BUILDING BI PORTALS, USING ORACLE91, 91 DEVELOPER, AND BI BEANS

Chris Claterbos, Vlamis Software Solutions, Inc. claterbos@vlamis.com

OVERVIEW

Call them EIPs (Enterprise Information Portals), BIPs (Business Intelligence Portals) or simply Portals, but web portals are emerging as today's choice for combining disparate information sources into one organized location. Use of this portal structure can help organizations to manage information assets.

Using portals organizations can:

- Improve efforts of collaboration and innovation
- Capture tacit knowledge from in-house experts
- Facilitate the sharing of knowledge and information linking
- Increase competitive advantage and decrease time-to-market

WHAT IS PORTAL?

A portal is a means of supplying an organization's employees, customers, suppliers, and/or business partners with a customized and customizable, integrated, secure view of the information that they need to function efficiently. The information contained in a portal could include documents, applications, URLs, and organizational newsletters. Oracle Portals are also customizable for individual users or groups of users, allowing not only the developers or system administrators to publish and manage content, but also letting the user organize and contribute his own information.

Oracle9iAS Portal is a web-based application for building and deploying e-business portals. It provides a secure, manageable environment for accessing and interacting with enterprise software services and information resources.

Benefits:

- Centralize access to all your business intelligence through a single Portal
- Deliver role based, personalized information to each user
- Easily design and manage your portal

The users can access any information from any application or data source. Pre-built "portlets" (reusable portal components) from Oracle9iAS Discoverer and Oracle9iAS Reports accelerate development; just plug portlets into the Oracle9iAS framework to create an enterprise portal. Where coding is required, an open infrastructure and an on-line development community give developers the information, code, and tools they need to create new, portlet-enabled applications and to tightly integrate their existing applications. Using Oracle JDeveloper and BI Beans developers can create a Business Intelligence dashboard personalized by job role is easy with Oracle9iAS Portal. Charts and/or reports representing key performance indicators (KPI's) can be rapidly developed. These charts and reports are deployed as Portlets. Individual users may customize their portal presentation by selecting the KPI portlets that are most relevant to their management focus.

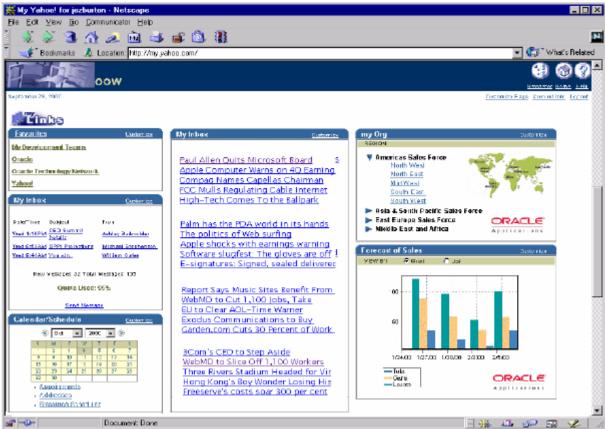


Figure 1. BI Portals

OVERVIEW OF THE ORACLE 91, JDEVELOPER AND BI BEANS

OLAP AND ORACLE 91 – WHAT IS IT?

Businesses need to analyze their businesses in ways that decision makers at all levels can quickly respond to changes in the business climate. While a standard transactional query might ask, "How many bolts were sold last month?" An analytical query might ask, "How do sales in the Midwest for the last 3 months compare with the forecast? Now how does that compare to a year ago?"

Analytical queries require an online analytical processing (OLAP) solution. Oracle 9i provides comprehensive support for OLAP:

- The Oracle relational database management system (RDBMS) remains the most efficient and secure way to store your data. By developing a data warehouse, you can provide data in a form suitable for business analysis.
- OLAP Services provides a Java OLAP API and an analytical engine. OLAP Services provides the means to build
 analytical applications that support complex statistical, mathematical, and financial calculations along with predictive
 analytical functions such as forecasting, modeling, consolidations, allocations, and scenario management. Because the
 OLAP API is all Java, OLAP Services supports deployment of analytical applications to large, geographically
 distributed user communities on the Internet.
- The Oracle BI Beans complements OLAP Services by providing pre-built Oracle JDeveloper or other Java development environments to build analytical applications, which can be deployed as either Java or HTML ("thin") clients.

OLAP SERVICES

Oracle9i OLAP Services provides the query performance and calculation capability of a multidimensional database. In addition, it provides a Java OLAP API that is appropriate for the development of internet-ready analytical applications.

Unlike other marriages of OLAP and RDBMS technology, Oracle9i OLAP Services is not a thinly disguised multidimensional database using bridges to move data from the relational data store to a multidimensional data store. Instead, it is truly an OLAP enabled relational database.

As a result, Oracle9i provides the performance and calculations of a multidimensional database along with the scalability, accessibility, security, manageability, and high availability of the Oracle9i database.

In its broadest definition, OLAP Services consists of the following components: the Oracle Java OLAP API, one or more OLAP services that run as child processes of a database instance, a metadata repository in each database instance, and tools within Oracle Enterprise Manager for creating OLAP metadata and managing OLAP services.

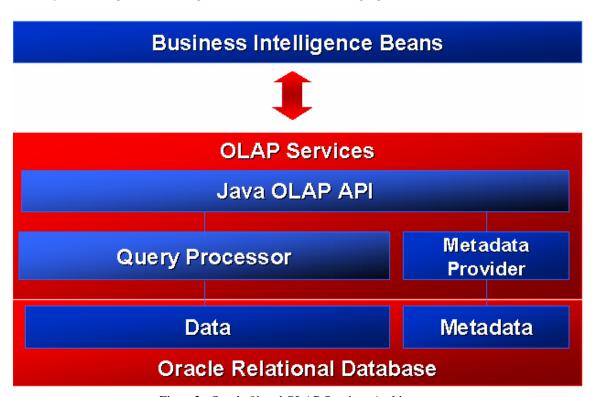


Figure 2. Oracle 9i and OLAP Services Architecture

ORACLE BUSINESS INTELLIGENCE BEANS

To meet the needs of the marketplace, Oracle has developed BI Beans. These components enable the rapid development of OLAP applications. The combination of the Java OLAP API and Common Warehouse Metadata provide APIs that make the BI capabilities of those servers accessible to Java programmers. The role of BI Beans is to complete the engine-API-tools offering by providing the following:

- Graphical views of OLAP data including a pivot table and rich business charts
- User interfaces for easily formulating OLAP queries, calculations, sorting criteria and other analytic functions, both at application design-time and at run-time
- Support for visual programming using Java integrated development environments (IDE)
- Support for building Internet computing-compliant n-tier OLAP applications

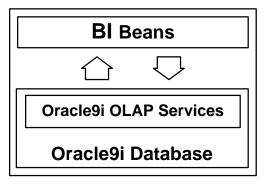


Figure 3. BI Beans and Oracle 9i Interaction

The Oracle Java Tools will provide a tools infrastructure (IDE, repository, n-tier development, modeling, etc.) that will enable developers to build applications that take advantage of Internet computing. The BI Beans leverage the services provided by Java and fit naturally into the Java environment. People who become proficient in developing applications using Java will be able to construct robust BI applications without having to learn separate tools or infrastructure-related concepts.

Key Features of BI Beans:

- Support for visual development
- Transform any Java IDE into a powerful OLAP development tool
- Standard pages without programming
- Optimized for Oracle environments
- Open, standards-based
- Beans: properties, methods, and events
- Property Editors and Customizers
- BI functionality can be built into any Java based application including Relational based applications

Oracle's JDeveloper has been enhanced with design-time running of objects, wizards for creation of "BI Pages" and a rich set of customizers and property editors to allow for very rapid BI application development.

ROBUST SET OF ANALYTICAL COMPONENTS

BI Beans focuses on the most common BI components used in analytical applications today. In particular, the following JavaBean components that comprise the application fall into three general categories: 1) presentation beans, 2) analysis beans and 3) persistence services. Below is a diagram describing the relationships between the components.

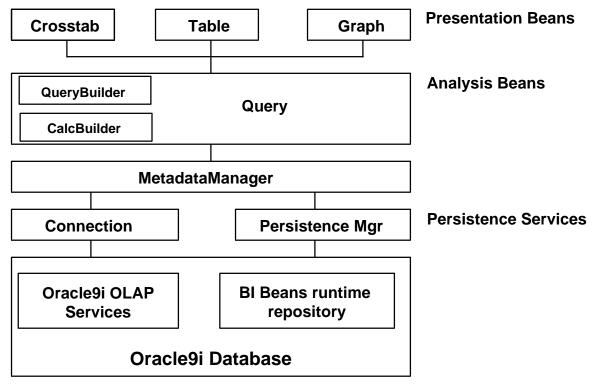


Figure 5. BI Beans Architecture

RAPID DEVELOPMENT OF CUSTOM APPLICATIONS

JDeveloper and BI Beans provide the most productive development environment for building business intelligence applications. Wizards are provided in JDeveloper that package these components into applications in the form of either servlets or Java applications. A BI Beans tag library is also available enabling the rapid development of JSPs. The JSP developed by JDeveloper can be tested in the development environment then deployed as a Portlet with Oracle Portal Utilizing the BI Beans Catalog, users save and share their discoveries with others across the enterprise.

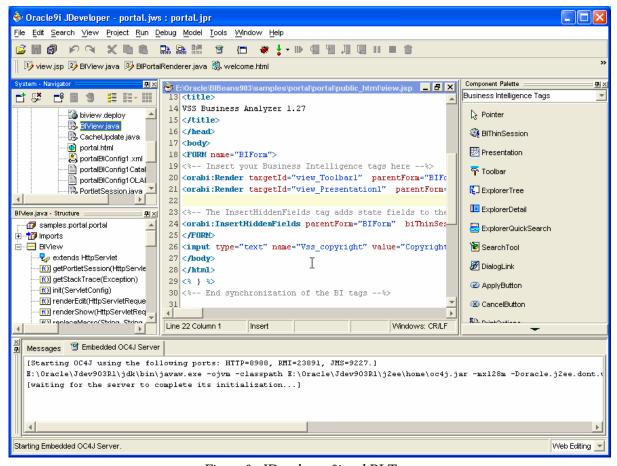


Figure 6- JDeveloper 9i and BI Tags

THE PROCESS

The process used to develop and deploy a BI Portlet is straightforward and contains 8 steps:

- Develop JSP in JDeveloper environment (including portal libraries)
- 2. Test and Debug JSP application in JDeveloper environment
- 3. Create deployment EAR file in JDeveloper
- 4. Create OC4J Instance application in 9iAS
- 5. Deploy JSP application to OC4J Instance
- 6. Test the deployment
- 7. Create Portal Provider point to deployed JSP
- 8. Use Portlet in Portal Pages

THE RESULT

Figure 7 shows a screen of the resulting JSP application integrated as a Portlet in Oracle Portal.

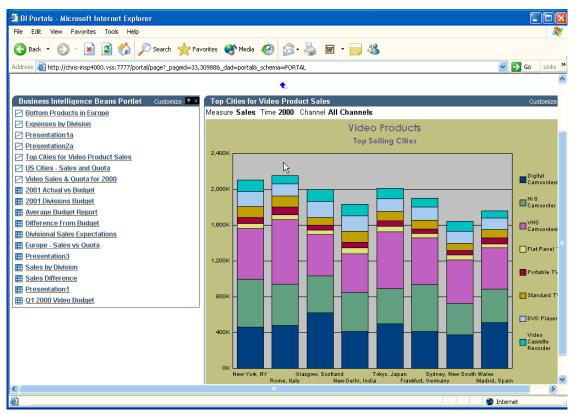


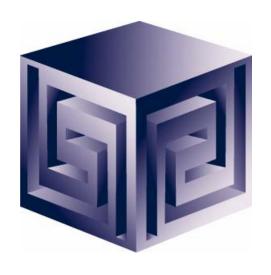
Figure 7. BI Beans Portlet

Building BI Portals, Using Oracle9i, 9i Developer, and BI Beans

presented at

OracleWorld 2002

paper number 32074



Presented by:

Chris Claterbos

Vlamis Software Solutions, Inc. (816) 729-1034

claterbos@vlamis.com

http://www.vlamis.com

Copyright © 2002 Vlamis Software Solutions, Inc.

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.







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 BIBeans, 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).

Agenda



- Overview
- What is Portal?
- Introduction to Oracle 9i, JDeveloper and BI Beans
- The Process
- The Result
- Demonstration Lets Do IT!
- Q&A

Overview



- BI Portals go by many names, Enterprise Information Portals (EIPs), Dashboards, or Business Information Portals (BIPs)
- Used for combining diaparate information sources into one organized location
- Used to help organize an organizations information assets
- Using portals organizations can:
 - Improve efforts of collaboration and innovation
 - Capture tacit knowledge from in-house experts
 - Facilitate the sharing of knowledge and information linking
 - Increase competitive advantage and decrease time-to-market





PORTAL

 Set of sites, pages, and applications brought together in one central location and accessed through a common interface.

PAGE

- The common interface of the portal.
- Comprised of portlets.

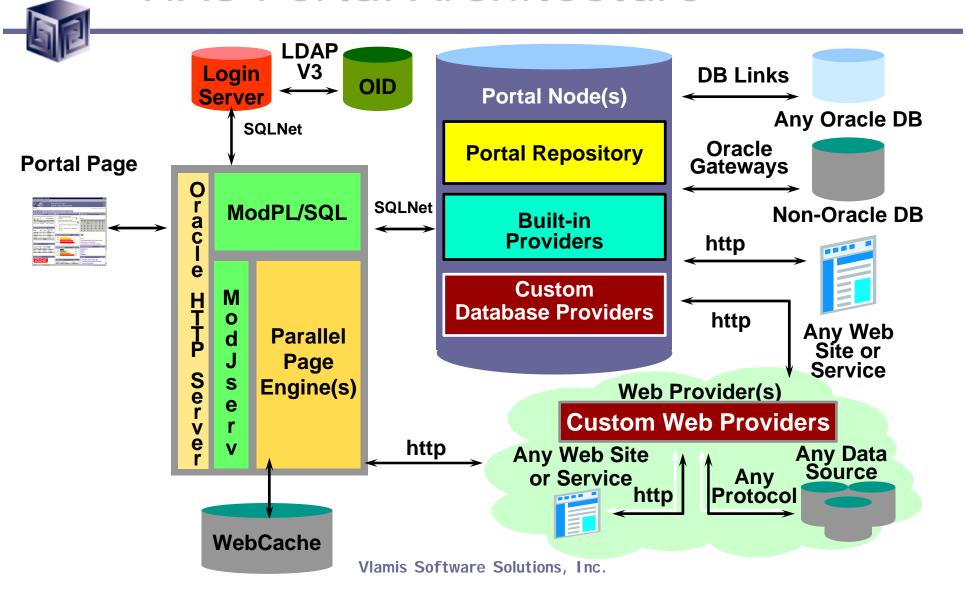
PROVIDER

Entity that owns and manages portlets.

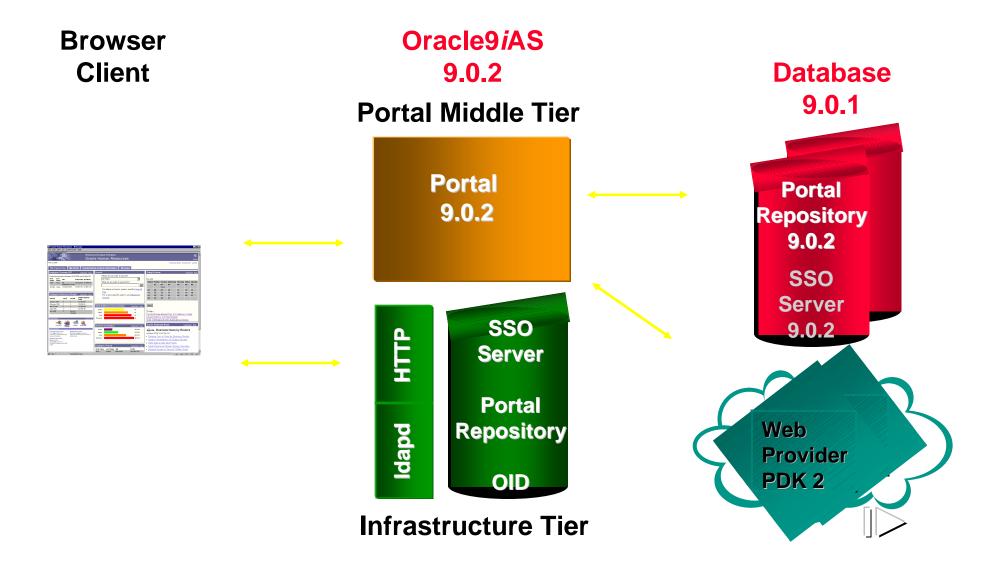
PORTLET

Area of HTML and XML displayed within a region on a page.

9iAS Portal Architecture



9iAS 9.0.2 Architecture







- Browser-based development tool for creating and managing web-based application components, and websites.
- Menu-based user interface design.
- Separate administration areas for components and for sites.

Ease - User Customizable



- Add or Remove Portlets
- Alter Page Layout





Ease - Java



Java Servlet

Hello World Portlet
Hello PORTAL_PUBLIC

- Uses 50% more code
- More error handling

Java Server Page

Hello World Portlet - JSP
Hello PORTAL_PUBLIC
This portlet is a JSP.

Uses 50% less code

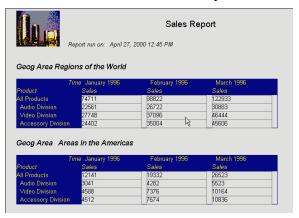
Examples from http://portalstudio.oracle.com

Vlamis Software Solutions, Inc.

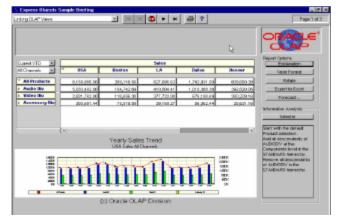
Integration

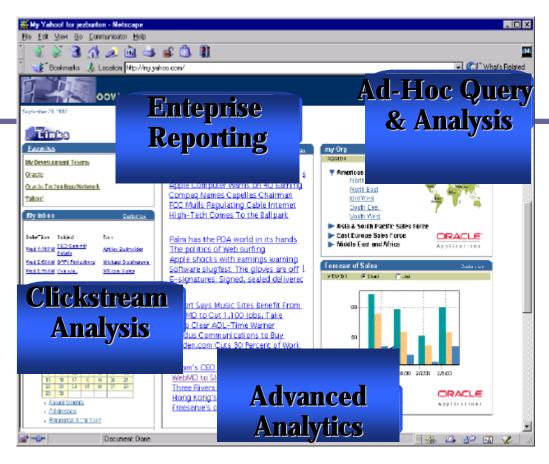


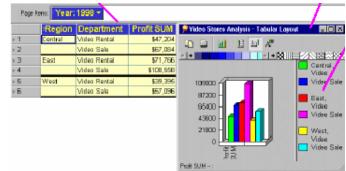
Reports



BI Beans





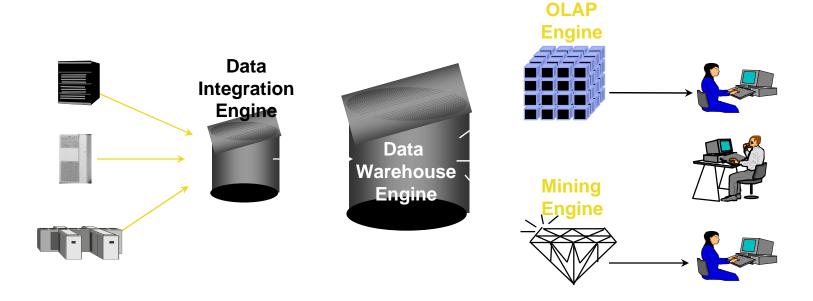


Vlamis Software Solutions, Inc.

Discoverer







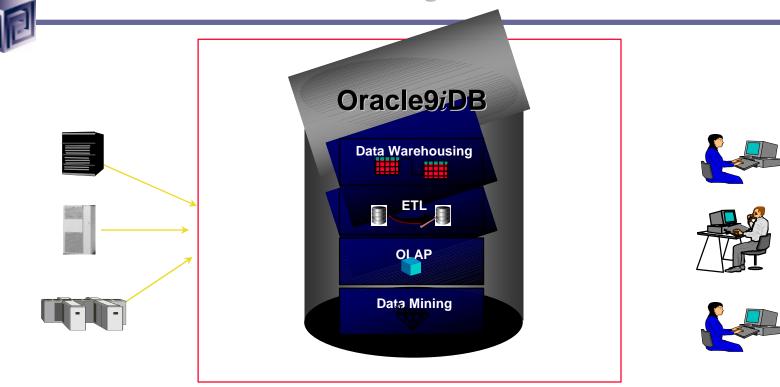
- Special purpose engines for differing tasks
- Metadata migration tools ease replication
- User interfaces generally different for different tools

Oracle9i OLAP Services



- Analysis ready Oracle database
 - Support for complex, multidimensional queries
 - Highly scaleable
- Development platform for Internet-ready analytical applications
 - Java OLAP API
 - Business Intelligence Beans and JDeveloper

BI the New Way: Oracle 9iDB



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

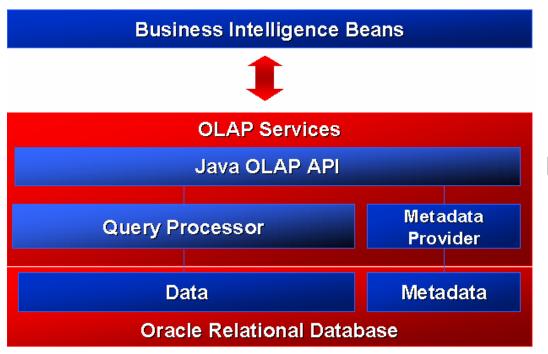




- Advanced analytics
- Integrated in RDBMS
- Easy to develop
- Easy to use
- Facilitate collaboration
- Flexible deployment
- Scaleable and performant



Oracle 9i OLAP Architecture

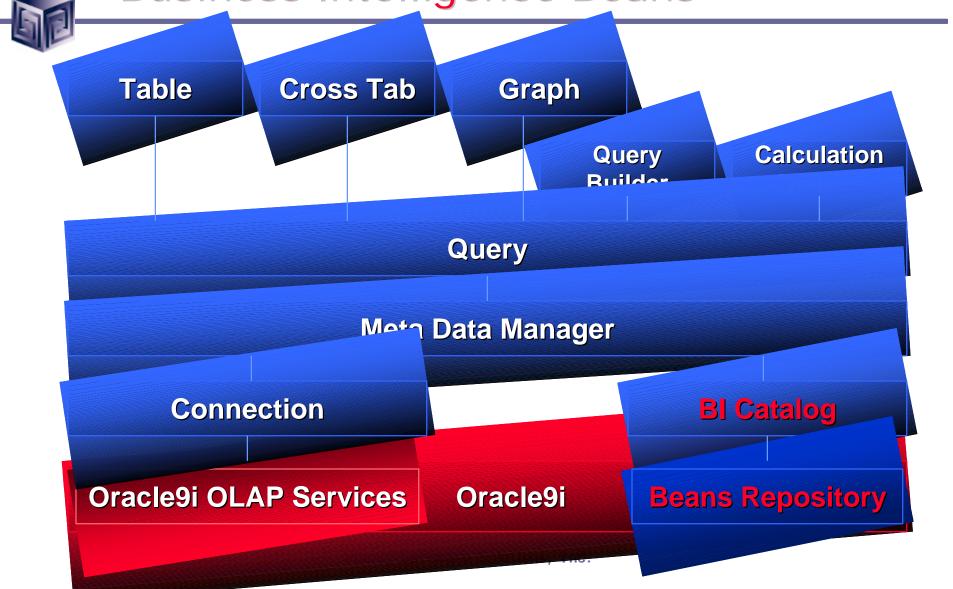


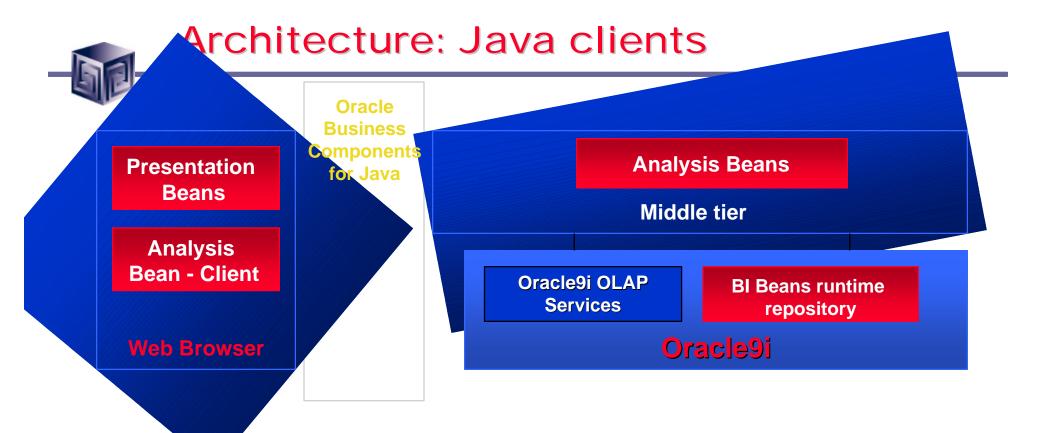
Rapid application development Analysis ready

Java OLAP API
Predictive analysis functions

Scaleable data store Integrated meta data Summary management SQL analytic functions

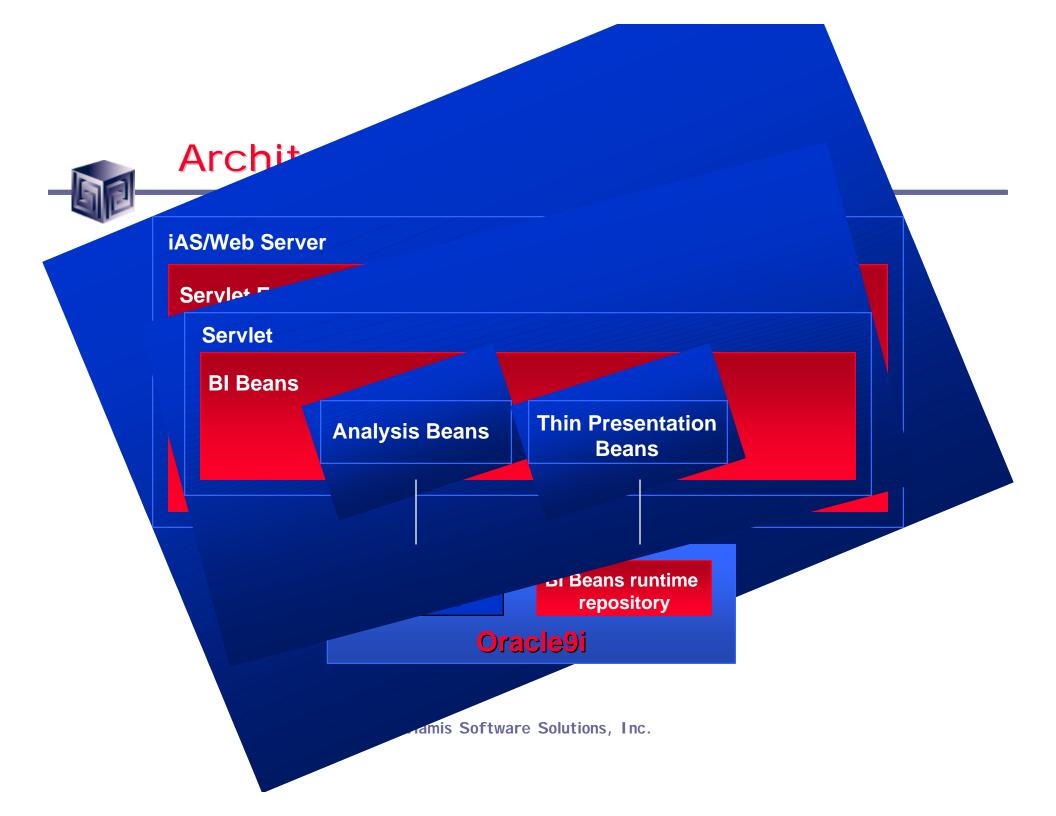






BI Beans use of Oracle Business Components for Java:

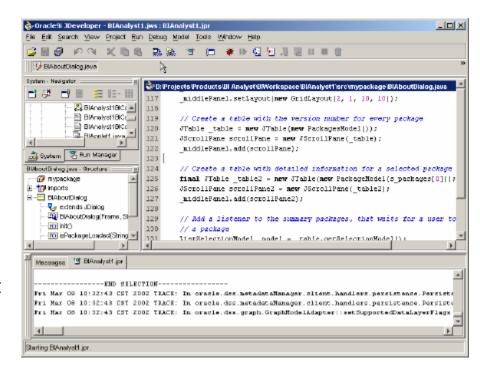
- * communications protocol across tiers
- * deploying iBeans on the middle tier (EJB, 8i)
- * insulates application developer from "application plumbing" related to deployment



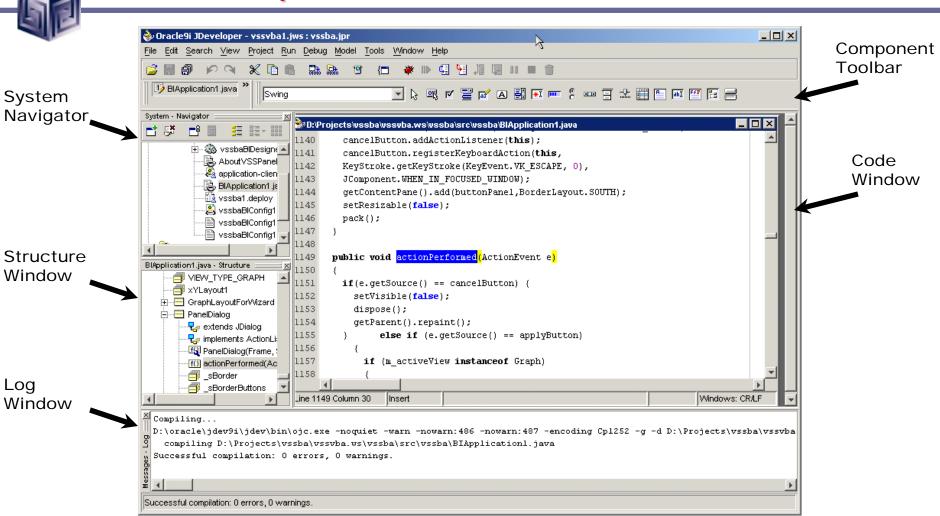


JDeveloper Integration

- 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



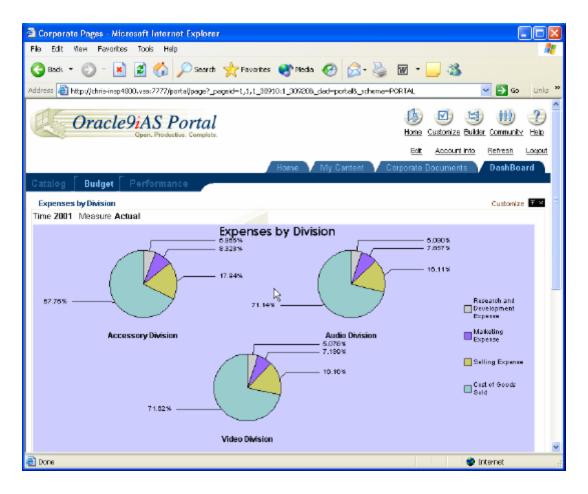
The Process



- Develop JSP in JDeveloper environment (including portal libraries)
- Test and Debug JSP application in JDeveloper environment
- Create deployment EAR file in JDeveloper
- Create OC4J Instance application in 9iAS
- Deploy JSP application to OC4J Instance
- Test the deployment
- Create Portal Provider point to deployed JSP
- Use Portlet in Portal Pages

The Result





Vlamis Software Solutions, Inc.

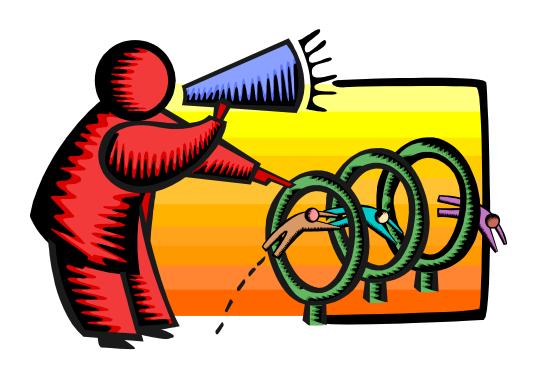




- Oracle 9i Database with OLAP Services
 - BI Catalog Installed
 - OLAP Cubes defined
- •9iAS version 9.0.1.22
 - Infrastructure Server
 - •9iAS Instance Server
- •JDeveloper 9.0.3
 - •BI Beans Add-in Installed
- Browser

Demonstration









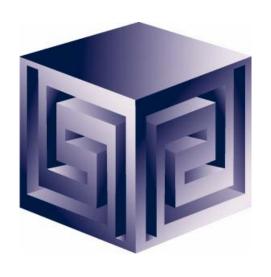
Questions

Building BI Portals, Using Oracle9i, 9i Developer, and BI Beans

presented at

OracleWorld 2002

paper number 32074



Presented by:

Chris Claterbos

Vlamis Software Solutions, Inc. (816) 729-1034

claterbos@vlamis.com

http://www.vlamis.com

Copyright © 2002 Vlamis Software Solutions, Inc.