

Stochastic Analysis of Linux Operating System through Copula Distribution

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Abstract : This work is focused studying the Linux operating system connected in a LAN (local area network). The STAR topology (to be called subsystem-1) and BUS topology (to be called subsystem-2) are taken into account, which are placed at two different locations and connected to a server through a hub. In the both topologies BUS topology and STAR topology, we have assumed n clients. The system has two types of failures i.e. partial failure and complete failure. Further, the partial failure has been categorized as minor and major partial failure. It is assumed that the minor partial failure degrades the sub-systems and the major partial failure make the subsystem break down mode. The system may completely fail due to failure of server hacking and blocking etc. The system is studied using supplementary variable technique and Laplace transform by using different types of failure and two types of repair. The various measures of reliability for example, availability of system, reliability of system, MTTF, profit function for different parametric values have been discussed.

Keywords : star topology, bus topology, blocking, hacking, Linux operating system, Gumbel-Hougaard family copula, supplementary variable

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