

# Oracle SOA Suite Then and Now: The Evolution from 10g to 11g

Shane Goss  
Impac Services

# SOA Suite 11g New Features

- Agenda
  - Highlight new features of SOA 11g
    - Some products have added features and functionality
  - Point out some of the changes from SOA 10g
    - Some products are new to the SOA Suite
    - Some products have changed completely
  - Question and Answers

Expectation of some level of understanding of SOA 10g

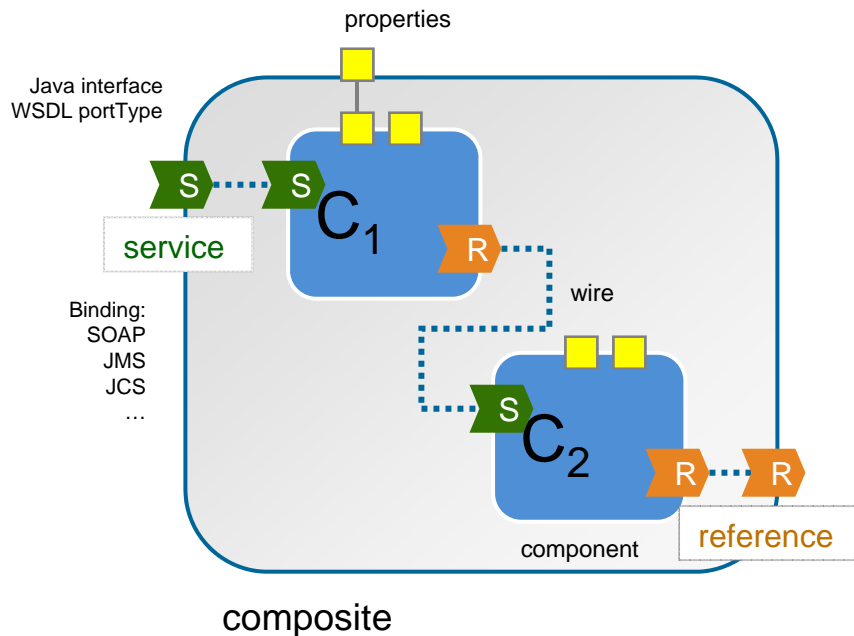
# SOA Suite 11g New Features

## Service Component Architecture (SCA)

- SCA is a standards framework for building a service infrastructure
  - Building service components
  - Assembling components into composite applications
  - Deploying composite applications
  - Managing composite applications
- Being standardized at OASIS (the international open standards consortium)
  - <http://www.OSOA.org>

# SOA Suite 11g New Features

## Service Component Architecture (SCA)



**Composite:** Deployment unit (BPEL, Mediator, HWF etc ..)

**Service:** entry-point into composite

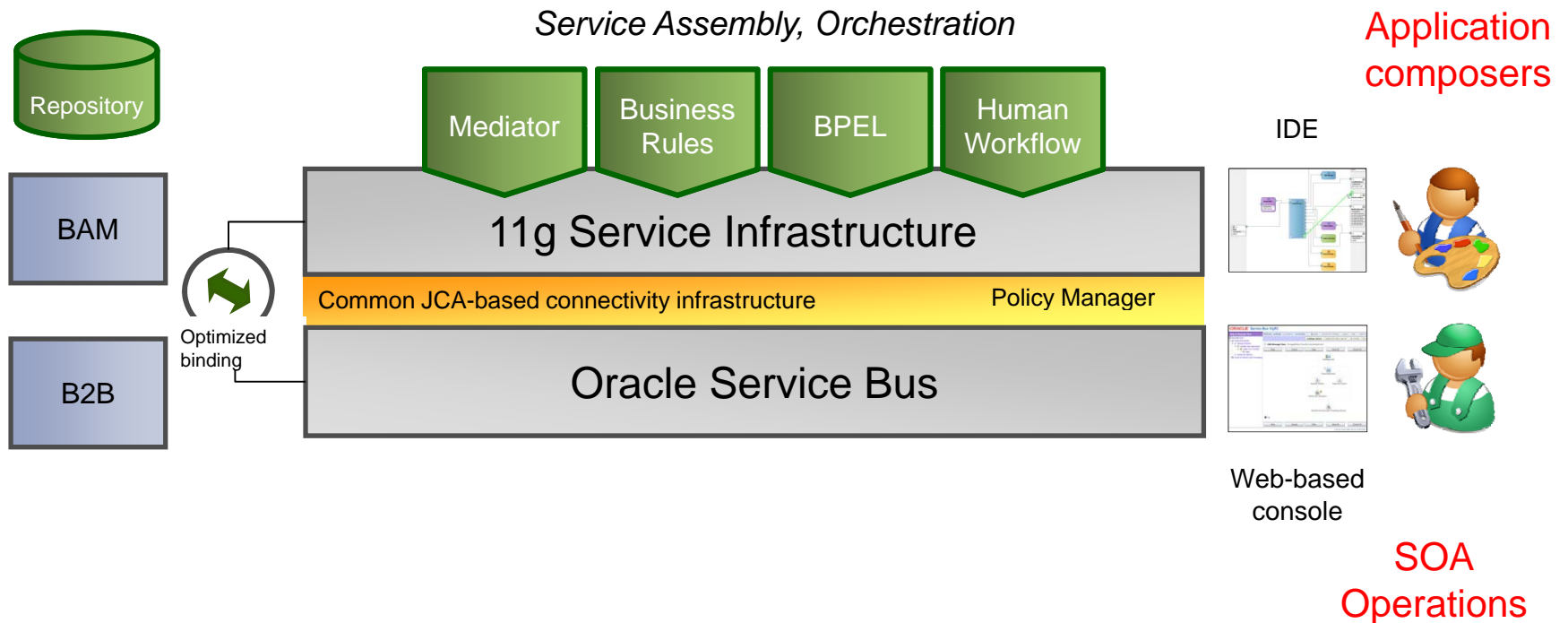
**Component:** provides logic

**Reference:** refers to external services

**Wire:** connects services, components, and references

# SOA Suite 11g New Features

## Service Infrastructure



Unified Infrastructure

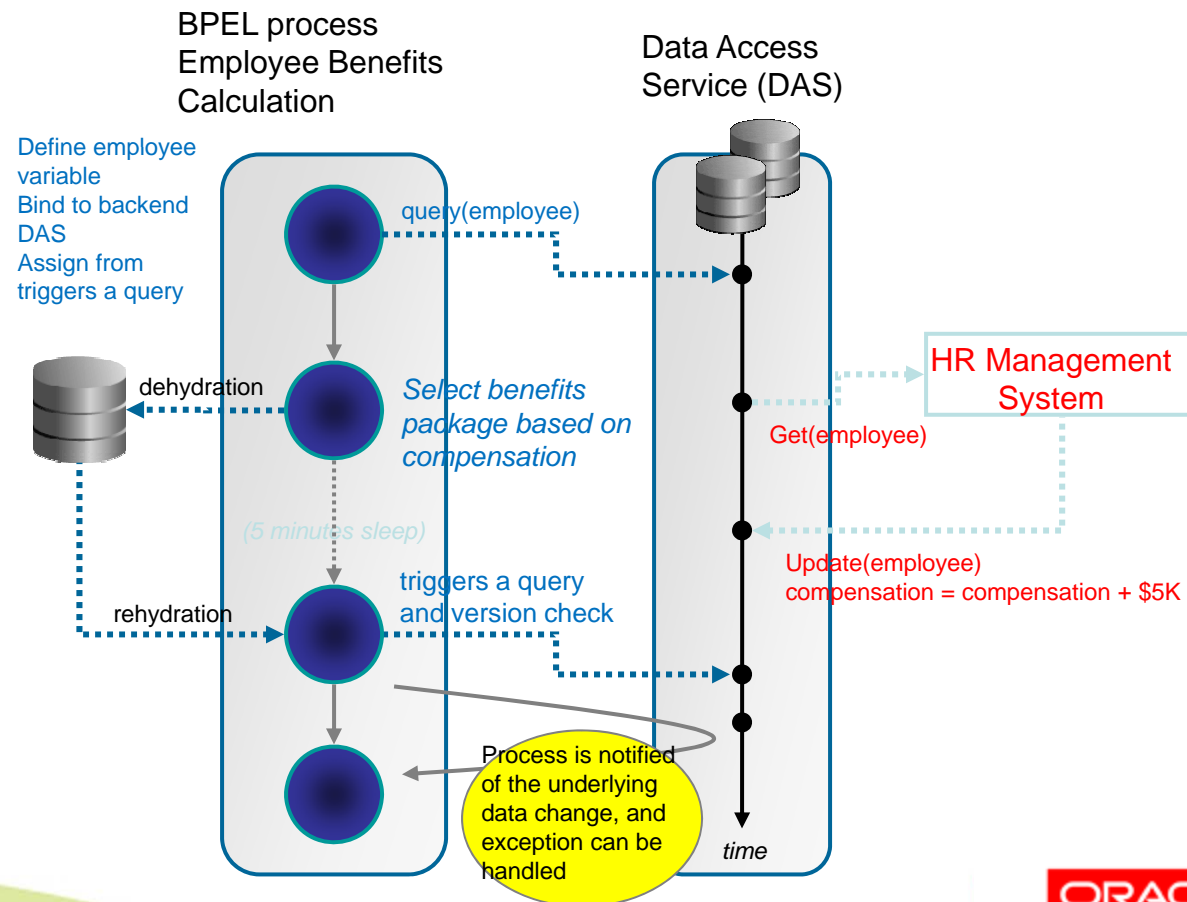
# SOA Suite 11g New Features

## Service Data Objects (SDO)

- Enables consistent means of accessing and handling data from heterogeneous sources
- Access and mapping to actual data-sources is executed by Data Access Services (DAS)

# SOA Suite 11g New Features

## Service Data Objects (SDO)



# SOA Suite 11g New Features

## SOA Composite Editor (JDeveloper)

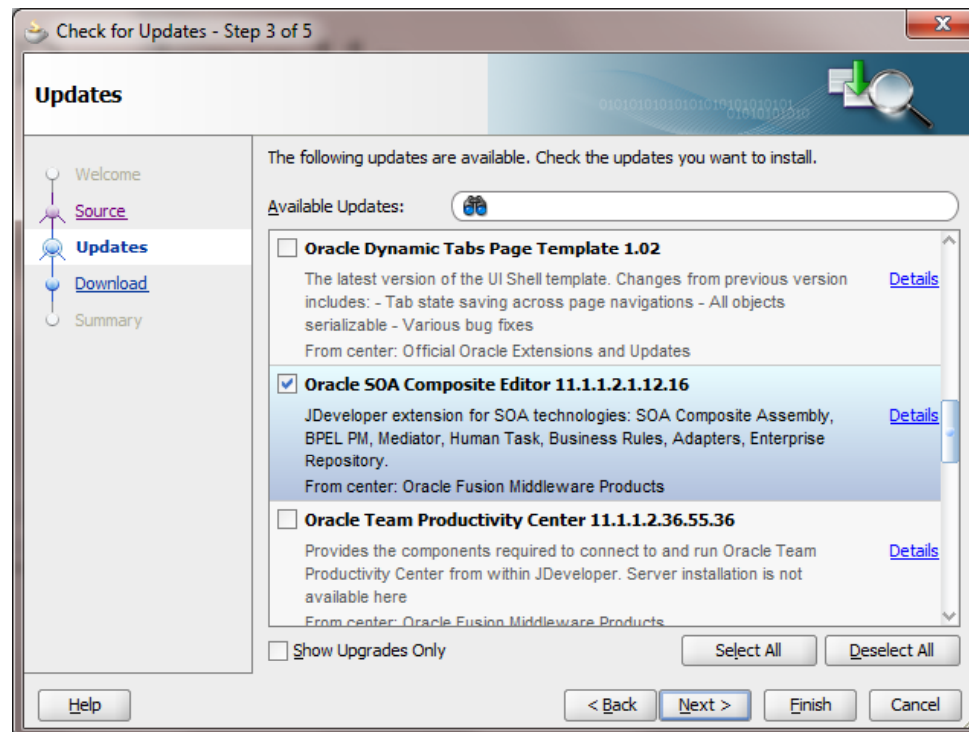
- JDeveloper is the integrated development environment (IDE) for building Java based SOA applications and user interfaces using the latest industry standards for Java, XML, Web Services and SQL.
- Supports the complete development life cycle with integrated features for modeling, coding, debugging, testing, profiling, tuning, and deploying applications.



# SOA Suite 11g New Features

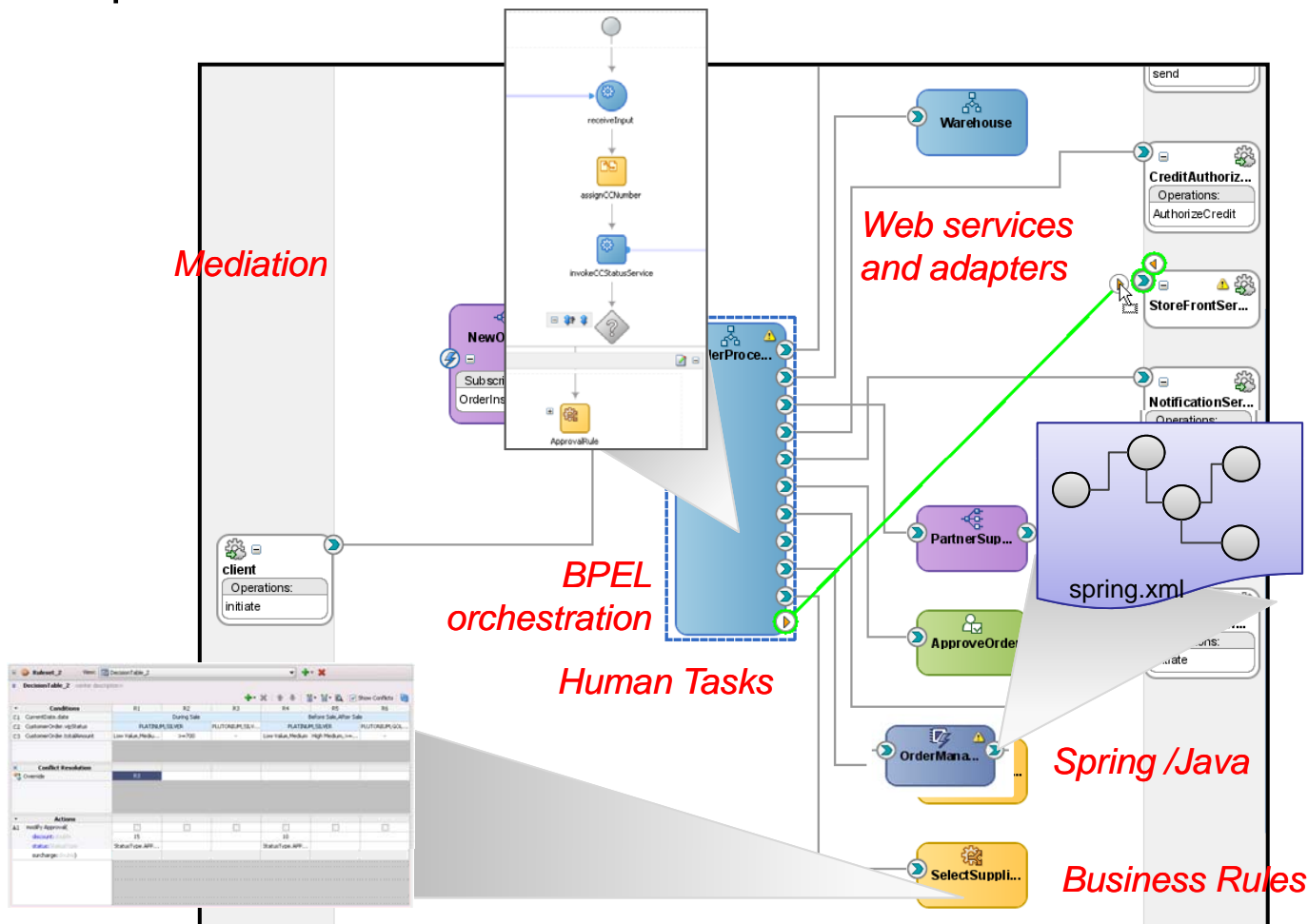
## SOA Composite Editor (JDeveloper)

– Download as an update in JDeveloper



# SOA Suite 11g New Features

## SCA Composite Editor



# SOA Suite 11g New Features

## Oracle Enterprise Repository (OER)

- Visibility into assets under development minimizes redundancy and promotes service collaboration and reuse
- Graphically display and navigate asset-to-asset and asset-to-project relationships and interdependencies to simplify impact analysis
- Allow developers to easily publish, locate, and consume SOA assets from directly within their integrated development environment (IDE)

# SOA Suite 11g New Features

## Oracle Enterprise Repository (OER)

- Automatic introspection of BPEL, Web Services Description Languages, and XML Schema Definitions
- Support the entire SOA, process, service, and asset lifecycle with governance controls and automation
- Create a system of record for all SOA asset information
- Enable standards-based service discovery and dynamic binding at runtime
- Provide role-based visibility into all SOA assets, regardless of source, through a centralized repository

# SOA Suite 11g New Features

## Real Time Event Processing (CEP)

- Monitors streams of events
- Correlates seemingly unrelated events into patterns
- Applications in almost every industry vertical:
  - risk management
  - fraud detection
  - intrusion detection
  - Compliance
- Optimized to handle very large volumes of events
- CQL: Continuous Query Language

# SOA Suite 11g New Features

## SOA Security Management

- Web Services Security Management Framework
- Policies are key concept in Web Services Security
- Policies
  - Specify who can access a service
  - How they are authenticated
  - Encryption requirements
  - Logging requirements

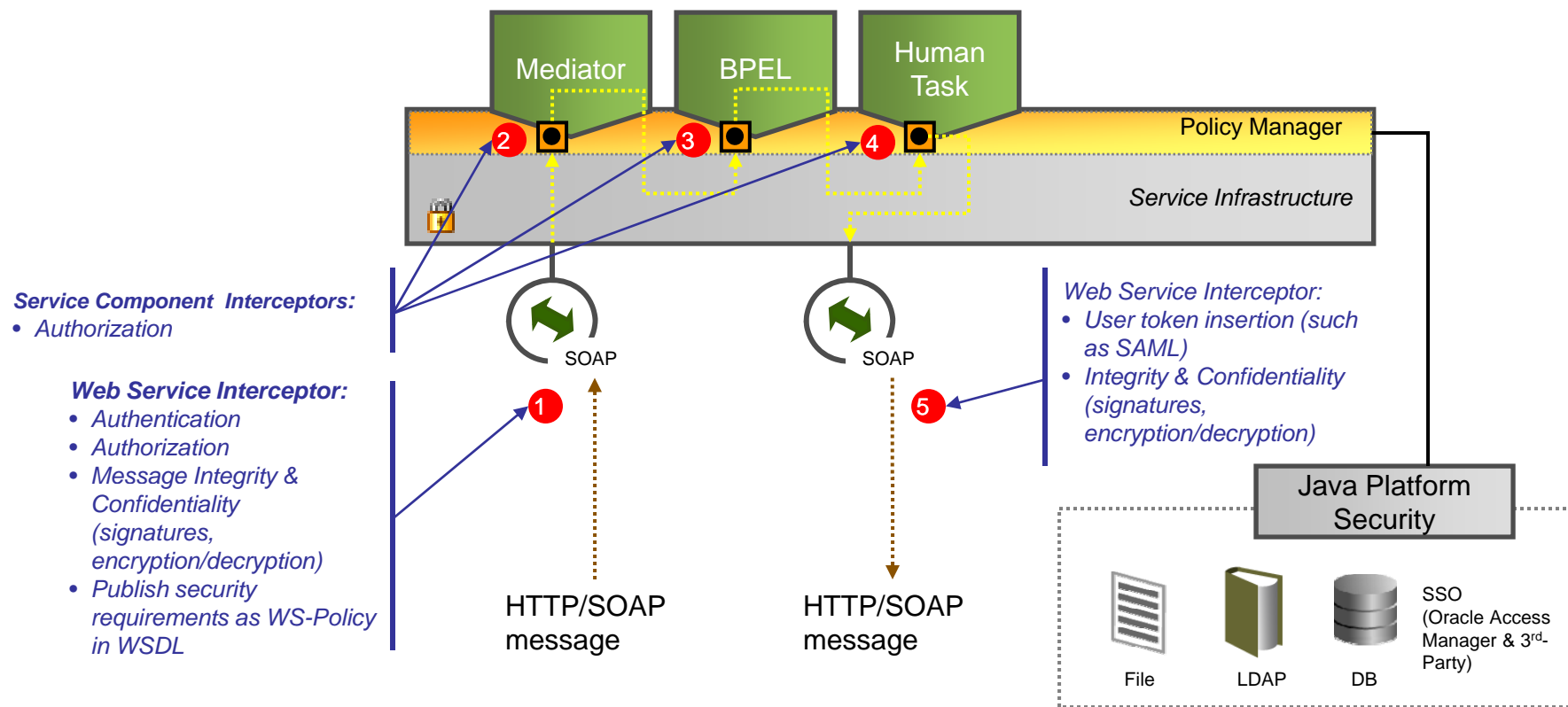
# SOA Suite 11g New Features

## Oracle Web Services Management (OWSM)

- Built into SOA 11g service infrastructure
- Provides security services to manage and enforce policies
- Policies can be:
  - Created in EM Console
  - Attached in either JDeveloper or EM Console
  - Attached/Enabled/Disabled in Configuration Plan
  - Enforced seamlessly at runtime
- Pre-Defined policies are provided

# SOA Suite 11g New Features

## Oracle Web Services Management (OWSM)





# SOA Suite 11g New Features

## Event Delivery Network (EDN)

- EDN is an abstraction on top of publish and subscribe messaging system
  - Simple declarative integration into SOA
  - Rich subscription models
  - Content based subscriptions (Xpath filters)
  - Optimized Delivery Paths
  - Run-time monitoring
  - Integrated Tool Support

# SOA Suite 11g New Features

## Business Activity Monitoring (BAM)

- Finally ported from .Net to J2EE and is part of the service infrastructure

The screenshot displays the Oracle Enterprise Manager 11g Fusion Middleware Control interface. It includes several key components:

- Market Indices:** A dashboard showing four indices: DJIA (+5.75), NASDAQ (+51.00), Russell (+27.50), and Crude Oil (-1.25). A red circle highlights the 'KPI' label.
- Summary Crosstab:** A table with columns for Investment Type, Orig Investment (Doll), Investment Gain or Loss (Doll), and Current Value of Investment (Doll). A red circle highlights the 'Cros' label.
- Positions:** A table listing various stocks with columns for Stock Name, Stock Symbol, Num Shares, Last Price, Percent Change, and Current Value. A red circle highlights the 'List' label.
- Oracle Enterprise Manager 11g Fusion Middleware Control:** The main interface showing the 'Farm\_base\_domain' topology. It includes a 'Deployments' table and a 'Fusion Middleware' table. A red circle highlights the 'soa\_server' entries in the Fusion Middleware table.
- Bar Chart:** A chart showing data points for quarters from 2003:Q1 to 2004:Q4. The values are: 2003:Q1 (\$150,000), 2003:Q2 (\$165,44K), 2003:Q3 (\$198,65K), 2003:Q4 (\$175,49K), 2004:Q1 (\$204,88K), 2004:Q2 (\$204,56K), 2004:Q3 (\$144,4K), and 2004:Q4 (\$144,4K).

# SOA Suite 11g New Features

## Adapter enhancements

- New adapters and leverage for Java 2 Connector Architecture (J2CA)
  - New TCP Socket Adapter
  - Large payload support
  - Active/Active HA Cluster support
  - Tighter integration with E-Business Suite

# SOA Suite 11g New Features

## ESB is now Mediator

- Oracle Enterprise Service Bus (OESB) was the Service Bus for SOA 10g before Oracle purchased BEA
- The role of ESB in SOA 11g now is to provide mediation services between SOA Suite components
- In SOA 11g ESB is known as “Mediator” and acts as a component in a SCA assembly

# SOA Suite 11g New Features

## Oracle Service Bus (OSB)

- Previously known as BEA Aqualogic Service Bus (ALSB)
- Primary service bus for Oracle SOA Suite 11g
- Preferred platform for service virtualization and interaction external to the SOA Suite
- Can be used independently of SOA Suite 11g

# SOA Suite 11g New Features

## BPEL

- 11g New Features
  - Scalable DOM for reduced memory consumption
  - Can now support very large payloads (Gigabytes)
  - Coding by reference
    - Passing by reference reduces amount of data re-routed and managed through the infrastructure

# SOA Suite 11g New Features

## Human Workflow

- 11g New Features:
  - JSF based client framework for worklist application
  - ADF task flow forms
  - Java platform security layer
  - Rule-based routing
  - IM Notifications
  - Digital certificate support
  - MS Office integration

# SOA Suite 11g New Features

## Business Rules

- In SOA 10g business rules are managed using the Rules Author



# SOA Suite 11g New Features

## Business Rules

- In SOA 11g business rules are managed using JDeveloper and SOA composer
- SOA Composer is the Web interface for managing business rules and Domain Value Maps (DVM)

# SOA Suite 11g New Features

## Business Rules

- 11g New Features:
  - JDeveloper integration
  - Decision tables
  - Rule activation and effective dates
  - Aggregates
  - Dictionary links
  - ADF-BC integration

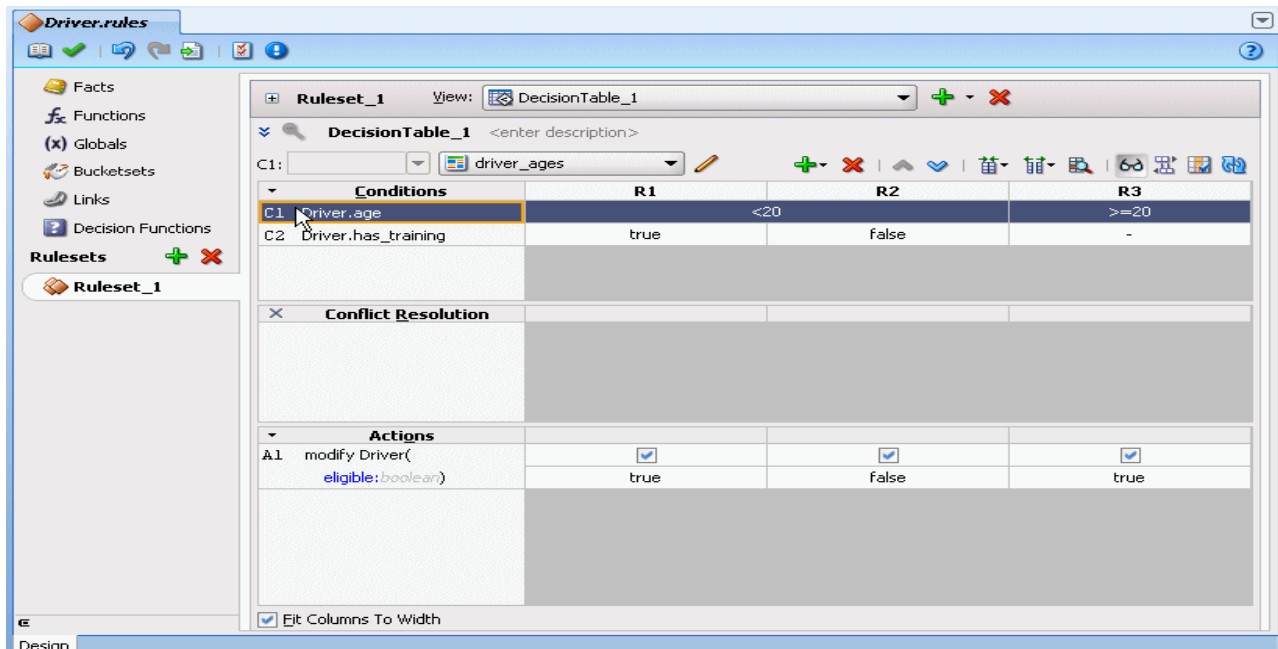
# SOA Suite 11g New Features

## Business Rules

The IF/THEN rules:

- if driver.age < 20 and driver.has training then driver.eligible = true
- if driver.age < 20 and driver.has training = false then driver.eligible = false
- if driver.age >= 20 then driver.eligible = true (do not care about training for this case)

## Decision Table

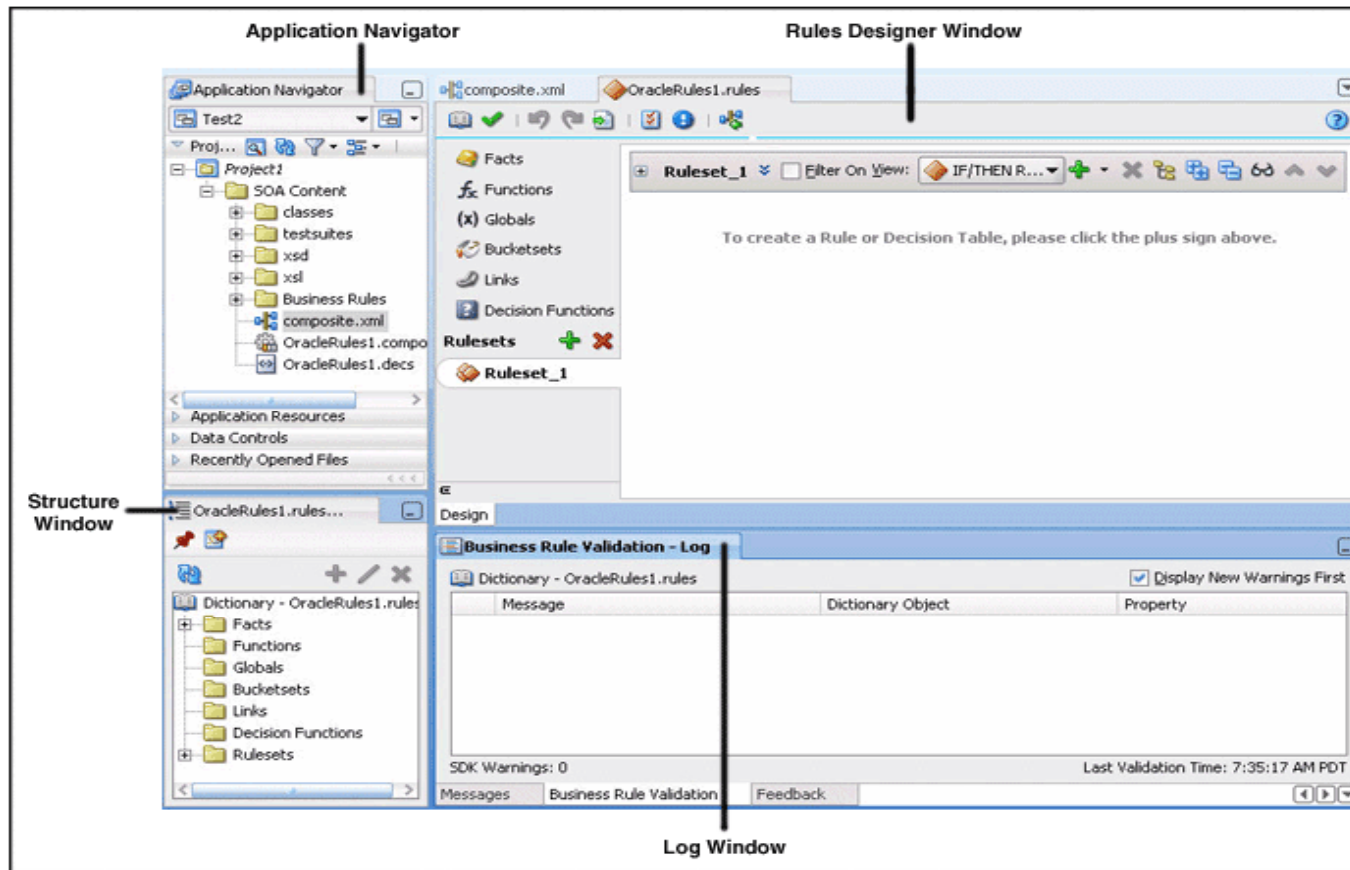


The screenshot shows the Business Rules Editor interface for a ruleset named "Ruleset\_1". The main view is a Decision Table for "DecisionTable\_1". The table is configured with two conditions (C1 and C2) and three rules (R1, R2, R3). The conditions are "driver.age" and "Driver.has\_training". The actions are "modify Driver( eligible:boolean)".

Conditions	R1	R2	R3
C1 driver.age	<20		>=20
C2 Driver.has_training	true	false	-
<b>Conflict Resolution</b>			
<b>Actions</b>			
A1 modify Driver( eligible:boolean)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	true	false	true

# SOA Suite 11g New Features

## Business Rules Designer in JDeveloper



# SOA Suite 11g New Features

## Operations Monitoring

- In SOA 10g there is:
  - ESB Console
  - BPEL console
  - Application Server Control
- Each of these tools are OK but they are not well integrated

# SOA Suite 11g New Features

## Operations Monitoring

- SOA 11g provides service monitoring across all SOA components: ESB, BPEL, Human Workflow ...
- Integral part of Enterprise Manager FMW Control
- Instances tracking:
  - ECID uniquely identifies each instance
  - Instance details are trackable through all SOA components: ESB, BPEL, adapters, workflow, ...
- Can be used to execute and review unit tests

# SOA Suite 11g New Features

## Operations Monitoring

- Fusion Middleware Control provides end-to-end trace flow for message execution across all service engines
- Composite sensors are used to index specific fields of messages through the service infrastructure
- Unified Exception handling framework

# SOA Suite 11g New Features

## Operations Monitoring

**ORACLE WebLogic Server Administration Console**

Welcome, weblogic | Connected to: osb\_domain | Home | Log Out | Preferences

**Change Center**

View changes and restarts

Pending changes exist. They must be activated to take effect. You may activate them now. Otherwise, they will be automatically activated when you next modify, add or delete items in this domain.

Activate Changes

Undo All Changes

**Domain Structure**

- osb\_domain
  - Environment
  - Deployments
  - Services
  - Security Realms
  - Interoperability
  - Diagnostics

**ORACLE Enterprise Manager 11g Fusion Middleware Control**

Farm | Farm\_base\_domain | Topology

Farm\_base\_domain

Up (59)

**Deployments**

Name	Status	Target
Application Deployments		
Internal Applications		
Resource Adapters		
DefaultToOoTaskFlow	Up	soa_server1
DefaultToOoTaskFlow	Up	soa_server2
DefaultToOoTaskFlow	Up	soa_server3
oracle-bam(11.1.1)	Up	bam_server1
worldstapp	Up	soa_server1
worldstapp	Up	soa_server2
worldstapp	Up	soa_server3
SOA		
soa-infra	Up	soa_server1
MathArqValidator [	Up	soa_server1
soa-infra	Up	soa_server2
MathArqValidator [	Up	soa_server2
soa-infra	Up	soa_server3
MathArqValidator [	Up	soa_server3

**Fusion Middleware**

Name	Status	Host	CPU U
WebLogic Domain			
base_domain			
AdminServer	Up	vm7ofmsoa.impacter	
bam_server1	Up	vm7ofmsoa.impacter	
soa_cluster			
soa_server1	Up	soa-node-3.impacter	
soa_server2	Up	soa-node-3.impacter	
soa_server3	Up	soa-node-3.impacter	
BAM			
OracleBAMServer (ba	Up	vm7ofmsoa.impacter	
OracleBAMWeb (bam	Up	vm7ofmsoa.impacter	
Metadata Repositories			
mds-ovswn	Up	vm7ofmsoa.impacter	
mds-soa	Up	vm7ofmsoa.impacter	
User Messaging Service			
usermessagingdriver-	Up	vm7ofmsoa.impacter	
usermessagingdriver-	Up	soa-node-3.impacter	
Farm Resource Center			
Before You Begin			
Introduction to Oracle Fusion Middleware			
Understanding Key Oracle Fusion Middleware Farm Concepts			
Overview of Oracle Fusion Middleware Administration Tools			
Typical Administration Tasks			

**SLA Alerts (30 mins)**

Setup | Help | Log Out

**Services With Most Alerts**

No Services to display.

Name	Alert Severity	Service	Service I
No Alerts to display.			



# SOA Suite 11g New Features

## Grid Infrastructure

- SOA Suite 10g is based on Oracle AS 10g
  - Uses Oracle application server 10.1.x
  - OC4J
  - Sun JVM
  - Repository tool “irca” to create the SOA 10g repository
  - Managed with Application Server Console

# SOA Suite 11g New Features

## Grid Infrastructure

- SOA Suite 11g is based on Oracle FMW 11g
  - Uses Oracle WebLogic server 10gR3
  - Sun or JRockit JVM
  - Repository Creation Utility (RCU) to create or delete the SOA 11g repository
    - Support for multiple repositories in the same database
  - Managed with WebLogic Server Console

# SOA Suite 11g New Features

## Grid Infrastructure

- WebLogic Features leveraged in SOA 11g:
  - SOA Domains can be created using standard WLS domain configuration wizard
  - Multiple servers can be configured at once
  - Transaction Management support for XA and recovery

# SOA Suite 11g New Features

## Grid Infrastructure

- WebLogic Features leveraged in SOA 11g:
  - Adoption of WLS JMS as default messaging in addition to AQ JMS
  - SOA Engines are J2EE components of Spring beans.
  - WLS has built-in support for the Spring Container

# SOA Suite 11g New Features

## Grid Infrastructure

- WebLogic Features leveraged in SOA 11g:
  - **Clustering:**
    - SOA Domain setup using domain configuration wizard
    - Additional SOA Servers can be configured using the WLS console
    - JMS subsystem supports distributed destinations for load-balancing across SOA servers

# SOA Suite 11g New Features

## Grid Infrastructure

- WebLogic Features leveraged in SOA 11g:
  - **Failover:**
    - WLS provides XA based transaction recovery for SOA processes
    - SOA uses WLS whole server migration as failover strategy for hardware and instance failures

# SOA Suite 11g New Features

## Grid Infrastructure

- WebLogic Features leveraged in SOA 11g:
  - **RAC Support:**
    - WLS uses multi-data source to support RAC but does not support Fast Connection Failover (FCF)

# SOA Suite 11g New Features

## Grid Infrastructure

- SOA 11g Enterprise Management
- SOA Suite 11g has the Enterprise Management Console
  - The EM console is deployed along with SOA Suite
  - The EM console is used to:
    - Manage SOA Suite services
    - Manage SOA Suite deployments
    - Review logs and Exceptions
- Direct access to the WebLogic console



# Q&A

Big enough to know. Small enough to know better.



# Thank You

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