



IBM Software Group

# WebSphere® Service Registry and Repository

## *Version 6.2 - Overview*



@business on demand.

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This presentation provides an overview of IBM WebSphere Service Registry and Repository.

## Goals

- Introduce service oriented architecture
- Describe the benefits of a service oriented architecture
- Outline the governance challenges presented by the adoption of a service oriented architecture
- Describe the value and features of WebSphere Service Registry and Repository
- Provide an overview of the WebSphere Service Registry and Repository architecture

The goals of this presentation are:

- To give an introduction to the key concepts and goals of a service oriented architecture
- To describe the benefits of a service oriented architecture
- To outline the governance challenges that must be met when a service oriented architecture is adopted
- To describe some of the key features of WebSphere Service Registry and Repository, and the value it gives to the service oriented architecture life cycle
- To provide an overview of the architecture of the WebSphere Service Registry and Repository product

## Service oriented architecture (SOA)

- An architectural style / design philosophy
- Businesses need to
  - ▶ Be flexible
    - Develop loosely coupled re-usable services with well-defined interfaces; removing environment dependency
  - ▶ Be responsive
    - Link existing services together to build new business processes
  - ▶ Reduce time to market
    - Provide closer alignment between your IT systems and your business processes



Service Oriented Architecture, or SOA, is an architectural style, and a design philosophy, for business process development.

IT systems within an organization can be prone to inflexibility due to having tightly coupled applications, which makes them difficult to change and difficult to re-use.

Typically, a business process is composed of numerous more fine-grained tasks, or services.

In a service oriented architecture, business processes are decoupled from these fine-grained services as much as possible, so that common fine-grained services can be re-used by different business processes, rather than re-inventing them each time they are required by a different department.

To be re-usable, a service must be loosely coupled and have well defined interfaces. Web services provide such a capability.

Web services enable SOA through open standards, and are widely adopted in the IT community.

New business processes are built by linking together existing services.

## Promised benefits of SOA



**Business process vitality**



**New value through reuse of assets**



**Improved connectivity**



**Closer alignment of IT to business**



**Business Flexibility**

If the IT system architecture is based on the use of multiple services, it becomes easier to change a business process, or introduce a new business process, because a service can be replaced by another, or a new business process can be developed by linking together existing services.

If a service is re-used, only one copy of the code needs to be changed to introduce a new function, and only one copy of the code needs to be tested and debugged. It also means that the business can operate on consistent data, which is likely to improve the experience for the customers of the business.

By using open standards such as Web services, many more software and hardware systems can be connected and can interoperate.

If the IT systems in an organization are closely aligned to the business processes that need to be performed, then those business processes are likely to run much more smoothly. It need not be the case that business requirements are hampered by what the IT systems can perform. It should be the case that the IT systems are flexible enough to allow the business to do what it needs to be successful.

When business processes can be quickly pulled together from existing re-usable services, the business becomes much more flexible, decreasing time to market and increasing competitive advantage.

## Governance issues

**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 life cycle?**

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



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

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



With the introduction of a service oriented architecture come governance challenges that must be addressed.

As discussed previously, the key to a successful service oriented architecture is ensuring that the right set of repeatable business tasks are made available as services. For this to happen, there must be a governance structure in place that ensures that the right people make the decisions as to which services will be available, which department will own the service, fund the service, maintain the service and so on.

Another area where governance is needed is around the service life cycle. With services being shared across organizational boundaries, it is important that proposed changes to the service are well understood. Some questions to consider would be; who has authority to use the service, who will the change affect, who needs to authorize the change? How do you ensure that services are re-used and not redeveloped? Where would a user look to find the services that are available?

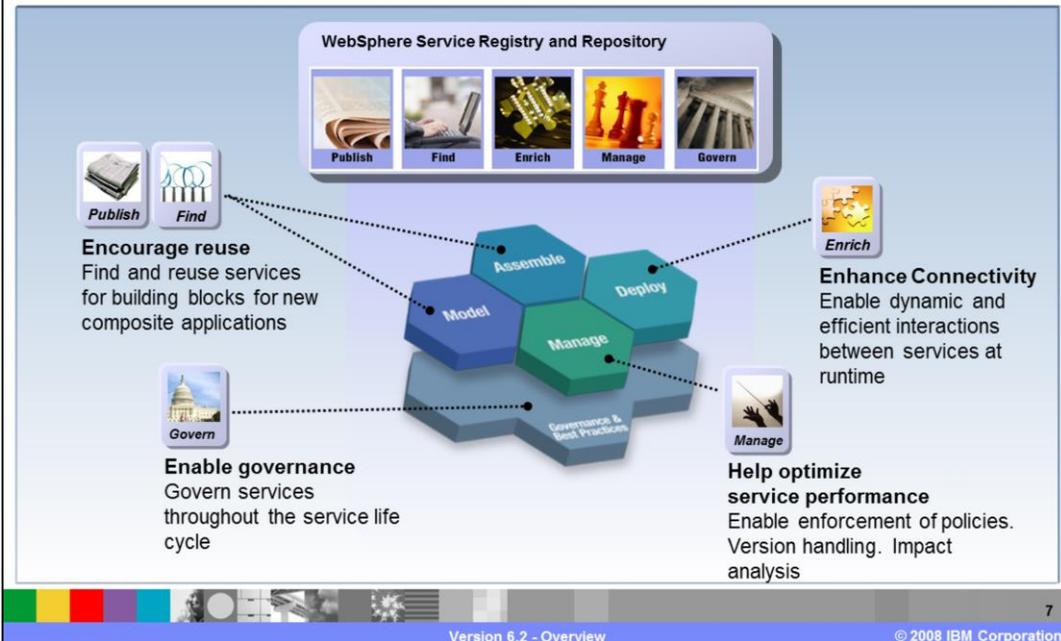
## Achieving SOA governance

- From this ....
- To this ....



Having a collection of services in your organization does not necessarily mean that you have a service oriented architecture. The services need to be the right set in order for them to be of value across different business processes. Having the right SOA governance model helps to ensure this.

## The value of WebSphere Service Registry and Repository in the SOA life cycle



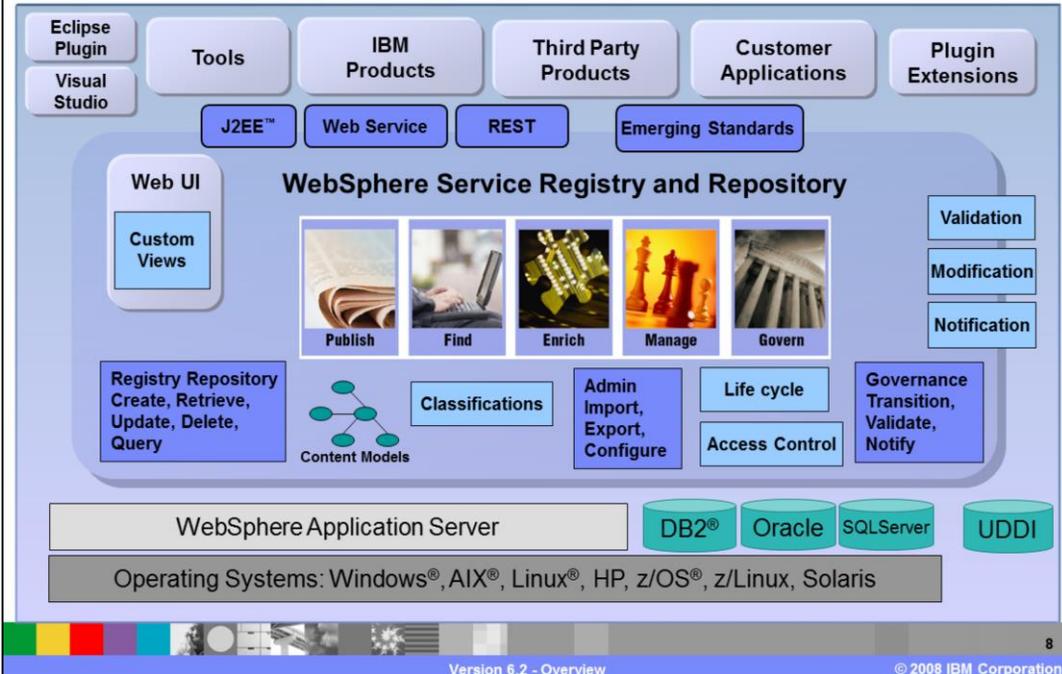
The SOA life cycle has four main stages. The first is the model stage; when requirements are gathered and the business process is modeled and designed. Second is assemble; when appropriate re-usable services are discovered, and the business process is constructed and tested. Third is deploy; when the process is moved to the production environment. Fourth is manage; when the process is managed and monitored, and policies are enforced.

Governance and best practices support the complete life cycle. WebSphere Service Registry and Repository is an integrated service metadata repository that helps you govern and manage services through the service life cycle. Service metadata is information about your services, such as descriptions, owner details, classifications, and so on.

With WebSphere Service Registry and Repository, you can use this metadata information to select, invoke, govern, and reuse services as part of a successful and dynamic service oriented architecture. By promoting visibility and consistency, reducing redundancy, and by managing the service life cycle, WebSphere Service Registry and Repository helps you get the most business value from your service oriented architecture.

The features provided by WebSphere Service Registry and Repository include: Publish and find capabilities, governance policy management transitioning of services through the life cycle, impact analysis to determine the effect of service introduction, deletion or alteration, role based access control and the ability to integrate with other IBM products, such as WebSphere enterprise service bus and WebSphere Message Broker.

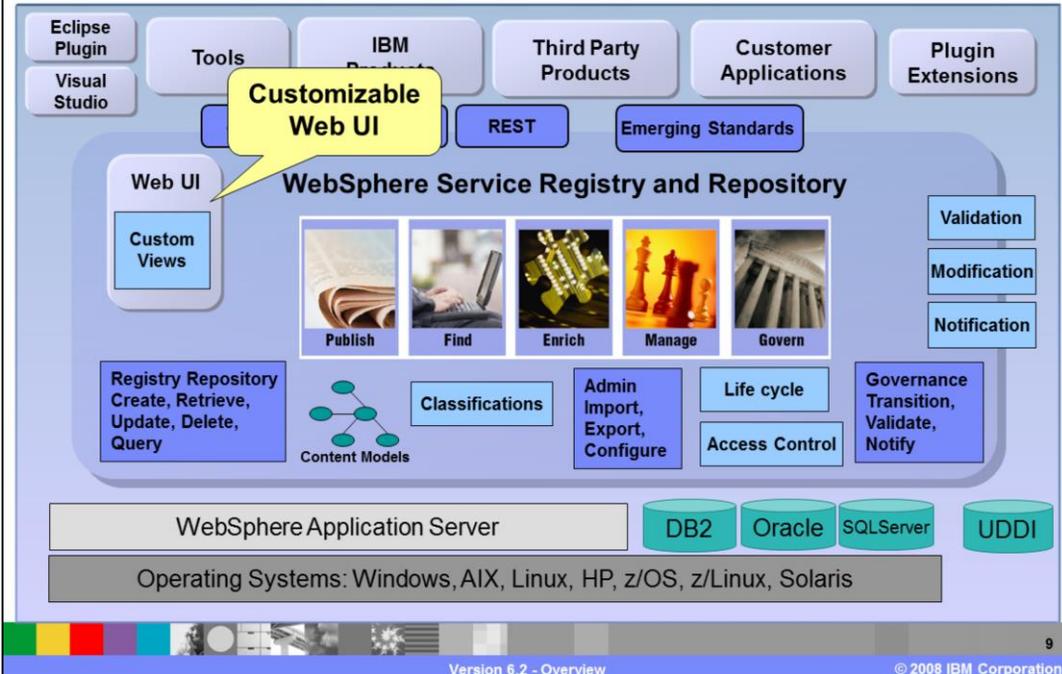
## Architecture (1 of 8)



This slide shows the architecture of the WebSphere Service Registry and Repository product. It is built on WebSphere Application Server, and supports a range of database types for the storage of your services and service metadata.

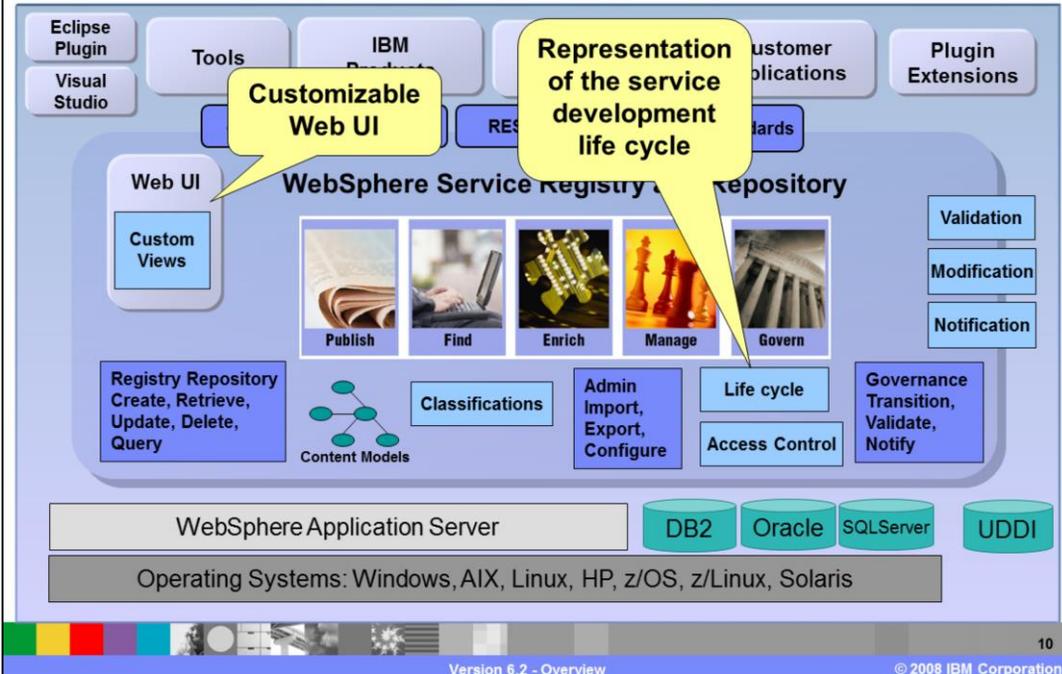
This presentation will now describe the key components of the architecture.

## Architecture (2 of 8)



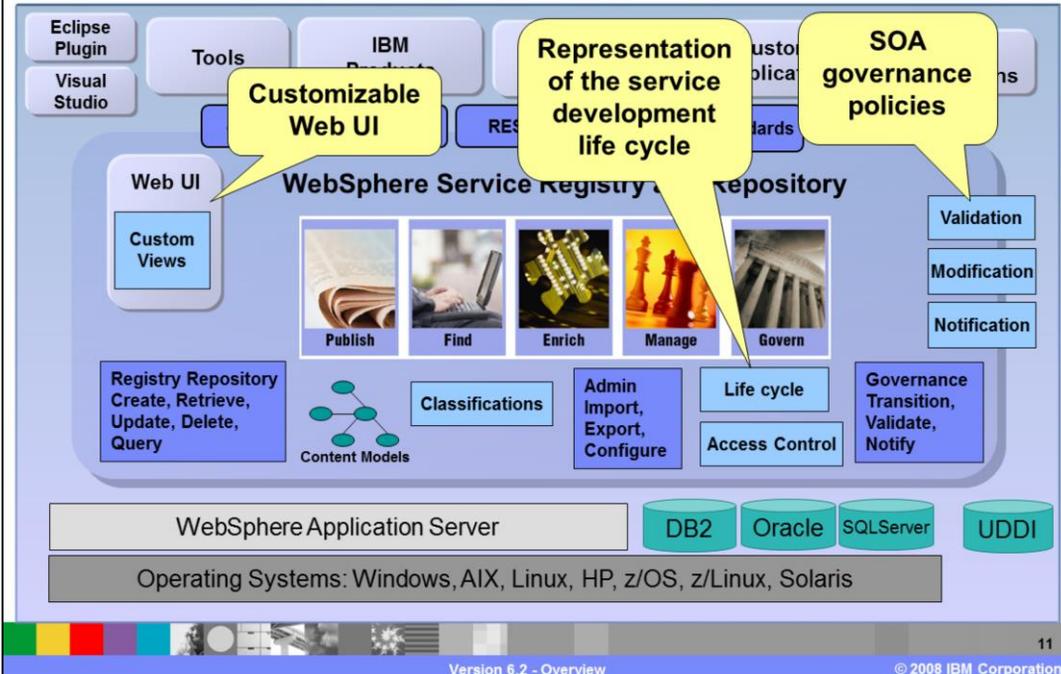
You use the Web UI to manage your services. You can publish and find services, attach metadata, define policies, govern your services through the life cycle, perform impact analysis, and more. You can customize the Web UI to fully meet the needs of your business environment.

## Architecture (3 of 8)



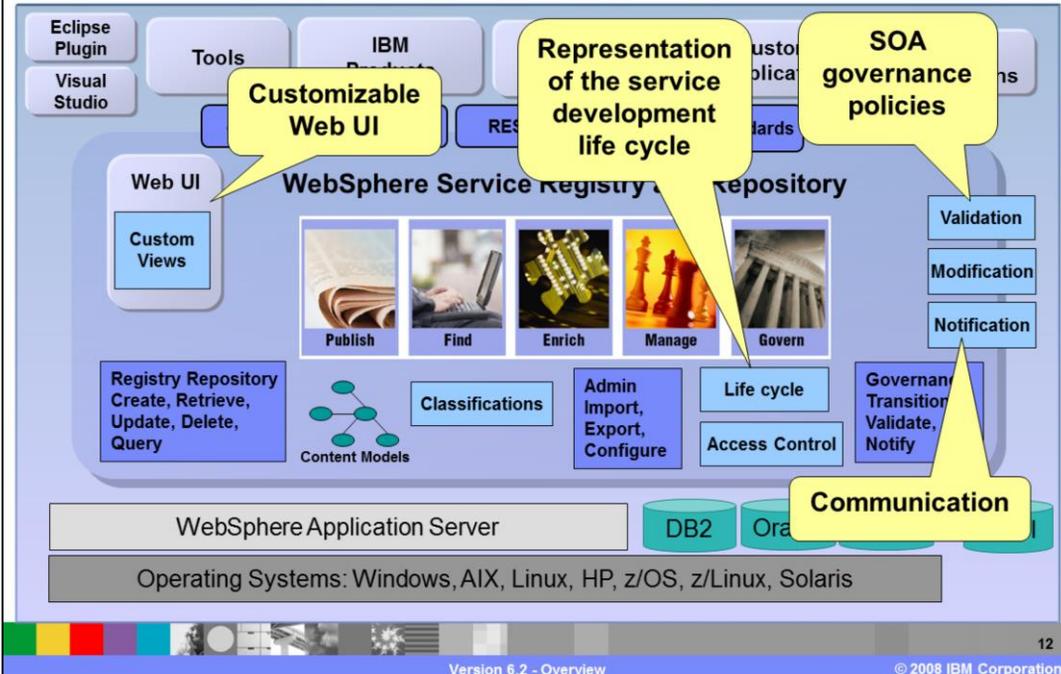
The service development life cycle specifies the complete set of possible states during the development of a service, and the transitions between them. A default life cycle is provided with WebSphere Service Registry and Repository, but you can define your own.

## Architecture (4 of 8)

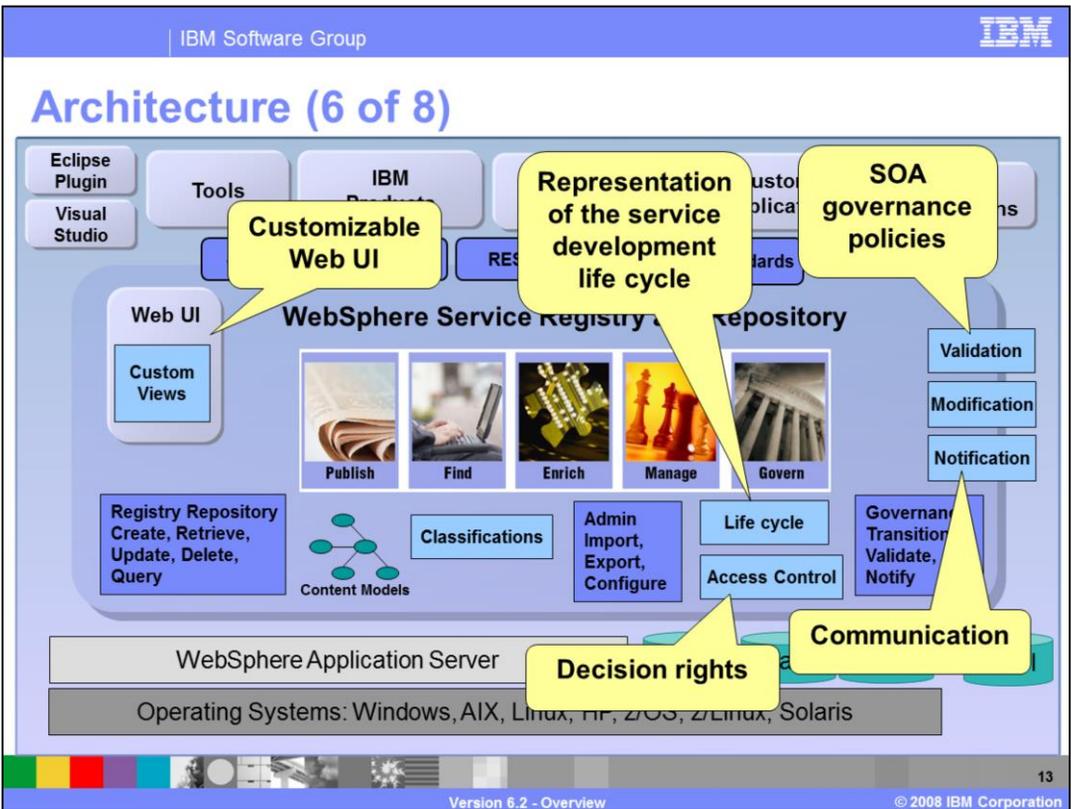


The WebSphere Service Registry and Repository validation and modification mechanism can be used to enforce governance policies at runtime. For example, you can prevent a service from being deleted unless it is in the “Retired” state.

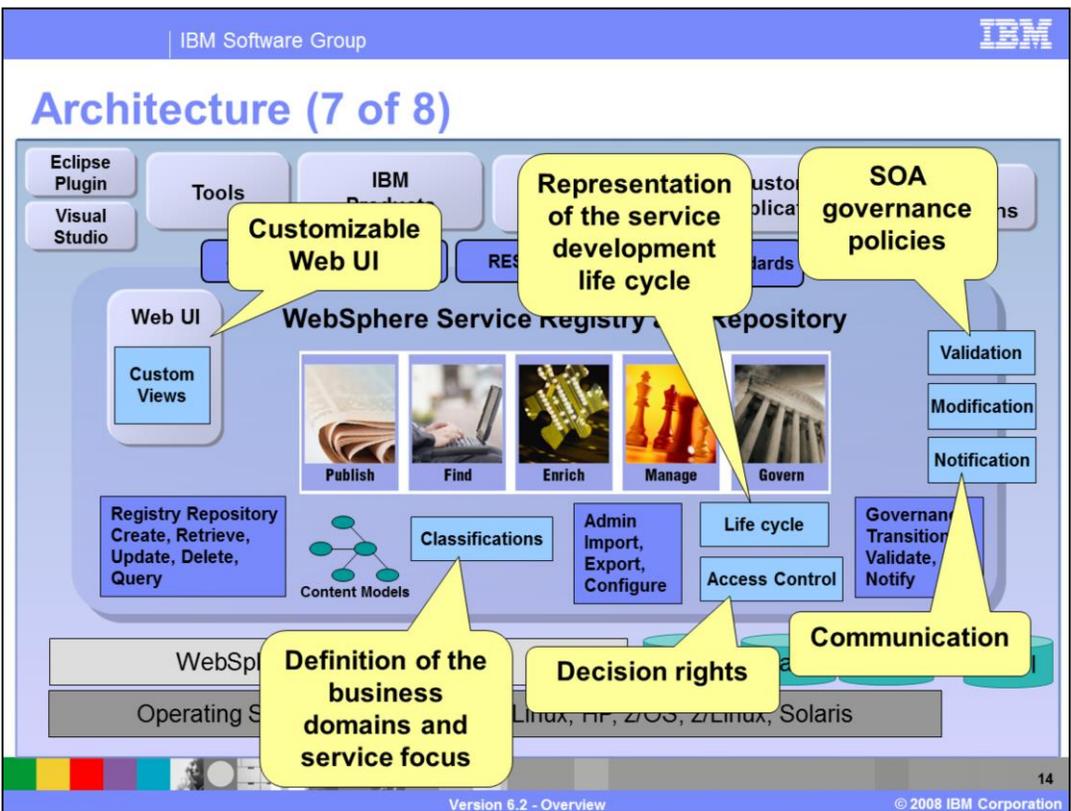
## Architecture (5 of 8)



The notification mechanism can be used to communicate details of events relating to services in the registry. For example, you can be notified whenever updates are made to particular types of service.

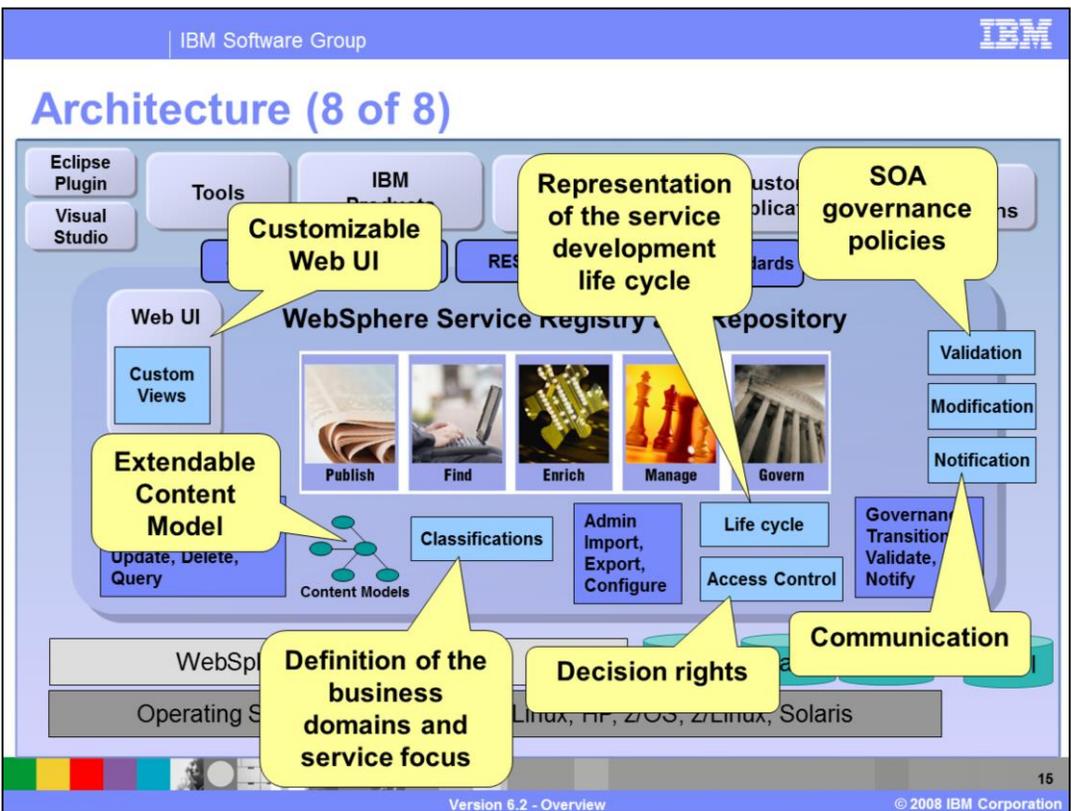


The role based access control mechanism defines decision rights to control which users are able to perform which actions on which entities.



Good classification systems are a key factor in the success of your service oriented architecture. A good classification system simplifies the task of finding services, making it easier to reuse and compose them.

For example, you might use one classification system to represent the organization and another to represent the types of services deployed in your service oriented architecture. Then you could search, say, for the "customer information services" in your "retail banking line of business".



The WebSphere Service Registry and Repository content model defines the structure of all the different types of entity that can be stored in the registry, the types of metadata that can be attached to them, and the relationships between them.

For example, when you load a WSDL document, any XML schema upon which the WSDL depends will also be loaded and the necessary relationship between them will be established. Furthermore, separate objects will be created representing the WSDL entities defined in the WSDL document, such as interfaces, operations and bindings.

The content model can be extended if necessary.

## Summary

- A service oriented architecture enhances business flexibility and vitality through the re-use of existing services
- When a service oriented architecture is adopted, effective governance is essential
- With WebSphere Service Registry and Repository, you can publish and find your services, and manage and govern them through the service oriented architecture life cycle



In summary, a service oriented architecture enhances business flexibility and vitality through the re-use of existing services. When a service oriented architecture is adopted, effective governance is essential and with WebSphere Service Registry and Repository, you can publish and find your services, and manage and govern them through the service oriented architecture life cycle.

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