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
- It's 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.
- It's 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

```xml
<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