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Agora: Shaping Social Space from Information Space

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Abstract

Agora is a Java based client-server tool that provides for both synchronous and asynchronous communication within the context of a web page. Real-time text based 'chat' is augmented by shared news, personal mail, recent visitor history and user profiles.

Introduction

As an individual browses the web, they encounter others only as authors of the information they browse. Although many people may be reading the same information at the same time, they are completely unaware of one another's presence. Rather than communication between peers, the model supported by most interactions on the web is that of presentation and feedback, where there is a distinct difference between the status of the participants.

A tool supporting a more equitable basis for communication between individuals seems to be required. Such a tool should be able to give an awareness of others while browsing * showing those accessing the same information, perhaps indicating a commonality of interest. Further, in order to capitalize upon this awareness, it is necessary to allow communication between these people to allow them to discuss their shared interest, and to forge longer-term relationships. Through these relationships, it is possible that communities will form, centered on a particular topic or a specific meeting place.

For such a community to be stable, it must be possible to leave persistent artifacts * to relay some of the history of the community. This requires the addition of asynchronous communications. Considering the relatively small amount of time people are likely to spend at any one information resource, the ability to communicate asynchronously is considerably more important than it might be in a community where its members are more likely to be together. Real-time communication tools allow the members of a community to meet one another and form the community itself. Asynchronous tools are required to maintain the community in the long term, and for the initiation of new members.

Agora [2] is designed to fulfill these needs. It provides both real-time and asynchronous communications within the information pages of the World Wide Web. It is designed to assist formation of Internet communities. It provides the ability to determine who else is browsing an information space of interest, to communicate with them in real-time, to view who has recently come and gone, to read and post messages of interest to the community, and to send and receive personal messages from others in the community.

There are other tools, such as Virtual Places and WebTalk [1], that are designed to allow communication with others in a web page. These tools provide only real-time communication, however, and do not have a "dialog history" [3], a display of recent utterances that have taken place that allows a new participant to acquaint themselves with recent conversation.

Functionality

The primary purpose of the Agora client is to support identification of other visitors to a web page and real-time communication between them. Currently, this communication is restricted to being text-based, with each participant being able to send phrases to either everyone present, a small group of people, or an individual. In addition to text phrases, it is possible to 'perform' actions by having a description of the action relayed to the other participants.

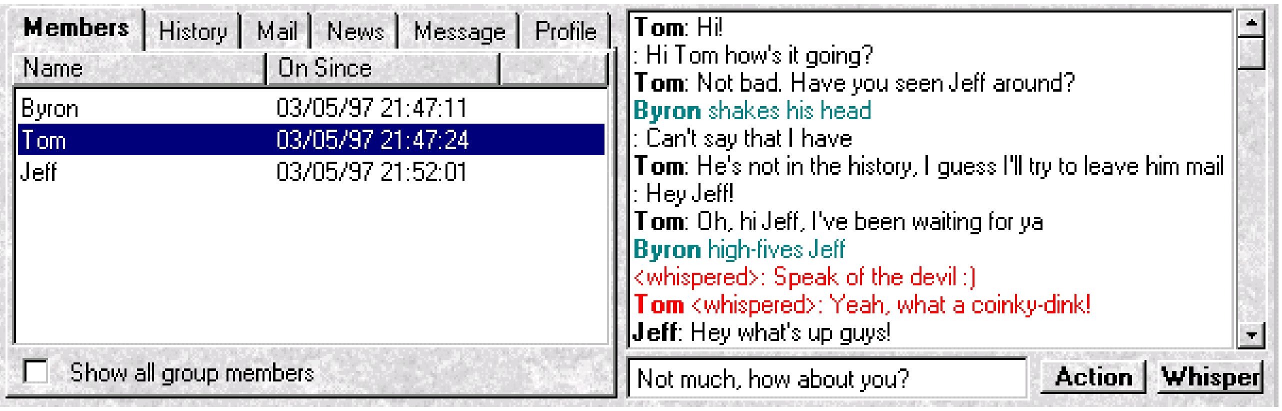
There are also several functions that support a sense of community history within the system, including a list of recent visitors, a 'bulletin board' for the posting of news, and private email boxes. The list of recent visitors provides a limited history of the participants in the community, and provides a way to send them an email message to a user who is not currently present or to examine their profile. This offers an advantage over most real-time communication systems with respect to coordinating a meeting within the system. Most systems give no indication as to whether another user has already left or has not yet arrived, and do not allow messages to be sent to users who are not present.

The bulletin board allows messages of general interest to be posted and for long-term open discussions to take place. The news and discussions may augment the content of the web page the community is attached to or may be relevant to the community itself. In either case it enhances the perception of community stability * it shows that there have been interested community members for some length of time.

Finally, the ability to send and receive email allows relationships with other individuals to be pursued without requiring constant coordination of real-time meetings. By default, such mail messages would be received when the system they originated from is re-visited, but the ability exists to have a notification message sent, or to have the mail routed directly to a user's email address. It is possible to send on the mail and handle replies without giving either party the actual email address of the other. By having both parties send their mail through the Agora server, it is not be necessary exchange addresses. This allows for some real-world anonymity despite active participation within an Agora community.

Interface

The Agora client is designed as a Java-based applet that can be inserted into any web page. Because of the small physical size of the applet, and because spawning a large number of windows would cause the browser to be obscured, it was important to allow all the major features of the client to be visible in a limited space. The client has two states; a login and user profile editing state and a communications state. Until the user logs in, they are locked into the former state, after which the interface moves into the latter, and remains so unless they choose to modify their profile.



Name	On Since
Byron	03/05/97 21:47:11
Tom	03/05/97 21:47:24
Jeff	03/05/97 21:52:01

☐ Show all group members

Tom: Hi!
: Hi Tom how's it going?
Tom: Not bad. Have you seen Jeff around?
Byron shakes his head
: Can't say that I have
Tom: He's not in the history, I guess I'll try to leave him mail
: Hey Jeff!
Tom: Oh, hi Jeff, I've been waiting for ya
Byron high-fives Jeff
<whispered>: Speak of the devil :)
Tom <whispered>: Yeah, what a coinky-dink!
Jeff: Hey what's up guys!

Not much, how about you?

Figure 1: The interface in communication mode

When the communications mode is active (Figure 1), the current thread of real-time conversation is displayed, along with a field for the user to type phrases to be sent to others. In addition, there are controls for sending actions and for sending a message to a restricted set of people. In the remainder of the window is an area that can be set to display a range of information, defaulting to a listing of the current visitors to the page. The other 'pages' of information include a list of people who have recently visited the site, a list of email messages addressed to the user, a listing of the 'bulletin board' articles, a display of the current message or news article, and a profile of the currently selected user, if anyThe paged design allows access to many functions within a small space, while the constant presence of the real-time conversation window allows a user to join the ongoing conversation at any time without interrupting the task they are currently engaged in.

Because participation in the real-time conversation is time-critical, it is important that it not be obscured, should it prove to be of interest to the user. The other functions of the system are not time-critical, and can safely be hidden when not needed.

Architecture

Agora is implemented as a client-server system. The Agora client, designed to run within a web browser, communicates with the Agora server, which runs on the web server hosting the page on which the client resides. The server then propagates any relevant messages to the clients currently connected to the server. The server is also implemented in Java. It manages the mail and news for the pages supporting the client. In addition, it manages the real-time communication channels for each user and maintains the user profile.

A single server can support a number of ‘groups’. Each group is a separate communication space, sharing only the profile information for each user. The client connects to only one such group, although clients on different pages can each connect to the same group.

Status

A working version of Agora has been finished and has undergone a pre-test as a supplemental channel of between-student communication for a graduate class. It will soon be used on the home pages of the Knowledge Media Design Institute as part of a study of the system’s effectiveness. The results of this study will be discussed at the conference.

A larger study is planned in which the Agora system will be widely disseminated among a number of sites with a large variety of content. The intent is to determine whether the nature of the information space in which the tool is situated has a bearing on the character of the community it supports.

Conclusion

Supporting a community inside the bounds of what is primarily an broadcast information space, enhances the experience of those who use it. In supporting conversation with other navigators of the information space, whether for social reasons or to discuss the information at hand, human expertise for social interaction can be exploited to make the information space more salient and more enjoyable.

References

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