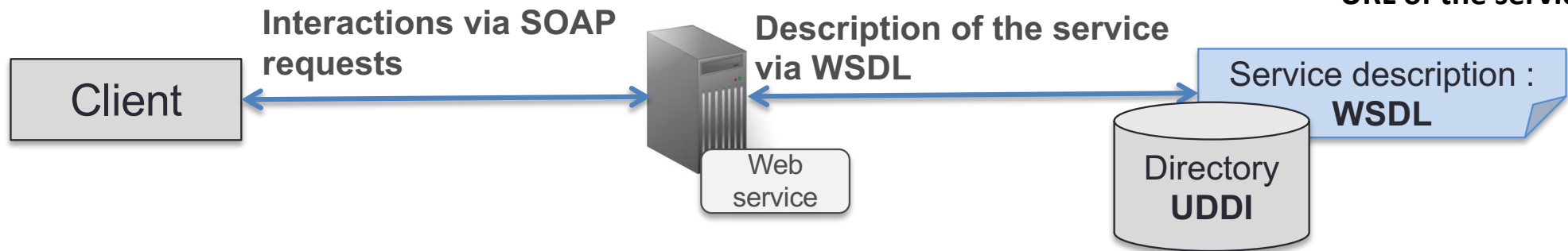


Web services standards

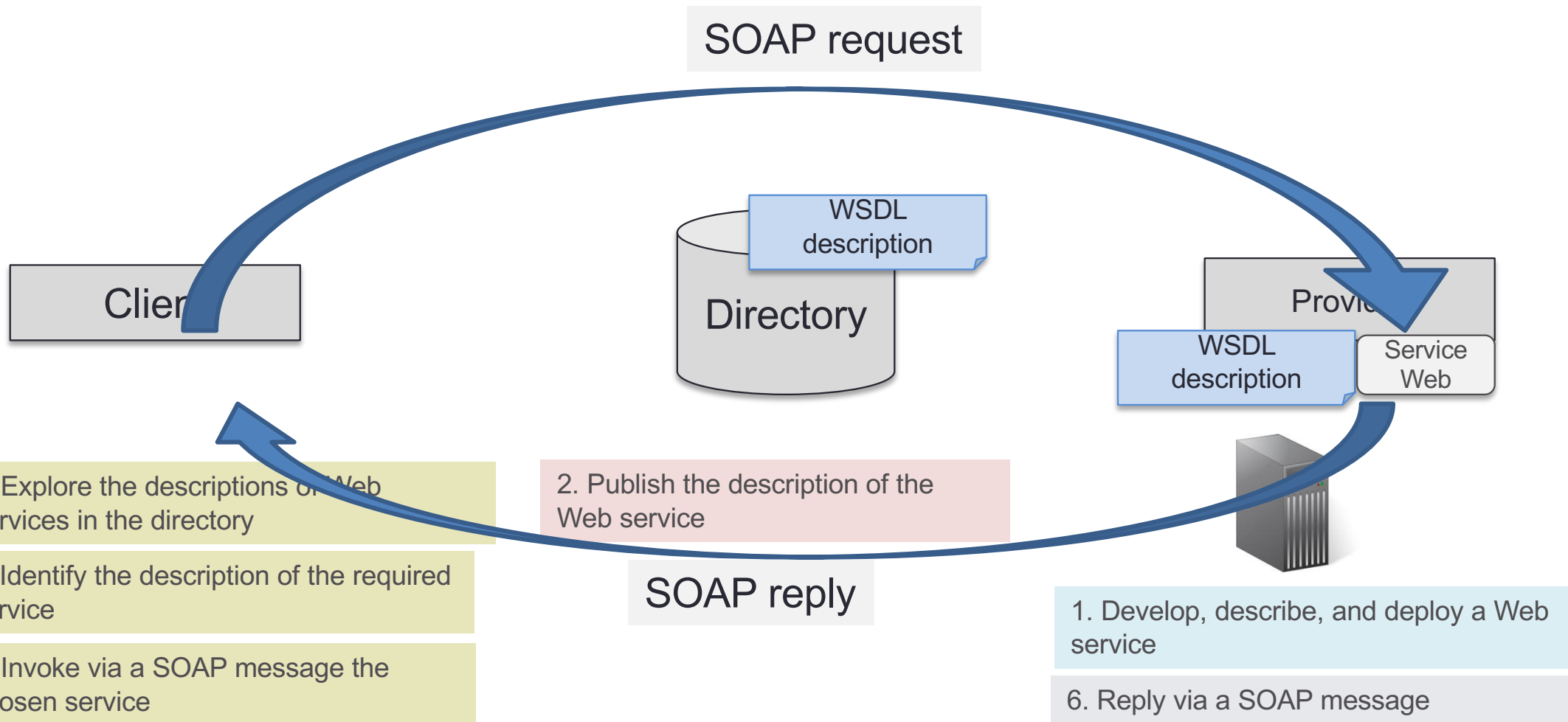
Web services standards

- Three XML based standards :
 - WSDL : Web Service Description Language
 - UDDI : Universal Description Discovery and Integration
 - SOAP : Simple Object Access Protocol

- ✓ Provided operations
- ✓ Data types
- ✓ Transport protocols
- ✓ URL of the service



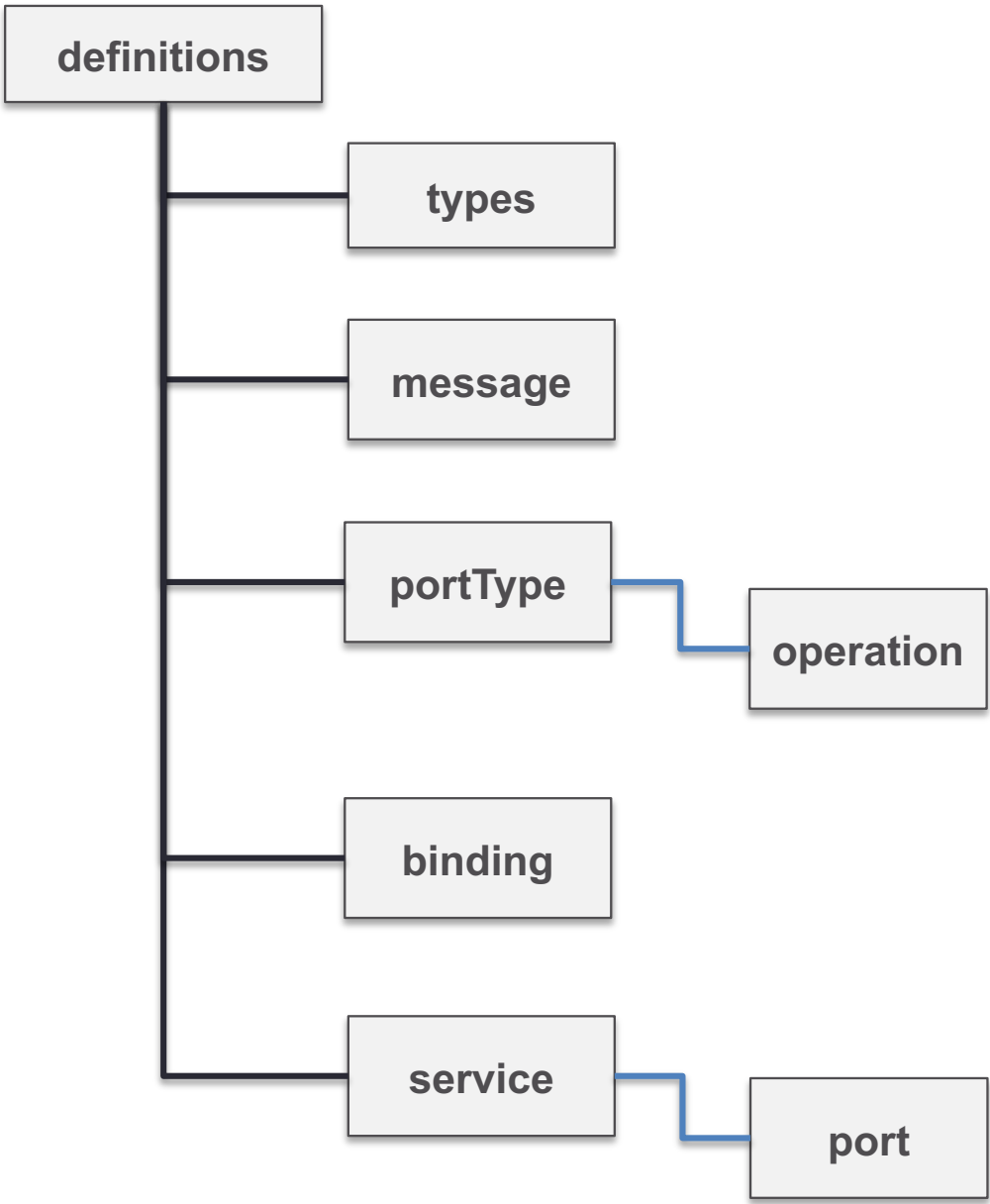
Web services standards



WSDL standard

WSDL

- XML-based Web services description language
- Describes web services independently of languages and development platforms
- Describes operations, input and output parameters, messages, supported transport protocols, and service location



```

<definitions>
  <types></types>
  <message>
    <part></part>
  </message>
  <portType>
    <operation>
      <input></input>
      <output></output>
    </operation>
  </portType>
  <binding></binding>
  <service>
    <port></port>
  </service>
</definitions>
  
```

The element definitions

- The root element of each WSDL document
- Lists all the namespaces needed to define the WSDL document

```
<definitions name="IdentiteWSService"  
  targetNamespace="www.example.org/IdentiteWSService"  
  xmlns:soap="http://schema.xmlsoap.org/wsdl/soap"  
  xmlns:xsd="http://www.w3.org/2001/XMLSchema/"  
  xmlns="http://schema.xmlsoap.org/wsdl/">
```

XML schema namespace

```
</definitions>
```

definitions

types

```
<definitions>
```

```
  <types></types>
```

```
  <message>
    <part></part>
  </message>
```

```
  <portType>
    <operation>
      <input></input>
      <output></output>
    </operation>
  </portType>
```

```
  <binding></binding>
```

```
  <service>
    <port></port>
  </service>
```

```
</definitions>
```


The element types


- Definition of data types exchanged by the service
- Main use of XML schema

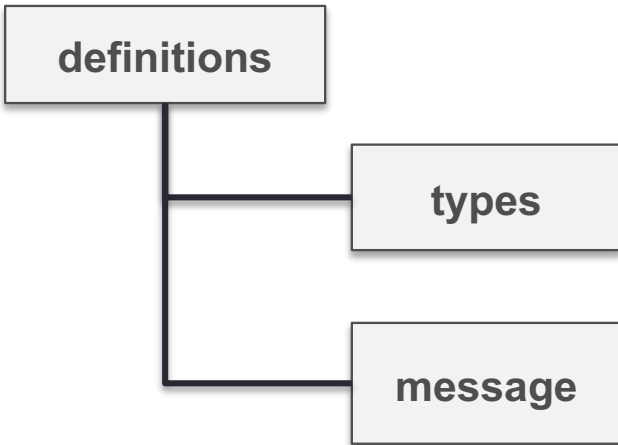
```
<types>  
  <schema xmlns="http://www.w3.org/2001/XMLSchema"  
    targetNamespace="http://www.example.org/exampleWSDL"  
    xmlns:tns="http://www.example.org/exampleWSDL">
```

```
  <complexType name="ClientIdentityType">  
    <sequence>  
      <element name="firstName" type="String"/>  
      <element name="lastName" type="String"/>  
      <element name="age" type="int"/>  
    </sequence>  
  </complexType>
```

```
  </schema>  
</types>
```

```
public class ClientIdentity {  
    private String firstName;  
    private String lastName;  
    private int age;  
}
```





```

<definitions>

  <types></types>

  <message>
    <part></part>
  </message>

  <portType>
    <operation>
      <input></input>
      <output></output>
    </operation>
  </portType>

  <binding></binding>

  <service>
    <port></port>
  </service>

</definitions>
  
```

The element message

- Description of messages received and sent by the Web service
- Input and output of the Web service operations

```
<message name = "getIdMsg">  
  <part name="clientId" type="xs:string"/>  
</message>
```

```
<message name="getIdentityMsg">  
  <part name="clientIdentity" type="tns:ClientIdentityType"/>  
</message>
```

The element message

- Description of messages received and sent by the Web service
- Input and output of the Web service operations

```
<message name="getIdMsg">
```

```
  <part name="clientId" type="xs:string"/>
```

```
</message>
```

```
<message name="getIdentityMsg">
```

```
  <part name="clientIdentity" type="tns:ClientIdentityType"/>
```

```
</message>
```


The element message

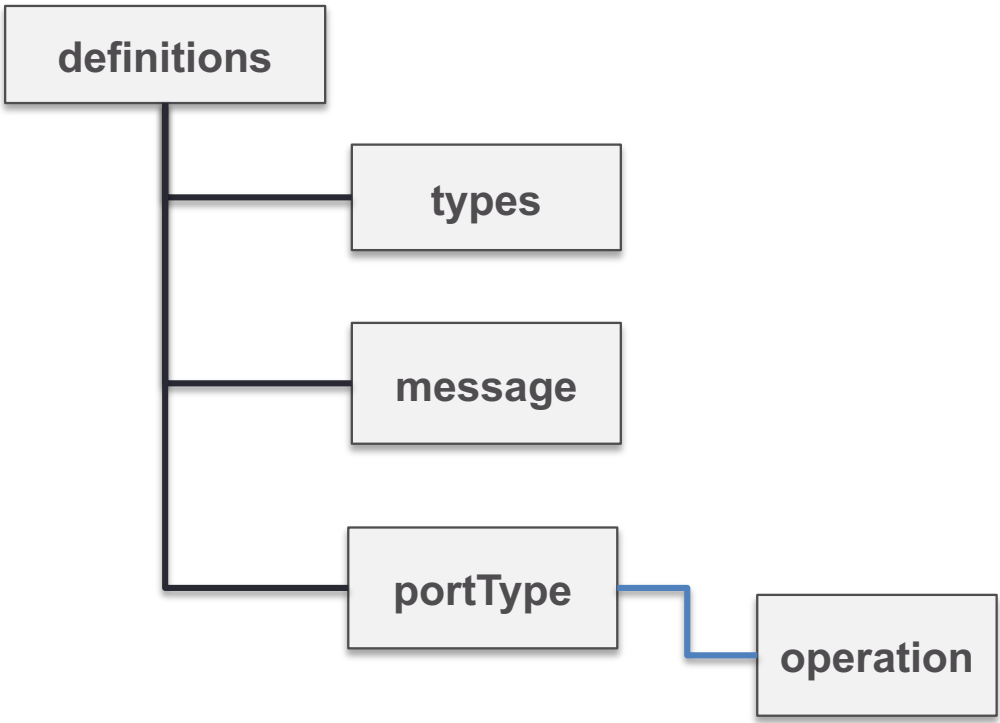
- Description of messages received and sent by the Web service
- Input and output of the Web service operations

```
<message name="getIdMsg">
  <part name="clientId" type="xs:string"/>
</message>

<message name="setIdentityMsg">
  <part name="clientId" type="tns:ClientIdentityType"/>
</message>
```

```
<complexType name="ClientIdentityType">
  <sequence>
    <element name="firstName" type="String"/>
    <element name="lastName" type="String"/>
    <element name="age" type="int"/>
  </sequence>
</complexType>
```





```

<definitions>

  <types></types>

  <message>
    <part></part>
  </message>

  <portType>
    <operation>
      <input></input>
      <output></output>
    </operation>
  </portType>

  <binding></binding>

  <service>
    <port></port>
  </service>

</definitions>
  
```

The element portType

- Defines a set of operations offered by the Web service

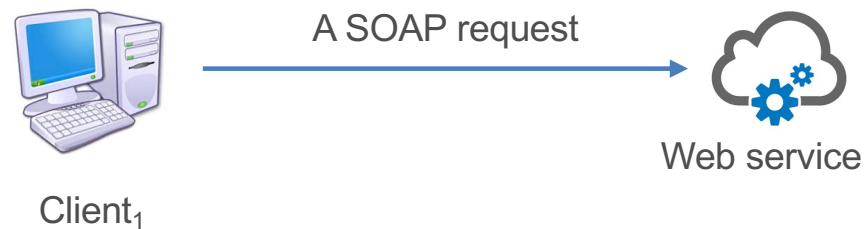
```
<portType name="IdentityPT">
  <operation name="getIdentity">
    <input message="tns:getIdMsg"/>
    <output message="tns:getIdentityMsg"/>
  </operation>
</portType>
```

```
<message name="getIdMsg">
  <part name="clientId" type="xs:string"/>
</message>

<message name="getIdentityMsg">
  <part name="clientIdentity" type="tns:ClientIdentityType"/>
</message>
```

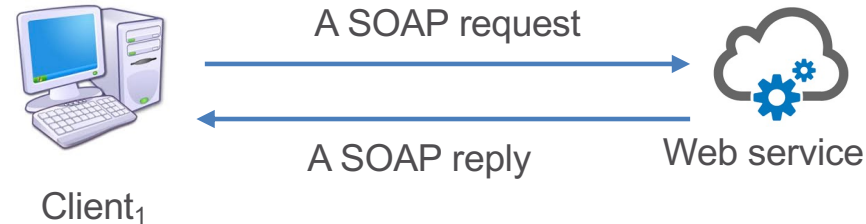
Web service operations : one way

- There are four types of operations
 - **One-way**: the service receives a request and does not send an answer



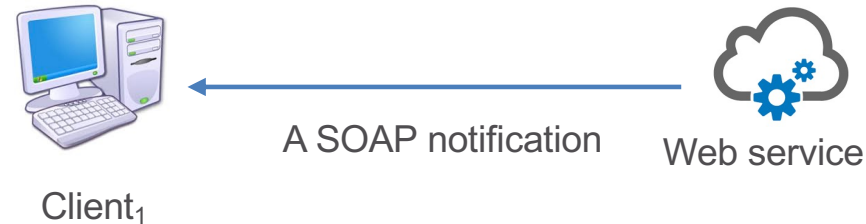
Web service operations : request/response

- **Request/Response:** the service receives a request and sends a response message to the client



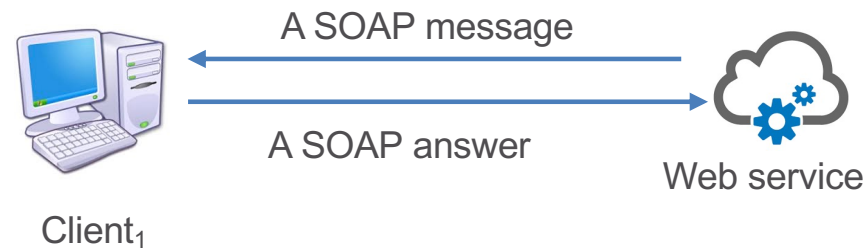
Web service operations :notification

- **Notification:** the service sends a message to the client and does not wait for an answer



Web service operations : solicit response

- **Solicit-Response:** the service sends a message to the client and receives an answer



Summary

