

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)*

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

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

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)

EclipseTrader - Trading

File Window Help

Trading Charts News

Indices

Mibtel 16:06 29.211 -47 (-0.16%) ↑ S&P MIB 16:06 37.536 -141 (-0.37%) ↓ Dowjones 16:06 11.141,17 +67,39 (+0.61%) ↑ S&P 500 16:06 1.293,49 +8,16 (+0.63%) ↑ Nasdaq 16:06 3.236,17 +15,01 (+0.46%) ↑ FTSE 100 16:06 6.051,9 +22,5 (+0.37%) ↑

Securities

Italia

Code	Description	Last Price	Chg%	Bid	Q.ty	Ask	Ask Q.ty	Volume	Time
ACE.MI	Acea	10.4300	-0.86%	805	10.4300	10.4600	272	328.312	16:05:48
AEM.MI	Aem	1.7110	-0.29%	1.119	1.7100	1.7110	3.474	3.973.262	16:06:28
AFI.MI	Aeroporto Firenze	0.9320	0.00%	1.647	0.9315	0.9320	3.985	1.275.499	16:02:40
AZA.MI	Alitalia	19.3700	-0.77%	602	19.3700	19.3800	2.280	957.167	16:06:21
AAPL	Apple	6.9400	-0.27%	3.795	6.9400	6.9450	122	18.216.988	16:06:25
ATAR	Atari Inc.	5.8350	-1.10%	8.689	5.8350	5.8400	17.653	42.080.097	16:06:29
BPU.MI	Banche Pop Unite	9.8300	-1.04%	1.688	9.8250	9.8300	4.187	2.745.642	16:05:35
BNS.MI	Beni Stabili	14.7000	0.00%	544	14.7000	14.7100	3.500	9.466.740	16:06:30
^FCHI	CAC 40	0.3720	-1.61%	75.992	0.3720	0.3725	118.559	20.925.956	16:06:22
CAPMI	Capitalia	14.9200	-1.13%	1.000	14.9100	14.9200	8.968	5.784.205	16:06:01
CNXT	Conexant Systems Inc.	2.3700	+0.08%	217.907	2.3675	2.3700	105.321	213.624.913	16:06:35

USA

Description	Last Price	Chg%	Bid	Ask	Volume	Time
Apple	65.3000	+0.75%	65.3000	65.3000	2.843.318	15:51:00
Atari Inc.	0.6200	0.00%	0.6112	0.6200	11.513	15:51:00
Conexant System	3.4100	+0.89%	3.4100	3.4200	1.379.231	15:51:00
Electronic Arts In	54.4300	+0.07%	54.4100	54.4500	207.189	15:51:00
Google	406.2800	-0.13%	406.1500	406.2800	928.093	15:51:00
QUALCOMM Inc.	51.4100	+0.76%	51.4000	51.4200	537.220	15:51:00
Red Hat	28.2200	-1.02%	28.2200	28.2300	653.895	15:51:00
S&P 500	26.3200	+1.00%	26.3100	26.3200	159.952	15:51:00
Xilinx Inc.	30.9400	-0.10%	30.9400	30.9400	2.111.234	15:51:00

Apple

#	Q.ty	Bid	Ask	Q.ty	#
1	100	65.32	65.28	1.300	1
1	1.000	65.29	65.29	1.600	1
1	2.700	65.30	65.30	1.050	1
1	1.000	65.29	65.31	200	1
1	700	65.28	65.32	100	1
1	800	65.27	65.33	4.100	1
1	1.000	65.26	65.33	672	1
1	100	65.26	65.34	1.600	1
1	1.200	65.25	65.35	53.998	1

EclipseTrader - Charts

File Window Help

Trading Charts News

Securities

Aeroporto Firenze Capitalia Alitalia Yahoo!

SECURITY

13/04/2006 CH=0.10% O=31.1400 H=31.4000 L=30.8500 C=31.1300 MA7=31.9057 MA21=31.5957

VOLUME

RSI

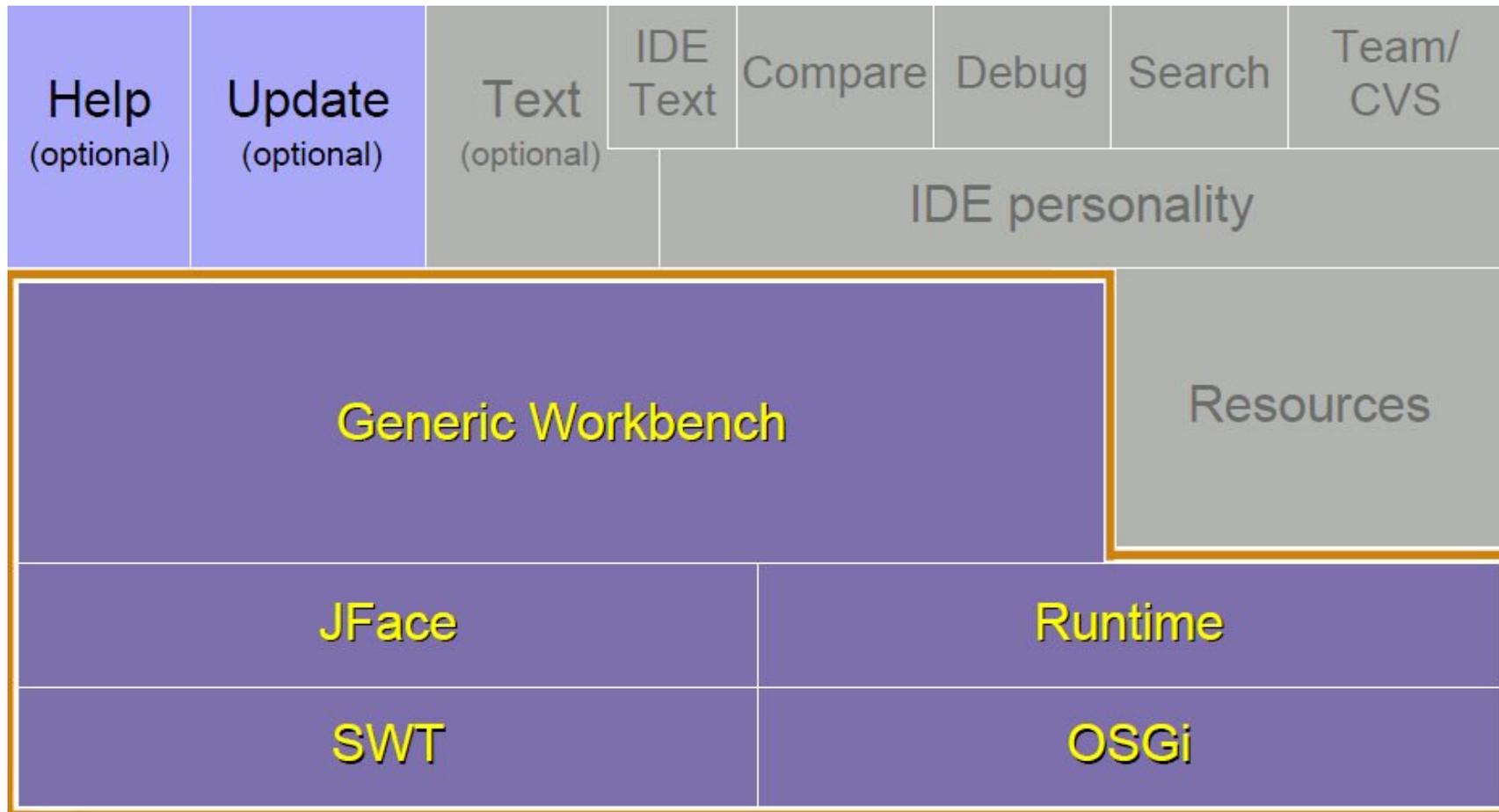
13/04/2006 VOLUME=15.609.800

ott, 2005 nov, 2005 dic, 2005 gen, 2006 feb, 2006 mar, 2006 apr, 2006

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?



Key Concepts

- Plug-in / Bundle

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

- Extension Points and Extensions

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

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

Demo (RCP)

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**

Solution!

If you develop your rich client with Eclipse RCP

You may reuse 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

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

Demo

(RAP)

More Information:

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

Q&A