Understanding Java EE

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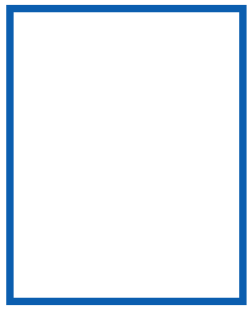
Previous Module



- CD-BookStore web application
- Java EE simplifies development
- Java EE programming model
- Metadata
- Convention over configuration

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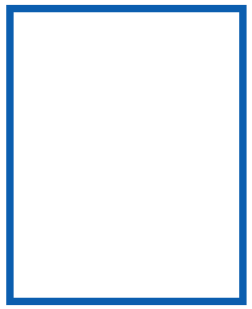
Module Outline



- Enterprise application
- Java EE architecture
- Standard
- JCP
- Java EE implementations
- Java EE specifications

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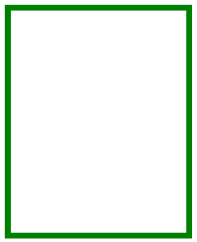
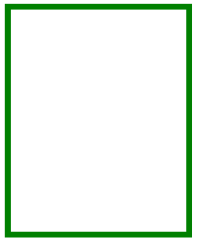
What Is an Enterprise Application?

- Multi-tiered
- Scalable
- Reliable
- Secure

} Enterprise application



- Solve the problems of large enterprises
- For individual developers
- Small organizations



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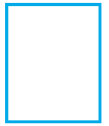
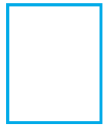
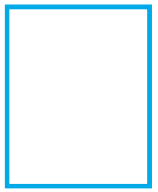
Tiered Application







Client tier

Middle tier

EIS tier

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What Is Java EE?

- Extension of Java SE
- Simplify enterprise applications development
- Simple programming model
- Standard
  - JCP
- Multiple implementations

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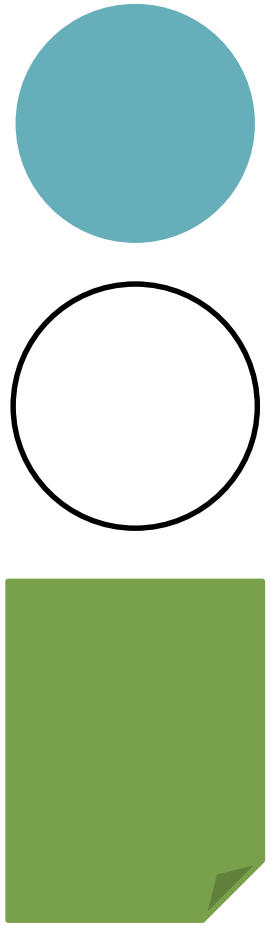
Java EE Architecture

- Container
- Services
- Components
- APIs
- Packaging
- Deployment
- Protocols
- Java SE APIs



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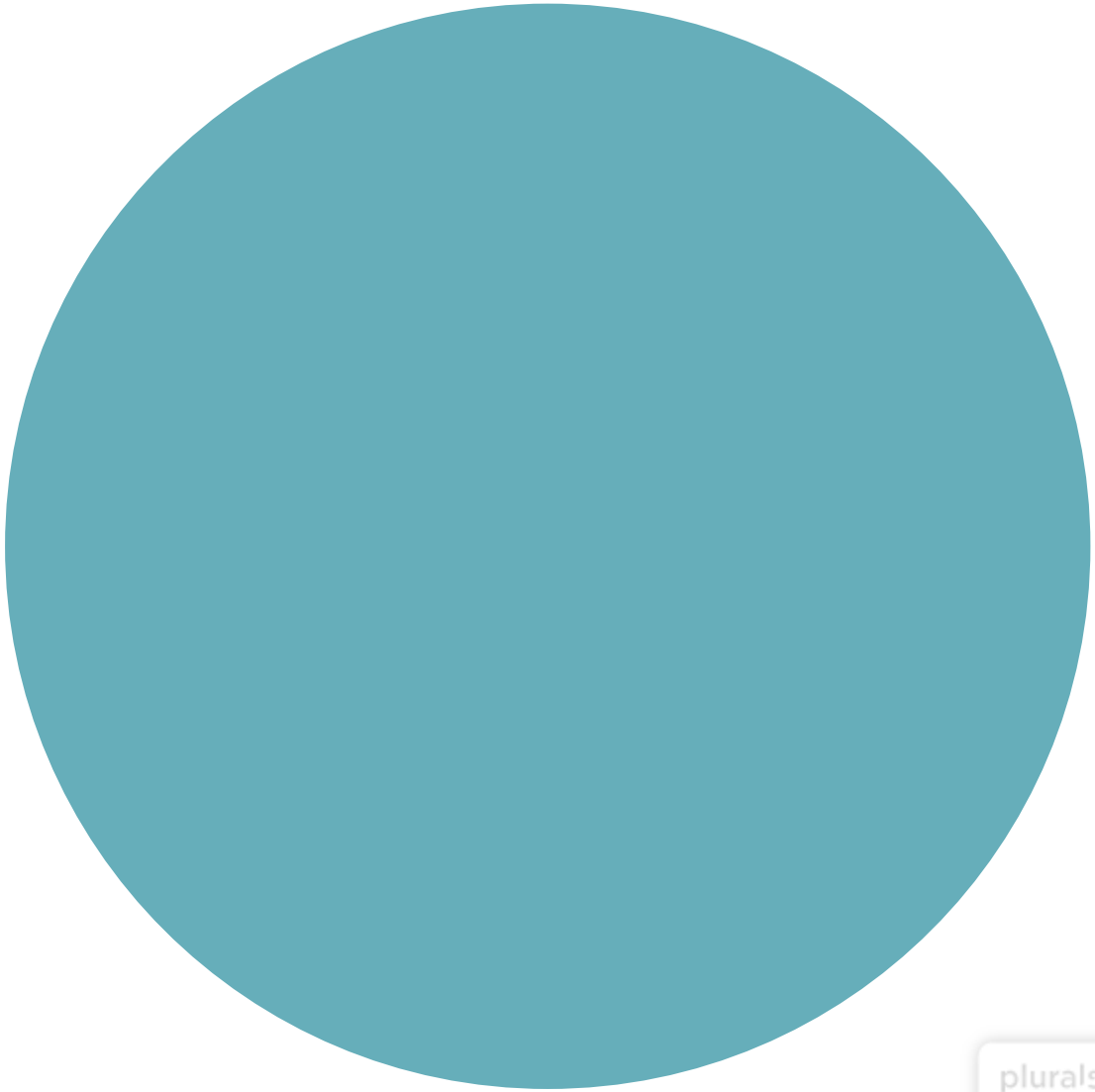
Container

- Runtime environment
- Hide technical complexity
- Enhance portability
- Host applications
- Handle complex low-level details
- Administrates the applications



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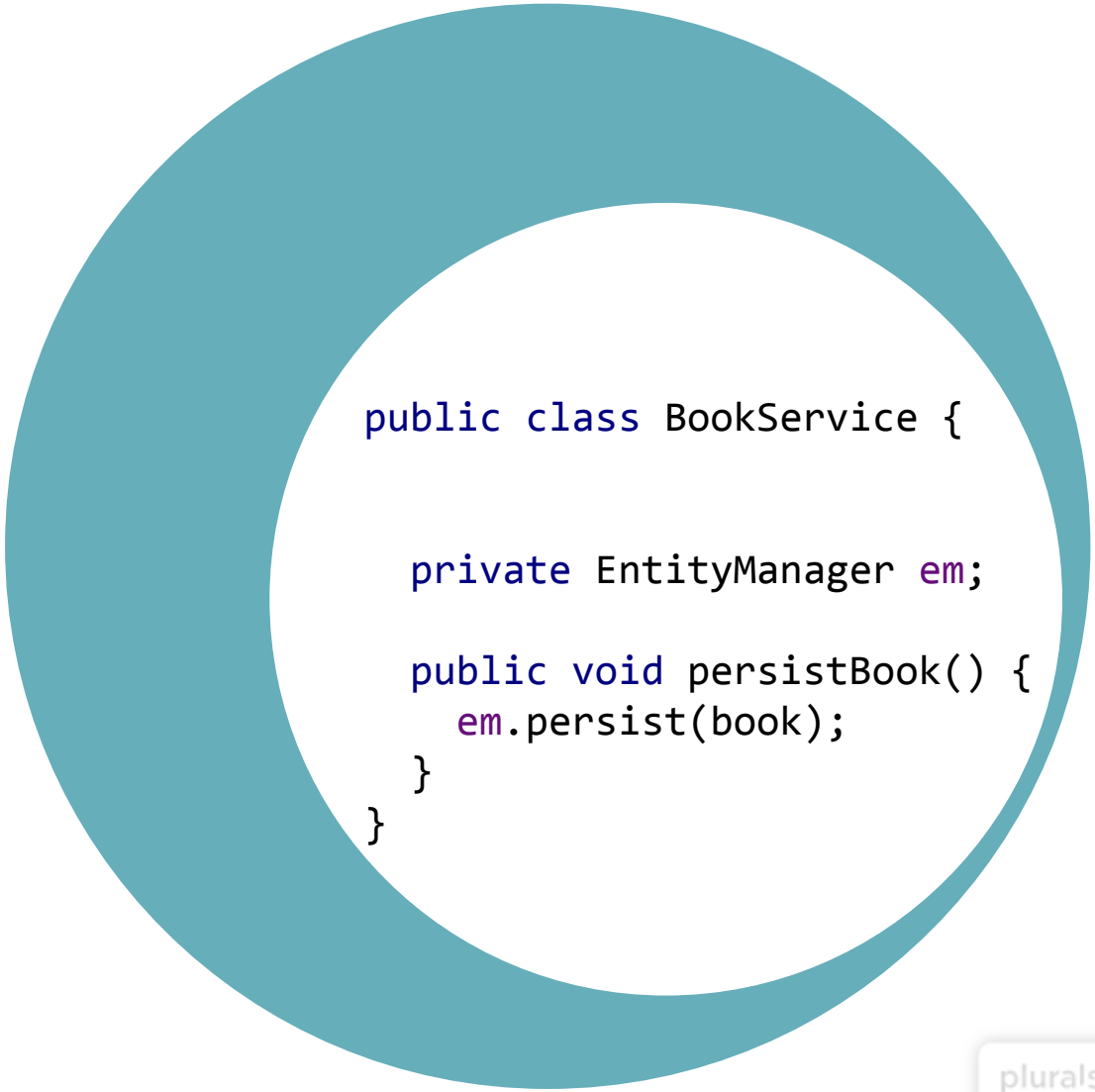
Components

- Static or dynamic Web pages
- Server-side classes
- Handle business code
- Process data
- Access legacy systems



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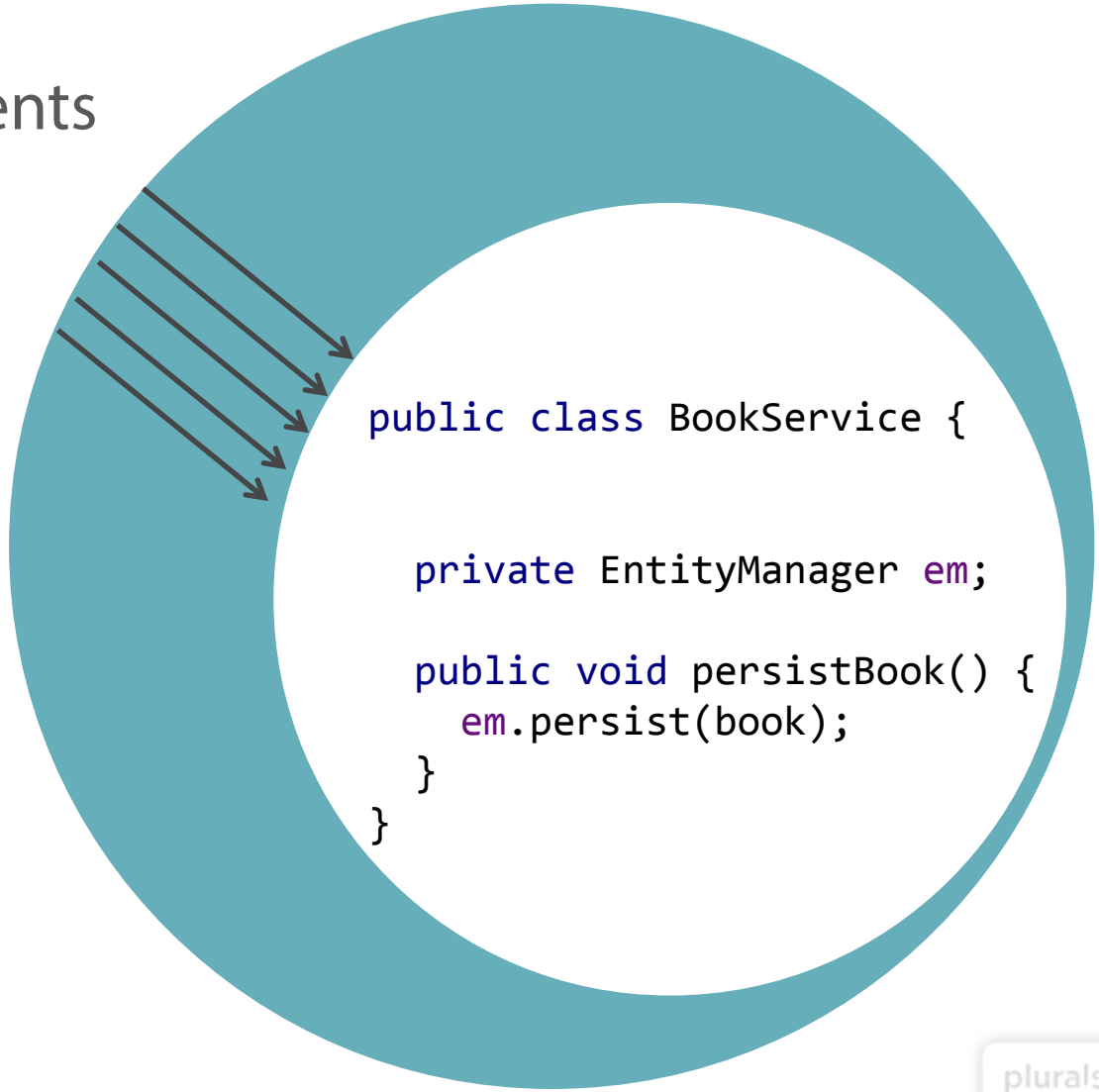
Services

- Container provides services to components
  - Security
  - Transaction management
  - Naming
  - Remote connectivity
  - …
- Services are configurable
- Configuration is isolated



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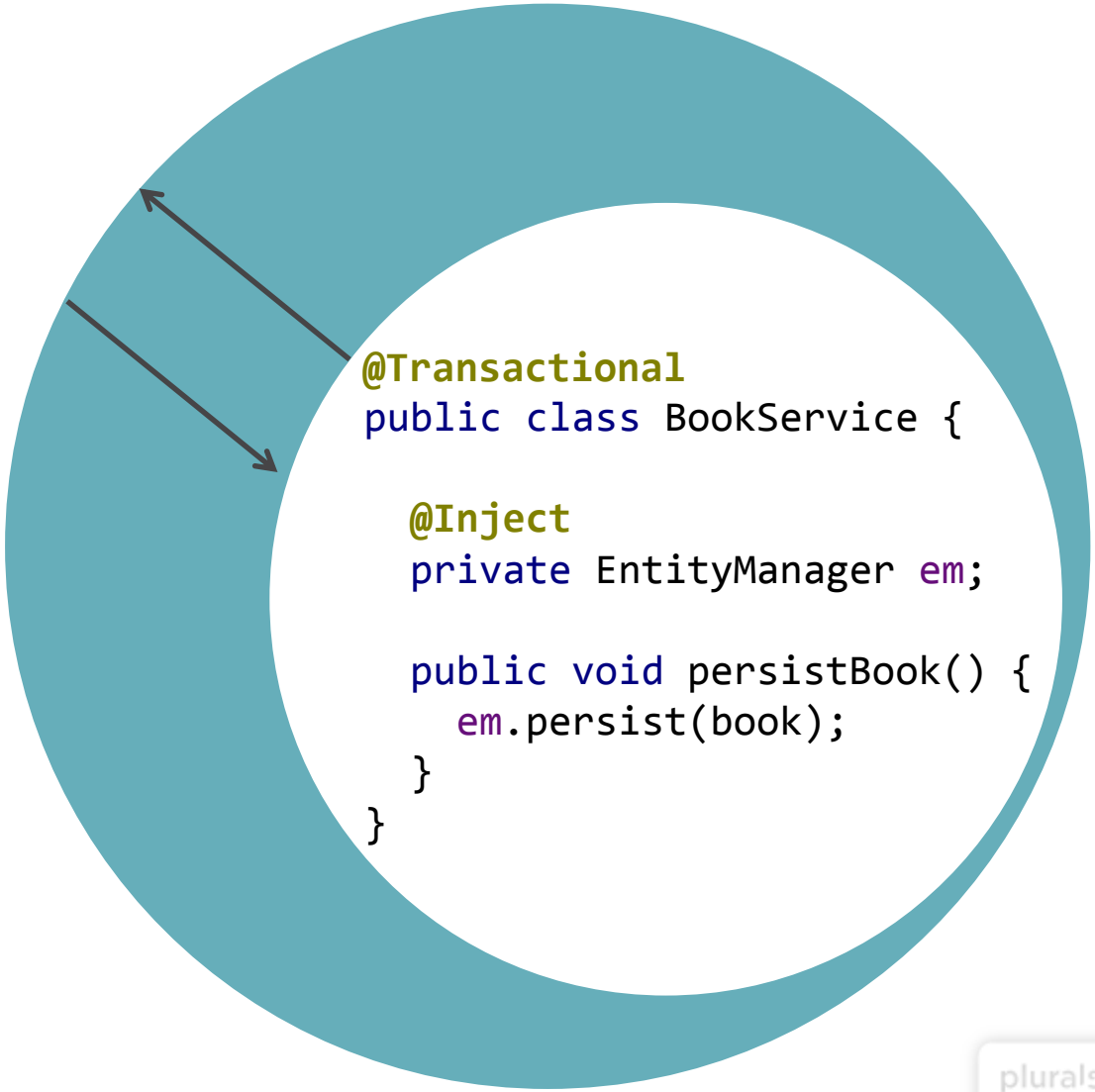
Metadata

- User code
- Metadata
- Annotation
- XML descriptor
- Inversion of control



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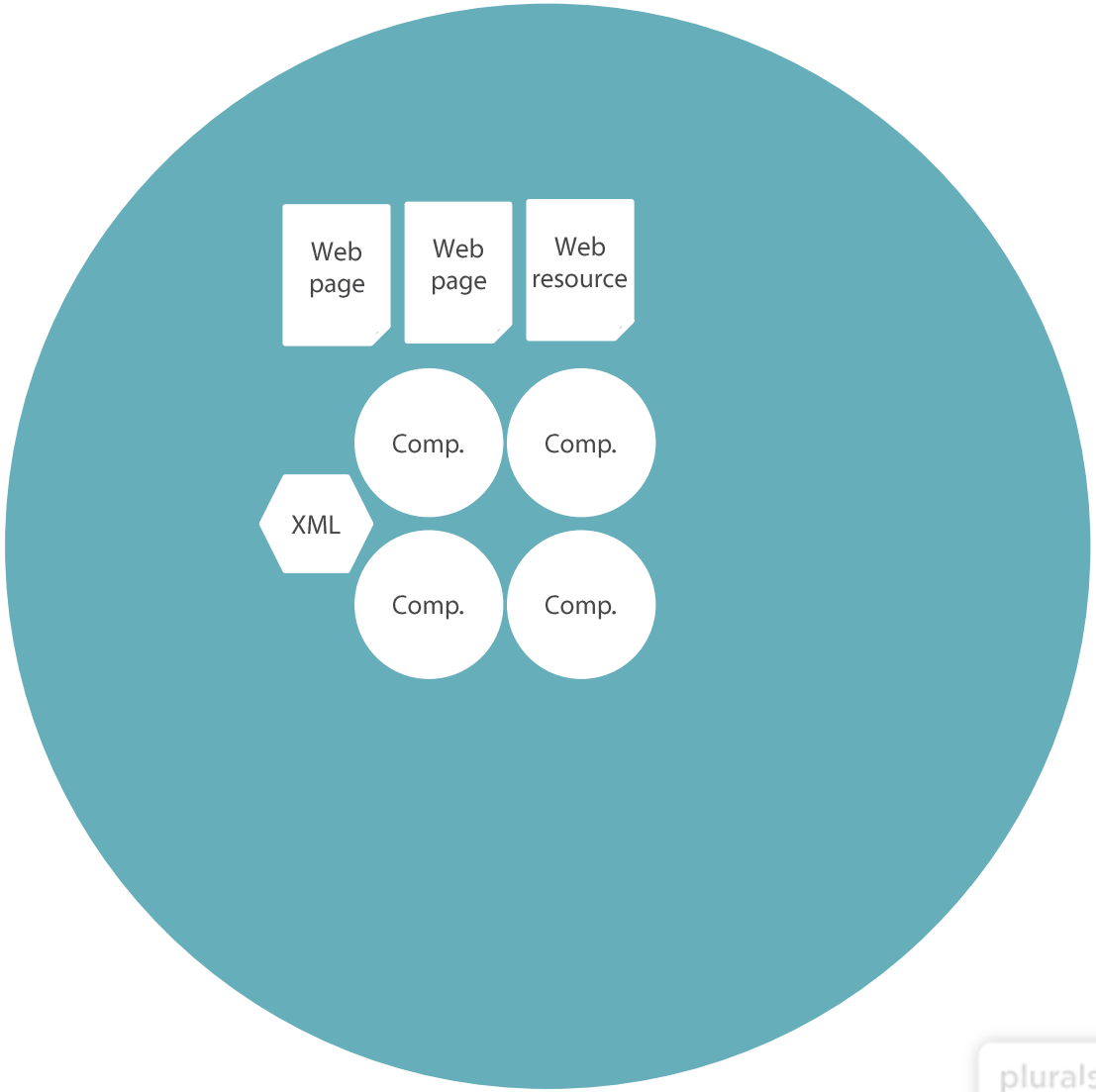
Application

- Aggregation of components
- Web pages
- Web resources
- Business components
- Database access components
- Deployment descriptors



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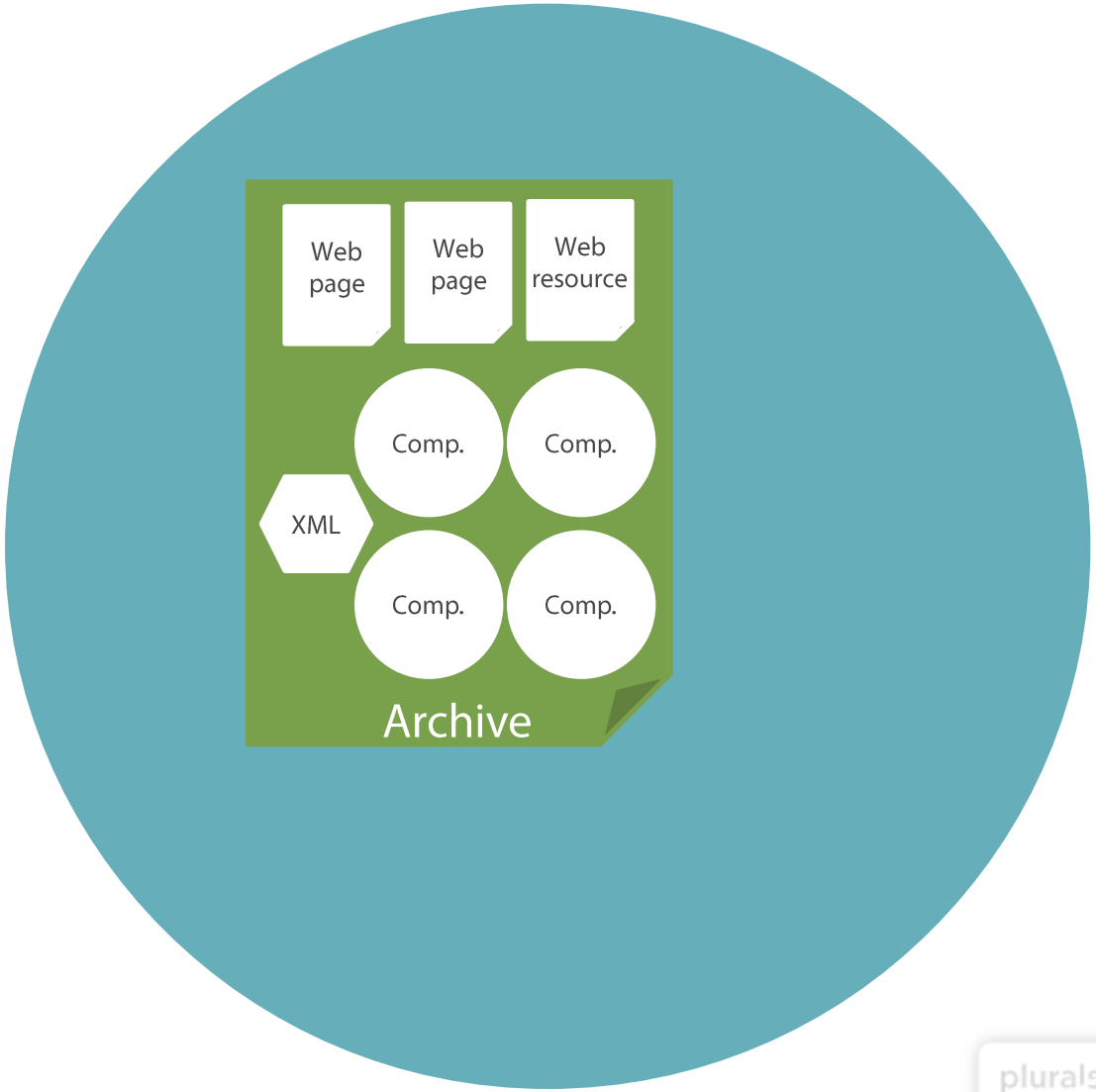
Packaging

- Assemble components together
- Archive
- Deployment
- Standard format



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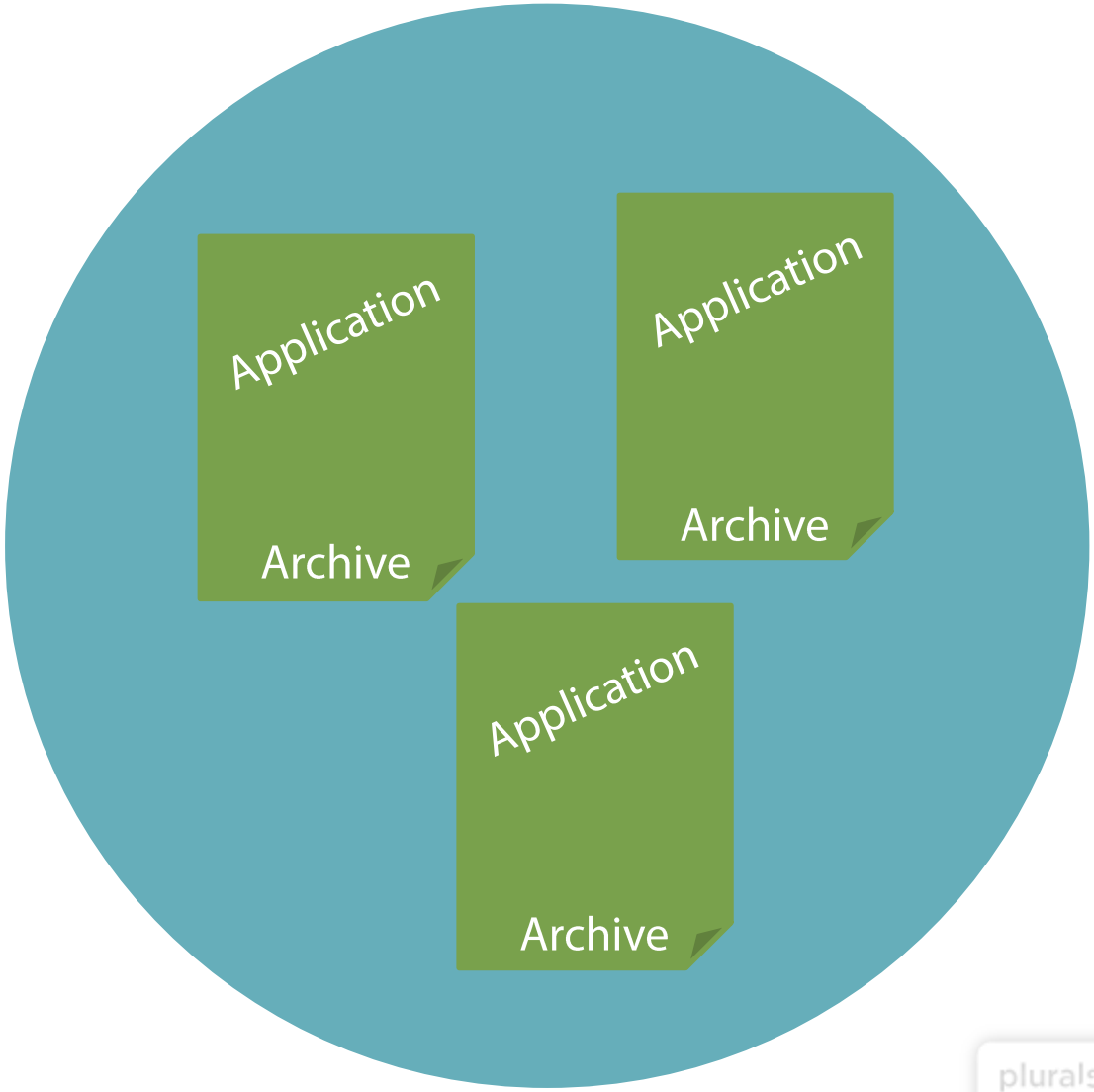
Applications

- Deploy several applications
- Isolation
  - Own resources
  - Own components
  - Own class-loader
- Administration



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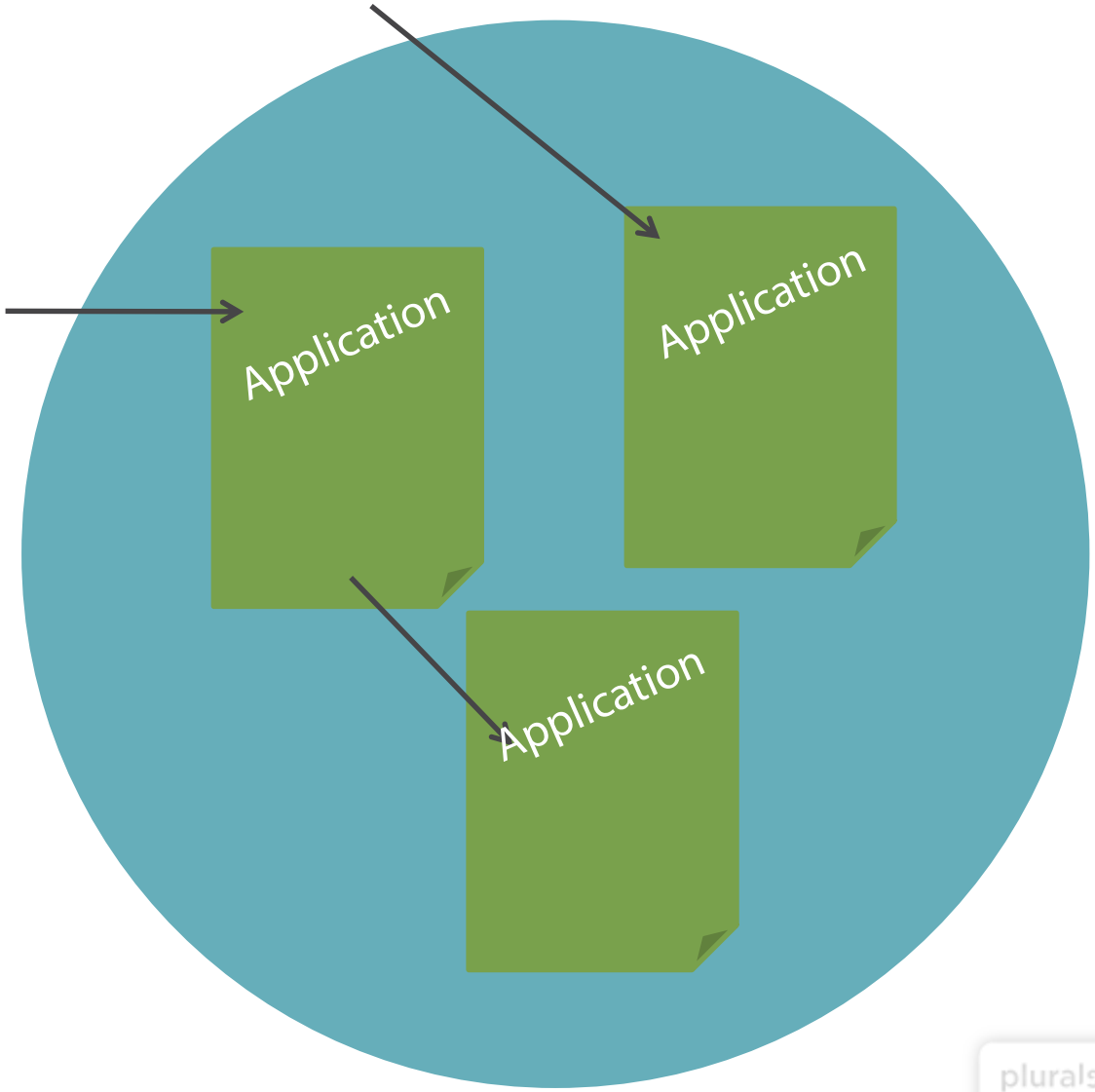
Protocols

- HTTP
- HTTPS (TLS)
- RMI/IIOP
  - Remote Method Invocation
  - Internet Inter-ORB Protocol
  - CORBA
  - Ada, C, C++, Cobol…



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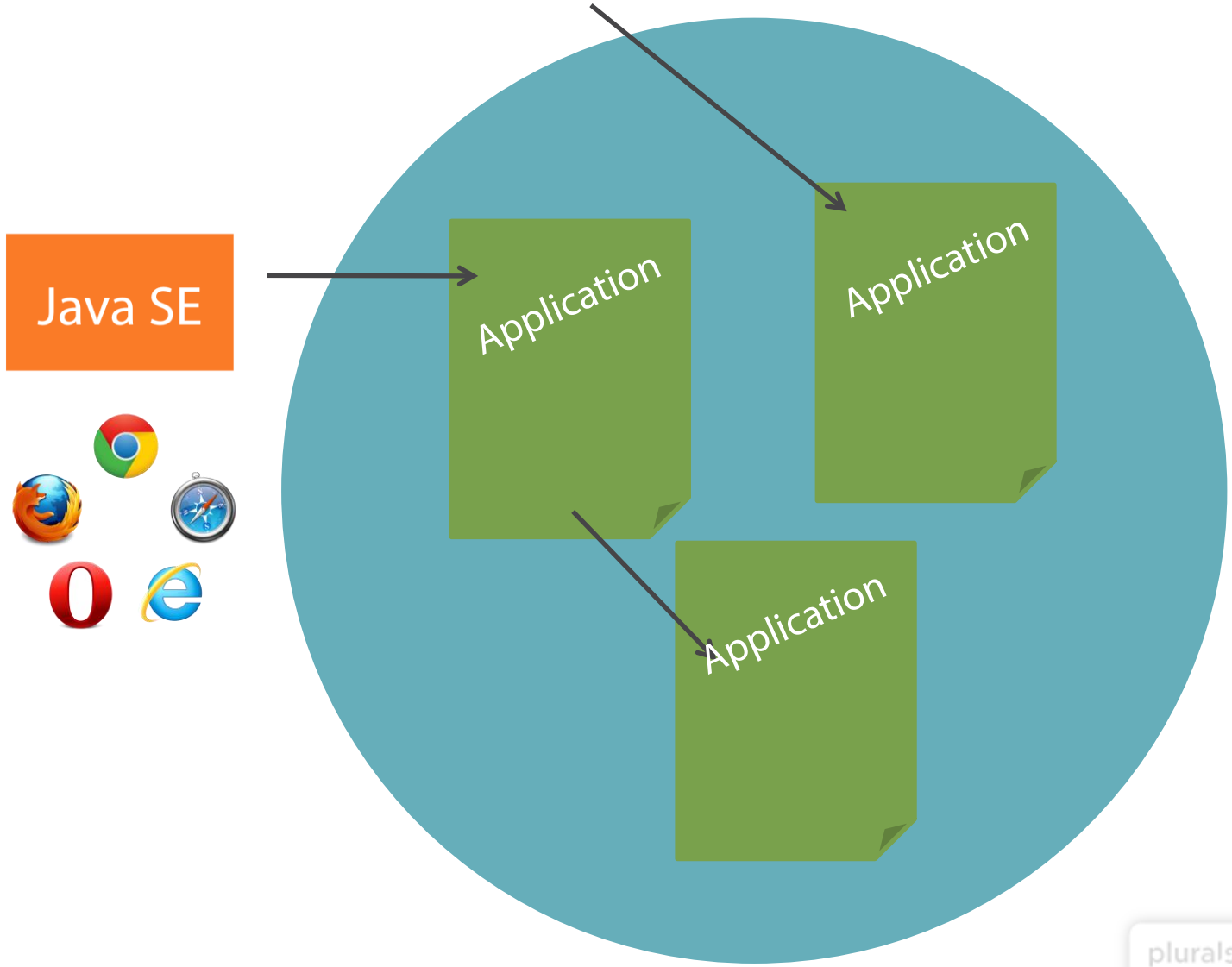
Clients

- Web clients
- Web applications
- REST / SOAP services
- Mobile apps
- B2B



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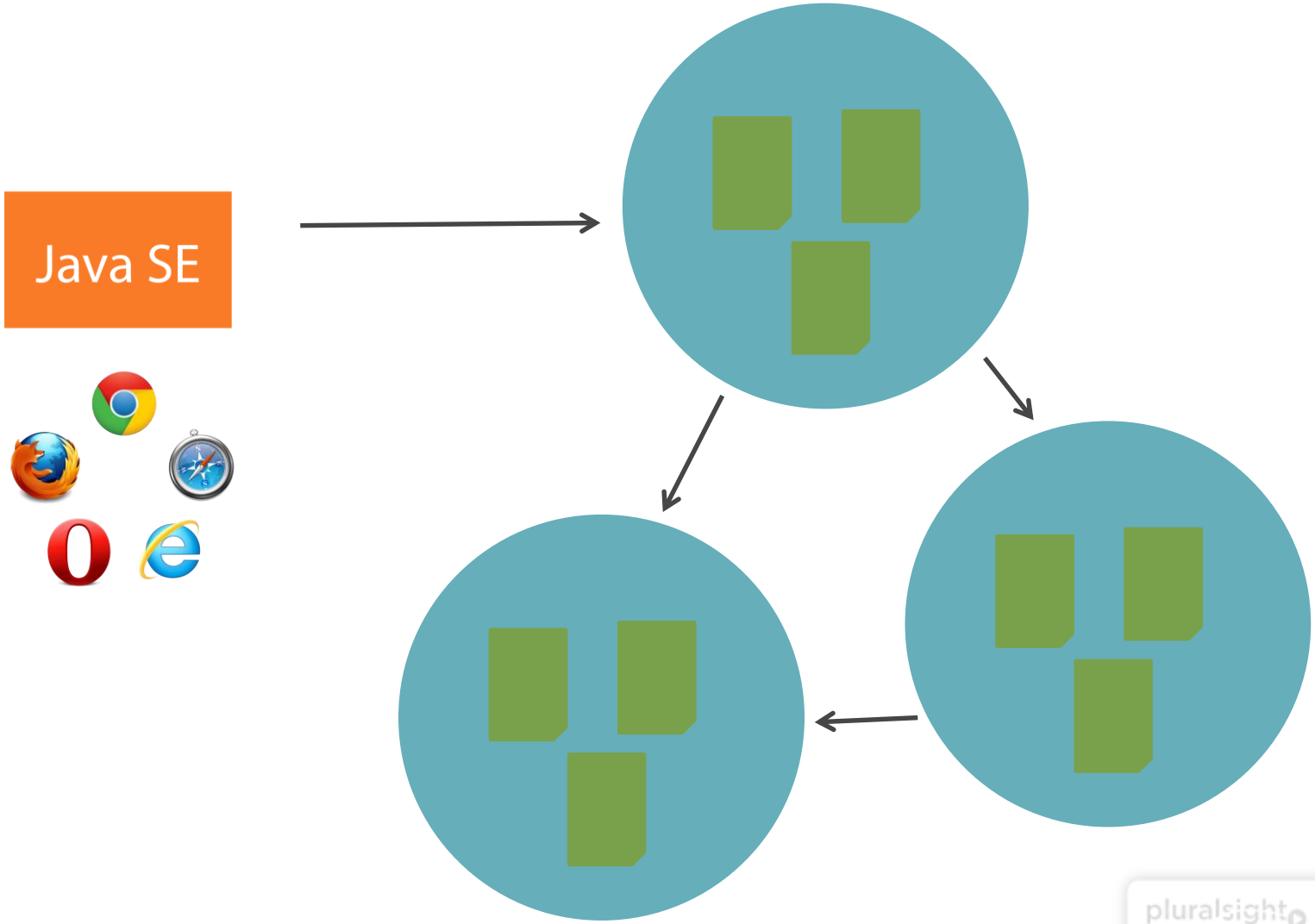
Distribution

- Distributed application
- Load balancing
- Fail over
- Scalability
- Availability



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Deploy CD-Book Store

Java EE components

Metadata

Package

Deploy

Container

Administration

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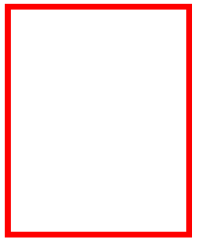
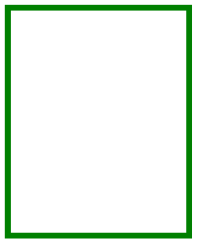
Standard

- Locked to a proprietary solution
- Open source
  - Open but not standard
- Java EE is based on standards
- Standardization process of the JCP
- Described in a specification
- Portable





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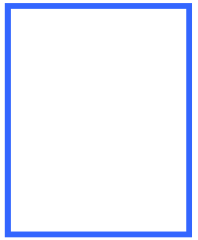
JCP

- Java Community Process
- Future of the Java platform
- Specification lead
- Group of experts
- Java Specification Request (JSR)
- Reference Implementation (RI)
- Technology Compatibility Kit (TCK)



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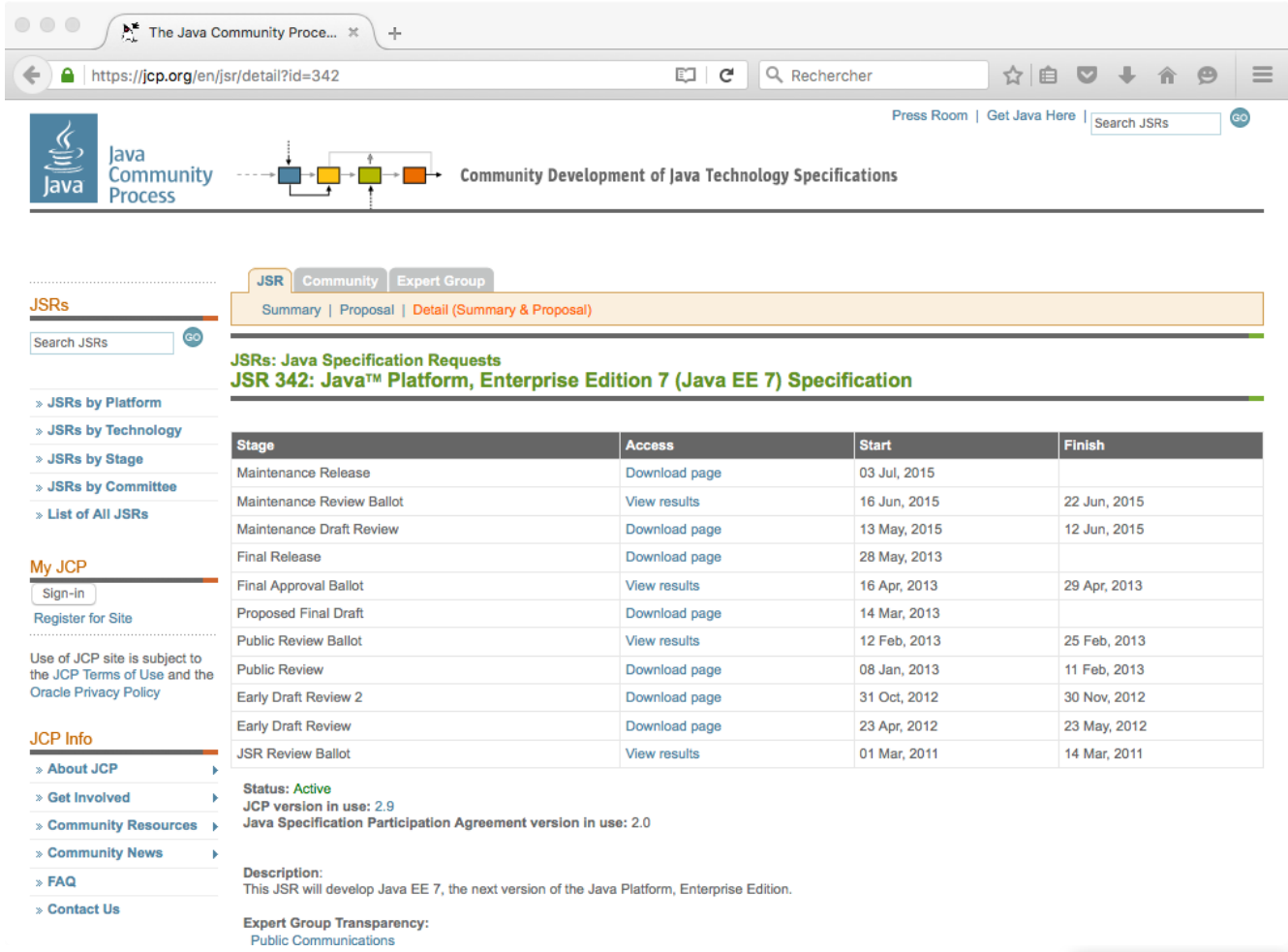
Java EE Specification

- Umbrella specification
- Made of 32 specifications
  - Working together
- Java Enterprise Edition 7
- JSR 342
- http://jcp.org/en/jsr/detail?id=342



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Java EE Implementations

- GlassFish
- Weblogic
- JBoss AS
- WildFly
- TomEE
- WebSphere

ORACLE
WEBLOGIC

WildFly

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Java EE Specifications

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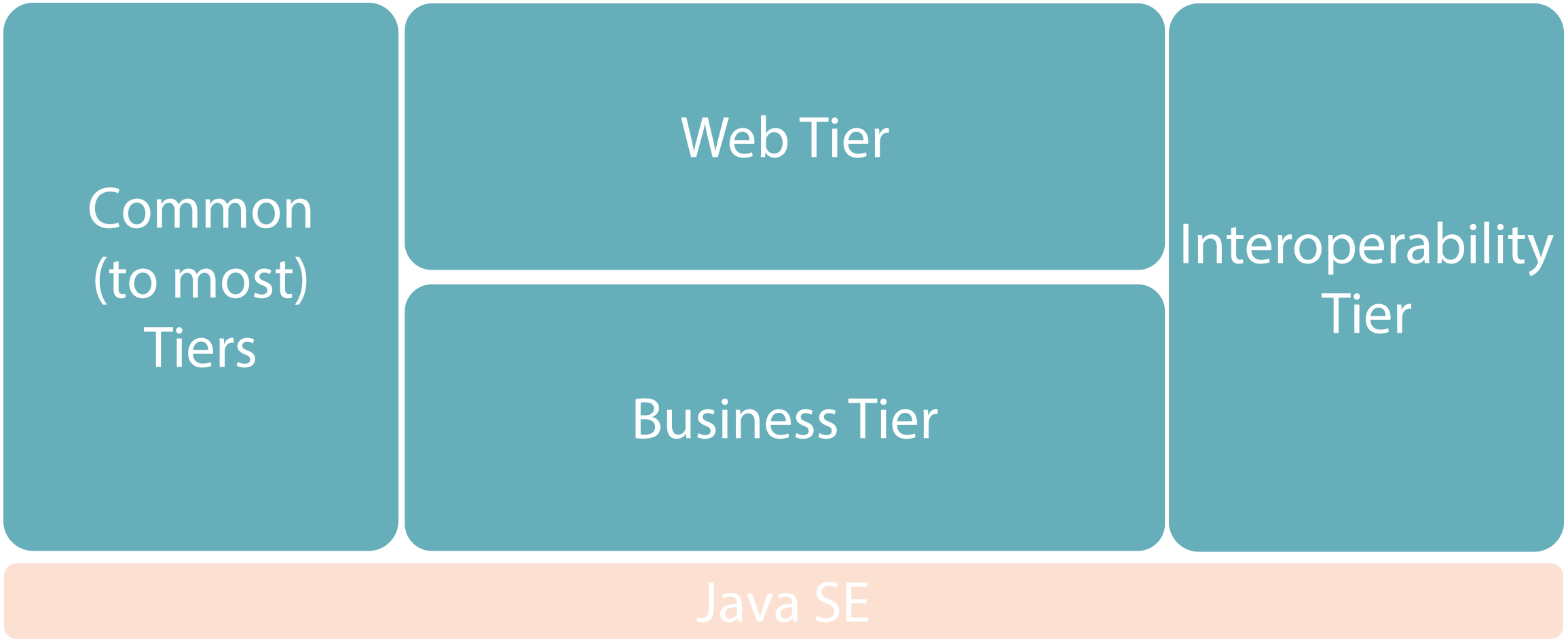
Java EE Specifications



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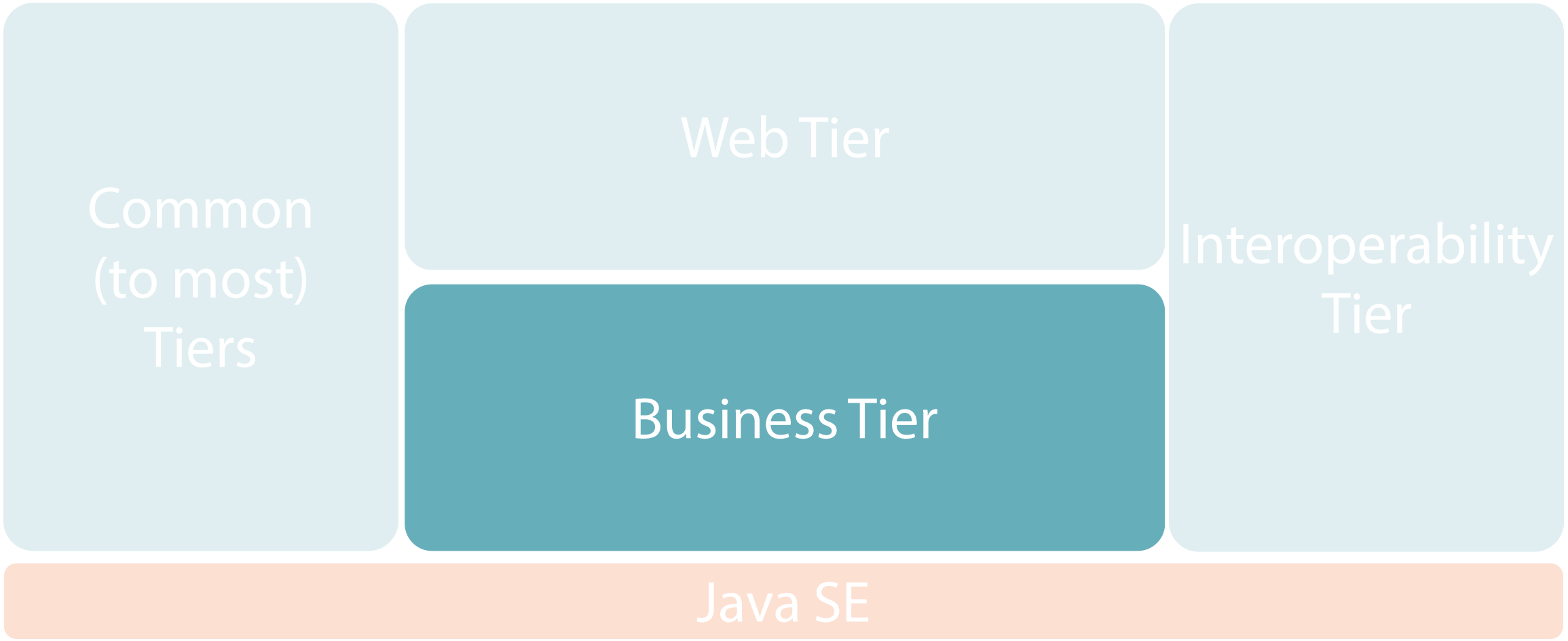
Business Tier Specifications



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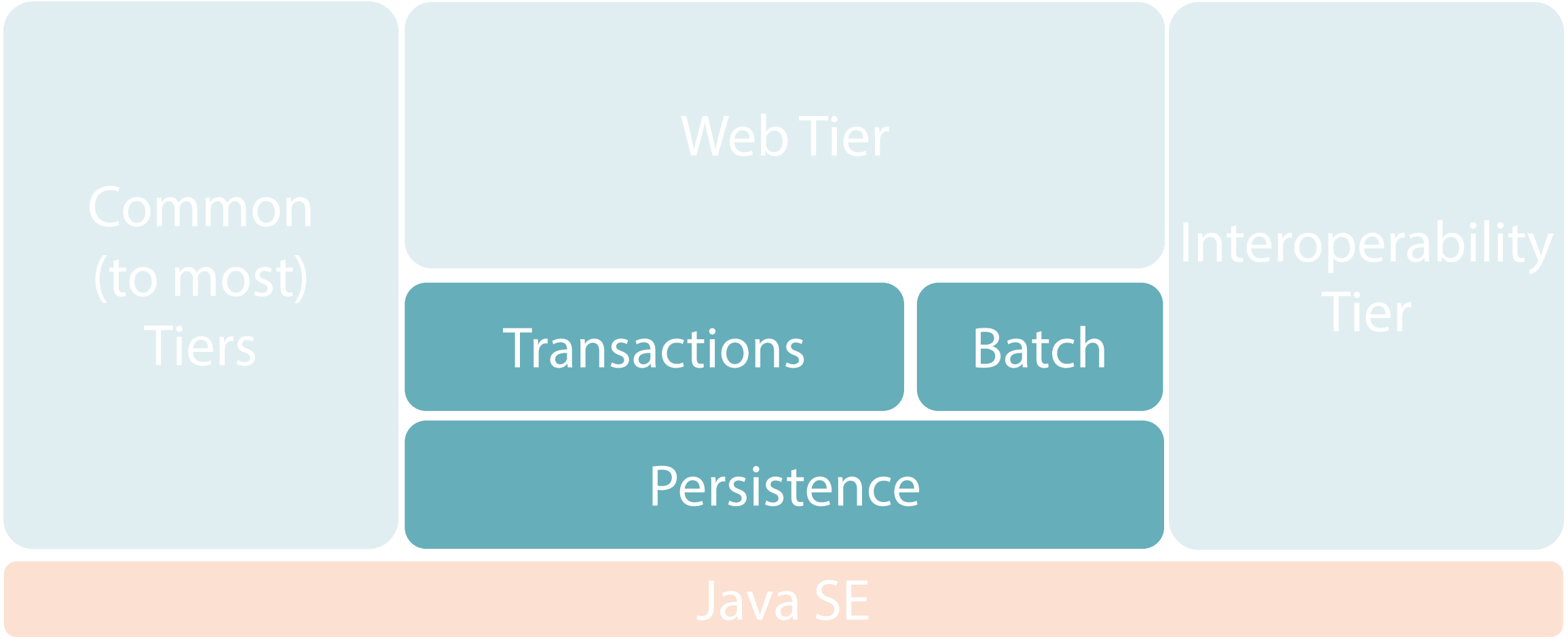

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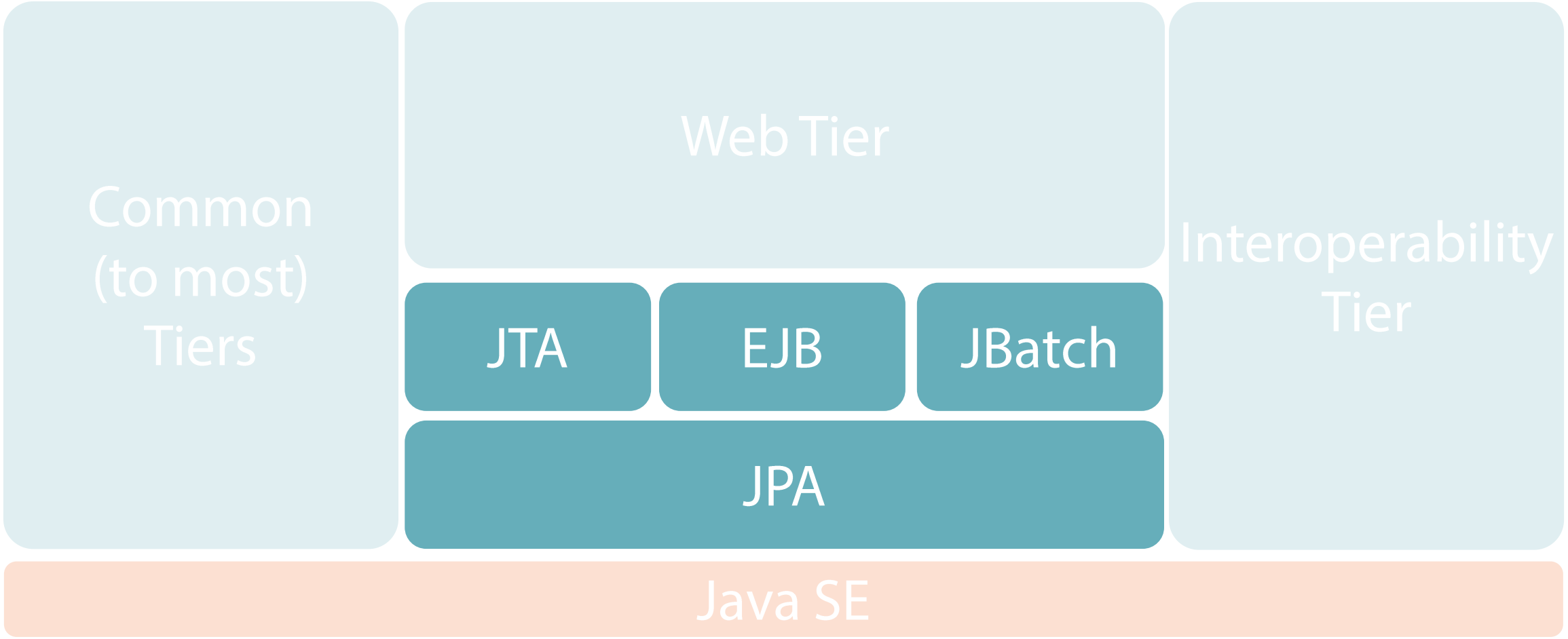

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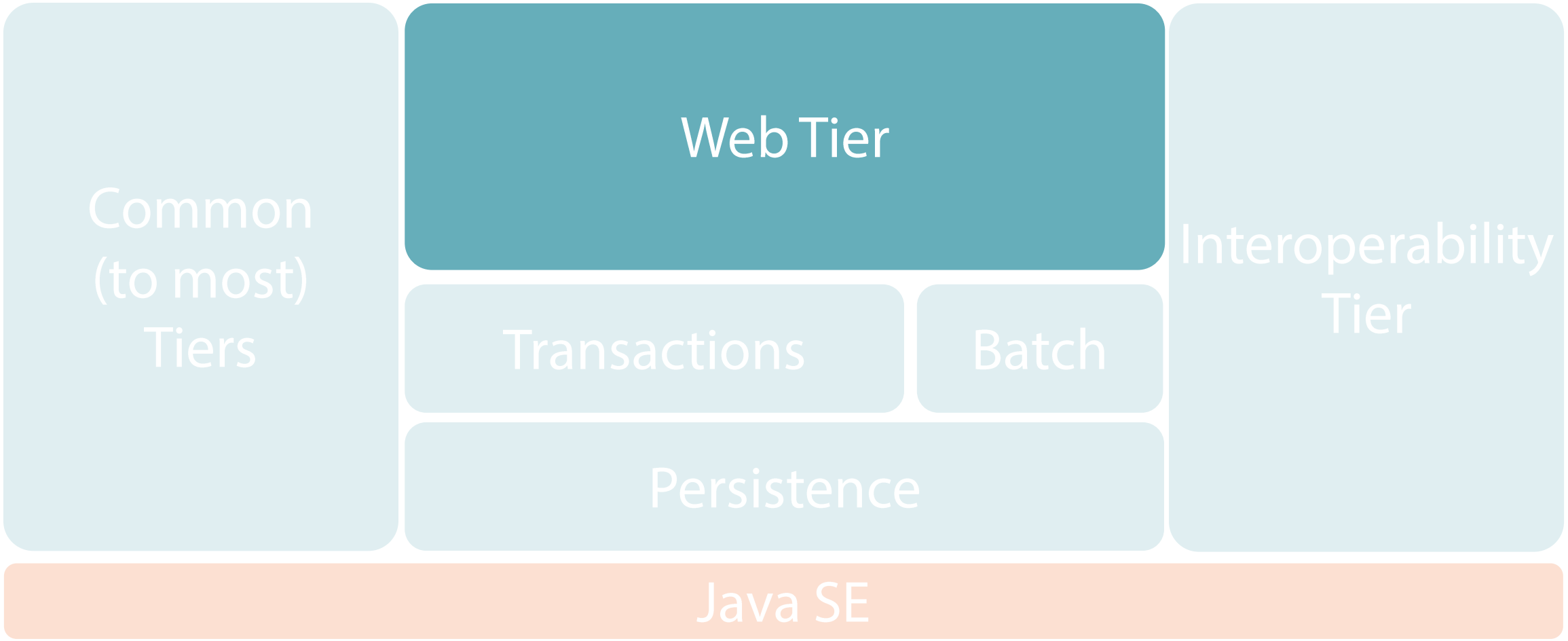
Web Tier Specifications



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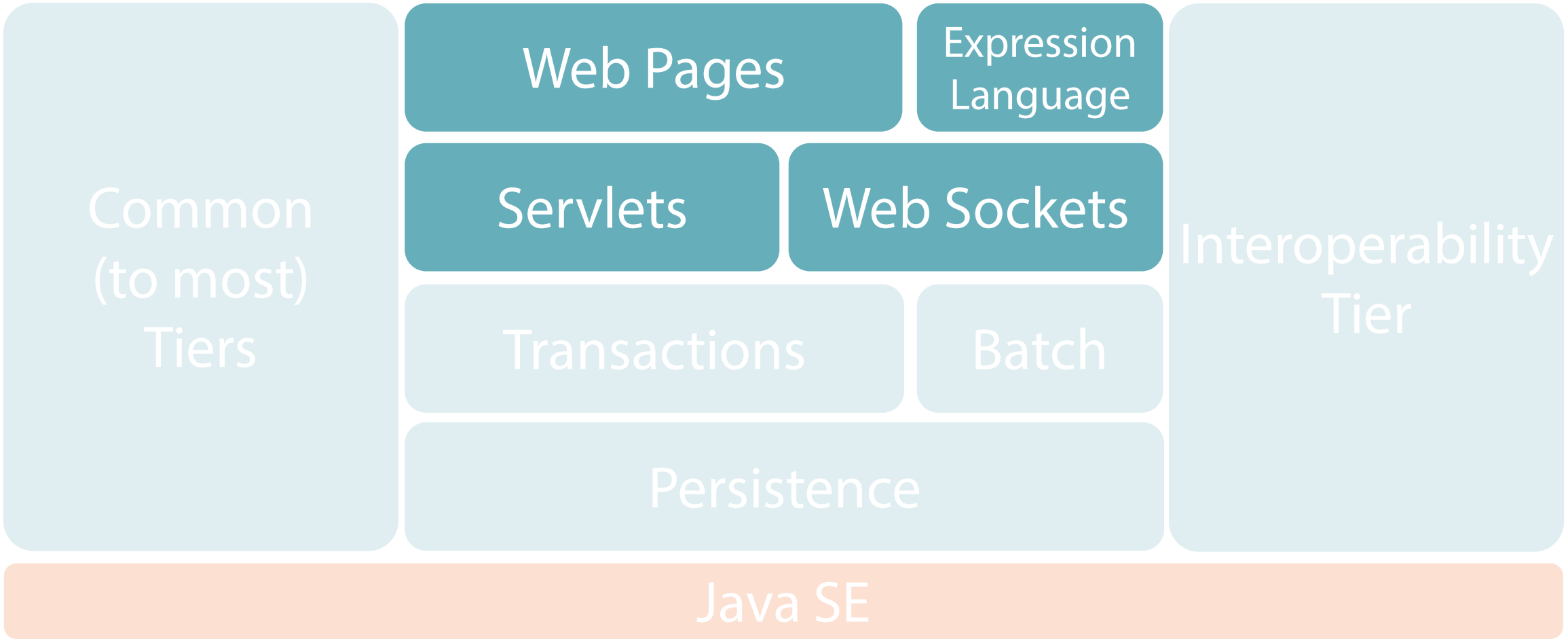
Web Tier Specifications



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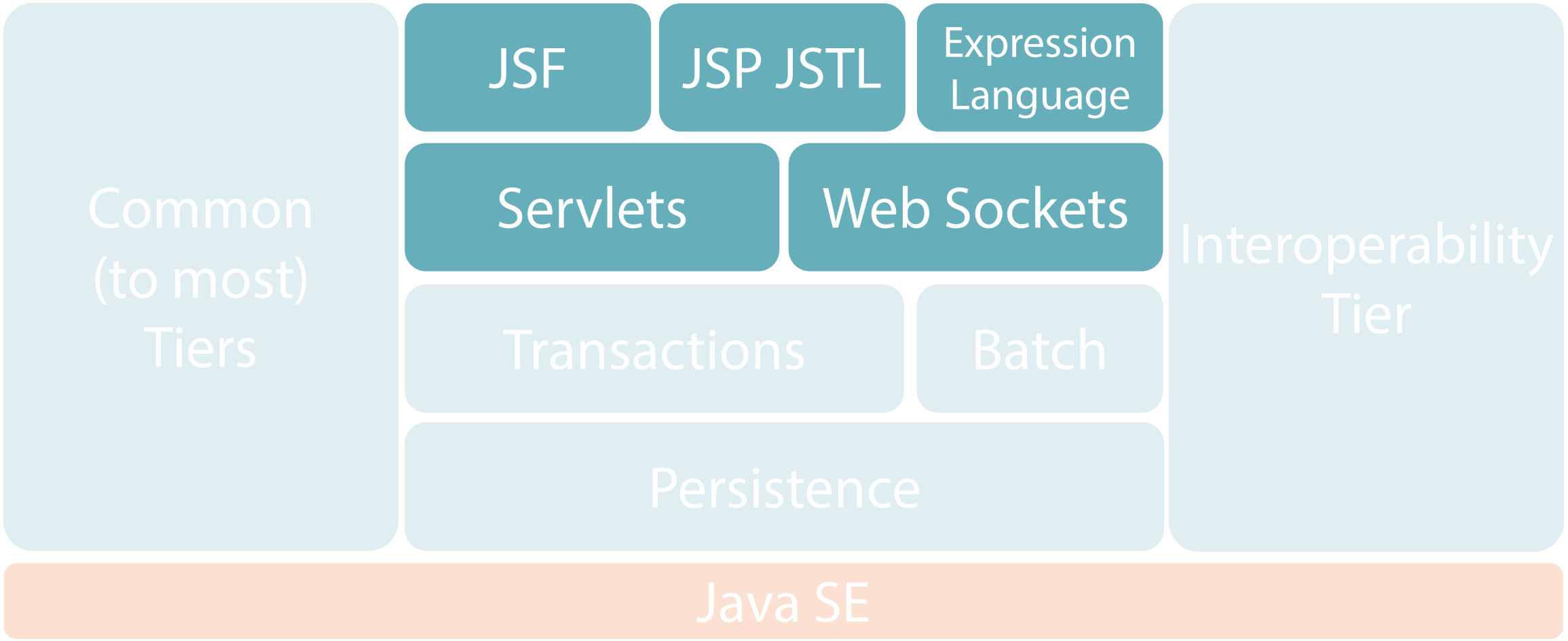

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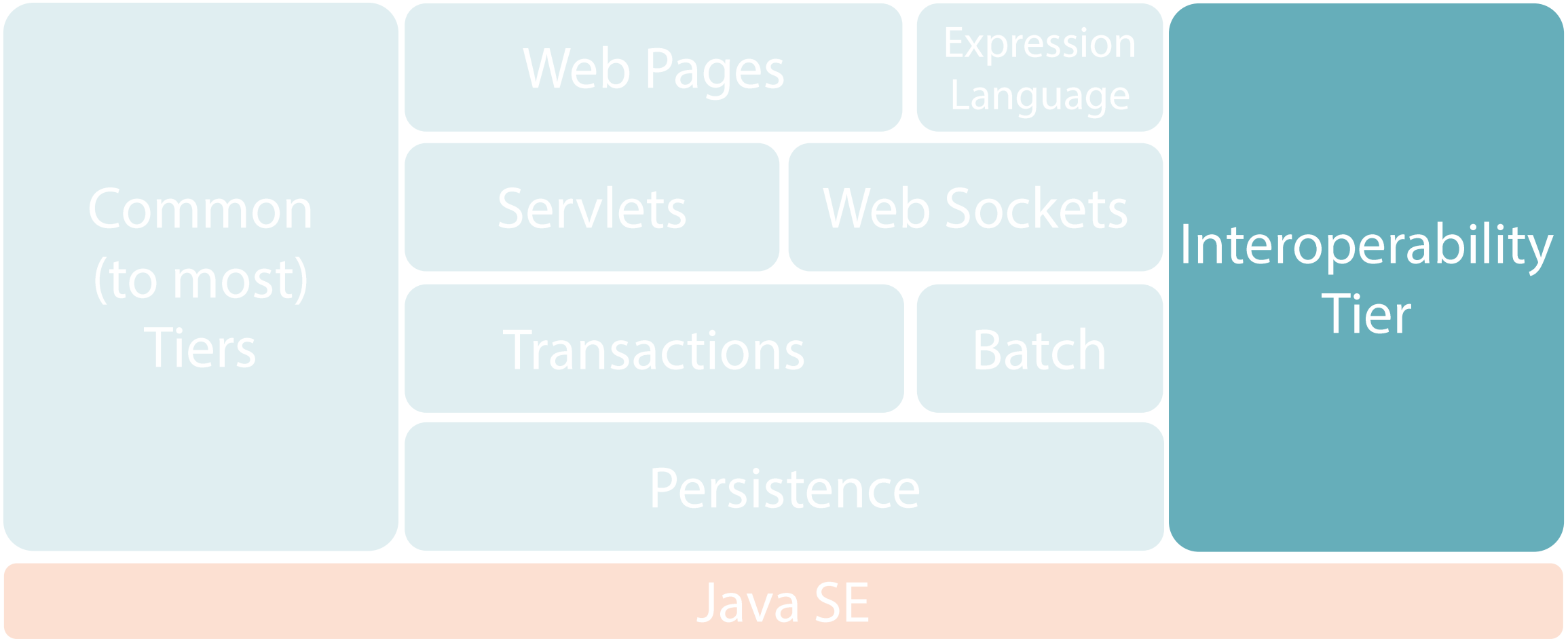
Interoperability Specifications



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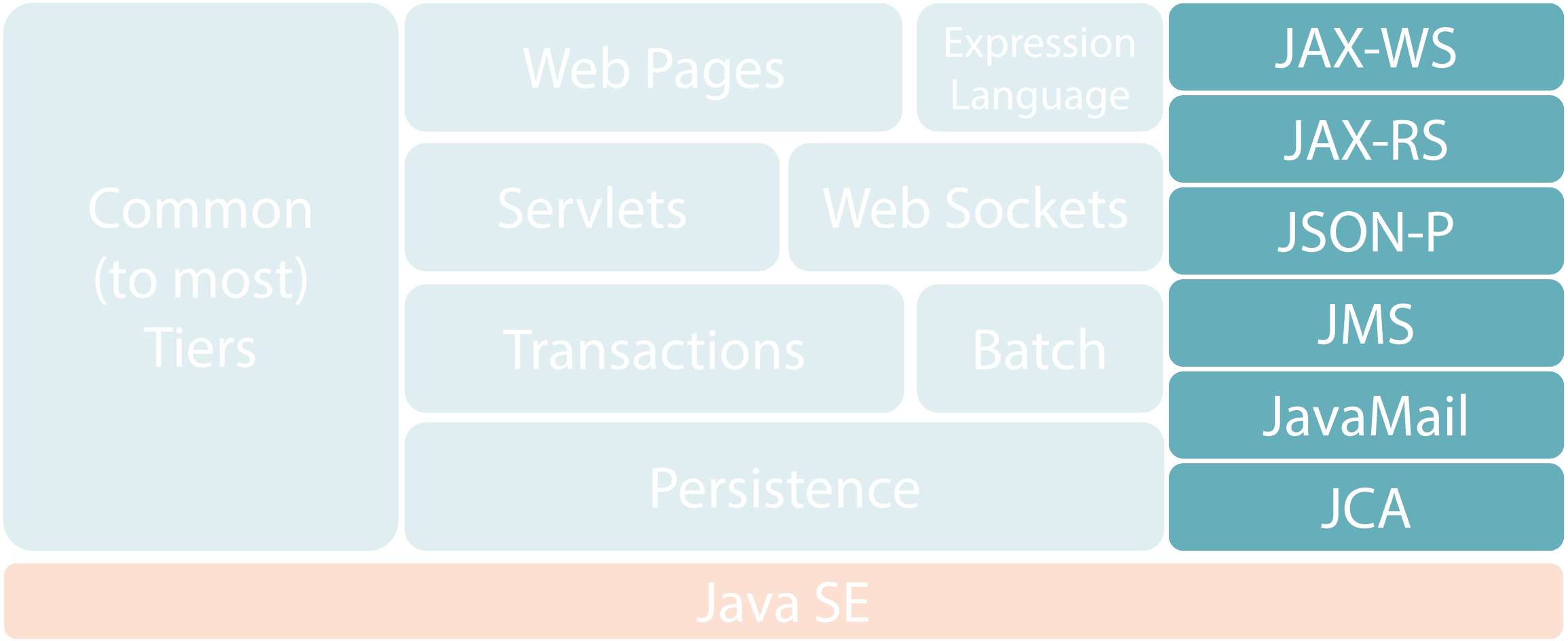

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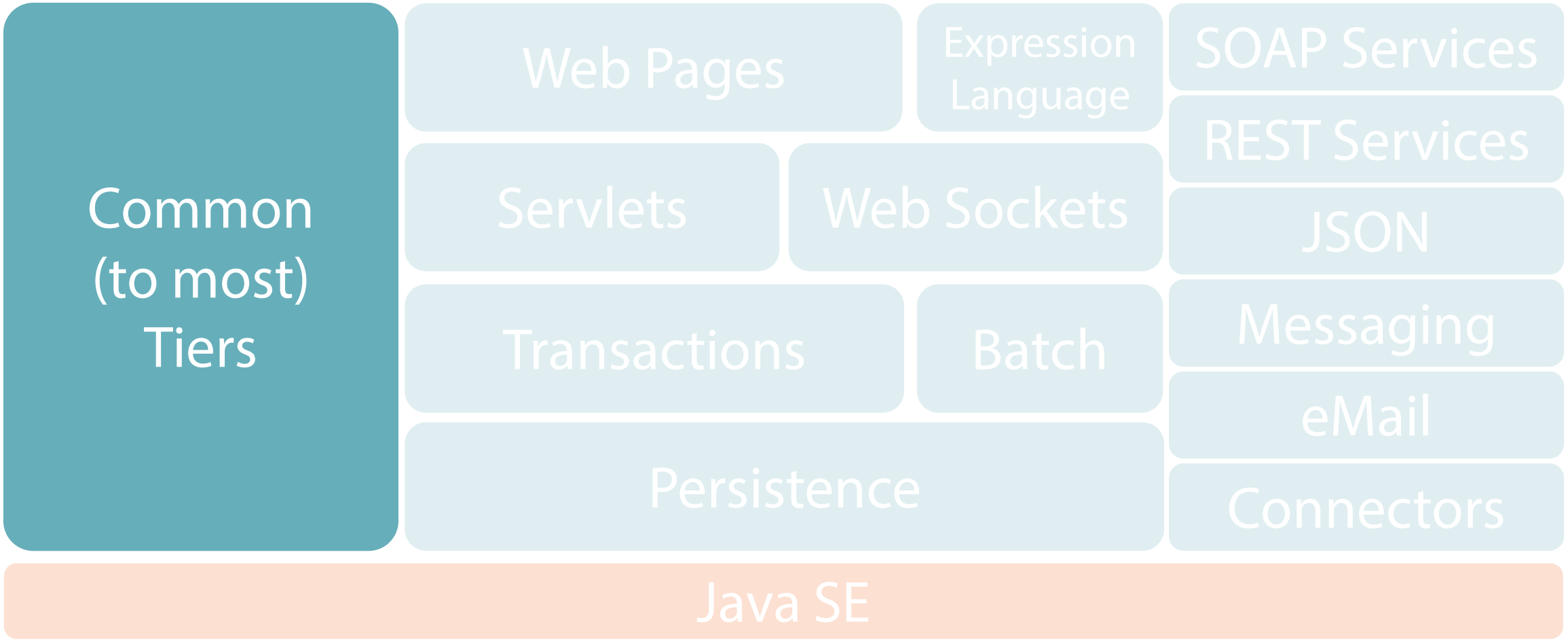
Common Specifications



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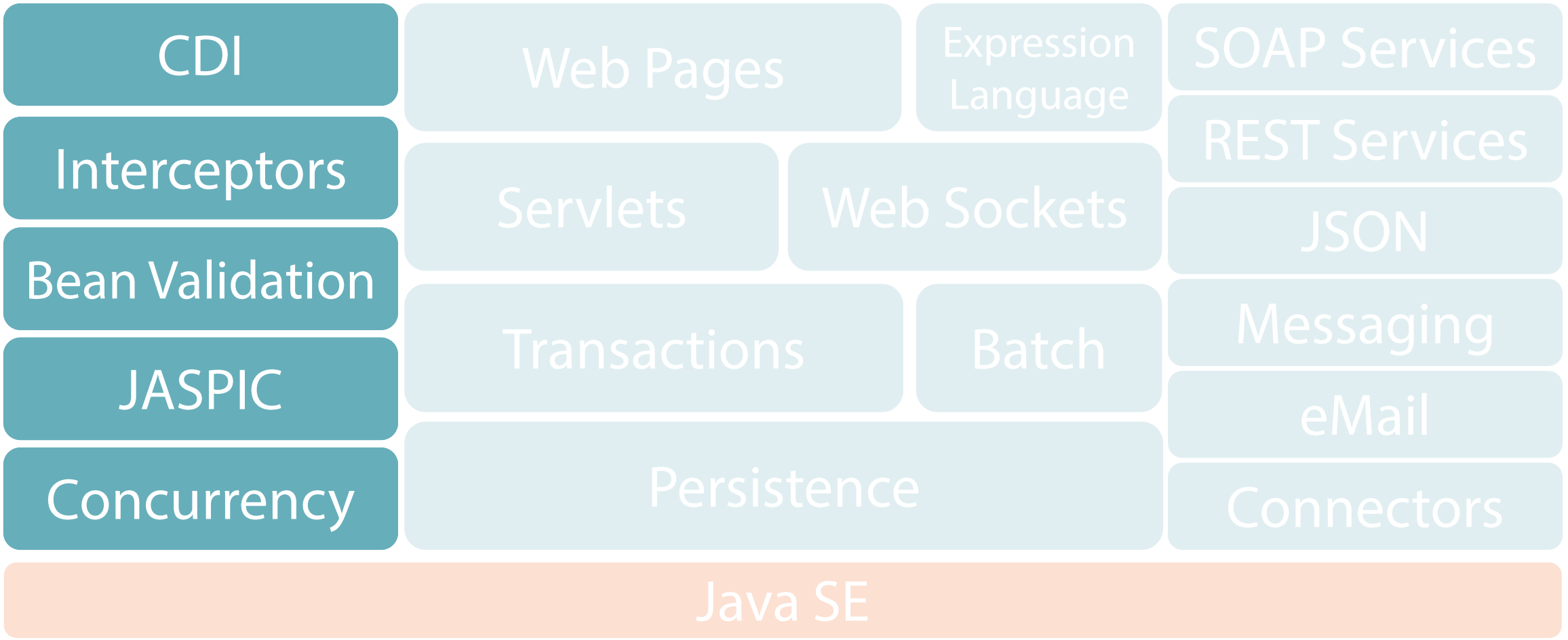
Common Specifications



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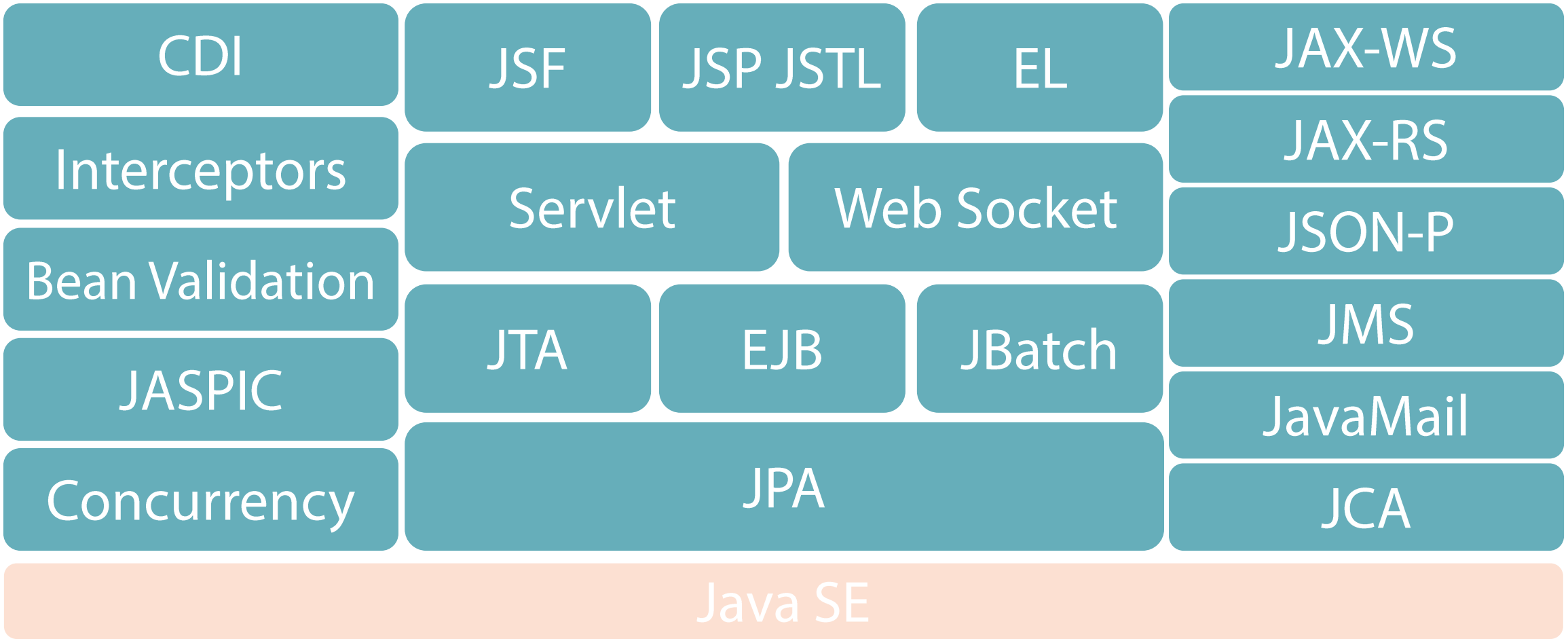
Java EE Specifications



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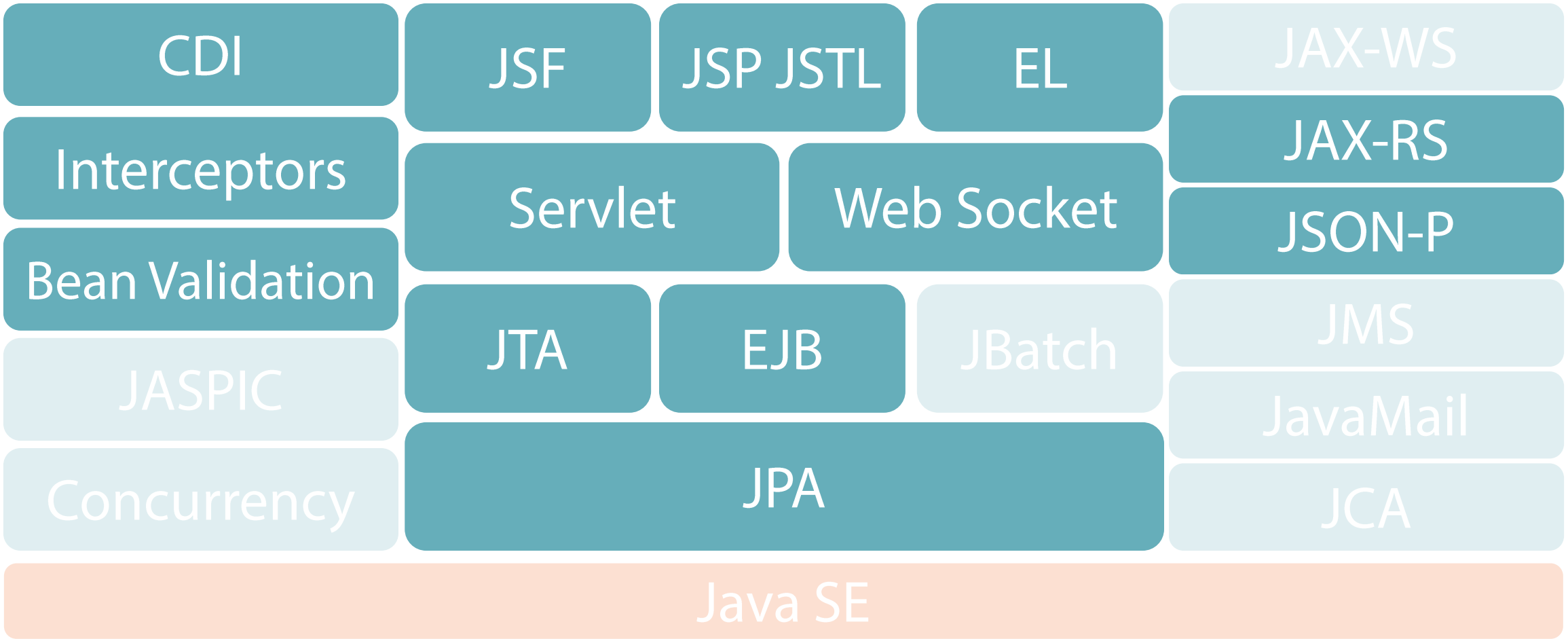
Web Profile



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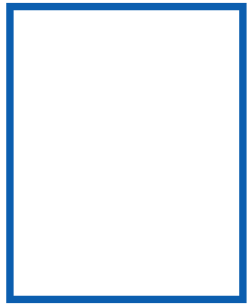
Summary



- Java Enterprise Edition
- Internal architecture
- Tier enterprise applications
- Standard
- JCP
- Made of specifications

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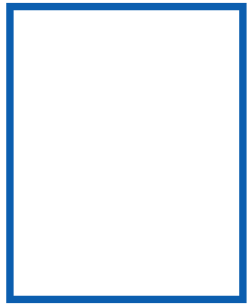
What's Next



Common tier

CDI

Interceptors

Bean Validation

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