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Chapter 3

Web Interface Design

3.4 Overlays and Inlays

Introduction

Designing Web Interfaces

- Principle One: Make It Direct
- Principle Two: Keep It Lightweight
- Principle Three: Stay on the Page
- Principle Four: Provide an Invitation
- Principle Five: Use Transitions
- Principle Six: React Immediately

Overlay

- Overlays are lightweight pop up.
 - Example
 - https://www.w3schools.com/howto/howto_css_overlay.asp
- Difference between Browser Pop up and Overlays
 - Browser pop ups display a new browser window. As a result these windows often take time and a sizeable chunk of system resources to create.
 - Browser pop ups often display browser interface controls (e.g., a URL bar).



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Advantage of Overlay

- Lightweight Overlays
 - Lightweight overlays are just a lightweight in-page object. They are inexpensive to create and fast to display. (Dynamic HTML, AJAX)
 - The interface for lightweight overlays is controlled by the web application and not the browser.
 - There is complete control over the visual style for the overlay. This allows the overlay to be more visually integrated into the application's interface.

USe of Overlay

Lightweight overlays can be used for:

- asking questions,
- obtaining input,
- introducing features,
- indicating progress,
- giving instructions,
- or revealing information.

Types of Overlay

Overlays are either purposefully interruptive like modals or augmenting like popovers and tooltips.

Types of overlays can be used for:

- Dialog
- Detail
- Input




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Dialog Overlay

Dialog Overlays replace the old style browser pop ups.



The screenshot shows a Netflix website interface with a modal dialog overlay titled "Confirm Purchase of Previously Viewed DVD". The dialog is white with a blue header and contains a table of costs, a "Cancel" button, and a "Complete Purchase" button. The background website is dimmed.

You Will Receive:		Amount	Previous Balance
Original DVD		Member Price	\$7.99
with		Estimated Tax	\$0.00
Free Home		Shipping & Handling	\$0.00
Video		Total	\$8.00

We will deliver your DVD within 2-3 business days and your order will be shipped with your usual shipping address. 100% guaranteed quality and quantity. If there are any issues with your order, please contact us within 30 days of delivery.

Overlay treatment

The confirmation dialog is shown in a lightweight overlay. Since the overlay is modal (interaction is only accepted in the overlay) the rest of the page is dimmed down. The user may also cancel the purchase.



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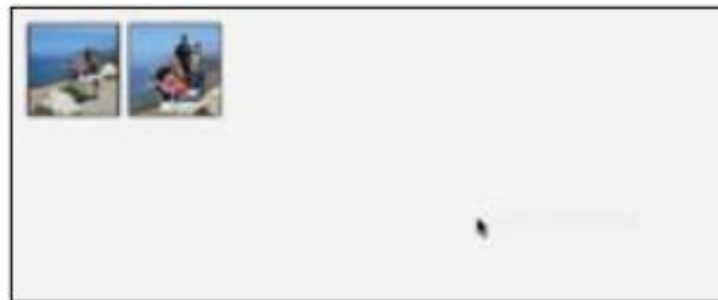


Effects to Be Considered with Dialog Overlay

Lightbox Effect

The Lightbox Effect is useful when the Dialog Overlay contains important information that the user should not ignore.

If the overlay contains optional information, then the Lightbox Effect is overkill and should not be used.



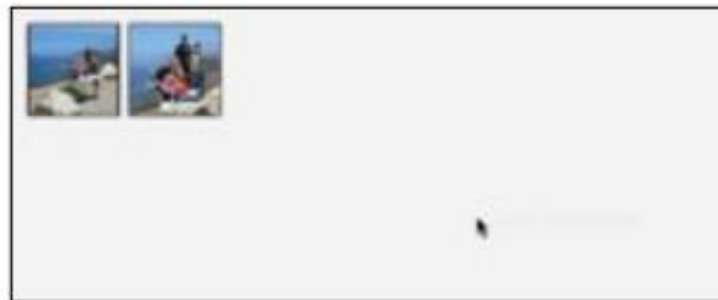
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Modality

- Overlays can be modal* or non-modal.
- A modal overlay requires the user to interact with it before she can return to the application.
- In Following example, the overlays are modal: users cannot interact with the main page until they perform the action or cancel the overlay.



Modality

Sometimes overlays are non-modal. An example of this can be found in the Netflix site.

The Lightbox Effect emphasizes that we are in a separate mode.

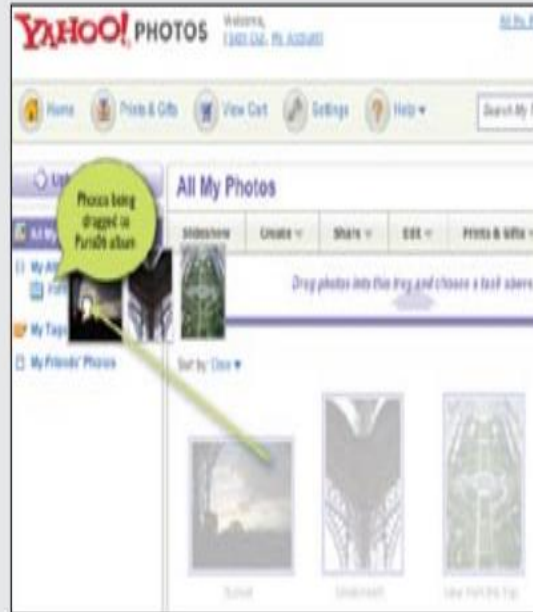


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Idiot Boxes



Drag and drop

Photos are added to an album by drag and drop.



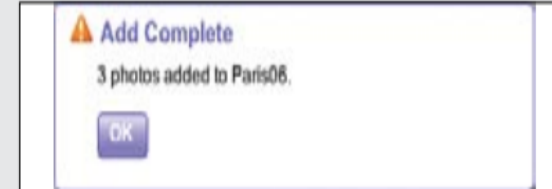
Album on drag over

The album provides no visual feedback that it is a valid drop target.



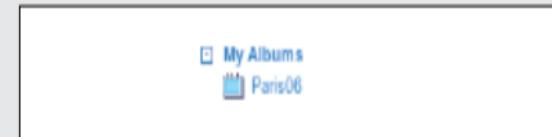
Add Photos overlay

A confirmation overlay is posted that asks the users if they really want to drop the photos onto the album.



Add Complete overlay

Stating the obvious, the overlay repeats what just happened. Yes, the photos were added.



Album after drop

Notice that there is no difference between the album before or after the drop.

Best Practices for Dialog Overlay


- Always use Dialog Overlays instead of browser pop ups.
- Use the Lightbox Effect when the overlay contains important information, if the user should not ignore it, or if the interaction with the dialog should be modal.
- Avoid unnecessary Dialog Overlays (Idiot Boxes), as they interrupt the user's flow.
- Don't use an overlay when a simpler, in-page interaction would suffice
- Avoid JavaScript alert boxes, as they don't provide a consistent user experience between operating systems.

Detail Overlay

The second type of overlay is somewhat new to web applications.

- The Detail Overlay allows an overlay to present additional information when the user clicks or hovers over a link or section of content.
- Toolkits now make it easier to create overlays across different browsers and to request additional information from the server without refreshing the page.

Detail Overlay



The screenshot shows a movie detail overlay for "30 Rock: Season 1 (2006)". The overlay is positioned over a grid of movie thumbnails. The main thumbnail shows the cast of "30 Rock" with the title "30 ROCK" and "Season 1". Below the title are "Add" and "Play" buttons and a star rating. The overlay text includes a synopsis: "Tina Fey stars as Lizz Lemon, the head writer on a New York comedy show. In the workplace sitcom co-starring Jane Krakowski, Tracy Morgan and the comic-relief Alec Baldwin, when break-out star Jack Donaghy (Baldwin) shows up on the scene to pitch at the show, he outmaneuvers the cast and crew with his multi-talented ways - among them being a whacked-out movie star (Morgan). This season featured 10 Emmy nods, with a win for Best Comedy." It also lists "Starring: Tina Fey, Alec Baldwin", "Director: Adam Bernstein", "Genre: Television", and "Rating: TV-14". At the bottom of the overlay, it shows a star rating of 4.5, a note "Our best guess for you", and "Recommended based on 3 ratings".

Detail overlay activation

However, often more information is needed to decide whether a movie should be played or added to a movie queue.

By providing a synopsis along with personalized recommendation information, the user can quickly make a determination.

The movie detail information is displayed after a slight delay.

Activation

- Anti-pattern: Mouse Traps
- Anti-pattern: Non-Symmetrical Activation/Deactivation
- Anti-pattern: Needless Fanfare
- Anti-pattern: Hover and Cover



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Activation Mouse Trap

To see a product preview in action, hover over the link below.

[Ray!: Original Motion Picture Soundtrack](#)

amazon.com

Close

Forty Associates recently added Associate sites who viewed a product purchase nearly 6% of the time.

Now we're opening the beta through a product preview-en testing product previews.

Don't worry if you don't already process. [Click here](#) for answers to questions you might have about the beta program.



Ray!: Original Motion Picture Soundtrack
by Ray Charles
New: ~~\$12.97~~ 100 new & used from \$8.97
Usually ships within 24 hours
Average Customer Review: ★★★★★

Buy Now

Exclusively Amazon

...e beta, visitors to
...cks resulted in a
...s who refer a sale
...w Associates in beta
...art of the sign-up



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Non-Symmetrical Activation/Deactivation



- When the user moves her mouse over the link, the overlay springs up immediately.
- The only way she can remove the overlay is by clicking the small close button in the upper right.
- Using Non-Symmetrical Activation/Deactivation is also a general anti-pattern that should be avoided.
- It should take the same amount of effort to dismiss an overlay as it took to open it.



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Needless Fanfare



- There's a needless animation that zooms the box up into place and then back down when the mouse moves away from a book.
- Needless Fanfare is an anti-pattern to avoid.



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Hover and Cover

> Back-to-School Deals

Merriam-Webster's Collegiate Dictionary
by Merriam-Webster Editorial Staff
(Hardcover)

\$26.95 List Price
\$18.86 Online Price (save 30%)
\$16.97 Member Price

[Add to Cart](#)

[Add to Wish List](#)

Save on atlases, dictionaries, SAT prep and college guides, [dorm room décor](#), educational toys, and more.

[> See all Back-to-School offers](#)

> TV Box Sets: 40% Off

Mad Men - Season 1
Jon Hamm (DVD)

\$49.99 List Price
\$29.99 Online Price (save 40%)
\$26.99 Member Price

[Add to Cart](#)

[Add to Wish List](#)

Schedule a [TV-on-DVD](#) marathon! Catch up with your favorites before the new season starts. Load up on hundreds of specially marked box sets online and select titles in stores.

[> Buy TV Box Sets at 40% Off](#)
[> Browse the DVD store](#)

Product display

On the Barnes & Noble home page, books are displayed with lots of detailed information.

> Back-to-School Deals

Merriam-Webster's Collegiate Dictionary
by Merriam-Webster Editorial Staff
(Hardcover)

\$26.95 List Price
\$18.86 Online Price (save 30%)
\$16.97 Member Price

[Add to Cart](#)

[Add to Wish List](#)

Save on atlases, dictionaries, SAT prep and college guides, [dorm room décor](#), educational toys, and more.

[> See all Back-to-School offers](#)

> TV Box Sets: 40% Off

Merriam-Webster's Collegiate Dictionary
Merriam-Webster Editorial Staff
Format: Hardcover
Online Price: **\$18.86**
Members Pay: **\$16.97**

Customer Rating: ★★★★★
Usually ships within 24 hours

[Add to Cart](#)

Schedule a [TV-on-DVD](#) marathon! Catch up with your favorites before the new season starts. Load up on hundreds of specially marked box sets online and select titles in stores.

Detail Overlay

The **Detail Overlay** is an exact copy of the information displayed on the page. Also notice that the overlay covers most of the other item (*Mad Men*).



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Best Practices for Detail Overlay

- Use Detail Overlays to give a sneak peek at detailed information. This will avoid unnecessary page transitions.
- For hover-activated Detail Overlays, provide a slight delay for activation (about half a second). This will avoid the interface behaving like a Mouse Trap.
- For hover-activated Detail Overlays, provide a simple deactivation (e.g., simple mouse out).

Best Practices for Detail Overlay

- For Detail Overlays, make activation and deactivation symmetrical (don't make it harder to get out of the overlay than it was to activate it).
- Once activated, avoid lengthy animations or effects that delay showing a Detail Overlay. Use hover when clicking the object is reserved for a different action.
- In Yahoo! News, clicking on the link takes you to the news story page. Hovering gives you a sneak peek.
- Use hover when it is not obvious how to get more information.

Input Overlay

- Input Overlay is a lightweight overlay that brings additional input information for each field tabbed into.
 - Use Input Overlays to simplify the visual style of a form.
 - Place additional help in the overlay.
 - For Input Overlays, make sure the only visual change between the field and the overlay • field is intentional (e.g., making input field visually bolder).
 - For Input Overlays, allow clicking anywhere to deactivate the overlay.

Input Overlay



AMERICAN EXPRESS® REWARDS PLUS GOLD CARD

Already a Card Member? If yes, the application will be shorter. ☐ Yes ☒ No

First Name* Last Name*

You must enter your first name. Name on Card*

Home Street Address* Home Apt/Suite#

Home Zip Code* Home Phone Number

Do you ☒ Own? ☐ Rent? E-mail Address*

Date of Birth* Social Security Number*

Input overlay

Tabbing or clicking into any field wraps the field in an overlay. The overlay provides additional input information.



AMERICAN EXPRESS® REWARDS PLUS GOLD CARD

Already a Card Member? If yes, the application will be shorter. ☐ Yes ☒ No

First Name* Last Name*

Middle Initial Name on Card*

Home Street Address* Verify your name as it appears on your Card. If your name is longer than 20 characters, we have shortened it for you to fit on the Card. Changes can be made on the back above.

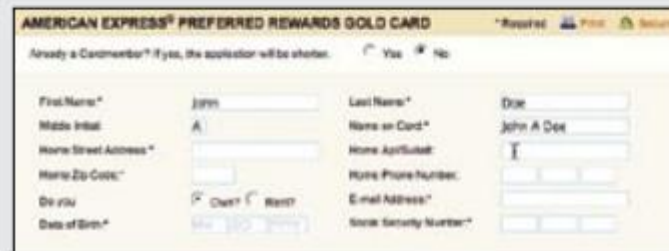
Home Zip Code* E-mail Address*

Do you ☒ Own? ☐ Rent? Social Security Number*

Date of Birth*

Obscuring fields

The overlay does obscure fields just below it, but not to the left or right.



AMERICAN EXPRESS® PREFERRED REWARDS GOLD CARD

Already a Cardmember? If yes, the application will be shorter. ☐ Yes ☒ No

First Name* Last Name*

Middle Initial Name on Card*

Home Street Address* Home Apt/Suite#

Home Zip Code* Home Phone Number

Do you ☒ Own? ☐ Rent? E-mail Address*

Date of Birth* Social Security Number*

Deactivation

Clicking anywhere removes the overlay. This lets the user click through the field covered by the overlay.



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Best Practices for Input Overlay

- Use Input Overlays to simplify the visual style of a form. Place additional help in the overlay.
- For Input Overlays, make sure the only visual change between the field and the overlay field is intentional (e.g., making input field visually bolder).
- For Input Overlays, allow clicking anywhere to deactivate the overlay

Dialog Inlay

A simple technique is to expand a part of the page, revealing a dialog area within the page.



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Dialog Inlays

- Use Dialog Inlays for page customization. It is helpful to tweak the page and see the results at the same time.
- To smooth the introduction of the Dialog Inlay into the page, use a quick slide in animation.
- Use Dialog Inlays to connect the dialog with the element it slides out from.
- Use Dialog Inlays for secondary tools that aren't primary to the main flow of the page.

List inlays

- Lists are a great place to use Inlays.
- Instead of requiring the user to navigate to a new page for an item's detail or popping up the information in an Overlay.
- The List Inlay works as an effective way to hide detail until needed.

List Inlays

Show: 17 new items - 10 items More all at once Refresh		
	TechCrunch Evite Gets A Much-Needed Facelift - Evite is getting long in the tooth. Every	Jan 18, 2006 
	ReadWriteWeb Better Live Blogging: ConvertLive Adds Support for Q&A, Widgets and	Jan 18, 2006 
	Emily Chang - shHub LiquidID - This is an OpenID provider that distributes shared information	Jan 18, 2006 
	TechCrunch Does Google Know How To Count? Some YouTube Views Don't Seem To	Jan 18, 2006 
	Officially Radar Breaking Down What's Happening on the Social Web - The post here	Jan 18, 2006 
	Silicon Alley Insider Is Google's Android Coming Apart At The Seams? - We can't help but	Jan 18, 2006 

Show: 17 new items - 10 items More all at once Refresh		
	TechCrunch Evite Gets A Much-Needed Facelift - Evite is getting long in the tooth. Every	Jan 18, 2006 
	ReadWriteWeb Better Live Blogging: ConvertLive Adds Support for Q&A, Widgets and	Jan 18, 2006 
	Emily Chang - shHub LiquidID - This is an OpenID provider that distributes shared information	Jan 18, 2006 

**LiquidID**
from Emily Chang - shHub by Open Labs

This is an OpenID provider that distributes shared information (such as email) to OpenID-enabled sites instead of your actual information. You still receive all email (but not spam) as LiquidID provides an automated redaction service. URL: [LiquidID](#)

→ Add to del.icio.us → Email this → Add to TechRadar Favorites



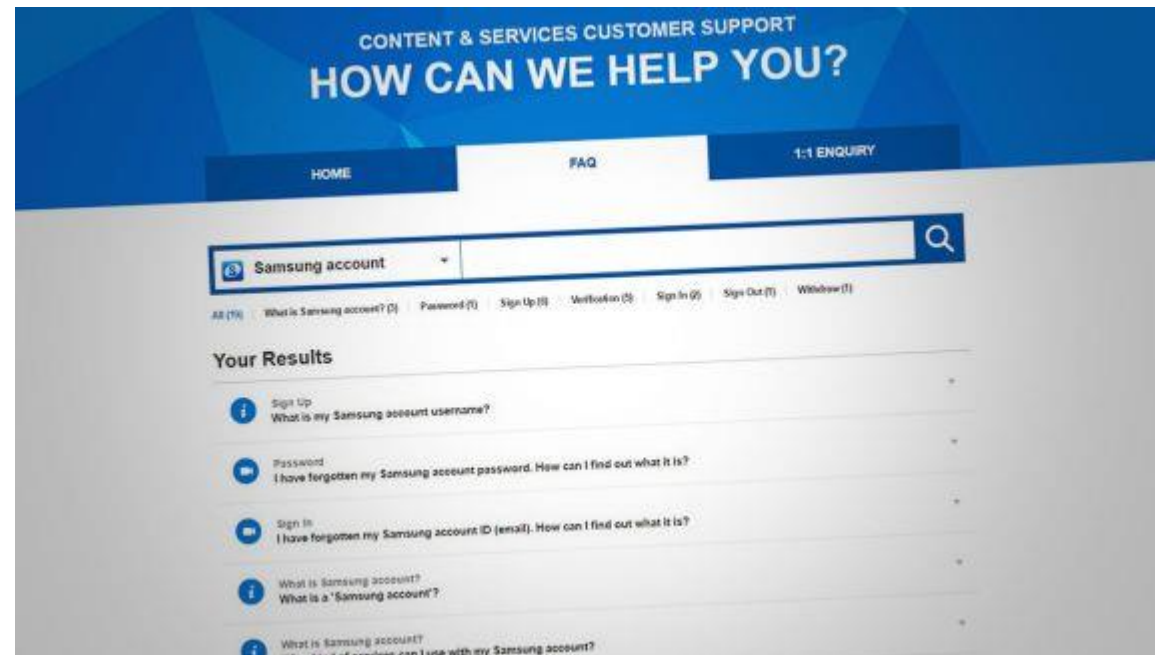
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Accordion

- Accordion: One-at-a-time expand
- The Accordion is an interface element that employs the List Inlay pattern to show only one open panel in a list at a time



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Accordion



One panel at a time

The weather demo uses an accordion to display a single panel of weather-related information at a time.



Opening and closing

Opening a new panel ("Current Conditions") closes the previous panel ("Moon").

The sliding transition makes it clear which panel is being switched to.



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Accordions

Accordions work best when:

- Each pane of content is independent
- Only one pane is visible at a time
- Each pane can be logically titled



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Detail Inlay

A common idiom is to provide additional detail about items shown on a page.



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Best Practices for Detail Inlay

- Use Detail Inlay to provide additional information in context without hiding other information.
- Use Detail Inlay to avoid the anti-pattern Hover and Cover.
- Make it easy to dismiss the Detail Inlay

Tabs

- Tabs can be used as detail Inlay.
- Instead of moving the user from page to page (site navigation), tabs can be used to bring in content within the page, keeping the user in the page.



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Inlay V/s Overlay

- Use an overlay when there may be more than one place a dialog can be activated from (the exception may be showing details for items in a list).
- Use an overlay to interrupt the process.
- Use an overlay if there is a multi-step process.
- Use an inlay when you are trying to avoid covering information on the page needed in the dialog.
- Use an inlay for contextual information or details about one of many items (as in a list): a typical example is expanding list items to show detail.

Virtual Page

- Overlays allow bringing additional interactions or content in a layer above the current page.
- Inlays allow doing this within the page itself.
- However, another powerful approach to keeping users engaged on the current page is to create a virtual page.

Virtual Page

Patterns that support virtual pages include:

- Virtual Scrolling
- Inline Paging
- Scrolled Paging
- Panning
- Zoomable User Interface

Virtual Scrolling

The traditional Web is defined by the “page.”

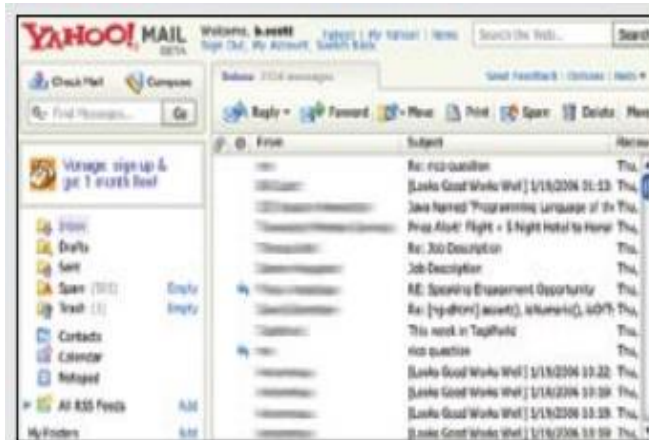
In practically every implementation of websites pagination was the key way to get to additional content.

Of course, websites could preload data and allow the user to scroll through it. However, this process led to long delays in loading the page.

So most sites kept it simple: go fetch 10 items and display them as a page and let the user request the next page of content. Each fetch resulted in a page refresh.

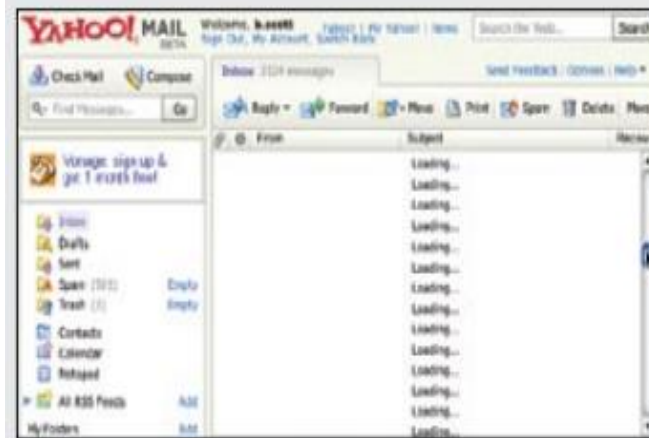


Virtual Scrolling



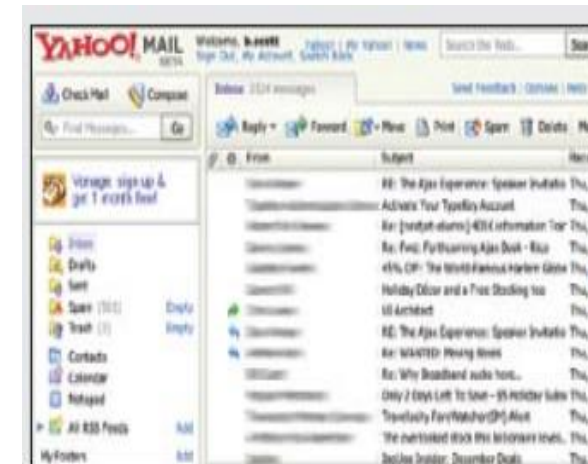
Scrolled list

Email messages are displayed as a scrolled list. This has been the normal approach on desktop mail clients. Yahoo! Mail brings that approach to the Web.



Scrolling

Messages are loaded on demand. As the user scrolls, the content items are filled in. While loading, the message lines are replaced with the text "Loading..."

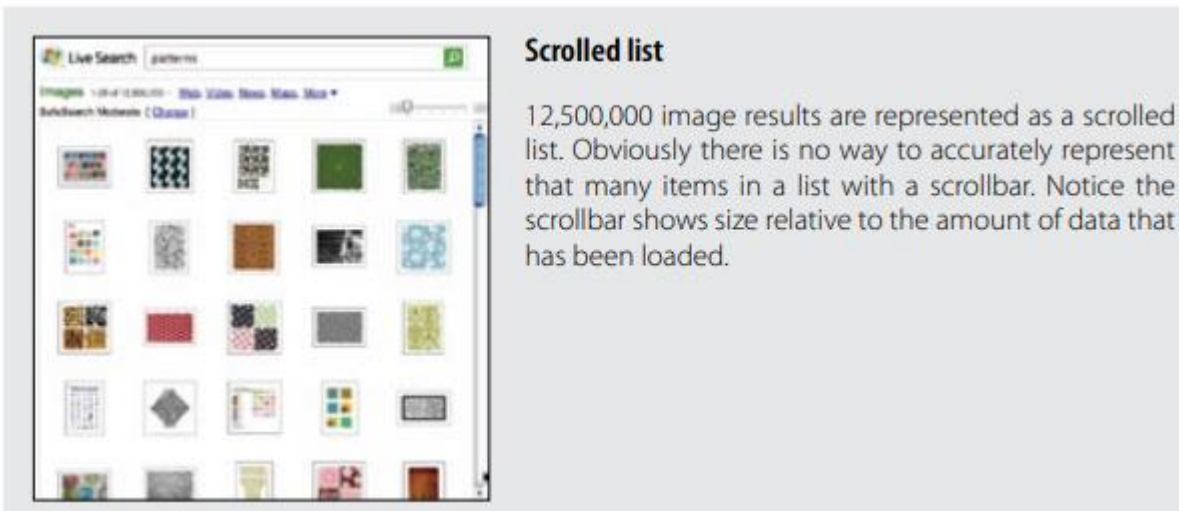


Scroll completes

Messages are displayed based on where the user scrolled to.

Virtual Scrolling

- Microsoft has applied Virtual Scrolling to its image search.



The scrollbar reflects what has been loaded. Scrolling to the bottom causes more content to load into the page.

Virtual Scrolling Best Practices

- Keep the users informed about where they are. Either use a tool tip or status area to communicate the range of data they are scrolling into.
- Give feedback while waiting on data to load.
- Create the illusion of an entire loaded virtual space for when the data feels like a data set (e.g., Yahoo! Mail's mail messages).
- Extend the virtual space during scroll for search results (e.g., Microsoft Live Search).
- Keep a limited virtual space when the user is moving through search results in order to provide a nice back-and-forth experience (e.g., PicLens).

Inline Paging



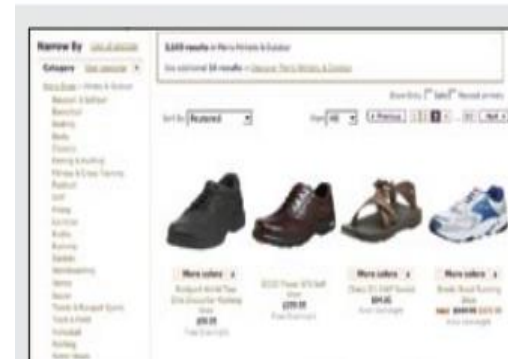
Paginated results

Searching for "Men's athletic shoes" displays a traditional-looking set of search results. The pagination controls are familiar (shown as an exploded callout).



Inline Paging

Clicking to "page 3" causes just the search results area to update with the third page of results.



Page remains stable

The rest of the page stays stable when the new "page" of results is brought into view.

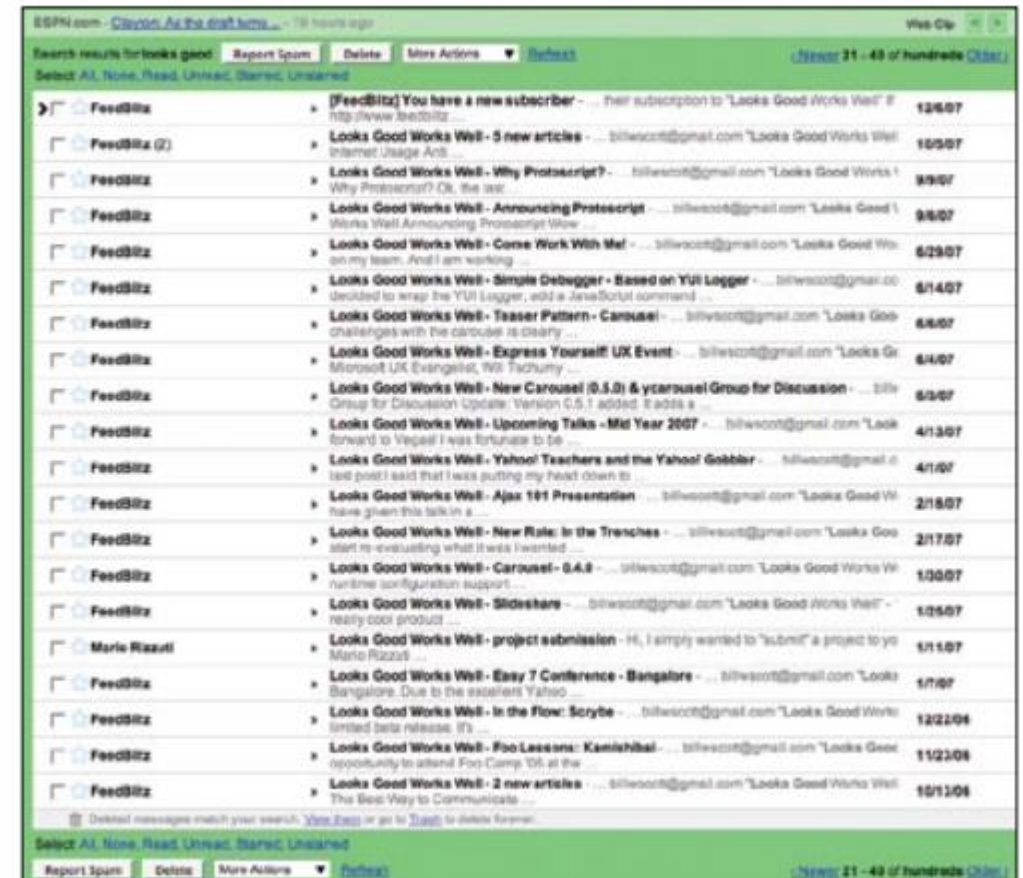
Inline Paging – Natural Chunking



Paging tool

The online version of the paper mimics the paper version.

But unlike the paper version, a "next page" button moves through the story.

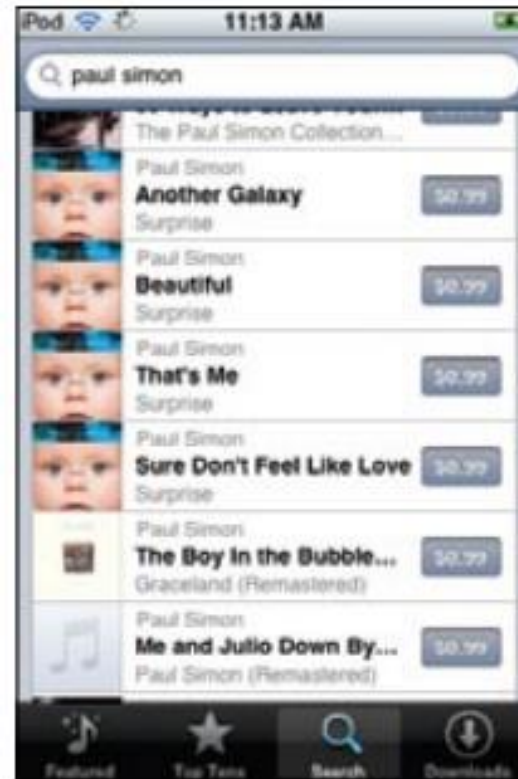
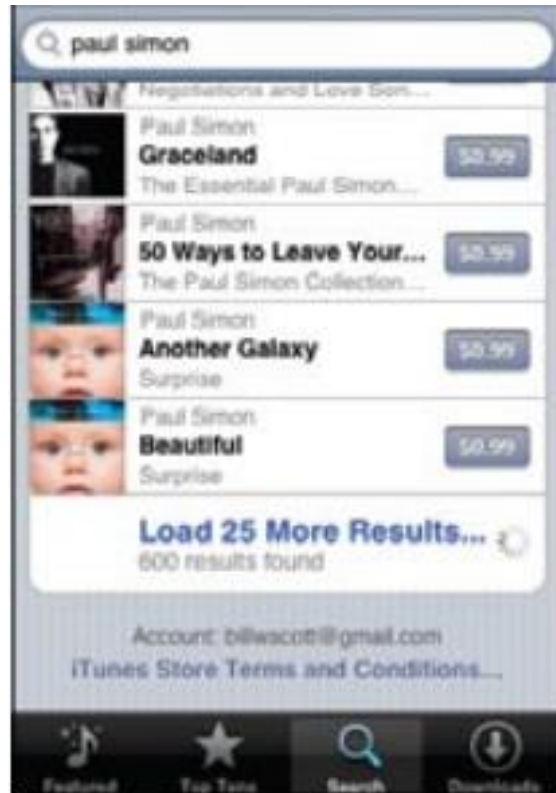


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Inline Paging – Interactive Content Loading



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Inline Paging – Best Practices

- Use Inline Paging for material that is naturally “chunked” but for which you still want to create a smooth viewing experience when moving between pages.
- Respect the back button. Make it work for paging (e.g., Gmail).
- Only update the “virtual page” and not the entire page when inline paging.
- Consider progressive loading as a way to page-in more content in a virtual space



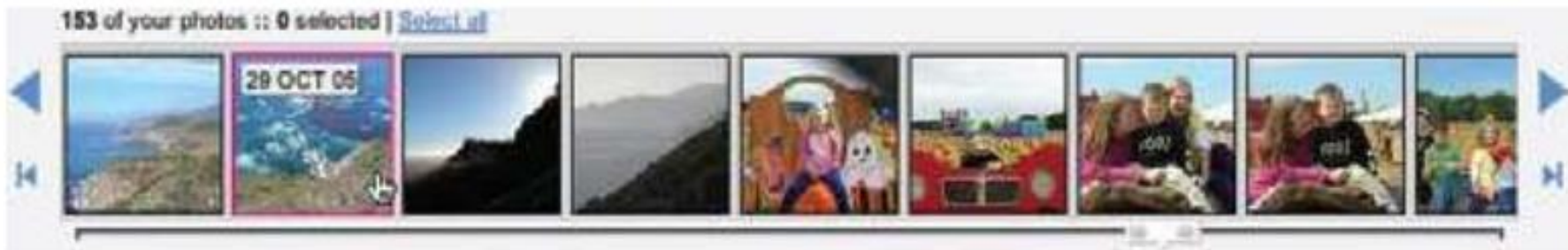
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Scrolled Paging: Carousel

- Besides Virtual Scrolling and Virtual Paging, there is another option. You can combine both scrolling and paging into Scrolled Paging.
- Time-based
 - Carousels work well for time-based content.



Carousel - Best Practices

- Carousels are best for visually distinct contents. Images, CD covers, and movie box shots are all natural items to place in a carousel.
- If the content is highly relevant at the beginning and relevancy drops off, a Carousel is a good solution, since it spotlights the most relevant items.
- If there is a lot of content to display, carousels provide too small of a window and thus can frustrate users when they actually try to find content.
- If there is limited space available for a set of content, a Carousel allows the virtual content to be placed in a row on the page.
- Placing arrows at each end can become tedious if the Carousel is not circular or if the user needs to go back and forth through the content

Carousel - Best Practices

- Placing back and forth arrows next to each other is simpler to operate but somewhat less discoverable.
- Make the content big enough to view easily, providing enough whitespace to make each item distinct.
- Allow a portion of the next item to be partially revealed. This invites the user to scroll the content to see the partial content fully.
- Clicking the left arrow should scroll content in from the left (left to right), and clicking the right arrow should scroll content in from the right (right to left).

Virtual Pane

- One way to create a virtual canvas is to allow users the freedom to roam in two-dimensional space.
- A great place for Virtual Panning is on a map.
- Google Maps allows you to pan in any direction by clicking the mouse down and dragging the map around.



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Zoomable User Interface (ZUI)

- A Zoomable User Interface (ZUI) is another way to create a virtual canvas.
- Unlike panning or flicking through a flat, two-dimensional space, a ZUI allows the user to also zoom in to elements on the page.
- This freedom of motion in both 2D and 3D supports the concept of an infinite interface.



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Best Practices for Virtual Spaces

- Use a hybrid Scrolled Paging for content that is time-based.
- Use Virtual Panning for moving around in a canvas (e.g., Google Maps).
- Use ZUIs to work on large sets of information that have lots of detail.

Paging V/s Scrolling

- When the data feels “more owned” by the user—in other words, the data is not transient but something users want to interact with in various ways. If they want to sort it, filter it, and so on, consider Virtual Scrolling (as in Yahoo! Mail).
- When the data is more transient (as in search results) and will get less and less relevant the further users go in the data, Inline Paging works well (as with the iPhone).
- For transient data, if you don’t care about jumping around in the data to specific sections, consider using Virtual Scrolling (as in Live Image Search).

Paging V/s Scrolling

- If you are concerned about scalability and performance, paging is usually the best choice. Originally Microsoft's Live Web Search also provided a scrollbar. However, the **scrollbar increased server-load considerably** since users are more likely to scroll than page.
- **If the content is really continuous**, scrolling is more natural than paging.
- If you get your revenue by page impressions, **scrolling may not be an option** for your business model.

Paging V/s Scrolling

- If paging causes actions for the content to become cumbersome, move to a scrolling model. This is an issue in Gmail. The user can only operate on the current page.
- Changing items across page boundaries is unexpected. Changing items in a continuous scrolled list is intuitive.



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IA-1

- Report writing on Recent Trends in UI Programming
 - 2 Page original Report (Excluding Images)
 - 5-10 Pages (including Images)
 - Recent Trends in UI Programming
 - Research papers
 - Content summarization 3-5 papers
 - Example [Wireframe-based UI design search through image autoencoder](#)
 - Technology Trends
 - Detailed discussion with Example
 - Example UI trends for AR application