



Discover, reuse and govern your mainframe services using  
**IBM WebSphere Service Registry and Repository on System Z**

**Vincent Belfoure**  
**Technical Sales Specialist**



SOA Governance is a key requirement for overall successful SOA implementations

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**You only need one service to need governance. You only need one service to destroy your business.**

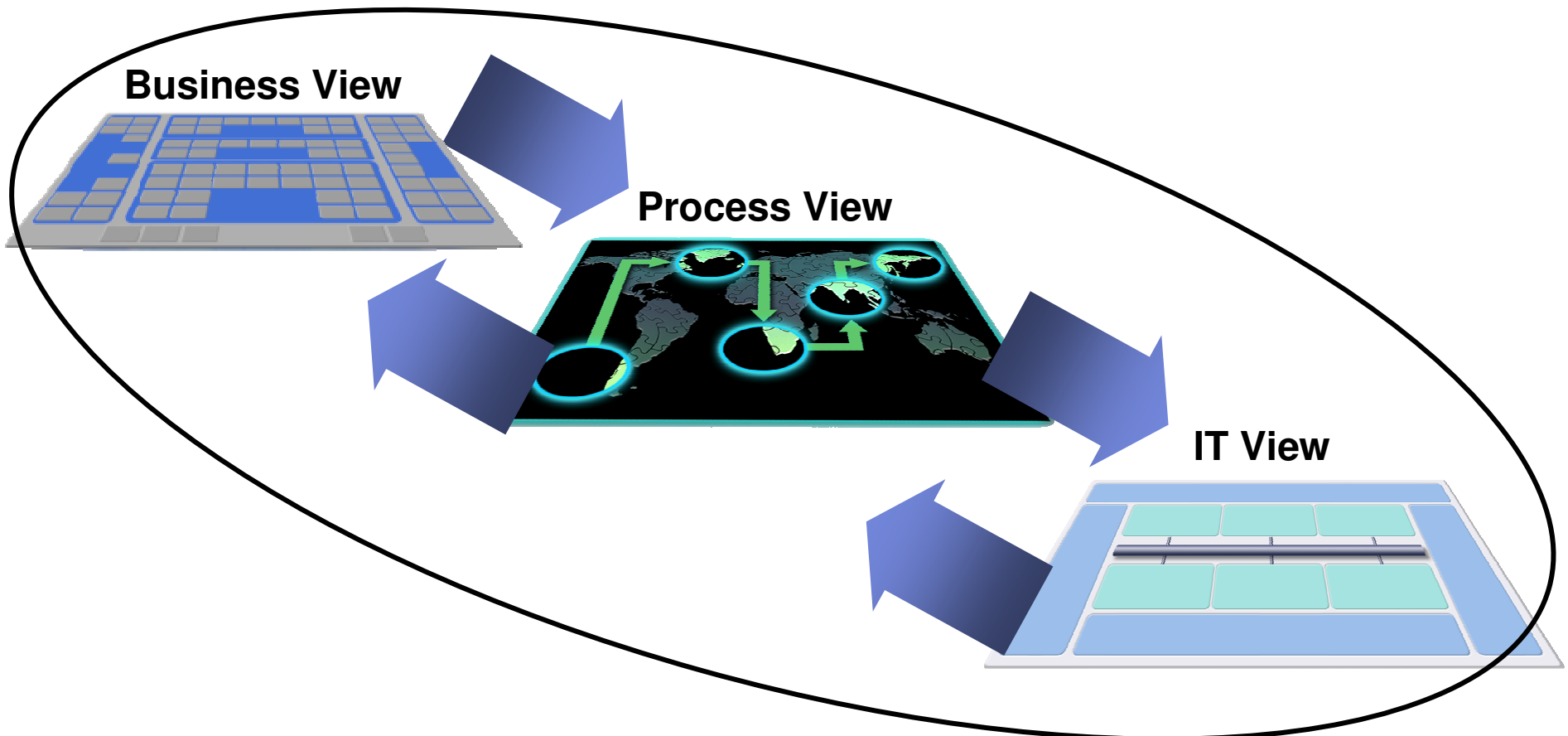
Gartner

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”

# SOA Governance and Service Lifecycle Management aligns IT and business goals for Globally Integrated Enterprises

*A holistic approach spanning business, process, and IT*



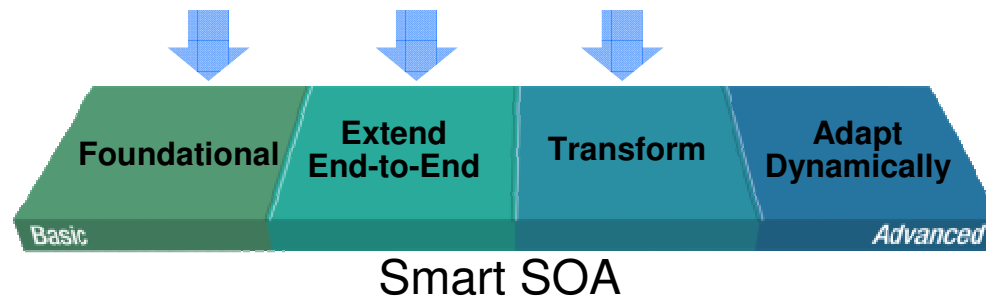
- #1 CIO priority: Aligning IT and business goals

*Source: CIO Magazine; January 2007*

## SOA Governance is critical no matter...

*Whether you are...*

*...here or here or here*



Critical for maximizing SOA success and value on the path toward becoming a Globally Integrated Enterprise

## Questions customers are asking about governing SOA

**How do I eliminate “rogue services” and ensure control of my SOA?**

**How do I govern services as part of my SOA?**

**How do I manage the services lifecycle?**

**How do I increase service reuse?**

**How do I enable enforcement of policies across all internal and external services?**

**How can I help my ESB execute in the right context?**

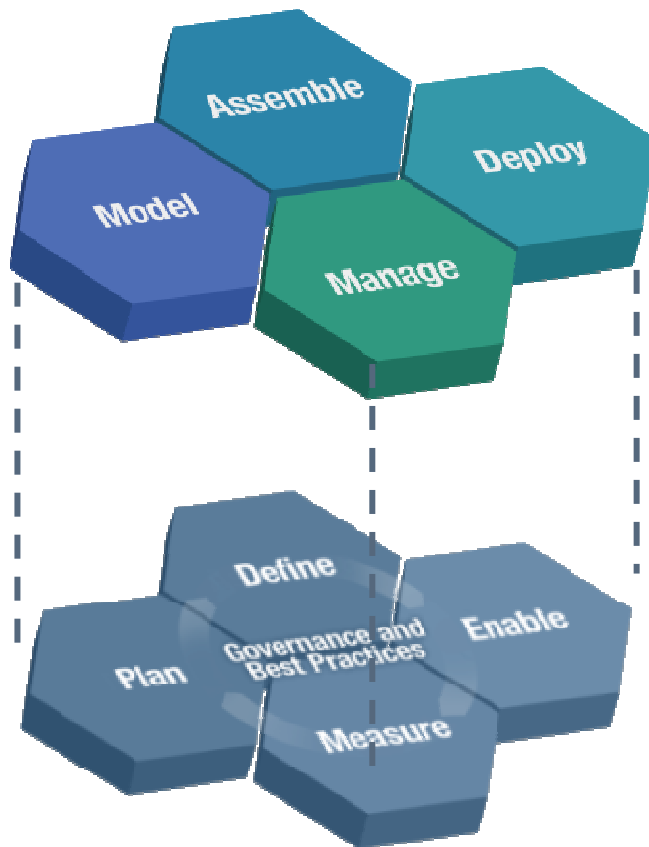
**How do I help services interact efficiently and dynamically with each other?**

**How do I optimize service interactions to be better aligned with business process?**



## SOA Governance defined

*Effective management of the Service Lifecycle*



### ***What is IT governance?***

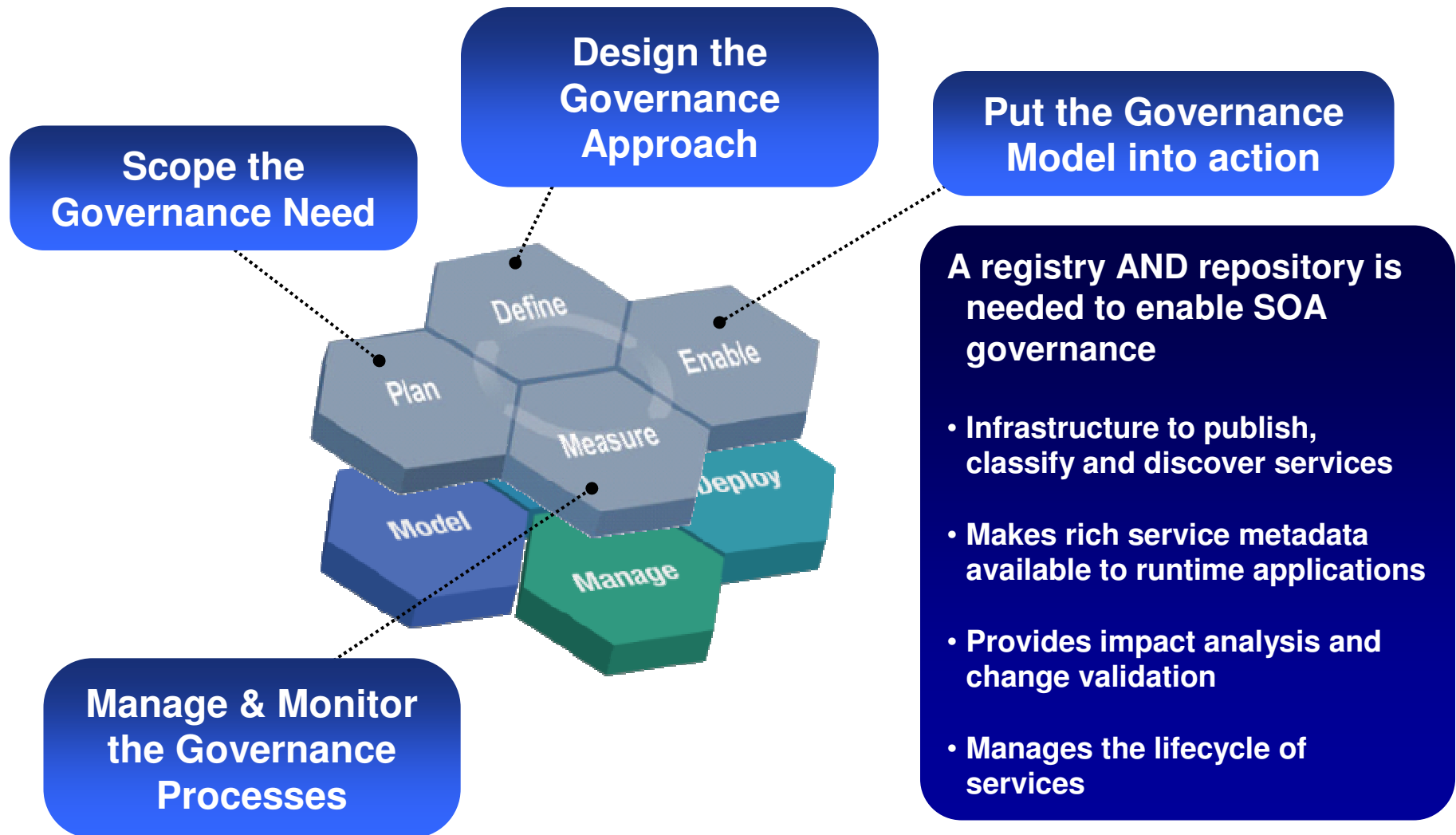
Establishing decision making rights associated with IT

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

### ***What is SOA governance?***

Extension of IT governance focused on managing the lifecycle of services

## SOA needs a registry and repository to enable governance



# What is a registry ... a repository?



## Registry?

**Contains information about services such as...**

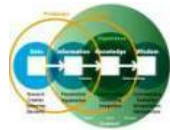
- Service interfaces
- Descriptions
- Parameters



## Repository?

**Stores information about the nature of service usage**

*An integrated Registry / Repository Solution is needed govern and manage SOA for maximum value*



**Business process vitality**



**New value through reuse of assets**



**Improved connectivity**



**Closer alignment of IT to business**



**Business Flexibility**

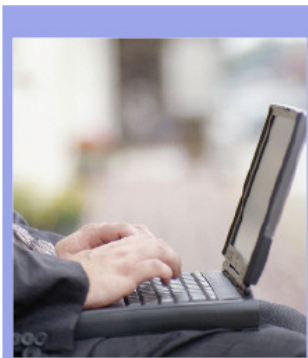


# IBM WebSphere Service Registry and Repository

*Maximize the business value of your SOA*



**Publish**



**Find**



**Enrich**



**Manage**

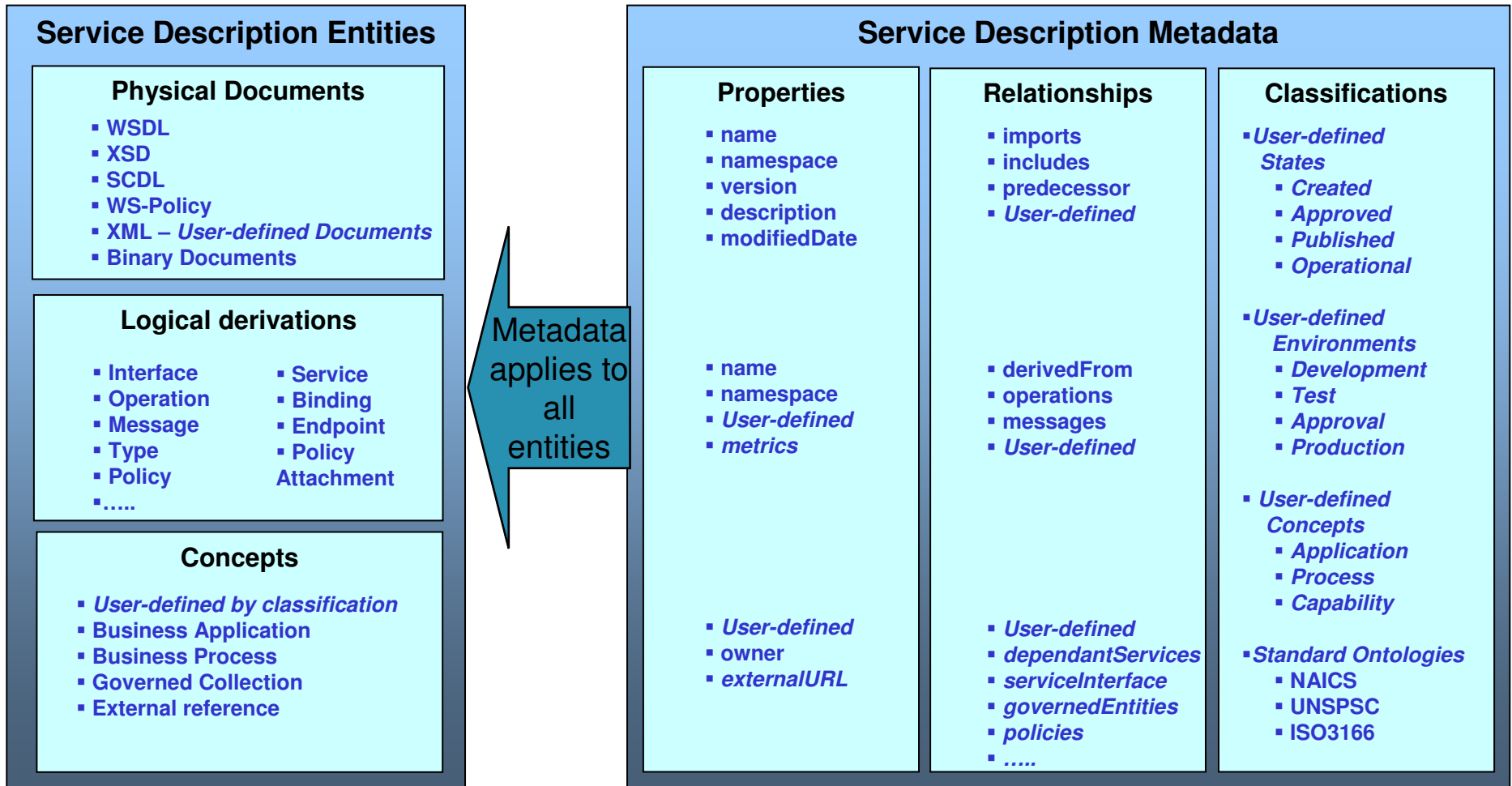


**Govern**

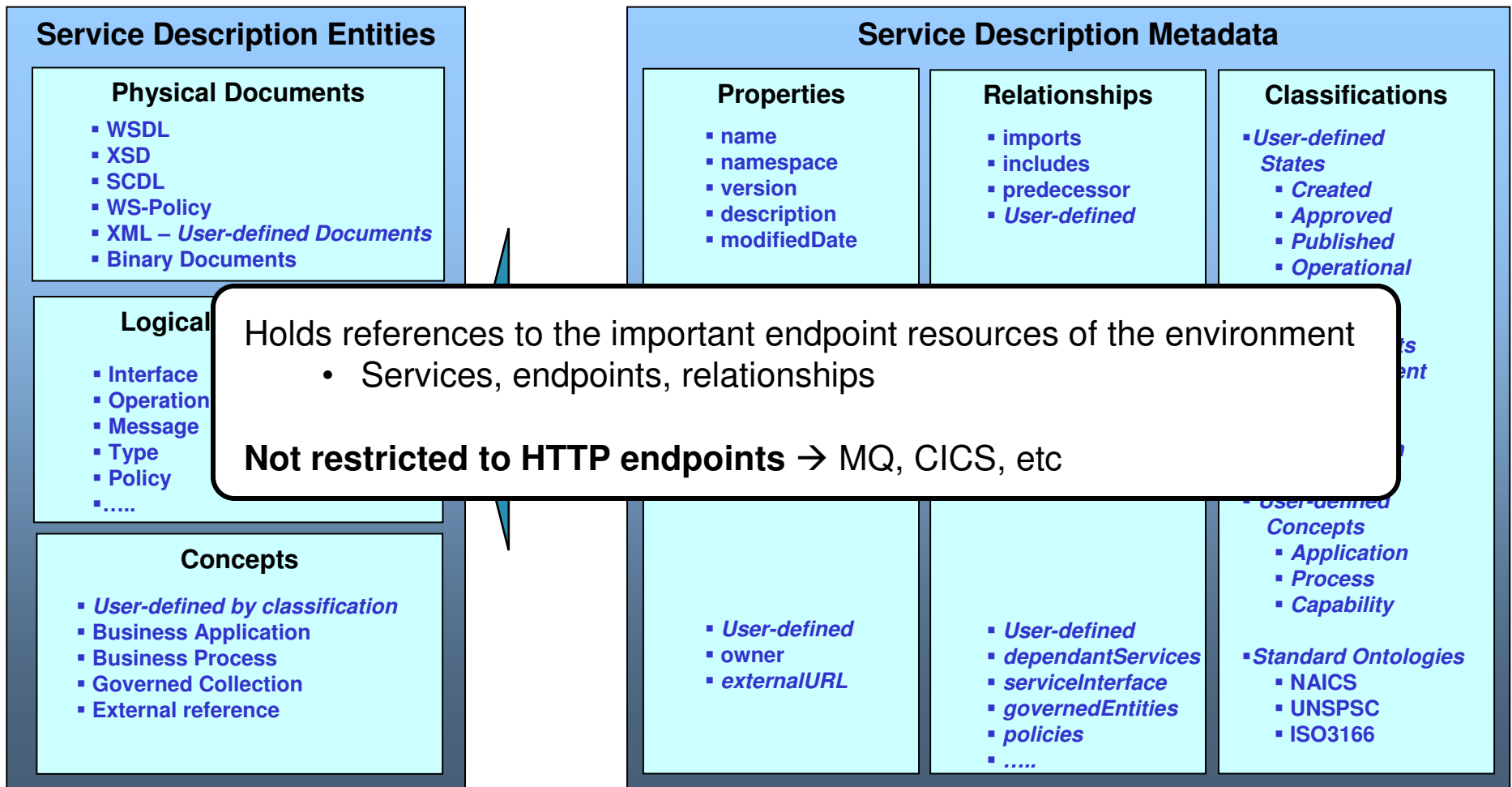
## IBM WebSphere Service Registry and Repository 6.1

An essential component of your SOA

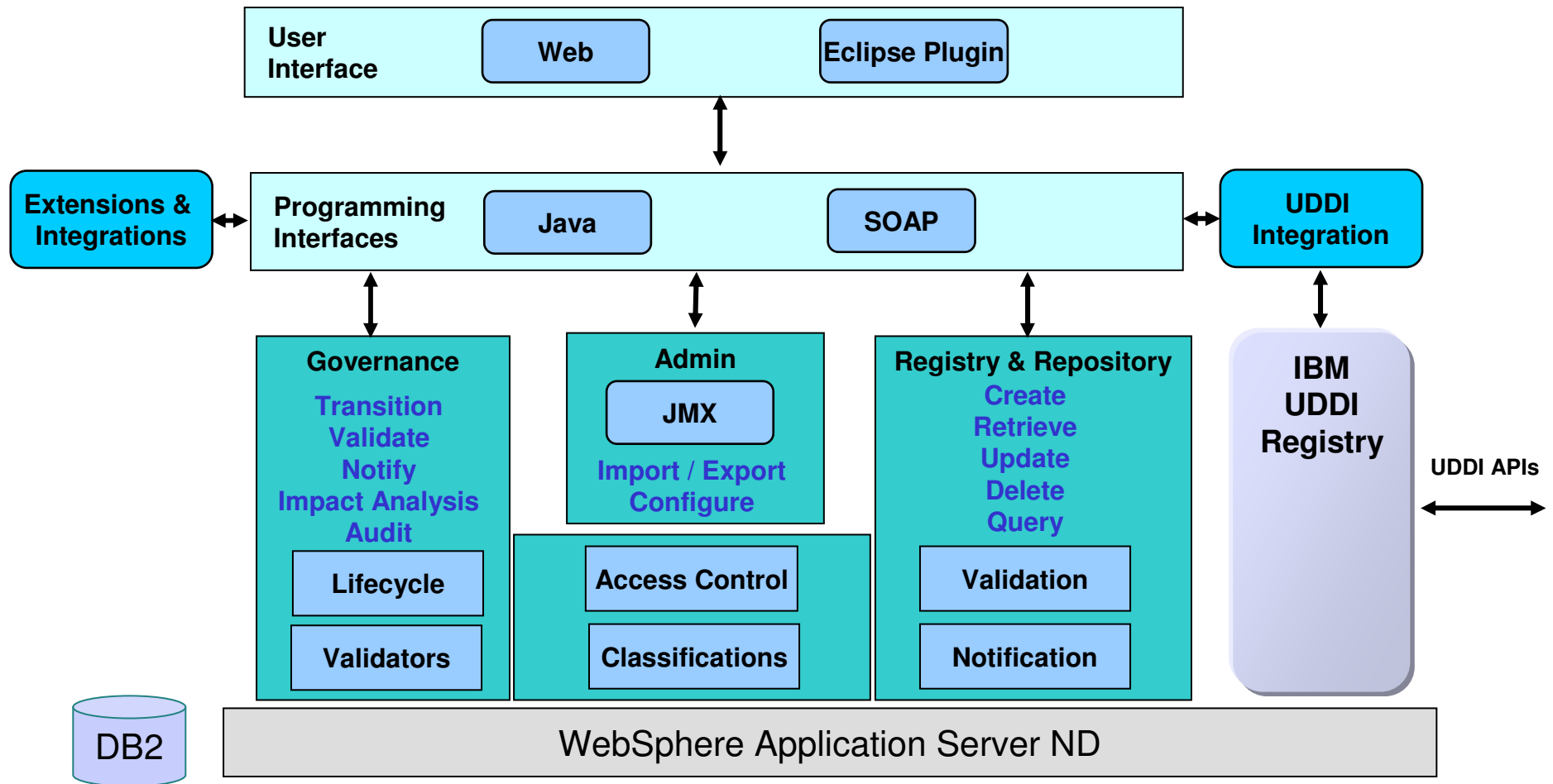
# WebSphere Service Registry and Repository Content



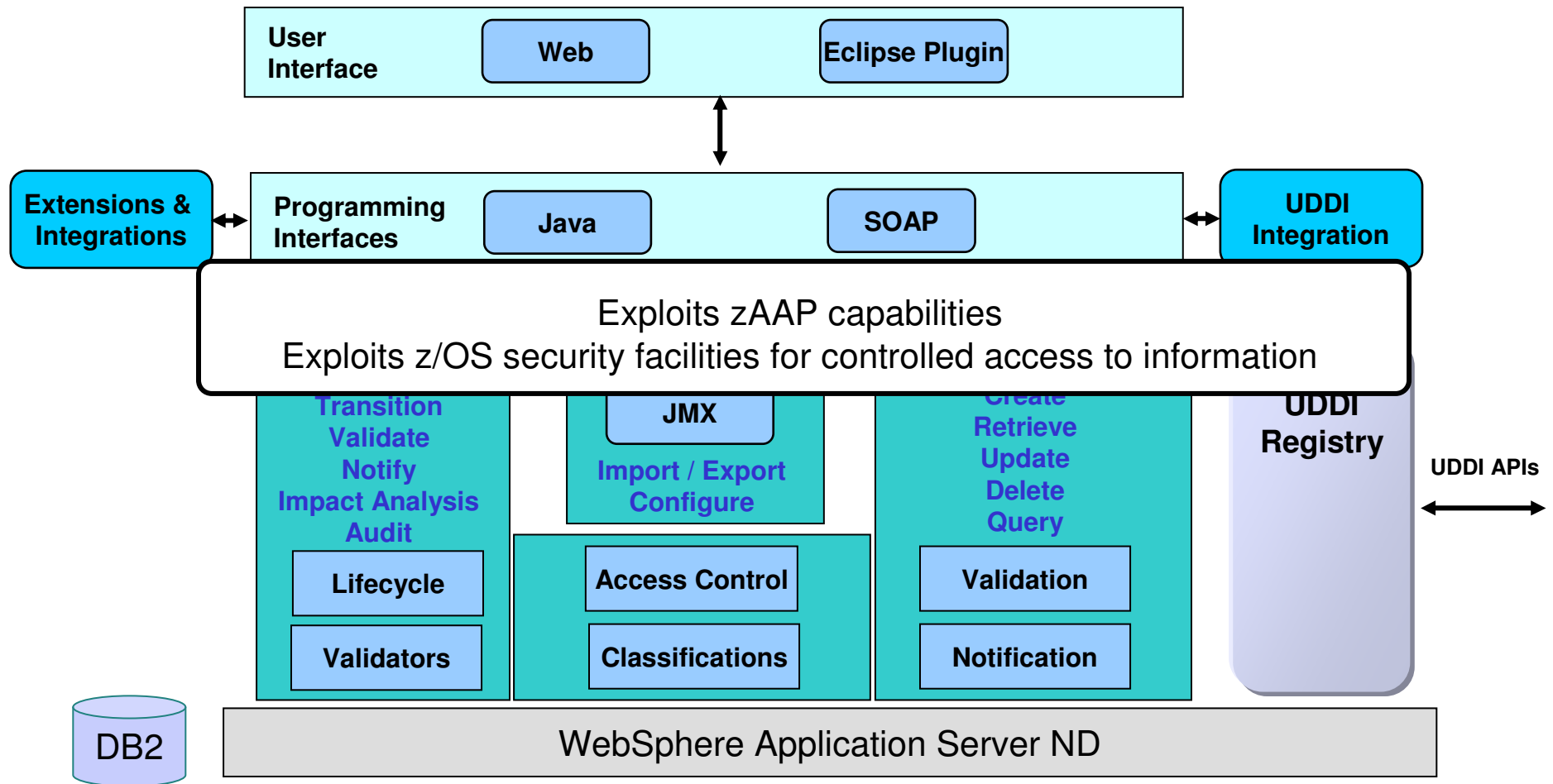
# WebSphere Service Registry and Repository Content



# WebSphere Service Registry and Repository Architecture

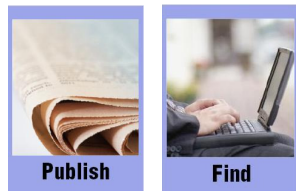


# WebSphere Service Registry and Repository Architecture

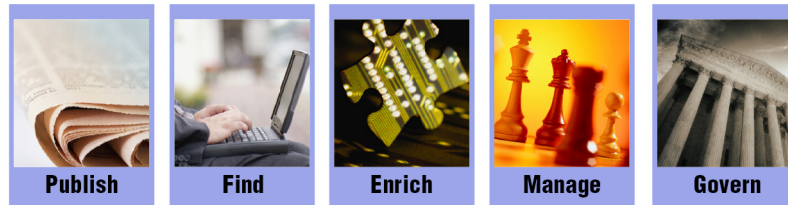


# WebSphere Service Registry and Repository

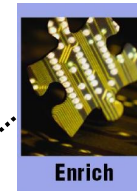
*Provides value throughout the service lifecycle*



**Promote Reuse**  
Find and reuse services for building new processes and applications.



IBM WebSphere Service Registry and Repository 6.1



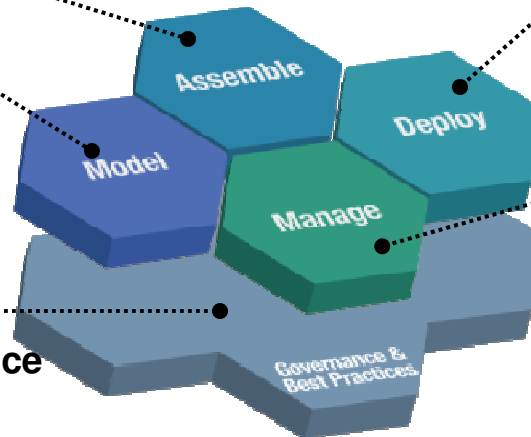
**Enhance Connectivity**  
Enable dynamic and efficient integration of services. Enable enforcement of policies.



**Optimize Service Usage**  
Impact analysis. Change notification. Version management. Socialize health and performance information.



**Enable Governance**  
Govern services throughout the service lifecycle. Reconcile governed services with deployed services.



## Promote Reuse – Customer Pain Points

*Build a catalog of trusted, high quality services*

### Customers are asking, how to?

- Organize and describe services in our SOA?
- Keep projects within budget and on time?
- Avoid duplication and reducing cost?
- Deploy new processes quickly?
- Accelerate process improvements?



### WSRR addresses these pains

- Publish and find your services and related information in one place
- Increase visibility of services throughout your organization
- Expose redundant and inefficient services
- Federate with other standard registries and repositories to support complete lifecycle

## Promote Reuse – Publish and Find Capabilities

*Build a catalog of trusted, high quality services*



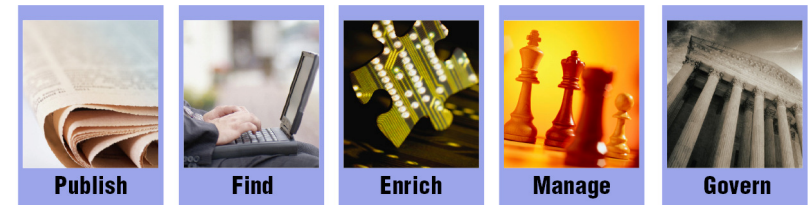
- **Multiple methods to publish service**
- **Customizable ontologies to classify services aligned with your business domain**
- **Powerful queries to find best-fit services**
- **Standards based API support to access content including REST interfaces (Web 2.0)**
- ***Service Discovery* to discover deployed services on .NET and WAS servers**
- ***Faceted Search* for a natural, user-friendly way to refine search using attributes, document types or classification**



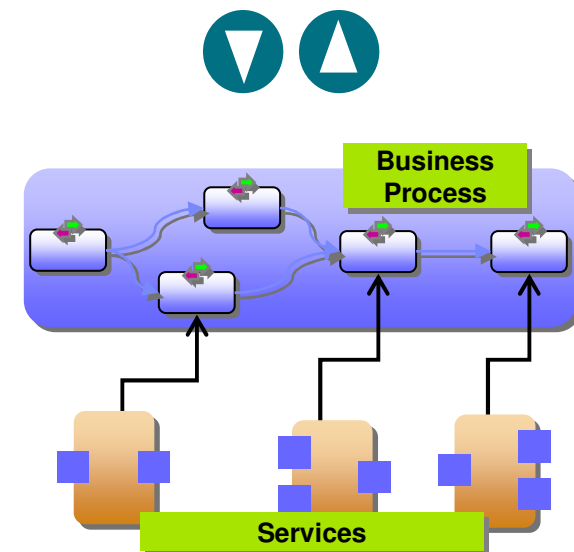
## Promote Reuse in Business Process Automation

*Quickly assemble / modify business processes*

- **Publish new processes as services**
- **Assemble and reconfigure processes rapidly using existing services**
- **Modify existing services for reuse but understand the impact**
- **Share services across business process engines**



IBM WebSphere Service Registry and Repository 6.1



## Enhance Connectivity – Customer Pain Points

*Increase runtime flexibility of applications in your SOA*

### Customers are asking, how to?

- Satisfy new customer demands?
- Implement new government regulations?
- Improve customer satisfaction?
- Increase revenue potential?
- Lower operational costs?
- Increase application availability and performance?

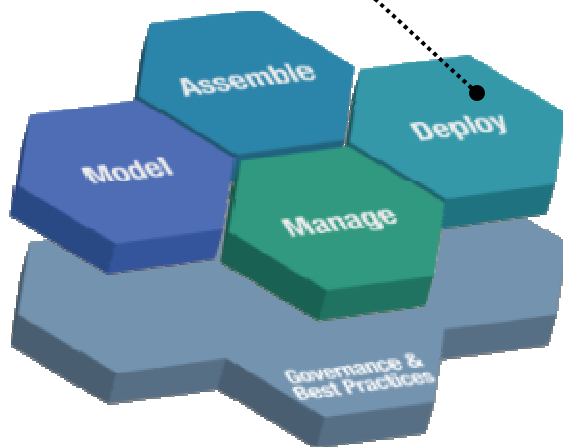


### WSRR addresses these pains

- Choose the right service at the right time
- Use up-to-date information to select services during runtime
- Build flexibility and agility with enriched service interactions
- Enforce rules that govern service usage

## Enhance Connectivity – Enrich capability

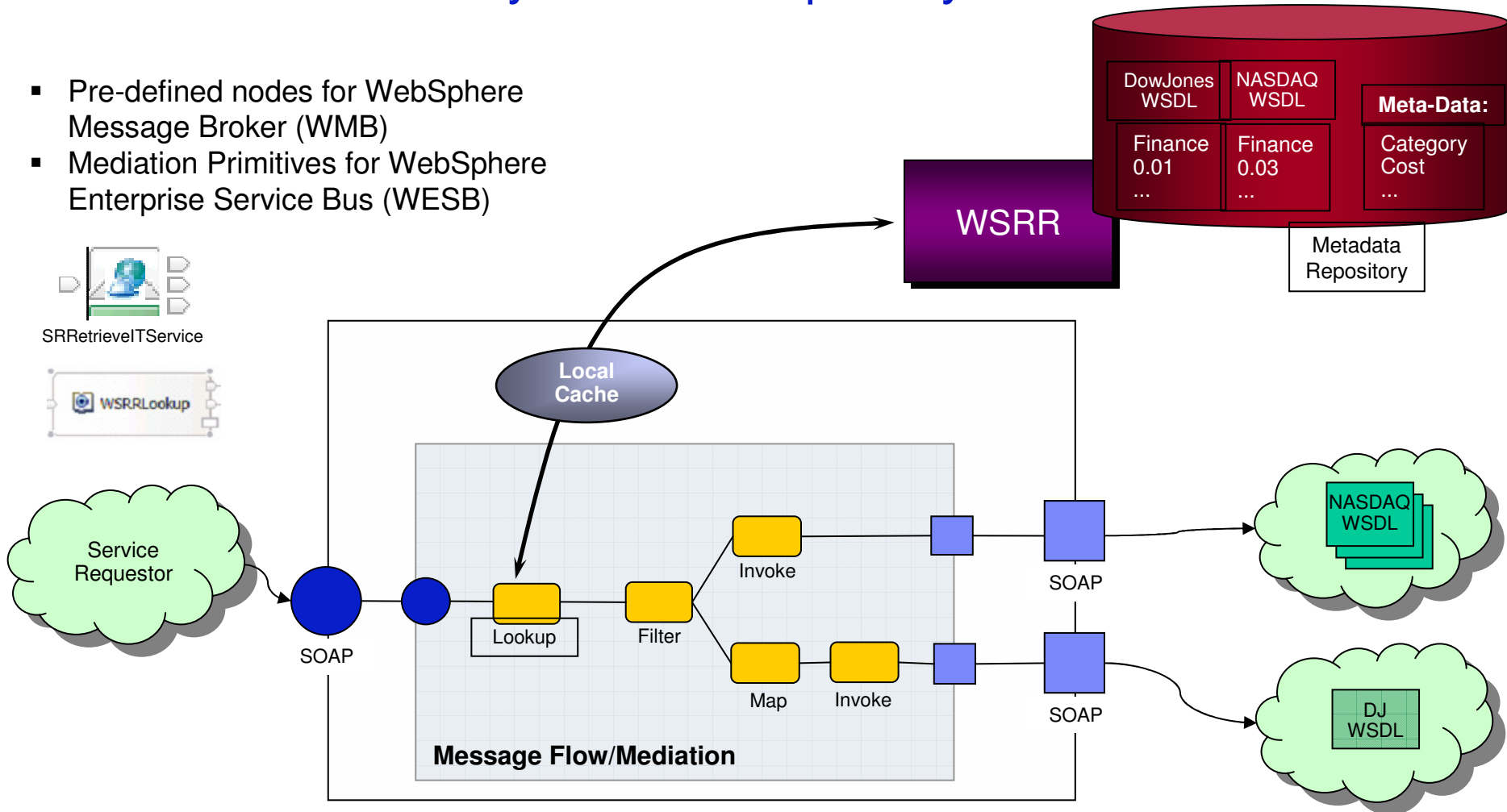
*Increase runtime flexibility of applications in your SOA*



- **Pre-built integration points allow applications to query WSRR for service endpoints during runtime**
- **WSRR also provides associated metadata for those services**
- **Applications can invoke services that best match their needs**
- **WSRR ensures the currency of service endpoints and associated meta-data**

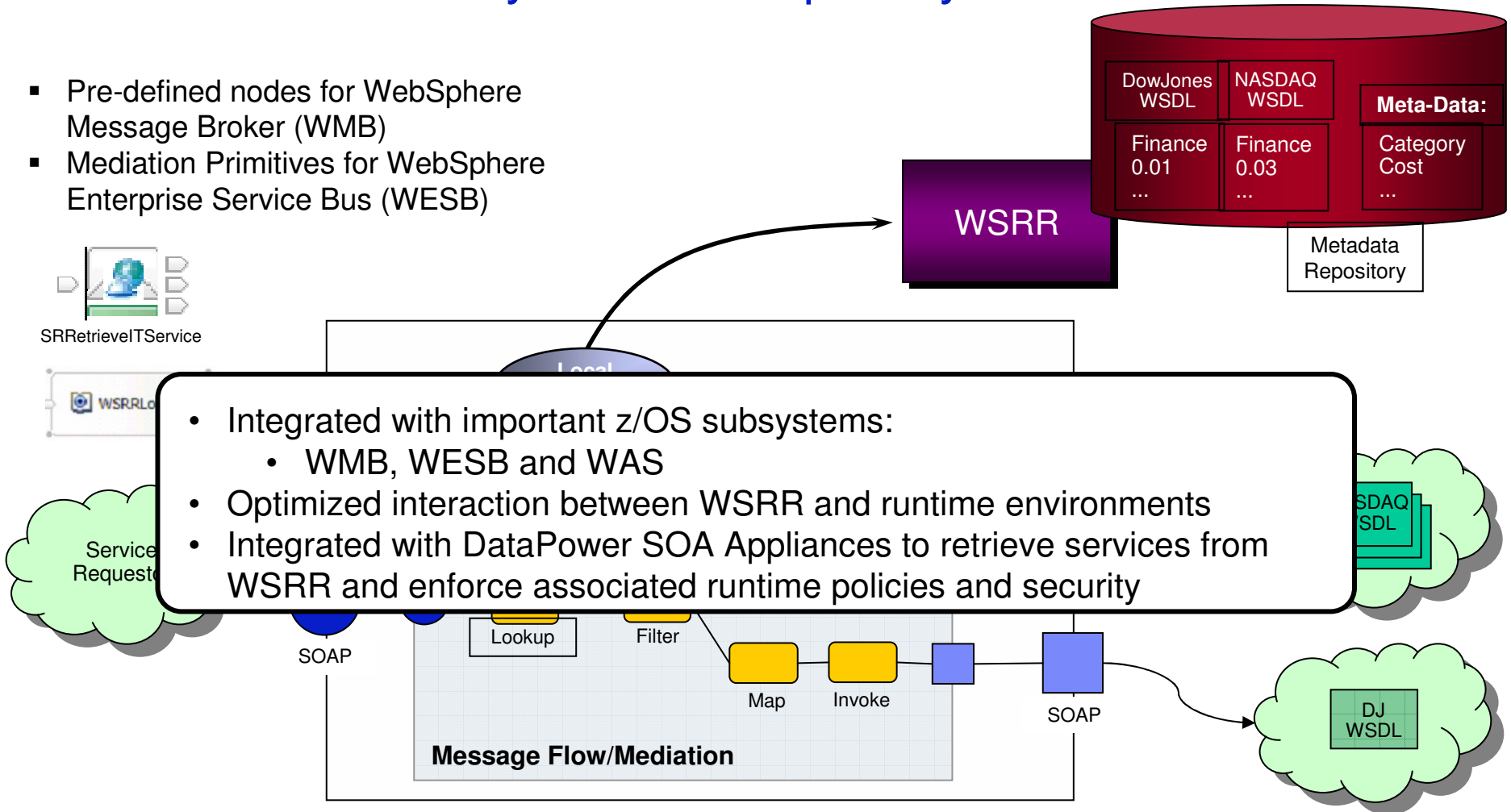
# Enhance Connectivity – Enrich capability

- Pre-defined nodes for WebSphere Message Broker (WMB)
- Mediation Primitives for WebSphere Enterprise Service Bus (WESB)



# Enhance Connectivity – Enrich capability

- Pre-defined nodes for WebSphere Message Broker (WMB)
- Mediation Primitives for WebSphere Enterprise Service Bus (WESB)



## Optimize Service Usage – Customer Pain Points

*Ensure utilization, health and performance of your SOA*

### Customers are asking, how to?

- Manage multiple versions of services?
- Associate our policies with services?
- Evaluate the impact of changes?
- Eliminate redundant / rogue services and improve utilization?
- Ensure the performance and health of our services?

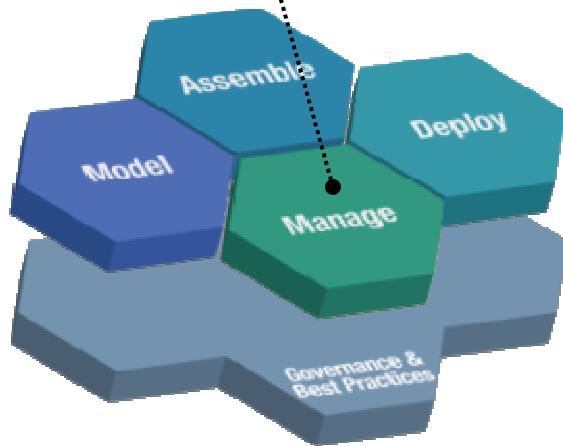


### WSRR addresses these pains

- Support versioning and changing of services and related metadata
- Assess utilization of services in your SOA
- Enable enforcement of service level agreements
- Keep tabs on the availability, performance and health of services

## Optimize Service Usage – Manage capability

*Ensure utilization, health and performance of services*



- **Impact analysis using intuitive graphical views of service relationships**
  - Change notifications sent using email / JMS
- **Management of multiple service versions**
  - Clients can dynamically select latest version
- **Support for publishing policies (supports WS-Policy) and applying to services**
- **WSRR provides rich service information to better manage your IT infrastructure**
  - Understand dependencies between applications, processes and services
- **WSRR can associate health and performance information as service metadata**

## Enable governance – Customer Pain Points

*Better control your SOA through governance*

### Customers are asking, how to?

- Implement decision rights and processes to make changes?
- Approve, promote and retire services?
- Maintain test environment separate from production?
- Govern high-value legacy applications?



### WSRR addresses these pains

- Helps implement best practices in service lifecycle management
- Provides access control and promotion support for services
- Enables governance of service-enabled WebSphere MQ, CICS and IMS applications

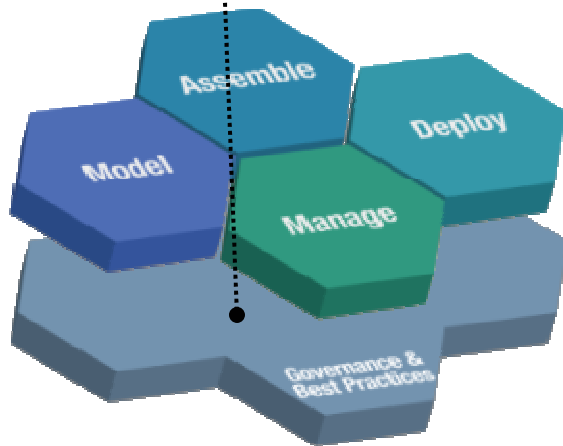


## Enable governance – Govern capability

*Better control your SOA through governance*



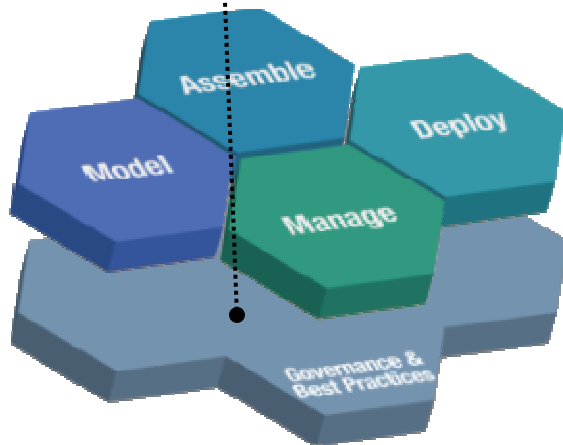
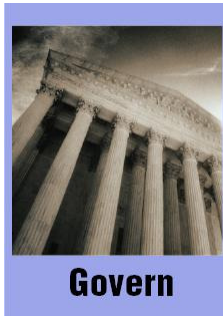
**Govern**



- **Role based access to services for sharing and reuse**
  - Easy to use access-control editor
- **Complete service life cycle management**
  - User definable collections of service metadata that can be governed together
- **Controlled lifecycle state transitions**
  - Customizable validators
  - Subscriber notifications
- **Support for service promotion from one environment to another (e.g. staging to production)**

## Enable governance – Govern capability (continued)

*Better control your SOA through governance*

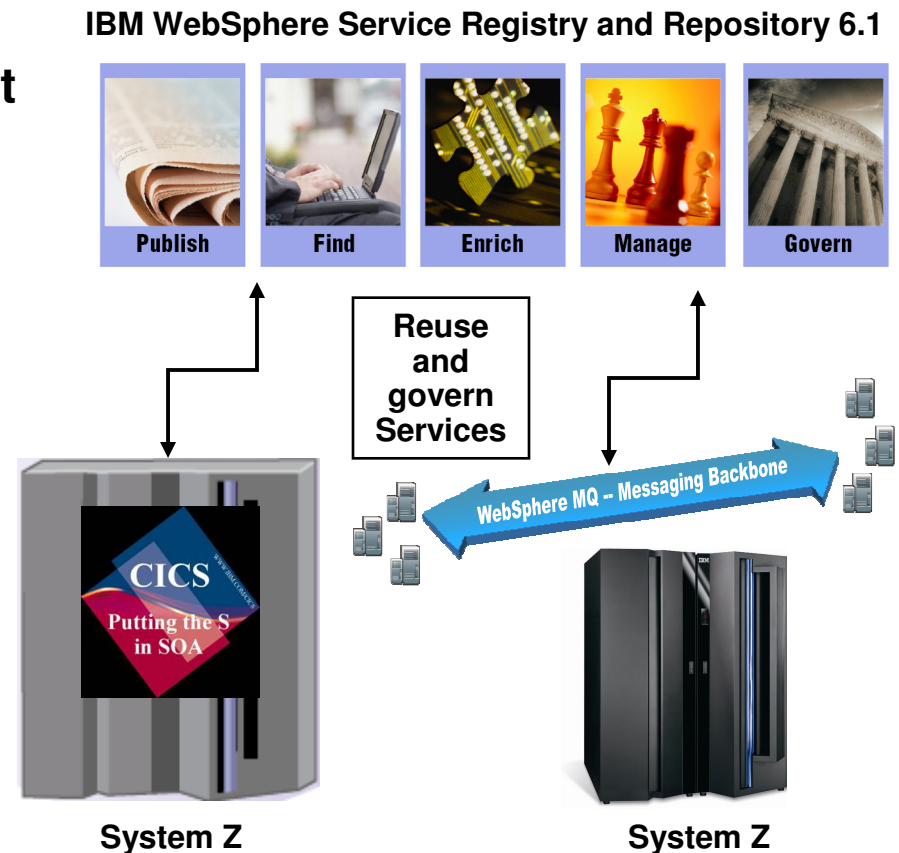


- **Governance profile that includes templates, lifecycles, generic validator, classifications and roles to help you get started quickly**
- **Support for MQ Service definitions allowing governance and lifecycle management service-enabled MQ applications**

# Enable governance of service-enabled CICS & MQ applications

*Help CICS and MQ Applications to participate in Enterprise SOA*

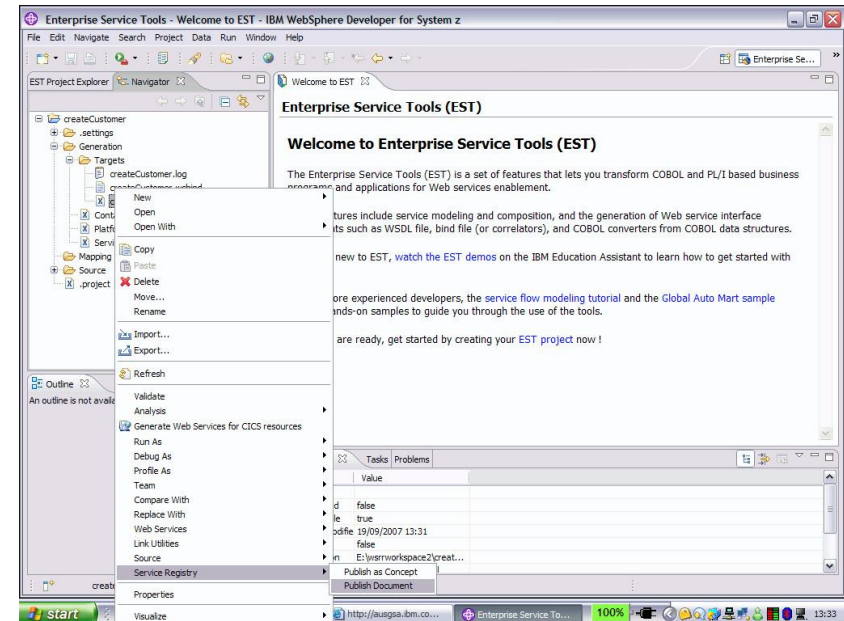
- **Raise the visibility of service-enabled CICS or MQ application by publishing it to WSRR**
- **Classify, describe, govern CICS or MQ service just like any other service in your SOA**
- **Manage the lifecycle of CICS or MQ services with versioning, approval, promotion, retirement, etc.**
- **Facilitate selection, invocation and monitoring of CICS or MQ services by other SOA applications**



## Use regular mainframe tooling to interact with WSRR

### *Rational Developer for System Z Example*

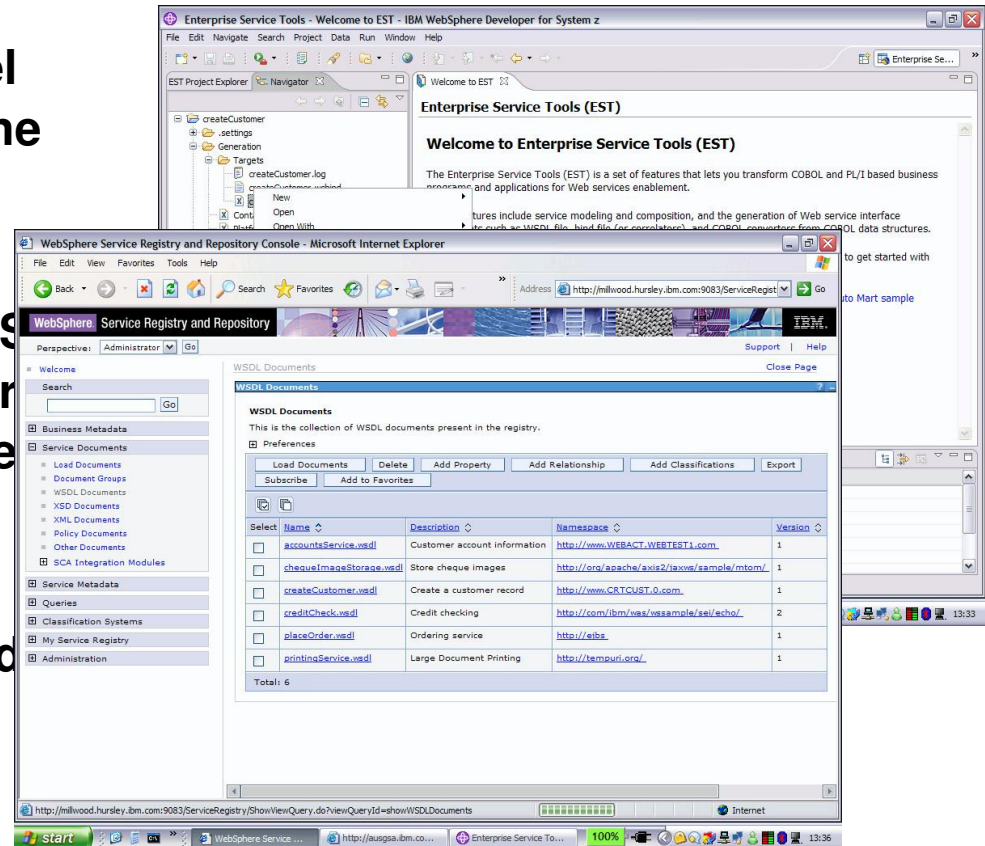
- **Generate the WSDL from high level language structures and *publish* the WSDL to WSRR**
- ***Update* the CICS Web service in WSRR with meta-data to facilitate Web service selections (e.g. search and runtime selection)**
- ***Retrieve* the WSDL from WSRR and generate high level structures to invoke it from a CICS application**
- **Option to just use JCL to interact with WSRR**



## Use regular mainframe tooling to interact with WSRR

### *Rational Developer for System Z Example*

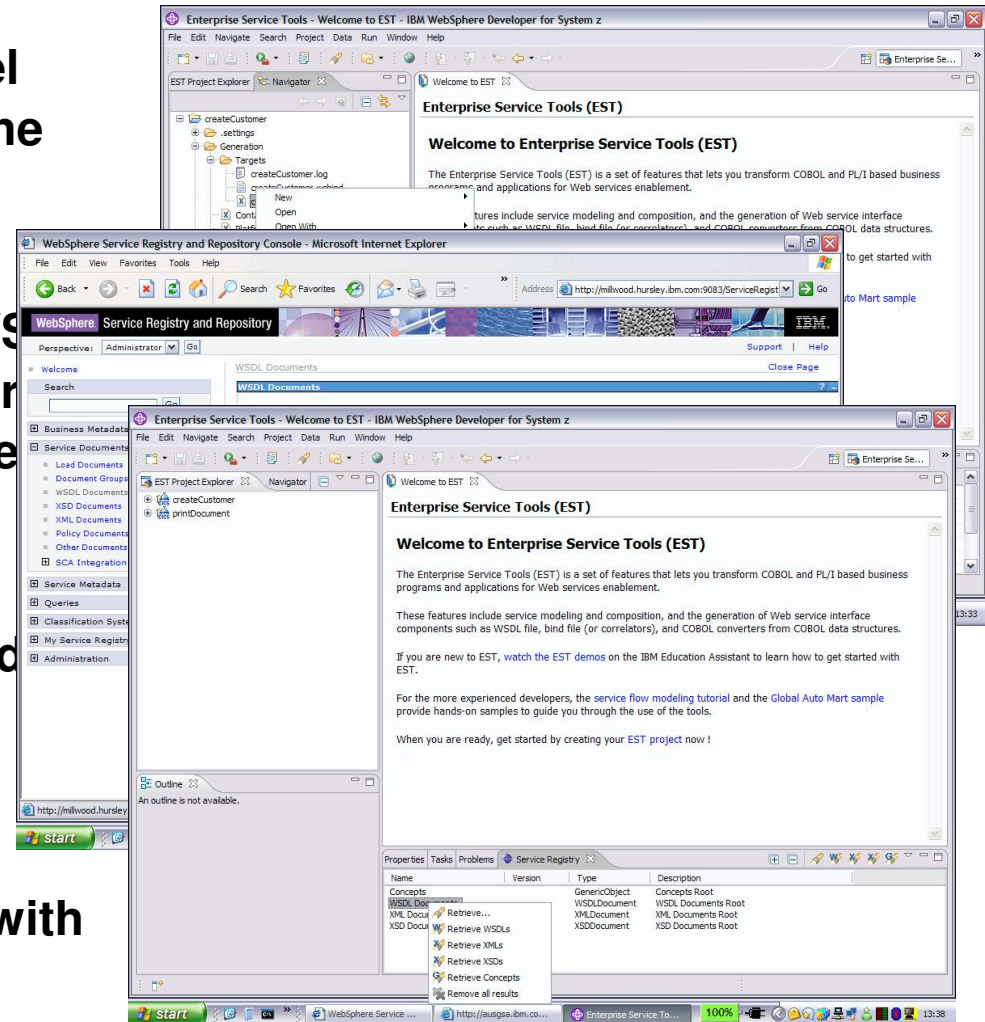
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## Summarizing Value of WSRR to z/OS Environments

- **WSDL contains the definitions of services for the mainframe**
  - Not restricted to HTTP
  - Stores MQ, CICS service end-points
- **Co-location of WSRR and other z/OS subsystems**
  - WebSphere Enterprise Service Bus, WebSphere Message Broker, CICS
- **Integrates with DataPower SOA Appliances to invoke services, enforcing runtime policies and security**
- **Runs on WAS ... exploits zAAP**
- **Enables governance of z/OS environment**
- **z/OS provides a highly available and scalable environment to host WSRR for all systems**

# WSRR federates with other SOA repositories

*Better control your SOA through governance*

## Service Development

- Service Discovery
- Service Development Lifecycle



### Development Registries

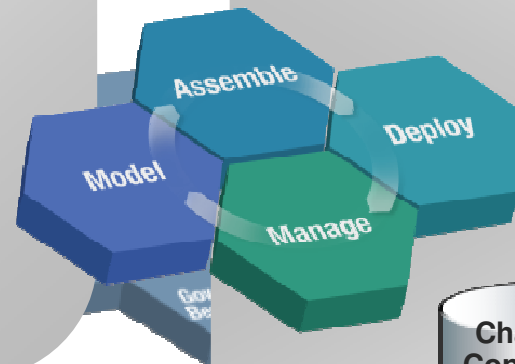
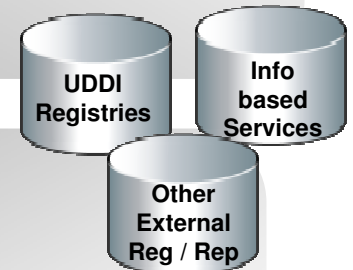


## Service Deployment

- Runtime Repository
- Runtime Discovery



Other Service Endpoint Registries / Repositories

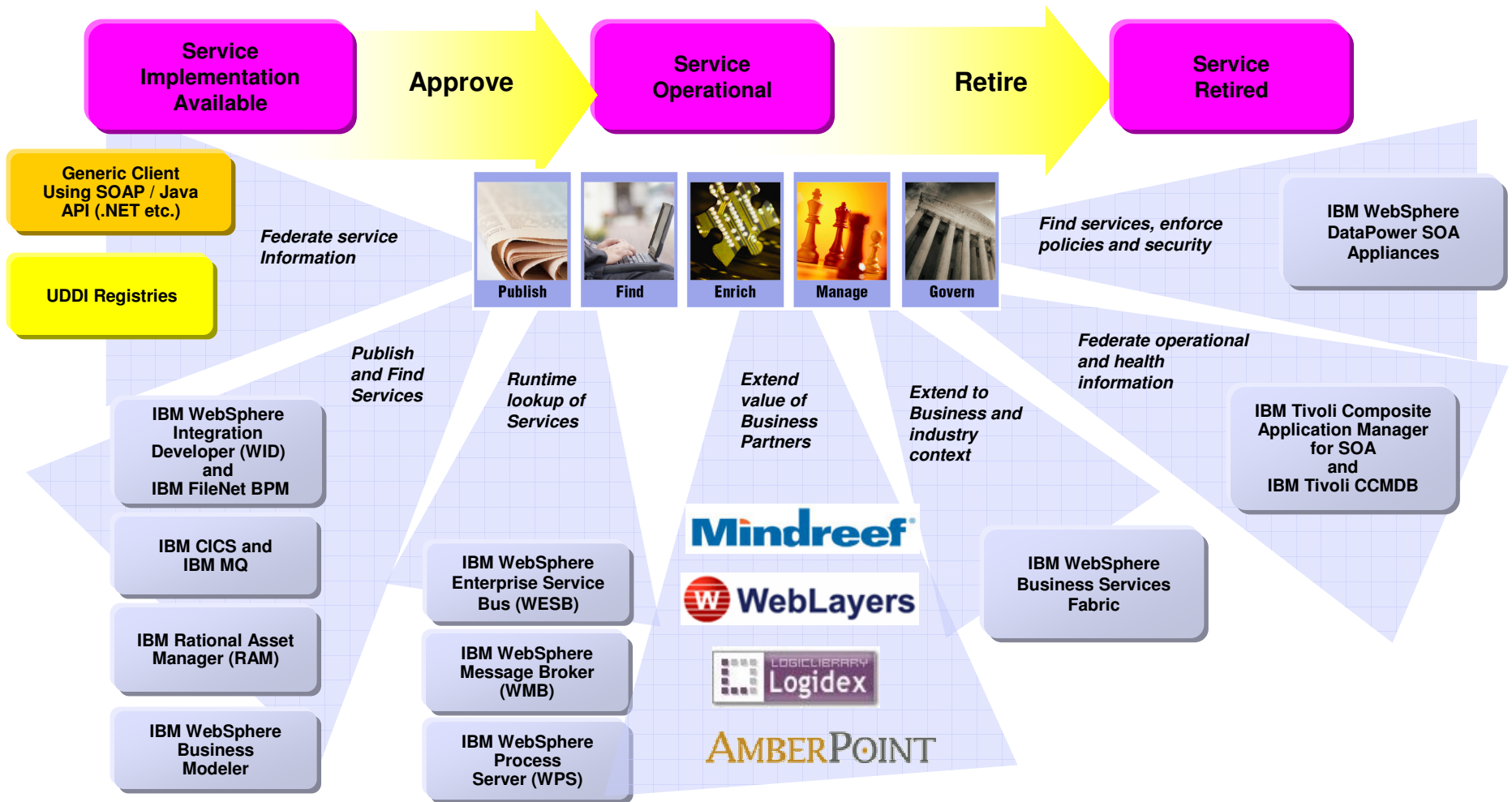


## Service Management

- Operational Efficiency & Resilience
- Configuration Data Discovery
- Managing change



# WSRR integrates with many SOA products to extend the value throughout a Globally Integrated Enterprise



# Customer Case Studies

## Customer Example: Telecom

### Business Challenge

- Eliminate overlapping redundant systems data
- Need for flexible systems to meet business needs
- Improve operations and customer service

### Solution

- The WSRR and WebSphere Process Server were deployed to improve relationship management and sales systems

### Benefits

- Convenient way to catalog their services
- Notifications to service supervisors, owners and subscribers
- Governance of the lifecycle of services



### Software

WebSphere Service Registry  
and Repository

WebSphere Process Server

ITCAM for SOA

WebSphere Adapters

## Customer Example: Manufacturing

### Business Challenge

- Eliminate redundant application development
- Reduce spending on the IT infrastructure
- Improve responsiveness to business needs

### Solution

- WSRR and WebSphere Message Broker were deployed to increase services reuse and optimize service interactions

### Benefits

- Improve time to market by enabling dynamic service interactions
- Provide visibility and organize services
- Track and monitor the lifecycle of the service



### Software

WebSphere Message Broker  
WebSphere Service Registry  
and Repository

## Customer Example: Automotive

### Business Challenge

- Launch an SOA initiative to lower costs while simplifying and improving communication with customers
- Reduce redundancies and decrease the number of applications with increased reuse
- Ability to access services that will provide a list of known issues for each vehicle

### Solution

- Implemented WebSphere DataPower Integration Appliance XI50 as an ESB, improving performance and lowering operational costs
- Implemented WebSphere DataPower XML Security Gateway XS40 as a Web services proxy for verification, digital signatures, and authentication between Web server client and reverse proxy
- Implemented WSRR to manage Web services and contracts and report Web services usage statistics

### Benefits

- Ability to control and govern growing services environment – 21 services deployed in 2006, and 50 new services in 2007
- Improve time to market by dynamic service interactions
- Reduce costs with visibility of services enabling reuse and adoption



### Software / Hardware

WebSphere DataPower Integration Appliance XI50  
WebSphere DataPower XML Security Gateway XS40  
WebSphere Service Registry & Repository  
System z

## Resources

- [WSRR on the web](http://www-306.ibm.com/software/integration/wsrr/) - <http://www-306.ibm.com/software/integration/wsrr/>
- [Redbook](http://www.redbooks.ibm.com/abstracts/SG247386.html?Open) - <http://www.redbooks.ibm.com/abstracts/SG247386.html?Open>
- [SOA Governance](http://www.ibm.com/soa/gov) - <http://www.ibm.com/soa/gov>
- [WSRR on System Z brochure](#) - [ftp://ftp.software.ibm.com/software/websphere/integration/wsrr/070905\\_WSB11350-USEN-00\\_wssr\\_0905\\_BR.pdf](ftp://ftp.software.ibm.com/software/websphere/integration/wsrr/070905_WSB11350-USEN-00_wssr_0905_BR.pdf)
- [Application Integration Software On System Z White Paper](#) - <ftp://ftp.software.ibm.com/software/integration/wmq/WSB11353-USEN-00.pdf>
- [WSRR V6.1 Datasheet](#) - [ftp://ftp.software.ibm.com/software/websphere/integration/wsrr/WSD11284-USEN-01\\_DS\\_wsrr.pdf](ftp://ftp.software.ibm.com/software/websphere/integration/wsrr/WSD11284-USEN-01_DS_wsrr.pdf)
- [WebSphere MQ](http://www-306.ibm.com/software/integration/wmq/) - <http://www-306.ibm.com/software/integration/wmq/>
- [CICS](http://www.ibm.com/cics) - <http://www.ibm.com/cics>
- [Rational Developer for System Z](http://www-306.ibm.com/software/awdtools/rdz/) - <http://www-306.ibm.com/software/awdtools/rdz/>

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# DOING

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