

More about Web Services

SET09103 Advanced Web Technologies

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Outline

Comparing REST and SOAP

Comparing AJAX to Web Services

Representational state transfer (REST)

- ▶ A style of software architecture for distributed hypermedia systems.
- ▶ A collection of network architecture principles.
- ▶ Each resource corresponds to a URI.
- ▶ Uses resources instead of states.

The “REST” concept was introduced in 2000 by Roy Fielding.

Examples

RPC:

```
exampleAppObject = new ExampleApp('example.com:1234')  
exampleAppObject.removeUser('001')
```

REST Server code:

```
http://example.com/users/  
http://example.com/users/001/
```

REST Client code:

```
userResource = new Resource('http://example.com/users/001')  
userResource.delete()
```

Examples continued

REST uses HTTP GET, POST, PUT, DELETE etc for implementing its methods:

```
userResource = new Resource('http://example.com/users/001')  
userResource.delete()
```

- ▶ If these methods are not available, the query string is used as well.
- ▶ Results are returned as XML or JSON.

REST versus RPC/SOAP

REST:

- ▶ Lightweight: uses less XML, easier to use.
- ▶ Requires less client-side software.
- ▶ Needs less additional frameworks on top of HTTP.
- ▶ Provides more long-term stability.
- ▶ Because resources are URIs, they can be bookmarked etc.

RPC/SOAP:

- ▶ RPC uses methods (which often hide underlying complexity).
- ▶ SOAP does more type checking.

Who uses what?

- ▶ Google used to use SOAP, but now uses AJAX.
- ▶ PayPal uses SOAP, but they also have an NVP (Name-Value-Pair) interface.
- ▶ Yahoo (including Flickr, del.icio.us, etc) uses REST.

Reminder: AJAX XMLHttpRequest

The XMLHttpRequest API allows to include remote content in Javascript. This uses the HTTP protocol and is used for data.

Other possibilities: include remote Javascript code (see next slide) or use IFrame.

Reminder: AJAX <script src...>

```
<script src='http://servername/username/scriptinclude'  
type='text/javascript'></script>
```

The file 'scriptinclude' contains Javascript functions etc, but no html and no <script> tags.

Comparing AJAX to Web Services

- ▶ Which programming languages (client and server)?
- ▶ Security: who is at risk, client or server?
- ▶ Portability across different platforms?
- ▶ How easy/difficult to program?
- ▶ Stability, etc?
- ▶ Bandwidth, etc?