

Roller: An Open Source Java™ EE Blogging Platform

- Dave Johnson
 - Staff Engineer S/W
 - Sun Microsystems, Inc.



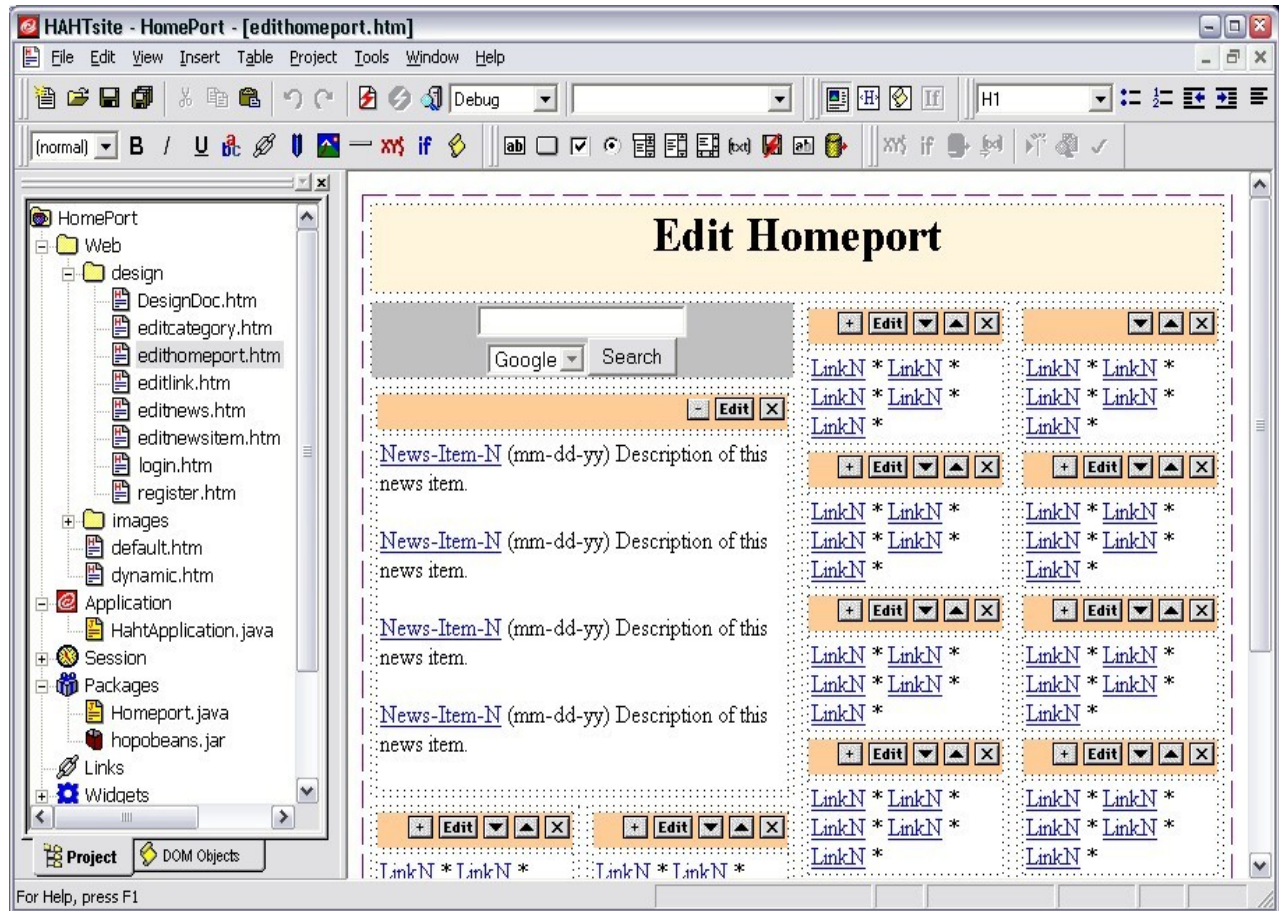
Agenda

- **Roller history**
- Roller features
- Roller community
- Roller internals: backend
- Roller internals: frontend
- Customizing Roller
- Roller futures



Roller started as an EJB example...

- Homeport – a home page / portal (2001)



... became an O'Reilly article

- Ditched EJBs and HAHTsite IDE (2002)
- Used all open source tools instead and thus...



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Published on [ONJava.com](http://www.onjava.com/) (<http://www.onjava.com/>)
<http://www.onjava.com/pub/a/onjava/2002/04/17/wblogosj2ee.html>
[See this](#) if you're having trouble printing code examples

Building an Open Source J2EE Weblogger

by [David Johnson](#)

04/17/2002

As a Java developer, you should be aware of the tremendous wealth of open source development software that is available for your use -- even if you have no desire to release any of your own software as open source. In this article, I will introduce you to some of the most useful open source Java development tools by showing you how I used these tools to develop a complete database-driven Web application called Roller.



... and escaped into the wild

I am allowing others to use my installation of Roller for their weblogging. Hopefully this will provide a means for enhancing the Roller user base as well as provide a nice environment for communication and expression.

Anthony Eden
August 8, 2002

FREE ROLLER

Home | Login

JRoller

Now with FTP resource uploads - [click here for details...](#)

Free, Java-powered weblogs
Brought to you by [Javalobby.org](#)
Powered by [Roller Weblogger](#)

Version: 0.9.8.2-dev
Please [login](#), or [register as new user](#).



Sun
microsystems



Yale University Weblogs

NC STATE UNIVERSITY

vBlog Central
Video for your Blog

Che Blogs

la Repubblica.it



... to find a new home at Apache



- Apache Roller (incubating)
 - Incubation period: June 2005 - ???



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Roller features: standard blog stuff

- Individual and group blogs
- Hierarchical categories
- Comments, trackbacks and referrers
- File-upload and Podcasting support
- User editable page templates
- RSS and Atom feeds
- Blog client support (Blogger/MetaWeblog API)
- Built-in search engine




Multiple blogs per user




logged in as **roller** rollerweblogger.org | Main Menu | Logout


Main Menu

Select a weblog to edit, manage, or configure.





 **Blogging Roller**

Link	http://rollerweblogger.org/page/roller
Permission	ADMIN
Description	Dave Johnson on blogging, open source and Java

-  [New Entry](#)
-  [Edit Entries](#)
-  [Settings](#)

 **Roller Weblogger Project**

Link	http://rollerweblogger.org/page/project
Permission	ADMIN
Description	Roller Weblogger project blog

-  [New Entry](#)
-  [Edit Entries](#)
-  [Settings](#)
-  [Resign](#)

Actions

Create new weblog

Feel like you've got more to say? Maybe another weblog is what you need.

Edit user profile

Change password, contact info, select language.

Server administration

Make site-wide administration changes.

Planet administration

Manage the planet aggregator. Add feeds, organize groups, set configs.



Multiple users per blog

logged in as **roller** - editing weblog **project**

[rollerweblogger.org](#) | [Main Menu](#) | [Logout](#)

Weblog Member Permissions

Create & Edit

Preferences

[Settings](#) | [Theme](#) | [Templates](#) | **[Members](#)** | [Pings](#) | [Custom Ping Targets](#) | [Maintenance](#)

Manage permissions of users in weblog **project**

You can change permissions of weblog members, or remove them from the weblog entire using the controls in the table below and clicking Save to commit your changes. Note that you are not allowed to demote or remove yourself from the weblog.

Username	Admin	Author	Limited	Remove
 project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
 roller	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Save

Actions

[Invite new member](#)
Invite somebody to help you write your weblog.

What are permissions?

Admin permission allows user to post entries, manage weblog and its users

Author permission allows user to post entries, but not to manage weblog

Limited permission allows user to save draft entries only

Powered by [Roller Weblogger 2.3-incubating](#) | [Report an Issue](#) | [User Guide](#) | [Macros](#) | [Mailing Lists](#)



Edit Entry

Create & Edit | Preferences

New Entry | [Entries](#) | [Comments](#) | [Categories](#) | [Bookmarks](#) | [File Uploads](#) | [Referrers](#)

Editing weblog entry in weblog **roller**

Title

Status **Published (Last updated 6/3/06 12:38 AM)**

Category

Pub Time : :

Permalink http://rollerweblogger.org/page/roller?entry=status_cc_world8

Summary (optional)

[Style] [Font] [Size]

B **I** **U**

It's been a while since my last status, CC:World post, so here's an update on the things I'm working on these days.

View Source


Content

[Style] [Font] [Size]

B **I** **U**

It's been a while since my last status, CC:World post, so here's an update on the things I'm working on these days.

[RSS and Atom in Action](#). Because I added those two new chapters on [Windows RSS](#) and [ROME](#), Manning had to renumber about 3/4 of the book. That took a bit longer than expected, but now the work is done and I've got the whole book in one big PDF file. I'll do one final review this weekend and, if we can quickly wrap up the loose ends and the index, we'll be off to the printers before the end of June.



View Source

Comments
None

Pending Entries
None

Recent Drafts

- John Lennon invented the iPod ...
- Mugshot.org: Red Hat social network...

Recent Entries

- Today's links [June 03, 2006] ...
- User-written product reviews on sun...
- Apache Roller 2.3 (incubating) rele...
- Status, CC: World
- ROME and Abdera
- Get rollin' with Sun Java Syst...
- [Today's links \[May 25, 2006\] ...](#)
- And speaking of SAS
- There is life after SAS
- Today's links [May 24, 2006] ...
- Netbeans 5.5 (beta) and other new s...
- +1 to Atom Reference Implementation...
- JavaOne factoids
- Progress towards open source Java ...
- JavaOne: putting the web back in we...
- JavaOne arrival
- Today's links [May 12, 2006] ...
- Roller Admin Protocol
- JavaOne 2006 Bloggers meet-up: time...
- WS-* Kool-Aid and JavaOne ...



Blog client support

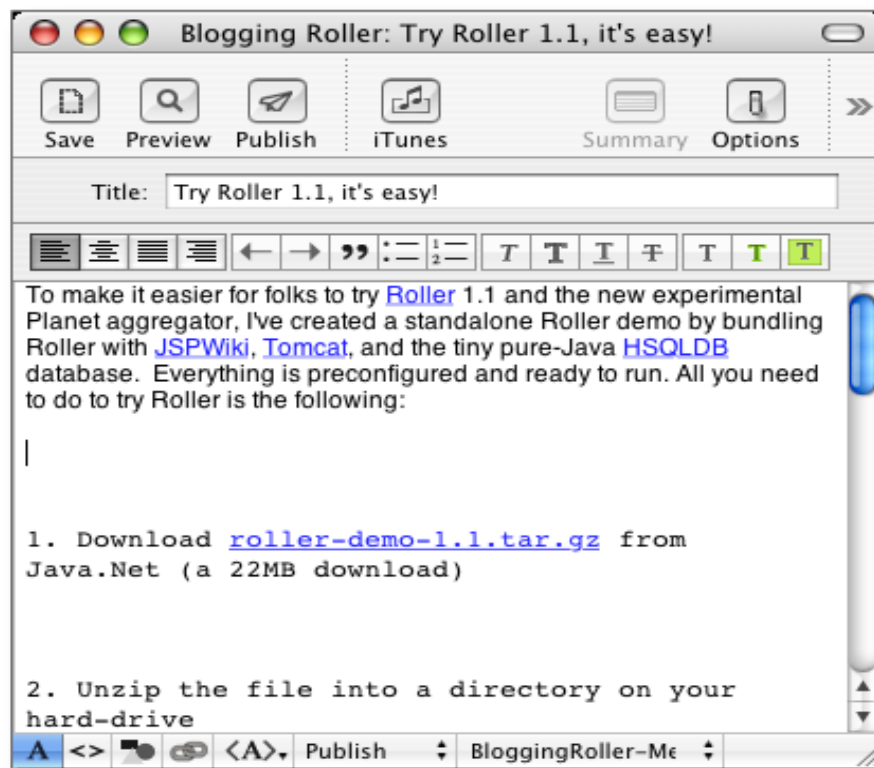
- XML-RPC based Blogger and MetaWeblog API
- Lots of blog clients work with Roller, for example:



ecto

<http://ecto.kung-foo.tv>

For Mac OSX and Windows



Roller 3.0: What's new

- Big new release, 3 months in dev
 - Normally we do monthly releases
- New URL structure
- Front-page is now a weblog
- Completely new template / macro system



Roller 3.0: new URLs

- Old URLs were clunky
- Why do weblog pages have to start with `/page/` ?
- Why can't my weblog be grouped under one URL?

`/roller/page/<weblog>?entry=<entry>`

`/roller/page/<weblog>/<date>`

`/roller/resource/<weblog>/<file-name>`

`/roller/page/<weblog>/<page-name>`

`/roller/atom/<weblog>`



Roller 3.0: new URLs (continued)

- So we completely redesigned the URL structure
- Old URL redirected (301) to appropriate new URL

`/roller/<weblog>/entry/<entry>`

`/roller/<weblog>/date/<date>`

`/roller/<weblog>/resource/<file-name>`

`/roller/<weblog>/page/<page-name>`

`/roller/<weblog>/feed/entries/atom`

`/roller/<weblog>/feed/comments/atom`



The front-page blog

- Old front-page was JSP
 - Aggregation of all blogs – serious case of TMI
 - Changing required code changes and redeploy
- New Roller 3.0 front-page is just a blog
 - But with access to site wide data
 - And access to aggregated data
- That's good for individual bloggers
- And for community sites



Roller template macros

- Templates can use any of > 50 different macros

displayWeblogCalendar	showEntryPermalink	showSearchForm
evaluateString	showEntryText	showStatusMessage
formatDate	showImage	showThemeImage
genOpml	showLinkbacks	showThemeImagePath
includePage	showMenu	showThemePath
referrerDisplayUrl	showNavBar	showThemePath
showBasicNavBar	showNewsfeed	showThemeScript
showBigWeblogCalendar	showOneEntryLink	showThemeScriptPath
showBookmarks	showOpml	showThemeStyle
showCommentForm	showPageDescription	showThemeStyleImport
showComments	showPageName	showThemeStylePath
showCommentsDiv	showPageUpdateTime	showTrackbackURL
showCommentsLink	showRSSAutodiscoveryLink	showVersion
showCommentsPageLink	showRSSBadge	showWeblogCalendar
showContentLanguage	showRSSLinks	showWeblogCategoryChooser
showContentType	showRecentEntries	showWeblogEntries
showDayPermalink	showReferers	showWebsiteDescription
showEditorNavBar	showResourceImage	showWebsiteTitle
showEntryDate	showResourcePath	spaces
showEntryDescription		



Why deprecate the old macros?

- Premise of design was incorrect
 - We tried to do *everything* with macros
 - Allowed no access to objects
- That lead to problems
 - Too much HTML generation in macros
 - HTML/CSS gurus want to write their own
 - Too many macros – confusing to newbies
- We've got an object model, let's use it



Why choose Roller?

- Proven, full-featured blogging solution
 - Sun, IBM and others depend on it for corporate blogging
- Standard Java™ web application architecture
- Open source and Apache licensed
- Active and growing community at Apache



Roller limitations

- Relatively small community compared to Wordpress
 - Small number of plug-ins and themes
- JavaTM technology dependency limits host options
 - A good ISP can be hard to find
- Clustering requires some custom development
 - At BSC, we use **memcached** and our own search engine



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The Roller community

- The Roller developers
 - Seven *committers* design, develop, test and release the code
- The system admins who run Roller sites
 - Big sites: JRoller, blogs.sun.com, IBM devWorks, Yale, NCSU
 - Tens and perhaps hundreds of sites using Roller
- The bloggers who blog with Roller
 - Thousands and perhaps tens of thousands of active bloggers



Roller community challenges

- Part of community needs to move fast
- Part of community needs stability
 - Moving too fast makes it difficult for new contributors
- Solutions:
 - **A release cycle that enables monthly releases**
 - **Transparency in planning & a roadmap**



Roller release cycle

- Generally, this is what happens
- Second to last Thursday of month is RC day
 - Committers: think we need a month release?
 - If so, create an RC and call for week of testing
- Last Thursday of month is release day
 - Create another RC and if confident: call for release vote
 - Optionally: create release branch in SVN
 - Once released, create a SVN tag



Roller planning: adding new features

- Want to add a feature?
- Write a proposal on the wiki
- Coordinate with folks writing other similar proposals
- Introduce proposal on mailing-list, call for feedback
- Tweak proposal, get consensus
- Do the work
- Submit patch or commit code to appropriate branch



Roller planning: planning releases

- Want to make a release?
- Write a proposal on the wiki
 - Reference all JIRA issues to be addressed
 - Reference all feature proposals to be included
- Introduce proposal on mailing-list, call for feedback
- Tweak proposal, get consensus
- Do the work
- Follow the release cycle: create an RC



Great, so why is Roller still incubating?

- ✔ Contributor agreements and grants
- ✔ Apache license headers
- ✔ Use Apache package names
- ✔ Migrate infrastructure
 - ✔ Source code and mailing lists
 - 🕒 Blog, wiki and bug tracker (post graduation?)
- ✔ Diverse and growing community
- ✔ Team follows the “Apache way”
- ⚠ Call for a vote?



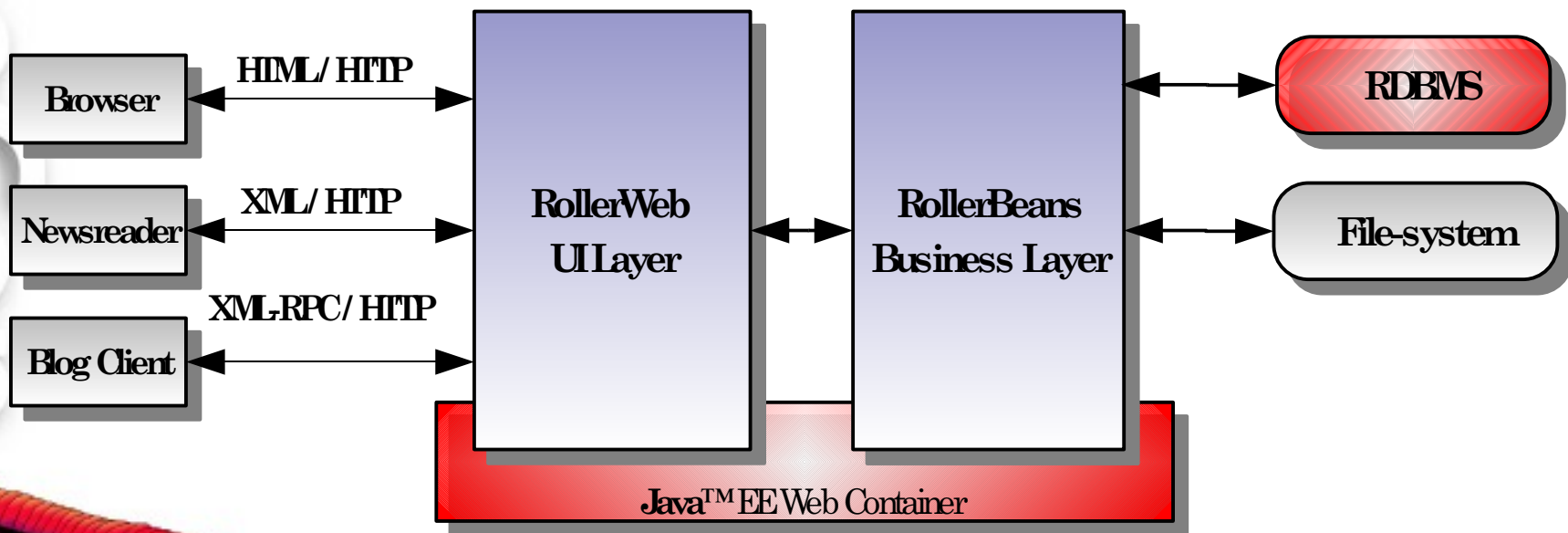
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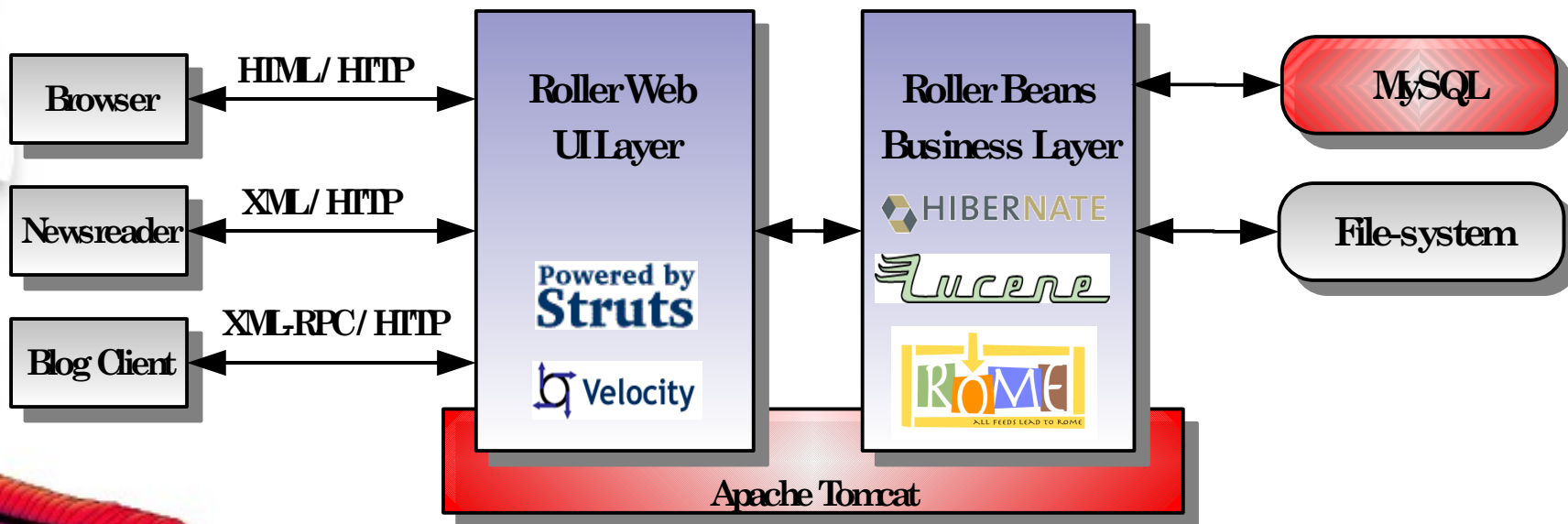
Enterpisey level architecture

- Web UI via Java™ Servlets and JSP
 - Front controller, Web MVC and open session in view patterns
- Persistence via Java™ Database Connectivity
 - Factory, facade and data mapper patterns



Java™ geek level architecture

- Roller Web: Web and UI layer
 - Editor UI via **Struts and JSP**, blog and feed rendering via **Velocity**
 - Feed parsing via **ROME**, Blogger API via **Apache XML-RPC**
- Roller Beans: Business and persistence layer
 - **Hibernate** for DBMS, **Lucene** for search and file-system for uploads



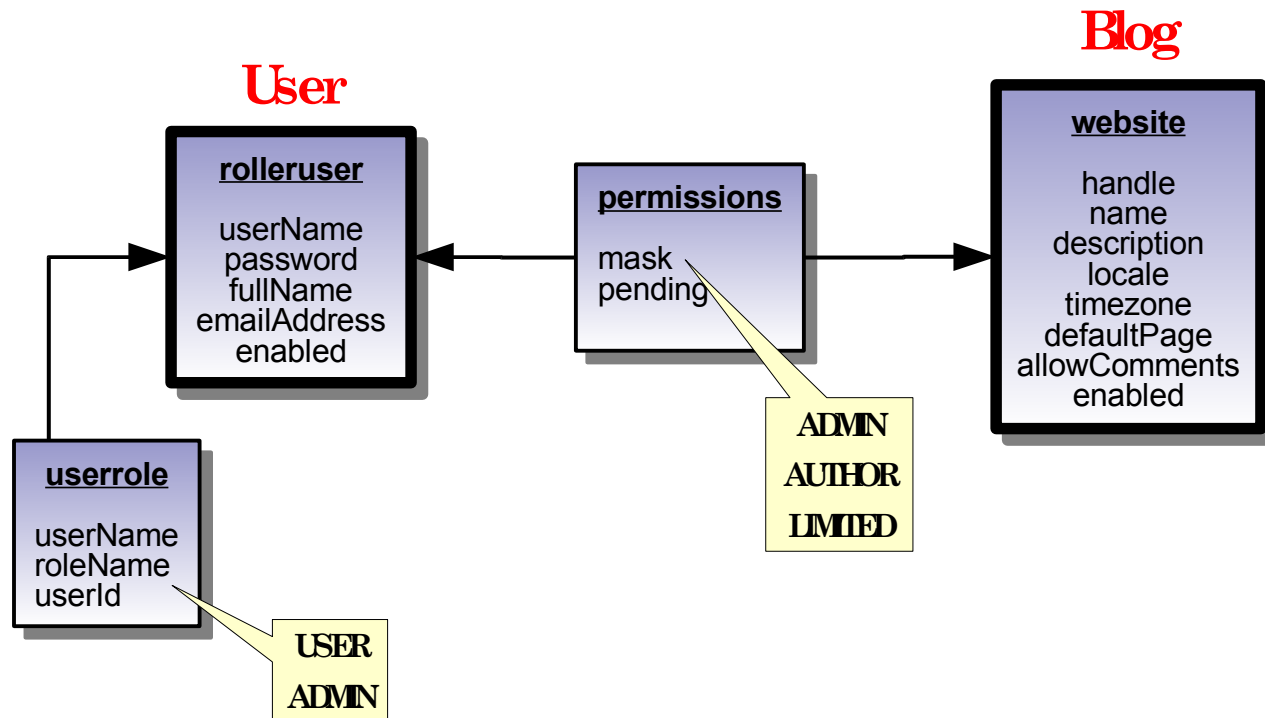
First, let's talk business

- The Roller “business” layer is made up of:
 - Plain old **Java™ objects**
 - i.e. POJOs
 - Interfaces that create, retrieve, update and delete
 - i.e. **Manager interfaces** that do CRUD of POJOs



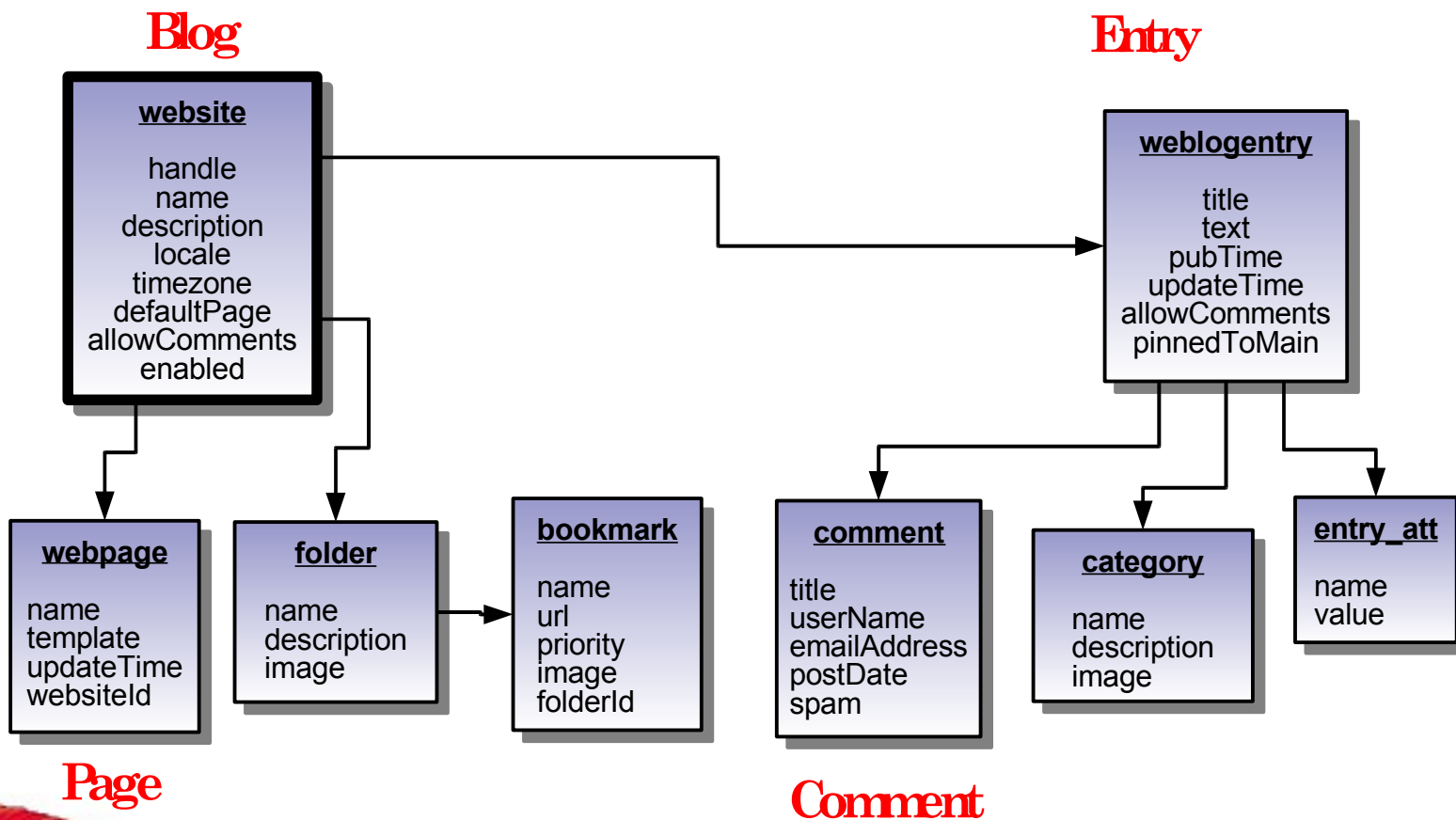
Roller POJOs: users and blogs

- User has global role
- User has permissions in blogs



Roller POJOs: blogs and entries

- A blog has pages, bookmarks and entries



Roller POJO markup

```
/** @hibernate.class table="website"
 * @struts.form include-all="true"
 */
```

Hibernate mapping generation

Struts form bean generation

```
public class WebsiteData extends
    org.roller.pojos.PersistentObject
    implements java.io.Serializable {
```

```
/**
 * @hibernate.property column="description"
 *     non-null="false" unique="false"
 * @roller.wrapPojoMethod type="simple"
 */
```

Hibernate mapping generation

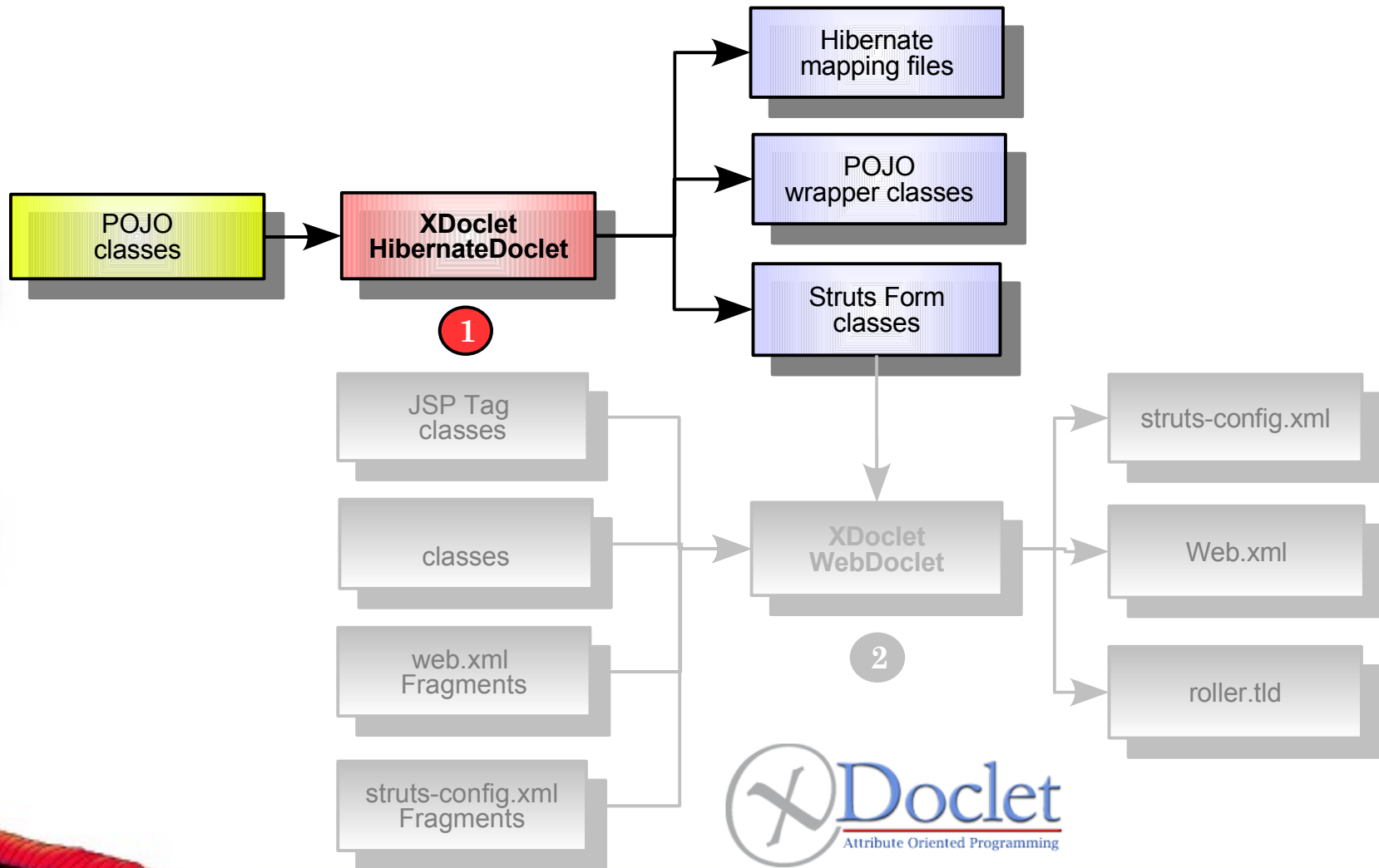
POJO wrapper generation

```
public String getDescription() {
    return this.description;
}
public void setDescription(String description) {
    this.description = description;
}
...

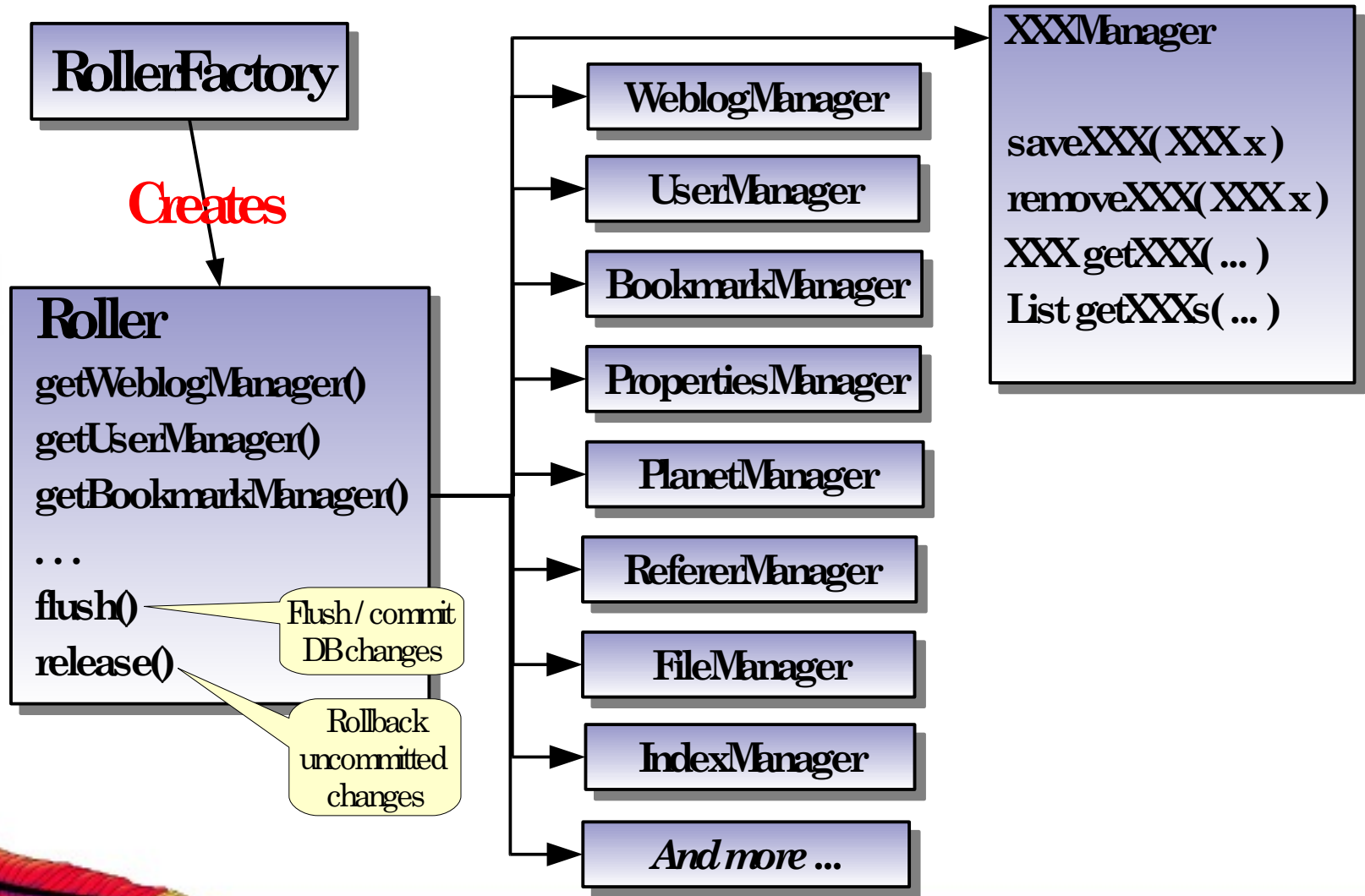
```



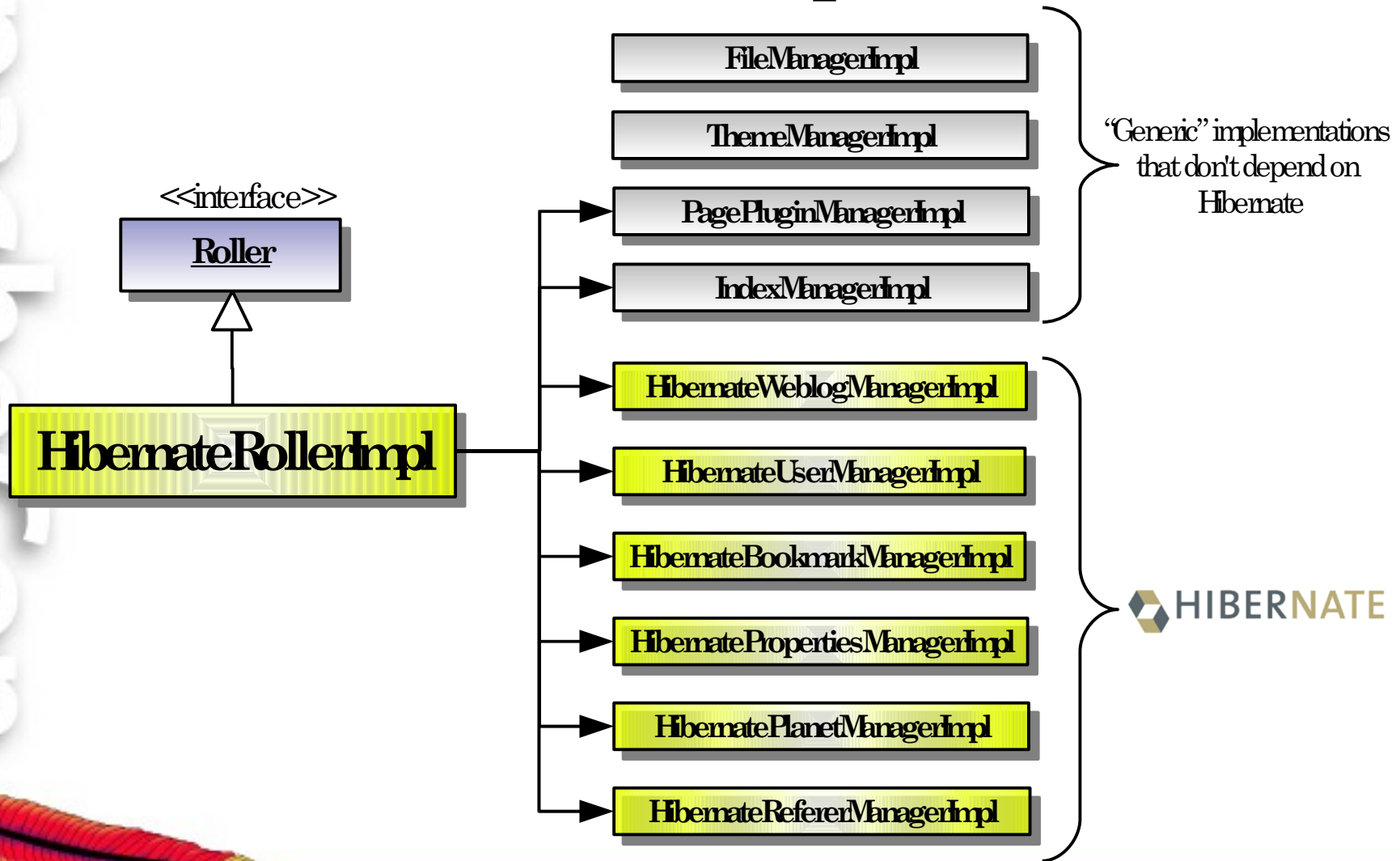
XDoclet code gen, phase 1



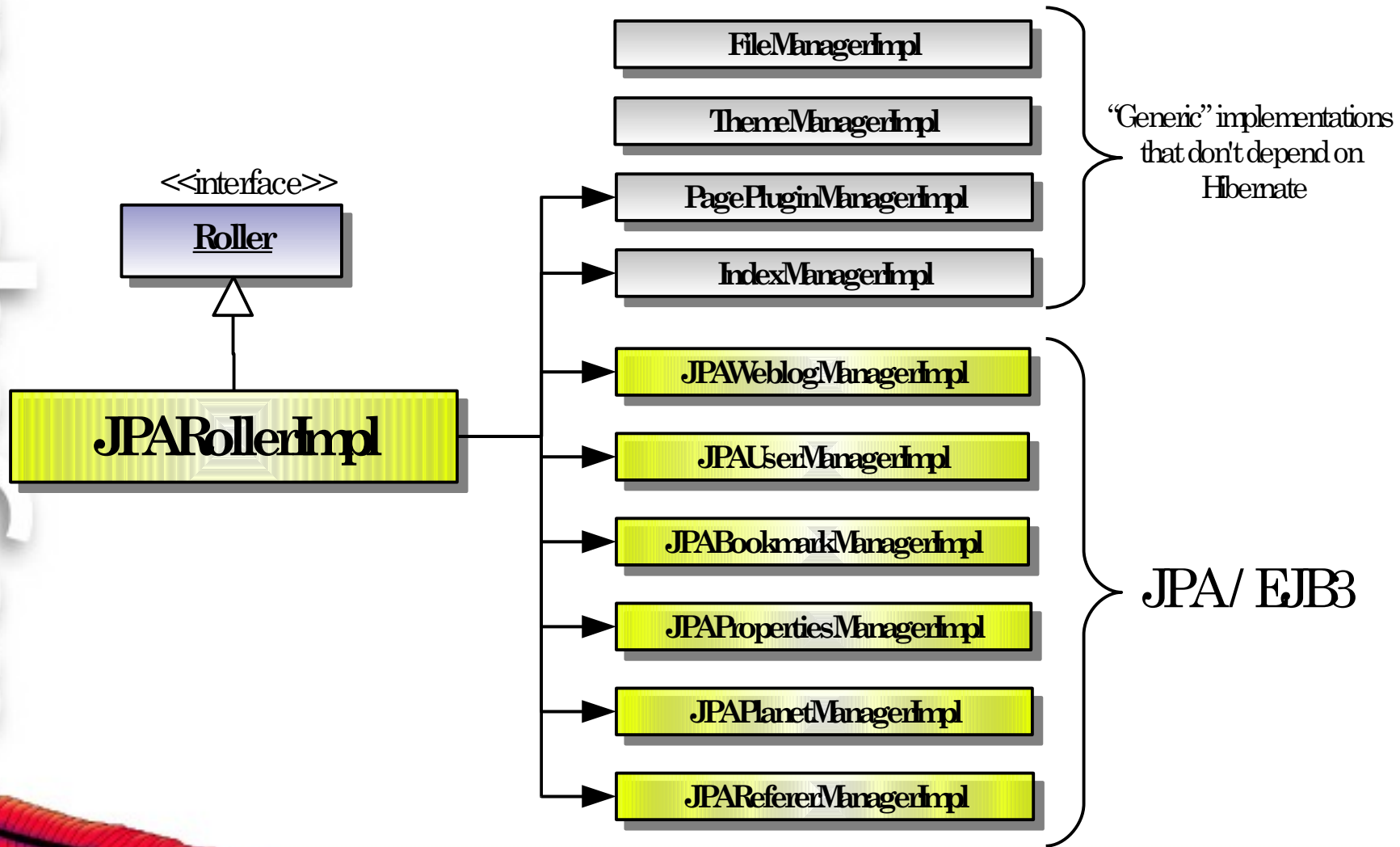
The Roller manager interfaces



The Hibernate implementation



Someday... a JPA implementation



So, for example...

```
Roller roller = RollerFactory.getRoller();
WeblogManager mgr = roller.getWeblogManager();

WeblogEntryData entry = new WeblogEntryData();

entry.setTitle("My first blog post");
entry.setText("&lt;p&gt;Hi everybody!&lt;p&gt;");
entry.setAnchor("hi_everybody");
entry.setPubTime(new Date());
entry.setUpdateTime(new Date());
entry.setWebsite(weblog);
entry.setCreator(user);
entry.setCategory(weblog.getDefaultCategory());

mgr.saveWeblogEntry(entry);
roller.flush();
```



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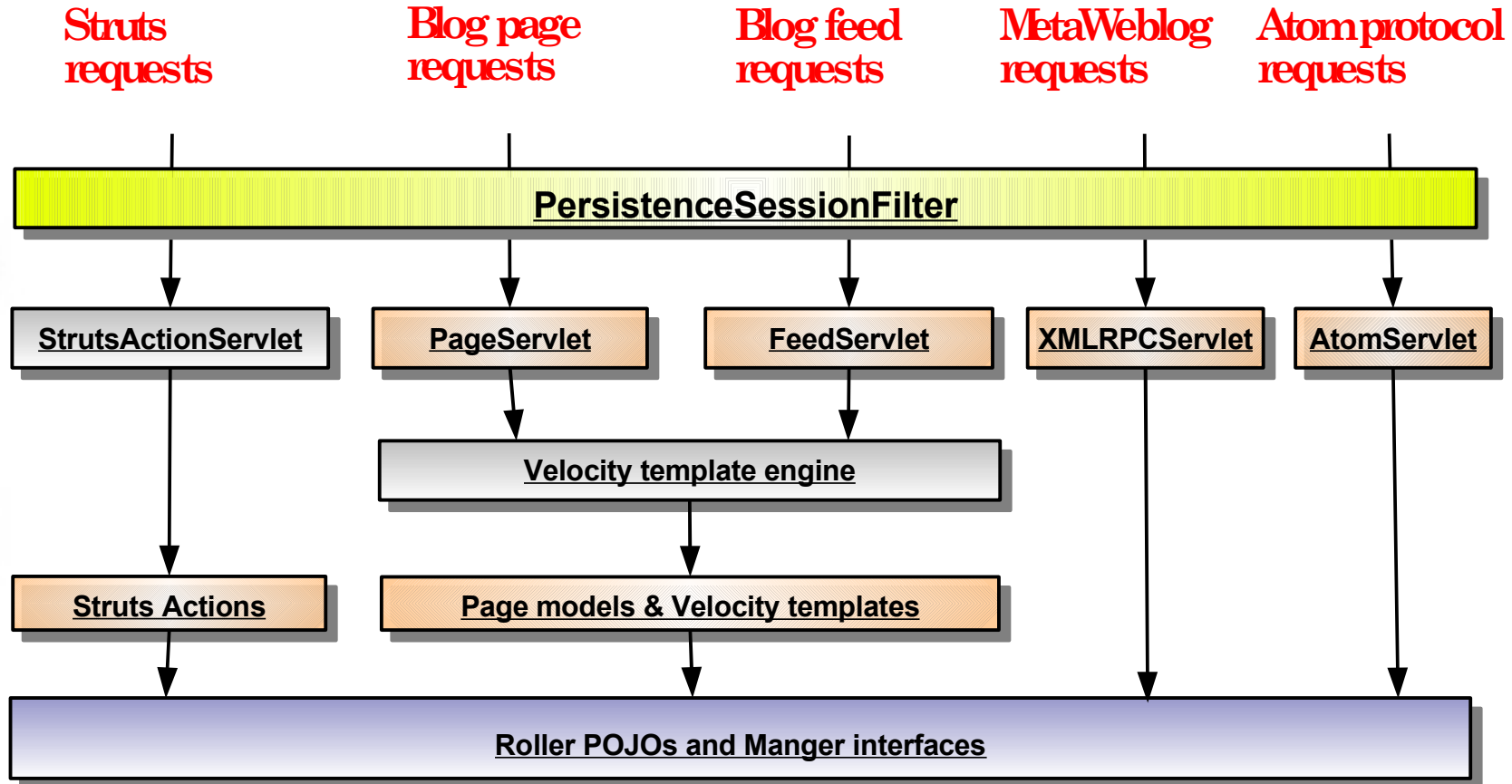


The Roller web interface

- **Authoring and admin UI**
 - Classic Struts/Tiles and JSP user interface
- **Weblog Page and feed Rendering**
 - Velocity page templates
 - Templates call model objects and wrapped POJOs
- **Web services**
 - XML-RPC based MetaWeblog and Blogger API
 - Atom Publishing Protocol



Web request stack



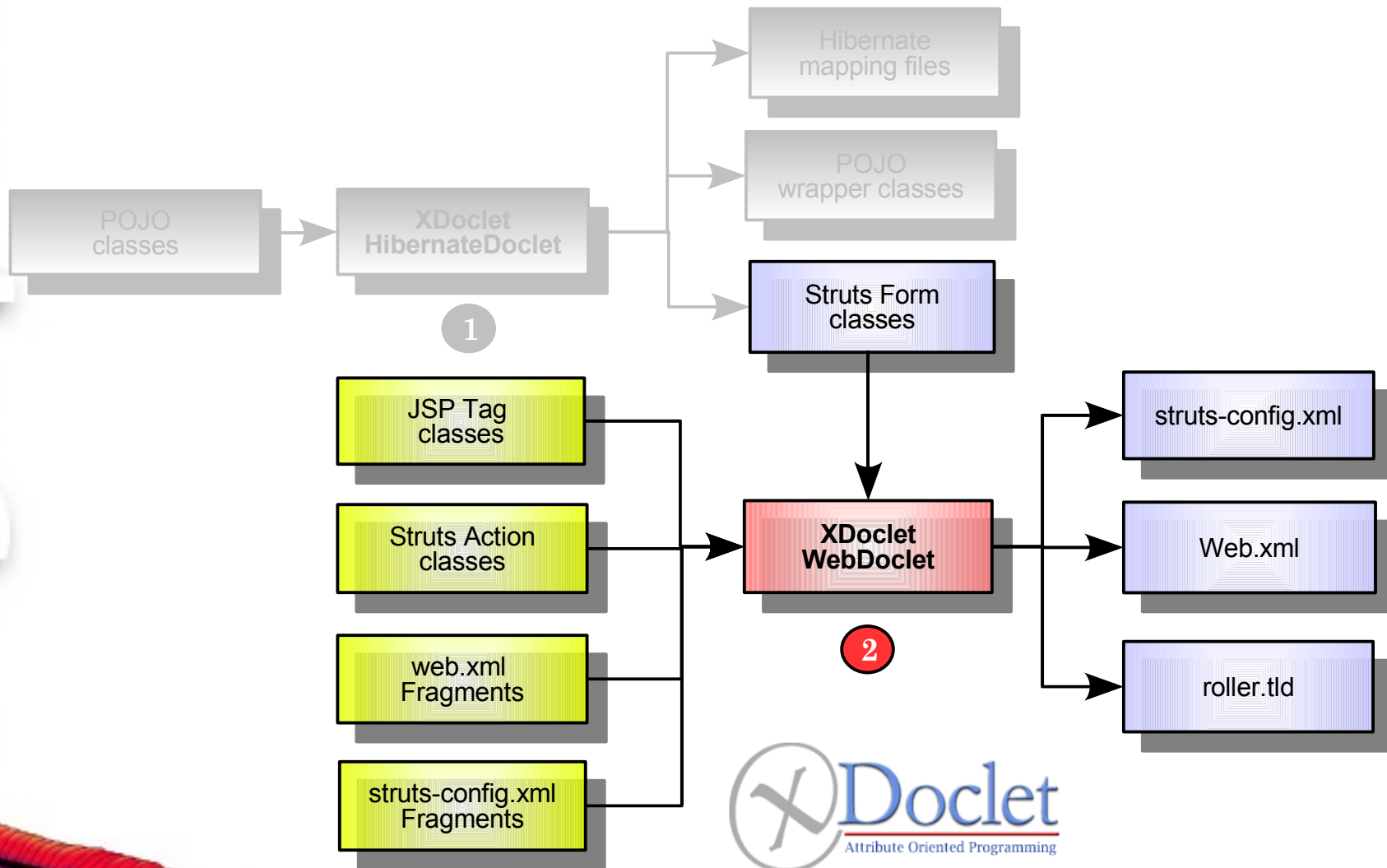
Struts actions markup

```
/**
 * @struts.action path="/BookmarkSave" name="bookmarkFormEx"
 *   validate="true" input="/BookmarkEdit.do"
 * @struts.action-forward name="Bookmarks"
 *   path="/Bookmarks.do?method=selectFolder"
 */
public class BookmarkSave extends Action {

    public ActionForward execute(
        ActionMapping      mapping,
        ActionForm         actionForm,
        HttpServletRequest  req,
        HttpServletResponse res) throws Exception {

        // save a bookmark
        Roller roller = RollerFactory.getRoller();
        // etc...
    }
}
```

XDoclet code gen, phase 2

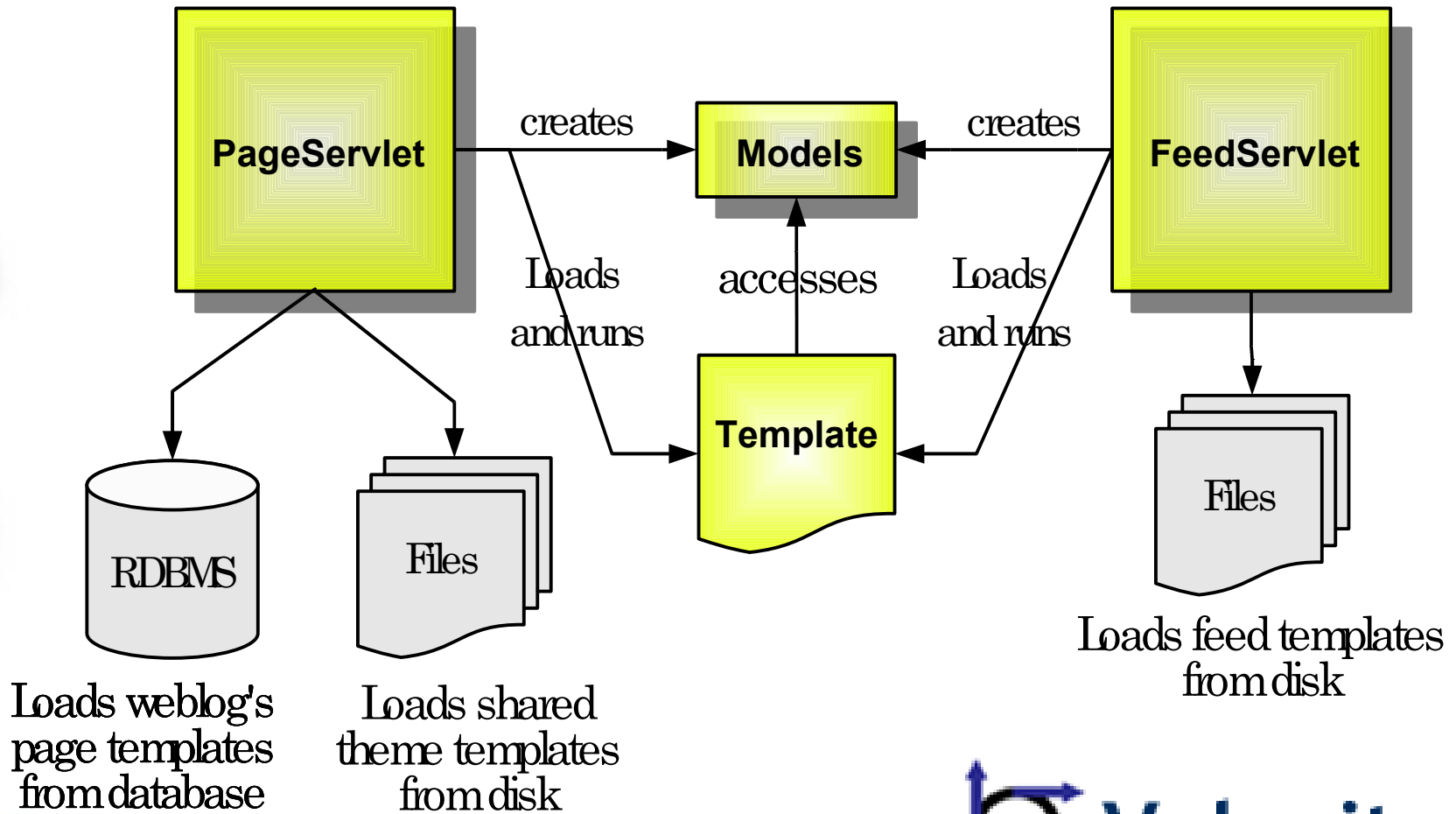


Page and feed rendering

- Each blog defined by user-editable templates
- Template code can access model objects
- Model objects provide access to POJOS
- Template language is Velocity
- Why Velocity?
 - Safety: we can limit objects available to users
 - Ease-of-use: Velocity is easy to learn



Page and feed rendering Servlets



Roller 3.0: new models & macros

- Provide access to Roller data via *page models*
 - A page model provides data needed for one page
- Allow site admins to configure models
- Provide small set of macros
 - Macros act only on arguments passed in
 - General minimal HTML
 - Use HTML `` lists wherever possible



Roller 3.0: new models

- **\$config** – access to config data
- **\$model** – access to weblog and entry pagers
- **\$url** – for URL creation
- **\$utils** – date formatting, string functions, etc.

- Site wide
 - **\$site** – access to site wide entries and data
 - **\$planet** – access to planet aggregations



\$model – weblog request data

- \$model.weblog
- \$model.weblogEntry
- \$model.weblogCategory
- \$model.weblogPage
- \$model.weblogEntriesPager



The pager interface

- `$pager.items`
- `$pager.homeLink`
- `$pager.homeLinkName`
- `$pager.nextLink`
- `$pager.nextLinkName`
- `$pager.prevLink`
- `$pager.prevLinkName`



Pager example: entry display

```
#set ($pager =  
    $model.getWeblogEntriesPager ())  
  
<div class="next-previous">  
    #showNextPrevEntriesControl ($pager)  
</div>  
#showWeblogEntriesPager ($pager)
```



\$model.weblog

- Access to all data within a weblog
- \$model.weblog.title
- \$model.weblog.description
- \$model.weblog.commentsAllowed
- \$model.weblog.getRecentEntries(...)
- \$model.weblog.getRecentComments(...)
- ...



\$site – site wide data

- `$site.getWeblogEntriesPager(...)`
- `$site.getCommentsPager(...)`
- `$site.getHotBlogs(...)`
- `$site.getMostCommentedWeblogs(...)`
- `$site.getMostCommentedWeblogEntries(...)`
- `$site.getNewUsers(...)`
- `$site.getNewWeblogs(...)`
- ...



\$planet – aggregated external feeds

- `$planet.getAggregationPager(...)`
- `$planet.getAggregationPager(String group, ...)`
- `$planet.getFeedPager(...)`
- `$planet.getRankedSubscriptions(...)`



\$url – URL creation

- \$url.site
- \$url.home
- \$url.entry(\$entry.anchor)
- \$url.page(\$pageLink)
- \$url.feed.entries.atom
- \$url.feed.comments.atom



Roller 3.0: new macros

Weblog entry display

```
#showWeblogEntriesPager( $pager)  
#showNextPrevEntriesControl( $pager)
```

Weblog comments

```
#showWeblogEntryComments( $entry)  
#showWeblogEntryCommentForm( $entry)
```

Calendar

```
#showWeblogEntryCalendar( $weblog $category)
```

Lists of feeds, entries, bookmarks, etc.

```
#showAtomFeedsList( $weblog)  
#showRSSFeedsList( $weblog)  
#showWeblogEntryLinksList( $entries)  
#showBookmarkLinksList( $folderObj $expanding $subfolders)  
#showWeblogCategoryLinksList( $categoryObj $expanding $subcats)  
#showReferrersList( $weblog)
```



Roller 3.0: new macros (continued)

Navigation

`#showPageMenu($weblog)`

`#showAuthorMenu($vertical)Search`

Search form and results display

`#showWeblogSearchForm($weblog)`

`#showWeblogSearchAgainForm($weblog)`

`#showNextPrevSearchControl($pager)`

Autodiscovery

`#showAutodiscoveryLinks($weblog)`

`#showTrackbackAutodiscovery($entry)`

Include

`#includeTemplate($weblog $pageName)`



Example: complete weblog template

```
<html>
<head>
  <title>$model.weblog.name : $model.weblogPage.name</title>
  #showAutodiscoveryLinks ($model.weblog)
</head>
<body>
<table border="0" align="center" width="95%"><tbody><tr>

  <td class="entries" width="80%" valign="top">
    <h1>$model.weblog.name</h1>
    <p class="descrip">$model.weblog.description</p>

    #set($pager = $model.getWeblogEntriesPager())
    #showNextPrevEntriesControl($pager)
    #showWeblogEntriesPager($pager)

    #if ($model.permalink)
      #showWeblogEntryComments($entry)
      #showWeblogEntryCommentForm($entry)
    #end
  </td>
```



US 2006

An example template

```
<td class="sidebar" width="20%" valign="top">
  #showWeblogEntryCalendar($model.weblog "nil")

  <h3>Feeds</h3>
  #showAtomFeedsList($model.weblog)

  <h3>Links</h3>
  #set($rootFolder = $model.weblog.getBookmarkFolder("/"))
  #showBookmarkLinksList($rootFolder false false)

  <h3>Weblog menu</h3>
  #showPageMenu($model.weblog)
  #showAuthorMenu(true)
</td>

</tr></tbody>
</table>
</body>
</html>
```



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As an end user you can:

- Without hacking HTML or CSS:
 - Preview and switch to new theme
 - Add bookmarks to your blogroll
 - Add categories
- With some HTML, CSS and template hacking:
 - Customize your blog templates
 - Override Roller macros
 - Create your own blog themes



As a developer you can

- Use Roller web services from any language
 - Automate blogging via MetaWeblog or Atom protocol
 - Automate admin via Roller Admin Protocol
- Add new plug-ins, written in JavaTM language:
 - Page models
 - Weblog Entry plug-ins
 - Caching implementations
 - Comment authenticators



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Futures: tagging

- UI for adding tags to entries
- Macros for displaying tag cloud on weblogs
- Macros for displaying site wide tag cloud
- Tag-based dynamic feeds
- *Roller 3.1 in early November*



Futures: modular Roller

- Core Roller
 - User mgmt, rendering system, caching
- Pluggable modules
 - Blog server
 - Planet server
 - Wiki
 - Forums
 - Photo gallery
 - Aggregation engine



Futures: protected weblogs

- Use cases
 - Family blog
 - Book group blog
 - Other member-only blogs
- Protected blogs available only to:
 - Those with a login,
 - Those who are members of a weblog or
 - Specific OpenID identifies



Conclusion

- Join the fun and give Roller a try:
 - On your own server
 - On JRoller.com
 - With the Blogapps server (blogapps.dev.java.net)
- Report bugs and RFEs
- Join the mailing lists and get involved
- For more information:
 - <http://rollerweblogger.org>

