

网络与通信

基于随机丢包网络的网络存储系统故障检测方法

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摘要: 针对网络随机丢包的特性,研究网络存储系统在带有随机丢包的网路中故障检测失误率高的问题,提出了一种在随机丢包网路中的网络存储故障检测方法。该方法将残差发生、残差评估和误报率引入故障检测中。首先,在系统框架中实现残差发生;然后,充分利用随机丢包的随机特性获得残差评价;最后,通过切比雪夫不等式对所设计的阈值进行性能评价,即误报率的计算,给出了相应的诊断算法。仿真结果表明,该方法对故障具有较高的检测灵敏度,并且也证明了该方法的有效性。

关键词: 网络存储 故障检测 残差发生 残差评价:误报率 丢包

Fault detection approach of network storage based on random packet dropout network

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Abstract: Focusing on the random packet loss, the high failure rate of failure detection for network storage system with random packet loss was studied. A Fault Detection (FD) for network storage with random packet dropout was presented. The residual generation and residual evaluation as well as False Alarm Rate (FAR) were used in the approach. First, residual generation was carried out in the periodic system framework. Then, residual evaluation was got by making use of the stochastic properties of the random packet loss. Finally, performance evaluation of the computation of FAR is fulfilled with the assistance of Chebyshev's inequality, and the algorithms of fault detection were given. The simulation results show that this approach can effectively detect the fault. Moreover, this approach is sensitive to fault.

Keywords: network storage Fault Detection (FD) residual generation residual evaluation False Alarm Rate (FAR) packet dropout

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