

A Review on Mobile Cloud Computing with its Advantages



Computer Science

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ABSTRACT

In this we made a simple survey on how cloud computing is made a impact in mobile telecommunication and what are the benefits from this mobile cloud computing (MCC). This paper gives the idea to the researchers who wish to do the research in the one of the current technology that is mobile telecommunication and with fascinating technology called cloud computing.

I. Introduction

Before going for Mobile Cloud Computing (MCC) we need to take small introduction about mobile phone and mobile communication. A mobile phone and is known as a cellular phone, cell phone, a hand phone or portable device that can make and receive telephone calls over a radio link while moving around a wide geographic area. It does so by connecting to a cellular network provided by a mobile phone operator, allowing access to the public telephone network. By contrast, a cordless telephone is used only within the short range of a single, private base station. Mobile communication is a communication network that does not involve cable or wire connection between two entities. The current mobile communications technologies are GSM, (Global System for Mobile Communications), and CDMA (Code Division Multiple Access).

Now we can take look at Mobile Cloud Computing (MCC) is a one of the distributed computing paradigm having three different kinds of mobile computing domains namely Mobile Computing, Cloud Computing and Wireless networks targeted to expand the computational capabilities mobile devices to meet the rich user experiences. MCC provides wide range of business opportunities or we can say that MCC gives the opportunities for more profitability to the mobile operators as well as cloud providers because now a days all most all users having smart phone with fast internet facility in their handsets. MCC gives chances to the mobile telecommunication companies a service to provide the cloud computing services for their users and some companies are implementing them. MCC can be defined as a combination of mobile web and cloud computing which is the most popular tool for mobile users to access applications and services on the Internet. MCC provides mobile users with the data processing and storage services in clouds. The mobile devices do not need a powerful configuration (e.g., CPU speed and memory capacity) since all the complicated computing modules can be processed in the clouds^[1].

In MCC, mobile users need to access to servers located in a cloud when requesting services and resources in the cloud. However, the mobile users may face some problems such as congestion due to the limitation of wireless bandwidths, network disconnection, and the signal attenuation caused by mobile users' mobility. They cause delays when users want to communicate with the cloud, so QoS is reduced significantly^[1].

II. Mobile Cloud Trends

The rise of mobile cloud applications can be attributed to the rising cost of deploying and supporting native applications and the fact that development tools are getting better all the time. HTML5 and CSS3 adoption is on the rise, making it easier to design and build mobile cloud apps. Basically, an HTML5 specification tells a Web browser what to display and a CSS3 specification tells the Web browser how to display it.

Corporations are getting pressure from their customers to build mobile cloud apps or make existing applications available via

mobile devices. If they fail to do so, they are in danger of losing ground to competitors.

Mobile network operators (MNOs), such as Vodafone and Verizon, and other cloud vendors such as Global One are entering the mobile marketplace with mobile clouds that compete with other non-MNO vendors.

The resource-poor nature of mobile devices is driving the adoption of mobile cloud computing. Mobile apps are becoming more powerful as processing power is off loaded from mobile devices to the mobile cloud. Mobile devices that are 4G LTE (Long Term Evolution) compatible, which support bandwidth intensive apps and reduce latency issues, are helping to open markets for mobile cloud apps.

Mobile clouds centralize the management and security of mobile devices, placing mobile device users into a safer, more controlled environment. This is being driven by the plethora of mobile devices of differing types, with different operating systems^[2].

III. Infrastructures provided for Mobile Application development.

Mobile devices have differing operating systems, differing screen sizes, differing attributes, such as GPS. Developing a mobile app that runs on many devices provides the cross-platform capability to make more mobile apps available to users, but it creates a lot of work for developers. If developers implement an app for one set of mobile devices -- say, Samsung or AT&T or Motorola -- they must be ready to deal with additional new devices from these vendors every few months.

Use mobile clouds and tools to simplify mobile app development for multiple mobile devices : The big problem for mobile app developers is to create an app that can be run on multiple mobile devices without having to build the app for each particular device. We have suggested the mobile cloud as a solution to this problem. There are tools that make this solution much easier.

Mobile app development using MEAPs:

With mobile apps and their data running on the mobile cloud, we still have to support differing types of devices with different screen sizes from different mobile device manufacturers. One set of tools that can run on the mobile cloud that make this task easier are referred to as Mobile Enterprise Application Platforms (MEAPs).

A MEAP is a comprehensive suite of products and services that enable development of mobile applications. MEAP platforms do some things specifically for mobile devices, such as make sure that the data sent to the mobile device from the mobile cloud fits on the mobile device screen. A MEAP's platform converts data into a user-friendlier interface for the mobile device. It has an authentication mechanism in it that reaches all the way down to

the device so that, if the device is lost or stolen, it can be wiped. One such MEAP platform is the multi-tenant Sybase MEAP. It does the conversion on the fly to make data fit the mobile device screen. The Sybase MEAP secures the mobile device and then does the conversion. One company, Marcus & Millichap, takes a slightly different approach. It uses a content management system (CMS) developed by SiteCore that automatically renders to all mobile devices, removing the need to write device-specific apps for iPhone and Android phones.

Mobile app development using HTML5: A second approach to use in creating mobile cloud apps for multiple mobile devices is HTML5. HTML5 allows you to determine, to some extent, what the end mobile device is. It can query in real time and determine that data information is being served to a mobile device with a certain set of dimensions. On the fly, it can determine what those rendering characteristics should look like. This is a dynamic exercise, and it is all done in the cloud, where there is a lot more processing power (and it is needed).

IV. Advantages

There some advantages of Mobile Cloud Computing those given below:

- ❖ Mobile devices can be allowed access to powerful, back-end business apps, if sufficient security is provided.

- ❖ More mobile apps can be made available to a broader audience.
- ❖ Multiple security apps that check mobile device security can be run on the mobile cloud, providing much broader and more comprehensive security checking for mobile devices.
- ❖ Running mobile apps on a mobile cloud makes many more apps available for organization users.
- ❖ Use of the mobile cloud allows mobile devices to be included in the centralized security scheme of the cloud^[3].

V. Conclusion

From this paper we can summarize that Mobile cloud computing is one of mobile technology trends in the future since it combines the advantages of both mobile computing and cloud computing, thereby providing optimal services for mobile users.

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