

Reinventing Email

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ABSTRACT

Email has emerged as the preferred means of communicating in the modern workplace. Each day, over 500 million email messages are sent to and from American businesses. Yet, the design of email interfaces has remained basically unchanged for the past 15 years. The original three pane email interface served us well when email was a personal, informal communication channel used with friends and colleagues. However, this design is deficient for the business use of email, where there is a high volume of messages, collections of messages used in the process of completing of a task, and, messages that are part of structured business processes. Our group has spent the last two years conducting a series of user studies and design experiments that explore changes that could provide a better fit for email in modern businesses.

INTRODUCTION

There are studies that indicate that email has emerged as the number one application used by businesses. "Email has emerged as the most-used communications tool in the US and Canada, with 97 percent of workers using it every day or several days a week" [9]. In the same study, users preferred email as much as 5 times more than face-to-face or phone calls for exchange of regular information. Studies by Lotus marketing in late 1999 found that business users were overwhelmed by message volume, having trouble keeping track of things, and being responsive with the pace set by email. Email is a large part of this general problem. The three pane interface (folders, list, preview), common among modern email interfaces, seems ill suited for high volume, task oriented, office messaging. In our work, we have been studying how email is used in business activities, how people use email tools to manage their work-related email, and the nature of the messages within corporate inboxes. In this position paper, I'll cover some of our work as I consider how the 3 panes

of the modern email interface are inadequate for corporate email. While not comprehensive, this will provide the reader with an idea of the kind of work and experience I have had with redesigning email for the 21st century, and the kind of thinking I will bring to the workshop.

INCREASINGLY INTERACTIVE WORK

The reason that email has grown in use by companies has to do with the nature of modern work. Work has become increasingly interactive [1]. As individuals go about completing their work, they interact with others to exchange, arrange, manage, and integrate their work. These exchanges are both internal and external to their organization. The types of interactions include meetings, conferences, phone conversations, sales calls, problem solving, reports, and memos. The amount of interchange in a worker's activities depends on role, but interactive workers (information workers, analysts, strategist, data manipulators, interpersonal knowledge workers, etc.) find 37 to 78% of their activities are interactive. Interactive activities include communication, data gathering and collaborative problem solving. Non-interactive activities include physical labor, individual analysis, and data processing. From 1900 to 1994, the percentage of interactive workers went from 17% to 62%. As a result, communication is a key part of modern interactive work. And given the preference for email over other communication methods, email use has exploded.

THE PROBLEM OF RIGID FOLDERS

Managing tasks in email has been documented as a common practice [4]. However, email interface design is ill suited for managing tasks. Foldering, often used to manage tasks, which is also the only way to organize messages in email, is a 19th century method applied to a 21st century problem. When folders were invented in the early 19th century, office work was less interactive. Non-interactive work is often easy to categorize as it is specified in advance. However, modern collaborative work is often negotiated and goals emerge as the work progresses [2].

However, as one tries to use a rigid folder structure for the fluid nature of work, it becomes a burden and inefficient

[3]. We found a correlation between the number of folders people used and the feeling of being behind on their email [5]. Furthermore, messages placed in folders are often forgotten (out of site, out of mind).

The problems with folder mentioned above suggest that a new means of organizing email is needed. One of our design experiments has explored the use of virtual folders and message-threading as means to organize messages in a way that is more fluid and natural. In traditional email folders, a message can only be in one folder. This leads to overly general folders or the misfiling of messages as messages can be about more than one topic, or involved in more than one task. Virtual folders permit the multi-filing of messages. By allowing a message to be in multiple folders, the folders can be more flexible and at the same time more precise in what they contain.

GOING BEYOND THE BASIC MESSAGE LIST: Threads and Visualizations

Email lists have traditionally provided only a minimal amount of information about the messages they contain and only simple control over their presentation. Over the years, the only improvement in the message list has been in the ability to organize and sort based on the various columns in the list, such as by arrival time, person, size, attachment, read/unread, etc.

A study within Lotus indicated that around 1/3rd of messages are connected via response hierarchy or threads [5]. Our own analysis of these threaded messages indicates that they are often the important messages in the course of the day's messages. Of the message threads to which one contributes, an even higher percentage of these message threads are considered important. And yet, most email systems ignore both the connectedness of threaded messages and the contribution to threaded messages when presenting the message list. Every email is treated as if they were equally important. Showing the connections between documents in the list is one way of helping the user sense the importance of messages.

Other studies have also recognized the connected nature of work based email [6]. In this study, users were found to generate complex connected message threads in their work. While only a small percentage of their total email volume, it was interacted with several times a day, making it an important type of messaging to study. One typical problem with the way email systems handle these kinds of connected messages is that there is often a need to "draw-in" new participants – and yet there is no way to conveniently send new participants the previous emails related to the messages. We have been exploring ways of connecting related messages and providing new capabilities to work with the connected set as a whole. One of these is through threading. My colleague Steven Rohall discusses this in a paper presented at InfoViz 2001 [6]. In short, both the presentation and manipulation of threaded messages are

seen to help the user in dealing with the overwhelming message volume and with keeping track of things as they work via email.

ENHANCING MESSAGE PREVIEWS

The third pane of the modern email interface is the preview pane. It allows the user to see the contents of the message without the bother of window management that comes with opening the message. The preview contains both the message header fields (to:, cc:, subject, date, etc.) and the body of the message. One might imagine that this feature is well suited to modern email use as it provides a easier way to make sense of the deluge of messages. However, in our design explorations we have discovered some other capabilities that users find valuable.

The use of instant messaging (IM) by business is growing rapidly. Today, about 20% of IM accounts belong to business users, and this number is expected to grow to an estimated 50% by 2005. IM use is also wide spread among companies and is already in use in 84% of business. IM use is seen as augmenting email communications. Inside IBM, nearly 3 million IM messages are exchanged daily – often instead of email [7]. Integrating instant messaging capabilities into email tools seems a natural way to improve email. Including the ability to see the message participants' on-line status is one feature that we have explored in a new preview tool. For example, users can see if the sender is online, and initiate an IM session with them instead of writing more email messages.

Connecting related messages in the preview is another capability we have experimented with. In a study by Microsoft Research, users preferred dealing with messages within an email system that provided an easy way to preview messages related by thread [8]. In our own experiments, users found the ability to quickly navigate from one related document to another useful, and a desired feature in a redesigned email preview pane.

CONCLUSION

Our work in reinventing email at IBM Research has been ongoing for the past two years. Through a combination of studies and experiments we are developing a new set of features that will correct the misfit between email tools and the business use of email. This position paper chooses one way to talk about the wide variety of studies and explorations we have, but is by no means complete. My goal in participating in this workshop is to provide additional insights and experiences as they pertain to redesigning email for the 21st century.

ACKNOWLEDGMENTS

I thank the entire Collaborative User Experience Group of IBM Research, Cambridge, and specifically, Daniel Gruen, Steve Rohall.

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