Rich Client GUI's with RCP & RAP

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What is Rich Client?

*"A **fat client** or **rich client** is a computer (client) in client-server architecture networks which typically provides rich functionality independently of the central server. Originally known as just a 'client' or 'thick client', the name is derived from thin client, describing a computer which heavily depends on a server's applications. " (Wikipedia)*

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Advantages of Rich Clients:

- Reduces server load
- Offline operation
- Better performance
- Access to local resources
- Better OS integration

Available Rich Client Technologies:

- 4GL Environments
  - PowerBuilder
  - Borland Delphi
  - Visual Basic
  - *<others>*
- Microsoft .NET
- Java Based
  - SWING
  - Eclipse RCP
  - NetBeans RCP
- Adobe AIR

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Eclipse RCP

- Technology behind Eclipse IDE
- A Platform for building Client applications with Rich functionality
- History
    - Hackers in the eclipse community started building non-IDE apps on 2.1
    - Since Eclipse 3.0 IDE aspects were separated from the Workbench

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Advantages of Eclipse RCP

- Very modular
- Well defined programming model
- Familiar look and feel (uses native widgets)
- A lot of high level services and concepts (not only UI)
    - OSGi
    - Background Jobs
    - Data Binding
    - Commands

Example Application (Eclipse Trader)

RCP By Numbers

- Size of minimal RCP application (on the disk): 15Mb

- VM size of minimal RCP application: ~ 22 Mb

- Time before your application code runs: ~ 1.2 Sec.

- Number of plug-ins in the RCP binary : 23

What is inside?

Help (optional)	Update (optional)	Text (optional)	IDE Text	Compare	Debug	Search	Team/CVS
			IDE personality				
Generic Workbench					Resources		
JFace		Runtime					
SWT		OSGi					
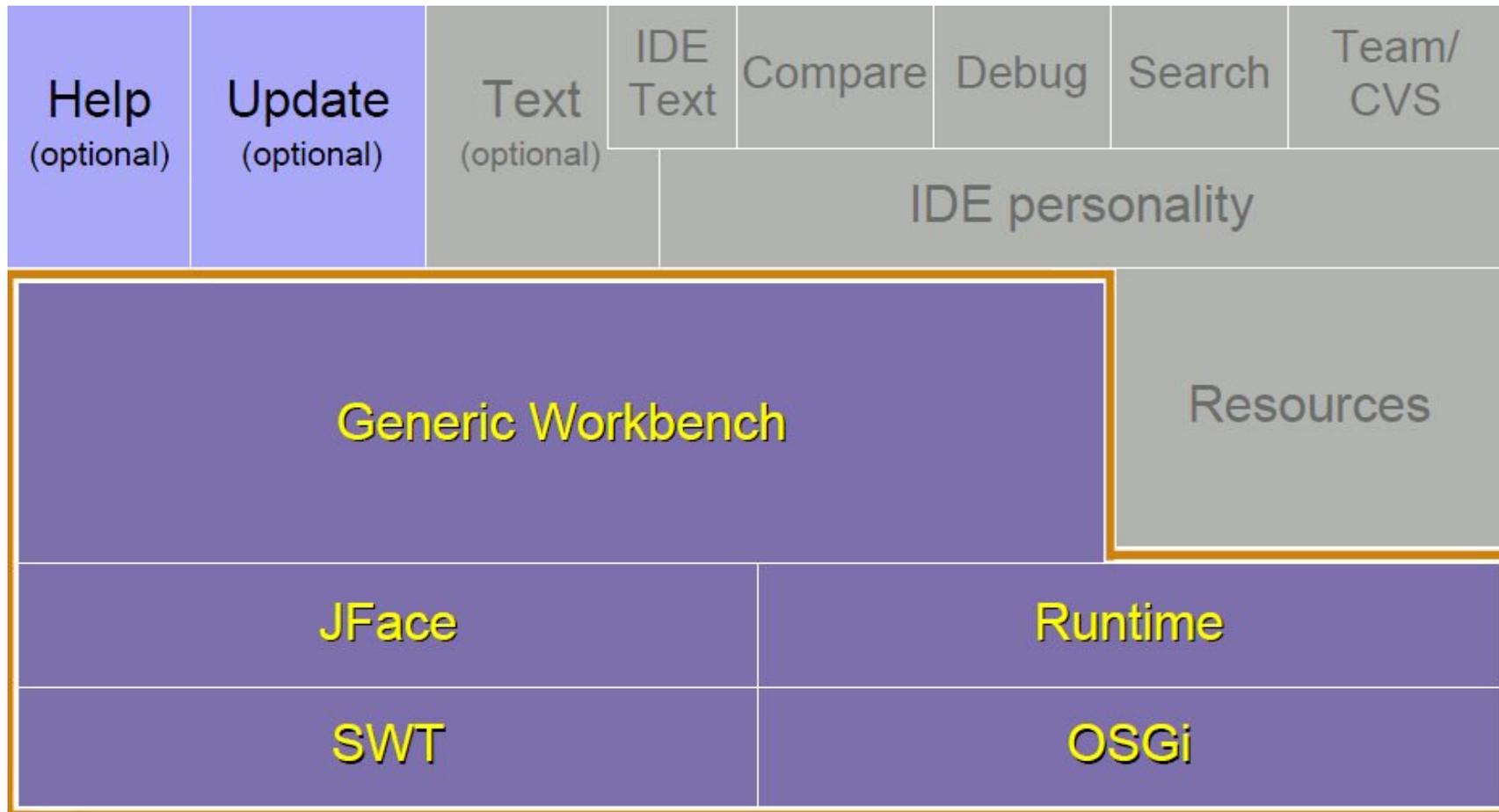
Key Concepts

- Plug-in / Bundle
  The basic component in Eclipse with dependencies to other plug-ins / bundles.

- Extension Points and Extentions
  The declarative wiring between the Eclipse framework and custom code

- Feature
  A group of plug-ins with a version number

- Product
  A deployable application with branding, defined in terms of plug-ins or features

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Programming Model

- Create your own plugins

- Make contributions to predefined extension points

- Extends workbench

- It is possible to define your own extension points
    - If you want others to extend your software
    - Makes it even more modular
    - Possible to establish own "plugin eco-system" inside organization

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Demo
(RCP)

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Thin Client Technologies

- Plain traditional WEB applications
    - JSP
    - Servlets

- New wave – AJAX
    - More or less static content
    - JavaScript code runs inside browser and communicates with server
    - Browser becomes a terminal

Problem?!

Does it mean that we will have to write client code twice?

- in case of usual rich client technologies **YES**

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Solution!

If you develop your rich client with <u>Eclipse RCP</u>

You may <u>reuse</u> most of your code for the thin client

Rich Ajax Platform (RAP)

- Is based on the same programming model as RCP

- Reuses a lot of code from RCP

- Simply uses another rendering engine
    - instead of **SWT**
    - it uses **qooxdoo** for client-side presentation

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RCP Applications in a Browser

- In most cases your RCP application will run in a browser out of the box.
- Only few areas are not supported
    - i.e. custom drawing of widgets

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Demo

(RAP)

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More Information:

- ***http://www.eclipse-training.com***
- *http://www.eclipse.org/rcp*
- *http://www.eclipse.org/rap*

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Q&A