

Evaluation of High-Level UIDLs for Use on Mobile and Embedded Devices

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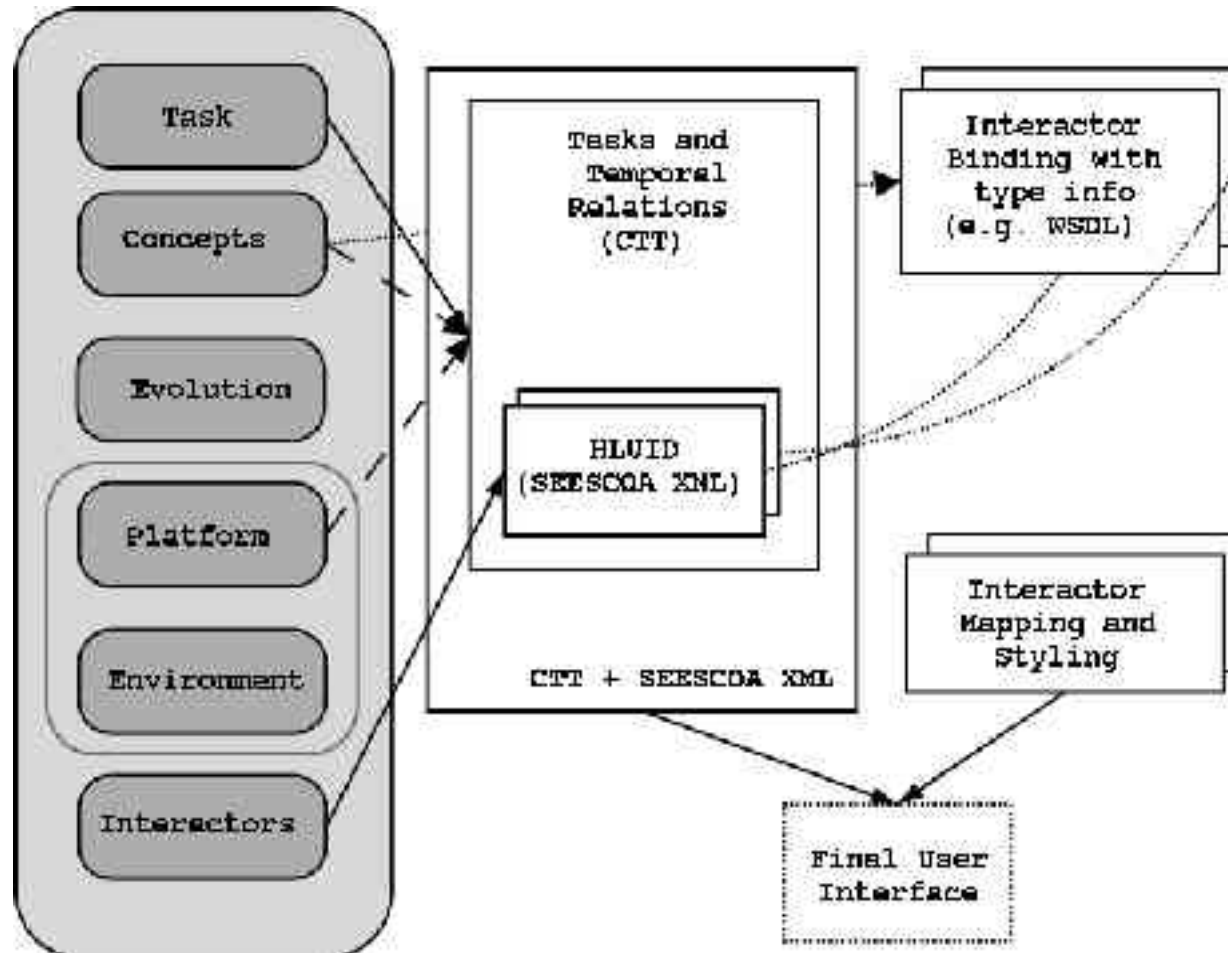
Overview

- ❑ *Introduction*
- ❑ *High Level User Interface Description Languages*
- ❑ *Side by Side*
- ❑ *Evaluation*
- ❑ *Conclusions*

Introduction

- ***Model-based Design of User Interfaces (Dygimes)***
 - **Start from task model**
 - **Add High-level User Interface Description to tasks**
 - **Add Interaction specification, mappings**
 - **(Semi-) automatically generate user interface**

Introduction (Dygimes)



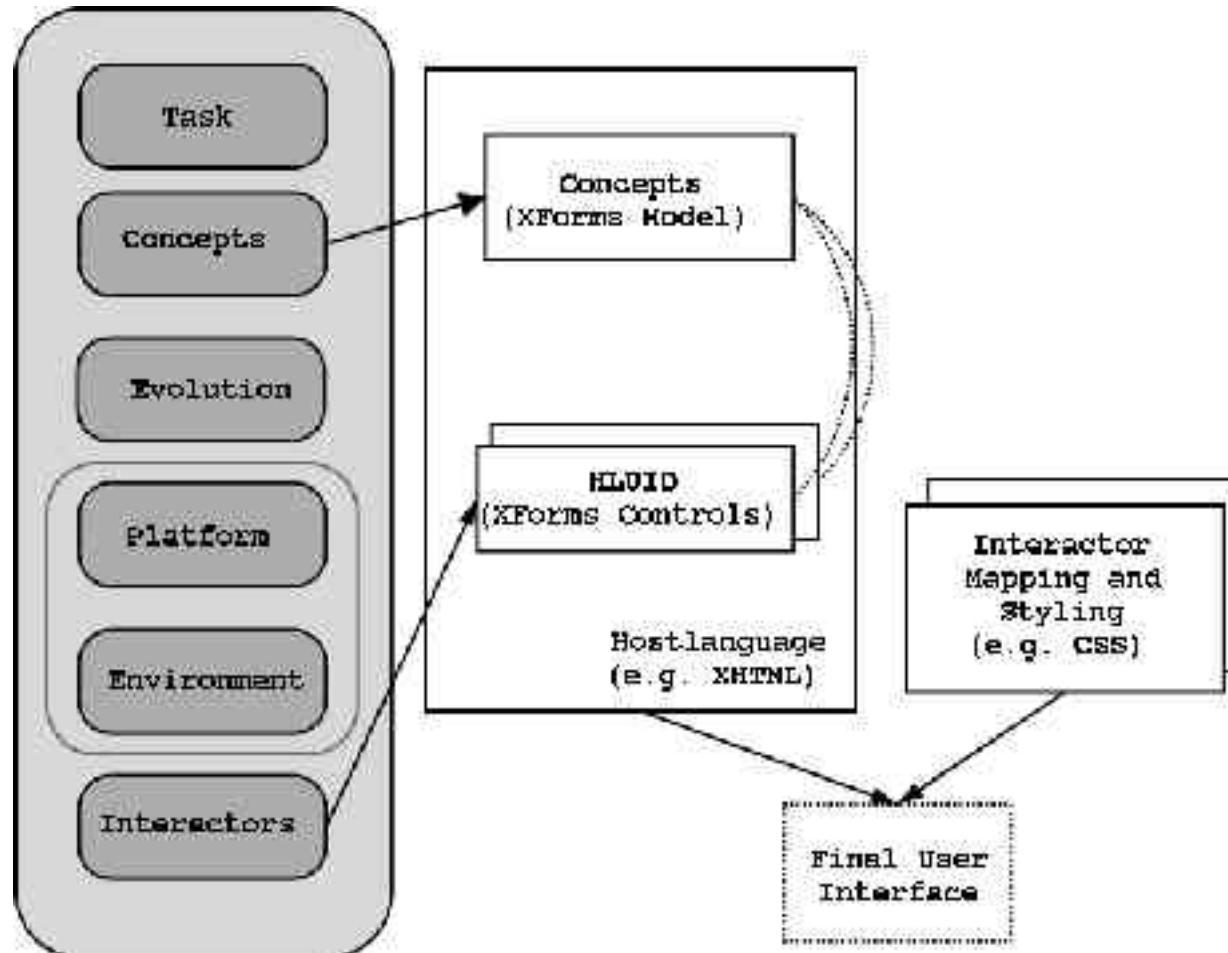
Introduction

- ***Towards pervasive computing***
 - **Context**
 - **Interoperability; standards**

HLUID Languages

- ***SEESCOA XML***
 - **Multi-Device**
 - **Local-remote interaction**
 - **Compact**
- ***Xforms***
 - **Successor HTML Forms**
 - **W3C Recommendation**
 - **Extensible**
 - **Basic Profile**

XForms-specifications



Side by Side

- ***SEESCOA XML***
- ***Xforms (basic profile)***
- ***J2ME-MIDP 2.0***
 - **Java**
 - **Mobile phone, PDA**

Side by Side

□ Controls/Interactors

Control	SEESCOA XML	Xforms	MIDP 2.0
Text input	Textfield	Input	Textfield/TextBox
Multiline textfield	Textfield	Textarea	Textfield/TextBox
Single selection	Choice (choicetype="simple")	Select1	ChoiceGroup/List
Multiple selection	Choice (choicetype="multiple")	Select	ChoiceGroup/List
Password field	<i>Not supported</i>	Secret	Textfield (PASSWORD)
Information display	Label, canvas	Output	StringItem, Canvas
Range	Range	Range	Gauge
Upload file	<i>Not supported</i>	Upload	<i>Not supported</i>
Command	Button	Trigger/submit	Command
Group	Group	Group	Form

Side by Side

□ Controls continued

Control	SEESCOA XML	Xforms	MIDP 2.0
Date Input	<i>Not supported</i>	Input (xsd:date)	Datefield (DATE)
Time Input	<i>Not supported</i>	Input (xsd:time)	Textfield (TIME)
Date/Time Input	<i>Not supported</i>	Input (xsd:dateTime)	Textfield (DATE_TIME)
Numeric Input	<i>Not supported</i>	Input (xsd:integer)	Textfield (NUMERIC)
Decimal Input	<i>Not supported</i>	Input (xsd:decimal)	Textfield (DECIMAL)
URL Input	<i>Not supported</i>	Input (xsd:anyURI)	Textfield (URL)
Other types...	<i>Not supported</i>	Input	...

□ Meta-information within control-specification

- SEESCOA XML: only labeling

Evaluation

- *Type Support is important!*
 - SEESCOA XML not present
 - Xforms -> Seperate specification
 - Example:

```
<xforms:model>
```

```
  <xforms:instance>
```

```
    <appointment ...>
```

```
      <hour>9</hour>
```

```
      <description/>
```

```
    </appointment>
```

```
  </xforms:instance>
```

```
  <xforms:bind constraint=".&lt;24" nodeset="/appointment/hour"  
    type="xsi:nonNegativeInteger"/>
```

```
  ...
```

```
</xforms:model>
```

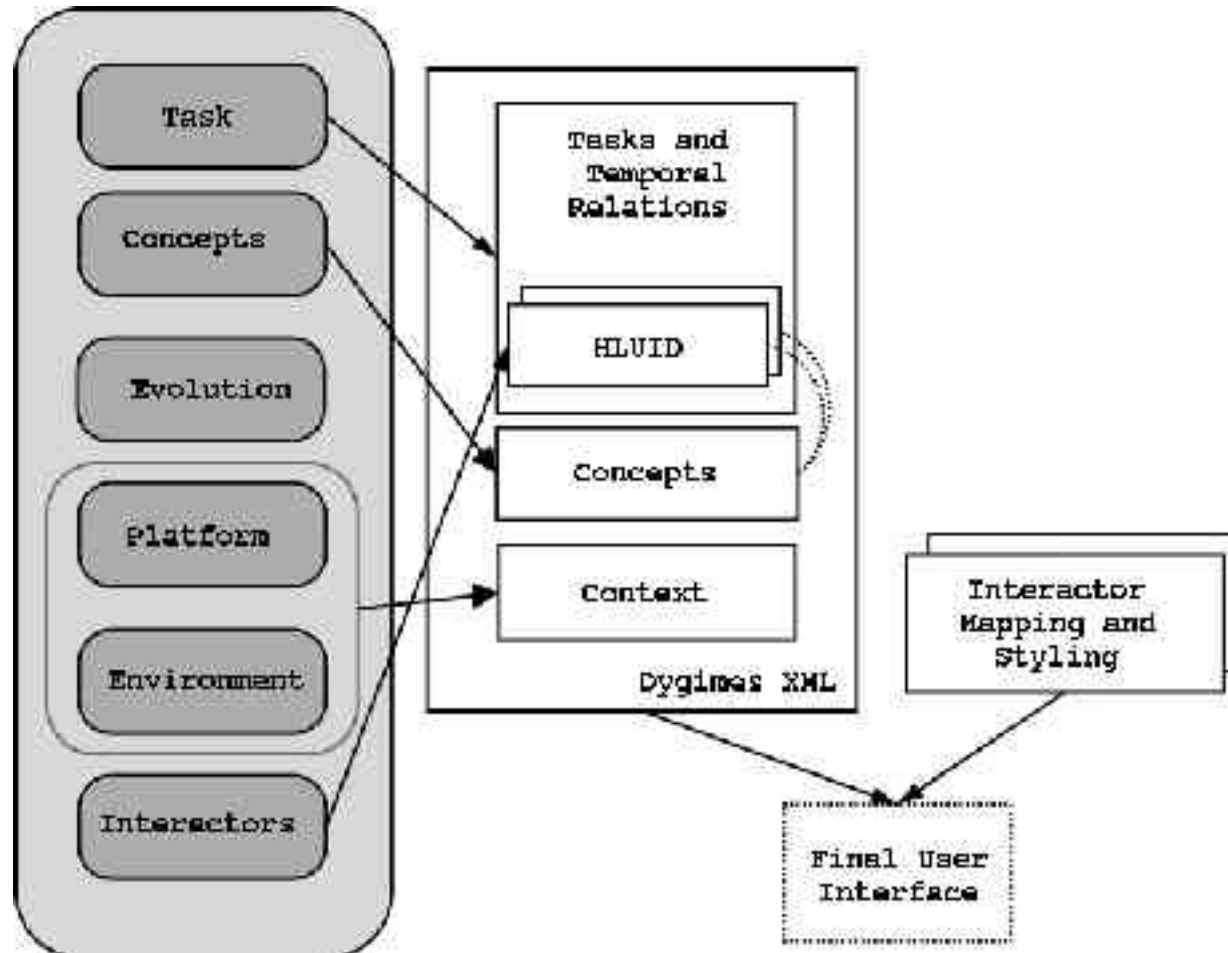
Evaluation

- ***Xforms***
 - Lacks figure-support
 - No lay-out mechanisms
 - Web-focused: no local interaction, no standard web-service support
- ***SEESCOA XML***
 - Layout
 - Local and remote interaction

Conclusions

- ❑ ***Both specifications are suitable, but lack in some respects***
- ❑ ***Solution***
 - ❑ **Add typing to SEESCOA XML**
 - ❑ **Based on XForms model**
 - ❑ **Test implementation using MIDP 2.0 in progress**
- ❑ ***Make integrated specification: Dygimes XML***

Dygimes-specification





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Questions?