xorb / xosoap — Remoting for OACS / .LRN

Stefan Sobernig

November 2, 2006

Overview

- What drives us ...
- Features & Architecture
- Consuming a remote service
- Providing a remote service
- Hooking-in add-on functionality: Interceptors
- What remains to be done ...
- Get glimpse of xorb / xosoap

What drives us ...

Features & Architecture

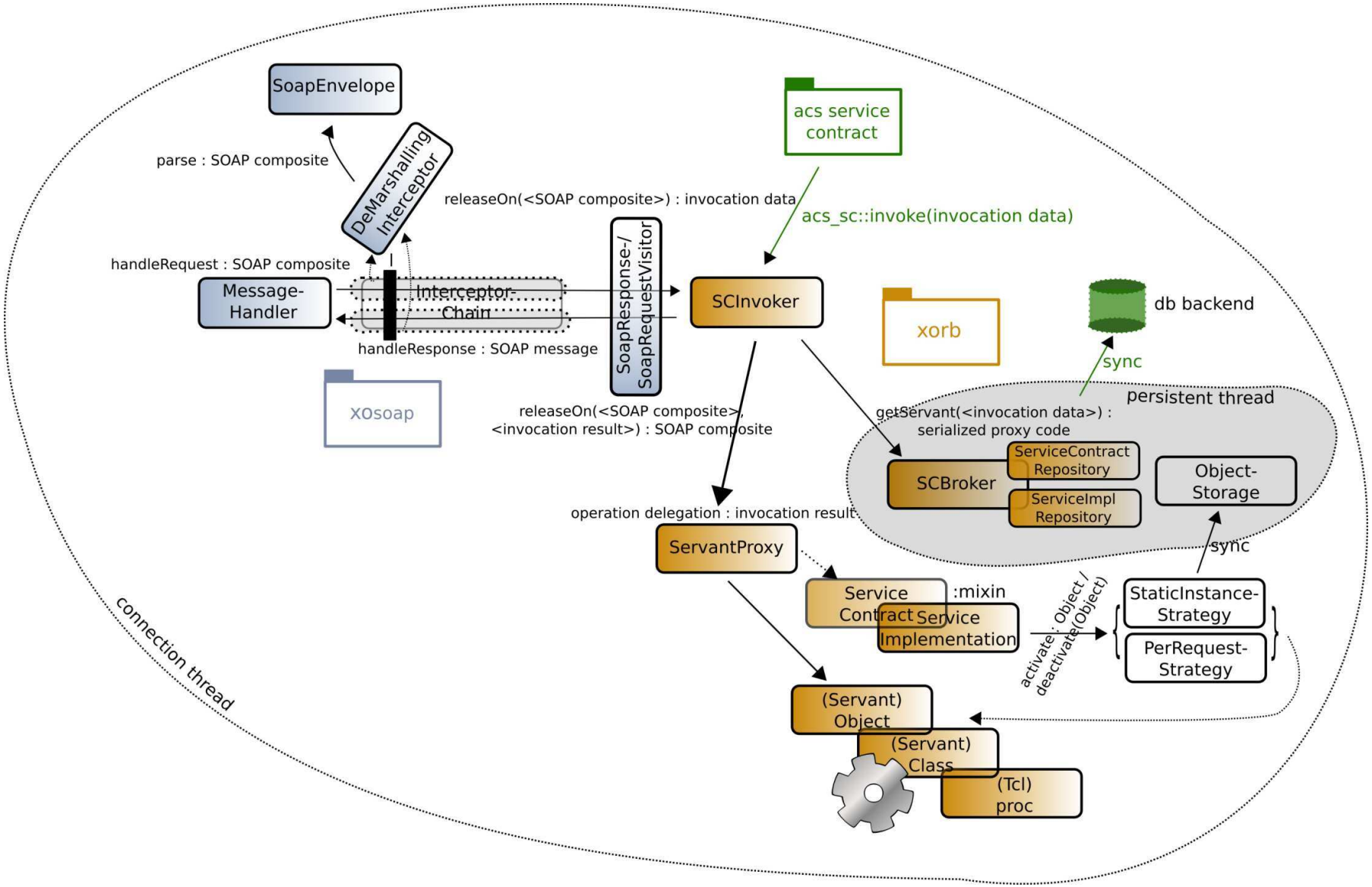
Features (I)

- xorb (p: xotcl-request-broker) — *XO*Tcl *R*equest *B*roker
- xorb mainly provides
  - A more generic invocation dispatcher, supporting local (following original ACS Service Contracts) and remote redirection (protocol-plugins: xotcl-soap).
  - An OO-interface that wraps up OpenACS's Service Contracts / Implementations (package: acs-service-contracts).
- xorb extends the original package by:
  - Object representations and caching of Contracts / Implementations (including signature-based synchronisation with data base)
  - Contracts / implementations are delivered "on demand", supporting "thin" connection threads in the future.
  - Resolving invocation requests: Currently an extensible selection framework for attribution of implementations to contracts, upcoming Invocation Contexts.
  - An extensible infrastructure to plug-in new remoting protocols, currently SOAP.

Features (II)

- xosoap (p: xotcl-soap) is a SOAP ”Protocol Plugin” for xorb:
  - SOAP (1.1) Server Framework
  - SOAP (1.1) Client Framework
  - HTTP / HTTPS Transport Infrastructure
    - Native XOTcl component: xotcl::comm::httpAccess
    - Optionally: TclCurl
  - Currently allows for RMI style of interaction
  - XOTcl SOAP Parser (based upon tDOM)
  - Functional modularity (realised by Chain of Interceptors)
  - WSDL generation

Architecture



Consuming a remote service

Declaring a stub (I)

```
1  ::xotcl::Class StockQuote
2  StockQuote ad_instproc \
3       -stub \
4       -bind soap://64.124.140.30:9090/soap \
5       -uri "urn:xmethods-delayed-quotes" \
6       getQuote \
7       {-symbol:remote} \
8       {getQuote's doc} {}
```

Declaring a stub (II)

```
1  ::xorb::client::Stub StockQuoteStub -bind soap://64
       .124.140.30:9090/soap \
2  -uri "urn:xmethods-delayed-quotes"
3  StockQuoteStub ad_instproc \
4  getQuote \
5  {-symbol:remote} \
6  {getQuote's doc} {}
```

Providing a remote service

1: Declaring a contract

```
1  ServiceContract myContract -defines {
2       Abstract m1 -arguments {
3  arg1:string
4  arg3:integer
5       } -returns string -description "m1's description"
6  } -ad_doc {myContract's description}
```

2: Providing an implementation (a)

```
1  ServiceImplementation myImplementation -implements myContract
       -through {
2       Delegate m1 -proxies ::myproc
3  }
4
5  myImplementation publish
```

2: Providing an implementation (b)

```
1  ServiceImplementation myImplementation -implements myContract
       -through {
2      Method m1 {arg1:string arg3:integer} {doc} {return 1}
3  }
4
5  myImplementation publish
```

Hooking-in add-on functionality: Interceptors

Logging Interceptor

```
1  ::xosoap::Interceptor LoggingInterceptor -scope 0 -superclass {
2  ::xosoap::RequestInterceptor
3  ::xosoap::ResponseInterceptor
4  }
5
6  LoggingInterceptor instproc handleRequest args {
7
8  # 1) retrieve args
9  my log "incoming request: $args"
10 # 2) modify args
11 # 3) pass on args or return
12 next [lindex $args 0] [lindex $args 1]
13
14 }
15 LoggingInterceptor instproc handleResponse args {
16 my log "outgoing response: $args"
17 next
18 }
```

What remains to be done ...

What remains to be completed ...

- Collection of examples & teasers
- Polishing-up of xorb Interface: nearly finished
- Completing suite of regression test
- Advanced SOAP Support: Complex datatypes about to be included
- Implicit / automated stub generation from WSDL
- Lifecylcing

Get glimpse of xorb / xosoap

Get previews from ...

- Two packages: xotcl-request-browser & xotcl-soap
- Subversion browsing: http://stefan.thinkersfoot.net/websvn (guest:guest)
- command line: svn checkout http://svn.thinkersfoot.net/xosoap/trunk
- command line: svn checkout http://svn.thinkersfoot.net/xotcl-request-broker/trunk

- Install procedures as for every OACS / .LRN package
- Currently 2 patches to xotcl-core are necessary (see readme in www/doc directories)
- For examples see www/doc in both packages
- Contact: stefan.sobernig@wu-wien.ac.at