

研发、设计、测试

基于SANs模型的一种并行I/O系统的可用性评估

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摘要 并行I/O系统是高性能计算机系统的一个重要组成部分,其可用性水平对整机系统性能的发挥具有重要作用。采用SANs (Stochastic Activity Networks, 随机行为网)模型及其支持工具Mobius,对一种大规模并行I/O系统建立可用性评估模型,并采用模拟方法进行解析。模拟结果反映了全局文件系统数量、单一文件系统中最小可用OST (Object Storage Target, 对象存储目标)数量和系统维修时间等参数的变化对全系统可用度的影响,对于大规模并行I/O系统的设计与维护具有积极的参考价值。

关键词 [随机行为网](#) [Mobius](#) [并行I/O系统](#) [可用性评估](#)

分类号

Availability evaluation based on SANs model for a parallel I/O system

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Abstract

The parallel I/O system is one of important components of a HPC system, and it can discount the performance of the whole system if its availability are awful. However, high-throughput and large capacity are still the main target in parallel I/O system's design by far, and few research on its availability evaluation has been published. In this paper, a method managing to evaluate a parallel I/O system's availability based on SANs (Stochastic Activity Networks) model with Mobius modeling environment is expatiated, and the simulation results reveal how the availability of the parallel I/O system is impacted on by the number of global file system, the number of minimum number of OST in a single file system, and the repair period of the whole system.

Key words [Stochastic Activity Networks \(SANs\)](#) [Mobius](#) [parallel I/O system](#) [availability evaluation](#)

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