Web services provide a standard means of communication among distributed software applications based on the Web technology. Standardization by the W3C community.

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- **Service Oriented Architecture - SOA**
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**Parts of SOAP**

SOAP consists of three parts:
- an envelope,
- a set of encoding rules,
- a convention for representing remote procedure calls and responses.

**SOAP Message**
one-way transmissions from a sender to a receiver.

A SOAP application receiving a SOAP message must process the message by performing the following actions:

1. Identify all parts of the SOAP message intended for that application; interpret the "SOAP actor" attribute of the SOAP header.
2. Verify that all mandatory parts are supported by the application for this message and process them accordingly.
3. If the SOAP application is not the ultimate destination of the message then remove all parts identified in step 1 before forwarding the message.

```xml
POST /StockQuote HTTP/1.1
Host: www.stockquoteserver.com
Content-Type: text/xml; charset="utf-8"
Content-Length: nnnn
SOAPAction: "Some-URI"

<SOAP-ENV:Envelope
  xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
  SOAP-ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
  <SOAP-ENV:Body>
    <m:GetLastTradePrice xmlns:m="Some-URI">
      <symbol>DIS</symbol>
    </m:GetLastTradePrice>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

SOAP request: processed by a servlet, CGI or standalone daemon running on a remote web server.
RPC interactions may be mapped to SOAP.

```
Java Method

public int addFive(int arg):

Request Message in SOAP

<env:Envelope>
  <env:Body>
    <myNS:addFive xmlns:myNS="http://my-domain.de/"
      encodingStyle="http:"
    >
      <arg xsi:type="xsd:int">33</arg>
    </myNS:addFive>
  </env:Body>
</env:Envelope>

Response Message in SOAP

<env:Envelope>
  <env:Body>
    <myNS:addFiveResponse xmlns:myNS="http://my-domain.de/"
      xmlns:rpc="http://www.w3.org/2003/05/soap-rpc"
      encodingStyle="http:"
    >
      <rpc:result>38</rpc:result>
    </myNS:addFiveResponse>
  </env:Body>
</env:Envelope>
```

Routing is a process of delivering messages through a series of nodes or intermediaries, called SOAP-Routers in the context of SOAP.

The SOAP Router is the entity that moves SOAP messages between internal and external networks.

Besides routing capabilities the SOAP-Router may provide value-added services such as logging, auditing and enforcement of security policies.

WS-Routing is a protocol that defines how SOAP messages can be delivered using various transports.
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