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:

def exampleAppObject = new ExampleApp('example.com:1234')
def 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:

```javascript
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...>`

```html
<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?