JavaFX Technology
Overview
Disclaimer and Acknowledgement

• Some slides of this presentation are created from “Develop Rich Internet Applications With the JavaFX Platform” article

  > http://javafx.com/about/overview/
Topics

• What is and Why JavaFX?
• Key features of JavaFX
• Things you can build with JavaFX
• JavaFX platform architecture
• JavaFX application architecture
• JavaFX script brief overview
• What's included in JavaFX technology
• Deployment
What is & Why JavaFX?
Rich Clients Are Changing the Game!

• Clients are becoming visually rich
  > Too much engineering effort to create using traditional tools
  > Challenging the conventional notion of GUI toolkits
    > Buttons with image → Image buttons (HTML) → ???

• Clients are omnipresence
  > The concept of one software on one computer is dying...
  > Browsers are no longer the only client - They are used as delivery vehicles

• Clients are designed rather than programmed
  > Working together with graphic designers to conceptualize the interface and use cases
What does RIA mean today?

Extend RIA, across multiple screens.
JavaFX Vision

JavaFX is THE platform for creating and delivering Rich Internet Applications (RIA) across all the screens of your life.

JavaFX is Powered by Java
# Targeting Developer/Designer Workflow

## Creative Community
- Karl May (Mashup author/builder)
- Sean Wani (Graphic Designer)
- Saloni Sarin (Creative Director)
- Wayne Stidolph (Programmer)
- Tom Hammer (Media Editor)
- Adam Nielson (Web Master)

## Consumers
- Amy Lewis (Suburban wife/mom)
- Samir Arora (Business Professional)
- Livleen (Student)

**Rich Internet Apps + content**
Across desktop, mobile, TV, car
Key Features of JavaFX
Key Features

• One-stop shop RIA platform for all screens:
  > Build engaging visual experiences across desktop, browser and mobile with a unified development and deployment model.

• Broadest market reach:
  > Distribute RIAs easily across billions of devices with the power of Java.

• Designer-developer workflow:
  > Dramatically shorten your production cycle for design and development.
Key Features (Continued)

• Powerful runtime:
  > Leverage the extreme ubiquity, power, performance and security of the Java runtime.

• Break free from the browser:
  > Drag-and drop a JavaFX application from the browser to deploy to the desktop.

• Java technology compatibility:
  > Preserve your investment by enabling the use of any Java library within a JavaFX application.
Things You Can Build with JavaFX
Simple Video Player

• Incorporating video in your application is as simple as creating an instance of this component, setting a few variables and including a link to your video source.
3-D Display Shelf With the PerspectiveTransform

- The *PerspectiveTransform* built into JavaFX can be used to easily create 3-D effects
Flying Saucer

- The new out-of-process Java applet plugin in Java SE 6 update 10 enables you to make applets which can run outside of the browser.
Demo: JavaFX Sample Apps from javafx.com
JavaFX Platform
Architecture
JavaFX Platform Architecture

JavaFX

Application Framework
- Desktop Elements
- Mobile Elements
- TV Elements
- Common Elements
- JavaFX Runtime

Java Virtual Machine

Tools
- Designer Tools
- Developer Tools
## JavaFX roadmap

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<tr>
<th>Desktop Product Line</th>
<th>JavaFX Desktop</th>
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<th>Mobile Product Line</th>
<th>JavaFX Mobile</th>
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<th>TV Product Line</th>
<th>JavaFX TV</th>
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| Other Platforms      | With Partner platforms/OSs |
JavaFX Application Architecture
JavaFX Platform Architecture

- Media Players
- Device Specific APIs
- Core APIs
- Scene Graph
- WebKit
- FXScript runtime
- FX Compiler
- Ad Player
- Installer
- Java VM
- Device OS
JavaFX System Architecture

- Media Server
- Data Server
- Media
- Application data
- Ad Server
- Advertising & featured content
- Software Updates & Device Management
- Device OS
- Provisioning Server
- Device Specific APIs
- Core APIs
- Scene Graph
- WebKit
- FXScript runtime
- FX Compiler
- Installer
- Ad Player
- FX Applications
- Media Codecs
- VM
- Media Players
- FX Applications
- JavaFX System Architecture
JavaFX Workflow

JavaFX Tools

Visual Designer

Content developer

JavaFX Source Application

Compilation

Packaging

Java FX Desktop
App Binary

JavaFX Desktop
/ Consumer JRE

JavaFX Mobile
App Binary

JavaFX Mobile

JavaFX TV
App Binary

JavaFX TV

Visual Assets

JavaFX Script code
JavaFX Script
Brief Overview
JavaFX Script

• Declarative, statically-typed scripting language
• Facilitates rapid GUI development
• Many cool, interesting language features
• Runs on Virtual Machine for the Java™ platform
• Deployment options same as Java programs
• Fully utilizes Java class libraries behind the scenes
• For content designers and Media engineers
Example of JavaFX Application

```java
import javafx.scene.paint.Color;
import javafx.scene.Scene;
import javafx.scene.shape.Circle;
import javafx.stage.Stage;

Stage {
    scene: Scene {
        content: [
            Circle {
                centerX: 50
                centerY: 50
                radius: 50
                fill: Color.RED
            }
        ]
    }
}
```
JavaFX Technology Stack

**JavaFX Script Programming Language**
- javafx.gui.*
- javafx.gui.effect.*
- javafx.animation.*

**SceneGraph**
- com.sun.scenario.scenegraph.*
- com.sun.scenario.animation.*
- com.sun.scenario.effects.*

**Java APIs**
- javax.swing.*
- java.awt.*

**Swing**
- javax.swing.*

**Java2D**
- java.awt.*

*Note: JavaFX Script programs can call any Java APIs*
What's Included in JavaFX Technology
Download Bundles

- **Developer Bundle**
  - NetBeans IDE 6.5 for JavaFX 1.0
  - JavaFX 1.0 Plug-in for NetBeans
  - JavaFX 1.0 SDK

- **Designer Bundle**
  - JavaFX 1.0 Production Suite
  - JavaFX 1.0 Plug-in for Adobe Illustrator and Photoshop

- **Stand-alone**
  - JavaFX 1.0 SDK
  - JavaFX 1.0 Media Factory
Development Bundle

- NetBeans IDE 6.5 for JavaFX 1.0
- JavaFX 1.0 Plugin for NetBeans
  > Use it if you already have NetBeans 6.5
Designer Bundle (JavaFX 1.0 Production Suite)

- The designer bundle consists of a single download called JavaFX 1.0 Production Suite, which contains the following tools to enable designers to exchange visual assets with developers.
  - JavaFX 1.0 Plugin for Adobe Photoshop and JavaFX 1.0 Plugin for Adobe Illustrator
  - JavaFX 1.0 Media Factory
    - SVG Converter
    - Viewer
JavaFX 1.0 Plugin's for Adobe Photoshop and Adobe Illustrator

• Use them to export graphic assets from creative designer tools to JavaFX format.
JavaFX 1.0 Media Factory

• SVG Converter
  > Convert SVG graphics into JavaFX format

• Viewer
  > View graphic assets that were converted to JavaFX format.
Stand-alone SDK

- If you prefer using other tools, or developing directly via the command line, you can download the stand-alone SDK.
- JavaFX 1.0 SDK
  - JavaFX 1.0 Desktop Runtime
  - JavaFX Mobile Runtime Beta Release
  - JavaFX 1.0 APIs
  - JavaFX 1.0 Compiler
  - JavaFX 1.0 Mobile Emulator Beta Release (for Windows)
  - JavaFX API documentation
  - Samples
Deployment
Deployment Options

• JavaFX 1.0 applications can be deployed using the two standard Java deployment technologies
  > Java Plugin: A tool used for deploying Java applets that run inside a web browser
  > Java Web Start: A tool used for deploying stand-alone Java applications on the desktop, using JNLP (Java Network Launching Protocol).

• Or using mobile emulation
  > JavaFX 1.0 Mobile Emulator Beta Release: A tool provided with the JavaFX 1.0 SDK, which displays your applications as they would look on a typical mobile device.
JavaFX Technology Overview