Write once, **test everywhere?**

Cross platform development and testing with Eclipse

Agenda

▶ **Introduction & motivation**

▶ **Affected areas**

▶ **Differences & varieties**

▶ **Conclusions**

▶ **Tips & solutions**

Introduction / motivation

▶ **Eclipse RCP - a cross-platform platform**

▶ **necessitate cross-platform awareness**

development

testing

Operating System	Version	Hardware	JRE	Windowing System
Windows	■ 7	x86 32-bit	Sun Java 5 Update 14 IBM Java 5 SR6b	Win32
		x86 64-bit		
	Vista	x86 32-bit	Sun Java 5 Update 14 IBM Java 5 SR6b BEA JRockit 27.4.0	
		x86 64-bit	Sun Java 5 Update 14 IBM Java 5 SR6b	
	XP	x86 32-bit	Sun Java 6 Update 3 Sun Java 5 Update 14 Sun Java 1.4.2 Update 16 IBM Java 5 SR6b IBM Java 1.4.2 SR10 BEA JRockit 27.4.0	
		x86 64-bit	Sun Java 5 Update 14 IBM Java 5 SR6b	
Red Hat Enterprise Linux	5.0	x86 32-bit	Sun Java 6 Update 3 Sun Java 5 Update 14 Sun Java 1.4.2 Update 16 IBM Java 5 SR6b IBM Java 1.4.2 SR10 BEA JRockit 27.4.0	GTK
		■ Power 64-bit	IBM Java 5 SR6b	
	4.0	x86 64-bit	Sun Java 5 Update 14 IBM Java 5 SR6b	
SUSE Linux Enterprise Server	■ 11	x86 32-bit	Sun Java 5 Update 14 IBM Java 5 SR6b	GTK
		x86 64-bit		
		■ Power 64-bit	IBM Java 5 SR6b	
■ Ubuntu Long Term Support	9.04	x86 32-bit	Sun Java 5 Update 14 IBM Java 5 SR6b	GTK
		x86 64-bit		
Sun Solaris	10	x86 32-bit	Sun Java 5 Update 14	GTK
		SPARC		
HP-UX	11 i v2	ia64	HP-UX Java 5 Update 7	Motif 2.1
IBM AIX	5.3	Power	IBM Java 5 SR6b	Motif 2.1
Apple Mac OS X	10.5	Universal	Apple Java 10.5 Update 1	Carbon
		Universal 32-bit		Cocoa
		Universal 64-bit		

(Af/In)-fected Areas

▶ **Area 1 - Compiling**

JRE – 1.4.2 → 1.6

▶ **Area 2 - Deployment**

required Plug-ins / Fragments

▶ **Area 3 - Startup**

Launcher

▶ **Area 51 - GUI**

underlying Windowing System

Operating System	Version	Hardware	JRE	Windowing System
Windows	■ 7	x86 32-bit	Sun Java 5 Update 14	Win32
		x86 64-bit	IBM Java 5 SR6b	
	Vista	x86 32-bit	Sun Java 5 Update 14 IBM Java 5 SR6b BEA JRockit 27.4.0	
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		x86 64-bit	Sun Java 5 Update 14 IBM Java 5 SR6b	
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		x86 64-bit		
		■ Power 64-bit	IBM Java 5 SR6b	
■ Ubuntu Long Term Support	9.04	x86 32-bit	Sun Java 5 Update 14 IBM Java 5 SR6b	GTK
		x86 64-bit		
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		Universal 32-bit		Cocoa
		Universal 64-bit		

Area 1, 2, 3

▶ **Compiling + Deployment + Launching**

MANIFEST.MF – Execution Environments

Target Platforms

Product configuration

PDE Build

▶ **Area 1-3: "well known" & "often discussed"**

Area 51 - GUI

Not "well known" – but "knowledge is power"

Obvious differences (1/2)
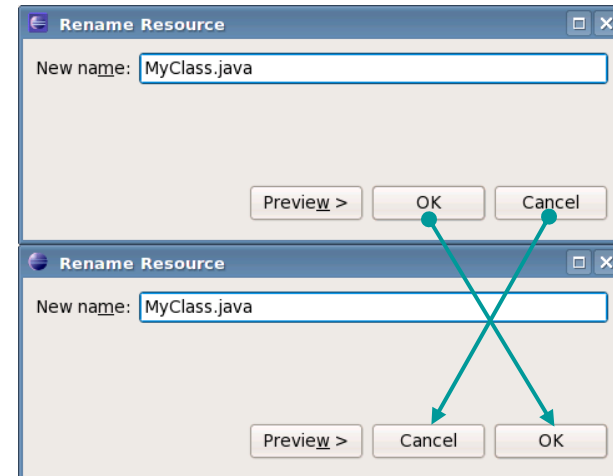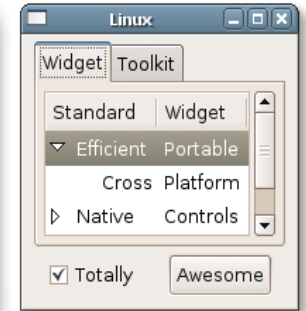
▶ **SWT - native Look&Feel**

▶ **Look**

Widget

Size&Location: absolute vs. relative

Fonts

Colors

Layout (Dialogs, Wizards, …)

button order (e.g. 3.4 ⇔ 3.5 GTK)

Obvious differences (2/2)

Application

Menu Bar + Menu Items

Native Dialogs – non-java
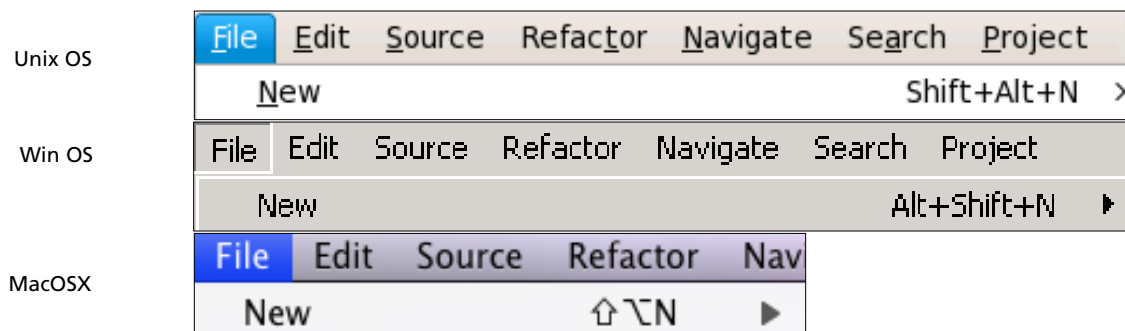   file chooser,
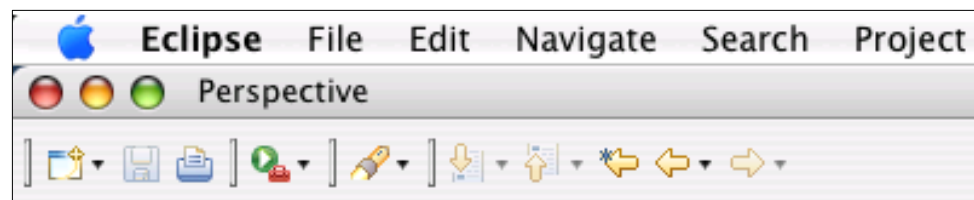   color picker,
       printing, …

Shortcuts (M1-3 + Key)   Unix OS

Toolbar layout   Win OS

Tooltips

detached Views   MacOSX

….

Non-obvious differences (1/2)

▶ **Feel**

setting, extending (multi-) **selection**
    usage of **modifier keys**

gaining and losing **focus**
    number of **clicks**

opening and closing **context menus**
    usage of **mouse buttons**

Non-obvious differences (2/2)

cut, **copy&paste**
drag&drop

modifier keys, **gestures**

expanding and collapsing **trees**

auto **expansion level**

▶ **Performance**

▶ **UI is likely to change**

▶ **Bugs - platform specific**
caused by RCP, SWT, JRE, OS

Conclusion

▶ **Steps to take**

1. Don't panic!
  - Where there's a will there's a way.

2. Be aware!
  - Consider known issues.

3. Specify once & test'em all!
  - Use the right tools.

The right tool...

▶ **Platform independent**

>> High level actions
>> tough object recognition

▶ **easy to maintain tests**

>> readable
>> modular & single sourcing

▶ **experienced tester**

Thank You!

▶ **Any questions?**

▶ **Webinar**

http://live.eclipse.org/node/834