Tickertape: Awareness in a Single Line

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ABSTRACT
This paper describes an awareness tool called Tickertape**.** Tickertape is a lightweight, highly tailorable tool that provides an interface to a world of transient information via a single-line scrolling message window. We overview Tickertape, describing both its unidirectional and bidirectional message groups and its time-out feature. We then illustrate how it is being used within one organisation.

Keywords
Awareness, CSCW, groupware, event notification

INTRODUCTION
In our day-to-day activities, we use a range of communication media to maintain an awareness of what other people are doing and of the current state of objects, activities, etc. In distributed environments, awareness is supported through the use of tools such as telephone, email, chat, and video-conferencing. Work is also ongoing in the development of specialised awareness displays for groupware systems. For example, Gutwin *et al*. [2] distinguish between awareness of people and awareness of shared workspaces, and explore the use of separate widgets in the support of each form of awareness.

In this paper, we report on a different type of awareness display called Tickertape, shown in Figure 1. Tickertape is a lightweight, easy-to-use, highly tailorable tool that provides an interface to a world of transient information via a single-line scrolling message window. This information can be in the form of interactive chat messages, or as messages relating to activities, objects or people. Tickertape can therefore support many forms of awareness and communication yet occupies minimal screen space.

Our discussion of Tickertape is based on its specific use over a 3 month period within a semi-commercial research organisation where people are distributed across rooms and buildings. During this period, over 20,000 messages were handled by the system. We firstly outline what Tickertape allows people to do and then illustrate a range of different ways in which Tickertape has been employed.

AN OVERVIEW OF TICKERTAPE
Tickertape is built on top of a distributed notification service called Elvin [3] that employs a publish/subscribe architecture. We refer to the publishers of events as 'groups'. Event subscriptions can be based on group identity and, optionally, event content. The selected information is then generated into colour-coded scrolling Tickertape messages.

Tickertape is highly tailorable, allowing users to dynamically define their own groups and event generators from a potentially infinite number of sources. Some groups can allow people to post messages, i.e., produce an event, as well as receive messages. Other groups, such as a news group, have a uni-directional production of events. A bidirectional group is primarily used for awareness and interaction between people. A unidirectional group is primarily used for awareness of activities, objects, etc., similar to the Khronika System [1]. It acts as a filtering mechanism, where selected information is sent to the user rather than the user having to go to the information source.

To receive event messages, users define a subscription in a configuration file. A basic subscription consists of the group name, and a specification of the minimum and maximum time the message will scroll around the window. Senders of messages define the specific time their message should scroll. Messages can contain files embedded in a MIME type, as is the case in the first message of Figure 1.

The time-out feature allows each Tickertape message to have a user-defined period of transience (at time-out, the message fades to grey, giving a sense of age, and then disappears). For bidirectional groups, this means that interactions can still have the short, 'bursty', informal nature of a conversation, but the utterances will persist until time-out. Hence, semi-synchronous conversations are possible. While chat tools and email can also be used for semi-synchronous interactions, there are differences. Chat is a dedicated heavyweight tool. Email messages are more formal, persistent, less temporally urgent, and require explicit user-effort to process them.

Figure 1. The Tickertape Interface

For unidirectional groups, the time-out feature is particularly useful for awareness of temporal events, e.g., to generate reminder messages from an on-line schedule. For non-temporal information, users tend to also have a persistent store from which uni-directional events can be accessed, e.g., Usenet news.

USING TICKERTAPE IN AN ORGANISATION

Tickertape can potentially handle a diverse range of events and information. It is up to the users to decide what they want to know about and then define an appropriate group or event generator. We give a sample here of the range of different groups that people in this organisation have so far defined and to which others subscribe.

Unidirectional Uses

One of the early uses of Tickertape was as a filtering mechanism for Usenet news. For example, one person subscribed to the articles in 'comp.ads.forsale.computers' that concerned a particular hardware item that he wanted to buy. On-line news-feeds have also been very popular, where users can gain access to current news headlines, and click on the attached MIME type to read the full item if desired. Sports have also featured. During a recent international cricket series, a cricket fan wrote an event generator that relayed ball-by-ball scores from an on-line cricket site. While these uses may seem to be a waste of valuable work time, users in fact report that they now spend less time 'surfing' than they did previously.

A number of uses are also made for intra-organisational events. For example, the 'file change' group sends out notifications of which system files have been changed during the previous day. If people see a file they rely on for their work, they can then go to the file to check whether or not that change will affect them.

Another example is the 'rooms' group which makes use of an on-line room booking system. Prior to the booked time, a message is sent to the 'rooms' group stating the booking time, room-number and purpose. This has proved useful in a number of ways. The most obvious is that it serves as a reminder – there have been numerous occasions where people report that they forgot a meeting was on until they saw the message. There was also the case where someone realised en-route that they didn't know which room the meeting was in. He quickly popped into a colleague's office, where he knew Tickertape would be running, to check the still scrolling message. The 'rooms' group has also been useful for supporting distributed awareness. There are some members of the organisation who do not work in the main building. 'Rooms' gives them a way of 'keeping an eye' on some of the activities going on at headquarters that they would otherwise not know about.

Bidirectional Uses

Tickertape has been a particularly useful tool for facilitating interaction between co-workers, adding another option to their existing media of communication. There are numerous groups subscribed to by people engaged in a specific work task. Figure 1 illustrates one such group, 's&g', which consists of members located in different rooms. Another similarly distributed group reports that Tickertape has been "indispensable" as it lets them work closely together with minimal disturbance to their ongoing coding activities.

Tickertape also supports informal awareness through the use of general groups, such as 'coffee', 'lunch', and 'chat'. These groups have helped foster a sense of collective awareness and cohesion. For example, when someone feels like a coffee or a lunch break, they will post a message to the appropriate group, as in the second message in figure 1. Those who are free will join them. This has proved particularly useful for fostering serendipitous interactions and many informal work-based discussions have occurred during breaks. 'Chat' is used for a range of miscellaneous discussions and announcements, e.g., a birth.

Summary

We have described an awareness tool that can provide access to diverse information about people, activities and objects in a single scrolling line. Future work includes improving the user interface, adding security features, and experimenting with its integration into a groupware environment. However, even in its early state, the extensive use of Tickertape indicates that it is a very useful, lightweight awareness tool, with the potential to display information from a vast range of sources.

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