Real-Time Group Editors

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Abstract— Group editors allow a cluster of dispersed human users to edit a communal multimedia document at the same time in excess of a computer network. In this study a standard process transformation framework is developed to professionally split the text and graphical data to the diverse users or an exacting user associated in the network. The basic idea of operation transformation is to execute any restricted operation as soon as it is produced for high local receptiveness. Remote operations are transformed against simultaneous operations that have been executed locally before its execution Operation transformation has been well conventional in group editors for achieve high local receptiveness and unconstrained collaboration. It is also well recognized method for optimistic consistency control. Operation transformation framework is recognized which formalizes two reliability criteria, causality conservation and convergence. The Operational transformation framework is developed in the projects and the weaknesses of the existing system are conquering based on the concept called operation effects relation.

Index Terms— Group editor, Server, Transformation, Object Model technique, Class Responsibility, Collaborator.

I. INTRODUCTION

A. About Operational

Transformation

Group editors are a classic model and follow a line of investigation vehicle for dispersed interactive groupware applications because they typically influence communal data in a synchronized manner. Operational transformation (OT) has been well conventional in group editors for achieving optimistic constancy control OT lets restricted operations to execute in a non blocking manner to attain high local responsiveness and unimpeded collaboration. Remote operations are transformed before they are executed such that discrepancies are repaired.

Despite the important development that has been attained over the past 15 years, a distinguished fact in the history of OT is that the detection and key of a variety of OT puzzles (i.e., correctness problems in previous OT algorithms) has been a major driver of research. However, the continuation of OT puzzles can be largely attributed to the lack of a appropriate theoretical framework for guiding the design and confirmation of OT algorithms. More specifically, the well-established frameworks rely on circumstances that are tricky to verify in put into practice and do not address how to develop exact OT algorithms. In this project, a novel operation transformation framework is developed to overcome the weakness of existing system. Based on a concept called "operation effects relation," defined two criteria, causality preservation and operation effects relation preservation, for verifying the correctness of OT algorithms.

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The OT framework move toward with a feasible approach to developing and proving OT algorithms. In this approach, the adequate circumstances for transformation functions are first recognized and a particular transformation path is selected to gratify those conditions. Thus, the correctness of the whole algorithm is guaranteed.

As a simple example, consider the scenario in Fig. 1. Suppose two sites start from the same initial state $s^0 1 = s^0 2 =$ ''ab''. Site 1 performs o1 =ins(1, 'x')to insert character 'x' before 'b', yielding s11= exec(s01, o1) = ''axb'' while site 2 concurrently performs o2 = del(1) to delete character 'b', yielding s12= exec(s02, o2)= ''a'' When o2 = del(1) arrives at site 1, if it is executed as it is, then the wrong character 'x' will be deleted. This is because o2 is generated in s02 without the knowledge of o1, but its execution state s11 has been changed by the execution of o1, which invalidates its position parameter. The intuition of OT is to shift the position of o2 to incorporate the effect of o1 such that the result o'2 can be correctly executed in state s11. This process is called inclusion transformation (IT).

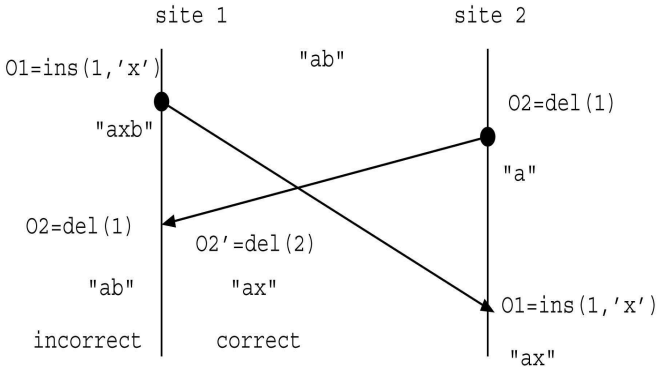


Fig 1 Inclusion Transformation

B. Benefits Of Operational

Transformation

The various benefits of using this framework are listed below,

a. It increases the throughput in network
b. Not cost oriented.
c. Reduced administrative costs.
d. Lower error rates.
e. Increased Productivity.
f. Better services to clients.

II. SYSTEM ANALYSIS

A. Existing System

In existing system the group editors can work only by request-response process. So it has a problem of consistency control and takes more time to process group editors. There is no tool like sharing of graphical data. There is no system to have a shared network that facilitates with editing graphical data. Operation transformation allows local operations to execute in a non-blocking manner to attain high local receptiveness and unrestrained collaboration. Remote functions are transformed before they are executed such that

discrepancies are repaired. The existence of operation transformation puzzles can be mainly attributed to the require of a appropriate theoretical framework for guiding the design and confirmation of operation transformation algorithms. Conventional uniformity manages methods such as locking and serialization normally sacrifice receptiveness and concurrency when they are pessimistic and may cause the loss of interaction results when optimistic.

B. *Proposed System*

The proposed system consists of novel operation transformation Framework to address this weakness of previous system Based on a concept called "operation effects relations". System consists of two criteria, causality preservation and operational effects relation preservation for verifying the correctness of operation transformation algorithms. Sufficient condition for transformation function is identified and second special operational path is chosen to satisfy the condition. This framework comes with a practicable approach to developing and proving operation transformation algorithms. The basic idea of operation transformation is to execute any restricted operation as soon as it is generated for high local receptiveness. Remote operations are transformed against simultaneous operations that have been executed locally before its execution. The common assumption underlying interactive groupware applications, such as group editors, is that users are attentive of the changes prepared by collaborators and are capable to learn and decide semantic conflicts in a timely manner. Two transformation frameworks have been proposed in the literature. The first transformation framework is established with formalizes two reliability criteria, causality conservation and convergence. In the approach part, it proves that any operation transformation-based algorithm can achieve convergence in the presence of arbitrary transformation paths. The second framework is established with three consistency criteria: causality preservation, convergence, and intention preservation (CCI). The intention preservation condition is the first attempt in the literature to explicitly constrain convergence in interactive groupware.

III. PROBLEM FORMULATION

The main problem of the established CCI model is that it only considers the "intentions" or effects of single operations in their enervation states while failing to capture a global picture of the whole system. Conversely, if a global picture was present when transforming the two operations, o1 and o2, know that how to correctly determine the relation between their effect characters, 'x' and 'y'. It is addressed that problem

by introducing a new concept of effects relation to denote the order between characters. In Example 1, have 'b' _ 'x' _ 'c' when o1 is generated and 'a' _ 'y' _ 'b' when o2 is generated. Then, by transitivity, infer 'y' _ 'x' based on which it can always correctly transform o1 and o2. In this way, it can model both effects of single operations and the relation between effects of concurrent operations.

Objectives

- The main purpose of Internet-based productivity applications, such as group editors, is to promote the productivity of human users as a group.
- It is accepted in this context that high local responsiveness and high concurrency are conducive to individual and group productivity.

IV. SYSTEM DESIGN

A. *Design Overview*

Design engages identification of classes, their relationships in addition to their collaboration. In objector, classes were divided into entity classes, interface classes and the control classes. The Computer Aided Software Engineering tools that are obtainable commercially do not offer any assistance in this change. Even research CASE tools take advantage of Meta modeling are useful only after the creation of class diagram is completed. In the Fusion method, it used some object-oriented approaches like Object Modeling Technique (OMT), Class Responsibility Collaborator (CRC) and Objector, used the term Agents to represent some of the hardware and software systems. In Fusion method, there was no requirement phase, where in a user will provide the original requirement document. Any software project is worked out by both analyst and designer. The analyst creates the Use case diagram. The designer creates the Class diagram. But the designer $_{can}$ do this only after the analyst has created the Use case diagram. Once the design is ended it is require making a decision which software is suitable for the application.

V. DATA FLOW DIAGRAM

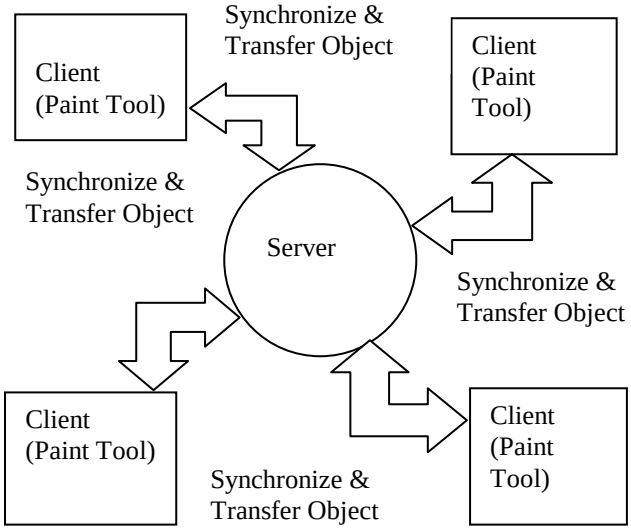


Fig 2 Data Flow Diagram

The DFD is also called as bubble chart. It is an undemanding graphical formalism that knows how to be used to signify a system in requisites of the input data to the system, a variety of dispensation approved out on these data, and the output data is produced by the system.

VI. IMPLEMENTATION

Implementation is the stage of the project when the speculative design is bowed out into a working system. Thus it can be careful to be the mainly risky stage in achieving a successful latest system and in giving the user, assurance that the new system will work and be efficient.

The implementation stage engages careful planning, examination of the existing system and it's restraints on

implementation, designing of methods to realize trade and estimate of exchange methods.

Implementation is the method of changing a new system design into operation. It is the stage that focal points on user training, place training and file exchange for installing a contender system. The significant factor that should be considered here is that the conversion should not disturb the functioning of the organization.

A. Modules Description

1. *Sender*
    a. Text Chat
    b. Drawing Pad
    c. Identify Position
    d. Transmission
2. *Centralized Server*
    a. Get Object Input
    b. Distribute Object
3. *Receiver*
    a. Listen Server
    b. Show Object

1. Sender

a. Text Chat

The sender can able to chat with other clients through centralized server. This chatting is processed by individual or multicasting.

b. Drawing Pad

To create a drawing pad to get drawing object from user and it is used to share resource in distributed environment.

c. Identify Position

To identify the position of the object present in the drawing pad and also to find the height and width of the object drawn in drawing pad.

d. Transmission

Transmit the object value, position, height and width to the centralized server in the synchronized manner.

2. Centralized Server

a. Get Object Input

To get the object input from the sender and analyze the requested object and find the request is unicast or multicast.

b. Distribute Object

Then distribute the input object to corresponding receiver or all the receivers by effective synchronization.

3. Receiver

a. Listen Server

It is waiting for receiving the object from centralized server and finds the position in drawing pad which is coming from sender.

b. Show Objects

Place the position in a drawing pad and draw the object diagram received from the sender

VII. CONCLUSION AND FUTURE ENHANCEMENTS

A. Conclusion

In this project the efficient framework for the text and graphical chatting is developed using operation transformation algorithm. The basic idea of operation transformation is executed in this project and the effectiveness is identified from the output of this project. The front-end application design of this project enables a user or client to send the text and graphical data to any user by accessing a single window. At the same time this project has the capability to send the data to a group of users or any particular user. The general assumption underlying interactive groupware application, such as group editors, is that users are aware of the discover and resolve semantic conflicts in a timely manner.

The presented work makes the following two significant contributions: First, it proposes a novel framework (called CR due to its correctness criteria, causality preservation, and operation effects relation preservation) for interpreting and developing OT algorithms. In the theory part, it formalizes a new constraint, effects relation preservation, for constraining convergence in interactive groupware applications. Compared to the intention preservation constraint in the state-of-the-art framework CCI, it is well-formalized and subject to correctness proofs. The fects relation is naturally defined when operations are generated, except some “artificial” tie-breaking policies for handling boundary cases.

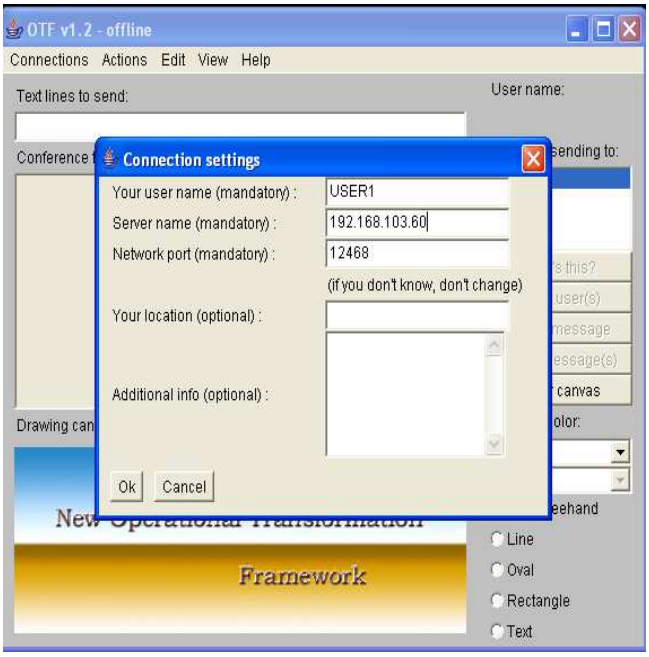
A. Future Enhancements

In future research, planning to extend this work to support tree based data structures and string operations. Another possible direction is to support selective undo such that any executed operation can be undone at any time. Conceptually, computing an admissible operation in group undo is an inverse process of that in group do. The presented work seems to provide valuable insights into this problem. In addition, this work defines a set of sufficient conditions for IT/ET as a means to develop OT algorithms and prove their correctness. In future work, it would also be interesting to study necessary conditions and even sufficient and necessary conditions.

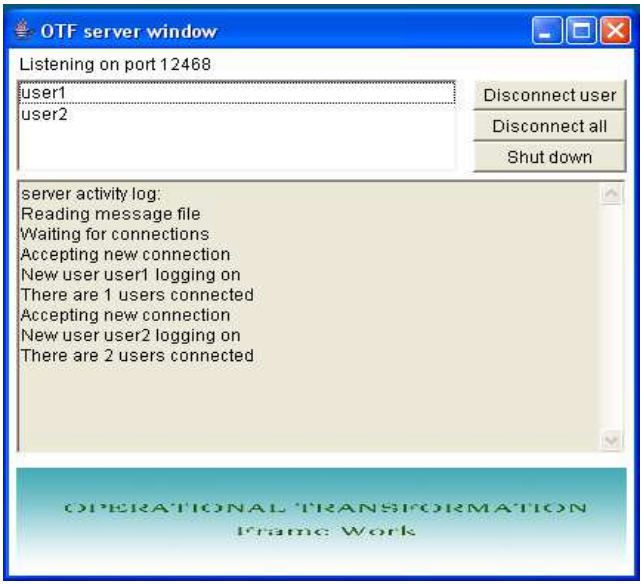
VIII. APPENDIX

A. OTF Server Window

B. LOGIN FORM



B. SERVER WINDOW AFTER CONNECTIONS



C. USERS AT GRAPHICAL CHAT

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