A REVIEW ON COST OF DYNAMIC MIGRATION OF CONTENT AND LOAD BALANCING DISTRIBUTION SERVICES INTO HYBRID CLOUDS

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ABSTRACT

Cloud computing technology is impetuously used to access scalable resource for various applications. Cloud computing provide services (e.g. SaaS, PaaS, Iaas) to end user to complete their need. A content distribution service is a major part of popular Internet applications. Content provider switches a content or data dynamically on different cloud. There are two tasks one is migration of contents to cloud storage, second to distribute their web service load. In proposed system we used hybrid cloud. We are utilized both cloud private cloud as well as public cloud. One data center is allocated each region. The challenge is utilization of the cloud as well as their existing on-premise server infrastructure, to provide content requests with service response time guarantee at all times as well as the minimum operational cost. To minimizing operational cost by using the Lyapunov optimization technique. A dynamic control algorithm is design for load balancing on cloud servers. A submit contents and dispatches requests on various data centers to minimize overall operational cost over time.

Keywords- *Content-Distribution; Dynamic Resource Allocation; Load Balancing; Dynamic Migration; Lyapunov Optimization*

1. Introduction

Now a day's Cloud computing technology is used rapidly to access resources for various applications. There are different types of resources are Computational resources, Networking resources (Computational resources such as Memory, CPU, Storage and Networking resources such as Bandwidth). Cloud provider's activities for utilization and allocating resources are with in time of cloud environment. It required the type and of resources needed by each application to complete a user job. Order and time of allocation of resources are also an input for optimal resources allocation. In proposed system we used hybrid cloud to utilization of public cloud and private cloud. CDN (Content Distribution Network) when it accessing data it request to cloud server and it search file on CDN. DCN (Data Content Network) it provide access key to user to access file. In dynamic migration technique used cold spot and hot spot. Hot spot technique is used for distribute load. This technique is help to achieving load balancing, increase performance as well as throughput.

In proposed system we used on techniques is Lyapunov optimization technique to minimization of cost. Their need to update cost dynamically when number of user request from the cloud server. Main goal of proposed system to minimization of operational cost over time for cloud provider as well as achieving load balancing and provide security. To provide security we used cipher text policy algorithm. Appling authentication technique to verify the user authentication. If user is authorized to access services then and only then send configuration key to use. User can access or used only key access pages. User cannot access or use other pages.

2. Literature Survey

Siva Theja Maguluri, R. Srikant and Lei Ying[2] cloud computing is a omnipresent and to serve resources to various applications. Cloud computing, when jobs are arriving to process are request to resources (e.g. Memory, VM's, CPU, Bandwidth, Storage space etc.) there a problem of resources allocation such as load balancing problem, job scheduling problems, VM configuration. Stochastic model in cloud computing cluster is for load balancing and scheduling.

Seematai S. Patil, koganti bhavani[3] cloud computing server there services to client/ users based on user need to complete their job. They are presenting a system that uses virtualization technique to allocation of data centers resources dynamically based on application demand. Proposed virtualization technology is to serve resource dynamically on the basis on necessity. Concept of skewness used to minimize server overload. Utilization of virtual machine (VM) and maintain overload.

Mayanka Katyal, Atul Mishra [7] now days there are increases the demand for cloud services. User wants to access services on the basis of their requirement. Resources are needed to serve more efficiently manner to user. Selective algorithm is used for serve cloud resource dynamically to user on-demand. Selective algorithm is based on min-max algorithm which reduces overall time of task on the machines and provides QoS.

Tejinder Sharma and Vijay Kumar Banga [9] now a day's number of user accessing resources but there is one of challenge is resource scheduling problem. Load balancing is a technique to distribute workload on different computers to achieve utilization minimum data processing time, minimum average response time, and avoid overload. Proposed efficient enhancing scheduling algorithm reduces load balancing. This algorithm is efficiently handling request to executing job and minimizing server overload.

Shaolei Ren, Yuxiong He and Fei Xu[10]limited computational resources need to fairly allocated among different organization. Resources are allocated to end user on demand. Fei Xu. proposed the GreFar algorithm which is optimizing energy cost and farness among different organization. This algorithm is achieving energy cost, latency as well as fairness.

Ninad Shinde and J. Ratnaraja Kumar [11] user send request on different Cloud services for accessing their resource. The Main challenges in cloud computing is to provide efficiently resources to end user. If respected resource is not available on the time then request is in longer delay. To eliminate longer delay problem have to us e optimization resource allocation techniques.

Prabhjot Kaur and Dr. Pankaj Deep Kaur[12]user access cloud service and their services to client anytime and anywhere. Request is depend on need to complete their job. User only pays for those resources they want to be use. Now day's demands are rapidly increases so the need to creation of large scale data centers. Prabhjot Kaur and Dr. Pankaj Deep Kaur proposed a method to allocate resources efficiently based on load of virtual machine. This method is the solution of the problem of VM resource scheduling in cloud environment.

Haitao Li, Lili Zhong,, Jiangchuan Liu, Bo Li, Ke Xu[13] clients are demanding foe VoD (Video on Demand) service rapidly increases with the time in one day period. VoD providers are pay by bytes for bandwidth resources, potentially leading to saving a cost if the unit rate to rent a machine from a cloud provider is higher than the rate to own one. They are take a challenges to design and predictable benefits in migrating VoD service onto hybrid cloud-assisted deployment, where user send a requests are partly served by the self-owned servers and partly served by the cloud.

Xu Cheng, Jiangchuan Liu[14]Social networking applications are more powerful and popular but they also have one challenge is huge demand of bandwidth as well as storage. They are practiced, formulated the problem as a constrained *k*-medoids clustering problem, and proposed wPAM algorithm, which decreases the deviation of access in each cluster, and flexibly preserves the social relationship.

M. Pathan, J. Broberg, and R. Buyya[16] In content delivery cloud e.g. MetaCDN it provide content delivery service to end users. Using MetaCDN measure utility of content delivery capture system-specific perceived. Using this utility for request redirection policy is to improve the performances of content delivery. There also one

prediction for content provider having the benefits from MetaCDN based on user prehension performances. Conducting test bed experiment is proof-of-concept for MetaCDN to demonstrate the performance and disclose the observation on MetaCDN utility

Mohamed Esam Elsaid, Christoph Meinel[17]cloud computing provide service as a platform as a service, Infrastructure as a service and Software as a services on demand with low cost and scalability to improve performance of application . In data center virtualization have a most important feature is live migration. Failure recovery, load balancing, dynamic resource allocation, power saving is all depending on live migration for VM. Resource management technique is improving utilization of resources, less cost and high availability. Using mathematical formulation to predicates the live migration, power consumption, and network throughput before taking the decision of live migration. Network admin can be alerted with estimated overhead to confirm the live migration request or to postpone it to another optimum time for minimum interruption on the running applications.

L. Dhivya, Ms. K. Padmaveni[18] cloud computing providing services to end users as well as it also handle big data specially for business customer. Virtualization is one of the powerful techniques for cloud computing which is physically infrastructure, it is easy to use and handle. Virtualization is allocated on the need of end user requirements and support green computing. Skewness is minimizing to combine different workload to improve utilization of server. Maintain overload avoidance as well as achieve better performances.

3. CONCLUSIONS

In this review paper we are studied various techniques and algorithms are load balancing, job scheduling to utilization of resources in proper ways. Virtualization techniques is one of powerful feature of the cloud computing. Live migration is to improve performance and availability. In this paper optimal migration of a content distribution service to a hybrid cloud consisting of a private cloud and public cloud services. Using the Lyapunov optimization technique which can minimizes the operational cost of the application with Quality of service guarantees. Achieving efficient load balancing as well as provide high security

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