



JavaFX

overview

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Agenda



What is JavaFX

Demos

JavaFX Framework

JavaFX Script

Where To Go

What is JavaFX?

- A family of products
 - > JavaFX Framework
 - > JavaFX Runtime
 - > JavaFX Mobile
 - > JavaFX Script
- Who
 - > Developers
 - > Designers
- What
 - > RIA

JavaFX demos



Introduction: What is Java FX?

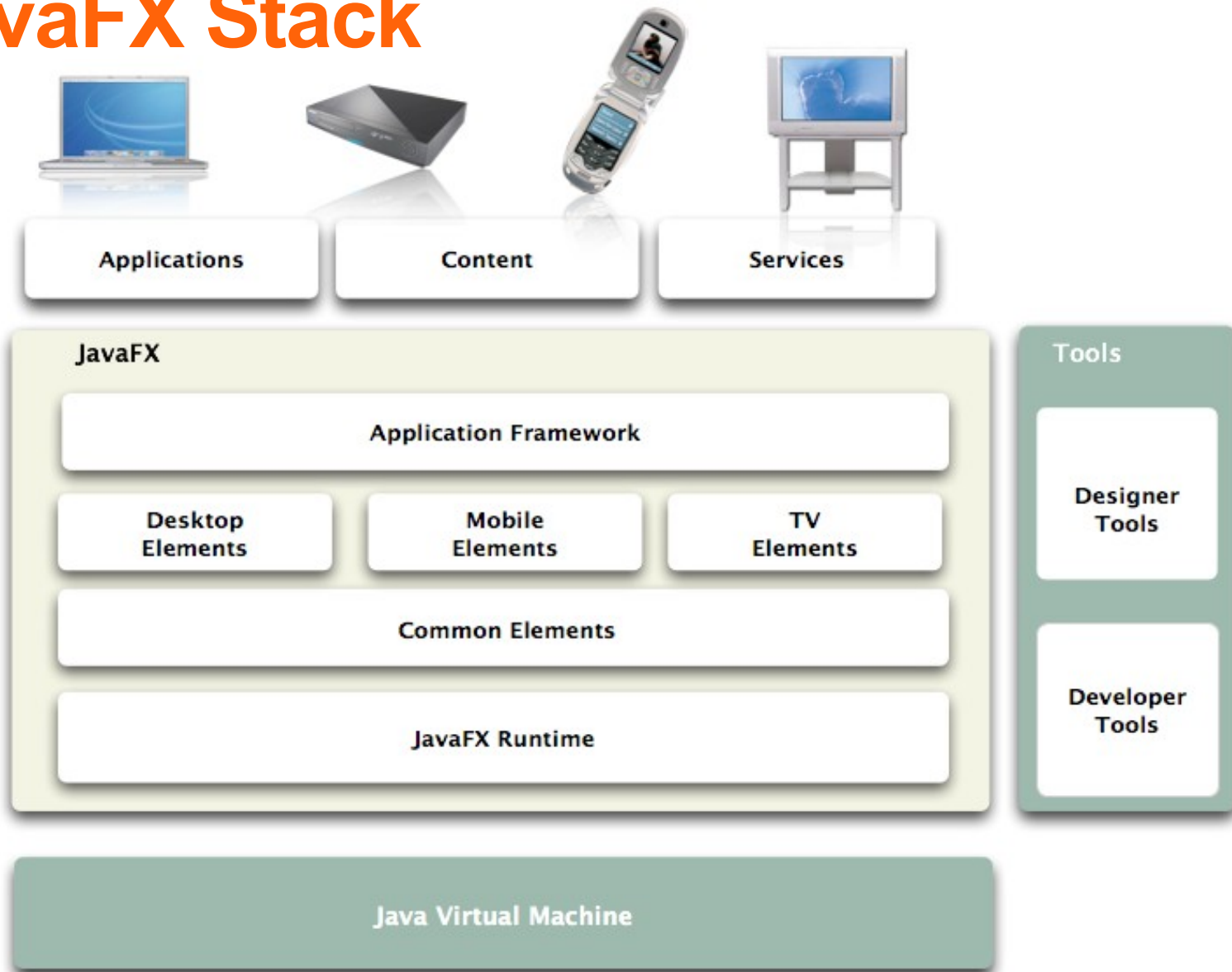
“JavaFX Script is a highly productive scripting language that enables content developers to create rich media and content for deployment on Java environments. JavaFX Script is a *declarative, statically-typed* programming language. It has first-class functions, declarative syntax, list-comprehensions, and incremental dependency-based evaluation. It can make direct calls to Java APIs that are on the platform.”

--<https://openjfx.dev.java.net/>

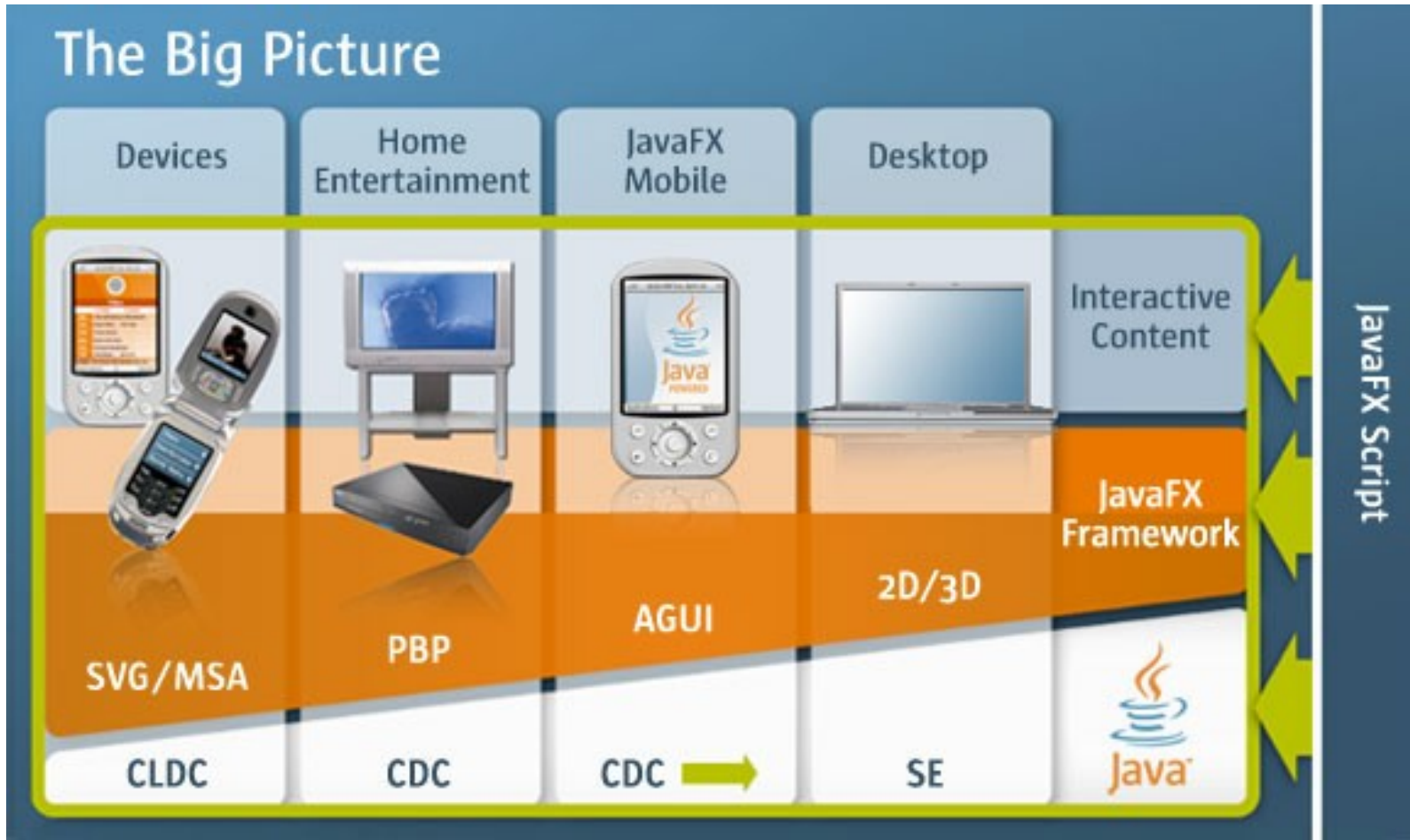
JavaFX Overview

The JavaFX™ Platform is a rich client platform for cross-screen rich internet applications (RIA) and content. It consists of common elements (2D graphics, Animation, Text and Media) and device specific elements for desktop, mobile and TV. The JavaFX common set of APIs allow source level portability of the common set of functionalities across all platforms supported by JavaFX. The JavaFX Runtimes targeted for different devices will ensure consistency and fidelity for content created based on the JavaFX Common APIs. The JavaFX Common APIs will continue to evolve to match more powerful, common capabilities on the various device types.

JavaFX Stack



JavaFX Architecture



Scene Graph Project

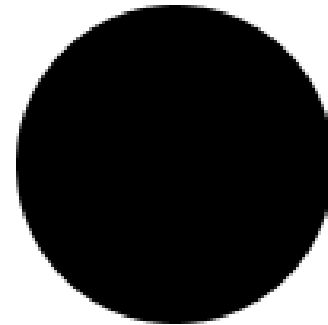
- Example, `javafx.scene.geometry`
 - > *Ellipse*
 - > Polyline
 - > Arc
 - > Path
 - > *ShapeSubtract*
 - > QuadCurve
 - > DelegateShape
 - > ClosePath
 - > CubicCurve
 - > Shape
 - > LineTo
 - > SVGPath
 - > Polygon
 - > Line
 - > *Circle*
 - > ArcTo
 - > PathElement
 - > HlineTo
 - > VlineTo
 - > CurveTo
 - > QuadTo
 - > *ShapeIntersect*
 - > MoveTo
 - > *Rectangle*

Circle

```
import javafx.scene.geometry.*;
```

```
import javafx.scene.paint.*;
```

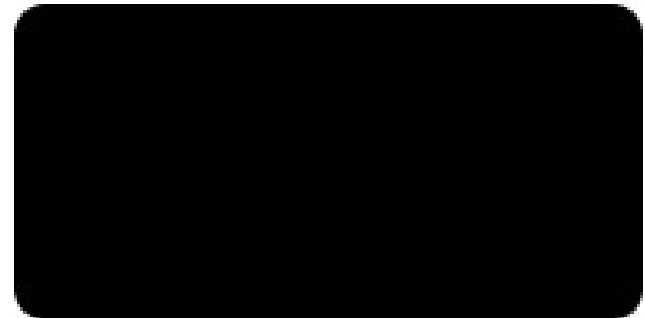
```
Circle {  
    centerX: 100  
    centerY: 100  
    radius: 50  
    fill: Color.BLACK  
}
```



Rectangle

```
import javafx.scene.geometry.*;  
import javafx.scene.paint.*;
```

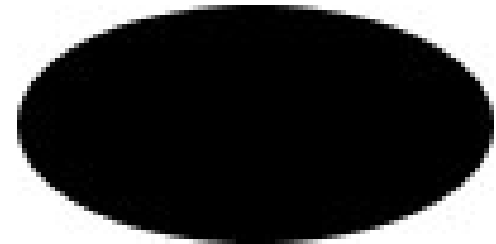
```
Rectangle {  
    x: 50  
    y: 50  
    width: 200  
    height: 100  
    arcWidth: 20  
    arcHeight: 20  
    fill: Color.BLACK  
}
```



Ellipse

```
import javafx.scene.geometry.*;  
import javafx.scene.paint.*;
```

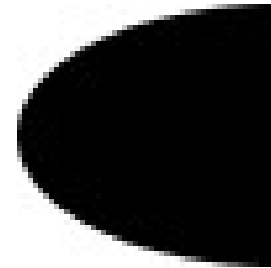
```
Ellipse {  
    centerX: 50  
    centerY: 50  
    radiusX: 50  
    radiusY: 25  
    fill: Color.BLACK  
}
```



ShapeIntersect

```
import javafx.scene.geometry.*;  
import javafx.scene.paint.*;
```

```
ShapeIntersect {  
    fill: Color.BLACK  
    a: Rectangle { width: 100 height: 50 }  
    b: Ellipse {  
        centerX: 100  
        centerY: 25  
        radiusX: 50  
        radiusY: 25  
    }  
}
```

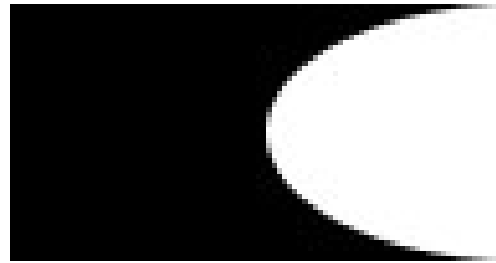


ShapeSubtract

```
import javafx.scene.geometry.*;
```

```
import javafx.scene.paint.*;
```

```
ShapeSubtract {  
    fill: Color.BLACK  
    a: Rectangle { width: 100 height: 50 }  
    b: Ellipse {  
        centerX: 100  
        centerY: 25  
        radiusX: 50  
        radiusY: 25  
    }  
}
```



Animation Framework

- `javafx.animation`
 - > `Interpolatable`
 - > `Interpolator`
 - > `KeyFrame`
 - > `KeyValue`
 - > `SimpleInterpolator`
 - > `Timeline`

JavaFX Script Language

- Declarative syntax
 - > GUI
 - > Swing
 - > Data binding
 - > Incremental evaluation
- Statically typed
 - > and code structuring, reuse, and encapsulation features that enable creating and maintaining very large programs in the Java programming language.

Script

- A “script” is one or more declarations or expressions.

```
import java.lang.System;

var ten : Integer = 10;
var s = "Twice {ten} is {2 * ten}.";

// s == "Twice 10 is 20".
```

- No main, classes or functions are mandatory.

Class

```
class Knight {  
    attribute health    = 100;  
    attribute strength = 10;  
  
    function isDead() {  
        return health > 0  
    }  
  
    function hurt(amount: Integer) {  
        health -= amount  
    }  
}
```

Objects

```
var myKnight = Knight {}
```

```
var megaKnight = Knight {  
    health: 150;  
    strength: 15;  
}
```

```
myKnight.hurt (megaKnight.strength);
```

```
// myKnight.health = 85
```

Basic Data Types

JavaFX	Default value	Java
String	""	java.lang.String
Boolean	false	java.lang.Boolean
Number	0	java.lang.Number
Integer	0.0	byte, short, int, long, BigInteger
Duration	N/A	N/A

String Examples

```
var s1 = "Java";  
var s2 = "FX";  
var s3 = "Java{s2}"; // s3 = 'Hello Joe'  
var s4 = "{s1}{s2}"; // s4 = "JavaFX"
```

Boolean Examples

```
var cool = true;  
var s = "Java{if(cool) "FX"else"Script"}";  
//s = "JavaFX"
```

```
var a = true;           // a = true  
var b = false;         // b = false  
var c = a and b;       // c = false  
var d = a or b;        // d = true  
var e = not a;         // e = false
```

Duration Examples

```
var t1 = 5ms; // 5 milliseconds
```

```
var t2 = 10s; // 10 seconds
```

```
var t3 = 30m; // 30 minutes
```

```
var t4 = 1h; // 1 hour
```

```
var t5 = t1 + t2 + t3 + t4;
```

```
// 1 hour 30 min 10 secs and 5 millisecs
```

Sequences Examples

```
var x = [1,2,3];  
// array initialization
```

```
insert 10 into x;  
// [1, 2, 3, 10]
```

```
insert 12 before x[1];  
// [1, 12, 2, 3, 10]
```

```
delete 12 from x;  
// [1, 2, 3, 10]
```

```
insert [1..10] into x;  
// [1, 2, 3, 10, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
```

JavaFX Command Line Interface

- Compiling
 - > `javafx script.fx`
- Running
 - > `javafx script`

JavaFX Tools

- Project Nile
- NetBeans IDE JavaFX Plug-in
- Your favorite IDE + JavaFX CLI
- Inkscape
 - > Coming soon (next version)
 - > File → Save As → JavaFx

Java FX Resources

- Java FX Project Site: <http://openjfx.dev.java.net>
 - > Java.net: Download early versions of Java FX
 - > IDE Plugins, Tutorials, Forums, FAQs
 - > “Getting Started With the JavaFX Script Language”
 - > “JavaFX Script 2D Graphics Tutorial”
 - > “The JavaFX Script Programming Language Reference”
- Planet FX Wiki: http://jfx.wikia.com/wiki/Main_Page
 - > Open-source documentation site for Java FX
- James Weaver's Blog
 - > Best blog about JavaFX
 - > <http://learnjavafx.typepad.com/>

Java FX Resources (more)

- Sun's Java FX Site:
 - > <http://www.sun.com/software/javafx/>
 - > <http://www.javafx.com>
 - > Sun Microsystems official product page
- Chris Oliver's Blog: <http://blogs.sun.com/chrisoliver/>
 - > Latest news, other informal information
 - > Source code for lots of demos (Space Invaders, Calculator)
- My blog :-)
 - > <http://silveiraneto.net>

JavaFX Books

- *JavaFX Script: Dynamic Java Scripting for Rich Internet/Client-side Application*, by James L. Weaver, published by Apress.
- *Dynamische und interaktive Java-Applikationen mit JavaFX*, by Ralph Steyer, published by Addison-Wesley.
- はじめての JavaFX— 最新スクリプト言語の基礎を徹底解[□]！ by 清水美樹 , published by 工学社 .

References

- Balloons photo from first and last slides by Jesus Solana
 - > <http://flickr.com/photos/pasotraspaso/1408057351/>
- Fireworks photo at agenda by Darrell Taylor
 - > <http://flickr.com/photos/d4rr3ll/300075196/>
- Lots of JavaOne 2008 JavaFX's Presentations
 - > <http://developers.sun.com/learning/javaoneonline/>
- JavaFx Preview 1 API
 - > <http://javafx.com/releases/preview1/docs/api/>
- Javafx.com Videos
 - > <http://www.javafx.com>
- My Youtube JavaFX Channel
 - > <http://br.youtube.com/user/NetoSilveira>
- JavaFX NetBeans Plugin
 - > <http://javafx.netbeans.org/>

Open Source University Meetup

- OSUM
 - > <http://osum.sun.com>
 - > <http://osum.sun.com/group/ufc/>
 - > <http://osum.sun.com/group/fchristus>
 - > <http://osum.sun.com/group/fa7>
 - > <http://osum.sun.com/group/cefetce>
 - > <http://osum.sun.com/group/uva>
 - > <http://osum.sun.com/group/javafx>
- Enter and create your own

Java FX

What to Do



- Download Java FX & IDE Plugins for Netbeans or Eclipse
- Join OpenJFX Java.net Project
- Do Java FX Tutorials
- Participate on Java FX Forums
- Create something cool!

<http://openjfx.dev.java.net>



Thank you!

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