What's new with SOA Governance – WebSphere Service Registry and Repository Advanced Lifecycle Edition
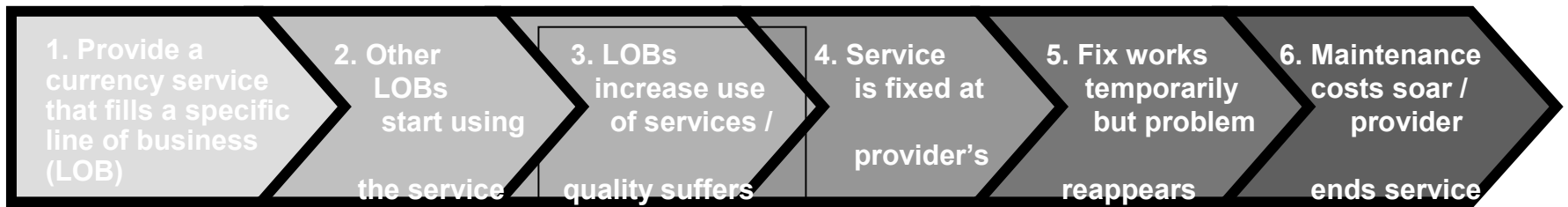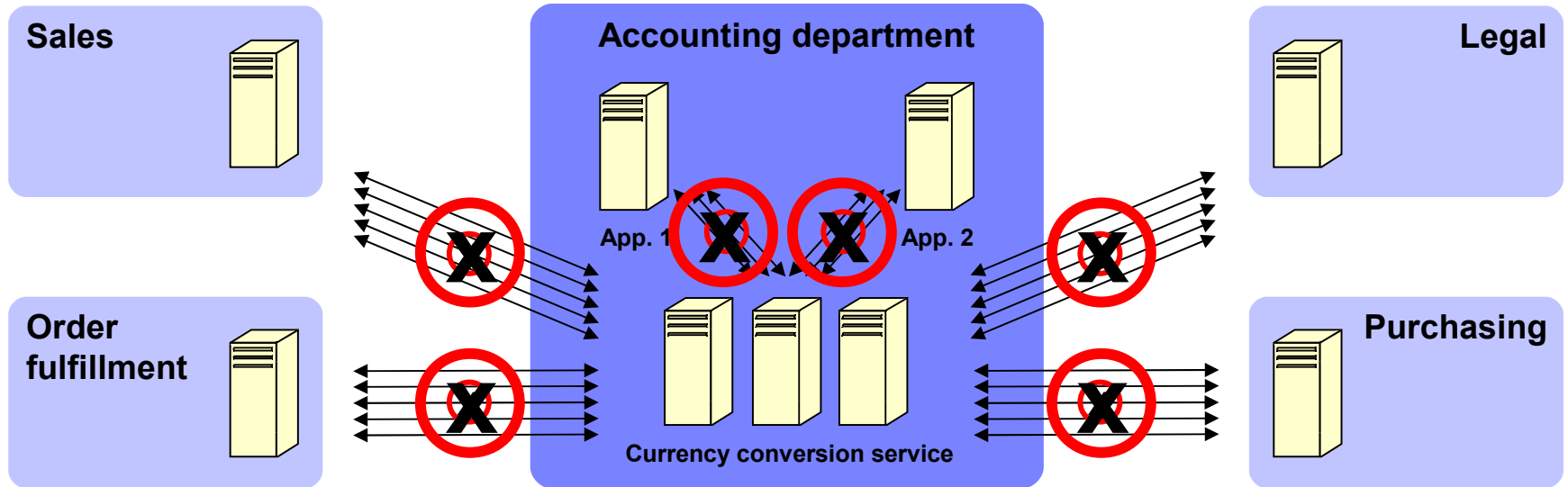
Vinod Ralh, May 2009

Agenda

- IBM's position on SOA Governance
  - SOA CoE and its structure
  - 2008 Accomplishments
  - 2009 Strategic Priorities
- WSRR ALE
- Patterns

A scenario on the importance of SOA governance

Sales

Accounting department

Legal

App. 1

App. 2

Order fulfillment

Purchasing

Currency conversion service

| 1. Provide a currency service that fills a specific line of business (LOB) | 2. Other LOBs start using the service | 3. LOBs increase use of services / quality suffers | 4. Service is fixed at provider's | 5. Fix works temporarily but problem reappears | 6. Maintenance costs soar / provider ends service |

What is Governance?

Governance:

• **Establishing** chains of responsibility, authority and communication to **empower** people (decision rights)

• **Establishing** measurement, policy and control mechanisms to **enable** people to carry out their roles and responsibilities
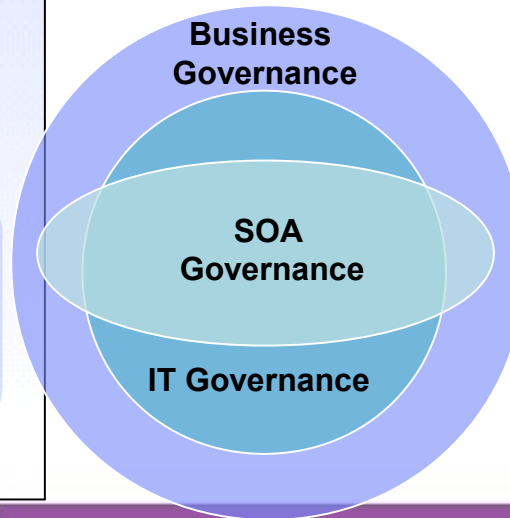
IT Governance:

• **Establishing** decision making rights associated with IT

• **Establishing** mechanisms and policies used to measure and control the way IT decisions are made and carried out

SOA Governance:

• is the **intersection** of Business and IT governance focused on the lifecycle of services to ensure the **business value** of SOA. It is the effective management of this lifecycle that is the key goal to SOA governance

SOA Governance is a catalyst for improving overall IT governance

Business Governance

SOA Governance

IT Governance

S O A in Action Seminar Series

How IBM views Service Governance within SOA Governance.

Service Governance – the governing of the **individual** service lifecycle management process to maximize how that particular service delivers business value and enables the goals of the business.

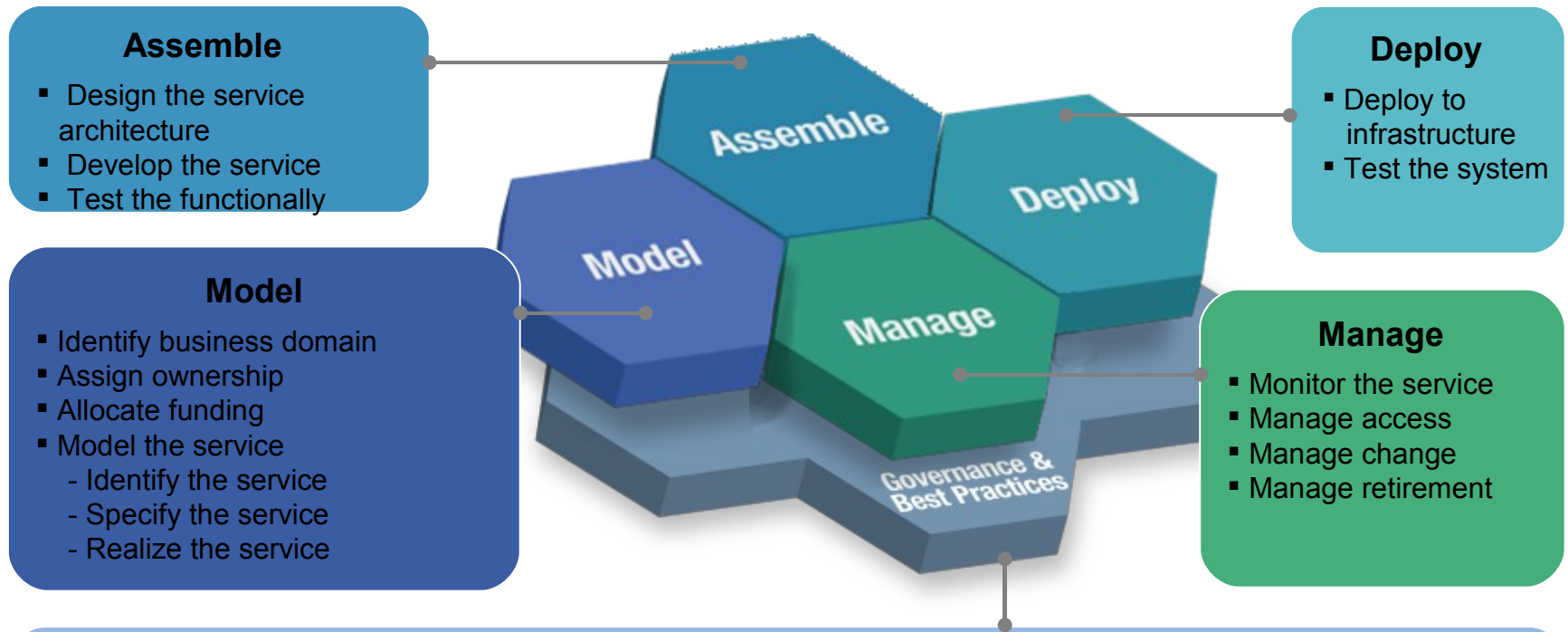**SOA Governance** – solution portfolio level

- Process Modeling Services
- Metadata Model
- Organizational Change
- Human Collaboration
- Portfolio Management
- Risk Management

Service Governance – service level

- Registry & Repository Support
- Policy Lifecycle Management
- Change Management
- Service Lifecycle Model
- Service Level Agreement
- Dashboards & Other Presentation
- Decision Rights Management

SOA in Action Seminar Series

Service Governance facilitates the effective management of the service lifecycle by governing key processes across the entire lifecycle.

Assemble
- Design the service architecture
- Develop the service
- Test the functionally

Model
- Identify business domain
- Assign ownership
- Allocate funding
- Model the service
  - Identify the service
  - Specify the service
  - Realize the service

Deploy
- Deploy to infrastructure
- Test the system

Manage
- Monitor the service
- Manage access
- Manage change
- Manage retirement

Assemble

Deploy

Model

Manage

Governance & Best Practices
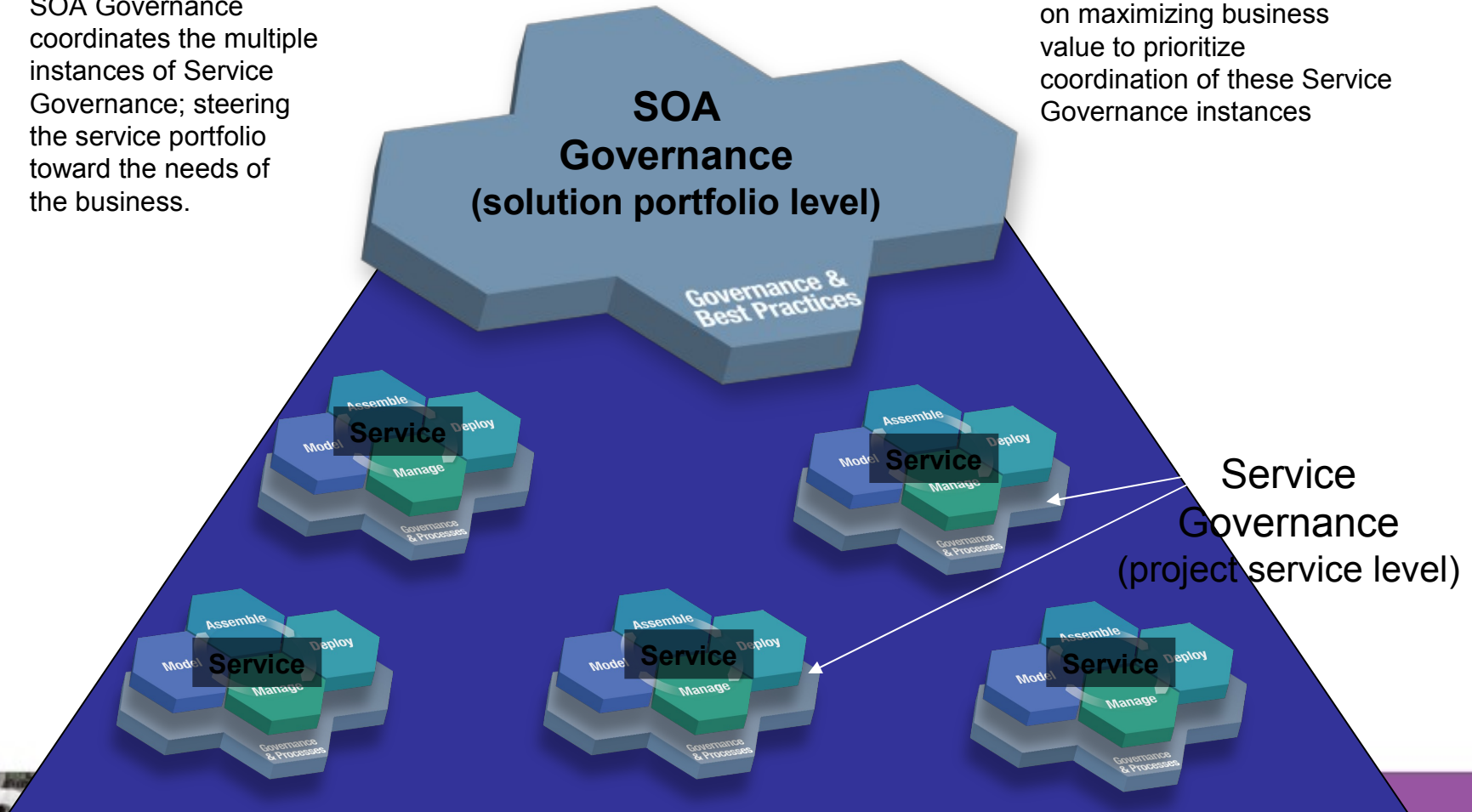
Effective Service Governance must:
- Help define guiding decisions around these processes
- Properly enforce these guiding decisions
- Communicate these guiding decisions effectively
- Evolve these guiding decisions with changing needs
- Ensure that the perspective of both service providers and consumers are properly met

Service Governance can be seen as a microcosm of SOA Governance

SOA Governance coordinates the multiple instances of Service Governance; steering the service portfolio toward the needs of the business.

SOA Governance focuses on maximizing business value to prioritize coordination of these Service Governance instances

SOA Governance (solution portfolio level)

Governance & Best Practices

Service Governance (project service level)

Assemble
Deploy
Model
Service
Manage
Governance & Processes

What constitutes an SOA governance model?

Principles—guiding objectives and/or goals and associated metrics to ensure they are met

Role and responsibilities—the roles and associated responsibilities that will facilitate business and IT alignment and properly establish decision rights

Guiding decisions—policies, guidelines, best practices and standards. Documenting these decisions can be through human or machine (for automation) language.

Methods—consistent approach to establishing SOA governance and applying it across the lifecycle

Foundational governance processes
- Exception and appeals
- Compliance
- Vitality
- Communication

Platform—enabling technology (registry, monitoring, etc.)

Governance processes should make it easy to do things the right way and hard to do them the wrong way. Build schools, not prisons. The goal is to help people conform to best practices, not police them.

Mark Ericson, chief technology officer (CTO), Mindreef

SOA in Action Seminar Series

The SOA Governance lifecycle focuses on an iterative approach that centers on continuous improvement

Design the governance approach
- Define / modify governance processes
- Design policies and enforcement mechanisms
- Identify success factors and metrics
- Identify owners and the funding model
- Charter / refine an SOA center of excellence
- Design the governance IT infrastructure

Put the governance model into action
- Deploy governance mechanisms
- Deploy the governance IT infrastructure
- Educate and deploy on expected behaviors and practices
- Deploy policies

Scope the governance need
- Document and validate the business strategy for IT and SOA
- Assess current IT and SOA capabilities
- Define / refine the SOA vision and strategy
- Review current governance capabilities and arrangements
- Lay out the governance plan

Manage and monitor the governance processes
- Monitor compliance with policies
- Monitor compliance with governance arrangements
- Monitor IT effectiveness metrics

Define

Plan

Enable

Governance and Best Practices

Measure

2008 Accomplishments

2008 focused on enhancing ability to implement good SOA Governance

- Created 'Governance of Smart SOA' approach
  - Level of governance required for each phase
  - Products and services supporting each phase

- Detailed SOA Policy strategy and technology
  - Policy approach, domains and lifecycle
  - Products supporting federated Policy strategy

- Enhanced implementation methodology
  - SOA Governance and Management Method (SGMM)
  - Provides customers an easy-to-use how-to approach
  - New component view and detailed capability model
  - Providing process definition to The Open Group SOA Governance working group
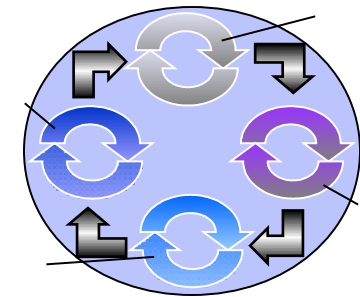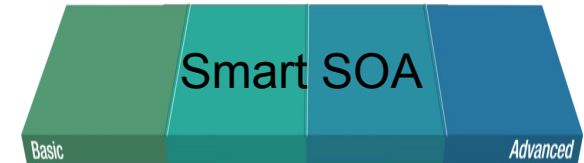
Plan & Organize		Program Management Controls	Service Development	Service Operations
P01 – Service Transformation Planning	P07 – Service Portfolio Management	M01 – Enterprise Program Management	D01 – Services Development Lifecycle Controls	O01 – Service Execution Monitoring
P02 – Information Transformation Planning	P08 – SOA Ownership & Funding	M02 – Change Management	D02 – Requirements Gathering & Prioritization	O02 – Service Operational Vitality
P03 – Technology Transformation Planning	P09 – Service Governance Vitality	M03 – Procurement of Resources	D03 – Service Identification	O03 – Service Support
P04 – Service Processes, Organizations, Roles & Responsibilities	P10 – Service Communication Planning	M04 – Vendor Management	D04 – Service Specification	
P05 – Manage the Service Investment	P11 – Service Education & Training	M05 – Identify & Allocate Costs	D05 – Service Realization	
P06 – Business Vision & IT Alignment		M06 – Monitor Business Benefits of SOA	D06 – Service Certification	

SGMM

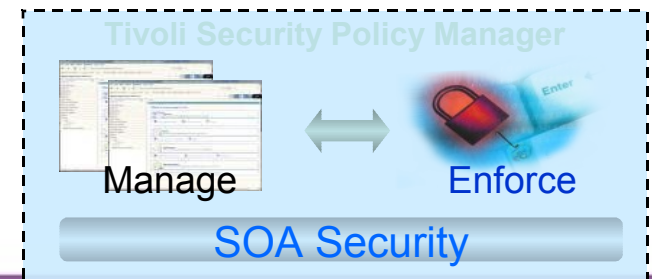# 2008 SOA Governance related product updates

New WSRR Advance Lifecycle Edition

- WSRR
  - More prescriptive and consumable governance support
    - New profiles, editors and policy libraries.
  - Extended federation with UDDI registries
  - Policy lifecycle governance and policy management
- RAM
  - Federation with SOA Management (CCMDB)
  - Collaboration & Community Improvements (RTC)
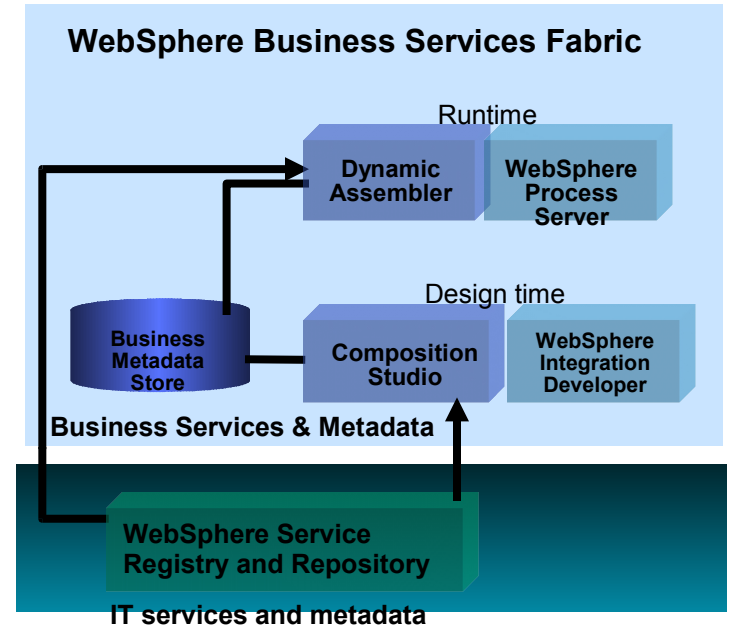 - Development Policies Out of the Box
  - Policies published to WSRR

New Tivoli Security Policy Manager (TSPM)

- Unified SOA security policy management & enforcement
- Standards-based interoperability with service registry
- Enable fine-grained authorization and control data entitlements

WSRR ALE

WebSphere Service Registry and Repository

Publish | Find | Enrich | Manage | Govern

Rational Asset Manager

Define | Search/Retrieve | Create/Modify | Measure | Govern

Tivoli Security Policy Manager

Manage ⟷ Enforce

SOA Security

2008 SOA Governance related product updates

- ## WebSphere Business Services Fabric (WBSF)
  - Enables creation, management and end-to-end governance of shareable, reusable Business Services
  - Driven by Business Service Policies which allow users to define, manage and implement changes to business processes through configuration

- ## WebSphere DataPower SOA Appliances
  - Ensures consistent enforcement of SOA runtime and security policies provisioned from WSRR and/or TSPM.
  - Enables end-to-end service management with IBM and non-IBM solution integration, including ITCAM for SOA

- ## ITCAM for SOA Platform
  - Integrated monitoring of services, web, MQ and virtual server layers
  - Coverage for Websphere, CICS, Datapower, BEA, .NET, SAP, MQ
  - Enhanced status and topology in the Tivoli Enterprise Portal (TEP)
  - Cross-product workstation linking TEP to other ITCAM agents

WebSphere Business Services Fabric

Runtime

Dynamic Assembler

WebSphere Process Server

Design time

Business Metadata Store

Composition Studio

WebSphere Integration Developer

Business Services & Metadata

WebSphere Service Registry and Repository

IT services and metadata

WebSphere DataPower Integration Appliance XI50

SOA in Action Seminar Series

2009 Vision

IBM's SOA Governance 2009 Strategic Priorities

Aligning SOA Governance, Strategy and Planning, and Solution Delivery

- Using SOA Governance to provide guidance on the relationship of strategy and planning with solution delivery in an SOA implementation
  - Aligning SOA governance to architectural and development governance
    - Portfolio management capability

Policy

- Comprehensive integrated platform to continue the enablement of technical policy

- Continued focus on the integration of SOA federated policy capabilities (e.g. security)

- Support for business policy

Method Enhancements

- SGMM maturity model that aligns with SIMM and supports Smart SOA™

- IT / SOA governance interlock including support for ITIL v3

- Org. change guidance and reusable models/processes that drive faster adoption

- End-to-end service lifecycle processes supported by IBM's federated registry and repository strategy
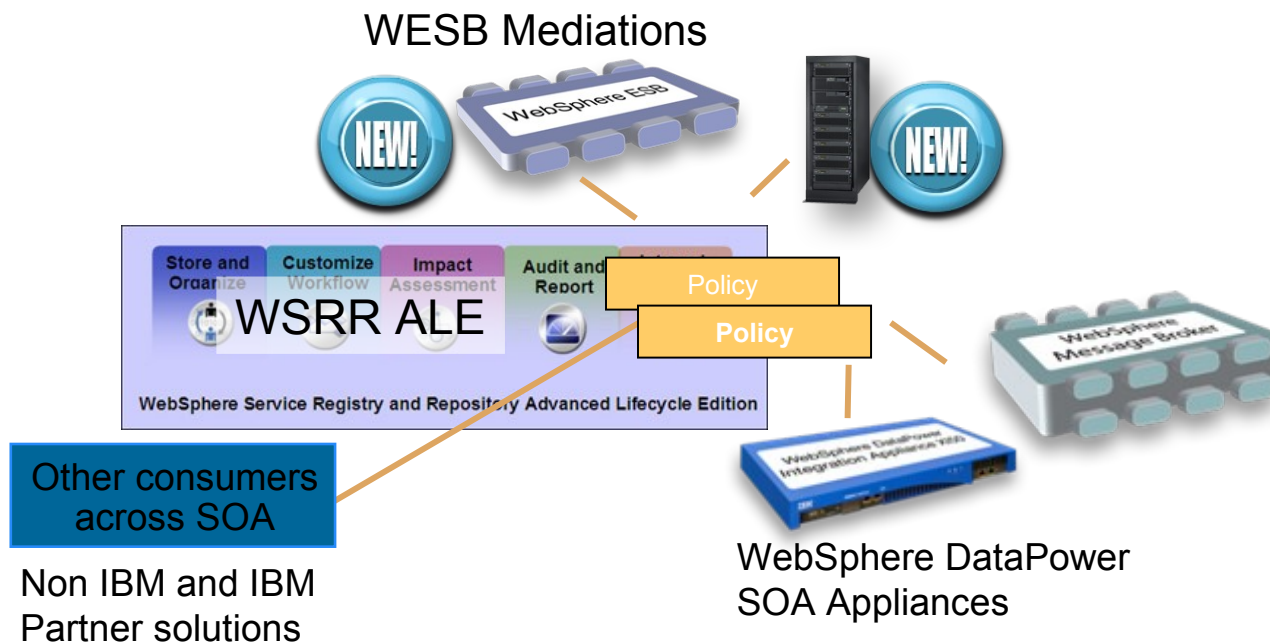
- Underlying SOA governance infrastructure to support: quality, policy, security enforcement

SOA Governance Platform Enhancements

Seminar Series

Enforce SOA policies consistently to help achieve reliability and compliance

- Governed policies that can be shared and enforced across the SOA infrastructure
  - New support for WESB mediations and WAS policy sets

WESB Mediations

WebSphere ESB

NEW!

NEW!

Store and Organize | **Customize** Workflow | **Impact Assessment** | **Audit and Report**

WSRR ALE

Policy

Policy

WebSphere Message Broker

WebSphere Service Registry and Repository Advanced Lifecycle Edition

Other consumers across SOA

Non IBM and IBM Partner solutions

WebLayers

WebSphere DataPower SOA Appliances

Moving Forward: Using Scenarios to drive consumability

- Identify the roles involved, providing personas for each role

- Identify the artifact types involved, delineating federation requirements

- Define the scenario flow as a series of Acts, from identification of a business need to deployment of a solution

- For each Act, list:
  - Activities performed
  - Roles involved
  - Artifact lifecycle changes/decisions that occur
  - Issues that affect the consumability of the solution

- Color coded according to stakeholder role:

Role/Persona

BUSINESS	DEVELOPMENT
SOA GOVERNANCE	OPERATIONS
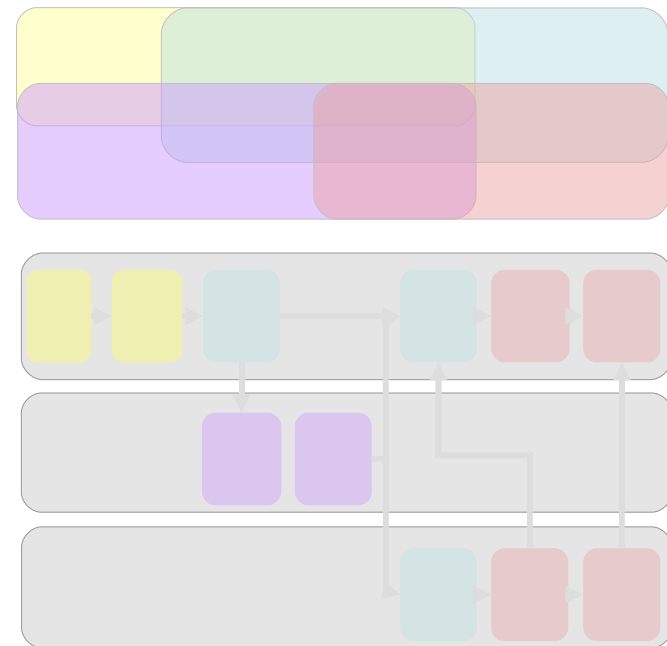
Scenario Roles, Personas, and Organization examples

COMMERCIAL LINE OF BUSINESS

Larry
Business Unit Leader
Commercial LoB

Bob
Business Analyst
Commercial LoB

Debra
Development
Manager
Commercial LoB

Ramzan
Release Manager
Commercial LoB

Lisa
Operations Manager
Commercial LoB

SOA CENTER OF EXCELLENCE

David
SOA CoE Chair
SOA Center
of Excellence

COMMON SERVICES
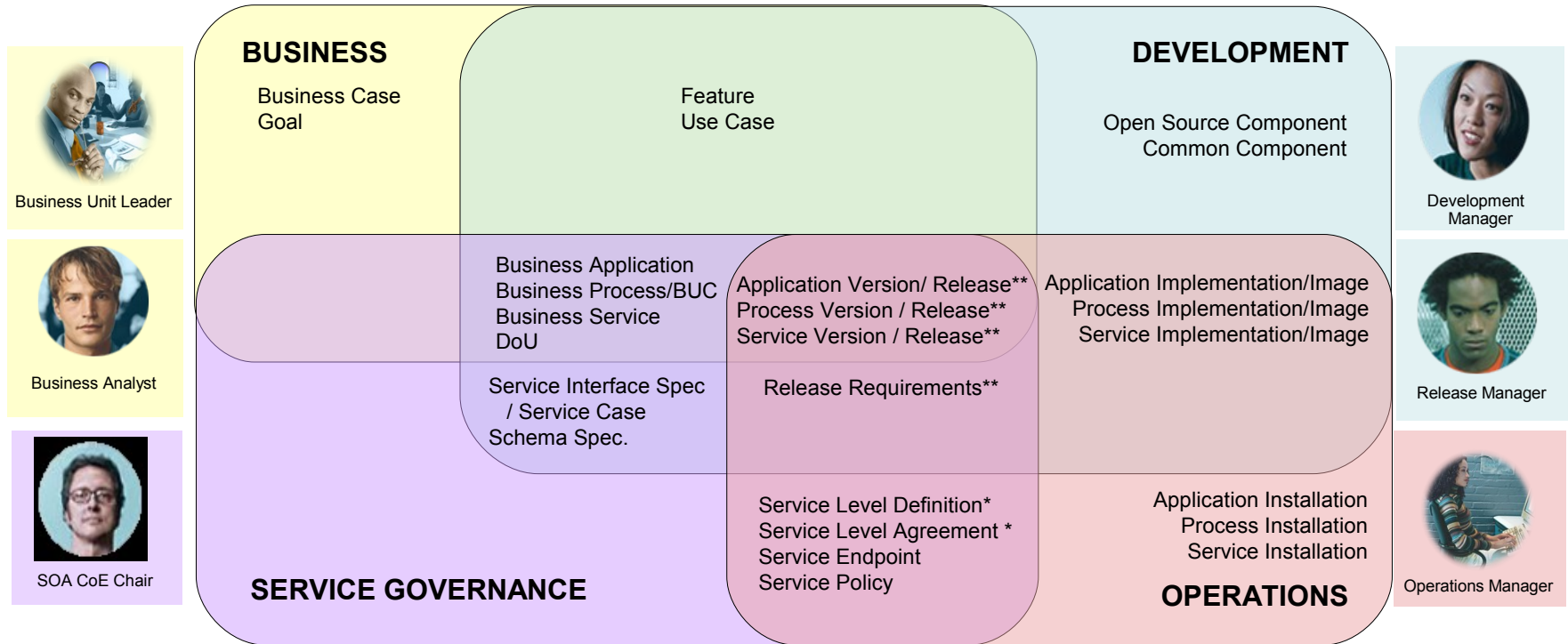

Connie
Development
Manager
Common Services

Simon
Release Manager
Common Services

Jon
Operations Manager
Common Services

Scenario Artifact Types and Federation Strategy

BUSINESS

Business Case
Goal

Business Unit Leader

Business Analyst

SOA CoE Chair

Feature
Use Case

DEVELOPMENT

Open Source Component
Common Component

Development Manager

Release Manager

Operations Manager

Business Application
Business Process/BUC
Business Service
DoU

Application Version/ Release**
Process Version / Release**
Service Version / Release**

Application Implementation/Image
Process Implementation/Image
Service Implementation/Image

Service Interface Spec
/ Service Case
Schema Spec.

Release Requirements**

Service Level Definition*
Service Level Agreement *
Service Endpoint
Service Policy

Application Installation
Process Installation
Service Installation

SERVICE GOVERNANCE

OPERATIONS

*Considered part of version (or release)
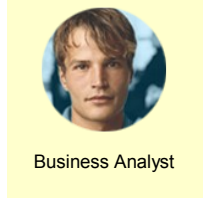**Requirements referenced as an attribute of a version / release.*
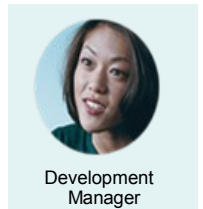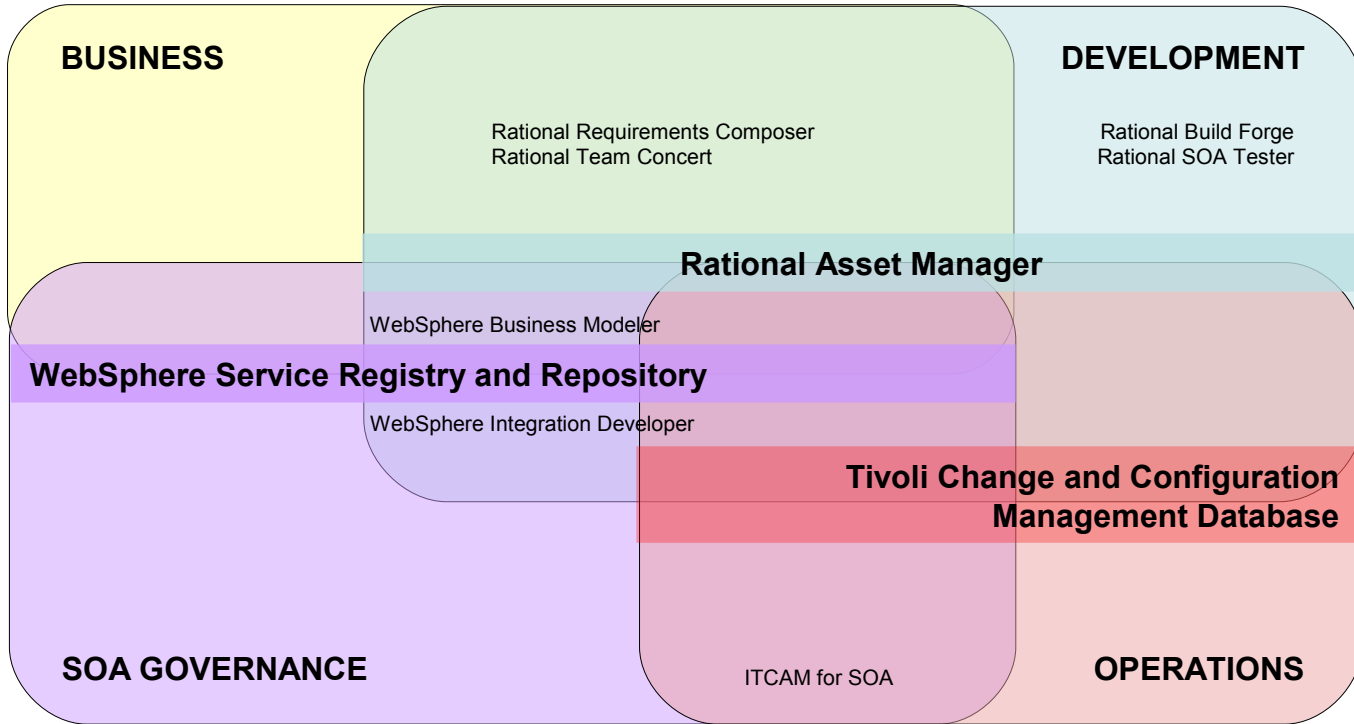
Product Mappings and Federation Strategy

BUSINESS

DEVELOPMENT

Rational Requirements Composer
Rational Team Concert

Rational Build Forge
Rational SOA Tester

Rational Asset Manager

WebSphere Business Modeler

WebSphere Service Registry and Repository

WebSphere Integration Developer

Tivoli Change and Configuration Management Database

SOA GOVERNANCE
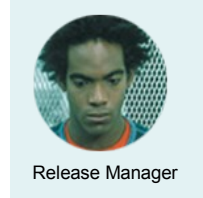
ITCAM for SOA

OPERATIONS

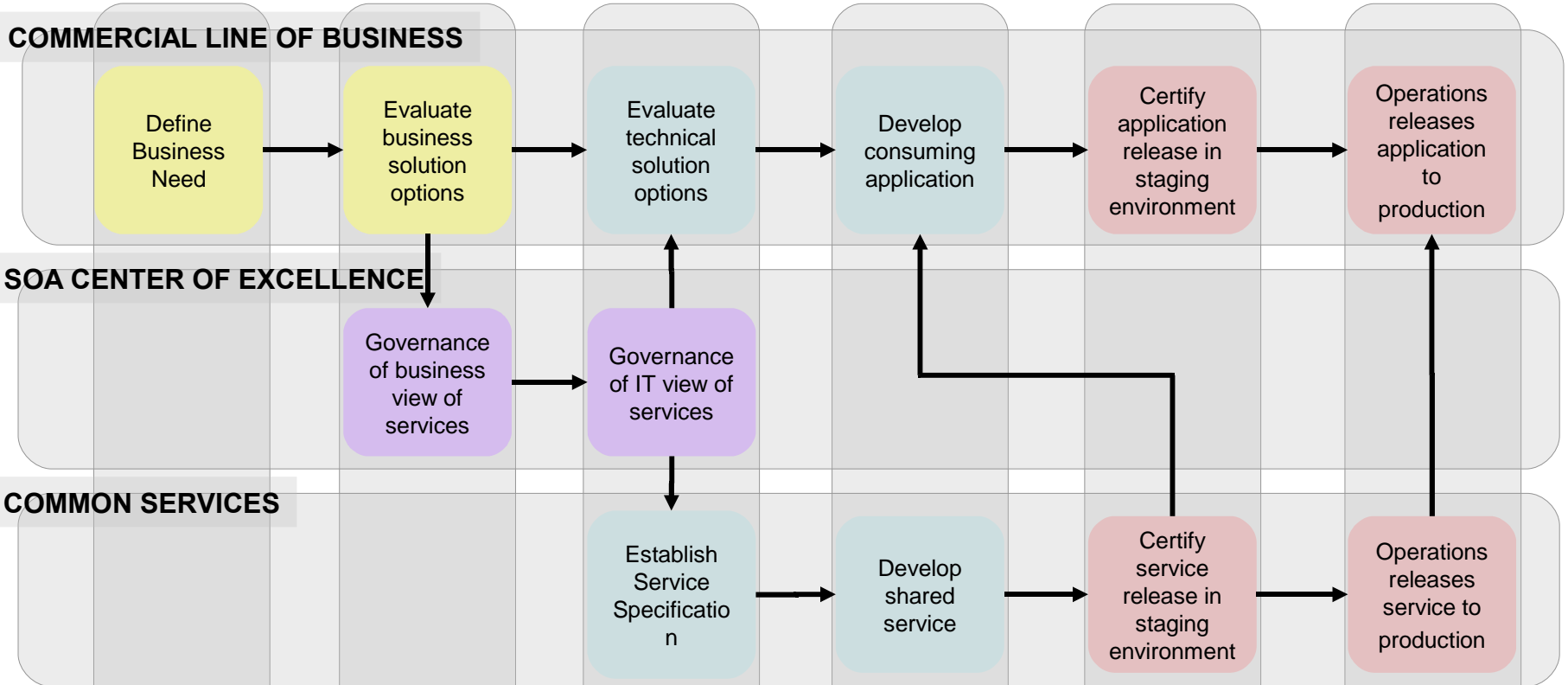Business Unit Leader
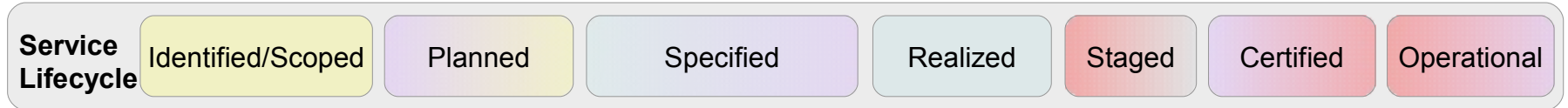
Business Analyst

SOA CoE Chair

Development Manager

Release Manager
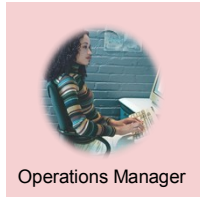
Operations Manager

Example service lifecycle process flow

Service Lifecycle	Identified/Scoped	Planned	Specified	Realized	Staged	Certified	Operational

COMMERCIAL LINE OF BUSINESS

Define Business Need → Evaluate business solution options → Evaluate technical solution options → Develop consuming application → Certify application release in staging environment → Operations releases application to production

SOA CENTER OF EXCELLENCE

Governance of business view of services → Governance of IT view of services

COMMON SERVICES

Establish Service Specification → Develop shared service → Certify service release in staging environment → Operations releases service to production

ACT 1   ACT 2   ACT 3   ACT 4   ACT 5   ACT 6

WSRR ALE

Each phase of the Lifecycle has different *challenges*

Repositories targeted for each phase solving role-specific challenges

Service Development

Optimizing service interactions to business process

Business Analyst

Poor communication and collaboration within teams

Developer

Creating the same service multiple times

Architect

Developing a governance approach requires corporate commitment

IT Director

Service Deployment
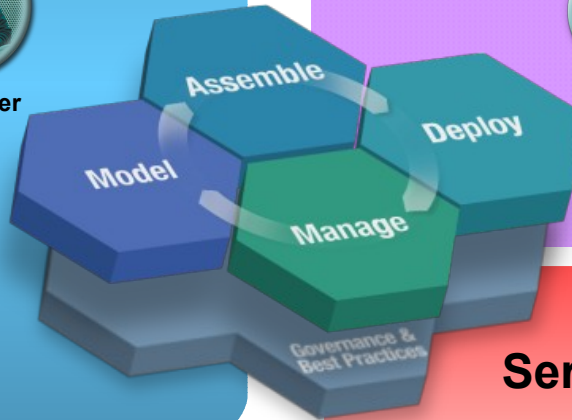
Deployment Managers

Need to control and eliminate "rogue services"

Service compliance important but difficult

Tester

Testing service interactions complex

Service Management

Enforcement of policies needed on-the-fly

Operations Manager

Dynamic service reporting complex

Assemble

Deploy

Model

Manage

Governance & Best Practices

Governance requires a federated set of capabilities to enable end-to-end service lifecycle management

Service Development

▪Service Development Lifecycle
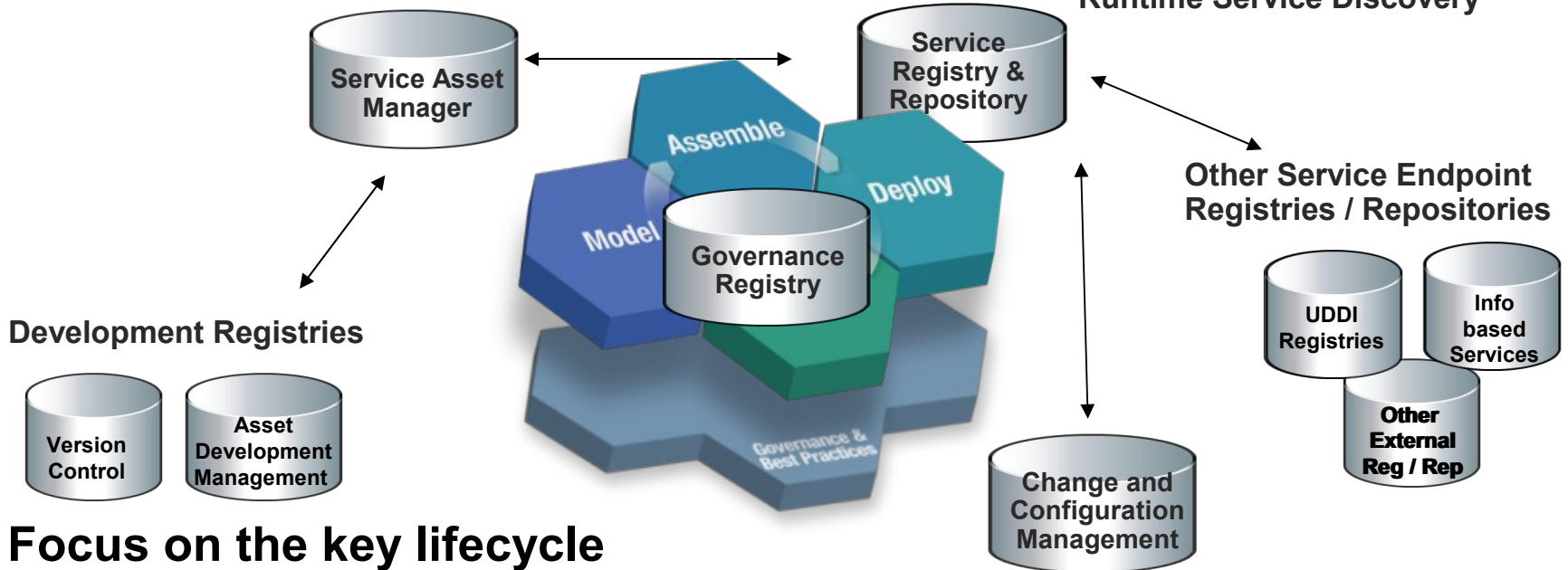
**Service Deployment**

▪Runtime Repository
▪Runtime Service Discovery

Service Asset Manager

Service Registry & Repository

Assemble

Deploy

Model

Governance Registry

Other Service Endpoint Registries / Repositories

Development Registries

Version Control

Asset Development Management

UDDI Registries

Info based Services

Other External Reg / Rep

Change and Configuration Management

Governance & Best Practices

Focus on the key lifecycle processes and service metadata to be governed

Service Management
•Operational Efficiency & Resilience
▪Change & Release Management

What is Needed to Govern the Service Lifecycle at Services from development thru deployment?
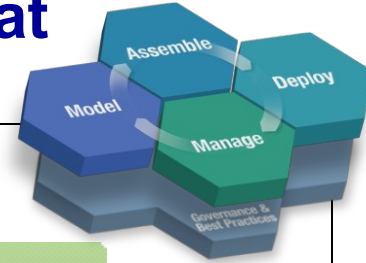
Scalable, Flexible, Enterprise-Level Solution

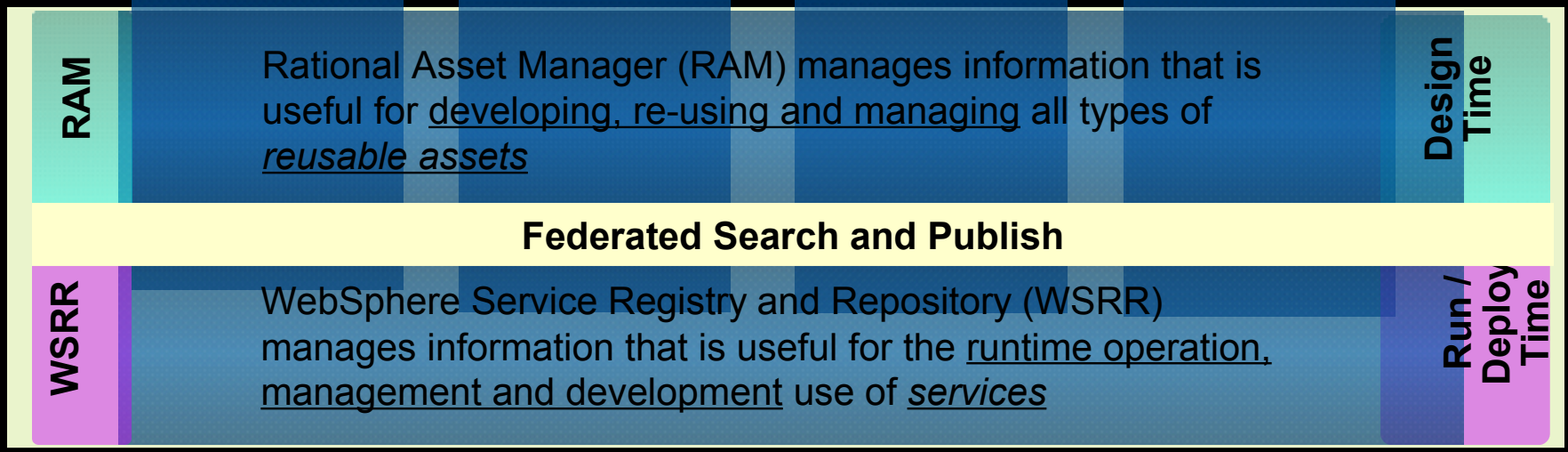| Store and Organize	Customize Workflow	Impact Assessment	Audit and Report
Repository to store, catalog and flexibly organize individual services	Customizable workflow to automate the process of managing the service lifecycle	Flexible solution for capturing relationships between services and impact analysis	Reporting on key metrics to support planning and assessment

Integral to SOA Integrate with your SOA design and runtime systems including other existing repositories

SOA in Action Seminar Series
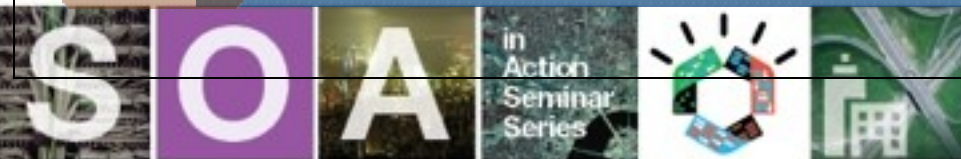
Solution: Combined Design and Runtime SOA Repository with WSRR ALE

SOA Service Lifecycle Management

Store and Organize | **Customize Workflow** | **Impact Assessment** | **Audit and Report**

RAM — Rational Asset Manager (RAM) manages information that is useful for developing, re-using and managing all types of *reusable assets*

Design Time

Federated Search and Publish

WSRR — WebSphere Service Registry and Repository (WSRR) manages information that is useful for the runtime operation, management and development use of *services*

Run / Deploy Time

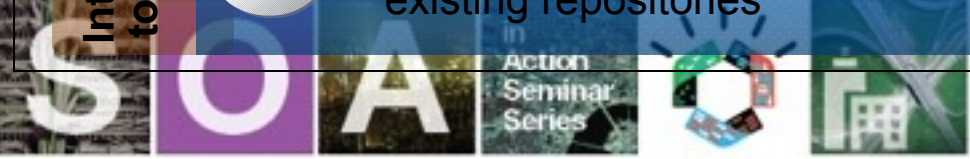**Federation with SOA design and runtime systems**

Integral to SOA — Integrate with your SOA design and runtime systems including other existing repositories
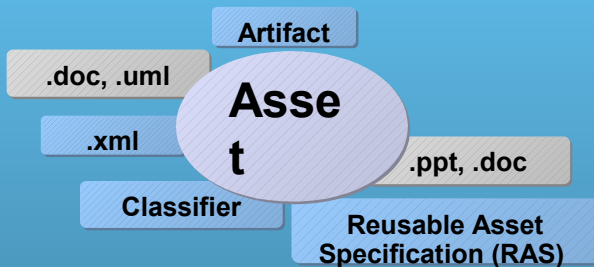
Solution: Federated Search and Publish with WSRR ALE

Development-time

> *Design / Architecture Governance*

Rational Asset Manager

Define   Search   Create   Measure   Govern

Manages <u>non-runtime</u> information that is useful for <u>developing, re-using and managing</u> all types of *reusable assets*
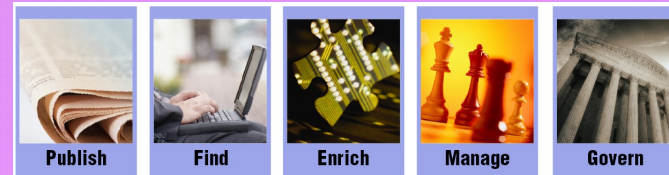
- ✓ Creates and manage all types of assets
- ✓ Provide asset traceability and details
- ✓ Collaborate on asset development
- ✓ Measure asset reuse in development

Artifact

.doc, .uml

.xml

Asset

.ppt, .doc

Classifier

Reusable Asset Specification (RAS)

Federated Search and Publish

Deployed / Run-time

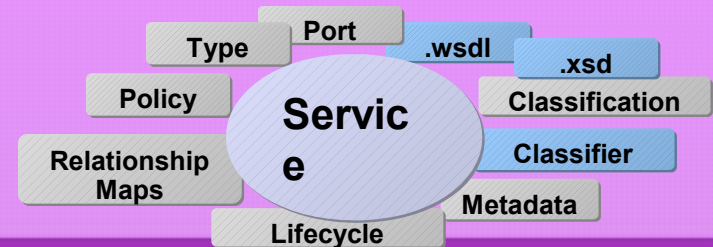> *Service Lifecycle Governance*

Publish   Find   Enrich   Manage   Govern

IBM WebSphere Service Registry and Repository

Manages <u>runtime</u> information that is useful for the <u>runtime operation, management and development</u> use of *services*

- ✓ Select service endpoints dynamically in a SOA runtime
- ✓ Govern runtime changes to service metadata
- ✓ Set and get runtime policies for service execution
- ✓ Get deployed service details like endpoints, relationships and service definitions

Type   **Port**   .wsdl   .xsd

Policy   **Service**   **Classification**

Relationship Maps   **Classifier**

Lifecycle   **Metadata**

Manage BPM Assets Across Their Lifecycle
Accelerate time to value across the BPM lifecycle

IT Leader

IT Developer

IT Architect

Related Assets

▽ ◱ **Business Item Dependency**
- Application [1.7]
- E-mail Notification [1.4]

▽ ◱ **Resource Dependency**
- Hank Hill [1.5]

Repository Administration
- Communities
- Asset Types
- Category Schemas
- Relationship Types
- Asset Attributes

RAM

Rational Asset Manager

Federated Search And Publish

WSRR

WebSphere Service Registry And Repository
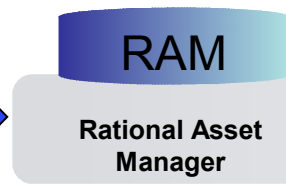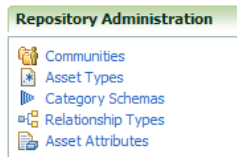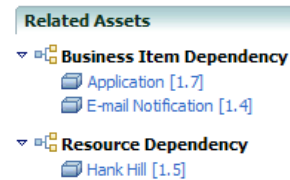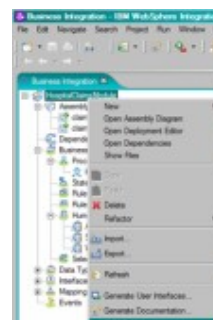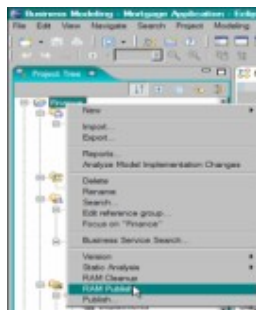
Design-time   *Run-time*

New!
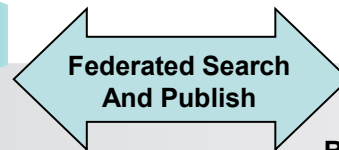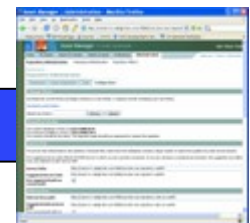
WebSphere Service Registry and Repository Advanced Lifecycle Edition

SOA

Seminar Series

Store and Organize: Features and Benefits

SOA Service Lifecycle Management
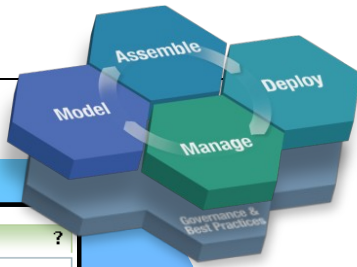
Store and Organize

Repository to store, catalog and flexibly organize individual services

Design Time

- ✓ Easily locate existing reusable assets
- ✓ Create and package assets
- ✓ Highlight reusable assets important to the business
- ✓ Fast search using categories, facets, keywords
- ✓ Custom categorization for assets

Filter your search   ?

Java
J2EE [4]

Type
Component [4]

Related Category
Machine Architecture [4]
Middleware Platforms [3]
OS Platforms [2]

State
Plan review [2]
Review [2]

Rating
4 or higher [3]
3 or higher [3]
2 or higher [3]
1 or higher [3]

Run / Deploy Time

Filters

ESB Asset Classifica...
Endpoint (2)

Document Type
WSDL document (3)

Service Metadata
Binding (2)
Operation (3)
Port (2)
Port Type (1)
Service (2)
SOAP Address (2)
SOAP Binding (2)
XML Element (2)

Relationship
[   ] Add

Property
[Property name]
[Value] Add

- ✓ Publish and find your services and related information in one place
- ✓ Increase visibility of services throughout your organization
- ✓ Expose redundant and inefficient services

Assemble
Deploy
Model
Manage
Governance & Best Practices

SOA
Action Seminar Series

Customize Workflow: Features and Benefits

SOA Service Lifecycle Management
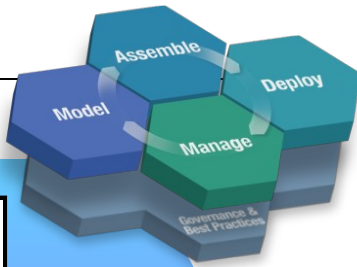
Customize Workflow

Customizable workflow to automate the process of managing the service lifecycle

Design Time

- ✓ Easily approve, review, rate and discuss assets.
- ✓ Define workflow associated with creating and reviewing assets
- ✓ Implement roles and access controls for assets at development time

Repository Administration   **?**

- Communities
- Asset Types
- Category Schemas
- Relationship Types
- Asset Attributes

- Tools
- Configuration
- Repository Administrators

Run / Deploy Time

- Created
- Plan
- Model — AuthorizeDevelopment — Assemble
- Certify   Repair
- Manage — Approve — Deploy
- Deprecate — Revoke
- Retired
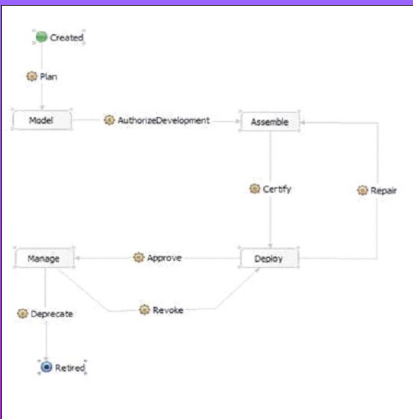
- ✓ Implement decision rights and processes to make changes.
- ✓ Easily approve, promote, introduce and retire services.
- ✓ Maintain test environment separate from production.

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Impact Assessment: Features and Benefits

SOA Service Lifecycle Management
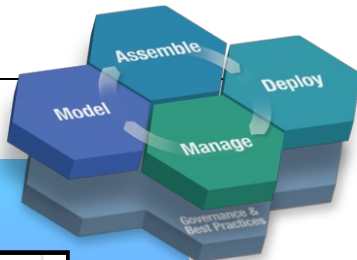
Impact Assessment

Flexible solution for capturing relationships between services and impact analysis

Design Time

- ✓ Ratings, feedback, and statistics help in asset evaluation
- ✓ RSS Feeds, email and discussion groups notify users of changes to assets
- ✓ Traceability to related assets and service

Review | Review

My rating
⭐⭐⭐⭐⭐

Average rating (1 rating)
⭐⭐⭐⭐⭐

Discussion topics (0)

Last updated: April 10, 2007

Run / Deploy Time

Impact Analysis for: Businessitems.xsd

SecondaryCreditReportS...
WSDL Document

PrimaryCreditReportSer...
WSDL Document

CreditReportServiceElec...
WSDL Document

Businessitems.xsd
XML Schema Definition Doc...
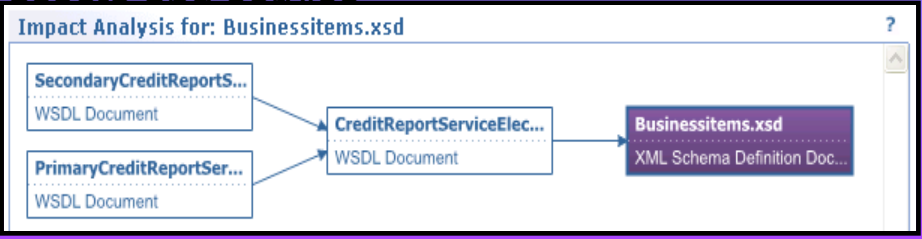
- ✓ Expose multiple versions of the same service
- ✓ Efficiently manage changes to service metadata and notify stakeholders

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Governance & Best Practices

Audit and Report: Features and Benefits

SOA Service Lifecycle Management
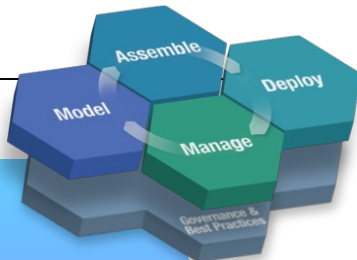
Audit and Report

Reporting on key metrics to support planning and assessment

Design Time

- ✓ Comprehensive asset level reporting and metrics
- ✓ Asset Activity and Audit Reporting
- ✓ Report on assets at repository level

Search for Assets >

Asset Down

| General details | Content | Rate and discuss | Statistics |

Amount of time to produce:
Reuse time:

Reports
Downloads
Asset Search History

Downloads

Rank: 8 out of 243
Total downloads: 4
Average for this asset type: 1.34
Unique downloads: 1
Artifact browses: 2

Run / Deploy Time

Query results

Messages
The query returned 13 results.

Query Results
This is the collection of results for the query.

Preferences

Name	Graph	Description	Object Type
creditReportServiceElectronic			operation
creditReportServiceElectronic			operation
creditReportServiceElectronic			operation
creditReportServiceElectronic			XML element
CreditReportServiceElectronic			port type
CreditReportServiceElectronicInterface.wsdl			WSDL document
creditReportServiceElectronicRequest			
creditReportServiceElectronicRequest			
creditReportServiceElectronicRequest			
creditReportServiceElectronicResponse			
creditReportServiceElectronicResponse			
creditReportServiceElectronicResponse			
creditReportServiceElectronicResponse			XML element

Total: 13

- ✓ Plan and assess the service lifecycle workflow itself
- ✓ Plan and assess the services and business processes managed through the service lifecycle

Assemble
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SOA
Action Seminar Series
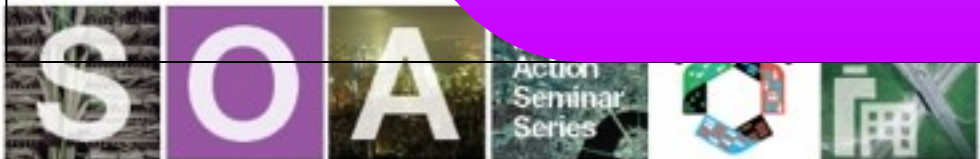
Integral to SOA: Seamless fit with other systems

SOA Service Lifecycle Management
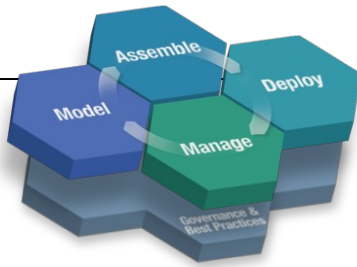
Integral to SOA

Integrate with your SOA design and runtime systems including other existing repositories

Service Development

- Rational ClearQuest
- Rational ClearCase
- Rational Software Architect

Rational Asset Manager

Service Deployment

- CICS / WMQ
- WBSF
- Generic / Eclipse /.NET clients
- WebSphere Process Server / FileNet
- UDDI and other registries

WebSphere Service Registry and Repository

WESB, WMB, DataPower

Service Management

- CCMDB
- ITCAM for SOA
- TFIM / TAM

Assemble
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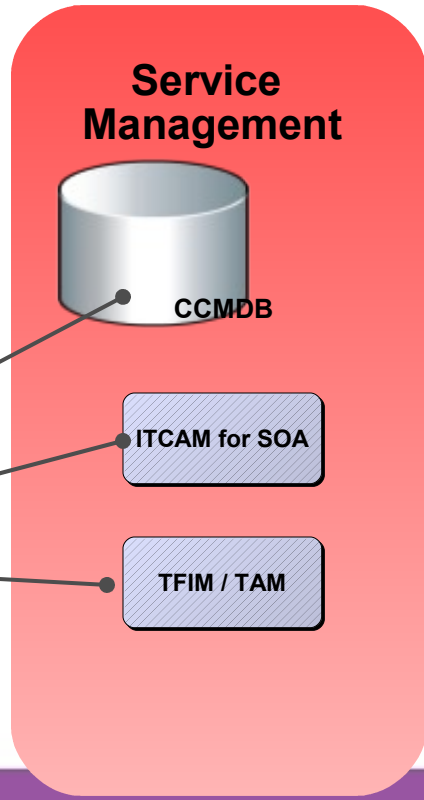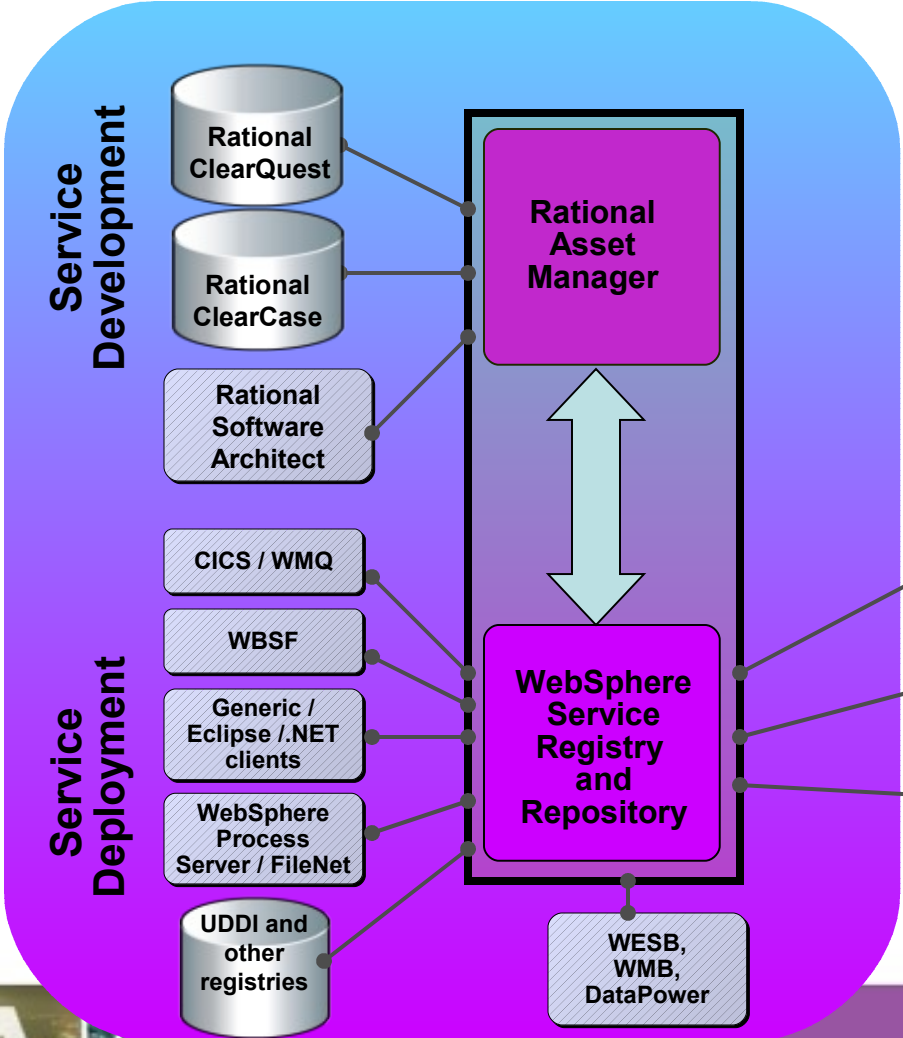
Cycles: Overview

The cycles illustrate the creation and modification of files, some of which will become part of assets, some of which are published as services.

This image does not illustrate the use of assets as part of the development cycle.

Each cycle typically iterates at rates different than other cycles.

These cycles are not illustrating the full lifecycle, including retirement of services and other assets.

Files tested

Asset submitted

Approved

Submit asset,
Create new asset version

Development Cycle

ClearCase

Files modified, versioned

Asset tested, reviewed, approved

Publish service

Developed, acquired, tested

Asset Cycle

Rational Asset Manager

Service Cycle

WebSphere Service Registry & Repository

Deployed

Feedback, defects, requests

Asset used

Feedback, defects, requests

Requests, Defects submitted

Available

Use development tools, the Rational Suite, ClearQuest, ClearCase to iteratively refine files which ultimately can be in a state to be shared, communicated, governed, and traced in RAM.

Use RAM to share, communicate, govern, and trace assets and their usage.

Use WSRR to communicate, govern, and trace services and their usage.

RAM service assets published to WSRR 6.2

Development Time ← → **Execution Time**

Asset Relationship

Asset

Asset Type

Rational Asset Manager

Project X Community

Business Process
Process Cust Svc Request

Case for Change
Customer Acct Case for Change

Service Interface
Retrieve Customer Account Profile

Service Interface
Retrieve Customer Order
GetCustOrder.wsdl

Service Test
Retrieve Customer Order Test

WSRR Staging Registry
GetCustOrder.wsdl

WSRR Governance Registry
GetCustOrder.wsdl

Promotion

Promotion

WSRR Production Registry
GetCustOrder.wsdl

There are many kinds of development assets, including services. The service interface files are published to one or more registries.

MQWF

NACAR (J2EE)

WebSphere Message Broker

ABaD (J2EE)

IMS (Cobo)

S O A in Action Seminar Series

Patterns

Runtime Enforcement Patterns

- Existing Registry Patterns
  - Endpoint Lookup Patterns
  - Operational Monitoring Patterns
- Delegation of Registry lookup
  - Service Proxy Enforcement
  - Service Container Enforcement
- Governance Patterns
  - Runtime Policy enforcement
  - Contract / SLA enforcement

Endpoint Lookup Patterns

Dynamic selection

WebSphere Service Registry and Repository

| Publish | Find | Enrich | Manage | Govern |

(3) Retrieves candidate <u>providers</u> information

Message → ESB → **Message** → **ESB Mediation** → **Message** → **Service**

(1) A Message is received

(2) Invokes a selection mediation.

(4) Executes selection algorithm to identify the provider service

(5) Message is transformed and routed to the selected endpoint.

Operational Monitoring Patterns

WebSphere Service Registry and Repository

Publish   Find   Enrich   Manage   Govern

1) Performance and health alerts are generated based on operational data and recorded in the WSRR

Service Management Repositories

Performance data

Policies

Operational data

1) Emerging need for monitoring to be policy driven from the WSRR

1) Mediation records the operational data about the running service

Mediation

1) The ESB routes the message to an intermediate logging mediation or agent

Message   Message

1) The ESB then continues with the invocation of the service.

1) During service invocation a message is received by the ESB

Message

ESB

Message

Service

Service Proxy Enforcement Pattern

WebSphere Service Registry and Repository

Publish   Find   Enrich   Manage   Govern

(2) Proxy retrieves client policy for Consumer X when invoking Provider Y.

(4) Proxy retrieves provider policy for Provider Y.

Application X → **Message** → **Service Consumer Proxy** → **Message** → **Service Provider Proxy** → **Message** → Service Y

(1) A message is received from Consumer X that doesn't understand policy

(3) Proxy adds required headers to message to realize client policy and sends message onto ProxiedProvider Y

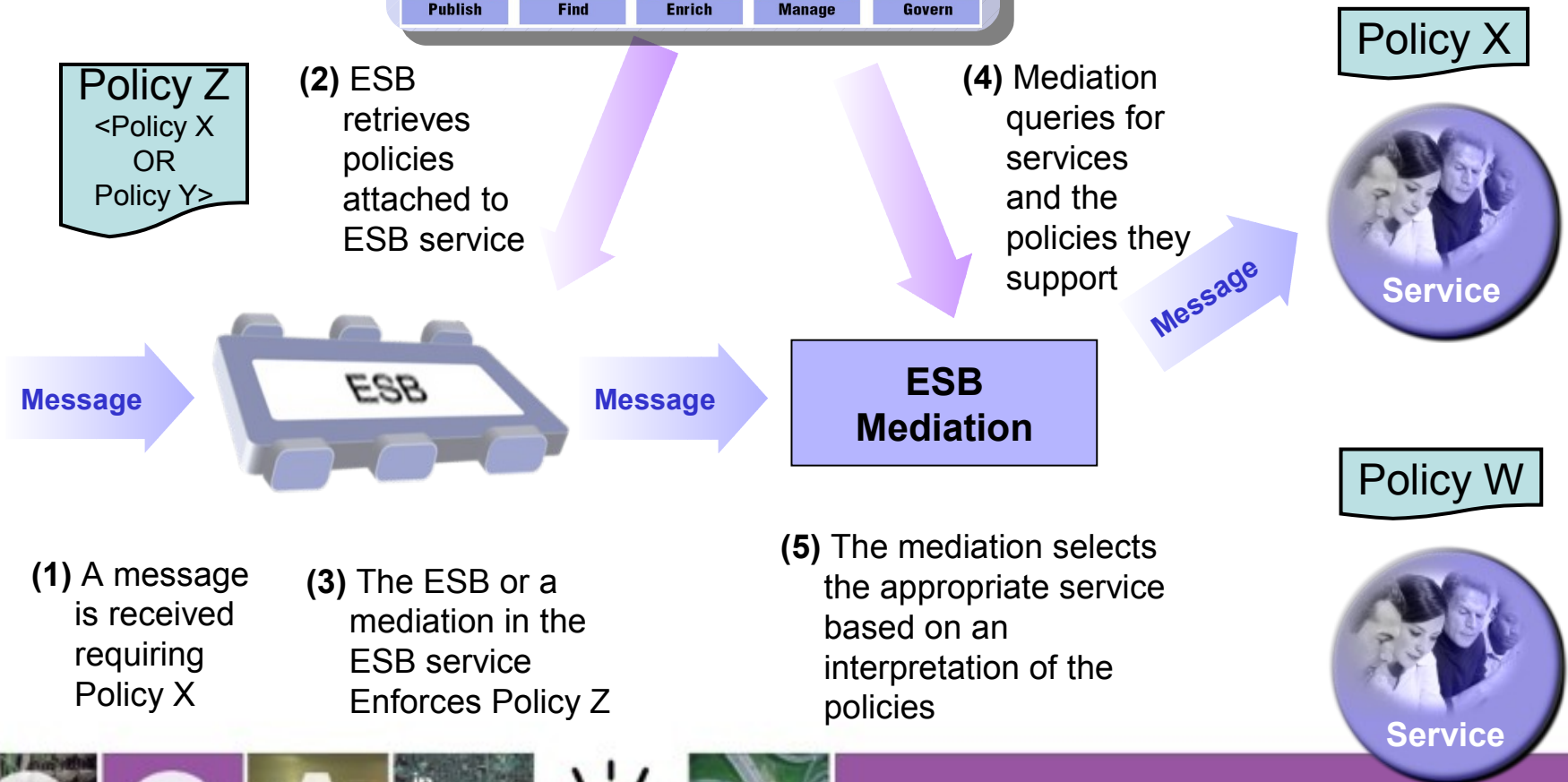**(5)** Proxy interprets message against Provider Y policy. i.e. enforces policy

(6) Message is passed onto Service Provider Y that doesn't understand policy

Runtime Policy Enforcement

WebSphere Service Registry and Repository

Publish   Find   Enrich   Manage   Govern

Dynamic selection

Policy Z
<Policy X
OR
Policy Y>

(2) ESB retrieves policies attached to ESB service

(4) Mediation queries for services and the policies they support

Policy X

Service

Message

ESB

Message

ESB Mediation

Message

Policy W

(1) A message is received requiring Policy X

(3) The ESB or a mediation in the ESB service Enforces Policy Z

(5) The mediation selects the appropriate service based on an interpretation of the policies

Service

Contract / SLA Enforcement

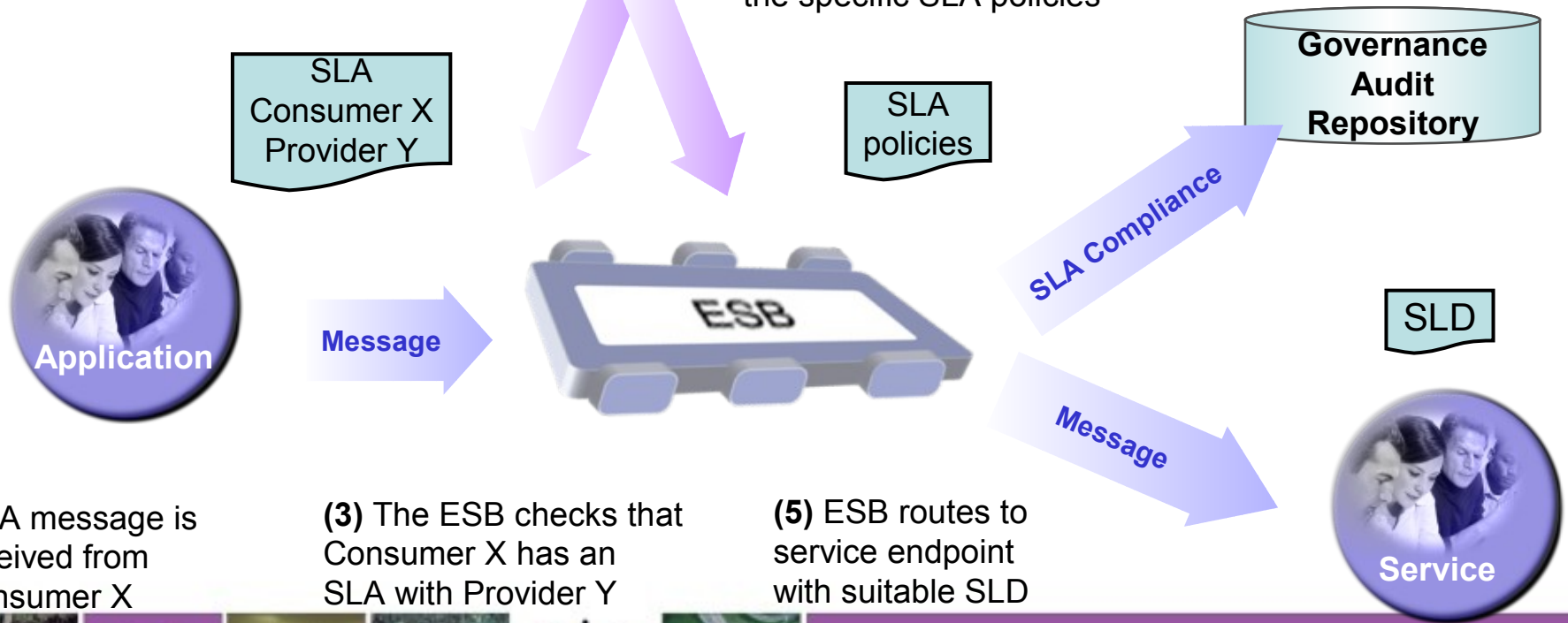**WebSphere Service Registry and Repository**

Publish | Find | Enrich | Manage | Govern

(2) ESB for Provider Y retrieves valid SLAs

(4) ESB retrieves the specific SLA policies

(6) ESB records SLA Metrics in a database for later analysis

SLA Consumer X Provider Y

SLA policies

Governance Audit Repository

Application

Message

ESB

SLA Compliance

SLD

Message

Service

(1) A message is received from Consumer X
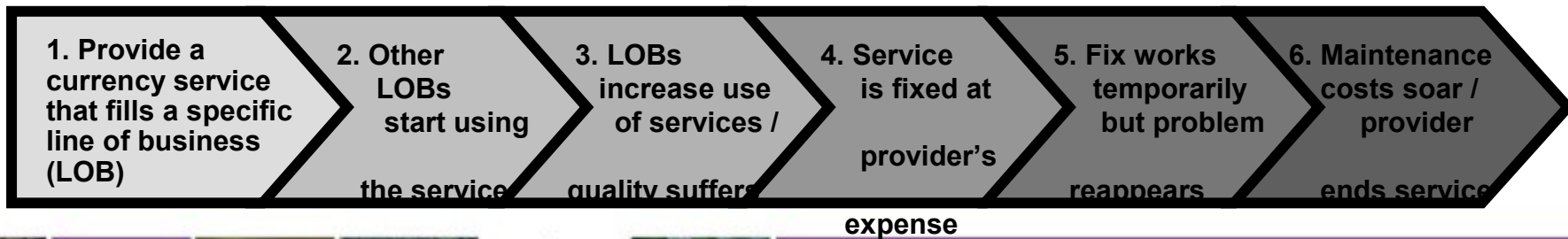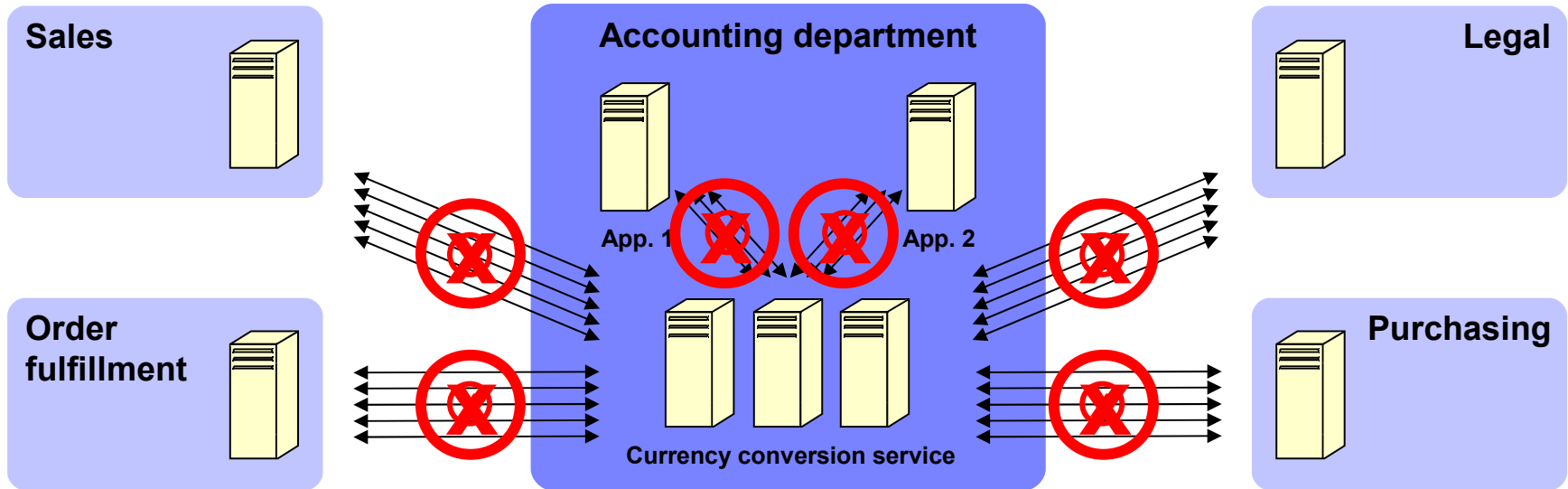
(3) The ESB checks that Consumer X has an SLA with Provider Y

(5) ESB routes to service endpoint with suitable SLD

Policy management

A scenario on the importance of SOA governance[*]

Sales

Accounting department

App. 1   App. 2

Currency conversion service

Legal

Order fulfillment

Purchasing

| 1. Provide a currency service that fills a specific line of business (LOB) | 2. Other LOBs start using the service | 3. LOBs increase use of services / quality suffers | 4. Service is fixed at provider's expense | 5. Fix works temporarily but problem reappears | 6. Maintenance costs soar / provider ends service |

Different perspectives on a service: Provider v Consumer

Provider perspective

Accounting department

Currency conversion service
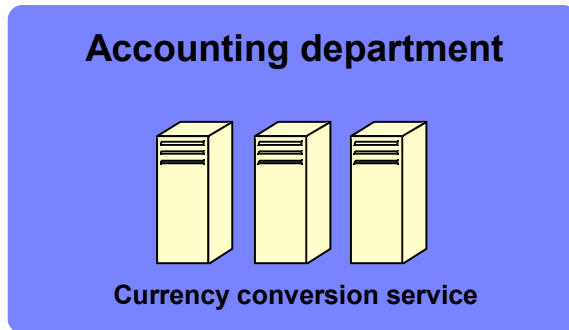
- Provider LoB Responsibilities
  - Defining and delivering the service capability needed by their (and agreed other LoBs) applications
  - Funding the service development and testing
  - Funding the IT resources needed to provide the service
- Provided Service / Capability
  - Functional capabilities – Service Specification
  - Non- Functional capabilities - Service Level Objectives
- Provider perspective goals
  - Flexibility to change to respond to new requirements (Service Versioning)
  - Change management and bug fixing to retain compatibility with specification
  - Optimization of IT Resources – servers, databases etc needed to deliver combined service levels.(workload mangement)
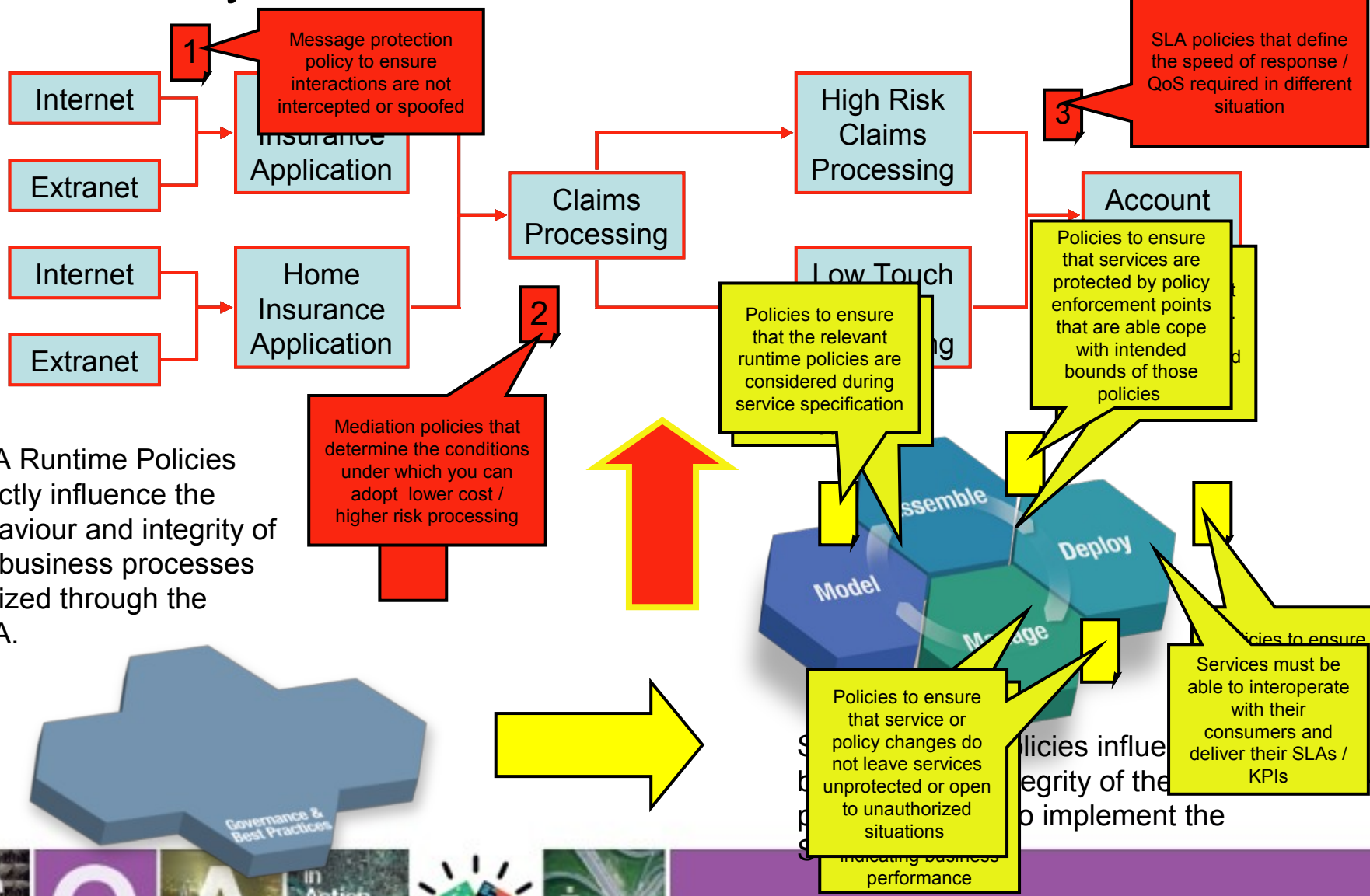 - Ability to retire old service versions and reclaim IT resources

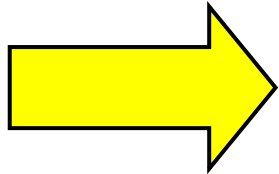## Consumer perspective

Sales
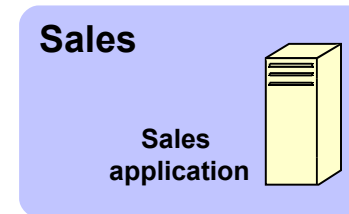
Sales application

- Consumer LoB Responsibilities
  - Delivering the Line of Business value through their applications
  - Defining the QoS needed from the service to meet their business needs.
  - Funding their Applications, integration testing and an agreed portion of the shared service costs.
- Consumer Application Requirements
  - Needs to be able to know how to invoke the service capabilities using compatible protocols - Service Specification
  - Needs the service to operate in its context and meet its QoS requirements- Service Level Agreement
  - Needs to be able to invoke the service at runtime – Service Endpoint
- Consumer perspective goals
  - Realizes the service capability faster and at lower cost
  - Isolate their applications from service implementation changes
  - Be able to quickly request and take advantage of new service capabilities
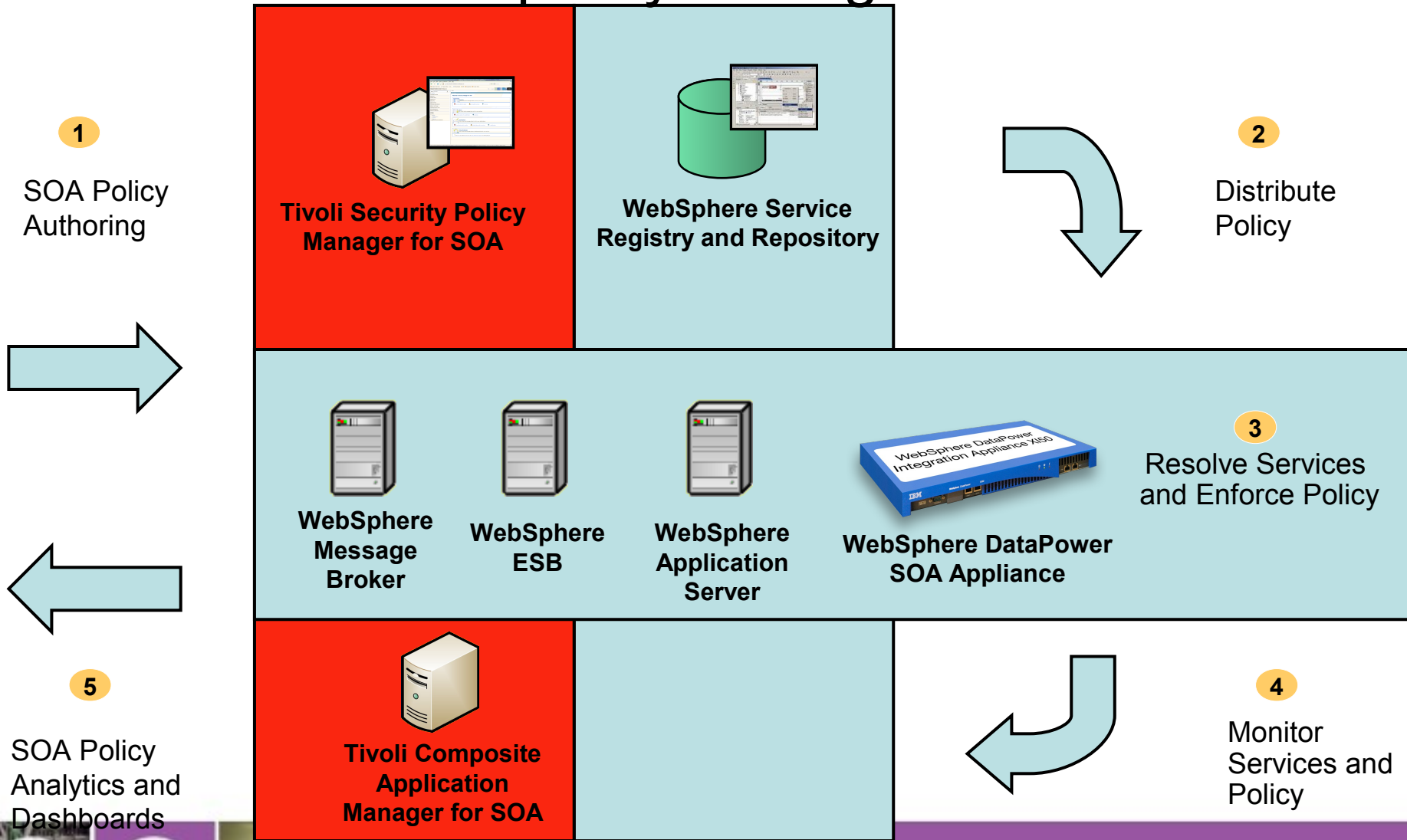
Service Lifecycle Policies and Service Runtime Policies

1 Message protection policy to ensure interactions are not intercepted or spoofed

3 SLA policies that define the speed of response / QoS required in different situation

Internet
Extranet
Insurance Application

Internet
Extranet
Home Insurance Application

Claims Processing

High Risk Claims Processing

Low Touch

Account

2 Mediation policies that determine the conditions under which you can adopt lower cost / higher risk processing

Policies to ensure that the relevant runtime policies are considered during service specification

Policies to ensure that services are protected by policy enforcement points that are able cope with intended bounds of those policies

SOA Runtime Policies directly influence the behaviour and integrity of the business processes realized through the SOA.

Model
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Governance & Best Practices

Policies to ensure that service or policy changes do not leave services unprotected or open to unauthorized situations

Services must be able to interoperate with their consumers and deliver their SLAs / KPIs

...licies influe...
...egrity of the...
...o implement the...
...indicating business performance

SOA runtime policy management

1 SOA Policy Authoring

Tivoli Security Policy Manager for SOA

WebSphere Service Registry and Repository

2 Distribute Policy

WebSphere Message Broker

WebSphere ESB

WebSphere Application Server

WebSphere DataPower SOA Appliance

WebSphere DataPower Integration Appliance XI50

3 Resolve Services and Enforce Policy

5 SOA Policy Analytics and Dashboards

Tivoli Composite Application Manager for SOA

4 Monitor Services and Policy

In summary, IBM offers a comprehensive set of solutions around SOA governance.

- **IBM's position on SOA Governance** - Includes the realm of Service Governance to control the service lifecycle process and focuses on the enablement of the integration with other realms of governance to maximize SOA's value.

- **SOA CoE and its structure** – IBM provides a comprehensive set of consulting services to not only define the appropriate CoE structure that aligns business and IT, but also helps our clients realize the CoE through required organizational change efforts.

- **2008 Accomplishments** – IBM made significant accomplishments in our methods and tooling across service lifecycle management, policy, enforcement, and security.

- **2009 Strategic Priorities** – In 2009, IBM will continue to drive efforts around these strategic priorities:
    - SOA Governance / Strategy & Planning / Solution Delivery
    - Method Enhancements
    - SOA Policy Strategy
    - Tooling / Platform Enhancements

Learn more about SOA Governance

- Visit IBM SOA Governance website
  (www.Ibm.com/soa/gov)

- SOA Governance videos
  (http://www-01.ibm.com/software/info/television/index.jsp?lang=en_us&cat=soaslm&item=xml/G550259A00805U76.xml)

- SOA Governance webcast and podcast
  - Smart SOA Governance: The stimulus package for shovel ready SOA projects
    (http://event.on24.com/r.htm?
    e=139953&s=1&k=1DDB3B18F726FBB134C804AEBE980015&partnerref=IBM01)
  - SOA governance and organizational change management
    (http://www.ibm.com/developerworks/podcast/spotlight/st-070307ctxt.html?
    S_TACT=105AGY82&S_CMP=GENSITE)

- Governance of Smart SOA
  (http://www-01.ibm.com/software/solutions/soa/newsletter/jul08/article_governance.html)

- Introduction to the need for SOA Governance
  (http://www.ibm.com/developerworks/library/ar-servgov/)