

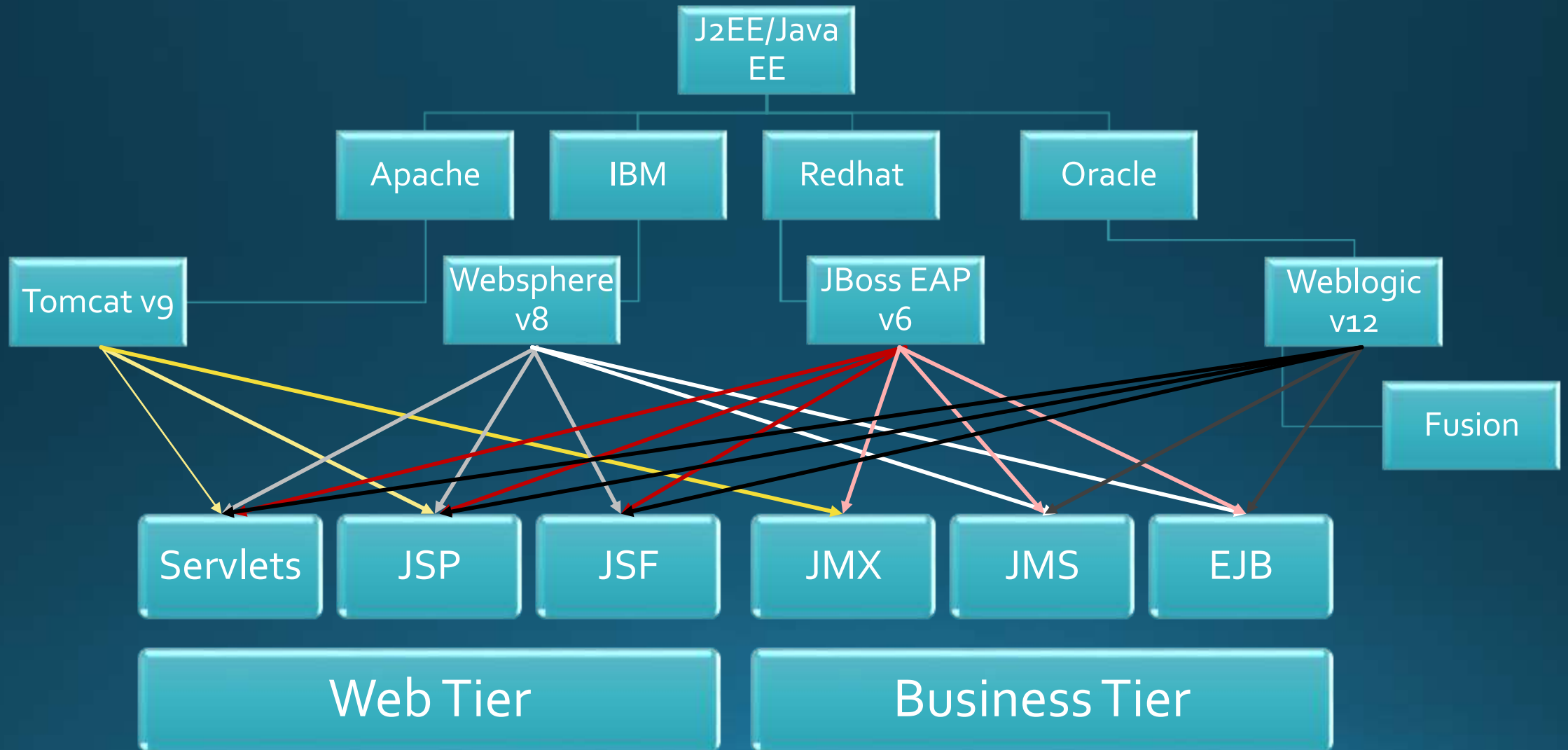
Overview by Mutti K

Java Web Technologies

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Java Web Technology Relationships



Definitions

- Servlets - A Java program that extends the capabilities of a server
- JavaServer Pages (JSP) - Creates dynamically generated web pages based on HTML, XML, or other document types
- JavaServer Faces - JSF 2 uses Facelets as its default templating system. Other view technologies such as XUL can also be employed. In contrast, JSF 1.x uses JavaServer Pages (JSP) as its default templating system
- Java Management Extensions (JMX) - tools for managing and monitoring applications, system objects, devices (e.g. printers) and service-oriented networks. Those resources are represented by objects called Mbeans
- Java Message Service (JMS) - S Java Message Oriented Middleware (MOM) API for sending messages between two or more clients/components
- Enterprise JavaBeans (EJB) - A managed, server software for modular construction of enterprise software, and one of several Java APIs

Extra

- JavaBeans - are classes that encapsulate many objects into a single object (the bean). They are serializable, have a zero-argument constructor, and allow access to properties using getter and setter methods

Code Examples - Servlets

```
// Import required java libraries
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;

// Extend HttpServlet class
public class HelloWorld extends HttpServlet {

    private String message;

    public void init() throws ServletException
    {
        // Do required initialization
        message = "Hello World";
    }

    public void doGet(HttpServletRequest request,
        HttpServletResponse response)
        throws ServletException, IOException
    {
        // Set response content type
        response.setContentType("text/html");

        // Actual logic goes here.
        PrintWriter out = response.getWriter();
        out.println("<h1>" + message + "</h1>");
    }

    public void destroy()
    {
        // do nothing.
    }
}
```

Code Examples - JSP

```
<html>
<head><title>First JSP</title></head>
<body>
  <%
    double num = Math.random();
    if (num > 0.95) {
  %>
    <h2>You'll have a luck day!</h2><p>(<%= num %>)</p>
  <%
    } else {
  %>
    <h2>Well, life goes on ... </h2><p>(<%= num %>)</p>
  <%
    }
  %>
  <a href="<%= request.getRequestURI() %>"><h3>Try Again</h3></a>
</body>
</html>
```

Code Examples - JSF

fibonacci.xhtml

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml"
      xmlns:f="http://xmlns.jcp.org/jsf/core"
      xmlns:h="http://xmlns.jcp.org/jsf/html">
  <h:head>
    <meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1" />
    <title>JSF Managed Beans JCG Example</title>
  </h:head>
  <h:body>
    <f:view>
      <h2>Get The N Fibonacci Number</h2>
      <p>
        <h:form id="fibonnaci">
          Number of the Fibonnaci Series:
          <h:inputText id="number"
            value="#{managedBeanController.numFibonacci}" />
          <h:commandButton action="#{managedBeanController.performFibonnaciOperation}" value="Calculate">
            </h:commandButton>
          <br />
          Result:
          <h:outputText id="result" value="#{managedBeanController.result}" />
          <h:messages infoStyle="color: blue" globalOnly="true" />
        </h:form>
      </p>
    </f:view>
  </h:body>
</html>
```

Code Examples – JSF Cont.

fibonacci.xhtml

```
package com.javacodegeeks.jsf.beans;
import java.io.Serializable;
import javax.faces.application.FacesMessage;
import javax.faces.bean.ManagedBean;
import javax.faces.bean.SessionScoped;
import javax.faces.context.FacesContext;
import javax.faces.event.AjaxBehaviorEvent;

/**
 * @author Andres.Cespedes
 * @version 1.0 $Date: 07/02/2015
 * @since 1.7
 */
@ManagedBean(name = "managedBeanController")
@SessionScoped
public class ManagedBeanController implements Serializable {

    private int numFibonacci;
    private long result;

    /**
     * Number for serialization
     */
    private static final long serialVersionUID = 8150756503956053844L;

    /**
     * No-arg constructor
     */
    public ManagedBeanController() {
        numFibonacci = 0;
        result = 0;
    }

    /**
     * @return the numFibonacci
     */
    public int getNumFibonacci() {
        return numFibonacci;
    }

    /**
     * @param numFibonacci
     * the numFibonacci to set
     */
    public void setNumFibonacci(int numFibonacci) {
        this.numFibonacci = numFibonacci;
    }

    /**
     * @return the result
     */
    public long getResult() {
        return result;
    }
}
```

```
/**
 * @param result
 * the result to set
 */
public void setResult(long result) {
    this.result = result;
}

/**
 * Business Operation to get the Fibonacci N-number
 */
@Param param
@return
*/
private long getFibonacciNumber(int param) {
    if (param == 1 || param == 2) {
        return 1;
    }
    long actual = 1;
    long next = 1;
    long sum = 0;
    for (int i = 2; i < param; i++) {
        sum = next + actual;
        actual = next;
        next = sum;
    }
    return next;
}

/**
 * Non ajax perform Fibonacci Operation
 */
public void performFibonacciOperation() {
    if (numFibonacci <= 0) {
        setResult(0L);
    } else {
        setResult(getFibonacciNumber(numFibonacci));
    }
    FacesMessage facesMsg = new FacesMessage(FacesMessage.SEVERITY_INFO,
        "Fibonacci Calculation for the " + numFibonacci
        + " number was: " + result, "Fibonacci Calculation");
    FacesContext.getCurrentInstance().addMessage(null, facesMsg);
}

/**
 * Ajax perform Fibonacci Operation
 */
@Param event
*/
public void ajaxPerformFibonacciOperation(final AjaxBehaviorEvent event) {
    if (numFibonacci <= 0) {
        setResult(0L);
    } else {
        setResult(getFibonacciNumber(numFibonacci));
    }
    FacesMessage facesMsg = new FacesMessage(FacesMessage.SEVERITY_INFO,
        "Fibonacci Calculation for the " + numFibonacci
        + " number was: " + result, "Fibonacci Calculation");
    FacesContext.getCurrentInstance().addMessage(null, facesMsg);
}
}
```

References

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Code Examples

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