

Reliability Analysis of Computer Centre at Yobe State University Using LRU Algorithm

Authors : V. V. Singh, Yusuf Ibrahim Gwanda, Rajesh Prasad

Abstract : In this paper, we focus on the reliability and performance analysis of Computer Centre (CC) at Yobe State University, Damaturu, Nigeria. The CC consists of three servers: one database mail server, one redundant and one for sharing with the client computers in the CC (called as a local server). Observing the different possibilities of the functioning of the CC, the analysis has been done to evaluate the various popular measures of reliability such as availability, reliability, mean time to failure (MTTF), profit analysis due to the operation of the system. The system can ultimately fail due to the failure of router, redundant server before repairing the mail server and switch failure. The system can also partially fail when a local server fails. The failed devices have restored according to Least Recently Used (LRU) techniques. The system can also fail entirely due to a cooling failure of the server, electricity failure or some natural calamity like earthquake, fire tsunami, etc. All the failure rates are assumed to be constant and follow exponential time distribution, while the repair follows two types of distributions: i.e. general and Gumbel-Hougaard family copula distribution.

Keywords : reliability, availability Gumbel-Hougaard family copula, MTTF, internet data centre

Conference Title : ICSR 2020 : International Conference on Scientific Research and Development

Conference Location : Chicago, United States

Conference Dates : December 12-13, 2020