
Social Navigation as a Model for Usable Security



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Background

- Bruce Schneier [15] has observed that “Security measures that aren’t understood and agreed to by everyone don’t work.”
- “The central concern here is that neither usability nor security can be added on to systems after the primary design work is done; rather, both need to be central aspects of the design effort.”

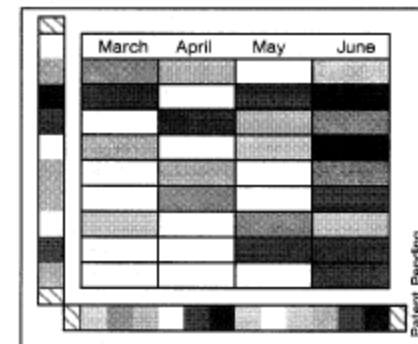
Overview

- Social Navigation
- Social Navigation and Security
- Example
- Discussion

Social Navigation

- Dourish and Chalmers – Running out of Space: Models of Information Navigation
 - Semantic navigation
 - Social navigation
 - Example
 - Tapestry system
 - “edit wear and read wear” Hill et al

Active Messages								
MoveTo	Display	Delete	AddTo	NewMail	Places	Levels	MsgOps	SortBy
99>	18 Mar 93	Maria+Eblin...	Re: marked-up thesis proposal					
99>	18 Mar 93	elib@eclipse...	Elib Response					
99>	19 Mar 93	Dan Swineh...	Here's a topic for a future meeting					
94>	18 Mar 93	To: elib%cs...	Test of Stanford SDI Service					
85>	13 Mar 93	tapestry@pa...	ICDCS'13 program					
70>	12 Mar 93	weiser:PAR...	here is a new service being offered by the stanford CS library					
? 99>	23 Mar 93	weiser:PAR...	hiring meeting after dealer					
? 99>	23 Mar 93	Bellotti@eur...	Re: UbiCore meeting on Security					
? 99>	22 Mar 93	chauser:PA...	Request for more help in tapbrowser					
? 90>	22 Mar 93	Nancy Frei...	HIRING MTG. SCHEDULED...					
? 90>	23 Mar 93	weiser:PAR...	Re: IMPORTANT AGAIN: YES hiring meeting after Dealer...					
? 85>	22 Mar 93	saraswat@pa...	[arjun@cs.stanford.edu: Two talks in Concurrency Theory]					
? 85>	21 Mar 93	tapestry@pa...	Briefs California (Mar 17 11 am PST)					
? 80>	23 Mar 93	Gary Eman...	Equipment Shipping crates and boxes in warehouse					
? 80>	23 Mar 93	Andrea Spi...	Fry's Electronics Blanket Order (PARC Only)					
? 75>	21 Mar 93	tapestry@pa...	****OnLine Bookstore Offers "Electronic Lit" over Internet 03/19/93					



Social Navigation

“I took the one less traveled by,
And that has made all the difference.” – Robert Frost



Application

The screenshot shows the top of the New York Times website from April 12, 2008. The 'Most Popular' section is highlighted, featuring a quote: "Don't skip the Picasso Museum—the building alone would make the visit worthwhile." — John. Below this, there are four columns of content: 'MOST E-MAILED', 'MOST BLOGGED', 'MOST SEARCHED', and 'MOST POPULAR MOVIES'. The 'MOST SEARCHED' column lists terms like 'bush', 'obama', 'china', 'tibet', and 'olympics'. The 'MOST POPULAR MOVIES' column lists 'Smart People', 'The Visitor', 'Street Kings', 'Dark Matter', and 'Never Forever'.

Most visited

This screenshot shows a recommendation section titled 'Customers Who Bought This Item Also Bought'. It features three book covers: 'Linux Device Drivers (Nutshell Handbook)' by Alessandro Rubini, 'Understanding Linux Network Internals' by Christian Benvenuti, and 'Linux Kernel Development (2nd Edition)' by Robert Love. Each book is accompanied by its title, author, and a star rating with the number of reviews. For example, 'Understanding Linux Network Internals' has a 4.5-star rating from 2 reviews and is priced at \$32.97.

Collaborative Filtering

The screenshot shows the Epinions.com website, which is a shopping review site. It features a navigation bar with categories like 'CARS', 'BOOKS', 'MOVIES', 'MUSIC', 'COMPUTERS & SOFTWARE', 'ELECTRONICS', 'GIFTS', 'HOME & GARDEN', 'KIDS & FAMILY', 'OFFICE SUPPLY', 'SPORTS', 'TRAVEL', and 'MORE'. The main content area includes a search bar, a 'Find Reviews' section, and a promotional banner for 'TEN DOLLARS FOR 10 REVIEWS!'. The banner encourages users to write reviews to earn rewards.

Recommendation Engine

This screenshot shows the del.icio.us website, a social bookmarking service. It features a 'hotlist' section with a 'what's hot right now on del.icio.us' header. The hotlist lists several items, including 'Shop and Eat Locally - Wired How-To Wiki', 'Alert Thingy: A desktop app for FriendFeed.com', and 'ffmpeg tutorial'. Each item is accompanied by the number of people who have bookmarked it and a list of tags. For example, 'Alert Thingy' has 106 people and tags like 'friendfeed', 'air', 'aggregator', 'social', and 'adobe'.

Social Tagging

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Social Navigation and Security

- Fundamental approach:
 - Allow people to assess how a system matches their needs
 - Allow them to see the relationship between a system or information artifact and activities, either of their own or others.
- Application = 'space'
- People's act = history of action displayed in the space
- Three approach:
 - Show the history of a user's action
 - Show patterns of conventional use
 - Show activities of others within a system

Overview

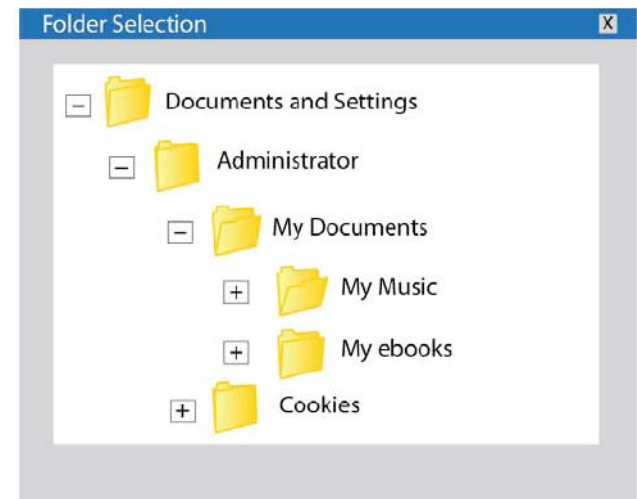
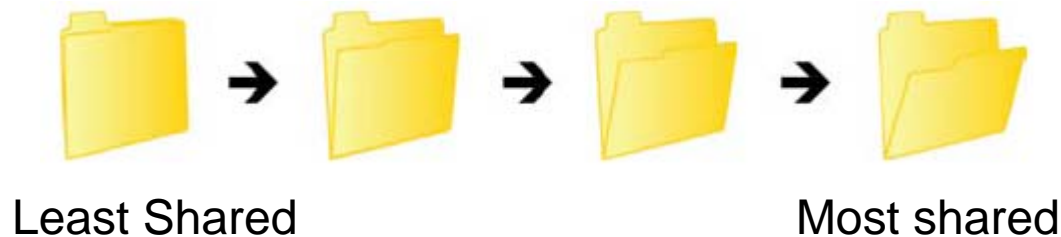
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Show Patterns of Use – two metaphor

- Good and Krekelberg's study of potential security issues in the Kazaa peer to peer file sharing application
- Mander et al, 'pile' metaphor for the informal grouping of files

Show Patterns of Conventional Use (Folder)

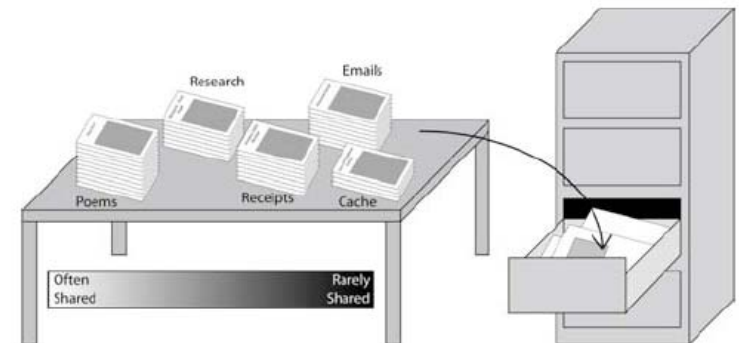
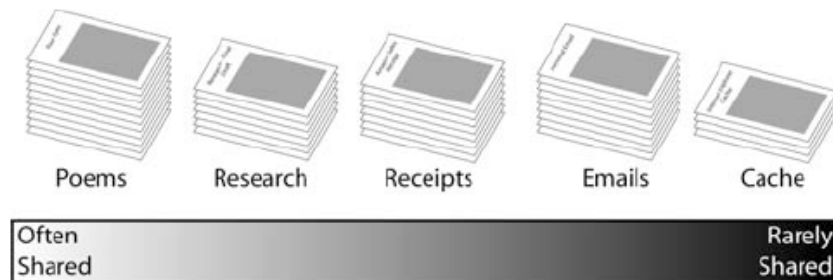
- Tradeoff between security & sharing of personal data



- Clumsy user interface of Kazaa
 - Good and Krekelberg – users are unable to determine which files on their system were shared currently due to awkward treatment of folders by Kazaa interface.
 - No method to compare sharing level

Show Patterns of Conventional Use (Pile)

- Using Pile for Kazaa
 - Pile preview will increase user awareness on
 - Number of files being shared
 - Repercussion of selecting a folder to share
 - Types of files being selected for sharing.
- Design
 - Physical metaphor for shared or secure doc
- Extending the design to support social navigation

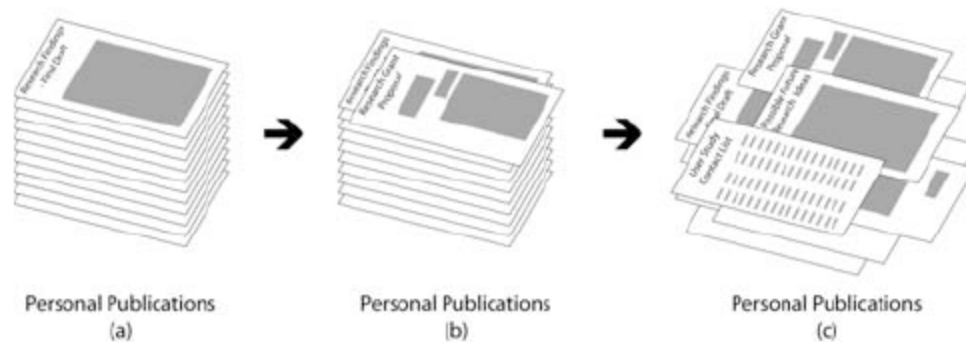


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Show activities of others

- System created – tidy
- More activity – messy



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Example

- Impromptu



Discussion

- Visualization based approach
 - Application as a space populated by user
 - Artifacts carry the evidence of activities over them
- Issues
 - How to cope with the varying level of trust on the recipient side?
 - Missing – Context

Thank you.