



IBM Software Group

Mastering SOA with WebSphere Service Registry and Repository

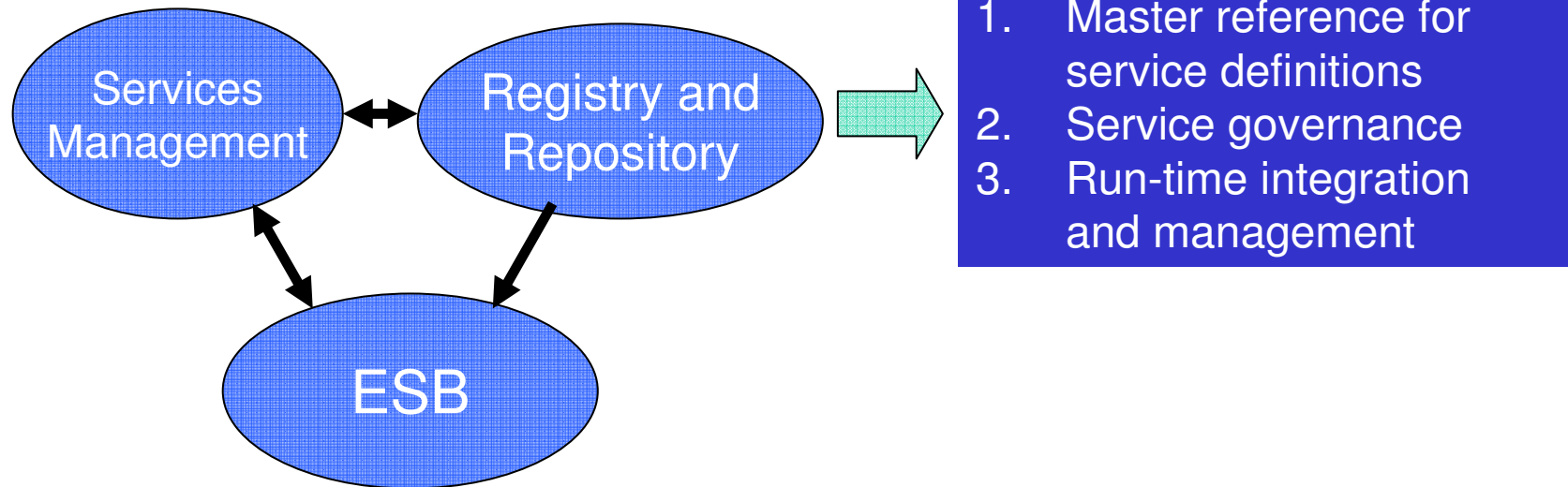
WebSphere User Group 18th March 2010

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WebSphere
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Building a basic SOA Infrastructure

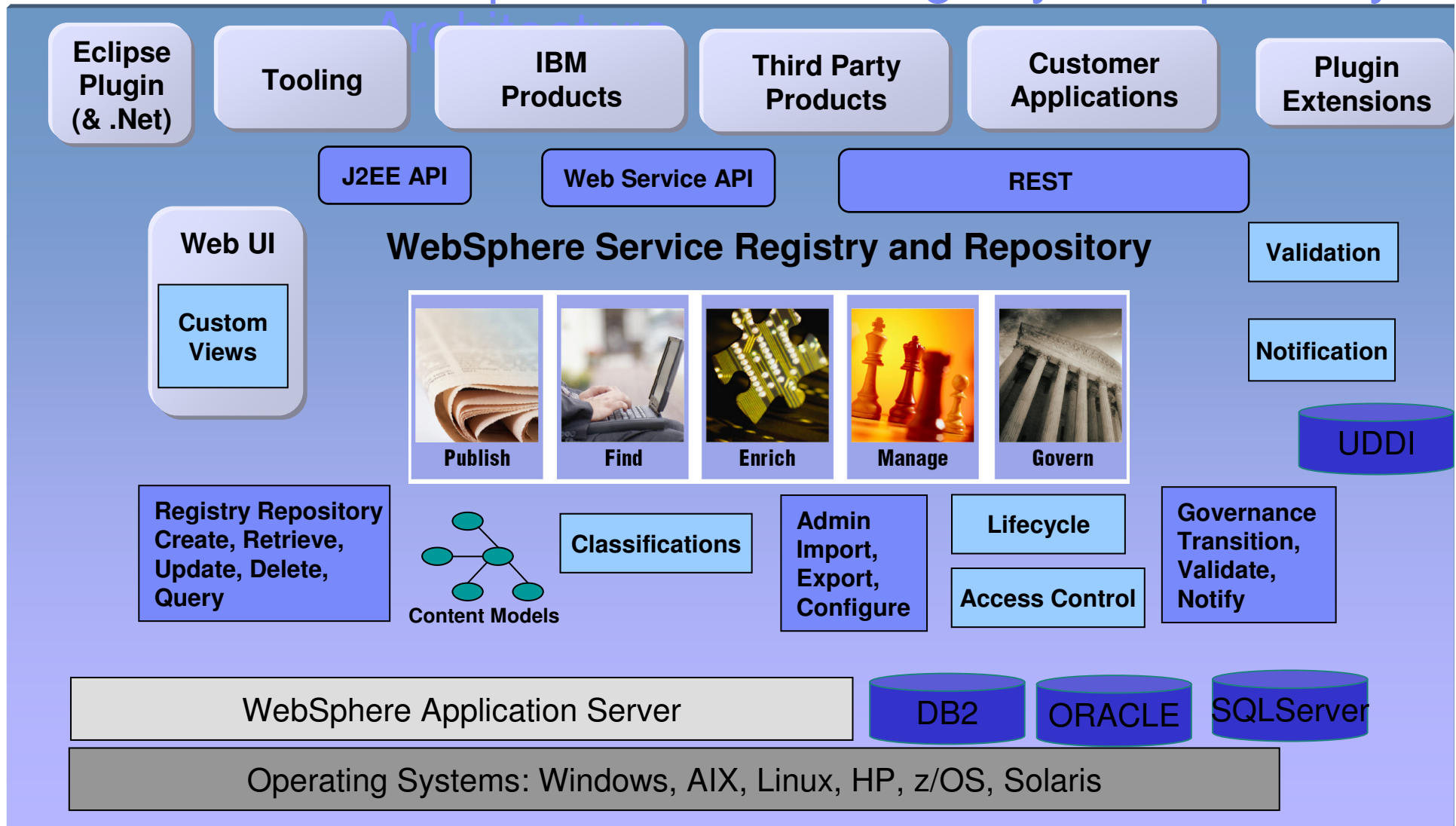


WebSphere Service Registry and Repository

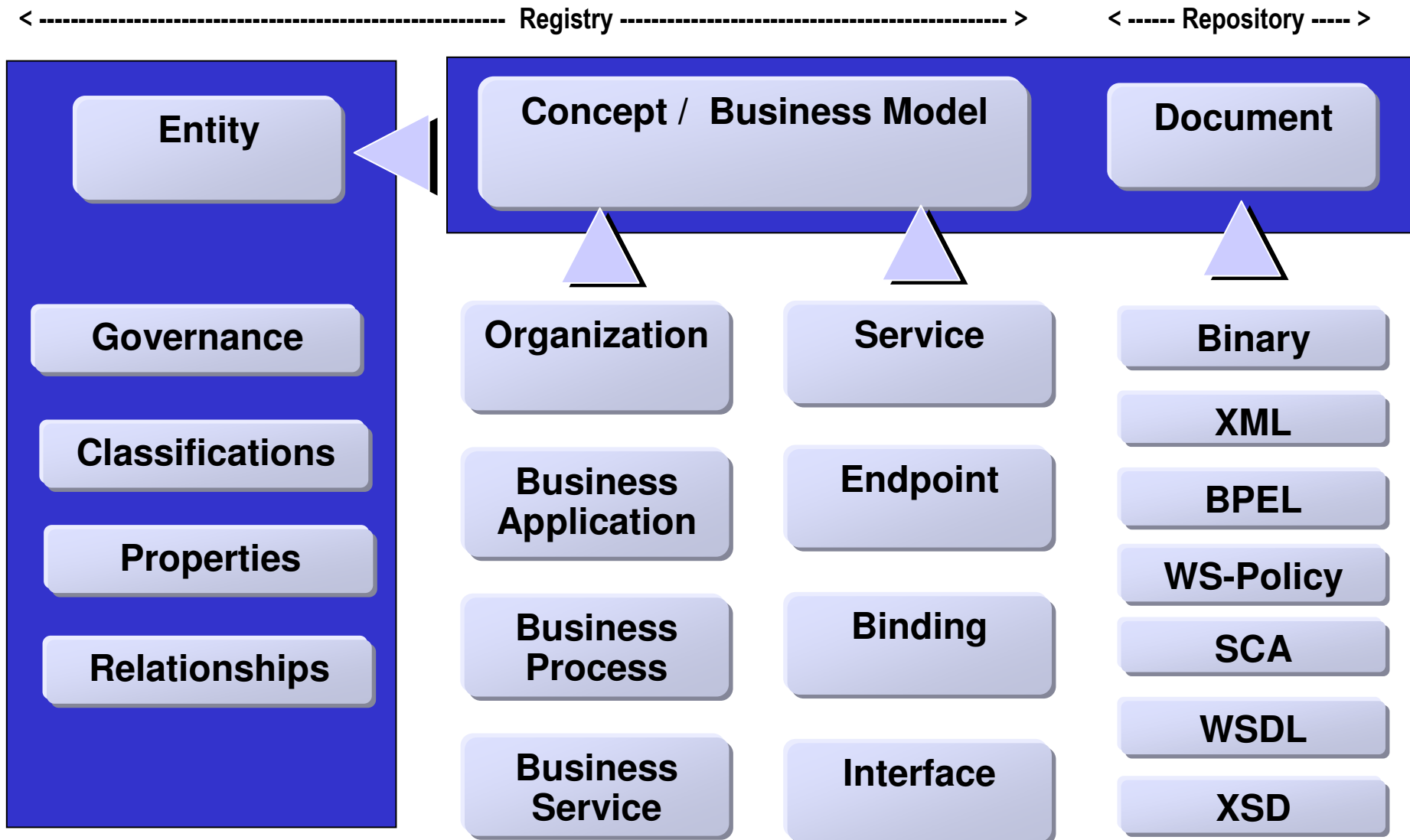
Overview



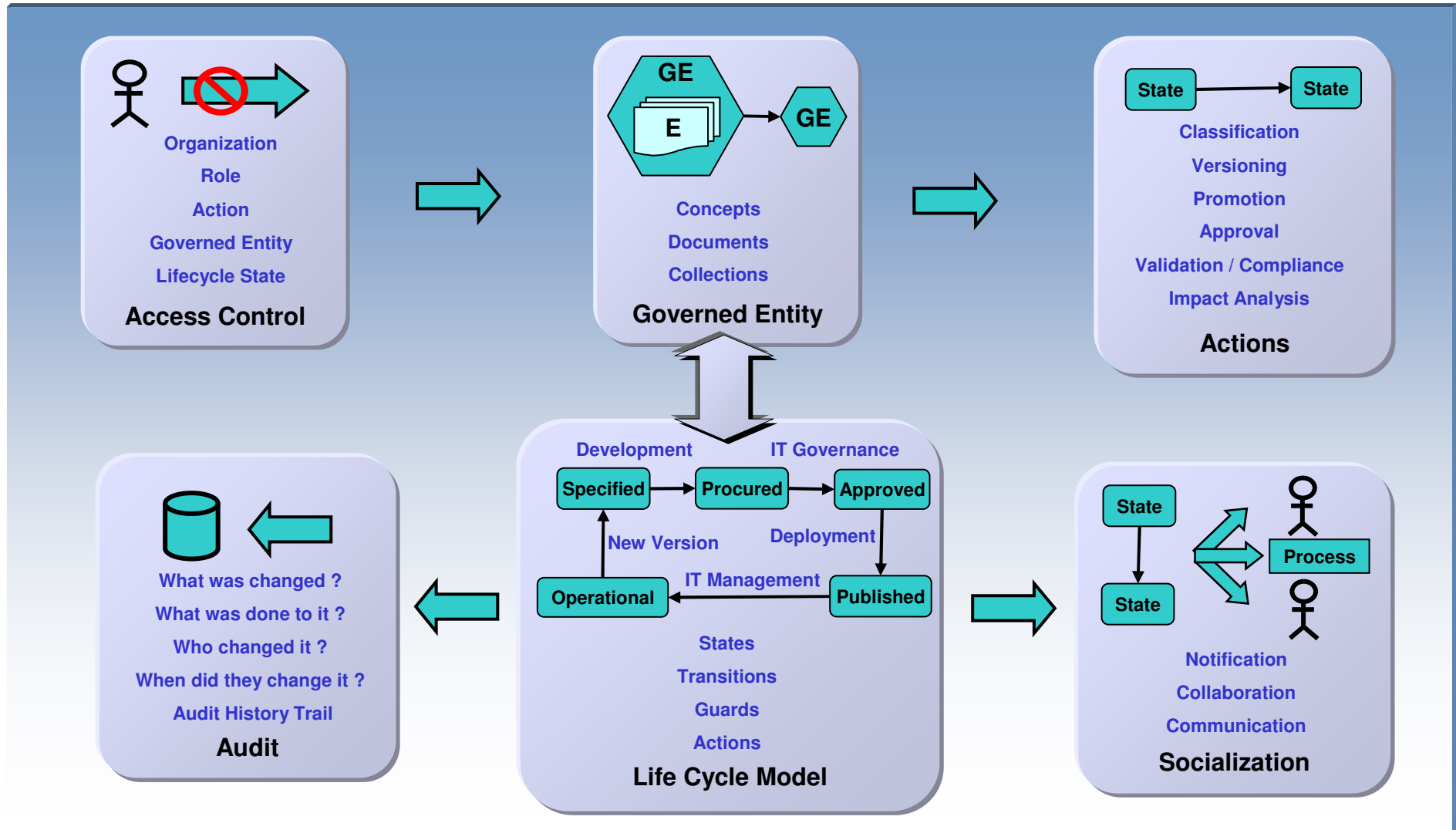
WebSphere Service Registry & Repository



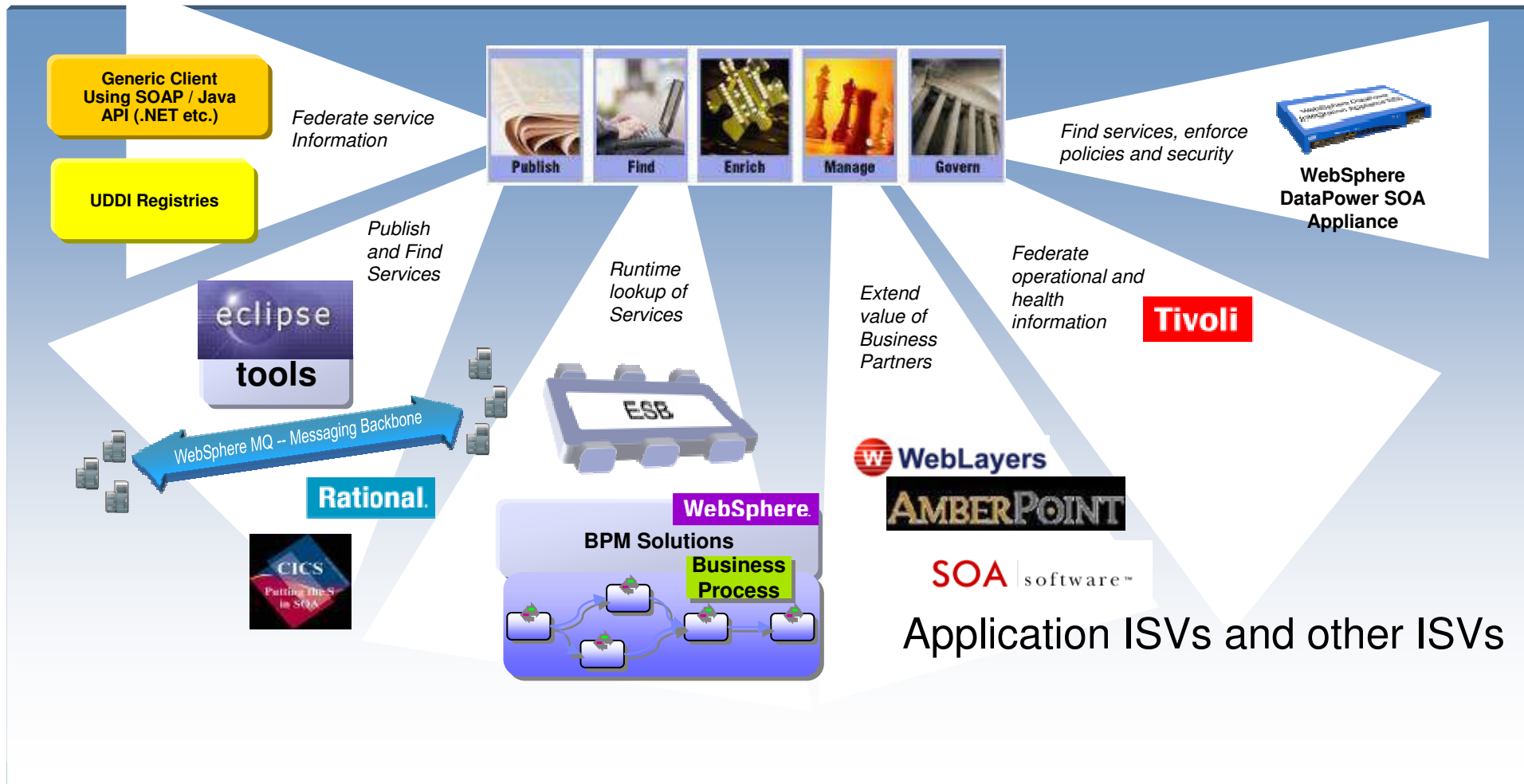
WSRR content model



WSRR Governance Model

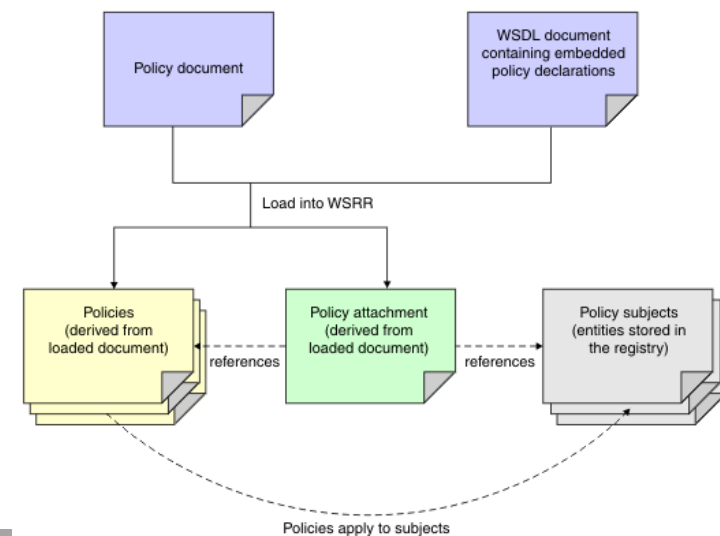
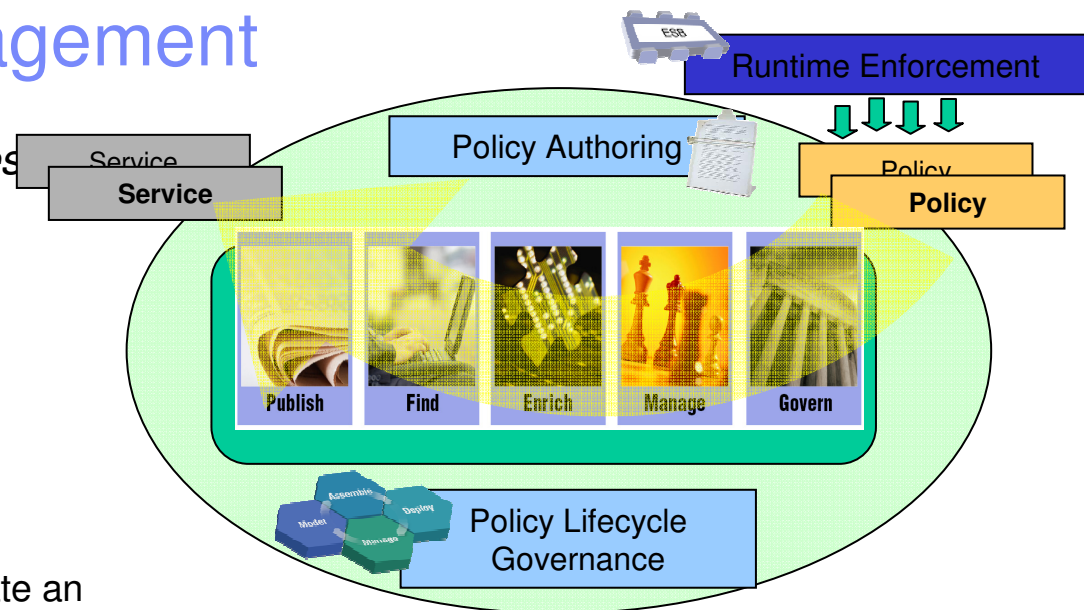


WSRR: integration and interoperability across ESBs, BPM & Connectivity



Policy Management

- **Govern the lifecycle of SOA Policies**
 - Validate, audit and report changes to policy
 - Ensure WS-I compliance
 - Enforce service governance policies
- Use **policy authoring** tools to easily create new policies
 - Associate policies to services to create an **authoritative source** of services and related metadata
- **Policy libraries**
 - Taxonomy for modeling any policy domain
 - Policies that capture governance best practices
- Enable ESB's and other SOA products for **enforcing policies**



WSRR Studio

BIRT Reporting

The screenshot shows the WebSphere Service Registry and Repository Studio interface. The main window displays a BIRT report titled "Number of WSDL ports by availability". The report is a pie chart with five segments labeled A through E, representing different availability categories. The data is as follows:

Availability Category	Count
A	6
B	4
C	12
D	8
E	10

The interface also shows a tree view on the left with the following structure:

- Data Sources
- Data Sets
- Data Cubes
- Report Parameters

The tree view also includes a section for "MyGEPPProject" with sub-items: ".project", "wsrr_sample_port_status", and "wsrr_sample_wsdl_and_xsd".

Business Space - Policy Analytics

Home | Go to Spaces | Manage Spaces | Actions

admin | Help | Logout

Analytics

Policy Analytics | WS-I Compliance Report | Detail

Service Registry Analytics Governance Policy Execution Overview

1D | 7D | 1M | 3M | 6M | MTD | YTD | 1Y | 2009/01/01 - 2009/10/09 | Refresh

Overall Policy Pass and Failure Rate

Failed 61 (70.1%)
Passed 26 (29.9%)
Total = 87

Top Failing Policies

Number of Applications

Service Registry Analytics Governance Policy Execution Detail

SLASLDCardinalityCheck | 1D | 7D | 1M | 3M | 6M | MTD | YTD | 1Y | 2009/01/01 - 2009/10/09

SLASLDCardinalityCheck Pass and Failure Rate

Number of Applications

Policy Outcome: Passed, Failed

Total = 20

SLASLDCardinalityCheck Failure Instances

Date and Time (GMT Daylight Time)	Subject
Sep 23, 2009 10:50:31 AM	MyBusinessSLA
Sep 10, 2009 11:33:12 AM	MyBusinessSLA
Sep 10, 2009 11:33:07 AM	MyBusinessSLA

1 - 3 | 20

Messages for policy SLASLDCardinalityCheck failure on Sep 10, 2009 11:33:12 AM, Subject = MyBusinessSLA

Message code	Message
GSR1420	RelationshipAssertion: SLASLDCardinalityCheck: The SLA must have at least one associated SLD in order to perform the 'Request SLA', 'Approve SLA Request' or 'Activate SLA' transition.. There are not enough target objects on this relationship. The minimum is 1

1 | 1

Metrics of All Governance Policies

Select date range

Determine worst performing Policies

Applications of the selected Policy

Selected Policy Pass/Fail Metrics

Governance Policy Validator error messages

Master reference for service definitions

Publish and Find

WebSphere Service Registry and Repository



Encourage Greater Reuse

Business and IT alignment through sharing assets

Publish Documents Using ...

WSRR Web User Interface

Eclipse Plugin User Interface

WebSphere MQ Explorer

Publish Document and Groups in WSRR

Web UI

- Many document types supported: WSDL, XSD, XML, Policy, Other (binary), SCA, Zip/Jar
- Load all the dependent artifacts together in a ZIP file
- Makes it easy for the users to publish large collections of service artifacts

Load Documents ?

This facility enables you to load one or more documents, with the option to save them as a group. Specify a file to load, select a document type and, optionally, enter a description and a version.

Path to the Document

Local file system

Specify path

Remote file location

Specify URL

Document type

WSDL

WSDL

XSD

XML

Policy

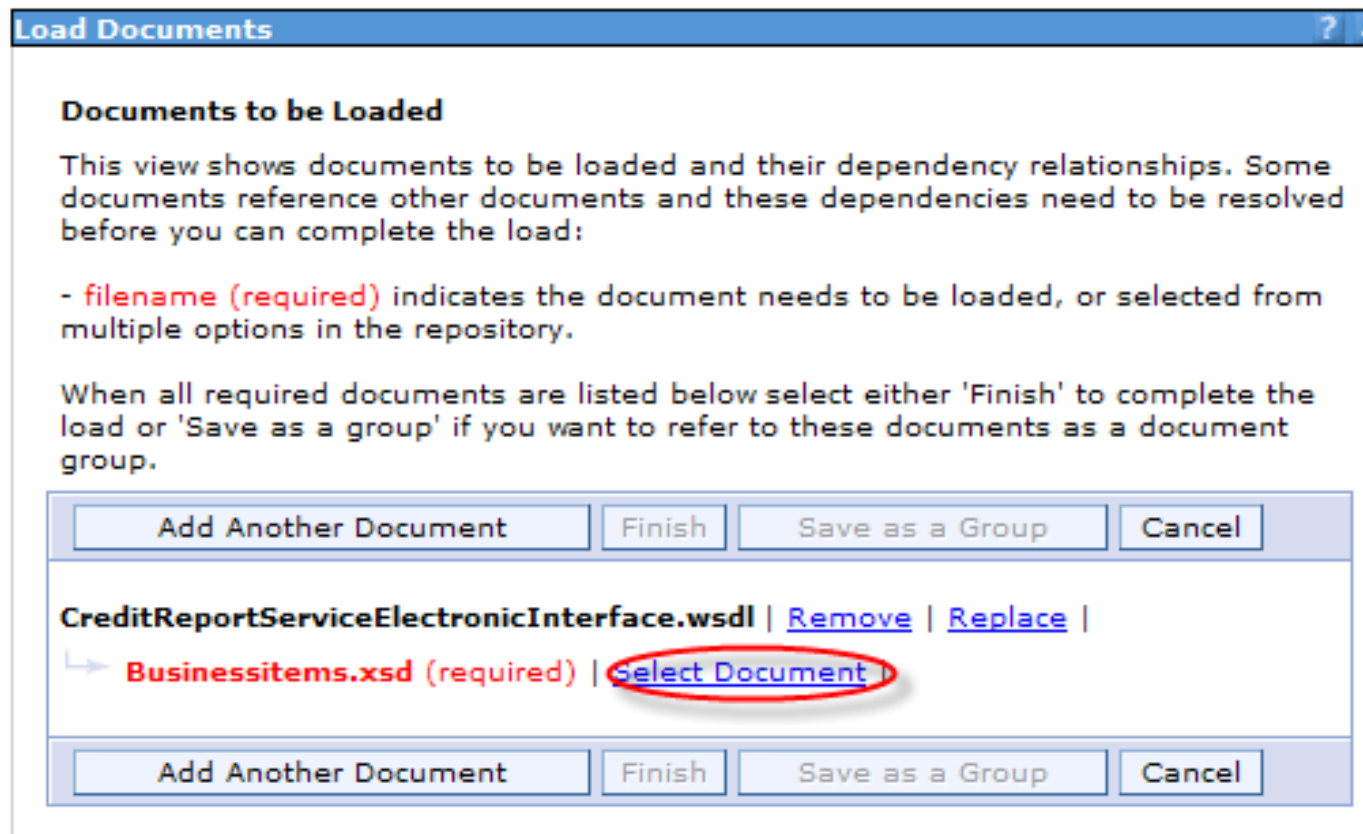
Other

SCA integration module

ZIP/JAR file

Automatic Dependencies

WSRR automatically figures out all the dependencies when loading a document.

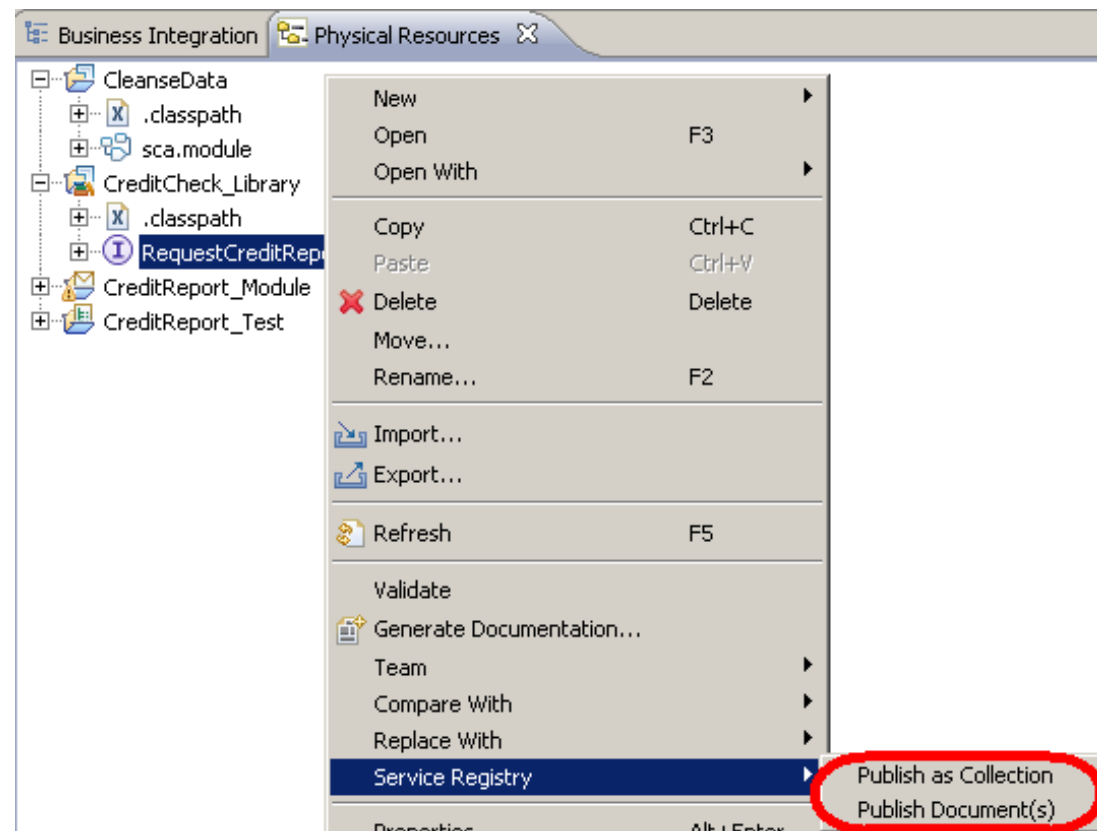


Publish Using Service Registry Eclipse Plug-in

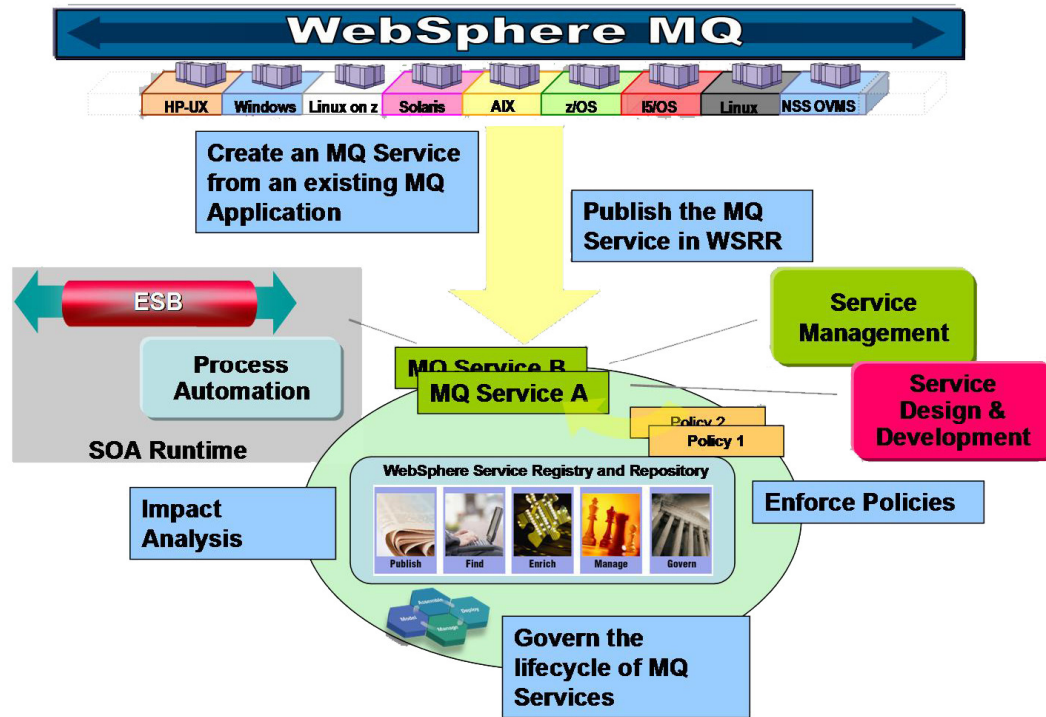
Subset of Web UI's extensive capabilities

Supports Eclipse environments

API's enable other environments



Publishing Services from WebSphere MQ Explorer



WMQ Explorer creates a WSDL with wmqservice elements

When a WebSphere MQ WSDL is loaded, WebSphere Service Registry and Repository automatically builds

representations of:

- MQ queue managers,
- MQ queues
- MQ connections,

And relationships between them and a port object



WebSphere Service Registry and Repository



Encourage Greater Reuse

Find and reuse services for building blocks for new composite applications.

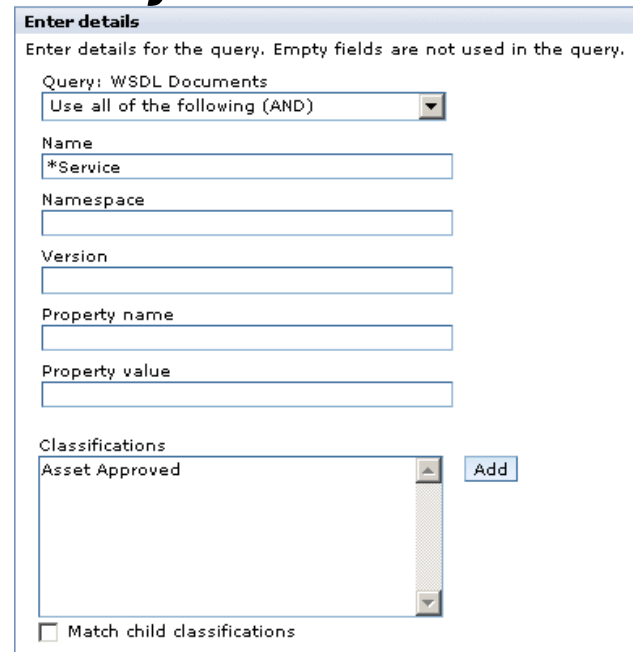
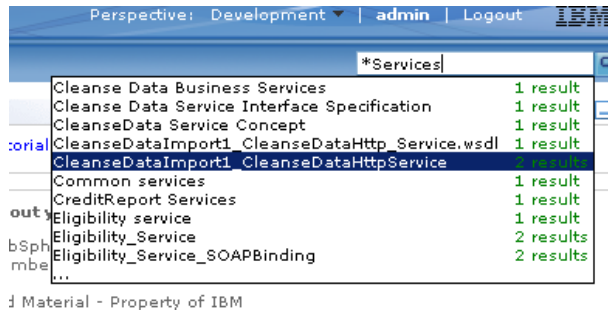
Find Services Using ...

WSRR Web User Interface

Eclipse Plugin User Interface

Find Services Using **Query Wizard**

Simple Search - with Auto Suggest

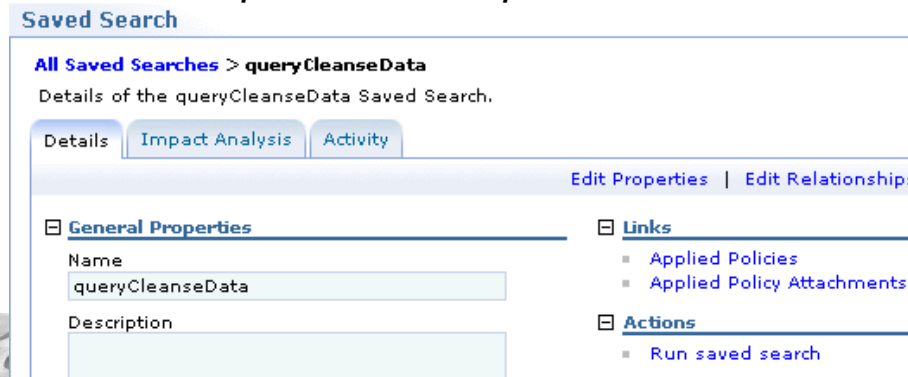


Faceted Search - with Filters



Saved Queries

- Save complex search queries and rerun later

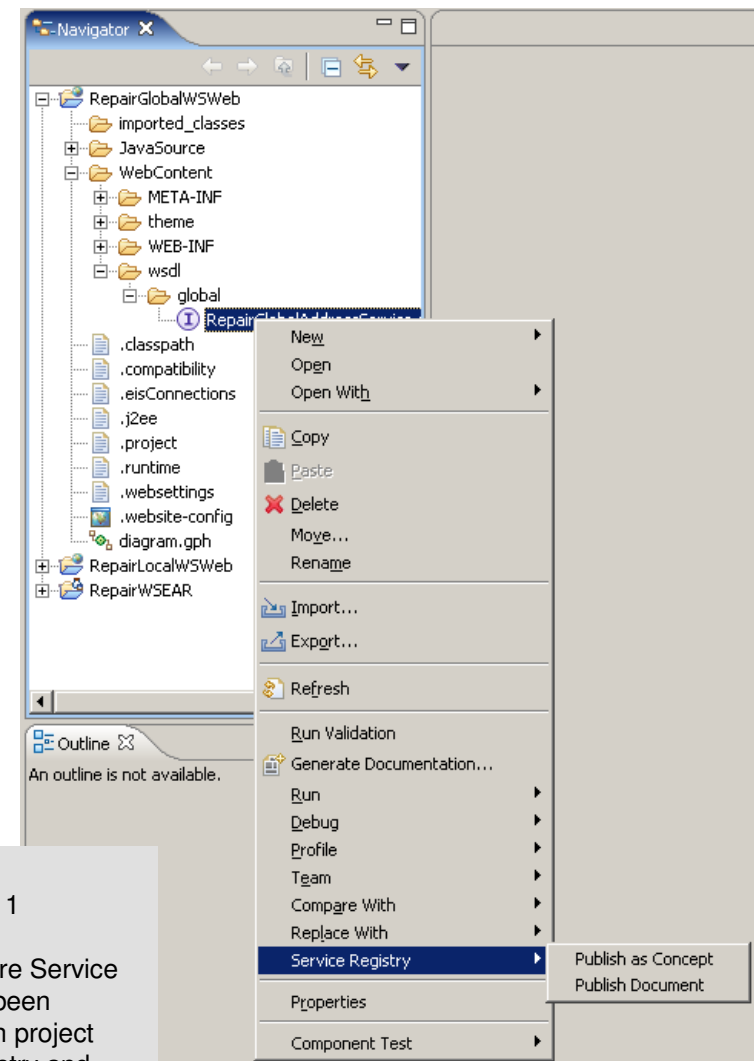
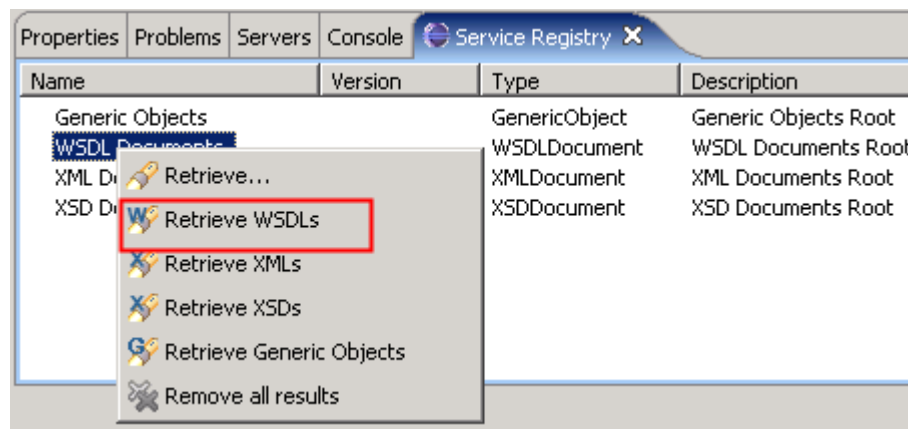


Find Using Service Registry Eclipse Plug-in

Subset of Web UI's extensive capabilities

Supports Eclipse environments

API's enable other environments



Microsoft Visual Studio support

Microsoft Visual Studio is supported via the SA11 SupportPac.

As well as retrieving documents from WebSphere Service Registry and Repository, documents that have been created within a Microsoft Visual Studio Solution project can be published into WebSphere Service Registry and Repository along with some associated metadata.

Classification System for Services

Define Classification

Classification system ?

Classification Systems > Governance Profile Taxonomy
Details of the Governance Profile Taxonomy Classification system.

Classification system Classes

Select a class to Add a child, change its parent, Delete or Edit it. Add a Root Class using the 'Add Root Class' Button.

Preferences

Edit Add Root Class Add Child Change Parent Delete

Select	Name
<input type="checkbox"/>	Business Domain
<input type="checkbox"/>	Finance
<input type="checkbox"/>	Insurance
<input type="checkbox"/>	Insurance Account Management
<input type="checkbox"/>	Insurance Claims Processing
<input type="checkbox"/>	Sales and Marketing
<input type="checkbox"/>	Environment

Edit Add Root Class Add Child Change Parent Delete

Save and Commit Cancel

Assign Classification to Service

Classifications ?

Business Services > Insurance Policy Validation Service > Classification Systems
Navigate the tree on the left to select classifications to be added to the concept: Insurance Policy Validation Service. Click the Add button to add the selected classifications to the list.

Preferences

Classification tree

Select Classifications

- WSRR Core Ontology
- Default Lifecycle
- GovernanceProfileLifecycle
- Governance Profile Taxonomy
- Business Domain
 - Finance
 - Insurance
 - Insurance Account Management
 - Insurance Claims Processing
 - Sales and Marketing
- Environment

Add >>> Remove

Classification list

Service Manage

Details for the selected classification. To see the details for an item, select the classification from the list.

System	Name	URI
None		

Apply OK Reset Cancel

- **Web UI**
- **WSRR Studio**

Demo

***Find
Graph of a Business Service
Impact analysis of an XSD
Policy Analytics***



Governance of Services

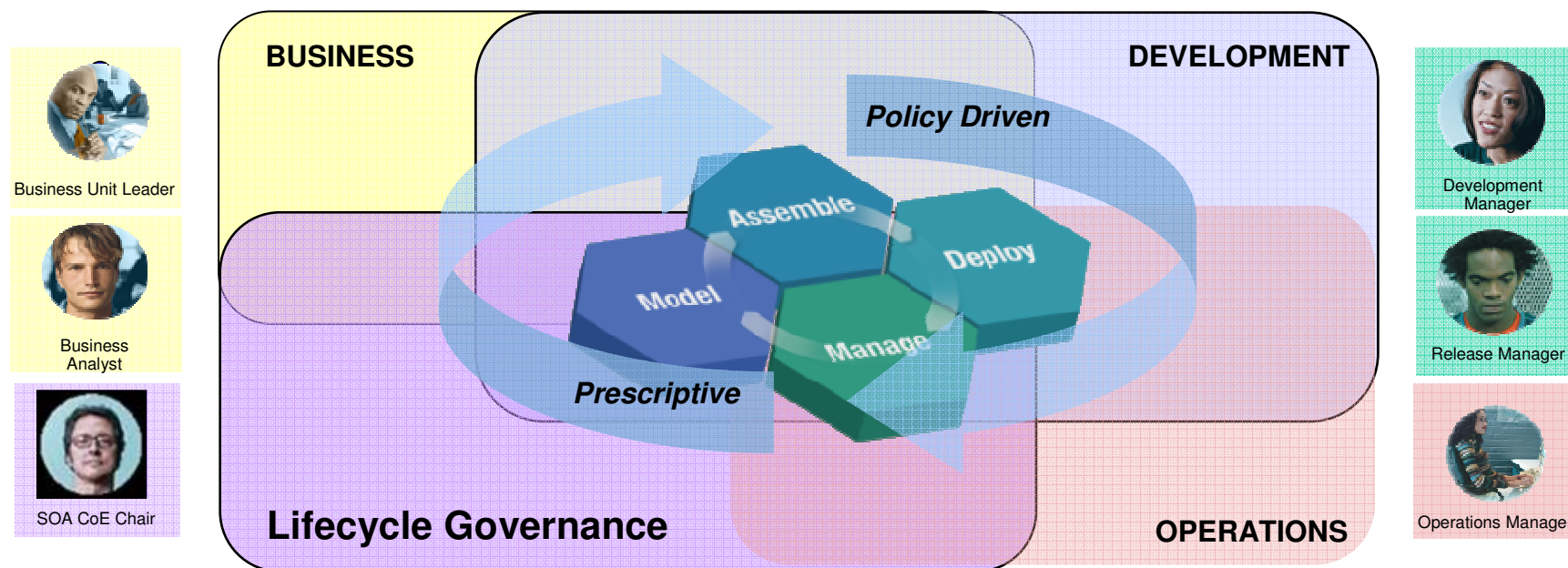


Governance: Reduce business risk with prescriptive lifecycle management

Policy driven lifecycle governance

Automated metadata exchange across design and runtime

Prescriptive lifecycle governance with out of the box governance policies



IBM's view: Service Governance can be seen as a microcosm of SOA Governance

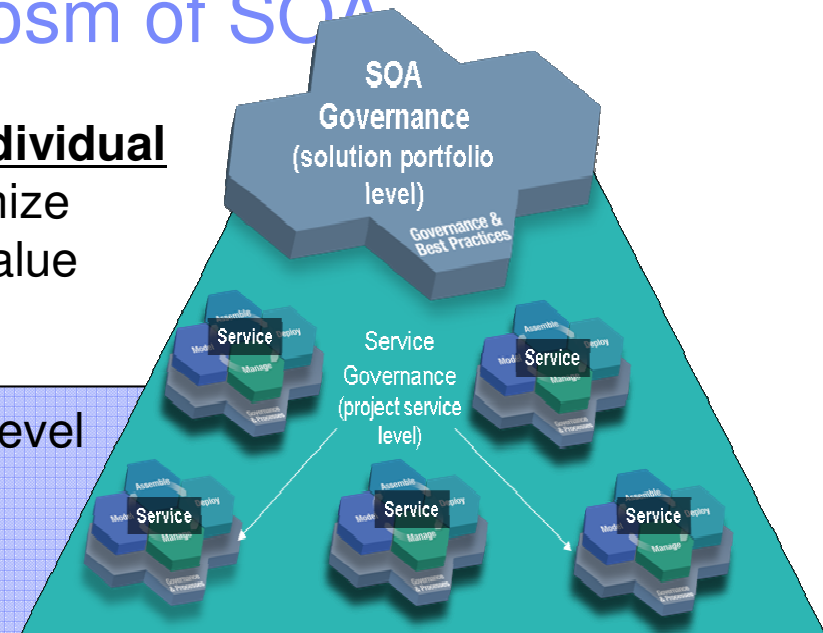
Service Governance – the governing of the **individual** service lifecycle management process to maximize how that **particular** service delivers business value and enables the goals of the business.

SOA Governance – Solution Portfolio level

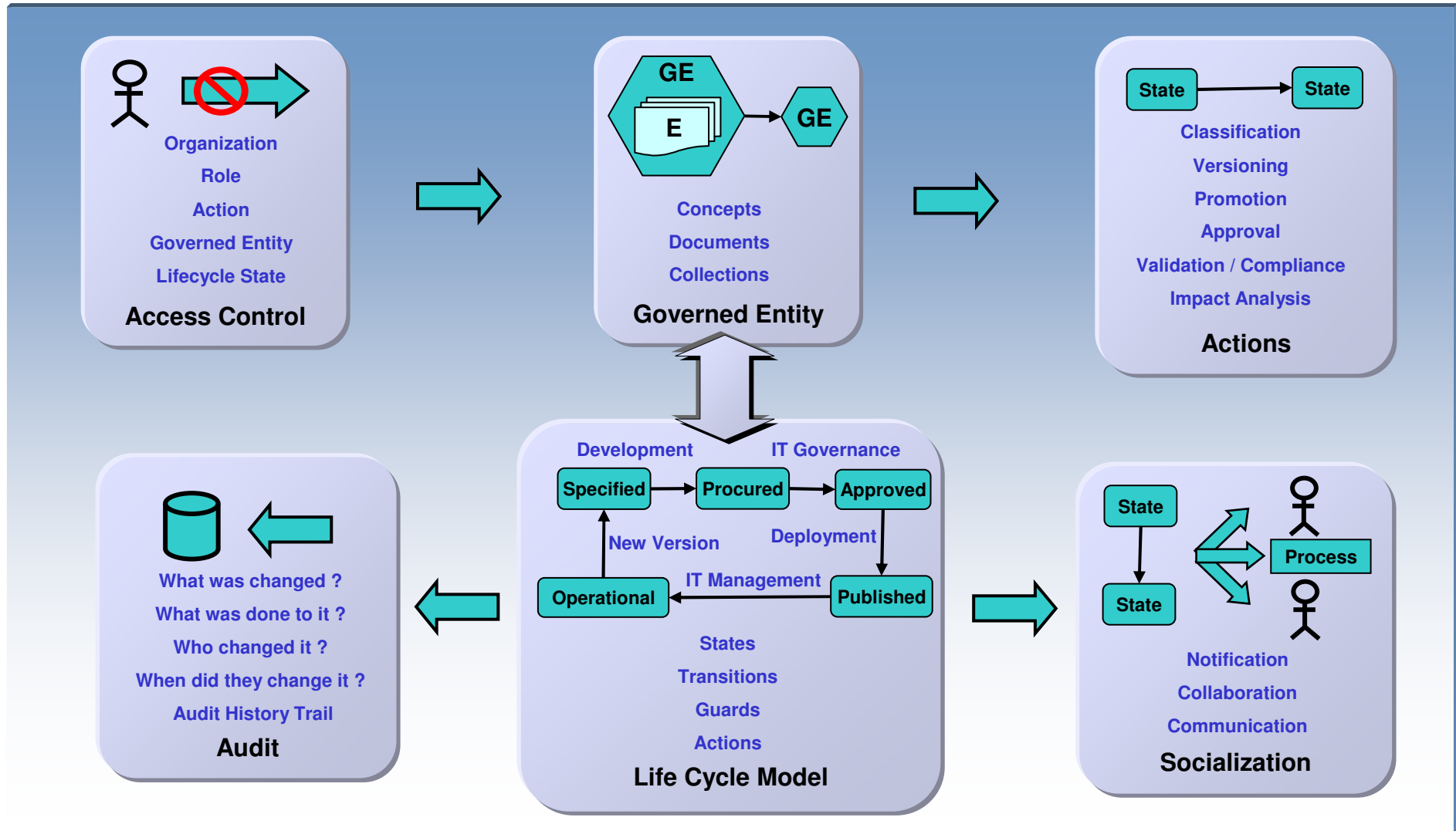
- Process Modeling Services
- Metadata Model
- Organizational Change
- Human Collaboration
- Portfolio Management
- Risk Management

Service Governance – Service level

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



WSRR Governance Model



What is the Governance Enablement Profile?

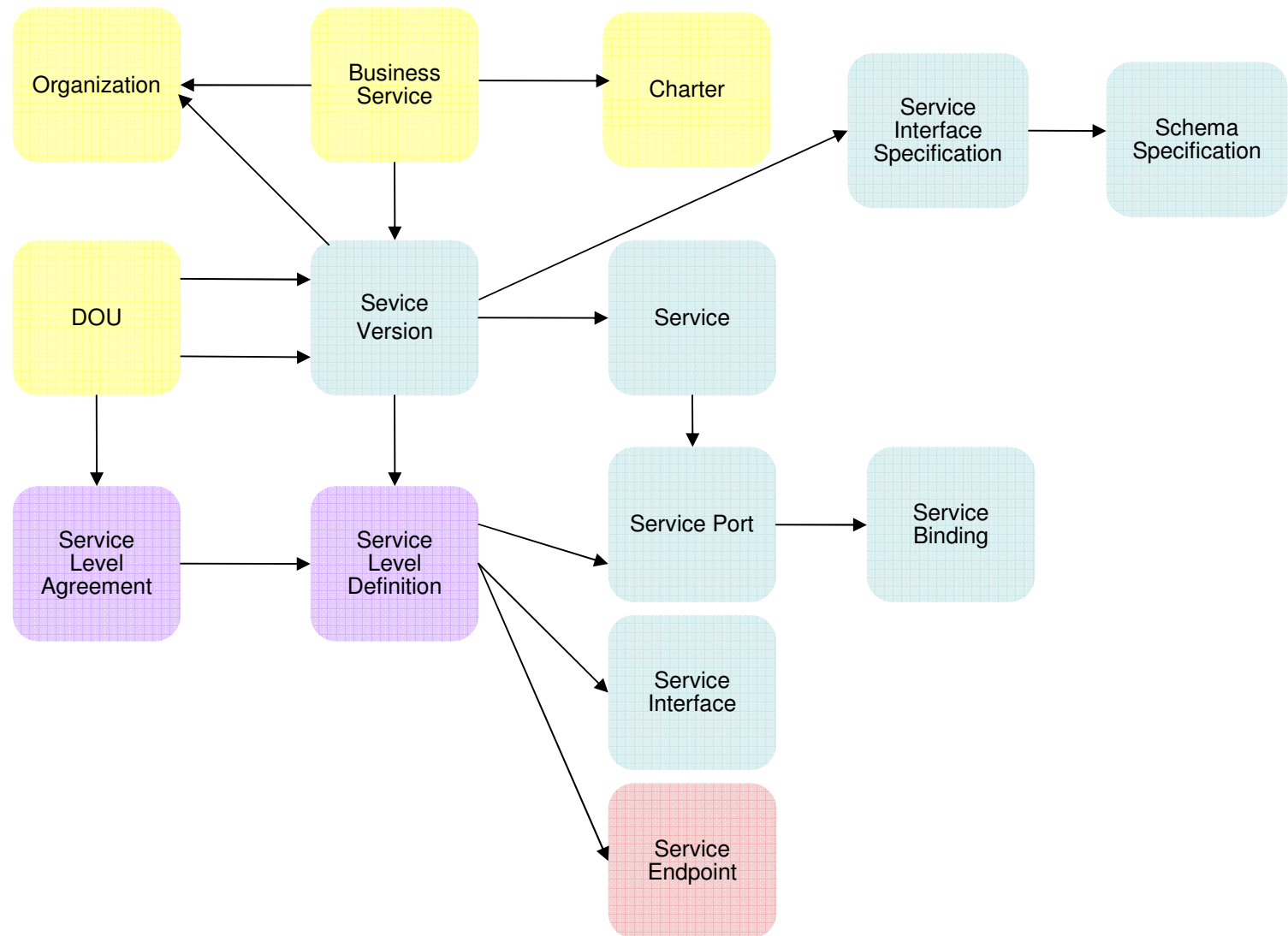
The GEP is a WSRR configuration profile

WSRR configuration profiles comprise a variety of components, all of which are interrelated and the GEP is no different.

The main aspects to this profile (and any profile) are:

- _ Business Models
- _ Lifecycles for the various modelled entities
- _ Policies
- _ Roles
- _ Customized User Interface
- _ Automation (Validators and Notifiers)

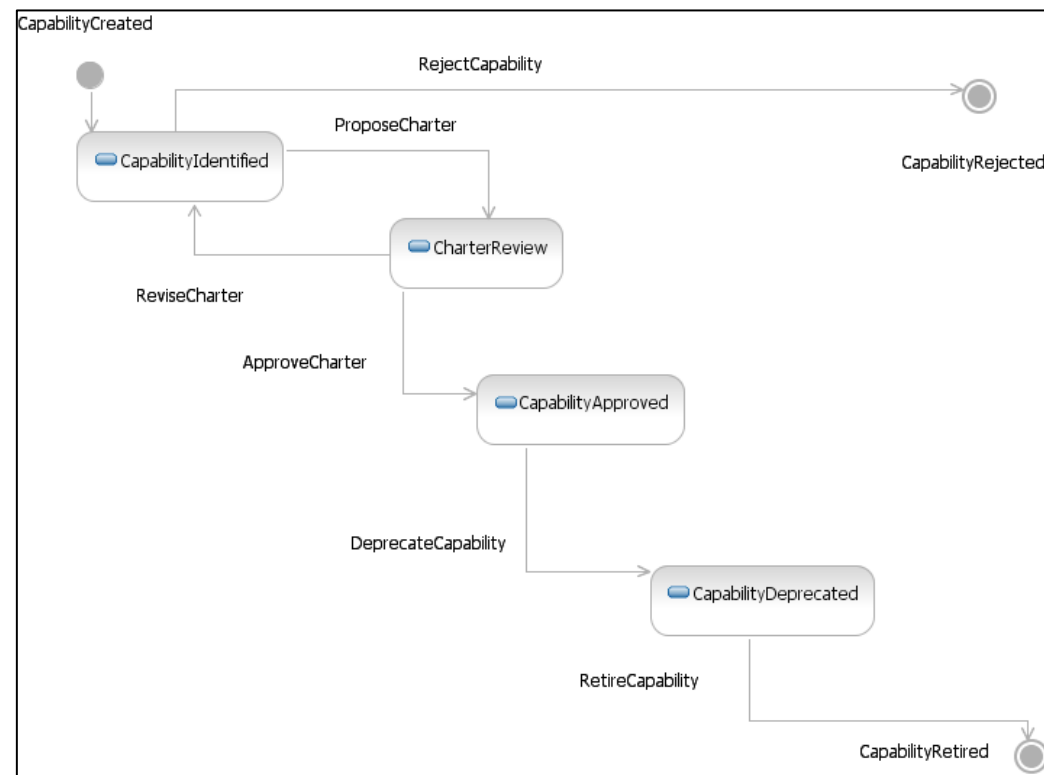
Governance Enablement Profile Model



Governance through lifecycle definition and validation

- WSRR enforces governance across the enterprise
- Different life cycles for different entities
- Transitions are possible:
 - When user has authority
 - When conditions are satisfied
- Automatic notification of change

e.g. Business Capability life cycle



Comprehensive Auditing to Track Service Metadata Changes

- Activity logging Integrated into the product
- Provides details of what has changed
- User interface view shows the history of an object

WSDL Document

WSDL Documents > Echo.wsdl
Details of the Echo.wsdl WSDL document.

Details Content Impact Analysis Governance Policy Activity

Preferences

Date	User name	Activity
Mar 23, 2009 11:20:27 AM	was	Updated property named "lastModified" from value "1237807227479" to value "1237807227837".
Mar 23, 2009 11:20:27 AM	was	Deleted property "bestProperty".
Mar 23, 2009 11:20:27 AM	was	Updated property named "lastModified" from value "1237807227105" to value "1237807227479".
Mar 23, 2009 11:20:27 AM	was	Updated property named "bestProperty" from value "testValue" to value "testValueNew".
Mar 23, 2009 11:20:27 AM	was	Updated property named "lastModified" from value "1237807226658" to value "1237807227105".
Mar 23, 2009 11:20:26 AM	was	Deleted property "bestProperty".
Mar 23, 2009 11:20:26 AM	was	Updated property named "lastModified" from value "1237807226403" to value "1237807226658".
Mar 23, 2009 11:20:26 AM	was	Updated property named "lastModified" from value "1237806786348" to value "1237807226403".
Mar 23, 2009 11:20:26 AM	was	Added property with name "bestProperty" and value "".
Mar 23, 2009 11:13:16 AM	was	Created.

Page: 2 of 2 Total: 21

IBM Solution

- WSRR facilitates managing your service metadata.
 - Audit service metadata changes.
 - View the lifecycle history for a service.

WSRR Studio

Business Models –
Visually model your
service metadata
using UML

Classification Systems –
Visually create service
taxonomies

Lifecycles – Visually
define service
lifecycles and
transitions

WSRR Configuration Project

- UML Models
 - Business Models
 - Classification Systems
 - Lifecycle
 - 6_3_ProfileLifecycleModel.xml
- Configuration Profile Files
- Access Control
- Permissions
- Roles
- Business Model Systems (OWL)
- Classification Systems (OWL)
 - Core Classifications
 - Life Cycle Classifications
 - Policy Classifications
- Life cycle (SAQL)
 - Life Cycle Configuration (LifecycleDef)
- Plugins
 - Document Content Policies
 - E-mail Notification Service
 - Governance Policies
 - JARs
 - Modification Properties
 - Notification Properties
 - Parser Extension Properties
 - Promotion Properties
 - Scheduler
 - Service Discovery
 - UDOC
 - User Configurations
 - Validation Properties
- Web UI Configuration
 - Collection Views
 - Detail Views
 - Home Pages
 - Navigation Traces
 - Perspectives
 - AdministratorPerspectiveDefinition
 - UserPerspectiveDefinition
 - Resource URIs
 - View Queries
 - DefaultViewQueryDefinition

WSRR Locations

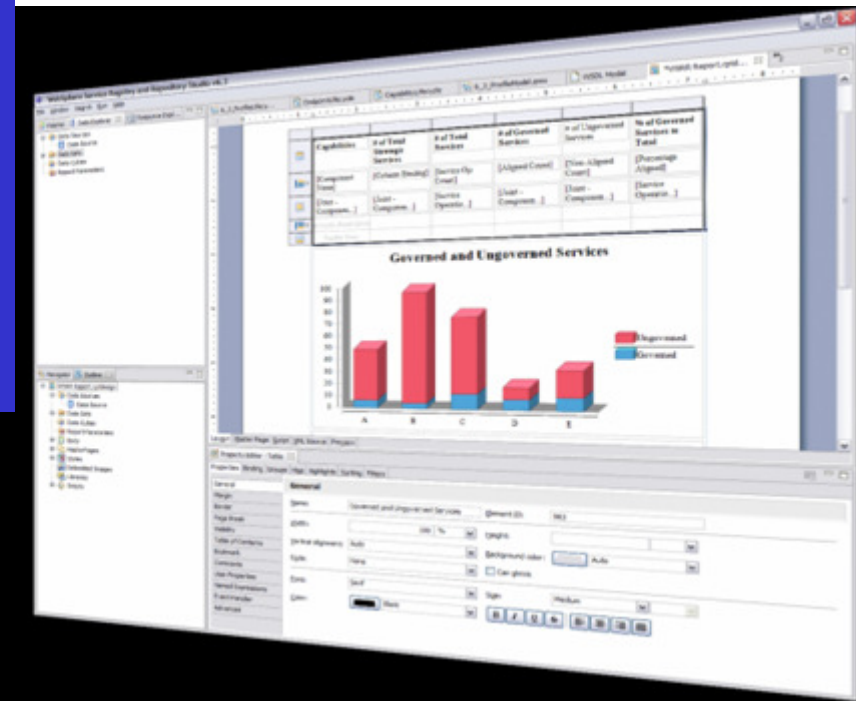
Name	Host	Description	Admin Enabled
WSRR Governance	96.165.124.1	WSRR Governance Instance	true
WSRR Staging	96.165.208.39	WSRR Staging Instance	false
WSRR Production	96.165.23.1	WSRR Production Instance	false

Visually tailor your
Service Lifecycle
governance
configuration

- Wizards facilitate
the generation of
business models,
classification
systems, and
lifecycles.

WSRR Studio can also be used to...

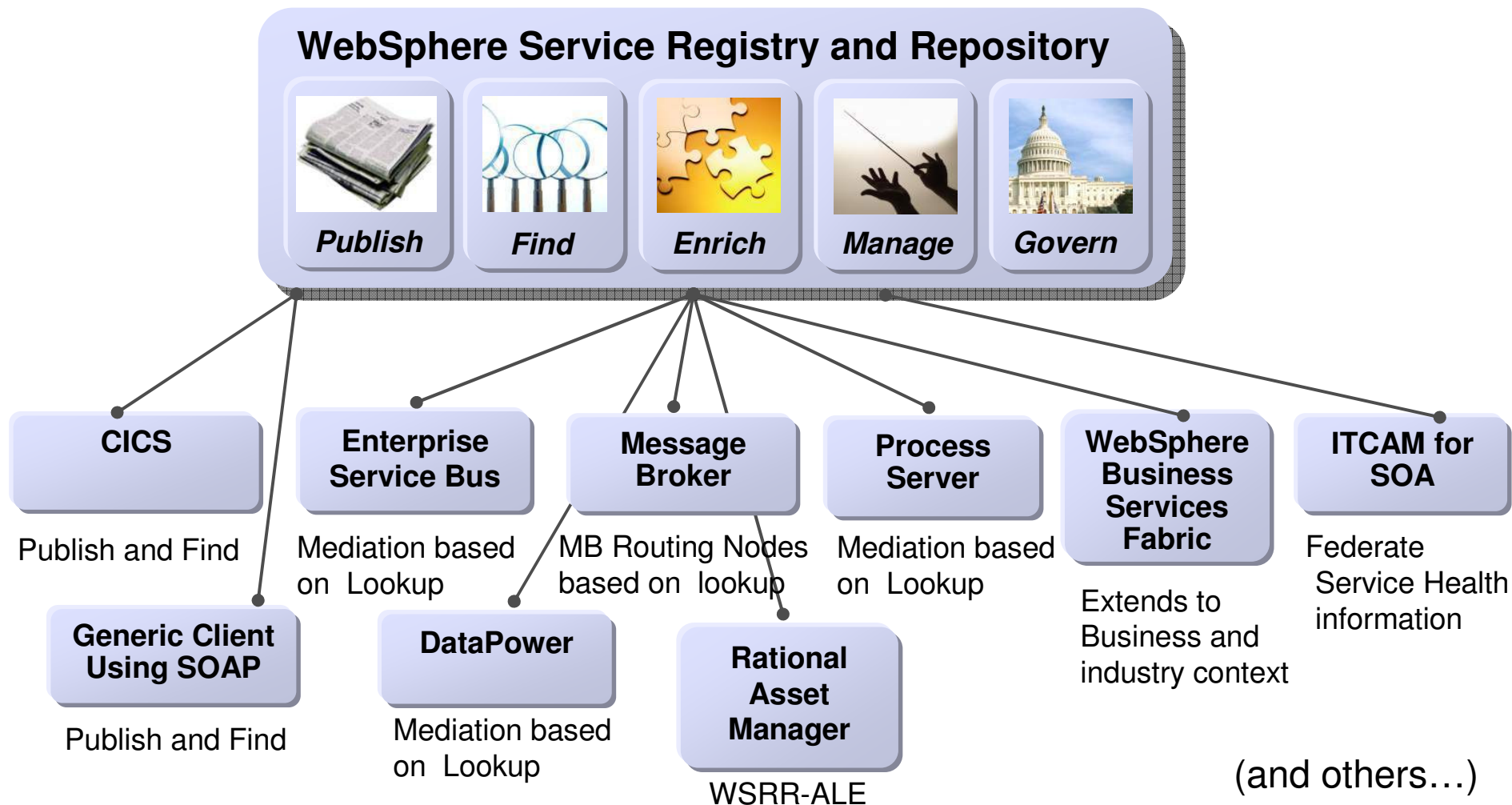
- Create reports
 - Queries can be run within WSRR and Business Intelligence and Reporting Tools (BIRT) can be used to generate detailed reporting charts in a number of formats, including HTML, PDF and Excel.
- Manage WSRR content
 - You can publish and retrieve service documents.



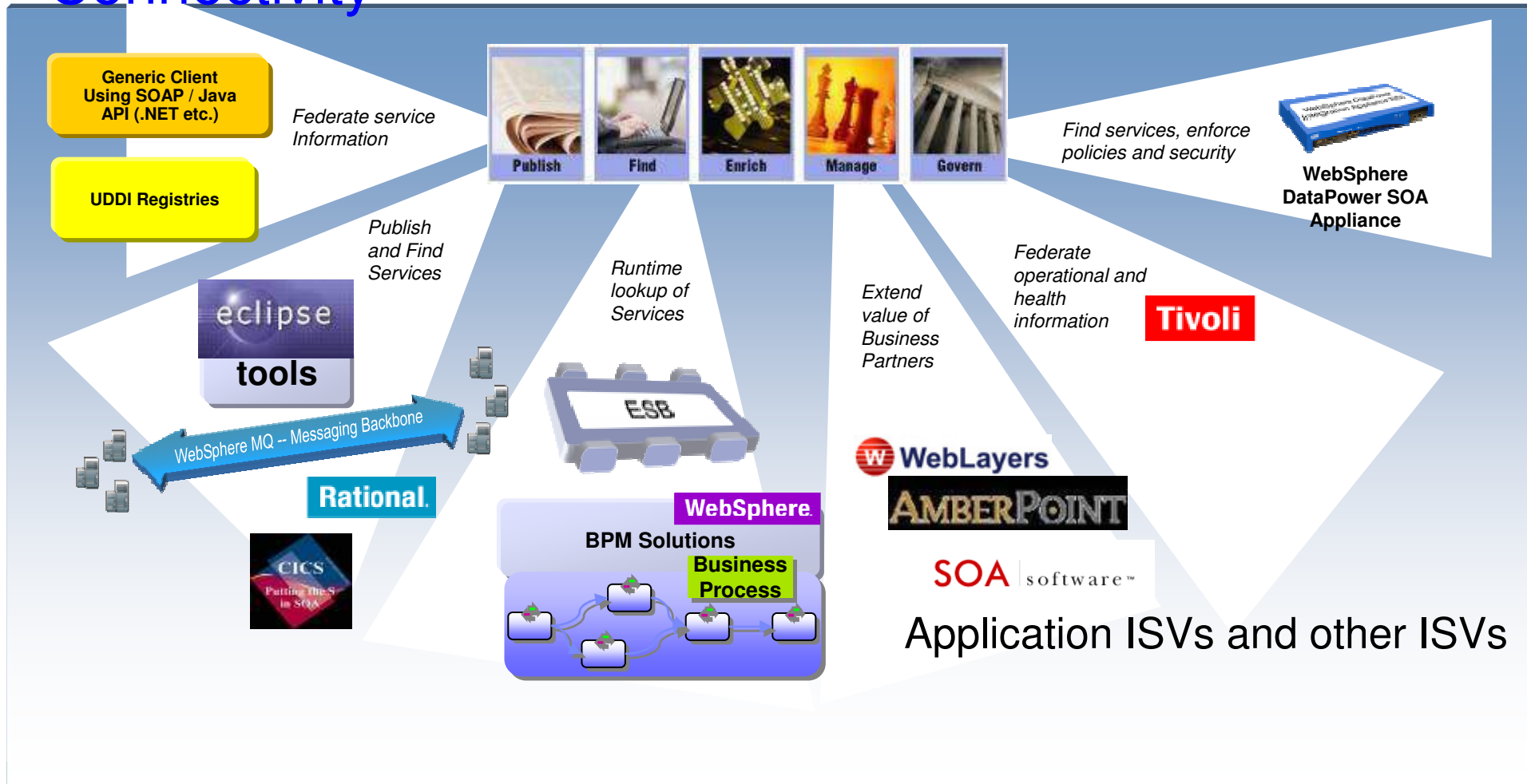
Run-time integration and control



Integration with other IBM SOA products



WSRR provides integration and interoperability across ESBs, BPM & Connectivity



ESB Integration



WebSphere Service Registry and Repository



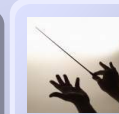
Publish



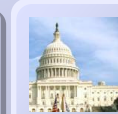
Find



Enrich



Manage



Govern

Dynamic Endpoint Selection

- 1) ESB mediation is invoked
- 2) Mediation queries WSRR for information about the requestor and candidate provider
- 3) Mediation matches requestor with best candidate provider
- 4) Message is routed

Availability Management

- 1) Selected provider fails to respond due to failure
- 2) Mediation queries WSRR to find other candidate providers
- 3) Mediation matches requestor with best candidate provider
- 4) Message is routed

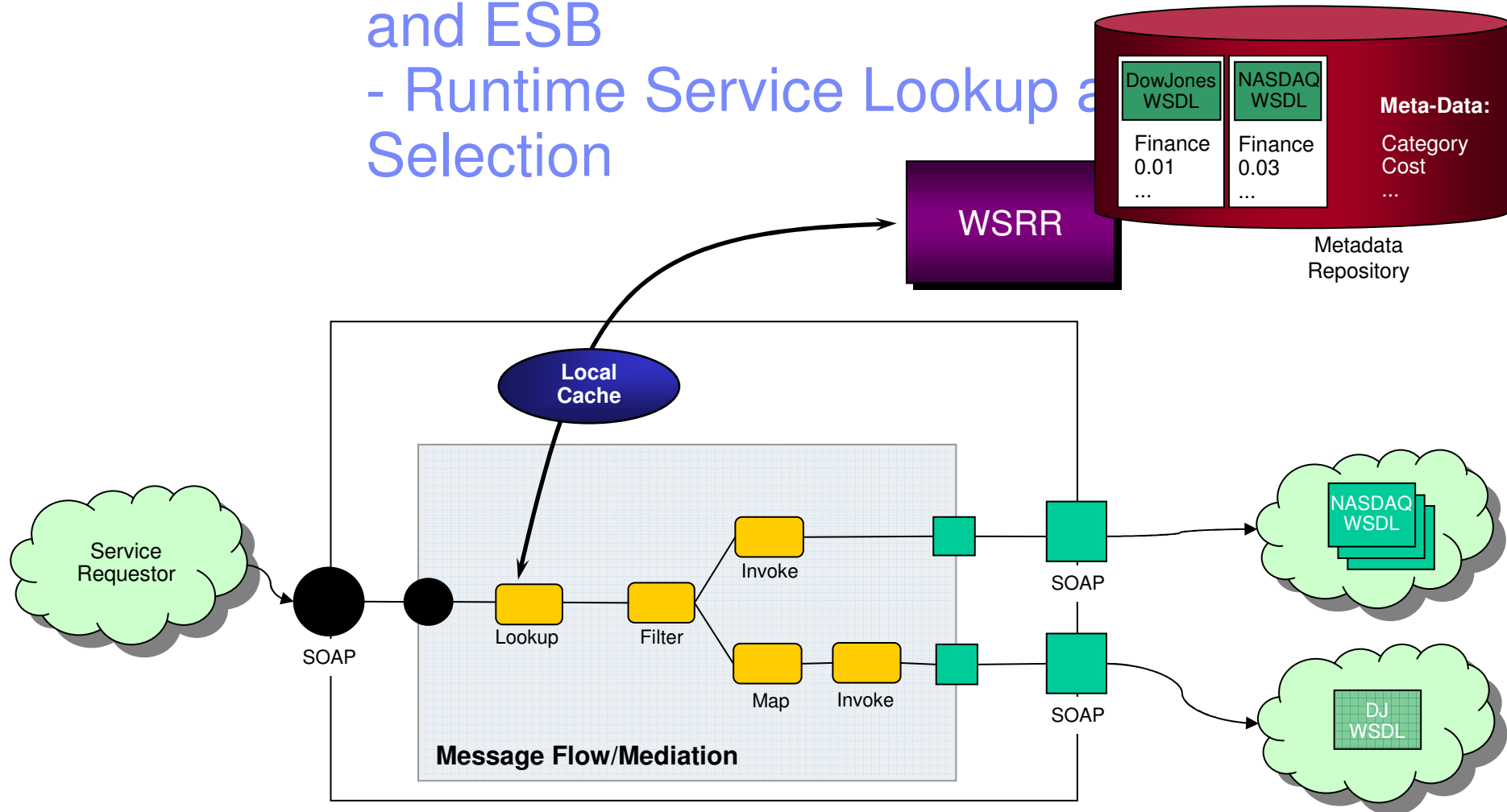
Policy Enforcement

- 1) Mediation queries WSRR for information about the requestor and candidate provider
- 2) Mediation retrieves policy information from registry
- 3) Requestor and provider are matched based on these policies
- 4) Message is routed

Version Control, Change Management, Maintenance

Integration with Message Broker and ESB

- Runtime Service Lookup and Selection



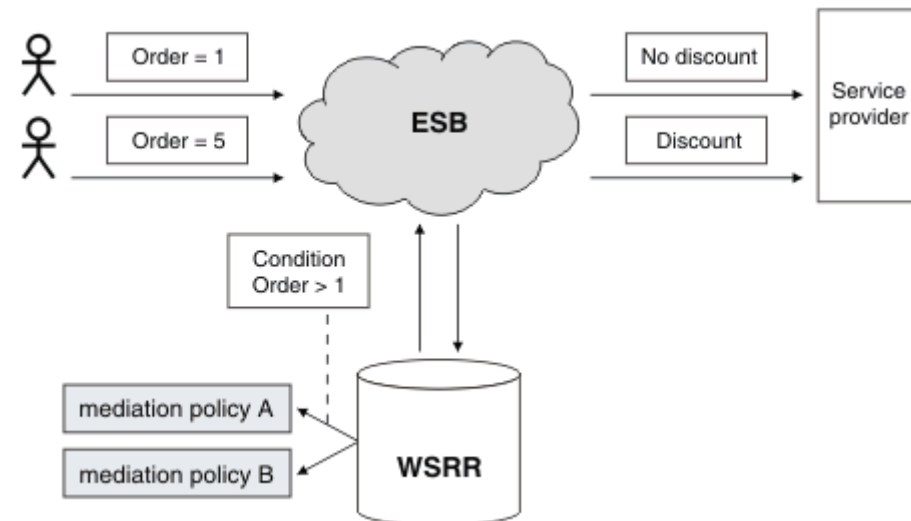
WebSphere Enterprise Service Bus

Endpoint Lookup

- Supports:
 - WSDL defined services
 - SCA modules
 - SOAP/JMS and SOAP/HTTP
 - MQ and JMS
- Range of querying/matching options

Mediation Policies

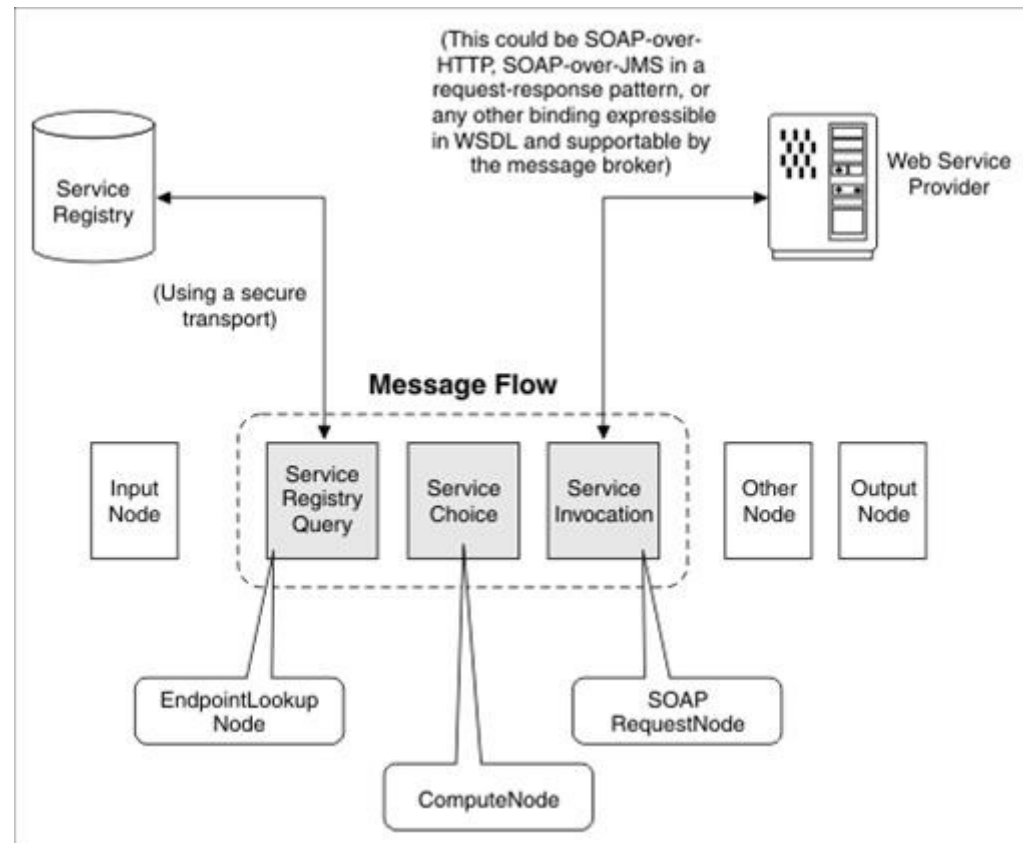
- Promoted properties can be overridden, at run time, using mediation policies in the registry.



WebSphere Message Broker

The **EndpointLookup** node can retrieve a service endpoint for a WSDL service from WSRR.

The **RegistryLookup** node can retrieve any artifact stored in WSRR, for example, WSDL, XSD, XSLT, WS-policy documents.



DataPower Integration Options

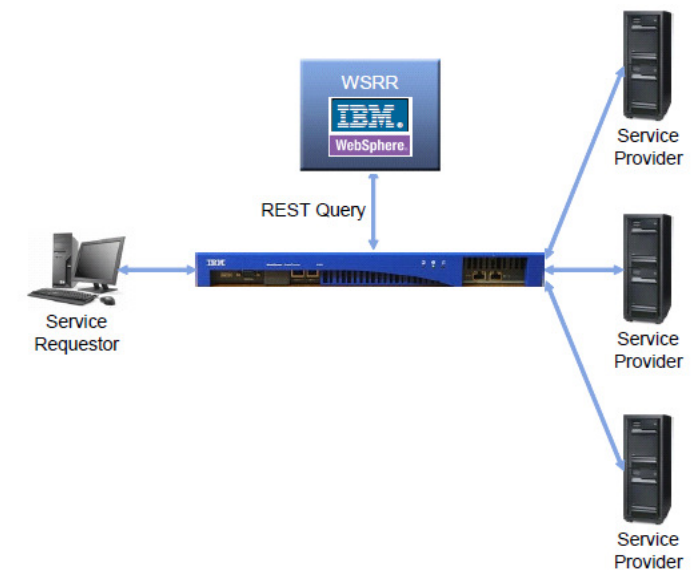
1. WSRR Subscription

- Subscribe to a concept or a WSDL
- Retrieves WSDL or WS-Policy
- Polling is asynchronous with service requests

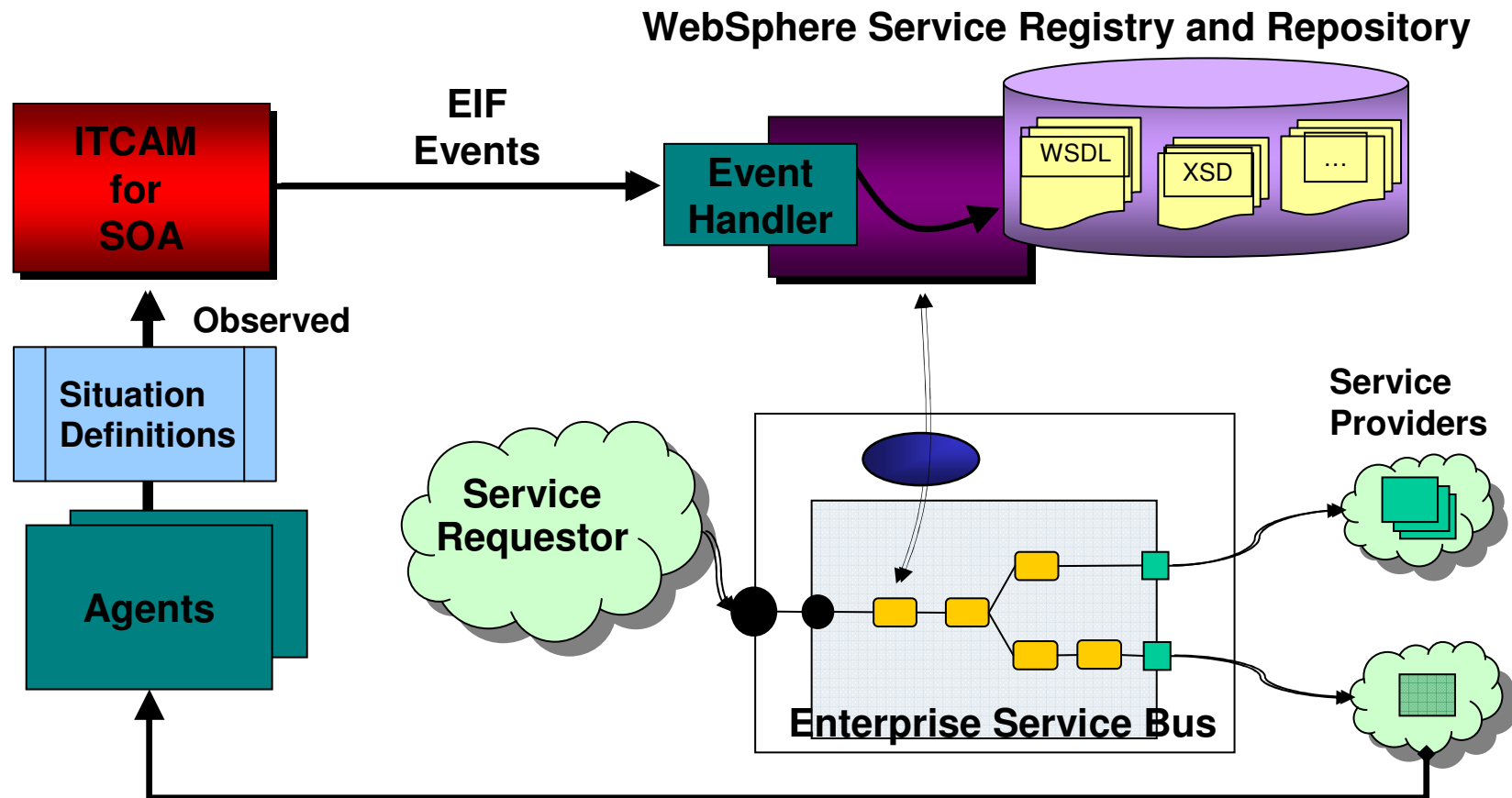


2. Representational state transfer (REST) query

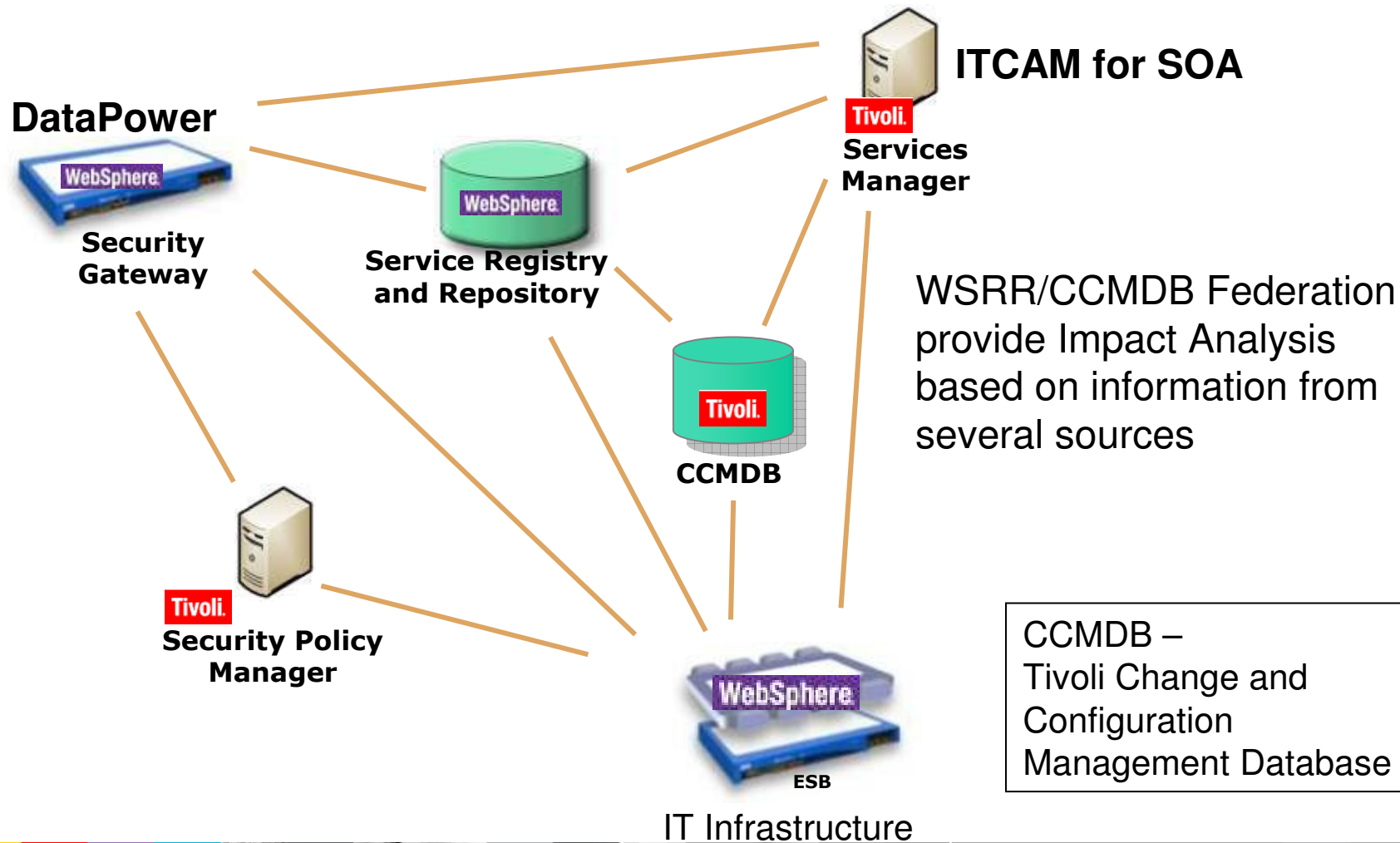
- Query any WSRR content using a REST action
- Further query using XPath
- Results are cached



Integration with ITCAM for SOA



Federation with CCMDB and other Tivoli products



Service Federation Management - service visibility and reuse across the enterprise

Integrated solution across WSRR (console UI and registry) and the ESB family to enable service reuse across enterprise domains.

Provides a unifying view of federation relevant content

Web 2.0-based protocol to access the service connectivity and registry components supporting a domain

Easy configuration of **best practice patterns** for service sharing

WSRR, WESB and WMB are Service Connectivity Management Protocol (SCMP) Enabled

The image displays two screenshots of the WebSphere Service Federation Management console. The top screenshot shows the 'Domain Editor - Warehouse' configuration page. It includes a 'Details' section with the following information:

Domain Details	
Domain Name	Warehouse
Description	Warehouse domain
Location	Coventry
Organization	Department Warehouse
Contact	Dan Persona
Federation	federation1

Below this, there is a 'Registry' section:

Registry URL	http://localhost:8080/registry/Warehouse_reg
Name	Warehouse_reg
Description	Registry for Warehouse
Location	Coventry
Organization	Department Warehouse
Contact	Dan Persona

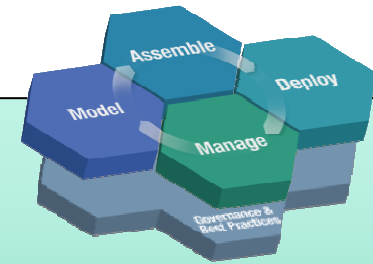
And finally, an 'ESB' section:

ESB Node URL	http://localhost:8080/esh-node/Warehouse_esb
Name	Warehouse_esb
Description	ESB node for Warehouse
Location	Coventry

The bottom screenshot shows the 'Federations Management' console. It features a diagram with four domain icons: eBusiness, Warehouse, CRM, and Portal. The Portal icon is highlighted with a dashed orange box. To the right, the 'Domain Editor - eBusiness' configuration page is visible, showing a 'Services and Groups' section with a list of services and their properties:

Service Name	Access	Location	Other
Retail_retailServices (1)	Public	Local	
eBusinessServices (1)	Shared	Local	
Retail_p_Warehouse_g_warehouse (1)	Public	Foreign	
Retail_p_CRM_g_accountService (1)	Public	Foreign	
Retail_retailServices (1)	Private	Foreign	
Ungrouped (0)			

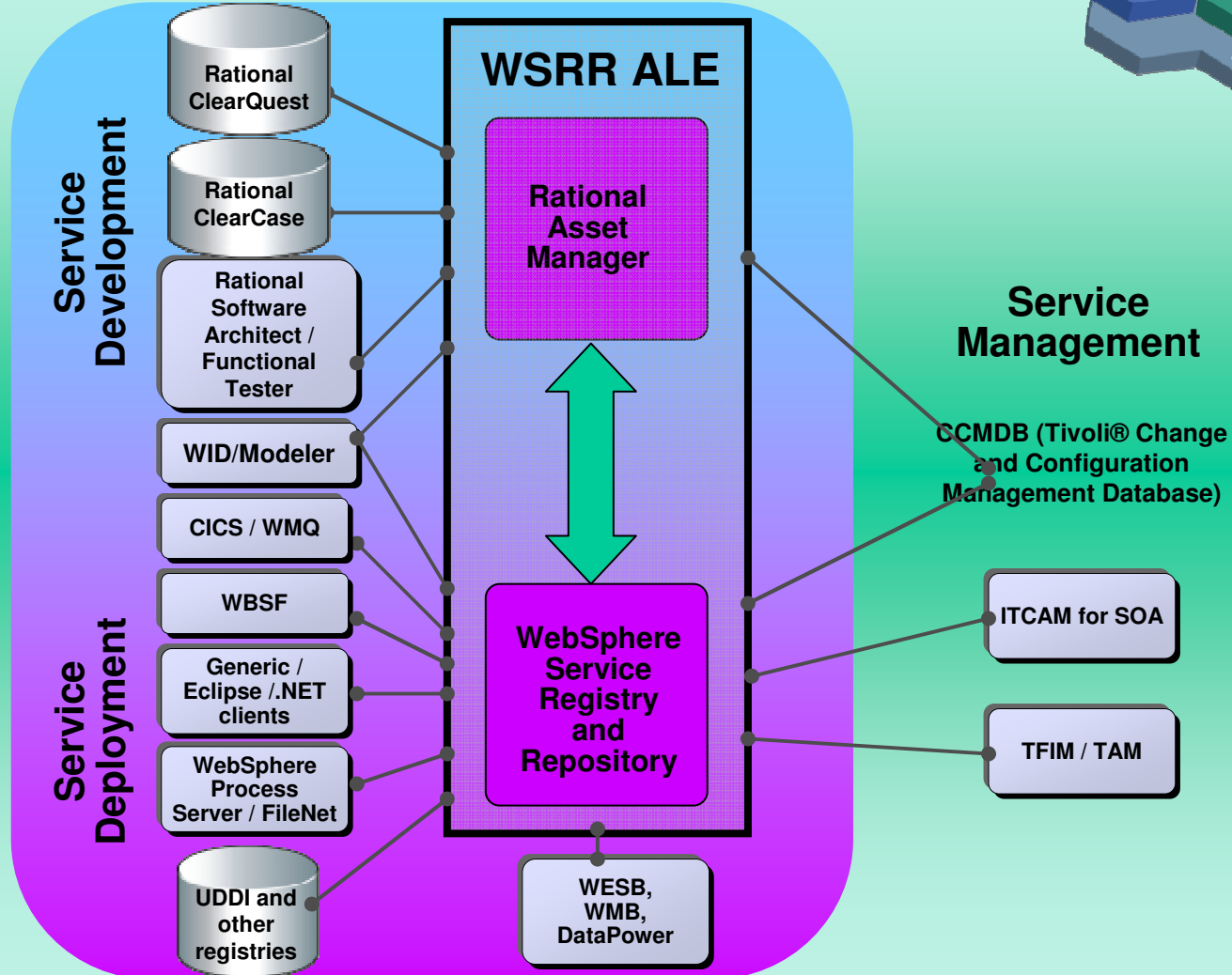
WebSphere Service Registry and Repository – Advanced Lifecycle Edition



SOA Service Lifecycle Management

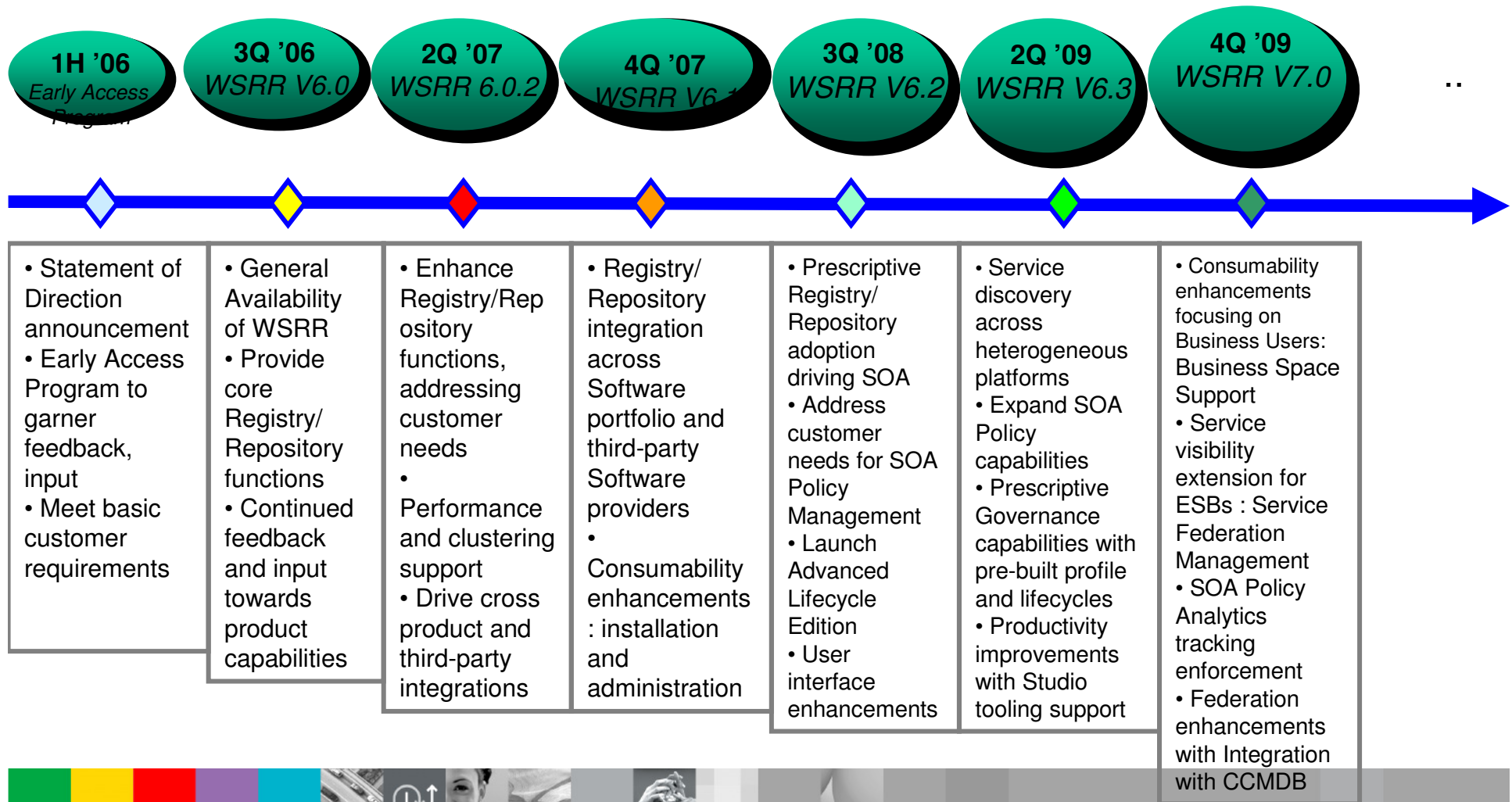


Integrate with your SOA design and runtime systems including other existing repositories



Additional Material and Wrap-Up

WSRR product strategy reflects growing importance of Service Registry/Repository in Runtime Policy Management, bolstering Service Governance



WebSphere Service Registry & Repository: Proven Value

WSRR deployment on average results in:

30% increase in software reuse

25% reduction in integration costs

40-60% improvement in application maintenance productivity.

On average, the ROI (in WSRR) ranges from 300% to 700% with a payback period of just 9 to 13 months.

Source: Cross-industry averages based on estimates by IBM's Business Value Assessment Team. Actual results may vary by customer and industry.

<http://www-01.ibm.com/software/integration/wsrr/nonflash.html>

WSRR Ecosystem provides Business Partners taking advantage of WSRR today



- Leverage Service metadata foundation technology to provide BP supplied Customer Value
- Enhance and Extend WSRR functionality with BP application value proposition
- Reduce integration costs with readily available integration points

Design/Reporting
Policies



- Enhance profiles and templates
- Allow single policies to govern multiple versions of services
- Automate review cycle by federating policies across the service lifecycle

Federate
operational and
health
information

SOA | software™

- Ensure that services in WSRR align with plan and priority
- Provide consistent governance by extending WSRR control to non-IBM environments
- Extend WSRR with policy automation for DataPower

AMBERPOINT

- Discovers rogue service to be governed
- Publishes metrics about the managed services
- Publishes WS-Policy to be governed

Reference materials

Web Site

<http://www-01.ibm.com/software/integration/wsrr/>

InfoCenter

<http://publib.boulder.ibm.com/infocenter/sr/v7r0/index.jsp>

developerWorks®

<http://www.ibm.com/developerworks/websphere/products/>

Redbooks and Redpapers

- <http://www.redbooks.ibm.com/abstracts/sg247386.html> - original WSRR Redbook
- <http://www.redbooks.ibm.com/abstracts/redp4366.html> - DataPower integration (polling)
- <http://www.redbooks.ibm.com/redpieces/abstracts/redp4559.html> - DataPower integration (REST)
- <http://www.redbooks.ibm.com/redpieces/abstracts/redp4557.html> - Process server and ESB integration
- <http://www.redbooks.ibm.com/redpieces/abstracts/redp4558.html> - WMQ and WMB integration
- <http://www.redbooks.ibm.com/redpieces/abstracts/sg247793.html> - WSRR v 6.3
- <http://www.redbooks.ibm.com/abstracts/sg247782.html> - WSRR-ALE v 6.3
- <http://www.redbooks.ibm.com/redpieces/abstracts/redp4561.html> - Tivoli Security Policy Manager integration

Without proper management and governance of SOA...

This could become...



The promise of SOA

... like this

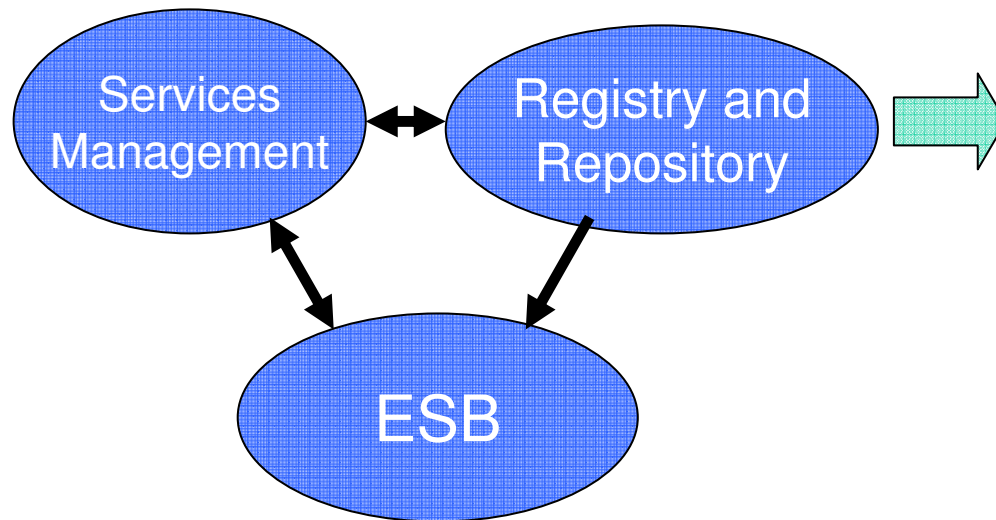


A pile of services

... and so would go the promised benefits of SOA

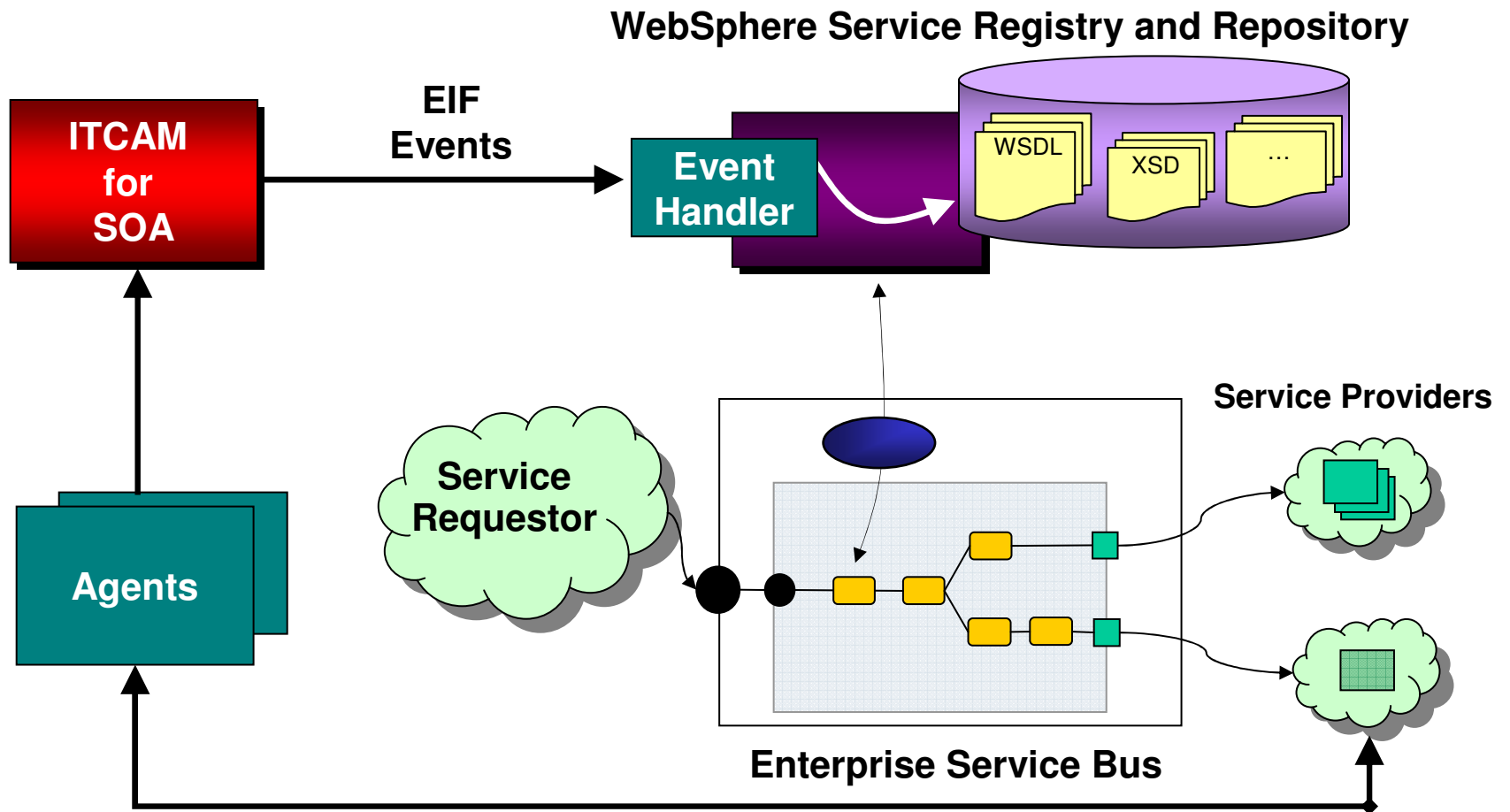


Building a basic SOA Infrastructure



1. Master reference for service definitions
2. Service governance
3. Run-time integration and control

The foundation of an SOA Infrastructure





Thank You

We appreciate your feedback.
Please fill out the survey form in order
to improve this educational event.