



Designing software  
that works - for everyone

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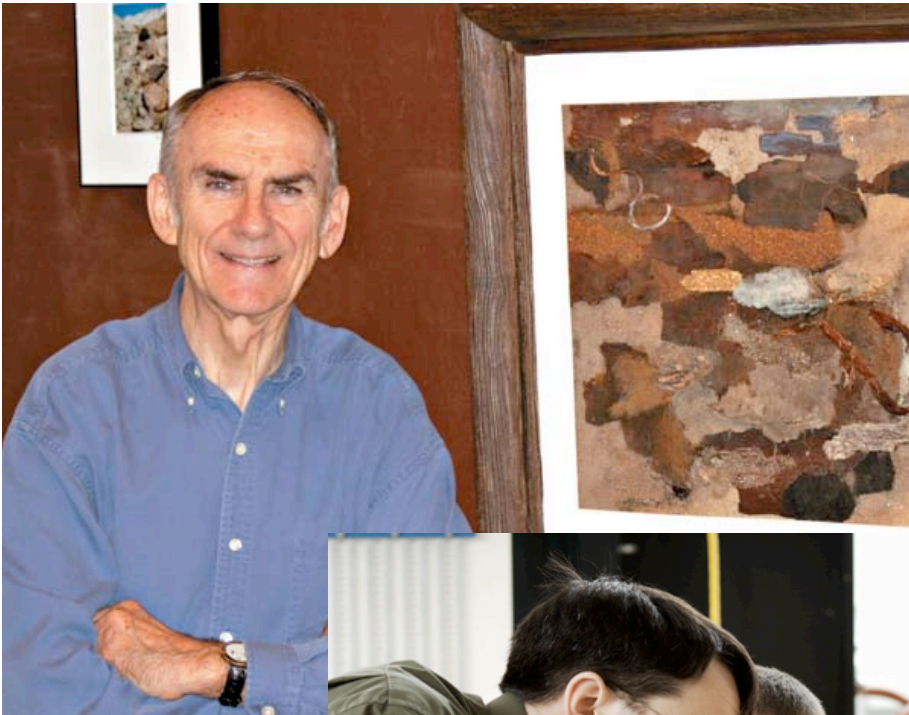
**Not like any other project...**

# Why Fluid?

# Diverse, demanding, creative users

**Fluid**

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# 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



# Currently...



- 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, lets call the whole thing off”



- Academic communities are very diverse
- We 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





# 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



In academia we foster and thrive on **diversity**.



# Accessibility

- Legal commitment to equal access (Rehab 508, Section 255, ADA, state commitments, institutional policies)
- No system-wide strategy, band-aid approach at greater and greater cost
- Not integrated or carried forward into future iterations
- Accessibility guidelines seen to constrain creativity
- “Accessible for everyone, optimal for no one”



# Goal: Consistent User Experience



- But...
- Growing number of tools
- Growing number of developers
  
- Want...
- A consistent identifiable look
- Intuitiveness and transparency of design
- Consistent quality



# Consistent User Experience vs. Accommodating Differences



- Do we need to choose?
- Or can we have our cake and eat it too?



# Fluid: “Flexible User Interface”

- Swappable styles
- Modular, reusable UI components
- Either runtime transformation for unique needs of individual
- Or customization at configuration

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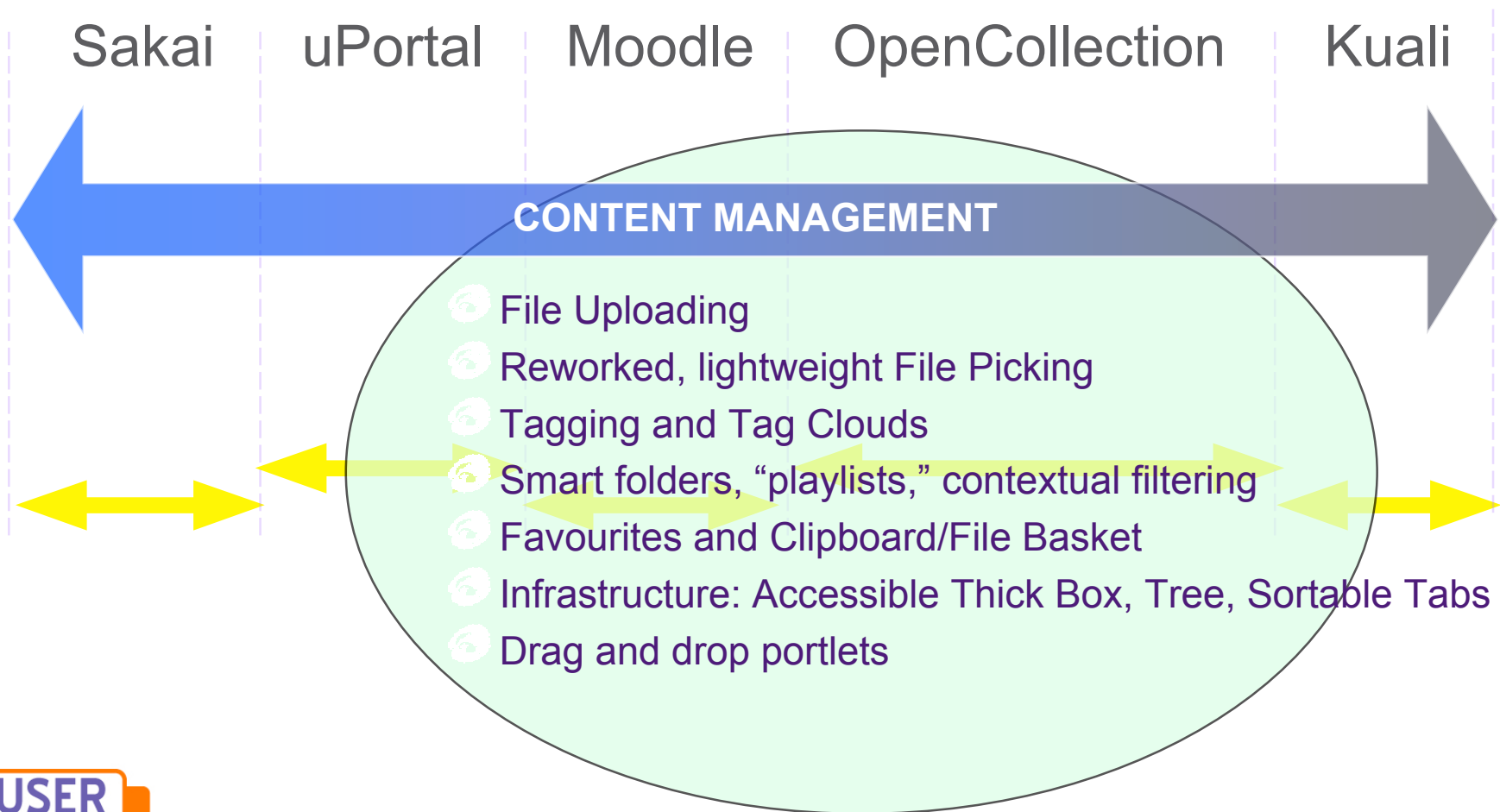
# The Fluid Approach to UX in Community Source



- UX is a challenge for all open source projects and all institutions
- 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 OSS?
  - 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



# Currently Participating Projects...

- Sakai
- uPortal
- OpenCollection
- Moodle
- Kualu Student
- ...Others
- Your project?
  
- Your institution?





# What are we Building?



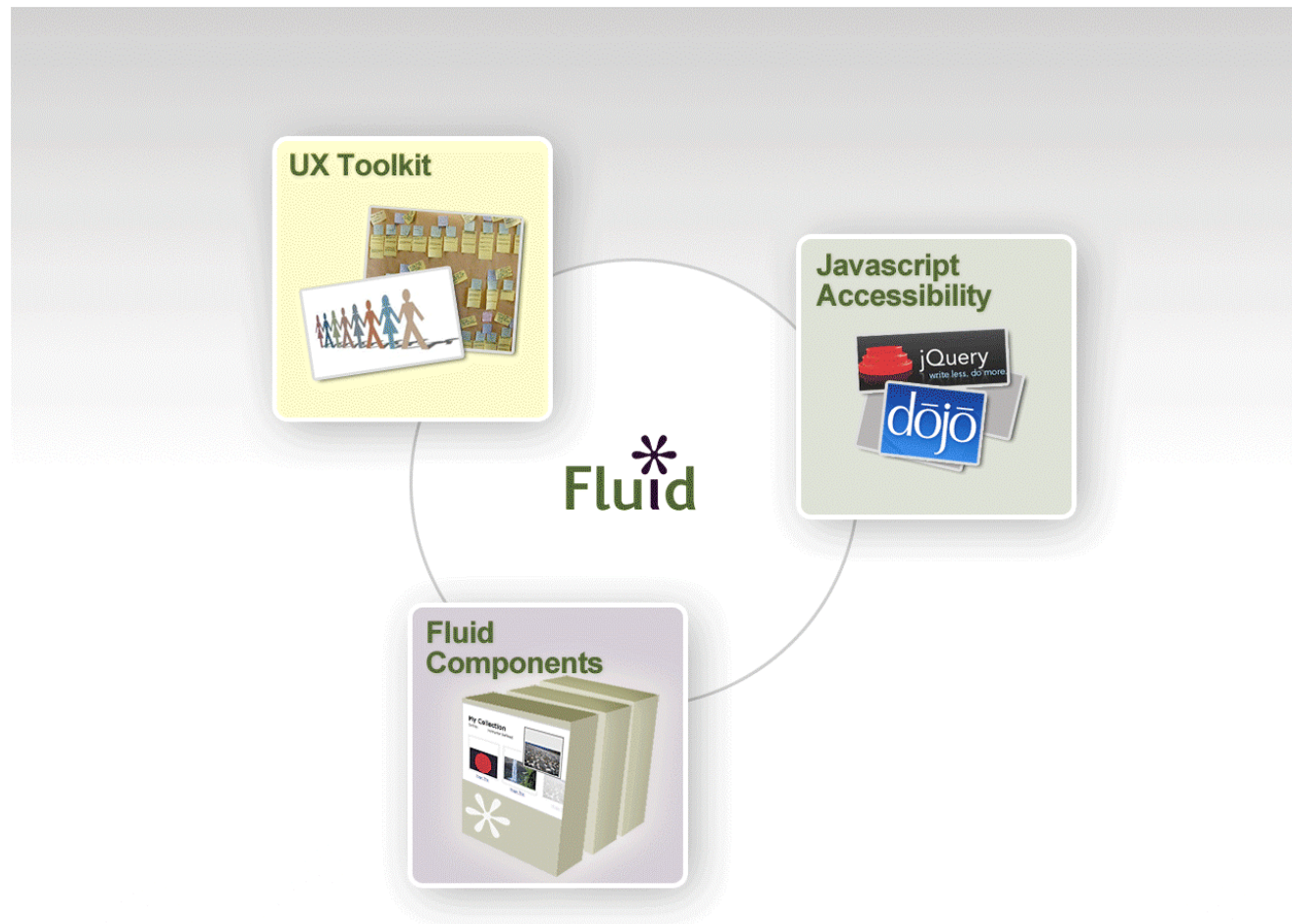
- Rich, flexible, reusable user interface components
- Lightweight JavaScript development tools
- User Experience Toolkit
- Great Interaction Designs



# Interconnected Activities



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# UX Toolkit



# 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!



# 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



# 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
- Before and after survey questions
- Remote screen recording
- No installation required
- Mouse and keyboard tracking
- Designed within a community that needs it!





# 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:
  - HTML
  - Style sheets
  - JavaScript for behavioural logic
  - Accessibility metadata
- 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 behaviours



# 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



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This screenshot shows the Fluid website in its desktop layout. At the top left is the Fluid logo. Below it is a horizontal navigation menu with links for HOME, NEW, REVISED, TOOLS, and FORUMS. The main content area is divided into three columns. The left column has a heading "Heading One" followed by a paragraph of Lorem Ipsum text. The middle column has a heading "Heading Two" followed by another paragraph of Lorem Ipsum text. The right column is a sidebar with a heading "Sidebar" and a paragraph of Lorem Ipsum text. A large green arrow points from this desktop view towards the right, indicating the transition to the mobile view.

This screenshot shows the Fluid website adapted for a mobile device. The Fluid logo is at the top left. The navigation menu is now a horizontal bar with the same links: HOME, NEW, REVISED, TOOLS, and FORUMS. The main content area is a single column. It starts with "Heading One" followed by a paragraph of Lorem Ipsum text. Below that is another paragraph of Lorem Ipsum text. Then comes "Heading Two" followed by a final paragraph of Lorem Ipsum text.



# Composition = Flexibility

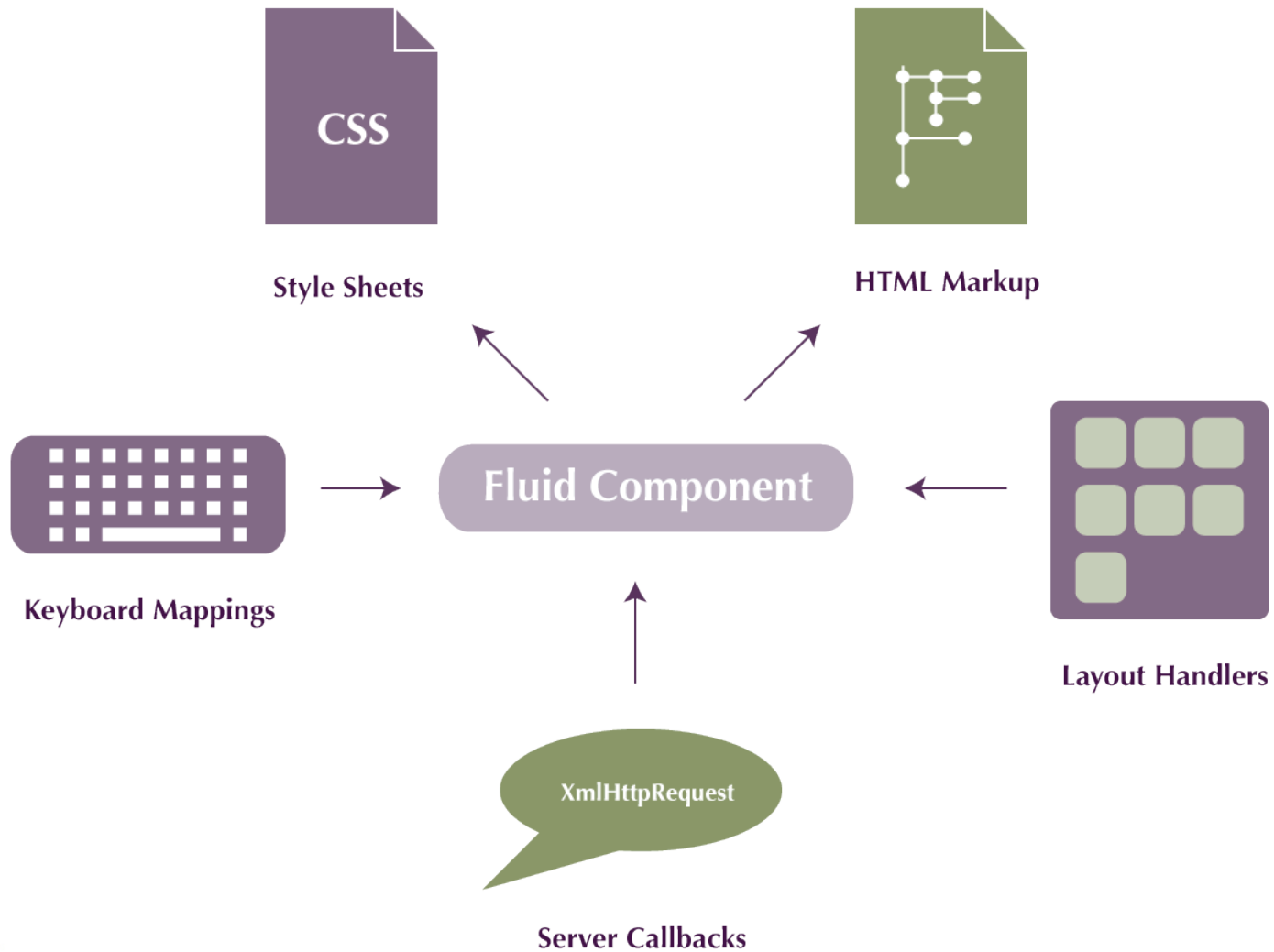


- Fluid components are built out of smaller units
  - Keyboard handlers
  - Layout managers
  - Server callbacks
- Composition enables flexibility
  - At runtime, wire up alternative behaviour
  - Use web standards to change presentation (HTML/CSS)
- Easy to extend or modify component behaviour





# Component Composition



# The Fluid Framework



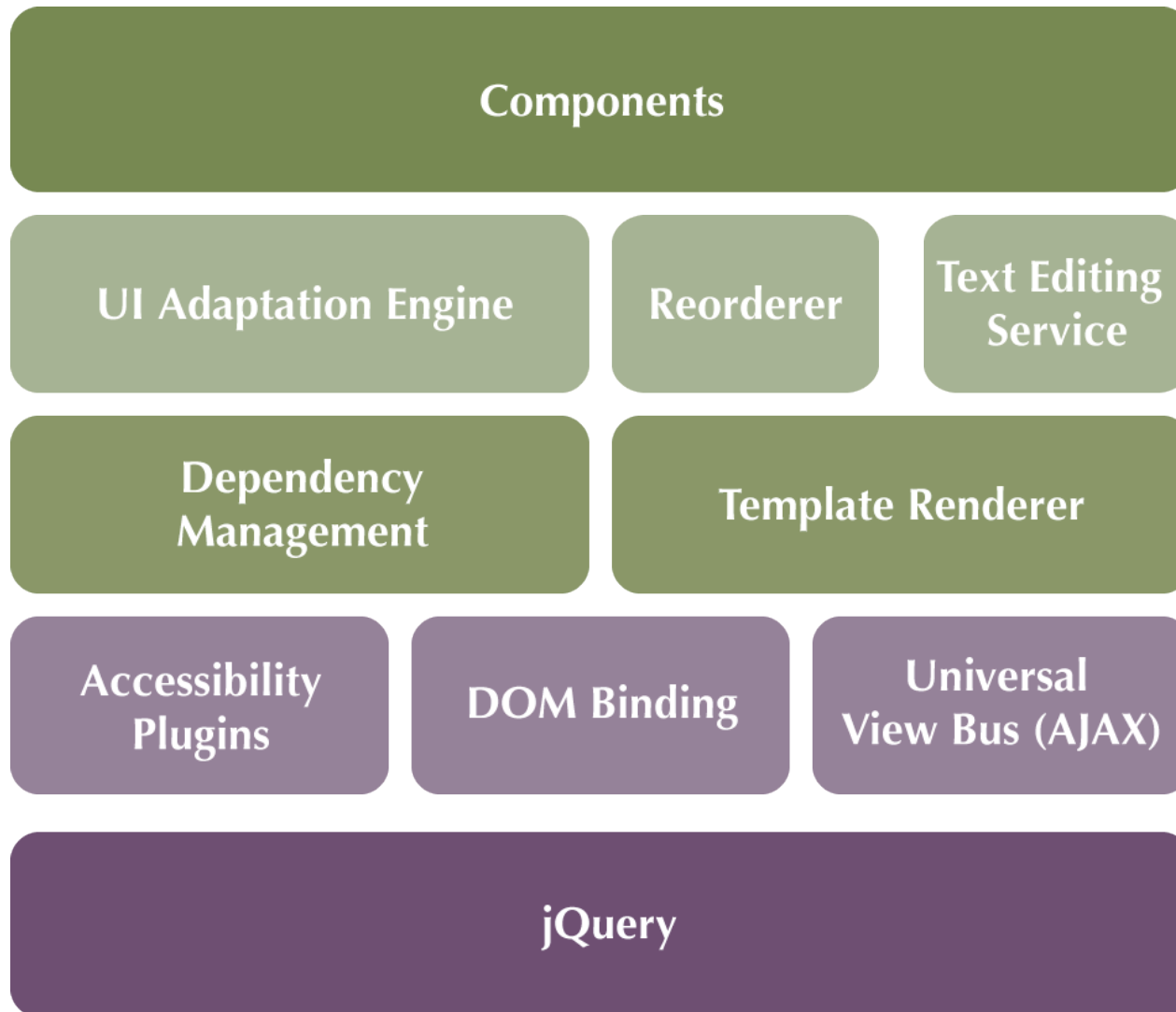
- Make DHTML accessibility a lot easier:
  - Focus management
  - Keyboard handlers
  - Getting/setting ARIA properties
- Framework infrastructure:
  - Dependency injection
  - Server-side communication
  - Portal-friendly DOM conventions
- Adaptation:
  - The ability to wire up component behaviour at runtime
- As small as possible...



# Fluid Framework Illustrated



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# What We're *Not* Doing

- Writing yet another JavaScript toolkit
- Writing more of the same widgets
- Expecting everyone to agree



# What We *Are* Doing



- Reusing existing toolkits and technologies
- Addressing the gaps in existing offerings:
  - Accessibility
  - Personalization
  - Client/server cooperation
- Making tools that are aimed at the Web developer skillset, not only the Enterprise Java types
- Working with UI designers to create great components that encompass user activities



# Project Roadmap



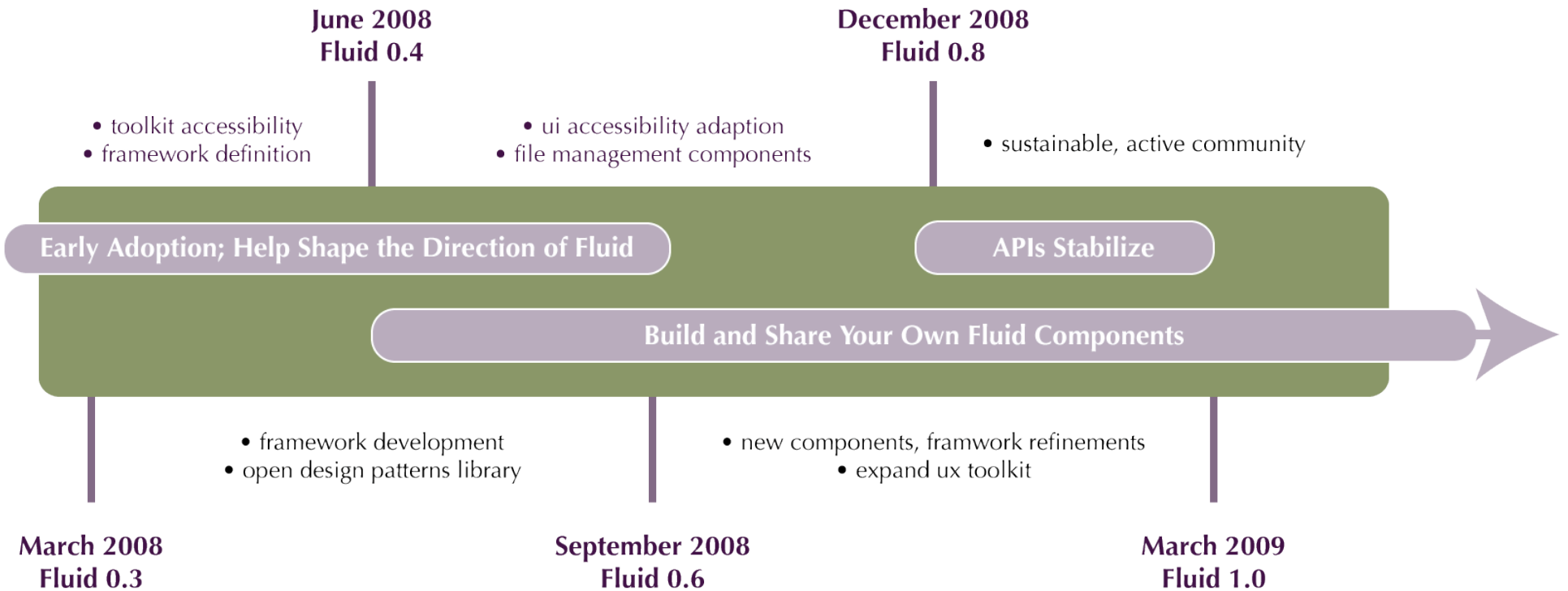
# Release Plan



- 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



# Adoption Timeline





# Highlights to Date



- Pioneered new accessible drag and drop interactions
- Lightbox and Portal Layout Organizer
- Established primary strategies for Fluid framework
- UX Walkthroughs
- Released Fluid 0.1; lots more to come!



# Lightbox



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Home

## Gallery Collections

- [arks](#) (5)
- [wich Village](#) (6)
- [yscrapers](#) (9)
- [ork City \(all\)](#) (27)
- [Manhattan](#) (11)

to view a collection, go to the  
resources tool and create a folder  
collection in your "Image  
Collections" folder.

## Lower Manhattan Collection

[Start Slide Show](#)

Sort order  Instructor default  Alphabetical

View an image by pressing Enter. Move an image using  
CTRL+Arrow Key.

A grid of 12 image thumbnails from the "Lower Manhattan Collection". The thumbnails are arranged in three rows and four columns. The first row contains: "wall\_street.jpg", "lower manhattan street.jpg", "church.jpg", and "rebuilding.jpg". The second row contains: "approaching wall street.jpg", "lower manhattan.jpg", "nyc building.jpg", and "near city hall.jpg". The third row contains: "wtc whats left.jpg", "battery park.jpg", and "wtc subway.jpg". The "wall\_street.jpg" thumbnail in the second row is highlighted with a white border and a mouse cursor pointing at it. A vertical red line is positioned between the second and third columns of the grid.



# Portal Layout Organizer



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A screenshot of the uPortal interface. At the top left is the uPortal logo with "POWERED BY JASIG" underneath. To its right, it says "Hello Sample Student. Sign Out". On the far right of the top bar are icons for a calendar, email, a CD/DVD, and a folder, with an "EDIT" button next to them. Below this is a navigation bar with tabs: "Main Page" (selected), "My Classes", "uPortal Central", "Personal", "Email &amp; Calendar", and "Administration". The main content area is titled "Main Page" and has sub-headers "ADD CONTENT", "EDIT LAYOUT", "MANAGE TABS", and "CHANGE STYLE". The layout consists of several widgets: "My Bookmarks" (a vertical list of three empty slots with a move icon at the bottom), "My Calendar" (a small calendar icon), "Campus News &amp; Events (RSS)" (a large blue rectangular area), and "Local News (RSS)" (a light blue rectangular area). The interface is primarily light blue and white with orange accents.



# Coming soon... Fluid 0.2



- Maintenance release
- Strengthens our existing code base, adding:
  - Production-friendly release packaging
  - Support for almost any markup you can throw at it
  - Improve screenreader support
  - Consolidation on jQuery
- **How you can help:**
  - bug fixes, write test markup, try out the Reorderer



## Fluid 0.3: April 2008



- Contextual inquiry and design framework
- Prototype File Upload component
- Date picking and smart paging
- Portlet Layout Manager (drag and drop portlets)
- Several new design patterns
- **How you can help:**
  - Get involved in user research
  - Code, designs, testing for new components
  - Write a design pattern



# Smart Pager



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Show  per page

<u>Name</u>	<u>User ID</u>	<u>Email Address</u>	<u>Role</u>
Campeau, Patrick	15234314	<a href="mailto:pcampe@berkeley.edu">pcampe@berkeley.edu</a>	Student
Capovilla, Megan	19269508	<a href="mailto:megan@berkeley.edu">megan@berkeley.edu</a>	Student
Catania, Natalie	19435570	<a href="mailto:ncatania@berkeley.edu">ncatania@berkeley.edu</a>	Student
Chalhoub, George	19206726	<a href="mailto:gchalhoub@berkeley.edu">gchalhoub@berkeley.edu</a>	Student
Chan, Julie	19206726	<a href="mailto:jchan@berkeley.edu">jchan@berkeley.edu</a>	Instructor
Choi, Daniel	16984247	<a href="mailto:dchoi@berkeley.edu">dchoi@berkeley.edu</a>	Student
Clarkson, Ian	19286942	<a href="mailto:iclarkson@berkeley.edu">iclarkson@berkeley.edu</a>	Student
Cole, Paul	19446940	<a href="mailto:pcole@berkeley.edu">pcole@berkeley.edu</a>	Student
Colgate, Abbey	14644786	<a href="mailto:acolgate@berkeley.edu">acolgate@berkeley.edu</a>	Instructor
Colville, Tony	19283731	<a href="mailto:tcolville@berkeley.edu">tcolville@berkeley.edu</a>	Student

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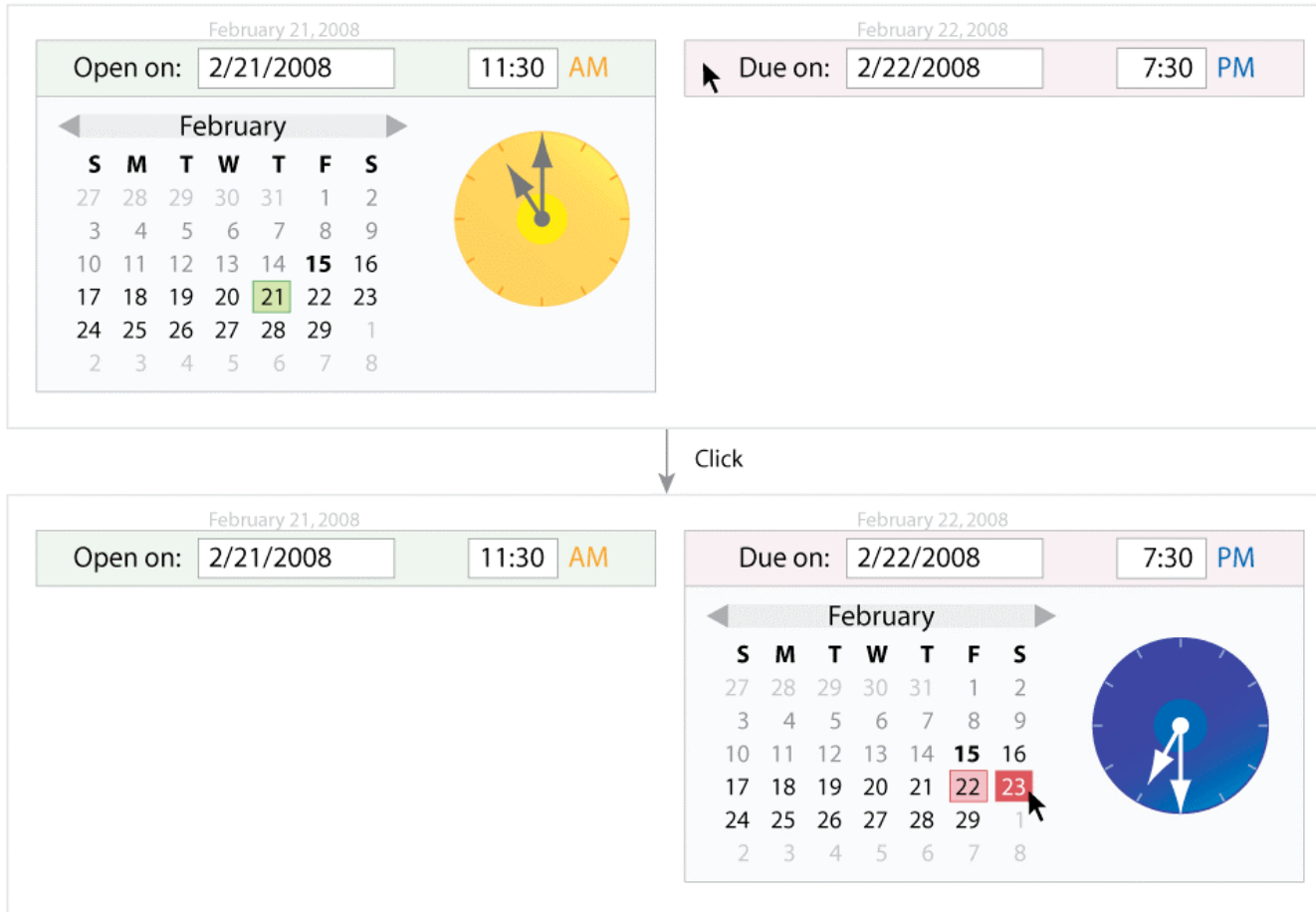
Viewing 11-20 of 194



# Time/Date Picker



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## Fluid 0.4: June 2008



- File Picker
- Upload 2.0
- Tagging
- U-Camps
- New design patterns
- **How you can help:**
  - Join the U-Camp team
  - Code, designs, testing
  - Integrate components into your tools





# File Upload



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**Image Gallery**

Browse Images & Collections | Add Images

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:**

File Name	Size	Status	Remove
Image File 1.jpg	4.78MB	Ready to Upload	<input type="checkbox"/>
Image File 1.jpg	4.78MB	Ready to Upload	<input type="checkbox"/>
Image File 1.jpg	4.78MB	Ready to Upload	<input type="checkbox"/>
Image File 1.jpg	4.78MB	Ready to Upload	<input type="checkbox"/>
Image File 1.jpg	4.78MB	Ready to Upload	<input type="checkbox"/>
Image File 1.jpg	4.78MB	Ready to Upload	<input type="checkbox"/>
Image File 1.jpg	4.78MB	Ready to Upload	<input type="checkbox"/>
Image File 1.jpg	4.78MB	Ready to Upload	<input type="checkbox"/>
Image File 1.jpg	4.78MB	Ready to Upload	<input type="checkbox"/>

Buttons: Cancel, Upload, Add more files..., Continue...



# Fluid 0.6: September 2008



- Focus on adaptation
- User preferences editor
- Accessibility design patterns
- A new wave of UX walkthroughs, targeted at file management
- **How you can help:**
  - Accessibility testing
  - Help with UX walkthroughs
  - Component and framework development help



# Fluid 0.8: December 2008



- Two new components
- U-Camps
- Updated design patterns CMS
- Lots of user testing



# Fluid 1.0: March 2009



- Two new components
- Polished do-it-yourself UX Walkthrough kit
- Framework next steps
- How you can help:
  - Roll Fluid components into your tool
  - Coding, design, user testing
  - Help with QA effort
  - Contribute to vision for post-funding phase





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# Getting Involved



# 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



# Fluid Pioneering...



- New approaches to user experience design
- New, more sustainable, approaches to accessibility



# User experience design



- Participant consumer
- Ownership and engagement in designing tools and systems they will use
- Reflective practice
- Tolerance and enthusiasm for trying new ideas and experimenting with new approaches





# Sustainable, integrated accessibility



- Part of framework and components
- Integrated and propagated throughout any new work
- Supporting individual customization



## 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@](mailto:fluid-work@) for community collaboration  
[fluid-talk@](mailto:fluid-talk@) for anything you're interested in



# Your turn...



- Pet user experience peeve?
- Design and development process frustrations?
- Component wish list?

