**To Advance through Presentation
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What's In This Session

- All Java applications and applets are OSA scriptable applications

- How to script a Java application

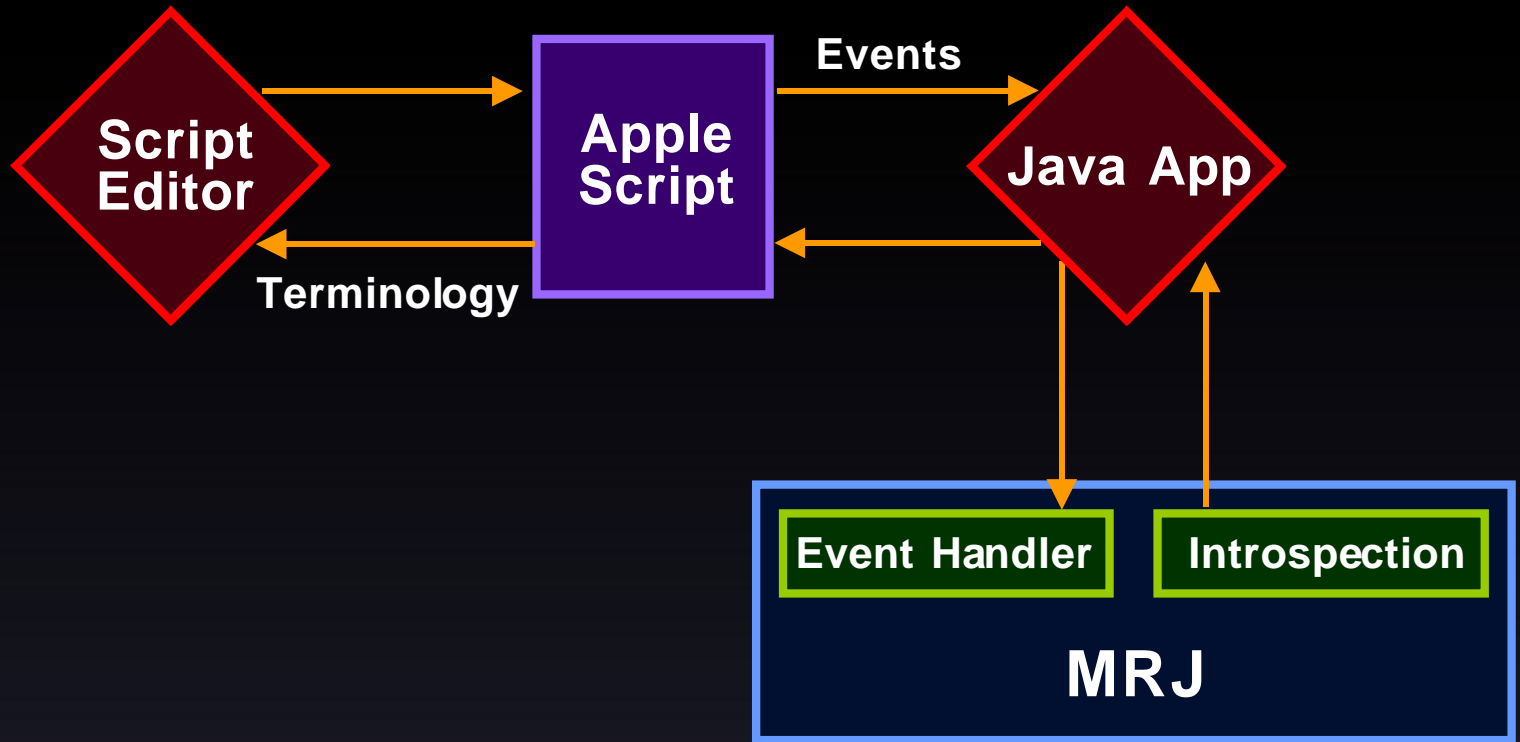- How to optimize a Java application for scriptability

Some Caveats

- This isn't executing AppleScripts from Java
- It's not great scripting—but it's free
- You can't script applets being run by a browser
- Obfuscated Java classes are unscriptable
- This has nothing to do with JavaScript

How It Works

Demo

Basic Steps

- Add the AWT terminology resource to the Java application

- Run the Java application, touching all major elements

- Get the terminology and save it

- Store the new terminology resource in the application

AWT Terminology

- Provided on the SDK
- Covers all classes in AWT
- Defines basic classes used by applications
- Provides scriptability of the user interface

AWT Terminology

java.awt.Frame:

Class Frame: A top-level window with a title and a border.
Properties:

 <Inheritance> Window [r/o]
 title string—*The title of the frame.*
 resizable boolean—*Indicates whether this frame is resizable.*
 menu Bar Menu Bar—*public java.awt.MenuBar java.awt.Frame.getMenuBar() & public synchronized void java.awt.Frame.setMenuBar(java.awt.MenuBar)*

Application Classes

- Derived from objects instantiated during execution

- Uses BeanInfo if present

- Fields become properties

- Generally no elements, just list properties

- Methods for properties are listed in the property comments

Application Classes

Class Camera:

Properties:

    <Inheritance> Canvas [r/o]

    repaint Particles boolean—*public boolean*
    org.canticle.simphysics.Camera.getRepaintParticles()
    & public void
    *org.canticle.simphysics.Camera.setRepaintParticles(b
oolean)*

    the Universe Universe—*public*
    org.canticle.simphysics.Universe
    org.canticle.simphysics.Camera.getTheUniverse() &
    public void
    *org.canticle.simphysics.Camera.setTheUniverse(org.c
anticle.simphysics.Universe)*

Application Events

- Derived from methods on the classes
- Calling conventions are in the comment
- Parameters are passed in a parameters parameter

Application Events

org.canticle.simphysics.Camera:

select Particle: public void org.canticle.simphysics.
Camera.selectParticle(org.canticle.simphysics.Particle)
select Particle reference
parameters Particle

move Particle To: public void org.canticle.simphysics.
Camera.moveParticleTo(org.canticle.simphysics.Particle,org.canticle.simp
hysics.Cartesian3DPoint)
move Particle To reference
parameters list

A Typical Script

```
tell application "SimPhysics 1.0"
    repeat with i from 1 to 10
        set charge of Particle 1 of the Universe of
    Camera 1 of Component 1 of Frame 1 to i * 0.1
        repaint Camera 1 of Component 1 of Frame 1
    end repeat
end tell
```

Figuring it Out

- Start from the top AWT object
- Query the properties of every next-level object

Improving the 'aete'

- Delete unnecessary terms and suites

- Make class terms for missing classes

- Change Java terms to AppleScript form (no InterCap, appropriate parts of speech, etc.)

Shipping Scripting

- This is Mac-only scripting

- Use JBindery and add in the terminology resource

- Consider InstallAnywhere for one cross-platform installer

- Documentation is crucial

- Ship plenty of sample scripts

Summary

- You can script any Java applet or application out of the box

- You can script both the HI and the application itself

- Spend a little time to improve the scripter's experience

- More info is on the Java SDK and in Technote 1162

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