The **Fluid** Project
An Open Source Community for Inclusive Design

CSUN 2008

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What is Fluid?

An open source project which creates a user experience, tools, and software capable of addressing a diverse set of demanding, creative users - targeted at e-learning
Tools must be usable and undemanding

- Users should focus on teaching, learning, research and administrative tasks… not on operating the tools

- Institutions should invest in furthering research and learning not in…ballooning support needs

- Institutions should not be concerned with cost of tool rejection and difficult implementations

- Tools should be platforms for innovation
Institutional Obligation and Commitment to:

• Accessibility
• Internationalization
• Quality Assurance
• Security
State of Usability/Accessibility in Open Source

- Systemic problem of poor and inconsistent user interface
- Often left to programmers
- Tackled at the end
- Redundantly developed
- Inadequately tested and refined
- UX designers not well integrated into development culture
- Poor UX an impediment to adoption
- And…. 
“You say tomato, I say tomato, let’s call the whole thing off”

- Academic communities are very diverse
- They differ greatly in our preferences, needs, habits, concepts, comforts, convictions….
  - Institutional preferences and branding
  - Conventions of academic discipline
  - Cultural differences
  - Linguistic differences
  - Differences related to age
  - Differences related to role and perspective
  - Different teaching approaches
  - Different learning approaches
  - Disability and environmental constraints

Many similarities to IBM research
Differences related to academic discipline

Differ with respect to:
• language (e.g., the meaning of color)
• values and notions of quality
• tools
• environment
• modes of interaction and academic engagement

*The academic community fosters and thrives on diversity*
Accessibility today

• Legal commitment to equal access (Rehab 508, Section 255, ADA, state commitments, institutional policies)

• “One size fits all” has significant limitations
  – Constrain user experience for those meant to help.
  – Accessibility guidelines seen to constrain creativity

• “Accessible for everyone, optimal for no one”

We can’t afford to be this limited!
Fluid:
“Flexible User Interface”

- Swappable styles
- Modular, reusable UI components
- Web 2.0 focus
- Either runtime transformation for unique needs of individual
- Or customization at configuration
The Fluid Approach to UX in Community Source

• UX is a challenge for all open source projects and all institutions

• Need for cross-project collaboration:
  – Share scarce UX resources across projects
  – Solve common challenges
  – Recognize recurring user interface idioms and needs

• Fluid is looking at common problems:
  – How do non-technical people get involved in open source?
  – How can we help designers and developers speak the same language?
  – How do you do user testing in a distributed environment?
Breaking down barriers, addressing cross-cutting needs

Sakai  uPortal  Moodle  OpenCollection  Kuali

CONTENT MANAGEMENT

- File Uploading
- Reworked, lightweight File Picking
- Tagging and Tag Clouds
- Smart folders, “playlists,” contextual filtering
- Favorites and Clipboard/File Basket
- Drag and drop portlets
What are we Building?

• Rich, flexible, reusable user interface components
• Lightweight JavaScript development tools
• User Experience Toolkit
• Great Interaction Designs

Interconnected activities
UX Toolkit

• UI Design Patterns:
  – Open Source Design Patterns Library
  – Shared design advice and guidance
• UX Walkthroughs:
  – Tools for assessing your user experience
• Testing techniques and guidelines
  – How to test your designs and talk to users
• User profile library:
  – Understanding higher education users and beyond

*All the stuff you need to design great interfaces!

http://wiki.fluidproject.org/display/fluid/User+Experience+Walkthroughs
Designing Components

• Components are recurring interactions

• Encompass familiar activities on the Web:
  – Working with files, uploading, finding stuff
  – Navigating through content and tools
  – Rich interactions: drag and drop, etc.

• They are often larger than familiar widgets
UX Walkthroughs

• Provide a tool that communities can use to assess their own usability and accessibility

• Identify user pain points and solutions

• Share simple, approachable techniques

• Anyone can do a UX walkthrough:
  – Try out our checklists and heuristics
  – We’re here to help you get started

*Using Web 2.0 social collaboration to advance usable access*
U-Camps

- Our main educational effort
- Everyone should have a basic UX vocabulary
- Share a repertoire of viable UX techniques
- Opportunity for designers and developers to collaborate
- Loose agenda, open participation
Virtual Usability Lab

• Open source distributed usability testing
• Competition to expensive tools like Morae
• Powerful tool for usability testing
  – Before and after survey questions
  – Remote screen recording
  – No installation required
  – Mouse and keyboard tracking
  – Designed within a community that needs it!

http://www.vulab.ca/
UI Design Patterns

• A pattern is a proven solution to a common problem in a specified context

• Practical tool to help designers and developers choose the right interface for the job

• Advice on how to use Fluid components

• Share patterns across communities
  – Tag, customize, adapt for your context

• Open Source Design Patterns Library:
  – The first truly open, collaborative pattern repository
Component Architecture
Technical Goals

- Make it easier for developers to build better, more accessible user interfaces
- Support collaboration with designers
- Foster sharing of design and code
- Adaptable for a variety of tools and workflows
- Embrace the Web
- Support diverse presentation frameworks
- Don't reinvent the wheel: leverage good existing technologies and fill the gaps
What is a Fluid Component?

- Client-side Web 2.0 component:
  - HTML
  - Style sheets
  - JavaScript for behavioural logic
  - Accessibility metadata (WAI-ARIA, extensible wai-aria)

- And on the server-side:
  - Binding conventions: markup with known, formal IDs
  - Ability to respond to RESTful requests
  - Ability to deliver the appropriate markup or data
A Flexible Framework

• Solve the need for reuse and accessibility together

• Components need to adapt to different contexts:
  – Available screen real estate
  – Type of content
  – Amount of content
  – Method of control and navigation

• Leverage the web’s strength in separating structure from presentation

• Augment with alternative behaviors
UI Adaptation

• **Flexible layouts and linearization:**
  – Expandable spacing, sizing, fonts, layouts
  – Flatten multi-column views into a single column

• **Enhanced Navigational Aids:**
  – Turn on/off sitemaps, summaries, and breadcrumbs
  – "Focus mode:" collapse distracting or extraneous screen real estate

• **Keyboard support:**
  – Shortcuts: configure or remap them as needed
  – Navigation: comprehensive or quick navigation
Adaptation Illustrated

Heading One


Heading Two
Component Composition
(Flexible and reusable)

Easy to modify!
The Fluid Framework

- Reusable components makes DHTML accessibility a lot easier:
  - Focus management
  - Keyboard handlers
  - Getting/setting WAI-ARIA properties

- Framework infrastructure:
  - Dependency injection
  - Server-side communication
  - Portal-friendly DOM conventions

- Adaptation:
  - The ability to wire up component behaviour at runtime

- As small as possible…
Fluid Framework Illustrated

Components

UI Adaptation Engine
Reorderer
Text Editing Service

Dependency Management
Template Renderer

Accessibility Plugins
DOM Binding
Universal View Bus (AJAX)

jQuery
Demo Fluid Lightbox Component from Sakai Portal

NYC Skyscrapers Collection

Start Slide Show

Sort order: Instructor default, Alphabetical
Project Roadmap
Adoption Timeline

June 2008
Fluid 0.4
- toolkit accessibility
- framework definition

December 2008
Fluid 0.8
- ui accessibility adaption
- file management components
- sustainable, active community

Early Adoption; Help Shape the Direction of Fluid
- framework development
- open design patterns library

APIs Stabilize
- new components, framework refinements
- expand ux toolkit

Build and Share Your Own Fluid Components

March 2008
Fluid 0.3

September 2008
Fluid 0.6

March 2009
Fluid 1.0

We welcome participation!
How You Can Help

- Join our mailing lists
- Share code
- Help with design effort
  - UX Walkthroughs are fun and easy
  - Contextual inquiry
  - Component design teams
- Use and extend Fluid components in your tools
- QA: design test plans, help with testing
- User testing
- Share design patterns
Join in....

- Fluid Project Web Site:
  http://fluidproject.org
- Our wiki:
  http://wiki.fluidproject.org
- Our source code:
  https://source.fluidproject.org/svn
- Our mailing lists:
  fluid-work@ for community collaboration
  fluid-talk@ for anything you’re interested in
File Upload

1) Choose Images → 2) Add Images to Image Gallery → 3) Add Information to Images

Add image to All Images:
☑ Also add images to the current collection: <collection name>

File Queue:

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<th>Size</th>
<th>Status</th>
<th>Remove</th>
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Add more files... → Upload

Cancel → Continue...
# Smart Pager

![Fluid logo](image)

**Designing software that works - for everyone**

Start typing a name...  
Find

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Viewing 11-20 of 194
Time/Date Picker

**February 21, 2008**
- **Open on:** 2/21/2008 11:30 AM

**February 22, 2008**
- **Due on:** 2/22/2008 7:30 PM

**February**
- 27 28 29 30 31 1 2
- 3 4 5 6 7 8 9
- 10 11 12 13 14 15 16
- 17 18 19 20 21 22 23
- 24 25 26 27 28 29 1
- 2 3 4 5 6 7 8

**Click**
Quarterly Schedule

- Lightbox
- Portal Layout Organizer
- Screen Reader support
- UX Walkthrough
- Project strategies
- Moving from Dojo to jQuery
- Accessible Drag/Drop

0.2

- File Upload component
- Contextual Inquiry Design Framework
- Date Picking and smart paging
- Drag/Drop portlets
- New design patterns

0.3

- File Upload component
- Contextual Inquiry Design Framework
- Date Picking and smart paging
- Drag/Drop portlets
- New design patterns

0.4

- Improved componentry
- Content Adaptation
- User Preference acquisition
- U Camps
- Updated design patterns CMS
- User testing
- Additional components
- Refine UX walkthrough
- What’s beyond 1.0?

0.4 – 1.0

We welcome participation!
Composition = Flexibility

• Fluid components are built out of smaller units
  – Keyboard handlers
  – Layout managers
  – Server callbacks

• Composition enables flexibility
  – At runtime, wire up alternative behaviour
  – Use web standards to change presentation (HTML/CSS)

• Easy to extend or modify component behaviour
Release Plan

• Quarterly milestone releases
• Whole package:
  – Components, framework, UX Toolkit, Documentation
• Major Goals:
  – User research
  – Components for managing your files
  – Viable framework: everyone can build components
  – Open Source Design Patterns Library