A service mining technique for efficient resource allocation in cloud environment

[1] Harshida chaudhary, [2] Shital Patel, [3] Krunal Suthar
[1] M. Tech Student, [2,3]Assistant Professor,
[1] Department of Computer Engineering, MEC, Bhandu. India.
[2] Department of Computer Engineering, MEC, Bhandu. India.
[3] Department of Computer Engineering, SPCE, Visnagar. India

Abstract— As the time passes every internet user wants freedom to access various available services with cheaper cost and from anywhere. Here the important term Cloud computing comes where the provider provides lots of service to its users. Thousand of cloud users use various services available and providers also keep track of this service usage. As the cloud provider the main goal is to provide better service with maximum profit. This can be done in two ways 1. By launching additional server with existing services 2. Launch more services in the existing servers. In both the cases provider need to make focus on services that are mainly requested by the user. So, provider needs to analyze all the data related to service access and requested by the customers. As the customer requested data increase gradually, it's not good practice to analyze this data once; instead the continuous evaluation mechanism required which process this data whenever required. Based on this analysis provider can able to activate more services or able allocated machine to needy customers. In this research our goal is to propose a method which mine the service related details and give required outcome to the service provider which not only increase the revenue of the provider but also helps to allocate the newly launched resource to the dedicated customers.

Keywords — Cloud computing, service Mining, profit maximization, QoS, evaluation, efficient resource allocation.

INTRODUCTION

On the Internet, a large amount of data is distributed, heterogeneous, dynamic, and more complex. Every day people are confronted with targeted advertising, and data mining techniques help businesses to become more efficient by reducing costs. Traditional Data Storage systems are not able to handle large Data and also analyzing the large Data using traditional analytic tools. So Cloud Computing can resolve the problem of handling, storage and analyzing the data on distributed network. Data mining techniques and applications are very much needed in the cloud computing environment because Data Privacy and data security is major issues while storing the data in a Cloud environment.. So implementation of data mining techniques through Cloud computing will allow the users to retrieve meaningful information from virtually integrated data warehouse that reduces the costs of infrastructure and storage.

Infrastructure as a service (IaaS): In the IaaS model computers are offered as physical or as virtual machines, and other resources.

Platform as a service (PaaS): In the PaaS model, cloud providers offers computing platform including operating system, programming language execution environment, database, and webserver. Without buying and managing hardware and software on a cloud platform.

Software as a service (SaaS): In the SaaS model, cloud providers install and operate application software in the cloud and cloud users access the software from cloud clients.

"**Data Mining** Nowadays, with the cloud's charismatic storage and computation power, more and more traditional services (social networking service, location-based services, etc.) are being migrated onto cloud platforms. These cloud services on different cloud platforms could be employed to form cross-cloud mobile applications of mobile cyber-physical systems (CPS). However, a cloud service may have various versions of quality of service (QoS) information revealed in different mobile CPS applications, which is often advertised as the elastic computation power. This characteristic makes it costly and time consuming to mine qualified ones from massive candidate cloud services for developing a mobile CPS application, as a service composition solution may have various evaluated values initiated by the various QoS properties. etc...

RELATED WORKS

Author at[1] In this paper, the concept and the design of continuous evaluation for application development on cloud computing environments are introduced. Based on cloud environments evaluation methods and the DevOps principle, the continuous framework facilitates the joint consideration and evaluation of application and cloud computing environment as the development is performed.

In this paper [2] Author firstly review the literatures concerning customer satisfaction, and then the profit maximization problem in cloud computing. In this paper, we consider customer satisfaction in solving optimal configuration problem with profit maximization. The optimal solutions are solved by a discrete hill climbing algorithm. Lastly, a series of calculations are conducted to analyze the changing trend of profit.

In this Paper [3] Author propose a cloud service selection method named CSSM has been developed. It aims at mining qualified versions of cloud services for cross-cloud service composition. In our work, the CSSM achieves two main advantages. First, compared to the programming method, the CSSM can reduce the time complexity and maintain a comparable optimality. Second, the CSSM can provide multiple sorted optimal or near-optimal service composition solutions for a user.

In this paper[5] We propose an evolutionary algorithm combined with a tabu search (NSGA- III with tabu Search) to address the cloud resource allocation problem while taking account of the interests of both consumers or users and providers. In order to assess the performance improvements and possible performance degradations for some criteria and achievable tradeoffs of the NGSA-III with tabu search, we compare the algorithm with other state-of- the-art algorithms, especially when based on constraint programming.

In this paper[6]motivate and solve the problem of supporting efficient ranked keyword search for achieving effective utilization of remotely stored encrypted data in Cloud Computing. then appropriately weaken the security guarantee, resort to the newly developed crypto primitive OPSE, and derive an efficient one-to-many order-preserving mapping function, which allows the effective RSSE to be designed.

COMPARISON OF VARIOUS RESEARCH SCHEMES

The table below shows a short comparison about the various schemes proposed by a researcher by taking different parameters. The table gives the description about the basic technique used with the benefits that researcher gets the limitations found in schemes.

Criteria Group →	**Data Mining/Cloud Computing/Efficient resource allocation measures**							Others	Others
Individual Criteria → Providers ↓	**Cloud Computing**	**Profit Maximization**	**Service Mining**	**Evaluation**	**QoS(Quality of Service)**	**Framwork**	**CSSM(Cloud Service selection Method)**	**Efficient Resource Allocation**	**Heuristic algorithm**
[1]									
[2]									
[3]									
[4]									
[5]									

Table 1. Comparison study

Proposed Methodology

Consider Continues evaluation of service usage details, then efficiently generate the list of mostly used service. In this system provider able to imitate the service as per the requirement and use lightweight method to mine user service access detail.

Algorithm step :

Step1: Start.
Step2: Get the queue of service request by customer.
Step3: Fetch request from Queue.
Step4: Check request available. If yes then enter access details & remove from Queue, else check previous details of allocation of requested service.
Step5: Check previous details of allocation of requested service, then find number of time request denied & modified.
Step6: Enter access details & remove from Queue. If there is more services request available then go to step 3, else check launch list.
Step7: Enter access details & remove from Queue. Then modify denied list.
Step8: Find number of time request denied & modified. If there is denied > threshold then enter into need to launch list & remove from denied list, else modify denied list.
Step9: Enter into need to launch list & remove from denied list. If there is more services request available then go to step 3, else check launch list.
Step10: Check launch list. If empty then create assignment Map & Exit, else launch service, and create assignment Map & Exit.

Flowchart :

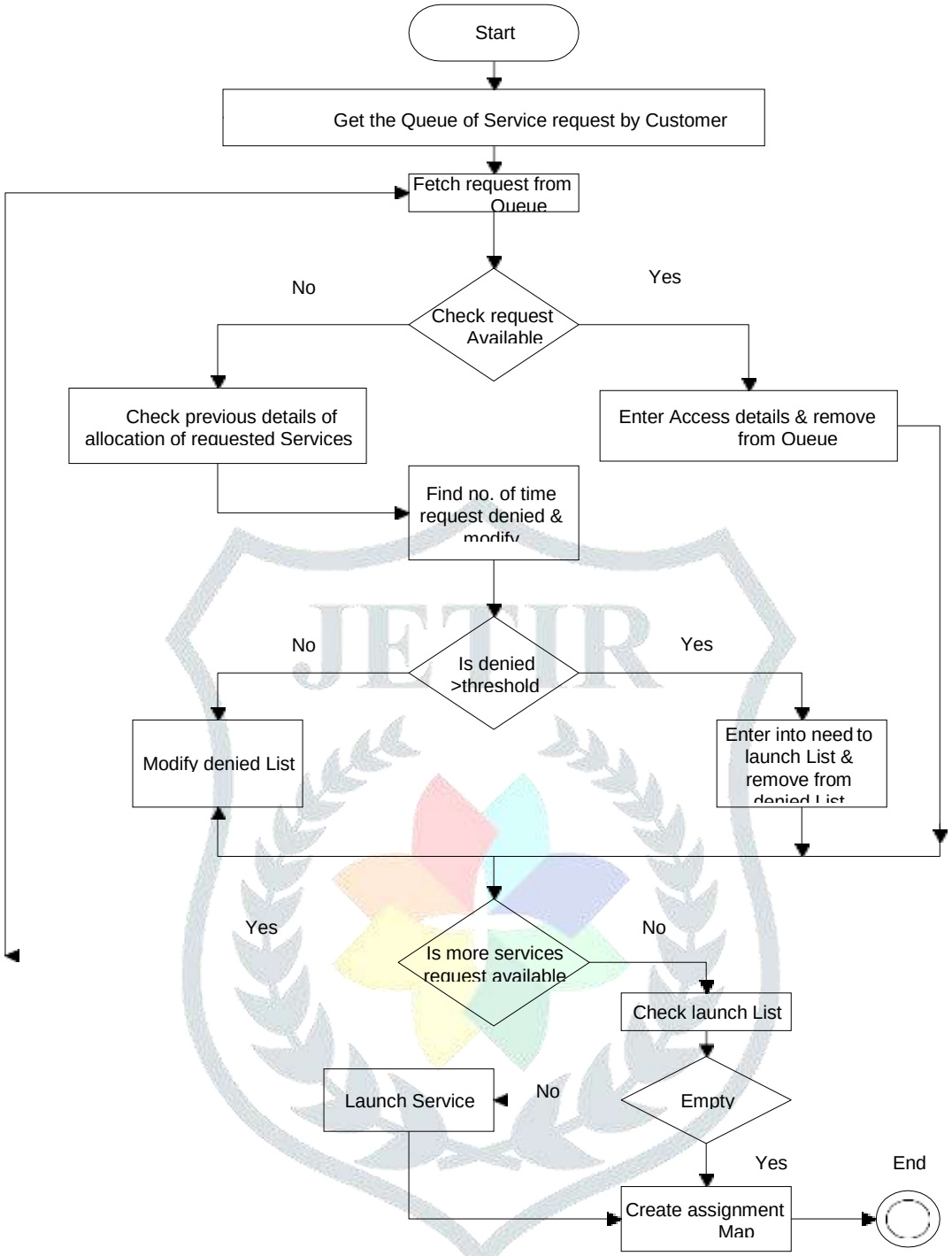

Fig : Running Process Flow

CONCLUSION

From all the above discussion we can conclude following about proposed methodology. In this system we conclude that, the need of all the user are satisfied and the provider able to generate more revenues, so system have a faster execution of proposed algorithm due to efficient code. And number of service available as per the need with time changed.

REFERENCES

1. ChiaHung Kao Department of Applied Mathematics National Taitung University Taitung, Taiwan IEEE "Continuous evaluation for application development on cloud computing environments." (IEEE-2017)
2. Jing Mei, Kenli Li, Member, IEEE and Keqin Li, Fellow, IEEE "Customer-Satisfaction-Aware Optimal Multi server Configuration for Profit Maximization in Cloud Computing" (IEEE-2017)
3. Taotao Wu, Wanchun Dou, Chunhua Hu, and Jinjun Chen, Senior Member, IEEE "Service Mining for Trusted Service Composition in Cross-Cloud Environment" (IEEE2017)
4. Andy Rindos, Yingwei Wang, IEEE "Dew computing: the complementary piece of cloud computing." (IEEE 2016)
5. Thibaud Ecarot, Djamal Zeghlache, Cedric Brandily, IEEE "Consumer and provider oriented efficient Iaas resource allocation" (IEEE2017)
6. Ms. M. R. Girme, Prof. G.M. Bhandari , "Efficient Ranked Keyword Search For Achieving Effective Utilization Of Remotely Stored Encrypted Data In Cloud", in *IJAIEM* Volume 3, Issue 6, June 2014 ISSN 2319 – 4847 .pp. 105-113.

7. Zeba Qureshi, Jaya Bansal, Sanjay Bansal "A Survey on Association Rule Mining in Cloud Computing", International Journal of Emerging Technology and Advanced Engineering 2250-2459, ISO 9001:2008 Certified Journal, Volume 3, Issue 4, April 2013.
8. Ruxandra-Ştefania PETRE," Data mining in Cloud Computing", Database Systems Journal vol. III, no. 3/2012 pp.67-71.
9. R. A. Asaka, G. H. S. Mendes and G. M. D. Ganga, IEEE "Factor Influencing Customer Satisfaction in Software as a Service (SaaS): Proposal of a System of Performance Indicators" (IEEE-2017).
10. Liu Chong, Wang Lei (1055951585@qq.com) "Analysis technology of data mining technology and cloud computing" International Conference on Intelligent Transportation, Big Data & Smart City, 2015.(IEEE-2016).
11. https://upload.wikimedia.org/wikipedia/commons/thumb/b/b5/Cloud_computing.svg/1131px-Cloud_computing.svg.png
12. http://skyfollow.com/wp-content/uploads/2012/09/Cloud-Services-Framework1.png
13. Sanim Sadiq, Helen K.J., Govt. Engineering College, Thrissur, Kerala "Improving Image Retrieval Precision Using Combination of Circular Reranking and Time-Based Reranking" (IEEE-2016).
14. Anoopkumar M, Research Scholar, Bharathiar University- Coimbatore Dr. A. M. J. Md. Zubair Rahman Principal "A Review on Data Mining Techniques and Factors Used in Educational Data Mining to Predict Student Amelioration" (IEEE-2016).
15. N.Kurinjivendhan, Dr.K.Thangadurai "Modified K-Means Algorithm and Genetic Approach for Cluster Optimization."(IEEE-2016)