International Innovative Research Journal of Engineering and Technology

ISSN NO: 2456-1983

International Conference on Emerging Innovation in Engineering and Technology

ICEIET-2017

Multi-service Handoff Mechanism withQoS Support in Mobile Cloud Computing Environment

Ms.R.Ranjitha[1]mr. C.V Venkatasamy[2]
Mailam College Of Engineering, Mailam
ranjitha18cool@gmail.com,cvsamy2003@gmail.com

ABSTRACT

Mobile devices are becoming the primary platforms for many users who always roam around and access the cloud computing applications.Mobile Cloud Computing (MCC) is the combination of cloud computing, mobile computing and wireless networks.Here we focus on the mobile cloud computing where the mobile device acts like a thin client connecting to the remote server through wireless network.We propose an improved multi-services handoff mechanism, which uses the list method of session initial protocol to make all active services execute handoff together.The mobile devices experience the problem when obtaining the multiple cloud services during the handoff process. The mobile users get storage facility by connecting with cloud through wireless network. We propose energy detection (ED) analytical model for handoff process that calculates the energy consumption for each handoff process in the cloud computing environment. Analytic model and simulation are developed to investigate the new mechanism. Our ED analytic model is developed to examine the consumed energy for different handoff processes in cloud computing. The model helps the mobile users to get prior information for the status of the mobile when executing the handoff process. The mobile device realizes the integrated handoff signaling procedure which saves much energy consumption

KEYWORDS-EnergyConsumption,Mobile Computing,Quality Of Service,communication cost

I. INTRODUCTION

The mobile devices are becoming the primary platforms for many users who always roam around and access the cloud computing applications, such as Voice over Internet Protocol (VoIP), video or audio streaming, interactive game playing and social web services this way, mobile computing and cloud computing have emerged as a new computing paradigm, mobile cloud computing. Byreferring to the above concepts, the mobile P2P and cloudlet modes do not need to accessmobile core network. Here, we discuss the first concept and consider the operation ofmobile cloud computing through the core network IP Multimedia Subsystem (IMS). IMS isan overlay-architecture which combines heterogeneous access networks with IP-basedservices and targets to offer real-time IP multimedia applications over mobile networks.Most researchers and industry experts consider IMS as a platform for delivering highquality services because it delivers services that can be controlled with Quality of Service(QoS) policy, location service, and security arrangement. Mobile cloud computing benefits from IMS by means of increasing the system efficiency through the desired management mechanisms. With the emergence of IP-based 4G network, mobile cloud computing is used in the highly heterogeneous networks. As a result, an issue of how to handle the wireless connectivity while satisfying the requirements of always-on connectivity, on-demand scalability, and the energy efficiency of mobile devices rises. The real-time telecommunication services in the cloud computing environment, which require significantly higher QoS levels and mobility management, can be provided by the IMS even during the access network change.The cloud computing environment which contains available resources is established above the IMS. The multiple services such as music online, VoIP, VoD and file sharing services are deployment in the cloud computing, and provided to end users. Mobile user may move from one access network to another or change its access technology. The key distinction between mobile cloud computing and traditional cloud computing is the wireless network access.
The QoS in mobile cloud computing environment suffers more impact by network delay and the packet retransmitted. When the network connection is failure, the service is unusable, its corresponding service offload, and
service migration are meaningless.

II. RELATED WORKS

Cloud computing (CC) has recently been receiving tremendous attention from the IT industry and academic

researchers. CC leverages its unique services to cloud customers in a pay-as-you-go, anytime, anywhere manner. Cloud services provide dynamically scalable services through the Internet on demand. Therefore, service provisioning plays a key role in CC. we propose a fused mobile cloud computing switching method based on threshold judgment and network selection .This method divided the switching strategy of mobile cloud computing process into two steps, first by a threshold judgment to determine whether to switch, followed by the use of multi-attribute decision making method to select the best candidate network for the switching.Decision making problem is the process of finding the best option from all of the feasible alternatives. In this paper, from among multi-criteria models in making complex decisions and multiple attribute models for the most preferable choice, technique for order preference by similarity to ideal solution (TOPSIS) approach has been dealt with. The latest developments in mobile devices technology have made smartphones as the future computing and service access devices. Users expect to run computational intensive applications on Smart Mobile Devices (SMDs) in the same way as powerful stationary computers. However in spite of all the advancements in recent years, SMDs are still low potential computing devices, which are constrained by CPU potentials, memory capacity and battery life time. Mobile Cloud Computing (MCC) is the latest practical solution for alleviating this incapacitation by extending the services and resources of computational clouds to SMDs on demand basis. In MCC, application offloading is ascertained as a software level solution for augmenting application processing capabilities of SMDs .

In an existing system, when the mobile devices move from one access point to another or change its attachment, the mobile's battery starts to run out of the power because the energy contained in the battery for a mobile device is limited. Hence, one of the significant concerns encountered in the mobile cloud is the energy mobility management. However, improving the efficiency of mobile cloud computing has proposed the branch and bound technique based on the heuristic algorithms to attain swapping. Another approach regarding the handover management in the heterogeneous cloud small cell network was introduced that integrates the heterogeneous small cell network and cloud computing. The approach combines the cloud radio access with tiny cells to handle the hand over process. However, the scheme focuses on the cloud computing mitigation.Secure packet authentication mechanism (SPAM) was introduced for handover process, but it completely focuses on the users' privacy. In addition, it reduces the computational cost but not energy consumption. Our ED analytic model is developed to examine the consumed energy for different handoff processes in cloud computing. The model helps the mobile users to get prior information for the status of the mobile when executing the handoff process. As it calculates, the energy consumption is not completely reduced.

III. MULTI-SERVICE HANDOFF MECHANISM

Here we focus on the mobile cloud computing where the mobile device acts like a thin client connecting to the remote server through wireless network. Nevertheless, considering the multi-service online feature of cloud computing environment and the limited battery life of the mobile devices, IMS mobility management is not efficient for handoff control. We propose an improved multi-services handoff mechanism, which uses the list method of session initial protocol to make all active services execute handoff together. And considering to support the QoS for each active service during handoff procedure, the differentiate policy for multi-service media transfer is included based on the integrated handoff signaling. Analytic model and simulation are developed to investigate the new mechanism. By adding the active services' URIs as a list to the SIP message, the mobile device realizes the integrated handoff signaling procedure, which saves much energy of transmitting handoff signaling when mobile devices roams in the heterogeneous networks. In our project, we propose heuristic algorithms to attain swapping which means to transfer multi service media to the end users at low cost by saving energy consumption.

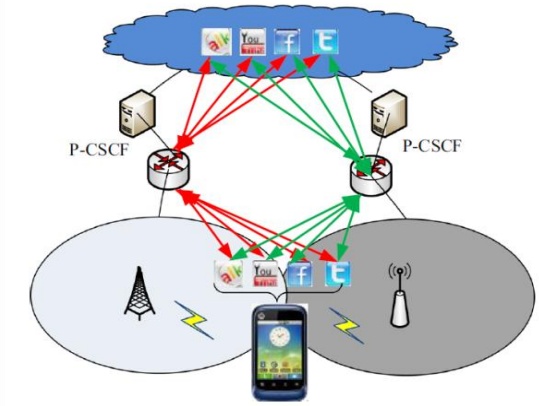


Fig.1. SYSTEM ARCHITECTURE

The **IP Multimedia Subsystem** or **IP Multimedia Core Network Subsystem** (**IMS**) is an architectural framework for delivering IP multimediaservices.

I. Cscf – Call Session Control Function

Several roles of SIP servers or proxies, collectively called Call Session Control Function (CSCF), are used to process SIP signalling packets in the IMS.

ii. P-CSCF (Proxy-CSCF)

The CSCF (Call Session Control Function) is a collection of functional capabilities that play an essential role in the IMS core network.

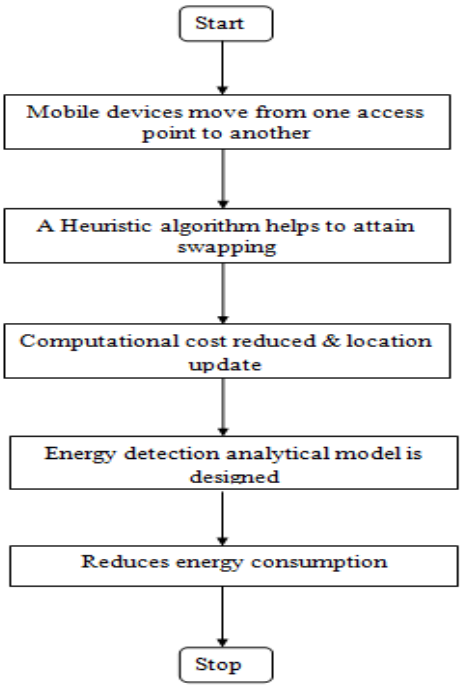
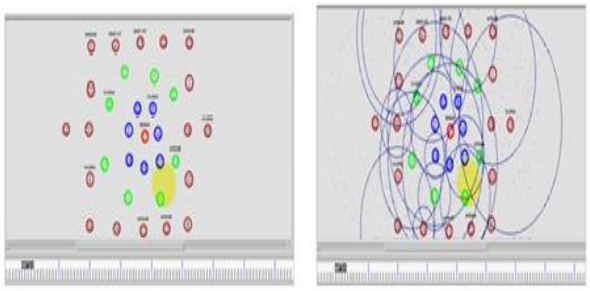


Fig.2. FLOW CHART

When a mobile device moves to another access network, it must recover its global reach ability, i.e., the mobile device must register its new IP address to IMS.

RESULTS



IV. CONCLUSION

As we are moving towards the fourth generation mobile systems, the need for improving coverage, systems capacity and service quality becomes more and more important.Our model has a capability to determine the enery consumption for each updated check point, consumed time for updated event, updated location for IMS, and total energy cost for session establishment and *IMS.* The Heuristic algorithms is an algorithm helps to attain swapping which means to transfer multi service media to the end users at low cost by saving energy consumption.This paper also introduces the fast seamless handoff for cloud computing that reduces the handover time. The results demonstrate that the improved multi-service handoff mechanism can efficiently save energy consumption for mobile devices and realize seamless handoff.

V. REFERENCES

[1] Shiraz, Muhammad, Abdullah Gani, Rashid HafeezKhokhar, and RajkumarBuyya. "A review on distributed application processing frameworks in smart mobile devices for mobile cloud computing." Communications Surveys & Tutorials, IEEE 15, no. 3 (2013): 1294- 1313.

[2] Syed Rizvi, Abdul Razaque and Katie Cover, “Cloud Data Integrity Using a Designated Public Verifier.” IEEE International Symposium on Big Data Security on Cloud, 2015 New York, US, August 24 - 26, 2015.

[3] Choi, Min, Jonghyuk Park, and Young-SikJeong. "Mobile cloud computing framework for a pervasive and ubiquitous environment." The Journal of Supercomputing 64, no. 2 (2013): 331-356.

[4] Y. Juhye and K. Jinsul, “The advanced Korea-computer access assessment system (K-CAAS) on smart mobile cloud environment” Multimedia Tools and Applications, vol. 31, (2014), pp. 128-136.

[5] Qi, Qi, Jianxin Liao, and Yufei Cao. "Cloud service-aware location update in mobile cloud computing." Communications, IET 8, no. 8 (2014): 1417-1424.

[6] Zhang, Haijun, Chunxiao Jiang, Julian Cheng, and Victor Leung. "Cooperative Interference Mitigation and Handover Management for Heterogeneous Cloud Small Cell Networks." arXiv preprint arXiv:1504.08076 (2015).

[7] Mayuri, K., and K. S. Ranjith. "ANovel Secure Handover Mechanism In PMIPV6 Networks" International Journal of
Information Technology Convergence and Services 4, no. 4 (2014): 1.

[8] Bifulco, Roberto, and Roberto Canonico. "Analysis of the handover procedure in Follow-Me Cloud."In CLOUDNET, pp. 185-187. 2012

[9] Bifulco, Roberto, Marcus Brunner, Roberto Canonico, Peer Hasselmeyer, and Faisal Mir. "Scalability of a mobile cloud management system." In Proceedings of the first

edition of the MCC workshop on Mobile cloud computing, pp. 17-22. ACM, 2012.

[10] Jahanshahloo, Gholam Reza, F. HosseinzadehLotfi, and Mohammad Izadikhah. "Extension of the TOPSIS method for decision-making problems with fuzzy data." Applied Mathematics and Computation 181, no. 2 (2006): 1544-1551.

[11] Wu, Jun, and Zhijun Chen. "Research on Switching Strategy of Mobile Cloud Computing based on Fusion of Threshold Judgment and Network Selection." International Journal of Grid and Distributed Computing 8, no. 2 (2015): 309-318.

[12] Whaiduzzaman, Md, Abdullah Gani, NorBadrulAnuar, Muhammad Shiraz, Mohammad NazmulHaque, and IsraatTanzeenaHaque. "Cloud service selection using multicriteria decision analysis" The Scientific World Journal 2014 (2014).
2016 IEEE International Conference on Consumer Electronics (ICCE) 592.