

Mobile Cloud Computing through J2ME application: Cloud Enabled Web Services

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Abstract

Advancement in mobile computing and application of the J2ME applications are become out dated. J2ME mobiles are low cost, energy efficient and with long battery life. But these mobile having less processing capabilities then newly designed mobile devices. Thus required to enhance the processing capability of these mobile thus required a light weight cloud web service based application strategy for executing the large process. In this paper we design and develop rich document exploration using J2ME mobiles and Cloud Web Service (CWS).

Keywords

Cloud Web Services, Java 2 Micro Edition, offloading

1. Introduction

Cloud computing is one of the most adaptable one. Purpose of cloud computing used as a service rather than a product. The cloud is dynamic platform for offloading due to elastic resource provisioning. Offloading refers to availability of files used in cloud system which was accessed by mobile interface system. In 2012, N.Mallikharjuna Rao, C.Sasidhar, V. Satyendra Kumar,[10].Cloud computing is the new technology that has various advantages and it is an adoptable technology in this present scenario. The main advantage of the cloud computing is that this technology reduces the cost effectiveness for the implementation of the Hardware, software and License for all. This is the better peak time to analyze the cloud and its implementation and better use it for the development of the quality and low cost education for all over the world. In this paper, we discuss how to influence on cloud computing and influence on this technology to take education to a wider mass of students over the country. We believe cloud computing will surely improve the current system of education and improve quality at an affordable cost.

this concept over J2ME enabled mobile device as a scope of this work. Traditional architecture slightly

changed because of less memory and battery of java enabled mobile, thus required to change proxy architecture which is changed and used with available web service.

Proposed design of cloud based mobile computing architecture enables a faster and effective way to read any text document. Android supported mobiles are used but each mobile user doesn't afford the android mobile because of its cost.

Portability and its interfacing over various web services were imparted to cloud. Cloud enables availability and scalability system.

2. Literature Review

In this section huge amount of work is available related to cloud computing but too few work available for mobile devices. If some literature available for mobile devices then these works as around for smart phones that are available with higher resources than normal J2ME mobile devices. Thus required to design application for the system or for J2ME mobiles that works for low resources mobile instruments. Improve the computational ability of mobile application because normal J2ME mobile are not able to store cloud services. There are limited resources for mobile computation thus the computational out sourcing and processing system required. A generalized system required that are not only works on high configuration mobiles but also works with simple web enabled mobiles. Save the memory of the mobile because it works on simple mobile phones save energy because of simple mobile phones not having long battery backup.

In 2009, Marios D. Dikaiakos and George Pallis, Dimitrios Katsaros, Pankaj Mehra, Athena Vakali,[1].One vision of 21st century computing is that users will access Internet services over lightweight portable devices rather than through some descendant of the traditional desktop PC. Because users won't have (or be interested in) powerful machines, who will supply the computing power. Cloud computing is a recent trending in IT

that moves computing and data away from desktop and portable PCs into large data centers. It refers to applications delivered as services over the Internet as well as to the actual cloud infrastructure — namely the hardware systems and software in data centers that provide these services.

In 2009, Zehua Zhang and Xuejie Zhang [2], Cloud computing is still in its infancy, currently, there is not a standard available for it, portability and interoperability is also impossible between different Cloud Computing Service Providers

Although cloud computing is generally recognized as a technology which will have a significant impact on IT in the future. However, Cloud computing is still in its infancy, currently, there is not a standard available for it. The widely deploy and quick development of cloud computing, there is still a long distance to the fine scenery which theoretically depicted by cloud computing. We analyze the problems in the current state of the art, put forward that Open Cloud Computing Federation is an inevitable approach for the widely use of cloud computing and to realize the greatest value of it. Accordingly, we proposed MABOCCF (Mobile Agent Based Open Cloud Computing Federation) mechanism in this paper, it combines the advantages of Mobile Agent and cloud computing to provide a realization for the Open Cloud Computing Federation, MABOCCF can operate over multiple heterogeneous Cloud Computing platforms and realizes portability and interoperability. It can be a beginning of open cloud computing federation and a future part of cloud computing. The rationalities and the motivations for the combination of Mobile Agent and Cloud Computing, is used as a prototype given with a performance analysis.

In 2008, Rajkumar Buyya, Chee Shin Yeo, and Srikumar Venugopal [3], Such identifies various computing paradigms promising to deliver the vision of computing utilities. Cloud computing and provides the architecture for creating market-oriented Clouds by leveraging technologies such as Virtual Machine. In 2009, Mahadev Satyanarayanan, Paramvir Bahl, Ramon Caceres, Nigel Davies [4]. Mobile computing is at a fork in the road. After two decades of sustained effort by many researchers, techniques and mechanisms to provide a solid foundation for this still fast-growing area. Ubiquitous email and Web access is a reality that is experienced by millions of users worldwide through their BlackBerries, iPhones,

Windows Mobile, and other mobile devices. Continuing on this road, mobile Web based services and location-aware advertising opportunities have begun to appear. Large investments are being made in anticipation of major profits towards technological growth. The mobile device typically functions as a thin client with respect to the service. A cloudlet is a trusted, resource-rich computer or cluster of computers that is well-connected to the Internet and is available for use by nearby mobile devices.

Table-I

	Cloudlet	Cloud
State	Only Soft State	Hard and Soft State
Management	Self-managed; little to no professional attention	Professionally administered, 24x7 operator
Environment	“Data center in a box” at business premises	Machine room with power conditioning and cooling
Ownership	Decentralized ownership by local business	Centralized ownership by Amazon, Yahoo!, etc.
Network	LAN latency/bandwidth	Internet latency/bandwidth
Sharing	Few users at a time	100s-1000s of users at a time

In 2010, Karthik Kumar and Yung-Hsiang Lu”, [5]. The cloud heralds a new era of computing where application services are provided through the Internet. Cloud computing can enhance the computing capability of mobile systems, but is it the ultimate solution for extending such systems’ battery lifetimes.

In 2010, Gonzalo Huerta-Canepa, Dongman Lee, [6]. A mobile device like a smart phone is becoming one of main information processing devices for users these days. Using it, a user not only receives and makes calls, but also performs information tasks. However, a mobile device is still resource constrained, some applications, especially work related ones, usually demand more resources than a mobile device can afford. To alleviate this, a mobile device should get resources from an external source. One of such sources is cloud computing platforms. Nevertheless an access to these platforms is not always guaranteed to be available is too expensive to access them. A way to overcome this issue by creating a virtual cloud computing platform

using mobile phones. The pervasiveness of mobile phones and the enhancement in their capabilities this idea is feasible. We show prior evaluation results to support our concept and discuss future developments.

In 2011, Dijiang Huang, [7]. Mobile cloud computing is an emerging cloud service model following the trend to extend the cloud to the edge of networks. It includes numerous mobile devices that are closely associated with their users. They will be directly involved in many cloud activities that extend the cloud boundaries into the entire cyber physical system. Thus, mobile devices will become more important and will be involved in almost all aspects of our daily life. In this letter, we describe what is mobile cloud computing, including its scope, current developments, and research challenges. Our discussion is based on a mobile cloud computing platform that is currently developing at Arizona State University [2]. Applications relying on mobile cloud computing. Finally, have good prospects.

In 2009, Xinwen Zhang, Joshua Schiffman, Simon Gibbs, Anugeetha Kunjithapatham, and Sangoh Jeong, [8]. Cloud computing provides elastic computing infrastructure and resources which enable resource-on-demand and pay-as-you-go utility computing models. New applications can leverage these models to achieve new features that are not available for legacy applications. In our project we aim to build elastic applications which augment resource-constrained platforms, such as mobile phones, with elastic computing resources from clouds. An elastic application consists of one or more web lets, each of which can be launched on a device or cloud, can be migrated between them according to dynamic changes of the computing environment or user preferences on the device. This paper overviews the general concept of this new application model, analyzes its unique security requirements, and presents our design considerations to build secure elastic applications. As first steps we propose a solution for authentication and secure session management between web lets running device side and those on the cloud. then proposed secure migration and how to authorize cloud weblets to access sensitive user data such as via external web services. We believe some principles in our solution can be applied in other cloud computing scenarios such as application integration between private and public clouds in an enterprise environment.

In 2012, Paramvir Bahl[‡], Richard Y. Han[†], Li Erran Li, Mahadev Satyanarayanan, [11]. The capabilities of

mobile devices have been improving very quickly in terms of computing power, storage, feature support and developed applications. However, these mobile applications are still intrinsically limited by a relative lack of bandwidth, computing power and energy compared to their tethered counterparts. Cloud computing offers abundant computing power that can be tapped easily. Such as Apple iCloud and Amazon Silk browser are two recent mobile applications that leverage the cloud example. In this paper, we systematically explore the fundamental issues when combining mobile and cloud computing.

In 2011, Hoang T. Dinh, Chonho Lee, Dusit Niyato, and Ping Wang, [12]. Together with an explosive growth of the mobile applications and emerging of cloud computing mobile cloud computing (MCC) has been introduced to be a potential technology for mobile services. MCC integrates the cloud computing into the mobile environment which overcomes obstacles related to the performance (e.g., battery life, storage, and bandwidth) and security (e.g., reliability and privacy) as discussed in mobile computing. This paper gives a survey of MCC, which helps in have an overview of the MCC including the definition, architecture and applications. The issues, existing solutions, and approaches are presented.

3. Adopted Approach

A. Formulation

In 2012, Dusit Niyato, Ping Wang, Ekram Hossain, Walid Saad, and Zhu Han, [9]. Mobile cloud computing aims at improving the performance of mobile applications and to enhance the resource utilization of service providers. In this paper, we consider a mobile cloud computing environment in which the service providers can form a coalition to create a resource pool to support the mobile applications. First, an admission control mechanism is used to provide services of mobile applications to the users given the available long-term reserved resources in a pool. An optimization formulation is introduced to obtain the optimal decision of admission control. Then, for a given coalition of service providers, the revenue obtained from utilizing the resource pool has to be shared among the service providers. A coalitional game model is developed for sharing the revenue. In addition, since the service providers can decide on short term capacity expansion of the resource pool, a game model is introduced to obtain the optimal strategies of service

providers on capacity expansion such that their profits are maximized

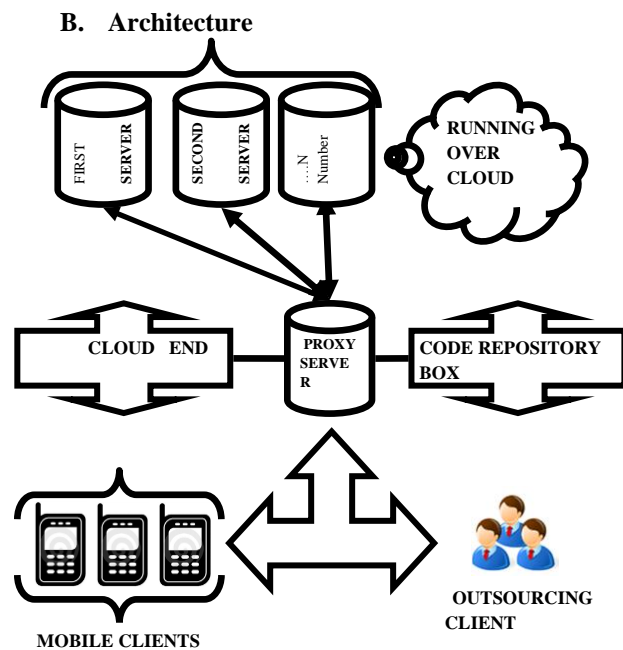


Figure 1: Existing Architecture

There are three components at the cloud end: the proxy, code repository and server. The proxy provides a gateway between the mobile device and the cloud backend. In some cases, the proxy could be replicated in the cloud for scalability, and in others, the proxy could be local to the device and outside the cloud. The proxies are configured to have access to a code repository which contains popular code components that may be launched on a cloud server. Each mobile server is used to hold services for some mobile devices. The mobile proxy can start the mobile server dynamically when new requests are received. The mobile proxy has the information of mobile servers that it manages. It can make decision on where to start the server, to start a new server or deploy the service on a running server. Since the mobile devices and the mobile server may run different versions of code, it is necessary to have the code repository to store the source code of popular service components for the mobile server.

The code repository can be located either in or out of the cloud. For optimization purpose, it can be set within the cloud close to the mobile servers to decrease the access time of the source code.

4. Proposed System

A. Problem Domain

The main problem is limited resource of the mobile devices. Like memory for execution a long application and the battery of the mobile phones. If memory is increased like the traditional system and battery backup then the mobility of the system effected. Thus required a new system by which the constraints related to memory and battery is solved.

B. Solution Domain

To overcome these limitations, we propose the use of a cloud as a backend to outsource mobile computations. A public cloud, such as GOOGLE DOCs can provide elastic and “unlimited” computation. Thus, it can adjust the amount of resources according to the service requests and provide large-scale deployment easily. It can also enable easy data and compute sharing among multiple devices interacting with each other or through the same application. However, a cloud may be limited by its connectivity to the mobile devices and its benefit is likely to be highly dependent on the computation-communication trade-off in an application.

C. Proposed Architecture

According to the designed architecture we simply make the request for the process our document. Service gets the required parameters to execute the request after execute the request it return a web document for view the local web browser of mobile. Hence designed two modules.

Client Side Mobile Application: this application helps to the user and provides the interface to select document to view and to connect from the cloud service.

Server Side Document Execution: in this application accept the user request and process the request for mobile client.

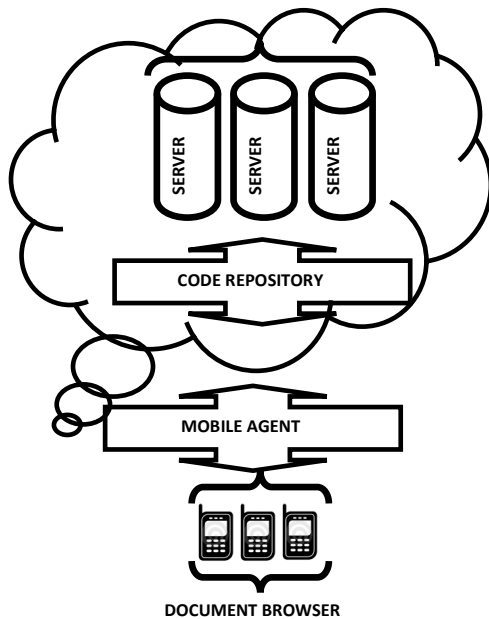


Figure 2: Proposed Architecture

5. Analysis Prepared

In this section of project we provide the complete analysis based on proposed architecture of the system required to design which involves the basic strategy of system design the complete system contains first some j2me based mobile users these users are making request for service to the design cloud server. The designed server gets the information from the client using web service this service upload user file to server. Server executes the request and converts this file to extract image and text information form of file after that server system write into html file using provided text and image. The below given diagram provide the basic flow of the system designed.

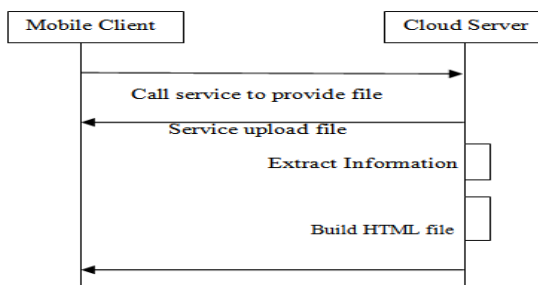


Figure 3: Basic Working of System

6. Conclusion and Future work

This model can be incorporated with existing scenario of cloud base mobile environment although light weight mobile application can be easily accessible via mobile agent. Mobile agent can be used as a middleware to code repository & mobile browser. File which is not supported in J2ME application can easily viewed using this application. Power and Memory resource consumption is reduced. Response time is increases as the size of file is increase. Memory uses in server and client side increases according to the file size. Cloud as library services and other architecture for processing large data in cloud for data mining, web mining and other applications. Above suitable application future work have wide prospects. However our work is concerned with smart devises which are favourable as hand held devices, such as ipad, tablet etc.

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