Relevant work at JustSystems

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JustSystems

• Japanese software developer
  – Headquarters in Tokushima
  – Founded in 1979

• In Japan
  – ATOK Japanese input method
  – Ichitaro, word processor, drawing tools, etc.
  – Full member of Unicode Consortium

• XML software
  – XMetaL XML-based authoring tool
  – XFY XML data fusion and app development
XFY

• The document is the application

• XFY client
  – Written in Java
  – View and edit compound documents
    • XHTML, SVG, MathML, Chemical ML
    • UI markup (a kind of concrete UI)
    • Vocabulary components for charts, pie diagrams
  – Extends XSLT for dynamic bindings
    • Source markup kept in sync with UI

• XFY server
  – XML repository and interfaces to databases, etc.
What is a Vocabulary Component?
What is VC (Vocabulary Connection)?

XML document -> VC mechanism (XVCD) -> Web browser

Display: Hello World!

XML document -> Update -> VC mechanism (XVCD) -> xfy Enterprise Client

Display: Multi-view
A vocabulary component defines how to display and edit XML documents.

How to create vocabulary components:
- View Designer
- XVCD
- JAVA
XVCD

- Extended version of XSLT that allows you to define event handlers
  - Update source and target DOM trees in response to use input and application events
    - xvcd:action element and event attribute
  - Commands to modify a DOM tree
    - xvcd:delete, xvcd:move, xvcd:combine, xvcd:split
    - xvcd:insert-at-caret, xvcd:delete-at-caret
    - xvcd:set-user-data, xvcd:set-property
    - xvcd:start-drag, xvcd-copy-selection
- Can update source and destination DOM trees
XFY User Interface Markup

- Markup for menus, toolbars, buttons, pop-ups, keyboard accelerators
- Can be generated via application of XVCD transform to source data
- XVCD then defines the UI behaviour in response to standard UI events
- Plenty of platform commands to choose from
  - Navigation and bookmarks, undo/redo, ...
- Specialized markup for charts, pie diagrams, ...
  - Requires transformation of data into expected format
Data Constraints and Calculations

- Use XVCD to specify constraints on data entered by the user
  - Numbers, dates, times, durations, ranges, etc.
  - Restrictions on lists (max/min items settable)
- XVCD also allows you to define calculations e.g. where one element's content is the sum of several others
XVCD and XForms

- XFY uses a transformational approach that maps source markup to destination markup
- XForms uses XPath for binding data constraints and calculations, but is not based upon XSLT
- XForms defines abstract UI markup and relies on XBL, CSS or other means to map this into a concrete UI
- XForms is in widespread use as a mature W3C specification
- What is the relationship between XForms and conventional model-based UI?
XForms

A brief introduction
XForms Basics

• Separates data from UI
• Data held and submitted as XML
• Optional use of XML Schema for data
• Additional constraints through bind element
  – XPath expressions on instance data
  – Required, relevant, read-only, calculated
• Rich set of events and actions
  – Act on instance data
• Abstract UI elements
XForms UI

• Set of abstract UI controls
  - input, secret, textarea, output, upload
  - range, trigger, submit, select, select1
  - switch, case, toggle, repeat

• Additional information
  - label, help, hint, alert

• Model-View-Controller design pattern

• Originally designed as replacement for HTML Forms

• But now seen as of wider utility than forms
XForms and Model-based UI

- XForms brings lots of real-world requirements
- Is the XForms abstract UI
  - A complete solution?
  - Something to extend?
  - To be ignored as too forms centric?
- How to relate concrete and abstract UI?
  - Class and superclass?
- How does XForms relate to task models?