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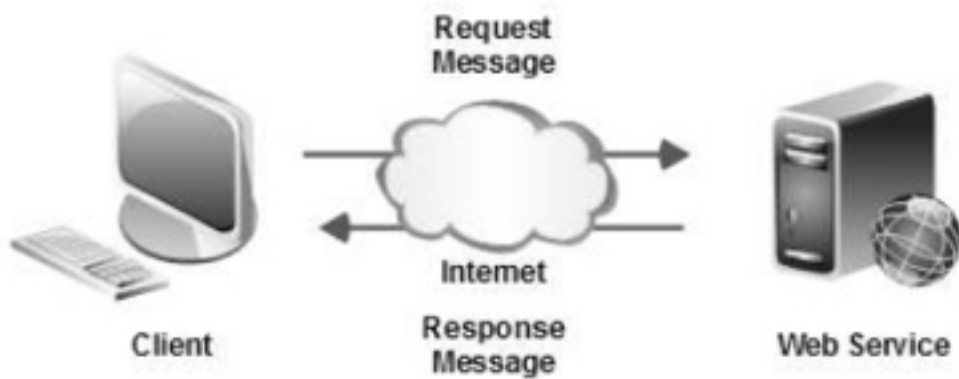
Introduction

What are web services?

A web service could be any system which makes it self available over a network and communicate on top of http protocol, uses SOAP based XML to communicate.

“A system designed to support interoperable machine to machine communication.”

What is web service ? QA point of view



Type of Web Services

1. **Big Services** - Based on SOAP
2. **Restful Services**

Why Web Services?

- **Interoperability** - A java based service can talk to .NET based client.
- **Supports standard protocol**
- **Loosely Coupled** - The web service interface can be changed any time without affecting the its consumer/client. A tightly coupled system implies that client and service logic are closely tied to each another.
- **Supports Document Exchange**
- **Low cost communication** - In comparison to web scraping

XML (Extensible Markup Language)

http://www.w3schools.com/xml/cd_catalog.xml

XPATH - A way of parsing xml documents, uses expressions to get the node value.

SOAP (Simple Object Access Protocol)

Can be considered as an envelope which defines the content of request & response of web services. It also know how to process its content in order to achieve the two way communication.

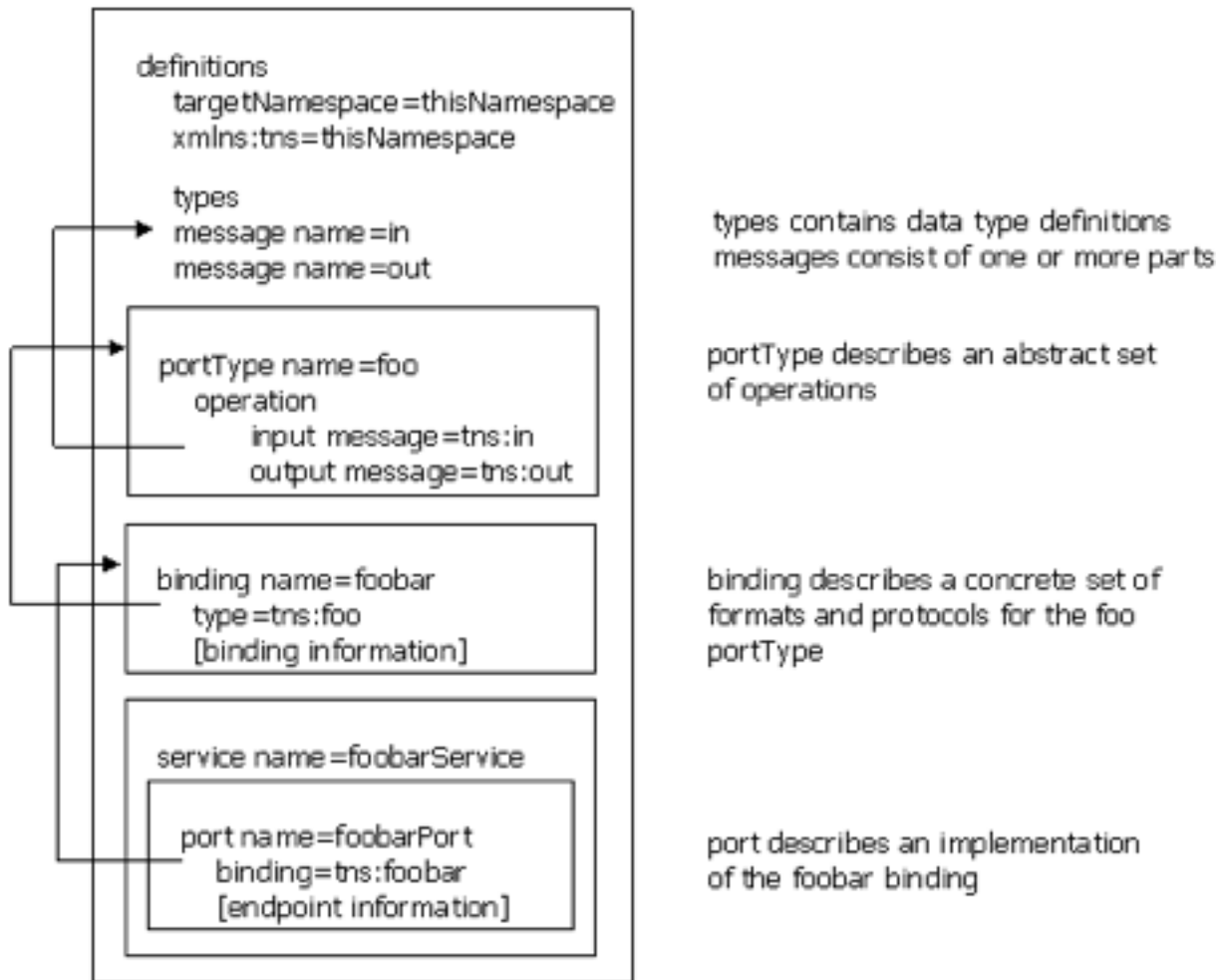
```
POST /InStock HTTP/1.1
Host: www.example.org
Content-Type: application/soap+xml; charset=utf-8
Content-Length: 299
SOAPAction: "http://www.w3.org/2003/05/soap-envelope"

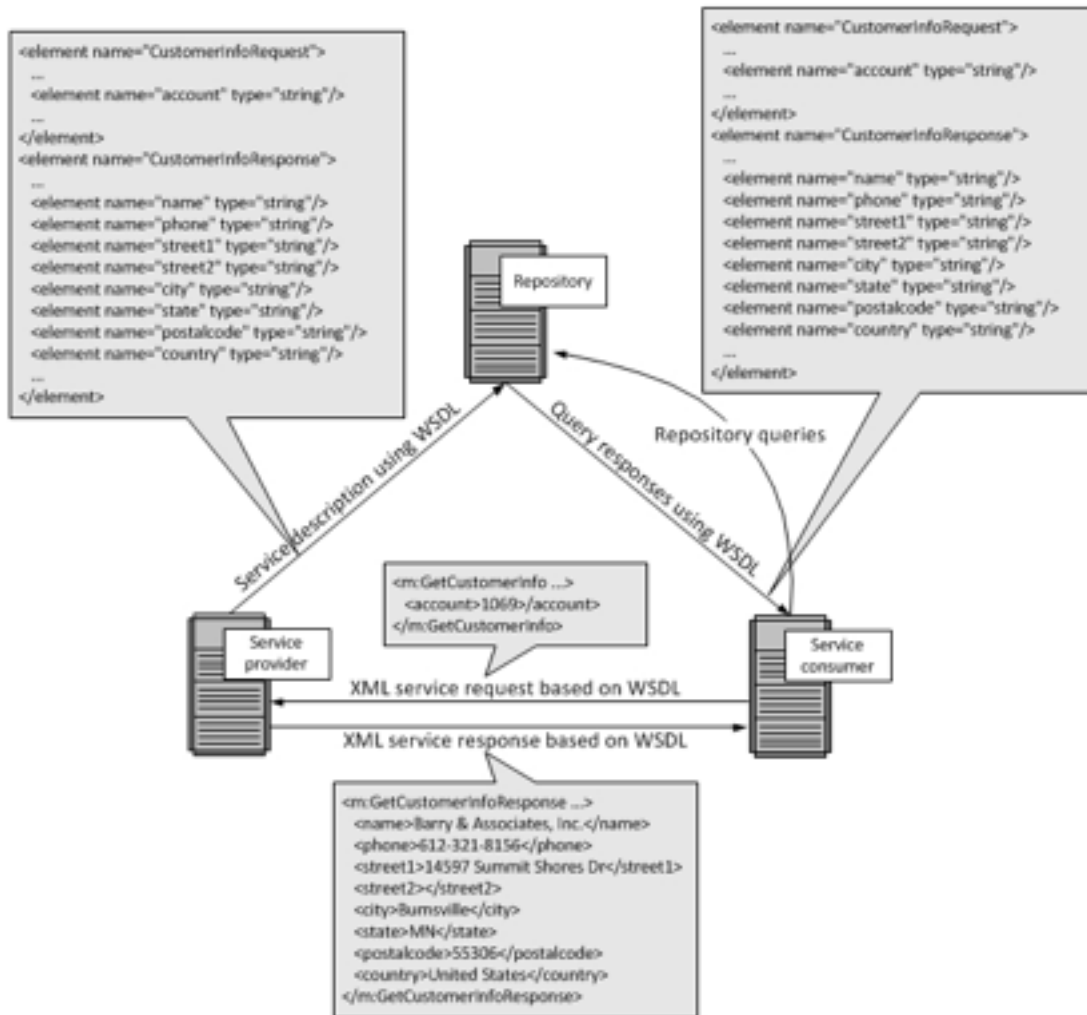
<?xml version="1.0"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
  <soap:Header>
  </soap:Header>
  <soap:Body>
    <m:GetStockPrice xmlns:m="http://www.example.org/stock/Surya">
      <m:StockName>IBM</m:StockName>
    </m:GetStockPrice>
  </soap:Body>
</soap:Envelope>
```

Element	Description	Required
Envelope	Identifies the XML document as a SOAP message.	Yes
Header	Contains header information.	No
Body	Contains call, and response information.	Yes
Fault	Provides information about errors that occurred while processing the message.	No

WSDL (Web Service Description Language)

An xml based interface description language which used to describe the services offered by a web services.





What to test in Web Services?

- Response Correctness
- Schema Compliances
- Authorization
- Http Status Codes
- Response timeout
- Client part that consumes web services
- Load test
- Security Test
- Negative Cases

Test With

- Manually - Curl
- Automation - Tools like SoapUI, Jmeter
- Service Mocks - Mocker
- Customized Clients - Soap Client, Rest Clients
- Response Parser (XPath, XQuery)

Restful Services

Introduction

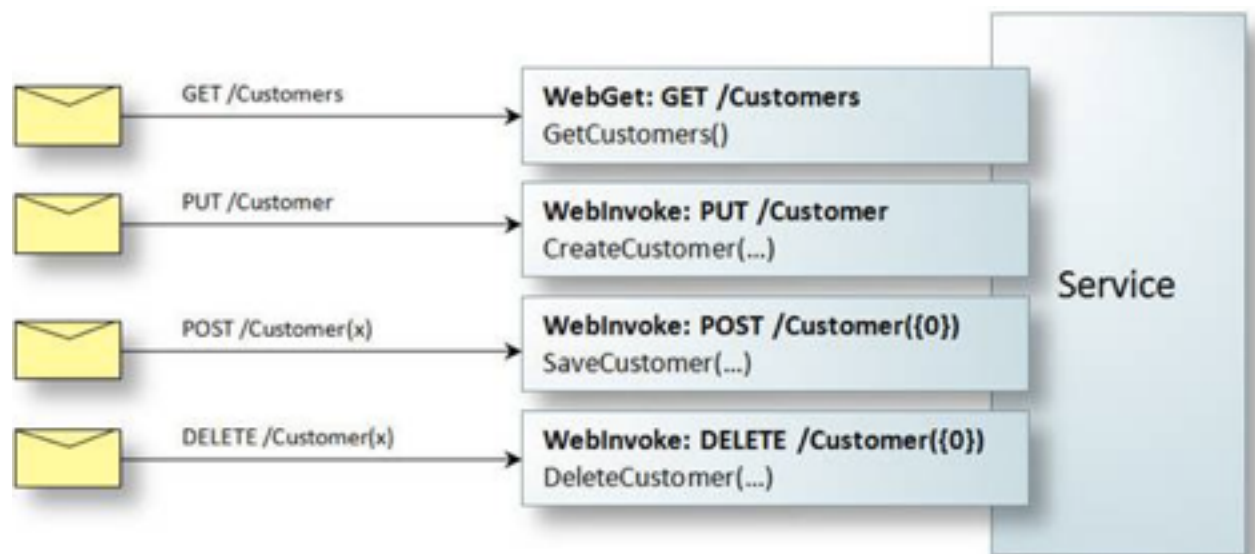
Representational State Transfer Services

Stateless, client-server, cacheable communication between two systems. REST uses CRUD operation on top of HTTP.

- Platform Independent
- Language Independent
- Easy to use
- Light weight

Error Code	Error Name	Description
200	OK	Request was fulfilled
400	Bad Request	Request had bad syntax or the parameters supplied were invalid
403	Forbidden	Valid API Key was not supplied in the query
404	Not Found	Server has not found a route matching the given URI
500	Internal Error	Server encountered an unexpected condition which prevented it from fulfilling the request

HTTP Verbs



OAuth 2.0 (Open Authorization)

Introduction

An open standard for token based authentication & authorization system. Commonly used as a way to communicate with third party websites with famous social networking website credentials without exposing their password.

