Designing software
that works – for everyone

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

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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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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, lets call the whole thing off”

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- 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

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Differences related to academic discipline

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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

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Accessibility today

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- 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!

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Fluid:
“Flexible User Interface”

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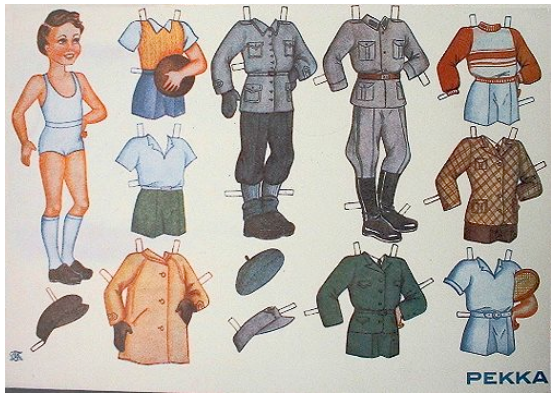
- Swappable styles
- Modular, reusable UI components
- Web 2.0 focus
- Either runtime transformation for unique needs of individual
- Or customization at configuration



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The Fluid Approach to UX in Community Source

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

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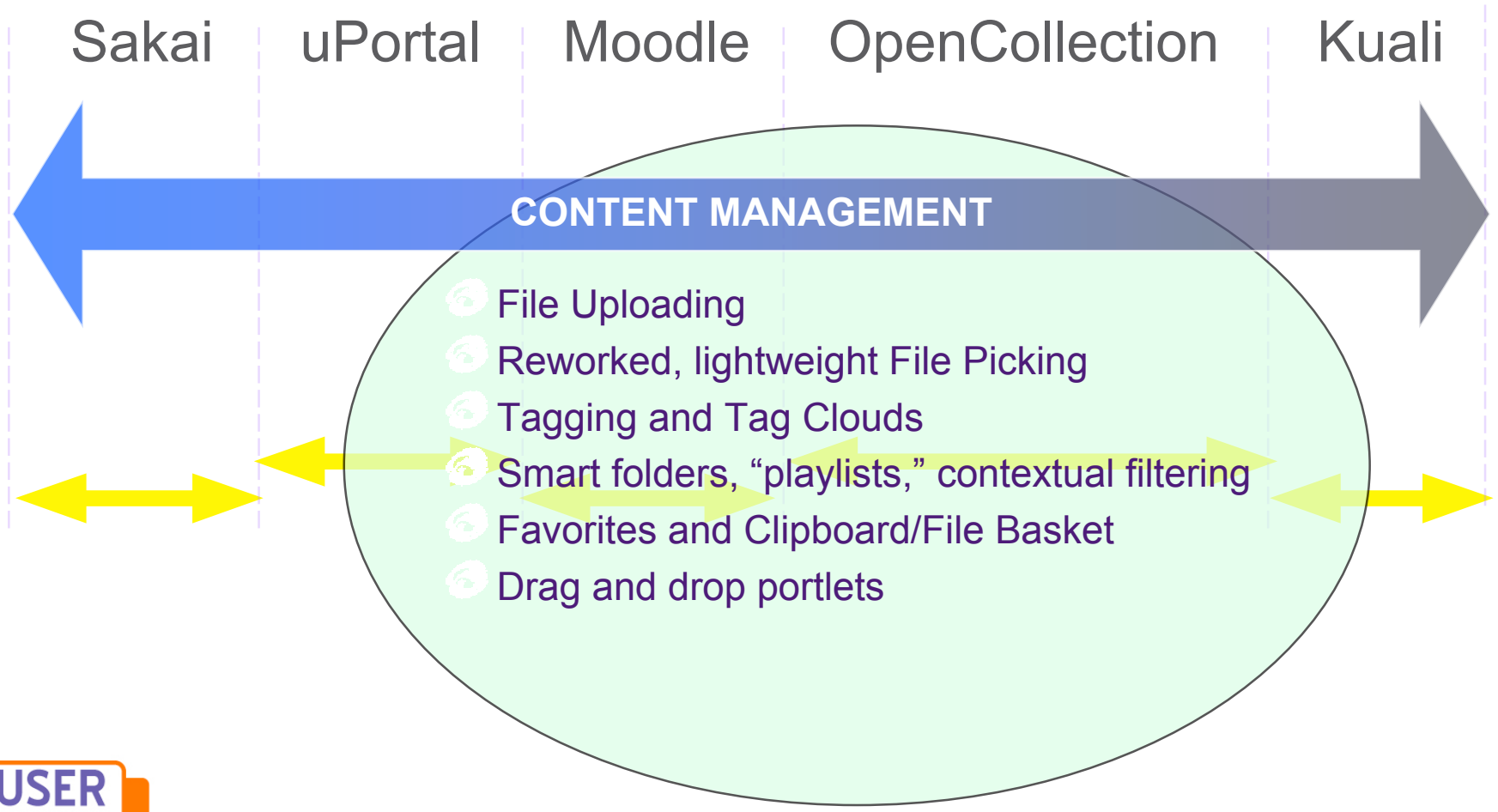

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What are we Building?

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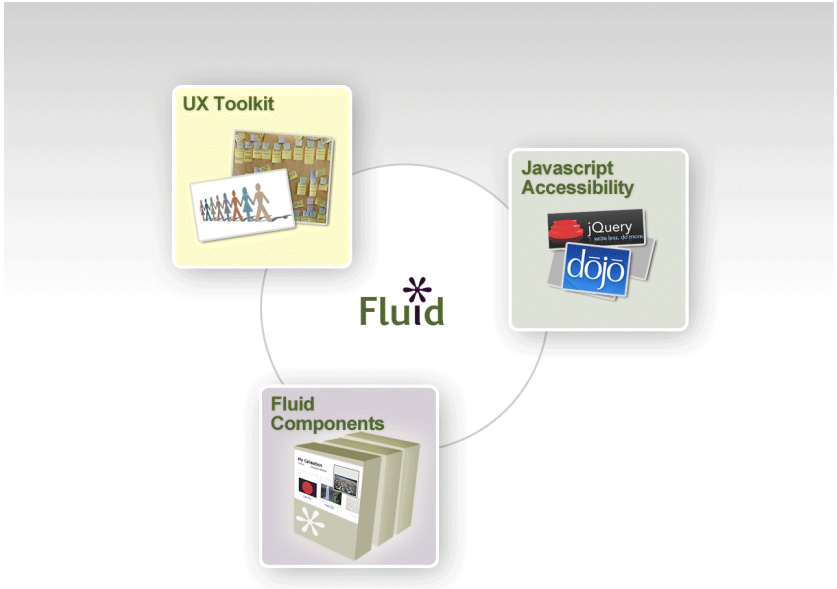
- Rich, flexible, reusable user interface components
- Lightweight JavaScript development tools
- User Experience Toolkit
- Great Interaction Designs



Interconnected activities

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UX Toolkit

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- 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

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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.
- They are often larger than familiar 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

Using Web 2.0 social collaboration to advance usable access

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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

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Virtual Usability Lab

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- 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/

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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

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Component Architecture

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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?

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- 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

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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 behaviors

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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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Component Composition (Flexible and reusable)

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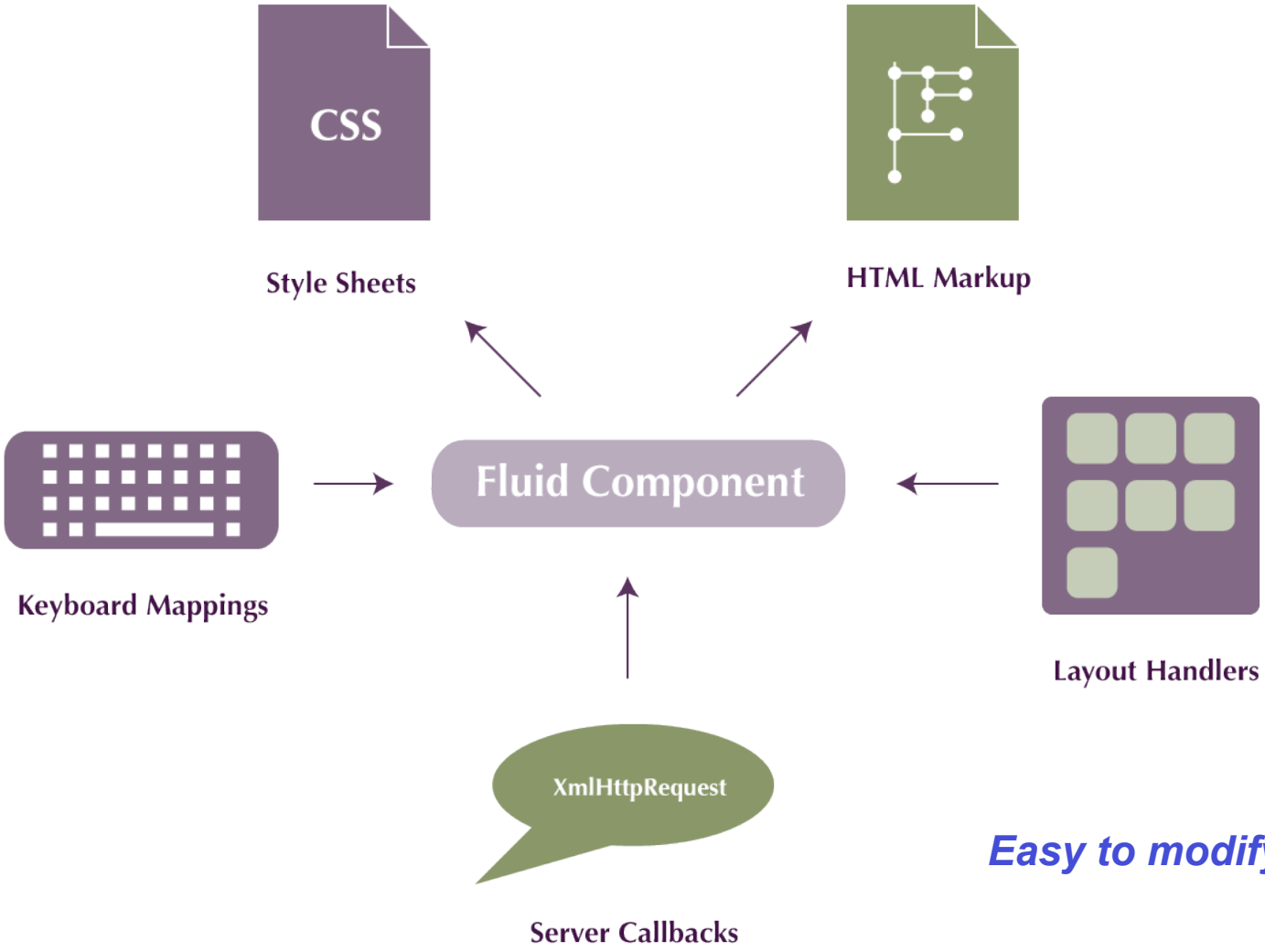

Easy to modify!

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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

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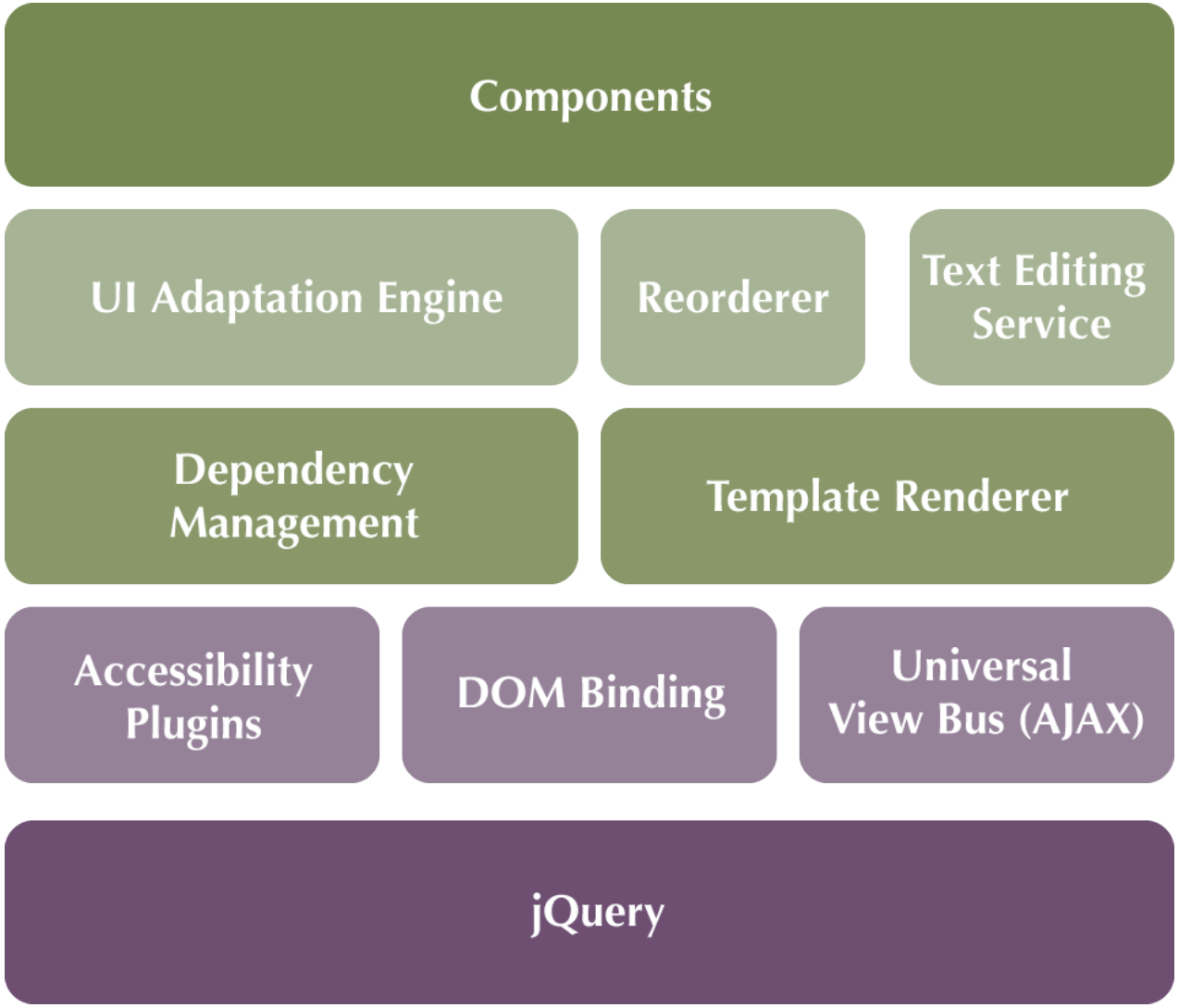

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Demo Fluid Lightbox Component from Sakai Portal

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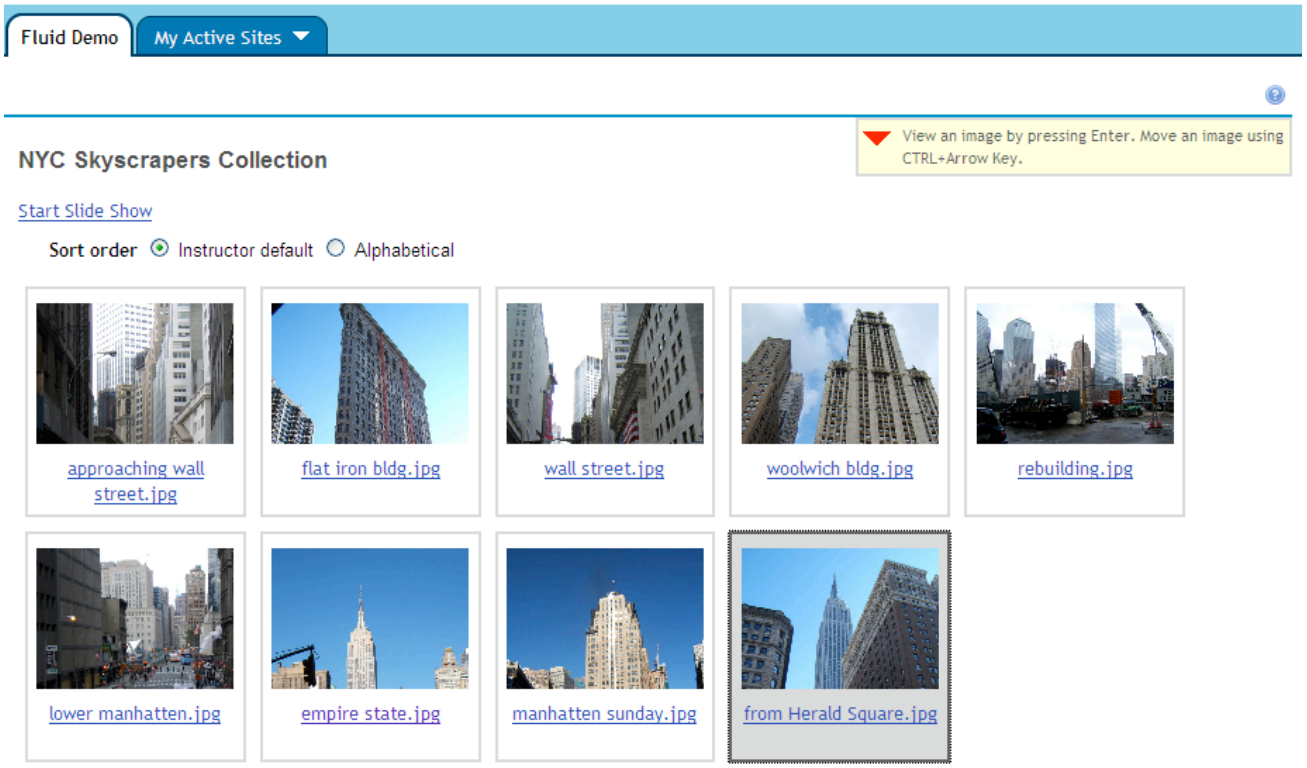

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Project Roadmap

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Adoption Timeline

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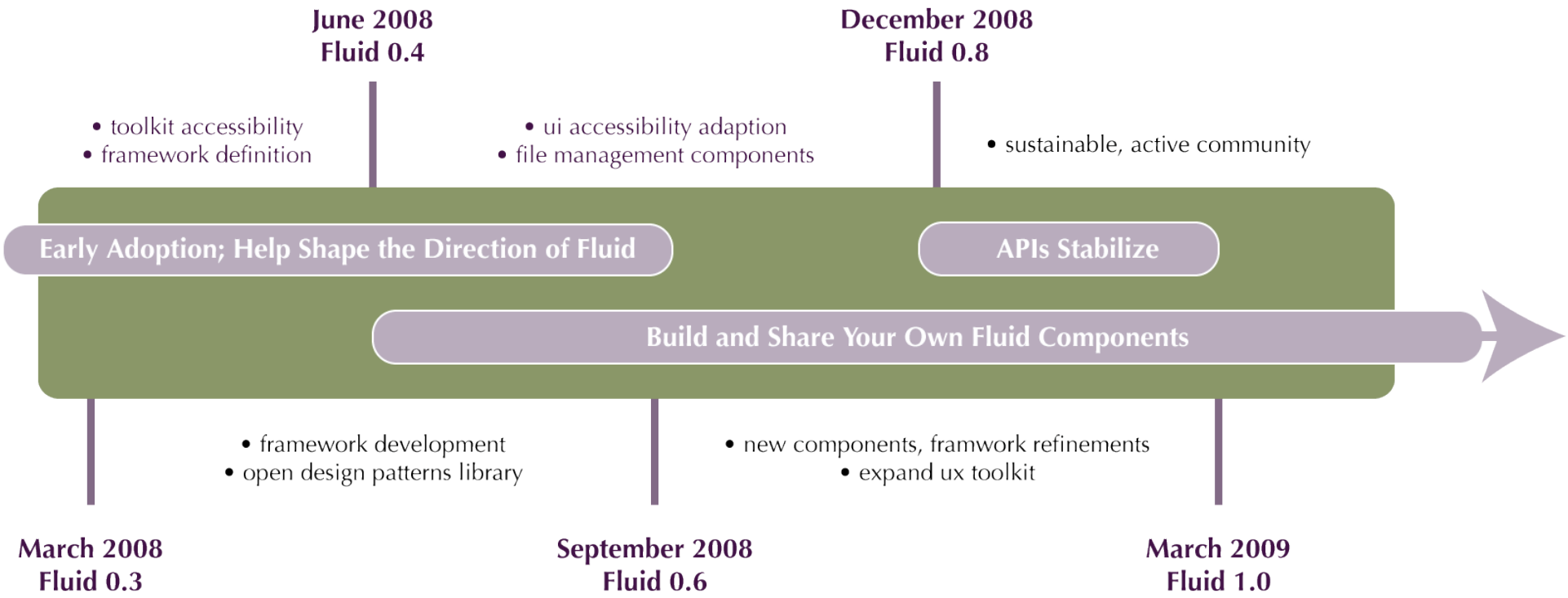

We welcome participation!

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How You Can Help

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- 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

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Join in….

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- 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

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Backup

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Lightbox

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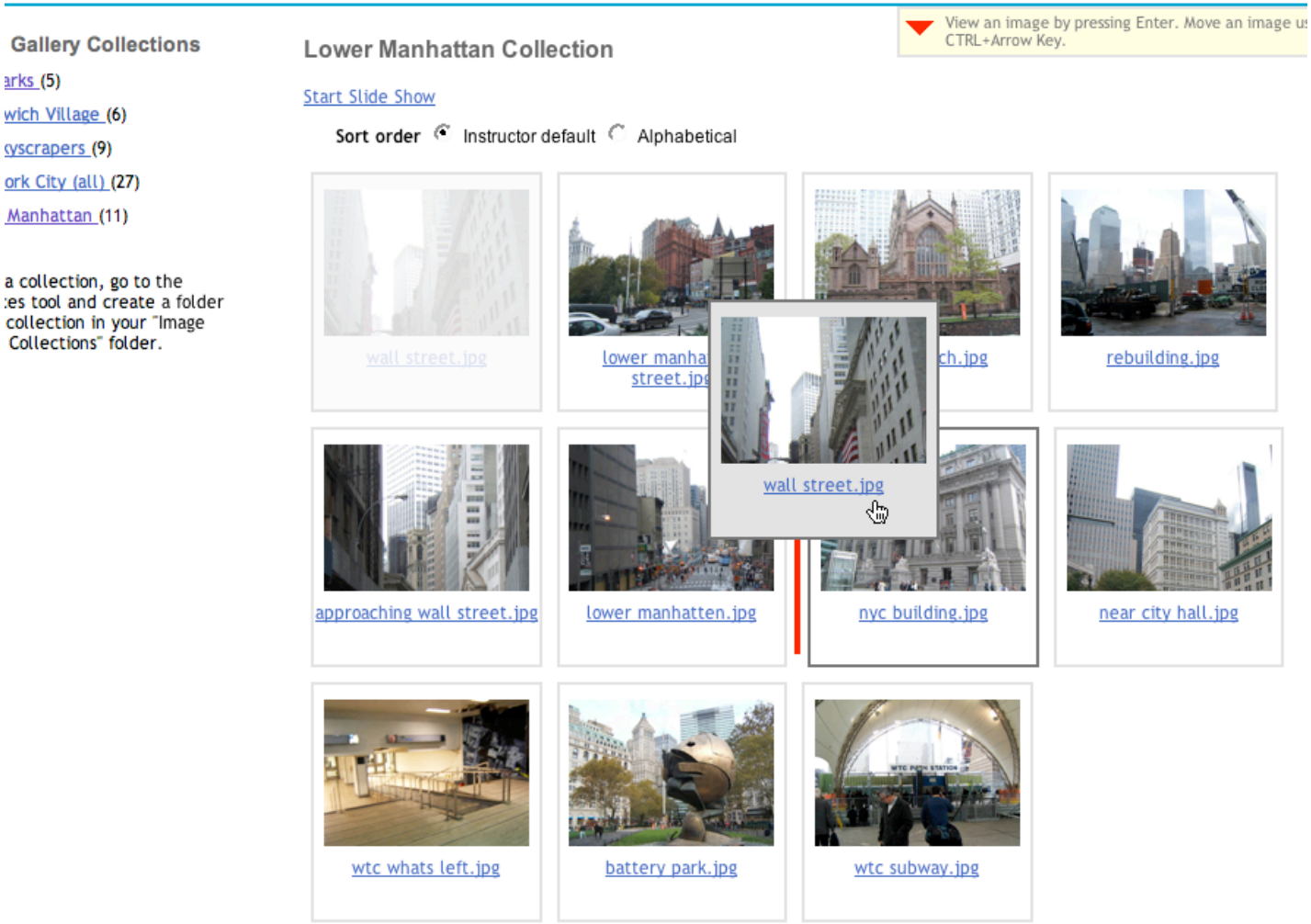

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Portal Layout Organizer

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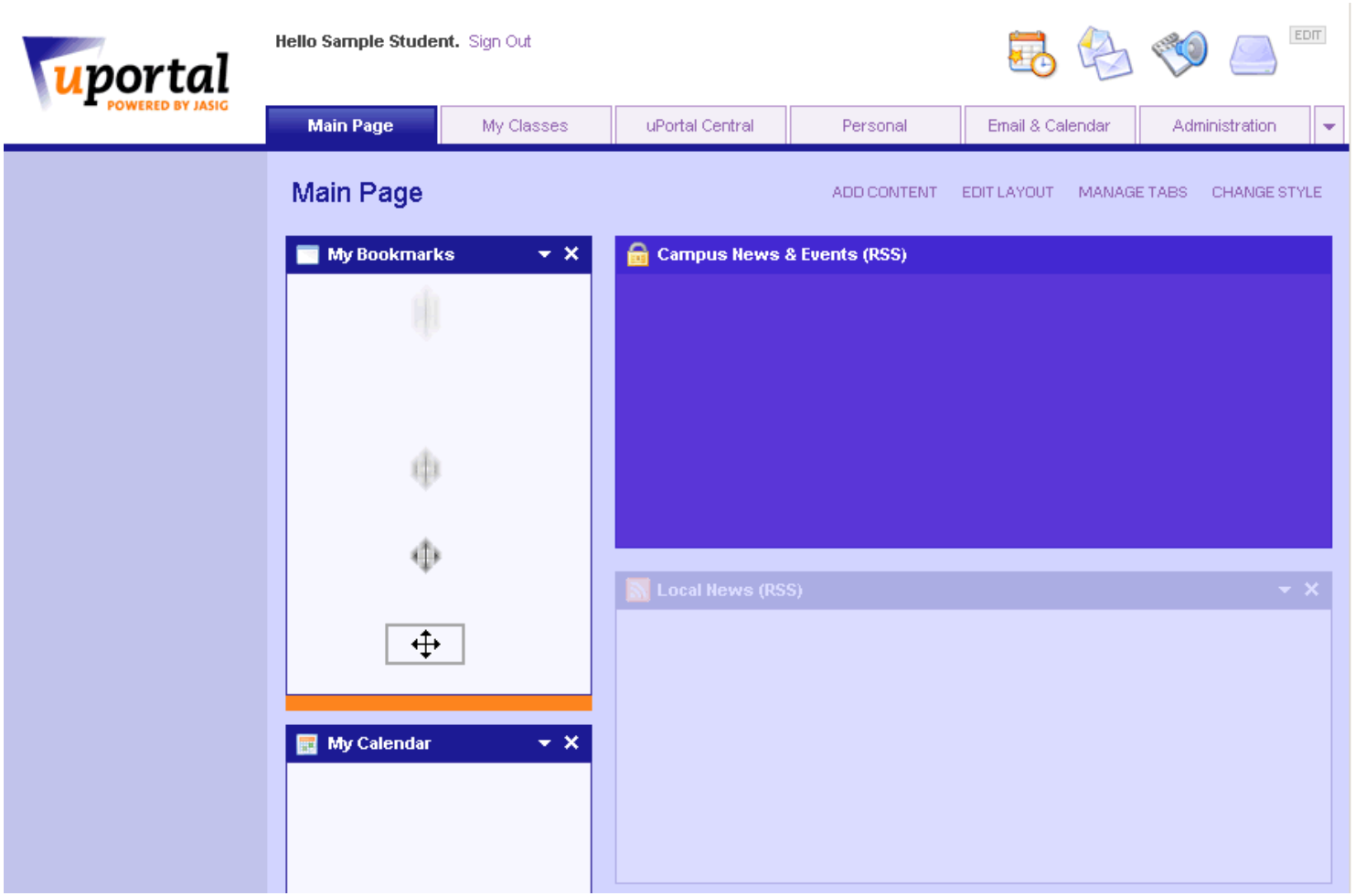

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File Upload

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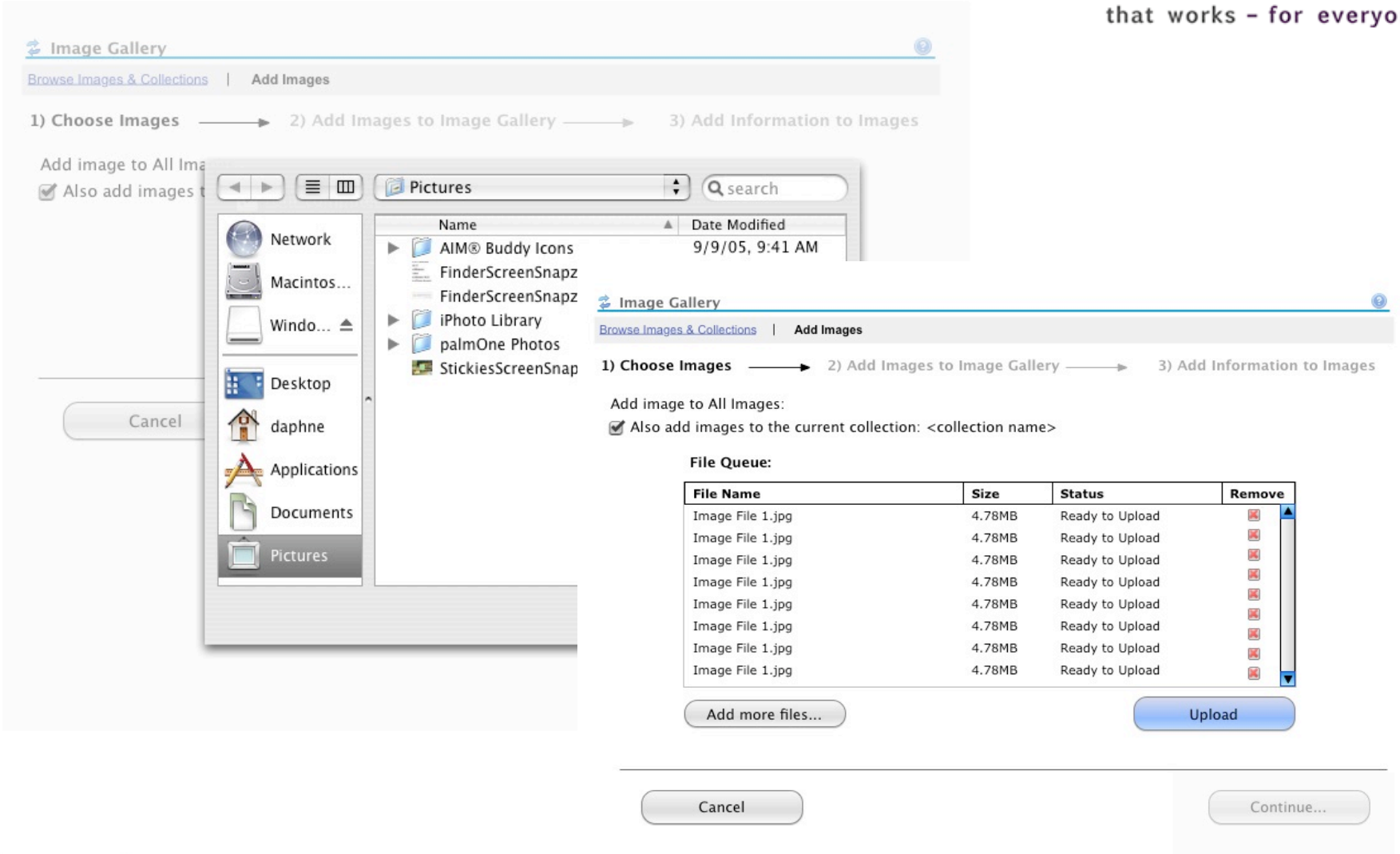

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Smart Pager

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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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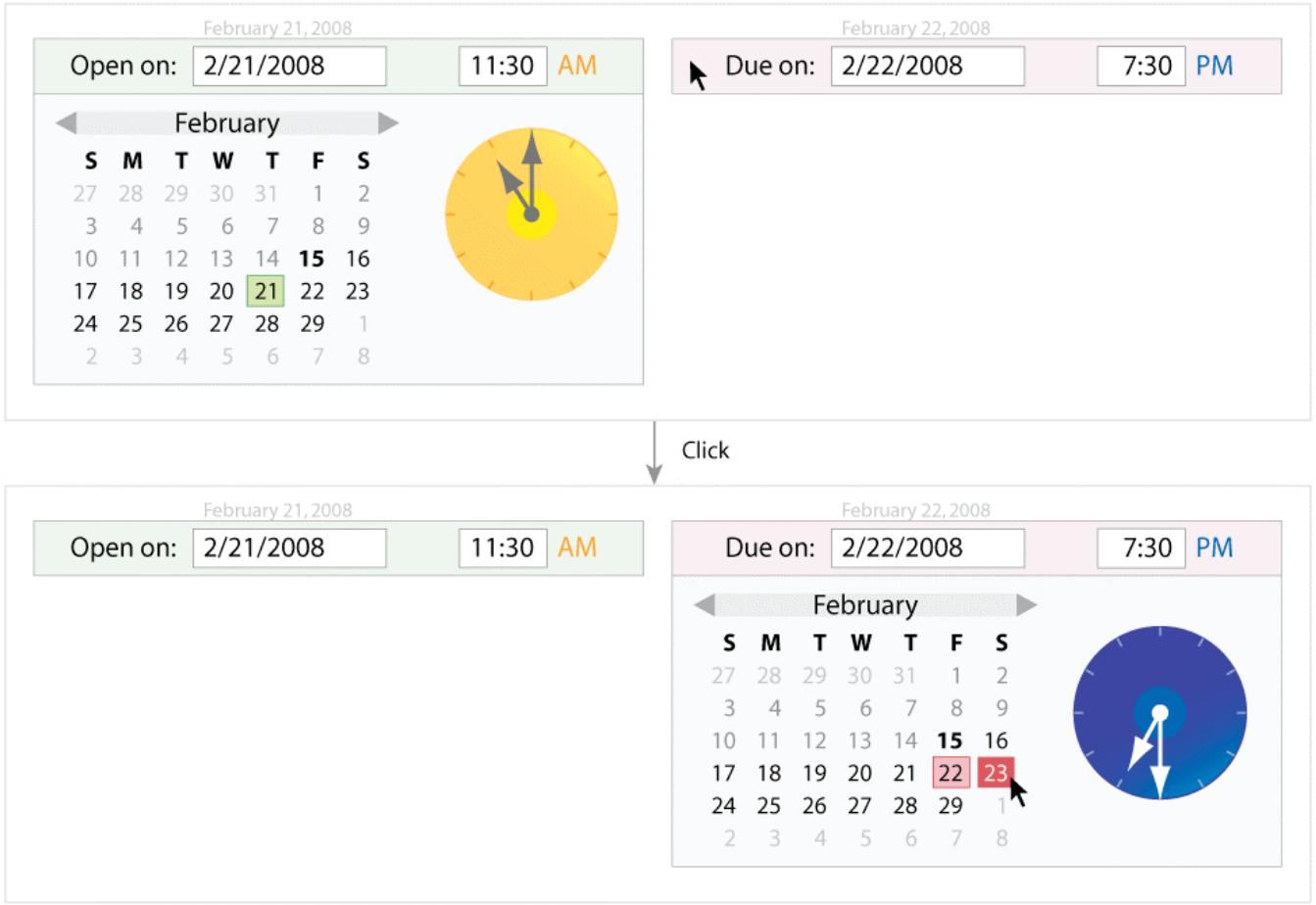

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Quarterly Schedule

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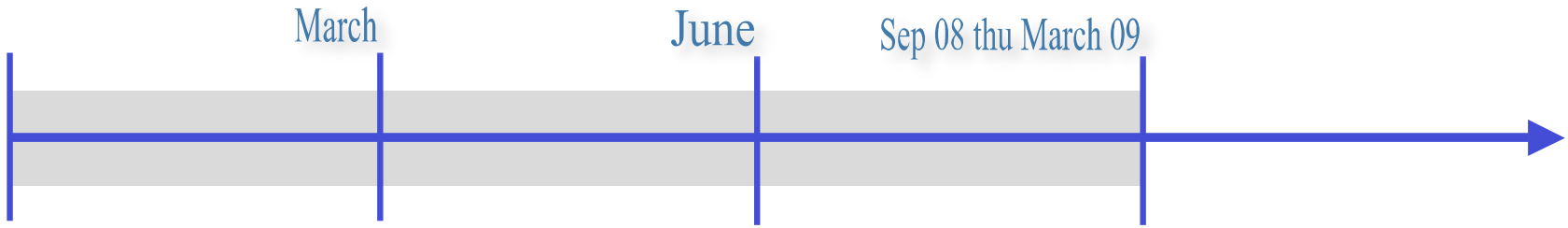

0.2
- Lightbox
- Portal Layout Organizer
- Screen Reader support
- UX Walkthrough
- Project strategies
- Moving from Dojo to jQuery
- Accessible Drag/Drop

0.3
- File Upload component
- Contextual Inquiry Design Framework
- Date Picking and smart paging
- Drag/Drop portlets
- New design patterns

0.4
- File Upload component 2
- Contextual Inquiry Design Framework
- Date Picking and smart paging
- Drag/Drop portlets
- New design patterns

0.4 – 1.0
- Improved componentry
- Content Adaptation
- User Preference acquistion
- U Camps
- Updated design patterns CMS
- User testing
- Additional components
- Refine UX walkthrough
- What's beyond 1.0?

We welcome participation!

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Composition = Flexibility

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- 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

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Release Plan

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- 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

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