

*Advanced Java Programming

Web Services (SOAP) part 1

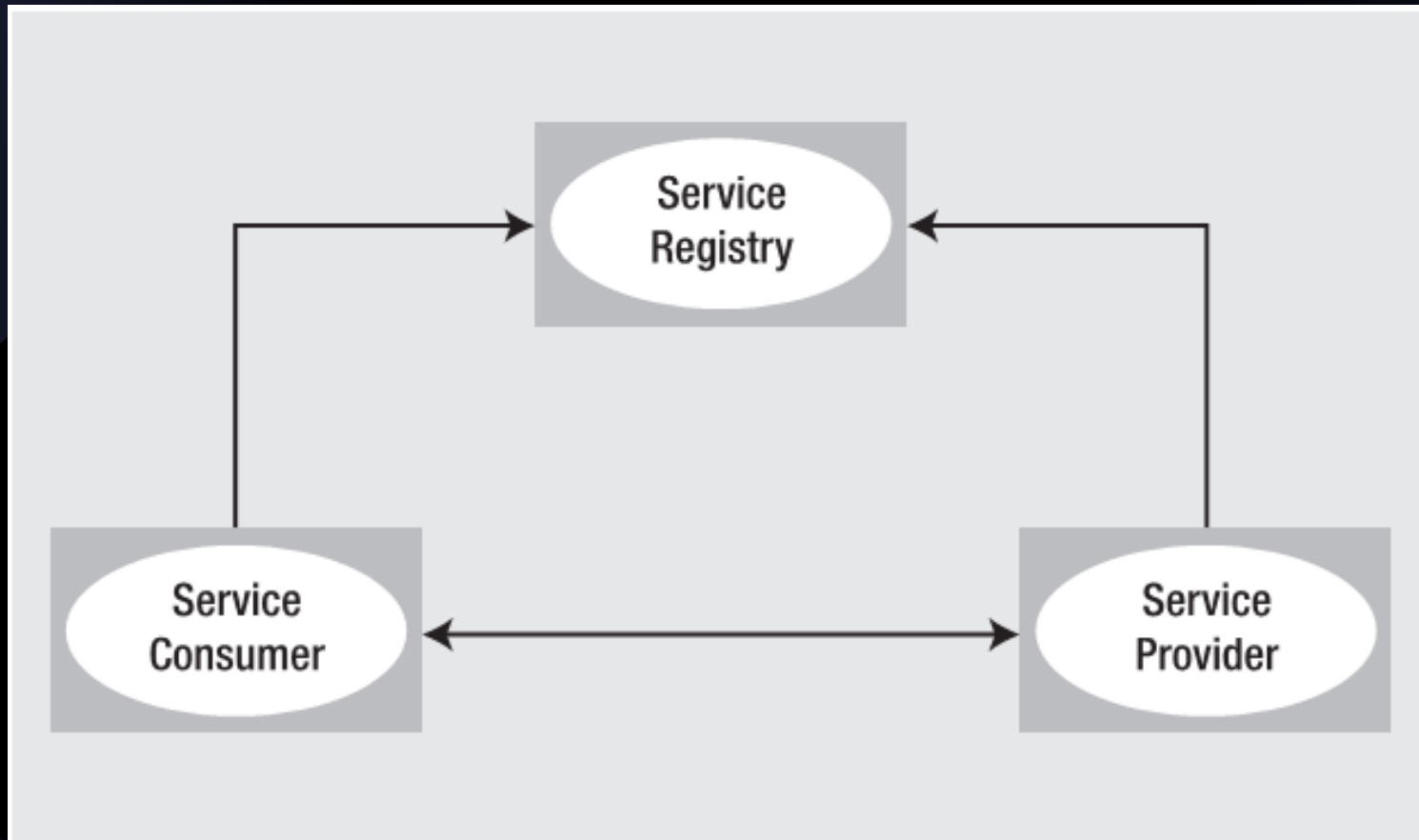
Agenda

- * Web Service
- * When do we use web service ?
- * Web services in Java EE
- * Exposing Session Beans as Web Services
- * Demo

Web Service

*W3C say : A Web service is a software system designed to support interoperable machine-to-machine interaction over a network. It has an interface described in a machine processable format (specifically WSDL). Other systems interact with the Web service in a manner prescribed by its description using SOAP messages, typically conveyed using HTTP with an XML serialization in conjunction with other Web-related standards.

Web Service (cont.)



*Web Service Architecture

Web Service (cont.)

- * **UDDI** : Universal Description, Discovery, and Integration provides a standards-based approach to locating a web service, and information on invoking that service. It also provides additional metadata about the service. Currently reach ver. 3.
- * **WSDL** : Web Services Description Language (WSDL) is a technology that is used to describe the interface of a service using XML, is a standard developed by the W3C. Currently reach ver. 2.
- * **SOAP** : Simple Object Access Protocol (SOAP) is an XML-based protocol used for exchanging information in a decentralized and distributed environment using XML, is a standard developed by the W3C. Currently reach ver. 2.

When do we use web service ?

- * If we want to expose our API to 3rd parties
- * Most enterprises use it such FedEx, UPS, Amazon, Google, eBay, Twitter, Facebook, Yahoo!, etc.

Web Service in Java EE

- * **JAX-WS (Java API for XML Web Services)** : defines Java APIs and annotations for accessing web services from Java applications and Java EE components like EJBs, provide mapping between Java and WSDL.
- * **JAX-B (Java Architecture for XML Binding)** : provides standard APIs for representing XML documents as Java artifacts.
- * **JAXR (Java API for XML Registries)** : defines a standard set of APIs that allow Java clients to access the registry.
- * **SAAJ (SOAP with Attachments API for Java)** : defines a standard set of APIs that allow Java SE or EE components to construct SOAP messages with attachments.

Web Service (cont.)

- * **JSR 181 (Web Services Metadata for the Java Platform)** : defines a standard set of annotations that can be used to simplify web service development.

Exposing Session Bean as Web Service

*Use stateless session bean , write :

- ❑ A bean class (implementation)
- ❑ A web service endpoint interface (optional)
- ❑ Additional business interfaces if the bean class has local or remote clients

Table 6-1. *The @WebService Annotation*

Parameter	Description	Additional Info
name	The name of the web service that gets mapped to <code>wsdl:portType</code> .	If not specified, the name of the Java class is taken.
targetNamespace	The XML namespace used for the web service.	If not specified, it is derived from the Java package.
serviceName	The name of the web service that gets mapped to <code>wsdl:service</code> .	If not specified, the name of the Java class is taken.
wsdlLocation	The location of the WSDL document, which comes in handy when the bean class is implementing existing web service.	

Exposing Session Bean as Web Service (cont.)

Table 6-2. *The @WebMethod Annotation*

Parameter	Description	Additional Info
<code>operationName</code>	The name of the <code>wsdl:operation</code> that matches to this method.	By default, this is the name of the Java method.
<code>action</code>	The action for this operation. In the case of SOAP bindings, it will be the value of the <code>SOAPAction</code> header.	By default, this is the name of the Java method.

Demo

*Demo available in SOAPDemo.zip