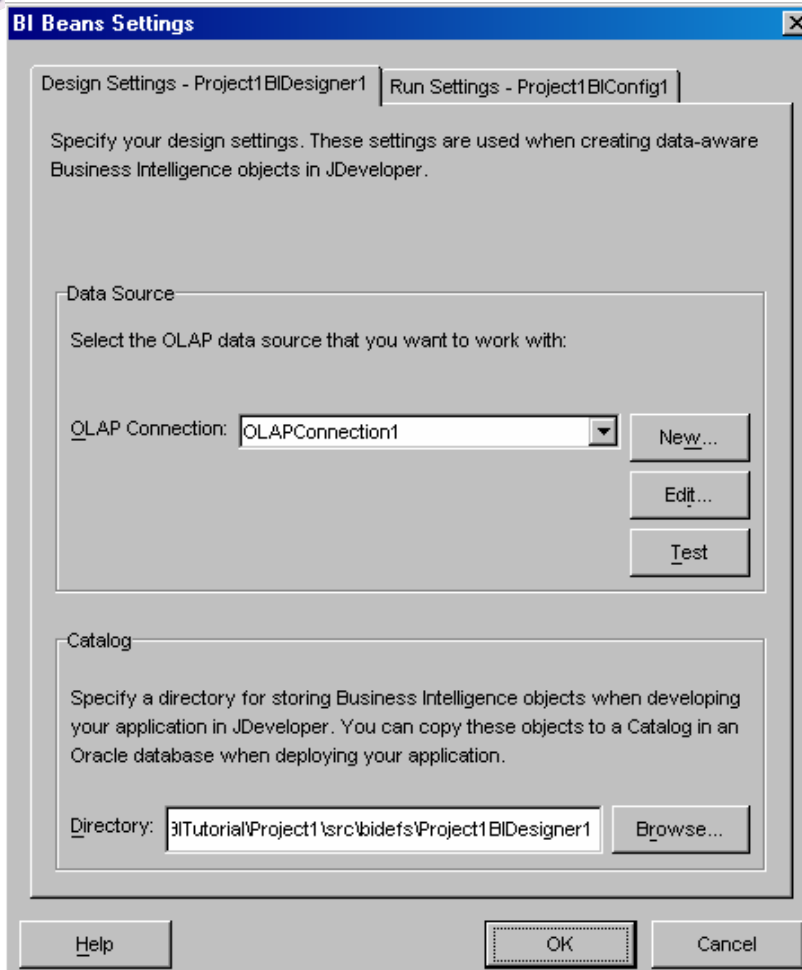
- **Container for Business Intelligence Objects**
- **References information needed to connect:**
  - ❑ **to Oracle 9i OLAP**
  - ❑ **and the BI Beans Catalog.**
- **<u>Design Settings</u> - Lets you view and edit settings in your BI Designer object**
- **<u>Run Settings</u> - Lets you view and edit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

Connection Wizard

Walks you through creating an Catalog Connection

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

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 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 ...**
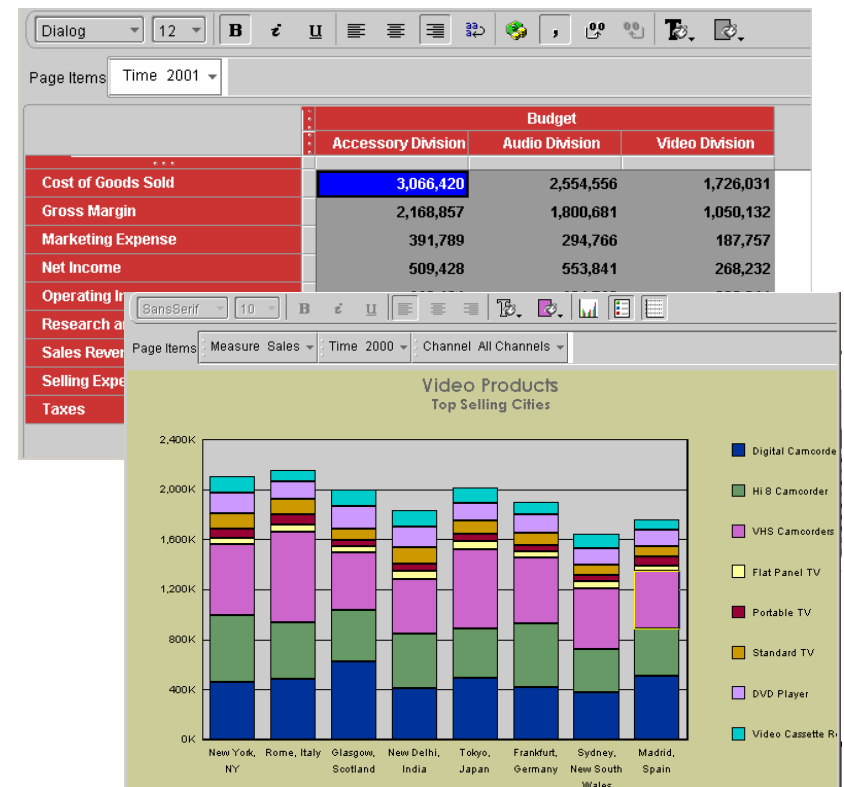
Business Intelligence Wizards

- **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

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

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

Customizer
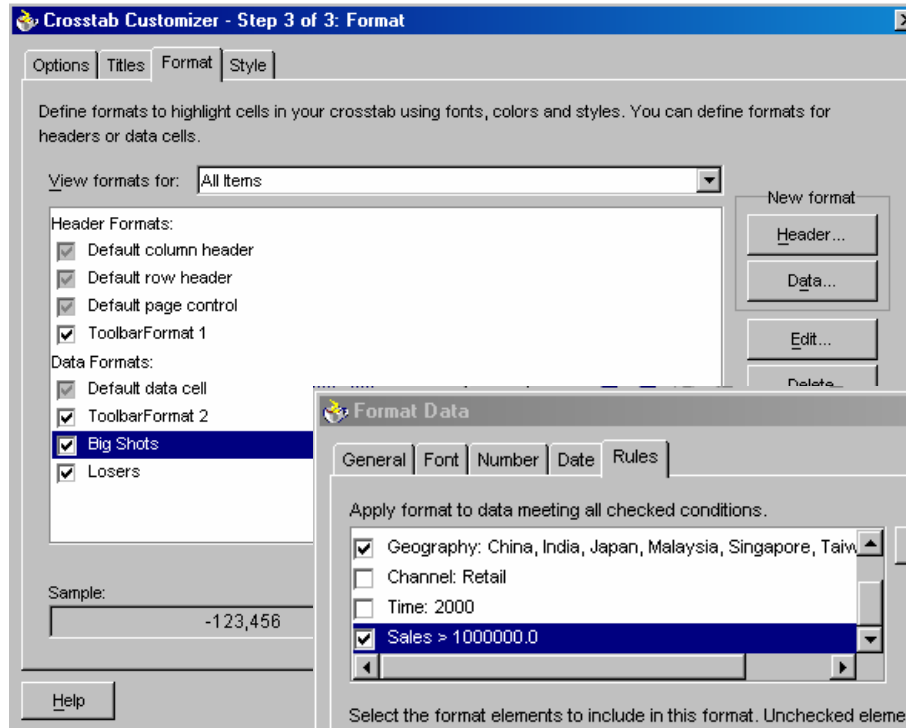
- **Add data-driven formatting.**
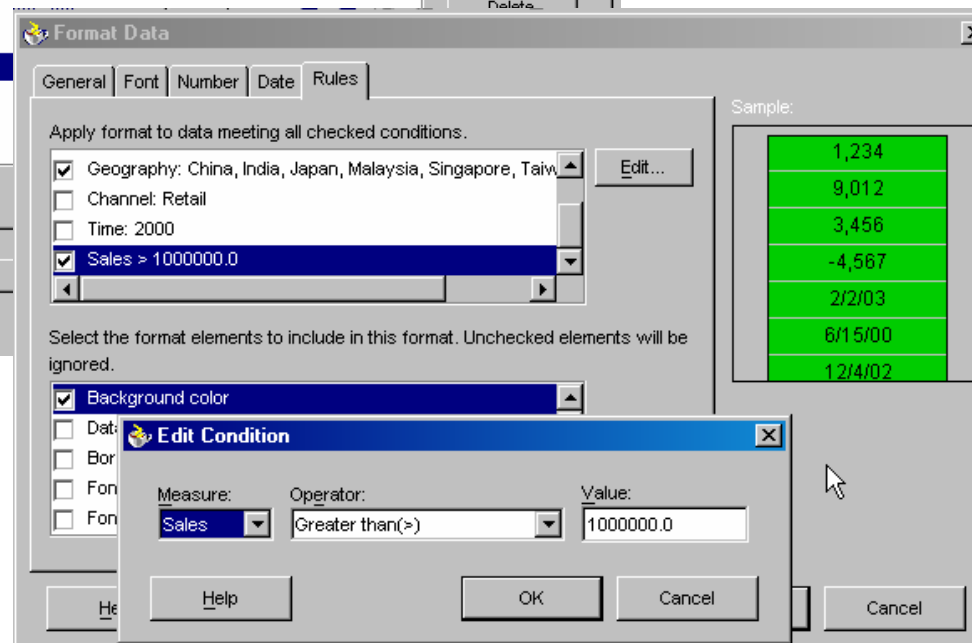
Persistence Services – BI Catalog

- **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**

BI Beans Explorer - root

File   Edit   View   Help

root

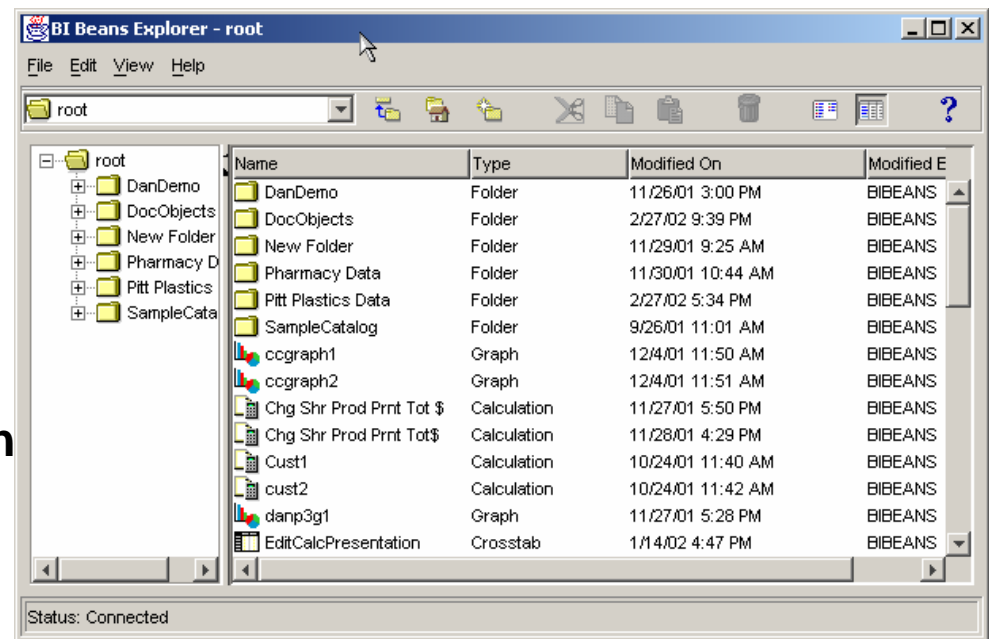| Name	Type	Modified On	Modified E
DanDemo	Folder	11/26/01 3:00 PM	BIBEANS
DocObjects	Folder	2/27/02 9:39 PM	BIBEANS
New Folder	Folder	11/29/01 9:25 AM	BIBEANS
Pharmacy Data	Folder	11/30/01 10:44 AM	BIBEANS
Pitt Plastics Data	Folder	2/27/02 5:34 PM	BIBEANS
SampleCatalog	Folder	9/26/01 11:01 AM	BIBEANS
ccgraph1	Graph	12/4/01 11:50 AM	BIBEANS
ccgraph2	Graph	12/4/01 11:51 AM	BIBEANS
Chg Shr Prod Prnt Tot $	Calculation	11/27/01 5:50 PM	BIBEANS
Chg Shr Prod Prnt Tot$	Calculation	11/28/01 4:29 PM	BIBEANS
Cust1	Calculation	10/24/01 11:40 AM	BIBEANS
cust2	Calculation	10/24/01 11:42 AM	BIBEANS
danp3g1	Graph	11/27/01 5:28 PM	BIBEANS
EditCalcPresentation	Crosstab	1/14/02 4:47 PM	BIBEANS

Status: Connected

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**

Thick or Thin Client?

- **Difference Between Thick and Thin Client**
- **Thick Client full featured Gui application (windows-like)**
- **Thin Client HTML based (still full featured)**
- **No Drag & Drop in Thin Client**

Wizards Get You Started

- **Wizards provided by JDev and BI Beans provide a good start**

- **Choice of JSP or UIX Applications**

- **Build a fully functioning application**

- **Samples provide additional Features that can be added**

- **Simple to change look and feel**

- **Can integrate with existing JSPs**

What Can We Really Do?

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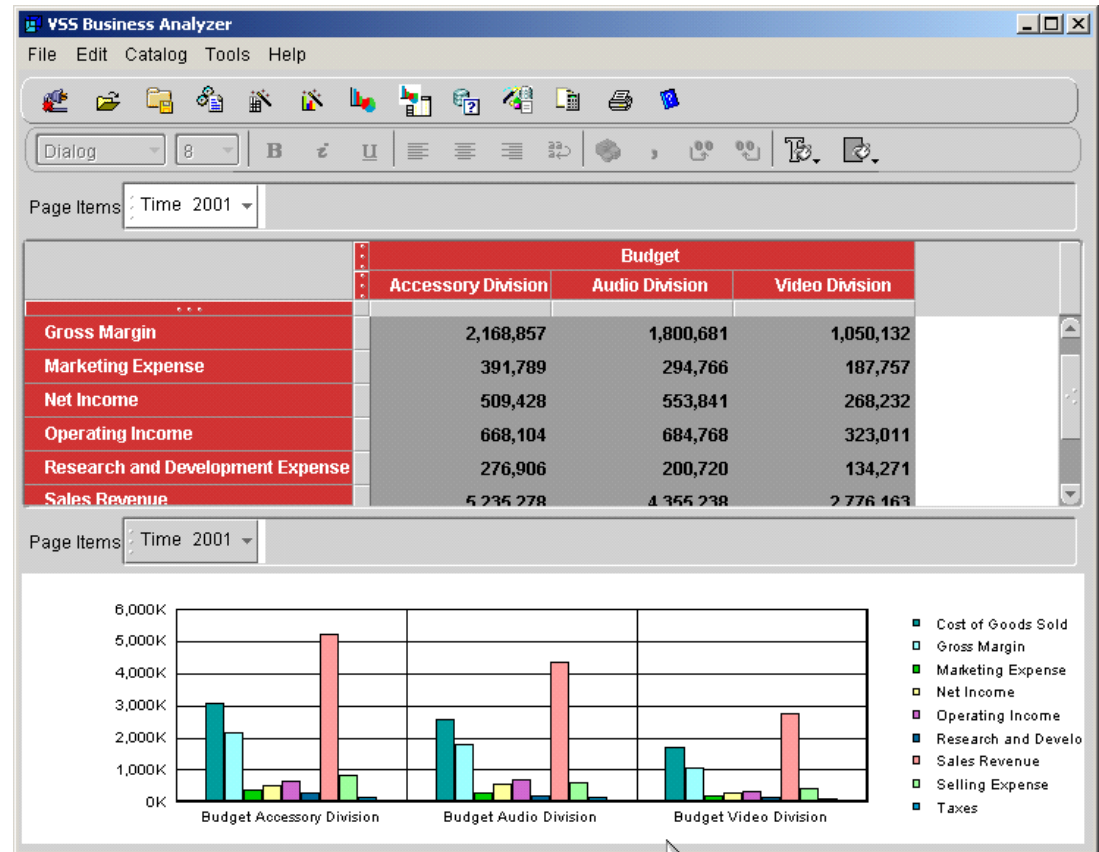
Building A Thin Client Application
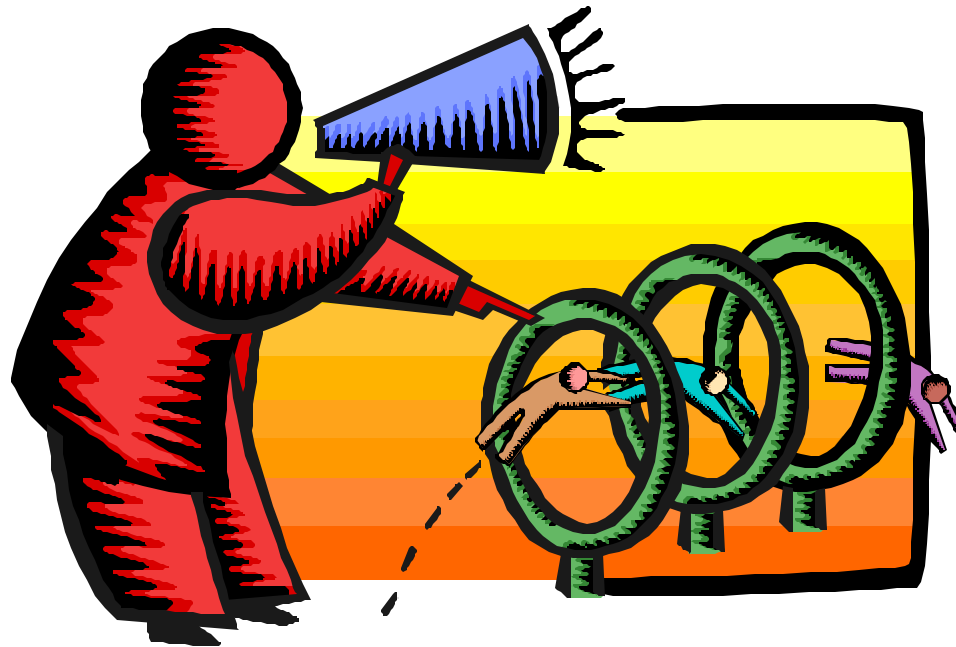
What Did We Learn?

- **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.**

- **Need to have a Java Guru on staff if you are doing heavy development!**

- **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**
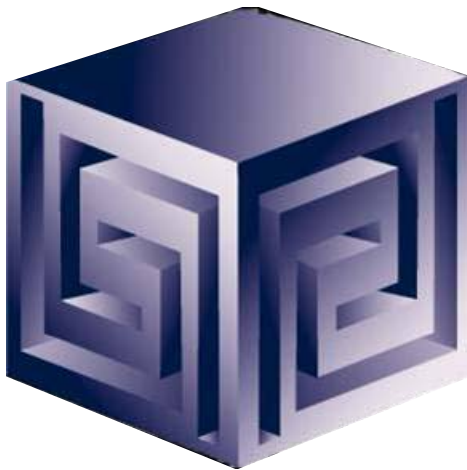
Q & A

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