

Webservices Group

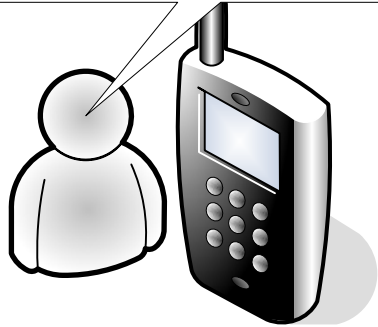
- Franz Maier
- Stefan Vogt

Goals

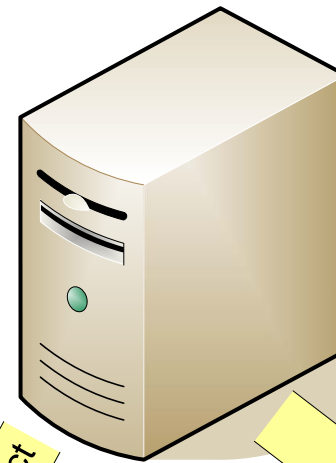
- Webservice Infrastructure for Jadabs
- Working SBB Webservice based on this infrastructure

Introduction

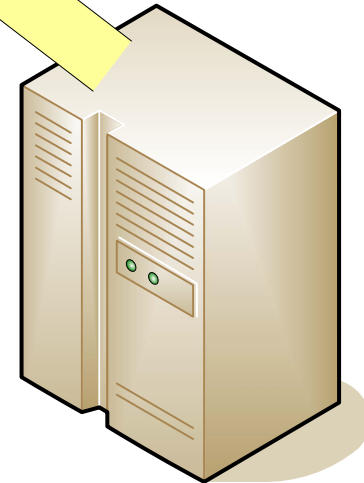
I want connections from
Zürich to Bern, arrival
tomorrow at 10:00



Mobile Phone

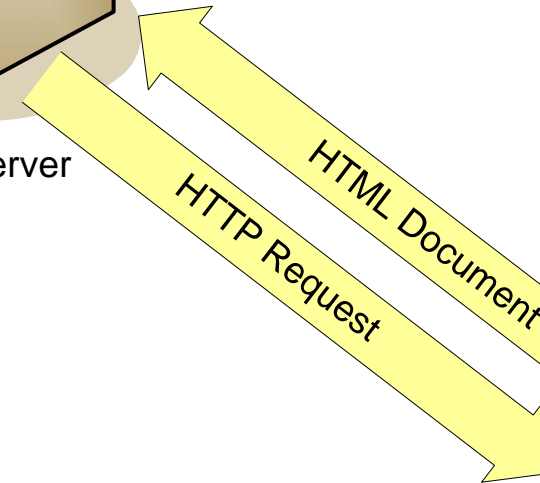
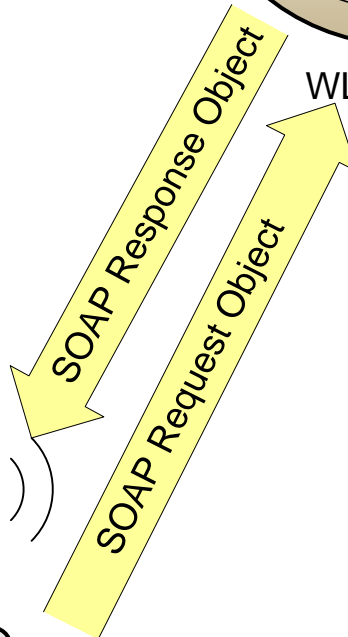
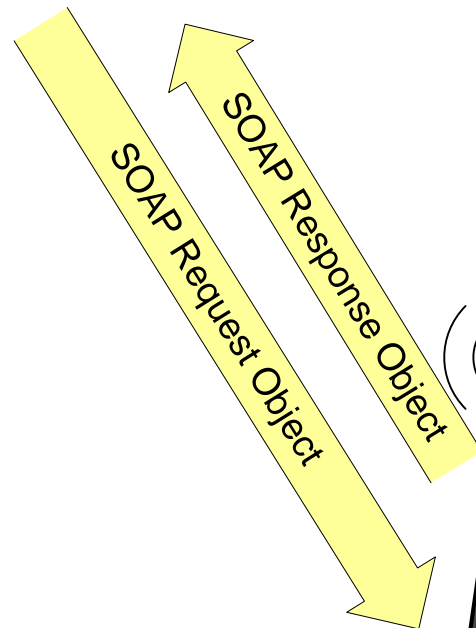


WLAB Server



SBB Server

Infrastructure Device



kSOAP

Converts Java Objects to SOAP data and back.
Runs on very small devices like a mobile phone.

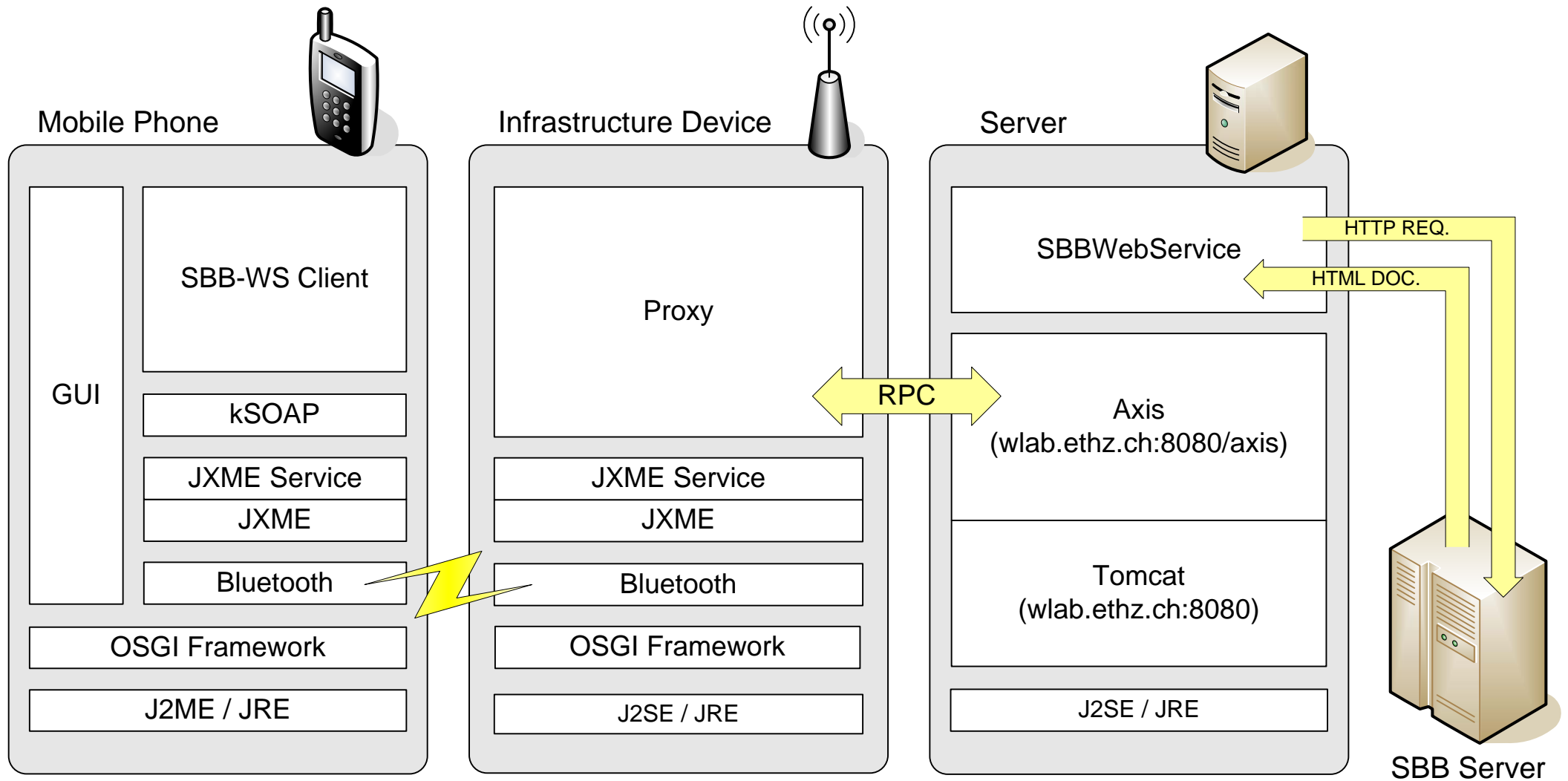
Axis

Converts Java Objects to SOAP data and back.
Runs on a web server.

Tomcat

An web server that functions as a Servlet container.

Architecture Overview



Server Installation / Configuration

- Installed Tomcat on WLAB-Server (<http://wlab.ethz.ch:8080>)
- Integrated Axis into Tomcat (<http://wlab.ethz.ch:8080/axis>)

SBB Webservice

- Wrote the HTML Form Simulator
- Wrote Basic HTML Parser (returns connection overview)
- Deployed it: <http://wlab.ethz.ch:8080/axis/services/SBBWebService>

Evaluated kSOAP / Axis Interoperability

- Objects on server side must be Bean conform
- Objects on client side must implement KvmSerializable

HTML Form Simulator

settings/HTMLFormSimulator.xml

```
<?xml version="1.0" encoding="UTF-8"?>

<java version="1.4.2_04" class="java.beans.XMLDecoder">
  <object class="HTMLFormSimulator">

    <void property="queryURL">
      <string>http://fahrplan.sbb.ch/bin/query.exe/en?</string>
    </void>

    <void property="fieldNameFROM">
      <string>REQ0JourneyStopsS0G</string>
    </void>

    <void property="fieldNameTO">
      <string>REQ0JourneyStopsZ0G</string>
    </void>

    ...
```

SBBWebService

From: Zürich
To : Bern
Date : 11.11.2005
Time: 10.00 (Departure)

HTMLFormSimulator

Transmitted to
SBB Server in
UTF-8

http://fahrplan.sbb.ch/bin/query.exe/en?REQ0JourneyStopsS0G=Zürich&REQ0JourneyStopsZ0G=Bern&...

HTML Parser

settings/HTMLHandler.xml

```
<?xml version="1.0" encoding="UTF-8"?>

<java version="1.4.2_04" class="java.beans.XMLDecoder">
  <object class="HTMLHandler">

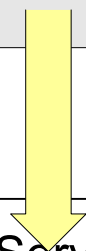
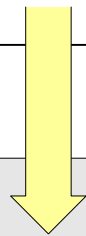
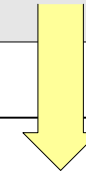
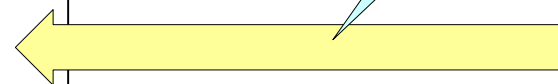
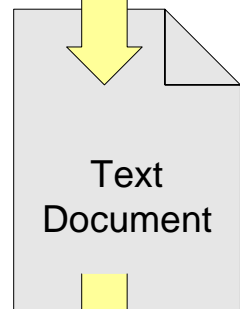
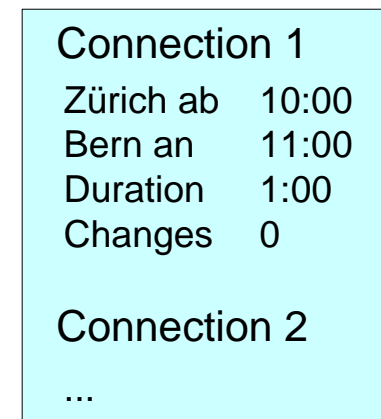
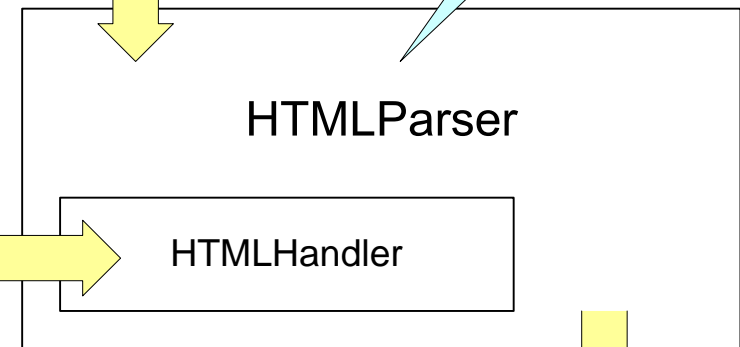
    <void property="tagsToParse">
      <void method="clear"/>
      <void method="add"><string>*</string></void>
    </void>

    <void property="tagsToIgnore">
      <void method="clear"/>
      <void method="add"><string>title</string></void>
      <void method="add"><string>script</string></void>
      <void method="add"><string>meta</string></void>
    </void>

    ...
  </object>
</java>
```



Based on
javax.swing.text.html



Object on Axis Side vs. Object on kSOAP Side

```
public class ObjectBean
{
    private String text;

    public String getText()
    {
        return text;
    }

    public void setText(String string)
    {
        text = string;
    }
}
```

```
public class ObjectKVM implements KvmSerializable
{
    private String text;
    ...

    public Object getProperty(int param)
    {
        switch(param)
        {
            case 0: return new String(text);
            ...
        }
    }

    public void setProperty(int param, Object obj)
    {
        ...
    }

    ...
}
```


kSOAP / Axis

- Make all used objects serializable
- Possible extension: Write automatic serializer for Eclipse

Extend SBB Webservice

- Report ambiguous stations, show selection of possibilities
- On request, return details on where to change trains