

Unraveling the Web Services

An Introduction to SOAP, WSDL and UDDI

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Overview

- Web Services
- SOAP
- WSDL
- UDDI

Introduction

- All business units, organizations have their own approach to store and exchange data.
- Interoperability between them is a problem!
- Web services are developed to simplify this process by defining a standardized mechanism for exchanging data.

Web Services

- Web services are software components which communicate using web technologies like HTTP.
- Web services framework is divided into three areas – communication protocol (SOAP), Service Descriptor (WSDL) and service discovery (UDDI)

SOAP

- Simple Object Access Protocol
- Its an XML based protocol for exchanging data over HTTP.
- SOAP provides a way to communicate between applications regardless of their platform or programming language.

Elements of SOAP

- Envelope – specifies that XML document is a SOAP message
- Header – contains application specific information about SOAP message.
- Body – includes the message payload
- Fault – carries information about a client or server error.

Example for SOAP

```
POST /InStock HTTP/1.1
Host: www.example.org
Content-Type: application/soap+xml; charset=utf-8
Content-Length: nnn

<?xml version="1.0"?>
<soap:Envelope
xmlns:soap="http://www.w3.org/2001/12/soap-envelope"
soap:encodingStyle="http://www.w3.org/2001/12/soap-encoding">

  <soap:Body xmlns:m="http://www.example.org/stock">
    <m:GetStockPrice>
      <m:StockName>IBM</m:StockName>
    </m:GetStockPrice>
  </soap:Body>

</soap:Envelope>
```

WSDL

- Web Services Description Language.
- Its an XML – based format for describing web services.
- Clients wishing to access a web service can just read and interpret its WSDL file to learn about the location of the service and its available operations.

WSDL Document Structure

- Message – describes names and format of the message supported by the service.
- Types – defines the data types used by the service for sending messages between client and server.
- Port Type – defines a web service, the operations that can be performed and the messages that are involved.
- Binding – A protocol and data format specification for a particular port type

WSDL Example

```
<message name="GetFlightInfoInput">
  <part name="airlineName" type="xsd:string"/>
  <part name="flightNumber" type="xsd:int"/>
</message>

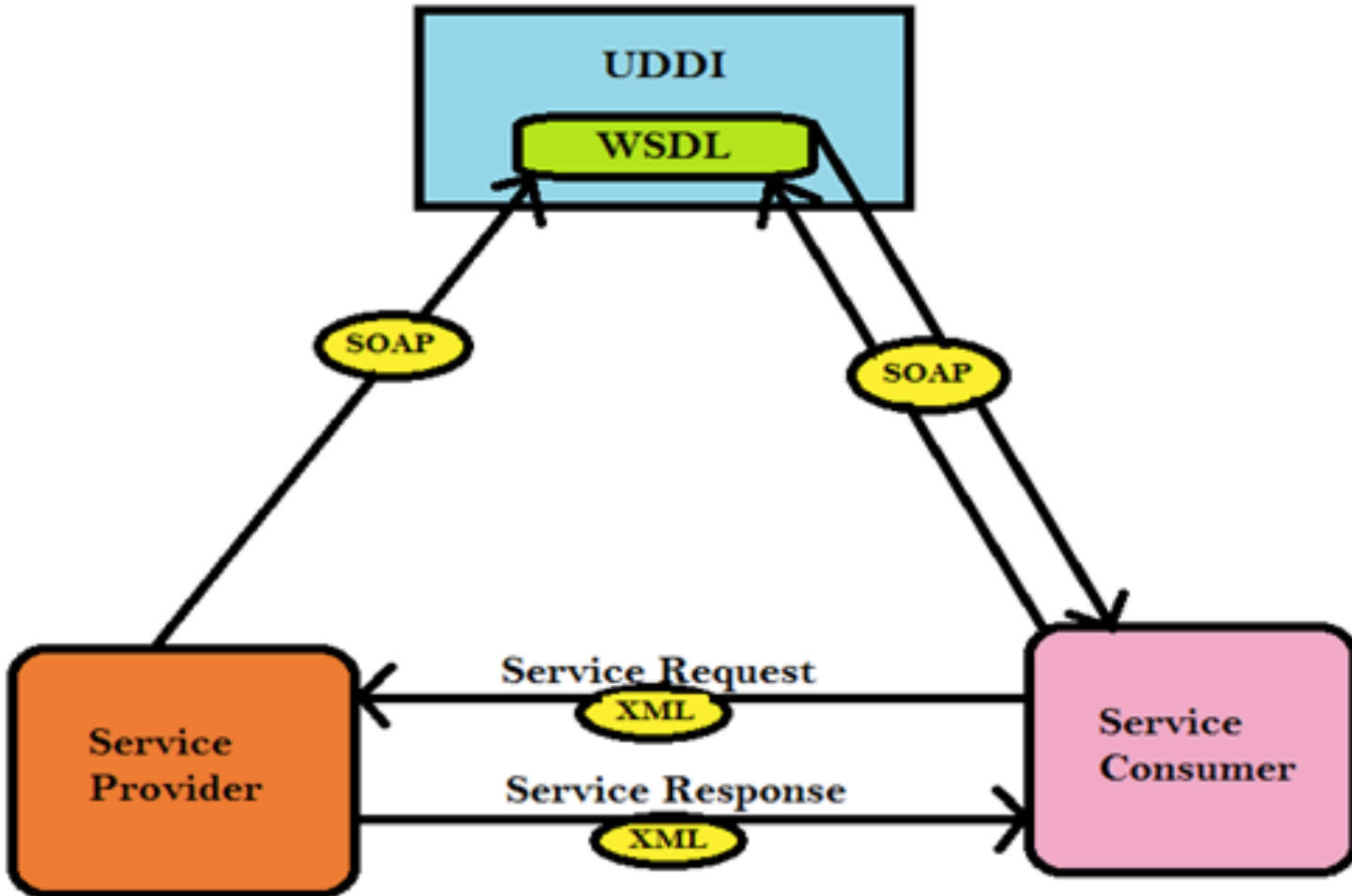
<message name="GetFlightInfoOutput">
  <part name="flightInfo" type="fixsd:FlightInfoType"/>
</message>

<message name="CheckInInput">
  <part name="body" element="eticketxsd:Ticket"/>
</message>

<portType name="AirportServicePortType">
  <operation name="GetFlightInfo">
    <input message="tns:GetFlightInfoInput"/>
    <output message="tns:GetFlightInfoOutput"/>
  </operation>
  <operation name="CheckIn">
    <input message="tns:CheckInInput"/>
  </operation>
</portType>
```

UDDI

- Universal Description Discovery and Integration.
- UDDI is a directory for storing information about web services.
- UDDI describes services using WSDL and communicates via SOAP messaging.



Advantages of Web Services

- Application and data Integration.
- Versatility.
- Code re-use.
- Communication Protocol's reliability.
- Cost Savings.

Conclusion

- Web services provides a systematic and extensible framework for application interactions.
- Web services have evolved as a practical, cost-effective solution for uniting information distributed between critical applications over operating systems, platforms and language barriers that were previously impassable



THANK
YOU