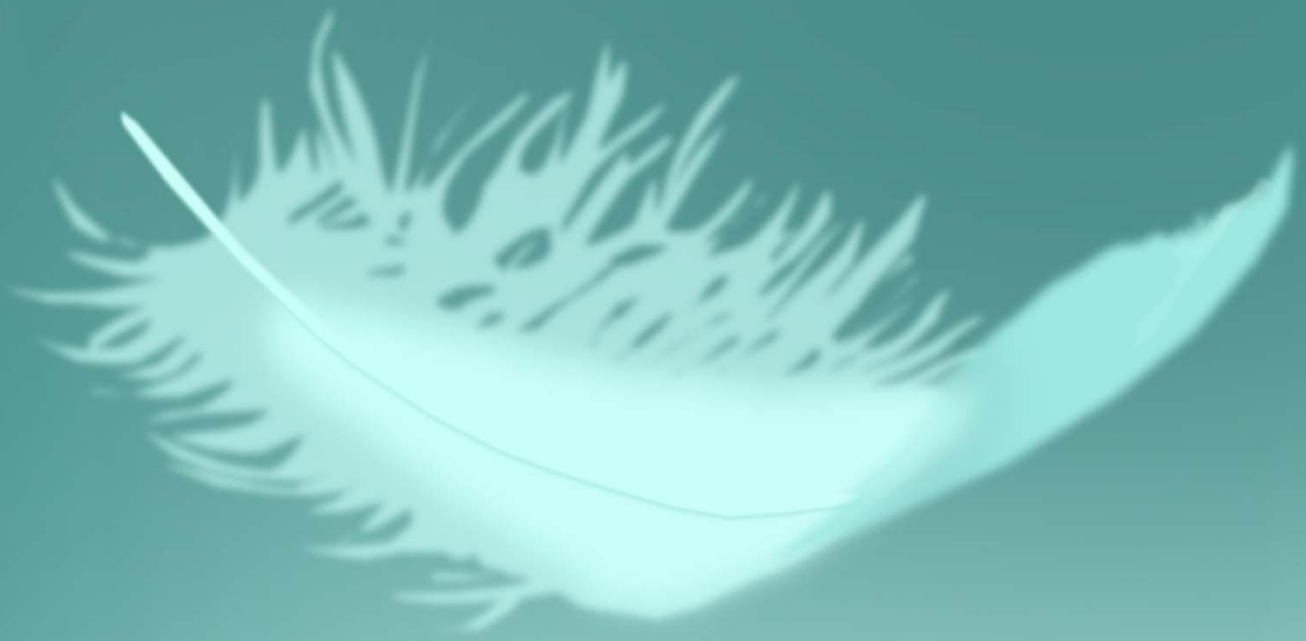
BREDEX
Software-Entwicklung und Beratung



Write once, **test everywhere?**

Cross platform development and testing with Eclipse

 Version 2.3

Agenda

- Introduction & motivation
- Affected areas
- Demo: 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	11i 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

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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”**

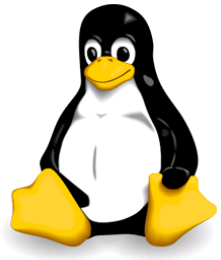
Area 51 - GUI

Not “well known” – but “knowledge is power”

Demo

- **Scenario**

  Eclipse 3.5 R1 - IDE for Java Developers



- **Runtime Environment**

  1. Windows 32bit
  2. Linux GTK 32bit
  3. MacOS X Cocoa 64bit

Obvious differences (1/2)

- **SWT - native Look&Feel**
- **Look**

  Widget

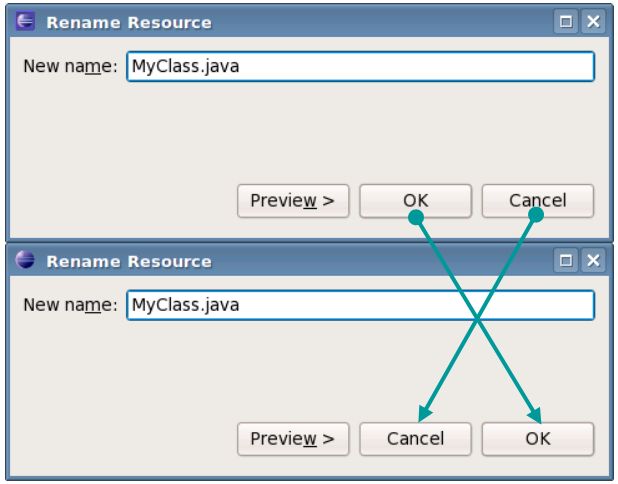
  Size&Location: absolute vs. relative

  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, …

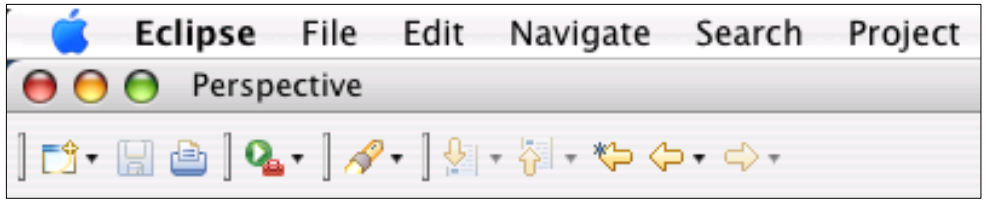
Shortcuts (M1-3 + Key)

Toolbar layout

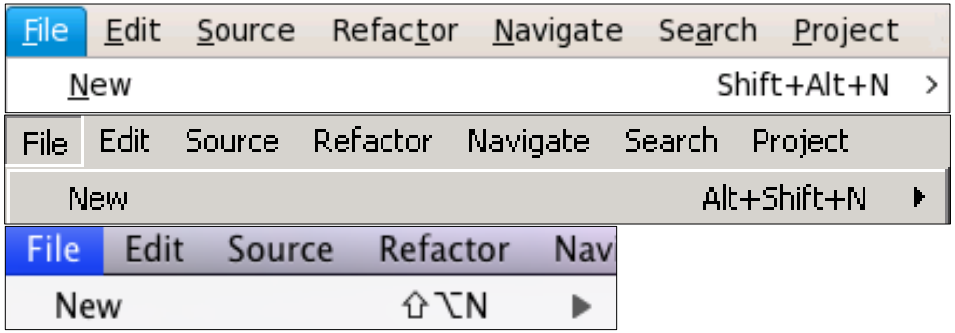
Tooltips

detached Views

….



Unix OS



Win OS

MacOSX

Non-obvious differences (1/3)

- **Feel**

setting, extending (multi-) usage of **modifier keys**	**selection**
gaining and losing number of **clicks**	**focus**
opening and closing usage of **mouse buttons**	**context menus**

Non-obvious differences (2/3)

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

modifier keys, **gestures**

expanding and collapsing **trees**

auto **expansion level**

Non-obvious differences (3/3)

- **Performance**

  e.g. large trees (> 2^14) on Mac are rendered 200 times faster

- **UI is likely to change**

  Look&Feel due to OS, SWT, RCP dependencies

- **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?**