SMART PHONE AS A CLOUD SERVER MACHINE COMPUTING FRAMEWORK

Anil Kumar Jami[1], Venu.M[2]

[1]M.Tech, CSE Department, Padmasri Dr. B.V Raju Institute of Technology, Vishnupur, A.P, INDIA
[2]M.Tech, CSE Department, Padmasri Dr. B.V Raju Institute of Technology, Vishnupur, A.P, INDIA

Abstract

Smart phone as a cloud server machine is the unique and the standalone computing framework in the mobile technologies. Building a smartphone with high end capabilities was not there in the earlier days. A smartphone device with the high end processor is capable of supporting the server framework with continuous support to the network. Cloud server machine is a device which is capable of creating a hosting environment in a cloud network and is also capable of handling the cloud server multiple requests simultaneously in a frequency, that machine is said to be the cloud server machine. Such, machine that is capable of running on the smart phone device without any failures is known as Smart phone based Cloud Server Machine. Integrating the cloud server machine as a computing framework in open source and developing such framework with high capabilities makes the standard machine which runs on the mobile cloud without any obstacles. Enhancing the performance of the mobile cloud server machine is also considered as the Mobile Cloud Machine optimization technique. Hosting the cloud on the smart mobile device is typical and different from the other framework developments. But, the current framework can be developed according to the developer needs and requirements. The available source of the framework can be further developed with the help of the open source framework and that can also be customized according wise. Device capabilities and working functionalities equals to the personal computer machines and personal server machines. Hence, this can be considered as a portable cloud server machine which is compatible with all the machines and devices to access on any network in the cloud network system.

--***--

1. INTRODUCTION

It is the concept of the portable cloud server machines for smart devices. Cloud server machine are of different types such as private server machine, public server machine, open server machine and portable server machine. A portable cloud server machine is the open server specially developed for the mobile devices which has the feature of dual core mobile processor and quad core mobile processor. A smart phone device with the good wireless local network support enables it to make as a cloud server machine. Phone with multicores supports the cloud server to handle the multiple requests in order. Many smart phone operating systems support the cloud server machine mode such as android, Ubuntu os for mobile and windows phone os etc.

Creating a Smartphone as a cloud server machine environment needs a rooted phone with all permissions to mobile server to accept the server requests and the client requests on the machine. The open computing framework, it enables the mobile device or smart phone device to work on platform with the back end support to the smart phone server machine. Current Framework also enables the feature of debugging instantly in the development mode to avoid server errors or cloud mobile machine errors. It's a complete suite or smart phone software for creating the portable cloud machine environment which runs on the backend open computing framework.

The functionality of machine will be lost if computing framework and its version is not properly configured with the correct settings. Portable cloud server machine may throw the server errors if the framework variables are not set in the source path of the open source application software which is ready to be installed on this current machine. Everything must be checked correctly to verify the machine status and its modes such as online and offline mode etc. There is another mode is also known as machine maintenance mode for smart phone portable cloud. Machine can also be set to developer mode or the running mode. Developer mode enables the users to code and save on the existing source files, running mode is also known as view only mode. That helps the users to only view the source files and no editing mode is available in this current mode.

Its main idea is to optimize the battery usage during the portable cloud mode function, saving the battery of the smart phone device plays an important role in bringing the idea of smart phone cloud machine concept. The computing framework and server optimization and battery save mode also enables the users to save the device battery by making the low battery usage for different operations, functions and also for multiple requests.

Storage method for smart phone and storage area network for portable cloud machine also plays another major role in this current concept. Storage configuration is required for the smartphone cloud machine to store and work properly over the cloud network. Device storage format of mobile cloud machine is another important point to remember to make it work properly without any storage network errors. Defining the path of mobile open cloud machine software configuration point must be configured properly. All these configurations and allocations building together make the powerful Smart phone cloud server machine.

Coming to the security concerns, adding the portable firewall security to the smart phone cloud machine server is very much important for creating the advanced security to the hosting device. Adding the rules to the portable firewall server is another important point to be considered; this stands as a portable firewall application for smart phone device and is the separate application connection from the existing cloud server machine for smart phone software. Adding the internet protocol address filter and local protocol address filter along with the ports enables to block or allow the users to the smart phone portable cloud machine. It enables the extended feature of the advanced security for smart phone device.

Compatibility is another major issue for making cloud server application for smart phone server machine to work with all the devices, personal computers and the other servers. Compatibility mode is another feature which it enables the all compatible devices to allow in on the cloud server machine of smart device. Therefore, all the personal devices or any 3rd party devices will be able to access on the network of portable cloud machine and all the different users will be able to access the portable cloud server machine. Compatibility of device address can be added to the allowed list or block list in the cloud machine.

2. PORTABLE CLOUD SERVER MACHINE PRE-REQUISITES & REQUIREMENTS FOR SMART PHONE DEVICE

1. High-end smart phone device with dual core or quad core processor is required for handling multiple processes and threads in the portable machine.
2. A smart phone with the WLAN Connectivity and with any of the operating system.
3. Portable directory server with the root directory on the phone.
4. Device with rooted or permissions enabled.
5. Open computing framework should be configured and installed on the portable device.
6. Continuous mobile network connectivity to the portable cloud server machine.

7. Another 3rd party application such as portable firewall for security.
8. Smart phone server with available local default ports such as 80 or 8080.
9. Device with the good battery backup such as 2500MAH.
10. Setting up the smart phone cloud server machine configurations with all the required application installations.
11. Same stable network is required with unique hosting address.
12. Host machine of smart phone should be set to on.
13. Security layers should be integrated to the smart phone cloud host machine to give the extended security to the portable host machine.
14. Setting up the cloud hosting machine with usernames and client device address should be defined on the machine.
15. Proxy access to the smart phone cloud host machine can also be set to the pre-defined access ports and points on the portable cloud host machine or the server.
16. Monitoring tool for smart phone cloud machine must be set in order to track the activity of the mobile host machine users along with the advanced log settings which records the entire activity of the user.

3. WORK PROCEDURE, FUNCTIONS AND OPERATIONS OF SMART PHONE AS A CLOUD SERVER MACHINE

- Cloud server machine in smart phone works more efficiently with the help of processor. The machine works as a service in the mobile operating system.
- When the machine server is set to be in run mode, the service launches in machine and starts automatically on the server ports
- After the successful start attempt, the smart phone cloud machine starts, all services starts running on the portable cloud server, it accepts the users to the cloud machine with high end security.
- The device is now turned into a standalone Smartphone as a cloud server machine. The known users will be prompted with login details and the unknown users will be restricted and gets blocked due to the security rules and privileges rules mentioned by the administrator.
- Portable cloud server machine functions as a powerful mobile cloud machine with all the features of standard cloud server.

Portable cloud server machine has the following operations:
- o Smartphone Cloud machine Start
- o Smartphone Cloud machine Stop

- o Cloud machine reset
- o Machine Debug
- o Developer Mode Operation
- o Compatibility On or Off
- o Machine Maintenance Mode for portable server
- o Cloud Machine Forced Off operation
- o Cloud Machine Forced restart operation
- o Cloud Machine Firewall On/Off operation with the reset function
- o Log Record On/Off Operation
- o Open Monitor Task Operation
- o Real-time Monitor and Log Recording Operation
- o User Connection View Operation
- o Allow or the Block the Mobile Cloud Network Operation
- o Stealth Block operation with advanced rule settings for smart phone cloud server machine.
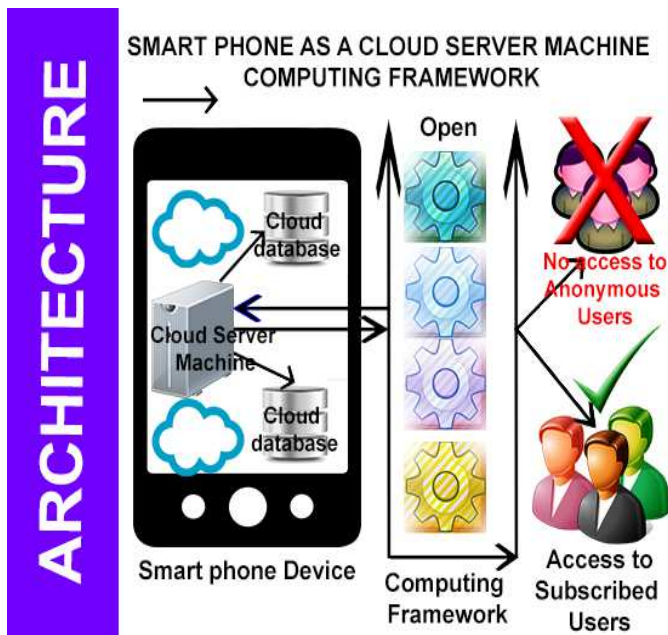
4. ARCHITECTURE

Fig-1: Smart phone as a cloud server machine computing framework

Architecture Description:

- o **Cloud Server Machine:** Cloud machine shows the web server that runs on smart phone device
- o **Cloud Base:** It's a cloud database runs on smart phone device.
- o **Computing Framework:** Open based Computing framework integration with the portable cloud machine.
- o **No access to anonymous users:** Unknown users will be block at framework block area section page.

- o **Access to subscribed users:** It indicates the access permitted to the known/subscribed users on the mobile cloud machine.

CONCLUSIONS

1. Smart phone as a cloud server machine computing framework application is useful for student developers and the testers.
2. Current application is helpful for small scale organizations that who want to run and test the portable cloud servers.
3. It is also helpful for manufacturers for manufacturing innovative products like embedded android cloud server machines as portable cloud server devices, etc.

REFERENCES

[1]. RicardoSilva, PauloCarvalho, PedroSousa, PedroNeves, "Enabling Heterogeneous Mobility in Android Devices"August2011, Vol16, Issue4 pp518-528.
[2]. AlbertBifet, GeoffHolmes, BernhardPfahringer, JesseRead, PhilippKranen, HardyKremer, TimmJansen, ThomasSeidl, "MOA: A Real-Time Analytics Open Source Framework" Volume 6913, 2011, pp617-620.
[3]. YoshioMoritoh, YoshiroImai, HiroshiInomo, WataruShiraki, "A Cloud Service on Distributed Multiple Servers for Cooperative Learning and Emergency Communication"Volume188, 2011, pp377-390.
[4]. LuísSoares, JoséPereira,"Improving the Scalability of Cloud-Based Resilient Database Servers" Volume 6723, 2011, pp136-149.