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Java, the language for the future

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Java Platform





APIs

Java EE | Java FX

Java SE | Java TV & Java ME | Java Card

Java VM

HotSpot Java VM | Lightweight Java VM

Language

Java Language

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Java: Servers and Desktops

Java: Servers & Desktops
Design Objective

Optimize Java for New Application Models & Hardware

- Enhance Productivity for Java Developers
- Integrate Modularity into Java Virtual Machine
- Optimize for New Processors, Memory & Networking
- Improve Performance, Monitoring & Diagnostics
- Provide Java VM Support for Multiple Languages

Java: Servers & Desktops

- Project Coin: Productivity with More Concise Code
  - Improved Type Inference for Instance Creation (“Diamond”)
  - Try-with-Resource Blocks
  - Strings-in-Switch Statements, and More ...
- Project Lambda: Closures for Java
  - Concise Replacement for Many Uses of Inner Classes
  - Supports Automatically-Parallel Bulk Data Operations on Collections
- Project Jigsaw: The Modular Java Platform
  - Improve Productivity by Eliminating Error-Prone Class Path
  - Improve Packaging & Delivery of Components & Applications
  - Modular Java VM Scaling from Netbooks to Desktops to Servers

Java: Servers & Desktops

- Multi-Core Processors, Large Memories & Fast Networks
  - Fork/Join Framework & Other Multi-Threading Enhancements
  - Very Large Heap Low Pause Garbage Collection
  - Remove the Permanent Generation from HotSpot
  - Improved Networking: Native Infiniband, 10G Ethernet, SDP & SCTP
  - New I/O APIs: File System & Async I/O with Better O/S Interoperability
- Java VM Support for Multiple Languages
  - InvokeDynamic Bytecode Improves Performance of Dynamic Languages
  - Scales Dynamic Languages Automatically on Multi-Core Processors
  - Significantly Faster JavaScript Engine

Java: Servers & Desktops

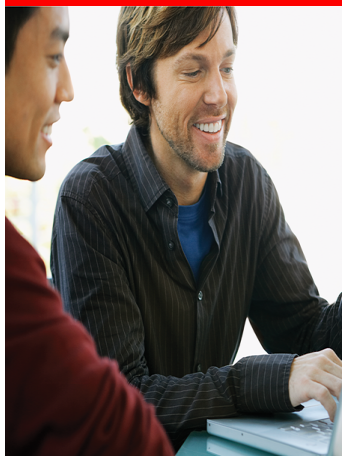
- As of Sun acquisition, Oracle has two mainstream JVMs
  - HotSpot - Versatile, Market share leader, High quality and performance
  - JRockit - Specialized - Focus on Serviceability, server-side performance and the Oracle stack. Base of value-adds like JRMC, JRRT and JRVE
- Converged JVM Strategy
  - Merge into one team / codebase with the best of both worlds
  - Converged JVM will be open sourced through OpenJDK
  - Premium JRMC, JRRT and JRVE features will remain closed source
- Oracle committed to continued investment

Java: Open Source

- 2 New OpenJDK Releases in 2011 & 2012
- Committed Feature List for 2011:

  openjdk.java.net/projects/jdk7/features/
- Oracle Remains Committed to the Best Open-Source Java Implementation
- More External Contributors are Welcome!

Java: Client and Tools

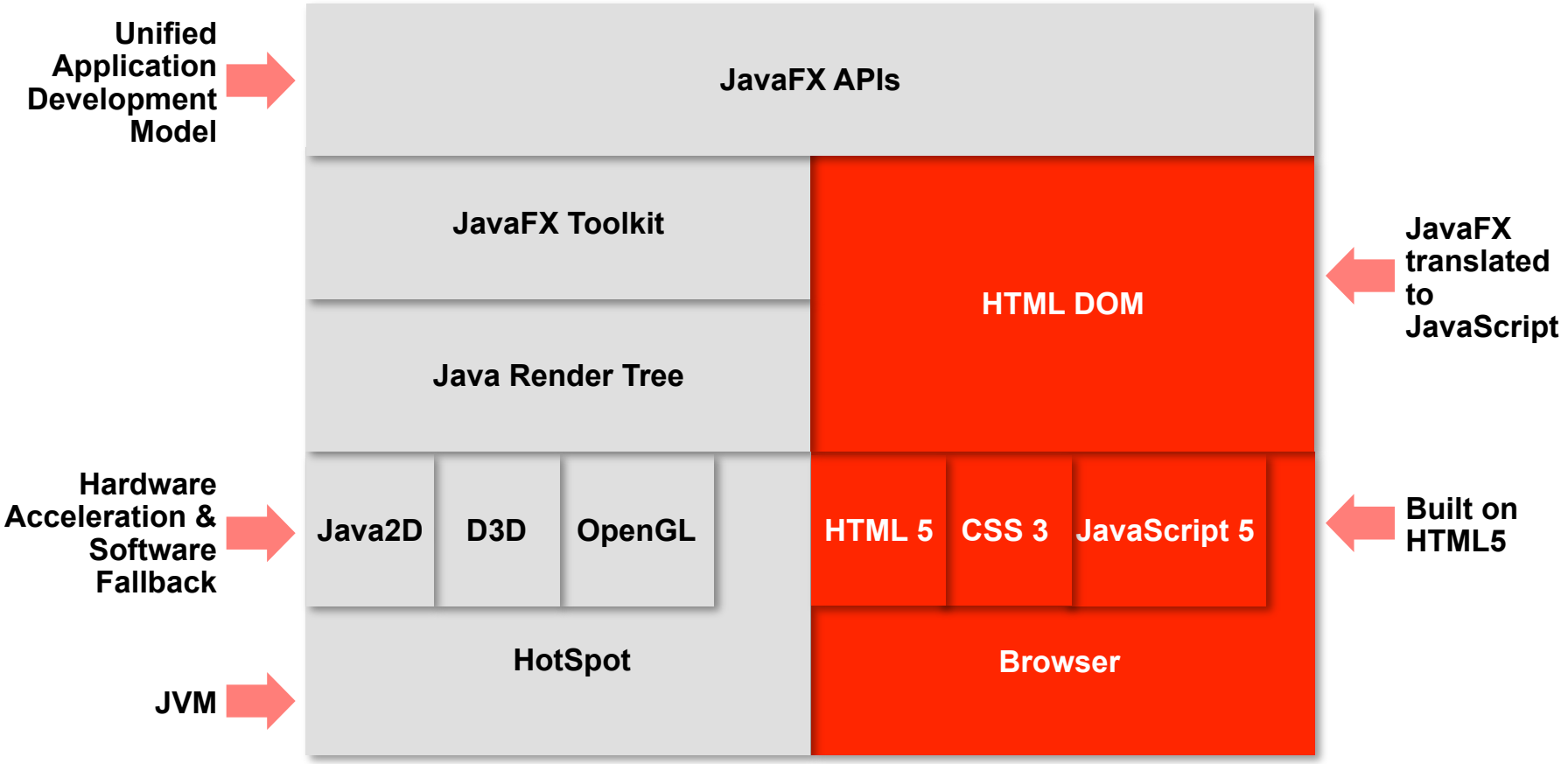


Java: Client & Tools
Design Objective

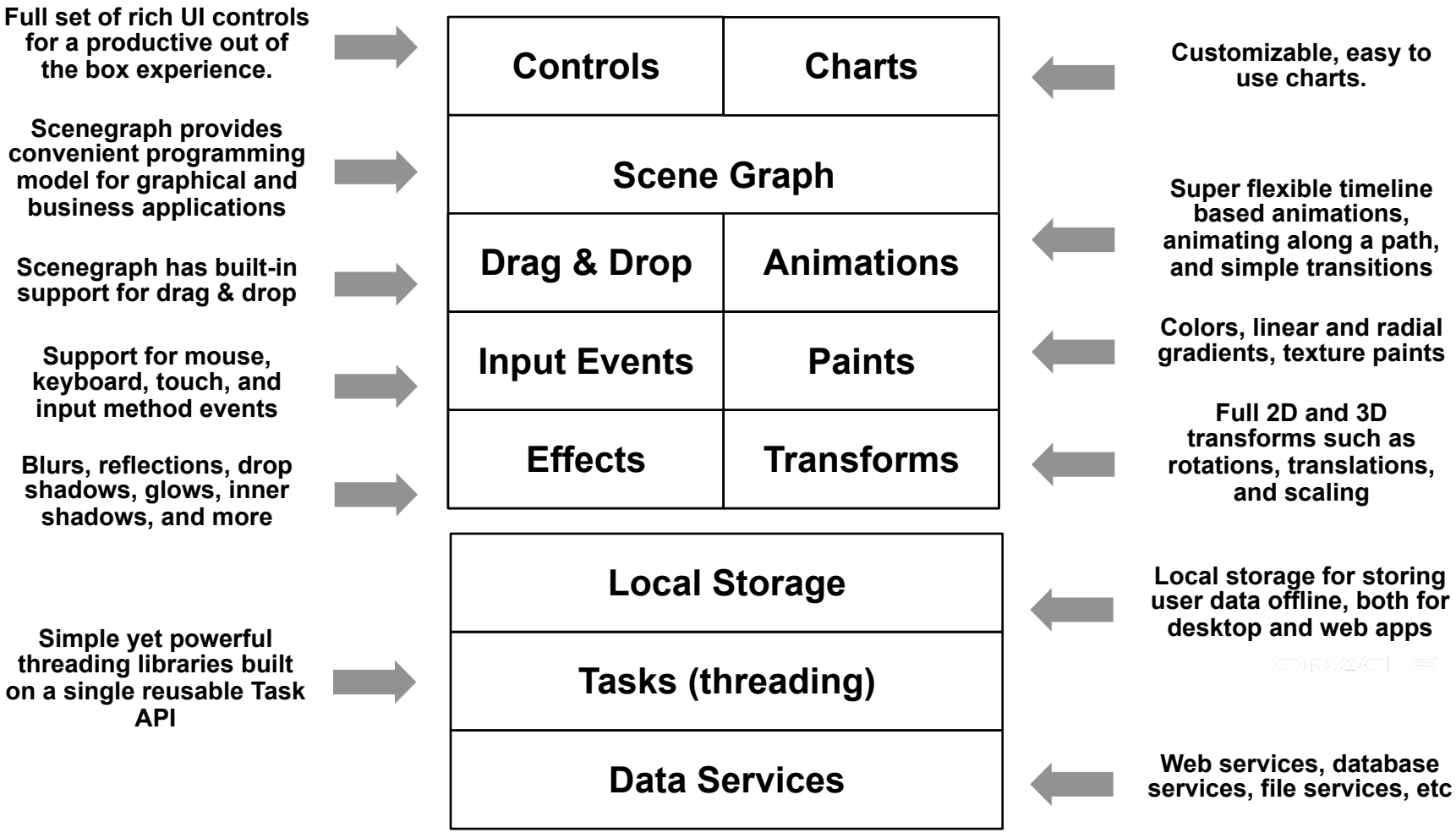
Deliver Best HTML5 & Native Application Experience

- Programming Model: the Power of Java, the Ease of JavaFX
- Native Interoperability Between Java, JavaScript & HTML5
- High Performance 2D and 3D Java Graphics Engine
- Designed to Exploit Hardware Advances in Desktop & Mobile
- Complete & Integrated Development Lifecycle Experience

Java: Client Architecture



Java: JavaFX APIs



Java: Client & Tools

- Programming Model – the Ease of JavaFX
  - APIs, Visual Design, Standard & Complex UI Controls, Data Binding
  - Library of Standard & Complex UI Controls in Open Source
  - Support for Large Datasets, Native I18N & Accessibility, Advanced Skinning
  - Flexibility Using Images, Embedded HTML or 2D-3D Vector Graphics
- Programming Model – the Power of Java
  - Generics, Annotations, Multi-Threading, Compilation
  - Standard Java IDEs, Debuggers and Profilers
- Native Interoperability with JavaScript & HTML5
  - Embed HTML Content in Java Applications
  - Seamless DOM Access Between HTML5 & Java
  - Manipulate Java Scenegraph from JavaScript

Java: Client & Tools

- High-Performance Java Graphics Engine
  - New Hardware Accelerated 2D and 3D Graphics Pipeline
  - Tight Integration with Java & JavaFX Runtime
  - Simplifies Programming: Shadows, Blurs, Reflections, Effects, Transforms
  - 3D Transforms Today; Full 3D objects in Future
- Exploits Modern Graphics Hardware Advances
  - Supports DirectX for Windows
  - Supports OpenGL ES 2.0 or Better for Other Platforms
- Complete & Integrated Development Lifecycle Experience
  - Visually Assemble, Edit, Compile, Profile, Debug
  - Data binding (Rest, JDBC, JSON, XML, ….)
  - Productivity: Coin, Closures, Modular Development, Graphics

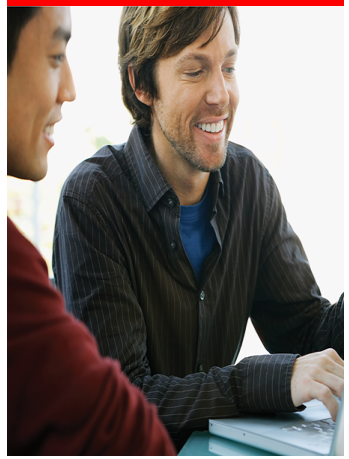
Java: Open Source

- 2 New NetBeans Releases in 2011
- 20% Increase in Users in 6 Months
- Committed Feature List & Builds:
  - netbeans.org/community/releases/roadmap.html
- Oracle committed to making JavaFX UI controls available in Open Source
  - javafx.com/roadmap

Demonstration

Java:

Java: Application Servers



Java: Application Servers
Design Objective

Optimize Java Application Servers for New Application Models

- Make Application Servers Modular with Dependency Injection
- Provide New Lightweight Web Profile for Web Applications
- Make POJO & EJB Programming Significantly More Productive
- Enhance Java Web Services for Performance & Interoperability
- Better Interoperability with Scripting & Dynamic Languages

Java: Application Servers

- Make Application Servers Modular
  - 2009 – Microkernel Based on HK2 in Reference Implementation
  - 2010 – Enterprise OSGI Specifications – JPA, JNDI, JDBC, JTA, HTTP Service
  - 2010 – OSGI and Java EE Hybrid Programming Model
- Provide New Lightweight Web Profile for Web Applications
  - 2009 – JSR 316 Web Profile Delivered in Reference Implementation
  - 2010 – Clustered Web Profile
- Make POJO & EJB Programming More Productive
  - 2009 – EJB 3.1 Lite, Dependency Injection (Weld), Bean Validation
- Enhance Web Services for Performance & Interoperability
  - 2010 – JAX WS, Reliable Messaging, Secure Conversations, Reliable Secure Protocol
  - 2010 - Compliance with WS-I Basic Profile 2.0 – Standardized .NET Interop

Java: GlassFish and WebLogic

Java Foundation and Community

Best of Breed Java Development and Deployment

GlassFish Server

ORACLE 11g
FUSION MIDDLEWARE
WEBLOGIC

Fusion Middleware Foundation

Oracle Middleware Application Grid Infrastructure

Optimized Software/Hardware Offerings for ExaLogic Cloud Foundation

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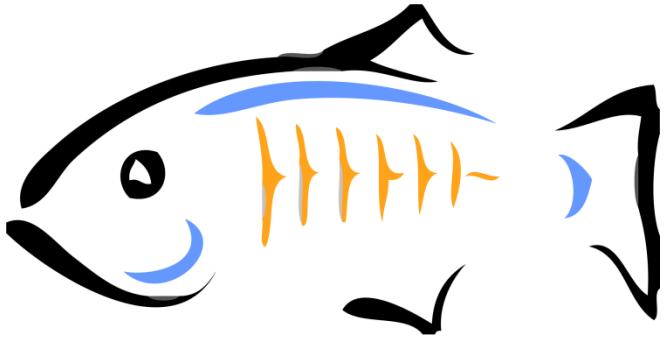
Java: GlassFish and WebLogic

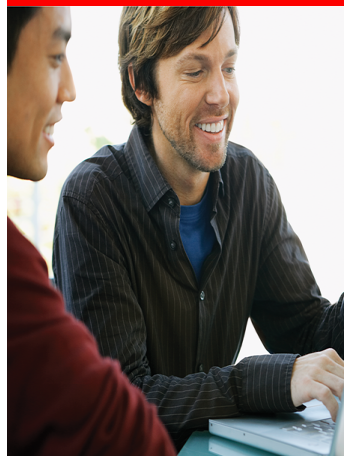
Share Reference Implementation APIs	• JPA, JAX-RS, JSF, JAX-WS, JAXP, CDI, JAXB, JSTL
Share Common Infrastructure	• HK2 and OSGi Kernel • Web server plug ins • Atomic transactions
Interoperability and Integration	• Certified interoperability – Web services, OAM, RMI • Certified integration – JRockit, Coherence
Integrated Compatibility	• Web profile seamless re-deployment • Shared external management

Java: Open Source



- 2 New GlassFish Releases in 2011
- Committed Feature List for 2011:
  - glassfish.dev.java.net/roadmap/
- 8 Million GlassFish Downloads in 2009
- More External Contributors Welcome!

Java: Mobile Devices



Java: Mobile Devices
Design Objective

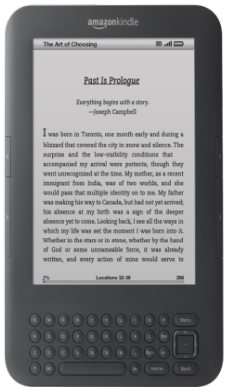
Deliver Java and Web Applications to All Consumer Devices

- Modernize Java for Mobile Devices and Language Features
- Integrate Web Technologies (HTML, JavaScript, CSS)
- New Device APIs to Access Hardware & OS Features
- Small Footprint, CPU-Efficient Java for Card, TV, Mobile
- Consistent Tooling and Emulation Across Java Devices

Java: Mobile Devices

- Project Java Mobile.Next
  - Updates to Language, VM, Libraries, Optional Packages & APIs
- Integration of Web Technologies (HTML, JavaScript, CSS)
  - Java ME Runtime Based on Mobile Services Architecture
  - Webkit Engine, JavaScript Engine, Java/JavaScript Bridge
- New Device APIs to Access to HW & OS Features
  - Graphics, Near Field Communication, IMS, Sensors, Payment, Telephony, Location
- Small Footprint, CPU-Efficient Java for Card, TV, Mobile
  - Phones: Optimized for ARM7/ARM9 Chips & Limited Memory
  - TVs: Optimized Blu-ray Java, DVB Multimedia, Tru2way Digital Cable
  - Cards: Personal Identity Verification, National ID & Health Care Cards
  - Java ME Roadmap Details at: oracle.com/technetwork/java/javame

Java: New Devices, New Markets



Latin America 2010

December 7–9, 2010

Beijing 2010

December 13–16, 2010

Russia 2011

H1 – Dates TBD

India 2011

H1 – Dates TBD

The Future is YOU

ORACLE

Hardware and Software

Engineered to Work Together