

Chapter 8

Magnet Mail: A Visualization System for Emails

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ABSTRACT

Magnet Mail (MM) is a visualization system for emails based on a zoomable interface and on manipulation of objects. Users are able to search, analyze and understand relations among email messages as long as they provide searching keywords to do so, as well as interact with graphical objects in the display in a pro-active manner. The underlying concept is a magnet metaphor that relates user interaction, searching keywords and relations among emails. In this paper, the authors present a prototype that interacts with a mass-market email system and most of its graphical implementation relies on the Piccolo toolkit.

INTRODUCTION

Email is now part of our lives as a communication tool, whether if used in the working place or in the context of personal relationships. It is an efficient, fast and inexpensive mechanism to communicate. The downside of such remarkable success is that it leads to a large amount of data in the email boxes, some of which might be useless from a user's point of view. Hence, management problems arise when users need to search and to

understand the similarity of topics and patterns among email messages.

Despite the lack of focus on visualization issues related to email applications, recent examples have shown some effort on adding user-friendly features, namely those related to sorting, filtering and searching messages. Even though, there is a long way to go until we provide users the so much needed help to manage messages conveniently.

Most of the current applications are failing on usability because they denote the use of hierarchical folders and also they do return results in a textual or list-based format. Some of them do not

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even provide proper hints about email similarities or patterns, which can be dramatic when a particular inbox has got a huge collection of messages as it happens in these days. Rather than having some sort of add-ons, users would like to see real changes in the way email usability is delivered. They want to easily navigate across large email collections and to infer patterns. As a matter of fact, proper usability can only be achieved if object manipulation is also considered.

A visualization system dealing with a large collection of documents, as it is the case of an email inbox, incorporates various techniques. The most important are the following ones: Firstly, automated methods for indexing documents and for decomposing them through statistics. There will be statistical data representing the documents as much accurately as possible. Secondly, techniques to map results into a sort of interactive display so users can visualize and interact with, redefining queries and so on. Moreover, an interesting feature is to give users a proficient overview of documents so they can have a quick understanding prior to any reading.

In this paper we propose Magnet Mail (MM), a document visualization system related to the email paradigm with emphasis on direct manipulation of graphical objects. The remaining of the paper is organized as follows: First, we highlight some related work, which is followed by a detailed description of MM. Then we present preliminary tests and results and finally we draw some conclusions and point out possible paths for further development.

RELATED WORK

A large majority of email client solutions seeking better user interaction rely not only on header information but message content. We envisage three major approaches as far as information visualization is concerned:

- Time-based visualization.
- Thread-based visualization.
- Social-based visualization.

First and foremost, these approaches can work together and can all be part of a particular email client application. For example, time-based visualization can easily be found alongside thread-based visualization so it is a matter of how much each one contributes to the final package.

Time-based visualization highlights the importance of timestamp in emails. Emails can be displayed chronologically so one can figure out how content have changed over time.

The Themail application shows this approach. It relies on the content of messages to display interactions over time. Its interface shows a series of columns of keywords arranged along a timeline. Keywords are shown in different colors and sizes depending on their frequency and distinct conversations over time (Viégas, Scott, & Donath, 2006). Mailview is another tool that display emails chronologically. It includes focus+context views, dynamic filters and coordinated views (Frau, Roberts, & Boukhelifa, 2005). Also, Fa-Mailiar is a tool to visualize email data over time, focusing on discovering communication rhythms and patterns. Some features include daily email averages, daily quality of emails, frequency of email exchanges, comparative frequency of email exchanges (Mandic & Kerne, 2004).

Thread-based visualization focus on presenting relations among emails according to threads of replies. These systems highlight the progress of a particular set of email replies, seen by the user as a chain of related emails. Unlike the concept of threads in databases, email threads are not always complete. Displaying trees with the threads usually does its visualization.

The ThreadArcs tool is one example of thread-based visualization, where each message is a node and they are linked to each other according to the conversational thread they represent (Kerr, 2003). Another representative example is the EzMail

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