

# Relevant work at JustSystems

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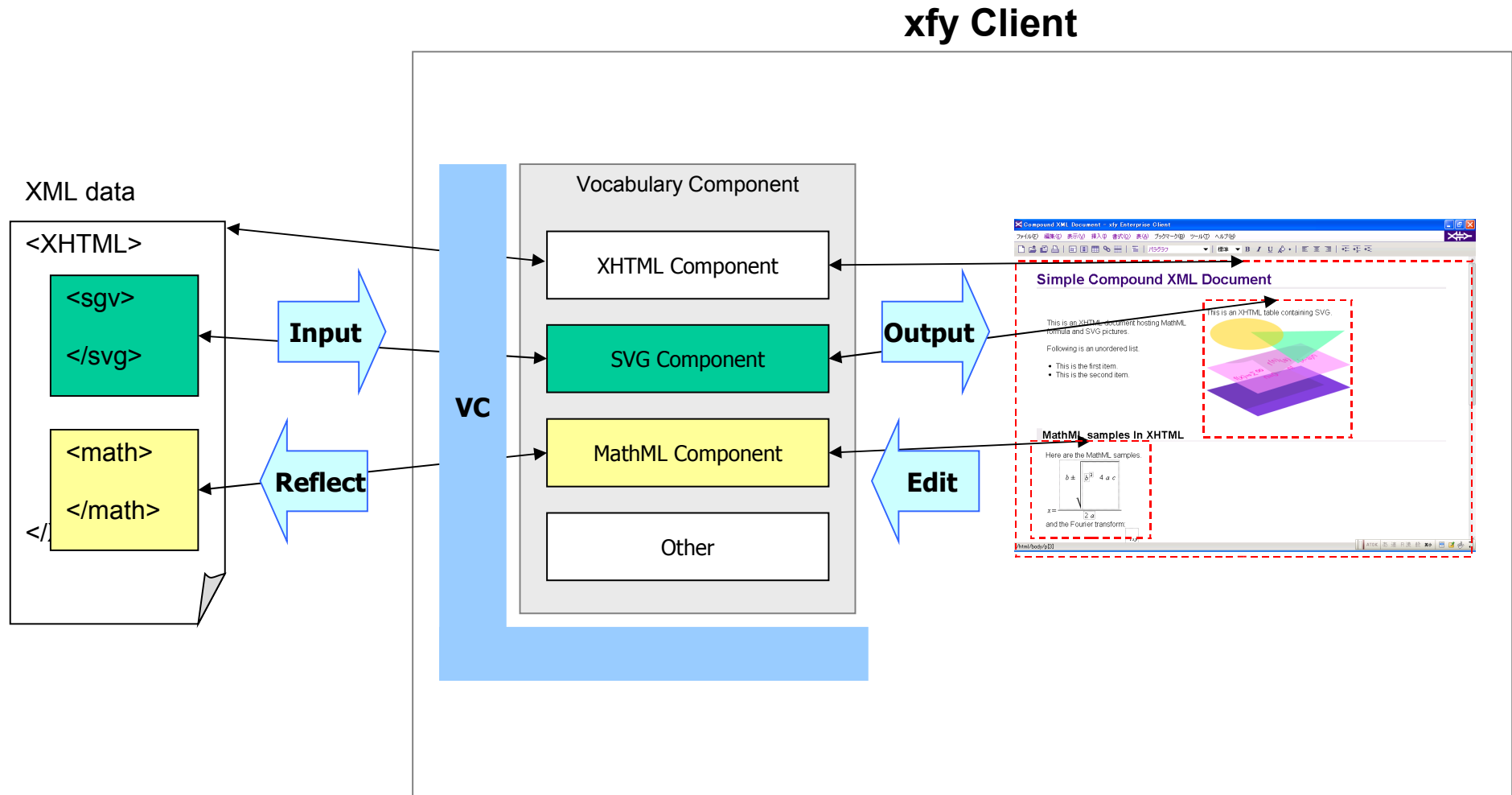
# JustSystems

- 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

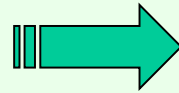
- The document is the application
- XFY client
  - Written in Java
  - View and edit compound documents
    - XHTML, SVG, MathML, Chemical ML
    - UI markup (a kind of concrete UI)
    - Vocabulary components for charts, pie diagrams
  - Extends XSLT for dynamic bindings
    - Source markup kept in sync with UI
- XFY server
  - XML repository and interfaces to databases, etc.

# What is a Vocabulary Component?



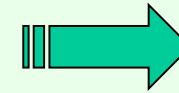
# What is VC (Vocabulary Connection)?

XML document

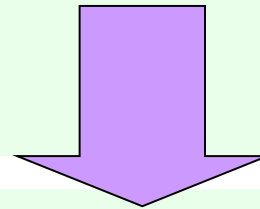


X S L T

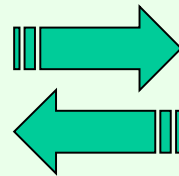
Display



Web browser



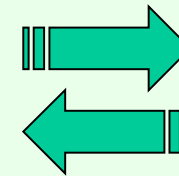
XML document



Update

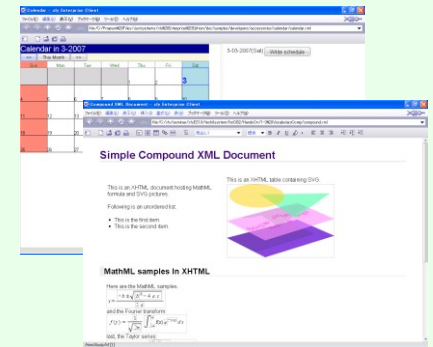
VC mechanism  
(XVCD)

Display



Edit

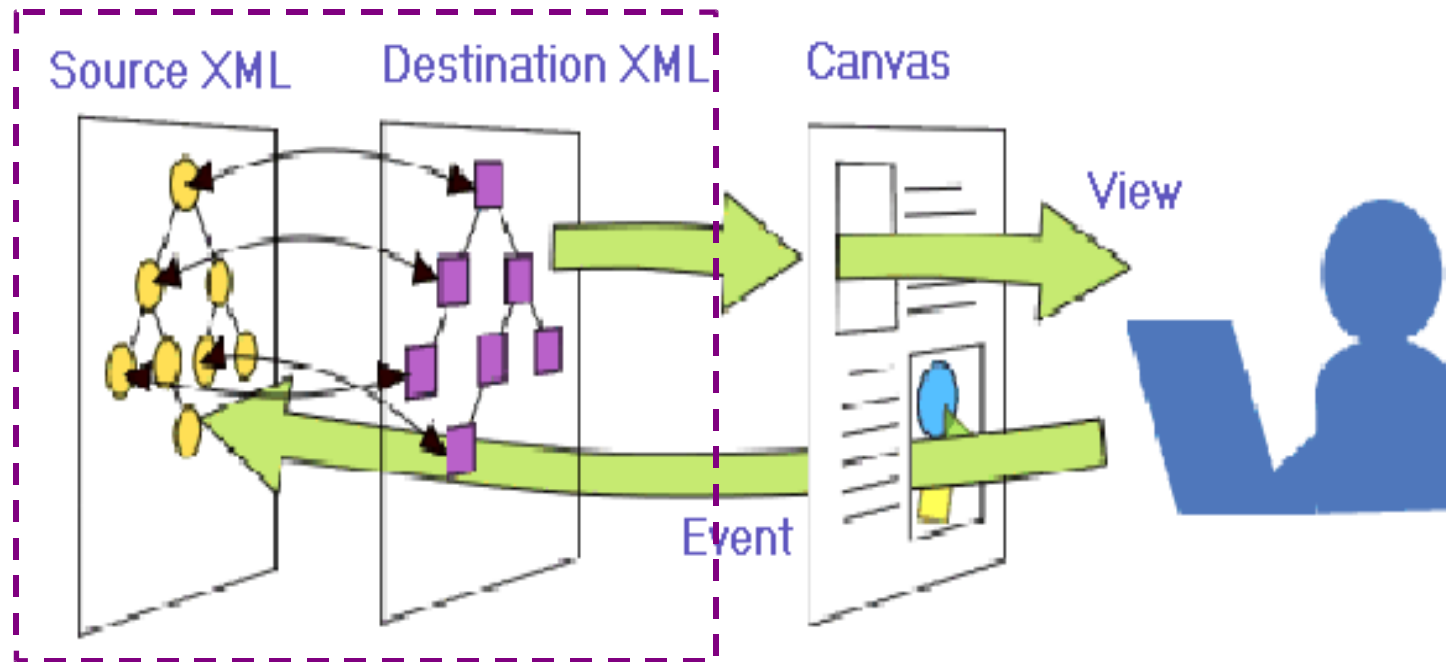
xfy Enterprise Client



Multi-view

# Vocabulary Component

## Vocabulary Component



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?