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Eclipse 4.0

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based on EclipseCon 2008 talk by

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e4 – adapting to a changing world

A lot of promise, but how about these good old questions

- How to develop effectively?
- Quick develop / test cycle
- Modular, extensible applications
- Consistent APIs
- API stability
- ....

e4 – adapting to change

- As a tool
  - Java is here and will stay for quite some time
  - Enabling launch on the cloud
  - JS support is getting there
- As a platform
  - RCP is very successful
  - Modularization for core and ui components
  - Need to make it easier
  - We can bring modularity to desktop and web
  - High style

The mission of the e4 project is to build a next generation platform for pervasive, component-based applications and tools

Themes

- Build a better desktop
  - Identify and fix issues in 3.x that prevent new uses
  - Make it easier to build and deploy plug-ins
  - Improve styling capabilities
- Bring Eclipse to the web
  - “Enable Eclipse-based web application development” not “Take over the world”
  - Work with the larger web community

Commitment to 3.x

- We are committed to protecting your investment in the current SDK and RAP
  - Ongoing development in 3.x for >5 years
    - Targeted enhancements, bug fixes, new platforms
    - e4 items that are backwards compatible
  - 3.x plug-ins that use public API will generally run in „Desktop-Mode“ in e4
  - Co-existence as long as needed
    - Think Apache 1.x and Apache 2

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Build a better desktop

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Make it easier to build plug-ins

- Architectural improvements, API cleanup
  - More uniform APIs, no singletons, finer-grained plug-ins, More flexible resource model
    - But support backwards compatibility
  - Dependency injection
    - Likely use an existing framework (e.g. Spring)
- Ability to implement plug-ins in non-Java languages
  - Initially JavaScript
  - + wiring them together
    - i.e. “plugin.js” versus plugin.xml
  - Support scripting
- Ability to model the workbench (using EMF)

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New Album Delete Album

Library

- Album 2
  - .project
  - DSC_0599.JPG
  - DSC_0611.JPG

Map

Thumbnails | Exif

name	make	model	orientation	software	timestamp	gpsLatitude	gpsLongitude	exposure	is
DSC_0	NIKON	NIKON	6	Ver.1.11	2008:07:1			1/250	
DSC_0	NIKON	NIKON	1	Ver.1.11	2008:07:1			1/60	

Flexible styling of Eclipse desktop applications

- Separate appearance from content
- Simplifies the Workbench API
  - DOM-style model for the desktop widgets
  - Life-cycle managed by the model
  - Modifying the model causes immediate presentation changes
  - Easier to drive from multiple languages
- More radically and with greater ease modify the look of Eclipse
- Use a separate, pluggable styling engine
  - CSS would allow sharing of styling information between desktop and related web pages

```
tab {font-family: Verdana; height: 23px; }
tab.active {start-color: #afc0eb; end-color: #7a96df; }
tab.inactive {start-color: #ffffff; end-color: #ece9d8; }
```


Demo build by Kai Tödter based on e4 prototype

Eclipse Application Model

- A well-defined and *documented* set of services
- Captures *needed* functionality from Platform API
  - Selection, D&D, Progress, Jobs, Preferences, Logging, Model Listeners
  - Reasonable size (we say, “the 20 things”)
  - Easy to understand
  - Passed to plug-ins via dependency injection
- Extensible
  - Standard ways to provide additional services in apps built on e4
- RESTful architecture
  - Accessible from Java, JavaScript *or http*
- Multi-user enabled

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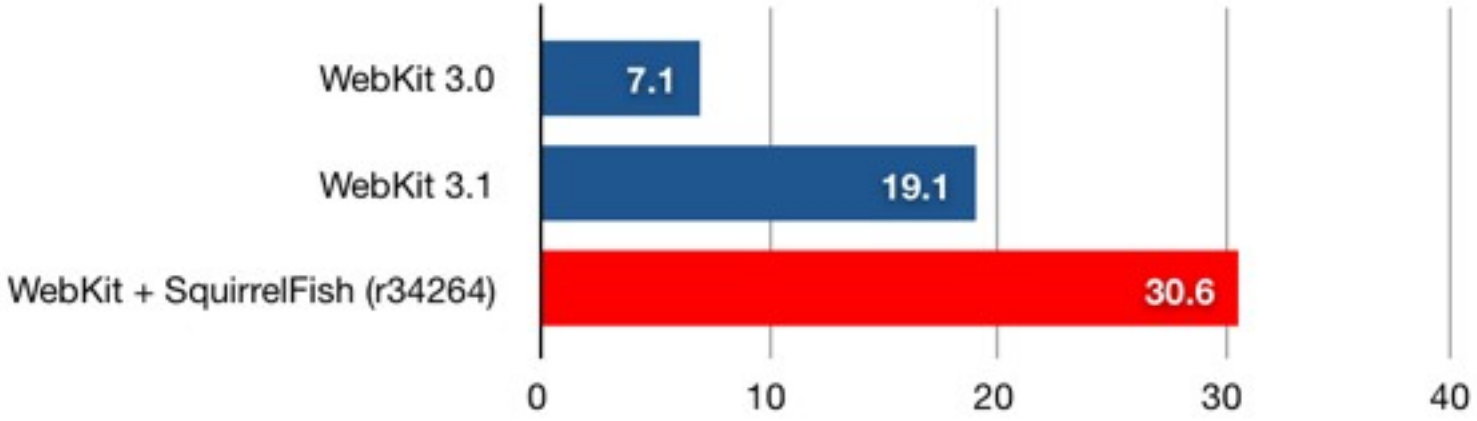
Bring Eclipse to the Web

Browsers will become a viable platform



We are not starting from scratch

- RAP has pioneered SWT in a browser
- RWT (RAP widget toolkit) is a strict subset of SWT
  - Enables code reuse on SWT level
  - BUT: SWT API is targeted to rich client and not all aspects map well to the web, some API is none existent (styling)
- Widgets are “remoted” to the browser
  - Eventhandling is mostly done on the server
- Custom widgets allow integration of other JavaScript (e.g. Gmap)

Our joint e4 effort will become more flexible:

Richer client technologies, pure web style development

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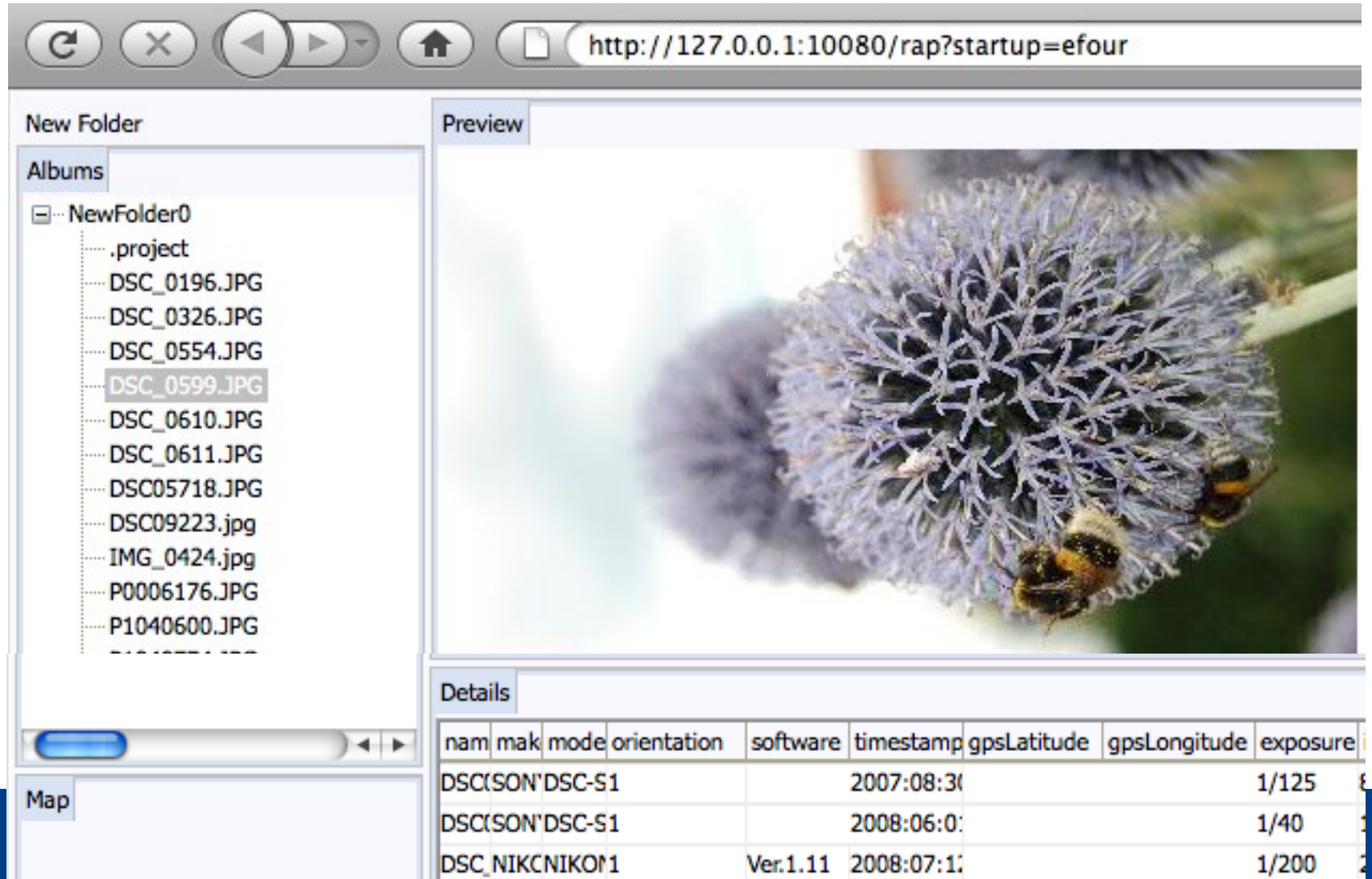
Demo modeled workbench in a browser



Extend ability to run SWT in a browser

- The web is the new platform(s)
  - JavaScript frameworks (Dojo, qooxdoo, ...)
  - Rich “connected” platforms (AIR, Silverlight)
- If you **have** SWT code, you should be able to re-use it
  - Widgets are not web pages, but that can be ok
- Take web specifics into account for SWT API
- We will support different ways to solve this:
  - GWT-style, “UI on browser, app on server”, with multiple backends (AIR, Dojo,...)
  - RAP-style, “‘X windows’ remoting to UI and app on server”

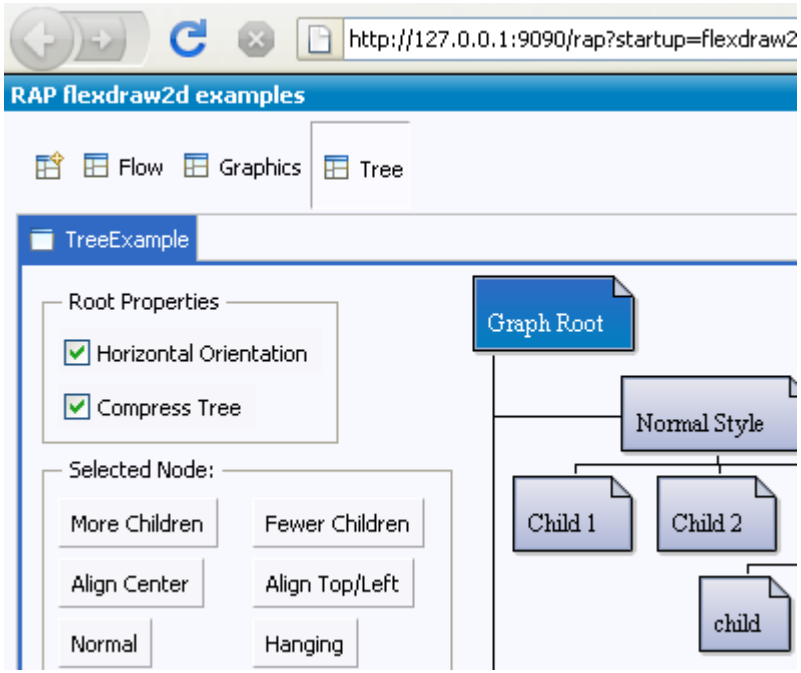
Align efforts for SWT4 and RAP

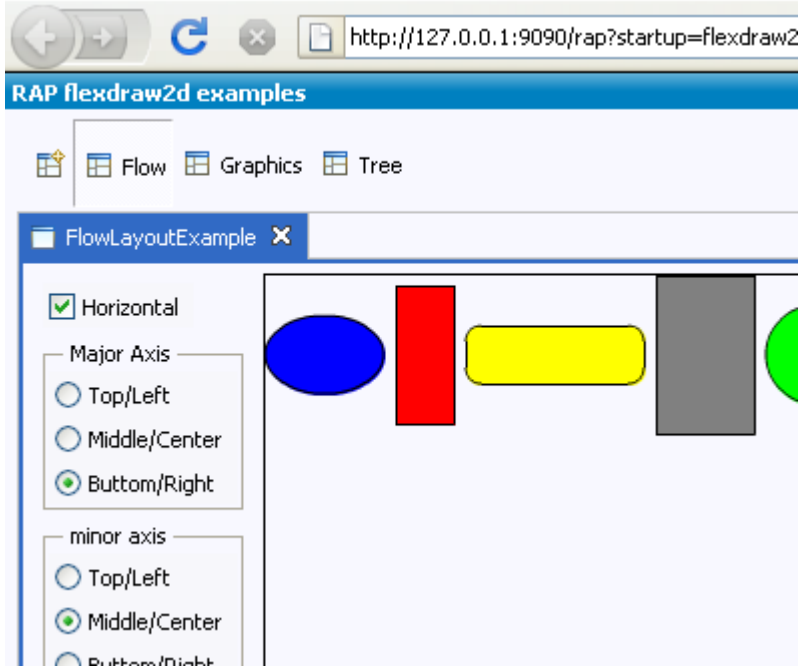
- Styling
  - Subset of CSS


```
radius: 10, 20, 30, 40
width:  3, 10, 20, 5
color: "red", "green",
       "yellow", "blue"
backgroundColor: "gray"
```


Align efforts for SWT4 and RAP (cont'd)

- RAP on SWT Browser Edition
  - Mix compiled components (running on the client side) and remoted componentes / workbench (directed from the server side)





Mashups

- Attempting to solve the same problems as OSGi
  - Secure composition of (UI) components from multiple sources
  - Must be lightweight, simple
  - Existing communities (e.g. OpenAJAX “Hub 1.1 / SMash”)
- The Eclipse version would be...
  - Use Eclipse application model + define “OSGi for the web”
  - Extend p2 to support provisioning to browser
    - “Zero-thought” install
  - Provide standard JFace/DataBinding Table, Tree, etc. equivalents but allow arbitrary web UI technologies to be used
- We don't own this space
  - Must work with existing web community
  - Lots of opportunity for participation

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Current state and outlook

Timeline

- e4 was announced at EclipseCon 2008
- An e4 summit was held to define e4 more closely and to get the work started
- Technology evaluations have been going on in the e4 incubator component of the Eclipse Project
  - A modeled workbench (using EMF)
  - CSS styling of a workbench
  - SWT on Flex (Browser Edition)
- Project has been created on October 3, 2008
- There is working code!

Timeline cont'd

- Individual work areas move at own pace
  - Graduate as they become ready
- But have overall “e4” platform builds with regular milestones
  - Need to sync up with changes in 3.x code
    - Equinox team has done this – learn from them
- Checkpoint / re-assess after 1 year
  - Are we working on the right things?
  - Have we made the kind of progress we need?
- Deliver in 2 years
  - BUT: This work will influence the 3.x stream
  - You don't need to wait

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Resources

- http://wiki.eclipse.org/E4
- https://dev.eclipse.org/mailman/listinfo/e4-dev
- http://www.eclipse.org/rap/

Demos Howto

- http://wiki.eclipse.org/E4/Running_the_demos

