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Balancing Work Load of a Cloud and Dynamic Request Redirection for Cloud Based Video Services Using CDN and Data Centre

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ABSTRACT— *A Cloud computing provides a new opportunity for Video Service Providers (VSP) to running compute-intensive video applications in a cost effective manner. Under this paradigm, a VSP may rent virtual machines (VMs) from multiple geo-distributed datacenters that are close to video requestors to run their services. As user demands are difficult to predict and the prices of the VMs vary in different time and region, optimizing the number of VMs of each type rented from datacenters located in different regions in a given time frame becomes essential to achieve cost effectiveness for VSPs. Meanwhile, it is equally important to guarantee users Quality of Experience (QoE) with rented VMs. we give a systematic method called Dynamical Request Redirection and Resource Provisioning (DYRECEIVE) to address this problem..*

Keywords— Cloud computing, Cloud-based Video Service, Request Redirection, Resource Provision,.

1. INTRODUCTION

According to Internet video traffic survey of cisco ystems.Video data demands large amount of CPU Cycles .Video applications involve dynamic sequence of actions .As in online games variation of players requires different video codes.So it process the data in a compute intensive manner.In this cloud computing provides a convenient way fr VSP to adjust dynamically the problem.As far as the cloud system concern it computes the cloud resources based on the demand in a PAYG manner.

In this cloud computing paradigm it eliminates the VSP cost of purchasing and maintaining their own infrastructure Under this paradigm, a VSP may rent virtual machines (VMs) from multiple geo-distributed datacenters that are close to video requestors to run their services. As user demands are difficult to predict and the prices of the VMs vary in different time and region, optimizing the number of VMs of each type rented from datacenters located in different regions in a given time frame becomes essential to achieve cost effectiveness for VSPs. Meanwhile, it is equally important to guarantee users Quality of Experience (QoE) with rented VMs. we give a systematic method called Dynamical Request Redirection and Resource Provisioning (DYRECEIVE) to address this problem. .

2. SCOPE OF THE PROJECT

A Cloud computing provides a new opportunity for Video Service Providers (VSP) to running compute-intensive video applications in a cost effective manner. Under this paradigm, a VSP may rent virtual machines (VMs) from multiple geo-distributed datacenters that are close to video requestors to run their services. As user demands are difficult to predict and the prices of the VMs vary in different time and region, optimizing the number of VMs of each type rented from datacenters located in different regions in a given time frame becomes essential to achieve cost effectiveness for VSPs. Meanwhile, it is equally important to guarantee users Quality of Experience (QoE) with rented VMs. we give a systematic method called Dynamical Request Redirection and Resource Provisioning (DYRECEIVE) to address this problem

3. SYSTEM ANALYSIS

3.1 Existing System

Video Service Providers (VSPs) will dynamically rent computing resources in the cloud in a cost-effective manner to provide users with adequate level of QoE. Firstly, the user request arrivals are dynamic and bursty user demands are difficult to predict. With different QoE requirements associated with these user requests, it is difficult to find an optimal way to map them to a variety of resource types in the cloud.

Secondly, balancing the cost of cloud resource renting and QoE of users is a difficult decision making problem itself, e.g., higher QoE may cost a VSP more in short term but reward it in long term. Thirdly, a 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 QoE 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**.**

3.2 PROPOSED SYSTEM

In a proposed system, a framework that systematically handles resource renting from multiple CSPs and schedules user requests to these resources in a nearly optimal manner.In particular, the framework is capable of handling heterogeneous types of user requests,

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workloads and QoE requirements. VMs in the cloud have different types and are priced dynamically.We propose an algorithm to solve the jointed stochastic problem to balance the cost saving and QoE.

We leverage the existence of content delivery network (CDN) to host video services on their various datacenters distributed in various regions. We give a systematic method called Dynamical Request Redirection and Resource Provisioning (DYRECEIVE) to address this problem. With our approach the video service provider is able to provide an efficient, cost effective and quality service to any number of clients.

4. IMPLEMENTATION

4.1 CDN and Data Centers:

A 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 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 Video Service Provider and CDN Request:

The Video service provider request for the CDN to host their application in the cloud. The video service provider application has the various type of videos such as the high quality, medium quality and the low quality videos. The video service provides choose the Virtual instances on various data centers and request the CDN to host their Services. 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 Banking and Application Deployment:

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

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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. Then the services as started and made available to all user through CDN.

4.4 User Request and Dynamic Redirection:

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. It systematically handles resource renting from multiple CSPs and schedules user requests to these resources in a nearly optimal manner. In particular, the framework is capable of handling heterogeneous types of user requests, workloads and QoE requirements. VMs in the cloud have different types and are priced dynamically.

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 according to its QoE requirements, geographical location and the execution cost.

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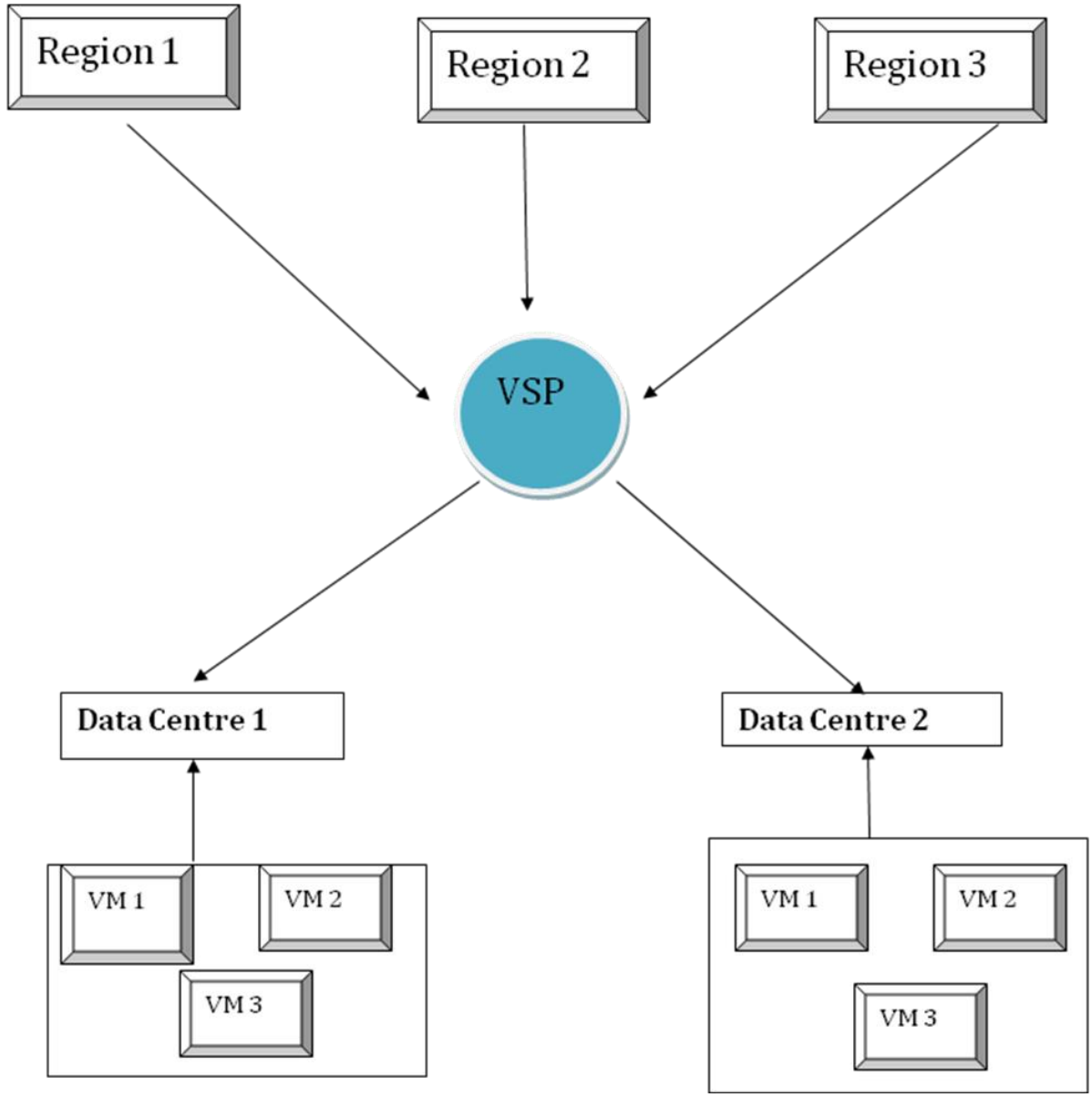

Figure 1: System Architecture

5. CONCULSION AND FUTURE WORK

This paper proposed a novel method called DYRECEIVE for request redirection and resource procurement from the perspective of VSP. This algorithm is able to reduce the cost of video service provider and provides user better QoE (Quality of Experience). The method provides an efficient way to run video services in a general heterogenous manner.

In future we will focus on the following directions:1.Taking into account the video consumption pattern in a social network group to share Vm resources2.Solving the problem at the level of Vm m atch instead of job/datacenter match in this societ3.Taking into account more factors in objective modeling.

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