

Ignify Consulting

Simple Object Access Protocol

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SOAP: Who is drafting SOAP?

UserLand, Ariba, Commerce One, Compaq,
Developmentor, HP, IBM, IONA, Lotus, Microsoft and SAP.



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SOAP:What is SOAP?

SOAP is an XML based protocol to let software components and applications communicate using standard Internet HTTP.

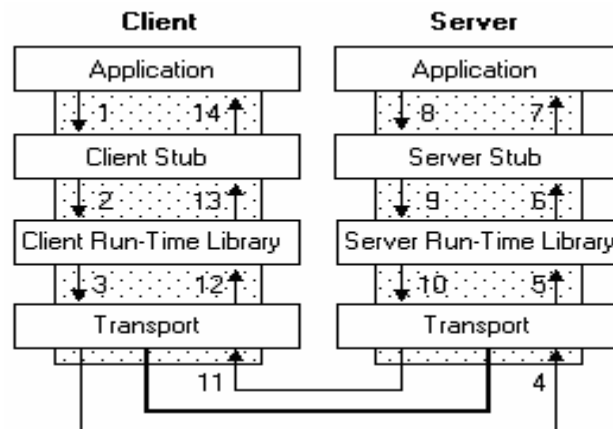
SOAP: Introduction

- ◆ Is a lightweight communication protocol
- ◆ Is for communication between applications
- ◆ Is designed to communicate via HTTP
- ◆ Is not tied to any component technology
- ◆ Is not tied to any programming language
- ◆ Is based on XML
- ◆ Is simple and extensible
- ◆ Is proposed to W3C and will hopefully become a standard

SOAP:Why SOAP?

- ◆ Lack of standard – Hurts Interoperability
- ◆ DCOM
- ◆ CORBA – Object Management Group's Internet Inter-ORB protocol (IIOP).

SOAP:How Remote Procedure Calls (RPC) Works



SOAP in a Nutshell

1. XML for encoding data
 - LANGUAGE OF COMMUNICATION
2. HTTP as transport
 - MEDIUM OF COMMUNICATION

SOAP:XML Structure

XML Document contains the following XML elements:

1. **A SOAP envelope, that defines the content of the message**
2. **A SOAP header (optional), that contains the header information.**
3. **A SOAP body, that contains call and response information.**

SOAP:SOAP Envelope

```
<SOAP-ENV:Envelope xmlns:SOAP-ENV="
  http://schemas.xml.org/soap/envelope/"
  SOAP-ENV
  :encodingStyle="http://schemas.xml.org
  /soap/encoding/" /> ... </SOAP:Envelope>
```

Namespaces are used to provide a context and guarantee the uniqueness of elements associated in this way.

SOAP:SOAP Header

```
<SOAP-ENV:Header>
  <t:newEvent
    xmlns:t="http://www.techmetrix.com/
    eventmanager"
    SOAP-ENV
    :actor="http://schemas.xml.org/soap
    /actor/next/" SOAP-ENV
    :mustUnderstand="1"> Christmas Event
  </t:newEvent>
</SOAP-ENV:Header>
```

SOAP:SOAP Body

```
<SOAP-ENV:Body>  
  <m:NewCustomer xmlns:m="Some-URI">  
    <Name>Dumser</Name>  
    <Surname>Johann</Surname>  
    <City>Cambridge</City>  
    <ZipCode>01800</ZipCode>  
    <State>MA</State>  
    <Country>USA</Country>  
  </m:NewCustomer>  
</SOAP-ENV:Body>
```

The HTTP protocol is used so that the SOAP message will be transported effectively.

SOAP:HTTP Structure

HTTP Header:

POST / COMPUTER HTTP/1.1

Host: www.techmetrix.com

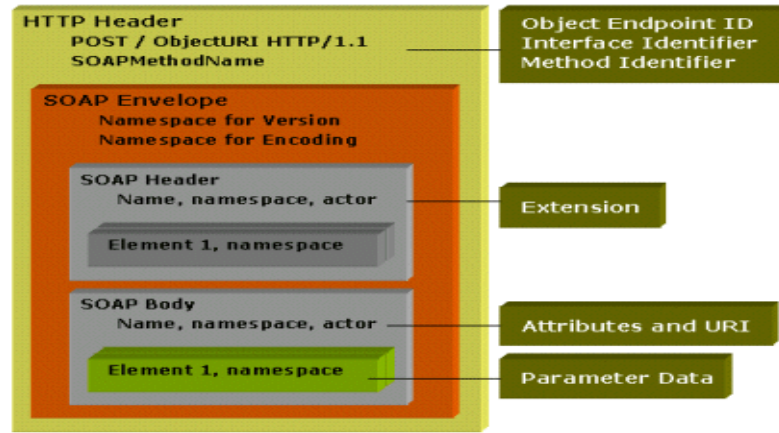
Content-Type: text/xml;

charset="utf-8"

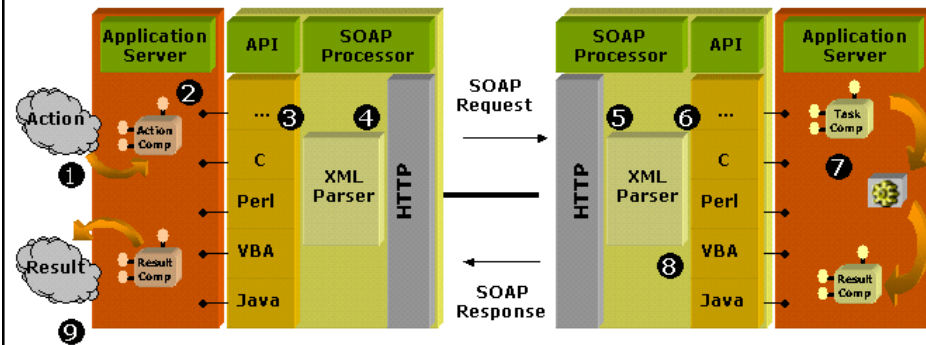
Content-Length: 10

SOAPAction=<http://www.techmetrix.com#EventManager>

SOAP: Structure of a SOAP Message

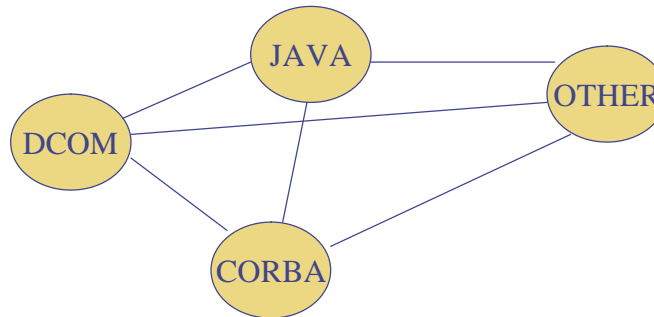


SOAP: Message exchange Model



(display, actions, database access,...)

SOAP: Birds-eye-view



Islands of in-compatibility interconnected by SOAP bridges
Philosophy of “Do one thing and do it well”
Focus on Interoperability

SOAP: Conclusion

- ◆ Extremely Promising Standard
- ◆ Solution for Interaction of heterogeneous systems
- ◆ SOAP Implementations
 - a) Microsoft > SOAP Toolkit
 - b) Apache (IBM) > SOAP4Java
 - c) SilverStream > xCommerce

SOAP: Conclusion > recap

THE PROS	THE CONS
FUNCTIONAL	FUNCTIONAL
Interoperate with diverse, varied environments Possibility of secure exchanges, through firewalls and filter messages	Still does not allow interoperability objectives to be reached as protocol is still young Security will have to move to the content of XML contracts embedded in SOAP messages
TECHNICAL	TECHNICAL
Technological simplicity Based on standard elements, HTTP XML Separates content from transport mode	Existing implementation not satisfactory (numerous bugs, complicated installation, non upgraded specifications)

SOAP: Resources

- ◆ <http://www.w3.org/TR/SOAP/>
- ◆ <http://www.xmlrpc.xom>
- ◆ <http://discuss.develop.com/soap.html>

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