



ORACLE[®]

Fusion Technical Architecture

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JDeveloper and ADF

Oracle's Strategy

- Oracle Fusion Architecture
 - Blueprint for SOA-based enterprise solutions
- Oracle Fusion Middleware
 - Technology infrastructure for SOA applications
- Oracle Fusion Applications
 - Protect, extend, evolve through Fusion architecture

Oracle Fusion Middleware




Development Tools
SOA Tools & Framework



User Interaction
Portals, Content, Search,
Desktop, Mobile, VoIP



Business Intelligence
ETL, Q&A, OLAP, Reports,
Alerts, Real Time



Integration & Process Management
Messaging, ESB, BPM, B2B, BAM, MDM



Application Server
J2EE, WS-*, Events, Rules



Grid Infrastructure
Clusters, Metadata, Registry, Security



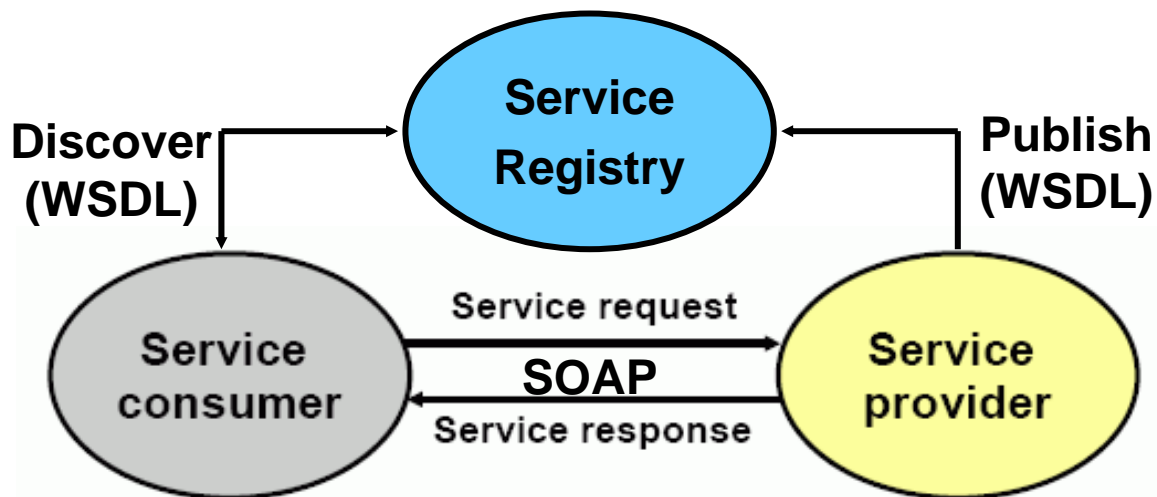
Systems Management
System Application
Services



Identity Management
Directory Provisioning, Single
Sign-On, Identity Administration

Introducing Service-Oriented Architecture (SOA)

- Service-Oriented Architecture (SOA) is:
 - An architectural style for integrating loosely coupled interacting software services
 - A set of services (components) that can be invoked
 - Enabled through standards



Services

- A service:
 - Represents a unit of work invoked as part of a business process
 - Communicates with clients through standard protocols and technologies
 - Performs a business function (such as, validate credit card) and can be
 - A subset of an EIS system implementation
 - A part of an application module
 - A Web service implementation
 - A PL/SQL Package

Types of Services

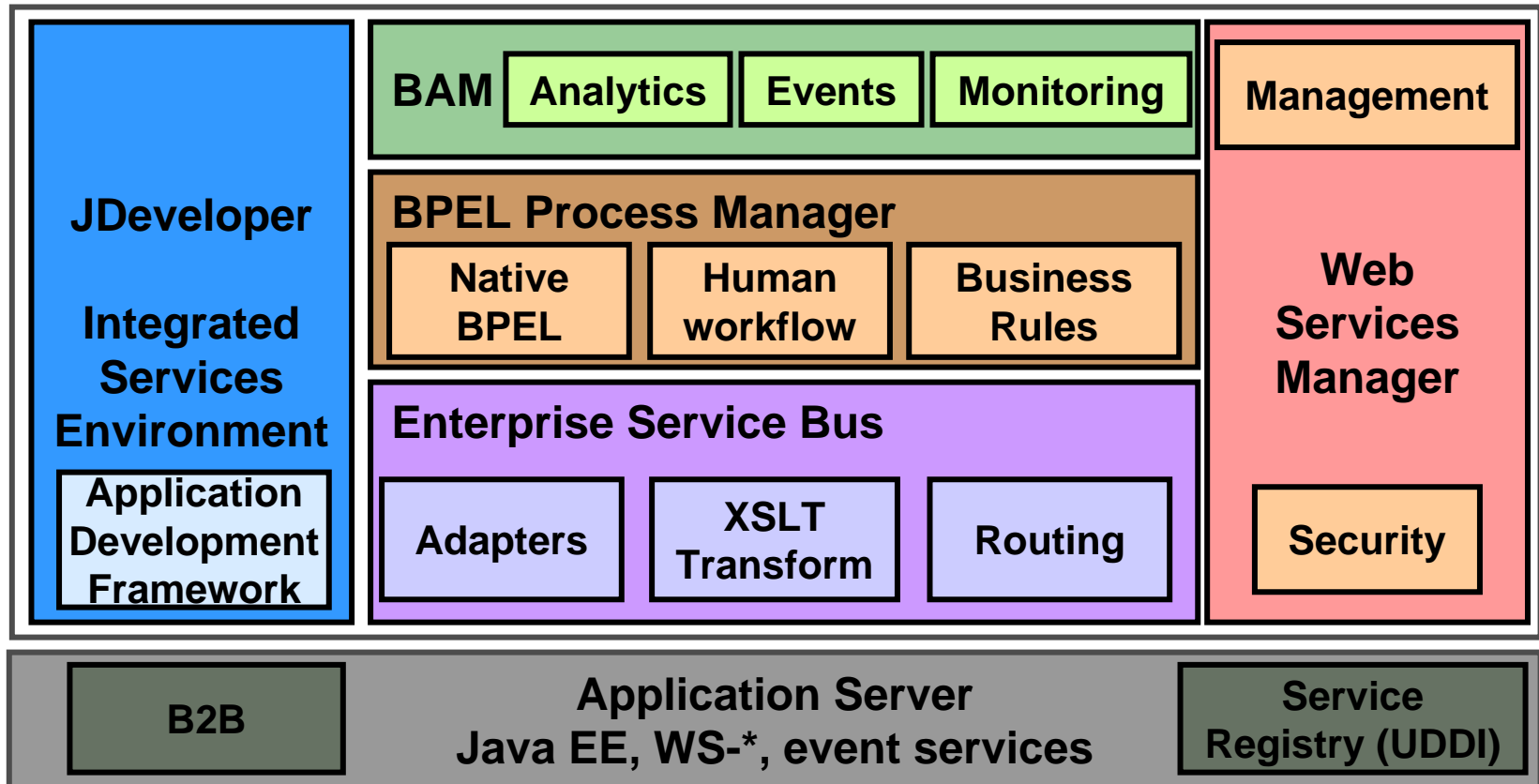
- Services that may be required:
 - Business service, such as entering a loan application
 - Web service, such as credit check
 - Human workflow service, such as manager approval
 - For example:

Process	Service
Submit loan application	Business service
Check credit	Web service
Approve application	Decision service: If bad credit, need manager approval

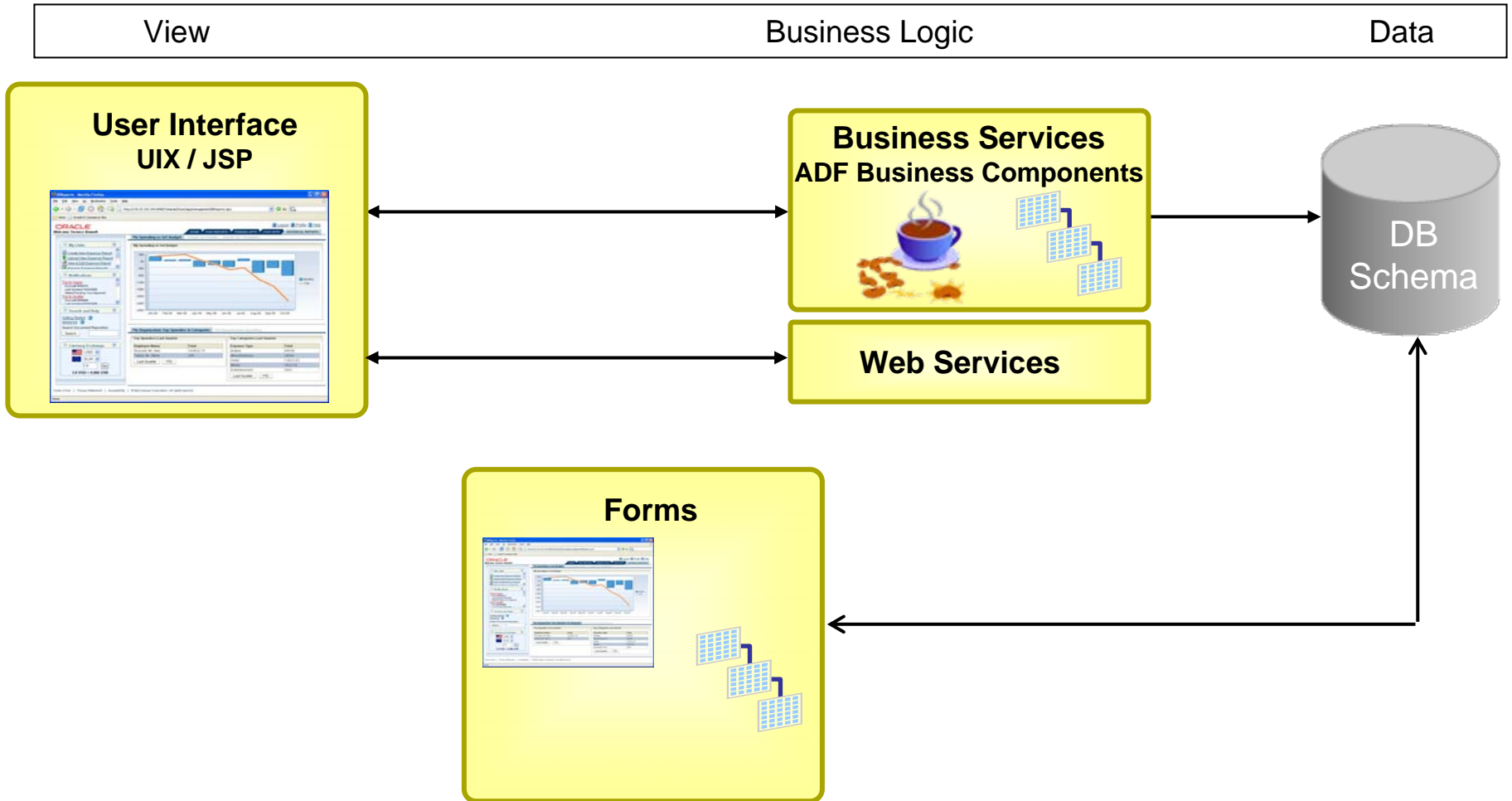
Benefits of SOA

- Why implement a service-oriented architecture?
 - Reduced integration expense
 - Reuse of resources
 - Increased agility
 - Reduced maintenance and testing costs
 - Reduced business risk

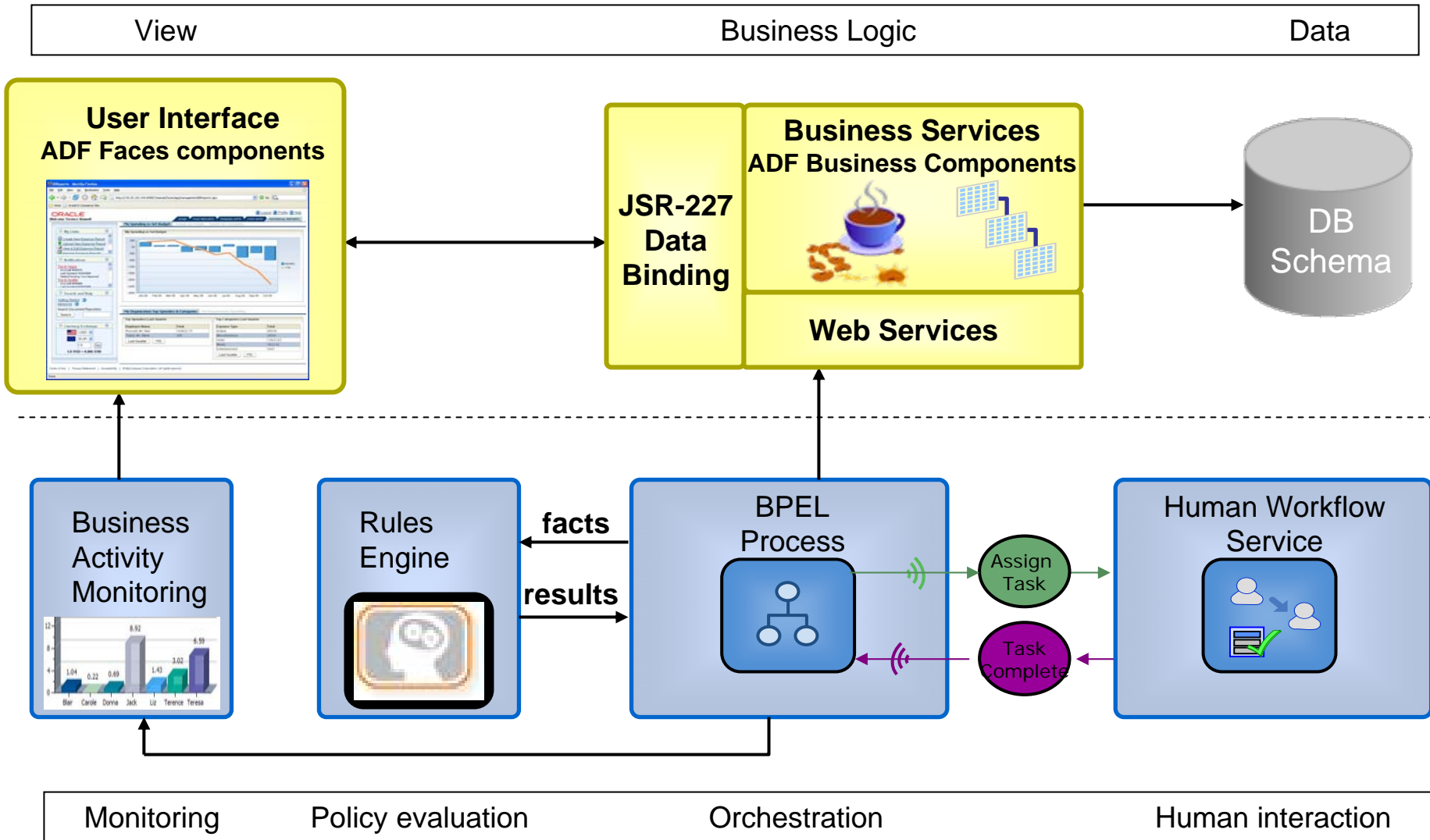
Components of Oracle Fusion Architecture



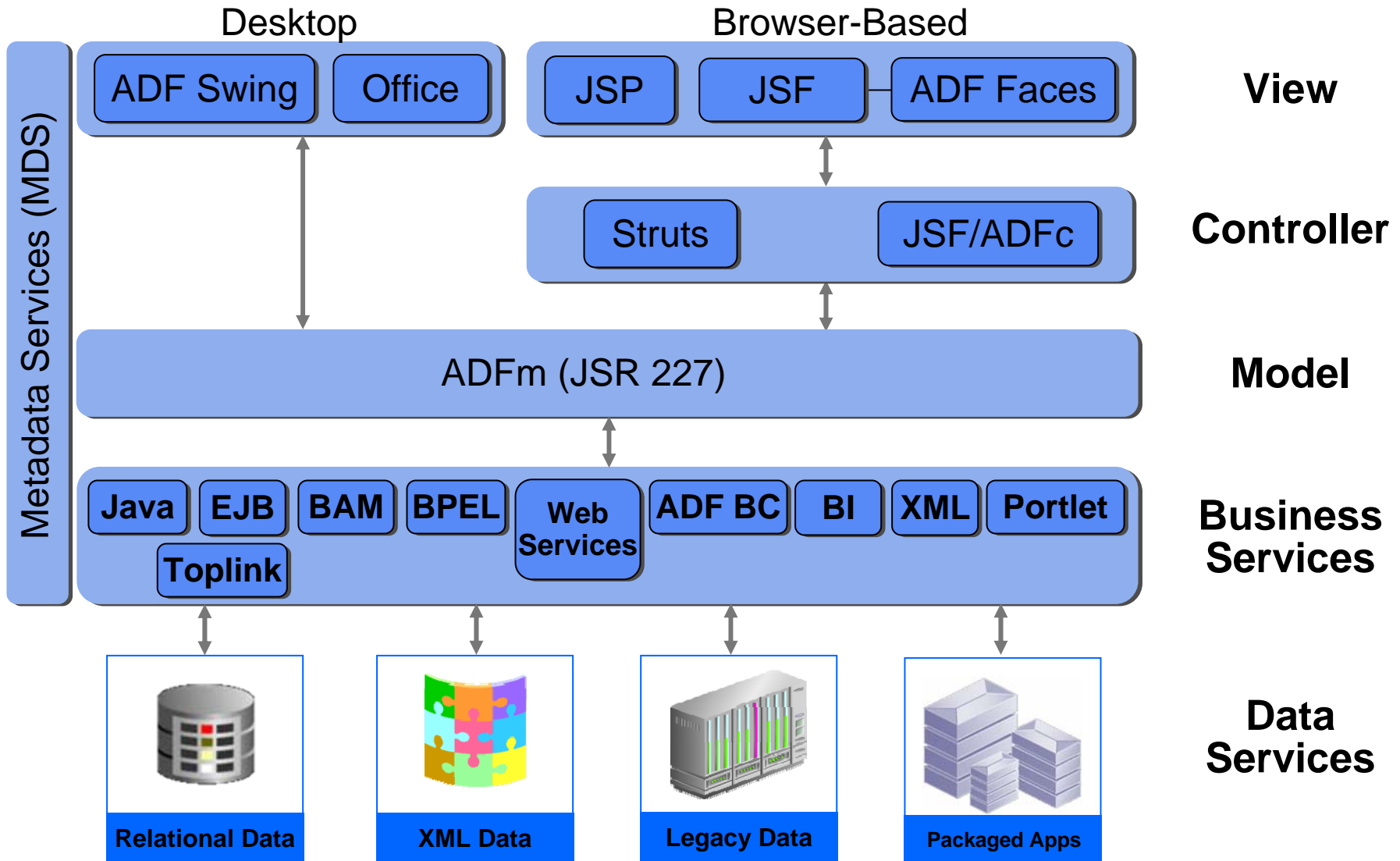
Old School...



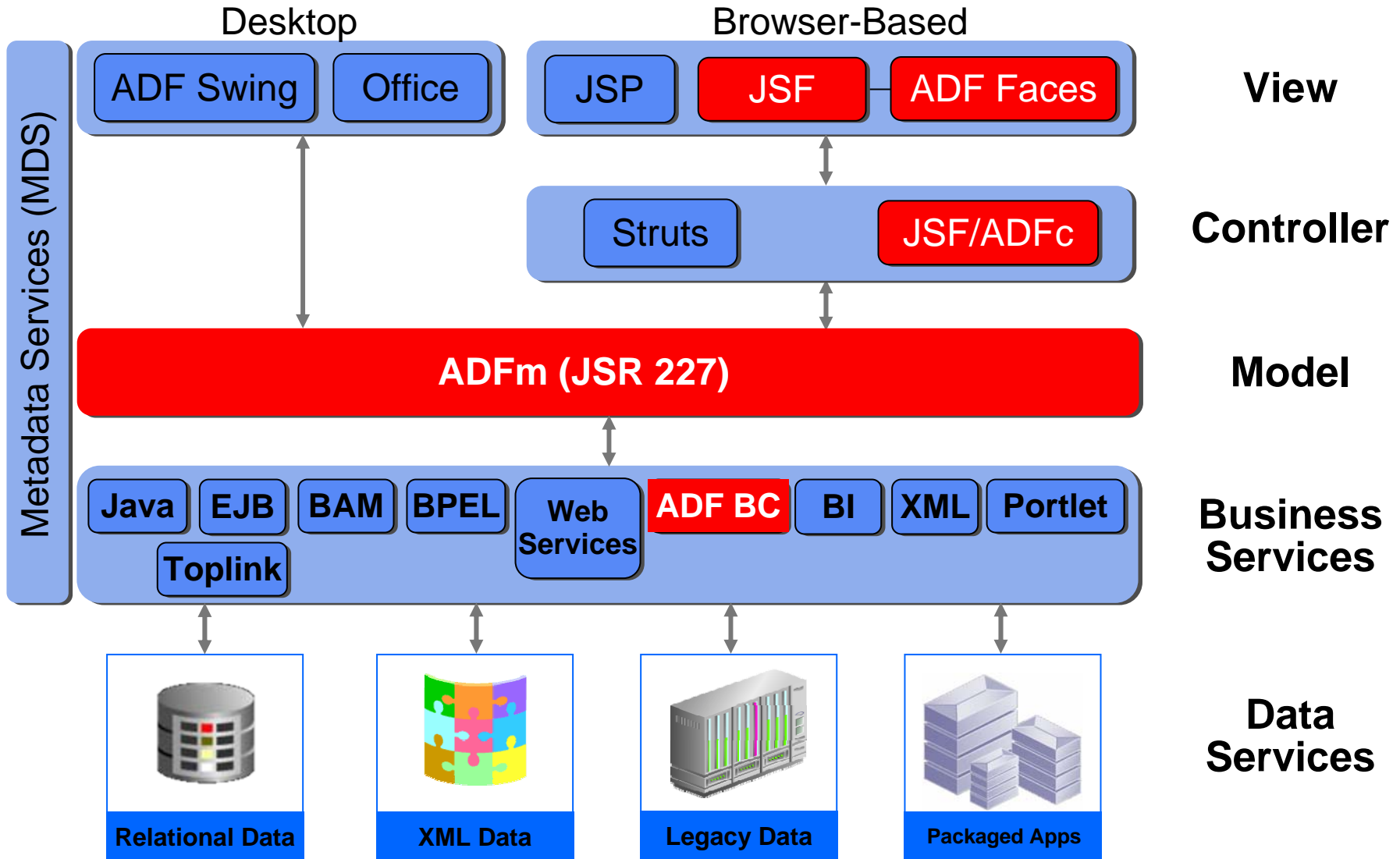
Anatomy of a Fusion Application



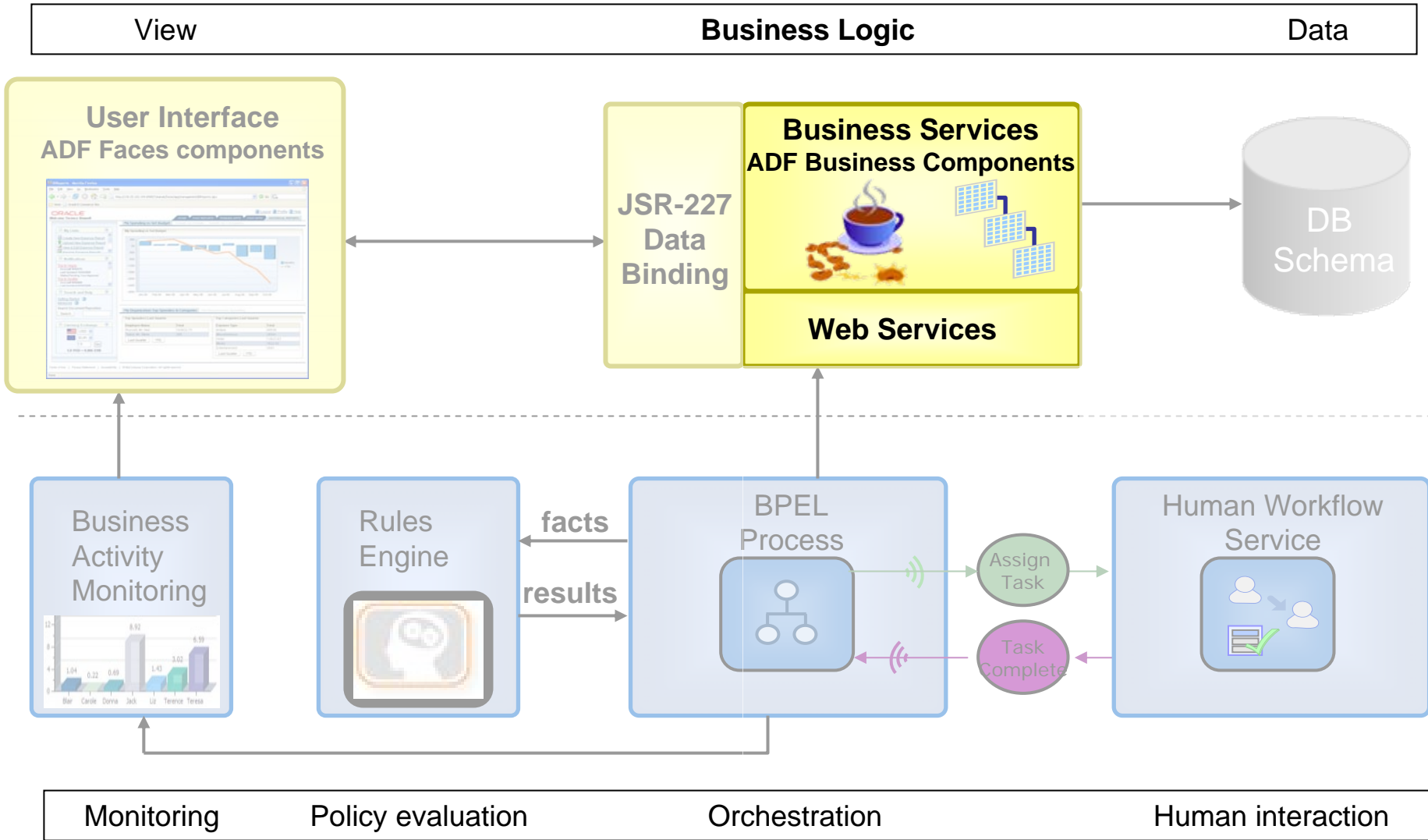
Technology Choices in ADF



Technology Choices in ADF



Develop Your Services



ADF Business Components

- Data interaction & business logic execution
 - Transactions, locking, record caching, master/detail relationships, validation,...
- 4GL development
 - Wizard based or visual development
 - Create Java file & metadata for each table
 - Develop business logic
 - Pre-defined Java methods for any event (similar to triggers)
 - Declarative business rules
 - Can expose any business logic as web services

Declarative Validation, Eventing and Security

The screenshot displays the Oracle Enterprise Manager interface for configuring declarative validation. The main window, titled "Entity Object Editor: Emp", shows a tree view of the entity's attributes. The "Validation" tab is selected, and the "Declared Validation Rules" section shows a rule named "Sal Range(0,6000)" applied to the "Sal" attribute. A dialog box titled "Add Validation Rule for: Sal" is open, showing the configuration for this rule. The "Rule" is set to "Range Validator", the "Attribute" is "Sal", and the "Operator" is "Between". The "Range" section shows the "Minimum Value" set to 0 and the "Maximum Value" set to 6000. The "Error Message" field contains the text "The salary is out of range".

Entity Object Editor: Emp

Validation

Select the Entity Object or one of its validation rule.

Declared Validation Rules:

- Emp
 - Empno
 - Ename
 - Job
 - Mgr
 - Hiredate
 - Sal
 - Sal Range(0,6000)
 - Comm
 - Deptno

Add Validation Rule for: Sal

Rule: Range Validator

Attribute: Sal

Operator: Between

Range

Minimum Value: 0

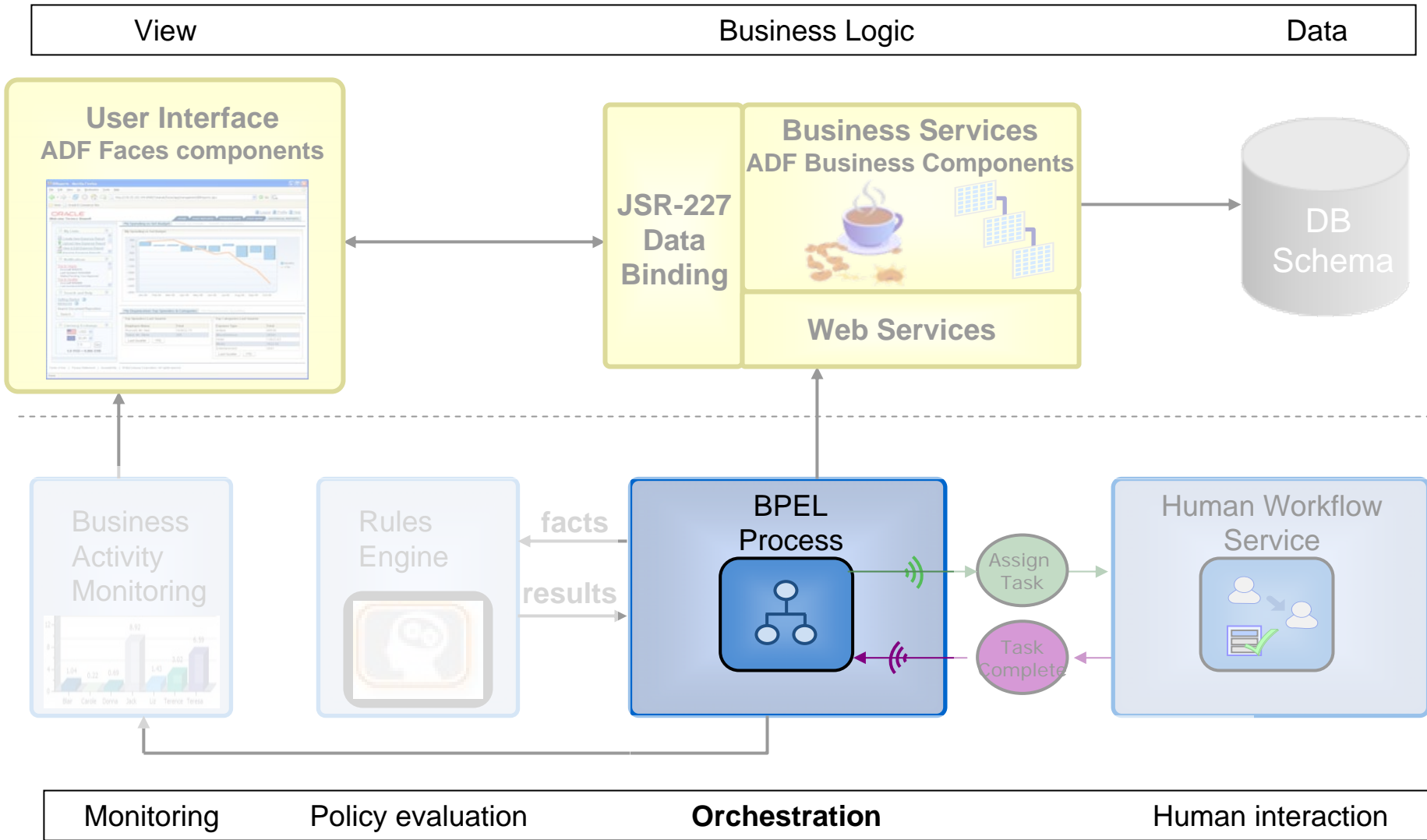
Maximum Value: 6000

Hint: Enter valid values for the selected attribute's type.

Error Message:
The salary is out of range

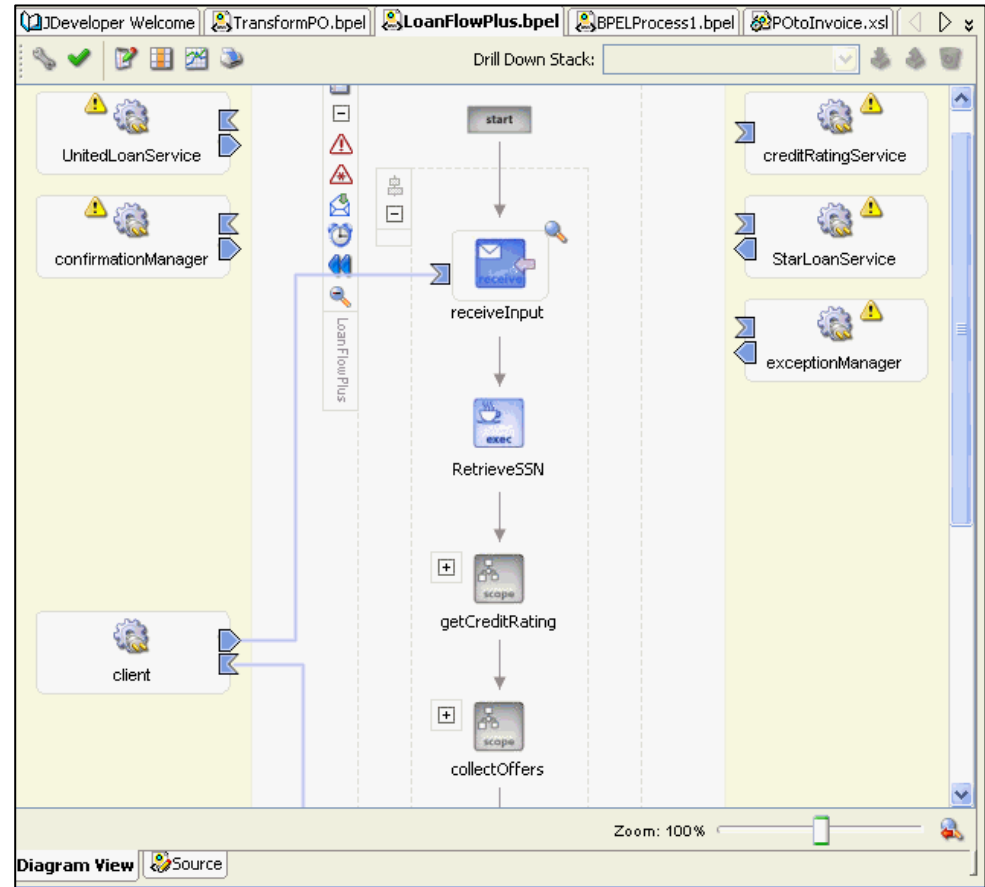
Buttons: Help, OK, Cancel

Orchestrate Your Services

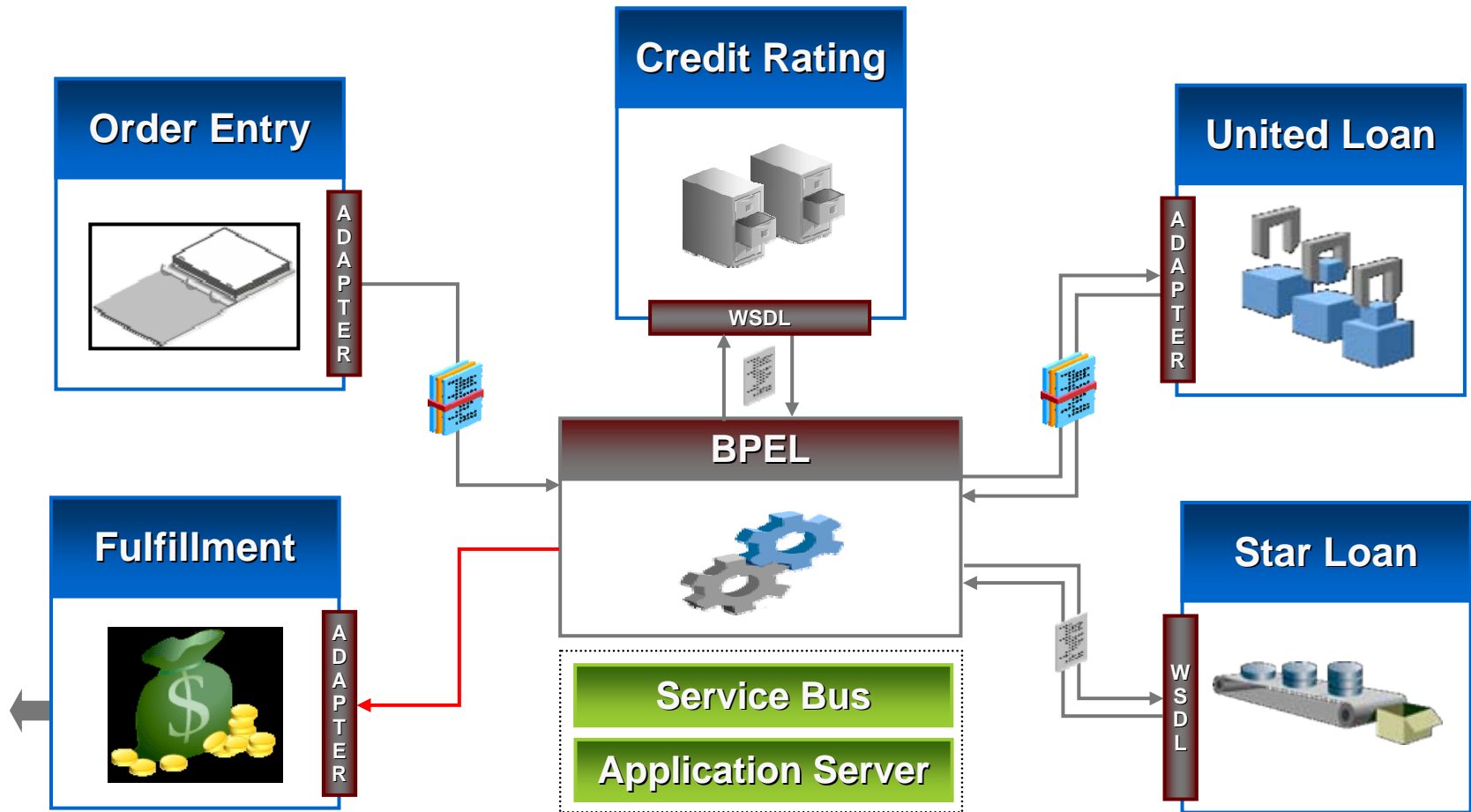


BPEL

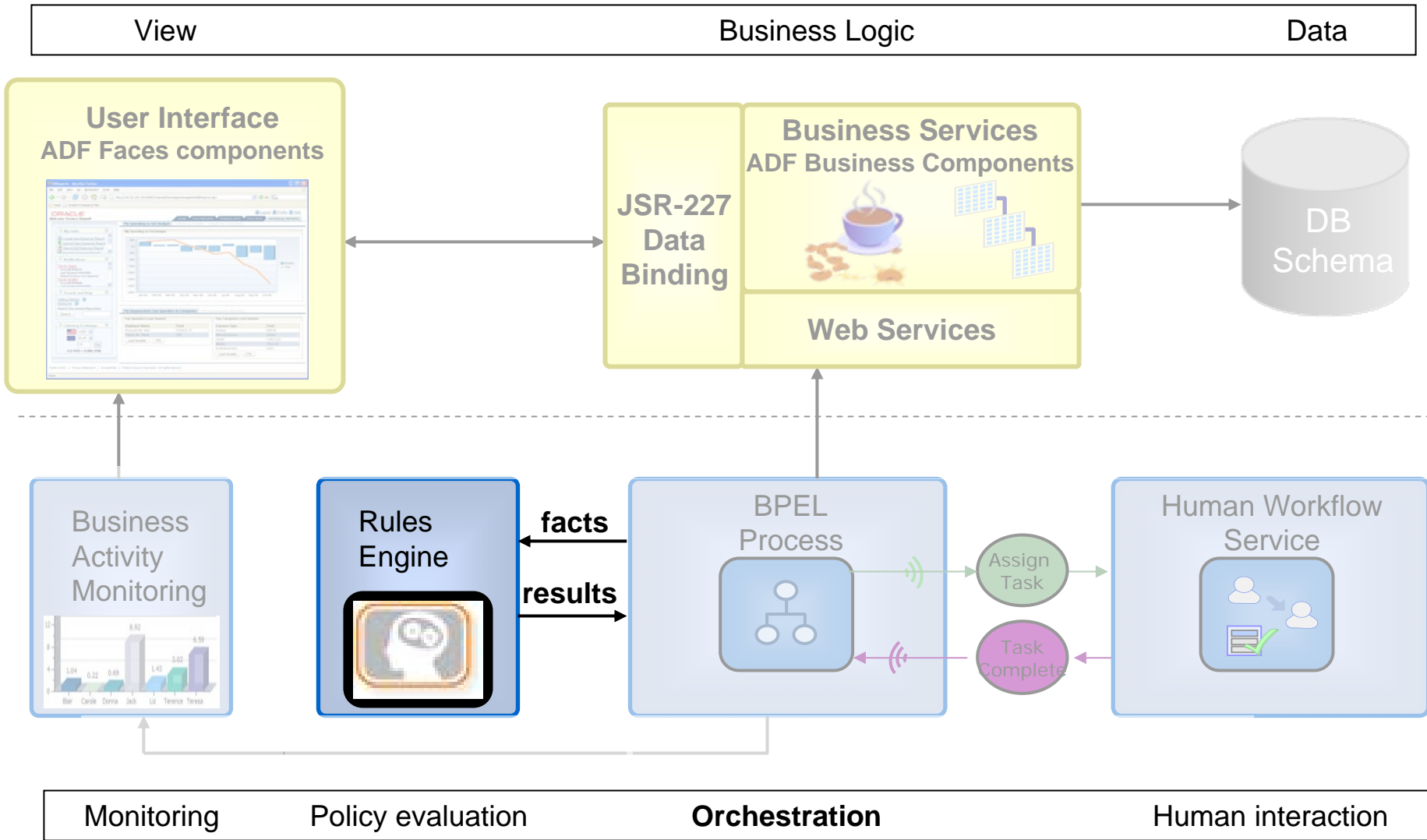
- Leading standard for integration
- Orchestrate heterogeneous services
- Hundreds of adapters for any back-end system
- Visual development of business processes
- Consistent development experience
 - Same tool
 - Visual, drag & drop



Orchestrating Services Through BPEL



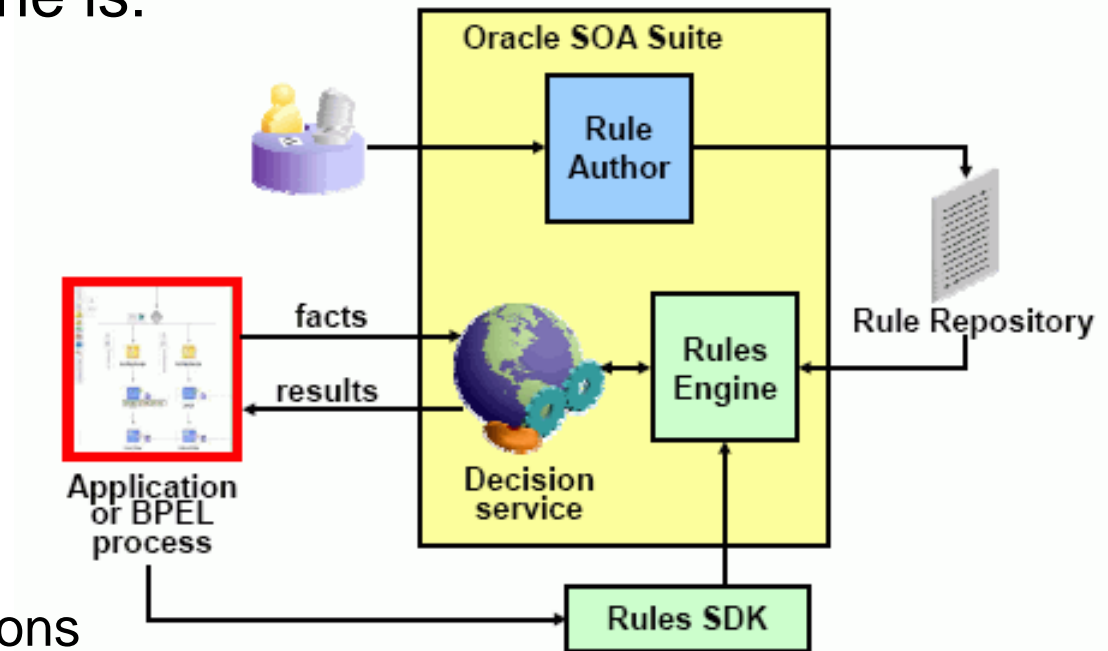
Rules, Rules, Rules...



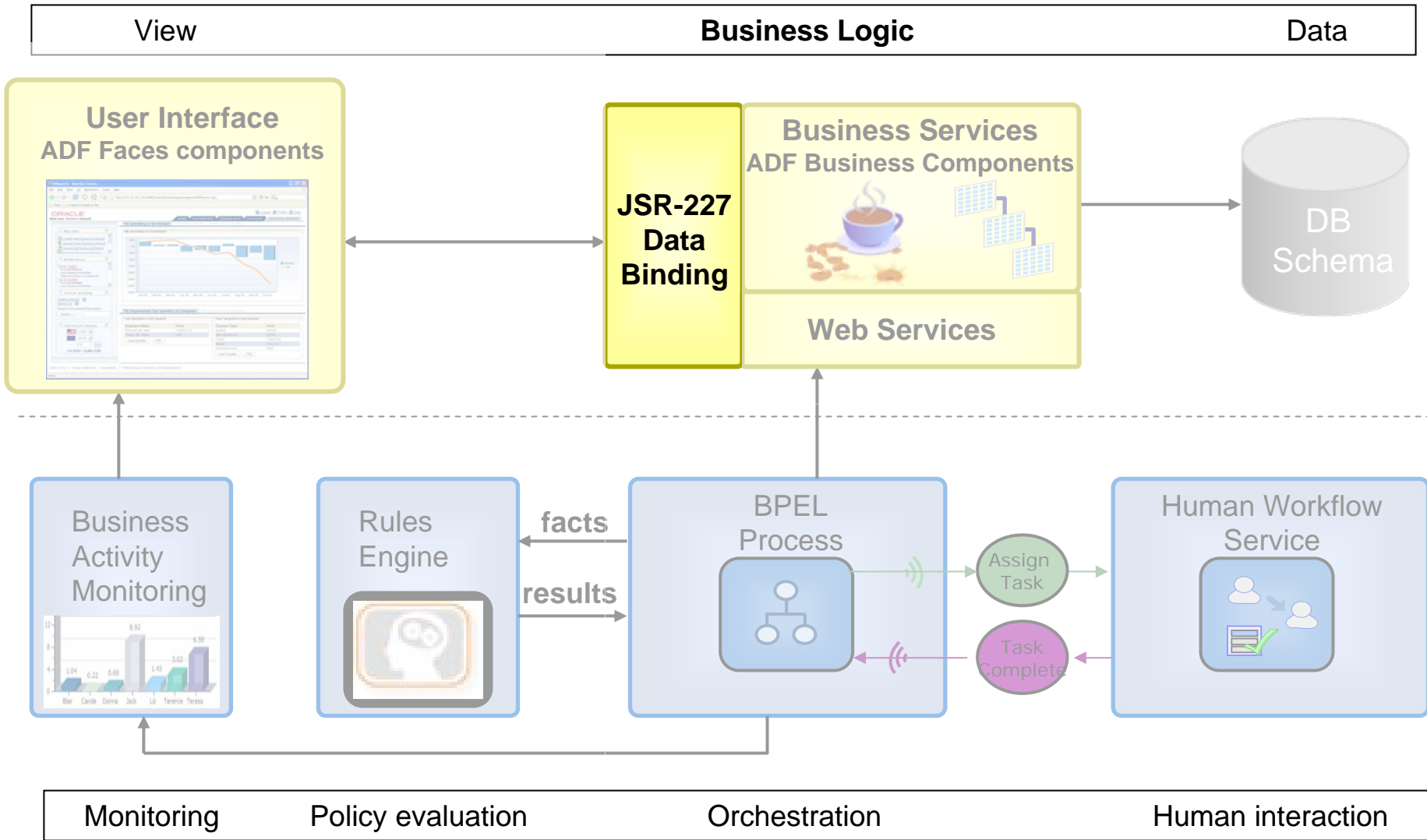
Using Business Rules and Decision Services

- Oracle Rules Engine is:

- Exposed as a Decision service
- Implemented as a Web service
- Accessed through a Java API
- Used to decouple decision services from SOA applications

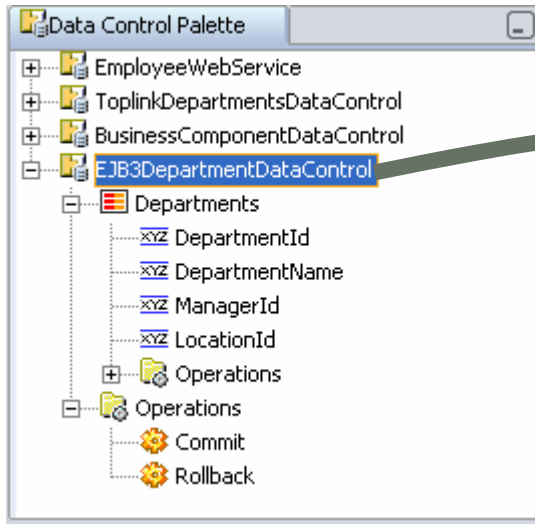


Expose Your Services



ADF Model (JSR-227 Data Controls)

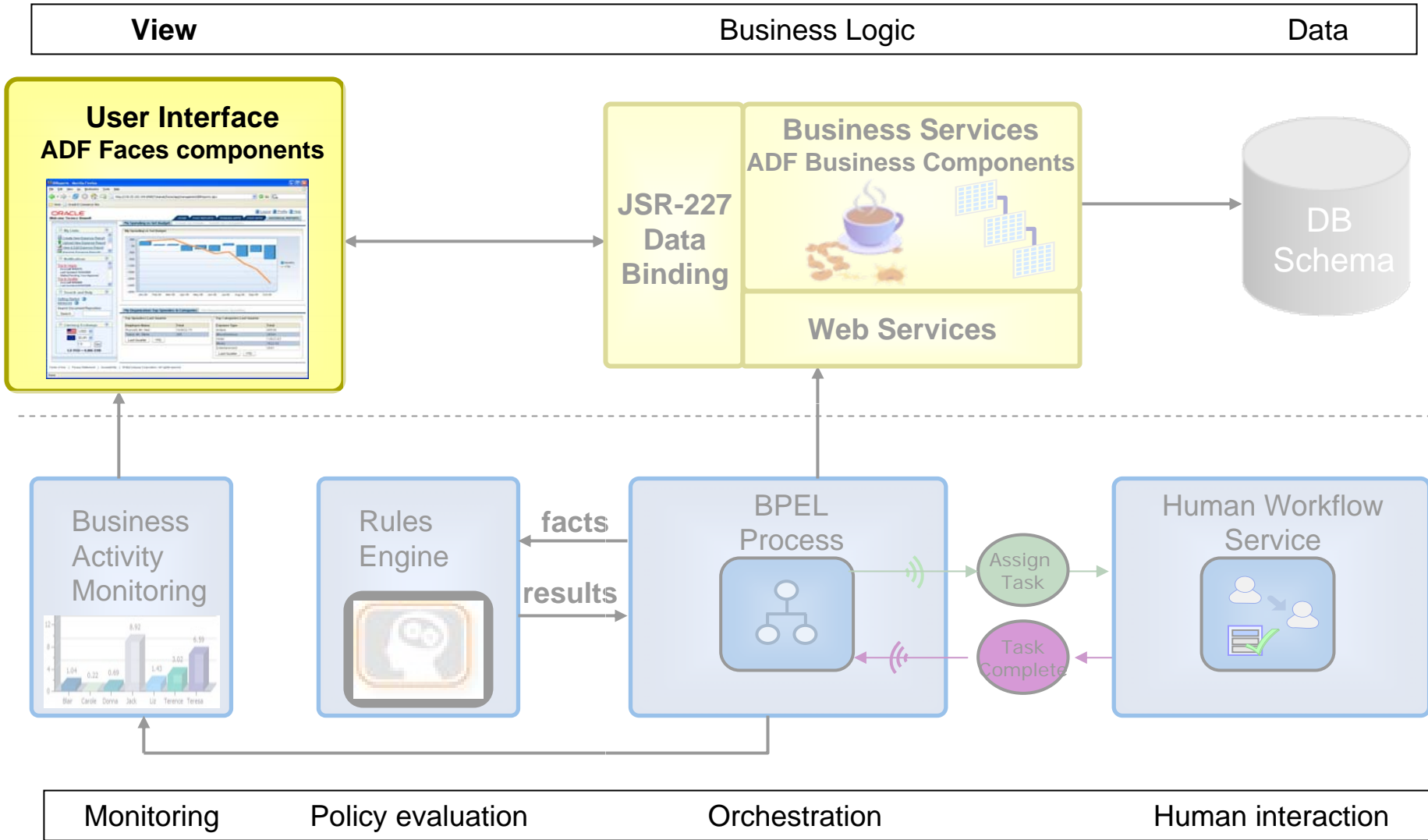
- Single interface for any business service implementation
- Drag-and-drop data binding
 - Available for all services



The screenshot shows a data table with the following structure:

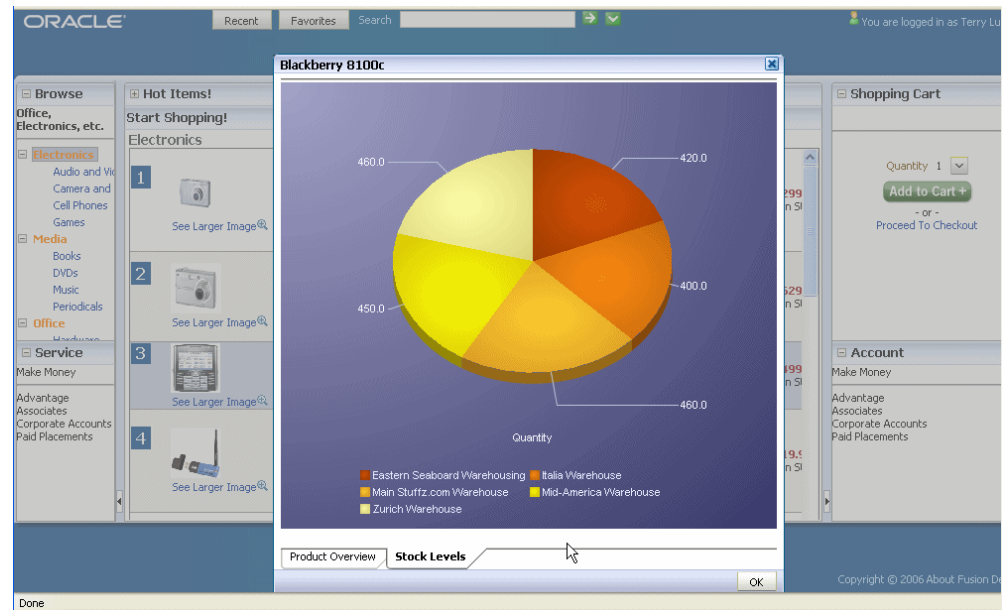
Select	DepartmentId	DepartmentName	ManagerId	LocationId
<input type="radio"/>	#{rows. DepartmentId}	#{rows. DepartmentName}	#{rows. ManagerId}	#{rows. LocationId}
<input type="radio"/>	#{rows. DepartmentId}	#{rows. DepartmentName}	#{rows. ManagerId}	#{rows. LocationId}
<input type="radio"/>	#{rows. DepartmentId}	#{rows. DepartmentName}	#{rows. ManagerId}	#{rows. LocationId}

Access Your Services



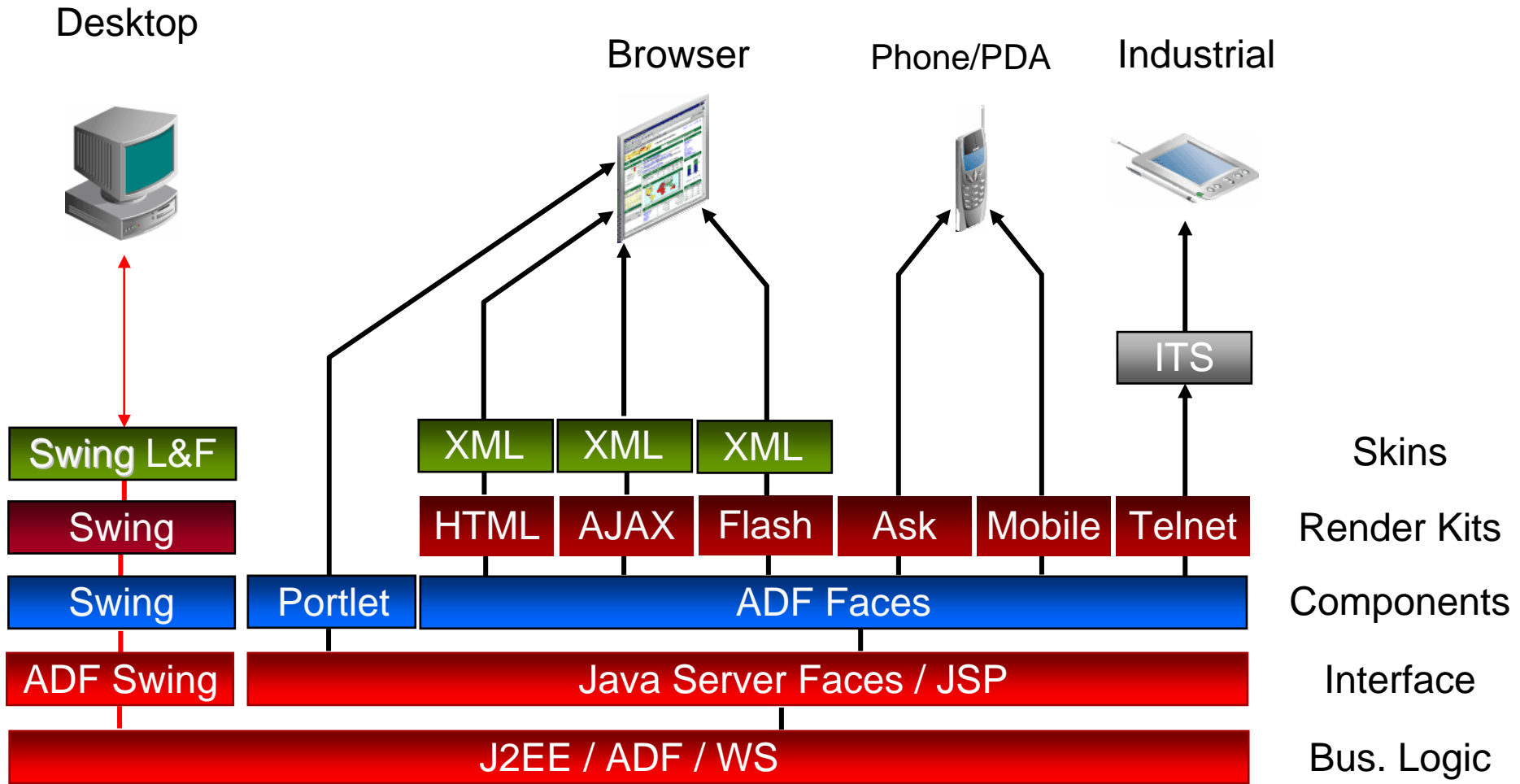
ADF Faces

- Standard rich UI components
 - 100+ standard JSF components
 - Tree, tabs, sliders, accordions,.....
 - Open source
 - Interactive (AJAX)
- Common programming model
 - Web page
 - Portlets
 - Graphs
 - Wireless
- Multiple Target Devices
 - Browser – HTML
 - Browser – DHTML/Javascript
 - Browser – SVG/PNG/Flash
 - Mobile/PDA



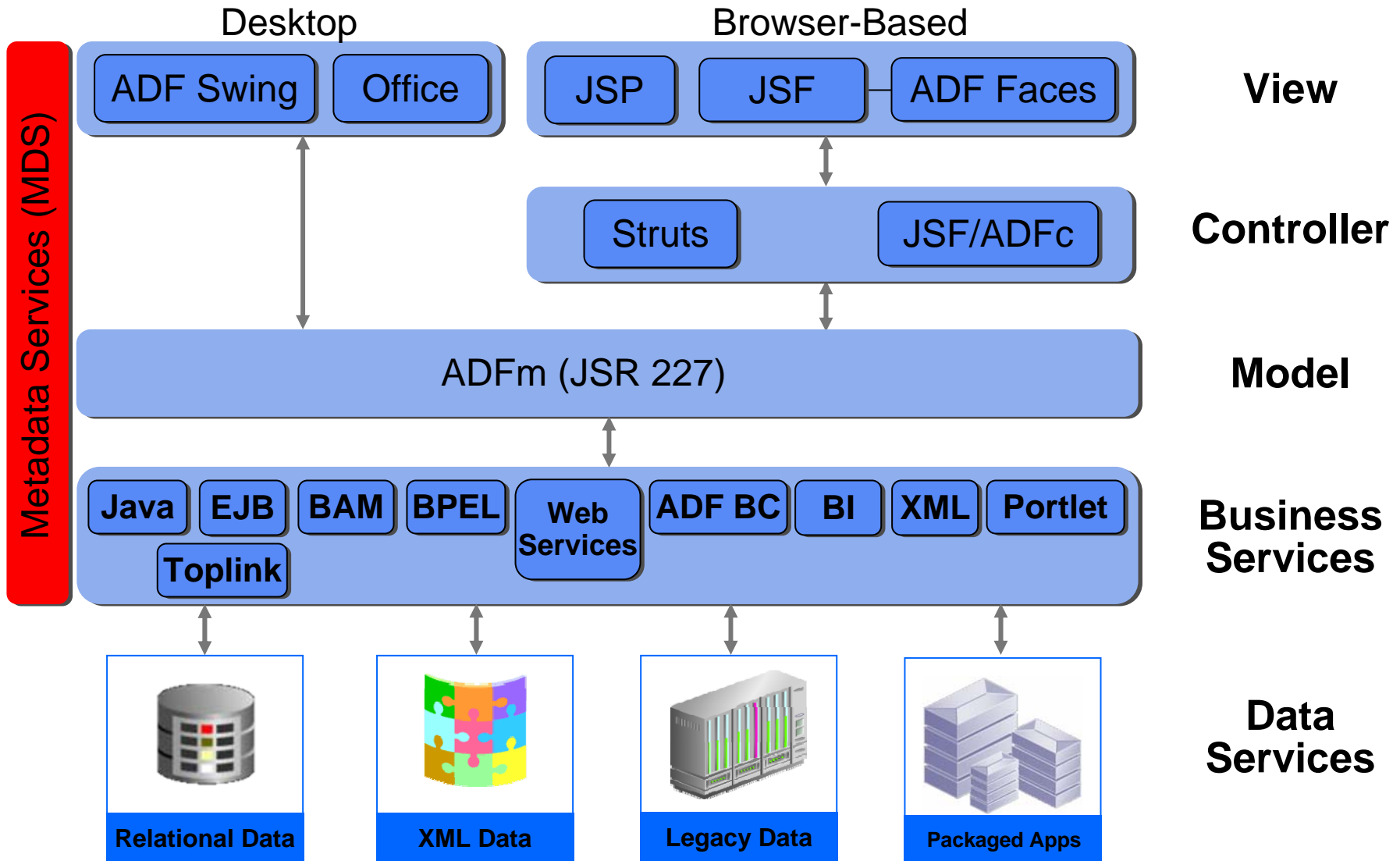
Single Programming Model

Based all on Standards

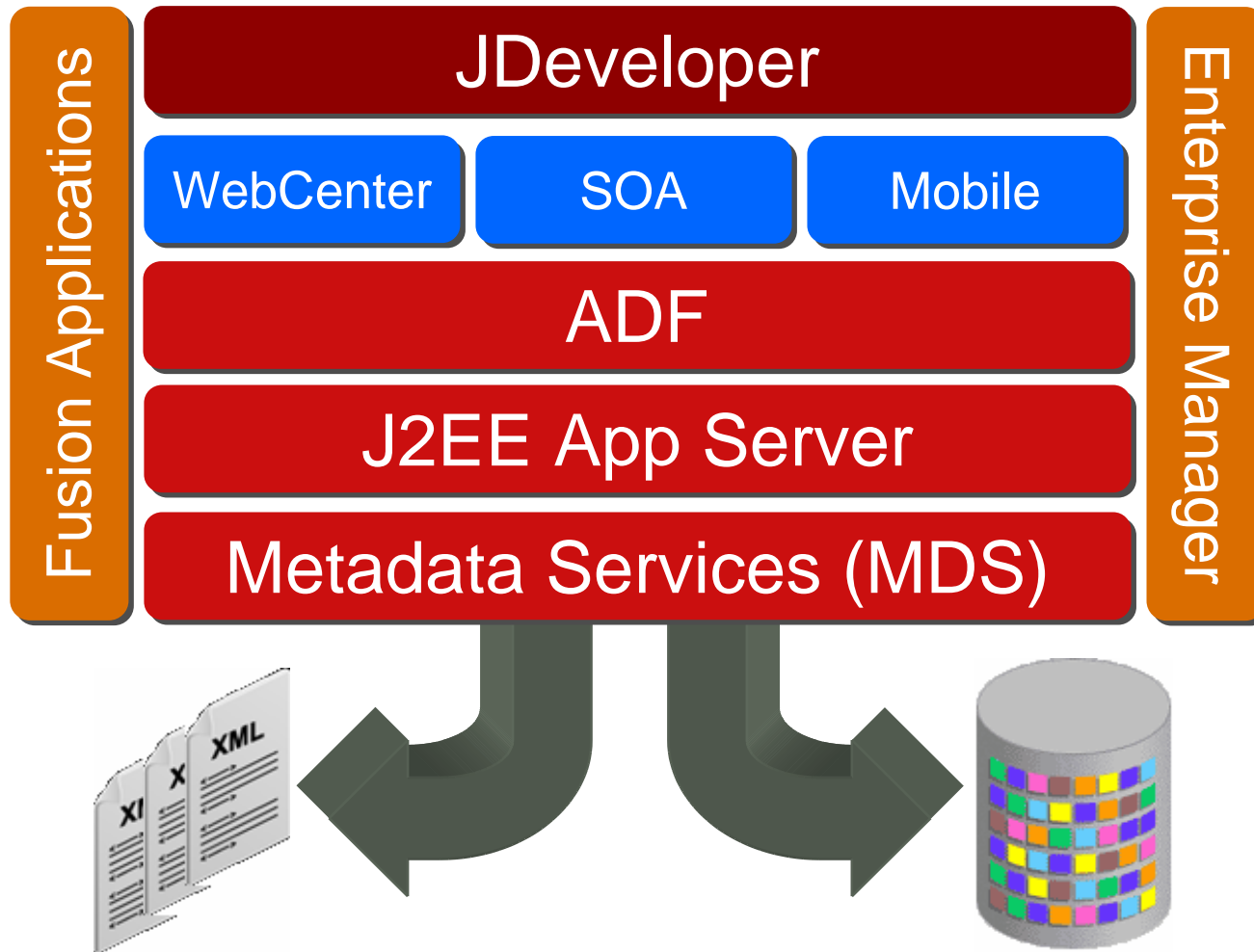


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Technology Choices in ADF



Metadata Services (MDS)

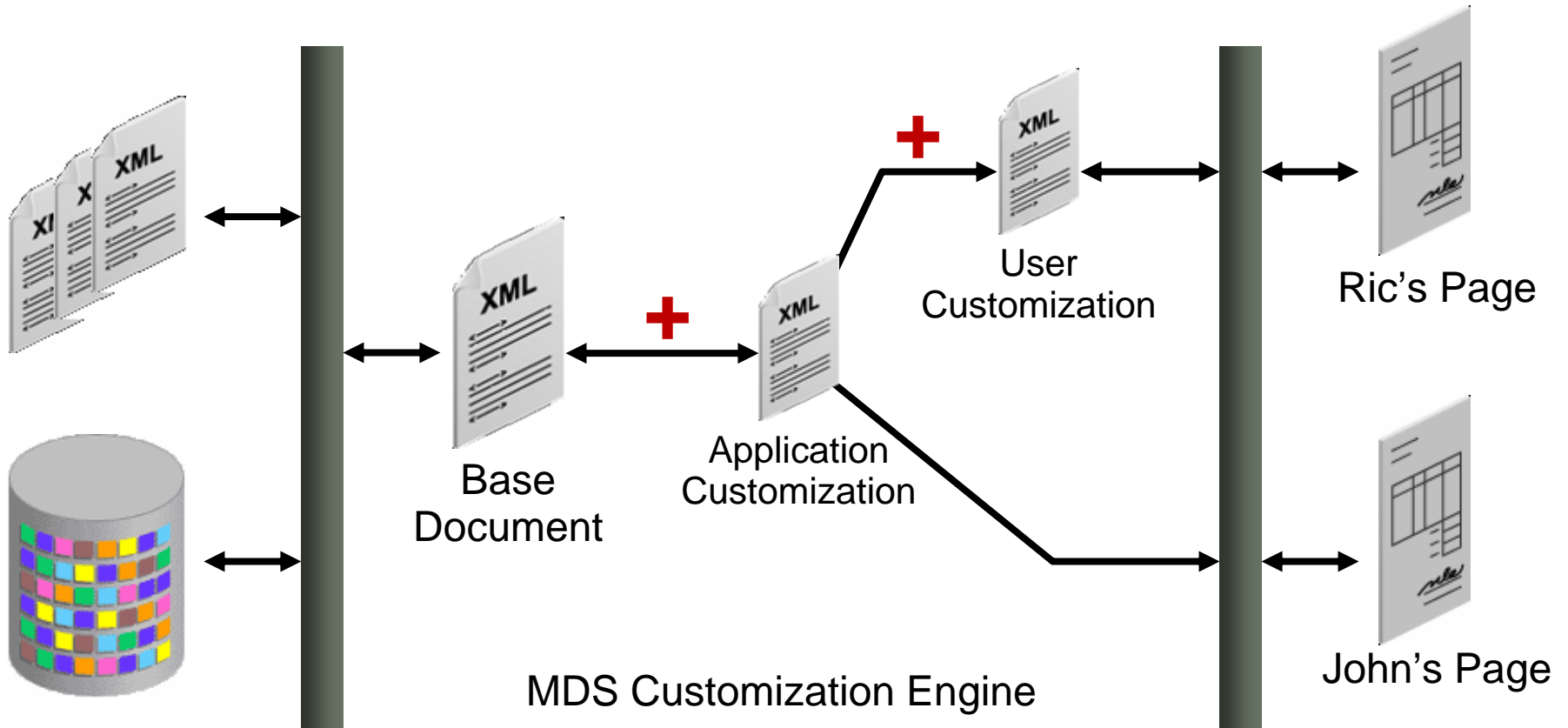


Metadata Services (MDS)

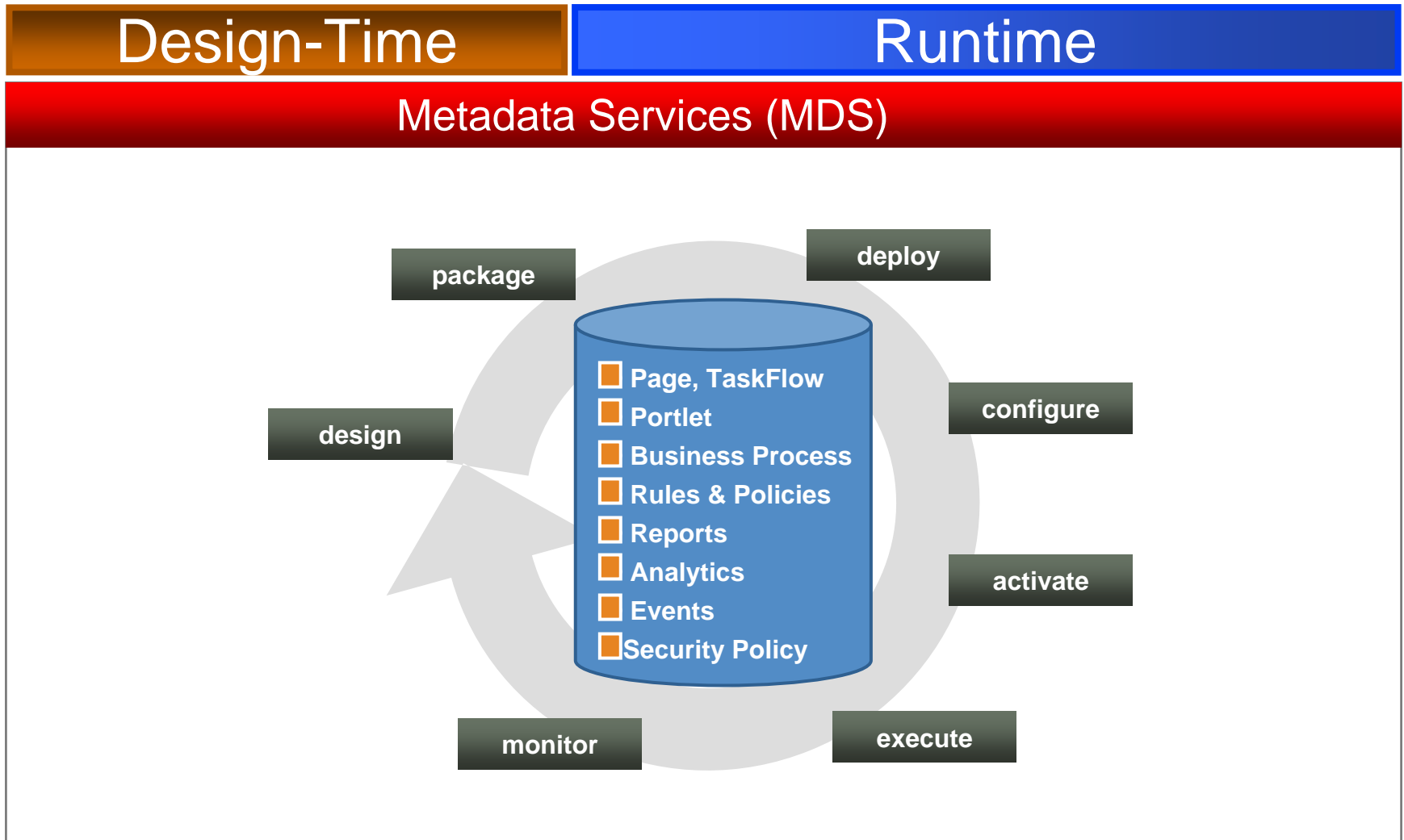
- Single Service for Metadata management
 - Loading, Caching, Updating, Storing
- Single API Abstraction
 - Client asks for metadata object, configuration determines the rest
- Single Management & Lifecycle
 - Deployment
 - Update
- Promotes MDD
- Built-in Features
 - Validation – Single point of data validation and recovery
 - Persistence – Customers choose where to persist their metadata
 - Versioning – Track and rollback changes to your application at runtime
 - Customization – Lower runtime overhead & upgrade cost
 - Sandboxing – Make & Test runtime changes w/o affecting your users

Application Customization

Single solution across entire stack



Common Metadata Model & Lifecycle



Summary

- Standard
 - Infrastructure
 - Technologies
- Integrated
 - Full development life cycle
 - J2EE and Composites
 - Standardized Metadata
 - Management and Security
- Productivity
 - Visual and declarative IDE
 - ADF