The 2BeOn System
A Multimedia Workbench for Telework and Interactive Television Research

Abreu, Jorge T. Ferraz de
Almeida, Pedro Alexandre F. S.
Branco, Vasco Afonso da Silva
Mealha, Óscar Emanuel Chaves
Department of Communication and Art
University of Aveiro, Portugal
[jfa, almeida, vab, oem]@ca.ua.pt

Abstract: This paper refers to the implementation of the 2BeOn system, a multimedia workbench designed to test and evaluate the integration of communication and management services supporting work, leisure and information activities. The association of synchronous and asynchronous communication services is planned to provide a more complete answer to user needs in what concerns their interpersonal communication. The system results from a transdisciplinary effort and is being applied to support research in Telework and Interactive Television areas. Regarding Telework, the focus relies in building an integrated environment of communication, collaborative and management services to support remote work. From the perspective of Interactive Television the system aims to understand how the users may exploit online communication services, when engaged in leisure or information TV programs.

Introduction

Among the variety of Internet applications, interpersonal communication services are getting a substantial importance. The mass adoption of services like Instant Messaging (IM), mainly supporting informal communication (Nardi et al. 2000), and their availability in different devices reflects this trend. The 2BeOn workbench emerges from this context, enabling to test and evaluate practices of integration of communication and management services in two fields of application: Interactive Television and Telework. The general purpose of the system is to enable users "To Be Online", communicating or collaborating through the use of synchronous and asynchronous services.

System description

Being based on a server-client platform with all personal information (profiles) stored in the central database, any user connecting to any 2BeOn terminal, either on PC, TV or mobile devices, will get his customized environment and specifications. The system comprises the following main components:

User tracking - the core module of the system, that allows to verify the status of users (who is on/offline or in a break) and other traceable information;

Interface Engine - continuously applies the user's profile information to dynamically adapt the visualization and interaction interface based on a network of interrelated adaptable interface agents;

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Figure 1 – 2BeOn's structure
Communication services - synchronous (voice and video communication, chat, IM) and asynchronous (email, clip-email) services. The system applications lead to the development of specific collaborative features, such as: recommendation of TV program (TVPR), through text or voice messages assigned to video trailers automatically recorded during a TV session, and remote task assignment to work colleagues (on a team work scenario).

Content/interaction tracing - designed to improve users collaboration by allowing to search and contact other users based on their topics of interest or work competencies. For this the system performs a constant analysis of the users' patterns of interaction: peers contacted, TV channels viewed or intensity of use of communication services.

The system uses customized and customizable software agents that, dealing with information from different services and from the online database, can, e.g., select the online communication device that can reach the addressee in a more efficient and direct way.

Application areas

The workbench is applied to different research areas, with adaptations on the interface interaction and the development of specific features oriented to each research area: Telework and Interactive Television (ITV).

The application of the 2BeOn system for remote work scenarios focuses on the following research concerns: i) What are the major guidelines for the development of a telework oriented multimedia communication environment; ii) In what manner the integration of communication and management services, complemented with automatic support mechanisms, is able to improve communication between co-workers. It is believed that this environment act to increase the effectiveness not only of individual teleworkers but of their fellow members as well (Niles 1997); iii) How the dynamic creation of work groups may improve the work performance and contribute for the promotion of work communities; iv) How can the system assist the work progress by synchronizing processes and helping the user in finding information, tracking competencies or controlling his or other tasks?

In the context of ITV, the system aims to promote interpersonal communication by using communication services to discuss common themes or by using TVPR. This type of application differs from the emerging forms of ITV, which are basically oriented to on-demand gathering of information and access to dedicated services (Stewart 1999), but not to the promotion of interpersonal communication. In addition to study how TV users can exploit the 2BeOn features, the research also comprises the following topics: i) How to cope with the technical limitations of the TV as an output terminal; ii) What is the relation between TV content and the establishment of conversations; iii) What is the relation between the use of communication services and TV consumption, in the users perspective; iv) How can the system help to reinforce the socialization between communities of interest?

Evaluation procedures

The evaluation adopted until this moment, based on interviews, has shown that the integration of communication services satisfies the users. The data mining provided by the internal register mechanisms enables to evaluate and detect necessary changes to the inner structure of the system. The formal evaluation procedures will be addressed by means of: i) online questionnaires/interviews, supported by multimedia demonstrations of the system’s features (for details see http://www.ca.ua.pt/2beon); ii) qualitative and quantitative testing of the working prototype.

Conclusions and future work

The developed workbench has proven to be capable to support research in interactive television and telework areas in the field of interpersonal communication, collaboration and management activities. The experience has also shown the potential interrelaction between both areas. For example, Interactive television may act as an additional terminal to stay alert to work and perform some basic tasks.

References

