Chapter 12
Mobile Cloud Computing Framework for an Android–Based Metaverse Ecosystem Platform

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ABSTRACT

Mobile cloud computing (MCC), which combines mobile computing and cloud computing, has become one of the industry's most common terms and a major topic of discussion in the IT world. Mobile clients are becoming popular clients for consuming any web resources, particularly web services (WS), as mobile network infrastructures improve. However, there are problems connecting mobile devices to existing WS. This research focuses on three of the following challenges: loss of connection, bandwidth, latency, and limited resources. This research proposes to develop and implement a cross-platform architecture for connecting mobile devices to the web. The architecture includes mobile service clients that work on any platform and a Metaverse ecosystem that makes it easier for mobile clients and WS to talk to each other. Finally, the Metaverse ecosystem can be deployed on the cloud metaverse platform, which may create more immersive and dynamic virtual worlds that are accessible to a wider audience by utilizing the power of the cloud.

INTRODUCTION

Virtual worlds, or the metaverse, are become easier for the general public to access as technology develops. The term "metaverse" describes a virtual environment where users can interact, communicate, and take part in a variety of activities in a 3D setting. Cloud computing is one of the main technologies that has made this possible. The development of cloud computing has made it possible to create and maintain virtual worlds on a much bigger scale. Developers may create more immersive and dynamic virtual worlds that are accessible to a wider audience by utilizing the power of the cloud. In this blog article, we'll look at how cloud computing is opening up the metaverse and its advantages for both users and developers. A significant increase in application models such as cloud computing, software as a service, community networks, web stores, and others has been seen in recent years as a result of developments in network-based computing and on-demand applications. Cloud computing is frequently defined as a collection of services offered via an Internet-based cluster system. These cluster systems are made up of several inexpensive servers or personal computers (PCs), which organize their various resources following a predetermined management strategy and provide customers with secure, dependable, quick, convenient, and transparent data storage, access, and computing services. The number of smartphone users has already surpassed 1 billion at this time (Mishra, Lin, & Chang, 2014). Therefore, using mobile devices for computing has become a more practical idea than the traditional method. However, numerous shortcomings, like the lack of storage and processing capacity and the short battery life of mobile devices, have emerged as difficulties for MC technology. The cloud may offer a practical remedy for overcoming these difficulties. Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS) are all components of cloud computing, which combines the virtualization of numerous resources with a distributed computing model (IaaS). Numerous cloud services providers, like Microsoft Azure and Amazon EC2, offer seamless elastic processing and storage that is "on-demand" and "pay as you use" (Mishra, Chang, & Lin, 2014). Therefore, the combination of mobile computing with cloud computing (CC) has resulted in the development of a more advanced technological strategy known as mobile cloud computing (MCC). MCC can be defined as nothing more than cloud computing with mobile devices acting as thin clients. To support mobile clients using Web services, this research paper suggests a mobile cloud computing architecture that makes use of a cloud-hosted metaverse ecosystem (cloud services). The architecture offers a framework for personal service mash-ups for mobile clients and improves the interaction between mobile clients and Web services.

Motivation to Develop an Android Metaverse Ecosystem Framework

The fact that there are more mobile users nationwide than there are service providers, but the availability of services is quite limited, inspired me to create this framework for mobile cloud computing. The best server technologies are available through the Internet service provider, enabling cloud computing services. The cloud computing business will have a fantastic possibility to expand faster in the nation if the solution I'm suggesting is put into practice.

Despite heterogeneous environments and platforms, mobile cloud computing technology manages integrated elastic resources of various clouds and network technologies toward unlimited functionality, mobility, and storage to support a large number of mobile equipment anywhere and at any time through the Ethernet channel or Internet (Web Services Architecture, 2004). MCC is a system that allows data to be processed and stored in the cloud rather than on a mobile device. In MCC, computational power and data storage are transferred from mobile devices to the cloud, offering mobile cloud apps and mobile computing to a wider spectrum of mobile subscribers in addition to smartphone users (Google App

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