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Beyond Web services - Developing Service Oriented Applications

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Application Development Tools
Oracle Corporation

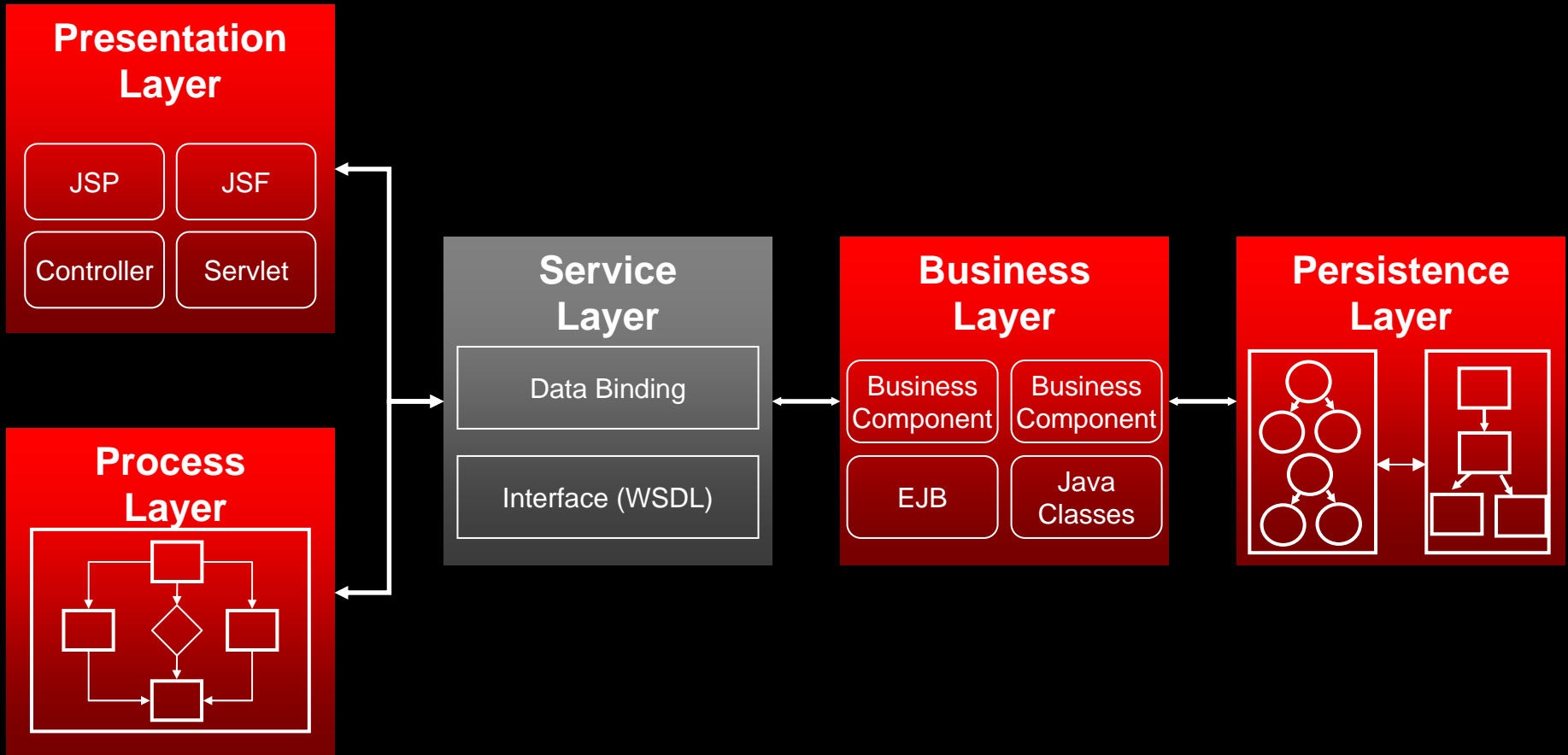
Agenda

- Service Oriented Development of Applications (SODA)
- Service Oriented Architecture (SOA) – Business Services
- Service Oriented Architecture - Data Binding Services

Service Oriented Development of Applications (SODA)

- Decouple Interface from Implementation
 - Loosely coupled interfaces
 - Multi-channel access across numerous tiers
- Services
 - Islands of application code
 - Services are for connecting the Islands!
 - Complements Object-Oriented technology

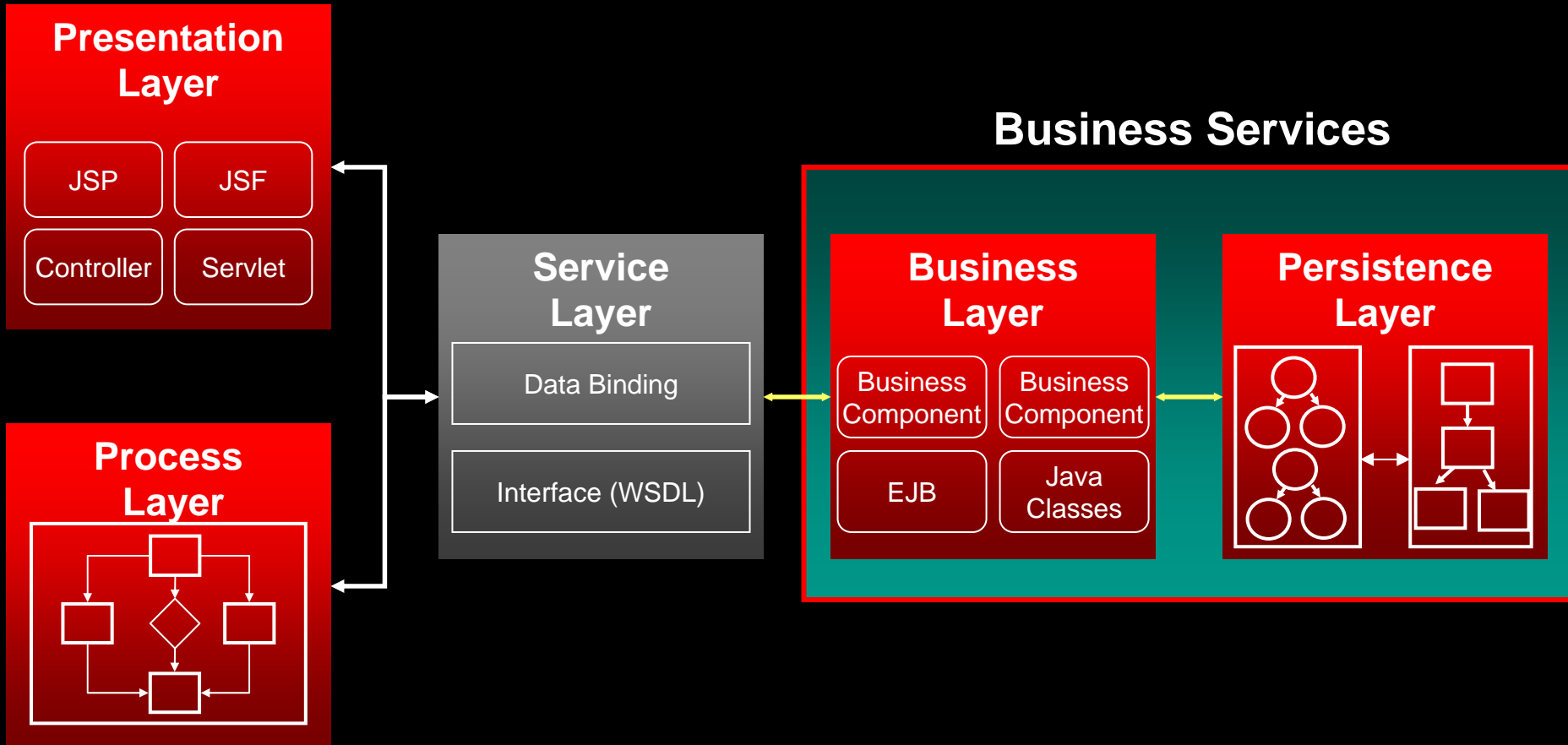
Service Oriented Architectures



SOA is more than Web services

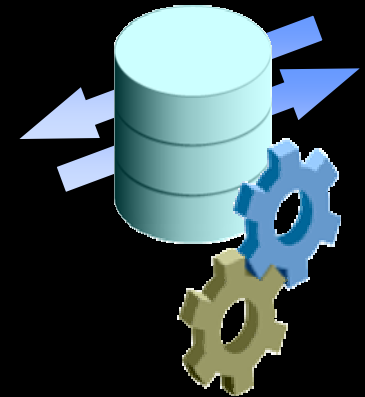
- Application logic is a service
- Web services are one of the clients
- Other types of clients can consume application logic services in a loosely coupled fashion using design patterns such as Model View Controller (MVC)
 - Web clients
 - Professional clients
 - Wireless clients

Service Oriented Architectures



SOA – Business Services

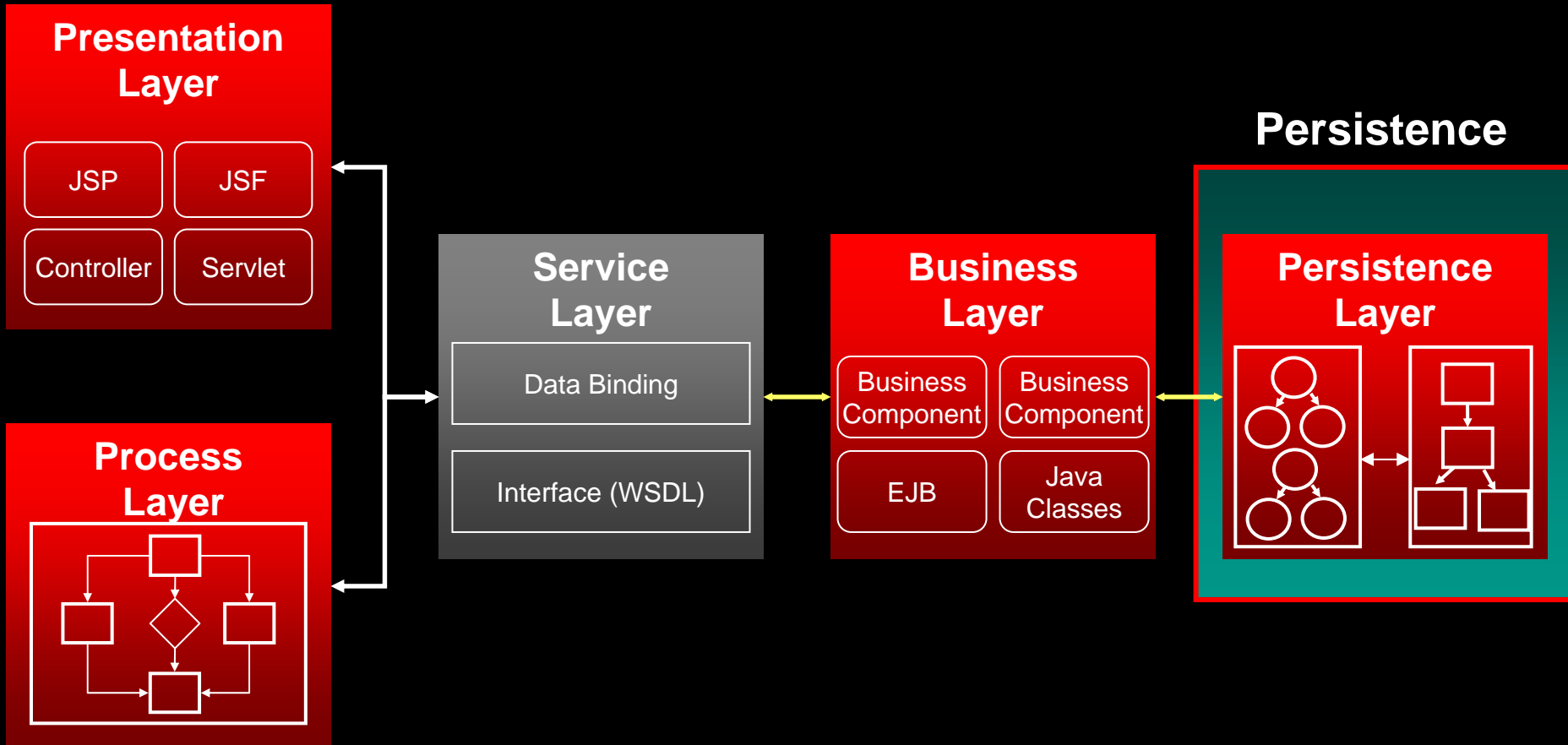
- Persistent Objects
 - O/R Mapping
 - Queries/DML
 - Data validation
- Composed of business components
 - Data validation
 - Business rules
- Coarse grained in nature
- Chunks of business logic



Service Platform & Technologies

- J2EE and .Net platforms
- J2EE
 - Persistence Frameworks
 - Enterprise JavaBeans (EJB)
 - Java classes
 - Standard J2EE Frameworks

Service Oriented Architectures



Persistence Services

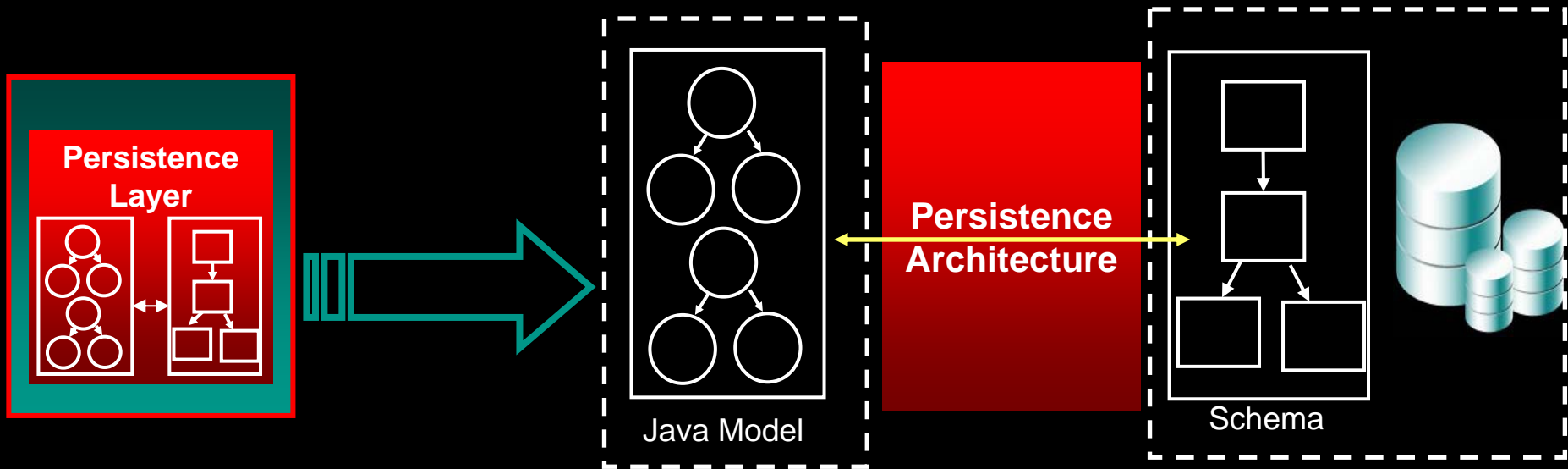
Problem space

Managing persistence related issues is one of the most *underestimated* challenges in enterprise Java today - in terms of complexity, effort and maintenance

Persistence Services – Impedance Mismatch

Factor	J2EE	Relational Databases
Logical Data Representation	Objects, methods, inheritance	Tables, SQL, stored procedures
Scale	Hundreds of megabytes	Gigabytes, terabytes
Relationships	Memory references	Foreign keys
Uniqueness	Internal object id	Primary keys
Key Skills	Java development, object modeling	SQL, Stored Procedures, data management
Tools	IDE, Source code management, Object Modeler	Schema designer, query manager, performance profilers, database configuration

Persistence Services

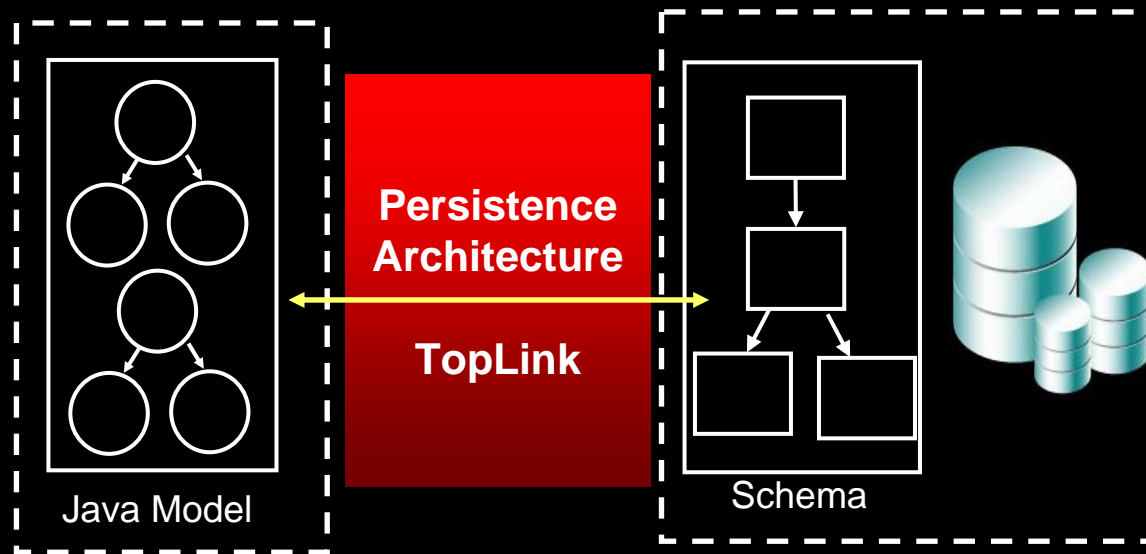


Persistence Services – Key Features

- Meta-Data Architecture
- Comprehensive Visual Mapping Workbench
- Advanced Mapping Support and Flexibility
- Query Flexibility
- Just In Time reading
- Caching
- Transaction support and integration
- Locking
- Performance tuning options

Oracle TopLink

Oracle TopLink provides a proven, powerful “out of the box” solution to address the diversity between Java and databases



Oracle TopLink

- JDeveloper – TopLink Mapping Editor
 - Provides intuitive design time for mappings and configuration, on top of complete application development support
- Mapping Workbench
 - GUI tool used during development to define mappings and deployment configuration
- Foundation Library
 - Used for development and runtime to manage reading, writing, caching, transactions, performance

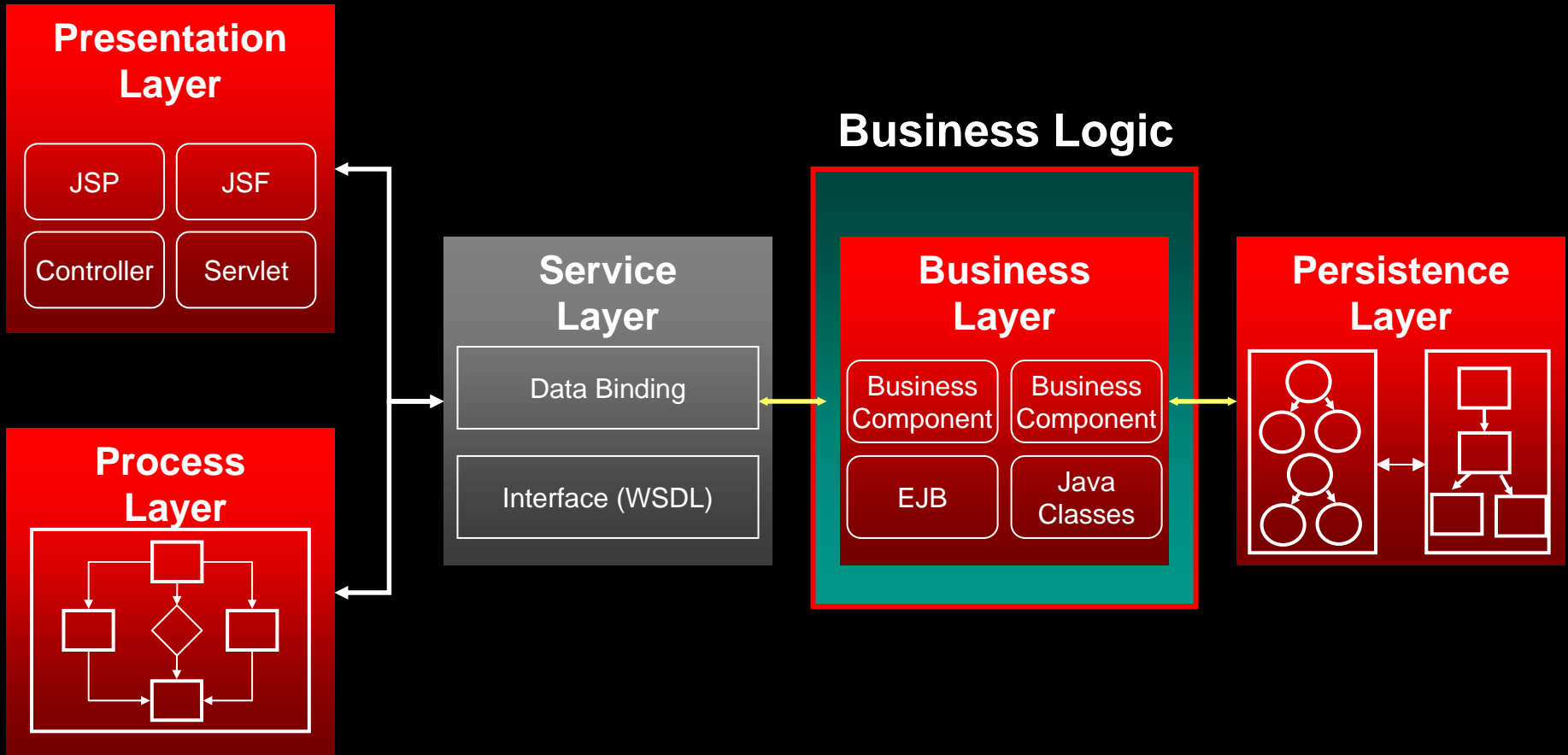
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Developing Persistence Services

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Service Oriented Architectures



Enterprise JavaBeans (EJB)

- Middle-tier Java components encapsulating business logic
- Hosted in EJB containers
- Provides remote services for clients
- Three types of EJBs
 - Session beans
 - Entity beans
 - Message driven beans

EJB 3.0

- Focus : Ease of Development
- Simplified API
- Leverage use of Java language metadata (JSR 175)
- More closely resemble POJO's /Java Beans
- New JSR to address common persistence model (EJB 3,0 & JDO)

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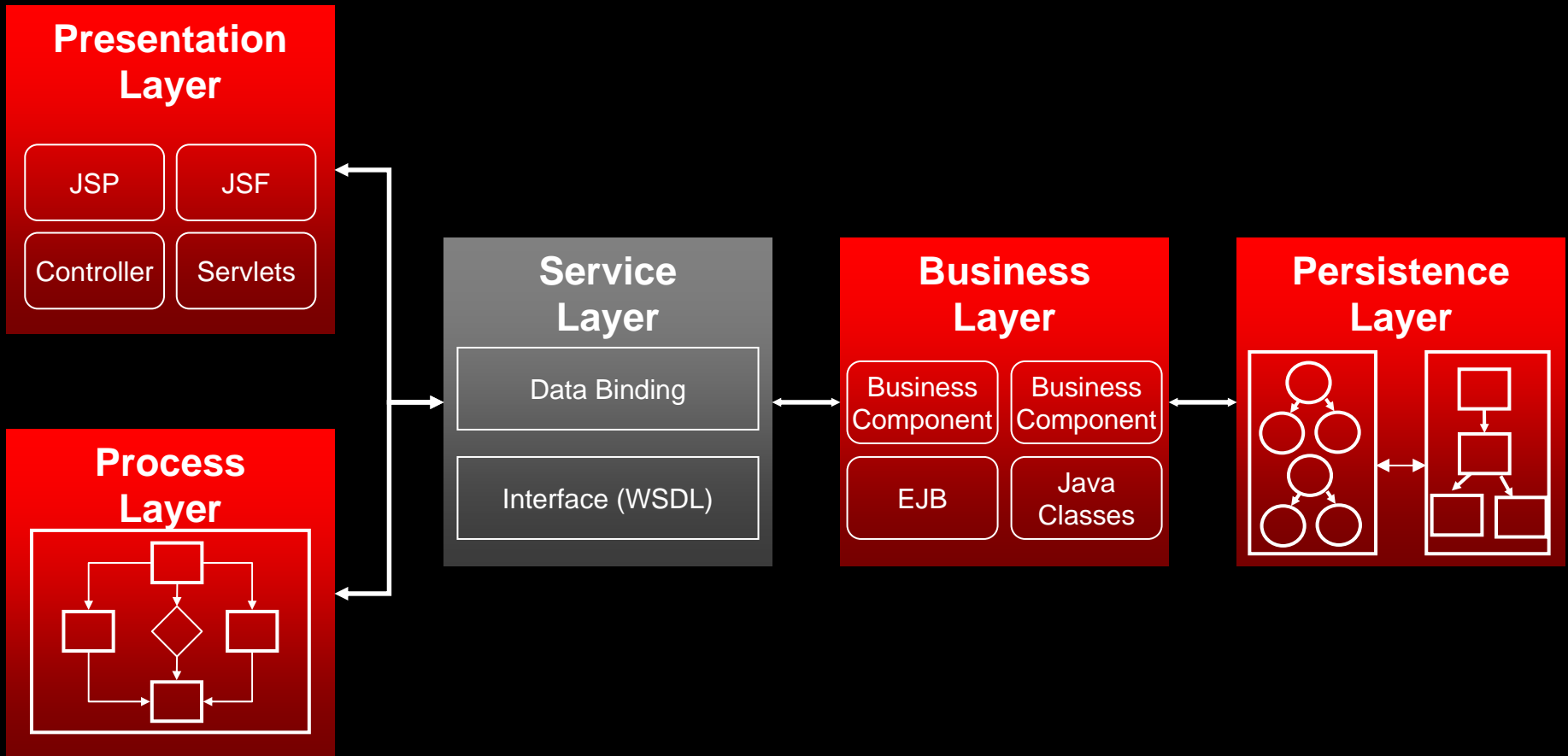
Developing Business Services using EJB

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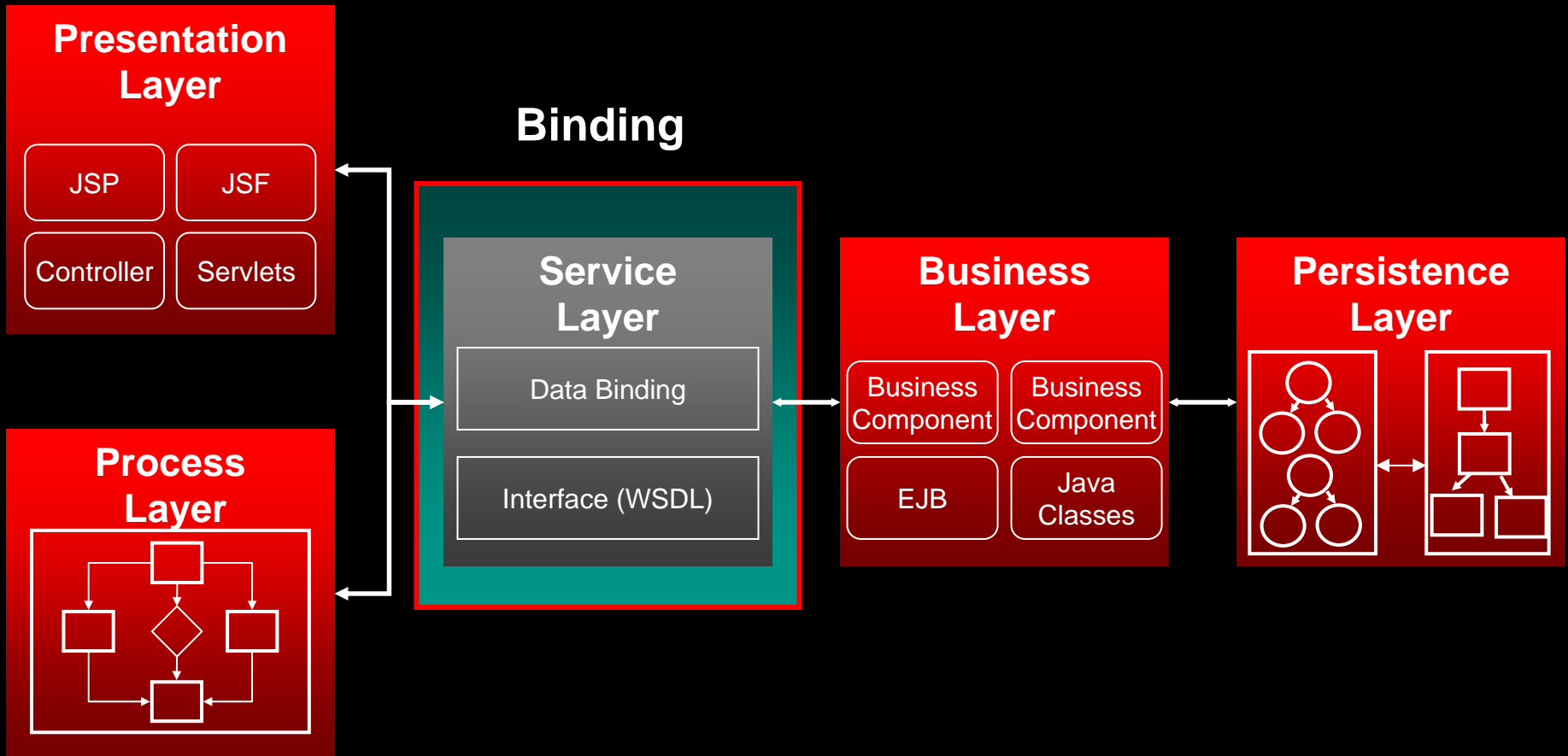
Other Choices

- Java Classes
- Standard J2EE Frameworks
 - ADF Business Components
- Combination of Java Classes and Design Patterns

Service Oriented Architectures



Service Oriented Architectures



Binding to Business Services

- The problem:
 - Different business service providers need different adaptor code
 - Clients need to know the underlying implementation
 - This is not the loose coupling we need in SOA

Data Binding Service Layer

- What are Data Bindings?
 - Abstraction of SOA Business services
- Why?
 - Presentation layer is agnostic of Business Service implementation
 - Provides loose coupling & late binding
- JSR 227 (A standard Data binding & Data Access Facility for J2EE) standardizes binding services

JSR 227 – J2EE Data Binding

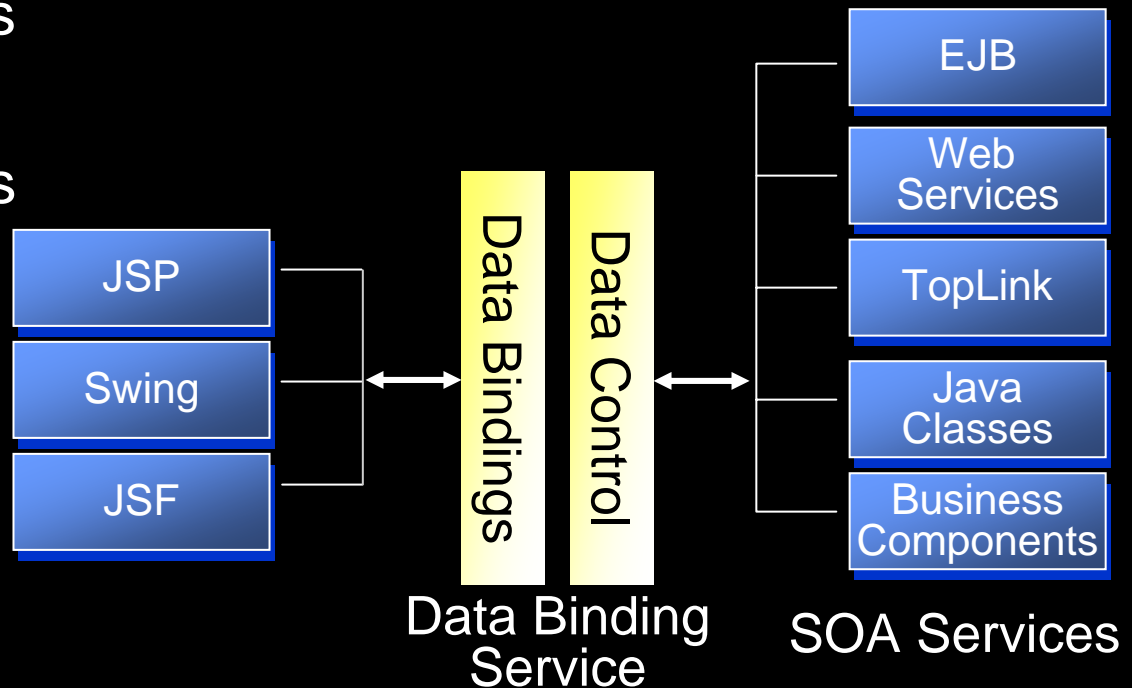
- Data Controls

- A unified description of a SOA Business Service

- Collections
- Attributes
- Operations

- Data Bindings

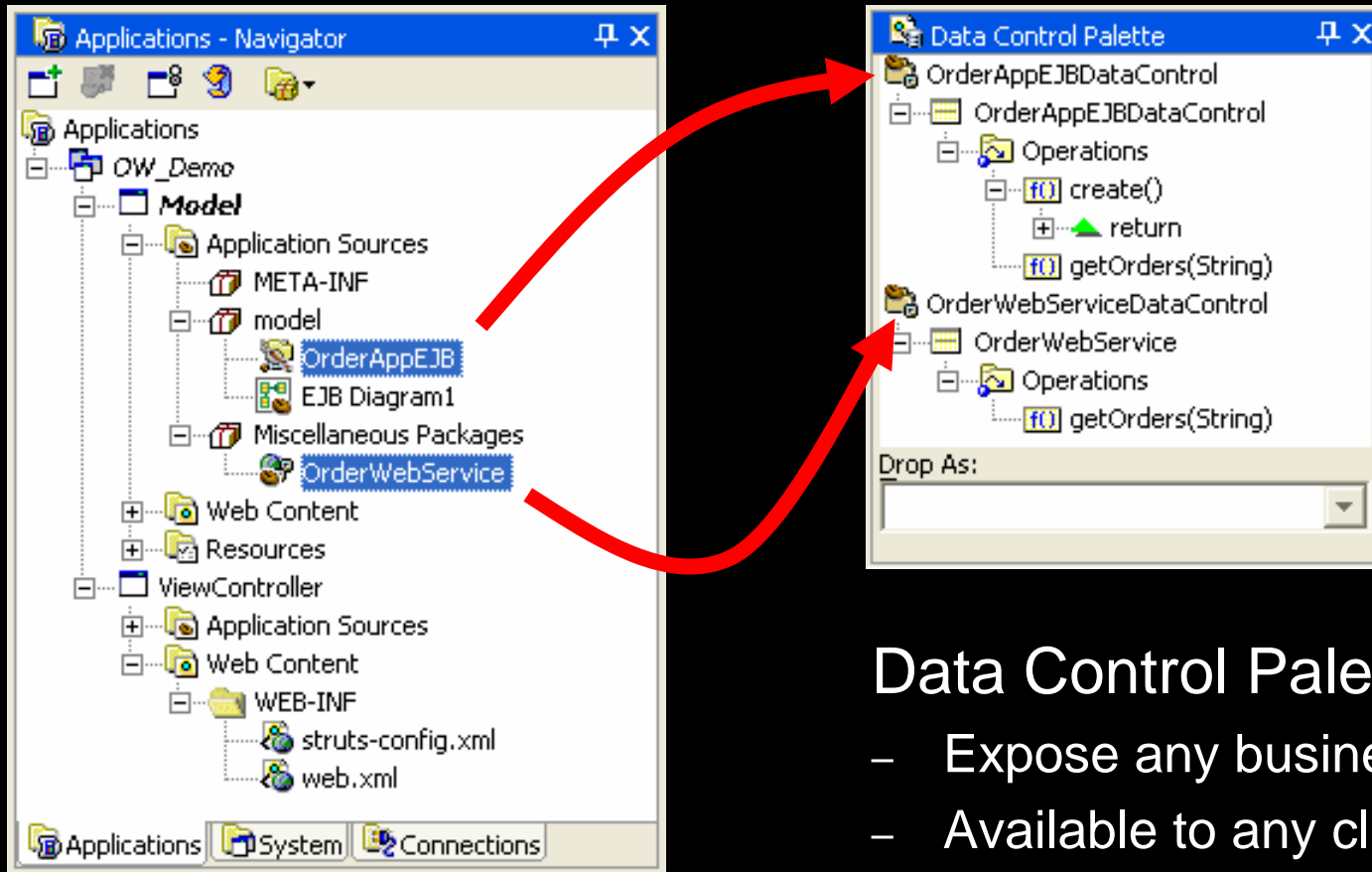
- Usages



Oracle ADF Implements JSR 227

- Increase Productivity & Ease-of-use
 - Visual and declarative development
 - Less coding, more reuse
 - Reduce learning curve & resource issues
 - XML Metadata
- Promote Service Orientated Development
 - Re-usable Business Services
 - Common architecture
- Standards-Based
 - Uses standard data & code whenever possible
 - Clean separation between design-time & runtime
 - Choice of technology – Not all-or-nothing

Drag-and-Drop Binding



Data Control Palette

- Expose any business service
- Available to any client

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Data Binding

SOA – Best Practices

- Loosely coupled model
- Coarse grained
- Make use of services provided by the container
- Make optimal use of database

Summary

- ✓ Service Oriented Development of Applications (SODA)
- ✓ Service Oriented Architecture (SOA) – Business Services
- ✓ Service Oriented Architecture - Data Binding Services

A large, stylized logo in the background consisting of a grey 'Q', a red ampersand '&', and a grey 'A'. The text 'QUESTIONS' and 'ANSWERS' is overlaid on this logo.

QUESTIONS
ANSWERS

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