

What is JSF?

Roosendaal - 22/09/2005

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JavaServer Faces (JSF)

- **Web frameworks**
- **JSF terminology**
- **JSF life cycle**
- **Web development with JSF**
- **Q & A**

What is JSF?

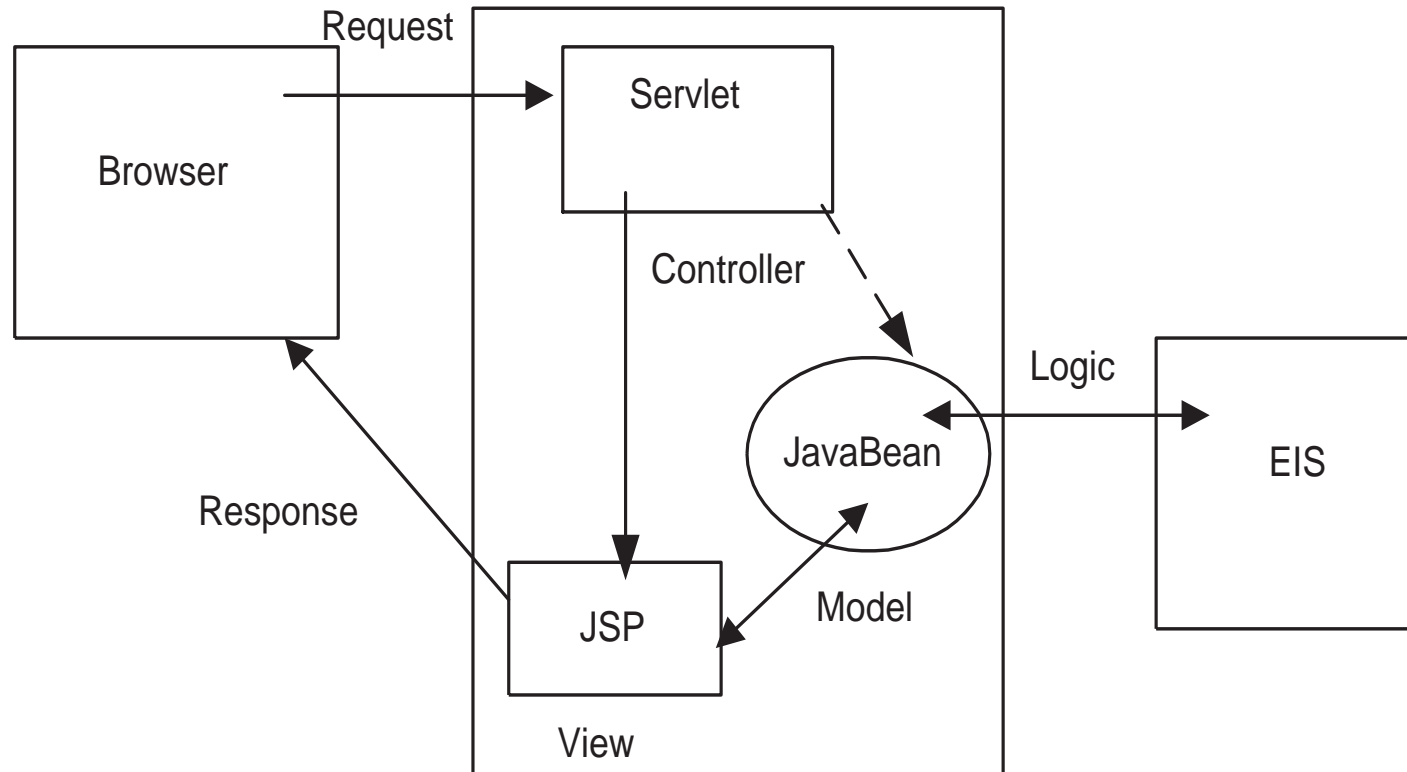
Web frameworks

**Strong requirements needed for e-business applications:
scalability, availability, security, flexibility, ...**

No chances taken -> use reliable, well supported framework

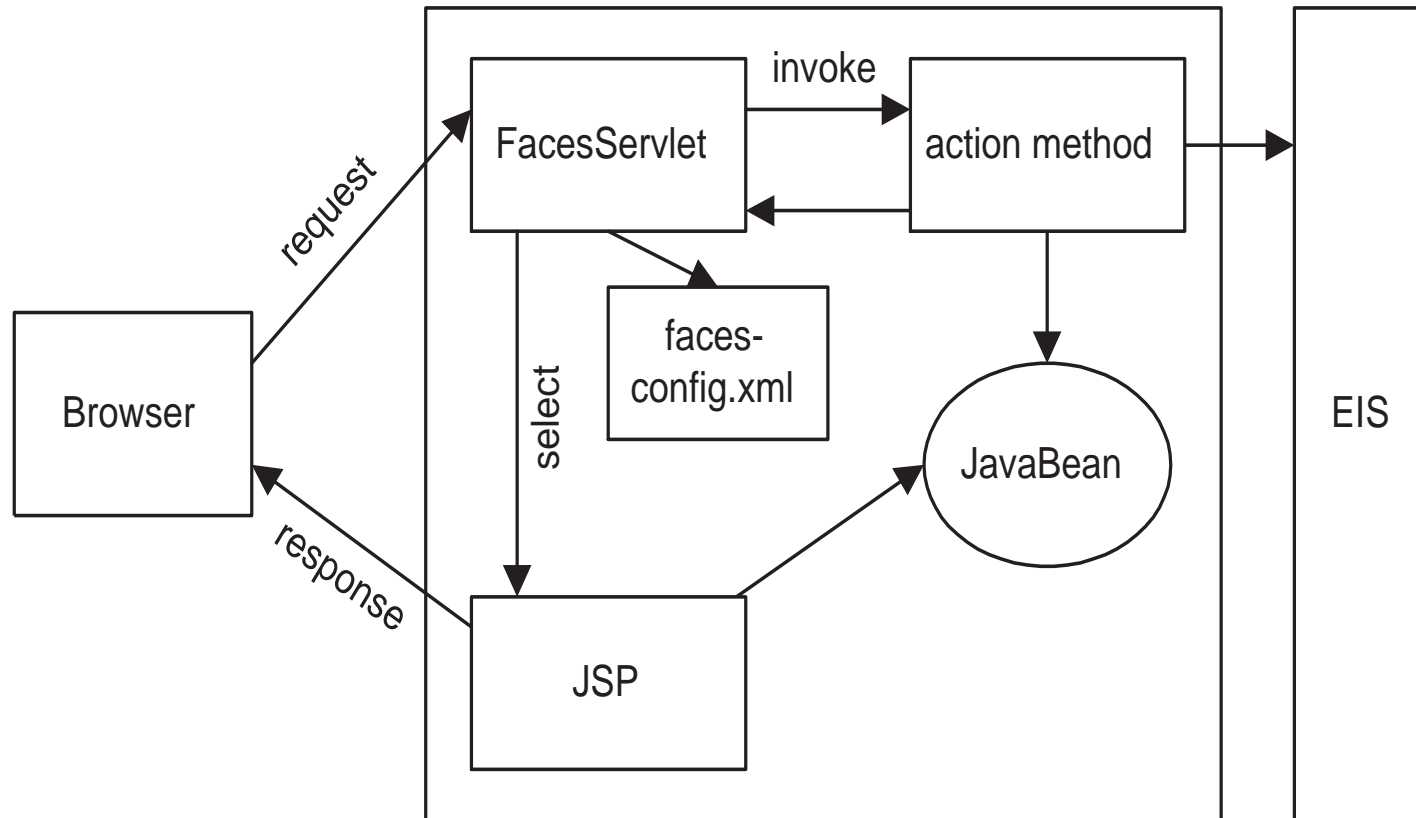
- **separation of concerns**
- **layering**
- **container/component**
- **extensible**
- **active community/active development**
- **standards based**

Model View Controller framework



- **Controller servlet regulates navigation**
- **JavaBean provides/accesses business logic**
- **JavaServer Page (JSP) creates presentation/view**

JSF goes beyond MVC (model 2)

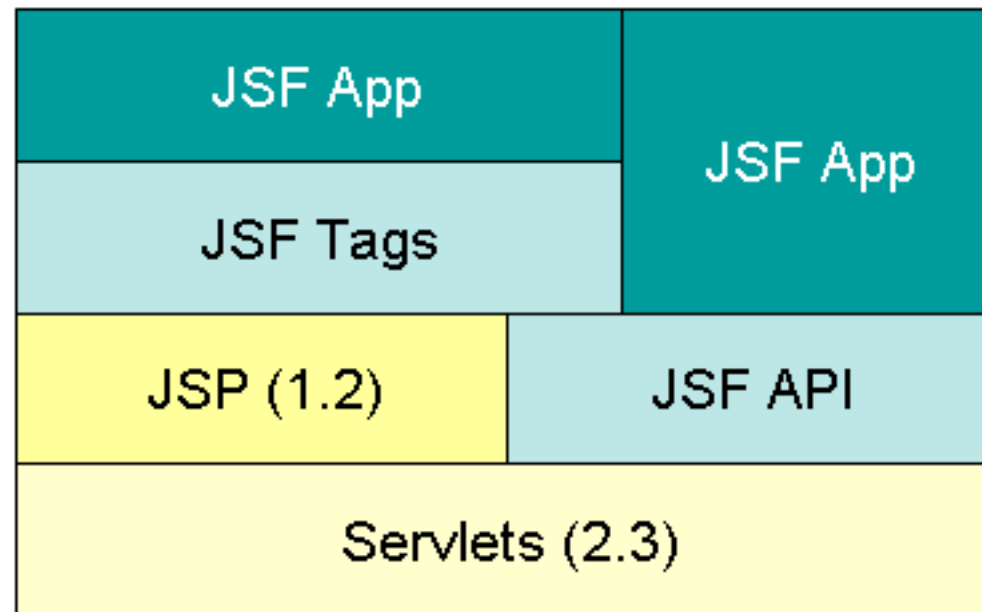


- **mainly view framework**
- **obtain configuration from external source (i.e. XML file)**
- **use Request Handlers as Commands to delegate control**

What is JSF?

JSF architecture

(JSF 1.0)



API's

- JSF (`javax.faces.*`)
- JSTL
- Apache Commons

JSF framework

Important characteristics:

- **stateful UI component model**
 - **separation of presentation (rendering),**
mark-up generation (HTML, WML, XML, ...)
 - **and business logic -> integration with model objects (JavaBeans)**
- **processing of client-side events (at server side)**
- **extensible type conversion system**
- **form handling and validation**

Advantages of JSF

- **official Java standard JSF 1.0 - JSR 127**
JSR 252: JavaServer Faces 1.2 - Proposed Final Draft (22/8/2005)
- **easier to create multi-channel architectures**
 - **not restricted to JSP (HTML)**
- **event handling (server side)**
- **Swing-like GUI creation possible**
- **Internationalisation**

<http://java.sun.com/j2ee/javaserverfaces/>

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JSF terminology

Faces servlet

- controller servlet, part of the JSF framework

Faces configuration (`faces-config.xml`)

- configuration of web application under control of JSF
- (page) navigation rules
- **managed beans** (bean under control of JSF framework)

Faces JavaServer Pages

- special tag libraries (core, html, ...)
- faces expression language

JSF terminology (cont.)

Faces (UI) components

- standard set of graphical widgets and controls (stateful)
- based on JavaBeans
- associated with renderer
- organised in tree structure (per JSP)

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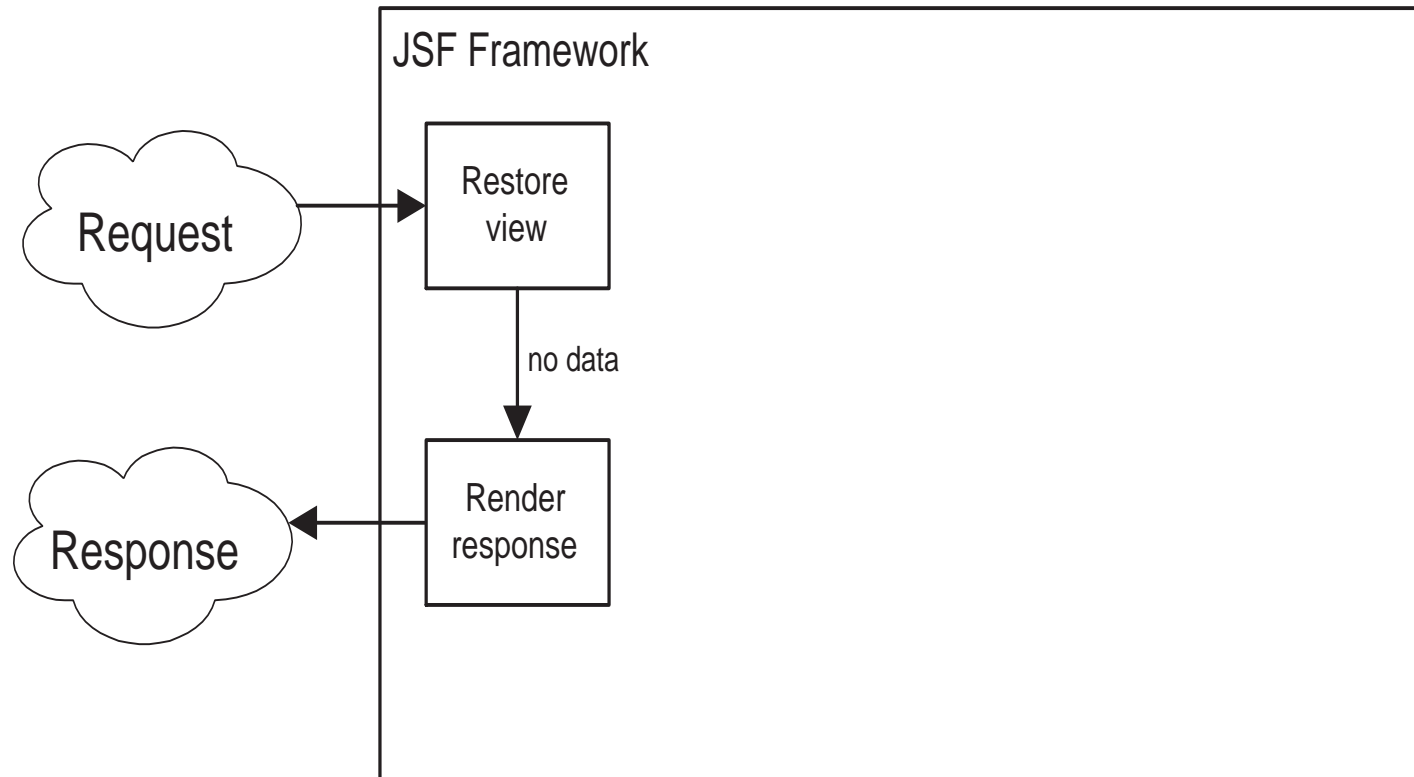
JSF life cycle

There are 6 phases in the JSF life cycle:

- Reconstitute request tree (restore view)
- Apply request values
- Process validations
- Update model values
- Invoke application
- Render response

JSF life cycle (part 1)

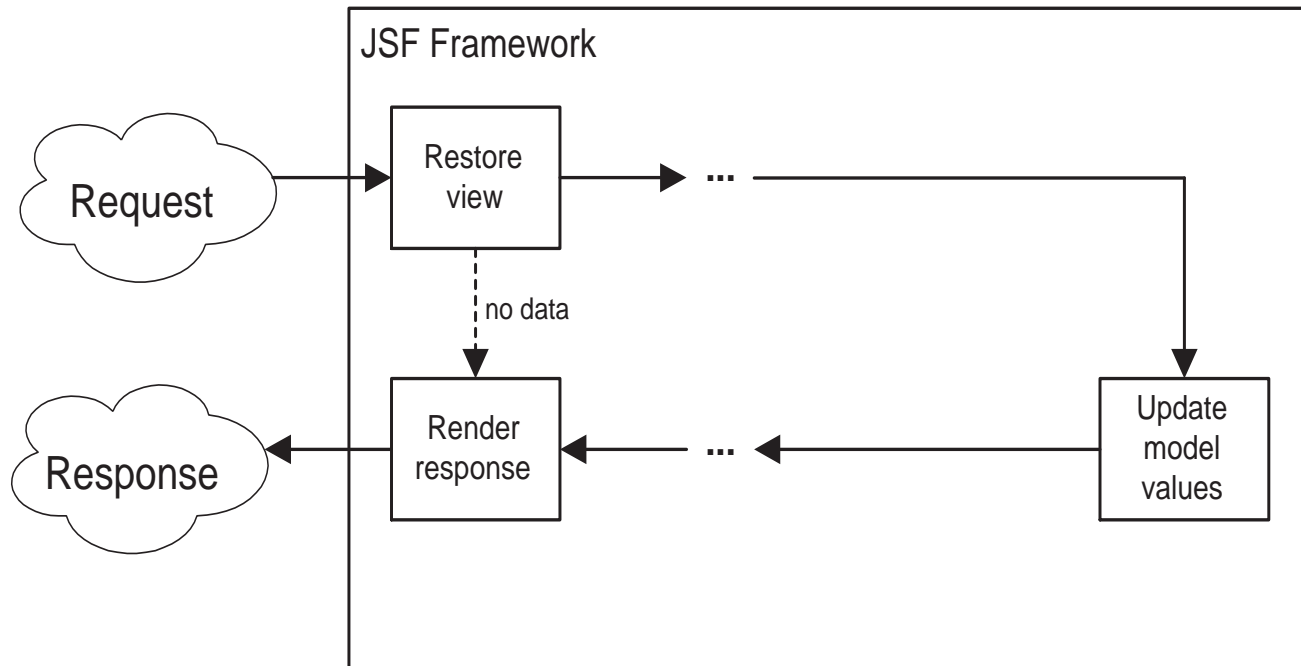
No application data passed



What is JSF?

JSF life cycle (part 2)

Use of (HTML) form data

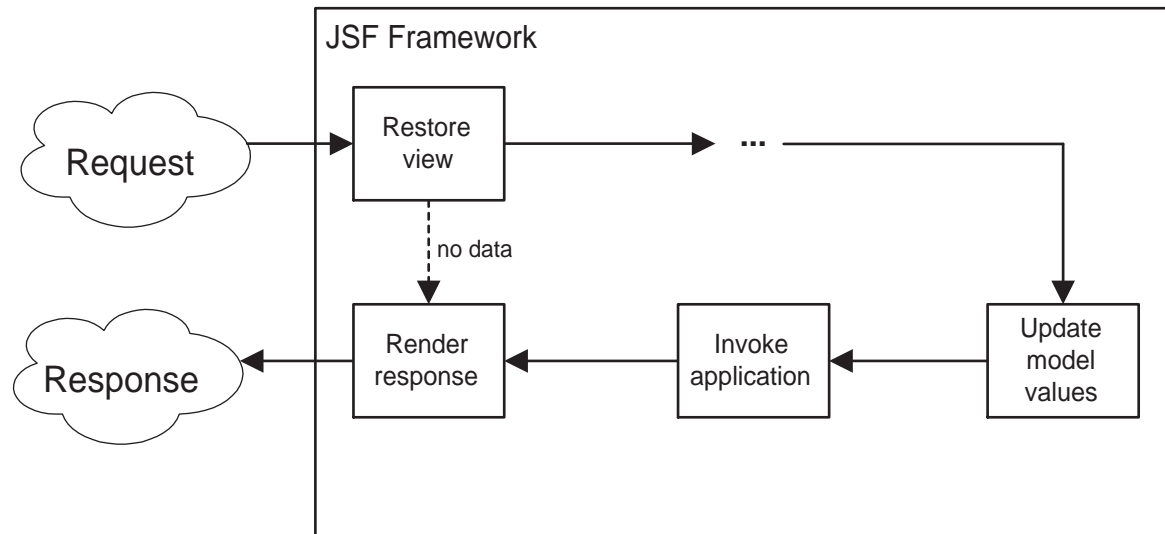


UI components organised in hierarchical tree per JSP

bind input fields to business data in backing bean (managed bean)

JSF life cycle (part 3)

Navigation between pages (static vs. dynamic)



rules in configuration file (faces-config.xml)

<navigation-rule>

<from-view-id>/index.jsp</from-view-id>

<navigation-case>

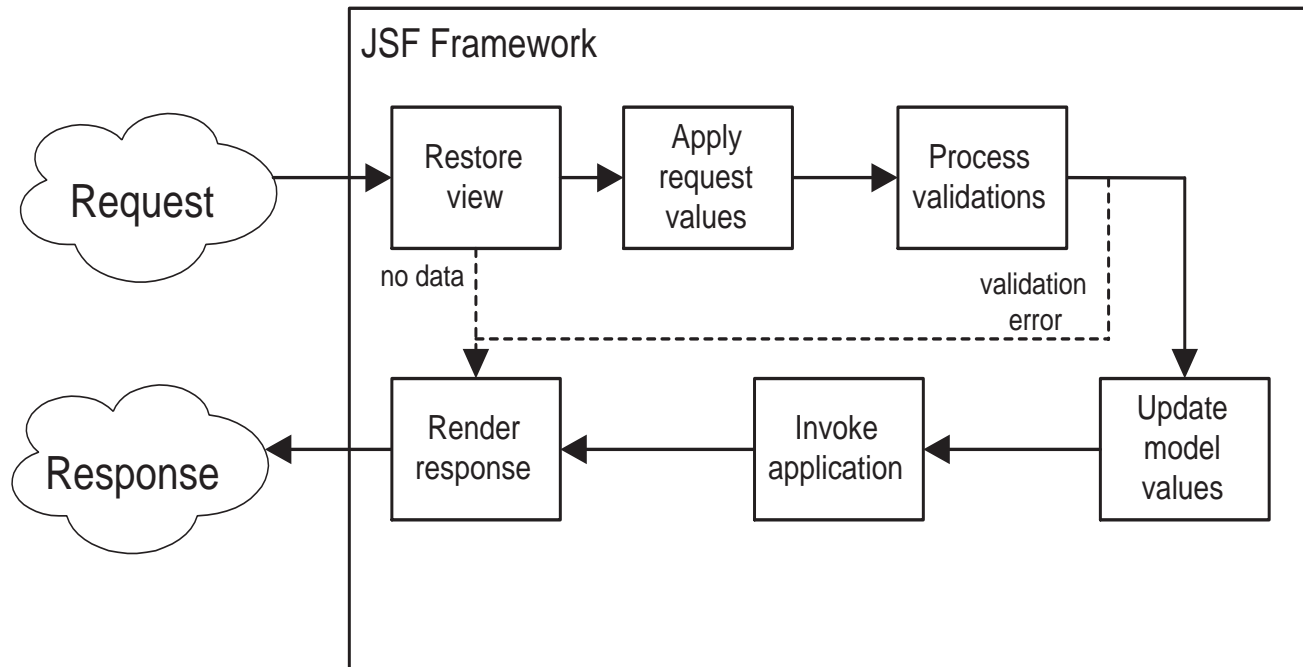
<from-outcome>success</from-outcome>

<to-view-id>/welcome.jsp</to-view-id>

</navigation-case>

JSF life cycle (part 4)

Validation

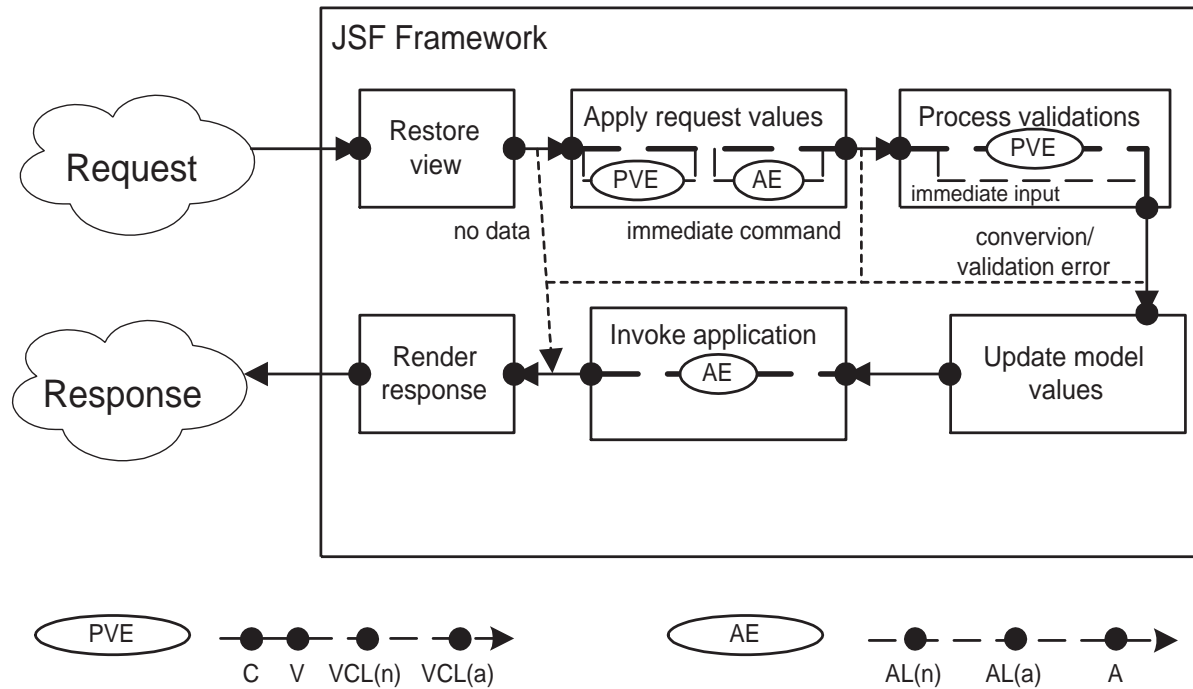


- **syntax** -> faces validators working on data in UI components
- **business** -> logic accessing model values in managed beans

Error messages via FacesMessage objects and special tags in JSP

JSF life cycle (final)

Event handling



- **action events - when a command is pressed (button or link)**
- **process validation events- when value of an input field has changed**
- **input events - immediate commands - immediate input**
- **(pre- and post) phase events**

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Web development with JSF

JSF application consists of:

- JSP pages
- UI components represented as stateful objects on the server
- a custom tag library for rendering UI components
- a custom tag library for representing event handlers and validators
- JavaBeans (or model objects) containing application-specific functionality and data
- event listeners
- server-side helper classes
- validators, event handlers, and navigation handlers
- application configuration resource file `faces-config.xml`

Web development with JSF

Native

Supported by IDE

- IBM WebSphere Studio and Rational Developer
- Sun Java Studio Creator
- Borland JBuilder
- Oracle JDeveloper
- ...

or

Integration of JSF with EGL (see next presentation)

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Thank you

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