International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395 -0056
Volume: 04 Issue: 05 | May-2017 www.irjet.net p-ISSN: 2395-0072

# Traffic Control in Cloud using Load balancing

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**Abstract -** Our objective of our project is to allocate resources for cloud hosting based on video services on user geographical location request to data center and provide services to users. VSP rents computing resources in cloud for user in adequate level. Each website contains a threshold limit. If traffic is created, it is been kept in queue system. Then if the users from the site are cleared, the waited requests are been processed. The CDC handles multiple CSPs and load balance the user request. The process can handle much number of requests and manage user requirements. VSP provides different quality videos.

***Key Words***: Video Service Provider, Cloud Data Centre, Content Delivery Network, Jetty server.

## 1. INTRODUCTION

A Cloud technology provides a new opportunity for Video Service Providers (VSP) to running a virtual machine and hosting video applications in a cost effective manner. Under this project, a VSP may rent virtual machines (VMs) from multiple geo-distributed data centers that are close to video requestors to run their services. Cloud Data Center are located in different location Based on the user request we predict geographical location request and redirect the nearby data centers. If the server traffic is high then by using load balancing technology their request is redirect to next nearby Cloud data center in virtual machine. So that the performance will increase and traffic delay is low. We are using a technique called Load balancing with the help of Jetty server to reduce the traffic in the website. The jetty server can be explained as converting single interface into multiple instances. By this process the traffic in the website can be reduced by splitting up the quality of the video and allocate the user according to the geographical user requests.

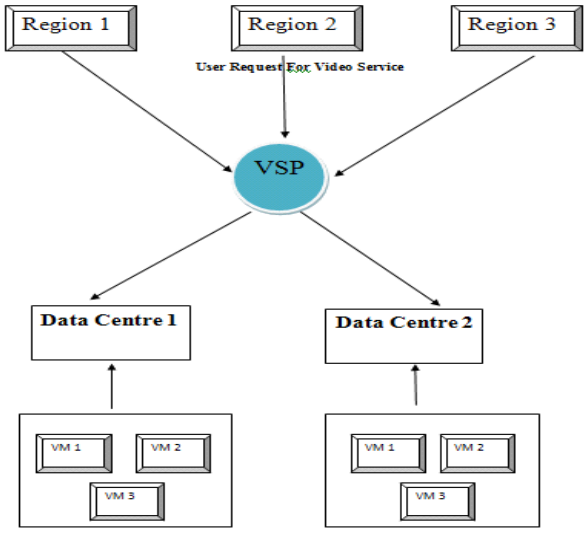
## 2. Existing System

In existing system, Video Service Providers (VSPs) will rent computing resources in the cloud to provide users with adequate level. The user request arrivals are dynamic and user demands are difficult to predict. It is difficult to find an optimal way to map them to a variety of resource types in the cloud. Because network traffic flow is too high per day.

Balancing the cost of cloud resource renting and of users is a difficult decision making problem itself, Then single CSP may not have servers located in geographically different regions that sufficiently cover the users of a VSP. In this case, the VSP may need to use multiple CSPs with different geographically located servers to provide satisfactory to its users. The difference in CSPs resource pricing in different regions and time slots further complicates the resource renting and user request scheduling for VSPs. Each website contains a threshold limit. If traffic is created, it is been kept in queue system. Then if the users from the site are cleared, the waited requests are been processed. The CDC handles multiple CSPs and load balance the user request.

## 3. Problem definition

1. Decision making problem in balancing the cost of cloud resource renting .
2. Difficult to predict user request arrivals and user demands.
3. Need to use multiple CSP for VSP.
4. Each CDC consumes tens of megawatts of power for running servers.




**4. Proposed System**

The Cloud Data Center handle a resource renting from multiple CSPs and load balance the user requests to these resources in a nearly virtual machine. Then virtual machine has been created in a different location by admin controller. Renting each virtual machine hosted in cloud for particular time period . It is capable of handling heterogeneous types of user requests, workloads and Manage user requirements. We propose an algorithm to solve the problem to balance the cost saving and performance.

It provides a content delivery network (CDN) to host video services on their various datacenters distributed in various regions. The video service provider provide to different quality videos like High Medium Low is able to provide cost effective and quality service to any number of clients. So it will minimize the traffic flow of cloud data center and then based on user priority to serve .Queue formation is avoided and all the user requests are allocated according to the user geographical location. The cloud data center rents some of the virtual machines from content delivery network by giving a request.

The Content delivery network accepts the request sent by the service provider and provide the virtual machines based on the categories Thus we allocated resources for cloud based hosting services on user request from multiple regions to distributed data centers and dynamically computes the near and optimal virtual machine. Thus we allocated resources for cloud based hosting services on user request from multiple regions to distributed data centers and dynamically computes the near and optimal virtual machine. Thus we allocated resources for cloud based hosting services on user request from multiple regions to distributed data centers and dynamically computes the near and optimal virtual machine.

**4.1Create CDN by admission control:**

The content delivery network (CDN) is a system of distributed servers (network) that deliver web pages and other Web content to a user based on the geographic locations of the user, the origin of the webpage and a content delivery server.CDN providers use additional techniques to optimize the delivery of files in optimal data centers. And then CDN admin can login into his account with this credentials to view the CDN architecture. He can Configure add, delete, modify virtual instances in various data centers. Policy file will be generated for user request for dynamic request redirection and enabling good quality of service.

**4.2 Process to CDN Request and Respond :**

In this module , the Video service provider request for the CDN to host their application in the cloud. And then admission controller accept the request for each VSP. The video service provides choose the Virtual instances on various data centers and request the CDN to host their Services. The video service provider application has the various type of videos such as the high quality, medium quality and the low quality videos. The rent for data center usage will be calculated by CDN and offered to video

service provider. This bill generation is done for usage configured by the VSP.As our approach enables dynamic request redirection based on geographic location and type of user request VM usage will be very optimal which results in less cost for the CDN .

**4.3 Trans-coding:**

In this module, the video service application deployment is done on various data centers. If the VSP is satisfied with the bill generation process he can proceed with the banking process. The banking gateway is connected when transaction is initialized and OTP will be generated and send to VSP mail ID which he can validate it in upcoming process to complete the transaction. If the transition is successfully made he will get access to various data center and virtual instances. He can now deploy his own video service application in the CDN by packaging the contents and sending to various data centers. Finally allocate the resource for Data center. Then the services as started and made available to all user through CDN.

**4.4 Workload scheduling process:**

Request scheduling and resource allocation in the cloud can be classified based on different perspectives of cloud providers and cloud users. There are many efforts on designing Scheduling strategies for cloud providers. For single datacenters, improving resource utilization and fairness are often the focus. For multiple datacenters, some work propose scheduling strategies to minimize the cost of electricity use through balancing load among geographically located datacenters. In this system handle the user request based on geographical location and then allocate the available server if may be busy the system redirect the nearby server. In particular, the framework is capable of handling heterogeneous types of user requests, workloads and user requirements. Users from different regions obtain various services like video streaming from CDN by the policy the video service provider already generated. Once the VSP receives a request, the request will be dynamically redirected to an optimal datacenter like that High quality, Medium quality, Low quality, based on previous user survey and workloads in geographical location.

**5. Related Work:**

A. Performance Modeling :

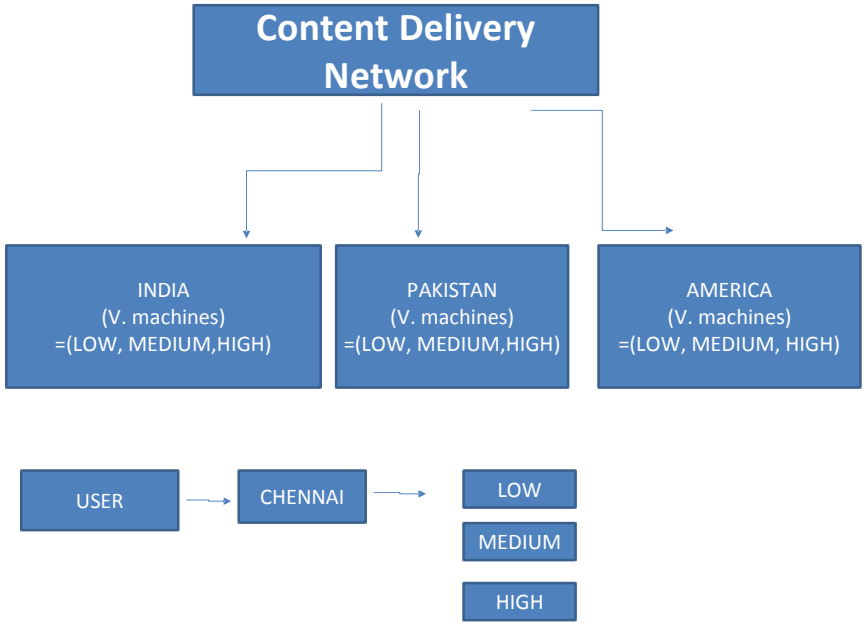
There are several works focusing on the performance modeling and analysis of cloud infrastructure by considering virtual machines (Vms). It present an analytical approach to evaluate the performance of cloud infrastructure by considering several metrics including system overhead rate, the rejection probability, and the expected completion time. In propose a stochastic analytic model to quantify the performance of cloud infrastructure. Compared with traditional analytic models, their interacting iterations of multilevel sub models can obtain the solution of the overall model. It formulate the resource allocation problem as an integer programming and propose a heuristic algorithm to maximize the profit of cloud infrastructure. They propose a stochastic reward nets-based analytical model to evaluate the performance of cloud infrastructure. The behavior of a cloud system is quantified and evaluated using the defined performance metrics. However, the seworks cannot accurately model the energy cost of distributed CDCs. In this paper, we model the energy cost based on servers and consider its geographical diversity for minimizing the total cost of the CDCs provider.

B. Admission Control

The objective of admission control list protect servers from overload and to guarantee the performance of applications. They provide joint response routing and request mapping in geographically distributed CDCs. They propose a coordinated method to provide admission control and to provision resources for multi-tier services in a shared platform. The reinforcement learning method and cascade neural networks are integrated to improve the scalability and agility of the system. It present a simple algorithm that drops excessive workload provided that the performance is met. However, these works only consider a single application and ignore the resource conflict among multiple applications. Our revenue-based workload admission control method can judiciously admit requests by considering priority, revenue and the expected response time of different request flows.

C.Traffic Engineering:

There have been several works on Traffic engineering algorithms approximation algorithm to solve the virtual local area network (VLAN) assignment problem in different network Topologies. Their result shows that the approximation algorithm can provide close-to-optimal traffic engineering and performance guarantee. They present a joint optimization of the workload scheduling and the virtual machine placement to improve traffic engineering in CDCs. However,these works do not adopt a centralized controller to provide traffic engineering. apply a centralized controller to realize traffic engineering in a network where software defined networking (SDN) is incrementally deployed. However, their work only applies to a network where only a few switches can be controlled by a centralized SDN controller.Our work considers a network where all switches can be remotely controlled. In addition, the proposed cost-aware workload scheduling can provide the joint optimization of the ISP selection and the number of servers in each CDC.




**6.FUTURE ENHANCEMENTS**

In the future,will use real time cloud environment this can be developed as banking transaction whether the VSP is satisfied with the bill generation process he can proceed with the banking process.The banking gateway is connected when transaction is initialized and OTP will be generated and send to VSP mail ID which he can validate it in upcoming process to complete the transaction. If the transaction is made successfully he can get access to various datacenter and virtual instances.

**5. CONCLUSIONS**

Thus we allocated resources for cloud based hosting services on user request from multiple regions to distributed data centers and dynamically computes the near and optimal virtual machine.

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