6. Parameters and parameter passing in Web Services

Explain how parameters are handled in Web Services and give examples of the implementation in Java.

The Java API for developing web services and clients over SOAP is called JAX-RPC

This API hides all the details of SOAP from the programmers of both clients and the services

JAX-RPC maps some of the types in the Java language to definitions in XML used in both SOAP messages and service descriptions

. The permitted types include Integer, String, Date and Calendar. It supports some of the collection types (including Vector) as well as the primitive types of the language and arrays.

In addition, instances of some classes may be passed as arguments and results of remote calls, provided that:

• Each of their instance variables is one of the permitted types.

• They have a public default constructor.

• They do not implement the Remote interface.

Remote referenced cannot be passed as arguments or returned as results

the service description may be used as a basis for automatically generating the necessary marshalling and unmarshalling procedures.

Client proxy: A proxy (or stub) method knows the URL of the service and marshals its own method name and its arguments, together with a reference to the XML schema for the service, into a SOAP request envelope. Unmarshalling the reply consists of analyzing a SOAP envelope in order to extract the results, return value or fault report. The client’s request method call is sent to the service as an HTTP request.

Dispatcher and skeleton: As mentioned above, the dispatcher and skeletons live in the servlet container. The dispatcher extracts the name of the operation from the Action header in the HTTP request and invokes the corresponding method in the appropriate skeleton, passing the SOAP envelope to it.

A skeleton method carries out the following tasks: it analyzes the SOAP envelope in the request message and extracts its arguments, calls the corresponding method and assembles a SOAP reply envelope containing the results.

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