

## ORACLE

## **Oracle Application Integration Architecture**

**Mission Critical SOA Governance** 

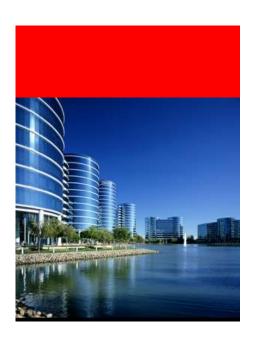
Jason Xie, Principal Strategy Product Manager

## **Agenda**

- SOA Governance Needs
  - Risks without SOA Governance
- AIA SOA Governance Offerings
  - Methodology & Tools
    - SOA Lifecycle
- Summary
- Q & A







## **Application Integration Architecture**

Pre-Built SOA: Technology and Applications to jumpstart your SOA Initiatives

#### Best Practice Processes

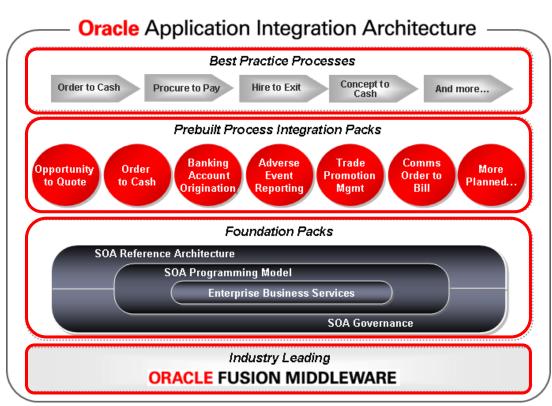
Optimize business performance leveraging Oracle's extensive experience and best practices

#### Process Integration Packs

Pre-built, out of the box, integrated Oracle Applications for quick implementation of business processes, without the risk. (i.e. Siebel CRM to Oracle E-Business Suite)

#### Foundation Packs

Create custom business processes across any of your applications utilizing predefined, application independent object and service definitions



#### Powered by Oracle Fusion Middleware

Hot pluggable, open standards based platform

## **Customers' Pre-built SOA roadmap**

- Operate the pre-built SOA
  - Customers' priorities:
    - Performance
    - Scalability
    - Availability
    - Security
- Evolve the pre-built SOA
  - Customers' priorities:
    - Modify business processes
    - Introduce new capabilities
    - Extend business service portfolio

#### Path to SOA is Challenging

"By 2010, less that 25 percent of large companies will have the sufficient technical and organizational skills necessary to deliver enterprise wide SOA"

Gartner Jun 2007

## **SOA** without Governance

Risks are Significant

#### Wild West SOA

- Out-of-Control
  - Complex to manage
  - Difficult to maintain
- ROI down

#### **Duplicated SOA**

- Agility down as scale up
  - Lengthy project turnaround
  - Complex to manage
- ROI down
- Time-to-market up

#### **Shelfware SOA**

- Waste of resources
  - No benefit
  - Shun away from SOA
- ROI down

Gartner, "SOA and Web Services Integration: Effective Governance and Management," Symposium ITxpo, May 2007

#### Wild West SOA Meets EBS

AIA comes to the rescue

#### **Symptoms**

- No visibility to your SOA portfolio
  - What services do you have?
  - How many do you have?
  - Where are the services?
- Ad-hoc dependencies
- Fuzzy service contracts
  - What svc interface & semantics?
  - What interaction patterns?
  - What security constraints?
  - What key performance indicators?
  - What service levels?

#### **Examples**

- Svc follow initial contracts
  - Interface
  - MEP
- Lack visibility
  - Dependencies: who use the svc?
  - Impacts if the services change?
- Services evolve
  - Signature change
  - Implementation change
- Lack oversight & control over change process
  - Break consumers
  - Retroactive fixes

#### **Solutions**

- Rationalized process to define App-agnostic EBS
  - Process modeling
    - Determine services needed
    - Determine service interface & semantics
- Forward & backward compatibility for changes
  - Version strategy
  - Design-time via CAVS
  - Runtime via version-check ESB
- BSR Visibility
  - In-context to business processes
- Interoperable with Partners

## **Duplicated SOA Meets EBO**

AIA comes to the rescue

#### **Symptoms**

- Duplicated SOA efforts
  - Services proliferate
  - Objects proliferate
- No leverage, no reuse
- High downstream costs to admin and maintain

#### **Examples**

- Integrate with a new apps
- Point-to-point integration comes in handy
- Proprietary data format close to the application at hand
- 6-month later, integrate with another new apps.
  - More point-to-point integrations
  - Yet another data format close to the new application at hand
- Downsides
  - Data format proliferation
  - Service proliferation
  - High maintenance and admin cost
  - Can not scale-up
  - Time-to-market increases

#### **Solutions**

- Rationalized process to define canonical EBO
  - Process modeling
    - Determine EBO needed
  - Semantic reconciliation
    - Inputs: OAG, SEBL, PSFT, eBiz, . . .
  - Extensibility & upgradeability
- Visibility
  - BSR: Integration flow view of EBO

#### **Shelfware SOA Meets AIA SOA-ware**

AIA comes to the rescue

#### **Symptoms**

- Little commitment from service consumers & providers due to
  - Trust break-down
  - Cooperation break-down
- No leverage, no reuse

#### **Examples**

- Cross organization & company dependencies (e.g., BPO)
- Consumers: relies on services outside of their control
- Providers: don't know the user profiles, usage loads, security, and etc.
- Too much uncertainty, too little trust
  - Don't know how services change
  - Don't know when they will be down
- Why bother with SOA? Just shun away

#### **Solutions**

- Visibility
- BSR
- Interoperable to partner solutions
- Change management
  - Version strategy
  - Ensure functional & operational compatibility
- Runtime management via SLA in EM
- Message-level security via OWSM

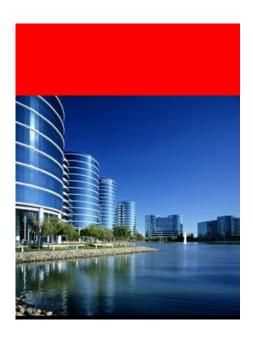
# SOA Governance

Recognized as the leading indicator of successful SOA

"SOA Governance is not optional — it is imperative. Without it, return on investment will be low and every SOA project out of pilot phase will be at risk."

— Gartner Jan 2006

## **AIA SOA Governance**



## **SOA Governance Offering**

#### What do customers get when uptaking AIA?

#### Methodology

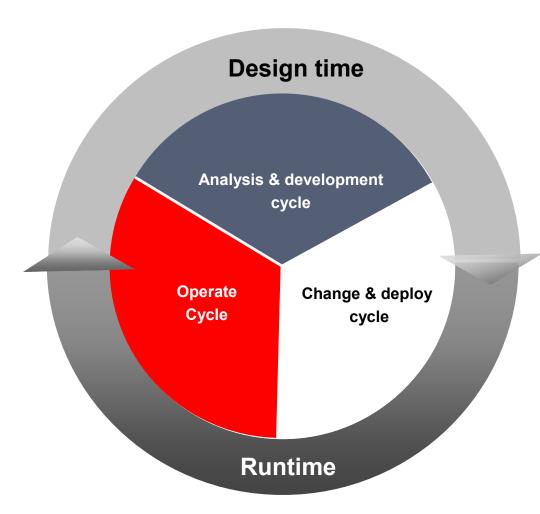
- Process-centric Analytic Approach
  - Orchestrating capabilities
  - Rationalizing across app portfolio
  - Connecting Service portfolio
- Business Service Portfolio Design
  - Service Interface
    - Signature
    - Interaction pattern
  - Service semantics
- Architecture Governance

#### **Tools**

- Fusion Middleware
- AIA Value-added Infrastructures
  - SOA Visibility:
    - Business Service Rep/Reg
  - SOA Quality:
    - Composite App Validation Sys
    - Diagnostics
  - SOA Management
    - Install/Patching/Upgrade
    - Error Resolution
    - Runtime Monitoring

## AlA's SOA Lifecycle Support

End-to-end coverage of SOA Governance



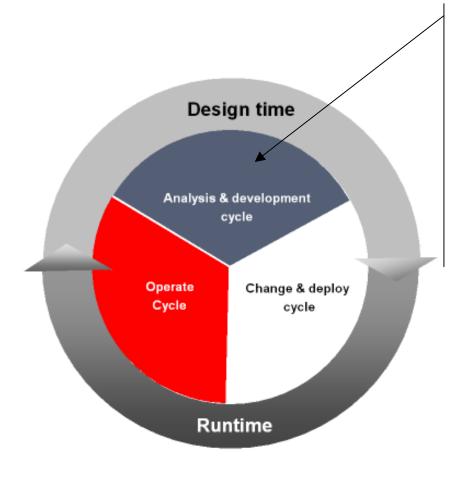
- Cover the complete lifecycle
- Address needs of multitude of IT constituents
  - Business domain experts
  - IT technical personnel
  - Customers
  - External partners
- Fulfill requirements of SOA visibility, process quality, and management



--- Analysis & Development



## **Challenges**



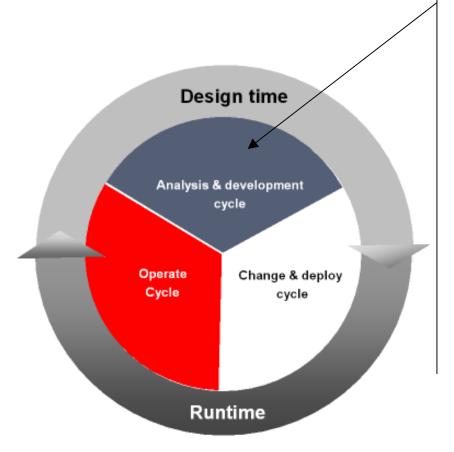
#### Bridge the gaps between business and IT communities

- Communicate Business Requirements to IT
- Align IT implementation to the business needs

#### Build Service Portfolio

- Determine service required
- Determine the service granularity

## **Tasks**



## **SOA Quality**

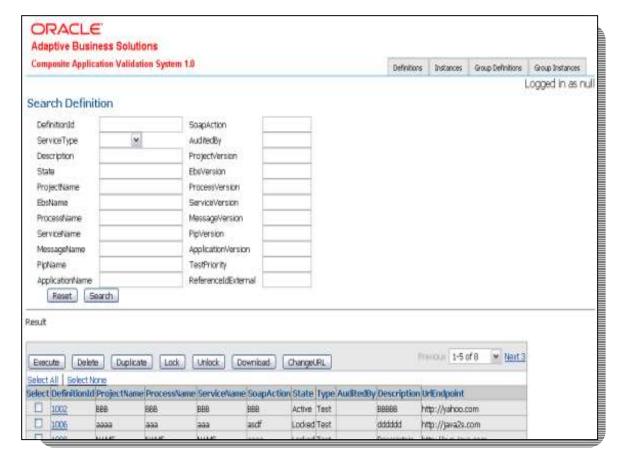
#### Challenges

- Quality Assurance throughout the SOA lifecycle (design-time & runtime)
  - Analysis & Development cycle: in-house development
  - Change & Deployment cycle: on-site deployment
  - Operate cycle: on-premise production
- Distributiveness of an across-pillar end-to-end business process
  - Multiple applications
  - Multiple services
  - Multiple administrative controls (during runtime)
- Costs and availability of edge applications during development



## **SOA Quality**

#### Composite Application Validation System (CAVS)



#### **Validating integrations**

- Individual services
- End-to-end flows across silos
- Backward compatibility after change

#### **Quality throughout lifecycle**

- Used at design-time and runtime

#### **Simulator**

- Emulate service invocations

#### **Benefits**

- ✓ Quality assurance for entire PIP
- ✓ Productive SOA lifecycle
- ✓ Expedite time to market

## **SOA Quality**

#### **CAVS Benefits**

- Proactive quality assurance
  - Discover the impact of changes before Service is deployed
  - Mitigate risks and minimize production downtime
- Rapid and cost effective way to validate and certify against dependent applications
- Complements other testing tools

#### Motivation & Challenges

#### Motivation

- You need to manage your SOA. Yet you can't manage what you can't see ...... FORRESTER

## Challenges

- SOA visibility throughout the SOA lifecycle (design-time & runtime)
- Diverse SOA artifacts and their inter-dependencies
- Scale up SOA

#### **Business Service Repository (BSR)**



#### Catalog of SOA portfolio

- Services (EBS, ABCS)
- Enterprise Objects (EBO's)
- End-to-end flows across silos
- Relationships & dependencies

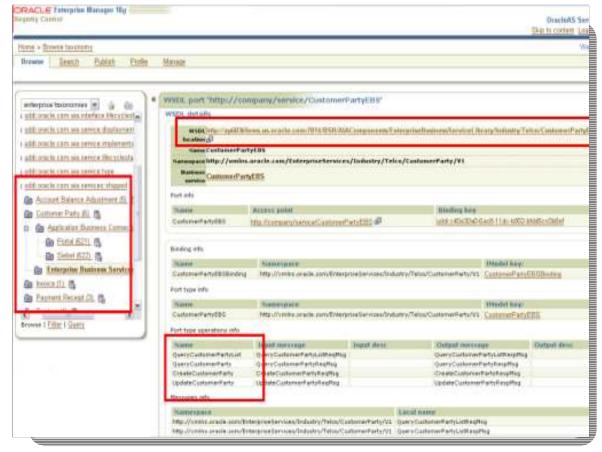
#### **Comprehensive coverage**

- Design-time view
- Runtime view

#### **Benefits**

- ✓ Visibility
- ✓ Reusability
- ✓ ROI

#### **Business Service Repository (BSR)**



#### **Easy Access**

- Search & Browse

#### **Categorizations**

- AIA pre-defined taxonomies
- Customer-defined taxonomies

#### **Integration Centric**

- Participating edge applications
- Triggering events
- Topology view of flows

#### **Benefits**

✓ One-stop-shop for integration

## **Agent Assisted Customer Care**

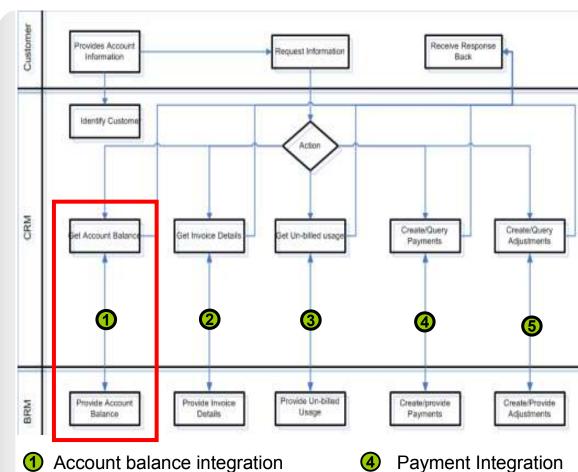
#### Communication Process Integration Pack



Suzie: There are some problems with my phone bill this month.



Suzie Customers



**Adjustment Integration** 

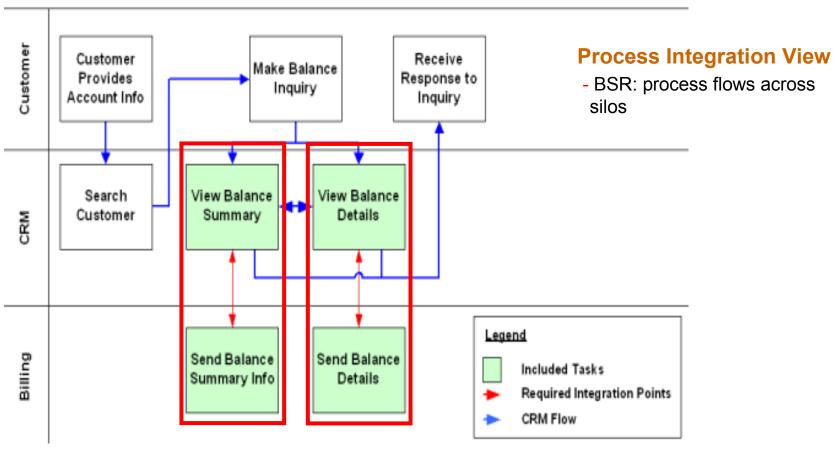
**ORACLE** 

**Invoice Integration** 

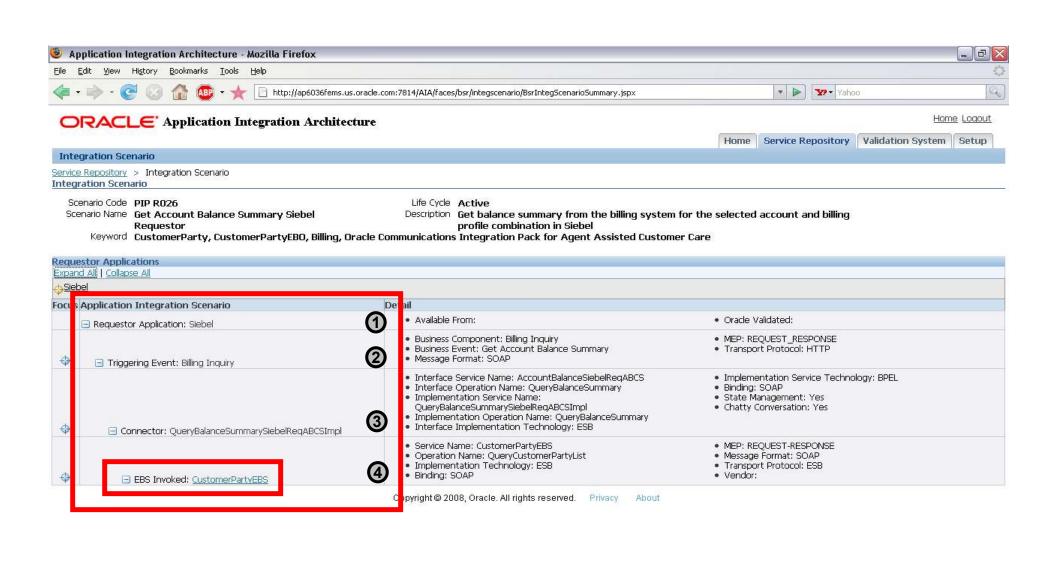
Service Usage integration

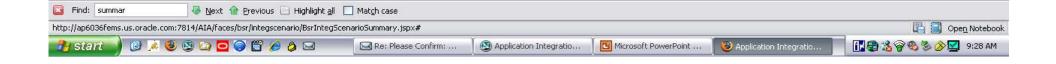
## **Agent Assisted Customer Care**

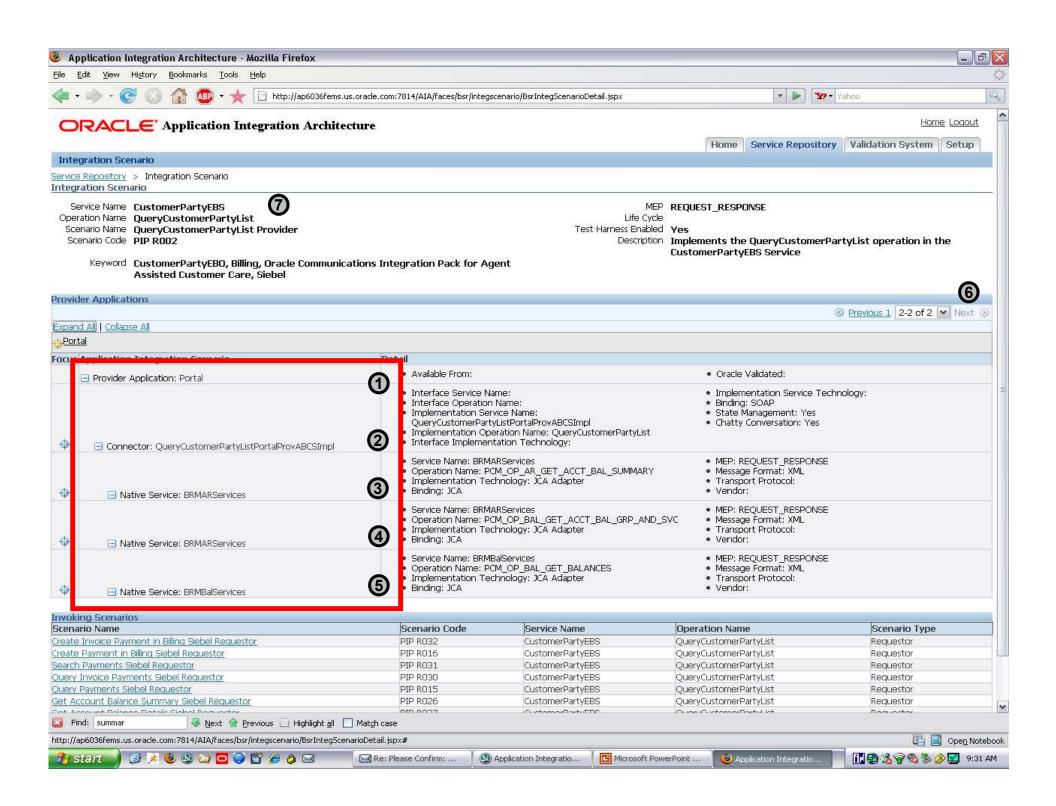
#### **Account Balance Integration**



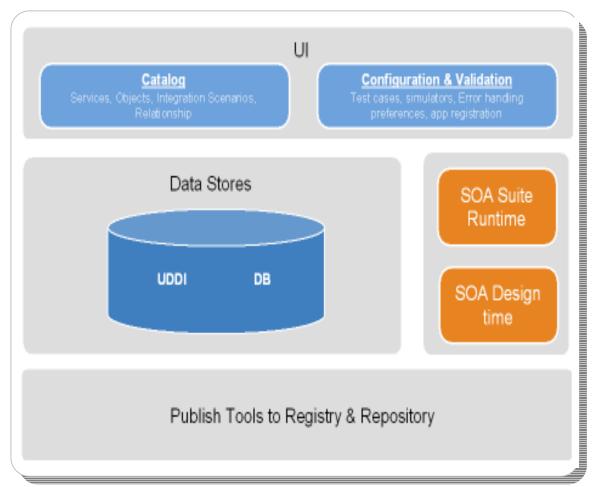
- 1. Query Balance Summary
- 2. Query Balance Details







#### Open and Hot-pluggable SOA Architecture



#### **Publishing & Synchronizing**

- Integration with design-time
- Integration with deployment-time
- Integration with runtime

#### Open & Hot-pluggable

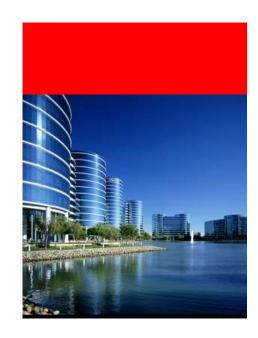
- Interoperability with 3<sup>rd</sup> parties

#### **Benefits**

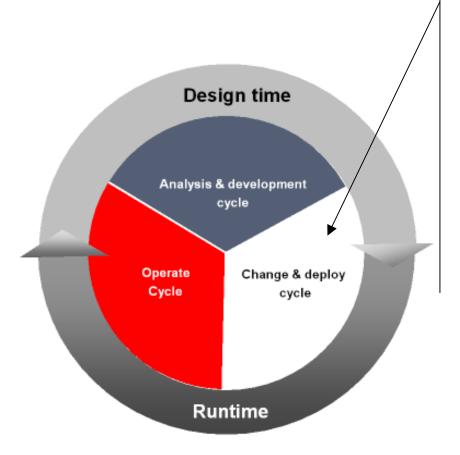
- ✓ Up-to-date visibility to process integrations whenever and wherever
- ✓ 360-degree SOA ecosystem:
  - SOA Content
  - SOA Execution
  - SOA Governance



--- Change & Deployment



## **Challenges**



#### Heterogeneous Environments

- Multiple applications (eBiz, Sebl, PSFT, ...)
- Different technology stacks
- Multitude of artifact types

#### Potential disruptions to IT and business due to SOA changes

- Mitigate risks (e.g., downtime) caused by upgrades
- Preserve customers' extensions

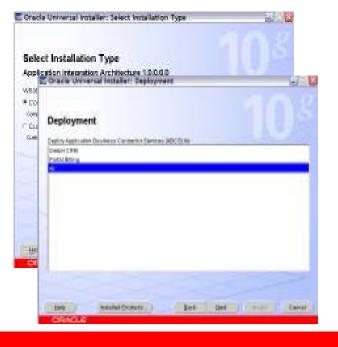
## **Installation Framework**

#### Extension to the Oracle Universal Installer

#### **AIA Installer**

- Optional deploying discrete processes
- Deployment of completed PIP's
- Industry vs. Horizontal co-existences
- Inventory: all pre-built SOA contents
- Improved validations and checkpoints

- AIA Best-practices
  - AIA HOME
  - Versioning



#### **Benefits**

- ✓ Productivity
- ✓ Consistency deployment experiences as DB and Fusion Middleware

#### **Visibility to Changes**

- BSR: Dependency analysis
  - Proactive
- Content Sync. : BSR & Installer

#### **Predictability to Changes**

- CAVS tests
  - Sanity Checks
  - Installation Integrity

#### **Configurability to Changes**

- EM Configuration Mgmt

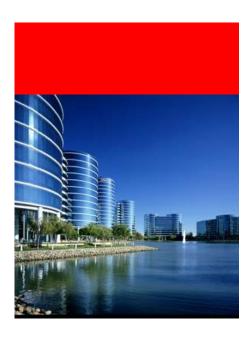
#### **SOA Gov. Benefits**

✓ Proactively mitigate risks due to changes

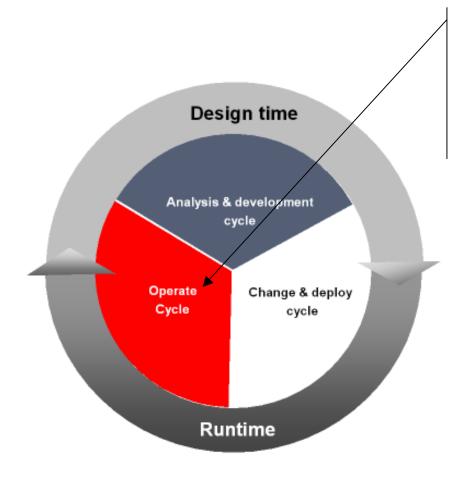




--- Operate Cycle

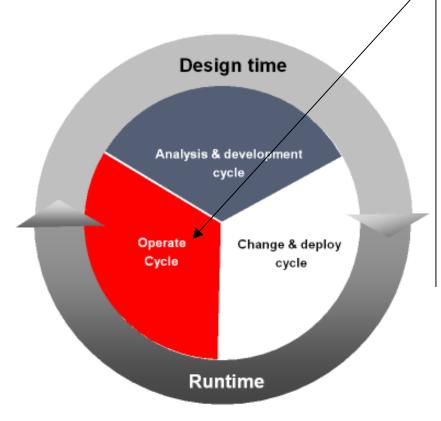


## **Challenges**



- Support Business results with IT availability and performance
  - Service level management
  - Performance management
  - Security

## **Tasks**



Run . . . . . SOA engines, BSR

Execute business processes and realize SOA integrations

**Administration** . . . . . . . . EM, AIA error resolution

- Monitoring, auditing, logging, and reporting
- Service level management
- Resolve errors
- Isolate and diagnose problems

- Message-level security in integration layer
- Pluggable Identity Management

#### **Fusion Middleware**

#### **SOA Governance Supports**







- Visibility to runtime state
- Comprehensiveness
  - Execution instance
  - Execution flows & activities
  - Messages, variables, & faults

- Manageability
  - Provision & Configuration
  - Monitoring via logging, reports, trends, and alerts
- Maximizing business results with IT operational excellence

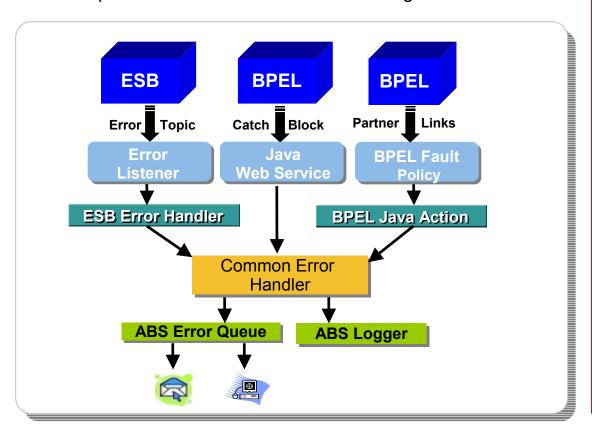
- Policy lifecycle mgmt
- Monitor WS traffic for SLA
- Externalize security
  - Best-practice policy library
- Lower admin cost via flexible deployments
  - Gateway vs. Agents (end-to-end)

## Error Resolution

#### Composite Apps. Error Resolution

#### **Challenges**

Business processes are distributive and heterogeneous in nature



#### **Unified approach**

- Across technologies (BPEL, ESB)
- Across integration patterns

#### **Categorize all errors**

- Business errors
- Technical errors

#### **End-to-end error resolution**

- Integration components
- Participating applications

#### **Benefits**

✓ Generic and extensible error handling framework

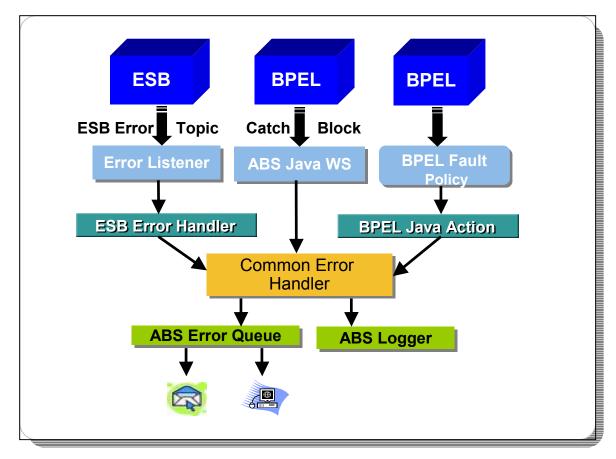
## **Error Resolution**

#### Challenges

- Business processes are highly distributive
  - Across applications
  - Across components
- Business processes are highly heterogeneous
  - Across technologies
  - Across integration patterns

## **Error Resolution**

#### Composite Apps. Error Resolution



#### **Unified approach**

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✓ Generic and extensible error handling framework

## **Error Resolutions, Logging, Diagnostics**

#### SOA Manageability



#### **User friendly**

- Search, drill-down, and auto alerts
- Logging
- Diagnostic scripts

#### **Auto alerts**

- Preference based notifications

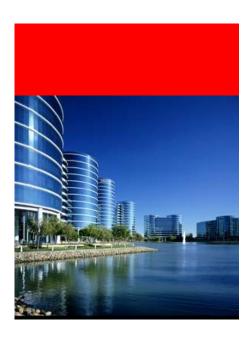
#### Integration with EM

- Leverage Oracle Diagnostic Logging
- Search, filter and display via EM

#### **Benefits**

- ✓ Rapid error resolution
- ✓ Minimize business impacts

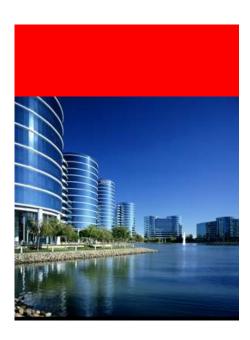




## **AIA SOA Governance**

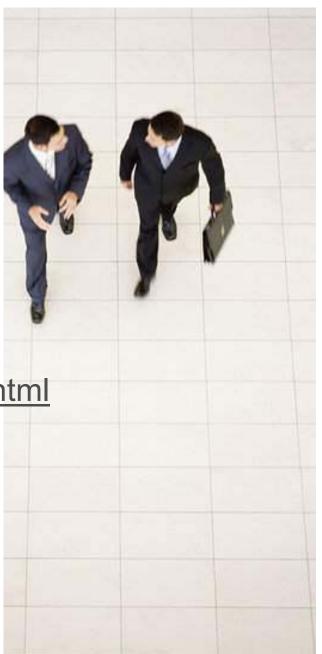
- Business imperatives for SOA Governance
  - Risks without SOA Governance
- AIA SOA Governance Offering
  - Methodologies
  - Tools
    - AIA Value-added Infrastructures
    - Fusion Middleware







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