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Research of Methodology for
Exception Management on Mobile Agent System

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Mobile-agent technology is considered as new network application model. Mobile-agent technology is different from client-server model in the point that the execution subject, that is agent, moves to another host.

Now some advantage will be listed. The mobility of agent reduces the amount of communication according to computation with much amount of communication and calculation, and also bring no need of the continuation of connection.

Though mobile-agent technology has some advantage above, it involves some problems. The essential problems are lack of ability to access agent's progress and security to agent (it is difficult to protect agent from place with malice). Furthermore the mobility of agent makes management of exception difficult and complex.

The purpose of this research was to establish a methodology for exception management on mobile agent in order to reduce difficulty of management of exception due to the mobility.

In the research at first I analyzed exception and studied the cause of difficulty about management of exception. For that purpose, I categorized exception. Exception was categorized into Inside Detect Exception and Outside Detect Exception in the point of detect subject. In the another point of view, issue subject User Issued Exception was added the category. Then Outside Detect Exception and User Issued Exception were difficult to manage comparing to Inside Detect Exception, because Outside Detect Exception or User Issued Exception will cause redesign of whole system and addition of new agent object in order to manage exception.

Then studying agent system the mobility of agent increase Outside Detect Exception and User Issued Exception, and it makes the management quite difficult.

Next I extracted the process of our thought when we design the management of exception, then I tried to establish the methodology for the management of Outside Detect

Exception and User Issued Exception. In the research I chose one usual software design method and I improve the method.

I categorized the methodology into two parts. One is the methodology for the management of exception closed in just one agent object, the other is the methodology for the management of exception widen to plural agent objects. The former is the subset of the latter.

The management of exception closed in just one agent object is easy, because the management of exception is closed into the agent object and easy to do the design of the management according to function analysis, but this methodology is for just Inside Detect Exception.

Next the methodology for the management of exception widen to plural agent objects which causes redesign of whole system is discussed. Usual design method is taken for the basic approach.

At last I studied the methodology using some concrete examples. The function mobility of agent was taken an example for the management of exception closed in just one agent object, and for User Issued Exception Agent Trace Server was taken.

At the end Needed Function Output System was discussed. It was designed for support application of management of exception.

In this research we understand Outside Detect Exception and User Issued Exception is difficult to manage, and we get the methodology for the difficult exception that are Outside Detect Exception and User Issued Exception.