

DR-Cloud: Multi-cloud based disaster recovery service

Abstract:

With the rapid popularity of cloud computing paradigm, disaster recovery using cloud resources becomes an attractive approach. This paper presents a practical multi-cloud based disaster recovery service model: DR-Cloud. With DR-Cloud, resources of multiple cloud service providers can be utilized cooperatively by the disaster recovery service provider. A simple and unified interface is exposed to the customers of DR-Cloud to adapt the heterogeneity of cloud service providers involved in the disaster recovery service, and the internal processes between clouds are invisible to the customers. DR-Cloud proposes multiple optimization scheduling strategies to balance the disaster recovery objectives, such as high data reliability, low backup cost, and short recovery time, which are also transparent to the customers. Different data scheduling strategies based on DR-Cloud are suitable for different kinds of data disaster recovery scenarios. Experimental results show that the DR-Cloud model can cooperate with cloud service providers with various parameters effectively, while its data scheduling strategies can achieve their optimization objectives efficiently and are widely applicable.