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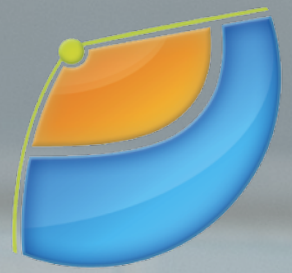
JSF 2.3 Pre-Public Review EC Update



Ed Burns
JSF Spec Co-Lead
Java EE Spec Group
January, 2017

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Safe Harbor Statement

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My Plan for Your Time Investment

1. JCP EC Template
2. JSF 2.3 is the most community driven Oracle-lead JSR
3. Schedule
3. Feature Review

JCP EC Template

Business/Marketing/Ecosystem Justification

- Why do this JSR?
  - JSF is an important part of the Java EE platform and must be updated to keep current and fix long standing issues.
- What's the need?
  - Java EE and Java SE 8 have some compelling new features, we'd like to take advantage of them in JSF.
  - We need to continue to improve the integration of the Java EE platform specs.
- How does it fit in to the Java ecosystem?
  - At a technical level, it highly leverages Servlet, CDI, Bean Validation and EL
  - At a community level, it validates the JCP as a source for Java collaboration.

Business/Marketing/Ecosystem Justification

- Is the idea ready for standardization?
  - Yes. It continues the tradition of taking existing ideas, and standardizing them.

Expert Group Members (alphabetical)

- Burns, Edward Oracle
- Caputo, Frank individual
- Civici, Cagatay individual
- Fyten, Ken ICEsoft Technologies Inc.
- Griffin, Neil Liferay, Inc
- Juneau, Josh individual
- Leathem, Brian Red Hat
- Mann, Kito Individual
- Mueller, Michael Individual
- Nicolucci, Paul IBM
- Riem, Manfred Oracle
- Scholtz, Bauke ZEEF
- Tijms, Arjan ZEEF
- Uribe, Leonardo Irian Solutions GmbH

Expert Group Operations

- We had a face-to-face at JavaOne 2016
- We've always made use of the java.net collaboration infrastructure
  - Anyone can create issues in the JIRA
  - Any EG member can top-post to the jsr372-experts mailing list
  - All mails to that list are mirrored to the "users" list:
    - users@javaserverfaces-spec-public.java.net

Deliverables

- Spec Document
  - JavaDocs
  - RenderKitDocs
  - VDLDocs (for “tags” to be used in your JSF Pages)
  - PDF document
- Reference Implementation, integrated into Java EE 8 Reference Implementation
- TCK

Publicity

- JavaOne presentations
- Community Blogs
- @jsf_spec twitter handle

Collaboration with other community groups

- Lots of cross-membership with Portlet
- Expert Group members do represent their own communities
  - PrimeFaces
  - Liferay
  - MyFaces implementation and community

Implementations

- Mojarra, Oracle Reference Implementation
- MyFaces, Apache implementation, used in WebSphere

Licenses

- Standard Oracle Spec Licenses
- RI licensed same as GlassFish

JSF: Keeping the C in JCP since 2004

JavaOne ORACLE

History of JSF Community Involvement

Some Highlights

- JSF was the first part of Java to be open sourced
  - https://community.oracle.com/blogs/edburns/2004/06
- JSF has a community created logo
  - https://java.net/jira/browse/JAVASERVERFACES_SPEC_PUBLIC-980

- JSF 1.0 had hugely significant contributions from many vendors
  - IBM: Portlet integration JSR-168
  - Oracle: UIComponent Model
  - BEA: Managed Bean model
  - Sun: Spec leadership and many fundamental aspects

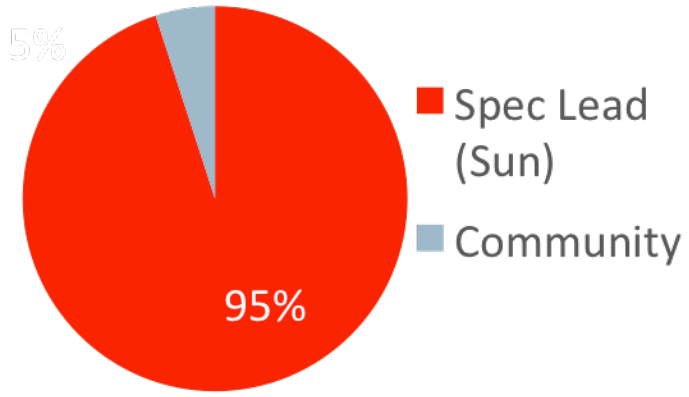
History of JSF Community Involvement

Some Highlights

- JSF 2.0
  - Facelets, mainly contributed by Jacob Hookom
  - Ajax, collaboratively developed, but heavily influenced by IceFaces and Ajax4JSF
- JSF 2.2
  - Resource Library Contracts from Frank Caputo
  - HTML5 Friendly Markup from Imre Osswald

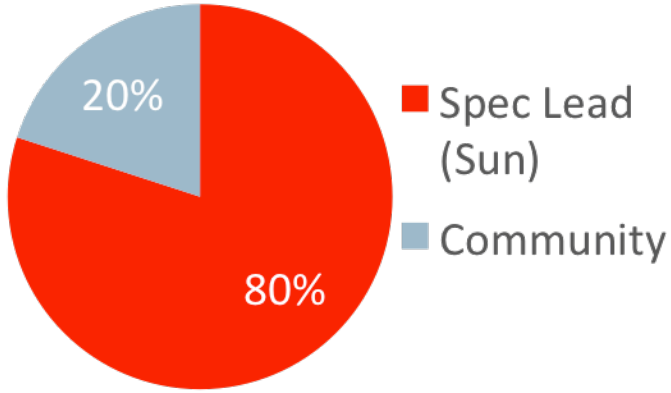
JSF Historical Perspective

2004



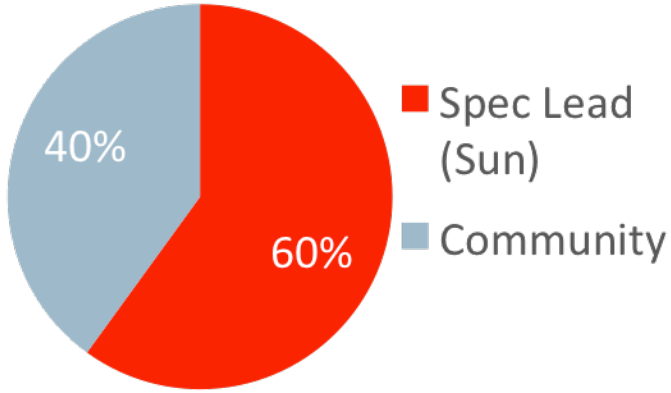
JSF Historical Perspective

2008



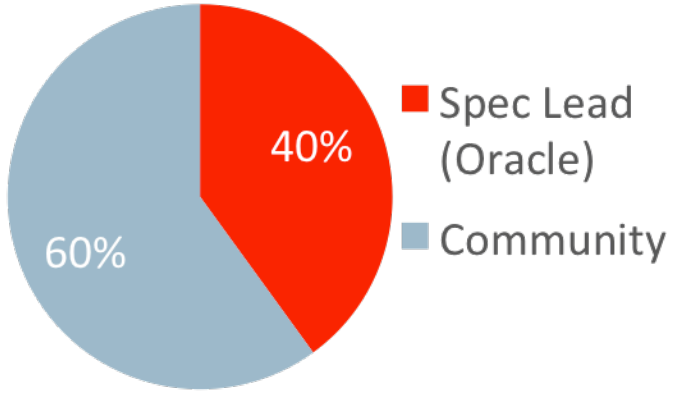
JSF Historical Perspective

2009



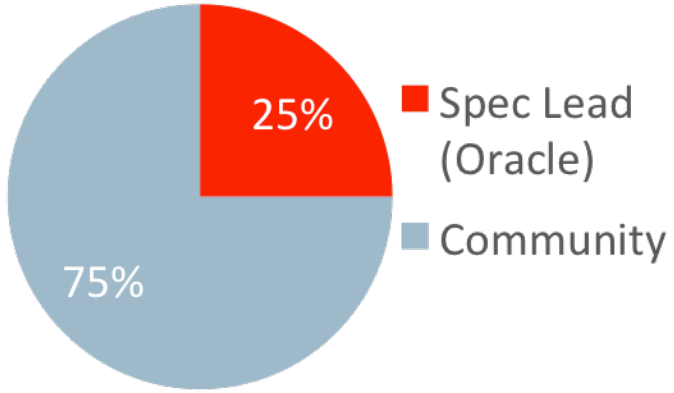
JSF Historical Perspective

2010



JSF Historical Perspective

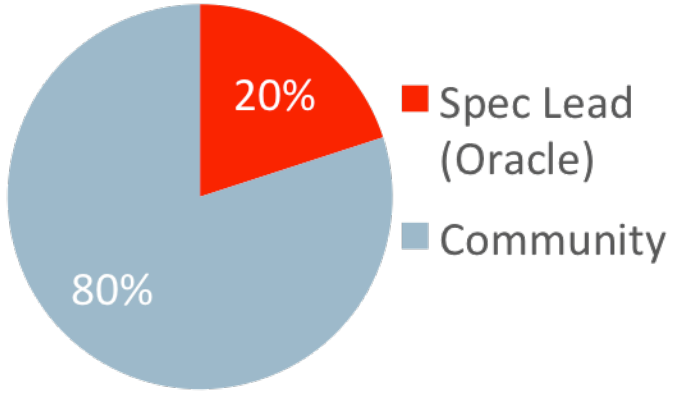
2013



JSF Historical Perspective

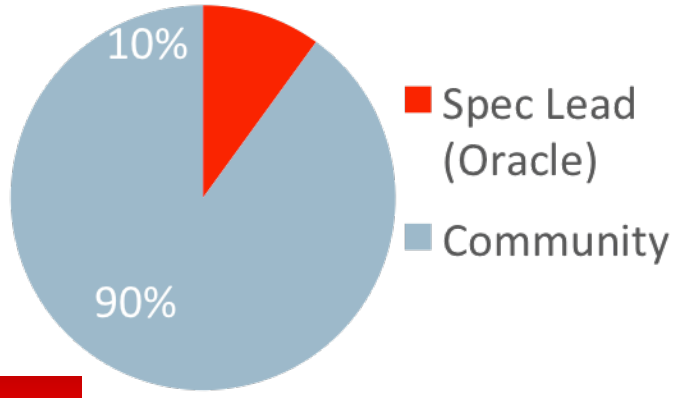
http://bit.ly/JsfFtw2015
Poll: JSF and Spring MVC tie

2014



JSF Historical Perspective

2016



JSF 2.3 and the Community

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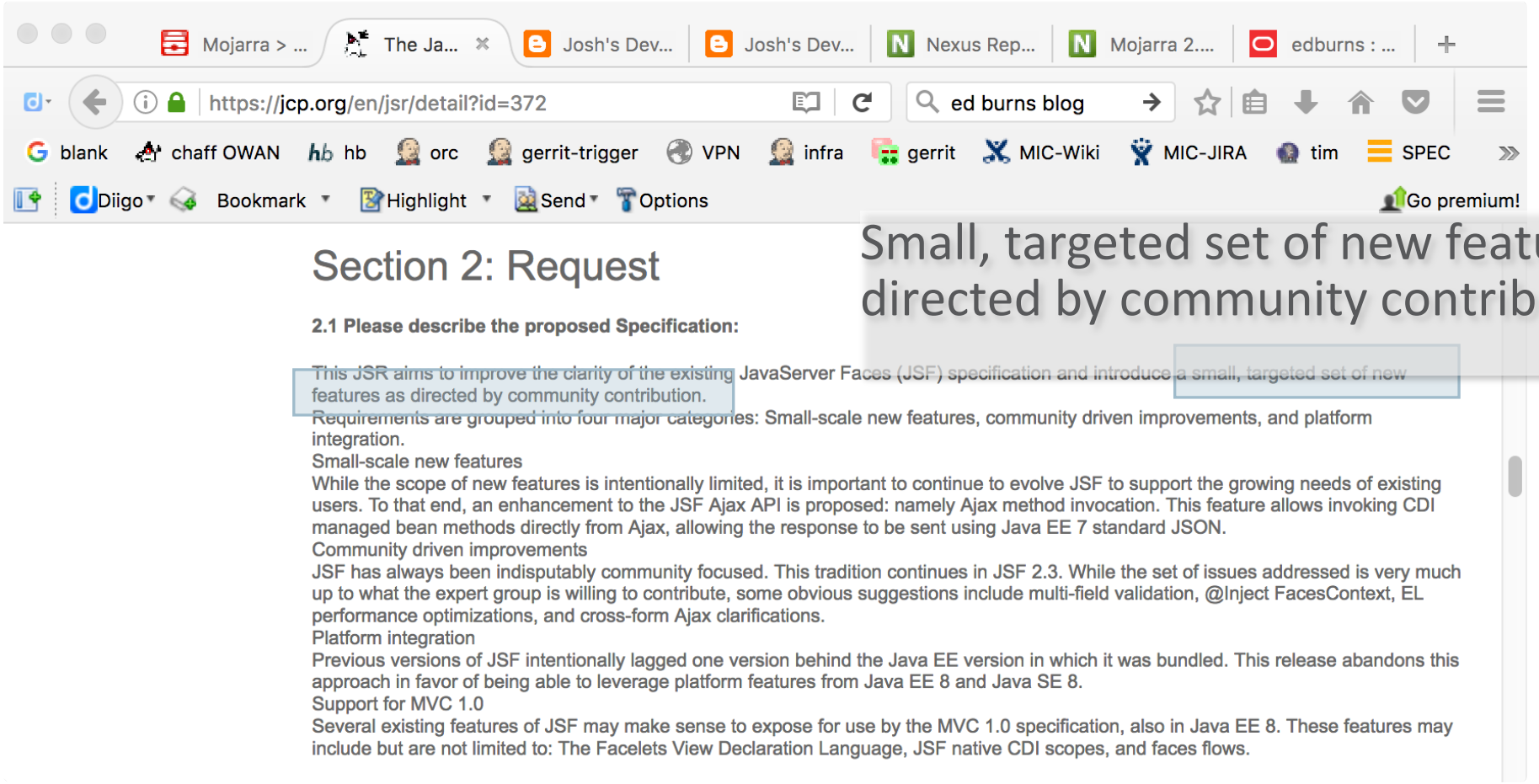
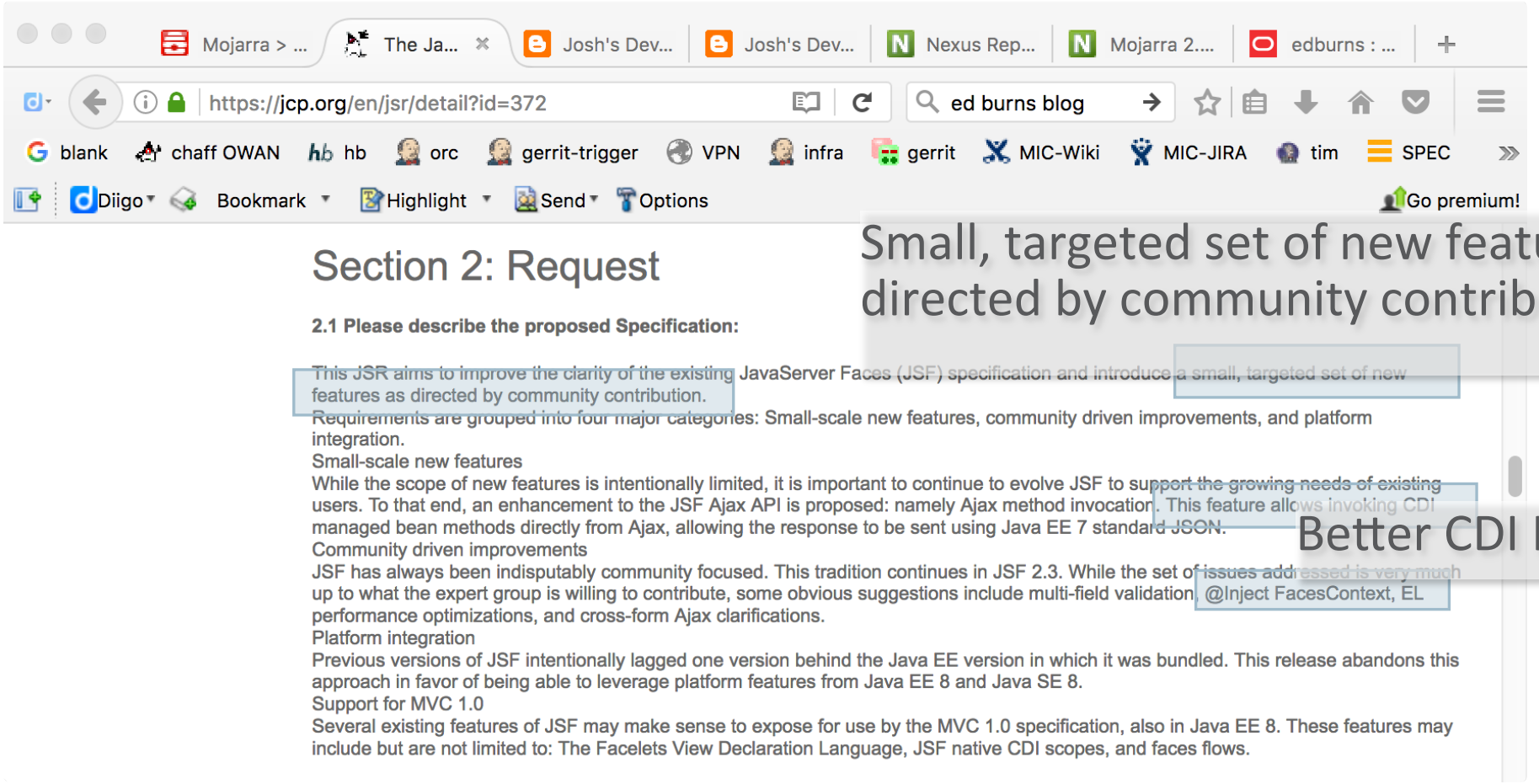
JSF 2.3 JSR-372

JSF 2.3 JSR-372



Small, targeted set of new features directed by community contribution

JSF 2.3 JSR-372



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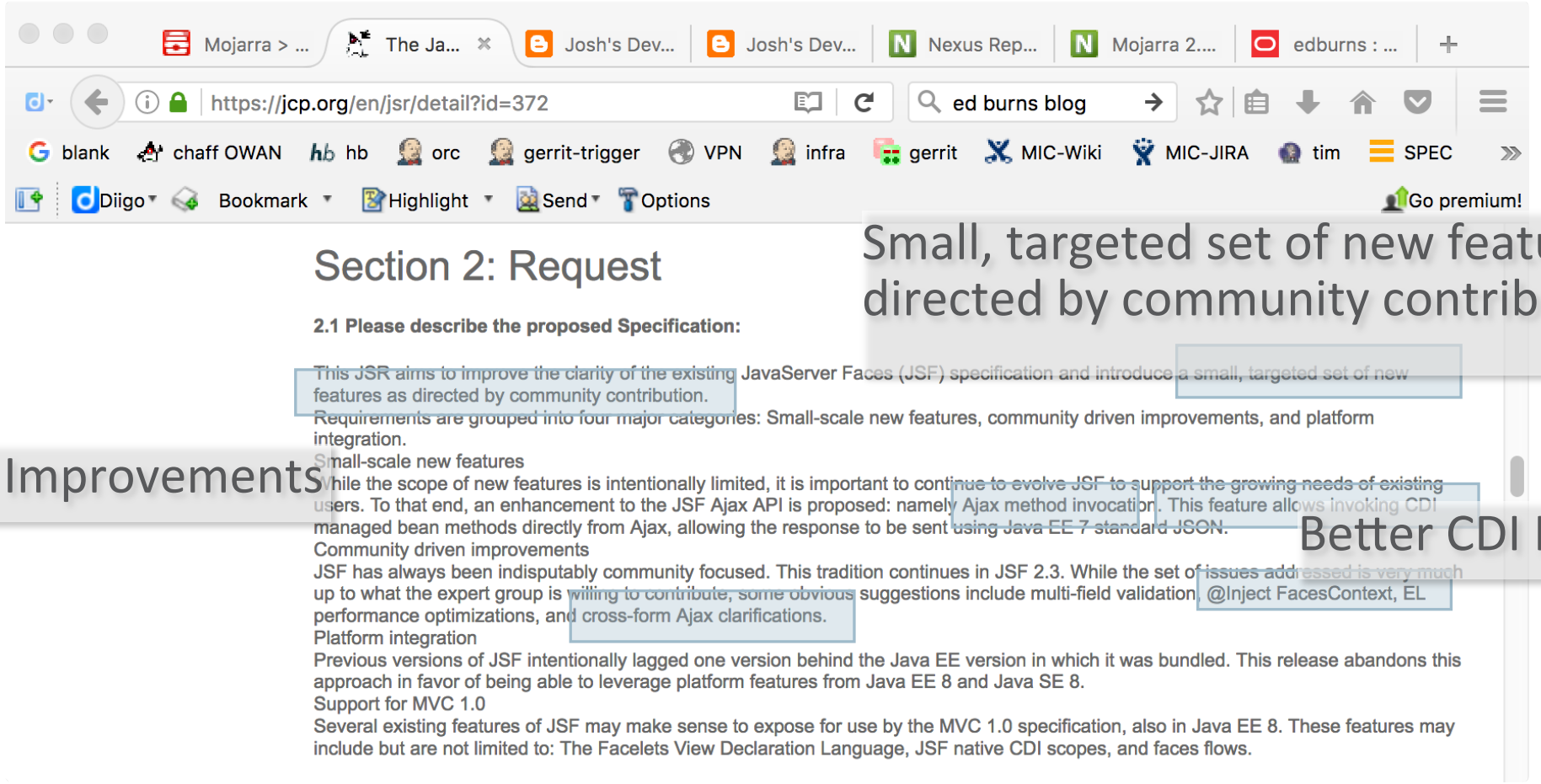
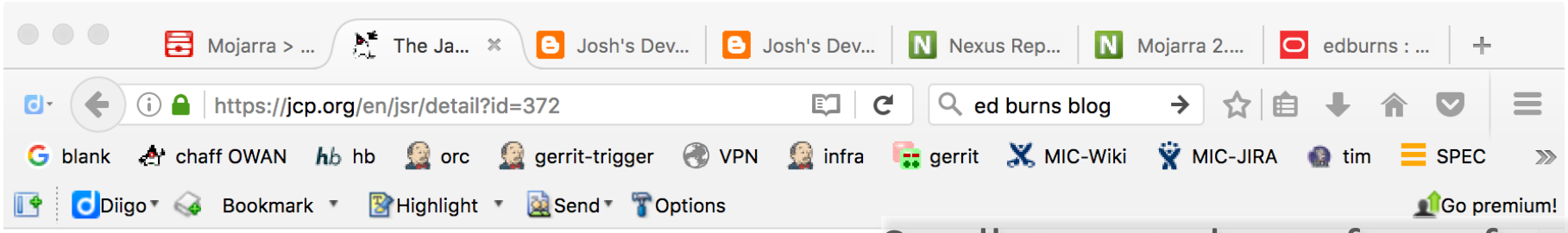


Small, targeted set of new features directed by community contribution

Ajax Improvements

Better CDI Integration

JSF 2.3 JSR-372



Section 2: Request

2.1 Please describe the proposed Specification:

This JSR aims to improve the clarity of the existing JavaServer Faces (JSF) specification and introduce a small, targeted set of new features as directed by community contribution.
Requirements are grouped into four major categories: Small-scale new features, community driven improvements, and platform integration.
Small-scale new features
While the scope of new features is intentionally limited, it is important to continue to evolve JSF to support the growing needs of existing users. To that end, an enhancement to the JSF Ajax API is proposed: namely Ajax method invocation. This feature allows invoking CDI managed bean methods directly from Ajax, allowing the response to be sent using Java EE 7 standard JSON.
Community driven improvements
JSF has always been indisputably community focused. This tradition continues in JSF 2.3. While the set of issues addressed is very much up to what the expert group is willing to contribute, some obvious suggestions include multi-field validation, @Inject FacesContext, EL performance optimizations, and cross-form Ajax clarifications.
Platform integration
Previous versions of JSF intentionally lagged one version behind the Java EE version in which it was bundled. This release abandons this approach in favor of being able to leverage platform features from Java EE 8 and Java SE 8.
Support for MVC 1.0
Several existing features of JSF may make sense to expose for use by the MVC 1.0 specification, also in Java EE 8. These features may include but are not limited to: The Facelets View Declaration Language, JSF native CDI scopes, and faces flows.

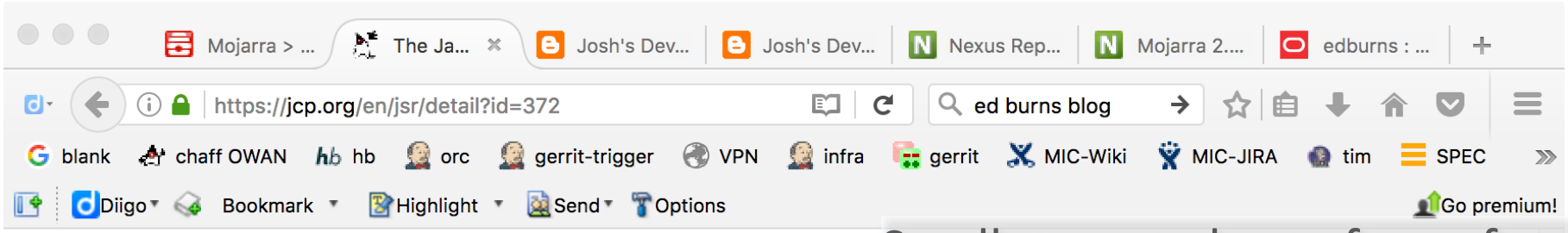
Small, targeted set of new features directed by community contribution

Ajax Improvements

Better CDI Integration

Direct Dependence on EE 8

JSF 2.3 JSR-372



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Small, targeted set of new features directed by community contribution

Ajax Improvements

Better CDI Integration

Support for MVC 1.0

Direct Dependence on EE 8

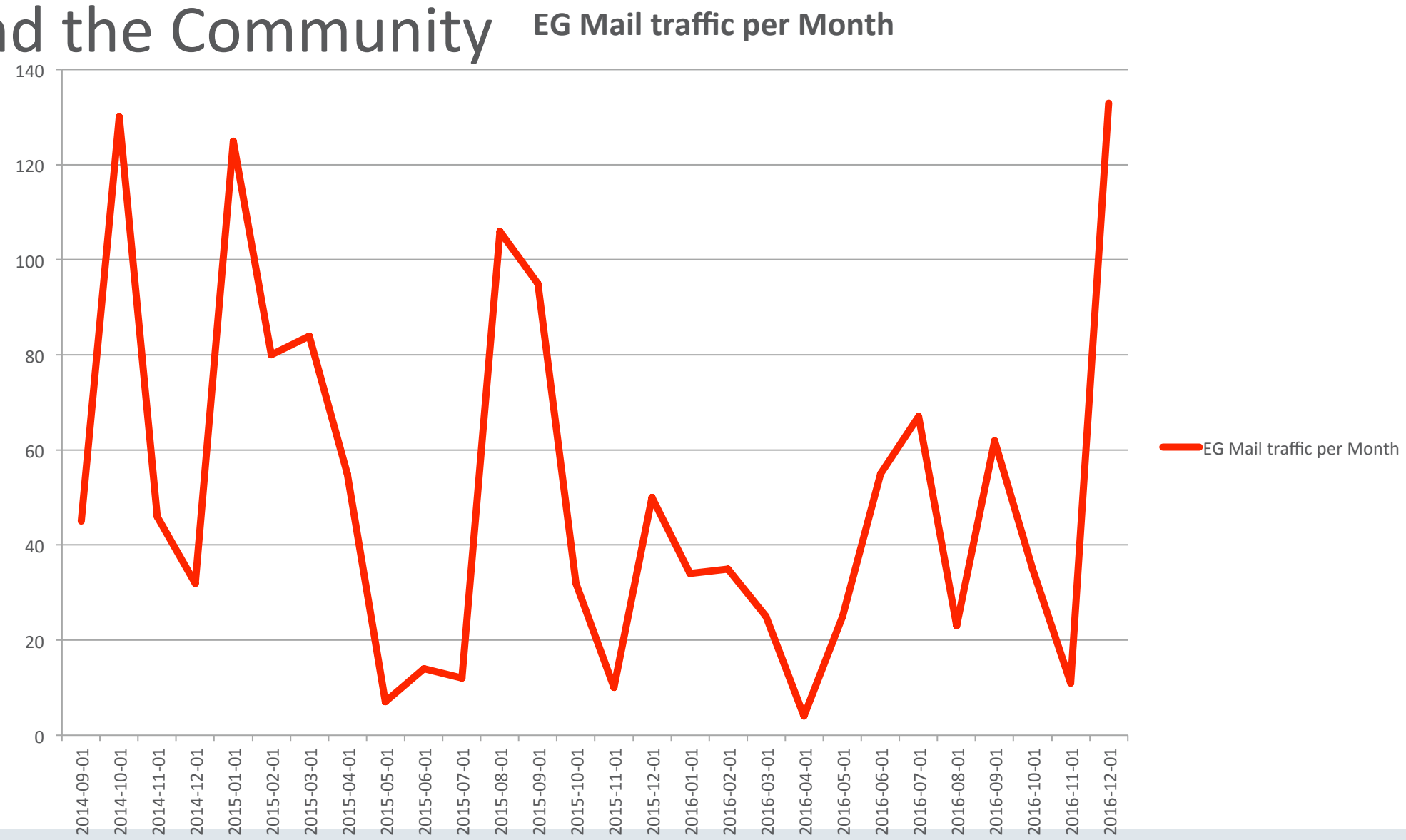
JSF 2.3 and the Community

Activism

JSF 2.3 and the Community

- JSF EG Member Josh Juneau's famous blog post
  - http://jj-blogger.blogspot.com/2016/04/java-ee-8-what-is-current-status-case.html
  - Used publically available information, thanks to our adherence to JCP transparency rules, to highlight the activity level of JSF over time
  - Made the case that the level was insufficient

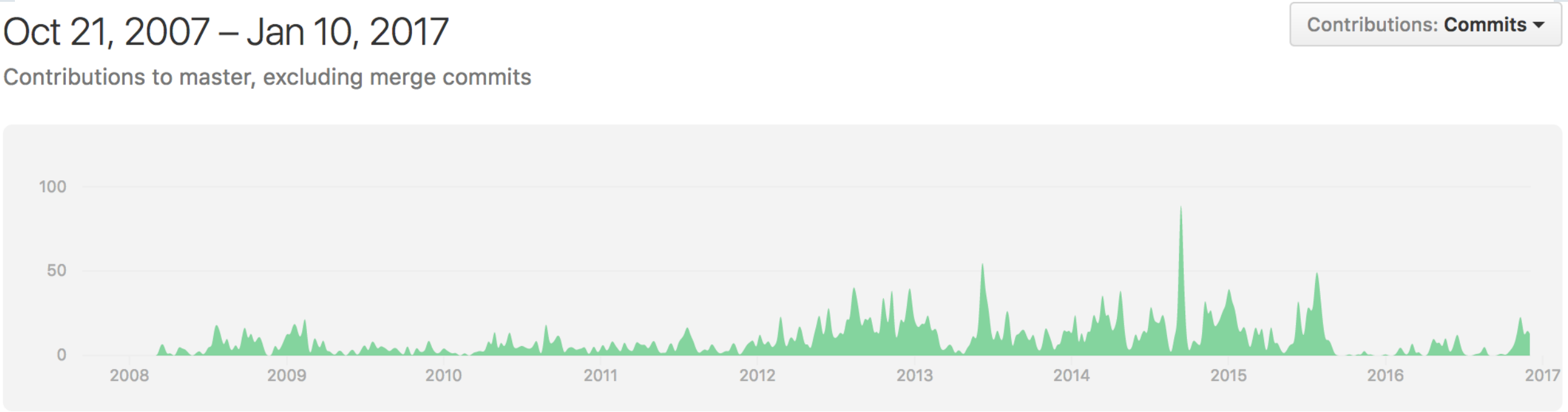
JSF 2.3 and the Community



JSF 2.3 and the Community

GitHub Commits

- Though currently Mojarra GitHub is a mirror of Mojarra on java.net git



JSF 2.3 Completion Schedule

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JSF 2.3 Completion Schedule

- Shared with JSF EG on 2016-12-09
  - 2017-01-12 All JSF 2.3 related EG spec content delivered to list
  - 2017-01-20 30 Day Public Review commences
  - 2017-01-27 Any remaining EG-driven implementation work done
  - 2017-03-14 Final Approval Ballot commences

JSF 2.3 Completion Schedule

- Additional Details for EC
  - 2017-01-12 All JSF 2.3 related EG spec content delivered to list
  - 2017-01-20 30 Day Public Review commences
  - 2017-01-27 Any remaining EG-driven implementation work done
    - 2017-02-21 14 Day Public Draft Approval Ballot commences
    - 2017-03-06 14 Day Public Draft Approval Ballot completes
    - 2017-03-07 7 Day Proposed Final Draft of spec to JCP PMO
      - Also submit final RI and TCK for Final Approval Ballot
  - 2017-03-14 Final Approval Ballot commences
    - 2017-03-27 Final Approval Ballot completes
    - 2017-03-28 Disband JSF EG

Feature Review

JSF 2.3 Big Ticket New Features, done by the JSF EG

http://arjan-tijms.omnifaces.org/p/jsf-23.html

- Better CDI Integration
  - Way more things are injectable
  - Finally marking legacy managed beans as deprecated
- Websocket Integration
- Ajax Method Invocation
- Class Level Bean Validation
- Java Time support
- UIData and UIRepeat improvements

JSF 2.3 Big Ticket New Features

http://arjan-tijms.omnifaces.org/p/jsf-23.html

Artefact	EL name	Qualifier	Type
Application	#{application}	-	java.lang.Object (javax.servlet.ServletContext)
ApplicationMap	#{applicationScope}	@ApplicationMap	java.util.Map<String, Object>
CompositeComponent	#{cc}	*(Not injectable)*	javax.faces.component.UIComponent
Component	#{component}	*(Not injectable)*	javax.faces.component.UIComponent
RequestCookieMap	#{cookie}	@RequestCookieMap	java.util.Map<String, Object>
FacesContext	#{facesContext}	-	javax.faces.context.FacesContext
Flash	#{flash}	-	javax.faces.context.Flash
FlowMap	#{flowScope}	@FlowMap	java.util.Map<Object, Object>
HeaderMap	#{header}	@HeaderMap	java.util.Map<String, String>
HeaderValuesMap	#{headerValues}	@HeaderValuesMap	java.util.Map<String, String[]>
InitParameterMap	#{initParam}	@InitParameterMap	java.util.Map<String, String>
RequestParameterMap	#{param}	@RequestParameterMap	java.util.Map<String, String>

JSF 2.3 Big Ticket New Features

http://arjan-tijms.omnifaces.org/p/jsf-23.html

Artefact	EL name	Qualifier	Type
Request	#{request}	*(Not injectable)*	java.lang.Object (javax.servlet.http.HttpServletRequest)
RequestMap	#{requestScope}	@RequestMap	java.util.Map<String, Object>
ResourceHandler	#{"resource"}	-	javax.faces.application.ResourceHandler
Session	#{session}	*(Not injectable)*	java.lang.Object (javax.servlet.http.HttpSession)
SessionMap	#{sessionScope}	@SessionMap	java.util.Map<String, Object>
View	#{view}	-	javax.faces.component.UIViewRoot
ViewMap	#{viewScope}	@ViewMap	java.util.Map<String, Object>
ExternalContext	#{externalContext} (new)	-	javax.faces.context.ExternalContext

JSF 2.3 Big Ticket New Features

WebSocket Integration

```
<!DOCTYPE html>

<html lang="en" xmlns="http://www.w3.org/1999/xhtml" xmlns:f="http://xmlns.jcp.org/jsf/core"
      xmlns:h="http://xmlns.jcp.org/jsf/html">
  <h:body>
    <h:form id="form">
    <h:commandButton id="button" value="push" action="#{pushBean.send}">
      <f:ajax />
    </h:commandButton>
  </h:form>

  <f:websocket channel="push" onmessage="function(message
              {document.getElementById('form:button').value=message;}" />
  <div id="user" />
  <f:websocket channel="user" user="user" onmessage="function(message)
              {document.getElementById('user').innerHTML=message;}" />
  <div id="view" />
  <f:websocket channel="view" scope="view" onmessage="function(message)
{document.getElementById('view').innerHTML=message;}" /
</h:body></html>
```

JSF 2.3 Big Ticket New Features

WebSocket Integration

```
@Model
public class PushBean {
  @Inject @Push
  private PushContext push;
  @Inject @Push
  private PushContext user;

  @Inject @Push
  private PushContext view;

  public void send(){
     push.send("pushed!");
     user.send("pushed!", "user");
     view.send("pushed!");
  }
}
```

```
import javax.websocket.Endpoint;
import javax.websocket.EndpointConfig;
import javax.websocket.Session;
public class FakeEndpoint extends Endpoint {
@Override
  public void onOpen(Session session, EndpointConfig
config) {// https://java.net/jira/browse/
WEBSOCKET_SPEC-240
  }
}
```

JSF 2.3 Big Ticket New Features

Ajax Method Invocation

```
<!DOCTYPE html>
<html lang="en" xmlns="http://www.w3.org/1999/xhtml" xmlns:f="http://xmlns.jcp.org/jsf/core"
      xmlns:h="http://xmlns.jcp.org/jsf/html">
    <h:body>

        <h:form>

            <h:commandScript name="foo" autorun="true" action="#{spec613.setResult('foo')}"
render=":result" />

            <h:commandScript name="bar" action="#{spec613.setResult('bar')}" render=":result" />

        </h:form>

        <h:outputText id="result" value="#{spec613.result}" />

    </h:body>

</html>
```

JSF 2.3 Big Ticket New Features

GetEvalScripts

```
@Named
@RequestScoped
public class SomeBean {
    @Inject
   private FacesContext context;

   public void eval() {
      context.getPartialViewContext()
            .getEvalScripts()
            .add("alert('After response')");
   }
}
```

JSF 2.3 Big Ticket New Features

Class Level Bean Validation

```
<h:form prependId="false" id="form">
  <h:panelGrid columns="2">
    <h:outputText value="Password" />
    <h:inputSecret id="password1" value="#{backingBean.password1}"/>
    <h:outputText value="Password again" />
    <h:inputSecret id="password2" value="#{backingBean.password2}"/>
    <h:commandButton id="submit" value="Submit"/>
  </h:panelGrid>
  <h:messages id="err"/>
  <f:validateWholeBean value="#{backingBean}" copierType="SerializationCopier"

validationGroups="com.sun.faces.test.javaee8.validateWholeBean.PasswordValidati
onGroup" />
</h:form>
```

JSF 2.3 Big Ticket New Features

Class Level Bean Validation

```
@Named
@RequestScoped
@Password(groups = PasswordValidationGroup.class)
public class BackingBean implements Serializable {
  private String password1;
  private String password2;

  // ... }}


@Constraint(validatedBy = {PasswordValidator.class})
@Documented
@Target(TYPE)
@Retention(RUNTIME)
public @interface Password {
  String message() default "Password fields must match";
  Class<?>[] groups() default {};
  Class<? extends Payload>[] payload() default {};

}
```

JSF 2.3 Big Ticket New Features

Class Level Bean Validation

```
public class PasswordValidator implements ConstraintValidator<Password,
BackingBean> {


  @Override
  public void initialize(Password constraintAnnotation) {}
  @Override
  public boolean isValid(BackingBean value, ConstraintValidatorContext context)
{
    boolean result;
    result = value.getPassword1().equals(value.getPassword2());
    return result;
  }

}
```

JSF 2.3 Big Ticket New Features

Java DateTime Support

```
        <f:convertDateTime type="localDateTime"/>
    </h:inputText>

    <h:outputText id="localDateTimeValue2" value="#{backingBean.localDateTime2}" >
        <f:convertDateTime type="localDateTime" timeStyle="short"/>
    </h:outputText>

    <h:outputText value="localTime1" />

    <h:inputText id="localTime1" value="#{backingBean.localTime1}">
        <f:convertDateTime type="localTime" />
    </h:inputText>

    <h:outputText id="localTimeValue1" value="#{backingBean.localTime1}">
        <f:convertDateTime type="localTime" />
    </h:outputText>

    <h:outputText value="localTime2" />
```

JSF 2.3 Big Ticket New Features

UIData and UIRepeat Improvements

- Supports Iterable