

Java Platform, Enterprise Edition (JEE)

**for developing
distributed software systems**

Дистрибуирани софтверски системи

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Java editions

Java Platform Standard Edition (Java SE)

Standard software applications

<https://www.oracle.com/java/technologies/java-se-glance.html>

Java FX

Software applications with rich user interface

<https://www.oracle.com/java/technologies/javase/javafx-overview.html>

Java Platform Micro Edition (Java ME)

Mobile applications

<https://www.oracle.com/java/technologies/javameoverview.html>

Java Platform Enterprise Edition (Java EE)

Enterprise software applications

<https://www.oracle.com/java/technologies/java-ee-glance.html>

Java Enterprise Edition (JEE)

Java EE (Enterprise Edition) is a set of technologies that reduce the complexity in developing, deploying and maintaining multitier server-oriented distributed software systems.

<https://www.oracle.com/java/technologies/java-ee-glance.html>

Java EE is built on the top of Java Platform, Standard Edition (Java SE), extending it with the set of APIs for developing distributed scalable enterprise software systems.

API (Application Programming Interface)

<https://javaee.github.io/javaee-spec/javadocs/>

JEE Application model

Java programming language

Java virtual machine (JRE)

JEE architecture for implementing services as multitier applications

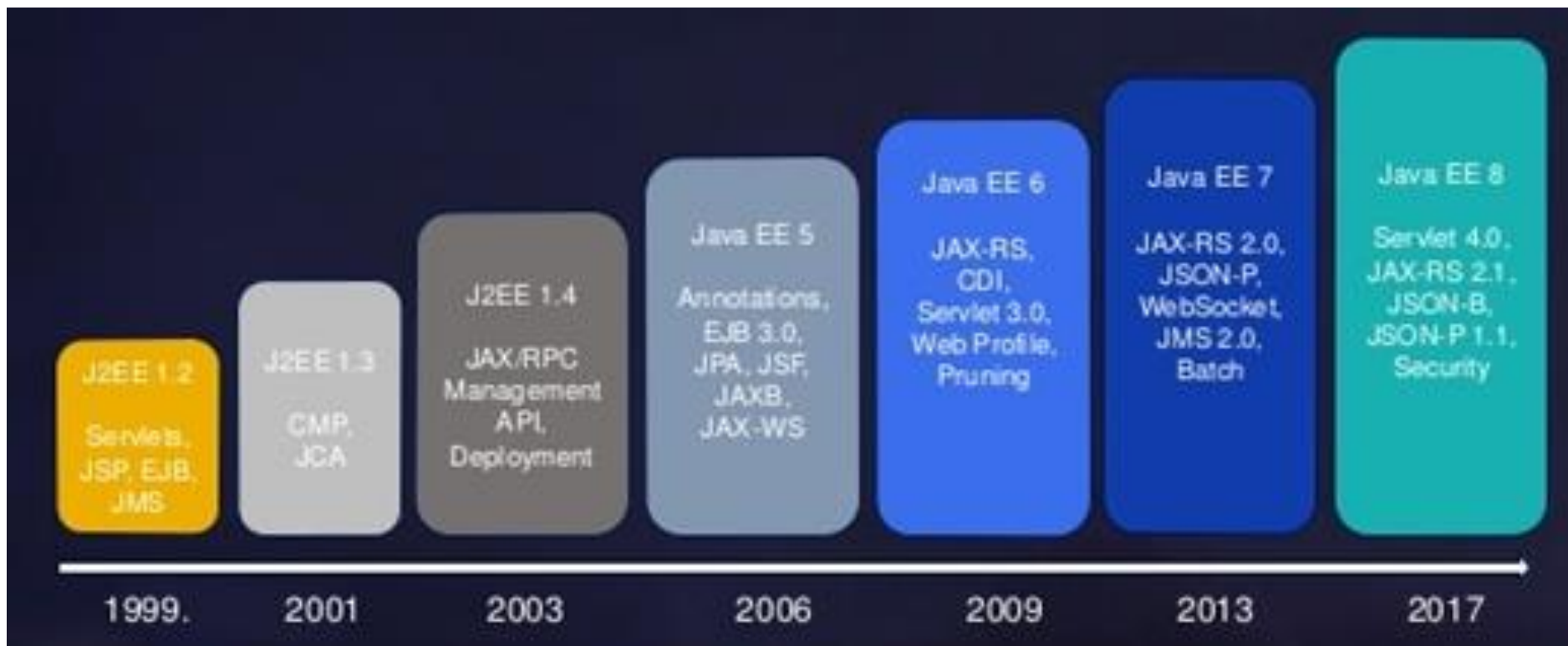
- ❖ The business and presentation logic to be implemented by the developer

The middle tier is typically run on dedicated server hardware and has access to the full services of the enterprise.

- ❖ The standard system services provided by the Java EE platform

The Java EE platform uses a distributed multitier application model for enterprise applications.

JEE History



Jakarta EE

:: Java EE technologies developed by Eclipse Foundation

[Oracle decided to give away the rights for Java EE to the Eclipse Foundation in 2017]

<https://jakarta.ee/>

JEE 8 Technologies

Batch	Dependency Injection	JACC	JAXR	JSTL	Management
Bean Validation	Deployment	JASPIC	JMS	JTA	Servlet
CDI	EJB	JAX-RPC	JSF	JPA	Web Services
Common Annotations	EL	JAX-RS	JSON-P	JavaMail	Web Services Metadata
Concurrency EE	Interceptors	JAX-WS	JSP	Managed Beans	WebSocket
Connector	JSP Debugging	JAXB			
JSON-B	Security				

- :: **Orange boxes** – New technologies
- :: **Blue boxes** – Updated technologies

JEE Benefits

Simplified architecture and development

- ❖ Simplified, component-based development model
- ❖ This model offers “Write-Once-Run-Anywhere” portability
- ❖ Maps easily to application functionality
- ❖ Supports division of labor (teams with different experts)

Integration with existing information systems

- ❖ The J2EE Connector architecture
- ❖ JDBC API
- ❖ Java Naming and Directory Interface(JNDI)
- ❖ Java Message Service (JMS)
- ❖ Java APIs for XML

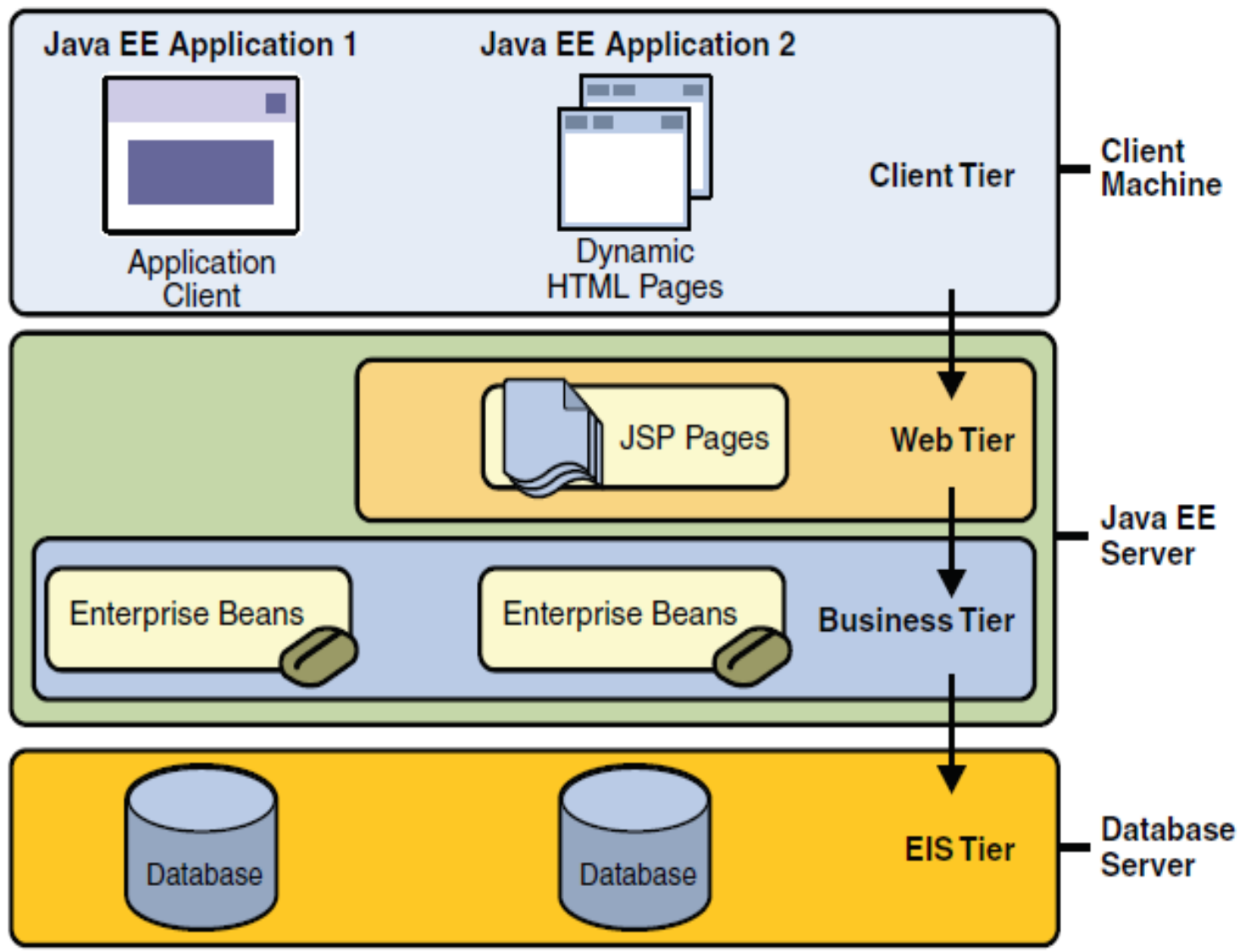
Scalability to meet demand variations

- ❖ J2EE containers provide a mechanism that supports simplified scaling

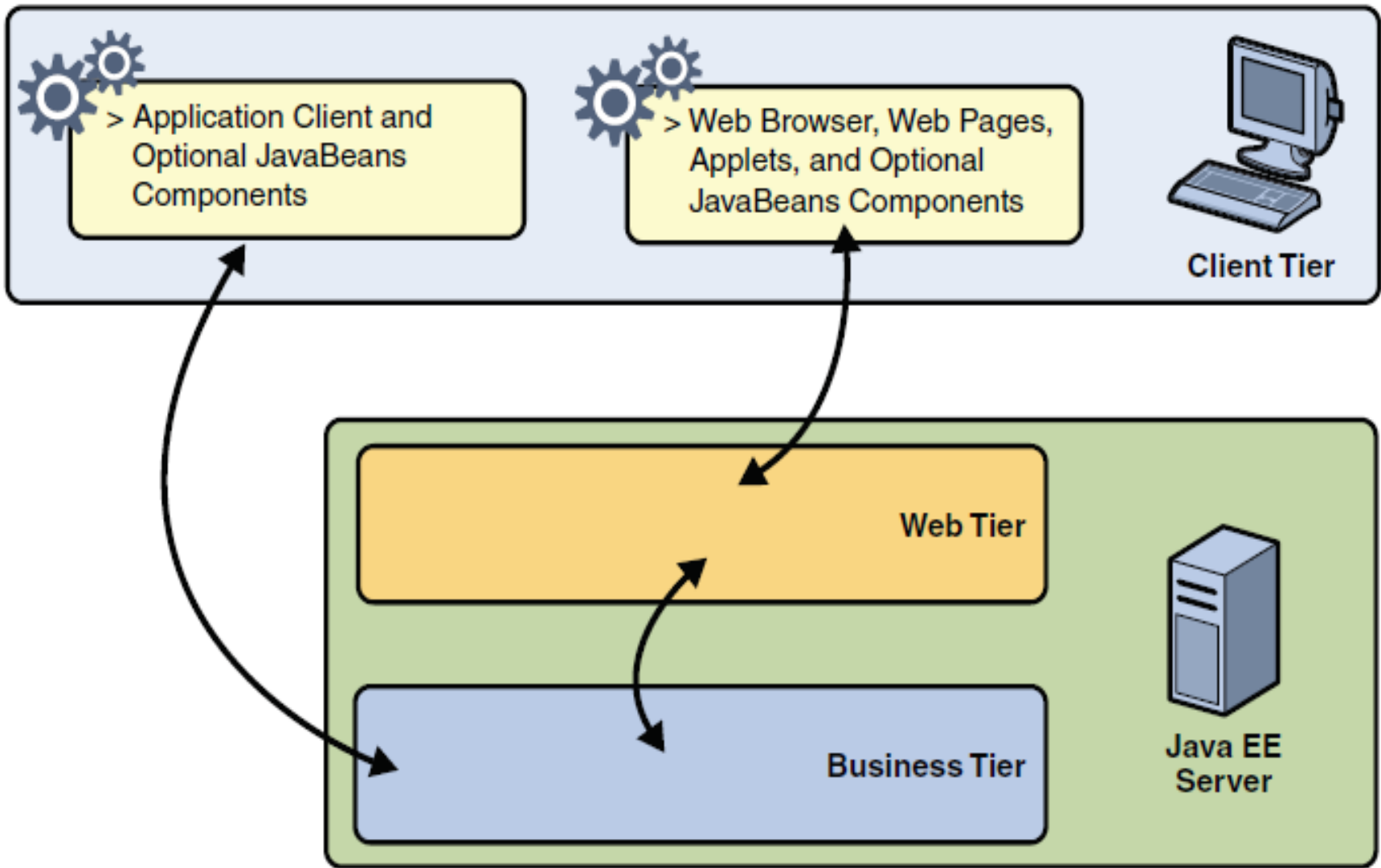
Freedom of choice in servers, tools, and components

Flexible security model

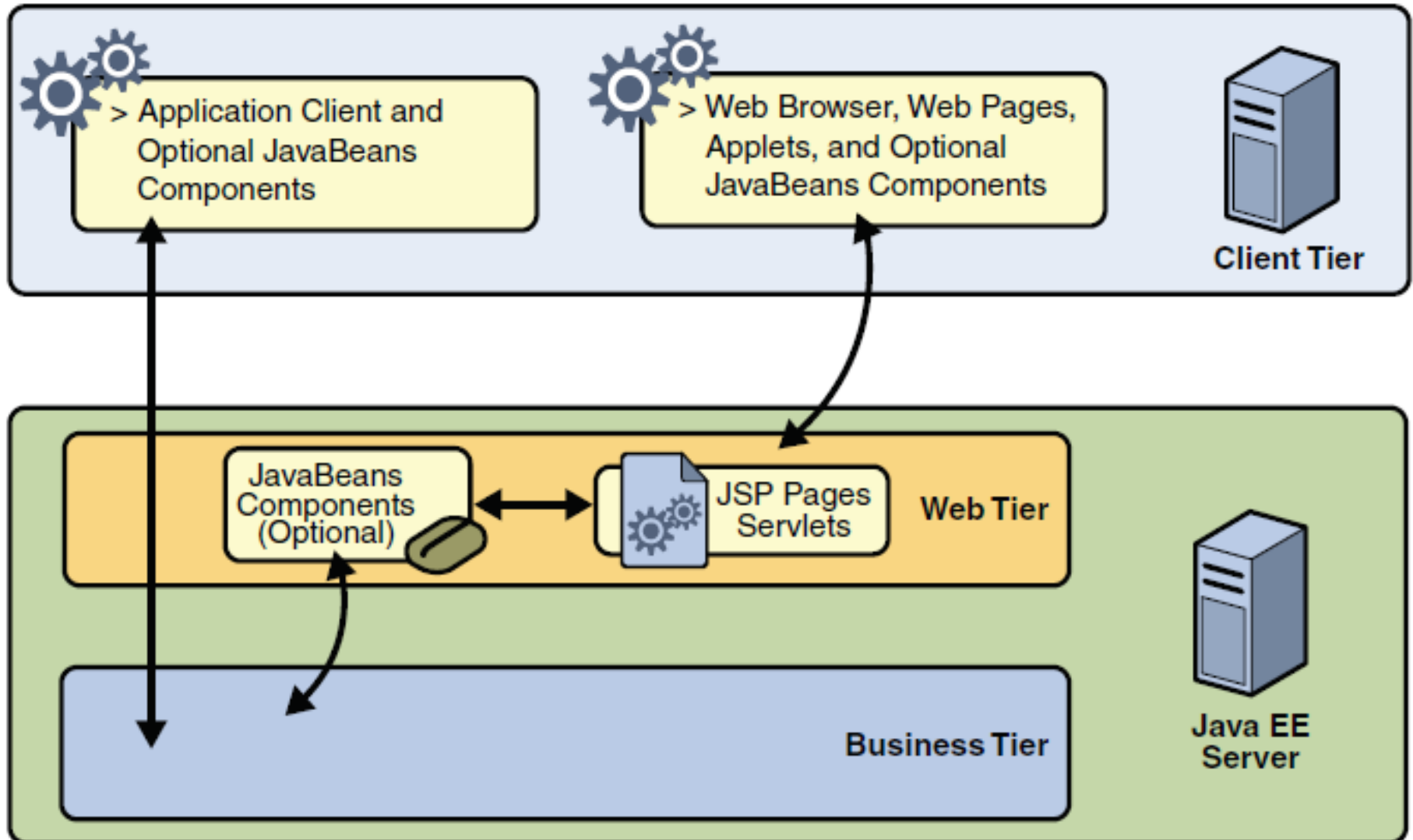
JEE distributed multitier application model



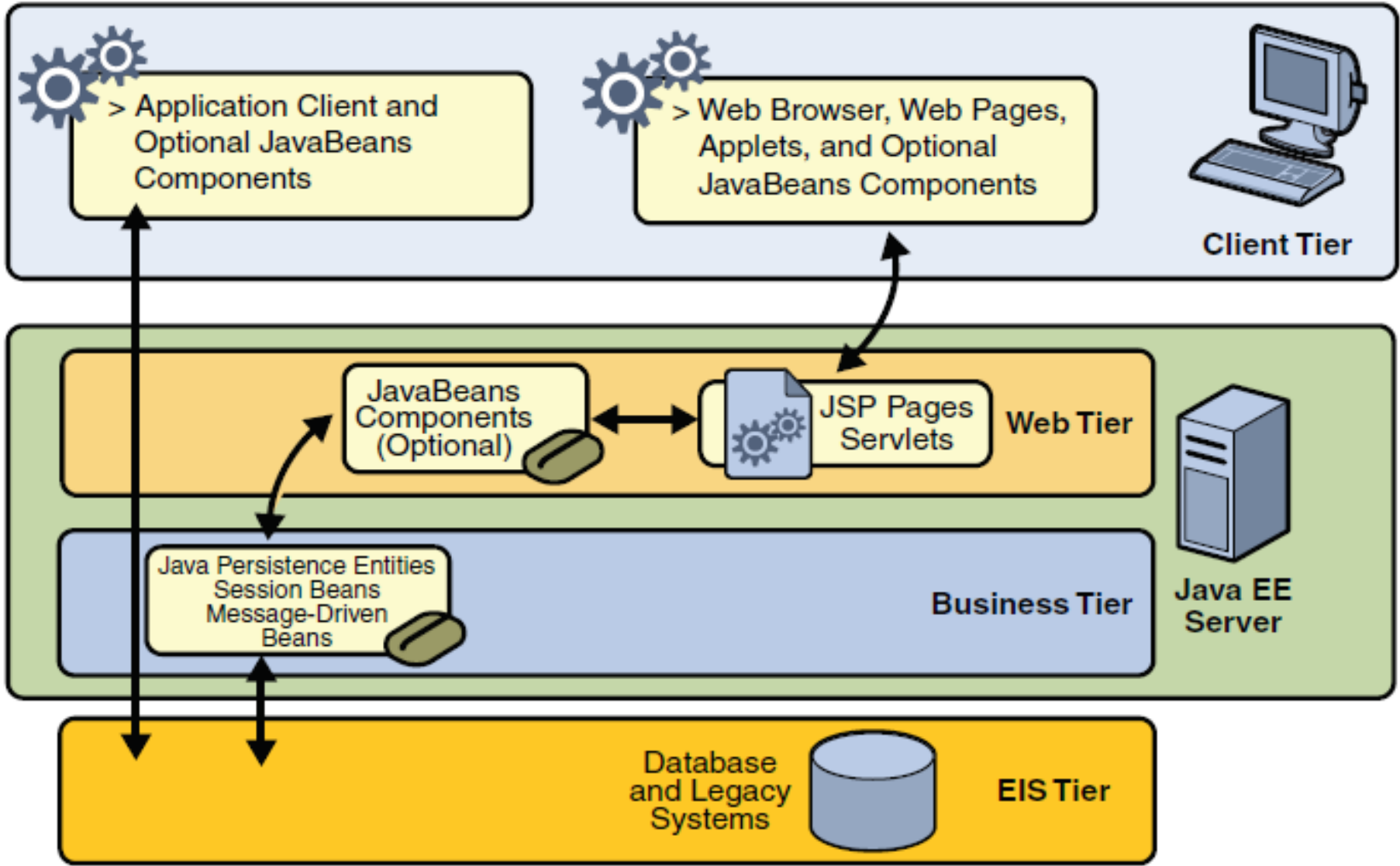
Communication in JEE applications



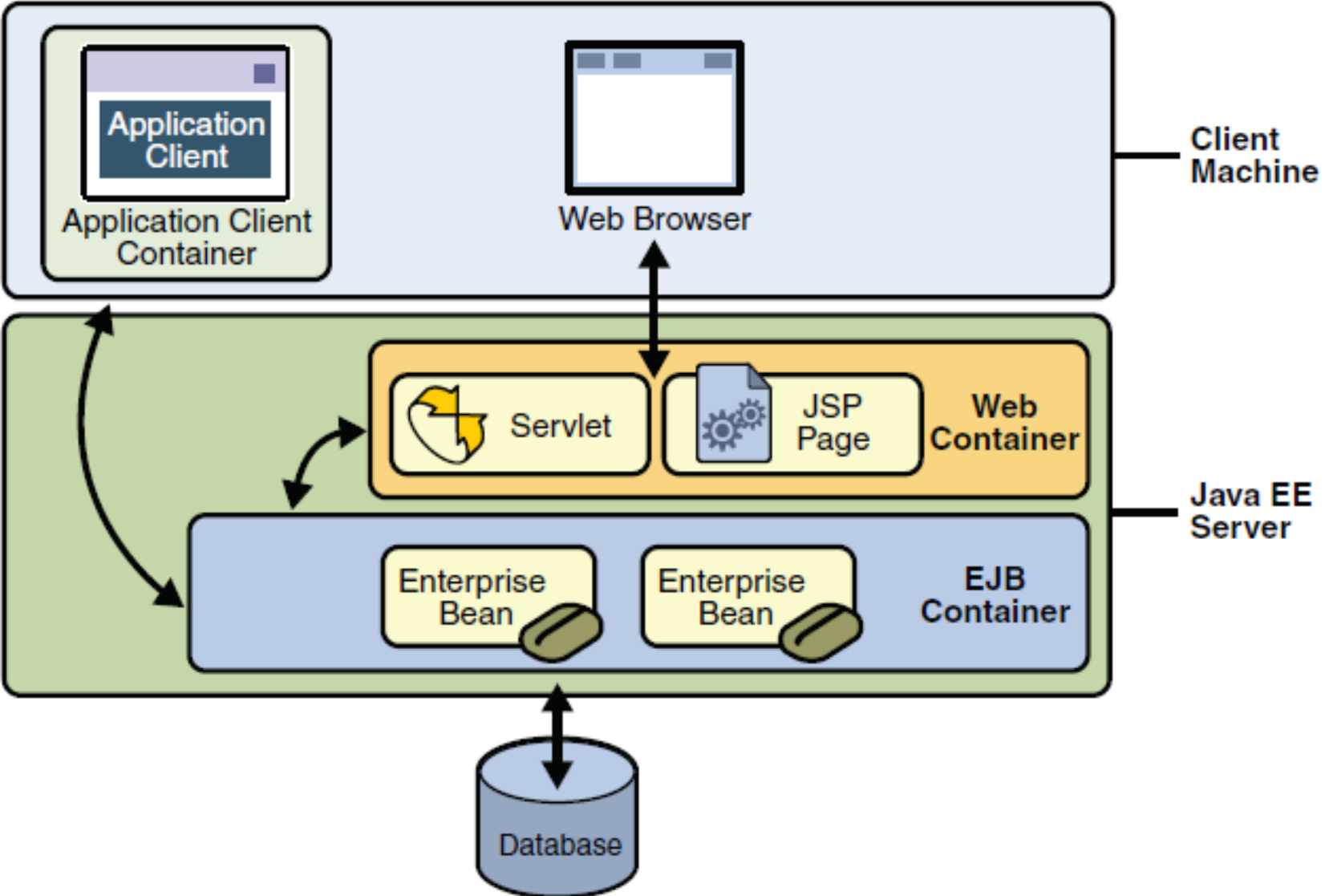
Web-tier in JEE applications



Business and EIS tiers in JEE applications



Servers and Containers in JEE applications



Literature: Books & Links

Books

- [1] Ram Kulkarni. *Java EE Development with Eclipse, 2nd Edition*. Packt Publishing. 2015.
- [2] Uttam K. Roy. *Advanced Java Programming*. Oxford University Press 2015
- [3] Martin Bond, Dan Haywood, Debbie Law, Andy Longshaw and Peter Roxburgh. *Sams Teach Yourself J2EE in 21 Days*. SAMS. 2002.
- [4] Marty Hall and Larry Brown. *Core Servlets and JavaServer Pages, Vol. 1: Core Technologies*. Prentice Hall. 2004.

Links

- [1] <https://www.oracle.com/java/technologies/java-ee-glance.html>
- [2] <http://tomcat.apache.org/>
- [3] programming forums ...

Tools & Technologies

Eclipse

<https://www.eclipse.org/>

Apache Tomcat – Web Server & Container

<http://tomcat.apache.org/>

GlassFish - JEE Server

<https://javaee.github.io/glassfish/>

MySQL - Database Server

<https://www.mysql.com/>