

## **EXTENDED ABSTRACT**

### ***Multimedia features in the subscribers' interface of MALL2000 system***

by

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#### **Abstract**

MALL2000 systems are intended to support businessmen in their day-to-day tasks for establishing business relations on an international level through the World Wide Web. Work with the systems is based on multimedia document handling allowing flexible group activities. All services offered by a subscriber group of a MALL2000 system to the group are handled in an uniform fashion in what we call a peer-to-peer structure.

The paper at hand covers principal aspects and design approaches for subscriber interfaces. Previous work of one of the partners (**Hot...**-framework of the Darmstadt partner, unit PU) planned to be used as a starting point for work under the MALL2000 project is outlined and discussed in the context of the broader approach of the electronic commerce approach of the MALL2000 consortium. The **Hot...**-framework allows easy inclusion of even hierarchically structured and possibly active multimedia parts into a business document.

#### **Keywords**

Multimedia on the Internet  
Advanced man-machine interfacing  
Electronic commerce

#### **Project Information**

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#### **Objectives and goals of MALL2000 project**

The aim of the project is to design, develop, implement, and test an *electronic commerce environment*, focused on supporting small and medium enterprises in establishing effective international trade relations among them. It raises the analogy of a „mall“ with a few „magnet stores“ (the big department stores; i.e., in the MALL2000 environment, enterprises with a

broad number of offerings) attracting smaller companies with special offerings and/or involved in supplying outsourced services for cooperation or specialized support; a „mall“ in the context of our project also needs some general, unspecialized support services for administration, housekeeping/budgeting, technical maintenance, business introduction, teaching and tutoring, financial control, all what we call *Common Service Operations* (CSO). The participants in a MALL2000 system are called *subscribers* and are supported in an uniform, *peer-to-peer* fashion; establishing and handling of trade relations are covered *under workflow support* by „agents“ for routine support of a request by a subscriber as well as by human *in persona* interaction in case of extraordinary conditions or need for human involvement (e.g. for certification); there is a distributed, partially centralized *data base support* underlaid to the business services, e.g., for yellow-paging, product and service cataloguing, contract and workflow templates management etc.

We consider the services offered by MALL2000 systems to their subscribers to be basically *document-based*. *In persona* tasks performed by a subscriber are by investigating, extending, and using provided „parts“ of a document where parts are *multimedia information items*; i.e., text blocks, graphics, charts, diagrams composed hierarchically, and (from an interaction viewpoint) „active“ areas on the computer display screen allowing and supporting tasks for editing, modifying, transposing, verifying etc., data access, simulation and planning all required for establishing needed business relations with another subscriber and/or group of subscribers. *Agents* controlled by routine workflow schemes investigate and update in a similar, although non-interactive fashion a document and its parts as forwarded to the site of the presently involved subscriber.

Communication between subscribers and to / from the data base(s) is achieved by using the World Wide Web; it is done in a controlled peer-to-peer structure mapped onto the client/server structure provided by the Web.

The project started on October 1, 1998 following a phase of initial interrogations since beginning of 1997. It will continue till Sept. 30, 2001.

### **Relevant technical details for the present paper**

Project work is separated into 7 workpackages. The paper at hand considers workpackage 4, *Design and implementation of the MALL2000 subscribers' interface*. The intended uniform subscribers' interface for all kind of subscribers including the CSO must be flexible to be easily configured for and adapted to the special business areas of subscribers. *In persona* interaction and *agent-based document treatment* has to be integrated. Businessmen in general are laymen in information technology. Usability aspects are of paramount importance.

### **The subscribers' interface of MALL2000 system**

To achieve the goals by multimedia-oriented document processing with active parts in an interactive and non-interactive surrounding a flexible programming and working environment has to be found. *Smalltalk processing* is known for providing a robust, secure, usable environment as needed. The Darmstadt partner (unit PU) has long experience in Smalltalk applications (e.g., by the **Hot...**-work, see below and references). Following present trend in object-oriented approaches transition to *Java* is considered. OTI, one of the well-known Smalltalk developers as a partner, it was obvious to plan to integrate the subscribers' interface, on a Smalltalk basis following the available **Hot...**-framework of the Darmstadt partner (unit PU), with Web-technology as presently under design and implementation for the VisualAge products for Smalltalk and Java by OTI (and its parent organisation, IBM).

It is a research challenge to isolate required business application structures as to be supported by a MALL2000 system and to apply *design pattern technology* to their realisation. This will pay off for the methodologically clean design and implementation of the subscribers' interface as well as its integration into the Web using available OTI products.

An example screen shot (with actual explanations and in the available **Hot...-look and feel**) is shown in **figure 1**. The look and feel will be adopted to a form as known from present browser products widely used on the Web.

The subscribers' interface of the MALL2000 system will be redesigned under the responsibility of the author to cover the manifold, but different business requirements of this Web application following concepts of the **Hot...-approach**. The presentation will document and discuss the characteristics of the redesign; it is expected that a running prototype can be demonstrated at the time of the conference.

### **Status of subscribers' interface development**

The subscribers' interface is strongly based on the **HotDoc-** and **HotSimple-** interfaces designed and implemented in 1995 - 1998 by the Darmstadt partner in the project (unit PU). There are (besides others) active document parts available as instantiations taken from the HotDoc framework for simple text blocks, for graphics, for a clock, for numerical calculations in a spreadsheet (**HotCalc**) and presentation of the results thereof (**HotChart**), for simulation and planning activities not limited to numerical calculations only based on bidirectional constraints with interval handling and processing of physical and/or commercial dimensional units (**HotSimple**), for establishing hyper relations between parts and subitems therein (**HotScript**), and for support of group work (**HotGroup**); all these parts can be hierarchically composed and set under a number of variable placement strategies. There is a passive extension available for viewing HotDoc documents on the Web (**HotWeb**).

The HotDoc framework and all the parts / extensions mentioned above are implemented in VisualWorks, the Smalltalk implementation by ParcPlace/ObjectShare. One of the first steps in work for the MALL2000 project will be the conversion to VisualAge for Smalltalk/Java. Following results of work in other project workpackages additional parts will be designed and implemented as required in the scope of the MALL2000 environment; for sure, there will be parts for **database access** and for **workflow control**; **Web access** will be converted to full dynamisation on involved subscribers' sites. XML implementation is considered as an alternative at the time of preparation of the Extended Abstract at hand.

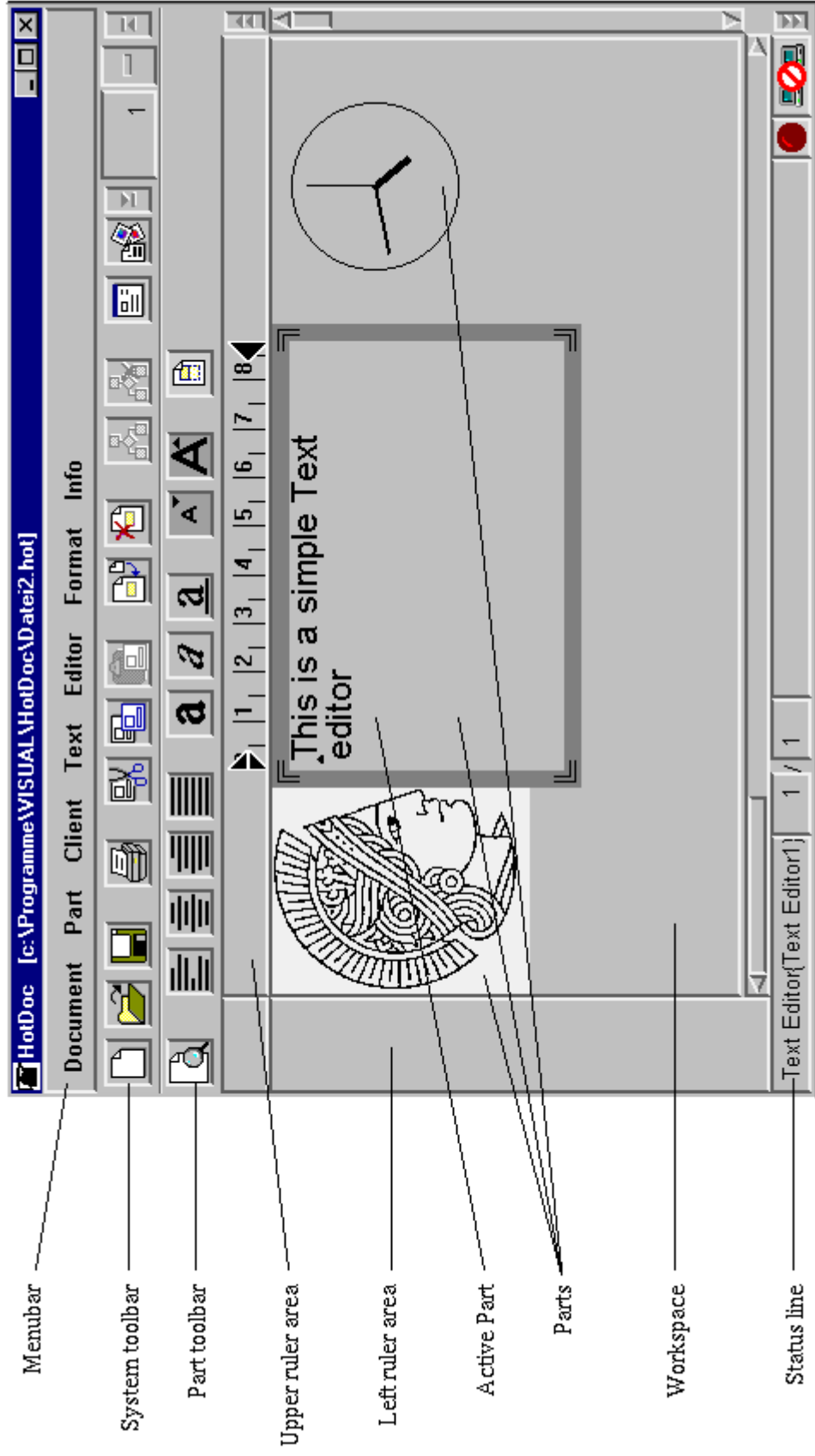
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The paper reflects the opinion of the author.

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**Figure 1:** Example screen shot of **Hot...**-look and feel