Implementing Software as a Service in Cloud using Android Applications

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Abstract— T**he software as a service is provided using android applications. The cloud client is authenticated to get software services from the cloud server. The services include running java applications without installing java API in our mobile and just by getting interacted with server. Also the remote systems which are connected with cloud server can be controlled from any system. This includes logging off, switch off and closing some application and accessing some contents from remote system. This also provides unicast and multicast messaging services which is useful if we want to share any important message from remote area but we do not have any system with internet facility. All these services are provided in secured way as we are giving IP address based authentication. Nobody can share the provided service with others and abuse the services by sending false messages.**

Index Terms—**Cloud computing, Mobile computing, Remote monitoring, Software-as-a-service.**

I. INTRODUCTION

The number of Smartphone users and mobile application are growing rapidly. There are several mobile Operating Systems (OSs), such as symbian, iOS, Android, and Windows Mobile. Because thousands of application developers construct many kinds of application for these platforms, users can easily enjoy their individual Smartphone lifestyle.

Though smart phones are expected to provide PC-like functionality, hardware resources such as CPUs, memory, and batteries are still limited. Therefore, many application developers are forced to take these constraints into consideration. To solve this resource problem, some researchers have proposed solution of using server resources in the cloud for smart phones.

We can use Android, an open-source mobile OS as a Server Platform which enables many users to use resources on remote cloud servers. Using this mobile OS enable the reuse of much mobile application that is designed to be used on Smartphone interfaces, such as software keyboards, touch panels and many sensors. Since a resolution of mobile OS is small, it is better to use a remote application via a network than a desktop OS. The main reason to use Android as a server platform is that it is able to run not only for smart phones but also for the x86 platform including servers.

II. LITERATURE SURVEY

Stylish and versatile phones packing hardware features like GPS, accelerometers, and touch screens are nice platform to create innovative and attractive mobile applications. The existing mobile development which have been built with normal operating systems are restricted to third-party applications, Android offers an open and equal alternative. Without artificial barriers, Android developers are free to write applications that take full advantage of increasingly powerful mobile hardware. As a result, developer interest in Android devices has made their 2008 release a hugely anticipated mobile technology event.

Cloud Computing is the upcoming area in the real Networks, but to utilize this Cloud Computing Resource Computer like Hardware is required. Managing the Cloud Computing through Mobile is not an easy job till now. User cannot access their Remote Network through GPRS Connectivity using Mobile. Cloud integrative Mobile Applications are not in Use. Though smart phones are expected to have PC-like functionality, Hardware Resources such as CPUs, Memory and Batteries are still limited.

A. VM-Based Cloudlets in Mobile Computing

This paper discusses the technical problems to this transformation, and proposes new system architecture to overcome them. In this architecture, a mobile user exploits virtual machine (VM) technology to rapidly instantiate Customized service software on a

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nearby cloudlet, and then uses that service over a wireless LAN. 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. In this architecture, a mobile user uses VM.

Our strategy of leveraging transiently-customized proximate infrastructure as a mobile device moves with its user through the physical world is called cloudlet-based resource-rich mobile computing. Crisp interactive response, which is essential for seamless augmentation of human cognition, is easily achieved in this architecture because of the physical proximity and one-hop network latency of the cloudlet. Using a cloudlet also simplifies meeting the peak bandwidth demand of multiple users in interactively generating and receiving media such as HD video and high-resolution images. Rapid customization of infrastructure for diverse applications emerges as a critical requirement of this architecture. We present results from a proof-of-concept prototype that suggest that this requirement can indeed be met through VM technology.

B. Cloud Computing for Mobile World

Cloud computing in mobile platforms has invoked a new wave of evolution in the rapidly developing mobile world. Although several striking research work has been conducted in the high computing counterparts of mobile technology, the field of cloud computing for mobile world is vastly unexplored. In this paper, we introduce the concept of Mobile Cloud Computing (MCC), its inner workings and the various implement table architectures related to MCC.
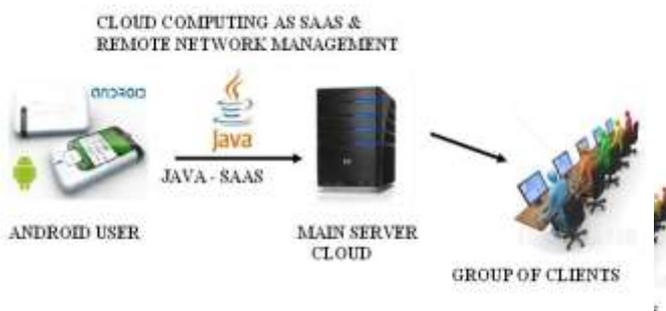
III. IMPLEMENTATION

Fig 1.System Architecture

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A. Mobile Client

An Android mobile client is an application that access a service made available by a server. The server is often (but not always) on another computer, in which case the client accesses the service by way of a network. The term was first applied to devices that were not capable of running their own stand-alone programs, but could interact with remote computers via a network.

B. Software As a Service

Cloud Computing, as the name suggests is a style of computing where dynamically scalable and often visualized resources are provided as a service over the internet. These services can be consumed by any user over a standard HTTP medium. The user doesn't need to have the knowledge, expertise or control over the technology infrastructure in the "cloud" that supports them..

Cloud Servers offer increased flexibility and higher quality than dedicated server solutions. Cloud servers are highly available and will automatically respond to crashes and hardware failures. Upgrading is much easier with Cloud Servers. Pay for the horsepower you need today and if you find that your cloud server needs more resources you can instantly add additional computing power, RAM or Storage with a click of your mouse.

It has a Virtual Machine (VM) that is hosted in a shared pool of computing resources. Here in this proposed paper the cloud server acts as the main server for entire project.
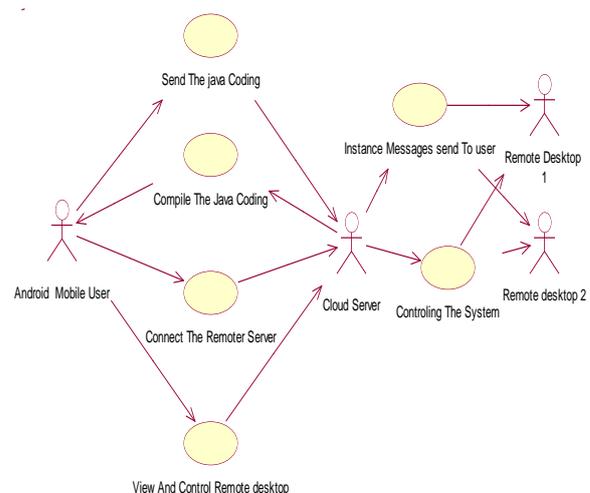

Fig 2. Use case diagram

This diagram depicts the entire implementation of this project. The SAAS implementation is achieved using Java software. We all understand that without java software we cannot compile our java program. The Software as a Service (SAAS) is that the software are uploaded in the cloud server, whenever the client request the software to the cloud server, the cloud server will provide the software, which is chargeable in rental manner. This process will be of use to reduce the client system load. User is not required to purchase the software but then client will be paying the rental charges for the utilization.

C. Unicast and Multicast

Unicast is a type of transmission in which information is sent from the android client to the Remote system. In another words, Unicast transmission is between one-to-one nodes (involving two nodes only). Send the instant message to a single user. Multicast is a very much different from

Unicast. It is a type of transmission or communication in which there may be more than one servers and the information sent is meant for a set of receivers. For example choose more than one remote user and send some messages to the entire selected user.
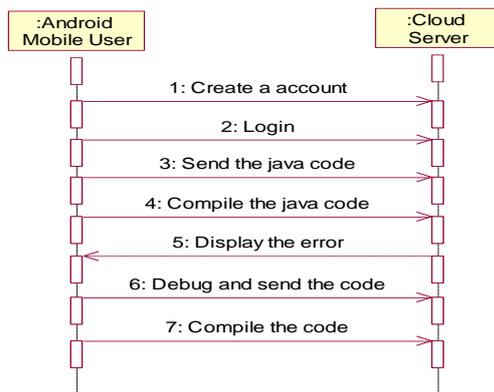

Fig 3. Software As a Service

D. Remote PC Control

Using the android mobile client we can control a computer and this allows them to change anything on the linear computer, and access all of the file contents. We can able to turn off the remote system, and perform all the control events.

IV. IMPLEMENTATION

The picture given below shows the home page of our project. We can select either remote system process which includes processes like controlling remote PC, unicasting and multicasting of messages. By using cloud computing option, the java code can be compiled with out installed java compiler in our system.

Fig 4. Main Menu

Fig 5. Writing Java Code

After selected cloud computing, we need to give IP address and password to get connected with cloud server. The above page will open in which we have to type java code to be compiled.

Fig 6. Compilation result from cloud server

The submitted code will get compiled by the java compiler installed in cloud server and the result be displayed in our client system as shown in the above figure.

If we have selected remote system Process, The following window will open with all remote control options.

Fig 7. Remote PC Control Options

The Client List option will display all the registered clients of the cloud server. The unicast option is used to send one-one message exchange between two clients. The

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broadcast option is for one-many message passing. The shutdown will shut down the particular client system in our network. Like wise logoff and restart options are used to log off and restart the system from our system without directly accessing that system.

If we select broad cast option, the message box with our message will be popped in all the selected clients.

Fig 8. Broadcast display message in remote client

VI. CONCLUSION

The concept of cloud computing provides a brand new opportunity for the development of mobile applications since it allows the mobile devices to maintain a very thin layer for user applications and shift the computation and processing overhead to the virtual environment. A cloud application needs a constant connection that might prove to be an Achilles heel for the cloud computing movement. However as mobile internet capabilities continue to get Better, it is likely that solutions to this particular problem will become apparent. New programming languages such as HTML 5 already provide a solution by enabling data caching through a mobile device, and this allows a cloud application to continue working if connection has been momentarily lost. And also the remote network management helps to manage the PC from remote areas. The concept of unicasting and multicasting messages provides the mobile user to pass message to PC.

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