Java Server Pages
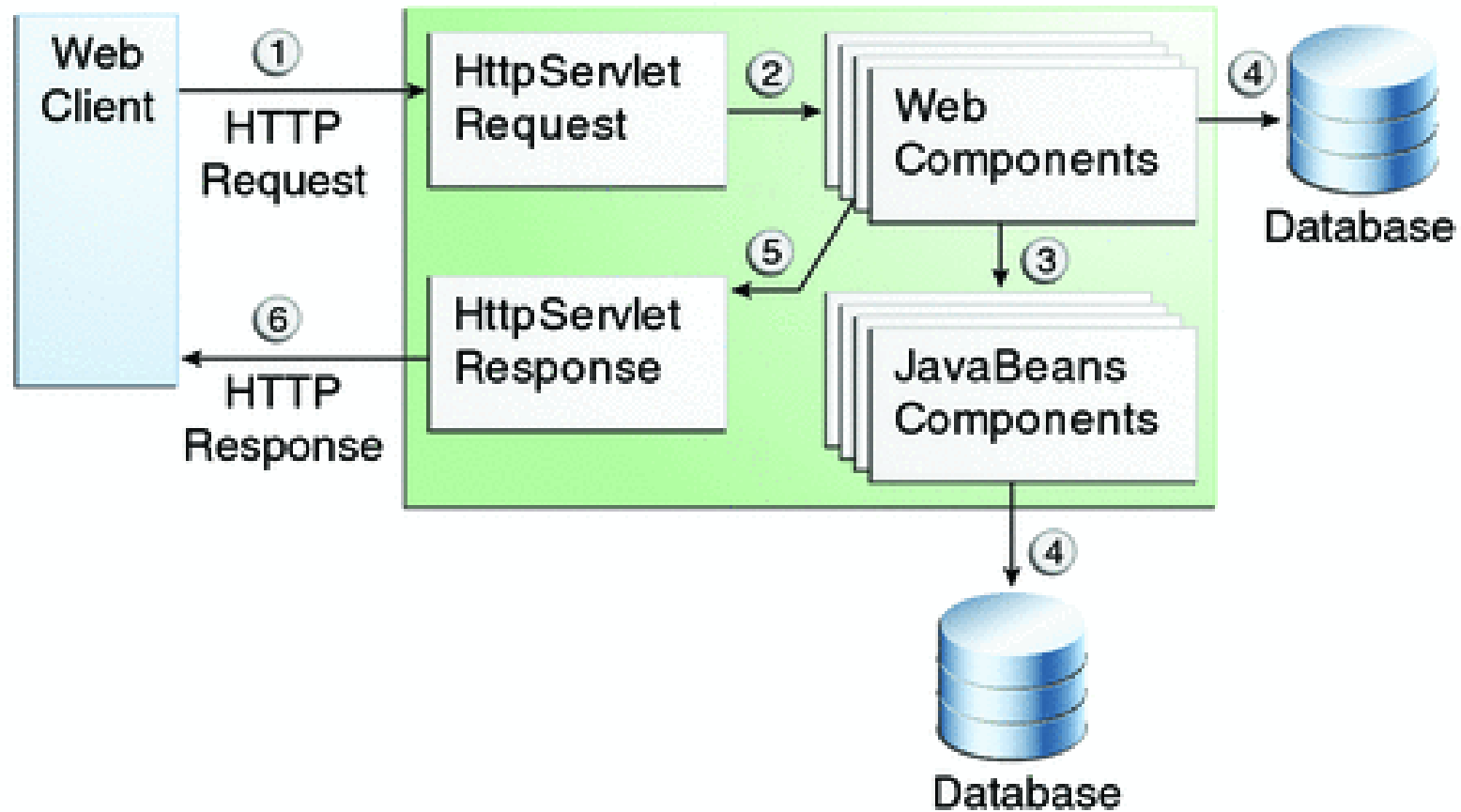
JSP Technology as a Presentation Mechanism

Beans to Interact with Server-Side Objects

Tag Libraries Provided by Actions

Static and Dynamic Content

Platform-independent Scripting Language

Front-end Access to EJB Components
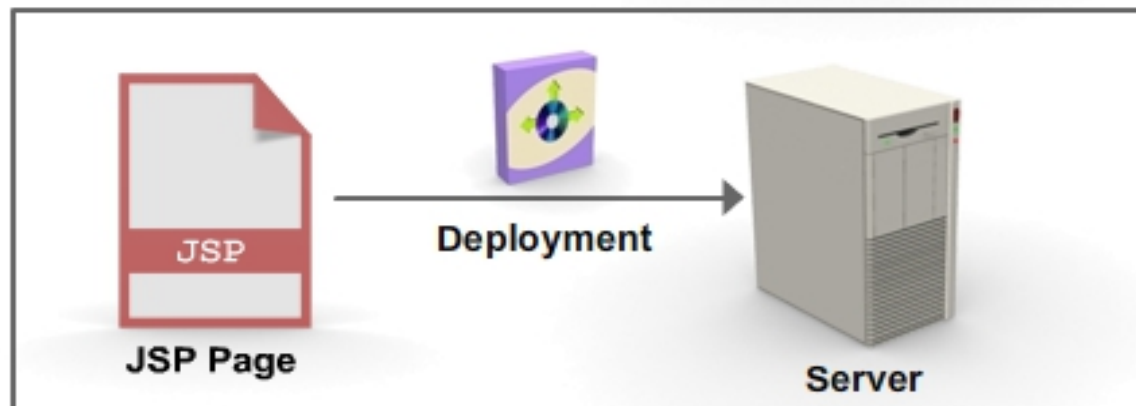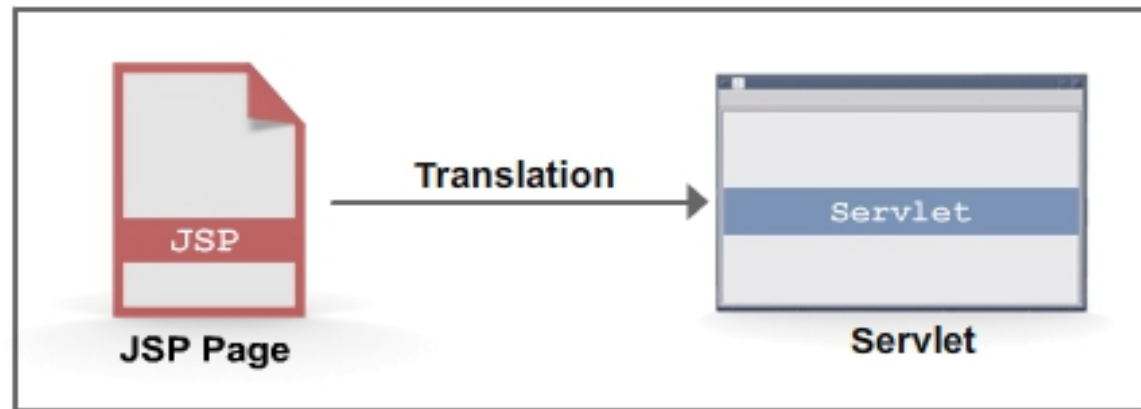
JSP Technology
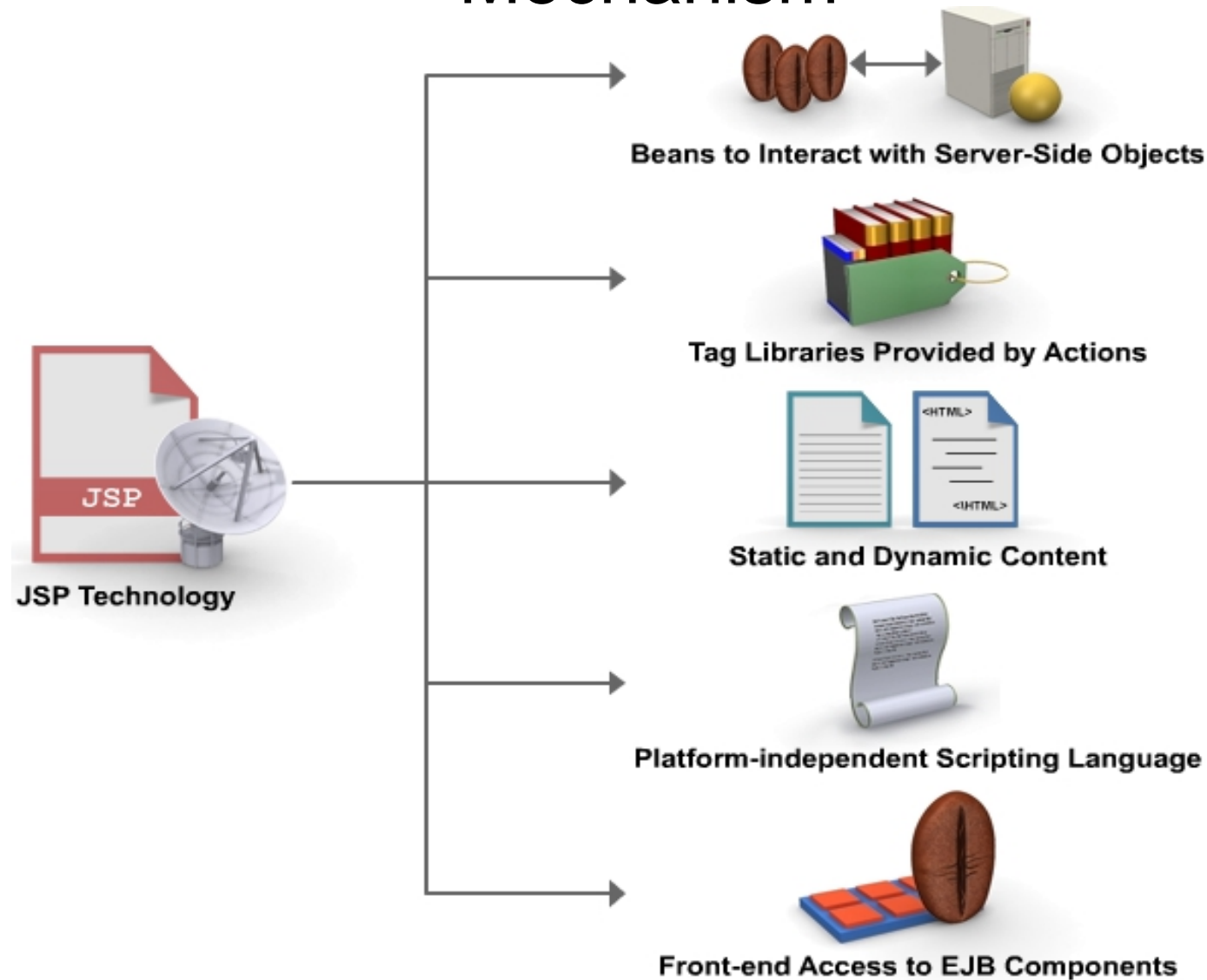
Support servlet objects:
request, response, pageContext, session, out, application, config, page, exception

Supported objects

- request,

- response,

- pageContext,

- session,

- out,

- application,

- config,

- page,

- exception

JSP Page Deployment Mechanism

Translation

JSP Page → Servlet

JSP Page → Web Container (Java EE Specification)

JSP Page → **Deployment** → Server

Components of JavaServer Pages

- Directives - <%@ директива %>

  - page

  - include

  - taglib

- Declarations - <%! объявление %>

- Expressions - <%= вычисляемое выражение %>

- Scriptlets - <% скриптлет %>

- Comments - <%-- JSP-комментарий --%>

  - <!-- comments ... -->

  - <%-- comment text --%>

  - <!-- comment text <%= expression %> more comment text ->

```jsp
<%@ page language="java" import="eMagazin.inventar.*" %>
<HTML>
<!--
    Наглядная страница,
    которая содержит все JSP элементы.
--!>
<HEAD><TITLE>
    Разбор JSP
</TITLE></HEAD>
<BODY>
<%@ taglib uri="http://il8n.taglib/il8n-taglib" prefix="il8n" %>
<%--
    Вставит стандартную шапку.
--%>
<%@ include="shapka.html" %>
<jsp:useBean
    id="klient" class="eMagazin.inventar.Klient" scope="session"
/>
<jsp:setProperty name="klient" property="*" />

<il8n:string> Добро пожаловать </il8n:string>
<%= klient.getName() %>
<%!
    private static final KORZINA = "korzina";
%>
<%--
    Получит каталог товаров
    и актуальную корзину покупателя.
--%>
<%
    request.setAttribute();
    String ryadTovarov = request.getParameter();
    Produkt[] katalog = Inventar.getKatalog(ryadTovarov);
    if (korzina.full()) {
%>
<jps:forward page="spasibo za pokupku.jsp" />
<% ) %>

<jsp:include page="osnovanie.jsp" flush="true" />
</BODY>
</HTML>
```

Аннотации:
- Директива page
- Выходящий комментарий
- Статический текст и HTML
- Директива taglib
- Скрытый комментарий
- Директива include
- JSP действие
- Собственный знак
- JSP выражение
- JSP объявление
- Скрытый комментарий
- JSP скриплет
- JSP действие
- JSP скриплет
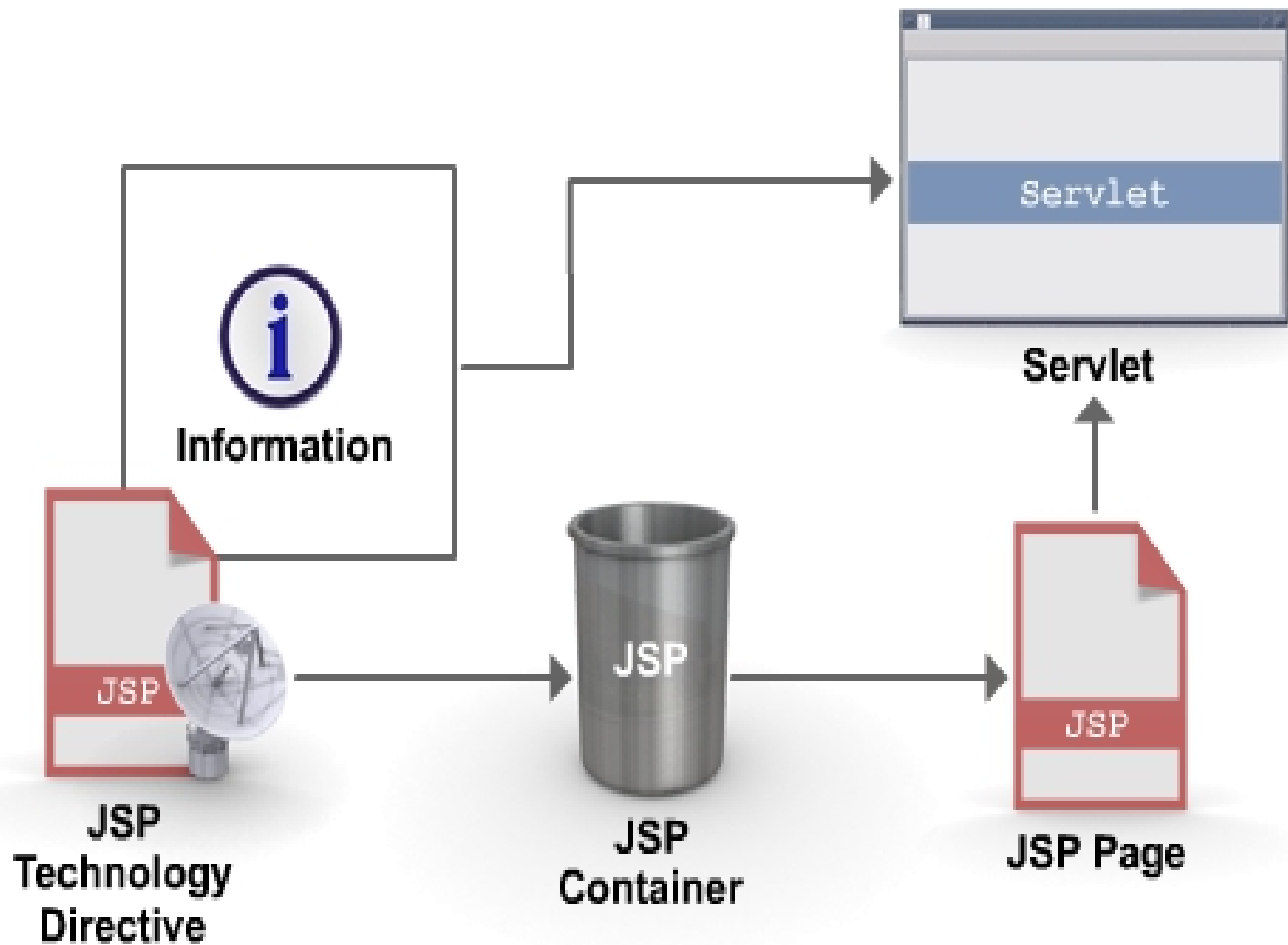- JSP действие

JSP Technology Directives

The `page` Directive

- A translation unit (JSP source file and any files included via the include directive) can contain more than one instance of the page directive, all the attributes will apply to the complete translation unit (i.e. page directives are position independent).

  - Exception: *pageEncoding* and *contentType* should appear at the beginning of the page

- There shall be ONLY ONE occurrence of any attribute/value pair defined by this directive in a given translation unit

  - Exception: *import* and *pageEncoding* attributes can appear multiple times

The taglib **Directive**

- The set of significant tags a JSP container interprets can be extended through a tag library
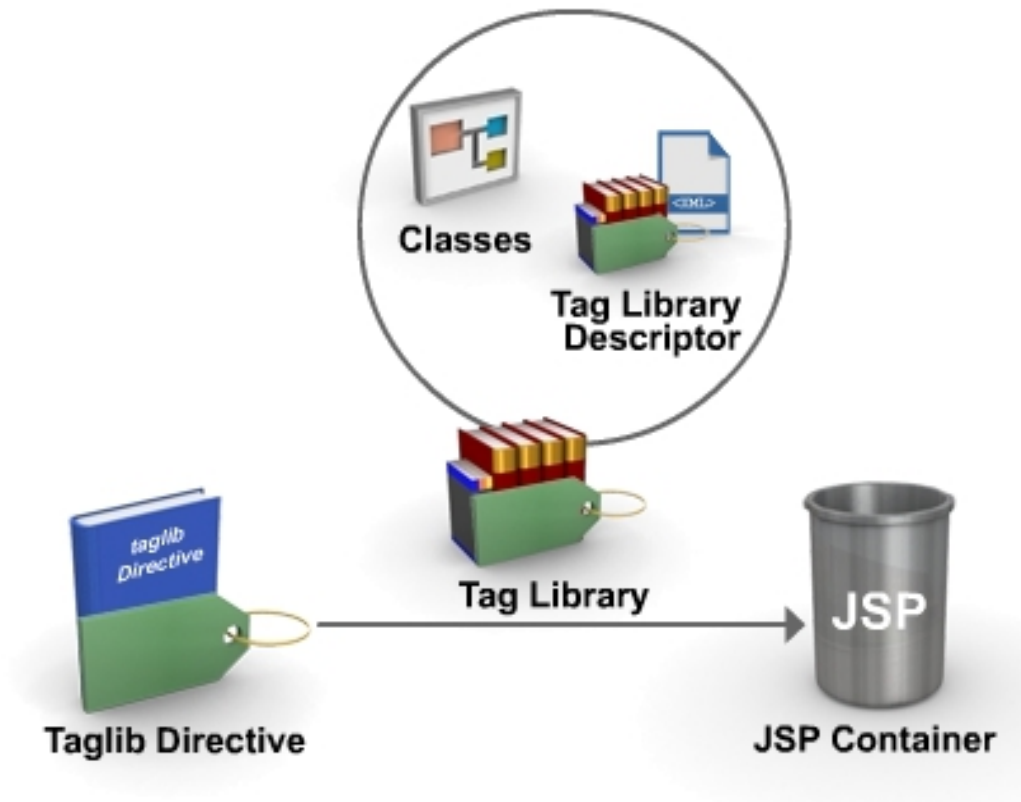
The taglib Directive

```
<%@ taglib uri="http://www.mycorp/supertags" prefix="super" %>

...
<super:doMagic>

...
</super:doMagic>
```

```
<%@ taglib ( uri="tagLibraryURI" | tagdir="tagDir" ) prefix="tagPrefix" %>
```

JSP actions

- jsp: text - Виведення тексту;

- jsp: useBean - Пошук або створення нового екземпляра JavaBean;

- jsp: setProperty - Встановлення властивостей JavaBean;

- jsp: getProperty - Доступ до властивостей JavaBean та направлення їх в потік виводу;

- jsp: include - Підключає файл у момент запиту сторінки;

- jsp: forward - Перенаправляє запит на іншу сторінку;

- jsp: param - Додає параметри в об'єкт запиту, наприклад в елементах forward, include, plugin.;

```
<html>
  <head>
    <title>useBean Example</title>
  </head>
  <body>
<jsp:useBean id="date" class="java.util.Date" />
The date/time is <%= date %>
  </body>
</html>
```

```
<html>
  <head>
    <title>useBean Example</title>
  </head>
  <body>
<%
  Object temp = pageContext.findAttribute("date");
  java.util.Date tdate = null;
  if (temp != null && temp instanceof java.util.Date) {
    tdate = (java.util.Date) temp;
  }
  else {
    tdate = new java.util.Date();
  }
%>
The date/time is <%= tdate %>
  </body>
</html>
```

Servlet and JSP interaction

- In MVC model Servlet and JSP typically communicate by passing data in JavaBeans:

  1. Servlet create a JavaBean and store the bean in appropriate scope (request, session, application)
  2. Servlet forward to the JSP

- The JSP should only be called from the Servlet

- The JSP should never have to create the JavaBean itself

jsp:getProperty & jsp:setProperty

- The getProperty action

  - Provide a convenient way of invoking a get method of JavaBean

- The setProperty action

  - Provide a convenient way of invoking a set method of JavaBean

- With all three of the bean-manipulating actions, it is possible to remove majority of scripting elements

jsp:setProperty

- The setProperty action is used to set values of a bean
    - <jsp:useBean id="myName" ... />

    - ...

    - <jsp:setProperty name="myName"
            property="someProperty"
        valueAttribute />
- *valueAttribute*

    - value="*value*" – value may be a runtime value
    - param="*value*" – value can be retrieved from a request parameter

- <jsp:directive.include file=""/>
- <jsp:include page="{relativeURL | <%= expression %>}" />
  - RequestDispatcher.include()
- <jsp:forward page="{relativeURL | <%= expression %>}" />
  - RequestDispatcher.forward()
- <jsp:param name="parameterName" value="{parameterValue | <%= expression %>}" />
  - Available by HttpServletRequest getParameter()

```
<jsp:forward page="examplePage.jsp">
    <jsp:param name="foo1" value="bar"/>
    <jsp:param name="foo2" value="<%= foo %>"/>
</jsp:forward>
```
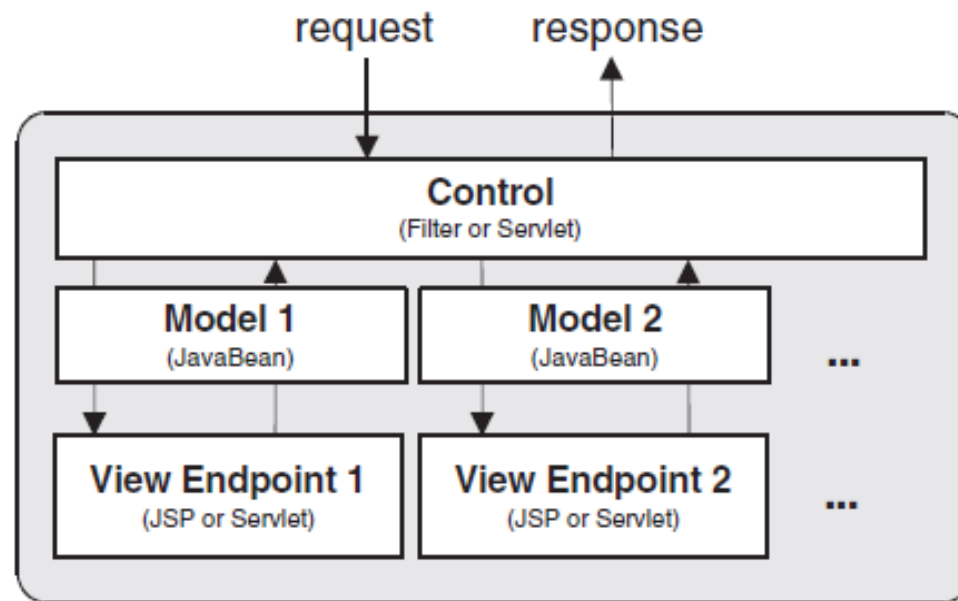
JSP Property groups

- JSP group configuration
- Headers, Footers

Model 2 Web Application

request   response

Control
(Filter or Servlet)

Model 1
(JavaBean)

Model 2
(JavaBean)

...

View Endpoint 1
(JSP or Servlet)

View Endpoint 2
(JSP or Servlet)

...

Client
(browser)

Request

Controller
(servlet)

Model

Session Beans
(EJB)

Entity Classes
(JPA)

View
(JSP pages)

Response

Database