Chapter 13
COT:
Evaluation and Analysis of Various Applications With Security for Cloud and IoT

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ABSTRACT

The Cloud of Things (CoT) is the multi-domain, emerging, and dynamic technology in today's era. Cloud of Things can perform security services and virtualization with different sensor devices for a powerful and scalable high-performance computing. The author emphasizes the evaluation of various applications used in Cloud of Things. The chapter has been this chapter is divided into two parts which cover the significance of the Cloud and Internet of Things. The chapter focuses on introduction of the Cloud, IoT, and CoT and shows the security and challenges occurring in CoT. It also covers the security issues in IoT with different applications. The chapter will help the academician, researchers, and industry professional to further investigate the associated area of Cloud IoT, and it also helps them find solutions from different perspectives.

INTRODUCTION

The term "Cloud computing" involves performing computer tasks utilizing administrations and conveyed totally through the Internet. Cloud computing (D.Miorandi, 2012) is an improvement a long way from applications and holding up to be presented on a person's computing systems towards the applications being encouraged on the web. (The "cloud" implies the Internet and was more appealing by specific stream blueprints and diagrams, which have a tendency to use a cloud picture to address the Internet.). In simple terms, the cloud computing means storing and accessing of data and programs through internet in place of any physical media like hard drive or any external memory (like flash memory, CD etc). The cloud is not about having personal or devoted network or server at residence it is about storing data over the mass database with the help of internet. Storing data at home network or office network also doesn't means that people are utilizing cloud concept. The "cloud" is considered as integration of various types of hardware devices and software programs that work collectively to convey many aspects of computing to the consumer as an online service. As per the analysis given by Lenovo.com, 95% of people these days are using cloud as storage for many purposes like storing mobile pictures, social networking updates and also for online banking etc. From cloud computing a user can manage various data files and related applications using digital device which works with internet (Burak Kantarci, 2014).

As per IEEE (S Kumar, 2012):

Cloud computing is a combination of grid, distributed and parallel computing which is used to achieve virtualization for enabling convenient, on-demand network access to a shared pool of computing resources. It is composed of five essential characteristics (on-demand self-service, ubiquitous network access, location-independent resource pooling, rapid elasticity, and measured service), three delivery models (SaaS, Paas, and Iaas), and four deployment models (public, private, hybrid and community).

Cloud computing cultivates flexibility and consistent adaptability of IT resources that are offered to clients through the Internet. It enables endeavors to enhance the modelling and distribution of IT services by providing them access of services with minimum cost (R. Buyya, 2013). This is the reason why the usage of cloud computing growing day by day.

There are many applications which are emerging in cloud with IoT like smart city, health monitoring, transportation and infrastructure. In this perspective smart cities like advance communication infrastructure, advance traffic monitoring are used for avoiding congestion. It also provides the optimized use of physical city infrastructure. This solution provides easily while data present over cloud and provide security

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