



VSR://edu/2016/evs/

10 – Web Services

//// Design of Distributed Systems

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Web Services

In order to build a website, you need knowledge in...

Marketing

Design

Client-Side Code

Browser

Server-Side Code

Web Server

Databases

OS

Management

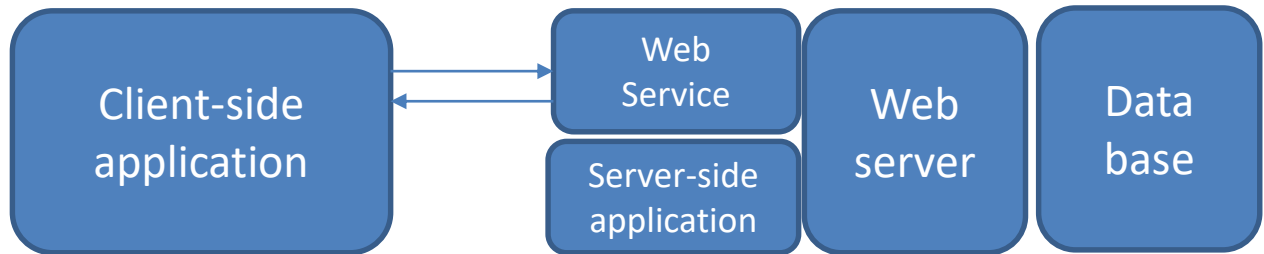
SEO SEM Support
UI/UX Design Photoshop
Responsive
HTML5 CSS JavaScript XML
Bootstrap jQuery AngularJS Cordova
IE, Chrome, Firefox DOM AJAX MobileDev
Webservices Architecture OOP
PHP ASP.NET Java Python nodeJS
Sockets Load Balancing Caching
Apache IIS Security Protocols
MySQL MS SQL Oracle NoSQL
Linux Windows Server Storage
Routing DNS Devices
Git / SVN Tooling Documentation

What are Web Services?

- Web Services are Web-based Interfaces in a computer-to-computer communication
- Primary objective is the exchange of data and the provision of functionalities among heterogeneous applications in distributed system environments

Web Service basic idea

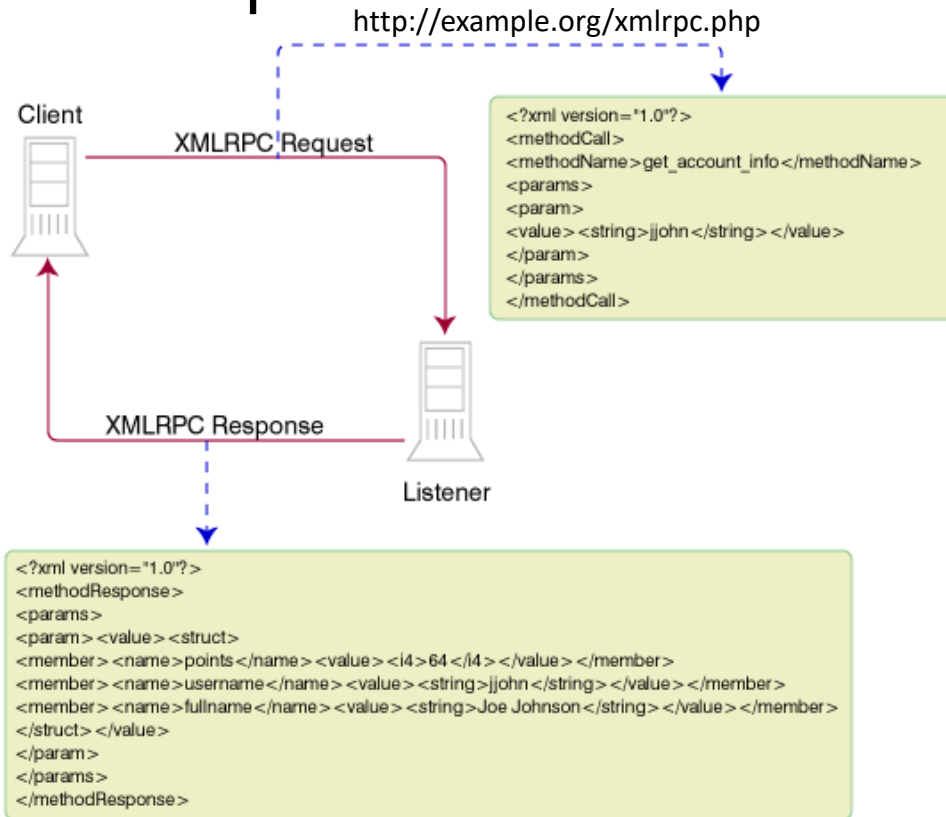
- Only retrieve data from a webserver via a particular interface



What types of Web Services exist?

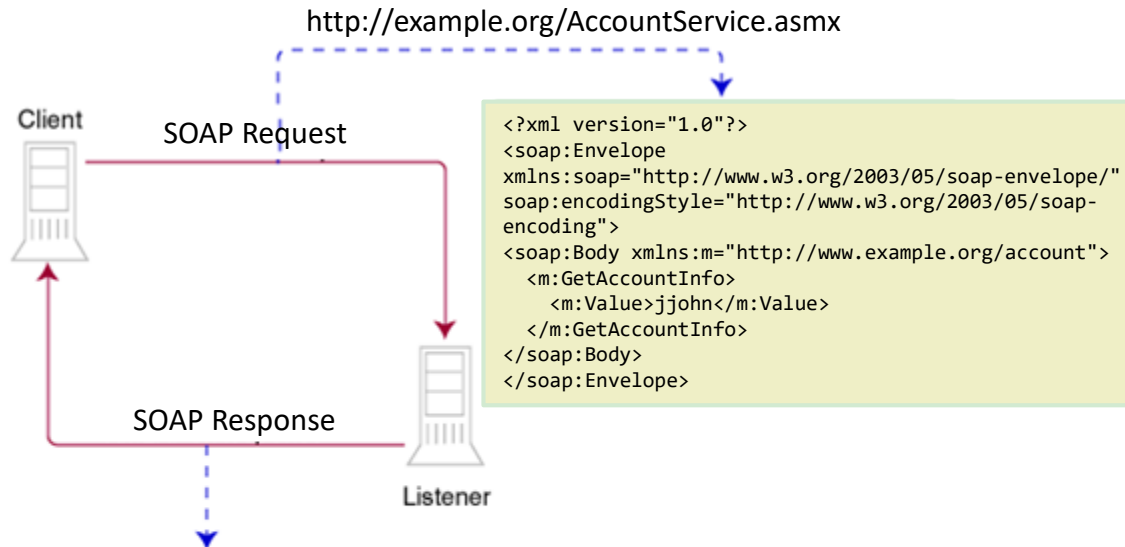
- XML-RPC
- SOAP
- REST

XML-RPC example



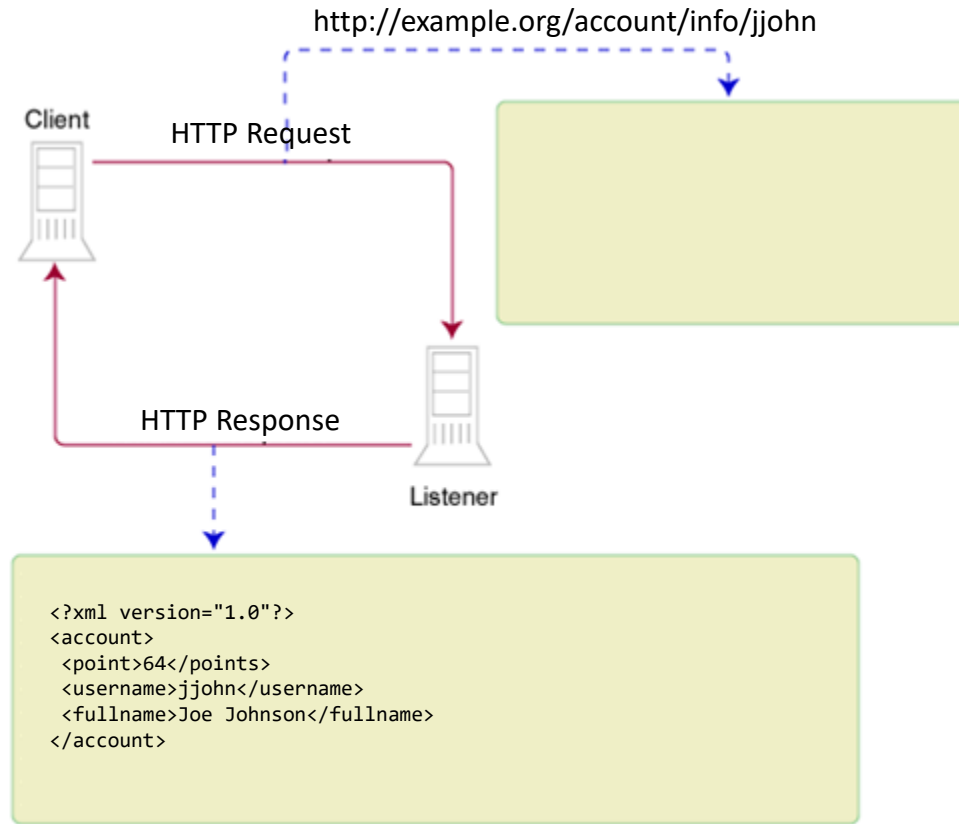
Source: <https://www.ibm.com/developerworks/library/ws-xpc1/>

SOAP example



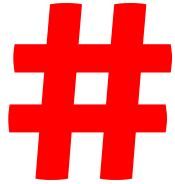
```
<?xml version="1.0"?>
<soap:Envelope
  xmlns:soap="http://www.w3.org/2003/05/soap-envelope/"
  soap:encodingStyle="http://www.w3.org/2003/05/soap-encoding">
  <soap:Body xmlns:m="http://www.example.org/account">
    <m:GetAccountInfoResponse>
      <m:GetAccountInfoResult>
        <m:Points>64</m:Points>
        <m:Username>jjohn</m:Username>
        <m:Fullname>Joe Johnson</m:Fullname>
      </m:GetAccountInfoResult>
    </m:GetAccountInfoResponse>
  </soap:Body>
</soap:Envelope>
```


RESTful example



Microsoft .NET / Visual Studio Support

- ASP.NET Webservice
→ SOAP service support
- ASP.NET WebAPI
→ REST service support



We will focus on **SOAP**

(Follow-up in SSE lectures)

2 SOAP

SOAP in General

- SOAP is a network protocol for data exchange and Remote Procedure Calls
- SOAP is based on TCP/IP for message exchange and commonly relies on HTTP and XML
- SOAP is a successor of XML-RPC

SOAP Web Service Description

- WSDL is a W3C recommendation
- WSDL is a meta language to describe the provided methods, datatypes and exchange protocols of a webservice



Examples

3.1

PlusMinus Service

PlusMinus Service

<http://pauline.informatik.tu-chemnitz.de/PlusMinusService/PlusMinusService.aspx>

3.2

Voting Service

Voting Service

<http://pauline.informatik.tu-chemnitz.de/VotumService/votum.aspx>





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Thank You!

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