Section 2

Interaction Design

Patterns & Principles for Rich Interaction Design

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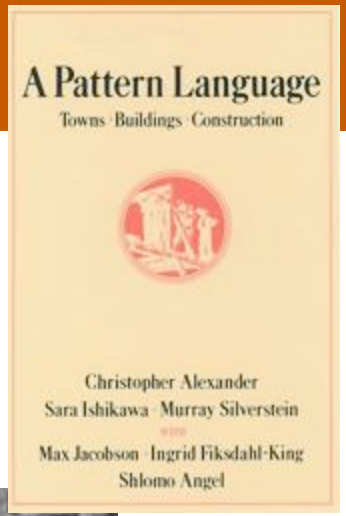
UI11 Conference
October 2006

Origin of Patterns

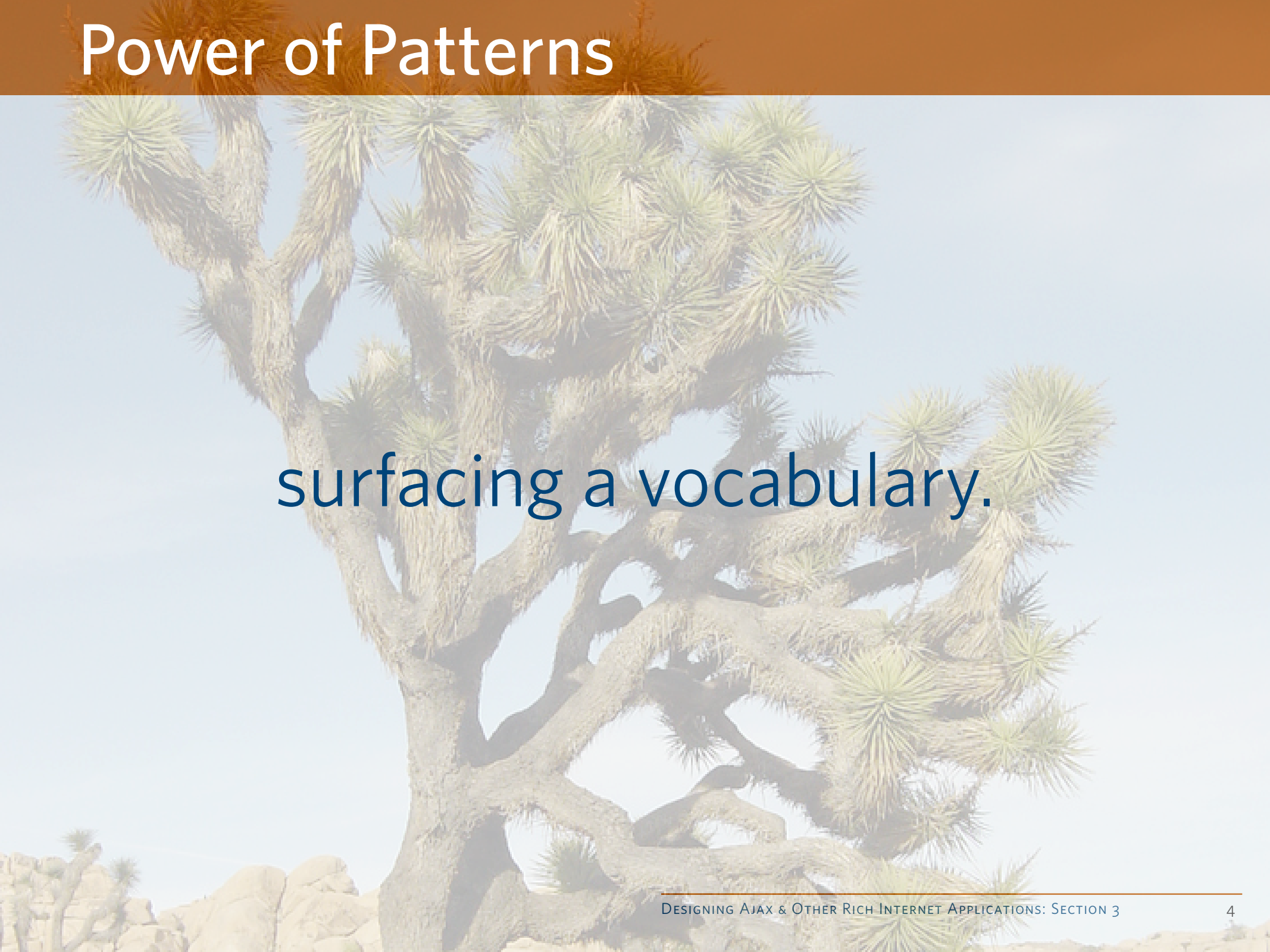


- A Pattern Language, Alexander, 1977
  Dissatisfied with sterile, impersonal design
- Defined it as
  Solution to a problem in context
- Captured
  Situation, competing constraints, canonical solution
- Examples
  Couples Realm, House for a Couple, Sitting Circle, Marriage Bed

Spread of Patterns

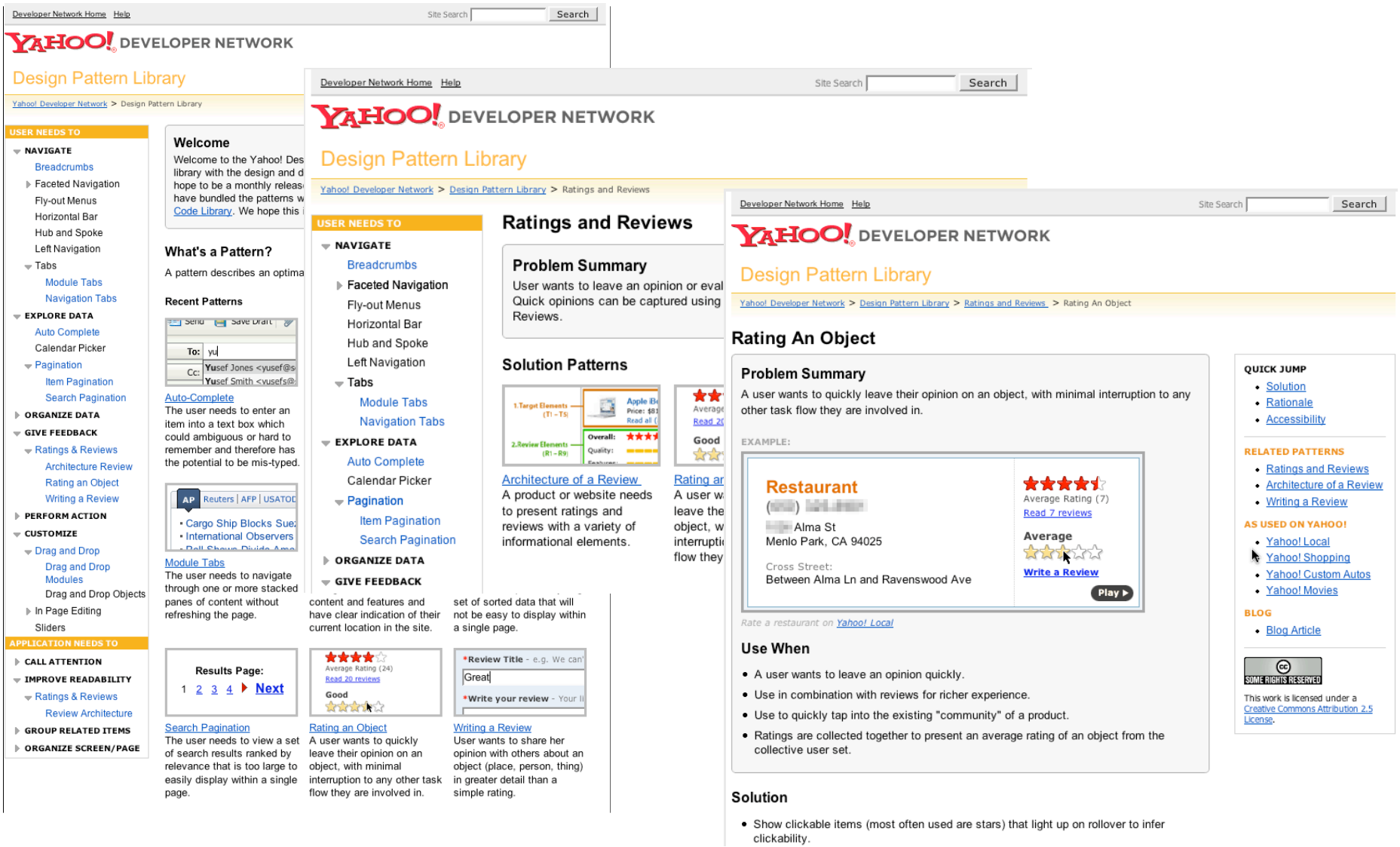
- Applied to software design, Gang of four, 1995
- 1996, Alexander raises the challenge higher
- User experience patterns
  - 1997, Tidwell's *Common Ground*
  - Welie's pattern site
  - *Design of Sites* book
  - 2005, Tidwell, *Designing Interfaces*

Power of Patterns



surfacing a vocabulary.

Examples of Patterns: Yahoo! Patterns



Examples of Patterns: Yahoo! Patterns

Breadcrumbs. Module Tabs. Navigation Tabs. Auto Complete. Pagination. Item Pagination. Search Pagination. Ratings and Reviews. Architecture of a Review. Rating an Object. Writing a Review. Drag and Drop. Drag and Drop Modules. Transition. Dim. Brighten. Cross Fade. Contract. Expand. Fade In. Fade Out. Move. Self-Healing. Slide. Highlight. Invitation. Cursor Invitation. Drop Invitation. Tool Tip Invitation. Hover Invitation.

Examples of Patterns: Rich Patterns

Drag and Drop. Drag and Drop Modules. In Page Editing. In Page Custom Editing. Direct State Editing. Grid Cell Editing. Inline Custom Editing. Inline Tag Editing. Popup Custom Editing. Slide-out Custom Editing. Inline Text Editing. Persistent Portals. Inline Reordering. Indication. Busy Indication. Cursor Busy. In Context Busy. In Context Progress. Inline Status. Auto Complete. Balloon Error Tip. Deferred Content Loading. Dynamic Goal. Narrowing Choices. Refining Search. Live Search. Dynamic Filter. Invitation. Cursor Invitation. Drop Invitation. Tool Tip Invitation. Hover Invitation. Detail Zoom. Opacity Focus. Configurable Module - Faceplate. Configurable Module - Flip It. Configurable Module - Inline Configure. Configurable Module - Slide Out Drawer. Slide Out. Flip. Opacity Fade. Endless Scrolling. Expandable Paging Boundary. Fresh Content. Hover Detail. In Place Drill Down. Inline Assistant. Inline Validation. Validate Then Suggest. On Demand Refresh. Periodic Refresh. Resizable Modules. Scrolling Modules. Auto Save. In Context Tools. Remembered Collection. Remembered Preferences. Auto Form Fill. Rating an Object. Transition. Brighten Transition. Cross Fade Transition. Dim Transition. Expand Transition. Fade In Transition. Fade Out Transition. Flip Transition. Move Transition. Self-Healing Transition. Collapse Transition. Slide Transition. Rich Internet Object. Available. Selected. Identifiable Object.

Exercise

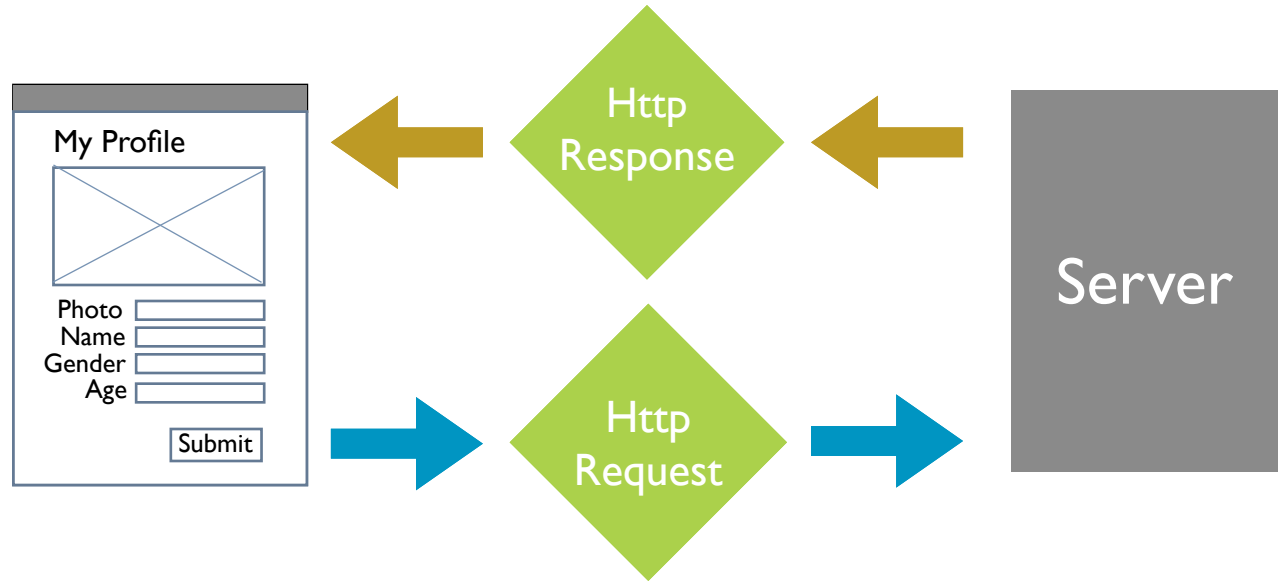
Define patterns around us

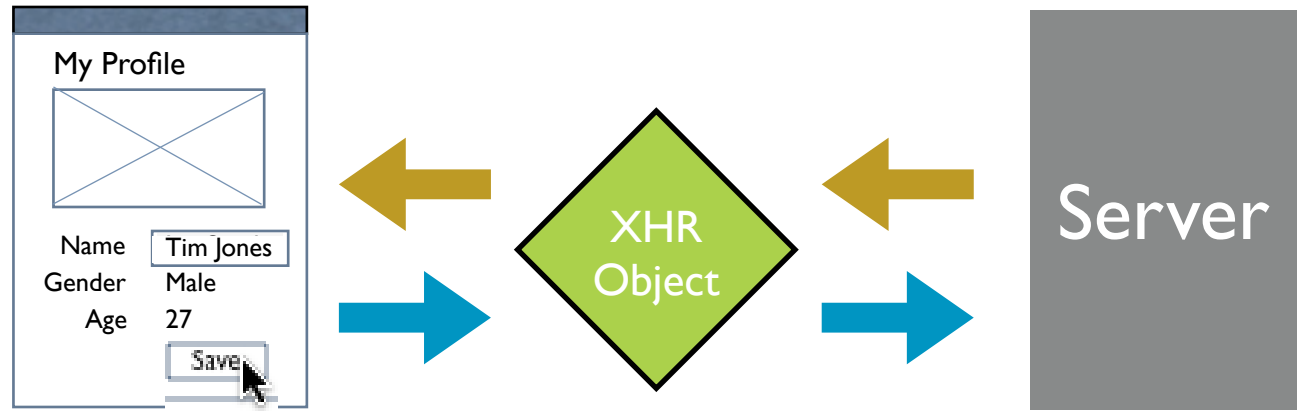
Define patterns from sites

References

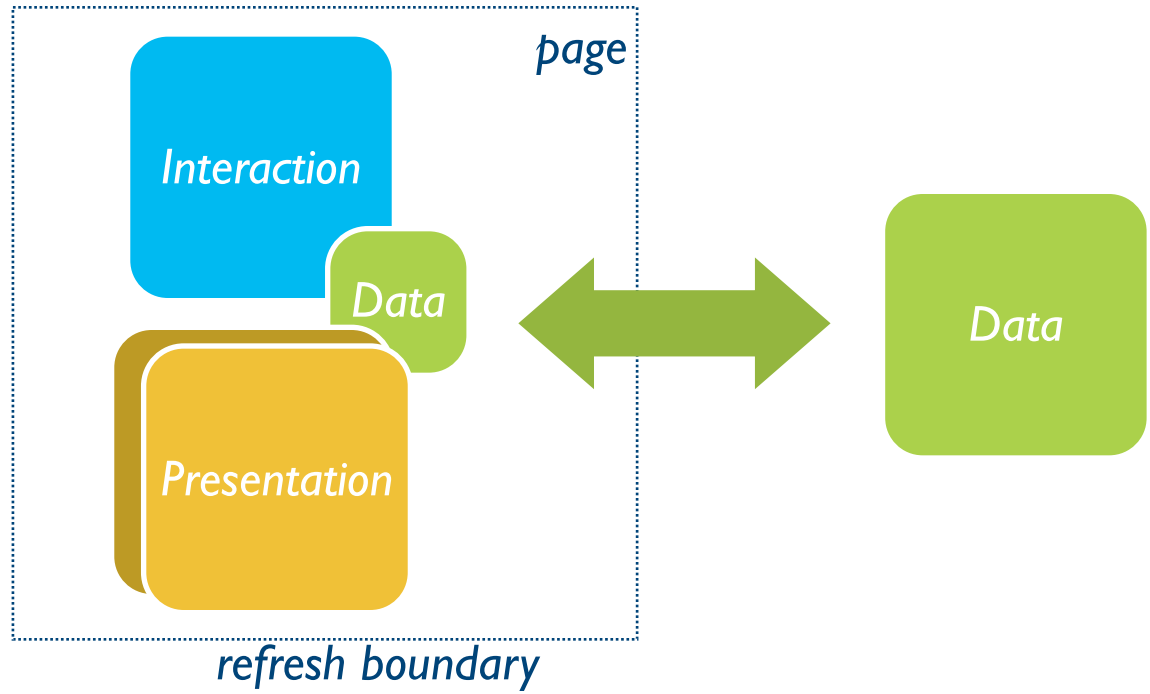
- Jenifer Tidwell (also a book)
  http://designinginterfaces.com/
- Martijn van Welie
  http://www.welie.com/patterns/
- Sari A. Laakso
  http://www.cs.helsinki.fi/u/salaakso/patterns/
- Michael Mahemoff
  http://www.ajaxpatterns.org/
- Web Patterns
  http://webpatterns.org/

classic model. rich model.

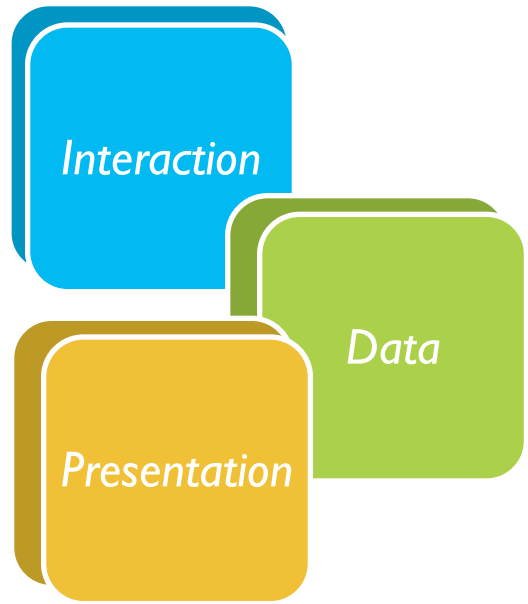




interaction. presentation. data.



data near. interaction rich.



design principles

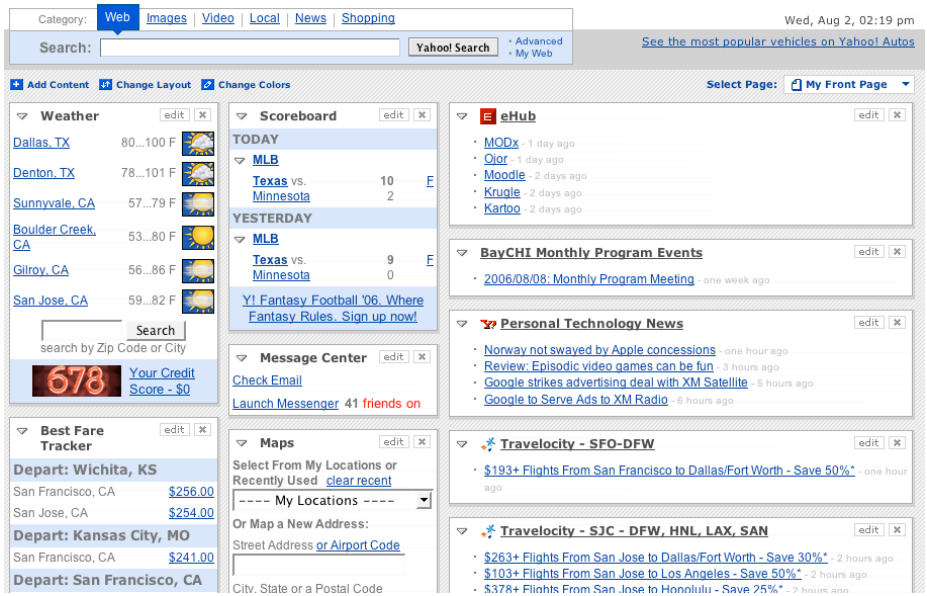
Principles for Rich Design

1. Keep it direct
2. Leave a light footprint
3. Cross borders reluctantly
4. Provide live feedback
5. Offer an invitation
6. Show transitions
7. Think in objects

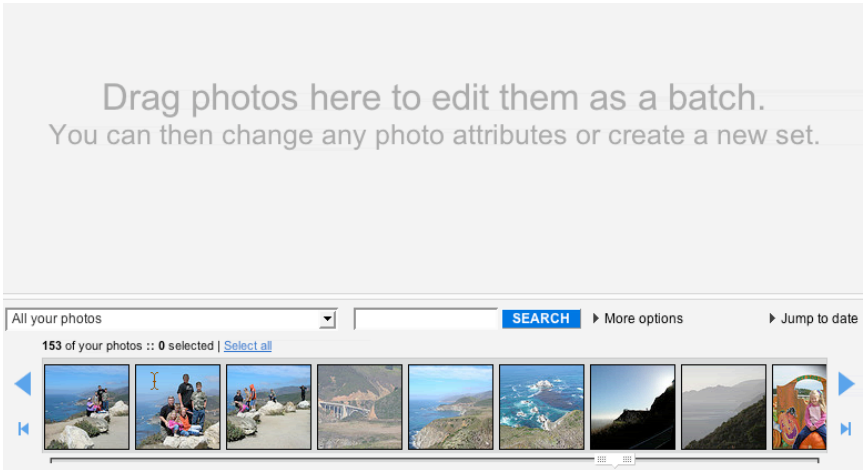
submit hyperlink

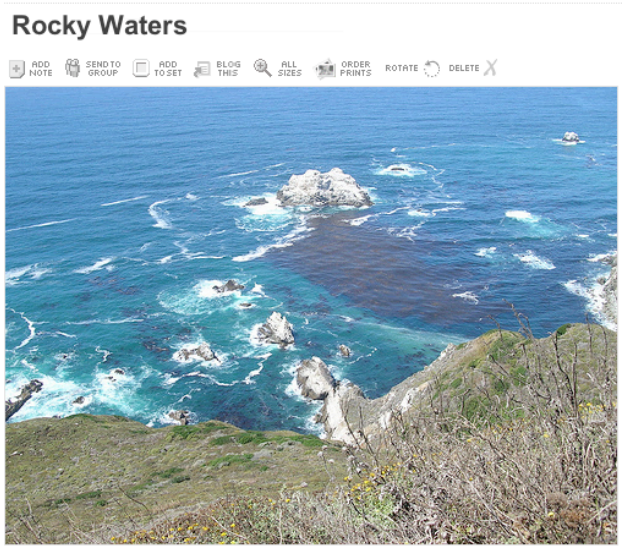
mouseout hover keypress keydown mousedown drop filter choices mouseup drag click select focus blur resize move timeout

Keep it Direct



pattern. **drag and drop.**





pattern. **inline editing.**

pattern. **in-context tools.**

Prefer interaction within the page

What about discoverability?

Prefer interaction within the page

What about discoverability?

Use direct editing on page content

What about save/cancel?

Avoid page jitter

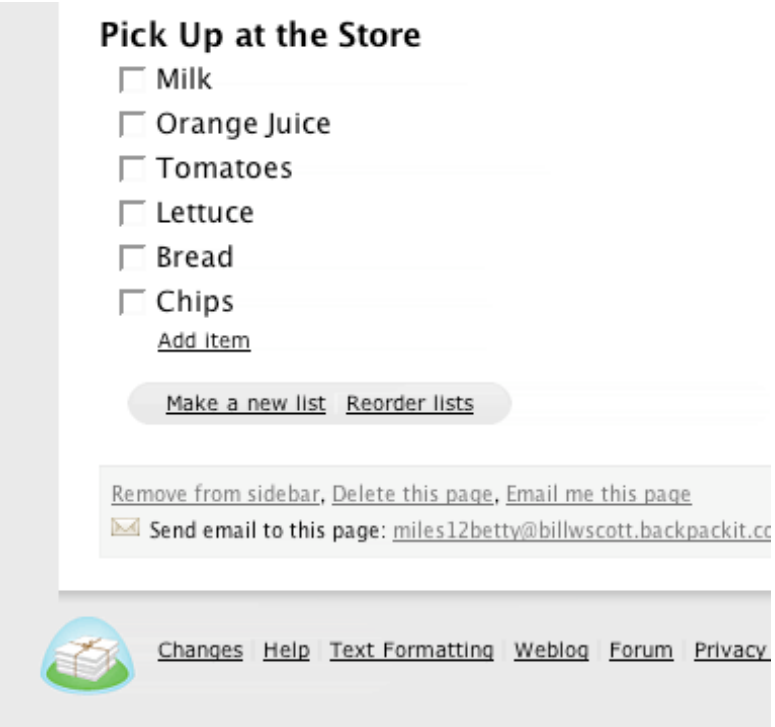
Reduce the feeling of modes

State park near our new home in San Jose (next to Milpitas)

SAVE OR CANCEL

Prefer interaction within the page

What about discoverability?

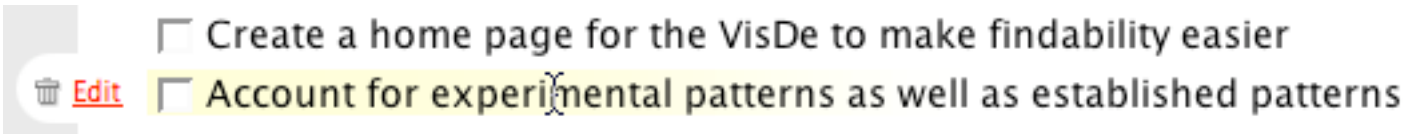


Use direct editing on page content

What about save/cancel?

Avoid page jitter

Reduce the feeling of modes



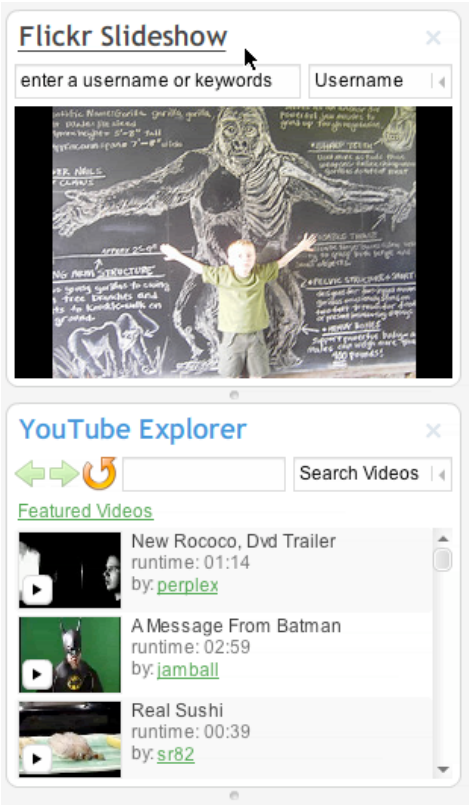
Provide in-context tools

Only good for single operations

Can actually slow you down

Prefer interaction within the page

What about discoverability?



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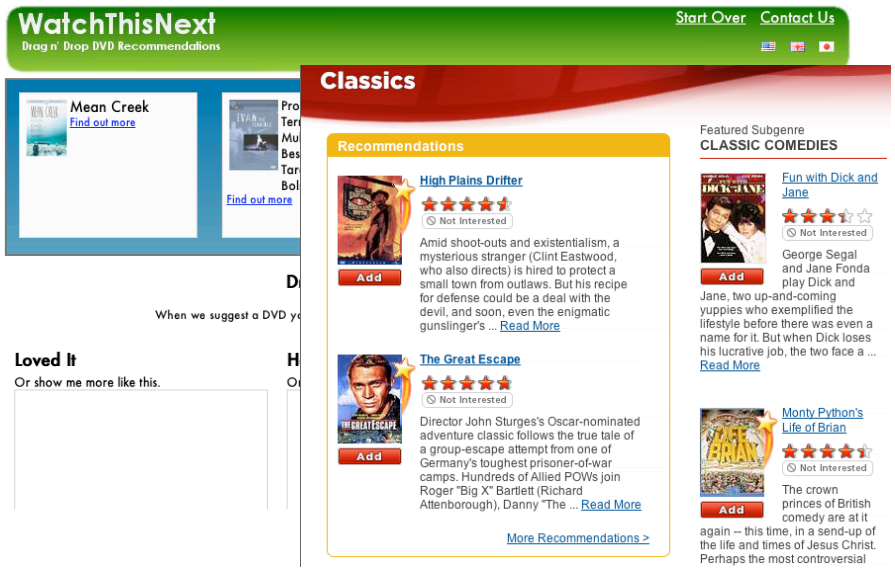


Use drag and drop where appropriate

Not for simply setting an attribute

Good for layout changes or containment

Needs transitions

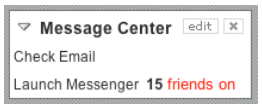
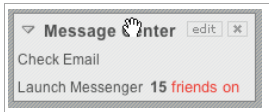
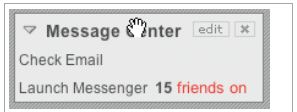
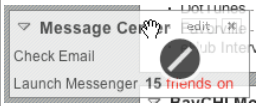
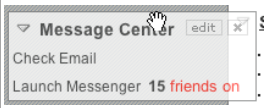
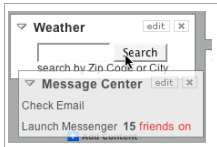
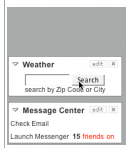
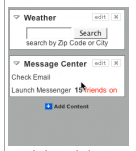
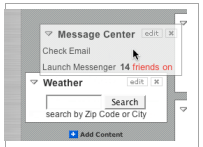
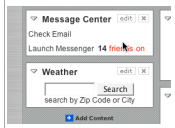
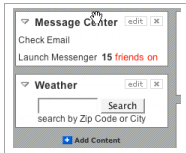
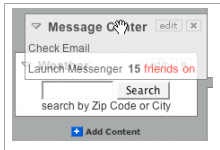
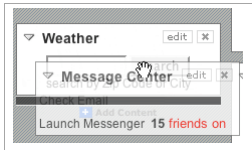
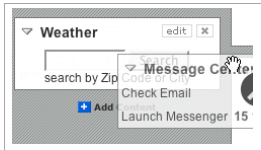
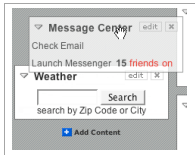
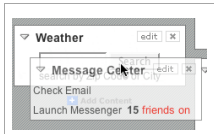
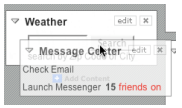
Provide in-context tools

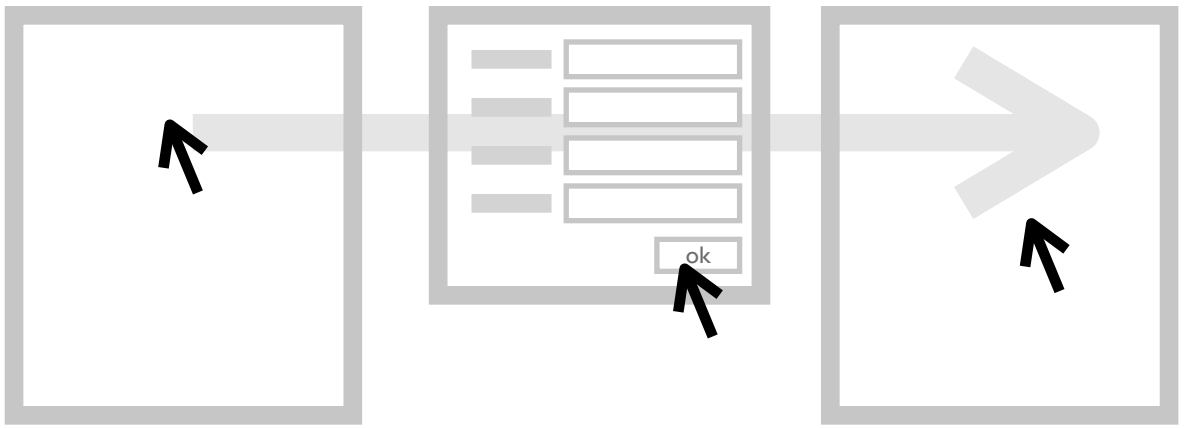
Only good for single operations

Can actually slow you down

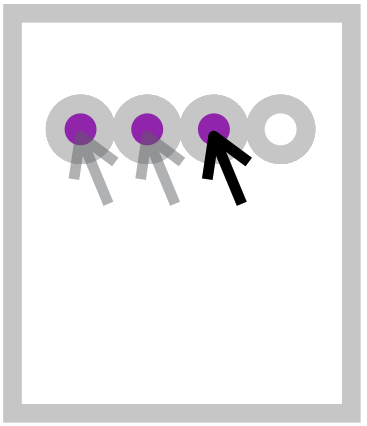
Take care of the interesting moments

Drag and Drop Modules - Interesting Moments Grid

	Currently on beta.my.yahoo.com		ID: Bill Scott & Eric Miraglia				Date: Nov-05		
	Mouse Hover	Mouse Down	Drag Initiated	Drag Over Valid Target	Drag Over Invalid Target	Drag Over Parent Container	Drop Accepted	Drop Rejected	
Cursor	CSS Move curs	CSS Move cursor	CSS Move cursor	CSS Move cursor	CSS Move cursor	CSS Move cursor	Normal Cursor	Normal Cursor	Nor
Tool Tip									
rag Object		 Full Opacity	 Reduced Opacity	 Reduced Opacity	 Reduced Opacity & Invalid Badge	 Reduced Opacity	 Modules animates into the area just below insertion bar  Module comes to rest in new area  Modules slide up in a self-healing transition to close hole	 Modules animates back to the home area  Module comes back to rest at full opacity	Mo the Mo res
Drop Target	 No insertion bar, just a gap	 No insertion bar, just a gap	 Insertion bar showing where it will drop	 No insertion bar, just a gap	 No insertion bar, just a gap & original hole	 Insertion bar is removed as first frame of animation	 Insertion bar is removed as first frame of animation	Ins as ani

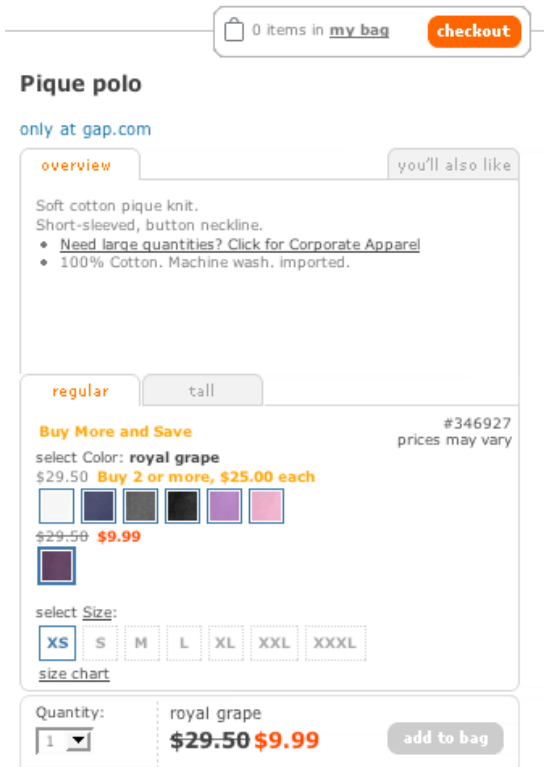


heavy click-weight



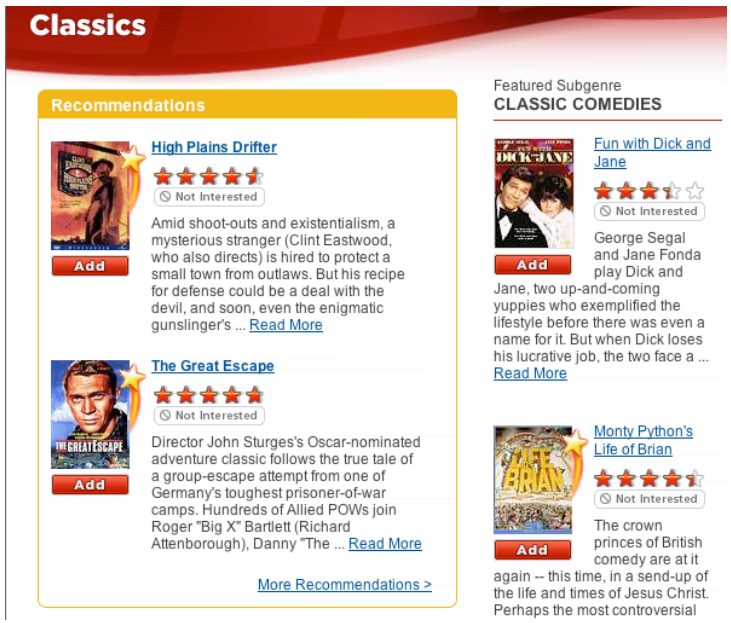
light-weight actions

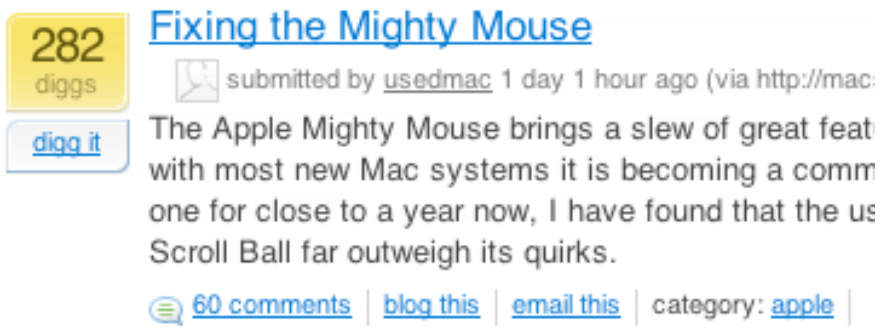
Leave a light footprint



pattern. **remembered collection.**

pattern. **rating an object.**

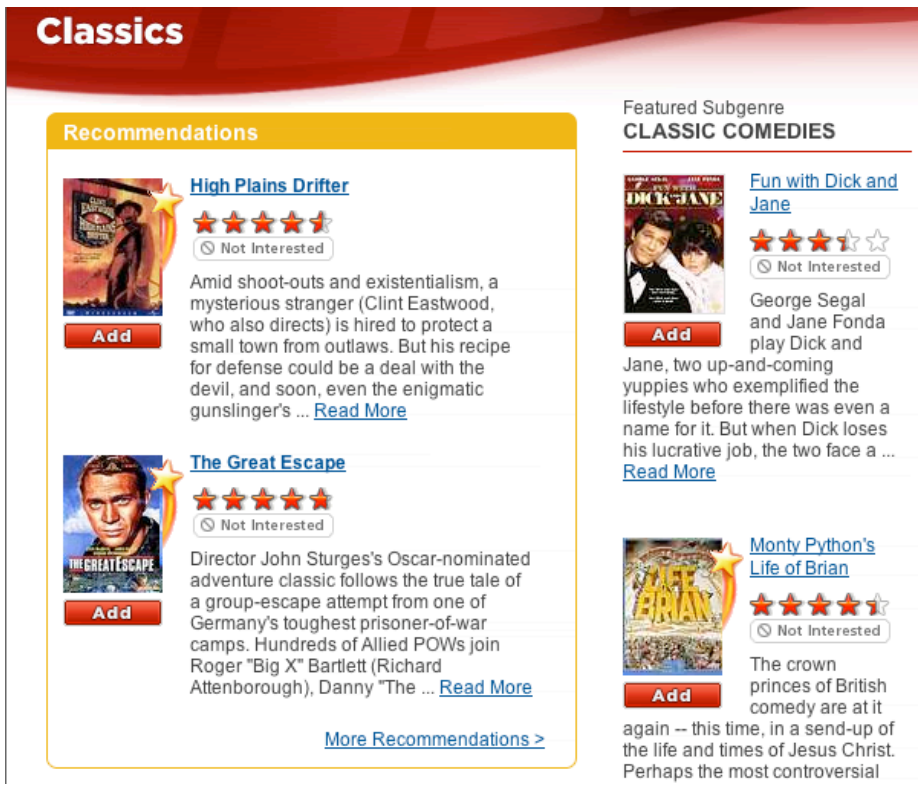


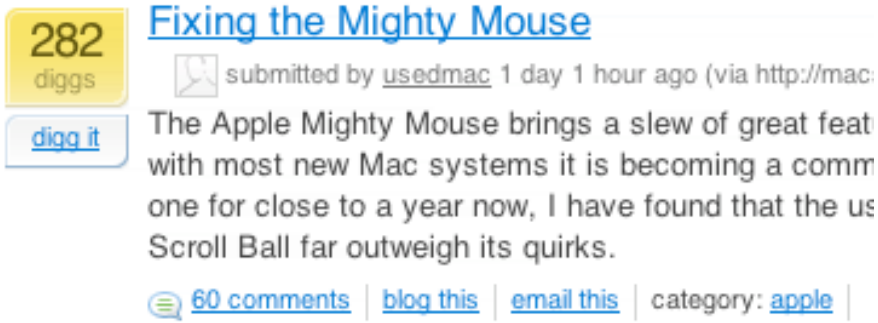


pattern. **in page action.**

Watch your click weight

Keep actions immediate and light
Count “clicks”





Watch your click weight

Keep actions immediate and light

Count "clicks"

Design for engaging moments

Use invitations

Keep it fun, exciting and light

Treat it like an impulse aisle

Watch your click weight

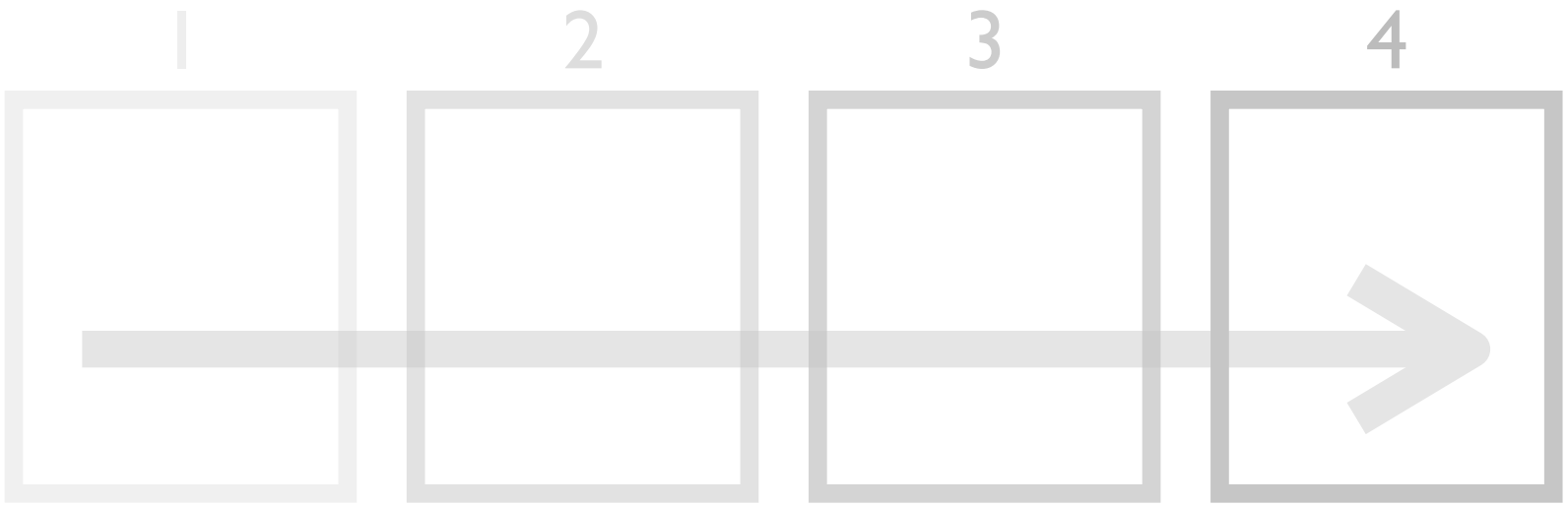
Keep actions immediate and light
Count “clicks”

Design for engaging moments

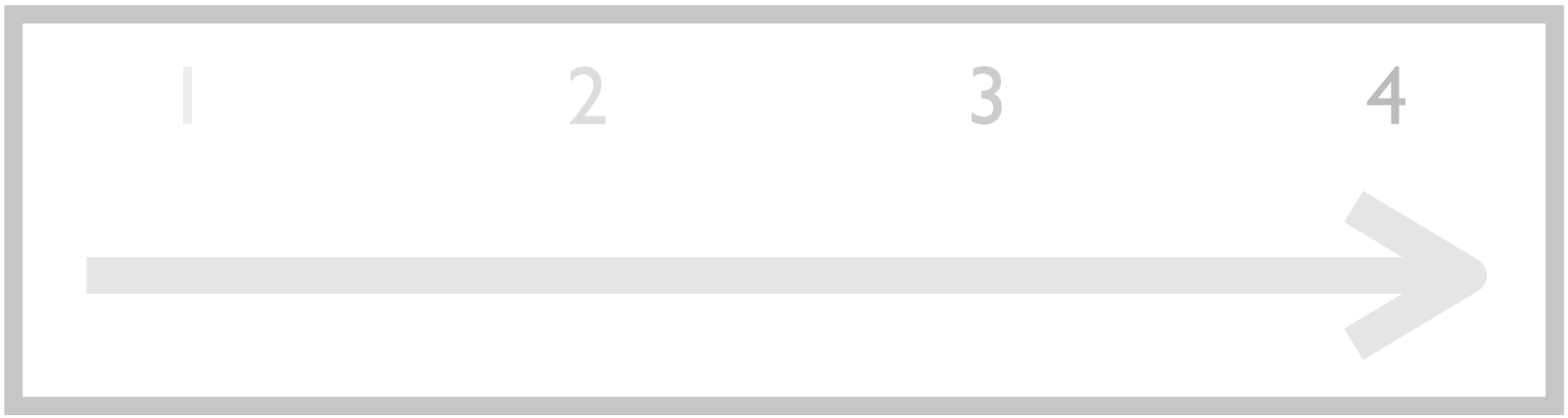
Use invitations
Keep it fun, exciting and light
Treat it like an impulse aisle

Use lightweight events

Hover
Blur, focus
Click. Avoid double-click



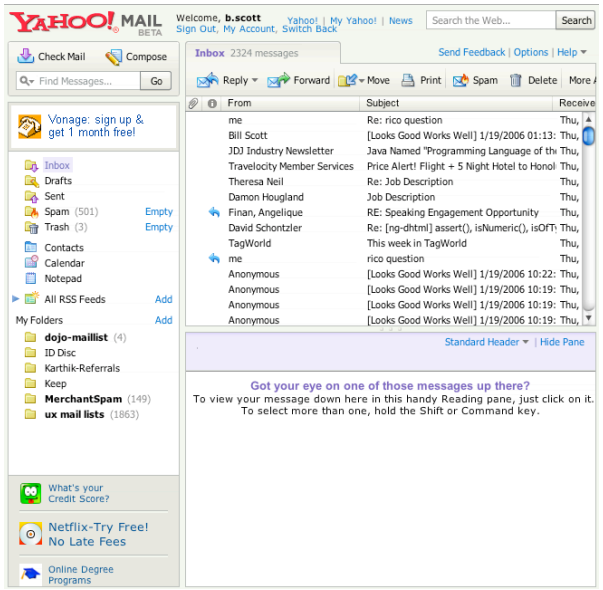
classic flow across pages



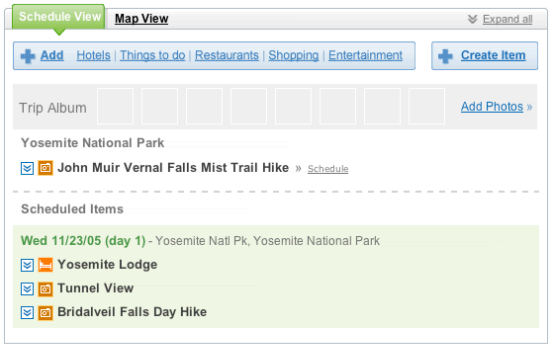
rich flow within page

Cross borders reluctantly

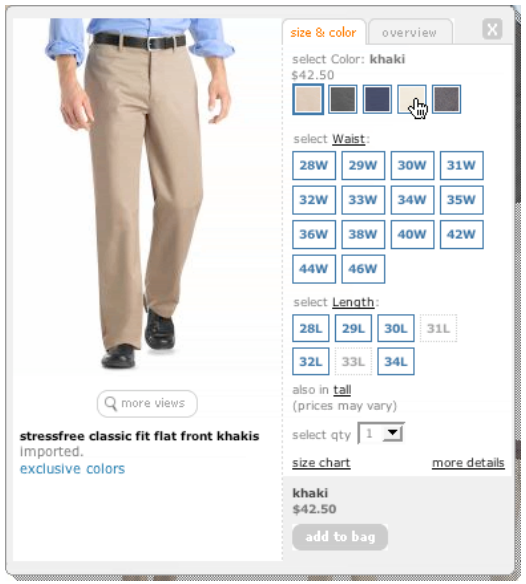
Principle. **Cross Borders Reluctantly**



pattern. **endless scrolling.**

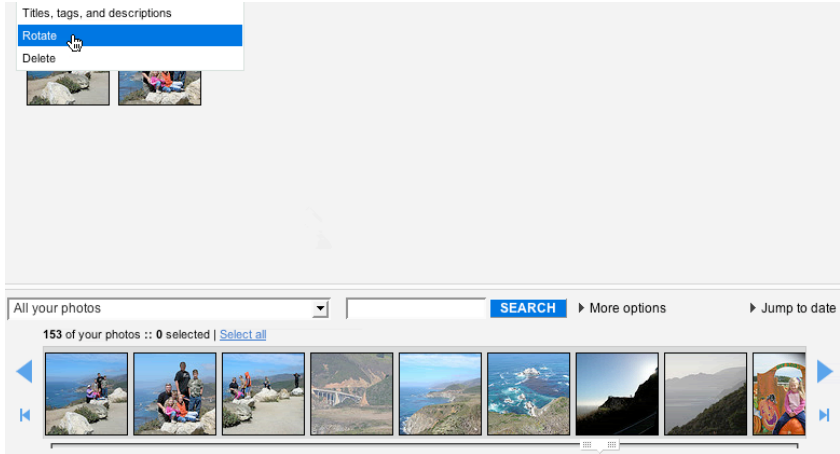


pattern. **in-context expand.**



pattern. **inline assistant.**

pattern. **hover details.**

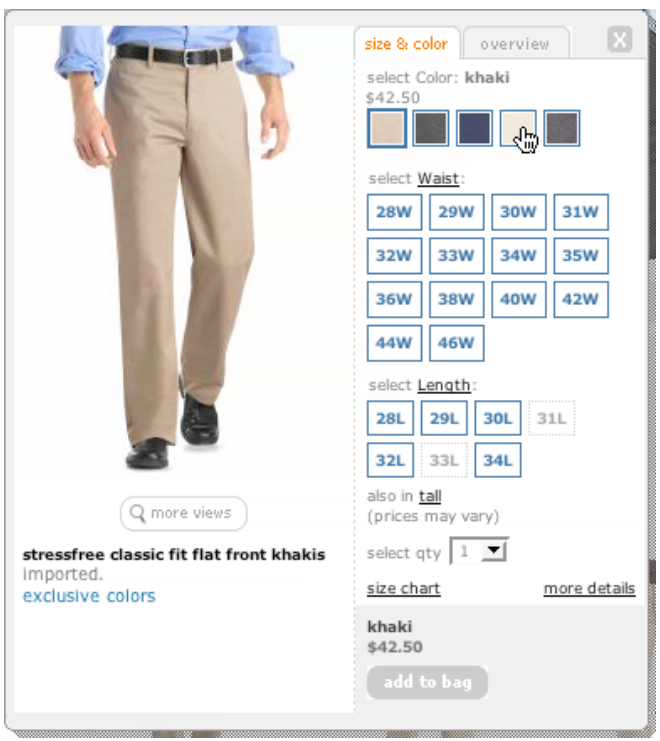


pattern. **lightweight popup + lightbox**

Rethink process flows

Its the user's model, not the page model

Every page jump is a mental speed bump



Rethink process flows

Its the user's model, not the page model

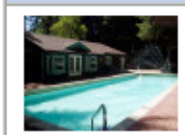
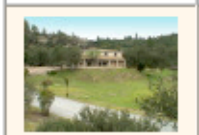
Every page jump is a mental speed bump

Rethink paging

Its the user's model, not the paging model

Use scrolling for "owned" data

Watch out for dual scroll bar issue

Photo Click for info	Price	Bd/Ba Sq Ft	Address and Area Presented By	MLS # (Click for info)	More Photos	Virtual Tours
	$1,750,000 Single Res	6+, 4+ 3700	14080 BEAR CREEK RD Boulder Creek, CA 95006 (San Lore Valley) Schwarzbach Associates			
	$1,995,000 Single Res	6+, 4+ 5675	17617 MOUNTAIN CHARLIE RD LOS GATOS, CA 95033 (Unincorporated Los Gatos Mtns) Almaden Oaks Realtors			
	$2,286,000 Single Res	5, 4+ 4800	20930 PANORAMA DR Los Gatos, CA 95033 (Los Gatos M Alain Pinel Realtors			
	$2,750,000 Single Res	5, 4+ 5000	155 LARITA DR Ben Lomond, CA 95005 (San Lorer Valley) Network Alliance Real Estate			
	$2,777,000 Single Res	5, 4+ 5819	777 HAPPY VALLEY RD Scotts Valley, CA 95065 (Scotts Val Linda Burroughs Real Estate			

New Search

<<Pre

RICO AJAX SEARCH

LiveGrid Demonstration

Powered by Yahoo! Search

Select Search Category: Web Images Videos

Search Images: flowers Search Yahoo!

Search Results Results 1 - 5 of about 1580284 for flowers

flowers 025
flowers021jpg 110k 29Feb2004 flowers022jpg 783k 29Feb2004 flowers023jpg 186k
http://wp.li.ru/flowers
1024x768 - jpeg fmt - 0.3MB

flowers 063
flowers059jpg 122k 29Feb2004 flowers060jpg 134k 29Feb2004 flowers061jpg 120k
http://wp.li.ru/flowers
1024x768 - jpeg fmt - 0.1MB

flowers 045
flowers041jpg 277k 29Feb2004 flowers042jpg 125k 29Feb2004 flowers043jpg 744k
http://wp.li.ru/flowers
1024x768 - jpeg fmt - 0.1MB

flowers 076
flowers072jpg 820k 29Feb2004 flowers073jpg 160k 29Feb2004 flowers074jpg 120k
http://wp.li.ru/flowers
1024x768 - jpeg fmt - 0.1MB

flowers 019
flowers015jpg 781k 29Feb2004 flowers016jpg 455k 29Feb2004 flowers017jpg 143k
http://wp.li.ru/flowers
1024x768 - jpeg fmt - 0.3MB

Rethink process flows

Its the user's model, not the page model

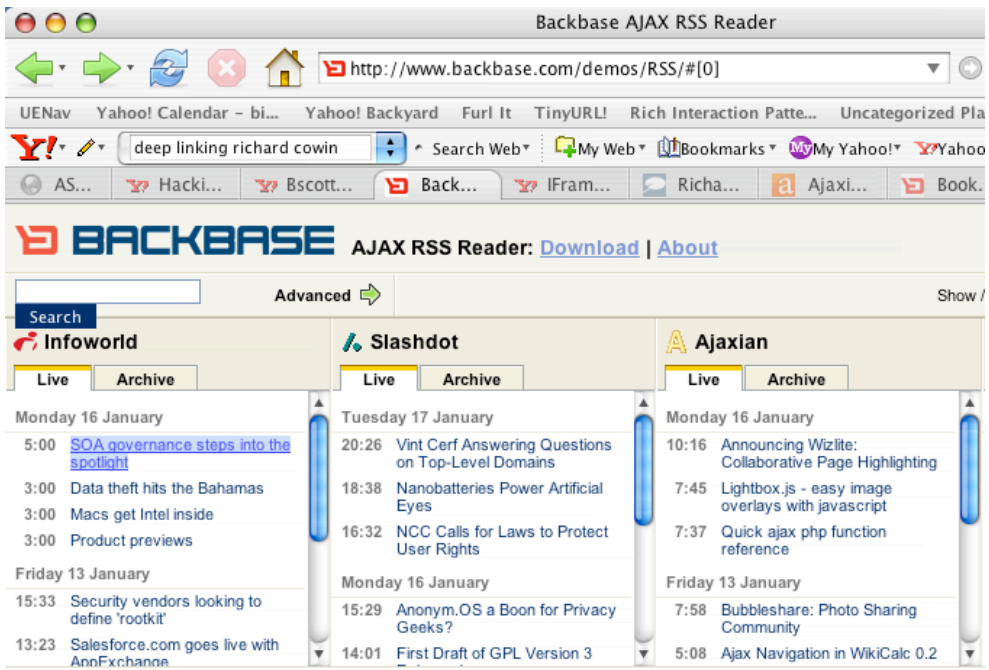
Every page jump is a mental speed bump

Rethink paging

Its the user's model, not the paging model

Use scrolling for "owned" data

Watch out for dual scroll bar issue



Plan for linking, crawling and back button

Not everything is a single page application

What will the user think the back button does?

Use overlays

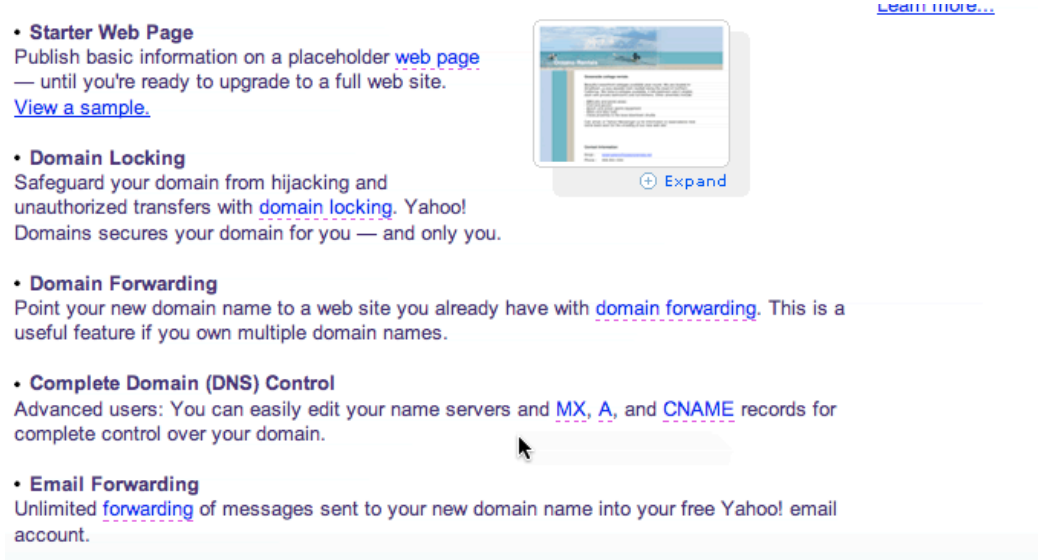
For momentary interruption

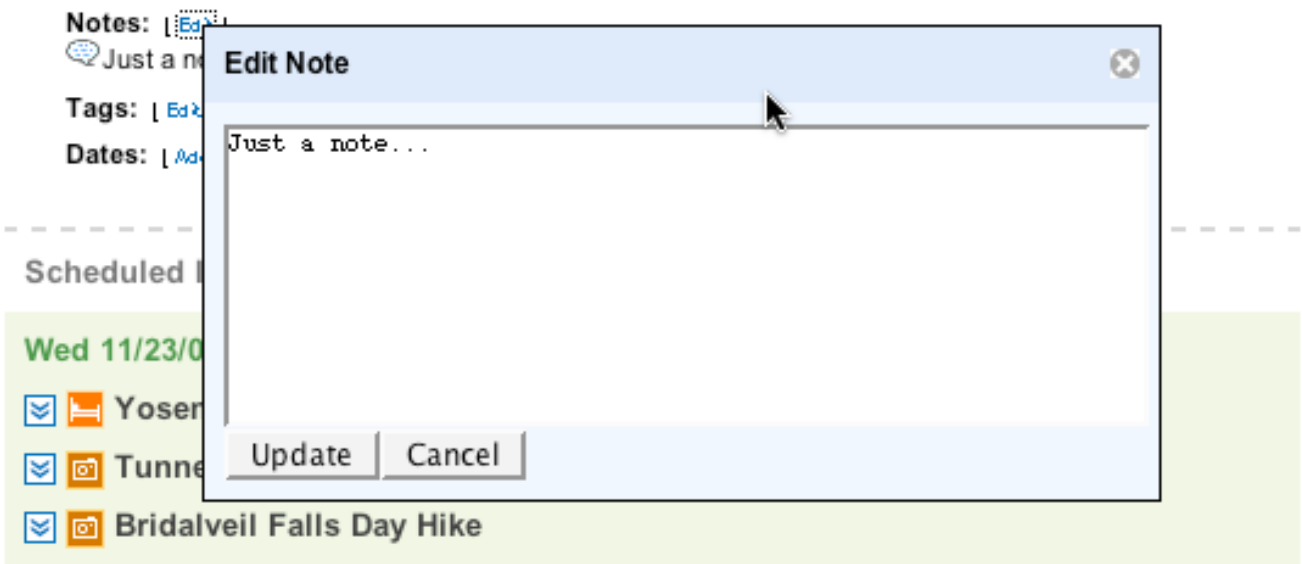
Replace page transition

When editing an individual, more complex item

Be symmetrical

Not disturb the page



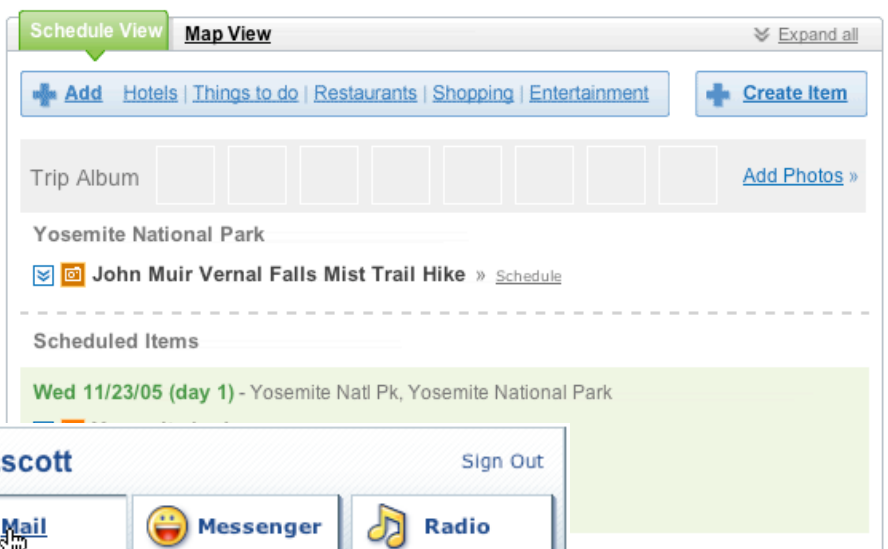


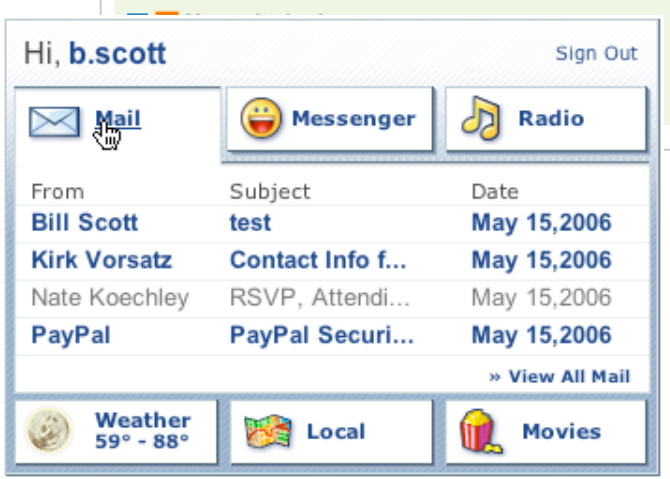
Use overlays

For momentary interruption
Replace page transition
When editing an individual, more complex item
Be symmetrical
Not disturb the page

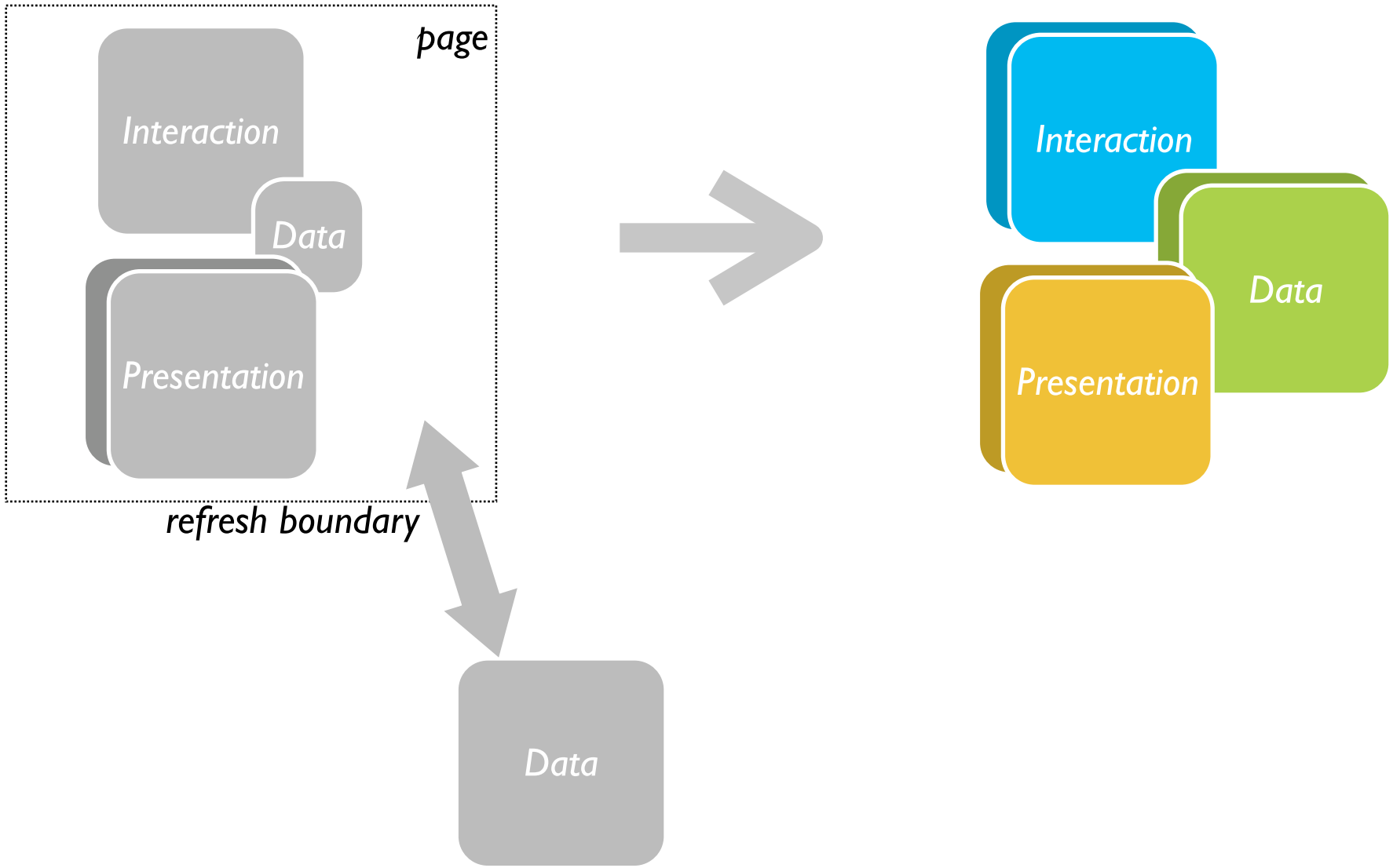
Use in-context expands

For editing part of a collection
Need to see surrounding context
For managing content modules

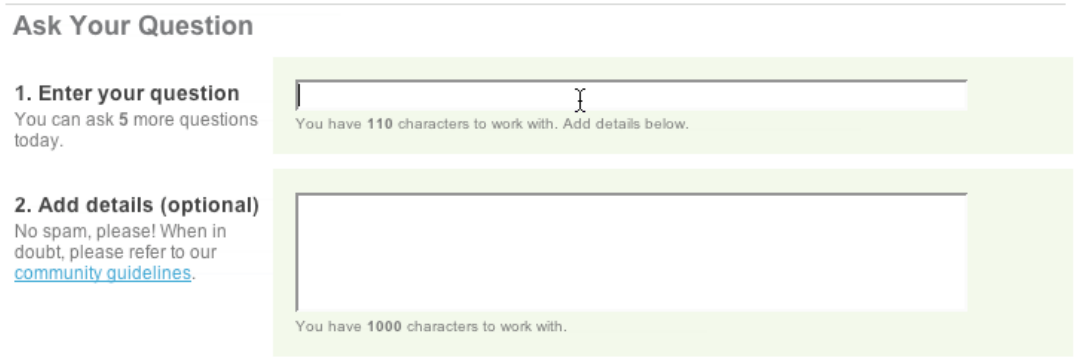




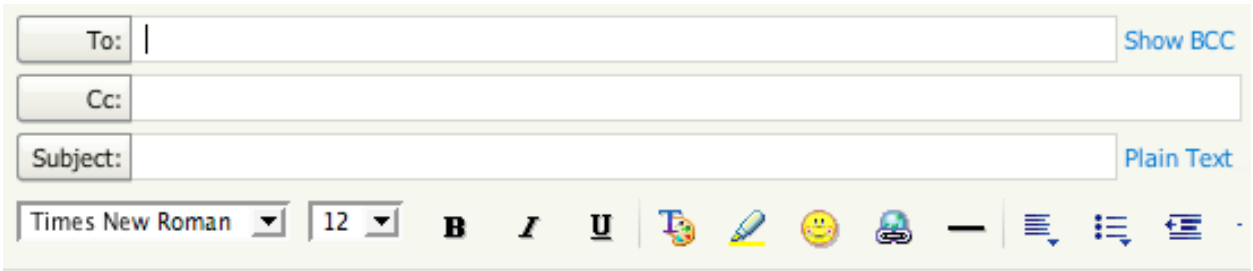
Prefer direct, lightweight, in-page interaction.


page
Interaction
Data
Presentation
refresh boundary
Data
Interaction
Data
Presentation

Provide live feedback



pattern. **live suggest.**

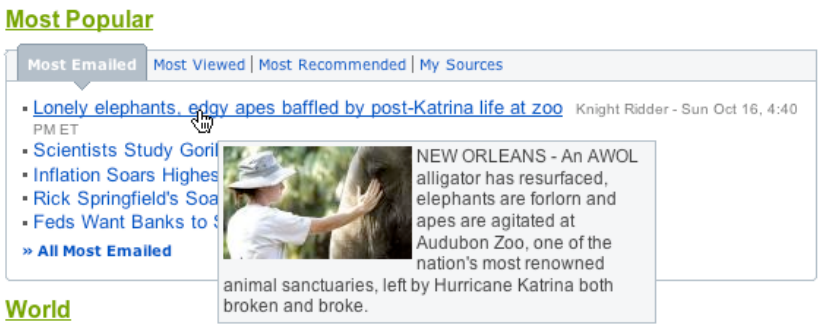


pattern. **auto complete.**

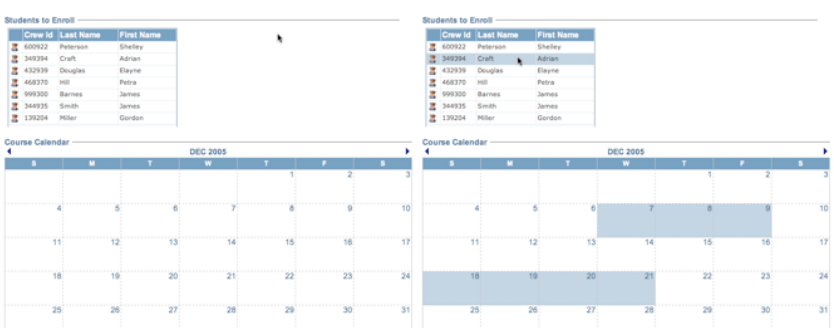
Keep the goal in mind

Design for immediacy

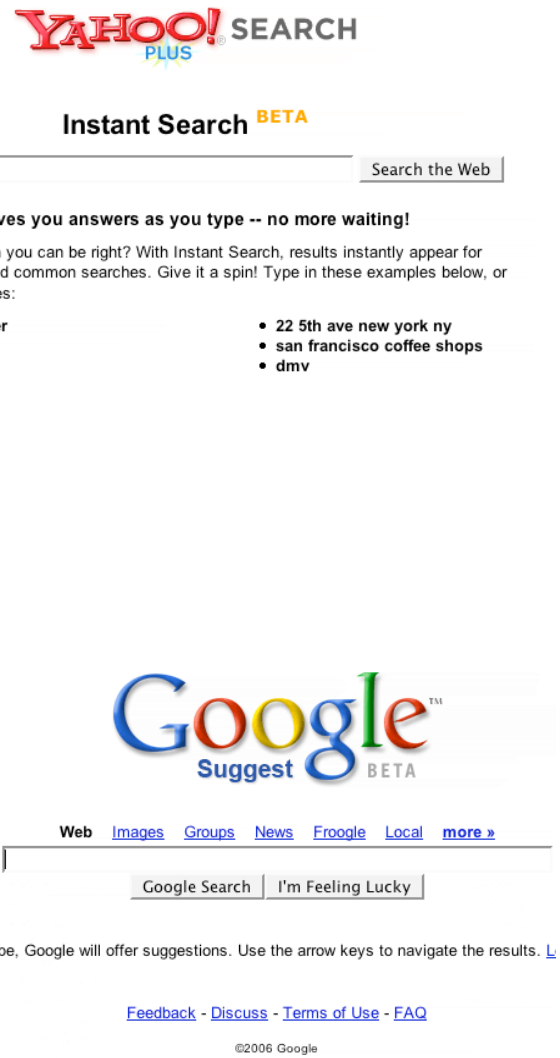
Is it narrowing or is it distracting



Just-in-time data



Just-in-time logic



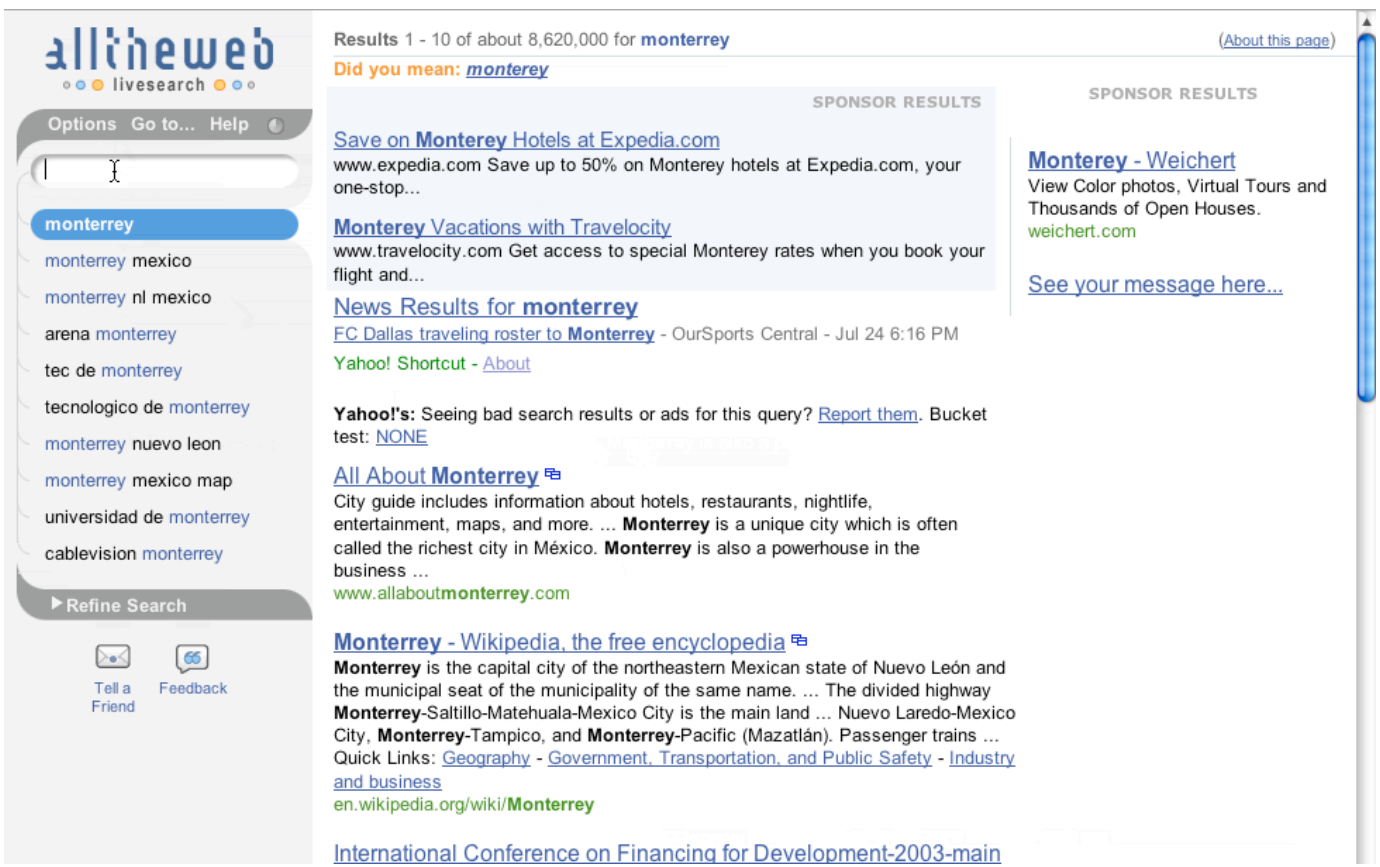
Keep the goal in mind

Design for immediacy

Is it narrowing or is it distracting

Use feedback to boost confidence

Let the user iterate where possible



Keep the goal in mind

Design for immediacy

Is it narrowing or is it distracting

Use feedback to boost confidence

Let the user iterate where possible

Keep the user engaged

Time passes faster

Look for engaging moments

Keep the goal in mind

Design for immediacy

Is it narrowing or is it distracting

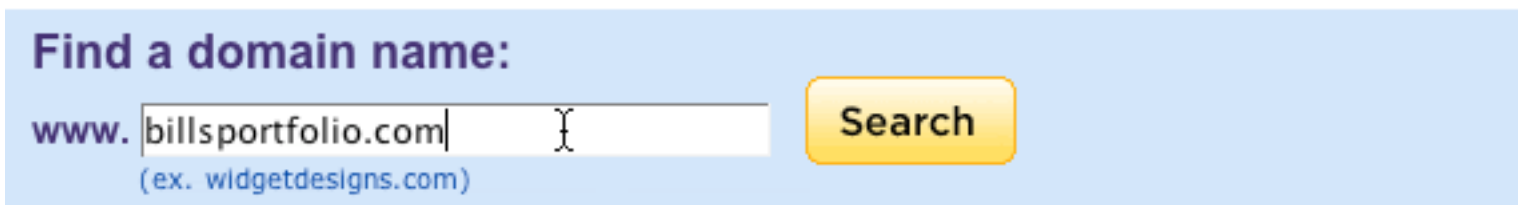
Use feedback to boost confidence

Let the user iterate where possible

Keep the user engaged

Time passes faster

Look for engaging moments



Use live-previews

Look before you leap

Keep the goal in mind

Design for immediacy

Is it narrowing or is it distracting

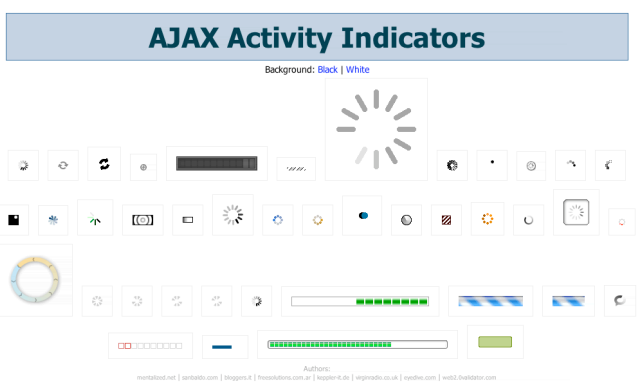
Use feedback to boost confidence

Let the user iterate where possible

Keep the user engaged

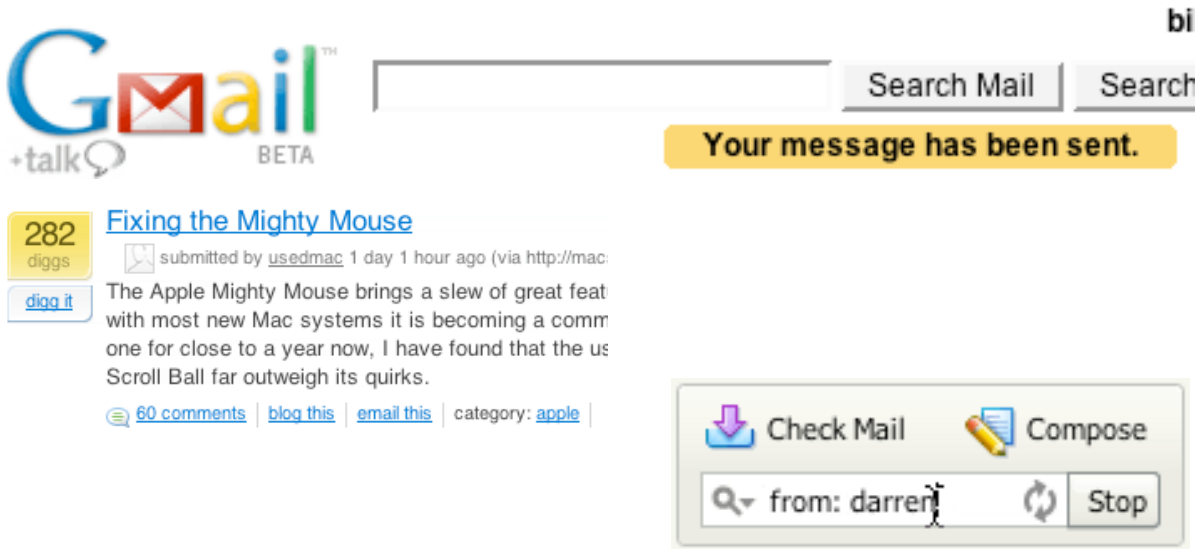
Time passes faster

Look for engaging moments



Use live-previews

Look before you leap



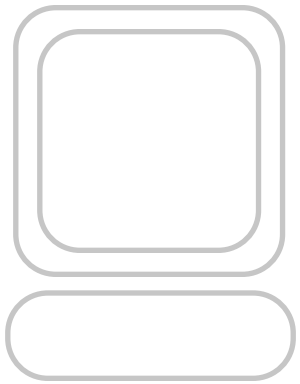
Keep feedback focused

Keep it in context

Updating too many areas at once will be confusing

Show dynamically what is relevant

Avoid creating feedback noise/jitter



desktop

hover blur focus click key
shiftclick doubleclick
drag dragdrop dragflipdrop
shiftdoubleclick tripleclick shifttripleclick

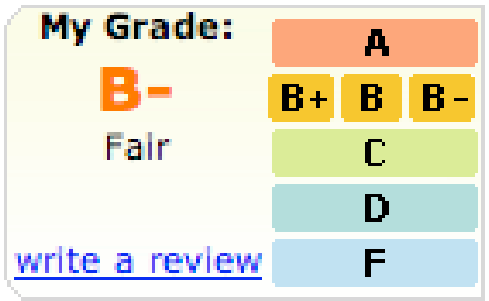
hover blur focus click key
shiftclick doubleclick
drag dragdrop dragflipdrop
shiftdoubleclick tripleclick shifttripleclick

web

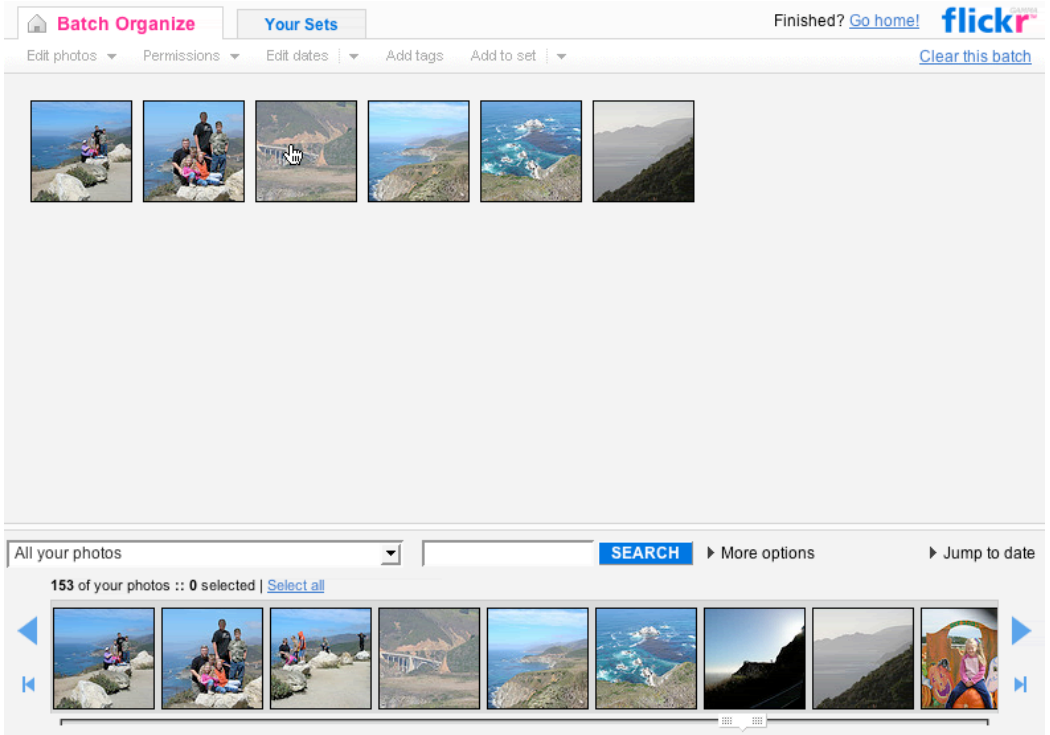
hover blur focus click
key shiftclick doubleclick dragdragdrop

hover blur focus click
key shiftclick doubleclick drag dragdrop

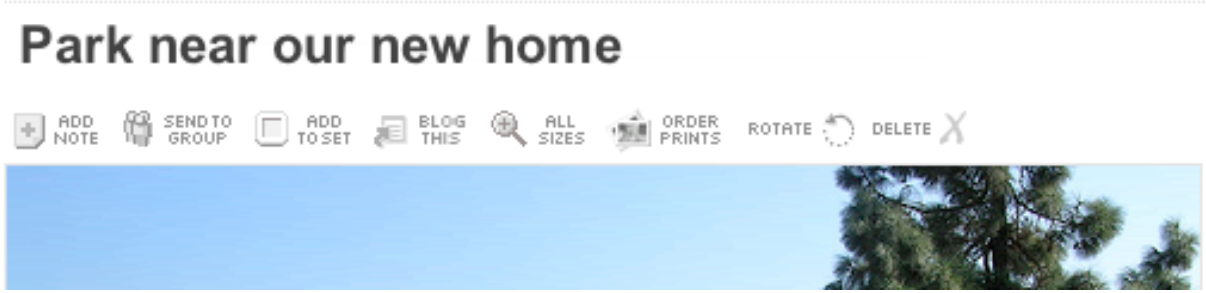
Offer an invitation



pattern. **hover invitation.**



pattern. **drop invitation.**

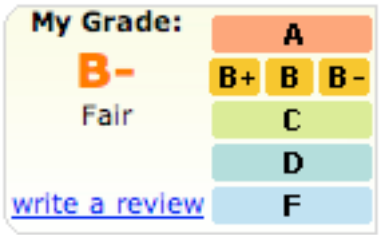


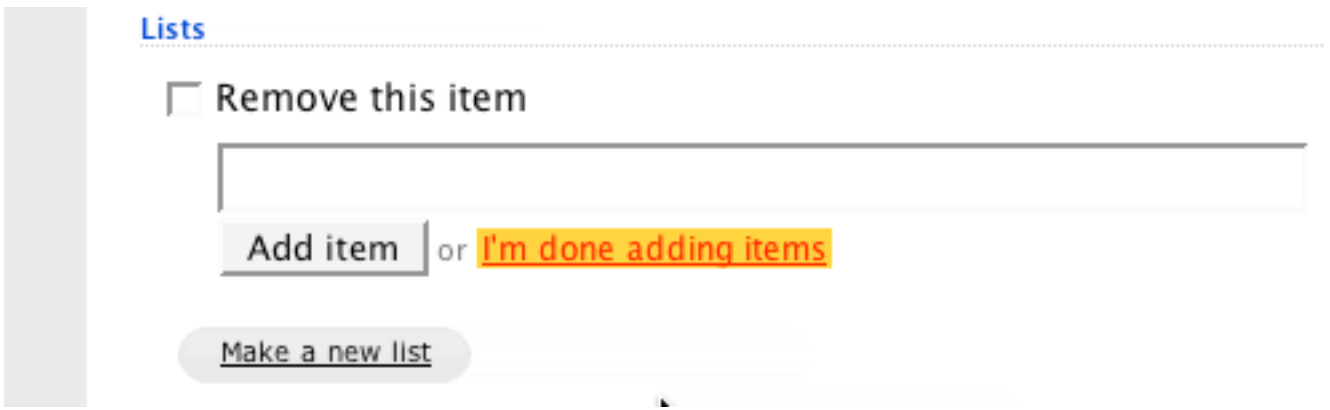
pattern. **tooltip invitation + hover invitation.**

Make it engaging

Use lightweight events as a welcome mat

Rediscover the hover





Make it engaging

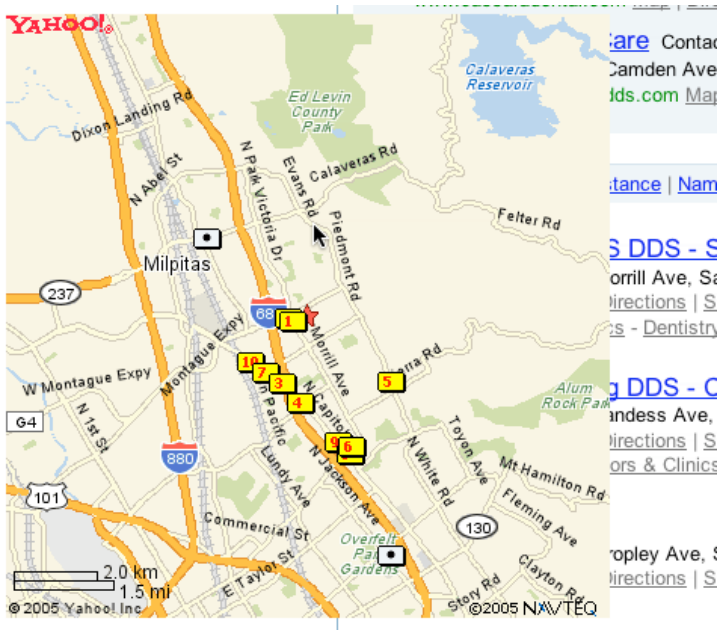
Use lightweight events as a welcome mat

Rediscover the hover

Keep actions out of it

Don't make the user afraid to explore

Don't proselytize



Forty Associates recently added product previews to their Web site as part of a small beta program. During the beta, visitors to Associate sites who viewed a product preview clicked through to Amazon.com over 4% of the time; those clicks resulted in a purchase nearly 6% of the time.

Now we're opening the beta up to all Associates to further improve product previews. The first 500 Associates who refer a sale through a product preview-enhanced link will receive a $5 Amazon gift certificate. Click here to join your fellow Associates in beta testing product previews.

Don't worry if you don't already have Basic Display Product Links on your Web site. You can create them as part of the sign-up process. Click here for answers to questions you might have about the beta program.

Make it engaging

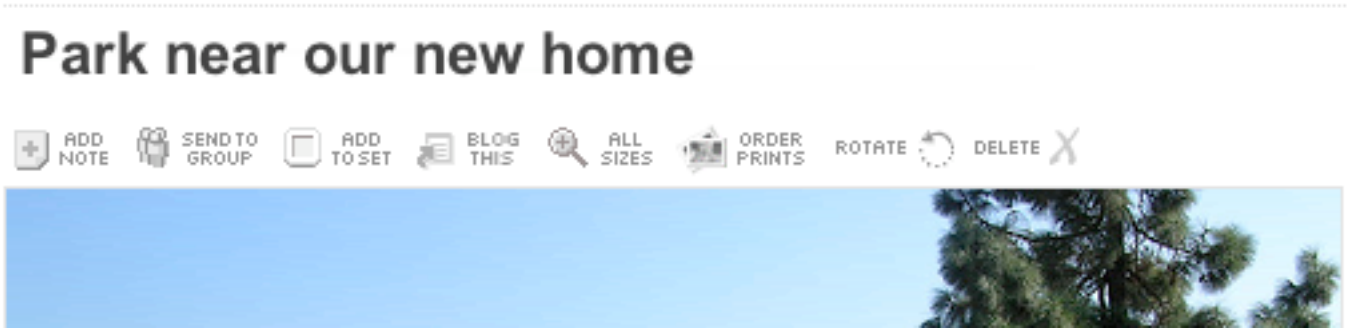
Use lightweight events as a welcome mat

Rediscover the hover

Keep actions out of it

Don't make the user afraid to explore

Don't proselytize



Get the actors involved

Hover Invitation

Cursor Invitation

Tooltip Invitation

Make it engaging

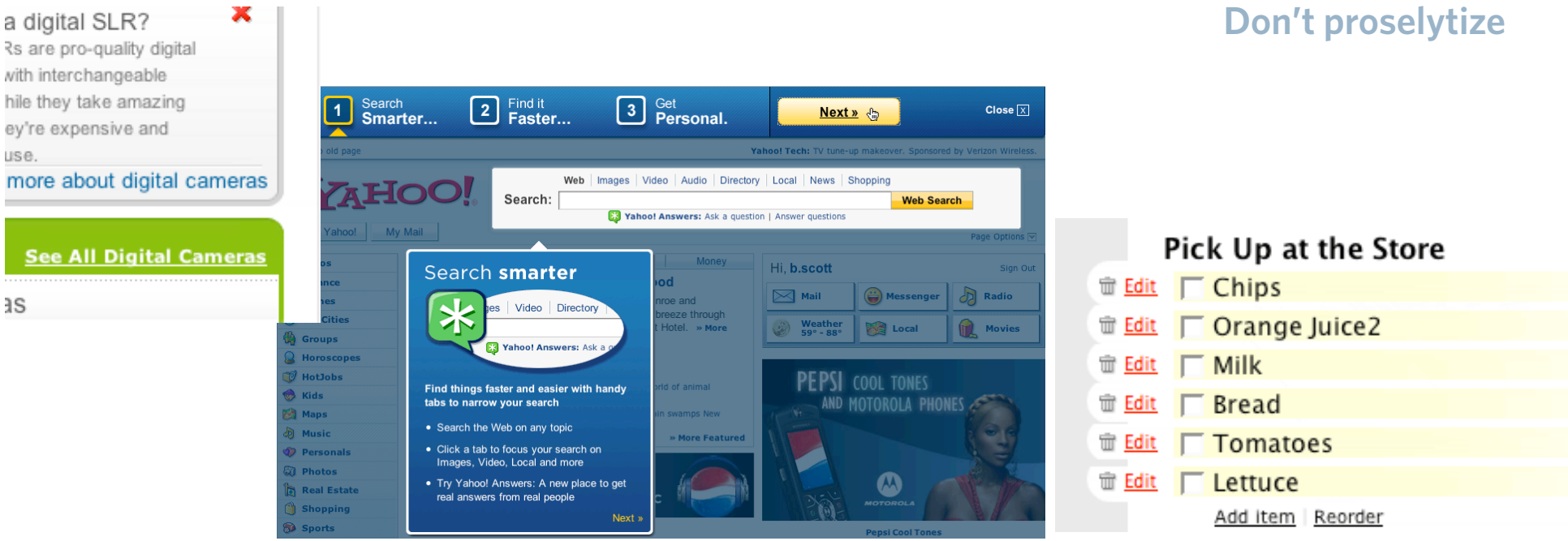
Use lightweight events as a welcome mat

Rediscover the hover

Keep actions out of it

Don't make the user afraid to explore

Don't proselytize



Use invitations to aid discoverability

Two challenges: idiom & feature

Adding signposts, always-on clues doesn't scale

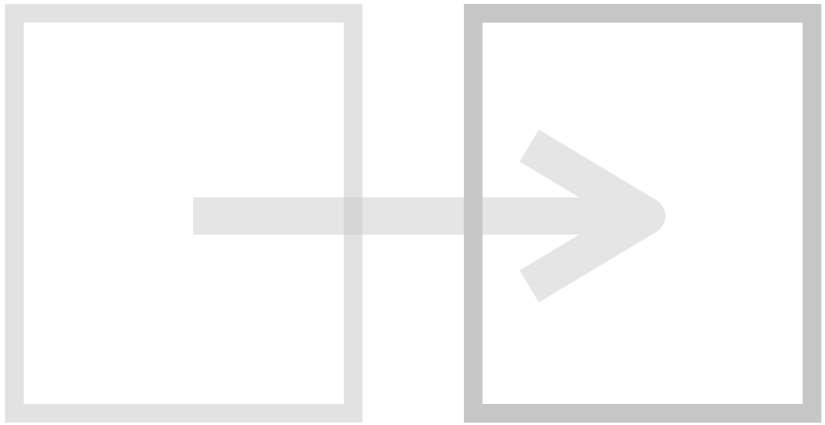
Add tours, help pedals, tips, spotlights

Get the actors involved

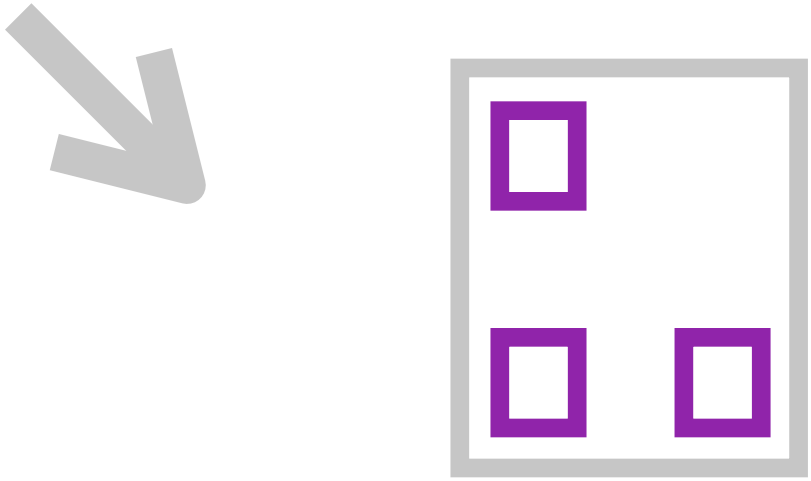
Hover Invitation

Cursor Invitation

Tooltip Invitation

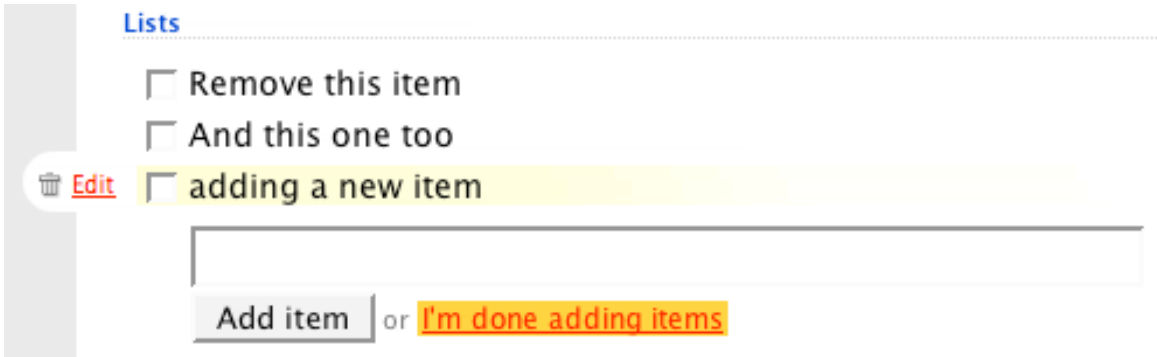


page-based transitions

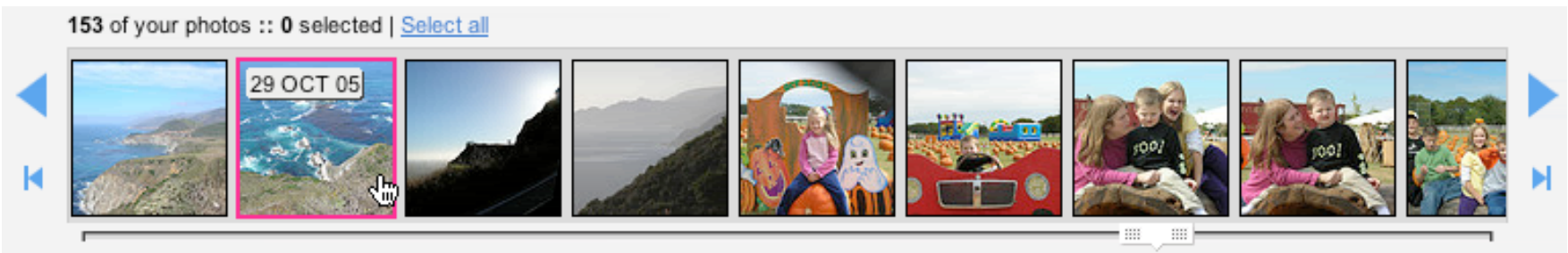


multiple transitions,
single page

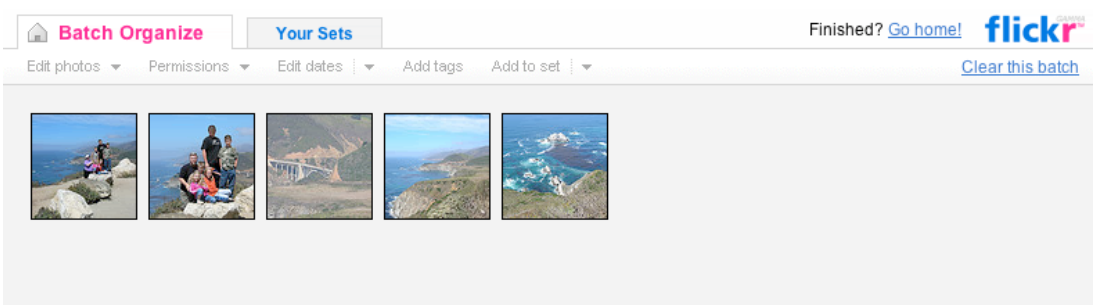
Show transitions



pattern. fade transition + self-healing transition.



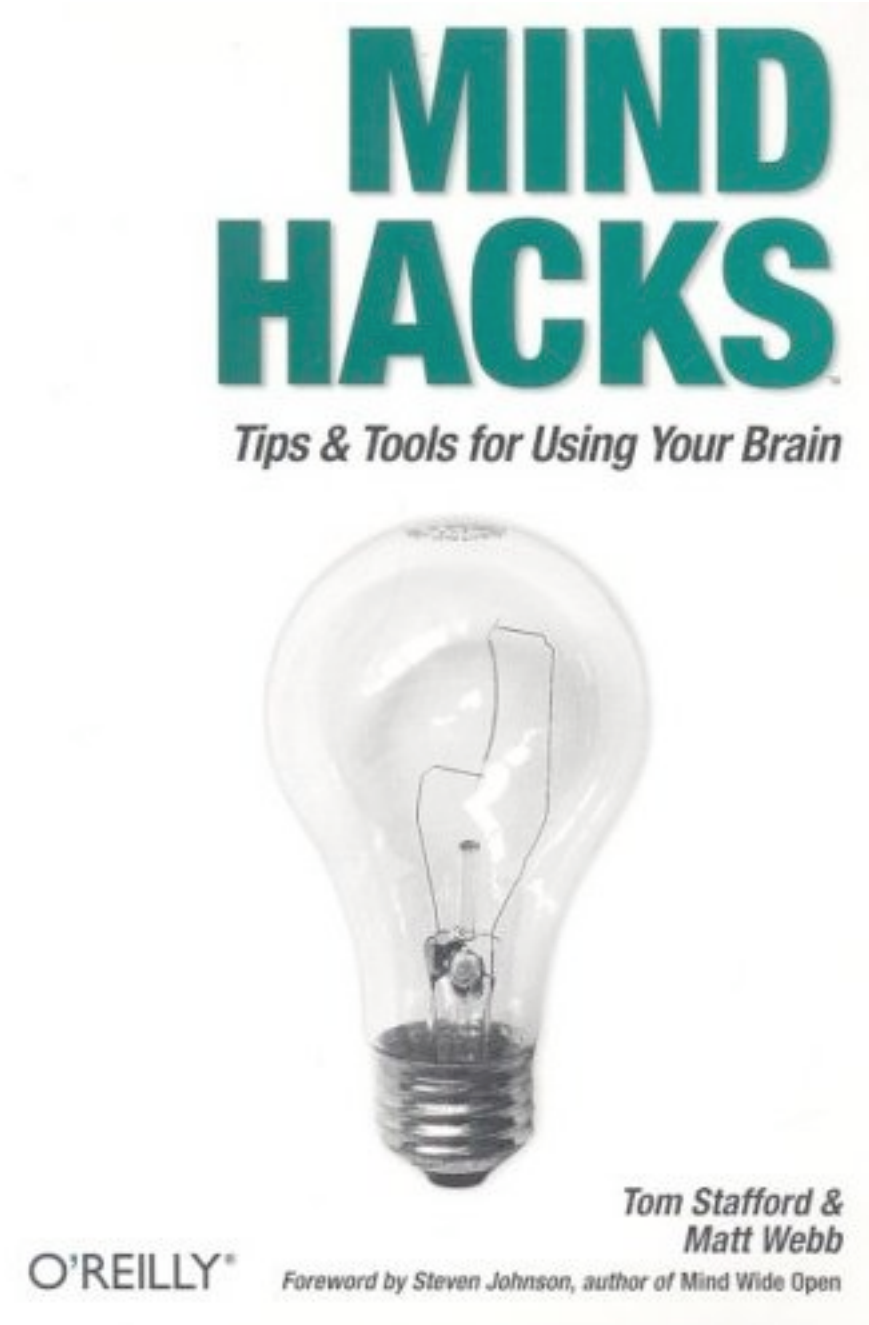
pattern. slide + animate.



pattern. spotlight.

Speak to the BRAIN

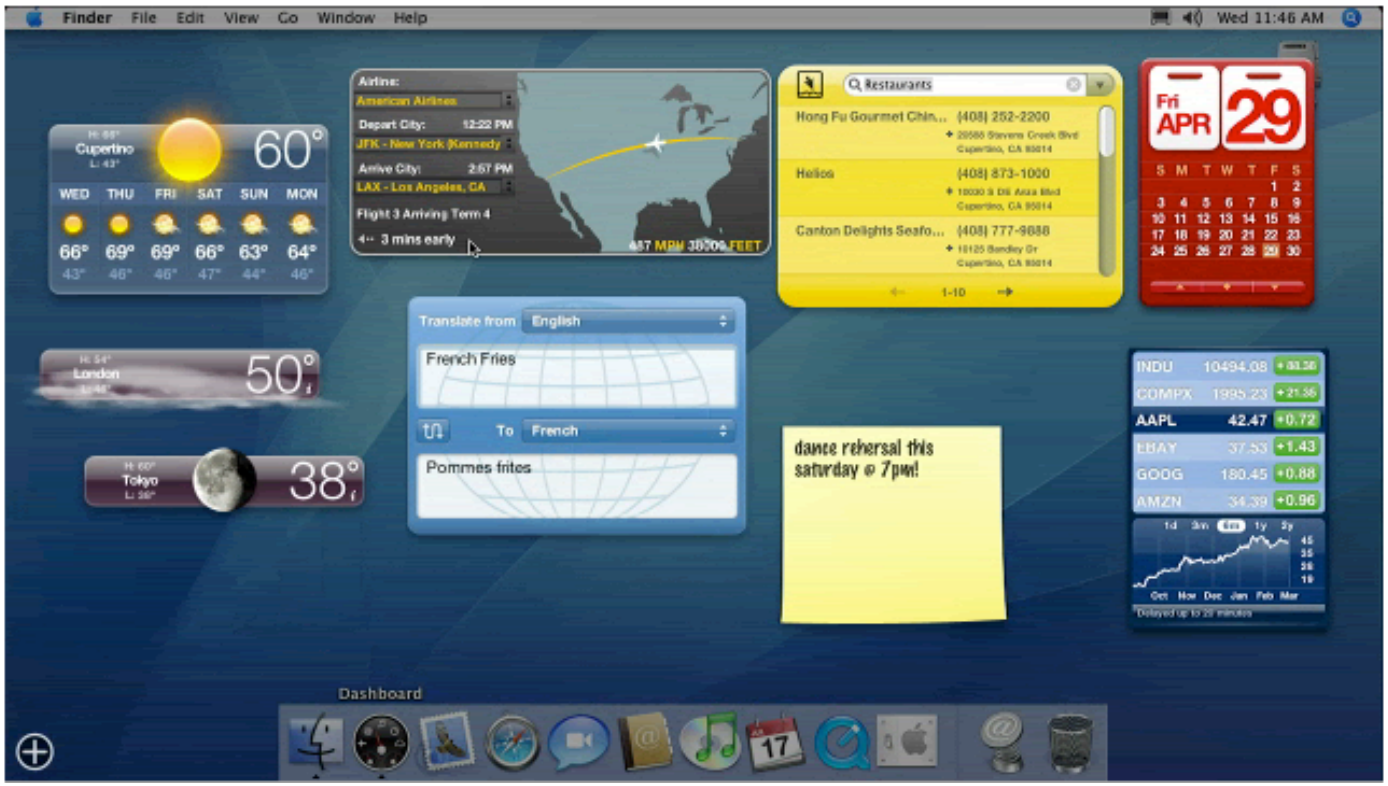
Understanding attention processing



Speak to the BRAIN

Understanding attention processing

Sending the wrong message



Speak to the BRAIN

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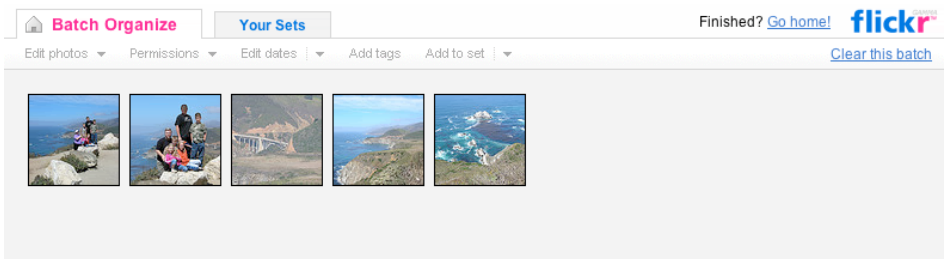
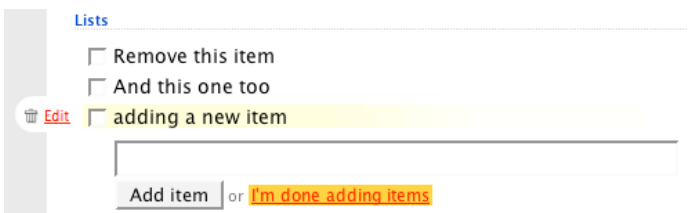
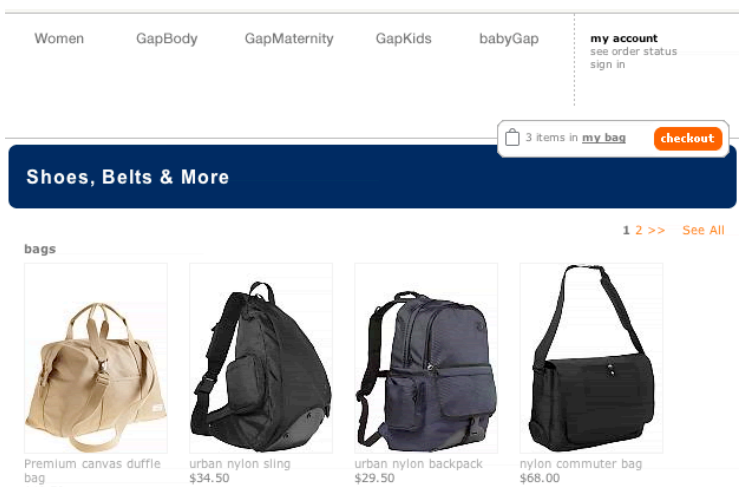






What you can communicate

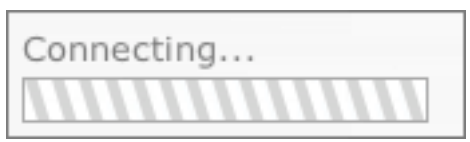
Speed up time

Slow down time

Show state change

Show relationships between objects

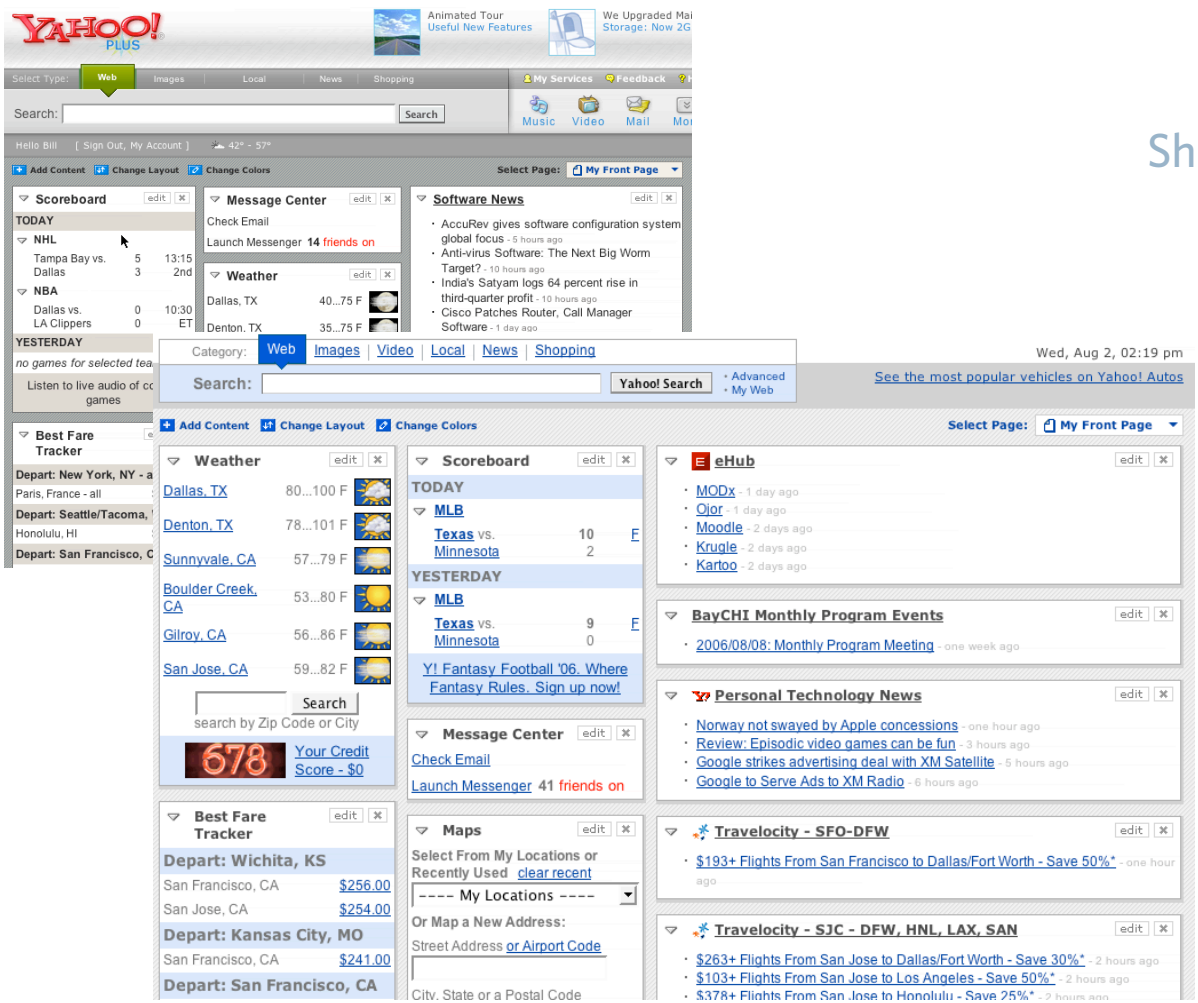
Focus attention



Speak to the BRAIN

Understanding attention processing

Sending the wrong message



What you can communicate

Speed up time

Slow down time

Show state change

Show relationships between objects

Focus attention

Keep it sane

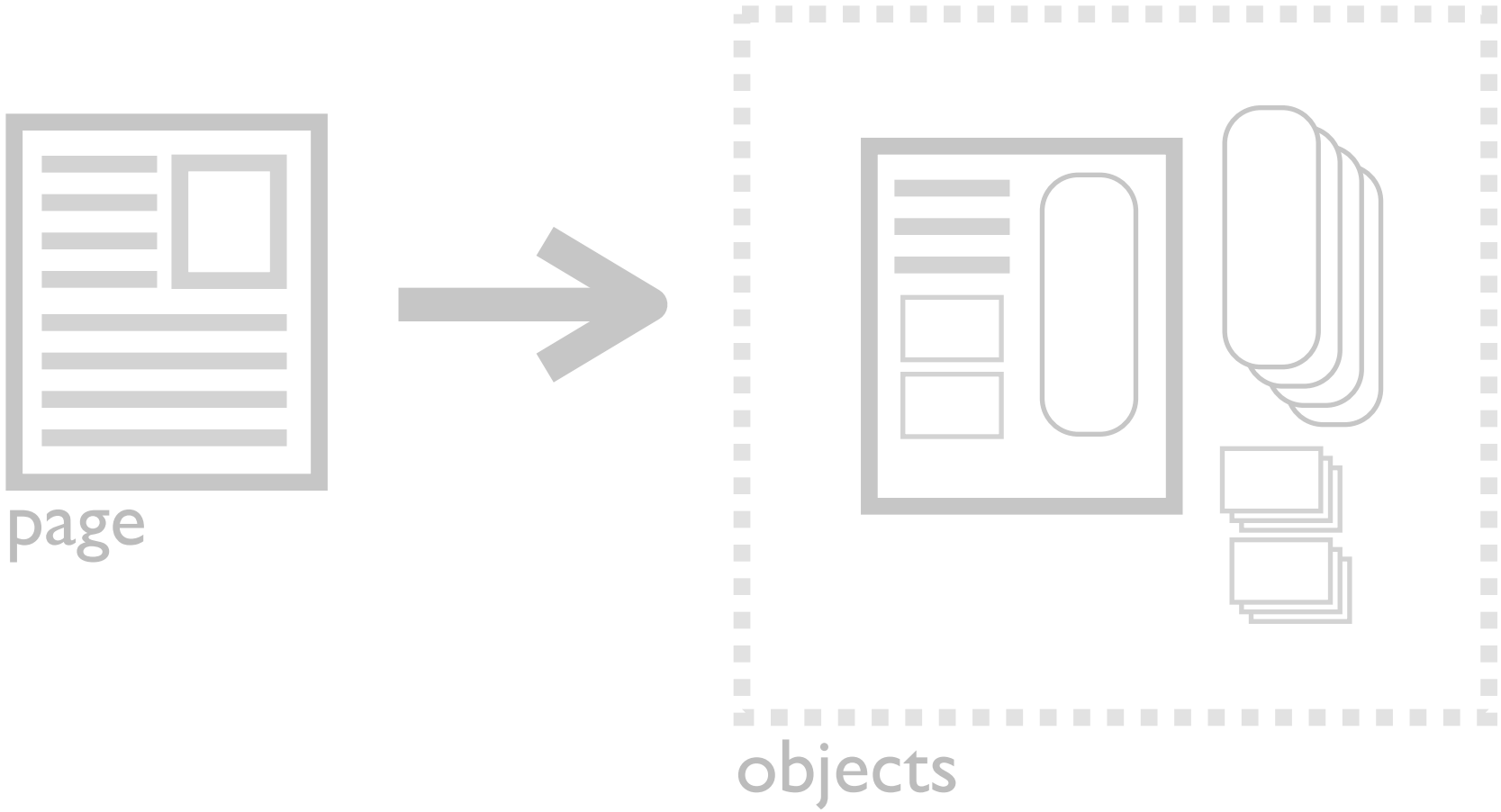
"Cut in half" rule of thumb

Use a "contrast knob" approach

Don't overuse

Provide invitations beforehand,
transitions during,
and feedback after interaction

Shift. **Page to Objects.**



Think in objects

	Page-Based Web	**Rich Internet App**
Richer Model	Document	Rich Internet Object
Longer Lifecycle	Transient	Permanent
Community/ Sharing	Bookmark	Content, properties, and behaviors

Principle. **Think in Objects**

Schedule View | Map View | Expand all

Add | Hotels | Things to do | Restaurants | Shopping | Entertainment | Create Item

Yosemite National Park

John Muir Vernal Falls Mist Trail Hike » Schedule | View | Delete

+1 209 372 0200
Happy Isle Shuttle Stop #16
Yosemite National Park, CA 95389
United States

This hike is also known as the Mist Trail because it passes right beside Vernal Falls, which in the spring blows a heavy mist everywhere. This 1.4 mile roundtrip hike is considered a moderate

Notes: [Edit]

Tags: [Edit]

Dates: [Add]

Scheduled Items

Wed 11/23/05 (day 1) - Yosemite Natl Pk, Yosemite National Park

- **Yosemite Lodge**
- **Tunnel View**
- **Bridalveil Falls Day Hike**

Other trips you might like ... Browse All Public Trips »

The Ultimate A ...
by ajrao1918
Copy this trip

SF Trip
by pilak_shah
Copy this trip

6 Parks in 8 d ...
by lacorebb
Copy this trip

Yosemite
by whiskeywom ...
Copy this trip

Cali Baby!
by ibily78
Copy this trip

Rethinking the model

What is the user's mental model?

How to distinguish from content?

Rethinking the model

What is the user's mental model?

How to distinguish from content?

Amsterdam Trip Plans on Yahoo! Travel
Yahoo! Shortcut - About

My Web Results for **amsterdam trip** (49)

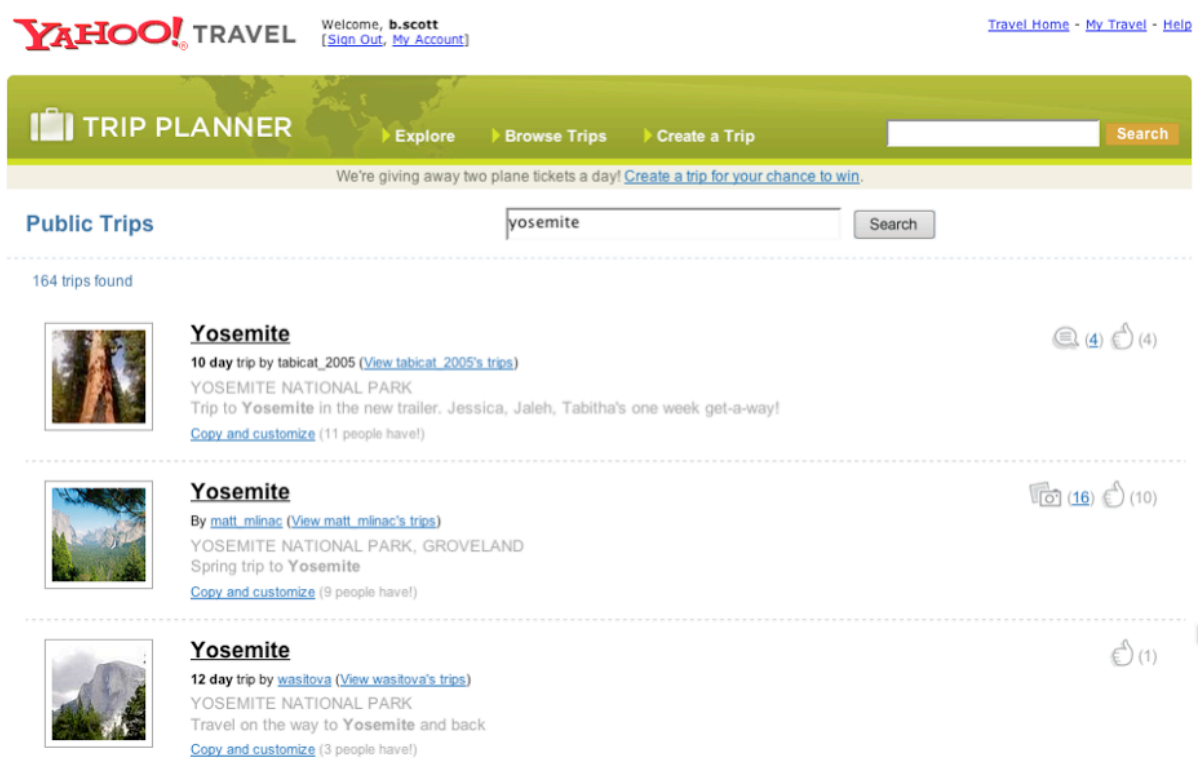
1. **Trip** to **Amsterdam** - photos, history, maps - Virtual **trip** to **Amsterdam**
Web **trip** to **Amsterdam**. Historical and sightseeing overview ... **Trip** to **Amsterdam**. To begin with **Amsterdam** we should first note, that this city has two features making ... One will never forget a **Amsterdam trip** around the city by river ...
www.medieval**amsterdam**.com - 9k - Cached - More from this site - Save

The power of sharing

Bloggable, shareable, findable

How to dial-in community

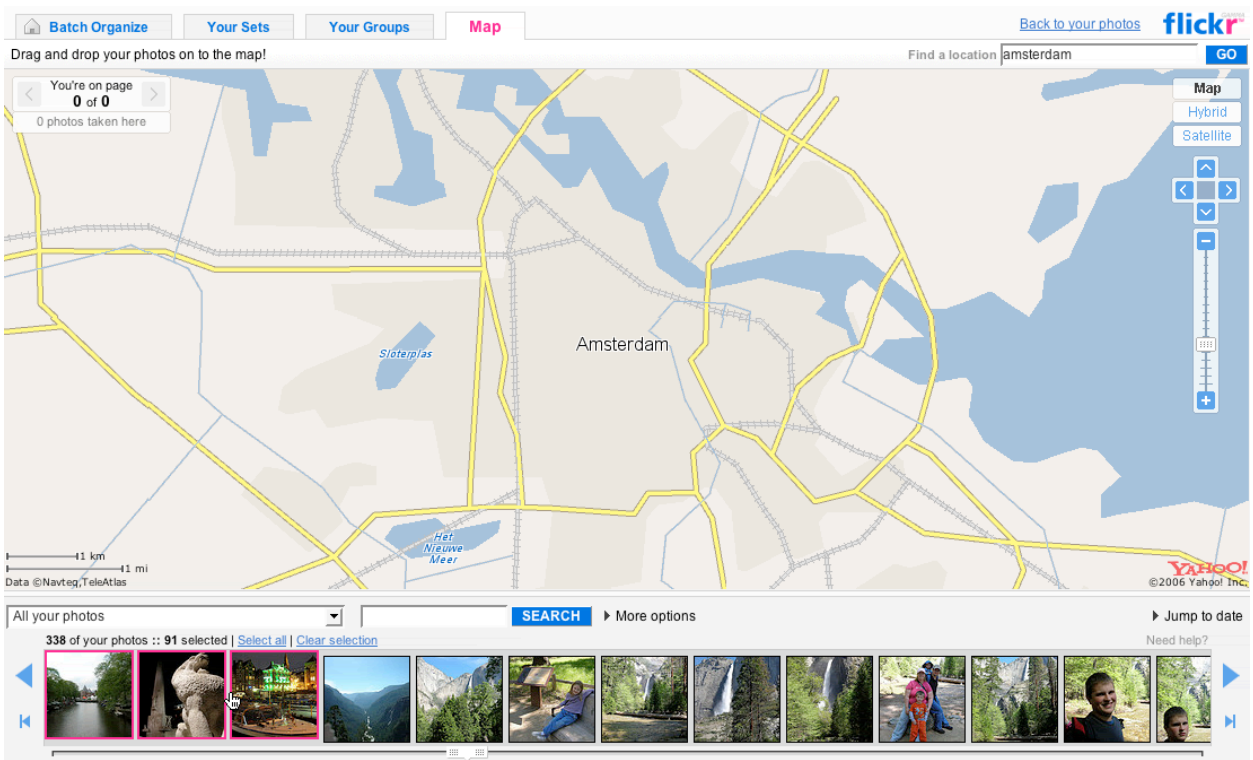
Collections



Rethinking the model

What is the user's mental model?

How to distinguish from content?



The power of sharing

Bloggable, shareable, findable

How to dial-in community

Collections

Web 2.0 as a platform

Rich objects fit the SOA model

Creates a good separation of concerns, microformats

Mashups

Think in terms of the user's mental model and their primary goals

Prefer direct, lightweight, in-page interaction.

Provide invitations beforehand, transitions during, and feedback after interaction.

Think in terms of the user's mental model and their primary goals.