Life Cycle of an OSRF Message

- OSRF: middleware for RPC
- Defining “client” and “server”
- Jabber as core of OSRF network
- Message stanzas: XML with JSON payload
- Routing through the router
- Bypassing the router
Defining Terms: Server and Client

Software, not hardware.

Client: A software process, or collection of closely related processes, running within an operating system.

Server: The same.

A server performs services at the request of clients.
Client and Server as Defined by Socket Calls

<table>
<thead>
<tr>
<th>Client:</th>
<th>Server:</th>
</tr>
</thead>
<tbody>
<tr>
<td>send()</td>
<td>listen()</td>
</tr>
<tr>
<td>sendto()</td>
<td>accept()</td>
</tr>
<tr>
<td>write()</td>
<td>recv()</td>
</tr>
<tr>
<td>recv()</td>
<td>recvfrom()</td>
</tr>
<tr>
<td>recvfrom()</td>
<td>read()</td>
</tr>
<tr>
<td>read()</td>
<td>send()</td>
</tr>
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<td>sendto()</td>
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</tr>
<tr>
<td>write()</td>
<td>write()</td>
</tr>
</tbody>
</table>
Jabber Message Stanza

<message from="..." to="...">
  <body>
    ...
  </body>
</message>

Jabber ID:
username@domain/resource

OSRF messages:
- REQUEST
- RESULT
- STATUS
- CONNECT
- DISCONNECT
Use Case: srfsh Command

srfsh# request open-ils.cstore \
open-ils.cstore.direct.actor.org_unit.retrieve 3

What srfsh knows:

- How to connect to Jabber (from configuration file)
- Name of router (from configuration file)
- Name of service (from command line)
- Name of method (from command line)
- Parameters (from command line)

What srfsh doesn't know:

- IP address or Jabber ID of cstore server

Construct Jabber ID, e.g.:

- router@private.localhost/open-ils.cstore
REQUEST
client to router
Router Processing

Router knows:

- How to connect to Jabber (from configuration file)
- Service names (from server registrations)
- Jabber IDS of servers (from server registrations)
- Name of service requested (based on choice of socket)
- Jabber ID of client (from Jabber server)

Construct a message:

- Copy the original
- Change the destination address
- Add a router_from attribute
REQUEST/RESULT
in greater detail
CONNECT
REQUEST/RESULT
with a connection
Summary

1. Everybody but Jabber is a client, as defined by the socket calls
2. All messages go through Jabber
3. Jabber traffics in XML fragments (message stanzas)
4. Each OSRF message is JSON embedded in a message stanza
5. The router translates service names to Jabber IDs
6. CONNECT enables you to bypass the router
7. CONNECT monopolizes a server drone for the duration
8. CONNECT is necessary for a database transaction