



100% Mission Critical Java™

**Peter Relan, Vice President
Oracle Corporation**

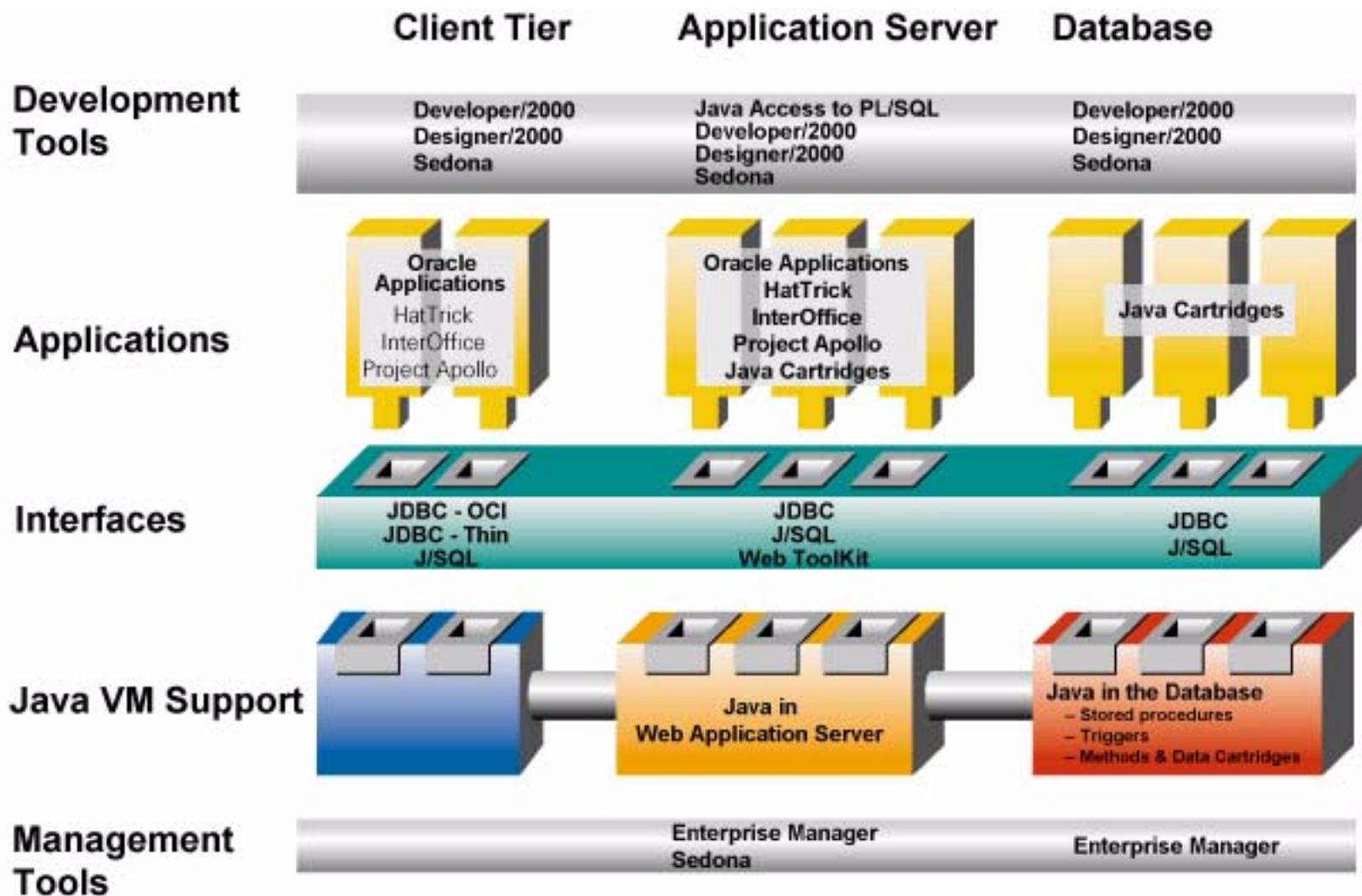
100% Mission Critical Java

Oracle's Java™ Product Strategy

- ◆ Provide Java developers what they need to build business applications
- ◆ Evolve and migrate client/server applications to the web using Java as an enabling technology
- ◆ Use Java for Oracle product development



Java Across All Tiers of Network Computing Architecture



100% Mission Critical Java

What do Java developers need to build business application?

- ◆ Easy, efficient access to relational data
- ◆ Java in the client tier
- ◆ Java in the application server
- ◆ Java stored procedures within the RDBMS
- ◆ Enterprise-level development tools

Easy, Efficient Access to Relational Data

Database access from any tier

- ◆ JDBC™ OCI7 and OCI8
 - ◆ Benefits from all OCI features: character sets, numbers, etc.
 - ◆ JDBC OCI 8.0 supports Oracle Object types
- ◆ JDBC -- Thin
- ◆ JSQL

NEW: JSQL

JSQL: Embedded SQL in Java

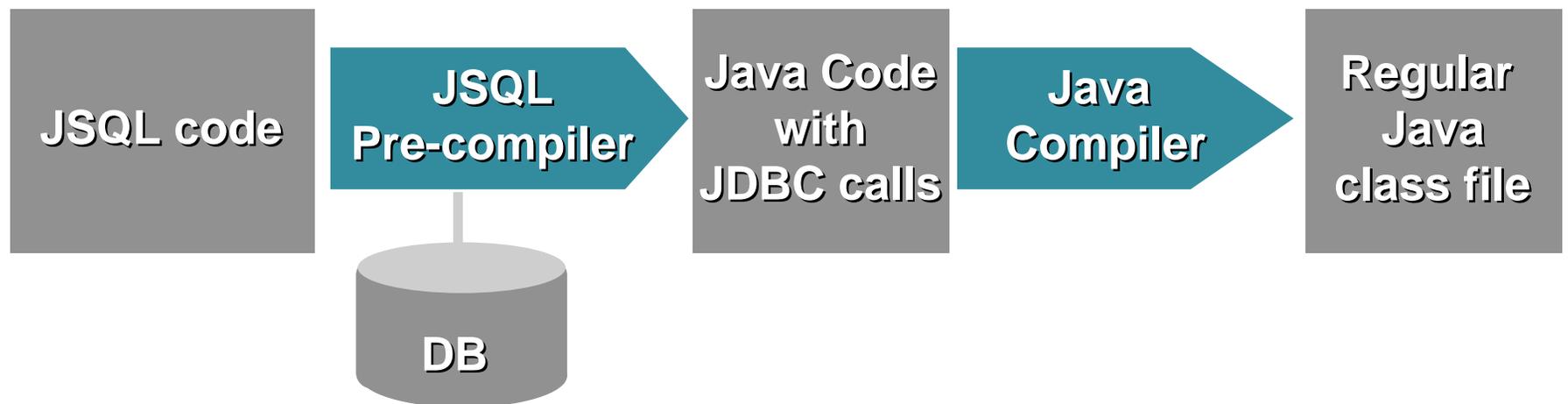
- ◆ A syntax for embedding SQL statements in Java programs
- ◆ A draft specification for a standard with support for source and binary portability
- ◆ A pre-compiler that translates JSQL code to Java code that uses JDBC

JSQL: Why?

Static as a complement to Dynamic

- ◆ Concise
 - ◆ Easy to write and maintain programs
- ◆ Early checking of SQL statements
 - ◆ SQL syntax errors and Java/SQL type mismatch detected by the pre-compiler

Using JSQL



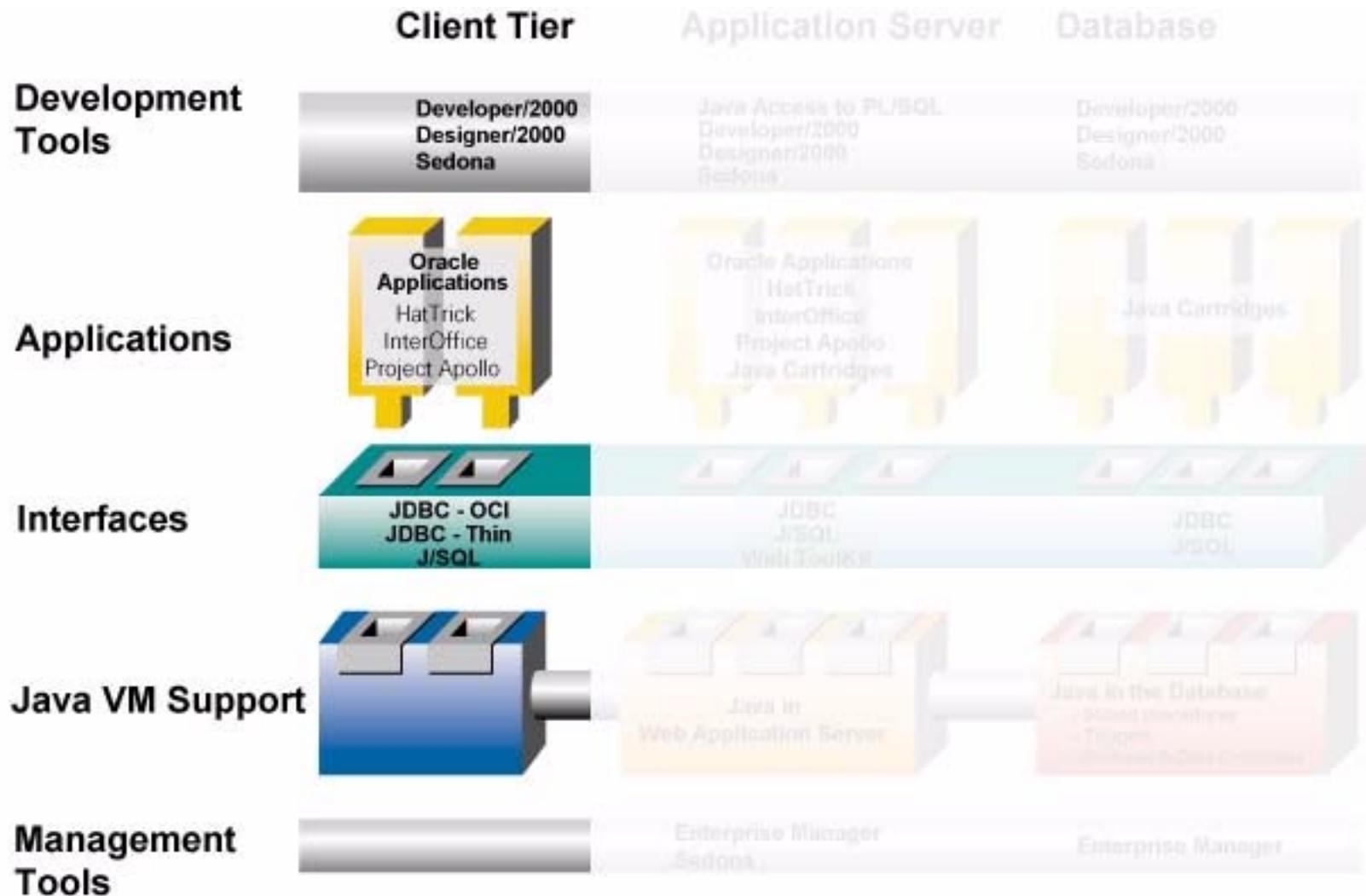
- ◆ Pre-compiler generates Java code with JDBC calls
- ◆ Checks SQL statements against the database
- ◆ Generated code compiles and runs like any other Java program

JSQL Announcement at JavaOne

- ◆ Oracle, IBM and Tandem have been working together to define the specification
- ◆ JavaSoft endorses JSQL effort
- ◆ Draft specification available
- ◆ Reference implementation available by Summer 1997



Java in the Client Tier



JDBC Thin

Ideal for Client/Server Intranets

- ◆ Can be downloaded with applet
- ◆ No client installation required
- ◆ Only 300k
- ◆ Supports TCP/IP SQL*net

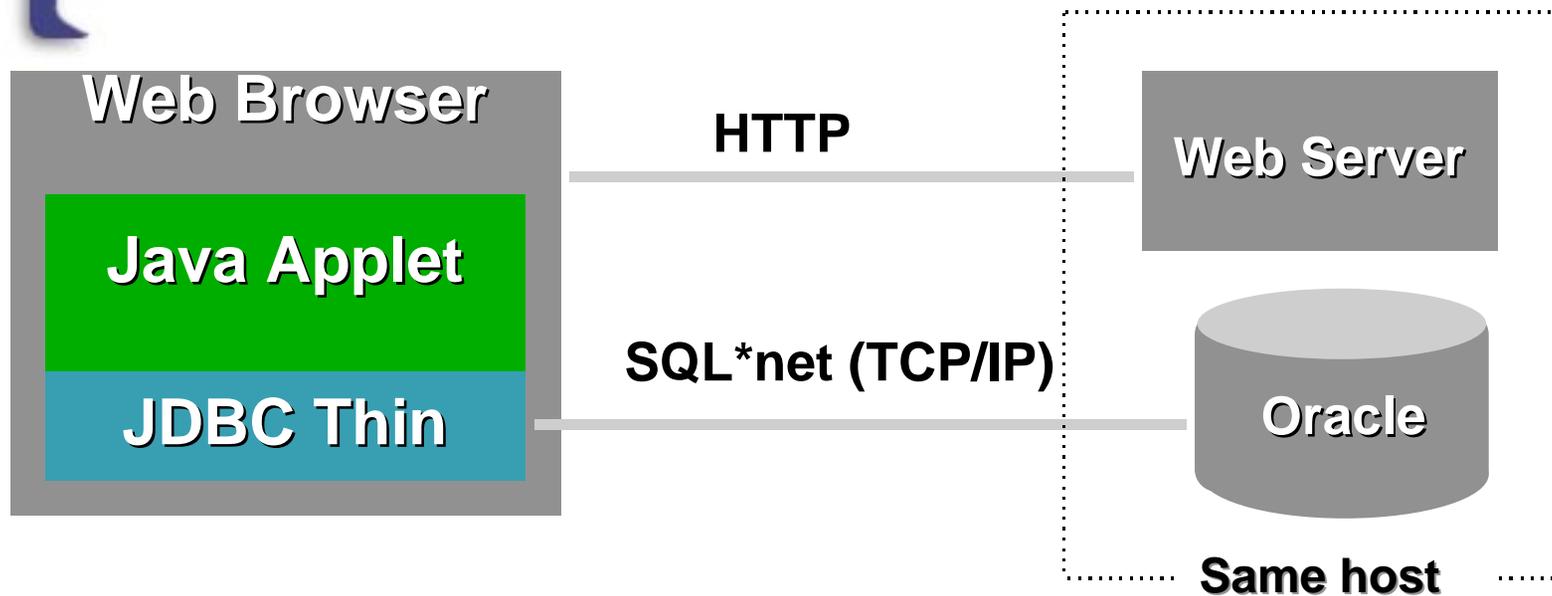
**JDBC
class library**

JDBC Thin

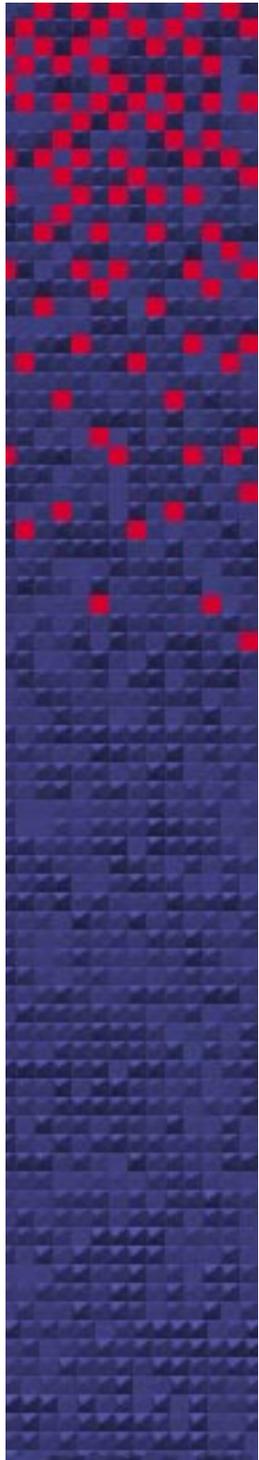
Java sockets



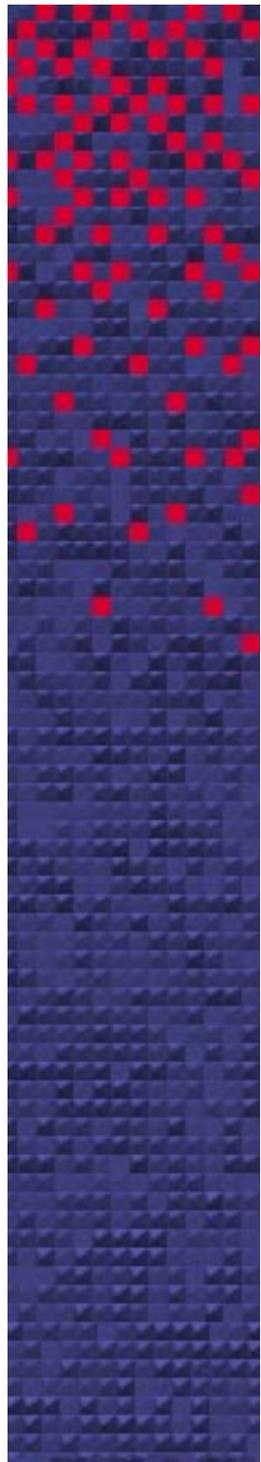
JDBC Thin



- ◆ Enables downloadable applets to connect directly to an Oracle Database
- ◆ Java security requires that database be on the same host as the Web Application Server (restriction lifted for JDK™ 1.1 signed applets)

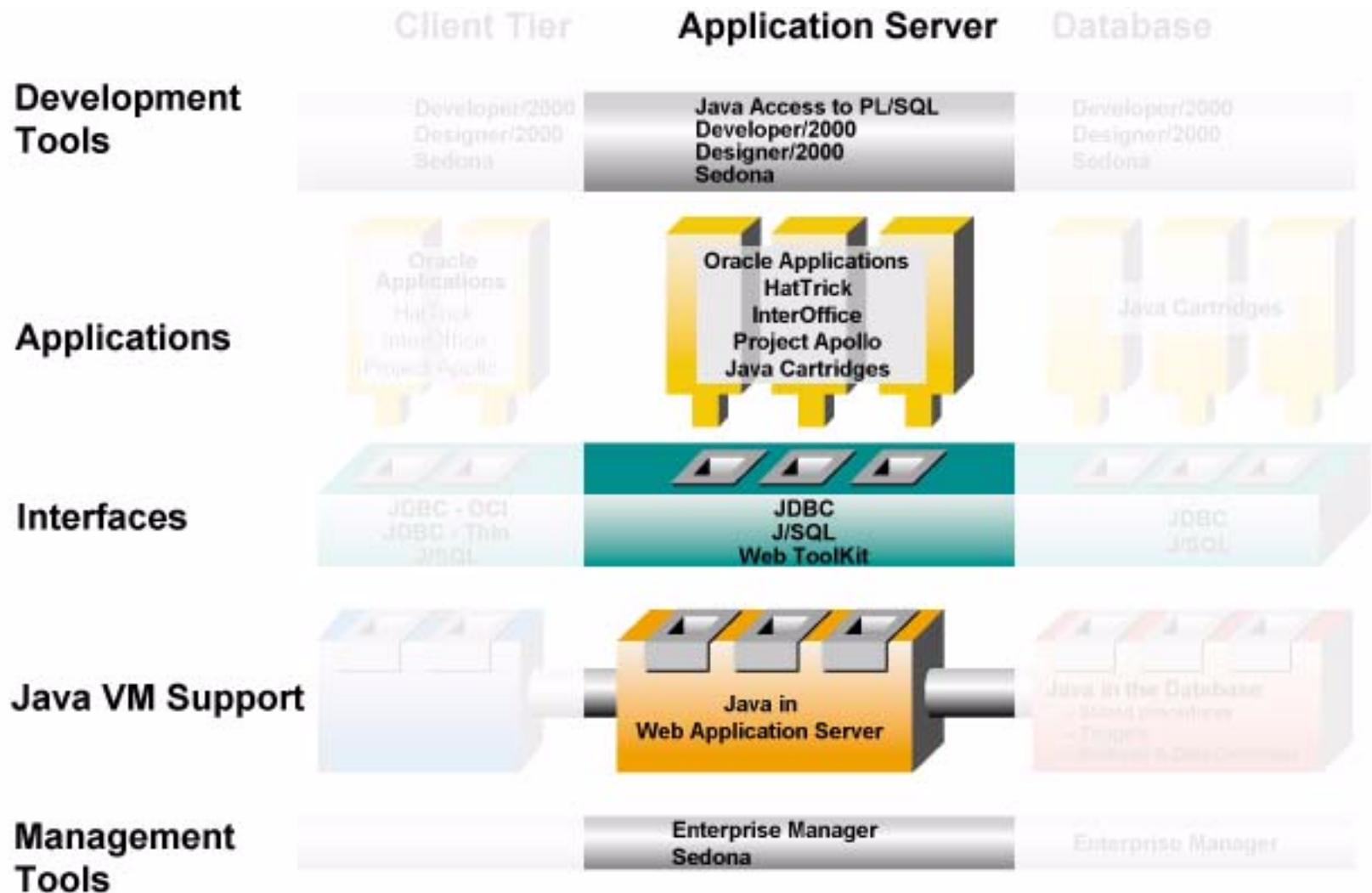


JDBC Thin Demo



Hattrick Demo

Java in the Application Server Tier



Web Application Server

- ◆ JavaSoft's Java Virtual Machine (VM) as a cartridge
- ◆ Robust and high speed implementation
- ◆ Database access
 - ◆ JDBC and JSQL
 - ◆ Auto-generated Java wrapper-classes
- ◆ Live HTML scripting access to Java
- ◆ Java web toolkit



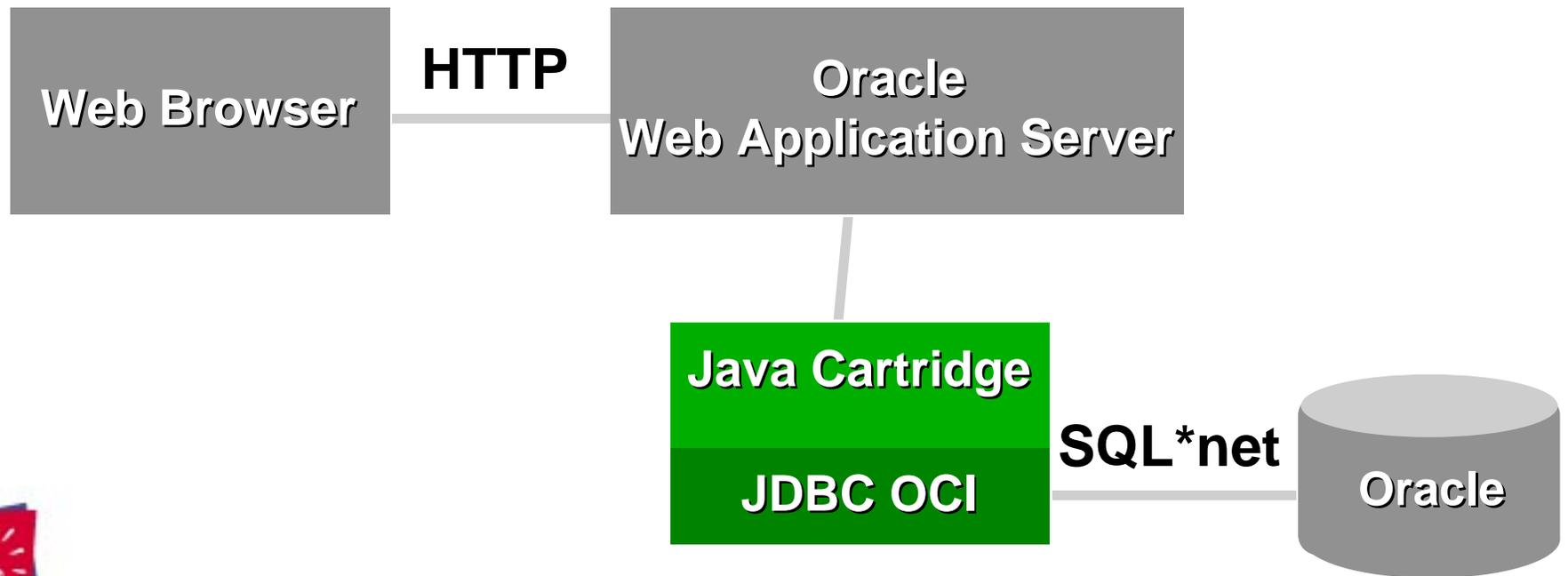
Web Application Server

- ◆ Transactional application server for the Web
 - ◆ X/Open standards
- ◆ CORBA based
- ◆ Scalable and portable
 - ◆ Works with Netscape or Microsoft
- ◆ Secure
- ◆ Extensible
- ◆ Reliable and manageable



Web Application Server

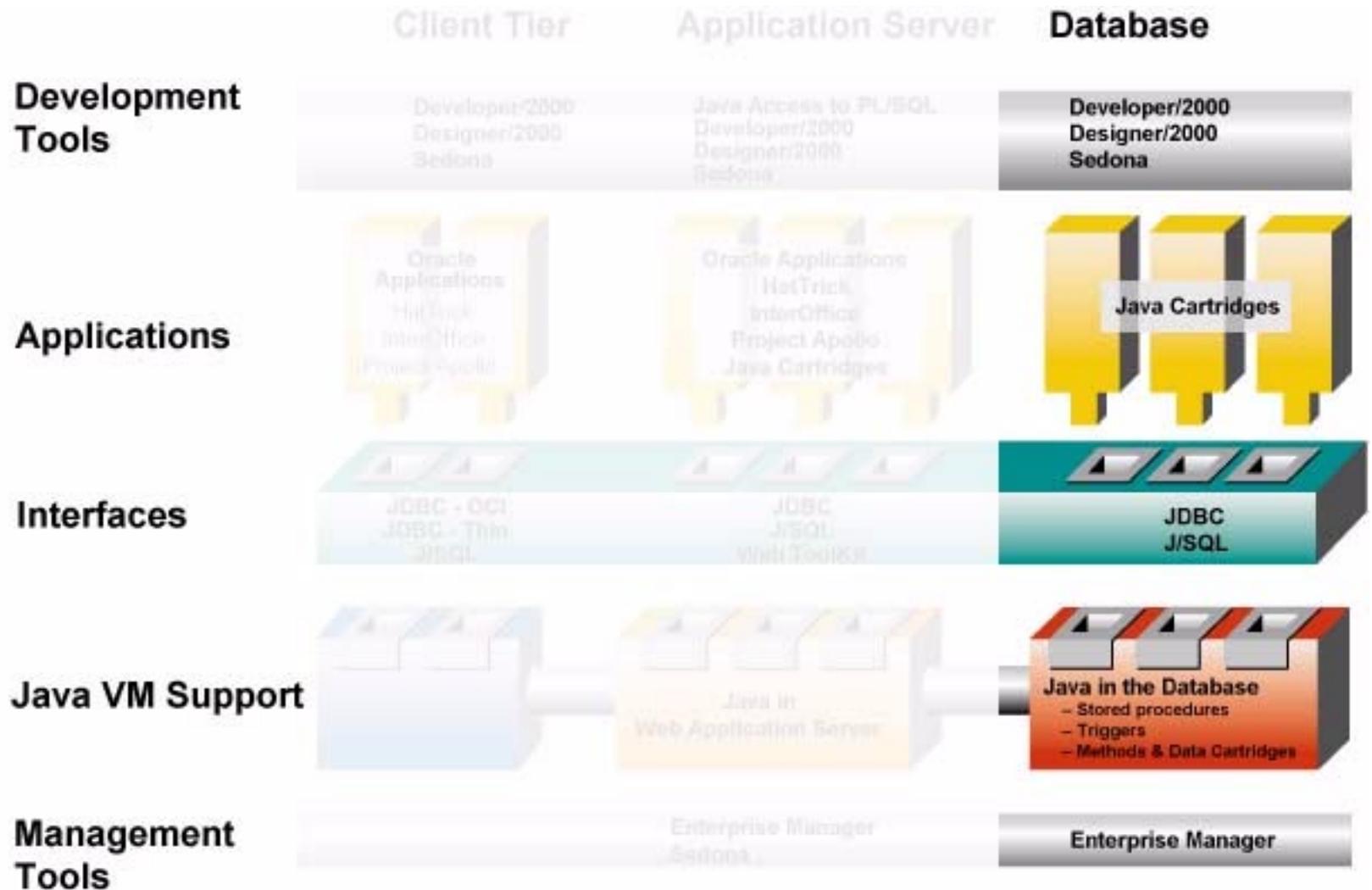
Application tier Java and JDBC





Web Application Server Demo

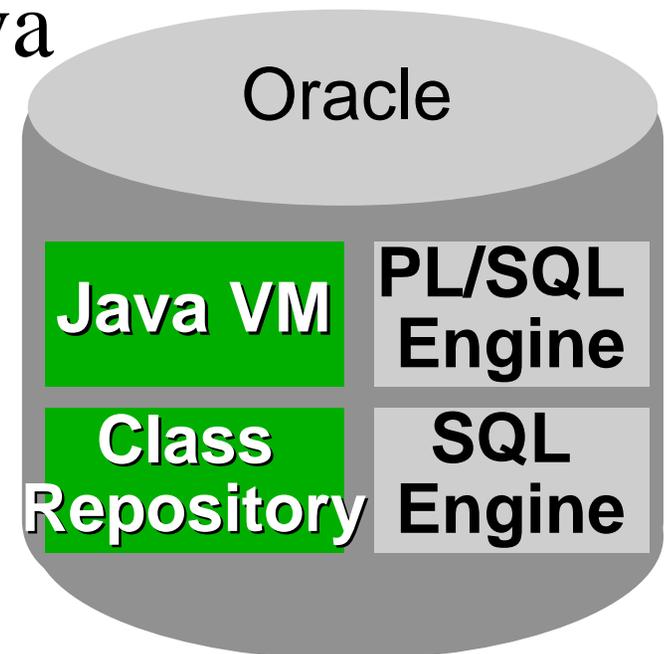
Java in the Database Tier



Java Stored Procedures Within the RDBMS

What do Java developers need?

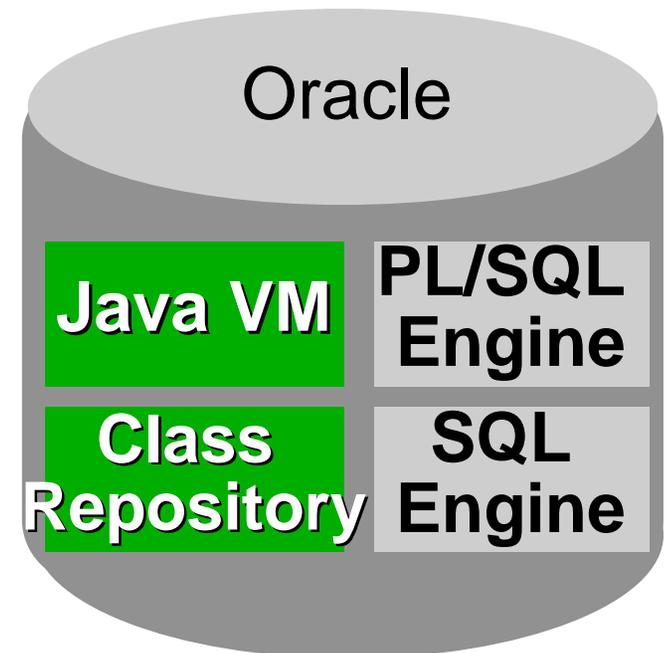
- ◆ Full Java VM running in the database
- ◆ Class repository in the database
- ◆ DDL extensions for Java
- ◆ Java execution engine scaleable to 1000s of users



Java Stored Procedures Within the RDBMS

What do Java developers need?

- ◆ Top level, SQL-callable stored programs
- ◆ RDBMS triggers (e.g., on insert, update, delete)
- ◆ Methods for O8 Object Types
- ◆ Data cartridge logic



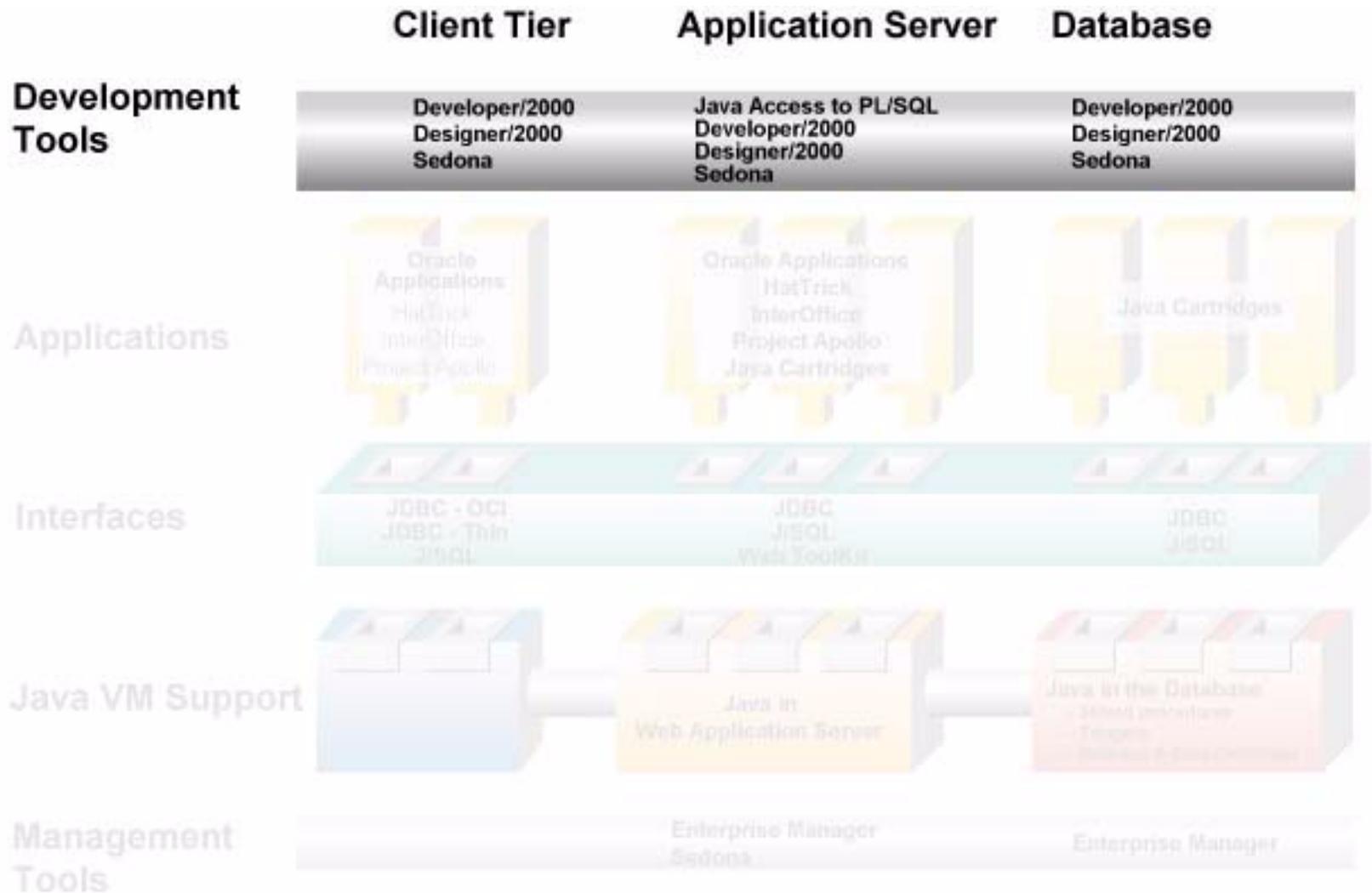
Scalable Java Runtime

- ◆ Java VM tuned for Oracle MTS Architecture
 - ◆ Shared metadata and initialized state
 - ◆ Highly tuned migrating Garbage Collector
 - ◆ Lightweight Java threads
- ◆ Native compiler for faster execution
 - ◆ Embedded native compiler produces optimized libraries to user specifications
 - ◆ Future dynamic (JIT) compilation support

Java and PL/SQL

- ◆ PL/SQL and Java are complementary
 - ◆ PL/SQL will continue to appeal to SQL programmers needing procedural extensions
 - ◆ Java stored procedures will be natural for Java programmers needing high performance access to relational data
- ◆ SQL programmers call stored procedures in the same way, whether written in PL/SQL or Java
- ◆ Java and PL/SQL support seamless inter-language calls

Enterprise Level Development Tools



Java for the Enterprise

Tools for all Aspects of Java Application Development

Visual Editing and Debugging Environment

Low Cost of Deployment

Support Java on all Tiers

Java

Java Beans Creation and Deployment

Java and SQL Integration

Model-driven Java Generation



Extending Java Beyond the Client

Designer/2000

Developer/2000

Sedona

Java Beans

Java Apps

Java/SQL Integration

UI and Validation

Application Logic

Database Processing

Application Partitioning

Inter-Cartridge Exchange

Any Client

Web Application Server

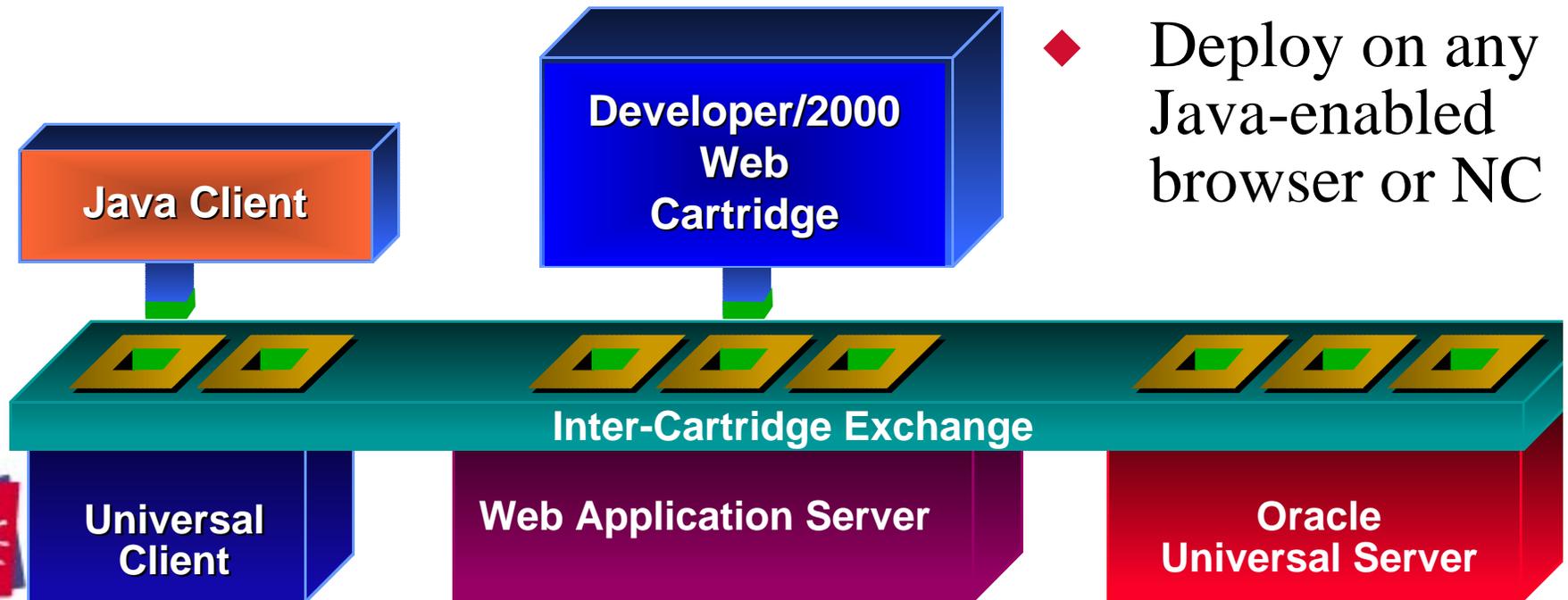
Oracle Universal Server

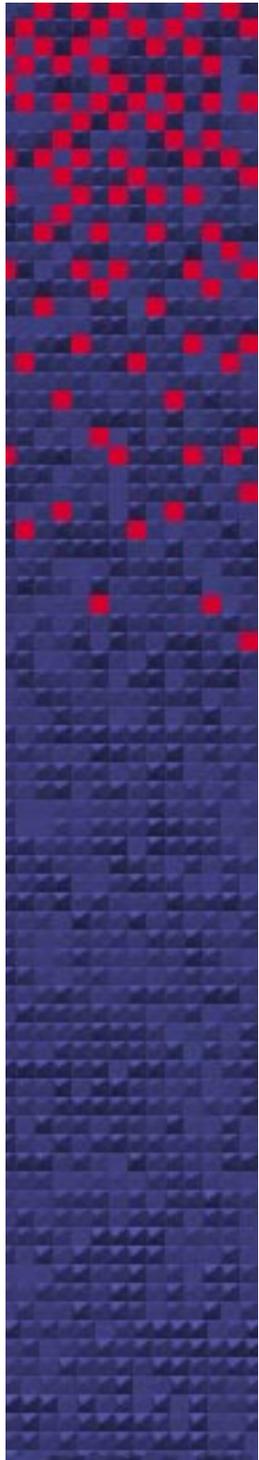


Developer/2000 Web Cartridge

100% Pure Java™

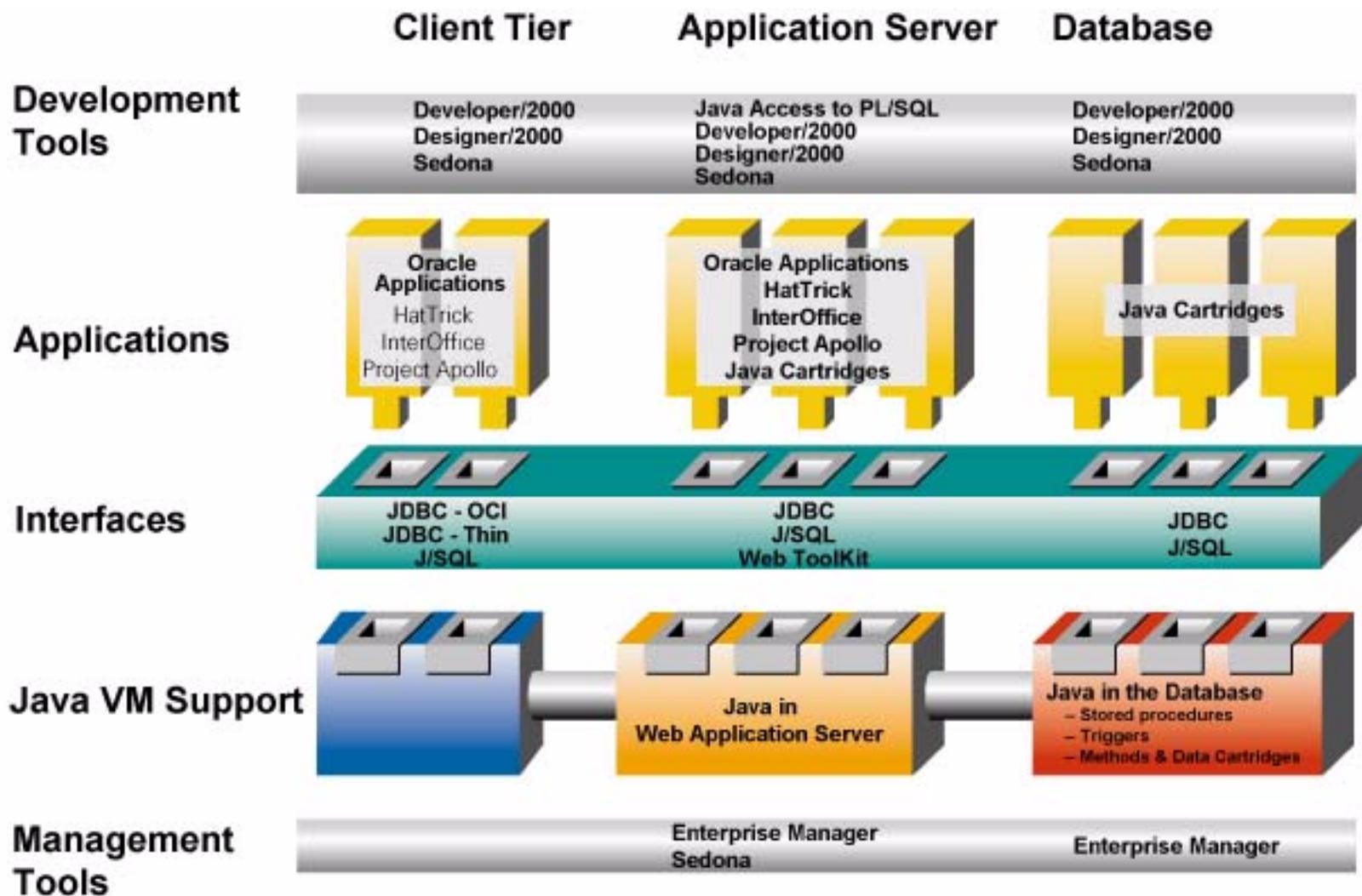
- ◆ Multi-tasking client/server functionality
- ◆ Deploy on any Java-enabled browser or NC





Developer/2000 Web Cartridge Demo

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Your Next Steps

- ◆ Visit our Demo stations (608 611)
- ◆ Pick up an Oracle Java CD Sampler
- ◆ Sign up for a free 6 month membership in ODP
- ◆ Bookmark www.oracle.com and watch us

