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Review

A survey of security issues for cloud computing

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ABSTRACT

High quality computing services with reduced cost and improved performance have made cloud computing a popular paradigm. Due to its flexible infrastructure, net centric approach and ease of access, the cloud computing has become prevalent. Its widespread usage is however being diminished by the fact that the cloud computing paradigm is yet unable to address security issues which may in turn aggravate the quality of service as well as the privacy of customers' data.

In this paper, we present a survey of security issues in terms of security threats and their remediations. The contribution aims at the analysis and categorization of working mechanisms of the main security issues and the possible solutions that exist in the literature. We perform a parametric comparison of the threats being faced by cloud platforms. Moreover, we compare various intrusion detection and prevention frameworks being used to address security issues. The trusted cloud computing and mechanisms for regulating security compliance among cloud service providers are also analyzed. Since the security mechanisms continue to evolve, we also present the future orientation of cloud security issues and their possible countermeasures.

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1. Introduction

Cloud computing has gained wide acceptance for organizations as well as individuals by introducing computation, storage and software based services. It is used to address the resource scarcity issues of its clients by providing them with on-demand pay-per-use services (Buyya et al., 2011). It incorporates a centralized collection of resources called a *cloud* connected through a high speed network. The global availability of high performance resources, support of a large number of services, and ability to store large amount of data have made it ubiquitous. Even with the modern smartphones, the cloud computing is able to serve multiple purposes ranging from backup of contacts to the execution of complex applications through computation offloading (Sanaei et al., 2014; Kumar et al., 2013). Moreover, the reduced cost of services and an assurance regarding quality make it an attractive solution for mitigating the issue of constrained resources. Since a cloud computing platform provides services by sharing valuable resources, an adequate usage of these resources may be achieved by ensuring that the platform is able to counter security threats which may otherwise deteriorate its performance and reliability.

An overview of a public cloud computing platform is shown in Fig. 1. The cloud platform is usually equipped with high performance server machines, high speed storage devices and an

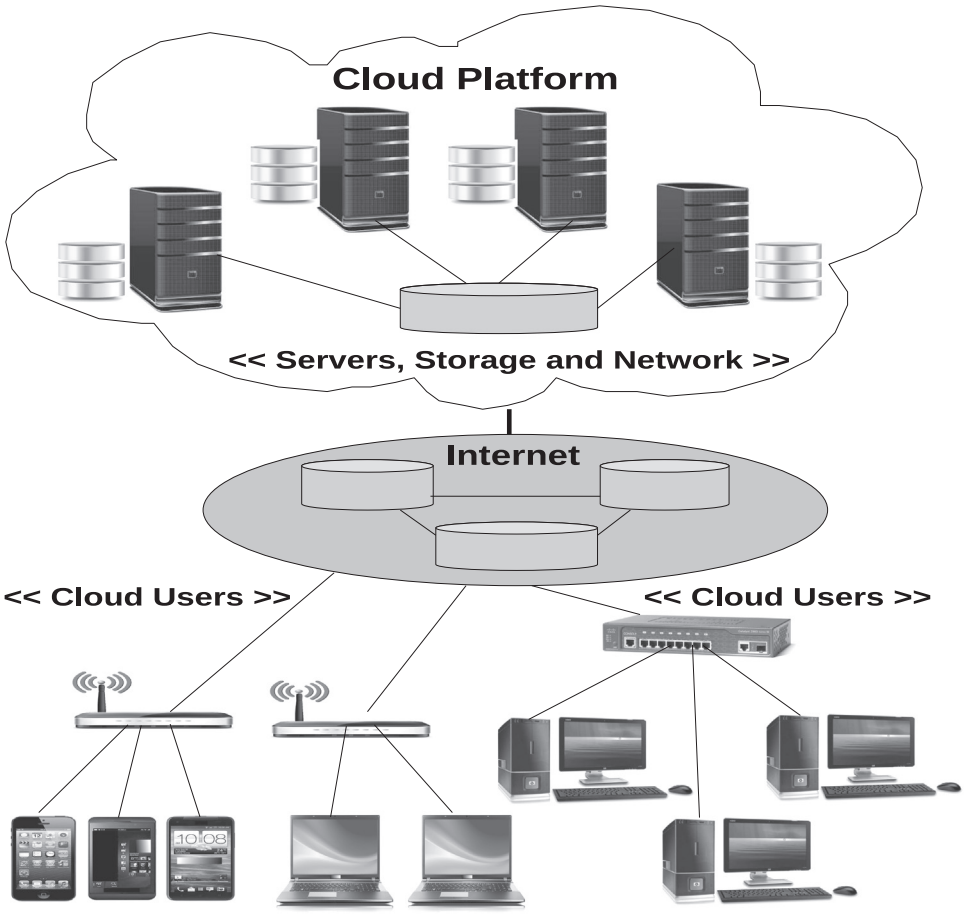

Fig. 1. Cloud computing architecture with cloud users connecting to a public cloud platform through internet.