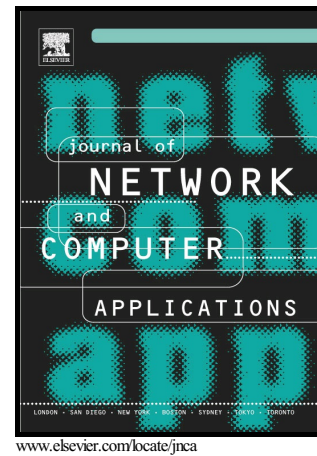


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Reliability and Energy Efficiency in Cloud Computing Systems: Survey and Taxonomy

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Abstract

With the popularity of cloud computing, it has become crucial to provide on-demand services dynamically according to the users requirements. Reliability and energy efficiency are two key challenges in cloud computing systems (CCS) that need careful attention and investigation. The recent survey articles are either focused on the reliability techniques or energy efficiency methods in cloud computing. This paper presents a thorough review of existing techniques for reliability and energy efficiency and their trade-off in cloud computing. We also discuss the classifications on resource failures, fault tolerance mechanisms and energy management mechanisms in cloud systems. Moreover, various challenges and research gaps in trade-off between reliability and energy efficiency are identified for future research and developments.

Keywords:

Cloud Computing, Virtualization, Reliability, Energy Efficiency, Resource Failure, Failure Correlation

1. Introduction

Cloud computing is the ongoing revolution in information and communication technology (ICT) that uses virtualization technology to provide a powerful and flexible computing environment. In a Gartner report published in January 2013, the growth of public cloud services will make it a

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