Web Services

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How would you interface your web app with ...?

twitter

YAHOO! FINANCE

The Weather Channel

Google™

amazon.com

How would you make your data available to others?

Other client platforms that could be

- a web app
- a phone app
- a desktop app

Different solutions

The “hacking” solution	Data scraping (get the page and parse it)
The “json” solution	JSON data structure
The “dedicated” solution	Programming APIs (based on JSON under the hood)
The “formal” solution	Web Services (SOAP messages)

Web Services

Implementation of Remote Procedure Calls (RPC)
over HTTP (other protocols also supported such as SMTP)

- The remote procedure is called **a web service**
- Request/Response encoded in a SOAP envelope
- Data type and representation defined as a XML schema

➡ Mostly used between web servers (B2B)

✓ Service Oriented Architecture (SOA)

Web Services Standards

Many W3C standards (source *xhtml.com*)

The most important ones

SOAP (Simple Object Protocol)

- Provide a way to exchange message

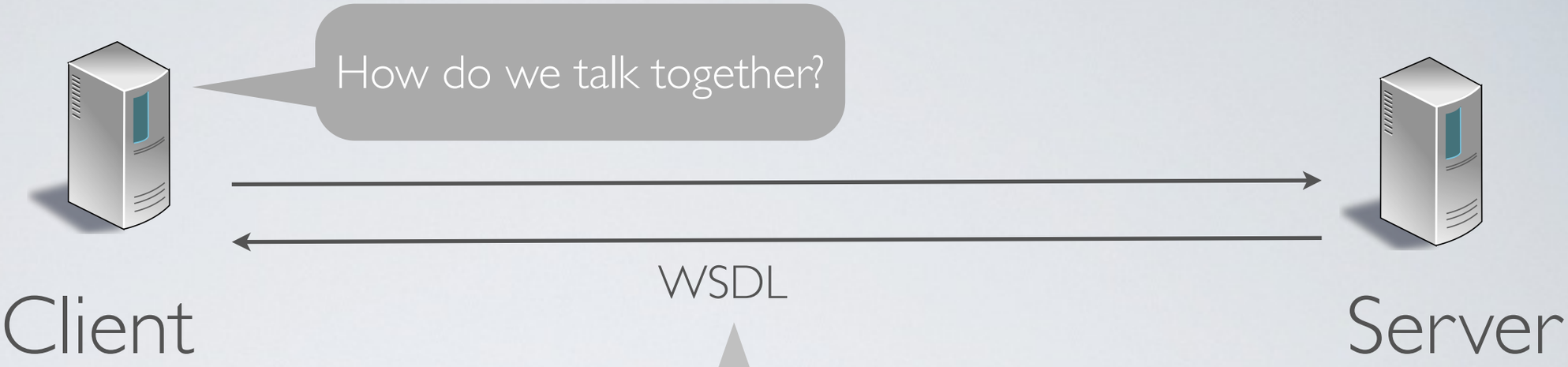
WSDL (Web Service Definition Language)

- Provide a way to describe your web service

UDDI (Universal Definition Language)

- Provide a way to advertise your web service

WSDL




```
<message name="getPriceRequest">
         <part name="Item" type="xs:string"/>
</message>

<message name="getPriceResponse">
  <part name="Price" type="xs:double"/>
</message>

<portType name="glossaryPrice">
  <operation name="getPrice">
    <input message="getPriceRequest"/>
    <output message="getPriceResponse"/>
  </operation>
</portType>

<binding type="glossaryTerms" name="b1">
   <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/
http" />
   <operation>
     <soap:operation soapAction="http://example.com/getPrice"/>
     <input><soap:body use="literal"/></input>
     <output><soap:body use="literal"/></output>
  </operation>
</binding>
```

SOAP Request

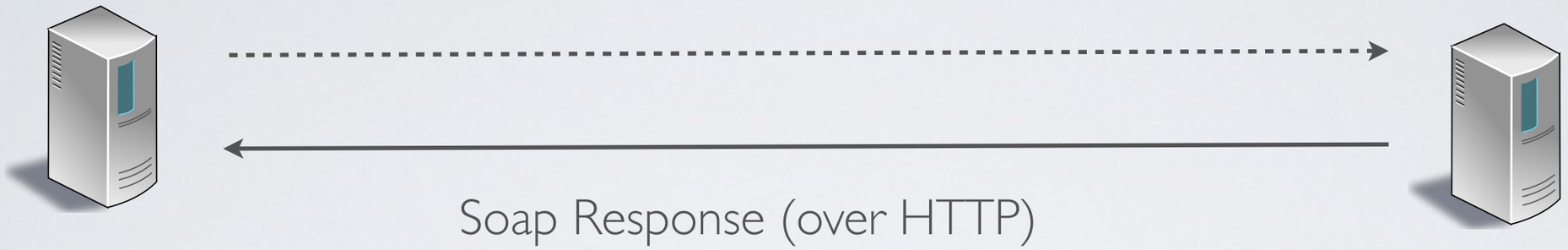
```
<?xml version="1.0"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2001/12/soap-
envelope"
soap:encodingStyle="http://www.w3.org/2001/12/soap-
encoding">

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

</soap:Envelope>
```

example from *www.w3school.com*

SOAP Response



Cl

```
<?xml version="1.0"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2001/12/soap-
envelope"
soap:encodingStyle="http://www.w3.org/2001/12/soap-
encoding">

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

</soap:Envelope>
```

example from *www.w3school.com*

Conclusion

A good idea but have **not been widely adopted**

- Very modular but very complex architecture
- Standards evolve faster than development frameworks
- Ad-hoc solutions (REST + JSON) adopted by the main actors of the web