Java™ Game Profile Update

Bartley Calder, Staff Engineer
Jeff Kesselman, Staff Engineer
Sun Microsystems
Purpose

Provide an update and technical direction on Java™ technology-based games and JSR-134, the Java™ Games Profile
Speaker’s Qualifications

Bartley Calder
- JSR-134 Specification Lead
- Contributor to the Java TV™ Specification
- Architect JavaBeans™ Activation Framework

Jeffery Kesselman
- 10 years in the game industry
- Library engineer Crystal Dynamics
  - Gex, The Horde, Dragon Tails, Titan
- Senior Game Integration Engineer at The Total Entertainment Network (TEN)
Learning Objectives

As a result of this presentation, you will:

- Have background on why Sun is working in this area
- Who is participating in this effort
- Understand the goals of JSR-134 (Java™ Games Profile)
- Understand the areas this project covers
Common Misconceptions

- No one writes **serious** games in the Java programming language
- The Java platform is too big/slow for games
- Sun isn’t doing anything to address the games market
Agenda

- Background
- What is JSR-134?
- JSR-134 Scope
- Technical Aspects
- Demo
- Status and direction
Background
Background

- The US Video Game Industry sales increased 43% from $6.6 Billion in 2000, to $9.4 Billion in 2001 (The NPD Group)
  - Larger than Radio, Film, TV and Books
- “Grand Theft Auto 3” for the Playstation 2 sold 2 million units between October 2001 and January 2002
- Online gaming market will reach $1.1 Billion in 2003 (IDC)
The Market for Games Technology

- Active game developer community for Java technology
- Supported by www.javagaming.org website
Why Java Technology for Games?

\[\textbf{The same old tune!}\]
- Cross platform
- Code reuse
- Ease of development
- Availability of tools

\[\textbf{New melody}\]
- Efficient implementations for small devices
- Developer interest
- Platform maturity
Is There Interest?

Games are popular applications on MIDP Devices

Sun has had a presence at:
- Games Developer Conference 2001, 2002
- QuakeCon 2001

RoboForge by Liquid Edge Games
- Robot fighting tournament game
- Developed on the J2SE™ platform
- Received an “Excellent 87%” rating from PC Gamer Magazine
What Is Java™ Specification Request 134 (JSR-134)?
What Is JSR-134?

- Java™ Games Profile
- JSR filed with the Java Community ProcessSM (JCPSM) program, June 2001
- Defines a Java 2 Platform, Micro Edition profile for the purposes of game development targeting high-end consumer game devices and desktops
JSR-134 Experts Group

Experts group includes

- Sony Online
- Math Engine Plc.
- Plazmic Inc.
- GameSpy Inc.
- Individuals
JSR-134 Goals

- Support high-end game content
  - Provide complete environment
  - Allow for extensibility
  - Go for the 85% level, enable developers to build the rest

- Target game console class devices and larger
  - 32–64 Mb RAM
  - Fast 3D graphics hardware
  - Relatively large fixed storage device for game content
JSR-134 Scope and Technical Aspects
JSR-134 Scope

· 3D Modeling and Rendering
· Physics Modeling
· Character Animation
· 2D Rendering and Buffer Management
· Game marshalling and networking
· Streaming Media and Sound
· Game Controllers
· Hardware Access
Java™ Games Profile Platform
JSR-134 Approach

- Invent as little as possible!
- Reference existing Java technology APIs
- Build what doesn’t yet exist
Java Platform Requirements

- Basic system and utility functions
  - java.lang, java.util
- Basic I/O functions
  - java.io
- Basic Networking functions
  - java.net
- Basic toolkit functions
  - java.awt
Graphics Requirements

- Java 3D™ API
  - Provides 3D rendering support

- Java 2D™ API
  - Provides 2D rendering support
  - Buffer management
Hardware Access

Features found in the JDK™ 1.4 release

- Screen management
- Timer API
- Native memory access
Existing Technology

- Personal Basis Profile (JSR-129)
- Mobile Media API a.k.a. MMAPI for J2ME (JSR-135)
- Java 3D API
- Java 2D API
- JDK 1.4 release, Features
What We Need to Build

- Physics Modeling
- Character Animation
- Game Marshalling and Networking
- Game Controllers
Physics Modeling

- Often game specific behaviour
- Physics model often **value add** for a game title
- Provide simple behaviour model
- Enable extensibility
Character Animation

- Animation of organic characters
- Skinning
- Animation techniques often key aspect of a game
- Provide hooks to implement custom animation package
Game Marshalling and Networking

- Provides a mechanism allowing players to find networked games (Marshalling)
- Provides a mechanism to pass data amongst game applications (Networking)
- Abstracts game networking from underlying connection protocol
- Built on java.net APIs
Game Controllers

- Wide variety of controllers available
  - Joysticks
  - Steering wheels
  - Light guns
  - Dance Pad

- Game/Controller interaction
  - Generally a **polling** model
  - Java platform generally event driven
Demo
Status and Direction
Status and Direction

Schedule

- Community Review Q3 2002
- Public Review Q4 2002
Summary

- The market for games software is LARGE
- Java™ technology is appropriate for game development
- JSR-134 will provide a Java platform for the development of 1st class games
- The platform will use existing Java technology and invent some new ones
One Last Thing!

* JCP members please watch for and participate in the JSR-134 Community Review!

* Others please participate in the JSR-134 Public Review!

* And, remember the Java platform is great for game development!