Migrating from Struts 1 to Struts 2

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Introductions

- Your experience with Java?
- Your experience with Web Frameworks?
- What do you hope to learn today?
- Open Source experience: Ant, Struts, WebWork, Spring, Hibernate, Eclipse, Tomcat?
- Favorite IDE? Favorite OS? Favorite Server?

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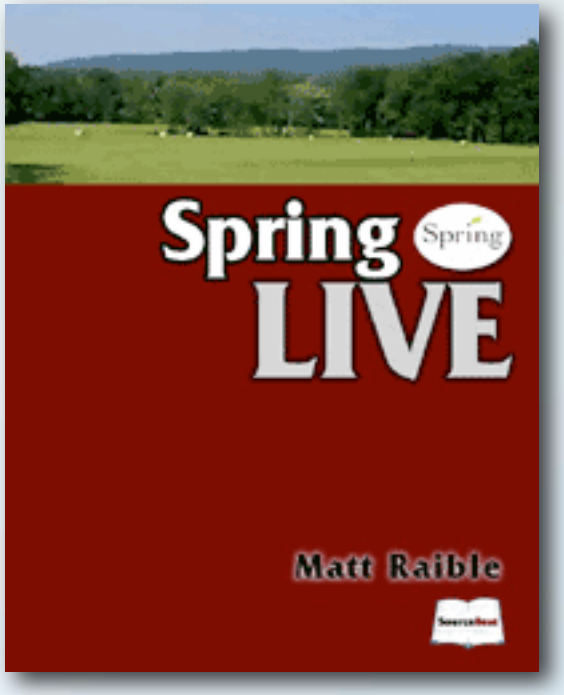
Pro JSP


Spring
Spring
LIVE
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AppFuse

Roller

the <display:*> tag library

Struts Menu

Java Community Process MEMBER

XDoclet

Attribute Oriented Programming

Web Framework Experience

- **Struts**: used since June 2001 - same time 1.0 was released.
- **Spring MVC**: used since January 2004 - before 1.0 was released.
- **WebWork**: used since July 2004.
- **Tapestry**: used since July 2004.
- **JSF**: used since July 2004 - both Sun's RI and MyFaces.

Agenda

1. Struts Overview
2. WebWork Overview
3. Reasons for Upgrading
4. Migrating from Struts 1 to Struts 2
5. Migrating from WebWork 2 to Struts 2
6. Pitfalls
7. Q and A

Struts 1.x Overview

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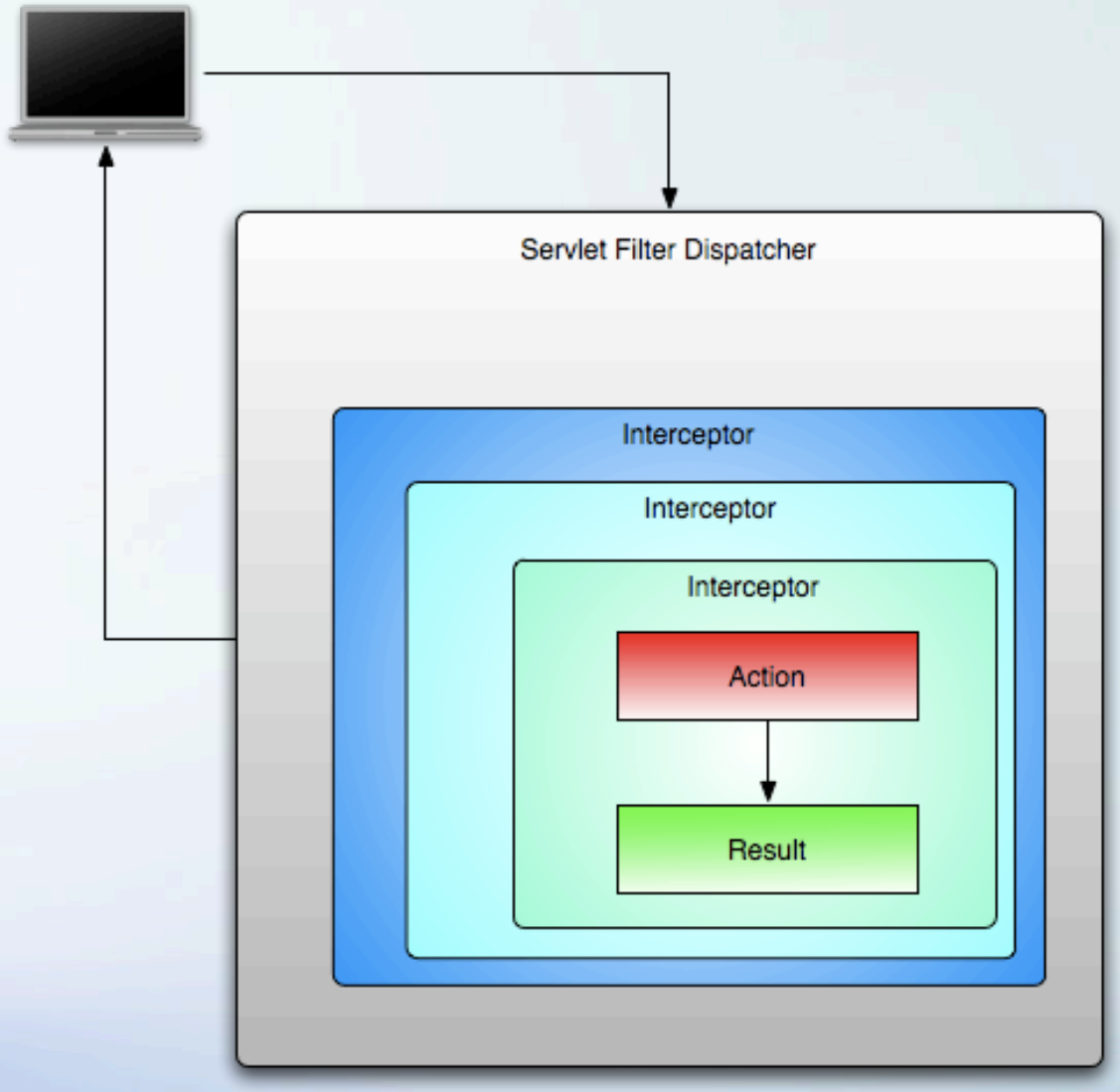
Struts 1.x

- Pros:
  - The “Standard” - lots of Struts jobs
  - Lots of information and examples
  - HTML tag library is one of the best
- Cons:
  - ActionForms - they’re a pain
  - Can’t unit test - StrutsTestCase only does integration
  - Project has been rumored as “dead”

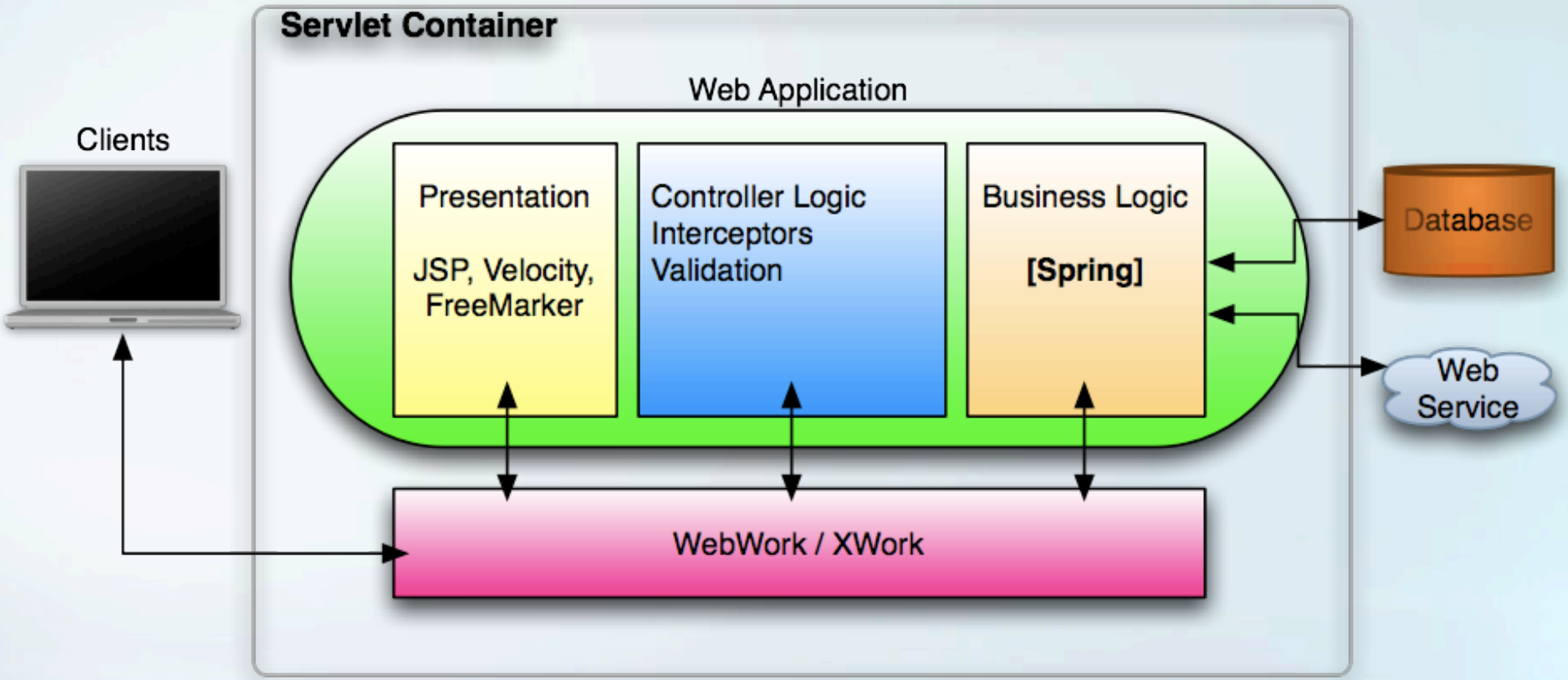
WebWork/Struts2



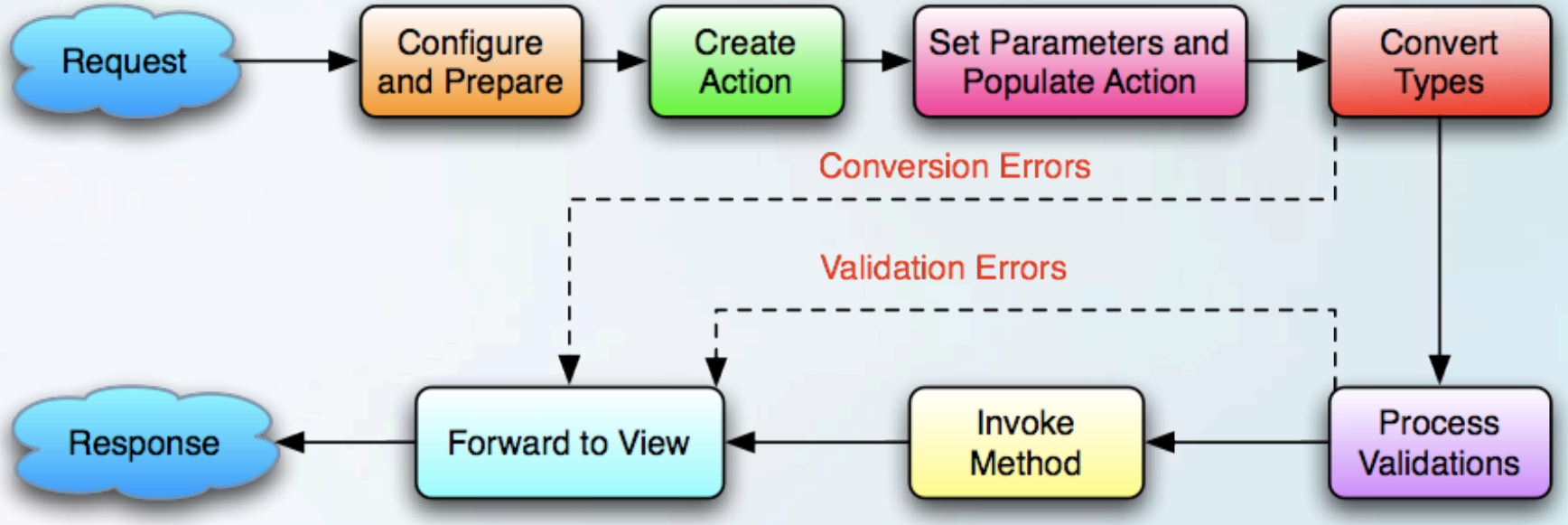
WebWork/Struts 2

- Pros:
  - Simple architecture - easy to extend
  - Tag Library is easy to customize with FreeMarker or Velocity
  - Interceptors are pretty slick
  - Controller-based or page-based navigation
- Cons:
  - Small Community
  - Documentation is poorly organized

WebWork / Struts 2



WW/S2 Lifecycle



WebWork Action

```
public class UserAction extends ActionSupport {
    private UserManager mgr;
    private User user;
    private String id;

    public void setUserManager(UserManager userManager) {
        this.mgr = userManager;
    }

    public void setId(String id) {
        this.id = id;
    }

    public User getUser() {
        return user;
    }

    public String edit() {
        // check for an add
        if (id != null) {
            user = mgr.getUser(id);
        } else {
            user = new User();
        }
        return SUCCESS;
    }
```

WebWork Interceptors

```
public class ValidationInterceptor extends AroundInterceptor {

    protected void after(ActionInvocation dispatcher, String result) throws Exception {
    }

    protected void before(ActionInvocation invocation) throws Exception {
        Action action = invocation.getAction();
        String context = invocation.getProxy().getActionName();

        final Map parameters = ActionContext.getContext().getParameters();
        // don't validate on cancel, delete or GET
        if (ServletActionContext.getRequest().getMethod().equals("GET")) {
            log.debug("Cancelling validation, detected GET request");
        } else if (parameters.containsKey("cancel") || parameters.containsKey("delete")) {
            log.debug("Cancelling validation, detected clicking cancel or delete");
        } else {
            ActionValidatorManager.validate(action, context);
        }
    }
}
```

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xwork.xml

```
<!-- List of Users -->
<action name="users" class="userAction" method="list">
    <result name="success">userList.jsp</result>
    <result name="input">userList.jsp</result>
</action>

<!-- Edit User -->
<action name="editUser" class="userAction" method="edit">
    <result name="success">userForm.jsp</result>
    <result name="input">userList.jsp</result>
</action>

<!-- Save User -->
<action name="saveUser" class="userAction">
    <result name="cancel" type="redirect">users.html</result>
    <result name="delete" type="redirect">users.html</result>
    <result name="input">userForm.jsp</result>
    <result name="success" type="chain">saveUserWithValidation</result>
</action>
```

WebWork JSP View

```
<ww:form name="userForm" action="saveUser" method="post" validate="true">
    <ww:hidden name="user.id" value="%{user.id}"/>

    <ww:textfield label="%{getText('user.firstName')}" name="user.firstName"
        value="%{user.firstName}" id="user.firstName"/>

    <ww:textfield label="%{getText('user.lastName')}" name="user.lastName"
        value="%{user.lastName}" required="true"/>

    <ww:datepicker label="%{getText('user.birthday')}" name="user.birthday"
        size="11"/>
```

WebWork DatePicker

```
<ww:form name                                   e="true">
    <ww:hidde

    <ww:textf                                   r.firstName"
        value

    <ww:textf                                   .lastName"
        value

    <ww:datep                                   r.birthday"
        size=
```

Please fill in user's information below:

First Name: Abbie

*Last Name: Raible

Birthday:

Save Cancel

February, 2006

Today

wk	Sun	Mon	Tue	Wed	Thu	Fri	Sat
4				1	2	3	4
5	5	6	7	8	9	10	11
6	12	13	14	15	16	17	18
7	19	20	21	22	23	24	25
8	26	27	28				

Select date

Page-based Navigation

```
<%@ include file="/common/taglibs.jsp"%>

<h2>Author Blogs</h2>

<ww:action name="authors" id="%{authors}" namespace="default"/>

<div class="item">
    <ww:iterator value="#authors.authors" status="index">
        <a href="<ww:property value="blog.feedUrl"/>">
            <img src="${ctxPath}/images/icons/xml.gif" alt="XML Feed"/></a>
        <a href="<ww:property value="blog.url"/>"><ww:property value="name"/></a>
        <br />
    </ww:iterator>
</div>
```

OGNL

```
<ww:form name="userForm" action="saveUser" method="post" validate="true">
    <ww:hidden name="user.id" value="%{user.id}"/>

    <ww:textfield label="%{getText('user.firstName')}" name="user.firstName"
        value="%{user.firstName}" id="user.firstName"/>

    <ww:textfield label="%{getText('user.lastName')}" name="user.lastName"
        value="%{user.lastName}" required="true"/>
</tr>
    <th><label for="user.birthday"><fmt:message key="user.birthday"/>:</label></th>
    <td>
        <ww:set name="birthday" scope="request"
            value="(user.birthday instanceof java.util.Date) ? user.birthday : ''"/>
        <input type="text" size="11" name="user.birthday" id="user.birthday"
            value="<fmt:formatDate value="${birthday}" pattern="${datePattern}"/>"/>
            [${datePattern}]
    </td>
<tr>
```

Struts 1 → Struts 2

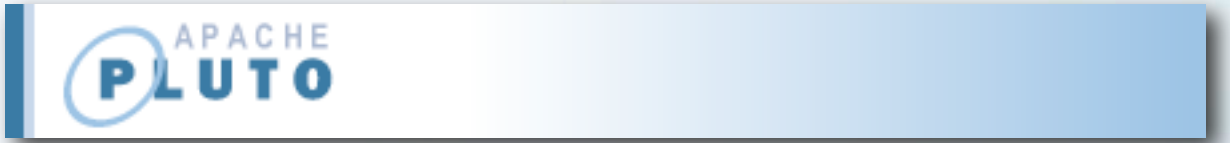
Comparison

Struts 1	Struts 2
Action	Action
ActionForm	Action or POJO
ActionForward	Result
struts-config.xml	struts.xml
ActionServlet	FilterDispatcher
RequestProcessor	Interceptors
validation.xml	*Action*-validation.xml

Features only in Struts 2

- Page-based Navigation
- Built-in Ajax Support: DWR and Dojo
- Spring as default inversion of control container
- Changed from front-controller servlet to filter
- Much better client-side validation support
- QuickStart and Annotations
- JSF Support
- Built-in support for testing with StrutsTestCase

Struts Plugins



Run Struts 1.x Actions

```
<action name="editGangster"
   class="org.apache.struts2.s1.Struts1Action">
  <param name="className">
     com.mycompany.gangstas.EditGangsterAction
  </param>
  <result>
     gangsterForm.jsp
  </result>
</action>
```

Equinox

- AppFuse Light - designed for quick apps with few requirements (i.e. prototypes)
- Includes 6 MVC implementations: JSF, Spring MVC, Struts 1, Struts 2, Tapestry and WebWork
- Includes 5 Persistence frameworks: Hibernate, iBATIS, JDO, OJB, Spring JDBC
- 50 combinations available!
- Located at **http://equinox.dev.java.net**

Sample Migration

equinox.ipr – [/Users/mraible/Work/equinox-struts] – [equinox] – .../src/main/java/org/appfuse/web/UserAction.java – IntelliJ IDE...

Project – org.appfuse.we...

View as: Packages

- equinox
  - decorators
  - images
  - org.appfuse
    - dao
    - model
    - service
    - web
      - BaseStrutsTestCase
      - MessageFilter
      - UserAction
      - UserActionTest
      - UserWebTest
  - scripts
  - styles
  - 404.jsp
  - dataAccessFailure.jsp
  - displaytag.properties
  - ehcache.xml
  - error.jsp
  - index.jsp
  - jdbc.properties
  - jdbc.properties.mysql
  - log4j.xml
  - messages.jsp
  - messages.properties

UserAction.java

```
1   package org.appfuse.web;
2
3   import ...
23
24  public class UserAction extends DispatchAction {
25      private final Log log = LogFactory.getLog(UserAction.class);
26      private UserManager mgr = null;
27
28      public void setUserManager(UserManager userManager) {
29          this.mgr = userManager;
30      }
31
32      public ActionForward delete(ActionMapping mapping, ActionForm form,
33                                  HttpServletRequest request,
34                                  HttpServletResponse response)
35              throws Exception {
36          if (log.isDebugEnabled()) {
37              log.debug("entering 'delete' method...");
38          }
39
40          DynaActionForm userForm = (DynaActionForm) form;
41          User user = (User) userForm.get("user");
42
43          mgr.removeUser(request.getParameter("user.id"));
44
45          ActionMessages messages = new ActionMessages();
46          messages.add(ActionMessages.GLOBAL_MESSAGE,
47                  new ActionMessage("user.deleted", user.getFullName()));
48
49          saveMessages(request.getSession(), messages);
50
51          return mapping.findForward("users");
52      }
53
54      public ActionForward edit(ActionMapping mapping, ActionForm form,
55                                HttpServletRequest request,
56                                HttpServletResponse response)
57              throws Exception {
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```

Struts Assistant | 1: Project | 7: Structure | IDE talk | 2: Commander | Ant Build | 6: TODO

24:14 | Insert | Default | 92M of 129M

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WebWork 2 → Struts 2

Comparison

WebWork 2	Struts 2
com.opensymphony.xwork.*	com.opensymphony.xwork2.*
com.opensymphony.webwork.*	org.apache.struts2.*
xwork.xml	struts.xml
webwork.properties	struts.properties
<ww:*/>	<s:*/>

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Sample Migration

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Pitfalls and Issues

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Learn more from...

- Don Brown's Struts 2.0 presentation/article:
  - **http://us.apachecon.com/presentations/WE9/WE9-struts-2.0.ppt**
  - **http://www.oreillynet.com/onjava/blog/2006/10/my_history_of_struts_2.html**
- InfoQ's Migrating to Struts 2 articles:
  - **http://infoq.com/articles/converting-struts-2-part1**
  - **http://infoq.com/news/struts2-migration-part2**

Questions?

- Struts Project:
  - **http://struts.apache.org**
- Community:
  - **http://struts.apache.org/mail.html**
- Tutorials:
  - **http://cwiki.apache.org/confluence/display/WW/Tutorials**
- Kickstart your development with Equinox:
  - **https://equinox.dev.java.net**

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