

## Automatic Verification Technology of Virtual Machine Software Patch on IaaS Cloud

**Authors :** Yoji Yamato

**Abstract :** In this paper, we propose an automatic verification technology of software patches for user virtual environments on IaaS Cloud to decrease verification costs of patches. In these days, IaaS services have been spread and many users can customize virtual machines on IaaS Cloud like their own private servers. Regarding to software patches of OS or middleware installed on virtual machines, users need to adopt and verify these patches by themselves. This task increases operation costs of users. Our proposed method replicates user virtual environments, extracts verification test cases for user virtual environments from test case DB, distributes patches to virtual machines on replicated environments and conducts those test cases automatically on replicated environments. We have implemented the proposed method on OpenStack using Jenkins and confirmed the feasibility. Using the implementation, we confirmed the effectiveness of test case creation efforts by our proposed idea of 2-tier abstraction of software functions and test cases. We also evaluated the automatic verification performance of environment replications, test cases extractions and test cases conductions.

**Keywords :** OpenStack, cloud computing, automatic verification, jenkins

**Conference Title :** ICCCSS 2015 : International Conference on Cloud Computing and Services Science

**Conference Location :** Paris, France

**Conference Dates :** January 23-24, 2015