



JavaOneSM

Sun's Worldwide Java Developer Conference



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Database Systems and Tools



ORACLE

Java Integration Preview



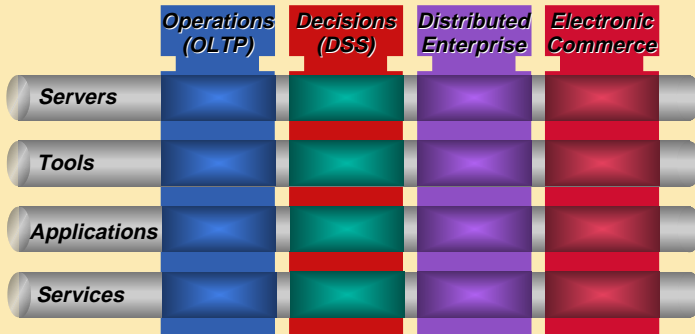
Joe Vassallo
Vice President
Sun Products Division

JavaOne Database/Tools Panel
May 30, 1996



Oracle is Enabling the Information Age

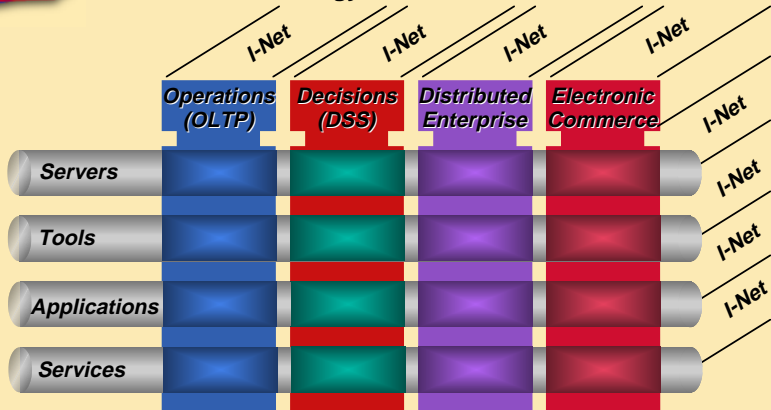
Product/Market Strategy



Oracle is Enabling the Internet Information Age



Product/Market Strategy



JavaOne Database/ Tools Panel

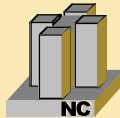


- **Overall what is Oracle doing with Java?**
- **This particular presentation will focus Server products and strategies**

What is Oracle Doing with Java?



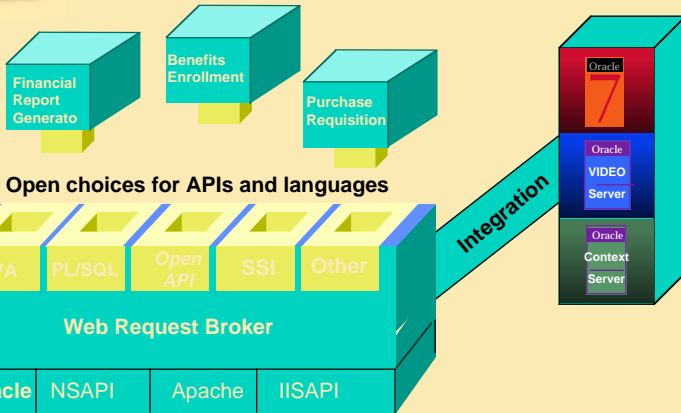
- **Java Server Is Fully Integrated Into Oracle WebServer 2.0**
- **JDBC, ODBC, OLE, and Beyond**
- **Java Integrated Development Environment**
- **Java Integrated Into Sedona Network Components Environment**
- **DSS/OLAP Tools**
- **Enterprise Management**
- **Network Computer**
- **Business and Groupware Applications**





Extensible Architecture

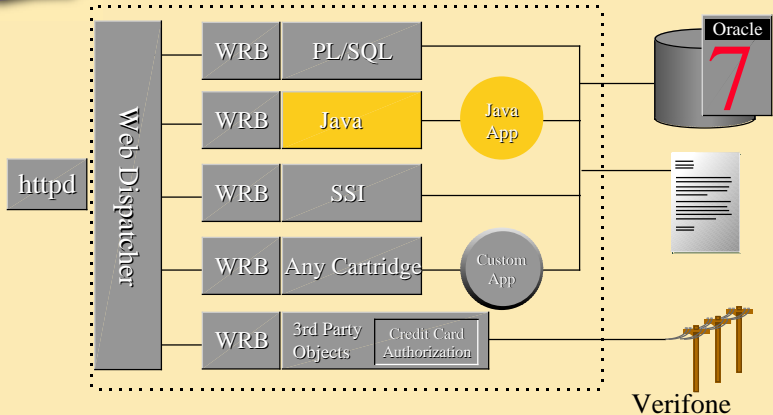
First Plug 'n Play Server



Oracle Web Server 2.0 - shipping today



Architecture



WebServer 2.0 “Cartridge” Architecture



- **Web Request Broker based “cartridges”**
 - Oracle cartridges: Java Server, PL/SQL agent....
 - Strategic partner cartridges: Verifone, TBA..
- **ANY 3rd-party cartridges**
 - Any database, legacy system, etc.
- **Cartridge Management and Process Isolation/Safety**
 - Separate process space: debuggable, manageable code
 - Load balancing
 - URL registration
 - Cookie support
 - Language independent, easy-to-use cartridge API

Native Database Integration



- **High-performance database integration with all corporate data**
 - **Oracle WebServer delivers data-driven dynamic web pages**
- **Native programmatic interface into Oracle7**
 - **PL/SQL**
- **Java programmatic interface into Oracle7**
 - **Java applications can call PL/SQL**
- **Full integration with rich media: Text, Relational, Spatial, Video**

Web Request Broker Architecture



PL/SQL Cartridge

- **PL/SQL Execution in Oracle7**
 - Native interface to Oracle7
 - Executes Oracle packages
 - Generates dynamic HTML
- **Performance Improvements**
 - Non-CGI based solution
 - Persistent connections to database
- **New Packages**
 - **OWA_COOKIE** - Maintain cookies
 - **OWA_PATTERN** - Regular expressions
 - **OWA_IMAGE** - Image map support

PL/SQL

Web Request Broker Architecture



Java Cartridge

- **Server-Side Java Engine**
 - **Executes server-side Java**
 - **Native access to Oracle**
 - **Type wrapper for database storage**
- **PL/SQL Objects for Java**
 - **Creates Java classes from PL/SQL**
 - **Classes can be executed from Java**
 - **Completely portable and partitionable**
- **Additional Classes**
 - **oracle.html.* - HTML generation**
 - **oracle.rdbms.* - Database access objects**
 - **oracle.plsql.* - PL/SQL access objects**



Web Request Broker Architecture



LiveHTML Cartridge

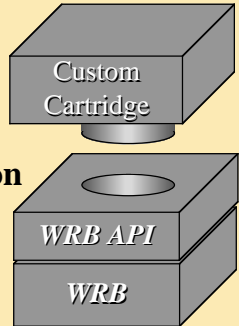
- **SSI Interpretation Engine**
 - **Implementation and extension of SSI**
 - **Server-side HTML parsing**
 - **NCSA standard**
- **Access to CGI PL/SQL Agent**
 - **Include dynamic content from database**

Web Request Broker Architecture

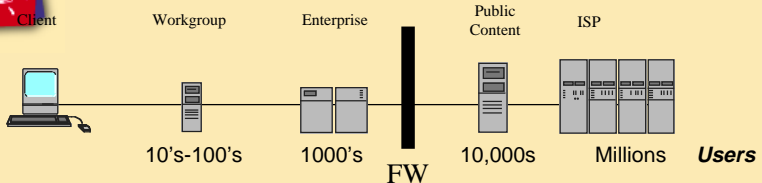


Web Request Broker API

- **Custom-Built Cartridges**
 - Application framework
 - Abstracts HTTP protocol
 - APIs for logging, authentication and attribute management
- **Independent Entities**
 - Run in own address space
 - Separate process/thread for safety
- **Allows Generic Implementations**



WebServer: Performance and Scalability



- **Web Request Broker delivers unparalleled performance and reliability with load balancing**
- **High throughput for servicing web client requests: no single system bottleneck**
- **Multi-threaded, multi-process architecture allows system to scale with load**

Oracle WebServer Directions



- **HTTP Server Independence**
 - NSAPI, Microsoft IIS, Apache
 - Java API for cartridges instead of proprietary APIs
 - Sun, HP, SGI, SCO, etc.
- **Additional Cartridges**
 - JavaScript, Java OCI
 - Built-in InterCartridge eXchange
 - Intelligent Database-based Proxy Cache with Replication
- **New Tools**
 - Web Site Manager
 - Development Tools
 - Decision Support Tools

WebServer Product Roadmap



WebServer 1.0

- **Dynamic Database-based pages with HTTP Server**

WebServer 2.0

- **SSL, Proxy in HTTP Communications Server, with Dynamic Pages and Oracle 7.3 integration**
- **Web Request Broker & WebServer SDK: Java Server**
- **Production in April 1996 on Solaris**

WebServer 3.0

- **Fully multimedia-enabled with Oracle Universal Server**
- **Broad support for emerging standards -- JavaScript, SSL 3.0, VRML, CORBA...**
- **Web Listener independent**

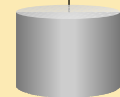
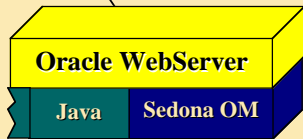
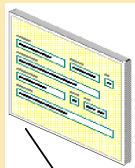


JDBC and beyond...

- **Oracle is committed to JDBC, ODBC bridge, Java<->OLE, ...**
- **Oracle is committed to working with JavaSoft to extend JDBC to become more robust**
- **Additional Requirements (more like Oracle Precompiler support)**
 - **support for static SQL**
 - **semantic checking/compile time type checking**
 - **better language binding**
 - **support SQL3 extensions (abstract data types)**
 - **higher level interface based on an object approach vs. an API.**

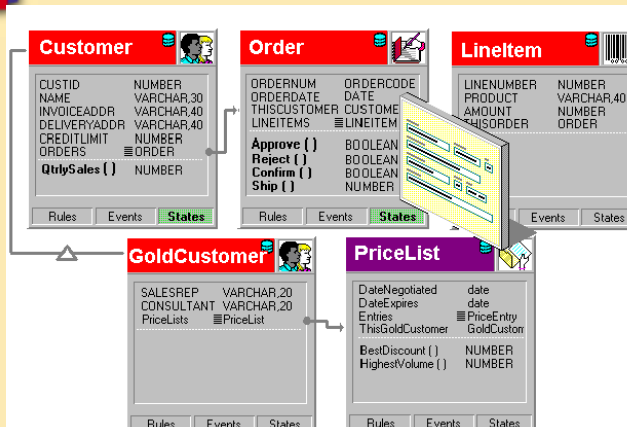


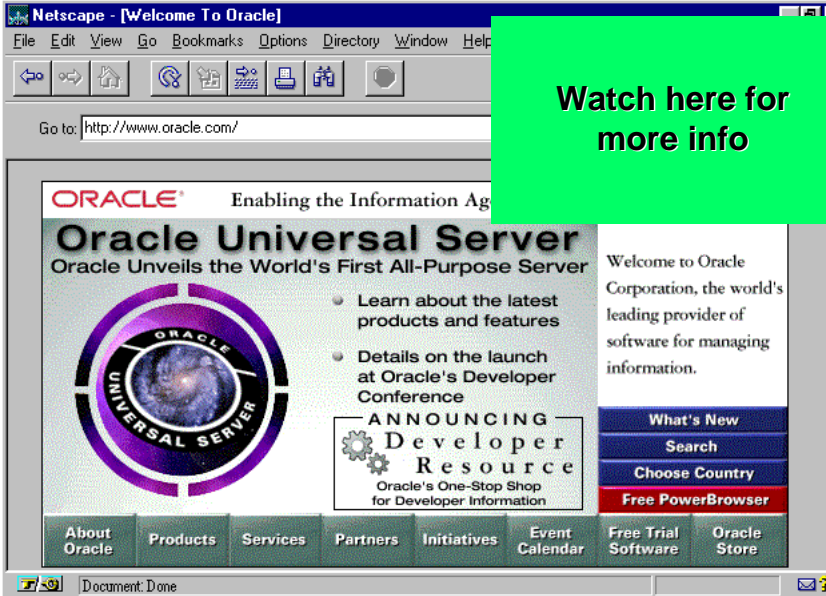
Java & WebServer 2.0



Oracle7

Java Applets and Project Sedona





Watch here for more info



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Sun's Worldwide Java Developer Conference

Rob Veitch

Sybase



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Distributed Client/Server Development using the WWW

*Keith Bigelow
Senior Product
Marketing Manager
InterBase*



Data

is everything



Challenge:

Manipulate mission critical data in an environment which is...

- **Distributed**
(and requires distributed processing)
- **Cross-Platform**
(for both clients and servers)
- **Dynamically changing**
(but always req. integrity)
- **Often outside of corporate control...**



Java's Promise

- OO
- Cross Platform
- Reduced lifecycle costs

Borland's Promise

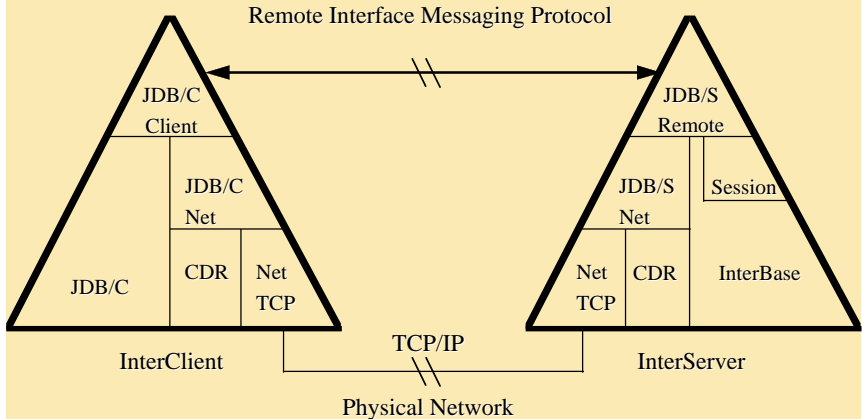
- The Visual RAD tool will come
- JDBC/ORBs will provide the connectivity
- High performance/low maintenance servers will thrive

Borland's Development Suite



- **Latté: RAD Java IDE**
 - **Visual component based development tool**
- **InterClient: JDBC-Net Connectivity**
 - **Written entirely in Java-protocol independent**
 - **Optimized for WAN data transfer - granularity change**
- **InterBase: High Performance SQL database**
 - **One API from Win31-NT-UNIX**
 - **Low maintenance / administration requirements**

InterClient JDBC Driver Architecture





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Interactive Database Connectivity using Java

*Jeff Barca-Hall
Dir, Development
Internet Tools
Symantec Corp.*



Symantec Overview

- **Top 10 Software Company**
- **FY96 Revenues approx \$450MM**
- **Over 2200 Employees Worldwide**
- **Founded in 1982**
- **Headquartered in Cupertino, CA**
- **NASDAQ:SYMC Since 1989**

Top Selling Business Software in the U.S.



Units

Microsoft

Symantec

Softkey

Corel

Berkeley

Dollars

Microsoft

Symantec

Adobe

Novell

Corel



Internet Tools Division

- **Symantec's Client/Server and Development Tools Divisions Merged into New Internet Tools Division**
- **Six Parallel Development Teams**
- **Focused on Internet Development and Database Connectivity Solutions**
- **Early Strong Commitment to Java**



Symantec Café

- **Leading Java development tool on Windows and Macintosh**





Symantec Café Releases

Dec '95	Feb '96	Mar '96	Apr '96	Apr '96	May '96	May '96
▲	▲	▲	▲	▲	▲	▲
Espresso Free add-on to C++/Win	Caffeine Free add-on to C++/Mac	Café 1.0 Windows	Just-In-Time Windows	Café 1.0 Mac	Just-In-Time Mac	Café 1.2 Windows



Introducing ...



Introducing ...

Visual Café
**The Rapid Application
Development Tool for Java**

*For developing your Java applets
and applications on Windows 95/NT
and Power Macintosh*

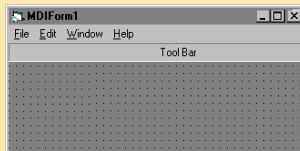
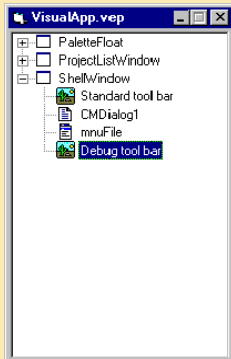
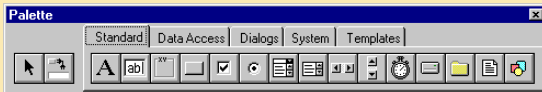


What is Visual Café?

- **Form-Based Development**
- **Component Programming**
- **Two-Way Programming**
- **Visual Programming**
- **Component Library**
- **Incremental Runtime Development**
- **Internet Database Access**



Form-Based Development



- **Create forms**
- **Use drag&drop to add controls**
- **Handle events**



Property Inspector

- View Properties
- Contextual Dropdowns
- Live Property Changes

The screenshot shows a window titled "Property Inspector" with a dropdown menu showing "button1". The table below lists the properties of this button.

Background Color	<input type="checkbox"/> 12632256
Caption	One
Class	java.awt.Button
Enabled	true
Font	
Font Name	Dialog
Font Size	12
Font Style	
Font Style (Bold)	false
Font Style (Italic)	false
Foreground Color	<input type="checkbox"/> 0
Height	26
Name	button1
Place	
Use Preferred Size	false
Visible	true
Width	88
X	7
Y	30



Visual Programming



- **Don't write code for simple visual interaction**
- **Use Drag and Drop in order to connect visual elements**

Database Login

User Name:

Password:

OK Cancel



Visual Programming



- **Don't write code for simple visual interaction**
- **Use Drag and Drop in order to connect visual elements**

Database Login

User Name:

Password:

OK Cancel

Browse and Edit Visual Connections

A screenshot of the Visual Studio IDE showing the Visual Connections window for a Click event. The window title is "CFindDialog: CTextBox1". The "Object" dropdown is set to "UserNameTextbo". The "Code" tab is selected, showing the event handler code:

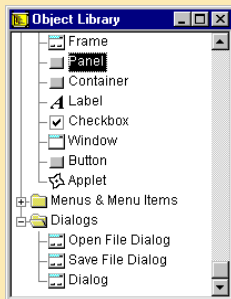
```
CFindDialog::UserNameTextbox::Click()  
  
If [ab] UserNameText is not empty  
  And [ab] PasswordText is not empty  
  Then [ ] OKButton enable  
  New Relationship
```

 The "Exit" option is highlighted in the "Object" list. A "New Connection" section is visible at the bottom of the code editor.



Component Library

- **Shared Component Library**





Component Programming

- **Create your own components as:**
 - a set of classes
 - a set of controls and associated code
 - a set of forms and associated code
- **Test components separately**
- **Share them in a Component Library**
- **Support for JavaSoft's new Component Standards**



Rapid Application Development

- **Manage program as a set of components and classes instead of files**
- **Allow class/method editing**
- **Perform incremental builds**
- **Instant turnaround time**
- **Runtime protection**

Evolution of Web Database Applications



Evolution of Web Database Applications



Static Applications w/HTML

**Static HTML.
Pages predefined
with links.**

*Standard browser
Standard server*

Evolution of Web Database Applications



**Static
Applications
w/HTML**



**Dynamic
Applications
w/CGI**

**Static HTML.
Pages predefined
with links.**

*Standard browser
Standard server*

**Data-driven HTML.
Pages created
on-the-fly.**

*Standard browser
Extended server*

Evolution of Web Database Applications



**Static HTML.
Pages predefined
with links.**

*Standard browser
Standard server*



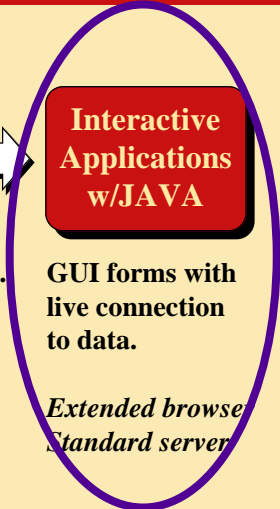
**Data-driven HTML.
Pages created
on-the-fly.**

*Standard browser
Extended server*

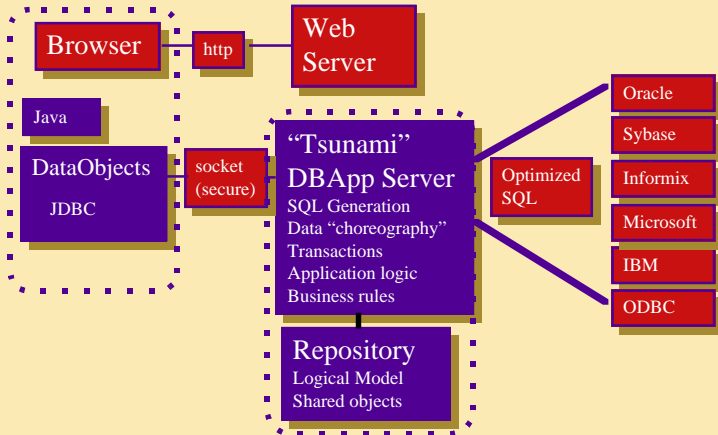


**GUI forms with
live connection
to data.**

*Extended browser
Standard server*



Visual Café Database Application Server Model



Visual Café Database Benefits



- **Separates Application Logic from UI Logic**
- **Database Independent**
- **Thin Client**
- **No Increase of Web Server Load**
- **Scaleable**
- **Web Client/Server Apps Made Easy!**



Demo



Summary

- **Java enables three-tier database application connectivity**
- **Direct connection to server-side logic**
- **None of the drawbacks of CGI/HTML solutions**
- **All the benefits of the Web for enterprise database applications**