

# LES TECNOLOGIES SOAP I WSDL

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-Server 1-

*SOAP: QUÈ ÉS?*

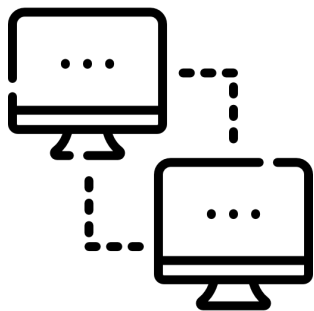
# Simple Object Access Protocol

*(Protocol d'Accés mitjançant Objectes Simples)*

## XML



# SOAP: PER QUÈ NEIX?



**COM**  
**CORBA**

**RMI**



**RPC**

# SOAP: PER QUÉ NEIX?

**1998**

**SOAP  
V1.0**

**2000**



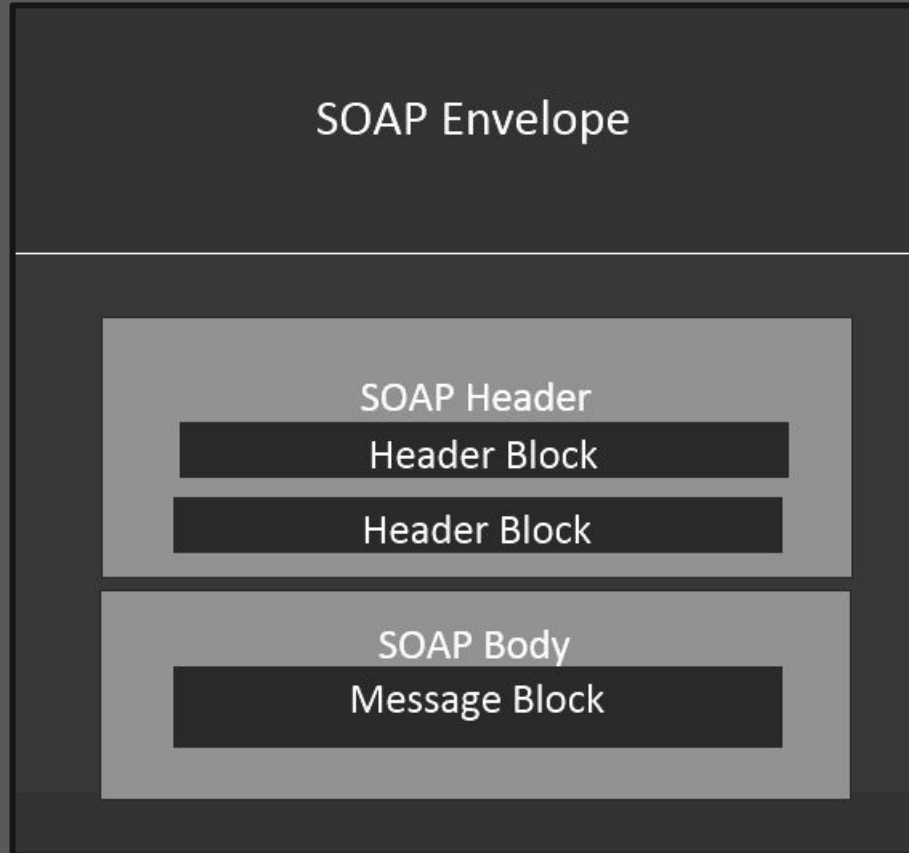
**SOAP  
V1.1**

**2003**



**SOAP  
V1.2**

# *Estructura de la informació d'un SOAP*



# *FAULT*

- FAULT CODE
- FAULT STRING
- [ FAULT ACTOR ]
- [ DETAIL ]

# *FAULT*

- FAULT CODE
- FAULT STRING
- [ FAULT ACTOR ]
- [ DETAIL ]

## FAULT CODES

<b>SOAP-ENV:VersionMismatch</b>	Invalid namespace
<b>SOAP-ENV:MustUnderstand</b>	MustUnderstand = 1 was not understood.
<b>SOAP-ENV:Client</b>	- Message incorrectly formed - Incorrect information.
<b>SOAP-ENV:Server</b>	Problem with the server

## *Exemple d'estructura de SOAP*

```
<?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:Header>
    ...
  </soap:Header>

  <soap:Body>
    ...
    <soap:Fault>
      ...
    </soap:Fault>
  </soap:Body>

</soap:Envelope>
```



```
<?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:Header>
```

```
  ...
```

```
</soap:Header>
```

```
<soap:Body>
```

```
  ...
```

```
    <soap:Fault>
```

```
      ...
```

```
    </soap:Fault>
```

```
</soap:Body>
```

```
</soap:Envelope>
```

```
<xs:element name="float" type="tns:float"/>  
▼<xs:complexType name="float">  
  ▼<xs:simpleContent>  
    <xs:extension base="xs:float">  
      <xs:attributeGroup ref="tns:commonAttributes"/>  
    </xs:extension>  
  </xs:simpleContent>  
</xs:complexType>  
<xs:element name="double" type="tns:double"/>  
▼<xs:complexType name="double">  
  ▼<xs:simpleContent>  
    <xs:extension base="xs:double">  
      <xs:attributeGroup ref="tns:commonAttributes"/>  
    </xs:extension>  
  </xs:simpleContent>  
</xs:complexType>
```

Tros de fitxer d'exemple per *encodingStyle*

```
<?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:Header>
```

```
...
```

```
</soap:Header>
```

```
<soap:Body>
```

```
...
```

```
  <soap:Fault>
```

```
    ...
```

```
  </soap:Fault>
```

```
</soap:Body>
```

```
</soap:Envelope>
```

```
<soap:Header>  
  <m:Trans xmlns:m="https://www.w3schools.com/transaction/"  
    soap:actor="https://www.w3schools.com/code/">234  
  </m:Trans>  
</soap:Header>
```

**actor = *URI***

Aquest header va destinar per a un endpoint concret (tant del servidor o com del camí per arribar-hi)

```
<?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:Header>
```

```
...
```

```
</soap:Header>
```

```
<soap:Body>
```

```
...
```

```
  <soap:Fault>
```

```
    ...
```

```
  </soap:Fault>
```

```
</soap:Body>
```

```
</soap:Envelope>
```

```
<soap:Header>  
  <m:Trans  
xmlns:m="https://www.w3schools.com/transaction/"  
  soap:mustUnderstand="1">234  
  </m:Trans>  
</soap:Header>
```

**mustUnderstand = 1**

Qui rep la petició ha d'entendre el valor "234" o el missatge és invàlid

```
<?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:Header>
```

```
...
```

```
</soap:Header>
```

```
<soap:Body>
```

```
...
```

```
<soap:Fault>
```

```
...
```

```
</soap:Fault>
```

```
</soap:Body>
```

```
</soap:Envelope>
```

### Body de petició

```
<soap:Body>  
  <m:GetPrice  
    xmlns:m="https://www.w3schools.com/prices">  
    <m:Item>Apples</m:Item>  
  </m:GetPrice>  
</soap:Body>
```

### Body de resposta

```
<soap:Body>  
  <m:GetPriceResponse  
    xmlns:m="https://www.w3schools.com/prices">  
    <m:Price>1.90</m:Price>  
  </m:GetPriceResponse>  
</soap:Body>
```

```
<?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:Header>
```

```
...
```

```
</soap:Header>
```

```
<soap:Body>
```

```
...
```

```
  <soap:Fault>
```

```
    ...
```

```
  </soap:Fault>
```

```
</soap:Body>
```

```
</soap:Envelope>
```

```
<SOAP-ENV:Fault>
```

```
  <faultcode xsi:type = "xsd:string">SOAP-ENV:Client</faultcode>
```

```
  <faultstring xsi:type = "xsd:string">
```

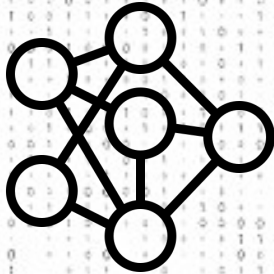
```
    Failed to locate method (ValidateCreditCard) in class (examplesCreditCard) at  
    /usr/local/ActivePerl-5.6/lib/site_perl/5.6.0/SOAP/Lite.pm line 1555.
```

```
  </faultstring>
```

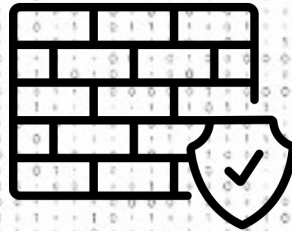
```
</SOAP-ENV:Fault>
```

**Exemple Fault:** error al construir el missatge per part del client

# *PROS*



**INTEROPERABILITAT**



**HTTP - FIREWALL**



**SENZILLESA**

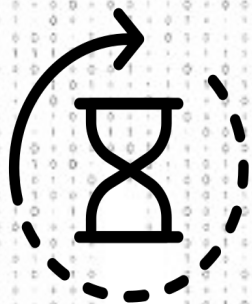


**ANONIMAT**



**SEGURETAT (WSS)**

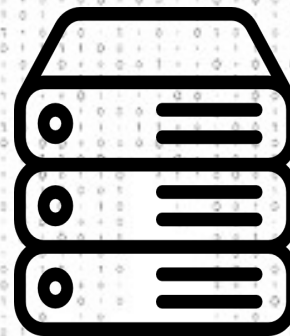
# CONTRES



LENTITUD



SUPORT



WSDL





# WSDL: QUÈ ÉS?

Web Services Description Language

*(Llenguatge de Descripció de Serveis Web)*

Col·lecció de protocols i estàndards per enviar  
i rebre dades entre aplicacions

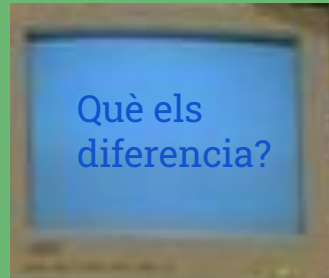
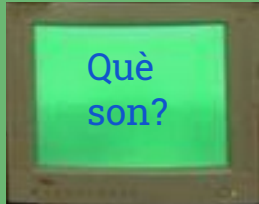
XML





# *Binding styles de WSDL*

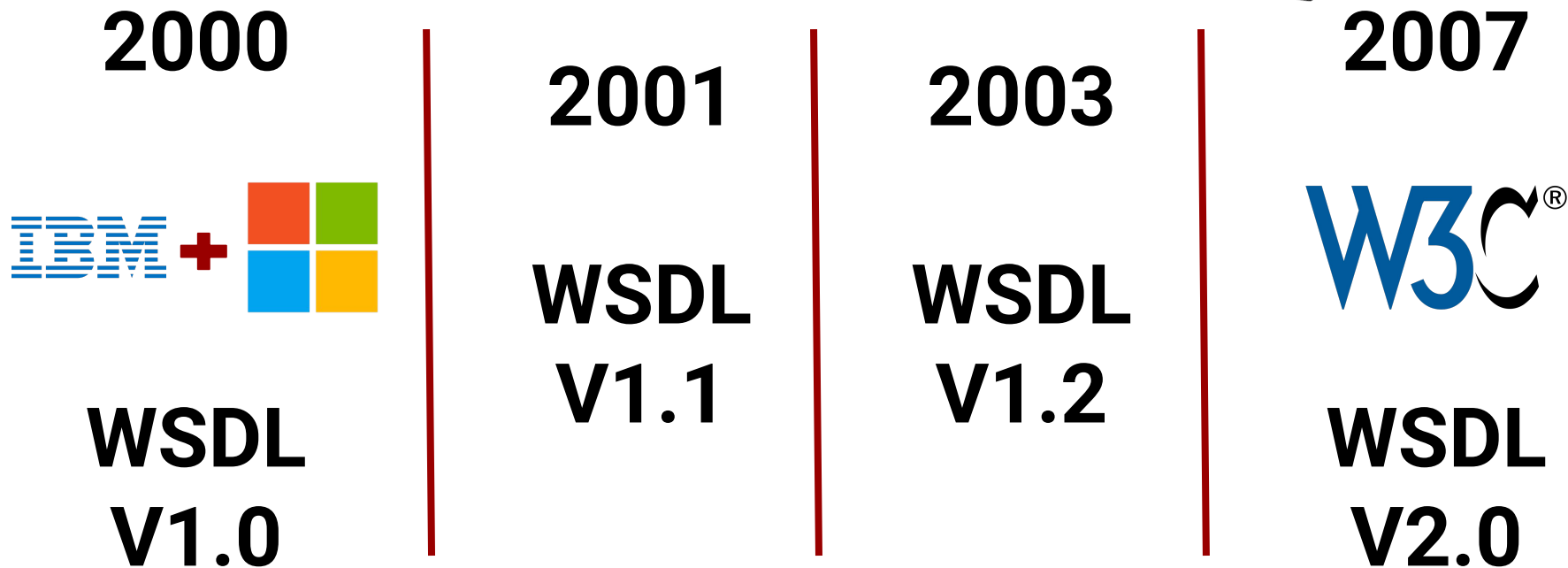
1. **RPC/encoded**
2. **RPC/literal**
3. **Document/encoded**
4. **Document/literal**
5. **Document/literal wrapped**



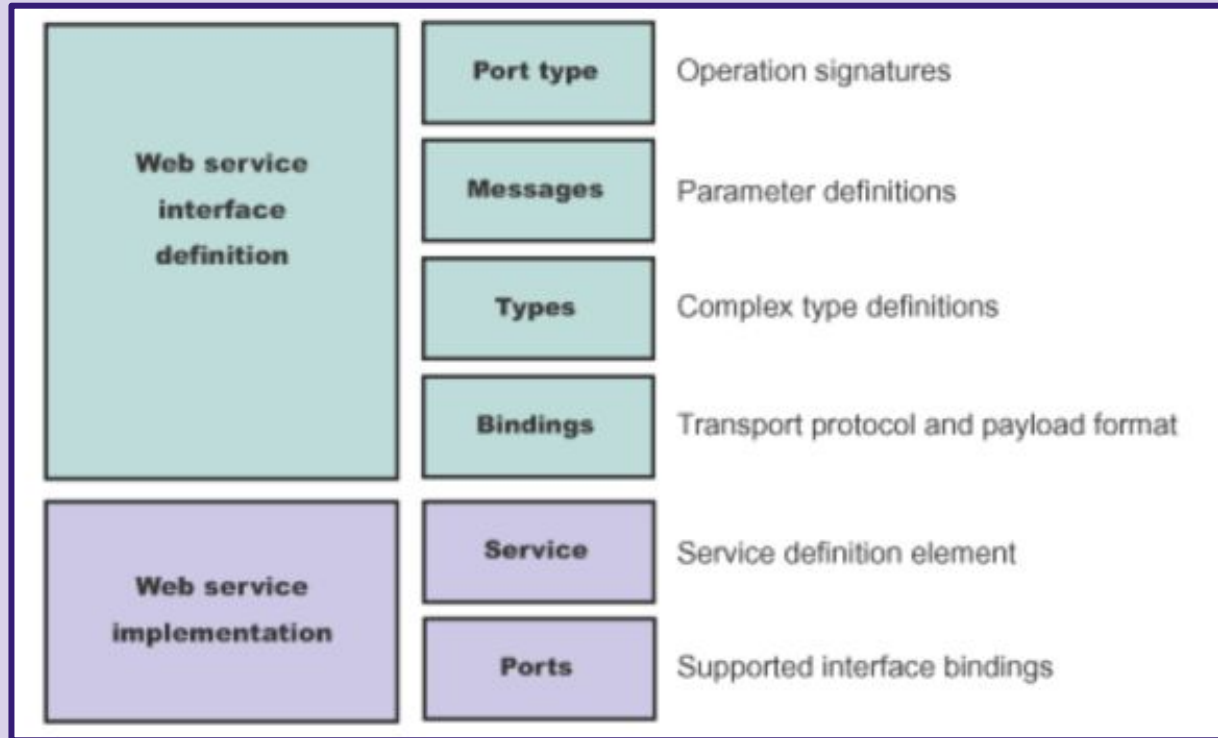
## *WSDL: Conexión con SOAP*



## WSDL: fites històriques



## *Estructura de la informació en un arxiu WSDL*



```
<definitions name="StockQuote"
```

```
  targetNamespace="http://example.com/stockquote.wsdl"  
    xmlns:tns="http://example.com/stockquote.wsdl"  
    xmlns:xsd1="http://example.com/stockquote.xsd"
```

```
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"  
    xmlns="http://schemas.xmlsoap.org/wsdl/">>
```

```
<types>
```

```
  <schema
```

```
    targetNamespace="http://example.com/stockquote.xsd"  
    xmlns="http://www.w3.org/2000/10/XMLSchema">
```

```
    <element name="TradePriceRequest">
```

```
      <complexType>
```

```
        <all>
```

```
          <element name="tickerSymbol"
```

```
            type="string"/>
```

```
        </all>
```

```
      </complexType>
```

```
    </element>
```

```
    <element name="TradePrice">
```

```
      <complexType>
```

```
        <all>
```

```
          <element name="price" type="float"/>
```

```
        </all>
```

```
      </complexType>
```

```
    </element>
```


```
  </schema>
```

```
</types>
```

## Exemple d'estructura de WDSL

<types>: defineix els tipus de dades usades en els missatges (ús de dades definides en l'especificació d'esquemes XML)


**<message>**: Es defineixen els elements de missatges. Les parts poden ser de qualsevol dels tipus definits en la secció anterior.



```
<message name="GetLastTradePriceInput" >  
  <part name="body" element="xsd1:TradePriceRequest" />  
</message>
```

```
<message name="GetLastTradePriceOutput" >  
  <part name="body" element="xsd1:TradePrice" />  
</message>
```

```
<portType name="StockQuotePortType" >  
  <operation name="GetLastTradePrice" >  
    <input message="tns:GetLastTradePriceInput" />  
    <output message="tns:GetLastTradePriceOutput" />  
  </operation>  
</portType>
```



**<portType>**: Amb aquest apartat definim les operacions permeses i els missatges intercanviats en el Servei.

```
<binding name="StockQuoteSoapBinding"
type="tns:StockQuotePortType">
  <soap:binding style="document"
transport="http://schemas.xmlsoap.org/soap/http"/>
  <operation name="GetLastTradePrice">
    <soap:operation
soapAction="http://example.com/GetLastTradePrice"/>
    <input>
      <soap:body use="literal"/>
    </input>
    <output>
      <soap:body use="literal"/>
    </output>
  </operation>
</binding>

<service name="StockQuoteService">
  <documentation>My first service</documentation>
  <port name="StockQuotePort"
binding="tns:StockQuoteSoapBinding">
    <soap:address
location="http://example.com/stockquote"/>
  </port>
</service>
</definitions>
```

<binding>: Especifiquem els protocols de comunicació usats.

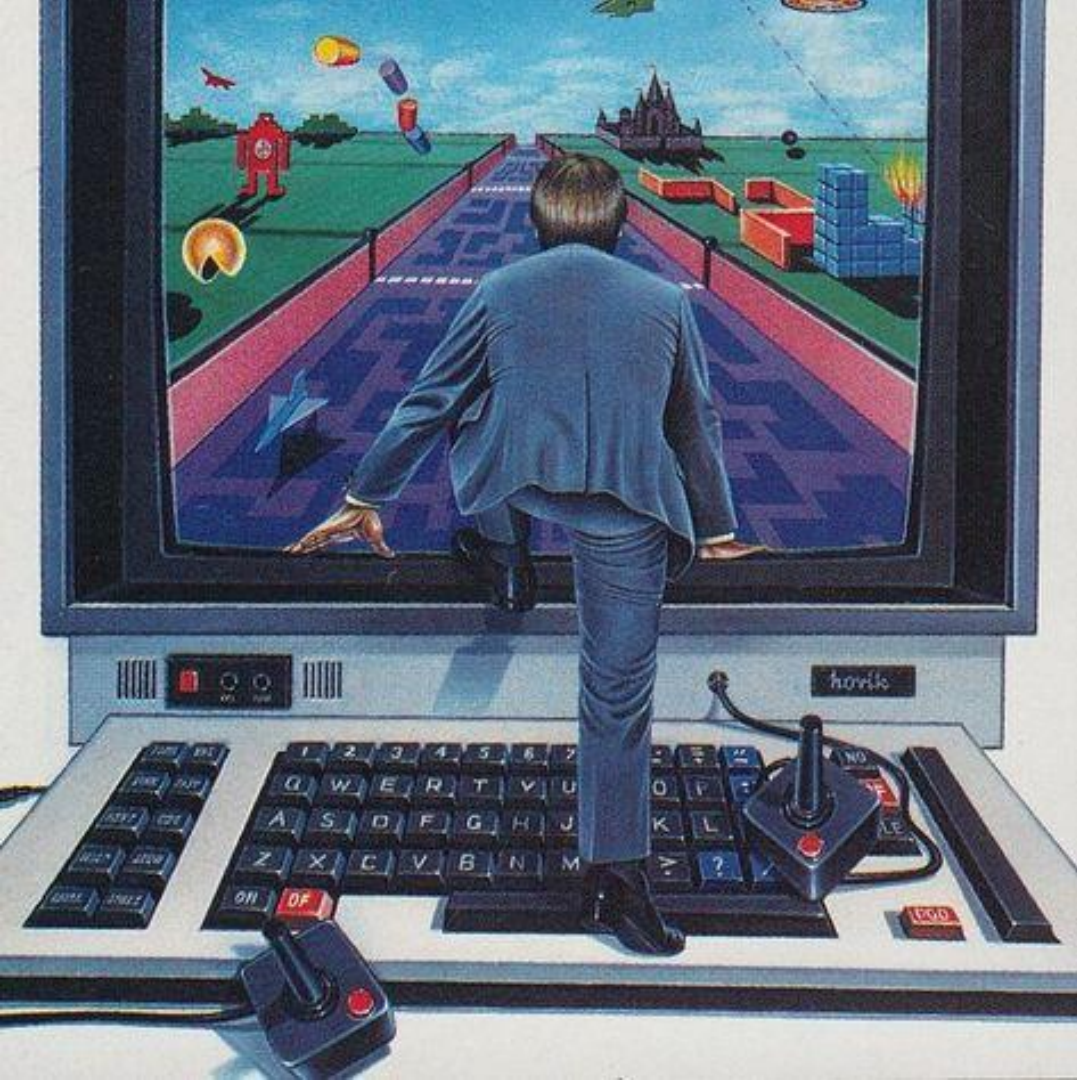
<service>: Conjunt de ports i adreça dels mateixos.

# *PROS vs CONTRES / LIMITACIONS*

- Facilitat d'ús juntament amb SOAP i XML.
- Ofereix una estructura a la definició de interfícies de serveis web.
- Facilita descripció d'un servei web al client que ho sol·licita.
- Usat per clients per reduir el codi necessari per accedir a un servei.
- Accepta canvis a la seva descripció, permetent actualitzacions dinàmiques.

- Els arrays SOAP no són compatibles.
- Totes les operacions han de ser d'un mateix tipus.
- Només es tenen en compte operacions amb SOAP.
- No poden haver missatges d'una sola direcció.





*Gràcies  
per la  
vostra  
atenció!*

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