Title	semi-passive replication
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Citation	
Issue Date	2005-03
Type	Thesis or Dissertation
Text version	author
URL	http://hdl.handle.net/10119/1938
Rights	
Description	Supervisor: , ,

Implementing semi-passive replication conponent in distributed algorithm frame-work

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February 10, 2005

Keywords: Semi-passive replication, replication technique, neko, distributed system, fault tolerance.

A typical distributed system consists of a set of process exchanging messages via communication links. Also several computers are doing something together. Geographically,with setting computer apart, We can keep down cost to build system and improve overall processing performance in distributed system. But on the other hand, By nature of dispersion proper problem of distributed system is led to be very weak against failure. For examples, only one process failure and exchanging same message twice etc, a small failure can lead to system shutdown. Namely ,it is important to maintain processing performance as well as it when no failure if there is failure in the system. In other words, it is important to provide fault tolerance on distributed system. One kind of effective means to support fault tolerance on distributed system is redundancy. Redundancy is realized by implementing repication protocol and replicated service. While understanding replication concept is easy, Implementing it is very hard. Because of replication technique requirs that replicas processes on replicated server must maintain no inconsistent state. It is important for replicas processes to solve consensus problem in a set of replicas process. Consensus problem requires to use Failure detector for suspecting possible failure process and Reliable broadcast for sending or receiving any messages certainly. Replication technique for redundancy is distinguish two class generally. One

is Active replivation, other is Passive replication. Easily speaking Active replication has good point that if failure in the replicated server, client process requiring replicated service isn't waited by the failure. In constract Passive replication give latency client process. Passive replication has following good point which can keep down processing cost for requirement from client process.While Active replication can't. Both replication technique make up a weak point each other. Combining both Active replication and Passive replicatin, We can get replication technique which,is strong against failure and can improve processing performance cost. Semi-passive replication devised by X.de'fago is combining both technique. Already, X.de'fago has proved it's validity. But they hasn't evaluated the ability by implementing it. On this issue I focus point how to implement Semi-passive replication. But I deal with necessity consensus problem for replication, and Failure detector, Reliable broadcast. This is to show why implementing replication is hard. Also, I deal with Active replication and Passive replication. Understanding their technique is help to understand good point about Semi-pssive replication. And explain about distributed algorithm fram-work(neko). We can evaluate on both simulation and real network by using neko. we can save time and trouble that programing test case each. Also neko gave no programing technique me chance to think out program modification and idea. Last I has completed about evaluation against Semi-passive replication and future work.