International Journal of Emerging Trends & Technology in Computer Science (IJETTCS)
Web Site: www.ijettcs.org Email: editor@ijettcs.org, editorijettcs@gmail.com
Volume 4, Issue 3, May-June 2015 ISSN 2278-6856

Task distribution scheme:Theoffloadingframework forMobile Cloud

[1]Mr. Yogesh Dumbare , [2]Prof.K.S.Kore

Department of Computer Engineering, Sharadchandra Pawar College of Engineering, Otur (Pune), India.

ABSTRACT

Now a days Mobile become the essential part of human life. So we can use this platform to execute all the online services. Mobile cloud computing for enabling the future of online services using computation offloading framework to improve security and performance. We are using BBAP offloading algorithms for security and to minimize the computation overhead. Task distribution scheme is also used which help the cloud to achieved desired goal. Cloud computing will play a major role in the future Internet of Services, enabling on demand provisioning of applications, platforms, and computing infrastructures. However, the cloud community must address several technology challenges to turn this visioninto reality. Specific issues relate to deploying future infrastructure-as-a-service clouds and include efficiently managing such clouds to deliver scalable and elastic service platformson demand, developing cloud aggregation architectures and technologies that let cloud providers collaborate and interoperate, and improving cloud infrastructures' security, Reliabilityand energy efficiency.

I. INTRODUCTION

Cloud computing is the advance generation in computation. Possibly we can get entire things on cloud which we need .Cloud computing is Service on-demand information approach. Advancements in computing technology have expanded the usage of computers from desktops and mainframes to a wide range of mobile and embedded applications including surveillance, environmental sensing, GPS navigation, mobile phones, autonomous robots, etc. Many of these applications run on systems with limited resources. For example, mobile phones are battery powered. Environmental sensors have small physical sizes, slow processors, and small amounts of storage. Most of these applications use wireless networks and their bandwidths are orders-of-magnitude lower than wired networks. Meanwhile, increasingly complex programs are running on these systems—for example, video processing on mobile phones and object recognition on mobile robots. Thus there is an increasing gap between the demand for complex programs and the availability of limited resources**.** The Cloud is a metaphor for the Internet, based on how it is explained in computer network diagrams, and is an abstraction for the complex infrastructure it covers. It is a style of computing in which IT-related proficiencies are provided "as a service", allowing users to access technology-permitted services from the Internet (i.e., the Cloud) without awareness of, expertise with, or resistor over the technology infrastructure that supports them. Offloading has gained big attention in mobile cloud computing research, because it has similar aims as the emerging cloud computing paradigm, i.e. to surmount mobile devices' shortcomings by augmenting their capabilities with external resources. Offloading or augmented execution refers to a technique used to overcome the limitations of mobile phones in terms of computation, memory and battery. Email was the primary service on the "cloud". As the computing industry shifts toward providing Platform as a Service (PaaS) and Software as a Service (SaaS) for consumers and enterprises to access on demand regardless of time and location, there will be angrowth in the number of Cloud platforms accessible. (i) Software as a Service (SaaS) which offers renting application functionality from a service provider rather than buying, installing and running software by the user. (ii) Platform as Service (PaaS) which provides a platform in the cloud upon which applications can be developed and executed. (iii)Infrastructure as a Service (IaaS) in which vendors offer computing power and storage space on demand. Such applications, which can adaptively be split and parts offloaded are called elastic mobile applications. Basically, this model of elastic mobile applications gives the developers the illusion as if they are programming virtually much more powerful mobile devices than the actual capacities. Furthermore, elastic mobile applications can run as standalone mobile applications, but use also external resources adaptively. Which portions of the application are executed remotely is decided at runtime based on resource availability. Our contributions include integration with the established Android application model for development of "off loadable" applications, a lightweight application partitioning and a mechanism for seamless adaptive computation offloading. This is different from the traditional client-server architecture, where a thin client always migrates computation to a server. Computation offloading is also different from the migration model used in multiprocessor systems and grid computing, where a process may be migrated for load balancing. Mobile Cloud Computing is the large and efficient technology which provides service on demand solution .Cloud is the always available data storage where we can put and retrieve or process the data also we can

use the services provided by the cloud. The key challenges in Cloud Computing are to provide security, reliability, availability and the most important part is security to achieve integrity for the cloud data. Along with integrity the energy efficient cloud computing so that to maintain the performance and speed of service providing.

II. LITERATURE SURVEY

Related Work

The encapsulation of the mobile device's software stack into a virtual machine image and executing it on a more powerful hardware can be considered as a "brute force" approach to offloading [1]. Although such virtualized offloading can be considered as simple and general solution, it lacks flexibility and control over off loadable components.[8]The paper [2] presents protected cloud data storage innovation which encrypts the data utilizing hybrid security algorithm with cryptography utilizing symmetric key. The security strategy gives an exceedingly secure cloud system.). Two new classes are generated from the original class, one is an instrumented class which has the real implementation and the same functionality as the original class, the other is a proxy class, whose responsibility is only to call the function written in the instrumented class. Then, the instrumented class can be offloaded to remote cloud, and the call will be invoked from the instrumented in the remote cloud.[9] In this paper[4], author proposed a configuration and implementation of a cloud-based security center for system security forensic examination. The author proposed utilizing cloud storage to keep gathered traffic data and afterward handling it with cloud figuring platforms to discover the malicious attacks.An important challenge in partitioned elastic applications is how to determine which parts of code should be pushed to the remote clouds[3]. The author proposed utilizing cloud storage to keep gathered traffic data and afterward handling it with cloud figuring platforms to discover the malicious attacks. The Service web 3.0 undertaking has delivered two roadmaps concentrating on future improvements in semantic and service improvement and distinguishing key regions for examination. To supplement these roadmaps, author give an additional document which concentrates on the open examination challenges around some key ranges which (i) will assume a feasibly critical part in business and personal life in the following 5-10 years and (ii) present energizing new difficulties for the semantic and service innovations.The author hasbeen permitted the methodology by conducting a set of thorough execution evaluation study utilizing the CloudSim toolkit [5]. The results demonstrate that Cloud processing model has monstrous potential as it provide large execution picks up as respects to response time and expense cautious under dynamic workload scenarios.[7]In this paper the author create an offloading framework, named Ternary Decision Maker (TDM), which plans to abbreviate response time and diminish energy consumption in the meantime. Dissimilar to past lives up to expectations, the main focuses of execution incorporate an on-board CPU, an on-board GPU, and a cloud, all of which consolidated give a more adaptable execution environment for mobile applications. This paper proposed another system to minimize the energy utilization and VM movement at the same time; also author additionally plan a network-flow-theory based rough algorithm to understand it. The reenactment results demonstrate that, analyzed to existing work, the proposed system can somewhat diminish the energy utilization yet significantly diminish the quantity of VM position change(about 75%).

III. IMPLEMENTATION DETAILS

In the System architecture the user and cloud communication and computation and the way which we are achieving security is presented. If the user want to upload data or to use cloud services first user is authenticated by the cloud server and the further data is computed by cloud services. First the user uses the key for data sending the key used by the user is distributed to the user by cloud server.Cloud computing is the task for reducing the computation overhead on single system here we are distributing the load remotely on different systems it may be personalcomputer or mobile device. The request for the cloud service by the user is processedby cloud computing where some part of computing is done on sub cloud systems andmobile devices and the result is returned in the encrypted format by the cloud server andit is decrypted by the user.

System Architecture

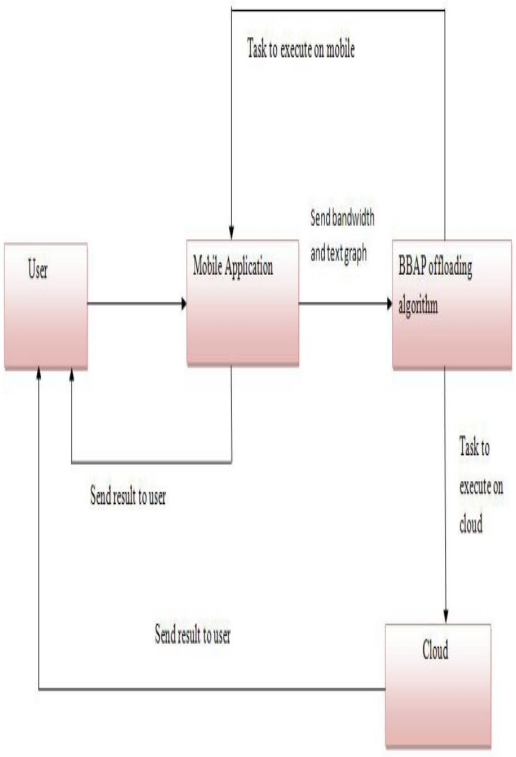

Fig.1 System Architecture

Encryption and decryption module:
In this module user encrypt the data to upload on server and decrypt the result received from cloud server. For encryption and decryption we are using RSA algorithm for to achieve security.
Key distribution:
In this module the key generate for each user and it is distributed to the each user.
Authentication:
This model is present at cloud server to authenticate the each user. by authentication we are achieving the security.
Cloud Computing:
In cloud computing we are distributing the cloud processing to the cloud processors and mobile devices which helps to minimize the computation overhead and to **improve the performance of this system**

A. Algorithm

Branch-and-Bound based Application Partitioning (BBAP) algorithm-
Input:WORG = (V;E;Wv;We);
b; bl;NL; a;
Output:the optimal partitioning solution X , and the optimal model value minValue (the minimal of W(X, b))

1. compute the optimal model valueW(Xoptbl; bl) under the bandwidth of blusing theStoer-Wagner algorithm;
2. minV←W(Xoptbl; bl) X(1 + a); // minV is the upper bound;
3. for all vi ϵV do
4. ifvi ϵNL then
5. xi←1; // node i must run on mobile devices;
6. else
7. xi←1; // node i needs to be partitioned;
8. end if
9. end for
10. BBSearch(1;minV;WORG;X; minValue; b);
11. returnX; minValue;

B. Experimental Setup

The system is built using Java framework (version jdk 6) on Windows platform. The Netbean (version 6.9) is used asa development tool. The system doesn't require any specifichardware to run; any standard machine is capable of runningthe application.
Data security issue-when we talk about data storage in the cloud computing or on premise application deployment model, the sensitive data of every enterprise continues to reside within the enterprise boundary and is focus to its physical, logical and personnel security and access control guidelines. Though in Software-as-a-Service model or public cloud the enterprise data is stored outside the enterprise boundary, by the CSP.

IV.CONCLUSION

Cloud computing plays an important role in the deployment of the future IoS. The ultimate goal of MCC is to provide rich mobile computing through seamless communication between front-users (cloud-mobile users) and end-users (cloud providers) regardless of heterogeneous, wireless environments and underlying platforms in global roaming along with security, integrity, availability and best performance. The main purpose of our system is to provide security and increase the performance for mobile cloud computing by using task distribution scheme to conserve energy also the advantage of this system is provide security and privacy for user and data stored at cloud and to use services. This paper discussed a vast body of research associated with computation offloading for mobile systems. We examine how enablers like mobile agents and virtualization make offloading feasible. Finally we describe why computation offloading will become increasingly important for resource constrained devices in the future.

References

[1] B.-G. Chun and P. Maniatis, "AugmentedSmartphone Applications Through Clone Cloud Execution," in Proceedings of the 12th Workshop on Hot Topics in Operating Systems (HotOS XII), pp. 1-8, Monte Verita, Switzerland, 2009. USENIX.Kim-Kwang Raymond Choo,"Cloud computing: Challengesand future directions"
[2] PriyaJaiswal, Randeepkaur, Ashok Verma, "Privacy and Security on Cloud Data Storage Using Hybrid Encryption Technique"International Journal of Emerging Technology and Advanced Engineering Website: www.ijetae.com (ISSN 2250-2459, ISO 9001:2008 Certified Journal, Volume 4, Issue 1, January 2014)
[3] I. Giurgiu, O. Riva, D. Juric, I. Krivulev, and G. Alonso, "Calling the Cloud: Enabling Mobile Phones as Interfaces to Cloud Applications," In Proceedings of the 10th ACM/IFIP/USENIX International Conference on Middleware (Middleware

'09), pp. 1–20, Urbana Champaign, IL, USA, November 2009. Springer.

[4] RajkumarBuyya, Anton Beloglazov, and JemalAbawajy, " Energy-Efficient Management of Data Center Resources for Cloud Computing: A Vision, Architectural Elements, and Open Challenges "

[5] Ying-Dar Lin, Fellow, IEEE, Edward T.-H. Chu, Member, IEEE, Yuan-Cheng Lai, and Ting-Jun Huang, "Time-and-Energy-Aware Computation Offloading inHandheld Devices to Coprocessors and Clouds"IEEE SYSTEMS JOURNAL

[6] Jing SiYuan,"A Novel Energy Efficient Algorithm for Cloud Resource Management"International Journal of Knowledge www.ijklp.organd Language Processing KLP International c2013 ISSN 2191-2734Volume 4, Number 2, 2013 pp.12–-22

[7] S. Kosta, A. Aucinas, P. Hui, R. Mortier and X. Zhang, "Unleashing the Power of Mobile Cloud Computing using ThinkAir," CoRR, abs/1105.3232, 2011, informal publication.

[8] S. Ou, K. Yang, and J. Zhang, "An Effective Offloading Middleware for Pervasive Services on Mobile Devices," Pervasive Mob. Comput.,vol.3, pp.362–385, August 2007.