

# A Collaborative Multimedia Editing System Based on Shallow Nature Language Parsing

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**Abstract.** As the collaborative editing system becomes prevalent, further requirement on content based collaboration is presented by editors. This paper focuses on how to implement content based collaboration. In order to combine the advantage of nature language processing technology in content parsing, we present the shallow nature language parsing technology in collaborative editing system. This technology is based on the segmentation and the text classification. This paper also discusses the reason why the shallow nature language parsing technology is useful in content based collaboration and its further use in collaborative editing system. In addition, it has already been used in our collaborative multimedia editing system which is designed for Chinese teaching material editor. From the result of experiment, it shows that the system really reduces the time in editing collaboration.

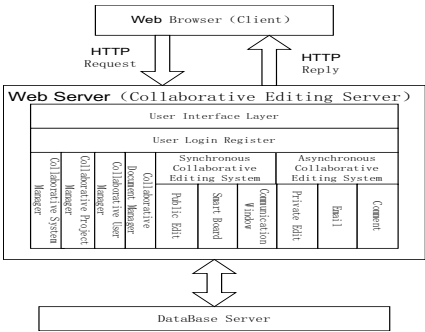
## 1 Introduction

With the progress of cooperative design theory, more collaborative editing systems were designed for this purpose. Such as Real-time Collaborative Editing System [1,2,3,4], Distributed Collaborative Editing System [5], Web Based Collaborative Editing System [6,7,8,9], etc. All these systems have done a lot of works in collaboration to improve efficiency, but all the collaborations focus only on network model and work flow [16,17,18]. The most important problem is that it does not reduce the time in content based collaboration which is more common in editing action. This is because the network model and work flow can't process the content parsing. In order to process content based collaboration, we have to use nature language processing technology. Unfortunately, nature language processing technology is immature. It is so slow in semantic parsing and has a lot of problems in understanding nature language. Is it unfeasible in content based collaboration? Fortunately, not every kind of content based collaboration mentioned by editor need to understand the nature language. So in this paper we introduce the shallow nature language parsing technology [12,15] which parses the nature language and provides some useful middle results. This is useful in constructing collaboration. At the end of this paper, we also introduce a Chinese

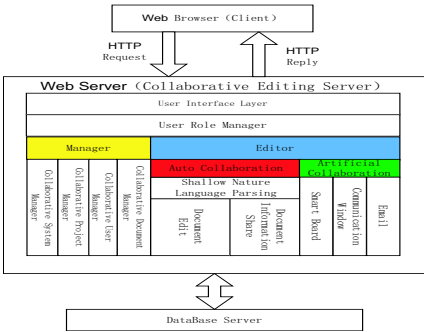
collaborative multimedia editing system which is designed for Chinese teaching material editor.

## 2 Collaborative Editing System Model Based on Shallow Nature Language Parsing

Collaborative editing system includes many collaborative managers, such as user manager and project manager. In order to describe the architecture of it, we draw a brief map of a typical web based collaborative editing system model. It is shown in Fig. 1.



**Fig. 1.** A typical web based collaborative editing system model



**Fig. 2.** A collaborative editing system model based on shallow nature language parsing

This typical model focuses more on collaborative management, such as collaborative system manager, collaborative project manager, collaborative user manager and collaborative document manager. In this model, the inter-editor collaboration is based on Email and other communication tools, and nothing can be easily shared between editors. For example, editor A uses a word in his document and considers maybe it is the first time used in the whole book. So editor A must send Email to others and ask for checking whether it is a new word or not. Other editors who received the mail must check their documents and reply it. This kind of inter-editor collaboration which based on network communication is very expensive. In this example, editors need a content based collaboration method to make their editing action more efficiency.

After investigating on editor's editing action, we find that there are four editing actions which need collaboration. There are information sharing, information communication, document feature computing and information tagging. Considering the editing actions of editors, we add content based collaboration in the collaborative editing system. So far, our model is shown in Fig. 2.

In order to combine the advantage of Shallow Nature Language Parsing and the network communication, we add the Role Manager in the system to detail