

# Chapter 10

## Mobile Cloud Computing Integrating Cloud, Mobile Computing, and Networking Services Through Virtualization

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### ABSTRACT

*Mobile computing is a critical technology area which is actively integrated with field of cloud computing. It is broadly an application of virtualization technology at both ends of client server architecture. The mobile and cloud computing is a natural combination as mobile devices have limited computing and storage capacity, thus to reap the benefits of high end computing, cloud is the answer. Thus, amalgamation of mobile platform with cloud platform is inevitable. This chapter shall deliberate on the various aspects of mobile computing, mobile cloud computing and its relationship with virtualization technology. The detailed integration aspects and virtualization shall be signified through case study and suitable real time examples. The chapter shall envisage a case study, modeling the virtualization in the context of mobile cloud.*

### INTRODUCTION

The mobile cloud computing is established on cloud computing. It assimilates the cloud computing with mobile computing. This integration is accomplished using the virtualization technology. The chapter refers to the technologies involved in mobile cloud computing with a spotlight on the practical aspects and their industrial exploit. The role of virtualization in these aspects shall be highlighted. Along it the high level abstraction at virtualization level is demonstration with the implementation of mobile computing.

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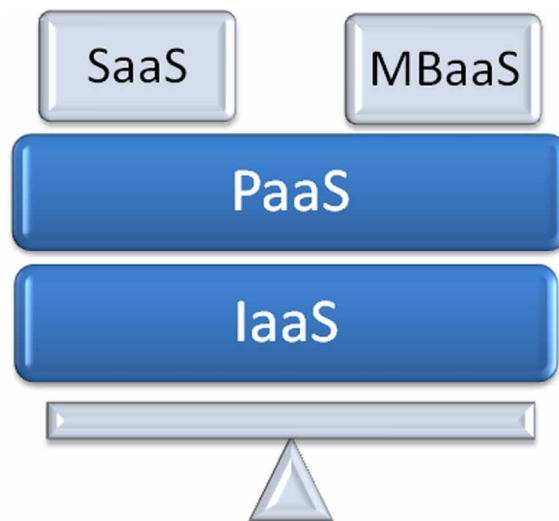
## 1. CLOUD COMPUTING

The term cloud computing refers to remote computation using the shared data storage and processing systems with the help of Internet based services. (Wang, C. et al., 2010) It acts as a basic framework for shared resource access for a variety of models like networking, storage and services. It requires the least amount of investment in managing and operating the resources. The decrease in operating cost is linked with remote and shared infrastructure in multiple parts of the world. The combined cost of operating the systems leads to lower cost of owning and operating the hardware and software systems. Also, the support system like UPS, power supply and other additional cost are significantly reduced in the cloud computing environment.

### 1.1 Working of Cloud Computing

Cloud computing is made up of two words where cloud related to internet with computing to data processing. It may be defined as the use of various information technology services including hardware related from remote locations using common interaction. These services have shared infrastructure to deliver high performance computation, storage and other solution to their clients.

*Figure 1. Different types of cloud computing illustrated in stacked relationship (Designed by author)*



### 1.2 Types of Cloud Computing

The cloud computing has been divided into four major services by the researcher. These major types of services are SaaS, PaaS, IaaS, and MBaaS. (Kavis, M. J., 2014)

- SaaS stands for software as a service which has all the functions built-in. These functions are only configuring as the user requirement by the expert of that respective service.

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