

# Design Practice

## Section 3: Designing and Communicating Design

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UI | I Web Apps Conference  
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# Designing vs. Communicating vs. Documenting

- Designing - conceive and idea through a design process.
- Communicating
  - Get buy in
  - Collaborate to ensure proper implementation
- Documenting
  - Archive ideas
  - “Hit by a bus” contingency

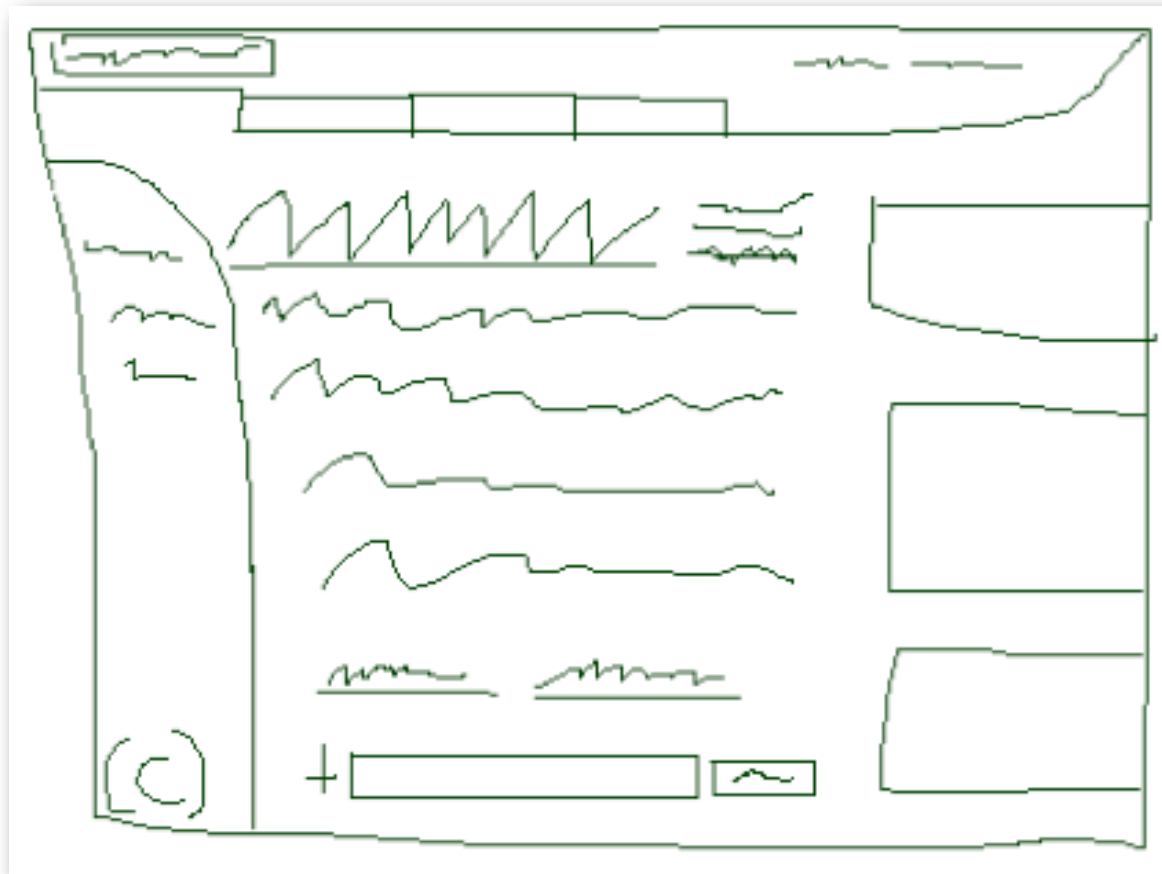
# Design-ING

- != conceiving, creating, producing
- Formalized process
  - Studio = exploration + formal critique process
  - Divergent unrefined thinking followed by
    - Evaluation, testing and reflection

# 3 Basic Steps to Designing

- Sketching
- Framework and Language
- Refinement

# Sketching



Rapid & Rough

Multiplicity

Communication  
**CONCEPTS**

What do you see here?

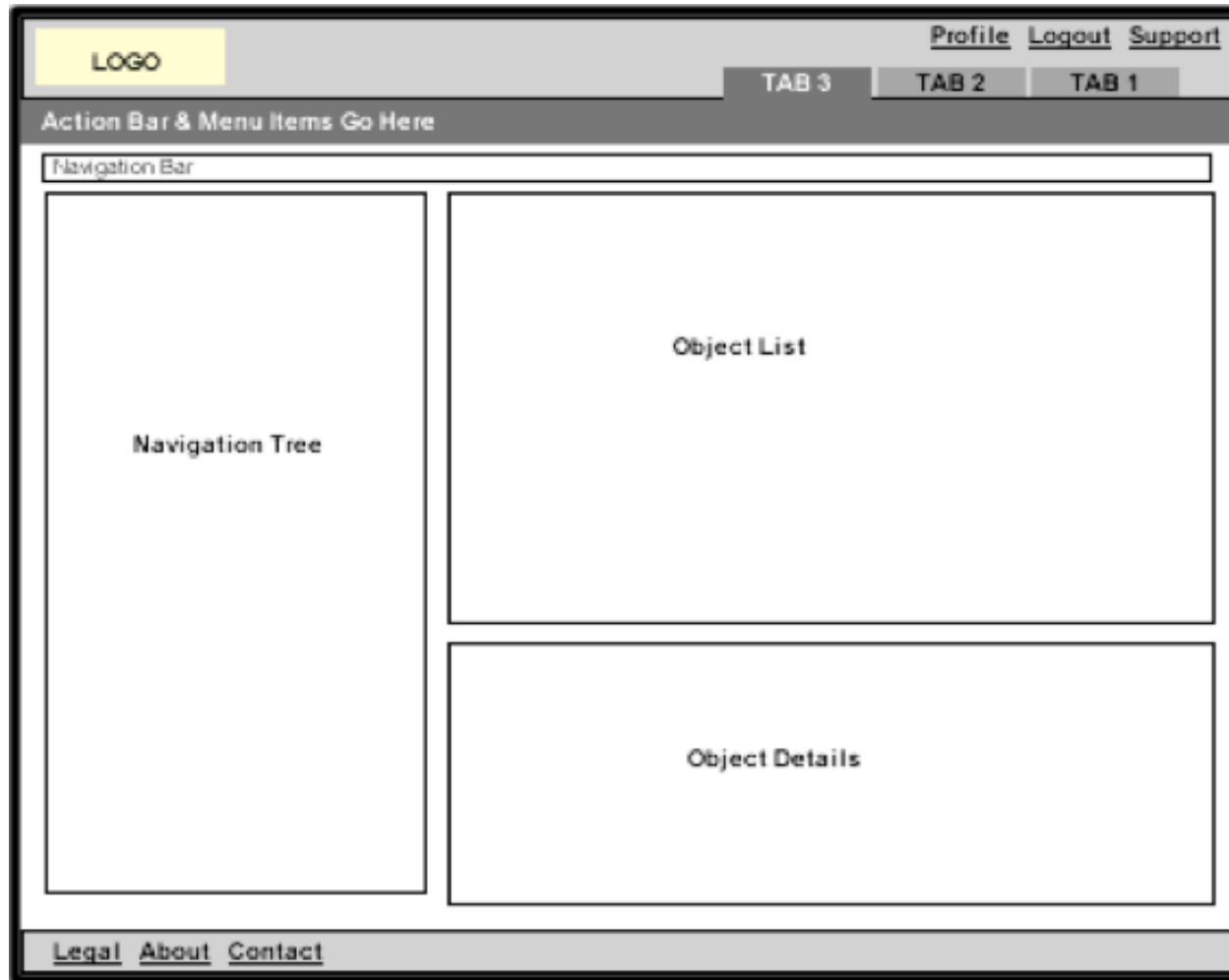
# Bill Buxton on Sketch vs. Prototype

Sketch	Prototype
Invitation	Attendance
Suggestion	Describe
Question	Answer
Propose	Test
Destructive	Constructive

Taken from the notes of J. Spool on BrainSparks Blog of a talk given by Bill Buxton to Boston-SIGCHI.

<http://www.uie.com/brainsparks/2006/11/16/buxton-on-sketching-and-experience-design/>

# Framework and Language



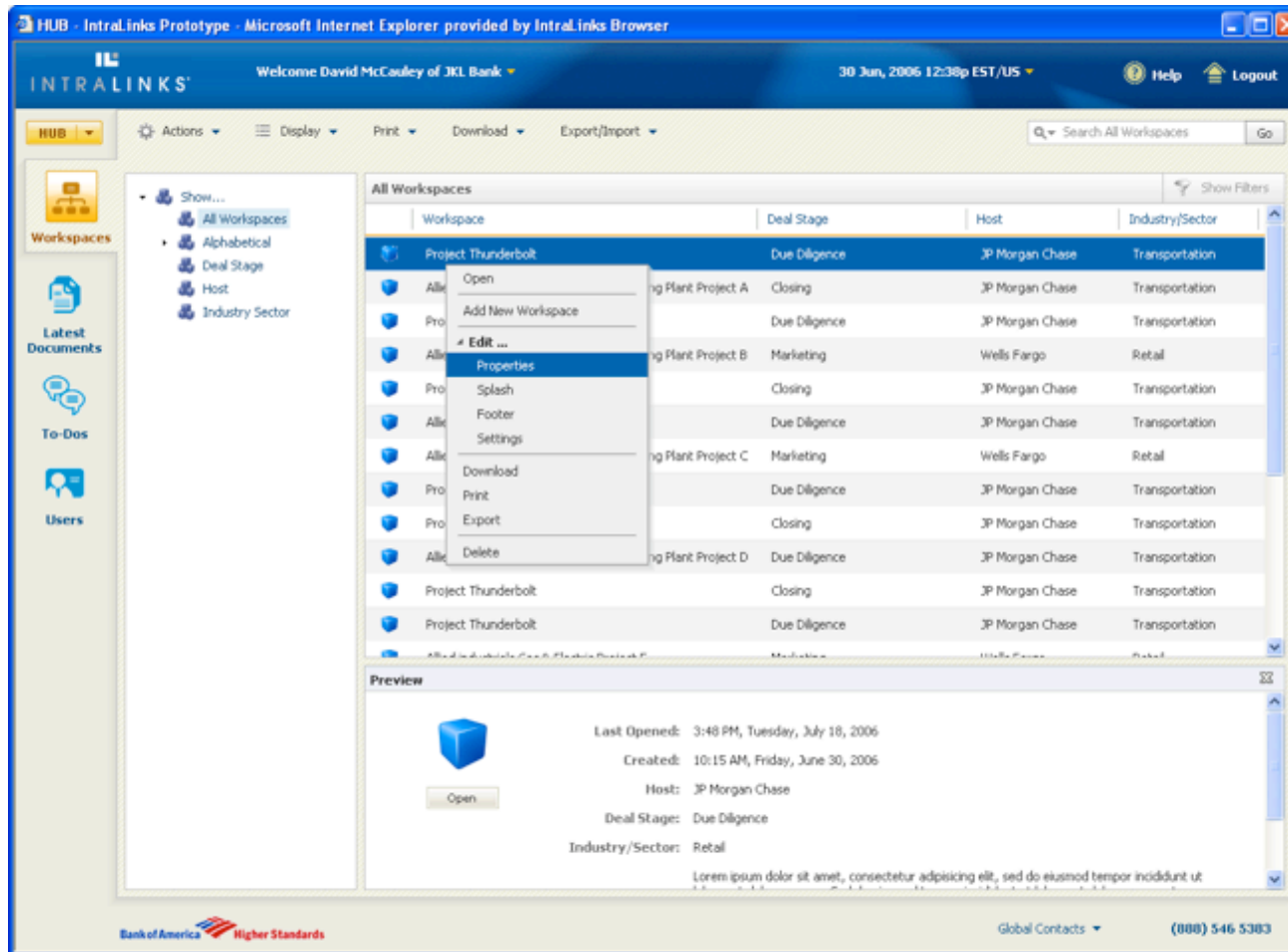
Create Structure

Navigation

Language

- Object
- Action
- Modifiers

# Refinement



Details

Behavior

Exceptions

States

Messaging



# Designing Behavior

- Time: Behavior cannot be static
- It is not “flow” between contexts
  - Happens within a context
- Multiple states
  - Sometimes fluid motion
- Hard to communicate “intra-contextual” behaviors using static renderings
  - More difficult to test

# Sample Process

- Sketch on paper/whiteboard
- Scan/Photograph into digital environment
- Trace (or re-draw) using computer tool
- Use “blocking” tool to define framework
- For further refinement, fill in blocks with higher-fidelity drawing tool
- Add interactivity so behavior can be experience, evaluated, tested and reflected upon

# Simple Design Exercise

- Problem
  - I need a device that allows a user to move & select objects, text and graphics in a graphical interface
- Let's work through this...

# Simple Design Exercise

- Problem
  - I need a device that allows a user to move & select objects, text and graphics in a graphical interface
- Let's fill in some of the blanks...
  - Location/Context
  - Users
  - Objects
  - Flow
  - etc.

# Discuss: Example Process

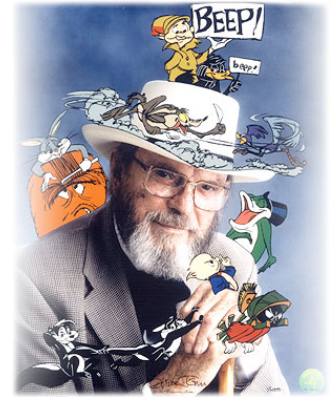
What properties through this process did we notice that might apply to the tools we decide to use?

# Documenting Blessed Moments



*Wireframing AJAX is a bitch. The best our agency has come up with is the Chuck Jones approach: draw the key frames. Chuck Jones had an advantage: he knew what Bugs Bunny was going to do. We have to determine all the things a user might do, and wireframe the blessed moments of each possibility.*  
- Jeffrey Zeldman

<http://www.alistapart.com/articles/web3point0/>

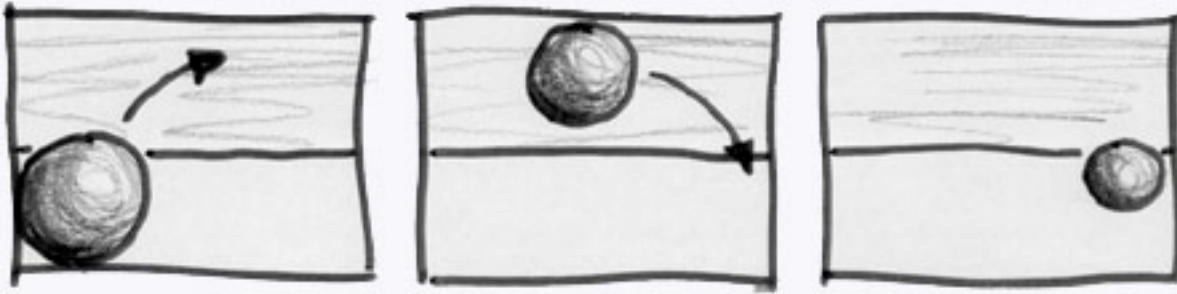


- Blessed Moments =
  - Microstates
  - Interesting moments
- Challenge is how to document the microstates

# Microstates, Interesting Moments

- Wireframes
  - Maps directly to the page interaction model
  - Does not map well to the microstate level
- Microstates can be captured as
  - Keyframes
  - Storyboard grids
  - LO-FI animations

# Keyframe Animation



- In animation, key frames are the drawings which are essential to define a movement.
- Called "frames" because their position in time is measured in frames on a strip of film.
- A sequence of keyframes defines which movement the spectator will see
- The position of the keyframes on the film defines the timing of the movement.
- The remaining frames are filled with more drawings, called "inbetweens".
  - Scott McCloud, *Understanding Comics*, describes *Time Frames* as *the ability of our minds to "fill in the intervening moments, creating the illusion of time and movement"*.



# Keyframe Wireframing: Adaptive Path Example



## Participant Interface Notes

Title: Register page

Date: 18 July 2005

Version: 1.0

Functional Notes:

The registration page allows users to signup for Participate simply by entering a user name and a valid email address.

- 1 Provide the user with some notification of what the email a friend action is worth in Participant points to encourage follow-through and introduce non-registered users in the Incentive program.
- 2 On click, commit the user's entered email addresses and message, send to target addresses, and link user to a confirmation page
- 3 For users who have invited friends over email, provide reporting on # invited and # accepted. Hide actual names by default, but allow users to view them by clicking the "view" link

- a** When user completes name entry and clicks to email entry, compare the entered name to previously claimed names on the site. If the name is a match, generate alternates that can be clicked on to fill the entry field.

The name ryan\_c is unavailable.  
How about:  
[ryan\\_c\\_01](#)  
[iam\\_ryan](#)  
[ryan\\_c\\_isme](#)



User makes selection or inputs new name that is valid & available:

That name works. Thanks!

- b** Is it possible to treat the "submit" button click as a call to validate the form of the user's entered email? If there are any formatting errors, alert the user and prevent the page from loading the confirmation.


The address you entered isn't formatted properly.

## branding & navigation

### register


All we really need is a unique name and email, everything after that is gravy. Lorem ipsum dolor sit amet, nulla at fermentum nonummy turpis mauris rutrum justo, nec. Cras malesuada, nulla at fermentum nonummy.

create a username:

alternate names 

**a**

enter your email:

email error 

**b**

### hot posts

**1**

Instruction text lorem ipsum dolor sit amet, consectetur adipiscing elit.

[archive >](#)

#### Tuesday, July 19, 2005



written by: [authorname](#)

tag: [campaign](#)

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[comment on this post](#) | [more by this author](#) | [permalink](#)



written by: [authorname](#)

tag: [film](#)

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[comment on this post](#) | [more by this author](#) | [permalink](#)

#### Monday, July 18, 2005



written by: [authorname](#)

tag: [campaign](#)

psum dolor sit amet, consectetur adipiscing elit. Cras malesuada, nulla at fermentum nonummy, turpis mauris rutrum justo, nec molestie dolor eros porttitor lorem. Proin pharetra wisi eu tortor. Vivamus cursus tortor id purus. Suspendisse potenti. Ut dui. Vestibulum tincidunt.

[comment on this post](#) | [more by this author](#) | [permalink](#)

[archive >](#)

☒ **Sign me up for the mailing list**

**3** submit >

Footer

# Keyframe Wireframing: Adaptive Path Example

- a** When user completes name entry and clicks to email entry, compare the entered name to previously claimed names on the site. If the name is a match, generate alternates that can be clicked on to fill the entry field.

The name ryan\_c is unavailable.  
How about:  
ryan\_c\_01  
iam\_ryanc  
ryan\_c\_isme



User makes selection or inputs new name that is valid & available:

That name works. Thanks!

- b** Is it possible to treat the "submit" button click as a call to validate the form of the user's entered email? If there are any formatting errors, alert the user and prevent the page from loading the confirmation.

The address you entered isn't formatted properly.

## register

All we really need is a unique name and email, everything after that is gravy. Lorem ipsum dolor sit amet, nulla at fermentum nonummy turpis mauris rutrum justo, nec. Cras malesuada, nulla at fermentum nonummy.

create a username:

alternate names \*

a

enter your email:

email error \*

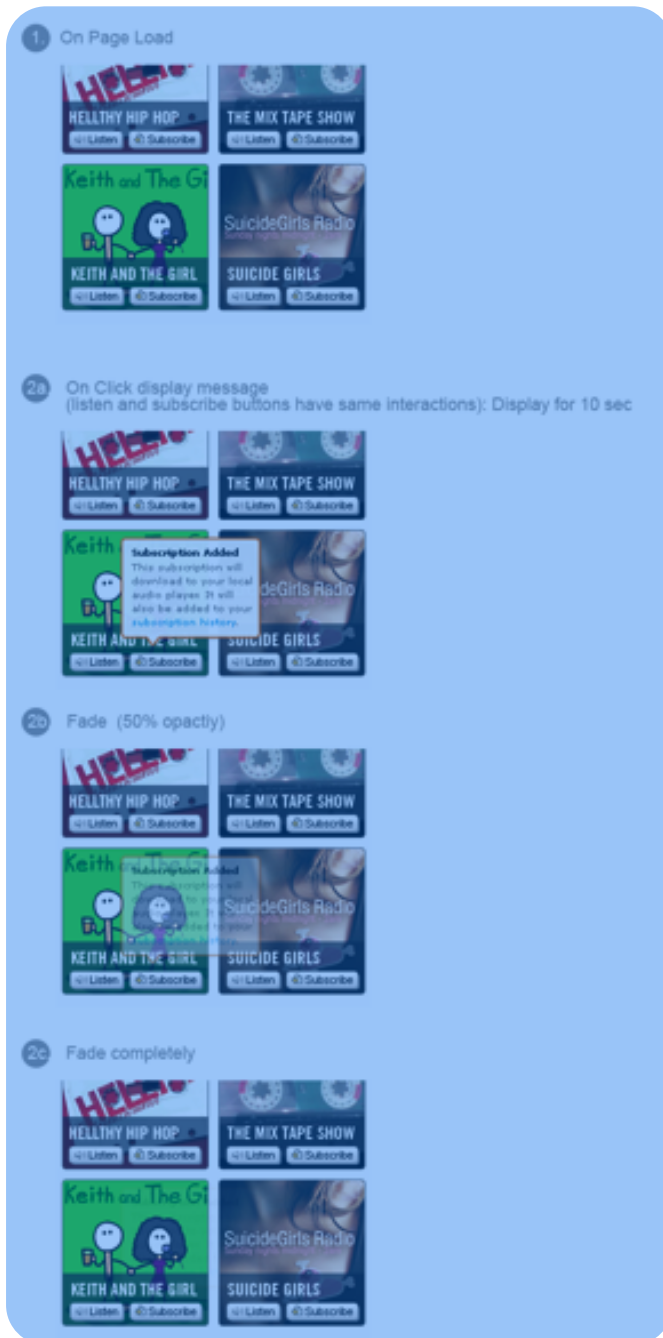
b

- Keyframes define discrete microstates of the user interaction

Source: Adaptive Path, *Designing & Building Ajax Applications*, 2006

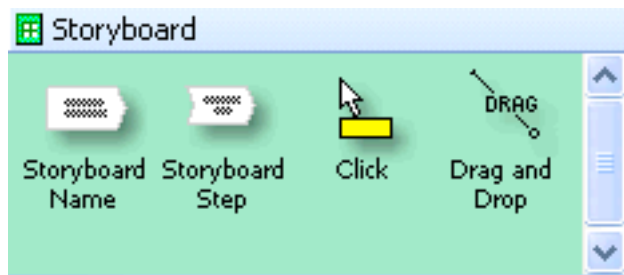
# Keyframe Wireframing: Yahoo! Podcast Example

## AJAX Status Interaction



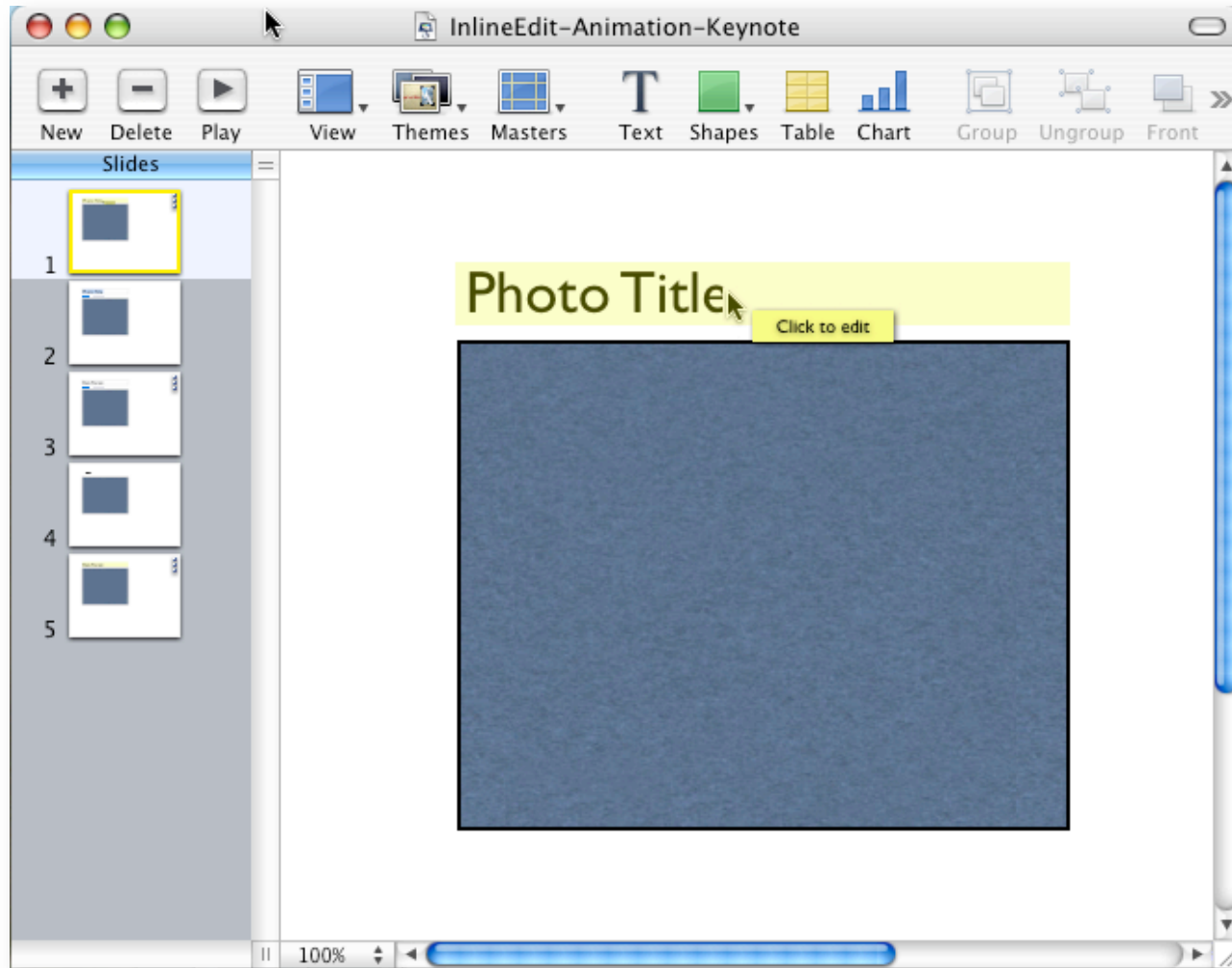
# Keyframe Animation in Visio

- Animated Wireframe Toolkit
  - Changes in state placed in different layers
  - Storyboard steps toggle visibility of associated layers
  - Each storyline serves as a use case in the wireframe



Source: [http://www.boxesandarrows.com/view/storyboarding\\_rich\\_internet\\_applications\\_with\\_visio](http://www.boxesandarrows.com/view/storyboarding_rich_internet_applications_with_visio)

# Keyframe Animation with Keynote/Powerpoint



Slides make major steps

Builds used to bring in transitions, animations

Photo Title





# Keyframes with Fireworks + PDF

- Use frames
- Export to PDF
- Annotate in PDF
- Each frame is an “interesting moment”
- Sense of time & motion
- Can be converted to “interactive” using linking within PDF
- Can embed movies into PDF for cinematic effects

# Keyframes

- Advantages
  - Consistent with current wireframe documentation
  - Show microstates in context
  - Easily generated & refined
- Disadvantages
  - Not good for branching logic
  - Not good for dense interaction
  - Makes wireframe noiser
  - Hard to show actual timing of interaction



# Storyboarding

- Storyboards are graphic organizers such as a series of illustrations or images displayed in sequence for the purpose of previsualizing a motion graphic or interactive media sequence.



Storyboard for a James Bond Movie. Source <http://en.wikipedia.org/wiki/Storyboard>

# Storyboard Grid: Drag and Drop Microstates

- Drag & Drop Interesting moments
  - Page load
  - Mouse hover over drag-able object
  - Mouse down on drag-able object
  - Drag initiated (mouse down, mouse moves  $\geq 3$  pixels)
  - Drag over valid target area
  - Drag over invalid target area
  - Drag over original location
  - Drop accepted
  - Drop rejected
  - Drop on original location

# Storyboard Grid: Drag and Drop Microstates







- Actors
  - Page
  - Cursor
  - Tool Tip
  - Drag object
  - Drag ghost
  - Original location
  - Drop target

# Storyboard Grid: Drag & Drop

	Page Generation	Mouse Hover	Drag Initiated	Drag over Valid	Drag over Invalid	Drag over Original	Drop Accepted	Drop Rejected	Drop on Original
<b>Page Content</b>	Hint	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Cursor</b>	Normal	Move Cursor	Move Cursor	Move Cursor	Move Cursor	Move Cursor	Normal	Normal	Normal
<b>Drag Object</b>	Normal	Normal	Reduced Opacity & Tracking	Reduced Opacity & Tracking	Reduced Opacity & Tracking + Invalid Badge	Reduced Opacity & Tracking	2. Modules animates into the area just below insertion bar 3. Module comes to rest in new area 4. Modules slide up in a self-healing transition to close hole	Normal Opacity + Zoom Back to Original	Normal Opacity + Zoom Back to Original
<b>Orig Location</b>	Normal	Normal	Hole Opens	Hole Remains	Hole Remains	Hole Remains	Hole Remains	Hole refilled with drag object	Hole refilled with drag object
<b>Drop Target</b>	Normal	Normal	Normal	Insertion Bar	N/A	N/A	1. Insertion Bar Removed	N/A	N/A

# Storyboard Grid: Drag & Drop

## Drag and Drop Modules - Interesting Moments Grid

Currently on beta.my.yahoo.com		ID: Bill Scott & Eric Miraglia			
Mouse Hover	Mouse Down	Drag Initiated	Drag Over Valid Target	Drag Over Invalid Target	Drag Over Parent
 CSS Move cursor	 CSS Move cursor	 CSS Move cursor	 CSS Move cursor	 CSS Move cursor	 CSS Move cursor
<div><div>▼ Message Center edit x</div><div>Check Email</div><div>Launch Messenger 15 friends on</div></div> <p>Full Opacity</p>	<div><div>▼ Message Center edit x</div><div>Check Email</div><div>Launch Messenger 15 friends on</div></div> <p>Reduced Opacity</p>	<div><div>▼ Message Center edit x</div><div>Check Email</div><div>Launch Messenger 15 friends on</div></div> <p>Reduced Opacity</p>	<div><div>▼ Message Center edit x</div><div>Check Email</div><div>Launch Messenger 15 friends on</div></div> <p>Reduced Opacity &amp; Invalid Badge</p>	<div><div>▼ Message Center edit x</div><div>Check Email</div><div>Launch Messenger 15 friends on</div></div> <p>Reduced Opacity</p>	
<div><div>▼ Message Center edit x</div><div>Check Email</div><div>Launch Messenger 15 friends on</div></div> <div><div>▼ Weather edit x</div><div>search by Zip Code or City</div><div>Search</div><div>Add Content</div></div> <p>No insertion bar, just a gap</p>	<div><div>▼ Message Center edit x</div><div>Check Email</div><div>Launch Messenger 15 friends on</div></div> <div><div>▼ Weather edit x</div><div>search by Zip Code or City</div><div>Search</div><div>Add Content</div></div> <p>No insertion bar, just a gap</p>	<div><div>▼ Weather edit x</div><div>search by Zip Code or City</div><div>Search</div><div>Add Content</div></div> <div><div>▼ Message Center edit x</div><div>Check Email</div><div>Launch Messenger 15 friends on</div></div> <p>Insertion bar showing where it will drop</p>	<div><div>▼ Weather edit x</div><div>search by Zip Code or City</div><div>Search</div><div>Add Content</div></div> <div><div>▼ Message Center edit x</div><div>Check Email</div><div>Launch Messenger 15 friends on</div></div> <p>No insertion bar, just a gap</p>	<div><div>▼ Message Center edit x</div><div>Check Email</div><div>Launch Messenger 15 friends on</div></div> <div><div>▼ Weather edit x</div><div>search by Zip Code or City</div><div>Search</div><div>Add Content</div></div> <p>No insertion bar, just a gap</p>	

# Storyboard Grids: My Yahoo! Example

Category: **Web** | [Images](#) | [Video](#) | [Local](#) | [News](#) | [Shopping](#)

Search:

[Yahoo! Search](#)

- Advanced
- My Web

See the most popular vehicles

[+ Add Content](#)
[↕ Change Layout](#)
[✎ Change Colors](#)

Select Page: [My](#)

▼ **Weather** edit ✕

Dallas, TX 80...100 F

Denton, TX 78...101 F

Sunnyvale, CA 57...79 F

Boulder Creek, CA 53...80 F

Gilroy, CA 56...86 F

San Jose, CA 59...82 F

search by Zip Code or City

[Your Credit Score - \\$0](#)

▼ **Best Fare Tracker** edit ✕

Depart: Wichita, KS

San Francisco, CA \$256.00

San Jose, CA \$254.00

Depart: Kansas City, MO

▼ **Scoreboard** edit ✕

TODAY

▼ [MLB](#)

Texas vs. Minnesota

10 2

E

YESTERDAY

▼ [MLB](#)

Texas vs. Minnesota

9 0

E

[Y! Fantasy Football '06. Where Fantasy Rules. Sign up now!](#)

▼ **Message Center** edit ✕

[Check Email](#)

[Launch Messenger](#) 41 friends on

▼ **Maps** edit ✕

Select From My Locations or Recently Used [clear recent](#)

---- My Locations ----

▼

Or Map a New Address:

▼ **eHub**

[MODx](#) - 1 day ago

[Ojor](#) - 1 day ago

[Moodle](#) - 2 days ago

[Krugle](#) - 2 days ago

[Kartoo](#) - 2 days ago

▼ **BayCHI Monthly Program Events**

[2006/08/08: Monthly Program Meeting](#) - one week ago

▼ **Personal Technology News**

[Norway not swayed by Apple concessions](#) - one hour ago

[Review: Episodic video games can be fun](#) - 3 hours ago

[Google strikes advertising deal with XM Satellite](#) - 5 hours ago

[Google to Serve Ads to XM Radio](#) - 6 hours ago

▼ **Travelocity - SFO-DFW**

[\\$193+ Flights From San Francisco to Dallas/Fort Worth](#) - Save ago

▼ **Travelocity - SJC - DFW, HNL, LAX, SAN**

# Storyboard Grids

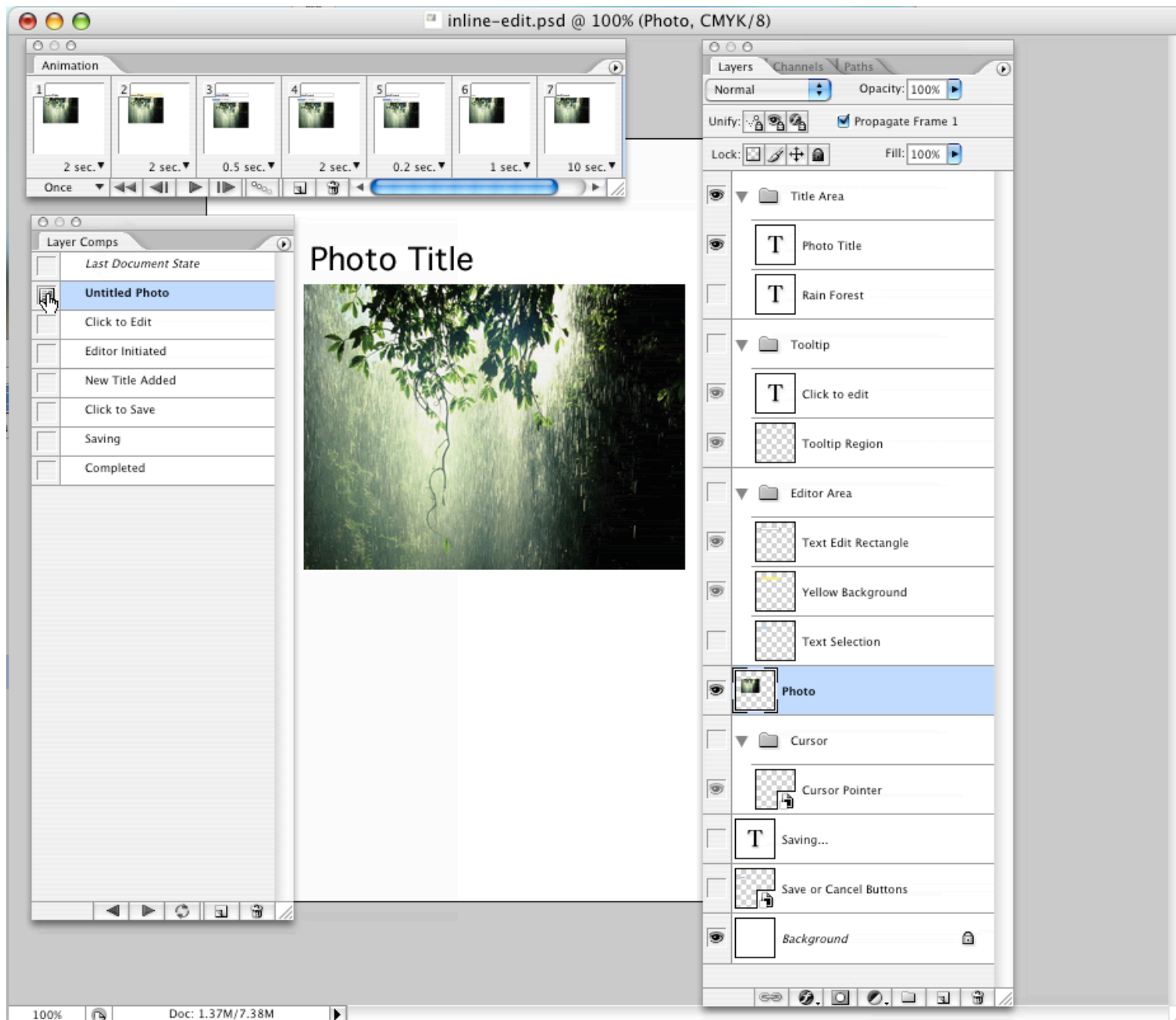
- Advantages
  - Denotes detailed interaction in context of time & objects
  - Sequence denoted by linear time layout
  - Easy to treat as a sketching grid
- Disadvantages
  - Outside of context of page
  - Can contain microstates that require keyframes (complex)
  - Good for microstates, but not overall interaction

# LO-FI Animation

- **Animated GIF**
  - Easy to create from a series of images
  - Images can be created by hand or
  - Images can be captured from other applications

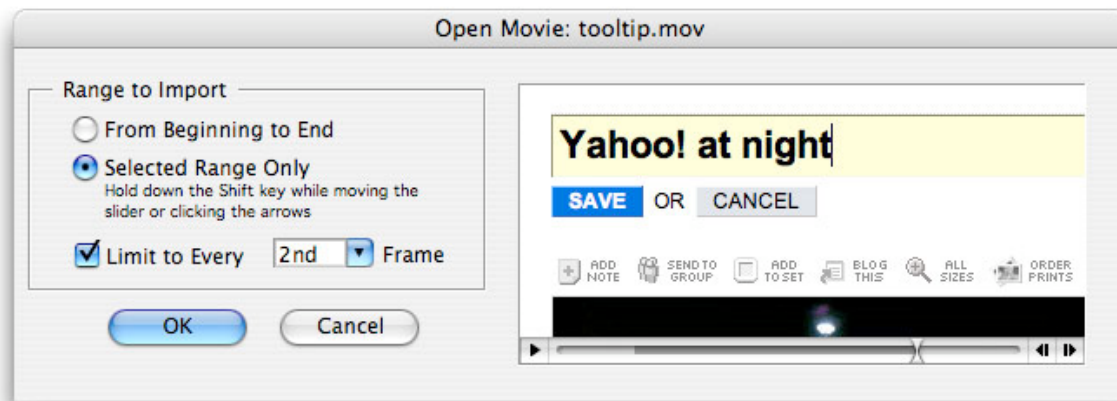


# LO-FI Animation with Photoshop



# LO-FI Animation from Screencasts

- Start with screencast of existing interaction
  - Mac: SnapZPro; Windows: SnagIt
- Use tool like Adobe ImageReady to turn into animated GIF
  - Place QT Movie in folder by itself
  - File:Import:Folder As Frames



- File:Save Optimized As...

# LO-FI Animations

- Advantages
  - Easy to illustrate rate of animation
  - Quick to communicate how the interaction will look
  - Easy to integrate into wikis, web sites, etc.
  - Can complement wireframes
- Disadvantages
  - Needs supporting documentation
  - Lacks technical details
  - Not real implementation

# Other Tools, Approaches

- Flash
- Flex
- DHTML
- iRise ([www.irise.com](http://www.irise.com))
- Axure ([www.axure.com](http://www.axure.com))
- Interactive PDFs
  - [http://www.gotomedia.com/gotoreport/may2005/news\\_0505\\_usable1.html](http://www.gotomedia.com/gotoreport/may2005/news_0505_usable1.html)
- Word

# Resources

## Articles

Web 3.0 article: [www.alistapart.com/articles/web3point0/](http://www.alistapart.com/articles/web3point0/)

[looksgoodworkswell.blogspot.com/2005/11/visio-wireframe-toolkit-for-download.html](http://looksgoodworkswell.blogspot.com/2005/11/visio-wireframe-toolkit-for-download.html)

[looksgoodworkswell.blogspot.com/2005/11/animating-interactions-with-photoshop.html](http://looksgoodworkswell.blogspot.com/2005/11/animating-interactions-with-photoshop.html)

Prototyping with PowerPoint: [blogs.msdn.com/jensenh/archive/2006/02/20/535444.aspx](http://blogs.msdn.com/jensenh/archive/2006/02/20/535444.aspx)

Visio - the interaction designer's nail gun: [http://www.guuui.com/issues/01\\_06.php](http://www.guuui.com/issues/01_06.php)

PDF Prototyping: [http://www.gotomedia.com/gotoreport/may2005/news\\_0505\\_usable1.html](http://www.gotomedia.com/gotoreport/may2005/news_0505_usable1.html)

## Products

[www.axure.com/demo.aspx](http://www.axure.com/demo.aspx)

iRise Application Simulator: [irise.com](http://irise.com)

## Visio Stencils

[www.bboxesandarrows.com/view/storyboarding\\_rich\\_internet\\_applications\\_with\\_visio](http://www.bboxesandarrows.com/view/storyboarding_rich_internet_applications_with_visio)

Visio Stencil Library: [swipr.com](http://swipr.com)

Wireframe Stencils: <http://iainstitute.org/tools/>

Garrett Dimon's Stencils: <http://www.garrettdimon.com/resources/templates-stencils-for-visio-omnigraffle>