

**CONTAINER-GENERIC ARCHITECTURE WITH PACKAGE REFACTORING
FOR MICROREBOOTS: AN ALTERNATIVE APPROACH**

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Abstract

Recovery-Oriented Computing (ROC) is a research area that interests to cope with the fault problems, instead of solving them. It is based on the idea that some unsolvable problems are not problems, but facts. Recently invention from ROC is the Microreboots technique. Microreboot is a server mechanism to reboot a subcomponent of the system when it is failed. The main contribution of Microreboot is reducing the recovery time of the system because the server employing Microreboot does not need to restart the whole system when it crashes. Using Microreboots leads to the new concept. That is the better modularizing the components, the smaller the recovery time.

This paper introduces a new algorithm for package refactoring the components supporting Microreboots to reduce recovery time. Our recursive package refactoring bases on the computation of the fault frequency ratio. We have found that our technique significantly improves reliability of the system utilizing Microreboots technique. The server architecture based on aspect-oriented paradigm is also presented. This architecture is container-generic, and can apply to the existing server system to enables Microreboots without modifying the code of application server.

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