

Bandwidth Allocation In Cloud Environment

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Abstract—Cloud Computing is nothing but a use of computing properties that is distributed as a service over a network. Distribution of the data in the cloud depends on the network structure of the data centers. Allocation of bandwidth shows a important role in sharing the resources on the way to the data centers. Performance of the server is the major issue in cloud computing. When lots of users send a request for the same server at a same time then the performance of the server is significantly decreased. So we are defining a new method of rearranging the bandwidth from inactive users to active users using bandwidth delay technique using delay allocation.

Keywords—OpenStack, Devstack, Cloud Computing, Performance analysis, Bandwidth delay technique, IaaS, Delay Allocation.

I. INTRODUCTION

Cloud computing denotes the various differing types of services and applications being transported within the cloud. The Devices accustomed access these facilities and application don't need any special application. It shows a brand new thanks to increase this consumption and delivery model for IT services supported the web by providing for dynamically accessible and infrequently virtualized resources as a service over the web. The main options of cloud computing is dynamic provisioning. Dynamic provisioning permits the supply of services supported existing demand wants. This is done mechanically victimization software package automation, allowing the enlargement and contraction of service ability as needed. This dynamic scaling has to be done whereas continued high levels of dependable and security. Cloud computing encompasses a service headed design during which services are principally divided in to a few classes. In IaaS [2] cloud suppliers offer the resources on demand from their giant pools put in in information centers. For WAN association customers will use net. In PaaS model, cloud suppliers deliver a computing platform generally together with software package, programming language execution atmosphere, information and net server. In SaaS model cloud suppliers install and operate application software package within the cloud and cloud users access the software package from cloud shoppers.

Cloud computing consists of many computation type such as Hybrid cloud, public cloud and Private cloud. Public cloud - The public services are free or offered on a Pay-per-use form . Private cloud -private cloud shares communications between several organization from a specific community by common concerns whether manage internally otherwise by a third-party and hosted internally or externally. Hybrid cloud - Hybrid cloud is a composition of two or more clouds (private, community or public) that remain unique entity but are bound mutually, offering the benefits of multiple deployment models.

A.The main problems in cloud computing

The main problems in cloud computing[6] are:-

- 1)Security and privacy:- maybe two of the additional hot button problems encompassing cloud computing relate to storing and securing information and watching the utilization of the cloud by the service suppliers.
- 2) Lack of standards:- Clouds have documented interfaces. However, no standards square measure related to these, and so it's unlikely that the majority clouds are going to be practical.
- 3) Continuously evolving:- User necessities area unit continuously evolving, as area unit the necessities for interfaces, networking, and storage. This implies that a "cloud" particularly a public one, doesn't stay static and is also incessantly evolving.
- 4)Compliance concerns:-The Sarbanes-Oxley Act within the US and information protection directives within the EU are simply 2 among several compliance problems touching cloud computing, supported the sort of knowledge and application for which the cloud is getting used.
- 5) Static bandwidth allocation:-There is wastage of information measure. So the server performance is weakened and hence maintenance is difficult.

B.OpenStack cloud

OpenStack[3][4] lets users deploy virtual machines and different instances that handle totally different tasks for managing a cloud setting on the fly. It makes horizontal scaling simple, which suggests that tasks that take pleasure in running at the same time will simply serve a lot of or less users on the fly by simply spinning up a lot of instances. as an example, a mobile application that must communicate with an overseas server may be able to divide the work of human action with every user across many alternative instances, all human action with each other however scaling quickly and simply because the application gains a lot of users.

And most significantly, OpenStack is open source software package, which implies that anyone WHO chooses to will access the ASCII text file, build any changes or modifications they have, and freely share these changes back dead set the community at giant. It additionally means OpenStack has the advantage of thousands of developers everywhere the planet operating in tandem to develop the strongest, most sturdy, and most secure product that they'll.

C.How is OpenStack used in a cloud:

The cloud is all concerning providing computing for finish users during a remote setting, wherever the particular software package runs as a service on reliable and climbable servers instead of on every finish users pc. Cloud computing will visit lots of various things, however usually the trade talks concerning running completely different things "as a service" which are software, platforms, and infrastructure. OpenStack falls into the latter class and is taken into account Infrastructure as a Service (IaaS)[2]. Providing infrastructure means OpenStack[4] makes it straightforward for users to quickly add new instance, upon that different cloud elements will run. Typically, the infrastructure then runs a "platform" upon that a developer will produce software package applications that are delivered to the tip users.

D.Components of OpenStack:

Followings are the components of OpenStack[7]:

- 1] Nova is that the primary computing engine behind OpenStack[3][4]. It is a "fabric controller," that is employed for deploying and managing giant numbers of virtual machines and different instances to handle computing tasks.
- 2] Swift may be a storage system for objects and files. instead of the standard plan of a bearing on files by their location on a disc drive, developers will instead visit a singular symbol bearing on the file or piece of knowledge and let OpenStack decide wherever to store this information.
- 3] Cinder could be a block storage element, that is additional analogous to the standard notion of a pc having the ability to access specific locations on a hard drive
- 4] Neutron provides the networking capability for OpenStack[3][4]. It helps to make sure that every of the elements of associate OpenStack readying will communicate with each other quickly and expeditiously.
- 5] Horizon is that the dashboard behind OpenStack. it's the sole graphical interface to OpenStack. Developers will access all of the parts of OpenStack separately through an application programming interface, however the dashboard provides system directors a glance at what's occurring within the cloud, and to manage it PRN.

II. EXISTING SYSTEM

In existing method it's targeted on increasing the performance of the server by resolution it to get correct estimation of the whole chance distribution of the request latent period and alternative necessary performance indicators which has been represented in novel approximate analytical model for performance evolution of cloud server farms. The model permits cloud operators to work out the relationship between the amount of servers and input buffer size, on one aspect, and therefore the performance indicators like mean variety of tasks within the system, interference chance, and chance that a task can get immediate service, on the opposite services. it\'s important to isolate the network performance between the purchasers for guaranteeing honest usage of the affected and shared network resources of the physical machine. sadly, the prevailing network performance isolation techniques aren't effective for cloud computing systems as a result of they are troublesome to adopted in a very giant scale and need non-trivial modification to the network stack of a guest OS.

III.PROBLEM STATEMENT

- 1) Wastage of bandwidth:- The amount server is relatively tiny, typically below ten, that makes them unsuitable for performance analysis of cloud computing knowledge centers. Then user could submit several task at a time due to this bags-of-task can seem. A cloud center will have an outsized number of facility nodes (servers).Typically of the order of hundreds or thousands; ancient queuing analysis seldom considers systems of this size. Because of the character of the cloud environments, diversity of user's requests and time dependency of load, cloud centers should offer expected quality of service at wide loads. They not even mention the priority in static bandwidth allocation. So the passive user lost their cost.
- 2) Performance:- A performance drawback is also identified by slow or unresponsive systems. This sometimes occurs as a result of

high system loading, affecting some part of the system to succeed in a limit in its ability to reply.

IV. PROPOSED SYSTEM

In this project, we will create a base application of file storage and access system in cloud server. Using this application user can access or download the files from the server. So basically a site will be created where admin will be responsible to update the content and post the videos and images in the site. Whatever data admin host under the site gets visible to the user using the system. Only registered user can access the system with help of their credentials. Once they login they can download the file from the site as per their interest. Based on their download size and number of users present in the the difference between the users. According to the activity and their file access or download behavior system will categorize the user as an active user and a passive user. Active user will then automatically get a good bandwidth[5] as compared to bandwidth because now system thinks that active users is in need of bandwidth based on their behavior and activity an active user is performing.

To perform the actual working, the entire implementation is split into five modules and those modules are as follows.

- User Registration and Login
- Admin Uploads
- User access
- User Tracking
- Bandwidth Allocation

1] User Registration and Login: In this module user has an option to get register in the site filling up their normal basic details. User can only login into the system with the credentials they used during registration. If user details are entered wrong then system doesn't permits that user to login into the application.

2] Admin Uploads: Admin is the main key holder of the system as he has the complete rights to work or edit on the front end, once he logs in he can upload the files which gets visible at the User interface. So a category and then the content under it is been updated or uploaded by Admin.

3] User access : In this module user once logged into the application will have an option to browse through the complete site and access the videos and other files. User is free to point and data and download without any restrictions.

4] User Tracking: Based on the activity and the usage download pattern, system will automatically detect the active and passive users in the system. This depends upon how frequently they are downloading the file and the size of the file they are interested in.

5] Bandwidth Allocation[5]: Based on the final verdict then the application distribute the system bandwidth to the valid active users.

CONCLUSION

In today's world as the usage of internet is increasing. We proposed innovative approach for increasing the

performance of the server in cloud computing environment by adding some time duration in the downloading speed of passive user. Because of this, active user will complete its downloading first and there will be delay in the downloading of passive user because of some time duration added in downloading.

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