Research on Resilient Distributed File Systems

Li Zhonghua[1], Li Weihua[1], Zhang Lin[2]
[1] School of Computer Science, Northwestern Polytechnical University, Xi'an Shanxi 710072, China
[2] Art Engineering College, Xi'an Engineer Science & technology University, Xi'an Shanxi 710068, China
Email: lzh_nwpu@hotmail.com   **Tel**.: 029-88488002

ABSTRACT

The high availability issue is an important research topic in distributed file systems. The distributed file systems´ resiliency refers to the ability of the import ant files to tolerate intrusion. The resiliency technology seeks an active strengthening of the systems, rather than protecting its system infrastructure using static defensive measures such as encryption, IDS, and firewalls. System resiliency involves the dynamic use of replication to achieve intrusion tolerance so that even undetected attacks do not cause system failure. The resilient file systems can deliver crucial data the essential properties such as confidentiality, integrity and availability, despite the presence of intrusions. This paper describes the resiliency approach to helping assure that the distributed file system is robust in the presence of attack and will tolerate fault that result in successful intrusions or other disaster failures. Included are discussions of resiliency as an integrated infrastructural framework, the specification of resiliency requirements, strategies for achieving resiliency, and techniques and processes for affording file system resiliency.

Keywords: Distributed file system, Resiliency, Fault tolerance, Reliability, Availability.