



MyMobileWeb project's position

Workshop on Declarative Models of Distributed Web Applications

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Introduction

<http://morfeo-project.org>

-  Developing applications for the Ubiquitous Web is hard. Main reason:
 - (X)HTML is a general purpose language designed to create hypertext documents in the web, **but not for describing user interfaces.**
- Scripting and server-side technologies “have filled the gap”, but:
- Developers have always been demanding **more powerful abstraction mechanisms**. As a result, the market has responded with solutions:
 - Ajax Toolkits
 - Dojo, Yahoo, GWT, ...
 - Proprietary, tag-based, higher-level abstraction layers
 - JSF, XAML, XUL, Laszlo, MSXML
- What about open standards? Alternatives (**all of them insufficient**):
 - XHTML + XFORMS + Javascript and/or DIAL
 - HTML 5 + Web Forms 2.0
- **New standardization efforts are needed**



Why existing standards are insufficient?

XHTML + XFORMS + Javascript




- Absence of a complete set of UI components
 - grids, trees, menus, toolbars, progress bars, ...
- No rich set of containers and layout abstractions.
 - Developers end up using tables for layout → **Not mobile nor accessible**
- **No expression language** notation for addressing objects
 - Server-side scripts and Javascript → **Lots of code to maintain**
 - XFORMS only works with XML data models and XPath.
- They don't separate bindings, relevancy, formatting, validations.
- **No standard APIs** for
 - XFORMS elements, model mutation, creation of extensions
- **No sufficient** mechanisms for specifying **metadata** or hints needed for **adaptation to multiple delivery contexts**



- “A profile of XHTML 2” (DIAL) + DISelect:
 - Goal: Content adaptation at server-side.
 - **It inherits all the problems** coming from (X)HTML and XForms.
- **Some UWA use cases where DIAL + DISelect fails:**
 - Different layouts for different delivery contexts
 - Date or time input component, rendered as a calendar or clock .
 - Cool menus that degrade gracefully
 - Select or menu component rendered as a popup list, or as list of links, or as a clickable map depending on the delivery context (device input mechanisms and browser capabilities).
 - Big table or menu with dynamic contents that need to be paginated
 - A big form which has to be paginated and divided in two or more chained subforms.

HTML 5 + Web Forms 2

-  Web Applications specification developed by the WHATWG and candidate to be adopted by W3C
- **Partial enhancements on**
 - Validations
 - Repetition model
 - Extended elements (table, range, etc)
- **Problems. All inherited from (X)HTML and more**
 - Tag-soup reinvented → **Not ready for enterprise development**
 - **Backwards compatibility toll** and browser vendor biases
 - A rich component set is still missing
 - **Imperative** against declarative : Scripting is encouraged
 - 400 members to agree on something :(



What is the trouble with
existing, proprietary solutions?



- Usage of AJAX toolkits is not transparent to the developer.
 - They **encourage imperative programming** to the detriment of declarative formalisms
 - Example: declarative styling of components (CSS) no longer used.
- **Tons of Javascript code** leads to
 - bad performance and maintenance.
 - applications not accessible nor friendly for mobile adaptation
- They do not provide advanced standard UI mechanisms and formalisms (data binding, validations, formatting).
- **Extreme dependency on the selected AJAX toolkit**
 - Knowledge reuse and standardization are severely compromised.
 - Writing new user interface components or extending existing ones is a difficult and tricky task.


Tag-based abstractions



- **A myriad of technologies, JSF, XUL, XAML, Laszlo, MXML ... all suffering from the same problems:**
 - Platform dependency: Java, .NET, Flash
 - Openness : One implementation by one organization
 - Desktop-orientation: Device independency was not a design goal
 - Interoperability
 - Reuse of user interface components between the different languages.
- The open source community has started to understand the necessity of an open standard.
 - Apache XAP project, leaded by NexaWeb Technologies
 - It defines the XAL language to reduce JavaScript in AJAX applications.
 - It can work with different AJAX Toolkits (Component Bridge Pattern)



MyMobileWeb: A successful implementation of a declarative language for developing applications and user interfaces in a multidevice environment


-  Low-cost, modular, open-standards-based, open source software platform intended to:
 - **Simplify the development of top-quality mobile applications and portals**, providing an advanced adaptation environment.
 - Aims at implementing the “Semantic Mobile Web” concept
- **Declarative language (XML-based) for specifying the user interface in a device independent manner.** Features:
 - UI components rendered in different ways depending on the delivery context
 - Grids, menus, etc and other specific to mobile: telephone call launcher ...
 - Look & feel and adaptation policies are specified by means of CSS
 - UI components grouped in containers with different layouts (CSS-specified) that can vary depending on the delivery context.
 - JSP 2.0 expression language to resolve dynamic aspects
 - Validation rules
 - Data binding technology is widely used enabling advanced adaptation patterns such as pagination

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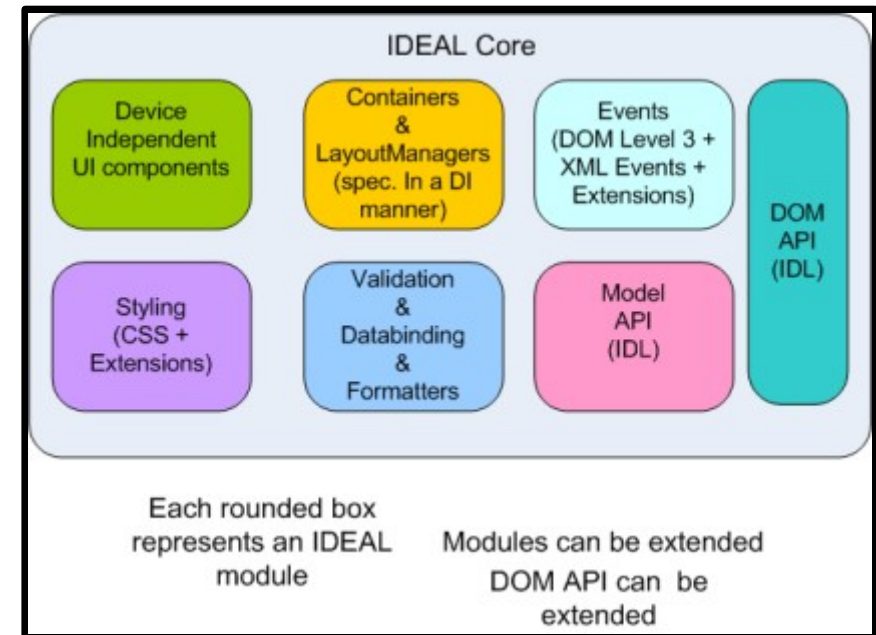
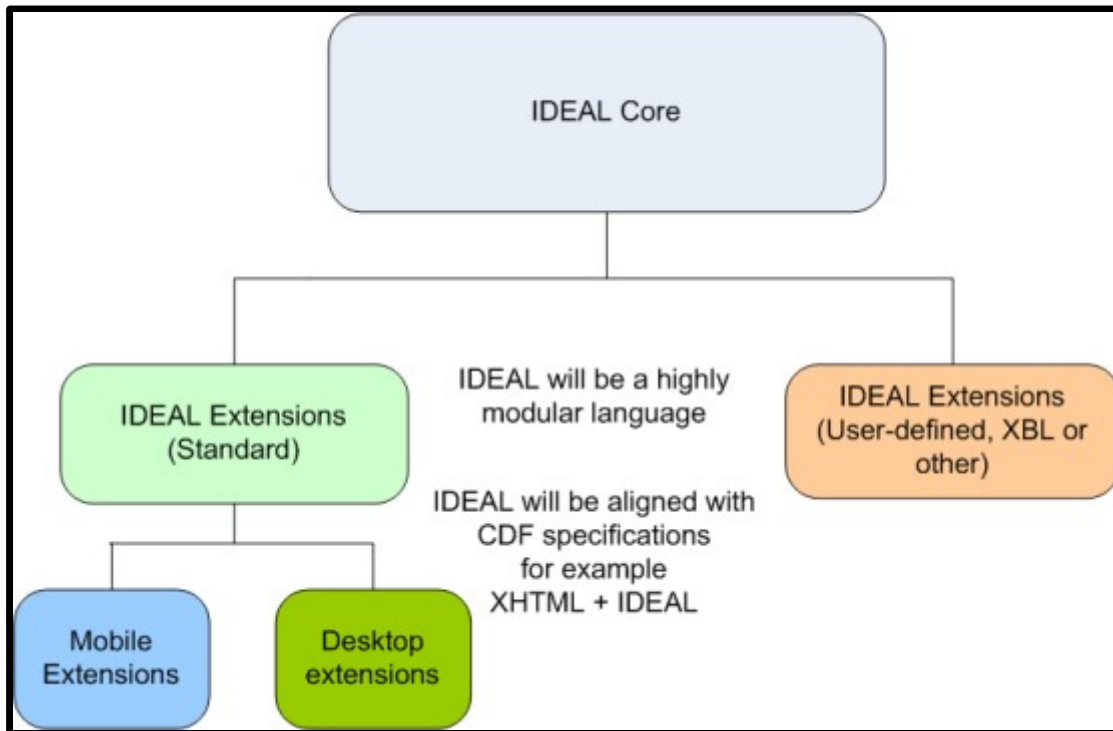


Interface DEscription Authoring Language

-  **MyMobileWeb's language is a demonstration of the viability of using a declarative high level language for creating ubiquitous web applications**
- **IDEAL is a proposal for_a new standard for Ubiquitous Web Applications.**
 - **Highly modular**, each module providing a well-defined functionality:
 - Core component set: Device Independent UI Components
 - Extended component sets: Desktop, mobile, set top boxes, etc.
 - Styling module (based on CSS syntax and properties, adding new needed properties)
 - Containers and layout managers (goal: to change UI layout without markup duplication)
 - Validation module (validation of user input; standard mechanisms for custom validations)
 - Binding module: simple and multiple binding for UI and binding policies: one way, two way, one time ...
 - Formatting module (for formatting information presented to the user)
 - Events module (based on XML Events and DOM Level 3 events, additions envisaged)
 - Model API (manipulation of data model and evaluation of expressions)
 - Expression language (interoperability with several expression languages -one being normative-)
 - Well-defined DOM-style API (to address use cases where declarative format is not sufficient)
 - **Extensible** with well defined APIs for doing that
 - **Interoperable** with XHTML, SVG → CDF



Interface DDescription Authoring Language



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How to develop IDEAL?

<http://morfeo-project.org>



- During 2006, Telefónica I+D and NexaWeb Technologies were working to come up with a **Declarative Format for Applications and User Interfaces (DFAUI)**
 - Web Application Formats WG (WAF)
 - **XAL and MyMobileWeb's language** were identified as starting points
 - There is a requirements and use cases draft (not yet published)
- However **we had to faced with**
 - Hostile environment
 - Browser vendors saw the DFAUI as a competitor of WHATWG specs
 - Absence of major players in this area IBM, Laszlo, Sun, Macromedia
 - Two companies is not enough for getting this work done
 - Group members convinced that the gap should be covered with incremental add-ons to existing specs, such as HTML 5 for HTML
- The work has stopped but **we want to resume it!!!**

Alternatives to develop IDEAL (brainstorming)



- Within W3C

- Mechanisms

- A new language
- An XHTML specific profile intended to develop UIs

- Instruments

- “User Interface Incubator WG” → towards Recommendation
- UWA WG
- Rich Internet Application Backplane Taskforce
- Joint task force : UWA + XFORMS + XHTML 2 + CSS WGs

- Outside W3C

- Other SDOs interested in getting the work done
- Industry alliances
 - Open AJAX Alliance or other to be defined
- An open source project towards a “de facto” standard


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Conclusions

<http://morfeo-project.org>

-  There is a **gap** wrt open, standards-based declarative models for UWA and ,in particular, **in the user interface area**
- **Existing open standards are insufficient.**
- **AJAX and proprietary tag-based** abstractions are more and more popular but create and **extreme dependency on specific toolkits.**
- MyMobileWeb: complete yet growing open source platform addressing some of the challenges found in declarative models for UWA.
 - UI declarative language independent of target device or interaction modes.
 - Language based on abstract UI components and containers, rendered in different ways (depending on delivery context).
 - Platform is working and ongoing projects use it. Correct approach
- W3C to think of **standardization** of a new declarative language: **IDEAL**
 - modular, extensible and interoperable.
- Effort to be **shared with the open-source community and industry alliances**



Who can participate in the MyMobileWeb Project?

Anyone who shares our dream and spirit ...

*“I am no longer captive to history.
Whatever I can imagine, I can accomplish”
Gary Hamel, “Leading the Revolution”*

Visit our website !

<http://www.morfeo-project.org/mymobileweb>



Thank you for your attention!

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