<XForms/>

XForms

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Agenda

1. What's XForms?

2. A Demo with *FormFaces*

3. Advantages & Disadvantages

4. Multimodality with *XFormsMM* (according to M. Honkala & M Pohja, 2006)

5. References

6. Discussion

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What's XForms?

a quick overview

What's XForms?

- an XML-based language to create (web-) forms

- an abstract language according to the MVC-pattern

- a smart way to get rid of scripting

- a W3C standard (version 1.0 is from 2003), which was supposed to be part

  of XHTML 2.0

- a client-side technology

- a server-side technology

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What XForms is not!

- a standalone markup-language (like HTML)

- widely used today

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What's a form?

What's a form?

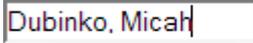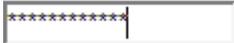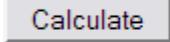A glimpse in the HTML source of the Google search form:

```
<form id=gbqf name=gbqf method=get action="/search" ...>
        ...
        <input id=gbqfq class=gbqfif name=q type=text ...>
        ...
        <button id=gbqfba aria-label="Google-Suche" name=btnK .../>
        ...
        <button id=gbqfbb aria-label="Auf gut Glück!" name=btnI .../>
        ...
</form>
```
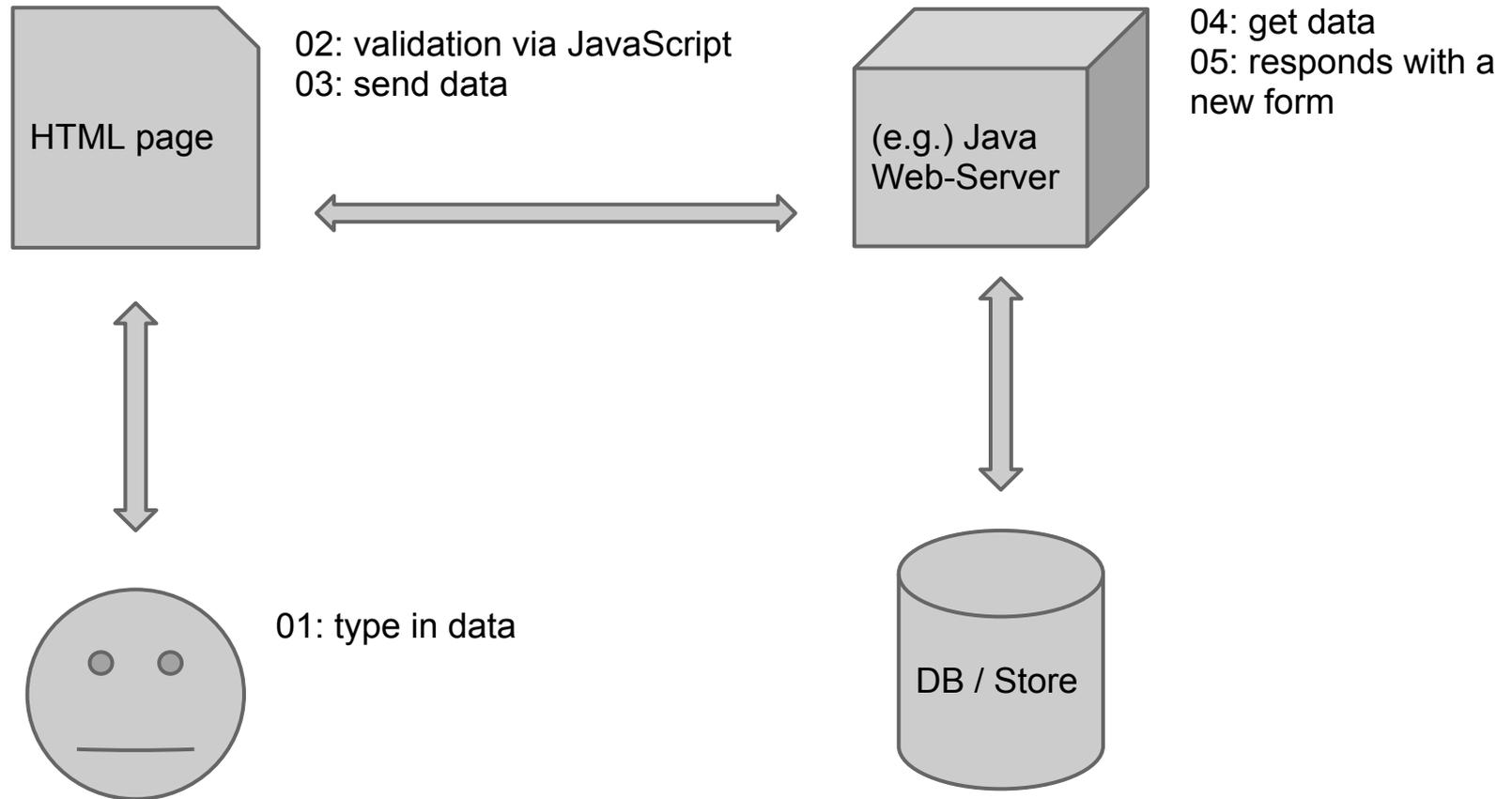
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Different types of form elements

`<input type="text" name="name" value="Dubinko, Micah"/>`	Dubinko, Micah
`<input type="password" name="pass"/>`	************
`<input type="button" value="Calculate"/>`	Calculate

`<select name="searchtype">`
  `<option selected="selected" value="all">all...</option>`
  `<option value="any">any words</option>`
`</select>`
	all words ▼

`<input type="file" name="attachment"/>`	Browse...

The typical form processing

HTML page

02: validation via JavaScript
03: send data

(e.g.) Java Web-Server

04: get data
05: responds with a new form

01: type in data

DB / Store

The typical problems

HTML page

02: **validation via JavaScript**
03: **send data**

(e.g.) Java
Web-Server

04: **get data**
05: **responds with a
new form**

01: type in data

DB / Store
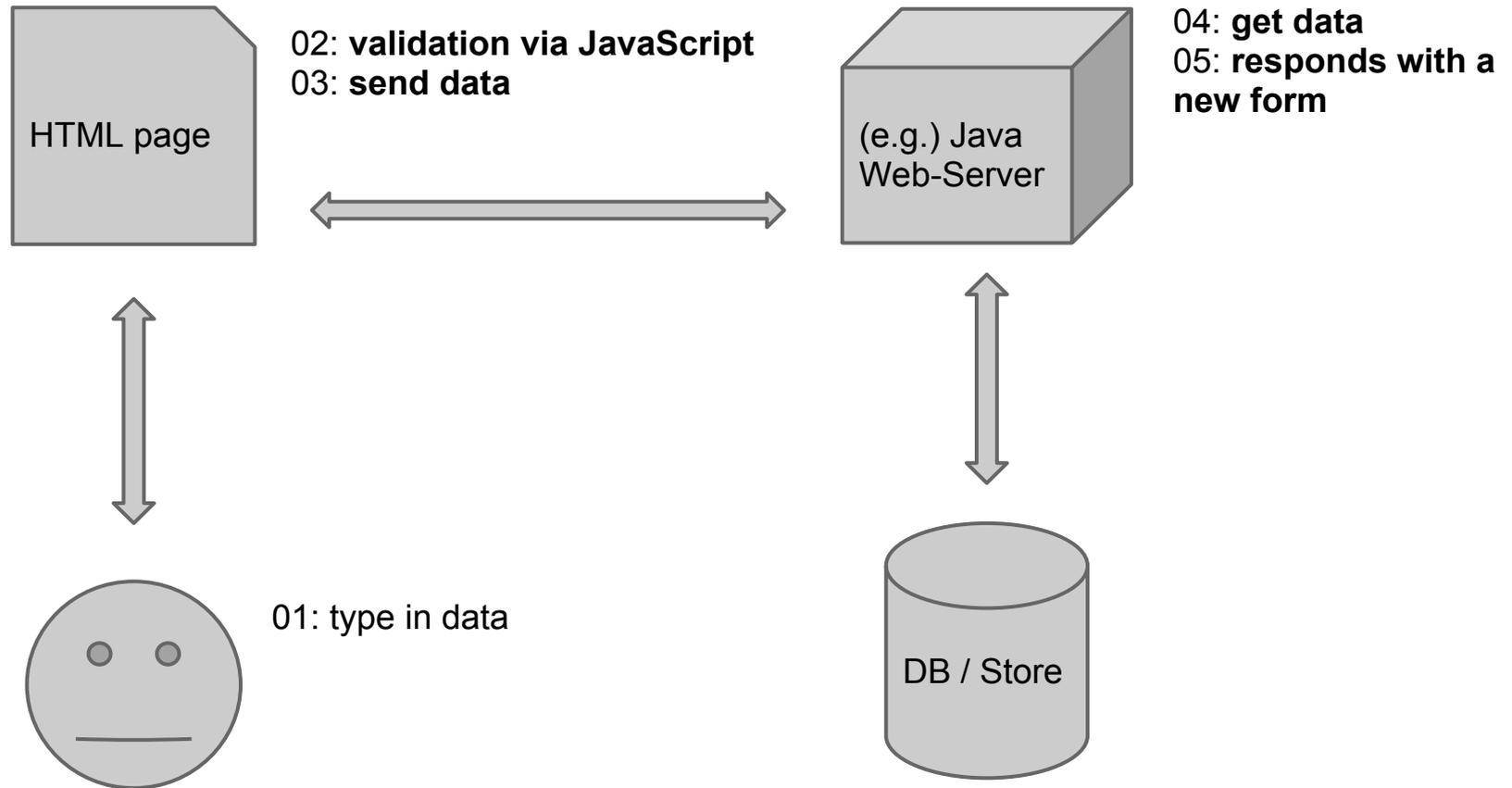
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That's where XForms comes into play!

What XForms does differently

Lessons learned from HTML:

- complete separation of (visual) form and data

- in-built validations and simple calculations (so called bindings)

- completely based on XML

...we will have a look at this points in the demo!

How XForms address these issues

```
<html>
    <head>
        <xf:model id="model">
            <xf:instance id="default" src="questionnaire.xml" />
            <xf:bind ... />
        </xf:model>
    </head>
    <body>
        <xf:message level="modal" ev:event="xforms-invalid">
            ERROR!
        </xf:message>
        ...
        <xf:select1 ref="location">
            <xf:label></xf:label>
            <xf:item>
                <xf:label>Europe</xf:label>
                <xf:value>europe</xf:value>
            </xf:item>
        <xf:select1>
        ...
        <xf:submit submission="submit">
            <xf:label>Submit</xf:label>
        </xf:submit>
    </body>
</html>
```
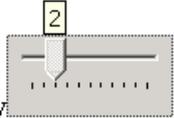
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Form Controls in XForms

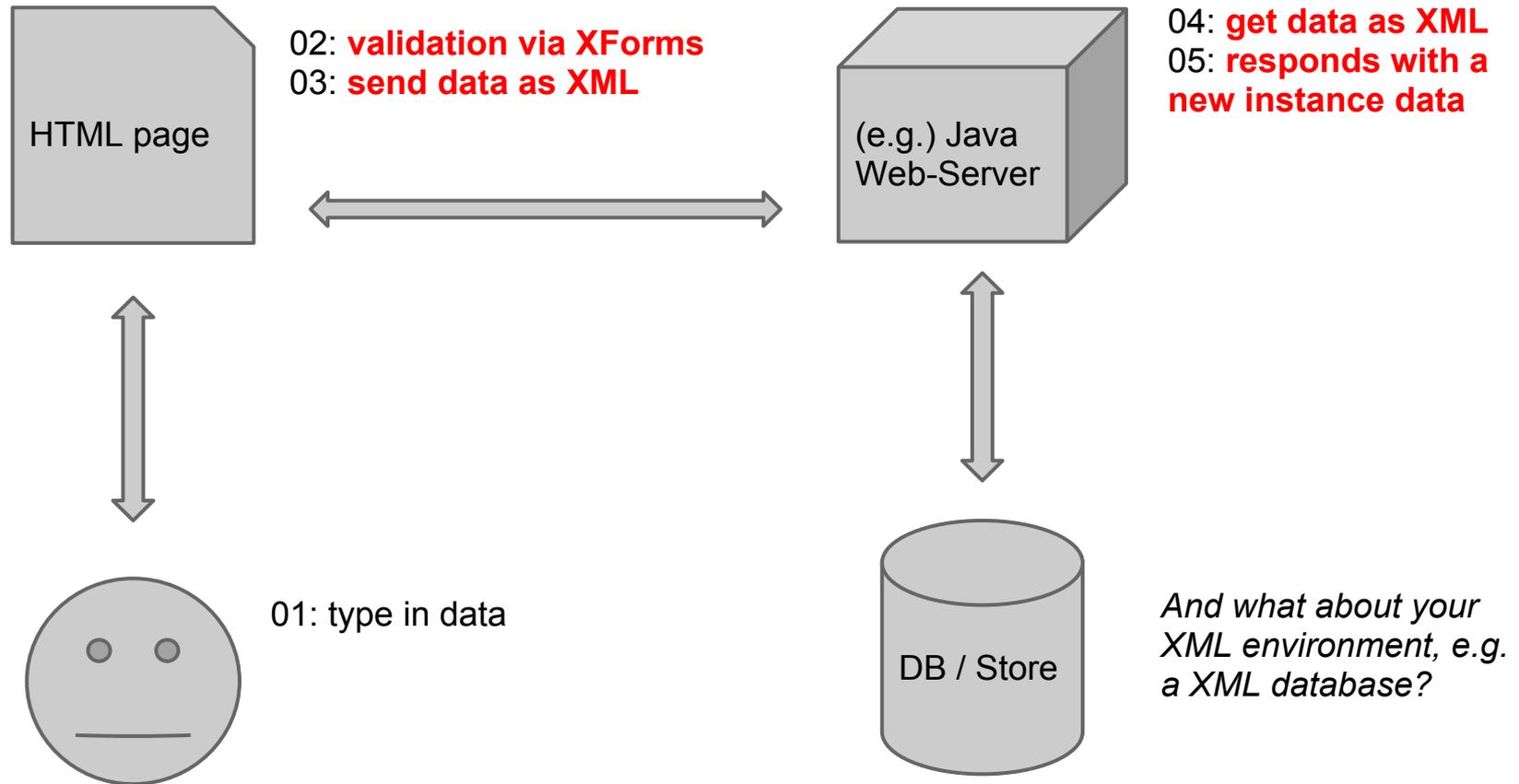| Code	Rendering

```<input ref="string">```
  ```<label>xsd:string</label>```
```</input>```
	xsd:string
	123 Maple Street

```<secret ref="/session/password">```
  ```<label>Password</label>```
```</secret>```
	Password ●●●●●●●●

```<submit submission="formdata">```
  ```<label>Buy</label>```
```</submit>```
	Buy

```<select ref="cctype">```
  ```<label>List For Specifying All Card Types<label>```
  ```<item>```
    ```<label>Master Card</label>```
    ```<value>MC</value>```
  ```</item>```
```</select>```
	List For Specifying All Card Types
	Master card
	Visa card
	American Express
	Diners Club

```<range start="0" end="10" step="1" ref="quan" model="po">```
  ```<label>Quantity</label>```
```</range>```
	2
	Quantity

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Containers in XForms

Containers are special controls in XForms. They enable you to handle a set of nested controls in a similar way. Here are some examples:

- **`<xf:group ref='...' />`** enables you to apply properties (like '`required`') and namespaces on all nested elements.

- **`<xf:repeat nodeset='...' />`** enables you to repeat a nested set of controls for every selected element in the instance data dynamically.

- **`<xf:switch><case id='...'>...</case></xf:switch>`** enables you to switch dynamically between nested controls.

The XForms processing chain

HTML page

02: **validation via XForms**
03: **send data as XML**

(e.g.) Java Web-Server

04: **get data as XML**
05: **responds with a new instance data**

01: type in data

DB / Store

And what about your XML environment, e.g. a XML database?

A demo

with *FormFaces*

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XForms processors

We need a XForms processors, because current browsers don't understand

XForms natively. There are many XForms processors, such as:

- FormFaces (client-side, JavaScript)

- betterForms (server-side)

- Orbeon Forms (server-side, Java)

- Nokia's xfolite (server-side, Java)

and many more under: http://www.w3.

org/community/xformsusers/wiki/XForms_Implementations

XForms on the client

- a client-side library translates the XForms document into common HTML forms and (e.g.) JavaScript functions

- possible with every server

- **But**: a client-side library is needed!

*The **formFaces library** is one approach for this. This approach is used in the demo.*

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XForms on the server

- the server translates the XForms document into common HTML forms

- no need for client-side libraries or special processing

- fits nicely in an XML-environment (e.g. XML databases)

*The **betterForms** server is one approach for this which I have tested. If we*

have time, we can have a quick look at it in the end...

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Advantages & Disadvantages

with some comments on solutions, consequences and other aspects

(+) Advantages of XForms

- separation between data model and visualisation

  Consequence: Static form with dynamic data.

  Consequence: Easier working in teams.

- no need for scripting (e.g. in JavaScript)

  But: You still must write "scripts" in XForm (e.g. for constraints)

  But: You can remain in one language (But XForms is another technology, isn't it?)

- perfect XML handling

  You can: load XML, send XML, use XML technologies like XPath.

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(-) Disadvantages of XForms

- complicated XPath expressions

    Solution: Structure the data model similar to the interface
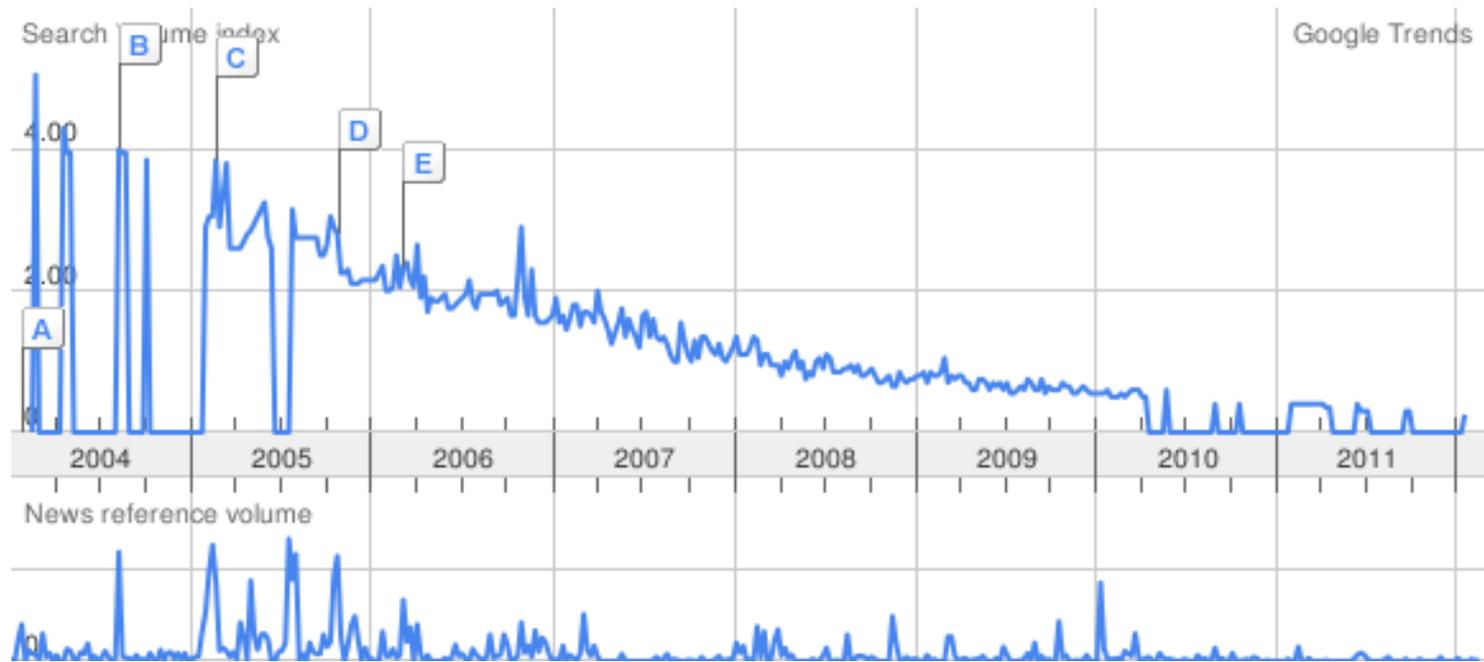
- XForms was supposed to part of XHTML 2.0

    But: XHTML 2.0 never became a final standard due to HTML5

- the major browsers don't implement XForms currently

    So: XForms is rarely used today

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(-) Disadvantages of XForms

Google Trends doesn't look too good for XForms...

Multimodality with *XFormsMM*

according to M. Honkala & M. Pohja, 2006

What is multimodality?

- Data can be **entered and presented** with several mediums/ modalities.

  For example in a visual or in a auditive form.

- Multimodality can be important for...

  - disabled people

  - mobile devices

  - uncommon tasks

Why is XForms a good basis for it?

- separation of data and model

    - This means we can either change the data or the view on it

- hierarchical structure (with grouping)

    - Especially important for sequential output (e.g. in speech)

- abstract controls

    - e.g. select-lists

The idea of Honkala & Pohja
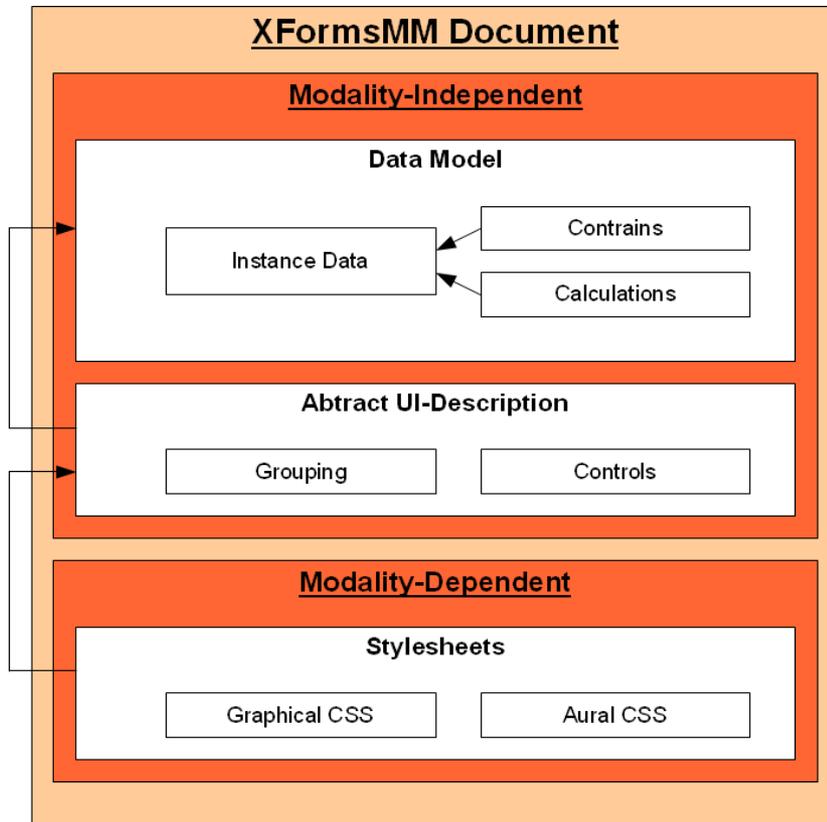
The idea is to extend XForms (data & model) with modality-dependent style-sheets, that could be interpreted by different rendering engines.

XForms

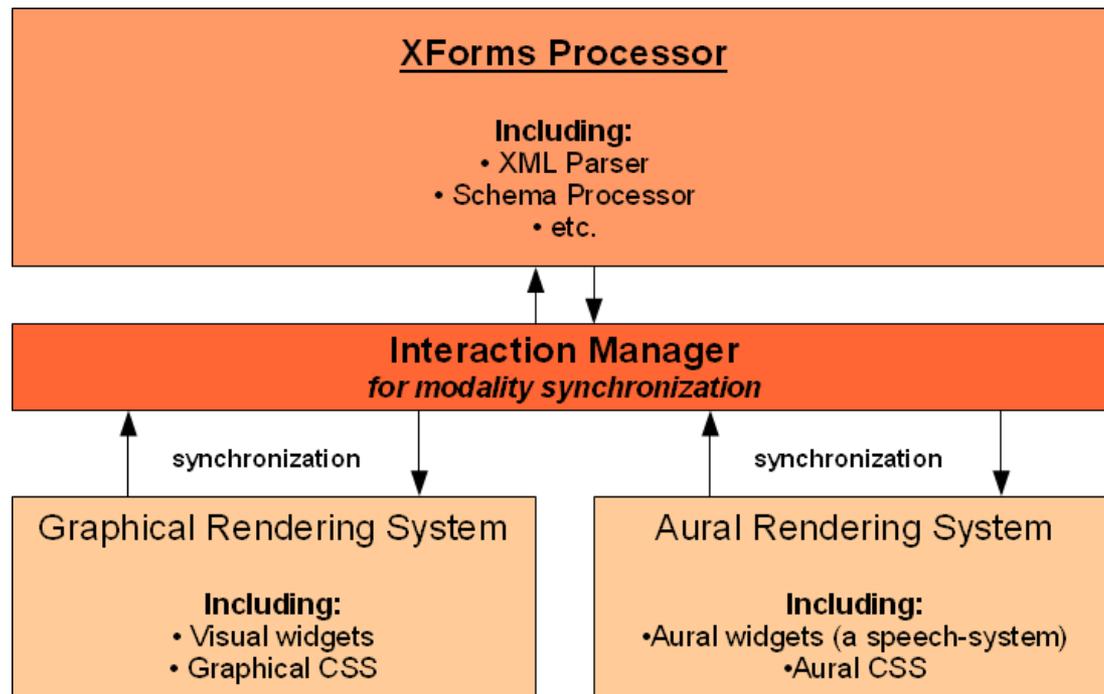Thomas Uhrig - Adaptive User Interfaces

The idea of Honkala & Pohja

This idea leads to the following points:

- you must only write a single document for different modalities

- you have to provide a special CSS for each modality

- you can use this single CSS for many XForms documents

- the adaptation is done on runtime

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The idea of Honkala & Pohja

They built a **Speech Rendering engine** and an **Interaction Manager** to connect it with an common GUI engine (e.g. the one from the browser).

Just to bad...

...that the reference implementation from M. Honkala & M. Pohja was for the

XSmiles browser (http://www.xsmiles.org), which isn't available any more.

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References

additional reading and software

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References

O'Reilly XForms Essentials (a good book ;)

http://xformsinstitute.com/essentials

XForms 1.1 (official specification)

http://www.w3.org/TR/xforms/

Google Trends (for "XForms")

http://www.google.de/trends/?q=xforms

Multimodal Interaction with XForms, M. Honkala & M. Pohja, 2006

http://lib.tkk.fi/Diss/2011/isbn9789526040110/article3.pdf

References

FormFaces (client-site framework)

http://sourceforge.net/projects/formfaces

betterForms (server-site framework)

http://www.betterform.de/en/index.html

Discussion

and questions, of course...

What's your opinion?

- Why didn't XForms become a real used standard today?

- Would you use XForms anyway? Why? Why not?

- Would you use a server-side or a client-side implementation?

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The Discussion Cloud

sequential *output* HTML scripting
future dynamic data XHTML 2.0 XML
XSmiles on the client multimodality
JavaScript *FormFaces* HTML5
pros & cons MVC forms *W3C* validation
betterForms XMLSchema
on the server XPath Google Trends

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