Designing software
that works – for everyone

The Fluid Project

An Open Source Community for Inclusive Design

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What is Fluid?

A community source project which creates user experience tools and software capable of addressing the needs of a diverse set of demanding and creative users and projects.

Core Institutions: University of Toronto | UC Berkeley | York University | University of British Columbia | University of Cambridge

Other Participating Institutions: Michigan State | University of Colorado | University of Michigan | Georgia Tech | UK Open University | Your University Here

Participating Projects: uPortal | Sakai | OpenCollection | Kuali Student | Moodle | ATutor

Corporate Partners: Mozilla Foundation | Sun Microsystems | IBM | Unicon

Tools must be usable and undemanding

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- 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

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Currently…

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- 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….

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“You say tomato, I say tomato, lets call the whole thing off”

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- 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

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The academic community fosters and thrives on diversity!

Fluid:
“Flexible User Interface”

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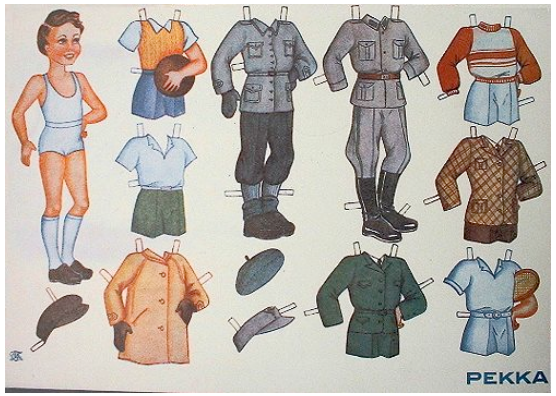
- Swappable styles
- Modular, reusable UI components
- Either runtime transformation for unique needs of individual
- Or customization at configuration



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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?

What are we Building?

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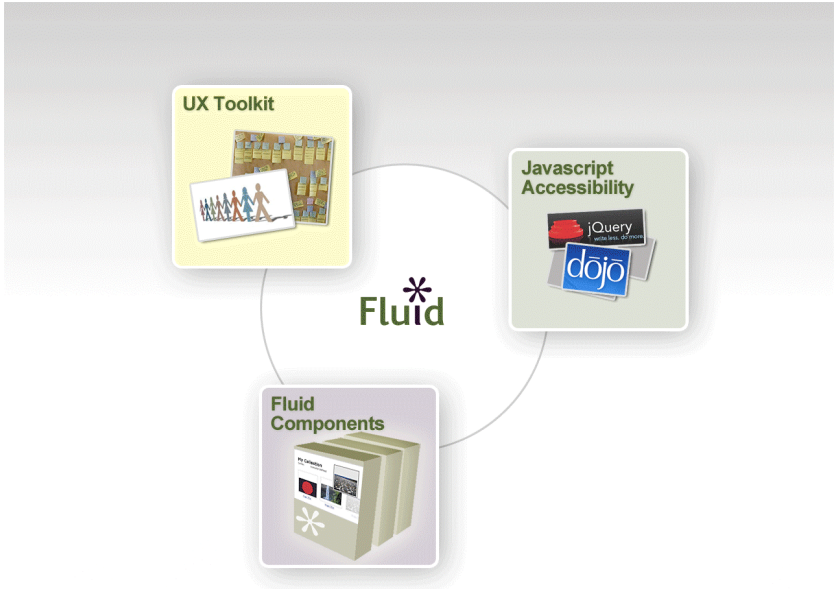
- Rich, flexible, reusable user interface components
- Lightweight JavaScript development tools
- User Experience Toolkit
- Great Interaction Designs



Interconnected activities

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UX Toolkit

UX Toolkit

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- UI Design Patterns
- UX Walkthroughs
- Testing techniques
- User profiles

- All the stuff you need to design great interfaces!

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Designing Components

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- 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.
- Activities and contexts, not just controls and widgets…

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UX Walkthroughs

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- 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

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U-Camps

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- 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

- Join us on Wednesday at 3:30 pm for the uCamp!

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Virtual Usability Lab

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- 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!

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UI Design Patterns

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- 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

http://www.uidesignpatterns.org/

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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
  - Accessibility metadata
- And on the server-side:
  - Ability to respond to RESTful requests
  - Ability to deliver the appropriate markup and data

A Flexible Framework

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- 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

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UI Adaptation

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- 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

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Adaptation Illustrated

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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

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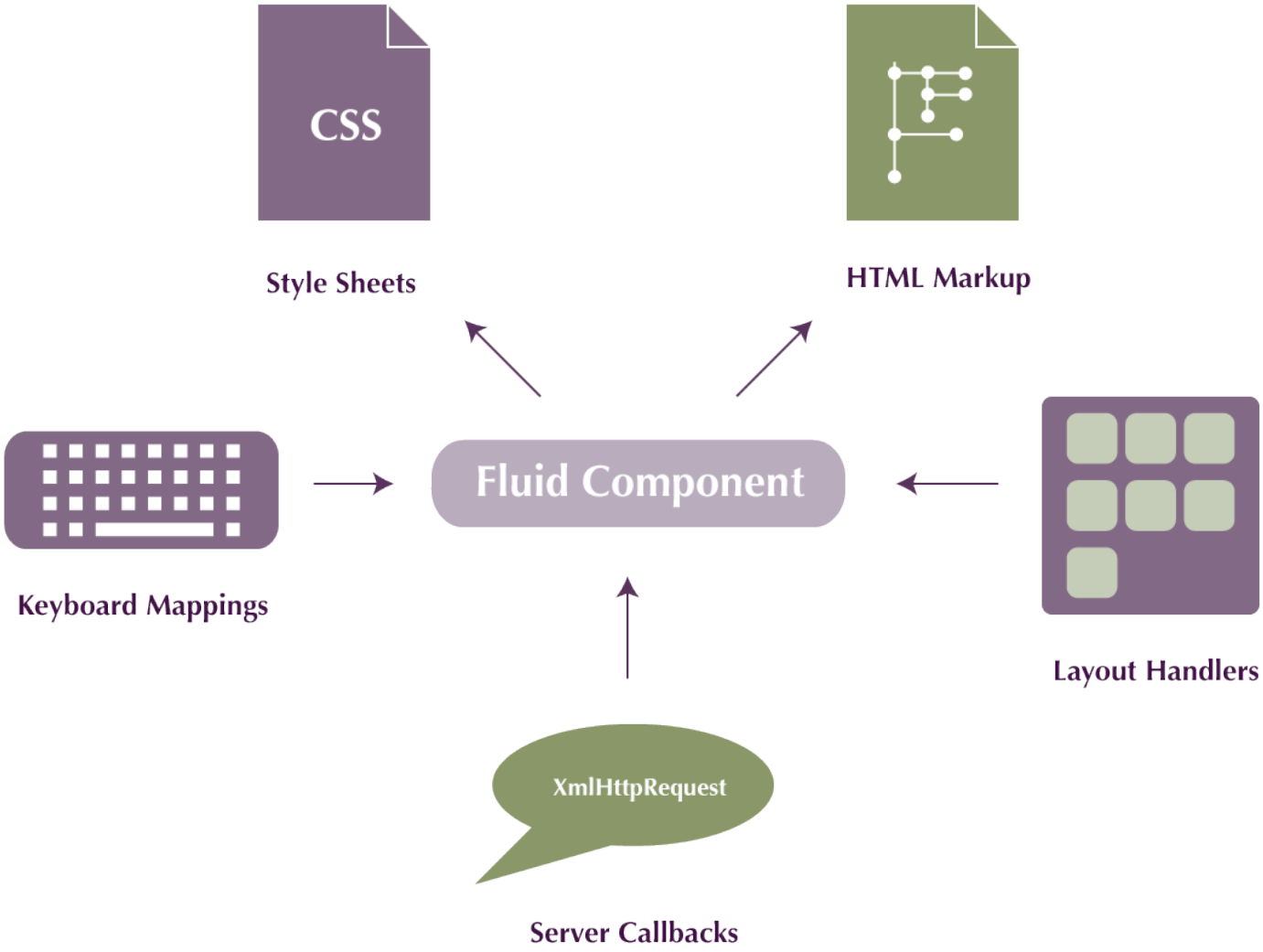

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The Fluid Framework

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

Fluid Framework Illustrated

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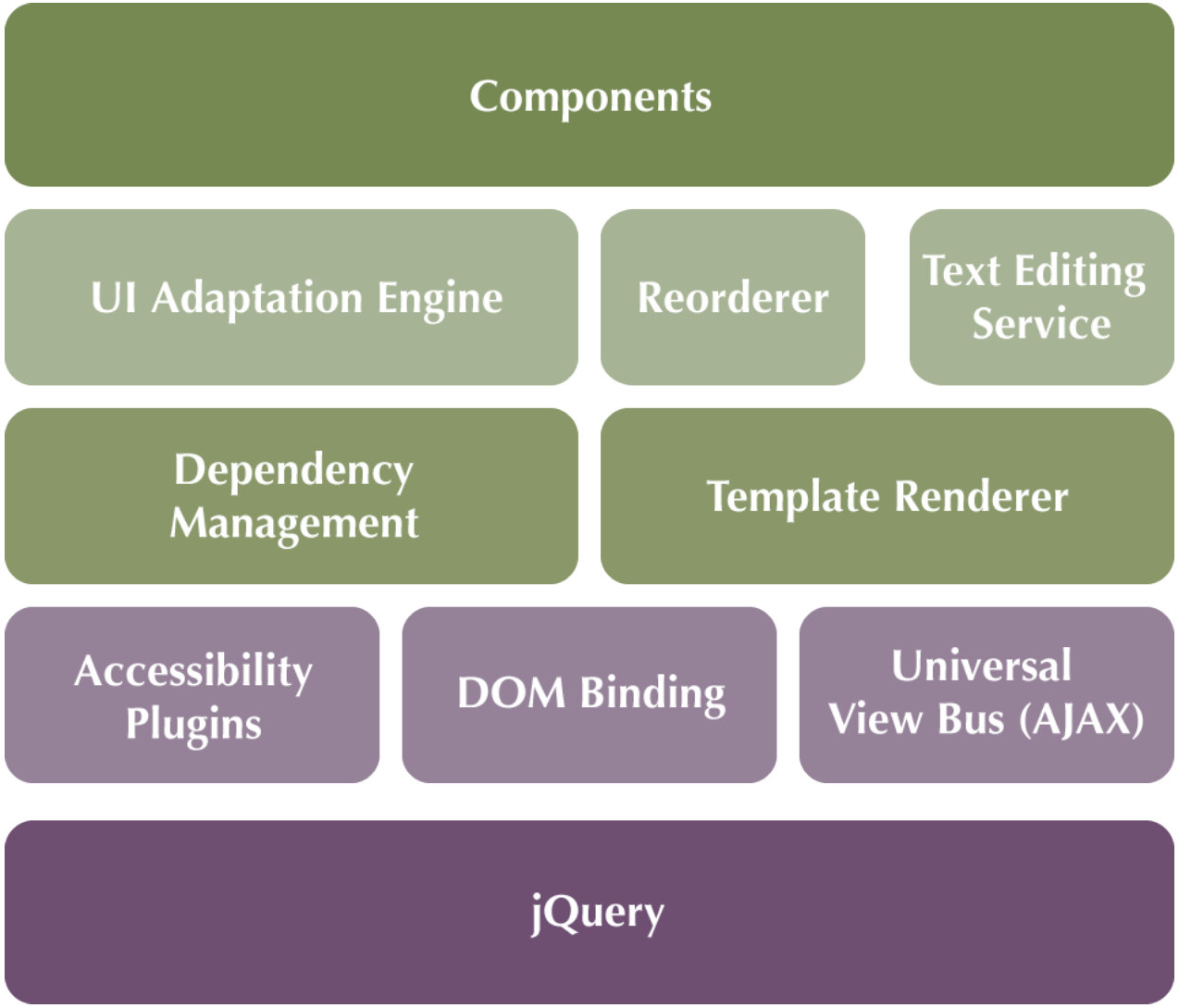

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What We're *Not* Doing

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

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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 skill set, not only the Enterprise Java types
- Working with UI designers to create great components that encompass user activities

Accessibility Plugins

- Part of Fluid 0.3; will be included in jQuery UI base
- Keyboard navigation and assistive technology
- DHTML accessibility often requires a lot of custom code: 50+ lines for handling simple lists
- Fluid makes it easy:

```
// Make the menu focusable with Tab.
var menu = jQuery("#menu").tabbable();
// Make the items selectable with the arrow keys.
var menuItems = jQuery("li", menu);
menuItems.selectable(menu, {
   willSelect: function(item) {
    item.addClass("highlight");
   }
});
```

Portal Friendly

- In the era of Web 2.0 mashups and portals, it's much harder to write code that plays nice with others
- Fluid components are built to work with portals
- Everything is namespaced
- Support for multiple instances
- DOM searches are constrained to fragments

Unobtrusiveness

- Fluid components expect to find “interesting things,” but they don’t expect a specific DOM structure
- Selectors form a binding between code and template
- Users can change templates and tell the component how to find things
- Easily customized with plain old HTML & CSS
- Next step: template rendering without all the other stuff…

Template Rendering

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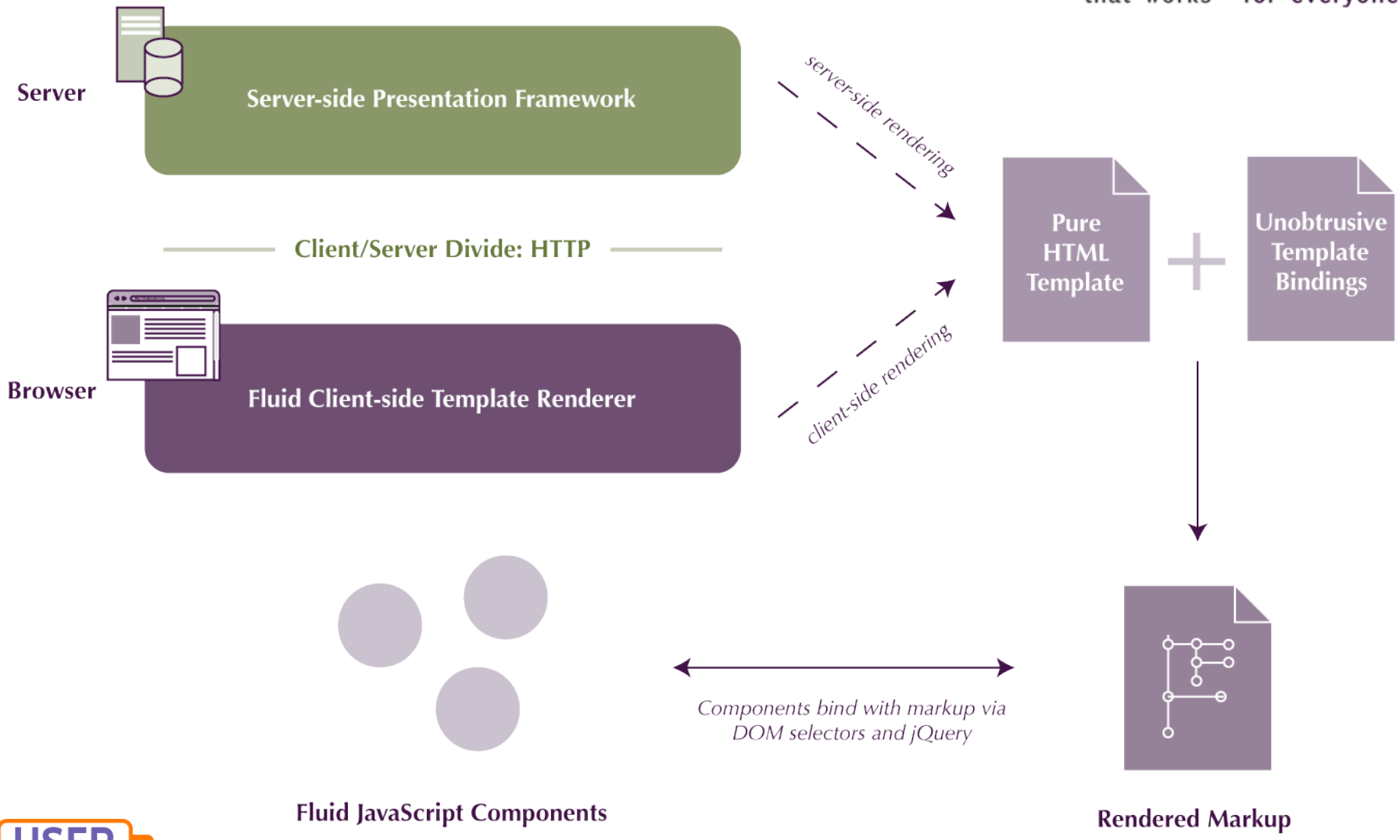

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Code Example: Portal Friendlines & Unobtrusiveness

```
<ul id="fluidTabsComponent">
  … tabs go here …
<ul>
<div id="panels">
   ... Panels go here …
</div>

<script type="text/javascript">
   new fluid.Tabs("fluidTabsComponent", {
      tabContainer: "#tabs",
      tabs: "#tabs > li",
      panels: "#panels > div"
   });
</script>
```

Learning More…

- Fearless JavaScript workshop: *podcast coming soon!*
  - http://wiki.fluidproject.org/x/7IMk
- Overview of DHTML Accessibility:
  - http://wiki.fluidproject.org/x/U4kk
- Developer's Checklist:
  - http://wiki.fluidproject.org/x/-QQa
- jQuery a11y plugins:
  - http://wiki.fluidproject.org/x/MhYa
- JavaScript Resources:
  - http://wiki.fluidproject.org/x/6IMk

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Project Roadmap

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Infusion: A Complete Package

- Components for managing your files and more
- Framework: everyone can build components
- UI design patterns
- User research you can use
- Documentation and lots of sample code

Release Plan

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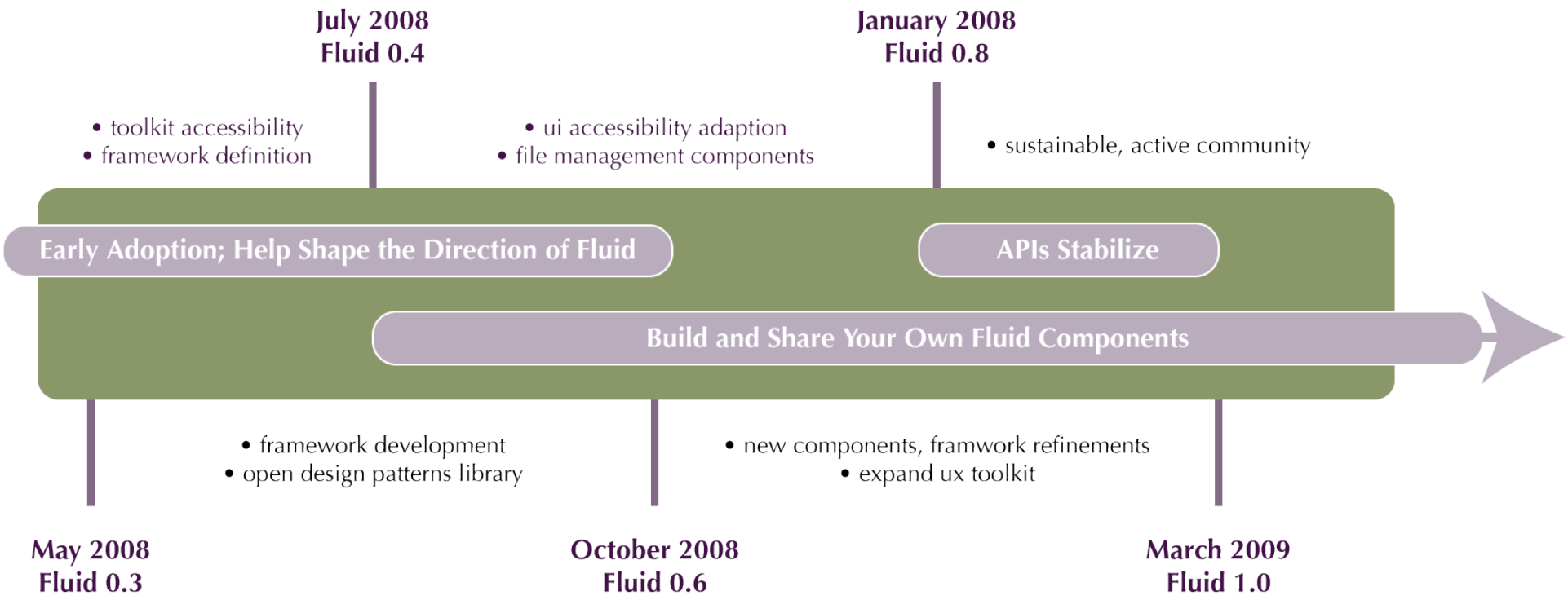

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What's in Fluid Infusion 0.3?

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- Lightbox
- Layout Customizer
- Uploader
- Plugins for keyboard accessibility
- Robust cross-browser support
- New layout and upload design patterns

Fluid Infusion 0.3 beta 1 was released on Friday!

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Lightbox

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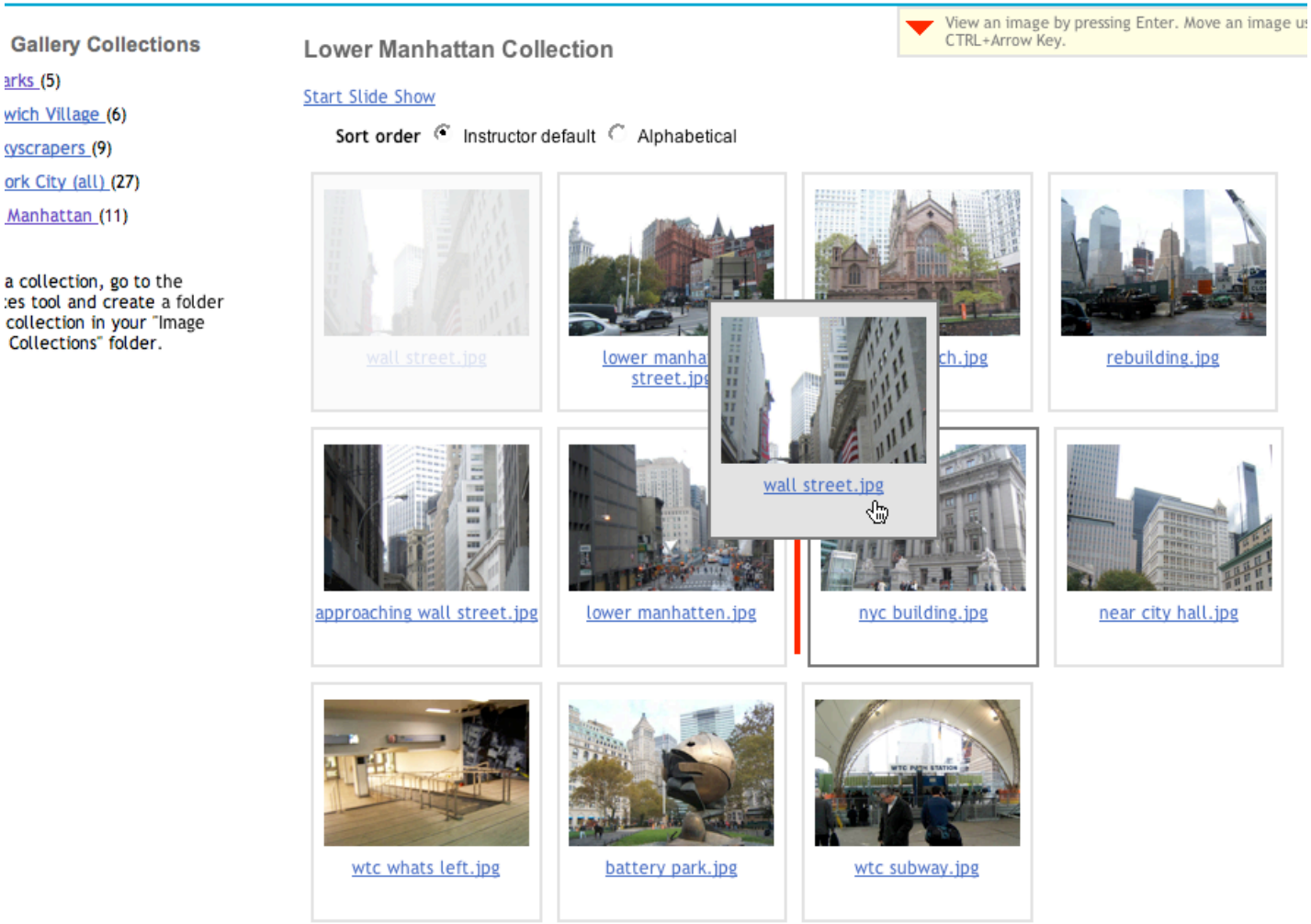

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Layout Customizer

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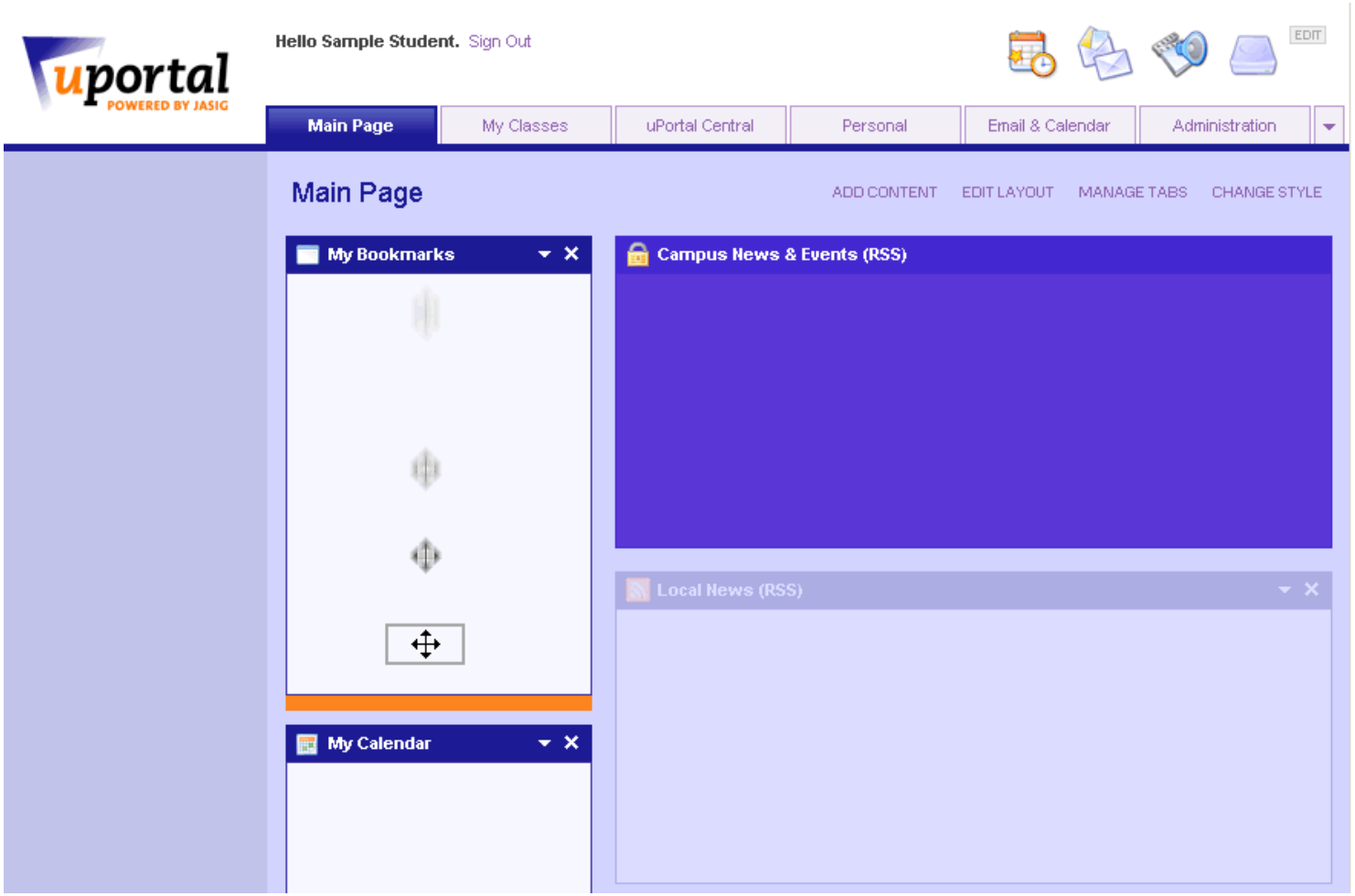

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Uploader

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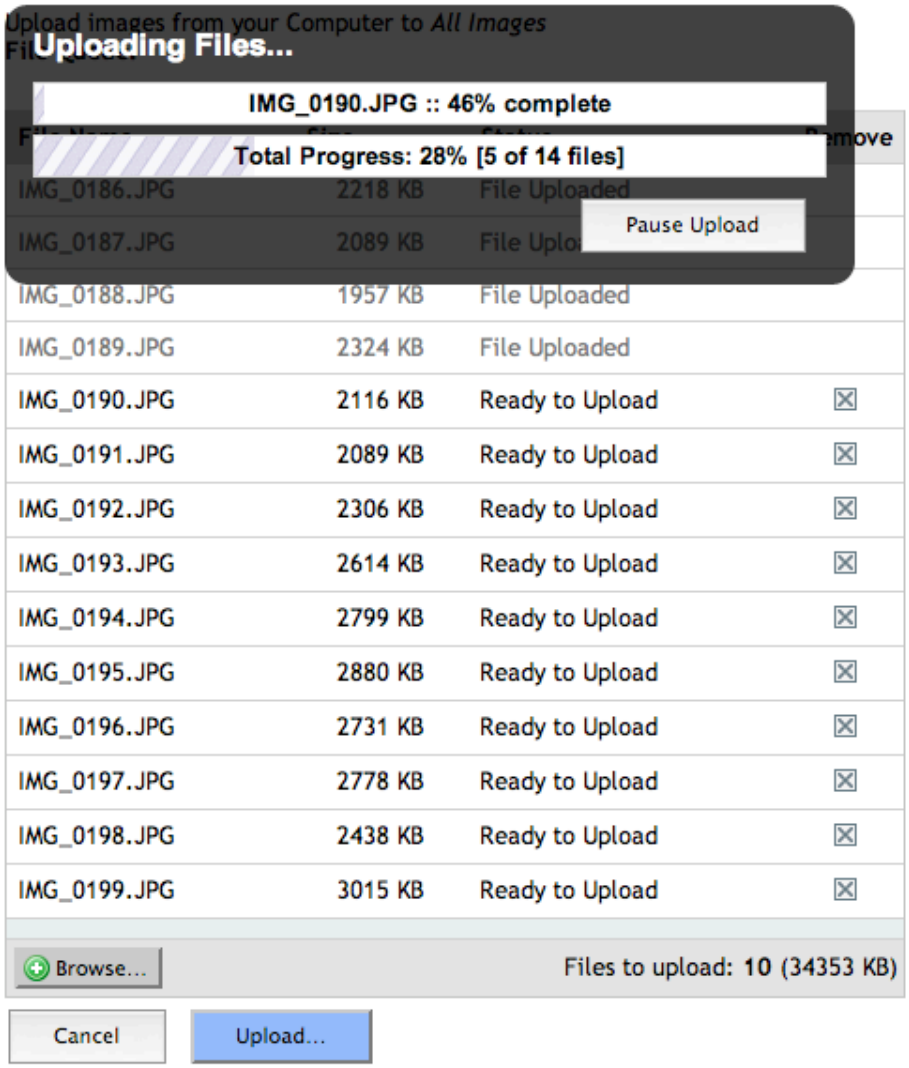

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Fluid in uPortal

- Next update of uPortal: “Fluid Infused”
- Fluid Layout Customizer for organizing portlets
- A whole new way to support keyboard navigation
- Thanks to Eric, Jen, and Gary for their help
- Upload in portlets
  - AddressBook
  - Briefcase
  - Calendar
  - Messaging
  - Your portlet?

Fluid 0.4: July 2008

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- Time and date picker
- Smart Pager
- List Builder
- Several new design patterns
- How you can help:
  - Get involved in user research
  - Code, designs, testing for new components
  - Write a design pattern

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Smart Pager

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Start typing a name... Find

|< < Page 2 of 19 > >| Show 10 per page

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

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Time/Date Picker

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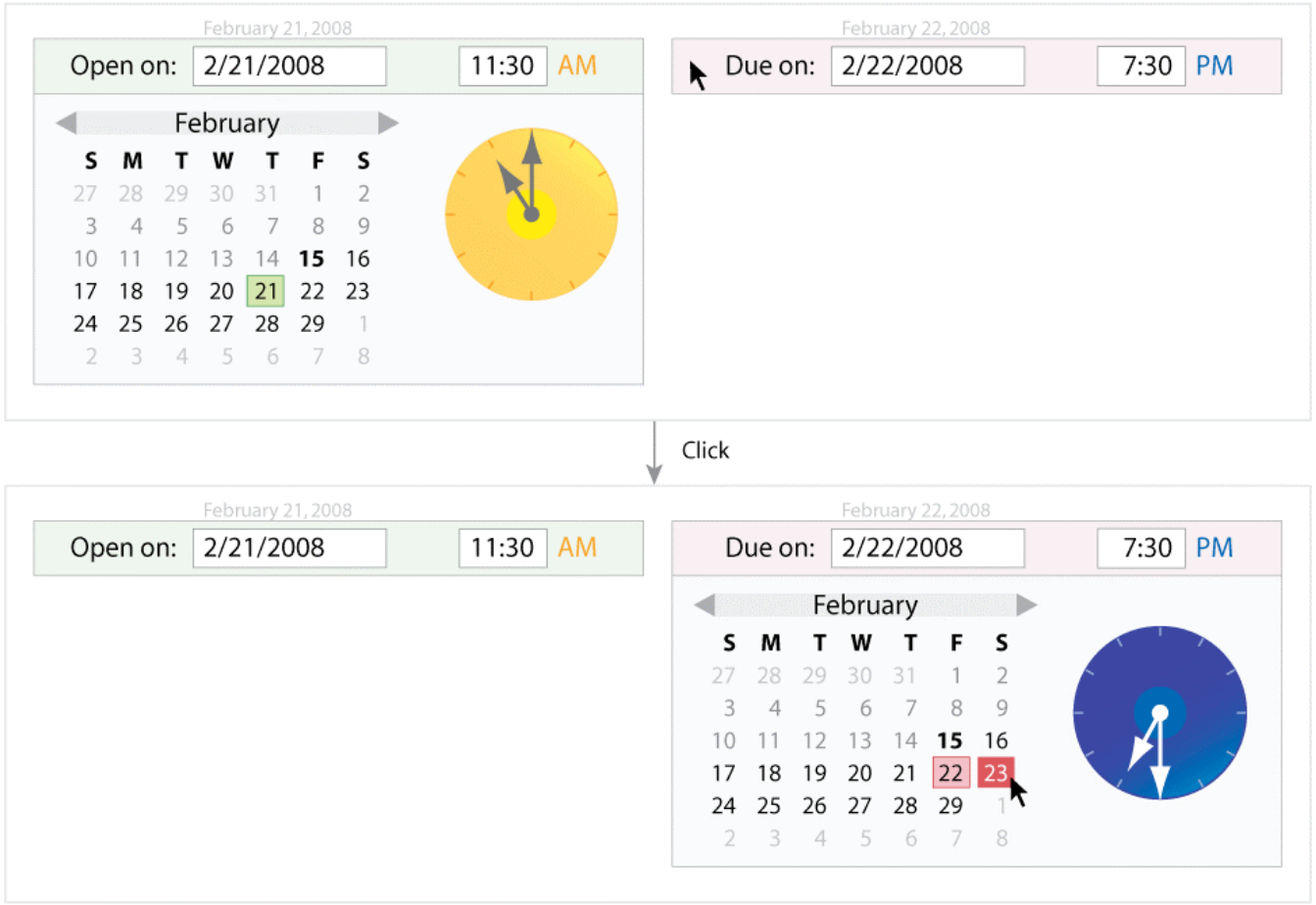

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Beyond 0.4

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- Accessibility adaptation
- User preferences editor
- Accessibility design patterns
- A suite of new components
- 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

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How Fluid Can Help You

- Use Fluid components in your applications
  - Accessibility & great design for free
- Build new UIs using Fluid's techniques and plugins
  - Robust strategies for UI development
- UX Walkthroughs
  - Assess and improve your user experience
- Open Source Design Patterns
  - Advice on common UI design considerations
- High Education User Profiles
  - Understand your audience

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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
- Write your own Fluid components
- 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