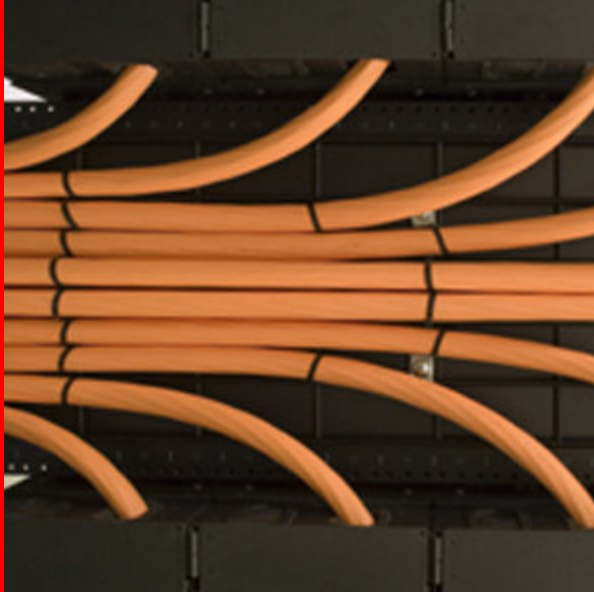# ORACLE®

Oracle SOA Suite
Integration in a Service-Oriented World

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The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remain at the sole discretion of Oracle.

Agenda

Web services, BPEL and 100% standard integration approaches extend the reach of the application server platform to enable mainstream developers to build service-oriented, process-centric applications in a highly productive, declarative fashion.
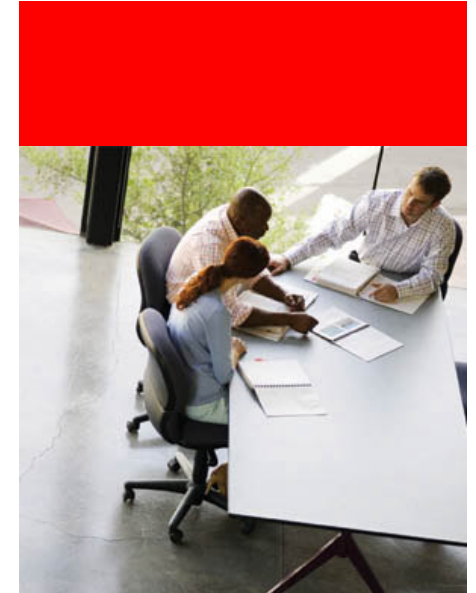
- Key SOA Standards
- Oracle Integration / SOA Platform
- Spotlight on:
  - Adapters, ESB, BPEL
- SOA Credit Request Demo
  - ESB, BPEL, Rules, BAM
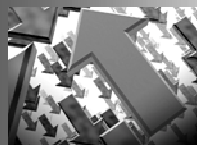- Q&A

Oracle Fusion Middleware

Development Tools
SOA Tools & Framework

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

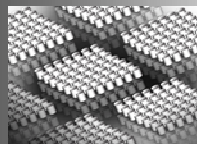**Business Intelligence**
ETL, Q&A, OLAP, Reports,
Alerts, Real Time

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

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Key SOA Standards

Fusion Effect

Richer Experience

More Adaptable

More Interoperable

Portal

Web Application

WS

API

Security
Reliability
Logging
Failover
Dynamic Routing

ERP/
Legacy Apps

Custom Apps
& Services

Web services

MONITORING	USER INTERFACE	PROCESS ORCHESTRATION	SERVICE BUS	BUSINESS SERVICES
BAM	PORTAL JSR-168	BPEL	WS-Security	XML/XML Schema
JMX	Struts/JSF	XSLT/XQuery	WS-Policy, SAML	WSDL/WSIF
			Web Services Mgmt	SOAP JCA JMS

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The Oracle SOA Platform

BPA Suite	BAM		BI	Enterprise Manager
Analyst Tools	Events	Business Monitoring	Analytics	System Monitoring

JDeveloper	**BPEL Process Manager**			Web Services Manager
App Dev Framework	Native BPEL	Human Workflow	Business Rules	Policies

Enterprise Service Bus

Multi Protocol   XSLT Transform   Routing

Security

Adapters	B2B	SES	Registry
Apps DB Legacy	Partners	RFID	UDDI

Messaging   **J2EE Application Server**
Oracle AS, JBoss, WebLogic, WebSphere
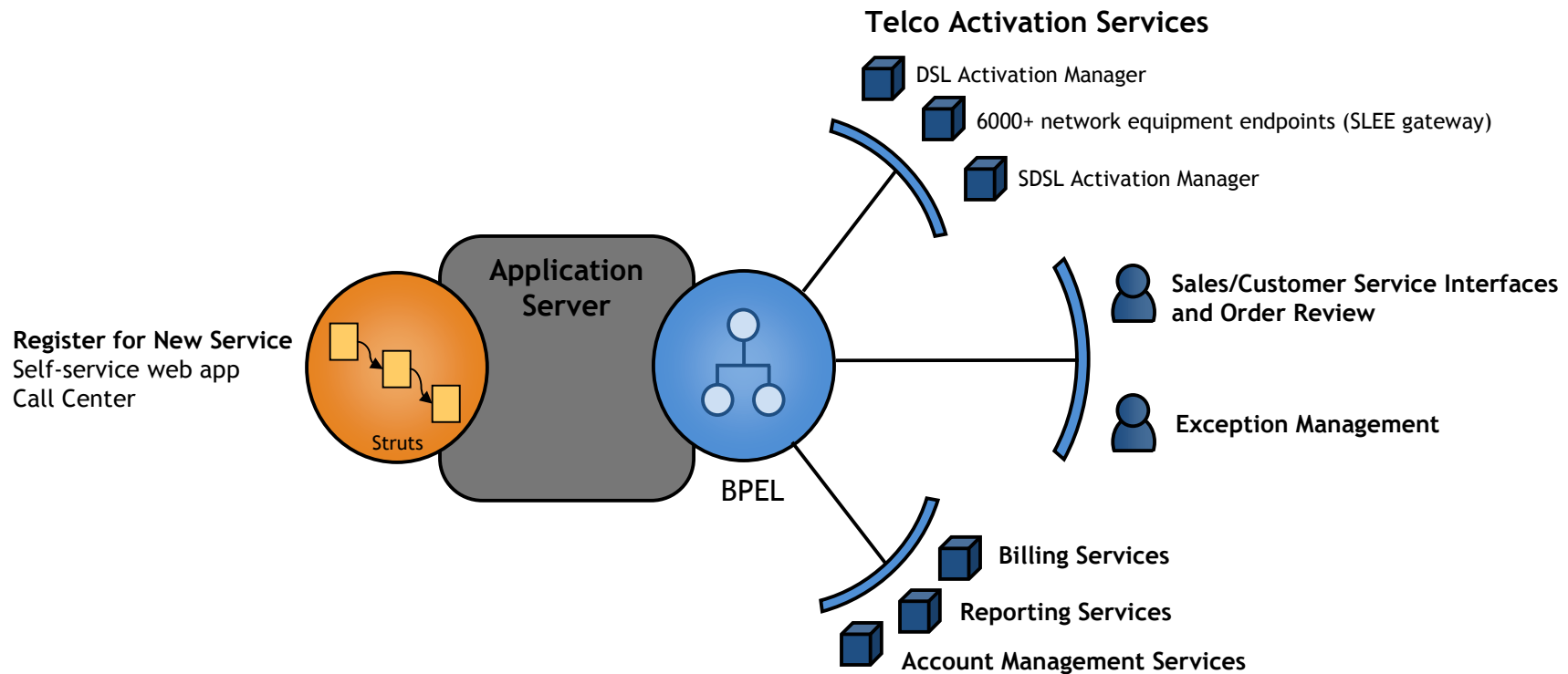
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Example: DSL Provisioning at Belgacom

Application for the provisioning and activation of DSL lines. Belgacom is processing up to 15,000 DSL provisions / day through SOA and BPEL processes which link their customer interfaces and OSS layer, managing activation and repair.

Telco Activation Services

DSL Activation Manager

6000+ network equipment endpoints (SLEE gateway)

SDSL Activation Manager

Application Server

Register for New Service
Self-service web app
Call Center

Struts

BPEL

Sales/Customer Service Interfaces and Order Review

Exception Management

Billing Services

Reporting Services

Account Management Services

Broad Adoption…

Financial Services   Order/Payment Processing
New Account Provisioning Process
Trade Exception Management

High Tech   Order Management
Trading Partner Integration

Telecom   Cell Phone Activation
VoIP Provisioning
DSL Provisioning

Government   Medicare Eligibility Determination and Enrollment
Satellite Data Exchange
Publish and Process Forms
Employee On-boarding

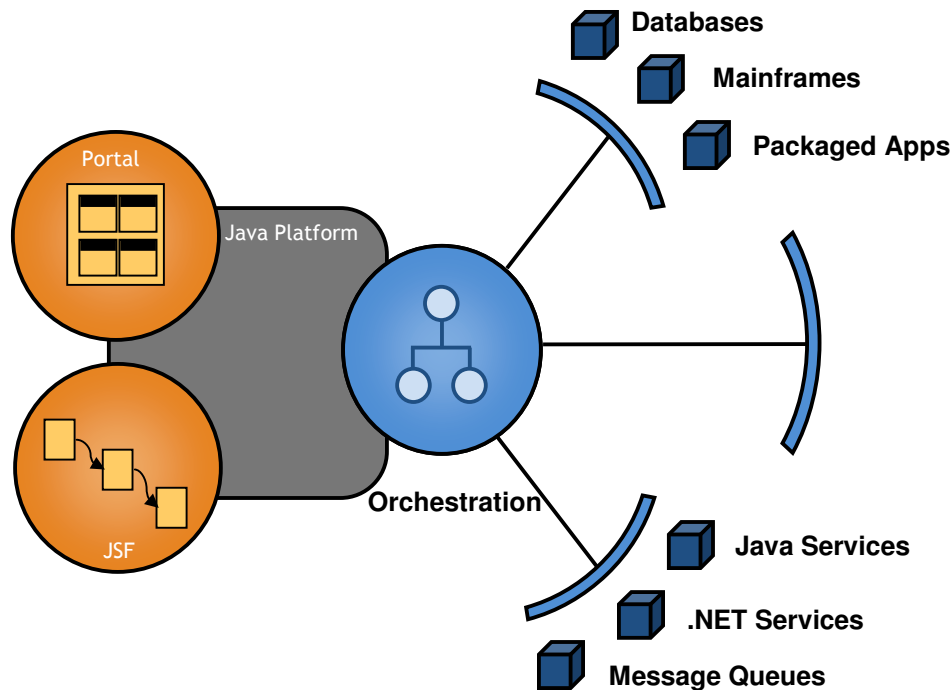**Transportation**   Fleet and Asset Management

Travel   Reservations

Retail   Sales Data Integration

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A Consistent Set Of Requirements

Connectivity
Heterogenous Back Ends
Silos of API and mechanisms
Opaque/heterogeneous data definitions
Synchronizing multiple data stores

Orchestration
Asynchrony, Flow Coordination, Data
Transformation, Compensation, Version
Control, Auditing

Scalability
Unpredictable loads
Asymmetric performance capabilities

Management and Security
Access control, Authentication,
Encryption, Logging, Identity
Management

Governance
Directory, Audit trails, Business Rules

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Oracle SOA Platform Drill-down

- JDeveloper
  - Complete IDE, J2EE, Web services, Supports WSIF Bindings
- Adapters
  - Connectivity to 300+ back-end systems, visual design, JCA
- Oracle ESB
  - Messaging, connectivity and data distribution
- Oracle Web Services Manager
  - Service intermediation, security and policy management
- Oracle BPEL PM
  - Standards based orchestration, workflow management
- Oracle BAM
  - Application Monitoring, SLA, KPI management
- Oracle Business Rules
  - Engine, repository, rules editor
- Oracle App Server
  - Full featured J2EE deployment, scalability, reliability, HA

Some of the Adapters Available for Oracle SOA Suite…

Applications

- Oracle Applications
- SAP R/3
- Peoplesoft
- JD Edwards
- Siebel
- Clarify
- Lotus Notes
- Ariba
- AXIOM mx/open
- Baan
- BroadVision
- Clarify
- Commerce One
- Hogan Financials
- i2 Technologies
- Lawson
- Livelink
- Manugistics
- Microsoft CRM
- Vantive
- Walker Interactive
- Remedy
- Salesforce.com

Databases

- **Oracle 8i and above**
- **IBM DB/2 UDB**
- **Informix**
- Clarion
- Clipper
- Cloudscape
- DBASE
- Dialog
- Essbase
- FOCUS Data Access
- Great Plains
- **Microsoft SQL Server**
- MUMPS (Digital Standard MUMPS)
- Navision Financials (ODBC 3.x)
- Nucleus
- Paradox
- Pointbase
- PROGRESS
- Red Brick
- RMS
- SAS Transport Format
- **Sybase**
- Teradata
- Unisys DMS 1100/2200
- UniVerse

Technology

- **SOAP**
- **HTTP, HTTP-S**
- **Email – POP3, SMTP, IMAP**
- **FTP, FTP-S**
- **Flat File**
- LDAP
- **JMS**
- **Oracle AQ**
- **IBM MQSeries**
- TIBCO Rendezvous
- Socket

Legacy

- CICS
- IMS/DB
- IMS/TM
- VSAM
- ADABAS
- Natural
- Tuxedo
- CA-Datacom
- Screen Scraping
- CA-IDMS
- C-ISAM,D-ISAM,K-SAM, QSAM

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Oracle ESB: An ESB Moves Data

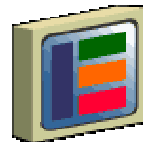**Model, Monitor and Configure**

Connect
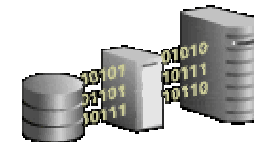Adapters
Metadata
WS Manager
Security
Apps Events

Enrich
Transformation
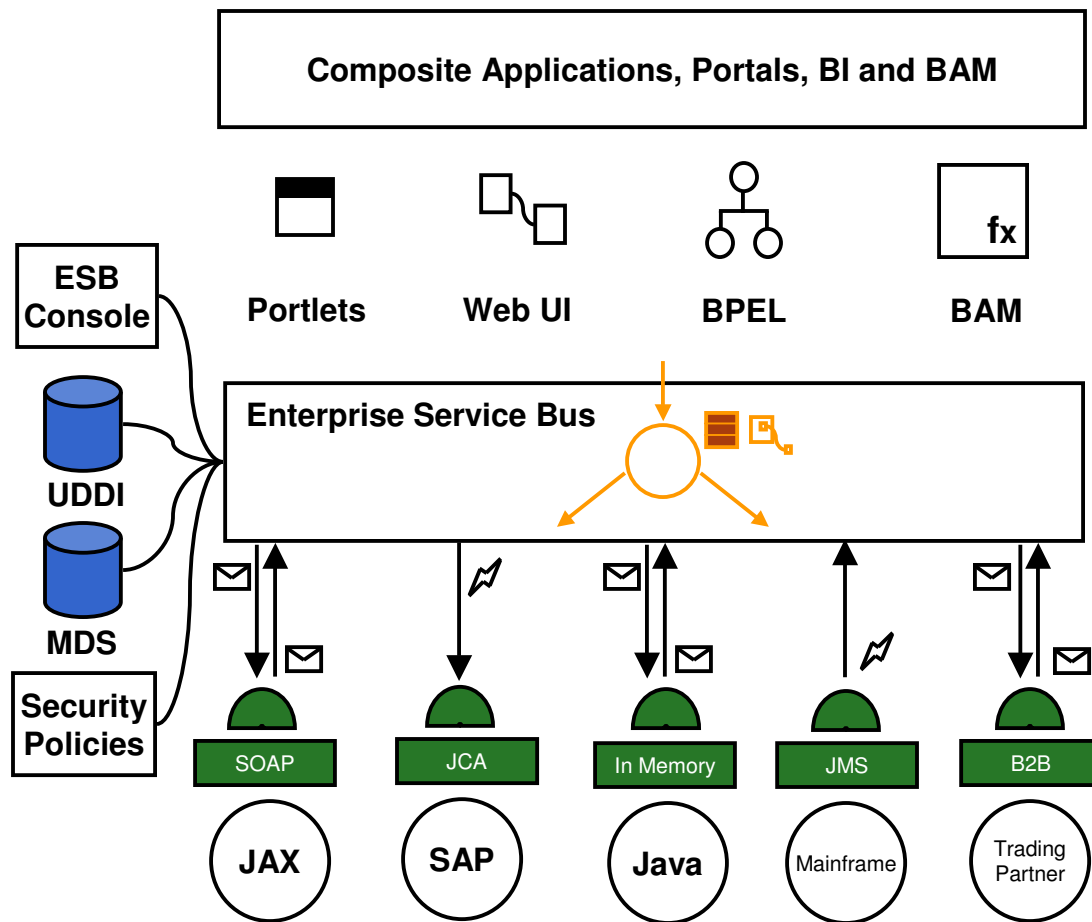Value Mappings
Business Rules
Workflow
System Xref

Distribute
Protocol Bus
Messaging
Routing
Interoperability
HA, Scalability

Oracle ESB: Component Architecture

Composite Applications, Portals, BI and BAM

Portlets **Web UI** **BPEL** **BAM** fx

ESB Console

UDDI

MDS

Security Policies

Enterprise Service Bus

SOAP JCA In Memory JMS B2B

JAX **SAP** **Java** Mainframe Trading Partner

- Components
  - Integrated Designer
  - Rich Monitoring Console
  - JCA Adapters
  - Routing Service
    - XPATH Filter Expressions
    - XSL Transformation
 - Metadata Repository/Server

- Features
  - Content Based Routing
  - Enterprise Messaging - OEMS
  - Native XML and Web Services
  - Multi Transport Fabric

- Usage Patterns
  - Point to Point
  - Canonical Modeling
  - Store and Forward
  - Request/Response
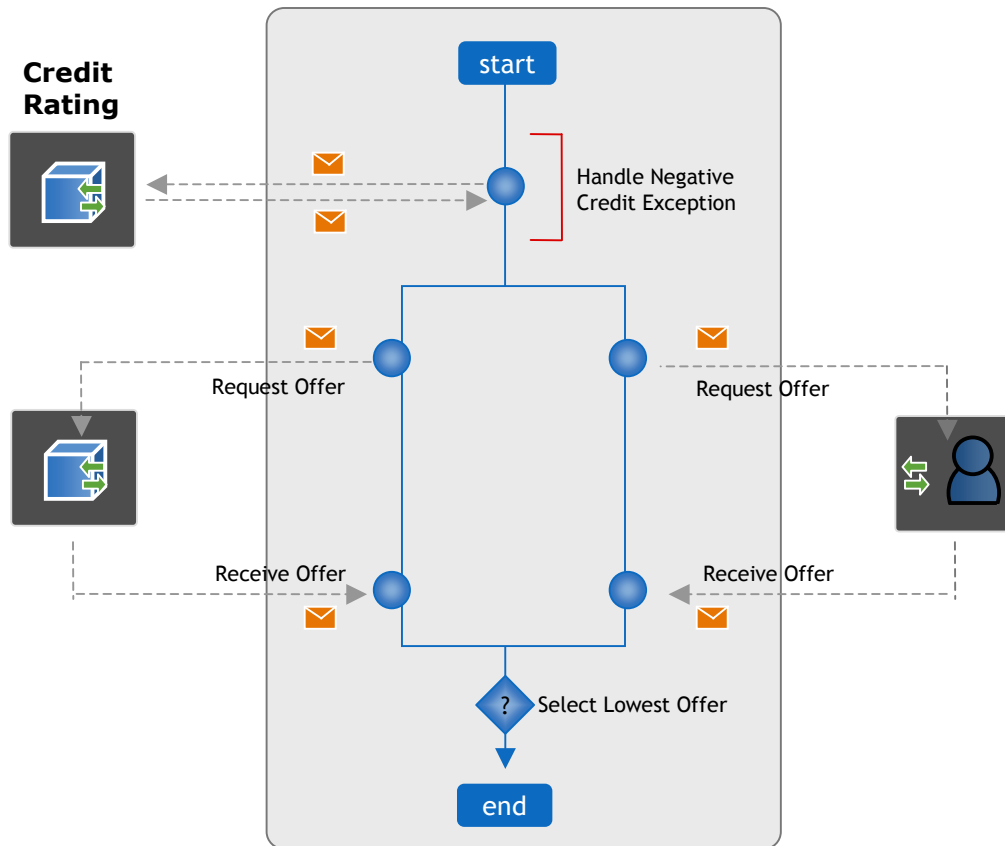 - Externalized Services

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Oracle BPEL Process Manager

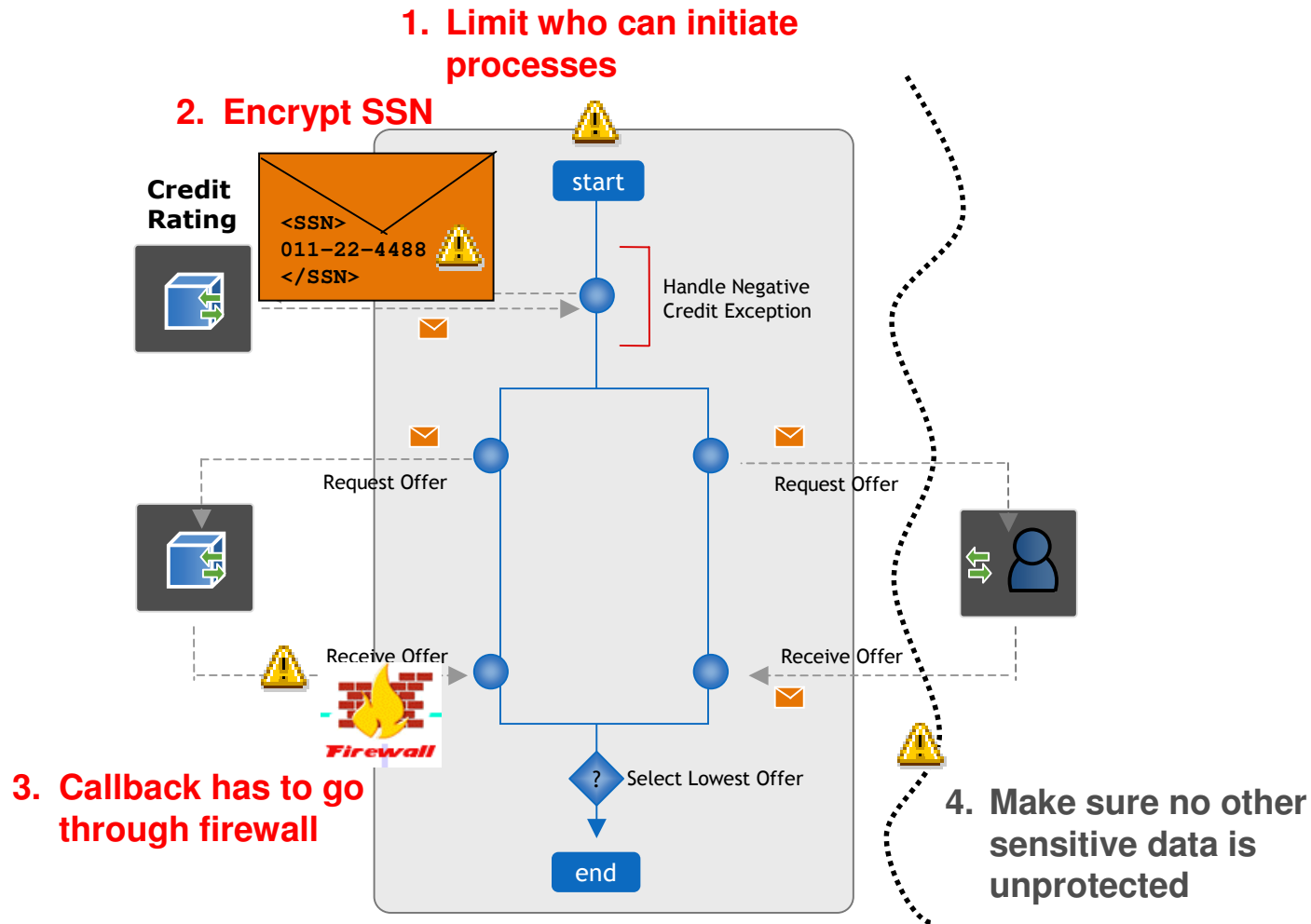Enterprise-strength infrastructure for designing, deploying and managing BPEL business processes.
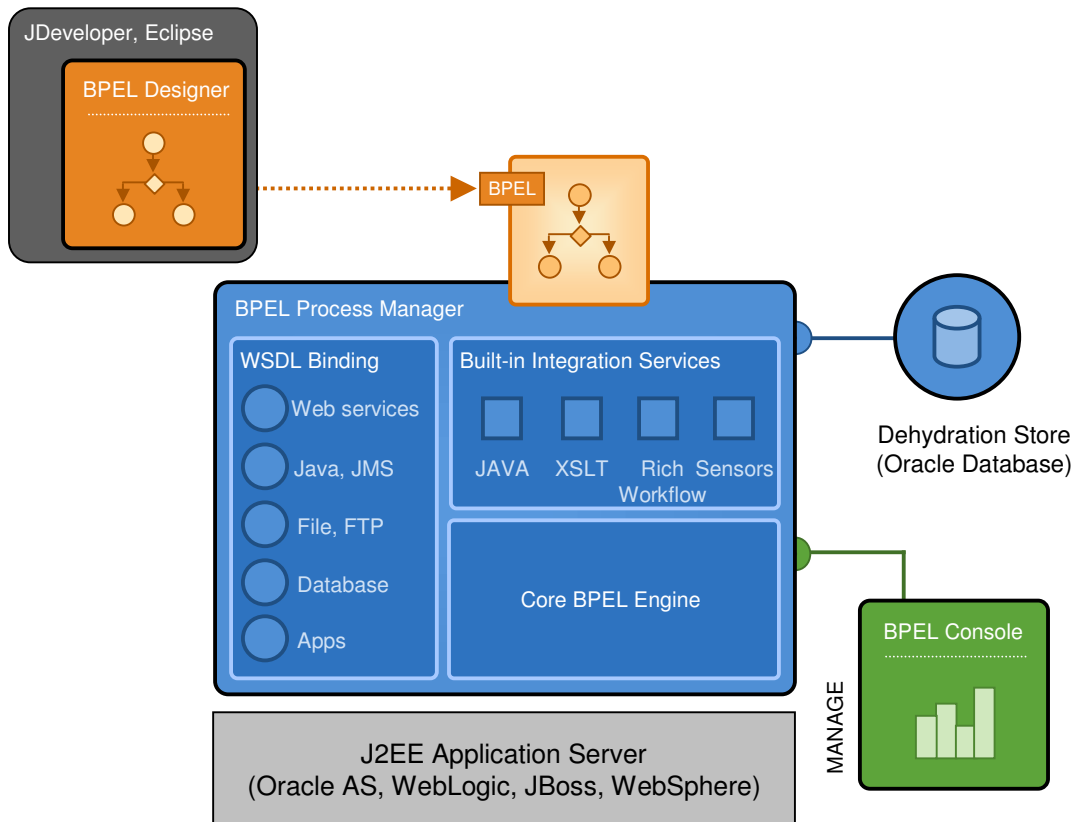
- Comprehensive and native BPEL implementation

- Easy-to-use modeling tool

- Scalable and reliable engine

- Flexible binding framework

- Rich management and monitoring

- Support for Oracle AS, JBoss, WebLogic and WebSphere
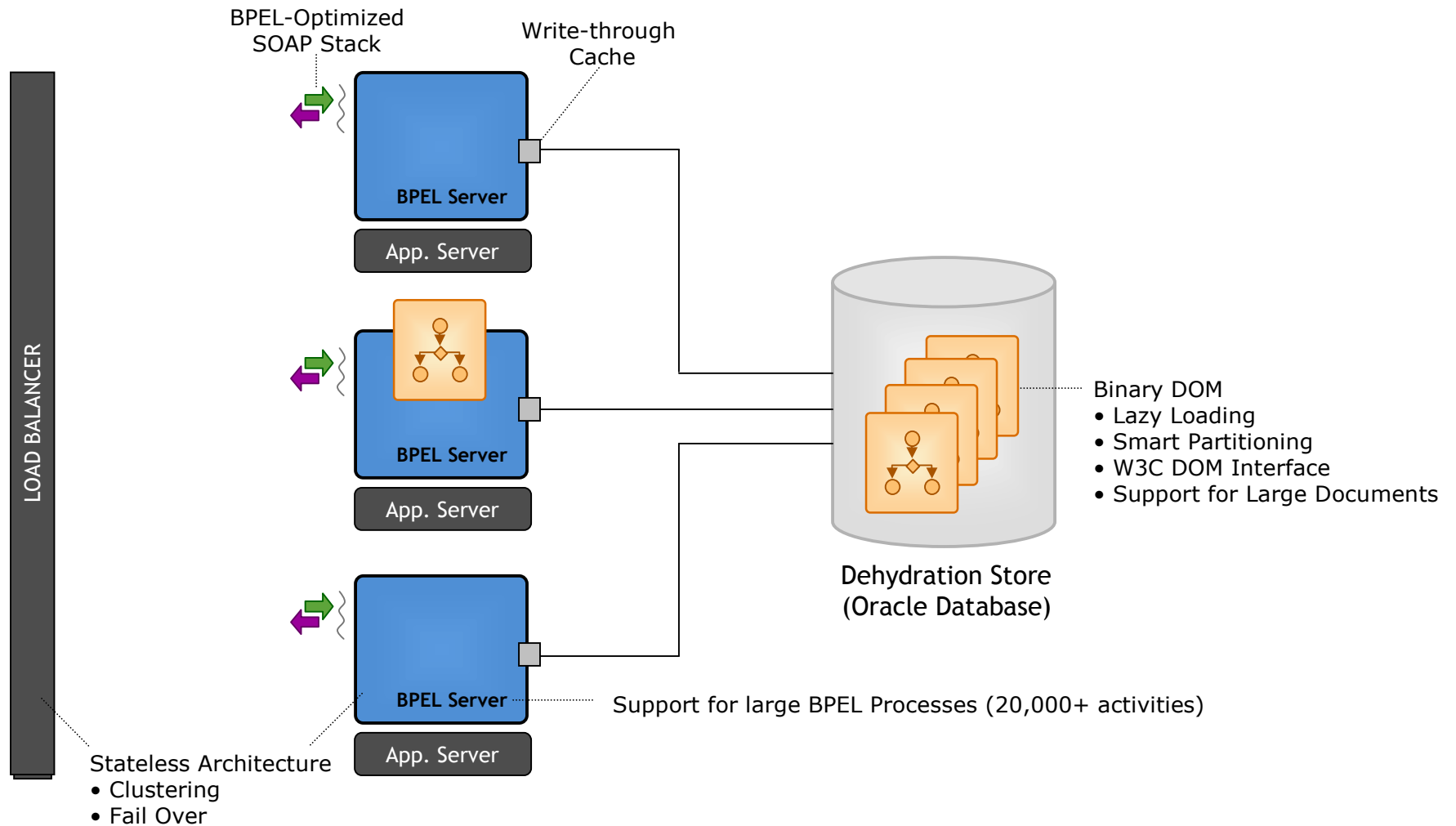
- Get up and running in less than 15 minutes!

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A Typical SOA Application

Credit Rating

start

Handle Negative Credit Exception

Request Offer

Request Offer

Receive Offer

Receive Offer

? Select Lowest Offer

end

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What Are the Security Requirements?

1. **Limit who can initiate processes**

2. **Encrypt SSN**

Credit Rating

```
<SSN>
011-22-4488
</SSN>
```

start

Handle Negative Credit Exception

Request Offer

Request Offer

Receive Offer

Receive Offer

Firewall

3. **Callback has to go through firewall**

? Select Lowest Offer

end

4. **Make sure no other sensitive data is unprotected**

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Designed for Performance

BPEL-Optimized
SOAP Stack

Write-through
Cache

LOAD BALANCER

BPEL Server

App. Server

BPEL Server

App. Server

BPEL Server

App. Server

Dehydration Store
(Oracle Database)

Binary DOM
• Lazy Loading
• Smart Partitioning
• W3C DOM Interface
• Support for Large Documents

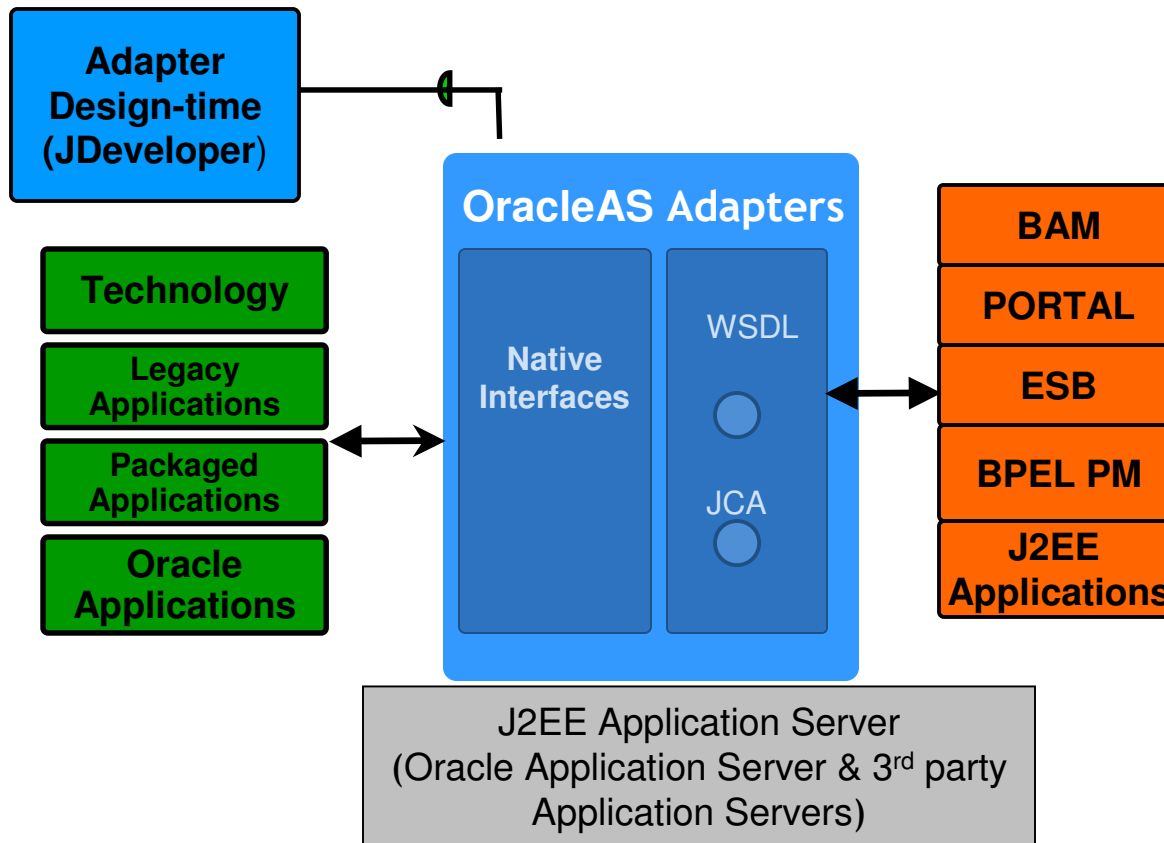Support for large BPEL Processes (20,000+ activities)

Stateless Architecture
• Clustering
• Fail Over

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Oracle Adapters

Enterprise-strength infrastructure for connectivity to enterprise information systems (EIS).

Adapter Design-time (JDeveloper)

Technology

Legacy Applications

Packaged Applications

Oracle Applications

OracleAS Adapters

Native Interfaces

WSDL

JCA

J2EE Application Server
(Oracle Application Server & 3rd party Application Servers)

BAM

PORTAL

ESB

BPEL PM

J2EE Applications

- **Comprehensive and pervasive connectivity**
- **Support for SOA /EDA**
- **Open Standards Support**
- **Hot Pluggable**
- **Rapid development**
- **Robust & highly scalable.**
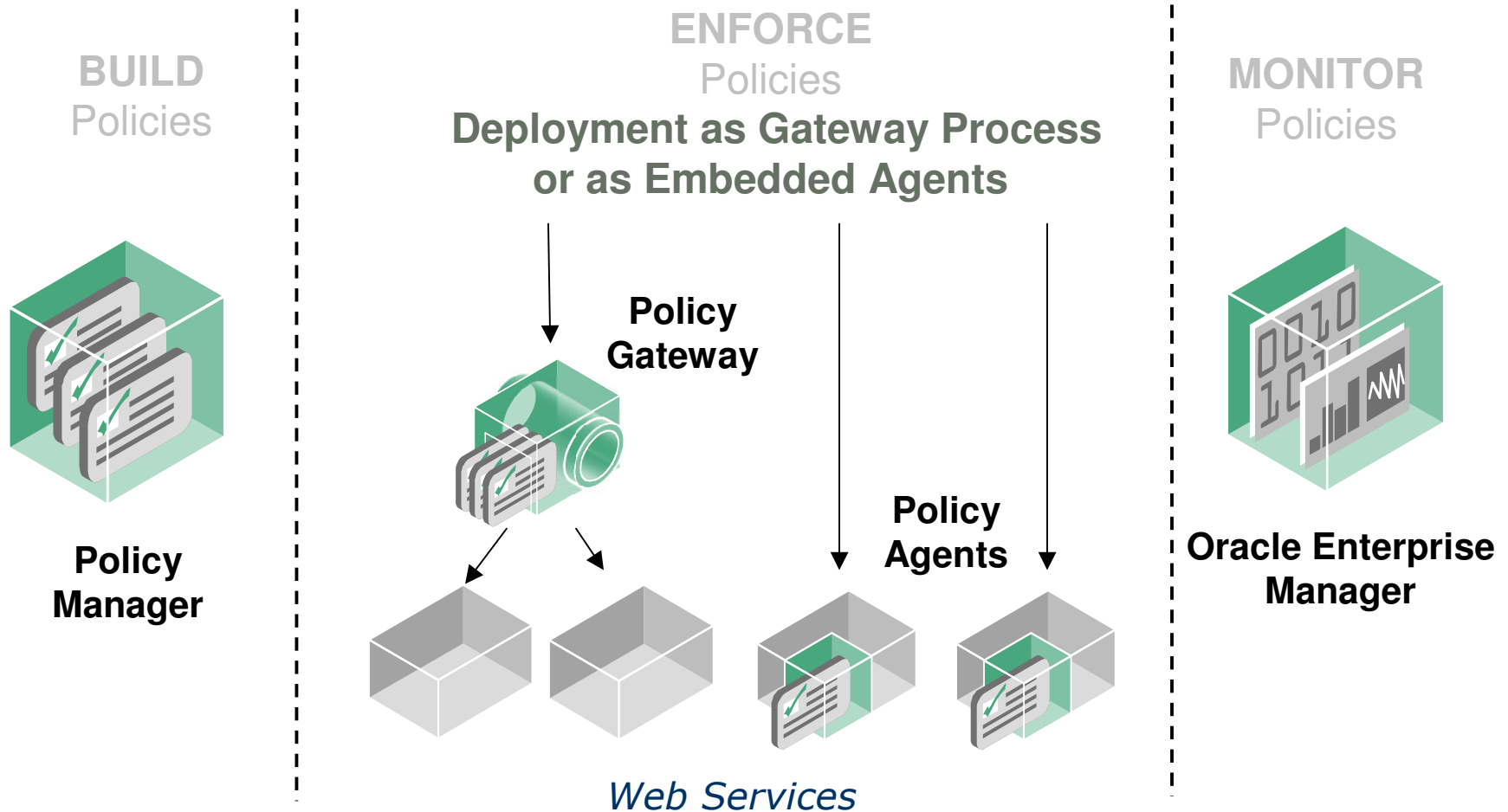- **Managed through Oracle Application Server 10^g**

Web Service Management

Decouples Security and Management Policies from Service Logic

- Without WSM, policy is hard-coded into each Web Service

- Result is siloed, inconsistent security and management

- A change in enterprise standards = rework of every service

- Higher cost, more fragile, harder to change

- No unified insight into operations across services
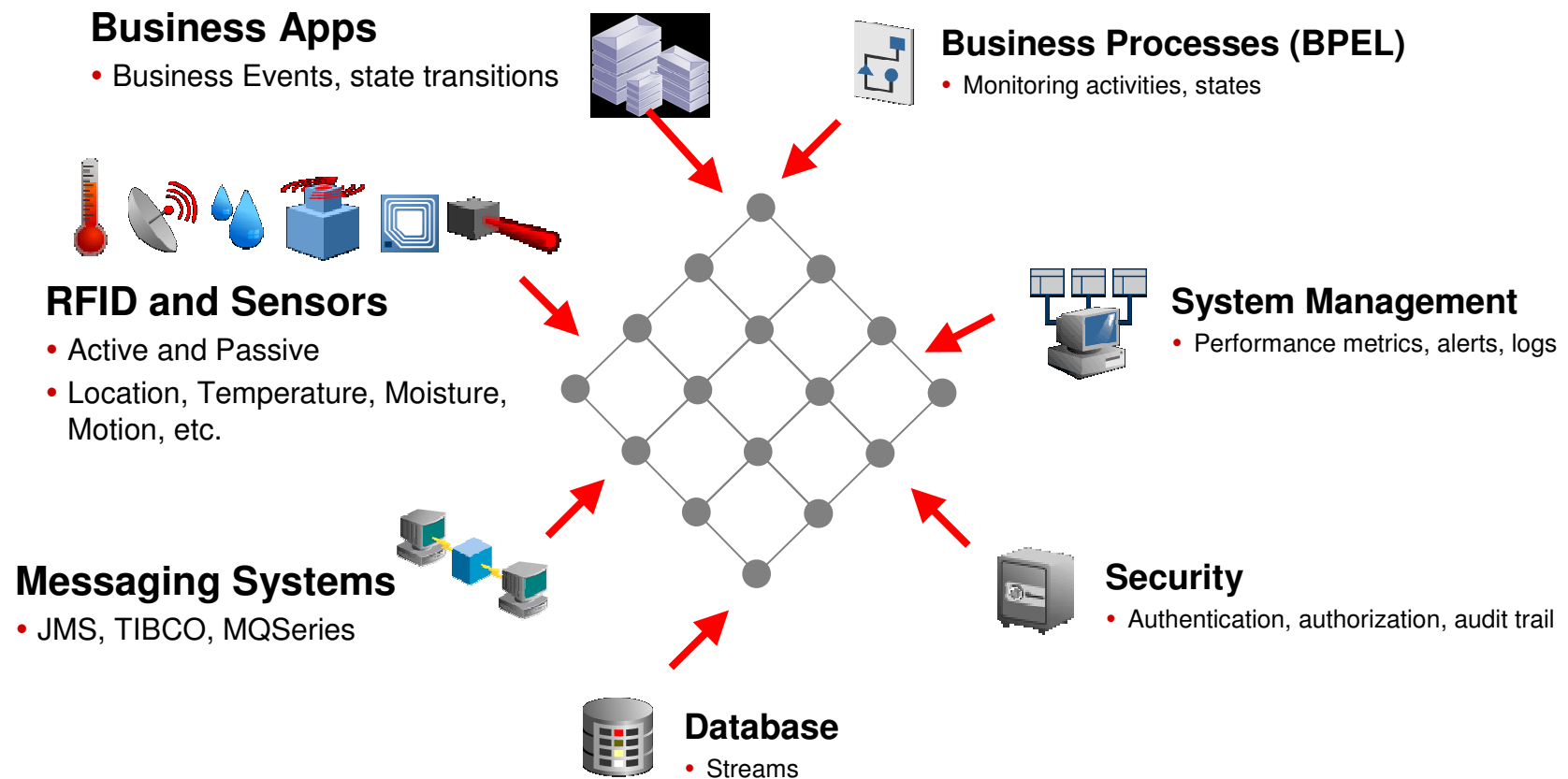
Oracle WSM Components

BUILD
Policies

ENFORCE
Policies
**Deployment as Gateway Process
or as Embedded Agents**

MONITOR
Policies

**Policy
Gateway**

**Policy
Agents**

**Policy
Manager**

Web Services

**Oracle Enterprise
Manager**

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Oracle BAM
Business Activity Monitoring

Real-Time Dashboards, Analytics & Alerting

Challenge #1 – Capture Real-Time Data

Business Apps
- Business Events, state transitions

Business Processes (BPEL)
- Monitoring activities, states

RFID and Sensors
- Active and Passive
- Location, Temperature, Moisture, Motion, etc.

System Management
- Performance metrics, alerts, logs

Messaging Systems
- JMS, TIBCO, MQSeries

Security
- Authentication, authorization, audit trail

Database
- Streams

Challenge #2 – Analyze Processes, Trends, and Context

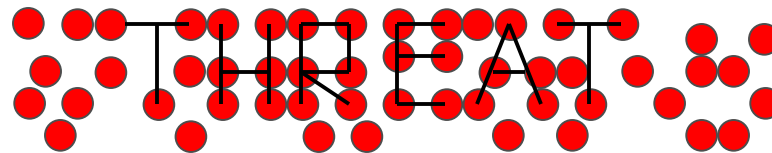**Monitor a Single Process**
Track each process step
Identify failures
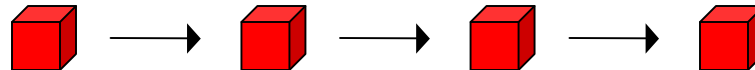
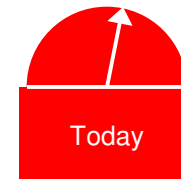**Process Aggregations**
Averages, KPIs, SLAs
Identify bottlenecks
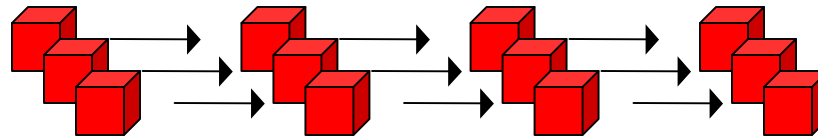
Complex Event Processing
Correlate independent events
Identify threats & opportunities

Context
Historical performance
Rolling average

Past Week

Today

Past 15 Minutes

Challenge #3 – Deliver Information to Business Users

- Real-Time KPIs

- Thin Browser GUI

- Role-Based Access

- Live Display Technology

- Portal Compatible

- Embedded Actions

Oracle Web Services Manager

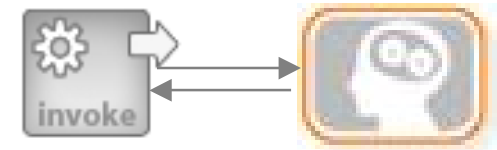Securing Processes and Services in a Policy-Oriented Fashion

Oracle's BPM Approach

- Complete Service Oriented Architecture platform for full BPM innovation cycle
- 100% standard process models
- Shared model between analysis, execution and monitoring
- Provide choice of modeling tools to customers
  - OEM leading BPA tool
  - Enhance the logical view of BPEL PM Designer for analysts
  - Provide integration with leading BPA tools so that customers can select BPA tool of their choice
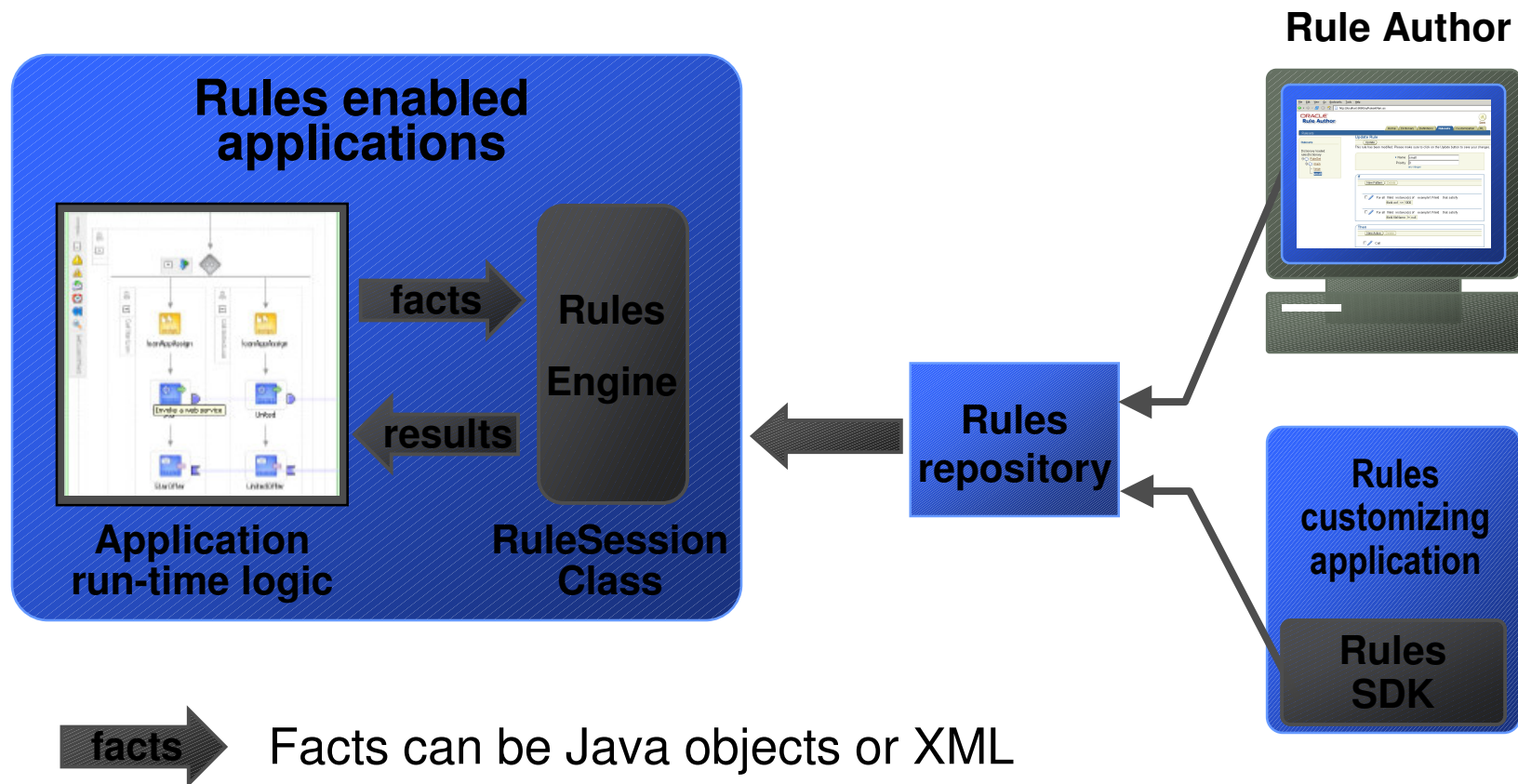
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Business Rules

- Are declarative not procedural
- Best practice for SOA applications
  - Agility
  - Transparency
  - Can be generated from GUIs
- Applications requiring agility
  - Frequently changing (legal) regulations
  - Frequent policy changes to reflect market changes
  - Requirements for high levels of customization

Rules de-couple decision services from SOA applications

Oracle Business Rules

Rules enabled applications

facts

Rules Engine

results

Application run-time logic

RuleSession Class

Rule Author

Rules repository

Rules customizing application

Rules SDK

facts Facts can be Java objects or XML

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http://otn.oracle.com/soa
http://otn.oracle.com/bpel

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